PREPARED FOR:

Jeff Hancock
Assistant Facilities Director
3101 SE Inner Loop
Georgetown, TX 78626

Williamson County

Fleet Services Lighting LED Upgrade
Lighting Economic Analysis

SUBMITTED BY:
Brett Anderson, LC, IES
Snr Account Representative
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www.fsgi.com

August 6, 2019

Williamson County
Jeff Hancock
Assistant Facilities Director
3101 SE Inner Loop
Georgetown, TX 78626

Lighting Economic Analysis

Project: Fleet Services Lighting LED Upgrade

Fleet Services
3101 SE Inner Loop
Georgetown, TX 78626

Total Fixtures Upgraded:	58	FSG's INVOICE AMOUNT:	$11,390.88
kW Reduced:	0.76	Projected Utility Rebate:	$0.00
Avg kWh Rate:	$0.105		
kWh Reduced:	3,251	NET INSTALLED COST:*	$11,390.88
Annual Utility Savings:	$366.93	*After Utility Rebate (which is not guaranteed by FSG)	
Annual Maintenance Savings: (1)	$1,139.09	Net Simple Payback:	7.56 *Yrs w/Maintenance Savings*
Inflation Rate: (2)	2.0%	Return On Investment:	13.2%
Est. Discount Rate: (Cost of Capita	8.0%		
Cap Rate Basis:	5.0%	Internal Rate of Return: (IRR)	10% *(Hurdle Rate)*
EPA Required Lamp Disposal:	$15	Net Present Value: (NPV)	$721 *(Today's value of future savings)*
YOUR COST TO WAIT PER DAY:	$4	Added Real Property Value(3)	$30,120
		(Improved NOI / Cap Rate)	

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Annual Cash Flow:	$1,506	$1,536	$1,567	$1,598	$1,630	$8,653
Net Cash Flow:	($11,391)	$1,536	$1,567	$1,598	$1,630	$8,653
Cumulative Cash:	($9,885)	($8,349)	($6,782)	($5,184)	($3,553)	$7,849

(1) Maintenance savings is included in the net simple payback and cash flow years 1 & 2

(2) Inflation impacts years 2-10

(3) Real Property Value increases by reducing operating expenses thereby improving Net Operating Income (NOI)
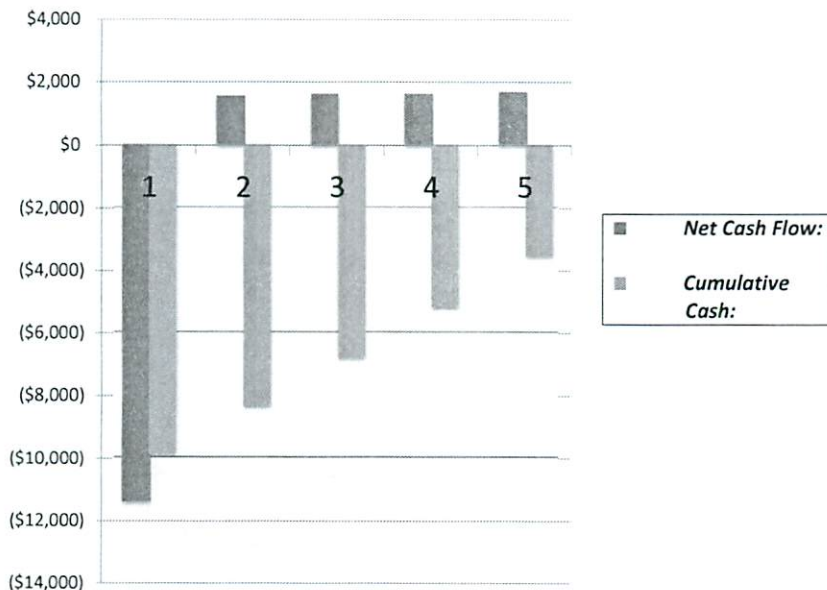
PRESENT SYSTEM

Total kW:	2.53
Total kWh:	10,976

PROPOSED SYSTEM

Total kW:	1.78
Total kWh:	7,726
Total KW Saved:	0.76
Total kWh Saved:	3,251

Net Cash Flow:

Cumulative Cash:

Executive Approval

Williamson County

Customer: WILCO Fleet   Address: Start Date:

Location: Job Number: Revision As Of:

Audit Date: Audit Type: **IPA**   Completion Date:

Line	Floor	Room Description/Number	Fixt #	Qty	Adj	Total	Comp	Incomp	Date	Comments	Part Number	Product Description
1		Fleet Lobby	001	2		2		2		KEEP OLD FIXTURES	2x4 LED Prismatic	2x4 LED Flat Panel (Keep Old Fixture)
2		Fleet Lobby	002	2		2		2			LED Exit Sign	LED Exit Sign w/ Bug Eyes
3		Shop Office	003	1		1		1			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
4		Shop Office	003E	1		1		1			2x4x2-F32T8 Prismatic EM	2x4 LED Flat Panel w/ EM
5		Office Area	003	3		3		3			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
6		Office Area	003E	1		1		1			2x4x2-F32T8 Prismatic EM	2x4 LED Flat Panel w/ EM
7		Hall	003	3		3		3			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
8		Hall (ADD)	003	1		1		1			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
9		Hall (ADD)	003E	1		1		1			2x4x2-F32T8 Prismatic EM	2x4 LED Flat Panel w/ EM
10		Electrical Room	004	1		1		1			1x4x2-F32T8 Strip	1x4 LED Strip
11		Electrical Room	004E	1		1		1			1x4x2-F32T8 Strip EM	1x4 LED Strip w/ EM
12		Office	003	2		2		2			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
13		Parts	003	12		12		12			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
14		Parts (ADD)	003	6		6		6			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
15		Parts (ADD)	003E	2		2		2			2x4x2-F32T8 Prismatic EM	2x4 LED Flat Panel w/ EM
16		Office	003	2		2		2			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
17		IT Room	003	2		2		2			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
18		Closet	003	1		1		1			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
19		Additional Fixtures	003	2		2		2			2x4x2-F32T8 Prismatic	2x4 LED Flat Panel
20		Dimmers in Office	005	2		2		2			Switch	Add 0-10V Dimmer
21						0		0			0	0
22						0		0			0	0
246						0		0			0	0
				48	0	48	0	48				

