

# PHILIPS LIGHTOLIER

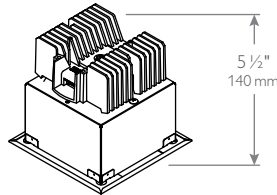
## Downlighting

### Calculite LED 4x4" Downlight

Square aperture, Wide Beam  
500/1000/1500/2250lm



Total height of  
Light engine  
+  
Reflector



Calculite LED 4" features an LED array of high brightness white light LEDs. The new LED boards in Calculite LED ensure a less than 2-step SDCM color variation between luminaires.

Complete product = Frame-in kit + Trim kit  
Lumen package for the frame-in kit must match the trim kit.

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

#### Frame-in kit

example: C4X4L05NUVBZ10V

Series	Lumens	Installation	Input voltage	Version	Dimming	Options
<b>C4X4L</b>	<input type="text"/>	<b>N</b>	<input type="text"/>	<b>VB</b>	<input type="text"/>	<input type="text"/>
<b>C4X4L</b> Calculite 4" LED square aperture	<b>05</b> 500lm	<b>N</b> New construction	<b>U</b> Universal (120/277V)	<b>VB</b> Version B	<b>Z10V</b> 0-10V dimming <b>LD</b> Lutron driver	<b>EM</b> Emergency <sup>1</sup>
	<b>10</b> 1000lm					<b>LC</b> Chicago Plenum <sup>3</sup>
<b>C4X4L</b> Calculite 4" LED square aperture (347v configurations)	<b>15</b> 1500lm	<b>N</b> New construction	<b>1</b> 120V <b>2</b> 277V	<b>VB</b> Version B	<b>Z10V</b> 0-10V dimming <b>LD</b> Lutron driver <sup>1</sup>	<b>EM</b> Emergency <sup>1</sup>
	<b>20</b> 2250lm					<b>LC</b> Chicago Plenum <sup>3</sup>
<b>C4X4L</b> Calculite 4" LED square aperture (347v configurations)	<b>10</b> 1000lm	<b>N</b> New construction	<b>1</b> 120V <b>2</b> 277V	<b>VB</b> Version B	<b>Z10V</b> 0-10V dimming	<b>-347</b> 347V (for Canada) <sup>2</sup>
	<b>20</b> 2250lm					<b>-347</b> 347V (for Canada) <sup>2</sup>

#### Trim kit

example: C4X4L10DL35KCCDPVB

Series	Lumens	Style	CCT	Reflector	Flange	Version <sup>1</sup>
<b>C4X4L</b>	<input type="text"/>	<b>DL</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<b>VB</b>
<b>C4X4L</b> Calculite 4" LED square aperture	<b>05</b> 500lm	<b>DL</b> Downlight	<b>27K</b> 2700K	<b>CL</b> Clear <b>CCL</b> Comfort clear <b>CCD</b> Comfort clear diffuse <b>CCZ</b> Champagne bronze <b>WH</b> White (painted)	<b>W</b> White (painted) <b>P</b> Polished (matches aperture)	<b>VB</b> Version B
	<b>10</b> 1000/1500/2250lm		<b>30K</b> 3000K <b>35K</b> 3500K <b>40K</b> 4000K			

