Rec 2/15/17

22

MTSU Clean Energy Initiative Project Funding Request

There are five (5) sections of the request to complete before submitting.

1.General Information	
Name of Person Submitting Request : RAY WILEY	
Department/Office Building Services	Phone # (Office) 898-5071
MTSU Box #	Phone # (Cell)
E-mail: RAY.WILEY@MTSU.EDU	Submittal Date: 02/14/17

2. Project Categories (Select One)			
Select the category that best describes the project.			
X	Energy Conservation/Efficiency		Sustainable Design
	Alternative Fuels		Other
	Renewable Energy		

3. Project Information
a. Please provide a brief descriptive title for the project. b. The project cost estimate is the expected cost of the project to be considered by the committee for approval, which may differ from the total project cost in the case of matching funding opportunities. Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission. c. List the source of project cost estimates.
3a. Project Title: STUDENT REC CENTER PHASE I – WEIGHT ROOM HIGH CEILING LIGHTING
3b. Project Cost Estimate: $12,220.00
3c. Source of Estimate: Equipment manufacturer and RSMeans estimating data.

4. Project Description

(Completed in as much detail as possible.)

a. The scope of the work to be accomplished is a detailed description of project activities.
b. The benefit statement describes the advantages of the project as relates to the selected project category.
c. The location of the project includes the name of the building, department, and/or specific location of where the project will be conducted on campus.
d. List any departments you anticipate to be involved. Were any departments consulted in preparation of this request? Who? A listing may be attached to this form when submitted.
e. Provide information for anticipated future operating and/or maintenance requirements occurring as a result of the proposed project.
f. Provide any additional comments or information that may be pertinent to approval of the project funding request.

4a. Scope: Work to be accomplished:

Replace (87) 4 lamp at 32watt each, existing fixtures with (87) 42watt Philips Lighting EVOKIT 2'X4'.

4b. Scope: Benefit Statement

The current fixtures utilize (4) 32 watt lamps totaling 128 watts per fixture (491.5kWh annually). The life span for T-8 lamps is on averag12000 hours or 2 years. The EVOKIT retrofit kit rates for 70000 hours.

4. Project Description (continued)

4c. Location of Project (Building, etc.)

Student Rec Center Weight Room

4d. Participants and Roles

Building Services personnel to purchase and install.

4e. Future Operating and/or Maintenance Requirement

It is the expectation Maintenance involvement will decrease from current requests. Anticipated life span is 6 years for fixtures.

4f. Additional Comments or Information Pertinent to the Proposed Project:

5. Project Performance Information

Provide information if applicable.

a. Provide information on estimated annual energy savings stated in units such as kW, kWh, Btu, gallons, etc.
b. Provide information on estimated annual energy cost savings in monetary terms.
c. Provide information on any annual operating or other cost savings in monetary terms. Be specific.
d. Provide information about any matching or supplementary funding opportunities that are available. Identify all sources and explain.

5a. Estimated Annual Energy Savings (Estimated in kW, kWh, Btu, etc.)

Estimated annual energy savings is 330.22 kWh

5b. Annual Energy COST Savings ($)

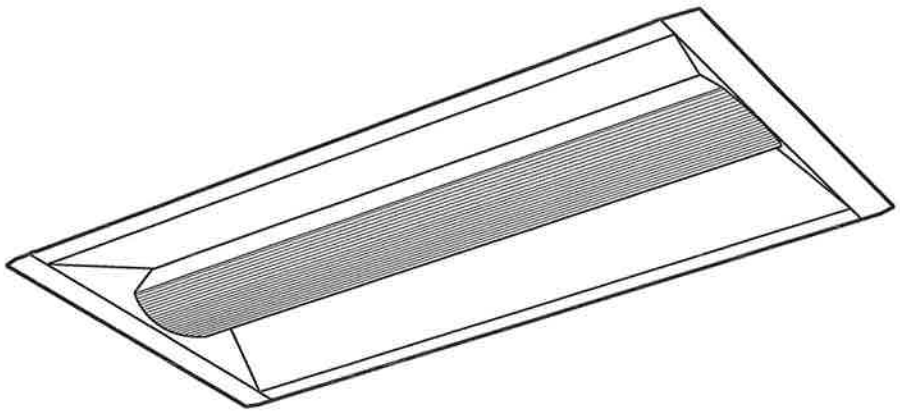
Annual energy cost savings is $2,873 for a ROI (Return on Investment) of 4.2 years.

5c. Annual Operating or Other Cost Savings. Specify. Additional operating costs are unknown at this time. Future requests may be made pending the results of study.

5d.Matching or Supplementary Funding (Identify and Explain).

Unknown.

The ideal LED replacement for linear fluorescent troffers.



