



The kitchen is perhaps the most welcoming part of a home. Extend the welcome. The kitchen is not just a place where food is prepared. The kitchen's comforting tastes and aromas invite people to gather and share. If a kitchen is to be truly welcoming surely it must be accessible to everyone in the house.

A kitchen may be designed to be generally accessible by integrating well considered spaces for preparing food and dish washing, effective lighting, well placed storage facilities, and handles and controls that are easily operated. An accessible kitchen is more likely to suit a family's needs as they change over time and to meet the unforeseeable needs of future home owners.

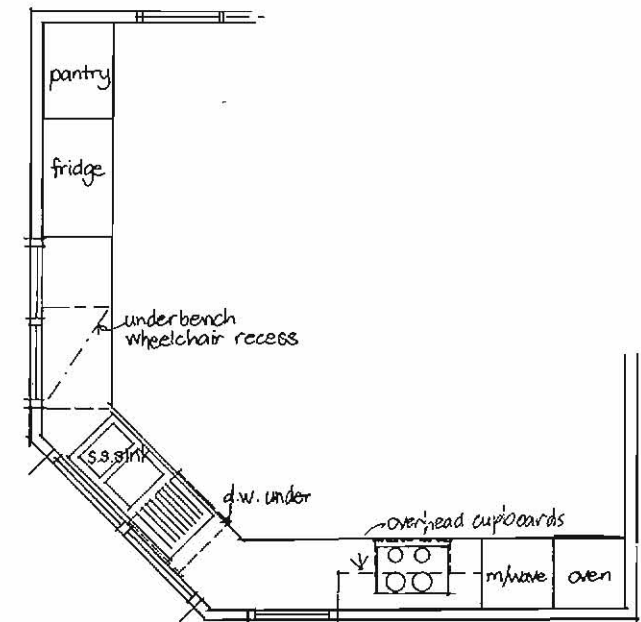
Alternatively, a kitchen may be personalised to the needs of a particular individual. The bench-tops may be lower than average for a person who uses a wheelchair, contrasting colours may be used to

define facilities for a person with vision impairment, or cupboards may be placed within the reach of an elderly occupant. As with the rest of the house, where the occupants have particular needs they should be factored into the kitchen's design.

Design

The key ingredients of an accessible kitchen include:

- adequate space for moving around in
- work surfaces located at an appropriate height
- access to the car and the waste disposal area to enable easy transport of groceries and rubbish
- access to the meals or dining area where food will be consumed
- adequate and appropriate storage
- suitable cooking devices
- suitable lighting
- convenient fittings, handles and controls.



Architect: Allen Kong for The Salvation Army

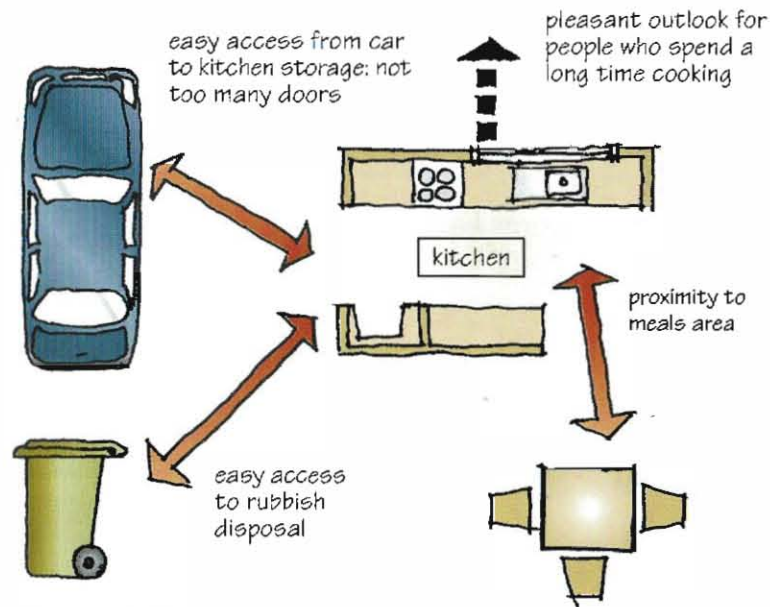


Figure 8.1 Locating a kitchen for easy access

Ideally, a kitchen will:

- take advantage of a window and view
- maximise natural light
- promote social interaction and access between the cooking area and main dining area.

Designing the kitchen as part of a combined open-plan kitchen and casual meals area can maximise the benefits of the available space as well as facilitating easy movement between the two. It also tends to make the kitchen more of a social centre.

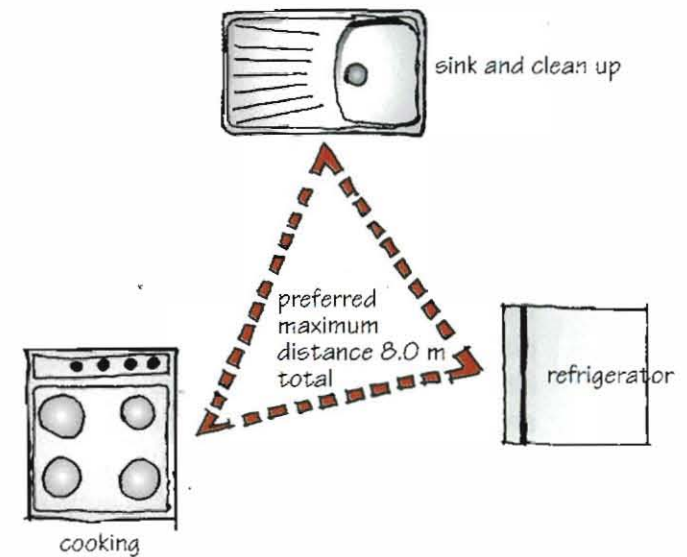


Figure 8.2 Locating the kitchen fittings for easy use

Kitchen layouts

While each kitchen should be designed around the needs of the users, the following figures of L-shaped, U-shaped and galley plans, illustrate the principles to apply. In each case the design should begin with the 'work triangle' of refrigerator, stove and sink, illustrated in figure 8.2. The work triangle highlights the functionality of the kitchen's three key fittings and how they need to be co-located to best facilitate food preparation.

