

The Building Regulations 1991

Drainage and waste disposal

H

APPROVED DOCUMENT

H1	Sanitary pipework and drainage
H2	Cesspools and tanks
H3	Rainwater drainage
H4	Solid waste storage

PART H

Drainage and waste disposal

APPROVED DOCUMENTS

The documents in this publication have been approved by the Secretary of State as practical guidance to meeting the requirements of Part H of Schedule 1 to the Regulations.

The detailed provisions in the approved document are intended to provide guidance for some of the more common building situations. Alternative ways of demonstrating compliance may be appropriate in other circumstances.

There is no obligation to adopt any particular solution in the document if you prefer to meet the relevant requirement in some other way.

If a contravention of a requirement is alleged then, if you have followed the guidance in the document, that will be evidence tending to show that you have complied with the Regulations. If you have not followed the guidance then that will be evidence tending to show that you have not complied. It will then be for you to demonstrate by other means that you have satisfied the requirement.

Other requirements

The guidance relates only to the requirements given at the start of each document. The building work will have to comply also with the requirements of any other relevant paragraphs in Schedule 1 to the Regulations. There are Approved Documents which give guidance on the other requirements in Schedule 1.

Materials and Workmanship

Any building work to which a requirement of the regulations applies must, in accordance with Regulation 7, be carried out with proper materials and in a workmanlike manner. You may show that you have complied with this requirement in a number of ways, for example by following an appropriate British Standard or British Board of Agrément Certificate or by the appropriate use of a product bearing a CE mark as defined in the Construction Products Directive (89/106/EEC). You will find further guidance in the Approved Document on Materials and Workmanship.

European technical specifications, British Standards and British Board of Agrément Certificates

When a document makes reference to a named Standard, the relevant version of the Standard is the one listed at the end of the publication.

Building Regulations are made for specific purposes; health and safety, energy conservation and the welfare and convenience of disabled people. European Technical Specifications (as defined in the Construction Products Directive), British Standards and Agrément Certificates are relevant guidance to the extent that they relate to these considerations. The Specifications, Standards and Certificates themselves may address, also, other aspects of performance such as serviceability or aspects which although they relate to health and safety are not covered by the regulations.

The Secretary of State has agreed with the British Board of Agrément on the aspects of performance which they need to assess in preparing their Certificates in order that the Board may demonstrate the compliance of a product or system, which has an Agrément Certificate, with the requirements of the regulations. An Agrément Certificate issued by the Board under these arrangements will give assurance that a product or system to which the Certificate relates, if properly used in accordance with the terms of the Certificate, will meet the relevant requirements. Similarly, the appropriate use of a product which complies with a European technical approval as defined in the Construction Products Directive will also meet the relevant requirements.

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Building Regulations – the Requirement

This Approved Document which takes effect on 1st April 1990, deals with the following Requirement from Part H of Schedule 1 to the Building Regulations 1991:

Requirement	Limits on application
Foul water drainage	
H1. (1) Any system which carries foul water from appliances within the building to a sewer, a cesspool or a septic or settlement tank shall be adequate.	
(2) 'Foul water' in sub-paragraph (1) means waste water which comprises or includes	
(a) waste from a sanitary convenience or other soil appliance,	
(b) water which has been used for cooking or washing.	

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Guidance

PERFORMANCE

In the Secretary of State's view the requirement of H1 will be met if a foul water drainage system

- (a) conveys the flow of foul water to a foul water outfall (a foul or combined sewer, a cesspool, septic tank or settlement tank),
- (b) minimises the risk of blockage or leakage,
- (c) prevents foul air from the drainage system from entering the building under working conditions,
- (d) is ventilated, and
- (e) is accessible for clearing blockages.

Introduction to provisions

0.1 The capacity of the system should be large enough to carry the expected flow at any point.

0.2 The capacity depends on the size and gradient of the pipes. Minimum sizes and gradient limits are given in the text.

0.3 The flow depends on the type, number and grouping of appliances.

0.4 Appliances are seldom in use simultaneously and the minimum stack and drain sizes in normal use are capable of carrying the flow from quite large numbers of appliances. Table 1 shows approximate flow rates resulting from the typical household group of 1 wc, 1 bath, 1 or 2 washbasins and 1 sink used for design purposes in BS 5572.

Table 1 Flow rates from dwellings

Number of dwellings	Flow rate (litres/sec)
1	2.5
5	3.5
10	4.1
15	4.6
20	5.1
25	5.4
30	5.8

PIPE SIZES

0.5 The pipe sizes quoted in this document are nominal sizes used as a numerical designation in convenient round numbers approximately equal to a manufacturer's size. Equivalent pipe sizes for individual pipe standards will be found in BS 5572 for sanitary pipework and BS 8301 for building drainage.

Provisions meeting the requirement

Section 1 Sanitary Pipework

TRAPS

1.1 All points of discharge into the system should be fitted with a water seal (trap) to prevent foul air from the system entering the building. Under working and test conditions traps should retain a minimum seal of 25mm.

1.2 Table 2 gives minimum trap sizes and seal depths for the appliances which are most used (for other appliances see *Appendix paragraph A2*).

1.3 Ventilation – To prevent the water seal from being broken by the pressures which can develop in the system the branch discharge pipes should be designed as described in paragraphs 1.5 to 1.21.

1.4 Access for clearing blockages – If a trap forms part of an appliance the appliance should be removable. All other traps should be fitted directly after the appliance and should be removable or be fitted with a cleaning eye.

Table 2 Minimum trap sizes and seal depths

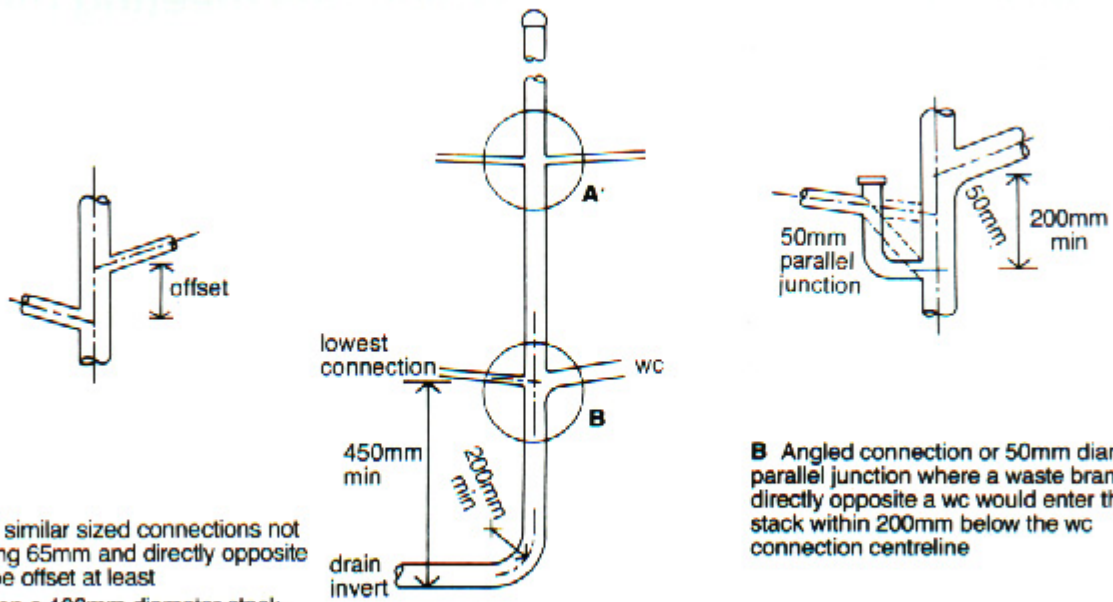
Appliance	Diameter of trap (mm)	Depth of seal (mm)
washbasin		
bidet	32	75
sink*		
bath*		
shower*	40	75
food waste disposal unit		
urinal bowl		
	(siphonic only)	
wc pan	75	50

* Where these appliances are installed on a ground floor and discharge to a gully, the depth of seal may be reduced to not less than 38mm.

BRANCH DISCHARGE PIPES

1.5 Branch pipes should discharge into another branch pipe or a discharge stack unless the appliances are on the ground floor.

