



Connection to the Natural World: Places of Respite Technical Brief

Green Guide for Health Care Sustainable Sites Credit 9.1

Green Guide for Health Care Environmental Quality Credit 8.2

Overview

The *Green Guide for Health Care* defines a place of respite as “a place on the health care campus to connect health care patients, visitors, and staff to health benefits of the natural environment.” By reinforcing positive distractions that are necessary in their daily routine, places of respite have been proven to rejuvenate the senses and reduce stress levels for employees and patients alike, thus contributing to the important goals of reducing medical errors and improving patient health outcomes.¹

Research shows that access to physical, sensual and spiritual interactions with nature improves health outcomes.² The natural environment displays a cycle of life that brings life’s beginnings, events and closures into perspective. Seasonal cycles of plant life, cycles of the sun and moon, and life cycles, often evade our notice. Interaction with these natural cycles of life is a proven relaxant in times of stress, including many of the experiences commonly associated with the hospital environment of care.

The physical and mental health of medical staff and clinicians is key to successful patient outcomes. The environment of care plays a role in staff health and may be leveraged as both a recruitment and retention tool.³ Reducing staff stress and fatigue through a healing and supportive environment may be achieved through application of evidence-based concepts such as places of respite in health care design.⁴

The Places of Respite credits are unique to the *Green Guide for Health Care*. They broaden the definition of a facility’s environmental footprint to incorporate the connection between green building practices and human health. The *Green Guide* encourages project teams to include both indoor and outdoor places of respite in new health care facilities for patients, their families and staff (GGHC v2.2 Sustainable Sites Credit 9.1: Connection to the Natural World: Outdoor Places of Respite and Environmental Quality Credit

¹ R. S. Ulrich, 1991. “Effects of interior design on wellness: Theory and recent scientific research.” *Journal of Health Care Interior Design*, 3(1), 97-109. R. S. Ulrich, 1992. “Effects of Interior Design on Wellness: Theory and Recent Scientific Research.” *Journal of Health care Design*, Vol. 3, pp. 97-109.

² R. S. Ulrich, 1991. “Effects of interior design on wellness: Theory and recent scientific research.” *Journal of Health Care Interior Design*, 3(1), 97-109. R. Parsons & T. Hartig, 2000. “Environmental psychophysiology.” In J.T. Cacioppo & L. G. Tassinary (Eds.), *Handbook of psychophysiology (2nd ed.)*, New York: Cambridge University Press, pp. 815-846. R. S. Ulrich, 1999. “Effects of Gardens on Health Outcomes: Theory and Research;” In Cooper Marcus, Barnes, *Healing Gardens Therapeutic Benefits and Design Recommendations*, Wiley: New York.

³ Joint Commission on Accreditation of Healthcare Organizations, 2002. “Health care at the crossroads: Strategies for addressing the evolving nursing crisis.” Oakbrook Terrace, IL: Joint Commission on Accreditation of Health care Organizations.

⁴ G. A. Tyson, G. Lambert, & L. Beatti, 2002. “The impact of ward design on the behavior, occupational satisfaction and well-being of psychiatric nurses.” *International Journal of Mental Health Nursing*, pp. 11(2), 94-102.

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8.2: Daylight & Views: Indoor Places of Respite). The Outdoor Places of Respite credit also requires separate staff-only areas acknowledging that caregivers may require a retreat away from patients and family members during their workday.

The intent of the *Green Guide* Places of Respite credits is to provide all occupants of health care facilities – patients, staff and visitors – places where they can come in direct contact with nature or natural elements. To act as a place of retreat and revitalization, both indoor and outdoor places of respite must be disassociated from the direct delivery of medical care.

