

## The Ergonomics of Light

### Advancements in Lighting Can Impact Your Bottom Line

Vision has become the most neglected of all our senses in the workplace, as use of the latest lighting technology and information has lagged behind computers, printers, and telecommunication devices. Overhead fixtures cast the required 50 foot-candles for worksurfaces everywhere – even in hallways. But, with a little reflection over time (much of it coming off computer screens), workers have realized that poor lighting (including the ubiquitous overheads) is causing them eyestrain, headaches, and fatigue.

The ergonomics of lighting – the relationship between the light source and the individual – clearly has a significant effect on productivity. Studies at Troy, NY-based Rensselaer Polytechnic Institute's Lighting Research Center suggest that:

- Task visibility is the primary aspect of lighting that affects performance.
- Workers use individual lighting controls if they're available, saving energy.
- Workers find that the ability to adjust lighting themselves makes tasks seem less difficult.

There are ready answers to worker computer vision syndrome (CVS), which OSHA says affects up to 90 percent of today's workforce. The newest task lights, combining elegant design with the latest electronic technology, are cool to the touch, can be effortlessly repositioned, and are as good for the environment as they are for the eyes. For a fairly low price (less than \$400 list), these newer task lights provide both high-quality light with individual control, and enable workers to direct light away from their eyes and reflective surfaces to avoid glare.

Energy savings can also be considerable. Lighting accounts for about 20 to 25 percent of all electricity consumed in the United States, and up to 30 percent of a business' energy costs. Sadly, experts estimate that over 50 percent of the energy used for lighting is wasted by obsolete equipment, inadequate maintenance, or inefficient use. Additional waste is created by the careless use of excessive or task-inappropriate lighting fixtures.

A well-designed task light will cast the right amount of glare-free light on a worksurface, will be easy to reposition for different tasks, and will potentially save the significant energy costs of omnipresent overhead fixtures.

When selecting a task light, consider the lamp's light quality, glare, and color rendering. Incandescent lamps cost little and are readily available. But since they must be changed more frequently than fluorescents and consume more energy, they're more expensive to operate. They also give off considerable heat, which increases the amount of energy required to



### Points to Remember

According to OSHA, some studies estimate that 90 percent of the 70 million U.S. workers using computers for more than three hours per day experience computer vision syndrome (CVS) in some form. A good task light can improve worker comfort, productivity, and morale.

New compact fluorescents with electronic ballasts provide a cool light source with reduced energy usage and long-term savings. Cool lighting should be used for visual tasks because it produces higher contrast.

maintain a comfortable environment. The high temperature of incandescents may also make it difficult or dangerous for users to reposition their fixtures as needed.

Fluorescent lamps last about 10-times longer, and recent developments have overcome their notorious poor color rendering and ballast noise. Compact fluorescent lamps (CFLs) can replace incandescents that are roughly three to four times their wattage (a 75- to 80-percent savings in energy usage), and their higher cost is offset by their long lifespan. Ballasts are now available in both modular and integrated designs for greater flexibility. And, new electronic ballasts are compatible with dimmers, a capability not available with the older magnetic ballasts.

The intelligent use of task lighting reduces energy costs, increases productivity, enhances interior design through accurate color rendition, and promotes employee safety and morale.

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