



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: 16729

DATE: 09-25-2009

PREPARED FOR: RENOVA LIGHTING SYSTEMS

CATALOG NUMBER: ECS-NPW4-WN-232-UNV-11L

LUMINAIRE: FORMED WHITE ENAMEL STEEL HOUSING, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, CLEAR PRISMATIC PLASTIC LENS WITH LINEAR PRISMATIC SIDES.

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: SURFACE

ELECTRICAL VALUES: 120.0VAC, 0.3941A, 47.22W

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	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	
5	1480	1481	1490	1485	1487	1485	1490	1481	1480	1481	1490	1485	1487	1485	1490	1481	141.4
15	1434	1439	1465	1477	1486	1477	1465	1439	1434	1439	1465	1477	1486	1477	1465	1439	413.1
25	1338	1355	1415	1451	1464	1451	1415	1355	1338	1355	1415	1451	1464	1451	1415	1355	648.6
35	1191	1229	1314	1374	1396	1374	1314	1229	1191	1229	1314	1374	1396	1374	1314	1229	814.8
45	989	1040	1136	1189	1204	1189	1136	1040	989	1040	1136	1189	1204	1189	1136	1040	854.3
55	630	701	813	829	815	829	813	701	630	701	813	829	815	829	813	701	688.4
65	309	407	520	550	554	550	520	407	309	407	520	550	554	550	520	407	476.4
75	168	216	303	380	419	380	303	216	168	216	303	380	419	380	303	216	316.3
85	57	91	159	237	271	237	159	91	57	91	159	237	271	237	159	91	177.8
90	2	41	108	165	186	165	108	41	2	41	108	165	186	165	108	41	
95	1	33	89	135	154	135	89	33	1	33	89	135	154	135	89	33	91.3
105	4	22	57	85	95	85	57	22	4	22	57	85	95	85	57	22	56.8
115	6	8	40	55	61	55	40	8	6	8	40	55	61	55	40	8	34.5
125	7	8	25	44	49	44	25	8	7	8	25	44	49	44	25	8	23.1
135	8	8	11	25	32	25	11	8	8	8	11	25	32	25	11	8	12.3
145	8	7	12	12	13	12	12	7	8	7	12	12	13	12	12	7	6.7
155	8	8	7	12	12	12	7	8	8	8	7	12	12	12	7	8	4.3
165	8	8	9	9	9	9	9	8	8	8	9	9	9	9	9	8	2.3
175	8	8	8	8	7	8	8	8	8	8	8	8	7	8	8	8	0.8
180	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	

Zonal Lumen Summary

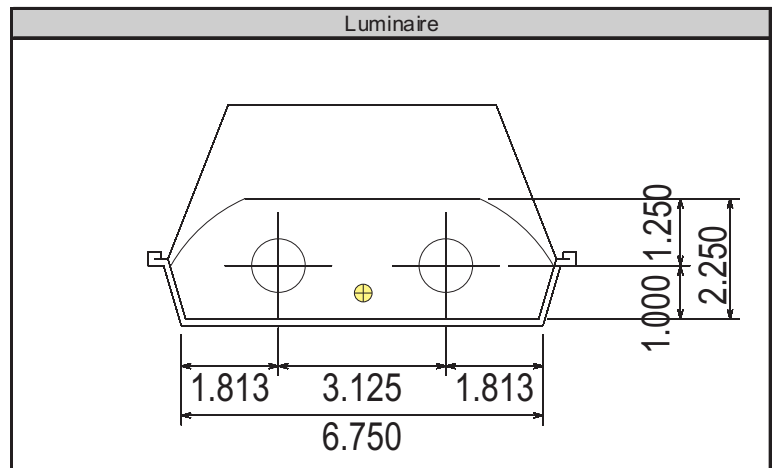
Zone	Lumens	% of Lamp	% of Luminaire
0-30	1203.0	21.1%	25.3%
0-40	2017.8	35.4%	42.4%
0-60	3560.5	62.5%	74.8%
0-90	4531.0	79.5%	95.1%
90-180	232.1	4.1%	4.9%
0-180	4763.1	83.6%	100.0%

Total luminaire efficiency: 83.6%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.27 90 deg: 1.43
180 deg: 1.27 270 deg: 1.43

