Department of Public Works
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Robert F. Phillips, P.E., City Engineer

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Mapping Section Manager
Eric T. Pederson, P.S.

Financial Manager
Steven B. Danner-Rivers

April 13, 2016

Mr. Al Martin
City of Madison Planning Division
215 Martin Luther King Jr. Blvd.
Madison, WI 53703

Mr. Martin,

The City of Madison is submitting this application for Madison Urban Design Commission review of work proposed at 215 Martin Luther King Jr., Boulevard (Block 88), the U.S. Post Office and Federal Courthouse (Madison Municipal Building). The Madison Municipal Building is a designated City, State, and National Historic Landmark.

The City's intended design scope for the Madison Municipal Building is comprehensive, including, but not limited to,

- Complete replacement of the HVAC/electrical/plumbing systems; added sprinkler system.
- Roof replacement, and preservation of exterior historic masonry and windows.
- Interior architectural remodel, and interior architectural preservation.
- Demolition of the existing non-contributing 1950s era rear annex.
- Installation of a new addition at the rear of MMB for staff and building support space.
- Restoration of landscape to the original grass border (i.e. removal of trees and residential landscaping borders) and preservation of existing historic site elements.
- Revisions to existing exterior signs. Exterior signs presented in the submittal are compliant with the City's Sign Control Ordinance Chapter 31 as determined by the Zoning Administrator and as approved by the Secretary of the Urban Design Commission.

The following enclosed documents provide additional information and detail to explain the effect(s) of this design proposal on Madison Municipal Building.

- Madison Municipal Building – Narrative Set
- Madison Municipal Building – Drawing Set, Lighting Information

Please contact Bryan Cooper (bcooper@cityofmadison.com or 608-261-5533) in the City of Madison Engineering Division with any questions.

Sincerely,

Robert Phillips, City Engineer

Cc: Natalie Erdman, City of Madison PCED Director
Bryan Cooper, City of Madison Engineering Division

URBAN DESIGN COMMISSION APPLICATION CITY OF MADISON

This form may also be completed online at:
http://www.cityofmadison.com/planning/documents/UDCapplication.pdf

215 Martin Luther King Jr. Blvd; Room LL-100
PO Box 2985; Madison, Wisconsin 53701-2985
Phone: 608.266.4635 | Facsimile: 608.267.8739

Please complete all sections of the application, including the desired meeting date and the type of action requested.

Date Submitted: Wednesday, April 13	☐ Informational Presentation
UDC Meeting Date: Wednesday, May 11	☐ Initial Approval
Combined Schedule Plan Commission Date (if applicable):	☒ Final Approval

1. Project Address: 215 MARTIN LUTHER KING JNR BLVD, MADISON, WI 53703
   Project Title (if any): MADISON MUNICIPAL BUILDING REFURBISHMENT

2. This is an application for (Check all that apply to this UDC application):

☐ New Development ✖ Alteration to an Existing or Previously-Approved Development

A. Project Type:

Project in an Urban Design District* (public hearing-$300 fee)

✖ Project in the Downtown Core District (DC) or Urban Mixed-Use District (UMX) ($150 fee, Minor Exterior Alterations)

☐ Suburban Employment Center (SEC) or Campus Institutional District (CI) or Employment Campus District (EC)

☐ Planned Development (PD)
- ☐ General Development Plan (GDP)
- ☐ Specific Implementation Plan (SIP)

☐ Planned Multi-Use Site or Planned Residential Complex

B. Signage:

☐ Comprehensive Design Review* (public hearing-$300 fee) ☐ Street Graphics Variance* (public hearing-$300 fee)

☐ Signage Exception(s) in an Urban Design District (public hearing-$300 fee)

C. Other:

✖ Please specify: PUBLIC PROJECT

3. Applicant, Agent & Property Owner Information:

Applicant Name: ROB PHILLIPS, CITY ENGINEER
Company: CITY OF MADISON, ENGINEERING DIV
Street Address: CCB-115, 210 MLK JNR BLVD
City/State: MADISON, WI Zip: 53703
Telephone: (608-261-5533 Fax: (608 264-9275
Email: BCOOPER@CITYOFMADISON.COM

Project Contact Person: BRYAN COOPER
Company: (AS ABOVE)
Street Address: (AS ABOVE)
City/State: Zip:
Telephone: 608-261-5533 Fax: ( )
Email: bcooper@cityofmadison.com

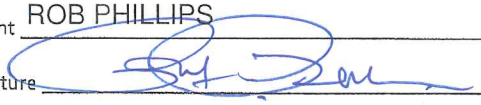
Project Owner (if not applicant): CITY OF MADISON - ROB PHILLIPS - CITY ENGINEER
Street Address: SAME AS ABOVE
City/State: Zip:
Telephone: 608-266-4090 Fax: (608-264-9275
Email: RPHILLIPS@CITYOFMADISON.COM

4. Applicant Declarations:

A. Prior to submitting this application, the applicant is required to discuss the proposed project with Urban Design Commission staff. This application was discussed with DEVELOPMENT ASSISTANCE TEAM (name of staff person) on 02.04.2016 (date of meeting) ALSO A PRE-APPLICATION MEETING WITH AL MARTIN, JAY WENDT, KEVIN FIRCHOW, MATT TUCKER THURSDAY 1/14/2016.

B. The applicant attests that all required materials are included in this submittal and understands that if any required information is not provided by the application deadline, the application will not be placed on an Urban Design Commission agenda for consideration.

Name of Applicant ROB PHILLIPS Relationship to Property OWNER REPRESENTATIVE

Authorized Signature  Date 4/12/16

Madison Municipal Building

Madison, Wisconsin

Urban Design Commission Submission

April 13, 2016

MSR

710 South 2nd St, 8th Floor, Minneapolis, MN 55401
T: 612 375 0336
www.msrdesign.com

Urban Design Commission Submission Contents:

1. Introduction.
2. Site Development.
3. Building Exterior.
4. Drawings.
5. Exterior Lighting and Cut Sheets.

1. Introduction

UDC Application April 13, 2015

Background

The Madison Municipal Building is located at 215 Martin Luther King, Junior Boulevard (MLK Boulevard), Madison Wisconsin, 53703. The building was designed in 1926 and construction was completed in 1929. It was originally designed as a US Postal Service facility and Federal Couthouse and became property of the City of Madison in later years. A two story annex was added to the north side of the building (Pinckney Street side, for this project reference) in the 1950s, and a substantial refurbishment to Ground and First floors was carried out in the late 1970s. The building is a listed as a National Monument nationally, in the State of Wisconsin, and locally, and is owned and operated by the City of Madison. The USPS and Madison Credit Union (MCU) are currently tenants in the building. USPS will no longer remain in the building as part of this project, but MCU will remain, albeit in a new location on the First Floor.

The building's primary structure consists of a reinforced concrete and steel frame system, with original interior partitions in masonry, and floor slabs at Levels 1, 2 and 3 consisting of concrete and clay-tile encased beams and one-way spanning concrete and clay tile slabs. The existing exterior wall is composed of ashlar limestone cladding with a mass clay masonry core, and soap tile with plaster finish to the inside. As part of the 1970s refurbishment at Ground and First Floors more than half the interior faces of exterior walls, in the city office areas, were clad with furred out drywall and 2" of rigid insulation between metal furring studs.

The middle half of the north elevation at the First Floor, and the entire U-shaped masonry façade facing the lower, Second Floor flat roof zone, is clad with a light colored clay face brick on a mass masonry exterior wall assembly.

The building's infrastructure is both outdated and worn, with severely deficient mechanical and electrical systems. The building's square footage is not efficiently used. A complete refurbishment of all building systems is required, as well as a refurbishment of the exterior cladding to Secretary of the Interior Standards for the rehabilitation of Historic Buildings, at minimum (Ref: https://www.nps.gov/tps/standards/rehabilitation/rehab/stand.htm).

Design Process

The refurbished building will accommodate approximately **73,340 gross square feet (GSF)** of floor area on four levels: Ground Floor, First Floor, Second Floor and Third Floor. The building will house most of the existing City departments currently housed in the Madison Municipal Building (numbering nine), with the exclusion of City Channel which will be moved into the jointly City and County-owned City-County Building (CCB) across the street from MMB. The project will also join staff of the city's Human Resources department, currently split across two buildings, by locating HR offices currently housed in CCB in the renovated MMB.

Places to meet, collaborate, and consult with City staff will be available to the community. The renovated building will house 18 shared meeting rooms, and department-specific conference rooms and focus rooms, as determined by the program developed during pre-design, and further refined during subsequent design phases.

The staff will benefit from updated workspaces, better day lit work areas, clearer demarcation of staff-only areas versus public spaces, and better located, sized, and appointed meeting spaces.

Building on the Pre-design work done in 2014 through early 2015 on this project, the design team has adhered to the Design Principles established during these early design phases through all design discussions during subsequent design phases.

This list of Design Principles sets the priorities for the project and the general "attitude" toward the building. The Design Principles developed for this project are:

- Transform: the design will be a tool in transforming city services, as it transforms the building and site.
- Link: the design will create strong relationships between MMB and CCB, the adjacent development, and Monona Terrace, strengthening the civic center of Madison and increasing opportunities for civic engagement.
- Honor and Invigorate: the design will respect the existing architecture of the MMB building, and will incorporate the best of 21st century design.
- Sustain: the design will perform to high standards of sustainable practice, be an example of Madison's values, reduce energy usage and support the health and well-being of the buildings' users.
- Adapt: the design will respond gracefully to changes in technology and program, in response to diverse and
- changing users over generations.
- Propel: the design will embody workplace best practices enabling staff to better serve their customers.
- Leverage: the design will responsibly leverage the budget to achieve project priorities and reduce long-term operational costs.
- Inspire: the design will inspire productivity, positive behaviors and community and civic engagement.
- Equity: the design will facilitate equitable attitudes & methods in the workplace as well as in customer service.
- Lighten: the design will promote health and well-being, lightness of spirit and will incorporate daylight in the workspaces.

Using these design principles as launch-pad into design proposals, MSR and the City established Project Design Drivers to guide decision-making with regard to the design, materiality and detailing of the building. The design drivers established for this project are:

- History.
- Sustainability.
- Program (changed to Quality Work Place in schematic design phase).
- Civic Engagement.

These Design Drivers were used to test the validity and appropriateness of all design and technical proposals made during the architectural schematic design

process, and will continue to be used as an aide to decision making in subsequent design phases (Construction Documentation).

Space Planning Process

The City Departmental programming effort carried out during earlier design phases was used as a basis for program development and confirmation at the start of Design Development. Departments provided more detailed requirements and confirmed adjacency requirements and/or desires as planning layouts began to take shape. Programmatic test fits carried out during Schematic Design were examined again and critiqued in inter-departmental meetings between December 2015 and April 2016. This was supplemented by conference calls and further, individual department meetings. City leadership was also involved for guidance and comment. These planning efforts also took into account the mechanical, electrical, lighting, plumbing, IT infrastructure and AV space needs for the building, all of which will be new as the building is completely refurbished.

Note that plan and elevation orientation for the purposes of this project has been established so that the MLK Blvd Elevation is called “south” and the Pinckney St elevation (the annex side) “north,” Doty St side “west” and Wilson St “east.” Project North is therefore facing Pinckney St.

2. Site Development

UDC Application April 13, 2016

Summary

The MMB site development will be limited, and mostly focused on the new 'alley' between the north side of MMB and a zone 25' north of the MMB limestone façade at the east and west ends of Level 1. The existing MMB is set back from the original property lines on the east, south and west sides. The original site was developed with grass areas at sidewalk level around the building, and stone and concrete pathways leading to entrances, and light wells around the perimeter in places to bring natural light into the Ground Level. The Historic Preservation goals regarding site planning are, as far as possible, to restore the site to the original intent from the 1926 site plan. The construction limits for this project will be the property lines to the south, east and west, and the 25 ft limit of work to the north of the north façade.

Earthmoving and Soil Preparation

Sediment and Erosion Control: Erosion control measures will be installed and maintain as required by the erosion control plan throughout all deconstruction and construction phases of the project.

Paving and Surfacing

Paving/surfacing will be installed in compliance with State of Wisconsin and City of Madison specifications.

Site Improvements

The support structure of the existing Wilson Street exterior egress stair treads (upper flight granite and lower flight concrete) will be refurbished by numbering each granite stone, carefully cutting away granite block sealant joints, hoisting granite treads off the base structure and stacking them on palettes, protecting them for reuse, refurbishing the ladder wall base structure to provide a level, even surface for granite tread replacement, which are to be anchored and sealed once placed and levelled (set treads to drain 1/8" per foot towards the base of the stair). The lower concrete flight of stairs is to be refurbished in-situ. Perimeter concrete walls that have deteriorated will be either patched or replaced, depending on condition once exposed, so that the final appearance will be as new. Remove existing low level concrete screen wall at base of stair and refinish sidewalk to match existing.

The 'roof' of existing electrical vault will be replaced with a new vault roof with larger ventilation grate opening, and provide new-galvanized metal grate. New topsoil and grass will be provided over top of new vault roof.

Existing guard rails will be retained at the west side light wells, and new metal guard rails will be provided to the existing south side light wells where existing, historic railings do not exist – see Architectural Site Plan A001 for locations and scope.

There will be new upper and lower 'plaza' levels on the north side of MMB up to the new addition face. This will facilitate vehicle access for trash handling (trash will be stored inside the addition at the Wilson St Level), Staff entry/exit and bicycle storage at the Doty St level, and City Facilities and Maintenance vehicle access and short-term parking at both levels. No other new parking will be added to the improved MMB site, except the existing parking that remains to the north of the building.

New exterior façade lighting and flag pole lighting will be added, as well as new lighting to uplight the entry façade zones on MLK Jnr. Blvd, Doty St and Wilson St. See Site Lighting Plan for more information.

Accessible entrances are currently provided at the MLK Entrance and the Doty St entrance. These are via sloped sidewalks and an ADA compliant (1:12 maximum slope) ramp at these entrances respectively. At the Doty St entrance new ADA compliant handrails will be provided to the new or refurbished railings at the sides of this ramp. To meet code exactly, an additional handrail pair would also be needed approx. 4ft away from the railing on each side, but this will need to be reviewed by Madison Landmarks Commission because it will conflict with the Historic Preservation goals for the project. This will be resolved during the subsequent design phases.

Existing area way down to Level 0 mechanical room at NE corner of building to be expanded west by approx.. 10ft to enable new mechanical equipment installation and future replacement. See site plan and Level 0 floor plan.
New areaway on north side of MMB for mechanical equipment ventilation requirements. See site plan and Level 0 floor plan.

Site Furnishings

Exterior seating will be placed at useful locations. New waste receptacles will replace the existing and be discretely located in accessible places.

New bicycle racks will be provided at the base of the stairs leading up to the MLK Blvd entrance area, per Site Plan, A001. The total bicycle parking provision will at least comply with City Zoning Ordnance, which is 39 bicycles.

Landscaping

Landscape materials include new grass in areas where existing trees, shrubs and mulch beds are removed to revert back to original site plan design, where soft-scape is currently existing. See site plan A001 for existing site features to be removed, and Landscape Plan L100 and for site improvements scope.

Storm water retention: the existing site does not provide enough permeable area to meet significant storm water retention guidelines. The lower level and upper level roofs of MMB will be provided with an extensive green roof tray system to retain enough storm water to meet both local and LEED storm water management requirements (SS Credit 6.1) in terms of quantity management.

The maintenance concept for the site is for the City to provide lawn care manually, and to irrigate manually from new hose bib points on each side of the building accessible from grade, and from hopes bibs at the lower roof and upper roof areas for extensive green roof irrigation. There is no intention to provide a permanently installed irrigation system for soft landscaping on the site or for the green roof system.

Utilities

A new 8” water line will be provided for domestic water and fire suppression system from south-west corner of site into existing water meter room at Level 0. See civil engineering and utility plan for more details. The storm and sewer

laterals will also be improved (either replaced or re-lined) between the outside face of the building and the property line. Any further utility rework or design work required outside of the property line will be by the City of Madison Engineering Department as a separate project. Existing utility locations are indicated on Site Plan A001.

Existing fire hydrants (outside of the property line) are indicated on Site Plan A001. A new fire department siamese connection will be provided at approximately 3ft above grade at the south west corner of the building facing MLK Blvd.

Work by Others

All Civil, Landscape and Lighting design work outside of MMB property line is excluded with the exception of patch work associated with the installation of a new water line to the building.

3. Building Exterior

UDC Application April 13, 2016

Exterior Building Materials

With the exception of the doorway to the Ground Floor mechanical room, 100% of the existing, original MMB exterior wall masonry will remain in place and be refurbished. A detailed condition survey is currently being conducted by a team assembled by, and managed by, the City of Madison Engineering Department. The general scope of work will include repair and refurbishment of existing, historic masonry (limestone and clay brick) cladding, decorative profiles, sills, jambs, heads, cornices and parapets, and the repointing of mortar joints where deteriorated. Further information regarding refurbishment recommendations will be made available during subsequent design phases.

Exterior Wall Systems

A new north staff entry addition is proposed for the north side of MMB to enable egress from Ground and First Floors, and provide a limited amount of staff amenity at both levels, as well as meet City Facilities and Maintenance operational requirements at Ground floor (deliveries, storage for yard maintenance equipment, and trash handling).

For the new north entry addition, the primary exterior wall materials will include glass curtain wall and a metal cladding system. The existing historic brick at the north side of the building where it abuts the new annex will remain in place and be restored. 1950s bricks salvaged from the annex deconstruction will be used to patch the north façade brick work as needed.

The new exterior walls will typically be load-bearing CMU and with continuous insulation on outside face of the wall and a metal panel system exterior finish. The exterior assembly construction will be reviewed during Design Development by the exterior enclosure consultant.

Wall Assemblies

New North Entry Metal Panel Assembly
The north wall of the new annex will be a metal panel assembly. The metal panels will either include a factory paint finish or pre-weathered finish intended to be as maintenance free as possible, and in a color to be discussed and agreed upon with the Landmarks Commission. The design intent is to make the appearance of the new addition aesthetically distinct from the original, historic MMB so that the exterior volume of the original MMB, sans addition, reads clearly and distinctly from the new addition volume.

New North Addition Curtain Wall Assembly:
Pressure equalized thermally broken curtain wall framing, with fully captured glazing to incorporate insulated vision glass. System will be based on thermally broken Kawneer curtain wall systems, per City standards, with 1” insulated glass units. Aluminum supports will be thermally broken. Entry glazing shall be identical to curtain wall and doors in curtain wall system shall be thermally broken with 1” IGUs to maintain a continual thermal envelope line across all systems.

Windows in original masonry openings:
New Windows and doors in existing masonry openings at Ground and First Floors:

Pressure equalized thermally broken window system, with fully captured glazing to incorporate insulated vision glass. System will be based on thermally broken Efco or Kawneer window systems, with 1" insulated glass units. Aluminum supports will be thermally broken.

Where new masonry was used to infill original factory-type windows on the north façade in the 1980s, remove masonry, make good masonry opening sills, jambs and heads to received new thermally broken, insulated glass windows.

The profile and mullion arrangement for all new windows at Ground Floor and First Floor will be replicas of the original 1926 windows with true divided lites.

New Glazing to Historic Windows at Second and Third Floors only:
Existing window fixed frames to be retained and refurbished in place, and re-painted. Opening sashes of existing windows to be dismantled from fixed frames and factory-refurbished, and then re-mounted in original locations. Historic window glass replaced with new single panel, clear glass. Provide tempered glass for panels below 18" above finished floor level.

New Windows at Second and Third Floors, north side, within the U-shaped lower roof courtyard area:
Aluminum casement windows with thermally broken frames, mullion arrangements to match the original windows in these areas with true divided lites where originally shown, and IGUs, all per the new window frame and glass types described for Level 1 above.

Interior Accessory Windows:
Several options related to Levels 2 and 3 window performance enhancements were considered during pre-design. These were distilled during design based on actual existing frame conditions (the existing, historic frames cannot accommodate IGUs), feasibility of window opening conditions, and performance potential. In conclusion, thermally broken aluminum frame interior accessory windows (referred to as IAWs, not storm windows) are to be provided to the inside of almost all existing windows at Second and Third Floors with high performance, 1" thick, low-e, clear glass units. The exception will be the windows in the U-shaped walls surrounding the lower roof area at Second and Third Floors, where the original windows were replaced with aluminum sash windows in recent years, as mentioned in the text above. See building elevations for scope.

