

ARCHITECTURAL RECORD

REVIEW

FOCUS on Health Care
Lessons Learned
From Three Hospitals

A SUPPLEMENT TO ARCHITECTURAL RECORD

McGraw Hill
CONSTRUCTION

09 2007

A PUBLICATION OF THE MCGRAW-HILL CONSTRUCTION

On the Mend

HEALTH CARE CONSTRUCTION STARTS RISE AS HOSPITALS UPGRADE FACILITIES TO SATISFY INCREASED DEMAND AND ACCOMMODATE NEW WAYS OF CARING FOR PATIENTS.

By Jayne Merkel

Aging baby boomers, over-the-hill hospitals, new ways of caring for patients, and the need to streamline operations are all helping sustain a boom in healthcare construction that peaked two years ago but is still going strong. In 2005, 107 million square feet of these facilities started construction—surpassing the 100 million-square-foot mark for the first time, according to McGraw-Hill Construction's 2007 Outlook for Healthcare Facilities, "Aging Population Helps Hospitals Grow," by Timothy Boothroyd. Although there was a slight decline in 2006, down to 106 million square feet of construction starts—and construction may decline a bit more this year, to an estimated 103 million square feet—these remain unprecedented levels. And by the end of the decade, the report predicts, "construction will embark on another growth spurt as demand from the aging population becomes more acute."

Despite the burgeoning population of the elderly, most new construction is for hospitals, rather than the outpatient clinics and nursing homes whose construction was more prevalent during the 1990s. Many of the hospitals built today are big. The boom in healthcare construction, in fact, is attributable to the size of the projects being built now. While the number of hospitals under construction has declined—2006 saw the fewest in 15 years—the average size, 48 million square feet, is the largest in recent history.

One reason so many big new hospitals are starting construction or being radically renovated is that the numerous facilities built after World War II with funding from the 1946 Hospital Survey and Construction Act—also known as the Hill-Burton Act—are now hopelessly out of date. New means of treatment, larger equipment, changing methods of serving patients, and shifting demographics combine to make 50- and 60-year-old hospitals inadequate.

Another problem is created by the stopgap improvements made to these buildings over the years. "As communities grow, their hospitals grow, sometimes in not such a logical fashion," explains John Pangrazio, FAIA, an architect with NBBJ. These hospitals require substantial reorganization when they are rebuilt, he adds, "and this involves some combination of wholesale replacement or whittling away at the parts while keeping the functional ones open. It's like keeping the patient breathing while you're doing major heart surgery."



Baltimore's **Johns Hopkins Hospital** is constructing one of the largest health care projects in recent history. It consists of two, 12-story towers, designed by Perkins + Will, that will frame a new main entrance to the existing hospital complex. One of the new structures is a Cardiovascular and Critical Care Tower, which, at 830,000 square feet, will be Hopkins' largest clinical building, and the other is a 560,000-square-foot Children's Tower. They are scheduled to open in June 2009.



Inside the **Banner Estrella** lobby, which features colorful carpets and art, a polished concrete floor reflects light from floor-mounted fixtures (above). A glass installation, in which the names of financial donors will be engraved, flanks the staircase (left).

Aside from activity in the South Atlantic region, Pangrazio says, new hospitals are “following the population, particularly in the Sunbelt. There is also a continuing migration from acute care hospitals into outpatient settings.” Partly because of health care funding—insurance companies unwilling to pay for long hospital stays—and partly because doctors have found that many patients do better when treated on an outpatient basis, new hospitals contain fewer beds and more outpatient treatment facilities. At the same time, treatment rooms are also being constructed in housing complexes for the elderly and in corporate settings. Moreover, the function of community hospitals is expanding. “They are coming around again—as a community gathering place, a place for wellness and good health rather than sickness—so civic architecture is important,” Pangrazio says. He cites Disney’s decision to build a community hospital at Celebration, Florida, with Robert A. M. Stern Architects, as one example (RECORD REVIEW, April 2004, page 26).

Design Matters

Health care spaces designed today not only reflect changes in methods of care giving, they help foster care giving since studies have shown that a hospital’s physical appearance can actually facilitate healing. To this end, NBBJ’s recently opened Banner Estrella Medical Center in Phoenix, Arizona, features big, welcoming, sun-filled lobby windows; New Age music playing in the background; comfortable earth-toned sofas; a water-filled rock garden; and Southwestern artwork to make people feel at home in what is now being called the “patient-centered approach” (RECORD, October 2006, page 138). Patients on the way to surgery are wheeled down private corridors rather than public areas. All 172 rooms are singles and each is equipped with a pull-out couch so that family members can spend the night. Nurses’ alcoves are located between every two rooms so patients can see nurses nearby and nurses can keep track of

patients while doing other tasks.