BuyBoard

Fleet Services Lighting LED Upgrade

This proposal is base on rates provided through BuyBoard Contract 527-17, Energy Saving Lighting Products. Pricing on BuyBoard is for material AND installation labor only. Contract pricing is NTE (not to exceed).

1. Place order with FSG directly
2. Fax or email (info@buyboard.com) PO to BuyBoard noting "RECORD ONLY"
3. Products / Services delivered and invoiced by FSG
4. Payment made to FSG.

August 23, 2019

Jeff Hancock   Submitted by: Brett Anderson, LC, IES
Williamson County   FSG Representative
3101 SE Inner Loop   *brett.anderson@fsgi.com*
Georgetown, TX 78626   512-762-7172

Project: Lighting Retrofit (LR)
Location: Fleet Services

Thank you for considering FSG's lighting proposal. We will provide all materials (unless otherwise requested), labor, and equipment to complete your project professionally according to all relevant electrical codes and in a timely manner.

Any utility rebates herein listed, are subject to the local utility company's rules and procedures. FSG cannot guarantee said rebate, but will provide all information needed to the utility to maximize the rebate on your behalf, if so desired.

Lighting waste disposal will follow local and EPA's regulations.   Mercury-containing lamps will be recycled unless you have a preferred vendor to handle the proper disposal. Hazardous ballasts (PCBs) quantities are typically unknown at the start of any job. FSG and/or it's contractor will properly store any hazardous ballast on site (at your location determination) and can coordinate disposal for you at an additional cost. Certificate of Destruction or Recycle will be forwarded to you at the address hereinabove listed.

WARRANTIES
FSG will honor the providing manufacturer(s) material and labor warranty as written. Any special accommodations shall be attach to this document as 'Exhibit A'. FSG warrants it own workmanship for 90 days. FSG will process all related claims on the customer's behalf.

TERMS & CONDITIONS
This proposal is valid for 90 days from the date issued. We appreciate the opportunity to serve your needs. If you have any questions, please don't hesitate to call or email.

EXCLUSIONS
Any fixture not specified in the audit documentation can be retrofitted, with your approval, at an additional unit price (to be attached).

It is assumed that the existing circuitry is properly maintained and adequate for the new fixture or retrofit that are to be installed. Any work on the electrical services need for code compliance, is NOT included in this price and would require an add/change order.

Texas Prompt Payment Act Compliance: Payment for goods and services shall be governed by Chapter 2251 of the Texas Government Code. An invoice shall be deemed overdue the 31st day after the later of (1) the date licensee receives the goods under the contract; (2) the date the performance of the service under the contract is completed; or (3) the date the Williamson County Auditor receives an invoice for the goods or services. Interest charges for any overdue payments shall be paid by licensee in accordance with Texas Government Code Section 2251.025. More specifically, the rate of interest that shall accrue on a late payment is the rate in effect on September 1 of licensee's fiscal year in which the payment becomes due. The said rate in effect on September 1 shall be equal to the sum of one percent (1%); and (2) the prime rate published in the Wall Street Journal on the first day of July of the preceding fiscal year that does not fall on a Saturday or Sunday.

Termination for Convenience: This agreement may be terminated at any time at the option of either party, without future or prospective liability for performance upon giving ninety (90) days written notice thereof. In the event of termination, County will only be liable for its pro rata share of services rendered and goods actually received.

Mediation: The parties agree to use mediation for dispute resolution prior to and formal legal action being taken on this Contract.

Venue and Governing Law: Venue of this contract shall be Williamson County, Texas, and the law of the State of Texas shall govern.

ACCEPTANCE BY: DATE:

_____   _____   08/23/19

Williamson County   Brett Anderson, LC, IES
                                                 Senior Account Representative
                                                 FSG
                                                 brett.anderson@fsgi.com

Environmental Impact Statement

Client: **Williamson County**
Project: **Fleet Services**
      3101 SE Inner Loop

Annual Kilowatt Hours Saved: **3,251**

According to the EPA, for each kWh saved, approximately 1.8 pounds of Carbon Dioxide (CO2), .006 pounds of Sulfur Dixi
.003 pounds of Nitrogen Oxides (NOx), and .043 milligrams of Mercury (Hg) are eliminated from future power plant emissio
into our atmosphere annually.

CO2 is a "Greenhouse Gas" while SO2 contributes to acid rain formation and NOx contributes to the troposheric ozone form
(Smog) and estuarial damage.