Total reflectance of paint: 89.3



Approved By: _____

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	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489	1489
5	1480	1481	1490	1485	1487	1485	1490	1481	1480	1481	1490	1485	1487	1485	1490	1481
10	1463	1465	1479	1481	1485	1481	1479	1465	1463	1465	1479	1481	1485	1481	1479	1465
15	1434	1439	1465	1477	1486	1477	1465	1439	1434	1439	1465	1477	1486	1477	1465	1439
20	1392	1403	1443	1472	1486	1472	1443	1403	1392	1403	1443	1472	1486	1472	1443	1403
25	1338	1355	1415	1451	1464	1451	1415	1355	1338	1355	1415	1451	1464	1451	1415	1355
30	1271	1298	1373	1416	1436	1416	1373	1298	1271	1298	1373	1416	1436	1416	1373	1298
35	1191	1229	1314	1374	1396	1374	1314	1229	1191	1229	1314	1374	1396	1374	1314	1229
40	1099	1147	1243	1303	1324	1303	1243	1147	1099	1147	1243	1303	1324	1303	1243	1147
45	989	1040	1136	1189	1204	1189	1136	1040	989	1040	1136	1189	1204	1189	1136	1040
50	839	888	983	1019	1024	1019	983	888	839	888	983	1019	1024	1019	983	888
55	630	701	813	829	815	829	813	701	630	701	813	829	815	829	813	701
60	430	540	661	669	657	669	661	540	430	540	661	669	657	669	661	540
65	309	407	520	550	554	550	520	407	309	407	520	550	554	550	520	407
70	230	298	399	455	474	455	399	298	230	298	399	455	474	455	399	298
75	168	216	303	380	419	380	303	216	168	216	303	380	419	380	303	216
80	117	148	225	308	355	308	225	148	117	148	225	308	355	308	225	148
85	57	91	159	237	271	237	159	91	57	91	159	237	271	237	159	91
90	2	41	108	165	186	165	108	41	2	41	108	165	186	165	108	41
95	1	33	89	135	154	135	89	33	1	33	89	135	154	135	89	33
100	3	27	71	106	120	106	71	27	3	27	71	106	120	106	71	27
105	4	22	57	85	95	85	57	22	4	22	57	85	95	85	57	22
110	5	15	46	67	77	67	46	15	5	15	46	67	77	67	46	15
115	6	8	40	55	61	55	40	8	6	8	40	55	61	55	40	8
120	6	6	33	49	54	49	33	6	6	6	33	49	54	49	33	6
125	7	8	25	44	49	44	25	8	7	8	25	44	49	44	25	8
130	8	9	16	36	42	36	16	9	8	9	16	36	42	36	16	9
135	8	8	11	25	32	25	11	8	8	8	11	25	32	25	11	8
140	8	6	11	15	19	15	11	6	8	6	11	15	19	15	11	6
145	8	7	12	12	13	12	12	7	8	7	12	12	13	12	12	7
150	8	8	10	13	12	13	10	8	8	8	10	13	12	13	10	8
155	8	8	7	12	12	12	7	8	8	8	7	12	12	12	7	8
160	8	8	8	7	8	7	8	8	8	8	8	7	8	7	8	8
165	8	8	9	9	9	9	9	8	8	8	9	9	9	9	9	8
170	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
175	8	8	8	8	7	8	8	8	8	8	8	8	7	8	8	8
180	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	35.6	45-50	419.4	90-95	50.7	135-140	4.9
5-10	105.9	50-55	373.9	95-100	40.6	140-145	3.7
10-15	174.1	55-60	314.6	100-105	31.8	145-150	3.0
15-20	239.0	60-65	261.4	105-110	25.0	150-155	2.5
20-25	298.5	65-70	215.0	110-115	19.1	155-160	1.8
25-30	350.1	70-75	175.5	115-120	15.4	160-165	1.3
30-35	392.3	75-80	140.8	120-125	12.8	165-170	1.0
35-40	422.4	80-85	106.8	125-130	10.3	170-175	0.6
40-45	434.9	85-90	71.1	130-135	7.4	175-180	0.2



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	1.014	1.014	1.014	1.014	0.985	0.985	0.985	0.985	0.957	0.957	0.957	0.957
1	0.923	0.877	0.835	0.798	0.894	0.852	0.815	0.781	0.867	0.829	0.795	0.764
2	0.841	0.763	0.7	0.647	0.813	0.743	0.685	0.636	0.787	0.724	0.67	0.625
3	0.767	0.67	0.595	0.537	0.742	0.653	0.584	0.529	0.717	0.636	0.573	0.522
4	0.703	0.593	0.514	0.454	0.679	0.578	0.505	0.448	0.657	0.565	0.496	0.443
5	0.646	0.529	0.449	0.39	0.625	0.517	0.442	0.386	0.604	0.505	0.435	0.382
6	0.596	0.476	0.396	0.34	0.576	0.465	0.39	0.337	0.558	0.455	0.385	0.333
7	0.552	0.43	0.353	0.299	0.534	0.421	0.348	0.297	0.517	0.412	0.343	0.294
8	0.513	0.392	0.317	0.266	0.497	0.384	0.313	0.264	0.481	0.376	0.309	0.262
9	0.479	0.359	0.287	0.239	0.464	0.352	0.283	0.237	0.45	0.345	0.28	0.235
10	0.448	0.33	0.261	0.216	0.434	0.324	0.258	0.214	0.422	0.318	0.255	0.213

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	0.906	0.906	0.906	0.906	0.859	0.859	0.859	0.815	0.815	0.815	0.795
1	0.817	0.786	0.758	0.733	0.746	0.724	0.703	0.71	0.692	0.675	0.655
2	0.739	0.687	0.643	0.604	0.654	0.617	0.584	0.623	0.592	0.565	0.545
3	0.672	0.606	0.552	0.507	0.577	0.532	0.493	0.551	0.512	0.48	0.46
4	0.615	0.538	0.479	0.433	0.514	0.463	0.422	0.492	0.448	0.412	0.393
5	0.566	0.483	0.421	0.374	0.462	0.408	0.366	0.442	0.396	0.359	0.34
6	0.523	0.436	0.374	0.327	0.418	0.363	0.321	0.401	0.353	0.315	0.297
7	0.486	0.396	0.334	0.289	0.38	0.325	0.284	0.366	0.317	0.28	0.262
8	0.453	0.362	0.301	0.258	0.348	0.294	0.254	0.336	0.287	0.25	0.233
9	0.424	0.333	0.273	0.232	0.321	0.267	0.228	0.31	0.261	0.225	0.21
10	0.398	0.307	0.25	0.21	0.297	0.244	0.207	0.287	0.239	0.204	0.189

Average Luminance Table (cd/m²)

	0	45	90
0	6536	6536	6536
45	6138	6701	6842
55	4823	5686	5423
65	3214	4644	4614
75	2841	3904	4860
85	2868	3901	5453

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.

