

Hygiene

G

**Building
Regulations
2008**

**Technical
Guidance
Document**



Comhshaol, Pobal agus Rialtas Áitiúil
Environment, Community and Local Government



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Building Regulations 2008

Technical Guidance Document G

Hygiene

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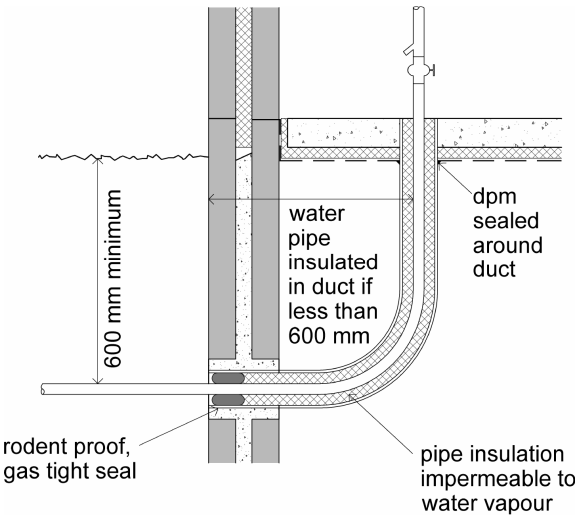
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Amendments and Corrections issued since publication

Technical Guidance Document G – Hygiene

Amd. No.	Text affected
G(i)	Where reference is made in the Technical Guidance Document, to “the Minister for the Environment, Heritage and Local Government”, this should be replaced with “the Minister for the Environment, Community and Local Government”.
G(ii)	Insert after Paragraph 1.9: “Protection would be considered adequate where:”
G(iii)	Insert after Paragraph 1.9: “ 1.9.1 The underground service pipe from the external meter/stopcock to the dwelling has a minimum cover of 600mm. The minimum cover should be maintained along the whole pipe length. Where the pipe is close to the external wall, the pipe should be insulated with insulation impermeable to water vapour (see Diagrams 1 & 2).” <div data-bbox="600 1249 1222 2018"><p>Diagram 1 Insulation to a cold water supply through floors in contact with the ground <i>(Par. 1.9.1)</i></p><p>Diagram for clarification only.</p></div>

Amd. No.

Text affected

G(iii)
(cont.)

Diagram 2 Insulation to a cold water supply through a suspended ventilated floor
(Par. 1.9.2)

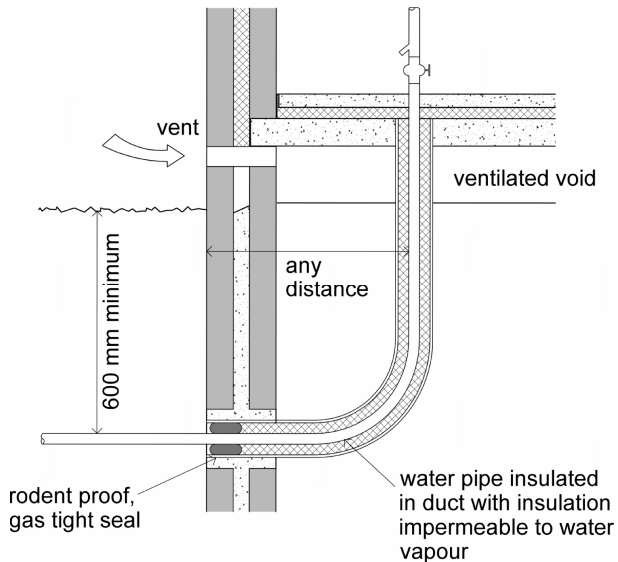


Diagram for clarification only.

G(iv)

Insert after Paragraph 1.9.1:

“**1.9.2** The cold water cistern, when located in the attic, has the top and sides of the cistern insulated. The area underneath the cistern should be left un-insulated and continuity of tank and ceiling insulation should be ensured (see Diagram 3). Where raised tanks are used, to aid head pressure, the ceiling should be insulated as normal and all surfaces of the tank insulated separately. Provision should be made to ensure ventilation of the tank.”

Amd. No.

Text affected

G(iv)
(cont.)

