

SIMPLESEAL™

CSEFO SERIES – HIGH EFFICIENCY REFLECTOR LF FLANGE MOUNT –OVERLAPPING DOOR

PRODUCT FEATURES:

- » Recessed; flange mount – 2'x4'
- » One-piece overlapping door provides air-tight integrity of luminaire
- » Optional Food Zone/Non-Contact listing ideal for food processing applications



PROJECT INFORMATION

Job Name _____

Fixture Type _____

Catalog Number _____

Approved by _____

SPECIFICATIONS

HOUSING: 20-gauge CRS. Hole-free one-piece seam welded construction. White TGIC polyester powder coat finish – 5-step pre-treatment. Salt spray test: 1,000 hours; Reflectance: 92%.

DOORFRAME: 20-gauge type 304 stainless steel (#4 finish-post fabrication). One-piece 60° beveled perimeter construction. Continuous angle lens retention system. Mechanical guide for doorframe fastener alignment. Doorframe secured to housing with stainless steel aircraft cables and (12) captive flush mounted Phillips head stainless steel fasteners. Thumb screws used for FN option. Doorframe Gasket: One-piece closed cell extruded silicone gasket seals doorframe to housing and ceiling structure.

LENS: .125" #12 high impact acrylic lens sealed to perimeter ledge of lens aperture with silicone sealant and secured with continuous lens retention system. Lens orientation – smooth side out. See Options for alternate lens selections. If required, specify lens overlay combinations inner/outer (Example: R/T). FN option includes FDA approved Food Zone clear polycarbonate lens. Can be combined with prismatic inner lens (specify type in Lens Type field).

OPTICS: High performance specular aluminum reflector system with 95% reflectivity yields 85.3% efficiency; ITL Test Report #62999.

ELECTRICAL: Quantity and type as specified – see ordering information. All ballasts UL listed class P. Wireway hole provided with hub/ring assembly. See Ordering Information for alternate or multiple ballasts, sealed wireway and optional equipment. Lamps by others.

INSTALLATION: Adjustable swing-out mounting brackets standard. See Options for continuous row mounting and plaster frames.

PATENT: U.S. Patent No. 5,902,035.

WARRANTY: Limited one (1) year Kenall fluorescent warranty.

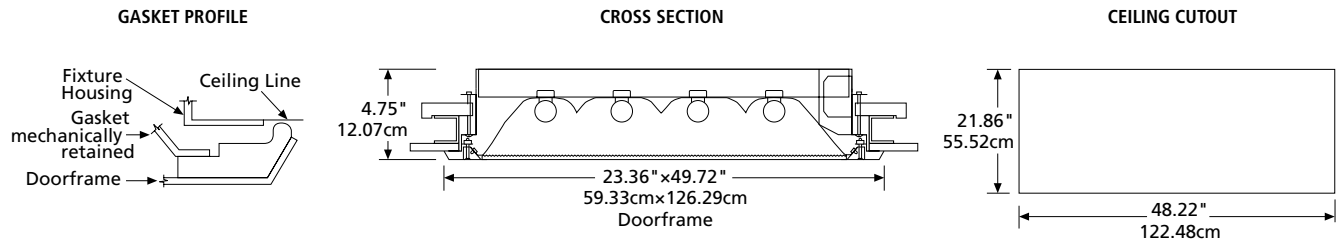
LISTINGS: UL and CUL Listed for Wet Location. UL certified IP65 per IEC 60598. NSF2 Splash/Non-Food. Optional NSF2 Food Zone/Non-Contact. Meets K230 Leakage Standard for luminaire leakage in pressurized environments and FED-STD-209E/Class 100 (ISO 5) Cleanrooms. CCEA Approved.



ORDERING INFORMATION (Ex: CSEFO24P-2-32-IS-1-120-5F-2H-T)

| Model | Lamp Qty/Type | Ballast Type | Ballast Qty | Voltage | Doorframe | Housing | Lens Type | Options |
|--------------------------------------|---------------|--|-------------|--|-----------|---|-----------|---------|
| CSEFO24P | | | | | | | | |
| Lamp Quantity/Type | | Voltage | | Lens Type | | Options | | |
| 2-32 Two F32T8 | | 120 120 Volts | | Acrylic | | EL Standard Lumen EL Pack | | |
| 3-32 Three F32T8 | | 277 277 Volts | | T .125" Clear | | PEL High Lumen EL Pack | | |
| 4-32 Four F32T8 | | 347 347 Volts | | U .125" #12 Prismatic High Impact | | SEL Specified EL Pack | | |
| Ballast Type | | Doorframe Options | | Polycarbonate | | FN** Food Zone/Non-Contact | | |
| IS Instant Start Electronic <10% THD | | 5F 20-Ga Type 304 SS (STD) | | 2 .125" #12 Prismatic | | FS Fuse & Holder | | |
| RS Rapid Start Electronic <10% THD | | 2F 20-Ga CRS | | G .125" Clear | | HJ Sealed Wireway | | |
| SB Specified Ballast | | XF 20-Ga Type 316 SS | | Tempered Glass | | RF Radio Frequency Filter | | |
| Ballast Quantity | | PAF .063" Painted Fabricated Aluminum | | TG .156" Textured Tempered Glass | | PF Plaster Frame | | |
| 1 One | | Housing Options | | Specified Lens | | RM Continuous Row Mounting | | |
| 2 Two | | 2H 20-Ga CRS (STD) | | SL Specified Lens | | UV UV Filtering Lens (Specify) | | |
| | | 5H 20-Ga Type 304 SS | | NOTE: Clear lens option will provide slightly higher efficiencies with increased perceived brightness. | | ** Only available in combination with a prismatic inner lens (specified in Lens Type). For nonprismatic, only the FDA approved Food Zone clear polycarbonate lens will be provided (leave Lens Type blank). | | |
| | | XH 20-Ga Type 316 SS | | | | | | |
| | | PAH .050" Painted Aluminum | | | | | | |

