

Housing Design

*Breaks
Down Barriers*



**ALEXANDRIA HOME A MODEL FOR
UNIVERSALLY ACCESSIBLE DESIGN**

Despite all the planning that goes into the building of a new home, most people forget to consider the ways they themselves may change over the years they spend in their dream home. Yes, all those stairs to the third-floor loft are fine today, but how will you feel about them if someday you have hip-replacement surgery? And the calming monochromatic color scheme in subtle neutral shades throughout a new home? Beautiful, but imagine how your depth perception might be thrown off if your vision deteriorates with age, as so often happens. Your beautiful home could create obstacles or, even worse, injuries.

The concept of universal design addresses the idea that all the elements in a home should be accessible to anyone who might live there - young, old, tall, short, with or without physical challenges. In Alexandria, a group of forward thinking individuals in the home planning and building business put their creative heads together and designed and built a home in 1998 that is now a showplace for universally accessible design. Known at the time as the UTAH Group (for Universally Totally Accessible Housing), the innovators are developer Richard Hardine, interior designer Betty Ravnik and architect Paul Ringdahl.

"The time was right to break down barriers," explained Hardine, whose experience with polio as a youth made him particularly aware of the accessibility limitations that exist in most buildings. He also spent 20 years working in the health care field and has long dreamed of building homes that accommodate the needs of people with health and physical challenges.

Standards for accessibility are set in state, local and model building codes, and are established in U.S. Department of Housing and Urban Development programs and Fair Housing Amendments Act requirements. These codes and requirements provide for

such features as wide doors, lower countertop segments, lever and loop style handles on doors and cupboards, bathroom grab bars, and knee space under sinks and counters, as well as entrances free of steps and stairs. These standards don't necessarily come into play in building the average residential housing unit. These design features will not likely be included unless the home is being specifically designed for a household that includes a person with physical challenges, or is being built through a publicly funded program for the purpose of meeting accessibility needs.

Ravnik, an Alexandria residential and commercial designer who teaches the subject at Alexandria Technical College, said the concept of "aging in place" is becoming more important to home design and remodeling as the baby boom generation ages. "This is a generation that's more likely to say no to going into nursing care housing when they age, and more likely to want to stay in their own homes," she said. Many of the older baby boomers, people born just after World War II, are adapting their current homes to accom-



Betty Ravnik and Richard Hardine.

*by Jolie Sasseville
Photos/Drawings Provided*



A group of forward-thinking individuals from Alexandria developed this floor plan for universally accessible design: all the elements should be accessible to anyone who might live there.



moderate changing physical abilities.

With the totally accessible home in Alexandria, Ravnik, Hardine and architect Ringdahl went back a step further to the beginning of the home design process. Using Hardine's experience with polio that left him with some mobility limitations, and his wife's perspective as an occupational therapist, coupled with Ravnik's conviction that accessibility need not be ugly, and Ringdahl's ability to tie it all together, they set out to build a house that would be accessible throughout to anyone.

A tour of the home begins in the garage, which includes ample floor space for maneuvering a wheelchair, and one garage door high enough to accommodate a van. The garage and entire home are built on one level, situated on the lot at an even elevation so there are no stairs or other obstacles in entering the home. Built on a concrete slab with hydronic plastic heating tubes embedded in the floor, the entire home is evenly heated, including the garage.

The open floor plan visually joins the living room, dining room and kitchen, while allowing ample space for wheelchairs.

The bathroom sink and a section of countertop are open underneath for easy wheelchair access. The bathtub is at the same height as the toilet and includes a transfer bench so someone entering from a wheelchair has a place to ease the transition.

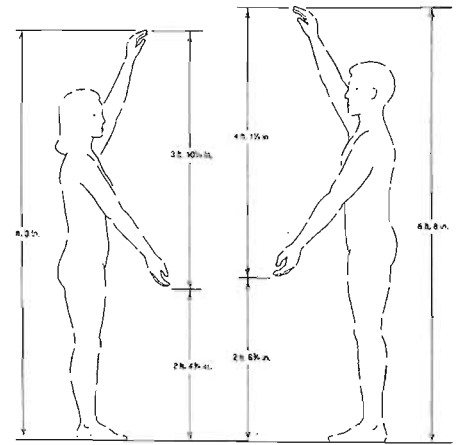
Even the mechanical room that opens into the garage is accessible, with lever-style door handles and control switches at a height reachable for anyone.

Hardine explained that, when planning the home, the developers used data on optimum ranges for reaching and stooping from either a standing or sitting position. Another consideration was ease of movement for people with limited strength. Entering the home from the garage into the laundry room, these factors are immediately evident. The washer and dryer are both front-loading; the laundry sink has a deep space underneath to make room for the knees and wheels of someone who is wheelchair-bound, and the faucets have wing-style handles that are easier to manipulate than standard round handles. A work counter can be adjusted to a comfortable height for standing or sitting, and the closet has a retractable spring-loaded clothing rod that can be pulled down from a sitting position.

