



# 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: 21373 DATE: 10/22/2010  
 PREPARED FOR: RENOVA LIGHTING  
 CATALOG NUMBER: ECS-WVT4-WN-432-UNV-14L-CAL  
 LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED WHITE  
 PAINTED ALUMINUM REFLECTOR, CLEAR ACRYLIC ENCLOSURE WITH  
 CLEAR LINEAR PRISMATIC SIDES AND FROSTED ENDS.  
 LAMP: FOUR 32W T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH.  
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL835/ALTO  
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE4X32T8/UNV-ISL-SC  
 MOUNTING: PENDANT  
 ELECTRICAL VALUES: 120.0VAC, 0.7985A, 95.60W

### 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	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	
5	2743	2744	2750	2743	2743	2743	2750	2744	2743	2744	2750	2743	2743	2743	2750	2744	260.2
15	2651	2643	2641	2635	2633	2635	2641	2643	2651	2643	2641	2635	2633	2635	2641	2643	745.2
25	2474	2453	2463	2489	2509	2489	2463	2453	2474	2453	2463	2489	2509	2489	2463	2453	1141.9
35	2202	2180	2247	2341	2374	2341	2247	2180	2202	2180	2247	2341	2374	2341	2247	2180	1418.6
45	1859	1846	1999	2099	2148	2099	1999	1846	1859	1846	1999	2099	2148	2099	1999	1846	1534.1
55	1445	1451	1666	1860	1935	1860	1666	1451	1445	1451	1666	1860	1935	1860	1666	1451	1486.3
65	966	1018	1314	1532	1607	1532	1314	1018	966	1018	1314	1532	1607	1532	1314	1018	1272.2
75	447	573	902	1046	1092	1046	902	573	447	573	902	1046	1092	1046	902	573	870.6
85	91	245	428	537	575	537	428	245	91	245	428	537	575	537	428	245	449.3
90	44	183	360	475	510	475	360	183	44	183	360	475	510	475	360	183	
95	43	154	260	342	374	342	260	154	43	154	260	342	374	342	260	154	275.8
105	43	84	175	254	286	254	175	84	43	84	175	254	286	254	175	84	180.5
115	21	51	123	176	197	176	123	51	21	51	123	176	197	176	123	51	113.8
125	10	20	64	108	123	108	64	20	10	20	64	108	123	108	64	20	58.8
135	5	6	28	48	54	48	28	6	5	6	28	48	54	48	28	6	22.4
145	0	3	8	17	22	17	8	3	0	3	8	17	22	17	8	3	6.6
155	0	0	0	5	7	5	0	0	0	0	0	5	7	5	0	0	1.1
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	

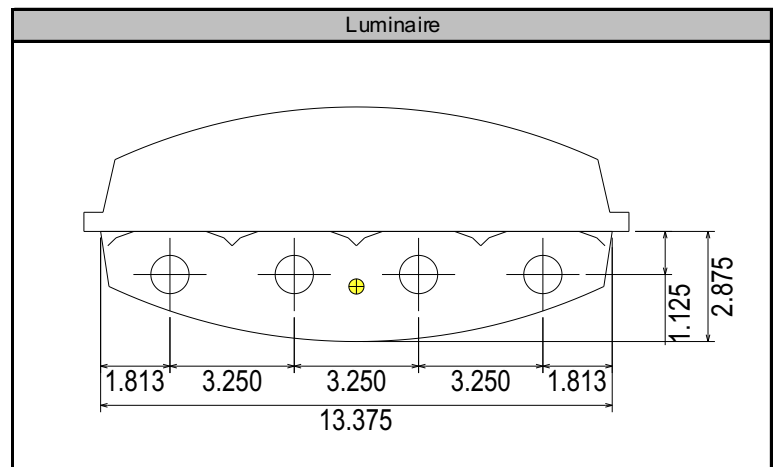
### Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	2147.4	18.8%	21.8%
0-40	3565.9	31.3%	36.2%
0-60	6586.3	57.8%	67.0%
0-90	9178.4	80.5%	93.3%
90-180	658.9	5.8%	6.7%
0-180	9837.4	86.3%	100.0%

Total luminaire efficiency: 86.3%

CIE Type: Direct  
 Spacing Criterion: 0 deg: 1.27 90 deg: 1.34  
 180 deg: 1.27 270 deg: 1.34

