Slip-resistant flooring, such as these Maycrest 6x24-inch porcelain tiles, is recommended for universal design in kitchens and bathrooms.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- DISCUSS the seven basic principles of universal design.
- DIFFERENTIATE universal design practices from those required by the ADA and the Fair Housing Act.
- LIST several ways to implement universal design for kitchens, bathrooms, and bedrooms in multifamily communities.
- DESCRIBE the role of color, lighting, and door hardware in universal design, especially in senior/assisted-living and memory-care facilities.

Universal design is a term, and a mode of architectural practice, that is often misunderstood. At its core, universal design promotes design that can benefit all occupants and users of buildings, not just the elderly or persons with disabilities. Universal design—also known as “design for all,” “inclusive design,” and “human-centered design”—is not new. It’s been around for more than 20 years. Its seven principles were promulgated in 1997 by the Center for Universal Design at North Carolina State University.

A few consumer product manufacturers have taken universal design to heart. Notable among these is OXO (oxo.com/products), which is famous for its kitchen devices that make it easier for a person with, say, arthritis, to grip a can opener. People with no physical limitations love them, too, because they work so well and feel so good.
That’s what universal design is all about: design that works for everyone’s benefit.

The concept of universal design also works in reverse. Take lever-style door handles. Even though they are required by code in multifamily projects, they are much easier to use than round pull handles, not only for people with physical limitations, but for the physically capable as well—for example, the young mother who’s holding a squirmy toddler in one arm and a bag of groceries in the other.

Unfortunately, there are some misconceptions about universal design when it comes to residential and commercial buildings: that it adds to the cost of construction; that it results in clumsy, unattractive designs; that it is rigid, regimented, inflexible. As a result of these and other negative perceptions, universal design has failed to win the hearts and minds of many architects and interior designers.

Let’s take a closer look at universal design (with an emphasis on multifamily residential projects) and clarify exactly what it is, what it is not, and how you might use it in your next project.

1. Carefully review the seven principles of universal design. The seven concepts delineated in the accompanying box are commonsense guidelines that we should be routinely incorporating into our designs.

From my experience, the most relevant for multifamily residential design is tolerance for error—minimizing hazards that can lead to accidents, such as not having slip-resistant flooring in bath and kitchen sink areas.

If you’re guided by these universal design principles from the start, you’ll avoid mobility problems in the future. This will give occupants of the apartment, condominium, and townhouse communities you design the opportunity to enjoy a healthy, risk-reduced environment for a long period of time.

2. Understand that universal design is a choice, not a legal requirement. One of the biggest misconceptions about universal design is that it is somehow associated with the 1990 Americans with Disabilities Act. It is not.

At the risk of oversimplifying a very complex law, the ADA prevents discrimination against people with disabilities in “places of public accommodation” (as well as in employment, public services, and telecommunications). In the case of multifamily residential projects, “places of public accommodation” can refer to rental or sales offices, daycare centers, fitness centers, entrance lobbies, and clubhouses—in other words, almost anything outside the living units themselves.

The ADA does not apply to the physical apartments, condominium units, or townhouses in a multifamily residential community. That’s the job of Title VIII of the Civil Rights Act of 1968, commonly known as the Fair Housing Act. This law covers residential projects of four or more units. It prohibits discrimination in housing on the basis of race, color, religion, national origin, sex, and disability. It also protects families with...
Under-cabinet lighting (such as the Häfele Loox LED system shown here) reduces glare and makes tasks easier for all users.

One of the biggest misconceptions about universal design is that it is associated with the Americans with Disabilities Act. It is not.

Choose interior colors that provide directional guidance. In senior living, eldercare, assisted-living centers, and especially in memory-care facilities, getting colors right is crucial to the success of the project. Avoid grays: As people age, their eyes lose the ability to differentiate transitional spaces—at a corner of a wall, or from a countertop to the floor. You want colors that provide contrast at transitions, to guide occupants safely around their living spaces.

From an interior design point of view, this can be an exciting opportunity—at little if no added cost to the overall budget.

Get your lighting right. Under-cabinet lighting is great for kitchens and other areas of the apartment where you want to set a tone. It also puts the light where it’s needed, potentially saving energy, reducing glare, and setting a more pleasant atmosphere.

In designing for senior living communities and especially for memory-care centers and assisted-living facilities, think carefully about glare, which can have a disconcerting effect on older residents.

A note of caution: Don’t put overhead lighting in the vanity. It causes gaunt shadows on the face, which can be disconcerting to anyone. You want to replicate natural daylight as much as possible and light the face from in front to eliminate shadows.

