



# 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: 16727 DATE: 09-25-2009  
 PREPARED FOR: RENOVA LIGHTING SYSTEMS  
 CATALOG NUMBER: ECS-NPW4-WN-132-UNV-11L  
 LUMINAIRE: FORMED WHITE ENAMEL STEEL HOUSING, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, CLEAR PRISMATIC PLASTIC LENS WITH LINEAR PRISMATIC SIDES.  
 LAMP: ONE 32 WATT T8 LINEAR FLUORESCENT LAMP RATED AT 2850 LUMENS.  
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO  
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE1X32T8/UNV-ISL-SC  
 MOUNTING: SURFACE  
 ELECTRICAL VALUES: 120.0VAC, 0.2131A, 25.51W

### 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	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	
5	749	749	753	751	753	751	753	749	749	749	753	751	753	751	753	749	71.6
15	726	729	743	751	756	751	743	729	726	729	743	751	756	751	743	729	209.7
25	678	688	723	744	754	744	723	688	678	688	723	744	754	744	723	688	331.3
35	604	627	680	723	738	723	680	627	604	627	680	723	738	723	680	627	422.9
45	502	537	607	644	655	644	607	537	502	537	607	644	655	644	607	537	452.7
55	320	368	440	446	437	446	440	368	320	368	440	446	437	446	440	368	366.9
65	160	218	281	293	293	293	281	218	160	218	281	293	293	293	281	218	254.4
75	89	117	164	213	235	213	164	117	89	117	164	213	235	213	164	117	174.1
85	31	50	91	144	168	144	91	50	31	50	91	144	168	144	91	50	104.2
90	1	22	63	102	118	102	63	22	1	22	63	102	118	102	63	22	
95	0	18	49	80	94	80	49	18	0	18	49	80	94	80	49	18	53.4
105	2	12	34	52	59	52	34	12	2	12	34	52	59	52	34	12	34.1
115	3	5	23	34	39	34	23	5	3	5	23	34	39	34	23	5	21.1
125	4	4	15	26	30	26	15	4	4	4	15	26	30	26	15	4	14.0
135	5	5	7	16	20	16	7	5	5	5	7	16	20	16	7	5	7.8
145	5	5	7	7	9	7	7	5	5	5	7	7	9	7	7	5	4.2
155	5	5	5	8	8	8	5	5	5	5	5	8	8	8	5	5	2.8
165	5	5	6	5	5	5	6	5	5	5	6	5	5	5	6	5	1.5
175	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0.5
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	

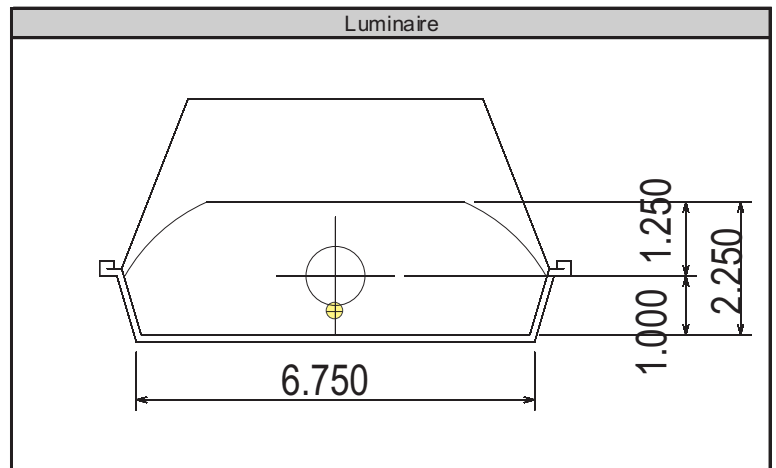
### Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	612.6	21.5%	24.2%
0-40	1035.5	36.3%	41.0%
0-60	1855.1	65.1%	73.4%
0-90	2387.7	83.8%	94.5%
90-180	139.4	4.9%	5.5%
0-180	2527.1	88.7%	100.0%

Total luminaire efficiency: 88.7%

CIE Type: Direct  
 Spacing Criterion: 0 deg: 1.27 90 deg: 1.49  
 180 deg: 1.27 270 deg: 1.49

