



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: 17528

DATE: 12-09-2009

PREPARED FOR: RENOVA LIGHTING SYSTEMS

CATALOG NUMBER: ECS-KCN4-MN-232-UNV-12L-SBL

LUMINAIRE: FORMED STEEL HOUSING, FORMED SPECULAR ALUMINUM REFLECTOR,
12 CELL, 1-5/8" DEEP, FORMED WHITE ENAMEL STEEL LOUVER.

LAMP: TWO 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS
EACH.

LAMP CATALOG NUMBER: PHILIPS F32T8/841/ALTO

BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE2X32T8/UNV-ISL-SC

MOUNTING: RECESSED

ELECTRICAL VALUES: 120.0VAC, 0.4196A, 50.27W

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	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	
5	3594	3574	3526	3499	3481	3499	3526	3574	3594	3574	3526	3499	3481	3499	3526	3574	330.1
15	3368	3212	2928	2662	2557	2662	2928	3212	3368	3212	2928	2662	2557	2662	2928	3212	820.3
25	2988	2630	1985	1676	1570	1676	1985	2630	2988	2630	1985	1676	1570	1676	1985	2630	984.6
35	2477	1868	1266	1110	1083	1110	1266	1868	2477	1868	1266	1110	1083	1110	1266	1868	947.9
45	1896	1179	873	898	905	898	873	1179	1896	1179	873	898	905	898	873	1179	837.6
55	1305	676	643	642	598	642	643	676	1305	676	643	642	598	642	643	676	638.0
65	717	404	327	99	55	99	327	404	717	404	327	99	55	99	327	404	312.6
75	233	173	97	67	34	67	97	173	233	173	97	67	34	67	97	173	128.6
85	47	45	33	17	7	17	33	45	47	45	33	17	7	17	33	45	34.6
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	

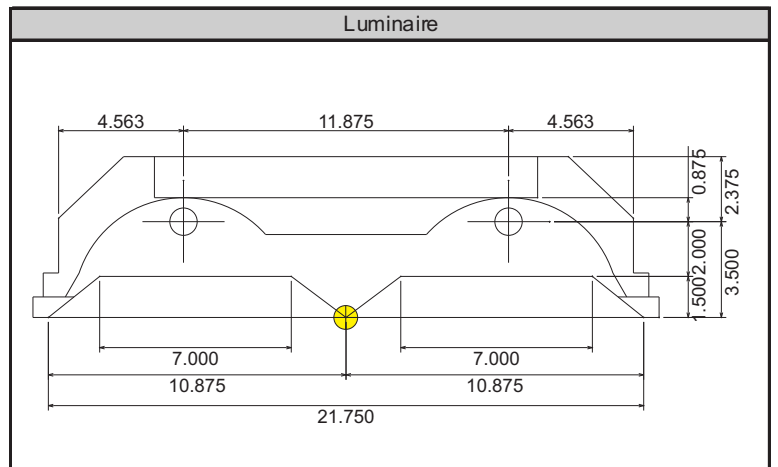
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	2135.0	37.5%	42.4%
0-40	3082.9	54.1%	61.2%
0-60	4558.5	80.0%	90.5%
0-90	5034.3	88.3%	100.0%
90-180	0.0	0.0%	0.0%
0-180	5034.3	88.3%	100.0%

Total luminaire efficiency: 88.3%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.14 90 deg: 0.68
180 deg: 1.14 270 deg: 0.68



