ZURICH Municipal

Managing Escape of Water Risk in Residential Premises

Zurich Risk Engineering

A guide for residential property owners and managers

Welcome to the Escape of Water Property Guide

Welcome to our newly developed guidance document designed to assist in the management of water damage related risks within residential premises.

Zurich has been working with residential property owners and managers for many years. We are acutely aware that the frequency, number and scale of escape of water losses across the residential sector are persistent and continue to present significant challenges, so we always welcome the opportunity to work with our customers in identifying the underlying causes that lead to these losses.

The extensive knowledge and experience of escape of water risk that Zurich has gained over time has been brought together in this customer focused guide with the aim of raising the awareness and understanding to our customers in the broad scope of escape of water risk that occurs within the buildings they own or manage.

This guide asks readers to consider:

- **The scale of the issue.**
- **The various ways in which escape of water incidents may occur in residential buildings.**
- **The ways in which the risk and magnitude of an incident may be assessed, reduced or prevented through implementation of management regimes, policies and practices.**
- **How leak detection and suppression technology can be effective in reducing the scale of losses.**
- **How to effectively handle a claim and spot signs of fraud.**
- **How to get further advice and support from Zurich Risk Engineering.**

Once considered, we hope the guide will provide an initial reference point that existing practices can be assessed against, assist in identifying potential improvements to current arrangements, and highlight any need for change in approach and behaviours.

Clearly the impact of escape of water losses is often greatest for the resident, though this is not always the case. Raising resident awareness is also a key area of focus and guidance is provided to support you in changing resident behaviours and practices.

Finally, with extensive knowledge and experience in this area, Zurich are able to provide further bespoke support to assist your organisation in managing escape of water risk. We look forward to working with you to help manage exposures, and ultimately reduce the extent of losses in this area.

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Why manage escape of water risk in residential premises?

According to research by the Association of British Insurers (ABI), nearly one in five claims made on buildings and contents insurance is for damage caused by Escape of Water (EoW), costing £2.1m every day. In 2020, there were approximately 238,000 EoW claims at an average cost of £3,170 per claim – a 50% increase in cost from 2014.

Zurich's own experience over more recent years suggests that whilst the number of water damage claims received from our customers has remained relatively constant, the severity and cost of such claims has increased sharply and continues to rise.

However, the impact of an EoW event should not merely be measured by the direct cost of a claim. Consideration should also be given to the significant impact on the property owner, manager and resident of the affected premises.

The property owner and or manager will bear the administrative burden of dealing with an event and are likely to suffer decreased customer satisfaction and reputational damage. They may also face the prospect of rising loss of rent costs at the same time as increased insurance excess or premiums for properties suffering from persistent claims. In addition, the market value of a property can be negatively impacted by an adverse claims history.

For the resident, EoW events can be incredibly distressing due to the shock of the incident, loss of treasured possessions and even, at times, having to move out into temporary accommodation for the duration of the repair, which can take months.

With the overall severity of incidents on the rise, we urge all property owners and managers to consider the contents of this guide carefully, as in Zurich's experience, some relatively easy and inexpensive steps can be taken to help get water damage risks under control. By managing water damage risks more effectively, the risk, cost and disruption associated with an EoW can be significantly reduced.

Insurance industry experience suggests that if a premises suffers one EoW incident, there's a significantly high chance it will suffer a second incident, and if it suffers a second incident, it will almost certainly suffer a third incident.

Management challenges

Common sources of escape of water loss

Leaks can vary from major bursts, which can result in flows of up to 60 litres of water per minute, to minor leaks, which may remain undiscovered for several months if the leak is in a concealed area not visible to the building resident, or where the building is unoccupied for long periods.

The principal sources of EoW loss include:

- Mains water supply pipe and joints
- Water tanks and toilet cisterns
- Washing machines & dishwashers
- Soil stacks and drainage pipes
- Bathroom & kitchen waste pipe joints
- Overflowing baths and showers
- Poorly sealed sanitaryware
- Central heating systems
- Pressure vessels
- Water pumps and pressure relief valves

A study conducted by forensic investigators of 1200 EoW claims over a 2-year period found that 67% of all incidents emanated from faulty pipe joints, all resulting from poor quality installation standards.

