



LUMINAIRE TESTING LABORATORY, INC.

SUSTAINING
MEMBER
of the
IESNA

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LTL NUMBER: 21381

DATE: 12/07/2010

PREPARED FOR: RENOVA LIGHTING SYSTEMS

CATALOG NUMBER: ECS-SBW4-WN-132-UNV-11L

LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE PAINTED ALUMINUM REFLECTOR, CLEAR PRISMATIC ACRYLIC ENCLOSURE WITH CLEAR LINEAR PRISMATIC SIDES.

LAMP: ONE 32 WATT T8 LINEAR FLUORESCENT LAMP RATED AT 2850 LUMENS

LAMP CATALOG NUMBER: PHILIPS F32T8/TL835/ALTO

BALLAST: ONE SYLVANIA QHE1X32T8/UNV-ISL-SC

MOUNTING: SURFACE

ELECTRICAL VALUES: 120.0VAC, 0.2142A, 25.67W

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	627	627	627	627	627	627	627	627	627	627	627	627	627	627	627	627	
5	622	625	630	629	632	629	630	625	622	625	630	629	632	629	630	625	59.9
15	602	612	628	636	642	636	628	612	602	612	628	636	642	636	628	612	176.6
25	559	581	611	627	635	627	611	581	559	581	611	627	635	627	611	581	278.3
35	489	522	560	574	579	574	560	522	489	522	560	574	579	574	560	522	341.0
45	364	408	446	457	460	457	446	408	364	408	446	457	460	457	446	408	331.0
55	206	255	304	330	336	330	304	255	206	255	304	330	336	330	304	255	260.9
65	116	148	199	249	268	249	199	148	116	148	199	249	268	249	199	148	197.5
75	68	93	152	228	267	228	152	93	68	93	152	228	267	228	152	93	170.1
85	19	56	139	245	290	245	139	56	19	56	139	245	290	245	139	56	162.3
90	0	42	143	256	295	256	143	42	0	42	143	256	295	256	143	42	
95	0	46	162	263	294	263	162	46	0	46	162	263	294	263	162	46	166.7
105	0	58	166	238	263	238	166	58	0	58	166	238	263	238	166	58	156.0
115	0	56	135	191	211	191	135	56	0	56	135	191	211	191	135	56	120.3
125	0	39	88	124	138	124	88	39	0	39	88	124	138	124	88	39	72.4
135	0	25	53	71	79	71	53	25	0	25	53	71	79	71	53	25	37.3
145	0	17	34	45	49	45	34	17	0	17	34	45	49	45	34	17	19.3
155	0	11	22	30	32	30	22	11	0	11	22	30	32	30	22	11	9.2
165	0	7	11	15	18	15	11	7	0	7	11	15	18	15	11	7	3.2
175	0	0	1	6	6	6	1	0	0	0	1	6	6	6	1	0	0.4
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

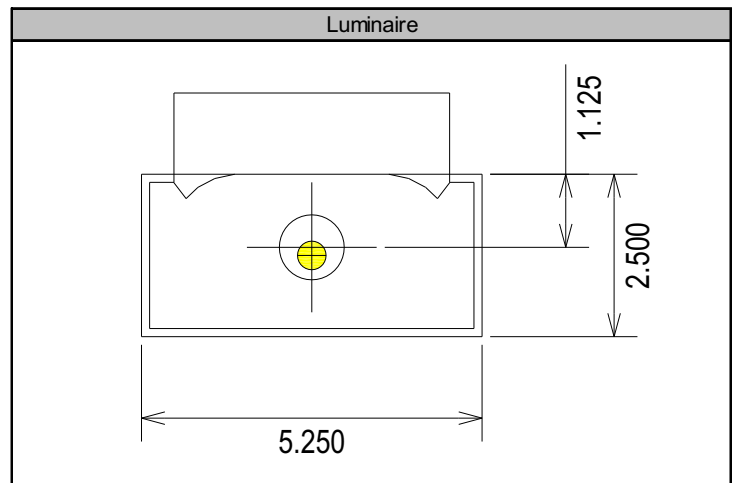
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	514.8	18.1%	20.1%
0-40	855.8	30.0%	33.4%
0-60	1447.7	50.8%	56.5%
0-90	1977.7	69.4%	77.2%
90-180	584.8	20.5%	22.8%
0-180	2562.6	89.9%	100.0%

Total luminaire efficiency: 89.9%

CIE Type: Semi-Direct
Spacing Criterion: 0 deg: 1.25 90 deg: 1.42
180 deg: 1.25 270 deg: 1.42

