



# The AKW Guide To Successful Wheelchair Accessible Kitchen Design





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## What does 'Accessible' mean?

Accessibility refers to the design of products, devices, services, or environments for people who would otherwise experience disabilities. The concept of accessible design ensures both "direct access" (unassisted) and "indirect access" meaning compatibility with a person's assistive technology.

In physical contexts, accessibility could refer to the design of physical spaces, facilities, and infrastructure such as the presence of ramps, adjustable workstations, altered lighting and use of colour, or auditory indicators to meet the needs of all groups to create true accessibility.

The premise is that the environment itself creates disability, not that the person themselves is disabled. With good design any environment can support accessibility and in this white paper we explore how this can be applied to the kitchen specifically for a wheelchair user.

“

Overall, accessibility is about creating an inclusive environment where everyone, irrespective of their abilities, can participate and engage effectively.

”

## Designing a wheelchair accessible kitchen

Regularly described as the 'hub of the home', the kitchen is often overlooked in prioritisation of other rooms in the home such as the bathroom. However, as an integral space for basic functioning, family contact and social interaction the kitchen should be considered just as important to access and use by all family members.

In the case of a domestic kitchen, it is important to consider some key design questions:

How is the kitchen used now by all family members?

Will the use change in the future?

What space is needed to create adequate thoroughfare and turning circles?

What appliances are necessary to enable access and use?

What type and amount of storage is necessary?

How much workspace is required?

Our understanding of these key questions creates the starting point for client centred accessible design and allows us then to elaborate on design options and features.

## Assessment

The key to any successful housing adaptation is understanding what the client's goals are and a comprehensive assessment of their needs.

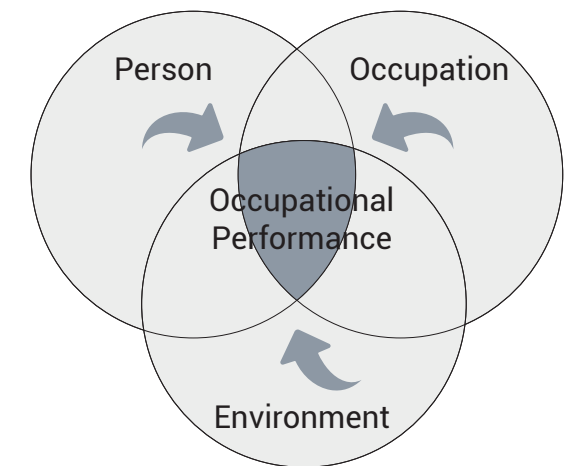
Using the Person Occupation Environment model of practice, allows us as professionals to look in detail at the requirements of the individual and their household if relevant<sup>1</sup>.

Our client (person) is always changing and developing and we need to observe and understand what skills they have that will enable them to use or not use their present kitchen and what barriers within that environment will need to be modified.

The environment in this assessment is the kitchen, it can include the building, construction, its size and layout, design, appliances, lighting and heating.

The occupation, is the tasks that the client wishes to perform to bring purpose and meaning to their lives, for example a mother or father wishing to cook for their child and not having to rely on another member of the household. Alternatively a young person wanting to develop cooking skills to allow them to move into their own home in the future or an older person who would like to make themselves a hot drink and snack at a time of their choosing and not to be reliant on a carer visit.

<sup>1</sup> <https://peomodel.com/#:~:text=The%20PEO%20Model%20emphasises%20that,et%20al.%2C1996>



## Children

Preparing and cooking food is an activity that is not confined to one age group. As we start to learn cooking skills from a young age, children learn about food through their senses (sight, touch, smell, hearing, tasting) and teaching kitchen skills not only helps a child to learn about food but also teaches them an important life skill.

Since children develop cooking skills at different rates, introducing a child to skills that match their abilities, should be encouraged from a young age. Therefore an accessible kitchen is essential to enable this to happen.

The design for a child needs to be more flexible to enable them to grow into the space and to allow for their developing knowledge and skills.



# Layout

The kitchen design layout should allow for effective use of all the space, ease of approach, access to essential appliances and avoid the need to transfer items from one side of the room to another.