Common causes of escape of water loss

Research has shown there are many causes of escape of water loss including cold weather, height of building, poor workmanship, faulty pipework and joints, modern lifestyles, lack of maintenance and even fraud.

1. Cold Weather

Cold temperatures target pipework that is exposed to the elements and not protected by effective insulation, trace heating or the building's own heating system. When water freezes, it expands and causes failure of the pipe system.

2. Height of Building

As the height of a building increases, so does the complexity and quantity of its plumbing. Buildings over 3 stories are likely to need pressure boosted systems (pumps) to lift the water to upper floors. Pumped plumbing systems under constant pressure can be overly stressed, leading to higher rates of wear, tear, and failure.

3. Poor Workmanship

Poor quality workmanship leads to an escalation in water damage claims during and after construction, refurbishment and repair works. Substandard workmanship is the result of several factors including a plumbing skills shortage, lack of experience, corner cutting due to the pressure of having to save time and cost, a lack of control and oversight during installation, and inadequate testing and commissioning regimes.

4. Pipework Materials

Plastic pipes and push-fit components are often favoured over traditional copper due to lower cost and ease and speed of installation. However, despite the cost benefit, plastic push-fit pipework often suffers from a poor standard of installation as installation is not given the due care and attention it requires. This can include excessive exposure to sunlight or cold temperatures during storage prior to installation, which can make it brittle. Also, plastic pipe can easily become contaminated with incompatible materials such as paints, fire stopping, excessive solvent cement, pesticides and even pipe threading oils when connected to steel systems. To compound these problems, plastic push-fit joints are less resilient to water pressure and more prone to catastrophic failure.

Conversely, copper pipes fail where compression or crimped joints are tightened inadequately during installation; also, from corrosion caused by water that is too alkaline or too acidic; corrosion from adjacent materials such as concrete; bacteria and sediment in the pipe; excessive amounts of residual flux inside the pipe from soldering; or where water velocity is too high.

Good design, installation and maintenance standards are vital in reducing the risk of these types of pipe and joint failure.

5. Modern Lifestyles

Changes in the way people occupy buildings has inadvertently increased the inherent risk of water damage including:

- A surge in short term renting and sub-letting of leasehold properties means occupants have little residual interest in the property and its maintenance.
- Increase in number of kitchen appliances, utility rooms, bathrooms and underfloor heating etc.
- Higher insulation levels, creating colder roof spaces affecting exposed pipes and tanks.
- Increase in low quality DIY ‘improvements’ and repairs.
- A higher propensity to claim compared to the past, including fraudulently.
- Discarding of nappies, wet wipes, cotton buds and fats etc. down waste pipes.
- Lack of access to sealed in pipework preventing adequate maintenance.
- Commercial redevelopments into housing can result in the use of existing plumbing infrastructure that’s unsuitable for domestic loads.

6. Lack of Maintenance

Inadequate maintenance ultimately leads to an increase in the frequency and severity of loss events, particularly in bathroom and kitchen areas, as residents fail to check and repair plumbing components on a regular basis.

It’s very important to recognise that a big reason for inadequate maintenance in residential premises is the lack of access available to concealed plumbing infrastructures, often hidden behind bathroom and kitchen fixtures, fittings and panels. Elsewhere, other infrastructure such as water tanks, soils stacks and expansion vessels can also be in hard to reach areas.

The end result of restricted access and inadequate maintenance is often slow leaks that go unnoticed for long periods, causing significant water damage to the area of origin and beyond.

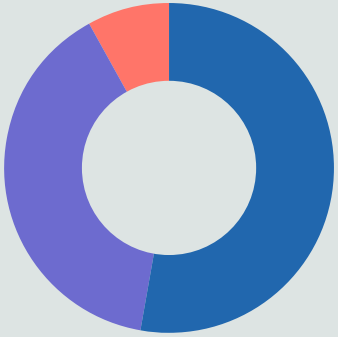
Therefore, a good resident awareness program, combined with good access and regular checks of high risk areas, is paramount to the implementation of a robust maintenance regime for plumbing infrastructure.