Interior accessory windows, where provided, are to have opening vents provided, with vents opening inwards, above desk level, for at least half the area of historic window behind. The opening vents are to be openable only by facilities maintenance staff for cleaning the glass surfaces in the void between existing refurbished historic windows and the storms.

Exterior Doors:
Historic entry doors to remain and restored as needed to enable compliance with access codes.

New exit doors on the north façade will be insulated, galvanized hollow metal doors and insulated frames with 1" IGU vision panels, per the IGU type described above.

Roofing Systems

New Lower Roof Build-up:
Proprietary extensive green roof sedum tray system with an engineered planting medium 5" thick on top of proprietary drainage mat and geotextile, 90 mil EPDM, fully adhered, on proprietary ½" protection board on minimum 6" rigid insulation, on proprietary separating sheet, on existing wood roof deck superstructure (sloped at ¼" per foot as existing).

Roof structure below wood superstructure to be strengthened to support new chiller plant condensers – refer to structural narrative for details. Provide minimum 12" high wood curbs, fully dressed with roof membrane to enable future roof replacement without removal of equipment on top of curbs.

The roof over the new addition is similar to the above but on a steel deck with tapered insulation, 6" thick minimum, to provide a minimum ¼" per foot slope.

New Upper Roof Build-up:
Proprietary extensive green roof sedum tray system with an engineered planting medium 5" thick on top of proprietary drainage mat and geotextile, 90 mil EPDM, fully adhered, on proprietary ½" protection board on minimum 6" rigid insulation, on proprietary separating sheet, on existing wood roof deck superstructure (sloped at ½" per foot as existing).

Provide minimum 12" high wood curbs, fully dressed with roof membrane to enable future roof replacement without removal of equipment on top of curbs. Upper roof curbs to support 110 panel photovoltaic array system and related equipment. Penthouse to accommodate PV equipment required to be indoors.

Similar height curbs to capture clusters of plumbing and other vent pipes will be provided at the tops of the new MEP shafts north of the existing Second and Third Floor restroom blocks.

Skylight at Lower roof:
Minimum 42" high perimeter curb with dual pitch, thermally broken, aluminum frames skylight frame with IGU panels consisting of ¼" thick exterior, fully tempered glass with 50% ceramic frit to surface #1, Low-E coating to surface #2, ½" thermal spacer, laminated interior clear glass pane.

Miscellaneous Exterior Elements

Building Signage
The MMB building sign on grade at the corner of MLK Boulevard and Doty Street will be removed along with its concrete base. This will be replaced with a new monument sign, illuminated from a recessed strip LED uplight set into the base. The overall size of the projecting portion of the monument sign will be approximately 8ft long x 3ft high x 1ft deep.

Exterior Wall Louvers
New metal louvers will be required at north façade zones for Ground Floor mechanical equipment. The louvers should match the finish of the railing finish at light wells.

Exterior rooftop ventilation housings:
These will serve the Third Floor mechanical rooms: one exhaust louver housing and one intake louver housing to serve each of the two mechanical rooms at this level.

TYPE AA

ECOSENSE®

EcoSpec® Floodlight Wash

DATE _____

PROJ. _____

FIRM _____

TYPE

EcoSpec® Floodlight Wash is a powerful architectural floodlight and landscape luminaire offering superior binning and a full range of optical solutions. The EcoSpec Floodlight Wash is indoor and outdoor rated with a robust cast aluminum housing and glare control options that include flush or angled snoots.

The EcoSpec Floodlight Wash offers field interchangeable optical lenses in a wide range of beam angle distributions to allow for simple optical design modifications without the need to replace the entire fixture. The integral driver connects directly to AC, line voltage power, and is dimmable through ELV or TRIAC dimming hardware. This luminaire also has great flexibility with 190deg vertical aiming and 358deg horizontal rotation making it ideal for any application.

Features:

- **Dimmable: TRIAC / ELV (RP)**
- **Integral Driver / AC Power**
- **Flicker-Free**
- **Long Life (L70)**
- **Gore® Vent**
- **Field Interchangeable Accessory Lenses**
- **358° Horizontal Rotation**
- **190° Vertical Aiming**

SPECIFICATIONS

PERFORMANCE	**Correlated Color Temperature (K)**	**Lumen Output / Input Power** (IES Measurements)	**Efficacy** (lm/W)
	2700K	2321 lm / 50.0W	46.4 lm/W
	3000K	2158 lm / 50.0W	43.2 lm/W
	3500K	2624 lm / 50.0W	52.3 lm/W
	4000K	2653 lm / 50.0W	53.0 lm/W
	Color Rendering Index	Min. 80	
	Color Consistency	2 Step MacAdam Ellipse	
	Rated Life	L_{70}>100,000 hours @ 25°C* / L_{70} 50,000 hours @ 50°C*	
		* Calculations for LED fixtures are based on measurements that comply with IES LM-80 testing procedures and IES TM-21 Calculator.	
ELECTRICAL	**Power Consumption**	45W Typical, 50W Maximum	
	Power Factor	Min. 0.90	
	Operating Voltage	100-120VAC, 220-240VAC, 277VAC (ETL), 50-60 Hz	
	Operating /Startup Temperature	-40°F to 122°F (-40°C to 50°C) [Storage: -40°F to 176°F (-40°C to 80°C)]	
CONTROL	**Dimming**	100-120VAC - TRIAC/ELV-RP*; 220-240VAC - TRIAC/ELV-RP*; 277VAC Non-Dim	
		*ELV-RP = Electronic Low Voltage, Reverse Phase	
PHYSICAL	**Dimensions**	W 10" x H 8.5" x L 6" (254mm x 216mm x 152mm)	
	Housing	Cast Aluminum; Clear Glass	
	Weight	6.61 lbs (3 kg)	
	Cable	Flying Lead	
	Shielding	Half Visor, Full Visor	
	Environment	Indoor / Outdoor; CE Certified IP66 / ETL Certified for Wet Locations	
	Beam Angle	Native: 11°x 11° / Accessory Lens: 20° / 30° / 40° / 60° / 80° / 10°x 60° / 30°x 60°	
	Mounting	Secure the fixture to the mounting surface	
FIXTURE RATING & CERTIFICATIONS	**CE, ENEC, C-Tick Certified**		
	ETL Certified		
	RoHS Compliant		
WARRANTY	**5 Year Warranty**		

EcoSense Lighting Inc.
915 Wilshire Boulevard
Suite 2175
Los Angeles, CA 90017

Phone 310-496-6255
Fax 310-496-6256
Toll Free 855-632-6736
855-6-ECOSEN

ECOSENSE®

EcoSpec® Floodlight Wash

DATE _____ TYPE

PROJ. _____

FIRM _____

ORDERING INFORMATION

Choose the option that best suits your needs and write its corresponding code on the appropriate line to form the product code.

WSH-M	-		-		-		-	11

MODEL	COLOR	VOLTAGE	FINISH	OPTIC
WSH-M	**27** - 2700K	**120-IC** - 100-120VAC*	**BK** - Black	**11** - 11° x 11°
	30 - 3000K	**220-EC** - 220-240VAC**	**WH** - White	(Sealed Base Optic)
	35 - 3500K	**277-IC** - 100-277VAC*	**BZ** - Bronze	
	40 - 4000K			

EXAMPLE: WSH-M - 30 - 120-IC - WH - 11

Mounting / Wiring Notes:

*** 120VAC / 277VAC**	1) Internal Cable with 8" Lead
**** 220VAC**	1) External Cable with 4'-0" (1.2m) Lead

Special Order Cable: Consult EcoSense Representative

120-EC	**External Cable** for 100-120VAC / 277VAC product (Example: WSH-M-CCT-**120-EC-**FINISH-11)
220-IC	**Internal Cable** for 220-240VAC product (Example: WSH-M-CCT-**220-IC-**FINISH-11)
277-EC	**External Cable** for 277VAC product (Example: WSH-M-CCT-**277-EC-**FINISH-11)

ACCESSORIES

Order accessories as separate catalogue numbers in addition to the product above.

Shielding Options			
Half Visor, Black	**WSH-M-HV-BK**	Full Visor, Black	**WSH-M-FV-BK**
Half Visor, White	**WSH-M-HV-WH**	Full Visor, White	**WSH-M-FV-WH**
Half Visor, Bronze	**WSH-M-HV-BZ**	Full Visor, Bronze	**WSH-M-FV-BZ**

Optical Film Lens (Light Shaping Diffuser)			
Optical Lens 20° x 20°	**WSH-M-LSD-20**	Optical Lens 30° x 30°	**WSH-M-LSD-30**
Optical Lens 40° x 40°	**WSH-M-LSD-40**	Optical Lens 80° x 80°	**WSH-M-LSD-80**
Optical Lens 60° x 60°	**WSH-M-LSD-60**	Optical Lens 30° x 60°	**WSH-M-LSD-30x60**
Optical Lens 10° x 60°	**WSH-M-LSD-10x60**		

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EcoSpec® Floodlight Wash

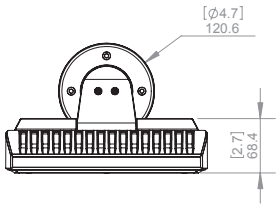
DATE _____ TYPE

PROJ. _____

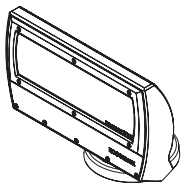
FIRM _____

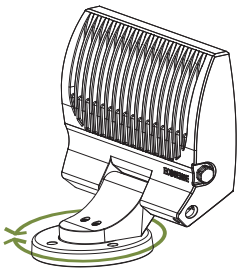
DIMENSIONS

For complete dimensional submittal drawings and full scale CAD drawings, please visit ecosenselighting.com.

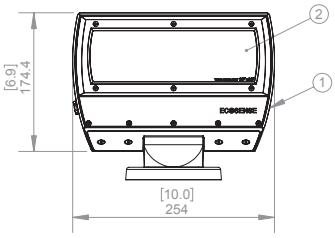


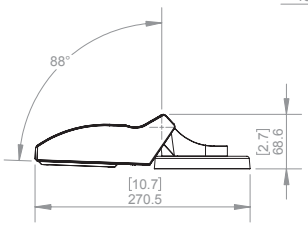
ADJUSTABLE AIMING 88º FORWARD & 105º REARWARD FROM VERTICAL. 358º HORIZONTAL ROTATION.

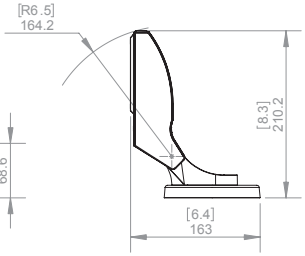


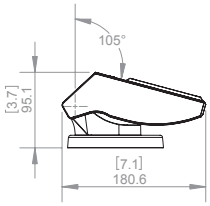


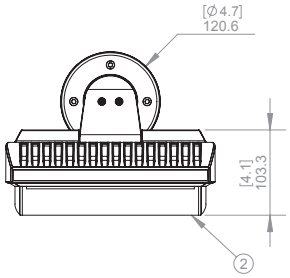
358° Horizontal Aiming



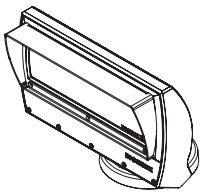


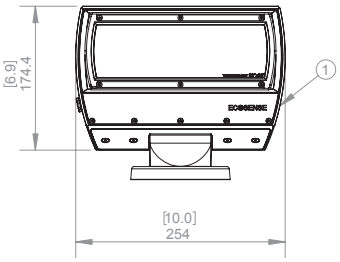


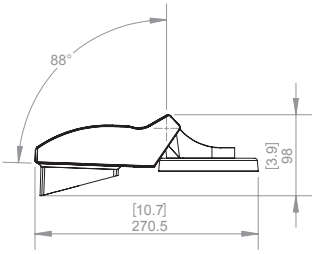


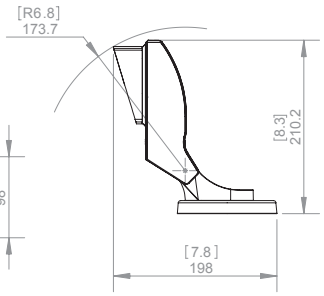


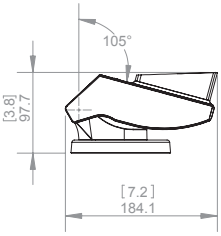
ACCESSORY HALF VISOR











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TYPE

DIMENSIONS

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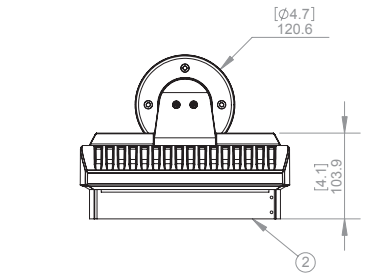
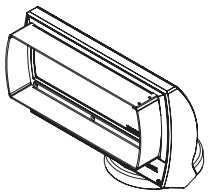
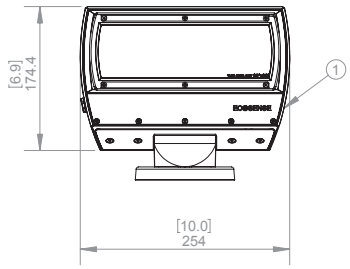
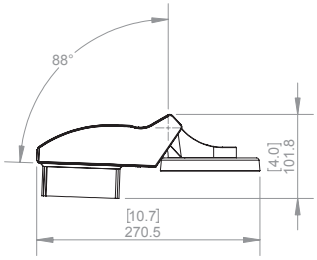
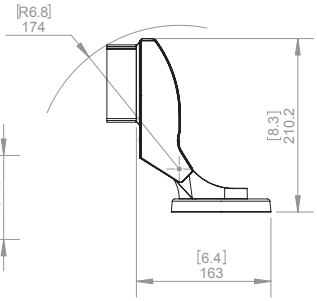


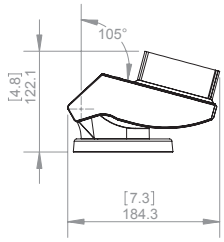
ACCESSORY FULL VISOR











DIMENSION IN
[INCHES] / MM

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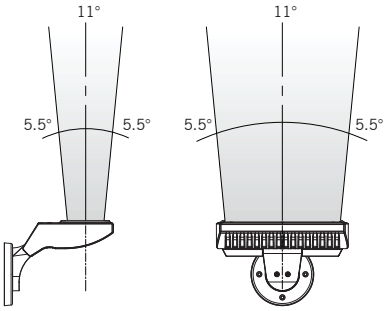
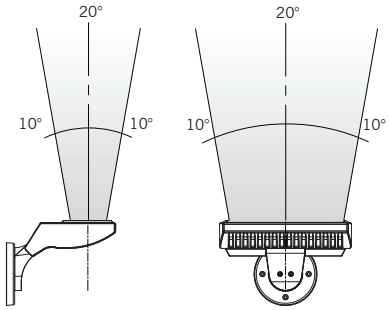
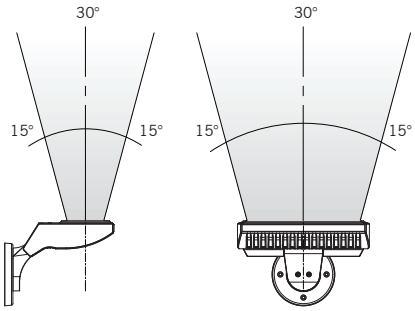
DISTRIBUTIONS



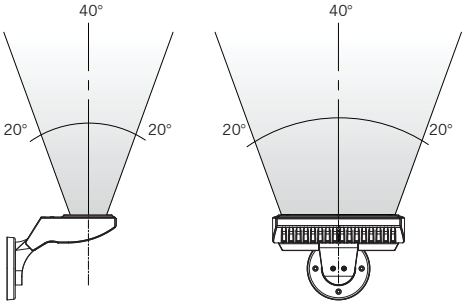
Native Distribution - Sealed within Fixture: **11° x 11°**



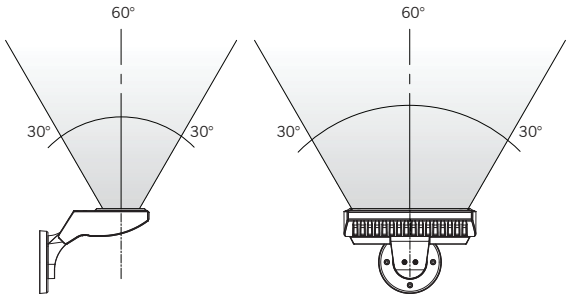
Accessory - Optical Film Panel*: **20° x 20° # WSH-M-LSD-20**



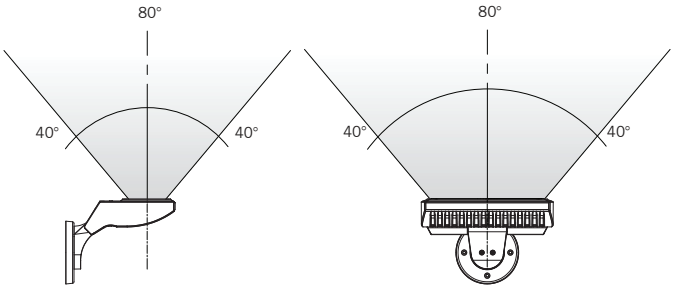
Accessory - Optical Film Panel: **30° x 30° # WSH-M-LSD-30**



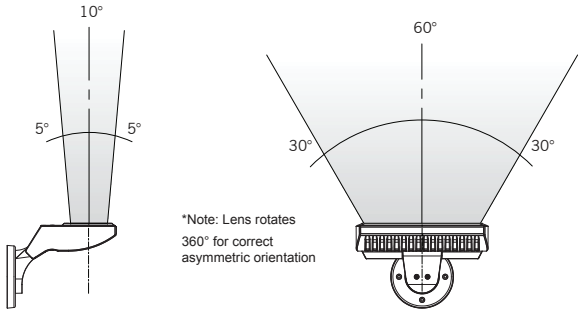
Accessory - Optical Film Panel: **40° x 40° # WSH-M-LSD-40**



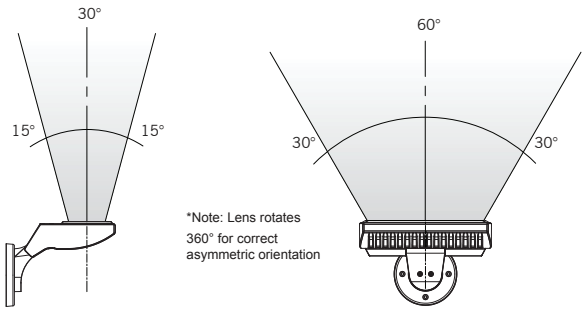
Accessory - Optical Film Panel: **60° x 60° # WSH-M-LSD-60**



Accessory - Optical Film Panel: **80° x 80° # WSH-M-LSD-80**



Accessory - Optical Film Panel*: **10° x 60° # WSH-M-LSD-10x60**



Accessory - Optical Film Panel*: **30° x 60° # WSH-M-LSD-30x60**

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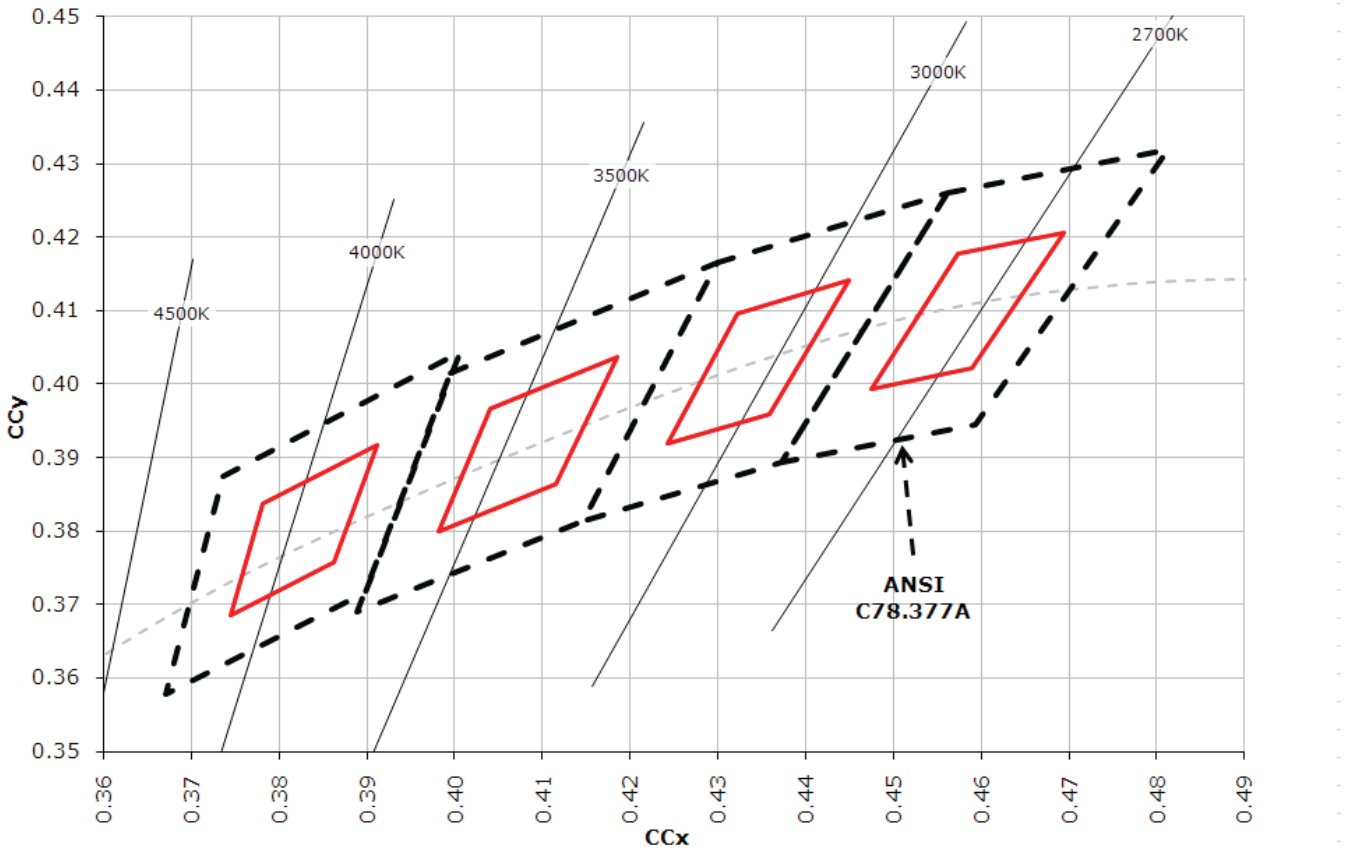
Specifications subject to change without notice. Visit EcoSenseLighting.com for the most current specifications.

