



# 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: 12532

DATE: 07-18-2008

PREPARED FOR: RENOVA LIGHTING SYSTEMS, INC.

CATALOG NUMBER: ECS-ECO4-WN-632-UNV-23N-00W

LUMINAIRE: FORMED STEEL HOUSING, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, NO ENCLOSURE.

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

LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO

BALLASTS: TWO SYLVANIA QHE3X32T8/UNV ISN SC

MOUNTING: PENDANT

LUMEN TO CANDELA RATIO USED = 9.18

TOTAL INPUT WATTS =159.4 AT 120.0 VOLTS

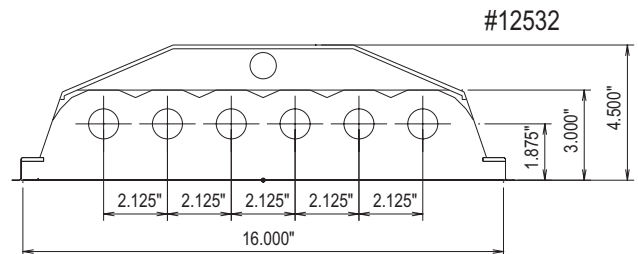
THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

### CANDELA DISTRIBUTION

|    | 0.0  | 22.5 | 45.0 | 67.5 | 90.0 |
|----|------|------|------|------|------|
| 0  | 4349 | 4349 | 4349 | 4349 | 4349 |
| 5  | 4332 | 4330 | 4348 | 4351 | 4354 |
| 15 | 4195 | 4217 | 4259 | 4279 | 4286 |
| 25 | 3920 | 3969 | 4049 | 4109 | 4143 |
| 35 | 3502 | 3586 | 3744 | 3867 | 3911 |
| 45 | 2978 | 3097 | 3335 | 3443 | 3475 |
| 55 | 2359 | 2542 | 2753 | 2878 | 2899 |
| 65 | 1645 | 1853 | 2052 | 2152 | 2139 |
| 75 | 873  | 1077 | 1100 | 1038 | 1004 |
| 85 | 146  | 212  | 155  | 122  | 110  |
| 90 | 0    | 0    | 0    | 0    | 0    |

### FLUX

|      |
|------|
| 414  |
| 1201 |
| 1865 |
| 2336 |
| 2533 |
| 2417 |
| 1957 |
| 1100 |
| 214  |



### ZONAL LUMEN SUMMARY

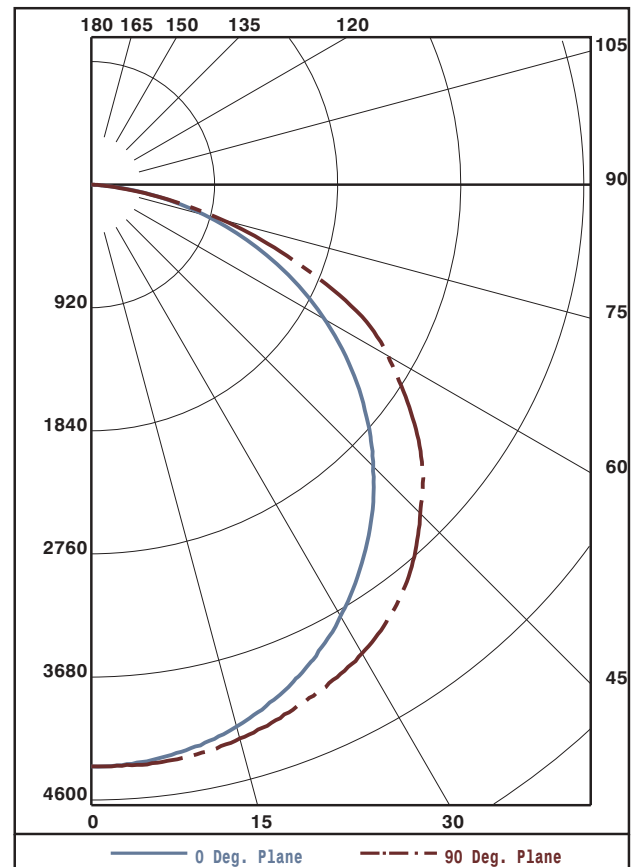
| ZONE   | LUMENS | %LAMP | %FIXT |
|--------|--------|-------|-------|
| 0- 30  | 3479   | 20.3  | 24.8  |
| 0- 40  | 5815   | 34.0  | 41.4  |
| 0- 60  | 10764  | 62.9  | 76.7  |
| 0- 90  | 14036  | 82.1  | 100.0 |
| 90-180 | 0      | 0.0   | 0.0   |
| 0-180  | 14036  | 82.1  | 100.0 |

TOTAL LUMINAIRE EFFICIENCY: 82.1%

CIE TYPE: DIRECT  
 PLANE: 0-DEG 90-DEG  
 SPACING CRITERIA: 1.3 1.4  
 LUMINOUS LENGTH: 46.750 16.000

### LUMINANCE IN CANDELA PER SQUARE METER

| ANGLE IN DEG | AVERAGE 0-DEG | AVERAGE 45-DEG | AVERAGE 90-DEG |
|--------------|---------------|----------------|----------------|
| 0            | 9011.         | 9011.          | 9011.          |
| 45           | 8726.         | 9773.          | 10183.         |
| 55           | 8522.         | 9945.          | 10473.         |
| 65           | 8065.         | 10061.         | 10487.         |
| 75           | 6989.         | 8806.          | 8038.          |
| 85           | 3471.         | 3685.          | 2615.          |



Approved By: MG

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IESNA PROCEDURES.



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

Table with columns for RC, RW, and various angles (80, 70, 50, 30, 10, 0) showing utilization coefficients.

CANDELA DISTRIBUTION

Table showing Candela values for various angles from 0.0 to 90.0.

ZONAL LUMEN SUMMARY

Table showing Zonal Lumen values for various angle ranges from 0-5 to 85-90.

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.