

# CHARLOTTE 47W NON FLAME LUMINAIRE BY FIDES

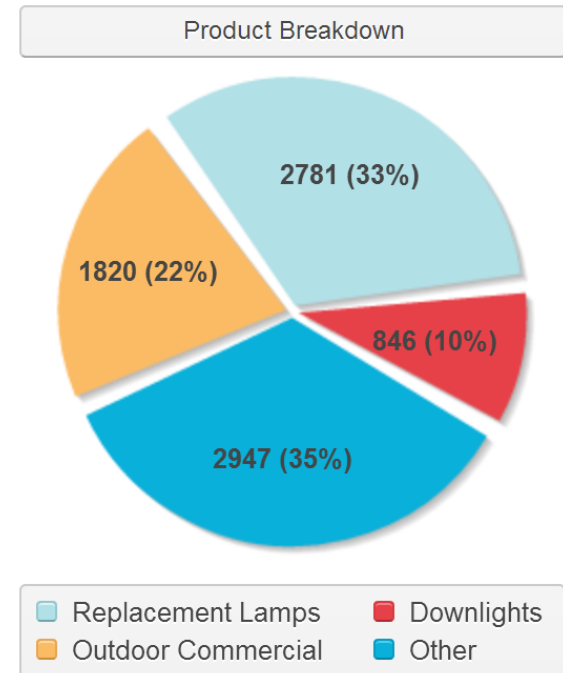


**– MODERN GYPSUM FLAT LED FIXTURE –**  
**SUBSTITUTION OF FLUORESCENT TO ENERGY SAVING CEILING FIXTURE**  
**LIGHT FOR HEALTH CARE AIR IONISER WITH IOT**

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# NEW LIGHTING STANDARDS



25% more energy efficient ; Security Act of 2007 (EISA 2007)

# LIGHTING FOR OFFICE APPLICATIONS

This guide is designed to help builders and lighting industry professionals become more familiar with the office nonresidential lighting portion of California's 2013 Building Energy Efficiency Standards (Title 24, Part 6).

Office buildings make up the largest sector of building type within the commercial sector, comprising 17% of all commercial buildings in the U.S. and 19% of the energy, according to the DOE's Buildings Energy Data Book. In 2010, commercial interior lighting accounted for nearly 49% of California's lighting energy use.

The potential to reduce energy consumption in existing and commercial buildings is enormous. On average, 30% of the energy used in commercial buildings is wasted, according to the U.S. Environmental Protection Agency.

Lighting controls, which including occupancy, daylighting, institutional tuning, and personal dimmable light control.

# MAINTENANCE & REPAIRS

No compliance measures required: Routine maintenance and repairs of lighting components, systems or equipment already installed in an existing building do not trigger Title 24.

The standards define maintenance tasks and repairs as:

- Replacement of lamps of the same technology type
- Replacement of lamp holders or lenses · Replacement of a ballast or driver that is no longer functioning properly
- Maintenance measures that do not increase energy consumption of the equipment being serviced
- Alterations caused directly by the disturbance of asbestos
- Medium screw-based lamp replacements · Tubular LED lamps that replace fluorescent lamps by changing the lamp only, and not any of the wiring (including the ballast)
- When less than 40 luminaires are upgraded or replaced without relocation within a 12-month period in a building space, it is treated as a repair rather than an alteration. Refer to Table 141.0-E for a section-specific definition of “building space” to use for modifications-in-place.

# BENEFITS OF AESTHETICS AND EFFICIENCY



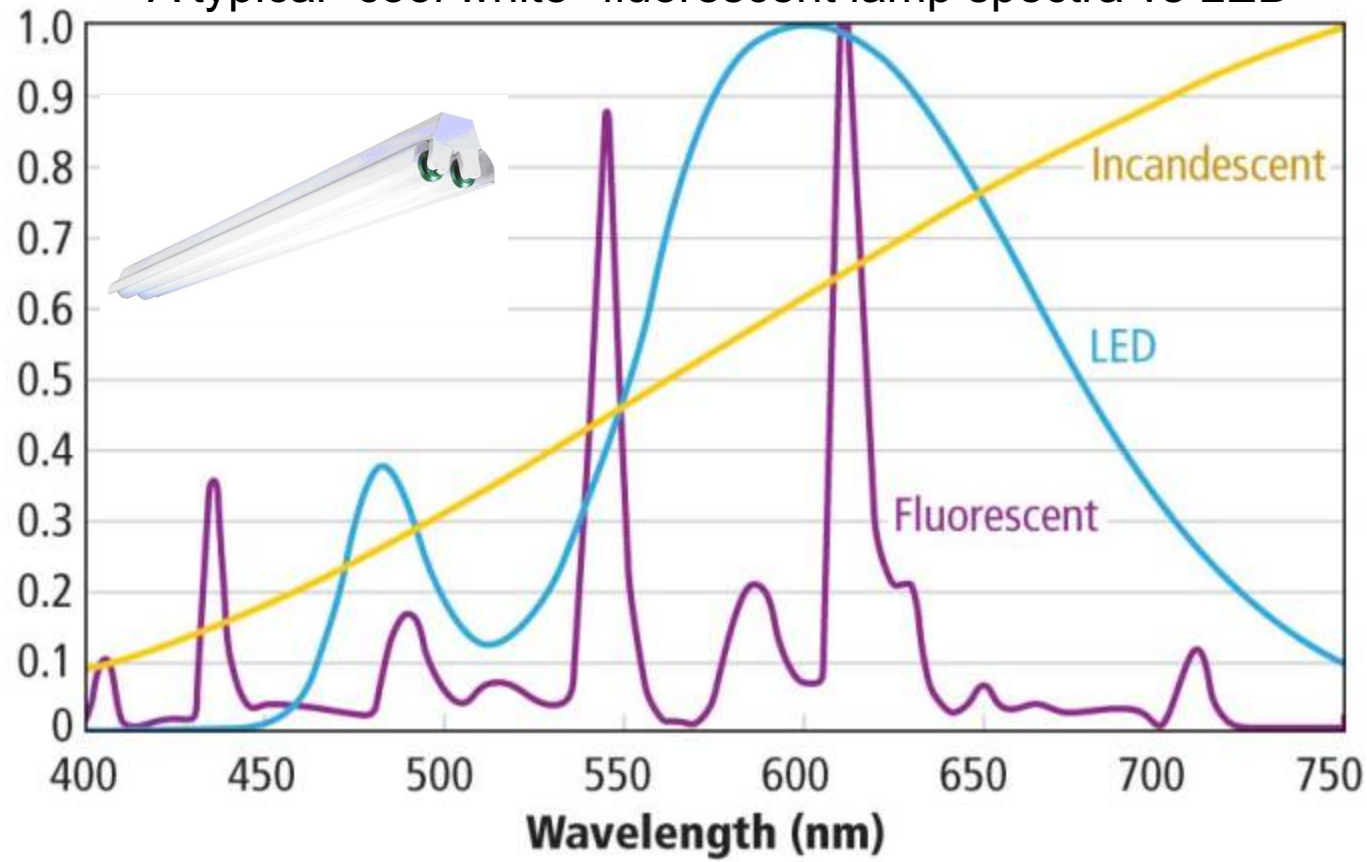
Adopting an LED solution for the office area also resulted in an approximate 78 percent reduction in lighting energy use, saving about \$2,600 a year. Further, the maintenance burden of replacement fluorescent lamps and ballasts was eliminated.

