

2

**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 2**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** AWW4-232-EP-U

---

CONTRACTOR'S COMMENTS:

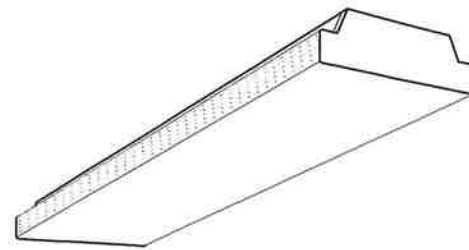
ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.



**FEATURES**

- Wide body two lamp design produces lower surface brightness and improved VCP
- Clear acrylic prismatic diffuser, flat bottom with vertical sides
- Two, three, or four-lamp cross sections
- Hinges from either side
- White steel end plates with flush knockouts for continuous row mounting
- Heavy gauge steel housing die embossed for maximum rigidity
- Heat sink embossments and levelling projections allow direct mounting of HPF fixtures on combustible low density cellulose fiberboard ceilings
- All metal parts are treated with a five stage phosphate bonding process and finished with a baked white enamel

**PROJECT INFORMATION**

Project Name

AWW4-232-EP-U

Catalog No.

2

Type

Date

**ELECTRICAL**

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.

**FINISH**

All parts pre-painted with high gloss baked white enamel, minimum reflectance 86%, applied over iron phosphate pre-treatment for maximum adhesion and rust resistance.

**SHIELDING**

100% clear prismatic acrylic.

**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 AWW4-332-3EU**

AWW	4	2	32	EP	U	
MODEL	LENGTH	NO. OF LAMPS IN CROSS SECTION	LAMP TYPE	BALLAST	VOLTAGE	OPTIONS
AWW 14 5/8" Wide Low Profile Wraparound	4 4' 8 8'	2 Two 3 Three 4 Four	28 4', T5: 28 Watt 32 4', T8: 32, 30, 28 or 25 Watt 54 4', T5HO: 54 or 51 Watt	E Electronic T8, Instant Start 3E 3-Lamp Electronic T8, Instant Start 4E 4-Lamp Electronic T8, Instant Start 24E (1) 2-Lamp & (1) 4-Lamp Electronic T8, Instant Start EP Electronic T5 or T8, Programmed Start 3EP 3-Lamp Electronic T5HO or T8, Programmed Start 4EP 4-Lamp Electronic T5HO or T8, Programmed Start 24EP (1) 2-Lamp & (1) 4-Lamp Electronic T8, Programmed Start	U 120V-277V 347 347V	GLR Fast Blow Fuse EL Emergency Battery Pack PAF Paint After Fabrication NYC NYC Compliant NYCU NYC Compliant, Union Labeled
						<b>ACCESSORIES (ORDER SEPARATELY)</b> S18 18" Stem, Canopy SS18 18" Swivel Stem - 45° Swivel

For a specific ballast vendor, show as option.



**PHOTOMETRIC DATA** AVG. LUMINANCE (Candela/Sq. M.)

Test 3463 Test Date 10/4/10

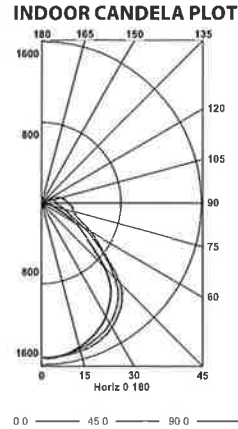
**LUMINAIRE DATA**

Luminaire	AWW4-232
	AWW Wraps
	15" x 48" 2-Lamp
	with wrap-around
	prismatic acrylic lens
Ballast	B2321UNV-HP-B
Ballast Factor	0.88
Lamp	F28T8
Lumens per Lamp	2725
Watts	57
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.25 90° = 1.36
Luminous Opening in Feet	Length: 4.00 Width: 1.19 Height: 0.13

Average Lum. Angle	0.0	22.5	45.0	67.5	90.0
0	3460	3460	3460	3460	3460
30	3317	3327	3391	3451	3480
40	3118	3166	3278	3356	3418
45	2772	2912	3043	3148	3215
50	2242	2460	2684	2740	2733
55	1921	2063	2297	2331	2391
60	1666	1802	1877	2079	2156
65	1356	1627	1572	1967	1929
70	1050	1452	1498	1941	1866
75	904	1330	1513	2063	2073
80	913	1249	1602	2394	2557
85	814	1211	1983	3085	3462

**COEFFICIENTS OF UTILIZATION (%)**

RC	80				70				50				0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
1	91	87	83	80	88	84	81	78	79	76	74	64	
2	83	76	70	65	80	74	68	64	69	65	61	54	
3	76	67	60	55	73	65	59	54	61	56	52	46	
4	70	60	52	47	67	58	51	46	55	49	45	40	
5	64	54	46	41	62	52	45	40	49	43	39	35	
6	59	48	41	36	57	47	40	35	45	39	34	30	
7	55	44	37	31	53	43	36	31	41	35	30	27	
8	51	40	33	28	50	39	32	28	37	31	27	24	
9	48	37	30	25	46	36	29	25	34	29	24	22	
10	45	34	27	23	43	33	27	23	32	26	22	20	



**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	1225	22.5	26.3
0-40	2031	37.3	43.5
0-60	3391	62.2	72.7
0-90	4229	77.6	90.6
90-120	342	6.3	7.3
90-130	385	7.1	8.2
90-150	426	7.8	9.1
90-180	437	8.0	9.4
0-180	4666	85.6	100.0

**ENERGY DATA**

Total Luminaire Efficiency	85.6%
Luminaire Efficacy Rating (LER)	72
ANSI/IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.33 based on 3000 hrs. and \$0.08 per KWH

**LUMINAIRE DATA**

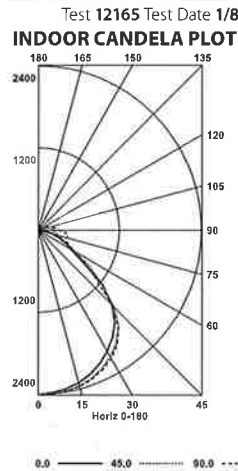
Luminaire	AWW4-332
	AWW/AWW
	Wraparound
	15" x 48" 3-Lamp with
	Wraparound Plastic
	Acrylic Prisms Lens
Ballast	B3321120RH
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	82
Shielding Angle	N/A

**AVG. LUMINANCE (Candela/Sq. M.)**

Average Lum. Angle	0.0	22.5	45.0	67.5	90.0
0	5391	5391	5391	5391	5391
30	5190	5172	5228	5254	5269
40	5007	4990	5003	4959	4940
45	4755	4697	4563	4398	4375
50	4124	4067	3855	3384	3414
55	2888	3434	3159	2691	2831
60	2327	2714	2429	2406	2398
65	2202	2093	2059	2184	2097
70	1914	1787	1910	2199	2142
75	1754	1628	1952	2563	2665
80	1679	1728	2179	3106	3592
85	1538	1869	2828	4018	4587

**COEFFICIENTS OF UTILIZATION (%)**

RC	80				70				50				0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
1	83	79	76	73	80	77	74	71	73	70	68	60	
2	76	70	65	61	74	68	63	59	64	60	57	51	
3	70	62	56	51	67	60	55	50	57	53	49	44	
4	64	55	49	44	62	54	48	43	51	46	42	38	
5	59	50	43	38	57	49	42	38	46	41	37	33	
6	55	45	38	34	53	44	38	33	42	37	32	29	
7	51	41	34	30	49	40	34	30	38	33	29	26	
8	48	37	31	27	46	37	31	26	35	30	26	23	
9	44	34	28	24	43	34	28	24	32	27	23	21	
10	42	32	26	22	40	31	25	22	30	25	21	19	



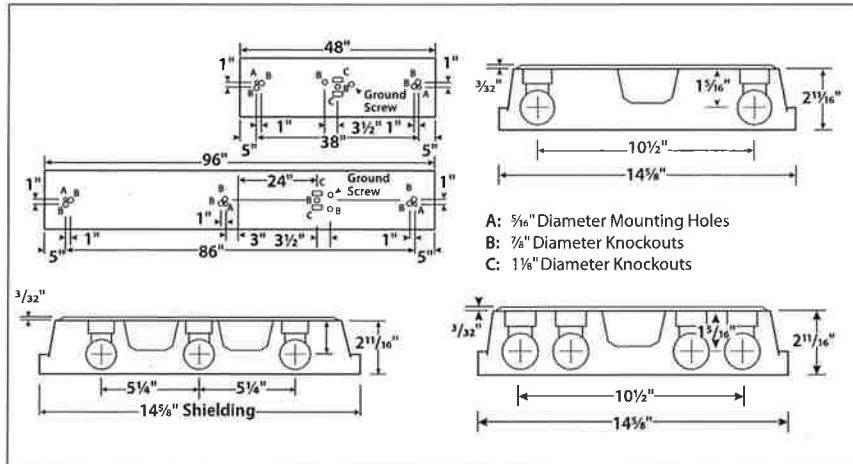
**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	1915	22.0	28.3
0-40	3162	36.3	46.7
0-60	5154	59.2	76.2
0-90	6246	71.8	92.3
90-120	382	4.4	5.6
90-130	432	5.0	6.4
90-150	496	5.7	7.3
90-180	519	6.0	7.7
0-180	6765	77.8	100.0

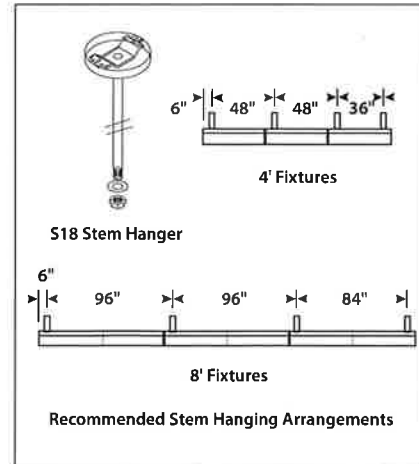
**ENERGY DATA**

Total Luminaire Efficiency	77.8%
Luminaire Efficacy Rating (LER)	73
IESNA RP-1-1993 Compliance	Noncompliant
ANSI/IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.29 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.



**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

W

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 3**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** AWW4-332-EP-U

---

CONTRACTOR'S COMMENTS:

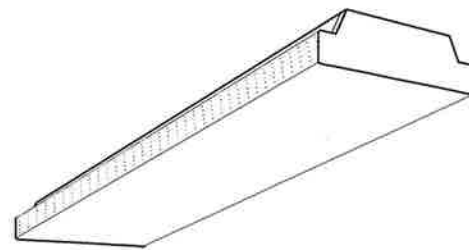
ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.



**FEATURES**

- Wide body two lamp design produces lower surface brightness and improved VCP
- Clear acrylic prismatic diffuser, flat bottom with vertical sides
- Two, three, or four-lamp cross sections
- Hinges from either side
- White steel end plates with flush knockouts for continuous row mounting
- Heavy gauge steel housing die embossed for maximum rigidity
- Heat sink embossments and levelling projections allow direct mounting of HPF fixtures on combustible low density cellulose fiberboard ceilings
- All metal parts are treated with a five stage phosphate bonding process and finished with a baked white enamel

**PROJECT INFORMATION**

Project Name	3
AWW4-332-EP-U	Type
Catalog No.	Date

**ELECTRICAL**

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.

**FINISH**

All parts pre-painted with high gloss baked white enamel, minimum reflectance 86%, applied over iron phosphate pre-treatment for maximum adhesion and rust resistance.

**SHIELDING**

100% clear prismatic acrylic.

**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 AWW4-332-3EU**

AWW	4	3	32	EP	U	OPTIONS
MODEL	LENGTH	NO. OF LAMPS IN CROSS SECTION	LAMP TYPE	BALLAST	VOLTAGE	
AWW 14 5/8" Wide Low Profile Wraparound	4 4' 8 8'	2 Two 3 Three 4 Four	28 4', T5: 28 Watt 32 4', T8: 32, 30, 28 or 25 Watt 54 4', T5HO: 54 or 51 Watt	E Electronic T8, Instant Start 3E 3-Lamp Electronic T8, Instant Start 4E 4-Lamp Electronic T8, Instant Start 24E (1) 2-Lamp & (1) 4-Lamp Electronic T8, Instant Start EP Electronic T5 or T8, Programmed Start 3EP 3-Lamp Electronic T5HO or T8, Programmed Start 4EP 4-Lamp Electronic T5HO or T8, Programmed Start 24EP (1) 2-Lamp & (1) 4-Lamp Electronic T8, Programmed Start	U 120V-277V 347 347V	GLR Fast Blow Fuse EL Emergency Battery Pack PAF Paint After Fabrication NYC NYC Compliant NYCU NYC Compliant, Union Labeled
						<b>ACCESSORIES (ORDER SEPARATELY)</b> S18 18" Stem, Canopy SS18 18" Swivel Stem - 45° Swivel

For a specific ballast vendor, show as option.



**PHOTOMETRIC DATA** AVG. LUMINANCE (Candela/Sq. M.)

**LUMINAIRE DATA**

Luminaire	AWW4-232 AWW Wraps 15" x 48" 2-Lamp with wrap-around prismatic acrylic lens
Ballast	B2321UNV-HP-B
Ballast Factor	0.88
Lamp	F28T8
Lumens per Lamp	2725
Watts	57
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.25 90° = 1.36
Luminous Opening in Feet	Length: 4.00 Width: 1.19 Height: 0.13

Average Luminaire Angle	0.0	22.5	45.0	67.5	90.0
0	3460	3460	3460	3460	3460
30	3317	3327	3391	3451	3480
40	3118	3166	3278	3356	3418
45	2772	2912	3043	3148	3215
50	2242	2460	2684	2740	2733
55	1921	2063	2297	2331	2391
60	1666	1802	1877	2079	2156
65	1356	1627	1572	1967	1929
70	1050	1452	1498	1941	1866
75	904	1330	1513	2063	2073
80	913	1249	1602	2394	2557
85	814	1211	1983	3085	3462

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	1225	22.5	26.3
0-40	2031	37.3	43.5
0-60	3391	62.2	72.7
0-90	4229	77.6	90.6
90-120	342	6.3	7.3
90-130	385	7.1	8.2
90-150	426	7.8	9.1
90-180	437	8.0	9.4
0-180	4666	85.6	100.0

**COEFFICIENTS OF UTILIZATION (%)**

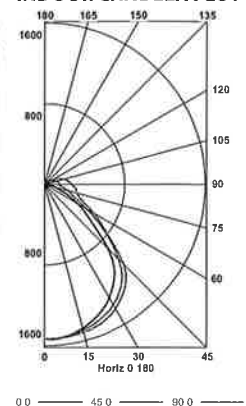
RC	80				70				50				0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
1	91	87	83	80	88	84	81	78	79	76	74	64	
2	83	76	70	65	80	74	68	64	69	65	61	54	
3	76	67	60	55	73	65	59	54	61	56	52	46	
4	70	60	52	47	67	58	51	46	55	49	45	40	
5	64	54	46	41	62	52	45	40	49	43	39	35	
6	59	48	41	36	57	47	40	35	45	39	34	30	
7	55	44	37	31	53	43	36	31	41	35	30	27	
8	51	40	33	28	50	39	32	28	37	31	27	24	
9	48	37	30	25	46	36	29	25	34	29	24	22	
10	45	34	27	23	43	33	27	23	32	26	22	20	

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**ENERGY DATA**

Total Luminaire Efficiency	85.6%
Luminaire Efficacy Rating (LER)	72
ANSI/IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.33 based on 3000 hrs. and \$0.08 per KWH

**INDOOR CANDELA PLOT**



**LUMINAIRE DATA**

Luminaire	AWW4-332 AWW/AWW Wraparound 15" x 48" 3-Lamp with Wraparound Plastic Acrylic Prisms Lens
Ballast	B3321120RH
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	82
Shielding Angle	N/A

**AVG. LUMINANCE (Candela/Sq. M.)**

Average Luminaire Angle	0.0	22.5	45.0	67.5	90.0
0	5391	5391	5391	5391	5391
30	5190	5172	5228	5254	5269
40	5007	4990	5003	4959	4940
45	4755	4697	4563	4398	4375
50	4124	4067	3855	3384	3414
55	2888	3434	3159	2691	2831
60	2327	2714	2429	2406	2398
65	2202	2093	2059	2184	2097
70	1914	1787	1910	2199	2142
75	1754	1628	1952	2563	2665
80	1679	1728	2179	3106	3592
85	1538	1869	2828	4018	4587

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	1915	22.0	28.3
0-40	3162	36.3	46.7
0-60	5154	59.2	76.2
0-90	6246	71.8	92.3
90-120	382	4.4	5.6
90-130	432	5.0	6.4
90-150	496	5.7	7.3
90-180	519	6.0	7.7
0-180	6765	77.8	100.0

**COEFFICIENTS OF UTILIZATION (%)**

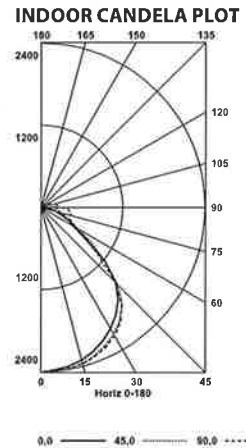
RC	80				70				50				0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
1	83	79	76	73	80	77	74	71	73	70	68	60	
2	76	70	65	61	74	68	63	59	64	60	57	51	
3	70	62	56	51	67	60	55	50	57	53	49	44	
4	64	55	49	44	62	54	48	43	51	46	42	38	
5	59	50	43	38	57	49	42	38	46	41	37	33	
6	55	45	38	34	53	44	38	33	42	37	32	29	
7	51	41	34	30	49	40	34	30	38	33	29	26	
8	48	37	31	27	46	37	31	26	35	30	26	23	
9	44	34	28	24	43	34	28	24	32	27	23	21	
10	42	32	26	22	40	31	25	22	30	25	21	19	

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

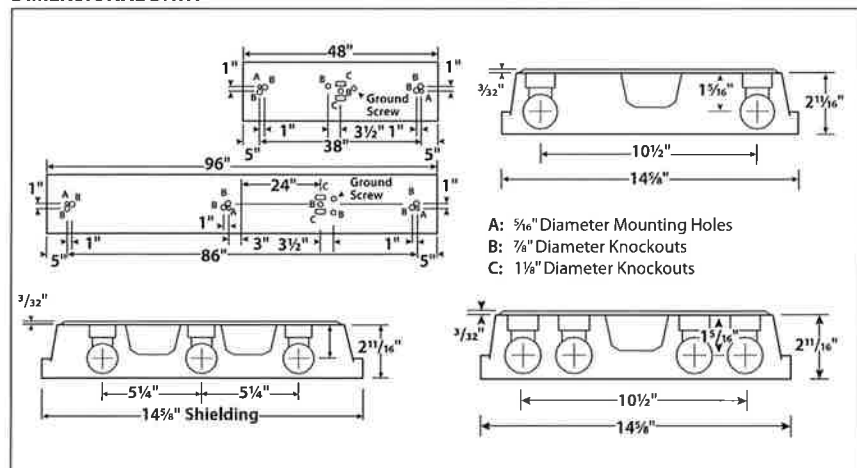
**ENERGY DATA**

Total Luminaire Efficiency	77.8%
Luminaire Efficacy Rating (LER)	73
IESNA RP-1-1993 Compliance	Noncompliant
ANSI/IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.29 based on 3000 hrs. and \$0.08 per KWH

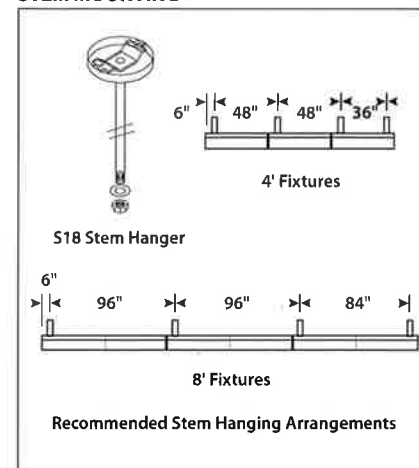
**INDOOR CANDELA PLOT**



**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.



**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 4**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** WT24-432G-FA-A12.125-EP-U

---

CONTRACTOR'S COMMENTS:

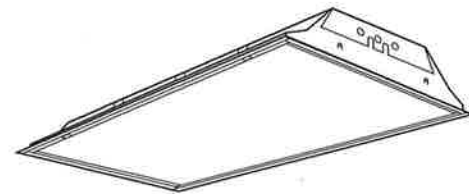
ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.