**Designers / Installers:**

**Never require a wheelchair user to use their lap to carry pans / plates or other objects to avoid the risk of burns or spilling items into their lap.**

The layout should be designed to allow for one continuous length of worktop, appliances and storage units. This layout allows for a wheelchair user to push items along the worktop and not have to lift them.

When looking at the layout, the position of windows is critical. These must not impact the continuous worktop, oven housing or storage and if necessary, need to be repositioned to maximise effective use of the space.

Consider if doorways can be moved to improve access and movement through the kitchen.

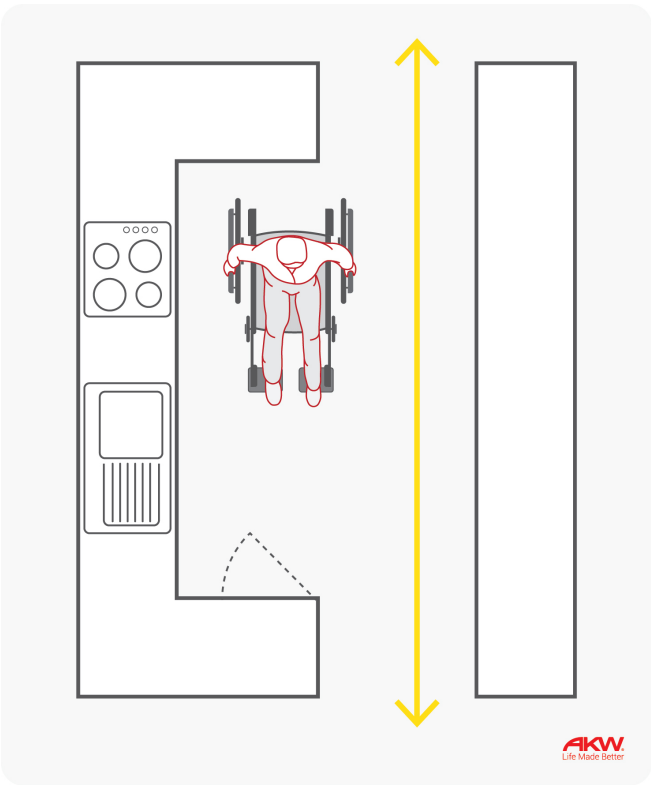
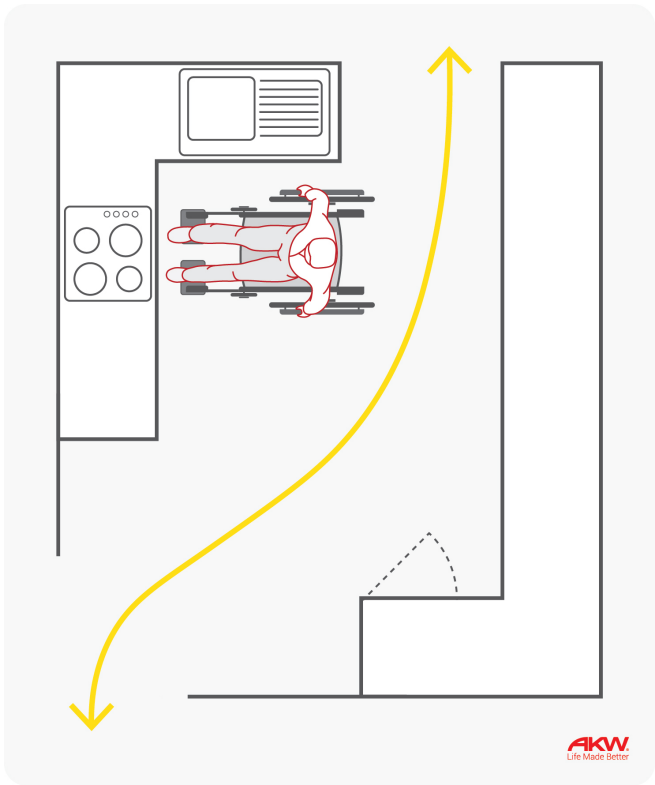


Image Source: Habinteg Housing's Wheelchair Housing Design Guide: 3rd Edition

**ONE-SIDED KITCHEN**

- Two people can work next to each other
- Plenty of space for assistance

**TWO-SIDED KITCHEN**

- People with mobility impairments can lean on worktops on two sides
- Two independent work places
- Sink and cooking section should be installed on same side
- This is not an optimal layout for a wheelchair user unless there are no other options available, due to the potential need to move heavy or hot items from one side of the kitchen to the other.

