



Weaver

CONSTRUCTION MANAGEMENT

3679 S Huron Street, Suite 404 Englewood, Colorado 80110

Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITTAL

February 16, 2012

Submittal #: 16511-002

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan
Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **McDade Woodcock, Inc.**
7222 Commerce Center Drive, #245
Colorado Springs, CO 80909
719-264-1236

SUBJECT: Interior Lighting for EM Building - Type F, FE, G & H

SPEC SECTION: 16511 - Interior Lighting

PREVIOUS SUBMISSION DATES: none

DEVIATIONS FROM SPEC: ___ YES x NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:

Engineer's Stamp:

Date:

Reviewed by: John Jacob

(X) Reviewed Without Comments

() Reviewed With Comments

ENGINEER'S
COMMENTS: _____

Shallow Specification Troffer

Features

- Optical performance designed for T8 lamp technology
- 2 1/8" minimum spacing from bottom of lamp to bottom of lens
- Mechanical light seal
- Attractive, post painted door frame with positive action latches
- Spring loaded latches optional
- Rolled fixture edges for comfortable handling
- Integral T-bar clips (2x4 only)
- Optional flush or regressed aluminum door frames available
- UL listed 1598
- Damp label available on most models
- NEC/CEC-compliant ballast disconnect standard for appropriate models
- see page 111



Ordering Information

Example: ST824-432G-FSA12.125-3EU

ST8

Model
ST8

Number of Lamps
1 - One
2 - Two
3 - Three
4 - Four
6 - Six
8 - Eight
See Product Availability Table Below.

Size
14 - 1'x4'
22 - 2'x2'
24 - 2'x4'
44 - 4'x4'

Lamp Type
17 - 2', 17 Watt, T8
31U1 - U-Bent, 1 1/8" Leg Spacing, 31 Watt, T8
28 - 4', 28 Watt, T5
32 - 4', 32 Watt, T8
32U6 - U-Bent, 6" Leg Spacing, 32 Watt, T8
40TT - 40 Watt Twin Tube Compact, 2G11 Base
54 - 4', 54 Watt, T5HO

Ceiling Type
G - Grid
F - Overlap Flange

Door
FS - White Flush Steel (Std.)
FA - White Flush Aluminum
RA - White Regressed Aluminum
PS - Premium Steel
TFS - Twin Flush Steel (4x4 only)
For more door options see page 40.

Shielding
A12 - Pattern 12 Acrylic
A12.125 - Pattern 12 Acrylic .125" Thick
A19 - Pattern 19, .156"
PC1 - 1/2"x1/2"x1/2" Silver Polystyrene Louver
PC2 - 1 1/2"x1 1/2"x1" Silver Polystyrene Louver
For more shielding options see page 40-41.

Ballast
NOTE Ballast nomenclature has changed. See page 111 for details.
E - Electronic T8, Instant Start
3E - 3-Lamp Electronic T8, Instant Start
4E - 4-Lamp Electronic T8, Instant Start
EP - Electronic T5 or T8, Programmed Start
3EP - 3-Lamp Electronic T5 (HO only) or T8, Programmed Start
4EP - 4-Lamp Electronic T5 (HO only) (NA 347V) or T8, Programmed Start
ETT - Electronic Twin Tube, Instant Start, (Specify voltage)

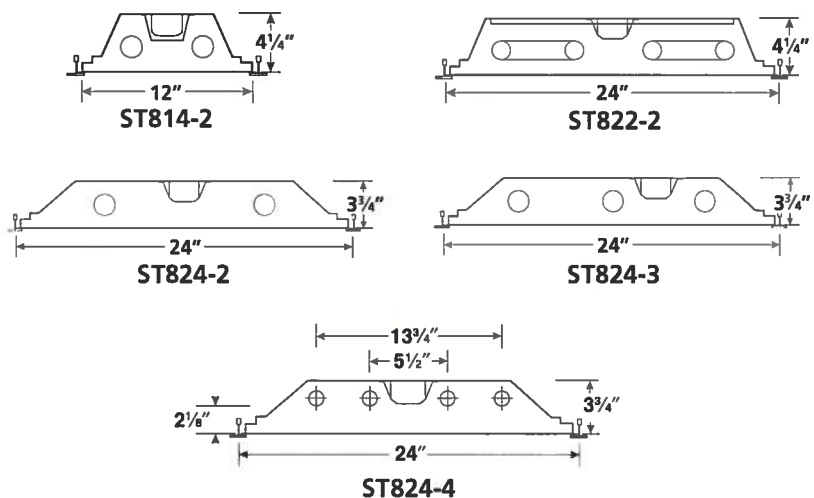
Voltage
120 - 120V
277 - 277V
347 - 347V
U - 120V-277V

Options
SLL - Spring Loaded Latch
PAF - Paint After Fabrication
GLR - Fast Blow Fuse
EL - Emergency Battery Pack
FO735 - 35K 75CRI T8 Lamps Installed
FO835 - 35K 80CRI T8 Lamps Installed
MS9 - Master/Satellite w/9' Harness
CSA - UL listed or CSA certified for Canada
DL - Damp Label
For more options see pages 39, 42-43.

Installation

Size	Number of Lamps	Lamp Type	Grid Trim Height
1'x4'	1	28, 32, 54	4 1/4"
	2	28, 32, 54	4 1/4"
	3	28, 32, 54	4 1/4"
2'x2'	2	17, 31U1, 32U6, 40TT	4 1/4"
	3	17, 31U1, 40TT	4 1/4"
	4	17	4 1/4"
2'x4'	2	28, 32, 54	3 3/4"
	3	28, 32, 54	3 3/4"
	4	28, 32, 54	3 3/4"
	6	28, 32, 54	3 3/4"
4'x4'	4	28, 32, 54	5"
	6	28, 32, 54	5"
	8	28, 32, 54	5"