**FEATURES**

- Wet label shallow housing troffer
- Gasketed to provide additional seal between door, lens, and housing
- Mitered corners standard on door frame
- Rolled or hemmed housing edges
- Mechanical light trap
- All metal parts are white powder coat, painted after fabrication
- UL listed 1598 for wet location covered ceiling applications
- Integral T-bar clips quickly secure fixture to the grid system without the need for time-consuming loose parts
- Snap-in ballast covers can be removed when lamps are installed
- Corner hinging for easy insertion and removal of shielding frame
- Flush steel shielding frame, screw assembled for easy diffuser replacement
- Housing ends are secured by unique corner interlock and screws
- Heat sink embossments behind ballasts for cooler operation and longer life
- Metal to metal light leak protection on all four sides of shielding frame

**PROJECT INFORMATION**

Project Name	WT24-432G-FA-A12.125-EP-U	4
Catalog No.		Type
		Date

**FLANGED FEATURES**

Four adjustable Uni-Lugs for quick easy installation. Optional plaster frames available for individual or row mounting. Fixture end flanges are removable for row mounting. Joiner channels are included.

**HOUSING**

Heavy gauge steel. Die formed for extra rigidity. Designed for installation in standard inverted tee grid ceilings.

**BALLASTS**

Energy efficient, thermally protected, automatic resetting, Class P, high power factor, sound rated A, unless otherwise specified.

**FINISH**

All metal parts are processed with a five phase phosphate bonding treatment. Grid units are pre-painted with high glass baked white enamel, 86% reflective. Flanged units are painted after fabrication with a polyester powder coat, reflectance of 90%.

**SHIELDING**

100% prismatic acrylic, extruded and roll-embossed, diagonally oriented female prisms, unless otherwise specified.

**FLANGED UNIT INSTALLATION**

Fixtures are installed from below the ceiling and have overlapping trim flanges. Adjustable Uni-Lugs secure the fixture to the ceiling structure. Plaster frames are available if required.

**CERTIFICATION**

All luminaires are built to UL 1598 standards and bear appropriate UL and cUL or CSA labels. Wet location labeling is standard.

**ORDERING INFORMATION**

**EXAMPLE WT24-332G-FAA12-EU-C488-GLR**

WT	24	4	32	G	FA	A12.125	EP	U	
MODEL	NO. OF LAMPS	CEILING TYPE	SHIELDING	VOLTAGE	OPTIONS	SIZE	LAMP TYPE	DOOR STYLE	BALLAST
WT Wet Location Lensed Troffer	2 Two 3 Three 4 Four 6 Six	G Inverted T-bar F Overlap Flange	A12 Pattern 12 Acrylic 0.100" Nominal (Standard) A19 Pattern 19 Acrylic 0.156" Male Prism DR12 High Impact Acrylic Pattern 12, .140" (Std.) <i>For complete list of lenses and louvers, see options and accessories.</i>	U 120V-277V 347 347V	F0730 T8, 70CRI, 3000K Lamps, Furn/Inst. F0735 T8, 70CRI, 3500K Lamps, Furn/Inst. F0741 T8, 70CRI, 4100K Lamps, Furn/Inst. SLL Spring Loaded Latches GMF Slow Blow Fuse GLR Fast Blow Fuse C388 3/8" Flex with 3 No. 18 Wires C384 3/8" Flex with 3 No. 14 Wires C488 3/8" Flex with 4 No. 18 Wires C424 1/2" Flex with 4 No. 14 Wires NYCU NYC Compliant, Union Labeled <i>For a complete set of options, see options and accessories section.</i>	24 2' x 4'	28 4', T5: 28 Watt 32 4', T8: 32, 30, 28 or 25 Watt 54 4', T5HO: 54 or 51 Watt	FA White Flush Aluminum RA White Regressed Aluminum	E Electronic T8, Instant Start 3E 3-Lamp Electronic T8, Instant Start 4E 4-Lamp Electronic T8, Instant Start 24E (1) 2-Lamp and (1) 4-Lamp Electronic T8, Instant Start EP Electronic T5 or T8, Programmed Start 3EP 3-Lamp Electronic T5HO or T8, Programmed Start 4EP 4-Lamp Electronic T5HO (N/A 347V) or T8, Programmed Start 24EP (1) 2-Lamp and (1) 4-Lamp Electronic T5HO (N/A 347V) or T8, Programmed Start <i>For a specific ballast vendor show as option.</i>





**PHOTOMETRIC DATA**

Test 13747 Test Date 12/3/04

**LUMINAIRE DATA**

Luminaire	WT24-332G-FSA12-3E-PAF WT Lensed Troffer 2' x 4' 3-Lamp with A12 Pattern Acrylic Prisms Lens
Ballast	B2321120RH-A
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Total Input Watts	87
Mounting	Recessed
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.25 90° = 1.37
Luminous Opening in Feet	Length: 3.82 Width: 1.82 Height: 0.00

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	2086	24.0	29.5
0-40	3448	39.6	48.8
0-60	5916	68.0	83.8
0-90	7064	81.2	100.0
0-180	7064	81.2	100.0

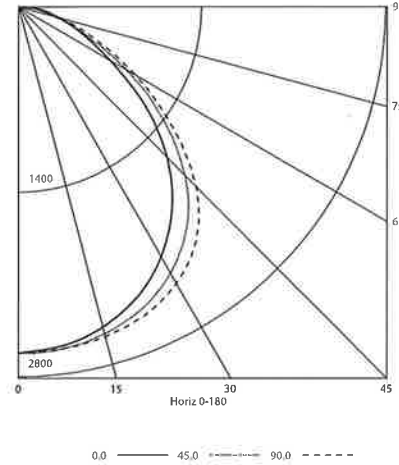
**ENERGY DATA**

Total Luminaire Efficiency	81.2%
Luminaire Efficacy Rating (LER)	FL - 71
ANSI/IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.38 based on 3000 hrs. and \$0.08 per KWH

**AVG. LUMINANCE (Candela/Sq. M.)**

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	4056	4056	4056	4056	4056
30	3903	3992	4160	4287	4321
40	3705	3846	4091	4271	4333
45	3525	3689	3946	4143	4208
50	3249	3430	3702	3890	3945
55	2888	3096	3374	3523	3579
60	2524	2731	2973	3100	3196
65	2235	2370	2517	2641	2795
70	2023	2073	2069	2200	2381
75	1956	1956	1741	1896	2070
80	2095	2015	1658	1783	1863
85	2327	2221	1830	1759	1794

**INDOOR CANDELA PLOT**

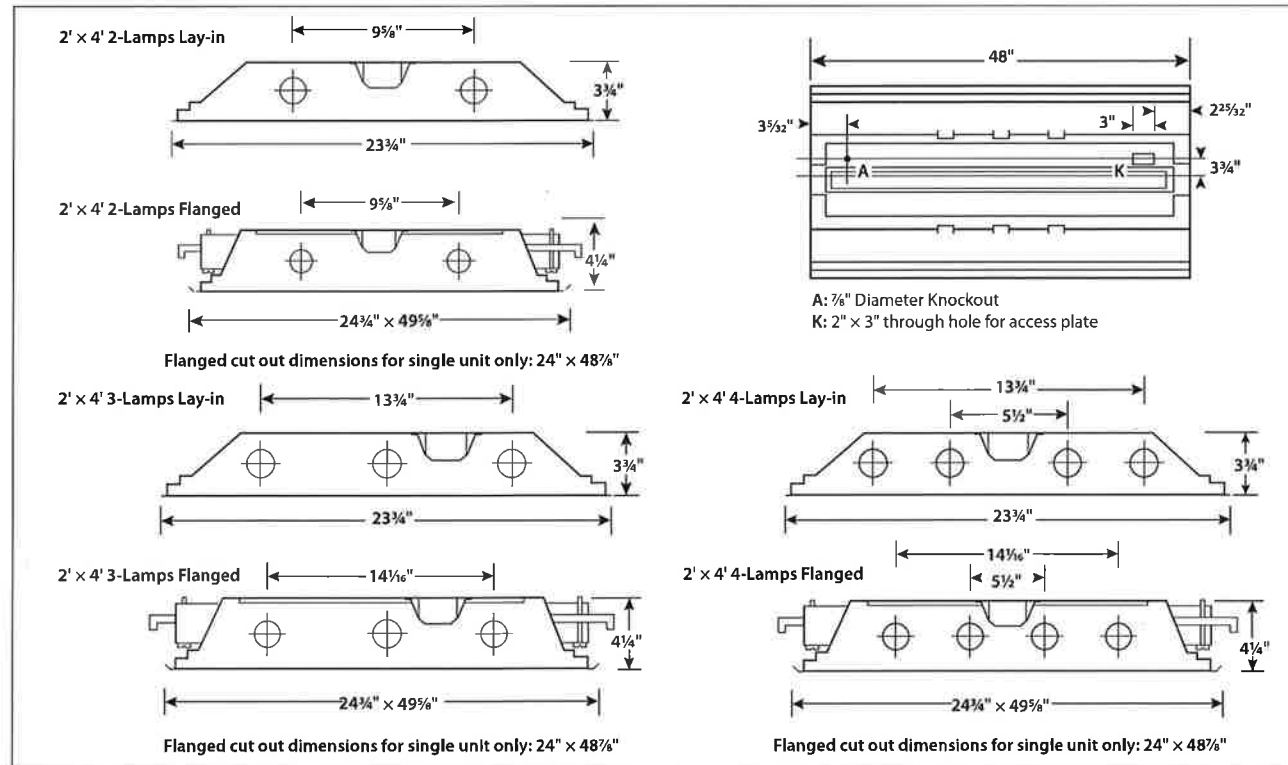


**COEFFICIENTS OF UTILIZATION (%)**

RCR	RC											
	70	50	30	10	70	50	30	10	50	30	10	0
1	89	85	82	79	87	83	80	78	80	78	75	69
2	81	75	70	65	79	73	69	64	71	66	63	58
3	74	66	60	55	72	65	59	54	63	58	53	50
4	68	59	52	47	66	58	51	46	56	50	46	43
5	63	53	46	41	61	52	45	40	50	44	40	37
6	58	48	41	36	57	47	40	35	45	39	35	33
7	54	43	36	31	53	43	36	31	41	35	31	29
8	50	40	33	28	49	39	32	28	38	32	28	26
9	47	36	30	25	46	36	30	25	35	29	25	23
10	44	33	27	23	43	33	27	23	32	27	23	21

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**DIMENSIONAL DATA**



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

**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 5**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** 4PS-24-432-G-FS-A12-EP-U

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

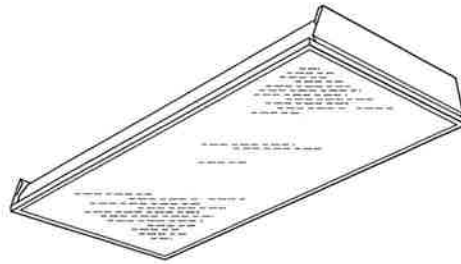
1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.



# 4PS24-4, 4PS24-6

2' x 4' Specification Grade Static Troffer / 4 or 6-Lamp T5, T5HO, T8



## FEATURES

- 4 1/4" deep troffer eliminates lens shadowing
- Lamp-to-lens spacing is over 2"
- Contoured housing maximizes photometric performance with uniform lens brightness
- Mitered corners on door present a clean uninterrupted appearance
- Rolled edge housing on all four sides makes the fixture safer and easier to handle
- Heavy duty door frame enhances appearance from eye level
- Snug door fit eliminates light leaks

## PROJECT INFORMATION

Project Name

4PS-24-432-G-FS-A12-EP-U

Catalog No.

5

Type

Date

## HOUSING

Fixture is constructed of die formed and embossed code gauge steel. End caps are hinged and riveted to the housing for added rigidity. Designed for installation in all ceilings as shown below. Specify exact ceiling type. Integral T-bar clips are located in the end cap.

## BALLAST & ELECTRICAL

All luminaires are completely wired with class "P," thermally protected, resetting, HPF ballast, sound rated A. Lampholders are medium bi-pin with positive retention. Furnished with an access plate.

## FINISH

All metal parts processed with a multi-stage phosphate bonding treatment and finished with a high reflectance baked white enamel. For a post painted housing finish suffix catalog number with PAF.

## SHIELDING

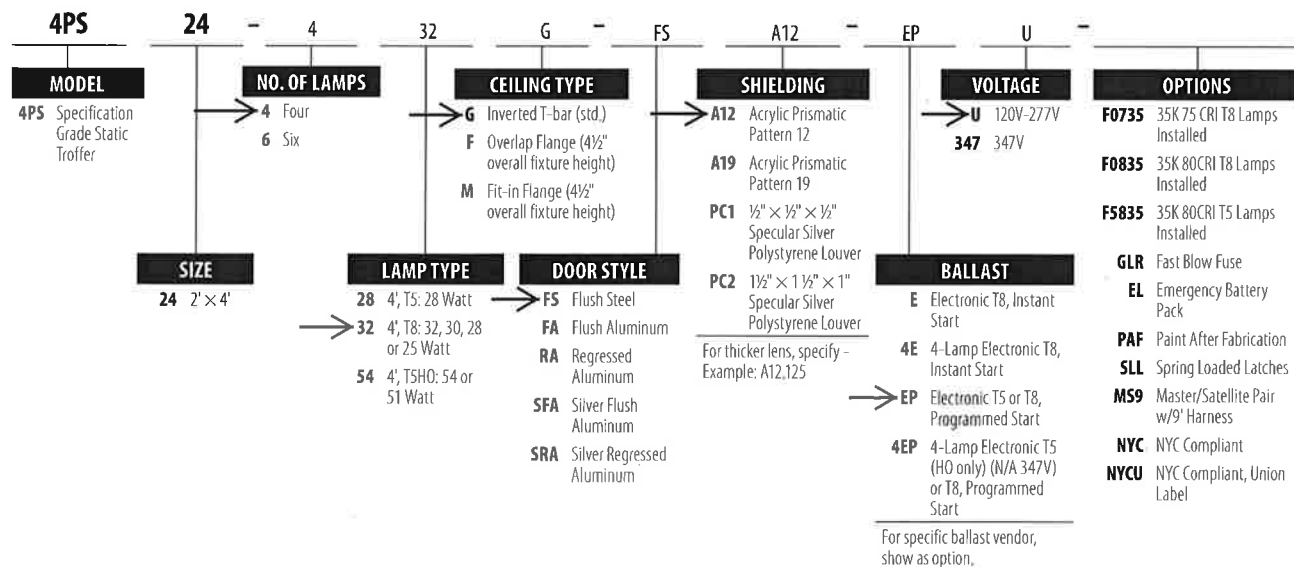
Standard lens is a 100% prismatic virgin pattern 12. For other available lenses consult lens option sheet or contact your Columbia representative. Standard flush door is formed steel with mitered corners. Doors are retained by cam action latches, are easily removed without tools, and hinge from either side. Regressed or flush aluminum doors with mitered corners are also available.

## 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 4PS24-432G-FSA12-EP-U



**PHOTOMETRIC DATA**

Test 14269 Test Date 3/31/06

**LUMINAIRE DATA**

Luminaire	4PS24-432G-F5A12 4PS Lensed Troffer 2' x 4' 4-Lamp White Troffer with Prismatic A12 Acrylic Lens
Ballast	REL-4P32-SC
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Total Input Watts	110
Mounting	Recessed
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.22 90° = 1.27
Luminous Opening in Feet	Length: 3.81 Width: 1.81 Height: 0.00

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	3089	26.6	32.8
0-40	5004	43.1	53.1
0-60	8046	69.4	85.4
0-90	9418	81.2	100.0
0-180	9418	81.2	100.0

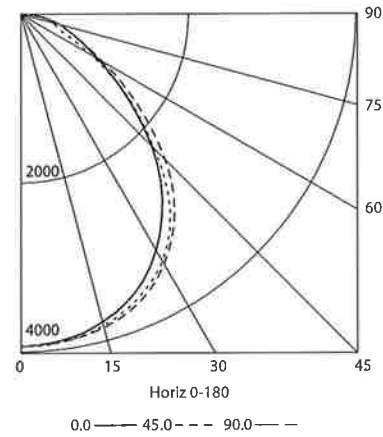
**ENERGY DATA**

Total Luminaire Efficiency	81.2%
Luminaire Efficacy Rating (LER)	75
IESNA RP-1-1993 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.20 based on 3000 hrs. and \$0.08 per KWH

**AVG. LUMINANCE (Candela/Sq. M.)**

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	6142	6142	6142	6142	6142
30	5825	5915	6090	6151	6159
40	5296	5367	5546	5719	5793
45	4883	4865	4995	5238	5384
50	4315	4310	4410	4684	4798
55	3788	3715	3788	4038	4169
60	3322	3034	3053	3265	3553
65	2981	2493	2364	2652	3058
70	2861	2387	2108	2451	2857
75	2913	2545	2479	2539	2925
80	2975	2831	2921	2831	2957
85	3313	3170	3206	3098	3098

**INDOOR CANDELA PLOT**

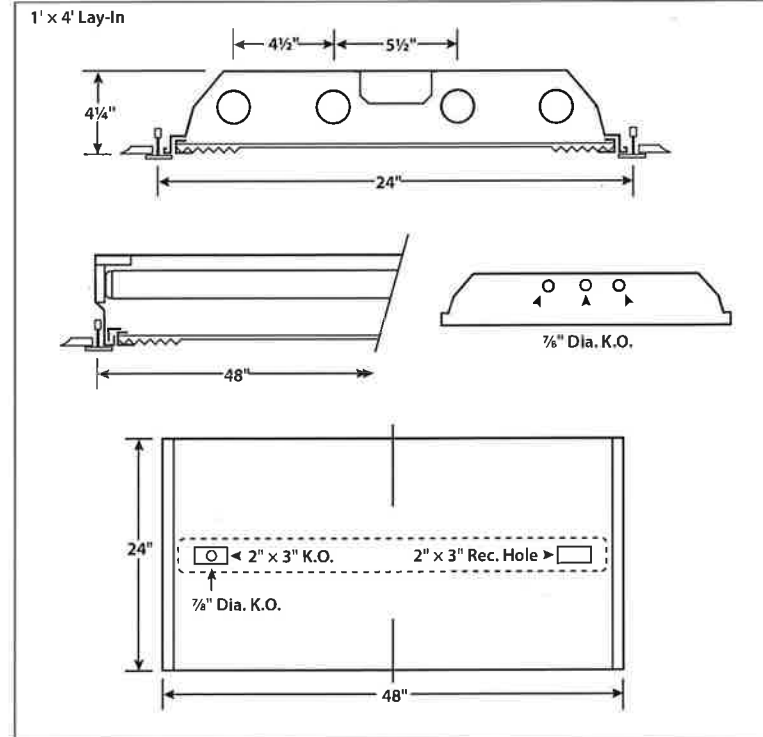


**COEFFICIENTS OF UTILIZATION (%)**

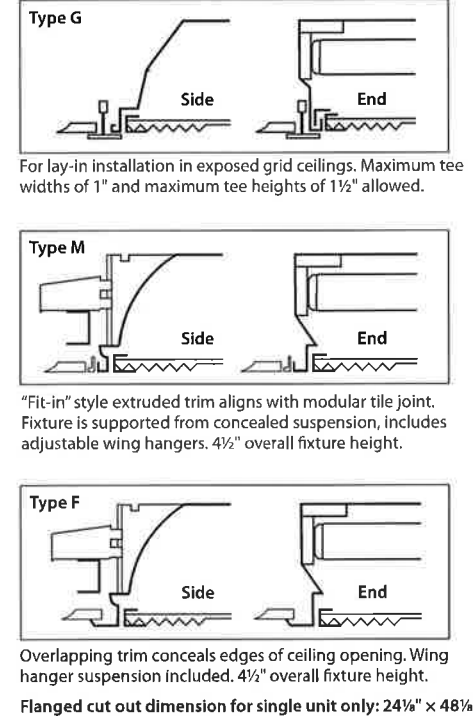
RCR	RC 80		RC 70				RC 50				RC 0	
	RW 70	50	30	10	70	50	30	10	50	30	10	0
1	89	85	82	79	87	84	81	78	80	78	76	69
2	82	76	70	66	80	74	69	65	71	67	64	59
3	75	67	61	56	73	66	60	56	64	59	55	51
4	69	60	54	48	67	59	53	48	57	52	47	45
5	64	54	47	42	62	53	47	42	52	46	42	39
6	59	49	42	37	58	48	42	37	47	41	37	35
7	55	45	38	33	54	44	38	33	43	37	33	31
8	52	41	34	30	50	40	34	30	39	34	30	28
9	48	38	31	27	47	37	31	27	36	31	27	25
10	45	35	29	25	44	35	29	25	34	28	24	23

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**DIMENSIONAL DATA**



**CEILING COMPATIBILITY**



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



**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 6**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** 4PS-24-232-G-FS-A12-EP-U

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

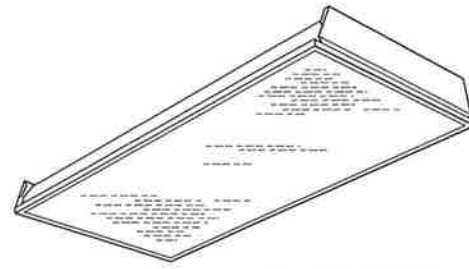
1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

6

# 4PS24-2, 4PS24-3

2' x 4' Specification Grade Static Troffer / 2 or 3-Lamp T5, T5HO, T8



Also available with 4 or 6 lamps.