SPEC-WSH-M-20140116-V1

COLOR CONSISTENCY



EcoSense Lighting boasts exceptional color consistency across all products as a result of strict LED binning methods. First, EcoSense works closely with LED manufacture(s) to secure LEDs from the tightest binning, selecting only LEDs that fall within a bin standard that is ¼ the size of ANSI Standard (C78.377A). Secondly, EcoSense applies an internal binning process that ensures even more reliability and even tighter LED bins for the final product. In these bins, color temperature will be maintained within 2 MacAdam Ellipse, ensuring the most consistent light quality. The result is beautiful, uniform color consistency from fixture to fixture.

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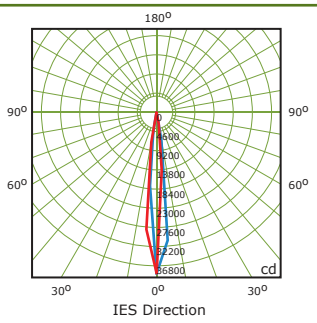
PHOTOMETRY CHARACTERISTICS

For complete library of IES files, please visit: ecosenselighting.com

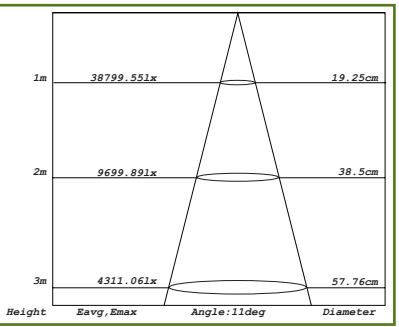
11°x 11°

2700K*

CHARACTERISTICS: Floodlight Wash 2700K / 11°X 11°	
Total Rated Fixture Lumens	2321
Total Luminaire Efficiency	100%
Total Input Watts	41W
Horizontal Beam Angle (50%)	12
Vertical Beam Angle (50%)	11
Horizontal Field Angle (10%)	22.8
Vertical Field Angle (10%)	22.3



	0	15	45	60	90
0	38799.5	38799.5	38799.5	38799.5	38799.5
5	14013.5	18844.2	19921	19779.9	30852.5
15	504.2	675.7	679.6	716	817.4
25	124.76	154.65	153.3	170.2	181.9
35	64.9	67.5	68.8	71.4	75.3
45	48	50.6	51.9	53.2	54.5
55	32.4	35	36.3	35	33.7
65	15.6	19.4	19.4	16.8	15.6
75	7.8	9.1	7.8	6.5	7.8
85	3.9	3.9	3.9	3.9	3.9
90	2.6	2.6	2.6	2.6	2.6



Photometrics by an independant lab in accordance with current IES published Procedures.
* Lumen measurements comply with IES LM-79-08.
IES data is available at www.ecosenselighting.com

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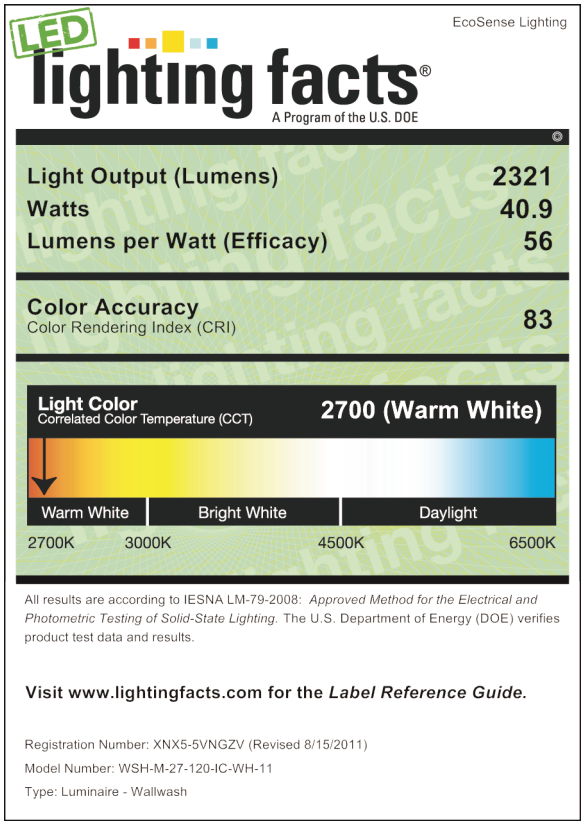
LIGHTING FACTS LABELS



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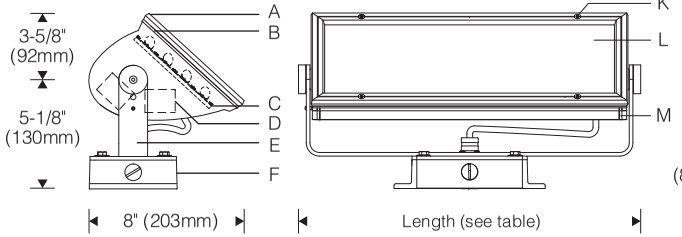
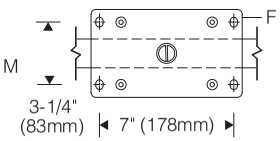
S Mount 1:10 Scale



Mounting Plate

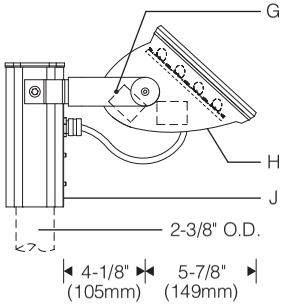
(**S** Mount)



# of LEDs	Length
36	12-1/16" (306mm)
72	17-13/16" (452mm)
108	24-7/8" (632mm)

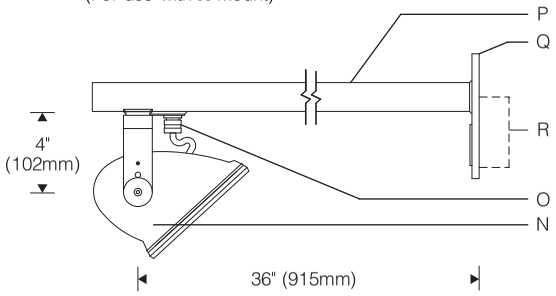
Side-Mount Slipfitter 1:10 Scale

(For use with **X** Mount)



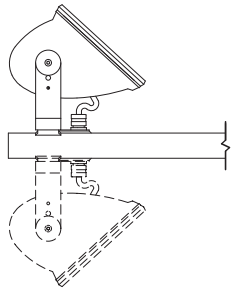
Cantilever, Lighting Downward

(For use with **X** Mount)



Lighting Upward 1:12 Scale

(Upward/Downward Optional)



Specifications

A Mitred extruded aluminum door frame

B Precured silicone door and lens gasket

C Field serviceable light engine with **fraqtir**™ asymmetric optic

D Integral driver

E Aluminum yoke

F Surface splice box

G Locking set screw

H Specular extruded aluminum housing

J Accessory extruded aluminum slipfitter

K Tamper-resistant captive door screws

L Micro-prismatic impact resistant tempered glass lens

M Aluminum reveal plate (black)

N Die-cast aluminum end plates

O 1/2" NPT nipple

P 1-1/2" aluminum arm

Q Welded aluminum mounting plate with splice access cover

R Outlet box (by others)

Optic Assembly:

Two-piece extruded aluminum heat sink housing and light engine. Exterior heat sink anodized for maximum emissivity. Removable interior extrusion treated to maximize thermal conductivity. Precision formed asymmetric optical light bar of high temperature, water-clear acrylic. Extruded aluminium door frame with captive tamper-resistant fasteners. Clear tempered glass lens with elliptical distribution holographic diffuser; maximizes lateral distribution without disturbing asymmetric forward throw.

Finish:

Exterior surfaces – 6 stage pretreatment and electrostatically applied thermoset polyester powder coating for a durable abrasion, fade and corrosion resistant finish. Choice of semigloss colors (see ordering information). Extruded aluminum heat sink/housing plus yoke, door frame and decorative end plates are finished in color. All hardware and components – non-corrosive stainless steel or aluminum.

Mounting:

S mount provided with 1/2" NPT nipple, wet location outlet box and cover finished to match the luminaire.

X mount for use with aluminum cantilever or slipfitter accessory (ordered separately). Top or side mount slipfitter for 2-3/8" O.D. stanchion, pole (by others).

Electrical:

Use 90°C wire for supply connections. Integral electronic HPF constant current driver. For complete driver specifications, see website, reference document MA-1303.

Standard:

CSA certified to UL1598, UL8750, CSA C22.2 for wet locations. 5 year warranty, maximum ambient temperature 45°C (113°F).

Features

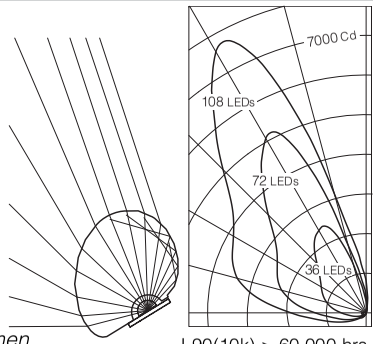
- *Extruded aluminum housing, die-cast aluminum end plates; 1000 hour salt-spray test to ASTM B117-90*
- *Silicone gaskets – keep dirt and moisture out*
- *Yoke set screw – securely locks aiming*
- *Patented **fraqtir** optics produce asymmetric distribution*

SV 3.0

Performance

***fraqtir** technology uses a combination of refraction and total internal reflection, creating a distribution of light ideal for illuminating surfaces uniformly. Glare is minimized while light delivered to the target is maximized, resulting in high efficiency.*

*For photometric and lumen maintenance reports, visit **thelightingquotient.com***



L90(10k) > 60,000 hrs.
@ 25°C per TM-21

TYPE BB

 U.S. Patent 8,465,190; foreign patents pending

LUMILEDS The Brighter Choice

LED lighting facts LED Product Partner

Architectural Products Magazine's PIA'15 product innovation awards

2015 PROGRESS Report SELECTION

elliptipar® with fraqtir™ LED

To form a Catalog Number

S 1 7 2 - ____ - __ - ____ - __ - ____ - __ - ____ - ____

1 2 3 4 5 6 7 8 9 10

Project:

Type:

1 Source

S = Solid State (LED)

2 Style

172 = Large outdoor, integral driver

3 Drive Current/Length/No. of LEDs

Solid State LED with **fraqtir** optics. Choose drive current code/ number of LEDs in options below.

Lumen/Wattage Options

LAMP CODE	FIXTURE LENGTH	INPUT WATTS	LUMENS	NUMBER OF LEDs	DRIVE CURRENT
5036	12-1/16"	56W	3812	36 LEDs	500mA
5072	17-13/16"	110W	7569	72 LEDs	500mA
5108	24-7/8"	165W	11365	108 LEDs	500mA

Based on 4000K, 70+CRI. **Click here** for scaled performance table.

4 Mounting

SV 3.1

S = External yoke with 1/2" NPT nipple, wet location outlet box and cover finished to match luminaire

X = External yoke for use with accessory cantilever or slipfitter (order separately)

5 Finish

02 = Semigloss white
06 = Dark bronze
07 = Silver
08 = Semigloss black
17 = Champagne
18 = Copper
99 = Custom RAL or computer matched color to be specified, consult sales representative.

6 Voltage/Driver

Electronic Driver	*Electronic Dimming Driver**
8 = 120-277V	**M** = 120-277V

*Dimming range refers to % power input, % light output will vary.

Refer to Driver Information document MA-1303

7 Option (see Accessories Section for specifications)

00 = No options
V0 = Visor option
XX = For modification not listed, include detailed description. Consult factory prior to specification.

8 Destination Requirement

0 = UL listed or CSA certified for U.S.
J = UL listed or CSA certified for Canada

9 Color Temperature

27 = 2700K, 80+ CRI
30 = 3000K, 80+ CRI
35 = 3500K, 80+ CRI
40 = 4000K, 80+ CRI
4L = 4000K, 70+ CRI

Note: Additional CCT and CRI options are available; consult factory.

10 Dimming**

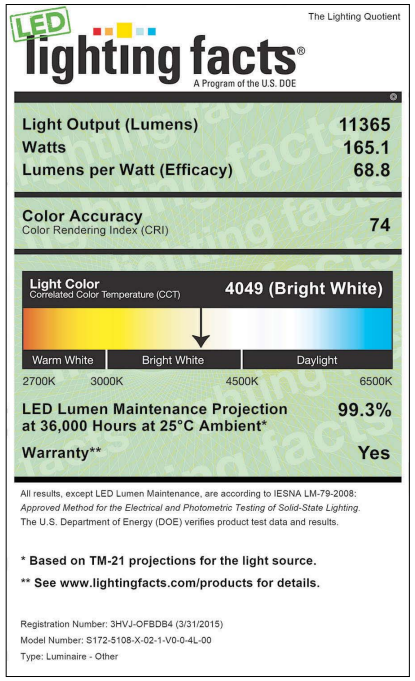
00 = Non-dimming
TE = Trailing Edge Dimming 120-277V input, dimming range 100-10%, line voltage trailing edge/reverse phase/ELV dimming (controls by others)
EL = eldoLED SOLOdrive 120-277V input, dimming range 100%-0.1%, 0-10V controls by others
ED = eldoLED SOLOdrive 120-277V input, dimming range 100%-0.1%, DALI controls by others

Dimming range refers to % power input, % light output will vary. **Refer to Driver Information document MA-1303

Example

S172-5072-S-06-8-00-0-4L-00

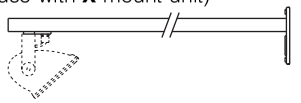
Large outdoor 17 inch fixture, external yoke with wet location outlet box and cover. Dark bronze powder coat finish. Internal 120-277V high power factor, constant current, integral driver. 4000K/70+CRI LEDs, UL listed or CSA certified for U.S.



Accessories

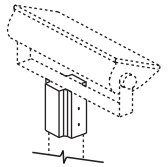
Order separately. See Accessories Section for specifications.

AC ____ ____ **36** ____ = **Cantilever**, 36" (914mm) setback (for use with **X** mount unit)
0 = U.S.
J = Canada
5 Finish

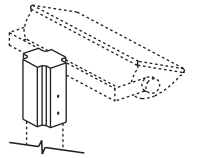


L = single unit (downward or upward facing only)

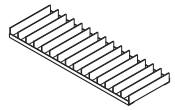
ASF ____ **T10** = **Top-mount slipfitter**, for 2-3/8" O.D. stanchion, pole or tenon (for use with single **X** mount unit)
5 Finish



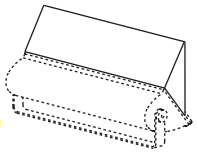
ASF ____ **S10** = **Side-mount slipfitter**, for 2-3/8" O.D. pole, stanchion or tenon (for use with single **X** mount unit)
5 Finish



AE ____ **V** ____ **0D0** = External vertical blade **baffle**, black, for lengthwise shielding
2 = 25° shielding
4 = 45°
C = 12 inch fixtures
D = 17 inch fixtures
F = 24 inch fixtures



AV ____ ____ **0D0** = Cutoff **visor**
5 Finish
C = 12 inch fixtures
D = 17 inch fixtures
F = 24 inch fixtures

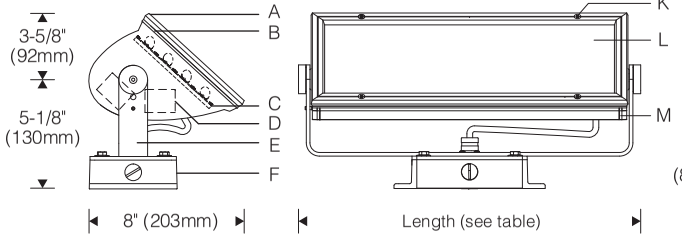


108 LEDs @ 500mA
(4000K/70+CRI) shown.

elliptipar® with fraqtir™ LED

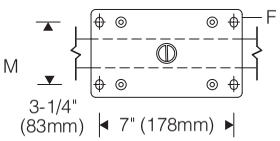
elliptipar *from* **The Lighting Quotient**
114 Boston Post Road, West Haven, Connecticut 06516, USA
Voice 203.931.4455 • Fax 203.931.4464 • **thelightingquotient.com**

S Mount 1:10 Scale



Mounting Plate

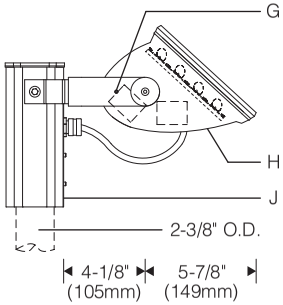
(**S** Mount)



# of LEDs	Length
36	12-1/16" (306mm)
72	17-13/16" (452mm)
108	24-7/8" (632mm)

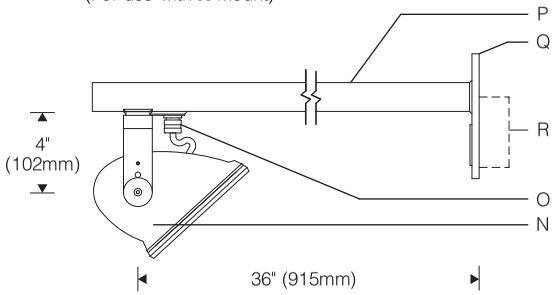
Side-Mount Slipfitter 1:10 Scale

(For use with **X** Mount)



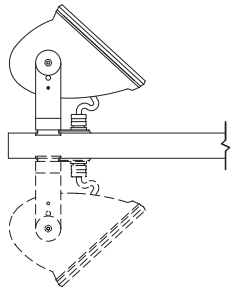
Cantilever, Lighting Downward

(For use with **X** Mount)



Lighting Upward 1:12 Scale

(Upward/Downward Optional)



Specifications

A Mitred extruded aluminum door frame
B Precured silicone door and lens gasket
C Field serviceable light engine with **fraqtir**™ asymmetric optic
D Integral driver
E Aluminum yoke
F Surface splice box
G Locking set screw
H Specular extruded aluminum housing
J Accessory extruded aluminum slipfitter
K Tamper-resistant captive door screws
L Micro-prismatic impact resistant tempered glass lens
M Aluminum reveal plate (black)
N Die-cast aluminum end plates
O 1/2" NPT nipple
P 1-1/2" aluminum arm
Q Welded aluminum mounting plate with splice access cover
R Outlet box (by others)

Optic Assembly:

Two-piece extruded aluminum heat sink housing and light engine. Exterior heat sink anodized for maximum emissivity. Removable interior extrusion treated to maximize thermal conductivity. Precision formed asymmetric optical light bar of high temperature, water-clear acrylic. Extruded aluminium door frame with captive tamper-resistant fasteners. Clear tempered glass lens with elliptical distribution holographic diffuser; maximizes lateral distribution without disturbing asymmetric forward throw.

