City of Menasha ● Office of the Mayor
Donald Merkes, Mayor
dmerkes@ci.menasha.wi.us

TO: Common Council
FROM: Donald Merkes, Mayor
DATE: 12 August 2015

RE: LED Lighting Sample Installation

In April the Common Council passed a resolution encumbering a $60,002 refund from WE Energies for the purpose of purchasing LED street lighting to replace existing HPS street lighting.

Eight Cree SXP series lights have been installed on Seventh Street between London and Ida Street for your review. Having oval light pattern on the ground the 101W lights were selected to provide more even lighting for the neighborhood. The lights are placed where the 150W HPS lights previously were, at both 120' (every other pole) and 180' (every third pole) spacings.

The City of Menasha has been approved for Wisconsin Focus on Energy grants, as well as a matching WPPI incentive grant, these grants total nearly $68,000 over three years if we move forward with the project.

Year	Number of Fixtures	Materials	Labor	Focus Incentive	WPPI Incentive	Total		Energy Savings
2015	272	$63,920	TBD	($11,580)	($11,580)	$40,760		$21,908
2016	319	$74,965	TBD	($12,930)	($12,930)	$49,105		$25,278
2017	221	$51,935	TBD	($9,360)	($9,360)	$33,215		$17,259

Menasha Utilities is finalizing installation costs to supply the Common Council before final decisions are made as to proceeding with the project. If the City of Menasha converts it's HPS streetlights to LED as shown in the chart above, there would be an annual cost savings of nearly $65,000 including both fixed charges and energy costs.

Action Requested

Please review the sample installation on Seventh Street before the September 8th Common Council meeting where the item will be an action item.

140 Main Street ● Menasha, Wisconsin 54952-3151 ● Phone (920) 967-3600 ● Fax (920) 967-5273
www.cityofmenasha-wi.gov

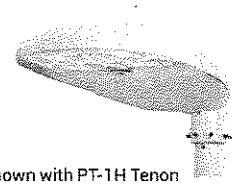
XSP Series

XSP2™ & XSP2L™ LED Street/Area Light _ Double Module _ Version B

Product Description

Designed from the ground up as a totally optimized LED street and area lighting system, the XSP Series delivers incredible efficiency without sacrificing application performance. Beyond substantial energy savings and reduced maintenance, Cree achieves greater optical control with our NanoOptic® Precision Delivery Grid™ optic when compared to traditional cobra head luminaires. The XSP Series is the better alternative for traditional street and area lighting with quick payback and improved performance.

Applications: Roadway, parking lots, walkways and general area spaces



Shown with PT-1H Tenon

Performance Summary

Utilizes BetaLED® Technology

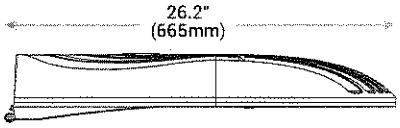
NanoOptic® Precision Delivery Grid™ optic

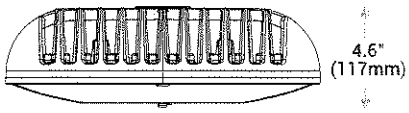
Made in the U.S.A. of U.S. and imported parts

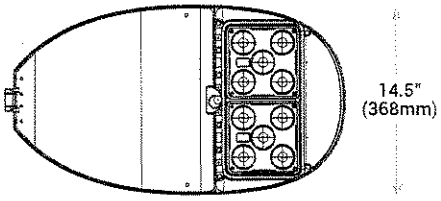
CRI: Minimum 70 CRI

CCT: 4000K (+/- 300K); 5700K (+/- 500K)

Limited Warranty†: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish







Shown with Type 5ME Optics

Accessories

Field-Installed

Backlight Control Shield
XA-SP2BLS
- Provides 1/2 mounting height cutoff

Bird Spikes
XA-SP2BRDSPK

Four Point Mounting Kit
XA-XSP4PTMNT
- Includes large bracket for mounting to 2" (51mm) IP, 2.375" (60mm) O.D., small bracket for mounting to 1.25" (32mm) IP, 1.66" (42mm) O.D. tenon, and mounting bolts