Diagram 1 Branch connections to stacks



Key
A small similar sized connections not exceeding 65mm and directly opposite should be offset at least 110mm on a 100mm diameter stack 250mm on a 150mm diameter stack

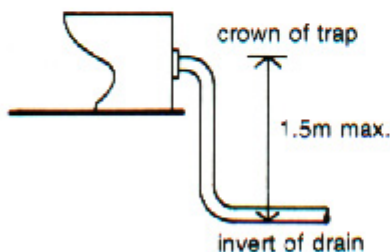
B Angled connection or 50mm diameter parallel junction where a waste branch directly opposite a wc would enter the stack within 200mm below the wc connection centreline

Table 3 Common branch discharge pipes (unvented)

Appliance	Max number to be connected	OR	Max length of branch (m)	Min size of pipe (mm)	Gradient limits (fall per metre)		
					min (mm)	to	max (mm)
wcs	8		15	100	9	to	90
urinals: bowls stalls	5		*	50	18	to	90
	7		*	65	18	to	90
washbasins	4		4 (no bends)	50	18	to	45

Note
 * No limitation as regards venting but should be as short as possible.

Diagram 2 Direct connection of ground floor wc to a drain

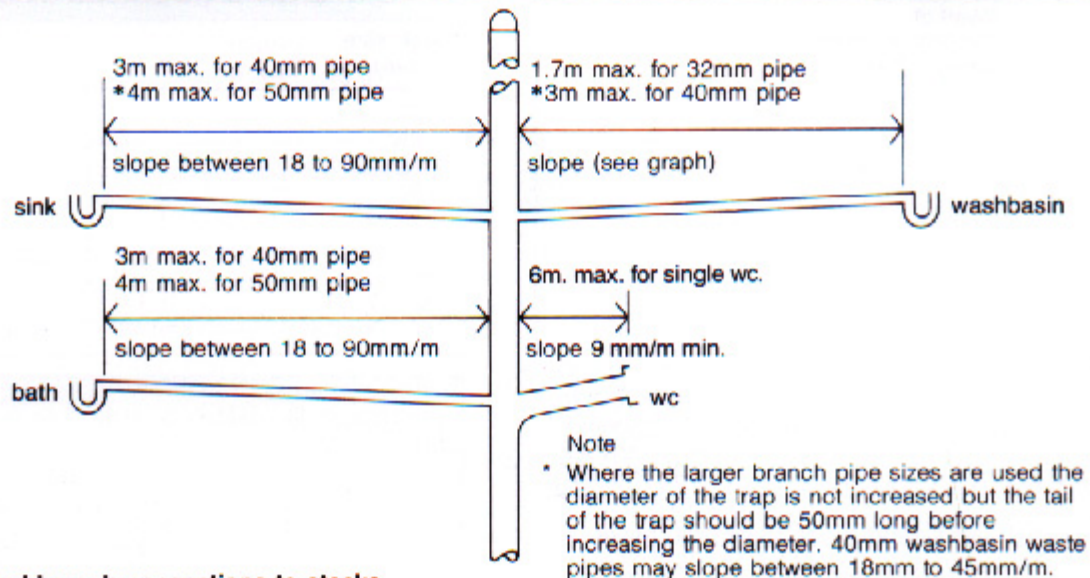
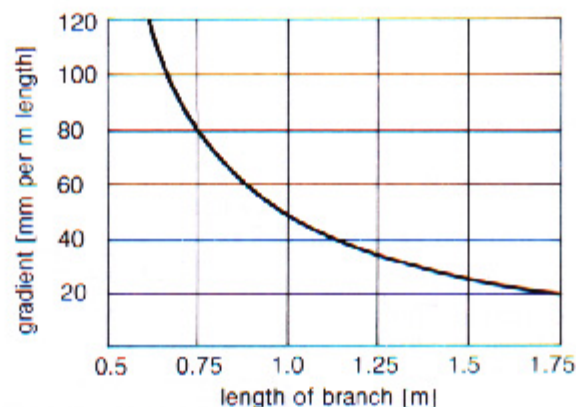


1.6 If the appliances are on the ground floor the pipe(s) may discharge to a stub stack or discharge stack, directly to a drain, or (if the pipe carries only waste water) to a gully. (See paragraphs 1.9 and 1.26.)

1.7 A branch pipe should not discharge into a stack in a way which could cause crossflow into any other branch pipe. (See Diagram 1.)

1.8 A branch discharge pipe should not discharge into a stack lower than 450mm above the invert of the tail of the bend at the foot of the stack in single dwellings of up to 3 storeys. (See Diagram 1.) (For multi storey buildings see Appendix paragraphs A3 and A4.)

1.9 A branch pipe from a ground floor closet should only discharge directly to a drain if the drop is less than 1.5 m (see Diagram 2).

Diagram 3 Branch connections**(a) Unvented branch connections to stacks****(b) Design curve for 32mm washbasin waste pipes**

1.10 Branch pipes from more than one ground floor appliance may discharge into a stub stack. (See paragraph 1.26.)

1.11 A branch pipe discharging to a gully should terminate between the grating or sealing plate and the top of the water seal.

1.12 Sizes of branch pipes – Pipes serving a single appliance should have at least the same diameter as the appliance trap (see Table 2). If a pipe serves more than one appliance and is unvented the diameter should be at least the size shown in Table 3.

1.13 Bends in branch pipes should be avoided if possible. Where they cannot they should have as large a radius as possible. Pipes of 65mm or less should have a centre line radius of at least 75 mm.

1.14 Junctions on branch pipes should be made with a sweep of 25mm radius or at 45°. Connection of branch pipes of 75mm diameter or more to the stack should be made with a sweep of 50mm minimum radius or at 45°.

1.15 Ventilation of branch pipes –

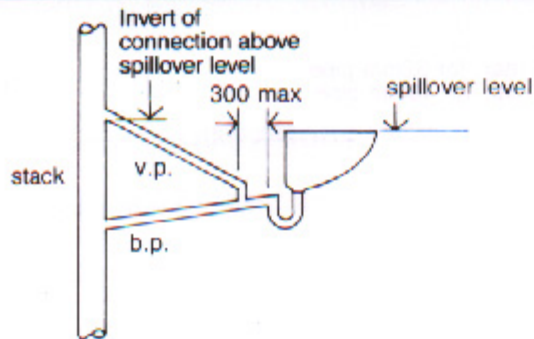
Separate ventilation will not be needed to prevent the water seals in traps from being lost by pressures which can develop in the system if the length and slope of the branch discharge pipes do not exceed those shown in Diagram 3.

1.16 If the figures are exceeded the branch pipe should be ventilated by a branch ventilating pipe to external air, to a discharge stack (modified single stack system) or to a ventilating stack (ventilated system).

1.17 A separate ventilating stack is only likely to be preferred where the numbers of ventilating pipes and their distance to a discharge stack are large. (See Appendix paragraphs A5 to A8.)

1.18 Branch ventilating pipes – should be connected to the discharge pipe within 300mm of the trap and should not connect to the stack below the “spillover” level of the highest appliance served (see Diagram 4). The ventilation pipe should have a continuous incline from the discharge pipe to the point of connection to the stack.

Diagram 4 Branch ventilation pipes



1.19 Branch ventilation pipes which run direct to outside air should finish at least 900mm above any opening into the building nearer than 3m (see Diagram 6 and paragraph 1.27).

1.20 Branch ventilating pipes to branch pipes serving one appliance should be at least 25mm diameter or where the branch is longer than 15m or has more than 5 bends, should be at least 32mm.

1.21 Rodding points should be provided to give access to any lengths of discharge pipes which cannot be reached by removing traps or appliances with integral traps (see paragraph 1.4).

DISCHARGE STACKS

1.22 All stacks should discharge to a drain. The bend at the foot of the stack should have as large a radius as possible and at least 200mm at the centre line.

1.23 Offsets in the 'wet' portion of a discharge stack should be avoided. If they are unavoidable then in a building of not more than 3 storeys there should be no branch connection within 750mm of the offset. In a building over 3 storeys a ventilation stack may be needed with connections above and below the offset. In buildings over 3 storeys discharge stacks should be located inside the building.

1.24 **Sizes of stacks** — Stacks should have at least the diameter shown in Table 4 and should not reduce in the direction of flow.

Stacks serving urinals should be not less than 50mm, stacks serving siphonic closets not less than 75mm and stacks serving washdown closets not less than 100mm.

1.25 **Ventilation of discharge stacks** — To prevent water seals in the traps from being lost by pressures which can develop in the system, discharge stacks should be ventilated. Discharge stacks connected to drains liable to surcharging or near an intercepting trap require ventilation pipes of not less than 50mm diameter connected to the base of the stack above the likely flood level.

Table 4 Minimum diameters for discharge stacks

Stack size (mm)	Max capacity (litres/sec)
50*	1.2
65*	2.1
75†	3.4
90	5.3
100	7.2

Note

* No wcs

† Not more than 1 siphonic wc with 75mm outlet.

