FUNCTIONAL TESTING REQUIREMENTS AND SCHEDULES

Conducting functional testing following code requirements is an essential part of ensuring the safety and reliability of your fire protection systems. To streamline this process, we've outlined the specific inspection and testing intervals mandated by NFPA standards:

WEEKLY:

- **Diesel Fire Pumps (NFPA 25):** Operate the fire pump under no-flow conditions for 30 minutes. Make visual observations following the checklist for both the pump and diesel engine.

MONTHLY:

- **Emergency Lights/Exit Signs (NFPA 101):** Perform a quick 30-second check.
- **Electric Fire Pumps (NFPA 25):** Operate the fire pump under no-flow conditions for 10 minutes. Make visual observations as per the checklist for the pump and electrical system.

QUARTERLY:

- **Sprinklers (NFPA 25):** Inspect mechanical water flow alarm devices, including water motor gongs, valves, valve components, low air pressure alarms, quick opening devices and priming water.

SEMI-ANNUALLY:

- **Hood Suppression Systems (NFPA 17A and 96):** Test the operation of detection systems and releasing devices. Replace fusible links.
- **Fire Alarm Systems (NFPA 72):** Check optical flame detectors, valve tamper switches, water flow switches.

ANNUALLY:

- **Clean Agent Suppression (NFPA 2001):** Test all system devices, including detectors, pull stations, abort stations, discharge circuits, and audible and visual devices. Ensure agent quantity and pressure align with the design specifications. Verify the integrity of the agent distribution piping network. Perform a functional test of all detection, actuating inputs, alarm-sounding or displaying devices, remote annunciators, air-handling shutdown and power shutdown relays as per the original design.
- **Fire Alarm Systems (NFPA 72):** Inspect control equipment (FACP), building systems connected to supervising stations, functions, fuses, interface equipment, lamps and LEDs, primary power supply, batteries, emergency voice/alarm communications equipment, remote annunciators, initiating devices, duct smoke detectors, electromechanical releasing devices, fire extinguishing system or suppression system switches, fire alarm boxes (manual pull stations), detectors (heat, smoke, gas, carbon monoxide, and others), special hazard equipment, initiating and releasing circuits, releasing devices, abort devices and alarm notification devices.
- **Supervising Station Fire Alarm Systems - Transmitters:** Test dialer, DACT, DART, and all other transmitters.
- **Mass Notification Systems:** Assess the operational functions and equipment.

3-YEAR CYCLE:

- **Fire Alarm Systems (NFPA 72):** Replace batteries or perform a load test to determine acceptability.
- **Sprinklers (NFPA 25):** Conduct a dry and preaction system full flow trip test and an air leakage test.
- **Portable Fire Extinguishers (NFPA 10):** Replace liquid charge-type AFFF and FFFP extinguishers. Perform an internal examination at that time.

5-YEAR CYCLE:

- **Clean Agent Suppression (NFPA 2001):** Perform a hydrostatic test on discharge hoses or replace them. Test and change check valves.
- **Portable Fire Extinguishers (NFPA 10):** Internally inspect and hydrostatic test stored-pressure water, water mist and loaded stream extinguishers, as well as wetting agent, AFFF, FFFP, dry chemical (stainless steel shells), carbon dioxide and wet chemical extinguishers. Perform a hydrostatic test on pressure cartridges associated with portable extinguishers and wheeled units. Also, test carbon dioxide hoses equipped with a shut-off valve.
- **Sprinklers (NFPA 25):** Test gauges or replace them. Check valves, piping for obstructions, standpipe full flow test, remote point hose connection pressure reducing valves (full flow) and hydrostatic testing of manual and dry standpipes.
- **Standpipe Hoses:** Conduct a 5-year test for new hoses and repeat every 3 years thereafter.
- **Valves and Valve Components:** Inspect pressure-reducing valves and relief valves (full flow).
- **Private Fire Service Mains:** Perform a full flow test.
- **Two-Way Radio Communication Enhancement Systems (NFPA 1221):** Conduct a full re-acceptance test of the system.

