



## ***Southaven Fire Department***

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### **Fire Alarm Maintenance Guide**

The City of Southaven enforces the **2012 International Fire Code (IFC)** as adopted with referenced NFPA standards as applicable. See the information below related to **Fire Alarm Systems for installation and maintenance**. The table provided at the end of this document lists the various components and frequency for testing each.

**IFC 901.4.1 Required fire protection systems.** Fire protection systems required by this code or the *International Building Code* shall be installed, repaired, operated, tested and maintained in accordance with this code.

**IFC 901.4.2 Nonrequired fire protection systems.** Any fire protection system or portion thereof not required by this code or the *International Building Code* shall be allowed to be furnished for partial or complete protection provided such installed system meets the requirements of this code and the *International Building Code*.

**IFC 901.6 Inspection, testing and maintenance.** Fire detection, alarm and extinguishing systems shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective. Nonrequired fire protection systems and equipment shall be inspected, tested and maintained or removed.

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**IFC 901.6.1 Standards.** Fire protection systems shall be inspected, tested and maintained in accordance with the referenced standards listed in Table 901.6.1.

TABLE 901.6.1  
**FIRE PROTECTION SYSTEM MAINTENANCE STANDARDS**

| SYSTEM             | STANDARD |
|--------------------|----------|
| Fire alarm systems | NFPA 72  |

**IFC 901.6.2 Records.** Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained on the premises for a minimum of three years and shall be copied to the fire code official upon request.

**IFC 907.20 Inspection, testing and maintenance.** The maintenance and testing schedules and procedures for fire alarm and fire detection systems shall be in accordance with this section and Chapter 10 of **NFPA 72**.

**IFC 907.20.1 Maintenance required.** Whenever or wherever any device, equipment, system, condition, arrangement, level of protection or any other feature is required for compliance with the provisions of this code, such device, equipment, system, condition, arrangement, level of protection or other feature shall thereafter be continuously maintained in accordance with applicable NFPA requirements or as directed by the fire code official.

**IFC 907.20.2 Testing.** Testing shall be performed in accordance with the schedules in Chapter 10 of **NFPA 72** or more frequently where required by the fire code official. Where automatic testing is performed at least weekly by a remotely monitored fire alarm control unit specifically listed for the application, the manual testing frequency shall be permitted to be extended to annual.

**Exception:** Devices or equipment that are inaccessible for safety considerations shall be tested during scheduled shutdowns where approved by the fire code official, but not less than every 18 months.

**IFC 907.20.3 Detector sensitivity.** Detector sensitivity shall be checked within one year after installation and every alternate year thereafter. After the second calibration test, where sensitivity tests indicate that the detector has remained within its listed and marked sensitivity range (or 4-percent obscuration light grey smoke, if not marked), the length of time between calibration tests shall be permitted to be extended to a maximum of five years. Where the frequency is extended, records of detector-caused nuisance alarms and subsequent trends of these alarms shall be maintained. In zones or areas where nuisance alarms show any increase over the previous year, calibration tests shall be performed.

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**IFC 907.20.4 Method.** To ensure that each smoke detector is within its listed and marked sensitivity range, it shall be tested using either a calibrated test method, the manufacturer's calibrated sensitivity test instrument, listed control equipment arranged for the purpose, a smoke detector/control unit arrangement whereby the detector causes a signal at the control unit where its sensitivity is outside its acceptable sensitivity range or other calibrated sensitivity test method acceptable to the fire code official. Detectors found to have sensitivity outside the listed and marked sensitivity range shall be cleaned and recalibrated or replaced.

**Exceptions:**

1. Detectors listed as field adjustable shall be permitted to be either adjusted within the listed and marked sensitivity range and cleaned and recalibrated or they shall be replaced.
2. This requirement shall not apply to single-station smoke alarms.

**IFC 907.20.4.1 Testing device.** Detector sensitivity shall not be tested or measured using a device that administers and unmeasured concentration of smoke or other aerosol into the detector.

**IFC 907.20.5 Maintenance, inspection and testing.** The building owner shall be responsible for ensuring that the fire and life safety systems are maintained in an operable condition at all times. Service personnel shall meet the qualification requirements of NFPA 72 for maintaining, inspecting and testing such systems. A written record shall be maintained and shall be made available to the fire code official.

**NFPA 72 Table 10.4.3 Testing Frequency**

Testing shall be performed in accordance with the schedules in Table 10.4.3, except as modified in other paragraphs of 10.4.3, or more often if required by the authority having jurisdiction.