Cross Sections

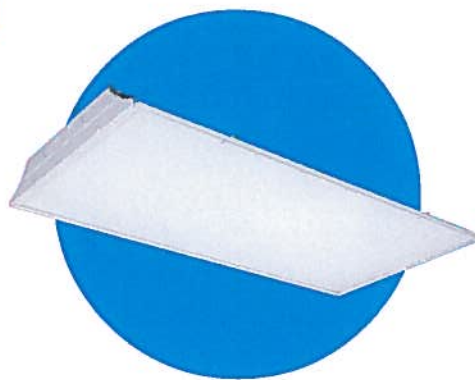


LENSED TROFFERS

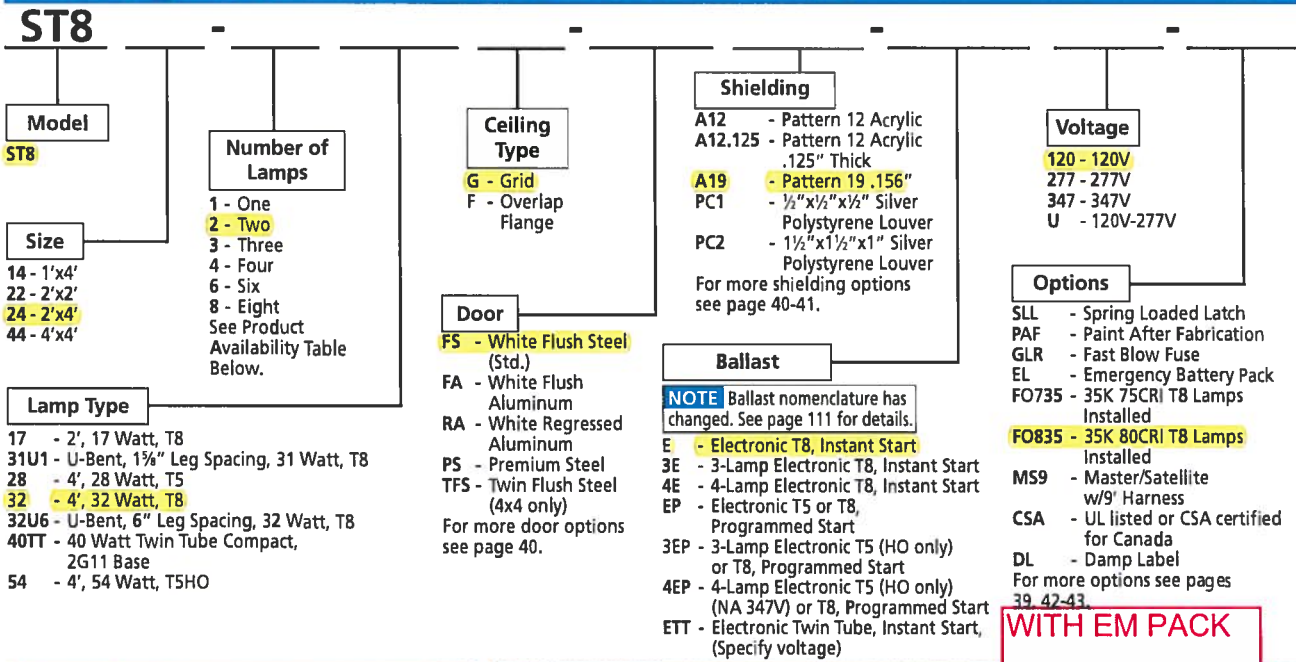
Shallow Specification Troffer

Features

- Optical performance designed for T8 lamp technology
- 2 1/8" minimum spacing from bottom of lamp to bottom of lens
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- see page 111



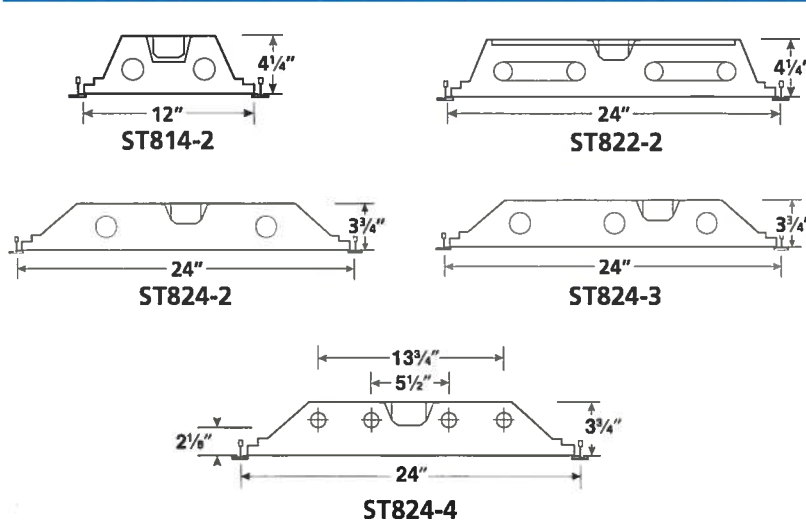
Ordering Information Example: ST824-432G-FSA12.125-3EU



Installation

Size	Number of Lamps	Lamp Type	Grid Trim Height
1'x4'	1	28, 32, 54	4 1/8"
	2	28, 32, 54	4 1/8"
	3	28, 32, 54	4 1/8"
2'x2'	2	17, 31U1, 32U6, 40TT	4 1/8"
	3	17, 31U1, 40TT	4 1/8"
	4	17	4 1/8"
2'x4'	2	28, 32, 54	3 3/4"
	3	28, 32, 54	3 3/4"
	4	28, 32, 54	3 3/4"
	6	28, 32, 54	3 3/4"
4'x4'	4	28, 32, 54	5"
	6	28, 32, 54	5"
	8	28, 32, 54	5"

Cross Sections



LENSED TROFFERS

B50

EMERGENCY LIGHTING EQUIPMENT

PHILIPS
bodine

— A Division Of Philips Electronics North America Corporation

Specification grade; One- or two-lamp emergency illumination; End-of-lamp-life compatible**Product Summary****UL LISTED**

Factory or Field Installation

Illumination Time

90 Minutes

Initial Light Output

Up to 1400 Lumens

Full Warranty

5 Years (NOT pro-rata)

Dual Input Voltage

120/277 VAC, 60 Hz

AC Input Current

280 mA

AC Input Power Rating

4.0 Watts

Test Switch

Single Pole

BatteryHigh-Temperature,
Maintenance-Free
Nickel-Cadmium Battery
7- to 10-Year Life Expectancy**Battery Charging Current**

280 mA

Recharge Time

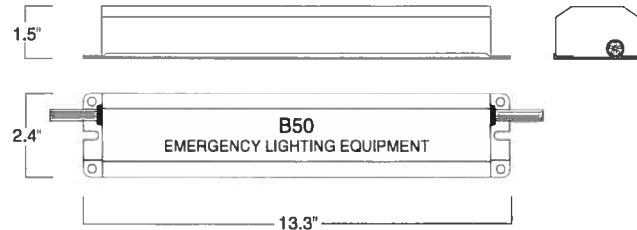
24 Hours

Charging Indicator Light

LED

Temperature Rating (Ambient)0°C to +55°C
(32°F to 131°F)**Dimensions**13.3" x 2.4" x 1.5"
(339 mm x 60 mm x 38 mm)
Mounting Center 12.8" (325 mm)**Weight**

3.4 lbs. (1.54 kg)

Emergency lighting equipment can be modified to accommodate special voltages, frequencies and longer run times.**APPLICATION**

The B50 emergency ballast works in conjunction with an AC ballast to convert new or existing fluorescent fixtures into emergency lighting. The emergency ballast consists of a high-temperature nickel-cadmium battery, charger and electronic circuitry in one compact red case. The B50 can be used with most 17 - 215 W (2' - 8') T8, T9, T10 or T12 fluorescent lamps without integral starters, including U-shaped, HO, VHO, circline and energy-saving, and (4-pin) long compacts. One- or two-lamp operation may be selected (see Table 1). It is also compatible with most one-, two-, three- and four-lamp electronic, standard, energy-saving and dimming AC ballasts. If used in an emergency-only fixture, no AC ballast is necessary. The B50 is suitable for indoor locations. It is not suitable for air handling heated air outlets or wet, damp or hazardous locations. For information about specific lamp and ballast compatibility, please call the factory.

