

February 2, 2016

**Duluth City Hall Interior Renovations  
Fourth Floor  
411 West 1<sup>st</sup> Street, Duluth, MN  
Project #15-A-TR  
Bid #16-03AA**

**Bid Opening Date: February 16, 2016, 2:00 p.m.**

**NOTICE TO BIDDERS**

The following addendum shall be appended to and shall become a part of the plans and specifications for Duluth City Hall Interior Renovations, 411 West 1<sup>st</sup> Street, Duluth, Minnesota

This addendum supersedes and supplants all previous reference to similar items.

RW FERN ASSOCIATES INC.

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**ADDENDUM #1**

**Bidding Requirements**

- 1) Revised bid form attached to this addendum. Blanks for alternate and unit price have been added.
- 2) A second walk through of project area has been scheduled for Monday, February 8, at 2:00 p.m. No other walk throughs will be allowed.

**Divisions 26, 27, and 28**

- 1) Common Work Results for Electrical, paragraph B, item 2. Add the following:
  - New Receptacles, Data/Telephone: New receptacle locations to be coordinated with final office furniture layout. For bidding purposes, plan for four (4) new duplex receptacles, and two (2) empty conduit/box to above ceiling for data for telephone/data at rooms 400 (new wall only), 401 (new wall only), 402, 403, 404, 405, 408, 410.
  - Other Receptacles: Locate electrical receptacles at 401 A, 401B, all appliances at 406, plus one (1) above counter. Provide receptacles where required by Code or room function.
  - Data/Telephone Wiring: Delete all wiring and terminals from project. This work will be by the City. Empty conduits and boxes to be located as indicated above.
  - All conduits and boxes to be fit and concealed in existing walls. If this is not possible, configuration will be done on a case by case basis during construction.
  - Contractor to update/replace existing fire alarm horns, strobes, etc. in project area as required to meet Code. New work to tie into existing system.
- 2) Attached to this addendum are the light fixtures to be utilized in project area. Include replacement of all light fixtures within project area in the base bid.

## **Plans**

- 1) Detail 9/A1: Delete reference to transaction window being "By Others." Window unit to be included in contractors work.
- 2) Plan 3/T1:
  - West Wall Room 400: This wall is to run 6" above suspended ceiling systems. Provide bracing as required for stability.
  - Delete reference to note #3 in Room 404 and 405.

Base Bid: Wood base, chair rails to be installed at infilled openings (tie into existing), both sides of Hall 401A/401B (tie into existing), 400, 406, 408, 409, 410 as indicated on plans.

Add Alternate: Contractor to submit price to install salvaged or new wood base boards and chair rails at new or existing blank walls in Rooms 402, 403, 405.

END OF ADDENDUM

Attachments: Attendance Sheet Pre-Bid Meeting  
Revised Bid Form  
Light Fixture Cut Sheets

2/1/16

# CITY HALL 4<sup>TH</sup> FLOOR RENOVATION

FRE BID MTH 2/1/16 @ 2:00

NAME

FIRM

PHONE/EMAIL

ROBERT FEEN

FEEN ASSOCIATES

722.8271

ROBERT@RWF  
ASSOCIATES.COM

DERRILL ADOLTE

A.GO'BRIEN

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715.394-5547

nate@becolm.com

Nathan Sapik

Benson Electric

STEVE FALIBANS

St. Germain Cabinets

624/1234

CARLY REUTER

VIKING SPRINKLER

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218-391-0360

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218-628-2257

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Pete Thompson

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Ken Schlaus

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Rick Johnson

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PAUL FROST

KRAUS ANDERSON

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CORREY YETTER

JTZ

CYETTER@JRJENSEN.COM

16-03AA Bid Form - \*\*Updated 2/3/16\*\*

City Hall 4th Floor Renovation Base Bid \$

Bid written out:

Add Alternate: Install of chair rails and baseboards \$

Unit Price #1: cost to increase/decrease removal of loose  
plaster per square foot \$

Unit Price #2: cost to increase/decrease removal of floor  
repair and leveling \$

Acknowledgment of Addendum

Addendum 1:

Addendum 2:

Addendum 3:

Addendum 4:

Name and Title:

Vendor Name:

Address:

Phone Number:

Email:

Signature:

# ZR Series with Cree SmartCast® Technology

ZR24™ 2' x 4' LED Troffer

## Product Description

The ZR24™ LED troffer with Cree SmartCast® Technology delivers 4000 lumens of superior 90 CRI light quality and is perfect for both new construction and renovation. Cree SmartCast® Technology products incorporate integrated ambient and occupancy sensing and wireless communication to achieve energy savings and extended product life, resulting in lower electricity bills, reduced maintenance and an improved total cost of ownership over traditional lighting control systems. The ZR24™ LED troffer embodies a breakthrough in balancing energy savings, visual comfort and initial cost.

## Performance Summary

Utilizes Cree TrueWhite® Technology

**Efficacy:** 91 LPW

**Initial Delivered Lumens:** 4,000 lumens

**Input Power:** 44 watts

**CRI:** 90 CRI

**CCT:** 3500K, 4000K

**Input Voltage:** 120-277 VAC

**Limited Warranty\*:** 5 years

**Controls:** Cree SmartCast® Technology

**Mounting:** Recessed\*

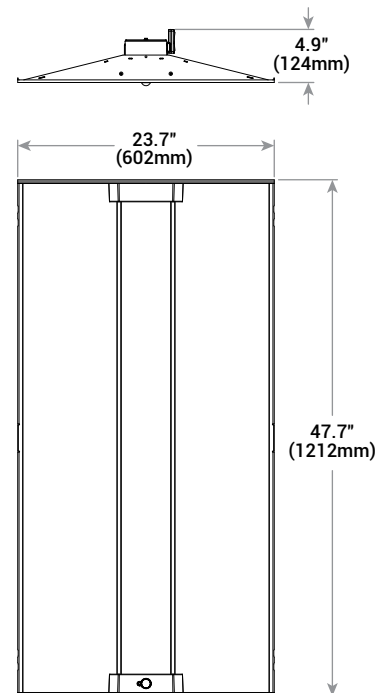
\* See <http://lighting.cree.com/warranty> for warranty terms

## Accessories

Field-Installed	
<b>Drywall Grid Adapter</b> <a href="#">DGA-24WHT</a> <b>Cree SmartCast® Technology Configuration Tool†</b> <a href="#">CCT-CWC-1</a> - One required per project when CMA control is selected	<b>Cree SmartCast® Technology Face Plates‡</b> CFP-1-WH - Matching Cree face plate, 1-gang, white CFP-2-WH - Matching Cree face plate, 2-gang, white CFP-3-WH - Matching Cree face plate, 3-gang, white <b>Cree SmartCast® Technology Wireless Dimmer‡</b> CWD-CWC-WH <b>Cree SmartCast® Technology Wireless Switch‡</b> CWS-CWC-WH

† Refer to the [Configuration Tool spec sheet](#) for more details

‡ Refer to the [Wireless Dimmer Smartcast Control spec sheet](#) for more details



## Ordering Information

Example: ZR24-40L-35K-CMA

ZR24	40L			CMA	
Product	Lumen Output	Color Temp	Voltage	Control	Options
ZR24	40L 44W, 4,000 Lumens – 90 LPW	35K 3500K 40K 4000K	Blank 120-277 Volt	CMA Cree SmartCast® Technology - Integral motion and ambient sensors and wireless communication	<a href="#">EB14 Emergency Backup</a> - 1,400 lumens - Available on US versions only

\* Acceptable for use with standard 9/16 T-Bar or larger when installed per installation instructions. Consult factory for non-standard grid applications

Rev. Date: V2 12/28/2015



US: [www.cree.com/lighting](http://www.cree.com/lighting)

T (800) 236-6800 F (262) 504-5415

Canada: [www.cree.com/canada](http://www.cree.com/canada)

T (800) 473-1234 F (800) 890-7507

## Product Specifications

### CREE SMARTCAST® TECHNOLOGY

Cree SmartCast® Technology changes the paradigm of lighting control. With the press of a single button, Cree SmartCast® Technology enabled luminaires and controls create their own secure network and auto-associate to form logical groups throughout every space. Integrated sensors and robust wireless communication included in every luminaire combined with revolutionary OneButton™ Setup enables automated setup and configuration of luminaires and wall controls. With no extra wires or interfaces, Cree SmartCast® Technology products reduce installation time and complexity.

### CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

### CONSTRUCTION & MATERIALS

- Durable cold rolled steel housing provides strength and uniformity
- Ultra-thin 4.9" (124mm) luminaire height and lightweight design effectively target a broad range of plenum spaces and allow for easy installations
- Luminaire is pre-painted for enhanced smooth finish
- Included t-bar clips and holes for mounting support wires (by others)
- Luminaire sides and ends are hemmed in for safe, easy handling

### OPTICAL SYSTEM

- Unique luminaire design creates perfect balance of both horizontal and vertical illumination
- Optimized smooth lens eliminates pixelation and delivers a low-glare, diffused light distribution

### ELECTRICAL SYSTEM

- Cree born components including highly efficacious Cree® LED chips along with an integral high-efficiency Cree® driver
- **Power Factor:** = 0.9 nominal
- **Input Power:** Stays constant over life
- **Input Voltage:** 120-277V, 50/60Hz
- **Operating Temperature Range:** 0°C - + 35°C (32°F - + 95°F)
- **Total Harmonic Distortion:** <20%
- **Dimming:** 5% - 100%

### REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations
- Designed for indoor use
- UL924 (EB option)
- DLC qualified. Please refer to [www.designlights.org/QPL](http://www.designlights.org/QPL) for most current information
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15 standards for conducted and radiated emissions

## Cree SmartCast® Technology

### INTEGRAL MOTION SENSOR

- Passive infrared (PIR)
- **Coverage area:** 100 sq. ft. (30.5m²) at 10 ft. (3.0m) mounting height
- Not intended to be mounted higher than 12 ft. (3.7m)
- **Operation:**
  - *Grouped with a wall control:* Luminaire will operate in vacancy mode (manual-on/auto-off)
  - *Not grouped with a wall control:* Luminaire will operate in occupancy mode (auto-on/auto-off)
- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool

### AMBIENT LIGHT SENSOR

- Sensor response matches response of human eye
- Not intended to be mounted higher than 12 ft. (3.7m)
- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool
- Daylight harvesting calibration performed automatically during OneButton™ Setup

### INTEGRAL WIRELESS COMMUNICATION

- 2.4GHz wireless mesh technology with AES 128-bit encryption
- Self assigns to quietest channel during OneButton™ Setup
- **Range:**
  - 30 ft. (9.1m) in typical commercial applications
  - 300 ft. (91.4) open air without obstructions
- **Network:** 250 devices max.
- **Space:** 100 devices max. per group
- FCC certified
- IC certified

### LUMINAIRE

- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool
- 10 year power fail memory of settings

### DEPLOYMENT

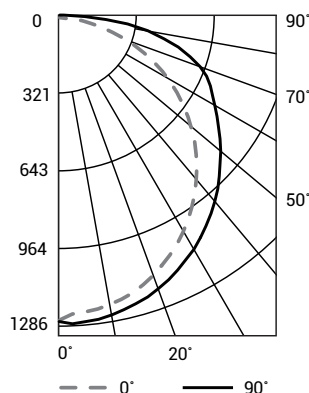
- Please refer to the SmartCast® Deployment Guide at [www.creelink.com/exLink.asp?236135640H88E44I39771048](http://www.creelink.com/exLink.asp?236135640H88E44I39771048)

## ZR24™ 2' x 4' LED Troffer with Cree SmartCast® Technology

### Photometry

#### ZR24-40L-40K BASED ON DTC REPORT TEST #: PL02843-001

Luminaire photometry has been conducted in accordance with IESNA LM-79-08. IESNA LM-79-08 specifies the entire luminaire as the source resulting in a luminaire efficiency of 100%.