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	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633	3633
5	3594	3574	3526	3499	3481	3499	3526	3574	3594	3574	3526	3499	3481	3499	3526	3574
10	3506	3423	3293	3178	3127	3178	3293	3423	3506	3423	3293	3178	3127	3178	3293	3423
15	3368	3212	2928	2662	2557	2662	2928	3212	3368	3212	2928	2662	2557	2662	2928	3212
20	3194	2953	2460	2102	2005	2102	2460	2953	3194	2953	2460	2102	2005	2102	2460	2953
25	2988	2630	1985	1676	1570	1676	1985	2630	2988	2630	1985	1676	1570	1676	1985	2630
30	2747	2256	1606	1337	1284	1337	1606	2256	2747	2256	1606	1337	1284	1337	1606	2256
35	2477	1868	1266	1110	1083	1110	1266	1868	2477	1868	1266	1110	1083	1110	1266	1868
40	2199	1498	1042	978	993	978	1042	1498	2199	1498	1042	978	993	978	1042	1498
45	1896	1179	873	898	905	898	873	1179	1896	1179	873	898	905	898	873	1179
50	1597	893	759	751	754	751	759	893	1597	893	759	751	754	751	759	893
55	1305	676	643	642	598	642	643	676	1305	676	643	642	598	642	643	676
60	1010	519	516	353	219	353	516	519	1010	519	516	353	219	353	516	519
65	717	404	327	99	55	99	327	404	717	404	327	99	55	99	327	404
70	444	288	121	81	46	81	121	288	444	288	121	81	46	81	121	288
75	233	173	97	67	34	67	97	173	233	173	97	67	34	67	97	173
80	103	99	72	57	46	57	72	99	103	99	72	57	46	57	72	99
85	47	45	33	17	7	17	33	45	47	45	33	17	7	17	33	45
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	85.7	45-50	400.8	90-95	0.0	135-140	0.0
5-10	244.4	50-55	353.8	95-100	0.0	140-145	0.0
10-15	370.5	55-60	284.2	100-105	0.0	145-150	0.0
15-20	449.8	60-65	191.7	105-110	0.0	150-155	0.0
20-25	488.2	65-70	120.9	110-115	0.0	155-160	0.0
25-30	496.4	70-75	78.1	115-120	0.0	160-165	0.0
30-35	485.5	75-80	50.5	120-125	0.0	165-170	0.0
35-40	462.4	80-85	27.0	125-130	0.0	170-175	0.0
40-45	436.8	85-90	7.6	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	1.077	1.077	1.077	1.077	1.051	1.051	1.051	1.051	1.027	1.027	1.027	1.027
1	1.005	0.968	0.934	0.904	0.981	0.947	0.917	0.89	0.958	0.927	0.9	0.875
2	0.932	0.867	0.813	0.768	0.909	0.85	0.801	0.759	0.888	0.834	0.789	0.75
3	0.864	0.779	0.714	0.663	0.843	0.765	0.705	0.657	0.823	0.752	0.697	0.652
4	0.802	0.705	0.634	0.581	0.783	0.693	0.627	0.577	0.764	0.682	0.621	0.573
5	0.747	0.641	0.568	0.515	0.729	0.631	0.563	0.512	0.712	0.622	0.558	0.51
6	0.697	0.586	0.513	0.461	0.68	0.578	0.509	0.459	0.665	0.57	0.505	0.458
7	0.652	0.539	0.467	0.417	0.637	0.532	0.463	0.416	0.623	0.525	0.46	0.414
8	0.611	0.498	0.428	0.38	0.598	0.492	0.425	0.379	0.585	0.486	0.422	0.378
9	0.575	0.462	0.394	0.349	0.563	0.457	0.392	0.348	0.551	0.452	0.39	0.347
10	0.542	0.43	0.365	0.322	0.531	0.426	0.363	0.321	0.521	0.422	0.361	0.321

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	0.981	0.981	0.981	0.981	0.94	0.94	0.94	0.901	0.901	0.901	0.883
1	0.915	0.891	0.868	0.848	0.857	0.839	0.822	0.826	0.812	0.798	0.781
2	0.848	0.804	0.766	0.733	0.776	0.745	0.717	0.75	0.725	0.702	0.685
3	0.786	0.727	0.68	0.641	0.704	0.664	0.63	0.682	0.649	0.62	0.603
4	0.73	0.661	0.608	0.566	0.642	0.596	0.559	0.624	0.584	0.552	0.535
5	0.681	0.604	0.548	0.505	0.588	0.538	0.5	0.572	0.529	0.495	0.478
6	0.636	0.555	0.497	0.454	0.541	0.49	0.45	0.528	0.482	0.447	0.431
7	0.597	0.512	0.454	0.412	0.5	0.448	0.409	0.489	0.442	0.407	0.391
8	0.562	0.475	0.417	0.376	0.465	0.412	0.374	0.455	0.408	0.372	0.357
9	0.53	0.442	0.385	0.346	0.433	0.381	0.344	0.425	0.377	0.343	0.328
10	0.501	0.413	0.358	0.319	0.406	0.354	0.318	0.398	0.351	0.317	0.303

Average Luminance Table (cd/m²)

	0	45	90
0	5741	5741	5741
45	4237	1951	2022
55	3594	1772	1649
65	2680	1222	204
75	1421	591	209
85	846	592	126

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.