## FEATURES

- 4¼" deep troffer eliminates lens shadowing
- Lamp-to-lens spacing is over 2"
- Contoured housing maximizes photometric performance with uniform lens brightness
- Mitered corners on door present a clean uninterrupted appearance
- Rolled edge housing on all four sides makes the fixture safer and easier to handle
- Heavy duty door frame enhances appearance from eye level
- Snug door fit eliminates light leaks

## PROJECT INFORMATION

Project Name

4PS-24-232-G-FS-A12-EP-U

Catalog No.

6

Type

Date

## HOUSING

Fixture is constructed of die formed and embossed code gauge steel. End caps are hinged and screwed to the housing for added rigidity. Designed for installation in all ceilings as shown below. Specify exact ceiling type. Integral T-bar clips are located in the end cap.

## BALLAST & ELECTRICAL

All luminaires are completely wired with class "P," thermally protected, resetting, HPF ballast, sound rated A. Lampholders are medium bi-pin with positive retention. Furnished with an access plate.

## FINISH

All metal parts processed with a multi-stage phosphate bonding treatment and finished with a high reflectance baked white enamel. For a post painted housing finish suffix catalog number with PAF.

## SHIELDING

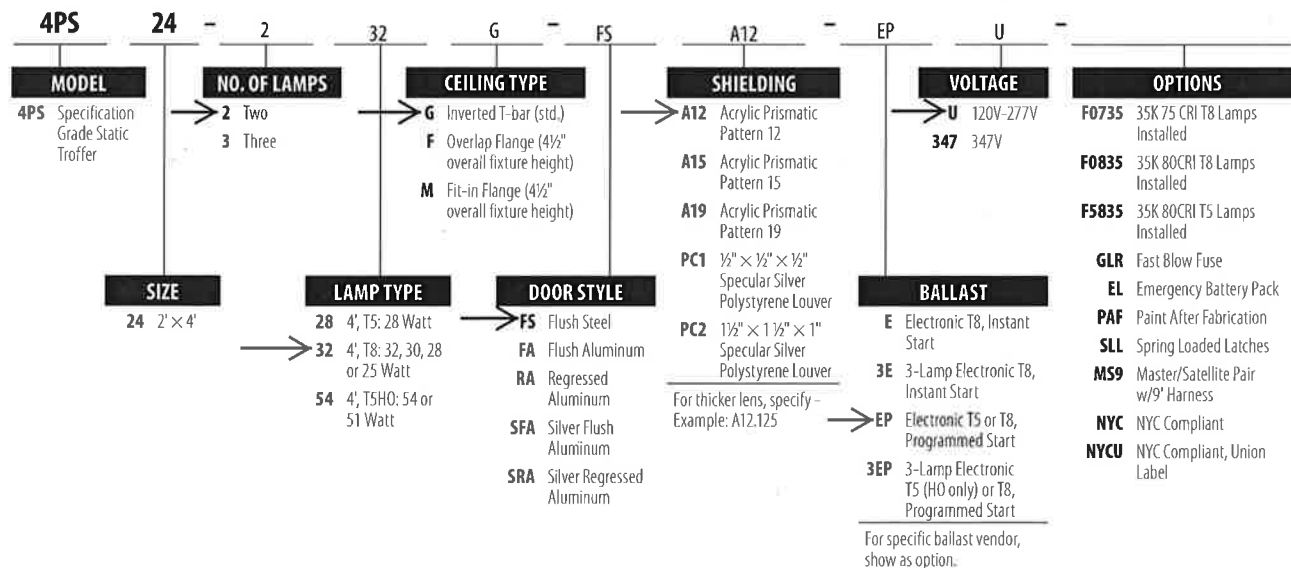
Standard lens is a 100% prismatic virgin pattern 12. For other available lenses consult lens option sheet or contact your Columbia representative. Standard flush door is formed steel with mitered corners. Doors are retained by cam action latches, are easily removed without tools, and hinge from either side. Regressed or flush aluminum doors with mitered corners are also available.

## 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 4PS24-340G-FSA12-EU-SLL



**PHOTOMETRIC DATA**

Test 14272 Test Date 4/4/06

**LUMINAIRE DATA**

Luminaire	4PS24-232G-FSA12 4PS Lensed Troffer 2' x 4' 2-Lamp White Troffer with Prismatic A12 Acrylic Lens
Ballast	REL-2P32-SC
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Total Input Watts	64
Mounting	Recessed
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.22 90° = 1.34
Luminous Opening in Feet	Length: 3.81 Width: 1.81 Height: 0.00

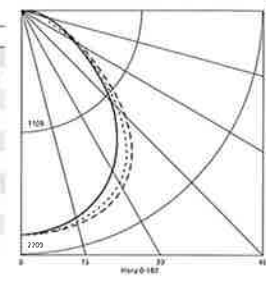
**AVG. LUMINANCE (Candela/Sq. M.)**

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	3161	3161	3161	3161	3161
30	3010	3093	3246	3311	3340
40	2765	2836	3007	3132	3197
45	2558	2574	2733	2865	2956
50	2263	2292	2419	2542	2610
55	1992	1989	2068	2158	2242
60	1761	1617	1664	1751	1929
65	1592	1326	1285	1418	1655
70	1524	1273	1141	1323	1538
75	1550	1357	1345	1369	1574
80	1573	1519	1591	1519	1591
85	1755	1701	1773	1684	1701

**COEFFICIENTS OF UTILIZATION (%)**

RC	80					70					50					0				
	RW	70	50	30	10	70	50	30	10	50	30	10	0	70	50	30	10	0		
1	91	88	84	93	89	86	83	85	83	80	67	74								
2	80	75	70	85	79	74	70	76	72	68	57	63								
3	71	65	60	78	70	64	59	68	62	58	49	54								
4	64	57	51	72	63	56	51	61	55	50	42	47								
5	58	50	45	66	57	50	45	55	49	44	37	41								
6	52	45	39	61	51	44	39	50	44	39	32	37								
7	47	40	35	57	47	40	35	45	39	35	28	33								
8	43	36	32	53	43	36	31	42	36	31	25	29								
9	40	33	28	50	39	33	28	39	32	28	23	26								
10	37	30	26	47	37	30	26	36	30	26	21	24								

**INDOOR CANDELA PLOT**



RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**ENERGY DATA**

Total Luminaire Efficiency	86.5%
Luminaire Efficacy Rating (LER)	69
IESNA RP-1-1993 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.48 based on 3000 hrs. and \$0.08 per KWH

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	1613	27.8	32.1
0-40	2640	45.5	52.6
0-60	4280	73.8	85.3
0-90	5018	86.5	100.0
0-180	5018	86.5	100.0

**LUMINAIRE DATA**

Luminaire	4PS24-332G-FSA12 4PS Lensed Troffer 2 x 4 3-lamp white troffer with prismatic A12 acrylic lens.
Ballast	REL-3P32-SC
Ballast Factor	0.88
Lamp	FO32T8
Lumens per Lamp	2900
Total Input Watts	87
Shielding Angle	0°=90 90°=90
Spacing Criterion	0° = 1.24 90° = 1.31
Luminous Opening in Feet	Length: 3.81 Width: 1.81 Height: 0.00

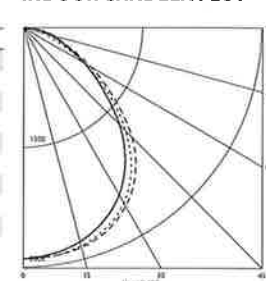
**AVG. LUMINANCE (Candela/Sq. M.)**

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	4516	4516	4516	4516	4516
30	4354	4445	4569	4643	4655
40	4055	4140	4287	4411	4503
45	3766	3836	4009	4161	4271
50	3400	3480	3640	3803	3878
55	3070	3129	3236	3451	3459
60	2753	2710	2747	3022	3084
65	2415	2212	2168	2493	2619
70	2191	1812	1702	2104	2355
75	2117	1737	1622	2008	2388
80	2256	1924	1933	2202	2481
85	2275	2149	2203	2525	2454

**COEFFICIENTS OF UTILIZATION (%)**

RC	80					70					50					0				
	RW	70	50	30	10	70	50	30	10	50	30	10	0	70	50	30	10	0		
1	92	89	85	82	90	87	84	81	83	81	78	72								
2	85	78	73	68	83	77	72	68	74	70	66	61								
3	78	69	63	58	76	68	62	57	66	60	56	53								
4	72	62	55	50	70	61	54	49	59	53	49	46								
5	66	56	48	43	64	55	48	43	53	47	42	40								
6	61	50	43	38	60	50	43	38	48	42	37	35								
7	57	46	39	34	55	45	38	34	44	38	33	31								
8	53	42	35	30	52	41	35	30	40	34	30	28								
9	50	39	32	27	48	38	32	27	37	31	27	25								
10	46	36	29	25	45	35	29	25	34	29	25	23								

**INDOOR CANDELA PLOT**



RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

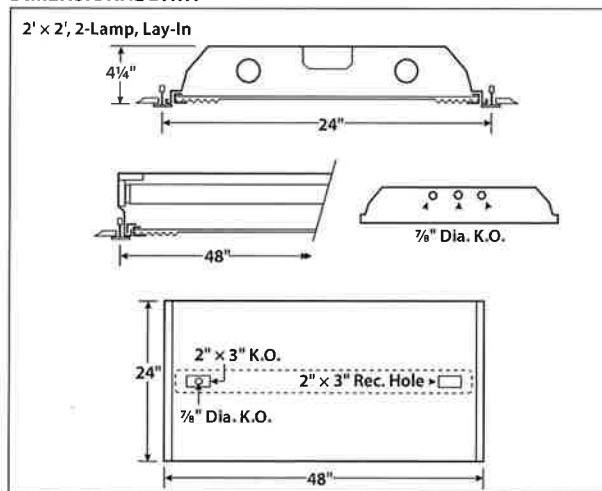
**ENERGY DATA**

Total Luminaire Efficiency	84.4%
Luminaire Efficacy Rating (LER)	72
IESNA RP-1-1993 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.33 based on 3000 hrs. and \$0.08 per KWH

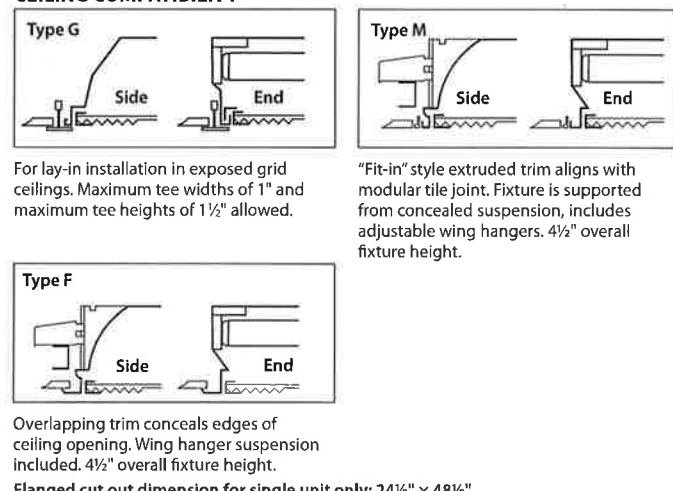
**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	2297	26.4	31.3
0-40	3754	43.1	51.1
0-60	6226	71.6	84.8
0-90	7343	84.4	100.0
0-180	7343	84.4	100.0

**DIMENSIONAL DATA**



**CEILING COMPATIBILITY**



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

**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 8**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** 4PS-24-332-G-FS-A12-EP-U

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

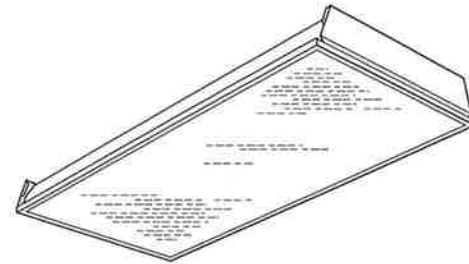
NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

8



# 4PS24-2, 4PS24-3

2' x 4' Specification Grade Static Troffer / 2 or 3-Lamp T5, T5HO, T8



Also available with 4 or 6 lamps.

## FEATURES

- 4 1/4" deep troffer eliminates lens shadowing
- Lamp-to-lens spacing is over 2"
- Contoured housing maximizes photometric performance with uniform lens brightness
- Mitered corners on door present a clean uninterrupted appearance
- Rolled edge housing on all four sides makes the fixture safer and easier to handle
- Heavy duty door frame enhances appearance from eye level
- Snug door fit eliminates light leaks

## PROJECT INFORMATION

Project Name

4PS-24-332-G-FS-A12-EP-U

Catalog No.

8

Type

Date

## HOUSING

Fixture is constructed of die formed and embossed code gauge steel. End caps are hinged and screwed to the housing for added rigidity. Designed for installation in all ceilings as shown below. Specify exact ceiling type. Integral T-bar clips are located in the end cap.

## BALLAST & ELECTRICAL

All luminaires are completely wired with class "P," thermally protected, resetting, HPF ballast, sound rated A. Lampholders are medium bi-pin with positive retention. Furnished with an access plate.

## FINISH

All metal parts processed with a multi-stage phosphate bonding treatment and finished with a high reflectance baked white enamel. For a post painted housing finish suffix catalog number with PAF.

## SHIELDING

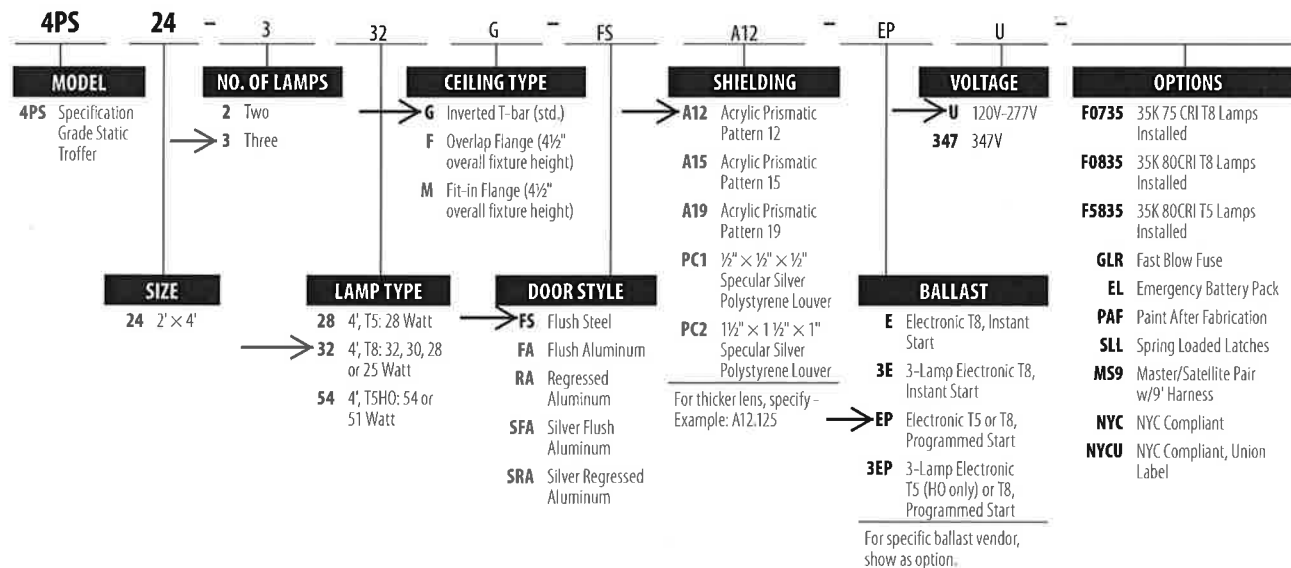
Standard lens is a 100% prismatic virgin pattern 12. For other available lenses consult lens option sheet or contact your Columbia representative. Standard flush door is formed steel with mitered corners. Doors are retained by cam action latches, are easily removed without tools, and hinge from either side. Regressed or flush aluminum doors with mitered corners are also available.

## 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 4PS24-340G-FSA12-EU-SLL



**PHOTOMETRIC DATA**

Test 14272 Test Date 4/4/06

**LUMINAIRE DATA**

Luminaire	4PS24-232G-FSA12 4PS Lensed Troffer 2' x 4' 2-Lamp White Troffer with Prismatic A12 Acrylic Lens
Ballast	REL-2P32-SC
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Total Input Watts	64
Mounting	Recessed
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.22 90° = 1.34
Luminous Opening in Feet	Length: 3.81 Width: 1.81 Height: 0.00

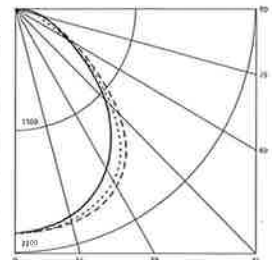
**AVG. LUMINANCE (Candela/Sq. M.)**

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	3161	3161	3161	3161	3161
30	3010	3093	3246	3311	3340
40	2765	2836	3007	3132	3197
45	2558	2574	2733	2865	2956
50	2263	2292	2419	2542	2610
55	1992	1989	2068	2158	2242
60	1761	1617	1664	1751	1929
65	1592	1326	1285	1418	1655
70	1524	1273	1141	1323	1538
75	1550	1357	1345	1369	1574
80	1573	1519	1591	1519	1591
85	1755	1701	1773	1684	1701

**COEFFICIENTS OF UTILIZATION (%)**

RC	80				70				50				0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
1	91	88	84	93	89	86	83	85	83	80	67	74	
2	80	75	70	85	79	74	70	76	72	68	57	63	
3	71	65	60	78	70	64	59	68	62	58	49	54	
4	64	57	51	72	63	56	51	61	55	50	42	47	
5	58	50	45	66	57	50	45	55	49	44	37	41	
6	52	45	39	61	51	44	39	50	44	39	32	37	
7	47	40	35	57	47	40	35	45	39	35	28	33	
8	43	36	32	53	43	36	31	42	36	31	25	29	
9	40	33	28	50	39	33	28	39	32	28	23	26	
10	37	30	26	47	37	30	26	36	30	26	21	24	

**INDOOR CANDELA PLOT**



RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**ENERGY DATA**

Total Luminaire Efficiency	86.5%
Luminaire Efficacy Rating (LER)	69
IESNA RP-1-1993 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.48 based on 3000 hrs. and \$0.08 per KWH

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	1613	27.8	32.1
0-40	2640	45.5	52.6
0-60	4280	73.8	85.3
0-90	5018	86.5	100.0
0-180	5018	86.5	100.0

**LUMINAIRE DATA**

Luminaire	4PS24-332G-FSA12 4PS Lensed Troffer 2' x 4' 3-lamp white troffer with prismatic A12 acrylic lens.
Ballast	REL-3P32-SC
Ballast Factor	0.88
Lamp	F032T8
Lumens per Lamp	2900
Total Input Watts	87
Shielding Angle	0°=90 90°=90
Spacing Criterion	0° = 1.24 90° = 1.31
Luminous Opening in Feet	Length: 3.81 Width: 1.81 Height: 0.00

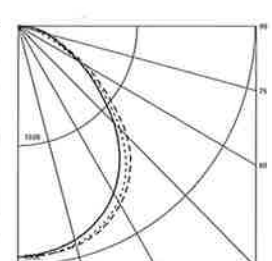
**AVG. LUMINANCE (Candela/Sq. M.)**

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	4516	4516	4516	4516	4516
30	4354	4445	4569	4643	4655
40	4055	4140	4287	4411	4503
45	3766	3836	4009	4161	4271
50	3400	3480	3640	3803	3878
55	3070	3129	3236	3451	3459
60	2753	2710	2747	3022	3084
65	2415	2212	2168	2493	2619
70	2191	1812	1702	2104	2355
75	2117	1737	1622	2008	2388
80	2256	1924	1933	2202	2481
85	2275	2149	2203	2525	2454

**COEFFICIENTS OF UTILIZATION (%)**

RC	80				70				50				0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
1	92	89	85	82	90	87	84	81	83	81	78	72	
2	85	78	73	68	83	77	72	68	74	70	66	61	
3	78	69	63	58	76	68	62	57	66	60	56	53	
4	72	62	55	50	70	61	54	49	59	53	49	46	
5	66	56	48	43	64	55	48	43	53	47	42	40	
6	61	50	43	38	60	50	43	38	48	42	37	35	
7	57	46	39	34	55	45	38	34	44	38	33	31	
8	53	42	35	30	52	41	35	30	40	34	30	28	
9	50	39	32	27	48	38	32	27	37	31	27	25	
10	46	36	29	25	45	35	29	25	34	29	25	23	

