

LED LIGHTING WEBINAR

**PRESENTED BY BRANDON KOLLAR
OF RCA COMMERCIAL ELECTRONICS**



-COMPONENTS OF QUALITY LED UNITS.

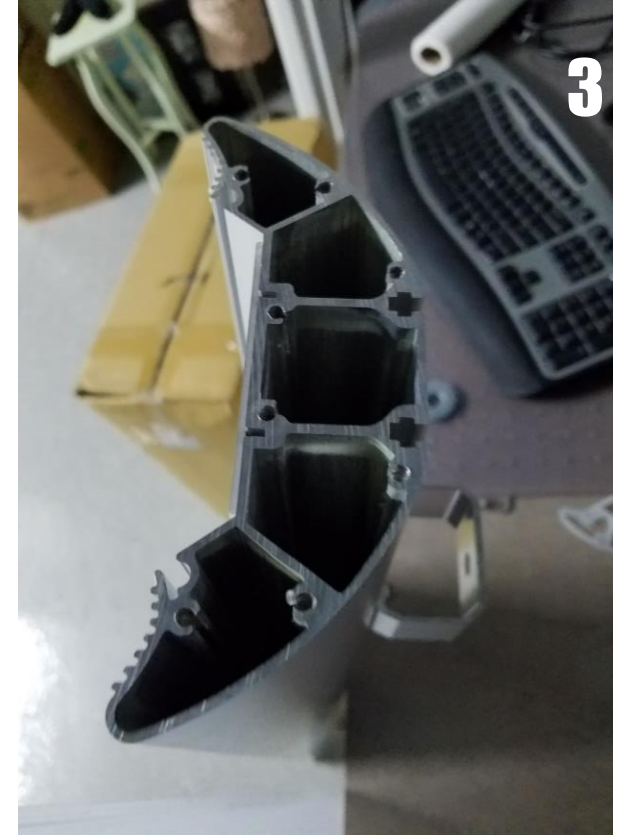
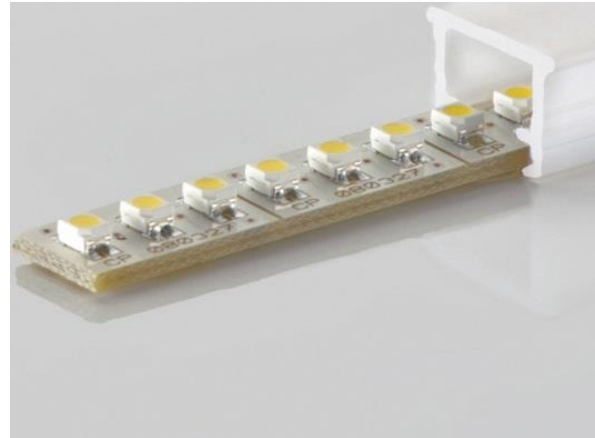
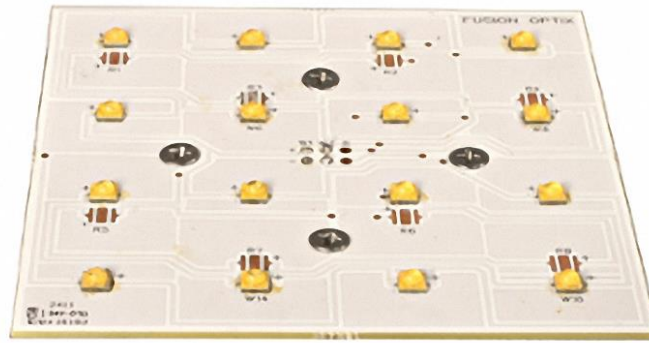
-COMMERCIAL GRADE VS RESIDENTIAL GRADE.

-PROJECT MANAGEMENT AND KNOWING INSTALL COSTS AND QUESTIONS.

