



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: 21360 DATE: 11/01/2010
 PREPARED FOR: RENOVA LIGHTING
 CATALOG NUMBER: ECS-MVT4-MN-232-UNV-12L-CAL
 LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED "MIRO 4"
 SPECULAR ALUMINUM REFLECTORS, CLEAR LINEAR PRISMATIC
 ACRYLIC ENCLOSURE.
 LAMP: TWO 32W 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: PENDANT
 ELECTRICAL VALUES: 120.0V, 0.399A, 47.83W

Candela Distribution

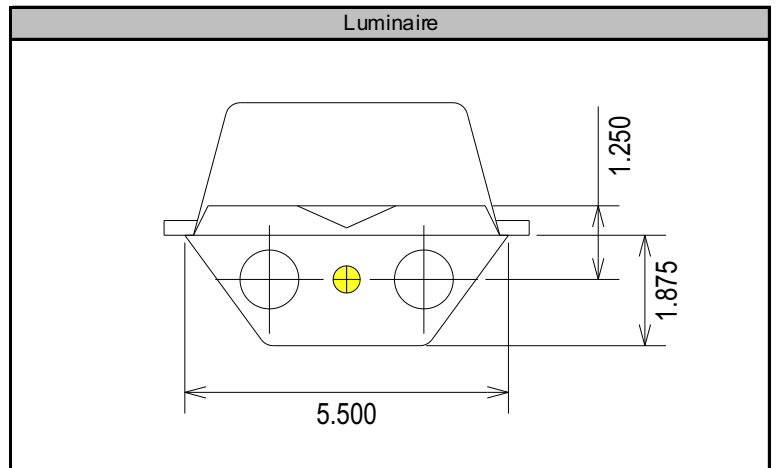
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	
5	1350	1361	1373	1363	1361	1363	1373	1361	1350	1361	1373	1363	1361	1363	1373	1361	128.8
15	1294	1290	1306	1320	1318	1320	1306	1290	1294	1290	1306	1320	1318	1320	1306	1290	366.3
25	1181	1188	1172	1191	1209	1191	1172	1188	1181	1188	1172	1191	1209	1191	1172	1188	546.7
35	1024	1038	1061	1114	1145	1114	1061	1038	1024	1038	1061	1114	1145	1114	1061	1038	668.2
45	839	819	938	959	960	959	938	819	839	819	938	959	960	959	938	819	693.2
55	623	641	719	723	735	723	719	641	623	641	719	723	735	723	719	641	620.6
65	390	456	515	588	619	588	515	456	390	456	515	588	619	588	515	456	511.1
75	176	252	364	435	468	435	364	252	176	252	364	435	468	435	364	252	367.2
85	36	133	259	368	412	368	259	133	36	133	259	368	412	368	259	133	272.4
90	12	103	238	362	407	362	238	103	12	103	238	362	407	362	238	103	
95	12	77	226	342	382	342	226	77	12	77	226	342	382	342	226	77	226.5
105	9	28	134	225	260	225	134	28	9	28	134	225	260	225	134	28	139.2
115	4	3	49	108	133	108	49	3	4	3	49	108	133	108	49	3	58.2
125	0	0	6	31	43	31	6	0	0	0	6	31	43	31	6	0	14.8
135	0	0	0	2	6	2	0	0	0	0	0	2	6	2	0	0	1.6
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
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	1041.8	18.3%	22.6%
0-40	1710.0	30.0%	37.1%
0-60	3023.7	53.0%	65.5%
0-90	4174.5	73.2%	90.5%
90-180	440.5	7.7%	9.5%
0-180	4614.9	81.0%	100.0%

Total luminaire efficiency: 81.0%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.21 90 deg: 1.30
 180 deg: 1.21 270 deg: 1.30