**INDOOR CANDELA PLOT**



RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

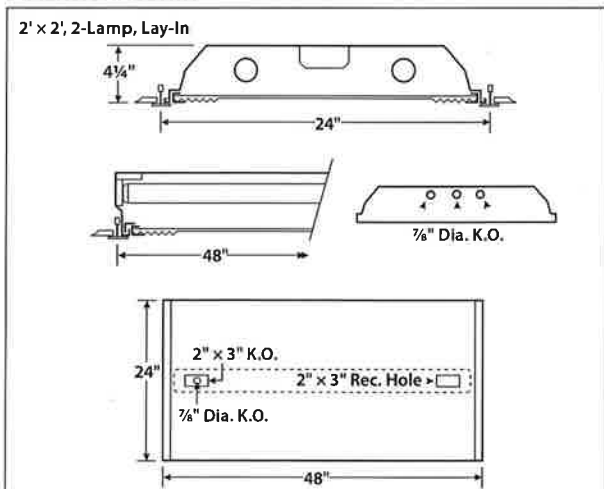
**ENERGY DATA**

Total Luminaire Efficiency	84.4%
Luminaire Efficacy Rating (LER)	72
IESNA RP-1-1993 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.33 based on 3000 hrs. and \$0.08 per KWH

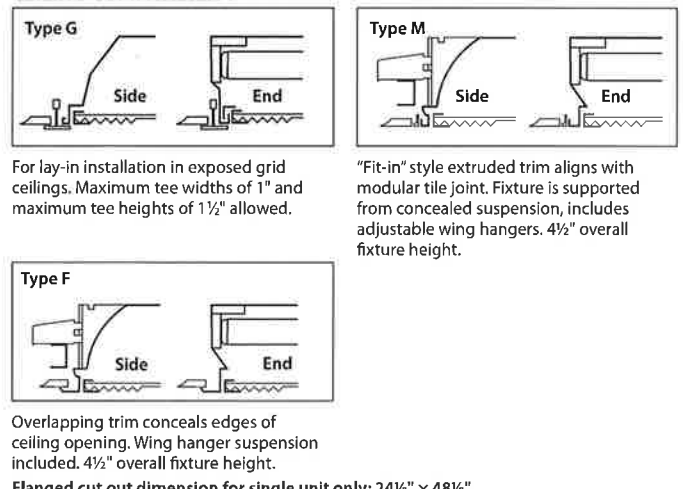
**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	2297	26.4	31.3
0-40	3754	43.1	51.1
0-60	6226	71.6	84.8
0-90	7343	84.4	100.0
0-180	7343	84.4	100.0

**DIMENSIONAL DATA**



**CEILING COMPATIBILITY**



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

**MUSIC CITY CONVENTION CENTER  
LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 9**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** WT-24-332-G-FA-A12.125-EP-U

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

9



**PHOTOMETRIC DATA**

Test 13747 Test Date 12/3/04

**LUMINAIRE DATA**

Luminaire	WT24-332G-FSA12-3E-PAF WT Lensed Troffer 2' x 4' 3-Lamp with A12 Pattern Acrylic Prisms Lens
Ballast	B232I120RH-A
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Total Input Watts	87
Mounting	Recessed
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.25 90° = 1.37
Luminous Opening in Feet	Length: 3.82 Width: 1.82 Height: 0.00

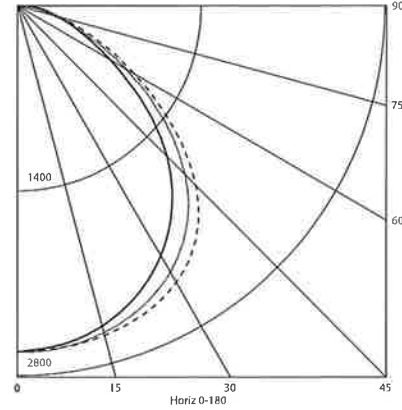
**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	2086	24.0	29.5
0-40	3448	39.6	48.8
0-60	5916	68.0	83.8
0-90	7064	81.2	100.0
0-180	7064	81.2	100.0

**ENERGY DATA**

Total Luminaire Efficiency	81.2%
Luminaire Efficacy Rating (LER)	FL - 71
ANSI/IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.38 based on 3000 hrs. and \$0.08 per KWH

**INDOOR CANDELA PLOT**



**AVG. LUMINANCE (Candela/Sq. M.)**

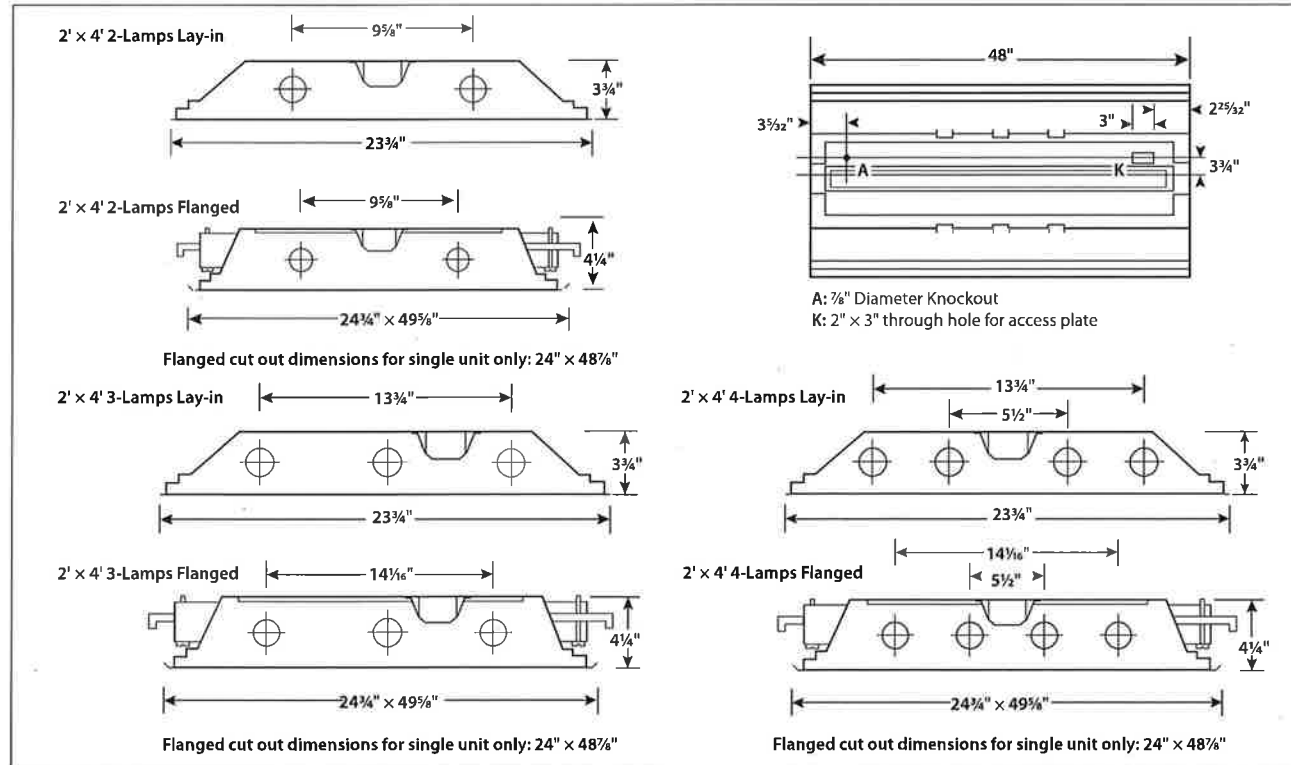
Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	4056	4056	4056	4056	4056
30	3903	3992	4160	4287	4321
40	3705	3846	4091	4271	4333
45	3525	3689	3946	4143	4208
50	3249	3430	3702	3890	3945
55	2888	3096	3374	3523	3579
60	2524	2731	2973	3100	3196
65	2235	2370	2517	2641	2795
70	2023	2073	2069	2200	2381
75	1956	1956	1741	1896	2070
80	2095	2015	1658	1783	1863
85	2327	2221	1830	1759	1794

**COEFFICIENTS OF UTILIZATION (%)**

RCR	80					70					50					0				
	RW	70	50	30	10	70	50	30	10	50	30	10	0	70	50	30	10	0		
1	89	85	82	79	87	83	80	78	80	78	75	69	69	69	69	69	69	69		
2	81	75	70	65	79	73	69	64	71	66	63	58	58	58	58	58	58	58		
3	74	66	60	55	72	65	59	54	63	58	53	50	50	50	50	50	50	50		
4	68	59	52	47	66	58	51	46	56	50	46	43	43	43	43	43	43	43		
5	63	53	46	41	61	52	45	40	50	44	40	37	37	37	37	37	37	37		
6	58	48	41	36	57	47	40	35	45	39	35	33	33	33	33	33	33	33		
7	54	43	36	31	53	43	36	31	41	35	31	29	29	29	29	29	29	29		
8	50	40	33	28	49	39	32	28	38	32	28	26	26	26	26	26	26	26		
9	47	36	30	25	46	36	30	25	35	29	25	23	23	23	23	23	23	23		
10	44	33	27	23	43	33	27	23	32	27	23	21	21	21	21	21	21	21		

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**DIMENSIONAL DATA**



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

**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 22**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** CS-4-232-EP-U-CSW4G

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

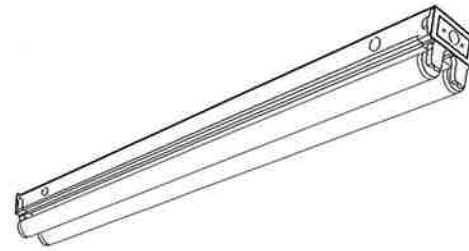
ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

22



**FEATURES**

- Available 2', 3', 4' or 8'
- Heavy die formed steel channel
- Rotary lock lampholders for positive lamp contact
- Channel ends double as joiners
- Individual or row mounting. Surface or suspended
- Ballast covers on 4' and 8' units are secured with ¼-turn fasteners

**PROJECT INFORMATION**

Project Name  
**CS-4-232-EP-U-CSW4G**

Catalog No.

22

Type

Date

**CONSTRUCTION**

Steel housing die formed with heat sink embossments for cooler running ballasts. Socket saddles are factory installed.

**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.

**FINISH**

White painted parts are treated with a five stage phosphate bonding process and finished with a high reflectance baked enamel.

**ELECTRICAL**

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.

**ORDERING INFORMATION**

**EXAMPLE CS4-232-EU-GLR**

MODEL	SIZE	NO. OF LAMPS IN CROSS SECTION	LAMP TYPE	BALLAST	VOLTAGE	OPTIONS
CS Straight-Sided Utility Channel	2 2' 3 3' 4 4' 6 6' (Tandem length) 8 8' (Tandem length)	1 One 2 Two	14 2', T5: 14 Watt 17 2', T8: 17 Watt 24 2', T5: 24 Watt 25 3', T8: 25 Watt 28 4', T5: 28 Watt 32 4', T8: 32, 30, 28 or 25 Watt 54 4', T5: 54 Watt	E Electronic T8, Instant Start 4E 4-Lamp Electronic T8, Instant Start EP Electronic T5, Programmed Start (std. T5/T5HO, optional T8) For a specific ballast vendor, show as option.	U 120V-277V 347 347V	GLR Fast Blow Fuse GMF Slow Blow Fuse EL Emergency Battery Pack (Not in 2') BC Branch Circuit Plug-on Wiring System. See options section for details. PAF Paint After Fabrication NYC NYC Compliant NYCU NYC Compliant, Union Label

**ACCESSORIES (ORDER SEPARATELY)**

ITB4	Hanger for Close Mounting on a T-Bar Ceiling
CSZT	Zip Tee Hanger - 1½" Spacer on T-Bar Ceiling
CSTH	Slide Tong Hanger with ¾" Hole
CSWG4	4' Wire Guard, 2 Required for 8' Fixture
CSWG3	3' Wire Guard, 2 Required for 6' Fixture
CSRA4	4' Asymmetric Reflector
CSR4	4' Symmetric Reflector

For complete list of options and accessories, see options and accessories section.



**PHOTOMETRIC DATA**

Test LSI11147 Test Date 1/6/06

**LUMINAIRE DATA**

Luminaire	CS4-232-E88-PAF CS Striplight 4' Striplight with white painted reflector
Ballast	B232I120RH
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	62
Mounting	Surface
Shielding Angle	0° = 0 90° = 0
Spacing Criterion	0° = 1.25 90° = 1.61
Luminous Opening in Feet	Length: 3.92 Width: 0.35 Height: 0.08

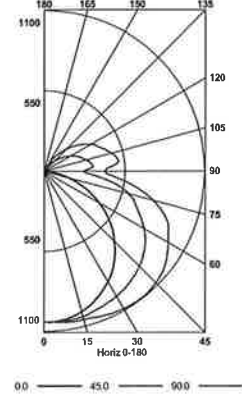
**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	853	14.7	15.3
0-40	1456	25.1	26.2
0-60	2878	49.6	51.7
0-90	4493	77.5	80.8
0-180	5561	95.9	100.0

**ENERGY DATA**

Total Luminaire Efficiency	95.9%
Luminaire Efficacy Rating (LER)	79
IESNA RP-1-1993 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.04 based on 3000 hrs. and \$0.08 per KWH

**INDOOR CANDELA PLOT**



**AVG. LUMINANCE (Candela/Sq. M.)**

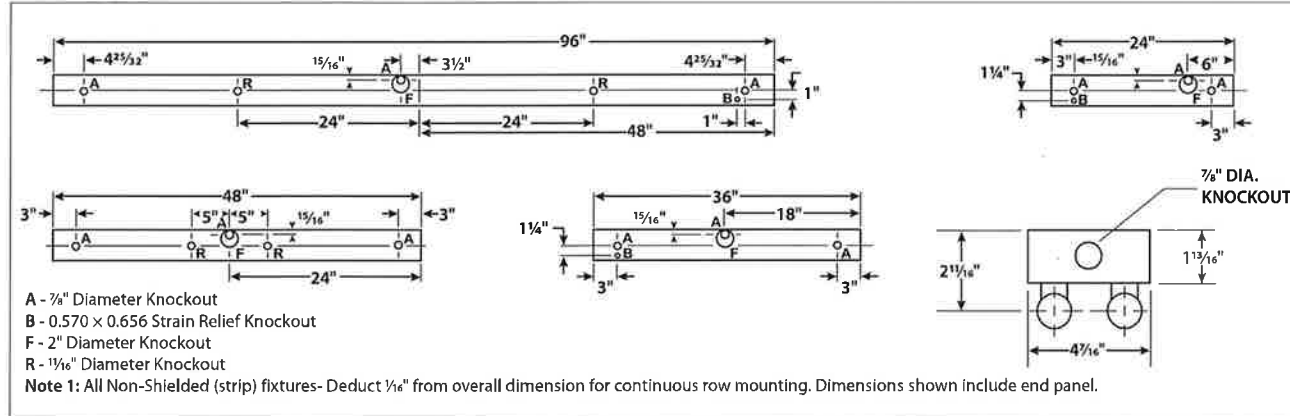
Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	8104	8104	8104	8104	8104
30	7817	7827	8125	8485	8691
40	7562	7701	8450	9084	9393
45	7361	7692	8689	9430	9762
50	7197	7691	8938	9795	10168
55	6938	7731	9214	10180	10549
60	6593	7871	9487	10534	10993
65	6189	8042	9743	11103	11660
70	5647	8113	10219	11816	12301
75	4732	8073	10939	12193	12645
80	3725	8568	11168	12212	12651
85	1752	8614	10549	11795	12309

**COEFFICIENTS OF UTILIZATION (%)**

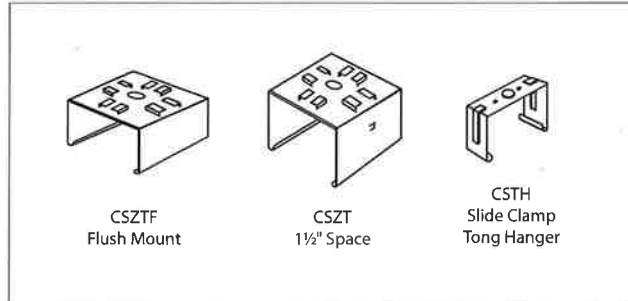
RCR	RC 80				RC 70				RC 50				RC 0			
	RW 70	50	30	10	70	50	30	10	50	30	10	0	70	50	30	10
1	97	92	86	82	93	88	83	79	80	76	73	59				
2	87	78	70	64	83	74	68	62	68	62	58	46				
3	79	67	59	52	74	64	56	50	59	52	47	37				
4	71	59	50	43	68	56	48	41	51	44	39	31				
5	65	52	43	36	62	50	41	35	46	38	33	26				
6	60	46	37	31	57	45	36	30	41	34	28	22				
7	55	42	33	27	53	40	32	26	37	30	25	20				
8	51	38	29	24	49	36	28	23	34	27	22	17				
9	48	35	26	21	45	33	26	20	31	24	19	15				
10	45	32	24	19	43	31	23	18	28	22	17	14				

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

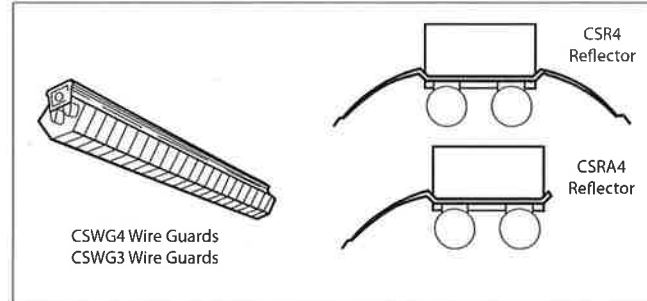
**DIMENSIONAL DATA**



**MOUNTING DATA**



**ACCESSORIES**



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





**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 22E**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** CS-4-232-EP-U-EL-CSW4G

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

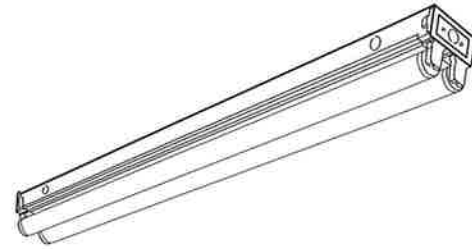
ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

22E



**FEATURES**

- Available 2', 3', 4' or 8'
- Heavy die formed steel channel
- Rotary lock lampholders for positive lamp contact
- Channel ends double as joiners
- Individual or row mounting. Surface or suspended
- Ballast covers on 4' and 8' units are secured with ¼-turn fasteners

**PROJECT INFORMATION**

Project Name  
**CS-4-232-EP-U-EL-CSW4G**

Catalog No.

**22E**

Type

Date

**CONSTRUCTION**

Steel housing die formed with heat sink embossments for cooler running ballasts. Socket saddles are factory installed.

**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.

**FINISH**

White painted parts are treated with a five stage phosphate bonding process and finished with a high reflectance baked enamel.

**ELECTRICAL**

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.

**ORDERING INFORMATION**

**EXAMPLE CS4-232-EU-GLR**

MODEL	SIZE	NO. OF LAMPS IN CROSS SECTION	LAMP TYPE	BALLAST	VOLTAGE	OPTIONS
CS Straight-Sided Utility Channel	2 2'	1 One	14 2', T5: 14 Watt	E Electronic T8, Instant Start	U 120V-277V	GLR Fast Blow Fuse
	3 3'	2 Two	17 2', T8: 17 Watt	4E 4-Lamp Electronic T8, Instant Start	347 347V	GMF Slow Blow Fuse
	4 4'		24 2', T5: 24 Watt	EP Electronic T5, Programmed Start (std. T5/T5HO, optional T8)		EL Emergency Battery Pack (Not in 2')
	6 6' (Tandem length)		25 3', T8: 25 Watt			BC Branch Circuit Plug-on Wiring System. See options section for details.
	8 8' (Tandem length)		28 4', T5: 28 Watt			PAF Paint After Fabrication
			32 4', T8: 32, 30, 28 or 25 Watt			NYC NYC Compliant
			54 4', T5: 54 Watt	For a specific ballast vendor, show as option.		NYCU NYC Compliant, Union Label

**ACCESSORIES (ORDER SEPARATELY)**

- ITB4 Hanger for Close Mounting on a T-Bar Ceiling
- CSZT Zip Tee Hanger - 1½" Spacer on T-Bar Ceiling
- CSTH Slide Tong Hanger with ¾" Hole
- CSWG4 4' Wire Guard, 2 Required for 8' Fixture
- CSWG3 3' Wire Guard, 2 Required for 6' Fixture
- CSRA4 4' Asymmetric Reflector
- CSR4 4' Symmetric Reflector

For complete list of options and accessories, see options and accessories section.



