BUILDING PARTNERSHIPS IN LIFE SAFETY
SETTING THE PACE

Safety - The Most Important Position on the Field!
HISTORY OF FIRE & LIFE SAFETY AMERICA

- Founded in 1997
- Dedicated Healthcare Division
  - 35 Certified Healthcare Operations Professionals
  - 125 Healthcare Trained Inspectors
  - Environment of Care and Life Safety Boot Camp
  - Hands-On Training Programs with our Healthcare Clients
  - 75 ASHE Fire Door Trained FLSA Technicians
  - Internal Compliance Team

- Inspect and Service over 2000 Accredited Healthcare Facilities and work with many accrediting organizations including The Joint Commission, DNV GL Healthcare, HFAP, CARF, UCA, CIHQ

- Acute Care, Ambulatory Care, Critical Access Hospitals, Senior Living Facilities, Rehabilitation Centers, Outpatient Surgery Centers, Behavioral Health Hospitals
FLSA SERVICES, INSTALLS, & INSPECTS

FIRE SPRINKLER SYSTEMS
FIRE ALARM SYSTEMS
SPECIAL HAZARD SUPPRESSION SYSTEMS
FIRE & SMOKE DAMPERS
FIRE & SMOKE DOORS
FIRE EXTINGUISHERS
EMERGENCY LIGHTS
BACKFLOWS
FIRE ALARM MONITORING
EYE WASH STATIONS/SAFETY SHOWERS
The Inspection Process
Industry Challenges

- Defending in Place
- Above Ceiling Permits
- Communication
- Technicians on Site
- Inventory Control & Consistency
- Dust Containment
- Accountability
- Compliance
- Expertise-NFPA & Healthcare Accreditation
- Healthcare Etiquette (Patients, Visitors, Staff, Operating Rooms)
Transitioning to Heathcare

1. INITIAL PRESENTATION
   • Culture, Vision
   • Capabilities, Support, Training, Accreditation Survey

2. KICKOFF MEETING
   • Inspection Flow, Proactive Communication
   • Capacity, Team Approach, Goal Reviews

3. PROGRESS MEETINGS
   • Frequency, Process Evaluation, Completion
   • Leadership Involvement, short term & long term goals
Initial Meeting

• Vision and Goals
• Accreditation Company and Survey Date
• Vendor Credentialing Requirements
• After Hour Inspections
• Expectations in writing (different than a contract)
  – Expectations are graded
• Above Ceiling Permit Process
• Check In/Out Procedures
• Dust Containment
• Training
• Capacity and Capabilities
• Compliance Review
• Life Safety Drawings
• ILSM's/ALSM's
Kickoff Meetings

• Team Introductions
• Goals and Expectations
  – Expectations are graded
• Accountability-100% Inspected
• CMMS Software & Inspection Process
• Inspection Intervals and Timeframes
• Badging Procedures and Access, 100% Inspection
• Emergency Codes
• Inventory
• Deficiency Repair Review
• Internal Compliance Reviews
Progress Meetings

- Define Frequency
- Progress towards goals & expectations
  - Expectations are graded
- Process Evaluation
- Streamlining
- Deficiency Repair Progress
  - Repair Quote Procedures
- Compliance & Inventory
- Leadership Involvement
Inspection Completion

• Review Inspection Reports
  – Compliance Teams working together
  – Handwritten vs. Online
  – Complete Life Safety Device Inventory, Accreditation Standards
• Supporting Documentation
• Inspection Timeframes and future schedule
• Team Approach
• Compliance Binders
• Overall Progress towards goals and meeting expectations
  – Expectations are graded
• Correct NFPA Codes and Standards
AFTER THE 1ST INSPECTION

- Conduct/Attend Training Seminars
- Compliance Certifications
- Team Meetings
- Lunch & Learns
- Volunteering
- Facility Tour
ASHE Fire Door Training
Lunch & Learns and On-Site Training
CHOP CERTIFICATION
VOLUNTEERING IN THE COMMUNITY
VOLUNTEERING ON-SITE
Building Partnerships in Life Safety

- Life Safety
- Community
- Mission Statement
- Training
- Core Values
- Accreditation
- Proactive
- Goals
- Knowledge
- Process Evaluations
- Culture
- Expectations
Quick Review

1. INITIAL PRESENTATION
   • Culture, Vision
   • Capabilities, Support, Training, Accreditation, Survey

2. KICKOFF MEETING
   • Inspection Flow, Proactive Communication
   • Capacity, Team Approach, Goal Reviews

3. PROGRESS MEETINGS
   • Frequency, Process Evaluation, Completion
   • Leadership Involvement, short term & long term goals

4. PARTNERSHIP
   • Training, Volunteer, Community Involvement
   • Resource, Certification, Teamwork
Life Safety Systems in Healthcare
July 5th, 2016
Chapter 2  Referenced Publications

2.1 General. The documents referenced in this chapter, or portions of such documents, are referenced within this Code, shall be considered part of the requirements of this Code, and the following shall also apply:
Accrediting Organizations

The Joint Commission

CIHQ

UCA

CMS

DNV-GL

CARF

ASPIRE to Excellence

HFAP
Every 12 months, the hospital tests duct detectors, heat detectors, manual fire alarm boxes, and smoke detectors on the inventory. The results and completion dates are documented.

