



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: 17547 DATE: 01-05-2010
 PREPARED FOR: RENOVA LIGHTING SYSTEMS
 CATALOG NUMBER: ECS-IRK4-WN-3LT8-UNV5.8-V
 LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, NO ENCLOSURE.
 LAMP: THREE 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH.
 LAMP CATALOG NUMBER: PHILIPS F32T8/841/ALTO
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE-3X32T8/UNV-ISL-SC
 MOUNTING: PENDANT
 ELECTRICAL VALUES: 120.0VAC, 0.6227A, 74.66W

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	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097		
5	2079	2089	2103	2098	2105	2098	2103	2089	2079	2089	2103	2098	2105	2098	2103	2089	199.5	
15	2012	2035	2058	2056	2064	2056	2058	2035	2012	2035	2058	2056	2064	2056	2058	2035	578.1	
25	1878	1913	1944	1968	1989	1968	1944	1913	1878	1913	1944	1968	1989	1968	1944	1913	895.2	
35	1684	1726	1802	1863	1889	1863	1802	1726	1684	1726	1802	1863	1889	1863	1802	1726	1123.0	
45	1437	1490	1612	1667	1694	1667	1612	1490	1437	1490	1612	1667	1694	1667	1612	1490	1222.4	
55	1143	1229	1344	1421	1452	1421	1344	1229	1143	1229	1344	1421	1452	1421	1344	1229	1183.5	
65	813	920	1051	1156	1194	1156	1051	920	813	920	1051	1156	1194	1156	1051	920	1020.5	
75	453	584	731	812	846	812	731	584	453	584	731	812	846	812	731	584	735.2	
85	97	240	375	454	488	454	375	240	97	240	375	454	488	454	375	240	380.7	
90	3	106	218	300	329	300	218	106	3	106	218	300	329	300	218	106		
95	2	34	127	201	229	201	127	34	2	34	127	201	229	201	127	34	133.0	
105	0	3	2	25	43	25	2	3	0	3	2	25	43	25	2	3	19.3	
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6
125	0	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	0.0
145	0	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	0.0
165	0	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	0.0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0

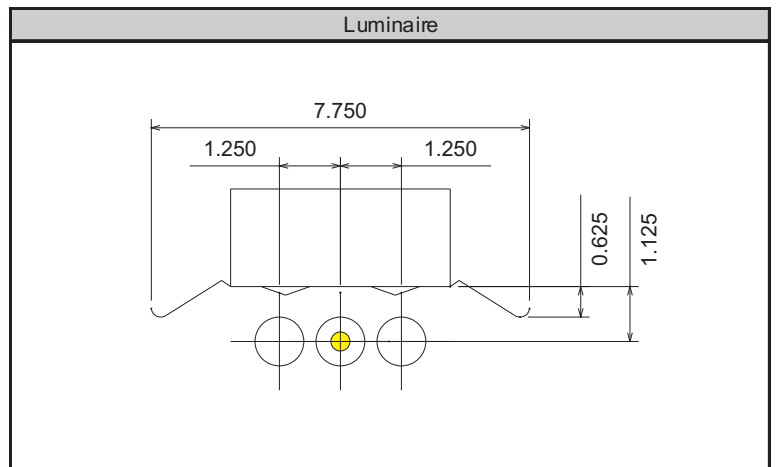
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	1672.8	19.6%	22.3%
0-40	2795.8	32.7%	37.3%
0-60	5201.7	60.8%	69.4%
0-90	7338.1	85.8%	98.0%
90-180	152.9	1.8%	2.0%
0-180	7491.0	87.6%	100.0%

Total luminaire efficiency: 87.6%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.27 90 deg: 1.39
 180 deg: 1.27 270 deg: 1.39