**PHOTOMETRIC DATA**

Test LSI11147 Test Date 1/6/06

**LUMINAIRE DATA**

Luminaire	CS4-232-EB8-PAF CS Striplight 4' Striplight with white painted reflector
Ballast	B2321120RH
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	62
Mounting	Surface
Shielding Angle	0° = 0 90° = 0
Spacing Criterion	0° = 1.25 90° = 1.61
Luminous Opening in Feet	Length: 3.92 Width: 0.35 Height: 0.08

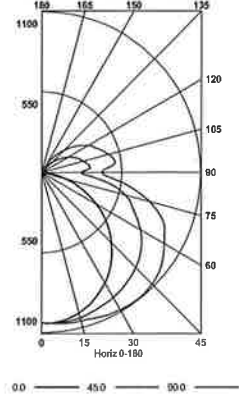
**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	853	14.7	15.3
0-40	1456	25.1	26.2
0-60	2878	49.6	51.7
0-90	4493	77.5	80.8
0-180	5561	95.9	100.0

**ENERGY DATA**

Total Luminaire Efficiency	95.9%
Luminaire Efficacy Rating (LER)	79
IESNA RP-1-1993 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.04 based on 3000 hrs. and \$0.08 per KWH

**INDOOR CANDELA PLOT**



**AVG. LUMINANCE (Candela/Sq. M.)**

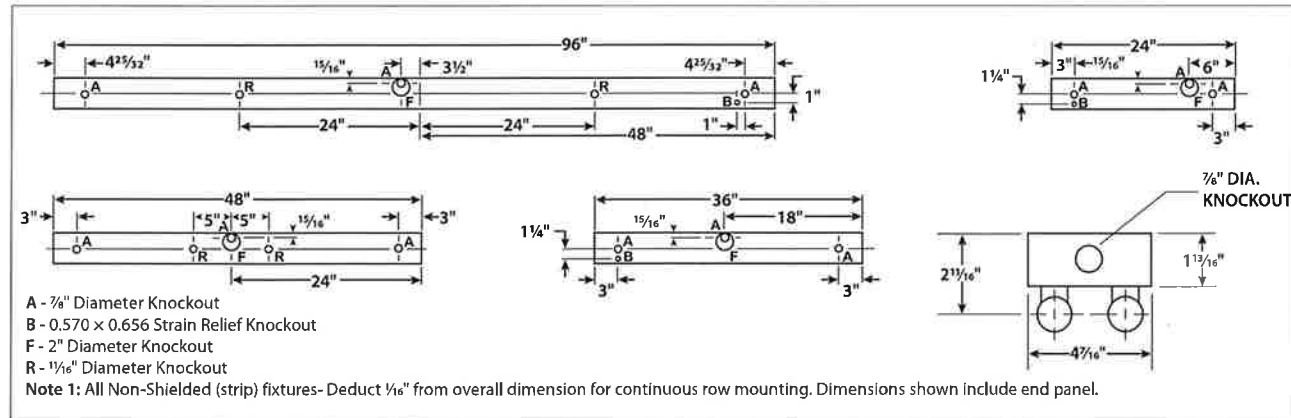
Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	8104	8104	8104	8104	8104
30	7817	7827	8125	8485	8691
40	7562	7701	8450	9084	9393
45	7361	7692	8689	9430	9762
50	7197	7691	8938	9795	10168
55	6938	7731	9214	10180	10549
60	6593	7871	9487	10534	10993
65	6189	8042	9743	11103	11660
70	5647	8113	10219	11816	12301
75	4732	8073	10939	12193	12645
80	3725	8568	11168	12212	12651
85	1752	8614	10549	11795	12309

**COEFFICIENTS OF UTILIZATION (%)**

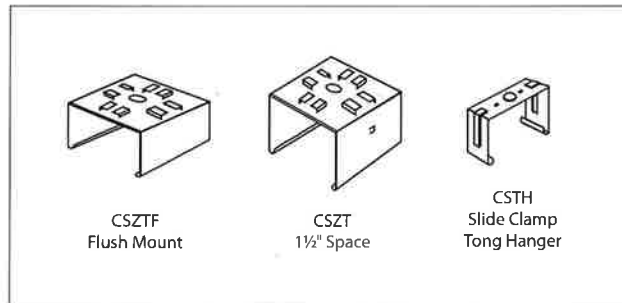
RCR	80				70				50				0			
	RW	70	50	30	70	50	30	10	50	30	10	0	0	0	0	
1	97	92	86	82	93	88	83	79	80	76	73	59				
2	87	78	70	64	83	74	68	62	68	62	58	46				
3	79	67	59	52	74	64	56	50	59	52	47	37				
4	71	59	50	43	68	56	48	41	51	44	39	31				
5	65	52	43	36	62	50	41	35	46	38	33	26				
6	60	46	37	31	57	45	36	30	41	34	28	22				
7	55	42	33	27	53	40	32	26	37	30	25	20				
8	51	38	29	24	49	36	28	23	34	27	22	17				
9	48	35	26	21	45	33	26	20	31	24	19	15				
10	45	32	24	19	43	31	23	18	28	22	17	14				

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

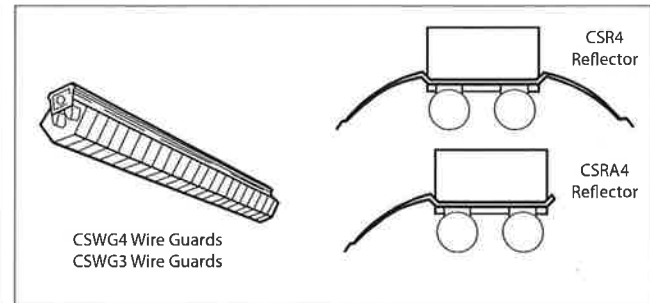
**DIMENSIONAL DATA**



**MOUNTING DATA**



**ACCESSORIES**



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



**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 25**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** LUN-4-332-EP-U

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

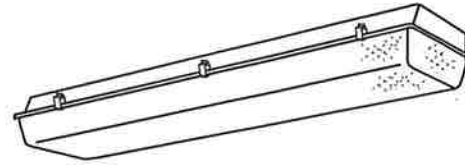
ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

25



**FEATURES**

- Non-metallic enclosure resists the destructive effects of most corrosive agents
- Smooth surfaces of housing and diffuser lens make cleaning easy. Housing and lens have no seams or crevices to trap dirt and dust
- Fixture housing has an inverted "U" slot which allows the diffuser to nest tightly, shedding water
- Neoprene gasketing is sandwiched between housing and diffuser forming an effective seal
- Diffuser lens is secured to the housing with captive, nonmetallic, snap-action cam latches
- Full steel liner for ballast heat dissipation and maximum reflectivity
- Ballast cover plates snap-lock without tools; eliminates loose hardware or fasteners
- UL listed 1958, cUL or CSA. Wet Location standard

**PROJECT INFORMATION**

Project Name  
**LUN-4-332-EP-U**

Catalog No.

**25**  
Type

Date

**ELECTRICAL**

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.

**HOUSING**

One-piece, high-impact, molded polyester fiberglass with a cast waterproof hub (1/2" thread). Factory installed neoprene gasketing.

**DIFFUSER**

One-piece, impact-resistant 15% DR, molded acrylic. Smooth outside, prismatic pattern inside. Retained by molded ABS thermoplastic latches.

**LINER**

Heavy gauge die-formed steel.

**FINISH**

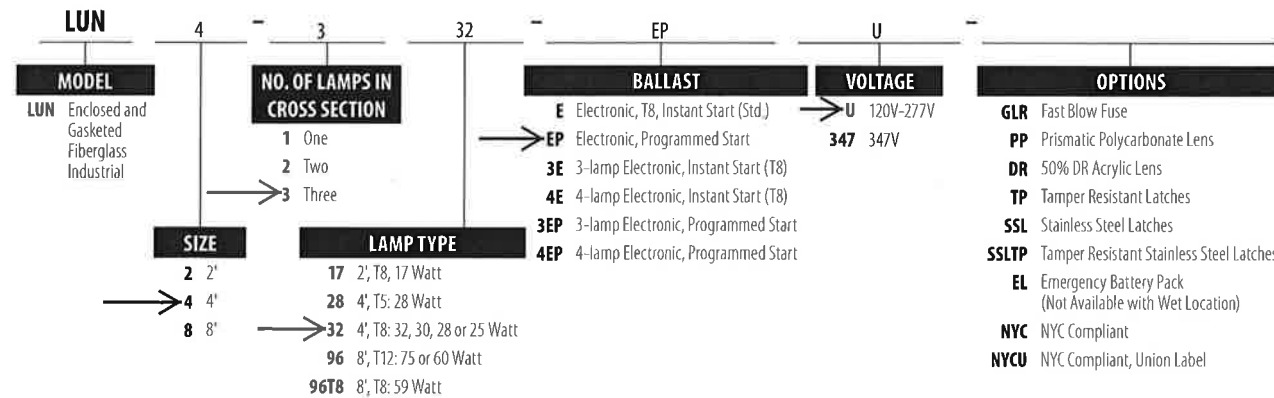
Housing - Cream tone fiberglass. Liner - Pre-painted high gloss baked white enamel, minimum 86% reflectance.

**CERTIFICATION**

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

**ORDERING INFORMATION**

**EXAMPLE LUN4-232-EU**



**ACCESSORIES (ORDER SEPARATELY)**

- HUBK** Stem Hanging Hubs
- LUNHK** Stainless Steel Hanging Kit For 1/2" Hubs, Chain Not Included
- PEBU** End Bracket Universal Surface Mount Kit
- PEBA** Adjustable Surface Mount Bracket Kit



**PHOTOMETRIC DATA**

**LUMINAIRE DATA**

Luminaire	LUN4-232-EU LUN Industrial 8" x 50" 2-Lamp with Clear Stippled Plastic Wrap Enclosure
Ballast	B2321120RH-A
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	3100
Watts	56
Shielding Angle	N/A
Spacing Criterion	0° = 1.30 90° = 1.60
Luminous Opening in Feet	Length = 4.11 Width = 0.58 Height = 0.00

**AVG. LUMINANCE (Candela/Sq. M.)**

Avg. Luminance Angle	0.0	45.0	90.0
45	11575	14869	17027
55	10639	15887	19086
65	9171	18635	24245
75	8045	25490	30149
85	8870	41277	54642

**ZONAL LUMEN SUMMARY**

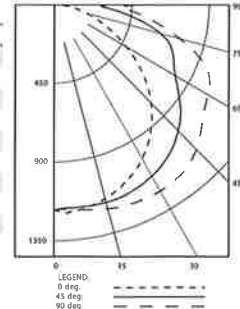
Zone	Lumens	Lamp	Fixt.
0-30	976	15.7	17.8
0-40	1665	26.9	30.3
0-60	3209	51.8	58.4
0-90	4857	78.3	88.4
90-180	637	10.3	11.6
0-180	5494	88.6	100.0

**COEFFICIENTS OF UTILIZATION (%)**

RCR	80				70				50				0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
1	91	86	82	77	88	83	79	75	77	74	71	60	
2	82	74	67	61	79	71	65	59	66	61	56	48	
3	74	64	55	49	71	61	54	48	57	51	46	39	
4	67	56	47	41	64	54	46	40	50	43	38	32	
5	62	49	41	34	59	48	40	34	45	38	32	27	
6	57	44	36	30	54	43	35	29	40	33	28	24	
7	52	40	31	26	50	38	31	25	36	29	24	21	
8	49	36	28	23	47	35	28	22	33	26	22	18	
9	45	33	25	20	43	32	25	20	30	24	19	16	
10	42	30	23	18	41	29	23	18	28	22	17	15	

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**INDOOR CANDELA PLOT**



Test 3067 Test Date 11/18/09

**ENERGY DATA**

Total Luminaire Efficiency	88.6%
Luminaire Efficacy Rating (LER)	84
IESNA RP-1-2004 Compliance	Non-Compliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$4.21 based on 3000 hrs. and \$0.08 per KWH

**LUMINAIRE DATA**

Luminaire	LUN8-232-4EU LUN Industrial 8" x 98" 2-Lamp Tandem with Clear Stippled Plastic Wrap Enclosure
Ballast	B4321120RH
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	111
Shielding Angle	N/A
Spacing Criterion	0° = 1.26 90° = 1.59
Luminous Opening in Feet	Length = 8.09 Width = 0.58 Height = 0.00

**AVG. LUMINANCE (Candela/Sq. M.)**

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	4675	4675	4675	4675	4675
30	4538	4813	5261	5618	5722
40	4387	4854	5651	6178	6328
45	4256	4876	5836	6437	6605
50	4076	4886	5992	6674	6874
55	3828	4879	6123	6959	7231
60	3542	4859	6318	7543	7960
65	3246	4853	6850	8718	9239
70	2965	4950	8096	10061	10490
75	2765	5407	9528	11195	11585
80	2669	6513	10991	13092	13713
85	2843	8712	15372	19241	20452

**ZONAL LUMEN SUMMARY**

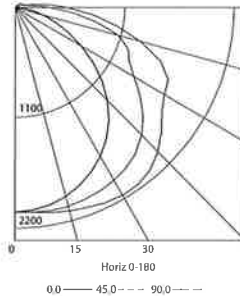
Zone	Lumens	Lamp	Fixt.
0-30	1696	14.6	19.2
0-40	2895	25.0	32.8
0-60	5557	47.9	63.0
0-90	8335	71.9	94.5
90-120	407	3.5	4.6
90-130	449	3.9	5.1
90-150	482	4.2	5.5
90-180	487	4.2	5.5
0-180	8821	76.0	100.0

**COEFFICIENTS OF UTILIZATION (%)**

RCR	80				70				50				0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
1	79	75	71	67	77	73	69	66	69	66	63	55	
2	71	64	58	53	69	62	56	52	59	54	50	44	
3	64	55	48	43	62	54	47	42	51	45	41	36	
4	58	48	41	35	56	47	40	35	45	39	34	30	
5	54	43	35	30	52	42	35	29	40	33	29	25	
6	49	38	31	26	47	37	30	25	35	29	25	22	
7	46	35	27	22	44	34	27	22	32	26	22	19	
8	42	31	25	20	41	31	24	20	29	23	19	17	
9	39	29	22	18	38	28	22	17	27	21	17	15	
10	37	26	20	16	36	26	20	16	25	19	15	13	

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**INDOOR CANDELA PLOT**



Test 11253 Test Date 1/8/03

**ENERGY DATA**

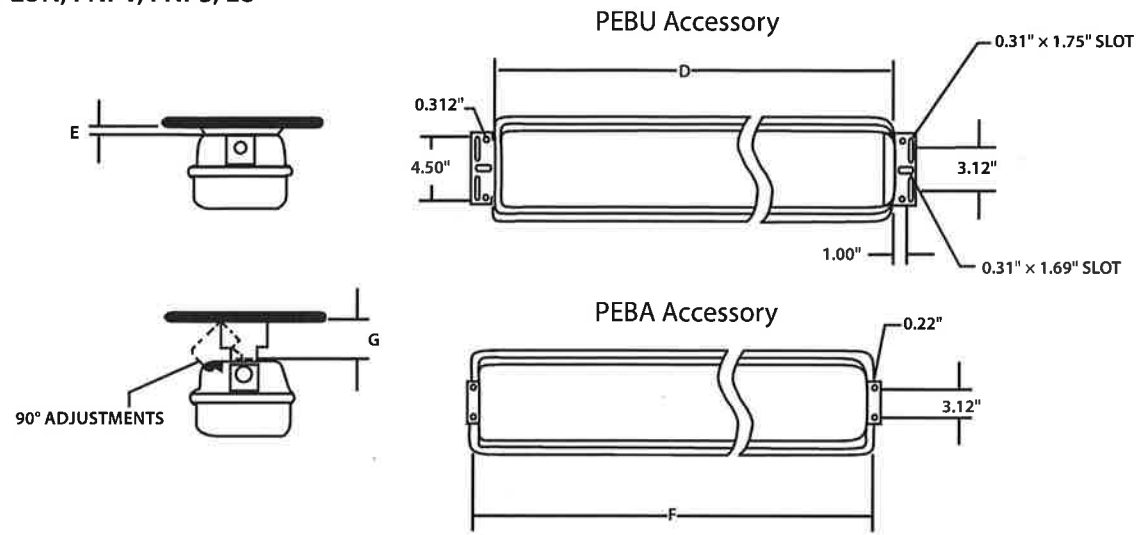
Total Luminaire Efficiency	76.0%
Luminaire Efficacy Rating (LER)	70
IESNA RP-1-2004 Compliance	Non-Compliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.43 based on 3000 hrs. and \$0.08 per KWH

**DIMENSIONAL DATA**

Catalog Number	A	B	C	D	E
LUN2	6 1/8"	6 5/8"	3"	17 1/2"	25 1/8"
LUN4	5 3/8"	7 1/8"	3"	41 1/2"	49 1/8"
LUN8	5 3/8"	7 1/8"	3"	89 1/2"	97 1/8"

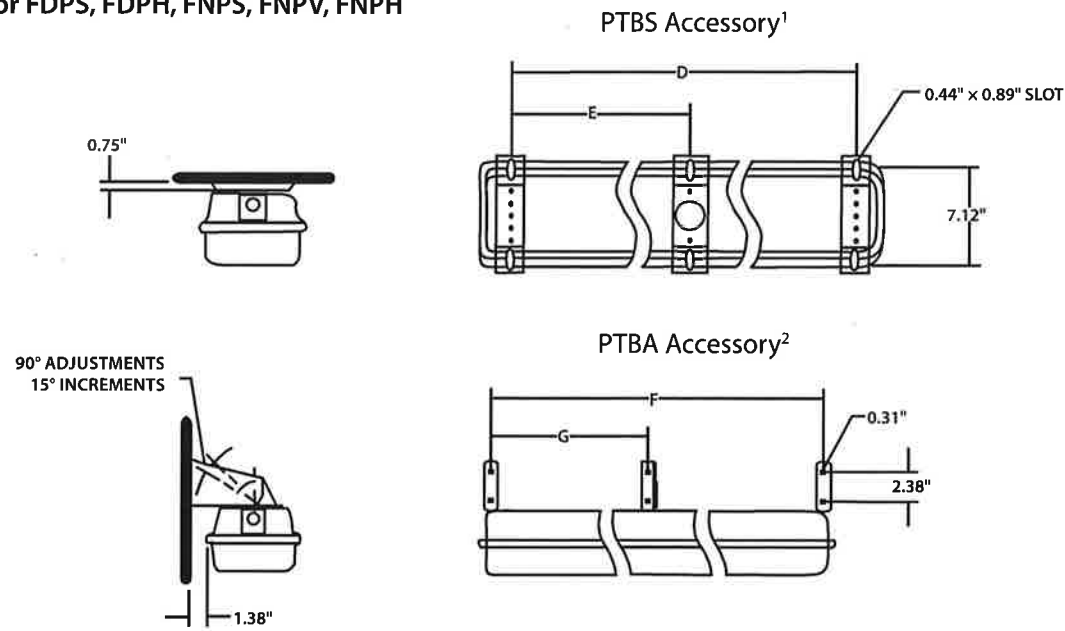
**NOTE:** Fixtures are designed for ceiling mounting only. All dimensions are in inches; dimensions and specifications are subject to change without notice. Please consult factory or check sample for verification.

For LUN, FNPV, FNPS, LU



	D	E	F	G
2'	25.75" (654 mm)	0" (0 mm)	25.75" (654 mm)	2.38" (60 mm)
4'	49.75" (1264 mm)	0.38" (10 mm)	49.75" (1264 mm)	2.75" (70 mm)
8'	97.75" (2483 mm)	0.38" (10 mm)	97.75" (2483 mm)	2.75" (70 mm)

For FDPS, FDPH, FNPS, FNPV, FNPH



	D	E	F	G
4'	45.65" (118 mm)	—	48.40" (1186 mm)	—
8'	93.65" (2294 mm)	46.83" (1147 mm)	96.40" (2362 mm)	46.83" (1147 mm)

<sup>1</sup> PTBS has two mounting brackets; PTBS3 has three mounting brackets and only used with 8' fixtures.

<sup>2</sup> PTBA has two mounting brackets; PTBA3 has three mounting brackets and only used with 8' fixtures.

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

31

**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 31**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** W-3-217-EP-U

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

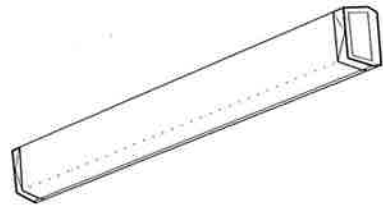
ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.





**FEATURES**

- Slim design, less than 5" high and only 4" deep
- Meets ADA requirements
- Smooth white acrylic diffuser for soft even illumination
- White injection molded decorative plastic ends hold diffuser in place. Easily removable for lamp access
- Heavy gauge steel die formed housing with heat sink embossments behind ballast for cooler operation and longer life
- A grounded convenience outlet and an on/off push switch are standard equipment (120 volt fixtures only). An optional pull chain switch is available

**PROJECT INFORMATION**

Project Name	MUSIC CITY	31
Catalog No.	W-3-217-EP-U	Type
		Date

**ELECTRICAL**

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.

