

# Type MC Cable Guide Specifications-Encore Wire Corporation

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## 26 05 19- WIRE AND CABLE TYPE MC CABLE – COPPER CONDUCTORS

### Specification- MC HCF SmartGround™ Cable

#### PART 1 – GENERAL

##### 1.1 SECTION INCLUDES

1.1.1 Branch Circuits: HCF Type MC Cable for use as branch circuits.

1.1.2 General Applications: HCF Type MC Cable may be used in the following general applications based on the National Electrical Code (NEC):

1.1.2.1 For branch circuits for general purpose, non-essential electrical systems in Patient care areas of hospitals, medical and other types of health care facilities.

1.1.2.2. For applications requiring redundant grounding paths.

1.1.2.3. For applications requiring isolated grounding.

1.1.2.4. Exposed or concealed.

1.1.2.5. In cable tray where identified for such use.

1.1.2.6. In dry locations and embedded in plaster or against other masonry.

##### 1.2 SUBMITTALS

1.2.1 Product Data: Submit manufacturer's product data that materials comply with specified requirements and are suitable for intended application.

1.2.2 Installation Instructions: Manufacturer's installation instructions shall be included in submittal. Industry guides may supplement the manufacturer's instructions.

1.2.3 Manufacturer: HCF Type MC Cables and wire shall be supplied from a single manufacturer.

##### 1.3 REQUIRMENTS

1.3.1 MC Cable: HCF Type MC Cable shall meet the following:

1.3.1.1 UL 1569 Standard for Metal-Clad Cables including the provisions of Section 6.1.5A.

1.3.1.2 UL Standard 83 for Thermoplastic-Insulated Wires and Cables or UL Standard 44 for Thermoset-Insulated Wires and Cables.

1.3.1.3 UL Standard 1479 Standard for Fire Tests of Through-Penetration Firestops.

1.3.1.4 UL Classified 1, 2, and 3 Hour Through-Penetration Firestop Systems.

1.3.2 MC Cable Fittings: Type MC Cable connectors shall comply with UL 514B Standard for Conduit, Tubing, and Cable Fittings, specifically section 7.12.3(b).

1.3.3 National Electrical Code: HCF Type MC Cable shall meet the following NEC requirements.

1.3.3.1 NEC Articles 230, 250, 300, 330, 517

1.3.3.2 NEC Class I Div. 2, Class II Div. 2, & Class III Div. 1 Hazardous Locations.

1.3.4 Federal Specification: HCF Type MC Cable shall meet Federal Specification A-A59544.

1.3.5 Flame Test: HCF Type MC Cable shall pass IEEE 1202 (70,000 BTU/hr) Vertical Cable Tray Flame Test.

## **PART 2 - PRODUCTS**

### **2.1 PRODUCT**

2.1.1 HCF MC-SG™ Cable, Interlocked Armor Ground Type MC Cable.

### **2.2 MANUFACTURER**

2.2.1 Encore Wire Corporation, 1329 Millwood Road, McKinney, Texas 75069.  
Web: <http://www.encorewire.com>

### **2.3 HCF TYPE MC CABLE CONSTRUCTION**

#### **2.3.1 Circuit Conductors**

2.3.1.1 Conductors: Soft-drawn solid copper conductors shall be permitted for 14, 12, and 10 AWG conductor sizes. Stranded copper conductors shall be class B stranded or equivalent.

2.3.1.2. Insulation: The conductors shall be constructed with THHN insulation rated for 90°C dry and rated for 600 volts.

#### **2.3.2 Equipment Grounding Conductors**

2.3.2.1 Insulated Copper Conductor: A green insulated grounding conductor shall be cabled with copper circuit conductors and located under the nonmetallic tape covering.

2.3.2.2 Interlocked Armor: Interlocked armor shall be listed and identified as being suitable for grounding. Armor ground path performance shall be equivalent in performance to an NEC 250.122 sized equipment grounding conductor.

#### **2.3.3 Cable Assembly**

2.3.3.1 All insulated circuit conductors and any insulated grounding conductors shall be cabled together and contained under an overall nonmetallic tape covering.

2.3.3.2 A single bare aluminum grounding/bonding conductor shall be placed outside of the nonmetallic tape covering and have the same lay (twist) as the insulated conductor assembly.