Diagram 3 Insulated pipes and cisterns in roof space
(Par. 1.9)

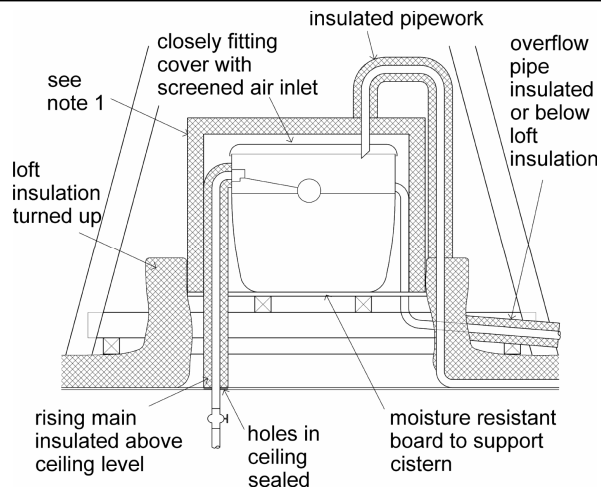


Diagram for clarification only.

Note 1: Insulation U-value to be not less than 0.3 W/m²K as per TGD L Table 1.

G(v)

Insert after Paragraph 1.9.2:

“**1.9.3** Always locate pipes in heated spaces if possible, i.e. below loft insulation or below ceilings. All pipes, including overflow pipes, outside the thermal envelope should be insulated. The use of insulation alone does not afford complete protection against the freezing of water in pipes and vessels under all atmospheric conditions. Insulation can delay the onset of freezing, such that the formation of ice may be avoided if the time intervals are short enough.”

G(vi)

Insert after Paragraph 1.9.3:

“**1.9.4** Table 1 in the appendix gives values for different pipe sizes and insulation thicknesses for various thermal conductivities for 12 hours protection in normally occupied buildings. Where different conditions or time periods are envisaged please refer to section 11 of BS 5422.”

Amd. No.	Text affected
G(vii)	<p>Insert after Paragraph 1.9.4:</p> <p>“1.9.5 For further information refer to Good Building Guide 40 - Protecting Pipes from Freezing and BRE Guide Thermal Insulation: avoiding risks.”</p>
G(viii)	<p>Paragraph 2.2 should read:</p> <p>“2.2 Guidance on the scale of provision, selection, installation, and special requirements of sanitary appliances in domestic, commercial and public buildings is contained in BS 6465 Sanitary installations, Part 1; Part 2 ; Part 3 and Part 4.”</p>
G(ix)	<p>Paragraph 2.7 line 14 should read:</p> <p>.....readily discernible e.g. separate buttons or pads”.....</p>
G(x)	<p>Paragraph 2.9 Delete:</p> <p>“Alternatively, a single flush WC suite of maximum flush volume 6 litres may be used when replacing existing WC suites of flush volume greater than 6 litres, for example 7.5, 9 or 13 litres.”</p>

Amd. No.	Text affected
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G(xi)

Appendix Table 1						
Minimum insulation thickness (mm) to protect against freezing for domestic cold water systems (12 hour period)						
Outside diameter (mm)	Inside diameter bore (mm)	Extreme installation Inside the building but outside the envelope of the insulation				
		$\lambda =$ 0.020	$\lambda =$ 0.025	$\lambda =$ 0.030	$\lambda =$ 0.035	$\lambda = 0.040$
15	13.6	23	35	53	78	113
22	20.2	10	14	18	23	28
28	26.2	7	9	11	13	16
35	32.6	5	7	8	10	11
Initial water temperature: +2°C Minimum ambient temperature: -6°C Permitted ice formation: 50% Evaluation period: 12 hours.						
Note 1: Thicknesses given are calculated specifically against the criteria noted in the table. These thicknesses may not satisfy other design requirements						
Note 2: Some of the insulation thicknesses given are too large to be applied in practice. The purpose of including very high thicknesses is to demonstrate that the application of a material of the given thermal conductivity (λ) is not able to provide the degree of frost protection on the pipe size indicated under the design conditions. Therefore in order to increase the degree of frost protection it is necessary to increase the pipe size, select an insulation with a lower thermal conductivity or use some means of putting heat back into the system.						