Retrofit 5,000 square feet of office space with 51 Lumination EF Series LED lighting fixtures that now do the work of 96 fluorescent fixtures. Eliminating 45 fixtures was possible due to significantly improved light distribution.



# LAMPS CRI

A typical "cool white" fluorescent lamp spectra vs LED



Fluorescent lamps age, falling to about 60% after 10,000 hours

# SUBSTITUTION TARGET OF EFFICIENCY AND EFFECTIVENESS

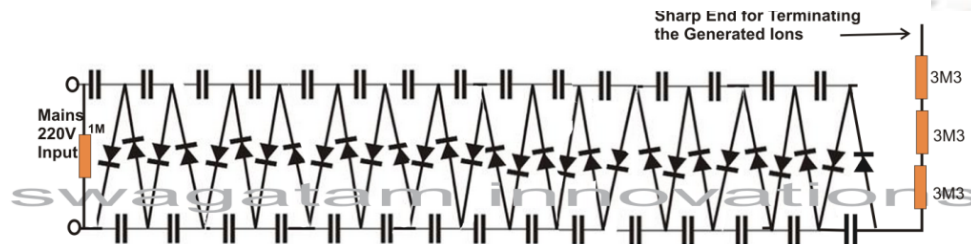
SR. NO	LIGHTING OPTION	IMAGE	WATTAGE	LIGHT PER WATT	TOTAL LIGHT
1	Incandescent Bulb		60 W	13 Lumens per watt	800 Lumens
2	Tube Light (Fluorescent Lamp)		18 W	45 Lumens per watt	800 Lumens
3	CFL (Compact Fluorescent Lamp)		11 W	60 Lumens per watt	700 Lumens
4	LED (Light Emitting Diode)		9 W	100 Lumens per Watt	900 Lumens

Which is equivalent to 11W CFL and also to a 9W LED

# LIGHT FOR HEALTH CARE AIR IONISER

Ionisers should not be confused with ozone generators, even though both devices operate in a similar way. Ionisers use electrostatically charged plates to produce positively or negatively charged gas ions (for instance  $N_2^-$  or  $O_2^-$ ) that particulate matter sticks to in an effect similar to static electricity.

Air ionisers are used in air purifiers. Airborne particles are attracted to the electrode in an effect similar to static electricity. It's effectiveness of anions for air purification.

