

This is a preview of "NECA 420-2007". [Click here to purchase the full version from the ANSI store.](#)



Standard for
Fuse Applications

NEIS



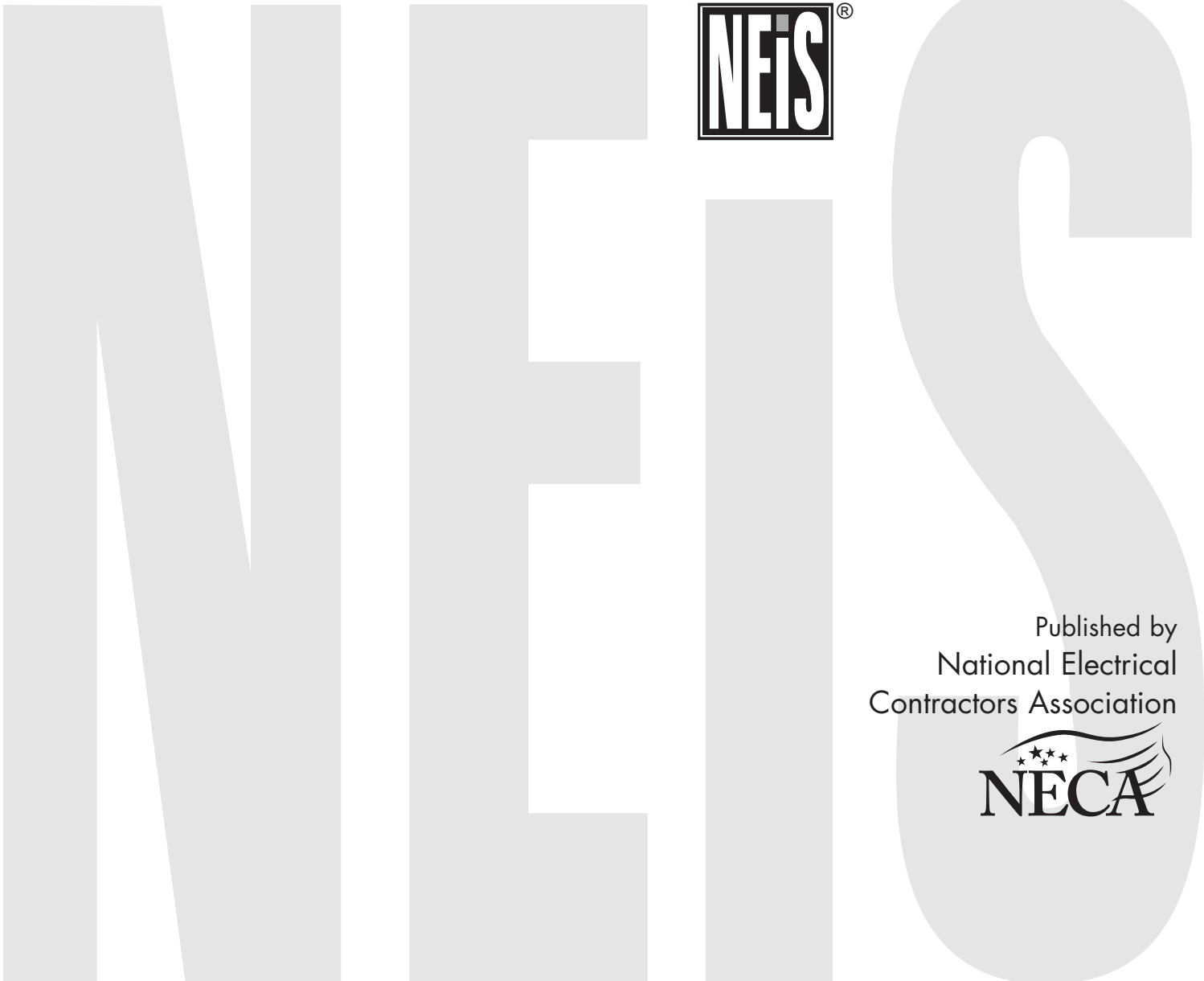
Published by
National Electrical
Contractors Association



NECA 420-2007

Standard for
Fuse Applications

**An American
National Standard**



Published by
National Electrical
Contractors Association



NOTICE OF COPYRIGHT

This document is copyrighted by NECA

Reproduction of these documents either in hard copy or soft (including posting on the web) is prohibited without copyright permission. For copyright permission to reproduce portions of this document, please contact NECA Standards & Safety at (301) 215-4546, or send a fax to (301) 215-4500.