Ordering Information

Example: BXSP B HT 2ME B 40K-UL SV

BXSP	B	HT				–			
Product	**Version**	**Mounting**	**Optic**	**Input Power Designator**	**CCT**	–	**Voltage**	**Color Options**	**Options**
BXSP	B	HT Horizontal Tenon	**2ME*** Type II Medium **2LG*** Type II Long **3ME*** Type III Medium **4ME*** Type IV Medium **5ME** Type V Medium **5SH** Type V Short	B 101W D 153W - 5ME & 5SH Optics - Available with UL voltage only	40K 4000K 57K 5700K	ŪS	UL Universal 120-277V **UH**** 347-480V	SV Silver BK Black BZ Bronze PB Platinum Bronze WH White	F **Fuse** - When code dictates fusing, use time delay fuse - Not available with UH voltage G **Small Four Point Mounting** - Mounts to 1.25" (32mm) IP, 1.66" (42mm) O.D. horizontal tenon J **Large Four Point Mounting** - Mounts to 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon ML **Multi-Level** - Refer to ML spec sheet for details - High: 100%, Low: 26% N **Utility Label and NEMA® Photocell Receptacle** - Includes Q9 option - Refer to Field Adjustable Output spec sheet for details Q9 **Field Adjustable Output** - Refer to Field Adjustable Output spec sheet for details - Standard on D Input Power Designator R **NEMA® Photocell Receptacle** - Photocell by others UTL **Utility** - Label per ANSI C136.15 - Includes exterior wattage label that indicates the maximum available wattage of the luminaire - Includes Q9 option - Refer to Field Adjustable Output spec sheet for details

† See www.cree.com/lighting/products/warranty for warranty terms
* Available with Backlight Shield when ordered with field-installed accessory (see table above)
** 347-480V utilizes magnetic step-down transformer. For input power for 347-480V, refer to the Electrical Data table

Product Specifications

CONSTRUCTION & MATERIALS

- Die cast aluminum housing
- Tool-less entry
- Mounts on 1.25" (32mm) IP, 1.66" (42mm) O.D. or 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon (minimum 8" [203mm] in length) and is adjustable +/- 5° to allow for fixture leveling (includes two axis T-level to aid in leveling)
- Luminaire secured with two mounting bolts standard; optional four point mounting available
- Input Power Designator B designed with 0-10V dimming capabilities. Controls by others
- Input Power Designator D includes Field Adjustable Output
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, black, bronze, platinum bronze and white are available
- **Weight:** 120-277V: 26 lbs. (12kg); 347-480V: 29 lbs. (13.2kg)

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz
- **Power Factor :** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Class 2 driver
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used
- Compatible with control systems; consult factory for details

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- Meets CALTrans 611 Vibration testing
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- DLC qualified when ordered with 2ME, 3ME, 5ME and 5SH optics. Some exceptions apply. Please refer to www.designlights.org/QPL for most current information

Electrical Data*

Input Power Designator	System Watts 120-277V	System Watts 347-480V	Total Current 120V	208V	240V	277V	347V	480V
B	101	106	0.86	0.49	0.43	0.38	0.30	0.23
D	153	N/A	1.34	0.79	0.68	0.63	N/A	N/A

* Electrical data at 25°C (77°F)

Recommended Cree® Outdoor Luminaire Lumen Maintenance Factors (LMF)[1]

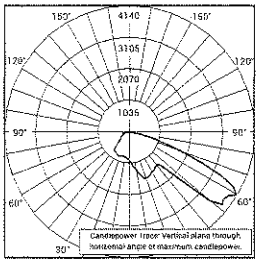
Ambient	Input Power Designator	Initial LMF	25K hr Projected[2] LMF	50K hr Projected[2] LMF	75K hr Projected/ Calculated[2,3] LMF	100K hr Calculated[3] LMF
5°C (41°F)	B	1.04	1.02	1.01	1.00	1.00
	D	1.04	0.98	0.92	0.85	0.80
10°C (50°F)	B	1.03	1.01	1.00	0.99	0.99
	D	1.03	0.97	0.91	0.84	0.79
15°C (59°F)	B	1.02	1.00	0.99	0.98	0.98
	D	1.02	0.96	0.90	0.84	0.79
20°C (68°F)	B	1.01	0.99	0.98	0.97	0.97
	D	1.01	0.95	0.89	0.83	0.78
25°C (77°F)	B	1.00	0.98	0.97	0.96	0.96
	D	1.00	0.94	0.88	0.82	0.77

[1] Lumen maintence values at 25°C (77°F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing
[2] In accordance with IESNA TM-21-11. Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)
[3] In accordance with IESNA TM-21-11. Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

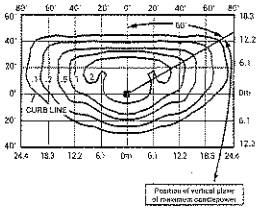
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory. To obtain an IES file specific to your project consult: http://www.cree.com/lighting.

