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International Standard 3055

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Kitchen equipment — Coordinating sizes

Équipement de cuisine — Dimensions de coordination

Second edition — 1985-05-01

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Ref. No. ISO 3055-1985 (E)

Descriptors : buildings, kitchens, kitchen equipment, dimensions, modular structures, dimensional coordination.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3055 was prepared by Technical Committee ISO/TC 59, *Building construction*.

ISO 3055 was first published in 1974. This second edition cancels and replaces the first edition, to which new annexes have now been added.

Kitchen equipment — Coordinating sizes

0 Introduction

The purpose of standardization of kitchen equipment is to allow components to be combined in arrangements which are harmonious and rational, due account being taken of ergonomic and economic considerations.

To this end, the following aspects have to be considered:

- the sizes of component parts;
- the specific areas of each item of equipment, taking into account the possibility of their complete or partial overlapping;
- the location of pipes (water, gas, drainage, electricity);
- the combinations of components.

This International Standard has been prepared according to the principles of modular coordination in building.

1 Scope

This International Standard defines sizes for components of kitchen equipment in dwellings.

It also specifies, in annex A, the sizes of zones for hot and cold water and waste and gas pipes in kitchen cabinets and certain appliances.

General guidance on the planning of domestic kitchens is given, for information only, in annex B.

2 Field of application

This International Standard applies, according to the principles of modular coordination in building, to all components of kitchen equipment, for example cabinets, work-tops, sink units and appliances.

3 References

ISO 5731, *Kitchen equipment — Limit of size.*

ISO 5732, *Kitchen equipment — Sizes of openings for built-in appliances.*

4 Coordinating sizes (see figure 1)

4.1 Heights

A — Work-top level: 9 **M** or 8,5 **M**¹⁾

B — Plinth

— for work-top level 9 **M**: 1,5 **M**

— for work-top level 8,5 **M**: 1 **M**

C — Clear height from floor to underside of wall unit²⁾: 13 **M** minimum + *n* × **M**

D — Height of tall units and tops of wall units: 19 **M** minimum + *n* × **M**

Preferred height: 21 **M**

4.2 Depths³⁾

E — Work-tops, floor units and tall units: 6 **M**

F — Wall units: 3 **M** or 3,5 **M**

4.3 Widths

Widths of all components shall be multiples of **M**.

Components of different sizes can be combined.

1) **M** is the symbol for the basic module, defined in ISO 1006, *Building construction — Modular coordination — Basic module*, and is equal to 100 mm.

2) Reserved zone for lighting or other attachments, if any should be included in the wall unit space.

3) Only handles or switches may project.

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Preferred widths:

- appliances **6 M**
- cabinets **3 M, 4 M, 5 M, 6 M, 8 M**
- sink units **6 M, 8 M, 9 M, 12 M, 15 M, 18 M**

L — Recess of the plinth in relation to the front edge of the work-top (toe-recess)¹⁾: 50 mm minimum

M — Height of service zone²⁾: 100 mm minimum

N — Depth of service zone²⁾: 100 mm

5 Special dimensions

K — Thickness of work-top and apron height of sinks

Preferred size: 30 mm

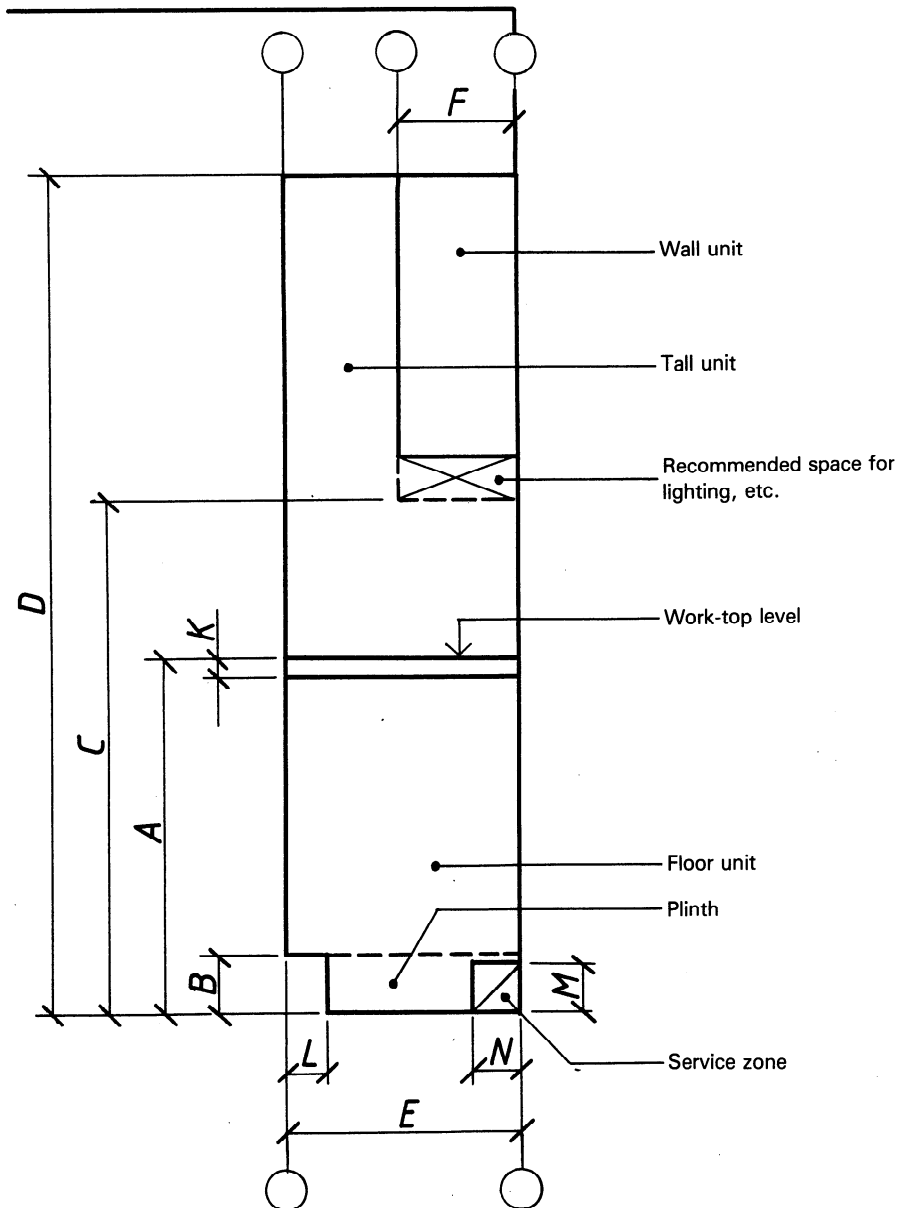


Figure 1

1) For tall units and for appliances which are not meant to be placed beneath a work-top, or do not have a work-top included, this toe-recess can be reduced or eliminated.

