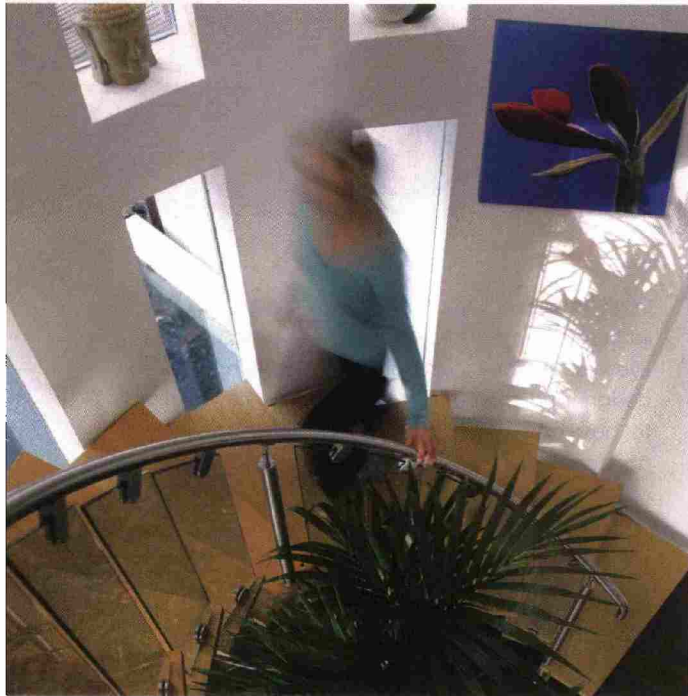


HEALTH CARE

Creating Healing Environments with Evidence-Based Design

Such designs reduce staff stress and fatigue, improve patient safety, lower patient stress, and raise overall health care quality.

BY TODD FERGUSON



A growing body of research demonstrates that access to a natural environment indoors may improve health and well-being, aid in the prevention of disease, and help people recover from illness faster. Patients in health care environments are clearly benefiting from environmental enhancements known as evidence-based design (EBD).

EBD features a holistic review of a building's physical space, including the total sensory environment of

sight, sound, touch, and smell. EBD is credited with having a healing impact on patients' well-being, mood, and safety and providing a restorative benefit for busy medical staffers. As a horticulture professional, I have seen firsthand the healing benefits of employing EBD principles with plants, ambient scenting, and art in health care environments.

More and more health care organizations are realizing the value of EBD programs in facilitating patient healing, reducing patient and staff stress, improving patient and family satisfaction, increasing staff effectiveness, reducing staff turnover, and, consequently, reducing costs.

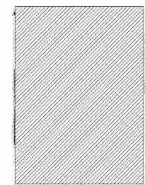
"A pleasing and positive health care environment that is presented as a spiritually satisfying sanctuary with natural light, gardens, fountains, art, and music is enormously beneficial for a patient's well-being," said Dr. Gilda Carle, a psychotherapist, author, and professor. "Being able to access and enjoy surroundings that reduce stress and engage the senses is highly therapeutic for patients."

Health care design is increasingly guided by research linking the physical environment of a hospital to patients and staff outcomes and is moving toward EBD. In a report to The Center for Health Design in a project funded by the Robert Wood Johnson Foundation, researchers from Georgia Tech and Texas A&M analyzed thousands of scientific articles and identified more than 700 studies — many in well-respected, peer-reviewed journals — that establish how hospital design can positively affect clinical outcomes. A variety of factors were analyzed, including the type of lighting, ventilation, noise levels, and use of ergonomic furniture. The researchers found a strong body of evidence that pointed to improved hospital designs adhering to EBD principles resulting in reduced staff stress and fatigue, improved patient safety, reduced patient stress and outcomes, and overall improved health care quality.

The Power of Plants

The experience of being near lush greenery, whether indoors or within a patient's line of vision outside a window, provides many beneficial effects.

It isn't necessary to fill every available space with a plant to achieve this; just a few good-quality speci-



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mens located in patients' rooms and where employees work or take their rest breaks can be sufficient. "The reasons why this has a beneficial effect are a subtle but complex mixture of the physiological (improved humidity, reduced noise, etc.) and psychological," said Kenneth Freeman, international technical director at **Ambius**, who has led many research initiatives on the benefits of plants in the workplace. "Being around plants certainly seems to reduce stress and engender a feeling of well-being in most people, a benefit that is even more acute if correct lighting is in place. The fact that the hospital has been prepared to spend money on something that has no obvious function than to make the environment more attractive may also be a contributing factor, by sending a signal to staff that management cares about its employees and its patients.

