

**Initial Review of Lighting Performance Produced by the Recent LED Lighting Retrofit Project:**

Prior to executing the 3000 tube LED Lighting Retrofit Project a series of light level measurements were taken while the original fluorescent lamps were still installed. These same measurement locations were then used to collect data showing the light levels after the retrofit with LED system. As shown in the table below, the LED tubes deliver a significant increase in light to the work areas. In some instances we were even able to de-lamp fixtures, replacing only 1 tube for every two previously installed and still achieved essentially the same light levels while cutting power to those fixtures by more than  $(2*(34+2)-18)= 54$  watts/fixture. We will be monitoring the electrical consumption closely over the coming year to track the actual effect on KwHrs consumed by the facility after this energy saving retrofit.

With the original fluorescent tubes each lamp used 34 watts plus what the ballast used (~ 2 watts conservatively estimated) plus the effect of the heat load added to the building envelope produced by both. With the LED system they use 18 watts each require no ballast and very little heat is produced by each lamp. Therefore the heat load will be much lower and will reduce the energy consumption by the A/C during the cooling periods. Accordingly, the electrical power savings represented include the ~ 50% direct reduction in power/lamp  $(34+2-18 \text{ watts}) = 18$  watts saved per lamp, as well as the collateral reduction in the heat load imposed on the HVAC system when the cooling is active. A rough estimate based on a 12 hour/day on-time for all the lamps replaced is an annual savings of 236,520 KwHrs/yr  $((18*3000*12*365)/1000)$

**Lux Measurement Data, Before and After RedBird LED Cardinal™ Tube Light Retrofit, University of Florida, Jacksonville, Faculty Medical Clinic, 3000-4' tubes replaced.**

<b>Room</b>	<b>Lux with T-12 Fluorescent</b>	<b>Lux with LED</b>	<b>Percent Change</b>
3 <sup>rd</sup> floor clinic waiting	130	219	68% increase
Int. Med. Exam room	669	813	22% Increase
Back hall Int. Med. Clinic	130	355	170% Increase
Surgery Office	490	617	26% Increase
4 <sup>th</sup> floor office	(2-lamp) 379	(1 lamp) 314	16% decrease (1/2 lamps installed)
4 <sup>th</sup> floor BG by R/R's	(2-lamp) 394	(1-lamp) 413	5% increase (1/2 lamps installed)
4 <sup>th</sup> BG Mechanical Room	327	669	105% Increase
4 <sup>th</sup> floor break room	251	790	215% Increase
4 <sup>th</sup> floor mail distribution	254	421	66% Increase

# Lux

From Wikipedia, the free encyclopedia



A lux meter for measuring illuminance in work places.

The **lux** (symbol: **lx**) is the [SI](#) unit of [illuminance](#) and [luminous emittance](#), measuring [luminous flux](#) per unit area. It is equal to one lumen per square metre. In [photometry](#), this is used as a measure of the intensity, as perceived by the human eye, of [light](#) that hits or passes through a surface. It is analogous to the [radiometric](#) unit watts per square metre, but with the power at each [wavelength](#) weighted according to the [luminosity function](#), a standardized model of [human](#) visual brightness perception. In English, "lux" is used in both singular and plural.