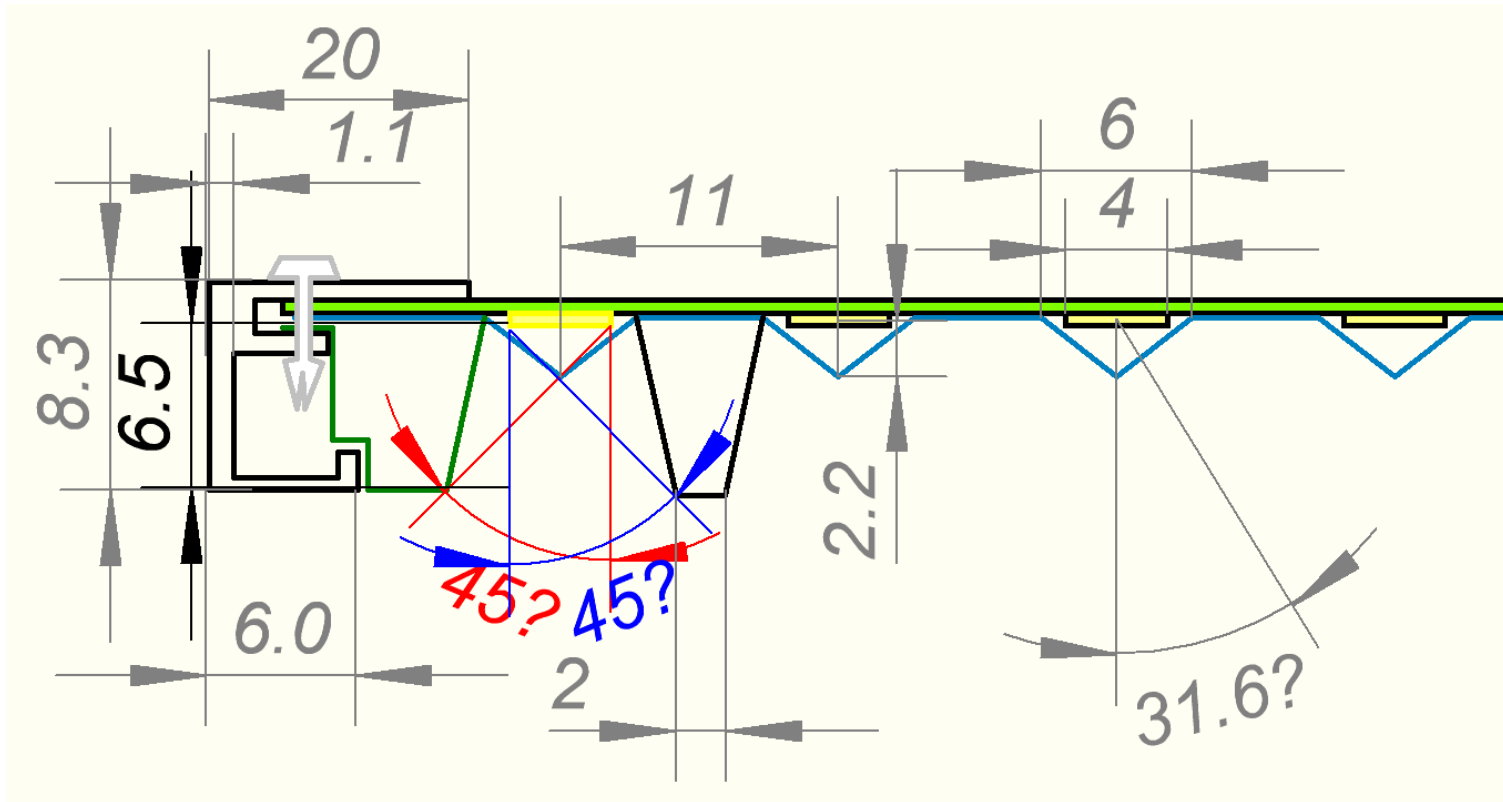


All Capacitors are 0.01uF/600V PP, All diodes are 1N4007

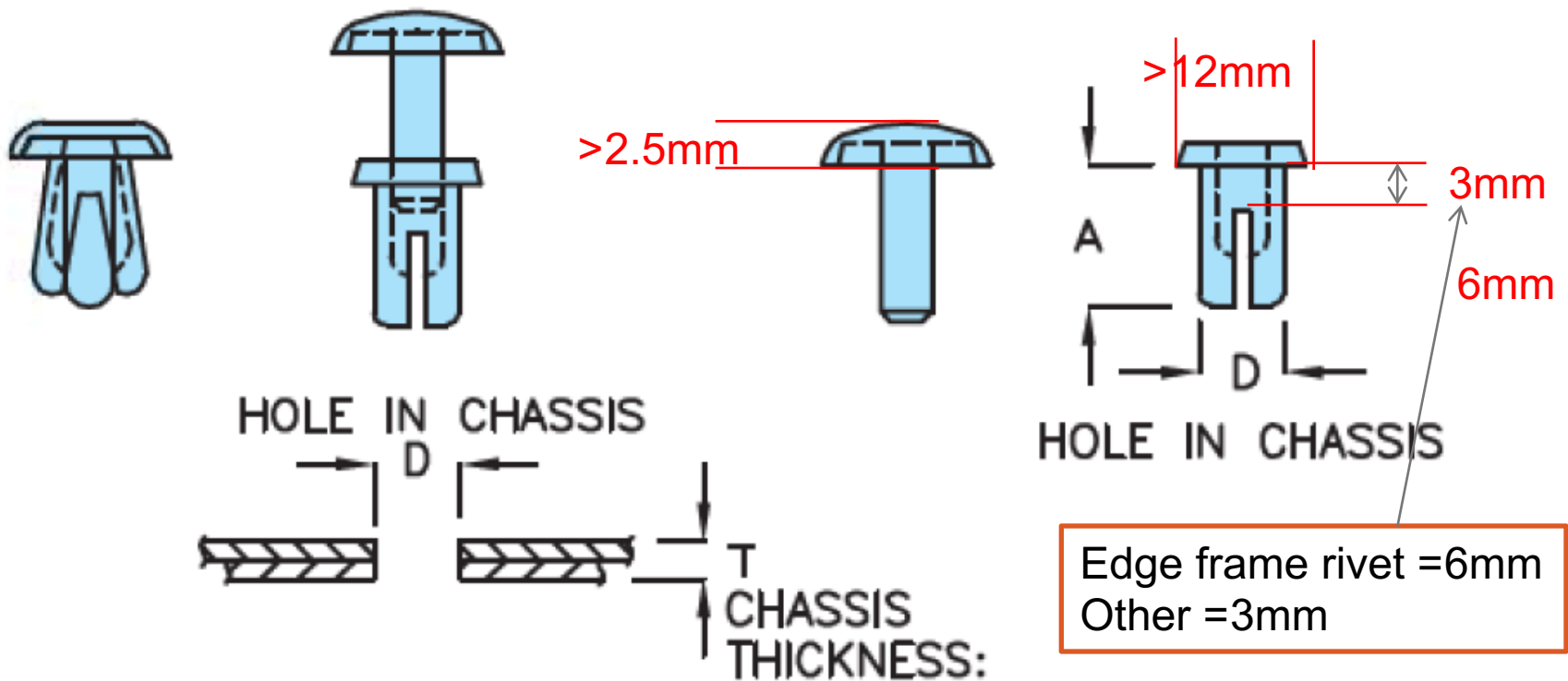