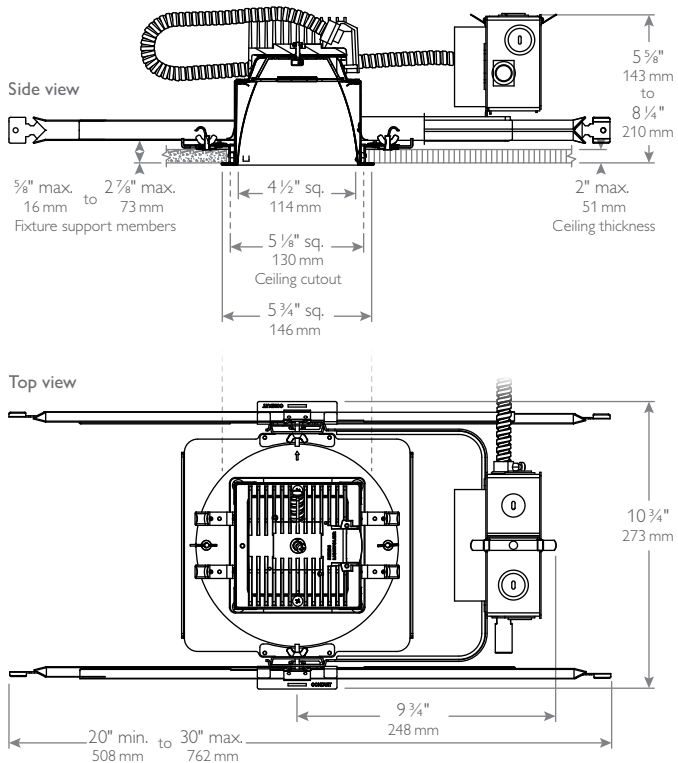
1. Consult LED-EM spec sheet for Emergency (**EM**) option details and restrictions.  
Not available with Lutron driver (**LD**) dimming.
  2. Consult factory for availability of other 347V (**-347**) option configurations.
  3. Consult factory for availability for other Chicago Plenum (**LC**) option configurations.
- Note: See page 3 for Energy Star<sup>®</sup> compatibility.



# C4X4L-DL-VB Calculite LED

4x4" Square Aperture, Downlight, Wide Beam 500/1000/1500/2250lm

## New Construction



## Frame-in kits

### New construction

**Mounting frame:** Galvanized stamped steel for dry or plaster ceilings.

**Vertical adjustment:** Light engine adjusts in frame below ceilings up to 1 1/8" max.

**Horizontal adjustment:** Rotating plate allows for 360° of adjustment prior to connection of power supply. Adjusts and locks via two wing nuts accessible through aperture.

**Mounting brackets:** Galvanized Steel. Adjustable through aperture. Pre-installed telescoping mounting bars extend to 30" long and lock into position. Attach to steel or wood joists without accessories.

## Options and accessories

**Dimming capability:** 0-10V or Lutron dimming (see LED-DIM spec sheet).

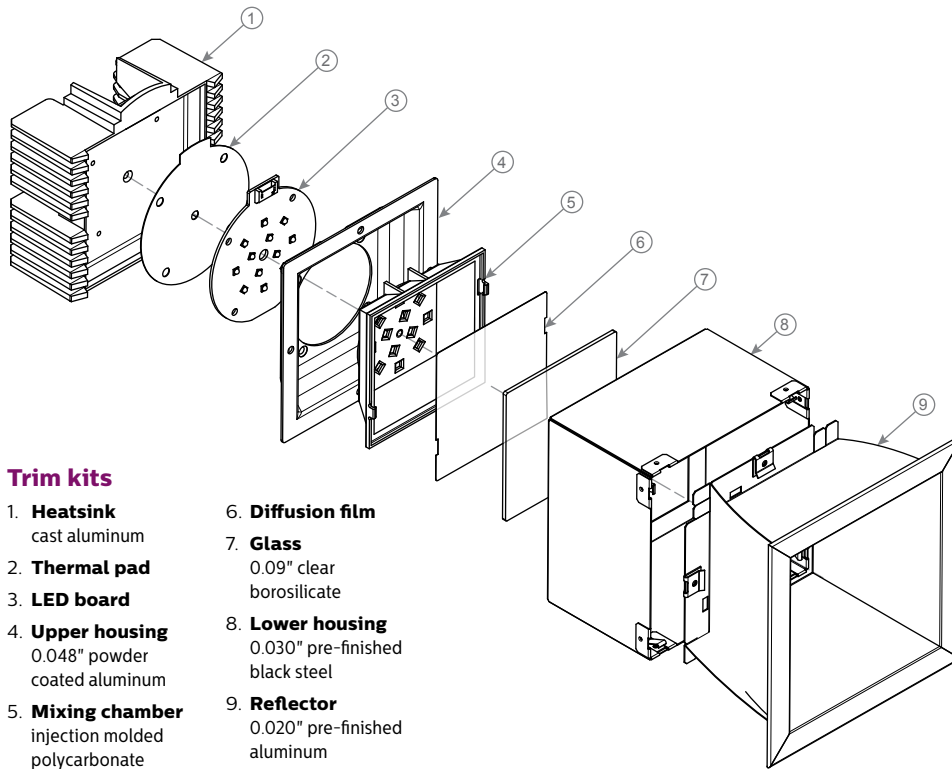
**Emergency capability:** Inverter (see CP-60150 spec sheet - ZI series). Integral (see LED-EM spec sheet - add "EM" suffix).