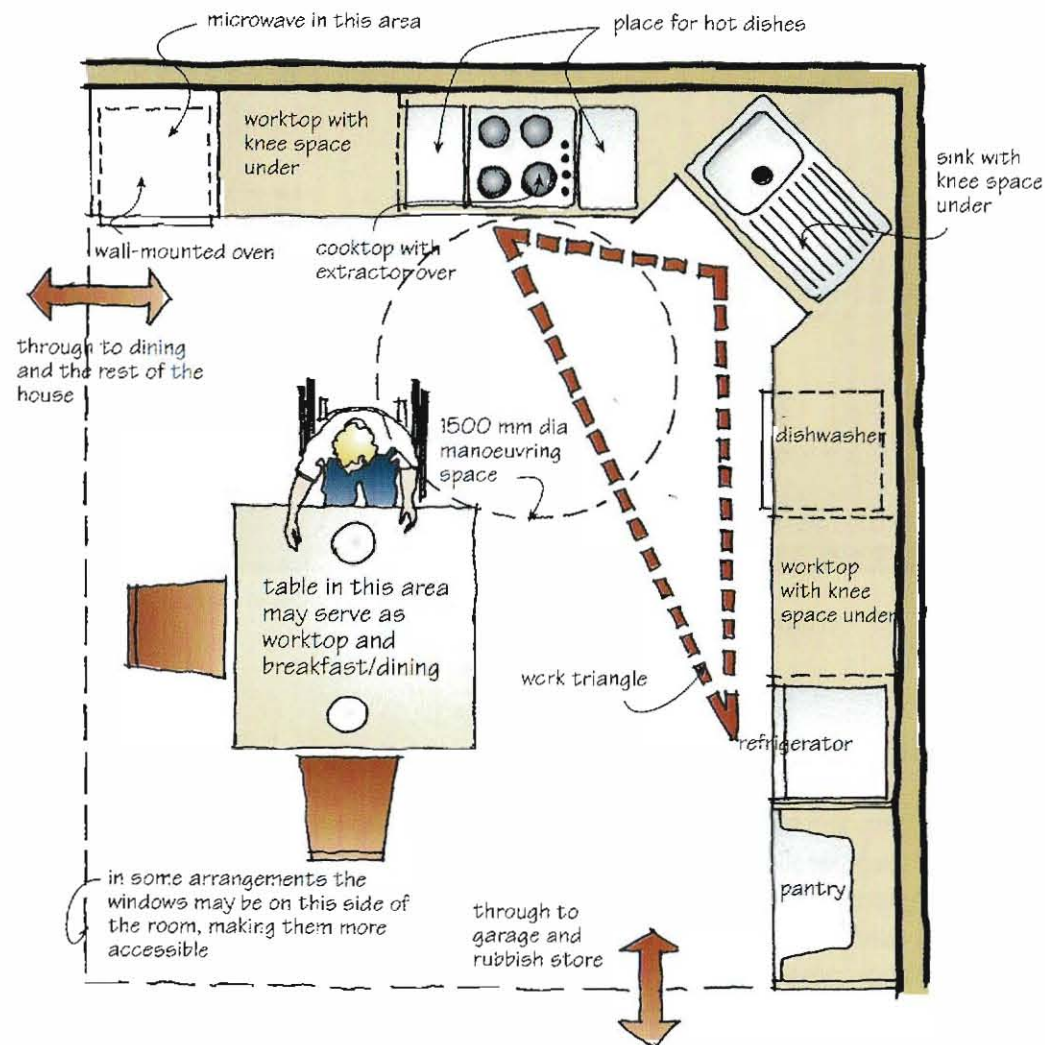


Figure 8.3 L - shaped kitchen

L - Shaped plan

The L - shaped plan illustrated in figure 8.3, which has a meals area somewhat enclosed by the preparation area:

- provides a compact workspace
- has continuous worktops so that heavy objects can be slid along without lifting
- provides plenty of room to manoeuvre depending on the arrangement of the dining/breakfast area
- can avoid 'through' household traffic
- makes good use of corners
- can extend the "work triangle" by providing practical spacing of the fridge, sink and stove
- allows for good interaction between the preparation area and the meals area
- cannot easily be closed off to children.

U - Shaped plan

The U - shaped plan illustrated in figure 8.4, which has a meals area adjacent to the preparation area:

- provides extended bench space and cupboard storage
- has worktops that may encourage users to lift hot or heavy objects when transferring them between the parallel benches
- provides adequate room to manoeuvre if the two parallel benches are approximately 1500mm apart
- avoids 'through' household traffic altogether and can be easily closed off to children with a removable barrier
- has more internal corners than other layouts, which may reduce the value of some bench and cupboard space
- can encourage high levels of social interaction when the meals area is suitably located.

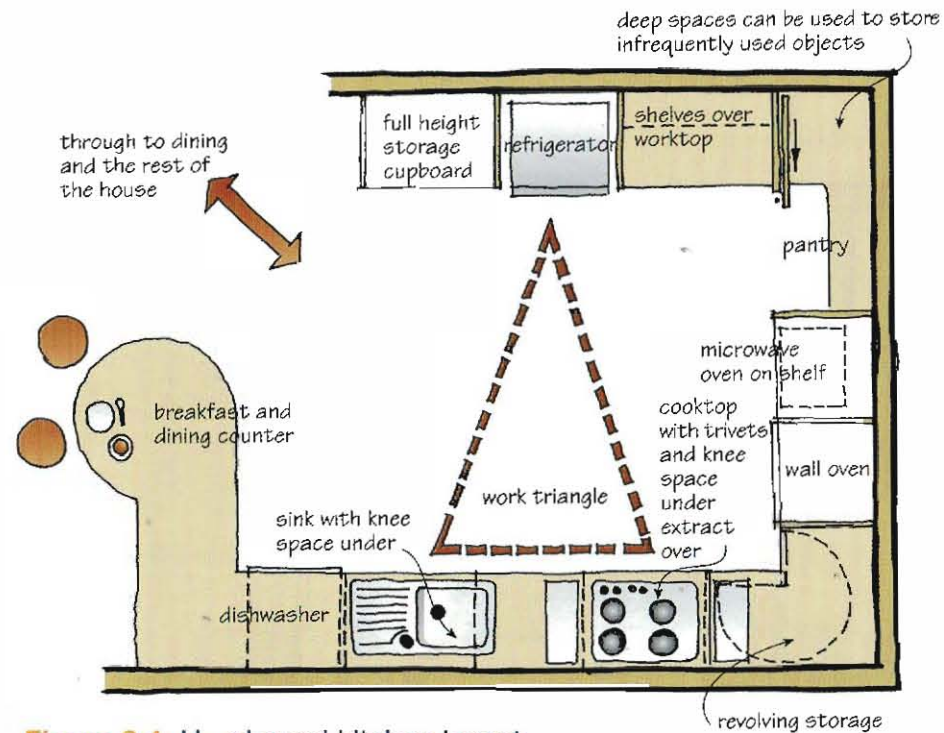


Figure 8.4 U - shaped kitchen layout

Galley plan

The galley plan illustrated in figure 8.5 consists of two parallel bench spaces, one flush against the wall, and the other forming an island between the meals and preparation areas. This design:

- doesn't waste storage space on difficult to access corners
- opens the kitchen space to the meals area encouraging social interaction
- provides adequate room to manoeuvre if the two parallel benches are approximately 1500mm apart
- can encourage 'through' household traffic unless designed to form a dead-end
- can be easily closed off to children with removable barriers

