

Wasco Products offers custom skylights for residential applications.



There's nothing like sitting in a windowless room during a nice sunny summer day to make you really understand the appeal of a skylight. Whether in your office or at home, natural light is a welcome alternative to harsh electric bulbs. Studies on daylighting (see sidebar) have also shown that there is factual evidence promoting the benefits of natural light, including higher produc-

tivity levels and improved mood.

Consumers have recognized these benefits, as well. Ann Esposito, director of sales for Sun-Tek Skylights, said, "As always, the primary motivator is to bring natural light into the home. Additionally, homeowners are becoming more aware of the health benefits of natural light, i.e., Seasonal Affective Disorder (SAD)."

BY MORGAN O'ROURKE

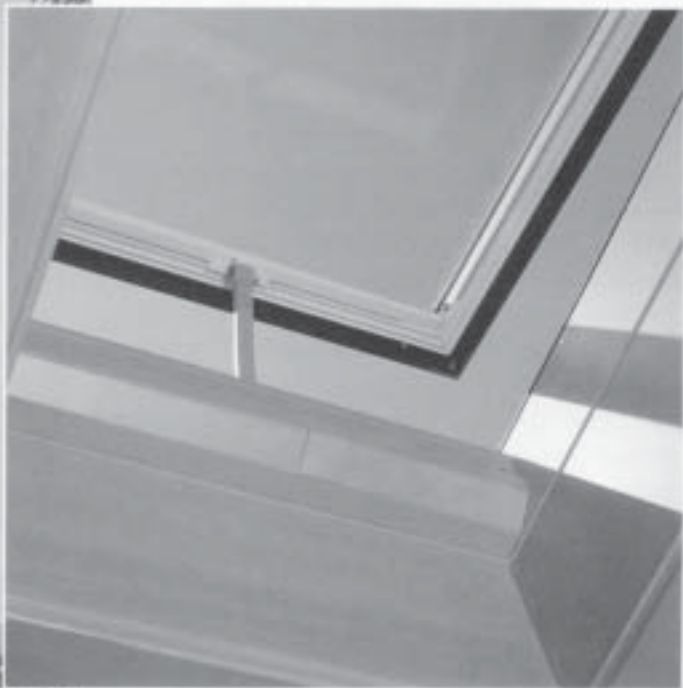
# Skylights

# Increased





Sun-Tek's tubular skylights offer quick and easy installation.



Pella's skylights are designed with more glass and venting units that open wider.

se Their Appeal



When the knowledge of the health benefits of natural light is combined with the design appeal of skylights, you have the potential for an extremely popular product. Ken Moody, director of discovery and development at VELUX, remarked, "Trends in housing today point to open and spacious feeling rooms. Skylights provide this feeling

because of the view to the sky and the natural light they bring in. Also, homes are larger and closer together with smaller lots and narrow lot lines. Vertical windows can sometimes create views between neighbors that prefer to be private. Skylighting the interior of the home can be the answer here." He pointed out that in some larger rooms, the only way to dis-

perse natural light throughout the room would have to be with a skylight.

The major focus for most consumers is increasing natural light. Esposito commented, "Skylights add dramatic design flair to the home. The desire for more light has made skylights a popular addition to remodeling projects, especially in

# The Commercial Appeal Of Daylight

BY NEALL DIGERT

Using daylight to illuminate commercial interiors is far from a new concept. Until the Industrial Revolution, daylight was the primary light source for buildings. With the advent of electric lights in the 20th century, however, less emphasis was placed on natural light as a primary source of illumination. Windows became smaller and were sometimes eliminated completely. Energy-saving florescent lighting became commonplace and workers soon found themselves spending as much as 90 percent of their time away from natural light.

As a result, workers have experienced everything from eyestrain and lack of energy to Seasonal Affective Disorder and Sick Building Syndrome. Until recently, the benefits of natural light were based largely on anecdotal evidence, but research studies conducted in the last couple of years now offer hard data that building owners cannot ignore. Daylighting not only makes commercial buildings more attractive to workers and customers, but also affects the companies' bottom lines through improved worker productivity, higher sales and reduced energy costs.

