



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: 21383 DATE: 12/20/2010
 PREPARED FOR: RENOVA LIGHTING SYSTEMS
 CATALOG NUMBER: ECS-SBW4-WN-232-UNV-12L
 LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE PAINTED ALUMINUM REFLECTOR, CLEAR PRISMATIC ACRYLIC ENCLOSURE WITH CLEAR LINEAR PRISMATIC SIDES.
 LAMP: TWO 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH
 LAMP CATALOG NUMBER: PHILIPS F32T8/835/ALTO
 BALLAST: ONE SYLVANIA QHE2X32T8/UNV-ISL-SC
 MOUNTING: SURFACE
 ELECTRICAL VALUES: 120.0VAC, 0.4065A, 48.70W

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	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	
5	1289	1295	1306	1305	1311	1305	1306	1295	1289	1295	1306	1305	1311	1305	1306	1295	124.1
15	1245	1264	1291	1303	1313	1303	1291	1264	1245	1264	1291	1303	1313	1303	1291	1264	362.9
25	1152	1188	1232	1255	1267	1255	1232	1188	1152	1188	1232	1255	1267	1255	1232	1188	562.4
35	1000	1049	1102	1120	1128	1120	1102	1049	1000	1049	1102	1120	1128	1120	1102	1049	675.5
45	737	804	859	876	879	876	859	804	737	804	859	876	879	876	859	804	643.6
55	413	498	581	621	630	621	581	498	413	498	581	621	630	621	581	498	500.2
65	233	292	384	470	502	470	384	292	233	292	384	470	502	470	384	292	379.1
75	137	182	290	426	492	426	290	182	137	182	290	426	492	426	290	182	321.3
85	38	106	255	415	476	415	255	106	38	106	255	415	476	415	255	106	281.6
90	0	78	248	402	451	402	248	78	0	78	248	402	451	402	248	78	
95	0	84	265	397	437	397	265	84	0	84	265	397	437	397	265	84	260.8
105	0	98	254	349	379	349	254	98	0	98	254	349	379	349	254	98	236.2
115	0	99	228	316	346	316	228	99	0	99	228	316	346	316	228	99	201.4
125	0	82	186	258	283	258	186	82	0	82	186	258	283	258	186	82	149.7
135	0	57	133	187	208	187	133	57	0	57	133	187	208	187	133	57	93.7
145	0	36	82	118	132	118	82	36	0	36	82	118	132	118	82	36	48.3
155	0	24	46	66	73	66	46	24	0	24	46	66	73	66	46	24	20.5
165	0	14	24	30	35	30	24	14	0	14	24	30	35	30	24	14	6.6
175	0	3	11	13	12	13	11	3	0	3	11	13	12	13	11	3	1.0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

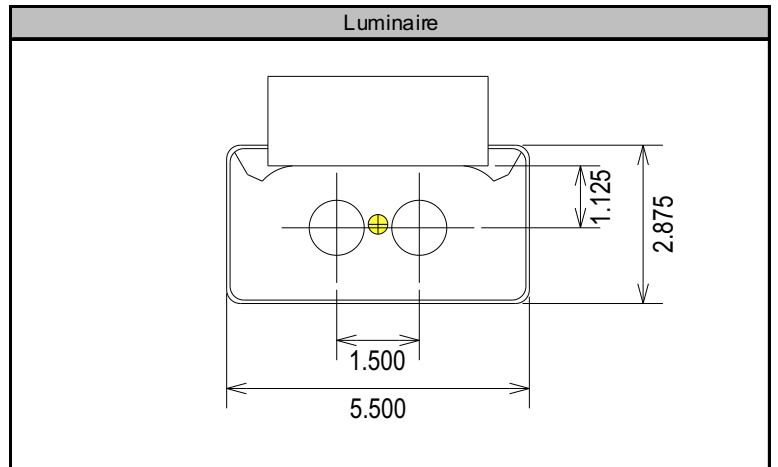
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	1049.4	18.4%	21.6%
0-40	1724.9	30.3%	35.4%
0-60	2868.7	50.3%	58.9%
0-90	3850.8	67.6%	79.1%
90-180	1018.1	17.9%	20.9%
0-180	4868.8	85.4%	100.0%

Total luminaire efficiency: 85.4%

CIE Type: Semi-Direct
 Spacing Criterion: 0 deg: 1.24 90 deg: 1.35
 180 deg: 1.24 270 deg: 1.35

Total reflectance of paint: 91.7



Approved By: MG

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IESNA PROCEDURES.



