Home Accessibility Remodeling Series

Chapter 7: Kitchens

The decision about whether or how much to modify a kitchen typically requires balancing many factors. Among them are:

- How often the disabled person needs to be involved in meal preparation/cleanup
- Tradeoff between benefit for the disabled person vs. potential inconvenience for other household members frequently performing kitchen chores
- Opportunities/constraints existing space, features and budget present

Minor improvements/modifications still can be very helpful even when existing cabinets, counters and appliances must remain in place. When a larger budget is available or justifiable, there is virtually no limit to the adapted appliances, custom cabinets and counters or layout changes than can be considered.

Accessible kitchen planning is based on the same principle as good conventional kitchen planning, which is economy and comfortable movement among the basic work centers - the sink, range/oven (these days, microwave as well) and refrigerator. This principle takes on increased importance when designing for a person with a disability, because poor accessibility results in complicated, time consuming and tiring meal preparation/cleanup.

The basic design goal is to position counters, appliances and storage so the flow of tasks accommodates movements that are difficult or impossible. Task flow for preparing meals depends in part on the type of cooking done. For example:

- People frequently preparing convenience foods (going directly from cupboard or refrigerator to stove, oven or microwave) may use a lot of storage and little counter space
- Persons cooking mostly from "scratch" may need much more counter space, work areas with lap space and connected or continuous counters to help move heavy dishes
- Some persons may also use one cooking appliance more than another (e.g., the stove top or a microwave more than the oven) so it should receive greater attention in planning

Floor Space/Layout

Floor and space requirements vary greatly, depending on disability and mobility equipment used. Kitchen layouts can be broadly grouped into three categories according to counter/appliance placement and resulting task flow - corridor/galley, L-shaped and U-shaped.

L- and U-shaped layouts have the most open floor space. They're good designs for wheelchair users or when a disabled and able-bodied person share kitchen duties. A more compact layout like a corridor style may work better for persons using a wheelchair who have impaired upper body strength/control or persons affected by a stroke, severe arthritis or stamina limitations.

Floor/Space Layout continued

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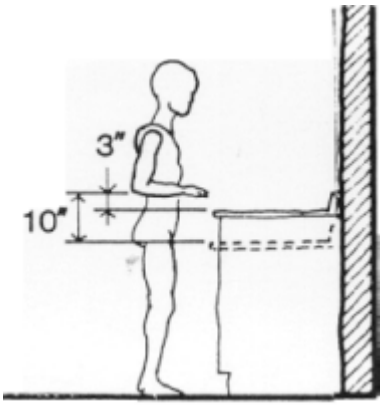
Planning appliance placement and overall layout will require special attention if a person prefers or must rely on one hand or side of the body. For example, a person with only one "good" side needs counters/appliances located so items move and tasks "flow" away from that side.

Counter and other work space heights should be carefully tested. Ideally, counters should be located 2" - 3" below a person's elbow for light chores and approximately 10" below for the maximum shoulder/arm leverage heavy chores (like kneading bread or cutting a watermelon) require.

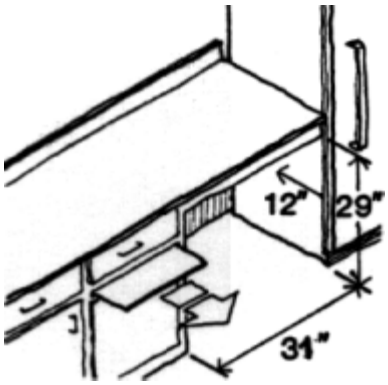
Good Work Heights



Kitchen cabinet/counter dimensions, however, have been standardized over the years at a 36" height, which causes problems for most seated and some standing users. When counter changes are needed, one option is to mount a new section of counter on brackets so its height can be adjusted. Another option, particularly when only minor modifications can be afforded, is to install pull-out "transfer platforms" that serve both as lowered work spaces and aid in shifting articles up to a counter top.

A challenge for wheelchair users is to locate these surfaces low enough for comfort but still providing adequate lap clearance underneath (29" high, 31" wide and 12" deep for a standard-size manual chair). People with impaired ability to stand for long periods may also want a low work surface or pull-out board with adequate lap space when seated on a household chair.

Knee Space



Consider counter edge style from a safety standpoint. For example, rounded edges minimize the injury that would result from a fall against a squared-off edge – this may be particularly important for seniors. And a unit with a band of contrasting color on the edge (particularly when the counter and floor are similar colors) can help persons with impaired vision better locate the counter edge to avoid articles falling off to the floor.

Storage

Some kitchen storage areas are often out of a disabled person's range of reach. For example, people using a wheelchair can't reach standard upper kitchen cabinets, a person with a back or leg disability may not be able to reach lower cabinets, and others may only be able to reach objects located at the very front of a shelf. Each person has an opti-

Storage continued

mum range defined by disability and factors like age, height and mobility equipment used. The goal is to set as much storage capacity inside this range as possible.

