



Understanding the Construction Code Rules, Part 8¹

Based on the 2005 *NEC*[®] and the 2006 *MRC*

The State of Michigan as of November 23, 2007 is operating under the 2005 edition of the *National Electrical Code*[®] as amended by the *Construction Code Rules, Part 8* of P.A. 230 of 1972. A copy can be obtained from the Bureau of Construction Codes and Fire Safety, P.O. Box 30254, Lansing, MI 48909 or at 2501 Woodlake Circle, Okemos, MI. The purpose of this document is to explain how the *Michigan Electrical Code (MEC)* differs from the 2005 *National Electrical Code (NEC)*[®], and when the *Michigan Residential Code (MRC)* is to be used in place of the *MEC* for wiring installations. To access official information on the internet, go to the web site www.michigan.gov/cis and click on "Construction Codes and Fire Safety". As each screen comes up on your computer, click on the following: Divisions, Electrical Division, Electrical Code Rules. The electrical portion of the Construction Code Act is Part 8 of Public Act 230 of 1972. This Tech Note is not an official document.

Rule 801: This rule adopts the 2005 *NEC*[®] with some sections omitted. Also omitted are *Article 547* dealing with agricultural wiring, and *Annex G* which contains administrative rules that was *Article 80* in the previous edition of the Code. The administrative rules were not actually deleted, but were rewritten for application in Michigan. This amended version of the *NEC*[®] is called the *Michigan Electrical Code* or *MEC*.

Also deleted from the *MEC* are sections *501.30(B)*, *502.30(B)*, *503.30(B)*, *505.25(B)*, and *506.25(B)*. These sections permit the use of some flexible conduits to be used as equipment grounding conductors and in Michigan Rules 867, 868, and 869 do not permit the use of flexible metal conduit and liquidtight flexible metal conduit for equipment grounding.

Rule 808: This rule provides a revised version of *Section 80.1* for use in Michigan. It is important to note that the *Exception to 80.1* authorizes the use of the *Michigan Residential Code (MRC)* rather than the *Michigan Electrical Code (MEC)* for wiring installations in one- and two-family dwellings. A copy of the *MRC* can be obtained from the Bureau of Construction Codes and Fire Safety at a nominal cost.

The *MRC* includes building, plumbing, mechanical, and electrical requirements for one- and two-family dwellings. The electrical requirements are contained in *Chapters 33* through *42* of the *MRC*. If a wiring installation is not covered in the *MRC* then the installing electrician is required to use the *MEC* as the standard for installation. For example, motor installation is not covered in the *MRC*. The *MRC* only covers services that are 120/240 volt, 3-wire, single-phase up to 400 amperes. Other services are required to be installed according to the *MEC*.

The *MRC* is organized differently than the *NEC*[®] and it has a different section numbering system. The rules in the *MRC* are essentially the same as in the *NEC*[®], but there are a few differences. The *Part 8 Rules* do not apply to one- and two-family dwellings. Only the *MRC* applies in the case of one- and two-family dwellings.

¹ Developed by the Electrical Technology staff of the Biosystems & Agricultural Engineering Department of Michigan State University, East Lansing, MI 48824-1323. For a copy of this Tech Note and other educational papers, visit the [Electrical Technology](http://www.electricaltechnology.msu.edu) web site at <http://www.electricaltechnology.msu.edu>.

Rule 834: This is Section 230.71(A) of the NEC® and the only change was a renumbering of a the reference to exceptions in Section 230.40. This renumbering was necessary because of the deletion of *Exception 3* in Section 230.40. There is no actual change in 230.71(A) as a result of this rule.

Rule 835: *Exception 3* of 230.40 of the text in the 2005 NEC® is deleted from the Michigan Electrical Code, and the remaining exceptions are renumbered. The exception that was deleted applied in the case of a single-family dwelling and permitted an outbuilding as well as the dwelling to be supplied directly from a single service drop or lateral. This is no longer permitted in Michigan. It is required to provide overcurrent protection on the feeder supplying the outbuilding. The procedure that is **not** permitted is illustrated in Figure 1.

