



Universal design enables independence

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Maintaining independence is often linked in people's minds to their sense of dignity and self-worth, especially as they age.

"Minimizing our reliance on others can become a priority,"

says Dr. Brad Fain, principal research scientist with the [Georgia Tech Research Institute \(GTRI\)](#).

Fortunately, home builders, interior designers, and manufacturers are addressing this priority through a movement known as "universal design." [The Center for Universal Design](#) credits architect, product designer, and educator Ronald A. Mace (1941-1998) with coining the phrase universal design to describe the concept of designing all products and the built environment to be aesthetic and usable to the greatest extent possible by everyone.

The [American Society of Interior Designers \(ASID\)](#) clarifies, "The term 'universal design' is often applied in different ways but broadly refers to the concept that ideally all design (products, technologies, and the built environment) should serve the broadest range of people, regardless of levels of ability or mobility, age, gender, or physical stature without the need for adaptation or specialized design."

"Users and their needs are at the center of the universal design," adds Fain. "The thoughtful inclusion of important features in design can leverage long-term use without an appearance of an afterthought as people's needs change during their retirement years."

"People are living much longer, requiring us to plan not only for our home design needs at present, but also for our needs in the future," says [Ellen Cantor, ASID, CID](#).

"Universally designed homes provide an attractive solution for both current and future needs. In a home design, it is important not only to look at your current needs, but also consider how they might change over the next five to ten years."

Design elements are both attractive and functional

For the growing number of seniors considering their housing options, universal design elements not only make a property more attractive, but also suit it to meet the residents' current and future needs. Evelyn Grodan, CAPS, ILS, ASID-IP, is an independent living

specialist and certified aging-in-place specialist with [Design That Works](#). She gives a glimpse into a universally designed home for functionality, accessibility, and aesthetics:

- **No-step entry** allows entering the home directly from the sidewalk by sloping or ramping the walkway to the door. A variety of materials, such as pavers, gravel, and cement, can be used with landscaping to make a strong, step-free visual impression.
- **One-story living** prepares for the future by locating a bedroom and bath on the main floor. This can save later renovation money if planned ahead. Deep stacked closets on the floors directly overhead can permit installation of a future home elevator, as an alternative in a two-story home.
- **Wide interior doorways** (34–36 inches wide) ensure access to all rooms. To gain an extra two inches of clearance, swing-away hinges provide extra width for a minimal cost. If a construction project is needed to retrofit the doors, combining this project with a bathroom or kitchen remodeling job might be most cost-effective.
- **Wide hallways** (48 inches or more wide) enable easier turns. Wheelchairs generally require a five-foot clearance to easily turn without backing up.
- **Extra floor space** can be obtained by eliminating unnecessary clutter and unused furniture. In addition to adding turnaround space, adding decorative chair rails can add beautiful yet handy grips for maneuvering, especially if balance is a concern.
- **Pull and lever handles** are easier to grasp than round knobs on cabinets and drawers, and can be more stylish. Levers allow opening with either hands or elbows. Pulls should be large and extend far enough to accommodate larger hands.
- **Lighting** should be considered based on the function and tasks for specific rooms. Kitchens, reading areas, and bathrooms generally have higher lighting needs. Motion sensors can help prevent accidents in hallways and on staircases. Overhead, step, and tread lighting on staircases can also help light the way.
- **Adjustable rods and pullout shelving** in kitchen and bathroom cabinets and above stove tops and sinks can all be installed with either manual or motorized access.
- **No-step showers and baths** require removing steps, barriers, or curbs in showers. A five-foot clearance is suggested. A drainage system requires a gently sloping floor from all sides. Shower rooms with moisture-proof barrier walls and floors are also popular. Attractive fold-up teak wood benches and portable bidets can be installed to preserve dignity and ease of use. At a minimum, grab bars at the shower, tub, and toilet should be considered. Smaller tile on bathroom floors can reduce slips and falls. Bathrooms are the most misunderstood spaces in new construction for accessible living.
- **Bordering floors and countertops** with contrasting colors can help individuals with sight impairments. Minimizing the uneven height difference between carpeted surfaces and wooden or tile floors can help eliminate falls. Curving the edges of cabinets and counter tops is also a must to avoid hurting oneself. Hands-



free faucets, stair lifts, and grab-bar backings built into the wall structure are other useful solutions.

[AARP](#) also highlights the essential universal design features. Adding these features during the design and building phase of a home may significantly reduce costs.

Guiding principles anchor universal design

In addition to home design, seven guiding principles apply to everyday products and features. Dr. Brad Fain looks at how these principles form the foundation of the universal design movement:

- **Equitable use.** All consumers want their products to work for them, with identical or equivalent features instead of special adaptations. In a recent cell phone study, respondents of all ages, disabled and able-bodied, agreed long battery life, good reception, and low cost were the most important features.
- **Flexible use.** Users decide how best to interact with the feature or product. Curb cuts in the sidewalk not only accommodate individuals in wheelchairs, but they also aid travelers with rolling suitcases.
- **Simple intuitive use.** Instructions for use that are easy to follow and accommodate a variety of reading levels remove the complexity around a product. It is also important not to violate standard conventions and to make sure the user interface is internally consistent so that similar actions always work the same way.
- **Perceptible information.** Visual acuity and contrast sensitivity both are factors when aging. Increased font sizes, sufficient color contrasts, and clear graphical presentations with redundant information can support comprehension. In Japan, sidewalks have raised areas that allow people to feel changes in shape with their feet as they approach an intersection.
- **Tolerance for error.** People have some very surprising uses for products, as well as situations that often are not anticipated. A recent heating pad developed for arthritis patients required a wall plug-in. A stiff power connection into the wall made it difficult for users to disconnect when needing to answer the telephone or doorbell. A breakaway power connection was an important product adaptation.
- **Low physical effort.** Pushing, pulling, twisting, and turning can cause personal injury on a repetitive basis. Some outdoor gardening tools have been improved with the use of a motorized spray in place of manual squeezing.
- **Size and space for approach and use.** Supermarkets have improved many of their self-checkout areas to facilitate seated positions for access.



Interesting enough, the same functionality that makes these features popular with seniors can be equally relevant to all age and activity levels. As a member of the "sandwich generation," the convenience offered by these principles works equally for my parents, as

well as my children.

Opportunities to embrace universal design in your life

Ready to join the movement? A variety of options can incorporate universal design into your daily life:

- **Consider upgrading or remodeling your current residence.** Hire a designer specialist, such as Evelyn Grodan or Ellen Cantor, to provide building and product recommendations, check free plans from the [Center for Universal Design](#), or research the many alternatives at [homemods.org](#), [toolbase.org](#), and [asid.org](#).
- **Shop for products.** The [Arthritis Foundation](#) allows companies to place their logo on products that have passed the foundation's accessibility testing.
- **Learn more about accessibility provisions of the Americans with Disabilities Act (ADA).** The [U.S. Department of Justice](#) offers comprehensive information.
- **Become a designer.** The tsunami of baby boomers will demand mainstream products that incorporate their needs. GTRI provides manufacturers with an [accessibility assistant website](#) to help with the evaluation of their designs. Accessible products have a competitive advantage.
- **Request universally designed products from manufacturers.** Tell companies about hard-to-use products and what would enhance their ease of use.
- **Share the word.** Design that is accessible and useful to everyone deserves notice! Take a minute to forward this article to a friend who might also benefit from this recent trend.

The broad ranging appeal of universal design could make this a fundamental shift in how we live and enjoy the spaces around us for many years into the future. In the next article of this three-part series, we will examine home and community services.

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