Calculite LED 4" generation 3 features industry leading visual comfort, excellent uniform illumination over time, and patented installation flexibility. Industry leading visual comfort and uniform illumination make it an ideal choice for office, institution, healthcare, public, and retail applications. Tunable white technology provides dynamic flexibility to fully capture application ambiance and enhance behaviour by supporting biorhythms.

Project:
Location:
Cat.No:
Type:
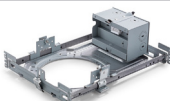Qty:
Notes:

Follow the ordering guidelines below. Each step is a separate order line.

Step 1	**Frame:** Ordered & shipped separately.	
	Frame **4R**	**Example:** 4RN
Step 2	**Engine & Trim:** Ordered & shipped as a single product.	
	Engine **C4L** — **C4R**	**Example:** C4L1596TMDU
Step 3 (optional)	**Accessories:** Ordered & shipped separately.	

Frame

example: 4RN

Series **4R**	Installation	Voltage / Options	
4R 4" Round	**N** New Construction **R** Remodeler	**—** Universal 120V/277V **LC** Chicago Plenum **EM6** Emergency, 6W Self-Test/Self-Diagnostic[1]	
	A Airseal IC	**—** Universal 120V/277V	

Engine

example: C4L1596TMDU

Series **C4L**	Lumens	CRI/CCT **96T**	Beam	Dimming		Voltage
C4L Calculite LED 4"	**05** 500lm **10** 1000lm **15** 1500lm **20** 2000lm	**96T** 90CRI / 6500-2700K	**N** Narrow (38°) **M** Medium (54°)	**Z10** 0-10V 1% **D** DALI DT8 0.1%	**DMX** Digital Multiplexing w/ RDM 0.1% **RA** Integral Interact Pro RF sensor[4] **LTW** Lutron T-Series 1%[6]	**U** Universal 120V/277V For 347V order T347-75VA accessory

Trim

example: C4RDLCCP

Series **C4**	Aperture **R**	Style	Finish		Flange	Options
C4 Calculite LED 4"	**R** Round	**DL** Downlight **WW** Open Wall Wash[2] **LW** Lensed Wall Wash[2,5] **CW** Corner Wall Wash[2,3] **DW** Double Wall Wash[2,3]	**CL** Specular clear **CC** Comfort clear **BK** Black (anodized)	**CD** Comfort clear diffuse **CZ** Champagne bronze	**—** White (matte) **P** Polished **F** Flangeless (requires CA4RFT)	**IEM6** Trim mounted EM test switch[5]
		SL Shower Light	**WH** White (matte) **WHAMF** White (gloss antimicrobial)		**—** White (matte) **F** Flangeless (requires CA4RFT)	
			WH White (matte) **WHAMF** White (gloss antimicrobial)		**—** White (matte)	

Accessories

CA4RFT Mud-in ring for use with flangeless installations (ordered with a flangeless trim)
CAEM6 Field-installable Bodine BSL6 6W battery pack with self-test/self-diagnostic (for new construction frames, 120-277V - see page 2 for details)
C4RVPWH IP65 rated vandal proof matte white accessory that mounts onto a flangeless trim (not available for use with Lensed Wall Wash)
SWCS Interact Ready System Bridge accessory w/integral occupancy & daylight sensor (compatible with all 0-10v options, see SWCS spec sheet)
– Requires IRT9015 IR remote & Interact Pro App for commissioning.
T347-75VA 347:120V step-down transformer for non-IC (N) frame only (see page 2 for details)

1. Emergency (EM6) frame is compatible with reflector mounted test switch when trim (LW not avail.) is ordered with IEM6 option code (not compatible with 347V). For remote mount switch, order standard trim and CAEM6TSCP mounting plate accessory. EM mode on 6500K circuit only.
2. Medium (M) beam recommended for all Wall Wash (LW, WW, CW, DW) applications.
3. Corner (CW) and Double (DW) wall wash are not available with flangeless (F) option.
4. Linear driver profile. See page 5 for details (enables wireless connected lighting control).
5. LW style requires remote mounted EM6 test switch. Order with CAEM6TSCP test switch mounting plate.
6. 500lm not available with LTW dimming option.

