



# 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: 17352

DATE: 11-30-2009

PREPARED FOR: RENOVA LIGHTING SYSTEMS, INC.

CATALOG NUMBER: ECS-EGI4-WN-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, 0.4149A, 49.72W

### Candela Distribution

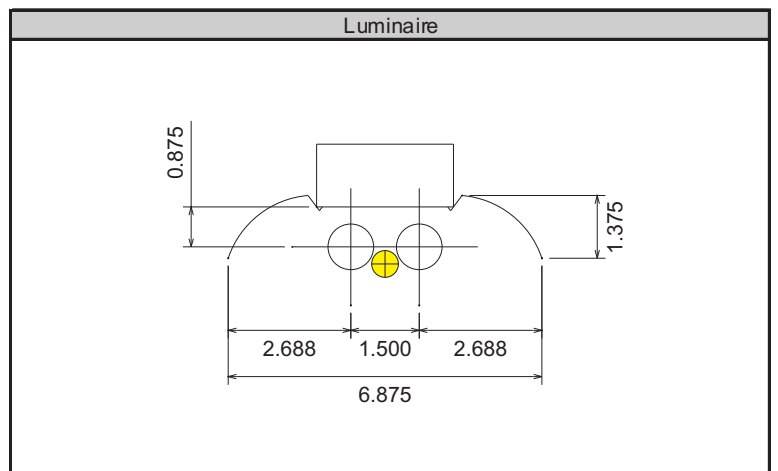
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	
5	1532	1530	1542	1536	1539	1536	1542	1530	1532	1530	1542	1536	1539	1536	1542	1530	146.2
15	1484	1489	1509	1513	1521	1513	1509	1489	1484	1489	1509	1513	1521	1513	1509	1489	425.0
25	1389	1402	1444	1467	1477	1467	1444	1402	1389	1402	1444	1467	1477	1467	1444	1402	662.9
35	1252	1280	1339	1372	1390	1372	1339	1280	1252	1280	1339	1372	1390	1372	1339	1280	832.0
45	1077	1119	1189	1251	1279	1251	1189	1119	1077	1119	1189	1251	1279	1251	1189	1119	914.9
55	870	914	1018	1100	1130	1100	1018	914	870	914	1018	1100	1130	1100	1018	914	902.2
65	632	683	824	888	896	888	824	683	632	683	824	888	896	888	824	683	777.5
75	363	458	505	511	514	511	505	458	363	458	505	511	514	511	505	458	504.0
85	78	140	151	159	160	159	151	140	78	140	151	159	160	159	151	140	160.7
90	4	15	16	21	23	21	16	15	4	15	16	21	23	21	16	15	
95	1	6	1	0	0	0	1	6	1	6	1	0	0	0	1	6	3.2
105	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0.3
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	1234.1	21.7%	23.2%
0-40	2066.1	36.2%	38.8%
0-60	3883.3	68.1%	72.9%
0-90	5325.4	93.4%	99.9%
90-180	3.6	0.1%	0.1%
0-180	5328.9	93.5%	100.0%

Total luminaire efficiency: 93.5%

CIE Type: Direct  
Spacing Criterion: 0 deg: 1.28    90 deg: 1.39  
180 deg: 1.28    270 deg: 1.39