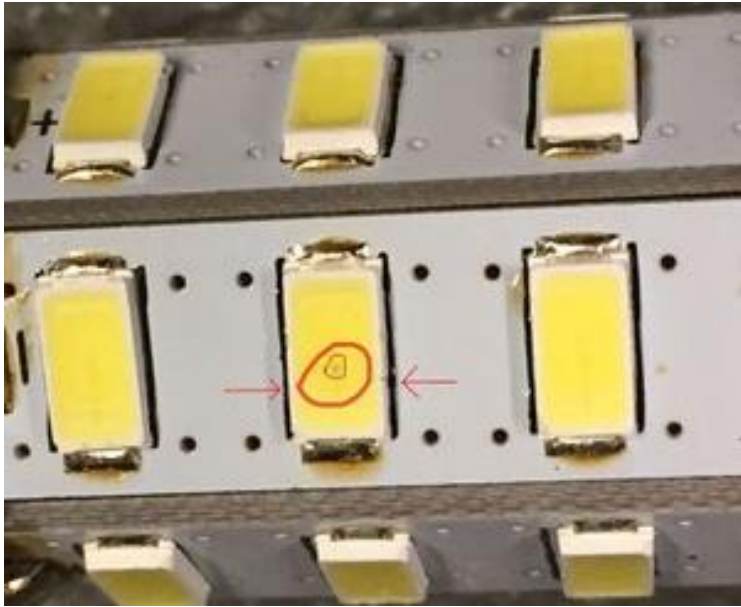
-REBATE AND INCENTIVE RESEARCH AND PAPERWORK.

-CASE STUDY FOLLOW UP ON LOOKING AT USAGE DROP AND DECREASE IN POWER BILL.

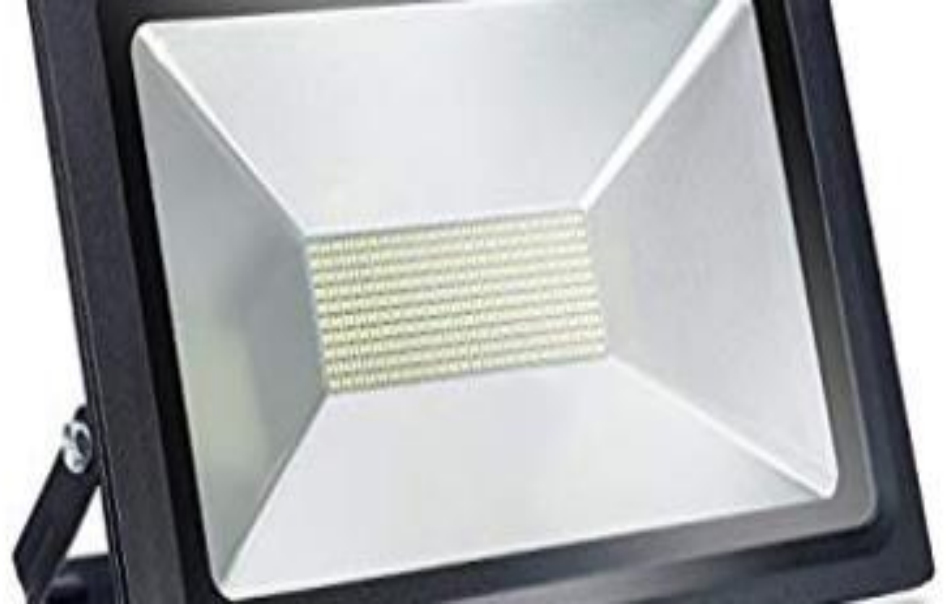
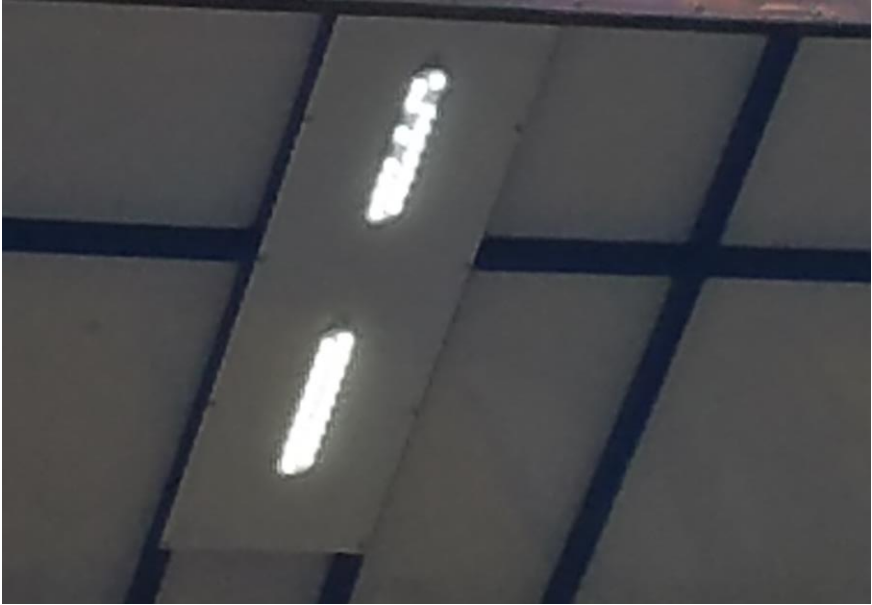