**L-SHAPED KITCHEN**

- Seated and standing users could have independent work stations
- Easy wheelchair access turning movement

**U-SHAPED KITCHEN**

- Objects can be pushed along the entire worktop
- Easy wheelchair access
- Greater distances to cover between applications

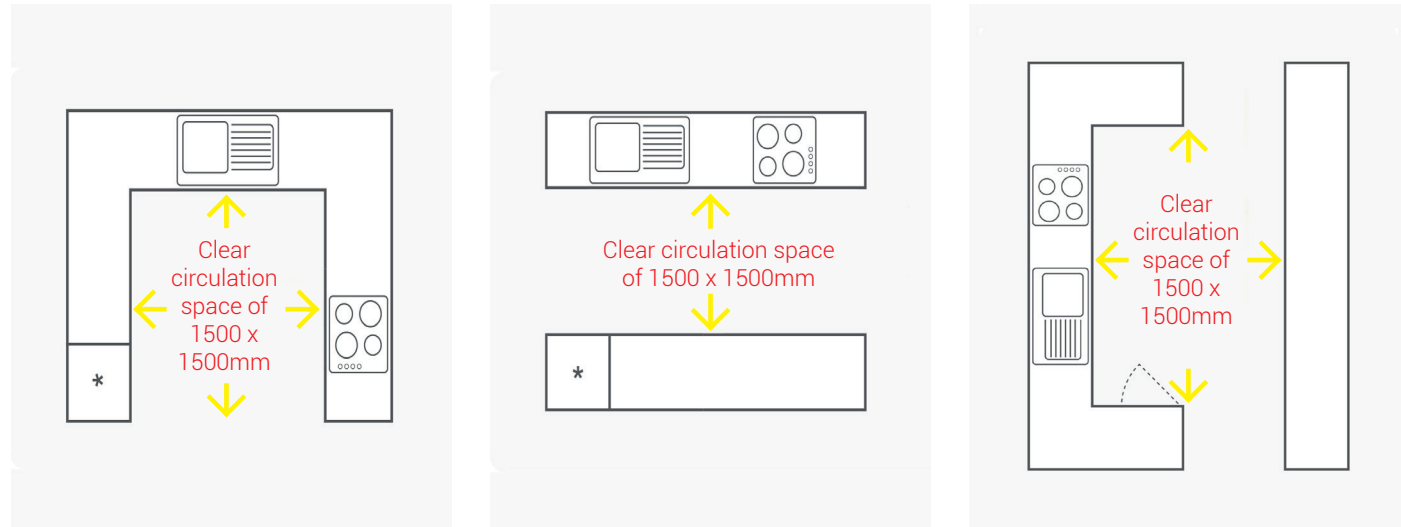
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## Circulation Space

The kitchen area should have clear circulation space of 1500mm x 1500mm between facing floor units, or between floor units and a wall. Wherever possible this circulation space should not be used as a route to other rooms, to avoid the possibility of people knocking into each other.

- + Raised height, deep recessed plinths can be included in turning area calculations, as this does significantly increase turning area. This is because footplates and feet can pass under units, which is particularly useful in restricted spaces or galley style kitchens.



## Worktops

When deciding about the length, height and position of the worktop, the initial decision should be whether a fixed or height adjustable worktop is going to be necessary.

If your client's abilities fluctuate, remember a person could be a wheelchair user, but have the ability to stand for limited periods, in which case you must look at specifying a worktop that can move to meet their changing requirements.

