



# 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: 14716 DATE: 03-09-2009  
 PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING  
 CATALOG NUMBER: LM3S-02-X-4-X-PBW-X-120-T5HO  
 LUMINAIRE: FORMED STEEL AND EXTRUDED ALUMINUM HOUSING, FORMED SPECULAR ALUMINUM CENTER REFLECTOR, 48 CELL, 3/4" DEEP, FORMED WHITE ENAMEL ALUMINUM LOWER BAFFLES, OPEN TOP.  
 LAMP: TWO 54 WATT HIGH OUTPUT T5 LINEAR FLUORESCENT LAMPS RATED AT 4400 LUMENS EACH.  
 LAMP CATALOG NUMBER: SYLVANIA FP54/841/HO/ECO  
 BALLAST: ONE ADVANCE ICN-2S54  
 MOUNTING: PENDANT  
 ELECTRICAL VALUES: 120.0VAC, 1.0447A, 125.0W

Candela Distribution

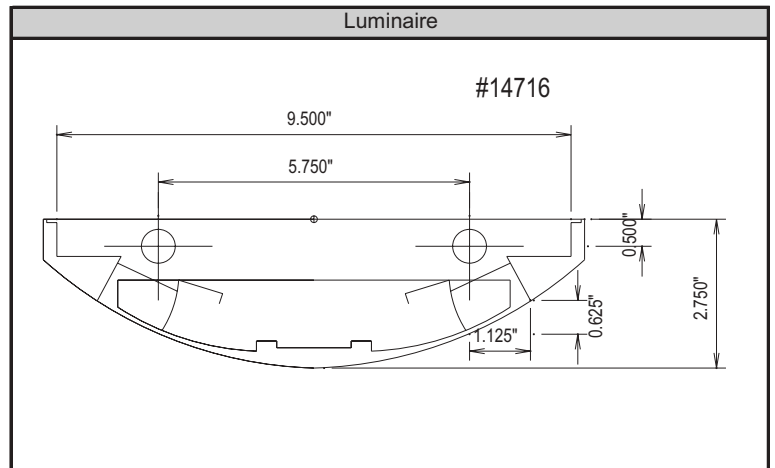
|     | 0    | 22.5 | 45   | 67.5 | 90   | 112.5 | 135  | 157.5 | 180  | 202.5 | 225  | 247.5 | 270  | 292.5 | 315  | 337.5 | Flux   |
|-----|------|------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|--------|
| 0   | 601  | 601  | 601  | 601  | 601  | 601   | 601  | 601   | 601  | 601   | 601  | 601   | 601  | 601   | 601  | 601   |        |
| 5   | 597  | 592  | 594  | 599  | 601  | 599   | 594  | 592   | 597  | 592   | 594  | 599   | 601  | 599   | 594  | 592   | 56.6   |
| 15  | 543  | 548  | 571  | 596  | 607  | 596   | 571  | 548   | 543  | 548   | 571  | 596   | 607  | 596   | 571  | 548   | 161.3  |
| 25  | 471  | 488  | 526  | 564  | 586  | 564   | 526  | 488   | 471  | 488   | 526  | 564   | 586  | 564   | 526  | 488   | 242.7  |
| 35  | 387  | 417  | 458  | 516  | 559  | 516   | 458  | 417   | 387  | 417   | 458  | 516   | 559  | 516   | 458  | 417   | 291.9  |
| 45  | 290  | 325  | 389  | 451  | 467  | 451   | 389  | 325   | 290  | 325   | 389  | 451   | 467  | 451   | 389  | 325   | 296.0  |
| 55  | 179  | 221  | 284  | 268  | 263  | 268   | 284  | 221   | 179  | 221   | 284  | 268   | 263  | 268   | 284  | 221   | 222.4  |
| 65  | 100  | 130  | 141  | 127  | 137  | 127   | 141  | 130   | 100  | 130   | 141  | 127   | 137  | 127   | 141  | 130   | 131.7  |
| 75  | 47   | 50   | 83   | 117  | 133  | 117   | 83   | 50    | 47   | 50    | 83   | 117   | 133  | 117   | 83   | 50    | 87.9   |
| 85  | 2    | 20   | 47   | 67   | 75   | 67    | 47   | 20    | 2    | 20    | 47   | 67    | 75   | 67    | 47   | 20    | 48.2   |
| 90  | 0    | 8    | 32   | 51   | 59   | 51    | 32   | 8     | 0    | 8     | 32   | 51    | 59   | 51    | 32   | 8     |        |
| 95  | 58   | 359  | 467  | 541  | 542  | 541   | 467  | 359   | 58   | 359   | 467  | 541   | 542  | 541   | 467  | 359   | 410.2  |
| 105 | 309  | 585  | 1101 | 1387 | 1414 | 1387  | 1101 | 585   | 309  | 585   | 1101 | 1387  | 1414 | 1387  | 1101 | 585   | 1001.7 |
| 115 | 593  | 750  | 1103 | 1472 | 1601 | 1472  | 1103 | 750   | 593  | 750   | 1103 | 1472  | 1601 | 1472  | 1103 | 750   | 1094.9 |
| 125 | 861  | 945  | 1185 | 1385 | 1478 | 1385  | 1185 | 945   | 861  | 945   | 1185 | 1385  | 1478 | 1385  | 1185 | 945   | 1054.0 |
| 135 | 1096 | 1136 | 1302 | 1452 | 1509 | 1452  | 1302 | 1136  | 1096 | 1136  | 1302 | 1452  | 1509 | 1452  | 1302 | 1136  | 1003.2 |
| 145 | 1297 | 1308 | 1401 | 1503 | 1545 | 1503  | 1401 | 1308  | 1297 | 1308  | 1401 | 1503  | 1545 | 1503  | 1401 | 1308  | 882.6  |
| 155 | 1455 | 1451 | 1487 | 1535 | 1558 | 1535  | 1487 | 1451  | 1455 | 1451  | 1487 | 1535  | 1558 | 1535  | 1487 | 1451  | 690.8  |
| 165 | 1565 | 1557 | 1562 | 1578 | 1585 | 1578  | 1562 | 1557  | 1565 | 1557  | 1562 | 1578  | 1585 | 1578  | 1562 | 1557  | 443.2  |
| 175 | 1621 | 1610 | 1612 | 1616 | 1617 | 1616  | 1612 | 1610  | 1621 | 1610  | 1612 | 1616  | 1617 | 1616  | 1612 | 1610  | 153.5  |
| 180 | 1621 | 1621 | 1621 | 1621 | 1621 | 1621  | 1621 | 1621  | 1621 | 1621  | 1621 | 1621  | 1621 | 1621  | 1621 | 1621  |        |

