

This is a preview of "NECA 700-2010". Click here to purchase the full version from the ANSI store.



NECA 700-2010

Standard for Installing

Overcurrent Protection to Achieve Selective Coordination

AN AMERICAN NATIONAL STANDARD



Published by
National Electrical Contractors Association

NECA 700-2010

Standard for

Installing Overcurrent Protection to Achieve Selective Coordination

**An American
National Standard**



Published by
National Electrical
Contractors Association



<This page intentionally left blank>

Table of Contents

Foreword	v
1. Scope	1
1.1 Product and Applications Included	1
1.2 Product and Applications Excluded	1
1.3 Regulatory and Other Requirements	1
2. Definitions	2
3. Introduction	5
4. NEC Requirements	6
4.1 Emergency Systems (NEC Article 700)	6
4.2 Legally-Required Standby Systems (NEC Article 701)	6
4.3 Critical Operations Power Systems (NEC Article 708)	6
4.4 Healthcare Facilities (NEC Article 517)	6
4.5 Elevators, Dumbwaiters, Escalators, Moving Walks, Wheelchair Lifts, and Stairway Chairlifts (NEC Article 620) ..	7
4.6 Ground-Fault Protection of Equipment	7
5. Overcurrent Protective Device Operation	8
5.1 General	8
5.2 Fuses	10
5.3 Circuit Breakers	12
6. Achieving Selective Coordination	17
6.1 Short Circuit and Coordination Studies	17
6.2 Competing Objectives	18
6.3 Ground-Fault Protection of Equipment	20
6.4 Fuses	21
6.5 Circuit Breakers	21
6.6 Methods of Achieving Selective Coordination	22
Annex A: Reference Standards	25

<This page intentionally left blank>

(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:

Overcurrent protective devices should be installed in accordance with NECA 700-2010, *Standard for Installing Overcurrent Protection to Achieve Selective Coordination* (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.

This publication is not intended as a substitute for qualified design professionals. Selective coordination of overcurrent protective devices requires the analysis and comparison of overcurrent protective device time-current characteristics and the available short circuit current within an electrical distribution system, and should be performed under the supervision of qualified individuals, such as by qualified professional engineers.

This publication is intended to comply with the National Electrical Code (NEC). 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 publication 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) 215-4521
(301) 215-4500 Fax
neis@necanet.org
www.neca-neis.org

To purchase *National Electrical Installation Standards*, 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 download format from www.neca-neis.org/standards.

Copyright©2010, National Electrical Contractors Association. All rights reserved. Unauthorized reproduction prohibited.

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

Illustrations and tables provided by:

¹This material and associated copyrights are proprietary to and used with permission of Schneider Electric.

²This material and associated copyrights are proprietary to and used with permission of Cooper Bussman.

<This page intentionally left blank>

1. Scope

This standard describes the application procedures for selecting and adjusting low-voltage overcurrent protective devices to achieve selective coordination.

1.1 Products and Applications Included

This standard covers the installation of low-voltage overcurrent protective devices, circuit breakers and fuses, rated 600 volts and less, for selective coordination in electrical distribution systems for residential, commercial, and industrial applications. It applies to:

- a) Devices rated 600 V and less
- b) Fuses
- c) Circuit breakers

1.2 Products and Applications Excluded

This standard does not apply to:

- a) Overcurrent protective devices rated more than 600 V
- b) Protective relays
- c) Protection of conductors, transformers, motors or other equipment

1.3 Regulatory and Other Requirements

- a) All information in this publication is intended to conform to the National Electrical Code® (ANSI/NFPA Standard 70). Installers should always follow the NEC®, applicable state and local codes, and manufacturer's instructions when installing overcurrent protective devices.
- b) Only qualified persons familiar with the construction and operation of overcurrent protective devices should perform the work described in this publication. All work should 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 A.