The Annual Pollution Reduction Impact of Your Project

Carbon Dioxide (lbs):	**5,851**	**Nitrogen Oxides** (lbs):	**10**
Sulfur Dioxide (lbs):	**20**	**Mercury** (grams):	**0**

For every 10,000 Kilowatt Hours saved the EPA has estimated the savings to be equivalent to planting **2.9 acres** of trees a
or equivalent to removing **1.4 cars** from our roads annually.

Your Lighting Project's Local Impact

Acres of Trees Planted: 1   **Cars Removed:**   **0**

The EPA does regulate the disposal of lighting products if they contain hazardous waste. Fluorescent lamps, HID lamps, a
incandescent may contain some hazardous elements. **PCB** containing ballast are already federally regulated. If you ar
classified as a hazardous waste generator you must follow the disposal and or recycling regulations from the EPA. If you pr
more than 100kg of hazardous waste per month, you are considered a hazardous generator. Lamps are classified as **Univ**
Waste which does reduce some of the handling procedures.

All Generators of lighting waste products must have a **TCLP** test (Toxicity Characteristic Leaching Procedure) to identify po
hazards. The lamps cannot exceed 0.2 milligram per liter in order to pass. Failure to perform the test will automatically trig
need for recycling. Your local landfill may not accept the lamps that pass. Ballast containing **PCB's MUST** also be dispose
through incineration or EPA approved recycling. FSG prefers to incinerate PCB's. **Ballasts must have "NO PCB's" on th**
otherwise, they must be considered to have PCB's.

FSG recommends recycling the lamps and incinerating the ballast to provide you with the safest disposal method and soun
environmental practices. We can manage the entire project and minimize your potential exposure while archieving the high
savings. All recycling/disposal certificates will be mailed to the address listed in the proposal.

PRODUCT SPECIFICATIONS

EZPAN2X4-40N/D10

Project:	**Type:**
Prepared By:	**Date:**

Driver Info

Type	Constant Current
120V	0.33A
208V	0.21A
240V	0.19A
277V	0.16A
Input Watts	39.80W
Efficiency	N/A

LED Info

Watts	40.00W
Color Temp	4000K (Neutral)
Color Accuracy	83 CRI
L70 Lifespan	60,000
Lumens	4,465
Efficacy	112.2 LPW

2' x 4' EZPAN edgelit LED panel lights provide smooth and uniform light edge-to-edge for a clean, modern look. Install in drop ceilings or use optional surface, pendant or recessed (dry wall) mounting kits.

Color: White   Weight: 14.8 lbs

Technical Specifications

Listings

UL Listing:

Suitable for damp locations

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities. DLC Product Code: P76QGDBU

Electrical

Driver:

Constant Current, Class 2, 120-277V, 50/60Hz, 120V: 0.35A, 208V: 0.21A, 240V: 0.18A, 277V: 0.16A

Dimming Driver:

Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims as low as 10%.

THD:

8.2% at 120V, 9.9% at 277V

Power Factor:

99.3% at 120V, 96.3% at 277V

Note:

All values are typical (tolerance +/- 10%)

LED Characteristics

Lifespan:

60,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

LEDs:

Long-life, High efficiency, micro-power, surface mount LEDs

Construction

IC Rating:

Suitable for insulated ceilings

Maximum Ambient Temperature:

Suitable for use in -30°C (-22°F) to 50°C(122°F)

Lens:

Frosted polystyrene

Mounting:

Recessed ceiling

Housing:

Lightweight aluminum housing, steel pan and junction box

Installation:

Standard integral T-bar clips secure the fixture to T-bars and prevent T-system separation

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

Other

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.
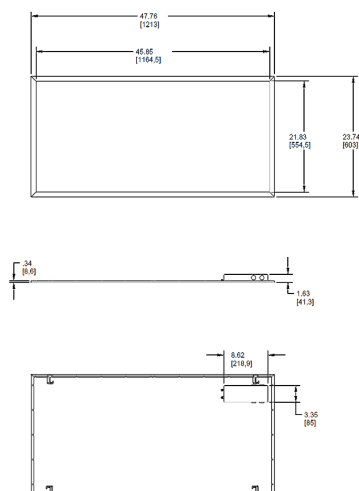
Technical Specifications (continued)

Other

Equivalency :

Equivalent to (4)F32T8 or (4)F28T5

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Dimensions

Features

- Perfect for shallow plenums
- Even and diffuse ambient illumination, ideal for spaces where glare-free lighting is required
- 0-10V dimmable driver, standard

Ordering Matrix

Family	Size		Wattage	Color Temp	Driver	Options
EZPAN	2X4	–	40	N	/D10	
	2X4 = 2' x 4' **2X2 =** 2' x 2'		**30 =** 30W **40 =** 40W **50 =** 50W [1]	**Blank =** 5000K (Cool) **N =** 4000K (Neutral) **YN =** 3500K (Warm Neutral) **Y =** 3000K (Warm)	**/D10 =** 0-10V Dimming	**Blank =** No Option **/LC =** Lightcloud® Controller **/E2 =** Emergency Battery Backup **/LC/E2 =** Lightcloud® Controller w/ Emergency Battery Backup

[1] Available only in 2' x 4'
[2] Available only in 2' x 2' and 1' x 4'

EZPAN2X4-40N/D10/E2

Project:		**Type:**	
Prepared By:		**Date:**	

Driver Info

Type	Constant Current
120V	0.33A
208V	0.21A
240V	0.19A
277V	0.16A
Input Watts	39.80W
Efficiency	N/A

LED Info

Watts	40.00W
Color Temp	4000K (Neutral)
Color Accuracy	83 CRI
L70 Lifespan	60,000
Lumens	4,465
Efficacy	112.2 LPW

2' x 4' EZPAN edgelit LED panel lights with emergency battery Backup that will operate the LED Lamp for 90 minutes if power fails. Install in drop ceilings or use optional surface, pendant or recessed (dry wall) mounting kits.

