

Daylighting Facts and Figures

Retail Sales

- According to Minnesota-based consultancy Design Services Group, a typical retailer now spends about \$300,000 on lighting – about 10% of total store construction costs, up from 8% a few years ago. Armed with data that shows the right lighting can increase sales, retailers such as Albertson's, Kroger, Safeway, Wal-Mart and Whole Foods Market are using illumination tricks to make merchandise more attractive. Whole Foods uses natural light in most of its 171 stores. Wal-Mart builds all of its supercenters to exploit natural lighting. While energy savings are an important draw, the company reports that the improved lighting increases sales.

(Business 2.0, September 2005)

- A 1999 Pacific Gas & 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 daylighted stores had 40% higher sales than those without.

(Heschong Mahone Group HMG "Skylighting and Retail Sales" Report at www.h-m-g.com, 1999)

- In 2003, a new retail study was conducted to replicate the HMG study with a new (anonymous) retailer. The report stated:

- However, the more detailed "daylight hours per year" model found that there was a significant dose/response relationship between the number of daylight hours per year and the magnitude of the increase in sales (once other factors, such as the size of the parking lot, were considered).
- Daylight was found to be as reliable a predictor of sales as other more traditional measures of retail potential, such as parking area, number of local competitors and neighborhood demographics.
- During the California power crisis of 2001, when the chain operated its stores at half-lighting power, the daylit stores had an average 5.5% increase in sales relative to the non-daylit stores.
- Along with an increase in average monthly sales, the daylit stores were also found to have a 1% to 2% increase in the number of transactions per month.
- Stores with the most favorable daylighting conditions had a 40% increase in sales compared to non-daylit stores, consistent with the findings of the HMG study.
- No seasonal variation was detected. Researchers concluded this suggested a long-term customer loyalty effect and not a short-term impetus on sales.
- Over a dozen large national retail chains are known to be currently (at time of this report, 2003) building skylit stores or developing prototypes to investigate how skylighting could best be applied for their format. In addition, in 2003 the head of store planning for a national department store corporate and seven other major retailers have consulted HMG for advice on including skylighting in their stores.

("Integrated Energy Systems: Productivity and Building Science" report prepared for the California Energy Commission Public Interest Energy Research Program by the New Building Institute Inc., October 2003)



- Local retailers who adopt daylighting for their store design are likely to find a competitive advantage reflected in higher sales, greater customer loyalty and perhaps also employee loyalty.
(*"Integrated Energy Systems: Productivity and Building Science" Report prepared for the California Energy Commission Public Interest Energy Research Program by the New Building Institute Inc., October 2003*)
- In relation to the original PG&E study, the link between high consumer activity and skylighting occurs despite the fact that many of the customers interviewed state that they were unaware of the presence of skylights. Rather, the customers responded that they frequent the skylit stores because of non-specific positive environmental feelings, such as that the stores feel cleaner, more spacious, more open or brighter. The authors of the study offer several hypotheses concerning why the skylights encourage these sentiments, including:
 - Customer Loyalty – Although they are unaware of the skylights, customers may routinely travel a little farther to shop at a skylit store because it seems cleaner or brighter
 - More Relaxed Customers – The skylights may impact customers in a manner similar to piped-in music, which has been found so effective at relaxing customers and encouraging them to spend more time shopping in the store
 - Better Visibility – It may be easier for customers to find products and/or discriminate between alternatives with daylight illumination
 - More Attractive Products – It is possible that visual quality provided by daylighting, with high color rendition and three-dimensional modeling, may make products more appealing
 - Employee Morale – It could be that employees working under natural light have higher morale and provide better service as a result
 (Houston Business Journal, September 22, 2000)
- According to Southern California Edison, "Our data show that over a six-month period, stores in the same districts with daylighting, selling the same products, showed a 25% increase in sales."
(Energy User News, February 1997)
- Larry's Markets, a small grocery store chain in the Pacific Northwest, reports that since upgrading its stores with more energy-efficient lighting and skylights with dimmers, the stores have experienced annual cash savings of \$75,000, with an 18-month payback. They have cut utility costs by 20%, which they report is equivalent to a \$20 million increase in gross sales.
(Environmental Protection Agency website, www.epa.gov, 2002)
- Following three years of research and development aimed at reducing energy usage, Stop & Shop, a chain of 320 grocery stores in the Northeast, opened a "low-energy" superstore in Foxboro, Mass., which features extensive use of skylights and dimming controls, resulting in an expected 50% reduction in energy usage for lighting. Additionally, it creates a more pleasant atmosphere for customers, encouraging them to stay longer and therefore increase checkout totals. Skylights and daylighting controls have also proven their worth at the Ralphs grocery chain, a division of The Kroger Co., which has witnessed an estimated 30% annual energy savings.
(Chain Store Age, January 2002)
(Display & Design Ideas, March 2001)
- An Ace Hardware store in Martinez, Calif., which installed a skylight system to reduce energy consumption experienced a 65% annual saving in electric lighting costs, or 4.9 kilowatts per square foot, while interior light levels were increased.
(Building Design & Construction, July 2001)