**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.

**FINISH**

All parts pre-painted with high gloss baked white enamel, minimum reflectance 86%, applied over iron phosphate pre-treatment for maximum adhesion and rust resistance.

**SHIELDING**

100% opal acrylic extrusion.

**ORDERING INFORMATION**

**EXAMPLE W4-232-EU**

MODEL	SIZE	NO. OF LAMPS	LAMP TYPE	BALLAST	VOLTAGE	OPTIONS
W Slim Wall Mount Light	2 2'	1 One	14 2', T5: 14 Watt	E Electronic T8, Instant Start	U 120V-277V	GLR Fast Blow Fuse
	3 3'	2 Two	17 2' T8: 17 Watt	EP Electronic T5 or T5HO, Programmed Start	120 120V	EL Emergency Battery Pack, T8 4 ft Only
	4 4'		24 2', T5HO: 24 Watt		347 347V	ELS Emergency Battery Pack, T5 or T5HO 4 ft Only
			21 3', T5: 21 Watt			PSW Pull Chain Switch (120V only)
			25 3', T8: 25 Watt			LSW Less Switch (120V only)
			39 3', T5HO: 39 Watt			LCO Less Grounded Convenience Outlet (120V only)
			28 4', T5: 28 Watt			PAF Paint After Fabrication
			32 4' T8: 32, 30, 28 or 25 Watt			S18 18" Stem w/Canopy
			54 4', T5HO: 54 Watt			SS18 18" 45 Swivel Stem w/Canopy

For others available, see Ballast Options.

For a complete list of options, see options and accessories section.

**PHOTOMETRIC DATA**

**LUMINAIRE DATA**

Luminaire	W4-240-LE
Ballast	446-L-SLH-TC-P
Ballast Factor	0.95
Lamp	F40/CW
Lumens per Lamp	3150
Watts	84
Shielding Angle	N/A
Spacing Criterion	0° = N/A 90° = N/A
Luminous Opening in Feet	Length: 4.00 Width: 0.41 Height: 0.00

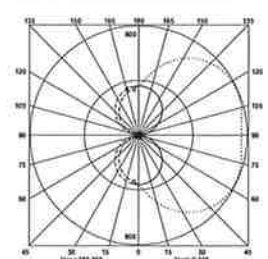
**AVG. LUMINANCE (Candela/Sq. M.)**

Average Lum. Angle	0.0	45.0	90.0	135.0	180.0
0	2369	2369	2369	2369	2369
30	2327	4085	4919	4085	2327
40	2296	4952	6160	4952	2296
45	2265	5495	6924	5495	2265
50	2236	6106	7832	6106	2236
55	2197	6877	8960	6877	2197
60	2140	7824	10396	7824	2140
65	2050	9194	12331	9194	2050
70	1938	11092	15199	11092	1938
75	1775	14252	19907	14252	1775
80	1550	20373	29066	20373	1550
85	1130	39236	57235	39236	1130

**COEFFICIENTS OF UTILIZATION (%)**

RC	80					70					50					0
	RW	70	50	30	10	70	50	30	10	50	30	10	0			
1	60	57	53	51	55	52	49	47	44	41	40	23				
2	54	48	44	40	49	44	40	37	37	34	31	18				
3	49	42	37	32	45	39	34	30	32	28	25	14				
4	44	37	31	27	40	34	29	25	28	24	21	12				
5	41	32	27	22	37	30	25	21	25	21	18	10				
6	37	29	23	19	34	27	22	18	22	18	15	8				
7	34	26	20	17	31	24	19	15	20	16	13	7				
8	32	23	18	14	29	22	17	13	18	14	12	6				
9	29	21	16	13	27	20	15	12	17	12	10	5				
10	27	19	15	11	25	18	14	11	15	12	9	5				

**INDOOR CANDELA PLOT**



Test 8957 Test Date 1/8/03

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**ENERGY DATA**

Total Luminaire Efficiency	63.5%
Luminaire Efficacy Rating (LER)	45
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$5.33 based on 3000 hrs. and \$0.08 per KWH

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	325	5.2	8.1
0-40	570	9.0	14.2
0-60	1171	18.6	29.3
0-90	2001	31.8	50.0
90-120	830	13.2	20.7
90-130	1141	18.1	28.5
90-150	1675	26.6	41.9
90-180	2001	31.8	50.0
0-180	4001	63.5	100.0

**LUMINAIRE DATA**

Luminaire	W4-140-LE
Ballast	446-L-SLH-TC-P
Ballast Factor	0.95
Lamp	F40CW
Lumens per Lamp	3150
Watts	45
Shielding Angle	N/A
Spacing Criterion	0° = N/A 90° = N/A
Luminous Opening in Feet	Length: 4.00 Width: 0.41 Height: 0.00

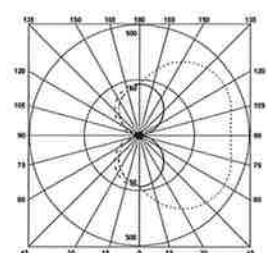
**AVG. LUMINANCE (Candela/Sq. M.)**

Average Lum. Angle	0.0	45.0	90.0	135.0	180.0
0	1523	1523	1523	1523	1523
30	1493	2463	2910	2463	1493
40	1474	2922	3581	2922	1474
45	1457	3212	4001	3212	1457
50	1440	3543	4483	3543	1440
55	1407	3948	5104	3948	1407
60	1378	4476	5881	4476	1378
65	1320	5187	6927	5187	1320
70	1267	6218	8463	6218	1267
75	1141	7887	10981	7887	1141
80	1021	11264	15951	11264	1021
85	904	21463	31404	21463	904

**COEFFICIENTS OF UTILIZATION (%)**

RC	80					70					50					0
	RW	70	50	30	10	70	50	30	10	50	30	10	0			
1	72	68	64	60	66	62	59	56	52	50	47	28				
2	64	58	52	48	59	53	48	44	44	41	38	21				
3	58	50	44	39	53	46	40	36	38	34	31	17				
4	53	44	37	32	48	40	34	30	34	29	25	14				
5	48	39	32	27	44	36	30	25	30	25	22	12				
6	44	35	28	23	41	32	26	22	27	22	18	10				
7	41	31	25	20	37	29	23	19	24	19	16	9				
8	38	28	22	17	35	26	20	16	22	17	14	8				
9	35	25	19	15	32	24	18	14	20	16	12	7				
10	33	23	17	14	30	22	16	13	18	14	11	6				

**INDOOR CANDELA PLOT**



Test 8958 Test Date 1/8/03

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

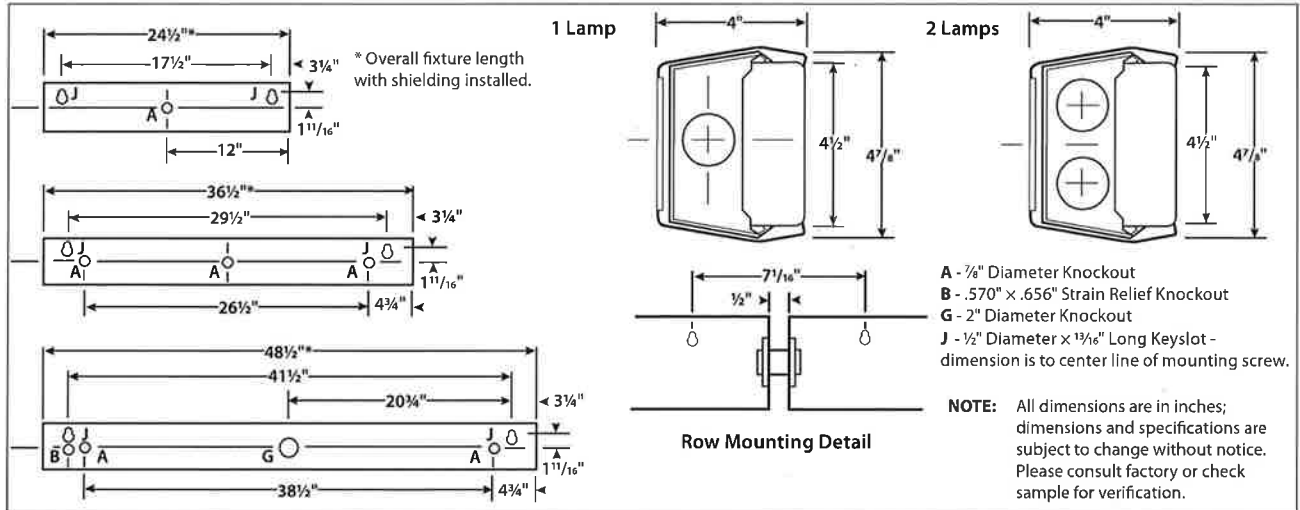
**ENERGY DATA**

Total Luminaire Efficiency	75.4%
Luminaire Efficacy Rating (LER)	50
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$4.80 based on 3000 hrs. and \$0.08 per KWH

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	204	6.5	8.6
0-40	355	11.3	14.9
0-60	715	22.7	30.1
0-90	1188	37.7	50.0
90-120	472	15.0	19.9
90-130	658	20.9	27.7
90-150	983	31.2	41.4
90-180	1188	37.7	50.0
0-180	2375	75.4	100.0

**DIMENSIONAL DATA**



**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

33

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 33**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** COLUMBIA

**FIXTURE CATALOG NUMBER:** W-4-232-EP-U

---

CONTRACTOR'S COMMENTS:

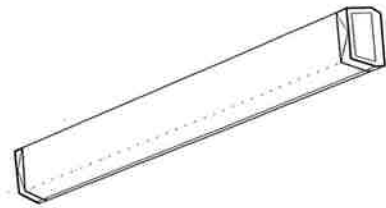
ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.



**FEATURES**

- Slim design, less than 5" high and only 4" deep
- Meets ADA requirements
- Smooth white acrylic diffuser for soft even illumination
- White injection molded decorative plastic ends hold diffuser in place. Easily removable for lamp access
- Heavy gauge steel die formed housing with heat sink embossments behind ballast for cooler operation and longer life
- A grounded convenience outlet and an on/off push switch are standard equipment (120 volt fixtures only). An optional pull chain switch is available

**PROJECT INFORMATION**

Project Name  
W-4-232-EP-U  
Catalog No.

33  
Type  
Date

**ELECTRICAL**

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.

**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.

**FINISH**

All parts pre-painted with high gloss baked white enamel, minimum reflectance 86%, applied over iron phosphate pre-treatment for maximum adhesion and rust resistance.

**SHIELDING**

100% opal acrylic extrusion.

**ORDERING INFORMATION**

**EXAMPLE W4-232-EU**

MODEL	SIZE	NO. OF LAMPS	LAMP TYPE	BALLAST	VOLTAGE	OPTIONS
W Slim Wall Mount Light	2 2' 3 3' → 4 4'	1 One → 2 Two	14 2', T5: 14 Watt 17 2' T8: 17 Watt 24 2', T5HO: 24 Watt 21 3', T5: 21 Watt 25 3', T8: 25 Watt 39 3', T5HO: 39 Watt 28 4', T5: 28 Watt → 32 4' T8: 32, 30, 28 or 25 Watt 54 4', T5HO: 54 Watt	E Electronic T8, Instant Start → EP Electronic T5 or T5HO, Programmed Start For others available, see Ballast Options,	→ U 120V-277V 120 120V 347 347V	GLR Fast Blow Fuse EL Emergency Battery Pack, T8 4 ft Only EL5 Emergency Battery Pack, T5 or T5HO 4 ft Only PSW Pull Chain Switch (120V only) LSW Less Switch (120V only) LCO Less Grounded Convenience Outlet (120V only) PAF Paint After Fabrication S18 18" Stem w/Canopy SS18 18" 45 Swivel Stem w/Canopy For a complete list of options, see options and accessories section.

**Slim Wall Mount Light / 1 or 2-Lamp T8, T5, T5HO**

**PHOTOMETRIC DATA**

**AVG. LUMINANCE (Candela/Sq. M.)**

**LUMINAIRE DATA**

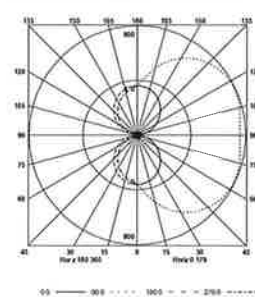
Luminaire	W4-240-LE
	W Surface Mounted 48" x 4 1/4" 2-L Wall Mount Wrap w/Opal Acrylic Lens
Ballast	446-L-SLH-TC-P
Ballast Factor	0.95
Lamp	F40/CW
Lumens per Lamp	3150
Watts	84
Shielding Angle	N/A
Spacing Criterion	0° = N/A 90° = N/A
Luminous Opening in Feet	Length: 4.00 Width: 0.41 Height: 0.00

Average Lum. Angle	0.0	45.0	90.0	135.0	180.0
0	2369	2369	2369	2369	2369
30	2327	4085	4919	4085	2327
40	2296	4952	6160	4952	2296
45	2265	5495	6924	5495	2265
50	2236	6106	7832	6106	2236
55	2197	6877	8960	6877	2197
60	2140	7824	10396	7824	2140
65	2050	9194	12331	9194	2050
70	1938	11092	15199	11092	1938
75	1775	14252	19907	14252	1775
80	1550	20373	29066	20373	1550
85	1130	39236	57235	39236	1130

**COEFFICIENTS OF UTILIZATION (%)**

RC	80					70					50					0
	RW	70	50	30	10	RW	70	50	30	10	RW	70	50	30	10	0
1	60	57	53	51	55	52	49	47	44	41	40	37	34	31	18	
2	54	48	44	40	49	44	40	37	34	31	28	25	22	14		
3	49	42	37	32	45	39	34	30	28	25	22	19	16	10		
4	44	37	31	27	40	34	29	25	22	19	16	13	10	7		
5	41	32	27	22	37	30	25	21	18	15	12	9	7	5		
6	37	29	23	19	34	27	22	18	15	12	9	7	5	4		
7	34	26	20	17	31	24	19	15	12	9	7	5	4	3		
8	32	23	18	14	29	22	17	13	10	8	6	5	4	3		
9	29	21	16	13	27	20	15	12	9	7	5	4	3	2		
10	27	19	15	11	25	18	14	11	8	6	5	4	3	2		

**INDOOR CANDELA PLOT**



Test 8957 Test Date 1/8/03

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	325	5.2	8.1
0-40	570	9.0	14.2
0-60	1171	18.6	29.3
0-90	2001	31.8	50.0
90-120	830	13.2	20.7
90-130	1141	18.1	28.5
90-150	1675	26.6	41.9
90-180	2001	31.8	50.0
0-180	4001	63.5	100.0

RCR = Room Cavity Ratio

RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**ENERGY DATA**

Total Luminaire Efficiency	63.5%
Luminaire Efficacy Rating (LER)	45
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$5.33 based on 3000 hrs. and \$0.08 per KWH

**LUMINAIRE DATA**

Luminaire	W4-140-LE
	W Surface Mounted 48" x 4 1/4" 1-L Wall Mount with Opal Acrylic Wrap Lens
Ballast	446-L-SLH-TC-P
Ballast Factor	0.95
Lamp	F40CW
Lumens per Lamp	3150
Watts	45
Shielding Angle	N/A
Spacing Criterion	0° = N/A 90° = N/A
Luminous Opening in Feet	Length: 4.00 Width: 0.41 Height: 0.00

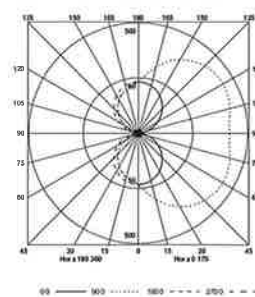
**AVG. LUMINANCE (Candela/Sq. M.)**

Average Lum. Angle	0.0	45.0	90.0	135.0	180.0
0	1523	1523	1523	1523	1523
30	1493	2463	2910	2463	1493
40	1474	2922	3581	2922	1474
45	1457	3212	4001	3212	1457
50	1440	3543	4483	3543	1440
55	1407	3948	5104	3948	1407
60	1378	4476	5881	4476	1378
65	1320	5187	6927	5187	1320
70	1267	6218	8463	6218	1267
75	1141	7887	10981	7887	1141
80	1021	11264	15951	11264	1021
85	904	21463	31404	21463	904

**COEFFICIENTS OF UTILIZATION (%)**

RC	80					70					50					0
	RW	70	50	30	10	RW	70	50	30	10	RW	70	50	30	10	0
1	72	68	64	60	66	62	59	56	52	50	47	28				
2	64	58	52	48	59	53	48	44	44	41	38	21				
3	58	50	44	39	53	46	40	36	38	34	31	17				
4	53	44	37	32	48	40	34	30	34	29	25	14				
5	48	39	32	27	44	36	30	25	30	25	22	12				
6	44	35	28	23	41	32	26	22	27	22	18	10				
7	41	31	25	20	37	29	23	19	24	19	16	9				
8	38	28	22	17	35	26	20	16	22	17	14	8				
9	35	25	19	15	32	24	18	14	20	16	12	7				
10	33	23	17	14	30	22	16	13	18	14	11	6				

**INDOOR CANDELA PLOT**



Test 8958 Test Date 1/8/03

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	204	6.5	8.6
0-40	355	11.3	14.9
0-60	715	22.7	30.1
0-90	1188	37.7	50.0
90-120	472	15.0	19.9
90-130	658	20.9	27.7
90-150	983	31.2	41.4
90-180	1188	37.7	50.0
0-180	2375	75.4	100.0

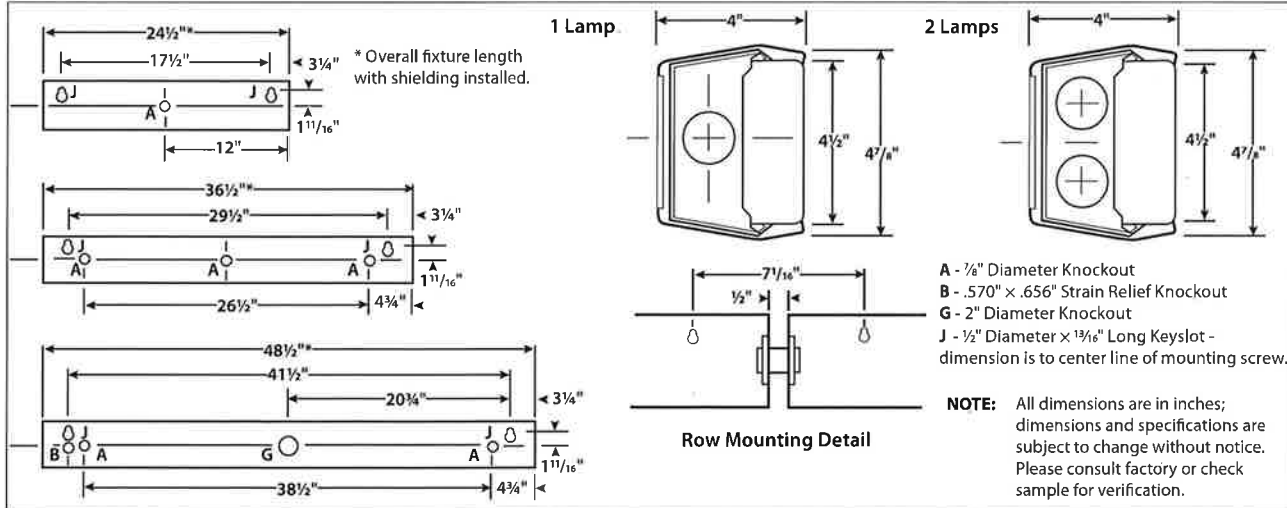
RCR = Room Cavity Ratio

RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**ENERGY DATA**

Total Luminaire Efficiency	75.4%
Luminaire Efficacy Rating (LER)	50
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$4.80 based on 3000 hrs. and \$0.08 per KWH

**DIMENSIONAL DATA**



**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

FIXTURE TYPE: 33E

**FIXTURE INFORMATION**

FIXTURE MANUFACTURER: COLUMBIA

WITH EL OPTION EMG  
BATTERY BACK UP

FIXTURE CATALOG NUMBER: VL-4-232-EP-U-WL

---

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

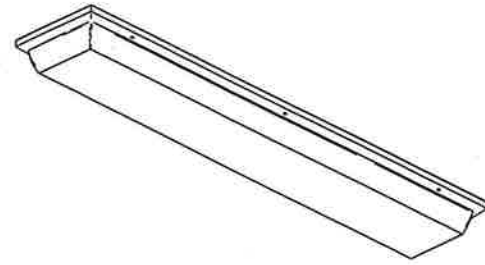
ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

33E



**FEATURES**

- Ideal for high abuse areas
- Effective, secure illumination mounts to ceilings or walls
- Rugged heavy duty steel construction
- Diffuser is .187" thick clear prismatic polycarbonate for high-impact protection
- Six tamper-resistant screws for maximum security
- Closed cell gasketing inhibits entry of airborne contaminants or insects
- Backpan is only 5/8" deep to hug walls or ceilings and deter vandals
- Optional stand-off mounting box permits surface conduit entry

**PROJECT INFORMATION**

Project Name  
**VL-4-232-EP-U-WL -EL**

Catalog No.