Diagram 5 Stub stack

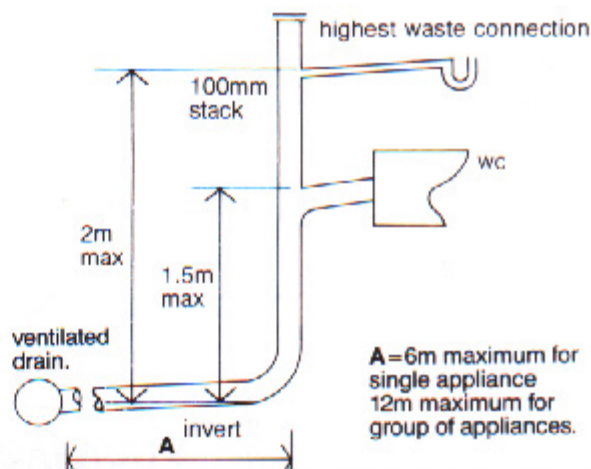
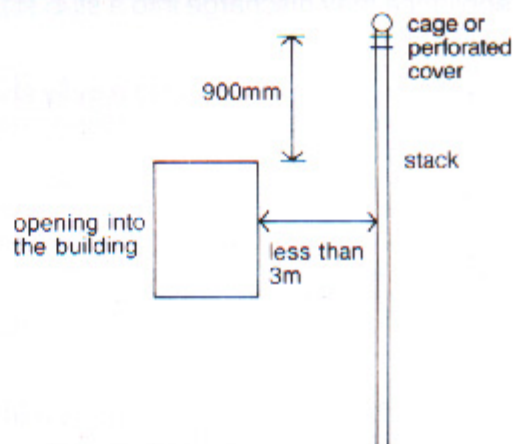


Diagram 6 Termination of ventilation stacks or ventilating part of discharge stacks.



1.26 **Stub stacks** — An unventilated stub stack may be used if it connects above ground into a ventilated discharge stack or into a drain not subject to surcharging and no branch into the stub stack is more than 2m above the invert of the connection or drain and no branch serving a closet is more than 1.5m from the crown of the

closet trap to the invert of the connection or drain (see *Diagram 5*). The length of branch drain from an unventilated stub stack should not be more than 6m where a single appliance is connected and 12m where a group of appliances is connected. (See also *Table 10* and *paragraph 2.21*.)

1.27 Ventilating pipes open to outside air should finish at least 900mm above any opening into the building within 3m and should be finished with a cage or other perforated cover which does not restrict the flow of air (see *Diagram 6*).

1.28 Sizes of stack ventilation pipes – The size of the part of a discharge stack which serves only for ventilation (the dry part above the highest branch) may be reduced in one and two storey houses, but should be at least 75mm.

1.29 Discharge stacks may terminate inside a building when fitted with air admittance valves. Where these valves are used they should not adversely affect the amount of ventilation necessary for the below ground system which is normally provided by the open stacks of the sanitary pipework. Only an air admittance valve which is the subject of a current British Board of Agrément Certificate should be used and the conditions of use should be in accordance with the terms of the Certificate.

1.30 Access for clearing blockages.

Rodding points should be provided to give access to any lengths of pipe which cannot be reached from any other part of the system. All pipes should be reasonably accessible for repair.

MATERIALS FOR PIPES, FITTINGS AND JOINTS

1.31 Any of the materials shown in *Table 5* may be used (the references are to British Standard Specifications). Where necessary different metals should be separated by non-metallic material to prevent electrolytic corrosion. Pipes should be firmly supported without restricting thermal movement. *Attention is also drawn to the requirement of Part B of Schedule 1 to the Building Regulations 1985 and guidance in the Approved Document relating to penetration of fire separating elements and fire stopping provisions.*

Table 5 Materials for sanitary pipework

Material	British Standard
Pipes	
cast iron	BS 416, BS 6087
copper	BS 864, BS 2871
galvanised steel	BS 3868
uPVC	BS 4514
polypropylene	BS 5254
plastics	BS 5255
ABS	
MUPVC	
polyethylene	
polypropylene	
Traps	
copper	BS 1184
plastics	BS 3943

Note

Some of these materials may not be suitable for conveying trade effluent.

AIRTIGHTNESS

1.32 The pipes, fittings and joints should be capable of withstanding an air or smoke test of positive pressure of at least 38mm water gauge for at least 3 minutes. Every trap should maintain a water seal of at least 25mm. Smoke testing is not recommended for uPVC pipes.

Alternative approach

1.33 The requirement can also be met by following the relevant recommendations of BS 5572: 1978 *Code of practice for sanitary pipework*. Clauses 3, 4 and 7 to 12 are relevant.

Section 2 Foul Drainage

2.1 Some public sewers may carry foul water and rainwater in the same pipe (see Approved Document H3 *Rainwater drainage paragraph 2.1*). If the drainage system is also to carry rainwater to such a sewer the following provisions still apply but the pipe sizes may need to be increased to carry the combined flows (see paragraph 2.13 of this document). Combined systems should not discharge to a cesspool or septic tank.

2.2 Where gravity connection to the sewer is impracticable, sewage lifting equipment will be needed. Guidance on sewage lifting installations is contained in BS 8301 *Code of practice for building drainage*.

LAYOUT

2.3 The layout of the drainage system should be kept simple. Changes of direction and gradient should be minimised and as easy as practicable. Access points should be provided only if blockages could not be cleared without them. Connection of drains to other drains or private or public sewers, and of private sewers to public sewers should be made obliquely, or in the direction of flow.

2.4 The system should be ventilated by a flow of air. A ventilating pipe should be provided at or near the head of each main drain, any branch longer than 6m serving a single appliance or 12m serving a group of appliances, or on a drain fitted with an intercepting trap (particularly on a sealed system). Ventilated discharge stacks may be used (see paragraphs 1.27 and 1.28).

2.5 Pipes should be laid to even gradients and any change of gradient should be combined with an access point (see paragraph 2.21).

2.6 Pipes should also be laid in straight lines where practicable but may be laid to slight curves if these can still be cleared of blockages. Any bends should be limited to positions in or close to inspection chambers or manholes (see paragraph 2.21) and to the foot of discharge and ventilating stacks. Bends should have as large a radius as practicable (see paragraph 1.22).

2.7 Special precautions should also be taken to accommodate the effects of settlement where pipes run under or near a building, on piles or beams, in common trenches or in unstable ground. Precautions may also be necessary in situations involving surcharging of drains, or where control of rodents from sewers is a problem (see Appendix paragraphs A9 to A14).

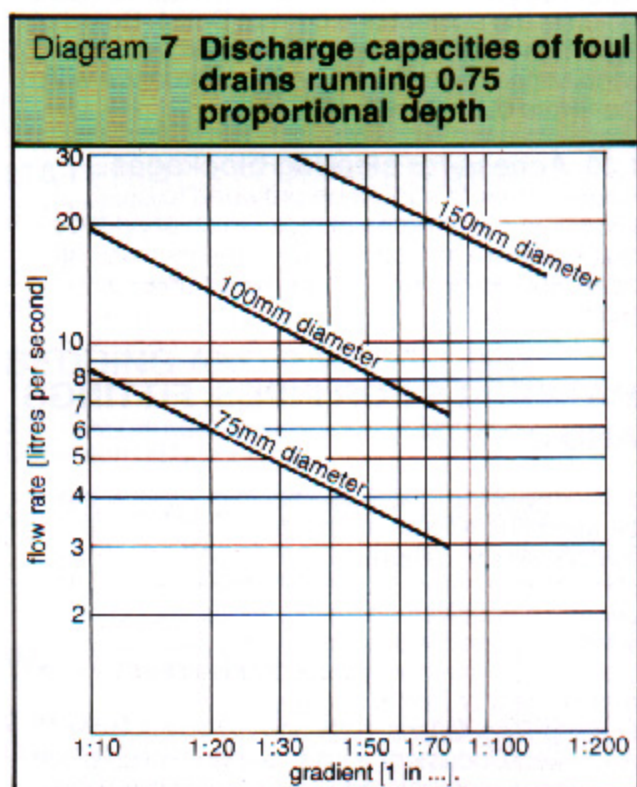
DEPTH OF PIPE COVER

2.8 The depth of cover will usually depend on the levels of the connections to the system, the gradients at which the pipes should be laid and the ground levels.

2.9 Pipes also need to be protected from damage and if the proposed bedding class gives too little cover (or too much, when the pipes could be damaged by the weight of backfilling) for one combination of cover, pipe strength and pipe bedding it may be possible to choose another combination. Alternatively special protection can be provided (see Appendix paragraphs A15 and A17).

