



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: 17534 DATE: 01-12-2010
 PREPARED FOR: RENOVA LIGHTING SYSTEMS
 CATALOG NUMBER: ECS-ECO4-WN-532-UNV-12N/13N-00W
 LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, NO ENCLOSURE.
 LAMP: FIVE 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH.
 LAMP CATALOG NUMBER: PHILIPS F32T8/841/ALTO
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE-3X32T8/UNV-ISN-SC AND ONE SYLVANIA "QUICKTRONIC" QHE-2X32T8/UNV-ISN-SC
 MOUNTING: PENDANT
 ELECTRICAL VALUES: 120.0VAC, 1.1422A, 136.9W

Candela Distribution

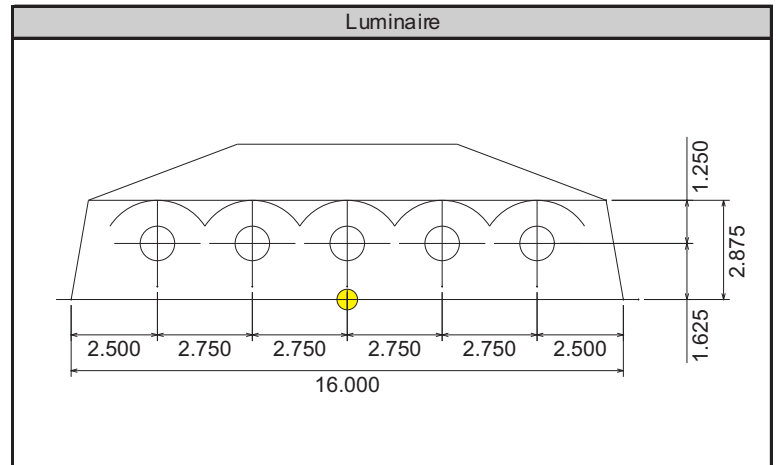
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	
5	3850	3859	3866	3859	3857	3859	3866	3859	3850	3859	3866	3859	3857	3859	3866	3859	367.0
15	3733	3737	3754	3759	3757	3759	3754	3737	3733	3737	3754	3759	3757	3759	3754	3737	1059.4
25	3494	3503	3564	3613	3635	3613	3564	3503	3494	3503	3564	3613	3635	3613	3564	3503	1642.6
35	3140	3170	3299	3379	3405	3379	3299	3170	3140	3170	3299	3379	3405	3379	3299	3170	2053.1
45	2689	2751	2918	3036	3086	3036	2918	2751	2689	2751	2918	3036	3086	3036	2918	2751	2236.7
55	2140	2250	2456	2596	2628	2596	2456	2250	2140	2250	2456	2596	2628	2596	2456	2250	2162.5
65	1515	1627	1869	1991	2036	1991	1869	1627	1515	1627	1869	1991	2036	1991	1869	1627	1799.3
75	820	976	1179	1140	1115	1140	1179	976	820	976	1179	1140	1115	1140	1179	976	1112.4
85	122	214	165	127	113	127	165	214	122	214	165	127	113	127	165	214	229.4
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
175	0	0	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	0.0

Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	3069.0	21.5%	24.2%
0-40	5122.1	35.9%	40.5%
0-60	9521.3	66.8%	75.2%
0-90	12662.5	88.9%	100.0%
90-180	0.0	0.0%	0.0%
0-180	12662.5	88.9%	100.0%

Total luminaire efficiency: 88.9%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.28 90 deg: 1.36
 180 deg: 1.28 270 deg: 1.36



