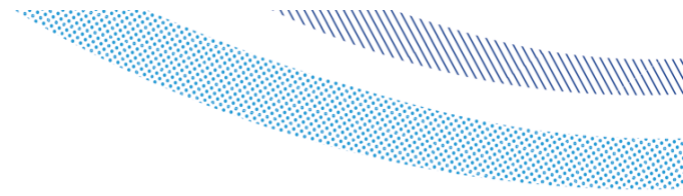


# Water Connections Technical Guidance





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## Introduction

**We've put together this Technical Guidance for Water Connection to provide background information for those wishing to make a connection to a public water main within our region. It'll take you through everything you need to know before laying a private supply pipe and preparing your site for the new water connection.**

You might be constructing new buildings or converting existing buildings into multiple units and require a new water supply. Or be looking to upgrade your current supply through a 'replacement' connection. A water connection application facilitates this by connecting our large water mains – often found in the road outside your property – to your supply pipe.

The following guide explains what you need to think about and do if preparing your property for a new connection. We will provide you with an understanding of our technical standards.

If you are building new homes, we'd also encourage you to take advantage of our [Target 100 scheme](#) by installing water saving fittings. If there are enough water savings to bring the average water consumption down to 110 litres per person, per day (the current average is 130) you'll receive an [enhanced Income Offset](#) saving you money. Please refer to [Water efficiency calculations](#), to find required information that you will need when applying for Target 100.

## The background

### What is a water connection, and will I need one?

A water connection is how we connect your property to the mains water supply. You'll need to bring a supply pipe from your property to the highway boundary and then we'll install the new communication pipe from the boundary to our water main.

Some common reasons for needing a new water connection are:

1. If you are building a property in a new location and need to connect to our network
2. When you are renovating, changing the use of the property, or building an extension
3. When you are building new commercial premises
4. When you are converting a building into flats
5. When you are installing an agricultural trough
6. When you need a temporary water supply
7. If you need to upgrade or replace your existing supply to increase the flow due to increased demand
8. If you are looking to split into or from a shared supply within commercial property
9. If you need fire supplies
10. If you are relocating meters or supply pipes

If you already have an existing connection but would like to upgrade, it by replacing your current supply. Depending on the reason there are two routes for you to take:

1. You will need to submit a water connection application when:

- You are replacing your existing supply to increase the flow due to increased demand
- You are looking to split into or from a shared supply within commercial unit
- Relocating meters or supply pipes

2. You will need to request a service from our operational team on 03303030368, when:

- You are splitting into or from a shared supply within residential unit
- If you are replacing your private supply pipe due to pressure issues or it is leaking
- If you are replacing your lead pipe

- If you do not have a meter and would like to request a meter

Depending on the outcomes of the investigation of our operational team, in some scenarios you might be referred to the Developer services.

Once you've laid your pipe to the boundary, we'll carry out a site inspection to check the pipework is installed correctly before we finalise the connection to our mains. This process is explained in more depth later in these guidance notes.

If you need a disconnection along with your water connection, then this should be requested as part of your water connection application. If you need a disconnection on its own, please refer to Southern Water billing team on 03303030277. Permanent disconnections are free of charge, however, please be aware any future connections after the water supply have been disconnected will be a chargeable and will need to go through new water connection application process.

## Sewer and water maps

You will need to understand the location, size, and material of our water mains in your area so you can plan how your connection will be made. You can request a sewer or water map online and where known, the map identifies:

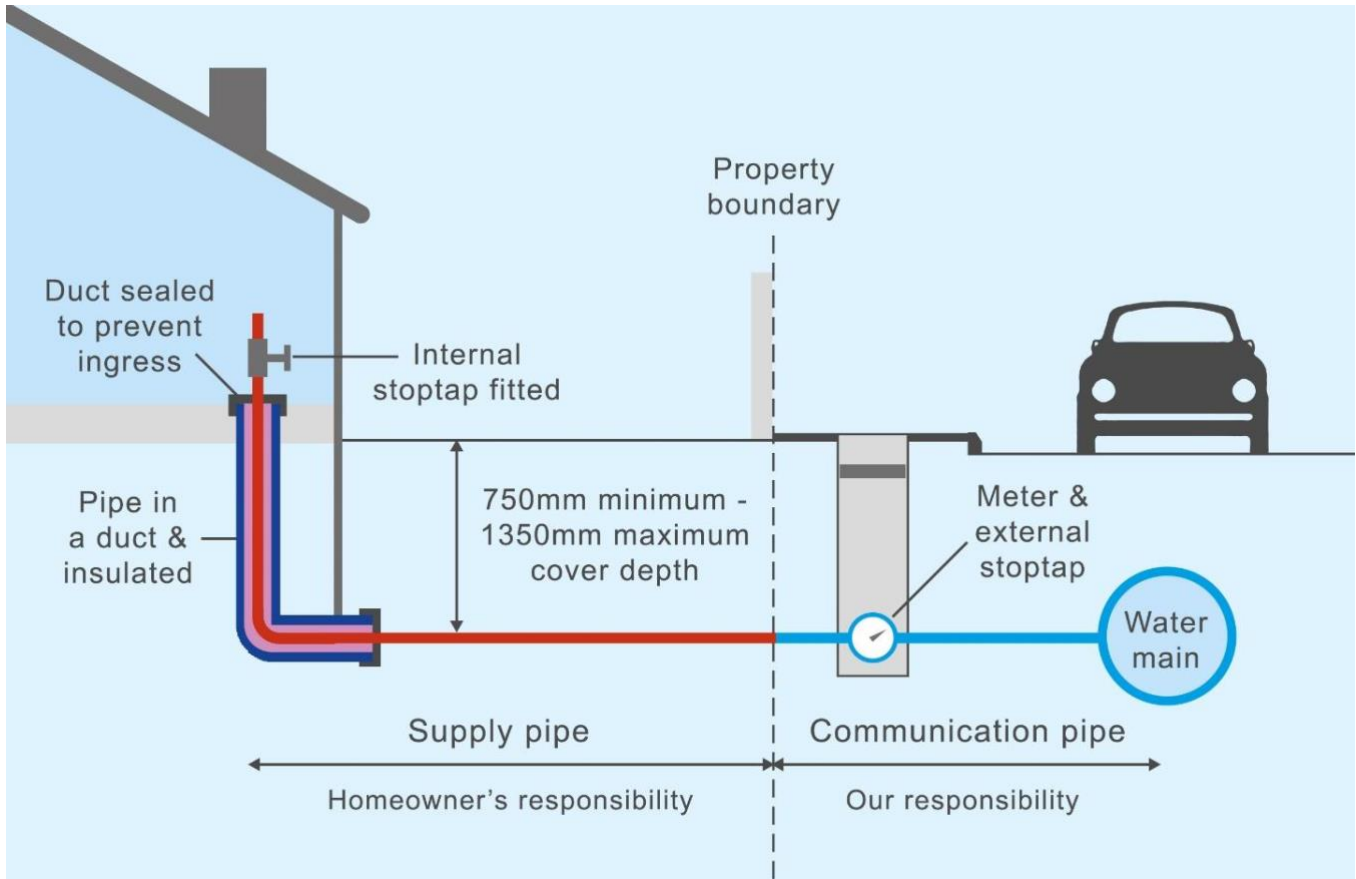
- The location of water mains in our water supply area
- Size and material of the pipe
- The location of sewer mains

You may also be able to view these [maps](#) at your local authority offices or our office at Durrington. You can then annotate where you would like the point of connection for your site to be made and attach this with your application. Copies of maps showing our assets need to be requested from our service partner [Digdat](#). There is a fee for each asset map.

Please be aware we may not hold all the information you have require. Public sewers within customers property boundaries are not always mapped due to the transfer of responsibility for these sewers in 2011.

## Who is responsible for what?

The below diagram is the typical layout of the pipework between your property and our mains and who's responsible for what. You'll be responsible for the private supply pipe which runs through your private land and any internal pipework. Whereas we own and maintain the large water mains and smaller communication pipes that run in the public highway (road), and the water meter installed at the site boundary.



**Left:** You should ensure an internal stop tap is fitted on entry to the property.



**Right:** We'll fit a water meter and external stop tap as part of the connection.

## Water regulations

The [Water Supply \(Water fittings\) Regulations 1999](#) are the legal requirements that you'll need to follow when designing, installing and maintaining your pipework. The three main requirements are:

- Plumbing systems, water fittings and water using appliances must be installed and maintained to comply with the regulations.
- Contamination of drinking water must be prevented.
- Advance notice of plumbing installation work must be given.

