



# LUMINAIRE TESTING LABORATORY, INC.

SUSTAINING  
MEMBER  
of the  
IESNA

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

LTL NUMBER: 21377

DATE: 11-02-2010

PREPARED FOR: RENOVA LIGHTING

CATALOG NUMBER: ECS-WVT4-WN-454-UNV-22H-CAL

LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED WHITE PAINTED ALUMINUM REFLECTOR, CLEAR ACRYLIC ENCLOSURE WITH CLEAR LINEAR PRISMATIC SIDES AND FROSTED ENDS.

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

LAMP CATALOG NUMBER: PHILIPS F54T5/841/HO/ALTO

BALLAST: TWO SYLVANIA "QUICKTRONIC" QHE2X54T5HO/UNV-PSN-HT

MOUNTING: PENDANT

ELECTRICAL VALUES: 120.0VAC, 1.726A, 206.5W

### Candela Distribution

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	
5	3765	3754	3757	3753	3752	3753	3757	3754	3765	3754	3757	3753	3752	3753	3757	3754	356.7
15	3637	3624	3629	3616	3614	3616	3629	3624	3637	3624	3629	3616	3614	3616	3629	3624	1023.1
25	3387	3372	3380	3402	3420	3402	3380	3372	3387	3372	3380	3402	3420	3402	3380	3372	1564.1
35	3020	2993	3064	3191	3219	3191	3064	2993	3020	2993	3064	3191	3219	3191	3064	2993	1934.0
45	2544	2530	2685	2755	2808	2755	2685	2530	2544	2530	2685	2755	2808	2755	2685	2530	2057.0
55	1966	1955	2153	2479	2610	2479	2153	1955	1966	1955	2153	2479	2610	2479	2153	1955	1984.9
65	1307	1344	1772	2083	2196	2083	1772	1344	1307	1344	1772	2083	2196	2083	1772	1344	1716.5
75	622	753	1229	1437	1569	1437	1229	753	622	753	1229	1437	1569	1437	1229	753	1209.4
85	129	363	692	1024	1141	1024	692	363	129	363	692	1024	1141	1024	692	363	762.5
90	56	278	671	840	873	840	671	278	56	278	671	840	873	840	671	278	
95	55	220	358	463	505	463	358	220	55	220	358	463	505	463	358	220	399.6
105	63	92	188	304	348	304	188	92	63	92	188	304	348	304	188	92	209.4
115	32	72	127	129	134	129	127	72	32	72	127	129	134	129	127	72	106.6
125	14	27	106	130	140	130	106	27	14	27	106	130	140	130	106	27	75.5
135	8	9	41	53	63	53	41	9	8	9	41	53	63	53	41	9	30.2
145	4	5	11	30	37	30	11	5	4	5	11	30	37	30	11	5	10.9
155	3	4	5	7	9	7	5	4	3	4	5	7	9	7	5	4	2.8
165	3	4	4	5	5	5	4	4	3	4	4	5	5	5	4	4	1.2
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

### Zonal Lumen Summary

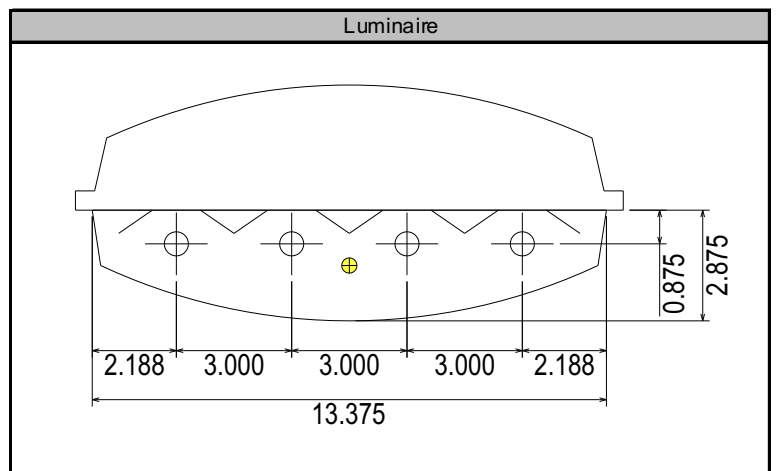
Zone	Lumens	% of Lamp	% of Luminaire
0-30	2943.9	16.7%	21.9%
0-40	4877.9	27.7%	36.3%
0-60	8919.8	50.7%	66.3%
0-90	12608.2	71.6%	93.8%
90-180	836.3	4.8%	6.2%
0-180	13444.5	76.4%	100.0%