"Perhaps the most obvious reason for installing plants and one that is backed up by research," Freeman added. "A study carried out in a London hospital in 1995 provided clear evidence that people do react more favorably to a building when it contains plants than when it does not. Hospital visitors were asked to respond to a descriptive choice test using 20 pairs of bipolar adjectives (quiet vs. noisy, cheerful vs. gloomy, etc.). The results showed that when plants were present in the reception area of the hospital, users perceived it to be 17 percent more ornate, interesting and cheerful, 16 percent more welcoming, 15 percent more relaxing, 11 percent less stressful, 11 percent tidier, and 8 percent quieter." There were no negative findings. All of the results were independently verified as being statistically significant. (Ref: "Human Responses to Interior Planting" J.V. Stiles, Ph.D., Oxford Brookes University).

"There is now general agreement within the scientific community that plants improve the indoor environment and are useful weapons in the fight against the modern phenomenon known as sick building syndrome," said Freeman. "No specific cause of SBS has been identified, but poor air quality, excessive background noise, and inadequate temperature and light control are thought to be important factors."

Because plants have a large surface area and exchange water and gases with their surroundings, they have a unique ability to tackle many environmental problems.

In particular, plants can reduce levels of carbon dioxide, which can accumulate in buildings from the breathing of their occupants and the byproducts of heating systems and electrical equipment. Plants also increase the relative humidity, which should be between 40 percent and 60 percent for maximum human comfort. Plants reduce levels of certain pollutant gases, such as formaldehyde, benzene, and nitrogen dioxide, as well as airborne dust levels. Plants also reduce air temperatures and background noise levels.

Hospitals in large urban markets are often very large and easy to get lost in. In many hospitals, there is a need to channel pedestrian traffic toward significant landmarks, such as exits, check-in desks, escalators, and common passageways. Plants offer an attractive and practical solution, providing a living barrier that gently guides people to where you want them to go.

Choosing the right plants and containers for this purpose is very important. Spiky plants or those with sharp-edged leaves would clearly be inappropriate in an area designed for heavy pedestrian traffic flow. Containers need to be robust, take up a minimum of floor space, and in some situations be linkable to form an impenetrable wall.

Green Walls Promote Health & Wellness

A green wall, which is also referred to as a living wall or vertical garden, is a wall that is free standing or part of a building that is partially or completely covered with a vegetation facade. Unlike green roofs, which are rarely seen and enjoyed by the public, living walls can create instant vibrancy and impact. Exterior green walls also help lower a hospital's building temperatures in summer and prevent heat loss in winter. Interior green walls can help to clean the air and make the hospital environment more welcoming for patients.

"By dressing hard and unforgiving facades of concrete and iron in green soft plants, we rejuvenate our minds, and physical fatigue is greatly reduced," said Chad Sichel, president of GSKy Plant Systems, Inc, a leading provider of green wall systems based in Vancouver, Canada. "There are several studies showing that hospital patients who have been in rooms with a

clear sight of fully blooming trees have required less pain relief drugs and recovered more quickly than patients who were in direct sight of concrete walls. A green wall can fill the spaces and walls and surround patients with vitality that encourages a patient's quick recovery."

Dollars and Scents

Ambient scenting is a powerful yet subtle way for a health care facility to create a warm and uplifting environment for patients and staff. Of the five senses, smell is often cited as the one that triggers emotions most powerfully. And when it comes to employees, scientific studies have shown pleasant smells can increase alertness and productivity and reduce stress. Air treatment practices that improve indoor air quality by adding pleasant scents or removing problem odors have a positive outcome on occupant health.

Art's Holistic Impact In Health Facilities

In a hospital environment that is full of turmoil and change, it's more important than ever to take time to feed your soul. Art can do just that by offering some relief from the stress of daily life, evoking emotions and speaking to the soul. At its best, it inspires and challenges and transforms us. A custom-designed art program that completes the image as envisioned by the client, architect, and design team can nourish the souls of all who work, visit, or reside in the health care facility.

"Health care cannot be separated from the setting in which it's delivered," said Jain Mulkin, author of the *Hospital Interior Architecture* textbook.

That our physical environment affects our emotional and physical well-being is really common sense. Who among us is not moved by the sight and smell of beautiful plants and flowers or a captivating portrait or painting? **ONS**

Based in Orange County, California, **Todd Ferguson** is Area Managing Director, Vice President for **Ambius**, a division of **Rentokil Initial**, which offers a full spectrum of services to enhance the interior space for the hospitality, health care, retail, and commercial industries. He can be reached at todd.ferguson@ambius.com.