## Quick-ship

Philips is committed to providing customers with the products they need when they need them. For Service Smart (2 day) and Spec Smart (2 week) availability please reference the Philips Luminaire Smart Service Guide or contact your Philips Lighting representative. Quick-ship SKUs apply to the United States only.

# C4X4L-DL-VB Calculite LED

4x4" Square Aperture, Downlight, Wide Beam 500/1000/1500/2250lm



## Trim kits

- |  |  |
|--|--|
| 1. <b>Heatsink</b><br>cast aluminum                        | 6. <b>Diffusion film</b>                                   |
| 2. <b>Thermal pad</b>                                      | 7. <b>Glass</b><br>0.09" clear borosilicate                |
| 3. <b>LED board</b>  | 8. <b>Lower housing</b><br>0.030" pre-finished black steel |
| 4. <b>Upper housing</b><br>0.048" powder coated aluminum   | 9. <b>Reflector</b><br>0.020" pre-finished aluminum        |
| 5. <b>Mixing chamber</b><br>injection molded polycarbonate |  |

## Calculite LED 4"

### C4X4L10DL35KCCDPVB

Calculite LED 4" Trim kits are backwards compatible with all Calculite LED 4" Frame-in Kits.

## Features

- Ceiling cutout:** 4" aperture; 5 1/8" (130mm) cutout.
- Depth:** 5 5/8" (143mm) including light engine.
- Power connection:** Attaches to light engine via push-in connector (on frame). Removable cover provides access.
- Junction box:** Allows inspection from below.
- Thermal protector:** Meets NEC & UL requirements. Do not install insulation above or within 3" of luminaire.
- Thermal Management:** Heat sink and thermal design along with the clean room assembly process ensures specified performance levels are maintained.

**Rated life:** Offers 60,000 hour rated life (2250lm offers 50,000 hour rated life) at 70% lumen maintenance (L70). Tested in accordance with IES LM-80-08 and TM-21-11. Color consistency between luminaires over the duration of our standard warranty will not be greater than 3 points in u', v'.

## ENERGY STAR®

- All new construction (N) frame-in and trim kit configurations are ENERGY STAR® certified except for the following:
- **Frame-in Kits:** Universal voltage options used in 277V configurations.
  - **Trim Kits:** Champagne bronze (CCZ) reflector finishes.
  - All emergency (EM) configurations.
  - All 347V configurations.

## Electrical

**Electronic power supply:** 120 or 277V, 50/60Hz, encased, overload and short circuit protected, thermal regulation to protect against overheating, sound rating, "A", -20°C minimum starting temperature.

## Labels

cULus, I.B.E.W.  
Suitable for wet locations.  
5 year warranty.  
ENERGY STAR® certified (see exclusions to the left).

Frame-In kit Electrical specifications	Input volts	Input freq.	Input current	LED drive current	Input power*	LED power	THD	Power factor
<b>C4X4L05NUVBZ10V</b> 500lm w/0-10V dimming	120V	50/60Hz	0.06A	300mA	7W	5W	<15%	>0.95
	277V	50/60Hz	0.03A	300mA	7W	5W	<20%	>0.80
<b>C4X4L10NUVBZ10V</b> 1000lm w/0-10V dimming	120V	50/60Hz	0.11A	300mA	13W	10W	<10%	>0.95
	277V	50/60Hz	0.05A	300mA	13W	10W	<15%	>0.85
<b>C4X4L15N_VBZ10V</b> 1500lm w/0-10V dimming	120V	50/60Hz	0.17A	450mA	21W	16W	<10%	>0.95
	277V	50/60Hz	0.08A	450mA	21W	16W	<15%	>0.90
<b>C4X4L20N_VBZ10V</b> 2250lm w/0-10V dimming	120V	50/60Hz	0.25A	675mA	30W	24W	<10%	>0.95
	277V	50/60Hz	0.11A	675mA	30W	24W	<15%	>0.95

