



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: 18454 DATE: 03-11-2010
 PREPARED FOR: RENOVA LIGHTING SYSTEMS
 CATALOG NUMBER: EFK-24-M-3LT8-V
 LUMINAIRE: FORMED WHITE ENAMEL STEEL HOUSING, FORMED SPECULAR ALUMINUM REFLECTOR, NO ENCLOSURE.
 LAMP: THREE 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH.
 LAMP CATALOG NUMBER: PHILIPS F32T8/841/ALTO
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE3X32T8/UNV-ISL-SC
 MOUNTING: RECESSED
 ELECTRICAL VALUES: 120.0VAC, 0.6127A, 73.44W

Candela Distribution

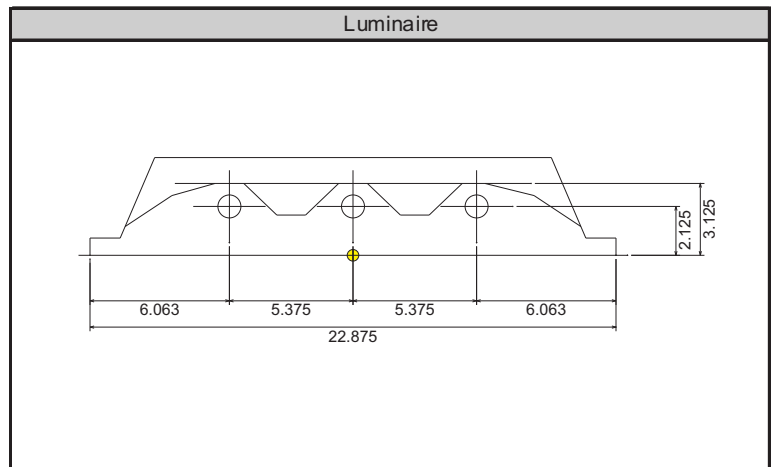
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	
5	3347	3342	3336	3328	3318	3328	3336	3342	3347	3342	3336	3328	3318	3328	3336	3342	315.3
15	3225	3184	3149	3059	3031	3059	3149	3184	3225	3184	3149	3059	3031	3059	3149	3184	880.1
25	2994	2897	2727	2546	2475	2546	2727	2897	2994	2897	2727	2546	2475	2546	2727	2897	1252.0
35	2628	2460	2144	1903	1847	1903	2144	2460	2628	2460	2144	1903	1847	1903	2144	2460	1369.7
45	2163	1909	1543	1421	1419	1421	1543	1909	2163	1909	1543	1421	1419	1421	1543	1909	1292.8
55	1624	1296	1112	1226	1328	1226	1112	1296	1624	1296	1112	1226	1328	1226	1112	1296	1148.8
65	1049	750	964	1208	1246	1208	964	750	1049	750	964	1208	1246	1208	964	750	998.6
75	479	458	708	820	864	820	708	458	479	458	708	820	864	820	708	458	699.2
85	63	156	132	84	70	84	132	156	63	156	132	84	70	84	132	156	173.7
90	1	2	3	4	4	4	3	2	1	2	3	4	4	4	3	2	
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	2447.3	28.6%	30.1%
0-40	3817.0	44.6%	46.9%
0-60	6258.6	73.2%	77.0%
0-90	8130.1	95.1%	100.0%
90-180	0.0	0.0%	0.0%
0-180	8130.1	95.1%	100.0%

Total luminaire efficiency: 95.1%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.25 90 deg: 1.01
 180 deg: 1.25 270 deg: 1.01