Color: White   Weight: 19.3 lbs

Technical Specifications

Listings

UL Listing:

Suitable for damp locations

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities. DLC Product Code: P76QGDBU

Electrical

Driver:

Constant Current, Class 2, 120-277V, 50/60Hz, 120V: 0.35A, 208V: 0.21A, 240V: 0.18A, 277V: 0.16A

Dimming Driver:

Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims as low as 10%.

THD:

8.2% at 120V, 9.9% at 277V

Power Factor:

99.3% at 120V, 96.3% at 277V

Note:

All values are typical (tolerance +/- 10%)

Battery Backup:

Emergency battery backup will operate the fixture for 90 minutes if power fails. Wired for 120-277V.

LED Characteristics

Lifespan:

60,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

LEDs:

Long-life, High efficiency, micro-power, surface mount LEDs

Construction

IC Rating:

Suitable for insulated ceilings

Maximum Ambient Temperature:

Suitable for use in -30°C (-22°F) to 50°C(122°F)

Lens:

Frosted polystyrene

Mounting:

Recessed ceiling

Housing:

Lightweight aluminum housing, steel pan and junction box

Installation:

Standard integral T-bar clips secure the fixture to T-bars and prevent T-system separation

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

Technical Specifications (continued)

Other

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.
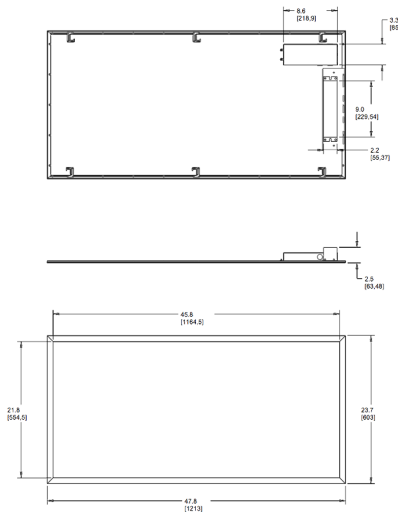
Equivalency :

Equivalent to (4)F32T8 or (4)F28T5

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Dimensions

Features

Perfect for shallow plenums

Even and diffuse ambient illumination, ideal for spaces where glare-free lighting is required

0-10V dimmable driver, standard

Ordering Matrix

Family	Size		Wattage	Color Temp	Driver	Options
EZPAN	2X4	–	40	N	/D10	/E2
	2X4 = 2' x 4' **2X2 =** 2' x 2'		**30 =** 30W **40 =** 40W **50 =** 50W [1]	**Blank =** 5000K (Cool) **N =** 4000K (Neutral) **YN =** 3500K (Warm Neutral) **Y =** 3000K (Warm)	**/D10 =** 0-10V Dimming	**Blank =** No Option **/LC =** Lightcloud® Controller **/E2 =** Emergency Battery Backup **/LC/E2 =** Lightcloud® Controller w/ Emergency Battery Backup

[1] Available only in 2' x 4'
[2] Available only in 2' x 2' and 1' x 4'

STRP440-840U

Project:		**Type:**
Prepared By:		**Date:**

Driver Info

Type	Constant Current
120V	0.40A
208V	0.19A
240V	0.17A
277V	0.15A
Input Watts	39.00W
Efficiency	N/A

LED Info

Watts	40.00W
Color Temp	4000K (Neutral)
Color Accuracy	84 CRI
L70 Lifespan	50,000
Lumens	5,539
Efficacy	142 LPW

Versatile, economical strip lights combine a traditional, fluorescent tube look with energy-saving LED technology.

Color: White　　　　　Weight: 5.4 lbs

Technical Specifications

Listings

UL Listing:

Suitable for damp locations

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities.DLC Product Code: P0XBIQDU

Electrical

Driver:

Constant Current, 120-277V, 50/60 Hz, 120V: 0.19A, 208V: 0.17A, 240V: 0.15A, 277V: 0.12A

Dimming Driver:

Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims as low as 10%.

THD:

5.86% at 120V, 7.63% at 277V

Power Factor:

99.7% at 120V, 97.2% at 277V

LED Characteristics

Lifespan:

50,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

LEDs:

Long-life, High efficiency, micro-power, surface mount LEDs

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5-year period

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Construction

Cold Weather Starting:

The minimum starting temperature is -20°C (-4°F)

Maximum Ambient Temperature:

Suitable for use in 50°C (122°F)

Housing:

Sheet metal stamping 24 gauge, cold-rolled steel

Mounting:

Comes standard with surface mounting hardware. Accessories available for suspension hook mounting or J-Box mounting (purchased separately).

Connecting Adaptor:

May link up to 15 fixtures using connecting adaptor included with each fixture for easy installation. Separate connecting plate (order as accessory) recommended for each connection point.