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	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756	2756
5	2743	2744	2750	2743	2743	2743	2750	2744	2743	2744	2750	2743	2743	2743	2750	2744
10	2706	2708	2703	2694	2696	2694	2703	2708	2706	2708	2703	2694	2696	2694	2703	2708
15	2651	2643	2641	2635	2633	2635	2641	2643	2651	2643	2641	2635	2633	2635	2641	2643
20	2571	2558	2557	2564	2569	2564	2557	2558	2571	2558	2557	2564	2569	2564	2557	2558
25	2474	2453	2463	2489	2509	2489	2463	2453	2474	2453	2463	2489	2509	2489	2463	2453
30	2355	2329	2359	2428	2454	2428	2359	2329	2355	2329	2359	2428	2454	2428	2359	2329
35	2202	2180	2247	2341	2374	2341	2247	2180	2202	2180	2247	2341	2374	2341	2247	2180
40	2040	2023	2134	2233	2261	2233	2134	2023	2040	2023	2134	2233	2261	2233	2134	2023
45	1859	1846	1999	2099	2148	2099	1999	1846	1859	1846	1999	2099	2148	2099	1999	1846
50	1656	1651	1830	1977	2040	1977	1830	1651	1656	1651	1830	1977	2040	1977	1830	1651
55	1445	1451	1666	1860	1935	1860	1666	1451	1445	1451	1666	1860	1935	1860	1666	1451
60	1206	1239	1488	1703	1771	1703	1488	1239	1206	1239	1488	1703	1771	1703	1488	1239
65	966	1018	1314	1532	1607	1532	1314	1018	966	1018	1314	1532	1607	1532	1314	1018
70	694	778	1113	1340	1403	1340	1113	778	694	778	1113	1340	1403	1340	1113	778
75	447	573	902	1046	1092	1046	902	573	447	573	902	1046	1092	1046	902	573
80	232	402	622	768	823	768	622	402	232	402	622	768	823	768	622	402
85	91	245	428	537	575	537	428	245	91	245	428	537	575	537	428	245
90	44	183	360	475	510	475	360	183	44	183	360	475	510	475	360	183
95	43	154	260	342	374	342	260	154	43	154	260	342	374	342	260	154
100	51	114	221	304	334	304	221	114	51	114	221	304	334	304	221	114
105	43	84	175	254	286	254	175	84	43	84	175	254	286	254	175	84
110	30	64	146	207	231	207	146	64	30	64	146	207	231	207	146	64
115	21	51	123	176	197	176	123	51	21	51	123	176	197	176	123	51
120	14	32	97	141	162	141	97	32	14	32	97	141	162	141	97	32
125	10	20	64	108	123	108	64	20	10	20	64	108	123	108	64	20
130	7	11	44	67	82	67	44	11	7	11	44	67	82	67	44	11
135	5	6	28	48	54	48	28	6	5	6	28	48	54	48	28	6
140	2	5	15	31	37	31	15	5	2	5	15	31	37	31	15	5
145	0	3	8	17	22	17	8	3	0	3	8	17	22	17	8	3
150	0	0	3	10	12	10	3	0	0	0	3	10	12	10	3	0
155	0	0	0	5	7	5	0	0	0	0	0	5	7	5	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	65.7	45-50	770.6	90-95	153.8	135-140	8.6
5-10	194.5	50-55	759.7	95-100	122.0	140-145	4.5
10-15	316.5	55-60	726.6	100-105	101.2	145-150	2.1
15-20	428.7	60-65	673.6	105-110	79.3	150-155	0.9
20-25	528.0	65-70	598.5	110-115	63.9	155-160	0.2
25-30	613.9	70-75	496.9	115-120	49.9	160-165	0.0
30-35	683.7	75-80	373.7	120-125	35.7	165-170	0.0
35-40	734.9	80-85	258.4	125-130	23.0	170-175	0.0
40-45	763.5	85-90	190.8	130-135	13.9	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	1.045	1.045	1.045	1.045	1.014	1.014	1.014	1.014	0.983	0.983	0.983	0.983
1	0.942	0.89	0.844	0.802	0.911	0.863	0.821	0.783	0.88	0.838	0.799	0.765
2	0.852	0.766	0.695	0.636	0.821	0.743	0.679	0.624	0.792	0.722	0.662	0.612
3	0.773	0.666	0.584	0.519	0.744	0.647	0.571	0.511	0.717	0.628	0.559	0.502
4	0.705	0.585	0.499	0.434	0.679	0.569	0.489	0.428	0.654	0.554	0.479	0.421
5	0.647	0.52	0.433	0.369	0.622	0.506	0.424	0.364	0.599	0.493	0.416	0.36
6	0.595	0.465	0.38	0.319	0.573	0.454	0.373	0.315	0.552	0.442	0.367	0.312
7	0.55	0.42	0.337	0.28	0.53	0.41	0.331	0.277	0.512	0.4	0.326	0.274
8	0.511	0.382	0.302	0.248	0.493	0.373	0.297	0.245	0.476	0.364	0.293	0.243
9	0.476	0.349	0.273	0.222	0.46	0.341	0.269	0.22	0.444	0.334	0.265	0.217
10	0.446	0.321	0.248	0.2	0.431	0.314	0.244	0.198	0.417	0.308	0.241	0.196

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	0.927	0.927	0.927	0.927	0.875	0.875	0.875	0.827	0.827	0.827	0.805
1	0.824	0.79	0.759	0.73	0.746	0.721	0.697	0.705	0.685	0.666	0.643
2	0.739	0.681	0.632	0.589	0.643	0.603	0.567	0.609	0.575	0.545	0.523
3	0.667	0.594	0.535	0.486	0.562	0.512	0.47	0.532	0.49	0.455	0.432
4	0.608	0.524	0.46	0.409	0.497	0.442	0.397	0.471	0.424	0.386	0.364
5	0.557	0.467	0.401	0.35	0.444	0.386	0.341	0.422	0.372	0.332	0.311
6	0.514	0.42	0.354	0.304	0.4	0.342	0.297	0.381	0.33	0.29	0.27
7	0.477	0.381	0.315	0.268	0.363	0.305	0.262	0.347	0.295	0.256	0.237
8	0.444	0.348	0.284	0.238	0.332	0.275	0.233	0.318	0.266	0.228	0.21
9	0.416	0.319	0.257	0.213	0.306	0.249	0.209	0.293	0.242	0.205	0.188
10	0.391	0.295	0.234	0.193	0.283	0.228	0.189	0.272	0.222	0.186	0.17

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

	0	45	90
0	6415	6415	6415
45	5815	5672	5961
55	5448	5435	6137
65	4760	5233	6166
75	3333	4801	5516
85	1482	3600	4449

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.

