

The Role of Architecture in Promoting Healing Environments in the Design of Small, Rural Hospitals

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BACKGROUND

For many years, I have sought how to imbue health care facilities with architectural qualities that support healing. As a member of the design team of the new Boston Floating Children's Hospital, I refined the programmatic intentions of that building, struggling to accurately reflect the real needs of staff and patients and imbue the design with humane values. I have since taught programming of health care facilities with the same emphasis. In Oregon I have become involved with health facilities in small towns - clinics and frontier hospitals - at the opposite scale of the spectrum from Boston Floating. A design consultant, researcher and teacher, I have directed several studios with rural health care clinics as projects. My recent experience has included developing a master plan for Blue Mountain Hospital, a 21-bed rural hospital in the remote eastern Oregon community of John Day, and then leading an architectural design studio emphasizing solving functional problems while making places for healing. Out of this work, I have developed some theories about the substantive, healing role of design in health care facilities.

IMPORTANCE OF ENVIRONMENTAL QUALITY IN HEALTH CARE FACILITIES

The plates in *Ten Centuries of European Hospital Architecture* (from the 9th to the 19th century) reveal buildings of great environmental quality: building complexes set in landscapes or in towns connecting to each, organized around central courtyards - large and small, paved and natural - with gardens, trees and lawns. The courtyards are formed by arcaded walkways, sometimes of two levels, and strong roof forms, often with attic openings. The rooms are lofty in section with light and ventilation from both sides. Beauty of form, connections to nature, literal and symbolic attributes for healing are central.

The functional planning of these hospitals reflected contemporary understanding about medicine and social conditions. Although ecclesiastical and civic entities designed for housing the poor and separating the outcasts, the beauty of

the architecture speaks of the healing of spirit, mind and body, if not the modern concepts of curing social and physical disease.

Since the Enlightenment, advances in medical science and trends toward a rational and functional architecture have resulted in buildings that serve and support medical technology, but in which earlier aesthetic attributes of hospital architecture have been lost. Medicine has focused on curing physical disease, and design has focused on building scores of hospitals with strictly functional rooms, organized for staff efficiency. Now, at the end of the 20th century, the limitations of this narrow view are becoming clear. Costs of health care have ballooned, while effectiveness in enhancing health and life has only marginally improved. Currently, we realize diminishing returns from our technological advances, because those advances have been made as social fragmentation and environmental degradation result in more challenging diseases. Cancer, HIV, arthritis and others are chronic diseases not easily fixed. Diseases once thought cured have become resistant again, antibiotics in their application have led to germs that are mutating faster than new antibiotics can be developed to fight them. Research and technology address these new challenges but have also begun turning to and rediscovering holistic and alternative therapies, therapies which may heal and comfort, if not cure. That Americans spend an enormous amount of money on alternative therapies shows that a broader approach to health care is widely sought.

Clearly, what is needed is the continuing development of technology **and** a broader understanding of the complexity of human beings and of the connection between our physical selves to our mental and spiritual selves. What we aspire to in 21st century health care might be characterized as "high tech, high touch." Health care institutions, coming to terms with these trends, are undertaking the following:

- Decreasing costs through the integration of health care into inclusive and coordinated community wide systems.
- Decentralizing health care services, so care is provided where it is needed.
- Shifting from an illness model to a wellness model.

- Focusing on holistic medicine and whole patient care and integrating traditional and alternative therapies.

The role of architecture in the design of health care facilities is evolving away from the narrow functionalist view that has dominated in this century. Architecture has renewed significance in making health care facilities that are community centers for healing and wellness that are both "high tech and high touch." And it has a renewed mandate to ensure that the experiential quality of architecture supports healing, by making environments that enhance the quality of the lives of patients and their families, visitors and staff.

SMALL, RURAL HOSPITALS AS LABORATORIES FOR DEVELOPING ARCHITECTURE THAT PROMOTES HEALING ENVIRONMENTS

In health care design, architectural ideas and innovations are usually sought in large, city hospitals. This paper proposes that we use small rather than large health care facilities as our laboratories, developing there the prototypes for health care and health care facilities of the future. These prototypes can then serve as models for a decentralized, community-based health care system.

