



# 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: 16644 DATE: 09-23-2009  
 PREPARED FOR: RENOVA LIGHTING SYSTEMS  
 CATALOG NUMBER: ECS-RCN2-MN-217-UNV-12L-FRL  
 LUMINAIRE: FORMED WHITE ENAMEL STEEL HOUSING, FORMED SPECULAR ALUMINUM REFLECTOR, FORMED WHITE ENAMEL STEEL ENCLOSURE WITH FROSTED LINEAR PRISMATIC PLASTIC LENSES.  
 LAMP: TWO 17 WATT T8 LINEAR FLUORESENT LAMPS RATED AT 1325 LUMENS EACH.  
 LAMP CATALOG NUMBER: GE F17T8-SP41-ECO  
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE-2X32T8-UNV-ISL-SC  
 MOUNTING: RECESSED  
 ELECTRICAL VALUES: 120.0VAC, 0.2183A, 26.13W

### 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	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	
5	1032	1033	1031	1029	1026	1029	1031	1033	1032	1033	1031	1029	1026	1029	1031	1033	97.4
15	969	963	948	933	926	933	948	963	969	963	948	933	926	933	948	963	266.5
25	850	839	813	787	777	787	813	839	850	839	813	787	777	787	813	839	374.1
35	690	684	662	645	639	645	662	684	690	684	662	645	639	645	662	684	414.9
45	513	517	516	519	522	519	516	517	513	517	516	519	522	519	516	517	398.9
55	344	358	377	393	398	393	377	358	344	358	377	393	398	393	377	358	334.9
65	203	221	244	241	236	241	244	221	203	221	244	241	236	241	244	221	229.0
75	95	106	109	96	89	96	109	106	95	106	109	96	89	96	109	106	108.3
85	20	20	16	13	12	13	16	20	20	20	16	13	12	13	16	20	20.8
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
155	0	0	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	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	

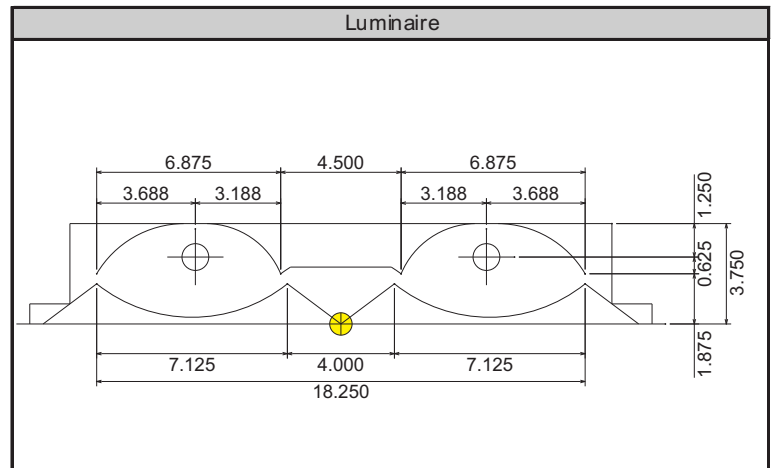
### Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	737.9	27.8%	32.9%
0-40	1152.8	43.5%	51.4%
0-60	1886.7	71.2%	84.0%
0-90	2244.8	84.7%	100.0%
90-180	0.0	0.0%	0.0%
0-180	2244.8	84.7%	100.0%

Total luminaire efficiency: 84.7%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.12 90 deg: 1.03  
180 deg: 1.12 270 deg: 1.03



