

NEMA RV 2-2008

Application and Installation Guidelines for Nonmetallic Sheathed (NM-B) Cable and Underground Feeder and Branch (UF-B) Circuit Cable



NEMA RV 2

APPLICATION AND INSTALLATION GUIDELINES FOR NONMETALLIC- SHEATHED CABLE AND UNDERGROUND FEEDER AND BRANCH CIRCUIT CABLE

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*Application and Installation Guidelines for Nonmetallic-Sheathed Cable and
Underground Feeder and Branch Circuit Cable*

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Foreword

These application and installation guidelines offer practical information on correct usage and industry recommended practices for the installation of Type UF-B underground feeder cable in accordance with the *National Electrical Code*[®].

These guidelines have been developed by the NEMA Building Wire and Cable Section, which has committed to periodically reviewing them for any revisions necessary to address changing conditions, product listing and installation requirements, and technical progress. Comments for proposed revisions are welcomed and should be submitted to:

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At the time of approval, the Building Wire and Cable Section of the National Electrical Manufacturers Association had the following members:

AFC Cable Systems—New Bedford, MA
Alcan Cable—Atlanta, GA
Alflex Corporation—Long Beach, CA
Americable—El Dorado, AR
American Insulated Wire Corporation—Mansfield, MA
Colonial Wire & Cable, Inc.—Hauppauge, NY
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Nexans Canada, Inc.—Chester, NY
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Southwire Company—Carrollton, GA
The Okonite Company—Ramsey, NJ
United Copper Industries—Denton, TX

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Section 1 APPLICATION GUIDELINES FOR NONMETALLIC-SHEATHED CABLE

1.1 CONSTRUCTION

1.1.1 General

Nonmetallic-Sheathed Cable (NM Cable, to be referred to throughout these guidelines as Type NM-B) constructed in accordance with the *National Electrical Code*® (*NEC*) employs copper, copper-clad, or recognized AA-8000 aluminum alloy conductors. Type NM-B can be found in either flat or round constructions.

Copper conductors are of sizes 14–2 AWG. Copper-clad or aluminum conductors are of sizes 12–2 AWG. The *NEC*® recognizes three cable types—Types NM-B, NMC, and NMS. Currently, Types NMC and NMS are not commercially available, but Type UF-B can be substituted for NMC. Type NMS is a construction consisting of NM-B and data/communication cables.

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1.1.2 Circuit Conductors

All circuit conductors 8 AWG and larger are stranded. Circuit conductors of Type NM-B typically have dry-location polyvinyl chloride (PVC)/nylon insulation. These comply with UL 83 requirements for THHN but are not marked as such, and cannot be used as THHN wires.

1.1.3 Grounding Conductor

Where a grounding conductor is present, it will always be in one location in the cable. In flat Type NM-B, it is located either in the valley between the circuit conductors or directly between them. In a twisted construction the grounding conductor may be wound along with the circuit conductors or in the center of the assembly. Bare grounding conductors are wrapped in paper to prevent contact with the nylon jacketing or circuit conductor insulation.

The permitted sizes of grounding conductors for Type NM-B are summarized in Table 1.

1.1.4 Cable Sheath

The sheath of listed NM-B is made to provide flexibility and resistance to abrasion. Physical properties tests in UL 719 are conducted to evaluate these properties. Typically, PVC is the material used.

**Table 1-1
GROUNDING CONDUCTORS IN NM-B CABLES WITH 2, 3, OR 4 CIRCUIT CONDUCTORS**

Size of Circuit Conductors	Smallest Acceptable Grounding Conductor
14	14 AWG
12	12
10, 8, 6	10
4	8
3, 2	8