In urban centers, the health care delivery system is so complex that it is difficult to grasp how specific architectural interventions might contribute to a comprehensive and connected set of health care programs and facilities. Urban hospitals are characteristically large, complex campuses with myriad additions and phased renovations, labyrinthine circulation patterns at site and building scale, and with an emphasis on functional efficiencies and technical imagery. The scale of most hospitals has in essence become a topological puzzle, and piecemeal actions never seem to add up to a new and better whole. Instead, why not try to understand the ideal relationships and possibilities of health care facility design at a comprehensible scale and develop proposals which can be achieved and tested? The small, rural hospital can be viewed as a simplified model, in which facility design is examined in concert with the varied goals and trends in health care. Design examples from these small hospitals can then demonstrate new possibilities to other hospitals of similar or larger scale.

As an example, I will focus on one type of rural hospital — the "frontier" hospital, a term used by Seavey, Berry and Bogue in *The Strategies and Environments of America's Small, Rural Hospitals* to describe hospitals located in regions of very low population density and low per capita income. As part of the post-war expansion of services to all parts the nation, the Hospital Survey and Construction Act of 1946 granted federal money for building standardized hospitals of 50, 100 and 200 beds throughout the United States. In rural areas this meant that hospitals of 50 or fewer beds sprang up in community after community. In the past two decades many of these rural hospitals have closed or been converted to other uses, because of competition with re-

gional centers and a decreasing need for inpatient care.

In the spectrum of rural hospitals, "frontier" hospitals are the center of health care for rural regions geographically isolated from other hospitals, which means they encounter very little hospital competition. "Frontier" hospitals provide the only health care for their communities and generally have strong community ties. Supported through local tax districts, hubs of volunteer activity, and significant employers, they are necessary and vital parts of their communities.

With strong geographical and social roots, "frontier" hospitals are already positioned as community centers, which makes them inherently able to offer "high touch care." Local professionals know their own community, caring for its members as individuals, supported by existing volunteer service systems.

Because of the cybernetic revolution, the remote location of "frontier" hospitals no longer isolates them from advanced medical science and practice, for they can connect to the best "high tech available." Telemetry readings of x-rays and long distance diagnosis are becoming common, and these capabilities will only increase. As *Newsweek* put it, "Robo-docs and Mousecalls" are the future.

These "frontier" hospitals thus have the potential to be case studies that exemplify our aspirations for health care for the 21st century. They can orchestrate comprehensive health care in the community, working to eliminate duplication of and competition among services to expand the range of health care provided. They are connected both electronically to larger, but distant, hospitals and directly to smaller outreach clinics and volunteer organizations. They continue to be essential providers of emergency care with connections through ambulances and life flight helicopters to tertiary care hospitals. They continue to be a center for medical

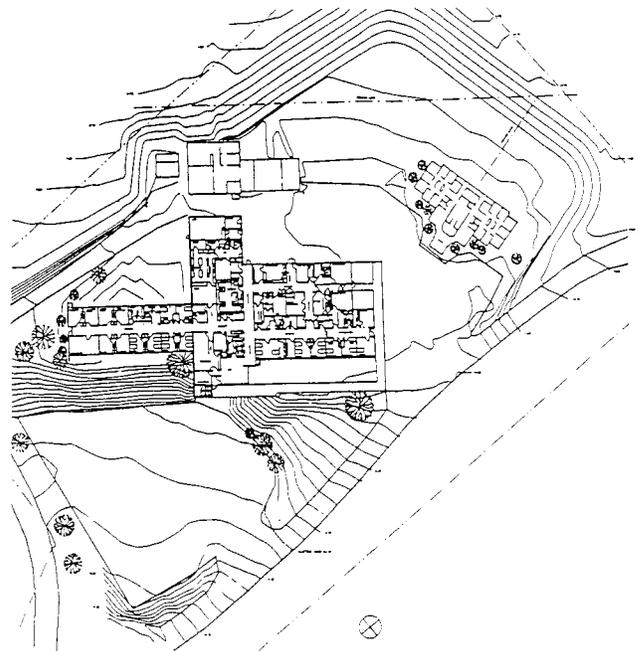


Fig. 1. Site Plan for Blue Mountain Hospital, John Day, Oregon.

diagnosis and treatment, where imaging, day surgeries and laboratory tests can be done most cost effectively for the patient and the system. They are the home base for the medical practitioners in the area, responsible for recruiting and retaining them with the incentives of quality facilities, professional back-up and the positive attributes of community life.