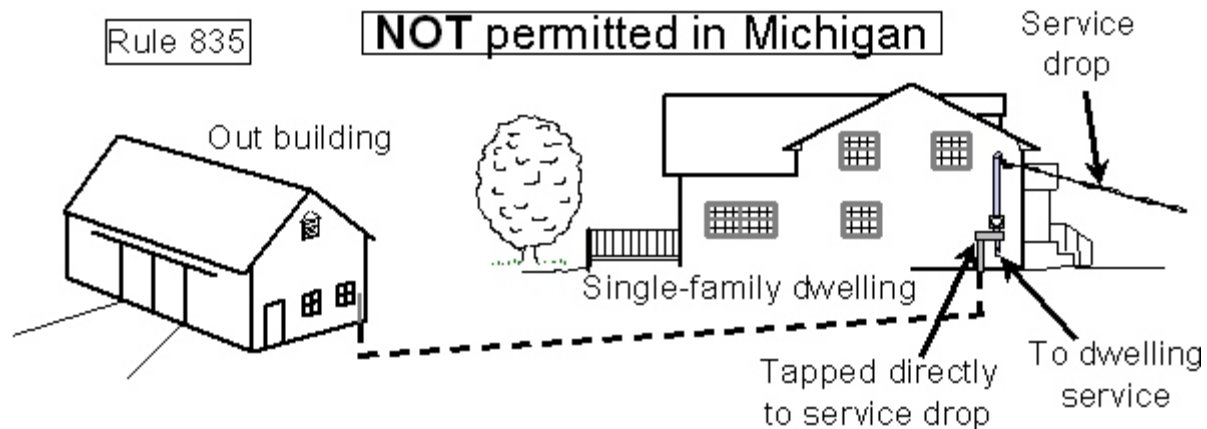


Figure 1 *Exception 3* of NEC® 230.40 was deleted and no longer permits direct supply of an outbuilding from a single-family dwelling service drop or lateral.

Rule 867: This is the same rule that has been in place in Michigan for many years. Flexible Metal Conduit in Michigan is required to have a separate equipment grounding conductor installed in all cases. This is illustrated in Figure 2. Flexible metal conduit was deleted from the list of acceptable equipment grounding conductors in Section 250.118. Section 348.60 was revised to state that in all cases, an equipment grounding or bonding wire is required to be installed across sections of flexible metal conduit.

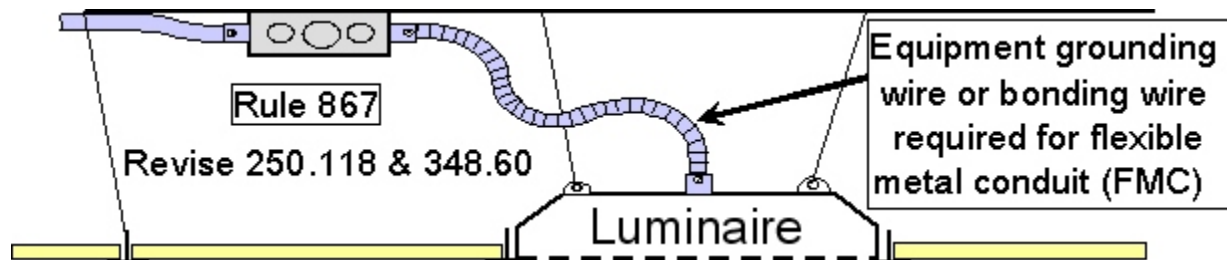


Figure 2 Flexible Metal Conduit is not permitted to be used as an equipment grounding or bonding conductor in Michigan. A bonding jumper is required to be installed in all cases to provide a satisfactory fault current path from one end to the other of Flexible Metal Conduit.

Rule 868: This is the same rule that has been in place in Michigan for many years. Liquidtight Flexible Metal Conduit is required to have a separate equipment grounding conductor installed in all cases. This is illustrated in Figure 3. Liquidtight flexible metal conduit was deleted from the list of acceptable equipment grounding conductors in Section 250.118. Section 350.60 was revised to state that in all cases, an equipment grounding or bonding wire is required to be installed across sections of liquidtight flexible metal conduit.

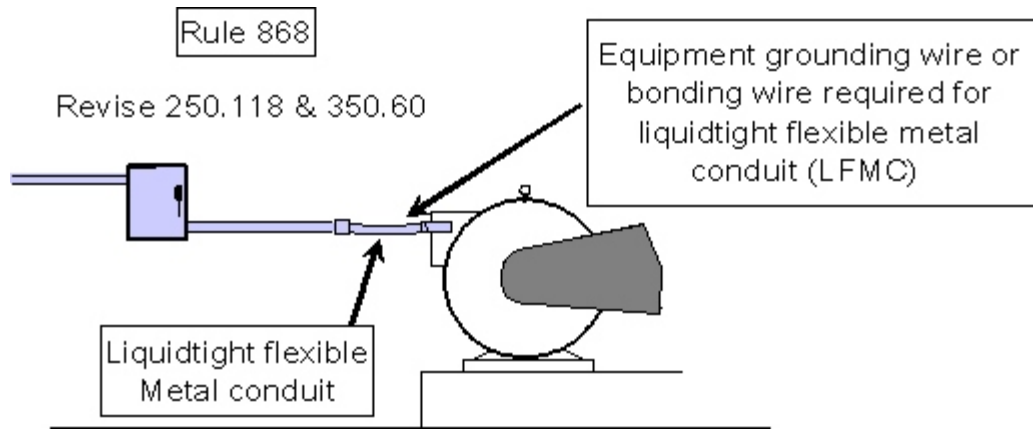


Figure 3 Liquidtight Flexible Metal Conduit is not permitted to be used as equipment grounding or bonding conductor in Michigan. A bonding jumper is required to be installed in all cases to provide a satisfactory fault current path from one end to the other of Liquidtight Flexible Metal Conduit.

