

Loss Prevention Standards

Escape of Water and Fluid Leakage – Property Protection

Introduction

The Association of British Insurers (ABI) estimate that in the UK, their member companies pay out around £2.5m per day in claims relating to escape of water, representing around 20% of all commercial and domestic claims. At Aviva escape of water/fluid claims are our highest frequency of incident and account for approximately a third of all claims by value.

Understanding and assessing your exposure to water/fluid leak and damage, and implementing an effective risk management approach to help reduce this risk is just as important as a fire risk assessment in terms of an organisation's capacity to operate successfully and profitably. Reducing the risk of damage to your property (i.e. buildings; fixtures, fittings and furnishings; equipment/machinery; utilities; IT systems; etc.), will avoid uninsured costs; interruption to your business, supply chain and profitability; increased insurance costs; etc.



Residential property owners should also be aware of the risks arising from the escape of water within their premises and the damage which can be caused.

Susceptible Properties

Any building that contains plumbing, waste systems, heating and cooling systems, fixed water installations etc. can suffer damage from escape of water. The following types of properties are considered particularly susceptible:

- Commercial properties which have sensitive areas such as IT suites, control rooms, utility rooms, electrical risers, etc.
- Hotels or similar
- Residential flats
- Student accommodation and Houses in Multiple Occupation (HMOs)
- Unoccupied properties
- Private houses and second homes, including holiday lettings
- Older properties or older installations, i.e. those over 20 years old

In recent years there has been an increase in the complexity and use of domestic appliances, especially in residential properties. These include the installation of additional bathrooms; extension of central heating systems; installation of dishwashers; washing machines; American style fridge/freezers with ice machines; underfloor heating systems; heating and cooling systems etc.

Changes to building practices and environmental factors have also lead to the phasing out of copper pipework in favour of plastic pipework, which features compression and push-fit joints and fittings rather than soldered joints. These types of joints and fittings are particularly prone to failure if they have not been installed correctly, or can move, or are impacted etc.

Identifying Potential Leak/Fluid Sources

Identifying potential leaks or fluid sources is the first part of understanding your risk and should form part of the formal risk assessment. Leaks and damage arising from escape of water/fluid can occur from a number of sources, such as:

- Domestic appliances such as dishwashers, washing machines, ice and beverage machines etc.
- Water carrying pipes, caused by a number of factors, including:
 - 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, etc.
 - Including waste systems.
 - Failure of central heating pipework or radiators due to poor maintenance, including failure to install corrosion inhibitors.
 - Physical damage leading to failure of pipework systems.
 - Exposed pipework damaged by impact of vehicles, such as fork lift trucks.
 - Pipework hidden behind wall panels and within plaster or in concrete floors can be damaged by nails or screws.
 - Damage to underfloor heating pipework or failure of pipework. Such leaks can be difficult to trace and repair.
 - Failure of pipework supports due to faulty installation or inadequate provision of supports, leading to collapse of pipework or pressure on joints causing failure.
 - Pipework can be used for purposes for which it was not designed, such as hanging garments, which can lead to collapse.
 - 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.
- Hot water heaters and hot water cylinders.
- Poorly sealed baths and shower units.
 - Leaks tend to occur over a prolonged period.
- Overflowing of sinks and baths whilst left unattended.
- 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 - any water discharged is not being moved away and out of the building.
- Blocked or overtaxed, e.g. heavy rain, underground drains - can result in:
 - Back-flow into the building.
 - Over-flow from internal drains, including foul water.

- Blocked or overtaxed, e.g. heavy rain, roof drains - 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.
- Air conditioning unit's condensate drainage system.
 - Air conditioning plant can be sited within the high stories in a building, with sealants installed to floors below. This can fail and so should be inspected and regularly maintained.
 - Air conditioning units should also be regularly maintained and should be drained down when no longer in use.
 - Air conditioning units fitted within high risk areas, such as IT, control rooms, etc. should be installed to ensure that any condensate water is not located over any equipment and is directed away from critical areas.
- Leakage from sprinkler systems is relatively rare when systems are designed, installed and maintained correctly. As with all water-filled pipework systems, care must be taken to ensure that heating and other measures such as trace heating and lagging are all in good order and working as designed.

