



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: 17351

DATE: 11-30-2009

PREPARED FOR: RENOVA LIGHTING SYSTEMS, INC.

CATALOG NUMBER: ECS-EGI4-MN-232-UNV-12L

LUMINAIRE: FORMED 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/TL841/ALTO

BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE2X32T8/UNV-ISL-SC

MOUNTING: SURFACE

ELECTRICAL VALUES: 120.0VAC, 0.4140A, 49.63W

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	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	
5	1782	1774	1757	1733	1733	1733	1757	1774	1782	1774	1757	1733	1733	1733	1757	1774	166.0
15	1714	1665	1675	1712	1739	1712	1675	1665	1714	1665	1675	1712	1739	1712	1675	1665	480.1
25	1584	1542	1678	1649	1664	1649	1678	1542	1584	1542	1678	1649	1664	1649	1678	1542	746.5
35	1388	1435	1477	1352	1316	1352	1477	1435	1388	1435	1477	1352	1316	1352	1477	1435	873.4
45	1147	1243	1103	1069	1080	1069	1103	1243	1147	1243	1103	1069	1080	1069	1103	1243	881.0
55	896	967	863	989	1031	989	863	967	896	967	863	989	1031	989	863	967	844.5
65	569	583	744	852	872	852	744	583	569	583	744	852	872	852	744	583	712.9
75	274	395	493	494	499	494	493	395	274	395	493	494	499	494	493	395	468.0
85	54	133	166	186	195	186	166	133	54	133	166	186	195	186	166	133	170.1
90	3	21	39	52	59	52	39	21	3	21	39	52	59	52	39	21	
95	0	5	1	0	1	0	1	5	0	5	1	0	1	0	1	5	7.1
105	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0.2
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	

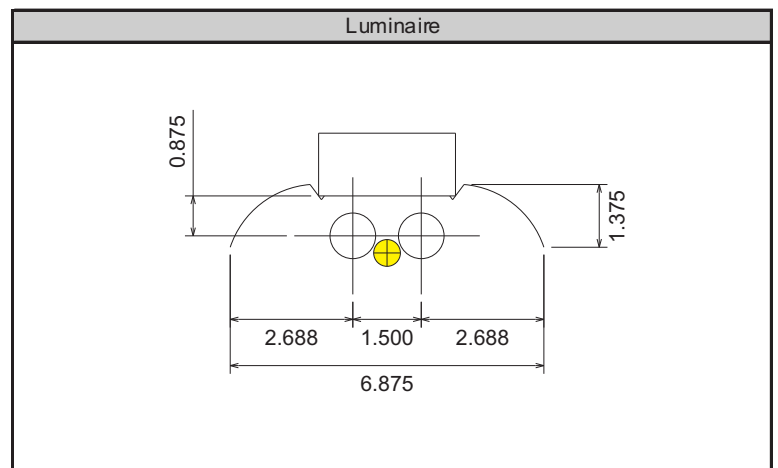
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	1392.6	24.4%	26.0%
0-40	2266.0	39.8%	42.4%
0-60	3991.5	70.0%	74.6%
0-90	5342.5	93.7%	99.9%
90-180	7.4	0.1%	0.1%
0-180	5349.8	93.9%	100.0%

Total luminaire efficiency: 93.9%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.24 90 deg: 1.22
180 deg: 1.24 270 deg: 1.22