A person's ability to lift and carry objects of various weights also affects storage heights/needs. Heavy, frequently used items should be located where the least amount of movement/effort is required, often near the range's center. Lighter objects can then be placed in the upper and lower limits.

Most of the following suggestions can be either incorporated into new or applied to existing cabinets to increase useful storage capacity:

Wood strips can be nailed across shelves to create curbs that keep objects from wandering out of reach at the back. (A suggestion: Store infrequently used items behind the strips.)

"Lazy Susan" trays and tracking are at least two ways to make the rear portion of shelves easier to use. With the carousel-style Lazy Susan, all objects stored on the unit can be rotated to the front (although some space is lost around the unit). Tracked shelves pull out like drawers to bring objects at the rear within reach. The rear and side shelf edges with these approaches should have small trim piece installed to keep articles from falling off.

Shelf units are now available that can be installed in an empty volume of upper cabinet space. They are hinged so the entire unit pulls down into the midrange of reach for use, then pushes back up into place.

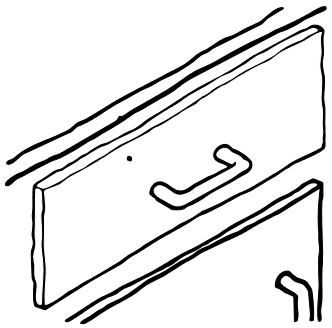
Shallow shelves, racks or trays can be mounted on the inside of cabinet doors. Door hinges may have to be strengthened to carry the extra weight. Check to see if existing shelves must be cut back so the new door shelves don't upset items in the cabinet.

Shelves, racks and trays can also be mounted to the underside of an existing shelf or upper wall cabinet.

Where space permits or cabinet replacement can be afforded, consider installing a pantry-style unit that concentrates a large amount of storage in the middle range of reach.

The final detail affecting storage access is the type of hardware used - drawer pulls and door handles. Individuals with impaired finger control need hardware they can operate without having to grasp it between their thumbs and fingertips. The most accessible style is the "staple" or "loop" handle, designed with approximately 1" clearance from the mounting surface.

Loop Handles



Generally, very small round pulls and grooved drawer or door edges should be avoided, since they require good finger control and strength. Handle

Storage continued

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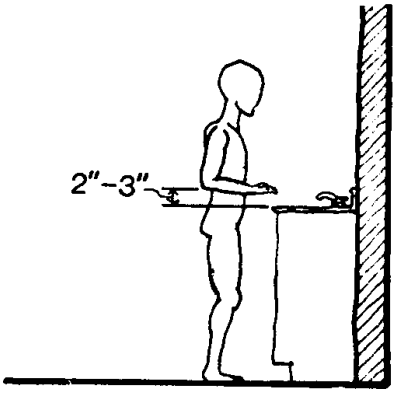
placement also makes a difference in operation - mounting them near the door edge instead of in the middle increases leverage.

Sink

Kitchen sink access depends on a number of factors. Locating the sink at the right height is an important consideration, particularly for extremely tall or short people, individuals with arthritis or chronic back pain as well as seated users.

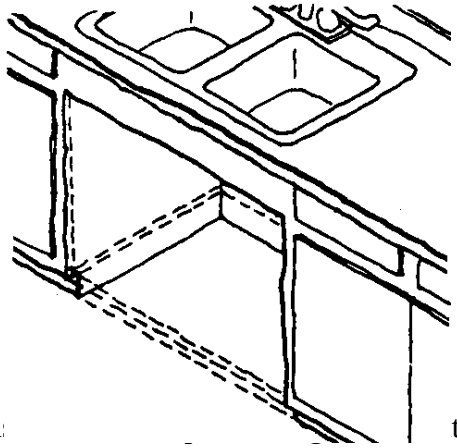
For persons using the sink from a standing position, locate the rim 2" - 3" below the elbow. People who use wheelchairs or who prefer to sit while working at the sink will have a conflict between a good rim height and the clearance needed for their legs or laps. (As previously indicated, the clearance for a standard, manual adult wheelchair with armrests is a space 29" high, 31" wide and 12" deep.) When lap clearance is essential, a "shallow bowl" sink 5-1/2" deep instead of the standard 7-1/2" can be purchased. These sinks can be set with a lower rim height and still have adequate clearance.

Good Sink Height



Providing space for a seated user at an existing sink can be easier in some cases than first assumed. Most sinks have a "false floor" and "toe space" trim that can be removed. The existing toe space trim or other new trim can then be mounted on the cabinet door bottoms to mask the gap created. New flooring usually must be installed in the false floor area because it previously was unfinished. Doors can also be removed and replaced by a curtain, or tracked units can be installed that open 90 degrees, then slide back out on each side out of the way.