DIMENSIONAL DATA

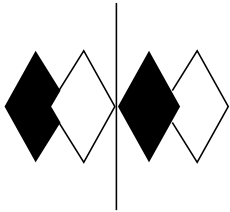


www.kenall.com | P: 800-4-Kenall | F: 262-891-9701 | 10200 55th Street Kenosha, Wisconsin 53144, USA

A brand of **legrand**

This product complies with the Buy American Act: manufactured in the United States with more than 50% of the component cost of US origin. It may be covered by patents found at www.kenall.com/patents. Content of specification sheets is subject to change; please consult www.kenall.com for current product details. ©2019 Kenall Mfg. Co.

CSEFO24P232_332_432-101618



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PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

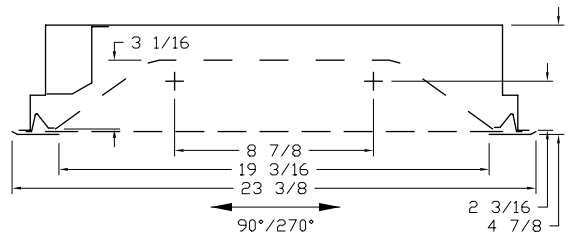
REPORT NUMBER: ITL62999 DATE: 09/09/09
 PREPARED FOR: KENALL LIGHTING REVISED: 03/12/10
 CATALOG NUMBER: CSEFO24P-2-32-IS-1-120-2F-2H-U
 LUMINAIRE: FABRICATED METAL HOUSING WITH WHITE PAINTED GENERAL INTERIOR FINISH, FORMED METAL REFLECTOR WITH PREMIUM SPECULAR FINISH, CLEAR PRISMATIC PLASTIC LENS IN FABRICATED WHITE PAINTED METAL FRAME. LENS PRISMS UP.
 LAMPS: TWO 32-WATT T-8 FO32/835 LINEAR FLUORESCENTS.
 BALLAST: UNIVERSAL B232IUNVHP-B
 MOUNTING: RECESSED
 THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.
 TOTAL INPUT WATTS = 54.9 AT 120.0 VOLTS
 LUMEN TO CANDELA RATIO USED = 9.17
 REPORT IS BASED ON 2950 LUMENS PER LAMP.

CANDELA DISTRIBUTION

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|----|------|------|------|------|------|
| 0 | 1777 | 1777 | 1777 | 1777 | 1777 |
| 5 | 1767 | 1767 | 1767 | 1773 | 1774 |
| 15 | 1671 | 1687 | 1722 | 1744 | 1749 |
| 25 | 1532 | 1572 | 1638 | 1668 | 1674 |
| 35 | 1334 | 1397 | 1479 | 1476 | 1458 |
| 45 | 1117 | 1175 | 1236 | 1198 | 1173 |
| 55 | 862 | 919 | 946 | 902 | 873 |
| 65 | 581 | 629 | 638 | 604 | 573 |
| 75 | 287 | 310 | 322 | 302 | 291 |
| 85 | 53 | 55 | 58 | 58 | 59 |
| 90 | 0 | 0 | 0 | 0 | 0 |

FLUX

| |
|-----|
| 168 |
| 486 |
| 748 |
| 899 |
| 917 |
| 815 |
| 606 |
| 324 |
| 69 |



ZONAL LUMEN SUMMARY

| ZONE | LUMENS | %LAMP | %FIXT |
|--------|--------|-------|-------|
| 0- 30 | 1402 | 23.8 | 27.9 |
| 0- 40 | 2301 | 39.0 | 45.7 |
| 0- 60 | 4033 | 68.4 | 80.1 |
| 0- 90 | 5033 | 85.3 | 100.0 |
| 90-180 | 0 | 0.0 | 0.0 |
| 0-180 | 5033 | 85.3 | 100.0 |

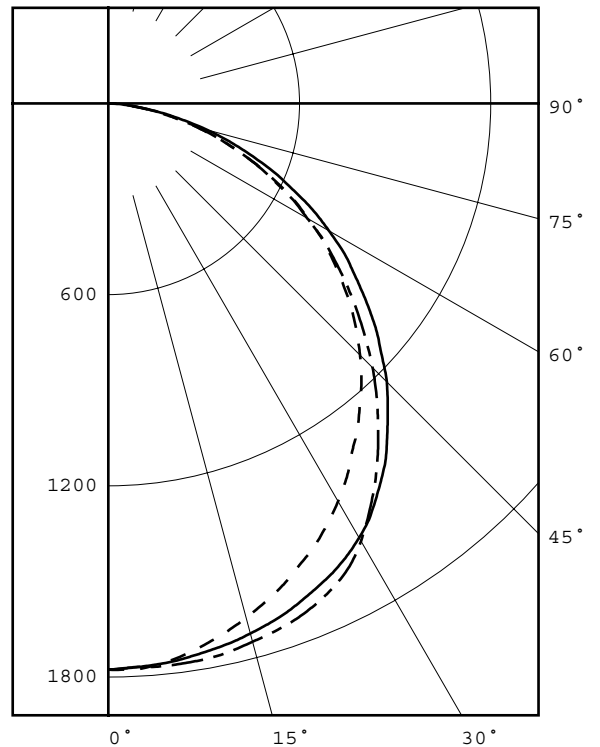
TOTAL LUMINAIRE EFFICIENCY = 85.3 %

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG
 SPACING CRITERIA : 1.2 1.3
 SHIELDING ANGLES : 90 90
 LUMINOUS LENGTH : 45.500 19.187

