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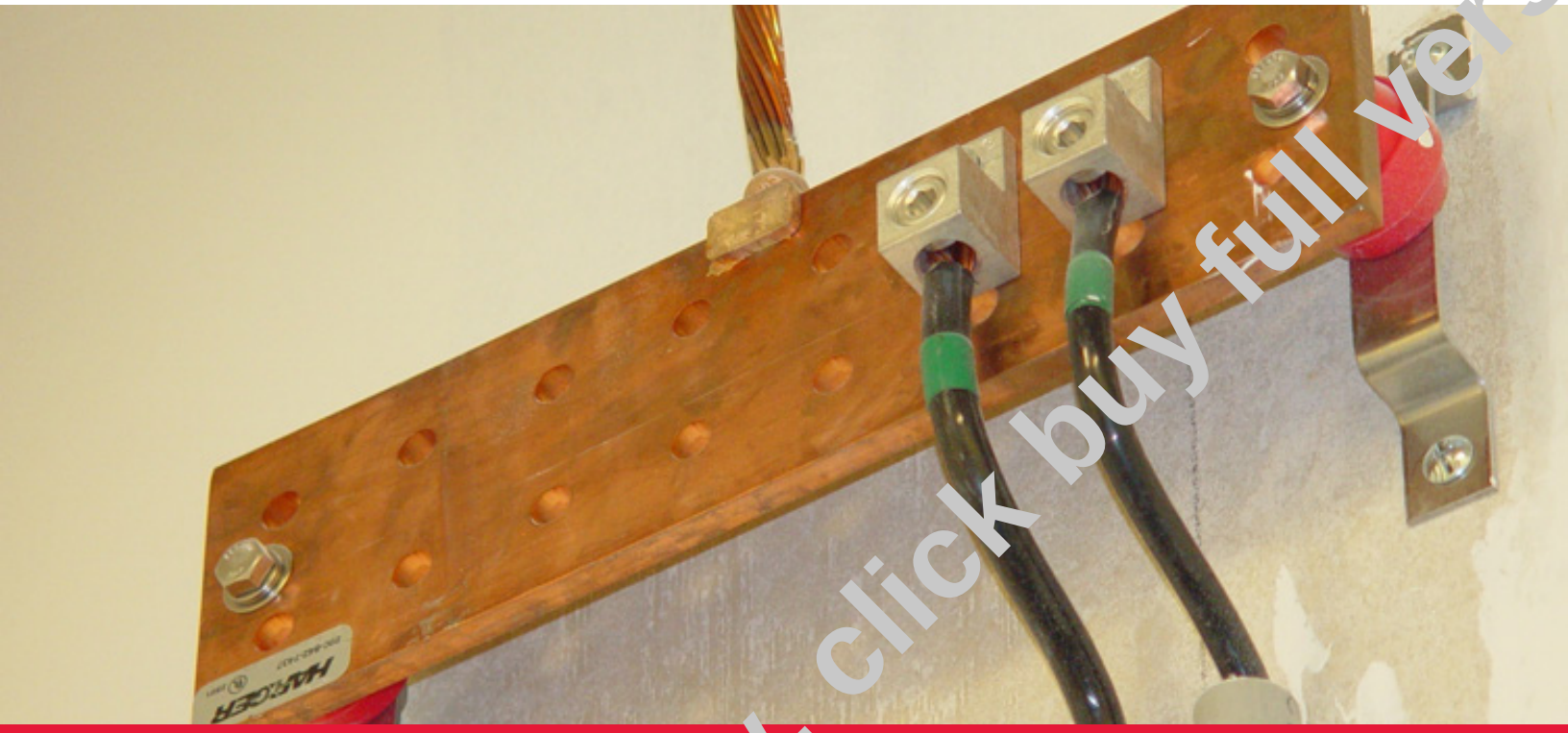

Standard for

Installing Building and Service Entrance Grounding and Bonding

Published by
National Electrical Contractors Association

NECA

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Table of Contents

(This foreword is not a part of the standard)

Foreword

National Electrical Installation Standards™ are intended 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:

> Grounding and bonding should be performed in accordance with NECA 331-2020, *Standard for Installing Building and Service Entrance Grounding.*

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 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 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:

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1. Scope

This standard describes installation procedures for building and service entrance grounding as well as building interior and exterior bonding and grounding. The information provided in this standard is intended to describe what is meant by installing equipment in a "neat and workmanlike manner" as required by the *National Electrical Code (ANSI/NFPA 70) (NEC)* , Section 110.12, and in accordance with "accepted good practice" as required by *National Electrical Safety Code (ANSI/IEEE C2) (NESC)*, Rule 012.C. The installations described in this standard should be performed by qualified persons. The term "qualified person" is defined in Article 100 of the *NEC*.

