



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: 21380

DATE: 12/02/2010

PREPARED FOR: RENOVA LIGHTING SYSTEMS

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

LUMINAIRE: FORMED STEEL HOUSING, FORMED "MIRO 4" SPECULAR 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, 0.2169A, 25.85W

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	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697	
5	693	696	704	704	708	704	704	696	693	696	704	704	708	704	704	696	67.2
15	675	691	717	730	737	730	717	691	675	691	717	730	737	730	717	691	200.8
25	631	658	685	689	691	689	685	658	631	658	685	689	691	689	685	658	309.7
35	548	571	591	591	591	591	591	571	548	571	591	591	591	591	591	571	362.0
45	396	427	457	461	459	461	457	427	396	427	457	461	459	461	457	427	340.7
55	217	263	311	328	330	328	311	263	217	263	311	328	330	328	311	263	264.8
65	122	153	201	245	261	245	201	153	122	153	201	245	261	245	201	153	198.0
75	72	96	152	214	236	214	152	96	72	96	152	214	236	214	152	96	163.1
85	20	57	130	205	239	205	130	57	20	57	130	205	239	205	130	57	143.4
90	0	42	128	218	251	218	128	42	0	42	128	218	251	218	128	42	
95	0	44	145	235	263	235	145	44	0	44	145	235	263	235	145	44	150.6
105	0	56	160	231	254	231	160	56	0	56	160	231	254	231	160	56	150.7
115	0	57	137	193	212	193	137	57	0	57	137	193	212	193	137	57	121.2
125	0	40	91	128	141	128	91	40	0	40	91	128	141	128	91	40	74.4
135	0	27	55	74	82	74	55	27	0	27	55	74	82	74	55	27	38.8
145	0	18	36	47	50	47	36	18	0	18	36	47	50	47	36	18	20.3
155	0	13	24	32	34	32	24	13	0	13	24	32	34	32	24	13	9.9
165	0	8	13	17	20	17	13	8	0	8	13	17	20	17	13	8	3.5
175	0	1	6	7	7	7	6	1	0	1	6	7	7	7	6	1	0.5
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

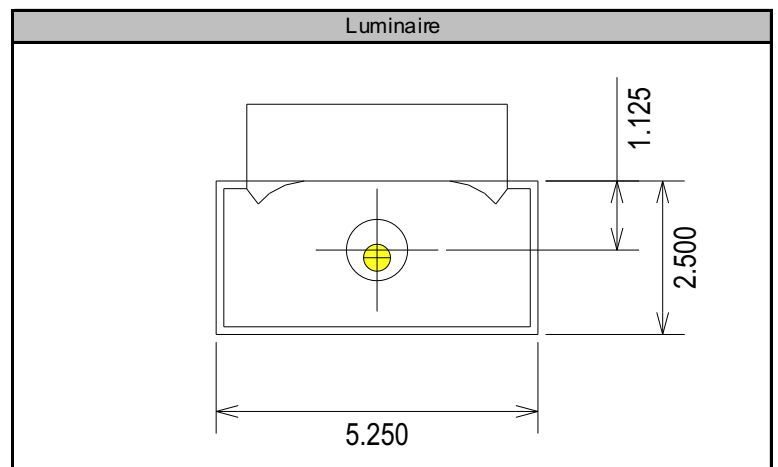
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	577.7	20.3%	22.1%
0-40	939.7	33.0%	35.9%
0-60	1545.2	54.2%	59.0%
0-90	2049.7	71.9%	78.2%
90-180	569.9	20.0%	21.8%
0-180	2619.6	91.9%	100.0%