Extract from BS 5422: 2009 Table 30

Amd. No.	Text affected
G(xii)	<p>Referenced Standards and Publications</p> <p>I.S. EN 12056-2: 2000 Gravity drainage systems inside buildings – Part 2 Sanitary pipework, layout and calculation.</p> <p>BS 5422: 2009 Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range –40 °C to +700 °C</p> <p>BS 6465-1: 2006 Sanitary installations. Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated appliances, AMD 1: 2009.</p> <p>BS 6465-4: 2010 Sanitary installations. Code of practice for provision of Public Toilets</p> <p>BS 6700:2006 Design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages, AMD 1: 2009</p> <p>Good Building Guide 40 - Protecting Pipes from Freezing</p> <p>BRE Guide Thermal Insulation: avoiding risks</p>
G(xiii)	<p>Other Standards and Publications</p> <p>Documents listed in this section, which are not directly referenced in the TGD, have been updated where changes have occurred.</p>

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Building Regulations 2008

Technical Guidance Document G

Hygiene

Introduction

This document has been published by the Minister for the Environment, Community and Local Government under article 7 of the Building Regulations 1997. It provides guidance in relation to Part G of the Second Schedule to the Regulations. The document should be read in conjunction with the Building Regulations 1997 - 2008, and other documents published under these Regulations.

In general, Building Regulations apply to the construction of new buildings and to extensions and material alterations to buildings. In addition, certain parts of the Regulations apply to existing buildings where a material change of use takes place or where new or replacement services, fittings and equipment are installed. Otherwise, Building Regulations do not apply to buildings constructed prior to 1 June, 1992.

Transitional Arrangements

In general, this document applies to works, or buildings in which a material alteration or change of use takes place, where the works, material alteration or the change of use commences or takes place, as the case may be, on or after 1 November, 2008. Technical Guidance Document G – Hygiene dated 1997, also ceases to have effect from that date.

The Guidance

The materials, methods of construction, standards and other specifications (including technical specifications) which are referred to in this document are those which are likely to be suitable for the purposes of the Regulations. Where works are carried out in accordance with the guidance in this document, this will, prima facie, indicate compliance with Part G of the Second Schedule to the Building Regulations. However, the adoption of an approach other than that outlined in the guidance is not precluded provided that the relevant requirements of the Regulations are complied with. Those involved in the design and construction of a building may be required by the relevant building control authority to provide such evidence as is necessary to establish that the requirements of the Building Regulations are being complied with.

Existing Buildings

In the case of material alterations or changes of use of existing buildings, the adoption without modification of the guidance in this document may

not, in all circumstances, be appropriate. In particular, the adherence to guidance, including codes, standards or technical specifications, intended for application to new work may be unduly restrictive or impracticable. Buildings of architectural or historical interest are especially likely to give rise to such circumstances. In these situations, alternative approaches based on the principles contained in the document may be more relevant and should be considered.

Technical Specifications

Building Regulations are made for specific purposes, e.g. to provide, in relation to buildings, for the health, safety and welfare of persons, the conservation of energy and access for people with disabilities. Technical specifications (including harmonised European Standards, European Technical Approvals, National Standards and Agrément Certificates) are relevant to the extent that they relate to these considerations. Any reference to a technical specification is a reference to so much of the specification as is relevant in the context in which it arises. Technical specifications may also address other aspects not covered by the Regulations.

A reference to a technical specification is to the latest edition (including any amendments, supplements or addenda) current at the date of publication of this Technical Guidance Document. However, if this version of the technical specification is subsequently revised or updated by the issuing body, the new version may be used as a source of guidance provided that it continues to address the relevant requirements of the Regulations.

A list of other standards and publications that deal with matters relating to this Part of the Building Regulations is included at the end of the document. These standards and publications may be used as a source of further information but do not form part of the guidance.

Materials and Workmanship

Under Part D of the Second Schedule to the Building Regulations, building work to which the Regulations apply must be carried out with proper materials and in a workmanlike manner. Guidance in relation to compliance with Part D is contained in Technical Guidance Document D.

Interpretation

In this document, a reference to a section, subsection, part, paragraph or diagram is, unless otherwise stated, a reference to a section, subsection, part, paragraph or diagram, as the case may be, of this document. A reference to another Technical Guidance Document is a reference to the latest edition of a document published by the Minister for the Environment, Community and Local Government under article 7 of the Building Regulations 1997.