Blue Mountain Hospital in John Day, Oregon is typical of many rural hospitals built in the 1950's, located at the edge of towns, open to light and air. The buildings laid out as two inpatient bed wings on each side of a central entrance and diagnostic and treatment trunk.

Although additions and modifications have been made over the years, the physical facilities are often at odds with the needs of patients and staff and with the shifts and trends in health care. Ironically, these buildings, designed for function, have utterly failed to predict future functional needs - the demand for inpatient beds has decreased steadily, while the number of outpatient visits, diagnostic and treatment services has increased. The centers of these buildings are thus compressed and contorted, while the wings are underutilized. Yet, communities often have substantial financial and emotional investment in the buildings, which, coupled with fiscally conservative management, suggests that incremental changes will remain the norm. These frontier hospitals are positioned programmatically to become effective centers of an integrated and holistic health care system. The challenge is to steadily transform their buildings, so that they too become models of healing and wellness.

There is much dialogue among architects and health care professionals about the need to make hospital environments with healing qualities. Many of the ideas are crucial although not integral with the architecture. Coherent, wayfinding signage, art on the walls, art carts from which patients select art for their rooms, music, colors, fish tanks, and fountains, aromas of popcorn and vanilla, places for plants and animals - all make a difference. However, three key areas are basic to the architecture and capable of conveying the message about healing and wholeness, which these many other elements can amplify: the facade, the corridor and the outdoor room.

CRITICAL ARCHITECTURAL INTERVENTIONS FOR DESIGNING FOR HEALING

The Facade

The facade provides the interface between the community and the health care facility and the essential expression of the building's significance in the community. How the facade connects to other buildings in the community distinguishes its role and purpose. The facade articulates the front door through which the public enters and leaves the institution, and it interlocks lobbies with the exterior.

Hospital facades reflect the perception of healing modalities through time. Up until the 20th century, hospitals were



Fig. 2. Heiligeist-Hospital, Halberstadt, Germany (Leistikow, *Ten Centuries of European Hospital Architecture*, Plate 12.)



Fig. 3. Front facade of Blue Mountain Hospital (1959). Note sign to identify entrance.

ecclesiastical or civic buildings with facades that spoke of their symbolic and civic importance.

In large, urban hospitals, 19th- and early 20th-century facades were grand, institutional statements. In the 20th-century, however, these were buried under facades that connote technological importance, and their elegant lobbies transformed into simple and utilitarian places for hospital patrons and staff only. In rural hospitals built in the 50's, the themes of simplicity and utility were central to the architectural expression. The buildings were set apart from the town with modest facades behind large parking lots.

In seeking a new paradigm of a place for connecting to the community and for healing, larger hospitals have begun to emphasize hotel-like entrances with canopied entrances and atria, natural features of plants and water, art and music, and open to the public for other activities as well as for entering the hospital. Medical malls, like the Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire, take this approach further. As David Sloane describes it,

"The food courts . . . draw not only staff on lunch breaks, but also local residents stopping for a quick

meal. . . . Residents can drop off their dry cleaning, pick up a video, have their car serviced, and even get a haircut while they wait for a visit with the physician. Staff, visitors, and patients pick up sandwiches from the grocery store and browse in the bookstore. They also make travel arrangements, take money out of the bank, and purchase a gift or flowers for patients or friends. . . . Suddenly, the hospital assumes a new role as a community gathering place with tours of the art exhibits and coffee klatches. So popular has the mall become, so acceptable a destination, that a group of teenagers have begun hanging out there during the evenings..."

In the emerging theory of hospitals as healing places, an essential element involves connection to life, to friends, and to family. Administrators at the Dartmouth medical mall observed that more people come to visit patients now, which makes a powerful argument for finding ways to integrate the hospital into the daily life of the community. In many small towns, there is already a civic center on the main commercial street, one more open and genuine than a private mall. In a town like John Day, Oregon, downtown businesses cannot stand new competition. Indeed, the pharmacy on Main Street survives because of the proximity of the hospital. Rather than recreate a town center by creating a medical mall, the challenge is to effectively connect the hospital with the existing pharmacy, cafe and bookstore. This connection can be made by the facade. Thus, the facade of a "frontier" hospital has increased importance in knitting the institution to the civic realm.