Finish:

Exterior surfaces – 6 stage pretreatment and electrostatically applied thermoset polyester powder coating for a durable abrasion, fade and corrosion resistant finish. Choice of semigloss colors (see ordering information). Extruded aluminum heat sink/housing plus yoke, door frame and decorative end plates are finished in color. All hardware and components – non-corrosive stainless steel or aluminum.

Mounting:

S mount provided with 1/2" NPT nipple, wet location outlet box and cover finished to match the luminaire.

X mount for use with aluminum cantilever or slipfitter accessory (ordered separately). Top or side mount slipfitter for 2-3/8" O.D. stanchion, pole (by others).

Electrical:

Use 90°C wire for supply connections. Integral electronic HPF constant current driver. For complete driver specifications, see website, reference document MA-1303.

Standard:

CSA certified to UL1598, UL8750, CSA C22.2 for wet locations. 5 year warranty, maximum ambient temperature 45°C (113°F).

Features

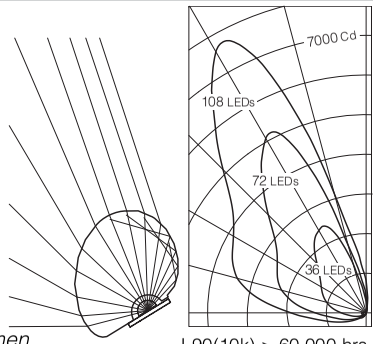
- *Extruded aluminum housing, die-cast aluminum end plates; 1000 hour salt-spray test to ASTM B117-90*
- *Silicone gaskets – keep dirt and moisture out*
- *Yoke set screw – securely locks aiming*
- *Patented **fraqtir** optics produce asymmetric distribution*

SV 3.0

Performance

***fraqtir** technology uses a combination of refraction and total internal reflection, creating a distribution of light ideal for illuminating surfaces uniformly. Glare is minimized while light delivered to the target is maximized, resulting in high efficiency.*

*For photometric and lumen maintenance reports, visit **thelightingquotient.com***



L90(10k) > 60,000 hrs.
@ 25°C per TM-21

TYPE CC

 U.S. Patent 8,465,190; foreign patents pending

LUMILEDS The Brighter Choice

LED lighting facts LED Product Partner

Architectural Products Magazine's PIA'15 product innovation awards

2015 PROGRESS Report SELECTION

elliptipar® with fraqtir™ LED

To form a Catalog Number

S 1 7 2 - _ _ _ _ - _ - _ _ _ - _ - _ _ _ - _ - _ _ _ - _ _ _ - _ _ _

1 2 3 4 5 6 7 8 9 10

Project:

Type:

1 Source

S = Solid State (LED)

2 Style

172 = Large outdoor, integral driver

3 Drive Current/Length/No. of LEDs

Solid State LED with **fraqtir** optics. Choose drive current code/number of LEDs in options below.

Lumen/Wattage Options

LAMP CODE	FIXTURE LENGTH	INPUT WATTS	LUMENS	NUMBER OF LEDs	DRIVE CURRENT
5036	12-1/16"	56W	3812	36 LEDs	500mA
5072	17-13/16"	110W	7569	72 LEDs	500mA
5108	24-7/8"	165W	11365	108 LEDs	500mA

Based on 4000K, 70+CRI. Click here for scaled performance table.

4 Mounting

SV 3.1

S = External yoke with 1/2" NPT nipple, wet location outlet box and cover finished to match luminaire

X = External yoke for use with accessory cantilever or slipfitter (order separately)

5 Finish

02 = Semigloss white
06 = Dark bronze
07 = Silver
08 = Semigloss black
17 = Champagne
18 = Copper
99 = Custom RAL or computer matched color to be specified, consult sales representative.

6 Voltage/Driver

Electronic Driver	*Electronic Dimming Driver**
8 = 120-277V	**M** = 120-277V

*Dimming range refers to % power input, % light output will vary.

Refer to Driver Information document MA-1303

7 Option (see Accessories Section for specifications)

00 = No options
V0 = Visor option
XX = For modification not listed, include detailed description. Consult factory prior to specification.

8 Destination Requirement

0 = UL listed or CSA certified for U.S.
J = UL listed or CSA certified for Canada

9 Color Temperature

27 = 2700K, 80+ CRI
30 = 3000K, 80+ CRI
35 = 3500K, 80+ CRI
40 = 4000K, 80+ CRI
4L = 4000K, 70+ CRI

Note: Additional CCT and CRI options are available; consult factory.

10 Dimming**

00 = Non-dimming
TE = Trailing Edge Dimming 120-277V input, dimming range 100-10%, line voltage trailing edge/reverse phase/ELV dimming (controls by others)
EL = eldoLED SOLOdrive 120-277V input, dimming range 100%-0.1%, 0-10V controls by others
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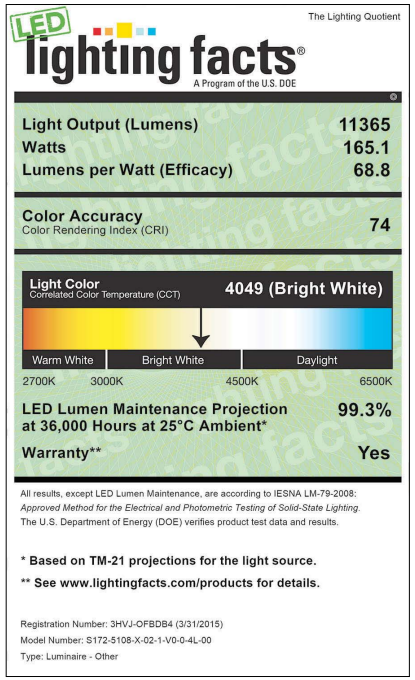

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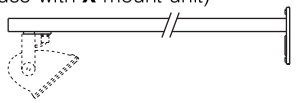

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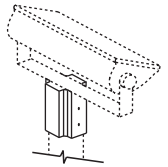

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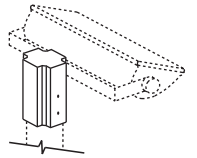

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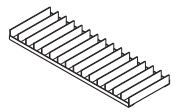

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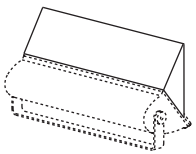


108 LEDs @ 500mA
(4000K/70+CRI) shown.

elliptipar® with fraqtir™ LED

elliptipar *from* **The Lighting Quotient**
114 Boston Post Road, West Haven, Connecticut 06516, USA
Voice 203.931.4455 • Fax 203.931.4464 • **thelightingquotient.com**

TYPE DD

ECOSENSE®

New Linear Series

DATE _____

PROJ. _____

FIRM _____

TYPE

EcoSpec® Linear HP EXT Wall Wash - Standard Power

OVERVIEW / SPECIFICATION

EcoSpec® Linear HP EXT Wall Wash – has an impressive array of narrow, medium, wide and elliptical beam angles that provides brilliant results for exterior façade grazing, and wall washing applications that are exposed to harsh elements. The new glass lens provides better protection against harsh environments and chemicals and the GORE® Vent protects the internal system from moisture and improves the overall lifetime of the fixture. Patent-pending dimming technology dims down to 0% output power.

Features:

- **Economical**
- **Simple Installation**
- **In-line Connection**
- **High Efficacy**
- **Integral Driver / AC Power**
- **Dimmable: ELV (RP), 0-10V**
- **Dimming at 120V, 220V, and 277V**
- **Dimming down to 0%**
- **Glass Lens**

PERFORMANCE ADDITIONAL INFORMATION ON NEXT PAGE	CCT (K)	Optic	Lumen Output 12”	Lumen Output 48”	Efficacy (lm/W)
	2700K	6°x6°	826 lm/LF	3,304 lm	77.2lm/W
	3000K	6°x6°	842 lm/LF	3,368 lm	80.2lm/W
	3500K	6°x6°	847 lm/LF	3,388 lm	77lm/W
	4000K	6°x6°	901 lm/LF	3,604 lm	82.2lm/W

* Performance data is from LM-79 and LM-63 testing at typical power input

	Color Rendering Index	80+
	Color Consistency	2 Step MacAdam Ellipse
	Lumen Depreciation / Rated Life	L70 >60,000 hours @ 25°C*

* Calculations for LED fixtures are based on measurements that comply with IES LM-80 testing procedures and IES TM-21 Calculator.

ELECTRICAL	**Power Consumption**	11W/LF Typical (The Typical input power range allows for a +/-10% variation of all components) 12W/LF Maximum (All fixtures are labelled with Maximum wattage)
	Max Fixture Run Length	55’ (16m) @120VAC; 125’ (37m) @220VAC ; 125’ (37m) @277VAC
	Power Factor	0.90
	Operating Voltage	100-120VAC, 220-240VAC, 277VAC, 50/60 Hz (all voltages)
	Driver	Integral to Fixture; De-rated Power and Synchronous Start-up at Full Brightness
	Startup Temperature	-40°F to 122°F (-40°C to 50°C)
	Operating Temperature	-40°F to 122°F (-40°C to 50°C)
	Storage Temperature	-40°F to 176°F (-40°C to 80°C)
CONTROL	**Dimming**	100-120VAC ELV type, Reverse Phase, Trailing Edge 220-240VAC ELV type, Reverse Phase, Trailing Edge 277VAC ELV type, Reverse Phase, Trailing Edge 120VAC / 277VAC, 0-10V with Linear Dimming Control Module (LDCM)
PHYSICAL	**Dimensions**	W 2.37” x H 2.36” x L 12”/48” ; (60mm x 60mm x 308mm/1219mm)
	Housing / Lens	Extruded Aluminium; Tempered Glass; Stainless Steel Fasteners Metal Endcaps with Plastic/Rubber Overmold for Cable Assembly
	Weight	2.43lbs / 1.1kg (1ft) / 10.36lbs / 4.7kg (4ft) approx
	Connectors	Integral Male/ Female 3 Pin Connectors on Pigtail Cable Assembly, IP66 Rated
	Environment	Outdoor; CE Certified IP66 / ETL Certified for Wet Locations
	Beam Angle	Native: 6°x 6° / 6°x 15° / 10°x 60° / 17°x 35° / 30°x 60° / 60°x 60°
	Mounting Options:	Flat Mounting Brackets, Hinge Brackets and Safety Brackets
FIXTURE RATING & CERTIFICATIONS	**CE, C-Tick Certified, CCC** **ETL Certified** **RoHS Compliant**	Intertek, CE, RoHS COMPLIANT
LIMITED WARRANTY	**5 Years**	

EcoSense THD/Inrush Current Information: Please contact an EcoSense Lighting sales representative

EcoSense Lighting Inc.
915 Wilshire Boulevard
Suite 2175
Los Angeles, CA 90017

Phone 310-496-6255
Fax 310-496-6256
Toll Free 855-632-6736
855-6-ECOSEN

ECOSENSE®

New Linear Series

DATE _____ TYPE

PROJ. _____

FIRM _____

EcoSpec® Linear HP EXT Wall Wash - Standard Power

ORDERING

Choose the option that best suits your needs and write its corresponding code on the appropriate line to form the product code

WWES/ WWEL/WWEA	-		-		-		-	

MODEL	LENGTH	COLOR	VOLTAGE	OPTIC
WWES	**12** - 12”	**27** - 2700K	**120** - 100-120VAC	**6** - 6° x 6°
WWEL #	**48** - 48”	**30** - 3000K	**220** - 220-240VAC	**6F** - 6° x 15°
WWEA ##		**35** - 3500K	**277** - 277VAC**	**10** - 10° x 60°
		40 - 4000K		**17** - 17° x 35°
		RD - RED ###		**30** - 30° x 60°
		GN - GREEN ###		**60** - 60° x 60°
		BL - BLUE ###		
		AM - AMBER ###		

EXAMPLE: **WWES* - 12 - 27 - 120 - 10** (*Wall Wash Exterior Standard Power)

WWEL* - 12 - 27 - 120 - 10 (*Wall Wash Exterior Low Power)

WWEA* - 12 - 27 - 120 - 10 (*Wall Wash Exterior ASHRAE Power)

See Linear HP EXT Wall Wash Low Power Spec Sheet for more details

See Linear HP EXT Wall Wash ASHRAE Power Spec Sheet for more details

See Linear HP EXT Wall Wash Standard Power Mono Color Power Spec Sheet for more details

Wiring Options			
*EXT Leader Cable, 3 Pin, 10ft, 110V	**EXT3P-A-LDR-120-10**	EXT Leader Cable, 3 Pin, 10ft, 220V	**EXT3P-A-LDR-220-10**
EXT Jumper Cable, 3 Pin, 5ft, 110V	**EXT3P-A-JMP-120-05**	EXT Jumper Cable, 3 Pin, 5ft, 220V	**EXT3P-A-JMP-220-05**
EXT Jumper Cable, 3 Pin, 1ft, 110V	**EXT3P-A-JMP-120-01**	EXT Jumper Cable, 3 Pin, 1ft, 220V	**EXT3P-A-JMP-220-01**
* One (1) Terminator included standard with each leader cable.			
One Leader Cable is required per circuit / fixture run. Leader cable has bare leads one end, female connector opposite end. Leader / Jumper cables are not rated for plenum applications.			
**The 120VAC cables are also rated for 277VAC use.			

Control Options	
100-120VAC / 277VAC Linear Dimming Control Module 0-10V	LDCM-120-277-010V-GR
100-120VAC / 277VAC Linear Dimming Control Module 0-10V - Plenum Rated	LDCM-PL-120-277-010V-GR

Mounting Options		
Flat Mounting Bracket, Exterior Cove	**EXT-A-MNT-FLAT**	Included Standard with each product length
Hinge Bracket, Exterior Cove	**EXT-A-MNT-ADJ**	Order 1 (one) bracket per 12” length, and 2 (two) brackets per 48” length
Safety Bracket, Exterior Cove (Optional)	**EXT-A-MNT-SAFT**	Order 1 (one) bracket per 12” length, and 2 (two) brackets per 48” length

EcoSense Lighting Inc.
915 Wilshire Boulevard
Suite 2175
Los Angeles, CA 90017

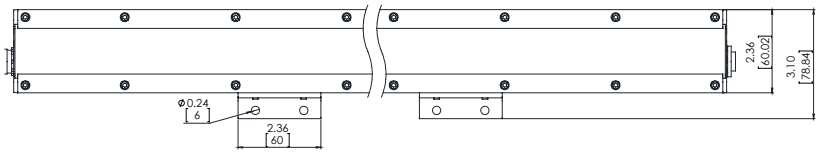
Phone 310-496-6255
Fax 310-496-6256
Toll Free 855-632-6736
855-6-ECOSEN

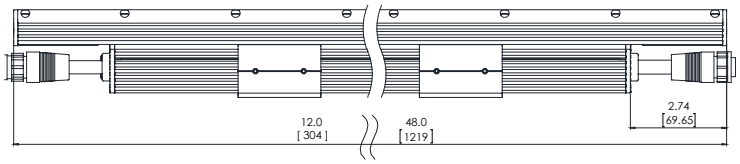
EcoSpec® Linear HP EXT Wall Wash - Standard Power

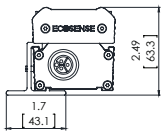
DIMENSIONS

For complete dimensions and submittal drawings, please visit: ecosenselighting.com

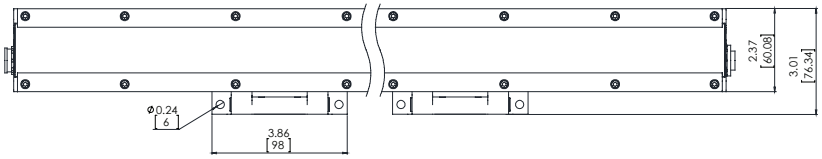
Flat Mounting Bracket - Direct Mount

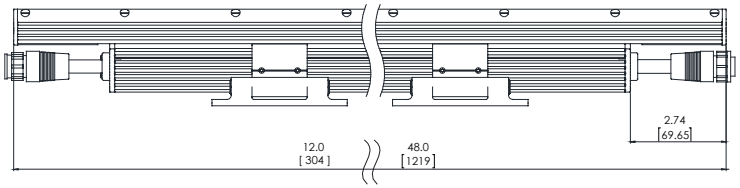


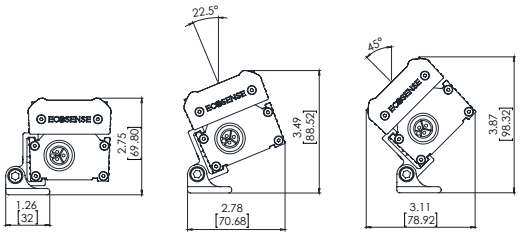




Hinge Bracket - Direct Mount







DIMENSION IN
INCHES / [MM]

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Los Angeles, CA 90017

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Fax 310-496-6256
Toll Free 855-632-6736
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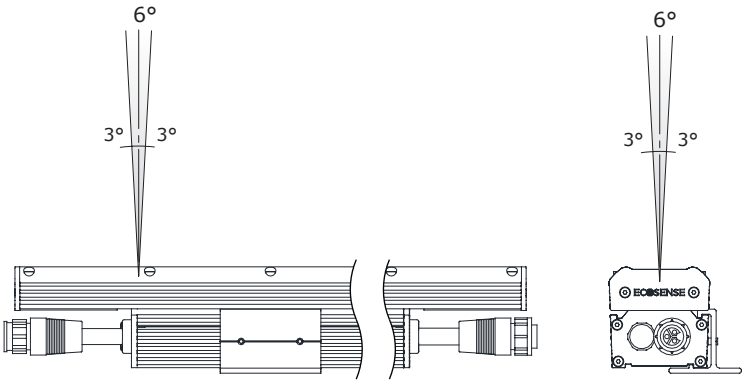
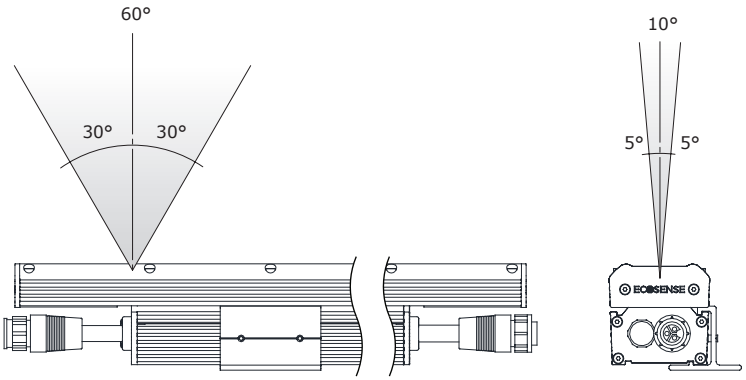
EcoSpec® Linear HP EXT Wall Wash - Standard Power

