

TITLE	:	Routine Sample Testing of Automatic Sprinkler Installations – Sprinkler Head Inspection and Activation, Inspection and Pressure Testing of Pipe/s
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## 1. INTRODUCTION

Sprinkler heads and pipes have to be tested and visually inspected according to **SANS 10287** and **NFPA 25**.

**SANS 10287** stipulates that a sprinkler installation (heads and pipes) must be tested and inspected every 20 years. However, **NFPA 25** requires sprinkler heads to be tested according to Table 1.1.

Requirements for Testing of Existing Sprinkler Installations according to NFPA 25						
Sprinkler / Environment Type	Service Life Cycle	Action Required	Subsequent Test Intervals			
Solder-type (Extra High Temperature)	N/A	Submit specimens for testing	5 years			
Fast-response Sprinklers	20 years	Submit specimens for testing	10 years			
All Sprinklers	50 years	Submit specimens for testing or replace	10 years			
All Sprinklers	75 years	Submit specimens for testing or replace	5 years			
Dry Sprinklers	10 years	Submit specimens for testing or replace	10 years			
Harsh Environment	5 years	Submit specimens for testing or replace	5 years			
Pre-1920 Sprinklers	N/A	Replace	N/A			

Table 1.1: Testing requirements according to NFPA 25

The sprinkler heads undergo a test to determine the operating temperature of the sprinkler heads in accordance with **ISO 6182 – 1:2014**; *Fire protection – Automatic sprinkler systems – Part 1: Requirements and test methods for sprinklers.* 

The pipes undergo a static pressure test (Hydrostatic Test) to check for leakage. Pipes less than or equal to 150 mm diameter are tested in accordance with **SANS 62 – 1:2013**; *Pipes suitable for threaded and of nominal size not exceeding 150 mm*. Pipes larger than 150 mm are tested in accordance with **SANS 719:2011**; *Electric welded low carbon steel pipes for aqueous fluids (large bore).* 

The pipes are visually inspected before and after the tests.



## 2. SAMPLES REQUIREMENTS

Samples taken from any building should be representative of the installation in the building and should represent different areas and if applicable different control valves as exposure conditions in these areas could be different. It is recommended that the samples be randomly selected to give a better representation of the area.

### 2.1 SPRINKLER HEADS

The following number of sprinklers must be removed and submitted for testing:

- 10 sprinklers from within the installation (area or occupancy), or
- Should any of the area/occupancy have 10 or less sprinklers, then a minimum of 6 sprinklers should be submitted per occupancy area
- Should any of the areas/occupancies have 1 000 or more sprinklers, more than 20 sprinkler heads are required.

#### 2.2 PIPES

Pipes required per area/occupancy:

٠	Range pipe:	25 - 50 mm	x 1
	Distribution pipe:	65 - 80 mm	x 1
<b>\</b>	Main valve pipe:	100 - 150 mm	x 1

Where installations/buildings consist of a large number of pipes of the same diameter, it is recommended that additional range and distribution pipes be submitted for testing.

In order to make a conclusive evaluation of the pipe installation, the client should submit pipes with the pipe's original (untouched) threaded fitting or a groove. It is preferred to send pipes with threaded fittings since threaded fittings are the "weakest" point in a pipe work installation. A leakage will most likely occur on the threaded fitting than on the surface of a pipe. **FIRELAB** will also be able to give a better conclusion/recommendation with regard to the condition of the pipe and the thread. The corresponding clamps and rubber seals on pipes with grooves should also be submitted for evaluation. Rubber seals are susceptible to perish and will be the most likely area for a leakage to occur in the event of aging. Long lengths of pipes may be cut for easy handling but should still contain at least one untouched fitting.

In the event that pipe/s have been cut on either one or both ends, they will need to be **welded**, **grooved** or **threaded**, depending on the type of pipe, in order to conduct the pressure test. Pipe/s that have been cut must have a minimum length of 1.5 m. The welding, grooving or threading can be done by **FIRELAB** at an additional cost per pipe/s.

The client can groove or thread the pipes, provided that the grooving/threading is done properly in order for **FIRELAB** to conduct the pressure tests; if this is not the case **FIRELAB** will need to redo the grooving/threading; this will be done at an additional cost.



# 3. LOCATION IDENTIFICATION

According to **SANS 10287**, specimens have to be submitted with identification (an indication of the area where the specific specimen was removed). In the event of numbered specimens, the location must be identified on a block plan for reference.

Should the sprinkler heads and/or pipes be removed in a multi-storey building with multiple control valves, it is highly recommended that a block plan be provided, to enable **FIRELAB** to make informed recommendations.

The specimen locations determine whether or not an entire installation of sprinklers/pipes within a specific area or occupancy needs to be removed/replaced.

## 4. DURATION AND SCHEDULE

The tests will be conducted as samples are received (first in, first out). Should there be no test line-up, a test report should be available within 3 weeks (15 working days) after receipt of the samples, provided there was no delay in payment. Samples will not be placed in line for testing until all the required documentation has been submitted.

# 5. TERMS AND CONDITIONS

An official purchase order will serve as acceptance of this proposal valid until 28 February 2023.

Samples received will only be placed in the queue for testing once **all** of the requested documentation, including the purchase order, has been received.

If 6 sprinkler heads are submitted for testing, they will be invoiced as one set (R 5200 - 00 excluding VAT). Sprinkler heads are to be submitted in multiples of six, where six sprinklers will form one set.

An invoice will be issued once the report is being finalised, the report will only be released after full payment has been received.

- **Notes:** » According to the **SANS 10287**, sprinkler heads and pipes may not be reused when removed from their original location. Therefore, all specimens will be discarded after testing.
  - Irrespective of which Standard the client wishes to use for the evaluation of the sprinkler installation, it is the client's responsibility to ensure that the correct number of sprinkler heads and/or pipes are randomly selected, in order to ensure the samples to be representative of the installation within the building, occupancy, area or division.