



LUMINAIRE TESTING LABORATORY, INC.



SUSTAINING
MEMBER

905 Harrison Street · Allentown, PA 18103 · (610) 770-1044 · Fax (610) 770-8912 · www.LuminaireTesting.com

LTL NUMBER: 08047

DATE: 03-30-2004

PREPARED FOR: ALM ARCHITECTURAL LIGHTING

CATALOG NUMBER: ZB-24G-254-HO-T5-ELB-UNI-P

LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE ENAMEL STEEL REFLECTOR,
FORMED WHITE ENAMEL PERFORATED ALUMINUM SHIELDS WITH
TRANSLUCENT WHITE ACRYLIC INSERTS SURROUNDING LAMPS.

LAMPS: TWO 54 WATT HIGH OUTPUT T5 LINEAR FLUORESCENT LAMPS RATED AT
4400 LUMENS EACH.

LAMP CATALOG NUMBER: SYLVANIA FP54/841/HO

BALLAST: ONE ADVANCE ICN-2S54

MOUNTING: RECESSED

LUMEN TO CANDELA RATIO USED = 9.18

TOTAL INPUT WATTS = 113.3 AT 120.0 VOLTS

THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

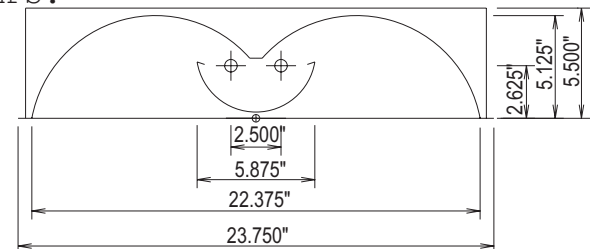
#08047

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0	1879	1879	1879	1879	1879
5	1874	1869	1879	1876	1876
15	1799	1808	1827	1847	1855
25	1663	1686	1740	1781	1796
35	1465	1507	1598	1676	1704
45	1209	1284	1415	1512	1552
55	916	1021	1185	1313	1365
65	605	725	917	1033	1059
75	314	421	497	484	503
85	74	83	96	104	109
90	0	0	0	0	0

FLUX

179
518
800
996
1081
1042
864
481
112



ZONAL LUMEN SUMMARY

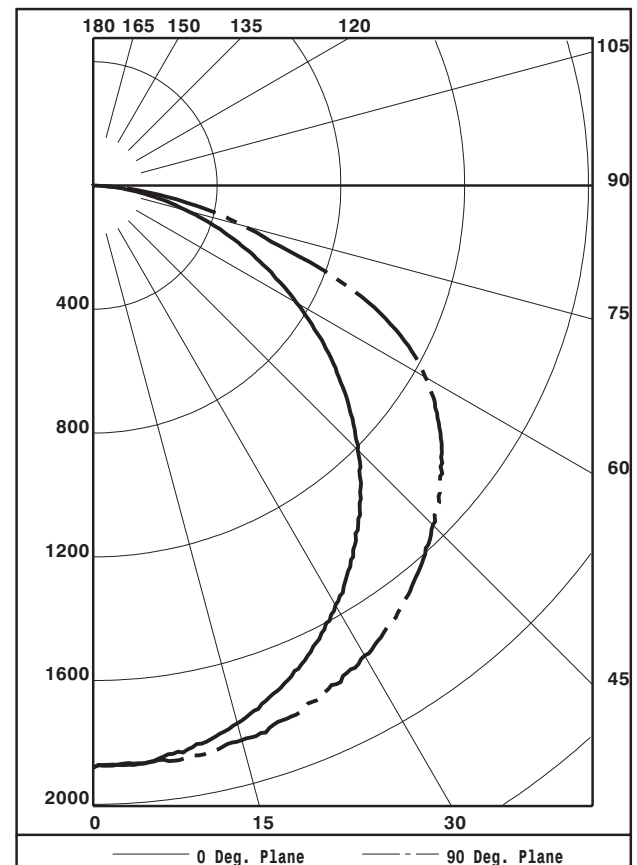
ZONE	LUMENS	%LAMP	%FIXT
0- 30	1496	17.0	24.6
0- 40	2491	28.3	41.0
0- 60	4615	52.4	76.0
0- 90	6071	69.0	100.0
90-180	0	0.0	0.0
0-180	6071	69.0	100.0

TOTAL LUMINAIRE EFFICIENCY: 69.0%
TOTAL REFLECTANCE OF PAINT: 90.0%

CIE TYPE: DIRECT
PLANE: 0-DEG 90-DEG
SPACING CRITERIA: 1.2 1.4
LUMINOUS LENGTH: 47.000 22.375

LUMINANCE IN CANDELA PER SQUARE METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
0	2769.	2769.	2769.
45	2520.	2949.	3235.
55	2354.	3045.	3507.
65	2110.	3198.	3693.
75	1788.	2830.	2864.
85	1251.	1623.	1843.



TESTED BY HERSCHEL SCHRECK
CHECKED BY MIKE GRATHER

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IESNA PROCEDURES.



