Designing Accessible Kitchens

by Sam Clark

Courtesy Gemma Yamamoto and Grant McClellan

Start with ADA guidelines, but base your kitchen designs on the actual needs and capabilities of your client

When it comes to designing and building kitchens for people with special needs, accessibility codes based on the Americans With Disabilities Act are helpful — and sometimes mandated. But your most important resource, in my view, is the client. Whereas codes are generic, people have specific needs, strengths, physical abilities, habits, and tastes.

Moreover, your clients have probably been thinking about what they want in their kitchen for years. Along with family members and caregivers, they know a tremendous amount about what will and won't work for them. Sometimes they can tell you exactly what's wrong with their existing space and how they want it fixed. In other cases, you may have to ask many questions to identify problems and solutions.

Though the codes will always inform the design process, I've found that many solutions don't come from the code playbook. Indeed, one of the first things I do when meeting new clients is let them know they are not limited to standard ADA dimensions or to stock ADA cabinets.

Site Visit

I like to start the design process by spending as much time as I can with my client and his or her family in their current

kitchen. This is the same approach I use with everyone, whether disability is an issue or not. It gives me a chance to ask people what they like and dislike about their kitchen, and what they cook and how they cook it. I want to know not only what kinds of kitchen equipment they have, but also what they actually *use*. For instance, a microwave could be the primary means of cooking, or it could be an obstruction blocking the only counter.

I'm looking for specific data. How high and low can my client comfortably reach? How far forward can he extend his reach — for example, can he comfortably reach to the back of the counter? What is the best counter height for food preparation? Best height at the sink? Are there strength issues? Not everyone can haul a cast-iron pot out of a bottom drawer, or comfortably grasp a small knob.

I make notes about the client's movement patterns. A lot of people who don't think of themselves as disabled have an awful time reaching high shelves, or getting down on their knees to find a pot at the back of a base cabinet. Visibility can also be a concern, especially as folks age.

It helps to watch people operate in their current kitchens. I don't ask clients to make me dinner, but I've learned a great deal watching them make me a cup of coffee. Getting a conversation going with the entire family present can be helpful, too. The interaction — including disagreements — among the members who will share the kitchen often yields clues to both problems and solutions.

People have good ideas. Sometimes a seemingly off-the-wall notion can turn out to be key. In short, listen carefully.

Figure 1. A folding screen fitted with an adjustable countertop helps the author and his clients determine critical countertop dimensions. The plastic dishpan drops into the cutout to approximate knee-space clearance below a sink.

Figure 2. Countertops and as much storage as possible should be located within the "optimum reach zone," 20 to 48 inches above the floor. The open shelves in this kitchen are shallower and lower than traditional upper cabinets, making them ideal for frequently used items. Slots cut into the wooden work surface keep knives at hand (above).

Kitchen Accessibility Guidelines

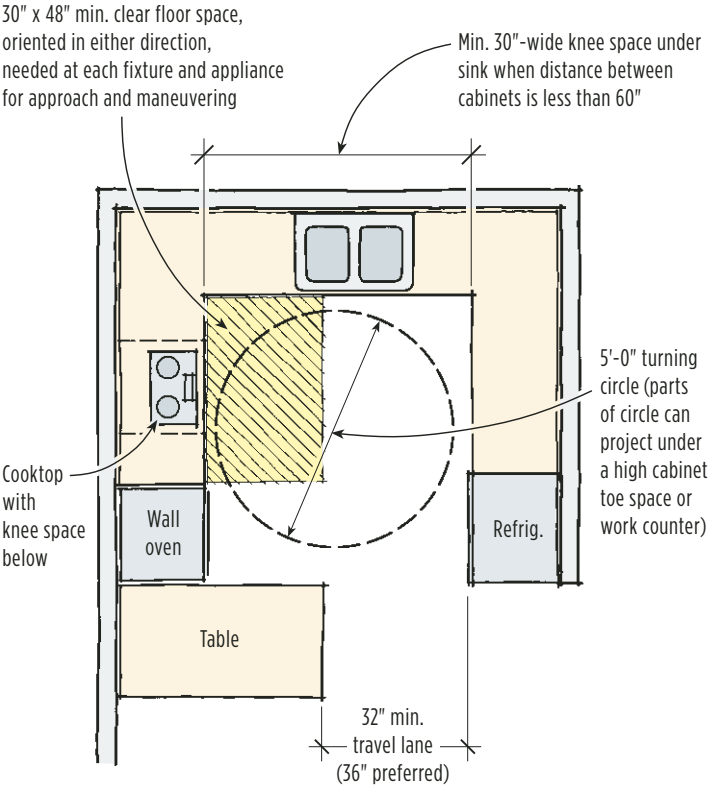
The Americans with Disabilities Act (ADA) and the Fair Housing Act (FHA) establish minimum guidelines that form the basis for most accessible housing codes. Key features that affect the design of accessible kitchens include the following:

Maneuvering room. A wheelchair requires a 60-inch-diameter clear space to make a 180-degree turn, as shown in the illustration at right of a U-shaped kitchen. In narrower, galley-style kitchens, clearances between opposing cabinets, fixtures, or walls must be at least 40 inches.