Zonal Lumen Summary

| Zone   | Lumens | % of Lamp | % of Luminaire |
|--------|--------|-----------|----------------|
| 0-30   | 460.6  | 5.2%      | 5.6%           |
| 0-40   | 752.5  | 8.6%      | 9.1%           |
| 0-60   | 1270.9 | 14.4%     | 15.4%          |
| 0-90   | 1538.8 | 17.5%     | 18.6%          |
| 90-180 | 6734.2 | 76.5%     | 81.4%          |
| 0-180  | 8273.0 | 94.0%     | 100.0%         |

Total luminaire efficiency: 94.0%

CIE Type: Semi-Indirect  
 Spacing Criterion: 0 deg: 1.09 90 deg: 1.43  
 180 deg: 1.09 270 deg: 1.43  
 Shielding angle: 0 deg: 31 90 deg: 26



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   | 601  | 601  | 601  | 601  | 601  | 601   | 601  | 601   | 601  | 601   | 601  | 601   | 601  | 601   | 601  | 601   |
| 5   | 597  | 592  | 594  | 599  | 601  | 599   | 594  | 592   | 597  | 592   | 594  | 599   | 601  | 599   | 594  | 592   |
| 10  | 573  | 574  | 584  | 597  | 602  | 597   | 584  | 574   | 573  | 574   | 584  | 597   | 602  | 597   | 584  | 574   |
| 15  | 543  | 548  | 571  | 596  | 607  | 596   | 571  | 548   | 543  | 548   | 571  | 596   | 607  | 596   | 571  | 548   |
| 20  | 509  | 519  | 554  | 584  | 597  | 584   | 554  | 519   | 509  | 519   | 554  | 584   | 597  | 584   | 554  | 519   |
| 25  | 471  | 488  | 526  | 564  | 586  | 564   | 526  | 488   | 471  | 488   | 526  | 564   | 586  | 564   | 526  | 488   |
| 30  | 431  | 454  | 494  | 538  | 564  | 538   | 494  | 454   | 431  | 454   | 494  | 538   | 564  | 538   | 494  | 454   |
| 35  | 387  | 417  | 458  | 516  | 559  | 516   | 458  | 417   | 387  | 417   | 458  | 516   | 559  | 516   | 458  | 417   |
| 40  | 340  | 373  | 418  | 506  | 547  | 506   | 418  | 373   | 340  | 373   | 418  | 506   | 547  | 506   | 418  | 373   |
| 45  | 290  | 325  | 389  | 451  | 467  | 451   | 389  | 325   | 290  | 325   | 389  | 451   | 467  | 451   | 389  | 325   |
| 50  | 237  | 272  | 354  | 361  | 366  | 361   | 354  | 272   | 237  | 272   | 354  | 361   | 366  | 361   | 354  | 272   |
| 55  | 179  | 221  | 284  | 268  | 263  | 268   | 284  | 221   | 179  | 221   | 284  | 268   | 263  | 268   | 284  | 221   |
| 60  | 130  | 176  | 209  | 182  | 174  | 182   | 209  | 176   | 130  | 176   | 209  | 182   | 174  | 182   | 209  | 176   |
| 65  | 100  | 130  | 141  | 127  | 137  | 127   | 141  | 130   | 100  | 130   | 141  | 127   | 137  | 127   | 141  | 130   |
| 70  | 73   | 80   | 96   | 123  | 139  | 123   | 96   | 80    | 73   | 80    | 96   | 123   | 139  | 123   | 96   | 80    |
| 75  | 47   | 50   | 83   | 117  | 133  | 117   | 83   | 50    | 47   | 50    | 83   | 117   | 133  | 117   | 83   | 50    |
