

Escape of Water – Installation and Maintenance

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Escape of water claims are Aviva's highest frequency incidents, accounting for around a third of all claims by value.

Plumbers and Heating Engineers should be aware of the risks arising from their work in third party premises and the damage that this can cause.



Introduction

The Association of British Insurers ([ABI](#)) estimates that in the UK their member companies pay out around £1.8m per day for claims relating to escape of water in domestic properties.

Understanding and assessing the exposure to water leaks and damage, as well as implementing measures to help reduce the risk, is essential in reducing the risk of damage to property (buildings, fixtures, fittings and furnishings, equipment, machinery, utilities, IT systems, etc.). Reducing the frequency and severity of escape of water claims can help avoid uninsured losses, improve your business reputation and manage insurance costs.



Factors that can Increase the Risk

In recent years, there has been an increase in the complexity and use of domestic appliances, especially in residential properties:

- Installation of additional bathrooms
- Extension of central heating systems
- Installation of dishwashers, washing machines, and American-style fridge/freezers with ice machines
- Underfloor heating systems

Managing the Risks of Escape of Water

Effectively managing the risks of escape of water requires:

- Recognising what the potential risk factors are
- Putting in place appropriate controls to mitigate the risks
- Making sure the controls are applied in full (including making sure you have evidence to be able to demonstrate that they have been applied)

What are the most Common Risk factors?

This is the first part of understanding the risk and should form part of an assessment for any work being undertaken:

Water-Carrying Pipes

- Failure of pipes due to corrosion or freezing, particularly if freezing is followed by rapid thaw
- Failure of connections to WCs, isolation valves, taps and showers – including waste systems
- Failure of central heating pipework or radiators due to poor maintenance, including failure to use corrosion inhibitors
- Physical damage, such as pipework hidden behind wall panels, under floorboards and within plaster being damaged by nails or screws
- Damage to underfloor heating systems or failure of pipework.
- Failure of pipework supports due to faulty installation or inadequate provision of supports, leading to collapse of pipework or pressure on joints, causing failure
- Leakage due to joint failure in copper pipework. These joints require skilled installation and are less susceptible to fluctuations in pressure
- Corrosion of copper pipework from exposure to alkaline concrete

- Leakage due to failure of joints in plastic pipework. These joints and fittings can be installed by non-skilled labour but are more prone to failure due to fluctuations in water pressure, impact or movement if not correctly fitted
- Failure due to the joining of incompatible materials, such as lead, copper or plastic, without the use of correct fittings

Other Sources

- Domestic appliances such as dishwashers, washing machines, ice and drinks machines
- Hot water heaters and hot water cylinders
- Poorly sealed baths and shower units. Leaks tend to occur gradually over a prolonged period
- Overflowing water storage or expansion tanks. These can result from sticking or frozen float valves, or failure of the tank
- Overflow pipes not installed or sited correctly – water is not able to move away and out of the building
- Blocked or overtaxed drains, e.g. as a result of heavy rain, can result in:
 - Back-flow into the building
 - Over-flow from internal drains, including foul water
- Blocked or overtaxed roof drains, e.g. from heavy rain, can result in:
 - Inflow into the building at flashing or eaves, etc.
 - Sustained damp or condensation problems
- Pressurised water sources in high-rise buildings: water systems in high-rise buildings often need to be pressurised to pump water to holding tanks at high level, and failure of pipework or fittings within the system can result in large scale discharge of water

Prevention and Control

There are various precautions that can be taken to reduce the risk of escape of water or fluid occurring, and to limit the extent of damage in the event of a leak:

Infrastructure Protection

- Before you start work, ensure the main incoming water mains stop valve, all internal stop cock/isolation valves and drain line valves are:
 - Readily accessible
 - Clearly labelled
 - Regularly exercised and maintained to ensure they operate correctly
- Ensure any copper pipes embedded in concrete are fitted with protective sleeves to prevent corrosion

Winter and Cold Weather Protection

- Ensure exposed pipework within unheated buildings and areas, loft areas and outside are adequately protected against cold temperatures