After you decided to progress with your connection and accepted the quote, we sometimes need to ask you to fill in [water regulations questionnaire](#) (also known as Notification of proposed works) to understand your intended water fittings and plumbing arrangements.

The short online questionnaire will be presented to you at the quote stage of your application process. This is a legal requirement of the Water Supply (Water fittings) Regulations 1999 that you will need to follow when designing, installing, and maintaining your pipework.

After we reviewed your submitted information, we will send you a water regulations consent within 10 working days. This service is free of charge.

Here is what you will need to have ready to fill in our online form:

- Applicant's details (name, address, contact phone and email, of the person making the application)
- Recipient details (fill in this section if the consent is to be sent to a different address, for instance, the owner of the project)
- Site/location details (Address where the installation is to be located. A contact phone number is required so inspections can be arranged)
- Notification details (number of water supply connections; select a description of the proposed works)
- Plumbing details (plumbing details i.e. pipe works, water fittings (e.g. taps) and appliances along with the plan of the installation)
- Name of approved plumber (installer name)

## Find an approved plumber

We can help you [find approved plumbers](#) in your area familiar with the water regulations to carry out your works. Enter your postcode on [WaterSafe](#) to find local approved plumbers.

All plumbing businesses listed on WaterSafe are members of a water industry-backed Approved Contractors' Scheme in the UK, carry agreed levels of Public Liability Insurance and operate a customer complaints scheme.

Using an approved plumber will help prevent the risk of contamination of drinking water from poor plumbing practices and sub-standard products.

## Sizing of the pipe

Once you've found an approved plumber, they will be able to advise you on what size pipe and flow rate is required to serve your specific development.

## I should also be aware

### Third party/private land

If your private supply pipe is running through someone else's land, please send written consent from the owner in your application to confirm the supply was laid legally.

## Commercial Supplies

Commercial customers in England and Wales have a choice of who they purchase their commercial water from. A list of Market Retailers who provide this service is available on [openwater.org.uk](http://openwater.org.uk). Once we have installed your commercial supply, the retailer you have nominated in your application, will bill you. If you do not nominate a retailer, we will appoint one on your behalf

## Internal Meters

We only allow internal meters to be installed for blocks of flats and in these circumstances, we will install the meters onto your private pipe work that you have prepared in advance.

We can also supply the meter carriers (manifolds) for you to install if you request this on your application, or you can source and install your own. They must be installed in lockable cupboards, inside communal



entrance halls, or basements. The area must be secure, and accessible via key-code entry pad. Internal meters are detailed further in the technical specification section of these guidance notes.

### New Water Mains

If you are building multiple domestic or commercial properties on a site that will have new road access, you will probably need a new water main to be laid to service your site. These are dealt with separately to a water connection and you can find out more about your options on our [new water main](#) webpage.

### Sewer Connections

When building new homes and applying for a water connection, it is likely you may need a new sewer connection. To learn more and make an application please visit our [sewer connection](#) webpage. It is an offence to connect into our sewers directly or indirectly without our formal approval.

### Bulk connections

Some larger sites, including commercial buildings and flats will require a larger connection than our standard connection sizes of 25 or 32mm (outer diameters). We refer to these larger sizes as 'bulk connections' which includes sizes greater than 32mm, including 63mm, 90mm and 125mm.

### Chlorination

We will make an assessment and advise you whether you need to disinfect your water supply installation. But as a general rule, If your supply pipe is 63mm diameter (50mm internal diameter) or larger, and also greater than 15 metres in length, or there's reason to believe the pipework may be contaminated, then you must have it chlorinated and tested for microbiological content and turbidity by a UKAS accredited analytical laboratory and then have these sent to us for approval.

The pipe must achieve a satisfactory pass before we can programme your final connection works. Please send the test report to [Scient@southernwater.co.uk](mailto:Scient@southernwater.co.uk) copying in your New Works Supervisor, whose details will be provided with your estimate.

## Temporary building supplies (TBS)

Temporary supplies can be provided for development sites where water is required for building purposes, it will follow a similar process to laying a standard supply, however we will organise a disconnection at a time indicated by you in the future.

Typically, we will contact you within a month of the disconnection date indicated to ensure you are finished with the supply before we remove it, and if needed we can extend the disconnection date into the future if you still require it.

Sometimes you may want to use a service pipe for a plot as a temporary supply, whilst the plot is being built. If this is the case, then once the temporary supply is no longer required, the plot can connect, however ensure the boundary box is installed initially in the correct final location.

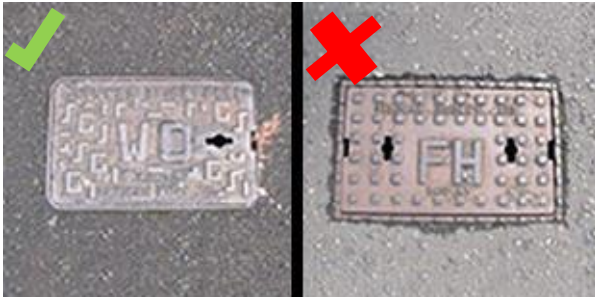
### Standpipe hire

There may be times when you need a supply of water outside of our normal service. [Hiring a standpipe](#) is an alternative method to have a temporary source of water for a site including:

- Landscape gardening
- Construction
- Drain cleaning
- Organised events

These can be hired from [Water Services](#), who we work with to provide standpipes in our area of operation. If you would like to hire a standpipe or enquire about prices, please contact Water Services on **02392 695 515** (7:30 – 4:30 weekdays) or email [southernwater@waterservicesltd.com](mailto:southernwater@waterservicesltd.com).

Only standpipes provided by Water Services can be legally used on our network. Using standpipe without a licence is illegal. You should note that standpipe water can only be drawn from a Southern Water washout hydrant (Marked with 'WO'). It can never be used on a fire hydrant (Marked with 'FH').



## Site inspection

We need to confirm that the new supply pipe(s) you are laying are at the correct depth, use appropriate material and are safely installed inside the property. The rules for water pipes require us to ensure that all connections are designed and built to prevent contamination of the existing water supply and can resist damage due to cold weather and poor ground conditions.

Once you have laid your private supply pipe(s), you will need to take series of photos, following [our instructions](#) and submit them using the GetConnected portal. We will review your photos to make sure your pipework is ready for our crew to connect your property to the water main. This is usually the quickest option.

In some cases, we may need to arrange an in-person inspection. We will let you know in advance if this becomes necessary.

If you are a WIAPS-certified plumber or are using a WIAPS certified plumber to do your installation, you do not need to arrange an inspection. Once you have laid your private supply pipe(s), please submit your WIAPS certificate or reference number and an appropriate photo to show the capped pipe has been brought to the agreed point of connection

We have prepared a site inspection checklist for the inspection of your supply pipes to be passed first time. This is also included in the guidelines document for your plumber to follow.

- ✓ All obstructions must be removed to allow the inspection
- ✓ No pipes must be installed above the water pipe i.e. which will block access to it
- ✓ The site/footpath boundary is clearly marked
- ✓ Supply pipe is a minimum of 750mm deep or and a maximum of 1350mm deep.

- ✓ Duct must be cut back at the boundary and appropriately sealed
- ✓ Supply pipe must be capped and labelled with plot number (if applicable)
- ✓ Supply pipe must not cross third-party land to prevent boundary disputes
- ✓ Supply pipe is brought to a 90-degree angle from the main and at entry to the property
- ✓ Supply pipe must be in the same location to that priced for under new connections quotation
  - Can't be in a different road to that stated on the new connection's quotation
  - Must be close enough together to utilise 2/6-way manifold (if applicable)
- ✓ Supply pipe must be ducted into the building, appropriately sealed, and insulated
- ✓ An internal stopcock must be fitted
- ✓ Supply pipe must be PEB for contaminated sites or standard PE for non-contaminated

Once your private supply pipe has passed the site inspection your new connection will usually be completed within 21 days. If a road closure, or private land entry is required then the connection may take up to 3 months, which will be stated in your quotation if it applicable to your project.

Following the connection, your new supply will be left live with a meter installed. From this point on you will be responsible for the bill.