OPERATION

When AC power fails, the B50 immediately switches to the emergency mode, operating either one or two lamps at a reduced lumen output for a minimum of 90 minutes. When AC power is restored, the emergency ballast automatically returns to the charging mode and, using a patented circuit, delays AC ballast operation for approximately three seconds to prevent false tripping of the AC ballast end-of-lamp-life shutdown circuits.

INSTALLATION

The B50 does not affect normal fixture operation and may be used with either a switched or unswitched fixture. If a switched fixture is used, an unswitched hot lead must be connected to the emergency ballast. The emergency ballast must be fed from the same branch circuit as the AC ballast. The B50 may be installed inside, on top of or remote from the fixture. The emergency ballast may be remotely installed up to half the distance the AC ballast manufacturer recommends removing the AC ballast from the lamp or up to 50 feet, whichever is less. Installation is not recommended with fixtures where the ambient temperature may fall below 0°C.

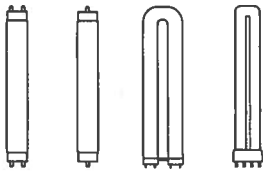
UL and CODE COMPLIANCE

The B50 has been tested by Underwriters Laboratories in accordance with the standards set forth in UL 924, "Emergency Lighting and Power Equipment," and is UL Listed for factory or field installation. Emergency illumination time exceeds the National Electrical Code (NEC), Life Safety Code (NFPA-LSC) and UL 90-minute requirements.

Specifiers ReferenceProject HDT RWRP EM BLDG Type FE Model No. _____
Comments _____

L2000053

03/29/11 © Philips Emergency Lighting
P.O. Box 460 Collierville, TN USA 38027-0460
Sales 800-223-5728 FAX 901-853-5009
Tech. Support 888-263-4638
www.philips.com/bodine



B50

EMERGENCY LIGHTING EQUIPMENT

Specification grade; One- or two-lamp emergency illumination; End-of-lamp-life compatible

EMERGENCY ILLUMINATION

Depending on the number (one or two), wattage and type of lamps selected, the B50 produces up to 1400 lumens initial emergency light output (see Table 2). If two-lamp operation is selected, light output is evenly divided between the lamps for better distribution of emergency illumination.

SPECIFICATION

Emergency lighting shall be provided by using a standard fluorescent fixture equipped with a Philips Bodine B50 emergency ballast. This emergency ballast shall consist of a high-temperature, maintenance-free nickel-cadmium battery, charger and electronic circuitry contained in one 13 3/8" x 2 3/8" x 1 1/2" red metal case. A solid-state charging indicator light to monitor the charger and battery, a single-pole test switch and installation hardware shall be provided. The emergency ballast, using a patented circuit, shall delay AC ballast operation for approximately three seconds to prevent false tripping of AC ballast end-of-lamp-life shutdown circuits. The emergency ballast shall be capable of operating [one or two] _____ fluorescent lamp(s) (see Table 1) at _____ lumens (see Table 2) initial light output in the emergency mode for a minimum of 90 minutes. It shall be suitable for indoor locations. The B50 shall have 4 Watts of input power and a 24 Watt-hour battery capacity and shall exceed emergency standards set forth by the current NEC. The emergency ballast shall be UL Listed for installation inside, on top of or remote from the fixture and shall be warranted for a full five years from date of purchase.

WARRANTY

Model B50 is warranted for five (5) full years from date of purchase. This warranty covers only properly installed Philips Bodine emergency ballast used under normal conditions. For the warranty period, Philips Emergency Lighting will, at its option, repair or replace without charge a defective emergency ballast, provided it is returned to the factory transportation prepaid and our inspection determines it to be defective under terms of the warranty. Repair or replacement, as stated above, shall constitute the purchaser's exclusive warranty, which does not extend to transportation, installation, labor or any other charges; nor does it apply to any equipment of another manufacturer used in conjunction with the emergency ballast.

Table 1 - Lamp Compatibility

LAMP (T8, T10, T12)	BASE	WATTAGE (Length)	NO. of LAMPS (EMERGENCY)
1" (T8)	Single or Bipin	17 - 24 W	1
			2
1 1/4" (T10)	Single or Bipin	32 - 40 W (2' - 4')	1
1 1/2" (T12)			2
		40 - 215 W (5' - 8')	1

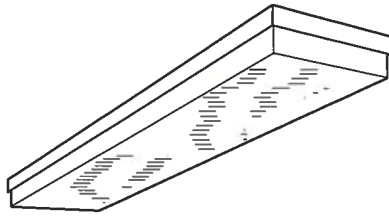
Table 2 - Initial Lumen Output

LAMP	LUMENS	
	1 Lamp	2 Lamps
FO25, FBO24 TB	1250	1100
FO32, FBO31 TB	1350	1350
FO96 TB	1400	
FO17, FBO16	1050	950
F40T12, F40/U	1100	1100
F48T12/HO	1200	
F96T12, HO, VHO	1100	
F39/368X, PL-L 36 W, DULUX L39 W	1100	1100
F28 2D/4P	1100	1100
F38 2D/4P	1000	1100
F27/248X, PL-L 24 W, DULUX L 27 W		1000
F40T12/ES (34 W)	975	975
PL-L 40 W, F40/308X, F508X, PL-L 50 W, DULUX L55 W	900	

L2000053

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Tech. Support 888-263-4638
www.philips.com/bodine

For the most current technical information and notices, please visit TechNotes on our website.



FEATURES

- Heavy code gauge steel housing with embossments
- Two lens type available:
 - Clear injection molded acrylic prismatic diffuser, flat bottom with vertical sides
 - Clear extruded acrylic prismatic diffuser, flat bottom, vertical sides, and injection molded luminous ends
- White powder coat finish is applied after fabrication to provide a smooth and durable finish
- End cap has a clean appearance (knockout provided for continuous row only)
- Surface or stem mount
- Optional spacers allow mounting on combustible low density cellulose fiberboard ceilings

PROJECT INFORMATION

HDT RWRP EM BLDG

Project Name

MWN4 232 EU

Catalog No.

G

Type

Date

BALLASTS

Standard class "P," thermally protected, auto-resetting HPF ballast, sound rated A. All ballast leads extend a minimum of 6" through access location. NEC/CEC-compliant ballast disconnect is standard. CEE NEMA Premium compliant.

ELECTRICAL

Standard class "P," thermally protected, autoresetting HPF ballast, sound rated A. CEE NEMA Premium compliant. All ballast leads extend a minimum of 6" through access location. NEC/CEC-compliant ballast disconnect is standard.

FINISH

Housing is painted after fabrication with a white powder coat finish. Ballast cover is finished with a high gloss baked white enamel.

