

**2' x 2'**  
**2 Lamp**  
**T5, T5HO, or T8**

**APPLICATION**

- Retrofit package to convert multi-lamp 2x2 recessed luminaires to high efficiency 2-lamp products.
- Designed for use with recessed parabolic luminaires as shallow as 4-3/8". A trial installation is recommended before ordering project quantities.
- Internal housing length must be 23-15/16" or greater to accommodate T8 lamps. T5/T5HO lamps can be used in shorter housings.
- Package includes support ends, hinged/telescoping reflector assembly, ballast box, and louver assembly.
- High lumen lamps & high efficiency ballasts are recommended to minimize energy consumption without sacrificing light levels.
- Energy savings up to 32% are possible compared to conventional T8 parabolic luminaires and up to 44% compared to T12 products, while maintaining IES recommended light levels.
- Lighting power densities as low as 0.7 Watts/square foot are possible while maintaining recommended light levels.
- Retrofit with high efficiency high ballast factor (EBHHE) ballast and high lumen T8 lamps (LPT835HL) consumes only 40W. Compare to a conventional parabolic with two 31U6 T8 lamps at approx. 58W or a 40U6 T12 parabolic at approx. 72W.

**CONSTRUCTION**

- Hinged reflector assembly leaves hands free for wiring.

**ELECTRICAL**

- Ballast box is wired with ballast and lampholders.
- Lamp/ballast systems are available offering electrical system efficacy ratings up to 90 Lumens/Watt.
- Total luminaire efficacy as high as 69 LPW.
- Step dimming ballasts can be switched to 50% (or less) input power for energy savings to meet most energy codes while maintaining symmetrical illumination.
- UL listed for damp locations. Canadian certified optional.
- Integral ballast box serves as a wiring enclosure.

**ENCLOSURES**

- 6 cell louver is available with ribbed or flat cross baffles and creates a controlled amount of light in the upper spaces of the room to eliminate "cave effect" and create uniform illumination.
- High reflectance diffuse white powder-coat louver finish.
- Spring loaded latches are standard for easy operation and consistent retention. Louver can be hinged from either side.

**CATALOG NUMBER**

<b>2</b>	<b>WSR</b>	<b>2</b>	<b>23</b>	<b>1/2</b>	
<b>WIDTH</b> 2 - 2'	<b>FIXTURE FAMILY</b> WSR - Watt Watcher Select Retrofit	<b>LAMP TYPE/WATTAGE</b> 14 - 14wT5 (22") 17 - 17wT8 (24") 24HO - 24wT5HO (22")	<b>BAFFLE FINISH</b> RMW - Matte white paint finish w/ribbed cross baffles FMW - Matte white paint finish w/flat cross baffles	<b>BALLAST CONFIG.</b> 1/2 - One 2-Lamp ballast	<b>OPTIONS</b> CM - Canadian Market GLR# - Fusing, fast blow (# = number of ballasts) LPT730* - T8 lamps, 70+ CRI, 3000K LPT735* - T8 lamps, 70+ CRI, 3500K LPT741* - T8 lamps, 70+ CRI, 4100K LPT830HL* - T8 hi lumen lamps, 80+ CRI, 3000K LPT835HL* - T8 hi lumen lamps, 80+ CRI, 3500K LPT841HL* - T8 hi lumen lamps, 80+ CRI, 4100K LPT830* - T8/T5/T5HO lamps, 80+ CRI, 3000K LPT835* - T8/T5/T5HO lamps, 80+ CRI, 3500K LPT841* - T8/T5/T5HO lamps, 80+ CRI, 4100K  * Lamps included, bulk packed in carton quantities.
	<b>NO. OF LAMPS</b> (not included) 2	<b>BAFFLE CONFIGURATION</b> (cells wide x cells long) 23 - 2 x 3 (2X2 models)	<b>VOLTAGE</b> 120 277 347 UNV - Universal voltage, 120-277 volt		

**BALLAST**

- EBD - T5/T5HO/T8/CF electronic dimming ballast
- EB - T5/T5HO/T8/CF electronic ballast, std. ballast factor
- EBL - T8 Electronic ballast, low ballast factor
- EBH - T8 Electronic ballast, hi ballast factor
- EB101 - T8 Electronic ballast, <10% THD, instant start
- EB10R - T8 Electronic ballast, <10% THD, rapid start
- EBSD - T8 Electronic step dimming ballast
- EB115 - 14wT5 Electronic ballast, 1.15 ballast factor
- EBSD95 - 14wT5 Electronic step dimming ballast, .95 ballast factor
- EBSD115 - 14wT5 Electronic step dimming ballast, 1.15 ballast factor
- EBHE - T8 Electronic ballast, high efficiency, std. ballast factor
- EBLHE - T8 Electronic ballast, high efficiency, low ballast factor
- EBHHE - T8 Electronic ballast, high efficiency, high ballast factor