If you will not be the occupant of the property fed by the supply, please request the occupant to register their account by visiting our website <https://www.southernwater.co.uk/move-in> .

## Application process and required documents

**Here are the steps that we will take to get you connected:**

- Step 1 - You apply online and pay your application fee
- Step 2 – We'll provide your Quote
- Step 3 – You accept and Pay for the works
- Step 4 – We grant water regulation consent
- Step 5 - You lay your private supply pipe
- Step 6 – You Book your site inspection
- Step 7 – We complete your water connection and install the meter
- Step 8 – You register your new billing account

## Water Connections Guidance Notes

When making your application, please make sure you have the following information:

- A site plan clearly showing your requested point of connection
- An application fee of £85.96 (incl. 20% VAT) for your first connection and £52.48 (incl. 20% VAT) for additional subsequent connections
- Soil sample for any contaminated land
- Location plan (to give us a reference point to GIS)

## Application timescales

### Estimate

Once you've made a full application for a water connection estimate this will take 28 calendar days for us to produce the estimate for your site.

### Laying your pipework and trench inspections

After receiving the estimate for the works you'll need to submit a notification of works to our team to check your plans comply with the water regulations and we'll respond in 10 calendar days.

Once passed, you'll then be able to lay your private supply pipe up to the point of connection and arrange a trench inspection to be carried out with your New Works Supervisor. Trench inspections will not be able to be booked until at least 72 hours after payment has been made.

### Connection

After you have accepted the estimate, paid and passed the inspection we'll schedule in your connection. This can take up to 3 months if we need to get permission for works in the road or footpath and arrange traffic management (i.e. 3 or 4-way traffic lights). When traffic management isn't required, we will make the connection within 21 calendar days and leave the supply live.

### Reconciliation

At the end of the process if the work cost less than that given in the estimate, we will automatically refund you the associated cost.

## Application fees

An application fee is required for each water connection. The charge is variable, based on the number of connections as per our [charging arrangements](#):

| Application fee                | Cost per connection (£)   |
|--------------------------------|---------------------------|
| First connection               | £86.57<br>(incl. 20% VAT) |
| For each subsequent connection | £52.50<br>(incl. 20% VAT) |

If you have multiple subsequent connections, then the relevant cost should be multiplied as appropriate per each additional connection.

## Connection estimate

The water connection costs detailed in your estimate include traffic management (if applicable), excavation and reinstatement of the road/footpath/verge, tapping of the main, communication pipe and meter installation. The cost will vary for each individual application and the works we need to carry out.

**Our quotes are valid up to the end of the financial year (31<sup>st</sup> March)**, for quotes made in Feb/Mar we give a 2 month extension. If the quote expires or there is any change to the way you want to lay your pipes or connect into our network, then you'll need to ask for a requote for your site.

Included in the connection estimate will be administration fees and water regulation inspection fees as appropriate and detailed below. Please note we charge for additional visits if you do not pass the inspection.

### Administration fees

| Service   | Cost (£)                  |
|---|---------------------------|
| Administration fee (first connection)               | £33.16<br>(excl. 20% VAT) |
| Administration fee (for each subsequent connection) | £20.54<br>(excl. 20% VAT) |



### Water Regulations inspection fees

| Service   | Cost (£)               |
|---|------------------------|
| Water Regulations inspection (External) – 1 <sup>st</sup> of every 10 plots (1 <sup>st</sup> , 11 <sup>th</sup> , 21 <sup>st</sup> etc) | £82.00 (excl. 20% VAT) |
| Water Regulations inspection (External) – every other plot (2 <sup>nd</sup> -10 <sup>th</sup> , 12 <sup>th</sup> -20 <sup>th</sup> etc) | £5.69 (excl. 20% VAT)  |

Included in the connection estimate will be administration fees and water regulation inspection fees as appropriate and detailed below. Please note we charge for additional visits if you do not pass the inspection.

Since it is impossible to truly know what conditions will be encountered until the works commence, the price you receive is estimated. Should the work turn out to cost less than the given price, then you will receive a refund. Alternatively, should the work cost more, then you will receive an invoice for the outstanding amount.

## VAT

We apply VAT to water connections as follows:

- New build dwellings i.e. new buildings with 3 or more new external walls and roof, are exempt from paying VAT.
- Listed buildings with appropriate Listed Building Status are also exempt from VAT.
- Existing buildings that are converted to residential dwellings, or qualifying renovations are required to pay VAT at 5%.
- Otherwise, the default VAT rate is charged at 20% (Commercial, existing properties, Agricultural, Separation etc).

## Infrastructure Charges

An Infrastructure Charge is applicable for new or existing premises connecting to the public water supply for the first time. The charge is a contribution towards the overall costs of developing and maintaining the water supply and sewerage networks.

It is charged in addition to the application fees and at the same time as your connection estimate. You can find out more by reading through our [connection charging arrangements](#).

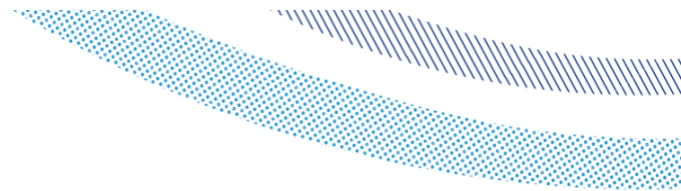
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# Water Connections Technical Specification



## Glossary of Terms

| Term                               | Definition   |
|------------------------------------|--|
| <b>Water main</b>                  | The large distribution water mains owned by us and often found within the road or footway.   |
| <b>Communication pipe</b>          | The short length of pipe owned by us between the water main and the meter chamber before it connects to your supply pipe.  |
| <b>Supply pipe</b>                 | The pipework you own between your house and our meter chamber. You will be responsible for laying this to the right technical standards.   |
| <b>Trunk main</b>                  | Is a large diameter and highly pressured water main with the purpose to move large volumes of water across our network. It should only be connected to in certain circumstances.       |
| <b>Internal stopcock</b>           | Is the 'tap' that controls your water supply into your home, likely to be located where your supply pipe enters the home.  |
| <b>External stopcock</b>           | Similar to the internal stopcock but is located externally at the water meter chamber, controlling the flow from the water main to the supply pipe at the edge of your property.       |
| <b>Capped pipe</b>                 | This is a temporary measure necessary to prevent dirt or contaminants entering the pipe.   |
| <b>Manifolds</b>                   | A section of pipe which has a larger communication pipe input and redistributes this to several different supply pipes at the same location. Often supplied as a 2 or 6-way manifolds. |
| <b>Internal meters</b>             | These are water meters that are fitted internally within a building for new flats or apartments, rather than the traditional location at the property/highway boundary.                |
| <b>Meter Carrier</b>               | This is the piece of apparatus that houses a water meter.  |
| <b>Trench</b>                      | A trench is referred to as the excavation that is prepared in the ground for laying the pipework.  |
| <b>Barrier pipework (PEB)</b>      | Will be used in potential cases of contaminated land. It includes a concentric aluminium layer to act as a 'barrier' to prevent contaminants entering the water pipe.                  |
| <b>Contaminated land</b>           | Is land that contains substances that are potentially hazardous to human health and the environment, often existing from previous use on the site.                                     |
| <b>Drain off point/Drain valve</b> | This is a valve used to release water and empty the water pipe once the mains supply has been switched off. When opened, water will drain out of the pipe.                             |



## Pipe material & contaminated land

When you lay your pipework, you'll need to ensure it's in the correct material for your site so we can maintain a safe water supply in the interest of public health.

Any application for new water connection to a development (construction of new properties, or renovation or conversion of existing buildings) in land potentially affected by contamination will need a completed Soil Analysis. If your site has been known for use as any of the following, please commission a soil analysis report to avoid the need for more costly barrier pipe.

- Petrol Station
- Fuel Storage
- Motor Mechanics
- Vehicle Parking Boatyard
- Military Camp
- Coal Yard
- Chemical Storage Scrap Yard
- Landfill
- Burial Ground

Where there is a risk of contamination or the site is shown to be contaminated, we'll ask you to use a barrier pipe known as 'PEB' (polyethylene barrier).

PEB includes a concentric aluminium layer to prevent contaminants entering the water supply.

We'll detail if barrier pipe is required in your quote, so do check because if so, you'll need to use it appropriately to pass our inspections. For all other sites the standard blue 'MDPE' (medium density polyethylene) pipe will be used.

