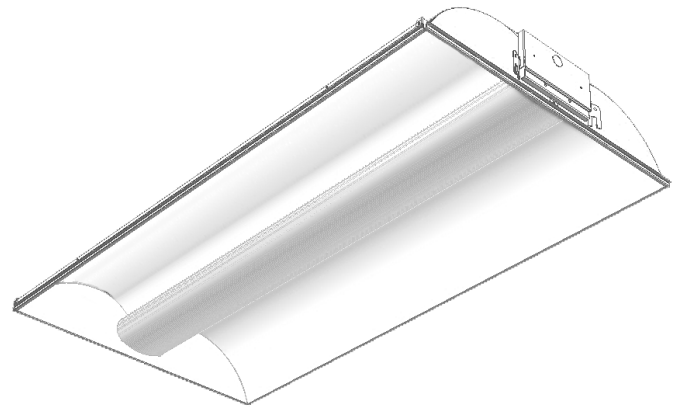
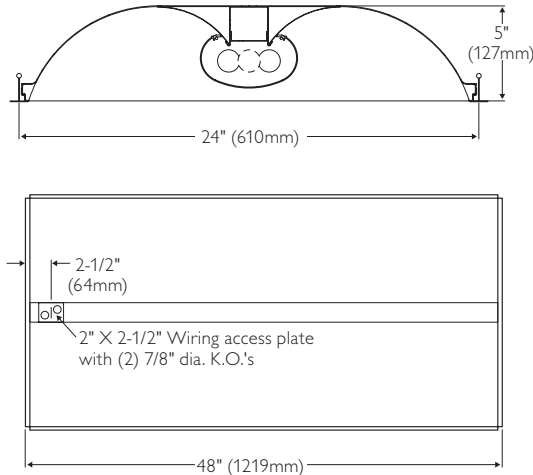


## Recessed 2'X4' Fluorescent; T8, T5 and T5HO



### Ordering Information

HP90	Body Style	Fixture Width	Ceiling Type	Lens Type	Reflector	Lamp Qty.	Lamps	Voltage	Ballast Type	Options
<b>H9</b>	<b>S</b>	<b>2</b>	<b>G</b>	<b>L</b>	<b>R</b>					
Direct/Indirect Recessed Fluorescent	S = Static	2 = 24" (Nominal Size)	G = Fits both Standard grid and Slot grid	L = Acrylic high light transmission linear prismatic lens	R = Specular aluminum	1 = 1 Lamp 2 = 2 Lamps	(by others) 28 = 28W T5 32 = 32W T8 54 = 54W T5HO (Nominal 48")	120 = 120v 277 = 277v UNV = 120-277v		Add appropriate suffix to catalog no., i.e.: (C)  <10THD 1 or 2 Lamp Elec. T5/T5HO Program Start 1 or 2 Lamp Elec. T5 Program Start Step-Dim (28 watt only) 1 or 2 Lamp Elec. T5 Instant Start (28 watt only, 0.93 ballast factor) 120v or 277v only 1 or 2 Lamp Elec. T5/T5HO LOL Dimming 1 or 2 Lamp Elec. T8 Instant Start 1 or 2 Lamp Elec. T8 Program Start 1 or 2 Lamp Elec. T8 Program Step-Dim 1 or 2 Lamp Elec. T8 Dimming
										PG VY WA PF HI P2 V2 PS

### 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, 32W T8.
- 90.4% efficient 2 lamp, 28W T5.
- 89.7% efficient 1 lamp, 54W T5HO.
- 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.
- Built-in earthquake clips.
- Can be continuous row mounted.
- Wiring access plate standard.
- Optional DALI ballast iGEN TECHNOLOGY accepts digital dimming controllers, scene controllers and automatic control devices.

Job Information	Type:
Job Name:	
Cat. No.:	
Notes:	

## Recessed 2'X4' Fluorescent; T8, T5 and T5HO

### Specifications

**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 C.B.M. approved, non PCB. If K.O. is within 3" of ballast, use wire suitable for at least 90°. UL Listed for damp locations.