Note: Condensation or damp can cause as many problems as a leaking pipe or a failed fitting. As part of the risk assessment process attention should be paid to this exposure. Air movement, cold surfaces (e.g. walls, windows, etc.) and humidity within buildings should be carefully considered.

Prevention and Control

Various precautions can be taken which will reduce the risk of escape of water/fluid occurring and limit the extent of damage which may occur in the event of a leak, including:

Infrastructure Protection

- Adequate regimes should be in place to ensure all water/fluid services are inspected and maintained. All identified defects should be assessed and rectified as soon as possible.
- 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.
 - All occupiers of a building, and maintenance contractors should be made aware of their location, including any isolation valves to upper floors or within tenanted areas.
- Ensure any copper pipes embedded in concrete are fitted with protected sleeves to prevent corrosion.

Winter/Cold Weather Protection

- Pre-winter checks should be undertaken in time to enable any necessary work to be carried out prior to the onset of cold weather/winter. This should specifically include times such as Christmas/New Year when public holidays occur during traditionally cold weather.
- Ensure exposed pipework within unheated buildings/areas, loft areas and outside are adequately protected against cold temperatures – attention should be given to the potential for 'wind chill'. Electrical trace heating and/or lagging should be installed for exposed pipework.
- Adequate heat (minimum temperature of 5°C) should be maintained during cold weather. Consider leaving loft hatches open to provide adequate ventilation.
- Beware of the risk of ice forming on guttering which may prevent escape of water and lead to water ingress into loft areas, buildings at the eaves.
- Ensure sprinkler pipes, valves and water storage tanks etc. are adequately protected against freezing. Sprinkler contractors should be requested to inspect insulation and trace heating prior to the onset of winter and appropriate precautions undertaken – see [Sprinkler Systems - Winter Precautions Loss Prevention Standard](#)

Operational Controls

- Avoid the practice of disposal of oil and fats into drains which can lead to blockage. Clean grease traps regularly.
- 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 high risk equipment, such as IT rooms, electrical rooms etc. in basements or low lying areas wherever possible.
- Avoid siting high risk equipment below fluid carrying networks or storage tanks.
- Ensure all electrical equipment, and any stored goods which are susceptible to water ingress, are raised at least 100mm from the floor.

Periods of Unoccupancy

- Install water flow detection.
- Isolate equipment.
- Drain down systems.
- Document site inspections.

Note. If a prolonged period of unoccupancy is planned, notify Aviva or your insurance intermediary to obtain advice specific to this exposure.

Automatic Leak Detection Devices

- Installation of water flow detection, leak detection, and associated isolation valves should be considered. These 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.
- Leak detection should also be considered in or in close proximity to high risk areas, such as electrical riser cupboards, IT rooms, areas with sensitive equipment and other business critical locations.

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:
Drawings of the system(s) should be readily available and accessible, detailing the:
 - Water, fluid, waste - pipework, networks, 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.
- Providing tenants, managing agents, maintenance contractors and any contractors working on site with 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.
- Providing tenants, managing agents and staff with a list of suitable reputable plumbers, heating engineers and electricians who can be called upon to carry out work as necessary.
- Overseeing and approval of any works carried out by contractors within tenanted areas to ensure these meet the required standard of workmanship and comply with all necessary regulations, such as the Water Supply (Water Fittings) Regulations 1999 - further advice in this regard can be obtained from the [Water Regulations Advisory Scheme \(WRAS\)](#). Ensure that all contractors are members of a recognised professional body such as the [Chartered Institute of Plumbing and Heating Engineering \(CIPHE\)](#) or the [Chartered Institution of Building Services Engineers \(CIBSE\)](#).
- Compliance 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*'.