SHIELDING

For MWN: Clear injection molded acrylic prismatic lens with a flat bottom and vertical sides and ends. For EWN: Clear extruded acrylic prismatic lens with flat bottom and vertical sides. The ends of the lens are of injection molded acrylic material. Lens is positively secured by torsion springs and can be easily removed.

CERTIFICATION

All luminaires are built to UL 1598 standards and bear appropriate UL and cUL or CSA labels. Damp location labeling is standard. Emergency-equipped fixtures labeled UL 924.

ORDERING INFORMATION

EXAMPLE MWN4-232-EU

MODEL	LENGTH	NO. OF LAMPS	LAMP TYPE	BALLAST	VOLTAGE	OPTIONS
MWN Injection Molded Lens	4 4'	2 Two	28 4', T5 28 Watt	E Electronic T8, Instant Start	U 120V-277V	GLR Fast Blow Fuse
EWN Extruded Lens	8 8'		32 4', T8 32, 30, 28, or 25 Watt	4E 4-Lamp Electronic T8, Instant Start	347 347V	EL Emergency Battery Pack
			54 4', TSHO 54 or 51 Watt	EP Electronic T5 or T8, Programmed Start		NL Compact Twin Tube Fluorescent Night Light in G23 Base for 5W, 7W, 9W or GX23 Base for 13W, (120V or 277V, Lamp not included)
				4EP 4-Lamp Electronic T5HO (N/A 347V) or T8, Programmed Start		NYC NYC Compliant
				For a specific ballast vendor show as option		NYCU NYC Compliant, Union Label

ACCESSORIES (ORDER SEPARATELY)

- S18 18" Stem, Canopy
- SS18 18" Swivel Stem-45° Swivel
- CS-2 Ceiling Spacer
- SB3 Stem Mounting Bracket (Required for 3-Lamp units only)



PHOTOMETRIC DATA

AVG. LUMINANCE (Candela/Sq. M.)

COEFFICIENTS OF UTILIZATION (%)

Test 11803 Test Date 5/12/97

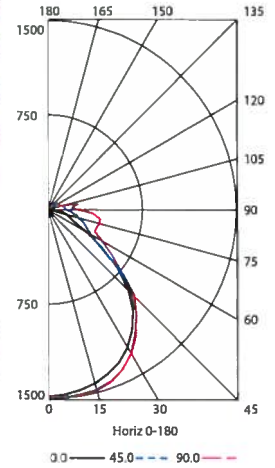
LUMINAIRE DATA

Luminaire	MWN4-232-A12-E MWN/MWW Wraps 11" x 49" 2-Lamp with Acrylic Prismatic Wrap Lens
Ballast	B2321120RH
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	57
Mounting	Surface
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.25 90° = 1.29
Luminous Opening in Feet	Length: 4.00 Width: 0.81 Height: 0.00

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	4930	4930	4930	4930	4930
30	4822	4952	5052	5056	5041
40	4541	4610	4736	4701	4688
45	4247	4233	4416	4553	4567
50	3732	3701	3757	3918	3907
55	3006	3122	2908	3458	3522
60	2339	2791	2591	3389	3262
65	1832	2390	2649	3396	3215
70	1778	2195	2933	3759	3992
75	2015	2426	3248	4878	5443
80	2411	3099	4171	7060	8055
85	3050	4727	7014	12427	13647

RCR	80					70					50					0				
	RW	70	50	30	10	70	50	30	10	50	30	10	0	30	10	0	30	10	0	
1	82	78	74	71	79	75	72	69	71	68	66	57	68	66	57	68	66	57	68	
2	75	68	63	58	72	66	61	57	62	58	54	48	58	54	48	58	54	48	58	
3	68	60	54	49	66	58	53	48	55	50	46	41	50	46	41	50	46	41	50	
4	63	54	47	42	60	52	46	41	49	44	40	35	44	40	35	44	40	35	44	
5	58	48	41	36	56	47	40	36	44	39	35	31	41	37	33	41	37	33	41	
6	54	43	37	32	52	42	36	31	40	35	31	27	38	34	30	38	34	30	38	
7	50	39	33	28	48	39	32	28	37	31	27	24	35	31	27	35	31	27	35	
8	46	36	30	25	45	35	29	25	34	28	24	22	32	28	24	32	28	24	32	
9	43	33	27	23	42	32	27	23	31	26	22	20	29	25	21	29	25	21	29	
10	41	31	25	21	39	30	24	20	29	24	20	18	27	23	19	27	23	19	27	

INDOOR CANDELA PLOT



ZONAL LUMEN SUMMARY

Zone	Lumens	% Lamp	% Fixt.
0-30	1193	20.6	26.6
0-40	1943	33.5	43.3
0-60	3166	54.6	70.5
0-90	4044	69.7	90.1
90-120	326	5.6	7.3
90-130	381	6.6	8.5
90-150	437	7.5	9.7
90-180	447	7.7	9.9
0-180	4491	77.4	100.0

RCR = Room Cavity Ratio

RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

ENERGY DATA

Total Luminaire Efficiency	77.4%
Luminaire Efficacy Rating (LER)	0
IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$0.00 based on 3000 hrs. and \$0.08 per KWH

LUMINAIRE DATA

Luminaire	EWN4-232-A12-E EWN/EWW Wraps 11" x 49" 2-Lamp with Acrylic Prismatic Wrap Lens
Ballast	B2321120RH
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	55
Mounting	Surface
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.24 90° = 1.41
Luminous Opening in Feet	Length: 4.00 Width: 0.81 Height: 0.00

AVG. LUMINANCE (Candela/Sq. M.)

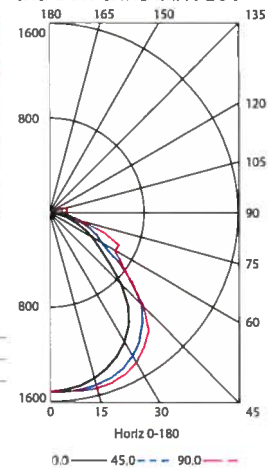
COEFFICIENTS OF UTILIZATION (%)

Test 11869 Test Date 8/5/97

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	5026	5026	5026	5026	5026
30	4841	5052	5359	5559	5605
40	4489	4805	5291	5577	5651
45	4050	4524	5168	5389	5286
50	3385	4109	4714	4796	4590
55	2971	3585	4101	4234	4292
60	2757	3036	3402	3774	4259
65	2555	2673	3427	4410	5094
70	2312	2477	3380	4157	4808
75	2041	2631	3094	3440	3748
80	2277	3425	3616	3539	3463
85	3164	4917	5642	5604	5299

