

Abundant Work

Health care construction is shaping up as a leading regional market segment



by Jim Parsons

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From a healthy economy to an aging population, several factors are contributing to a steady supply of health care construction work in the Mid-Atlantic.

Widespread urban and suburban growth. A strong economy. Aging baby boomers. Major advancements in medical technology.

These trends and others are contributing to a robust health-care construction market in the Mid-Atlantic region, and hospitals and other health-care organizations are adding new buildings and expanding and renovating existing facilities.

Today's health-care facilities look and function differently from comparable buildings constructed only a decade or two ago, with patient experience now considered a top priority. For example, institutional wards and semiprivate hospital rooms are giving way to spacious, natural-light-filled private rooms with finishes and amenities that rival upscale hotels.

"Studies show that private rooms provide many medical benefits, such as >>

ABOVE: Johns Hopkins Hospital, Baltimore, has a \$275 million program to add 1.4 million sq ft. Rendering courtesy Johns Hopkins Hospital.

Selected Health Care Projects in the Mid-Atlantic

Perelman Center for Advanced Medicine Philadelphia

Owner: University of Pennsylvania

Architects: Perkins Eastman and Rafael Viñoly Architects, New York

Construction Manager: L.F. Driscoll, Bala Cynwyd, Pa.

Scope: A 360,000-sq-ft ambulatory care and cancer center.

Status: Phase one to be completed in 2008

Virginia Commonwealth University Critical Care Tower Richmond

Owner: VCU Health Systems

Architect: HKS, Dallas

Construction Manger: W.M. Jordan Co., Newport News, Va.

Scope: A 15-story, 374,000-sq-ft main hospital addition with seven acute care and intensive care units.

Cost: \$192 million

Status: Scheduled to open in fall 2008

Delaware Veterans Home Milford

Owner: State of Delaware

Contractor/Design/Build Leader: Nason Construction, Wilmington, Del.

Architects: Becker Morgan Group, Dover, Del.; GBQC Architects, Philadelphia

Scope: A 105,000-sq-ft, 150-bed facility to provide care for the state's veterans.

Cost: \$30 million

Status: Completed fall 2006

Shady Grove Hospital Rockville, Md.

Owner: Adventist Health Care Inc., Rockville, Md.

Contractor: Whiting Turner Contracting Co., Baltimore

Scope: A four-story, 207,000-sq-ft hospital addition with 144 private patient rooms; part of a four-year expansion and renovation program.

Status: Scheduled for completion fall 2007

Health Care



Phase one of the Perelman Center for Advanced Medicine, Philadelphia, will be completed in 2008. Rendering courtesy of Rafael Viñoly.

lower infection rates and fewer medication errors," says architect Scott Thomas of Baltimore-based Canon Design, which designed a new six-story patient tower at Baltimore Washington Hospital in Glen Burnie, Md. "Family members also stay with patients longer in private rooms, many of which offer sleepover amenities. That adds up to a quieter, less disruptive environment that is more conducive to recovery."

Facility layouts are also supporting caregivers' ability to bring treatment technology to the patients and minimize transfers between levels of care and departments.

"The idea is to design the facility for the convenience of the patient," says Mary Jane Eastman, a partner with Perkins Eastman, which is teaming with Rafael Viñoly Architects to design the 360,000-sq-ft Perelman Center for Advanced Medicine at the University of Pennsylvania in Philadelphia. "Rather than being shuttled around different parts of the hospital, all the services – imaging, blood work, consultation with a doctor – are together."

These designs also reflect a new understanding of how nurses and hospital staff can best do their jobs in what many considered among the most stressful of

work environments. Studies reported by the nonprofit Center for Health Care Design have found that multiple, well-lit workspaces located near patient rooms enable nurses to spend more time with patients, respond quicker to calls for assistance and create fewer distractions and errors than the traditional centralized nurses station.

"Considering the critical shortage of nurses and other caregivers, anything that can improve their working environment will only help hospitals retain staff and improve the quality of their service delivery," Thomas says.

Administrative aches and pains But while health care may be among the region's most active design and construction markets, the projects' specialized requirements place added pressure on the already problematic issues of materials and labor pricing.

"Most hospitals and large health-care projects are planned and budgeted several years in advance," says Joe Kranz, Turner Construction Co.'s Health Care Group leader for the Mid-Atlantic region. "It's a huge challenge to predict the cost escalation for commodities and services when you won't be starting for another year or two."



Beebe Medical Center, Lewes, Del., is finishing up a \$35 million expansion. Construction will be complete this fall. Photo courtesy of Beebe Medical Center.