2) The service zone provides space for water, gas and waste pipes; its provision is a requirement in the case of cabinets and cookers and, at present, optional (at the discretion of the manufacturer) in other appliances. See also annex A.

Annex A

Service zones

(This annex forms an integral part of the standard.)

A.0 Introduction

The provision of service zones in kitchens makes it possible to provide service runs without the need to make holes either in kitchen cabinets or appliances or in the fabric of the building. The installation of service runs is thereby facilitated.

The specifications in this annex apply only to cabinets and cookers, other equipment being excluded for technical reasons. The problem of providing service runs is, however, solved for a wide variety of kitchen plans by the provision of service zones in cabinets and cookers. Other appliances, such as dishwashers, washing machines and refrigerators, may be provided with service zones at the manufacturer's discretion. It is intended to extend the requirements for service zones to cover these appliances at a later date.

An example of a service zone for service runs from a dishwasher and sink to a vertical service duct is shown in figure 2.

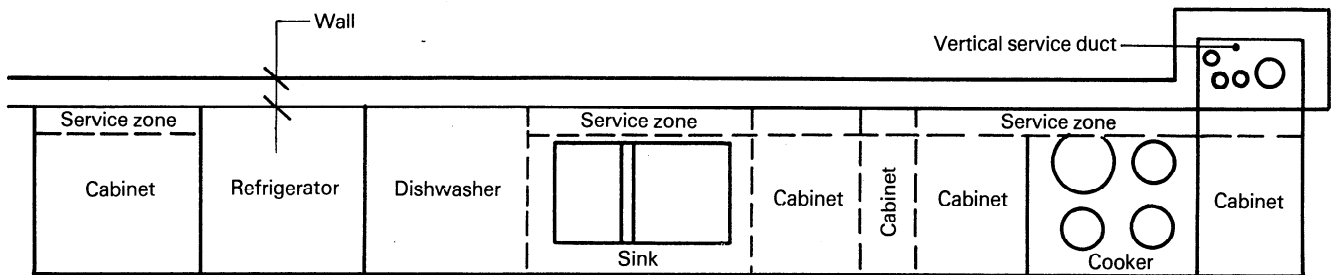


Figure 2

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A.1 Position and size (see figure 3)

The service zone shall be placed at floor level at the back of a cabinet or appliance. Its size shall be as follows:

- Depth: $100 + \frac{2}{0}$ mm
- Height: 100 mm (minimum)

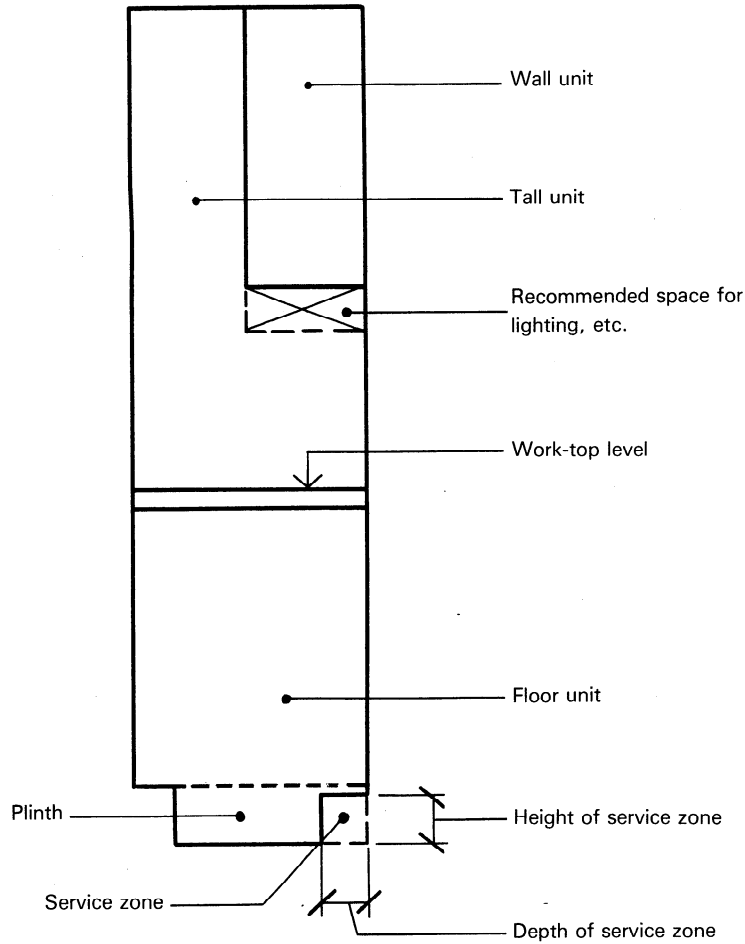


Figure 3

A.2 Access to service zone

Where a connection to service runs is required, cabinets (for example sink cabinets) shall be designed so that connections can be made without the need for making holes.

See, for example, figure 4.

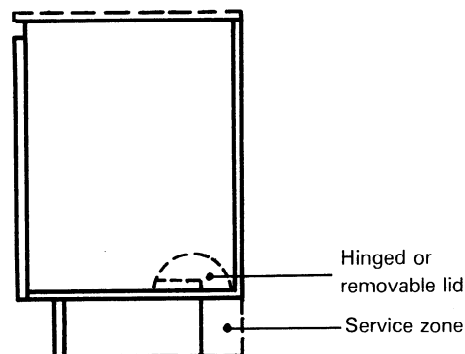


Figure 4

A.3 Examples

A.3.1 An example showing the layout of a service zone of dimensions 100 mm × 100 mm for one drainage pipe of nominal diameter 50 mm (no fall necessary for lengths up to 3 000 mm) and two water pipes of diameter $d = 12$ mm is shown in figure 5.