For more information you can read our [guidance notes on contaminated land](#).

Materials or substances, either alone or in combination, which cause, or are likely to cause, contamination of water should not be used in the construction, installation, renewal, repair or replacement of any water fitting which conveys or receives water supplied for domestic or food production purposes. Particular materials unsuitable for use in contact with water intended for domestic or food production purposes include lead and bitumastic coatings derived from coal tar.

Lead pipe is prohibited for use in new installations (this includes lead soulders)

Pipes of different metallic materials are not to be connected unless suitable precautions are taken to ensure that corrosion through galvanic action cannot take place.

Water fittings should be adequate for the purpose and satisfy the appropriate British Standard, or acceptable equivalent:

### **POLYETHYLENE PIPES: BS 6572:**

Blue polyethylene pipes up to nominal size 63mm for below ground use for potable water. BS 6730: Black polyethylene pipes up to nominal size 63mm for above ground use for cold potable water.

### **UNPLASTICISED PVC PIPES: BS 3505:**

Specification for unplasticised polyvinyl chloride (PVC-U) pressure pipes for cold potable water.

### **COPPER TUBES: BS EN 1057:**

Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications.

### **STEEL PIPES: BS 1387:**

Specification for screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or for screwing to BS 21 pipe threads.

### **STAINLESS STEEL PIPES: BS 4127:**

Light gauge stainless steel tubes, primarily for water applications.

### **IRON PIPES: BS EN 545:**

Ductile iron pipes, fittings, accessories and their joints for water pipelines.

Ductile iron pipes to this standard are manufactured in sizes DN 40 to DN 2000.

Only approved jointing materials are to be used for jointing screwed pipes and fittings. Hemp or gaskin is not to be used for any types of joints in any circumstances.

## External pipework

### Laying your pipework



## Water Connections Guidance Notes

Communication pipes can be in various configurations depending on your development, but our aim is to ensure accurate future billing whilst minimising costs to developers.

### Separation of shared supply

Shared supplies are where multiple homes are supplied off one connection which can lead to low pressure or intermittent flow. If you have a shared communication pipe with your neighbour, and you require an independent supply, you will need to bring a new supply pipe to the boundary of the site by the public highway/verge. We will then estimate for a new communication pipe and installing a meter chamber to join them together.

The previous pipework serving your property should be traced back and disconnected at its source of supply i.e. where it branches away from your neighbours' pipe, without leaving any redundant lengths of pipe that may harbour stagnant water.

### Building new semi-detached houses with shared drives

If you are building semi-detached houses and can bring both supply pipes to your boundary together or onto a shared drive, no further than 300mm apart, then it will be possible for us to estimate for bringing one 32mm communication pipe to meet your supply pipes and installing a two-way manifold and meter box to join them.

### Building new flats or apartments

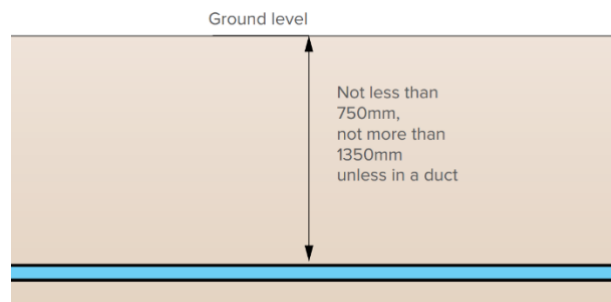
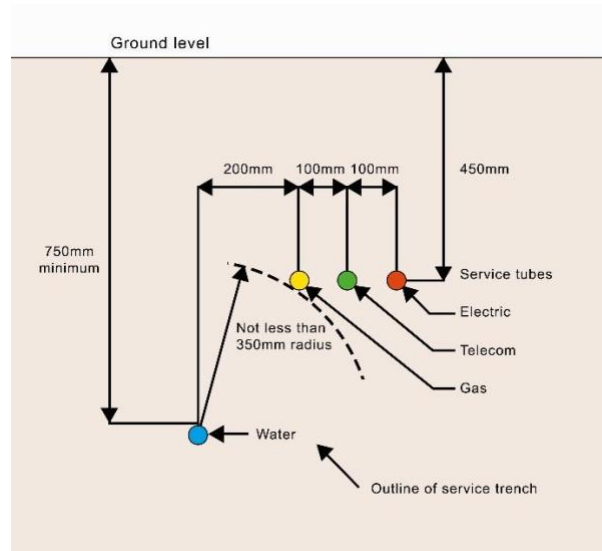
If you are building a small block of flats with up to six units, and can bring your supply pipes out together, no further than 700mm apart (from pipe 1 to pipe 6) to the boundary of the site (public pavement), then it will be possible for us to estimate for bringing one bulk.

## Pipework specifications

Using our quote for your works, you'll be able to understand the size of pipework, material and where it should be brought to for the connection. You will then need to organise with your plumber laying this with approved water fittings ([Water Fittings Regulation Part 4](#) compliant) and dig any trenches as appropriate.

In accordance with the [National Joint Utilities Group](#) recommendations, the underground supply pipe must be no less than 750mm below ground level and

separated from other pipes such as those carrying natural gas by at least 350mm. In addition, the pipe must not be laid deeper than 1,350mm, unless in a duct.



All supply pipes entering buildings, regardless of layout must be laid either in sand or ducts, at a depth of 750mm and have the ends of the duct sealed to prevent the ingress of gas or vermin into the building. See details 1, 2 and 3.

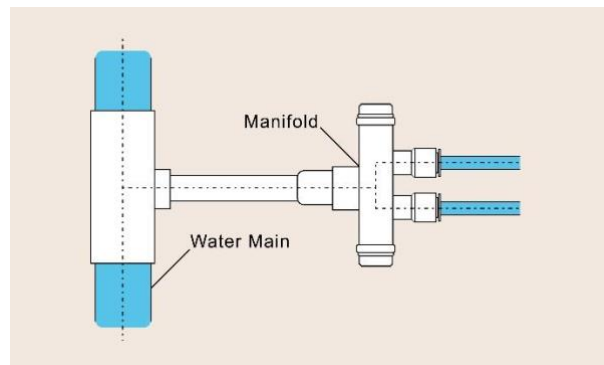
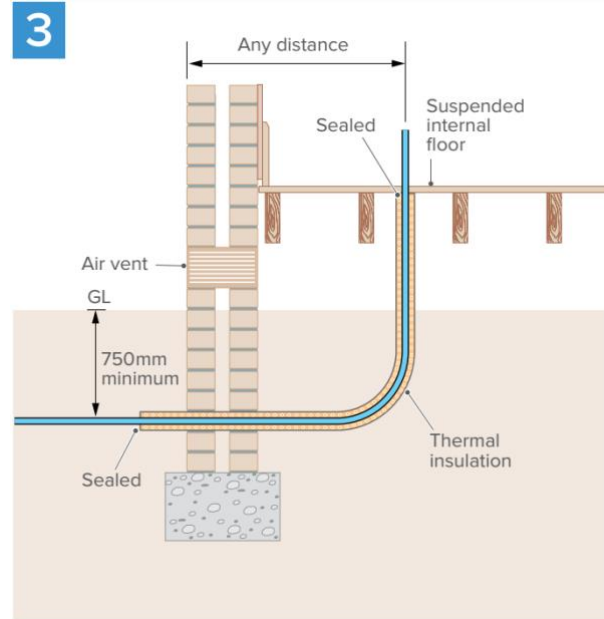
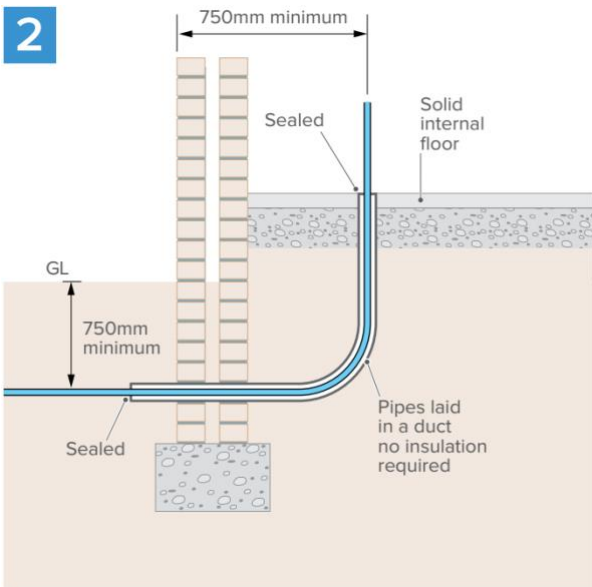
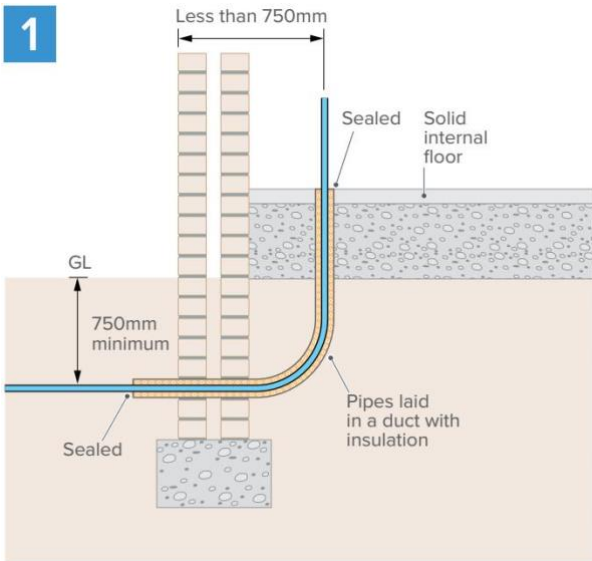
You will need to bring your private supply pipe in a straight line (shortest route) from the building to the agreed point, shown on your quote, for connection to the external stopcock (meter chamber). You'll need to avoid crossing any third-party land and avoid entering the protection zone of any nearby tree.