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	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362
5	1350	1361	1373	1363	1361	1363	1373	1361	1350	1361	1373	1363	1361	1363	1373	1361
10	1329	1346	1322	1331	1339	1331	1322	1346	1329	1346	1322	1331	1339	1331	1322	1346
15	1294	1290	1306	1320	1318	1320	1306	1290	1294	1290	1306	1320	1318	1320	1306	1290
20	1244	1236	1276	1222	1224	1222	1276	1236	1244	1236	1276	1222	1224	1222	1276	1236
25	1181	1188	1172	1191	1209	1191	1172	1188	1181	1188	1172	1191	1209	1191	1172	1188
30	1107	1124	1114	1136	1150	1136	1114	1124	1107	1124	1114	1136	1150	1136	1114	1124
35	1024	1038	1061	1114	1145	1114	1061	1038	1024	1038	1061	1114	1145	1114	1061	1038
40	935	921	985	1044	1041	1044	985	921	935	921	985	1044	1041	1044	985	921
45	839	819	938	959	960	959	938	819	839	819	938	959	960	959	938	819
50	735	742	839	830	831	830	839	742	735	742	839	830	831	830	839	742
55	623	641	719	723	735	723	719	641	623	641	719	723	735	723	719	641
60	507	559	606	645	674	645	606	559	507	559	606	645	674	645	606	559
65	390	456	515	588	619	588	515	456	390	456	515	588	619	588	515	456
70	278	343	443	518	538	518	443	343	278	343	443	518	538	518	443	343
75	176	252	364	435	468	435	364	252	176	252	364	435	468	435	364	252
80	92	186	300	393	429	393	300	186	92	186	300	393	429	393	300	186
85	36	133	259	368	412	368	259	133	36	133	259	368	412	368	259	133
90	12	103	238	362	407	362	238	103	12	103	238	362	407	362	238	103
95	12	77	226	342	382	342	226	77	12	77	226	342	382	342	226	77
100	12	48	187	295	333	295	187	48	12	48	187	295	333	295	187	48
105	9	28	134	225	260	225	134	28	9	28	134	225	260	225	134	28
110	6	11	87	161	189	161	87	11	6	11	87	161	189	161	87	11
115	4	3	49	108	133	108	49	3	4	3	49	108	133	108	49	3
120	2	2	21	63	82	63	21	2	2	2	21	63	82	63	21	2
125	0	0	6	31	43	31	6	0	0	0	6	31	43	31	6	0
130	0	0	0	13	20	13	0	0	0	0	0	13	20	13	0	0
135	0	0	0	2	6	2	0	0	0	0	0	2	6	2	0	0
140	0	0	0	2	2	2	0	0	0	0	0	2	2	2	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	32.7	45-50	344.0	90-95	120.8	135-140	0.3
5-10	96.1	50-55	323.4	95-100	105.7	140-145	0.1
10-15	156.5	55-60	297.2	100-105	82.0	145-150	0.0
15-20	209.7	60-65	271.4	105-110	57.2	150-155	0.0
20-25	254.3	65-70	239.7	110-115	36.7	155-160	0.0
25-30	292.4	70-75	200.5	115-120	21.4	160-165	0.0
30-35	324.6	75-80	166.8	120-125	10.6	165-170	0.0
35-40	343.6	80-85	143.0	125-130	4.3	170-175	0.0
40-45	349.2	85-90	129.4	130-135	1.3	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	0.978	0.978	0.978	0.978	0.945	0.945	0.945	0.945	0.914	0.914	0.914	0.914
1	0.88	0.83	0.786	0.747	0.848	0.803	0.763	0.727	0.817	0.777	0.74	0.708
2	0.798	0.717	0.652	0.597	0.767	0.694	0.634	0.583	0.738	0.672	0.617	0.57
3	0.726	0.627	0.551	0.491	0.697	0.607	0.537	0.481	0.67	0.588	0.524	0.472
4	0.664	0.553	0.473	0.413	0.637	0.536	0.462	0.406	0.612	0.52	0.452	0.399
5	0.61	0.492	0.412	0.353	0.585	0.478	0.403	0.348	0.562	0.464	0.395	0.342
6	0.562	0.442	0.363	0.307	0.54	0.43	0.356	0.303	0.519	0.418	0.349	0.298
7	0.521	0.4	0.323	0.27	0.5	0.389	0.317	0.266	0.482	0.379	0.311	0.263
8	0.484	0.364	0.29	0.24	0.466	0.355	0.285	0.237	0.448	0.346	0.28	0.234
9	0.451	0.333	0.263	0.215	0.435	0.325	0.258	0.213	0.419	0.317	0.254	0.21
10	0.422	0.307	0.239	0.195	0.407	0.3	0.235	0.192	0.393	0.293	0.231	0.19

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	0.857	0.857	0.857	0.857	0.804	0.804	0.804	0.755	0.755	0.755	0.732
1	0.76	0.728	0.698	0.671	0.682	0.659	0.637	0.641	0.622	0.604	0.581
2	0.684	0.63	0.585	0.545	0.592	0.554	0.521	0.556	0.526	0.498	0.476
3	0.62	0.552	0.498	0.454	0.519	0.474	0.436	0.489	0.451	0.419	0.397
4	0.566	0.49	0.431	0.385	0.461	0.412	0.371	0.435	0.393	0.358	0.337
5	0.52	0.438	0.378	0.331	0.414	0.362	0.321	0.391	0.346	0.31	0.291
6	0.481	0.395	0.335	0.289	0.374	0.321	0.281	0.355	0.308	0.272	0.254
7	0.447	0.359	0.299	0.256	0.341	0.288	0.248	0.324	0.277	0.241	0.224
8	0.417	0.329	0.27	0.228	0.312	0.26	0.222	0.297	0.251	0.216	0.199
9	0.39	0.302	0.245	0.205	0.288	0.237	0.2	0.275	0.229	0.195	0.179
10	0.367	0.279	0.224	0.186	0.267	0.217	0.181	0.255	0.21	0.177	0.162

Average Luminance Table (cd/m²)

	0	45	90
0	11260	11260	11260
45	9784	9382	8590
55	8839	7875	7059
65	7350	6461	6632
75	5177	5536	5872
85	2605	5205	6482

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.