Escape of water deep dive

Zurich conducted an in-depth analysis into £8.2 million pounds of recent mid and large value housing claims. Outlined below are the key trends and findings, which identified the key causes of loss and potential high-risk areas within residential properties.

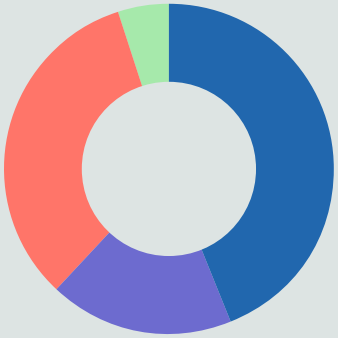
The analysis compares the two main types of domestic escape of water losses: slow leaks (leaks not discovered within 24 hours) and burst pipes (often sudden and catastrophic).

Causation - slow leaks



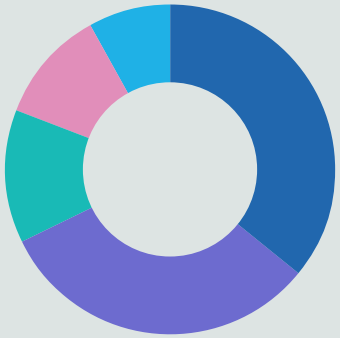
- Wear and tear 53%
- Other 39%
- Contractor error 8%

Causation - burst pipes



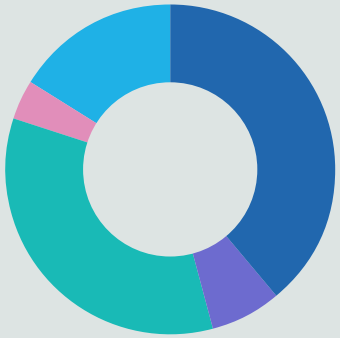
- Wear and tear 44%
- Other 18%
- Contractor error 33%
- Tenant actions 5%

Point of origin - slow leaks



- Bathrooms 36%
- Soil stacks 32%
- Mains water 13%
- Appliance 11%
- Communal areas 8%

Point of origin - burst pipes



- Bathrooms 39%
- Soil stacks 7%
- Mains water 34%
- Appliance 4%
- Communal areas 16%

Claims case studies

1. Soil stack

Scenario:

Loss occurred when foul water and material leaked from a pipe joint beneath the floating floor of an apartment kitchen, slowly releasing contaminated water into the voids within this and other apartments. This not only caused damage but put residents' health at risk.

Cause:

Loss was caused by the faulty installation of pipework by sub-contractors. Firstly, the pipe was directly set in concrete at the slab penetrations, instead of including insulation sleeves as recommended in the architect's drawings. Then the expansion joints were not installed to accommodate the normal thermal expansion and contraction of the pipework. This caused stresses resulting in fatigue failure at the joint.

Cost:

Circa **£1,000,000**.

A soil stack carrying foul water from toilets and baths located within a block of flats, running from top to bottom of the block.

A timber floorboard and joist damaged by wet rot caused by a water leak over a long period of time.

2. Slow leak

Scenario:

Loss occurred when bath water leaked through defective sealant to flow beneath the bath for several years, out of sight.

Cause:

Although the sealant appeared in good condition, with no obvious signs of degradation, the weight of the full bath caused the bath to drop and open up a gap beneath the sealant, allowing excess bath water to flow beneath the bath. As there was no routine inspection behind the bath panel, the water damage went unnoticed until too late.

Cost:

Circa **£400,000**.

What do property owners and managers need to do?

Within the residential setting, there is no one thing that will prevent an EoW loss. A loss is usually a culmination of several adverse actions / factors. Therefore, in order to reduce the likelihood and severity of an EoW incident, property owners and managers are encouraged to develop a 'water risk management strategy' for each individual property, encompassing the following key areas:

Risk assessment

Assessing the damage and trauma suffered from the effects of a water damage loss cannot be underestimated. **There is an inexhaustible supply of water following a leak from a cold-water pipe, resulting in approximately 60 litres of water per minute**, and leading to significant damage and disruption to homes.

