

Fire Alarm Component Inspection, Testing and Maintenance Summary

Component	Method	Frequency
Control Equipment		
Functions	At a minimum, control equipment shall be tested to verify correct receipt of alarm, supervisory, and trouble signals (inputs), operation of evacuation signals and auxiliary functions (outputs), circuit supervision including detection of open circuits and ground faults, and power supply supervision for detection of loss of ac power and disconnection of secondary batteries.	Annually monitored Quarterly non-monit.
Fuses	The rating and supervision shall be verified.	Annually monitored Quarterly non-monit.
Interfaced Equipment	Integrity of single or multiple circuits providing interface between two or more control panels shall be verified. Interfaced equipment connections shall be tested by operating or simulating operation of the equipment being supervised. Signals required to be transmitted shall be verified at the control panel.	Annually monitored Quarterly non-monit.
Lamps & LEDs	Lamps and LEDs shall be illuminated.	Annually monitored Quarterly non-monit.
Primary (main) Power Supply	All secondary (standby) power shall be disconnected and tested under maximum load, including all alarm appliances requiring simultaneous operation. All secondary (standby) power shall be reconnected at end of test. For redundant power supplies, each shall be tested separately.	Annually monitored Quarterly non-monit.
Engine Driven Generator	According to NFPA 110 with weekly operation/startup	Weekly & Monthly
Batteries for Backup Power	(Your service provider is required to list the battery type on your test reports)	
Lead-Acid Type Batteries		
Charger Test	With the batteries fully charged and connected to the charger, the voltage across the batteries shall be measured with a voltmeter.	Annually
Discharge Test (30 minutes)	With the batteries fully charged and connected to the charger, the voltage across the batteries shall be measured with a voltmeter.	Semiannually
Load Voltage Test	With the battery charger disconnected, the terminal voltage shall be measured while supplying the maximum load required by its application.	Semiannually
Specific Gravity	The specific gravity of the liquid in the pilot cell or all of the cells shall be measured as required. The specific gravity shall be within the range specified by the manufacturer.	Semiannually
Nickel-cadmium Batteries		
Charger Test	See methods above	Annually
Discharge Test (30 minutes)		Annually
Load Voltage Test		Semiannually
Dry Cell Batteries		
Load Voltage Test	See methods above	Monthly
Sealed lead-acid Type		
Charger Test	See methods above	Annually
Discharge Test (30 minutes)		Annually

Load Voltage Test		Semiannually
Emergency Voice/Alarm Evacuation Equipment	Proper function of phone jacks and operation of phone sets shall be tested. If applicable, emergency handset voice quality shall be verified.	Annually
Remote Annunciators	Correct operation and identification of annunciators shall be verified. If provided, the correct operation of annunciator under a fault condition shall be verified.	Annually
Initiating Devices		
Duct Detectors		Annually
Fire suppression system switches	Switch shall be electrically or mechanically operated and receipt of signal shall be verified at the fire alarm panel	Annually
Gas detectors	Tested as prescribed by the manufacturer. Sensitivity equipment shall be calibrated.	Annually
Heat Detectors		
Spot type (fixed temperature, rate of rise) restorable line type	Heat test shall be performed with heat source per the manufacturer's instructions with response within 1 minute. A test method shall be used that is recommended by the manufacturer or other method shall be used that will not damage the non-restorable fixed-temperature element of a combination rate-of-rise/fixed-temperature element detector.	Annually
Fixed-temperature non-restorable line type	Functional mechanical test and electrical loop resistance will be measured and recorded.	Annually
Fixed-temperature non-restorable spot type heat detector	All devices shall be replaced after 15 years from installation or two detectors out of 100 shall be laboratory tested. Failure of a detector will result in additional testing. Tests of tested detectors shall be repeated every 5 years. Functionality shall be tested mechanically and electrically.	Annually
Restorable line type, pneumatic tube	Heat test or a test with a pressure pump shall be conducted	Annually
Single- and multiple-station heat alarms	Functional test shall be conducted according to manufacturers recommendations	Annually
Fire alarm boxes (pull-stations)	Functional test shall be performed for general alarm and key-operated pre-signal boxes	Annually
Radiant energy detectors (UV/IR)	Tested in accordance with manufacturers recommendations using calibrated method	Semiannually
Smoke Detectors		
Single- and multiple-station smoke alarms in other than one and two family dwellings	Functional tests shall be conducted according to manufacturer's instructions. Sensitivity tested on same schedule as system type detectors, or, manufacturer's date logged and all single and multiple station detectors replaced at ten years.	See FMO Policy F-2
System Smoke Detectors (tied to the alarm system)	<p>Shall be tested in place to ensure smoke entry into the sensing chamber and an alarm response. Testing with smoke or listed aerosol approved by the manufacturer shall be permitted as acceptable test methods. Other methods approved by the manufacturer that ensure smoke entry into the sensing chamber shall be permitted.</p> <p>Any of the following tests shall be performed to ensure that each smoke detector is within its listed and marked sensitivity range:</p>	<p>Function tested Annually</p> <p>Sensitivity checked one year after installation <i>and,</i></p>

