



**COST ANALYSIS OF LED FIXTURES VERSUS T8 FLUROESCENT FIXTURES**

**LIFE CYCLE COSTS FOR LED LIGHTING  
as compared to T8 Lights**

8/23/16

To calculate the life cycle costs of the LED Fluxwerx 2' X 4' fixture versus a 2' x 4' fluorescent fixture we are analyzing the costs of lighting for a standard classroom (20 lights) with the KW cost of 12.5 cents/KW.

#	Item	Description	LED	Total LED Costs	Description	T8 Fluorescent	Total Fluorescent costs
	<b>Initial Cost</b>						
A	\$/ Unit	Fixture cost with tax and shipping	\$757.55		Fixture cost with 4 - T8's in each	\$71.40	
B	\$ for 20 lights in one classroom		\$15,151.00		\$ for 30 fixtures per room	\$2,142.00	
C	\$ to Install lights		\$4,995.00			\$7,500.00	
D	\$ Controls		\$2,500.00			\$1,000.00	
E	\$ Installation controls		\$4,000.00			\$0.00	
F	<b>Initial Cost to install 1 classroom</b>		<b>\$26,646.00</b>	<b>\$26,646.00</b>		<b>\$10,642.00</b>	<b>\$10,642.00</b>
	<b>Replacement Costs for Lamps</b>						
G	Rated Life (hours til Lumens drop to 70% of original output)	Fluxwerx	200,000		Lithonia	20,000	
H	Replacement time assumptions						
I	Hours/ day of use		12			12	
J	No. of days / year		211			211	
K	Hours of use / year	I / J = K	2,532			2,532	
L	Rated hours/ hours of use / year = years	200,000 / 2532= yrs. (G/K = L)	<b>79</b>	Years		<b>8</b>	Years
	<b>Replacement Costs per Room</b>						
M	Manhours to change lamps		1			1	
N	Hourly rate electrician		\$85			\$85	
O	Cost to replace 20 lamps	No replacement cost in 79 years	\$0		Replacing 30 fixtures	\$2,550	
P	Cost to replace 20 lights with 4 lamps each over 79 years =		<b>\$0</b>	<b>\$0</b>		<b>\$22,950</b>	Replace lamps 9 times in 8 years <b>\$22,950</b>
	<b>Power Usage per Classroom</b>						
Q	Watts consumed for 1 lights	for 1 light fixture	38		32 watts x 4 lamps = 1 light	128	

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#	Item	Description	LED	Total LED Costs	Description	T8 Fluorescent	Total Fluorescent costs	
R	Watts / 12 hr day	38 W X 12 H /day x 20 fixtures	9,120	W per class	32 W x 12 H/day x 30 fixtures	46,080		
S	1 KW / # KW /days	9,120/1000	9.1	No. of KW per day for the class		46.08	No. KW per day for the class	
T	No. school days / year		211			211		
U	KiloWatts / school year consumed	S x T = U 1,924 x 211	1,924	KW/year per classroom	S x T = U 9,723 x 211	9,723		
V	Rate per KW = \$.125		\$0.125			\$0.125		
W	Electrical useage cost per room for 20 fixtures per year	O watts x P rate = \$ energy cost per year per classroom	\$241		O watts x P rate = \$ energy cost per year per classroom	\$1,215		
X	<b>Total cost for 79 years</b>		<b>\$19,003</b>	<b>\$19,003</b>		<b>\$96,013</b>	<b>\$96,013</b>	
<b>Lamp Replacement</b>								
Y	Cost of lamp replacement		0		\$3.00 ea x 4 lamps / fixture x 30 fixtures per class	\$360		
Z	Replacement life		79 years			8 years		
AA	Total cost to replace lamps in 79 years		<b>\$0.00</b>	<b>\$0.00</b>		<b>\$25,920</b>	<b>\$25,920</b>	
BB	<b>Total life cycle cost</b>			<b>\$45,648.66</b>			<b>\$155,525.44</b>	
CC	<b>CONCLUSION:</b>	<b>T8 light fixtures will cost this much more than LED's for one classroom over 79 years</b>			<b>3.4</b>	This equals 340% more		