| 80  | 23   | 33   | 66   | 89   | 98   | 89    | 66   | 33    | 23   | 33    | 66   | 89    | 98   | 89    | 66   | 33    |
| 85  | 2    | 20   | 47   | 67   | 75   | 67    | 47   | 20    | 2    | 20    | 47   | 67    | 75   | 67    | 47   | 20    |
| 90  | 0    | 8    | 32   | 51   | 59   | 51    | 32   | 8     | 0    | 8     | 32   | 51    | 59   | 51    | 32   | 8     |
| 95  | 58   | 359  | 467  | 541  | 542  | 541   | 467  | 359   | 58   | 359   | 467  | 541   | 542  | 541   | 467  | 359   |
| 100 | 173  | 555  | 880  | 882  | 902  | 882   | 880  | 555   | 173  | 555   | 880  | 882   | 902  | 882   | 880  | 555   |
| 105 | 309  | 585  | 1101 | 1387 | 1414 | 1387  | 1101 | 585   | 309  | 585   | 1101 | 1387  | 1414 | 1387  | 1101 | 585   |
| 110 | 451  | 659  | 1127 | 1477 | 1584 | 1477  | 1127 | 659   | 451  | 659   | 1127 | 1477  | 1584 | 1477  | 1127 | 659   |
| 115 | 593  | 750  | 1103 | 1472 | 1601 | 1472  | 1103 | 750   | 593  | 750   | 1103 | 1472  | 1601 | 1472  | 1103 | 750   |
| 120 | 732  | 846  | 1127 | 1414 | 1538 | 1414  | 1127 | 846   | 732  | 846   | 1127 | 1414  | 1538 | 1414  | 1127 | 846   |
| 125 | 861  | 945  | 1185 | 1385 | 1478 | 1385  | 1185 | 945   | 861  | 945   | 1185 | 1385  | 1478 | 1385  | 1185 | 945   |
| 130 | 982  | 1043 | 1245 | 1419 | 1485 | 1419  | 1245 | 1043  | 982  | 1043  | 1245 | 1419  | 1485 | 1419  | 1245 | 1043  |
| 135 | 1096 | 1136 | 1302 | 1452 | 1509 | 1452  | 1302 | 1136  | 1096 | 1136  | 1302 | 1452  | 1509 | 1452  | 1302 | 1136  |
| 140 | 1202 | 1224 | 1354 | 1481 | 1531 | 1481  | 1354 | 1224  | 1202 | 1224  | 1354 | 1481  | 1531 | 1481  | 1354 | 1224  |
| 145 | 1297 | 1308 | 1401 | 1503 | 1545 | 1503  | 1401 | 1308  | 1297 | 1308  | 1401 | 1503  | 1545 | 1503  | 1401 | 1308  |
| 150 | 1382 | 1384 | 1445 | 1519 | 1553 | 1519  | 1445 | 1384  | 1382 | 1384  | 1445 | 1519  | 1553 | 1519  | 1445 | 1384  |
| 155 | 1455 | 1451 | 1487 | 1535 | 1558 | 1535  | 1487 | 1451  | 1455 | 1451  | 1487 | 1535  | 1558 | 1535  | 1487 | 1451  |
| 160 | 1516 | 1511 | 1528 | 1555 | 1569 | 1555  | 1528 | 1511  | 1516 | 1511  | 1528 | 1555  | 1569 | 1555  | 1528 | 1511  |
| 165 | 1565 | 1557 | 1562 | 1578 | 1585 | 1578  | 1562 | 1557  | 1565 | 1557  | 1562 | 1578  | 1585 | 1578  | 1562 | 1557  |
| 170 | 1599 | 1590 | 1592 | 1599 | 1602 | 1599  | 1592 | 1590  | 1599 | 1590  | 1592 | 1599  | 1602 | 1599  | 1592 | 1590  |
| 175 | 1621 | 1610 | 1612 | 1616 | 1617 | 1616  | 1612 | 1610  | 1621 | 1610  | 1612 | 1616  | 1617 | 1616  | 1612 | 1610  |
| 180 | 1621 | 1621 | 1621 | 1621 | 1621 | 1621  | 1621 | 1621  | 1621 | 1621  | 1621 | 1621  | 1621 | 1621  | 1621 | 1621  |

