

BRITISH STANDARD

Sanitary installations –

Part 1: Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated appliances

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Foreword

Publishing information

This part of BS 6465 was published by BSI and came into effect on 31 March 2006. It was prepared by Technical Committee B/503, *Sanitary appliances*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

BS 6465-1:2006+A1:2009 supersedes BS 6465-1:2006, which is withdrawn.

Relationship with other publications

BS 6465, Sanitary installations, is issued in three parts:

- *Part 1: Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated appliances;*
- *Part 2: Code of practice for space requirements for sanitary appliances;*
- *Part 3: Code of practice for the selection, installation and maintenance of sanitary and associated appliances.*

Part 2 provides recommendations on the space requirements around all sanitary appliances to ensure convenience in use and to facilitate maintenance and cleaning.

Part 3 provides recommendations on the selection, installation and maintenance of various types of sanitary and associated appliances.

Information about this document

This part has been prepared to reflect general changes in the provision of sanitary and associated appliances.

The start and finish of text introduced or altered by Amendment No. 1: 2009 is indicated in the text by tags **A1** **A1**. Minor editorial changes are not tagged.

Use of this document

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions in this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This standard does not cover all the legal requirements of sanitary installations, and attention is drawn to acts, regulations and other statutory requirements (see Annex A), which relate to sanitary appliances, water supplies and drainage.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This part of BS 6465 gives recommendations on the design of sanitary facilities and the recommended scale of provision of sanitary and associated appliances in new buildings and buildings undergoing major refurbishment.

It also covers the recommended scale of provision of portable toilets.

This standard applies to the following:

- a) private dwellings;
- b) residential and nursing homes for older people;
- c) workplaces;
- d) shops with sales area in excess of 1 000 m² and shopping malls;
- e) petrol stations;
- f) schools;
- g) assembly buildings where most WC use is during intervals or other concentrated periods of time, such as theatres, cinemas and similar buildings;
- h) assembly buildings where most WC use is not concentrated in the intervals, such as exhibition centres, libraries, museums and similar buildings;
- i) bedrooms in hotels, hostels, and similar accommodation;
- j) restaurants, and other areas where seating is provided for eating and drinking;
- k) licensed pubs, bars, nightclubs, discotheques and similar premises;
- l) swimming pools;
- m) facilities for disabled people;
- n) public toilets;
- o) temporary toilets.

NOTE 1 The recommendations for sanitary appliances in hospitals and other healthcare buildings are covered by the general recommendations of this standard. However, information on the scale of provision, ergonomic data and the special requirements for sanitary appliances in hospitals can be found in the various guidance documents produced by the NHS.

This part does not cover:

- 1) specialist appliances, such as those used for laundry or catering, or those found in hospitals, laboratories and similar establishments;
- 2) cultural preferences;
- 3) sanitary requirements in vehicles and other means of transport;
- 4) space requirements for sanitary appliances;

NOTE BS 6465-2 can be referred to for recommendations on the space requirements around sanitary appliances to ensure convenience in use and to facilitate maintenance and cleaning.

- 5) the selection, installation or maintenance of sanitary appliances;

NOTE BS 6465-3 can be referred to for recommendations on the selection, installation and maintenance of various types of sanitary appliances.

- 6) the detailed provisions of water supply, sanitary pipework, or drainage.

NOTE 1 Information on water supply is covered in BS 6700 and BS EN 806 (all parts); sanitary pipework in BS EN 12056-2; and drainage in BS EN 752-1, BS EN 752-2, BS EN 752-3 and BS EN 752-4.

NOTE 2 The provisions in this standard are applicable to England and Wales. In Scotland and Northern Ireland the provisions will need to be checked against legislation.

NOTE 3 In England and Wales, levels of provision of sanitary appliances is covered by Building Regulations 2000: Approved Document G – Hygiene [1], and Approved Document M – Access to and use of buildings [2].

In Scotland, levels of provision of sanitary appliances are covered by Building (Scotland) Regulations 2004: Technical Handbook – Non-domestic (see Section 3) [3] and Building (Scotland) Regulations 2004: Technical Handbook – Domestic (see Section 3) [4].

