

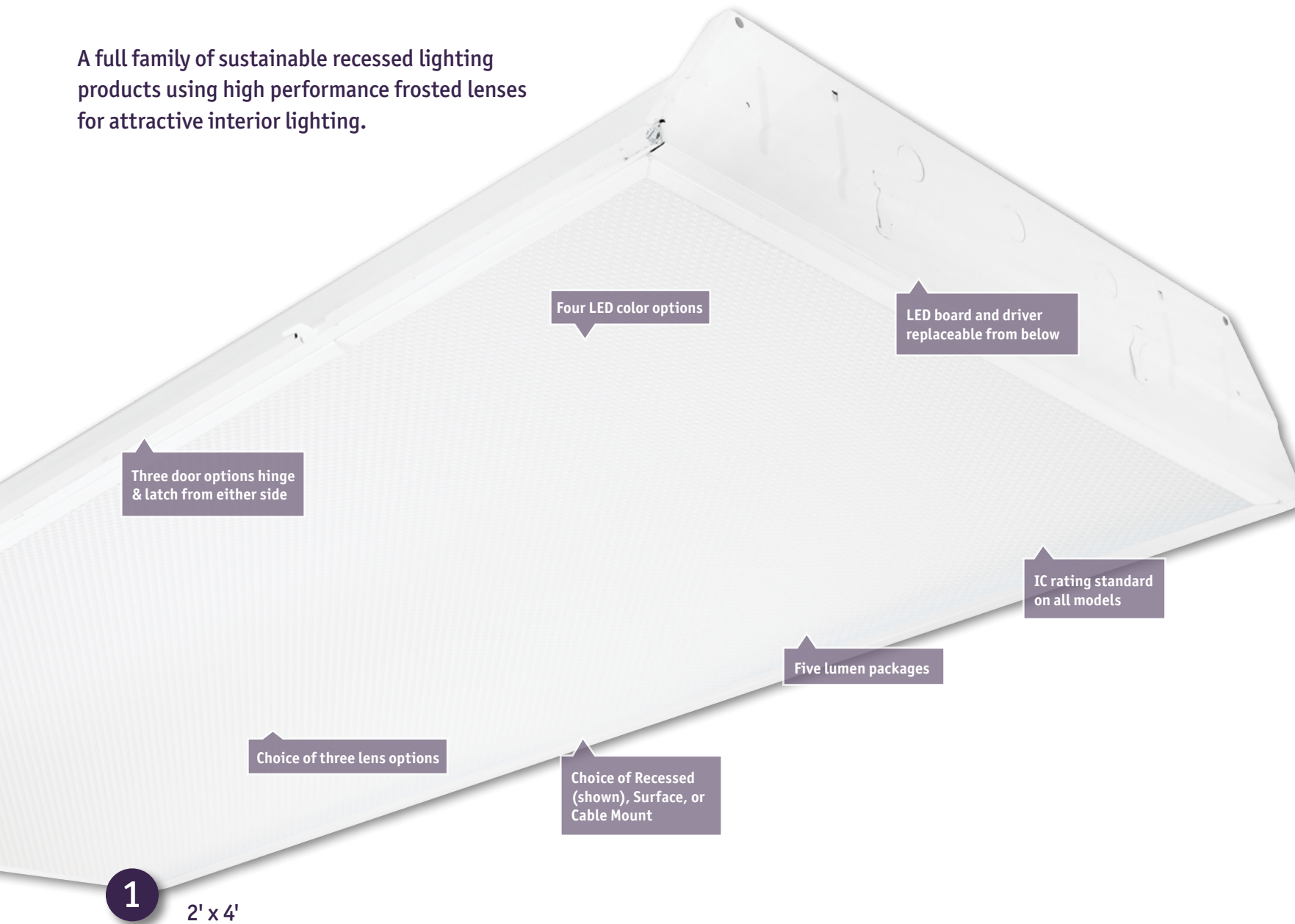


Columbia
LIGHTING

LLT LED LENSED TROFFER



A full family of sustainable recessed lighting products using high performance frosted lenses for attractive interior lighting.



ALL THE RIGHT CHOICES

FS FLUSH STEEL

Flush steel door frame is standard with simple-to-operate cam latch mechanism. Lens is positioned flush to the housing for a smooth glow at the ceiling plane.



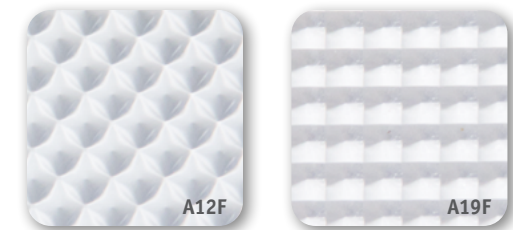
FA FLUSH ALUMINUM

Flush aluminum door offers a robust frame with spring loaded latching. Lens position is flush to the housing for a smooth glow at the ceiling plane.