Immediate Post Escape of Water Actions – Emergency Response

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

- ✓ Turn off the water supply to the building or part(s) of the building that is involved.
- ✓ Contact emergency contractors who can respond to the incident.
- ✓ Isolate the electrical supply to the affected areas but do not touch any electrical equipment which has become wet.
- ✓ Turn off heating and hot water systems.
- ✓ Drain systems that hold water, including any storage tanks to safe locations.
- ✓ 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 your landlord, managing agent or anyone else who is responsible for the building.
- ✓ Notify Aviva or your insurance intermediary as soon as possible.

Specialist Partners

The Aviva Specialist Partners listed below are well established and proven companies, who Aviva believe will give you great quality and value:

LeakSafe

LeakSafe is a UK based company specialising in the supply of tailored leak detection and prevention systems. They manufacture their products in the UK and key elements of its range have been tested by BRE (Building Research Establishment) for performance and durability to ensure that they can be introduced to clients without reputational risk. LeakSafe valves are WRAS approved for use in the UK. LeakSafe are able to offer tailored products and advice based on the customers property and provide a solution which will identify leaks in all major risk areas. The LeakSafe solution is suitable for all commercial and residential properties looking for a bespoke solution to meet their needs.



[LeakSafe](#)



0344 848 0487

Waterguard

Waterguard Services Limited is a privately owned company based in South Yorkshire, UK. They use flow meter technology to identify leaks, monitoring the way water flows around a building. Specified by leading Building Service Engineers, they are proud of the quality of their products and service. With over 16 years experience they know what matters to customers. Waterguard products can be quickly implemented into the majority of residential or commercial properties, offering quick identification of leaks which automatically shuts off the water supply, thereby preventing damage. The Waterguard solution is ideal for multi occupancy properties where escape of water occurs frequently.



[Waterguard](#)



01226 244200

For more information on any of the above solutions or to contact our Specialist Partners, please call the Aviva Risk Helpline on 0345 366 6666 - available 9am-5pm Monday - Friday.

Summary

Escape of water can cause extensive damage to property and could lead to extended interruption of your business. However, identifying the potential damage and implementing effective mitigation measures will reduce the likelihood of such an incident occurring, helping to protect your property and business.

Checklist

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

Further risk management information can be obtained from [Aviva Risk Management Solutions](#)

Please Note

This document contains general information and guidance and is not and should not be relied on as specific advice. The document may not cover every risk, exposure or hazard that may arise and Aviva recommend that you obtain specific advice relevant to the circumstances. AVIVA accepts no responsibility or liability towards any person who may rely upon this document.

Appendix 1 – Escape of Water and Fluid Leakage – Property Protection Checklist

Location	
Date	
Completed by (name and signature)	

	Escape of Water and Fluid Leakage – Property Protection	Y/N	Comments
1.	<p>Are your premises considered to be particularly susceptible to escape of water? Examples of such exposure include:</p> <ul style="list-style-type: none"> • Commercial properties which have sensitive areas such as IT suites, control rooms, utility rooms and electrical riser areas, etc. • Hotels or similar • Residential flats • Student accommodation and Houses in Multiple Occupation (HMOs) • Unoccupied properties • Private house and second homes, including holiday lettings 		
2.	Are your premises/installation over 20 years old?		
3.	Do your premises form a high-rise development, i.e. over 10 storeys in height above ground level, with boosted water supplies?		
4.	Where appropriate, is all work carried out in accordance with the requirements of the Water Supply (Water Fittings) Regulations 1999, and is all work carried out by persons who are members of a recognised professional body, such as the Chartered Institute of Plumbing and Heating Engineering (CIPHE) or the Chartered Institution of Building Services Engineers (CIBSE)?		