RCR	80					70					50					0				
	RW	70	50	30	10	70	50	30	10	50	30	10	0	30	10	0	30	10	0	
1	86	82	79	75	83	80	76	74	75	73	70	62	73	70	62	73	70	62	73	
2	78	72	66	62	76	70	65	61	66	62	58	52	62	58	52	62	58	52	62	
3	72	63	57	52	69	62	56	51	58	53	49	44	53	49	44	53	49	44	53	
4	66	56	49	44	63	55	48	43	52	47	42	38	47	42	38	47	42	38	47	
5	60	50	43	38	58	49	43	38	47	41	37	33	41	37	33	41	37	33	41	
6	56	45	38	33	54	44	38	33	42	37	32	29	38	34	30	38	34	30	38	
7	52	41	34	29	50	40	34	29	39	33	29	26	35	31	27	35	31	27	35	
8	48	38	31	26	47	37	30	26	35	30	26	23	32	28	24	32	28	24	32	
9	45	35	28	24	44	34	28	23	32	27	23	21	29	25	21	29	25	21	29	
10	42	32	26	21	41	31	25	21	30	25	21	19	27	23	19	27	23	19	27	

INDOOR CANDELA PLOT



ZONAL LUMEN SUMMARY

Zone	Lumens	% Lamp	% Fixt.
0-30	1232	21.2	26.4
0-40	2046	35.3	43.9
0-60	3457	59.6	74.2
0-90	4310	74.3	92.5
90-120	270	4.7	5.8
90-130	307	5.3	6.6
90-150	345	5.9	7.4
90-180	351	6.1	7.5
0-180	4661	80.4	100.0

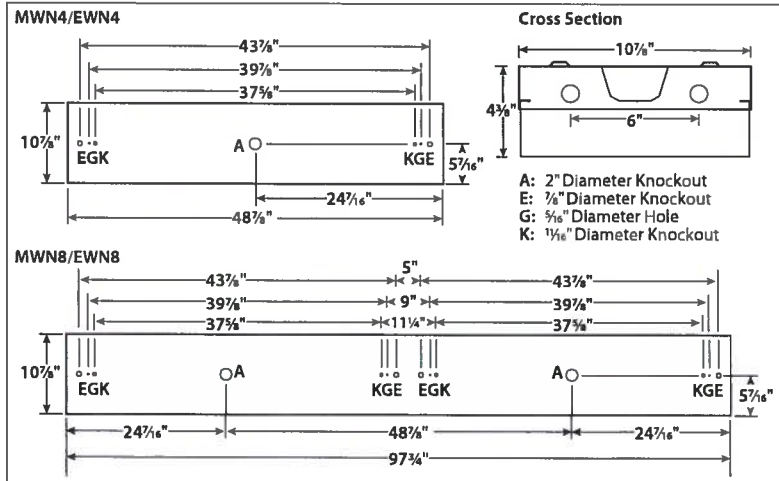
RCR = Room Cavity Ratio

RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

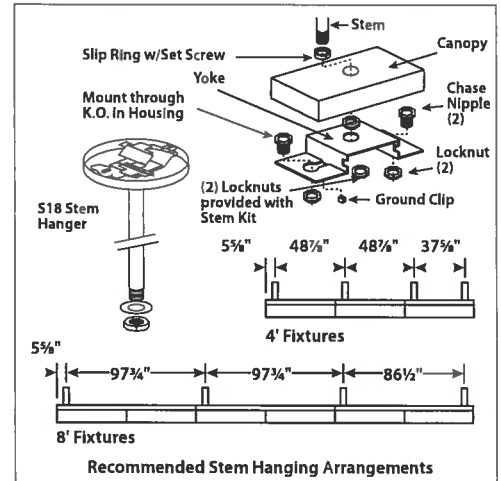
ENERGY DATA

Total Luminaire Efficiency	80.4%
Luminaire Efficacy Rating (LER)	75
IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.20 based on 3000 hrs. and \$0.08 per KWH

DIMENSIONAL DATA



STEM MOUNTING



NOTE: All dimensions are in inches; dimensions and specifications are subject to change without notice. Please consult factory or check sample for verification.

SUPERBAY WA22 SERIES

22" ACRYLIC REFLECTOR

Cat. # BL 400P8 WA22 WH QST ENC		Approvals
Job HDT RWRF EM BLDG	Type H	



APPLICATIONS

- Designed as the economical solution to all non-impact applications. Clear lighting grade acrylic allows about 20% uplight for a well-lit application.

SPECIFICATIONS

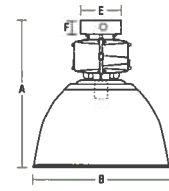
- Lightweight prismatic acrylic reflector generates wide, uniform light distribution with minimum glare and reduces harsh shadows on vertical work surfaces.
- Acrylic composition of the reflector versus glass enhances work place safety. Injection molded of UV stabilized acrylic.
- Field-adjustable reflector brackets allow for medium to wide lighting distributions. Unit Pack Available! #BL-400P8-WA-WH-UPL
- Use coated (diffuse) lamps for optimum photometric performance.

LISTINGS

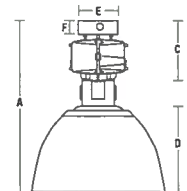
- Up to 55°C ambient. Suitable for damp location, minimum 90°C supply conductors.



FLUSH MOUNT



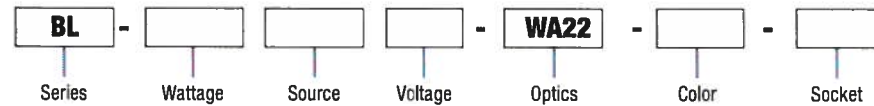
LEG MOUNT



Flush Mount	A	B	C	D	E	F
SLICK-ON®	23 1/2"	22 1/2"	9 1/2"	14"	9 1/2"	2"
	597 mm	572 mm	241 mm	356 mm	241 mm	51 mm
QUICK-ON®	22 5/8"	22 1/2"	8 5/8"	14"	9 1/2"	1 1/8"
	575 mm	572 mm	219 mm	356 mm	241 mm	29 mm
Leg Mount	A	B	C	D	E	F
SLICK-ON®	25 3/4"-28"	22 1/2"	9 1/2"	14"	9 1/2"	2"
	654-711 mm	572 mm	241 mm	356 mm	241 mm	51 mm
QUICK-ON®	24 7/8"-27 1/8"	22 1/2"	8 5/8"	14"	9 1/2"	1 1/8"
	632-689 mm	572 mm	219 mm	356 mm	241 mm	29 mm

ORDERING INFORMATION

ORDERING EXAMPLE: BL-350P8-WA22-WH



SERIES

BL Superbay Series

WATTAGE

- 150** 150 watt HPS
- 175** 175 watt only Pulse Start MH only
- 200** 200 watt Pulse Start MH only
- 250** 250 watt Pulse Start MH or HPS
- 320** 320 watt Pulse Start MH only
- 350** 350 watt Pulse Start MH only
- 400** 400 watt Pulse Start MH or HPS
- 450** 450 watt Pulse Start MH only

SOURCE

- S** High Pressure Sodium
- P** Pulse Start Metal Halide

VOLTAGE

- 5** 480V
- 6** Tri-Tap® - 120/277/347V
- 8** Quad-Tap® - 120/208/240/277V
- F** 347V

OPTICS

WA22 22" Wide Acrylic Reflector

COLOR

- WH** White (standard)
- GR** Gray (optional)

SOCKET

EX Exclusionary socket (open rated lamps)

ACCESSORIES

Order separately

BOTTOM ENCLOSURES

- WA2-ENC** Bottom Enclosure
- WA22-CDL** Conical Bottom Enclosure
- WA22-DLR** Drop Lens Bottom Enclosure

NOTE: Energy Saving Linear Reactor Pulse Start ballast available, consult factory (277V only).