While the benefits of daylight are only recently gaining widespread acknowledgment and respect in the U.S., the correlation between natural light and employee health has long been established in Europe. Construction codes in many European nations dictate the maximum distance a worker can be from a natural light source, such as a window or skylight, and windowless offices are never permitted. Daylight is not considered to be a luxury for top-level executives with the coveted corner offices, but a basic human requirement for all workers.

This level of commitment to natural lighting has not yet been realized in the U.S., but more and more businesses are sharing their experiences with smart daylighting strategies. The result is a growing body of evidence that daylighting can help businesses retain employees longer, provide a healthier and happier workplace, and stay more



Solatube tubular skylights provide this warehouse with a daylighting solution.

competitive through higher productivity and lower operating costs. Natural lighting and energy efficient building design are also added bonuses for building owners looking to increase the value and marketability of an investment property.



older homes."

Bill Hodge, marketing manager at ODL, mentioned another benefit of skylights that consumers are realizing. "Homeowners are discovering that skylights can help reduce energy bills and provide natural sunlight instead of turning on lights to illuminate rooms." As always, energy concerns are very important, particularly

as oil prices remain high and the warmer months approach.

### Installation Trends

One direction that many skylight products are taking is toward easier installation. Wasco Products' new E-Class Skywindow is ready to go right out of the box. The one-piece curb-frame/flushing design made it the

choice of the television show, "This Old House" for a number of products. Tommy Silva, general contractor for the show, said, "With our budget, we want to make sure we can put them in (skylights) fast and easy and this is the window that does the job for us. They just drop right in."

Skylights from Pella are also designed to be easy to install.

## Consider These Statistics:

### Energy Savings

- According to the U.S. Department of Energy's Energy Efficiency and Renewable Energy Clearinghouse (EREC), artificial lighting accounts for as much as 40 percent to 50 percent of the energy consumption in many commercial and institutional buildings.
- According to the U.S. Green Building Council's Sustainable Building Technical Manual, well-designed daylighting can reduce lighting energy use by 50 percent to 80 percent.
- Lockheed Martin reported a 75 percent reduction in its electricity costs (approximately \$500,000 annually) after daylighting its Sunnyvale, Calif., facility.

### Increased Productivity

- According to a 1998 Harris poll, lighting is the number one contributor to worker productivity.
- The U.S. Green Building Council's Sustainable Building Technical Manual reports that worker productivity can be increased by up to 15 percent by implementing smart daylighting.
- According to the Rocky Mountain Institute, productivity gains of six to 16 percent, including decreased absenteeism and improved quality of work, have been reported from energy-efficient building design. Since companies spend an average of 70 times as much money (per square foot per year) on employee salaries as on energy, an increase of just one percent in productivity can result in savings that exceed the company's entire energy bill.

### Property Value and Marketability

- Green projects typically sell or lease faster and retain tenants better because they combine superior amenity and comfort with lower operating costs and more competitive terms. The resulting gain in occupancies, rents and residuals all enhance financial returns.
- According to the Electric Power Research Institute, daylit buildings can result in 10 to 20 percent higher rental income than those that use only artificial light.
- Daylit properties are likely to rent faster and for higher rates. Additionally, when the owner is ready to sell the building, the investment in energy efficiency should bring added resale value.

### Higher Sales

- A 1999 Pacific Gas and Electric Company (PG&E) daylighting study analyzed a retail chain of 108 stores where two-thirds of the stores were lit with skylights and one-third were not. All other things being equal, the study found that the daylit stores had 40 percent higher sales than those without.
- A 1995 Wall Street Journal article reported on Wal-Mart's experience with its store in Lawrence, Kan. Sales were significantly higher in the portion of the store that utilized skylights than the same products displayed at other Wal-Mart stores. To test the correlation, products were swapped from the artificially lit to the daylit sections and those located under the skylights again had significantly higher sales, while those shifted to the artificial lights returned to their national sales average.

### Reduced Absenteeism

- Pennsylvania Power & Light reported absenteeism dropped 25 percent after natural light was introduced to its workforce.
- A study by the U.S. Department of Energy found that employees exposed to natural light have 20 percent fewer symptoms common to workers in "sick buildings."