HAVE YOU WONDERED WHAT'S THE DIFFERENCE BETWEEN INDUSTRIAL STRENGTH WELL ENGINEERED LIGHTING PRODUCTS AND THOSE THAT SEEM LIKE A BASIC COMMODITY?



HEAT



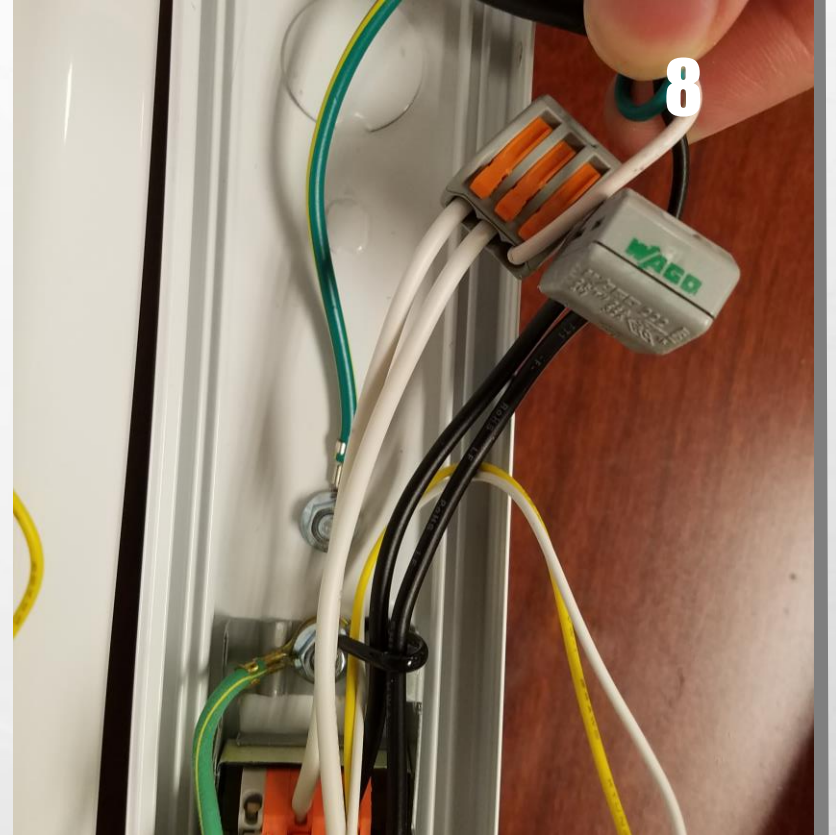
SPACING



COLOR SHIFT



Sleek and sexy does not mean sustainable



WHAT TO LOOK FOR

LED MILLIAMPS RANGE INSIDE SAFE 350-1000 MILLIAMPS

**EXTERIOR STREET LIGHT UP TO 1100 MILLIAMPS. THE HARDER
THE DRIVER IS PUSHING THE LEDS HE BRIGHTER THEY WILL BE.
HOWEVER, OVERDRIVING AND INCREASING HEAT BY ONLY 20%
WILL CAUSE A LIGHT LIFE LOSS OF 50%**