Modified Sink Space



Seated u ty need protection from the hot water and waste pipes. Shield the pipes by wrapping with insulation or installing wood screening. An alternative is to set the water heater to a temperature of 110° F. (Many dishwashers, however, require a hot water temperature of 140° F. Also consider what water temperature is comfortable for bathing/showering.)

Adjustable sinks units that raise/lower in place are now on the market. They operate either manually or electrically and can eliminate clearance problems for seated persons as well as adapt for short and tall household members.

Sink continued

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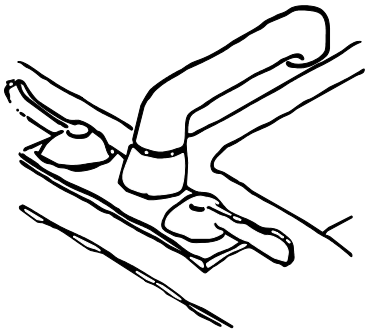
Lever Faucet Handles



Check sink controls (faucets, sprays, handles) for easy operation and appropriate location. For people with impaired hand functions, "single-lever" faucets controlling both hot and cold water from one handle are usually much more convenient than round knobs or two-handled faucets.

There are many single-lever models available, but avoid the style in which a knob must be turned to set the temperature and then pushed or pulled to adjust the flow - these aren't lever-action faucets and won't aid a person with impaired hand control. Electronic, "touch-free" units are now also available. Additionally, if range of reach to the standard control placement at the back is a problem, sinks are marketed with a design for side-mounted controls.

Stove, Cook Top and Oven

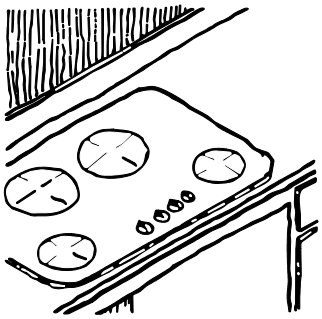
Recommended stove, cook top and oven modifications depend on variables like range of reach, hand control, cooking style, preferred fuel type and other personal preferences. People with a very restricted downward range of reach (e.g., people with arthritis, who use crutches, who have spinal injuries impairing arms and hands) may prefer a cook top unit and separate oven so burners and oven racks can be independently set at the best work heights. Side-hinged wall ovens are available, making transferring hot dishes easier and safer. Installing a pull-out transfer board by the oven can also help in shifting hot articles up to a counter top.

Some individuals using wheelchairs, however, may prefer a drop-in range with burners set slightly lower than a conventional range and located next to a counter with lap space. If a cook top is installed over lap space, the underside of the cabinet should be closed to prevent burns.

Once the preferred appliance style is determined, make sure controls are accessible when the unit is installed. Avoid cook tops or ranges with controls at the back, since reaching over hot pots or burners to make adjustments can be dangerous.

If considering an oven with the thermostat and timer at the top, make sure the settings are easy to see and read. Try to find appliances with controls that operate comfortably - larger buttons or dials work well, especially for people with impaired hand function or coordination. Also, consider burner placement options - models with a "staggered layout" provide some protection against burns caused when reaching over front burners or hot pots to the back burners.

Cook Top with Staggered Burners



Refrigerator/Freezer

Refrigerators and freezers should be selected on the basis of how usable the two storage areas are. A side-by-side combination is often recommended because it provides both refrigerator and freezer space in the middle range of reach many people need. Units with the freezer on top and refrigerator on the bottom have reversible doors that provide more floor plan flexibility and may actually provide an equal volume of accessible freezer space.

Models are also available with the freezer on the bottom and refrigerator on top - this might be a preferred style for a person who microwaves many frozen articles. "Shallow-depth" models - the same size as a standard counter - are now marketed. As with the range, a counter or a pull-out board next to the handle side of the refrigerator will assist in transferring articles. If the disabled person uses a wheelchair, make sure adequate lap clearance is provided.

Dishwasher

Better access to the dishwasher can be provided in various ways. Portable units are good options for some people because they can be rolled to the preparation and eating areas for loading. Models specially designed to fit under a conventional height counter or a "shallow-bowl" sink are available. Built-in units can be installed on about a 4" – 6" platform to bring shelves (particularly the lower one) into a better range of reach for everyone in the household.

Other Appliances

Garbage disposals, trash compactors, etc., should be selected based on the same concepts as discussed already for other appliances - range of reach, control ease of use and options for locating essential functions at appropriate heights. On/off switches, which typically would be mounted on a wall behind a counter or appliance, can be made much more accessible by mounting them on a lower cabinet face above or next to doors or drawers.