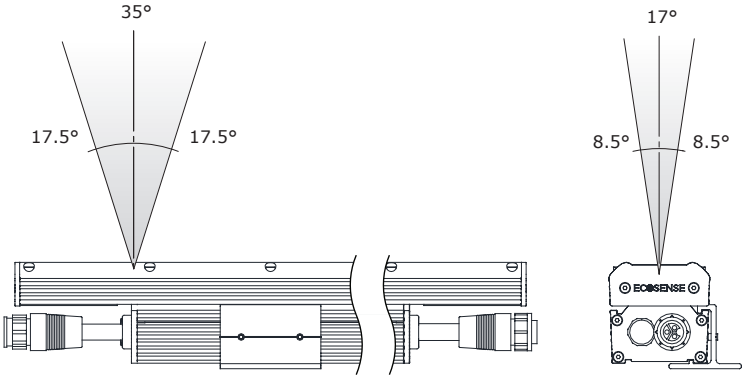
DISTRIBUTIONS



WWEX-XX-XX-XXX-6
6° x 6°



WWEX-XX-XX-XXX-10
10° x 60°



WWEX-XX-XX-XXX-17
17° x 35°

EcoSense Lighting Inc.
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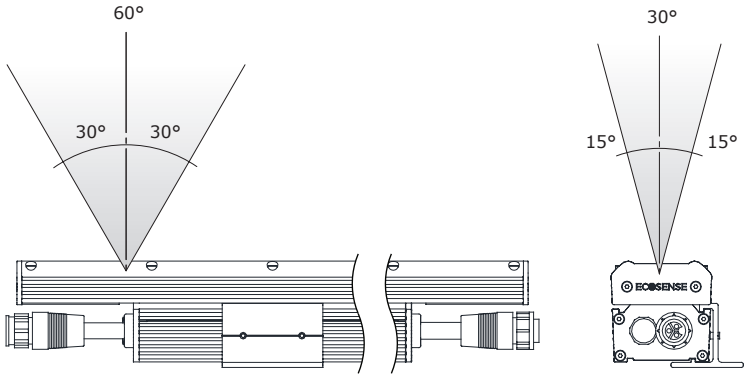
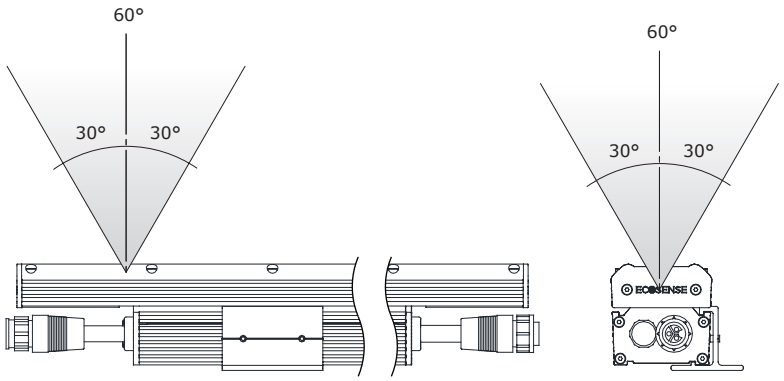
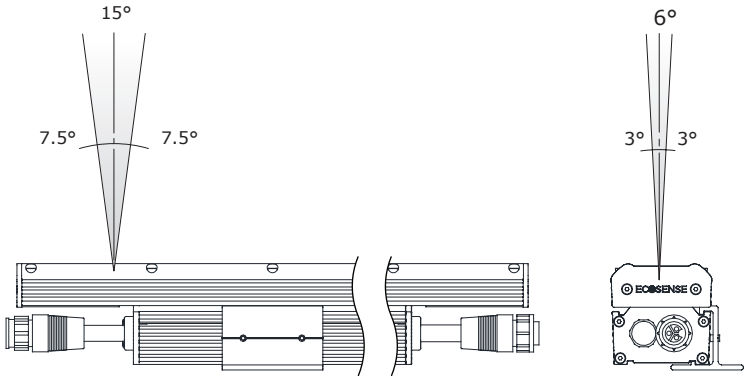
DISTRIBUTIONS



WWEX-XX-XX-XXX-30
30° x 60°



WWEX-XX-XX-XXX-60
60° x 60°



WWEX-XX-XX-XXX-6F
6° x 15°

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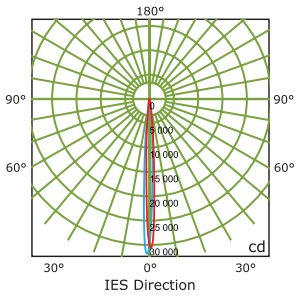
PHOTOMETRY CHARACTERISTICS

For complete library of IES files, please visit: ecosenselighting.com

6°x 6°

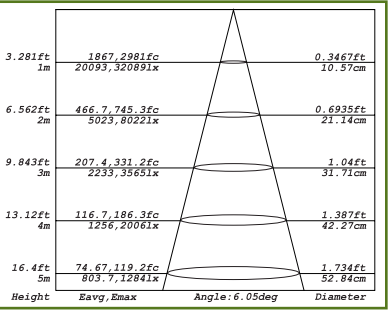
2700K*

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 2700K / 6°X 6°	
Total Rated Fixture Lumens	826
Total Luminaire Efficiency	100%
Total Input Watts	10.7W
Horizontal Beam Angle (50%)	6.3
Vertical Beam Angle (50%)	6.4
Horizontal Field Angle (10%)	14.4
Vertical Field Angle (10%)	14.6



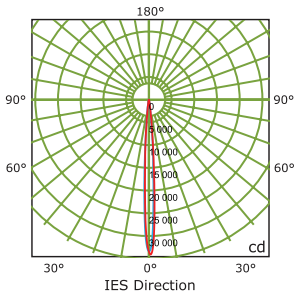
IES Direction

	0	22.5	45	67.5	90
0	29977.3	29842.2	30007.2	29872.4	29950.3
5	10775	11590.1	11320	10523.7	9102.9
15	541.3	570.7	586.5	557.8	512.7
25	100.5	102.9	99.1	99.7	95.6
35	37	36.6	36.6	36.2	35.8
45	24.5	24.8	24.9	23.8	22.6
55	17.5	17.4	17.5	16.4	16
65	7.6	7.4	7.7	7.2	6.9
75	2.8	2.7	2.8	2.5	2.3
85	0.4	0.3	0.3	0.1	0.1
90	0	0	0	0	0



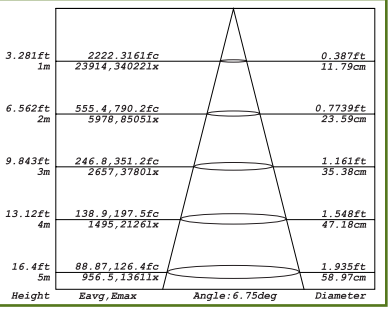
3000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3000K / 6°X 6°	
Total Rated Fixture Lumens	842
Total Luminaire Efficiency	100%
Total Input Watts	10.51W
Horizontal Beam Angle (50%)	7.1
Vertical Beam Angle (50%)	7
Horizontal Field Angle (10%)	14.2
Vertical Field Angle (10%)	14.5



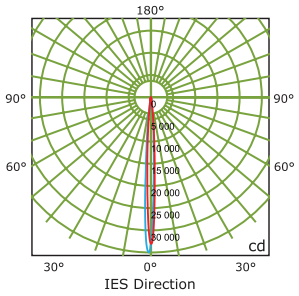
IES Direction

	0	22.5	45	67.5	90
0	33336	33345	33391	33263	33476
5	7954	10496	9584	11792	10734
15	288	304	307	292	284
25	63	66	67	71	71
35	27	27	27	28	28
45	19	19	19	19	19
55	14	15	15	15	15
65	7	7	8	8	8
75	2	2	3	3	3
85	0	0	0	0	0
90	0	0	0	0	0



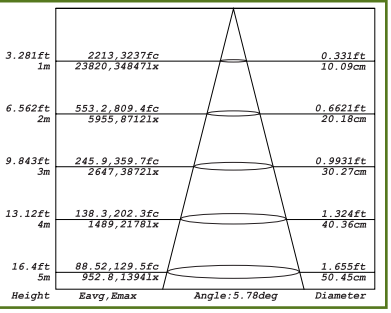
3500K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3500K / 6°X 6°	
Total Rated Fixture Lumens	847
Total Luminaire Efficiency	100%
Total Input Watts	11.01W
Horizontal Beam Angle (50%)	6.4
Vertical Beam Angle (50%)	5.9
Horizontal Field Angle (10%)	14
Vertical Field Angle (10%)	13.8



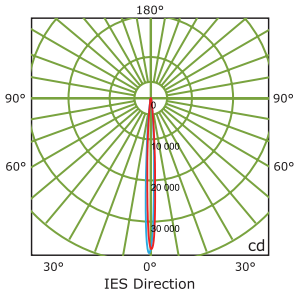
IES Direction

	0	22.5	45	67.5	90
0	33176.9	32950.1	33154.7	32927.6	32949.5
5	11278.1	11207.6	10147	8977	7539.6
15	541.4	558.5	545.1	532.9	492.7
25	110.6	106	100.9	97.9	92.7
35	38.4	36.8	35.8	35.2	34.8
45	25.5	23.5	23.5	22.5	21.9
55	18.7	17.4	17.3	16.4	16.2
65	8.4	8	8.1	7.5	7.2
75	3.2	2.8	2.9	2.6	2.5
85	0.5	0.3	0.3	0.1	0.1
90	0	0	0	0	0



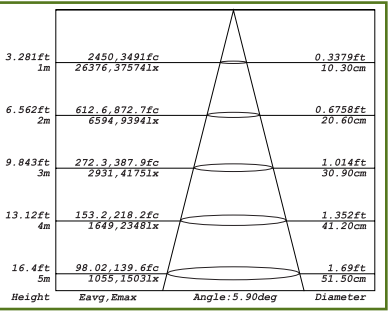
4000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 4000K / 6°X 6	
Total Rated Fixture Lumens	901
Total Luminaire Efficiency	100%
Total Input Watts	10.97W
Horizontal Beam Angle (50%)	6.3
Vertical Beam Angle (50%)	6.1
Horizontal Field Angle (10%)	14.1
Vertical Field Angle (10%)	14



IES Direction

	0	22.5	45	67.5	90
0	36642.1	36507.7	36599.7	36500.8	36580.3
5	10537	10990.2	10555.6	9958	8822.1
15	549.9	576	568.2	565.3	521.8
25	94.6	95.5	91.3	91.6	88.2
35	36.1	34.8	34.4	34.6	34.6
45	23.7	22.7	22.7	22.5	22.5
55	18.5	17.8	17.5	16.7	16.6
65	8.5	8.4	8.4	7.8	7.4
75	3.2	2.9	3	2.7	2.6
85	0.4	0.3	0.3	0.1	0.1
90	0	0	0	0	0



Photometrics by an independant lab in accordance with current IES published Procedures.
* Lumen measurements comply with IES LM-79-08.
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PHOTOMETRY CHARACTERISTICS

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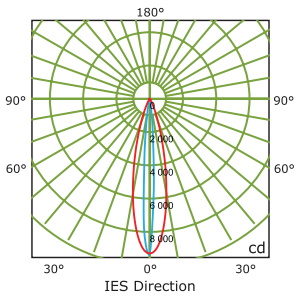
6°x 15°

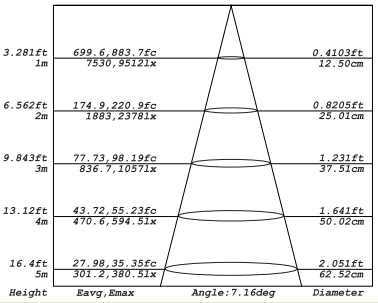
2700K*

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 2700K / 6°X 15°	
Total Rated Fixture Lumens	800
Total Luminaire Efficiency	100%
Total Input Watts	10.58W
Horizontal Beam Angle (50%)	22.1
Vertical Beam Angle (50%)	7.3
Horizontal Field Angle (10%)	44.2
Vertical Field Angle (10%)	16.3



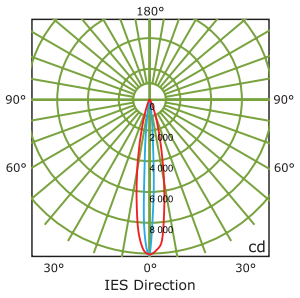
IES Direction

	0	22.5	45	67.5	90
0	9304.2	9301.7	9281.7	9318.6	9277.2
5	8259.6	6130.2	3688.1	2513.9	2116.7
15	3197.9	798.6	225.3	160.7	153.1
25	553.5	121.4	86.6	67.3	55.6
35	90.8	50	37.6	33.6	32.5
45	40.5	28	24.3	23.1	23.6
55	27.3	18.1	16.6	16.5	17.2
65	16.9	10.8	10	9.8	9.6
75	7	4.3	4	3.6	3.2
85	0.7	0.3	0.2	0.1	0.1
90	0	0	0	0	0



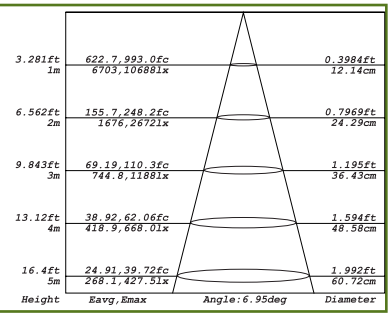
3000K

CHARACTERISTICS: LINEAR HP ENT WW - SP (WWES) 3000K / 6°X 15°	
Total Rated Fixture Lumens	797
Total Luminaire Efficiency	100%
Total Input Watts	10.91W
Horizontal Beam Angle (50%)	7.2
Vertical Beam Angle (50%)	20
Horizontal Field Angle (10%)	15.9
Vertical Field Angle (10%)	37.9



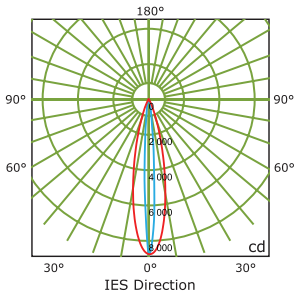
IES Direction

	0	22.5	45	67.5	90
0	6991.9	6960.9	7032.7	7013.5	7057.9
5	7194.9	7695.7	9113.7	9363.3	6773.7
15	287.2	324.1	576	2039.3	2882.9
25	85.7	93.5	108.3	196.6	526.8
35	38	38.4	42.9	57	88.7
45	26	25.6	26.4	29.6	38
55	19.6	19.3	18.6	19.2	25
65	11.5	11.8	11.8	12	15.4
75	4.6	5	5.4	5.5	6.6
85	0.6	0.6	0.9	0.9	0.9
90	0	0	0	0	0.1



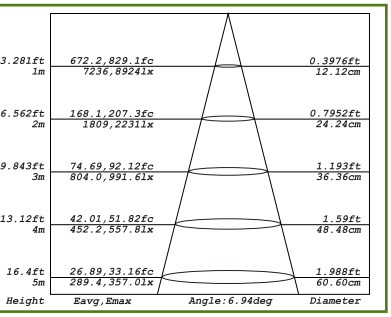
3500K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3500K / 6°X 15°	
Total Rated Fixture Lumens	801
Total Luminaire Efficiency	100%
Total Input Watts	10.87W
Horizontal Beam Angle (50%)	21.4
Vertical Beam Angle (50%)	7.2
Horizontal Field Angle (10%)	43.7
Vertical Field Angle (10%)	17.8



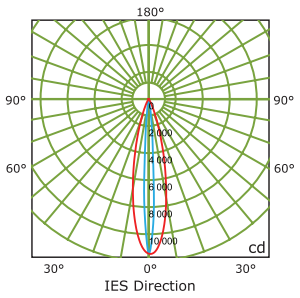
IES Direction

	0	22.5	45	67.5	90
0	8759.5	8749.2	8757.7	8732.1	8747.6
5	7857.9	7334.2	5006.4	3737.7	3328.1
15	2976.8	1355.6	539.2	404.8	357.8
25	541.1	240.7	141.9	99	87.3
35	108.3	73.8	52.9	44.8	41.9
45	48.1	36.4	31.1	28.6	28.2
55	30.8	22.5	20.2	19	18.1
65	18.5	13	11.6	9.8	8.5
75	7.8	5.3	4.6	3.6	3.2
85	1	0.6	0.4	0.1	0.1
90	0	0	0	0	0



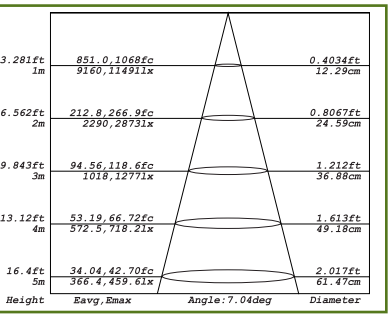
4000K

CHARACTERISTICS: LINEAR HP ENT WW - SP (WWES) 4000K / 6°X 15°	
Total Rated Fixture Lumens	903
Total Luminaire Efficiency	100%
Total Input Watts	11.04W
Horizontal Beam Angle (50%)	24.1
Vertical Beam Angle (50%)	7.3
Horizontal Field Angle (10%)	44.9
Vertical Field Angle (10%)	15.3



IES Direction

	0	22.5	45	67.5	90
0	11457.4	11445.4	11453.6	11432.6	11449.9
5	10444.5	9279.7	5911.5	3988.5	3376.8
15	4236.5	1384.9	394.4	214.3	187.8
25	743.7	189.5	97.5	78	63.4
35	112.1	58.6	42.7	37.8	36.4
45	46.1	31.9	27.8	26.8	27.5
55	31	20.9	19.5	19.7	20
65	19.6	12.8	12	11.5	10.7
75	8.6	5.5	5.1	4.4	3.9
85	1.2	0.6	0.5	0.1	0.2
90	0.1	0	0	0	0



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PHOTOMETRY CHARACTERISTICS

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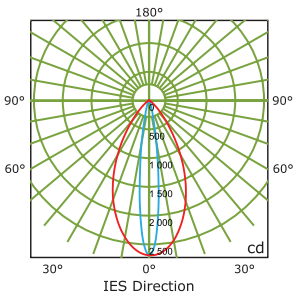
10°x 60°

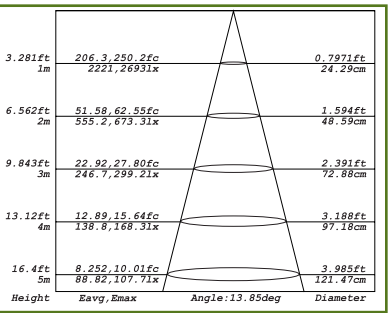
2700K*

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 2700K / 10°X 60°	
Total Rated Fixture Lumens	797
Total Luminaire Efficiency	100%
Total Input Watts	10.64W
Horizontal Beam Angle (50%)	53.4
Vertical Beam Angle (50%)	14.3
Horizontal Field Angle (10%)	89.9
Vertical Field Angle (10%)	29.5



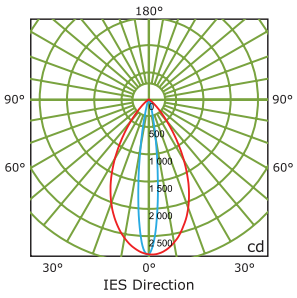
IES Direction

	0	22.5	45	67.5	90
0	2692.2	2688.9	2687.8	2684.8	2689.6
5	2641.4	2533.1	2229.8	1999.5	1876
15	2191.9	1420.5	557	297.7	239.1
25	1485.5	487.6	128.2	81.2	69.7
35	731.6	143.5	57.2	39.4	35.4
45	252.2	59.4	32.4	25.2	23.3
55	74.3	31.7	20.7	16.7	15.4
65	27.3	17.6	12.2	9.8	8.8
75	9.7	7.4	5	3.9	3.4
85	1.1	0.9	0.3	0.1	0.1
90	0	0	0	0	0



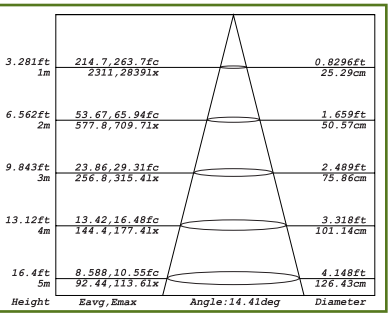
3000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3000K / 10°X 60°	
Total Rated Fixture Lumens	858
Total Luminaire Efficiency	100%
Total Input Watts	11.3W
Horizontal Beam Angle (50%)	56.3
Vertical Beam Angle (50%)	14.7
Horizontal Field Angle (10%)	90.6
Vertical Field Angle (10%)	29