- **DO YOU KNOW VARIANCES WHEN CONTRACTORS SAY "COMPLETE TURNKEY SERVICE"? DO THEY ONLY HANDLE THE INSTALL, WHO DOES THE RECYCLING, DO THEY USE YOUR TRASH DUMPSTERS, AND WILL THEY EVEN CLEAN UP AFTER THEMSELVES?**
- **YOUR SCOPE OF WORK NEEDS DEFINED!**
- **PER UNIT OR TIME ON THE JOB SITE?**
- **ARE THEY USING YOUR TRASH OR HAULING AWAY?**
- **ARE THEY RECYCLING THE OLD BULBS OR IMPACTING THE ENVIRONMENT INSIDE YOUR TRASH?**
- **PRICE OF LIFTS.**
- **AVOID CHANGE ORDERS IF THEY FIND OUT YOU HAVE A DIFFERENT VOLTAGE AND THE UNIT THEY SOLD YOU WILL NOT WORK AND THEY WANT 40 GRAND TO CHANGE YOUR PANEL**

Settings

Units Feet - Footcandles

Room Dimensions

Length [X] ft

Width [Y] ft

Height [Z] ft

Workplane ft

Ceiling Type Open

Room Reflectances

Ceiling %

Walls %

Floor %

Criteria

Illuminance fc

Power Density W/ft²

Quantity

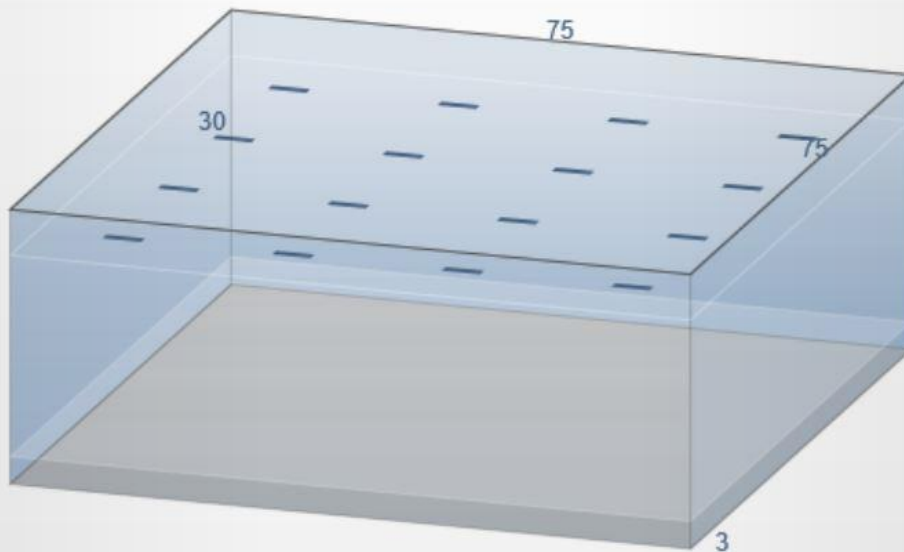
Constraints

Spacing X [SC=26.7] ft

Spacing Y [SC=27.6] ft

Rows

Columns



Calculation Results [A]

Illuminance **44 fc**
Power Density **0.46 W/ft²**
Quantity **16**

Spacing Results [A]

Spacing **18.7 x 18.7 ft**
Arrangement **4 x 4**
Outside Spacing X **9.12 ft**
Outside Spacing Y **7.48 ft**

Comparison

Luminaire	FC	W/FT ²	Count
A	44	0.46	16
B	46	0.57	16

Display



Dimensions Room Layout

Show Zonal Cavity Info [+]

You can now click and drag to rotate the room

The following selected footcandle ranges represent the Illuminating Engineer Society's (IES) current illuminance recommendations. Individual applications will determine exact foot-candle levels. Please refer to the IES Lighting Handbook for more detailed evaluation.