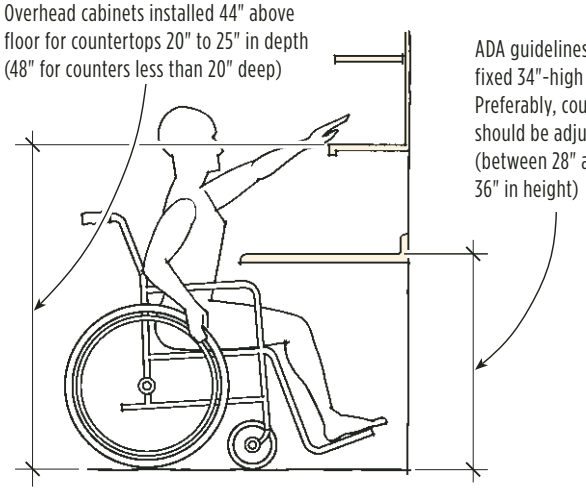
Reaching. Fixed-height work surfaces should not exceed 34 inches tall (see illustration, below left). When placed above a standard countertop, the lowest shelves of upper cabinets should be no higher than 44 inches above the floor. Low storage should be a minimum of 15 inches above the floor.

Knee space. Fixed-height sinks and cooktops that aren't cabinet-mounted should have a 30-inch-wide by 27-inch-high clear knee space underneath (see illustration, below right).

Clearances



Work Surfaces and Storage



Sinks

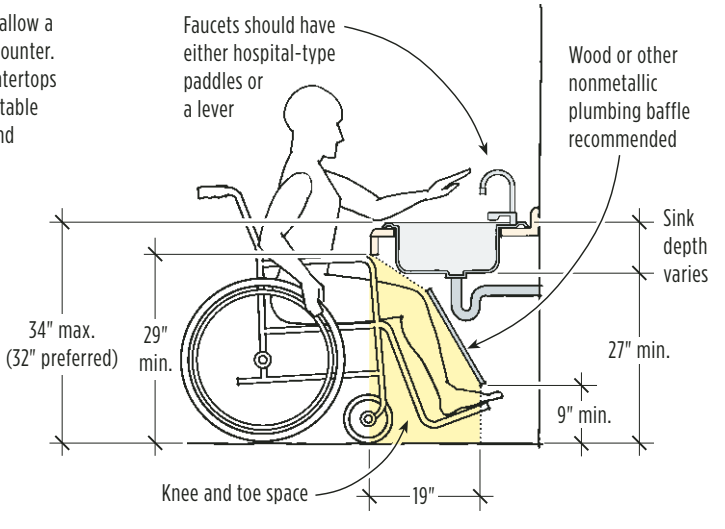


Figure 3. Cabinet doors can be an obstacle to someone in a wheelchair. Drawers mounted on full-extension slides are a better solution for base cabinetry and can be used for storage, trash and recycling, and composting.

Courtesy Gemma Yamamoto and Grant McClellan

Mockups and Drawings

At the same time I'm having these conversations with the client, I'm usually measuring up the space. I've found that owner's drawings, though useful, are rarely accurate. Architect's drawings may be off, as well. Sometimes I take a small drawing board to the site and actually make a floor plan, in ½-inch scale. Other times, I use large graph paper and make a freehand version, also in scale.

Countertop heights for food prep and the sink are crucial, so to help mock up a counter height, I've developed a simple folding screen that supports an adjustable counter and some adjustable shelves (see Figure 1, page 2). Once the client rolls or walks up to it, I can determine several critical dimensions fairly quickly, including counter height, high reach, and the amount of knee space needed below a counter. Since a sink obstructs this space, I drop a simple plastic dishpan through a hole in the adjustable counter to find the optimum sink-counter height.

As with any kitchen project, I then take all this information home and make careful drawings. I still do this with a pencil, but a computer works, too. I use ½ inch = 1 foot as my scale, since I can put in plenty of detail.

If there are lots of layout options, I do only the layout at this point, scaled but sketchy. But if the layout is fairly definite, I go

Figure 4. A lower countertop height combined with a raised floor creates an accessible work area for Maria McClellan, who has Morquio syndrome, a disease that affects the bones and ligaments. The setup allows her to work alongside her parents and friends while preparing meals. A raised stop prevents her wheeled chair from rolling off the platform (left).

