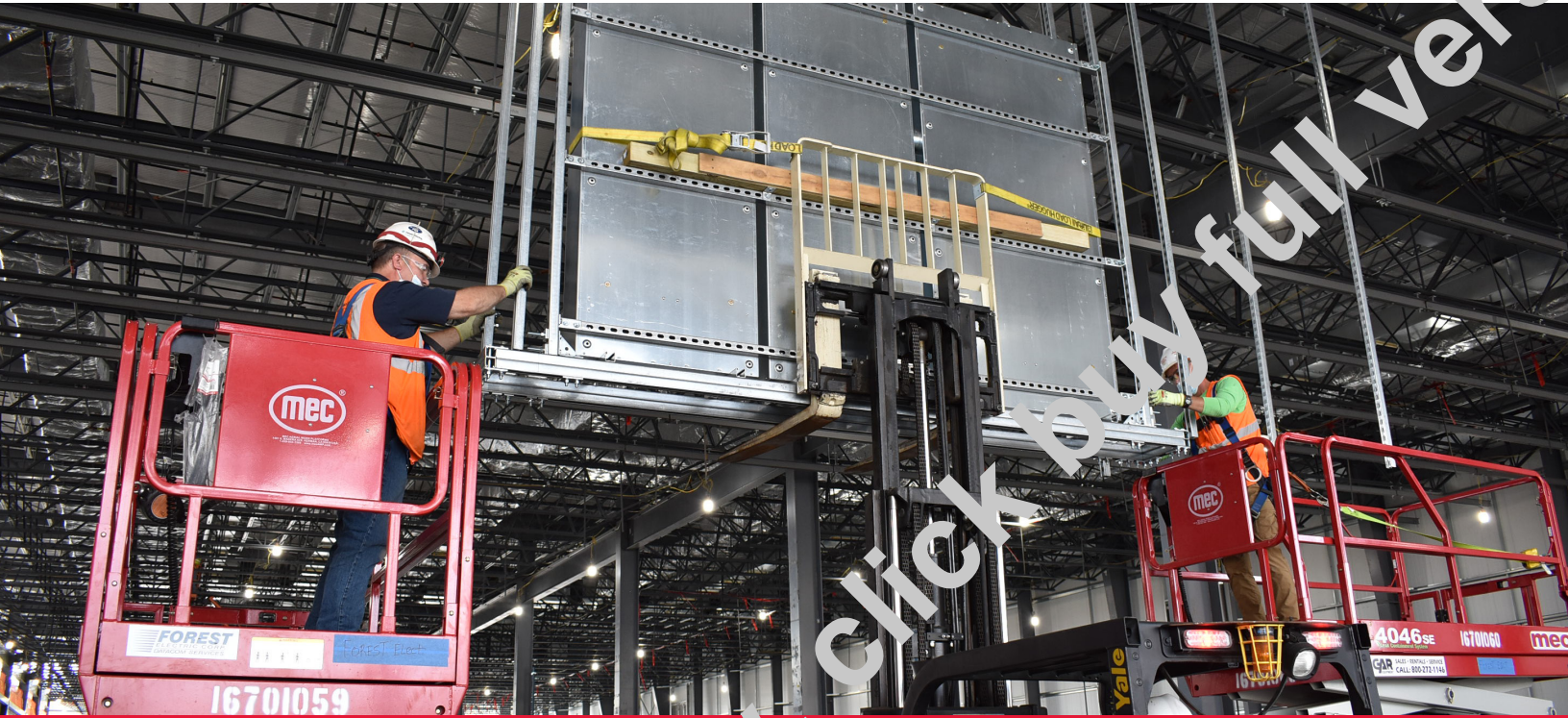




NECA 5-2022

AN AMERICAN NATIONAL STANDARD



Recommended Practice for

Prefabrication of Electrical Installations for Construction

Published by
National Electrical
Contractors Association



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National Standard**



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Revision History	
NECA 5-2022	12/2022

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(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:

Electrical infrastructure and equipment that is prefabricated either onsite or remote from the site must be designed, produced, installed, and maintained in accordance with NECA 5-2022, *Recommended Practices for Prefabrication of Electrical Installations for Construction*.

The scope of this standard is Prefabrication, as only one segment of the broader process and methodology of Externalizing Work® which include vendor services, packaging, kitting, and all other material handling and logistics work.