	<p>(1) Calibrated test method (2) Manufacturer's calibrated sensitivity test instrument (3) Listed control equipment arranged for the purpose (4) Smoke detector/control unit arrangement whereby the detector causes a signal at the control unit when its sensitivity is outside its listed sensitivity range (5) Other calibrated sensitivity test method approved by the authority having jurisdiction</p>	<p>Sensitivity checked every alternate year <i>and,</i> Extended to maximum five years if within calibrated settings, <i>and,</i> Nuisance alarms will require return to alternating years</p>
Duct type	Air duct detectors shall be tested or inspected to ensure that the device will sample the airstream. The test shall be made in accordance with the manufacturer's instructions.	
Projected beam type	The detector shall be tested by introducing smoke, other aerosol, or an optical filter into the beam path.	
Smoke detector with built-in thermal element	Both portions of the detector shall be operated independently as described for the respective devices.	
Smoke detectors with control output functions	It shall be verified that the control capability shall remain operable even if all of the initiating devices connected to the same initiating device circuit or signaling line circuit are in an alarm state.	
Supervisory Initiating Devices		
Control Valve Switches	Valve shall be operated and signal receipt shall be verified to be within the first two revolutions of the hand wheel or within one-fifth of the travel distance, or per the manufacturer's specifications.	Semiannually
High- or low-air pressure switch	Switch shall be operated. Receipt of signal obtained where the required pressure is increased or decreased a maximum 70 kPa (10 psi) from the required pressure level shall be verified.	Quarterly
Room temperature switch	Switch shall be operated. Receipt of signal to indicate the decrease in room temperature to 4.4°C (40°F) and its restoration to above 4.4°C (40°F) shall be verified.	Quarterly
Water level switch	Switch shall be operated. Receipt of signal indicating the water level raised or lowered 76.2 mm (3 in.) from the required level within a pressure tank, or 305 mm (12 in.) from the required level of a nonpressure tank, shall be verified, as shall its restoral to required level.	Quarterly
Water temperature switch	Switch shall be operated. Receipt of signal to indicate the decrease in water temperature to 4.4°C (40°F) and its restoration to above 4.4°C (40°F) shall be verified.	Quarterly
Mechanical, electronic, or pressure-type waterflow device	Water shall be flowed through an inspector's test connection indicating the flow of water equal to that from a single sprinkler of the smallest orifice size installed in the system for wet-pipe systems, or an alarm test bypass connection for dry-pipe, pre-action, or deluge systems in accordance with NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.	Semiannually

Alarm Notification Appliances		
Audible & textural notification appliances	Sound pressure level shall be measured with sound level meter and levels throughout protected area shall be recorded. Record the maximum output and verify audible information to be distinguishable if applicable	Annual
Visible	Test shall be performed per manufacturer's instructions. Verify proper distribution of appliances and confirm no floor plan changes have occurred and each appliance flashes with appropriate candela rating.	Annual
Special Hazard Equipment		
Abort Switch (IRI, recycle or special types)	Shall be operated with correct sequence or matrix with each sensor verified with sequence on as-built drawings.	Annual
Cross zone detection circuit	One detector on each zone shall be operated and occurrence of correct sequence with first and second zone verified.	Annual
Matrix-type circuit	All sensors in system shall be operated and development of correct matrix shall be verified	Annual
Release solenoid circuit	Operation shall be verified	Annual
Squibb release circuit	AGI flashbulb or other manufacture approved test light shall be used and verified.	Annual
Verified Sequence	Required sensors at minimum of four locations in circuit shall be operated. Correct sequence with first and second detector in alarm shall be verified.	Annual
All devices or circuits	Supervision shall be verified by creating an open circuit.	Annual
Transmission Equipment		
Phone dialers, radio transmitters, etc.	Tests shall be performed according to manufacturer's instructions. Verify receipt of initiating device signals at supervising station (monitoring company) within required time frame.	Annual