Coefficients Of Utilization – Zonal Cavity Method					
RC %:	80				
RW %:	70	50	30	10	
RCR: 0	119	119	119	119	
1	107	102	97	93	
2	97	88	80	74	
3	88	76	68	61	
4	80	67	58	51	
5	73	60	50	43	
6	68	54	44	38	
7	63	49	40	33	
8	58	44	36	29	
9	55	41	32	26	
10	51	37	29	24	

Effective Floor Cavity Reflectance: 20%

Reference lighting.cree.com/products/indoor/troffers/zr-series for detailed photometric data

Average Luminance Table (cd/m²)				
Vertical Angle	Horizontal Angle			
	0°	45°	90°	
	45°	1,642	1,772	1,899
	55°	1,580	1,788	2,014
	65°	1,480	1,885	2,341
	75°	1,276	2,240	2,819
	85°	952	2,498	3,203

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	990	N/A	24.4%
0-40	1,628	N/A	40.1%
0-60	2,949	N/A	72.6%
0-90	4,064	N/A	100%
0-180	4,064	N/A	100%

### Application Reference

Based on ZR24-40L-40K-CMA

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
8 x 8	4,000	44	91	0.66	56
8 x 10				0.55	46
10 x 10				0.44	37
10 x 12				0.35	30

9' ceiling: 80/50/20 reflectances; 2.5' workplane, open room. LLF: 1.0 Initial. Open Space: 50' x 40' x 10'

Recommended ZR Series Lumen Maintenance Factors (LMF) <sup>1</sup>					
Ambient	Initial LMF	25K hr Projected <sup>2</sup> LMF	50K hr Projected <sup>2</sup> LMF	75K hr Projected <sup>2</sup> LMF	100K hr Calculated <sup>3</sup> LMF
0°C (32°F)	1.05	0.99	0.95	0.91	0.87
5°C (41°F)	1.04	0.98	0.94	0.90	0.86
10°C (50°F)	1.03	0.97	0.93	0.89	0.85
15°C (59°F)	1.02	0.96	0.92	0.88	0.84
20°C (68°F)	1.01	0.95	0.91	0.87	0.83
25°C (77°F)	1.00	0.95	0.90	0.86	0.83
30°C (86°F)	0.99	0.94	0.89	0.86	0.82
35°C (95°F)	0.98	0.93	0.89	0.85	0.81

<sup>1</sup> Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

<sup>2</sup> In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

<sup>3</sup> In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

# ZR Series with Cree SmartCast® Technology

ZR22™ 2' x 2' LED Troffer

## Product Description

The ZR22™ LED troffer with Cree SmartCast® Technology delivers 3,200 lumens of superior 90 CRI light quality and is perfect for both new construction and renovation. Cree SmartCast® Technology products incorporate integrated ambient and occupancy sensing and wireless communication to achieve energy savings and extended product life, resulting in lower electricity bills, reduced maintenance and an improved total cost of ownership over traditional lighting control systems. The ZR22™ LED troffer embodies a breakthrough in balancing energy savings, visual comfort and initial cost.

## Performance Summary

Utilizes Cree TrueWhite® Technology

**Efficacy:** 90 LPW

**Initial Delivered Lumens:** 3,200 lumens

**Input Power:** 35 watts

**CRI:** 90 CRI

**CCT:** 3500K, 4000K

**Input Voltage:** 120-277 VAC

**Limited Warranty\*:** 5 years

**Controls:** Cree SmartCast® Technology

**Mounting:** Recessed\*

**Lifetime:** Designed to last from 75,000 hours L70

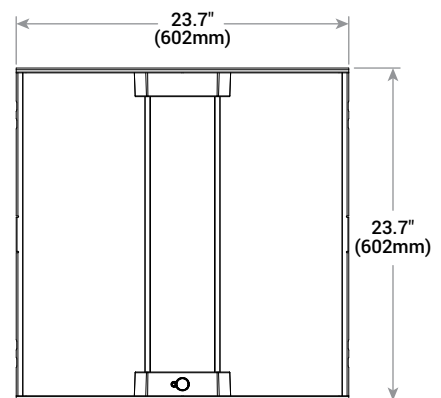
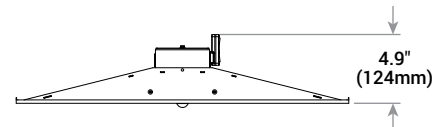
\* See <http://lighting.cree.com/warranty> for warranty terms

