

CIREG BEST PRACTICE GUIDANCE V3

Waterguard guide to achieving requirements.

Mitigate risks for one of the most prevalent causes of insurance claims.

Due to changes in the materials used in the construction industry full bore water leaks are becoming increasingly common, resulting in water damage becoming a major cause of loss during construction. These losses represent a substantial portion of Builder's Risk claims, therefore mitigation of water damage with the installation of a Waterguard system is important to reduce these claims and prevent unnecessary costs and project delays.

Water is the new fire. Escape of water is at the top of the agenda for insurers involved in every stage of building and lack of protection is resulting in higher premiums or loss of cover. The 5th edition of the CIREG Best Practice Guidance document gives advice on the mitigation of escape of water risks on buildings under construction and refurbishment. The document includes comprehensive guidance for the implementation of a water management plan endorsed by The UK CAR Underwriters Group.

System Specification Mitigation – An introduction to Waterguard products to achieve performance requirements.

Mitigation 6.1: In all circumstances, there should be:

- A means for detecting that water is flowing when it should not be
- A means for rapidly shutting down the system when such water flow is detected

Mitigation 6.2: "Any temporary water supplies should be switched off outside working hours. A main valve should be readily accessible, and people designated to perform the task".

Mitigation 6.3: "A flow management device should be installed on the main temporary water supply and, if a booster set is required, between the booster pump and any water tank. This device should be set up to operate autonomously, shutting off the system outside of working hours, monitoring flow during operation and shutting off the system in the event of abnormal flow. The flow management device should be physically checked at least weekly to ensure that it remains fully operable".

Mitigation 6.6: On permanent water systems automatic flow monitoring and shutoff valves should be installed in the following locations as a minimum:

- At the mains water inlet
- Before any booster pump set – this is particularly important between booster sets and water storage tanks, but should also be installed in any other plant rooms boosting water to higher levels
- On each floor

Mitigation 6.7: All other systems, including LTHW, MTHW, chilled water, underfloor heating and irrigation should be fitted with automatic flow detection and automatic shutoff devices.

Some systems may be controlled by the BMS to enable periodic circulation of the water in a closed circuit, e.g. to reduce stagnation in the system. Where circulation is required this should be conducted during operational hours only. For circulation outside of working hours a competent person should be on site during the circulation times. Consideration needs to be given to the effects of transient pressure when these systems are turned back on.

Mitigation 6.8: Automatic flow monitoring and shutoff devices should also be installed on any automatic refill systems.

Mitigation 6.9: Installed Water Management Devices should, as a minimum, be capable of, and be programmed as follows:

- Set to shut off water supplies automatically outside working hours and weekends
- Alert appointed persons when small flows are detected

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- Monitor normal water usage over a time period so it can then be programmed to allow water to be shut-off at a very precise, pre-determined flow rate outside of the normal usage parameters
- Remote and audible signalling
- Battery back-up or, in the event of power failure, the device should automatically lock off the water supply
- Linked to a manual isolation device on site
- Remain fully operable until handover

In Summary: The 3 Main Areas of Risk:

1. The temporary supply
2. The permanent installations during the construction period
 - a. The domestic water supply
 - b. Other systems containing water (excluding sprinklers)
3. The permanent installation during the completed occupational phase

CIREG Compliance Procurement Guide: Waterguard Systems to Achieve Compliance.

The Waterguard SiteGuard - This system can be used only on the temporary water supply before permanent works systems are installed. It will automatically shut off the site's temporary water supply when the site is closed, reinstating it when the site reopens. In certain circumstances during project phases, when any areas the temporary supply serves are left unoccupied during operational hours a SiteGuard is not recommended. Continuous monitoring will be required using the Waterguard Series 7.

The Waterguard Series 7 - Our BREEAM compliant water leak detection range will detect any minor and major water leak; measures water volume in litres and can shut off the water supply when a user specified volume is exceeded within a selected time period. When installed with isolation valves this system fulfils the objectives of the CIREG guidance for permanent works water systems.