LUMINANCE DATA IN CANDELA/SQ M

| ANGLE IN DEG | AVERAGE 0-DEG | AVERAGE 45-DEG | AVERAGE 90-DEG |
|--------------|---------------|----------------|----------------|
| 45 | 2805. | 3103. | 2945. |
| 55 | 2668. | 2928. | 2702. |
| 65 | 2441. | 2680. | 2407. |
| 75 | 1969. | 2209. | 1996. |
| 85 | 1080. | 1182. | 1202. |



LEGEND:
 0-deg: - - - - -
 45-deg: = = = = =
 90-deg: - - - - -

Checked *N.WHITE*

Approved *R.BEATTIE*



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REPORT NUMBER: ITL62999
 PREPARED FOR: KENALL LIGHTING

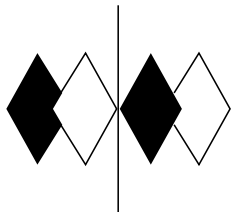
DATE: 09/09/09
 REVISED: 03/12/10

CANDELA DISTRIBUTION

| | | | | | |
|------|------|------|------|------|------|
| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
| 0.0 | 1777 | 1777 | 1777 | 1777 | 1777 |
| 2.5 | 1778 | 1774 | 1772 | 1773 | 1771 |
| 5.0 | 1767 | 1767 | 1767 | 1773 | 1774 |
| 7.5 | 1750 | 1750 | 1759 | 1770 | 1773 |
| 10.0 | 1726 | 1732 | 1748 | 1766 | 1770 |
| 12.5 | 1700 | 1710 | 1737 | 1758 | 1762 |
| 15.0 | 1671 | 1687 | 1722 | 1744 | 1749 |
| 17.5 | 1640 | 1665 | 1706 | 1732 | 1737 |
| 20.0 | 1607 | 1637 | 1686 | 1714 | 1722 |
| 22.5 | 1568 | 1608 | 1662 | 1695 | 1701 |
| 25.0 | 1532 | 1572 | 1638 | 1668 | 1674 |
| 27.5 | 1488 | 1539 | 1609 | 1636 | 1638 |
| 30.0 | 1442 | 1494 | 1574 | 1592 | 1586 |
| 32.5 | 1392 | 1448 | 1532 | 1535 | 1523 |
| 35.0 | 1334 | 1397 | 1479 | 1476 | 1458 |
| 37.5 | 1285 | 1340 | 1426 | 1407 | 1389 |
| 40.0 | 1228 | 1290 | 1361 | 1343 | 1317 |
| 42.5 | 1176 | 1230 | 1298 | 1268 | 1246 |
| 45.0 | 1117 | 1175 | 1236 | 1198 | 1173 |
| 47.5 | 1056 | 1118 | 1162 | 1131 | 1096 |
| 50.0 | 995 | 1053 | 1095 | 1052 | 1021 |
| 52.5 | 927 | 991 | 1020 | 980 | 947 |
| 55.0 | 862 | 919 | 946 | 902 | 873 |
| 57.5 | 798 | 852 | 879 | 828 | 802 |
| 60.0 | 723 | 779 | 800 | 752 | 721 |
| 62.5 | 658 | 706 | 723 | 676 | 652 |
| 65.0 | 581 | 629 | 638 | 604 | 573 |
| 67.5 | 506 | 548 | 563 | 524 | 504 |
| 70.0 | 428 | 470 | 478 | 451 | 430 |
| 72.5 | 358 | 388 | 400 | 372 | 359 |
| 75.0 | 287 | 310 | 322 | 302 | 291 |
| 77.5 | 219 | 240 | 241 | 234 | 223 |
| 80.0 | 155 | 168 | 171 | 164 | 160 |
| 82.5 | 97 | 109 | 106 | 108 | 104 |
| 85.0 | 53 | 55 | 58 | 58 | 59 |
| 87.5 | 17 | 21 | 22 | 22 | 25 |
| 90.0 | 0 | 0 | 0 | 0 | 0 |

ZONAL LUMEN SUMMARY

| | |
|--------|------|
| 0- 5 | 42. |
| 5- 10 | 126. |
| 10- 15 | 206. |
| 15- 20 | 280. |
| 20- 25 | 346. |
| 25- 30 | 402. |
| 30- 35 | 440. |
| 35- 40 | 460. |
| 40- 45 | 464. |
| 45- 50 | 453. |
| 50- 55 | 427. |
| 55- 60 | 388. |
| 60- 65 | 335. |
| 65- 70 | 271. |
| 70- 75 | 198. |
| 75- 80 | 125. |
| 80- 85 | 58. |
| 85- 90 | 12. |