Operational Controls

- Ensure that no air conditioning condensate pipework is contained within high-risk areas, such as electrical risers or IT rooms
- Ensure, where possible, that all electrical and mechanical risers are kept segregated to prevent damage to electrical equipment occurring in the event of a leak
- Avoid siting pipework or storage tanks above high-risk equipment, such as IT and other electrical/electronic equipment

- Ensure you have suitable absorbent materials and/or a suitable wet vac available so that, if there is a leak, you have the necessary equipment to minimise the spread and clear away any spillage with the minimum of damage.
- Ensure that all systems are tested in accordance with the Water Supply (Water fittings) Regulations 1999 and that appropriate records are kept.
- Ensure that all employees are qualified to at least NVO2 and that they are not allowed to work unsupervised unless they have attained NVO3.

Specific Controls for the use of Push-Fit Plastic Systems

- Don't use on Chrome or Stainless Steel pipe.
- Don't put any adhesive tape on the pipes.
- Don't put cellulose paint or expanding foam on the pipe.
- Don't use anything on a fitting to lubricate the socket apart from WRAS approved silicone spray.
- Don't use on a gravity fed solid fuel boiler. (Temperature is uncontrolled)
- Don't use on a secondary circulation domestic hot water system.
- Don't mix and match systems from different manufactures, the wall thicknesses can differ and this may impact on the effectiveness of any seal. Where there is no alternative (for example repairs or extensions on a system where the original pipe/fittings are no longer available), make sure that the correct support sleeves are used.
- Do use the correct pipe cutters.
- Do use appropriate support sleeves on every joint (according to manufacturer's requirements).

Automatic Leak Detection Devices

- Although you will often be installing equipment according to a customer's specification, it is worthwhile discussing with them the use of automatic leak detection devices. They will protect you (the installer) during the works and will continue to protect the client during operational use.
- Water flow detection, leak detection, and associated isolation valves can be used to isolate the supply in the event of prolonged flow being detected, on activation of water leak detection tape or sensors, or whenever the building is left unoccupied
- Remote monitoring of the equipment can be provided and is strongly recommended

Management Controls

Suitable management controls will help to reduce the risk of escape of water occurring and limit the extent of any damage. These include:

- Awareness of all aspects of the system before commencing work and, where appropriate, relevant drawings of the system(s) being readily available and accessible, detailing the:
 - Water, fluid, waste pipework, networks, and layout of the building
 - Main incoming water mains stop valve and internal stop cock/isolation valves that supply water/fluid to various parts of the building
 - Drain lines and drain line isolation valves
- Ensuring you are aware of the details of the site Emergency Plan, water mains/pipework layout of the building, including locations of isolation valves and contact details for emergency staff/contractors who can respond to any incident.
- Even on smaller sites or in domestic properties, ensuring that you have a notional plan in mind, should anything go wrong, can minimise the extent of any subsequent damage.
- Ensuring you comply with BS EN 806 Pts. 1-5 'Specifications for installations inside buildings conveying water for human consumption' and BS 8558: 2015 'Guide to the design, installation, testing and maintenance of

services supplying water for domestic use within buildings and their curtilages: Complementary guidance to BS EN 806'

- When working on systems with soldered joints be aware that the use of heat should be covered by a hot work permit. Ensure that suitable firefighting equipment is available and that 'watch periods' are in place – refer to the Aviva Hot Work Operations Loss Prevention Standard for more details.

Emergency Response to Escape of Water

Where it's safe to do so, the following measures are recommended:

- Turn off the water supply to the building or part(s) of the building that are involved
- Isolate the electrical supply to the affected areas but do not touch any electrical equipment that has become wet
- Turn off heating and hot water systems
- Drain systems that hold water, including any storage tanks, to safe locations
- Make use of absorbent materials and/or suitable wet vac to minimise the extent of the leak and start to mop up any spillage to reduce further damage
- Alert occupants of neighbouring areas/properties if they may be affected, especially those on floors below
- If water starts to seep through ceilings, place a bucket below the leak, and if necessary and only if safe to do so, pierce any areas holding water with a broom handle or similar to release the water to prevent ceiling collapse
- If pipes have frozen, defrost them slowly with hot water bottles or warm air blowers. Do not use naked flames, such as blow torches. Doors and loft hatches should be left open to allow warm air to circulate to upper floors and within loft areas
- If necessary, move any high-risk items that could be impacted to a safe and secure area
- Notify the landlord, managing agent or anyone else who is responsible for the building
- Notify Aviva or your insurance intermediary as soon as possible

Checklist

A generic Escape of Water Checklist is presented in Appendix 1 which can be tailored to your own organisation.

