

# The Healing Power Of Natural Light

By Pamela Maynard, Eric Shamp and Joan Whaley



Exterior glazing and sky lighting provide a relaxing atmosphere for patients in the recovery suite of Kaiser Permanente.



The use of 12-foot glazing in the waiting area eliminates the need for artificial lighting during most business hours.

For decades, healthcare facility operators have been more concerned with candlepower than energy efficiency. As a result, it is common to find healthcare facilities with lighting systems that consume as much as 30 percent of a hospital's energy costs and as much as 8 percent of its operating budget. The need for light trumps everything else because bright lights are required for surgery and other medical procedures. However, perspectives on lighting are slowly changing, and healthcare facilities in the United States and overseas are increasingly re-evaluating their use of both natural and artificial light, not only to reduce electricity costs but to provide both improved patient care and employee wellbeing.

A growing body of research is confirming what healthcare practitioners have known throughout history: The human body best recovers from illness in environments that include abundant natural lighting and access to garden environments or views of nature. Overall, patients' emotional demeanor is also more favorable.

Recognizing the therapeutic benefits of natural light and gardens in their own healing temples, nature and the outdoors were used simultaneously to cure the sick in ancient Greece. Florence Nightingale even observed in the late 1800s that hospital patients who were exposed to natural lighting recovered faster than those who were not or those who were otherwise shut in.

Nonetheless, during the 20th century, U.S. healthcare practitioners lost sight of this ancient wisdom when advances in surgical techniques prompted the medical establishment to focus more attention on providing medical personnel with sterile environments illuminated with increasingly bright surgical lamps, regardless of cost.

## Taking the Lead

Today, however, growing numbers of healthcare facility operators in the United States and overseas are recognizing the prevalent overuse of artificial lighting and that it may be more beneficial for patients as well as hospital employees to work in environments that include large amounts of natural daylight from windows and skylights. Furthermore, this might also save on expenses in the long run.

There is a growing body of evidence indicating that patients do recover faster and may require less pain medication in settings that include higher levels of natural lighting and views of nature. Studies have also found that employees perform better in naturally illuminated environments.

According to published reports, Europe seems to have taken the lead with these concepts by designing healthcare buildings

## FOCUS ON DESIGN



Task lighting and adjustable lighting controls create a relaxed mood.

that are lower, longer and more spread out to encourage increased light penetration than traditional U.S.-designed healthcare facilities. Natural light is considered essential not only for patient recovery but also for the wellbeing of hospital employees. Though somewhat impossible to measure, it is clear that an overall decrease in healthcare expenditures can be achieved by increasing the speed of patient recovery, providing day-lit environments, decreasing staff turnover and increasing productivity and employee moral.

### Growing Interest

There is also evidence of a growing interest in natural lighting in new and existing additions to healthcare facilities across North America. Prominent examples include Thunder Bay Regional Health Sciences Centre in Thunder Bay, Ontario, which features an extensive use of natural lighting, skylights and direct exterior views from nursing stations. In this particular case, patient care and staff wellbeing were paramount. If the high cost of patient care, staff training, retention and compensation were taken into consideration, rates of absenteeism were possibly reduced by just 5 percent. While this may seem miniscule, it actually translates into tremendous savings — far more than might be recognized from utility costs.

The recently completed Santa Ysabel Community Health Center in Santa Ysabel, Calif., a Native American health clinic, features dental operatories and medical exam rooms illuminated with natural light and circulation corridors that benefit from solar tubes and glass block. The windows in the facility also provide views of native Southern California landscape. (See *Facility Solutions* for more on this award-winning project, page 18.)

Kaiser Permanente's 50,000-square-foot ambulatory surgery center in Ontario, Calif., incorporates views of nature and

recovery rooms that are illuminated with natural light from skylights. This is unusual in that most often recovery rooms are windowless. In a pioneering effort, healthcare provider Kaiser Permanente has established its own green building committee to explore ways to make its facilities more environmentally friendly and cost effective, while providing improved patient care.

While there is an increased awareness of the benefits of natural lighting, it is not easy for existing healthcare facilities to significantly increase their use of natural light. These facilities typically are very large, box-like buildings with deep floorplans, making it difficult for facility designers to introduce significant amounts of natural light through windows or tubular skylights. Natural daylight can penetrate only about 13 feet in a room with a 9-foot tall window.

### Alternative Strategies

There are other lighting strategies that hospital designers can pursue to improve patient comfort as well as work environments for hospital employees. Minimizing the use of standard fluorescent lights is one approach. While standard fluorescent lights have been widely used in medical office buildings for more than half a century, some researchers have determined that the spectral composition of fluorescent lighting can induce stress simply because these lights generally lack the spectral composition of natural lights. On the occasion that fluorescent lighting must be utilized, full spectrum fluorescent lighting is a viable alternative.

Artificial overhead or wall lighting in waiting rooms, workstations and corridors should also be indirect. Hanging indirect pendant lights, for example, provides useful indirect illumination by shining light onto the ceilings. With this approach, a room can be evenly illuminated by light that is reflected back down to the floor. This reduces glare, while amplifying the quantity and quality of light. It also creates less eye fatigue.

Treatment rooms should be equipped with task-specific light fixtures, providing doctors, nurses and others the quantity and quality of light necessary for examinations or life-threatening surgical procedures.

### Conclusion

While healthcare facilities must always be equipped with sufficient lighting for surgical procedures, more efforts to incorporate a greater use of natural lighting and a more tactical use of artificial lighting can accelerate patient recovery, improve workplace productivity and contribute to overall energy efficiency and cost effectiveness. Patients, when given a choice, will increasingly opt for those healthcare facilities that provide the most comforting environments for themselves and family members. **FC**

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*Photos of Kaiser Permanente Ontario-Vineyard Ambulatory Surgery Center courtesy of HMC Architects, Ontario, Calif.*