While there cannot be any guarantees against an escape of water, undertaking a thorough risk assessment for each property will help identify the key risks, so that you can take action to prevent losses and mitigate damage. This assessment should consider the location of any water installation, such as emersion heaters, toilet cisterns, water pumps, joints, seals, appliances, soil stacks etc., and establish the mechanism of failure for each, the likelihood and impact of the failure occurring and the mitigation measures required to reduce the risk of failure.

Resident education

Take the opportunity to educate the resident about EoW risk when they take occupancy, and also periodically throughout their tenancy. Provide them with a best practice 'do's and don'ts' list, show them the location of the stopcock and how to operate it, and keep them regularly updated with risk mitigation advice and legislative changes.

An example **do's** and **don'ts** checklist:

Do

- ✓ Use an approved plumber to install appliances
- ✓ Check for leaks annually
- ✓ Call the property manager to alert of any water ingress, slow leak or plumbing problem
- ✓ Contact the property manager for repair or installation assistance
- ✓ Maintain all heating and plumbing in accordance with manufactures guidelines
- ✓ Maintain heating at 10° when leaving property unoccupied for long periods
- ✓ Know where your stopcock is, how to turn it off, and test it works at least twice annually

Don't

- ✗ Forget to isolate your water supply if you're away for a holiday or long period
- ✗ Forget to check pipes and tanks are insulated or heated to prevent them freezing
- ✗ Discard nappies, wet wipes or cotton buds down the toilet, or cooking fat down the sink
- ✗ Stand on sanitaryware
- ✗ Wash outside the confines of a bath or shower
- ✗ Undertake bathroom or kitchen renovation without informing the property manager

Resident controls

Use the lease or tenancy agreement to set out the resident's maintenance roles and responsibilities, and sanctions should these not be met. Set out clearly defined access arrangements, allowing representatives of the property owner or manager access at short notice to assess and deal with incidents. Ask the resident to complete an annual self-assessment checklist requiring them to periodically check and report on the condition of key plumbing components, including in difficult-to-see areas, such as behind bath and shower panels etc; not only will this highlight the condition of plumbing components but also aid defensibility against claims under the Homes (fitness for human habitation) Act 2018[1] or Housing (Scotland) Act 2014[2] for example. Set out clear rules around plumbing DIY and renovations; consider asking residents to submit evidence highlighting good standards of wet appliance installation, where they are permitted to do this themselves.

Where you're responsible for a flat in a building that has multiple 3rd party occupants, over whom you have no responsibility or control, you are at an increased risk of an EoW from 3rd party occupancies above. To help reduce this risk, we recommend you check the terms of your occupancy agreement to ensure it protects you, as far as is reasonably practicable, against losses caused by others; work collaboratively with property owners and managers to encourage good standards of resident education, behaviour and maintenance; and with landlords (England and Wales) to ensure your leased flat is fit for human habitation; keep detailed records of EoW incidents to support Zurich should we try to subrogate a claim against a 3rd party.

Sub-letting – Our experience shows that water damage losses arising from sub-let properties often have longer notification periods and an increased average cost per claim, often due to poor communication between resident, landlord and property owner. Therefore, property owners and managers should be alive to the increased risk associated with sub-let properties and act swiftly when notified of a leak or broader loss. Sub-letting can sometimes be identified by the correspondence address of a claimant being different to the address of the property which has suffered a loss.

Audit program

Where considered appropriate, such as in high-risk properties or those having suffered previous water damage incidents, implement an inspection program aimed at checking high-risk plumbing areas. This could be checking for leaks and signs of damage in areas like behind bath panels and washing machines. Presence of moisture can be checked visually or electronically by trained individuals using calibrated moisture meters and thermographic imaging cameras. Other high-risk areas worthy of periodic inspection are soil stacks, drains, roofs and gutters, especially where problems have been experienced previously.

***Between 35-40% of all EoW incidents, whether slow leak or catastrophic burst**, emanate from bathrooms, therefore a focus on these high-risk areas can have a significant impact on reducing losses.*

Maintenance program

Implement a robust maintenance program for common areas, to include:

- Periodic inspection and testing of plumbing infrastructure in accordance with manufacturer and or industry guidelines.
- Condition monitoring of key plumbing equipment/infrastructure and protections.
- Component replacement program.
- Documented record of results, trending of readings, and the specific maintenance procedure carried out.
- Be undertaken by a suitably competent and qualified plumbing contractor, adhering to rigorous quality standards.
- Use of a formal 'Escape of Water Permit to Work' procedure for the control and supervision of contractors working on plumbing infrastructure.
- Auditing of workmanship to ensure its quality meets the standards expected.