The Challenges

In spite of the proven benefits of places of respite both to staff performance and retention and patient outcome, the cost associated with their design and construction can pose a challenge when confronted with budgetary constraints. Planting beds with year-round, seasonal interest and specimen shade trees require specialized drip or gray-water irrigation and drainage systems that are specific to regional environmental factors. Xeriphytic landscape designs with indigenous plant material will help meet the no-irrigation credits. Shading devices, comfortable and moveable furniture, screening elements and sculptural objects of art are all associated with a price tag that often falls beyond the scope of the project budget.

Combined with the high cost of medical equipment and systems necessary to support more specialized services in today's health care facilities, places of respite are often deleted from the project budget and fall into the category of "Alternates" or "Donor Opportunities". More often, the scope and size of these spaces are reduced to such an extent that their effectiveness is compromised. The challenge becomes not only to incorporate these spaces into the integrated design process but also to keep the design team, including the owner, committed to incorporating places of respite as a cornerstone of the project design.

Best Practices

Health care facilities are complex buildings requiring an intense, integrated design process that brings together all of the design disciplines, including engineers, contractors and owner groups. It is important that the design team establish goals and objectives for the entire project at the beginning and that those goals and objectives are confirmed and affirmed periodically throughout the design process. By establishing these early on in the process, Places of Respite and therapeutic environments with access to nature have a greater likelihood of being successfully woven into all components of the functional and aesthetic design.

These particular credit goals are also a litmus test for the Prerequisite Credit Goal for Integrated Design Process. If that Process has been implemented accurately, these two Places of Respite goals will be successfully integrated throughout the design of the healthcare facility. When pro-active design consideration for these spaces has not been implemented, it will be difficult to integrate them successfully at the end of the design phases.

Location

Outdoor Places of Respite, such as healing gardens and meditation gardens, can be designed to take advantage of the environmental factors of the site as well as meet adjacency requirements of the interior design. Accessibility to these spaces from public corridors, waiting rooms and clinical spaces can be incorporated into the wayfinding design of the campus. Space programming can align adjacencies that can most benefit from close access to those exterior spaces and bring views of nature into the interior design of the facility.

Examples of Outdoor Places of Respite include:

- Healing Gardens
- Meditative Gardens
- Restorative, Rehabilitative, and Enabling gardens

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- Green roof and rooftop gardens
- Staff gardens with sitting areas
- Space for Programs of Care, such as Horticultural Therapy, Group and Physical therapy
- Or, a quiet green space with a bench

Indoor Places of Respite can be woven into the interior design and carry elements and materials of nature throughout the facility. 90% of the cumulative area of all designated Indoor Places of Respite should have direct views to nature. This would include areas such as a meditative space, a chapel, or a quiet and comfortable space with direct views of nature and would prevent these spaces from ending up in left-over areas in the interior depths of the facility,

Examples of Indoor Places of Respite include:

- Interior atria and greenhouse gardens
- Wide corridors that offer seating with views of nature and seasonal variations
- Places to pause with seating adjacent to destination points
- Display areas of flora and fauna
- Family consultation spaces with views
- Meditation spaces, chapels or grieving rooms
- Resource areas and libraries with seating
- Exercise and therapy spaces

Integrating places of respite throughout the building design creates a sense of interpenetration between the indoor and outdoor experiences and brings nature into the healing process. It is this concept of the healing process, so associated with processes of nature, which enhances positive health outcomes.

Design Strategies

The Indoor and Outdoor Places of Respite credits have been incorporated into the *Green Guide* to emphasize the importance of a connection to nature in the healing process and to encourage integrating this kind of space into the project.

In order to meet these requirements, design strategies should be established in the early phases of the design process as a method to incorporate functional opportunities and to address limiting factors before the final building configuration is established. The integrated design process is essential if these spaces are to be identified early on in the design process and guarded throughout the project.