PIPE GRADIENTS AND SIZES

2.10 Drains should have enough capacity to carry the flow and be laid to falls. The flow depends on the appliances connected (see paragraphs 0.1 to 0.4 and Table 1) and the capacity depends on the size and gradient of the pipes (see Diagram 7).



2.11 A drain carrying only waste water should have a diameter of at least 75mm and a drain carrying soil water or waste water containing trade effluent a diameter of at least 100mm.

2.12 Table 6 shows the flattest gradients at which drains should be laid, (depending on the flow and the appliances connected to them) and the capacity they will then have (see also paragraphs 0.1 to 0.4).

Table 6 Recommended minimum gradients for foul drains

Peak flow (litres/sec)	Pipe size (mm)	Minimum gradient (1 in ...)	Maximum capacity (litres/sec)
< 1	75	1:40	4.1
	100	1:40	9.2
> 1	75	1:80	2.8
	100	1:80*	6.3
	150	1:150†	15.0

Notes

* Minimum of 1 wc.

† Minimum of 5 wcs.

2.13 Combined systems – The capacity of systems carrying foul water and rainwater should take account of the combined peak flow (see Approved Document H3 *Rainwater drainage paragraph 2.1*).

MATERIALS FOR PIPES AND JOINTING

2.14 Any of the materials shown in Table 7 may be used (the references are to British Standard Specifications). Joints should be appropriate to the material of the pipes. To minimise the effects of any differential settlement pipes should have flexible joints. All joints should remain watertight under working and test conditions and nothing in the pipes, joints or fittings should project into the pipe line or cause an obstruction. Different metals should be separated by non-metallic materials to prevent electrolytic corrosion where necessary.

Table 7 Materials for below ground gravity drainage

Material	British Standard
Rigid pipes	
asbestos	BS 3656
vitified clay	BS 65, BSEN 295
concrete	BS 5911
grey iron	BS 437, BS 6087
Flexible pipes	
uPVC	BS 4660 BS 5481

Note

Some of these materials may not be suitable for conveying trade effluent.

BEDDING AND BACKFILLING

2.15 The choice of bedding and backfilling depends on the depth at which the pipes are to be laid and the size and strength of the pipes.

2.16 Rigid pipes – The types of bedding and backfilling which should be used for rigid pipes of standard strength laid in a trench of any width are shown in Diagram 8 and Table 8. Minimum and maximum depths of cover are also shown for each type. For special protection where pipes are laid with less cover see *Appendix paragraph A15*.

2.17 Flexible pipes – These will become deformed under load and require support to limit the deformation to 5 per cent of the diameter of the pipe. The bedding and backfilling should be as shown in Diagram 9. The minimum depth should be 0.9m under any road and 0.6m in

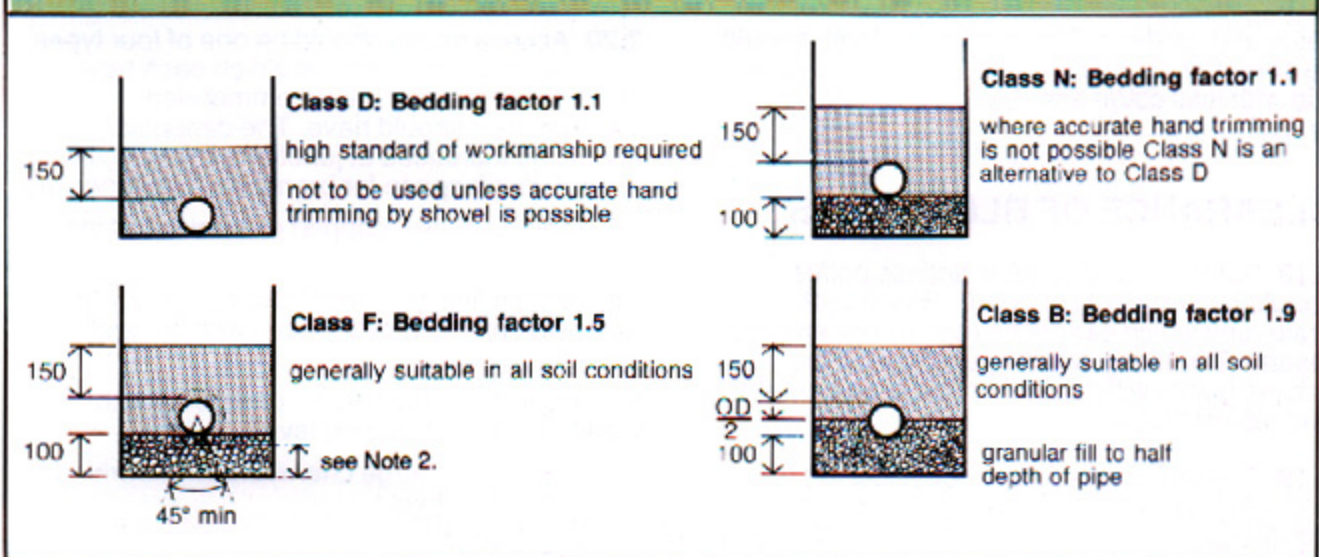
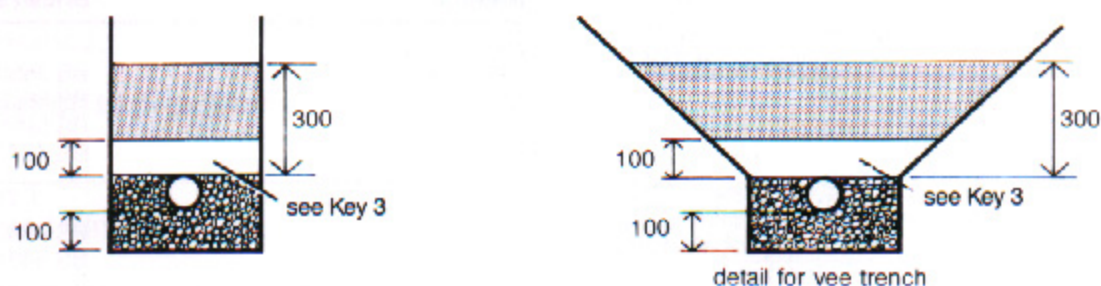
Diagram 8 Bedding for rigid pipes

Diagram 9 Bedding for flexible pipes



- Key**
- 1 Selected fill: free from stones larger than 40mm, lumps of clay over 100mm, timber, frozen material, vegetable matter.
 - 2 Granular material: should conform to BS 882: 1983 Table 4 or BS 8301: 1985 Appendix D. Compaction fraction > 0.3 for Class N > 0.2 for Class F and B.
 - 3 Selected fill or granular fill free from stones larger than 40mm.

Notes

- 1 Provision may be required to prevent ground water flow in trenches with Class N, F or B type bedding
- 2 Where there are sockets these should be not less than 50mm above the floor of the trench.

Table 8 Limits of cover for standard strength rigid pipes in any width of trench

Pipe bore	Bedding class	Fields and gardens		Light traffic roads		Heavy traffic roads	
		Min	Max	Min	Max	Min	Max
100	D or N	0.4	4.2	0.7	4.1	0.7	3.7
	F	0.3	5.8	0.5	5.8	0.5	5.5
	B	0.3	7.4	0.4	7.4	0.4	7.2
150	D or N	0.6	2.7	1.1	2.5	–	–
	F	0.6	3.9	0.7	3.8	0.7	3.3
	B	0.6	5.0	0.6	5.0	0.6	4.6

fields and gardens. The maximum depth should be 10m. For special protection where pipes are laid with less cover see *Appendix paragraph A16 to A17*.

CLEARANCE OF BLOCKAGES

2.18 Sufficient and suitable access points should be provided for clearing blockages from drain runs which cannot be reached by any other means. The siting, spacing and type of the access points will depend on the layout, depth and size of the runs.

2.19 The provisions described below are for normal methods of rodding (which need not be in the direction of flow) and not mechanical means of clearing.

2.20 Access points should be one of four types. Table 9 shows the depth at which each type should be used and the recommended dimensions it should have. The dimensions should be increased at junctions if they do not allow enough space for branches. The types are:

- (a) rodding eyes – capped extensions of the pipes;
- (b) access fittings – small chambers on (or an extension of) the pipes but not with an open channel;
- (c) inspection chambers – chambers with working space at ground level;
- (d) manholes – large chambers with working space at drain level.