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REPORT NUMBER: ITL62999

DATE: 09/09/09

PREPARED FOR: KENALL LIGHTING

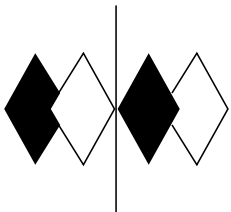
REVISED: 03/12/10

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

| RC | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 | |
|----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | 102 | 102 | 102 | 102 | 102 | 99 | 99 | 99 | 99 | 95 | 95 | 95 | 91 | 91 | 91 | 87 | 87 | 87 | 85 |
| 1 | 93 | 89 | 85 | 82 | 82 | 91 | 87 | 84 | 81 | 83 | 81 | 78 | 80 | 78 | 76 | 77 | 75 | 74 | 72 |
| 2 | 85 | 78 | 72 | 67 | 67 | 82 | 76 | 71 | 66 | 73 | 69 | 65 | 70 | 67 | 63 | 68 | 65 | 62 | 60 |
| 3 | 77 | 68 | 61 | 56 | 56 | 75 | 67 | 60 | 55 | 64 | 59 | 54 | 62 | 57 | 53 | 60 | 56 | 52 | 51 |
| 4 | 71 | 60 | 53 | 47 | 47 | 69 | 59 | 52 | 47 | 57 | 51 | 46 | 55 | 50 | 46 | 53 | 49 | 45 | 43 |
| 5 | 65 | 54 | 46 | 41 | 41 | 63 | 53 | 46 | 41 | 51 | 45 | 40 | 50 | 44 | 40 | 48 | 43 | 39 | 37 |
| 6 | 60 | 49 | 41 | 36 | 36 | 58 | 48 | 41 | 35 | 46 | 40 | 35 | 45 | 39 | 35 | 44 | 38 | 34 | 33 |
| 7 | 56 | 44 | 37 | 31 | 31 | 54 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 40 | 35 | 31 | 29 |
| 8 | 52 | 40 | 33 | 28 | 28 | 50 | 40 | 33 | 28 | 39 | 32 | 28 | 37 | 32 | 28 | 36 | 31 | 27 | 26 |
| 9 | 48 | 37 | 30 | 25 | 25 | 47 | 36 | 30 | 25 | 35 | 29 | 25 | 35 | 29 | 25 | 34 | 28 | 25 | 23 |
| 10 | 45 | 34 | 27 | 23 | 23 | 44 | 34 | 27 | 23 | 33 | 27 | 23 | 32 | 26 | 23 | 31 | 26 | 22 | 21 |

ALL CANDELA, LUMENS, LUMINANCE, COEFFICIENT OF UTILIZATION AND VCP VALUES IN THIS REPORT ARE BASED ON RELATIVE PHOTOMETRY WHICH ASSUMES A BALLAST FACTOR OF 1.000. ANY CALCULATIONS PREPARED FROM THESE DATA SHOULD INCLUDE AN APPROPRIATE BALLAST FACTOR.



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REPORT NUMBER: ITL63000

DATE: 09/10/09

PREPARED FOR: KENALL LIGHTING

REVISED: 03/12/10

CATALOG NUMBER: CSEFO24P-3-32-IS-2-120-2F-2H-U

LUMINAIRE: FABRICATED METAL HOUSING WITH WHITE PAINTED GENERAL INTERIOR FINISH, FORMED WHITE PAINTED MULTI-FACETED METAL CENTER REFLECTOR, ONE FORMED MULTI-FACETED METAL REFLECTOR WITH PREMIUM SPECULAR FINISH ON EACH SIDE OF CENTER REFLECTOR, CLEAR PRISMATIC PLASTIC LENS IN FABRICATED WHITE PAINTED METAL FRAME. LENS PRISMS UP.

LAMPS: THREE 32-WATT T-8 FO32/835 LINEAR FLUORESCENTS.

BALLAST: UNIVERSAL B232IUNVHP-B, UNIVERSAL B132IUNVHP-B

MOUNTING: RECESSED

THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.

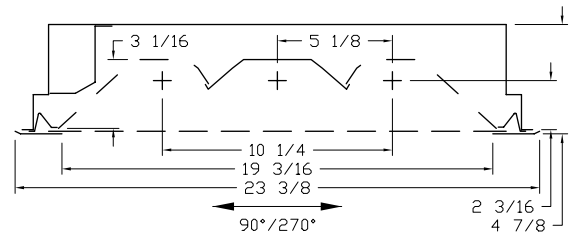
TOTAL INPUT WATTS = 82.8 AT 120.0 VOLTS

LUMEN TO CANDELA RATIO USED = 9.17

REPORT IS BASED ON 2950 LUMENS PER LAMP.

CANDELA DISTRIBUTION

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 | FLUX |
|----|------|------|------|------|------|------|
| 0 | 2834 | 2834 | 2834 | 2834 | 2834 | |
| 5 | 2811 | 2817 | 2821 | 2829 | 2828 | 268 |
| 15 | 2646 | 2686 | 2735 | 2767 | 2773 | 770 |
| 25 | 2410 | 2482 | 2569 | 2581 | 2569 | 1166 |
| 35 | 2084 | 2178 | 2249 | 2182 | 2124 | 1363 |
| 45 | 1725 | 1802 | 1812 | 1719 | 1669 | 1355 |
| 55 | 1313 | 1389 | 1359 | 1275 | 1235 | 1184 |
| 65 | 866 | 938 | 900 | 845 | 799 | 870 |
| 75 | 431 | 464 | 453 | 420 | 407 | 463 |
| 85 | 81 | 87 | 77 | 80 | 77 | 99 |
| 90 | 0 | 0 | 0 | 0 | 0 | |