John Lawson, president of W.M. Jordan Co. of Newport News, Va., estimates that “the costs for these types of projects have gone up by 35 percent in the past four years, with a new hospital now costing a general contractor about \$400 per sq. ft.”

There’s little room for error, adds Law-

son, last minute but runs counter to the contractor’s need to precisely plan and install mechanical and electrical systems.

That leaves contractors with few coping strategies. “The solution is to communicate daily, give hard deadlines and make good assumptions,” Lawson says.

Owners of health-care facilities have some major cost concerns of their own, particularly when it comes to energy.

son, whose firm is managing construction of a 374,000-sq-ft addition to the main hospital at Virginia Commonwealth University’s Medical College of Virginia campus in Richmond. “Being too conservative with pricing risks putting a needed project on the shelf, only to find later that it could have gone through,” he says. “But if we’re too aggressive with our budget and experience overruns, we face a different kind of problem.”

Another issue is the changing nature of medical technology, which often leads owners to delay purchases of major surgical and diagnostic equipment until the

Meanwhile, owners of health-care facilities have some major cost concerns of their own, particularly when it comes to energy.

“While health-care buildings are among the least prevalent commercial building types, they are the fourth-highest consumer of energy for all building types according to the EPA,” says Byeong Eon Park, a design architect with DMR Architects of Hasbrouck Heights, N.J. “At 561 trillion BTUs, they account for 11 percent of all commercial consumption. The health-care industry also contributes five million tons of solid waste >>

Beebe Medical Center Lewes, Del.

Owner: Beebe Medical Center

Construction Manager: Wohlsen Construction, Lancaster, Pa.

Scope: Three-story addition to support expanded emergency and critical care services and 42 inpatient beds.

Cost: \$35 million

Status: Scheduled for completion in fall 2007

Military Amputee Training Center at Walter Reed Army Medical Center Washington, D.C.

Owner: Baltimore District, U.S. Army Corps of Engineers

Contractor/Design-Build Leader: Turner Construction Co., Washington, D.C.

Architect: Ellerbe Beckett, Kansas City, Mo.

Scope: A 30,000-sq-ft training center for wounded military personnel.

Cost: \$8.7 million

Status: Scheduled for completion in October 2007

Howard Hughes Medical Institute - Janelia Farm Campus Ashburn, Va.

Owner: Howard Hughes Medical Institute, Loudoun County, Va.

Architect: Rafael Viñoly Architects, New York

Construction Manager: Turner Construction, Arlington, Va.

Scope: A 689-acre campus containing 760,000 sq ft of research, laboratory and conference facilities.

Cost: \$500 million

Status: Completed 2006

St. Elizabeth’s New Hospital Washington, D.C.

Owner: District of Columbia Department of Mental Health

Contractor: Tompkins Builders, Washington, D.C.

Scope: A new two-story, 438,591-sq-ft, 239-bed psychiatric hospital.

Cost: \$140 million

Status: Scheduled for completion in 2009



The \$112 million Baltimore Washington Medical Center, Glen Burnie, Md., is expanding the emergency departments and adding women's services. It will be complete in August, 2008. Rendering courtesy of Cannon Design.

annually to the nation's landfills."

Health-care facilities "offer wonderful challenges and opportunities to expand our current approaches to sustainability," Park adds. Potential options include passive solar heat, reflective metal cool roofs, daylighting with photocell sensor lighting controls, skylights and operable windows in all occupied spaces.

Park says the U.S. Green Building Council is currently developing a new LEED standard for health-care facilities,

prove the quality of their indoor environments," he adds.

Alternative therapies With some exceptions among smaller facilities, the complexities of major health-care facilities usually preclude the use of design-build, but that doesn't leave design-build as the only project delivery option.

For example, Delaware is making its first foray into state-funded design-build projects with a new 150-bed skilled

"With the high number of critically injured service men and women returning from Iraq and Afghanistan, the military could not wait until 2011 for a new facility to be ready. The corps designated the project as a military transformation facility, which freed them from having to create a building with a 30-year lifespan."

and the growth of state and municipal environmental regulations will likely spur even more interest in these approaches.

"Proven use of current and emerging technology offers the health-care industry opportunities to not only reduce their energy consumption but also im-

nursing facility for veterans.

"Speed is the big reason why the state passed special legislation to accommodate design-build for this project," says Mike Berardi, president of lead contractor Nason Construction of Wilmington, Del. "We estimate that it will save 12 to 16 months over design-bid-build." >>

Baltimore Washington Medical Center Expansion Glen Burnie, Md.