Airplane Manufacturing	
Drilling, riveting, screw fastening	75
Final assembly, hanger	100
Inspection	50-200
Welding	50
Assembly	
Rough easy seeing	20-50
Rough difficult seeing	50-100
Medium	100-200
Fine	200-500(a)
Extra fine	500-1000(a)
Auditoriums	
Social activities	5-10
Assembly only	10-20
Exhibitions	10-20
Automobile Manufacturing	
Final assembly, finishing, inspecting	200
Body & chassis assembly	100
Body parts manufacturing	100
Frame assembly	50

Garages-Motor Vehicles	
Storage	5
Traffic Lanes	
Parking garage	10
Service garage	10-20
Entrances	50
Repair area	50-100
Gymnasiums	
Assemblies	10
General exercise & recreation	30
Exhibitions, matches	50
Hospitals	
Rooms	10-20
Corridors	5-20
Emergency rooms	50-100
Operating rooms	100-200
Hotels	
Ballrooms	20-50
Bedrooms for reading	20-50
Corridors, elevators and stairs	10-20
Front desk	50-100
Linen room	
Sewing	100-200
General	10-20
Lobby	
General lighting	10-20
Reading and	

Offices	
Mail sorting	50-100
Off-set printing and duplicating areas	20-50
Spaces with VDT's	75
Paint Shop	
Spraying, rubbing, hand art, stencil	20-50
Fine hand painting & finishing	50-100
Paper Manufacturing	
Beaters, grinding	20-50
Finishing, cutting	50-100
Heat cooling	50-100
Paper machine reel, inspection	100-200
Reelster	100-200
Printing	
Photo engraving, etching, blocking	20-50
Color inspecting	100-200
Presses	50-100
Proofreading	100-200
Composing room	50-100
Schools	
Reading	20-100
Typing	20-100
Demonstrations	100-200
Sewing	20-100

Iron & Steel Manufacturing	
Stock, hot top, checker	20-70
cellar, catching	10-30
Building, slag pits, stripping yard	20
Control platforms, repairs	
inter building	30
Rolling mills	30-50
Shearing	50
Tin plate	50
Motor room, machine room	50
Inspection	100
Laundries	
Washing	20-50
Ironing	20-100
Library	
Ordinary reading, stacks	20-50
Book repair and binding	20-50
Study & notes, cataloging, card files, check desk	20-100
Machine Shops	
Rough bench	20-50
Medium bench, rough grinding, buffing	50-100
Fine bench and work	200-500(a)
Materials Handling	
Loading trucking	10-20
Picking stock classifying	20-50
Wrapping, packing, labeling	20-50
Offices	
Accounting	50-100
Audio-visual areas	20-50
Conference areas	20-70

General	
Tin plate inspection, galvanized, scoring	100-200
Stores	
Circulation area stockroom	10-30
Merchandising, serviced	30-100
Merchandising, self-service	200
Textile Mills	
Cotton picking, carding, roving, spinning	50
Beaming & warping	150
Drawing	200
Others	100
Warehousing, Storage	
Inactive	5-10
Active	
Rough bulky	10-20
Medium	20
Fine	20-50
Welding	
General	20-50
Woodworking	
Rough sawing and bench work	20-50
Sizing, planing, rough sanding, medium quality machine and bench work, gluing, veneering, cooperage	20-50
Fine bench and machine work, fine sanding and finishing	50-100
Footnotes:	
(a) Obtained with a combination of general	

• [HTTP://BRISTOLITE.COM/INTERFACES/MEDIA/FOOTCANDLE%20RECOMMENDATIONS%20BY%20IES.PDF](http://bristolite.com/interfaces/media/footcandle%20recommendations%20by%20ies.pdf)



Certificate of Recycling and/or Disposal

This certificate certifies that the waste described below has been properly recycled and/or disposed in accordance with state, federal and local regulations. The document number shown below should be used when inquiring about any issues with the proper handling, recycling and/or disposal of the waste.

