

# PHILIPS

## Day-Brite

### CFI

Recessed

HP90 2x4

T8, T5, or T5HO



Project: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Cat.No: \_\_\_\_\_  
 Type: \_\_\_\_\_  
 Lamps: \_\_\_\_\_ Qty: \_\_\_\_\_  
 Notes: \_\_\_\_\_

The Philips Day-Brite / Philips CFI HP90 recessed combines a recessed contoured body with an enclosed linear prismatic translucent lens to create an efficient direct/indirect luminaire suitable for a variety of applications.

#### Ordering guide

Example: H9S2GLR232UNV-1/2-EB

| Family                           | Air Function | Width | Ceiling Type                                              | Diffuser                                               | Reflector           | No. of Lamps         | Lamp Type (by others)              | Voltage                                                             | Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|--------------|-------|-----------------------------------------------------------|--------------------------------------------------------|---------------------|----------------------|------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H9                               | S            | 2     |                                                           | L                                                      | R                   |                      |                                    | —                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| H9 HP90 Direct/Indirect Recessed | S Static     | 2 2'  | G Fits both standard and slot grid<br>N 9/16" narrow grid | L Acrylic high light transmission linear prismaic lens | R Specular aluminum | 1 1 lamp<br>2 2 lamp | 28 28WT5<br>32 32WT8<br>54 54WT5HO | UNV Universal voltage, 120-277V<br>120 120V<br>277 277V<br>347 347V | 1/1 One 1-lamp ballast<br>1/2 One 2-lamp ballast<br>EB Electronic ballast, <10% THD std. ballast factor<br>EB10R T8 electronic ballast, <10% THD, program rapid start<br>EBHE T8 electronic ballast, high efficiency std. ballast factor<br>EBLHE T8 electronic ballast, high efficiency low ballast factor<br>EBHHE T8 electronic ballast, high efficiency high ballast factor<br>EBSD T8 electronic step dimming ballast, .88 ballast factor<br>EBD7 Advance Mark 7 dimming ballast, 0-10V (low voltage) control<br>EBDX Advance Mark 10 dimming ballast, phase control<br>EBD Electronic dimming ballast, customer specified<br>E1 B100 emerg. ballast, T8, 350-450 lumens, 120/277V<br>E1CAN B100-CAN emerg. ballast, Canada market, T8, 350-450 lumens, 120/347V<br>E7 B60 emerg. ballast, T8, 600-700 lumens, 120/277V<br>E5 B50 emerg. ballast, U.S. or Canada market, T8, 1100-1400 lumens, UNV<br>ESCAN B50-CAN emerg. ballast, Canada market, T8, 1100-1400 lumens, 120/347V<br>E5ST B50ST emerg. ballast w/self test, U.S. or Canada market, T8, 1100-1400 lumens, UNV<br>E7LP LP550 emerg. ballast T5/T5HO, 430-700 lumens, 120/277V<br>E6LP LP600 emerg. ballast U.S. or Canada market, T5/T5HO, 750-1325 lumens, 120/277V<br>F1 3/8" flex, 3 wire 18 gauge 6'<br>F2 3/8" flex, 4 wire 18 gauge 6'<br>F2/5W 3/8" flex, 5 wire 18 gauge 6'<br>GLR Fusing, fast blow<br>LPT830 Installed T8/T5/T5HO lamps, 80+ CRI, 3000K<br>LPT835 Installed T8/T5/T5HO lamps, 80+ CRI, 3500K<br>LPT841 Installed T8/T5/T5HO lamps, 80+ CRI, 4100K<br>LPT830HL Installed T8/T5 hi lumen lamps, 80+ CRI, 3000K<br>LPT835HL Installed T8/T5 hi lumen lamps, 80+ CRI, 3500K<br>LPT841HL Installed T8/T5 hi lumen lamps, 80+ CRI, 4100K<br>CHIC Chicago plenum rated |