In Northern Ireland, some aspects of levels of provision of sanitary appliances is covered by the Building Regulations (Northern Ireland) 2000 Technical booklet P – Unvented hot water storage systems [5] and Technical booklet R – Access and facilities for disabled people [6].

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 5250, *Code of practice for control of condensation in buildings*

BS 5385 (all parts), *Wall and floor tiling*

BS 5720, *Code of practice for mechanical ventilation and air conditioning in buildings*

BS 5906, *Code of practice for storage and on-site treatment of solid waste from buildings*

BS 5925, *Code of practice for ventilation principles and designing for natural ventilation*

BS 6100-3.3, *Glossary of building and civil engineering terms*

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Part 3: Services – Section 3.3: Sanitation

BS 6465-2, *Sanitary installations – Part 2: Code of practice for space requirements for sanitary appliances*

BS 6465-3, *Sanitary installations – Part 3: Code of practice for the selection, installation and maintenance of sanitary and associated appliances*

BS 6700, *Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages*

BS 7671, *Requirements for electrical installations – IEE Wiring Regulations Sixteenth edition*

BS 8300, *Design of buildings and their approaches to meet the needs of disabled people – Code of practice*

BS EN 752-1, *Drain and sewer systems outside buildings – Part 1: Generalities and definitions*

BS EN 752-2, *Drain and sewer systems outside buildings – Part 2: Performance requirements*

BS EN 752-3, *Drain and sewer systems outside buildings – Part 3: Planning*

BS EN 752-4, *Drain and sewer systems outside buildings – Part 4: Hydraulic design and environmental considerations*

BS EN 806 (all parts), *Specifications for installations inside buildings conveying water for human consumption*

BS EN 12056-2, *Gravity drainage systems inside buildings – Part 2: Sanitary pipework, layout and calculation*

3 Terms and definitions

For the purposes of this part of BS 6465 the terms and definitions given in BS 6100-3.3 and the following apply.

3.1 accessible toilet

toilet designed either for wheelchair users or for ambulant disabled users

COMMENTARY ON 3.1

Accessible toilets are also known as disabled toilets, and more specifically as wheelchair-accessible toilets and ambulant-accessible toilets.

3.2 assisted bath

bath accessible on three sides so that an attendant can assist the bather

COMMENTARY ON 3.2

An assisted bath is normally used with a hoist.

3.3 associated appliance

non-plumbed appliance used in conjunction with sanitary appliances

COMMENTARY ON 3.3

Examples of associated appliances include hand-driers and sanitary disposal units.

3.4 automatic public toilet

single stand alone public toilet with WC and washbasin that cleans automatically after use

3.5 bathroom

room primarily used for washing, which contains a bath and/or shower, and can contain a washbasin, bidet and WC

3.6 bucket sink

low level cleaners' sink with bucket grid

COMMENTARY ON 3.6

A bucket sink is used with a wall-mounted high-level tap.

3.7 cleaners' sink

large sink used by cleaning staff

- 3.8 customer toilet**
toilet on private property provided for the use of customers visiting the property
- 3.9 food business premises**
any undertaking, whether for profit or not and whether public or private, carrying out any or all of the following: preparation, processing, manufacturing, packaging, storing, transportation, distribution, handling or offering for sale or supply of foodstuffs
- 3.10 parent and child toilet**
toilet containing WC, washbasin and nappy changing bench
- 3.11 portable toilet**
movable structure containing sanitary appliances, either temporarily connected to drainage and/or water supply systems, or with self-contained supply and waste collection systems
- 3.12 private dwelling**
dwelling for people living as a family or single household
- 3.13 public toilet**
toilet for use of the public in a public area, which can be on or off street, and which is usually provided and maintained by a local authority or other corporate body
- 3.14 sanitary appliance**
fixed appliance normally connected to a water supply and to a drain, used for the provision of water, or for cleaning, or for wastewater disposal
- 3.15 sanitary disposal unit**
container for disposal of sanitary protection, disposable nappies or incontinence protection products
- 3.16 self-contained toilet**
ventilated toilet compartment which contains one WC and washbasin
- 3.17 street urinal**
structure containing urinals provided in public places as an alternative to, or in addition to, public toilets
- 3.18 toilet**
room in which a WC or WCs are installed and which is used solely for excretory purposes and associated washing
- 3.19 unisex toilet**
toilet that can be used by either sex
- 3.20 urinal**
sanitary appliance used by men for reception and disposal of urine
- 3.21 washbasin**
basin for general washing, or small basin used for handwashing only

COMMENTARY ON 3.14

Sanitary appliances, include for example, WCs, urinals, baths, showers, washbasins, sinks, bidets, and drinking fountains. It includes appliances that are not connected to a water supply or a drain, for example, waterless urinals.