CUSTOMER:	GENERATOR:
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WASTE RECYCLED AND/OR DISPOSED:

FACILITY:
RECEIVED DATE:
SO#
DOCUMENT#:
SHIPPING PAPER:



OPERATIONS MANAGER

- **HAVE YOU BEEN CONFUSED BY THE ENDLESS RETURN ON INVESTMENT PROPOSALS YOU HAVE GOT FROM CONTRACTORS? DO YOU WANT A SIMPLE CALCULATOR TO USE?**

- **[HTTPS://WWW.RCALIGHTS.COM/ROI/](https://www.rcalights.com/roi/)**

*Quantity	Watts	Quantity	Watts
24	400	18	160
*Quantity is total number of bulbs		TOTAL SYSTEM WATTAGE 2,880	
TOTAL SYSTEM WATTAGE 9,600		Total System Cost	
Hours of Operation	Energy Cost	Price per RCA Unit	Total
Hours per week	kWh Rate	\$380.00	\$6,840.00
168	\$0.12		
ANNUAL OPERATING HOURS		As you adjust the fields above, your ROI below will automatically update.	
8,736			

ROI ANALYSIS

Return On Investment	103%	Get a complete, customized ROI calculation one of our representatives.
Annual Energy Savings	\$7,044.71	
Simple Payback (Years)	0.97	
Monthly Cost of Waiting	\$587.06	

[Request Full Estimate](#)

REBATES

- **IN ADDITION WHY ARE THE REBATES SO CONFUSING WHAT'S PRESCRIPTIVE VS CUSTOM MEAN WHY ARE THERE SO MANY CAPS? WHAT IF I HAVE MULTIPLE METERS OR SERVICE ADDRESSES? HOW DO I EVEN SEARCH IF MY LOCAL POWER COMPANY HAS REBATES OR INCENTIVES?**
- **PRESCRIPTIVE EQUALS A 4 LAMP 2X4 TROFFER HAS AN INCENTIVE OF X DOLLARS**
- **CUSTOM COULD BE OFFERING .40 CENTS PER WATT REDUCED. THUS IF YOU CHANGED A 8FT LINEAR FIXTURE YOU COULD CHANGE FROM 180 WATTS FLUORESCENTS TO 56 WATT LED THUS $180-56= 124$ WATTS X .40 CENTS = A REBATE OF \$49.6**
- **CUSTOM REBATE OF 7 CENTS PER KWH SAVED THE FIRST YEAR. MEANS YOU HAVE TO KNOW HOW MANY HOURS THE FIXTURE IS RUNNING PER YEAR NOW VS THE LED . EXAMPLE A EXTERIOR STREET LIGHT 400 WATTS OF HID RUNNING 4870 HOURS PER YEAR VS A LED FIXTURE SAME HOURS AT ONLY 150 WATTS= A REBATE OF \$85.23 TOWARDS A 300-600 DOLLAR STREET LIGHT**