In addition to providing patient-centered spaces, hospitals are being designed for efficiency and to ensure the safety of the patients and staff. “It’s riskier to be a nurse in a hospital than a construction worker,” Pangrazio says, citing higher risk of falling, pulling muscles, or contracting infection in a hospital. “We are taking cues from other industries, like aviation, and developing consistency in the way rooms are laid out. In our most recent hospital (Southwest Washington Hospital in Vancouver, Washington), all the rooms are ‘same-handed room’ with exactly the same floor plan, so a nurse knows immediately where everything is.” Since the real costs in health care are in labor, anything design can do to improve safety can save money as well.

“Family-centered care,” a means of treatment that involves a patient’s family members, also saves money by easing the strain on patients and acting as a check on errors. When Anshen+Allen Architects was designing the Newborn Intensive Care Unit (NICU) at Women & Infants’ Hospital in Providence, Rhode Island, doctors, nurses, and the architects visited NICUs across the country to study facilities for various “models of care,” including open bays and single-family rooms. They concluded that, “while there was some concern that the single-family-room model of care was beyond the scope of the large service at a facility like Women & Infants’ Hospital, after visiting these recently constructed nurseries, there was unanimous consensus that it was the only model of care that should be considered,” according to a paper by Dr. James F. Padbury and architect Vera Van Middlesworth. “We believe that, before this decade is completed, this will be the dominant model of care in NICU design. In the fall of 2006, the American Institute of Architects made this very recommendation.” The paper was due to be presented at the International Academy for Design and Health’s Fifth World Congress and Exhibition in Glasgow, Scotland, June 27–July 1.

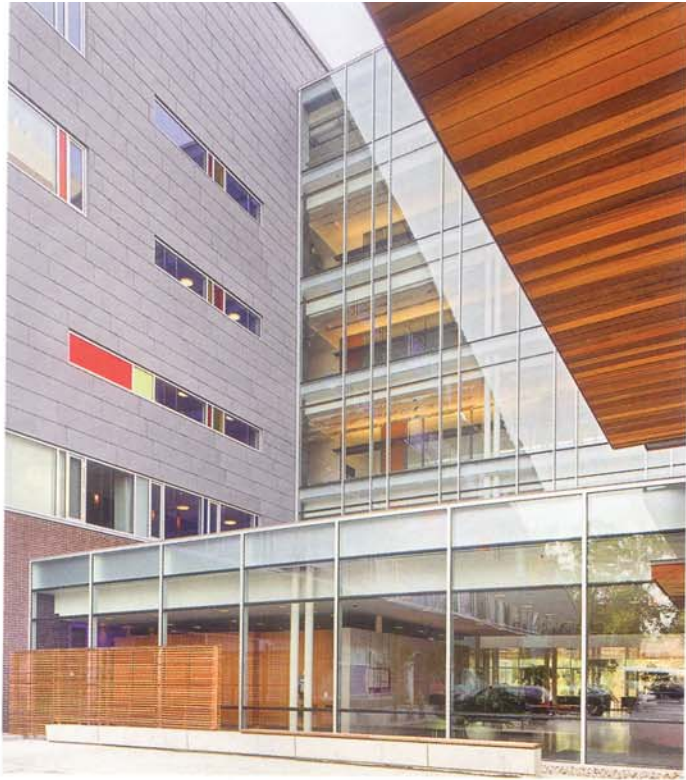


Substantial population shifts in the years since the Hill-Burton hospitals were constructed have resulted in many areas that are significantly underserved. Today, many new hospitals are going up in suburban areas where there is a lot of room to build. The relative availability of inexpensive land there contributes to their substantial size. New hospitals are also being built in growing regions. "The area of the country with the most significant increase in hospital construction is the South Atlantic, where starts grew 30 percent in 2005 and 32 percent in 2006," according to the McGraw-Hill report. States with the most construction included Virginia, Georgia, and Maryland, where an addition to Baltimore's Johns Hopkins Hospital, begun in 2006, was one of the largest health care projects to break ground in recent history. The Johns Hopkins project consists of two, 12-story towers, designed by Perkins + Will, that will frame a new main entrance to the existing hospital complex. One of them is an 830,000-square-foot Cardiovascular and Critical Care Tower, with 350 beds, which will be Hopkins' largest clinical building. The other is the 560,000-square-foot Children's Tower, which will include 205 inpatient beds, 10 operating rooms, a pediatric trauma center, as well as facilities for Pediatric Clinical Research, high-risk obstetrics patients and newborns, and outpatient care for oncology and psychiatry. The towers, slated to open in June 2009, are part of a 10-year master plan that will transform the Hopkins medical campus. Its cost is estimated to be \$1.2 billion.