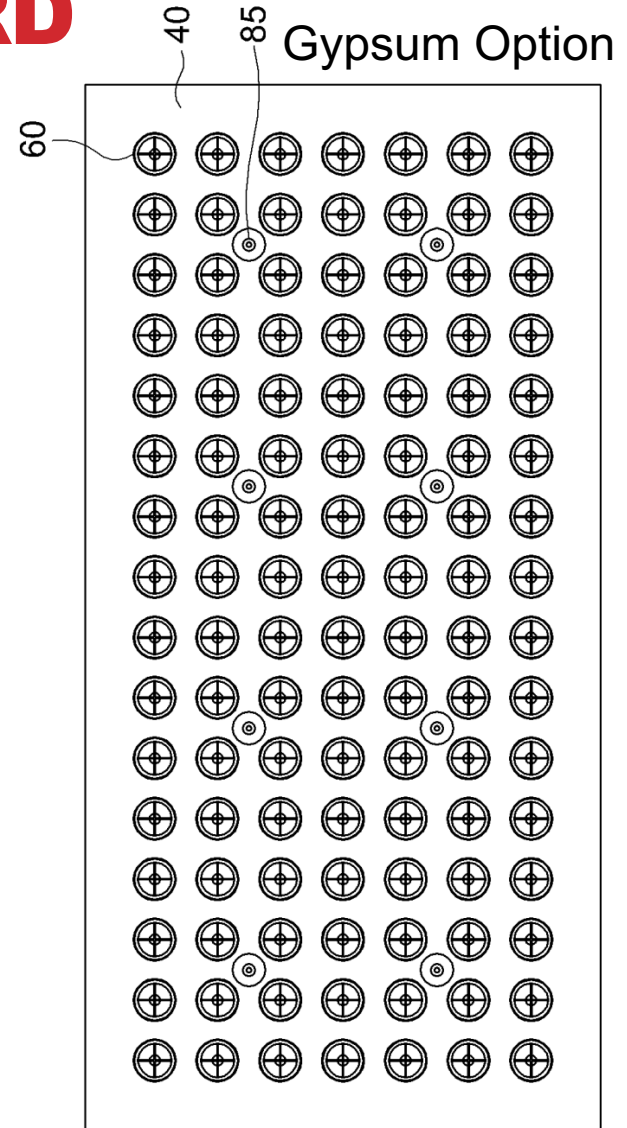
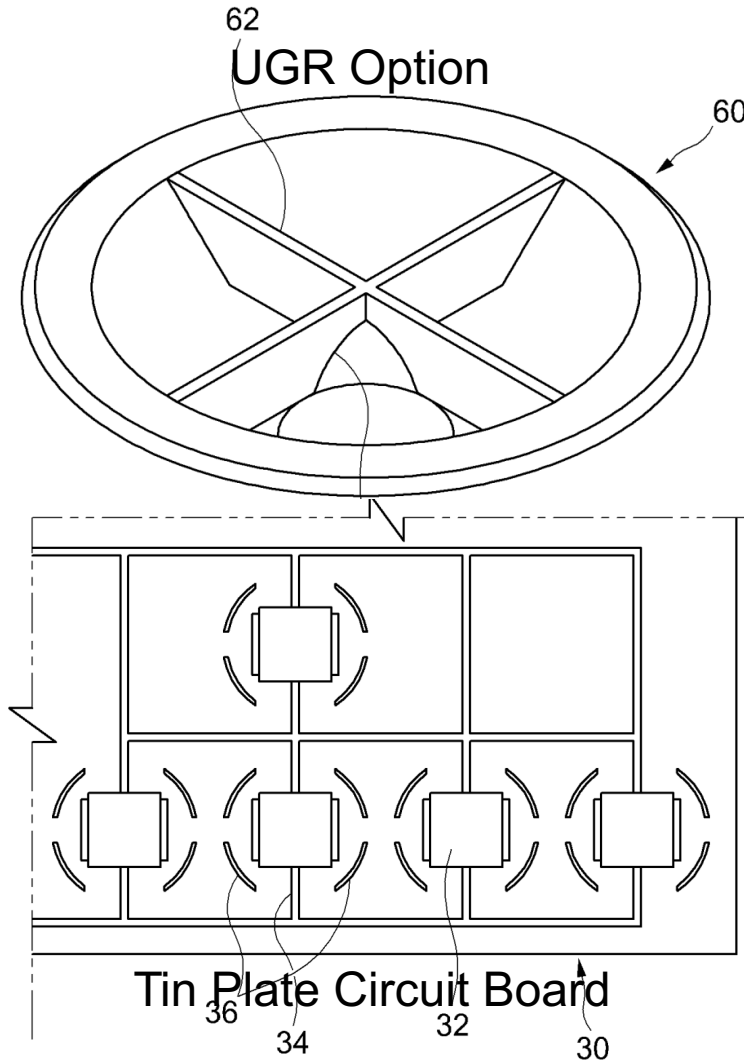
# ALLEVIATE THE GLARE BY BURNING VIEW ANGLE



