



# 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: 21385 DATE: 12/02/2010  
 PREPARED FOR: RENOVA LIGHTING SYSTEMS  
 CATALOG NUMBER: ECS-SVW4-WN-132-UNV-11L-CRL  
 LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE PAINTED ALUMINUM REFLECTOR, CLEAR LINEAR PRISMATIC ACRYLIC ENCLOSURE.  
 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, 0.2167A, 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	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	
5	390	388	388	383	379	378	381	378	379	378	381	378	379	383	388	388	36.5
15	417	412	399	381	367	365	359	349	345	349	359	365	367	381	399	412	106.3
25	452	439	410	370	344	329	298	264	250	264	298	329	344	370	410	439	161.4
35	473	455	412	349	308	263	202	174	166	174	202	263	308	349	412	455	194.6
45	474	453	397	318	256	178	132	105	90	105	132	178	256	318	397	453	204.6
55	460	432	363	267	182	103	73	51	40	51	73	103	182	267	363	432	192.7
65	443	405	314	194	100	51	41	21	16	21	41	51	100	194	314	405	168.2
75	427	388	274	121	37	17	14	4	2	4	14	17	37	121	274	388	142.0
85	424	384	259	78	5	1	1	1	1	1	1	1	5	78	259	384	128.8
90	421	383	257	73	0	0	0	0	1	0	0	0	0	73	257	383	
95	422	383	256	76	4	0	0	0	1	0	0	0	4	76	256	383	127.6
105	423	384	269	119	36	16	13	5	4	5	13	16	36	119	269	384	140.1
115	434	397	306	188	98	54	39	25	20	25	39	54	98	188	306	397	165.5
125	448	418	349	255	176	104	83	55	47	55	83	104	176	255	349	418	189.2
135	458	433	378	302	245	173	137	122	113	122	137	173	245	302	378	433	199.9
145	453	431	389	331	294	253	196	175	173	175	196	253	294	331	389	431	186.6
155	431	415	386	349	327	310	284	254	247	254	284	310	327	349	386	415	153.4
165	399	388	376	358	349	343	337	331	329	331	337	343	349	358	376	388	100.5
175	371	367	366	361	360	357	357	355	356	355	357	357	360	361	366	367	34.4
180	361	361	361	361	361	361	361	361	361	361	361	361	361	361	361	361	

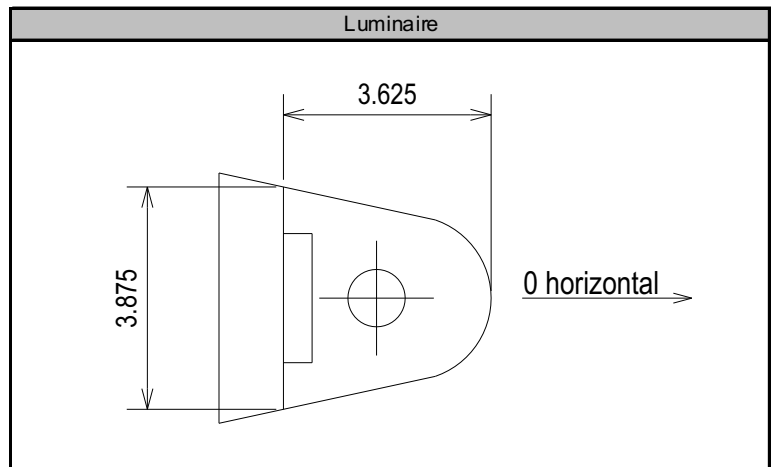
### Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	304.2	10.7%	11.6%
0-40	498.8	17.5%	18.9%
0-60	896.1	31.4%	34.0%
0-90	1335.1	46.8%	50.7%
90-180	1297.2	45.5%	49.3%
0-180	2632.2	92.4%	100.0%

Total luminaire efficiency: 92.4%

CIE Type: Direct/Indirect  
 Spacing Criterion: 0 deg: 1.83 90 deg: 1.27  
 180 deg: 0.91 270 deg: 1.27

