EC.02.03.05

Features of Fire Protection Associated With the Fire Alarm System (Device Images)
FEATURES OF FIRE SAFETY

EC.02.03.05 Features of Fire Safety

- Buildings are protected from fire by a series of detection, notification and suppression devices
- Each feature of fire safety must be fully operational
- Each device must be tested to ensure it is functional and dependable
- The Joint Commission requires a working inventory of devices, so if one is not tested or fails it may be located
  - NOT allowed as PFIs
EC.02.03.05 – EP1

SUPERVISORY SIGNAL DEVICES

- A device that sends a signal back to the main fire alarm panel (e.g., fire pump running, loss of power to fire pump, fire pump room temperature problems, etc.)
- Must be tested quarterly
EC.02.03.05 – EP2
WATER FLOW SWITCHES

- These devices alarm when the flow of water is detected in the sprinkler system – i.e., possibly a sprinkler head activated
- Must be tested quarterly
  - Semi-annually if not seeking deemed status
EC.02.03.05 – EP2

VALVE TAMPER SWITCHES

- Monitors sprinkler zone valves; a signal is sent to main fire alarm panel if attempt to close
- Must be tested semi-annually
- If a valve does not have a tamper switch, it must be locked in the open position
EC.02.03.05 – EP3

**DETECTORS AND DOOR RELEASING DEVICES**

- Includes duct/heat/smoke detectors, manual pull stations, and magnetic door releasing devices.
- Must be tested annually.
EC.02.03.05 –EP4

FIRE ALARM NOTIFICATION DEVICES

- Includes audible devices, speakers and visible devices
- Must be tested annually
EC.02.03.05 – EP4

FIRE ALARM DEVICE TESTING INVENTORY

For example, if there were 132 devices and one was broken, how would you know which one was broken without an active and device specific inventory.
EC.02.03.05 – EP5

FIRE ALARM OFFSITE NOTIFICATION

- If fire alarm panel is activated, the feature notifies off-site responders automatically
- Must be tested quarterly

TIP: Many times this test is completed and documented as part of quarterly fire drills
EC.02.03.05 – EP6

FIRE PUMP WEEKLY RUN TEST (NO FLOW)

- Purpose of test is to verify pump is in operating condition
- Pump needs to run for a minimum of ten minutes (water flow is not required)
In rare situations, water to automatic sprinkler systems are supplied by tanks that are mounted on roofs of buildings.

- Must test water temperature alarms monthly in cold weather.

- Must test high/low water alarms semiannually.

Failure to maintain adequate heat in a tank during cold weather months may lead to catastrophe.
EC.02.03.05 – EP9

MAIN DRAIN TEST

- Conducted to determine a change in the condition of water supply piping or control valves

- Must be conducted annually
EC.02.03.05 – EP10

Fire Department Connections

- These are connections through which the fire department can pump supplemental water into the building sprinkler system or standpipe system.
- Visible and Accessible
- Caps in place
- Must be inspected quarterly
EC.02.03.05 – EP11

FIRE PUMP ANNUAL TEST UNDER FLOW

- Purpose of test is to verify that pump can provide the needed amount of water
- Length of pump test time is based upon pump’s rating

- Evaluate against previous test
EC.02.03.05 – EP12

5 YEAR STANDPIPE TEST

- Purpose of flow test is to verify the water supply provides design pressure at the required flow
- Hydrostatic test required on dry standpipes for two hours
EC.02.03.05 – EP13

**KITCHEN AUTOMATIC EXTINGUISHMENT**

- Shuts off fuel source automatically
- Connected to fire alarm panel
- Must be inspected every 6 months
- Actual discharge is not required
- K Type portable fire extinguisher

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**Class K Fire Extinguishers**

use a wet, potassium acetate-based, low pH agent to put out "cooking" fires in which there are animal or vegetable oils and fats.
EC.02.03.05 – EP14

CARBON DIOXIDE & OTHER GASEOUS AUTOMATIC SYSTEMS

- Must be inspected annually
- Actual discharge is not required
EC.02.03.05 – EP15 AND EP16
PORTABLE FIRE EXTINGUISHERS

- Monthly Visible Inspection
  - Accessible
  - Fully charged
  - Any Parts broken
  - Correct type
  - **DO NOT COUNT DAYS, BUT ENSURE MONTHLY INSPECTION**

- Annual Maintenance by a licensed Fire Protection service company
### EC.02.03.05

