

## Energy Efficiency - Building Design Strategies: Comprehensive Day Lighting Strategy

**Strategy:** Strategically locate windows and skylights to reduce the amount of artificial lighting needed during the day.

**Relevant Store Scale/ Type:** S,M,L/New

**Initial Cost:**

1. Cost of skylights and additional windows.

**Return on Investment:**

1. Use of daylight can save \$.30/year for each square foot of daylight floor area, not to mention increased sales.

**Operator Benefits:**

1. Having natural daylight reduces the need for artificial light and associated costs.
2. Enhances the stores appearance and attracts customers.
3. Numerous studies have shown that daylight increases length of customer visit and volume of sales.
4. Enhances staff satisfaction and productivity.
5. Reduced lighting reduces cooling loads.



**Technical Considerations:**

1. Preferred natural light is from the south and north.
2. Use high performance and diffuse glazing for skylights so space is not receiving direct beam light.
3. Evenly distribute lights from above; consider vertical glazing such as clerestories because the light and heat are easier to control.
4. Produce areas should not receive any direct day light.
5. Special care should be given to designing skylights and windows so as not to increase cooling loads.
6. Use of daylight sensors on artificial lighting to automatically reduce lighting loads.
7. Use light colored finishes for floors, ceilings and walls to help reflect and distribute light throughout the space.

**Product/Manufacturer Suggestions, Resources & Examples:**

Solatube Skylights <http://www.solatube.com/>

Sun-Dome <http://www.sun-dome.com/>

Bristolite [www.bristolite.com](http://www.bristolite.com)

Velux [www.veluxusa.com](http://www.veluxusa.com)

Article on daylighting in supermarkets:

<http://www.archlighting.com/industry-news.asp?articleID=670546&sectionID=1306>

Lighting Design Guidelines, including daylight, in Retail Stores:

[http://www.designlights.org/downloads/skylighting\\_Retail.pdf](http://www.designlights.org/downloads/skylighting_Retail.pdf)

<http://www.designlights.org/guides.html>

Daylight and Retail Report:

[http://www.h-m-g.com/downloads/Daylighting/A-5\\_Daylgt\\_Retail\\_2.3.7.pdf](http://www.h-m-g.com/downloads/Daylighting/A-5_Daylgt_Retail_2.3.7.pdf)

Giant Supermarket Example:

[http://www.solatube.com/commercial/cs\\_geg.php](http://www.solatube.com/commercial/cs_geg.php)