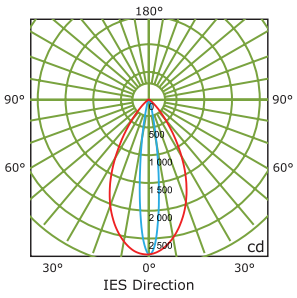
IES Direction

	0	22.5	45	67.5	90
0	2835.3	2830.7	2834.8	2830.5	2831.9
5	2802.2	2670.6	2264.9	1987.1	1871
15	2415	1483.7	562.6	272.4	211.8
25	1723.2	524	112.1	69	60.5
35	859.8	143	52.6	37.3	33.9
45	280.3	56	31.8	25	23.2
55	75.7	31.1	20.9	17	15.7
65	27.3	17.7	12.4	10	9.1
75	9.9	7.4	5	3.7	3.3
85	1.2	0.7	0.3	0.1	0.1
90	0	0	0	0	0



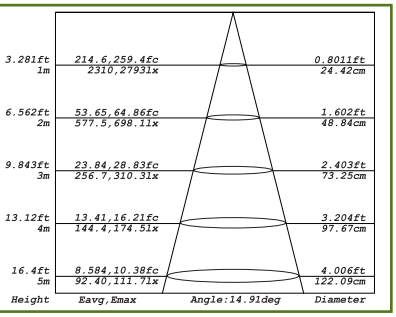
3500K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3500K / 10°X 60°	
Total Rated Fixture Lumens	814
Total Luminaire Efficiency	100%
Total Input Watts	10.91W
Horizontal Beam Angle (50%)	55.3
Vertical Beam Angle (50%)	14.4
Horizontal Field Angle (10%)	89.2
Vertical Field Angle (10%)	28.6



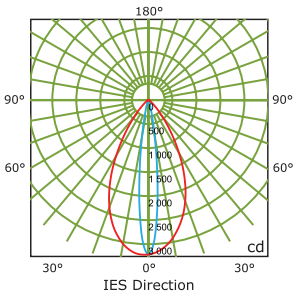
IES Direction

	0	22.5	45	67.5	90
0	2787.2	2787.6	2784.3	2785.2	2785.6
5	2704.2	2618.3	2349.7	2117.7	2024.5
15	2266.9	1499.8	605.3	306.3	244.2
25	1588.3	510.6	113.6	70.9	63.4
35	787.5	133.6	50.5	37.6	34.9
45	255.4	51.4	30.7	25.3	23.9
55	69.1	28.4	20.5	17.5	16.2
65	25	16	12.5	10.5	9.5
75	8.9	6.5	5.2	4.1	3.7
85	0.9	0.6	0.3	0.1	0.1
90	0	0	0	0	0



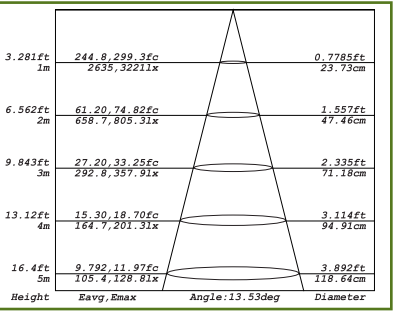
4000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 4000K / 10°X 60°	
Total Rated Fixture Lumens	877
Total Luminaire Efficiency	100%
Total Input Watts	11.11W
Horizontal Beam Angle (50%)	54.2
Vertical Beam Angle (50%)	13.7
Horizontal Field Angle (10%)	86
Vertical Field Angle (10%)	27



IES Direction

	0	22.5	45	67.5	90
0	3219.9	3215.8	3217.6	3207.2	3212.7
5	3117.8	2955.9	2584.2	2278.8	2162.7
15	2619.2	1588.9	564.8	264.7	206.6
25	1778.6	491.2	103	64.9	57.2
35	817.3	123.2	48.6	35.1	32.2
45	243	50.1	29.8	24	22.4
55	64.5	28.4	20	16.6	15.3
65	24.6	16.1	12.1	9.9	8.8
75	9.1	6.6	4.9	3.7	3.3
85	1.1	0.6	0.3	0.1	0.2
90	0	0	0	0	0



Photometrics by an independant lab in accordance with current IES published Procedures.
* Lumen measurements comply with IES LM-79-08.
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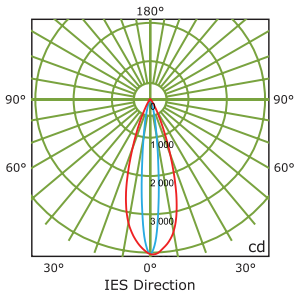
17°x 35°

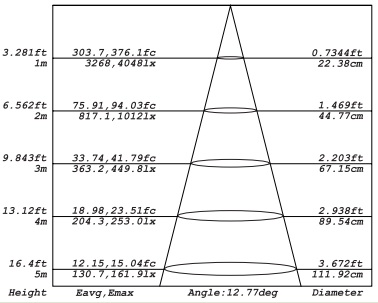
2700K*

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 2700K / 17°X 35°	
Total Rated Fixture Lumens	778
Total Luminaire Efficiency	100%
Total Input Watts	10.52W
Horizontal Beam Angle (50%)	34.5
Vertical Beam Angle (50%)	13
Horizontal Field Angle (10%)	56.3
Vertical Field Angle (10%)	30.1



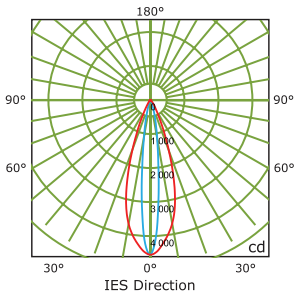
IES Direction

	0	22.5	45	67.5	90
0	4042	4044	4036	4036	4033
5	3897	3661	3129	2754	2552
15	2647	1649	716	454	378
25	717	382	160	97	83
35	160	101	53	39	36
45	52	40	29	24	23
55	22	21	19	18	17
65	10	10	10	12	11
75	3	3	3	5	5
85	0	0	0	0	1
90	0	0	0	0	0



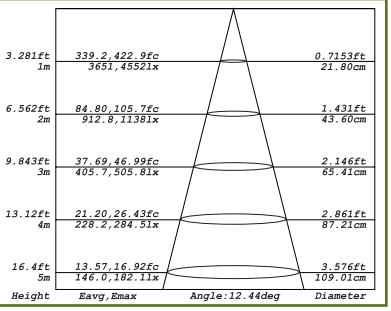
3000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3000K / 17°X 35°	
Total Rated Fixture Lumens	859
Total Luminaire Efficiency	100%
Total Input Watts	10.89W
Horizontal Beam Angle (50%)	33.9
Vertical Beam Angle (50%)	12.6
Horizontal Field Angle (10%)	56
Vertical Field Angle (10%)	30



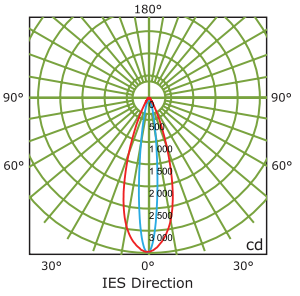
IES Direction

	0	22.5	45	67.5	90
0	4548	4552	4541	4545	4547
5	4232	3892	3313	2949	2773
15	2763	1568	776	548	479
25	745	384	175	105	92
35	173	109	56	43	40
45	58	44	31	27	26
55	24	23	21	20	19
65	11	11	12	13	13
75	4	3	4	5	6
85	0	0	0	0	1
90	0	0	0	0	0



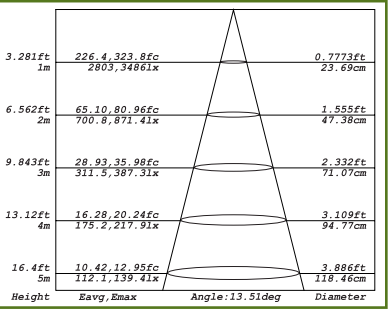
3500K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3500K / 17°X 35°	
Total Rated Fixture Lumens	737
Total Luminaire Efficiency	100%
Total Input Watts	10.92W
Horizontal Beam Angle (50%)	14
Vertical Beam Angle (50%)	34.2
Horizontal Field Angle (10%)	31.4
Vertical Field Angle (10%)	57.5



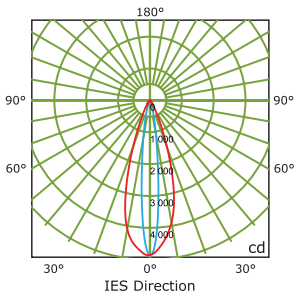
IES Direction

	0	22.5	45	67.5	90
0	3469.4	3466	3472.1	3470.4	3469.4
5	2519.2	2665.1	2957.4	3245	3263.5
15	397.9	483.2	801.3	1636.3	2034
25	88.3	101.1	166.4	385.6	560.5
35	44.6	48.1	60.4	104.8	134.4
45	31.1	33	36.7	45.3	50.5
55	23.4	24.5	24.9	24.8	24.4
65	15.7	15.9	13	11.7	11.5
75	6.9	6	3.9	3.5	4.1
85	0.8	0.3	0.2	0.1	0.1
90	0	0	0	0	0



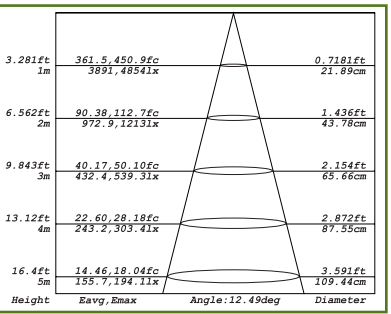
4000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 4000K / 17°X 35°	
Total Rated Fixture Lumens	884
Total Luminaire Efficiency	100%
Total Input Watts	11.06W
Horizontal Beam Angle (50%)	12.7
Vertical Beam Angle (50%)	33.3
Horizontal Field Angle (10%)	29.6
Vertical Field Angle (10%)	54.6



IES Direction

	0	22.5	45	67.5	90
0	4851.4	4852.4	4851.8	4851.2	4848.6
5	2973.6	3167.2	3630.8	4233.3	4505.4
15	504.2	581.6	865.7	1850.2	2869.8
25	93.4	108.4	188.1	395.7	678.1
35	41.2	44.6	58.4	104.6	135.7
45	26.5	28.3	32.2	42.9	48.4
55	19.4	20.4	21.6	23	23.5
65	12.9	13.2	11.5	11	11.5
75	5.8	5.1	3.7	3.3	3.9
85	0.6	0.3	0.2	0.1	0.1
90	0	0	0	0	0



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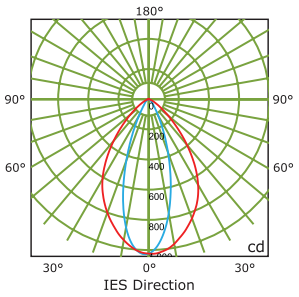
30°x 60°

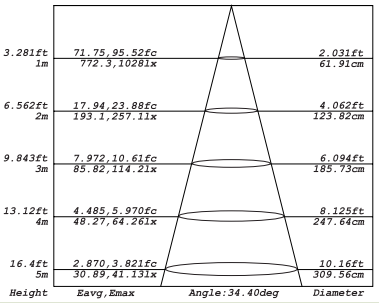
2700K*

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 2700K / 30°X 60°	
Total Rated Fixture Lumens	778
Total Luminaire Efficiency	100%
Total Input Watts	10.41W
Horizontal Beam Angle (50%)	68.8
Vertical Beam Angle (50%)	34.7
Horizontal Field Angle (10%)	108.9
Vertical Field Angle (10%)	64.7



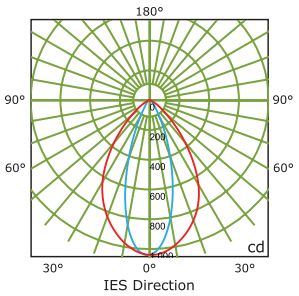
IES Direction

	0	22.5	45	67.5	90
0	1026.1	1022.7	1024.5	1022.3	1022.3
5	1014.3	994.4	968.1	949.8	935.2
15	911.8	829	700.4	609.6	565.1
25	757.9	596.7	378.7	264.8	227.3
35	531.8	338.5	151.2	87.8	73.3
45	269	139.9	55	37.5	34.3
55	99	50	27.5	23.5	22.6
65	33.6	21.5	15.8	14.4	14
75	10.9	8.6	6.6	6.1	5.7
85	1.3	1.1	0.6	0.2	0.2
90	0	0	0	0	0



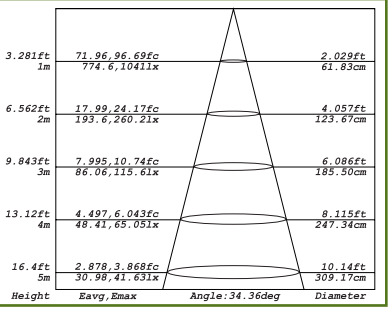
3000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3000K / 30°X 60°	
Total Rated Fixture Lumens	782
Total Luminaire Efficiency	100%
Total Input Watts	10.6W
Horizontal Beam Angle (50%)	68.3
Vertical Beam Angle (50%)	38.4
Horizontal Field Angle (10%)	108
Vertical Field Angle (10%)	64



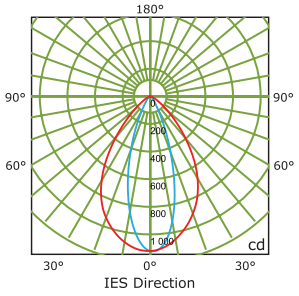
IES Direction

	0	22.5	45	67.5	90
0	1039.4	1039.9	1039.2	1039	1039.8
5	1027.6	1015.5	992.9	974.9	964.1
15	930.3	860.4	733.6	642.8	598.8
25	770.6	626.6	400.1	282.1	244.1
35	514.6	348.6	159.4	93.5	78.5
45	245	138.8	57.7	39.7	36.4
55	87.4	49.5	28.8	24.6	23.7
65	30.3	21.8	16.4	15	14.7
75	9.9	8.6	6.8	6.4	6.1
85	1	0.9	0.5	0.2	0.2
90	0	0	0	0	0



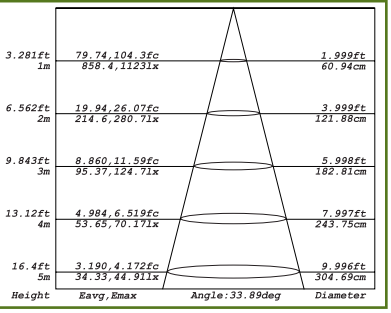
3500K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3500K / 30°X 60°	
Total Rated Fixture Lumens	816
Total Luminaire Efficiency	100%
Total Input Watts	10.98W
Horizontal Beam Angle (50%)	68.2
Vertical Beam Angle (50%)	34
Horizontal Field Angle (10%)	107
Vertical Field Angle (10%)	62.5



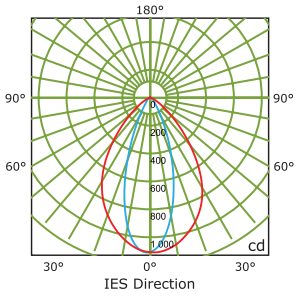
IES Direction

	0	22.5	45	67.5	90
0	1120	1120.6	1121.3	1119.6	1120.2
5	1099	1104	1096.6	1086.7	1080.5
15	984.5	946	825.1	724	679.5
25	805.8	672.7	422.5	283.1	237.8
35	544.8	354.2	144.7	78.8	64.7
45	269.4	131.1	48.8	34.8	32.5
55	98.5	45.2	25.9	22.9	22.1
65	33	20.1	15.2	14.2	13.7
75	10.4	8	6.3	5.9	5.3
85	1.2	0.9	0.4	0.1	0.1
90	0	0	0	0	0



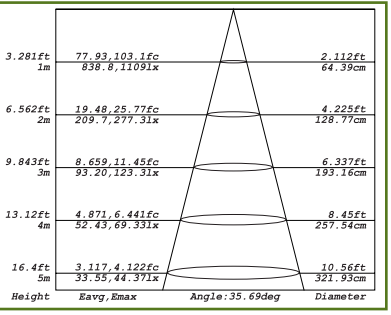
4000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 4000K / 30°X 60°	
Total Rated Fixture Lumens	879
Total Luminaire Efficiency	100%
Total Input Watts	11.11W
Horizontal Beam Angle (50%)	70.9
Vertical Beam Angle (50%)	35.9
Horizontal Field Angle (10%)	109.9
Vertical Field Angle (10%)	65.7



IES Direction

	0	22.5	45	67.5	90
0	1107.8	1106.9	1106.5	1106.5	1106.3
5	1101.3	1084.2	1059	1037.9	1025.5
15	1012.4	933.1	797.4	695.8	648.6
25	857.3	690.6	448.3	315	270.8
35	601.3	400.7	182.2	105.3	87.1
45	305.2	166.7	65.2	43.5	39.5
55	112.1	59	31.7	26.6	25.6
65	37.6	24.8	17.8	16	15.6
75	11.9	9.6	7.2	6.6	6.2
85	1.4	1.1	0.5	0.2	0.2
90	0.1	0	0	0	0



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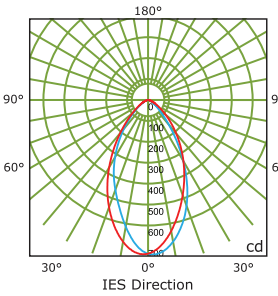
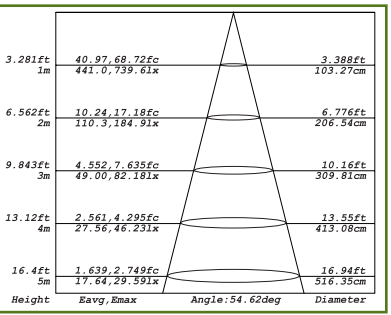
60°x 60°

2700K*

CHARACTERISTICS: LINEAR HP ENT WW - SP (WWES) 2700K / 60°X 60°	
Total Rated Fixture Lumens	776
Total Luminaire Efficiency	100%
Total Input Watts	10.84W
Horizontal Beam Angle (50%)	58
Vertical Beam Angle (50%)	54.7
Horizontal Field Angle (10%)	108.3
Vertical Field Angle (10%)	99.1

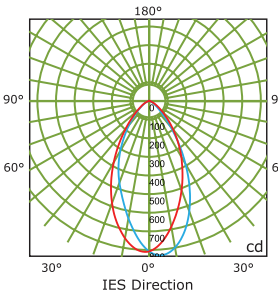


	0	22.5	45	67.5	90
0	734.57	735.19	734.14	734.89	734.7
5	691.13	688.83	688.03	693.28	699.15
15	530.97	525.25	528.18	542.76	560.48
25	387.67	382.87	383.78	393.65	409.24
35	244.14	244.93	251.94	263.94	270.69
45	124.17	128.56	137.35	150.23	154.43
55	54.26	57.60	63.71	72.16	74.59
65	23	24.54	27.31	31.25	32.27
75	7.76	8.47	9.33	11.07	11.3
85	0.34	0.52	0.86	1.31	1.49
90	0	0	0	0	0

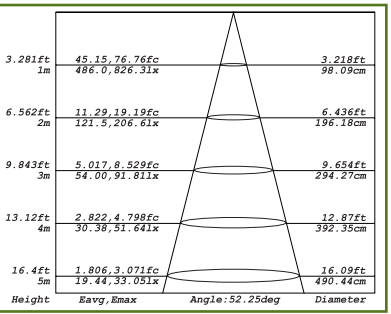


3000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3000K / 60°X 60°	
Total Rated Fixture Lumens	809
Total Luminaire Efficiency	100%
Total Input Watts	11.09W
Horizontal Beam Angle (50%)	54.4
Vertical Beam Angle (50%)	52.3
Horizontal Field Angle (10%)	103.5
Vertical Field Angle (10%)	96.9

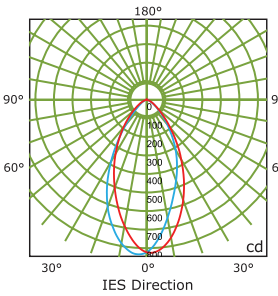


	0	22.5	45	67.5	90
0	807.5	807.4	808.3	807.1	807.5
5	762.1	783.5	802.4	819.9	830.1
15	596.8	644.7	679	710.5	728.4
25	423.9	465	491.4	512.8	513.7
35	270.2	288.8	294.3	286.3	274.6
45	144.2	148.1	137.3	120.9	108.5
55	67	65.9	57.1	48.3	43.1
65	29.1	28.3	25	22.1	20.4
75	10.2	10.1	9.2	8.5	7.9
85	1.1	1	0.6	0.3	0.1
90	0	0	0	0	0

