



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: 21361

DATE: 11-02-2010

PREPARED FOR: RENOVA LIGHTING

CATALOG NUMBER: ECS-MVT4-WN-232-UNV-12L-CAL

LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED WHITE PAINTED ALUMINUM REFLECTOR, CLEAR LINEAR PRISMATIC ACRYLIC ENCLOSURE.

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

LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO

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

MOUNTING: PENDANT

ELECTRICAL VALUES: 120.0VAC, 0.3992A, 47.83W

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	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	
5	1076	1087	1099	1101	1107	1101	1099	1087	1076	1087	1099	1101	1107	1101	1099	1087	104.6
15	1036	1066	1105	1133	1144	1133	1105	1066	1036	1066	1105	1133	1144	1133	1105	1066	310.7
25	951	1009	1087	1127	1147	1127	1087	1009	951	1009	1087	1127	1147	1127	1087	1009	493.0
35	833	920	1022	1103	1137	1103	1022	920	833	920	1022	1103	1137	1103	1022	920	630.5
45	694	794	943	1025	1035	1025	943	794	694	794	943	1025	1035	1025	943	794	696.9
55	529	644	773	802	813	802	773	644	529	644	773	802	813	802	773	644	648.0
65	344	478	557	614	644	614	557	478	344	478	557	614	644	614	557	478	531.1
75	162	266	389	481	515	481	389	266	162	266	389	481	515	481	389	266	392.3
85	35	142	275	386	429	386	275	142	35	142	275	386	429	386	275	142	285.6
90	11	107	240	364	408	364	240	107	11	107	240	364	408	364	240	107	
95	12	79	224	339	377	339	224	79	12	79	224	339	377	339	224	79	225.8
105	8	30	136	229	264	229	136	30	8	30	136	229	264	229	136	30	140.9
115	4	3	51	109	134	109	51	3	4	3	51	109	134	109	51	3	58.8
125	1	1	7	33	43	33	7	1	1	1	7	33	43	33	7	1	15.4
135	0	0	0	2	6	2	0	0	0	0	0	2	6	2	0	0	1.8
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
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	0

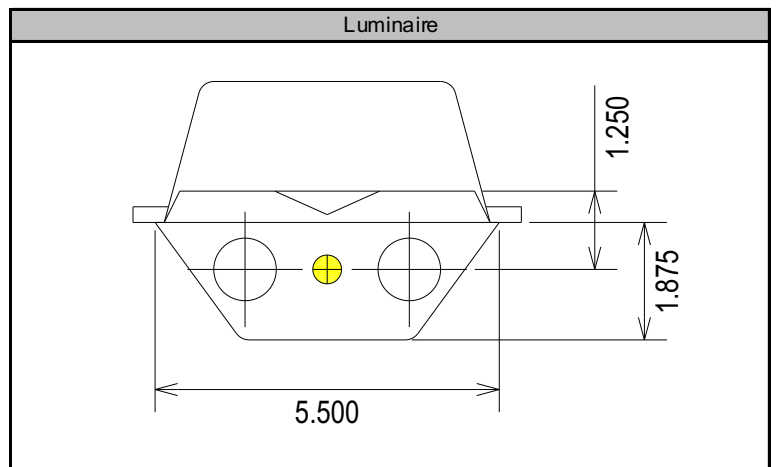
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	908.2	15.9%	20.0%
0-40	1538.7	27.0%	33.9%
0-60	2883.6	50.6%	63.6%
0-90	4092.6	71.8%	90.2%
90-180	442.7	7.8%	9.8%
0-180	4535.3	79.6%	100.0%

Total luminaire efficiency: 79.6%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.22 90 deg: 1.57
180 deg: 1.22 270 deg: 1.57