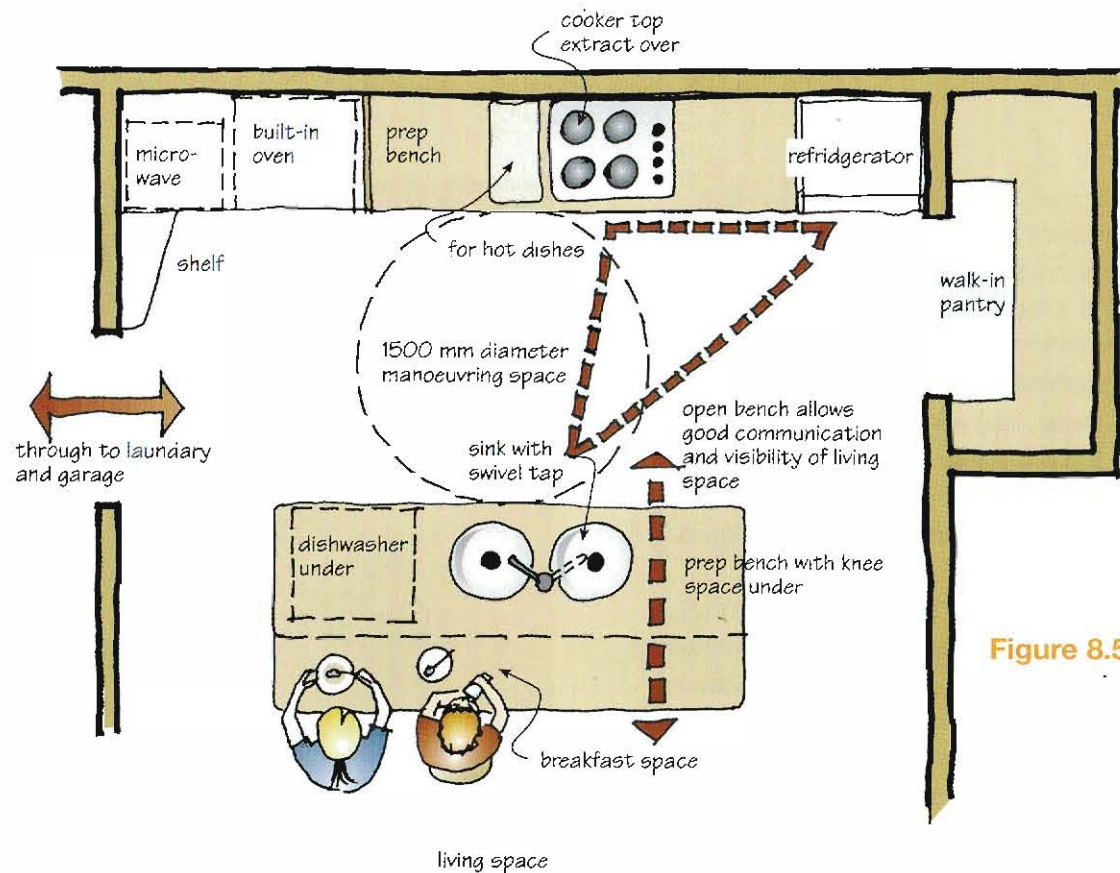


Figure 8.5 A galley plan kitchen

- can be entered from either end, which may facilitate access to other rooms or outdoor spaces
- has discontinuous worktops that may force users to lift hot or heavy objects when transferring them between the parallel benches

The two parallel benches need to be approximately 1500mm apart to allow two people to pass each other between them, or to allow a wheelchair-user sufficient room to turn around.

Kitchens



Lighting

Kitchens should be well lit so that they are easy to work in and easy to clean. They should be illuminated with an adequate, uniform level of room lighting and specific task lighting to make it easy to see in areas used for dish washing and food preparation. A single central light is not enough to light a kitchen since a person standing under the light casts a shadow on their work surface. These shadows can be avoided by installing more than one light and by placing task lighting in front or above the major kitchen work surfaces.

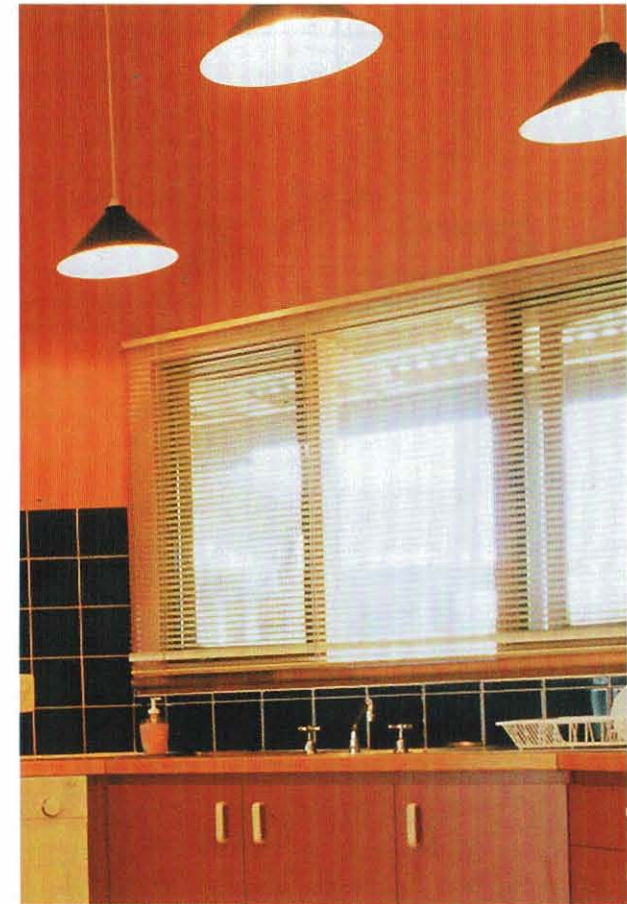
Customising to fit people in wheelchairs

The minimum comfortable manoeuvring space for a person in a wheelchair is a 1500mm diameter circle. This dimension will also provide a comfortable working space for other people. If, in the case of a kitchen renovation, this space is unavailable,

it may be possible for slim-line cupboards and broader bench-tops to provide knee-space under the bench in which a wheelchair might be manoeuvred. A large toe space, 250mm to 300mm high x 150mm deep, allows a person in a wheelchair to get closer to the kitchen benches and reach lower level drawers more easily. This is illustrated in figure 8.6.

When designing a kitchen to suit a particular person, it may be useful to measure that person. The measurements illustrated in figure 8.7 will assist. The key dimensions are:

- the height of knee space, for wheelchair users to sit comfortably at a bench or kitchen sink
- the height of toe space, so that cupboards and appliances may be placed above that height
- the maximum worktop height
- the maximum shelf height within the reach range
- the maximum cupboard depth within the reach range.



Architect: Allen kong Architect for Winttingham
Photographer: Rob Reid

Good background lighting from both overhead lights and a well placed window make this kitchen easy to work in.

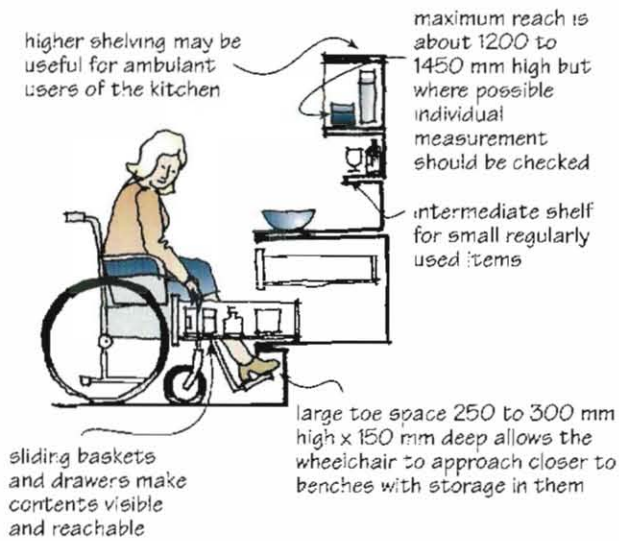


Figure 8.6 It may be important to establish the critical dimensions of the user

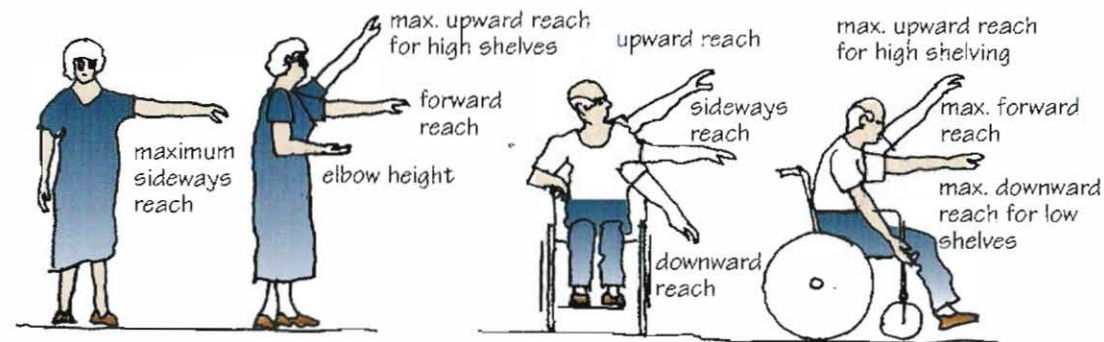
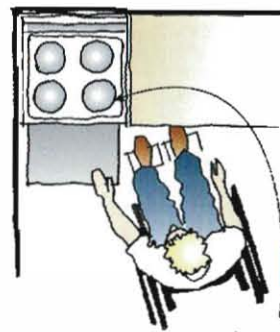
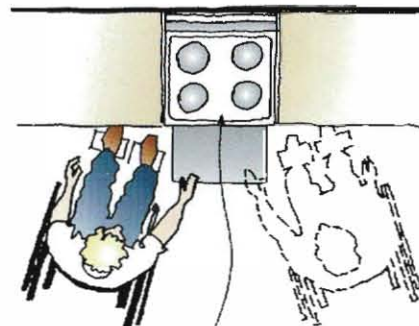