Consider the following design strategies when placing Places of Respite within the environment of care:

- Solar orientation and prevailing winds.
- Orientation relative to exterior views of distant and nearby nature and other natural features with daylight and seasonal variations.
- Wayfinding methods and accessibility requirements.
- Choice and variety of design and three-dimensional interest.
- Smaller spaces conveniently located throughout the facility rather than one large space. Strength and stamina is often a factor in the ability of patients to take advantage of exterior spaces.
- Engagement of all the senses - sight, smell, hearing, taste and touch - as well as areas that are sensory specific.
- Areas with consideration of immune suppression conditions and sunlight sensitivity. Coordinate with an infectious disease control specialist and address concerns of chemical sensitivities and allergens with certain high-pollen plant materials.
- Screening of negative views and mechanical system and traffic noise.
- Provision for maintenance.
- Nature trails with universal access and places to pause.

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- Provisions for both privacy and security, including visual barriers into patient rooms, treatment rooms, and mechanical systems.

All activities should be aligned with these strategies and associated with functional adjacencies in the program. Tailor consideration of independence, confidentiality, dignity and comfort to the setting.

Funding

While incorporating an integrated design process and establishing goals and objectives early will facilitate identifying and locating Places of Respite within the environment of care, it is often the budget that ultimately defines the scope of amenities within a health care facility. Identifying areas of donor opportunities provides options for revenue to support this kind of amenity. Naming opportunities for everything from benches and water features to entire garden spaces is oftentimes the solution that enables therapeutic programs to survive the budget crunch of the health care facility construction process.

Benefits

Health

According to Ulrich⁵ and others, the incorporation of places of respite in a health care environment can contribute to reduced anxiety/stress in patients, staff, and visitors alike, as well as tempering subsequent stressful episodes. When wayfinding and landmarks are associated with nature and are clearly identified, visitor stress is reduced.⁶ Patients are less likely to exhibit signs of depression especially where access to natural light and opportunities for physical exercise are present.⁷ Patients in direct or sensual contact with nature have also demonstrated a higher threshold of pain.⁸ Interaction with nature by chronically ill and terminal patients has been found to increase perceived quality of life.

Ecologic

The ecologic benefits of designating places of respite with access to nature can be associated with the increased amount of green space within the campus. Elements such as vegetated courtyards and rooftop gardens reduce the heat island effect caused by hard surfaces that absorb solar heat. In areas where green space is increased, groundwater absorption and natural percolation also increases, which reduces the facility's impact on local storm sewers and erosion. Wetland plants and designated wetland areas can be incorporated into the natural swales and drainage systems to filter the water as it percolates naturally into the soil.

A campus with more permeable surfaces, particularly directly adjacent to a large building footprint, can filter pollutants, such as suspended solids and phosphorous, before introducing stormwater into the water table. Permeable surfaces also improve the soil environment, which supports the root systems of trees and other elements of the natural ecosystem. Integrating pathways for nature and water with pathways for people can be incorporated to enhance the pedestrian and vehicular experience. Connecting these

⁵ R. S. Ulrich, 1999. "Effects of gardens on health outcomes: Theory and research." In C. Cooper Marcus & M. Barnes (Eds.), *Healing Gardens*, New York: Wiley, pp. 27-86.

⁶ J. R. Carpman, M. Grant, & D. Simmons, 1984. *No More Mazes: Research about design for wayfinding in hospitals*. Ann Arbor, MI: The University of Michigan Hospitals.

⁷ Lewey et al., 1998. "Morning vs evening light treatment of patients with winter depression." *Archives of General Psychiatry*, 55(10), pp. 890-896.

⁸ R. S. Ulrich, 1984. "View through a window may influence recovery from surgery." *Science*, 224 (4647), pp. 420-421.

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natural pathways with the healthcare facility enables that connection to the natural world for patients, visitors and staff.