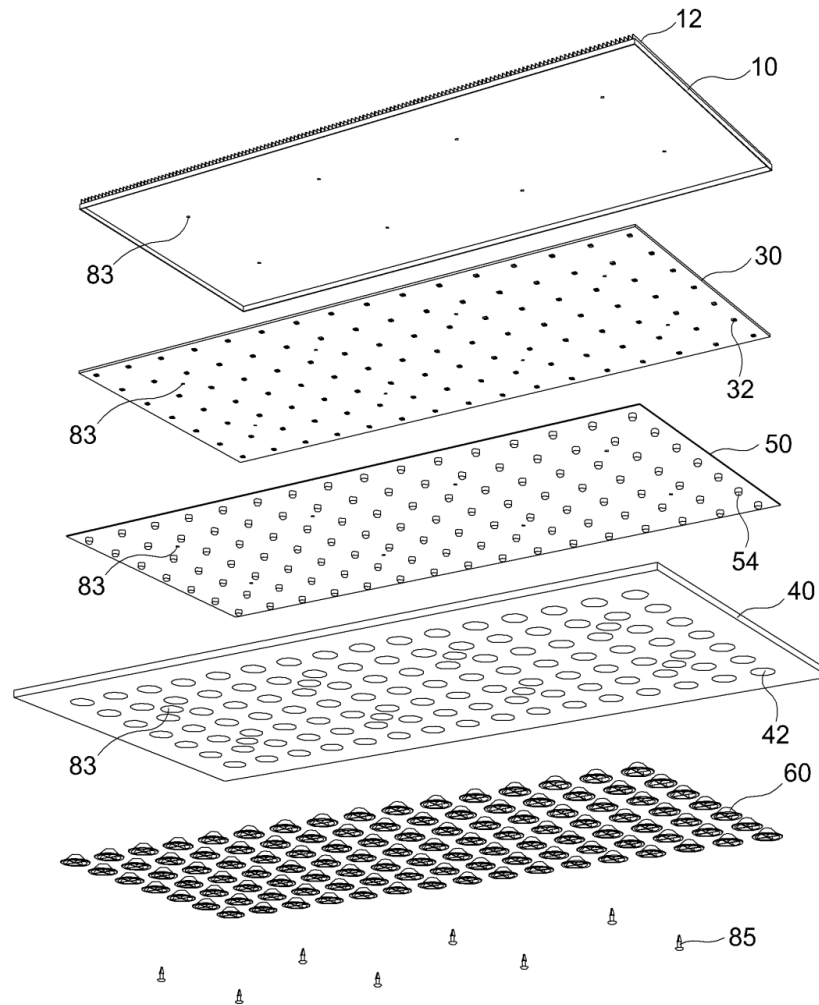
# ONE TOUCH HOOKUP RIVET



# ANTI GLAIR WITH GYPSUM METAL BOARD



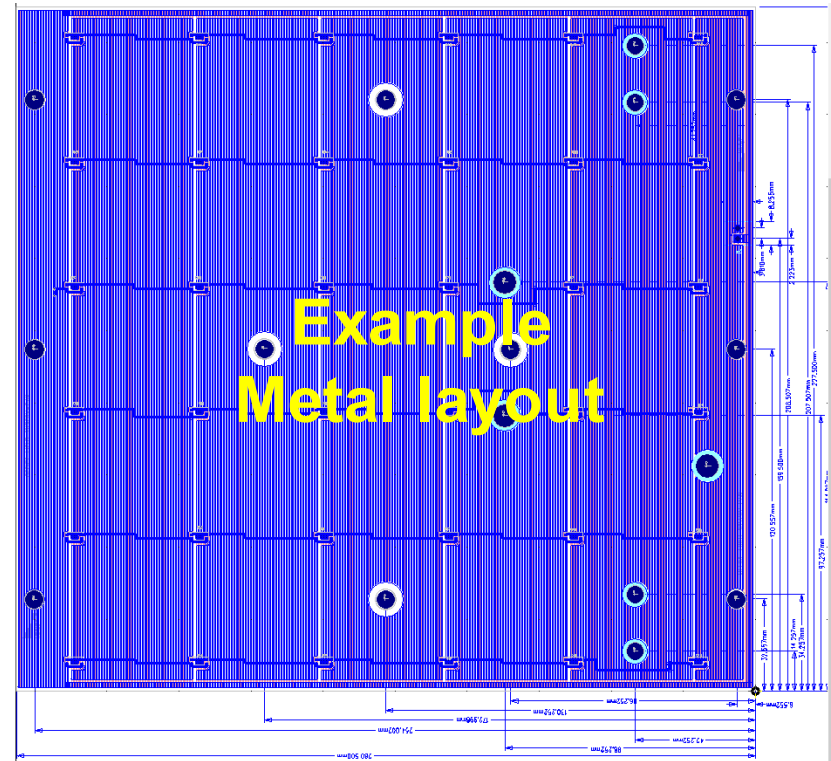
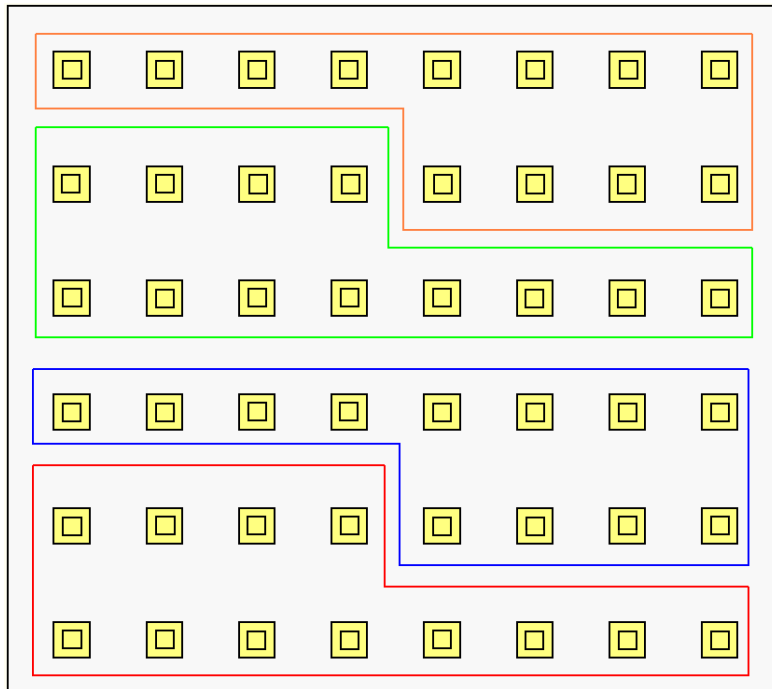
# CHARLOTTE ASSEMBLY LAYOUT



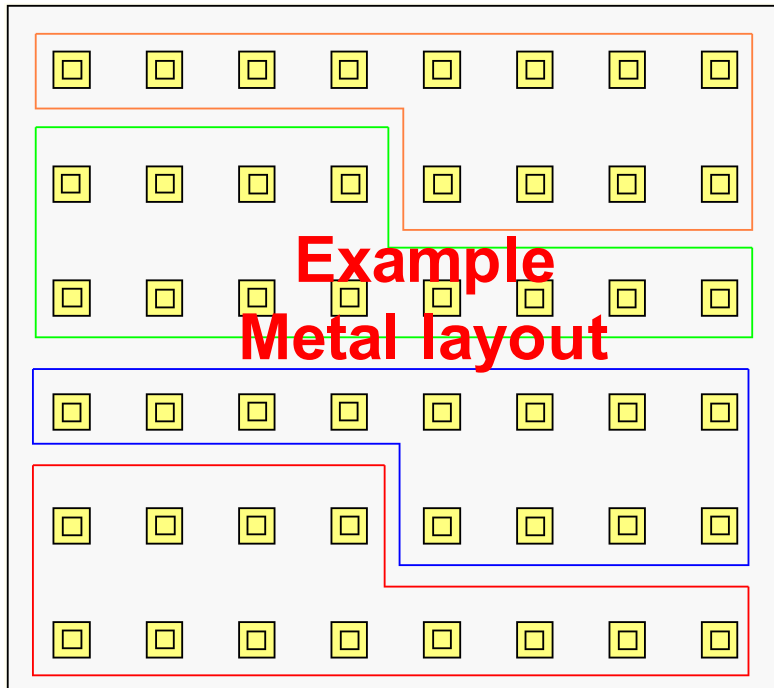
# 96LED 36V 71.25MA (570MA / 8COLLUM 12RAW)