Figure 8.7 Storage accessible to wheelchair users



equipment positioned in a corner can only be approached from one side



equipment positioned with bench on both sides can be approached from either side

Figure 8.8 Position equipment so that people can approach it from their preferred side

Fittings and appliances should be located so that they can be used from either side, or from the occupant's preferred side as shown in figure 8.8.



Worktops

Standing adults generally prefer a bench height of 850mm to 900mm or higher. People in wheelchairs prefer between 700mm to 850mm. When designing to suit a household in which only one person uses a wheelchair a compromise height may be found. Usually, however, it is better to find other design solutions such as:

- alternative work surfaces at different heights
- pull-out, retractable worktops, which may also be adjustable, as shown in figure 8.9
- adjustable height worktops as illustrated in figure 8.10.

The common 600mm deep bench is usually, but not always, appropriate. Workbenches should be as wide as possible for most people. Nobody complains that they have too much workspace. For people with a short reach and people using wheelchairs, however, a bench should only be as deep as the person's reach so that they can grasp all objects on the bench and can clean it properly.

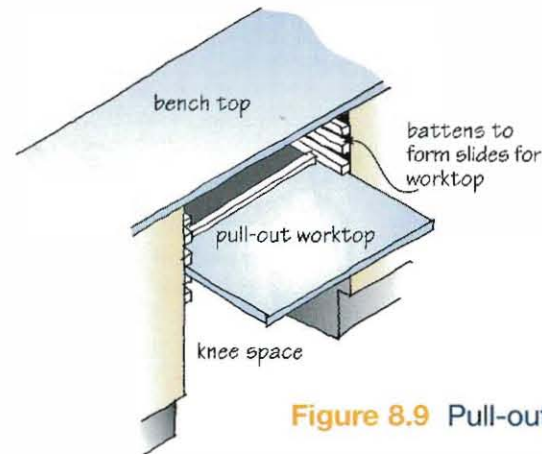


Figure 8.9 Pull-out adjustable height worktop

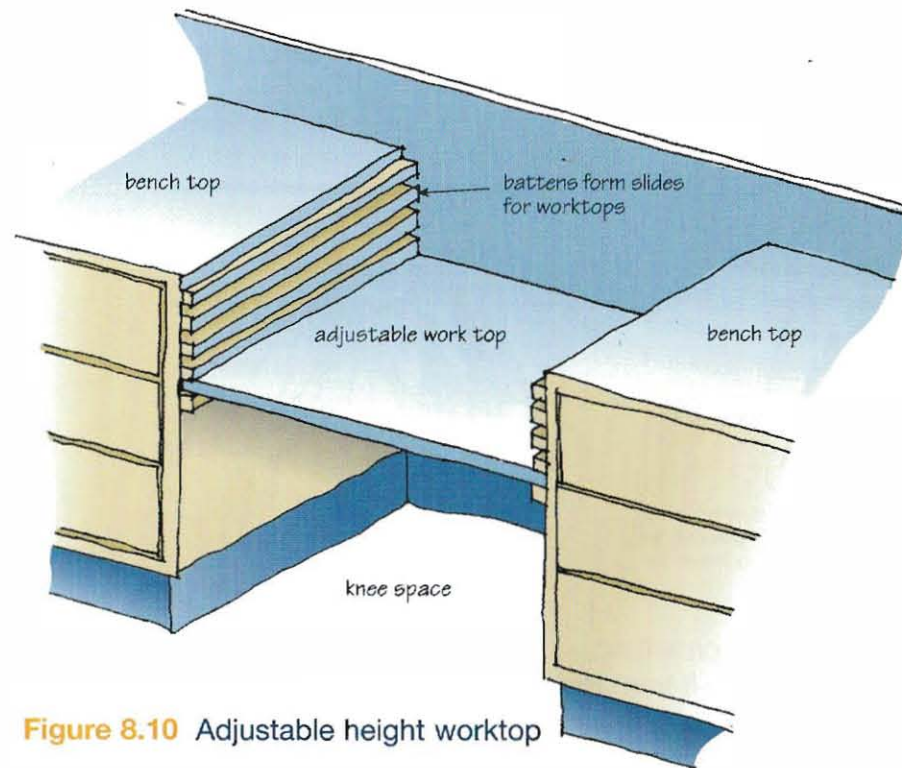


Figure 8.10 Adjustable height worktop

Even if the kitchen is not being built for a person using a wheelchair, it may still be advantageous to design for knee room under the bench-tops so the user can sit or perch on a stool while preparing food. Figure 8.11 illustrates this facility.

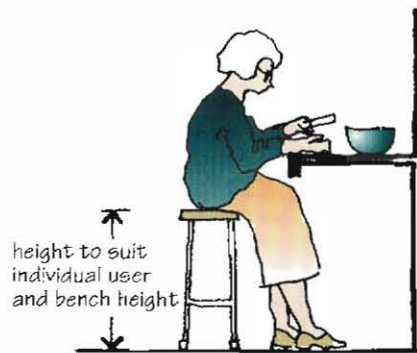


Figure 8.11 Many people prefer to sit while working

Sinks

To best fit the work triangle the sink should be centrally placed in the kitchen plan. However, space in corners can be under-used and placing the sink

in a suitable corner can, as figure 8.12 shows, be a good use of space. If using this approach, ensure that there is bench space on both sides of the sink and the rubbish bin and dishwasher are close at hand. A person using the sink should be able to easily scrape food scraps and stack the dishwasher from the sink position. This arrangement is illustrated in figure 8.13.

