NEiS

NECA 305-2018

AN AMERICAN NATIONAL STANDARD

Standard for Installing

Fire Alarm System Job Practices

Published by
National Electrical Contractors Association

NECA

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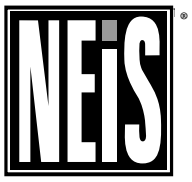
Fire Alarm System Job Practices

An American National Standard



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Revision History	
NECA 305-2001	10/2001
NECA 305-2010	11/2010

(This foreword is not a part of the standard)

Foreword

National Electrical Installation Standards™ are designed to improve communication between 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 in accordance with NECA 305, *Standard for Fire Alarm System Job Practices* (ANSI).

Use of *NEIS*™ is voluntary, and NECA does not assume any obligation or liability to users of these standards. Existence of a standard shall not preclude any member or nonmember of NECA from specifying or using alternate electrical construction methods permitted by applicable codes and regulations.

Everything in this standard is intended to comply with the editions of the National Fire Alarm and Signaling Code® and the National Electrical Code® 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 applicable 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 at the following address.

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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, and Section 760.24.

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

Note: All references in this standard are to NFPA 72-2016 and NFPA 70-2017.

1.1 Fire Alarm System Overview

The NFPA definition of a fire alarm system is: "A system or portion of a combination system that consists of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices and to initiate the appropriate response to those signals." In order to meet the intent of the definition, all fire alarm system installations must conform to NFPA 72, National Fire Alarm and Signaling Code requirements. All system components must be listed for use in a fire alarm system and installed in accordance with applicable installation instructions. 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).

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 dry 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.

Informational Note No. 1: Fire alarm systems include fire detection and alarm notification, guard's tour, sprinkler waterflow, 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, National Fire Alarm and Signaling Code.

Informational Note No. 2: Class 1, 2, and 3 circuits are defined in Article 725."

The following table shows Chapter assignments for the 2016 editions of NFPA 72, National Fire Alarm and Signaling Code.

Table 1: Chapter assignments for the 2016 editions of NFPA 72, National Fire Alarm and Signaling Code.

Chapter Name	**2016**
Administration	1
Referenced Publications	2
Definitions	3
Reserved	4
Reserved	5
Reserved	6
Documentation	7
Reserved	8
Reserved	9
Fundamentals of Fire Alarm Systems	10
Reserved	11
Circuits and Pathways	12
Reserved	13
Inspection, Testing, and Maintenance	14
Reserved	15
Reserved	16
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Reserved	20
Emergency Control Function Interfaces	21
Reserved	22
Protected Premises Fire Alarm Systems	23

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Chapter Name	**2016**
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Supervising Station Fire Alarm Systems	26
Public Emergency Alarm Reporting Systems	27
Reserved	28
Single- and Multiple-Station Alarms and Household Fire Alarm Systems	29
Explanatory Material	Annex A
Engineering Guide for Automatic Fire Detector Spacing	Annex B
System Performance and Design Guide	Annex C
Speech Intelligibility	Annex D
Sample Ordinance Adopting NFPA 72	Annex E
Wiring Diagrams and Guide for Testing Fire Alarm Circuits	Annex F
Guidelines for Emergency Communication Strategies for Building and Campuses	Annex G
Informational References	Annex H
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