

Sprinkler Systems – Tank Inspections

Sprinkler systems components need to be maintained in full working order to ensure correct operational performance.

This Loss Prevention Standard provides guidance on maintaining sprinkler tanks.

Sprinkler Systems – Tank Inspections

Introduction

The predominant cause of sprinkler system failure is a lack of regular inspection, testing and maintenance.

To help avoid such issues, your sprinkler system including the water supplies should be maintained in accordance with established standards or codes such as The LPC Rules for Automatic Sprinkler Installation Incorporating BS EN 12845 or NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems. This will ensure that, in the event of a fire incident, your sprinkler system is live and can be relied on to be effective.



Additionally, the failure of sprinkler tanks can lead to substantial property damage; flooding; loss of sprinkler equipment; and long-term impairment of the sprinkler system.

The purpose of this Loss Prevention Standard is to give guidance on the periodic inspections of sprinkler tanks and associated equipment for property insurance purposes. This will typically include a two-yearly inspection via a remotely operated vehicle (ROV) and a ten-yearly drain down and full inspection.

Note: This document is focussed on property loss prevention in relation to sprinkler protection. It is not intended to address liability exposures. The presumption is that all regulatory requirements, Fire Risk Assessments, and compliance with requirements placed by the local authority having jurisdiction which would include licencing, building permissions, regulations, codes, or standards, have or will be met.

Two Year Sprinkler Tank Inspections

From the time of installation, tank inspections should be carried out at intervals of no more than two years to ensure integrity and functionality of sprinkler water storage tanks, and to identify and address any issues that could compromise the water supply.

Where possible, inspections, maintenance, remedial and repair works should be carried out by the original tank manufacturer. Where this is not possible, works should be completed by a specialist sprinkler water storage tank inspection/refurbishment company or contractor who should assess the internal and external condition of the tank, in terms of any corrosion or deterioration of the tank's shell/structure and any ancillary equipment.

A written report should be produced detailing any remedial works required to maintain the future/ongoing serviceable life of the tank. If the condition or cleanliness of the tank

indicates the need, the tank should be drained, cleaned as necessary, and examined internally and externally.

Note: Two-year inspections do not replace the requirement for a full ten-year inspection which will require the tank to be fully drained. The two-year inspection was introduced to identify problems early in the tank's life cycle to avoid the need for extensive works or for the tank to be condemned.

As well as carrying out the checks outlined in the more frequent routines (weekly, monthly, quarterly, six monthly and annual), the following additional works need to be carried out:

Visual External Inspection

- Verify the tank rating plate detailing the tank data is present and correct.
- Inspect the exterior of the tank for signs of corrosion, leaks, and structural damage.
- Where tanks are formed from steel panels, an assessment survey of the thickness of the panels should be carried out using ultrasonic thickness gauges.
- Inspect other structural elements (such as roof support purlins, wind bracings, tie bars and bolts etc.).
- Tanks formed from glass-reinforced plastic (GRP), fibreglass or other similar materials should be inspected for any evidence of cracking.
- Check the condition of tank coatings and linings.
- Verify that all access points and vents are secure and functional.
- Inspect foundations for signs of cracking or settlement, or signs of corrosion, where supported on steel beams.
- Check pipework and associated equipment to ensure seals are watertight and, where applicable, the correct number of bolts are present.
- Ensure overflows and gaps are fitted with vermin mesh, and the mesh is free from obstruction.
- Ensure tank perimeter is clear of vegetation and stored materials which may damage the tank or obstruct inspection.

Internal Inspection

- Two-yearly internal inspections may be carried out by an ROV.
- Inspect the interior for corrosion, sediment buildup, and structural integrity.
- Where a liner has been fitted, check condition for any deterioration, shrinkage, punctures or other damage, particularly around connections.
- Check the interior surfaces for any debris or sediment.
- Inspect all internal components, including connections, supports, float valves, vortex inhibitors and level indicators.

Functional Testing

- Exercise the drain valve and lubricate if necessary. Ensure the valve is suitably protected against freezing.
- Ensure the inlet float valve is exercised, in working correctly and not impeded.
- Refill the tank and conduct a flow test to ensure proper water supply and pressure.
- Test all associated pumps and control systems for proper operation.

Documentation

- Record all findings and actions taken during the inspection.
- Update maintenance logs and inspection records as required.

Ten Year Sprinkler Tank Inspections

For the ten-yearly inspection, in addition to the checks carried out for the biennial inspection, the tank must be drained, cleaned and the interior inspected for cracks, corrosion, build-up of matter and general deterioration. Ensure all structures, internal components and liners (where used) are intact, and repaired/replaced as necessary.

Tank foundations should be checked for settlement, cracking or erosion, and also checked for any tilting or misalignment.

Important: If there is a single tank, when it is drained the whole sprinkler system will be impaired for the duration of the works. Where there are multiple tanks, only the one being inspected should be isolated and impaired to maintain limited cover. In all instances, insurers must be made aware of the impairment by the accepted impairment notification process.

Note: ROVs are not to be used for ten-year inspections.

Remedial Works

Where the inspections identify issues with the condition and/or cleanliness of the tank, the tank will need to be drained, examined, cleaned and repaired as necessary. Works undertaken should be compatible with the tank design, for example, installing a liner to a sealed tank may exacerbate a corrosion issue due to condensation being trapped between the tank shell and the liner, promoting ideal conditions for oxidation to occur.

Compliance and Record Keeping

- Maintain detailed records of all inspections, tests, and maintenance activities.
- Ensure that all documentation is readily accessible for review by regulatory authorities and insurance providers.
- Implement a schedule for regular inspections and maintenance based on the outcome of this inspection.

Key Actions

- Regular inspections and maintenance are critical to identifying and addressing potential issues before they compromise system performance.
- Formalising a programme of tank inspections, as recommended in this Loss Prevention Standard, can help ensure the continued reliability and effectiveness of your sprinkler system, providing essential protection for your property and occupants.
- For further guidance refer to your Property Insurer or Broker.

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Sources and Useful Links

- [Technical Bulletin TB203 Care and Maintenance of Automatic Sprinkler Systems](#)
- [NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems](#)
- [FM Global Datasheet 2-81: Fire Protection System Inspection, Testing & Maintenance](#)

Additional Information

Relevant Loss Prevention Standards include:

- **Sprinkler Systems - How They Operate**
- **Sprinkler Systems - Review of Hazards**
- **Sprinkler Systems - Ordinary Hazard Design Calculation Principles**

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.*

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