RA REGRESSED ALUMINUM

Regressed Aluminum door places the refractor above the ceiling plane for an architectural, regressed appearance using an aluminum frame with spring loaded latching.



A12F ACRYLIC PATTERN 12

Acrylic Pattern 12 frosted lens is both attractive and efficient.

A19F ACRYLIC PATTERN 19

Acrylic Pattern 19 .156" frosted refractor offers a high-end aesthetic.

SFA SMOOTH FROSTED ACRYLIC

Smooth Frosted Acrylic creates an attractive, uniform appearance without prisms.

LED COLOR OPTIONS

- 3000K (30) Warm
- 3500K (35) Neutral
- 4000K (40) White
- 5000K (50) Bright White

LUMEN PACKAGES

Product versatility is all about the right product for the application. LLT offers up to four lumen packages with appropriate output ranges for general ambient lighting in many types of architectural conditions. Lower lumen packages may be applied to low ceilings, corridors or low ambient light locations. Medium and high lumen packages trend towards standard general lighting. Very high lumen packages may be selected for high ceilings, high light level needs, retail or health care.

Size	Performance	LW	ML	HL	VL	XL
1 x 4	Nominal Lumens	1950	2400	3100	3800	
	Efficacy up to 124 Lumens per Watt					
2 x 2	Nominal Lumens	2900	3400	4000	4500	
	Efficacy up to 126 Lumens per Watt					
2 x 4	Nominal Lumens	4300	4900	5600	7200	8700
	Efficacy up to 130 Lumens per Watt					

THREE SIZES



ENERGY CODE COMPLIANCE

LLT simplifies conformance to the national energy code ASHRAE 90.1. The code is aimed squarely at energy reduction and has a direct impact on lighting. States may choose to exceed the national requirement.

Among other things, the current standard, ASHRAE 90.1-2013 will reduce the amount of power that commercial installations can use for lighting; that is the watts per square foot, or Lighting Power Density, is reduced compared to prior national standards. It is also noteworthy that Daylight Harvesting requirements continue to be required along with other control measures.

ASHRAE 90.1-2013 must be applied both to new construction as well as modifications or additions of 10% or more. Therefore, the code will apply to a wide range of applications including retrofit.

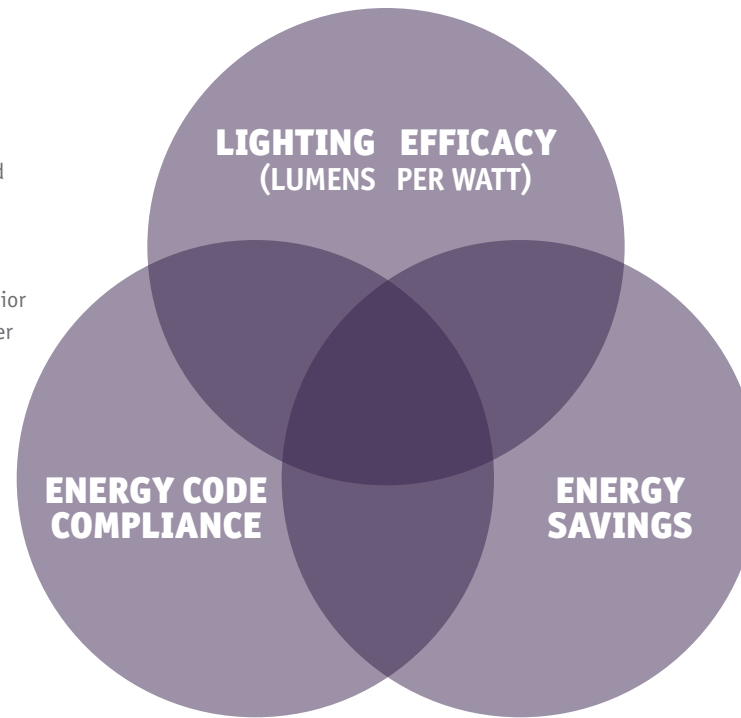
ASHRAE 90.1-2013 POWER DENSITY HIGHLIGHTS

ASHRAE 90.1-2013 requires alterations of 10% or more of a space to comply with LPD requirements.

90.1-2013 = New Construction and Upgrades

LIGHTING UPGRADES — ASHRAE REQUIREMENTS

Building Area Type	2013 LPD (W/ft ²)
Hospital	1.05
Dormitory	0.57
Hotel	0.87
School	0.87
Warehouse	0.66
Office	0.87



CONTROLS INTEGRATION

Saving energy through lighting control is a primary strategy for lighting design and code compliance. LLT is compatible with a full range of controls including, but not limited to:

OCCUPANCY & VACANCY SENSORS

Occupancy Sensors automate lights to turn both on and off. Vacancy Sensors automate the lights off function only and require a manual on function.