Declare. · c UL us LISTED · WET LOCATION · RoHS COMPLIANT

C4RTW   Calculite LED 4" gen 3

Round Tunable White

Frame-in-kits

New Construction

Galvanized stamped steel for dry or plaster ceilings. Preinstalled telescoping mounting bars from 13" to 24". For 4' distances, use 1/2" EMT, 1-1/2" x 1/2" U or C channel.

Max ceiling thickness is 2".

Patented install Mounting frame

- Pre-installed mounting bars for fast and toolless installs into T-grid & hat channel ceilings.
- Close-cut aperture design eliminates possibility of gap between ceiling opening & reflector flange.
- Separate wiring compartment for wiring frame to building allows inspection prior to light engine install.
- Simple plug-and-play connection between frame and light engine from below ceiling.

Dimming (2-channel)

All configurations are FCC Class A unless otherwise specified. Dimming curves are logarithmic as standard, contact factory for options.

- 0-10V 1% (Z10)
- DALI DT8 1% (D)
- Digital Multiplexing w/ RDM 1% (DMX)
- Lutron T-Series 1% (LTW)

Rated life

55,000 hrs at 85% lumen maintenance based on IES LM-80-08 and TM-21-11.

See page 5 for complete details.

Optical systems

Comfort throughout the space:

- True 50° physical cutoff and 45° reflected cutoff.
- MesoOptics PET optical diffusion film:Provides a smooth beam shape and mitigates color over angle with optimized luminaire efficiency.
- Tunable white (6T): 2700K to 6500K CCT. Use with Z10 dimming only. Fixture-to-fixture consistency of ≤3SDCM at 2700K, 5000K, and 6500K CCT.

Light Engine

Quick connect power pack comprised of light source and driver allow for easy installation and replacement from below ceiling with no need for additional wiring. This allows for

- Frame and ceiling installation to be performed while still finalizing details such as lumen packages, CCT and control type.
- Easy replacement of electronics at end of life with minimal wasted material and labor required.
- Ease and upgradability of technology.

Emergency

Bodine BSL6 6W battery pack with self-test/diagnostic functionality. Factory mounted to frame.

- For trim with integral emergency test switch, order trim with IEM6 option (ex: C4RDLCCIEM6). Not avail. for LW style.
- For remote ceiling mounted test switch, order standard trim (ex: C4RDLCC). Optional accessory ceiling mounting plate available (CAEM6TSCP) for remote mounted test switch (required for LW style).
- EM mode is on 6500K circuit.
- To estimate lumen output in emergency mode, multiply emergency pack wattage by luminaire configuration efficacy, then by 1.1.

Options and Accessories

Flangeless mud-in ring: Use **CA4RFT** for use with flangless plaster installations.

Sloped ceilings: Compatible with sloped ceiling adapters (see **SCA** spec sheet).

C4RVPWH: includes machined aluminum ring painted white, gasketed for IP65 protection, and impact resistant polycarbonate lens (IK10). Locks in place with discrete setscrew (key included). Available also with antimicrobial finish (C4RVPWHAMF).

CAEM6TSCP: Ceiling cover plate for remote mounted EM6 test switch. 1/2" (25mm) hole, 4 3/8" (109mm) x 2 3/4" (69mm) rectangular. Includes two mounting screws.

CAEM6: Field install EM6 kit with Bodine BSL6 6W battery pack with self-test/self-diagnostic, mounts to new construction frames. Includes remote ceiling plate for test switch. To mount test switch to trim for new construction frame, order trim with IEM6 option code (e.g. C4RDLCCIEM6). Refer to Calculite-LyteProfile-EasyLyte Emergency Battery Pack specification sheet for more details

SWCS: Interact Ready System Bridge Accessory Requires IRT9015 IR remote and Interact Pro App for commissioning

T347-75VA: Field installable 347:120V 75VA stepdown transformer, attaches to knock out on frame junction box, for use with non-IC (N) or remodel (R) frames.

Labels and Listings

- cULus listed for wet locations (downlights)
- RoHS certified
- Red List Declare label certified, ID SIG-0021 (View full Declare label)
- CCEA (frames with *LC suffix)
- IP65 rated with vandal proof accessory

Warranty

5 year warranty
Indoor Professional Luminaires complete system warranty available at: www.signify.com/warranties

C4RTW   Calculite LED 4" gen 3

Round Tunable White

Polished Reflectors

Specular clear (CL): Most specular and most efficient finish, delivers maximum photometric performance but can produce a mirror image effect of the interior space.

