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Application and Installation Guidelines for Armored Cable and Metal-Clad Cable

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Foreword

These application and installation guidelines offer practical information on the correct application and industry-recommended practices for the installation of armored cable (Type AC) and metal-clad cable (Type MC) in accordance with the *National Electrical Code*® (*NEC*).

These guidelines were 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:

NEMA Technical Operations Department
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At the time of approval, the NEMA Building Wire and Cable Group had the following Members:

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The following Member companies participated in a special working group to develop these guidelines:

AFC Cable Systems, Inc., a part of Atkore	New Bedford, MA
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Cerro Wire LLC	Hartselle, AL
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Section 1
Application Guidelines for Armored Cable

1.1 Construction

1.1.1 General

Type AC cable is constructed in accordance with NFPA 70 (*NEC*) and complies with the safety requirements of UL 4, *Standard for Armored Cable*. This cable employs copper, copper-clad aluminum, or acceptable aluminum alloy conductors. Copper conductors are of sizes 14–1 AWG. Aluminum or copper-clad aluminum conductors are of sizes 12–1 AWG. All conductors 6–1 AWG are stranded. The *NEC* recognizes three AC cable types—Types ACHH, ACTH, and ACTHH. Type ACTHH is the most common of these.

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1.1.2 Circuit Conductors

Circuit conductors in Type ACHH are rated 90°C and comply with UL 44, *Thermoset-Insulated Wires and Cables*. In Type ACTH cable, circuit conductors are rated 75°C dry and comply with UL 83, *Thermoplastic-Insulated Wires and Cables*. As with Type ACTH cable, the circuit conductors of Type ACTHH cable also comply with UL 83 but are rated 90°C dry.

1.1.3 Equipment Grounding Conductors

Although not required in Type AC cable, one or more equipment grounding conductors are permitted. One bare copper or aluminum equipment grounding conductor is permitted and can have a paper covering. Insulated equipment grounding conductors are always of the same material as the circuit conductors. Type AC cable with an equipment grounding conductor is most commonly used where redundant, dedicated, or isolated grounding is required, such as in-patient care areas.

1.1.4 Fibrous Coverings

Fibrous coverings (paper wrap) for Type AC cable consist of 30-pound or heavier paper saturated with a preservative and moisture-resistant compound. Each of the thermoplastic-insulated circuit conductors and any insulated equipment grounding conductor in Type ACTH and ACTHH cable have an individual paper covering applied directly over the insulation. The rubber-insulated conductors of Type ACHH cable have an overall fibrous material over the grouped conductors.

Type ACTH and ACTHH cable employ a bare equipment grounding conductor without a paper covering. An overall covering is applied directly over the grouped circuit and equipment grounding conductors to keep the bare conductor from contacting the armor.

1.1.5 Armor

The armor of Type AC cable is constructed of interlocked corrosion-resistant steel or aluminum strip and is applied over the conductors. The external diameter of the armor is at least 0.415 in., but there are no requirements on the internal diameter.

1.1.6 Bonding Strip

The required bonding strip is made of aluminum and is located between the armor and conductor assembly to enhance grounding ability. The bonding strip can be no smaller than 16 AWG.

1.1.7 Bushings

Type AC cable is constructed to allow an acceptable insulated bushing or its equivalent to be inserted readily between the conductors and the armor at each termination of the armor. The bushing is fully

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