Specialist Partner Solutions

Aviva Risk Management Solutions can offer access to a wide range of risk management products and services at preferential rates via our network of Specialist Partners.

For more information please visit:

[Aviva Risk Management Solutions – Specialist Partners](#)

Sources and Useful Links

- [Water Damage – An Aviva Risk Management Solutions guide for commercial customers](#)

Additional Information

Relevant Loss Prevention Standards include:

- Escape of Water and Fluid Leakage – Property Protection
- Escape of Water on Construction Sites
- Hot Work Operations

To find out more, please visit [Aviva Risk Management Solutions](#) or speak to one of our advisors.

Email us at riskadvice@aviva.com or call 0345 366 6666.*

*The cost of calls to 03 prefixed numbers are charged at national call rates (charges may vary dependent on your network provider) and are usually included in inclusive minute plans from landlines and mobiles. For our joint protection telephone calls may be recorded and/or monitored.

Appendix 1: Escape of Water Checklist



| | |
|-----------------------------------|--|
| Location | |
| Date | |
| Completed by (name and signature) | |

| | Escape of Water and Fluid Leakage | Y/N | Comments |
|----|---|-----|----------|
| 1. | Do you ensure that you are familiar with the location of the main stop valve? | | |
| 2. | Do you also ensure that all internal stop cock/isolation valves and drain line valves are readily accessible, clearly labelled and regularly exercised and maintained to ensure they operate correctly? | | |
| 3. | Are any copper pipes embedded in concrete fitted with protective sleeves to prevent corrosion? | | |
| 4. | If you are working in exposed or cold areas do you ensure that pipework is adequately protected against freezing? | | |
| 5. | When planning a system, do you ensure that no air conditioning condensate pipework is contained within high-risk areas, such as electrical risers or IT rooms? | | |
| 6. | Do you maintain separation in electrical and mechanical risers to prevent damage to electrical equipment occurring in the event of a leak? | | |
| 7. | Where possible, do you avoid siting pipework or storage tanks above high-risk equipment, such as IT and other electrical/electronic equipment? | | |
| 8. | Do you have suitable absorbent materials and/or a suitable wet vac available so that, if there is a leak, you have the necessary equipment to minimise the spread and clear away any spillage with the minimum of damage? | | |
| 9. | Are all systems are tested in accordance with the Water Supply (Water fittings) Regulations 1999 (or subsequent replacement/amending Regulations); with appropriate records being kept? | | |

| | | | |
|-----|--|--|--|
| 10. | Are you aware of the specific controls highlighted in this document as being required when using plastic push-fit systems and do you abide by them? | | |
| 11. | Do you routinely consider/discuss with the clients the benefits of using leak detection for both your and their protection? | | |
| 12. | Before commencement, do you ensure you are aware of the details of the site Emergency Plan, water mains/pipework layout of the building, including locations of isolation valves and contact details for emergency staff/contractors who can respond to any incident. | | |
| 13. | Even on smaller sites or in domestic properties, do you have a notional plan in mind, to minimise the extent of any subsequent damage should anything go wrong? | | |
| 14. | Do you comply with BS EN 806 Pts. 1-5 'Specifications for installations inside buildings conveying water for human consumption' and BS 8558: 2015 'Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages'? | | |
| 15. | When working on systems with soldered joints do you ensure that the use of heat is covered by a hot work permit and that suitable extinguishers are to hand and that a watch period is in place? | | |
| 16. | Additional comments: | | |

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