#### Accessories (order separately)

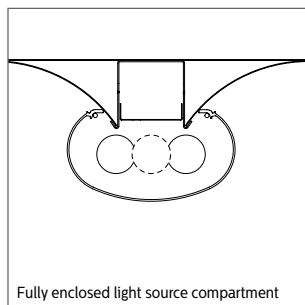
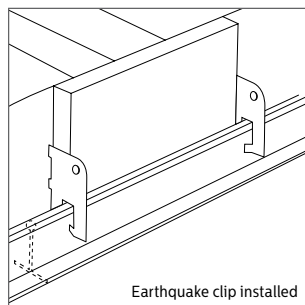
- FMA24 – 2'x4' "F" mounting frame for NEMA "F" mounting

# H9S HP90 recessed 2x4

T8, T5, or T5HO

## Features

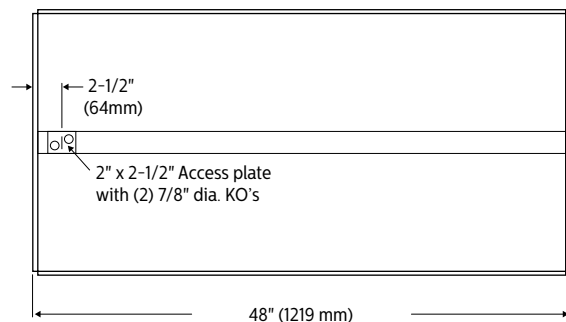
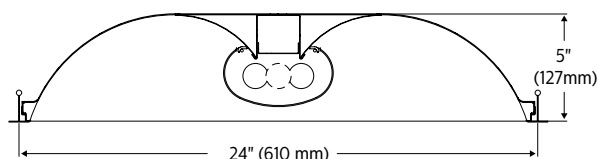
- Direct/indirect appearance with soft contoured interior.
- Translucent DR acrylic high light transmission linear prismatic lens.
- 95% reflective specular aluminum reflector.
- Lens encloses lamp compartment.
- Lamp shield opens from either side.
- Ballast accessible from room side.
- 85.2% efficient (2 lamp, 32WT8), 90.4% efficient (2 lamp, 28WT5), 89.7% efficient (1 lamp, 54WT5HO).
- Tension screws secure ends to body.
- Same fixture fits both standard grid and slot grid ceiling types.
- Fixture fits flush to the face of slot grid ceiling types.
- Order "N" ceiling option for 9/16" narrow grid applications.
- Built-in earthquake clips.
- Can be continuous row mounted.
- Wiring access plate standard.



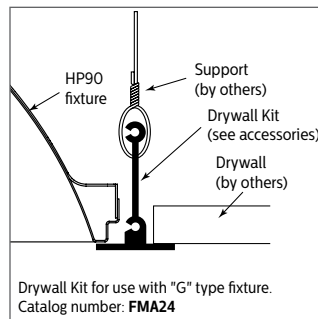
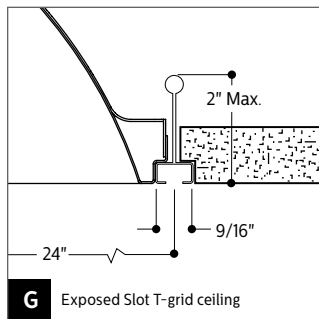
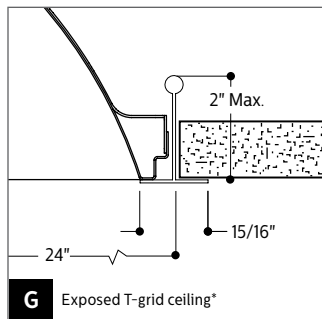
## Specifications

- **Performance:** In an installation of 2 lamp 32WT8 luminaires in a room cavity ratio of 1, with reflectance 80% ceiling, 50% wall, 20% floor, the C.U. shall not be less than .88. To reduce glare the average brightness at 65° shall not exceed 3317 candelas per square meter. To control veiling reflections, luminaire output in the 30°-90° zone shall not be less than 76.0%.  
In an installation of 2 lamp 28WT5 luminaires in a room cavity ratio of 1, with reflectance 80% ceiling, 50% wall, 20% floor, the C.U. shall not be less than .94. To reduce glare the average brightness at 65° shall not exceed 2574 candelas per square meter. To control veiling reflections, luminaire output in the 30°-90° zone shall not be less than 73.8%.  
In an installation of 2 lamp 54WT5HO luminaires in a room cavity ratio of 1, with reflectance 80% ceiling, 50% wall, 20% floor, the C.U. shall not be less than .88. To reduce glare the average brightness at 65° shall not exceed 3776 candelas per square meter. To control veiling reflections, luminaire output in the 30°-90° zone shall not be less than 74.1%.
- **Materials:** Chassis Parts—Die-formed code gauge cold rolled steel.
- **Finish:** Chassis exterior—white baked polyester enamel. Cavity—white baked polyester enamel. Rust preventative undercoating.
- **Lens:** L—Linear prismatic translucent DR acrylic lens.
- **Reflector:** R—Low iridescence specular aluminum with 95% reflectance.
- **Electrical:** Thermally protected class "P" ballast, non PCB. If K.O. is within 3" of ballast, use wire suitable for at least 90°.
- **Labels:** cULus listed, suitable for damp locations.

