



## NECA 305-2010

Standard for

# Fire Alarm System Job Practices

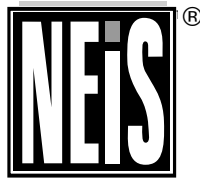
AN AMERICAN NATIONAL STANDARD



Published by  
National Electrical Contractors Association

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**Fire Alarm System**  
**Job Practices**

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*(This foreword is not a part of the standard)*

# Foreword

*National Electrical Installation Standards™* are designed to improve communication among specifiers, purchasers, and suppliers of electrical construction services. They define a minimum baseline of quality and workmanship for installing electrical products and systems. *NEIS™* are intended to be referenced in contract documents for electrical construction projects. The following language is recommended:

Fire alarm systems shall be installed, tested and maintained in accordance with the requirements of NECA 305-2010, *Standard for Fire Alarm System Job Practices* (ANSI).

Use of *NEIS™* is voluntary, and the National Electrical Contractors Association assumes no obligation or liability to users of this publication. Existence of a standard shall not preclude any member or non-member of NECA from specifying or using alternate construction methods permitted by applicable regulations.

Everything in this publication is intended to comply with the editions of the National Fire Alarm Code® and the National Electrical Code® (NEC) in effect at the time of publication. *NEIS™* are not intended to duplicate the safety requirements of these codes or to establish regulatory requirements for electrical construction. It is the responsibility of users of this standard to comply with state and local electrical codes when installing electrical products and systems.

This standard was developed by the National Electrical Contractors Association (NECA).

Suggestions for revisions and improvements to this standard are welcome. They should be addressed to:

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# 1. Scope

This standard describes 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 NFPA 72®, National Fire Alarm Code®; NFPA 70™, National Electrical Code® (NEC®); applicable state and local codes; and manufacturers' instructions when installing fire alarm equipment and systems.

Note: All references in this standard are to NFPA 72-2007 and NFPA 70-2008.

## 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 announce 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 controls and powers the "other system," the "other system" is part of the fire alarm system. Example: A fire alarm system can control and 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 has its own power source: This "other system" is not part of the fire alarm system. The wiring requirements for the "other system" are covered by the NEC, but not covered by Article 760. The following Section 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 NFPA 72®-2007, National Fire Alarm Code®.*

*FPN No. 2: Class 1, 2, and 3 circuits are defined in Article 725.”*

The following table shows Chapter assignments for the 1999, 2002, and 2007 editions of NFPA 72, National Fire Alarm Code.

**Table 1: Fire Alarm Chapter Assignments, 1999, 2002 & 2007 NFPA**

Chapter Name	1999	2002	2007
Administration	1	1	1
Referenced Publications	9	2	2
Definitions	1	3	3
Fundamentals of Fire Alarm Systems	1	4	4
Initiating Devices	2	5	5
Protected Premises Fire Alarm Systems	3	6	6
Notification appliances for Fire Alarm Systems	4	7	7
Supervising Station Fire Alarm Systems	5	8	8
Public Fire Reporting Systems	6	9	9
Inspection, Testing, and Maintenance	7	10	10
Single- and Multiple-Station Alarms and Household Fire Alarm Systems		11	11
Fire Warning Equipment for Dwelling Units	8		
Explanatory Material	Appendix A	Annex A	Annex A
Engineering Guide for Automatic Fire Detector Spacing	Appendix B	Annex B	Annex B
Wiring Diagrams and Guide for Testing Fire Alarm Circuits	N/A	Annex C	Annex C
Sample Ordinance Adopting NFPA 72	N/A	Annex D	Annex D
Mass Notifications Systems	N/A	N/A	Annex E
NEMA SB 30, Fire Service Annunciator and Interface	N/A	N/A	Annex F
Informational References		Annex E	Annex G
Cross-Reference Tables	9	Annex F	Annex H
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