



Improving the flood resistance of your home

Advice sheet 7: Flood-resilient services

This sheet provides guidance on reducing the flow of floodwater through gaps in walls around services such as pipes, cables and vents. It also provides advice on improving the flood resistance of your services. See also Advice sheet 8 for further guidance in sewers and rains.

Inspecting your services for gaps

Flooding can cause water to build up outside your house and flow through holes in the wall. You need to find all the locations of services into and out of the house and check if there are any visible gaps. Gaps can occur around:

- pipes for gas, water, sewage,
- cables for electricity, telephone, television, (check for traditional aerial, satellite and cable links, and redundant links)
- vents for central heating, washing machines, tumble dryers, extractor fans etc

The location of some service may be obvious (e.g. sink drainage, washing machine/tumble dryer vents); others will be less so. For electricity and gas, check the in-coming cable or pipe adjacent to the meter. If the sewage 'stack' is inside the house, it will usually be blocked in – you will need to remove the box close to ground level to check for gaps. If the 'stack' is external, you may need to check ground floor WC levels.

You may be able to see gaps around services where they enter the building. If gaps are not clearly visible you can either:

- In darkness, shine a torch into the joint and view from the opposite side. Any light visible in the joint may indicate it is not properly sealed.
- Check by passing a feather slowly along the entry points. Any movement can indicate movement of air through the joint, meaning water will also be able to pass through.

NOTE: You should not use methods involving flames or exposure to water for testing gaps around services.

What you can do to improve the flood resistance of services

Wide or deep gaps should first be filled or packed, for example with expanding foam or gun-applied sealant capable of filling the required cavity. The outer part of the gap should be sealed at the outside face (if accessible) and the inside face with a sealant suitable for the size of gap, type of surfaces and expected movement.

Safety note: if there is any risk of damaging wiring when applying sealant isolate the power first.

Use and types of sealant

Some sealants will bond directly to different types of substrate without the need for a primer. However, the gap should be free from dust and loose material and be prepared as described by the sealant manufacturer. The sealant should be applied so that it makes a substantial and continuous bridge from one side of the gap to the other. If this is not possible, the sealant should make continuous contact with surfaces either side of the gap.

There are many different varieties of sealant available from builder's merchants and DIY stores. You need to select a material that will fill the maximum and minimum size of gaps. Sealants can be gun applied and/or worked into narrow gaps using an appropriate tool, and can be used to fill gaps up to 50mm wide or less than 1mm wide. For narrow gaps of less than 2mm, it may be easier to use a liquid applied penetrating sealant or surface sealant to bridge the gap at the surface. Common types of sealant include:

- silicone – for accommodation of high movement, good for frames
- water based acrylic – for internal, low movement situations
- oil-based mastic – for perimeter seals to timber frames
- polysulphide – for heavy duty applications
- epoxy – for areas with low movement
- polyurethane – for general purpose sealing
- butyl – strips for compression seals

When selecting your sealant it is important to ensure that the filler will not react with insulation on electrical or telecommunications cables neither will it react with plastic pipes or taint any water supplied by plastic pipes.

Important note

Rooms with gas appliances often have vents through the external wall to prevent the build up of carbon monoxide. Any barriers to these vents must be removed before the gas appliances are switched back on. You should keep a list of all vents that have been blocked off and make sure they are opened again after the floodwater has gone.

Further protective measures for services

Safety note: all work in connection with gas or electricity supplies must be entrusted to qualified persons.

Electricity

If there is sufficient space, raising the meter and consumer unit (fuse box) to a higher level above the expected flood level could be considered subject to approval by the local electricity supply company which owns your meter. This company will need to move the meter – you cannot do this yourself.

Modern wiring is not usually affected by flooding, but long immersion may result in the need to replace wiring. Moving the ground floor ring main cables to first floor level could be considered with drop down cables to ground floor sockets. Sockets should also be raised to an appropriate height above flood levels.

A further consideration is to have the house wired so that the ground floor ring main can be switched off, leaving the supply to the upper floors still available.

Gas supply

As gas meters can be affected by floodwater it is worth considering raising meters above the expected flood levels during refurbishment works. Provision should be made for purging gas supply pipes through the installation of appropriate drain points.

Central heating systems

Gas and oil fired boilers and associated pumps and controls should preferably be installed above the maximum expected flood level.

Pipe insulation below the expected flood level should preferably be replaced with closed cell insulation. If new heating is being installed, pipework routes should be made easily accessible to allow pipes to be maintained and washed down following flooding.

Water supply

Water pipework insulation can be replaced with flood resistant closed cell material below the expected flooding level.

Telephone and cable services

Suppliers of the relevant services should be consulted on suitable installation methods in areas liable to flooding. Where possible, incoming telephone lines and internal control boxes should be raised above the expected flood levels.

Oil storage tanks

Oil tanks can be damaged during floods and can cause pollution. To avoid this you should ensure that the tank is anchored down so that it does not float away. In addition you should make sure that the oil feed from the tank incorporates a stop valve at the end nearest the tank so that the tank contents will not be lost if the tank moves and the pipe breaks.

Further advice on improving the flood resistance of services:

Further information on permanent measures to reduce the impact of flooding on services can be found in the ODPM's Preparing for floods (2002). This guide is available on line at <http://www.safety.odpm.gov.uk/bregs/floods/index.htm> or from the Environment Agency Floodline.

Any measures taken to reduce the impact of flooding on services should be done in consultation with the service provider. You can find your service provider's contact details on your service bill.