

2' x 4'
2 Lamp
T5, T5HO, or T8

APPLICATION

- Retrofit package to convert multi-lamp 2x4 recessed luminaires to architectural high efficiency 2-lamp products.
- Subtle enclosure curves provide architectural styling to complement any space.
- Smooth brightness across the face of the luminaire prevents glare and provides excellent visual comfort.
- Directs a controlled amount of light to higher angles to eliminate "cave effect" without creating glare.
- Designed for use with recessed parabolic or deep troffer luminaires as shallow as 4-3/8". A trial installation is recommended before ordering project quantities.
- Package includes support ends, reflectors, telescoping channel assembly, and enclosure assembly.
- High lumen lamps & high efficiency ballasts are recommended to minimize energy consumption without sacrificing light levels.
- Energy savings up to 47% compared to conventional 3-lamp 18-cell T8/electronic parabolics and up to 59% compared to T12 products, while maintaining IES recommended light levels.
- 2-lamp design reduces the no. of lamps to lower maintenance costs. Many lamps (including high lumen models) have extended lamp life to further reduce relamping requirements.
- Lighting power densities as low as 0.6 Watts/square foot are possible while maintaining recommended light levels.

- Retrofit with high efficiency low ballast factor (EBLHE) ballast and high lumen T8 lamps (LPT835HL) consumes only 47W. Compare to a conventional 3-lamp 18 cell T8 luminaire at approx. 88W or a T12 model at approx. 115W.

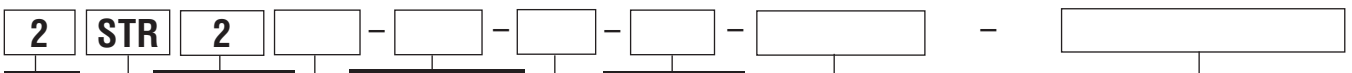
ELECTRICAL

- Channel assembly is wired with ballast and lampholders and serves as a wiring enclosure.
- Lamp/ballast systems are available offering electrical system efficacy ratings up to 102 Lumens/Watt.
- Total luminaire efficacy as high as 87 LPW.
- Step dimming ballasts can be switched to 50% (or less) power to meet most energy codes and maintain symmetrical illumination.
- UL listed for damp locations. Canadian certified optional. Models with emergency ballast UL listed for dry locations.

ENCLOSURES

- Center section is flush with outer panels, eliminating the dirt and debris collection typical of suspended "baskets".
- One-piece enclosure hinges down as an assembly for easy access to lamps and ballast from below.
- Choice of center sections: smooth or ribbed acrylic, round perforated steel with overlay, or white radial louver with overlay.
- Smooth side diffusers standard, ribbed optional.
- Any center section can be used with either side diffuser.

CATALOG NUMBER



WIDTH	NO. OF LAMPS	CENTER DIFFUSER	BALLAST CONFIG.	BALLAST TYPE	OPTIONS
2 - 2'	(not included) 2	D - Diffuse (Ribbed) DS - Diffuse (Smooth) PMW - Round Perf. w/white overlay WO - Radial louver w/white overlay	1/2 - One 2-lamp ballast	EB95 - 28wT5 Electronic ballast, .95 ballast factor EB115 - 28wT5 Electronic ballast, 1.15 ballast factor EBSD95 - 28wT5 Electronic step dimming ballast, .95 ballast factor EBSD115 - 28wT5 Electronic step dimming ballast, 1.15 ballast factor EBSD80 - 54wT5HO Electronic step dimming ballast, .80 ballast factor EBD - T5/T5HO/T8 electronic dimming ballast EB - T5/T5HO/T8 electronic ballast, std. ballast factor EBL - T8 Electronic ballast, low ballast factor EBH - T8 Electronic ballast, hi ballast factor EB10I - T8 Electronic ballast, <10% THD, instant start EB10R - T8 Electronic ballast, <10% THD, rapid start EBSD - T8 Electronic step dimming ballast EBHE - T8 Electronic ballast, high efficiency, std. ballast factor EBLHE - T8 Electronic ballast, high efficiency, .77 ballast factor	CM - Canadian Market CC - Custom Color E1LP* - DEB-1LP emerg. ballast, T8 lamps, 450 lumens E5LP* - DEB-5LP emerg. ballast, T8 lamps, 950-1050 lumens E7LP* - DEB-7LP emerg. ballast, T8/T5/T5HO lamps, 635-700 lumens E6* - DEB-6LP emerg. ballast, T8/T5/T5HO lamps, 1100-1325 lumens 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 RIB - Ribbed side diffusers
FIXTURE FAMILY	LAMP TYPE/WATTAGE	VOLTAGE			
STR - SofTrace Retrofit	28 - 28wT5 (46") 32 - 32wT8 (48") 54HO - 54wT5HO (46")	120 277 347 UNV - Universal Voltage, 120-277 volt			

* Factory installed.
** Lamps included, bulk packed in carton quantities.