## Dimensions



## Mounting methods



\* For flush mounting when using 9/16" exposed t-grid ceiling order "N" ceiling option.

# H9S HP90 recessed 2x4

T8, T5, or T5HO

## Photometry

### Model No. H9S2GLR128UNV-1/1-EB

LER = 75.9 IW = 31.6 BF = 1.0  
Comparative yearly lighting energy cost per  
1000 lumens = \$3.16

Report Number: G2006156

Catalog Number: H9S2GLR128UNV-1/1-EB

Lamps: (1) F28T5

Luminaire: HP90 2' x 4' with linear  
prismatic lens.

Ballast: QTP 2X28 T5/UNV-PSN

Report is based on 2750 lumens per lamp.

Efficiency: 87.2%

CIE Type: Direct

Plane: 0-Deg. 90-Deg.

Spacing Criteria: 1.3 1.2

Shielding Angles: 90 90

Plane: 0-Deg. 90-Deg.

Luminous Length: 47.760 23.760

### Candela Distribution

| Vertical<br>Angle | Horizontal<br>Angle |     |     | Zonal<br>Lumens |
|-------------------|---------------------|-----|-----|-----------------|
|                   | 0                   | 45  | 90  |                 |
| 0                 | 877                 | 877 | 877 |                 |
| 5                 | 868                 | 876 | 884 | 84              |
| 15                | 843                 | 860 | 868 | 242             |
| 25                | 792                 | 794 | 785 | 364             |
| 35                | 713                 | 672 | 658 | 424             |
| 45                | 592                 | 528 | 536 | 418             |
| 55                | 420                 | 386 | 424 | 359             |
| 65                | 239                 | 266 | 352 | 280             |
| 75                | 102                 | 183 | 254 | 188             |
| 85                | 20                  | 31  | 28  | 38              |
| 90                | 0                   | 0   | 0   |                 |

### Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fixt. |
|------|--------|--------|---------|
| 0-30 | 690    | 25.1   | 28.8    |
| 0-40 | 1115   | 40.5   | 46.5    |
| 0-60 | 1892   | 68.8   | 78.9    |
| 0-90 | 2398   | 87.2   | 100.0   |

### Coefficients of Utilization

| Ceiling           | 80%                                                      |    |    | 50% |    |    | 30% |    |    |
|-------------------|----------------------------------------------------------|----|----|-----|----|----|-----|----|----|
|                   | 70                                                       | 50 | 30 | 50  | 30 | 10 | 50  | 30 | 10 |
| Wall              |                                                          |    |    |     |    |    |     |    |    |
| RC                |                                                          |    |    |     |    |    |     |    |    |
| RW                |                                                          |    |    |     |    |    |     |    |    |
|                   | Zonal Cavity Method<br>Effective Floor Reflectance = 20% |    |    |     |    |    |     |    |    |
| Room Cavity Ratio | 1                                                        | 95 | 91 | 87  | 85 | 82 | 80  | 82 | 79 |
|                   | 2                                                        | 86 | 79 | 73  | 74 | 70 | 66  | 71 | 68 |
|                   | 3                                                        | 79 | 70 | 62  | 66 | 60 | 55  | 63 | 58 |
|                   | 4                                                        | 72 | 62 | 54  | 58 | 52 | 47  | 56 | 51 |
|                   | 5                                                        | 66 | 55 | 47  | 52 | 46 | 41  | 51 | 45 |
|                   | 6                                                        | 61 | 50 | 42  | 47 | 41 | 36  | 46 | 40 |
|                   | 7                                                        | 57 | 45 | 38  | 43 | 37 | 32  | 42 | 36 |
|                   | 8                                                        | 53 | 41 | 34  | 40 | 33 | 29  | 39 | 33 |
|                   | 9                                                        | 50 | 38 | 31  | 36 | 30 | 26  | 36 | 30 |
|                   | 10                                                       | 47 | 35 | 28  | 34 | 28 | 24  | 33 | 27 |