Table 9 Minimum dimensions for access fittings and chambers

Type	Depth to (m)	Internal sizes		Cover sizes	
		Length × width (mm × mm)	Circular (mm)	Length × width (mm × mm)	Circular (mm)
Rodding eye		As drain but min 100			
Access fitting small	0.6 or less	150 × 100	150	150 × 100	150
large		225 × 100	–	225 × 100	–
Inspection chamber	0.6 or less	–	190*	–	190*
	1.0 or less	450 × 450	450	450 × 450	450†
Manhole	1.5 or less	1200 × 750	1050	600 × 600	600
	over 1.5	1200 × 750	1200	600 × 600	600
	over 2.7	1200 × 840	1200	600 × 600	600
Shaft	over 2.7	900 × 840	900	600 × 600	600

Notes

* Drains up to 150mm.

† For clayware or plastics may be reduced to 430mm in order to provide support for cover and frame.

Table 10 Maximum spacing of access points in metres

From	To	Access Fitting			Inspection chamber	Manhole
		Small	Large	Junction		
Start of external drain*		12	12	–	22	45
Rodding eye		22	22	22	45	45
Access fitting small 150 diam	150 × 100	–	–	12	22	22
large 225 × 100		–	–	22	45	45
Inspection chamber		22	45	22	45	45
Manhole		22	45	45	45	90

Note

* See paragraphs 1.9 and 1.26

2.21 Siting of access points – Access should be provided at the following points:

- on or near the head of each drain run, and
- at a bend and at a change or gradient, and
- at a change of pipe size (but see below if it is at a junction), and
- at a junction unless each run can be cleared from an access point (some junctions can only be rodded through from one direction).

2.22 Access should be provided to long runs. The distances between access points depend on the types of access used but should not be more than shown in Table 10 for drains up to and including 300mm.

2.23 Construction of access points –

These should contain the foul water under working and test conditions and resist the entry of ground water and rainwater. Any of the materials shown in Table 11 may be used.

2.24 Where half round channels are used in inspection chambers and manholes the branches should discharge into the channel at or above the level of the horizontal diameter. Where the angle of the branch is more than 45° a three quarter section branch should be used. Channels and branches should be benched up at least to the top of the outgoing pipe and at a slope of 1 in 12. The benching should be rounded at the channel with a radius of at least 25mm.

Table 11 Materials for access points

Material	British Standards
1 Inspection chambers and manholes	
Clay bricks and blocks vitrified	BS 3921 BS 65
Concrete precast in situ	BS 5911 BS 8110
Plastics	BS 7158
2 Rodding eyes and access fittings (excluding frames and covers)	
	as pipes see Table 7 BBA Certificates

2.25 Inspection chambers and manholes should have removable non-ventilating covers of durable material (such as cast iron, cast or pressed steel, precast concrete or uPVC) and be of suitable strength. Inspection chambers and manholes in buildings should have mechanically fixed airtight covers unless the drain itself has watertight access covers. Manholes deeper than 1m should have metal step irons or fixed ladders.

WATERTIGHTNESS

2.26 After laying, including any necessary concrete or other haunching or surrounding and backfilling gravity drains and private sewers up

to 300mm should be capable of withstanding a final water test to a pressure equal to 1.5m head of water measured above the invert at the head of the drain, or an air test to ensure a maximum loss of head on a manometer of 25mm in a period of 5 minutes for 100mm gauge or 12mm for a 50mm gauge.

2.27 Where the drain is water tested using a stand pipe of the same diameter as the drain, the section of drain should be filled and left to stand for 2 hours and topped up. The leakage over 30 minutes should then be measured and should not be more than 0.05 litres for each metre run of drain for a 100mm drain – a drop in water level of 6.4mm/m, and 0.08 litres for a 150mm drain – a drop in water level of 4.5 mm/m.

2.28 To prevent damage to the drain the head of water at the lower end of the section should not be more than 4m and it may be necessary to test a drain in several sections.

Alternative approach

2.29 The requirement can also be met by following the relevant recommendations of BS 8301: 1985 *Code of practice for building drainage*. The relevant clauses are in Section one, Section two, Section three (except Clause 10), Section four (except Clause 23), Section five (Clause 25 only) and Appendices. The Code contains additional detailed information about design and construction and describes the discharge unit method of determining pipe sizes.

Appendix

Additional guidance for large buildings

CAPACITY OF PIPES

(see paragraphs 0.1 to 0.4)

A1 Flow rates for other commonly used appliances not covered in Table 1 are shown in Table A1.

Table A1 Flow rates from appliances

Appliance	Flow rate (litres per sec)
Spray tap basin	0.06
Washing machine	0.70

TRAPS

(paragraph 1.2)

A2 Minimum trap sizes and seal depths for appliances not listed in Table 2 are shown in Table A2.

Table A2 Minimum trap sizes and seal depths additional to Table 2

Appliance	Diam of trap (mm)	Depth of seal (mm)
sanitary towel macerator	40	75
Food waste disposal unit (industrial type)	50	75
urinal stall (1 to 7 person position)	65	50

BRANCH DISCHARGE PIPES

(paragraph 1.5)

A3 A branch pipe should not discharge into a stack less than 750mm above the invert of the tail of the bend at the foot of the stack in a multi storey building up to 5 storeys. Alternatively a branch pipe serving any ground floor appliance may discharge direct to a drain or into its own stack.

A4 If the building has more than 5 storeys ground floor appliances, unless discharging to a gully or drain, should discharge into their own stack. If the building has more than 20 storeys ground floor appliances, unless discharging to a gully or drain, and first floor appliances should discharge into their own stack.

VENTILATING STACKS

(paragraph 1.17)

A5 A dry stack may provide ventilation for branch ventilating pipes as an alternative to carrying them to outside air or to a ventilated discharge stack (ventilated system).

A6 Ventilation stacks serving buildings with not more than 10 storeys and containing only dwellings should be at least 32mm diameter (for all other buildings see paragraph 2.29).

A7 The lower end of a stack may be connected directly to a bend (see paragraph 1.22) or it may be connected to a ventilated discharge stack when the connection should be below the lowest branch discharge pipe.

A8 The upper end of a stack may be carried to outside air (when it should finish as described in paragraph 1.19) or it may be connected to a ventilated discharge stack when the connection should be above the spill-over level of the highest appliance.

SPECIAL PROTECTION – SETTLEMENT

(paragraph 2.7)

A9 A drain may run under a building if at least 100mm of granular or other flexible filling is provided round the pipe. On sites where excessive subsidence is possible additional flexible joints may be advisable or other solutions such as suspended drainage. Where the crown of the pipe is within 300mm of the underside of the slab, concrete encasement should be used integral with the slab.

A10 A drain may run through a wall or foundation and depending on whether it is necessary to build the pipe into the wall either –

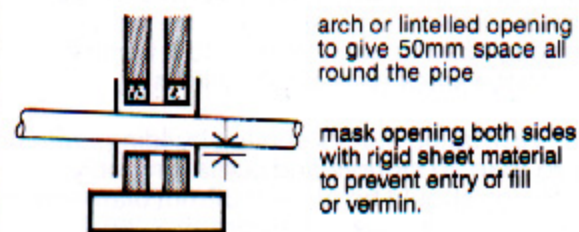
(a) an opening formed to give at least 50mm clearance all round the pipe and the opening masked with rigid sheet material to prevent the ingress of fill or vermin or

(b) a length of pipe (as short as possible) built in with its joints as close as possible to the wall faces (within at most 150mm) and connected on each side to rocker pipes with a length of at most 600mm and flexible joints (see *Diagram A1*).

A11 A drain trench should not be excavated lower than the foundations of any building nearby (see *Diagram A2*) unless either:

(a) where the trench is within 1m of the building the trench is filled with concrete up to the lowest level of the building, or

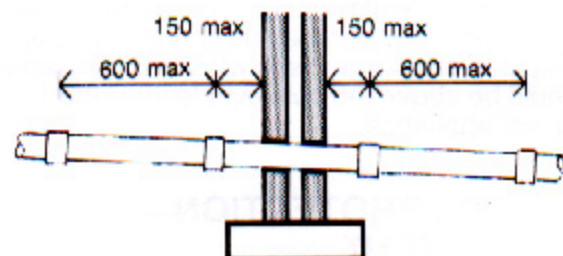
Diagram A1 Pipes penetrating walls



A1

or

short length of pipe bedded in wall, joints formed within 150mm of either wallface. Adjacent rocker pipes of max. length 600mm with flexible joints



(b) where the trench is further than 1m from the building, the trench is filled with concrete to a level below the lowest level for the building equal to the distance from the building, less 150mm.