DAYLIGHT HARVESTING SENSORS

Continuous dimming with 0-10V control, high/low circuit daylighting, or on/off daylighting.

WALL SWITCHES

Single circuit, multi circuit, or high/low circuiting within a fixture.

DIMMERS

0-10V continuous dimming via manual control.

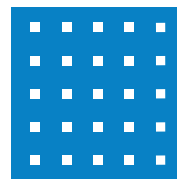
RELAY PANELS & LARGER SYSTEMS

Timers, Sweeps, Energy Management Systems, or simple Relay Panel Systems.



2X2 PERFORMANCE COMPARISON

Size	Source, 35K	Source Type	Lumen Package	Watts	Initial Lumens/Watt	Lumen Maint.	Avg. fc	Max/Min	Watts per Square Foot, LPD	Variance, LPD
2 x 2	LED	ML	2520	27	93	80%	32	2.2	0.42	0
	T8	(2) 17W	1791	31	58	95%	24	2.1	0.48	14%



2X4 PERFORMANCE COMPARISON

Size	Source, 35K	Source Type	Lumen Package	Watts	Initial Lum/W	Lumen Maint.	Avg. fc	Max/Min	Watts/Sq Ft, LPD	Variance, LPD
2 x 4	LED	ML	4693	51	92	80%	48	2.4	0.64	0
	T5	(2) 28W	3890	62	63	95%	44	2.3	0.78	22%
	T8	(2) 28W	4415	60	74	95%	48	2.3	0.80	25%



DRIVER OPTIONS

Proper control interface is easy with our simple driver options. Operation, light delivery, and wiring are all compatible with a multitude of control strategies.

Driver	Definition	Operation	Light Delivery	Wiring	Occupancy Sensor Compatible	Daylight Harvesting Compatible
E	Fixed Output	On/Off	One Light Level	3 Wire (hot, neutral, ground)	•	•
ED	Electronic Dimming	Continuous Dimming	Variable Light Levels	5 Wire (hot, neutral, ground plus (2) 0-10V dimming wires)	•	•

COLUMBIA'S LED DEVELOPMENT STRATEGY

MAXIMIZED EFFICACY

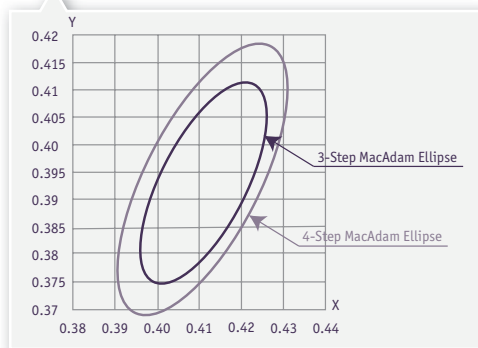
- Best in class Lumens Per Watt (LPW) with a choice of lumen packages

LUMEN MAINTENANCE

- Designed to a minimum L80, meaning 80% of initial lumens at 60,000 hour life

COLOR CONSISTENCY

- Color consistency within 3 steps (MacAdam Ellipse) within each fixture, from fixture-to-fixture, and throughout life
- Exceeds LRC recommendations for visually complex scenes*



INDUSTRY STANDARDS

- Adherence to LM79, LM80, and TM21

MAINTENANCE FRIENDLY

- Below ceiling access of electrical components

CONTROLS COMPATIBLE

- Options for switching, dimming, daylighting, and occupancy sensors

SUSTAINABILITY

Hubbell Inc. established its Hubbell Sustainability Initiative (HSI) to achieve an ongoing culture of environmental responsibility with its employees, customers, suppliers, community, and industry by implementing educational programs and sustainable practices. Hubbell's vision is to be a recognized leader in conserving natural resources to sustain our environment. LLT embodies the HSI philosophy through environmentally responsible design.

- Mercury and lead free
- Low energy and carbon footprint
- 50,000 hour life
- Manufactured from recyclable materials
- Components easily replaceable at end of life
- Easily upgradeable to capitalize on improvements in solid state technology

ONGOING IMPROVEMENT

- Multi-generational approach to state-of-the-art technology

TRACEABILITY

- A QR code is affixed to each luminaire with product details for future traceability.



COST OF OWNERSHIP

- Low initial and operating cost

MODULAR REPLACEABILITY

- The ability to replace driver or LED board for upgrades or maintenance
- No "throw away" fixtures

QUALITY

- Specification grade installed appearance and performance.