Aproximately 3,150lm at 36V are needs to efficiency calculation  
Array configuration of LED are 6X8 per each Tin Plate 0.5t Metal



# DRAG POWER UP TO 1 BY 2



DC 36V X 0.142A X 4 = 20Watts.  
Thermal capacity are expecting  
0.3~0.5t Tin Plate Metal.  
(under 45°C at ambient=25°C)

300X300 fixture can provide 20Watts  
3,150lm at 48LED string structure.

**300X600 can 47watts 6,300lm** for  
employed two SU1143-15002 Xitanium  
SMPS.

\* Option order for Fides-Advanced SMPS.



# SPECIFICATIONS

**Electrical Characteristic** All data is under 25 °C , unless otherwise specified.

Symbol	Parameter	Unit	Min.	Typ.	Max.
Br	Lumen output	lm	3000	3200	3400
lv	Lux at 1m	lx	1508	1608	1742
lv	Lux at 1.5m	lx	755	835	860
lv	Lux at 2m	lx	395	485	555
lv	Lux at 3m	lx	190	230	255
CT	Color temperature	K	2700	--	7500
CRI	Color rendering index		70	75	--

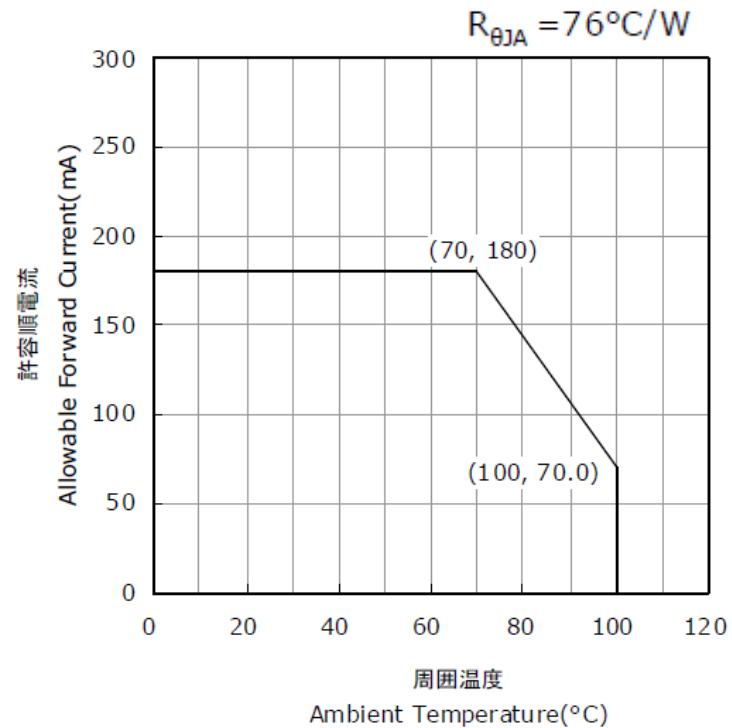
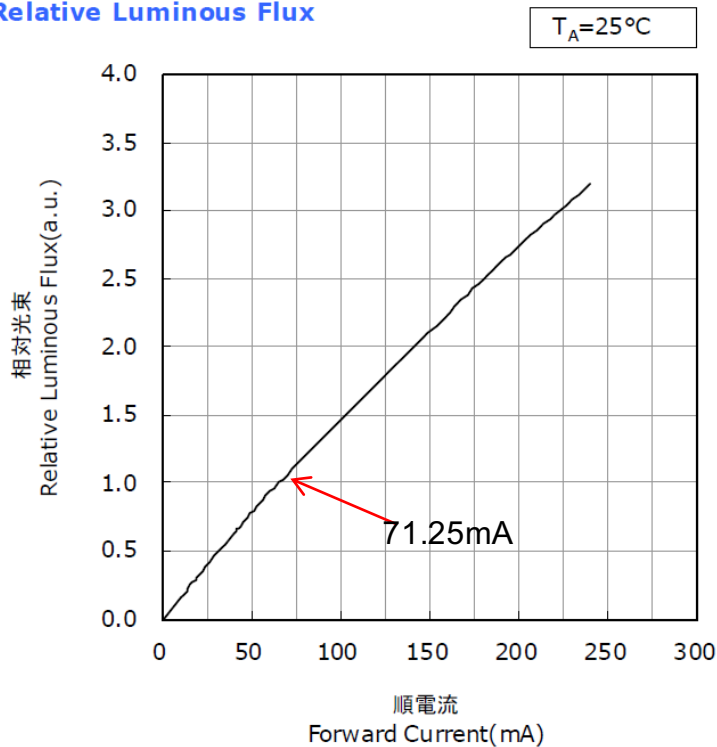
**Photometry Characteristic** All data is under 25 °C , unless otherwise specified .