[1] Homes (fitness for human habitation) Act 2018 [WWW.GOV.UK]
[2] Housing (Scotland) Act 2014 [WWW.LEGISLATION.GOV.UK]

Contractor procurement & control

Defective workmanship:

A worryingly high proportion of EoW incidents relate to problems with the original plumbing installation. As the vast majority could simply be avoided, it's critical that anyone commissioning plumbing works ensures that the contractors employed are competent, qualified and adhere to rigorous quality standards.

Top six things to look out for when choosing a contractor:

1. Does the supplier have adequate Public Liability insurance and are the cover limits sufficient?
2. Does the company have a good reputation and a proven service record?
3. Are the operatives certified and do they have the right skills? For instance:

   a) Large scale contractors: Are they accredited? For example, Chartered Institute of Plumbing & Heating Engineering (CIPHE), Association of Plumbing & Heating Contractors (APHC) or Water Industry Approved Plumbers Scheme (WIAPS)?

   b) Individual tradespeople: What training has the technician received? For example, Level 3 NVQ or Advanced Craft Construction Skills Certification Scheme (CSCS)?

   c) Will work be overseen by someone who is Incorporated Engineer (IEng) or Chartered Engineer (CEng) competent?
4. What guarantees and warranties are in place for both installation and products?
5. What are the terms for post-construction guarantees?
6. Is the plumbing to be sub-contracted as part of the overall project? If so, then also consider all of the above points in respect of the third party.

For large scale projects, also ask the following:

1. What are the contract implications of the Joint Contracts Tribunal (JCT).
2. Who has the insuring responsibility? Is there a waiver of subrogation? This could prevent your insurer from being able to recover your costs in light of a claim against the supplier.

Managing contractors:

1. Think carefully about appointing your own Clerk of Works to oversee larger and more complex projects – and to ensure the quality of the entire execution and delivery.
2. Create a Water Management plan – define responsibilities, procedures, and specific actions to manage and mitigate the risk.
3. Check an Escape of Water Permit is in place – to control labour on live plumbing systems, filling, testing, commissioning, snagging and maintenance.
4. Gather together the installation standards required, for example, Water Supply Regulations 1999, Water Supply (Water Fittings) (Scotland) Byelaws 2014 and BESA Good Practice Guides.
5. Obtain a Pressure Test Certificate – as particular emphasis should be given on pressure testing before commissioning.
6. Ascertain the management structure for the supervision of all sub-contractors.

Incident response plan

It is vitally important that residents, and anyone with responsibility for managing a building, are made aware of how to respond to an EoW incident, be it a catastrophic or non-catastrophic event. The longer water flows or permeates through the building, the greater the damage, distress and disruption, and ultimately, the more costly the claim will be.

It is best practice therefore, for property owners and managers to develop an EoW incident response plan, detailing the important steps to take in the event of a catastrophic or non-catastrophic incident.

The incident response plan should be;

- Readily available
- Contain emergency contact details
- Contain special instructions such as:
  - The location of the stopcock
  - How to operate the stopcock and isolate the water supply as soon as possible.
  - Type of material and tools needed to reduce damage (a spill kit)
  - Guidance on how to gather evidence
  - Guidance on how to preserve evidence

Where appropriate, such as in multi-occupied residential premises, develop a spill kit e.g.

Bucket	Absorbent packs
Mop	Tools
Hose	Clamps
Tape	Pump

Ensure the kit is readily available to the designated first responder, who is trained on how to deploy it.

The incident response plan should also refer to small, non-catastrophic type incidents, which can occur over time and cause significant damage if not dealt with urgently. Therefore, residents should be encouraged to contact the property owner or manager as soon as possible to report a problem. Early reporting and notification of leaks could improve if residents, who may struggle for finance, knew they could get access to the property owner or manager's own maintenance team or preferred contractor at affordable rates; the cost of which could be saved by preventing a loss occurring.