NFPA 72 2010 Edition Table 14.4.5; 17.14
Inspection Timeframe

• Every 36 months/every 3 years = 36 months from the last event, plus or minus 45 days
• Annually/every 12 months/once a year/every year = 1 year from the last event, plus or minus 30 days
• Every 6 months = 6 months from the last event, plus or minus 20 days
• Quarterly/every quarter = every three months, plus or minus 10 days
• Monthly/30-day intervals/every month = 12 times a year, once per calendar month
• Every week = once per calendar week
Various Types of Life Safety Systems

- Wet Pipe Fire Sprinkler System
- Dry Pipe Fire Sprinkler System
- Preaction Fire Sprinkler System
- Deluge Fire Sprinkler System
- Kitchen Hood Fire Suppression System
- Clean Agent Suppression Systems
- Fire Alarm Panels
- Fire Extinguishers
- Emergency & Exit Lights
- Fire/Smoke Rated Doors
- Fire/Smoke Dampers
- Fire Pumps
Components of Life Safety Systems

<table>
<thead>
<tr>
<th>Control Valves</th>
<th>Pressure Supervisory</th>
<th>Pressure Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Supervisory for Dry Pipe</td>
<td>Steam Pressure</td>
<td>Water Level Supervisory</td>
</tr>
<tr>
<td>Water Temperature Supervisory</td>
<td>Room Temperature Supervisory</td>
<td>Water Flow Devices</td>
</tr>
<tr>
<td>Valve Tamper Switches</td>
<td>Water Motor Gongs</td>
<td>Duct Detectors</td>
</tr>
<tr>
<td>Heat Detectors</td>
<td>Pull Stations</td>
<td>Smoke</td>
</tr>
<tr>
<td>Detectors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual Notification Devices</td>
<td>Audible Notification Devices</td>
<td>Door Releasing</td>
</tr>
<tr>
<td>Devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring Devices</td>
<td>Drains</td>
<td>FDC</td>
</tr>
<tr>
<td>Sprinkler Heads</td>
<td>Modules</td>
<td>Fan</td>
</tr>
<tr>
<td>Shutdown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piping</td>
<td>Wiring</td>
<td>Batteries</td>
</tr>
</tbody>
</table>

AND MANY MORE
Wet Pipe Sprinkler System

The **Wet Pipe System** is the most common. Water is always in the piping system and sprinkler heads are located throughout the building, often above and below ceilings. Each sprinkler is individually heat activated at a preset temperature (normally 155°F). Only the sprinklers over the fire area discharge water in a basic wet pipe system.
Dry Pipe Sprinkler System

Dry pipe systems are used in buildings or areas where temperature is not maintained above 40° such as unheated attics and warehouses.

Dry pipe systems have compressed air in the piping, which is released upon activation of sprinkler heads, which allows a valve to open and flood the piping – then acting like the wet system.
Preaction Sprinkler System

Pre-Action Systems – like a dry pipe system but also incorporates a detection system which must activate to open the valve.

When the system piping is flooded – a sprinkler would still need to be heat activated or opened for water to flow. Conversely, breaking a pipe would not allow water flow without detection of a fire.
Deluge Sprinkler System

Deluge Systems are open head or nozzle systems where a related detection trips or opens the valve – and water flows from all sprinklers in the system at the same time.

Often called the Hollywood system because you always see sprinklers work this way in sitcoms and action movies, they are commonly used for exposures and tank farms.
Main Drains

FIGURE A.13.1(h)  OS&Y Gate Valve.

not a substitute for a valve check on 100 percent of the fire protection valving.

The main drain test is conducted in the following manner:

1. Record the pressure indicated by the supply water gauge.
2. Close the alarm control valve on alarm valves.
3. Fully open the main drain valve.
4. After the flow has stabilized, record the residual (flowing) pressure indicated by the water supply gauge.
5. Close the main drain valve slowly.
6. Record the time taken for the supply water pressure to return to the original static (nonflowing) pressure.
7. Open the alarm control valve.
Standpipe Systems

Standpipe systems are most commonly used in mid and high rise buildings as a vertical fire hydrant system to bring water to upper floors.

In taller and larger buildings, fires must be fought internally because the street hydrants are too far away.

Standpipes can be arranged as wet or dry systems (parking garage).
Standpipe Systems
Fire Pumps

Pumps are used to boost system pressure when the available water pressure isn’t adequate to operate sprinkler systems.

Pumps are usually electric motor or diesel engine driven and they require weekly inspection and normal maintenance to ensure proper operation when called upon.