Hygiene

Building Regulations - The Requirement

Part G of the Second Schedule to the Building Regulations 1997 - 2008, provides as follows:

Bathrooms and kitchens.	G1	A dwelling shall be provided with - (a) a bathroom containing either a fixed bath or a shower bath, and a washbasin, and (b) a kitchen containing a sink of adequate size and a draining board, and (c) a suitable installation for the provision of hot and cold water to the bath or shower bath, washbasin and sink.
Sanitary conveniences and washing facilities.	G2	(1) Adequate sanitary conveniences shall be provided in a building in rooms provided for that purpose, or in bathrooms, and every room or bathroom which contains a sanitary convenience shall be adequately separated from any place where food is prepared or cooked. (2) Adequate washbasins shall be provided in - (a) rooms containing sanitary conveniences; or (b) rooms or spaces adjacent to rooms containing sanitary conveniences. (3) There shall be a suitable installation for the provision of hot and cold water to washbasins provided in accordance with subparagraph (2). (4) Sanitary conveniences shall be of such design as to facilitate efficient use of water for flushing. (5) Sanitary conveniences and washbasins shall be of such design and be so installed as to allow for effective cleaning.
Definition for this Part.	G3	In this Part, "sanitary convenience" means a water closet or a urinal.

General

This Technical Guidance Document is divided into two sections.

Section 1 relates to the requirement in G1.

Section 2 relates to the requirement in G2.

Section 1

Bathrooms and Kitchens in Dwellings

Bathrooms and kitchens.	G1	A dwelling shall be provided with -
		(a) a bathroom containing either a fixed bath or a shower bath, and a washbasin, and
		(b) a kitchen containing a sink of adequate size and a draining board, and
		(c) a suitable installation for the provision of hot and cold water to the bath or shower bath, washbasin and sink.

1.1 Every dwelling (house or flat) should have at least one bathroom, with a fixed bath or shower, and a washbasin.

1.2 Every dwelling (house or flat) should have a kitchen which is adequately fitted for the installation and use of cooking equipment. The kitchen should contain a sink of adequate size and a draining board.

1.3 The cold water supply to the kitchen sink should be taken directly from the service pipe supplying water to the dwelling; the cold water supply to the bath or shower and the washbasin and to other appliances in the dwelling should be from a cold water storage cistern. The bath, shower, washbasin, and sink should also have a piped supply of hot water, which may be from a central source or from a unit water heater.

1.4 The bath, shower, washbasin and sink should discharge through a trap and branch pipe to a discharge stack, or may, if it is on the ground floor, discharge into a gully. See Technical Guidance Document H for guidance regarding drainage.

1.5 Guidance on sinks is given in I.S. 132: Part 1: 1975, I.S. 132: 1964 and I.S. EN 13310: 2003.

1.6 The cold water storage cistern should have an actual capacity of not less than 212 litres in the case of a dwelling containing up to three bedrooms and an actual capacity of not less than 340 litres in the case of a dwelling containing four or more bedrooms.

1.7 The cistern should be properly covered but not airtight, accessible for cleaning and replacement, and fitted with an overflow pipe so located as to discharge in a manner that will give ready warning of the occurrence of overflow without causing any nuisance or any dampness in the dwelling.

1.8 The service pipe to each dwelling should be provided with a stopcock or sluice valve fitted with a

crutch wheel for manual operation in a convenient position within the dwelling and near to the point of entry of the pipe to the dwelling.

1.9 The cistern, service pipe and fittings and any associated cold water pipes should be adequately protected against damage by frost.

Protection would be considered adequate where:

1.9.1 The underground service pipe from the external meter/stopcock to the dwelling has a minimum cover of 600 mm. The minimum cover should be maintained along the whole pipe length. Where the pipe is close to the external wall, the pipe should be insulated with insulation impermeable to water vapour (see Diagrams 1 & 2).

1.9.2 The cold water cistern, when located in the attic, has the top and sides of the cistern insulated. The area underneath the cistern should be left un-insulated and continuity of tank and ceiling insulation should be ensured (see Diagram 3). Where raised tanks are used, to aid head pressure, the ceiling should be insulated as normal and all surfaces of the tank insulated separately. Provision should be made to ensure ventilation of the tank.