Zonal Lumen Tabulation (5 degree zones)

| Zone  | Lumens | Zone  | Lumens | Zone    | Lumens | Zone    | Lumens |
|-------|--------|-------|--------|---------|--------|---------|--------|
| 0-5   | 14.3   | 45-50 | 143.4  | 90-95   | 100.0  | 135-140 | 491.4  |
| 5-10  | 42.3   | 50-55 | 124.0  | 95-100  | 310.2  | 140-145 | 461.2  |
| 10-15 | 68.6   | 55-60 | 98.4   | 100-105 | 460.3  | 145-150 | 421.4  |
| 15-20 | 92.7   | 60-65 | 73.9   | 105-110 | 541.4  | 150-155 | 373.1  |
| 20-25 | 113.2  | 65-70 | 57.8   | 110-115 | 552.2  | 155-160 | 317.6  |
| 25-30 | 129.5  | 70-75 | 48.6   | 115-120 | 542.7  | 160-165 | 255.6  |
| 30-35 | 141.4  | 75-80 | 39.4   | 120-125 | 531.3  | 165-170 | 187.6  |
| 35-40 | 150.5  | 80-85 | 28.3   | 125-130 | 522.7  | 170-175 | 114.8  |
| 40-45 | 152.6  | 85-90 | 19.9   | 130-135 | 511.8  | 175-180 | 38.7   |



