LTL 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: 17546 DATE: 01-05-2010
PREPARED FOR: RENOVA LIGHTING SYSTEMS
CATALOG NUMBER: ECS-IRK4-MN-2LT8-UNV5.8-V
LUMINAIRE: FORMED STEEL HOUSING, FORMED SPECULAR ALUMINUM REFLECTOR, NO ENCLOSURE.
LAMP: TWO 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH.
LAMP CATALOG NUMBER: PHILIPS F32T8/841/ALTO
BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE-2X32T8/UNV-ISL-SC
MOUNTING: PENDANT
ELECTRICAL VALUES: 120.0VAC, 0.4245A, 50.87W

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	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	
5	1367	1378	1394	1395	1399	1395	1394	1378	1367	1378	1394	1395	1399	1395	1394	1378	132.6
15	1317	1351	1389	1342	1324	1342	1389	1351	1317	1351	1389	1342	1324	1342	1389	1351	379.1
25	1218	1281	1182	1163	1212	1163	1182	1281	1218	1281	1182	1163	1212	1163	1182	1281	563.4
35	1072	1068	1147	1426	1492	1426	1147	1068	1072	1068	1147	1426	1492	1426	1147	1068	767.0
45	891	837	1258	1349	1363	1349	1258	837	891	837	1258	1349	1363	1349	1258	837	880.6
55	680	809	1057	1111	1118	1111	1057	809	680	809	1057	1111	1118	1111	1057	809	866.5
65	452	697	781	945	1024	945	781	697	452	697	781	945	1024	945	781	697	781.0
75	223	414	625	624	637	624	625	414	223	414	625	624	637	624	625	414	562.1
85	34	187	304	373	404	373	304	187	34	187	304	373	404	373	304	187	308.9
90	1	96	200	277	305	277	200	96	1	96	200	277	305	277	200	96	
95	0	46	135	206	233	206	135	46	0	46	135	206	233	206	135	46	137.4
105	0	6	7	59	81	59	7	6	0	6	7	59	81	59	7	6	33.7
115	0	2	1	1	1	1	1	2	0	2	1	1	1	1	1	2	1.2
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	

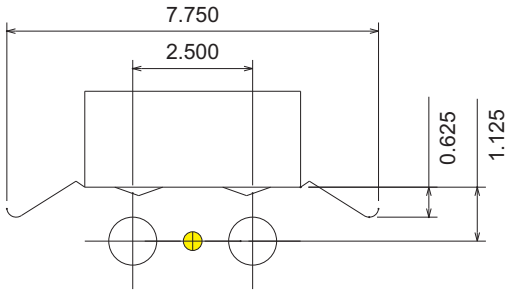
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	1075.1	18.9%	19.9%
0-40	1842.1	32.3%	34.0%
0-60	3589.2	63.0%	66.3%
0-90	5241.3	92.0%	96.8%
90-180	172.2	3.0%	3.2%
0-180	5413.5	95.0%	100.0%

Total luminaire efficiency: 95.0%

CIE Type: Direct
Spacing Criterion: 0 deg: 1.24 90 deg: 1.62
180 deg: 1.24 270 deg: 1.62