3.22 waterless WC

WC that does not require a water flush and is not normally connected to a traditional drainage system

3.23 waterless urinal

urinal that is not connected to a water supply and might need water only for routine cleaning

3.24 WC (water closet)

pan receptacle for faecal matter, urine and toilet paper, plus any associated flushing device, plumbing and fittings

3.25 WC compartment

ventilated self-contained room in which a WC or a WC and washbasin is installed, or a cubicled space within the toilet, containing a WC, but open at high level for air circulation within the toilet

3.26 wet room

shower room with waterproof walls and floor which allows showering without crossing a threshold

3.27 workplace

any non-domestic premises made available to any person as a place of work and includes any place within the premises to which such person has access while at work

4 Exchange of information

The scale of provision of sanitary appliances and their location should be determined by consultation whilst the planning of the building in which the facilities are to be installed is in its early stages. It is necessary to know the number of persons likely to occupy the building, its intended use, and the gender and special needs of the occupants.

5 Design of sanitary facilities

5.1 General recommendations for all sanitary facilities

5.1.1 Layout

5.1.1.1 The space provided for the installation, use and maintenance of sanitary appliances should be in accordance with BS 6465-2.

NOTE Attention is also drawn to the Building Regulations 2000: Approved Document M – Access to and use of buildings [2] which provides information on mandatory space requirements for sanitary appliances. Further information on the design of accessible toilets, bathrooms and kitchens for disabled people can be found in BS 8300 (see also Clause 7).

5.1.1.2 The grouping together of sanitary appliances can lead to considerable economies in pipework. The layout of pipework should be in accordance with BS 6700, BS EN 806 (all parts), BS EN 12056-2, BS EN 752-1, BS EN 752-2, BS EN 752-3 and BS EN 752-4. All appliances, pipework and controls should be arranged so as not to obstruct users and to facilitate cleaning, maintenance and repair.

NOTE 1 Noise from sanitary appliances can be reduced by appropriate siting, secure fixing and insulation of pipework.

NOTE 2 Attention is also drawn to the Building Regulations 2000: Approved Document G – Hygiene [1] and Approved Document H – Drainage and waste disposal [7] which cover hygiene, drainage and waste (see Annex A).

5.1.1.3 Pipework and fixings should be enclosed to deter vandalism.

5.1.1.4 Where there is the possibility of pipework freezing, measures should be taken to prevent pipes from freezing, e.g. using pipework insulation.

5.1.1.5 The selection and siting of associated items like toilet paper holders, soap dispensers, shelves, bathroom cabinets, towel cabinets, towel rails, hand-dryers, sanitary disposal units, sanitary towel and condom dispensers, and mirrors should be considered at the design stage.

5.1.2 Walls, floors and ceilings

5.1.2.1 Walls that will support the weight of heavy appliances, or handrails or grabrails, should be of loadbearing construction, e.g. masonry or plywood, able to carry the applied loads. They should also be able to hold the necessary fixings.

5.1.2.2 Robust materials should also be used for walls in areas that may be subject to vandalism.

5.1.2.3 The wall surfaces should be smooth.

5.1.2.4 Floor surfaces in all rooms containing sanitary appliances should be of an impervious material, resistant to moisture and decay, slip-resistant and preferably coved to the walls.

5.1.2.5 Floor drains should be considered, to assist with floor cleaning, and to drain any water spillage that occurs due to plumbing faults or misuse of the appliances. However, where such drains are likely to be used only infrequently, they should be avoided to reduce the risk of them drying out and causing odour nuisance or air contamination.

5.1.2.6 Waterproof floor and skirting construction should be considered where water spillage may leak to rooms below.

5.1.2.7 Where floor and wall coverings are designed and installed using ceramic tiles, this should be in accordance with the appropriate part of BS 5385.

