

# Daylighting Facts and Figures

## Occupant Health and Safety

- The use of daylight for illumination in non-residential buildings greatly reduces the risk of business disruption during power outages and greatly increases public health and safety during any emergency which may involve disruptions of the electricity supply. The incorporation of a large stock of buildings throughout the state with adequate daylighting increases the options for voluntary power reductions during peak emergencies.

*(“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)*

- When Prince Street Technologies, a subsidiary of Interface Carpets, built a new 160,000-square-foot factory in Cartersville, Ga., it used extensive natural daylighting (including 32 skylights), which created an “enormous difference in attitude,” according to corporate management. Additionally, the better lighting conditions were linked with improved worker safety. In the first three years after moving into the new facility, workers compensation cases dropped from 20 per year to under one per year, for savings worth an estimated \$100,000 to \$200,000 a year – more than the value of the energy savings.

*(The non-profit Center for Energy & Climate Solutions’ Cool Companies website, [www.cool-companies.org](http://www.cool-companies.org), 2002)*

- In a study of windowed vs. windowless intensive care units in hospitals, it was discovered that disorientation, hallucinations, loss of memory and delusions were significantly less common in the windowed (yet viewless) ICU. The implication was that daylight alone provided critical information, perhaps about time and weather patterns, to the patients, which in turn led to stress reduction.

*(Report by the Parsons School of Design, New School of Social Research in New York analyzing 60 studies and articles on the topic of daylighting and productivity, 1999)*

- One of the largest studies on the use of daylight to treat clinical depression was published in the journal Biological Psychiatry in 1992. The study found that hospitalized patients at a VA hospital that were administered light treatment were significantly less depressed than those in artificial light.

*(Washington Post, February 13, 1996)*

- The lack of daylight can disrupt one’s chronobiology (internal body clock). Moderate disruption of chronobiology can lead to “jet lag,” while more serious disruption can lead to the serious performance and short- and long-term health problems evidenced by shift workers. An example of this is Seasonal Affective Disorder (SAD), characterized by recurrent, annual clinical depression, accompanied by oversleeping, overeating, decreased work productivity and social withdrawal.

*(Report by the Parsons School of Design, New School of Social Research in New York analyzing 60 studies and articles on the topic of daylighting and productivity, 1999)*



- The Centre for the Analysis and Dissemination of Demonstrated Energy Technologies in the Netherlands reports that a hospital in Canada found that cardiac patients who were in wards receiving direct sunlight were in the hospital for shorter periods, by as much as 11%.  
(*CADDET Energy Efficiency Newsletter, 2000*)
- In European countries where the correlation between natural light and employee health have been long established, construction codes dictate the maximum distance a worker can be from a natural light source such as windows, as well as how much of a building's light must come from the outdoors. (In the Netherlands, that figure is 37%. In Germany, workers must be stationed no further than six meters from a natural light source and windowless offices are never permitted.)  
(*Business Record, March 17, 1997*)
- There is evidence that among intensive care units that do have natural light, mortality rates tend to be lower in those that are sunnier, according to an article in *Smithsonian Magazine* on the correlation between healthcare environments and patient care.  
(*Smithsonian Magazine, July 1999*)
- A study by the U.S. Department of Energy found that employees who sit near windows have 20% fewer symptoms common to workers in "sick buildings." The conclusion: Give people light and spend less on healthcare.  
(*Smart Business from ZDWire, August 14, 2000*)
- Patients exposed to natural light and views of the outdoors are thought to recover faster, experience less anxiety and require less pain medication. Mortality rates are also believed to be lower in intensive care units with higher levels of natural light. The Joint Commission for the Accreditation of Healthcare Organizations is contemplating issuing new guidelines for hospital accreditation that would provide standards for exposure to natural light and window views.  
(*Houston Business Journal, September 22, 2000*)
- The lack of light has been documented to cause Seasonal Affective Disorder (winter depression or the winter blues), maladjustment of our body clock (circadian rhythms) and consistent periods of reduced productivity and enthusiasm. The National Commission on Sleep Disorders Research estimates that, in the United States alone, businesses lose more than \$150 billion a year in productivity as a result of employee fatigue. One solution is providing a well-lit workspace, with as much natural light as possible.  
(*Management Review, October 1999*)
- According to an early 1990s survey, almost 20% of the general public said they experienced symptoms of SAD. Studies have shown that the level of light found in daylight buildings can be effective in fighting the disorder.  
(*Charleston Gazette, March 12, 2000*)
- Natural light reduces the risk of "ICU psychosis," a disorienting condition that can afflict patients hooked up to machines under artificial lights.  
(*Hartford Courant, March 3, 1996*)
- Studies show that patients are apt to recover faster and to better handle the stress of being ill in environments with plenty of natural light.  
(*Sacramento Bee, June 2, 1996*)