NOTE — Pipes are installed before the kitchen equipment is fitted.

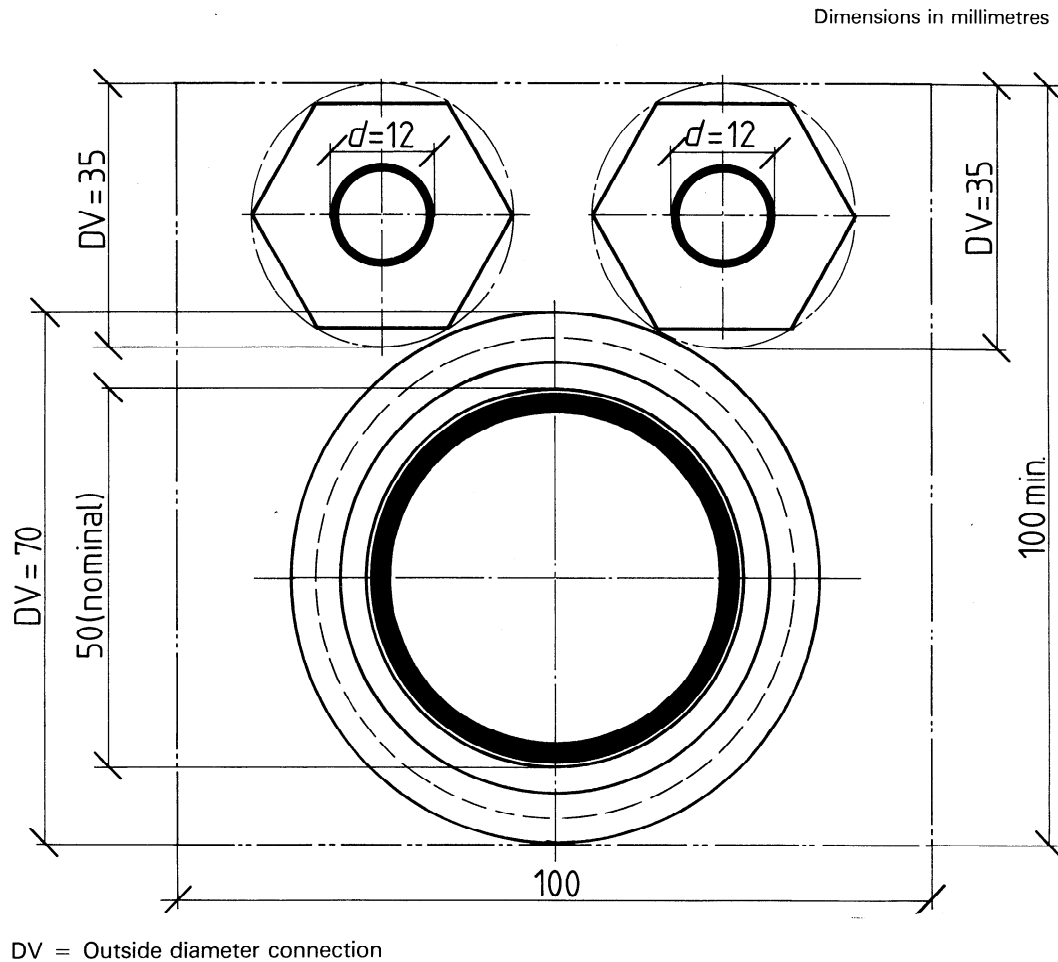


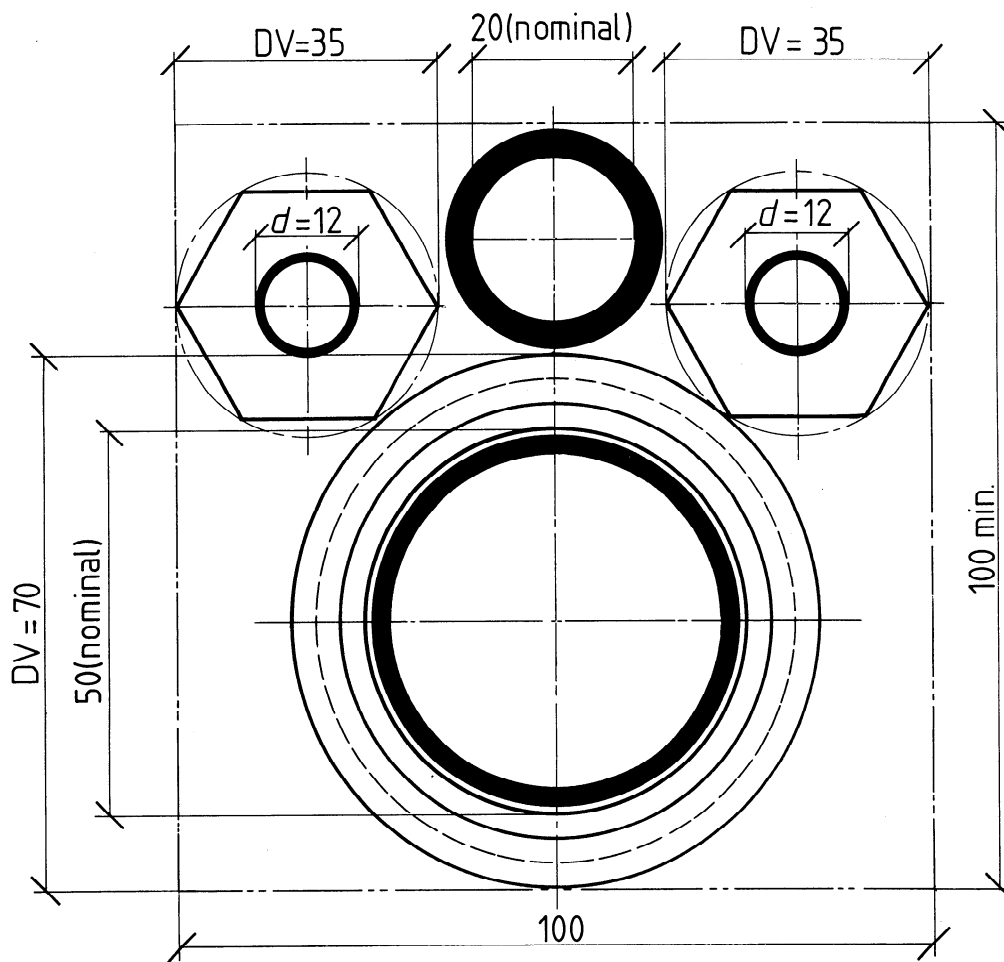
Figure 5

ISO 3055-1985 (E)

