



# 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: 18182 DATE: 02-18-2010  
 PREPARED FOR: RENOVA LIGHTING SYSTEMS  
 CATALOG NUMBER: EFK-24-M-2LT8-V  
 LUMINAIRE: FORMED WHITE ENAMEL STEEL HOUSING, FORMED SPECULAR ALUMINUM REFLECTOR, NO ENCLOSURE.  
 LAMP: TWO 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH.  
 LAMP CATALOG NUMBER: PHILIPS F32T8/841/ALTO  
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE2X32T8/UNV-ISL-SC  
 MOUNTING: RECESSED  
 ELECTRICAL VALUES: 120.0VAC, 0.4220A, 50.56W

### Candela Distribution

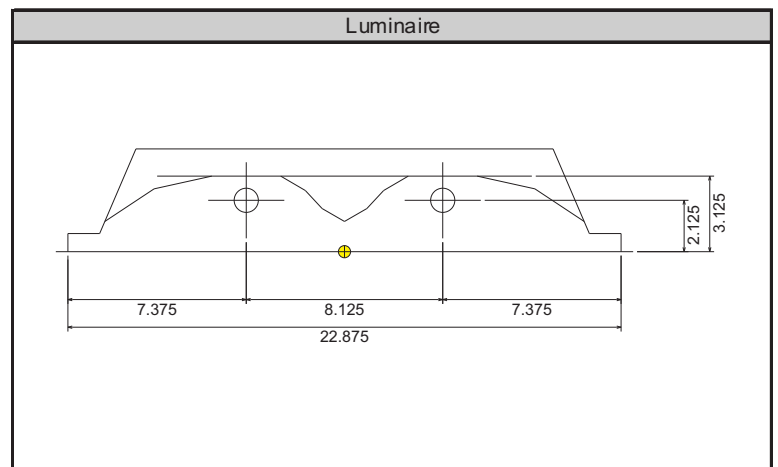
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	
5	2069	2062	2065	2070	2074	2070	2065	2062	2069	2062	2065	2070	2074	2070	2065	2062	197.1
15	1994	2010	2032	1992	1975	1992	2032	2010	1994	2010	2032	1992	1975	1992	2032	2010	563.5
25	1841	1861	1779	1718	1697	1718	1779	1861	1841	1861	1779	1718	1697	1718	1779	1861	818.7
35	1614	1593	1469	1371	1383	1371	1469	1593	1614	1593	1469	1371	1383	1371	1469	1593	929.9
45	1322	1251	1151	1145	1088	1145	1151	1251	1322	1251	1151	1145	1088	1145	1151	1251	916.1
55	984	863	830	877	899	877	830	863	984	863	830	877	899	877	830	863	787.5
65	630	585	622	664	720	664	622	585	630	585	622	664	720	664	622	585	633.7
75	289	306	463	462	422	462	463	306	289	306	463	462	422	462	463	306	401.7
85	40	64	44	37	30	37	44	64	40	64	44	37	30	37	44	64	68.4
90	0	0	0	1	1	1	0	0	0	0	0	1	1	1	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

### Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	1579.3	27.7%	29.7%
0-40	2509.2	44.0%	47.2%
0-60	4212.8	73.9%	79.2%
0-90	5316.5	93.3%	100.0%
90-180	0.0	0.0%	0.0%
0-180	5316.5	93.3%	100.0%

Total luminaire efficiency: 93.3%

CIE Type: Direct  
 Spacing Criterion: 0 deg: 1.24 90 deg: 1.10  
 180 deg: 1.24 270 deg: 1.10