Symbol	Parameter	Unit	Min.	Typ.	Max.
Vin	Input Voltage	V	90	220	265
Lin	Input Current	mA	20	--	65
P	Power Consumption	W	35.5	36	37.5
%	Power Factor		0.85	0.9	0.98
F	Input Frequency	Hz	50	--	60
Top	Operating temperature range	°C	-20	--	+50
Tstg	Storage temperature range	°C	-20	+25	+65

\* LED Option can change from order

# CURRENT FOR LUMEN

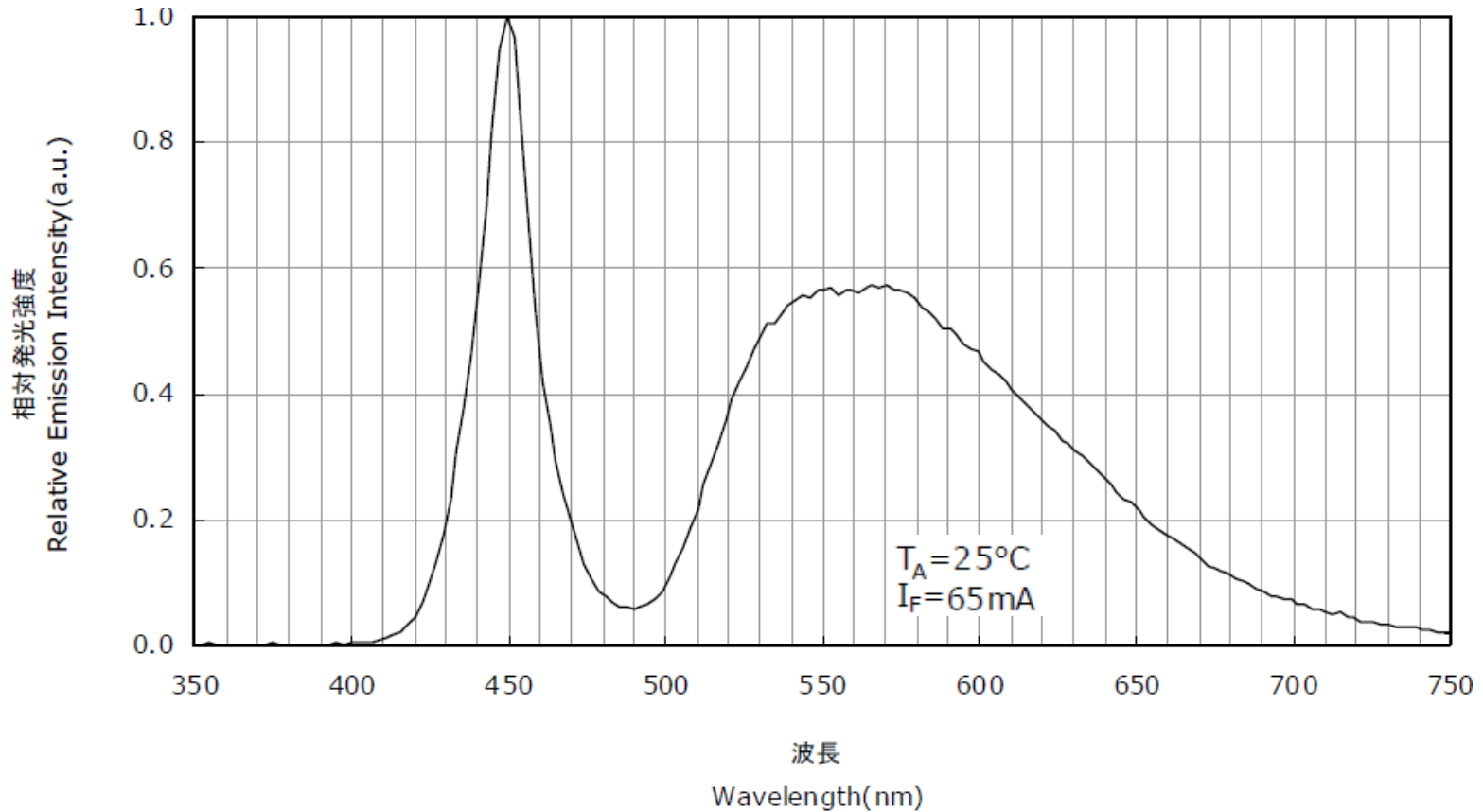
Forward Current vs  
Relative Luminous Flux