NOTE: Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

NOTE: Options must be added as suffix to Catalog Number. Accessories must be ordered separately.

MAX AMBIENT TEMPERATURE CHART

WATTAGE	OPEN	ENCLOSED
250	55°C	55°C
320	55°C	55°C
350	55°C	55°C
400	55°C	55°C
450	55°C	55°C

WA UNIT PACKS

MATERIAL	MATERIAL DESCRIPTION	WATTAGE	VOLTAGE	LAMP BASE	LAMP INCLUDED
METAL HALIDE PULSE START					
BL320P8WAEXUPL	BL-320P8-WA22-WH-EX-UPL	320	Quad-Tap	Exclusionary	Lamp Included
BL320P8WAWHUPL	BL-320P8-WA22-WH-UPL	320	Quad-Tap	Mogul	Lamp Included
BL400P8WAWHUPL	BL-400P8-WA-WH-UPL	400	Quad-Tap	Exclusionary	Lamp Included
BL400P8WAEXUPL	BL-400P8-WA22-WH-EX-UPL	400	Quad-Tap	Mogul	Lamp Included
HIGH PRESSURE SODIUM					
BL400S8WHWAUPL	BL-400S8-WH-WA-UPL	400	Quad-Tap	Mogul	Lamp Included

ORDERING INFORMATION

OPTIONS FOR SUPERBAY SERIES

Factory Installed — order with fixture by adding suffix.

PLUGS ARE TWIST-LOCK® TYPE AS MANUFACTURED BY HUBBELL WIRING DEVICES.

Suffix	Description
-CFB	Charcoal filter breather
-C4HL	4' Cord, Hook/Loop w/ Quick-On® Hanger - SO cord wired thru hook
-C6HL	6' Cord, Hook/Loop w/ Quick-On® Hanger - SO cord wired thru hook
-C8HL	8' Cord, Hook/Loop w/ Quick-On® Hanger - SO cord wired thru hook
-C10HL	10' Cord, Hook/Loop w/ Quick-On® Hanger - SO cord wired thru hook
-C12HL	12' Cord, Hook/Loop w/ Quick-On® Hanger - SO cord wired thru hook

CORD, HOOK/LOOP & 20A PLUG W/ QUICK-ON® HANGER -
SO CORD W/ PLUG WIRED THRU HOOK

LENGTH	X=	120V	208V	240V	277V	480V	347V
-C4HLP (X)	4'	1	2	3	4	5	C
-C6HLP (X)	6'	1	2	3	4	5	C
-C8HLP (X)	8'	1	2	3	4	5	C
-C10HLP (X)	10'	1	2	3	4	5	C
-C12HLP (X)	12'	1	2	3	4	5	C

CORD, HOOK/LOOP & 15A PLUG W/ QUICK-ON® HANGER -
SO CORD W/ PLUG WIRED THRU HOOK

LENGTH	X=	120V	208V	240V	277V	480V	347V
-C4HLPX-15A	4'	1	2	3	4	5	C
-C6HLPX-15A	6'	1	2	3	4	5	C
-C8HLPX-15A	8'	1	2	3	4	5	C
-C10HLPX-15A	10'	1	2	3	4	5	C
-C12HLPX-15A	12'	1	2	3	4	5	C

-C4HLP1-15A	4' Cord, Hook/Loop & 15A 120V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C6HLP1-15A	6' Cord, Hook/Loop & 15A 120V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C8HLP1-15A	8' Cord, Hook/Loop & 15A 120V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C10HLP1-15A	10' Cord, Hook/Loop & 15A 120V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C12HLP1-15A	12' Cord, Hook/Loop & 15A 120V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C4HLP4-15A	4' Cord, Hook/Loop & 15A 277V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C6HLP4-15A	6' Cord, Hook/Loop & 15A 277V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C8HLP4-15A	8' Cord, Hook/Loop & 15A 277V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C10HLP4-15A	10' Cord, Hook/Loop & 15A 277V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook
-C12HLP4-15A	12' Cord, Hook/Loop & 15A 277V Plug w/ Quick-On® Hanger - SO cord w/ plug wired thru hook

CORD, HOOK/LOOP & 20A PLUG W/ SLICK-ON® HANGER -
SO CORD W/ PLUG WIRED THRU HOOK

LENGTH	X=	120V	208V	240V	277V	480V	347V
-C4HLPS0 (X)	4'	1	2	3	4	5	C
-C6HLPS0 (X)	6'	1	2	3	4	5	C
-C8HLPS0 (X)	8'	1	2	3	4	5	C
-C10HLPS0 (X)	10'	1	2	3	4	5	C
-C12HLPS0 (X)	12'	1	2	3	4	5	C

Suffix	Description
-C4HLPS01-15A	4' Cord, Hook/Loop & 15A 120V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C6HLPS01-15A	6' Cord, Hook/Loop & 15A 120V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C8HLPS01-15A	8' Cord, Hook/Loop & 15A 120V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C10HLPS01-15A	10' Cord, Hook/Loop & 15A 120V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C12HLPS01-15A	12' Cord, Hook/Loop & 15A 120V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C4HLPS04-15A	4' Cord, Hook/Loop & 15A 277V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C6HLPS04-15A	6' Cord, Hook/Loop & 15A 277V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C8HLPS04-15A	8' Cord, Hook/Loop & 15A 277V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C10HLPS04-15A	10' Cord, Hook/Loop & 15A 277V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook
-C12HLPS04-15A	12' Cord, Hook/Loop & 15A 277V Plug w/ Slick-On® Hanger - SO cord w/ plug wired thru hook

CORD, HOOK/LOOP & 20A PLUG W/ SLICK-ON® HANGER -
SINGLE FUSE (incl.) SO CORD W/ PLUG WIRED THRU HOOK

LENGTH	X3=	120V	277V	347V
-C4HLPS0F (X3)	4'	1	4	C
-C6HLPS0F (X3)	6'	1	4	C
-C8HLPS0F (X3)	8'	1	4	C
-C10HLPS0F (X3)	10'	1	4	C
-C12HLPS0F (X3)	12'	1	4	C