Alternative accommodation

Property owners and managers should consider the potential need to re-house residents in the event of residential properties becoming uninhabitable.

Insurance policies often provide cover for the cost of alternative accommodation or loss of rent in these circumstances but there can be a shortage of alternatives properties, particularly in large cities. Here your Insurer can provide access to dedicated agencies who can help, but as a property owner you may wish to think about a response plan for such an eventuality – including the potential for considering other accommodation within your own portfolios (such as empty or void units), which may be available at short notice.

Leak detection and suppression devices

Even where a suitable risk assessment has been undertaken and precautions put in place, EoW incidents will still happen. However, alongside improved water risk management planning, technological advances mean that leak detection and suppression devices are now available that can be fitted into new or existing buildings to significantly reduce the impact of a leak or burst pipe, should it occur.

Leak detection and suppression devices comprise of various components used together in several configurations. Device components include:

- **Leak cable or point sensor** – fitted in high risk areas to detect burst pipes or drips
- **Ultrasonic sensor** – fitted onto soil stack or drainage pipework to sense blockages
- **Multi point sensor** – can include heat, humidity and water sensors in a single unit
- **Water flow monitor** – fitted on or in the incoming mains supply pipe to measure flow rate, flow volume or water temperature
- **Water shut-off valve** – fitted in the incoming mains pipe to manually or automatically shut off the water supply following a leak or burst pipe
- **Control Panel** – Interface between the components
- **Signalling & communication technology** – signalling technology is used to send an alarm and system data to computers and mobile devices
- **Power supply** – leak devices are powered via a combination of mains and battery supply
- **Smart platform** – web-based applications allow remote control of valves and water consumption monitoring

Such devices are cheaper and simpler to install at new build stage, but also effective when installed in established buildings at high risk of water damage, or those suffering from significant and persistent EoW incidents.

Over recent years, Zurich has engaged with several device suppliers and manufactures to learn more about the potential benefits of fitting such device at new build and retrofit stages. Several suppliers spoken to stated that for some properties, **leak detection and suppression devices can potentially reduce the severity of claims by up to 80%.**

Speak to Zurich before engaging a leak device company, we can discuss the pros and cons of your situation and help you make the right decision on a solution to your leaks.

Claims handling

Responding quickly on discovery or notification of an EoW should be a priority for all involved, in order to assess the damage and stop any further damage occurring as well as alleviate the distress and disruption an EoW can cause. Even what could be on the surface a minor leak could cause significant underlying damage so it's important that action is taken upon discovery.

Do not hesitate, have a plan and act quickly *- evidence suggests there's a correlation between the time it takes to claim and the cost of the claim -* ***the longer you take to claim for an escape of water, the greater the damage, distress and cost becomes!***

However, undertaking invasive building works and repairs too quickly can affect the long-term claim cost; erroneous spending is a significant problem and can complicate the process of making a claim under your Property Damage Policy.

Replacements and repairs of course, must also be in accordance with policy cover. It's therefore important you understand your Policy and notify the claims team early, so they can offer you the necessary support an specialist intervention to respond to the EoW.

Make sure that everyone involved in responding to an EoW has a clear understanding of their individual roles and responsibilities, and that they are working in the correct order. Consider a triage routine like the following:

- **Are there clear and available instructions if an EoW is discovered, outlining what to do and who to contact?**
- **Who should be first at the site of the incident?**
- **Has the leak stopped? – do they know where to locate the stopcock?**
- **Has the main water supply been switched off? And how to do this?**
- **What actions can be taken to start to clear up & dry the affected area?**
- **What damaged has occurred? Take photographs before anything is disposed of.**
- **Has evidence been collected? If a pipe or joint has failed, retain the part.**
- **Has the insurer been contacted?**
- **What repair and replacement actions are permitted under the policy wording?**

Fraudulent claims

The overwhelming majority of claims are perfectly genuine. However, over the last few years Zurich has detected an increasing volume of dishonest escape of water-related notifications.

There are several key fraud indicators that should be considered when dealing with EoW damage to enable the early detection of fraudulent claims e.g.