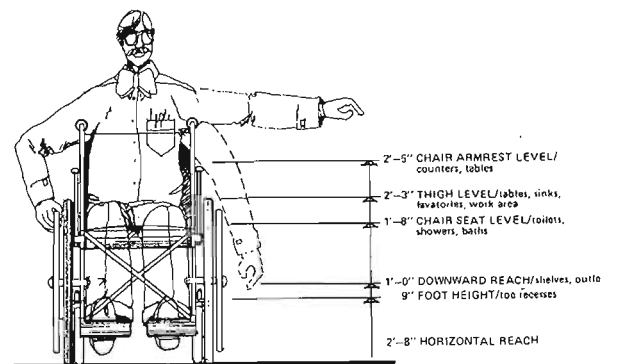
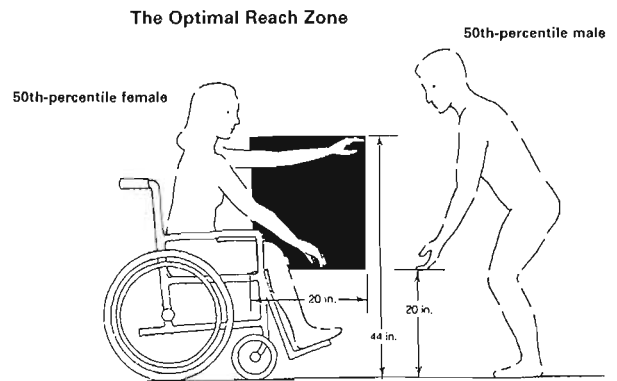
Approximately 1,300 people have visited the showcase home since it was completed last year in time for an Alexandria Parade of Homes. The most captivating room is the kitchen, filled with the kind of "ah, ha- I'd love that in my house" features that would work for anyone - just as the universal design concept prescribes. Side-opening doors on the oven are convenient not just for

the wheelchair-bound, and both oven and microwave are designed with adjacent flat surfaces so heavy dishes can be set down quickly. The range-top surface is also flat, with side controls so one needn't reach across a hot burner or steaming pot to adjust the heat. An ingenious addition to the range design is an adjustable angled mirror that reflects whatever's on the burners so the cook doesn't need to be standing above the surface to see in.

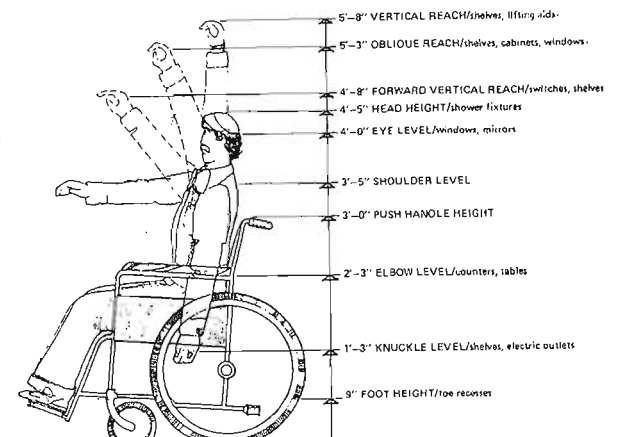
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Hardine and the developers used data on optimum ranges for reaching and stooping from either a standing or sitting position in designing the home. Compare the difference of the upper and lower reach ranges for a female of average height (top) to the optimal reach zone of a female in a wheelchair (second from top). The third and fourth illustrations show the optimal vertical and horizontal reach for a male in a wheelchair and appropriate applications at each height.



The home's exterior continues the universal design commitment. Raised flower beds with a paving stone retainer wall can be reached from a wheelchair, or the gardener can sit on the edge to work.



Most remarkable in the kitchen is an adjustable motorized sink unit that can be lowered or raised to a height of 40 inches. A home might have two or more cooks, each with his or her own ideal working surface height, so this feature lets everyone pitch in to work in the kitchen. Children will now have one less excuse to refuse to help with dishes as the sink comes down to their own level.

A pull-out drawer adjacent to the sink reveals a cut-out space where a mixing bowl can be set for stirring without needing to grip the bowl in place with one hand. Again, this is a feature that helps adults with diminished strength in their arms and hands, but also enables children to help in food preparation. Wall-mounted cupboards are equipped with pull-down shelf units that bring stored items down to a more reachable height. Ravnik said that shorter people touring the home loved this feature, as many kitchen shelves are so high a step stool is needed to reach them.