A.3.2 An example showing the layout of a service zone of dimensions 100 mm × 100 mm for one drainage pipe of nominal diameter 50 mm (no fall necessary for lengths up to 3 000 mm), two water pipes of diameter $d = 12$ mm and one gas pipe of nominal diameter 20 mm is shown in figure 6.

NOTE — Pipes are installed before the kitchen equipment is fitted.

Dimensions in millimetres



DV = Outside diameter connection

Figure 6

Annex B

General guidance on the planning of domestic kitchens

(This annex does not form part of the standard.)

B.0 Introduction

This annex gives general guidance on the planning of domestic kitchens. International Standards may be established within this framework, when this is meaningful. Parts of this annex may be incorporated into national planning guides, according to national requirements.

The principles for kitchen layouts and electrical installations are based on ergonomic considerations, analyses of activities and storage requirements and the influence of household sizes, and take into account general principles concerning the combination of activity spaces.

The guidance is valid for the majority of households, including those of elderly people and the physically handicapped. Individual requirements for physically handicapped people have to be met for each special case, however, and are, therefore, not dealt with here. See also ISO publication *Needs of disabled people in buildings – Design Guidelines*.

Functional requirements are also considered, kitchen work and eating being considered as unifying and pleasant household activities, although national or local cultural and social patterns may influence the utilization of the guidelines.

The planning of the kitchen should reflect rational work processes and work sequences and guarantee a comfortable, safe and agreeable environment. Special attention needs to be paid to the safety of children and their natural behavioural patterns, as well as to elderly people and the physically handicapped.

It is important to make provision for subsequent improvements in kitchen equipment and changing kitchen activities. Free space for additional activities and/or equipment is thus desirable. A high degree of flexibility, adjustable and interchangeable fittings, etc. will facilitate adaptation to future, and changing, users' demands.

B.1 Ergonomic requirements

B.1.1 General

The planning of a kitchen should be based on a knowledge of the users' ergonomic requirements. This basis should be used both for the design of individual units and for their assembly into parts of, or whole, kitchens. The design of handles, knobs, switches, hinges, right/left handling, etc., should also be based on an ergonomic knowledge of the physical, mental and social capacity of the users.

See the general layout in figure 7.

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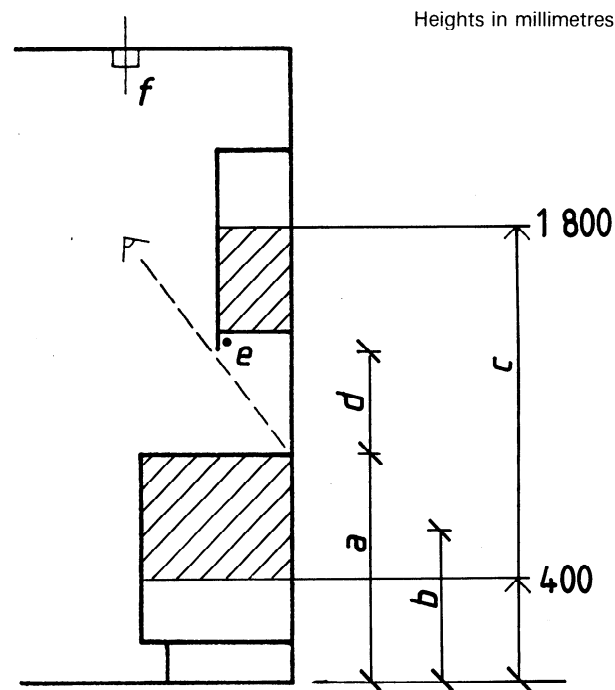


Figure 7

B.1.2 Working heights, standing (*a*)

The appropriate working heights for different activities when standing are

- for food preparation: 850 to 1 000 mm;
- for washing-up: 900 to 1 050 mm.

A work-top level of 850 mm and 900 mm is specified in 4.1. To make allowance for differing statures and activities, a range, at intervals of 50 mm, up to 1 050 mm is desirable. Adjustments in height can be made by different plinth heights and other means.

B.1.3 Working heights, sitting (*b*)

The appropriate working height for different activities when sitting are

- for food preparation: 600 to 800 mm;
- for washing-up: 750 to 850 mm.

If the height is fixed, adjustable seating is desirable and, if possible, the working surface should be adjustable in height. For wheelchair users, a minimum clear height of 650 mm under work-tops and sink bowls is required.

B.1.4 Vertical reach (*c*)

It should be possible to store frequently used items within convenient reach. The term "vertical reach" refers to the maximum height from the floor at which a person can handle an item.

Many people have difficulties in bending. Pull-out shelves, trays and drawers make it easier to remove and replace items.

A convenient range of vertical reach for frequently used items is 400 mm (floor unit tray / shelf) to 1 800 mm (wall unit shelf) from the floor.

The vertical reach of a wheelchair user is often limited to a height of about 1 200 mm from the floor.

B.1.5 Appliances

Appliances such as dishwashers, ovens, refrigerators and freezers may be free-standing or housed in floor units or tall units.

B.1.6 Location of appliances in tall units

For ovens and dishwashers, a safe and convenient working height is more important than sight lines.

Ovens should be located so that the setting-down surface — door face or tray — is level with adjacent working surfaces such as work-tops or pull-out surfaces.

For convenient loading, dishwashers should be located such that the height from the floor to the top of the dishwasher is not more than 1 100 mm.

For convenient reach, refrigerators and freezers should be located within a zone from 400 mm to 1 800 mm from the floor.