ZONAL LUMEN SUMMARY

| ZONE | LUMENS | %LAMP | %FIXT |
|--------|--------|-------|-------|
| 0- 30 | 2205 | 24.9 | 29.2 |
| 0- 40 | 3568 | 40.3 | 47.3 |
| 0- 60 | 6107 | 69.0 | 81.0 |
| 0- 90 | 7539 | 85.2 | 100.0 |
| 90-180 | 0 | 0.0 | 0.0 |
| 0-180 | 7539 | 85.2 | 100.0 |

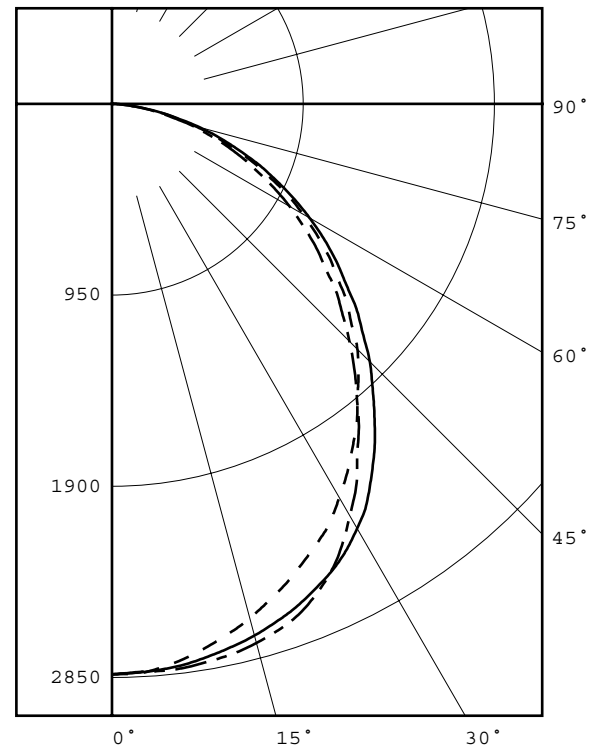
TOTAL LUMINAIRE EFFICIENCY = 85.2 %

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.2 1.2
SHIELDING ANGLES : 90 90
LUMINOUS LENGTH : 45.500 19.187

LUMINANCE DATA IN CANDELA/SQ M

| ANGLE IN DEG | AVERAGE 0-DEG | AVERAGE 45-DEG | AVERAGE 90-DEG |
|--------------|---------------|----------------|----------------|
| 45 | 4331. | 4550. | 4191. |
| 55 | 4064. | 4207. | 3823. |
| 65 | 3638. | 3781. | 3357. |
| 75 | 2957. | 3107. | 2792. |
| 85 | 1650. | 1569. | 1569. |

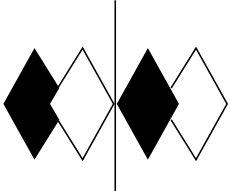


LEGEND:

0-deg: - - - - -
45-deg: _____
90-deg: - - - - -

Checked *N. WHITE*

Approved *R. BEATTIE*



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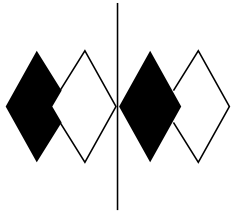
DATE: 09/10/09
REVISED: 03/12/10

CANDELA DISTRIBUTION

| | | | | | |
|------|------|------|------|------|------|
| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
| 0.0 | 2834 | 2834 | 2834 | 2834 | 2834 |
| 2.5 | 2833 | 2833 | 2829 | 2830 | 2826 |
| 5.0 | 2811 | 2817 | 2821 | 2829 | 2828 |
| 7.5 | 2779 | 2790 | 2808 | 2822 | 2824 |
| 10.0 | 2738 | 2761 | 2786 | 2809 | 2811 |
| 12.5 | 2694 | 2725 | 2762 | 2790 | 2797 |
| 15.0 | 2646 | 2686 | 2735 | 2767 | 2773 |
| 17.5 | 2590 | 2645 | 2701 | 2737 | 2743 |
| 20.0 | 2534 | 2593 | 2664 | 2698 | 2703 |
| 22.5 | 2471 | 2544 | 2618 | 2652 | 2642 |
| 25.0 | 2410 | 2482 | 2569 | 2581 | 2569 |
| 27.5 | 2344 | 2417 | 2510 | 2501 | 2474 |
| 30.0 | 2259 | 2342 | 2436 | 2396 | 2364 |
| 32.5 | 2175 | 2260 | 2355 | 2292 | 2258 |
| 35.0 | 2084 | 2178 | 2249 | 2182 | 2124 |
| 37.5 | 1998 | 2083 | 2144 | 2058 | 2015 |
| 40.0 | 1898 | 1994 | 2029 | 1947 | 1892 |
| 42.5 | 1813 | 1894 | 1917 | 1825 | 1782 |
| 45.0 | 1725 | 1802 | 1812 | 1719 | 1669 |
| 47.5 | 1612 | 1711 | 1691 | 1615 | 1556 |
| 50.0 | 1522 | 1598 | 1586 | 1495 | 1456 |
| 52.5 | 1407 | 1499 | 1463 | 1393 | 1333 |
| 55.0 | 1313 | 1389 | 1359 | 1275 | 1235 |
| 57.5 | 1204 | 1276 | 1248 | 1169 | 1125 |
| 60.0 | 1095 | 1159 | 1134 | 1053 | 1019 |
| 62.5 | 989 | 1046 | 1019 | 947 | 910 |
| 65.0 | 866 | 938 | 900 | 845 | 799 |
| 67.5 | 759 | 812 | 790 | 732 | 703 |
| 70.0 | 640 | 694 | 668 | 626 | 599 |
| 72.5 | 536 | 572 | 560 | 523 | 497 |
| 75.0 | 431 | 464 | 453 | 420 | 407 |
| 77.5 | 329 | 363 | 336 | 326 | 303 |
| 80.0 | 235 | 250 | 243 | 228 | 222 |
| 82.5 | 146 | 163 | 148 | 151 | 140 |
| 85.0 | 81 | 87 | 77 | 80 | 77 |
| 87.5 | 28 | 32 | 31 | 32 | 33 |
| 90.0 | 0 | 0 | 0 | 0 | 0 |