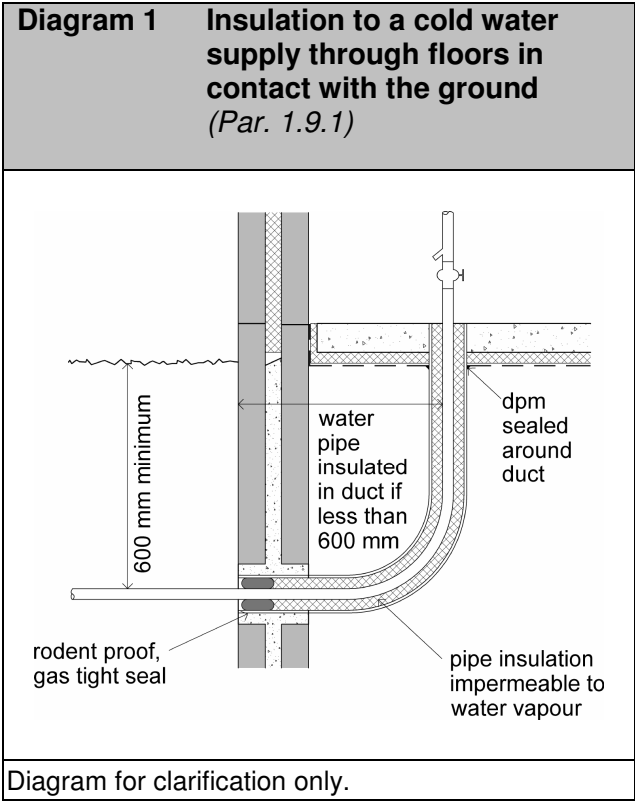
1.9.3 Always locate pipes in heated spaces if possible, i.e. below loft insulation or below ceilings. All pipes, including overflow pipes, outside the thermal envelope should be insulated. The use of insulation alone does not afford complete protection against the freezing of water in pipes and vessels under all atmospheric conditions. Insulation can delay the onset of freezing, such that the formation of ice may be avoided if the time intervals are short enough.

1.9.4 Table 1 in the appendix gives values for different pipe sizes and insulation thicknesses for various thermal conductivities for 12 hours protection in normally occupied buildings. Where different

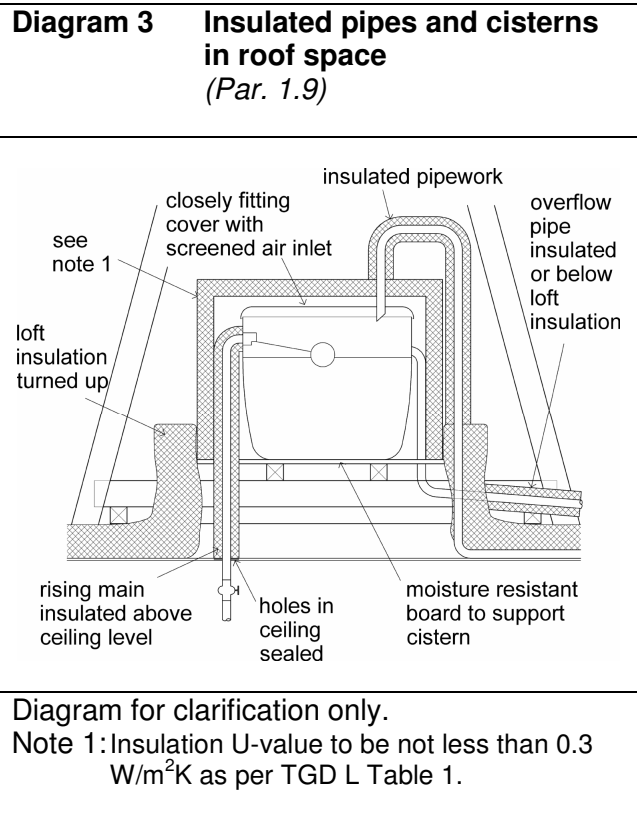
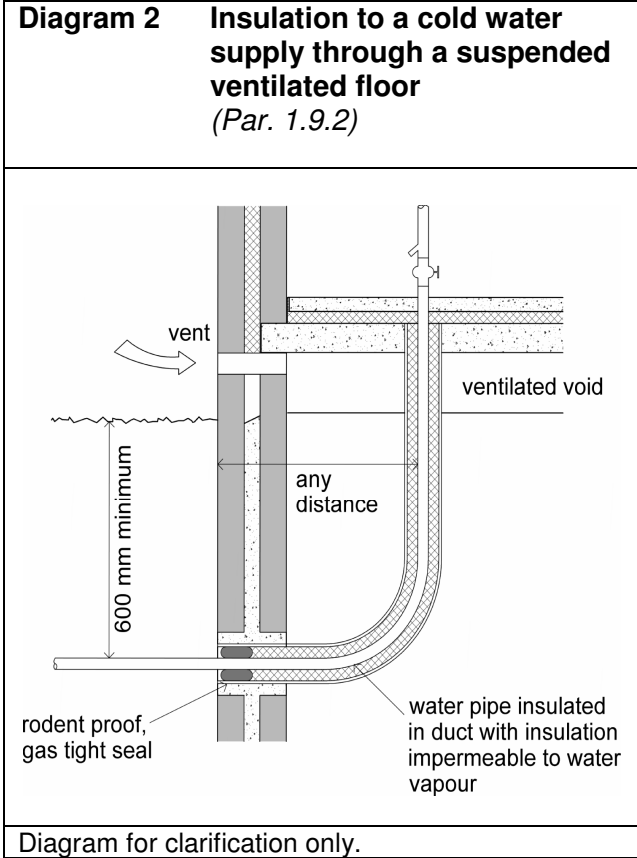
Section 1 Bathrooms and Kitchens in Dwellings

