

CREATING LIFE ENHANCING ENVIRONMENTS FOR YOUR HOME



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Lighten up
Illuminating your options in energy efficient lighting.

CONSCIOUS SPACES

Lighting – it truly does make or break a good design. Unfortunately, it's often the last item to be considered on a project when there is generally little left in the budget for a smart lighting plan. It seems for every well illuminated environment, there is a poorly illuminated one. It's bad enough when the lighting levels are too high, too low, or cause distracting glare and reflections; but when the color of the lighting is off, the lamps flicker, and the fixtures give off an annoying buzz, it's no longer just a design issue but a health issue. I've had to leave stores mid-shopping trip due to the unnerving effects of old fluorescent lighting.

Thankfully, lighting has come a long way, but that doesn't mean designers and homeowners are selecting the correct fixtures. Lighting is complicated; it's technical. To truly understand the effects of lighting and how to properly illuminate a room, one has to understand watts, lumens, foot-candles, voltage, photometrics, Kelvin temps, and color rendering indices, just for starters. Then there are diffusers, luminaries, dimmers, photocells, and ballasts to understand. Even after all that, you'll probably still have to ask a lighting expert a ton of questions, conduct your own experiments, make site visits to lighting labs, ask more questions, and then study some more. Lighting is a combination of physics, chemistry, math, geometry, art and design.

I'm indebted to a lighting guru who took me under his wing shortly after I graduated when I was faced with my first lighting project. I told my client I could reduce his lighting expenses and improve his retail sales in his chain of 12 stores with a new lighting system. I wasn't sure what I was going to recommend at the time; I just knew anything would be better than what he currently had illuminating his stores. After weeks of intensive research and time in lighting labs, I was prepared to show him the post-retrofit calculations that would affect his bottom line. He was impressed and ended up reconfiguring the lighting in all his stores. It made a significant difference. After that, I was convinced more than ever of the benefits of good lighting.

That was close to 20 years ago, and lighting continues to improve and impress me. However, it hasn't gotten much easier to understand or much easier to teach to others.

The following is a quick checklist and review of things to think about when choosing lighting:

1. Define the tasks to be conducted in the room.

2. Determine the type of light the tasks require:

Natural light

Artificial light

• Incandescent:

- energy consumptive but healthy and pleasing to the eye
- approx. 10 percent of energy goes to light output; the rest goes to heat output
- light can be directed
- runs off 120 volt
- generally last 2-3,000 hours

• Fluorescent

- energy efficient
- can pose health issues via flickering and ultraviolet radiation
- color rendering isn't great, however, it is improving
- the light is flat and cannot be directed
- most bulbs contain small amounts of mercury and need proper disposal
- runs off 120 volt generally lasts 10-12,000 hours

• Metal halide (high intensity discharge HID)

- energy efficient
- good color rendering
- light can be directed
- runs off 12 volt so fixtures need transformers if used with 120 volt system
- generally last 15-20,000 hours

3. Determine the color rendering index; the higher the number (e.g., 90) the truer the colors appear under that light.
4. Determine the temperature of the light - the higher the number the cooler the light. Daylight = 6,200 Kelvin degrees; 3,500 is a comfortable "visual" temperature; most incandescents are in the 3,000 range and fluorescents in the 4,000 range.
5. Determine wattage (amount of power required to operate lamps at full capacity), lumen (brightness) output, and foot-candles (amount of light that falls on a given surface).

A few more rules of thumb

When specifying lighting for a large room, mix light sources to avoid visual monotony. Our eyes look for, and are attracted to, contrast.

Purchase full spectrum bulbs. They emit

Lyn Falk is a registered interior designer and president and founder of Solterra Studios. For information on many of the resources mentioned here, visit the Library of Sustainability at the Urban Ecology Center (www.urbanecologycenter.org). To reach Lyn call 262.238.1860 ext 103, or email her at lfalk@solterrastudios.com