OR

National Electrical Contractors Association
3 Bethesda Metro Center, Suite 1100
Bethesda, Maryland 20814
(301) 657-3110

Organizations may obtain permission to reproduce a limited number of copies by entering into a license agreement. For information, contact:

IHS
15 Iverness Way East
Englewood, CO 80112-5704 or call
1-800-854-7179 (USA and Canada)
(303) 397-7956 (International)

Table of Contents

Forewordiii
1. Scope1
1.1 Products and Applications Included	1
1.2 Regulatory and Other Requirements	1
2. Definitions2
3. Application Data for Fuses7
3.1 Fuse Types and Classifications	7
3.2 Fuse Ratings	7
3.3 Current-Limiting Fuses	7
4. Sizing and Selection9
4.1 Sizing Fuses for Main, Feeder, and Branch Circuits	9
4.2 Motor Protection	9
4.3 Drives, Rectifiers, and Inverters	10
4.4 Series-Rated Circuit Breakers	10
4.5 Elevator, Emergency, Legally Required Standby, and Essential Systems in Healthcare Facilities	11
4.6 Capacitors	11
4.7 Transformer Protection	11
4.8 Fire Pumps	13
4.9 Welder Protection	13
5. Design Considerations14
5.1 System Studies	14
5.2 Conductors	14
5.3 Finger-Safe Fuseholders	15
5.4 Fusible Disconnects	15
6. Receiving, Inspecting, Handling, and Storage16
6.1 Receiving	16
6.2 Handling	16
6.3 Storage	16
7. Installation17
7.1 Environmental Conditions	17
7.2 General Installation Requirements	17
7.3 Fuse Pullers	17
7.4 Spare Fuses	17
7.5 Energizing Equipment	17

NECA 420 Standard for Fuse Applications

8. Inspections and Maintenance	18
8.1 Frequency of Inspections and Maintenance	18
8.2 Routine Inspections and Testing	18
8.3 Periodic Cleaning, Inspection, and Maintenance	18
8.4 Inspection, Testing, and Fuse Replacement Following an Overcurrent or Ground-Fault	18
8.5 Fuses Sprayed, Splashed, Soaked, or Submersed Under Water	18
8.6 Infrared Scanning	19
8.7 Troubleshooting	19
Annex A: NEC Requirements for Fuses	20
Annex B: Reference Standards	22

(This foreword is not a part of the standard)

Foreword

National Electrical Installation Standards™ (NEIS®) 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:

Low-voltage, medium-voltage, and high-voltage fuses shall be installed in accordance with NECA 420, *Standard for Fuse Applications* (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 nonmember of NECA from specifying or using alternate construction methods permitted by applicable regulations.

The installation and maintenance practices recommended by this publication are intended to comply with the edition of the National Electrical Code® (NEC) in effect at the time of publication. Because they are quality standards, *NEIS* may in some instances go beyond the minimum safety requirements of the NEC. It is the responsibility of users of this standard to comply with state and local electrical codes when installing electrical products and systems.

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

NECA Standards & Safety
3 Bethesda Metro Center, Suite 1100
Bethesda, MD 20814
(301) 657-3110 telephone
(301) 215-4500 fax
www.neca-neis.org
neis@necanet.org

To purchase *NEIS*, contact the NECA Order Desk at (301) 215-4504 tel, (301) 215-4500 fax, or orderdesk@necanet.org. *NEIS* can also be purchased in PDF format at www.neca-neis.org/standards.

Copyright© 2007, National Electrical Contractors Association. All rights reserved. Unauthorized reproduction prohibited.

National Electrical Installation Standards, NEIS, and the *NEIS* logo are trademarks of the National Electrical Contractors Association. National Electrical Code and NEC are registered trademarks of the National Fire Protection Association.

<This page intentionally left blank.>

1. Scope

1.1 Products and Applications Included

This standard describes application and installation practices and procedures for low-voltage, medium-voltage, and high-voltage fuses. This publication applies to all classifications of fuses used for overcurrent protection of distribution, utilization, and control equipment used for power, heating, and lighting loads for commercial, institutional, and industrial use in nonhazardous indoor and outdoor locations.

It also covers periodic routine maintenance and troubleshooting procedures for fuses, and special procedures used after adverse operating conditions, such as overcurrents, ground-faults, or exposure to water or other liquids.

1.2 Regulatory and Other Requirements

a) All information in this publication is intended to conform to the National Electrical Code (ANSI/NFPA 70). Installers should always follow the NEC, applicable state and local codes, manufacturers' instructions, and contract documents.

b) Only qualified persons familiar with the installation of fuses should perform the work described in this publication. It is recommended that all work be performed in accordance with NFPA 70E, *Standard for Electrical Safety in the Workplace*.

c) General requirements for installing electrical products and systems are described in NECA 1, *Standard Practices for Good Workmanship in Electrical Construction* (ANSI). Other *National Electrical Installation Standards* provide additional guidance for installing particular types of electrical products and systems. A complete list of *NEIS* is provided in Annex B.