### Average Luminance data in candela / sq. meter

| Angle | 0°    | 45°   | 90°   |
|-------|-------|-------|-------|
| 45    | 1143. | 1020. | 1035. |
| 55    | 1000. | 919.  | 1009. |
| 65    | 772.  | 859.  | 1137. |
| 75    | 538.  | 965.  | 1340. |
| 85    | 313.  | 486.  | 439.  |

## Photometry

### Model No. H9S2GLR228UNV-1/2-EB

LER = 84.7 IW = 54.6 BF = 0.93  
Comparative yearly lighting energy cost per  
1000 lumens = \$2.83

Report Number: G2006010

Catalog Number: H9S2GLR228UNV-1/2-EB

Lamps: (2) F28T5

Luminaire: HP90 2' x 4' with linear  
prismatic lens.

Ballast: WA

Report is based on 2750 lumens per lamp.

Efficiency: 90.4%

CIE Type: Direct

Plane: 0-Deg. 90-Deg.

Spacing Criteria: 1.3 1.4

Shielding Angles: 90 90

Plane: 0-Deg. 90-Deg.

Luminous Length: 47.760 23.760

### Candela Distribution

| Vertical<br>Angle | Horizontal<br>Angle |      |      | Zonal<br>Lumens |
|-------------------|---------------------|------|------|-----------------|
|                   | 0                   | 45   | 90   |                 |
| 0                 | 1632                | 1632 | 1632 |                 |
| 5                 | 1621                | 1634 | 1645 | 156             |
| 15                | 1561                | 1598 | 1621 | 451             |
| 25                | 1448                | 1511 | 1568 | 697             |
| 35                | 1278                | 1386 | 1442 | 857             |
| 45                | 1048                | 1169 | 1202 | 886             |
| 55                | 778                 | 891  | 941  | 789             |
| 65                | 506                 | 642  | 749  | 635             |
| 75                | 250                 | 427  | 478  | 412             |
| 85                | 51                  | 72   | 60   | 88              |
| 90                | 0                   | 0    | 0    |                 |

### Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fixt. |
|------|--------|--------|---------|
| 0-30 | 1305   | 23.7   | 26.2    |
| 0-40 | 2162   | 39.3   | 43.5    |
| 0-60 | 3837   | 69.8   | 77.2    |
| 0-90 | 4972   | 90.4   | 100.0   |

### Coefficients of Utilization

| Ceiling           | 80%                                                      |    |    | 50% |    |    | 30% |    |    |
|-------------------|----------------------------------------------------------|----|----|-----|----|----|-----|----|----|
|                   | 70                                                       | 50 | 30 | 50  | 30 | 10 | 50  | 30 | 10 |
| Wall              |                                                          |    |    |     |    |    |     |    |    |
| RC                |                                                          |    |    |     |    |    |     |    |    |
| RW                |                                                          |    |    |     |    |    |     |    |    |
|                   | Zonal Cavity Method<br>Effective Floor Reflectance = 20% |    |    |     |    |    |     |    |    |
| Room Cavity Ratio | 1                                                        | 98 | 94 | 90  | 88 | 85 | 82  | 84 | 82 |
|                   | 2                                                        | 89 | 81 | 75  | 76 | 71 | 67  | 73 | 69 |
|                   | 3                                                        | 81 | 71 | 63  | 67 | 61 | 56  | 64 | 59 |
|                   | 4                                                        | 74 | 63 | 55  | 59 | 53 | 47  | 57 | 51 |
|                   | 5                                                        | 68 | 56 | 48  | 53 | 46 | 41  | 51 | 45 |
|                   | 6                                                        | 63 | 50 | 42  | 48 | 41 | 36  | 46 | 40 |
|                   | 7                                                        | 58 | 46 | 38  | 43 | 37 | 32  | 42 | 36 |
|                   | 8                                                        | 54 | 42 | 34  | 40 | 33 | 28  | 39 | 32 |
|                   | 9                                                        | 50 | 38 | 31  | 37 | 30 | 25  | 36 | 30 |
|                   | 10                                                       | 47 | 35 | 28  | 34 | 27 | 23  | 33 | 27 |

