Translucent panel daylighting shines in renovation applications
By Mark Mitchell, Major Industries, Inc.

Finding the right system
Renovations have never played a bigger role in the marketplace than they do today. With energy prices rising and the real estate market slow to recover, older buildings are getting a new lease on life.

If you’re considering replacing or updating your current daylighting system, whether it’s a small group of windows or a large skylight, translucent panels may be worth a look. They’re lightweight and can be configured for drop-in installation into existing curtain wall framing.

Figure 1  Before and after shots of a facility in Pennsylvania. Translucent panel systems are easily integrated into existing framing and are lightweight.

They also provide benefits like built-in light control and insulation options for outstanding thermal performance (translucent panel systems offer center of glazing U-factors as low as 0.08 for 2.75-inch panels and 0.06 for 4-inch panels).

Translucent panel systems are a good choice for work areas and computer rooms, for example, because they eliminate glare and hot-spots, block more than 99.9% of damaging UV rays and provide occupants with soft, diffuse light. Using transparent glass in these situations may
necessitate expensive films or shading devices. Occupants’ space utilization is an important consideration in choosing glass and glazing material.

**Figure 2** Translucent panel skylights allow for built-in light control, providing diffuse light to building occupants without worry of glare or hot-spots.

If views to the outdoors are required, translucent panel systems can be integrated with fixed or operable windows. Other specialty configurations include blast and hurricane protection; and these systems can be designed as removable for easy access to large equipment.

**Figure 3** Translucent panels can be integrated with vision glass for light control and views to the outdoors.

**Easy math**

With the U.S. Department of Energy data\(^1\) showing that lighting accounts for 20% of the total electricity use in a typical commercial building, the benefits of natural lighting design are clear. Translucent panel daylighting systems can enhance these benefits by providing built-in light control and enhanced thermal performance. It has never been easier to retrofit a building with a smart, energy-saving daylighting solution.

\(^{1}\text{Energy Information Administration, 2003 Commercial Buildings Energy Consumption Survey, Table E1.}\)
A look at the human benefits of daylighting
By Pete Barth, Orion Energy Systems

When business decisions are made regarding commercial lighting upgrades (including daylighting installations), financial considerations generally come first. After that, positive environmental impact is embraced as an additional benefit. But often lost in the decision-making process is the positive effect that quality lighting—especially with a daylighting component—has on the human beings who fill a workplace.

“Lighting has a huge physiological effect on all living things,” said Orion Energy Systems founder and CEO Neal Verfuerth, whose company sells high-performance lighting solutions. Though the positive impact of quality lighting in general (and daylighting specifically) is difficult to measure, research backs up Verfuerth’s words.

“Light is critical to human functioning in that it allows us to see things and perform activities,” wrote Dr. Anjali Joseph, director of research for the Center of Health Design in a 2006 paper. “But it is also important because it affects human beings psychologically and physiologically. Several studies have documented the importance of light in reducing depression, decreasing fatigue (and) improving alertness.”

In another project funded in part by the U.S. Department of Energy in 2003, authors Peter Boyce, Claudia Hunter and Owen Howlett wrote, “There can be little doubt that lighting, both electric lighting and daylighting, has a role to play in people’s satisfaction with the environment at work, and that satisfaction with the environment is linked to job satisfaction.” In addition to increased worker production in factories and distribution centers, modern lighting upgrades—especially those with a daylighting component—have also improved shopping at stores.
“Daylighting of a conventionally windowless retail space can have a positive effect on sales,” concluded Boyce, Hunter and Howlett.