### Improved Health & Safety

- According to the Center for Health Systems and Design at Texas A&M University, providing patients with daylight aids in the healing process.
- Studies show that patients are apt to recover faster and to handle the stress of being ill better in environments with plenty of natural light.
- *Smithsonian* magazine reported mortality rates are lower in intensive care units that have natural light than those without.
- The basic human connection to daylight is only beginning to come to light with these new research findings. As we move further into a new century of innovation and discovery, sophisticated daylighting tools will continue to change the way we light commercial interiors. ■

*Neall Digert, Ph.D., MIES, is technical director of Solatube International Inc. of Vista, California.*



Factory-installed installation brackets and motors mean that no frame assembly or disassembly is needed. The skylights require no sash or cladding removal and the flashing fits under the gasket and becomes part of the roofing process, which means fewer installation steps.

Another "out of the box" skylight is the VSE electric venting skylight from VELUX which features an electric cord that comes from the window allowing for a simple hook-up.

Moody commented on this installation trend and also characterized it as a desire for "fool-proof" installation. "Correct installation is a critical factor in having a weathertight fit with your roofing materials. There are many people with varying levels of skills installing these products on a daily basis and we need to do everything we can to make the process work intuitively," he said. "Builders are also looking for easier installations to save time and money on the job site. They would like to reduce the number of people involved in the installation and in some cases would like for the installation to be provided



The Sheerframe Solarium Skylight System from L.B. Plastics is made from virgin u-PVC and incorporates fully welded frame corners for excellent insulating properties.

The natural light provided by skylights from VELUX open up a room.



by the manufacturer."

To this end, VELUX is offering other improvements that keep ease of installation in mind.

Among these are an upgraded pre-installed mounting bracket to allow mounting to the roof with nails instead of screws which is much quicker for the installer who does not have a screwdriver handy.

VELUX has also launched a new organization called VELUX Solutions, Inc., which is designed to provide certified VELUX installers across the U.S. "This organization will provide comfort to homeowners



knowing they can turn to people who have been trained in proper installation techniques to install their VELUX products.

They will also be prepared to provide any maintenance or upgrade the consumer may want and in some cases provide turn-key installations for builders," said Moody.

Another option for ease of installation is in the area of tubular skylights. These products have a smaller opening but are usually just as effective as traditional skylights. Esposito said, "Tubular skylights are the fastest growing segment of the skylight mar-

ket. Homeowners are especially aware of the benefits and ease of installation of tubular units. They provide abundant natural light and can be installed in small areas of the house where it is difficult to install traditional skylights, such as closets, small bathrooms, laundry rooms and hallways. Typical installation can be



ODL's Prismatic skylights effectively disperse sunlight throughout the room.

completed in less than a day."

Sun-Tek even offers a multi-tube skylight system called the Spyder which can deliver light to multiple rooms through only a single opening in the roof.

### Some Design Options

There are other variations available on your basic skylight. Energy efficiency has always been a concern and most skylight systems offer Low-E glass and other thermally-efficient options as a response. Structural integrity and impact resistance are also important. Products like L.B. Plastic's Solarium Skylight System, Sun-Tek's High Impact skylights, and the VELUX Impact FCM skylight attempt to satisfy these needs.

As other glazing technologies such as "smart window" technology and self-cleaning glass develop and are proven to be effective additions, skylight manufacturers will likely incorporate them into their product lines as well.

The choice also exists to move away from glass altogether with ODL's acrylic and prismatic sky-

lights. "Acrylic skylights are a cost-effective, economical and affordable option for homeowners. And, prismatic skylights are extremely desirable for dispersing light through a room," said Hodge. "These energy-efficient skylights have great thermal performance and are built to withstand cold and hot temperature extremes."

People will always have a desire to

bring more natural light into their homes and offices and as a result, particularly when remodeling, they will look to add skylights. The products offer high-quality design and construction, many beneficial options and the potential for even greater technological innovation. Overall, the outlook for these energy-efficient, aesthetically appealing products should continue to be strong. ■