* Developing Color Tolerance Criteria for White LEDs, Lighting Research Center, Rensselaer Polytechnic Institute



ORDERING GUIDE

EXAMPLE LLT22-35HLG-FSA12F-EU

MODEL	COLOR TEMP	CEILING TYPE	SHIELDING	DRIVER	VOLTAGE	OPTIONS
LLT LED Lensed Troffer	30 3000K 35 3500K 40 4000K 50 5000K	G Grid ¹ SM Surface Mount CM Cable Mount ²	A12 Pattern 12 Acrylic Lens A12F Pattern 12 Frosted Acrylic Lens A12125 Pattern 12 Acrylic Lens .125" A12125F Pattern 12 Frosted Acrylic Lens .125" A19 Pattern 19 Acrylic Lens .156" A19F Pattern 19 Frosted Acrylic Lens .156" SFA Smooth Frosted Acrylic	E Fixed Output ED 0-10V Dimming LUTH Hi-Lume 1% EcoSystem LED driver with Soft-on, Fade-to-Black dimming technology LUT5 5-Series EcoSystem LED driver	U 120V-277V	C388 3-Wire Flex C488 4-Wire Flex C588 5-Wire Flex ELL14 Emergency Battery Pack, 1400 Lumens ⁴ PAF Paint After Fabrication SLL Spring Loaded Latches ⁵ 4TB Four T-Bar Clips (1x4, 2x2 only) G1 Single Gasket (door to housing) G2 Double Gasketing (G1 and lens to door) G3 Triple Gasketing (G2 and housing to ceiling) GLR Fast Blow Fuse EOR End of Row (SM/CM only) ⁶ INT Intermediate (SM/CM only) ⁶ GTD Generator Transfer Device ⁵
SIZE	LUMEN OUTPUT	DOOR				
14 1' x 4'	LW Low Watt	FS White Flush Steel				
22 2' x 2'	ML Medium Lumen	FA White Flush Aluminum ³				
24 2' x 4'	HL High Lumen VL Very High Lumen See Product Availability Table below.	RA White Regressed Aluminum ³	For more door options contact factory.			

¹ For drywall, order G with Flange Kit Accessory.

² Order hanger accessories separately.

³ Spring Loaded Latches (SLL) required on 2x2 and 2x4 fixtures

⁴ For compatibility with Dual-Lite LiteGear[®] inverters in lieu of installed battery pack, contact Hubbell Lighting representative.

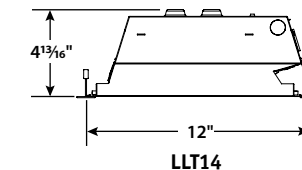
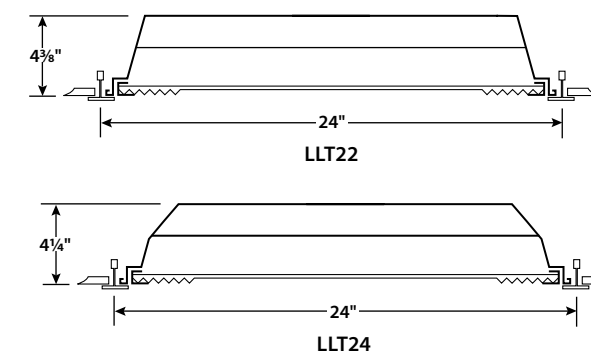
⁵ Not available in 1x4

⁶ Provides ends with wiring access for continuous row mounting.

Damp Label - standard. IC Rating - standard.

ACCESSORIES (ORDER SEPARATELY)

- FK14** 1' x 4' Flange Kit, Single Mounting (for rows add FKCR)
- FK22** 2' x 2' Flange Kit, Single Mounting (for rows add FKCR)
- FK24** 2' x 4' Flange Kit, Single Mounting (for rows add FKCR)
- FKCR** Flange Kit Row Adaptor (All Sizes)
- CM 48Y1SC3F-KIT** 48" Cable Mount Kit for 1' wide Cable Mount fixtures, 3-Wire Feed Cord
- CM 48Y2SC3F-KIT** 48" Cable Mount Kit for 2' wide Cable Mount fixtures, 3-Wire Feed Cord



PRODUCT AVAILABILITY

SIZE	LUMEN PACKAGE	NOMINAL LUMENS (3500K)	NOMINAL WATTS
14	LW	1,900	22
	ML	2,400	27
	HL	3,100	36
	VL	3,800	45
22	LW	2,100	22
	ML	2,500	27
	HL	3,300	36
24	LW	3,900	41
	ML	4,700	52

Lumens vary according to color temperatures and other factors. See specific photometric test(s).



ARCHITECTURAL AREA LIGHTING

BEACON PRODUCTS

COLUMBIA LIGHTING

COMPASS

DUAL-LITE

HUBBELL CONTROL SOLUTIONS

HUBBELL INDUSTRIAL LIGHTING

HUBBELL OUTDOOR LIGHTING

KIM LIGHTING

KURT VERSEN

LITECONTROL

PRESCOLITE

WHITEWAY

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CO1067 Revised April 2020

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