\* LED Option can change from order



# OPTICAL CHARACTERISTICS



\* LED Option can change from order

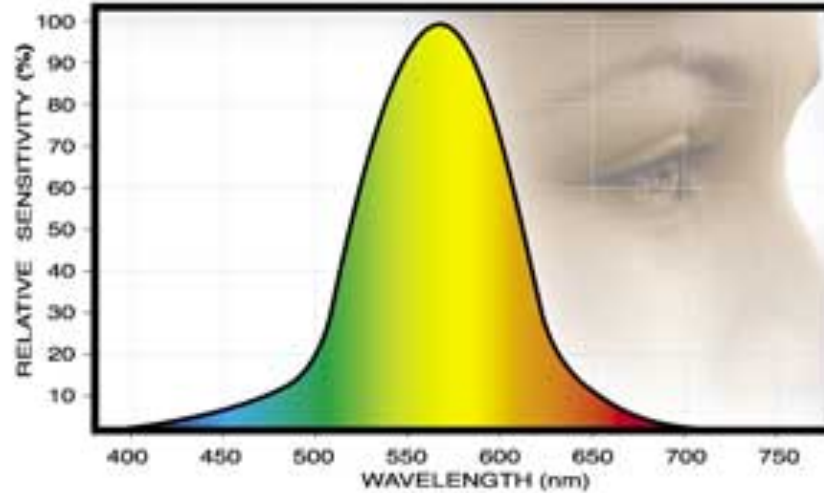
# CHARLOTTE LED FIXTURE ELECTRICAL CHARACTERISTICS



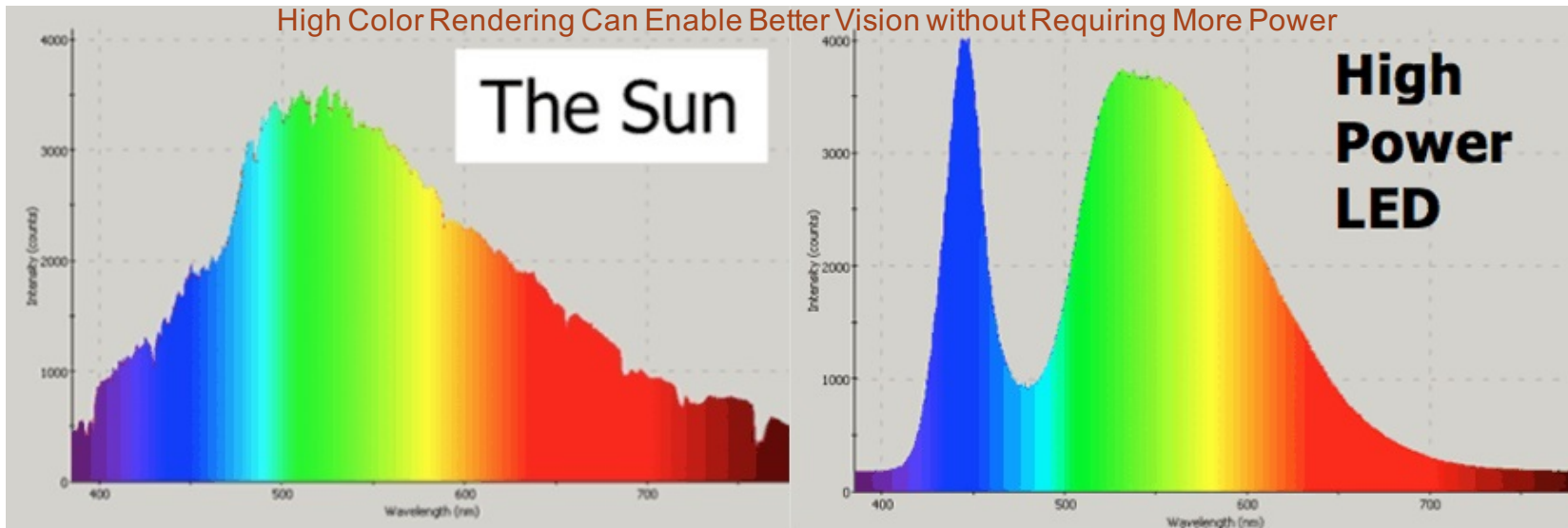
	EXTREME	BASIC
POWER CONSUMPTION	47W	23W
COLOUR OPTIONS	WARM WHITE - 3500K NEUTRAL WHITE - 4500K	
	OPTION ANY ORDER	
	310 x 310 x 12 mm	
DIMENSIONS	310 x 610 x 12 mm	
	600 x 600 x 12mm	
INSTALL OPTIONS	RECESSED, SUSPENDED, SURFACE MOUNTED	
INPUT VOLTAGE	90 ~ 270 Vac 50/60Hz	

# CHARLOTTE CRI98 LIGHTING SPECTRAL

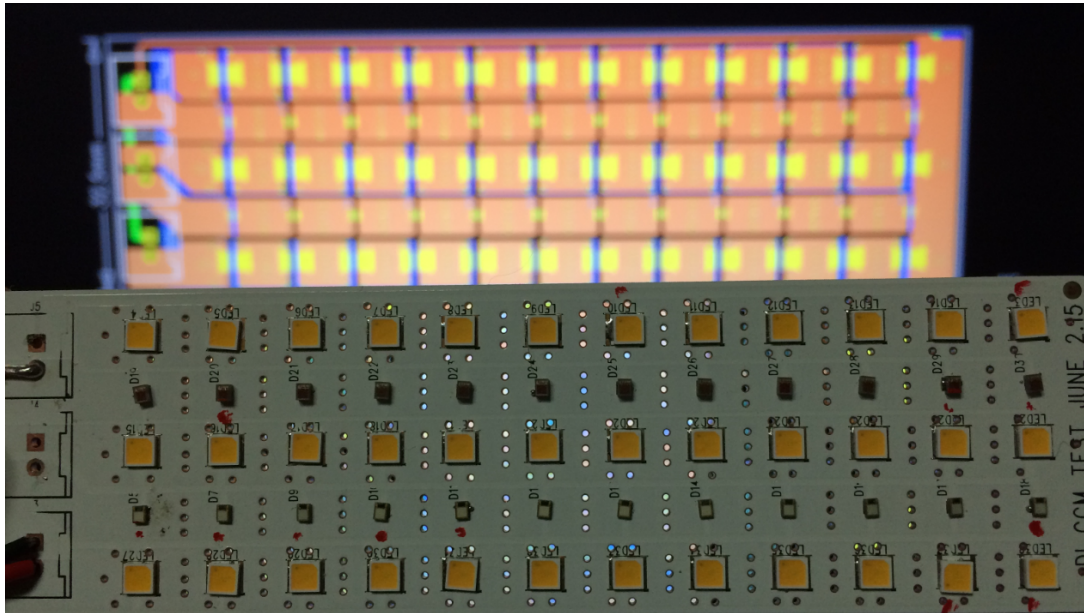
Human-Eye Response Réponse de l'oeil humain



High Color Rendering Can Enable Better Vision without Requiring More Power



# CHARLOTTE HIGH EFFICIENCY 135LM/W CRI98 TEST



**WHITE = NICHIA**

**RED, CYAN= PHILIPS**



# COMPARING COLOR QUALITY



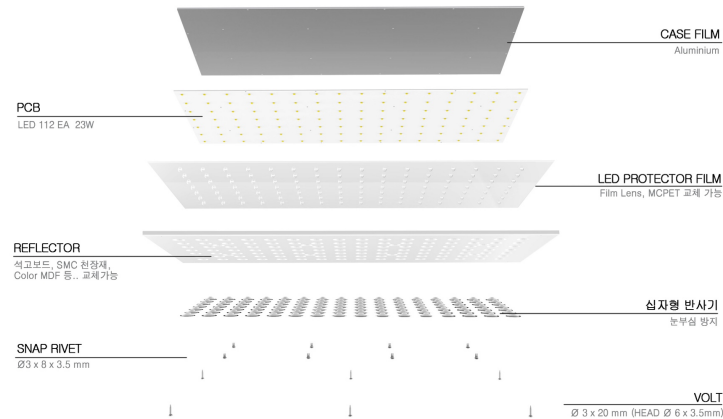
# CHARLOTTE + CEILING



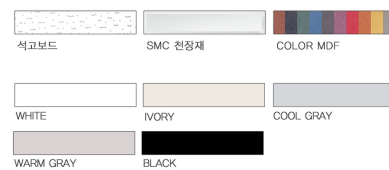
# CHARLOTTE OFFICE LUMINAIRE



Exploded View



Color & Material



Module System