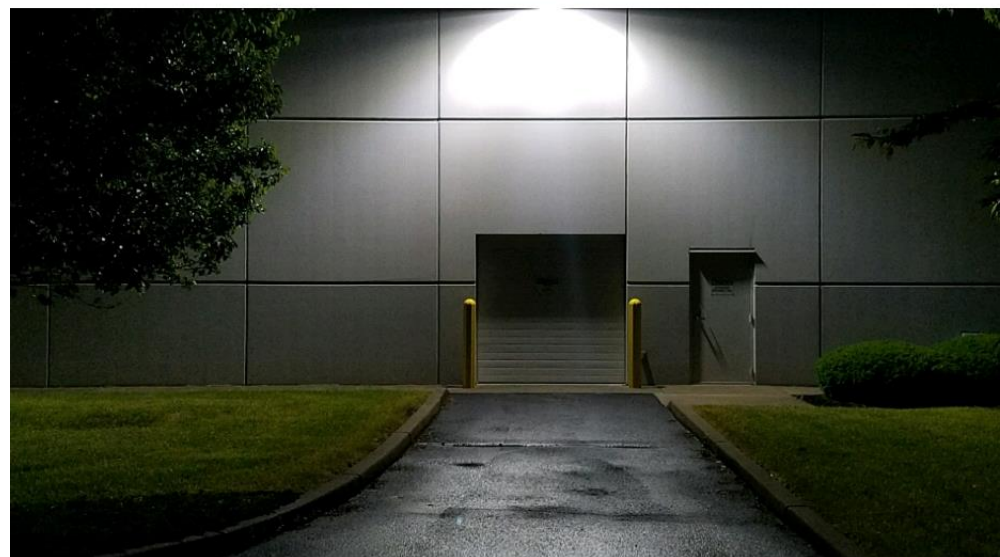
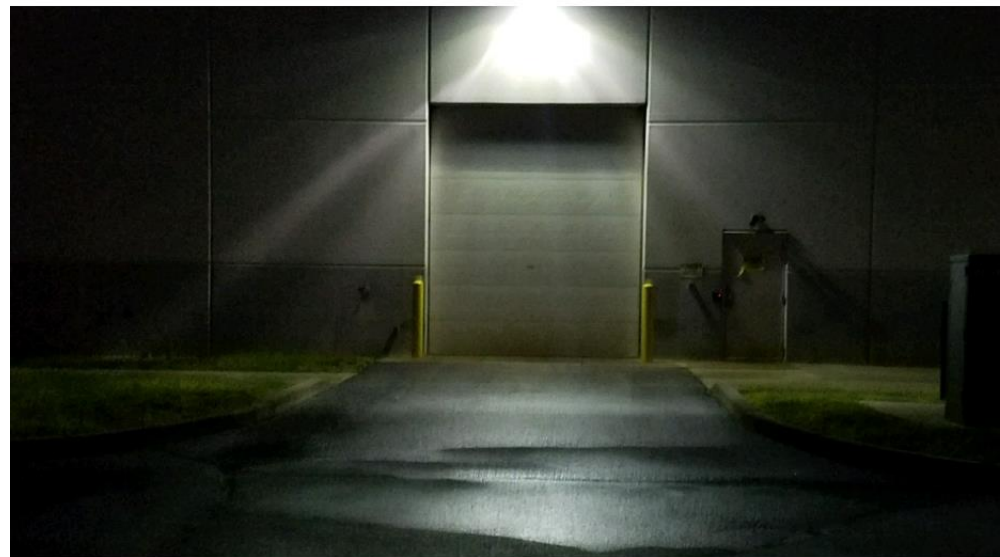
400	150
4870	4870
1948000	730500
	1217500
	1217.5
	\$85.23

Not all projects turn out the same



**400 WATT HID AT
THE END OF ITS
LIFE VS A 100
WATT LED
FIXTURE...**

16





**WHAT'S
IMPORTANT TO
YOU THE MOST?**

IS IMPROVING THE LIGHTING NUMBER 1

IS SAVING ENERGY NUMBER 1

IS LOWERING MAINTENANCE COST NUMBER 1

LEDs shouldn't be placed in tightly enclosed fixtures unless they're approved for enclosed spaces. When heat can't dissipate from the heat sink, it can cause lamps to **fail** prematurely. ... Because **LEDs** emit **light** that decreases exponentially as a function of time and temperature. Dec 15, 2016



Four reasons LED lamps fail prematurely - REMI Network
<https://www.reminetwork.com/articles/14195/>





MORE FAILING TUBES

Wrap Up

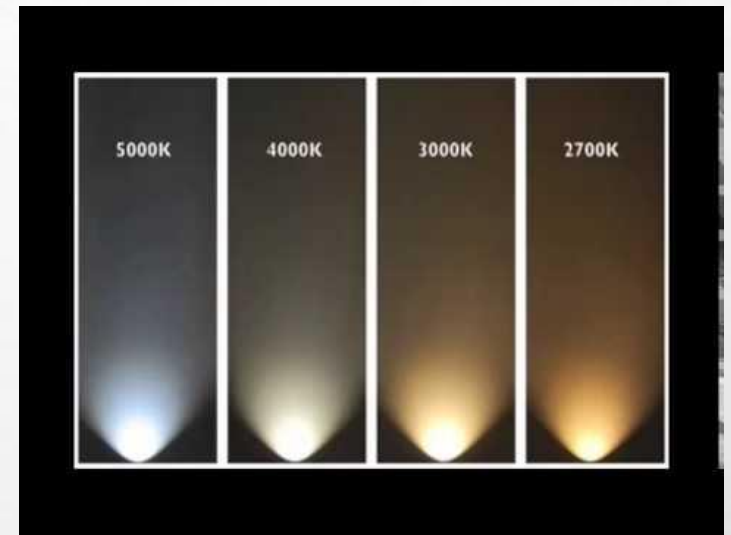
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