Your pipe should be labelled with the plot number, have the end capped off and be fitted with an internal stopcock. All supply pipes must pass an inspection by our New Works Supervisors before any communication pipe works can be planned.

These measures will ensure the water supply is not at risk from contamination.

## Manifolds

Manifolds are an option for sites which need multiple connections at one location. They allow us to bring the communication pipe to one location from which it can then separate into individual supply pipes through a 2 or 6-way manifold. For 2-way manifolds the pipes should be no further than 300mm apart and for 6-way no further than 700mm apart (measured from pipe 1 to pipe 6).

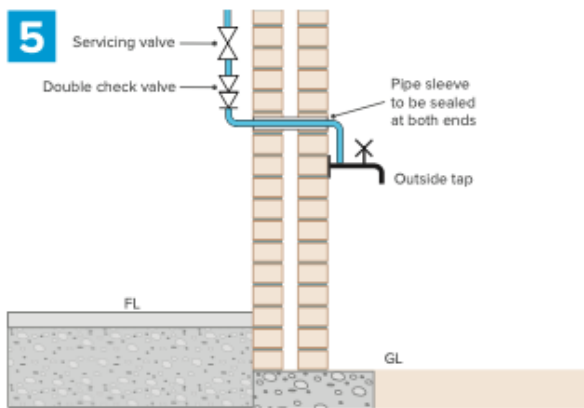


## Outside tap

Taps to which hoses are, or may be, connected and located in house garden locations are to be protected against backflow by means of a double check valve.

Double check valves have been shown to be susceptible to frost damage and should therefore be protected against freezing by being installed inside a building, or by other means. See detail 5.

## Water Connections Guidance Notes



### Insulation and protection

Insulation only delays freezing. All cold-water fittings located within the building, but outside the thermal envelope, or those outside the building should be protected against damage by freezing. Insulation also helps to prevent warming in cold water systems, which could lead to bacteriological growth.

Water pipes that are located:

- above ground level external to buildings; or
- under suspended ground floors; or
- in unheated communal staircases, corridors, garages, or roof spaces, should be protected with a thickness of insulation that is no less than that recommended in the table.

The thickness of insulation for the protection of cold-water cisterns in roof spaces and other exposed locations should be calculated in accordance with BS EN 1057.

| Thermal conductivity of insulation material at 0°C in w/(m.k) |         |         |          |          |          |
|---|---------|---------|----------|----------|----------|
|   | 0.02    | 0.025   | 0.03     | 0.035    | 0.04     |
| mm  | mm      | mm      | mm       | mm       | mm       |
| 15  | 20 (20) | 30 (30) | 25* (45) | 25* (70) | 32* (91) |
| 22  | 15 (9)  | 15 (12) | 19 (15)  | 19 (19)  | 25 (24)  |
| 28  | 15 (6)  | 15 (8)  | 13 (10)  | 19 (12)  | 22 (14)  |
| 35  | 15 (4)  | 15 (6)  | 9 (7)    | 9 (8)    | 13 (10)  |
| 42 and over   | 15 (3)  | 15 (6)  | 9 (5)    | 9 (5)    | 9 (8)    |

\* Recommended minimum commercial thickness of thermal insulation for copper water pipes of minimum wall thickness complying with BS EN 1057 in normal conditions of exposure.

### Connections to other supplies

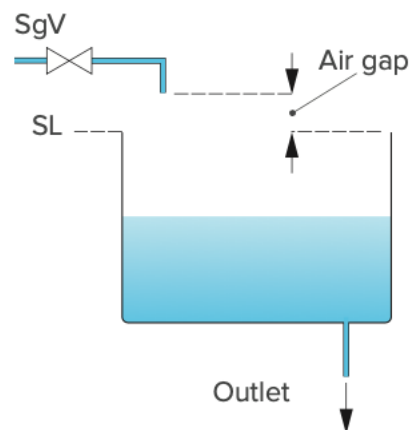
Any pipe conveying rainwater, recycled water, or any other water, from a source other than the water undertaker, is not to be connected to any pipe

carrying wholesome water supplied by the water undertaker. Except when a suitable backflow prevention device or arrangement is installed in accordance with the requirements of Schedule 2: Paragraph 15 of the Regulations.

This requirement would be satisfied if wholesome water (Fluid category 1) was delivered into a cistern containing greywater (Fluid category 5) providing that the wholesome water was delivered into the cistern through a backflow prevention device or arrangement suitable for protection against a fluid category 5 risk. For example, Type AA, AB or AD air gap.

### Ponds and swimming pools

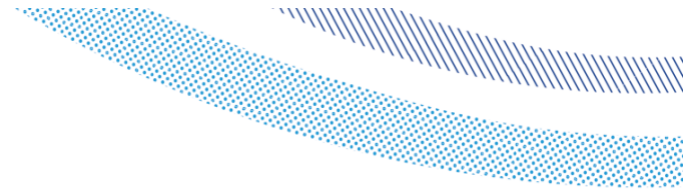
Any pond, fountain or pool filled or supplied with water by the Water Undertaker should have an impervious lining and be watertight. This requirement only applies to constructed ponds, fountains or pools which have an impervious lining to prevent leakage of water. Pools etc. constructed of concrete will be accepted if they have been designed, constructed and tested in accordance with BS8007 : 1987 : Code of practice for the design of concrete structures for retaining aqueous liquids. A pond, fountain or pool may be replenished by automatic means providing the method of backflow protection is by a Type AA air gap.



### Internal pipework

#### Fixing of water fittings

Water fittings should be adequately supported, the spacing for support being dependent on the material of the pipe. Allowance should be made to accommodate any reasonably foreseeable movement, including thermal movement, in accordance with clause 4.7.1 BS EN 806-4:2010.



## Location of pipes and fittings

A concealed pipe and fittings may be installed in a pipe sleeve or duct located under or within a solid floor provided that the pipe and/or fitting can be readily removed and replaced.

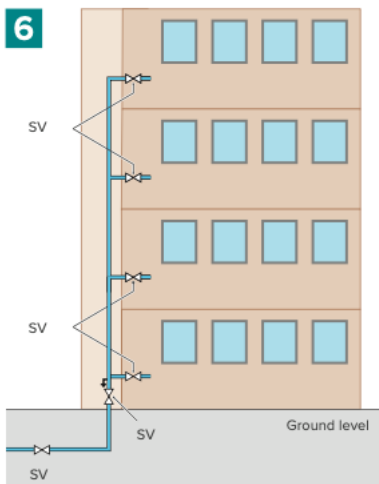
Unless located in an internal wall which is not a solid wall, a chase or duct which may be readily exposed, or under a suspended floor which may, if necessary, be readily removed and replaced, or to which there is access, water fittings should not be:

- located in the cavity of a cavity wall; or
- embedded in any wall or solid floor; or
- installed below a suspended or solid floor at ground level.