Comfort clear (CC): Semi-specular finish that softens the light at the source of the reflector and creates a subtle, even luminance from the reflector cone.

Comfort clear diffuse (CD): Slightly diffuse clear finish, that eliminates iridescence and reduces the mirror image effect inherent with specular finishes.

Champagne bronze (CZ): Semi-specular finish that softens light at the source of the reflector while providing a warmer reflector appearance (slightly warmer).

White (WH): (matte) Brightest illuminated aperture and provides the smoothest transition to most ceilings when off (white is only available with a white flange).

Black (BK): (anodized) Specular finish that provides the lowest aperture brightness possible and significantly reduces source identification in a ceiling.

Vandal proof (VP): Provides an elegant solution for vandal resistant needs. One piece machined aluminum ring with impact resistant clear lens. Flangeless (F) flange must be ordered. Provides the luminaire with an IK10 impact and IP65 rating.

Shower light (SL): Wet location rated shower light with clear acrylic lens applicable in any installation requiring dead front trims, interior or exterior non-corrosive applications, or where a diffused lens at the ceiling is required (non-conductive).

Flanges

White (–): (matte) Provides the smoothest transition to ceilings when off.

Polished (P): (matches aperture) Produces a continuous look throughout the reflector (aperture matching). Not available for square trims with CL, CD, CC, and CZ finishes.

Flangeless (F): (flush-mount)Creates a flush, virtually seamless transition from aperture to ceiling.
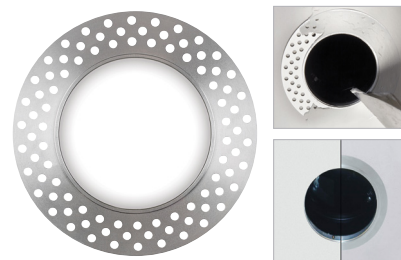
Mud-in ring (FMR): Low profile, non-metallic mud-in ring provides a raised rib to plaster up to and a 3⁄16" flange thickness. The ring is attached to the ceiling material as opposed to the frame-in kit to avoid conduction of heat and vibration which can cause yellowing or cracking of the plaster.

C4RTW   Calculite LED 4" gen 3

Round Tunable White

New Construction (N)

10 ⅞ in
277 mm

7 ½ in
190 mm

Emergency battery
pack shown with
EM6 option on
new construction
non-IC frame.

8 ¾ in
221 mm

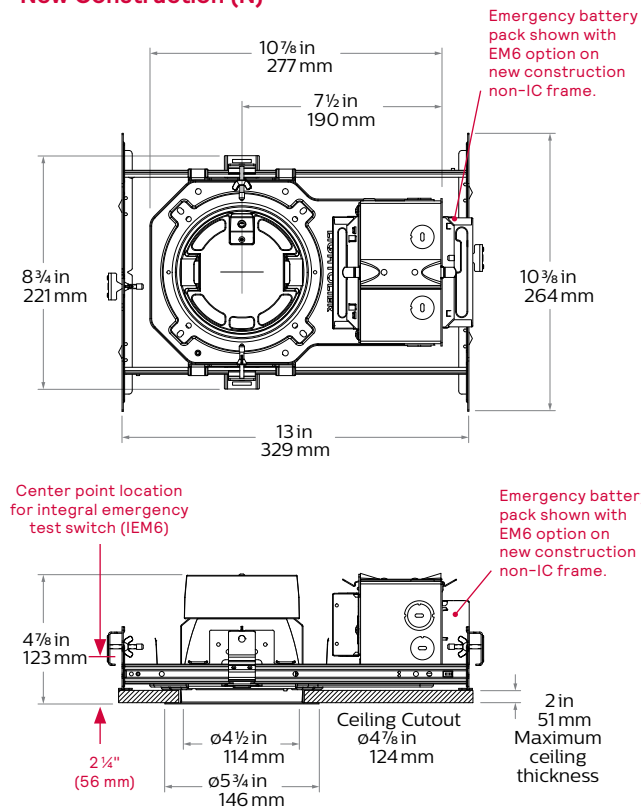10 ⅜ in
264 mm

13 in
329 mm

Center point location
for integral emergency
test switch (IEM6)

Emergency battery
pack shown with
EM6 option on
new construction
non-IC frame.