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

Other

5 Yr Limited Warranty:

The RAB 5-year, limited warranty covers light output, driver performance and paint finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

Technical Specifications (continued)

Other

Accessories:

STRP BPLATE - Bracket plate for mechanically joining fixtures, for runs need one less than fixture quantity. Click here.
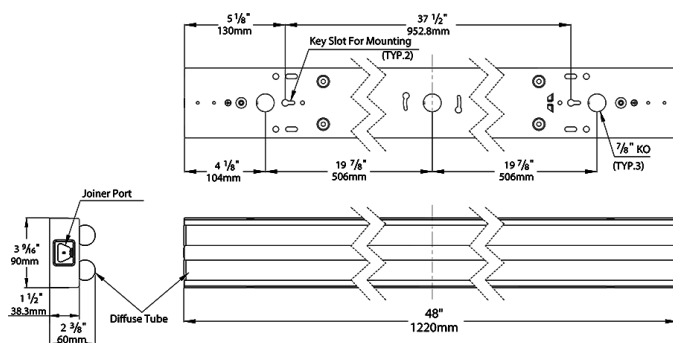
STRP SHOOK - Suspension "S" hook and 9 1/2" chain. Sold in pairs, need 1 pair for each fixture. Click here.

JBSTRP - White flat cover for junction-box installations, sold individually. Click here.

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Dimensions

Features

Traditional, fluorescent tube look; energy-saving LED technology

Surface-mount ready; accessories available for junction box or suspended mount

0-10V dimming

50,000-Hour LED lifespan

Ordering Matrix

Family	Length/Wattage		CRI/CCT	Voltage	Options
STRP	440	–	840	U	

Length/Wattage:
210 = Single tube 2ft, 10W
220 = Double tube 2ft, 20W
420 = Single tube 4ft, 20W
440 = Double tube 4ft, 40W

CRI/CCT:
850 = 5000K (Cool), 80 CRI
840 = 4000K (Neutral), 80 CRI
835 = 3500K (Warm Neutral), 80 CRI

Voltage:
U = 120-277V

Options:
Blank = No Option
/MVS = Microwave Bi-Level Motion Sensor *Available only to STRP440 [1]
/E2 = Emergency Backup *Available only to STRP440 [1]

[1] Available with the STRP440 only

STRP440-840U/E2

Project:	Type:
Prepared By:	**Date:**

Driver Info

Type	Constant Current
120V	0.40A
208V	0.19A
240V	0.17A
277V	0.15A
Input Watts	39.00W
Efficiency	N/A

LED Info

Watts	40.00W
Color Temp	4000K (Neutral)
Color Accuracy	84 CRI
L70 Lifespan	50,000
Lumens	5,539
Efficacy	142 LPW

Versatile, economical strip lights combine a traditional, fluorescent tube look with energy-saving LED technology.

Color: White   Weight: 5.7 lbs

Technical Specifications

Listings

UL Listing:

Suitable for damp locations

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities.DLC Product Code: P0XBIQDU

Electrical

Driver:

Constant Current, 120-277V, 50/60 Hz, 120V: 0.19A, 208V: 0.17A, 240V: 0.15A, 277V: 0.12A

Dimming Driver:

Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims as low as 10%.

THD:

5.86% at 120V, 7.63% at 277V

Power Factor:

99.7% at 120V, 97.2% at 277V

Battery Backup:

Battery backup will operate the LED Lamp for 90 minutes if power fails. Wired for 120V-277V.

LED Characteristics

Lifespan:

50,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

LEDs:

Long-life, High efficiency, micro-power, surface mount LEDs

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5-year period

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Construction

Cold Weather Starting:

The minimum starting temperature is -20°C (-4°F)

Maximum Ambient Temperature:

Suitable for use in 50°C (122°F)

Housing:

Sheet metal stamping 24 gauge, cold-rolled steel

Mounting:

Comes standard with surface mounting hardware. Accessories available for suspension hook mounting or J-Box mounting (purchased separately).

Connecting Adaptor:

May link up to 15 fixtures using connecting adaptor included with each fixture for easy installation. Separate connecting plate (order as accessory) recommended for each connection point.

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

Need help? Tech help line: **(888) 722-1000** Email: **custserv@rablighting.com** Website: **www.rablighting.com**

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Technical Specifications (continued)

Other

5 Yr Limited Warranty:

The RAB 5-year, limited warranty covers light output, driver performance and paint finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

Accessories:

STRP BPLATE - Bracket plate for mechanically joining fixtures, for runs need one less than fixture quantity. Click here.
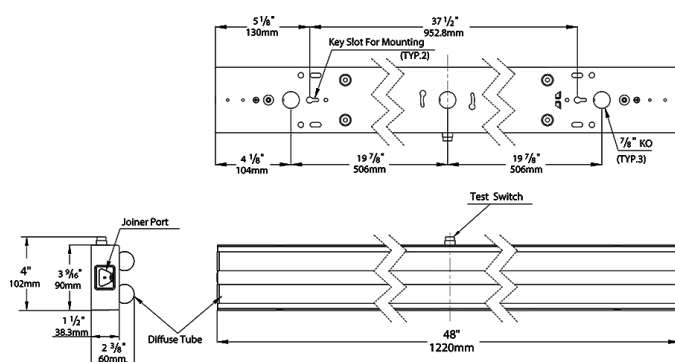
STRP SHOOK - Suspension "S" hook and 9 1/2" chain. Sold in pairs, need 1 pair for each fixture. Click here.

JBSTRP - White flat cover for junction-box installations, sold individually. Click here.