Total reflectance of paint: 89.9



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	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097	2097
5	2079	2089	2103	2098	2105	2098	2103	2089	2079	2089	2103	2098	2105	2098	2103	2089
10	2055	2070	2088	2085	2093	2085	2088	2070	2055	2070	2088	2085	2093	2085	2088	2070
15	2012	2035	2058	2056	2064	2056	2058	2035	2012	2035	2058	2056	2064	2056	2058	2035
20	1953	1982	2007	2011	2025	2011	2007	1982	1953	1982	2007	2011	2025	2011	2007	1982
25	1878	1913	1944	1968	1989	1968	1944	1913	1878	1913	1944	1968	1989	1968	1944	1913
30	1789	1829	1875	1921	1947	1921	1875	1829	1789	1829	1875	1921	1947	1921	1875	1829
35	1684	1726	1802	1863	1889	1863	1802	1726	1684	1726	1802	1863	1889	1863	1802	1726
40	1566	1611	1715	1777	1801	1777	1715	1611	1566	1611	1715	1777	1801	1777	1715	1611
45	1437	1490	1612	1667	1694	1667	1612	1490	1437	1490	1612	1667	1694	1667	1612	1490
50	1296	1366	1485	1550	1579	1550	1485	1366	1296	1366	1485	1550	1579	1550	1485	1366
55	1143	1229	1344	1421	1452	1421	1344	1229	1143	1229	1344	1421	1452	1421	1344	1229
60	982	1083	1199	1286	1325	1286	1199	1083	982	1083	1199	1286	1325	1286	1199	1083
65	813	920	1051	1156	1194	1156	1051	920	813	920	1051	1156	1194	1156	1051	920
70	635	750	907	996	1027	996	907	750	635	750	907	996	1027	996	907	750
75	453	584	731	812	846	812	731	584	453	584	731	812	846	812	731	584
80	271	432	543	652	686	652	543	432	271	432	543	652	686	652	543	432
85	97	240	375	454	488	454	375	240	97	240	375	454	488	454	375	240
90	3	106	218	300	329	300	218	106	3	106	218	300	329	300	218	106
95	2	34	127	201	229	201	127	34	2	34	127	201	229	201	127	34
100	1	6	43	107	132	107	43	6	1	6	43	107	132	107	43	6
105	0	3	2	25	43	25	2	3	0	3	2	25	43	25	2	3
110	1	2	2	1	1	1	2	2	1	2	2	1	1	1	2	2
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	50.1	45-50	614.7	90-95	86.6	135-140	0.0
5-10	149.4	50-55	605.2	95-100	46.4	140-145	0.0
10-15	244.8	55-60	578.4	100-105	16.9	145-150	0.0
15-20	333.3	60-65	538.1	105-110	2.3	150-155	0.0
20-25	412.8	65-70	482.4	110-115	0.6	155-160	0.0
25-30	482.4	70-75	409.5	115-120	0.0	160-165	0.0
30-35	540.3	75-80	325.7	120-125	0.0	165-170	0.0
35-40	582.7	80-85	235.6	125-130	0.0	170-175	0.0
40-45	607.7	85-90	145.1	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	1.066	1.066	1.066	1.066	1.039	1.039	1.039	1.039	1.013	1.013	1.013	1.013
1	0.959	0.905	0.856	0.813	0.931	0.882	0.837	0.797	0.904	0.859	0.819	0.783
2	0.866	0.776	0.703	0.642	0.838	0.757	0.69	0.633	0.812	0.738	0.676	0.624
3	0.785	0.674	0.589	0.523	0.759	0.658	0.579	0.517	0.735	0.642	0.569	0.511
4	0.716	0.592	0.503	0.436	0.692	0.578	0.495	0.432	0.669	0.565	0.487	0.427
5	0.656	0.525	0.436	0.371	0.634	0.514	0.43	0.368	0.613	0.503	0.424	0.365
6	0.604	0.47	0.382	0.32	0.584	0.46	0.377	0.318	0.565	0.451	0.373	0.316
7	0.558	0.424	0.339	0.281	0.54	0.416	0.335	0.279	0.524	0.408	0.331	0.277
8	0.518	0.386	0.304	0.248	0.502	0.378	0.301	0.247	0.487	0.371	0.297	0.246
9	0.483	0.353	0.274	0.222	0.469	0.347	0.272	0.221	0.455	0.34	0.269	0.22
10	0.452	0.325	0.25	0.2	0.439	0.319	0.247	0.2	0.427	0.314	0.245	0.199

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	0.964	0.964	0.964	0.964	0.919	0.919	0.919	0.878	0.878	0.878	0.858
1	0.855	0.818	0.785	0.754	0.78	0.753	0.728	0.745	0.723	0.703	0.682
2	0.765	0.703	0.651	0.606	0.671	0.628	0.589	0.641	0.605	0.573	0.552
3	0.69	0.613	0.55	0.499	0.585	0.532	0.488	0.56	0.515	0.477	0.455
4	0.628	0.54	0.473	0.419	0.517	0.459	0.411	0.495	0.445	0.404	0.383
5	0.576	0.481	0.412	0.359	0.462	0.401	0.353	0.443	0.39	0.347	0.327
6	0.531	0.433	0.363	0.311	0.416	0.354	0.307	0.4	0.345	0.303	0.283
7	0.492	0.392	0.324	0.273	0.378	0.316	0.27	0.364	0.309	0.267	0.248
8	0.459	0.358	0.291	0.243	0.345	0.285	0.24	0.334	0.279	0.237	0.22
9	0.429	0.329	0.263	0.218	0.318	0.258	0.216	0.307	0.253	0.213	0.197
10	0.404	0.304	0.24	0.197	0.294	0.236	0.195	0.285	0.232	0.193	0.177

Average Luminance Table (cd/m²)

	0	45	90
0	13546	10979	10963
45	12585	10452	10771
55	12118	10203	10740
65	11348	9986	10954
75	9687	9681	10639
85	4753	8635	10260

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.