With the **Banner Estrella Medical Center** in Phoenix, NBBJ designed a hospital that pursues high style. A thin, six-story tower containing patient rooms rises above a double-height lobby volume at the north elevation (left). A two-story building extends west from this area and houses conference space as well as classrooms (below).



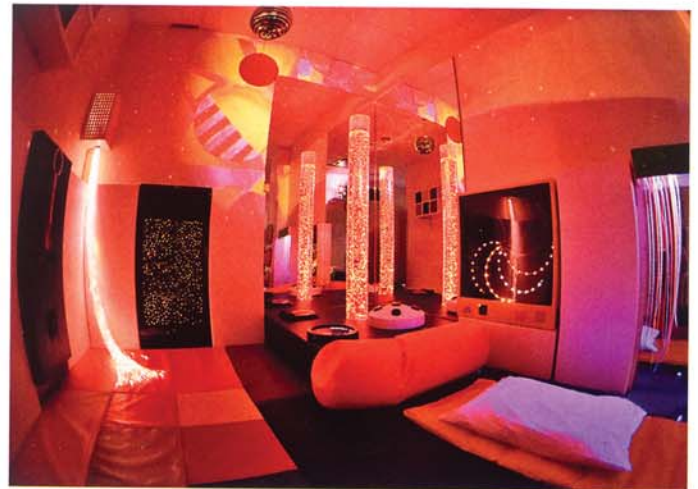
PHOTOGRAPH BY JAMES HARRIS; PHOTOGRAPH BY JAMES HARRIS



With their **Bloorview Kids Rehab** in Toronto, Montgomery Sisam and Stantec Architects designed a hospital that doesn't feel like one. This strategy was meant to help the patients, who are disabled children, function with greater independence. Windows are located at wheelchair height and patient rooms resemble cozy, private bedrooms.



Most new hospitals have single rooms, and there is a great deal of emphasis on making them safe and comfortable—even cozy. Design is even being used to empower patients. At Canada's newest and largest children's rehabilitation hospital, Bloorview Kids Rehab in Toronto, Montgomery Sisam and Stantec Architects had the idea to create a place that operates as a hospital but doesn't look or feel like one. It is meant to enable children with disabilities to function with greater independence. The main corridor in the \$101 million, 353,000-square-foot center overlooks a swimming pool. Windows frame views of nature and the city, many from wheelchair height. Corridors provide room for wheelchairs, walkers, and tricycles to turn corners easily and pass one another safely. The hospital contains an all-grades school for inpatients and a kindergarten for children, both with and without disabilities. There are therapeutic gardens, play areas, and ravine pathways. And sustainable design was part of the planning from the start, so photovoltaic panels dot



the roof, outside-facing rooms feature operable windows, and perforated blinds provide UV protection.

Green design practices like these are finding their way into many new hospital projects. The University of California at San Francisco, for instance, engaged an experienced health care firm, Anshen+Allen, to work with William McDonough+Partners, a pioneer in green design, to create the first phase of its new Children's, Women's, and Cancer Hospital in Mission Bay. This will be the first new hospital built in San Francisco in decades and is expected to cost between \$1 billion and \$1.3 billion. Upon completion in 2014, it will contain 183 beds for children, 36 beds in its women's service, and 70 beds for cancer patients—all designed to maximize energy savings. Anshen+Allen is well prepared, having recently designed a prototypical "Green Patient Room" for the Institute for Healthcare Improvement's Five Million Lives Campaign. The room's purpose, the architects say, is to "demonstrate green materials and technologies that are economically



Anshen+Allen designed a 150,000-square-foot addition to **Women & Infants' Hospital** in Providence, Rhode Island (above). It will contain an 80-bed neonatal intensive care unit designed around a family-centered care model with individual patient rooms.



For the Institute for Healthcare Improvement, Anshen+Allen is developing a prototype **"Green Patient Room"** made with sustainable materials.

viable, readily available, and appropriate for use in intensive health care settings" and to show how to create "a healing environment that improves the quality of life for patients, staff, and family."

The intentions behind this Green Patient Room nicely sum up direc-

tions in hospital design today: an emphasis on ecological design as well as a natural, humane approach to health care. How politics will affect construction of these projects, though, remains unknown. Hospitals have been profitable in recent years, but escalating health care costs and growing numbers of uninsured patients are likely to precipitate a crisis. Congress almost certainly will consider some kind of universal health care coverage, and the form it takes will dramatically impact construction. What is known is that the baby boom generation will begin turning 65 in 2011, and that rising life expectancies will create a need for more health care facilities of all kinds. The number of hospitals dedicated to what is called palliative care—a non-interventional, comforting, end-of-life experience—is likely to increase significantly. Based on the hospice model, they privilege quality of life over the preservation of life: an about-face from the high-tech, invasive, dramatic, impersonal style that characterized mainstream American medicine for some time. A new respect for the natural order is gaining a foothold on many fronts. ■