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Dimensions

Features

Traditional, fluorescent tube look; energy-saving LED technology

Surface-mount ready; accessories available for junction box or suspended mount

0-10V dimming

50,000-Hour LED lifespan

Ordering Matrix

Family	Length/Wattage		CRI/CCT	Voltage	Options
STRP	440	–	840	U	/E2

	Length/Wattage	CRI/CCT	Voltage	Options
	210 = Single tube 2ft, 10W **220 =** Double tube 2ft, 20W **420 =** Single tube 4ft, 20W **440 =** Double tube 4ft, 40W	**850 =** 5000K (Cool), 80 CRI **840 =** 4000K (Neutral), 80 CRI **835 =** 3500K (Warm Neutral), 80 CRI	**U =** 120-277V	**Blank =** No Option **/MVS =** Microwave Bi-Level Motion Sensor *Available only to STRP440 [1] **/E2 =** Emergency Backup *Available only to STRP440 [1]

[1] Available with the STRP440 only

LITHONIA LIGHTING®

FEATURES & SPECIFICATIONS

INTENDED USE — Suitable for applications requiring both exit sign and unit equipment. Attractive, 8" tall, streamlined design is great for above-the-door applications and other tight fits. Optional high-output version with remote lamps are ideal for emergency egress lighting. **Certain airborne contaminants can diminish integrity of acrylic and/or polycarbonate. Click here for Acrylic-Polycarbonate Compatibility table for suitable uses.**

CONSTRUCTION — Engineering-grade thermoplastic housing is impact-resistant, scratch-resistant and corrosion-proof. UL94V-O flame rating. UV-stable resin resists discoloration from natural and man-made light sources.

Rugged unibody housing snaps together with no additional fasteners. Faceplate and back cover are interchangeable on housing. Positive snap-fit tabs hold faceplate securely, yet are easily removable for lamp compartment access. Universal, directional chevron inserts are easily removed and reinserted.

Uniform graphics illumination without shadows or hot spots. Letters are 6" high with 3/4" stroke, with 100 ft. viewing distance rating based upon UL924 standard.

LEDs mounted on primary circuit boards for sign illumination. Low-energy LED lamp in sign operates in normal (AC input) and emergency (DC input) modes.

Low-profile, integrated test switch/pilot light. Easily viewed bright red status indicator.

Unique track-and-swivel arrangement permits full range of direction of lamp head adjustment. Universal J-box mounting pattern. Tool-less access for maintenance. Conduit entry position on top of unit.

U.S. Patent No. 6,848,798; 6,499,866; 6,142,648; 5,797,673; D379,373; 5,526,251; D484,272; D473,672; 5,611,163; 5,646,502.

OPTICS — Twin LED lamp heads operate in emergency (DC input) mode with 12 series-parallel white LEDs in each head. Provides redundant light sources to ensure emergency lighting performance. The typical life of the exit LED lamp is 10 years.

ELECTRICAL — Dual-voltage input capability (120/277V). Edge connector on printed circuit board ensures long-term durability.

Current-limiting charger maximizes battery life and minimizes energy consumption. Provides low operating costs.

Short-circuit protection — current-limiting charger circuitry protects printed circuit board from shorts.

Thermal compensation adjusts charger output to provide optimum charge voltage relative to ambient temperature.

Regulated charge voltage maintains constant-charge voltage over a wide range of line voltages. Prevents over/undercharging that shortens battery life and reduces capacity.

Filtered charger input minimizes charge voltage ripple and extends battery life.

AC/LVD reset allows battery connection before AC power is applied and prevents battery damage from deep discharge.

Single multi-color LED indicator to display two-state charging, test activation and three-state diagnostic test. Test switch provides manual activation of 30-second diagnostic testing for on-demand visual inspection. Self-diagnostic testing for 30 seconds every 30 days, 30 minutes at 180-day interval, and 90 minutes annually. Diagnostic evaluation of LED light source, AC-to-DC transfer, charging and battery condition.

Battery: Sealed, maintenance-free nickel-cadmium battery delivers 90-minute capacity to emergency lamps. Two-state contstant-current charge maximizes battery life and automatically recharges after battery discharge. Low-voltage disconnect prevents excessively deep discharge that can permanently damage the battery. Optional high-output battery to power both local and optional LED remote lamp heads simultaneously.

QUANTUM®
Thermoplastic Exits

LHQM LED

LED Lamp Head
Nickel-Cadmium Battery

HO RO

LED

INSTALLATION — Top, end or back mounting. Housing snaps to canopy with positive-locking tabs. Cam locking pin secures housing to canopy.

Easily removed mounting knockouts. Conduit entry knockout for 1/2" flexible conduit. J-box pattern on back panel.

LISTINGS — UL damp location listed standard 50°-104°F (10°-40°C). Meets UL 924, NFPA 101 (current Life Safety Code), NEC and OSHA illumination standards.

WARRANTY — 5-year limited warranty. (Battery is prorated). Complete warranty terms located at www.AcuityBrands.com/CustomerResources/Terms_and_Conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application.

All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.

ORDERING INFORMATION
Lead times will vary depending on options selected. Consult with your sales representative.