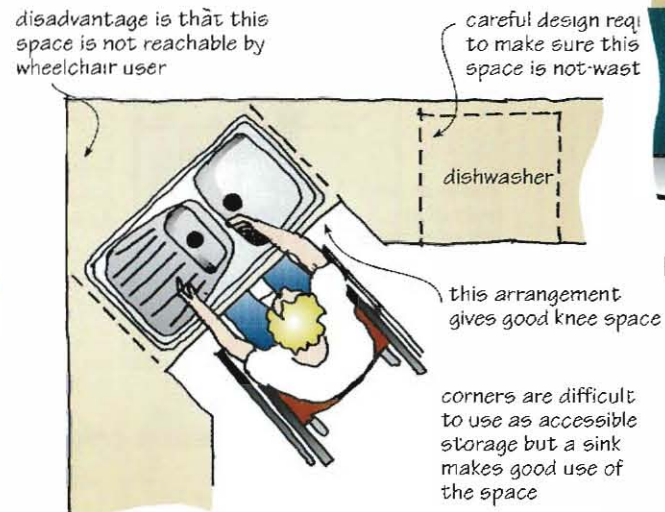


Figure 8.12 Placing the sink in a corner

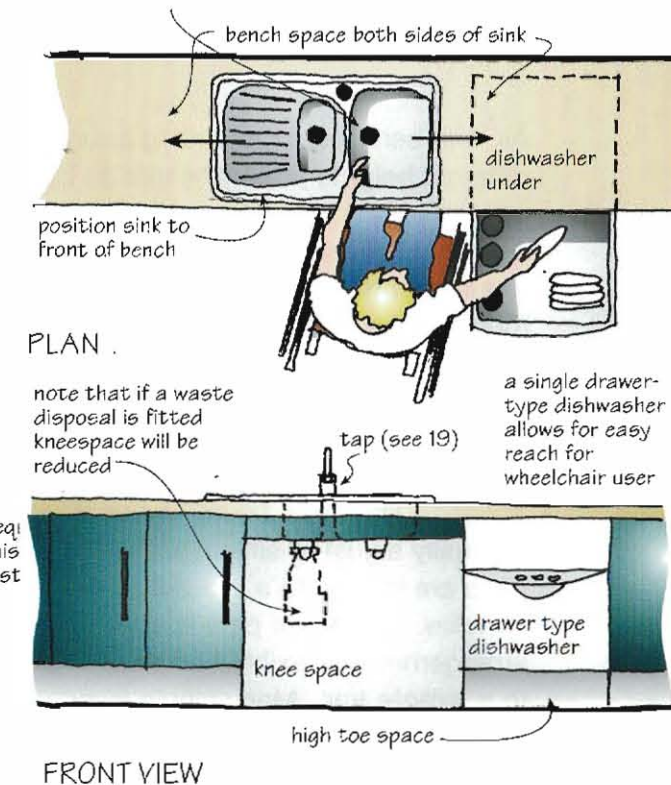


Figure 8.13 Preferred layout of sink, dishwasher and worktop

Kitchens



As with bench-tops, standing adults of different heights prefer the sink to be positioned at different heights, and people in wheelchairs have different requirements again. If there are multiple users, a compromise height may be found or an adjustable height sink may be installed. An adjustable sink is illustrated in figure 8.14. The range of adjustment need only be about 150mm. The figure shows a manually adjusted sink in which fixing bolts are moved to a pre-drilled series of holes. The waste pipe in this arrangement is flexible and discharges to a remote trap. Many single lever taps already have flexible connections. Mechanically adjusting sinks and bench-tops are also available.

For people in wheelchairs, it is helpful to select a shallow sink since this makes it easier to provide knee space underneath, as shown in figure 8.15. In kitchens designed for a person in a wheelchair or a person with a limited

reach, consider installing a sink that is also narrow to bring the taps closer to the front. Alternatively, select a sink with a mixing tap set to the side.

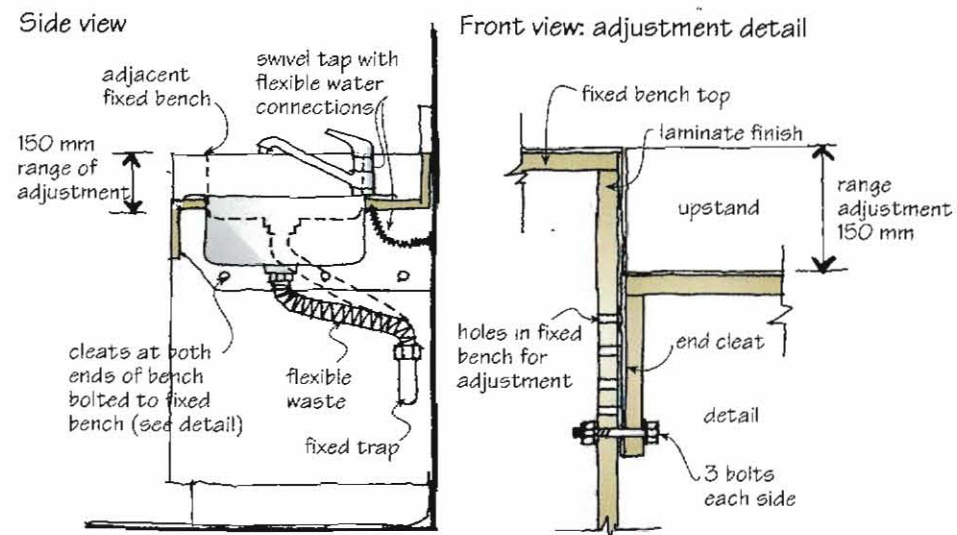


Figure 8.14 An adjustable height sink

When designing for a person who uses a wheelchair you may also:

- place an insulating panel under the sink to protect the person's knees from coming into contact with hot pipes and to screen the plumbing from view
- set the waste trap close to the outlet to provide additional knee space under the sink
- select traps that are less obtrusive to maximise the knee space.

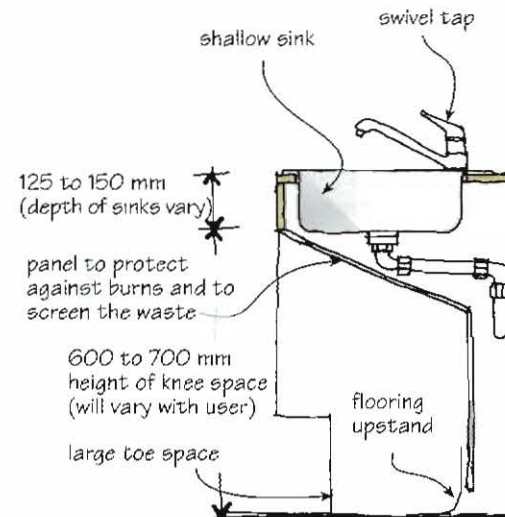


Figure 8.15 Knee-space underneath a sink provides for wheelchair access

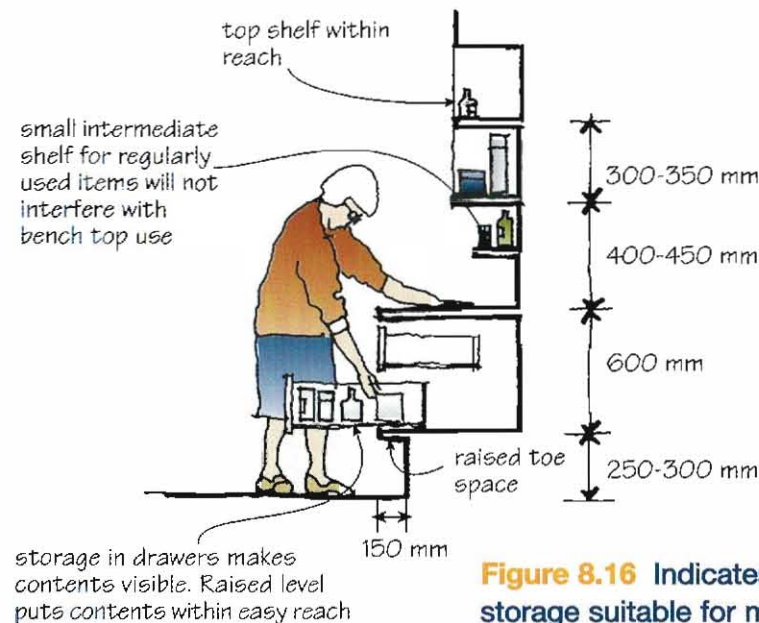


Figure 8.16 Indicates the range of storage suitable for most adults

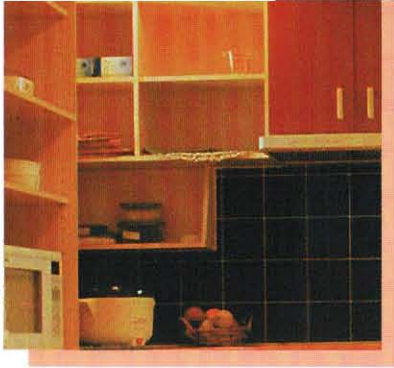
Storage

Storage is important in any kitchen. There should be sufficient storage capacity to keep food, dishes and implements within easy reach. Where possible avoid placing storage in corners since, even with revolving shelves, it tends to be difficult to access.

