

A photograph of an industrial facility, possibly a refinery or power plant, with a worker in a safety vest and hard hat working on a large red pipe. The scene is dimly lit with yellow overhead lights. A semi-transparent white box is overlaid on the top left, containing the title text. A solid blue vertical bar is on the left side of the page.

# NFPA 25: 5-year Maintenance Requirements

**Solutions don't have to  
be complicated.**



Edmonton Office  
6707 59 Street NW  
Edmonton, AB T6B3P8

Wood Buffalo Office  
41 - 925 Memorial Drive  
Fort McMurray, AB T9K 0K4

[rotaflow.ca](http://rotaflow.ca)

## NFPA 25 5-year Maintenance Requirements for Firewater Systems

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Many of our clients find that their quieter work season begins as the weather becomes cooler towards the end of the calendar year. On an individual level approaching the new year means time for planning personal upkeep and resolutions. Like people, firewater safety systems also require regular upkeep and resolutions/ maintenance of their own. Being on this seasonal cusp doesn't mean it's time to step away from most everyday demands completely, but it certainly does allow time for reflection on your protective systems that keep you and your team safe 365 days a year. In fact, regular 5-year maintenance is required by NFPA 25 for firewater systems, and some clients are surprised with how much is needed within the code! So, during these approaching calmer days, check on your firewater system's most recent maintenance dates.

**If anything should be due for its 5-year maintenance, there's no need to worry. Our competent and professional team at Rotaflow will handle everything and provide you peace of mind on your firewater systems' health.**

## Fire Pumps

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Within the category of fire pumps, there is only one item to consider when checking up on your 5-year maintenance - the power transmitting components with elastomeric materials, including torsional couplings. Elastomeric materials are elastomers – solids with elastic properties – which are rubber-like. Some examples of the components that need replacing are drive belts, o-rings, gaskets, and



pump-motor (torque) couplings. These components are critical to delivering the expected power to your system, delivering the outputs necessary to keep your assets protected should a fire occur. Unfortunately, over time these components can wear, crack, or in a worst-case scenario, break just when you need your firewater system most.



## Water Spray Fixed Systems

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For water spray fixed systems, strainer removal, inspection, cleaning, and replacement is on the agenda for 5-year maintenance. Strainers for all nozzles and mainlines are included in this work. Though a simple device, strainers are integral parts of a firewater system as they remove and hold large particulates from travelling through your entire water system if present. Should strainers corrode or break, they cannot fulfill their tasks, and high-speed particles can freely travel within the piping network. Such particles can cause damage to piping, leading to corrosion, future maintenance costs or nozzle blockages, rendering an area unprotected from fire-related damage.



## Foam-Water Sprinkler Systems

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Foam-water sprinkler systems find themselves at the top of the list when it comes to 5-year maintenance. Clients are often surprised at how much NFPA 25 requires for these systems.

Ball drip valves are required to be disassembled, cleaned, and reassembled at all places on the firewater system. Drip valves allow the water of decreasing pressure to exit the piping network when a system is shutting off, and residual water cannot escape a nozzle, avoiding issues where water may freeze within pipes. Should the drip valves not be maintained, they can become built up and blocked, which can result in damaged pipes through water freezing internally.

Foam pumps, drive trains, and drivers should be serviced according to the manufacturer's instructions and frequency, though no longer than five years between inspections and maintenance. Systems will vary from manufacturer, so it is best

to follow their guidelines for care for their systems. It is recommended to service fire systems at a minimum of every five years to stay in accordance with code.

**Rotaflow can perform the recommended services, along with testing and any repairs that need to be made.**



Diaphragm balancing valves are required to have a fluid flush through the diaphragm section with water or foam concentrate until fluid appears clear or new. Diaphragm balancing valves control flow rates in different piping branches to deliver desired flows beyond the valve. Like strainers, these valves can collect debris and buildup over time, so servicing is needed at least every five years.

Ignoring these valves can hinder the flow out of nozzles and sprinkler heads, resulting in a fire running rampant in an affected room.

Pressure vacuum vents must undergo a thorough maintenance regimen to comply with NFPA 25 every five years. These vents are installed on the liquid storage tank to reduce evaporation of the tank contents into the atmosphere while releasing excess gas to leave the tank should pressures pass a threshold point. Atmospheric changes, or flow in or out of the tank, will cause pressure changes within the tank. The vacuum vents allow excess pressures to be released while maintaining the optimal pressure within the tank. If not looked after, the increasing pressure in the tank's vents drops drastically, potentially harming the performance system. The maintenance regimen consists of a full inspection and flush of the vent following specific procedures to ensure the vent can continue to work optimally.

### **Water Mist Systems**

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Like the foam water sprinkler system, standby pumps that are pneumatically

operated must be rebuilt every five years or as specified by the manufacturer. Again, five years is the minimum to stay within code, but maintenance should be done as often as the manufacturer requests for their systems.

### **General Maintenance: Deluge Valves and Pre-action Valves**

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Pre-action valves are electrically operated type of valve that is activated by heat, smoke, or flame. NFPA 25 requires that maintenance takes place on them every five years specifically. Maintenance includes identification of leaks or electrical malfunctions through internal cleaning, component replacement, and additional maintenance as required by the manufacturer. As mentioned before,



these valves are triggered similarly to alarms, so their operation must be respected through consistent upkeep.

Deluge valves are actuation valves that open from a detection system installed near all the spray nozzles or by remote activation. These valves trigger system initiation and should not be forgotten in routine maintenance like pre-action valves. Deluge valves follow the same thorough routine maintained as the pre-action valves.

As you can see, 5-year maintenance can be quite a task depending on what firewater system you have. Hopefully, with some newfound time that our clients mention to us this winter, you will be able to review your maintenance checklists and verify if you are up to NFPA 25 code standards.

**Contact Rotaflow if it's time to renew, or you're unaware if your system is up to standards or not. Our maintenance and service team can assist with baseline inspections and maintenance to support your firewater protection system to protect your team, your valuable assets and the environment.**

# Who is Rotaflow?

*Rotaflow is a mid-size, premier full-service Engineering, Procurement, and Construction Management (EPCM) company. Located in Edmonton, Alberta, we specialize in industrial fire and water projects. For over 25 years, we've worked with the world's leading energy companies, including Suncor Energy, Gibsons, Husky, Cenovus, and Albian Sands.*

*Customers and market influencers see us as subject matter experts in executing Industrial Fire and Utility projects from concept through CSU to operation. Our team of over 100 engineers, designers, and trades work collaboratively to design, build, retrofit, repair, operate, and maintain systems, protecting life and assets and enabling companies to focus on their core business.*



*We appreciate the attention to detail and safe work practices your team has demonstrating.*

- Suncor, Base Plant



*Every challenge was met head on with the primary focus being safety.*

- Suncor, Base Plant

## Our Values

- Safety First
- One Team Spirit
- Customer Centric
- Continuous Improvement
- Accountable



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