2ME



RESTL Test Report #: PL04168-001
BXSPB**2MEA40K-UL
Initial Delivered Lumens: 5,026



BXSPB**2MEB40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 9,612
Initial FC at grade

Type II Medium Distribution

Input Power Designator	4000K Initial Delivered Lumens*	4000K BUG Ratings** Per TM-15-11	5700K Initial Delivered Lumens*	5700K BUG Ratings** Per TM-15-11
B	9,612	B2 U0 G1	10,680	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.iesna.org/PDF/Errattas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type II Medium w/BLS Distribution

Input Power Designator	4000K Initial Delivered Lumens*	4000K BUG Ratings** Per TM-15-11	5700K Initial Delivered Lumens*	5700K BUG Ratings** Per TM-15-11
B	8,266	TBD	9,185	TBD

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
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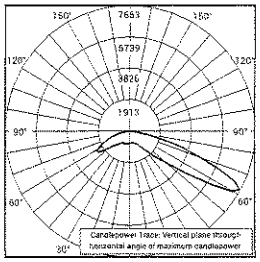
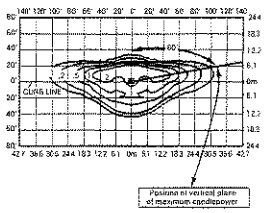
2LG



RESTL Test Report #: PL04169-001
BXSPB**2LGA40K-UL
Initial Delivered Lumens: 4,956



BXSPB**2LGB40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 9,758
Initial FC at grade

Type II Long Distribution

Input Power Designator	4000K Initial Delivered Lumens*	4000K BUG Ratings** Per TM-15-11	5700K Initial Delivered Lumens*	5700K BUG Ratings** Per TM-15-11
B	9,758	B2 U0 G2	10,443	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.iesna.org/PDF/Errattas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type II Long w/BLS Distribution

Input Power Designator	4000K Initial Delivered Lumens*	4000K BUG Ratings** Per TM-15-11	5700K Initial Delivered Lumens*	5700K BUG Ratings** Per TM-15-11
B	7,416	TBD	7,937	TBD

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
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Photometry

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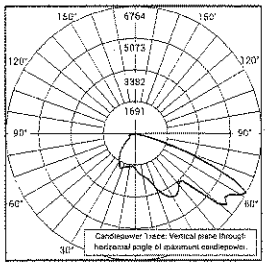
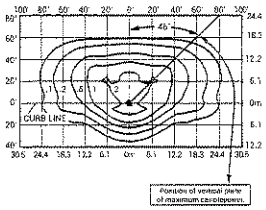
3ME



RESTL Test Report #: PL04173-001
BXSPB**3MEB40K-UL
Initial Delivered Lumens: 10,260



BXSPB**3MEB40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 9,612
Initial FC at grade

Type III Medium Distribution

Input Power Designator	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	9,612	B2 U0 G2	10,680	B2 U0 G2

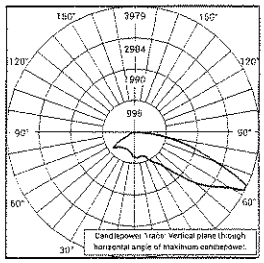
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type III Medium w/BLS Distribution

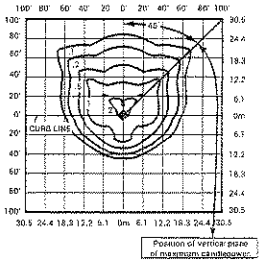
Input Power Designator	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,170	TBD	9,078	TBD

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

4ME



RESTL Test Report #: PL04171-001
BXSPB**4MEA40K-UL
Initial Delivered Lumens: 4,947



BXSPB**4MEB40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 9,758
Initial FC at grade

Type IV Medium Distribution

Input Power Designator	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	9,758	B2 U0 G2	10,443	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
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Type IV Medium w/BLS Distribution

Input Power Designator	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	7,806	TBD	8,354	TBD

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
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Photometry

