

How does LED Lighting affect HVAC

LED lighting has begun moving into the residential industry with claims of longevity and efficiency savings. The best part is it doesn't have to warm up like those florescent ones. Because it is so new, I hesitantly replaced (4) 60 bulbs in my living room recessed lights to LED. I contacted Barry Triche, our Electrical Manager, and asked him to make a recommendation on what I should use. The initial price tag, I have to admit, was a little daunting, but being a believer in the theory, I forked out the roughly \$35 per bulb. I replaced the bulbs, and my wife and I were very surprised on how much light the new LEDs provided.

The opportunity to attend a session on lighting followed soon after, and I learned that the bulbs I removed were 60 watt, which is something I was pretty familiar with. The replacement bulbs recommended, are 13 watt, which sounds to me like something I should have in a flashlight. But once again, the replacement lights provided more light than the original 60 watt bulbs.

Now on to the correlation... During the class the instructor referenced the Return On Investment and suggested that the ROI is about 2.5 years which I thought was OK by itself given the life of the bulb is about 50 years...(Guess I won't have to ever change those again.) I thought about that for a minute and figured that ROI was based strictly on electrical usage of the light, and not the HVAC costs needed to cool the home. That's when my HVAC instructor mind kicked in.

The Math:

1 watt of energy is equal to about 3.413 BTUs.

1 BTU is equal to about one large kitchen match of heat.



Going from:

(4) 60 watt bulbs, 240 watts total

To

(4) 13 watt bulbs, 52 watts total

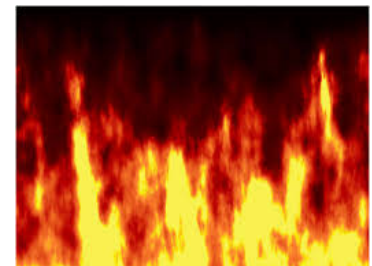
Saved me 188 watts per hour

Therefore...188 watts X 3.413 BTU = 642 BTUs per hour

OR

642 Kitchen matches worth of heat that does not have to be removed by my HVAC unit, every hour that the lights are on...

642 kitchen matches every hour!!!! That's a lot of heat!



Let the ROI Begin!!!!