12-YEAR CYCLE:

- **Portable Fire Extinguishers (NFPA 10):** Perform an internal investigation on stored-pressure extinguishers requiring a 12-year hydrostatic test. Hydrostatic test of cartridge-operated dry chemical and dry powder extinguishers with mild steel shells Hydrostatic test of halogenated (clean agent) extinguishers.
- **Hood Suppression Systems (NFPA 17A):** Perform a hydrostatic test on all containers and hose assemblies.

LONG-TERM CYCLES:

- **Clean Agent Suppression (NFPA 2001):** Replace CGA (Compressed Gas Actuator) every 10 years and every 10 years thereafter.
- **Sprinklers (NFPA 25):**
  - **Standard Response Sprinklers:** Replace all sprinklers or test to keep them in service for 50 years.
  - **Quick Response Sprinklers:** Replace all sprinklers or test to keep them in service for 20 years.
  - **Dry Type Sprinklers:** Replace all sprinklers or test to keep them in service for 15 years.

These maintenance and testing cycles are crucial to ensuring the effectiveness and reliability of your fire protection systems, helping to keep your property and occupants safe. Please follow these guidelines to comply with NFPA standards and maintain the integrity of your fire protection equipment.

VISUAL INSPECTION REQUIREMENTS AND SCHEDULES

To maintain the operational integrity of your fire protection systems, adhering to visual inspection and code requirements is crucial. Below, we've outlined the key inspection intervals and procedures as mandated by NFPA standards:

DAILY/WEEKLY:

- **Fire Alarm Systems (NFPA 72):** Check unmonitored control panels for normal conditions and the presence of any trouble or supervisory signals.
- **Fire Pump (NFPA 25):** Verify the fire pump system, ensuring valves are open, no leaks are present, pressure gauges indicate normal readings, and both the electrical and diesel systems are operating normally.
- **Sprinklers and Standpipes (NFPA 25):** Inspect gauges on dry, preaction, and deluge systems to ensure they are in good condition and maintain normal pressures.
- **Valves, Valve Components, Trim Inspections:** Check control valves for their normal position, the presence of tamper switches or locks, accessibility, and absence of leaks. Additionally, inspect signage and master pressure reducing valves.
- **Backflow Prevention Assemblies:** Ensure that backflow prevention assemblies are not discharging water in the case of standpipes. Sealed control valves should be verified.

MONTHLY:

- **Hood Suppression System (NFPA 17A):** Conduct an owner's inspection assessing the extinguishing system's proper location, the unobstructed manual actuators, intact tamper seals, the presence of system tags, absence of obvious physical damage, pressure gauge operability, intact nozzle blow-off caps and no modifications to protected equipment.
- **Portable Fire Extinguishers (NFPA 10):** Verify that extinguishers are located in their designated places, free from obvious physical damage, corrosion or clogged nozzles. Ensure no obstructions impede access or visibility, safety seals or tamper indicators are intact and pressure gauges read within the operable range. Test for agent fullness; for wheeled units, inspect wheels, hoses and nozzles. Check pressure indicators and record inspection dates on tags with initials for non-rechargeable units.
- **Sprinklers and Standpipes (NFPA 25):** Inspect gauges on wet systems for condition and normal pressures, as well as air pressure gauges on electronically supervised dry and preaction systems.
- **Valves, Valve Components, Trim Inspections:** Verify the normal position, tamper switches or locks, accessibility and absence of leaks for control valves. Exterior inspections should be conducted for alarm and alarm check valves, dry pipe, deluge and preaction valves.

QUARTERLY:

- **Sprinklers (NFPA 25):** Check water flow alarms and all supervisory devices, including tamper switches and fire department connections. Ensure the proper operation of pressure-reducing valves and relief valves.
- **Fire Alarm Systems (NFPA 72):** Inspect initiating devices, such as optical flame detectors and video smoke/fire detectors.

