

**NEMA BI-50016-2024**  
(formerly NEMA VE 2-2018)

*Cable Tray Installation Guidelines*

*Endorsed by Cable Tray Institute*  
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## Foreword

**For cable tray installers:** NEMA BI-50016-2024 (hereinafter referred to as NEMA BI-50016) is intended as a practical guide for the proper installation of cable tray systems. Cable tray system design shall comply with *National Electrical Code*® (*NEC*®) Article 392, NEMA BI-50015 (formerly VE 1), and NEMA FG 1, and follow safe work practices as described in NFPA 70E.

NEMA BI-50016 guidelines and information do not intend to cover all details or variations in cable tray systems nor provide for every possible installation contingency.

**Construction Experience:** It is recommended that the work described be performed by qualified persons familiar with standard electrical construction practices, electrical equipment, and safety of electrical wiring systems.

NEMA BI-50016 guidelines are useful to engineers, contractors, and maintenance personnel. In the future, NEMA BI-50016 will be updated periodically to reflect evolving technology and construction techniques.

Comments and suggestions for the improvement of this document are encouraged. They should be sent to:

NEMA Technical and Industry Affairs Department  
National Electrical Manufacturers Association  
1300 North 17th Street, Suite 900  
Rosslyn, Virginia 22209

This is the fourth edition of NEMA BI-50016. This document was formerly designated NEMA VE 2-2018.

NEMA BI-50016 was developed by the NEMA Cable Tray Section in conjunction with the members of the Integrated Offshore Standard Specification and Unified Bulk. Section approval does not necessarily imply that all section members voted for approval or participated in development. At the time NEMA BI-50016 was approved, the NEMA Cable Tray Section consisted of the following members:

- ABB Inc. <https://new.abb.com/low-voltage/products/wire-cable-management/cable-tray>
- Cope, A part of Atkore International [www.copecabletray.com/](http://www.copecabletray.com/)
- Chalfant Manufacturing Co. [www.chalfantcabletray.com/](http://www.chalfantcabletray.com/)
- Eaton's B-Line Business [www.cooperindustries.com/content/public/en/b-line.html](http://www.cooperindustries.com/content/public/en/b-line.html)
- Legrand/Cablofil, Inc. [www.legrand.us/cablofil](http://www.legrand.us/cablofil)
- MP Husky Corp. [www.mphusky.com/](http://www.mphusky.com/)
- Oglaend System U.S. LLC [www.oglaend-system.com/newsread/index.aspx](http://www.oglaend-system.com/newsread/index.aspx)
- Snake Tray, Inc. [www.snaketray.com/](http://www.snaketray.com/)
- Techline Manufacturing [www.techlinemfg.com](http://www.techlinemfg.com)

Members of the Integrated Offshore Standard Specification and Unified Bulk were active in harmonizing this standard and in providing suggestions and comments in the revision of this standard.

- Unified Bulk Joint Industry Project (UBJIP) <https://www.iooss.info/>
- Integrated offshore standard specification (IOSS) <https://www.iooss.info/>
- American Bureau of Shipping (ABS) Korea <https://ww2.eagle.org/en.html> (E&I Leader)
- Det Norske Veritas (DNV), Korea <https://www.dnv.com/>
- Bureau Veritas (BV), Korea <https://marine-offshore.bureauveritas.com/bv-fleet/#/bv-fleet/>
- Daewoo Shipbuilding & Marine Engineering (DSME) <https://www.dsme.co.kr/epub/main/index.do>
- Hyundai Heavy Industries (HHI) <https://english.hhi.co.kr/>
- Korea Marine Equipment Research Institute (KOMERI) <http://eng.komeri.re.kr/smartcms/page/main>
- Korea Offshore & Shipbuilding Association (KOSHIPA) <https://www.koshipa.or.kr/>
- Lloyd's Register (LR) <https://www.lr.org/en/>
- Samsung Heavy Industries (SHI) <http://www.samsungshi.com/eng/>
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## 1 Scope

### 1.1 Scope

NEMA BI-50016 (formerly VE 2) addresses shipping, handling, storing, and installing cable tray systems, and provides information on maintenance and system modification.

### 1.2 General

**WARNING**—Do not use a cable tray as a walkway, ladder, or support for people; a cable tray is a mechanical support system for cables and raceways. Using cable trays as walkways can cause personal injury and can damage cable trays and installed cables.

Hazardous voltages in electrical equipment can cause severe personal injury or death. Safety-related work practices, such as those described in NFPA 70E or CSA Z462, as well as all applicable OSHA regulations, should be followed at all times.

Performance of a cable tray wiring system depends on proper installation, including supports and cables. Neglecting installation and maintenance guidelines may lead to personal injury, as well as damage to property.

Installation and maintenance of cable tray wiring systems shall be conducted only by qualified personnel. For the purposes of this guideline, a qualified person is one who is familiar with electrical construction. In addition, that person is:

- a. trained and authorized to test, energize, clear, ground, tag, and lock-out circuits, in accordance with established safety practices; and
- b. trained in the proper care and use of protective equipment, such as insulated rubber gloves, hard hats, safety glasses or face shields, dust masks, and flash-resistant clothing, in accordance with established safety practices.

### 1.3 Definitions, Abbreviations, and Acronyms

The following definitions, abbreviations, and acronyms appear in NEMA BI-50016 (formerly VE 2) or NEMA BI-50015 (formerly VE 1).

**accessory:** A component used to supplement the function of a straight section or fitting. Examples include, but are not limited to, dropout, cover, conduit adapter, hold-down device, and divider.

**cable tray support span:** The distance between the centerlines of supports.

**cable tray system:** A section or assembly of sections, and associated fittings, forming a mechanical system used to support cables and raceways.

**channel cable tray:** A fabricated structure consisting of a one-piece ventilated- or solid-bottom channel section.

**classified:** Indicates that a product has been evaluated to meet a specific purpose, e.g., classified as to its suitability for use as an equipment grounding conductor.

**connector:** A component that joins any combination of cable tray straight sections and fittings.

Note: The basic types of connectors include rigid, expansion, adjustable, and reducer. The term “splice” is also used in the industry to describe a connector.