| 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   | 1.053 | 1.053 | 1.053 | 1.053 | 0.937 | 0.937 | 0.937 | 0.937 | 0.826 | 0.826 | 0.826 | 0.826 |
| 1   | 0.961 | 0.914 | 0.872 | 0.834 | 0.853 | 0.814 | 0.779 | 0.748 | 0.751 | 0.719 | 0.69  | 0.664 |
| 2   | 0.876 | 0.797 | 0.732 | 0.678 | 0.777 | 0.711 | 0.657 | 0.611 | 0.683 | 0.629 | 0.584 | 0.545 |
| 3   | 0.8   | 0.7   | 0.623 | 0.563 | 0.708 | 0.625 | 0.56  | 0.509 | 0.622 | 0.553 | 0.499 | 0.456 |
| 4   | 0.731 | 0.617 | 0.535 | 0.473 | 0.647 | 0.552 | 0.482 | 0.429 | 0.568 | 0.489 | 0.43  | 0.385 |
| 5   | 0.67  | 0.547 | 0.463 | 0.402 | 0.593 | 0.49  | 0.418 | 0.365 | 0.52  | 0.435 | 0.374 | 0.328 |
| 6   | 0.615 | 0.488 | 0.405 | 0.346 | 0.545 | 0.438 | 0.366 | 0.314 | 0.478 | 0.389 | 0.328 | 0.283 |
| 7   | 0.567 | 0.438 | 0.357 | 0.3   | 0.502 | 0.393 | 0.323 | 0.273 | 0.441 | 0.35  | 0.29  | 0.247 |
| 8   | 0.524 | 0.395 | 0.316 | 0.262 | 0.464 | 0.355 | 0.286 | 0.239 | 0.409 | 0.316 | 0.257 | 0.216 |
| 9   | 0.486 | 0.358 | 0.282 | 0.231 | 0.431 | 0.322 | 0.256 | 0.211 | 0.379 | 0.288 | 0.23  | 0.191 |
| 10  | 0.451 | 0.326 | 0.253 | 0.205 | 0.401 | 0.294 | 0.23  | 0.187 | 0.354 | 0.262 | 0.207 | 0.169 |

| 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                          | 0.619 | 0.619 | 0.619 | 0.619 | 0.43  | 0.43  | 0.43  | 0.257 | 0.257 | 0.257 | 0.175 |
| 1                          | 0.561 | 0.541 | 0.522 | 0.505 | 0.377 | 0.366 | 0.356 | 0.226 | 0.22  | 0.215 | 0.147 |
| 2                          | 0.509 | 0.474 | 0.444 | 0.419 | 0.331 | 0.314 | 0.298 | 0.199 | 0.19  | 0.182 | 0.124 |
| 3                          | 0.463 | 0.418 | 0.382 | 0.352 | 0.293 | 0.271 | 0.252 | 0.177 | 0.166 | 0.156 | 0.106 |
| 4                          | 0.423 | 0.371 | 0.331 | 0.299 | 0.261 | 0.236 | 0.216 | 0.159 | 0.145 | 0.134 | 0.092 |
| 5                          | 0.388 | 0.331 | 0.289 | 0.256 | 0.233 | 0.207 | 0.186 | 0.143 | 0.128 | 0.117 | 0.08  |
| 6                          | 0.357 | 0.296 | 0.254 | 0.222 | 0.21  | 0.183 | 0.162 | 0.129 | 0.114 | 0.103 | 0.07  |
| 7                          | 0.33  | 0.267 | 0.225 | 0.194 | 0.19  | 0.163 | 0.142 | 0.118 | 0.103 | 0.091 | 0.063 |
| 8                          | 0.306 | 0.242 | 0.2   | 0.171 | 0.173 | 0.146 | 0.126 | 0.108 | 0.093 | 0.081 | 0.056 |
| 9                          | 0.284 | 0.221 | 0.18  | 0.151 | 0.158 | 0.131 | 0.112 | 0.099 | 0.084 | 0.073 | 0.051 |
| 10                         | 0.266 | 0.202 | 0.162 | 0.135 | 0.145 | 0.119 | 0.1   | 0.092 | 0.077 | 0.066 | 0.046 |

Average Luminance Table (cd/m<sup>2</sup>)

|    | 0    | 45   | 90   |
|----|------|------|------|
| 0  | 3278 | 3278 | 3278 |
| 45 | 2237 | 3315 | 3607 |
| 55 | 1706 | 2905 | 2505 |
| 65 | 1292 | 1874 | 1738 |
| 75 | 983  | 1656 | 2454 |
| 85 | 96   | 1966 | 2708 |

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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