A worktop can be controlled either electrically or via a winding handle system. The choice of which is best for your client will depend on the clients particular requirements. You need to take into account, the client may change their wheelchair a number of times over the life span of a kitchen, which will impact on the height, the repetition of moving the unit up and down, their upper limb strength and fine hand control. It's also important to consider whether other people in the household will need to move the worktop and their own capabilities.



Although more expensive, an electric unit meets most people's needs. Whereas a winding handle mechanism can limit use, the handle can be lost or the projection of the handle can cause injury if knocked or bumped into.

### Installers:

**When specifying the unit, discuss with the client where the controls for the worktop should be situated. For most clients this will be their dominant hand side.**

If you have a client who has a stable condition, is unlikely to change their wheelchair and is the only occupant in that property or cooks for the family, you can recommend a fixed height, to meet their particular needs. However always design to allow for it to be re-positioned for alternative users of that home.

The depth of a worktop must allow the wheelchair user to be able to wheel far enough forward to access all sockets, wall unit drop down baskets, the sink and the taps. The client should be able to manoeuvre under the unit to get close enough to not have to lean forward in their chair to prepare and cook food, as this will compromise their position and could lead to pressure or musculoskeletal injuries.

### Installers:

**If providing a front fascia, make sure this does not impede a wheelchair user from getting close enough to the worktop to enable them to use essential items.**

**When positioning and fixing the worktops, ensure that brackets or legs do not impact on access for the wheelchair user.**

The sink should be a shallow bowl 120mm - 150mm deep, insulated underneath and have a rear waste trap or centre bowl space saver waste (monobloc sinks are reversible so have centre bowl waste positions). This allows for a wheelchair user to get fully under the sink to complete the necessary tasks.

### Installers:

**Remember to use flexible hosing to allow the worktop to rise and fall. It is critical that the pipework does not impede wheelchair access or be fitted in such a way that the wheelchair does not get entangled in the pipework.**

Specify a lever mixer tap (swan neck type or extended spout) with a swivel mechanism of an appropriate height to allow for easy filling of items such as the kettle and saucepans, whilst situated on the draining board. This reduces the effort required to lift, hold and move heavy items.

For new build kitchens, there should be a minimum of 500mm of worksurface either side of the sink to allow for stacking of dirty or clean crockery and pans.



“Shallow sinks let wheelchair users get much closer.”



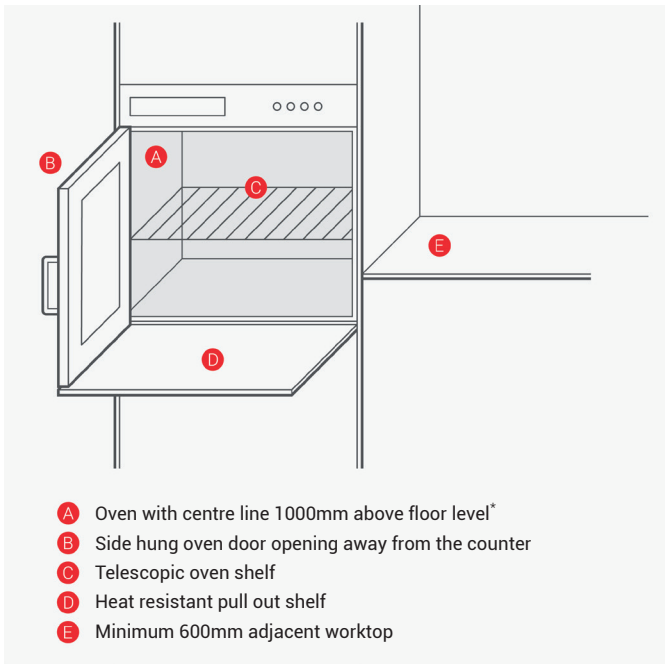
“Specify a lever mixer tap with a swivel mechanism for easy use.”

# Appliances

## Oven

The oven should be fitted into a tall housing unit and the oven located with its main shelf position at a height suitable to the users' needs, this allows for safe use by the wheelchair user. Always provide a heat resistant pull out shelf under or adjacent to the oven with leg clearance below, to allow items to be moved out of the oven to then transfer onto a worktop or just to be able to see the progress of cooking.