	Escape of Water and Fluid Leakage – Property Protection Contd.	Y/N	Comments
5.	<p>Has a formal fluid/water based risk assessment been completed for the building/project?</p> <p>Are there plans in place to formally review this as the building/project changes?</p> <p>Does this assessment:</p> <ul style="list-style-type: none"> • Include physically reviewing the construction? • Consider what would happen if a leak/release occurred? • Consider supply and waste? • Consider weather related conditions such as: <ul style="list-style-type: none"> ○ Heavy rain? ○ Flooding? ○ Ground water accumulation? ○ High or cold winds? ○ Sub zero temperatures? ○ Snow and ice accumulations? 		
6.	<p>Have all high risk or business critical areas been identified to ensure that adequate measures are in place to reduce the risk of a serious incident, e.g. riser cupboards, IT rooms, areas with sensitive equipment and other business critical locations?</p>		
7.	<p>Are there any water services within or above rooms housing high value or critical equipment such as computer rooms?</p>		
8.	<p>Are drawings of the system detailing the water mains/pipework layout of the building, main incoming water mains stop valve and internal stop cock valves available to the building management team/occupiers (where applicable)?</p>		
9.	<p>Are the main incoming water mains stop valve and internal stop cock/isolation valves:</p> <ul style="list-style-type: none"> • Readily accessible? • Clearly labelled? • Regularly exercised and maintained to ensure they operate correctly? 		
10.	<p>Is there an Emergency Plan in place which provides details of all emergency contact numbers in the event of an escape of water, including contact numbers for residents and managing agents/contractors providing 24 hour callout?</p>		

	Escape of Water and Fluid Leakage – Property Protection Contd.	Y/N	Comments
11.	Are there any areas within your premises which are either unoccupied or not visited on a regular basis, i.e. daily?		
12.	Are there any planned changes to the layout of the water filled pipework system?		
13.	Is a leak detection system installed? If 'yes': <ul style="list-style-type: none"> • Where? • Is this risk based? • In critical or sensitive areas? 		
14.	Does your water filled pipework system comprise fittings of copper, plastic or lead? If so, what measures have been taken to ensure compatibility between dissimilar materials?		
15.	Are there restrictions on the use of push-fit connectors? If not are: <ul style="list-style-type: none"> • Their locations known? • They correctly fitted? • They independently inspected? 		
16.	Is there a regular and planned programme of inspection and maintenance of water services?		
17.	Does the property have air conditioning equipment installed which contains liquid? If so, are adequate measures in place to prevent escape of refrigerant or condensate?		
18.	Is there a boosted/pressurised water system in the building that would continue to pump water if a leak occurred downstream of the booster pump?		
19.	Are there currently any signs of escape of water, including areas beneath baths, washing machines and domestic appliances where accessible, e.g. discolouration; rust marks; mould growth; damp; condensation; etc. If 'yes', could this have an impact on the building or contents?		

	Escape of Water and Fluid Leakage – Property Protection Contd.	Y/N	Comments
20.	Are service risers for electricity and water segregated?		
21.	Is there any management system in place to prevent escape of water incidents occurring whilst contractors are on site?		
22.	Are all necessary precautions taken whilst properties are unoccupied, such as isolation and/or draining of water supplies, fluid filled systems, etc.?		
23.	Are all necessary precautions taken whilst any properties are unoccupied, such as isolation and/or draining of water supplies, fluid filled systems etc.?		
24.	Do you have underfloor heating and, if so, are necessary measures in place to prevent leakage, such as provision of site plans showing location of pipework and provision of isolation valves?		
25.	Are there any additional systems on site which may contain liquids, such as fire suppression systems or renewable energy sources, and are risks of escape of water associated with this equipment controlled?		
26.	Within commercial premises, are there any areas of the building which are not accessible or vacant for long periods of time, e.g. vacant residential apartments or retail areas?		
27.	Is there provision of adequate heating within your premises to maintain the temperature above 5°C at all times, or are all water services within areas which may be susceptible to freezing lagged or trace heated?		
28.	Is any water filled pipework installed externally? If so, is it appropriately trace heated or lagged and suitably guarded against impact damage?		
29.	Additional comments:		

