Universal Design: Lighting Improvements

by Konrad Kaletsch • May 15, 2009©

"Let nothing come between you and the light." —Henry David Thoreau

INTRODUCTION:

We are all familiar with the grandparent who upon seeing a child reading promptly increases the light. Typically, the child reacts to this meddlesome grandparent with a complaint. The caring elder explains that insufficient light when reading is hard on the eyes. These two sets of eyes, separated by 50-70 years, see very differently. For the child whose eye sensitivity is strong, there was indeed ample light. For the grandparent whose sensitivity to light has naturally diminished, the light was inadequate. Universal design creates workable lighting conditions, which not only satisfy young and old eyes alike, but also establish healthy lighting conditions for emotional health and regular sleeping patterns.

LIGHTING IMPROVEMENTS & CONSIDERATIONS:

Create opportunities to have and experience natural light. Take excursions outdoors, install seating near windows and outdoors, install large windows with lower the window sills making it easier to see outside from a seated position, and put in skylights. Get a daily dose of sun. Hiding in a room with artificial light is a welcome mat for depression.

Maximize the use of natural light for energy efficiency and mental health. Position activity areas near windows such as breakfast nooks or reading chairs. Make use of shades to control bright, hot sunlight; use well-designed heating systems to keep these areas from being drafty and cold in winter.

Match the tone of your lighting to the time of day you're using it. Fluorescent fixtures are known for their eerie blue color. Choose a warm white color tone when you want the color to be similar to the warm yellow tones of incandescent lights that are suitable for evening lighting. Choose daylight color tone for daytime settings where bright light is needed. This variety of color tone has circadian benefits that improve sleeping patterns.

Glare. As we age, our receptivity to light changes. Less light gets "in" and what does is sometimes worsened by other degenerative conditions. Harsh light sources can appear like driving into the sun with a dirty windshield. The excess of light rather than a lack of it becomes equally disorientating and dangerous. Use shades for windows facing the west. Choose non-reflective table and floor surfaces, especially when using down-lights or directional lighting.

Suit the "volume" of light you are getting to what you are doing. Provide an abundance of light for work, safety and cleanliness without it becoming overwhelming or disturbing,

and lower light adjustments or sources for relaxed social settings. The combination of high output fixtures with a dimmer switch means easy control over the volume of light needed.

Favor full-spectrum bulbs over traditional bulbs. Traditional bulbs provide less color differentiation making objects appear more monotone; full-spectrum bulbs maintain the richness of color.

Use compact fluorescent bulbs in fixtures, especially those that are hard to reach. Their longer lifespan reduces the frequency of the need for replacement by as little as four times and as much as twenty times the lifespan of incandescent bulbs. Dimmable compact florescent fixtures are now available.

Consider halogen bulbs. Like fluorescent bulbs, halogens bulbs have longer life spans than traditional light bulbs and in some cases they are preferred for their ability to "throw" light (be mindful of glare).

Avoid bare bulbs. Use lampshades and other translucent filters to soften the light. If needed use shields to block possible glare. When using variable lighting to enhance the design of a room, avoid extreme contrasts, as they are disorienting, and create smooth lighting transitions.

Distribute light more evenly. Your foundation for lighting is the even distribution of light upon which you create accents. Use bright colored walls and bounced light to achieve this.

Illuminate stairs with additional lighting placed close to the stairs. Use "auto-on" sensors or install three-way switches at the top and bottom of stairs. Ideally place low-wattage systems close to the steps themselves.

Use luminous wall switches. They are easier to locate in low light.

Use large rocker or touch-sensitive switches. They are easier to operate than the traditional toggle switch. Every room and passage way should have at least one light operated by a wall switch placed near the entrance. Fumbling in a dark room trying to find a light switch is a recipe for an accident, even if it's just a stubbed toe.

Use automated lighting systems. Programmable systems automate your lighting needs from the popular and inexpensive X10 systems found in most electronic stores to professionally installed preset control systems. You can also add a clapper switch, motion sensor, occupancy sensors, remote device switch, day/night switches, timers, hand-held remotes and security sensors. Automated lighting is particularly handy in hallways, stairwells and walk-in closets.

Choose fixtures that have more than one bulb. This way you will still have light if one bulb is burned out. Two or more bulbs also provide more light.

Use the maximum wattage allowed by a fixture. Typically you can find a maximum wattage sticker placed near the socket or base (when purchasing a light fixture, max wattage is stated on the packaging). This rating provides information about the maximum wattage and explains how to prevent hazardous conditions caused by using the wrong light bulb. Never use a higher wattage than specified!

Place supplemental lighting in dark areas. These include closets, cabinets, stairwells, hallways, bathrooms, basements, attics, garages, utility rooms, crawl spaces, entrance areas, and exterior pathways. Supplemental lighting is essential not only for safety but also personal hygiene; too little light and you can't see build up of dirt and grime especially critical in food preparation.

Place supplemental task lighting near work surfaces. Use desk lights and under cabinet lighting for work benches, desks and kitchen counters.

Add nightlights for dark rooms, hallways, and other areas of activity. This low-cost addition adds great safety to late night trips to the bathroom or kitchen.

Illuminate property close to your house. This makes it easier to see outside; place switching in several indoor locations. Consider motion sensors if they won't become a nuisance when triggered too frequently by animals or traffic.

Have flashlights nearby and ready for use. Put flashlights in nightstands, glove compartments, kitchen drawers and near exits. Find a mini LED pocket model to take to restaurants.

Desk & computer. Have overall medium ambient lighting and "throw" additional task lighting onto the desk surface. This puts added light on your keyboard and papers while keeping your computer monitor free of glare.

Emergency lighting systems. Have smoke and fire detectors which provide continuous light once triggered; this facilitates becoming quickly orientated in an emergency and exiting to safety.

Indicator lighting. This is a redundancy feature, meaning, it provides a second or third indication of an existing condition such as a ringing phone or hot stovetop.
Illuminated readouts. Non-illuminated readouts (text displays) tend to be low contrast and hard to read; favor illuminated readouts.

CONCLUSION

Thomas Edison said, "I have not failed. I've just found 10,000 ways that won't work." Apply these lighting tips and continue to improve them; if one solution doesn't work, try another. Universal design is more like an evolving dialogue that a solution. Use lighting to provide security, safety and well-being. Lighting, however, is more than these practical

considerations, it's emotive. We know the difference between the glow of a camp fire and the harshness of a florescent fixture. Work with your lighting, not just to have sufficient light, but to achieve a desired experience. Lighting offers you creative expression as much as choosing paint color or furnishings.

About Konrad Kaletsch, CAPS

Konrad Kaletsch is a writer and consumer advocate for universal design. His forthcoming book and website provide both useful information, and more importantly, an understanding as to why this new building paradigm matters. For additional information, go to Universal Design Resource at http://www.universaldesignresource.com/. For professional networking, please join the universal design Network on Linkedin, http://www.linkedin.com/groups?home=&gid=1291067&trk=anet_ug_hm.