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Fire Suppression System: Operation and Maintenance

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Module 1: Introduction

Learning Objectives

By the end of this section, you will be able to:

- **Identify** the specific Department of Defense (DOD) facilities and legal authorities that govern fire protection system maintenance.
- **Evaluate** the qualification requirements for personnel performing inspection, testing, and maintenance (ITM) tasks.
- **Implement** mandatory notification and compensatory measure protocols during system impairments.

Executive Summary: This chapter establishes the foundational requirements for the inspection, testing, and maintenance (ITM) of fire protection features across all DOD facilities. It prioritizes a reliability-centered maintenance (RCM) approach to achieve 99% system reliability, ensuring both personnel safety and mission continuity while strictly defining the authority, personnel qualifications, and impairment protocols necessary for compliance.

Background Fundamentals

The **Unified Facilities Criteria (UFC)** was developed through extensive evaluation of DOD facilities, maintenance surveys, and a selection of best practices from government and private sectors.

- **RCM Concepts:** This document is rooted in recognized **reliability-centered maintenance** and risk management.
- **Standard Integration:** It incorporates model building codes, **NFPA National Fire Codes**, and industrial standards to the maximum extent feasible.
- **Primary Drivers:** Personnel safety and mission continuity serve as the core considerations for these requirements.

Purpose and Scope

This UFC dictates the requirements for the **ITM of engineered fire protection features**.

⚠ **Safety Constraint:** Do **not** deviate from these criteria without prior approval from the designated component office of responsibility.

⚠ **Safety Constraint:** This UFC is strictly for maintenance and must **not** be used for the initial acceptance or commissioning of fire protection systems.

Applicability and Reach

The criteria defined here apply to DOD facilities regardless of location or funding source.



- **Structure Types:** Includes all temporary or permanent structures, waterfront facilities, outside storage, and mobile or stationary equipment.
- **Leased Facilities:** Applies to DOD-leased facilities maintained by the DOD or a contractor.
- **Leaser-Maintained Sites:** If maintained by a leaser outside of DOD installations, local **Authority Having Jurisdiction (AHJ)** requirements take precedence; in their absence, this UFC applies.
- **GOCO Facilities:** Government-owned, contractor-operated facilities must follow these criteria unless alternative requirements are specifically detailed in contract documents.

Authority and Public Law

This UFC implements several public laws governing safety and technical standards:

- **10 USC Section 1794:** Military Child Care.
- **15 USC Section 2227:** Fire Safety Systems in Federally Assisted Buildings.
- **15 USC Section 272:** Utilization of Consensus Technical Standards.
- **29 USC Section 1910, Subpart L:** Fire Protection.
- **29 USC Section 1960:** Federal Employee Occupational Safety and Health Programs.

Fire protection criteria must conform to this UFC and the **NFPA National Fire Codes**, except where modified or specifically referenced by this document.

References

See Appendix A for a comprehensive list of references.

Reliability Objective

The objective of the ITM tasks in this UFC is to provide the minimum requirements necessary to achieve a **99 percent overall system reliability** during a fire event.

Implementation Criteria

Task frequencies provided in this UFC take precedence over frequencies listed in the **National Fire Codes**.

Systems and Applications Not Covered

If a system is not addressed, follow national building codes, industry standards, and standard engineering practices. Contact the DOD component AHJ if technical information is missing.



Conflicts

This UFC takes precedence if a conflict exists with other DOD documents or referenced codes. Individual DOD components may issue technical guidance that overrides this document.

Exemptions

Exemptions require AHJ approval and must demonstrate an alternative action providing equivalent safety.

- **Justification:** Must include hazard analysis, cost comparison, and pertinent data.
- **Limitations:** Lack of funds or cost savings are **not** valid justifications for an exemption.

Authority Having Jurisdiction (AHJ)

The AHJ is defined as the component office of responsibility:

- **Army:** HQ USACE/CECW-CE.
- **Navy:** NAVFACENCOM HQ-CHE.
- **Marine Corps:** HQMC Code LFF-1.
- **Air Force:** HQ AFCESA/CEO.
- **DLA:** Chief, Security Operations (DES-SO).
- **WHS:** Office of the Pentagon Fire Marshal (OPFM).

Personnel Qualifications

ITM tasks must be performed by craftspersons specifically **trained or qualified** in the relevant system or subsystem.

Task Execution and Supervision

- **Qualification Scope:** Personnel must only perform tasks on systems for which they are specifically qualified.
- **Supervision:** Qualified personnel may supervise less qualified individuals.
- **Apprentice Restriction:** At no time shall apprentice-level craftspersons execute ITM tasks without a **qualified supervisor on site**.

Recognized Qualifications

1. **DOD Training:** Fire Suppression or Fire Alarm Systems Maintenance courses at Sheppard Air Force Base.
2. **NICET Certification:** Level III in Fire Alarm Systems, Inspection and Testing of Water-Based Systems, or Special Hazard Suppression Systems.
3. **State Licensing:** Valid, current license from any state or authorized local jurisdiction.
4. **Manufacturer Endorsement:** Equipment-specific qualification provided by the manufacturer.

Documentation and Records

Installations must maintain **permanent records** for every facility.

- **Format:** Hard copy or electronic.
- **Minimum Data:** Task description, scheduled date, completion date, and the identity of the craftsperson.

System Impairment and Notifications

Building occupants and the public must be notified whenever a system is out of service or impaired to a degree that increases risk.

- ⚠ **Safety Constraint:** Post the sign shown in Figure 1-1 at all principal public and employee entrances.



Figure 1-1. System Out-of-Service or Impaired Sign



Repair Protocols for Impairments

Impairments must be corrected **immediately** upon identification.

- **Immediate Actions:** Notify the local fire authority and facility user if immediate correction is impossible.
- **72-Hour Threshold:** If an impairment lasts longer than 72 hours, written **compensatory measures** must be jointly developed to ensure safety.
- **Child Care Facilities:** Deficiencies in military child care activities must be corrected within **90 days** or the activity must close, unless a waiver is approved by the Service Secretary.
- **Fire Watch:** A dedicated function where the individual has no duties beyond fire safety, occupational safety, or security.

Reporting Requirements

Maintenance activities must inform commanders of impairments and correction progress at least **twice a year**.

Checkpoint Quiz

1. According to Section 1-6, what is the minimum overall system reliability target for fire protection features following the ITM tasks in this UFC?

- a) 95 percent
- b) 98 percent
- c) 99 percent
- d) 100 percent

Answer: (c). This is the minimum required to achieve reliability during an actual fire event.

2. Under what condition may an apprentice-level craftsman execute ITM tasks?

- a) If they have completed the Sheppard AFB training course.
- b) If they are working in an overseas location.
- c) Only with a qualified supervisor on site.
- d) They are never permitted to execute ITM tasks under this criterion.

Answer: (c). Prohibits apprentices from working alone.



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