Total luminaire efficiency: 91.9%

CIE Type: Semi-Direct

Spacing Criterion: 0 deg: 1.26 90 deg: 1.34
180 deg: 1.26 270 deg: 1.34



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	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697
5	693	696	704	704	708	704	704	696	693	696	704	704	708	704	704	696
10	687	695	712	720	726	720	712	695	687	695	712	720	726	720	712	695
15	675	691	717	730	737	730	717	691	675	691	717	730	737	730	717	691
20	657	679	710	721	727	721	710	679	657	679	710	721	727	721	710	679
25	631	658	685	689	691	689	685	658	631	658	685	689	691	689	685	658
30	596	622	644	644	645	644	644	622	596	622	644	644	645	644	644	622
35	548	571	591	591	591	591	591	571	548	571	591	591	591	591	591	571
40	482	505	528	529	528	529	528	505	482	505	528	529	528	529	528	505
45	396	427	457	461	459	461	457	427	396	427	457	461	459	461	457	427
50	300	342	382	391	390	391	382	342	300	342	382	391	390	391	382	342
55	217	263	311	328	330	328	311	263	217	263	311	328	330	328	311	263
60	159	199	248	277	285	277	248	199	159	199	248	277	285	277	248	199
65	122	153	201	245	261	245	201	153	122	153	201	245	261	245	201	153
70	96	120	170	227	249	227	170	120	96	120	170	227	249	227	170	120
75	72	96	152	214	236	214	152	96	72	96	152	214	236	214	152	96
80	46	75	140	204	232	204	140	75	46	75	140	204	232	204	140	75
85	20	57	130	205	239	205	130	57	20	57	130	205	239	205	130	57
90	0	42	128	218	251	218	128	42	0	42	128	218	251	218	128	42
95	0	44	145	235	263	235	145	44	0	44	145	235	263	235	145	44
100	0	50	158	238	262	238	158	50	0	50	158	238	262	238	158	50
105	0	56	160	231	254	231	160	56	0	56	160	231	254	231	160	56
110	0	59	153	216	239	216	153	59	0	59	153	216	239	216	153	59
115	0	57	137	193	212	193	137	57	0	57	137	193	212	193	137	57
120	0	49	114	161	178	161	114	49	0	49	114	161	178	161	114	49
125	0	40	91	128	141	128	91	40	0	40	91	128	141	128	91	40
130	0	33	70	98	108	98	70	33	0	33	70	98	108	98	70	33
135	0	27	55	74	82	74	55	27	0	27	55	74	82	74	55	27
140	0	22	44	58	62	58	44	22	0	22	44	58	62	58	44	22
145	0	18	36	47	50	47	36	18	0	18	36	47	50	47	36	18
150	0	15	30	39	42	39	30	15	0	15	30	39	42	39	30	15
155	0	13	24	32	34	32	24	13	0	13	24	32	34	32	24	13
160	0	10	18	24	27	24	18	10	0	10	18	24	27	24	18	10
165	0	8	13	17	20	17	13	8	0	8	13	17	20	17	13	8
170	0	7	10	11	13	11	10	7	0	7	10	11	13	11	10	7
175	0	1	6	7	7	7	6	1	0	1	6	7	7	7	6	1
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	16.7	45-50	162.9	90-95	73.4	135-140	16.2
5-10	50.5	50-55	142.9	95-100	77.2	140-145	11.8
10-15	84.3	55-60	121.9	100-105	77.1	145-150	8.5
15-20	116.5	60-65	104.8	105-110	73.6	150-155	6.0
20-25	144.3	65-70	93.2	110-115	66.1	155-160	4.0
25-30	165.4	70-75	85.0	115-120	55.1	160-165	2.3
30-35	178.7	75-80	78.1	120-125	42.9	165-170	1.2
35-40	183.3	80-85	73.0	125-130	31.6	170-175	0.5
40-45	177.8	85-90	70.3	130-135	22.6	175-180	0.1



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	1.097	1.097	1.097	1.097	1.047	1.047	1.047	1.047	0.999	0.999	0.999	0.999
1	0.991	0.937	0.889	0.846	0.942	0.894	0.852	0.813	0.897	0.854	0.816	0.781
2	0.902	0.815	0.744	0.685	0.857	0.779	0.715	0.661	0.814	0.745	0.687	0.638
3	0.824	0.717	0.635	0.57	0.782	0.686	0.611	0.552	0.743	0.656	0.589	0.534
4	0.756	0.636	0.549	0.484	0.717	0.609	0.53	0.469	0.681	0.584	0.511	0.455
5	0.696	0.568	0.481	0.417	0.661	0.545	0.465	0.405	0.627	0.523	0.449	0.394
6	0.643	0.511	0.425	0.364	0.61	0.491	0.412	0.354	0.58	0.472	0.398	0.345
7	0.595	0.463	0.379	0.321	0.566	0.446	0.368	0.313	0.538	0.429	0.356	0.305
8	0.554	0.422	0.341	0.286	0.527	0.407	0.331	0.279	0.502	0.392	0.321	0.272
9	0.516	0.386	0.308	0.256	0.492	0.373	0.3	0.251	0.469	0.36	0.291	0.245
10	0.483	0.356	0.281	0.232	0.461	0.344	0.273	0.227	0.44	0.332	0.266	0.222

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	0.91	0.91	0.91	0.91	0.829	0.829	0.829	0.754	0.754	0.754	0.719
1	0.811	0.778	0.748	0.72	0.708	0.685	0.662	0.644	0.626	0.609	0.576
2	0.734	0.68	0.633	0.593	0.62	0.583	0.55	0.565	0.535	0.509	0.479
3	0.669	0.601	0.545	0.499	0.549	0.504	0.466	0.501	0.465	0.434	0.406
4	0.614	0.536	0.475	0.428	0.491	0.441	0.401	0.449	0.409	0.375	0.349
5	0.566	0.481	0.419	0.372	0.443	0.391	0.35	0.406	0.363	0.328	0.304
6	0.524	0.436	0.373	0.326	0.402	0.349	0.308	0.37	0.325	0.29	0.268
7	0.487	0.397	0.335	0.289	0.367	0.314	0.274	0.339	0.294	0.259	0.238
8	0.455	0.363	0.302	0.259	0.337	0.284	0.246	0.312	0.267	0.233	0.213
9	0.426	0.334	0.275	0.233	0.311	0.259	0.222	0.288	0.244	0.211	0.193
10	0.401	0.309	0.251	0.212	0.288	0.237	0.202	0.268	0.224	0.192	0.175

Average Luminance Table (cd/m²)

	0	45	90
0	4284	4284	4284
45	3280	2903	2709
55	2174	2177	2107
65	1595	1623	1879
75	1437	1504	2023
85	863	1746	2614

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.