4 ⅞ in
123 mm

2 ¼"
(56 mm)

ø4 ½ in
114 mm

Ceiling Cutout
ø4 ⅞ in
124 mm

2 in
51 mm
Maximum
ceiling
thickness

ø5 ¾ in
146 mm

AirSeal (A) & Chicago Plenum (LC)

13 ¼ in
337 mm

7 ¾ in
197 mm

16 ⅜ in
416 mm

11 ¼ in
286 mm

6 ⅛ in
156 mm
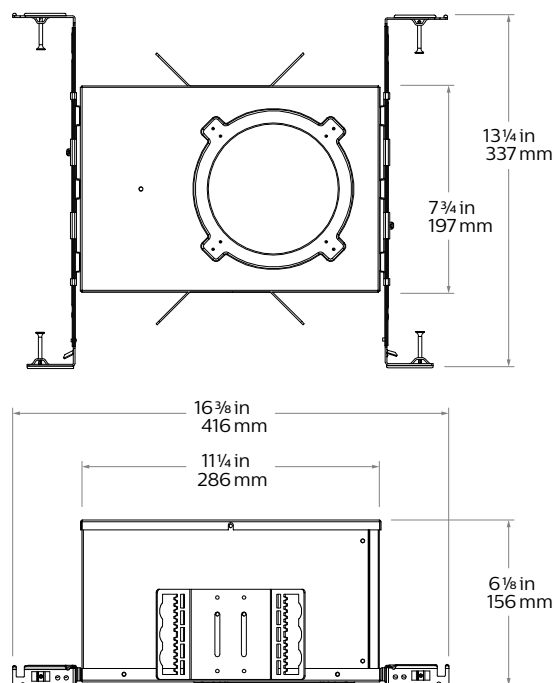
Flangeless mud-in ring (CA4RFT) accessory

7 in
178 mm

4 ⅞ in
125 mm

5 in
127 mm

D

Detail D
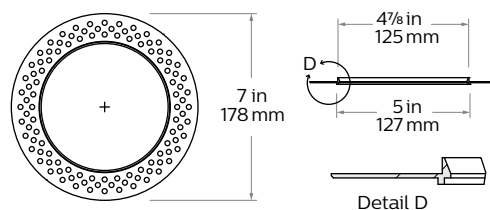
Vandal Proof (VP) accessory

⅜ in
10 mm

ø4 ⅜ in
111 mm

ø6 ¼ in
158 mm
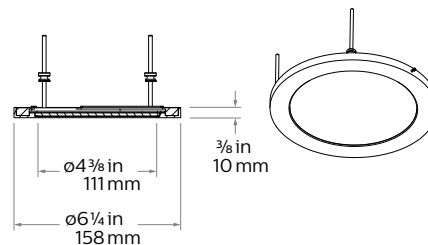
C4RTW Calculite LED 4" gen 3

Round Tunable White

Linear driver (RA)

Requires 19" plenum space.

Sensor shown for RA light engine only.

8¾ in
222 mm

12 in
305 mm

20¾ in
527 mm
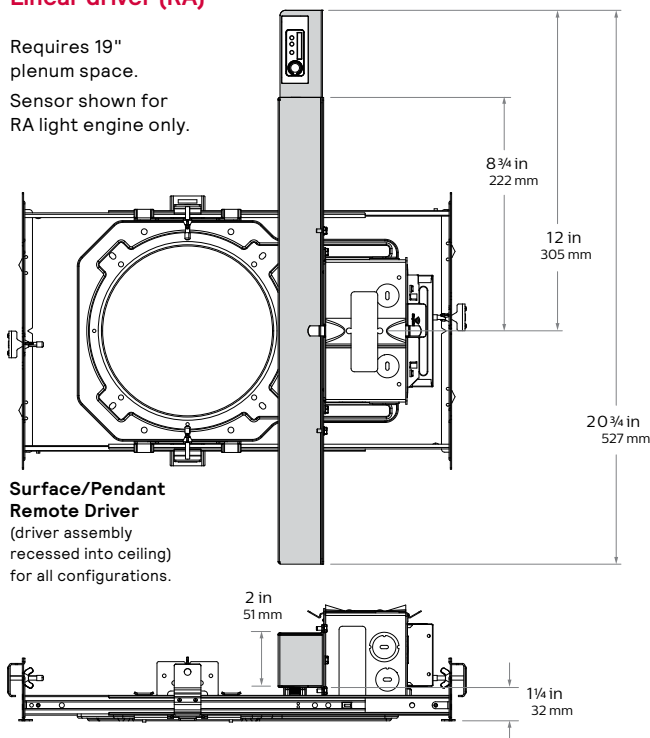
Surface/Pendant Remote Driver (driver assembly recessed into ceiling) for all configurations.