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

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	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301
5	1289	1295	1306	1305	1311	1305	1306	1295	1289	1295	1306	1305	1311	1305	1306	1295
10	1272	1284	1302	1308	1316	1308	1302	1284	1272	1284	1302	1308	1316	1308	1302	1284
15	1245	1264	1291	1303	1313	1303	1291	1264	1245	1264	1291	1303	1313	1303	1291	1264
20	1204	1232	1267	1286	1299	1286	1267	1232	1204	1232	1267	1286	1299	1286	1267	1232
25	1152	1188	1232	1255	1267	1255	1232	1188	1152	1188	1232	1255	1267	1255	1232	1188
30	1086	1129	1180	1201	1211	1201	1180	1129	1086	1129	1180	1201	1211	1201	1180	1129
35	1000	1049	1102	1120	1128	1120	1102	1049	1000	1049	1102	1120	1128	1120	1102	1049
40	887	943	995	1009	1014	1009	995	943	887	943	995	1009	1014	1009	995	943
45	737	804	859	876	879	876	859	804	737	804	859	876	879	876	859	804
50	565	646	717	741	746	741	717	646	565	646	717	741	746	741	717	646
55	413	498	581	621	630	621	581	498	413	498	581	621	630	621	581	498
60	304	378	467	529	546	529	467	378	304	378	467	529	546	529	467	378
65	233	292	384	470	502	470	384	292	233	292	384	470	502	470	384	292
70	184	229	327	439	489	439	327	229	184	229	327	439	489	439	327	229
75	137	182	290	426	492	426	290	182	137	182	290	426	492	426	290	182
80	88	142	268	422	492	422	268	142	88	142	268	422	492	422	268	142
85	38	106	255	415	476	415	255	106	38	106	255	415	476	415	255	106
90	0	78	248	402	451	402	248	78	0	78	248	402	451	402	248	78
95	0	84	265	397	437	397	265	84	0	84	265	397	437	397	265	84
100	0	91	266	373	405	373	266	91	0	91	266	373	405	373	266	91
105	0	98	254	349	379	349	254	98	0	98	254	349	379	349	254	98
110	0	101	241	333	365	333	241	101	0	101	241	333	365	333	241	101
115	0	99	228	316	346	316	228	99	0	99	228	316	346	316	228	99
120	0	93	210	289	317	289	210	93	0	93	210	289	317	289	210	93
125	0	82	186	258	283	258	186	82	0	82	186	258	283	258	186	82
130	0	70	160	223	247	223	160	70	0	70	160	223	247	223	160	70
135	0	57	133	187	208	187	133	57	0	57	133	187	208	187	133	57
140	0	46	106	151	168	151	106	46	0	46	106	151	168	151	106	46
145	0	36	82	118	132	118	82	36	0	36	82	118	132	118	82	36
150	0	29	62	89	99	89	62	29	0	29	62	89	99	89	62	29
155	0	24	46	66	73	66	46	24	0	24	46	66	73	66	46	24
160	0	19	33	47	53	47	33	19	0	19	33	47	53	47	33	19
165	0	14	24	30	35	30	24	14	0	14	24	30	35	30	24	14
170	0	12	17	21	24	21	17	12	0	12	17	21	24	21	17	12
175	0	3	11	13	12	13	11	3	0	3	11	13	12	13	11	3
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	31.1	45-50	307.9	90-95	131.6	135-140	40.2
5-10	93.0	50-55	269.5	95-100	129.2	140-145	28.8
10-15	153.2	55-60	230.7	100-105	121.9	145-150	19.6
15-20	209.7	60-65	200.0	105-110	114.2	150-155	12.7
20-25	260.3	65-70	179.1	110-115	106.0	155-160	7.8
25-30	302.1	70-75	165.5	115-120	95.3	160-165	4.4
30-35	331.5	75-80	155.9	120-125	82.1	165-170	2.2
35-40	343.9	80-85	146.4	125-130	67.6	170-175	0.9
40-45	335.8	85-90	135.2	130-135	53.5	175-180	0.1



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	1.02	1.02	1.02	1.02	0.974	0.974	0.974	0.974	0.931	0.931	0.931	0.931
1	0.92	0.869	0.824	0.783	0.876	0.83	0.79	0.753	0.834	0.793	0.757	0.724
2	0.837	0.755	0.688	0.633	0.795	0.722	0.662	0.611	0.756	0.691	0.636	0.59
3	0.764	0.663	0.586	0.525	0.726	0.635	0.565	0.509	0.689	0.608	0.544	0.493
4	0.701	0.588	0.506	0.445	0.665	0.563	0.489	0.432	0.632	0.54	0.472	0.42
5	0.644	0.525	0.443	0.383	0.612	0.504	0.428	0.373	0.581	0.484	0.414	0.362
6	0.595	0.472	0.391	0.334	0.565	0.454	0.379	0.325	0.538	0.436	0.367	0.317
7	0.551	0.427	0.349	0.294	0.524	0.412	0.338	0.287	0.499	0.396	0.328	0.28
8	0.512	0.389	0.313	0.262	0.488	0.375	0.304	0.256	0.465	0.362	0.296	0.25
9	0.478	0.356	0.283	0.235	0.455	0.344	0.276	0.23	0.434	0.332	0.268	0.224
10	0.447	0.328	0.258	0.212	0.427	0.317	0.251	0.207	0.407	0.306	0.244	0.203

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.85	0.85	0.85	0.85	0.776	0.776	0.776	0.708	0.708	0.708	0.676
1	0.756	0.724	0.695	0.669	0.66	0.638	0.617	0.602	0.584	0.568	0.538
2	0.683	0.632	0.587	0.549	0.577	0.542	0.511	0.526	0.498	0.474	0.445
3	0.622	0.557	0.505	0.462	0.51	0.467	0.432	0.466	0.432	0.402	0.376
4	0.57	0.496	0.44	0.395	0.456	0.409	0.371	0.418	0.379	0.347	0.323
5	0.525	0.446	0.387	0.342	0.41	0.361	0.323	0.377	0.336	0.303	0.281
6	0.486	0.403	0.344	0.3	0.372	0.322	0.284	0.343	0.301	0.268	0.247
7	0.452	0.367	0.309	0.266	0.34	0.29	0.252	0.314	0.271	0.239	0.219
8	0.422	0.336	0.279	0.238	0.312	0.262	0.226	0.289	0.246	0.214	0.196
9	0.395	0.309	0.253	0.214	0.288	0.239	0.204	0.267	0.225	0.194	0.177
10	0.371	0.286	0.231	0.194	0.266	0.219	0.185	0.248	0.207	0.176	0.161

Average Luminance Table (cd/m²)

	0	45	90
0	7641	7641	7641
45	6117	5214	4802
55	1252	3892	3696
65	3242	2974	3287
75	3109	2764	3779
85	2562	3282	4598

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.