The only ovens suitable for accessible kitchens will have either a slide and hide or side opening door and will also be fitted with at least one pair of telescopic shelf rails. The telescopic rails (fitted to the lowest position in the oven if only one pair) enable the hot items to be safely slid forward out of the oven for brief inspection or to be transferred to an adjacent pull-out surface prior to safe transfer to the worktop for serving.



“The ovens internal racks are set at a lower height enabling safe transfer of hot dishes onto the side.”

\*AKW recommends that the oven should be positioned at a height suitable for the users' needs  
Image Source: The Wheelchair housing Design Guide, Third Edition. Good practice recommendations Chapter 12, page 107

## Note

Never use under the counter ovens, as the reach to access them and lift out hot dishes would put the user at huge risk of a burn.

The oven internal racks should be telescopic to avoid them tipping when pulled out, as this could result in hot food landing on the wheelchair user's lap.

## Note

Never use ovens with pull down doors, where it does not slide inwards, as there is a high risk of the person using it burning themselves when leaning into the oven to access the pans or trays.

## Hob

Specify a hob that can be recessed into the worktop to allow for smooth sliding of dishes and saucepans over it. This reduces the need for a wheelchair user to lift and carry heavy items.

- + Side controls should not be recommended for wheelchair users as it may be necessary to reach over a heat zone to alter temperature intensity (particularly if a user has only use of a left arm/hand (side controls are more likely to be located on the right)).



Induction hobs are the most suitable option, as they are easy to clean, turn off if no saucepan is detected, have a low temperature after use and so reduce the risk of burn injuries. They are extremely responsive to temperature changes to avoid spills.

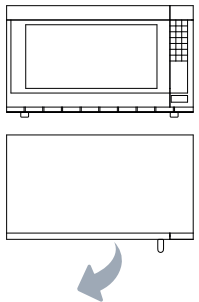
Some induction hobs can interfere with medical devices such as pacemakers (installation instructions and a doctor should be consulted prior to specifying), although this seems to be less of a concern these days, as the technology has evolved.

## Avoid

The use of gas hobs, as the exposed flame can cause burns when a wheelchair user leans over to access the rear hot plates.

## Microwaves

Microwaves are predominantly left hand hinged; this should be considered when designing the kitchen as positioning them to provide safe access to (and transfer from) these frequently used small appliances should also be paramount.



## Extractor Hood

An extractor hood is an essential appliance, as it effectively removes steam from the cooking area. This is key as a wheelchair user is closer to the steam and it is imperative to reduce the risk of scalds.



## Remember

The controls need to be accessible to the user. Remote controls are now available on a number of brands of appliances but can be expensive.

A cost effective solution is a switched, fused spur located in an accessible position. Alternatively a remote controlled socket can be provided to enable simple on/off control of an extractor (push buttons pre-set by ambulant user). This is a simple lower cost alternative to remote control hood appliances.

## Fridge/freezer

Consider the position and height of these appliances. There will be shelves and drawers that cannot be accessed due to their design, however maximising the available space is key. If the size of the kitchen allows for it, separate units provide for the best access and use.

## Washing machine and drying

Wherever possible situate these products away from the kitchen. This allow for more space for storage. It also keeps dirty clothing away from cooking facilities.

## Note

If the client's existing appliances do not meet their needs, then suitable products should be sourced and provided. Appliances can be funded under the Disabled Facilities Grant<sup>2</sup>.

<sup>2</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1065574/DFG\\_Guidance.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065574/DFG_Guidance.pdf) Page 55



## Units and Storage

When designing storage in a wheelchair accessible kitchen it is important to be creative in the use of the available space, as a significant amount is lost due to the need for the worktop to have wheelchair access.

Use the space under the oven for a large drawer for pans and provide an additional under worktop space for drawers to be used for cutlery and cooking utensils. If space allows for more base units, prioritise drawers over cupboards as they are easier to access from a wheelchair.

A tall cupboard with pull out unit, with access either side, can provide a significant amount of storage for food items. Corner units can be fitted with a carousel or wire work, which is easy to pull out and use.