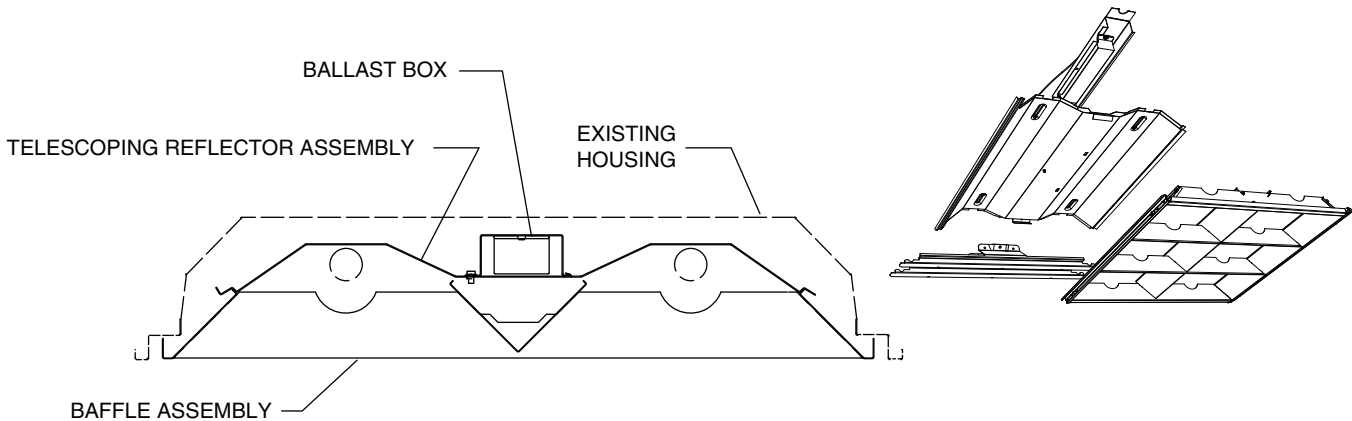
**JOB INFORMATION**

**277.1-PLV**

## ENERGY DATA

Lamp Type	Ballast Type	Input Power (120/277V)	Electrical System Lumens/Watt	
			Std. Lamps*	Hi-lumen Lamps
14	EB	34W / 34W	84	—
	EBSD95@hi	35W / 35W	77	—
	EBSD95@lo	16W / 16W	62	—
	EBSD115@hi	38W / 37W	84	—
	EBSD115@lo	18W / 19W	57	—
17	EB	34W / 34W	76	86
	EBHE	30W / 30W	80	<b>90</b>
	EB10I	33W / 33W	75	85
	EB10R	34W / 34W	74	84
	EBL	30W / 30W	76	86
	EBLHE	27W / 27W	79	89
	EBH	43W / 43W	78	88
	EBHHE	40W / 40W	78	89
	EBSD@hi	30W / 30W	77	87
	EBSD@lo	16W / 16W	50	57
24HO	EB	53W / 52W	77	—

\*T8 values assume 70+CRI lamp. 80+CRI lamps with increased lumen ratings are also available.



## PHOTOMETRIC DATA

CATALOG # 2WSR217-23RMW-1/2-EB LAMPS = F17T8  
 TEST #28008 S/MH=1.5 BALLAST = ELECTRONIC

INPUT WATTS = 32  
 BALLAST FACTOR = .88

LER = 56

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = \$4.29 BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 76.7%

CANDLEPOWER				
Angle	End	45	Cross	
0	734	734	734	
5	730	729	731	
10	714	721	732	
15	689	708	734	
20	659	692	736	
25	622	670	738	
30	582	647	736	
35	534	618	727	
40	483	583	701	
45	426	540	655	
50	367	484	598	
55	306	412	519	
60	245	334	327	
65	185	238	137	
70	131	120	72	
75	81	63	45	
80	45	38	23	
85	21	18	8	

### MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture\*

- 80-50-20 Reflectances (Ceiling-Wall-Floor)
- LLF = 0.77 1325 Lumens/Lamp very clean
- Room width divided by room height = 5 or more, 2 or 1

Fixture Size & # of Lamps	Room Width Room Height =	Approx. Area (sq. ft.) per Fixture				
		10 ft-c	30 ft-c	50 ft-c	70 ft-c	100 ft-c
2-Lamp	5	-	55	33	-	-
2 x 2 T8	2	114	38	-	-	-
6 Cell	1	83	-	-	-	-

\*Observe Fixture S/MH Requirements for Specific Applications

COEFFICIENT OF UTILIZATION						
pfc pec pw	20		70		50	
	70	50	30	70	50	30
RCR						
0	91	91	91	89	89	89
1	83	81	78	81	79	77
2	77	70	66	75	69	65
3	70	63	56	68	61	56
4	65	56	48	63	55	48
5	59	50	42	57	48	42
6	55	45	38	53	44	38
7	51	40	34	50	40	34
8	46	36	30	46	36	29
9	44	34	28	42	34	28
10	40	30	25	40	30	25

### LIGHT DISTRIBUTION

DEGREES	LUMENS	% LAMP	% FIXTURE
0-30	581	21.9	28.6
0-40	971	36.6	47.8
0-60	1746	65.9	85.9
0-90	2033	76.7	100.0

LLF = .77 LLF = LIGHT LOSS FACTOR LLF = LDD X LLD X BF LDD = VERY CLEAN 0.94 CLEAN 0.90  
 LLD = 0.93 @ 40% RATED LAMP LIFE BF = .88 ELECTRONIC BALLAST & T8 LAMP (RELAMP AT 70% LAMP LIFE)

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