B.1.7 Elbow room

A minimum of 2 M should be provided on either side of the sink and appliances in order to ensure adequate working space.

B.1.8 Lines of sight (*d*)

The line of sight to the inner edge of the work top should not be obstructed by fixed units or appliances. This condition is met if the bottom of the wall unit is 1 300 mm from the floor.

B.1.9 Lighting (*e, f*)

See clause B.5.

B.2 Activities

B.2.1 General

Kitchen work can be considered to comprise the following main activities: food preparation, cooking and washing-up. These activities require working areas, equipment and storage space. Requirements also need to be considered for eating as a complementary activity.

Requirements for secondary activities such as sewing, writing, and hobbies are not considered in this annex.

The provisions for each of the different activities can be overlapped and should be arranged to ensure convenient working (see figure 8). To ensure this, particular attention should be given to the location and sizing of work-tops. The most important, between the sink and cooker / hobs, is where most work is carried out — its size should always be within the recommended range. If more than one person is to work regularly in the kitchen, the work-top on the other side of the sink should be considered as a supplementary working surface. The sequence of work-tops on either side of the sink and cooker / hobs should be unbroken so as to ensure suitable and safe working conditions. Where tall units and built-in appliances are away from the main working area, it is particularly important to provide a separate work-top — at least for setting down, but ideally for working as well.

If provision is being made for eating, it should be borne in mind that the table usefully gives an extra working surface.

Demand for food storage is affected by household composition and differences in lifestyle, household economy, shopping and transportation facilities, etc.

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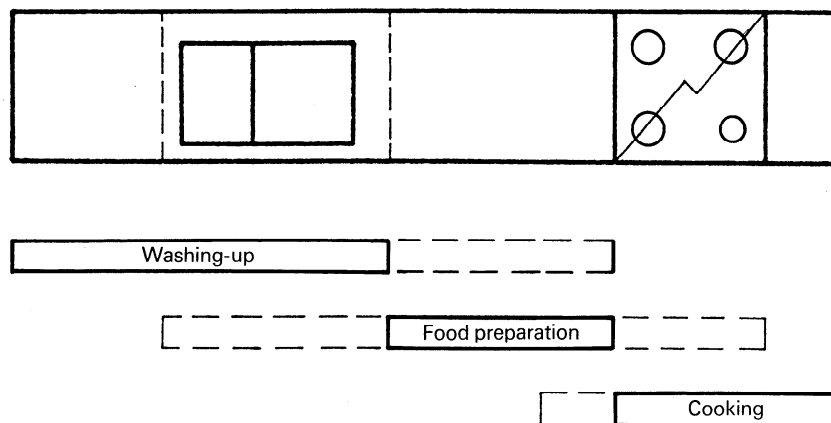


Figure 8

B.2.2 Food preparation

The work surface between the cooker and the sink is the most important in the kitchen. It is here that food is prepared, hot food laid out, waste food taken care of, and baking carried out. Storage is needed here for dry foods and cooking ingredients, food preparation dishes and utensils, cutting boards, trays, etc. Perishable food storage should also be nearby.

B.2.3 Cooking

For cooking, hobs and oven are needed. They can be combined in a cooker or separate. There should be an impact- and heat-resistant surface for setting down pans on one side of the hobs and oven. Passage from the hobs to the sink should always be possible above an uninterrupted work-top so as to ensure safe handling of hot pots and pans. Storage for pots, pans, crockery, etc., as well as cooking ingredients and serving dishes, should be close to the hobs.

B.2.4 Washing-up

Washing-up requires a sink, preferably with two bowls, and areas on either side for dirty dishes and cleaned dishes. There should be storage nearby for crockery, cutlery, washing-up utensils and a waste container. The suitable place for a dishwasher is on the side of the sink away from the cooker.

B.2.5 Storage

In addition to the floor units and wall units space for tall units for storage is needed.

Tall units may be in the form of refrigerators and freezers; they may also be cabinets, which may house refrigerators and freezers.

An additional tall unit for general storage may be needed for those who make bulk purchases or possess many large utensils, crockery, etc., which cannot be placed in wall units.

B.2.6 Eating

Resources and habit dictate whether eating takes place in the kitchen. When provision for eating is required, it is important that space for it is allocated in addition to that needed for kitchen activities. This additional space should be located so that it can be used in conjunction with kitchen or other living areas.

B.3 Household size — Space and equipment requirements

B.3.1 General

Special attention should be paid to the sizes of work areas, their relative positions and their relation to storage space and eating facilities.

Variations in household size and composition influence the extent of primary activity space and equipment needed.

The recommendations given in figure 9¹⁾ are based on two main household sizes, i.e. 3 to 6 persons and 1 to 2 persons.