### Average Luminance data in candela / sq. meter

| Angle | 0°    | 45°   | 90°   |
|-------|-------|-------|-------|
| 45    | 2152. | 2401. | 2468. |
| 55    | 1970. | 2256. | 2382. |
| 65    | 1739. | 2206. | 2574. |
| 75    | 1403. | 2396. | 2682. |
| 85    | 850.  | 1200. | 1000. |



Some luminaires use fluorescent or high intensity discharge (HID) lamps that contain small amounts of mercury. Such lamps are labeled, "Contain Mercury" and/or the symbol "HG". Lamps that contain mercury must be disposed of in accordance with local requirements. Information regarding lamp recycling and disposal can be found at [www.lamprecycle.org](http://www.lamprecycle.org)

# H9S HP90 recessed 2x4

T8, T5, or T5HO

## Model No. H9S2GLR132UNV-1/1-EB

LER = 74.5 IW = 31.2 BF = 0.88  
Comparative yearly lighting energy cost per 1000 lumens = \$3.22

Report Number: G2010221

Catalog Number: H9S2GLR132UNV-1/1-EB

Lamps: (1) F32T8

Luminaire: HP90 2' x 4' with linear  
prismatic lens.

Ballast: QTP1X32T8

Report is based on 3100 lumens per lamp.

Efficiency: 85.2%

CIE Type: Direct

Plane: 0-Deg. 90-Deg.

Spacing Criteria: 1.3 1.4

Shielding Angles: 90 90

Plane: 0-Deg. 90-Deg.

Luminous Length: 47.760 23.760

## Candela Distribution

| Vertical<br>Angle | Horizontal<br>Angle |     |     | Zonal<br>Lumens |
|-------------------|---------------------|-----|-----|-----------------|
|                   | 0                   | 45  | 90  |                 |
| 0                 | 770                 | 770 | 770 |                 |
| 5                 | 765                 | 768 | 771 | 73              |
| 15                | 736                 | 753 | 769 | 213             |
| 25                | 680                 | 720 | 755 | 332             |
| 35                | 601                 | 665 | 723 | 416             |
| 45                | 499                 | 590 | 669 | 454             |
| 55                | 381                 | 497 | 596 | 442             |
| 65                | 257                 | 392 | 514 | 387             |
| 75                | 136                 | 280 | 328 | 266             |
| 85                | 38                  | 47  | 35  | 60              |
| 90                | 0                   | 0   | 0   |                 |

## Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fixt. |
|------|--------|--------|---------|
| 0-30 | 619    | 20.0   | 23.4    |
| 0-40 | 1034   | 33.6   | 39.2    |
| 0-60 | 1930   | 62.2   | 73.0    |
| 0-90 | 2642   | 85.2   | 100.0   |

## Coefficients of Utilization

| Ceiling<br>Wall   | 80%                               |    |    | 50% |    |    | 30% |    |    |
|-------------------|-----------------------------------|----|----|-----|----|----|-----|----|----|
|                   | 70                                | 50 | 30 | 50  | 30 | 10 | 50  | 30 | 10 |
| RC                | Zonal Cavity Method               |    |    |     |    |    |     |    |    |
| RW                | Effective Floor Reflectance = 20% |    |    |     |    |    |     |    |    |
| Room Cavity Ratio | 1                                 | 92 | 87 | 83  | 82 | 79 | 76  | 78 | 76 |
|                   | 2                                 | 83 | 75 | 69  | 70 | 65 | 61  | 68 | 63 |
|                   | 3                                 | 75 | 65 | 58  | 61 | 55 | 50  | 59 | 54 |
|                   | 4                                 | 68 | 57 | 49  | 54 | 47 | 42  | 52 | 46 |
|                   | 5                                 | 63 | 51 | 43  | 48 | 41 | 36  | 46 | 40 |
|                   | 6                                 | 58 | 46 | 38  | 43 | 36 | 31  | 42 | 36 |
|                   | 7                                 | 53 | 41 | 33  | 39 | 32 | 28  | 38 | 32 |
|                   | 8                                 | 49 | 37 | 30  | 36 | 29 | 24  | 35 | 29 |
|                   | 9                                 | 46 | 34 | 27  | 33 | 26 | 22  | 32 | 26 |
|                   | 10                                | 43 | 32 | 25  | 30 | 24 | 20  | 29 | 24 |