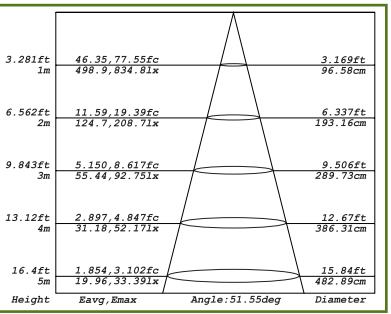


3500K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 3500K / 60°X 60°	
Total Rated Fixture Lumens	805
Total Luminaire Efficiency	100%
Total Input Watts	11.08W
Horizontal Beam Angle (50%)	53
Vertical Beam Angle (50%)	51.6
Horizontal Field Angle (10%)	103.7
Vertical Field Angle (10%)	97.5

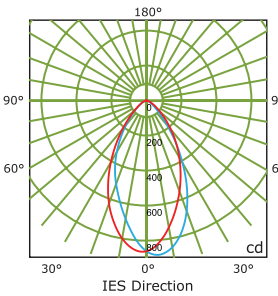


	0	22.5	45	67.5	90
0	822.6	822.4	821.8	821.8	821.2
5	811.5	795.8	776.7	761.9	748.4
15	670.3	639	596.2	572.3	547.4
25	474.6	451.2	423.2	408	386.4
35	280.3	273.1	264.2	250.4	237.3
45	135.3	136.9	131.3	124.2	118.4
55	59.4	61	57.9	54.8	52.7
65	26	27.2	25.4	24.2	23.6
75	9.3	10	9	8.5	8.2
85	1	1	0.5	0.2	0.2
90	0	0	0	0	0

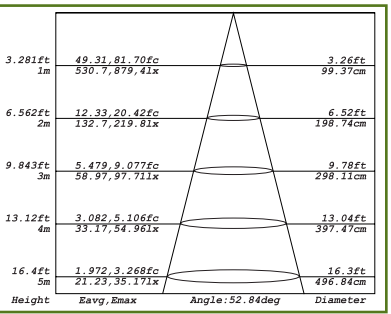


4000K

CHARACTERISTICS: LINEAR HP EXT WW - SP (WWES) 4000K / 60°X 60°	
Total Rated Fixture Lumens	868
Total Luminaire Efficiency	100%
Total Input Watts	10.9W
Horizontal Beam Angle (50%)	55
Vertical Beam Angle (50%)	52.9
Horizontal Field Angle (10%)	103.4
Vertical Field Angle (10%)	97



	0	22.5	45	67.5	90
0	861.1	860.9	860.9	860.3	860.6
5	814.9	835.9	856.3	872.8	883.1
15	644.1	688.8	727.4	759	776.3
25	461.4	502.4	528.4	548	546
35	294.5	311.7	315.1	304	289.2
45	155.8	157.8	144.7	126.6	112.9
55	71.1	68.9	59.4	50.1	44.7
65	30.5	29.5	25.9	23	21.3
75	10.6	10.5	9.6	8.9	8.2
85	1.1	1.1	0.7	0.4	0.3
90	0	0	0	0	0



Photometrics by an independant lab in accordance with current IES published Procedures.
* Lumen measurements comply with IES LM-79-08.
IES data is available at www.ecosenselighting.com

EcoSense Lighting Inc.
915 Wilshire Boulevard
Suite 2175
Los Angeles, CA 90017

Phone 310-496-6255
Fax 310-496-6256
Toll Free 855-632-6736
855-6-ECOSEN

LIGHTING FACTS LABELS

EcoSense Lighting

LED lighting facts®
A Program of the U.S. DOE

Light Output (Lumens)	826
Watts	10.7
Lumens per Watt (Efficacy)	77
Color Accuracy Color Rendering Index (CRI)	81

Light Color
Correlated Color Temperature (CCT) 2700 (Warm White)

All results are according to IESNA LM-79-2008: *Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.* The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the *Label Reference Guide.*

Registration Number: XNX5-TCM2K7 (Revised)
Model Number: WWES-12-27-120-6
Type: Luminaire - Cove

EcoSense Lighting

LED lighting facts®
A Program of the U.S. DOE

Light Output (Lumens)	800
Watts	10.58
Lumens per Watt (Efficacy)	75
Color Accuracy Color Rendering Index (CRI)	81

Light Color
Correlated Color Temperature (CCT) 2700 (Warm White)

All results are according to IESNA LM-79-2008: *Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.* The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the *Label Reference Guide.*

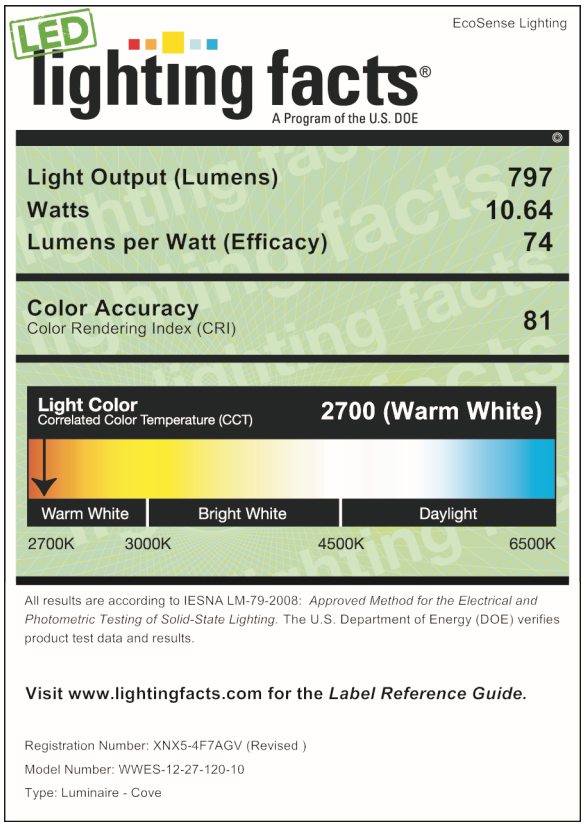
Registration Number: XNX5-IBZ78N (Revised)
Model Number: WWES-12-27-120-6F
Type: Luminaire - Cove

EcoSense Lighting Inc.
915 Wilshire Boulevard
Suite 2175
Los Angeles, CA 90017

Phone 310-496-6255
Fax 310-496-6256
Toll Free 855-632-6736
855-6-ECOSEN

EcoSpec® Linear HP EXT Wall Wash - Standard Power

LIGHTING FACTS LABELS



EcoSense Lighting

LED lighting facts®

A Program of the U.S. DOE

Light Output (Lumens)	797
Watts	10.64
Lumens per Watt (Efficacy)	74
Color Accuracy Color Rendering Index (CRI)	81

Light Color
Correlated Color Temperature (CCT) 2700 (Warm White)

Warm White | Bright White | Daylight

2700K 3000K 4500K 6500K

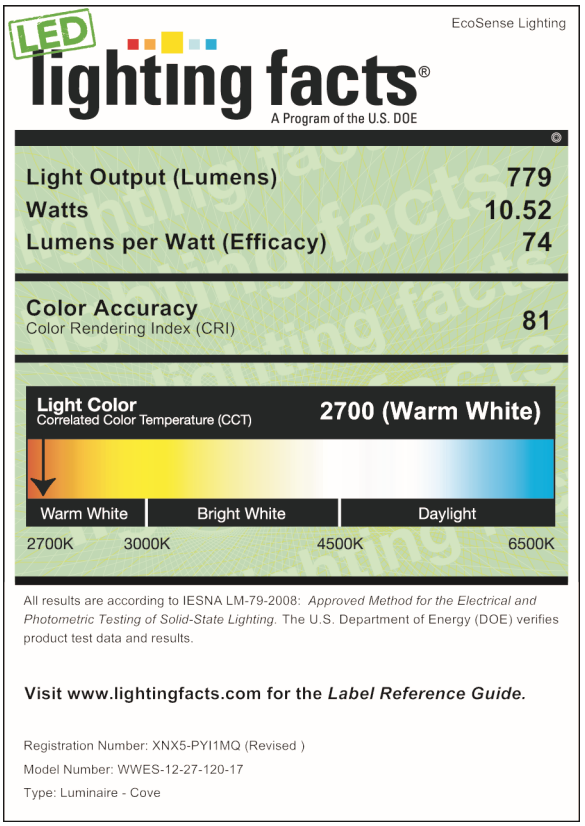
All results are according to IESNA LM-79-2008: *Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.* The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the *Label Reference Guide.*

Registration Number: XNX5-4F7AGV (Revised)

Model Number: WWES-12-27-120-10

Type: Luminaire - Cove



EcoSense Lighting

LED lighting facts®

A Program of the U.S. DOE

Light Output (Lumens)	779
Watts	10.52
Lumens per Watt (Efficacy)	74
Color Accuracy Color Rendering Index (CRI)	81

Light Color
Correlated Color Temperature (CCT) 2700 (Warm White)

Warm White | Bright White | Daylight

2700K 3000K 4500K 6500K

All results are according to IESNA LM-79-2008: *Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.* The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the *Label Reference Guide.*

Registration Number: XNX5-PYI1MQ (Revised)

Model Number: WWES-12-27-120-17

Type: Luminaire - Cove

EcoSense Lighting Inc.
915 Wilshire Boulevard
Suite 2175
Los Angeles, CA 90017

Phone 310-496-6255
Fax 310-496-6256
Toll Free 855-632-6736
855-6-ECOSEN

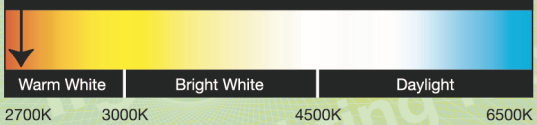
LIGHTING FACTS LABELS

EcoSense Lighting

LED lighting facts®
A Program of the U.S. DOE

Light Output (Lumens)	778
Watts	10.41
Lumens per Watt (Efficacy)	74
Color Accuracy Color Rendering Index (CRI)	82

Light Color Correlated Color Temperature (CCT) — 2700 (Warm White)



All results are according to IESNA LM-79-2008: *Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.* The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the *Label Reference Guide.*

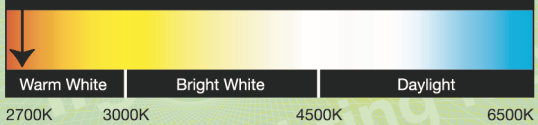
Registration Number: XNX5-6VB5MJ (Revised)
Model Number: WWES-12-27-120-30
Type: Luminaire - Cove

EcoSense Lighting

LED lighting facts®
A Program of the U.S. DOE

Light Output (Lumens)	776
Watts	10.84
Lumens per Watt (Efficacy)	71
Color Accuracy Color Rendering Index (CRI)	81

Light Color Correlated Color Temperature (CCT) — 2700 (Warm White)



All results are according to IESNA LM-79-2008: *Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.* The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the *Label Reference Guide.*

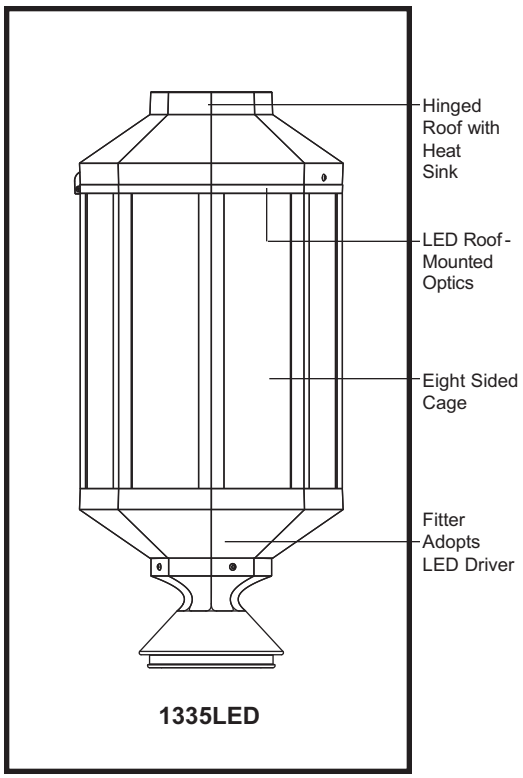
Registration Number: XNX5-2CRI57 (9/24/2014)
Model Number: WWES-12-27-120-60
Type: Luminaire - Cove

EcoSense Lighting Inc.
915 Wilshire Boulevard
Suite 2175
Los Angeles, CA 90017

Phone 310-496-6255
Fax 310-496-6256
Toll Free 855-632-6736
855-6-ECOSEN

1335 LED REVERE SERIES SPECIFICATIONS

LUMINAIRE PHOTOMETRY USED FOR SITE LIGHTING CALCULATION



EPA = 3.96 (ft^2)
WEIGHT = 45LBS

LUMINAIRE DESIGN

- The luminaire shall be a modern replica of a gothic styled octagonal fixture.
- The luminaire shall be 15 1/2" x 30" tall.
- The luminaire shall have a heavy wall hinged roof with internal heatsink.
- The luminaire shall have LED light sources with roof mounted, down-lighting optics.
- The luminaire shall be supplied with line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines.
- The luminaire shall be U.L. or E.T.L. listed in the U.S. and Canada.

POST FITTER

- The fitter shall be heavy wall cast aluminum for high tensile strength.
- The fitter shall have an inside diameter opening to attach to a 3", 4", 5" or 8" pole or tenon.
- When ordered with a Sternberg pole, the fitter shall be attached by set-screw to the pole top or tenon.

DRIVER

- The LED driver shall be securely mounted inside the fitter, for optimized performance and longevity.
- The LED driver shall be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections and fixture installation.

LIGHT SOURCES

- The luminaire shall use high output, high brightness LEDs.
- The LEDs shall be mounted in arrays, on printed circuit boards designed to maximize heat transfer to the heat sink surface.
- The LED arrays shall be roof mounted to minimize up-light.
- The LEDs shall be attached to the printed circuit board with not less than 90% pure silver to insure optimal electrical and thermal conductivity.
- The LEDs and printed circuit boards shall be protected from moisture and corrosion by a conformal coating of 1 to 3 mils.
- The LEDs and printed circuit board construction shall be environmentally friendly and 100% recyclable. 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.

(Continued on next page)

1335 LED REVERE SERIES SPECIFICATIONS

LIST NO. 1335 LED REVERE SERIES

OPTICS

- The luminaire shall be provided with individual, acrylic, refractor type optics applied to each LED.
- The luminaire shall provide Type ___ (2, 3, 3R, 4 or 5) light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79-08.

PERFORMANCE

- The LED arrays are built in series-parallel circuits which maintain overall light output in the event of single LED failures.
- The LEDs and LED driver shall operate over a -40°C (-40°F) to +50°C (122°F) ambient air temperature range.
- The High Performance white LEDs 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 4500K (3500K or 2700K option) color temperature with a minimum of 75 CRI.
- 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).

LIGHT SOURCE	T2 SPEC LUMENS	T3 SPEC LUMENS	T3R SPEC LUMENS	T4 SPEC LUMENS	T5 SPEC LUMENS	WATTS
4A1R27T-MDL05	5590	5565	5605	5720	5940	92
4A1R35T-MDL05	6380	6350	6395	6530	6780	92
4A1R45T-MDL05	7165	7130	7185	7336	7615	92
4ARC27T-MDL03	3790	3715	3815	3850	4015	64
4ARC35T-MDL03	4325	4240	4355	4395	4585	64
4ARC45T-MDL03	4860	4760	4890	4935	5150	64
1RND27T-MDL03	1945	1925	1955	1980	1995	32
1RND35T-MDL03	2220	2195	2230	2260	2275	32
1RND45T-MDL03	2495	2465	2505	2540	2560	32

The initial lumen in the photometric file for this luminaire was modified to represent the Xicato XSMB035-1000-C LED module which will be used in the historic and re-created historic lanterns.

ELECTRONIC DRIVERS

- The driver shall be U.L. Listed or Recognized.
- The driver shall have overload as well as short circuit protection.
- The driver shall be a DC voltage output, constant current design, 50/60HZ.

TYPE EE EXISTING TO REMAIN
RETROFIT LED

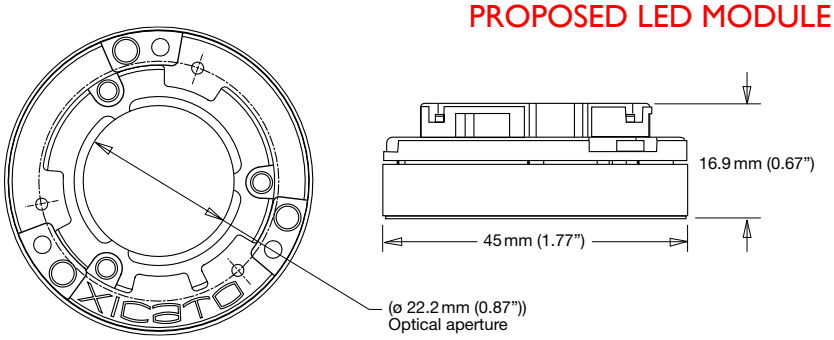
TYPE EE1 CUSTOM TO MATCH EXISTING

PRODUCT DATA SHEET

XSM Standard Series LED Module

Corrected Cold Phosphor Technology®

TYPE EE, EE1
PROPOSED LED MODULE



Specification Features

Physical Characteristics

Module Source Type: Corrected Cold Phosphor LED module. Dia. 45mm (1.77") x 16.9 mm (.67"). Optical Aperture Dia. 22.2mm (.87").
Maximum Case Temperature: 90 °C
Phosphor Proximity: Remote.
Module Weight: 54gm (1.9oz) (100ct box weight 6kg (13.2lbs)).
Interfaces: Base dia. 45mm (1.77"). Provision for accessory reflector attachment. Integral wire harness 24 AWG, 40cm, UL105°C, 300V. Mounting screws M3 x 0.5 x 12mm. Integral thermal pad: Nominal thermal conductivity 10W/m-K (through-plane), 150W/m-K (in-plane), .127mm thick.
Module Housing: Diecast aluminum construction with sealed glass aperture. IP66 rated.
Storage Temperature: -40°C to 85°C

Photometric Characteristics

Color Consistency - Initial: CCT +/- 50K, Duv +/- .001, 1 x 2 step MacAdam (1 x 2 SDCM) along BBL.
Color Rendering Index: Ra: ≥ 80.
Color Consistency - Maintained: C3 50,000hrs.[11]
Lumen Maintenance: L80 50,000 hrs.[4]

Other

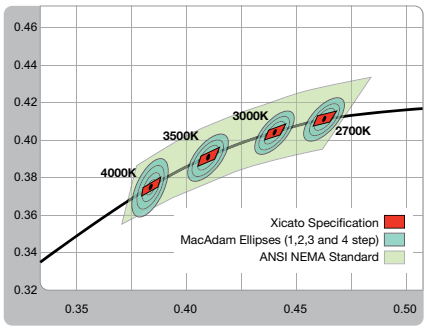
Regulatory: Modules UL recognized. RoHS compliant. CE Compliant (IEC62031). IP66 (IEC60529).
Mercury Content: No mercury.
UV or IR Content: None.