Note: Any notching or holes made within floor or roof joists should be within the limits shown in Building Regulations, Approved Document A, Section 1B6.)

## Stop valves to premises

Every supply and distributing pipe providing water to premises should be fitted with a stop valve to control the supply to those premises only. Stop valves at point of entry shall be screw down type complying with BS1010. See detail 6.



The Water Acts normally require premises to have separate supply pipes wherever this is possible. Where a supply or distributing pipe provides water in common to two or more premises a stop valve should be provided, either inside or outside the premises, to which each occupier has access. The principle is that if any occupiers are suffering damage or nuisance to their premises due to a leaking or defective fitting

whether on their own premises or on a common pipe they should have ready access to a stop valve which controls the supply to those premises or fittings. Attention is drawn to the need for the provision of whole site backflow protection where two or more premises are served by a common supply pipe.

## Provision of draining taps

Sufficient draining taps should be provided to facilitate the draining of all supply and distributing pipes within the building. Draining taps should be of the screw down type conforming to BS 2879 or, where located in a frost-free location, of an approved spherical type. They should not be buried or covered with soil, or installed so that they are submerged, or likely to be submerged.

## Provision of servicing valves

Inlets to all float-operated valves, cisterns, clothes washing machines, dishwashing machines, water heaters, water softeners and other similar appliances should be provided with a servicing valve to facilitate maintenance. Servicing valves should be fitted as close as is reasonably practical to float operated valves or other inlet devices of an appliance. Servicing valves may be of the screw down or spherical type.

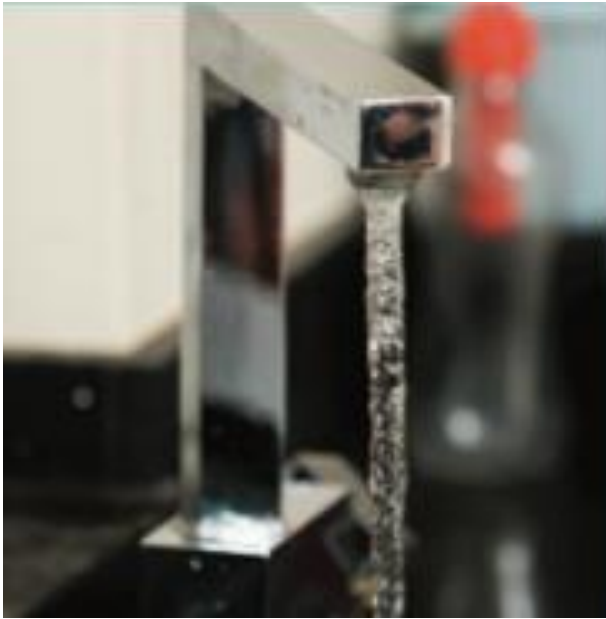
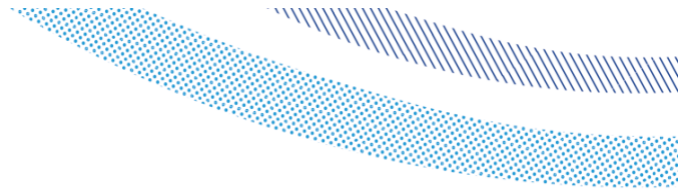
## Drinking water tap

All premises supplied with water for domestic purposes shall have at least one tap conveniently situated for the drawing of drinking water. Which in a house should be located over the kitchen sink and be connected to the supply pipe prior to any water softener.

A drinking water tap shall be supplied with water from:

- a supply pipe;
- a pump delivery pipe drawing water from a supply pipe; or
- a distributing pipe drawing water exclusively from a storage cistern supplying wholesome water.





## Washing machine/ dishwasher points

Where the connection to dishwashers and washing machines are via non approved flexible hoses, a single check valve should be installed after the servicing valve on the cold inlet.

## Water softener

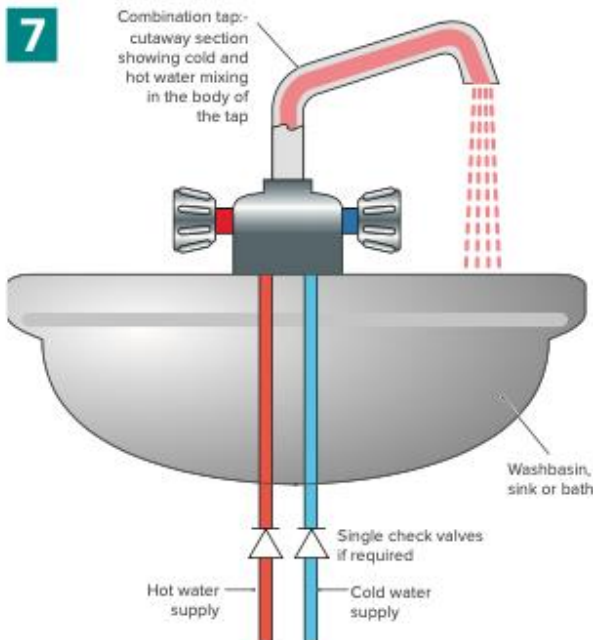
Domestic softening plant (common salt regeneration) is considered a fluid category 2 and should have a single check valve installed on the inlet to the unit. A drinking water tap should be connected to the supply pipe prior to any water softener. The installation must have provision for the pipework to allow easy bypass of the softener in the event of malfunction or maintenance.

## Mixer taps (single/bi-flow)

Combination taps with separate waterways do not require any additional backflow protection. However, combination (blending) taps that allow mixing of the water to occur within the body of the tap should have single check valves on the hot and cold inlets. See detail 7.

## WC cistern flush capacity

As from 1 January 2001, no flushing device installed for use with a WC pan shall give a single flush exceeding six litres and the lesser volume of water for a dual flush device shall not exceed two-thirds of the largest flush volume. A flushing cistern installed before 1 July 1999 may be replaced by one which delivers a similar volume, but a single flush cistern may not be replaced with a dual flush cistern.

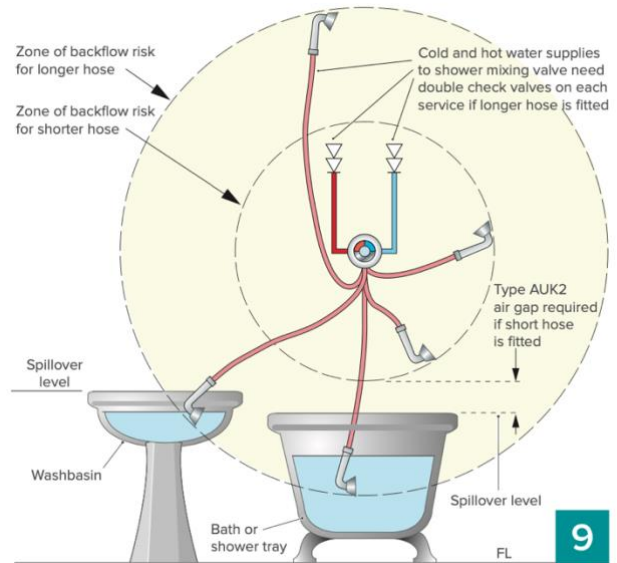
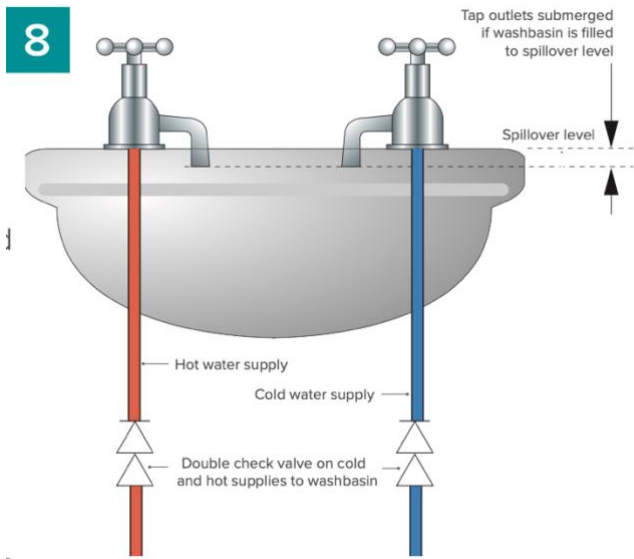


## WC warning pipes

Except for pressure flushing cisterns, all WC flushing cisterns should be provided with a connection for a warning pipe, the outlet of which is to discharge in a prominent position, or other equally effective device. The Water Supply Industry considers modern, tested, and approved ball valves are sufficiently reliable and that WCs that have an internal overflow discharging into the WC pan shall be deemed to meet the requirement of the Regulations. A warning pipe may also discharge into a flush pipe, without a tundish.