Economic

Places of Respite are a quality of life issue that has proven economic benefits to its users, including shorter patient stays, reduced staff turnover, and improved staff longevity.⁹ Studies have shown that interaction with natural environments in health care facilities contributes to a reduction in a patient's need for costly pain medication and, in some patient categories, reduced patient length of stay.¹⁰ Examples of patient mobility and independence are increased, and patients show notably higher satisfaction ratings for both the facility and the health care provider, indicators that can lead to increasing the facility's market share. This potential is further amplified in increased job satisfaction among staff, which enhances the health care organization's ability to attract and retain desired medical, administrative and facility management staff.¹¹

Case Study

Dell Children's Medical Center of Central Texas, Austin, TX

The new 169-bed, 455,000 square foot Dell Children's Medical Center in Austin, Texas, on the 750-acre "brownfield" site of the former Robert Mueller Municipal Airport, is striving to become the first hospital in the world to achieve platinum-level LEED certification. The project design incorporates outdoor places of respite in two ways: several enclosed courtyards and a three-acre healing garden surrounding the Inpatient Units that was fully funded by outside sources.

The healing garden offers a multi-functional experience for a variety of users. These include areas for private solace and elements for reflection and communication, such as the Reflecting Pond and the Labyrinth. Several areas also provide exterior exposure for patients in beds with telemetry. Walking paths for exercise and larger gathering areas for social interactions support the physical and social needs of the healing environment. The design intent for the healing garden emphasized views of seasonal and day-night changes highlighting dimensional variations and areas of interest through discrete low-level lighting. The use of regional, indigenous plants and materials allowed for a xeriscape landscape design to limit the irrigation requirements within the garden.

The healing courtyard is a large, four-level exterior space within the footprint of the facility used as a place of respite and as a wayfinding orientation element. This courtyard is both visible and accessible from public spaces and viewed from the patient towers. In addition, every level of the hospital has bed access to one of the four levels of this courtyard. The central focal design feature, a four level waterfall, provides sound and movement throughout the courtyard. Materials on each level reflect geology of regions of Central Texas served by the Children's Hospital. Landscaping also reflects the typical plantings found in these geologic regions, a source of comfort to patients and their families. One of the smaller courtyards is dedicated to Outpatient Physical Therapy. Accessed from the department, this courtyard features a walking path with varied surfaces, ramps, and steps for gate therapy and training. The Physical Therapy swimming pool also opens onto this courtyard.

⁹ H. M. Waxman, E.A. Carner, and G. Berkenstock, 1984. "Job Turnover and Job Satisfaction Among Nursing Home Aides." *The Gerontologist*, Vol. 24, pp. 503-509.

¹⁰ Francesco Beneditti, et al., 2001. "Morning sunlight reduces length of hospitalization in bipolar depression." *Journal of Affective Disorders*, 62(3), 221-223. R. S. Ulrich, 1984. "View through a window may influence recovery from surgery." *Science*, 224 (4647), pp. 420-421.

¹¹ M. A. Williams, 1988. "The physical environment of the intensive care unit and elderly patients." *Critical Care Nursing Quarterly*, 12(1), pp. 52-60.

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At Dell, a variety of indoor places of respite were designed with access to nature, views of nature and natural daylighting. The Cafeteria, despite being located on the basement level three floors below grade, is day-lit on two sides from two different courtyards. The water in the healing courtyard cascades into a pool at this level at the foot of the outdoor eating area. A family resource center overlooking the healing courtyard provides access to nature and access to literature and research assistance as well as the Internet.

Staff lounges on patient floors have floor-to-ceiling exterior glass and face dramatic views of the downtown Austin skyline. The Physicians Dining Room looks out on the waterfall in the Healing Courtyard, and the Physicians Lounge opens onto a terrace above the physical therapy pool in the physical therapy courtyard. The employees have access to several smaller courtyards (64' x 64'), the Healing Courtyard and the Healing Garden. The staff also has immediate access to community jogging trails, bicycle racks and showers in Staff Lounges.

Resources

In addition to the resources noted in the Green Guide for Health Care, the following may offer additional guidance:

Beneditti, Francesco et al., (2001). "Morning sunlight reduces length of hospitalization in bipolar depression." *Journal of Affective Disorders*, 62(3), pp. 221-223.