ZONAL LUMEN SUMMARY

| | |
|--------|------|
| 0- 5 | 68. |
| 5- 10 | 201. |
| 10- 15 | 327. |
| 15- 20 | 443. |
| 20- 25 | 544. |
| 25- 30 | 622. |
| 30- 35 | 672. |
| 35- 40 | 692. |
| 40- 45 | 688. |
| 45- 50 | 667. |
| 50- 55 | 622. |
| 55- 60 | 561. |
| 60- 65 | 482. |
| 65- 70 | 388. |
| 70- 75 | 284. |
| 75- 80 | 179. |
| 80- 85 | 82. |
| 85- 90 | 17. |



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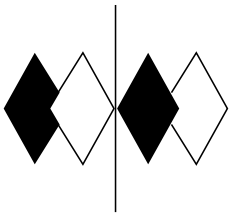
REVISED: 03/12/10

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

| RC | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | |
| 0 | 10 | 11 | 10 | 11 | 10 | 11 | 10 | 11 | 99 | 99 | 99 | 99 | 95 | 95 | 95 | 91 | 91 | 91 | 85 |
| 1 | 93 | 89 | 86 | 82 | 91 | 87 | 84 | 81 | 84 | 81 | 79 | 80 | 78 | 76 | 77 | 75 | 74 | 72 | |
| 2 | 85 | 78 | 72 | 68 | 83 | 76 | 71 | 67 | 73 | 69 | 65 | 71 | 67 | 64 | 68 | 65 | 62 | 60 | |
| 3 | 77 | 69 | 62 | 56 | 75 | 67 | 61 | 56 | 65 | 59 | 55 | 62 | 58 | 54 | 60 | 56 | 53 | 51 | |
| 4 | 71 | 61 | 54 | 48 | 69 | 60 | 53 | 48 | 58 | 52 | 47 | 56 | 51 | 46 | 54 | 49 | 46 | 44 | |
| 5 | 65 | 55 | 47 | 41 | 64 | 54 | 47 | 41 | 52 | 46 | 41 | 50 | 45 | 40 | 49 | 44 | 40 | 38 | |
| 6 | 60 | 49 | 42 | 36 | 59 | 48 | 41 | 36 | 47 | 41 | 36 | 45 | 40 | 36 | 44 | 39 | 35 | 33 | |
| 7 | 56 | 45 | 37 | 32 | 55 | 44 | 37 | 32 | 43 | 36 | 32 | 41 | 36 | 32 | 40 | 35 | 31 | 30 | |
| 8 | 52 | 41 | 34 | 29 | 51 | 40 | 33 | 29 | 39 | 33 | 28 | 38 | 32 | 28 | 37 | 32 | 28 | 27 | |
| 9 | 49 | 38 | 31 | 26 | 48 | 37 | 30 | 26 | 36 | 30 | 26 | 35 | 30 | 26 | 34 | 29 | 25 | 24 | |
| 10 | 46 | 35 | 28 | 24 | 45 | 34 | 28 | 23 | 33 | 27 | 23 | 33 | 27 | 23 | 32 | 27 | 23 | 22 | |

ALL CANDELA, LUMENS, LUMINANCE, COEFFICIENT OF UTILIZATION AND VCP VALUES IN THIS REPORT ARE BASED ON RELATIVE PHOTOMETRY WHICH ASSUMES A BALLAST FACTOR OF 1.000. ANY CALCULATIONS PREPARED FROM THESE DATA SHOULD INCLUDE AN APPROPRIATE BALLAST FACTOR.



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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

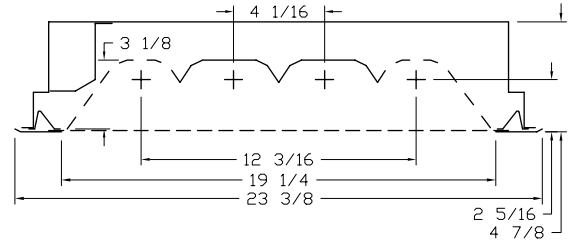
INDEPENDENT TESTING LABORATORIES, INC.
3386 LONGHORN ROAD, BOULDER, CO 80302 USA

PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL60564 DATE: 07/11/08
 PREPARED FOR: KENALL LIGHTING REVISED: 03/11/10
 CATALOG NUMBER: CSEFO24P-4-32-IS-1-120-2F-2H-U
 LUMINAIRE: FABRICATED METAL HOUSING WITH WHITE PAINTED GENERAL INTERIOR FINISH, FORMED WHITE PAINTED METAL CENTER REFLECTOR, ONE FORMED METAL REFLECTOR WITH PREMIUM SPECULAR FINISH ON EACH SIDE OF CENTER REFLECTOR, CLEAR FLAT PRISMATIC ACRYLIC LENS IN FABRICATED WHITE PAINTED METAL FRAME. LENS PRISMS UP.
 LAMPS: FOUR 32-WATT T-8 FO32/835 LINEAR FLUORESCENTS.
 BALLAST: ADVANCE ICN-4P32-SC
 THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMPS.
 TOTAL REFLECTANCE OF PAINT = 90.9 %
 MOUNTING: RECESSED
 TOTAL INPUT WATTS= 107.3 AT 120.0 VOLTS
 LUMEN TO CANDELA RATIO USED= 9.19
 REPORT IS BASED ON 2950 LUMENS PER LAMP.