Wall units should be fitted at no more than 350mm above the worktop to maximise use and can be fitted with pull down baskets to allow easier access to items, or fit electrically operated units that come forwards and down, to enable those with limited reach to have use of the whole kitchen.



Plinths should be deep recessed (i.e. set back 150mm from front of cabinet) and the height of the kickboards must allow for the feet and/or the footplate of the wheelchair to go under the recess, this allows for the user to get closer to the products they are using.

This also lifts the bottom of the units up to a more manageable height which reduces the need for bending to reach items in lower drawers – this can also benefit ambulant users with bending/balance difficulties.

## Handles

There are considerable options available on the market today. Specify D shaped for easy grip and safety and their position should be discussed with the client to maximise ease of use.

However, increasingly drawers with push opening and soft closing can make it easy for clients who have limited fine hand dexterity.



## Grab Rails

By using a Grab-a-Rail, which can be fitted as part of a new installation or retro-fitted into an existing kitchen, this will allow a wheelchair user to manoeuvre themselves closer to the worksurface.

Using a cross grip or by simply pulling themselves from one position to another, a user can move along the worktop easily without having to physically move their wheelchair.

For wheelchair users who are able to stand for limited periods, a Grab-a-Rail can enhance stability and balance whilst undertaking essential tasks.



## Sockets and Switches

A minimum of 8 double sockets<sup>3</sup> should be provided in the kitchen (over and above those needed for appliances).

All sockets and controls should be positioned to allow easy access by wheelchair users. Where sockets/controls are mounted above a worktop, they should be sited no more than 100mm above the finished height of the worktop.

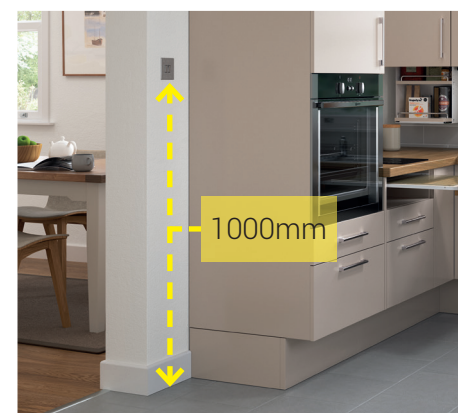
Sockets should be mounted 700mm in from an inside corner and not positioned behind appliances.

Where sockets are mounted on a wall with no intervening worktop, they should be positioned no more than 900mm from the finished floor level.

Consider the installation of isolating sockets e.g. Surestop, positioned 1000mm above finished floor level to allow ease of access.

Light switches should be full plate switches positioned at 1000mm above finished floor level.

<sup>3</sup> The Wheelchair housing Design Guide, Third Edition. Good practice recommendations Chapter 12, page 107



## Lighting

There needs to be some thought around the type and positioning of lighting. Good lighting is an essential aspect of any kitchen design, as it provides the necessary visibility to prepare and cook meals. Inadequate lighting can lead to accidents, poor food preparation, and a less enjoyable cooking experience. Wherever possible utilise natural light.

There are two types of lighting, task and general lighting:

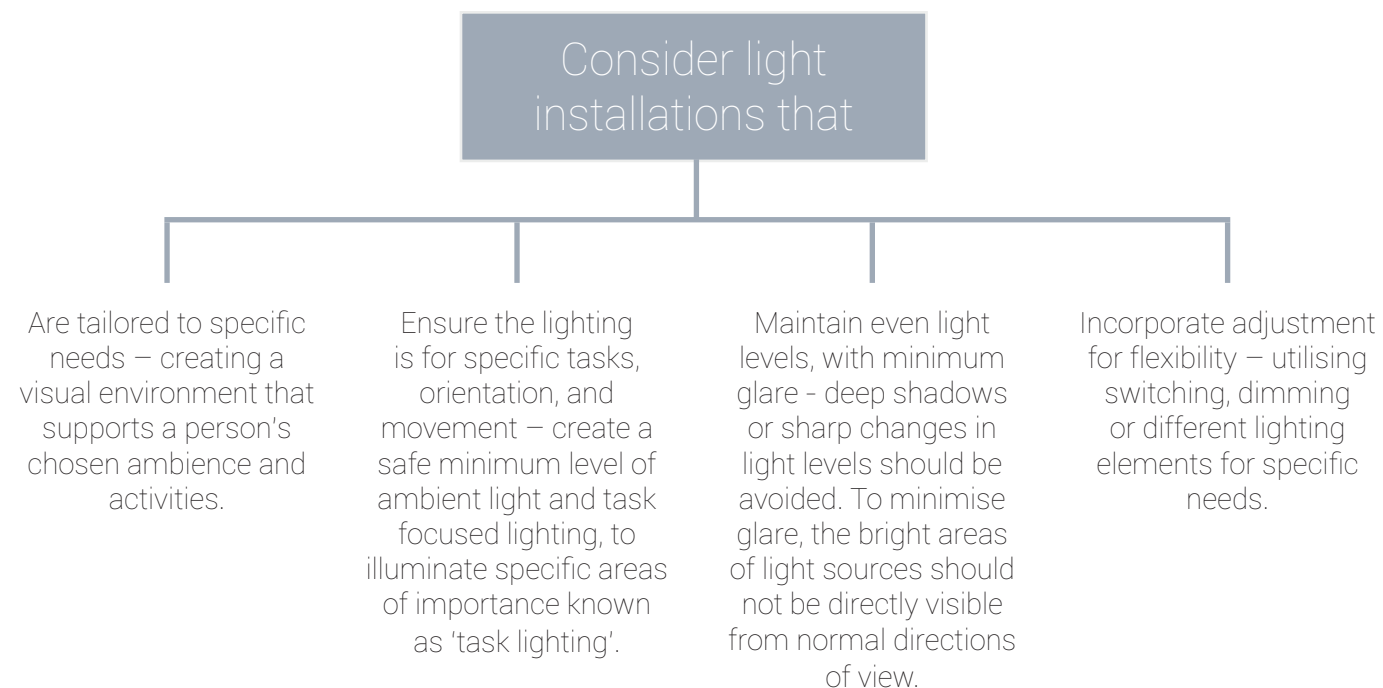
- + General lighting can be provided by down lighters throughout the room, this can be calculated as one downlighter per 1.5 to 2m<sup>2</sup>. Positioning of the lights over key areas, where tasks are performed, is critical. Remember when specifying the lights over a sink, that they do not create a shadowing as this will impact on making sure dirty pans, plates and crockery are clean.

- + Task lighting should be used under cupboards and in drawers, or where specific spaces need to be highlighted.

### Installers

**It may appear that the occupational therapist is over specifying the number of lights, however it is important to note that delicate and fine focus tasks are carried out in the kitchen and these can cause an injury. Having good lighting may reduce the risks.**

An understanding of the impact lighting can have on accessibility for someone with a visual impairment or dementia in particular, helps to evidence specific use within kitchen design.



## Tiles

Tiles should be installed behind all worktop areas. They should have low reflection, be easy to clean and maintain.

### Installers

**Tile all the way down to the floor where there is a height adjustable worktop, to accommodate the change in height. This avoids being left with bare plastered wall. The tiles should not impede the smooth working of the worktops height adjustment.**



## Flooring

The kitchen flooring should be slip resistant<sup>4</sup> to lessen the risk of accidents. This can be AKW safety flooring or slip resistant tiles of R10 or above.

<sup>4</sup> [www.hse.gov.uk/slips/manufactfloor.htm](http://www.hse.gov.uk/slips/manufactfloor.htm)



## Heating

When thinking about heating, the key factor to consider is that any radiators do not impinge on circulation space or restrict access to necessary appliances.

Provide for an independent source of heat that can be used separately from the main household. The kitchen is usually one of the first rooms used in the morning and late at night and additional heating will allow the user to control its temperature and reduce any effects of lack of temperature modulation.

## Ventilation

The windows should be accessible to open by the wheelchair user, this may require them to be operable by remote control or an accessible winding system.

All extractor fans should adhere to the current regulations.



## Colour

As well as being important for aesthetics and choice, colour can play a role in accessibility.