Example: LHQM LED G

LHQM	LED				
Family	**Lamp type**	**Housing color**	**Letter color**	**Options**	
LHQM — Stencil face, single face plate with extra face plate	LED — Two 1.5W/9.6V white LED	(blank) White B Black	R Red G Green	HO High-output Ni-cad battery HO RO High-output option, less lamp heads SD Self-diagnostics	NOM Meets Mexican standards[1] NOM SALIDA Salida signage (non-UL)[2]

Accessories: *Order as separate catalog number.*

ELA Q L0309 SD	Single, LED indoor remote head, white, self-diagnostics [3,4,5]	ELA WG3	Wireguard, 30"W x 13-1/2" H x 6" D[6]
ELA T Q L0309 SD	Twin, LED indoor remote head, white, self-diagnostics [3,4,5]	ELA WG2M	Wireguard, 21-1/4"W x 15" H x 12" D[6]
ELA QWP L0309 SD	Single, LED weather-proof remote head, gray, self-diagnostics [3,4,5]	ELA LQMUS12	12" white stem kit[7]
ELA T QWP L0309 SD	Twin, LED weather-proof remote head, gray, self-diagnostics [3,4,5]	ERE W SGL SQ M12	Single, LED indoor remote head, square, ivory white, .75W, 3.6V-12V voltage sensing[8,9]
ELA Q L0309	Single, LED indoor remote head, white[4,5]	ERE W T SQ M12	Twin, LED indoor remote head, square, ivory white, 1.5W, 3.6V-12V voltage sensing[8,9]
ELA T Q L0309	Twin, LED indoor remote head, white[4,5]	ERE GY SGL WP SQ M12	Single, LED weather-proof remote head, square, gray, 1W, 3.6V-12V voltage sensing[8,9]
ELA QWP L0309	Single, LED weather-proof remote head, gray[4,5]	ERE GY T WP SQ M12	Twin, LED weather-proof remote head, square, gray, 2W, 3.6V-12V voltage sensing[8,9]
ELA T QWP L0309	Twin, LED weather-proof remote head, gray[4,5]		

Notes
1. Available in black or white. Consult factory for options.
2. Only available in white. NOM standard.
3. Only compatible with self-diagnostic option. (ex: HO SD)
4. Also available in black. Add "B" after ELA to order black finish. Example: ELA B Q L0309.
5. Only compatible with HO option. See spec sheet ELA-Q-LED.
6. See spec sheet ELA-WG.
7. See spec sheet ELA-Stemkits.
8. See spec sheet ERE.
9. Not available with SD. Only compatible with HO option.

LHQM LED QUANTUM® Exit/Unit Combo

SPECIFICATIONS

Electrical Primary Circuit				
	Typical LED life[1]	Supply voltage	Max amps	Max watts
Red and green LED	10 years	120	.05	4.3
		277	.03	4.3

BATTERY

Ni-Cad				
Voltage	Typical Shelf life[2]	Typical life[2]	Maintenance[3]	Temperature range[4]
9.6	3 years	7-9 years	none	50-104°F (10-40°C)

1 Based on continuous operation.

2 At 77°F (25°C).

3 All life safety equipment, including emergency lighting path of egress, must be maintained, serviced and tested in accordance with all National Fire Protection Association and local codes. Failure to perform the required maintenance, service or testing could jeopardize the safety of occupants and will void all warranties.

4 Optimum ambient temperature range where unit will provide capacity for 90 minutes. Higher and lower temperatures affect life and capacity.

5. Battery life is negatively impacted by many variables including temperature, charging rates, number of cycles and deep discharges due to long periods of time without AC power.

Remote Output Capacity			
Standard unit	Combo	Combo/high-output battery(HO)	Combo/high-output (HO) and no heads (RO)
NA	NA	3W	6W

Face
19-1/4 (48.9)
8 (20.3)
12 (30.5)
Test switch/ pilot light

Top
4-3/4 (11.1)
9 (22.9)
2-1/4 (5.7)

End
1/2" flexible conduit entry knockout
5-5/8 (14.3)

Backplate
Universal knockout pattern for various standard j-boxes
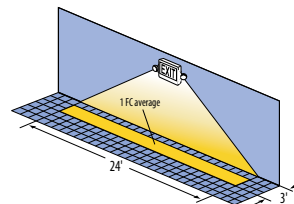8 (20.3)
4 (10.2)
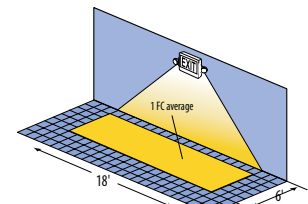6 (15.2)
12 (30.5)
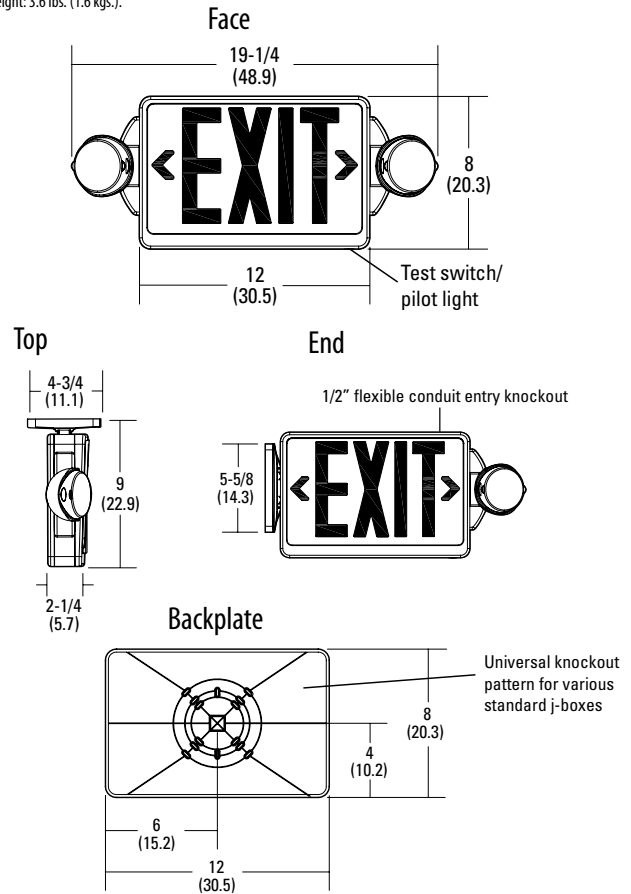
LAMP PHOTOMETRICS