JOB INFORMATION

0172-AR

2' x 4' SOFTRACE RETROFIT

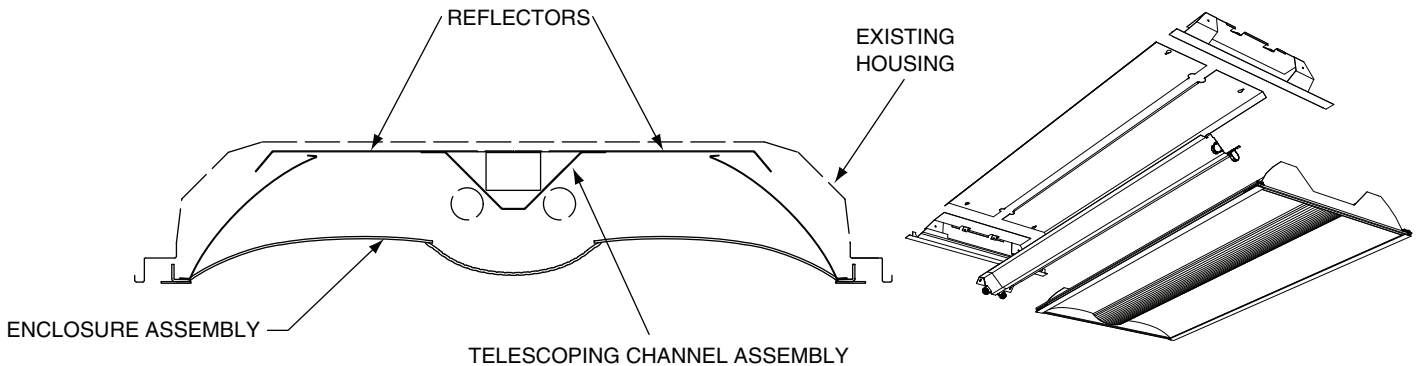


PHILIPS
Day-Brite

ENERGY DATA

Lamp Type	Ballast Type	Input Power (120/277V)	Electrical System Lumens/Watt	
			Std. Lamps*	Hi-lumen Lamps
28	EB95	60W / 58W	95	100
	EBSD95@hi	60W / 58W	95	100
	EBSD95@lo	28W / 28W	73	76
	EB115	72W / 71W	94	99
	EBSD115@hi	72W / 71W	94	99
	EBSD115@lo	35W / 35W	80	81
	EB	66W / 64W	95	100
32	EB	58W / 58W	85	94
	EBHE	55W / 54W	90	100
	EB10I	59W / 58W	85	94
	EB10R	62W / 60W	82	91
	EBL	50W / 49W	88	97
	EBLHE	47W / 47W	92	102
	EBH	77W / 77W	87	97
	EBHHE	74W / 73W	91	100
	EBSD@hi	57W / 56W	88	97
	EBSD@lo	28W / 28W	60	66
54HO	EB	120W / 117W	85	-
	EBSD80@hi	96W / 93W	86	-
	EBSD80@lo	52W / 51W	78	-

*Standard lamp T8 values assume 70+CRI 32W lamp. 80+CRI lamps or energy saving lamps are also available.