2 in
51 mm

1¼ in
32 mm

Electrical

Light engine	Input Volts	Input Freq.	90CRI, 2700K		90CRI, 6500K	
			Input Current	Input Power	Input Current	Input Power
C4L05	120V	50/60Hz	0.060A	7.1W	0.828A	5.9W
	277V	50/60Hz	0.027A	7.5W	0.840A	6.3W
C4L10	120V	50/60Hz	0.111A	13.3W	0.835A	11.1W
	277V	50/60Hz	0.049A	13.5W	0.845A	11.4W
C4L15	120V	50/60Hz	0.177A	21.2W	0.823A	17.4W
	277V	50/60Hz	0.077A	21.3W	0.824A	17.5W
C4L20	120V	50/60Hz	0.246A	29.5W	0.820A	24.2W
	277V	50/60Hz	0.106A	29.5W	0.820A	24.2W
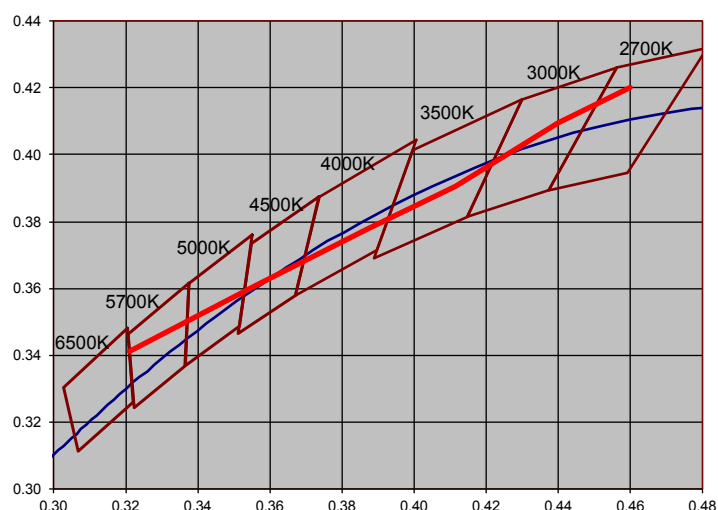
### Lifetime (TM-21) data

Lumens	Narrow beam	Medium beam
500lm 1000lm 1500lm	L85 @ 55,000hrs.	L90 @ 60,000hrs.
2000lm	L85 @ 55,000hrs.	L80 @ 60,000hrs.

Lumens

Light engine	Beam	90CRI, 2700K		90CRI, 2700K		90CRI, 2700K		90CRI, 2700K		90CRI, 2700K		90CRI, 6500K	
		Input Current	Input Power	Input Current	Input Power	Input Current	Input Power	Input Current	Input Power	Input Current	Input Power	Input Current	Input Power
500m	Narrow (N)	596	83	590	85	582	88	576	90	567	92	560	95
	Medium (M)	529	74	523	76	516	78	509	79	500	82	493	83
1000m	Narrow (N)	1097	82	1091	85	1084	87	1079	90	1071	93	1065	96
	Medium (M)	974	73	968	75	960	77	954	79	944	82	938	84
1500m	Narrow (N)	1664	79	1657	81	1647	84	1638	86	1626	90	1618	93
	Medium (M)	1479	70	1470	72	1458	74	1449	76	1435	79	1425	82
2000m	Narrow (N)	2181	74	2178	76	2173	80	2170	83	2164	87	2160	89
	Medium (M)	1938	66	1932	68	1925	71	1918	73	1909	76	1903	79

C4RTW   Calculite LED 4" gen 3

Round Tunable White

Narrow beam (4000 K), 1500 lm Engine, 87 lm/W at 19 W

Candela Curve
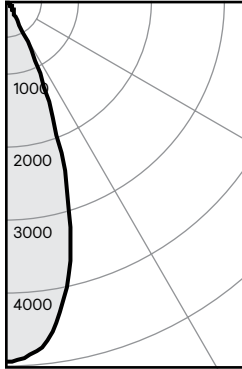
4RN / C4L1596TN / C4RDLCL

Output lumens:	1662 lms
Input watts:	19.2 W
CRI:	90 min
CCT[1]:	4000K
Spacing Crit.:	0.64
Beam Angle:	38°