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	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082
5	2069	2062	2065	2070	2074	2070	2065	2062	2069	2062	2065	2070	2074	2070	2065	2062
10	2041	2033	2062	2070	2069	2070	2062	2033	2041	2033	2062	2070	2069	2070	2062	2033
15	1994	2010	2032	1992	1975	1992	2032	2010	1994	2010	2032	1992	1975	1992	2032	2010
20	1926	1949	1915	1850	1834	1850	1915	1949	1926	1949	1915	1850	1834	1850	1915	1949
25	1841	1861	1779	1718	1697	1718	1779	1861	1841	1861	1779	1718	1697	1718	1779	1861
30	1736	1743	1643	1540	1498	1540	1643	1743	1736	1743	1643	1540	1498	1540	1643	1743
35	1614	1593	1469	1371	1383	1371	1469	1593	1614	1593	1469	1371	1383	1371	1469	1593
40	1473	1420	1267	1311	1317	1311	1267	1420	1473	1420	1267	1311	1317	1311	1267	1420
45	1322	1251	1151	1145	1088	1145	1151	1251	1322	1251	1151	1145	1088	1145	1151	1251
50	1158	1069	1047	924	953	924	1047	1069	1158	1069	1047	924	953	924	1047	1069
55	984	863	830	877	899	877	830	863	984	863	830	877	899	877	830	863
60	807	702	710	789	809	789	710	702	807	702	710	789	809	789	710	702
65	630	585	622	664	720	664	622	585	630	585	622	664	720	664	622	585
70	454	403	496	657	704	657	496	403	454	403	496	657	704	657	496	403
75	289	306	463	462	422	462	463	306	289	306	463	462	422	462	463	306
80	147	213	213	145	138	145	213	213	147	213	213	145	138	145	213	213
85	40	64	44	37	30	37	44	64	40	64	44	37	30	37	44	64
90	0	0	0	1	1	1	0	0	0	0	0	1	1	1	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	49.5	45-50	445.5	90-95	0.0	135-140	0.0
5-10	147.6	50-55	413.8	95-100	0.0	140-145	0.0
10-15	241.5	55-60	373.7	100-105	0.0	145-150	0.0
15-20	322.0	60-65	336.4	105-110	0.0	150-155	0.0
20-25	385.9	65-70	297.3	110-115	0.0	155-160	0.0
25-30	432.8	70-75	249.9	115-120	0.0	160-165	0.0
30-35	457.9	75-80	151.7	120-125	0.0	165-170	0.0
35-40	471.9	80-85	58.8	125-130	0.0	170-175	0.0
40-45	470.6	85-90	9.6	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			
	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	1.137	1.137	1.137	1.137	1.11	1.11	1.11	1.11	1.085	1.085	1.085	1.085
1	1.043	0.995	0.952	0.913	1.016	0.973	0.933	0.898	0.991	0.952	0.916	0.884
2	0.951	0.868	0.799	0.742	0.925	0.849	0.786	0.733	0.901	0.832	0.774	0.725
3	0.869	0.763	0.682	0.618	0.845	0.747	0.672	0.612	0.822	0.733	0.663	0.607
4	0.797	0.677	0.59	0.525	0.775	0.664	0.583	0.521	0.753	0.652	0.576	0.517
5	0.734	0.606	0.518	0.453	0.714	0.595	0.512	0.451	0.694	0.585	0.507	0.448
6	0.679	0.546	0.459	0.397	0.66	0.537	0.455	0.395	0.642	0.528	0.45	0.394
7	0.63	0.496	0.411	0.352	0.613	0.488	0.408	0.351	0.597	0.481	0.404	0.35
8	0.587	0.453	0.371	0.315	0.572	0.447	0.368	0.314	0.557	0.44	0.365	0.313
9	0.549	0.417	0.338	0.285	0.535	0.411	0.335	0.284	0.522	0.405	0.333	0.283
10	0.515	0.385	0.309	0.259	0.502	0.38	0.307	0.258	0.49	0.375	0.305	0.258

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	1.036	1.036	1.036	1.036	0.992	0.992	0.992	0.952	0.952	0.952	0.933
1	0.944	0.912	0.883	0.856	0.875	0.852	0.829	0.842	0.823	0.805	0.785
2	0.856	0.799	0.75	0.708	0.768	0.727	0.692	0.74	0.706	0.676	0.656
3	0.779	0.705	0.645	0.596	0.679	0.628	0.585	0.655	0.612	0.575	0.555
4	0.714	0.628	0.562	0.51	0.606	0.549	0.503	0.586	0.537	0.496	0.476
5	0.658	0.565	0.496	0.443	0.546	0.486	0.438	0.529	0.476	0.434	0.414
6	0.61	0.512	0.442	0.39	0.496	0.434	0.387	0.481	0.426	0.383	0.364
7	0.567	0.467	0.397	0.347	0.453	0.391	0.344	0.44	0.385	0.342	0.323
8	0.53	0.428	0.36	0.311	0.416	0.355	0.309	0.406	0.349	0.308	0.29
9	0.497	0.395	0.328	0.282	0.385	0.324	0.28	0.375	0.32	0.279	0.262
10	0.468	0.366	0.301	0.257	0.357	0.298	0.255	0.349	0.294	0.254	0.238

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

	0	45	90
0	2994	2994	2994
45	2687	2340	2213
55	2467	2079	2254
65	2142	2116	2448
75	1605	2572	2346
85	653	724	499

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.