Total reflectance of paint: 91.3



Approved By: \_\_\_\_\_

**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	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753	753
5	749	749	753	751	753	751	753	749	749	749	753	751	753	751	753	749
10	741	742	749	750	753	750	749	742	741	742	749	750	753	750	749	742
15	726	729	743	751	756	751	743	729	726	729	743	751	756	751	743	729
20	705	712	734	750	759	750	734	712	705	712	734	750	759	750	734	712
25	678	688	723	744	754	744	723	688	678	688	723	744	754	744	723	688
30	644	661	704	734	748	734	704	661	644	661	704	734	748	734	704	661
35	604	627	680	723	738	723	680	627	604	627	680	723	738	723	680	627
40	558	588	653	698	713	698	653	588	558	588	653	698	713	698	653	588
45	502	537	607	644	655	644	607	537	502	537	607	644	655	644	607	537
50	427	462	530	554	554	554	530	462	427	462	530	554	554	554	530	462
55	320	368	440	446	437	446	440	368	320	368	440	446	437	446	440	368
60	220	286	358	358	350	358	358	286	220	286	358	358	350	358	358	286
65	160	218	281	293	293	293	281	218	160	218	281	293	293	293	281	218
70	120	161	215	245	256	245	215	161	120	161	215	245	256	245	215	161
75	89	117	164	213	235	213	164	117	89	117	164	213	235	213	164	117
80	62	80	124	180	212	180	124	80	62	80	124	180	212	180	124	80
85	31	50	91	144	168	144	91	50	31	50	91	144	168	144	91	50
90	1	22	63	102	118	102	63	22	1	22	63	102	118	102	63	22
95	0	18	49	80	94	80	49	18	0	18	49	80	94	80	49	18
100	1	15	40	62	72	62	40	15	1	15	40	62	72	62	40	15
105	2	12	34	52	59	52	34	12	2	12	34	52	59	52	34	12
110	3	8	27	43	49	43	27	8	3	8	27	43	49	43	27	8
115	3	5	23	34	39	34	23	5	3	5	23	34	39	34	23	5
120	3	3	19	29	33	29	19	3	3	3	19	29	33	29	19	3
125	4	4	15	26	30	26	15	4	4	4	15	26	30	26	15	4
130	5	5	10	22	26	22	10	5	5	5	10	22	26	22	10	5
135	5	5	7	16	20	16	7	5	5	5	7	16	20	16	7	5
140	5	4	7	9	13	9	7	4	5	4	7	9	13	9	7	4
145	5	5	7	7	9	7	7	5	5	5	7	7	9	7	7	5
150	5	5	7	8	8	8	7	5	5	5	7	8	8	8	7	5
155	5	5	5	8	8	8	5	5	5	5	5	8	8	8	5	5
160	5	5	5	5	6	5	5	5	5	5	5	5	6	5	5	5
165	5	5	6	5	5	5	6	5	5	5	6	5	5	5	6	5
170	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
175	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	18.0	45-50	223.1	90-95	30.0	135-140	3.1
5-10	53.6	50-55	199.3	95-100	23.4	140-145	2.3
10-15	88.3	55-60	167.6	100-105	18.9	145-150	1.9
15-20	121.4	60-65	139.3	105-110	15.2	150-155	1.6
20-25	152.1	65-70	115.0	110-115	11.8	155-160	1.2
25-30	179.2	70-75	95.4	115-120	9.3	160-165	0.8
30-35	202.5	75-80	78.7	120-125	7.7	165-170	0.6
35-40	220.4	80-85	61.9	125-130	6.2	170-175	0.4
40-45	229.6	85-90	42.4	130-135	4.6	175-180	0.1



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	1.075	1.075	1.075	1.075	1.044	1.044	1.044	1.044	1.014	1.014	1.014	1.014
1	0.977	0.926	0.882	0.842	0.946	0.9	0.86	0.823	0.916	0.875	0.838	0.805
2	0.889	0.805	0.737	0.68	0.859	0.783	0.72	0.668	0.83	0.762	0.705	0.656
3	0.81	0.706	0.626	0.563	0.782	0.687	0.613	0.554	0.756	0.669	0.601	0.546
4	0.742	0.624	0.539	0.475	0.716	0.608	0.529	0.469	0.692	0.593	0.52	0.463
5	0.682	0.556	0.47	0.407	0.658	0.543	0.462	0.403	0.636	0.53	0.455	0.398
6	0.629	0.499	0.414	0.354	0.607	0.488	0.408	0.351	0.587	0.477	0.402	0.347
7	0.582	0.451	0.369	0.311	0.562	0.442	0.363	0.309	0.544	0.432	0.358	0.306
8	0.54	0.411	0.331	0.276	0.523	0.402	0.326	0.274	0.506	0.394	0.322	0.272
9	0.504	0.376	0.299	0.248	0.488	0.368	0.295	0.246	0.473	0.361	0.291	0.244
10	0.471	0.346	0.272	0.223	0.457	0.339	0.269	0.222	0.443	0.333	0.265	0.22

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	0.958	0.958	0.958	0.958	0.907	0.907	0.907	0.86	0.86	0.86	0.838
1	0.861	0.828	0.798	0.77	0.785	0.761	0.738	0.745	0.726	0.708	0.685
2	0.778	0.722	0.675	0.633	0.686	0.646	0.611	0.652	0.62	0.591	0.569
3	0.707	0.636	0.578	0.53	0.605	0.556	0.515	0.576	0.535	0.5	0.478
4	0.647	0.564	0.501	0.451	0.538	0.484	0.44	0.513	0.467	0.429	0.408
5	0.595	0.505	0.44	0.389	0.483	0.426	0.381	0.461	0.412	0.372	0.352
6	0.549	0.456	0.39	0.34	0.436	0.378	0.333	0.418	0.367	0.327	0.307
7	0.51	0.414	0.348	0.3	0.397	0.338	0.295	0.381	0.329	0.289	0.271
8	0.475	0.378	0.313	0.267	0.363	0.305	0.263	0.349	0.297	0.258	0.241
9	0.444	0.347	0.284	0.24	0.334	0.277	0.236	0.322	0.27	0.232	0.216
10	0.417	0.32	0.259	0.217	0.309	0.253	0.214	0.298	0.247	0.21	0.195

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

	0	45	90
0	3306	3306	3306
45	3119	3578	3723
55	2446	3075	2905
65	1659	2511	2442
75	1506	2111	2724
85	1562	2242	3383

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.