*Exception: Devices or equipment that are inaccessible for safety considerations (e.g., continuous process operations, energized electrical equipment, radiation, and excessive height) shall be tested during scheduled shutdowns if approved by the authority having jurisdiction but shall not be tested more than every 18 months.*

### NFPA 72 Table 10.4.3 Testing Frequencies

|    | <b>Component</b>  | <b>Initial/<br/>Reacceptance</b> | <b>Monthly</b> | <b>Quarterly</b> | <b>Semiannually</b> | <b>Annually</b> | <b>Table<br/>10.4.2.2<br/>Reference</b> |
|----|---|----------------------------------|----------------|------------------|---------------------|-----------------|---|
| 1. | Control Equipment — Building Systems Connected to Supervising Station       |                                  |                |                  |                     |                 | 1, 7, 16, 17                            |
|    | (a) Functions   | X                                | —              | —                | —                   | X               | —                                       |
|    | (b) Fuses   | X                                | —              | —                | —                   | X               | —                                       |
|    | (c) Interfaced equipment  | X                                | —              | —                | —                   | X               | —                                       |
|    | (d) Lamps and LEDs  | X                                | —              | —                | —                   | X               | —                                       |
|    | (e) Primary (main) power supply   | X                                | —              | —                | —                   | X               | —                                       |
|    | (f) Transponders  | X                                | —              | —                | —                   | X               | —                                       |
| 2. | Control Equipment — Building Systems Not Connected to a Supervising Station | —                                | —              | —                | —                   | —               | 1                                       |
|    | (a) Functions   | X                                | —              | X                | —                   | —               | —                                       |
|    | (b) Fuses   | X                                | —              | X                | —                   | —               | —                                       |
|    | (c) Interfaced equipment  | X                                | —              | X                | —                   | —               | —                                       |
|    | (d) Lamps and LEDs  | X                                | —              | X                | —                   | —               | —                                       |
|    | (e) Primary (main) power supply   | X                                | —              | X                | —                   | —               | —                                       |
|    | (f) Transponders  | X                                | —              | X                | —                   | —               | —                                       |
| 3. | Engine-Driven Generator — Central Station Facilities and Fire Alarm Systems | X                                | X              | —                | —                   | —               | —                                       |
| 4. | Engine-Driven Generator —   | X (weekly)                       | —              | —                | —                   | —               | —                                       |

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|    |  |   |   |   |   |   |    |
|----|--|---|---|---|---|---|----|
|    | Public Fire Alarm Reporting Systems  |   |   |   |   |   |    |
| 5. | Batteries — Central Station Facilities   |   |   |   |   |   |    |
|    | (a) Lead-acid type   | — | — | — | — | — | 6b |
|    | 1. Charger test (replace battery as needed.)   | X | — | — | — | X | —  |
|    | 2. Discharge test (30 minutes)   | X | X | — | — | — | —  |
|    | 3. Load voltage test   | X | X | — | — | — | —  |
|    | 4. Specific gravity  | X | — | — | X | — | —  |
|    | (b) Nickel-cadmium type  | — | — | — | — | — | 6c |
|    | 1. Charger test (replace battery as needed.)   | X | — | X | — | — | —  |
|    | 2. Discharge test (30 minutes)   | X | — | — | — | X | —  |
|    | 3. Load voltage test   | X | — | — | — | X | —  |
|    | (c) Sealed lead-acid type  | X | X | — | — | — | 6d |
|    | 1. Charger test (replace battery within 5 years after manufacture or more frequently as needed.) | — | X | X | — | — | —  |
|    | 2. Discharge test (30 minutes)   | X | X | — | — | — | —  |
|    | 3. Load voltage test   | X | X | — | — | — | —  |
| 6. | Batteries — Fire Alarm Systems   |   |   |   |   |   |    |
|    | (a) Lead-acid type   | — | — | — | — | — | 6b |
|    | 1. Charger test (replace battery as needed.)   | X | — | — | — | X | —  |
|    | 2. Discharge test (30 minutes)   | X | — | — | X | — | —  |
|    | 3. Load voltage test   | X | — | — | X | — | —  |

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|    |  |           |   |   |   |   |    |
|----|--|-----------|---|---|---|---|----|
|    | 4. Specific gravity  | X         | — | — | X | — | —  |
|    | (b) Nickel-cadmium type  | —         | — | — | — | — | 6c |
|    | 1. Charger test (replace battery as needed.)   | X         | — | — | — | X | —  |
|    | 2. Discharge test (30 minutes)   | X         | — | — | — | X | —  |
|    | 3. Load voltage test   | X         | — | — | X | — | —  |
|    | (c) Primary type (dry cell)  | —         | — | — | — | — | 6a |
|    | 1. Load voltage test   | X         | X | — | — | — | —  |
|    | (d) Sealed lead-acid type  | —         | — | — | — | — | 6d |
|    | 1. Charger test (replace battery within 5 years after manufacture or more frequently as needed.)                   | X         | — | — | — | X | —  |
|    | 2. Discharge test (30 minutes)   | X         | — | — | — | X | —  |
|    | 3. Load voltage test   | X         | — | — | X | — | —  |
| 7. | Batteries — Public Fire Alarm Reporting Systems<br>Voltage tests in accordance with Table 10.4.2.2, items 7(1)–(6) | X (daily) | — | — | — | — | —  |
|    | (a) Lead-acid type   | —         | — | — | — | — | 6b |
|    | 1. Charger test (replace battery as needed.)   | X         | — | — | — | X | —  |
|    | 2. Discharge test (2 hours)  | X         | — | X | — | — | —  |
|    | 3. Load voltage test   | X         | — | X | — | — | —  |
|    | 4. Specific gravity  | X         | — | — | X | — | —  |
|    | (b) Nickel-cadmium type  | —         | — | — | — | — | 6c |
|    | 1. Charger test (replace battery as needed.)   | X         | — | — | — | X | —  |