Zonal summary

Zone	Lumens	%Luminaire
0–30	1501	90.3%
0–40	1605	96.6%
0–60	1658	99.8%
0–90	1662	100.0%

Angle	Mean CP	Lumens
0	3929	
5	3832	
10	3440	353
15	2750	
20	1761	737
25	883	
30	313	411
35	150	
40	115	104
45	61	
50	14	47
55	7	
60	4	6
65	3	
70	2	3
75	1	
80	0	1
85	0	
90	0	0

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
8'	61	5.1'
9'	49	5.8'
10'	39	6.4'
12'	27	7.7'
14'	20	9.0'

* 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'	78.0	0.85
6'	51.0	0.56
7'	37.0	0.40
8'	30.0	0.33
9'	24.0	0.27

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 86.6 lm/W
Report[2]: STMR-2476

Adjustment factors

Finish		Lumens	
CL = 100%		2000lm = 133%	
CC = 95%		1500lm = 100%	
CD = 87%		1000lm = 67%	
CZ = 63%		500lm = 33%	
WH = 87%			
BK = 57%			

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method – Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	114	112	110	108	110	106	106	103	102	100	95
2	110	106	103	100	104	99	101	96	98	94	91
3	106	100	96	93	99	92	97	91	94	90	87
4	102	96	91	88	94	87	92	86	91	85	83
5	98	91	86	83	90	83	89	82	87	81	79
6	94	87	82	79	86	79	85	78	84	78	76
7	91	83	79	75	83	75	82	75	81	74	73
8	88	80	75	72	80	72	79	71	78	71	70
9	85	77	72	69	76	69	76	69	75	68	67
10	82	74	69	66	74	66	73	66	72	66	65

(Room Cavity Ratio)

Medium beam (2700 K), 1500 lm Engine, 73 lm/W at 21 W

Candela Curve
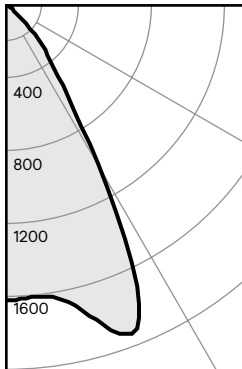
4RN / C4L1596TM / C4RDLCL

Output lumens:	1514 lms
Input watts:	20.8 W
CRI:	90 min
CCT[1]:	2700K
Spacing Crit.:	1.1
Beam Angle:	54°

Zonal summary

Zone	Lumens	%Luminaire
0–30	1112	73.4%
0–40	1402	92.6%
0–60	1509	99.7%
0–90	1514	100.0%

Angle	Mean CP	Lumens
0	2076	
5	2060	
10	2064	123
15	2225	
20	2496	404
25	2176	
30	1206	585
35	705	
40	488	290
45	212	
50	19	97
55	5	
60	3	10
65	2	
70	1	4
75	1	
80	0	1
85	0	
90	0	0

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	83	5.5'
6'	58	6.6'
7'	42	7.7'
8'	32	8.8'
9'	26	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'	69.0	0.92
6'	45.0	0.60
7'	32.0	0.43
8'	27.0	0.36
9'	22.0	0.29

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 72.8 lm/W
Report[2]: STMR-2482

Adjustment factors

Finish		Lumens	
CL = 100%		2000lm = 133%	
CC = 95%		1500lm = 100%	
CD = 87%		1000lm = 67%	
CZ = 63%		500lm = 33%	
WH = 87%			
BK = 57%			

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method – Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	113	110	108	105	108	104	104	101	100	98	93
2	107	102	98	94	100	93	97	91	94	89	86
3	101	95	90	85	93	85	91	83	88	82	79
4	96	88	82	78	87	77	85	76	83	75	73
5	91	82	76	71	81	71	79	70	77	70	67
6	86	76	70	65	75	65	74	65	72	64	62
7	81	71	65	60	71	60	69	60	68	60	58
8	77	67	60	56	66	56	65	56	64	55	54
9	73	62	56	52	62	52	61	52	60	51	50
10	69	59	52	48	58	48	57	48	56	48	46

(Room Cavity Ratio)

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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. 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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