A12 Where pipes are to be laid on piles or beams or in a common trench, or where the ground may prove unstable particularly where there is a high water table the local authority may be able to provide information regarding the site.

SPECIAL PROTECTION – SURCHARGING OF DRAINS

(paragraph 2.7)

A13 Where a drain is liable to surcharge, measures should be taken to protect the building. All drainage unaffected by surcharge should by-pass the protective measures and discharge by gravity either to a surcharge free outlet or if unavoidable into the surcharged part of the system. The measures taken depend on the particular circumstances and the local authority may be able to provide information, and in some cases they give guidance, on sites where surcharging could be a problem. Protective measures are described in BS 8301. Where any type of anti-flood device is used additional ventilation may be needed to maintain trap seals (see paragraph 1.25).

SPECIAL PROTECTION – RODENT CONTROL

(paragraphs 2.4 and 2.7)

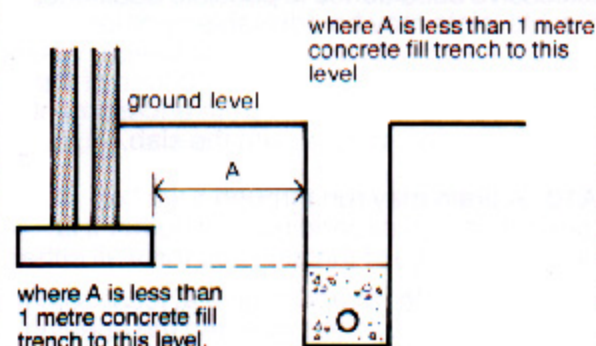
A14 Some local authorities will be able to provide information on locations where infestation of drains and private sewers by rodents is a problem, and on the measures found most effective in their area. Measures may include 'sealed' drainage, i.e. drainage having access covers to the pipework in the inspection chamber instead of an open channel which gives effective protection. Protection can also be derived from intercepting traps although their liability to blockage can affect the efficiency of the drainage system unless they are regularly maintained. In some situations a combination of both measures may be advisable.

SPECIAL PROTECTION – GROUND LOADS

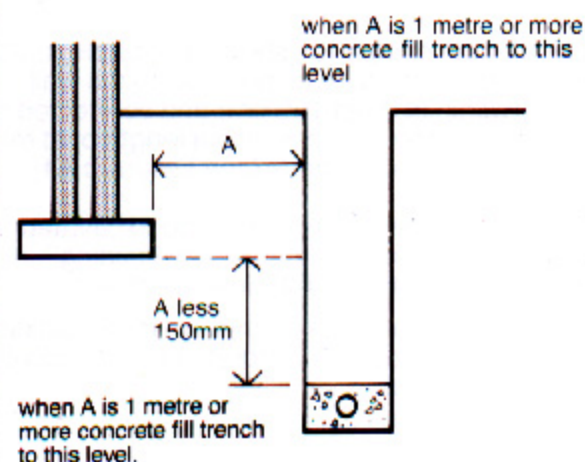
(paragraph 2.9)

A15 Where rigid pipes have less than the recommended cover in Table 8 the pipes should, where necessary, be protected from damage by concrete encasement not less than 100mm thick and having movement joints formed with compressible board at each socket or sleeve joint face (see Diagram A3 and paragraphs 2.9 and 2.16).

Diagram A2 Pipe runs near buildings

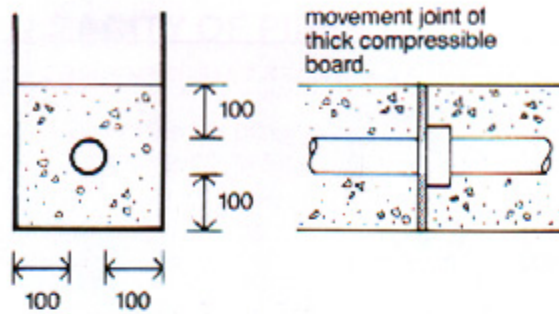


where A is less than 1 metre concrete fill trench to this level.



when A is 1 metre or more concrete fill trench to this level.

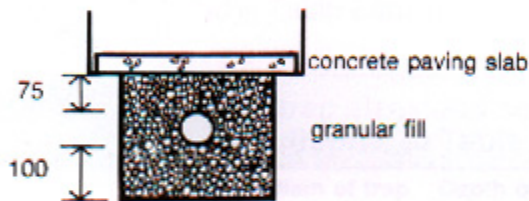
Diagram A3 Concrete encasement for rigid pipes (minimum sizes)



A16 Where flexible pipes are not under a road and have less than 0.6m cover they should, where necessary have concrete paving slabs laid as bridging above the pipes with at least 75mm of granular material between the top of the pipe and the underside of the slabs (see *Diagram A4* and paragraphs 2.9 and 2.18).

A17 Where flexible pipes are under a road and have less than 0.9m cover reinforced concrete bridging should be used instead of paving slabs, or a reinforced concrete surround (see paragraphs 2.9 and 2.14).

Diagram A4 Protection for flexible pipes (minimum sizes)



Building Regulations – the Requirement

This Approved Document which takes effect on 1st April 1990, deals with the following Requirement from Part H of Schedule 1 to the Building Regulations 1991:

Requirement	Limits on application
Cesspools, septic tanks and settlement tanks	
<p>H2. Any cesspool, septic tank or settlement tank shall be</p> <ul style="list-style-type: none"> (a) of adequate capacity and so constructed that it is impermeable to liquids; (b) adequately ventilated; and (c) so sited and constructed that – <ul style="list-style-type: none"> (i) it is not prejudicial to the health of any person (ii) it will not contaminate any underground water or water supply, and (iii) there are adequate means of access for emptying 	

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Guidance

PERFORMANCE

In the Secretary of State's view the requirements of H2 will be met if:

- (a) cesspools have sufficient capacity to store the foul water from the building until they are emptied;
- (b) septic tanks and settlement tanks have sufficient capacity to enable breakdown and settlement of solid matter in the foul water from the buildings;
- (c) cesspools, septic tanks and settlement tanks are constructed so as to prevent leakage of the contents and ingress of subsoil water, and with adequate ventilation;
- (d) cesspools, septic tanks and settlement tanks are sited so as not to be prejudicial to health, not to contaminate water supplies and so as to permit satisfactory access for emptying.

Introduction to provisions

0.1 Paragraphs 1.1 to 1.10 of this document give guidance only on the general principles relating to capacity, siting and ventilation of cesspools, septic tanks and settlement tanks.

0.2 Specialist knowledge is advisable in the detailed design and installation of small sewage treatment works and guidance is given in BS 6297: 1983 *Code of practice for design and installation of small sewage treatment works and cesspools* (see also paragraph 1.11).

CAPACITY

1.1 Cesspools should have a capacity below the level of the inlet of at least 18,000 litres (18m³).

1.2 Septic tanks and settlement tanks should have a capacity below the level of the inlet of at least 2,700 litres (2.7m³).

SITING

1.3 Cesspools, septic tanks and settlement tanks if they are to be desludged using a tanker, should be sited within 30m of a vehicle access and at such levels that they can be emptied or desludged and cleaned without hazard to the building occupants or the contents being taken through a dwelling or place of work. Access may be through an open covered space.

DESIGN AND CONSTRUCTION

1.4 Cesspools, septic tanks and settlement tanks should prevent leakage of the contents and to ingress of subsoil water. Septic tanks should incorporate at least two chambers or compartments operating in series. Cesspools, septic tanks and settlement tanks may be constructed in brickwork, concrete, or glass reinforced concrete. Brickwork should be of engineering bricks and be at least 220mm thick. The mortar should be a mix of 1:3 cement sand ratio. In-situ concrete should be at least 150mm thick of C/25/P mix (see BS 5328).

1.5 Factory made cesspools and septic tanks are available in glass reinforced plastics, polyethylene or steel and a way of demonstrating compliance is for these to be the subject of a British Board of Agrément (BBA) Certificate, and to be installed in accordance with the certificate and the manufacturer's instructions. Particular care is necessary in ensuring stability of these tanks.

1.6 Cesspools should be covered and ventilated. Septic tanks and settlement tanks should be covered or fenced in and, if they are covered, ventilated. The covers should be of heavy concrete slabs.

1.7 Cesspools, and septic tanks or settlement tanks, if they are covered, should be provided with access for emptying or desludging and cleaning. The access should not have any dimension less than 600mm where entry is required. Access covers should be of durable quality having regard to the corrosive nature of the tank contents, and be lockable.

1.8 The inlet of a cesspool and the inlet and outlet of a septic tank or settlement tank should be provided with access for inspection (see Approved Document H1 Section 2).