I think we’re on the verge of having some great new lighting technology. Delos Living has patented a system that controls the interior lighting to follow the natural circadian rhythm, so your future tenants and condo owners will fall asleep more easily and wake up more refreshed.
**Put a little lift in some of your electrical outlets.** This is a pet peeve of mine. My own house was built in the 1950s; the builder installed a combination light switch and plug in the main hallway at chest height, and we use it all the time to run the vacuum for practically the whole house. Saves a lot of bending to find the plug that’s hidden behind a bulky piece of furniture.

So, instead of putting all your outlets at the customary height (15 to 18 inches), put some at 42 inches from the floor—especially in hallways, kitchens, and spaces where the tenant or condo owner, or the facilities staff, will need to plug in a vacuum cleaner or an appliance. It’ll save a lot of unnecessary wear and tear on everyone’s back.

**Put a “package shelf” outside the front door.** By “package shelf,” I mean a shelf or counter, at countertop height (36-42 inches), where the tenant or condo owner who’s loaded down with packages can put them down on the shelf and open the door without having to also fumble with the key. Of course, make sure the shelf/counter doesn’t inhibit access by those needing more room. This also makes for a good spot for residents to personalize the front door with flowers or other decorations.

**Use slip-resistant flooring in bathrooms and kitchen sink areas.** This is not required under the typical building code or other regulations, but it won’t add to your costs, and it just makes sense for any space where water could splash onto the floor. Why not design to prevent unnecessary falls—not just for the elderly, but for everybody?

**Consider specifying zero-threshold showers—but be aware of some limitations.** Anyone who has ever stubbed a toe on one of those
bottom sliding door tracks stepping out of a traditional tub-shower combo can appreciate the pleasure of stepping out of a zero-threshold shower. Product manufacturers have been coming out with lovely shower systems that pretty much eliminate the hazard of tripping over a raised threshold.

There are, however, practical considerations to be aware of. For typical three-story, wood-frame apartment construction, putting in a prefabricated fiberglass shower means that you have to depress the shower—but you still need to get a one-hour fire rating in the floor system. This is not a problem in ground-floor apartments, because there’s concrete. But for the upper floors, it means the contractor has to drop the bathroom floor, usually put in a structural beam, and perform other work that may be too costly. You can also warp up the approach, but that requires tight coordination of trades.

With proper planning, it can be done, but don’t wait until construction has started to address this technical concern. My hope is that the plumbing supply industry will come up with a more practical solution—perhaps a drop-in shower with a one-hour built-in fire rating on the bottom. But that’s for the future, not now.

Another convenience that’s not required by ADA or the Fair Housing Act: a footrest in the shower. It makes it much easier for women to shave their legs and for men and women to wash and dry their feet. Future tenants and condo owners will thank you for thinking of this.

10 Try the new grab bars for the bath or shower. Anyone can slip on a soapy shower floor. Fortunately, there’s now a wide selection of grab bars that look nothing like the traditional ADA-type grab bar but provide the same level of support in the event of a slip.

My favorite is the Choreograph (Kohler). It’s very elegant, and has attachments for shampoo and other supplies. Like other products in this category, it does not meet ADA requirements, but it can still handle 300 pounds of pressure. So it performs the same role as a “handicap” grab bar but doesn’t look like one. It’s a small detail that looks nice but also serves an important safety function that works for everyone.

11 Install cabinets with pull shelves. Cabinetmakers have come up with beautifully designed storage systems that pull out so the user doesn’t have to reach way back in a cupboard to find a jar or bowl. Here again, universal design makes it easy for everybody to use. There are also cabinets with cutting boards that slide out at chair height. Saves room, very convenient, easy for everyone to use—another universal design no-brainer.

I also recommend specifying cabinetry that has C-shape or U-shape pulls instead of knobs—easier for everyone to grip.

Be prepared for the new technologies that will be rolling out in the coming years—and embrace them as the next stage of universal design.

Grab bars (such as the Kohler Choreograph shown here) can be stylish and still support a 300-pound load.

The Merillat Cabinetry Universal Base Pull-Out Table puts the task at the optimal height for a wide variety of users.
One area where I would be a little cautious is installing appliances like microwaves, ovens, or dishwashers at lower levels. This may be acceptable when you know you’re designing a kitchen in a single-family home for a resident who is in a chair. But putting microwaves and other appliances at a lower height in a large-scale rental community would make it difficult or inconvenient for most tenants.

Install touch-activated faucets in kitchens and bathrooms. Plumbing manufacturers have come up with elegant touch-activated faucets. They’re convenient for people of any age, even children. Once again, they’re not required under the ADA or Fair Housing Act, but they make sense, and the cost is reasonable.