CANDELA DISTRIBUTION

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 | FLUX |
|----|------|------|------|------|------|------|
| 0 | 3858 | 3858 | 3858 | 3858 | 3858 | |
| 5 | 3825 | 3827 | 3826 | 3824 | 3824 | 363 |
| 15 | 3592 | 3603 | 3590 | 3569 | 3557 | 1011 |
| 25 | 3241 | 3256 | 3228 | 3200 | 3188 | 1487 |
| 35 | 2786 | 2796 | 2794 | 2759 | 2744 | 1740 |
| 45 | 2285 | 2287 | 2299 | 2254 | 2215 | 1755 |
| 55 | 1750 | 1760 | 1774 | 1698 | 1645 | 1550 |
| 65 | 1179 | 1196 | 1203 | 1131 | 1090 | 1155 |
| 75 | 605 | 613 | 615 | 579 | 562 | 634 |
| 85 | 139 | 138 | 133 | 129 | 132 | 157 |
| 90 | 0 | 0 | 0 | 0 | 0 | |



ZONAL LUMEN SUMMARY

| ZONE | LUMENS | %LAMP | %FIXT |
|--------|--------|-------|-------|
| 0- 30 | 2861 | 24.2 | 29.0 |
| 0- 40 | 4601 | 39.0 | 46.7 |
| 0- 60 | 7906 | 67.0 | 80.3 |
| 0- 90 | 9852 | 83.5 | 100.0 |
| 90-180 | 0 | 0.0 | 0.0 |
| 0-180 | 9852 | 83.5 | 100.0 |

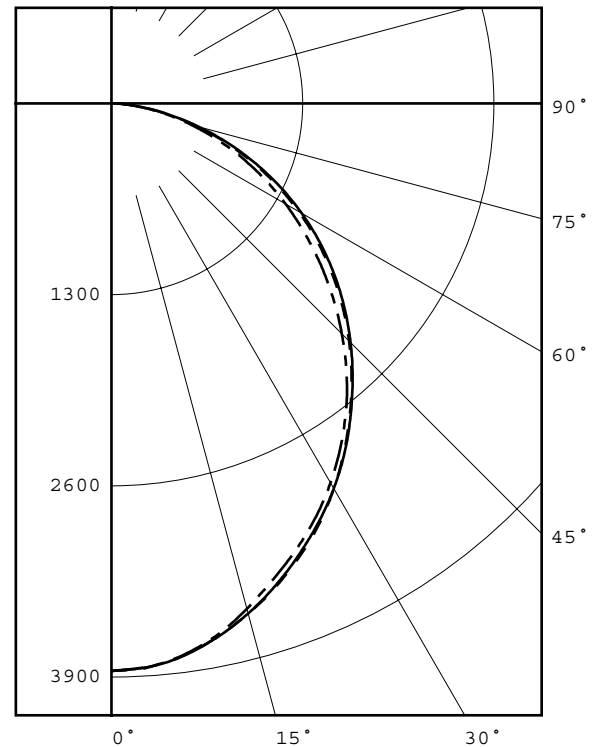
TOTAL LUMINAIRE EFFICIENCY = 83.5 %

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG
 SPACING CRITERIA : 1.2 1.2
 SHIELDING ANGLES : 90 90
 LUMINOUS LENGTH : 45.563 19.250

LUMINANCE DATA IN CANDELA/SQ M

| ANGLE IN DEG | AVERAGE 0-DEG | AVERAGE 45-DEG | AVERAGE 90-DEG |
|--------------|---------------|----------------|----------------|
| 45 | 5711. | 5746. | 5536. |
| 55 | 5392. | 5466. | 5068. |
| 65 | 4930. | 5031. | 4558. |
| 75 | 4131. | 4199. | 3837. |
| 85 | 2818. | 2697. | 2676. |



LEGEND:
 0-deg: - - - - -
 45-deg: = = = = =
 90-deg: - - - - -

Checked N. WHITE
 Approved R. BEATTIE



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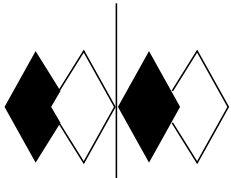
DATE: 07/11/08
REVISED: 03/11/10