PHOTOMETRIC DATA

CATALOG # 2STR232-D-1/2-EB
TEST #27034D8 S/MH=1.2

LAMPS = F32T8
BALLAST = ELECTRONIC

INPUT WATTS = 59
BALLAST FACTOR = 0.88

LER = 72

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = **\$3.33** BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 85.2%

T8, DIFFUSE*
*smooth or ribbed center,
smooth or ribbed sides

CANDLEPOWER				
Angle	End	45	Cross	
0	1725	1725	1725	
5	1730	1719	1707	
10	1701	1693	1680	
15	1661	1653	1639	
20	1608	1597	1584	
25	1533	1525	1515	
30	1444	1439	1443	
35	1334	1345	1372	
40	1219	1241	1294	
45	1089	1137	1214	
50	944	1020	1120	
55	814	895	996	
60	642	756	850	
65	492	606	688	
70	359	462	517	
75	236	320	355	
80	135	195	188	
85	56	73	66	

MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture*			
<ul style="list-style-type: none"> 80-50-20 Reflectances (Ceiling-Wall-Floor) LLF = 0.75 2850 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	
		30 ft-c	50 ft-c
2x4	5	127	76
2-Lamp T8	2	86	52
Diffuse	1	63	38

*Observe Fixture S/MH Requirements for Specific Applications

COEFFICIENT OF UTILIZATION									
pfc pcc pw RCR	20			70			50		
	70	50	30	70	50	30	50	30	50
0	101	101	101	98	98	98	94	94	94
1	93	89	84	90	86	82	82	80	80
2	83	77	70	81	76	69	72	68	67
3	77	68	60	75	66	59	64	57	57
4	69	59	53	68	58	52	56	51	51
5	65	54	46	63	53	45	51	44	44
6	59	47	40	57	46	40	46	39	39
7	55	44	35	54	42	35	41	34	34
8	51	40	33	50	39	32	38	32	32
9	47	36	29	46	35	28	34	28	28
10	45	34	27	44	33	27	32	26	26

LIGHT DISTRIBUTION			
DEGREES	LUMENS	% LAMP	% FIXTURE
0-30	1331	23.4	27.4
0-40	2175	38.2	44.8
0-60	3856	67.7	79.4
0-90	4854	85.2	100.0

.75LLF = .94LDD x .91LLD x 0.88BF

PHOTOMETRIC DATA

CATALOG # 2STR228-D-1/2-EB95
TEST #27100D8 S/MH=1.2

LAMPS = F28T5
BALLAST = ELECTRONIC

INPUT WATTS = 60
BALLAST FACTOR = 0.95

LER = 78

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = **\$3.08** BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 95.1%

T5, DIFFUSE*
*smooth or ribbed center,
smooth or ribbed sides

CANDLEPOWER				
Angle	End	45	Cross	
0	1759	1759	1759	
5	1757	1749	1745	
10	1732	1723	1718	
15	1690	1682	1675	
20	1636	1626	1608	
25	1559	1549	1534	
30	1466	1456	1451	
35	1358	1354	1374	
40	1232	1249	1306	
45	1093	1139	1237	
50	941	1024	1154	
55	791	903	1046	
60	640	768	903	
65	495	624	739	
70	356	476	565	
75	236	335	390	
80	136	203	203	
85	54	74	65	

MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture*			
<ul style="list-style-type: none"> 80-50-20 Reflectances (Ceiling-Wall-Floor) LLF = 0.85 2600 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	
		30 ft-c	50 ft-c
2x4	5	145	87
2-Lamp T5	2	98	59
Diffuse	1	71	43

*Observe Fixture S/MH Requirements for Specific Applications

COEFFICIENT OF UTILIZATION									
pfc pcc pw RCR	20			70			50		
	70	50	30	70	50	30	50	30	50
0	112	112	112	111	111	111	106	106	106
1	103	98	94	101	96	93	93	90	90
2	93	85	80	91	83	78	81	76	76
3	85	76	68	82	73	67	70	65	65
4	78	67	57	76	66	57	63	56	56
5	71	59	51	69	58	51	56	48	48
6	66	54	45	65	53	45	51	44	44
7	61	48	40	59	47	40	46	39	39
8	56	44	35	56	44	35	41	34	34
9	54	40	33	52	40	33	39	32	32
10	50	38	29	48	36	29	35	28	28

LIGHT DISTRIBUTION			
DEGREES	LUMENS	% LAMP	% FIXTURE
0-30	1354	26.0	27.4
0-40	2205	42.4	44.6
0-60	3906	75.1	79.0
0-90	4943	95.1	100.0

.85LLF = .94LDD x .95LLD x 0.95BF

PHOTOMETRIC DATA

CATALOG # 2STR232-PMW-1/2-EB
TEST #27092D4 S/MH=1.3

LAMPS = F32T8
BALLAST = ELECTRONIC

INPUT WATTS = 61
BALLAST FACTOR = 0.88

LER = 59

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = **\$4.07** BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 72.2%

T8, PERF.