All countertops in the kitchen and bathrooms, and the edges of flooring as one moves from room to room, are done in contrasting bands of color so that the vision-impaired can more easily distinguish a transition in surfaces. Non-glare commercial vinyl flooring was used in the kitchen, and in the living room, commercial-grade carpet is glued directly to the floor so there is no buckling that could impede the movement of a wheelchair.

An open floor plan joins the kitchen, dining room and living room visually, while also providing ample open space for wheelchair maneuverability and cutting down on dangerous sharp corners. The few wall corners in the home were adapted to 45-degree angles and edges were given a "bull-nose" vinyl edging that has some give so that, if bumped, the contact will not cause pain.

In one bathroom, the tub is at the same height as the toilet and includes a transfer bench so someone entering from a wheelchair has a place to ease the transition. A side-mounted faucet and hand-held shower wand are

designed for ease-of-use. An extra-large shower enclosure in the master bathroom has no doorjamb and allows for roll-in entry. The tile shower has a booster heater to warm the space. The sink and adjacent counter surface are open underneath.

No matter what room the resident happens to be in, a portable doorbell unit can go along. Besides sounding an audible alarm, it also emits a strobe light flash so that those with impaired hearing can be alerted that someone is at the door. In the master bedroom, a television monitor can display a closed-circuit video image of visitors at the front door.

This home's exterior continues the universal design commitment, with the understanding that people should be able to enjoy the outdoors whatever their physical mobility level. From either the front or back entrance, a paved walkway and patio are all on the same level. Raised plant beds with a paving stone retaining wall can be reached from a wheelchair, or the gardener can sit on the edge of the knee-height wall to work, without having to


The kitchen includes many captivating universal design concepts, including side opening oven doors, a flat range top surface with side controls, angled mirrors that reflect what's on the burners and a pull-out drawer, demonstrated by Hardine. The pull-out drawer includes a cut-out for the mixer, so it doesn't need to be gripped while stirring. This feature not only helps adults with diminished strength in their arms, but also enables children to help in food preparation.





One less excuse for the children to help with the dishes: this adjustable motorized kitchen sink can be lowered or raised to a height of 40 inches. This remarkable feature lets everyone pitch in to work in the kitchen.

kneel or stoop.

Hardine said the home's floor plan has even attracted attention from the Veterans Administration, which is using its accessibility features in its in-home assessments for disabled veterans. Ravnik found the process of implementing the universal design concepts to be a valuable experience, for herself as well as for her design students at the Technical College. Students all visited the house to see how the concepts they learned could be put to practical use. Hardine had high praise for the project's many subcontractors, who were all educated on the goal and the concepts involved before they did their part of the work. Altogether, construction of the Alexandria universally accessible home took 62 days to complete. To view the home, located at 1603 Steger Road in Alexandria, contact Paul Ringdahl at (320) 763-9368; Richard Hardine at (320) 762-4258, or Betty Ravnik at (320) 762-4617. 

Jolie Sasseville is a writer and a community college journalism instructor who lives on Otter Tail Lake.

Design and equipment features of the universally totally accessible home:

- No steps; level floors throughout
- Automatic door from garage to house
- Retractable upper kitchen cabinet shelves
- Accessible 2-drawer dishwasher
- Retractable door between master bedroom and bath
- Remote control interior blinds/shades
- Accessible electric outlets and switches
- Front door video camera
- Non-slip bath hardware
- Transfer deck by tub
- Height-adjustable kitchen sink (10" range)
- Roll out cabinet shelves
- Hydronic heating tubes in floors of house & garage
- Surface edge transition identification


*"Shopping for Loans"
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Mortgage refinancing. This option is usually most attractive to someone with a relatively small amount left to pay on his or her primary mortgage, and who would prefer one monthly payment rather than two. It's especially appealing to a homeowner with an older mortgage at a higher interest rate, when 2 percentage points or more could be shaved off by refinancing.

"There are a lot of people still sitting at 9 percent with their first mortgage, so refinancing is attractive to them," said Thorsen. With today's lower interest rates, homeowners might refinance their mortgage for a higher amount and still end up with lower monthly payments.

For would-be-borrowers who qualify for neither of these three options, there are other financing possibilities, including a home loan program through the Minnesota Housing Finance Agency.

Whatever financing option you choose, make sure you thoroughly understand the closing costs and keep those costs in mind when considering your options. "If there's a low interest rate but significant closing costs, it may not be a bargain," Sinclair said. "People get real hung up on interest rates, because (getting a low rate) is like winning the game."

So sit down with several bankers with whom you're comfortable, and have them spell out all the costs associated with your financing options. And don't be afraid to negotiate. With the current competition in the banking industry, it could definitely pay off. 

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