Total reflectance of paint: 91.5



Approved By: MG



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	627	627	627	627	627	627	627	627	627	627	627	627	627	627	627	627
5	622	625	630	629	632	629	630	625	622	625	630	629	632	629	630	625
10	615	621	629	633	637	633	629	621	615	621	629	633	637	633	629	621
15	602	612	628	636	642	636	628	612	602	612	628	636	642	636	628	612
20	583	599	621	635	643	635	621	599	583	599	621	635	643	635	621	599
25	559	581	611	627	635	627	611	581	559	581	611	627	635	627	611	581
30	528	556	592	608	615	608	592	556	528	556	592	608	615	608	592	556
35	489	522	560	574	579	574	560	522	489	522	560	574	579	574	560	522
40	436	474	510	522	525	522	510	474	436	474	510	522	525	522	510	474
45	364	408	446	457	460	457	446	408	364	408	446	457	460	457	446	408
50	280	330	374	391	395	391	374	330	280	330	374	391	395	391	374	330
55	206	255	304	330	336	330	304	255	206	255	304	330	336	330	304	255
60	151	193	244	281	292	281	244	193	151	193	244	281	292	281	244	193
65	116	148	199	249	268	249	199	148	116	148	199	249	268	249	199	148
70	91	117	169	233	262	233	169	117	91	117	169	233	262	233	169	117
75	68	93	152	228	267	228	152	93	68	93	152	228	267	228	152	93
80	44	73	142	233	278	233	142	73	44	73	142	233	278	233	142	73
85	19	56	139	245	290	245	139	56	19	56	139	245	290	245	139	56
90	0	42	143	256	295	256	143	42	0	42	143	256	295	256	143	42
95	0	46	162	263	294	263	162	46	0	46	162	263	294	263	162	46
100	0	52	170	254	279	254	170	52	0	52	170	254	279	254	170	52
105	0	58	166	238	263	238	166	58	0	58	166	238	263	238	166	58
110	0	60	154	218	241	218	154	60	0	60	154	218	241	218	154	60
115	0	56	135	191	211	191	135	56	0	56	135	191	211	191	135	56
120	0	48	111	158	175	158	111	48	0	48	111	158	175	158	111	48
125	0	39	88	124	138	124	88	39	0	39	88	124	138	124	88	39
130	0	31	67	94	105	94	67	31	0	31	67	94	105	94	67	31
135	0	25	53	71	79	71	53	25	0	25	53	71	79	71	53	25
140	0	21	42	56	60	56	42	21	0	21	42	56	60	56	42	21
145	0	17	34	45	49	45	34	17	0	17	34	45	49	45	34	17
150	0	14	28	37	41	37	28	14	0	14	28	37	41	37	28	14
155	0	11	22	30	32	30	22	11	0	11	22	30	32	30	22	11
160	0	8	16	23	25	23	16	8	0	8	16	23	25	23	16	8
165	0	7	11	15	18	15	11	7	0	7	11	15	18	15	11	7
170	0	4	8	10	11	10	8	4	0	4	8	10	11	10	8	4
175	0	0	1	6	6	6	1	0	0	0	1	6	6	6	1	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	15.0	45-50	159.1	90-95	82.7	135-140	15.5
5-10	44.9	50-55	140.4	95-100	84.0	140-145	11.2
10-15	74.3	55-60	120.5	100-105	81.0	145-150	8.0
15-20	102.3	60-65	104.2	105-110	75.0	150-155	5.6
20-25	128.2	65-70	93.3	110-115	66.0	155-160	3.6
25-30	150.1	70-75	86.8	115-120	54.3	160-165	2.1
30-35	166.5	75-80	83.3	120-125	41.8	165-170	1.1
35-40	174.5	80-85	81.7	125-130	30.6	170-175	0.3
40-45	171.9	85-90	80.6	130-135	21.8	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	1.071	1.071	1.071	1.071	1.022	1.022	1.022	1.022	0.974	0.974	0.974	0.974
1	0.964	0.909	0.86	0.817	0.915	0.867	0.823	0.784	0.869	0.826	0.787	0.752
2	0.876	0.788	0.717	0.658	0.83	0.752	0.688	0.634	0.787	0.718	0.659	0.61
3	0.799	0.691	0.609	0.544	0.757	0.66	0.586	0.526	0.717	0.631	0.563	0.508
4	0.732	0.612	0.525	0.46	0.693	0.585	0.506	0.446	0.656	0.559	0.487	0.432
5	0.673	0.546	0.459	0.395	0.637	0.523	0.443	0.383	0.604	0.5	0.427	0.372
6	0.621	0.49	0.404	0.344	0.588	0.47	0.391	0.334	0.558	0.451	0.378	0.325
7	0.574	0.443	0.36	0.302	0.545	0.426	0.348	0.294	0.517	0.409	0.337	0.286
8	0.534	0.403	0.323	0.268	0.507	0.388	0.313	0.261	0.481	0.373	0.303	0.255
9	0.497	0.369	0.292	0.24	0.473	0.355	0.283	0.234	0.45	0.342	0.274	0.228
10	0.465	0.339	0.265	0.216	0.443	0.327	0.257	0.211	0.421	0.315	0.25	0.206

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	0.885	0.885	0.885	0.885	0.804	0.804	0.804	0.729	0.729	0.729	0.694
1	0.784	0.75	0.719	0.69	0.68	0.656	0.633	0.615	0.597	0.579	0.546
2	0.707	0.652	0.606	0.565	0.592	0.555	0.522	0.537	0.507	0.481	0.45
3	0.643	0.574	0.519	0.473	0.523	0.478	0.44	0.474	0.438	0.407	0.379
4	0.589	0.511	0.451	0.404	0.466	0.417	0.377	0.424	0.384	0.351	0.324
5	0.542	0.458	0.397	0.349	0.419	0.368	0.327	0.383	0.34	0.306	0.281
6	0.502	0.414	0.352	0.306	0.38	0.327	0.287	0.348	0.304	0.269	0.247
7	0.466	0.376	0.315	0.27	0.346	0.294	0.255	0.318	0.273	0.239	0.219
8	0.435	0.344	0.284	0.241	0.317	0.266	0.228	0.292	0.248	0.215	0.195
9	0.407	0.316	0.258	0.217	0.293	0.242	0.205	0.27	0.226	0.194	0.176
10	0.382	0.292	0.235	0.196	0.271	0.221	0.186	0.251	0.207	0.176	0.159

Average Luminance Table (cd/m²)

	0	45	90
0	3854	3854	3854
45	3019	2829	2712
55	2059	2132	2147
65	1524	1605	1931
75	1353	1507	2281
85	854	1863	3180

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.

