

Escape of Water and Other Fluids

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Escape of water and fluid leakage claims are **Aviva's highest frequency of incident**, accounting for around a third of all claims by value.

Property owners should be aware of the risks arising from the escape of water in their 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 and fluid leaks and damage, and implementing measures to help reduce the risk, is just as important as a fire risk assessment. Reducing the risk of damage to property (buildings, fixtures, fittings and furnishings, equipment, machinery, utilities, IT systems, etc.) can help avoid uninsured costs, interruption to a business, and increased insurance costs.



Which Properties are Most Susceptible?

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

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

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
- Heating and cooling systems

Changes to building practices and environmental factors have also led to the use 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.

Identifying Potential Leaks or Fluid Sources

This is the first part of understanding the risk and should form part of a formal risk assessment. Leaks and damage arising from escape of water or fluid can occur from several sources:

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 install corrosion inhibitors
- Physical damage leading to failure of pipework systems
- Exposed pipework damaged by impact of vehicles, such as forklift 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

Other Domestic 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 over a prolonged period
- Overflowing of sinks and baths while 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 underground drains, e.g. from 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

Air Conditioning Unit's Condensate Drainage Systems

- Air conditioning plant can be sited within the high storeys 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

This 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.

Condensation or Damp

This can cause as many problems as a leaking pipe or a failed fitting. As part of the risk assessment, 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

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

- Put adequate regimes 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 and 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 or winter. This should factor in times of the year that traditionally have cold weather
- Ensure exposed pipework within unheated buildings and 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 that may prevent escape of water and lead to water ingress into loft areas or 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 – refer to the Aviva Loss Prevention Standard entitled *Sprinkler Systems – Winter Precautions*

Operational Controls

- Avoid disposing of oil and fats into drains, which can lead to blockage and 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 that are susceptible to water ingress, are raised at least 100mm from the floor

Unoccupied Periods

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

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

Automatic Leak Detection Devices

- Consider installing water flow detection, leak detection, and associated isolation valves. 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) 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
- 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 approving 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 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’

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
- Contact emergency contractors who can respond to the incident
- 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
- 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

Checklist

A generic Escape of Water and Fluid Leakage 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 Clients](#)

Additional Information

Relevant Loss Prevention Standards include:

- [Escape of Water on Construction Sites](#)

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.*

*Calls may be recorded and/or monitored for our joint protection.

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



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

| | Escape of Water and Fluid Leakage | 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 that have sensitive areas such as IT suites, control rooms, utility rooms and electrical riser areas, etc. • Hotels • 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 people 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 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 that 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 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. | <p>Is a leak detection system installed? If 'yes':</p> <ul style="list-style-type: none"> • Where? • Is this risk-based? • In critical or sensitive areas? | | |
| 14. | <p>Does your water-filled pipework system comprise fittings of copper, plastic or lead?</p> <p>If so, what measures have been taken to ensure compatibility between dissimilar materials?</p> | | |
| 15. | <p>Are there restrictions on the use of push-fit connectors? If not, are:</p> <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. | <p>Does the property have air conditioning equipment installed that contains liquid?</p> <p>If so, are adequate measures in place to prevent escape of refrigerant or condensate?</p> | | |
| 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. | <p>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.</p> <p>If 'yes', could this have an impact on the building or contents?</p> | | |

| | Escape of Water and Fluid Leakage 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 while contractors are on site? | | |
| 22. | Are all necessary precautions taken while properties are unoccupied, such as isolation and/or draining of water supplies, fluid filled systems, etc. | | |
| 23. | 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? | | |
| 24. | Are there any additional systems on site that may contain liquids, such as fire suppression systems or renewable energy sources, and are risks of escape of water associated with this equipment controlled? | | |
| 25. | Within commercial premises, are there any areas of the building that are not accessible or vacant for long periods of time, e.g. vacant residential apartments or retail areas? | | |
| 26. | 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 that may be susceptible to freezing lagged or trace heated? | | |
| 27. | Is any water-filled pipework installed externally? If so, is it appropriately trace heated or lagged and suitably guarded against impact damage? | | |
| 28. | Additional comments: | | |

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