



# 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: 18187

DATE: 02-22-2010

PREPARED FOR: RENOVA LIGHTING SYSTEMS

CATALOG NUMBER: ECS-NPW4-WN-332-UNV-13L

LUMINAIRE: FORMED WHITE ENAMEL STEEL HOUSING, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, CLEAR PRISMATIC PLASTIC LENS WITH LINEAR PRISMATIC SIDES.

LAMP: THREE 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH.

LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO

BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE3X32T8/UNV-ISL-SC

MOUNTING: RECESSED

ELECTRICAL VALUES: 120.0VAC, 0.5642A, 67.88W

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	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	
5	2321	2330	2343	2337	2345	2337	2343	2330	2321	2330	2343	2337	2345	2337	2343	2330	222.3
15	2245	2260	2290	2301	2314	2301	2290	2260	2245	2260	2290	2301	2314	2301	2290	2260	645.1
25	2091	2118	2173	2201	2220	2201	2173	2118	2091	2118	2173	2201	2220	2201	2173	2118	996.8
35	1852	1889	1959	2010	2030	2010	1959	1889	1852	1889	1959	2010	2030	2010	1959	1889	1216.8
45	1484	1517	1597	1618	1619	1618	1597	1517	1484	1517	1597	1618	1619	1618	1597	1517	1205.7
55	868	979	1116	1128	1118	1128	1116	979	868	979	1116	1128	1118	1128	1116	979	947.5
65	471	552	703	766	783	766	703	552	471	552	703	766	783	766	703	552	662.1
75	274	309	420	531	578	531	420	309	274	309	420	531	578	531	420	309	446.7
85	92	135	228	325	356	325	228	135	92	135	228	325	356	325	228	135	248.7
90	2	57	151	222	246	222	151	57	2	57	151	222	246	222	151	57	
95	2	46	123	179	200	179	123	46	2	46	123	179	200	179	123	46	123.3
105	6	29	77	112	125	112	77	29	6	29	77	112	125	112	77	29	75.8
115	9	13	53	76	83	76	53	13	9	13	53	76	83	76	53	13	47.0
125	10	12	33	56	63	56	33	12	10	12	33	56	63	56	33	12	31.0
135	11	13	16	33	40	33	16	13	11	13	16	33	40	33	16	13	17.0
145	12	11	17	16	18	16	17	11	12	11	17	16	18	16	17	11	9.5
155	11	12	11	17	17	17	11	12	11	12	11	17	17	17	11	12	6.3
165	11	11	12	13	13	13	12	11	11	11	12	13	13	13	12	11	3.3
175	11	11	11	11	10	11	11	11	11	11	11	11	10	11	11	11	1.1
180	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	

Zonal Lumen Summary

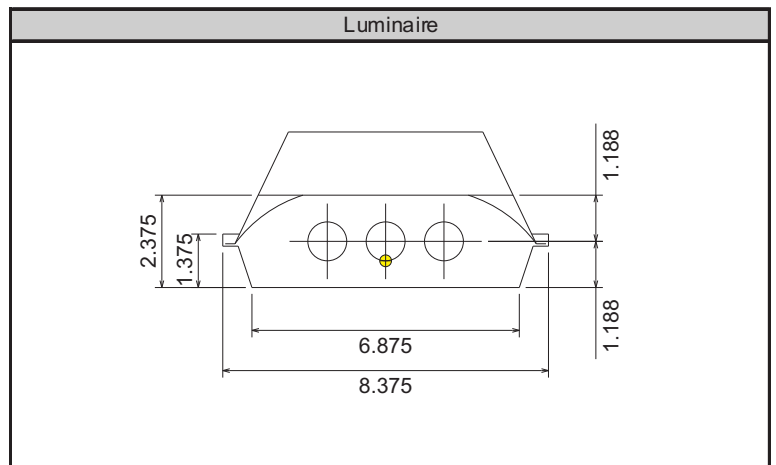
Zone	Lumens	% of Lamp	% of Luminaire
0-30	1864.3	21.8%	27.0%
0-40	3081.1	36.0%	44.6%
0-60	5234.3	61.2%	75.8%
0-90	6591.8	77.1%	95.4%
90-180	314.2	3.7%	4.6%
0-180	6906.0	80.8%	100.0%

Total luminaire efficiency: 80.8%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.26 90 deg: 1.35  
180 deg: 1.26 270 deg: 1.35