Total luminaire efficiency: 76.4%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.27    90 deg: 1.33  
180 deg: 1.27    270 deg: 1.33

Total reflectance of paint: 91.9



Approved By: MG

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



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Candela Tabulation (5 degree Vertical Increments)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765	3765
5	3765	3754	3757	3753	3752	3753	3757	3754	3765	3754	3757	3753	3752	3753	3757	3754
10	3717	3706	3708	3702	3700	3702	3708	3706	3717	3706	3708	3702	3700	3702	3708	3706
15	3637	3624	3629	3616	3614	3616	3629	3624	3637	3624	3629	3616	3614	3616	3629	3624
20	3525	3514	3507	3518	3525	3518	3507	3514	3525	3514	3507	3518	3525	3518	3507	3514
25	3387	3372	3380	3402	3420	3402	3380	3372	3387	3372	3380	3402	3420	3402	3380	3372
30	3217	3198	3228	3304	3349	3304	3228	3198	3217	3198	3228	3304	3349	3304	3228	3198
35	3020	2993	3064	3191	3219	3191	3064	2993	3020	2993	3064	3191	3219	3191	3064	2993
40	2794	2775	2908	2990	3001	2990	2908	2775	2794	2775	2908	2990	3001	2990	2908	2775
45	2544	2530	2685	2755	2808	2755	2685	2530	2544	2530	2685	2755	2808	2755	2685	2530
50	2268	2251	2425	2583	2698	2583	2425	2251	2268	2251	2425	2583	2698	2583	2425	2251
55	1966	1955	2153	2479	2610	2479	2153	1955	1966	1955	2153	2479	2610	2479	2153	1955
60	1640	1652	1948	2327	2421	2327	1948	1652	1640	1652	1948	2327	2421	2327	1948	1652
65	1307	1344	1772	2083	2196	2083	1772	1344	1307	1344	1772	2083	2196	2083	1772	1344
70	959	1006	1522	1850	1913	1850	1522	1006	959	1006	1522	1850	1913	1850	1522	1006
75	622	753	1229	1437	1569	1437	1229	753	622	753	1229	1437	1569	1437	1229	753
80	324	545	920	1242	1324	1242	920	545	324	545	920	1242	1324	1242	920	545
85	129	363	692	1024	1141	1024	692	363	129	363	692	1024	1141	1024	692	363
90	56	278	671	840	873	840	671	278	56	278	671	840	873	840	671	278
95	55	220	358	463	505	463	358	220	55	220	358	463	505	463	358	220
100	71	137	276	393	437	393	276	137	71	137	276	393	437	393	276	137
105	63	92	188	304	348	304	188	92	63	92	188	304	348	304	188	92
110	47	82	114	185	223	185	114	82	47	82	114	185	223	185	114	82
115	32	72	127	129	134	129	127	72	32	72	127	129	134	129	127	72
120	22	45	120	149	154	149	120	45	22	45	120	149	154	149	120	45
125	14	27	106	130	140	130	106	27	14	27	106	130	140	130	106	27
130	10	16	50	114	132	114	50	16	10	16	50	114	132	114	50	16
135	8	9	41	53	63	53	41	9	8	9	41	53	63	53	41	9
140	6	7	25	46	49	46	25	7	6	7	25	46	49	46	25	7
145	4	5	11	30	37	30	11	5	4	5	11	30	37	30	11	5
150	3	4	5	14	18	14	5	4	3	4	5	14	18	14	5	4
155	3	4	5	7	9	7	5	4	3	4	5	7	9	7	5	4
160	3	4	5	5	6	5	5	4	3	4	5	5	6	5	5	4
165	3	4	4	5	5	5	4	4	3	4	4	5	5	5	4	4
170	3	3	4	5	5	5	4	3	3	3	4	5	5	5	4	3
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	89.9	45-50	1028.7	90-95	239.0	135-140	11.0
5-10	266.8	50-55	1011.6	95-100	160.6	140-145	7.3
10-15	434.8	55-60	973.3	100-105	124.7	145-150	3.6
15-20	588.3	60-65	906.0	105-110	84.7	150-155	1.7
20-25	724.1	65-70	810.4	110-115	56.2	155-160	1.0
25-30	840.1	70-75	669.5	115-120	50.4	160-165	0.7
30-35	934.9	75-80	539.8	120-125	43.3	165-170	0.5
35-40	999.1	80-85	413.4	125-130	32.2	170-175	0.2
40-45	1028.3	85-90	349.1	130-135	19.1	175-180	0.0