PHILIPS EVOKIT 2'x4' LED RETROFIT KIT

Philips LED EvoKit is an energy efficient LED alternative to traditional linear fluorescent troffers. Not only does it offer energy savings**, it also helps reduce maintenance costs due to its long lifetime. Simple construction helps decrease the installation time meaning you can have an LED solution in your ceiling in just minutes.

Application

- A highly efficient, visually comfortable, architecturally styled LED retrofit kit designed to replace recessed linear fluorescent troffers.
- Unique modular design offers refreshing new look in the ceiling when compared to traditional fluorescent luminaires.
- Single light bar combined with slanted troffer helps reflect light to reduce glare and provide uniform light distribution making it ideal for applications such as offices, schools, healthcare and retail.
- Excellent color rendering with a CRI above 80.
- Extremely high efficacies up to 110 lumens per watt.
- LEDs are an excellent source for use with controls since dimming or frequent switching does not degrade the performance or life of the source.
- Designed for use with Standard Grid (NEMA "G") or Narrow Grid (NEMA "NFG") ceiling T-Grids.
- High efficiency source and luminaire design help significantly reduce energy consumption and more easily comply with known energy codes.
- Helps meet regulation requirements such as ASHRAE 90.1 and Title 24 when matched with suitable controls

* DLC requires the product to meet specific performance requirements regarding: lumen output, spacing criteria, lumens per watt, color temperature, CRI, lifetime and warranty.

** Please refer to the energy saving chart on page 3 for details.

PHILIPS

PHILIPS EVOKIT 2'x4' LED RETROFIT KIT

Construction/Finish

- Simple design allows for quick installation (under 4 minutes) in existing luminaire without the need to break the ceiling plenum.
- Constructed using galvanized steel which helps fight rust and makes for more durable product
- Minimum depth of only 3" necessary to allow proper clearance and installation of the EvoKit.
- Retrofit kit is powder coated after fabrication with high quality, durable finish to ensure no unfinished edges and avoid future potential of corrosion.
- Components fit together easily without the need for tools during installation

Electrical

- Multiple driver options available
  - 0-10V dimming satisfies universal voltage requirements
  - Mark10 leading edge dimming offers ability to dim without pulling neutral wires making it compatible with more existing systems
- 5 year limited warranty includes all components of the retrofit kit, including driver, LED board and non-electrical components***
- Listed with UL and Design Lights Consortium to ensure quality performance and safety standards are met
- High efficiency LEDs have a minimum 50,000 hour rated life (L70)

Enclosure

- Diffuser requires no frames or fasteners and can be easily removed from below without tools if needed

Accessories

- Earthquake cables available for extra securement within the ceiling for areas prone to extreme conditions
- Suitable for use with Bodine emergency backup BSL310
- Suitable for use with a wide range of control systems
- Appropriate for new construction when used with standard lensed or parabolic troffers

Ordering, Electrical and Technical Data (Subject to change without notice)

Product Number	Description	Watts	Volts	Lumen Maintenance (Hrs.)[1]	Approx. Lumens[2]	CRI	Color Temperature (K)
2'x4'							
929000714313	EvoKit 2x4 P 42L 39W 835 2 0-10 7 G2	39	120-277	70,000	4180	80	3500
929000714413	EvoKit 2x4 P 42L 39W 840 2 0-10 7 G2	39	120-277	70,000	4280	80	4000
929000714513	EvoKit 2x4 P 42L 40W 835 1 Mk10 7 G2	40	120	70,000	4180	80	3500
929000714613	EvoKit 2x4 P 42L 40W 840 1 Mk10 7 G2	40	120	70,000	4280	80	4000
929000714713	EvoKit 2x4 P 42L 42W 835 5 Mk10 7 G2	42	277	70,000	4180	80	3500
929000714813	EvoKit 2x4 P 42L 42W 840 5 Mk10 7 G2	42	277	70,000	4280	80	4000
2'x4' Additional SKU's*							
929000715913	EvoKit 2x4 P 36L 36W 835 2 0-10 7 G2	36	120-277	70,000	3600	80	3500
929000716013	EvoKit 2x4 P 36L 36W 840 2 0-10 7 G2	36	120-277	70,000	3680	80	4000
929000716113	EvoKit 2x4 P 36L 34W 835 1 Mk10 7 G2	34	120	70,000	3600	80	3500
929000716213	EvoKit 2x4 P 36L 34W 840 1 Mk10 7 G2	34	120	70,000	3680	80	4000
929000716313	EvoKit 2x4 P 36L 33W 835 5 Mk10 7 G2	33	277	70,000	3600	80	3500
929000716413	EvoKit 2x4 P 36L 33W 840 5 Mk10 7 G2	33	277	70,000	3680	80	4000
929000715313	EvoKit 2x4 P 52L 51W 835 2 0-10 5 G2	51	120-277	50,000	5300	80	3500
929000715413	EvoKit 2x4 P 52L 51W 840 2 0-10 5 G2	51	120-277	50,000	5400	80	4000
929000715513	EvoKit 2x4 P 52L 52W 835 1 Mk10 5 G2	52	120	50,000	5300	80	3500
929000715613	EvoKit 2x4 P 52L 52W 840 1 Mk10 5 G2	52	120	50,000	5400	80	4000
929000715713	EvoKit 2x4 P 52L 53W 835 5 Mk10 5 G2	53	277	50,000	5300	80	3500
929000715813	EvoKit 2x4 P 52L 53W 840 5 Mk10 5 G2	53	277	50,000	5400	80	4000