- **Water damage in improbable locations**
- **Lack of water staining to timber ceiling joists within areas of high damage**
- **Blocked or disconnected overflow devices**
- **Clean cut pipework within the area of origin**
- **There's been two or more insurance claims by the tenant in a short period**
- **The tenant's documentation regarding the loss is poor quality, suspicious or non-existent.**

Think about developing a fraud assessment protocol, to be implemented as part of your claims handling process.

In summary

Water damage risk in residential premises is significant

Nearly one in five claims made on buildings and contents insurance is for damage caused by EoW. The cost of an EoW event cannot be measured by the value of a claim alone but also includes the disruption and reputational damage caused to business, increase in excess and premiums for the insured, and personal distress caused to tenants living through the event.

EoW incidents can vary from sudden bursts to minor leaks

Occurring over several months, experience shows us there are many sources of bursts and leaks in residential premises, with the most common tending to centre around bathroom sanitaryware and fittings, soils stacks and mains water supply pipes.

Research has shown there are many causes of escape of water loss

This includes cold weather, pressure induced wear and tear, modern building techniques and modern lifestyle, but most significantly, poor workmanship during installation, and thereon after the poor maintenance of plumbing installations, particularly by tenants.

The key to managing escape of water risk is through the development of a water damage risk management strategy

This takes a holistic approach beginning with a risk assessment of property, continues with a program of resident education, a regime of management inspections and audits, effective maintenance and contractor procurement programs, followed by a well-developed emergency response plan (including the provision for early notification to your insurer), through to the installation of leak detection and suppression technology.

Organisations need to foster an inclusive water damage risk management culture in order to reduce the likelihood and severity of an EoW event.

How can Zurich Risk Engineering help?

Zurich Risk Engineering has dedicated teams which specialise in property risk management.

With a wide range of risk management products and bespoke services, we provide effective solutions for both strategic and operational risks that are specifically focused on property owner and property management sectors.

We have accumulated vast amounts of knowledge and experience from many years of working in the residential sector, so if you would like to know more about the guidance discussed in this document, or any of the risk management services we can deliver, please speak to your Zurich representative or contact us on the below details:

Email: **www.zurich.com/riskengineering**

Telephone: **+44 (0) 121 456 1999**

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Liability
Occupational health & safety
Public & product liability risks
Safeguarding

Training
Claims defensibility
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Engineering
Organisational Resilience

Further guidance

1. News and insight | Zurich Insurance UK – https://www.zurich.co.uk/news-and-insight/escape-of-water
2. Escape of Water Fluid Book by Zurich – https://hosting.fluidbook.com/Hemsley_Fraser/6ed26e38b1d7e15b776721730e8a122e_Zurich-Escape-of-Water-SCORM/#/page/28
3. Society of Claims Professional – Escape of Water for Professionals- Good Practice Guide. https://insider.zurich.co.uk/app/uploads/2019/03/Escape-of-Water-for-Claims-Professionals.pdf
4. Escape of Water and Fraudulent Claims – Best Practice Guide 2020 – https://insider.zurich.co.uk/claims/fighting-escape-of-water-fraud/
5. The Construction Insurance Risk Engineers Group (CIREG) – https://cireg.org/index.html
6. Association of Plumbing and Heating Contractors – https://www.aphc.co.uk/
7. Chartered Institute of Plumbing and Heating Engineering – https://www.ciphe.org.uk/
8. Geo – https://www.geotogether.com/waterlock/
9. Aqualeak Detection Ltd – https://www.aqualeak.com/
10. LeakSafe Solutions – https://www.leaksafe.com/
11. Homes (fitness for human habitation) Act 2018 – Landlords
12. Homes (fitness for human habitation) Act 2018 – Tenants
13. Housing (Scotland) Act 2014 – https://www.legislation.gov.uk/asp/2014/14/contents/enacted
14. Housing (Scotland) Act 2010 - https://www.legislation.gov.uk/asp/2010/17/contents/enacted
15. The Property Factors (Scotland) Act 2011 - https://www.legislation.gov.uk/asp/2011/8/contents
16. Certificate of fitness (Northern Ireland) - https://www.housingadviceni.org/advice-landlords/fitness-certificates
17. Renting Homes (Wales) Act 2016 - https://gov.wales/renting-homes

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