While the best storage layout for any person depends on their ability to reach and use it, in general:

- narrow shelves just above bench height are useful for small items and do not interfere with the use of the bench
- drawers are often more useful than shelves since they allow the user to see all the items stored
- drawers with roller slides are easy to open and close
- baskets attached to the inside of cupboard doors provide additional easily accessed storage.

Kitchens



Taking kitchen cupboards beyond a person's reach can provide storage space for seldom used items, but it encourages people to use a chair or step ladder to reach high items. This may be hazardous for older people. In place of high cupboards, a pull-down shelving unit can be installed within the shell of an overhead cupboard.

Mobile units such as that illustrated in figure 8.18 are another way of providing kitchen storage. They can be fitted with wire basket drawers or shelves and doors. If they have a top, mobile units can be used as a work surface. They may be kept under benches and rolled out for use during food preparation when they can be positioned to suit the user. When designing a mobile unit ensure that the unit will not overbalance when the drawers are opened.

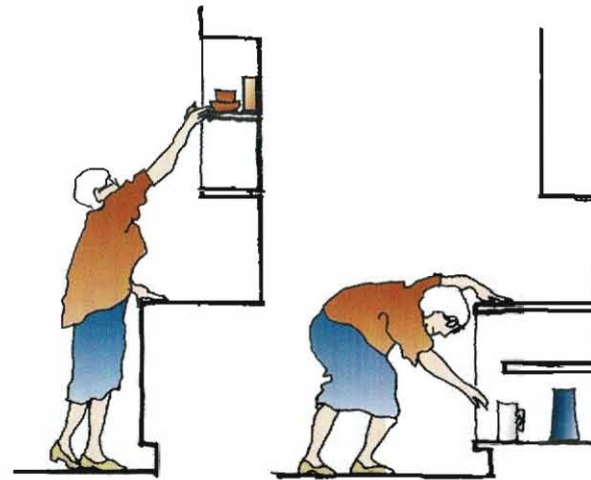


Figure 8.17 High and low cupboards are difficult to reach



Figure 8.18 Mobile storage units are versatile



Architect: Allen Kong Architect for the Vision Group
The colours in this kitchen were selected to assist people with vision impairment. The colours contrast horizontal and vertical surfaces and identify cupboard handles. The higher than usual toe space improves

Pantries should be designed to be spacious and easy to access from the cooking area of the kitchen. A walk-in or wheel-in pantry is shown in figure 8.19. Fitted with a bench, a pantry can also provide additional workspace. Slide-out pantries illustrated in figure 8.20, are very convenient for kitchen storage and suit everyone.

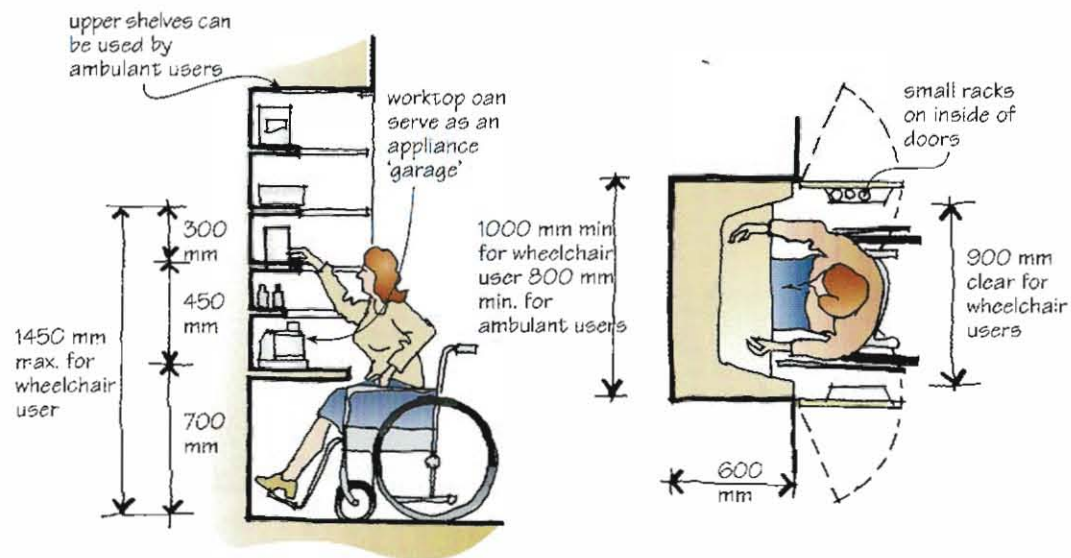


Figure 8.19 A walk-in or wheel-in pantry

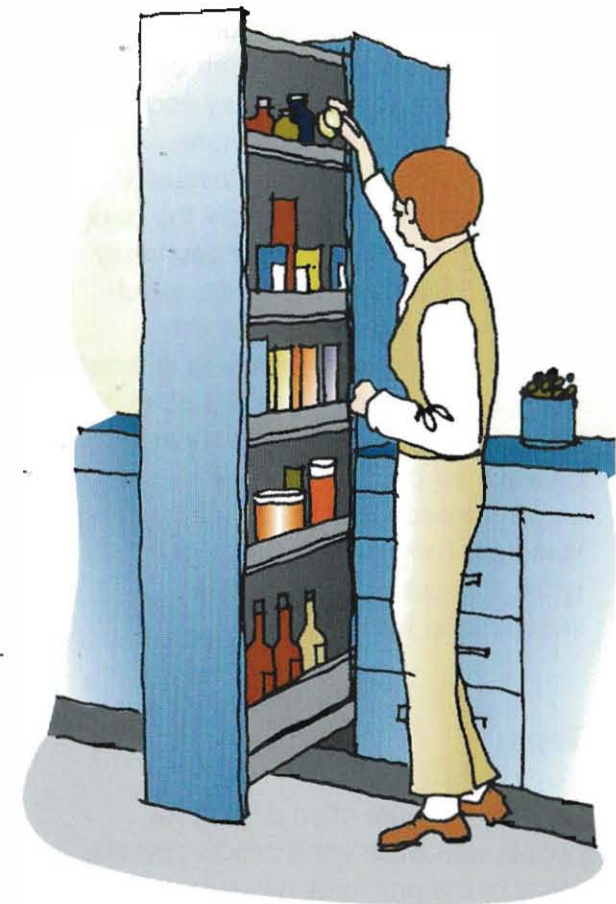


Figure 8.20 Slide-out pantries suit a wide range of people



Cupboard doors

Most people prefer doors on their kitchen cupboards, but it can be easier to omit doors to enable easy access to the cupboard contents. Where cupboard doors are to be installed, it's best to use hinges that allow the door to open 170°. Another approach may be to fit 'disappearing' doors, which slide back out of view when the cupboard is open. Regardless of what type of doors and hinges are used, the door should be fitted with an easily gripped handle. Appropriate handles are described in Chapter 5, Doors and Handles. They include the large 'D' types and cut-out-slot handles illustrated in figure 5.11.