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	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370	3370
5	3347	3342	3336	3328	3318	3328	3336	3342	3347	3342	3336	3328	3318	3328	3336	3342
10	3306	3281	3251	3220	3206	3220	3251	3281	3306	3281	3251	3220	3206	3220	3251	3281
15	3225	3184	3149	3059	3031	3059	3149	3184	3225	3184	3149	3059	3031	3059	3149	3184
20	3126	3057	2968	2832	2785	2832	2968	3057	3126	3057	2968	2832	2785	2832	2968	3057
25	2994	2897	2727	2546	2475	2546	2727	2897	2994	2897	2727	2546	2475	2546	2727	2897
30	2824	2704	2456	2231	2147	2231	2456	2704	2824	2704	2456	2231	2147	2231	2456	2704
35	2628	2460	2144	1903	1847	1903	2144	2460	2628	2460	2144	1903	1847	1903	2144	2460
40	2403	2198	1819	1659	1607	1659	1819	2198	2403	2198	1819	1659	1607	1659	1819	2198
45	2163	1909	1543	1421	1419	1421	1543	1909	2163	1909	1543	1421	1419	1421	1543	1909
50	1905	1599	1307	1296	1318	1296	1307	1599	1905	1599	1307	1296	1318	1296	1307	1599
55	1624	1296	1112	1226	1328	1226	1112	1296	1624	1296	1112	1226	1328	1226	1112	1296
60	1337	996	983	1244	1333	1244	983	996	1337	996	983	1244	1333	1244	983	996
65	1049	750	964	1208	1246	1208	964	750	1049	750	964	1208	1246	1208	964	750
70	751	566	894	1040	1060	1040	894	566	751	566	894	1040	1060	1040	894	566
75	479	458	708	820	864	820	708	458	479	458	708	820	864	820	708	458
80	244	351	494	568	556	568	494	351	244	351	494	568	556	568	494	351
85	63	156	132	84	70	84	132	156	63	156	132	84	70	84	132	156
90	1	2	3	4	4	4	3	2	1	2	3	4	4	4	3	2
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	80.0	45-50	629.4	90-95	0.0	135-140	0.0
5-10	235.2	50-55	590.0	95-100	0.0	140-145	0.0
10-15	378.5	55-60	558.8	100-105	0.0	145-150	0.0
15-20	501.6	60-65	525.9	105-110	0.0	150-155	0.0
20-25	595.1	65-70	472.7	110-115	0.0	155-160	0.0
25-30	656.8	70-75	395.2	115-120	0.0	160-165	0.0
30-35	684.4	75-80	304.0	120-125	0.0	165-170	0.0
35-40	685.3	80-85	153.1	125-130	0.0	170-175	0.0
40-45	663.4	85-90	20.6	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	1.16	1.16	1.16	1.16	1.132	1.132	1.132	1.132	1.106	1.106	1.106	1.106
1	1.059	1.008	0.962	0.921	1.032	0.985	0.943	0.906	1.006	0.963	0.925	0.891
2	0.964	0.877	0.805	0.746	0.938	0.858	0.792	0.737	0.912	0.84	0.779	0.728
3	0.881	0.77	0.686	0.62	0.856	0.755	0.676	0.614	0.832	0.739	0.667	0.609
4	0.808	0.684	0.594	0.527	0.785	0.671	0.587	0.523	0.763	0.658	0.58	0.519
5	0.745	0.613	0.522	0.456	0.724	0.602	0.516	0.453	0.704	0.591	0.511	0.451
6	0.689	0.553	0.464	0.4	0.67	0.544	0.459	0.398	0.652	0.535	0.455	0.397
7	0.64	0.503	0.416	0.356	0.623	0.495	0.412	0.354	0.606	0.487	0.409	0.353
8	0.597	0.46	0.376	0.319	0.581	0.454	0.373	0.318	0.566	0.447	0.371	0.317
9	0.559	0.424	0.343	0.289	0.544	0.418	0.341	0.288	0.531	0.412	0.338	0.287
10	0.524	0.392	0.315	0.264	0.512	0.387	0.313	0.263	0.499	0.382	0.311	0.262

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	1.057	1.057	1.057	1.057	1.012	1.012	1.012	0.97	0.97	0.97	0.951
1	0.957	0.923	0.891	0.863	0.885	0.86	0.836	0.851	0.83	0.811	0.791
2	0.866	0.806	0.755	0.711	0.775	0.732	0.694	0.746	0.71	0.679	0.658
3	0.788	0.711	0.649	0.598	0.685	0.632	0.587	0.66	0.615	0.577	0.556
4	0.723	0.634	0.566	0.512	0.612	0.553	0.505	0.591	0.54	0.498	0.477
5	0.667	0.571	0.5	0.446	0.552	0.49	0.441	0.534	0.48	0.436	0.416
6	0.618	0.518	0.446	0.393	0.502	0.438	0.39	0.487	0.43	0.386	0.367
7	0.576	0.473	0.402	0.35	0.459	0.395	0.348	0.446	0.389	0.345	0.326
8	0.539	0.434	0.365	0.315	0.423	0.359	0.313	0.412	0.354	0.311	0.293
9	0.506	0.401	0.334	0.286	0.391	0.329	0.284	0.382	0.325	0.283	0.266
10	0.477	0.373	0.307	0.261	0.364	0.303	0.26	0.355	0.299	0.259	0.242

Average Luminance Table (cd/m²)

	0	45	90
0	4872	4872	4872
45	4422	3155	2902
55	4092	2801	3348
65	3590	3297	4261
75	2678	3955	4823
85	1048	2185	1155

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.