Use of NEIS is voluntary, and the National Electrical Contractors Association (NECA) and the Mid-Atlantic Cable Splicing Certification Board (NCSCB) assumes no obligation of liability to users of this publication. Existence of a standard shall not preclude any member or non-member of NECA or NCSCB from specifying or using alternate construction methods permitted by applicable regulations.

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:

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1. Introduction (Description and Scope of the Standard)

This standard describes recommended on-site and off-site practices for prefabrication of electrical installations for construction projects. The term “prefabrication” collectively refers to any kind of completion of electrical components, (sub-) assemblies, or modules of a construction project that is taken from the final point of installation to a different, off-site location and performed in a controlled environment. The off-site completed, prefabricated item is then transported to the construction site for final installation and assembled in place.

Contractors should use this standard as a guideline for Prefabrication infrastructure, processes, and procedures to assure quality of prefabrication installations. The standard will facilitate increased usage and quality of outcomes of prefabrication installations, as a means of overcoming short-term challenges such as labor shortage, fast pace projects, increases in project complexity, limited space for work and worker logistics on-site as well as improved alignment of work and required skill resulting in an over reduction in the composite labor rate. Prefabrication also provides a buffer and means of protection from unexpected and unpredictable anomalies in the market or economy.

Growing use and interest in prefabrication among electrical contractors was the driving force behind developing on-site and off-site standardized practices for prefabrication of electrical installations for construction projects. A full list of References is included at the end of this Standard.

1.1 Structure of the Standard

A comprehensive map that encompasses the structure of this standard is available in *Annex A*, as a quick reference guide to depict the Inputs,

Processes, Outputs, and Other References to each element of this standard.

Each section of the body of the standard begins with the inputs to, and outputs from the representative process, followed by a write-up describing the processes and procedures supporting the translation of the inputs to outputs.

Explanatory material, such as references to supplemental application and design information, is included in the annexes to expand the understanding of quality and performance recommendations. Such explanatory material is included for information only.

1.1.1 On and Offsite Processes included (What is covered)

- Planning Process(es)
- Purchasing and procurement processes
- Scheduling processes
- Production processes
- Installation processes
- Performance measurement and project management processes
- Quality assurance and Quality control processes
- Continuous improvement and both tactical and strategic planning processes

1.1.2 On and Offsite Processes Excluded (What is not covered)

- Process of estimation
- Detailed working and function of the process of procurement
- Strategic planning and processes

- Accounting, Human resources and all other back office processes

1.2 Regulatory and other requirements

All information in this publication is not intended to conflict with the National Electrical Code (ANSI/NFPA 70) and National Electrical Safety Code (ANSI/IEEE C2). Installers should always follow the NESC, NEC, applicable state and local codes, manufacturer instructions, and contract documents when installing prefabricated electrical installations. All work shall be performed in accordance with NFPA 70E, Standard for Electrical Safety in the Workspace. General requirements for installing electrical products and systems are described in NECA 1, Standard for Good Workmanship in Electrical Construction (ANSI). Other National Electrical Installation Standards provide additional guidance for assembling and installing particular types of electrical products and systems.

1.3 Manufacturer's Instructions

The information in this document is generic and intended to describe the general nature of on- and offsite processes for prefabrication of electrical installations for construction projects. Manufacturer's information, including drawings and instruction manuals, must be adhered to throughout the prefabrication of electrical installations.

1.4 Three Types of Prefabrication

The Process of Prefabrication (see Annex B, Example B.1, page 22) described in this standard is designed to segregate work, material, and information flow according to three different types of prefabrication listed below.

- **Type 1—Common (Standard) Prefab:** Components, assemblies, or modules that are commonly used and considered standard on a vast majority of electrical projects. Examples are electrical boxes, pigtailed devices, hangar assemblies, pipe threading, common bends, cutting wires, etc.

- **Type 2—Work-Specific Prefab:** Components, assemblies or modules that are common within a specific type or group of electrical projects. Examples are wiring harnesses, or panels, kitting, etc.
- **Type 3—Build-To-Order Prefab:** Project-specific, unique (one-off) assemblies that are specifically planned, designed, and produced for an individual project. Examples are complex pipe and conduit rack assemblies, jigs, Luminaires, etc.