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	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042	1042
5	1032	1033	1031	1029	1026	1029	1031	1033	1032	1033	1031	1029	1026	1029	1031	1033
10	1007	1006	999	990	985	990	999	1006	1007	1006	999	990	985	990	999	1006
15	969	963	948	933	926	933	948	963	969	963	948	933	926	933	948	963
20	915	907	886	863	853	863	886	907	915	907	886	863	853	863	886	907
25	850	839	813	787	777	787	813	839	850	839	813	787	777	787	813	839
30	774	765	738	714	704	714	738	765	774	765	738	714	704	714	738	765
35	690	684	662	645	639	645	662	684	690	684	662	645	639	645	662	684
40	602	600	587	580	579	580	587	600	602	600	587	580	579	580	587	600
45	513	517	516	519	522	519	516	517	513	517	516	519	522	519	516	517
50	427	437	446	458	463	458	446	437	427	437	446	458	463	458	446	437
55	344	358	377	393	398	393	377	358	344	358	377	393	398	393	377	358
60	269	287	310	323	321	323	310	287	269	287	310	323	321	323	310	287
65	203	221	244	241	236	241	244	221	203	221	244	241	236	241	244	221
70	143	160	172	163	155	163	172	160	143	160	172	163	155	163	172	160
75	95	106	109	96	89	96	109	106	95	106	109	96	89	96	109	106
80	53	58	57	45	40	45	57	58	53	58	57	45	40	45	57	58
85	20	20	16	13	12	13	16	20	20	20	16	13	12	13	16	20
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	24.8	45-50	194.3	90-95	0.0	135-140	0.0
5-10	72.6	50-55	178.4	95-100	0.0	140-145	0.0
10-15	115.4	55-60	156.5	100-105	0.0	145-150	0.0
15-20	151.0	60-65	129.8	105-110	0.0	150-155	0.0
20-25	178.0	65-70	99.2	110-115	0.0	155-160	0.0
25-30	196.1	70-75	68.2	115-120	0.0	160-165	0.0
30-35	206.2	75-80	40.2	120-125	0.0	165-170	0.0
35-40	208.7	80-85	17.6	125-130	0.0	170-175	0.0
40-45	204.6	85-90	3.3	130-135	0.0	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	1.033	1.033	1.033	1.033	1.008	1.008	1.008	1.008	0.985	0.985	0.985	0.985
1	0.954	0.914	0.878	0.845	0.93	0.894	0.861	0.831	0.908	0.875	0.845	0.818
2	0.875	0.804	0.746	0.698	0.852	0.788	0.735	0.69	0.831	0.772	0.723	0.682
3	0.804	0.712	0.643	0.588	0.782	0.699	0.634	0.583	0.762	0.685	0.626	0.578
4	0.74	0.635	0.56	0.504	0.72	0.624	0.554	0.5	0.701	0.613	0.547	0.497
5	0.683	0.571	0.494	0.438	0.665	0.561	0.489	0.436	0.647	0.552	0.484	0.433
6	0.633	0.517	0.44	0.386	0.616	0.508	0.436	0.384	0.6	0.5	0.432	0.383
7	0.588	0.47	0.395	0.344	0.573	0.463	0.392	0.342	0.559	0.457	0.389	0.341
8	0.548	0.431	0.358	0.309	0.535	0.425	0.356	0.308	0.522	0.419	0.353	0.307
9	0.513	0.397	0.327	0.28	0.501	0.391	0.324	0.279	0.489	0.386	0.322	0.278
10	0.482	0.367	0.3	0.255	0.471	0.363	0.298	0.255	0.46	0.358	0.296	0.254

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	0.941	0.941	0.941	0.941	0.901	0.901	0.901	0.864	0.864	0.864	0.847
1	0.866	0.839	0.814	0.792	0.806	0.786	0.768	0.776	0.76	0.745	0.728
2	0.791	0.743	0.702	0.666	0.715	0.681	0.651	0.69	0.662	0.637	0.619
3	0.724	0.661	0.61	0.567	0.638	0.594	0.558	0.616	0.58	0.548	0.531
4	0.666	0.592	0.535	0.49	0.573	0.524	0.484	0.555	0.512	0.477	0.46
5	0.616	0.534	0.475	0.429	0.518	0.466	0.424	0.503	0.457	0.42	0.403
6	0.571	0.485	0.425	0.379	0.472	0.417	0.376	0.458	0.41	0.373	0.356
7	0.532	0.444	0.383	0.339	0.432	0.377	0.336	0.421	0.372	0.334	0.318
8	0.498	0.408	0.348	0.305	0.398	0.343	0.303	0.388	0.339	0.302	0.286
9	0.468	0.377	0.318	0.277	0.368	0.314	0.276	0.36	0.31	0.274	0.259
10	0.44	0.35	0.293	0.253	0.342	0.289	0.252	0.335	0.286	0.251	0.237

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

	0	45	90
0	3434	3434	3434
45	2392	2403	2431
55	1975	2167	2285
65	1583	1900	1839
75	1203	1383	1127
85	757	620	445

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.