However, as is often the case, the hospital facade thinly covers boxes of functionally arranged hospital rooms behind. The beauty is only skin deep. Behind the layer of the facade and the welcoming and life-enhancing lobbies extend long, undifferentiated corridors with vinyl floors and acoustic tile ceilings and rows of closed doors. The discordant contrast between the skin and the inside sends a message about health care that undermines connections between mind and body, inside and out, science and art, and fails to carry out its healing intentions.

The Corridor

In the 20th-century, health care facility design has focused on creating purely functional rooms and arranging these rooms for greatest efficiency in terms of frequency and distance of trips. The effect of trips on the staff and the drive for optimal staff utilization are important functional and economic considerations, although as Roslyn Lindheim wrote, "No one has ever demonstrated that reduction of walking distance for staff has any measurable influence on better patient care; actually, it was merely something we could easily measure and record in standardized tables."

The standard-width corridors that connect these spaces emphasize durability, cleanliness and ease of maintenance. Mechanical systems are often organized above their ceilings



Fig. 4. Corridor at Nurse's Station, Blue Mountain Hospital

for easy access. Fire codes require separation between corridors and the rooms at either side. These corridors are enormous in area. In fact, because of the widths required by code and the vast array of small rooms that need to be linked, hospital net to gross areas reach 1.5 and above. In consequence, the health facility corridor is typically a wasteland, a place to go through to get from here to there.

The corridor sets crucial parameters for wayfinding. Much environmental design research has correlated quality wayfinding in well-formed architectural space with reduced stress levels for patients and visitors in a hospital. Corridor design is equally important for the quality of place, in which the message of healing through connections to people and to nature is central. In health facilities designed for healing, the corridor should become the glue - the spatial entity that unites the building. The corridor is the public realm, the place of connection, where the public, staff, visitors and ambulatory patients meet. Hospital corridors and the public spaces they connect (lobbies, chapels and small waiting areas) should be designed as central, not residual, to the facility.

In particular, the corridors of the inpatient bed unit should be transformed to support patient-focused care. The model Planetree units in the Mid-Columbia Hospital in The Dalles, Oregon, transform traditional hospital corridors to streets for patients and their families and visitors and staff to interact. In contrast to standard organization, the nurses' station in the Planetree unit is not a central watchtower, separated from the patients and the public by standing-height counters. Rather, it is a widening of the corridor, with desks and seats and work areas for patients and staff. Uncluttered with signs and emergency equipment, the corridor links rooms for patients to use along with staff, a medication room, a kitchen and dining room, a living room (which overlooks an atrium with waterfall, plants and a grand piano for public concerts), a library and a quiet room with views to the Columbia River. It is lit indirectly with track lighting to highlight art pieces; music plays; smells waft from the kitchen; and people hang out.

Innovations in corridor design in large city hospitals are

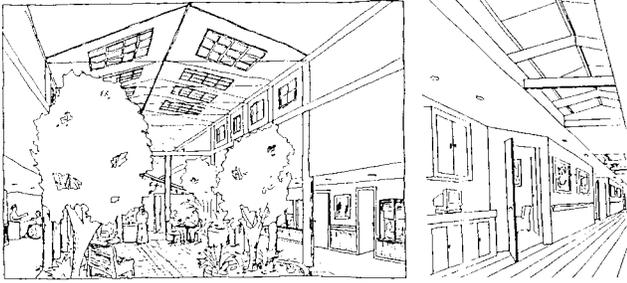


Fig. 5. Corridor Studies for Blue Mountain Hospital, Intermediate Level Architectural Design Studio, Spring 1995.

limited by stacking floors, whereas small, rural hospitals have the advantage of usually being one story buildings. Typically, however, no benefit has been derived from this condition, because mechanical runs lower the ceiling plane of corridors, even when the roof pitch would allow more height. But the rural hospital building is exactly the scale at which renovations to transform the section of corridors from 8-foot slots to light and airy central connectors might most easily be attempted.

If designing corridors imbues the core of the hospital interior with characteristics to enhance healing, focusing on the design of outdoor rooms transforms the experience of the hospital complex with connections to nature.

