advanced energy design guide.

by Michael Lane LC

A joint committee of the AIA / IESNA / ASHRAE / US DOE / New Buildings Institute has produced a user-friendly guide to high-efficiency design of small office buildings (<20,000 ft^2). The *Advanced Energy Design Guide for Small Offices* demonstrates how to design new office buildings that are at least 30% more efficient than allowed by ASHRAE Standard 90.1-1999. This type of building is one of the most commonly found structures in the country, and was therefore targeted for this first design guide.

Published by ASHRAE and the American Institute of Architects, the AEDG provides a hands-on manual for increasing the efficiency of each segment of a building's energy use. The areas addressed include: building envelope; interior lighting (and daylighting); HVAC equipment and systems; service water heating; exterior façade and parking lot lighting; and plug loads.

The main goals for producing the AEDG were clarity, concise, clear and simple use of language. Care was taken to keep it from being filled with detailed technical jargon. The AEDG covers: setting energy goals and strategies for your climate zone; "how-to's" for implementation; and quality assurance practices. The lighting and daylighting section provides details on both electric lighting technology and details on vertical windows and skylights.

The AEDG provides conceptual assistance to understand where the greatest savings potential lies for your type of building in your climate zone. The guide helps identify what member of the design team would be responsible for the design improvements. The AEDG also helps designate where in the design process each efficiency improvement would best take place.

The Advanced Energy Design Guide for Small Offices is intended to be a concise — around 50 pages — cookbook for creating recipes for more energy efficient and comfortable buildings. While not intended to replace or supersede other programs, such as LEED™, it can play a role in lowering the energy consumption by those programs. In areas of the country that still have Utility incentives for energy efficiency, a 30% reduction below ASHRAE 90.1 would be an excellent way to approach qualifying a new building.

Information on ordering copies of the new guide is not yet available at press time. Check back on our home page for links and details when they become available.

(Editor's note: Michael Lane, LDL's senior lighting specialist, is on the ASHRAE 90.1 lighting subcommittee and served on the AEDG group to develop the lighting section of the new guide.)

enhanced vision T12—T8.

by Diana Grant

I would like to make the case that improving the lighting in our work environments is like getting new eyeglasses.

A recent document identifies tremendous potential for improving the quality of lighting throughout the Northwest. The report is the Assessment of the Commercial Building Stock in the Pacific Northwest (March 2004, Kema-Xenergy) funded by the Northwest Energy Efficiency Alliance (our sponsors). They surveyed different commercial building types, such as groceries, hospitals, schools and offices. Remarkably, they found that a third (31%) of these buildings are still using T12 lamps and magnetic ballasts.

How would it look to have a grey-green or grey-yellow filter over your glasses? That is what happens to color perception with the old T12 lamps. They also flicker and buzz because of the magnetic ballast frequency. Some people are sensitive to this flicker and can get headaches and eye fatigue when working under these lights.

How much would you pay for less eye fatigue, fewer headaches and enhanced color vision—does $20.00 seem like a deal? The typical cost for changing 2-T12 lamps with magnetic ballast to 2-T8 lamps and electronic ballast is about $20 for materials.

The T8 lighting system produces better color rendering and no flicker because it operates at a much higher speed using electronics. This results in fewer headaches and eye fatigue and no buzz.

This simple strategy produces the same amount of light as T12's but uses 30% less energy. For over a decade, many regional utilities have paid customers a portion of the cost to install T8 lamps with electronic ballasts. The utilities get the energy savings and the customers get lower operating costs and improved lighting quality for the employees and customers.

Check out your lighting and call your local utility to see if they have a retrofit program that will pay you to go to T8 lamps with electronic ballasts. Even if they don't, for working environments where we are dealing with people (skin tones) or retail sales of products where color vision is important, $20 per fixture is a small price to pay for the benefits received. Hopefully, by the next Regional Conservation Assessment report, the percentage of T12 lamps in our region will be zero.

The Lighting Design Lab website has links to many regional utilities for program information. Also, Please, recycle your old lamps! Our website also has resources to do that, too.