## Average Luminance data in candela / sq. meter

| Angle | 0°    | 45°   | 90°   |
|-------|-------|-------|-------|
| 45    | 1017. | 1202. | 1363. |
| 55    | 957.  | 1248. | 1497. |
| 65    | 876.  | 1336. | 1752. |
| 75    | 757.  | 1559. | 1826. |
| 85    | 628.  | 777.  | 579.  |

## Photometry

### Model No. H9S2GLR232UNV-1/2-EB

LER = 77.9 IW = 59.7 BF = 0.88  
Comparative yearly lighting energy cost per 1000 lumens = \$3.08

Report Number: G2010039

Catalog Number: H9S2GLR232UNV-1/2-EB

Lamps: (2) F32T8

Luminaire: HP90 2' x 4' with linear  
prismatic lens.

Ballast: ICN-2P32-SC

Report is based on 3100 lumens per lamp.

Efficiency: 85.2%

CIE Type: Direct

Plane: 0-Deg. 90-Deg.

Spacing Criteria: 1.3 1.4

Shielding Angles: 90 90

Plane: 0-Deg. 90-Deg.

Luminous Length: 47.760 23.760

## Candela Distribution

| Vertical<br>Angle | Horizontal<br>Angle |      |      | Zonal<br>Lumens |
|-------------------|---------------------|------|------|-----------------|
|                   | 0                   | 45   | 90   |                 |
| 0                 | 1595                | 1595 | 1595 |                 |
| 5                 | 1584                | 1588 | 1594 | 151             |
| 15                | 1525                | 1550 | 1576 | 439             |
| 25                | 1409                | 1473 | 1538 | 681             |
| 35                | 1204                | 1356 | 1465 | 849             |
| 45                | 1028                | 1198 | 1343 | 920             |
| 55                | 783                 | 1000 | 1172 | 885             |
| 65                | 523                 | 772  | 973  | 754             |
| 75                | 267                 | 523  | 604  | 497             |
| 85                | 59                  | 90   | 62   | 107             |
| 90                | 0                   | 0    | 0    |                 |

## Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fixt. |
|------|--------|--------|---------|
| 0-30 | 1271   | 20.5   | 24.0    |
| 0-40 | 2120   | 34.2   | 40.1    |
| 0-60 | 3925   | 63.3   | 74.3    |
| 0-90 | 5284   | 85.2   | 100.0   |

## Coefficients of Utilization

| Ceiling<br>Wall   | 80%                               |    |    | 50% |    |    | 30% |    |    |
|-------------------|-----------------------------------|----|----|-----|----|----|-----|----|----|
|                   | 70                                | 50 | 30 | 50  | 30 | 10 | 50  | 30 | 10 |
| RC                | Zonal Cavity Method               |    |    |     |    |    |     |    |    |
| RW                | Effective Floor Reflectance = 20% |    |    |     |    |    |     |    |    |
| Room Cavity Ratio | 1                                 | 92 | 88 | 84  | 82 | 79 | 76  | 79 | 76 |
|                   | 2                                 | 83 | 76 | 69  | 71 | 66 | 62  | 68 | 64 |
|                   | 3                                 | 75 | 66 | 58  | 62 | 56 | 51  | 59 | 54 |
|                   | 4                                 | 69 | 58 | 50  | 54 | 48 | 43  | 52 | 47 |
|                   | 5                                 | 63 | 51 | 43  | 49 | 42 | 37  | 47 | 41 |
|                   | 6                                 | 58 | 46 | 38  | 44 | 37 | 32  | 42 | 36 |
|                   | 7                                 | 54 | 42 | 34  | 40 | 33 | 28  | 38 | 32 |
|                   | 8                                 | 50 | 38 | 30  | 36 | 30 | 25  | 35 | 29 |
|                   | 9                                 | 46 | 35 | 27  | 33 | 27 | 22  | 32 | 26 |
|                   | 10                                | 44 | 32 | 25  | 31 | 24 | 20  | 30 | 24 |

