



Exterior view of Chairs and Cares Model Accessible Home featuring Kolbe's universal design windows and doors.

Increasing Access for the Disabled

By Heather West

It's an uncomfortable thought, but the longer we live, the more likely we are to develop physical limitations. In fact, one out of six Americans will experience a major disability during their life. And it's no secret that America is aging significantly: By 2012, there will be more people age 65+ than in all the other age categories combined. These figures make it easy to see the growing need for universally accessible living accommodations that enable people to live independently.

Fortunately, advances in doors and other residential home components will let seniors—especially those with physical disabilities or limitations—remain independent longer than ever before while helping create a user-friendly environment that's enjoyable for everyone.

Surprisingly, the burgeoning consumer need for accessible housing has not resulted in a proliferation of accessible single-family residences. This absence prompted Chairs and Cares, a Wisconsin nonprofit group, to develop a model home showcasing universal design products. Chairs and Cares President Wayne Geurink founded Chairs and Cares after suffering paralyzing injuries from a 1991 car accident. He says the idea for the model accessible home came to him during discussions with members of a spinal cord injury group in which someone would inevitably ask, "Wouldn't it be nice if there was a place where people could see, or get information about accessible housing?"

Providing a tangible answer, the Chairs and Cares Model Accessible Home opened in late 2007. Designed by Roger Plamann, an architectural instructor at Wausau's Northcentral Technical College (NTC), the \$1.2 million project is sited on the college's campus. General contractor Keller Builders managed the construction. Once completed, the property's management was turned over to Midstate Independent Living Consultants, a nonprofit agency that serves people with disabilities in north-central and northeastern Wisconsin.

Today, the prototypical residence serves as Chairs and Cares' offices and provides real-life demonstrations of the building products that help make day-to-day activities throughout the home as convenient as possible. Essential to the accessible entry and daily function, Kolbe & Kolbe Millwork Co. contributed 51 windows, 21 interior doors and entry doors.

"Kolbe was the very first contributor to sign on to the project," says

Geurink. "We were very impressed with their enthusiasm and commitment, and their products provide the design and operation flexibility that accessible design demands," says Geurink.

"Wayne and his team have done an outstanding job with this model accessible home," praises Mike Salsieder, president of Kolbe & Kolbe. He comments, "As an organization, Kolbe is sensitive to the fact that there are many people with physical limitations and that a significant portion of our population is aging. We were privileged to be able to work with Wayne, and members of NTC, as well as other companies in our area to help provide a facility that showcases a construction that allows people with physical limitations to live independently within a residential setting."

On the Threshold

Toward this goal, universal design products help eliminate and

minimize barriers and everyday hazards. The Chairs and Cares home's exterior doors' flush-to-floor sills are engineered into the door-frames as integral components to ensure that the finished floors align with the thresholds.

"Flush sills not only enable wheelchair accessibility, they help eliminate tripping accidents for people with limited vision, for those using crutches, canes, or walkers. They are also a benefit to people pushing baby strollers, handling wheeled luggage, carrying groceries or packages, moving furniture and so forth," notes Geurink.

A metal ramp on either side of the master bedroom's large sliding door serves a similar purpose, leveling the transition from the bedroom floor to the patio. The ramp also reduces the height of the sliding door's floor track to about 1/4-inch, thereby eliminating a potential obstacle for people in wheelchairs, and reducing the potential tripping hazard for people with limited



A metal ramp on either side of the master bedroom's large sliding door levels the transition from the bedroom floor to the patio. To further simplify exit and entry for all users, the home has no storm doors.



Interior utility room door with optional pull bar for easier opening and closing.



Kolbe's universal design exterior doors with flush-to-floor sills are engineered into the doorframes as integral components to ensure that the finished floors align with the thresholds.

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Trimming thresholds is just a small part of the universal design puzzle. Doors and doorways need to be wide enough to accommodate different users. "An inch here or there can make the difference between dependence and independence for people with low strength and/or less control of their upper body," observes Geurink.

"That's why opening and closing doors and navigating doorways are among the biggest challenges for people with limited mobility."

To comfortably accommodate passage by people in wheelchairs, all of the home's exterior and interior doors are 36 inches wide, and are located so as to provide plenty of clearance beyond the doors' swing paths. "When a person in a wheelchair is entering or exiting a

house, the user needs several feet of clearance over and above the swing path of the door," Geurink says.

Open Sesame

Chairs and Care's universal design doors also minimize the effort and energy it takes to reach and grasp handles, levers and locks. The exterior door locks have large flanges with "ears" for easy twist-ability. This reduces the force it takes to overcome door resistance and manipulate door mechanisms.

The exterior doors can also be operated with a wall-mounted, automatic push pad. "Push pads are great for people with limited range of movement, or who are in wheelchairs, as it enables them to remain totally out of the door's swing space. Users don't have to maneuver back and forth to physically pull or push open the door and repeat the process for shutting it behind them," Geurink explains.

He continues, "Universal design assumes that users may have limited ability to grasp and turn a standard doorknob. That's why the home's exterior doors have large straight lever handles with a short section on the end that angles toward the doorframe at 90 degrees. These levers make the door very easy to open, and ensure that the user's hand doesn't slip off the end of the handle."

The home's oversized utility closet door features pull bars mounted to the surface to make opening and closing easier. Similarly, the home's closets have double doors and bi-fold doors, making them handy for people with restricted mobility and diminished hand strength.

The master bathroom has double doors with lever handles. Another

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To comfortably accommodate passage by people in wheelchairs, all of Chairs and Cares Model Accessible Home's exterior and interior doors are 36 inches wide. Full glass panels improve visibility.

bathroom, which is shared by two bedrooms, has a door with a lever handle for one bedroom and a pocket door for the other. When open, pocket doors also provide unobstructed openings.

"Pocket doors are easy for people with low strength to open, and are a great convenience for visually impaired people and for people in wheelchairs, because they do not require any swing clearance and they stay completely out of the way. A nice plus is that pocket doors

maximize the home's square footage," Geurink notes.

Clearly, Comfortable

Positioning glass panels in entry doors can be designed to better accommodate universal design concepts. Rather than specifying glass panels for the upper section of the door, consider reversing this traditional arrangement or expanding glass inserts for a much fuller view. This improves visibility enabling seated users and those of

shorter stature to readily see who is at their doors.

Further enhancing occupants' comfort, the exterior doors use energy-efficient LoE2-270 glass with double glazing and weather-striping to prevent drafts, temperature variations and contribute to energy savings. When natural daylight from the home's many windows is not available, energy efficient fluorescents illuminate the way: All of the interior entryways have overhead lighting. The outside front entrance also has overhead lighting as well as coach-style lights flanking the doorway.

Thanks to universal design concepts and products exemplified by Chairs and Cares, people of all ages and abilities no longer need to compromise beauty and comfort for functionality in their homes. The organization offers a clear alternative and a showplace to inform and influence builders, architects and homeowners as they meet the increasing need for long-lasting, well-designed, independent living.

The project has already made an impression on at least one builder: Lewis Reeves, president of Lewis Reeves Homes in Atlanta, who says, "I've been building houses for 30 years. Until I met Wayne, I had no idea where I'd turn—professionally or personally—to help someone with a physical disability to live as comfortably and independently as possible."

"Our vision is to have the Chairs and Cares Model Accessible Home be successful enough to influence other parts of the country to develop similar properties," says Geurink. 

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