Luminaire



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	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381	1381
5	1367	1378	1394	1395	1399	1395	1394	1378	1367	1378	1394	1395	1399	1395	1394	1378
10	1348	1372	1398	1412	1418	1412	1398	1372	1348	1372	1398	1412	1418	1412	1398	1372
15	1317	1351	1389	1342	1324	1342	1389	1351	1317	1351	1389	1342	1324	1342	1389	1351
20	1273	1326	1289	1226	1198	1226	1289	1326	1273	1326	1289	1226	1198	1226	1289	1326
25	1218	1281	1182	1163	1212	1163	1182	1281	1218	1281	1182	1163	1212	1163	1182	1281
30	1150	1187	1089	1285	1378	1285	1089	1187	1150	1187	1089	1285	1378	1285	1089	1187
35	1072	1068	1147	1426	1492	1426	1147	1068	1072	1068	1147	1426	1492	1426	1147	1068
40	985	952	1231	1424	1461	1424	1231	952	985	952	1231	1424	1461	1424	1231	952
45	891	837	1258	1349	1363	1349	1258	837	891	837	1258	1349	1363	1349	1258	837
50	789	799	1184	1228	1250	1228	1184	799	789	799	1184	1228	1250	1228	1184	799
55	680	809	1057	1111	1118	1111	1057	809	680	809	1057	1111	1118	1111	1057	809
60	568	798	927	972	1016	972	927	798	568	798	927	972	1016	972	927	798
65	452	697	781	945	1024	945	781	697	452	697	781	945	1024	945	781	697
70	337	556	721	880	883	880	721	556	337	556	721	880	883	880	721	556
75	223	414	625	624	637	624	625	414	223	414	625	624	637	624	625	414
80	120	349	410	514	556	514	410	349	120	349	410	514	556	514	410	349
85	34	187	304	373	404	373	304	187	34	187	304	373	404	373	304	187
90	1	96	200	277	305	277	200	96	1	96	200	277	305	277	200	96
95	0	46	135	206	233	206	135	46	0	46	135	206	233	206	135	46
100	0	9	67	132	157	132	67	9	0	9	67	132	157	132	67	9
105	0	6	7	59	81	59	7	6	0	6	7	59	81	59	7	6
110	0	3	2	3	13	3	2	3	0	3	2	3	13	3	2	3
115	0	2	1	1	1	1	1	2	0	2	1	1	1	1	1	2
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	33.1		45-50	443.7		90-95	84.4		135-140	0.0
5-10	99.4		50-55	441.6		95-100	52.9		140-145	0.0
10-15	163.2		55-60	424.9		100-105	26.3		145-150	0.0
15-20	215.9		60-65	403.0		105-110	7.4		150-155	0.0
20-25	258.5		65-70	378.0		110-115	0.9		155-160	0.0
25-30	304.9		70-75	319.9		115-120	0.3		160-165	0.0
30-35	359.2		75-80	242.3		120-125	0.0		165-170	0.0
35-40	407.9		80-85	185.7		125-130	0.0		170-175	0.0
40-45	437.0		85-90	123.1		130-135	0.0		175-180	0.0

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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	1.155	1.155	1.155	1.155	1.123	1.123	1.123	1.123	1.094	1.094	1.094	1.094
1	1.034	0.973	0.918	0.869	1.002	0.946	0.897	0.852	0.972	0.921	0.876	0.835
2	0.93	0.831	0.749	0.681	0.899	0.809	0.733	0.67	0.87	0.787	0.718	0.66
3	0.842	0.718	0.624	0.55	0.812	0.699	0.612	0.543	0.785	0.682	0.601	0.536
4	0.766	0.629	0.53	0.455	0.739	0.613	0.521	0.45	0.713	0.598	0.512	0.445
5	0.7	0.556	0.457	0.385	0.676	0.543	0.45	0.381	0.652	0.53	0.443	0.377
6	0.644	0.497	0.4	0.331	0.621	0.485	0.394	0.328	0.6	0.474	0.388	0.325
7	0.595	0.447	0.353	0.289	0.574	0.437	0.349	0.286	0.555	0.428	0.344	0.284
8	0.552	0.406	0.316	0.255	0.533	0.397	0.312	0.253	0.516	0.389	0.308	0.251
9	0.514	0.37	0.284	0.227	0.497	0.363	0.281	0.225	0.482	0.356	0.278	0.224
10	0.48	0.34	0.258	0.204	0.465	0.334	0.255	0.203	0.451	0.328	0.252	0.202

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	1.038	1.038	1.038	1.038	0.988	0.988	0.988	0.941	0.941	0.941	0.92
1	0.915	0.874	0.837	0.803	0.831	0.801	0.772	0.791	0.767	0.744	0.72
2	0.816	0.748	0.689	0.639	0.711	0.662	0.62	0.677	0.637	0.601	0.577
3	0.734	0.648	0.579	0.522	0.617	0.558	0.508	0.588	0.538	0.495	0.471
4	0.666	0.569	0.494	0.435	0.542	0.478	0.426	0.518	0.462	0.417	0.393
5	0.609	0.505	0.429	0.37	0.483	0.416	0.363	0.461	0.403	0.356	0.333
6	0.561	0.453	0.377	0.32	0.434	0.366	0.314	0.416	0.356	0.309	0.287
7	0.52	0.41	0.334	0.28	0.393	0.326	0.275	0.377	0.317	0.271	0.25
8	0.484	0.373	0.3	0.247	0.359	0.292	0.244	0.345	0.285	0.24	0.221
9	0.453	0.342	0.271	0.221	0.33	0.265	0.218	0.318	0.259	0.215	0.197
10	0.425	0.316	0.247	0.199	0.305	0.241	0.197	0.294	0.236	0.194	0.177

Average Luminance Table (cd/m²)

	0	45	90
0	8921	7231	7220
45	7801	8161	8668
55	7210	8025	8271
65	6309	7426	9392
75	4760	8281	8019
85	1660	6988	8491

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.

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