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	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790
5	1782	1774	1757	1733	1733	1733	1757	1774	1782	1774	1757	1733	1733	1733	1757	1774
10	1756	1722	1698	1689	1697	1689	1698	1722	1756	1722	1698	1689	1697	1689	1698	1722
15	1714	1665	1675	1712	1739	1712	1675	1665	1714	1665	1675	1712	1739	1712	1675	1665
20	1657	1600	1684	1742	1741	1742	1684	1600	1657	1600	1684	1742	1741	1742	1684	1600
25	1584	1542	1678	1649	1664	1649	1678	1542	1584	1542	1678	1649	1664	1649	1678	1542
30	1492	1487	1578	1523	1470	1523	1578	1487	1492	1487	1578	1523	1470	1523	1578	1487
35	1388	1435	1477	1352	1316	1352	1477	1435	1388	1435	1477	1352	1316	1352	1477	1435
40	1282	1370	1276	1202	1191	1202	1276	1370	1282	1370	1276	1202	1191	1202	1276	1370
45	1147	1243	1103	1069	1080	1069	1103	1243	1147	1243	1103	1069	1080	1069	1103	1243
50	1020	1117	974	1024	1064	1024	974	1117	1020	1117	974	1024	1064	1024	974	1117
55	896	967	863	989	1031	989	863	967	896	967	863	989	1031	989	863	967
60	716	748	806	929	969	929	806	748	716	748	806	929	969	929	806	748
65	569	583	744	852	872	852	744	583	569	583	744	852	872	852	744	583
70	417	470	657	687	688	687	657	470	417	470	657	687	688	687	657	470
75	274	395	493	494	499	494	493	395	274	395	493	494	499	494	493	395
80	151	293	312	336	344	336	312	293	151	293	312	336	344	336	312	293
85	54	133	166	186	195	186	166	133	54	133	166	186	195	186	166	133
90	3	21	39	52	59	52	39	21	3	21	39	52	59	52	39	21
95	0	5	1	0	1	0	1	5	0	5	1	0	1	0	1	5
100	0	2	0	0	0	0	0	2	0	2	0	0	0	0	0	2
105	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1
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	42.4	45-50	435.5	90-95	6.6	135-140	0.0
5-10	123.6	50-55	433.9	95-100	0.6	140-145	0.0
10-15	201.6	55-60	410.6	100-105	0.2	145-150	0.0
15-20	278.5	60-65	379.1	105-110	0.0	150-155	0.0
20-25	346.7	65-70	333.8	110-115	0.0	155-160	0.0
25-30	399.7	70-75	270.4	115-120	0.0	160-165	0.0
30-35	429.2	75-80	197.7	120-125	0.0	165-170	0.0
35-40	444.2	80-85	121.2	125-130	0.0	170-175	0.0
40-45	445.5	85-90	48.9	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	1.144	1.144	1.144	1.144	1.117	1.117	1.117	1.117	1.091	1.091	1.091	1.091
1	1.039	0.985	0.938	0.895	1.011	0.963	0.919	0.88	0.985	0.941	0.901	0.865
2	0.942	0.852	0.778	0.716	0.915	0.833	0.765	0.707	0.89	0.815	0.752	0.699
3	0.857	0.744	0.657	0.589	0.832	0.728	0.647	0.583	0.808	0.712	0.638	0.578
4	0.784	0.656	0.564	0.495	0.76	0.643	0.557	0.491	0.738	0.63	0.55	0.488
5	0.72	0.584	0.492	0.424	0.698	0.573	0.486	0.421	0.678	0.562	0.48	0.419
6	0.664	0.525	0.433	0.369	0.644	0.515	0.429	0.367	0.626	0.506	0.425	0.365
7	0.615	0.475	0.386	0.325	0.597	0.467	0.383	0.324	0.58	0.459	0.379	0.322
8	0.572	0.433	0.347	0.289	0.556	0.426	0.344	0.288	0.541	0.419	0.341	0.287
9	0.534	0.397	0.315	0.26	0.519	0.391	0.312	0.259	0.506	0.385	0.31	0.258
10	0.5	0.366	0.287	0.235	0.487	0.361	0.285	0.235	0.475	0.356	0.283	0.234

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	1.042	1.042	1.042	1.042	0.998	0.998	0.998	0.957	0.957	0.957	0.937
1	0.936	0.9	0.868	0.837	0.863	0.836	0.811	0.829	0.807	0.787	0.766
2	0.843	0.781	0.728	0.682	0.749	0.705	0.666	0.72	0.683	0.651	0.63
3	0.763	0.684	0.62	0.567	0.657	0.603	0.557	0.633	0.586	0.547	0.525
4	0.697	0.606	0.536	0.481	0.583	0.523	0.474	0.562	0.51	0.467	0.446
5	0.64	0.542	0.47	0.414	0.523	0.459	0.409	0.505	0.449	0.404	0.384
6	0.592	0.489	0.416	0.362	0.473	0.408	0.358	0.458	0.4	0.355	0.335
7	0.55	0.444	0.372	0.32	0.43	0.365	0.317	0.417	0.359	0.314	0.295
8	0.513	0.407	0.336	0.285	0.395	0.33	0.283	0.383	0.325	0.281	0.263
9	0.48	0.374	0.305	0.257	0.364	0.301	0.255	0.354	0.296	0.254	0.236
10	0.452	0.346	0.279	0.233	0.337	0.275	0.232	0.329	0.272	0.231	0.214

Average Luminance Table (cd/m²)

	0	45	90
0	14454	14454	14454
45	12625	9088	9069
55	11967	8693	10675
65	10036	10027	12251
75	7469	10512	11448
85	3434	9161	13281

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.

