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Guide to Understanding Smoke Control Systems

National Electrical Manufacturers Association

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Foreword

This guide is intended to offer a general understanding of smoke control systems to individuals who have a need or desire for solid basic information, but who do not need the in-depth knowledge necessary to design smoke control systems.

Proposed or recommended revisions should be submitted to:

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About the National Electrical Manufacturers Association (NEMA):

NEMA is the association of electrical equipment and medical imaging manufacturers, headquartered in Rosslyn, Virginia, just outside of Washington, D.C. Its member companies manufacture diverse products, including power transmission and distribution equipment, lighting systems, factory automation and control systems, and medical diagnostic imaging systems. Worldwide annual sales of NEMA-scope products exceed $120 billion. NEMA is divided into eight divisions: Industrial Automation, Lighting Equipment, Building Equipment, Insulating Materials, Wire and Cable, Power Equipment, and Diagnostic Imaging and Therapy Systems. Within these divisions are more than 50 product-specific sections. The Signaling Section is one such section in the Electronics Division.

Founded in 1926, NEMA develops standards for the electrical manufacturing industry and is one of the leading standards development organizations in the world, contributing to the marketplace and helping to ensure public safety.

About the NEMA Fire, Life Safety, Security and Emergency Communication Section (3SB):

The objective of the section is to serve as the principal source of technical, training, and educational materials essential for the specification and manufacture of reliable life safety products, as well as their installation, performance, and inspection.

The section currently represents 50 US, U.K., and Japanese manufacturers in support of the automatic fire detection and alarm industry and the health care communications industry. Fire detection and alarm products include life safety/fire alarm systems and devices that provide early warning of an impending or actual fire or gaseous hazard. The products detect, notify, and initiate control functions in case of hazard to life or property.

For more information on NEMA, go to www.nema.org. For more information on the Signaling Section, go to www.nema.org/prod/elec/sig.

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Section 1
GENERAL

1.1 SCOPE

This guide covers activation, operation, and testing requirements for smoke control systems in all types of buildings.

1.2 PURPOSE

This document was developed to provide readers with an understanding of the purpose and general operational requirements for smoke control systems and to allow the reader to identify appropriate test methods based on the specific design objectives of each system. It should also provide an understanding of how smoke control systems deliver the reliability necessary for a life safety system using an approach that is different from what readers might be familiar with from other types of life safety systems.

1.3 STANDARDS THAT APPLY

Several important documents define the requirements concerning performance, application, and installation of smoke control systems:

National Fire Protection Association (NFPA)
1 Batterymarch Park
Quincy, MA 02269

NFPA 92 *Standard for Smoke-Control Systems,* 2012

Underwriters Laboratories Inc. (UL)
333 Pfingsten Road
Northbrook, IL 60062

UL 864 *Standard for Control Units and Accessories for Fire Alarm Systems*, 2014

International Code Council (ICC)
500 New Jersey Avenue, NW, 6th Floor
Washington, DC 20001

International Building Code, 2012