\* +/-5%

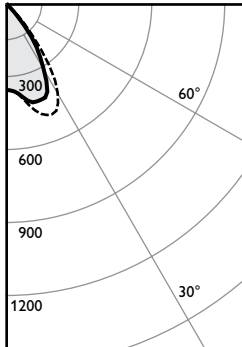
— = Applies to both 120V (1) and 277V (2) Input voltages.

# C4X4L-DL-VB Calculite LED

4x4" Square Aperture, Downlight, Wide Beam 500/1000/1500/2250lm

## 7W LED, 3500K, 500 lumen

Candela Curve



Frame: C4X4L05NUVBZ10V  
Trim: C4X4L05DL35KCLWVB

CCT<sup>1</sup>: 3500K  
Output lumens: 586.9 lms  
Input watts<sup>2</sup>: 7.1 W  
Efficacy: **82.7 lm/w**  
CRI: 80 min  
Spacing Crit.: 1.2  
Report no<sup>3</sup>: 671GFR

### Zonal summary

Zone	Lumens	%Luminaire
0-30	371	63.2%
0-40	534	91.0%
0-60	586	99.9%
0-90	587	100.0%

### Angle

Angle	0°	45°	Lumens
0	367	367	
5	375	376	37
10	405	413	
15	435	471	128
20	435	505	
25	414	504	206
30	315	438	
35	224	318	163
40	118	168	
45	43	75	49
50	8	20	0
55	1	4	3
60	1	1	0
65	0	0	0
70	0	0	0
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

### Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	15	6.0'
6'	10	7.2'
7'	7	8.4'
8'	6	9.6'
9'	5	10.8'

\* Beam diameter is where foot-candles drop to 50% of maximum.

### Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	26.5	0.31
6'	17.4	0.21
7'	12.4	0.15
8'	10.4	0.12
9'	8.3	0.10

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

### Finish Adjust. factors

CL = 100%  
CCL = 95%  
CCD = 87%  
CCZ = 63%  
WH = 87%

### CCT Adjust. factors

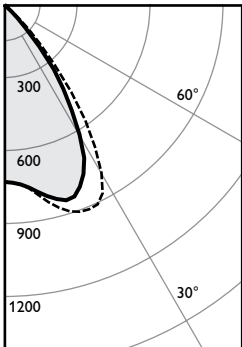
4000K = 103%  
3500K = 100%  
3000K = 97%  
2700K = 87%

### Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	0		
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100		
1	113	110	108	105	108	104	104	100	100	97	91	94	89	86	93		
2	107	102	98	94	100	93	97	91	94	89	86	88	82	79	86		
3	101	94	89	85	93	84	90	83	88	82	79	88	82	79	86		
4	96	88	82	77	86	77	84	76	82	75	72	82	75	72	86		
5	90	81	75	70	80	70	78	70	77	69	67	77	69	67	86		
6	85	76	69	65	75	64	73	64	72	64	62	72	64	62	86		
7	80	70	64	60	70	59	68	59	67	59	57	67	59	57	86		
8	76	66	59	55	65	55	64	55	63	54	53	63	54	53	86		
9	72	62	55	51	61	51	60	51	59	50	49	59	50	49	86		
10	68	58	51	47	57	47	56	47	56	47	46	56	47	46	86		

## 13W LED, 3500K, 1000 lumen

Candela Curve



Frame: C4X4L10NUVBZ10V  
Trim: C4X4L10DL35KCLWVB

CCT<sup>1</sup>: 3500K  
Output lumens: 1144 lms  
Input watts<sup>2</sup>: 13.1 W  
Efficacy: **87.4 lm/w**  
CRI: 80 min  
Spacing Crit.: 1.1  
Report no<sup>3</sup>: 676GFR