Total reflectance of paint: 91.9



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	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344	2344
5	2321	2330	2343	2337	2345	2337	2343	2330	2321	2330	2343	2337	2345	2337	2343	2330
10	2293	2305	2322	2323	2333	2323	2322	2305	2293	2305	2322	2323	2333	2323	2322	2305
15	2245	2260	2290	2301	2314	2301	2290	2260	2245	2260	2290	2301	2314	2301	2290	2260
20	2178	2199	2241	2262	2280	2262	2241	2199	2178	2199	2241	2262	2280	2262	2241	2199
25	2091	2118	2173	2201	2220	2201	2173	2118	2091	2118	2173	2201	2220	2201	2173	2118
30	1983	2017	2079	2119	2144	2119	2079	2017	1983	2017	2079	2119	2144	2119	2079	2017
35	1852	1889	1959	2010	2030	2010	1959	1889	1852	1889	1959	2010	2030	2010	1959	1889
40	1693	1727	1802	1842	1854	1842	1802	1727	1693	1727	1802	1842	1854	1842	1802	1727
45	1484	1517	1597	1618	1619	1618	1597	1517	1484	1517	1597	1618	1619	1618	1597	1517
50	1196	1254	1357	1367	1360	1367	1357	1254	1196	1254	1357	1367	1360	1367	1357	1254
55	868	979	1116	1128	1118	1128	1116	979	868	979	1116	1128	1118	1128	1116	979
60	623	741	896	926	926	926	896	741	623	741	896	926	926	926	896	741
65	471	552	703	766	783	766	703	552	471	552	703	766	783	766	703	552
70	359	417	548	642	670	642	548	417	359	417	548	642	670	642	548	417
75	274	309	420	531	578	531	420	309	274	309	420	531	578	531	420	309
80	192	217	318	427	478	427	318	217	192	217	318	427	478	427	318	217
85	92	135	228	325	356	325	228	135	92	135	228	325	356	325	228	135
90	2	57	151	222	246	222	151	57	2	57	151	222	246	222	151	57
95	2	46	123	179	200	179	123	46	2	46	123	179	200	179	123	46
100	4	37	98	141	158	141	98	37	4	37	98	141	158	141	98	37
105	6	29	77	112	125	112	77	29	6	29	77	112	125	112	77	29
110	7	21	62	89	99	89	62	21	7	21	62	89	99	89	62	21
115	9	13	53	76	83	76	53	13	9	13	53	76	83	76	53	13
120	9	10	44	66	74	66	44	10	9	10	44	66	74	66	44	10
125	10	12	33	56	63	56	33	12	10	12	33	56	63	56	33	12
130	11	13	22	45	52	45	22	13	11	13	22	45	52	45	22	13
135	11	13	16	33	40	33	16	13	11	13	16	33	40	33	16	13
140	11	10	14	21	26	21	14	10	11	10	14	21	26	21	14	10
145	12	11	17	16	18	16	17	11	12	11	17	16	18	16	17	11
150	11	12	16	18	18	18	16	12	11	12	16	18	18	18	16	12
155	11	12	11	17	17	17	11	12	11	12	11	17	17	17	11	12
160	11	11	13	11	13	11	13	11	11	11	13	11	13	11	13	11
165	11	11	12	13	13	13	12	11	11	11	12	13	13	13	12	11
170	11	11	12	12	12	12	12	11	11	11	12	12	12	12	12	11
175	11	11	11	11	10	11	11	11	11	11	11	11	10	11	11	11
180	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	55.9	45-50	582.8	90-95	68.6	135-140	6.9
5-10	166.4	50-55	513.5	95-100	54.6	140-145	5.2
10-15	272.8	55-60	434.0	100-105	42.7	145-150	4.4
15-20	372.3	60-65	361.8	105-110	33.0	150-155	3.7
20-25	461.1	65-70	300.3	110-115	25.9	155-160	2.6
25-30	535.7	70-75	247.7	115-120	21.1	160-165	1.9
30-35	592.5	75-80	199.0	120-125	17.3	165-170	1.4
35-40	624.4	80-85	150.1	125-130	13.7	170-175	0.8
40-45	623.0	85-90	98.5	130-135	10.1	175-180	0.3



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	0.981	0.981	0.981	0.981	0.953	0.953	0.953	0.953	0.926	0.926	0.926	0.926
1	0.894	0.85	0.811	0.775	0.867	0.827	0.791	0.759	0.841	0.805	0.772	0.743
2	0.816	0.742	0.682	0.631	0.79	0.723	0.667	0.621	0.765	0.704	0.654	0.611
3	0.746	0.653	0.582	0.526	0.721	0.637	0.571	0.519	0.698	0.621	0.561	0.512
4	0.684	0.58	0.504	0.447	0.662	0.566	0.496	0.442	0.64	0.553	0.487	0.437
5	0.63	0.518	0.442	0.386	0.609	0.507	0.435	0.382	0.59	0.496	0.428	0.378
6	0.582	0.467	0.391	0.337	0.563	0.457	0.386	0.334	0.546	0.447	0.38	0.331
7	0.54	0.423	0.349	0.298	0.523	0.415	0.345	0.296	0.507	0.407	0.34	0.294
8	0.502	0.386	0.315	0.266	0.487	0.379	0.311	0.264	0.472	0.372	0.307	0.262
9	0.469	0.354	0.285	0.239	0.455	0.348	0.282	0.238	0.441	0.341	0.279	0.236
10	0.439	0.326	0.26	0.217	0.426	0.321	0.258	0.215	0.414	0.315	0.255	0.214

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	0.877	0.877	0.877	0.877	0.832	0.832	0.832	0.79	0.79	0.79	0.771
1	0.793	0.764	0.737	0.713	0.726	0.704	0.684	0.691	0.674	0.658	0.638
2	0.719	0.67	0.627	0.591	0.638	0.603	0.572	0.608	0.579	0.554	0.534
3	0.656	0.592	0.541	0.498	0.565	0.521	0.485	0.54	0.503	0.472	0.453
4	0.601	0.528	0.472	0.427	0.505	0.456	0.417	0.483	0.442	0.408	0.389
5	0.554	0.474	0.416	0.371	0.455	0.404	0.363	0.436	0.392	0.356	0.338
6	0.513	0.429	0.37	0.326	0.412	0.36	0.32	0.396	0.35	0.314	0.297
7	0.477	0.391	0.332	0.289	0.376	0.324	0.284	0.362	0.316	0.28	0.263
8	0.445	0.358	0.3	0.258	0.345	0.293	0.255	0.333	0.286	0.251	0.235
9	0.417	0.329	0.273	0.233	0.318	0.267	0.23	0.308	0.261	0.227	0.212
10	0.392	0.305	0.25	0.212	0.295	0.244	0.209	0.286	0.24	0.206	0.192

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

	0	45	90
0	9038	9038	9038
45	8091	8428	8165
55	5832	6927	6526
65	4301	5498	5629
75	4079	4627	5630
85	4083	4491	5636

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.