- Researchers with North Carolina State University's Department of Textiles report that inconsistencies in store lighting affect how colors in items such as clothing appear to shoppers, causing colors to look different in the store than when the customer gets home. This leads to unhappy customers and, consequently, a negative impact on sales. The best way to inspect the true color of an item is to view it under natural light.

(Raleigh News & Observer, December 24, 2001)

- Costco, an international chain of membership warehouses, experienced utility rate hikes that doubled and even tripled its energy costs during the 2001 energy crisis in California, where 37% of its total U.S. stores were located. As a result, the store stepped up energy conservation methods, including store lighting. While all of its California stores had been harvesting sunlight (the state's greatest natural resource) since they were built, electric lights were dimmed to take better advantage of the skylights. Most stores reduced their overhead lights to one-third during daytime hours, and new stores were built to incorporate even more skylights. Costco reported that all of its energy-saving measures during the crisis helped reduce energy costs from a \$60 to \$70 million per year to less than \$15 million.

(Discount Store News, May 20, 2002)

- The vice president of store development and real estate for Lund Food Holdings Inc., operator of the Lunds and Byerly's grocery and specialty foods chains in Minnesota, reports "light is power in our stores when it comes to featuring unique items and creating impulse sales." New and remodeled stores for the chain are utilizing more daylighting because it helps to create a warm and comfortable feeling inside the store. "Whether in a supermarket or apparel boutique, a well-paced lighting design incorporating daylight gets shoppers to slow down and relax. Then they reward you by staying longer and buying more."

(Display & Design Ideas, May 2002)

- After payroll, electricity is a retailer's largest expense. As profit margins shrink, retailers are focusing on improving the bottom line through savings rather than sales volume. Anything retailers can do to save on utility overcharges or to save a kilowatt hour comes back as increased profits. Many retailers and shopping center operators are finding that lighting improvements offer the biggest bang for the buck. Wal-Mart, for example, has been utilizing a daylighting system of skylights and lighting controls in many of its stores since 1995, with an average reduction of 250 kilowatt-hours in utility savings per year.

(Chain Store Age, March 2002)

- In 2001, the flagship Piggly Wiggly supermarket in Sheboygan, Wis., tested out a new store design for the chain, which focuses on natural light, rich color and a circular floor plan, giving the store a more upscale feel. The store's skylights resulted in an energy savings of 30% or \$55,000. Additionally, the chain's executives have found that the skylights give the whole store a clean, bright and natural feel that is soothing to customers and makes them want to linger in the store longer.

(Display & Design Ideas, December 2001)

(Food Distributor, May/June 2002)

- A 1995 Wall Street Journal article reported Wal-Mart's experience with daylighting its store in Lawrence, Kan. Sales were significantly higher in the side 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 daylight 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.

(Portland Business Journal, July 19, 1999)