## Accessories

Field-Installed	
<b>Drywall Grid Adapter</b> <a href="#">DGA-22WHT</a>	<b>Cree SmartCast® Technology Face Plates**</b> CFP-1-WH - Matching Cree face plate, 1-gang, white CFP-2-WH - Matching Cree face plate, 2-gang, white CFP-3-WH - Matching Cree face plate, 3-gang, white
<b>Cree SmartCast® Technology Configuration Tool†</b> CCT-CWC-1 - One required per project when CMA control is selected	<b>Cree SmartCast® Technology Wireless Dimmer**</b> CWD-CWC-WH <b>Cree SmartCast® Technology Wireless Switch**</b> CWS-CWC-WH

† Refer to the [Configuration Tool spec sheet](#) for more details

\*\* Refer to the [Wireless Dimmer SmartCast Control spec sheet](#) for more details



## Ordering Information

Example: ZR22-32L-35K-CMA

ZR22	32L			CMA	
Product	Initial Delivered Lumens	CCT	Voltage	Control	Options
ZR22	32L 35W, 3,200 Lumens - 90 LPW	35K 3500K 40K 4000K	Blank 120-277 Volt	CMA Cree SmartCast® Technology - Integral motion and ambient sensors and wireless communication	<a href="#">EB14 Emergency Backup</a> - 1,400 lumens - Available on US versions only

\* Acceptable for use with standard 9/16 T-Bar or larger when installed per installation instructions. Consult factory for non-standard grid applications



Rev. Date: V3 12/28/2015



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T (800) 236-6800 F (262) 504-5415

Canada: [www.cree.com/canada](http://www.cree.com/canada)

T (800) 473-1234 F (800) 890-7507

## ZR22™ 2' x 2' LED Troffer with Cree SmartCast® Technology

### CREE SMARTCAST® TECHNOLOGY

Cree SmartCast® Technology changes the paradigm of lighting control. With the press of a single button, Cree SmartCast® Technology enabled luminaires and controls create their own secure network and auto-associate to form logical groups throughout every space. Integrated sensors and robust wireless communication included in every luminaire combined with revolutionary OneButton™ Setup enables automated setup and configuration of luminaires and wall controls. With no extra wires or interfaces, Cree SmartCast® Technology products reduce installation time and complexity.

### CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

### CONSTRUCTION & MATERIALS

- Durable cold rolled steel housing provides strength and uniformity
- Ultra-thin 4.9" (124mm) luminaire height and lightweight design effectively target a broad range of plenum spaces and allow for easy installations
- Luminaire is pre-painted for enhanced smooth finish
- Includes t-bar clips and holes for mounting support wires (by others)
- Luminaire sides and ends are hemmed in for safe, easy handling

### OPTICAL SYSTEM

- Unique luminaire design creates perfect balance of both horizontal and vertical illumination
- Optimized smooth lens eliminates pixelation and delivers a low-glare, diffused light distribution

### ELECTRICAL SYSTEM

- Cree born components including highly efficacious Cree® LED chips along with an integral high-efficiency Cree® driver
- **Power Factor:** = 0.9 nominal
- **Input Power:** Stays constant over life
- **Input Voltage:** 120-277V, 50/60Hz
- **Operating Temperature Range:** 0°C - + 35°C (32°F - + 95°F)
- **Total Harmonic Distortion:** <20%
- **Dimming:** 5% - 100%

### REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations
- Designed for indoor use
- UL924 (EB option)
- DLC qualified. Please refer to [www.designlights.org/QPL](http://www.designlights.org/QPL) for most current information
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15 standards for conducted and radiated emissions

### Cree SmartCast® Technology

#### INTEGRAL MOTION SENSOR

- Passive infrared (PIR)
- **Coverage area:** 100 sq. ft. (30.5m²) at 10 ft. (3.0m) mounting height
- Not intended to be mounted higher than 12 ft. (3.7m)
- **Operation:**
  - *Grouped with a wall control:* Luminaire will operate in vacancy mode (manual-on/auto-off)
  - *Not grouped with a wall control:* Luminaire will operate in occupancy mode (auto-on/auto-off)
- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool

#### AMBIENT LIGHT SENSOR

- Sensor response matches response of human eye
- Not intended to be mounted higher than 12 ft. (3.7m)
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- Daylight harvesting calibration performed automatically during OneButton™ Setup

#### INTEGRAL WIRELESS COMMUNICATION

- 2.4GHz wireless mesh technology with AES 128-bit encryption
- Self assigns to quietest channel during OneButton™ Setup
- **Range:**
  - 30 ft. (9.1m) in typical commercial applications
  - 300 ft. (91.4) open air without obstructions
- **Network:** 250 devices max.
- **Space:** 100 devices max. per group
- FCC certified
- IC certified

#### LUMINAIRE

- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool
- 10 year power fail memory of settings

#### DEPLOYMENT

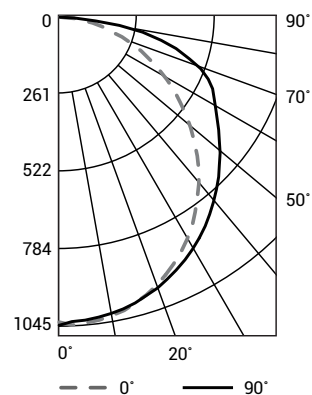
- Please refer to the SmartCast® Deployment Guide at [www.creelink.com/exLink.asp?236135640H88E44I39771048](http://www.creelink.com/exLink.asp?236135640H88E44I39771048)

## ZR22™ 2' x 2' LED Troffer with Cree SmartCast® Technology

### Photometry

#### ZR22-32L-40K BASED ON DTC REPORT TEST #: PL02844-001

Luminaire photometry has been conducted in accordance with IESNA LM-79-08. IESNA LM-79-08 specifies the entire luminaire as the source resulting in a luminaire efficiency of 100%.



Coefficients Of Utilization – Zonal Cavity Method					
RC %:	80				
RW %:	70	50	30	10	
RCR: 0	119	119	119	119	
1	107	102	97	93	
2	97	88	81	74	
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4	80	68	58	51	
5	74	60	51	43	
6	68	54	45	38	
7	63	49	40	33	
8	59	45	36	29	
9	55	41	32	26	
10	51	38	30	24	

Effective Floor Cavity Reflectance: 20%

Reference lighting.cree.com/products/indoor/troffers/zr-series for detailed photometric data

Average Luminance Table (cd/m²)				
Vertical Angle	Horizontal Angle			
	0°	45°	90°	
45°	2,740	2,927	3,131	
55°	2,564	2,943	3,339	
65°	2,358	3,111	3,631	
75°	2,101	3,614	4,600	
85°	1,757	3,468	4,184	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	808	N/A	24.7%
0-40	1,328	N/A	40.5%
0-60	2,394	N/A	73.1%
0-90	3,274	N/A	100%
0-180	3,274	N/A	100%

### Application Reference

Based on ZR22-32L-40K-CMA

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
8 x 8	3,200	35	90	0.66	56
8 x 10				0.55	46
10 x 10				0.44	37
10 x 12				0.35	30

9' ceiling: 80/50/20 reflectances; 2.5' workplane, open room. LLF: 1.0 Initial. Open Space: 50' x 40' x 10'

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Ambient	Initial LMF	25K hr Projected <sup>2</sup> LMF	50K hr Projected <sup>2</sup> LMF	75K hr Projected <sup>2</sup> LMF	100K hr Calculated <sup>3</sup> LMF
0°C (32°F)	1.05	0.99	0.95	0.91	0.87
5°C (41°F)	1.04	0.98	0.94	0.90	0.86
10°C (50°F)	1.03	0.97	0.93	0.89	0.85
15°C (59°F)	1.02	0.96	0.92	0.88	0.84
20°C (68°F)	1.01	0.95	0.91	0.87	0.83
25°C (77°F)	1.00	0.95	0.90	0.86	0.83
30°C (86°F)	0.99	0.94	0.89	0.86	0.82
35°C (95°F)	0.98	0.93	0.89	0.85	0.81

<sup>1</sup> Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

<sup>2</sup> In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

<sup>3</sup> In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)