Taps

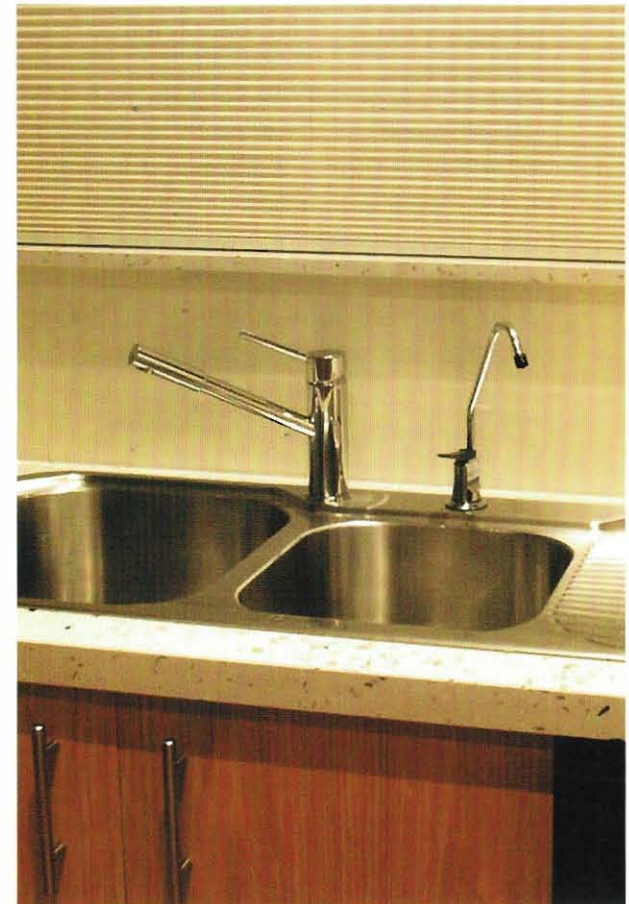
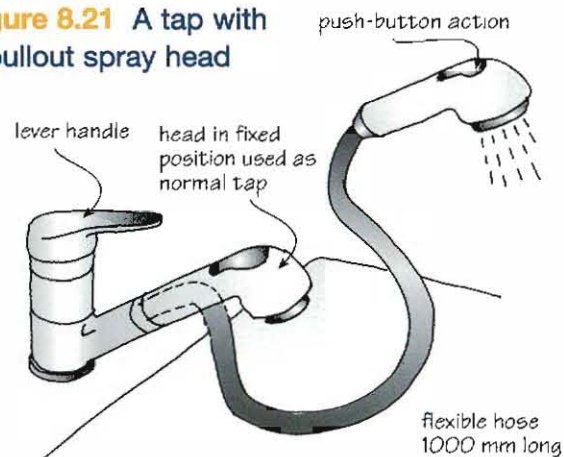
Rotating taps are often difficult for people with weak hand grip to operate. Many of the problems presented by these taps, however, have been eliminated by single-lever, ceramic disk,

mixer-taps. These taps are available in a variety of models but swivel spouts with a high reach are especially useful.

An alternative is to use a tap with a pullout hose as pictured in figure 8.21. These taps can be used to fill containers and also for rinsing vegetables and dishes or cleaning down the sink. With appropriate location of the sink and cook-top, the pullout hose can also be used to fill pots.

For people with limited reach, taps can be mounted at the side of the sink, instead of the back, to make them easier to access.

Figure 8.21 A tap with a pullout spray head



Interior designer: Manic Design

Easily opened cupboard doors combined with a single lever tap with a high reach.

Cooking

Different users may have different requirements for their cooking equipment and appliances.

Energy source for cooking

Gas and electric cooking appliances have different characteristics. Because of these differences, some people prefer gas while others prefer electric appliances.

Gas appliances:

- reach cooking temperature quickly
- respond quickly to temperature adjustments
- are less able to maintain a low cooking temperature for simmering
- cool quickly and are less likely to burn if touched than electric cook-tops
- cook using a naked flame, which increases fire risk but indicates when the gas is on
- are operated by turn knobs, which are often small but can be modified
- can sometimes be difficult to clean.

Electric appliances:

- have no naked flame, reducing the risk of fire
- have relatively precise thermostatic temperature controls
- cool slowly and are more likely to burn if touched than gas cook-tops
- may not have a clearly visible indication of when they're on or off
- are less able to provide very high cooking temperatures than gas cook-tops
- can be operated by touch controls rather than turn knobs.

Ranges or stoves

A typical range or stove, shown in figure 8.22, with combination cook-top and oven, can be an efficient use of space but has characteristics that may present difficulties for some people. As figure 8.22 shows,

- the controls are generally at the back of the cook-top, so the user has to reach over cooking food to adjust the temperature

- where front controls are fitted, they can present a danger to children
- the cook-top of a stove is high off the floor. Hence people in wheelchairs and people of short stature may have difficulty using it safely and effectively
- the lowest cooking shelf in the oven is very low and may be difficult for some people to access
- stoves open with a hinged-down front door that restricts the possibility of approach by a wheelchair-user.

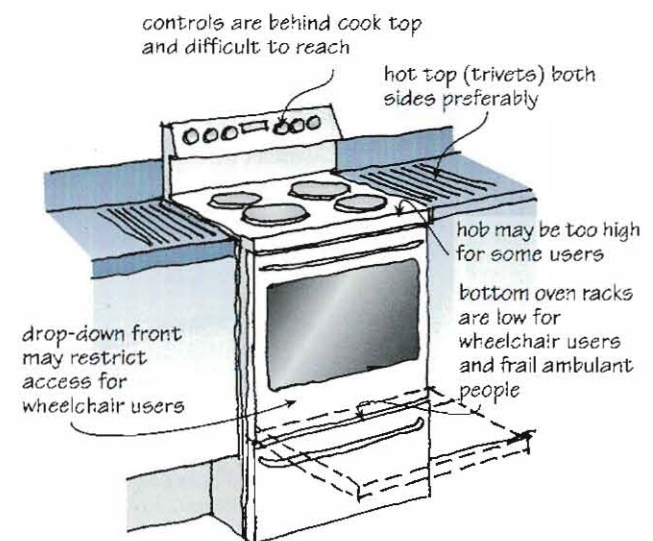


Figure 8.22 A typical range

Wall-mounted ovens

Separate wall mounted ovens have characteristics that make them access-friendly. As figure 8.23 shows, wall-mounted ovens:

- can be installed at the best height for the user
- have easy to access front controls
- are available with soft touch electronic controls instead of turning knob controls

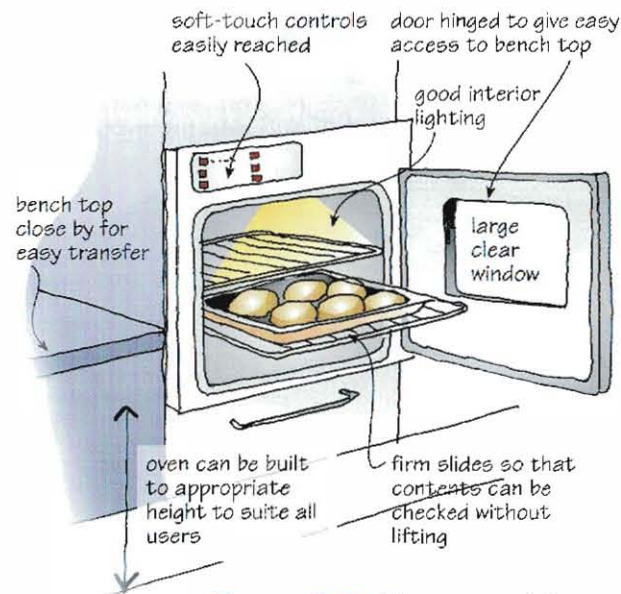


Figure 8.23 Features of the wall-mounted oven

- allow the user to inspect the cooking food without lifting it, by sliding out the rack supporting it
- provide easy access with a variety of door types available including side and top-hinged and doors that fold completely away for unrestricted access
- can be easier to clean than traditional stoves.