Courtesy Gemma Yamamoto and Grant McClellan

Figure 5. Instead of hard-to-reach upper cabinets, this accessible kitchen is equipped with lots of open shelving at countertop level (above), plus a separate wall-mounted unit for bulk storage (right).

ahead and make preliminary elevations in my 1/2-inch scale. I ask the client to live with these drawings for a while and mark his thoughts right on copies of the drawings.

When there is a basic scheme, I ask the client to label the elevations to show where he wants everything to go, along with the sizes of the key items to be stored. That way, I can dimension drawers and shelves to match, and cram as much storage as possible into the space available.

At the end of the process, the drawings may be pretty detailed.

Details That Work

While every kitchen is unique, there are several design concepts I return to on nearly every project. In addition to basic ADA guidelines for maneuvering room, knee space, and controls (see sidebar, page 3), I rely on the following fundamentals:

The ORZ, or optimum reach zone. Coined by gerontologist Margaret Wylde, this term refers to the area 20 inches to 48 inches above the floor. Almost everybody — kids, short people, wheelchair users, people with arthritis — can reach items stored in the ORZ. For that reason, the top two drawers of base cabinets, the counter, the space at the back of the counter, and the lowest shelves of upper cabinets should be contained within its spread (Figure 2, page 2).

Lots of drawers. As far as I'm concerned, the drawer is the single most important accessible feature, particularly if fitted with good full-extension hardware. A drawer puts lots of things where they can be seen and retrieved without kneeling or stooping. It makes the stuff at the back of the cabinet easily reachable. Most base cabinets should be drawer bases (Figure 3, page 4).

Open shelves. Not only do open shelves make things more visible, but they can be shallower than standard overhead cabinets and can be positioned lower, right in the ORZ. Six-inch or 7-inch shelves hold nearly as much as a standard overhead cabinet and can be located just above the counter, as low as 8 or 10 inches up.

The margin. I always make use of the margin between the counter and the uppers. It's in the middle of the ORZ, and can be a great place for a spice rack, a little shelf, a grid storage system, or simply some hooks.

Varied counter heights. Though the 36-inch-high counter works well for many, it's not comfortable for everyone. Work with your client to find the optimum height for primary tasks. I often provide more than one counter height, to suit different people and different tasks (Figure 4, page 4).

Case Study

Sometimes these ideas will lead to a kitchen that is only subtly different from the standard setup. But other times, they can lead to a fairly unique space, as was the case with a kitchen I recently designed and built for a woman with multiple sclerosis.

The client, who uses both a motorized and a conventional

wheelchair to get around, doesn't have a lot of arm strength, and her reach is limited. When I first visited her, she already had an ADA kitchen with many typical features — knee space beneath the sink, for example, and a 34-inch-high countertop — that in theory should have provided her with a functional workspace.

Problems. In fact, however, the existing space was basically nonfunctional. The 34-inch counter height was much too high for her, making the entire room almost useless. The upper cabinets, though large, were very far up, way beyond her reach.

Another problem was the drop-in stove; its burners were too high and its oven too low for safe, comfortable use. And although the sink and nearby food-prep area did incorporate knee space, they were separated by a lower cabinet that required a lot of maneuvering to get around.

Figure 6. Conveniently located between the sink and the cooktop, the food-prep area features continuous knee space and ample storage in the "margin," the area just above the countertop.

Figure 7. With a recessed glass cooktop, the cook can slide — rather than lift — pots on and off the burners. A combination microwave/convection oven sits at eye level, the perfect height for someone in a wheelchair.

Solutions. In the new design, the basic work area is compact, making it easier for the client to get things done without a lot of rolling back and forth. We made the knee space continuous throughout, so that she can move laterally between different kitchen tasks; plywood brackets bolted to the studs support the counters.

There are just a few base cabinets in the new kitchen, but they all have drawers on full-extension hardware, for easy access (Figure 5, page 5).

The food-prep area is now convenient to both the stove and the sink. Since my client couldn't quite reach to the back of the counter, we moved the backsplash forward 8 inches and put some shelves right above it, within her grasp. The outlets are in the splash.

To prevent the sink bowl from obstructing knee space, we placed the sink countertop 30 inches above the floor; at 28 inches, the prep counter is a little lower (Figure 6). Getting these dimensions right would have been impossible without my mockup device.

We replaced the drop-in stove with a cooktop mounted flush with the counter. In addition to preserving knee space, this arrangement allows the client to slide pots on and off the range without any lifting. Instead of knobs, the unit has an easy-to-operate touchpad embedded in the glass surface, right up front (Figure 7).

For the oven, we chose a combination microwave/convection unit that sits on the counter, where it's at the ideal height for the cook. A pullout board underneath serves as a landing pad.

The completed kitchen may look a bit unconventional, but it's a direct reflection of how its primary user actually moves and does things. And that's basically what any good kitchen design should be.

***Sam Clark** is a designer and builder in Plainfield, Vt.*