CANDLEPOWER				
Angle	End	45	Cross	
0	1394	1394	1394	
5	1395	1390	1383	
10	1373	1372	1369	
15	1339	1343	1349	
20	1293	1306	1322	
25	1230	1258	1288	
30	1157	1198	1251	
35	1075	1132	1213	
40	970	1057	1162	
45	869	979	1105	
50	755	889	1023	
55	632	783	918	
60	506	666	790	
65	385	529	651	
70	279	403	508	
75	184	279	348	
80	103	158	156	
85	40	38	39	

MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture*			
<ul style="list-style-type: none"> 80-50-20 Reflectances (Ceiling-Wall-Floor) LLF = 0.75 2850 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	
		30 ft-c	50 ft-c
2x4	5	108	65
2-Lamp T8	2	72	43
Perf.	1	53	32

*Observe Fixture S/MH Requirements for Specific Applications

COEFFICIENT OF UTILIZATION									
pfc pcc pw RCR	20			70			50		
	70	50	30	70	50	30	50	30	50
0	85	85	85	83	83	83	80	80	80
1	79	75	71	77	72	70	69	68	68
2	70	65	59	68	64	58	60	57	57
3	65	56	51	63	56	51	54	48	48
4	58	51	44	57	50	44	47	42	42
5	55	45	39	53	44	38	42	36	36
6	50	40	34	48	40	34	39	33	33
7	46	36	29	45	35	29	34	29	29
8	42	33	27	41	33	27	32	27	27
9	40	30	25	39	29	25	28	23	23
10	38	28	23	36	28	22	27	22	22

LIGHT DISTRIBUTION			
DEGREES	LUMENS	% LAMP	% FIXTURE
0-30	1091	19.1	26.5
0-40	1803	31.6	43.8
0-60	3254	57.1	79.1
0-90	4115	72.2	100.0

.75LLF = .94LDD x .91LLD x 0.88BF

2' x 4' SOFTRACE RETROFIT



PHOTOMETRIC DATA

CATALOG # 2STR228-PMW-1/2-EB95
TEST # 27099D4 **S/MH=**1.3

LAMPS = F28T5

BALLAST = ELECTRONIC

INPUT WATTS = 60

BALLAST FACTOR = 0.95

LER = 66

COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = **\$3.64** BASED ON 3000 HRS. AND \$.08 PER KWH.

FIXTURE EFFICIENCY= 80.6%

T5, PERF.

CANDLEPOWER			
Angle	End	45	Cross
0	1403	1403	1403
5	1407	1401	1390
10	1382	1380	1377
15	1348	1348	1355
20	1300	1314	1326
25	1242	1265	1290
30	1169	1205	1252
35	1086	1141	1217
40	986	1069	1178
45	880	990	1127
50	760	900	1054
55	640	801	953
60	514	683	827
65	394	553	688
70	287	418	544
75	190	294	361
80	106	165	161
85	43	40	40

MAINTAINED ILLUMINATION TABLE- Square Feet/Fixture*			
<ul style="list-style-type: none"> ■ 80-50-20 Reflectances (Ceiling-Wall-Floor) ■ LLF = 0.85 2600 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	
		30 ft-c	50 ft-c
2x4	5	123	74
2-Lamp T5 Perf.	2	83	50
	1	60	36

*Observe Fixture S/MH Requirements for Specific Applications

.85LLF = .94LDD x .95LLD x 0.95BF

COEFFICIENT OF UTILIZATION						
pfc pcc pw RCR	20		70		50	
	70	50	30	70	50	30
0	105	105	105	102	102	97
1	96	93	89	93	91	88
2	89	81	76	85	80	75
3	81	71	66	79	70	65
4	75	65	56	72	63	56
5	68	57	50	67	56	50
6	64	52	45	61	52	44
7	58	47	40	57	46	40
8	55	44	35	54	42	35
9	52	40	33	50	40	33
10	47	36	29	46	36	29

LIGHT DISTRIBUTION			
DEGREES	LUMENS	% LAMP	% FIXTURE
0-30	1098	21.1	26.2
0-40	1815	34.9	43.3
0-60	3293	63.3	78.6
0-90	4189	80.6	100.0