CORD, HOOK/LOOP & 20A PLUG W/ SLICK-ON® HANGER -
DOUBLE FUSE (incl.) SO CORD W/ PLUG WIRED THRU HOOK

LENGTH	X4=	208V	240V	480V
-C4HLPS0FF (X4)	4'	2	3	5
-C6HLPS0FF (X4)	6'	2	3	5
-C8HLPS0FF (X4)	8'	2	3	5
-C10HLPS0FF (X4)	10'	2	3	5
-C12HLPS0FF (X4)	12'	2	3	5

-C4HLS0	4' Cord & Hook/Loop w/ Slick-On® Hanger - SO cord wired thru hook
-C6HLS0	6' Cord & Hook/Loop w/ Slick-On® Hanger - SO cord wired thru hook
-C8HLS0	8' Cord & Hook/Loop w/ Slick-On® Hanger - SO cord wired thru hook
-C10HLS0	10' Cord & Hook/Loop w/ Slick-On® Hanger - SO cord wired thru hook
-C12HLS0	12' Cord & Hook/Loop w/ Slick-On® Hanger - SO cord wired thru hook

Suffix	Description				
	CORD, HOOK/LOOP W/ SLICK-ON® HANGER - SINGLE FUSE (incl.) SO CORD W/ PLUG WIRED THRU HOOK				
	LENGTH	X2=	120V	277V	347V
-C4HLSOF (X2)	4'		1	4	C
-C6HLSOF (X2)	6'		1	4	C
-C8HLSOF (X2)	8'		1	4	C
-C10HLSOF (X2)	10'		1	4	C
-C12HLSOF (X2)	12'		1	4	C

Suffix	Description				
	CORD, HOOK/LOOP W/ SLICK-ON® HANGER - DOUBLE FUSE (incl.) SO CORD W/ PLUG WIRED THRU HOOK				
	LENGTH	X3=	208V	240V	480V
-C4HLSOFF (X3)	4'		2	3	5
-C6HLSOFF (X3)	6'		2	3	5
-C8HLSOFF (X3)	8'		2	3	5
-C10HLSOFF (X3)	10'		2	3	5
-C12HLSOFF (X3)	12'		2	3	5

Suffix	Description						
	DEAD FRONT DISCONNECT - incl. CORD, LOOP & DEAD FRONT DISCONNECT PLUG W/ QUICK-ON® HANGER - 15" SO cord factory wired to fixture; order w/ PHS-XXXL (see mounting access.)						
	X1=	120V	208V	240V	277V	480V	347V
-DFP (X1)		1	2	3	4	5	F

Suffix	Description			
	DEAD FRONT DISCONNECT W/ SINGLE FUSE - incl. CORD, LOOP & DEAD FRONT DISCONNECT PLUG PLUS SINGLE FUSE BLOCK (fuse incl.) W/ QUICK-ON® HANGER - 15" SO cord factory wired to fixture; order w/ PHS-XXXL (see mounting access.)			
	X3=	120V	277V	347V
-DFPF (X3)		1	4	F

Suffix	Description				
	DEAD FRONT DISCONNECT W/ DOUBLE FUSE - incl. CORD, LOOP & DEAD FRONT DISCONNECT PLUG PLUS DOUBLE FUSE BLOCK (fuse incl.) W/ QUICK-ON® HANGER - 15" SO cord factory wired to fixture; order w/ PHS-XXXL (see mounting access.)				
	X4=	208V	240V	480V	
-DFPFF (X4)		2	3	5	

Suffix	Description						
	DEAD FRONT DISCONNECT - incl. CORD, LOOP & DEAD FRONT DISCONNECT PLUG W/ SLICK-ON® HANGER - 15" SO cord factory wired to fixture; order w/ PHS-XXXL (see mounting access.)						
	X1=	120V	208V	240V	277V	480V	347V
-DFPSO (X1)		1	2	3	4	5	F

Suffix	Description			
	DEAD FRONT DISCONNECT W/ SINGLE FUSE - incl. CORD, LOOP & DEAD FRONT DISCONNECT PLUG PLUS SINGLE FUSE BLOCK (fuse incl.) W/ SLICK-ON® HANGER - 15" SO cord factory wired to fixture; order w/ PHS-XXXL (see mounting access.)			
	X3=	120V	277V	347V
-DFPSOF (X3)		1	4	F

Suffix	Description			
	DEAD FRONT DISCONNECT W/ DOUBLE FUSE - incl. CORD, LOOP & DEAD FRONT DISCONNECT PLUG PLUS DOUBLE FUSE BLOCK (fuse incl.) W/ SLICK-ON® HANGER - 15" SO cord factory wired to fixture; order w/ PHS-XXXL (see mounting access.) (not for Canada)			
	X3=	208V	240V	480V
-DFPSOFF (X3)		2	3	5

Suffix	Description
-EM	Emergency Circuit Complete w/ Slick-On® hanger - D.C. bayonet base, 120V quartz socket; for connection by customer to separate power supply

FLEXIBLE WIRE SYSTEM FIXTURE CORD (CANADA ONLY)								
	LENGTH	X1=	120V	208V	240V	277V	480V	347V
-FC3X1	3'		1	2	3	4	5	C
-FC6X1	6'		1	2	3	4	5	C

-GR	Gray Lektrocote® Finish on housing; replace -WH in catalog number
-JP	Job Pack - master carton packaging of ballast housing to reduce corrugated waste disposal; for shipment to jobsite only
-LRI ¹	Lower Luminaire Retainer - a snap-in cable on housing secures reflector to ballast housing
-NMM	No Mounting Method - neither Slick-On® nor Quick-On® provided w/ luminaire. Mounting method must be ordered as an accessory; option used for applications requiring mounting method supplied in advance of luminaire
-P	High Strength Polycarbonate Refractor
-QSS	Quartz Standby System - ON when power is restored, OFF when HID lamp restrikes. Wattage of quartz lamp (not incl.) may not exceed wattage of HID lamp (250W max. recommended). Uses 120V DC bayonet base lamp. Factory wired.
-QST	Quartz Standby with Time Delay - ON when power is restored, OFF when HID lamp restrikes and is warmed up. Wattage not to exceed wattage of HID lamp (250W max. recommended). Uses 120V DC bayonet base lamp. Factory wired.
-SLO-1	Switch Level Dimming with 120V control
-SLD-2	Switch Level Dimming with 24V control
-SLD-3	Switch Level Dimming with 120 or 277V control (Direct Control)
-SO	Slick-On® Thru Wire Outlet Box for 3/4" pendant or 1/2" or 3/4" side entry conduit

SLICK-ON® THRU WIRE OUTLET BOX, SINGLE FUSE (incl.) for 3/4" pendant or side entry conduit				
	X3=	120V	277V	347V
-SOF (X3)		1	4	F

SLICK-ON® THRU WIRE OUTLET BOX, DOUBLE FUSE (incl.) for 3/4" pendant or side entry conduit (not for Canada)				
	X4=	208V	240V	480V
-SOFF (X4)		2	3	5

-TRI(X)	Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required. Shipped in housing carton. Specify length (X), recommended maximum slack is 3"
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¹ Luminaire retainers/safety cables reduce risk of equipment falling

NOTE: For specific applications, bottom enclosures may be required. For more information, please see specific lamp manufacturers' data and the NEMA white paper "Best Practices for Metal Halide Lighting Systems" posted on the NEMA web site (www.nema.org).