The Outdoor Room

Healing environments connect patients to the cycles of the natural world. Early hospitals, derived from medieval monasteries, focused on central courtyards of healing gardens. The importance of such gardens has reemerged periodically in hospital design. In the 19th century, hospital pavilions were separated by lawns and gardens to allow for natural light and ventilation in the interior. But in the 20th century, technology made connections to nature unimportant, with artificial systems for light and ventilation. Hospitals became solid blocks where operating and intensive care rooms were designed with no windows and where the relationship to nature was passive, with undeveloped outdoor space and landscaped front lawns and gardens viewed through often inoperable windows.

Growing evidence demonstrates the need for connections to nature. A patient in a room with a view heals faster than in a room without one; windows, classical music and supportive conversation in the operating room improve the success of operations; patients prefer looking at art with scenes from nature. A horticultural branch of occupational therapy has developed, and therapeutic horticulture gardens are sprouting in many hospitals.

Architecturally, an outdoor room can be a natural focus for a building. Outdoor rooms, courtyards and atria work in similar ways to connect different wings of hospital buildings, making connections to the healing properties of the natural world central to the hospital experience.



Fig. 6. Berkeley's Hospital, Worcester, England (Leistikow, *Ten Centuries of European Hospital Architecture*, Plate 133.)



Fig. 7. Undeveloped Outdoor Space at Blue Mountain Hospital, John Day, Oregon



Fig. 8. Outdoor Room in Winter at Lakeview Hospital, Lakeview, Oregon.

In rural hospitals, active connections to the landscape through outdoor rooms are particularly useful to give a natural focus to a set of incremental building additions. For example, in a hospital in Lakeview, Oregon, a series of wings added to an original Hill-Burton building form a large

interior garden, which has become the heart of the hospital. The dining room opens directly onto a terrace at one side, and on two sides rooms from the nursing home have sliding glass doors directly into the terrace. This central space provides a visual relief and connection to nature, a retreat from the hospital's intensity and a respite for patients, staff and visitors. Its scale and development also make it a place which fosters casual interaction among patients, staff and the public, and a place for formal community gatherings.

CONCLUSION

Rural health care facilities have great impact on their communities. They are public institutions central to the economic, social and physical well-being of their communities. However, they are remote from centers of design practice and typically receive too little design attention. Outreach service from architecture schools is one way to increase community and staff awareness of these critical design issues, helping them to formulate architectural goals for their institutions.

Because of their scale, rural health care facilities offer the potential to be paradigmatic studies of how health care facilities can be healing environments for the 21st century.

Design of health care facilities should focus on facade, corridor and outdoor rooms as key design elements to develop community centers for healing and wellness. Focusing on three typological elements may give potency to the idea that architectural qualities for healing are as significant as efficient organizations of functional rooms.

In his keynote address at the Seventh Symposium on Healthcare Design, Dr. Bernie Siegel quoted from former associate, Dr. Richard Selzer, a surgeon who became a writer:

"Not long ago, operating rooms had windows. It was a boon and a blessing in spite of the occasional fly that managed to get in through the screens and threaten our sterility.

For us who battled on, there was the benediction of the sky, the applause, and reproach of thunder, a divine consultation crackled in on the lightning. At night in emergency, there was the longevity of the stars to deflate a surgeon's ego. It did no patient a disservice to have heaven looking over his doctor's shoulder. I very much fear that having bricked up our windows, we have lost more than the breeze; we have severed a celestial connection.

...So what has all of this to do with the architecture of a hospital? Fountains and wind chimes, the sacredness of brick, the vitality of wood, the house spirits — these are the fantasies of a mere scribbler who cannot even

read blueprints. And I in turn ask, where is the architect who, without sacrificing function and practicality, will think of the hospital as a pregnant woman who suffers the occupancy of a human being who enters, dwells for a time, and ultimately passes forth? Where is the architect who, from the very moment he or she begins his or her design, will be aware that in each room of his or her finished hospital someone will die? Where is the architect who, while seated at the drawing board, will pause to feel upon his or her naked forearms the chill wind of his or her mortality? One day he or she, too, will enter this building; not as its architect but as a supplicant in dire need of care.

If I am wrong and such human emotions cannot be expressed in architecture, then it is time to surrender the hospital to writers who will build it out of words and dreams."

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