**PORTABLE FIRE EXTINGUISHERS TYPES**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Common Combustibles</td>
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<tr>
<td></td>
<td>Wood, paper, cloth etc.</td>
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<tr>
<td>B</td>
<td>Flammable liquids and gases</td>
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<td></td>
<td>Gasoline, propane and solvents</td>
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<tr>
<td>C</td>
<td>Live electrical equipment</td>
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<td></td>
<td>Computers, fax machines</td>
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<td></td>
<td>(see note!)</td>
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<tr>
<td>D</td>
<td>Combustible metals</td>
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<td></td>
<td>Magnesium, lithium, titanium</td>
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<tr>
<td>K</td>
<td>Cooking media</td>
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<tr>
<td></td>
<td>Cooking oils and fats</td>
</tr>
</tbody>
</table>

**Note:** The installation of a wrong type of extinguisher can be scored at LS.02.01.35 EP 14 (e.g., no K type in the kitchen) or EC.02.03.01 EP 1 (business occupancies)
FIRE EXTINGUISHER: DATING

Month, day, year and initials of inspector as per NFPA 10-1998

4-3.4 Inspection Recordkeeping.

4-3.4.1 Personnel making inspections shall keep records of all fire extinguishers inspected, including those found to require corrective action.

4-3.4.2 At least monthly, the date the inspection was performed and the initials of the person performing the inspection shall be recorded.

4-3.4.3 Records shall be kept on a tag or label attached to the fire extinguisher, on an inspection checklist maintained on file, or in an electronic system (e.g., bar coding) that provides a permanent record.

DO NOT COUNT DAYS, BUT ENSURE MONTHLY INSPECTION
EC.02.03.05 – EP17

FIRE HOSES

- Must be hydrostatically tested 5 years after installation and every 3 years thereafter

Note: Most fire departments do not rely on these hoses, because they bring their own hoses. They can only be removed if written approval is given by local fire department with an equivalency given by The Joint Commission.
EC.02.03.05 – EP18

FIRE DAMPERS

- Stops the passage of fire through ventilation ductwork
- Activated by fusible link
- Inspected and tested within one year of installation and every six years thereafter
EC.02.03.05 – EP18
SMOKE DAMPERS

- Stops the passage of smoke through ventilation ductwork
- Activated by external smoke detector
- Must be installed within 24 inches of smoke partitions
- Inspected and tested after one year of installation and then every six years
EC.02.03.05 – EP19

VENTILATION SHUT DOWN DEVICES

- If smoke is sensed, device stops ventilation fans from spreading smoke throughout the building
- Located in air handler equipment room in the ductwork of ventilation units
- Must be tested annually
# Duct Detector Testing

## Air Handler Shut Down

This form documents detector testing only – Not compliant

### Best Practice

Use Building Automation to Document

- Alarm activation
- Fan status (supply and return)
- Return to normal

<table>
<thead>
<tr>
<th>Location &amp; S/N</th>
<th>Device Type</th>
<th>Visual Check</th>
<th>Functional Test</th>
<th>Factory Setting</th>
<th>Measured Setting</th>
<th>Pass</th>
<th>Fail</th>
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Department of Engineering  2016 - 25
EC.02.03.05 – EP20
ROLLING FIRE DOORS

- Activated by fusible link
- Fusible link shall not be painted
- Must be tested annually
For hospitals that use Joint Commission accreditation for deemed status purposes:

- Documentation of maintenance, testing, and inspection activities for fire alarm and water-based fire protection systems includes the following:

Note: For additional guidance on documenting activities:

- NFPA 25, 1998 edition (Section 2-1.3)
- NFPA 72, 1999 edition (Section 7-5.2)
Continued Text:

- Name of the activity
- Date of the activity
- Required frequency of the activity
- Name and contact information, including affiliation, of the person who performed the activity
- NFPA standard(s) referenced for the activity
- Results of the activity
Based on its process(es), report and investigate

- Fire safety management problems, deficiencies, and failures
  - Fire drill critiques
    - Staff performance per plan
  - Equipment
    - Contractor management
George Mills, MBA, FASHE, CEM, CHFM, CHSP, Green Belt
   Director

Andrea Browne, PhD., DABR
   Medical Physicist

Anne Guglielmo, CFPS, LEED, A.P., CHFM, CHSP
   Engineer

John Maurer, CHFM, CHSP, SASHE
   Engineer

Kathy Tolomeo, CHEM, CHSP
   Engineer

James Woodson, P.E., CHFM
   Engineer
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