8.3.3.4 For installations having an automatic transfer switch, the following test shall be performed to ensure that the overcurrent protective devices (i.e., fuses or circuit breakers) do not open:

1. Simulate a power failure condition while the pump is operating at peak load
2.Verify that the transfer switch transfers power to the alternate power source
3. Verify that the pump continues to perform at peak load
4. Remove the power failure condition and verify that, after a time delay, the pump is reconnected to the normal power source
Fire Pumps-TIA NFPA 25 2011 TIA 11-5 effective date September 3, 2018. TIA Log #1364

3. Revise the Electrical System section of Table 8.1.2 and add a note to the end of the Table to read as follows:

<table>
<thead>
<tr>
<th>Electrical System</th>
<th>Visual Inspection</th>
<th>Check</th>
<th>Change</th>
<th>Clean</th>
<th>Test</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tighten electrical connections as necessary</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>Lubricate mechanical moving parts (excluding starters and relays)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>Calibrate pressure switch settings*</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>Grease motor bearings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>Voltmeter and ammeter for accuracy (%2)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>Any corrosion on printed circuit boards (PCBs)†</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>Any cracked cable/wire insulation†</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>Any leaks in plumbing parts‡</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>Any signs of water on electrical parts‡</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Required only where the conduct of such work can be completed without the opening of an energized electric motor-driven fire pump controller.
Fire Alarm Panel

There are five main components in a fire alarm system:

- Fire Alarm Control Panel
- Initiating Devices
- Notification Appliances
- Emergency controls
- Supplementary Equipment
Signal Verification

26.6.3.1.7 End-to-End Communication Time for an Alarm. The maximum duration between the initiation of an alarm signal at the protected premises, transmission of the signal, and subsequent display and recording of the alarm signal at the supervising station shall not exceed 90 seconds.

### Monitoring
- **Company:** Advantage (AIT)
- **Phone:** 800-932-3822
- **Account #:** 2948055

### Central Station Signal Verification
- **Type:** Digital Communicator
- **Mfg:** Notifier
- **Model #:** NF52-640
- **Test Time/Date:** 1/11/19 1:20:10 PM
- **Restore Time:** 3:40pm

<table>
<thead>
<tr>
<th>Type</th>
<th>Signal Confirmation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm</td>
<td>Confirmed Time: 3:30pm</td>
<td>15 sec</td>
</tr>
<tr>
<td>Supervisory</td>
<td>Confirmed Time: 3:30pm</td>
<td>10 sec</td>
</tr>
<tr>
<td>Trouble</td>
<td>Confirmed Time: 3:31pm</td>
<td>11 sec</td>
</tr>
</tbody>
</table>
Initiating and Notification Devices

Initiating Devices

Examples of Inputs that send alarm signals to the FACP

- Pull Stations
- Duct Detectors
- Smoke Detectors
- Heat Detectors
- Sprinkler system water flow switches

Notification Appliances

Example of Outputs from the FACP

- Visible Device (strobe)
- Bells
- Audible Device (horn)
- Speakers (Voice Systems)
- Combined Audio/Visual Devices
Automatic smoke-detection shutdown devices for air-handling equipment

Example 2: A single addressable duct detector shutting down a multiple units using multiple addressable control relays

In this arrangement there is one input, two or more outputs, and two or more input/output correlations. The duct detector must be tested, and it must be verified that all of the units it is designated to control have shutdown. After verification of alarm receipt and shutdown of the units, the panel must be reset. Verify that the units have restarted prior to proceeding.
Gaseous Fire Extinguishing Systems
FM-200

3 measurement options:
1-Internal Scale
2-Calibrated Scales
3-Cali-Meter
Gaseous Fire Extinguishing System-Carbon Dioxide System
Helipads
Fire & Smoke Dampers

- Link Dampers
- Spring Loaded Dampers
- Motorized Dampers

- Inspect 1 Year after installation
- Inspect every 4 Years or 6 Years thereafter, depending on occupancy type
The Service Summary section provides an overview of the services performed in this report.

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Service</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agent Tank</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>CO2 Tank</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Cooking Equipment</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Emergency Power Off</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Fan Start</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Fusible Link</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Kitchen System</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Piping</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Pull Station</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Signal</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Valve</td>
<td>Tested</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>
Fire Doors

1. Labels are clearly visible and legible.
2. No open holes or breaks exist in surfaces of either the door or frame.
3. Glazing, vision light frames, and glazing beads are intact and securely fastened in place, if so equipped.
4. The door, frame, hinges, hardware and noncombustible threshold are secured, aligned, and in working order with no visible signs of damage.
5. No parts are missing or broken.
6. Door clearances do not exceed clearances listed in 4.8.4 and 6.3.1.7.
7. The self-closing device is operational; that is, the active door completely closes when operated from the full open position.
8. If a coordinator is installed, the inactive leaf closes before the active leaf.
9. Latching hardware operates and secures the door when it is in the closed position.
10. Auxiliary hardware items, which interfere or prohibit operation, are not installed on the door and frame.
11. No field modifications to the door assembly have been performed that void the label.
12. Meeting edge protection, gasketing and edge seals, where required, are inspected to verify their presence and integrity.
13. Signage affixed to a door meets the requirements listed in 4.1.4.
Fire Doors
Sliding & Rolling Fire Doors
QUESTIONS
THANK YOU

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Director of Healthcare Solutions

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