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|     |  |   |   |   |   |   |     |
|-----|--|---|---|---|---|---|-----|
|     | 2. Discharge test (2 hours)  | X | — | — | — | X | —   |
|     | 3. Load voltage test   | X | — | X | — | — | —   |
|     | (c) Sealed lead-acid type  | — | — | — | — | — | 6d  |
|     | 1. Charger test (replace battery within 5 years after manufacture or more frequently as needed.) | X | — | — | — | X | —   |
|     | 2. Discharge test (2 hours)  | X | — | — | — | X | —   |
|     | 3. Load voltage test   | X | — | X | — | — | —   |
| 8.  | Fiber-Optic Cable Power  | X | — | — | — | X | 12b |
| 9.  | Control Unit Trouble Signals   | X | — | — | — | X | 9   |
| 10. | Conductors — Metallic  | X | — | — | — | — | 11  |
| 11. | Conductors — Nonmetallic   | X | — | — | — | — | 12  |
| 12. | Emergency Voice/Alarm Communications Equipment   | X | — | — | — | X | 18  |
| 13. | Retransmission Equipment (The requirements of 10.4.7 shall apply.)                               | X | — | — | — | — | —   |
| 14. | Remote Annunciators  | X | — | — | — | X | 10  |
| 15. | Initiating Devices   | — | — | — | — | — | 13  |
|     | (a) Duct detectors   | X | — | — | — | X | —   |
|     | (b) Electromechanical releasing device   | X | — | — | — | X | —   |
|     | (c) Fire extinguishing system(s) or suppression system(s) switches                               | X | — | — | — | X | —   |
|     | (d) Fire—gas and other detectors   | X | — | — | — | X | —   |
|     | (e) Heat detectors (The requirements of 10.4.3.4   | X | — | — | — | X | —   |

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|     |  |   |   |   |   |   |    |
|-----|--|---|---|---|---|---|----|
|     | shall apply.)  |   |   |   |   |   |    |
|     | (f) Fire alarm boxes   | X | — | — | — | X | —  |
|     | (g) Radiant energy fire detectors  | X | — | — | X | — | —  |
|     | (h) System smoke detectors — functional  | X | — | — | — | X | —  |
|     | (i) Smoke detectors — sensitivity (The requirements of 10.4.3.2 shall apply.)  | — | — | — | — | — | —  |
|     | (j) Single- and multiple-station smoke alarms (The requirements for monthly testing in accordance with 10.4.4 shall also apply.) | X | — | — | — | X | —  |
|     | (k) Single- and multiple-station heat alarms   | X | — | — | — | X | —  |
|     | (l) Supervisory signal devices (except valve tamper switches)  | X | — | X | — | — | —  |
|     | (m) Waterflow devices  | X | — | — | X | — | —  |
|     | (n) Valve tamper switches  | X | — | — | X | — | —  |
| 16. | Guard's Tour Equipment   | X | — | — | — | X | —  |
| 17. | Interface Equipment  | X | — | — | — | X | 19 |
| 18. | Special Hazard Equipment   | X | — | — | — | X | 15 |
| 19. | Alarm Notification Appliances  | — | — | — | — | — | 14 |
|     | (a) Audible devices  | X | — | — | — | X | —  |
|     | (b) Audible textual notification appliances  | X | — | — | — | X | —  |

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|     |   |   |   |   |   |   |    |
|-----|---|---|---|---|---|---|----|
|     | (c) Visible devices                                   | X | — | — | — | X | —  |
| 20. | Off-Premises Transmission Equipment                   | X | — | X | — | — | —  |
| 21. | Supervising Station Fire Alarm Systems — Transmitters | — | — | — | — | — | 16 |
|     | (a) DACT  | X | — | — | — | X | —  |
|     | (b) DART  | X | — | — | — | X | —  |
|     | (c) McCulloh  | X | — | — | — | X | —  |
|     | (d) RAT   | X | — | — | — | X | —  |
| 22. | Special Procedures                                    | X | — | — | — | X | 21 |
| 23. | Supervising Station Fire Alarm Systems — Receivers    | — | — | — | — | — | 17 |
|     | (a) DACR  | X | X | — | — | — | —  |
|     | (b) DARR  | X | X | — | — | — | —  |
|     | (c) McCulloh systems                                  | X | X | — | — | — | —  |
|     | (d) Two-way RF multiplex                              | X | X | — | — | — | —  |
|     | (e) RASSR   | X | X | — | — | — | —  |
|     | (f) RARSR   | X | X | — | — | — | —  |
|     | (g) Private microwave                                 | X | X | — | — | — | —  |

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