Please note: The Series 7 whilst protecting the construction phase (subject to recommissioning) could remain in situ provide protection from water damage through both the defects liability period and for the life of the building.

Guidance Notes

- **Isolation valves:**
 - Two flow meters and isolation valves per WAT03 Series 7. An unlimited amount of isolation valves can be connected to the Series 7 via a Waterguard Valve Driver. Please note in this instance the valves will close sequentially and reopen simultaneously.
 - Isolation valves required after each flow meter and after any booster/header tanks.
- **Booster/header tanks and pumps:**
 - **Option 1:** Isolation valves after each.
 - **Option 2:** Isolate the power in the event of a leak. This can be done via a relay connection to the ALARM OUT terminal on the Series 7 or CHANNEL 2 when only one water meter is connected. 1 Amp mains powered relays available, current ratings required upon quotation or can be sourced independently.
- **Flushing the system:**
 - Must be taken into account within the site-specific water management plan.
 - Risk assessments and method statements must be undertaken to determine maximum water usage over estimated time.
 - Nominated water damage risk manager to amend Series 7 parameters in accordance with temporary high-volume usage, typically 10 x the system volume at double the design velocity.
- **Minimum flow accuracy:**
 - 15-54mm 1 litre pulse, 54-100mm 10 litre pulse, 100mm+ 100 litre pulse.
 - Each pulse is registered and logged with the Series 7 to analyse usage.
 - Slow flow leaks / Larger water meters = Delayed leak detection.
- **Water quality maintenance**
 - Sites with low water usage can use the override function on the Series 7, when turning over the water to maintain quality. This function allows for unlimited water usage for up to 45 minutes.

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Please note: Projects with water leak detection already specified, installing the Series 7 with additional valves where required will already fulfil CIREG requirements but must be installed immediately with the permanent supply. In this instance a SiteGuard must also be used on the temporary supply.

The Water Management Plan

Identification, implementation and maintenance of mitigation measures.

Part of the water management plan ensures mitigating measures in the form of water leak detection are sourced, installed and maintained appropriately in order to automatically detect and isolate any burst pipe within the building. A competent Responsible Person should be nominated and overseen by the Principal Contractor for the management of the escape of water risk.

Working with the Responsible Person, every aspect of every project is managed by one Waterguard account manager ensuring:

1. The correct **system specification** for the application
2. The **efficient installation** of chosen system
3. The **smooth handover** to occupant/manager

Implementation and maintenance: Protect projects under construction to practical completion and occupation.

A Waterguard account manager will ensure the efficient installation, set up and smooth handover on every project.

Installation Training: On-site training by a Waterguard engineer is available during the start of installation to every project installing multiple systems. In house training available to contractors for the installation and operation of the Series 7.

Commissioning: It is important to test and then commission at the right time dependent on the individual project. Each multi residential project is managed by a dedicated engineer providing technical support and commissioning documentation to contractors. On site Series 7 commissioning and certificate available at an extra cost.

Handover: If requested we can liaise with the final occupant/property manager during and after handover to ensure the smooth transition between phases.

Design Considerations

Although the Waterguard Series 7 will fulfil the objectives of the CIREG guidance, considerations should be made for fit out stages and occupation when escape of water losses are most prevalent. The building occupancy, height and susceptibility of its contents to water damage should be taken into account when selecting the appropriate system.

We have a range of practiced residential systems that protect properties by monitoring water usage from the incoming water, allowing continuous water flow for a limited time before the controller suspects a leak and automatically shuts off the water with a solenoid valve.

For further information on our CIREG compliant systems and project management services please contact the office on 01226 244200 or email your enquiry to enquiries@waterguard.co.uk.

The guidance in this document was created based on Best Practice Guidance: Managing Escape of Water Risk on Construction Sites, Published by the Construction Insurance Risk Engineers Group 5th Edition November 2019 Endorsed by the UK CAR Underwriters Group.