



## **ECOBROKER International**

### **Green Topic Pages**

#### **Natural Daylighting**

##### ***Technology Snapshot & Benefits:***

Both obvious and hidden economic savings can come from building designs that rely on natural lighting. Throughout much of the day, owners and occupants can easily benefit from natural lighting and avoid electrical consumption otherwise required by artificial indoor lamps. Not so obviously, considerable economic gain may be achieved through increased productivity of workers and occupants. Studies have repeatedly demonstrated that natural illumination is the gold standard by which the efficacy of artificial lighting technologies is gauged. Further, studies show that workers with access to windows and natural light are happier, more productive, and suffer fewer health problems than workers resigned to artificial lighting.

Technologies include efficient windows, skylights, light shafts, and many architectural features that allow natural light to penetrate into the building. Newer technologies are used as well. Over the past decade, some Japanese shoppers have benefited from natural light delivered to the interior of shopping malls via fiber optic cables originating on the roof.

##### ***Estimated Cost Savings:***

The direct economic savings achieved by daylighting must be balanced against any potential heat loss associated with any window or skylight. For maximum cost effectiveness, only the most efficient windows and skylights should be considered.

Actual savings will depend upon how much you rely on artificial lighting, your local climatic conditions, etc. It is a good idea to check with local builders and energy offices to better calculate energy savings. However, it is unlikely that any consultant will be able to quantify the true value of access to daylight as measured by satisfaction with the building, increased productivity, and improved health.

##### ***Issues:***

Daylighting technologies are relatively easy to incorporate in new construction. Opportunities in existing buildings may require a little creativity or the advice of an architect or builder. For more information, see <http://www.daylighting.org/> (<http://www.daylighting.org/>).

##### ***Regional Issues:***

Brighter climates may offer more resource to work with, but consider issues of heat gain and loss in addition to increased illumination. Daylighting in northern climates may provide disproportionately greater benefits to morale and human health because these regions often are subjected to prolonged cloud cover during winter months.

##### ***Installation (Getting It Done):***

Be sure to get bids from two or three (or more) installers and/or building contractors specializing in windows and skylights to gain immediate perspective on the true costs of equipment and installation in your area.

##### ***More Information On This Topic:***

[Buildings.com: Solar Gains - Reaping the Energy-Saving and Productivity-Boosting Benefits of Daylighting](http://www.buildings.com/Articles/detail.asp?offset=25&ArticleID=663)  
<http://www.buildings.com/Articles/detail.asp?offset=25&ArticleID=663>

[National Renewable Energy Laboratory: Introduction to Passive Solar Heating and Daylighting](http://www.nrel.gov/clean_energy/passivesolar.html)  
[http://www.nrel.gov/clean\\_energy/passivesolar.html](http://www.nrel.gov/clean_energy/passivesolar.html)

[U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy: Passive Solar Heating, Cooling and Daylighting](http://www.eere.energy.gov/RE/solar_passive.html)

[http://www.eere.energy.gov/RE/solar\\_passive.html](http://www.eere.energy.gov/RE/solar_passive.html)