#### 2.3.4 Grounding/Bonding Conductor

2.3.4.1. Grounding/bonding conductor shall be 8000 series aluminum-alloy conductor material, and shall be sized based on NEC table 250.122 and Table 6.1 in UL 1569.

#### 2.3.5 Metal-Clad Sheath / Armor Assembly

2.3.5.1. Interlocked Armor: The interlocking metal tape armor shall be aluminum and shall be wrapped at intervals with green SmartColor™ ID labels.

2.3.5.2. Aluminum interlocking metal tape shall be formed and helically wrapped around the cable assembly such that the interlocked armor and aluminum grounding/bonding conductor are in intimate contact throughout the entire cable.

2.3.5.3. Interlocked armor shall be listed as being suitable for grounding.

### **PART 3 - INSTALLATION**

#### **3.1 INSTALLATION**

3.1.1 Neat and Workmanlike Installation: HCF MC Cable shall be installed parallel or perpendicular to walls. No diagonal runs shall be permitted. Additional supports shall be used when the cable is exposed.

3.1.2 Manufacturers Instructions: HCF Type MC Cable shall be installed per the manufacturers written installation instructions. Industry guides may supplement the manufacturer's instructions.

3.1.3 Manufacturer: HCF Type MC Cables for circuits shall be supplied from a single manufacturer.

3.1.4 Securing and Supporting: HCF Type MC Cable shall be secured and supported at intervals not exceeding six feet unless otherwise permitted in the National Electrical Code.

3.1.5 Minimum Bending Radius: Bends in HCF Type MC Cable shall be made so that the cable will not be damaged. The radius of the curve of the inner edge of any bend should not be less than seven times the cable diameter.

3.1.6 Firestop Systems: HCF Type MC Cable shall be installed per the cable manufacturer's Through-Penetration Firestop Systems listing by Underwriter Laboratory.

#### **3.2 ELECTRICAL CONTINUITY OF METAL RACEWAYS, CABLE ARMOR AND ENCLOSURES**

3.2.1 General: Metal raceways, cable armor, and other metal enclosures for conductors shall be metallicly joined together into a continuous electric conductor and shall be connected to all boxes, fittings, and cabinets or enclosures so as to provide an effective ground fault current path per Section 250.4 of the NEC.

3.2.2 Circuits Under 250 Volts: HCF Type MC Cable shall be terminated per manufacturer's written installation instructions.

3.2.3 Circuits Over 250 Volts:

3.2.3.1 General: Circuits over 250 volts shall comply with NEC, Section 250.97.

3.2.3.2. Listed Outlet Boxes, UL Category QCIT: Where HCF Type MC Cable is terminated in outlet boxes with eccentric or concentric knockouts Listed under UL Category QCIT, it shall be terminated per manufacturer's written installation instructions.

3.2.3.3. Where Eccentric or Concentric Knockouts are Not Encountered: HCF Type MC Cable shall be terminated per manufacturer's written installation instructions.

3.2.3.4. Where Eccentric or Concentric Knockouts Are Encountered: In other than Outlet Boxes Listed under UL Category QCIT, the aluminum grounding/bonding conductor of HCF Type MC Cable shall be connected to the ground bus, lug or terminal of the enclosure and shall comply with NEC 110.14.

### **3.3 SPECIFIC USES**

3.3.1 HCF Type MC Cable may be used in the following applications:

3.3.1.1 For branch circuits for general purpose, non-essential electrical systems in patient care areas of hospitals, medical and other types of health care facilities per NEC 517.

3.3.1.2 HCF Type MC Cable shall be permitted to be installed in compliance with Parts II and III of Article 725.

3.3.1.3 Environmental air-handling spaces per NEC 300.22(C).

3.3.1.4 Places of assembly per NEC 518.4 and theaters per NEC 520.

3.3.1.5. Under raised floors for information technology equipment conductors and cables per NEC 645.5(D) & 645.5(D)(2)

### **3.2 USES NOT PERMITTED**

3.2.1 HCF Type MC Cable should not be used in wet locations, either direct burial, in underground conduit, or overhead.

3.2.2 HCF Type MC cable should not be used for emergency and critical branch circuits in healthcare facilities except as permitted 517.30(C)(3)(3).

### **3.3 AMPACITY**

3.3.1 The ampacity of HCF Type MC Cable shall be determined in accordance with Article 310.15 of the National Electrical Code. The installation should not exceed the ratings of the terminations and equipment.