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	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088	1088
5	1076	1087	1099	1101	1107	1101	1099	1087	1076	1087	1099	1101	1107	1101	1099	1087
10	1061	1081	1104	1115	1124	1115	1104	1081	1061	1081	1104	1115	1124	1115	1104	1081
15	1036	1066	1105	1133	1144	1133	1105	1066	1036	1066	1105	1133	1144	1133	1105	1066
20	999	1042	1103	1135	1152	1135	1103	1042	999	1042	1103	1135	1152	1135	1103	1042
25	951	1009	1087	1127	1147	1127	1087	1009	951	1009	1087	1127	1147	1127	1087	1009
30	894	971	1057	1111	1138	1111	1057	971	894	971	1057	1111	1138	1111	1057	971
35	833	920	1022	1103	1137	1103	1022	920	833	920	1022	1103	1137	1103	1022	920
40	767	862	980	1077	1106	1077	980	862	767	862	980	1077	1106	1077	980	862
45	694	794	943	1025	1035	1025	943	794	694	794	943	1025	1035	1025	943	794
50	615	721	888	914	925	914	888	721	615	721	888	914	925	914	888	721
55	529	644	773	802	813	802	773	644	529	644	773	802	813	802	773	644
60	439	571	661	700	717	700	661	571	439	571	661	700	717	700	661	571
65	344	478	557	614	644	614	557	478	344	478	557	614	644	614	557	478
70	252	367	460	549	581	549	460	367	252	367	460	549	581	549	460	367
75	162	266	389	481	515	481	389	266	162	266	389	481	515	481	389	266
80	87	194	327	426	465	426	327	194	87	194	327	426	465	426	327	194
85	35	142	275	386	429	386	275	142	35	142	275	386	429	386	275	142
90	11	107	240	364	408	364	240	107	11	107	240	364	408	364	240	107
95	12	79	224	339	377	339	224	79	12	79	224	339	377	339	224	79
100	11	50	190	293	330	293	190	50	11	50	190	293	330	293	190	50
105	8	30	136	229	264	229	136	30	8	30	136	229	264	229	136	30
110	5	11	88	162	190	162	88	11	5	11	88	162	190	162	88	11
115	4	3	51	109	134	109	51	3	4	3	51	109	134	109	51	3
120	2	2	22	64	83	64	22	2	2	2	22	64	83	64	22	2
125	1	1	7	33	43	33	7	1	1	1	7	33	43	33	7	1
130	0	0	1	13	21	13	1	0	0	0	1	13	21	13	1	0
135	0	0	0	2	6	2	0	0	0	0	0	2	6	2	0	0
140	0	0	0	1	2	1	0	0	0	0	0	1	2	1	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	26.1	45-50	349.7	90-95	120.5	135-140	0.3
5-10	78.5	50-55	336.4	95-100	105.3	140-145	0.1
10-15	130.4	55-60	311.6	100-105	82.9	145-150	0.0
15-20	180.3	60-65	282.4	105-110	58.0	150-155	0.0
20-25	226.2	65-70	248.7	110-115	37.1	155-160	0.0
25-30	266.8	70-75	212.8	115-120	21.7	160-165	0.0
30-35	301.5	75-80	179.4	120-125	10.9	165-170	0.0
35-40	329.0	80-85	152.6	125-130	4.5	170-175	0.0
40-45	347.2	85-90	133.0	130-135	1.5	175-180	0.0



Coefficients of Utilization - Zonal Cavity Method												
Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	0.961	0.961	0.961	0.961	0.929	0.929	0.929	0.929	0.898	0.898	0.898	0.898
1	0.861	0.811	0.766	0.726	0.829	0.784	0.743	0.706	0.799	0.758	0.721	0.687
2	0.778	0.697	0.63	0.575	0.747	0.674	0.613	0.562	0.718	0.652	0.596	0.549
3	0.706	0.606	0.529	0.469	0.677	0.586	0.516	0.459	0.65	0.567	0.502	0.45
4	0.644	0.532	0.452	0.391	0.618	0.516	0.441	0.384	0.592	0.5	0.431	0.377
5	0.59	0.472	0.391	0.333	0.566	0.458	0.383	0.327	0.543	0.444	0.374	0.322
6	0.543	0.423	0.343	0.287	0.521	0.41	0.336	0.283	0.5	0.398	0.329	0.278
7	0.502	0.381	0.304	0.251	0.482	0.37	0.298	0.247	0.463	0.36	0.292	0.244
8	0.466	0.346	0.272	0.222	0.448	0.336	0.267	0.219	0.43	0.328	0.262	0.216
9	0.434	0.316	0.245	0.198	0.417	0.308	0.241	0.195	0.402	0.3	0.236	0.193
10	0.405	0.29	0.222	0.178	0.39	0.283	0.218	0.176	0.376	0.276	0.215	0.173

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.841	0.841	0.841	0.841	0.789	0.789	0.789	0.741	0.741	0.741	0.718
1	0.742	0.709	0.679	0.651	0.664	0.64	0.617	0.623	0.604	0.585	0.563
2	0.664	0.61	0.564	0.524	0.572	0.534	0.5	0.537	0.506	0.478	0.455
3	0.6	0.532	0.477	0.432	0.499	0.453	0.415	0.469	0.431	0.398	0.376
4	0.546	0.469	0.41	0.363	0.441	0.391	0.35	0.415	0.372	0.337	0.316
5	0.501	0.418	0.357	0.311	0.394	0.341	0.3	0.371	0.326	0.29	0.27
6	0.462	0.376	0.315	0.269	0.355	0.302	0.261	0.335	0.289	0.253	0.234
7	0.428	0.34	0.28	0.236	0.322	0.269	0.229	0.305	0.258	0.222	0.205
8	0.399	0.31	0.252	0.21	0.294	0.242	0.204	0.279	0.233	0.198	0.181
9	0.373	0.285	0.228	0.188	0.271	0.219	0.182	0.257	0.211	0.177	0.162
10	0.35	0.263	0.207	0.169	0.25	0.2	0.165	0.238	0.193	0.16	0.146

Average Luminance Table (cd/m²)

	0	45	90
0	6073	6073	6073
45	5322	6140	6318
55	4933	5666	5501
65	4250	4850	5059
75	3101	4325	5001
85	1578	4421	5685

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.