QUANTUM LED SERIES – SINGLE COVERAGE
3W Total White LEDs
Using a single unit at a typical 7.5' mounting height delivers an average illuminance of 1.0 FC over a distance of 24' on a 3' path of egress and 18' on a 6' path of egress.

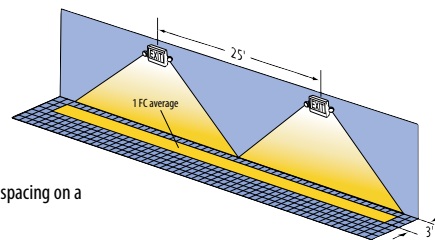Example of single LHQM LED exit illuminating a 3' path of egress

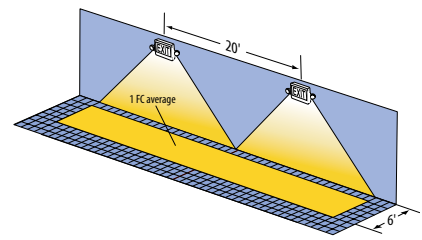Example of single LHQM LED exit illuminating a 6' path of egress

QUANTUM LED SERIES – MULTIPLE COVERAGE
3W Total White LEDs
Using multiple units at a typical 7.5' mounting height delivers 25' center-to-center spacing on a 3' path of egress and 20' center-to-center spacing on a 6' path of egress.
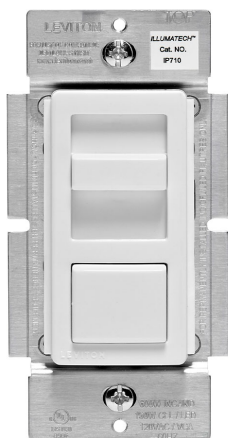
Example of multiple LHQM LED exits illuminating a 3' path of egress

Example of multiple LHQM LED exits illuminating a 6' path of egress

EXTENDED RUN-TIME FOR HIGH-OUTPUT EXITS

Product	Run time
LHQM LED HO (no remotes)	3.8 hours
LHQM LED HO RO (no remotes)	7.5 hours

IP710-LFZ

IllumaTech Slide Dimmer for LED 0-10V Power Supplies, 1200VA, 10A LED, 120/277 VAC

IllumaTech Slide Preset Electro-Mechanical 0-10V Slide Dimmer for use with LED or Fluorescent Ballasts and Power Supplies, suitable for use with Class 1 or Class 2 wiring, 1200VA @ 120VAC, 1500VA @ 277VAC, 10A LED/Electronic Ballast 120/277VAC, 60Hz, 28mAmps maximum sinking current, single pole or 3-way control when used with 3-way switch - White, Ivory & Light Almond

- INNOVATIVE – Designed for use with LED fixtures using 0-10V power supplies

- ADVANCED – No power pack required for switching

- EXCEPTIONAL – Superior quality and dimming performance

- FLEXIBLE – Can be used in a single-pole or 3-way installation (with a 3-way

  switch, sold separately)

UPC Code: 078477620496

Country Of Origin: Mexico

Technical Information

Product Features

Action: Standard ON/OFF

Available Color Kits: Ivry-I Wht-W Gry-G Blk-E Brwn-B Light Almond-T, R-Red

Color: White, Ivory, Light Almond

Color Change Kit: IPKIT Series

Frequency: 60 Hz

Light: None

Load Rating: 1200VA

Load Type: Electronic 0-10VDC Fluorescent and 0-10VDC LED Power Supply

NAFTA Compliant: Yes

Ordering Notes: Incl White, Ivory and Light Almond Color Kit

Preset: Preset

Protection: Radio/TV Filter

Standards and Certifications: cCSAus

Style Name: IllumaTech

Switch Type: Single-Pole & 3-Way

Type: Slide

Voltage: 120/277 VAC

Wallplate: Order Separately

Warranty: 5-Year Limited

SPECIFICATION SUBMITTAL

JOB NAME:	CATALOG NUMBERS:	
JOB NUMBER:		

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201 North Service Road, Melville, NY 11747
Telephone: +1-800-323-8920 · FAX: +1-800-832-9538 · Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): +1-800-824-3005

Leviton Manufacturing of Canada, Ltd.
165 Hymus Boulevard, Pointe Claire, Quebec H9R 1E9 · Telephone: +1-800-469-7890 · FAX: +1-800-824-3005 · www.leviton.com/canada

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Leviton has a global presence.
If you would like to know where your local Leviton office is located please go to:
www.leviton.com/international/contacts/

ISO 9001 REGISTERED
Quality Manufacturer