## Submerged inlets to baths and basins

Submerged inlets to baths or washbasins in any house or domestic situation are considered to be a fluid category 3 and should have double check valves installed on the hot and cold-water inlets. See detail 8.



## Shower hose

If a sink, WC or bidet is located within the zone of backflow risk of a flexible hose, the cold and hot water supplies to the hose must be protected against a fluid category 5 risk. Please contact Southern Water for further information.

Where a hose with a spray jet is served from a tap assembly or mixer fitting located over a wash basin, bath or shower tray, the zone of backflow risk should be ascertained. If the spray or jet on the end of the hose is capable of entering any wash basin, shower tray or bath, a fluid category 3 backflow protection device, such as a double check valve, should be provided on each inlet pipe. See detail 9.

## Bidet

Bidets are considered to be a high contamination risk. Please contact us at [water.regs@southernwater.co.uk](mailto:water.regs@southernwater.co.uk) for further information.

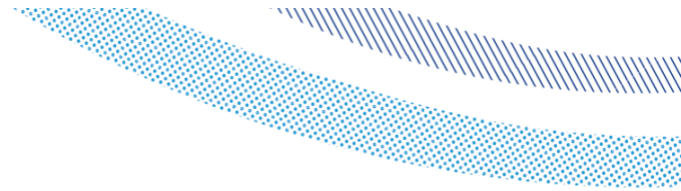
## Unvented hot water system

Every unvented water heater or storage vessel, and every secondary coil contained in a heater and not being an instantaneous water heater or a thermal storage unit of 15 litres or less capacity, should be fitted with:

- a. a temperature control device; and
- b. either a temperature relief valve or combined temperature and pressure relief valve; and
- c. an expansion valve; and
- d. unless the expanded water is returned to the supply pipe in accordance with Schedule 2: Paragraph 15(2)(a), either;
  - i. an expansion vessel; or
  - ii. contain an integral expansion system, such that the expansion water is contained within the secondary system to prevent waste of water.

A person who intends to install an unvented hot water system (of more than 15 litres) in existing premises or carry out building work including an unvented hot water system, must notify the Local Authority under the 1991 Building Regulations for England and Wales.

The unvented system must comply with the relevant requirements of the Regulations and the installer must be a competent person.



## Expansion/feed/vent pipe runs Separate overflow runs

### Hot water services

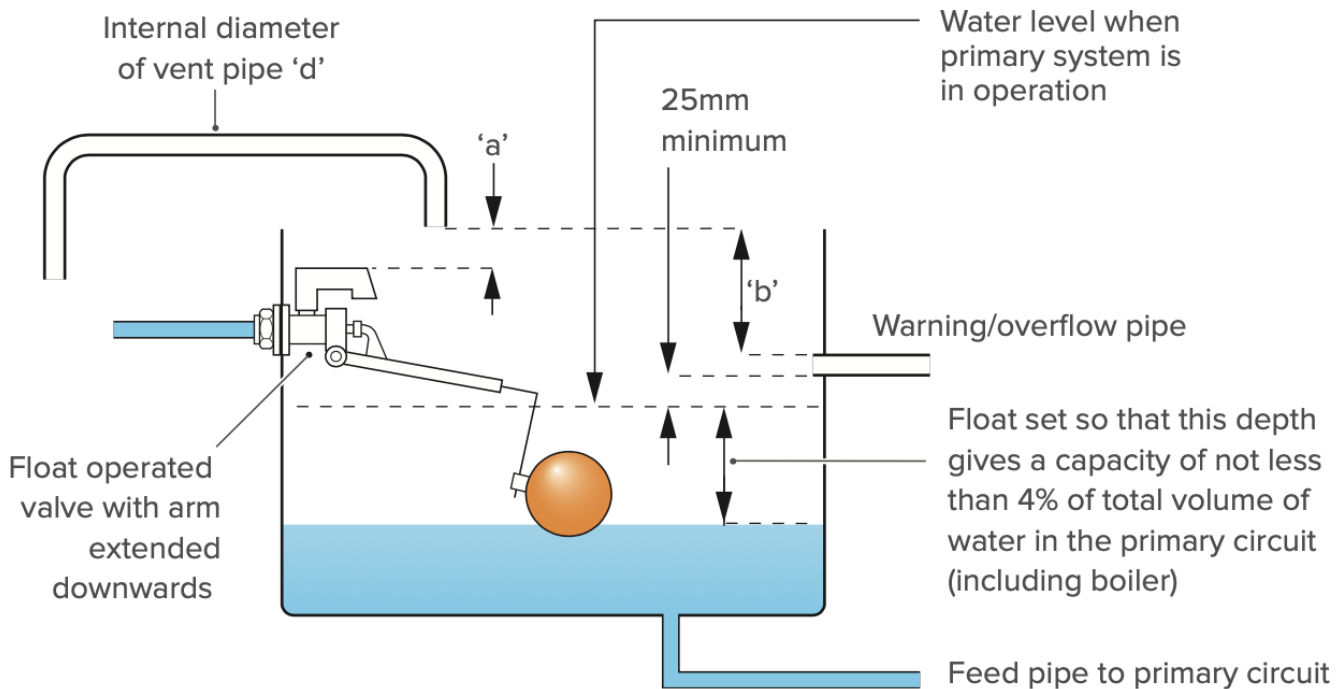
Irrespective of the type of fuel used for heating, the temperature of the water at any point within a hot water storage system should not exceed 100°C and appropriate vent pipes, temperature control devices and other safety devices should be provided to prevent this occurring.

### Feed and expansion cistern

Every expansion cistern, and every cold water combined feed and expansion cistern connected to a primary or heating circuit, should be capable of accommodating any expansion water from the circuit and installed so that the water level is not less than 25mm below the overflowing level of the warning pipe when the primary or heating circuit is in use. See detail 10.

Vent pipe shall terminate not less than twice the internal diameter of the vent pipe above the top of the float operated valve 'a' or top of the overflow pipe 'b' whichever is the higher.

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## Water Connections Guidance Notes

### Cold water storage cistern

Cisterns storing water for domestic purposes should be watertight and, where required, be lined or coated with a suitable impermeable material. They should have a rigid, close fitting and securely fixed cover which is not air tight, but which excludes light and insects.

The requirements of clause 16.1 can normally be satisfied in single houses by the use of single piece storage cisterns and covers conforming to BS7181. See details 11 & 12.

The cistern should be adequately supported to avoid distortion or damage and only installed in a place or position where the inside may be readily inspected and cleansed, and any float operated valve or other controls may be readily installed, repaired, renewed or adjusted. There should be a minimum 350mm unobstructed space above.

