

# Michael Graves, Army partner to design homes for wounded soldiers

By Ann Cameron Siegal, Published: December 15

Who would have guessed that some of the most innovative designs in accessible housing would develop on the Army base at Fort Belvoir? Goodbye, dreary exteriors of standard military units. Hello, vibrant colors and crisp white trim. Circular accent windows, angular roof lines and window trellises give these homes a strikingly contemporary look.

The cheerful curb appeal is intentional — these homes are created for severely injured active-duty soldiers returning from the battlefields of Iraq and Afghanistan. While medical advances save lives on the battlefield, many soldiers return with injuries that will require lifelong accommodations and many of those choose to stay in the service.

Rather than telegraphing “a wounded soldier lives here” though, these one-level, three-bedroom, single-family homes incorporate subtle accommodations far beyond basic disability standards, and do so in an aesthetically pleasing manner.

Through the public-private Wounded Warrior Home Project, Clark Realty Capital teamed with renowned architect Michael Graves to create state-of-the-art homes and amenities for wounded soldiers. The first two of 21 planned houses were completed last month in Belvoir’s Westlawn Village neighborhood.

Graves was selected through a nationwide design competition, along with IDEO, a design firm. Beyond

<http://www.washingtonpost.com/realestate/michael-graves-army-partner-to-design-homes...> 12/19/2011

For example, Shell lauded the removable cabinets under counters. "A lot of my buddies have to turn their wheelchairs to the side in order to work in the kitchen," he said. "Being able to roll right up to the counter brings you back into the family fold."

Gadson incorporated open shelves under counters in his own home to allow easy access to dishware.

To address variations in height among residents, kitchen counters, sinks, work islands and the stove top include motorized lifts that operate with the touch of a button.

One double amputee, a Marine staff sergeant who was injured in Afghanistan and has a background in construction, praised the quality of the trim and finishing in the prototype houses. He said the home's wide kick plates on doors reduce fatigue on the house, because these areas are constantly being pushed on with a wheelchair or prosthetics. High baseboards also provide the same function for minimizing the wear and tear.

The Wounded Warriors Home Project is part of a \$700 million development project at Fort Belvoir. Each prototype house costs about \$600,000 to build, and Clark Realty estimates the cost of future homes will go down to about \$500,000 through economies of scale and lessons learned.

Nineteen more Wounded Warrior homes are planned for Fort Belvoir's Westlawn Village neighborhood beginning next year. Residents' costs are covered under military housing allowances. Soldiers can apply for these homes through the Army's housing program and, if selected, they and their families can live there until they receive orders for a new assignment, choose to move off base or retire from the service. There are a few families on the waiting list.

The new homes join 95 other standard accessible homes on the base.

### **Incorporating dignity**

The Wounded Warrior Homes project is not about hiding evidence of disabilities, but of respecting the individual's need for privacy and sense of normalcy.

For instance, large closets in the master bedroom allow storage room for extra wheelchairs and incorporate electric outlets for charging wheelchairs and prosthetics.

Whether dealing with a loss of limbs or severe nerve damage, regulating one's own body temperature can be problematic. Zoned heating and cooling systems, especially in the bedrooms and bathrooms, allow for personal preferences.

Graves said he originally wanted a dedicated therapy room to be near the family room, but, "Others wanted it as far away as possible — to be used as a private retreat," he said. The room has a rubberized floor to give cushioning and better traction during rehabilitation exercises.

Digital technology within the therapy room enables interaction with doctors or physical therapists at on-base medical facilities, minimizing travel and waiting time or childcare concerns for basic consultations. The room can easily be converted to another bedroom or a home office.

The Wounded Warrior homes seem to strike a balance between accommodating challenges and removing them completely, Shell said. He credits his recovery in part to his wife's putting many things just out of reach in his own home, forcing him to stretch. "Day-to-day duties became part of my

his 47 years of worldwide architectural experience and his creative line of consumer products at Target, Graves brings a first-hand understanding of the challenges involved in accessible design. Almost a decade ago, an illness left Graves paralyzed from mid-chest down.

“The goal is to help individuals with life-altering injuries become as independent as possible,” he said, adding that maintaining the soldier’s dignity is a top priority.

For example, ramps are non-existent. Instead, wide, level patio entryways lead to automatically controlled doors, which remove the need to fumble with door knobs or keys.

Blending the indoors with outdoor visibility and accessibility is a key design element. Each home has a four-foot wide walkway around it so residents can go from the private back patio off the master bedroom to the front yard without navigating through the house.

Wide garages with eight-foot-high clearance ensure that vans with wheelchair lifts can enter and park beside another family car while still allowing space between for maneuverability. “Garages are an integral part of these homes,” said Casey Nolan, Clark Realty Capital’s Project Director. “They’re not a room forgotten.”

### **Consulting those who know**

Beyond professional input, individuals living with severe injuries were also consulted on design, including Army Col. Greg Gadson (who is also known for serving as an inspiration to the New York Giants during their run to the Super Bowl in 2009) and retired Army Captain Alvin E. Shell Jr., both injured in Iraq.

In 2007, a roadside bomb cost Gadson both his legs and caused severe nerve damage to his right arm. Shell suffered third-degree burns over 33 percent of his body when he charged through a gas fire to rescue a member of his unit after a 2004 rocket attack.

Both men live off base now, but returned recently to tour the model homes.

“Basic (accessibility) codes are just a starting point,” said Gadson. For instance, typical codes only require that pathways within a house be wide enough to get a wheelchair through in one direction. The Wounded Warrior homes offer 62-inch wide hallways and a 360-degree turning radius in the kitchen, bathrooms and master closets to allow for opening cabinets and navigation within each space.

With 3,000 square feet of living space, these houses have an open flow that minimizes sharp turns. They lack carpeting, and incorporate surfaces requiring minimal maintenance. Instead of hardwood floors, a luxury plank vinyl with a wood look is used. Borders along hallways have contrasting tones that present needed visual cues to those with impaired vision or traumatic brain injuries. Sliding interior doors open with the lightest touch.

There’s no one template for the severely injured, noted Graves. Accommodations must be adaptable to different needs because the active-duty tenants will change about every two or three years. The functionality of the house must work for all family members, not just those with injuries such as loss of limbs, traumatic brain injuries or sensory impairments. Flexibility is crucial.

“Everyone is different in abilities and the way they want to do things,” said Graves.

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Also, for many returning from war zones, being aware of what is going on inside and outside the home is an important part of feeling secure. Shell said, “Sometimes I can’t run around with the kids but I’d like to see them outside and throughout the house.” Long vertical exterior windows and clear-view sliding doors between the living area and hallway allow such visibility.

Customizable security monitoring systems — including window and door sensors — are operated from a central location. The main entry has an intercom and a video monitoring system. There’s also the option of interior video monitoring.

### **Building the future**

The Wounded Warrior Home project plans to collect residents’ input so future homes at Fort Belvoir and elsewhere can incorporate design suggestions. The University of Buffalo’s Universal Design program is also researching the broader applications of accessible designs beyond the military.

Once severely wounded soldiers return to civilian life, many non-profit programs such as [Homes for Our Troops](#) and [Building Homes for Heroes](#) work to provide mortgage-free, permanent, accessible homes for them. The Veterans Administration provides soldiers with funding for rehabbing existing homes to incorporate needed accommodations.

“We’re trying to raise awareness for universal design so people can understand the ideas presented and incorporate them into the general marketplace,” Nolan said.

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