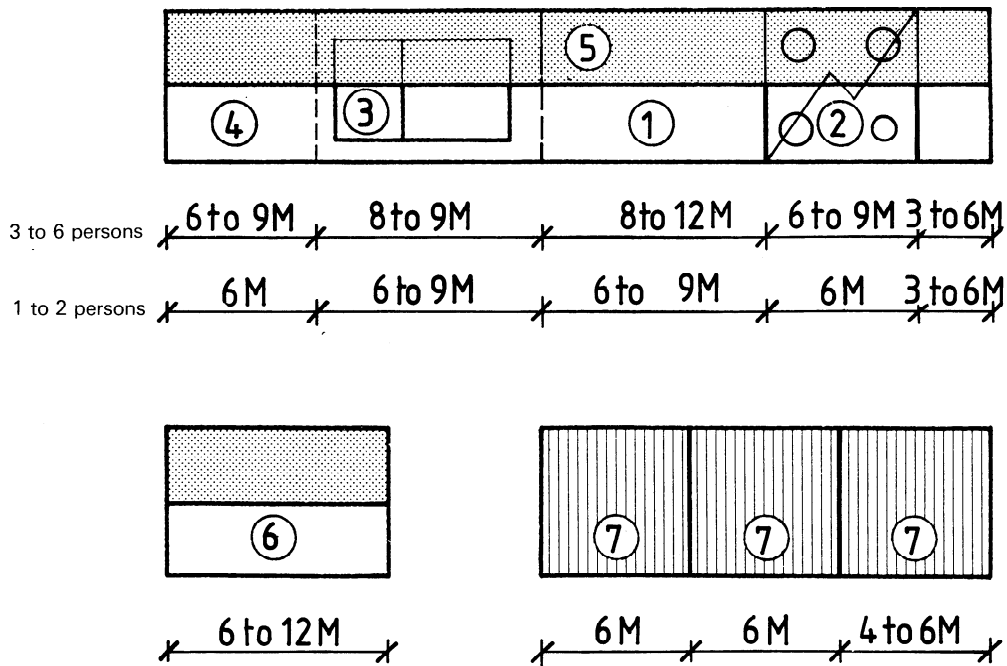


Figure 9

B.3.2 Detailed considerations

B.3.2.1 The work-top (1) between the hobs and the sink should be at least 8 M and not more than 12 M for 3 to 6 persons and not less than 6 M for 1 to 2 persons. Drawers should be placed under this work-top.

If seated work-top use is required, a clear 6 M under-work-top space should be provided adjacent to the sink. This location is also the most suitable for a lower adjustable pull-out surface. This working surface should be 6 M wide and at least 4 M deep. A clear 8 M wide space under the work-top is required for wheelchair users.

B.3.2.2 The cooker (2) should be at least 6 M. The heat-resistant setting-down area, on one side of the cooker, should be at least 3 M. For wheelchair users, a better arrangement consists of hobs with a clear 8 M wide space underneath and a separate oven. The oven flap should be at work-top height when open and there should be a heat-resistant setting-down surface beside the tall unit housing the oven.

1) See footnote 1 to 4.1.

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B.3.2.3 The sink bowl unit (3) should be at least 8 M for 3 to 6 persons and at least 6 M for 1 to 2 persons. For all households with a dishwasher, 6 M is the minimum requirement. A clear 8 M wide space under the sink unit is required for wheelchair users.

B.3.2.4 The sinktop (4) for clean dishes should be at least 6 M, for both sizes of household. If two persons will normally be working in the kitchen, 9 M is preferable.

B.3.2.5 Wall units (5) with wide hinged doors opening over the working area are a hazard and hindrance. Narrow doors, double doors or those of a different operation are recommended.

B.3.2.6 The separate work-top (6) used as setting-down area in connection with the refrigerator, oven housed in tall unit or general storage should be at least 6 M. When used as a supplementary work-top, the 8 M minimum should be adopted.

B.3.2.7 The number of refrigerator and freezer units (7) needed depends more on the way of life than on the number of persons in the household. In general, a household needs one or two units for refrigerator and freezer. An additional tall unit with shelves and compartments (trays) for general storage is necessary for those who make large purchases and need extra storage for utensils, crockery, etc., which cannot be placed in the wall units. A tall unit can also be used for a built-in oven. Some of the units or appliances described may be installed later. Consequently, space should be set aside for them when planning the kitchen.

B.3.2.8 Corner cabinets should if possible be avoided as they give poor accessibility and ineffective storage.

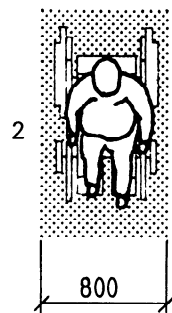
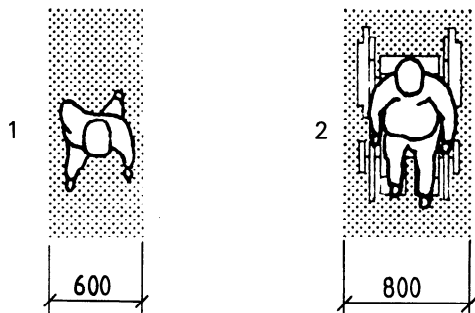
B.4 Activity space requirements

B.4.1 General

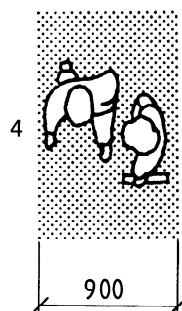
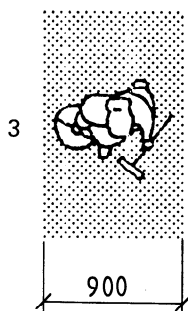
A well-planned kitchen should be provided with ample space in front of the units and working areas, and there should be sufficient room to move about in the vicinity of the eating area and in front of doors.

The following illustrations show the minimum spaces needed for activity in the kitchen. Attention is drawn to the dimensional consequences of wheelchairs in order to provide for disabled visitors.

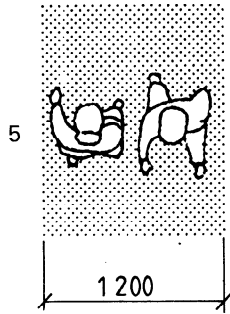
B.4.2 Space for movement (dimensions in millimetres)



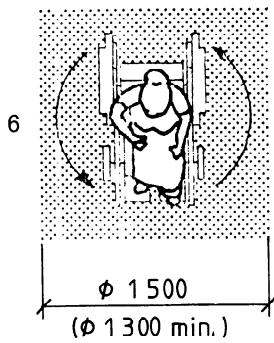
One person passing between a wall and piece of furniture or between furniture.



One person carrying cleaning equipment or two persons in places with light traffic only.

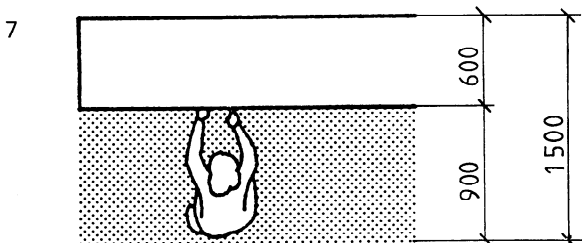


Width of main circulation routes.

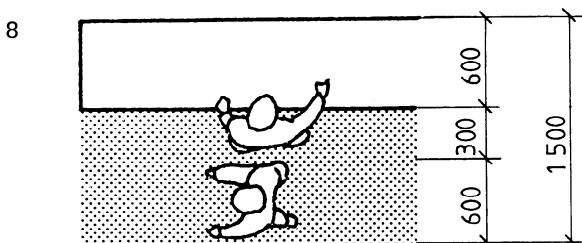


Turning space for wheelchairs. The specified area can in some cases be reduced if there is free space under a piece of furniture or equipment.