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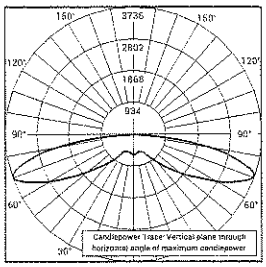
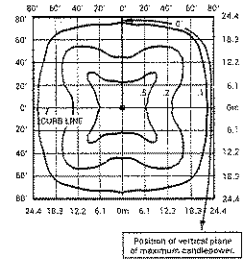
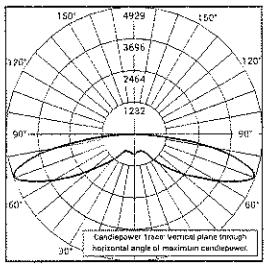
5ME



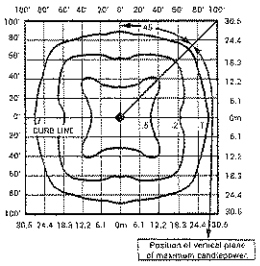
CESTL Test Report #: 2014-0009
BXSPB*5HA-U
Initial Delivered Lumens: 8,714



BXSPB**5MEB40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,069
Initial FC at grade



CESTL Test Report #: 2014-0025
BXSPB*5HL-U
Initial Delivered Lumens: 11,555



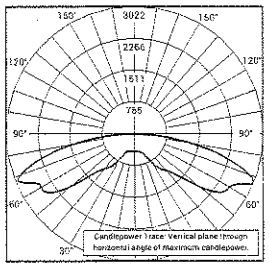
BXSPB**5MED40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,700
Initial FC at grade

Type V Medium Distribution

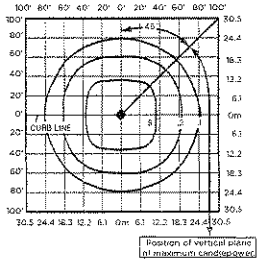
Input Power Designator	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,069	B3 U1 G3	8,405	B3 U1 G3
D	11,700	B4 U1 G4	12,187	B4 U1 G4

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

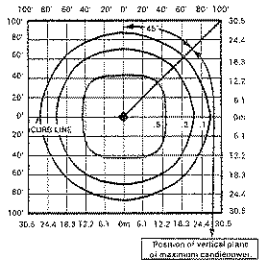
5SH



CESTL Test Report #: 2014-0010
BXSPB*6HA-U
Initial Delivered Lumens: 9,321



BXSPB**5SHB40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,555
Initial FC at grade



BXSPB**5SHD40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 12,405
Initial FC at grade

Type V Short Distribution

Input Power Designator	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,555	B3 U0 G3	8,911	B3 U0 G3
D	12,405	B4 U0 G4	12,921	B4 U0 G4

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -4 and +10% of initial delivered lumens
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XSP Series - Double Module - Version B

Luminaire EPA

Horizontal Tenon Mount - Weight: 120-277V: 26 lbs. (12kg); 347-480V: 29 lbs. (13.2kg)				
Single	2 @ 90°	2 @ 180°	3 @ 90°	4 @ 90°
Tenon Configuration If used with Cree tenons, please add tenon EPA with luminaire EPA				
PD-1H4; PT-1H	PD-2H4(90); PT-2H(90)	PD-2H4(180); PT-2H(180)	PD-3H4(90); PT-3H(90)	PD-4H4(90); PT-4H(90)
0.69	1.14	1.38	1.83	2.28

Tenon EPA

Part Number	EPA
PD Series Tenons	0.09
PT Series Tenons	0.10
WM-2L	0.13
XA-TMDA8	0.19

Tenons and Brackets (must specify color)

Square Internal Mount Vertical Tenons (Steel)
- Mounts to 4" (102mm) square aluminum or steel poles

PD-1H4 _ Single
PD-2H4(90) _ 90° Twin
PD-2H4(180) _ 180° Twin
PD-3H4(90) _ 90° Triple
PD-4H4(90) _ 90° Quad

Wall Mount Brackets
- Mounts to wall, roof or side of wood pole

WM-2L _ Extended Horizontal

Round External Mount Horizontal Tenons (Aluminum)
- Mounts to 2.375"-3" (60-76mm) O.D. round aluminum or steel poles or tenons

PT-1H _ Single
PT-2H(90) _ 90° Twin
PT-2H(180) _ 180° Twin
PT-3H(90) _ 90° Triple
PT-4H(90) _ 90° Quad

Direct Arm Pole Adaptor Bracket
- Mounts to 3-6" (76-152mm) round or square aluminum or steel poles

XA-TMDA8

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