Cook-tops

To make the best use of the work triangle, locate the cook-top close to the sink to make it easy to transfer heavy dishes to and from the sink. The cook-top should be set in a bench-top. It is best to avoid placing windows, cupboards or shelves over the cook-top to avoid encouraging anyone to risk burning or scalding by reaching over it.

As with wall-mounted ovens, separate cook-tops are easily installed at a height which best suits the intended

user's needs. For people in wheelchairs, people of short stature, or elderly people with reduced strength, the most functional cook-top may have a ceramic or an induction hotplate that provides a perfectly flat surface. People can slide pots across this surface instead of having to lift them. The controls are generally located along the front or along the right hand side of a cook-top. A front location is ideal.

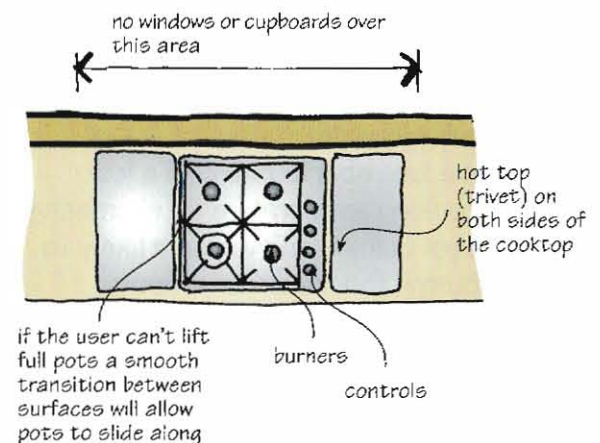


Figure 8.24 Layout of a cook-top

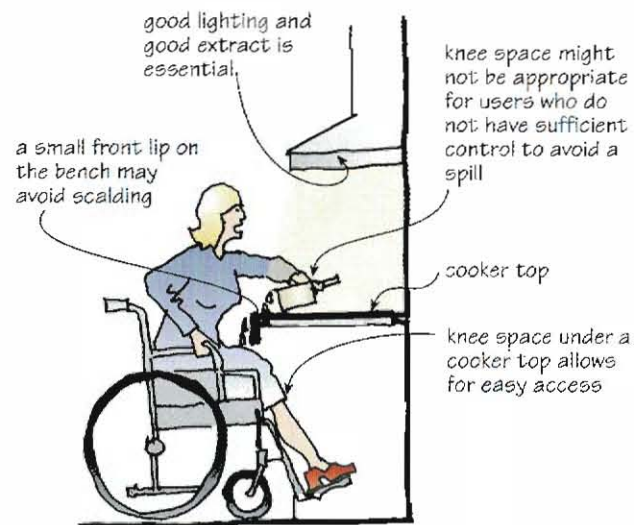


Figure 8.25 The danger of spills

A space for knees under a cook-top is an advantage for person in a wheelchair, however, if this knee-space is provided, consideration should be given to the risk of spillage and scalding that is illustrated in figure 8.25. An upstand lip could be placed at the edge of the cook-top to divert

potential spills. For people with manipulative difficulties it may be better to omit the knee space.

One type of cook-top that offers considerably greater user-safety is the induction hob that heats with magnetic contact. When a magnetic pot is placed on the element a magnetic field will heat the bottom of the pot, and only the pot. The cook-top itself does not become warm and no objects left on the top will be heated.

Microwave ovens

Microwave ovens cook food quickly and their side-opening door makes them easily accessible. Most models hinge on the left. They are light and portable and can easily be positioned on open shelves or on a bench top. They can be placed at bench height or up to 1250mm from the floor depending on the reach of the user.

Kitchen extractor fan

Vapour extraction is important to prevent both smells and moisture accumulating. Fans can be located in a hood over the cook-top, which can also contain task lighting, or in an under-bench extractor, with a grill in the bench-top. Where possible the controls should be located within easy reach.

Dishwashers

A dishwasher should be located close to the sink and waste disposal. Most dishwashers are installed to fit under a full height bench. This can cause problems if the user has difficulty reaching the lower dishwasher draw. To improve access for users who have trouble bending down a traditional dishwasher may be mounted on a plinth, or a half-draw dishwasher may be installed at the most accessible height.



Refrigerators and freezers

Compact side-by-side refrigerator-freezer models with double doors offer the most accessibility with both freezer and fridge space available at a central height. If a single-door refrigerator-freezer is preferred, the most accessible design is one with the refrigerator placed above the freezer compartment and the freezer comprising of drawer units.

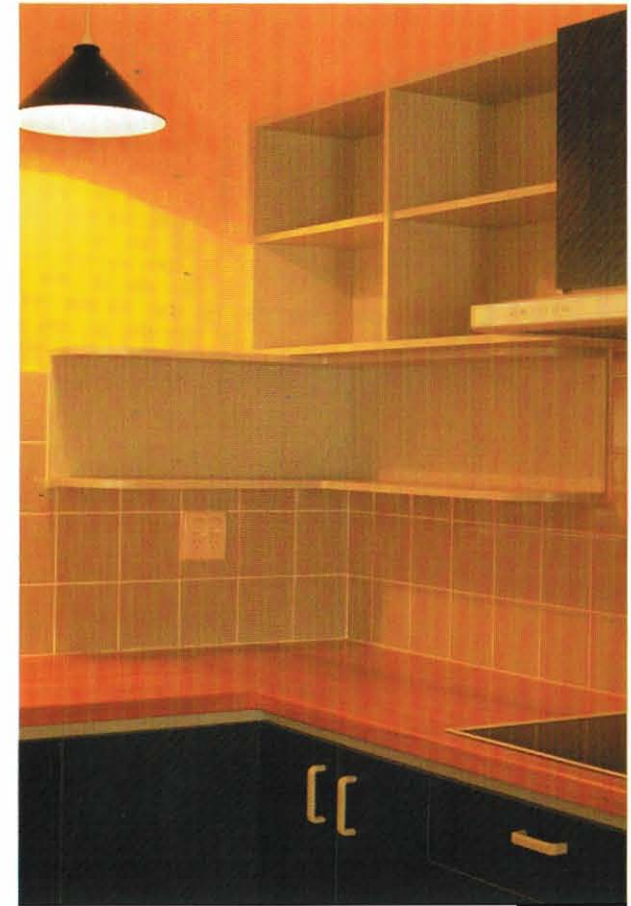
Waste disposal

Electric in-sink disposal units which pulp soft organic waste and flush it down the drain, can be a useful way of minimising the amount of rubbish that needs to be carried to an outdoor bin. These devices, however, may occupy the knee space that some people require under a sink.

For many people, non-organic waste is best stored in a bin attached to the inside of a cupboard door. When the door is opened the bin swings out and the lid is automatically lifted. An alternative is a conveniently placed, freestanding bin.

Fire safety

Include a fire extinguisher and a fire blanket in the kitchen design. These safety devices should be located near the cook-top where most kitchen fires originate.



Architect: Allen Kong Architect for Wintringham
Photographer: Rob Reid

This kitchen features low open shelving for easier access.