1.9 Cesspools should have no openings except for the inlet, access for emptying and ventilation.

1.10 The inlet and outlet of a septic tank should be designed to prevent disturbance to the surface scum or settled sludge. Where the width of the tank does not exceed 1200mm the inlet should be via a dip pipe. To minimise turbulence, provision should be made to limit the flow rate of the incoming foul water. For steeply laid drains up to 150mm the velocity may be limited by laying the last 12m of the incoming drain at a gradient of 1 in 50 or flatter.

Alternative approach

1.11 The requirement can also be met by following the relevant recommendations of BS 6297: 1983 *Code of practice for design and installation of small sewage treatment works and cesspools*. The relevant clauses are in Section one, Section two, Section three (clauses 6–11), Section four and Appendices.

Building Regulations – the Requirement

This Approved Document which takes effect on 1st April 1990, deals with the following Requirements from Part H of Schedule 1 to the Building Regulations 1991:

Requirement	Limits on application
Rainwater drainage	
H3 Any system which carries rainwater from the roof of the building to a sewer, a soakaway, a water course or some other suitable rainwater outfall shall be adequate.	

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Guidance

PERFORMANCE

In the Secretary of State's view the requirement of H3 will be met if a rainwater drainage system:

- carries the flow of rainwater from the roof to an outfall (a surface water or combined sewer, a soakaway, or a watercourse),
- minimises the risk of blockage or leakage,
- is accessible for clearing blockages.

Introduction to provisions

0.1 There are no provisions in this document for draining the rainfall on overall areas of 6m² or less including small roofs and balconies unless they receive a flow from a rainwater pipe or from paved and other hard surfaces.

0.2 The capacity of the drainage system should be large enough to carry the expected flow at any point in the system.

0.3 The flow depends on the area to be drained and the intensity of the rainfall which should be assumed to be 75mm an hour for roof drainage design.

0.4 The capacity depends on the size and gradient of the gutters and pipes. Capacities and minimum sizes are given in the text.

0.5 Rainwater or surface water should not be discharged to a cesspool or septic tank.

Section 1

Gutters and rainwater pipes

GUTTERS

1.1 The flow into a gutter depends on the area of surface being drained and whether the surface is flat or pitched (and, if it is pitched, on the angle of pitch). Table 1 shows a way of allowing for the pitch by working out an effective area.

Table 1 Calculation of area drained

Type of surface	Effective design area (m ²)
1 flat roof	plan area of relevant portion
2 pitched roof at 30°	plan area of portion × 1.15
pitched roof at 45°	plan area of portion × 1.40
pitched roof at 60°	plan area of portion × 2.00
3 pitched roof over 70° or any wall	elevational area × 0.5

1.2 Table 2 shows the largest effective area which should be drained into the gutter sizes which are most often used. These sizes are for a gutter which is laid level, half round in section with a sharp edged outlet at only one end and where the distance from a stop end to the outlet is not more than 50 times the water depth. At greater distances the capacity of the gutter should be reduced. The Table shows the smallest size of outlet which should be used with the gutter.

Table 2 Gutter sizes and outlet sizes

Max effective roof area (m ²)	Gutter size (mm dia)	Outlet size (mm dia)	Flow capacity (litres/sec)
6.0	—	—	—
18.0	75	50	0.38
37.0	100	63	0.78
53.0	115	63	1.11
65.0	125	75	1.37
103.0	150	89	2.16

Note

Refers to nominal half round eaves gutters laid level with outlets at one end sharp edged. Round edged outlets allow smaller downpipe sizes.

1.3 Where the outlet is not at the end the gutter should be of the size appropriate to the larger of the areas draining into it. Where there are two end outlets they may be up to 100 times the depth of flow apart.

1.4 Gutters should be laid with any fall towards the nearest outlet. Where there is a fall or the gutter has a section which gives it larger capacity than a half-round gutter or the outlet is round edged it may be possible to reduce the size of the gutter and pipe. Paragraph 1.8 gives a reference to some detailed recommendations which makes reductions possible. Gutters should also be laid so that any overflow in excess of the design capacity, caused by conditions such as above normal rainfall, will be discharged clear of the building.

RAINWATER PIPES

1.5 Rainwater pipes should discharge into a drain or gully but may discharge to another gutter or onto another surface if it is drained. Any rainwater pipe which discharges into a combined system should do so through a trap (see Approved Document H1).

1.6 The size of a rainwater pipe should be at least the size of the outlet from the gutter. A down pipe which serves more than one gutter should have an area at least as large as the combined areas of the outlets.

MATERIALS FOR GUTTERS, RAINWATER PIPES AND JOINTS

1.7 The materials used should be of adequate strength and durability and,

(a) all gutter joints should remain watertight under working conditions. Pipes inside a building should be capable of withstanding the airtightness test described in paragraph 1.32 of Approved Document H1, and

(b) gutters and rainwater pipes should be firmly supported without restricting thermal movement, and

(c) different metals should be separated by non-metallic material to prevent electrolytic corrosion.

Alternative approach

1.8 The performance can also be met by following the relevant recommendations of BS 6367: 1983 *Code of practice for drainage of roofs and paved areas*. The relevant clauses are in Section one, Section two, Section three (except Clause 9), Section four, Section five (except Clause 18) and Appendices. The Code contains additional detailed information about design and construction.

Section 2 Rainwater drainage

COMBINED SYSTEMS

2.1 Some drainage authorities operate sewers carrying both foul water and rainwater (combined systems) in the same pipe. Where they do they can allow rainwater to discharge into the system if the sewer has enough capacity to take the added flow (see Approved Document H1 *paragraph 2.1*). Some private sewers (drains serving more than one property) also carry both foul water and rainwater. If a sewer (or private sewer) operated as a combined system does not have enough capacity, the rainwater should be run in a separate system with its own outfall.

DESIGN

2.2 The following provisions apply if the drainage system is to carry only rainwater.

2.3 Where there is evidence of a liability to surcharging from sewers, or levels in the building or on the site make gravity connection impracticable, surface water lifting equipment will be needed. Guidance on surface water lifting installations is contained in BS 8301 *Code of practice for building drainage*.

LAYOUT

2.4 Refer to paragraphs 2.3 to 2.7 of Approved Document H1.

DEPTH OF PIPES

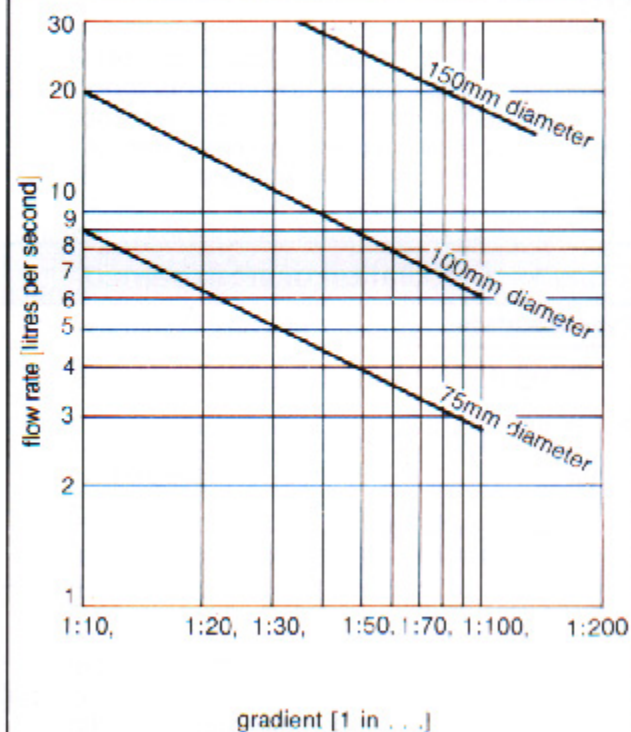
2.5 Refer to paragraphs 2.8 and 2.9 of Approved Document H1.

PIPE GRADIENTS AND SIZES

2.6 Drains should have enough capacity to carry the flow, which may include the run off from paved or other hard surfaces – although the run off from these surfaces is not covered by building regulations. A rainfall intensity of 50mm per hour should be assumed for these areas (see *paragraph 0.3*). The capacity depends on the size and gradients of the pipes.

2.7 Drains should be at least 75mm diameter. Diagram 1 shows the capacities of drains of various sizes at different gradients. 75mm and 100mm rainwater drains should be laid at not less than 1:100. However the capacity can be increased by increasing the gradient, or by using larger pipes.