## Average Luminance data in candela / sq. meter

| Angle | 0°    | 45°   | 90°   |
|-------|-------|-------|-------|
| 45    | 2095. | 2441. | 2736. |
| 55    | 1967. | 2512. | 2944. |
| 65    | 1783. | 2632. | 3317. |
| 75    | 1486. | 2911. | 3362. |
| 85    | 975.  | 1488. | 1025. |

# H9S HP90 recessed 2x4

T8, T5, or T5HO

## Model No. H9S2GLR154UNV-1/1-EB

LER = 66.5 IW = 61.9 BF = 1.02  
Comparative yearly lighting energy cost per 1000 lumens = \$3.61

Report Number: G2010216

Catalog Number: H9S2GLR154UNV-1/1-EB

Lamps: (1) 54W T5HO

Luminaire: HP90 2' x 4' with linear  
prismatic lens.

Ballast: ICN-2S54

Report is based on 4500 lumens per lamp.

Efficiency: 89.7%

CIE Type: Direct

Plane: 0-Deg. 90-Deg.

Spacing Criteria: 1.2 1.4

Shielding Angles: 90 90

Plane: 0-Deg. 90-Deg.

Luminous Length: 47.760 23.760

## Candela Distribution

| Vertical Angle | Horizontal Angle |      |      | Zonal Lumens |
|----------------|------------------|------|------|--------------|
|                | 0                | 45   | 90   |              |
| 0              | 1234             | 1235 | 1235 |              |
| 5              | 1226             | 1231 | 1237 | 117          |
| 15             | 1179             | 1208 | 1233 | 342          |
| 25             | 1088             | 1151 | 1202 | 530          |
| 35             | 957              | 1051 | 1121 | 655          |
| 45             | 791              | 913  | 998  | 698          |
| 55             | 601              | 750  | 852  | 661          |
| 65             | 402              | 576  | 713  | 564          |
| 75             | 207              | 402  | 474  | 384          |
| 85             | 49               | 68   | 44   | 85           |
| 90             | 0                | 0    | 0    |              |

## Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fixt. |
|------|--------|--------|---------|
| 0-30 | 989    | 22.0   | 24.5    |
| 0-40 | 1644   | 36.5   | 40.7    |
| 0-60 | 3002   | 66.7   | 74.4    |
| 0-90 | 4036   | 89.7   | 100.0   |

## Coefficients of Utilization

| Ceiling           | 80%                               |    |    | 50% |    |    | 30% |    |    |
|-------------------|-----------------------------------|----|----|-----|----|----|-----|----|----|
|                   | 70                                | 50 | 30 | 50  | 30 | 10 | 50  | 30 | 10 |
| RC                | Zonal Cavity Method               |    |    |     |    |    |     |    |    |
| RW                | Effective Floor Reflectance = 20% |    |    |     |    |    |     |    |    |
| Room Cavity Ratio | 1                                 | 92 | 92 | 88  | 86 | 83 | 80  | 83 | 80 |
|                   | 2                                 | 87 | 80 | 73  | 75 | 69 | 65  | 72 | 67 |
|                   | 3                                 | 79 | 69 | 62  | 65 | 59 | 54  | 63 | 57 |
|                   | 4                                 | 72 | 61 | 53  | 57 | 51 | 45  | 55 | 49 |
|                   | 5                                 | 66 | 54 | 46  | 51 | 44 | 39  | 49 | 43 |
|                   | 6                                 | 61 | 49 | 40  | 46 | 39 | 34  | 45 | 38 |
|                   | 7                                 | 57 | 44 | 36  | 42 | 35 | 30  | 41 | 34 |
|                   | 8                                 | 53 | 40 | 33  | 38 | 31 | 27  | 37 | 31 |
|                   | 9                                 | 49 | 37 | 29  | 35 | 28 | 24  | 34 | 28 |
|                   | 10                                | 46 | 34 | 27  | 32 | 26 | 22  | 32 | 26 |