**33E**

Type

Date

**CONSTRUCTION**

Heavy 16 gauge cold rolled steel housing with formed end caps welded to housing.

**SHIELDING**

Diffuser is of 0.187" thick clear prismatic polycarbonate material.

**ELECTRICAL**

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.

**CERTIFICATION**

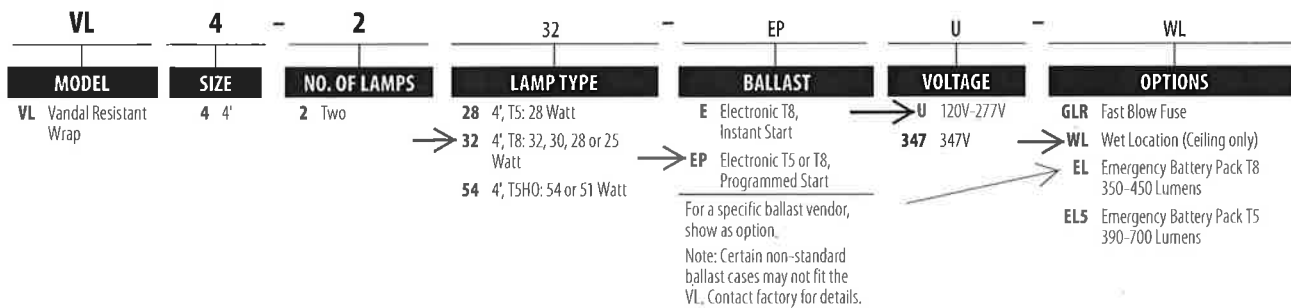
All luminaires are built to UL 1598 standards and bear appropriate UL and cUL or CSA labels. Damp location labeling is standard. Emergency-equipped fixtures labeled UL 924.

**FINISH**

Painted parts are treated with a five stage phosphate bonding process and finished with a high reflectance baked white enamel.

**ORDERING INFORMATION**

**EXAMPLE VL4-232-EU**



**ACCESSORIES (ORDER SEPARATELY)**

- VLSC** Surface Conduit Entry Box
- VLTS** Tamper Resistant Screwdriver

Note: Certain non-standard ballast cases may not fit the VL. Contact factory for details.



**PHOTOMETRIC DATA**

Test HP06319 Test Date 3/3/09

**LUMINAIRE DATA**

Luminaire	VL4-232-E Vandal Resistant Close-Fit Wrap 8" x 48" 2-Lamp with Prismatic Plastic Lens
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	55
Mounting	Surface
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 0.98 90° = 1.18
Luminous Opening in Feet	Length: 4.13 Width: 0.67 Height: 0.20

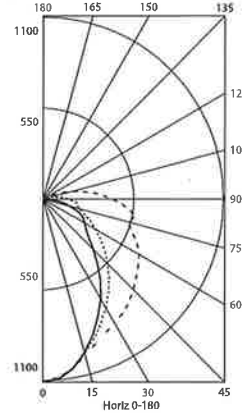
**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Lamp	% Fixt.
0-30	765	13.2	23.3
0-40	1209	20.9	36.9
0-60	2062	35.5	62.9
0-90	2986	51.5	91.1
90-120	269	4.6	8.2
90-130	284	4.9	8.7
90-150	292	5.0	8.9
90-180	293	5.1	8.9
0-180	3279	56.5	100.0

**ENERGY DATA**

Total Luminaire Efficiency	56.5%
Luminaire Efficacy Rating (LER)	52
IESNA RP-1-1993 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$4.62 based on 3000 hrs. and \$0.08 per KWH

**INDOOR CANDELA PLOT**



**AVG. LUMINANCE (Candela/Sq. M.)**

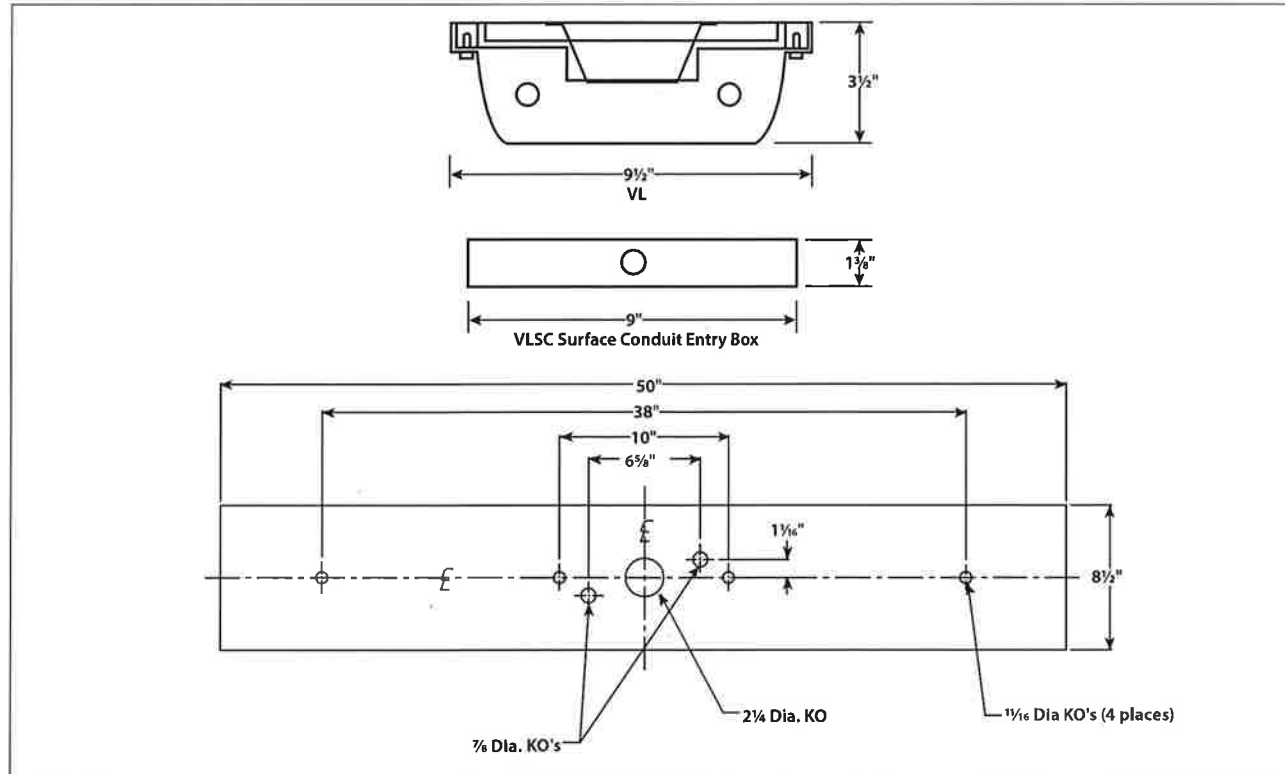
Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	4306	4306	4306	4306	4306
30	3041	2966	2998	3175	3326
40	2484	2419	2611	2993	3293
45	2220	2145	2443	2899	3279
50	2043	1898	2290	2800	3285
55	1992	1702	2129	2741	3347
60	2060	1604	1987	2716	3446
65	2210	1579	1894	2680	3507
70	2249	1559	1807	2654	3581
75	2151	1604	1773	2722	3789
80	2056	1720	1902	3273	4750
85	1867	1949	2335	3610	5068

**COEFFICIENTS OF UTILIZATION (%)**

RCR	80				70				50				0					
	RW	70	50	30	10	70	50	30	10	50	30	10	0	70	50	30	10	0
1	59	55	52	50	57	54	51	48	50	48	46	40	48	46	44	40	37	32
2	53	48	43	40	51	46	42	39	43	40	37	32	43	40	37	32	27	23
3	48	42	37	33	46	40	36	32	38	34	31	27	38	34	31	27	23	20
4	44	37	32	28	42	36	31	27	34	30	26	23	34	30	26	23	20	17
5	41	33	28	24	39	32	27	23	30	26	23	20	30	26	23	20	17	14
6	38	30	25	21	36	29	24	21	27	23	20	17	27	23	20	17	14	11
7	35	27	22	18	34	26	22	18	25	21	18	16	25	21	18	16	14	11
8	32	25	20	16	31	24	19	16	23	19	16	14	23	19	16	14	11	8
9	30	23	18	15	29	22	18	15	21	17	14	13	21	17	14	13	11	8
10	28	21	16	13	28	20	16	13	20	16	13	11	20	16	13	11	8	5

RCR = Room Cavity Ratio  
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

**DIMENSIONAL DATA**



**NOTE:** All dimensions are in inches; dimensions and specifications are subject to change without notice. Please consult factory or check sample for verification.  
Page 2/2 Rev. 03/16/10

WRAPS / VL





91

**MUSIC CITY CONVENTION CENTER  
LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

FIXTURE TYPE: 91

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** ZUMTOBEL

**FIXTURE CATALOG NUMBER:** FTW-2545-4-U-SM

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS: *APPROVED AS NOTED!*

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

*CONTRACTOR IS RESPONSIBLE FOR VERIFYING HEIGHTS WITH ARCHITECTURAL FINISHED CEILING & ALL SURFACE MTD AREAS PRIOR TO ORDER OF ALL STEM & CABLE LENGTHS*

**MUSIC CITY CONVENTION CENTER  
LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

**FIXTURE TYPE: 91Q**

**FIXTURE INFORMATION**

**FIXTURE MANUFACTURER:** ZUMTOBEL

**FIXTURE CATALOG NUMBER:** FTW-2545-4-U-SM

---

**CONTRACTOR'S COMMENTS:**

**ARCHITECT'S COMMENTS:**

**ENGINEER'S COMMENTS:**

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

016

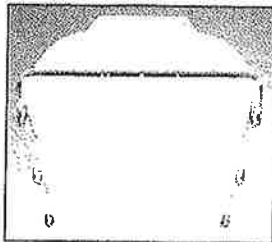
# CHIARO

Fluorescent  
Two Lamp,  
T5, T5 HO or T8

Surface-Mounted or  
Suspended Wet  
Location (IP 65)  
Diffuser Luminaire

4'

online  
Find it Fast 282



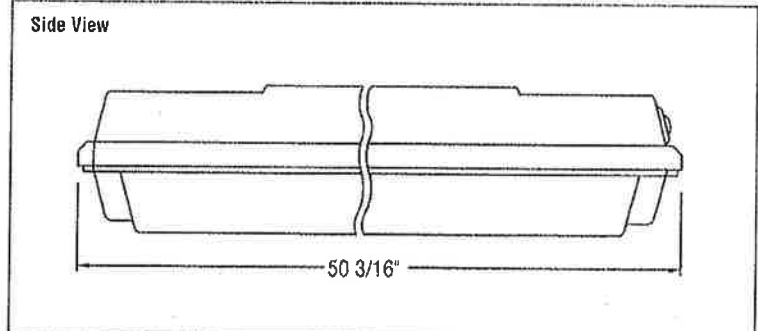
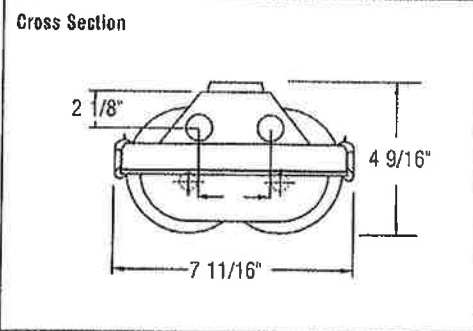
**Applications:** This durable, moisture-proof luminaire is ideal for locations where humidity and dust is constant challenge. The internal prismatic structure allows easy cleaning of the fixture while providing excellent glare control and high efficiency (79% for 32W T8). CHIARO is a good choice for bakeries, animal feed facilities, pump rooms, agricultural and industrial facilities and parking garages.

Type: 91, 91Q  
Project: \_\_\_\_\_

ORDERING NOTE: Specify lamping, mounting and options.

▼Fixture	▼Lamping	▼Length	▼Voltage	▼Mounting	▼Options
<b>FTW</b>	<b>2545</b>	<b>4</b>	<b>U</b>	<b>SM</b>	
FTW CHIARO FT, Wide	2285 (2) 28W T5 2328 (2) 32W T8 2545 (2) 54W T5 HO	4 4'	U Universal 120/277V	<b>SM</b> Surface Mounting Kit <b>SK</b> 20" Suspension Kit, includes feed cord	<b>1</b> Stand-By Battery Pack (consult factory) <b>TF</b> Transparent diffuser fasteners <b>AV</b> Tamper-proof fastener kit <b>CSO</b> Cool Spot Optimizer* (T5 / T5 HO only)

\*German registered utility patent DE 20307607 U1. Pending European patent application EP 1482534 A2. Pending Norwegian patent application NO 2004 2016.



IBEW Union Made

**4. Reflector** - Perforated white reflector allows 20% indirect component.

**5. Ballast** - Universal voltage electronic 120/277V ballast. Ambient temperature will influence performance of fluorescent lamp output. Consult factory for applications with ambient temperatures < 15°F or > 95°F. Consult factory for 347V.

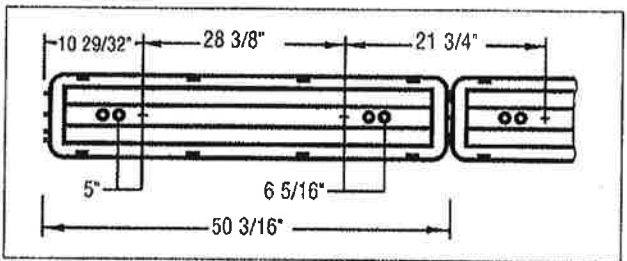
**6. Diffuser** - One piece, injection-molded impact-resistant polycarbonate, with computer-optimized, internal prismatic structure. Smooth surface for easy cleaning. V2 stainless steel diffuser fasteners included; transparent fasteners may be ordered separately.

**7. Mounting** - Surface-mount with two supplied V2A stainless steel mounting brackets. May be suspended with 20" SK Suspension Kit, ordered separately.

**1. Housing** - Transparent, high-impact resistant polycarbonate (halogen-free and self-extinguishing). Polyurethane 2-component foam gasket, wet location rating (IP 65 protection in accordance with EN 60598) is accomplished with unique sealing process.

**2. Sockets** - Lamp configurations allow for twist lock installation.

**3. Lamping** - (2) T5, T5 HO or T8 fluorescent lamps, supplied by others. Remove diffuser for access to lamps.



**8. Junction Box** - 4" octagonal junction box supplied by others. Fixtures can be through-wired.

**9. Stand-by Battery Pack** - Consult factory for availability.

**10. Cool Spot Optimizer** - Aluminum sleeve with an injection molded insert that sits into the T5 / T5 HO lamp base (one per lamp on the label side). Keeps the cold spot of the lamp insulated and close to its optimal operating temperature in cold weather.

**11. Weight** - 4.4 lbs. (4' fixture).

In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Technical specification sheets that appear on [www.zumtobel.us](http://www.zumtobel.us) are the most recent version and supersede all other versions that exist in any other printed or electronic form.

Zumtobel Lighting Inc. ©2008  
3300 Route 9W • Highland, NY 12528-2630  
[www.zumtobel.us](http://www.zumtobel.us)  
TEL (845) 691-6262 • (800) 932-0633 • FAX (845) 691-6289  
10/15/08

CHR-2

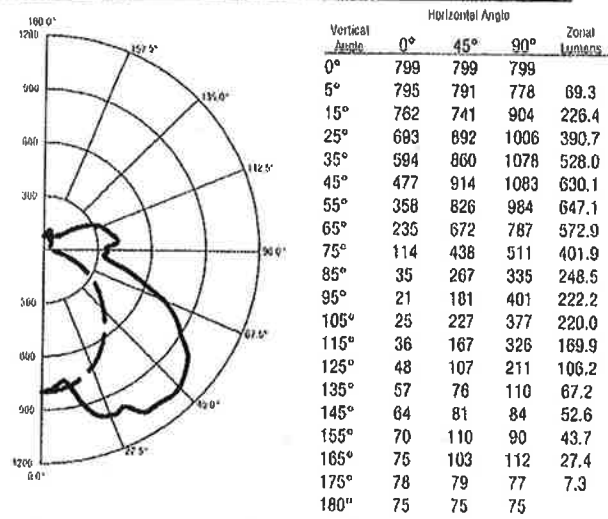


## Photometric Data

### FTW 2328 (2) 32W T8

CHIARO FT, WIDE  
 PRORATED FROM LTL 08206  
 Total Luminaire Efficiency 79%  
 20% Uplight 80% Downlight  
 Spacing Criteria  
 Lateral Plane 0° 90°  
 1.2 1.9  
 TOTAL LAMP LUMENS = 5900  
 INPUT WATTS = 60

#### Candela Distribution



#### Luminance Data in Candela / Sq. Meter

Angle in Vertical°	Average 0°	Average 45°	Average 90°
45°	2640	3768	4160
55°	2366	3704	4044
65°	2003	3417	3588
75°	1428	2665	2714
85°	885	2104	2209

#### Coefficients of Utilization

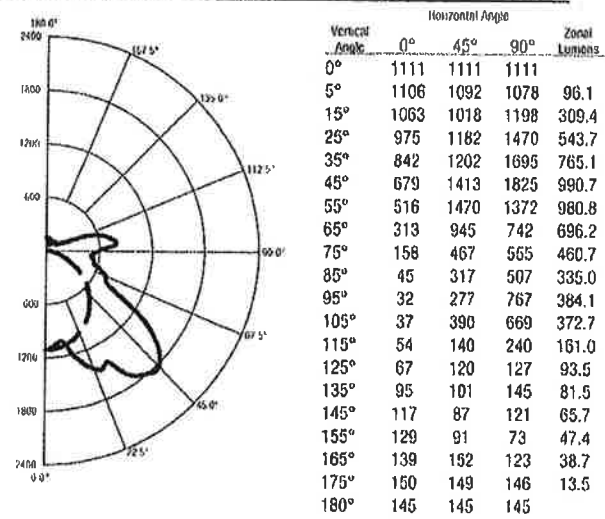
Effective Floor Cavity Reflectance = 20%

pcc	Effective Floor Cavity Reflectance = 20%														
	0.8				0.7				0.5				0.3		
h/w	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	
0	90	90	90	90	86	86	86	86	79	79	70	72	72	72	
1	80	76	72	68	76	72	69	66	66	63	61	60	58	56	
2	72	65	59	54	68	62	56	52	56	52	48	52	48	45	
3	65	56	49	43	62	53	47	42	49	44	39	45	40	37	
4	59	49	41	36	56	47	40	35	43	37	33	39	34	30	
5	54	43	36	30	51	41	34	29	38	32	27	35	30	26	
6	49	38	31	26	47	37	30	25	34	28	24	31	26	22	
7	46	34	27	22	43	33	26	22	30	25	20	28	23	19	
8	42	31	24	20	40	30	23	19	28	22	18	25	21	17	
9	39	28	22	17	37	27	21	17	25	20	16	23	19	15	

### FTW 2545 (2) 54W T5 HO

CHIARO FT, WIDE  
 LTL 08223  
 Total Luminaire Efficiency 73%  
 20% Uplight 80% Downlight  
 Spacing Criteria  
 Lateral Plane 0° 90°  
 1.2 2.1  
 TOTAL LAMP LUMENS = 8800  
 INPUT WATTS = 120

#### Candela Distribution



#### Luminance Data in Candela / Sq. Meter

Angle in Vertical°	Average 0°	Average 45°	Average 90°
45°	3757	5825	7013
55°	3410	6592	5636
65°	2668	4806	3384
75°	1981	2843	2946
85°	1131	2497	3340

#### Coefficients of Utilization

Effective Floor Cavity Reflectance = 20%

pcc	Effective Floor Cavity Reflectance = 20%														
	0.8				0.7				0.5				0.3		
h/w	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	
0	84	84	84	84	80	80	80	80	73	73	73	67	67	67	
1	75	71	67	64	71	68	65	62	62	60	57	57	55	53	
2	67	61	55	51	64	58	53	49	53	49	46	49	46	43	
3	61	53	46	41	58	51	45	40	46	41	38	42	38	35	
4	55	46	39	34	53	44	38	33	41	35	31	37	33	29	
5	51	41	34	29	48	39	33	28	36	31	28	33	28	25	
6	46	36	30	25	44	35	29	24	32	27	23	29	25	21	
7	43	33	26	21	41	31	25	21	29	23	20	27	22	19	
8	40	29	23	19	38	28	22	18	26	21	17	24	20	16	
9	37	27	21	16	35	26	20	16	24	19	15	22	18	14	

**MUSIC CITY CONVENTION CENTER**  
**LIGHTING FIXTURE SUBMITTAL**

LIGHTING FIXTURE DATA SHEET

FIXTURE TYPE: 92/92Q

**FIXTURE INFORMATION**

FIXTURE MANUFACTURE LSI

FIXTURE CATALOG NUMBER: EGW-3-54-T5HO-UE -EGWSB

VOLTAGE: UNV

LAMP MANUF:

LAMP CATALOG NUMBER:

Approved As Noted

For areas  
susceptible to cross  
winds including the  
Truck Dock, provide  
a rigid means of  
supporting the  
fixture.