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
0	82	82	82	82	80	80	80	80	77	77	77	73	73	73	70	70	70	69	69	69	69
1	75	72	69	67	73	71	68	66	68	65	64	65	63	62	62	61	60	58	58	58	58
2	69	63	58	54	67	62	57	54	59	56	53	57	54	51	55	52	50	49	49	49	49
3	63	55	50	45	61	54	49	45	52	48	44	50	47	44	49	45	43	41	41	41	41
4	57	49	43	38	56	48	42	38	46	41	38	45	40	37	43	40	37	35	35	35	35
5	52	43	37	32	51	42	36	32	41	36	32	39	35	31	38	34	31	29	29	29	29
6	48	38	32	28	46	38	32	27	36	31	27	35	30	27	34	30	27	25	25	25	25
7	44	34	28	24	43	34	28	24	33	27	23	32	27	23	31	26	23	22	22	22	22
8	40	31	25	20	39	30	24	20	29	24	20	28	24	20	28	23	20	19	19	19	19
9	37	27	22	18	36	27	21	17	26	21	17	25	21	17	25	20	17	16	16	16	16
10	34	25	19	15	34	25	19	15	24	19	15	23	18	15	23	18	15	14	14	14	14

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0	1879	1879	1879	1879	1879
5	1874	1869	1879	1876	1876
10	1843	1848	1862	1865	1870
15	1799	1808	1827	1847	1855
20	1738	1752	1787	1821	1833
25	1663	1686	1740	1781	1796
30	1565	1601	1672	1733	1754
35	1465	1507	1598	1676	1704
40	1339	1403	1513	1599	1633
45	1209	1284	1415	1512	1552
50	1070	1157	1306	1421	1463
55	916	1021	1185	1313	1365
60	757	872	1053	1195	1240
65	605	725	917	1033	1059
70	456	573	746	787	778
75	314	421	497	484	503
80	185	257	261	286	288
85	74	83	96	104	109
90	0	0	0	0	0

ZONAL LUMEN SUMMARY

0- 5	45.
5- 10	134.
10- 15	219.
15- 20	299.
20- 25	369.
25- 30	431.
30- 35	480.
35- 40	516.
40- 45	537.
45- 50	544.
50- 55	533.
55- 60	509.
60- 65	466.
65- 70	398.
70- 75	293.
75- 80	187.
80- 85	93.
85- 90	20.

THIS TEST WAS CONDUCTED USING RELATIVE PHOTOMETRY TECHNIQUES ACCORDING TO STANDARD IESNA PROCEDURES. THE USER MUST THEREFORE USE CAUTION IN THE FOLLOWING SITUATIONS: 1) THIS TEST WAS PERFORMED USING A SPECIFIC BALLAST/LAMP COMBINATION. EXTRAPOLATION OF THESE DATA FOR OTHER BALLAST/LAMP COMBINATIONS MAY PRODUCE ERRONEOUS RESULTS. 2) ACCORDING TO IESNA PROCEDURES, THE BALLAST(S) AND LAMP(S) ARE PRESUMED TO PRODUCE 100% OF RATED OUTPUT. AN APPROPRIATE BALLAST FACTOR MUST BE APPLIED TO THE LUMEN OUTPUT RATINGS AND LUMINOUS INTENSITY VALUES GIVEN. 3) THIS TEST WAS CONDUCTED IN A CONTROLLED LABORATORY ENVIRONMENT WHERE THE AMBIENT TEMPERATURE WAS HELD AT 25 C ± 1 C. FIELD PERFORMANCE MAY DIFFER PARTICULARLY IN REGARDS TO CHANGE IN LUMINOUS OUTPUT AS A RESULT OF DIFFERENCE IN AMBIENT TEMPERATURE AND METHOD OF MOUNTING THE LUMINAIRE.



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VISUAL COMFORT PROBABILITY TABLE

RATED LUMENS PER LAMP 4400.

100. FC. ROOM		REFLECTANCES 80/50/20 LUMINAIRES 0 DEG PLANE				LUMINAIRES 90 DEG PLANE			
W	L	8.5	10.0	13.0	16.0	8.5	10.0	13.0	16.0
20	20	56	64	76	87	49	55	69	83
20	30	51	56	64	75	44	48	53	66
20	40	50	53	59	66	43	44	48	54
20	60	49	52	55	61	41	43	44	49
30	20	56	62	72	83	51	56	67	81
30	30	51	54	60	71	46	48	52	63
30	40	49	51	55	62	44	45	46	52
30	60	48	50	51	56	42	43	43	46
30	80	49	50	50	54	43	43	42	44
40	20	58	62	71	81	54	59	68	80
40	30	52	54	59	68	48	50	53	63
40	40	50	51	53	59	46	46	47	51
40	60	49	50	49	54	44	44	43	46
40	80	50	50	48	52	44	44	41	44
40	100	51	50	48	51	45	44	41	43
60	30	54	56	59	66	50	52	54	63
60	40	51	52	53	58	48	48	48	52
60	60	50	50	49	52	46	45	43	46
60	80	50	50	47	50	45	45	42	43
60	100	51	50	47	49	46	45	41	42
100	40	55	55	55	59	53	53	51	55
100	60	54	53	50	53	50	50	46	49
100	80	53	52	49	50	49	48	45	45
100	100	54	52	48	49	49	48	44	43

THIS TABLE WAS CALCULATED ACCORDING TO IESNA LM-42-72. THE VCP CALCULATION PROCEDURE IS MOST ACCURATE FOR LUMINAIRES THAT EXHIBIT THE FOLLOWING CHARACTERISTICS. 1). LUMINAIRE IS RELATIVELY CONSISTANT IN LUMINANCE 2). LUMINAIRE HAS WELL-DEFINED LUMINOUS EDGES AND 3). LUMINAIRE UTILIZES FLUORESCENT LAMPS. CAUTION SHOULD BE USED WHEN APPLYING VCP VALUES BASED ON LUMINAIRES THAT DO NOT CONFORM TO THE ABOVE CONDITIONS.