Owner: University of Maryland Medical System, Baltimore

Architect: Cannon Design, Baltimore

General Contractor: Twin Contracting Corp., Alexandria, Va.

Scope: A six-story, 250,000-sq-ft patient tower with new women's services and expanded emergency department; 48,000 sq ft of renovations.

Cost: \$112 million

Status: Scheduled for completion August 2008

Langley Air Force Base Hospital Hampton, Va.

Owner: Norfolk District, U.S. Army Corps of Engineers

Scope: A 150,000-sq-ft addition to existing military hospital, plus 98,000 sq ft of renovations.

Architect: Odell Associates Inc., Richmond, Va.

Contractor: Tompkins Builders, Washington, D.C.

Cost: \$57 million

Status: Completion scheduled for fall 2008

Alexandria Hospital Expansion & Renovation Alexandria, Va.

Owner: Inova Health Systems, Falls Church, Va.

Scope: 113,000-sq-ft expansion and renovation to add new emergency, surgical and support facilities.

Construction Manager: Turner Construction/Dominion Construction JV

Cost: \$40 million

Status: Scheduled for completion in late 2009



The University of Maryland Medical Center, Baltimore, has started a \$357 million ambulatory care center. It will be complete in 2010. Rendering courtesy of Perkins & Will.

Nason project manager Fred Doster says that design-build enabled the architectural team of GBQC/Becker Morgan to modify the original design to incorporate commercial building amenities such as terrazzo floors, a brick and stone exterior and a standing-seam metal roof.

"We also made a major change to the original layout, moving the nurses' stations to the middle of the L-shaped patient wings," Doster says. "The result is a more efficient layout that the state is considering using as a prototype for future facilities of this type."

Rapid completion is also the reason why the U.S. Army Corps of Engineers elected to use design-build for the new 30,000-sq-ft Military Amputee Training Center at Walter Reed Army Medical Center in Washington, D.C., even though the hospital's operations are slated for consolidation with the National Naval Medical Center in Bethesda, Md., as part of the Pentagon's Base Realignment and Closure program.

"With the high number of critically injured service men and women returning from Iraq and Afghanistan, the military could not wait until 2011 for a new facil-

ity to be ready," says Tom Anglim, principal-in-charge with Ellerbe Becket of Minneapolis, which is teaming with Turner Construction of Washington, D.C., on the project. "The corps designated the project as a military transformation facility, which freed them from having to create a building with a 30-year lifespan."

Design-build also afforded the project team more flexibility to meet the \$8.6 million budget, which would have been insufficient to construct an existing design for the training center.

"Knowing the budget helped us tailor the facility to what the corps could afford," says Anglim, who adds that the center is hardly a "throwaway" building and has the same square footage and functionality of the original design.

"We changed the foundation and structural system to minimize the amount of excavation and selected a rooftop mechanical system with a lower first cost," he says. "We also changed the exterior from precast panels to masonry and stucco and eliminated a proposed green roof in favor of a more conventional stormwater retention and treatment system." <<

Ambulatory Care Center Baltimore

Owner: University of Maryland Medical Center, Baltimore

Architect: Perkins & Will, Washington, D.C.

Construction Manager: L.F. Driscoll/Whiting Turner Joint Venture, Baltimore

Scope: An eight-story, 503,000-sq-ft center for cancer treatment, diabetes care and surgical services.

Cost: \$357 million

Status: Scheduled for completion in 2010

New Clinical Towers Baltimore

Owner: Johns Hopkins Hospital

Scope: Two towers combining critical cardiovascular care and a children's hospital, totaling 1,473,000 sq ft

Cost: \$275.5 million

Architects: Zimmer Gunsul Frasca Partnership/ Perkins & Will, Washington, D.C.

Construction Manager: Clark Construction, North Bethesda, Md.

Status: Scheduled for completion in 2009

New Military Hospital Ft. Belvoir, Va.

Owner: U.S. Army Corps of Engineers

Scope: A new 148-bed, 868,791-sq-ft hospital.

Cost/Status: TBA

Potomac Hospital Woodbridge, Va.

Owner: Inova Health System, Falls Church, Va.

Architect: McCulloch England Associates, Inc., Charlotte, N.C.

Construction Manager: Bovis Lend Lease/Twin Contracting Corp. Joint Venture, Bethesda, Md.

Scope: A new four-story, 180,000-sq-ft patient tower to the existing hospital; 10,000-sq-ft emergency department expansion; roadway improvements; expanded central energy plant.

Cost: \$60 million

Status: Completed 2006