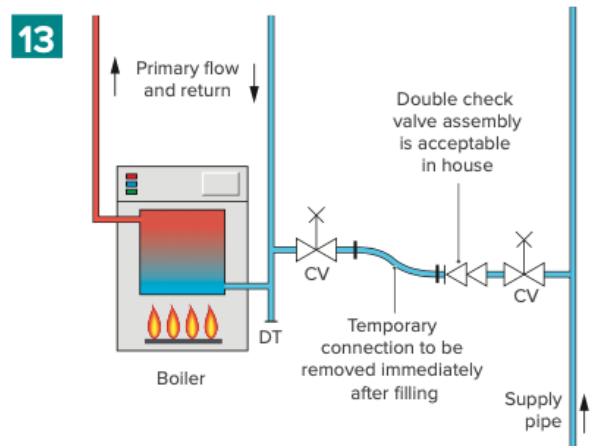
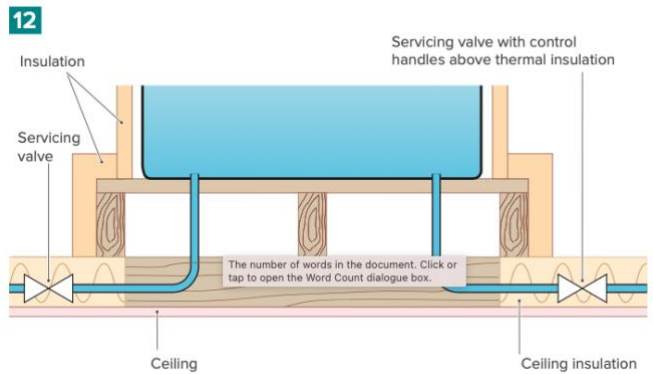
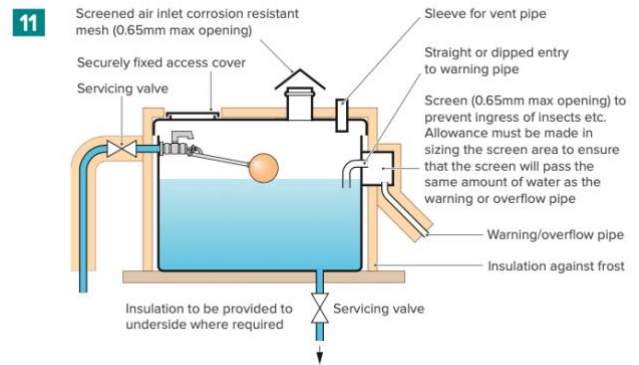
The inlet to the cistern should be fitted with a servicing valve as close as reasonably practical to the float operated valve. Where practical the outlet from the cistern should be taken from the bottom of the cistern to prevent the retention of sediment.

Every storage cisterns, except one supplying water to primary circuits of a heating system, shall be fitted with a servicing valve on the outlet pipe lose to the cistern as is reasonably practical.

An adequately sized single overflow/warning pipe should be sufficient for a cistern of 1,000 litres or less actual capacity. It should be screened to exclude insects.

### Closed circuits

Primary and other closed circuits have to be initially filled with water and require additional 'topping-up' at intervals during use. Primary circuits may contain additives and the water can be heavily contaminated, therefore they are not to be permanently connected to any supply pipe without an air break device. See detail 13.





## General requirements

### Pressure test

All water fittings should be capable of withstanding an internal water pressure of not less than 1.5 times the maximum operating pressure.

Both underground and above ground systems of pipework should be subjected to a final test after completion of the installation and after all builder's work has been carried out.

The final test is crucial, but it is advantageous if buried pipework, is tested on an interim basis before being backfilled. In all cases, defects revealed as the result of a test should be rectified and retesting carried out until the result is satisfactory.

### Disinfection

Pipework & fittings within a new private dwelling and occupied by a single family will not normally require disinfection unless it is suspected that contamination may have occurred.

It is normally sufficient for the system to be fully inspected and flushed out. Each cistern should be carefully inspected, and any deleterious matter removed.

### Flushing

Flushing of installations should be in accordance with Clause 6.2.2 BS EN 806-4:2010.

It is essential that each length of pipe within the system is flushed to remove any debris, including excess flux, that may have collected in the pipework.



## Fire supplies

Water supplies for firefighting are designed to provide an additional protection to life and property in residential properties. There are many configurations of the supply depending on the requirements of your site and we would advise consideration before designing a fire supply which relies on direct mains pressure, flow, or continuity for its operation. Some of these configurations are explored below, but do refer to the extended [background information notes on fire sprinkler systems](#).

As pressures and flows can vary due to demand, both throughout the day and in different seasons, alongside the need for planned and unplanned maintenance of our network, we instead recommend an indirect system with dedicated on-site storage tank and a pump.

We would permit a fire sprinkler connection to be installed without a water meter if:

- The connection is no larger than 32mm OD
- The design and installation of any system should be undertaken by a suitable qualified and experienced sprinkler contractor.
- The installation is designed in accordance with one of the guidance diagrams or a

## Water Connections Guidance Notes

variation agreed with us as part of the application process.

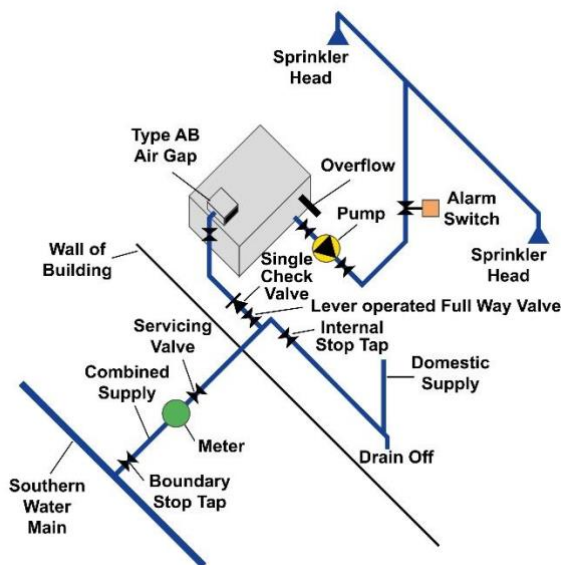
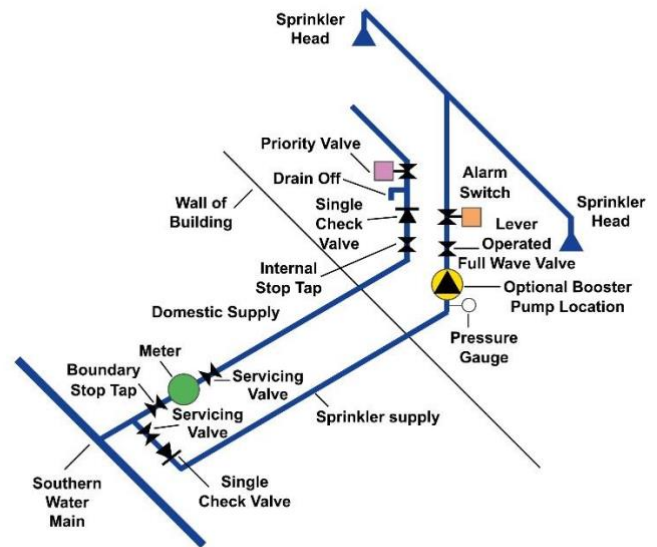
- In the case of a new property, the domestic supply must be independently metered via a boundary box or wall mounted meter box.

If it doesn't meet the above criteria, a water meter will be fitted for monitoring purposes. In all circumstances we will still require you to visit our website to submit a [water regulations questionnaire](#) so our team can carry out an inspection before the connection is made live.

A direct connection only applies if you are unable to install a storage cistern and booster system.

## Tank fed fire supply

New residential property with storage and boosted sprinkler supply



## Direct connection fire supply

New residential property with direct connection for fire supply

## Internal meters

### Internal meters installation in new flats

- All meter and private pipework installations must satisfy Water Regulation requirements
- The meters will only be installed on carriers that have WRAS approval. These meter carriers can either be supplied by Southern Water and recharged via the job quote or purchased direct from an independent supplier.
- The meter carrier will be of a gunmetal or similar approved material (not plastic) Complete with integral stop tap, both the inlet and outlet must have 3/4" BSP threaded ends. The meter carrier is also to have an in-built non-return valve (NRV) and the stop tap must be to BS1010. The Stop tap and NRV must also be Water Fittings Regulation 4 compliant.
- All meters once fitted must have a tag to identify each property flat number
- The meter carrier must be correctly secured.
- A drain cock and a stop tap are to be fitted immediately after (downstream of) the meter carrier.
- Each flat will have its own meter, there will be no shared supply
- The Builder/Developer must ensure that the owner of each flat is shown the location of their meter.

## Water Connections Guidance Notes

- Access for meter maintenance and meter reading will be required 24 hours a day / 365 days a year.
- Southern Water will not carry any special keys to open doors to gain entry to premises or meter cupboards. Any doors that need secure access must be fitted with coded pads and the codes provided to Southern Water. The meter cupboard(s) must not be lockable.
- All future maintenance and responsibility for pipework within the grounds of the property and internal pipework within the building(s), rests with the owner(s) of the property. This includes the meter carriers, but not the meters.
- The meters and meter carrier (if we were responsible for supplying) will remain the responsibility of Southern Water and must not be removed or tampered with by others.
- Water and electrical apparatus must not be installed in close proximity or within the same cupboard



## Frequently Asked Questions

### Still have questions?

We understand that all projects are different, and it might be hard to understand what the right and most cost-effective option is. Please refer our [Frequently Asked Questions page](#) for more guidance or simply ask our team member to [call you back](#) and help.