conditions or time periods are envisaged please refer to section 11 of BS 5422.

1.9.5 For further information refer to Good Building Guide 40 - Protecting Pipes from Freezing and BRE Guide Thermal Insulation: avoiding risks.



1.10 The guidance given in paragraphs 1.1 - 1.9 relates generally to dwelling houses. For other types of dwellings, e.g. apartments in apartment blocks or multi-occupancy buildings, alternative arrangements or ways of achieving compliance may be appropriate, subject to the approval of the local Water and Building Control Authorities



Section 2

Sanitary Conveniences and Washing Facilities

Sanitary conveniences and washing facilities.	G2	(1)	Adequate sanitary conveniences shall be provided in a building in rooms provided for that purpose, or in bathrooms, and every room or bathroom which contains a sanitary convenience shall be adequately separated from any place where food is prepared or cooked.
		(2)	Adequate washbasins shall be provided in - <ul style="list-style-type: none"> (a) rooms containing sanitary conveniences; or (b) rooms or spaces adjacent to rooms containing sanitary conveniences.
		(3)	There shall be a suitable installation for the provision of hot and cold water to washbasins provided in accordance with sub-paragraph (2).
		(4)	Sanitary conveniences shall be of such design as to facilitate efficient use of water for flushing.
		(5)	Sanitary conveniences and washbasins shall be of such design and be so installed as to allow for effective cleaning.

Definitions

2.1 The following definitions apply to this Section:

Flushing device - A device fitted to a cistern to provide controlled measured volume(s) of water to a WC pan or suite for flushing.

Pressure Flush Valve - A valve directly connected to a stored water supply, which delivers a pre-determined volume of flushing water for removal of excrement from a WC pan.

Number, Type and Siting of Appliances

2.2 Guidance on the scale of provision, selection, installation, and special requirements of sanitary appliances in domestic, commercial and public buildings is contained in BS 6465 Sanitary installations, Part 1; Part 2 ; Part 3 and Part 4.

2.3 Technical Guidance Document M should be consulted for guidance in relation to the provision of accessible sanitary conveniences. Certain types of buildings, offices, shops, factories, etc., may also be subject to specific legislative requirements. The relevant legislation should be consulted.

2.4 Every dwelling (house or flat) should have at least one water closet and one washbasin. The

washbasin should be located in, or adjacent to, the room containing the water closet.

2.5 A room or space containing a water closet should be separated from a place used for the preparation or cooking of food by means of: -

- (a) in the case of a building used solely as a dwelling, a door, and
- (b) in any other case, a properly ventilated passage or lobby.

Design and Installation

2.6 Any sanitary convenience (water closet or urinal) should be of such design as to facilitate efficient use of water for flushing. Any flushing device should be capable of cleansing the water closet pan effectively.

2.7 All water closets should have a maximum flush volume of 6 litres or less and comply with the requirements for class 2 products in I.S EN 997: 2003 regardless of the type of flushing device employed. The type of flushing activator, e.g. handle, button, sensor etc., will be dependent on particular design situations. For all manually activated flushing devices (except pressure flushing valves) a dual flush facility combining a maximum flush volume of 6

Section 2

Sanitary Conveniences and Washing Facilities

litres and a reduced flush volume no greater than two thirds of the maximum should be used.