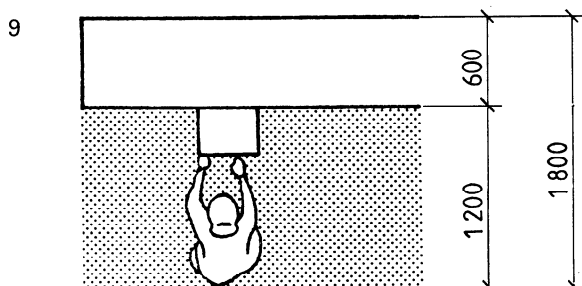
B.4.3 Equipment / user zone (dimensions in millimetres)



Taking something out of a floor unit (except a low-level oven) or a tall unit.

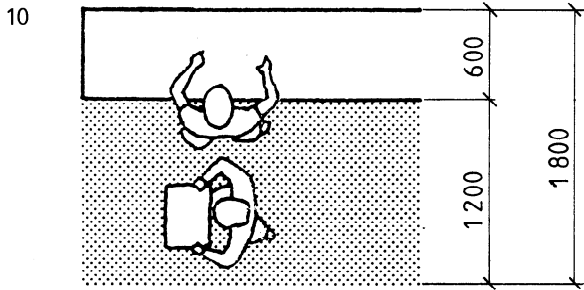


One person working, another passing.

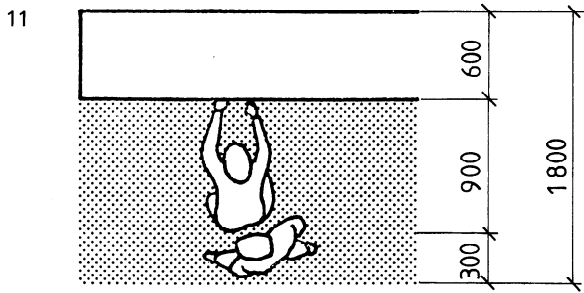


Taking cooking out of a low-level oven.

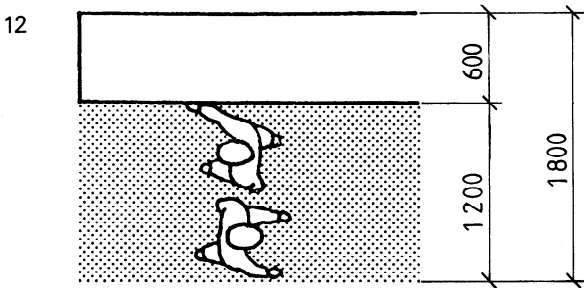
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One person working, another passing with a tray.



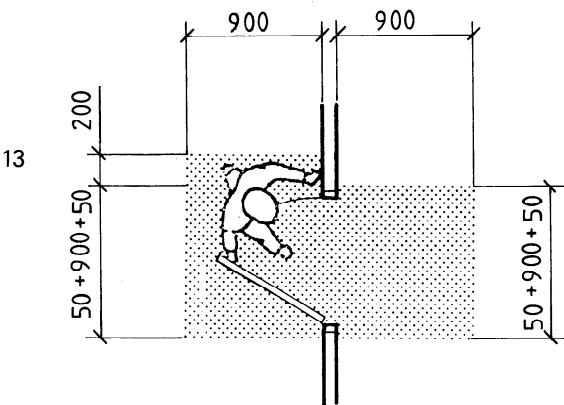
One person taking something out of floor unit, another passing sideways.



Two people passing.

It should be noted that the distance between a row of units and a parallel wall or row of units opposite should be at least 12 M. For wheelchair users, 14 M is preferable.

B.4.4 Free space around door (dimensions in millimetres)

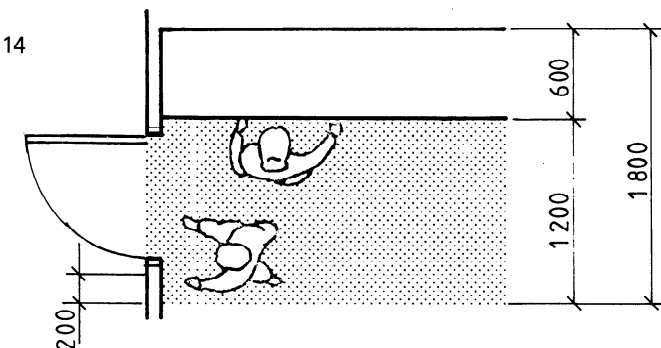


Free space on each side of doors with a doorset width of 9 M.

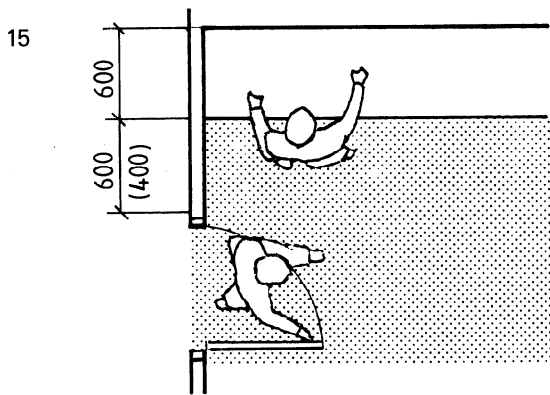
Inner face:
 50 mm + 900 mm + 50 mm + 200 mm (latch side)
 Depth 900 mm

Outer face:
 50 mm + 900 mm + 50 mm
 Depth 900 mm

Needs of turning wheelchairs can dictate the size of the free space around doors.



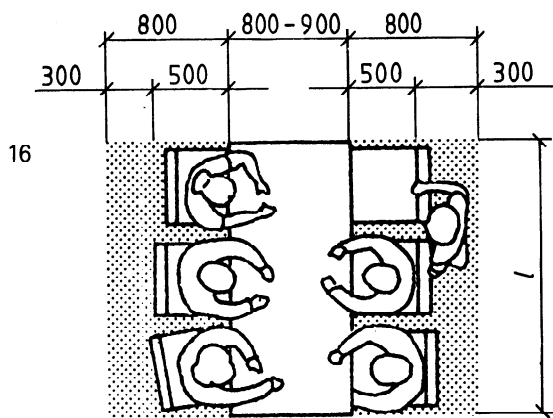
Outward-opening door:
 200 mm to equipment on the latch side.