**Labels:** I.B.E.W., cUus listed. cULus listed for damp locations.

This product may have a mercury containing lamp. Manage in accord with Disposal. Laws. See: [www.lamprecycle.org](http://www.lamprecycle.org)

### Options & Accessories

**Electrical Wiring Options:** Consult factory.

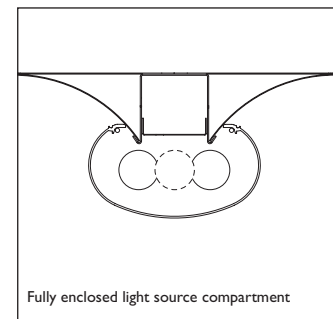
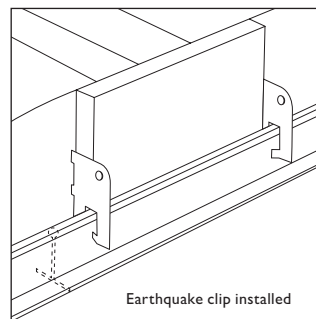
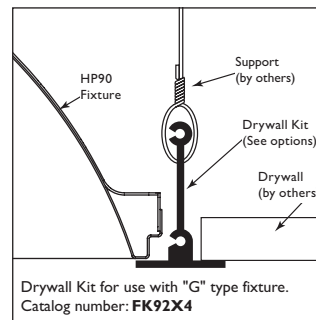
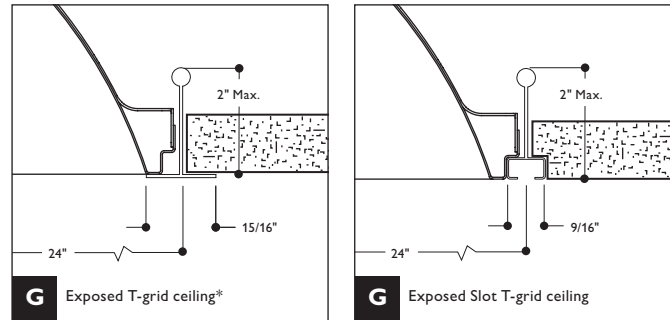
**Emergency Pack Options:** Consult factory.

**External Sensor Options:** Reference DL System, UL2F, a Daylighting or Occupancy sensor enclosure at [Lightolier.com](http://Lightolier.com)

**Fusing:** Internal fast blow fusing: Suffix: **A**.  
Internal slow blow fusing: Suffix: **C**.

**Drywall Kit:** Order Catalog Number: **FK92X4**.

### Mounting Methods



\* For flush founting when using 9/16" exposed t-grid ceiling consult factory.

**Job Information** Type:

## Recessed 2'X4' Fluorescent; T8, T5 and T5HO

### Performance

In an installation of 2 lamp 28W 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%.

### Photometry

#### Model No. H9S2GLR128UNVPG

LER = 75.8 IW = 31.6 BF = 1.0  
Comparative yearly lighting energy cost per  
1000 lumens = \$3.16

Report Number: G2006156  
Catalog Number: H9S2GLR128UNVPG  
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 - Indirect  
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 Angle	Horizontal Angle			Zonal 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	

### 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	95	91	87	85	82	80	82	79	77
	2	86	79	73	74	70	66	71	68	64
	3	79	70	62	66	60	55	63	58	54
	4	72	62	54	58	52	47	56	51	47
	5	66	55	47	52	46	41	51	45	41
	6	61	50	42	47	41	36	46	40	36
	7	57	45	38	43	37	32	42	36	32
	8	53	41	34	40	33	29	39	33	28
	9	50	38	31	36	30	26	36	30	26
	10	47	35	28	34	28	24	33	27	23

### 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
90-180	0	0.0	0.0
0-180	2398	87.2	100.0

### 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. H9S2GLR228120WA

LER = 84.3 IW = 54.6 BF = 0.93  
Comparative yearly lighting energy cost per  
1000 lumens = \$2.85

Report Number: G2006110  
Catalog Number: H9S2GLR228120WA  
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 - Indirect  
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	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	

### 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	98	94	90	88	85	82	84	82	79
	2	89	81	75	76	71	67	73	69	66
	3	81	71	63	67	61	56	64	59	55
	4	74	63	55	59	53	47	57	51	47
	5	68	56	48	53	46	41	51	45	40
	6	63	50	42	48	41	36	46	40	35
	7	58	46	38	43	37	32	42	36	31
	8	54	42	34	40	33	28	39	32	28
	9	50	38	31	37	30	25	36	30	25
	10	47	35	28	34	27	23	33	27	23

### 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
90-180	0	0.0	0.0
0-180	4972	90.4	100.0

### 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.

**Job Information** Type:

## Recessed 2'X4' Fluorescent; T8, T5 and T5HO

### Performance

In an installation of 2 lamp 32W 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%.