CONTRACTOR'S COMMENTS:

ARCHITECT'S COMMENTS:

ENGINEER'S COMMENTS:

ITEMS REQUIRED IF SHOWN WITH FIXTURE THAT ARE NEEDED PRIOR TO BEING ABLE TO RELEASE FIXTURE TO BE MANUFACTURED.

1. CUSTOM COLOR IF REQUIRED
2. STEM OR AIRCRAFT CABLE LENGTH IF REQUIRED
3. ROW LENGTHS OR LAYOUT INFORMATION
4. CEILING TYPE

NOT SUPPLYING INFORMATION PRIOR TO RELEASE WILL STOP FIXTURES FROM BEING RELEASED AND COULD DELAY PROJECT.

# WIDE ENCLOSED & GASKETED

EGW

## PRODUCT HIGHLIGHTS

- Vaportight design
- IP 67 Certified (comparable to NEMA 6) NEMA 4X rated / NEMA 250-2003
- NSF / ANSI Standard 2
- UL50E: standards for safety enclosures of electric equipment
- 12 Point stainless steel latching and stainless hardware
- Multiple lamp cross section choices
- Sloped housing design promotes water displacement
- Optional stainless steel "V" bracket or "SB" surface bracket accessory.
- RoHS Compliant

**HOUSING** - The inner gear tray is constructed of code gauge formed steel. The outer housing is constructed of fiberglass reinforced polyester. Gasketing in the housing is constructed of closed cell polyurethane. Conduit entrance provisions are located on each end. All external hardware and hanging components are constructed of stainless steel.

**ELECTRICAL** - Solid State T8 and T5 options are both available. Ballasts and sockets are replaceable without fixture removal. All devices are UL listed.

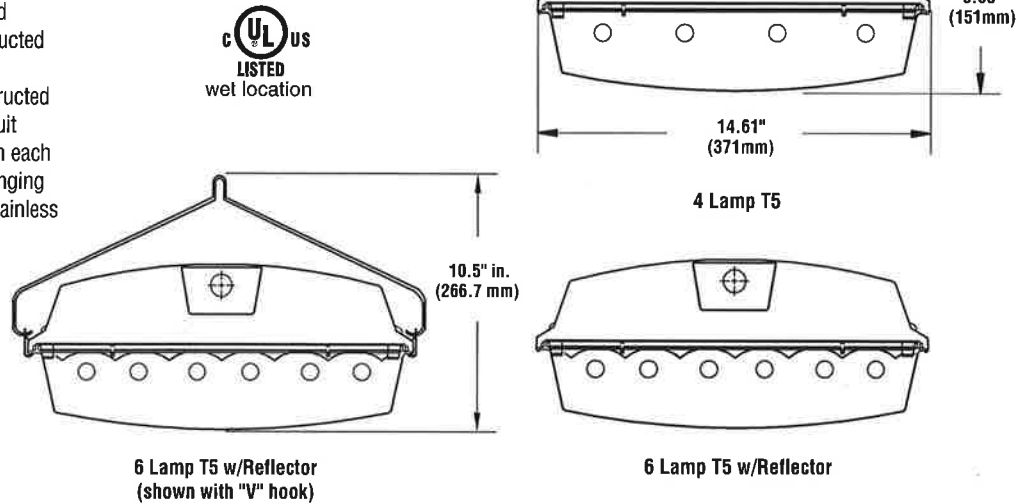
**LENS** - 100% virgin high impact acrylic is standard (ASTM D256) that has a 91.5% light transmission and long lasting clarity and a high resistance to weathering. An optional polycarbonate lens (ASTM D1003) for maximum impact & chemical resistance and temperature variation is also available.

**HIGH PERFORMANCE** - UL certified for use in 40°C ambient with up to (5) 54 watt T5HO lamps (270 watts max.).

**PHOTOMETRICS** - Please visit our web site at [www.lsi-industries.com](http://www.lsi-industries.com) for detailed photometric data.



## DIMENSIONS



## ORDERING INFORMATION

TYPICAL ORDER EXAMPLE: **EGW 6 54 SS5HO UE**

Prefix	Number of Lamps	Lamp Type	Ballasts	Options	Voltage
EGW	3 4 5 6 <sup>2</sup>	32 - 32W T8 54 - 54W T5HO	SS5HO - T5HO SSOHL - T8 High Power Factor <sup>2</sup> SSO10 - T8 <10% THD Instant Start SSOR - Program Rapid Start	MWS - Specular Reflector PC - Polycarbonate Lens W6C163 <sup>1</sup> - 6-foot, 16 gauge, 3 conductor cord with Wet Location fitting W6C164 <sup>1</sup> - 6-foot, 16 gauge, 4 conductor cord with Wet Location fitting W6C165 <sup>1</sup> - 6-foot, 16 gauge, 5 conductor cord with Wet Location fitting HUB - 3/4" N.P.T. HUB IN BACK / TOP (Damp Location Rated Only) LT - Lens Safety Teather	UE 120 277 347 480

## ACCESSORY ORDERING INFORMATION

Description	Order Number
Stainless Suspension Hangers ("V" Hook) (Pair)	EGWVB
Cable Hanging Set with Loop 10 ft. (pair)	LCH10
Cable Hanging Set with Loop 20 ft. (pair)	LCH20
Stainless Steel Surface Bracket	EGWSB

- 1- Specific voltage must be specified. Cord Feed entrance available on housing end only.
- 2- 6-lamp T8 with "SSOHL" ballast is rated only @ 25C.

Note: Contact factory for emergency ballast options

05/20/10

Project Name **MUSIC CITY**

Fixture Type **75**

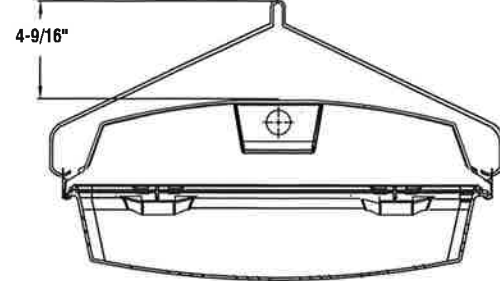
© 2010  
LSI INDUSTRIES INC.

Catalog # **EGW-3-54T5HO-UE -EGWSB**

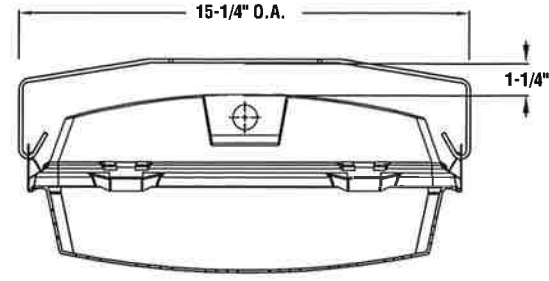


# EGW

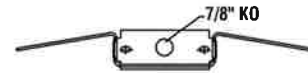
## OPTIONAL MOUNTING



Optional "V" Bracket for cable mounting:  
(Cable and brackets sold separately)

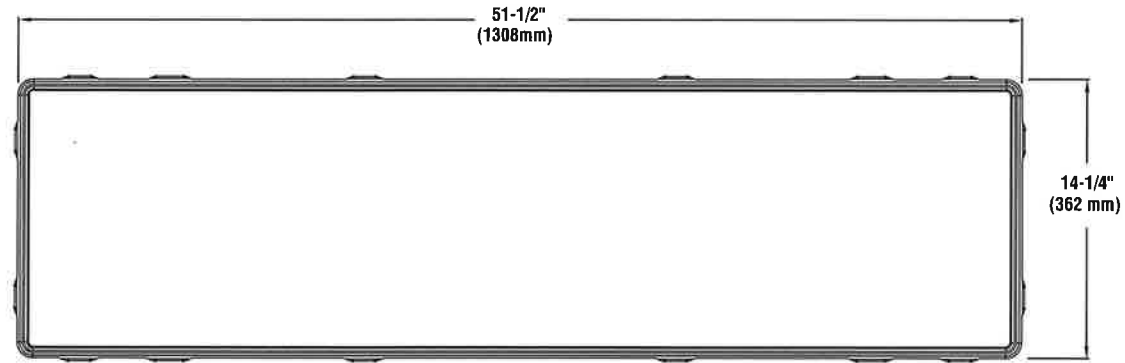


"SB" Optional surface mount bracket



"SB" (Top View)

## DIMENSIONS





## FEATURES & SPECIFICATIONS

**INTENDED USE** — Ideal for use in cold storage, food processing, manufacturing, industrial, schools, gymnasiums and exterior retail environments. Fiberglass enclosure protects fixture while remaining easy to service and clean. **Certain airborne contaminants can diminish integrity of acrylic. Click here for Acrylic Environmental Compatibility table for suitable uses.**

**CONSTRUCTION** — One-piece 5VA rated fiberglass housing with continuous poured-in-place, closed-cell gasket. Tool-less ballast and wiring access.

**OPTICS** — Injection-molded, impact-resistant clear acrylic diffuser with frosted ends and linear prisms is standard (.080" thick). UV stabilized polycarbonate diffuser option also is available (.080" thick). Stainless steel latches (12) included. Reflectors are precision-formed, high-performance, segmented optics utilizing premium specular aluminum. Provides 95% reflectivity and warranted for 25 years.

**ELECTRICAL** — Ballasts: Thermally protected, resetting, Class P, HPF, Sound Rating A+. UL listed wire, rated for required temperatures, used throughout. 90°C rated ballast standard for T5HO. T8 ballast starting temperature is -18°C (0°F) and T5HO starting temperature is -29°C (-20°F).

Lamps: 4100K lamps standard. Secured with rotary locking lampholders for ease of re-lamping and to minimize disconnection due to vibration or incidental contact.

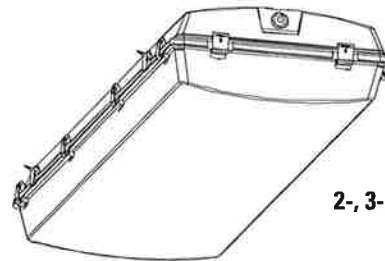
**INSTALLATION** — Surface conduit entry provisions with watertight plugs are standard. Stainless steel mounting brackets included for suspension with aircraft cable (cable not included). Optional stainless steel V-hooks available for chain hanging (chain not included).

**LISTING** — UL/C-UL listed to US and Canadian Safety Standard. NOM Certified (see Options). UL listed for 40°C ambient (except six-lamp 54T5HO, which is UL listed at 35°C ambient). Suitable for wet location. IP65, IP66 and IP67 rated and certified to meet NSF Splash Zone 2. NEMA 4X. 1500 PSI hose-down.

**WARRANTY** — Guaranteed for one year against mechanical defects in manufacturing.

Catalog Number	
<b>FHE-354L-SD-SMB</b>	
Notes	Type
FOR COMPARISON ONLY	<b>92,92Q</b>

High-Pressure Hose-Down



# FHE

Food Processing  
2-, 3-, 4- or 6-lamp, T5HO, T5 or T8

FOR COMPARISON ONLY TO  
THE LSI SUBMITTED

### Specifications

Length: 51.9" (131.8)

Width: 14.6" (37.08)

Depth: 5.95" (15.1)

Weight: 26.2 lbs. (11.88 kg)

All dimensions are inches (centimeters).

Specifications subject to change without notice.

## ORDERING INFORMATION

For shortest lead times, configure product using **standard options (shown in bold)**.

Example: FHE 454L 1/4

FHE	2	54	C	277	1	SMB
Series	Lamp type <sup>1</sup>	Distribution	Voltage	Ballast	Lamps installed <sup>4</sup>	
<b>FHE 15"x4'</b>	<b>T5HO lamps</b>	<u>White ballast cover</u> (blank) <b>General distribution</b>	(blank) <b>MVOLT:</b> <b>120V-277V</b>	<b>T5/T5HO</b> (blank) <b>1.0 BF, PRS</b>	(blank) <b>85 CRI, 841</b>	
	254L 2-lamp, 54W	<u>Specular reflector</u> <b>ND Narrow distribution</b>	<b>HVOLT 347V-480V<sup>2</sup></b>	<b>T8</b> (blank) <b>1.18 BF, IS</b>	LP830 85 CRI, 830	
	354L 3-lamp, 54W	<b>SD Spread distribution</b>		GEB10IS .88 BF, IS	LP835 85 CRI, 835	
	<b>454L 4-lamp, 54W</b>			GEB10ISL .76 BF, IS	LP850 85 CRI, 850	
	<b>654L 6-lamp, 54W</b>			GEB10PS .88 BF, PRS		
	<b>T5 lamps</b>					
	228T5L 2-lamp, 28W					
	328T5L 3-lamp, 28W					
	428T5L 4-lamp, 28W					
	628T5L 6-lamp, 28W					
	<b>T8 lamps</b>					
	232L 2-lamp, 32W					
	332L 3-lamp, 32W					
	<b>432L 4-Lamp, 32W</b>					
	<b>632L 6-Lamp, 32W</b>					
		<b>Shielding</b>	<b>Ballast configuration</b>	<b>Options<sup>5</sup></b>		
		(blank) <b>Clear acrylic</b>	(blank) <b>All two-lamp ballasts</b>	CX 6' white cord, 18/3, no plug		
		PCL Clear polycarbonate <sup>2</sup>	1/3 One, three-lamp ballast <sup>3</sup>	CXL12 12' white cord, 18/3, no plug		
			<b>1/4 One, four-lamp ballast<sup>3</sup></b>	EL14DW Emergency lighting (1400 lumens) <sup>6,7</sup>		
			2/3 Two, three-lamp ballasts <sup>3</sup>	LP600 Low-profile emergency ballast <sup>7</sup>		
			<b>1/41/2 One, four-lamp and one, two-lamp ballasts<sup>3</sup></b>	PMP Pendant monopoint (pre-drilled housing with wet location fitting installed.)		
				RMK Rigid mount kit, 18-gauge stainless steel		
				SMB Surface mounting bracket		
				WLF Wet location fitting (two pre-installed, 40" off centers)		
				<b>MHKB Stainless steel V-hook and brackets</b>		
				MSI Wet location occupancy sensor pre-wired <sup>8,9</sup>		
				TRS Tamper-resistant screws <sup>10</sup>		
				NOM Meets Mexican standards		

### NOTES:

- To order fixtures WITHOUT lamps, remove the "L" from the description (EX: FHE 454).
- Recommended for school and gymnasium applications.
- Not available with 28T5.
- Alternate lamp color need only be specified if pre-installed lamps are provided.
- For additional options consult factory.
- Must specify voltage.
- 900 lumens for T5HO. UL listed for 55°C. Output in emergency mode varies with ambient temperature (approx. 944 lumens at 25°C and 911 lumens at 45°C. Single-lamp operation only. Not available with HVOLT.
- For mounting up to 20', specify MSI20; for mounting up to 40', specify MSI40.
- GEB10PS recommended.
- Stainless steel Torx® T10 screws with center reject pin.

### Accessories

Order as a separate catalog number.

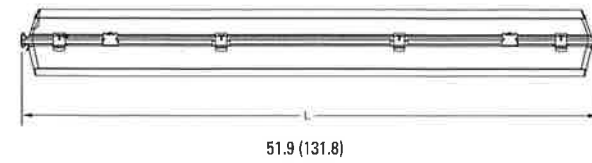
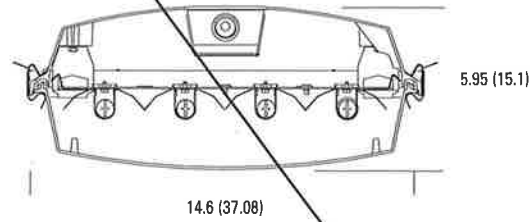
MHKB	Stainless steel V-hook and brackets
RK1 T10DRV	Torx® T10 screwdriver for TRS option
FHEACT20	Aircraft toggle 10'
FHEACT120	Aircraft toggle cable 10', unit pack
FHEACT120 J5	Aircraft toggle 10', job pack of five
FHEACT120 J25	Aircraft toggle 10', job pack of 25



# FHE Fluorescent High-Pressure Hose-Down, T5, T5HO and T8

## DIMENSIONS

Dimensions in inches (centimeters). Subject to change without notice.



## PHOTOMETRICS

Consult factory for photometric information.

TEST NO: ABA200972  
LUMINAIRE CATALOG NO.: FHE 654L ND  
LUMENS PER LAMP: 4450

pc	Coefficients of Utilization								
	80%			70%			50%		
	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	77	77	77	75	75	75	71	71	71
1	67	64	61	65	62	60	62	59	57
2	58	53	49	57	52	49	54	50	47
3	51	45	41	50	45	41	47	43	40
4	45	39	35	44	39	35	42	38	34
5	41	35	30	40	34	30	38	33	29
6	37	31	26	36	30	26	34	29	26
7	33	28	23	33	27	23	31	27	23
8	30	25	21	30	25	21	29	24	21
9	28	23	19	27	22	19	27	22	19
10	26	21	17	25	21	17	25	20	17

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	4789.4	17.9	27.4
0° - 40°	7621.2	28.5	43.5
0° - 60°	12733.3	47.7	72.7
0° - 90°	16817.2	63.0	96.0
90° - 180°	691.9	2.6	4.0
0° - 180°	17509.1	65.6	100.0

TEST NO: ABA200975  
LUMINAIRE CATALOG NO.: FHE 454L ND  
LUMENS PER LAMP: 4450

pc	Coefficients of Utilization								
	80%			70%			50%		
	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	93	93	93	90	90	90	86	86	86
1	80	77	74	78	75	73	75	72	70
2	71	65	61	69	64	60	66	62	58
3	62	56	51	61	55	51	58	54	49
4	56	49	44	55	48	43	52	47	43
5	50	43	38	49	43	38	47	42	37
6	45	39	34	45	38	34	43	37	33
7	41	35	30	41	34	30	39	34	30
8	38	32	27	37	31	27	36	31	27
9	35	29	25	35	29	25	34	28	24
10	33	26	22	32	26	22	31	26	22

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	370.5	24.6	31.4
0° - 40°	6760.0	38.0	48.6
0° - 60°	10724.0	60.2	77.1
0° - 90°	13579.1	76.3	97.6
90° - 180°	338.7	1.9	2.4
0° - 180°	13918.1	78.2	100.0

TEST NO: ABA200978  
LUMINAIRE CATALOG NO.: FHE 632L ND  
LUMENS PER LAMP: 2950

pc	Coefficients of Utilization								
	80%			70%			50%		
	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	90	90	90	88	88	88	83	83	83
1	78	74	71	76	73	70	72	69	67
2	68	62	57	66	61	57	63	58	55
3	59	53	48	58	52	47	55	50	46
4	52	45	40	51	45	40	49	43	39
5	47	40	34	46	39	34	44	38	33
6	42	35	30	41	34	30	39	34	29
7	38	31	26	37	31	26	36	30	26
8	35	28	24	34	28	23	33	27	23
9	32	25	21	31	25	21	30	25	21
10	29	23	19	29	23	19	28	23	19

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	3399.9	19.2	25.1
0° - 40°	5527.2	31.2	40.8
0° - 60°	9669.8	55.8	72.9
0° - 90°	13023.2	73.6	96.2
90° - 180°	508.1	2.9	3.8
0° - 180°	13531.3	76.4	100.0

TEST NO: ABA200981  
LUMINAIRE CATALOG NO.: FHE 432L ND  
LUMENS PER LAMP: 2950

pc	Coefficients of Utilization								
	80%			70%			50%		
	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	104	104	104	101	101	101	96	96	96
1	90	86	82	88	84	81	83	80	78
2	78	72	67	76	71	66	73	68	64
3	69	62	56	67	61	55	64	59	54
4	61	54	48	60	53	47	57	51	46
5	55	47	41	54	46	41	52	45	40
6	50	42	36	49	41	36	47	40	35
7	45	37	32	44	37	32	43	36	31
8	41	34	29	41	34	29	39	33	28
9	38	31	26	37	31	26	36	30	26
10	35	28	24	35	28	24	33	27	23

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	2914.9	24.7	28.2
0° - 40°	4642.9	39.3	44.8
0° - 60°	7769.6	65.8	75.1
0° - 90°	10026.8	85.0	96.9
90° - 180°	325.4	2.8	3.1
0° - 180°	10352.3	87.7	100.0



An Acuity Brands Company