1.1 Equipment and Systems Included

The following are included in this publication:

a) Electrical service and system grounding

b) Building exterior grounds

c) Building interior bonding

d) Equipment grounding and bonding

1.2 Equipment and Systems Excluded

Lightning protection systems are specifically excluded from this publication. Interconnections between lightning protection systems and other grounding and bonding systems are necessary and briefly described in Section 3.2.8 of this standard.

1.3 Regulatory and Other Requirements

All information in this standard is intended to conform to or exceed the requirements in the *NEC* and *NESC*. Installers should always follow, as a minimum, the *NEC, NESC,* any applicable amendments in state and local codes, manufacturer's instructions, listing agency requirements, and project specifications when installing grounding and bonding systems for buildings or structures.

Only qualified persons familiar with the construction of grounding and bonding of electrical systems should perform the work described in this publication. Administrative functions such as receiving, handling and storing, and other tasks may be performed under the supervision of a qualified person. All work shall be performed in accordance with NFPA 70E, *Standard for Electrical Safety in the Workplace.*

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

1.4 Mandatory Requirements, Permissive Requirements, Quality and Performance Recommendations, Explanatory Material, and Informative Annexes

Mandatory Requirements. Mandatory requirements in manufacturer instructions, or of Codes or other mandatory Standards that may or may not be adopted into law, are those that identify actions that are specifically required or prohibited and are characterized by the use of the terms must or must not, shall or shall not, or may not, or are not permitted, or are required, or by the use of positive phrasing of mandatory requirements. Examples of mandatory requirements may equally take the form of, "equip-

ment must be protected . . .," "equipment shall be protected . . .," or "protect equipment . . .," with the latter interpreted (understood) as "(it is necessary to, or, it is required to) protect equipment . . ."

Permissive Requirements. Permissive requirements of manufacturer instructions, or of Codes or other mandatory Standards that may or may not be adopted into law, are those that identify actions that that are allowed but not required or are normally used to describe options or alternative means and methods and are characterized in this Standard by the use of the terms "may", or "are permitted", or "are not required".

Quality and Performance Recommendations. Quality and performance recommendations identify actions that are recommended or not recommended to improve the overall quality or performance of the installation and are characterized by the use of the term "should" or "should not".

Explanatory Material. Explanatory material, such as references to other Codes, Standards, or documents, references to related sections of this Standard, information related to another Code, Standard, or document, and supplemental application and design information and data, is included throughout this Standard to expand the understanding of mandatory requirements, permissive requirements, and quality and performance recommendations. Such explanatory material is included for information only and is identified by the use of the term "NOTE," or by the use of italicized text.

Informative Annexes. Non-mandatory information and other reference standards or documents relative to the application and use of materials, equipment, and systems covered by this Standard are provided in informative annexes. Informative annexes are not part of the enforceable requirements of this Standard but are included for information purposes only.

5 Introduction

This standard has been developed to provide additional explanation and some "best practices" so that the requirements of the *NEC* are met and help define better what is meant by a "neat and workman like manner". The installation guidance provided in this standard should not be considered all-inclusive and it is recognized there are many ways to complete a compliant installation.

This standard is intended to be used in concert with the *NEC*, the listing requirements from the listing agencies, and the manufacturer's installation instructions for the equipment utilized to make the installation. This standard does not provide specific code text and it is expected the qualified user is familiar with the applicable *NEC* Articles and Sections as well as other general industry information and practices. The grounding and bonding terminology used in this standard will utilize the definitions from the *NEC.* Where the term is not defined in the *NEC,* then the definition can be found in Webster's or another recognized dictionary.

All information in this standard is intended to provide at least minimal conformance to the *NEC* and *NESC*. Installers should always follow the *NEC*, *NESC,* any applicable amendments in state and local codes, manufacturer's instructions, listing agency requirements, and project specifications when installing grounding and bonding systems for buildings or structures. To mitigate conflicts from all these sources, an order of precedence should be established at the beginning of the project if not already established by the Authority Having Jurisdiction. It should be remembered the *NEC* is considered the minimum electrical safety standard so any design, specifications or installation that appears to not meet this minimum should be questioned.