## Average Luminance data in candela / sq. meter

| Angle | 0°    | 45°   | 90°   |
|-------|-------|-------|-------|
| 45    | 1612. | 1860. | 2034. |
| 55    | 1510. | 1884. | 2140. |
| 65    | 1371. | 1964. | 2431. |
| 75    | 1152. | 2238. | 2639. |
| 85    | 810.  | 1124. | 727.  |

## Photometry

### Model No. H9S2GLR254UNV-1/2-EB

LER = 67.7 IW = 112.4 BF = 1.0  
Comparative yearly lighting energy cost per 1000 lumens = \$3.55

Report Number: G2006118

Catalog Number: H9S2GLR254UNV-1/2-EB

Lamps: (2) 54W T5HO

Luminaire: HP90 2' x 4' with linear  
prismatic lens.

Ballast: B254UNV-E

Report is based on 4500 lumens per lamp.

Efficiency: 84.6%

CIE Type: Direct

Plane: 0-Deg. 90-Deg.

Spacing Criteria: 1.3 1.4

Shielding Angles: 90 90

Plane: 0-Deg. 90-Deg.

Luminous Length: 47.760 23.760

## Candela Distribution

| Vertical Angle | Horizontal Angle |      |      | Zonal Lumens |
|----------------|------------------|------|------|--------------|
|                | 0                | 45   | 90   |              |
| 0              | 2340             | 2340 | 2340 |              |
| 5              | 2320             | 2339 | 2354 | 223          |
| 15             | 2228             | 2326 | 2406 | 658          |
| 25             | 2079             | 2280 | 2417 | 1044         |
| 35             | 1851             | 2134 | 2220 | 1303         |
| 45             | 1548             | 1790 | 1827 | 1348         |
| 55             | 1173             | 1345 | 1428 | 1197         |
| 65             | 771              | 963  | 1099 | 950          |
| 75             | 383              | 625  | 665  | 597          |
| 85             | 75               | 95   | 60   | 125          |
| 90             | 0                | 0    | 0    |              |

## Zonal Lumen Summary

| Zone | Lumens | % Lamp | % Fixt. |
|------|--------|--------|---------|
| 0-30 | 1926   | 21.9   | 25.9    |
| 0-40 | 3229   | 36.7   | 43.4    |
| 0-60 | 5774   | 65.6   | 77.5    |
| 0-90 | 7446   | 84.6   | 100.0   |

## Coefficients of Utilization

| Ceiling           | 80%                               |    |    | 50% |    |    | 30% |    |    |
|-------------------|-----------------------------------|----|----|-----|----|----|-----|----|----|
|                   | 70                                | 50 | 30 | 50  | 30 | 10 | 50  | 30 | 10 |
| RC                | Zonal Cavity Method               |    |    |     |    |    |     |    |    |
| RW                | Effective Floor Reflectance = 20% |    |    |     |    |    |     |    |    |
| Room Cavity Ratio | 1                                 | 92 | 88 | 84  | 82 | 79 | 77  | 79 | 77 |
|                   | 2                                 | 83 | 76 | 70  | 71 | 67 | 63  | 69 | 65 |
|                   | 3                                 | 76 | 67 | 59  | 63 | 57 | 52  | 60 | 56 |
|                   | 4                                 | 69 | 59 | 51  | 56 | 49 | 44  | 54 | 48 |
|                   | 5                                 | 64 | 52 | 45  | 50 | 43 | 38  | 48 | 42 |
|                   | 6                                 | 59 | 47 | 39  | 45 | 38 | 33  | 43 | 37 |
|                   | 7                                 | 54 | 43 | 35  | 41 | 34 | 29  | 39 | 34 |
|                   | 8                                 | 50 | 39 | 32  | 37 | 31 | 26  | 36 | 30 |
|                   | 9                                 | 47 | 36 | 29  | 34 | 28 | 24  | 33 | 27 |
|                   | 10                                | 44 | 33 | 26  | 31 | 25 | 21  | 31 | 25 |

## Average Luminance data in candela / sq. meter

| Angle | 0°    | 45°   | 90°   |
|-------|-------|-------|-------|
| 45    | 3179. | 3676. | 3752. |
| 55    | 2970. | 3405. | 3615. |
| 65    | 2649. | 3309. | 3776. |
| 75    | 2149. | 3507. | 3731. |
| 85    | 1250. | 1583. | 1000. |