Ordering Guide*

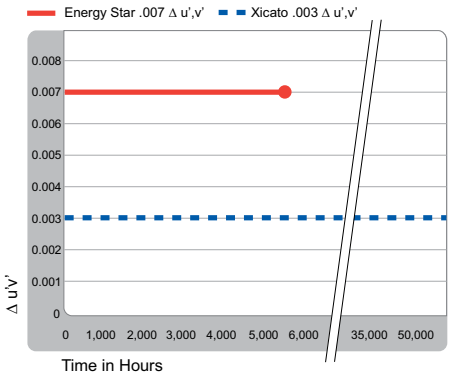
Luminous Flux	Part Number	Correlated Color Temperature
400 lm	XSM8027-400-C	2700K
	XSM8030-400-C	3000K
	XSM8040-400-C	4000K
700 lm	XSM8027-700-C	2700K
	XSM8030-700-C	3000K
	XSM8040-700-C	4000K
1000 lm	XSM8027-1000-C	2700K
	XSM8030-1000-C	3000K
	XSM8035-1000-C	3500K
	XSM8040-1000-C	4000K
1300 lm	XSM8027-1300-C	2700K
	XSM8030-1300-C	3000K
	XSM8035-1300-C	3500K
	XSM8040-1300-C	4000K
2000 lm	XSM8027-2000-C	2700K
	XSM8030-2000-C	3000K
	XSM8035-2000-C	3500K
	XSM8040-2000-C	4000K
3000 lm	XSM8027-3000-C	2700K
	XSM8030-3000-C	3000K
	XSM8035-3000-C	3500K
	XSM8040-3000-C	4000K
4000 lm	XSM8027-4000-C	2700K
	XSM8030-4000-C	3000K
	XSM8035-4000-C	3500K
	XSM8040-4000-C	4000K

* For a complete list of luminaires incoporating Xicato LED Modules and information on compatible drivers, heatsinks and reflectors, go to **www.xicato.com.** For XSM Artist series, refer to XSM Artist Series Data Sheet.

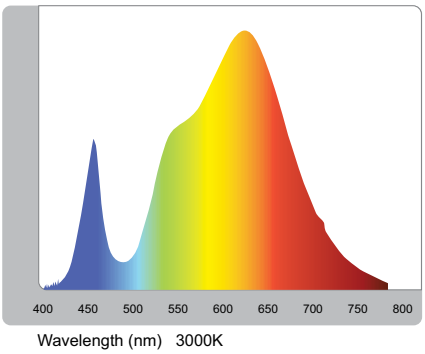
Color Consistency - Initial



Color Consistency - Maintained



Spectral Power Distribution



Color Rendering Index (Typical)

Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81	80	85	89	81	78	80	86	66	16	64	79	58	81	93	75

XICATO

Technical Data

Lighting[1]								Electrical (constant current)									
Module	Part Number	Correlated Color Temperature	Color Rendering Index	Color Consistency			Lumen Maint-enance[4]	Module	Drive Current[5]	Forward Voltage[6]			Power Consump-tion[7]	Lumen Output[8] (Typical)	Efficacy (Typical)	Thermal Class[10]
		(CCT)[2]	Ra[3]	SDCM	CCT	Duv	hrs		mA	Min	Typ	Max	W	lm	lm/W	
400 lm	XSM8027-400-C	2700K	≥80	≤1 x 2	± 40K	± 0.001	50k	400 lm	700	8.2	8.2	9.9	5.7	400	70	B
	XSM8030-400-C	3000K			± 50K				500	7.9	8.1	9.6	4.1	300	74	A
	XSM8040-400-C	4000K			± 70K				350	7.8	7.9	9.4	2.8	220	80	A
700 lm	XSM8027-700-C	2700K	≥80	≤1 x 2	± 40K	± 0.001	50k	700 lm	1050	8.4	9.2	10.1	9.7	700	72	D
	XSM8030-700-C	3000K			± 50K				700	8.2	8.8	9.9	6.2	500	81	B
	XSM8040-700-C	4000K			± 70K				500	7.9	8.6	9.6	4.3	380	88	A
									350	7.8	8.4	9.4	2.9	280	95	A
1000 lm	XSM8027-1000-C	2700K	≥80	≤1 x 2	± 40K	± 0.001	50k	1000 lm	1050	10.5	12.4	13.5	13.0	1000	77	E
	XSM8030-1000-C	3000K			± 50K				700	10.1	11.9	13.1	8.3	720	87	C
	XSM8035-1000-C	3500K			± 60K				500	9.8	11.6	12.7	5.8	540	93	B
	XSM8040-1000-C	4000K			± 70K				350	9.6	11.4	12.5	4.0	380	96	A
1300 lm	XSM8027-1300-C	2700K	≥80	≤1 x 2	± 40K	± 0.001	50k	1300 lm	1050	13.1	16.9	20.0	17.8	1300	73	F
	XSM8030-1300-C	3000K			± 50K				700	12.7	16.2	19.2	11.3	930	82	D
	XSM8035-1300-C	3500K			± 60K				500	12.3	15.8	18.7	7.9	700	89	C
	XSM8040-1300-C	4000K			± 70K				350	12.1	15.4	18.3	5.4	500	92	B
2000 lm	XSM8027-2000-C	2700K	≥80	≤1 x 2	± 40K	± 0.001	50k	2000 lm	1050	23.8	27.4	30.0	28.8	2000	70	K
	XSM8030-2000-C	3000K			± 50K				700	23.0	26.5	29.4	18.5	1420	77	F
	XSM8035-2000-C	3500K			± 60K				500	22.4	25.8	28.6	12.9	1070	83	E
	XSM8040-2000-C	4000K			± 70K				350	21.9	25.3	28.0	8.8	780	88	C
3000 lm	XSM8027-3000-C	2700K	≥80	≤1 x 2	± 40K	± 0.001	50k	3000 lm	1050	37.3	42.9	46.8	45.0	3000	67	Q
	XSM8030-3000-C	3000K			± 50K				700	36.1	41.4	45.3	29.0	2220	77	K
	XSM8035-3000-C	3500K			± 60K				500	35.3	40.4	44.0	20.2	1660	82	G
	XSM8040-3000-C	4000K			± 70K				350	34.7	39.5	43.0	13.8	1210	88	E
4000 lm	XSM8027-4000-C	2700K	≥ 80	≤1 x 2	± 40K	± 0.001	50k	4000 lm	1050	38.7	47.1	47.9	49.5	4000	81	Q
	XSM8030-4000-C	3000K			± 50K				700	37.4	45.5	46.9	31.9	2850	89	K
	XSM8035-4000-C	3500K			± 60K				500	36.5	44.4	46.3	22.2	2130	96	G
	XSM8040-4000-C	4000K			± 70K				350	35.9	43.5	45.5	15.2	1550	102	E

Notes:
1. All lighting data shown in the above table is taken at a recommended operating test point (Tc) temperature of 70°C and highest rated drive current.
2. '3000K' and '3500K' CCT's are 2950K and 3420K, respectively. CCT data ANSI/NEMA compliant.
3. **'Ra' is defined as the average of color rendering indices R1-R8.**
4. XSM 400lm/700lm/1000lm/1300lm based on LM-80/TM-21. XSM 3000lm and 4000lm long term testing in process.
5. The module is designed for usage with a constant current power supply with an output current up to 770mA max. (400lm), or 1100mA max. (700lm/1000lm/1300lm/2000lm/3000lm).
6. Voltage data based on 20°C to 90°C operating range. For operation outside this range, contact factory.
7. Power consumption is stated as a typical value that is based on the typical range of forward voltage. Maximum and minimum power values can be calculated using the voltage range.
8. Absolute range of lumen output is ±10% of typical value.
9. **Specifications subject to change without notice.**
10. **Thermal compatibility classification: Contact Xicato for details.**
11. C3= <.003 Δ u',v'.

Recommended LED Module Specification

Physical Characteristics: LED module shall be remote phosphor, nominal 45mm (1.77") diameter, and aluminum and glass construction. Module shall be sealed, meeting IP66 requirements. Module shall be field-servicable.
Performance: LED module shall have a CRI (Ra) ≥80. CRI values shall be +3/-0 points initial. LED module color points shall be within 1 x 2 SDCM initial. Flux output shall be measured at a minimum of 70 °C (±5°C).
General Requirements: LED module shall be UL recognized, CE compliant and RoHS compliant. Module shall be warranted for 5 years for catastrophic failure, lumen maintenance (≥L70), and color consistency (<.003 Δ u', v').
LED module shall be Xicato Module. #_____

About Xicato

Xicato is passionate about light. Light has an emotional effect on people and a direct impact on business profitability. It ultimately influences everything in our lives. Xicato is a recognized leader in creating LED modules that provide superior aesthetics, economics and durability. Xicato aspires to be the trusted partner of the global lighting design community and luminaire manufacturers.

For an overview of our customers' luminaires visit www.xicato.com.

For the best in lighting design, Xicato recommends a qualified lighting designer from the Professional Lighting Design Association (PLDA) or the International Association of Lighting Designers (IALD).

XICATO

c UL us RoHS

The Illuminating Engineering Institute of Japan
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Professional Lighting Designers' Association
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Drive-over in-grade linear floodlights with LEDs - Asymmetrical

Enclosure: Outer housing: Constructed of high tensile strength, copper free die-cast aluminum alloy.

Inner housing: Constructed of extruded stainless steel. Trim/Faceplate is heavy gauge, machined stainless steel secured to the inner housing by stainless steel threaded welded studs. Maintenance requires removal of inner housing/trim/faceplate assembly from outer housing by means of two flush, socket head stainless steel screws. ¼" thick tempered matte safety glass machined flush to faceplate. One piece molded U-channel, high temperature silicone gasket. Reflector is aluminum with high gloss coating.

Electrical: 22 W LED luminaire, 27 total system watts, -30° C start temperature. Integral 120 V through 277 V electronic LED driver, 0-10 V dimming. Standard LED color temperature is 4000K with a >80 CRI. Available in 3000K (>80 CRI); add suffix K3 to order. Inner housing pre-wired with nine (9) feet of 18/5 water stopper cable, cable clamp, and waterproof cable gland entry into housing. A separate weatherproof single gang wiring box for power supply must be proved (by contractor).
Note: Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Finish: #4 brushed stainless steel. Custom colors are not available.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP67.

Note: A foundation and proper drainage must be supplied by the contractor. These luminaires are designed to bear pressure loads up to 2,200 lbs. from vehicles with pneumatic tires. The luminaires must not be used for traffic lanes where they are subject to horizontal pressure from vehicles braking, accelerating and changing direction.

Luminaire Lumens: 1325
Tested in accordance with LM-79-08

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

Asymmetrical · Floodlights

	Lamp	A	B
77 917	19.8 W LED	20⅞ x 3½	5

BEGA-US 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com

Wall luminaires with directed light

Housing: One piece die-cast aluminum for direct attachment to wall over 3½" or 4" octagonal wiring box. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: One piece die-cast aluminum guard, secured by two (2) captive socket head, stainless steel screws threaded into stainless steel inserts. Tempered etched glass with matte finish. Pure anodized aluminum reflector. Fully gasketed for weather tight operation using a molded silicone rubber O-ring gasket.

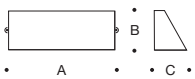
Electrical: 12W LED luminaire, 14.3 total system watts, -20°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. The LED module and driver are mounted on a removable inner assembly for easy replacement. Standard LED color temperature is 3000K with an 85 CRI. Available in 4000K (85 CRI); add suffix K4 to order.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

UL listed for US and Canadian Standards, suitable for wet locations. Protection class: IP64

Luminaire Lumens: 465
Tested in accordance with LM-79-08.

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:



		Lamp	A	B	C
22380	ADA	12W LED	11¾	4⅜	3⅜

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LED wall mounted luminaires with assymmetric wide beam distribution

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

Housing: One piece, die cast aluminum housing with adjustable die cast arm and mounting canopy. Fixture tilt angle is adjustable from 0° to 15°. The mounting canopy is supplied with a round, die cast aluminum rotational plate which allows the housing to be precisely leveled or rotated after installation. Mounting plate attaches directly to a standard 4" octagonal wiring box. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: Faceplate is hinged; constructed of die-cast aluminum with toolless access latch for easy maintenance. Tempered clear safety glass, 1/4" thick, with an anti-reflective coating. Optical reflector made of pure anodized aluminum. Fully shielded light distribution for minimal to no trespass above horizontal. Type II wide spread light distribution, optionally available with Type III light distribution, consult factory. Fully gasketed with a molded silicone gasket.

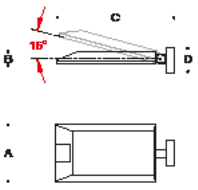
Electrical: 46.2W LED luminaire, 53 total system watts, -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 4000K with an 85 CRI. Available in 3000K (85 CRI); add suffix K3 to order.
Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards for wet locations.
Protection class: IP66.

Weight: 9.3 lbs.

Luminaire Lumens: 4870



Asymmetrical wide beam light distribution

	Lamp	A	B	C	D
66 451	46.2 W LED	10	2 ⅜	16 ⅛	5 ⅛

TYPE JJ

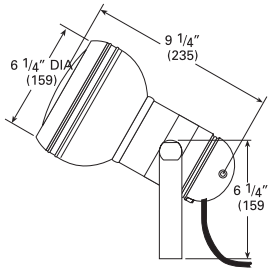
4640 SERIES
Yoke Mount
White LED Accent Light

CATALOG NUMBER	
NOTES	
TYPE	

Specifications

L:	9 - 1/4" (235 mm)
W:	6 - 1/4" (159 mm)
H:	6 - 1/4" (159 mm)
Weight	8 lbs

LED IP66



For direct mounting to wall or other surface

DESCRIPTION

The 4640 yoke mount accent light is uniquely designed with rugged sealed die-cast aluminum construction and an adjustable yoke. A wide range of photometric performances are available with internal and/or external glare control.

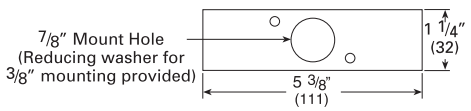
ORDERING INFORMATION

EXAMPLE: 4640 18LED WHT41K MVOLT WFL YM SMSA12 FGS10 CSL10 BL

Model	Lamp type[1]	LED Color	Voltage	Distribution	Mounting	Mounting Options[2]
4640	12LED	RGB Red	MVOLT	NSP Narrow Spot	YM Yoke Mount	JBA Alum. J-Box
	18LED	GRN Green		MFL Medium Flood		JBB Bronze J-Box
		BLU Blue		FL Flood		ARJB Architectural J-Box, Alum.
		AMB Amber		WFL Wide Flood		SMSA_ 12"-48" Stanchion Mount, available in 6" increments.
		WHT30K 3000°K Color Temp		VWFL Very Wide Flood (no optics)		PSSA Pedestal Stanchion Mount
		WHT41K 4100°K Color Temp		HSP Horizontal Spot		WMC Wall Mount Cover
		WHT53K 5300°K Color Temp		HFL Horizontal Flood		WMSA Wall Mount with Splice Access

Mounting Options (Cont'd)[2]	Accessories	Cord Set Length	Finish	
TRA Tree Mounted J-Box, Alum.	Internal	CSL__ 10'-50' of cord, available in 5' increments (default of 10 feet if nothing is specified)	BL Black	SND Sand
TRB Tree Mounted J-Box, Bronze	IHL Internal Honeycomb Louver		BZ Bronze	STG Steel Gray
_TRAS[3] Tree Mounted J-Box Alum. w/mt strap, available with 1-4 J-Boxes per strap	External		DDB Dark Bronze	TVG Terra Verde Green
	GS Glare Shield		DNA Natural Aluminum	WH White
_TRBS[3] Tree Mounted J-Box Bronze w/mt strap, available with 1-4 J-Boxes per strap	FGS Full Glare Shield (6")		GN Green	CF Custom
	FGS_ Full Glare Shield 8', 10" or 12" available		GR Gray	__Z[4] Zinc Undercoat (i.e. BLZ)

MOUNTING DETAIL



Yoke Mount Detail

Notes:
1. 12LED = 12 chip board, 14 watts; 18LED = 18 chip board, 19 watts
2. See individual mounting specification sheets for conduit/drilling options.
3. For multiple TRAS boxes the number of fixture heads and accessories will be equal to the number of boxes ordered.
4. Add Zinc undercoat for harsh environments.

HYDREL

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Phone: 866.533.9901 • Fax: 866.533.5291

Rev. 08/03/15
4640_YM_LED_WHITE

PERFORMANCE DATA

LUMEN OUTPUT

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Contact factory for performance data on any configurations not shown here.

	Distribution	Nema Type	Beam Angle (50%) H x V	Field Angle (10%) H x V	Watts	LPW	Delivered Lumens
18LED 3000K 80CRI	NSP	2 x 2	14.8 x 14.8	27.1 x 27.1	19	53	1,000
	MFL	6 x 6	35.7 x 35.7	109 x 109	19	54	1,000
	FL	5 x 5	75.8 x 56.2	95.7 x 83.4	19	48	900
	WFL	7 x 7	114.2 x 114.2	136.1 x 136.1	19	54	1,000
	HSP	3 x 3	20.8 x 20.8	38.9 x 38.9	20	57	1,100
	HFL	4 x 3	40.5 x 15.6	60.8 x 30.4	20	48	950
	VWFL	7 x 7	110.2 x 110.2	141 x 141	18	45	800
18LED 4000K 70CRI	NSP	2 x 2	14.8 x 14.8	27.1 x 27.1	19	90	1,700
	MFL	6 x 6	35.7 x 35.7	109 x 109	19	91	1,700
	FL	5 x 5	75.8 x 56.2	95.7 x 83.4	19	79	1,500
	WFL	7 x 7	114.2 x 114.2	136.1 x 136.1	19	90	1,700
	HSP	3 x 3	20.8 x 20.8	38.9 x 38.9	20	96	1,900
	HFL	4 x 3	40.5 x 15.6	60.8 x 30.4	20	80	1,600
	VWFL	7 x 7	110.2 x 110.2	141 x 141	18	77	1,400
18LED 5000K 70CRI	NSP	2 x 2	14.8 x 14.8	27.1 x 27.1	19	90	1,700
	MFL	6 x 6	35.7 x 35.7	109 x 109	19	91	1,700
	FL	5 x 5	75.8 x 56.2	95.7 x 83.4	19	79	1,500
	WFL	7 x 7	114.2 x 114.2	136.1 x 136.1	19	90	1,700
	HSP	3 x 3	20.8 x 20.8	38.9 x 38.9	20	96	1,900
	HFL	4 x 3	40.5 x 15.6	60.8 x 30.4	20	80	1,600
	VWFL	7 x 7	110.2 x 110.2	141 x 141	18	77	1,400

LED LIFE: L70/60,000 hours

OPERATING TEMPERATURE: -30°C Through 40°C

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **Fixture** platform in a **25°C ambient**, based on 8400 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1	0.99	0.98	0.96

Electrical Load

			Current (A)					
Light Engines	Drive Current (mA)	System Watts	120	208	240	277	347	480
18 LED	350mA	19	0.16	0.09	0.08	0.07	0.05	0.04

FEATURES & SPECIFICATIONS

MATERIAL: Fixture and Yoke: Die-cast copper-free aluminum alloy A360. All materials are chem-filmed or anodized prior to painting.

LED: White and Monochromatic LEDs, 18LED = 19W, 12LED = 14 watts.

VOLTAGE: MVOLT

LIGHT DISTRIBUTION: See ordering guide.

LENS: Crowned tempered glass.

POWER SUPPLY: 120-277 Intergral Power Supply.

MOUNTING: Yoke Mount with a minimum of 10 ft. 18/3 STW Cord.

Cord length must be specified over 10 feet.

FINISH: Exterior parts are protected by a zinc-infused super durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climates without cracking or peeling.

FASTENERS: Stainless Steel.

LISTING: IP66, U.L., C.U.L.

WARRANTY: 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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Rev. 08/03/15
4640_YM_LED_WHITE

TYPE KK

LED bollard with adjustable light distribution

Post construction: Made from two (2) rectangular aluminum extrusions, 1/8“ wall thickness, mechanically fastened to a rectangular extruded lamp housing (top) and a wiring/driver compartment (bottom). Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: One piece die-cast aluminum housing (top). Tempered safety glass lens. Fully gasketed using a one piece molded high temperature silicone gaskest for weather tight operation. Adjustable reflector made from pure anodized aluminum. The optical system can be adjusted to 0°, 15°, or 30°

Electrical: 25.3W LED luminaire, 29.5 total system watts, -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with an 85 CRI. Available in 4000K (85 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

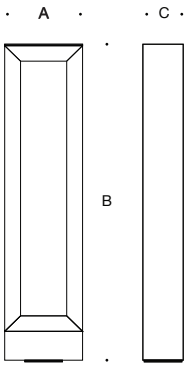
Anchor base: Heavy die-cast aluminum, slotted for precise alignment. Bollard secures to base with one stainless steel set screw. Mounts to BEGA 895A anchorage kit (supplied).

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 28.7 lbs.

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:



	Lamp	A	B	C	Anchorage
8062 LED	25.3W LED	10 3/8	43 7/8	5 1/4	**895 A**

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