

American National Standard



NECA 305-2001

*Standard for*  
**Fire Alarm System  
Job Practices**



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# 1. Scope

This standard describes fire alarm system job practices for installing, testing, and maintaining fire alarm systems. These job practices represent a minimum level of quality for fire alarm system installations. This standard is intended to define what is meant by installing equipment in a “neat and workmanlike manner” as required by the National Electrical Code, Article 760.

All information in this publication is intended to comply with the following standards. Installers should always follow the National Fire Alarm Code, NFPA 72; the National Electric Code (NEC), NFPA 70; applicable state and local codes; and manufacturers’ instructions when installing fire alarm equipment and systems.

## 1.1 Fire Alarm System Overview

The NFPA definition of a fire alarm system is: “A system or portion of a system consisting of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal initiating devices and to initiate appropriate response to those signals.” In order to meet the intent of the definition, all fire alarm system installations must conform to National Fire Alarm Code, NFPA 72 requirements. All system components must be listed for use in a fire alarm system. Additionally, the system must meet local codes and be approved by the authority having jurisdiction(s).

Simply put, a fire alarm system detects fire conditions, notifies building occupants and emergency response personnel, and provides control functions (elevators, fans, dampers, etc.). However, there is a major difference between fire alarm systems and most other electrical systems.

A fire alarm system monitors field wiring and key system components for operational readiness. In a typical electrical system, a broken wire goes unnoticed until a switch is turned on or a thermostat calls for heat or cooling. The fire alarm system monitors for broken wires, shorted wires, grounded wires, and failure of key components. Each of these faults generates a visible and audible trouble signal. The required fire alarm system functionality makes proper installation of the field wiring critical to the successful completion and operation of the system.

Fire alarm systems interconnect with other systems for the purpose of providing control signals during a fire emergency. It is sometimes difficult to determine where the fire alarm system stops and other systems start. If a fire alarm system powers the “other system,” the “other system” is part of the fire alarm system. Example: A fire alarm system can power a smoke control system making it part of the fire alarm system. Or, a fire alarm system can provide signals (e.g., relay contacts) to a separately listed smoke control system, which is not part of the fire alarm system. The following paragraph from the NEC provides guidance.

“760-1. Scope

*This article covers the installation of wiring and equipment of fire alarm systems including all circuits controlled and powered by the fire alarm system.*

*FPN No. 1: Fire alarm systems include fire detection and alarm notification, guard’s tour, sprinkler water-flow, and sprinkler supervisory systems. Circuits controlled and powered by the fire alarm system include circuits for the control of building systems safety functions, elevator capture, elevator shutdown, door release, smoke doors and damper control, fire doors and damper control and fan shutdown, but only where these circuits are powered by and controlled by the fire*

*alarm system. For further information on the installation and monitoring for integrity requirements for fire alarm systems, refer to the National Fire Alarm Code®, NFPA 72-1996.”*

Reference Table 1 shows the Chapter assignments for the 1999 NFPA 72 vs. the 1993 and 1996 editions.

**Reference Table 1: Fire Alarm Chapter Assignments, 1999 NFPA vs. 1993 & 1994 NFPA**

<b>Chapter Name</b>	<b>1999</b>	<b>1993 &amp; 1996</b>
Fundamentals of Fire Alarm Systems	1	1
Initiating Devices	2	5
Protected Premises Fire Alarm Systems	3	3
Notification appliances for Fire Alarm Systems	4	6
Supervising Station Fire Alarm Systems	5	4
Public Fire Reporting Systems	6	N/A (See NFPA 1221)
Inspection, Testing, and Maintenance	7	7
Fire Warning Equipment for Dwelling Units	8	2
Referenced Publications	9	8
Explanatory Material	Appendix A	Appendix A
Engineering Guide for Automatic Fire Detector Spacing	Appendix B	Appendix B
Referenced Publications	Appendix C	Appendix C
Index	Index	Index
Cross-Reference to Chapter 3	1999 only	N/A