The method of activation of the dual flush should be readily discernible, e.g. separate buttons or pads of different sizes, segmented buttons (two-thirds, one third) etc.

In non-domestic buildings, consideration should be given to displaying clear and permanent operating instructions for users.

Technical Guidance Document M should be consulted for guidance in relation to accessible WCs.

2.8 Guidance on Drainage and Waste Water disposal given in Technical Guidance Document H is based on a maximum flush volume of 5 litres or more. Where WCs with maximum flush volumes of less than 5 litres are used, consideration should be given to the increased risk of blockages. Guidance on the design of sanitary pipework suitable for use with WCs with maximum flush volumes as low as 4 litres can be found in IS EN 12056.

2.9 When an existing WC suite, comprising of WC pan and flushing cistern is to be replaced by a suite incorporating a manual flushing device (except a pressure flushing valve), a dual flush facility as described in paragraph 2.7 should be installed. However, if the flushing cistern alone is to be changed, without changing the WC pan, the

replacement should be of the same size as the one it replaces. A single flush cistern should not be replaced with a dual flush cistern, when the WC pan is remaining.

2.10 Every sanitary appliance should have a surface which is smooth and non-absorbent and capable of being easily cleaned.

2.11 A washbasin provided in, or adjacent to, a room containing a water closet should have a supply of hot water, which may be from a central source or from a unit water heater, and a piped supply of cold water from a storage cistern.

2.12 A cold water storage system should be designed and installed in accordance with the recommendations set out in BS 6700: 2006.

2.13 A water closet should discharge through a trap and branch pipe into a discharge stack or a foul drain. No part of the water closet pan should be connected to any pipe other than a flush pipe or branch pipe. See Technical Guidance Document H for guidance regarding drainage.

2.14 A washbasin should discharge through a trap and branch pipe to a discharge stack or may, where the washbasin is located on the ground floor, discharge into a gully.

Appendix

Table 1.

Minimum insulation thickness (mm) to protect against freezing for domestic cold water systems (12 hour period)						
Outside diameter (mm)	Inside diameter bore (mm)	Extreme installation Inside the building but outside the envelope of the insulation				
		$\lambda = 0.020$	$\lambda = 0.025$	$\lambda = 0.030$	$\lambda = 0.035$	$\lambda = 0.040$
15	13.6	23	35	53	78	113
22	20.2	10	14	18	23	28
28	26.2	7	9	11	13	16
35	32.6	5	7	8	10	11
Initial water temperature: +2°C Minimum ambient temperature: -6°C Permitted ice formation: 50% Evaluation period: 12 hours.						
Note 1 Thicknesses given are calculated specifically against the criteria noted in the table. These thicknesses may not satisfy other design requirements.						
Note 2 Some of the insulation thicknesses given are too large to be applied in practice. The purpose of including very high thicknesses is to demonstrate that the application of a material of the given thermal conductivity (λ) is not able to provide the degree of frost protection on the pipe size indicated under the design conditions. Therefore in order to increase the degree of frost protection it is necessary to increase the pipe size, select an insulation with a lower thermal conductivity or use some means of putting heat back into the system.						

Extract from BS 5422: 2009 Table 3

Referenced Standards and Publications

I.S. 132: 1964 Metal Sinks for Domestic Purposes, AMD No. 1 1975

I.S. 132 Part 1 : 1975 Stainless Steel Sinks for Domestic Purposes (Metric) AMD No. 1 1977

I.S. EN 997: 2003 WC pans and WC suites with integral trap AMD 1 2006

I.S. EN 12056-1: 2000 Gravity drainage systems inside buildings - Part 1: General and performance requirements

I.S. EN 12056-2: 2000 Gravity drainage systems inside buildings – Part 2 Sanitary pipework, layout and calculation

I.S. EN 12056-5: 2000 Gravity drainage systems inside buildings - Part 5: Installation and testing, instructions for operation, maintenance and use

I.S. EN 13310: 2003 Kitchen sinks - functional requirements and test methods

BS 5422: 2009 Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range -40°C to $+700^{\circ}\text{C}$

BS 6465-1: 2006 Sanitary installations. Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated appliances. AMD 1:2009