Diagram 1 Discharge capacities of rainwater drains running full



MATERIALS FOR PIPES AND JOINTING

2.8 See paragraph 2.14 of Approved Document H1.

BEDDING AND BACKFILLING

2.9 See paragraphs 2.15 to 2.17 of Approved Document H1.

CLEARANCE OF BLOCKAGES

2.10 See paragraphs 2.18 to 2.25 of Approved Document H1.

WATERTIGHTNESS

2.11 See paragraphs 2.26 to 2.28 of Approved Document H1.

Alternative approach

2.12 The requirement can also be met by following the relevant recommendations of BS 8301: 1985 *Code of practice for building drainage*. The relevant clauses are in Section one, Section two, Section three (except Clauses 7 and 10), Section four (except Clause 23), Section five (Clause 25 only) and Appendices. The Code contains additional detailed information about design and construction.

Building Regulations – the Requirement

This Approved Document which takes effect on 1st April 1990, deals with the following Requirement from Part H of Schedule 1 to the Building Regulations 1991:

Requirement	Limits on application
Solid waste storage	
H4. (1) Adequate means of storing solid waste shall be provided	
(2) Adequate means of access shall be provided –	
(a) for people in the building to the place of storage, and	
(b) from the place of storage to a street.	

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PERFORMANCE

In the Secretary of State's view the requirements of H4 will be met if the solid waste storage is:

- designed and sited so as not to be prejudicial to health,
- of sufficient capacity having regard to the quantity of solid waste to be removed and the frequency of removal,
- sited so as to be accessible for use by people in the building and of ready access from a street for emptying and removal.

Introduction to provisions

0.1 The efficacy of a refuse storage system is dependent on its capacity and the ease of removal in relation to the collection service provided by the collecting authority.

Domestic developments

CAPACITY

1.1 In low rise domestic developments any dwelling should have, or have access to, a movable individual waste container with a capacity not less than 0.12m³ or a communal waste container of between 0.75m³ and 1m³ capacity.

Note: This capacity assumes an output of refuse of 0.09m³ per dwelling and collection at weekly intervals. Where an authority provides a less frequent service larger capacity containers or more individual containers will be needed.

1.2 In multi storey domestic developments dwellings up to the 4th floor may each have their own container or may share a container. Dwellings above the 4th storey should share a container fed by chute unless siting or operation of a chute is impracticable. In such a case a satisfactory management arrangement for conveying refuse to the storage should be assured.

DESIGN

1.3 Individual containers should have close fitting lids.

1.4 Chutes should have a smooth non-absorbent surface and close fitting access doors at each storey which has a dwelling and be ventilated at the top and bottom.

1.5 Containers need not be enclosed but if they are the enclosure should allow room for filling and emptying and provide a clear space of 150mm between and around the containers and for communal containers be a minimum of 2m high. The enclosure should be permanently ventilated at the top and bottom.

SITING

1.6 Containers and chutes should be sited so that householders are not required to carry refuse further than 30m. Containers should be within 25m of the vehicle access.

1.7 Containers should be sited so that they can be collected without being taken through a building, unless it is a garage, carport or other open covered space. (This provision applies only to new buildings.)

Non domestic developments

1.8 In other types of development, and particularly where special problems such as high density influence the provision of a system, it is essential that the collecting authority are consulted for guidance on resolving the following points:

(a) The volume and nature of the waste and the storage capacity required, based on the frequency of collection and the size and type of container.

(b) The method of storage, including any on-site treatment proposed related to the intended layout and building density.

(c) The location of storage and treatment areas and the access to them for operatives and vehicles.

(d) Hygiene arrangements in the storage and treatment areas.

(e) Fire hazards and protection measures.

Alternative approach

1.9 Recommendations and data on these items can be found in BS 5906: 1980 *Code of practice for storage and on-site treatment of solid waste from buildings*. The relevant clauses are Clauses 3 to 10, 12 to 15 and Appendix A.

PART H

Standards referred to

H1

BS 65: 1991 *Specification for vitrified clay pipes, fittings and ducts, also flexible mechanical joints for use solely with surface water pipes and fittings.*

BSEN 295: *Vitrified clay pipes and fittings and pipe joints for drains and sewers*

Part 1: 1991 *Test requirements*

Part 2: 1991 *Quality control and sampling*

Part 3: 1991 *Test methods.*

BS 416 *Discharge and ventilating pipes and fittings, sand-cast or spun in cast iron,*

Part 1: 1990 *Specification for spigot and socket systems.*

Part 2: 1990 *Specification for socketless systems.*

BS 437: 1978 *Specification for cast iron spigot and socket drain pipes and fittings.*

Amendment slip number 1: AMD 5877.

BS 864 *Capillary and compression tube fittings of copper and copper alloy.*

Part 2: 1983 *Specification for capillary and compression fittings for copper tubes.*

Amendment slip number 1: AMD 5097

2: AMD 5651.

BS 882: 1983 *Specification for aggregates from natural sources for concrete.*

Amendment slip number 1: AMD 5150.

BS 2871 *Specification for copper and copper alloys. Tubes.*

Part 1: 1971 *Copper tubes for water, gas and sanitation.*

Amendment slip number 1: AMD 1422

2: AMD 2203.

BS 3656: 1981 (1990) *Specification for asbestos-cement pipes, joints and fittings for sewerage and drainage.*

Amendment slip number 1: AMD 5531.

BS 3868: 1973 (1980) *Specification for prefabricated drainage stack units: galvanized steel.*

BS 3921: 1985 *Specification for clay bricks.*

BS 3943: 1979 (1988) *Specification for plastics waste traps.*

Amendment slip number 1: AMD 3206

2: AMD 4191

3: AMD 4692.

BS 4514: 1983 *Specification for unplasticized PVC soil and ventilating pipes, fittings and accessories.*

Amendment slip number 1: AMD 4517

2: AMD 5584.

BS 4660: 1989 *Specification for unplasticized polyvinyl chloride (PVC-U) pipes and plastics fittings of nominal sizes 110 and 160 for below ground drainage and sewerage.*

BS 5254: 1976 *Specification for polypropylene waste pipe and fittings (external diameter 34.6mm, 41.0mm and 54.1mm).*

Amendment slip number 1: AMD 3588

2: AMD 4438.

BS 5255: 1989 *Specification for thermoplastics waste pipe and fittings.*

BS 5481: 1977 (1989) *Specification for unplasticized PVC pipe and fittings for gravity sewers.*

Amendment slip number 1: AMD 3631

2: AMD 4436.

BS 5572: 1978 *Code of practice for sanitary pipework.*

Amendment slip number 1: AMD 3613

2: AMD 4202.

BS 5911 *Precast concrete pipes fittings and ancillary products.*

Part 2: 1982 *Specification for inspection chambers and street gullies.*

Amendment slip number 1: AMD 5146.

Part 100: 1988 *Specification for unreinforced and reinforced pipes and fittings with flexible joints.*

Amendment slip number 1: AMD 6269.

Part 101: 1988 *Specification for glass composite concrete (GCC) pipes and fittings with flexible joints.*

Part 120: 1989 *Specification for reinforced jacking pipes with flexible joints.*

Part 200: 1989 *Specification for unreinforced and reinforced manholes and soakways of circular cross section.*

BS 6087: 1990 *Specification for flexible joints for grey or ductile cast iron drain pipes and fittings (BS 437) and for discharge and ventilating pipes and fittings (BS 416).*

Amendment slip number 1: AMD 6357.

BS 7158: 1989 *Specification for plastics inspection chambers for drains.*

BS 8110 *Structural use of concrete.*

Part 1: 1985 *Code of practice for design and construction*

Amendment slip number 1: AMD 5917
2: AMD 6276.

BS 8301: 1985 *Code of practice for building drainage.*

Amendment slip number 1: AMD 5904

H2

BS 5328: Concrete.

Part 1: 1991 *Guide to specifying concrete.*

Part 2: 1991 *Methods for specifying concrete mixes.*

Part 3: 1990 *Specification for the procedures to be used in producing and transporting concrete.*

Amendment slip number 1: AMD 6927.

Part 4: 1990 *Specification for the procedures to be used in sampling, testing and assessing compliance of concrete.*

Amendment slip number 1: AMD 6928.

BS 6297: 1983 *Code of practice for design and installation of small sewage treatment works and cesspools.*

H3

BS 6367: 1983 *Code of practice for drainage of roofs and paved areas.*

Amendment slip number 1: AMD 4444.

BS 8301: 1985 *Code of practice for building drainage.*

Amendment slip number 1: AMD 5904
2: AMD 6580.

H4

BS 5906: 1980 (1987) *Code of practice for the storage and on-site treatment of solid waste from buildings.*

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