5.1.2.8 Demountable ceilings should be avoided in areas that could be subject to vandalism, unless the ceiling is over 2.7 m high.

5.1.3 Selection and installation of sanitary appliances

NOTE Information on the selection of waterless and water-saving appliances can be found in BS 6465-3.

The selection and installation of sanitary appliances should be in accordance with BS 6465-3. Consideration should be given to the selection of waterless and water-saving appliances.

5.1.4 Lighting

All sanitary facilities should be well lit. Natural light (daylight) should be used wherever possible. Electric lighting should be a minimum of 100 lux, and in accessible toilets a minimum of 200 lux. Low-energy lighting should be considered, but systems that respond to movement should be used with caution to ensure that people are not left in the dark.

Ultraviolet lighting should not be used in accessible toilets.

NOTE Ultraviolet lighting is sometimes used in toilet facilities to deter drug use. This is not always effective, and can cause problems for those changing stoma bags.

5.1.5 Heating

Consideration should be given to heating the sanitary facility space for the comfort of its users.

5.1.6 Ventilation

NOTE Attention is drawn to the following documents which cover means of ventilation and rates of mechanical ventilation (see Annex A):

- Building Regulations Approved Document Part F – Ventilation [8];
- Building (Scotland) Regulations 2004: Technical Handbook – Non-domestic (see Section 3) [3];
- Building (Scotland) Regulations 2004: Technical Handbook – Domestic (see Section 3) [4];
- Building Regulations (Northern Ireland) 1990 Technical booklet K – Ventilation [9].

5.1.6.1 Adequate ventilation is a necessary requisite for all rooms containing sanitary appliances and may be natural (e.g. windows and skylights with openings direct to the outside) or mechanical.

5.1.6.2 Any window which might provide a view into toilets or bathrooms should be obscured. Any window openings in toilets should have a total opening area of at least 1/20th (1/30th in Scotland) of the floor area of the room and with some part of the ventilation opening at least 1.75 m above the floor level. Windows should also have the facility for secure background ventilation, e.g. trickle ventilators.

NOTE It can be advantageous to supplement such natural ventilation by mechanical means.

5.1.6.3 Passive stack ventilation or mechanical ventilation should be provided in kitchens, utility rooms, and rooms containing baths or showers, in addition to any window provided, to reduce the possibility of condensation, and should be installed in accordance with BS 5720, BS 5250 and BS 5925.

5.1.6.4 In any ventilation system, the ability to recover heat from warm air or remove heat from hot air should be considered.

NOTE Such systems could include passive heat recovery systems, solar thermal systems and chilled beams.

5.1.6.5 Where cubicle walls or doors do not extend to the ceiling of a WC compartment, the toilets may be regarded as a single space for the purposes of ventilation.

5.1.7 Electrical wiring and fittings

Any electrical wiring and fittings in sanitary facilities should conform to BS 7671, which has special requirements for electrical wiring close to sanitary appliances.

5.2 Additional recommendations for all toilets

5.2.1 Access

5.2.1.1 Steps and gradients other than drainage falls should not be installed in toilets.

5.2.1.2 Doors to WC compartments should be fitted with safety locks which can be easily operated by the user and easily released from outside for access in case of emergency.

NOTE This is particularly important where use is by older or disabled people or children.

5.2.1.3 Doors which can be easily opened or removed if a person falls against them should be considered. However, outward opening doors should not be used where there is a risk of them hitting people.

5.2.1.4 Where the door to an accessible toilet has to open outwards onto an escape route, it should close in the direction of escape, i.e. people escaping will not walk into the leading edge of the door, and an open door will not impede escape.

5.2.2 Location

5.2.2.1 In private dwellings and in regularly populated areas of other buildings, toilets should be located so that people do not have to travel up or down more than one floor to visit a toilet.

5.2.2.2 Toilets should be separated by a door from a room or space where food is prepared or washing-up is done. In the case of a food business premises, it is essential that the room or space be separated from the toilet by a lobby.

NOTE In food business premises, toilet locations need to be agreed with the Environmental Health Officer.

5.2.2.3 Where practicable, WCs should not be positioned against internal walls where noise transmission could cause a problem in adjacent rooms, particularly bedrooms. Where this is unavoidable, the wall should be sound resistant. 8 • © BSI 2009