CANDELA DISTRIBUTION

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|------|------|------|------|------|------|
| 0.0 | 3858 | 3858 | 3858 | 3858 | 3858 |
| 2.5 | 3853 | 3852 | 3848 | 3846 | 3846 |
| 5.0 | 3825 | 3827 | 3826 | 3824 | 3824 |
| 7.5 | 3784 | 3788 | 3787 | 3781 | 3780 |
| 10.0 | 3729 | 3737 | 3731 | 3723 | 3720 |
| 12.5 | 3664 | 3674 | 3665 | 3652 | 3646 |
| 15.0 | 3592 | 3603 | 3590 | 3569 | 3557 |
| 17.5 | 3514 | 3525 | 3508 | 3478 | 3464 |
| 20.0 | 3428 | 3441 | 3419 | 3385 | 3373 |
| 22.5 | 3337 | 3351 | 3325 | 3294 | 3283 |
| 25.0 | 3241 | 3256 | 3228 | 3200 | 3188 |
| 27.5 | 3137 | 3153 | 3129 | 3099 | 3087 |
| 30.0 | 3024 | 3042 | 3023 | 2990 | 2978 |
| 32.5 | 2906 | 2923 | 2912 | 2877 | 2864 |
| 35.0 | 2786 | 2796 | 2794 | 2759 | 2744 |
| 37.5 | 2663 | 2670 | 2672 | 2638 | 2621 |
| 40.0 | 2539 | 2542 | 2548 | 2515 | 2491 |
| 42.5 | 2413 | 2415 | 2425 | 2388 | 2355 |
| 45.0 | 2285 | 2287 | 2299 | 2254 | 2215 |
| 47.5 | 2154 | 2159 | 2171 | 2119 | 2075 |
| 50.0 | 2021 | 2028 | 2042 | 1980 | 1931 |
| 52.5 | 1886 | 1896 | 1910 | 1840 | 1789 |
| 55.0 | 1750 | 1760 | 1774 | 1698 | 1645 |
| 57.5 | 1611 | 1623 | 1636 | 1556 | 1506 |
| 60.0 | 1470 | 1484 | 1494 | 1414 | 1367 |
| 62.5 | 1325 | 1341 | 1350 | 1273 | 1228 |
| 65.0 | 1179 | 1196 | 1203 | 1131 | 1090 |
| 67.5 | 1033 | 1049 | 1055 | 991 | 955 |
| 70.0 | 886 | 902 | 906 | 851 | 821 |
| 72.5 | 744 | 756 | 760 | 714 | 690 |
| 75.0 | 605 | 613 | 615 | 579 | 562 |
| 77.5 | 473 | 476 | 476 | 451 | 440 |
| 80.0 | 349 | 350 | 346 | 330 | 326 |
| 82.5 | 237 | 236 | 230 | 221 | 222 |
| 85.0 | 139 | 138 | 133 | 129 | 132 |
| 87.5 | 61 | 61 | 57 | 57 | 60 |
| 90.0 | 0 | 0 | 0 | 0 | 0 |

ZONAL LUMEN SUMMARY

| | |
|--------|------|
| 0- 5 | 92. |
| 5- 10 | 271. |
| 10- 15 | 434. |
| 15- 20 | 577. |
| 20- 25 | 696. |
| 25- 30 | 790. |
| 30- 35 | 854. |
| 35- 40 | 886. |
| 40- 45 | 890. |
| 45- 50 | 865. |
| 50- 55 | 814. |
| 55- 60 | 737. |
| 60- 65 | 637. |
| 65- 70 | 518. |
| 70- 75 | 385. |
| 75- 80 | 249. |
| 80- 85 | 125. |
| 85- 90 | 32. |



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REPORT NUMBER: ITL60564

DATE: 07/11/08

PREPARED FOR: KENALL LIGHTING

REVISED: 03/11/10

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

| RC RW | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | 99 | 99 | 99 | 99 | 97 | 97 | 97 | 97 | 93 | 93 | 93 | 89 | 89 | 89 | 85 | 85 | 85 | 83 |
| 1 | 91 | 87 | 84 | 80 | 89 | 85 | 82 | 79 | 82 | 79 | 77 | 78 | 76 | 74 | 75 | 74 | 72 | 70 |
| 2 | 83 | 76 | 71 | 66 | 81 | 75 | 69 | 65 | 72 | 67 | 64 | 69 | 65 | 62 | 66 | 63 | 61 | 59 |
| 3 | 76 | 67 | 60 | 55 | 74 | 66 | 59 | 54 | 63 | 58 | 53 | 61 | 56 | 53 | 59 | 55 | 52 | 50 |
| 4 | 69 | 60 | 52 | 47 | 67 | 58 | 52 | 46 | 56 | 50 | 46 | 54 | 49 | 45 | 53 | 48 | 45 | 43 |
| 5 | 64 | 53 | 46 | 40 | 62 | 52 | 45 | 40 | 51 | 44 | 40 | 49 | 44 | 39 | 47 | 43 | 39 | 37 |
| 6 | 59 | 48 | 41 | 35 | 57 | 47 | 40 | 35 | 46 | 40 | 35 | 44 | 39 | 35 | 43 | 38 | 34 | 33 |
| 7 | 55 | 44 | 36 | 31 | 53 | 43 | 36 | 31 | 42 | 35 | 31 | 40 | 35 | 31 | 39 | 34 | 30 | 29 |
| 8 | 51 | 40 | 33 | 28 | 50 | 39 | 33 | 28 | 38 | 32 | 28 | 37 | 32 | 28 | 36 | 31 | 27 | 26 |
| 9 | 48 | 37 | 30 | 25 | 47 | 36 | 30 | 25 | 35 | 29 | 25 | 34 | 29 | 25 | 33 | 28 | 25 | 23 |
| 10 | 45 | 34 | 27 | 23 | 44 | 33 | 27 | 23 | 33 | 27 | 23 | 32 | 26 | 23 | 31 | 26 | 23 | 21 |

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