BS 6465- 2:1996 Sanitary installations. Code of practice for space requirements for sanitary appliances

BS6465 - 3: 2006 Sanitary Installations. Code of Practice for the selection, installation and maintenance of sanitary and associated appliances

BS 6465 – 4: 2010 Sanitary Installation code of Practice for Provision of Public Toilets

BS 6700:2006 Design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages. AMD 1: 2009

Good Building Guide 40 - Protecting Pipes from Freezing

BRE Guide Thermal Insulation: avoiding risks

Other Standards and Publications

- I.S. 9: 1976 Galvanised Cisterns for Domestic Water Supply
- I.S. 123: 1964 Unplasticised PVC Pipe for Cold Water Supply
- I.S. 134: 1977 Polyethylene Pipe Type 32
- I.S. 135: 1975 Polyethylene Pipe Type 50
- I.S. 156: 1984 Cast Iron Baths
- I.S. 161: 1975 Copper Direct Cylinders for Domestic Purposes
- I.S. 262: 1984 Grey Iron and Ductile Iron Pipe Fittings
- I.S. 263: 1984 Baths made from Acrylic Sheet.
- I.S. 287: 1986 Traditional-Style Rising Spindle Type Taps and Above Ground Stopvalves.
- I.S. 292: 1986 Acrylic Shower Trays.
- I.S. EN 31:1999 Pedestal wash basins. Connecting dimensions
- I.S. EN 32:1999 Wall-hung wash basins. Connecting dimensions
- I.S. EN 33: 2003 Pedestal W.C. pans with close-coupled flushing cistern. Connecting dimensions AMD 16151
- I.S. EN 34: 1992/ Wall hung WC pan. Wall hung WC pan with close coupled cistern. Connecting dimensions AMD 7317
- I.S. EN 37: 1999 Pedestal W.C. pans with independent water supply. Connecting dimensions
- I.S. EN 38: 1992 Wall hung WC pan. Wall hung WC pan with independent water supply. Connecting dimensions
- I.S. EN 80: 2001 Wall hung urinals - connecting dimensions
- I.S. EN 111: 2003 Wall-hung hand rinse basins. Connecting dimensions
- I.S. EN 232: 2003 Baths - Connecting dimensions
- I.S. EN 251: 2003 Shower trays - Connecting dimensions
- I.S. EN 263: 2008 Sanitary appliances - Crosslinked cast acrylic sheets for baths and shower trays for domestic purposes
- I.S. EN 274-1: 2002 Waste fittings for sanitary appliances. Requirements
- I.S. EN 274-2: 2002 Waste fitting for sanitary appliances. Test methods
- I.S. EN 274-3: 2002 Waste fittings for sanitary appliances. Quality control

Other Standards and Publications

I.S. EN 545: 2010 Ductile iron pipes, fittings, accessories and their joints for water pipelines. Requirements and test methods

I.S. EN 695: 2005 Kitchen sinks - connecting dimensions

I.S. EN 806-1: 2000 Specifications for installations inside buildings conveying water for human consumption – General AMD 1 2001

I.S. EN 806-2: 2005 Specifications for installations inside buildings conveying water for human consumption - Design

I.S. EN 806-3: 2006 Specifications for installations inside buildings conveying water for human consumption. Pipe sizing. Simplified method

I.S. EN 806-4: 2010 Specifications for installations inside buildings conveying water for human consumption – Installation

I.S. EN 1254-1: 1998 Copper and copper alloys - plumbing fittings - fittings with ends for capillary soldering or capillary brazing to copper tubes

I.S. EN 1254-2: 1998 Copper and copper alloys - plumbing fittings - fittings with compression ends for use with copper tubes

I.S. EN 1254-3: 1998 Copper and copper alloys - plumbing fittings - fittings with compression ends for use with plastics pipes

I.S. EN 1254-4: 1998 Copper and copper alloys - plumbing fittings - fittings combining other end connections with capillary or compression ends

I.S. EN 1254-5: 1998 Copper and copper alloys - plumbing fittings - fittings with short ends for capillary brazing to copper tubes

I.S. EN 1329-1: 2000 Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure. Unplasticized poly(vinyl chloride) (PVC-U). Specifications for pipes, fittings and the system

I.S. EN 1451-1: 2000 Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP). Specifications for pipes, fittings and the system

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