Coefficients of Utilization - Zonal Cavity Method												
Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	0.926	0.926	0.926	0.926	0.898	0.898	0.898	0.898	0.872	0.872	0.872	0.872
1	0.832	0.784	0.742	0.704	0.804	0.761	0.722	0.687	0.777	0.738	0.703	0.672
2	0.752	0.674	0.611	0.558	0.725	0.654	0.596	0.547	0.699	0.636	0.582	0.537
3	0.682	0.586	0.513	0.455	0.657	0.57	0.502	0.448	0.633	0.554	0.491	0.441
4	0.623	0.516	0.439	0.381	0.599	0.501	0.43	0.375	0.577	0.488	0.421	0.37
5	0.571	0.458	0.381	0.324	0.55	0.446	0.374	0.32	0.53	0.434	0.367	0.316
6	0.526	0.41	0.334	0.281	0.506	0.4	0.329	0.277	0.488	0.39	0.323	0.274
7	0.486	0.37	0.297	0.246	0.469	0.362	0.292	0.243	0.452	0.353	0.287	0.241
8	0.452	0.337	0.266	0.218	0.436	0.329	0.262	0.216	0.421	0.322	0.258	0.214
9	0.421	0.308	0.24	0.195	0.407	0.301	0.237	0.193	0.393	0.295	0.234	0.192
10	0.394	0.284	0.219	0.176	0.381	0.278	0.216	0.175	0.369	0.272	0.213	0.173

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.822	0.822	0.822	0.822	0.777	0.777	0.777	0.736	0.736	0.736	0.716
1	0.728	0.697	0.668	0.641	0.658	0.635	0.613	0.623	0.604	0.587	0.566
2	0.652	0.6	0.555	0.517	0.567	0.53	0.498	0.537	0.507	0.48	0.459
3	0.589	0.523	0.47	0.427	0.495	0.451	0.413	0.47	0.432	0.4	0.38
4	0.537	0.462	0.405	0.359	0.438	0.389	0.349	0.416	0.374	0.339	0.32
5	0.493	0.412	0.353	0.308	0.392	0.34	0.3	0.373	0.328	0.293	0.274
6	0.455	0.371	0.312	0.268	0.353	0.301	0.262	0.337	0.291	0.255	0.238
7	0.422	0.337	0.278	0.236	0.321	0.269	0.231	0.307	0.261	0.226	0.209
8	0.393	0.307	0.25	0.21	0.294	0.243	0.205	0.282	0.236	0.201	0.186
9	0.368	0.283	0.227	0.188	0.271	0.221	0.185	0.26	0.214	0.181	0.166
10	0.346	0.261	0.207	0.17	0.251	0.202	0.167	0.241	0.196	0.164	0.15

Average Luminance Table (cd/m<sup>2</sup>)

	0	45	90
0	8766	8766	8766
45	7957	7618	7793
55	7411	7025	8277
65	6440	7058	8423
75	4639	6538	7924
85	2113	5824	8824

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.