### Zonal summary

Zone	Lumens	%Luminaire
0-30	723	63.2%
0-40	1043	91.2%
0-60	1143	99.9%
0-90	1144	100.0%

### Angle

Angle	0°	45°	Lumens
0	761	761	
5	774	775	75
10	816	829	
15	864	903	251
20	876	946	
25	802	946	397
30	644	833	
35	440	604	321
40	230	333	
45	78	146	94
50	14	37	1
55	3	8	6
60	1	1	1
65	1	1	1
70	1	1	1
75	0	0	0
80	0	0	0
85	0	0	0
90	0	0	0

### Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	30	5.5'
6'	21	6.6'
7'	16	7.7'
8'	12	8.8'
9'	9	9.9'

\* Beam diameter is where foot-candles drop to 50% of maximum.

### Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	51.8	0.58
6'	34.0	0.38
7'	24.3	0.27
8'	20.2	0.23
9'	16.2	0.18

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

### Finish Adjust. factors

CL = 100%  
CCL = 95%  
CCD = 87%  
CCZ = 63%  
WH = 87%

### CCT Adjust. factors

4000K = 103%  
3500K = 100%  
3000K = 97%  
2700K = 87%

### Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	0		
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100		
1	113	110	108	105	108	104	104	100	100	98	91	94	89	86	93		
2	107	102	98	94	100	93	97	91	94	89	86	88	82	79	86		
3	101	95	89	85	93	85	91	83	88	82	79	88	82	79	86		
4	96	88	82	78	87	77	85	76	82	75	73	82	75	73	86		
5	90	82	75	71	81	71	79	70	77	69	67	77	69	67	86		
6	85	76	70	65	75	65	74	64	72	64	62	72	64	62	86		
7	81	71	64	60	70	60	69	59	68	59	57	68	59	57	86		
8	76	66	60	55	66	55	64	55	63	55	53	63	55	53	86		
9	72	62	56	51	61	51	60	51	60	51	49	60	51	49	86		
10	68	58	52	48	58	48	57	48	56	47	46	56	47	46	86		

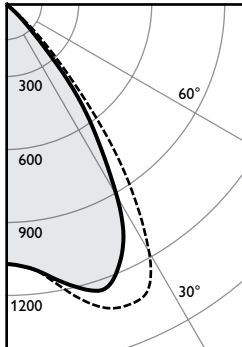
1. Correlated Color Temperature within specs as defined in ANSI\_NEMA\_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.  
2. Wattage controlled to within +/- 5%.  
3. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

# C4X4L-DL-VB Calculite LED

4x4" Square Aperture, Downlight, Wide Beam 500/1000/1500/2250lm

## 21W LED, 3500K, 1500 lumen

Candela Curve



Frame: C4X4L15N1VBZ10V  
Trim: C4X4L10DL35KCLWVB

CCT<sup>1</sup>: 3500K  
Output lumens: 1675 lms  
Input watts<sup>2</sup>: 20.7 W  
Efficacy: 80.9 lm/w  
CRI: 80 min  
Spacing Crit.: 1.1  
Report no<sup>3</sup>: 679GFR

### Zonal summary

Zone	Lumens	%Luminaire
0-30	1058	63.2%
0-40	1527	91.2%
0-60	1673	99.9%
0-90	1675	100.0%

Angle	0°	45°	Lumens
0	1114	1114	
5	1135	1137	111
10	1196	1215	
15	1264	1321	367
20	1283	1386	
25	1173	1385	581
30	942	1221	
35	643	887	469
40	335	489	
45	113	214	137
50	20	55	
55	4	11	9
60	2	2	
65	1	1	1
70	1	1	
75	0	1	1
80	0	0	
85	0	0	0
90	0	0	

### Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	45	5.5'
6'	31	6.6'
7'	23	7.7'
8'	17	8.8'
9'	14	9.9'

\* Beam diameter is where foot-candles drop to 50% of maximum.

### Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	75.7	0.92
6'	49.7	0.60
7'	35.5	0.43
8'	29.6	0.36
9'	23.7	0.29

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

### Finish Adjust. factors

CL = 100%	4000K = 103%
CCL = 95%	3500K = 100%
CCD = 87%	3000K = 97%
CCZ = 63%	2700K = 87%
WH = 87%	

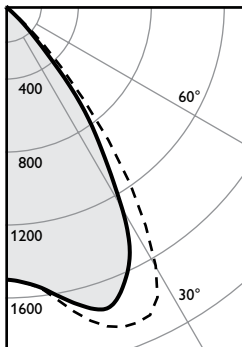
### CCT Adjust. factors

### Coefficients of utilization

Ceiling	80%					70%					50%					30%					0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0				
RCR	Zonal cavity method - Effective floor reflectance = 20%																				
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100						
1	113	110	108	105	108	104	104	101	100	98	93	100	98	93							
2	107	102	98	94	100	93	97	91	94	89	86	94	89	86							
3	101	95	89	85	93	85	91	83	88	82	79	88	82	79							
4	96	88	82	77	87	77	84	76	82	75	73	82	75	73							
5	90	82	75	71	81	71	79	70	77	69	67	77	69	67							
6	85	76	70	65	75	65	74	64	72	64	62	72	64	62							
7	81	71	64	60	70	60	69	59	68	59	57	68	59	57							
8	76	66	60	55	66	55	64	55	63	55	53	63	55	53							
9	72	62	56	51	61	51	60	51	60	51	49	60	51	49							
10	68	58	52	48	58	48	57	48	56	47	46	56	47	46							

## 29W LED, 3500K, 2250 lumen

Candela Curve



Frame: C4X4L20N1VBZ10V  
Trim: C4X4L10DL35KCLWVB

CCT<sup>1</sup>: 3500K  
Output lumens: 2270 lms  
Input watts<sup>2</sup>: 28.5 W  
Efficacy: 79.6 lm/w  
CRI: 80 min  
Spacing Crit.: 1.1  
Report no<sup>3</sup>: 625GFR

### Zonal summary

Zone	Lumens	%Luminaire
0-30	1439	63.4%
0-40	2072	91.3%
0-60	2267	99.9%
0-90	2270	100.0%

Angle	0°	45°	Lumens
0	1511	1511	
5	1543	1544	150
10	1625	1651	
15	1724	1801	500
20	1746	1888	
25	1598	1885	790
30	1274	1655	
35	861	1196	633
40	442	657	
45	156	286	183
50	27	74	
55	5	15	12
60	3	3	
65	2	2	2
70	1	1	
75	1	1	1
80	0	0	
85	0	0	0
90	0	0	

### Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	60	5.5'
6'	42	6.6'
7'	31	7.7'
8'	24	8.8'
9'	19	9.9'

\* Beam diameter is where foot-candles drop to 50% of maximum.

### Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	102.6	1.26
6'	67.3	0.83
7'	48.1	0.59
8'	40.1	0.49
9'	32.1	0.39

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

### Finish Adjust. factors

CL = 100%	4000K = 103%
CCL = 95%	3500K = 100%
CCD = 87%	3000K = 97%
CCZ = 63%	2700K = 87%
WH = 87%	

### CCT Adjust. factors

### Coefficients of utilization

Ceiling	80%					70%					50%					30%					0%
	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0				
RCR	Zonal cavity method - Effective floor reflectance = 20%																				
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100						
1	113	110	108	105	108	104	104	101	100	98	93	100	98	93							
2	107	102	98	94	100	93	97	91	94	89	86	94	89	86							
3	101	95	89	85	93	85	91	83	88	82	79	88	82	79							
4	96	88	82	78	87	77	85	76	82	75	73	82	75	73							
5	90	82	75	71	81	71	79	70	77	69	67	77	69	67							
6	85	76	70	65	75	65	74	64	72	64	62	72	64	62							
7	81	71	64	60	70	60	69	60	68	59	57	68	59	57							
8	76	66	60	55	66	55	65	55	63	55	53	63	55	53							
9	72	62	56	51	61	51	61	51	60	51	49	60	51	49							
10	68	58	52	48	58	48	57	48	56	47	46	56	47	46							

1. Correlated Color Temperature within specs as defined in ANSI\_NEMA\_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Wattage controlled to within +/- 5%.
3. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

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