1) L70 50,000 and 70,000 hours @ 25°C based on TM21 and LM80.

2) Based on photometric testing consistent with IES LM-79.

* Special ordering requirements associated with these products. Please consult sales for more information.

***Please visit www.philips.com/warranties for full details

Accessories

Product Number	Description
929000719113	EVOKIT ACCESSORY EARTHQUAKE CABLE 317MM

PHILIPS EVOKIT 2'x4' LED RETROFIT KIT

2'x4' EVOKIT P 42L 39W 840 1 Mk-10 7 G2, 4200 delivered lumens

Catalog No.	929000714613
Test No.	2655949-04
S/MH	1.18 - 1.22
Lamp Type	LED
Lumens/Lamp	4377
Input Watts	39.1

Comparative yearly lighting energy cost per 1000 lumens - $2.14 based on 3000 hours and $0.08/kWh

The photometric results were obtained in the Design Lights Consortium Test Lab which is NVLAP accredited by the National Institute of Standards and Technology

Photometric values based on tests performed in compliance with LM-79

Candlepower

Angle	End	45	Cross
0	1571	1571	1571
5	1566	1568	1563
10	1536	1539	1537
15	1487	1492	1493
20	1420	1429	1432
25	1335	1350	1358
30	1238	1258	1269
35	1129	1156	1172
40	1015	1046	1072
45	893	934	968
50	772	824	871
55	650	717	779
60	536	619	691
65	424	526	605
70	320	435	508
75	222	338	396
80	134	233	259
85	57	112	120
90	0		

Coefficients of Utilization
EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)

pcc	80			70			50	
pw	70	50	30	70	50	30	50	30
RCR								
0	119	119	119	116	116	116	111	111
1	108	103	99	105	101	97	97	93
2	98	90	83	96	88	81	84	79
3	89	79	70	87	77	69	74	67
4	82	70	61	80	68	60	66	59
5	75	62	53	73	61	53	59	52
6	70	56	47	68	55	47	53	46
7	65	51	42	63	50	42	49	41
8	60	47	38	59	46	38	45	37
9	56	43	35	55	42	34	41	34
10	53	40	32	52	39	31	38	31

Light Distribution

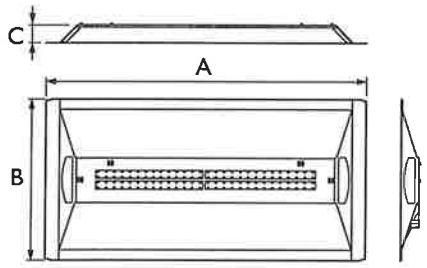
Degrees	Lumens	% Luminaire
0-30	1189	27.8
0-40	1912	44.7
0-60	3280	76.8
0-90	4273	100

Average Luminance

Angle	End	45°	Cross
45	2351	2267	2161
55	2340	2147	1939
65	2484	2158	1716
75	2759	2321	1469
85	2901	2607	1127

Dimensions

A Face Plate Length	B Face Plate Width	C Height
47.83"	23.9"	2.95"



Energy Saving Solution – 2'x4'

Present Wattage		85 W
x Annual Operating Hours		4,380 hrs
	=	372,300 watt-hours
÷1,000	=	372.3 kWh per year
x kWh rate of $0. 11	=	$40.95 per year
x 125 fixtures	=	$5,119.13 annual energy cost per space

Present Wattage		39 W
x Annual Operating Hours		4,380 hrs
	=	170,820 watt-hours
÷1,000	=	170.82 kWh per year
x kWh rate of $0. 11	=	$18.79 per year
x 500 fixtures	=	$2,348.78 annual energy cost per space

Total Estimated Annual Savings◊ = $2,770.35

◊ Based on 125 fixtures per space operating 4,380 hours a year. 125 fixtures is roughly equivalent to a 10,000 square foot space. kWh rates will vary.

09/13

www.philips.com/evokit

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