### Photometry

#### Model No. H9S2GLR132UNVHI

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

Report Number: G2010221

Catalog Number: H9S2GLR132UNVHI

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 - Indirect

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	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	

### 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	87	83	82	79	76	78	76	74
	2	83	75	69	70	65	61	68	63	60
	3	75	65	58	61	55	50	59	54	49
	4	68	57	49	54	47	42	52	46	42
	5	63	51	43	48	41	36	46	40	36
	6	58	46	38	43	36	31	42	36	31
	7	53	41	33	39	32	28	38	32	27
	8	49	37	30	36	29	24	35	29	24
	9	46	34	27	33	26	22	32	26	22
	10	43	32	25	30	24	20	29	24	20

### 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
90-180	0	0.0	0.0
0-180	2642	85.2	100.0

### 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. H9S2GLR232UNVHI

LER = 77.9 IW = 59.7 BF = 0.88  
Comparative yearly lighting energy cost per  
1000 lumens = \$3.18

Report Number: G2010039

Catalog Number: H9S2GLR232UNVHI

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 - Indirect

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	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	

### 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	76	79	76	74
	2	83	76	69	71	66	62	68	64	60
	3	75	66	58	62	56	51	59	54	50
	4	69	58	50	54	48	43	52	47	42
	5	63	51	43	49	42	37	47	41	36
	6	58	46	38	44	37	32	42	36	32
	7	54	42	34	40	33	28	38	32	28
	8	50	38	30	36	30	25	35	29	25
	9	46	35	27	33	27	22	32	26	22
	10	44	32	25	31	24	20	30	24	20

### 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
90-180	0	0.0	0.0
0-180	5284	85.2	100.0

### 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.

**Job Information** Type:

## Recessed 2'X4' Fluorescent; T8, T5 and T5HO

### Performance

In an installation of 2 lamp 54W 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%.

### Photometry

#### Model No. H9S2GLR154UNVPG

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

Report Number: G2010216

Catalog Number: H9S2GLR154UNVPG

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 - Indirect

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	

### 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	2	3	4	5	6	7	8	9	10
	92	87	79	72	66	61	57	53	50	47
	92	80	69	61	55	50	46	43	41	39
	88	73	62	53	48	44	41	38	36	34
	86	65	54	45	41	38	35	33	31	29
	83	59	48	39	35	32	30	28	26	24
	80	55	44	35	31	28	26	24	22	21
	83	65	53	43	38	34	31	28	26	24
	80	63	51	41	36	32	29	26	24	22
	78	60	48	38	33	30	27	24	22	21

### 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
90-180	0	0.0	0.0
0-180	4036	89.7	100.0

### 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. H9S2GLR254UNVPG

LER = 66.5 IW = 112.4 BF = 1.0  
Comparative yearly lighting energy cost per  
1000 lumens = \$3.61

Report Number: G2006118

Catalog Number: H9S2GLR254UNVPG

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 - Indirect

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	

### 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	2	3	4	5	6	7	8	9	10
	92	83	76	70	65	61	57	53	50	47
	88	70	59	51	46	42	39	36	34	32
	84	67	55	45	41	38	35	33	31	29
	82	61	49	39	35	32	30	28	26	24
	79	57	45	35	31	28	26	24	22	21
	77	54	42	32	28	25	23	21	19	18
	74	51	39	29	25	22	20	18	16	15
	72	48	36	27	23	20	18	16	14	13
	70	46	34	25	21	18	16	14	12	11

### 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
90-180	0	0	0
0-180	7446	84.6	100.0

### 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.



Philips Lightolier  
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w: www.lightolier.com

HP90 FL 2X4 May 16, 2012

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**Job Information Type:**