SEMI-ANNUALLY:

- **Hood Suppression System (NFPA 17A and 96):** Perform a certified technician's inspection.
- **Clean Agent Suppression (NFPA 2001):** Conduct a visual inspection of all field devices, measure agent quantity and check cylinder pressure. Fill out cylinder tags.
- **Fire Alarm Systems (NFPA 72):** Assess fire alarm panel trouble signals, emergency voice/alarm communications equipment, remote annunciators, surge suppressors and panel batteries. Inspect initiating devices, including air sampling smoke detectors, duct smoke detectors, electromechanical releasing devices, fire extinguishing system or suppression system switches, fire alarm boxes (pull stations), detectors for heat, smoke, beam, carbon monoxide and water flow devices.
- **Two-Way Radio Communication Enhancement Systems (NFPA 1221):** Ensure the power, secondary power, fault indication and communication to the FACP are functioning properly.

ANNUALLY:

- **Clean Agent Suppression (NFPA 2001):** Inspect system hoses and check for penetrations that could lead to agent leakage. Verify agent volume.
- **Portable Fire Extinguishers (NFPA 10):** In addition to the normal monthly inspection requirements, inspect shells for damage or corrosion, hoses and nozzles for blockages, and ensure labels are present, legible and facing forward. Check for the next 6-year internal or hydrostatic test date and replace tamper seals if needed. Remove extinguishers and inspect hangers, brackets or storage cabinets.
- **Sprinklers (NFPA 25):** Conduct a visual inspection from the floor, including sprinklers, pipe and fittings, pipe hangers, seismic bracing, spare sprinklers in a spare sprinkler cabinet and the hydraulic design information sign.
- **Standpipes:** Inspect piping, hose racks, hose connections, hose valves, hose and hose nozzles.
- **Valves, Valve Components, Trim Inspections:** Internally inspect dry pipe valves, preaction and deluge valves.
- **Private Fire Service:** Annual flow
- **Fire Alarm Systems (NFPA 72):** Inspect fire alarm panels, fuses, interfaced equipment, lamps, LEDs, main power supply, supervising station alarm system transmitters (dialer, DACT, cellular dialer, radio transmitter, IP transmitter), NAC Extender Power Panels and mass notification equipment.

5-YEAR CYCLE:

- **Clean Agent Suppression (NFPA 2001):** Conduct an external visual inspection on agent cylinders following CGA-C6.
- **Sprinklers (NFPA 25):** Investigate internal obstructions in piping.
- **Valves, Valve Components, Trim Inspections:** Internally inspect alarm valves, check valves, alarm/check valves, filters and strainers, as well as externally resettable preaction and deluge valves.

These comprehensive inspection and maintenance cycles ensure the proper functioning and reliability of your fire protection systems. Follow these guidelines to meet NFPA standards and safeguard your property and its occupants.

WITH LOCATIONS NATIONWIDE, HILLER IS YOUR PARTNER IN COMPLIANCE

WHY HILLER

Because of our longevity, you can rely on our depth of knowledge and experience. We have perfected a tried and true process to ensure a smooth transition throughout the development and maintenance of your fire protection systems, with safety for all as our top priority. From design, installation and commissioning to customer training, inspection, repair and upgrades, our fire protection engineers provide guidance throughout the process. When safety matters, experience the Hiller Difference.

SAFEGUARD WITH CONFIDENCE, PARTNER WITH HILLER

ARE YOU INSPECTING AND TESTING YOUR FIRE SYSTEMS PROPERLY?

NFPA Code Requirements for Visual Inspection and Functional Testing

Every fire protection system has specific NFPA-required visual inspections and testing procedures tailored to ensure their operational and functional integrity. At The Hiller Companies, we are committed to helping you meet these code requirements efficiently and effectively. This overview of visual and functional inspection and testing requirements according to NFPA codes can help keep you on track.