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	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875	3875
5	3850	3859	3866	3859	3857	3859	3866	3859	3850	3859	3866	3859	3857	3859	3866	3859
10	3809	3812	3820	3815	3815	3815	3820	3812	3809	3812	3820	3815	3815	3815	3820	3812
15	3733	3737	3754	3759	3757	3759	3754	3737	3733	3737	3754	3759	3757	3759	3754	3737
20	3628	3629	3662	3690	3700	3690	3662	3629	3628	3629	3662	3690	3700	3690	3662	3629
25	3494	3503	3564	3613	3635	3613	3564	3503	3494	3503	3564	3613	3635	3613	3564	3503
30	3329	3347	3443	3513	3533	3513	3443	3347	3329	3347	3443	3513	3533	3513	3443	3347
35	3140	3170	3299	3379	3405	3379	3299	3170	3140	3170	3299	3379	3405	3379	3299	3170
40	2925	2970	3126	3210	3246	3210	3126	2970	2925	2970	3126	3210	3246	3210	3126	2970
45	2689	2751	2918	3036	3086	3036	2918	2751	2689	2751	2918	3036	3086	3036	2918	2751
50	2426	2514	2689	2853	2895	2853	2689	2514	2426	2514	2689	2853	2895	2853	2689	2514
55	2140	2250	2456	2596	2628	2596	2456	2250	2140	2250	2456	2596	2628	2596	2456	2250
60	1842	1958	2191	2303	2331	2303	2191	1958	1842	1958	2191	2303	2331	2303	2191	1958
65	1515	1627	1869	1991	2036	1991	1869	1627	1515	1627	1869	1991	2036	1991	1869	1627
70	1183	1318	1533	1685	1682	1685	1533	1318	1183	1318	1533	1685	1682	1685	1533	1318
75	820	976	1179	1140	1115	1140	1179	976	820	976	1179	1140	1115	1140	1179	976
80	447	627	636	582	554	582	636	627	447	627	636	582	554	582	636	627
85	122	214	165	127	113	127	165	214	122	214	165	127	113	127	165	214
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	92.5	45-50	1126.6	90-95	0.0	135-140	0.0
5-10	274.5	50-55	1109.5	95-100	0.0	140-145	0.0
10-15	448.6	55-60	1053.0	100-105	0.0	145-150	0.0
15-20	610.8	60-65	959.6	105-110	0.0	150-155	0.0
20-25	757.6	65-70	839.8	110-115	0.0	155-160	0.0
25-30	885.0	70-75	670.6	115-120	0.0	160-165	0.0
30-35	988.8	75-80	441.8	120-125	0.0	165-170	0.0
35-40	1064.3	80-85	197.5	125-130	0.0	170-175	0.0
40-45	1110.1	85-90	31.9	130-135	0.0	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	1.084	1.084	1.084	1.084	1.058	1.058	1.058	1.058	1.033	1.033	1.033	1.033
1	0.987	0.937	0.893	0.854	0.961	0.916	0.876	0.84	0.936	0.896	0.859	0.826
2	0.893	0.808	0.739	0.681	0.868	0.791	0.727	0.673	0.844	0.774	0.715	0.665
3	0.811	0.703	0.621	0.557	0.787	0.689	0.612	0.551	0.764	0.674	0.603	0.546
4	0.74	0.619	0.531	0.465	0.718	0.606	0.524	0.462	0.697	0.594	0.518	0.458
5	0.678	0.549	0.461	0.396	0.658	0.539	0.455	0.394	0.639	0.528	0.45	0.392
6	0.624	0.492	0.404	0.343	0.606	0.483	0.4	0.341	0.588	0.474	0.396	0.339
7	0.577	0.444	0.359	0.3	0.561	0.436	0.356	0.299	0.545	0.429	0.352	0.298
8	0.536	0.403	0.322	0.266	0.521	0.397	0.319	0.265	0.507	0.391	0.316	0.264
9	0.5	0.369	0.291	0.238	0.486	0.363	0.288	0.238	0.473	0.358	0.286	0.237
10	0.468	0.34	0.264	0.215	0.455	0.335	0.263	0.214	0.444	0.33	0.261	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	0.987	0.987	0.987	0.987	0.945	0.945	0.945	0.907	0.907	0.907	0.889
1	0.891	0.858	0.827	0.8	0.823	0.798	0.775	0.79	0.77	0.752	0.733
2	0.8	0.742	0.692	0.649	0.712	0.67	0.634	0.685	0.65	0.619	0.6
3	0.723	0.647	0.586	0.536	0.622	0.57	0.527	0.599	0.555	0.517	0.497
4	0.658	0.571	0.505	0.452	0.55	0.492	0.445	0.53	0.48	0.439	0.419
5	0.603	0.509	0.44	0.387	0.491	0.43	0.383	0.474	0.421	0.378	0.359
6	0.556	0.458	0.388	0.336	0.442	0.38	0.333	0.428	0.373	0.33	0.311
7	0.516	0.415	0.346	0.296	0.402	0.34	0.293	0.389	0.334	0.291	0.273
8	0.48	0.379	0.311	0.263	0.367	0.306	0.261	0.357	0.301	0.259	0.242
9	0.449	0.348	0.282	0.235	0.338	0.277	0.234	0.329	0.273	0.233	0.216
10	0.422	0.321	0.257	0.213	0.312	0.253	0.212	0.304	0.25	0.211	0.195

Average Luminance Table (cd/m²)

	0	45	90
0	7968	7968	7968
45	7819	8486	8974
55	7672	8805	9421
65	7371	9095	9907
75	6512	9364	8855
85	2869	3881	2670

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.