Locate the laundry close to the master bedroom or bath. In most apartment, condo, and senior living floor plans, the washer-dryer combo winds up in a closet far distant from the sleeping/bath area. But if you’re designing a senior living community that’s predominantly populated by empty nesters, they’re not doing tons of laundry for the kids anymore; so, if you have put the laundry as close as possible to the master bedroom or bathroom, you’ll save them a lot of wasted steps. Even locating it in the master walk-in is fine, especially in age-qualified apartments.

Here’s another way to do this: Picture a “doggie door” in the wall in the master closet opposite the clear space in the laundry room. If you place a laundry basket in the laundry room under the door, all the resident has to do is push the laundry through the doggie door and it lands in the hamper and stays there until laundry day. These laundry-room configurations work just as easily for rental or condo complexes where singles or young couples are the target. They’ll love having the laundry close to the bedroom.

Give your contractor a little wiggle room. As an architect practicing universal design, one thing I try to avoid is forcing the general contractor and specialty subcontractors on our jobs to magically adhere to the zero tolerances that today’s design 3D software programs theoretically provide.

Let’s face it: not everything comes together perfectly once you get out in the field. Your construction team may install 99 doors exactly to your specification, but one door may be off just a bit. The same kind of thing can happen when you’re specifying hundreds of variously shaped countertops for an apartment or condo project.

My advice: Don’t make your dimensions too intolerant. Give your contractor a little leeway to allow for changing conditions on site.

Brace yourself for new technology. The smart apartment or condominium is on the way. Maybe not as quickly as some thought it would, but it’s definitely coming. These days, with Bluetooth, WiFi, and the cloud, it’s much easier to adapt the design of multifamily living to changing technologies.

We are on the cusp of everything being controlled by your voice, your phone, your watch, maybe even by your eye. It’s already happening with lighting, shade control, comfort setting, and access control to multifamily communities, individual buildings, and individual living units. Be prepared for the new technologies that will surely be rolling out in the coming years—and embrace them as the next stage of universal design.
1. Which of the following is NOT another term for universal design:
- “Human-centered design”
- “Design excellence”
- “Inclusive design”
- “Design for all”

2. Universal design’s 7 key principles were promulgated at the Center for Universal Design at North Carolina State University IN WHAT YEAR:
- 1977
- 1987
- 1997
- 2007

3. Which of the following is NOT one of the 7 principles of universal design:
- Low energy use
- Tolerance for error
- Low physical effort
- Simple and intuitive use

4. The 1990 Americans with Disabilities Act (ADA) PROHIBITS DISCRIMINATION against persons with disabilities:
- In places of public accommodation
- In employment
- In public services
- All of the above

5. Title VIII of the Civil Rights Act of 1968, commonly known as the Fair Housing Act, prohibits discrimination in which of the FOLLOWING RESIDENTIAL USES:
- Single-family homes
- Properties with 1 to 3 residential units
- Properties with 4 or more residential units
- None of the above

6. TRUE or FALSE: Overhead lighting is STRONGLY RECOMMENDED for use in the vanity because it eliminates shadows on the person’s face.
- True
- False

7. Which of the following statements is TRUE in terms of universal design:
- Grayish tones should be avoided for the interiors of eldercare and memory care communities.
- As people age, their eyes lose the ability to differentiate transitional spaces—at a corner of a wall, for example.
- Colors that provide contrast at transitions to guide occupants are recommended for senior living and assisted living centers.
- All of the above

8. Which of the following is a RECOMMENDED STRATEGY for universal design in large-scale rental communities:
- Using slip-resistant flooring in bathrooms and kitchen sink areas
- Allowing room for a chair or ottoman in the master bedroom
- Both A + B
- None of the above

9. TRUE or FALSE: Specifying cabinetry with C-shape or U-shape pulls instead of knobs is an example of the proper execution of universal design for multifamily residential projects.
- True
- False

10. Which of the following is a RECOMMENDED STRATEGY for universal design in multifamily projects:
- Undercounter lighting in kitchens
- Touch-activated faucets
- Zero-threshold showers
- All of the above

Manny Gonzalez, FAIA, LEED AP, is the Managing Principal for KTGY Architecture + Planning’s Los Angeles office. He is responsible for the design, land planning, and production of residential and mixed-use developments throughout the U.S., including active adult and affordable multifamily communities and mixed-use residential. During his more than 25 years of practice in residential development, Gonzalez has won numerous awards for his innovative designs, including Gold Nugget, Best in American Living, NAHB Best of 55+ Housing, and Pillars of Industry. A Fellow of the American Institute of Architects, he serves as an Editorial Advisor to our sibling publication, Multifamily Design + Construction.