Total reflectance of paint: 91.5



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	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383
5	390	388	388	383	379	378	381	378	379	378	381	378	379	383	388	388
10	401	398	393	383	374	374	374	369	368	369	374	374	374	383	393	398
15	417	412	399	381	367	365	359	349	345	349	359	365	367	381	399	412
20	434	425	405	376	357	351	335	313	304	313	335	351	357	376	405	425
25	452	439	410	370	344	329	298	264	250	264	298	329	344	370	410	439
30	465	450	412	361	328	301	251	212	202	212	251	301	328	361	412	450
35	473	455	412	349	308	263	202	174	166	174	202	263	308	349	412	455
40	477	456	407	335	285	222	163	142	131	142	163	222	285	335	407	456
45	474	453	397	318	256	178	132	105	90	105	132	178	256	318	397	453
50	469	444	383	296	221	138	103	72	60	72	103	138	221	296	383	444
55	460	432	363	267	182	103	73	51	40	51	73	103	182	267	363	432
60	450	418	339	232	141	75	53	35	25	35	53	75	141	232	339	418
65	443	405	314	194	100	51	41	21	16	21	41	51	100	194	314	405
70	435	397	292	155	64	31	28	12	10	12	28	31	64	155	292	397
75	427	388	274	121	37	17	14	4	2	4	14	17	37	121	274	388
80	424	384	263	95	18	7	1	1	2	1	1	7	18	95	263	384
85	424	384	259	78	5	1	1	1	1	1	1	1	5	78	259	384
90	421	383	257	73	0	0	0	0	1	0	0	0	0	73	257	383
95	422	383	256	76	4	0	0	0	1	0	0	0	4	76	256	383
100	421	381	258	93	17	6	1	0	1	0	1	6	17	93	258	381
105	423	384	269	119	36	16	13	5	4	5	13	16	36	119	269	384
110	427	388	286	152	63	32	26	15	12	15	26	32	63	152	286	388
115	434	397	306	188	98	54	39	25	20	25	39	54	98	188	306	397
120	441	408	328	223	137	78	55	37	31	37	55	78	137	223	328	408
125	448	418	349	255	176	104	83	55	47	55	83	104	176	255	349	418
130	454	427	366	282	213	135	112	85	73	85	112	135	213	282	366	427
135	458	433	378	302	245	173	137	122	113	122	137	173	245	302	378	433
140	458	434	385	319	272	214	161	151	146	151	161	214	272	319	385	434
145	453	431	389	331	294	253	196	175	173	175	196	253	294	331	389	431
150	439	424	389	341	312	286	241	207	202	207	241	286	312	341	389	424
155	431	415	386	349	327	310	284	254	247	254	284	310	327	349	386	415
160	415	402	381	354	339	329	317	301	296	301	317	329	339	354	381	402
165	399	388	376	358	349	343	337	331	329	331	337	343	349	358	376	388
170	383	377	370	361	356	352	350	345	346	345	350	352	356	361	370	377
175	371	367	366	361	360	357	357	355	356	355	357	357	360	361	366	367
180	361	361	361	361	361	361	361	361	361	361	361	361	361	361	361	361

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	9.1	45-50	102.0	90-95	63.4	135-140	99.8
5-10	27.4	50-55	98.9	95-100	64.2	140-145	96.3
10-15	45.0	55-60	93.8	100-105	67.3	145-150	90.3
15-20	61.3	60-65	87.5	105-110	72.8	150-155	81.9
20-25	75.2	65-70	80.7	110-115	79.4	155-160	71.4
25-30	86.2	70-75	73.8	115-120	86.2	160-165	58.0
30-35	94.5	75-80	68.2	120-125	92.1	165-170	42.5
35-40	100.1	80-85	65.0	125-130	97.1	170-175	25.8
40-45	102.7	85-90	63.8	130-135	100.1	175-180	8.6



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	0.991	0.991	0.991	0.991	0.915	0.915	0.915	0.915
1	0.962	0.907	0.857	0.813	0.886	0.838	0.795	0.757	0.814	0.773	0.736	0.702
2	0.871	0.782	0.71	0.649	0.801	0.724	0.66	0.606	0.734	0.667	0.611	0.564
3	0.792	0.683	0.599	0.533	0.727	0.632	0.558	0.499	0.666	0.583	0.518	0.465
4	0.723	0.601	0.512	0.446	0.664	0.557	0.478	0.418	0.608	0.514	0.444	0.391
5	0.663	0.533	0.444	0.379	0.608	0.494	0.415	0.356	0.557	0.457	0.386	0.333
6	0.609	0.476	0.388	0.326	0.559	0.442	0.363	0.307	0.513	0.409	0.339	0.288
7	0.562	0.428	0.343	0.284	0.517	0.398	0.322	0.268	0.474	0.369	0.3	0.251
8	0.521	0.388	0.305	0.25	0.479	0.361	0.287	0.236	0.44	0.335	0.268	0.222
9	0.484	0.353	0.274	0.222	0.446	0.329	0.258	0.209	0.41	0.306	0.241	0.197
10	0.451	0.323	0.247	0.198	0.416	0.301	0.233	0.187	0.383	0.281	0.218	0.176

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	0.773	0.773	0.773	0.773	0.644	0.644	0.644	0.524	0.524	0.524	0.468
1	0.681	0.651	0.623	0.597	0.538	0.518	0.499	0.434	0.42	0.406	0.357
2	0.611	0.562	0.519	0.483	0.464	0.433	0.405	0.374	0.351	0.331	0.287
3	0.553	0.491	0.441	0.4	0.406	0.368	0.337	0.327	0.3	0.276	0.237
4	0.504	0.434	0.38	0.337	0.36	0.318	0.285	0.29	0.26	0.234	0.2
5	0.462	0.387	0.331	0.288	0.321	0.279	0.245	0.26	0.228	0.202	0.172
6	0.426	0.348	0.292	0.25	0.29	0.246	0.213	0.236	0.203	0.177	0.149
7	0.395	0.314	0.259	0.219	0.263	0.22	0.187	0.215	0.181	0.156	0.131
8	0.367	0.286	0.232	0.194	0.24	0.197	0.166	0.197	0.164	0.139	0.117
9	0.343	0.262	0.21	0.173	0.221	0.179	0.149	0.182	0.149	0.125	0.105
10	0.322	0.241	0.19	0.155	0.204	0.163	0.134	0.168	0.136	0.113	0.095

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

	0	45	90
0	3444	3444	3444
45	2917	2881	3259
55	2858	2737	2851
65	2861	2547	2126
75	2974	2492	1276
85	3310	2772	562

Note: The zonal cavity calculation technique is accurate when luminaires with symmetric candela distributions are employed and when the luminaires are located symmetrically throughout the room. This unit has special characteristics and therefore these values should be used with caution.

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.