Boehland, J., (2005) "Hospital Heal Thyself: Greening the Design and Construction of Health Care Facilities." *Environmental Building News*, Vol. 14, No. 6.

Carpman, J.R., Grant, M., & Simmons, D. (1984). *No More Mazes: Research about design for wayfinding in hospitals*. Ann Arbor, MI: The University of Michigan Hospitals.

Cooper Marcus, C., & Barnes, M. (1999). *Healing Gardens Therapeutic Benefits and Design Recommendations*, Wiley Publications.

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Lewey et al., (1998). "Morning vs evening light treatment of patients with winter depression." *Archives of General Psychiatry*, 55(10), pp. 890-896.

Parsons, R., & Hartig, T. (2000). "Environmental psychophysiology." In J.T. Cacioppo & L. G. Tassinary (Eds.), *Handbook of Psychophysiology (2nd ed.)*. New York: Cambridge University Press, pp. 815-846.

Rubin, H.R., and Owens, A.J., (1996). *Status Report: An Investigation to Determine Whether the Built Environment Affects Patients' Medical Outcomes*. Martinez, CA: The Center for Health Design.

Step toe, A., and A. Appels (Eds.) (1989). *Stress, Personal Control and Health*. Chichester; UK: Wiley.

Taylor, Andrea Faber, Frances E. Kuo and William C. Sullivan; (2001). "Coping with ADD: The Surprising Connection to Green Play Settings," *Environment and Behavior*; Volume 33 No. 1, January 2001. Sage Publications, Inc., pp. 54-77.

Taylor, S.E. and L.G. Aspinwall (1993). "Coping with Chronic Illness." In L. Goldberger and S. Breznitz (Eds.), *Handbook of Stress: Theoretical and Clinical Aspects*, 2nd. Ed. New York: Free Press, pp. 511-531.

Tyson, G.A., Lambert, G., & Beatti, L. (2002). "The impact of ward design on the behavior, occupational satisfaction and well-being of psychiatric nurses." *International Journal of Mental Health Nursing*, 11(2), pp. 94-102.

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Ulrich and Zimmering, (2004). *The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity*, Report to The Center for Health Design for the Designing the 21st Century Hospital Project.

Ulrich, Roger S., (1999). "Effects of Gardens on Health Outcomes: Theory and Research." In Cooper Marcus, Barnes, *Healing Gardens Therapeutic Benefits and Design Recommendations*, Wiley: New York.

Ulrich, R.S., (1984). "View through a window may influence recovery from surgery." *Science*, 224 (4647), pp. 420-421.

Ulrich, R.S., (1991). "Effects of interior design on wellness: Theory and recent scientific research." *Journal of Health Care Interior Design*, 3(1), pp. 97-109.

Ulrich, R.S., (1992). "Effects of Interior Design on Wellness: Theory and Recent Scientific Research." *Journal of Health care Design*, Vol. 3, pp. 97-109.

Van der Ploeg, H.M. (1988). "Stressful medical events: A survey of patients' perceptions." In S. Maies, C.D. Spielberger, P.B. Defares & I.G. Sarason (Eds.), *Topics in Health Psychology*. New York: John Wiley, pp. 193-203.

Waxman, H.M., E.A. Carner, and G. Berkenstock (1984). "Job Turnover and Job Satisfaction Among Nursing Home Aides." *The Gerontologist*, Vol. 24, pp. 503-509.

Whitehouse, S., Varni, J.W., Seid, M., Cooper Marcus, C., Ensberg, M.J., Jacobs, J.R., et al. (2001). "Evaluating a children's hospital garden environment: Utilization and consumer satisfaction." *Journal of Environmental Psychology*, 21(3), pp. 301-314.

Williams, M.A., (1988). "The physical environment of the intensive care unit and elderly patients." *Critical Care Nursing Quarterly*, 12(1), pp. 52-60.

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Last update 6/29/07.