Inward-opening door.
400 mm for standing working.

Hinged doors not more than 4 M wide:
600 mm for wider doors or appliances.

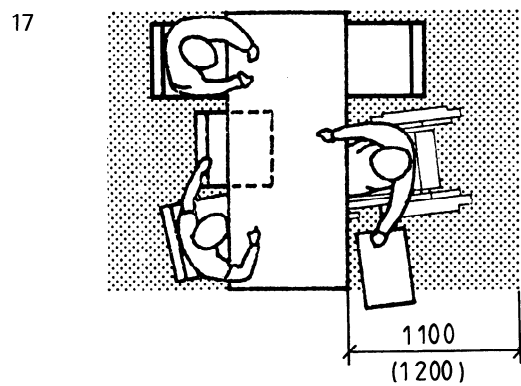
B.4.5 Eating / equipment (dimensions in millimetres)



A dining table should be at least 800 mm wide with 800 mm of unobstructed space on both sides for chairs and access.

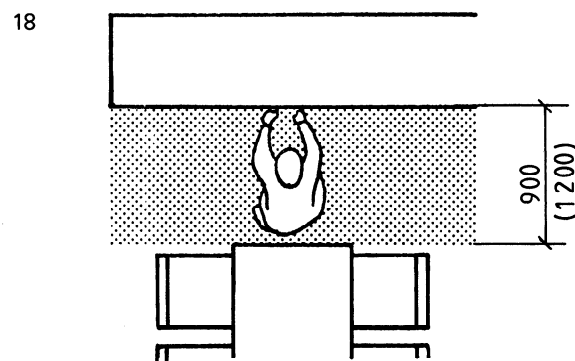
Values of *l*:

Number of persons (<i>n</i>)	<i>l</i>
2	800 mm
4	1 200 mm
6	1 800 mm
8	2 400 (<i>n</i> × 600) mm



Dining table adapted for wheelchair user.

1 200 mm allows the wheelchair user to lay and clear the table.

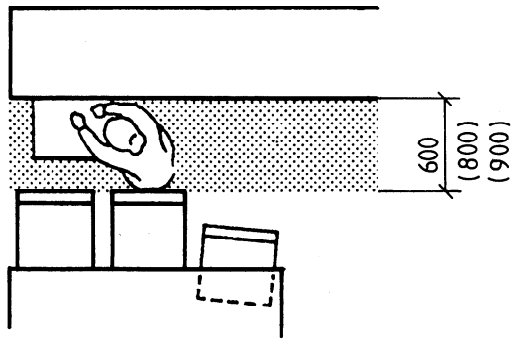


Distance between equipment and end of table.

1 200 mm allows use of low level oven or two people passing.

ISO 3055-1985 (E)

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Distance between equipment and a chair that has been pulled out. This allows units to be used when chairs are occupied.

800 mm allows use of low-level oven. Equivalent to 1 200 mm with pushed-in chairs.

900 mm allows one person standing working and another passing.

B.5 Electrical installations

B.5.1 General

As it is much more expensive to make later additions to the electrical installations in the kitchen, it is wise to make provision for good lighting from the beginning.

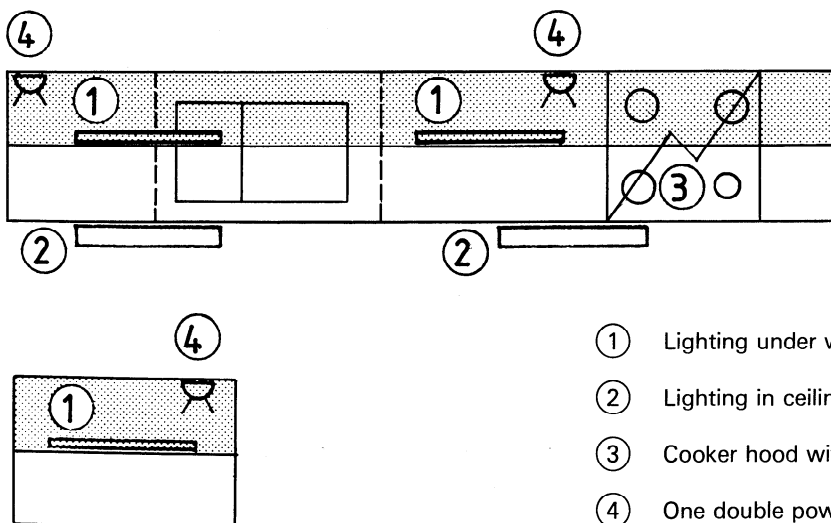
B.5.2 Lighting

Good lighting is a prerequisite for convenient work in the kitchen. Both general and local lighting are necessary (see figure 10). Light sources should be screened and positioned in such a way that they do not dazzle or cause reflections, and so that they give good light distribution. Work-tops should be lit both from the underside of wall units (1) and from the ceiling above the work-top (2). It should be possible to switch on each fitting separately in order to give a flexible lighting system. The qualities given by applying these principles cannot be replaced by a high intensity of illumination. In addition, high intensity can sometimes be an obstacle to well-considered illumination, for example in the dining area.

Good lighting also presupposes suitable materials in splashbacks and work-tops. Dark shiny surfaces should be avoided. Light-coloured (though not white) matt materials are preferable.

B.5.3 Power points and connections for appliances

Power points are needed for portable electrical equipment (4). In addition, separate connections are needed for electric cookers and cooker hoods (with lighting) (3), for refrigerators, freezers and dishwashers. These points should be conveniently placed in relation to the appliance concerned.



- ① Lighting under wall unit, for example one 18/20 W fluorescent tube
- ② Lighting in ceiling, for example two 18/20 W fluorescent tubes
- ③ Cooker hood with lighting or with lighting above the cooker
- ④ One double power point on wall under wall unit

Figure 10

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