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	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540	1540
5	1532	1530	1542	1536	1539	1536	1542	1530	1532	1530	1542	1536	1539	1536	1542	1530
10	1514	1515	1529	1527	1530	1527	1529	1515	1514	1515	1529	1527	1530	1527	1529	1515
15	1484	1489	1509	1513	1521	1513	1509	1489	1484	1489	1509	1513	1521	1513	1509	1489
20	1444	1452	1481	1494	1504	1494	1481	1452	1444	1452	1481	1494	1504	1494	1481	1452
25	1389	1402	1444	1467	1477	1467	1444	1402	1389	1402	1444	1467	1477	1467	1444	1402
30	1325	1345	1399	1424	1438	1424	1399	1345	1325	1345	1399	1424	1438	1424	1399	1345
35	1252	1280	1339	1372	1390	1372	1339	1280	1252	1280	1339	1372	1390	1372	1339	1280
40	1169	1205	1268	1315	1339	1315	1268	1205	1169	1205	1268	1315	1339	1315	1268	1205
45	1077	1119	1189	1251	1279	1251	1189	1119	1077	1119	1189	1251	1279	1251	1189	1119
50	978	1023	1107	1185	1212	1185	1107	1023	978	1023	1107	1185	1212	1185	1107	1023
55	870	914	1018	1100	1130	1100	1018	914	870	914	1018	1100	1130	1100	1018	914
60	755	799	925	1013	1041	1013	925	799	755	799	925	1013	1041	1013	925	799
65	632	683	824	888	896	888	824	683	632	683	824	888	896	888	824	683
70	502	568	696	700	702	700	696	568	502	568	696	700	702	700	696	568
75	363	458	505	511	514	511	505	458	363	458	505	511	514	511	505	458
80	217	314	320	329	331	329	320	314	217	314	320	329	331	329	320	314
85	78	140	151	159	160	159	151	140	78	140	151	159	160	159	151	140
90	4	15	16	21	23	21	16	15	4	15	16	21	23	21	16	15
95	1	6	1	0	0	0	1	6	1	6	1	0	0	0	1	6
100	0	2	1	0	0	0	1	2	0	2	1	0	0	0	1	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	36.8	45-50	462.1	90-95	2.5	135-140	0.0
5-10	109.4	50-55	459.1	95-100	0.7	140-145	0.0
10-15	179.5	55-60	443.1	100-105	0.3	145-150	0.0
15-20	245.5	60-65	414.0	105-110	0.1	150-155	0.0
20-25	305.5	65-70	363.5	110-115	0.0	155-160	0.0
25-30	357.4	70-75	292.7	115-120	0.0	160-165	0.0
30-35	400.0	75-80	211.2	120-125	0.0	165-170	0.0
35-40	432.0	80-85	121.4	125-130	0.0	170-175	0.0
40-45	452.8	85-90	39.2	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	1.14	1.14	1.14	1.14	1.113	1.113	1.113	1.113	1.087	1.087	1.087	1.087
1	1.033	0.978	0.929	0.885	1.005	0.955	0.911	0.871	0.979	0.934	0.893	0.856
2	0.933	0.84	0.765	0.702	0.906	0.822	0.752	0.693	0.88	0.803	0.739	0.685
3	0.846	0.73	0.641	0.571	0.82	0.714	0.631	0.566	0.796	0.698	0.622	0.56
4	0.771	0.641	0.547	0.476	0.747	0.627	0.539	0.472	0.725	0.614	0.532	0.469
5	0.706	0.568	0.473	0.404	0.684	0.557	0.468	0.402	0.664	0.546	0.462	0.399
6	0.65	0.508	0.415	0.349	0.63	0.499	0.411	0.347	0.611	0.49	0.406	0.346
7	0.601	0.458	0.368	0.306	0.583	0.45	0.364	0.304	0.566	0.442	0.361	0.303
8	0.558	0.416	0.329	0.27	0.541	0.409	0.327	0.27	0.526	0.403	0.324	0.269
9	0.52	0.381	0.297	0.242	0.505	0.375	0.295	0.241	0.491	0.369	0.293	0.24
10	0.486	0.35	0.27	0.218	0.473	0.345	0.268	0.217	0.461	0.34	0.266	0.217

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	1.038	1.038	1.038	1.038	0.994	0.994	0.994	0.953	0.953	0.953	0.934
1	0.93	0.893	0.86	0.829	0.856	0.828	0.803	0.822	0.8	0.779	0.758
2	0.833	0.769	0.715	0.668	0.738	0.692	0.653	0.709	0.671	0.638	0.616
3	0.751	0.67	0.604	0.55	0.643	0.587	0.54	0.619	0.571	0.53	0.509
4	0.683	0.59	0.519	0.462	0.568	0.505	0.455	0.547	0.493	0.449	0.427
5	0.626	0.525	0.451	0.395	0.506	0.441	0.39	0.488	0.431	0.385	0.364
6	0.577	0.472	0.398	0.342	0.456	0.389	0.339	0.441	0.382	0.336	0.315
7	0.535	0.428	0.354	0.3	0.414	0.347	0.298	0.4	0.341	0.296	0.276
8	0.498	0.39	0.318	0.267	0.378	0.313	0.265	0.367	0.307	0.263	0.244
9	0.466	0.358	0.288	0.239	0.348	0.283	0.237	0.338	0.279	0.236	0.218
10	0.438	0.33	0.263	0.216	0.321	0.259	0.215	0.313	0.255	0.213	0.197

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

	0	45	90
0	12433	12433	12433
45	11860	9797	10739
55	11617	10256	11697
65	11160	11110	12586
75	9879	10774	11789
85	5006	8370	10921

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.