Colour contrast is absolutely crucial in enhancing the kitchens accessibility for the visually impaired and those who might have difficulty associating different spaces in the room with specific tasks.

In particular, using colours that reflect light and have a light reflective value (LRV) of greater than 30 will help to differentiate an object from its surroundings and support occupational performance. Furthermore, colour contrast is best achieved with contrasting shades of the same colour, rather than different colours. It is advisable to use colour contrast to highlight spaces, room boundaries and objects.

Task Focused Lighting Guide: [www.akw-ltd.co.uk/document/akw-task-lighting-guide](http://www.akw-ltd.co.uk/document/akw-task-lighting-guide)



## Legislation

The Disabled Facilities Grant is a means tested (For children 18 and under there is no means test), tenure blind grant that can be applied for via the housing authority and local social care teams for funding up to £30,000 in England, £36,000 in Wales and £25,000 in Northern Ireland<sup>5</sup>.

The Disabled Facilities Grant legislation (Housing Grants, Construction and Regeneration Act 1996<sup>6</sup>) specifically mentions as one of its purposes; 'Facilitating the preparation and cooking of food by the disabled occupant'. The legislation requires access to a suitable room/area for such a task, if the client has a disability as defined in the Equalities Act 2010<sup>7</sup> and the works are deemed necessary and appropriate for that individual client.

In Scotland grants are managed by the local authorities to provide access to essential amenities, including kitchen modifications. The minimum level of the grant is for 80% of the works, however there is funding of 100% if the person meets certain requirements e.g. eligible benefits<sup>8</sup>.

For all four countries there could be additional discretionary funding via social care or the Integrated Care Board.

<sup>5</sup> [www.gov.uk/disabled-facilities-grants](http://www.gov.uk/disabled-facilities-grants)

<sup>6</sup> [www.legislation.gov.uk/ukpga/1996/53/section/23](http://www.legislation.gov.uk/ukpga/1996/53/section/23)

<sup>7</sup> [www.gov.uk/definition-of-disability-under-equality-act-2010](http://www.gov.uk/definition-of-disability-under-equality-act-2010)

<sup>8</sup> [www.gov.scot/policies/independent-living/housing-adaptations](http://www.gov.scot/policies/independent-living/housing-adaptations)

## Building Regulations

The Government published Approved Part M of the Building Regulations (AD M) in October 2015. M4(3) Category 3, details the requirements of new build wheelchair accessible minimum design. This is a useful reference document for information. However, it does quote some measurements which specialists in the field would never adhere to due to the incompatibility of the design recommendations.

If you wish to use this document, we recommend you use the Habinteg Wheelchair Housing Design Guide: 3rd Edition as your key document to meet requirements for kitchens in new build properties<sup>9</sup>.

### Installers

**Considerations should be made to adhere to all building regulations when developing and installing a wheelchair accessible kitchen.**

<sup>9</sup> [www.habinteg.org.uk/publications](http://www.habinteg.org.uk/publications)





Three enclosed shelves, middle shelf adjustable / removable

Cupboard descends at the push of a button

Shallow sinks are heat insulated for safety

Contents can be placed within easy reach

Easy push button height control

Suitable for a recessed hob

Variable height is ideal for multi user areas

Safety strip reverses motion on contact

Space underneath allows wheelchair users to get closer and be safer

Freestanding and modesty panel versions

Ovens are set at a lower height enabling safe and easy transfer of hot dishes onto the side





#### Orders & Quotes

01905 823 299

[kitchens@akw-ltd.co.uk](mailto:kitchens@akw-ltd.co.uk)

#### General Enquiries

01905 823 298

[sales@akw-ltd.co.uk](mailto:sales@akw-ltd.co.uk)

#### Technical Enquiries

01905 560 219

[tech@akw-ltd.co.uk](mailto:tech@akw-ltd.co.uk)

#### AKW

Pointon Way, Hampton Lovett  
Droitwich Spa, WR9 0LR

[www.akw-ltd.co.uk](http://www.akw-ltd.co.uk)

[orders@akw-ltd.co.uk](mailto:orders@akw-ltd.co.uk)



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