WARNING: Improper selection, installation, operation, servicing, removal, and disposal of lighting products may create serious hazardous including fires, explosions, shock, burns, cuts, impaired vision, falling objects, and environmental contamination. Reduce risks by using the guidance of licensed professionals throughout the product life cycle, and following individual product, component, and accessory safety instructions and labels.

We offer this in the interest of safety for our customers, who may not be aware of the potentially high risk involved in the misuse of these products.

ORDERING INFORMATION

ACCESSORIES

(order separately)

Catalog #	Description
B-LLR'	Lower Luminaire Retainer - 2' cable secures reflector to ballast housing
B-TLR(6)'	6' Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required
B-TLR(10)'	10' Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required
B-TLR(12)'	12' Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required
B-TLR(16)'	16' Top Luminaire Retainer - chain secures ballast housing to structure when additional safety precautions are required
WA2-ENC'	22" Acrylic Lens, corrosion-resistant steel lens ring (not dust tight) required for 175, 250, 320 & 350 watt metal halide luminaires; for WA22, WD22 & WW22 reflectors only
BL-QO	Quick-On 3/4" pendant mount
BL-SO	Slick-On Thru Wire Outlet Box for 3/4" pendant or 3/4, 1/2 side entry conduit
BL-SOF	Slick-On Single Fusing (fuse not incl.) thru wire outlet box for 3/4" pendant or 3/4, 1/2 side entry conduit mount with single fuse holder
BL-SOFF	Slick-On Double Fusing (fuses not incl.) thru wire outlet box for 3/4" pendant or 3/4, 1/2 side entry conduit mount with double fuse holder (not for Canada)
WG-23	23" Wireguard - corrosion resistant, welded steel w/ center lamp access

1 Luminaire retainers/safety cables reduce risk of equipment falling.

2 Bottom enclosures are required unless lamps designated as "suitable for open use" are used.

MOUNTING ACCESSORIES

(order separately)

PLUGS ARE TWIST-LOCK® TYPE AS MANUFACTURED BY HUBBELL WIRING DEVICES.

Catalog #	Description
BLA-C4HLP-1	4' Cord, Hook/Loop and 120V 20A Twist-Lock® Plug
BLA-C4HLP-4	4' Cord, Hook/Loop and 277V 20A Twist-Lock® Plug
BLA-C4HLP1-15A	4' Cord, Hook/Loop and 120V 15A Twist-Lock® Plug
BLA-C4HLP4-15A	4' Cord, Hook/Loop and 277V 15A Twist-Lock® Plug
HOOK/LOOP'	Hook - cast aluminum 3/4" NPS male; includes safety screw; converts to Loop with strap included
H3/4AL3/4'	Swivel Aligner - complete with box for thru wiring; all hubs tapped for 3/4" conduit - 25° swivel
PHE-XXX'	Die Cast Aluminum Power Hook with 20A Twist-Lock® Receptacle - ceiling or 3/4" pendant mount, with 3/4" side entry for thru wiring 15" Cord, Hook/Loop & Twist-Lock® Plug (20 amp) included (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
PHE-XXX-L²	As above, except cord, loop & plug not included (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
PHS-XXX	Specification Grade Power Hook - 30" cord dead front plug & receptacle with isolated wiring chamber; ceiling or 3/4" pendant mount, with 3/4" side entry for thru wiring; special safety feature locks Hook/Loop onto bottom hook (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
PHS-XXX-L^{1,2}	Specification Grade Power Hook - dead front receptacle with isolated wiring chamber; ceiling or 3/4" pendant mount, with 3/4" side entry for thru wiring; Cord, Hook/Loop and Dead Front Plug not included, must be ordered with luminaire (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
SY3-XXX-2	Rugged Steel Power Hook with 20A Twist-Lock® Receptacle - pendant or surface mount, 3/4" thru wiring capability; 30" Cord, Hook/Loop and Plug (20 amp) included (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)
SY3-XXX-L²	Porta-Hook includes integral mounting hook and 20A Twist-Lock® Receptacle; 3/4" knockouts on top and two sides; Cord, Hook/Loop and Plug (20 amp) not included (for voltage replace XXX with 120, 208, 240, 277, 347, or 480)

1 CSA certified.

2 Cord, Hook/Loop and Plug must be added to fixture as option, example: -C2HLP4.

3 Cord, Hook/Loop and Dead Front Plug must be added to fixture as option, example: -DFP4.

NOTE: Cord used with above accessories is 16/3 SOWA 105°C NEMA configurations.

QUICK ESTIMATOR BL-WA22

LAMP QTY-LU/LP INPUT WATTS	SC @2/@4 LLF TEST #	ROOM WIDTH -/- MOUNTING HEIGHT (above floor)	ILLUMINANCE (MAINTAINED) APPROXIMATE AREA PER LUMINAIRE (SQ. FT.) / APPROXIMATE WATTS PER SQ. FT. (w/Blst. Losses)				
			10 fc	20 fc	50 fc	75 fc	100 fc
			MVR250/C/VBU/PA (ENC)	1.5/1.3	5 or more	1062 / 0.27	531 / 0.55
1 @ 21500	0.59	2	835 / 0.35	417 / 0.70	167 / 1.75	111 / 2.62	n.r. / n.r.
292	HP-08211	1	658 / 0.44	329 / 0.89	132 / 2.22	88 / 3.33	n.r. / n.r.
MS400/BU/PS	1.5/1.3	5 or more	2286 / 0.20	1143 / 0.40	457 / 0.99	305 / 1.48	229 / 1.98
1 @ 44000	0.62	2	1742 / 0.26	871 / 0.52	348 / 1.30	232 / 1.95	174 / 2.60
452	HP-08144	1	1361 / 0.33	680 / 0.66	272 / 1.66	181 / 2.49	136 / 3.32
MH400/U	1.5/1.3	5 or more	1790 / 0.26	895 / 0.51	358 / 1.28	239 / 1.92	179 / 2.56
1 @ 36000	0.59	2	1364 / 0.34	682 / 0.67	273 / 1.68	182 / 2.52	136 / 3.36
458	HP-08144	1	1066 / 0.43	533 / 0.86	213 / 2.15	142 / 3.22	107 / 4.30

To determine the number of luminaires required for a given illuminance level:

Step 1: Determine room size per column three below as 5 or more (Large Room), 2 (Medium Room) or 1 (Small Room).

Step 2: For desired footcandle level, per room size, divide floor area of space by "Approximate Area per Luminaire" from chart.

Step 3: If required, adjust result of Step 2 to "whole number." Result is quantity of luminaires required to provide approximate, average maintained illuminance selected.

Due to our continued efforts to improve our products, product specifications are subject to change without notice.



Industrial Lighting

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For more information visit our web site: www.hubbell-itg.com