Rule 869: This is the same rule that has been in place in Michigan for many years. Flexible Metal Conduit and Liquidtight Flexible Metal Conduit are required to have a separate equipment grounding or bonding conductor installed in all cases. In Michigan, paragraphs (5), and (6) of 250.118 of the NEC® do not exist. See Figure 2 and Figure 3.

Rule 873: This rule is a change in the Section 334.10 on uses permitted of Nonmetallic Sheathed Cable in Michigan. In 334.10(2) the reference to Type III, IV, and V construction of multifamily dwellings was deleted. Nonmetallic sheathed cable is permitted to be installed in any multifamily dwelling regardless of the type of construction of the building. This is illustrated in Figure 4.

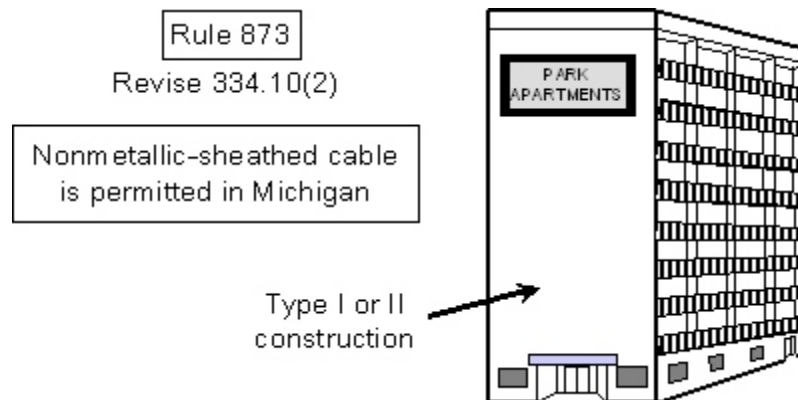


Figure 4 Nonmetallic-Sheathed Cable is permitted to be installed in multifamily dwellings of any type of construction in Michigan.

The other change deals with 334.10(3). In Michigan, nonmetallic sheathed cable is permitted to be installed as surface wiring or concealed unless specifically prohibited by the Code. This is illustrated in Figure 5. When the building exceeds one floor in height, nonmetallic sheathed cable is required to be concealed in walls, floors, or ceilings that provide a 15-minute fire rating.

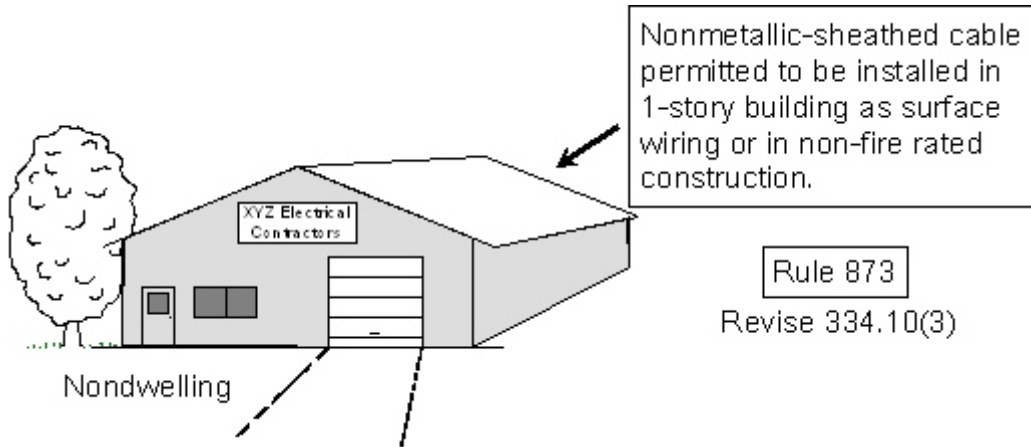


Figure 5 Nonmetallic-Sheathed Cable is permitted to be installed as surface wiring or concealed except for buildings of two or more floors and then it must be installed concealed within walls, floors, or ceilings with a 15-minute fire rating.

Additional Publications: For a copy of this Tech Note and other publications visit the Electrical Technology web site at <http://www.egr.msu.edu/age/ET/>. This web site also contains a link to Michigan ordinances that apply to the electrical trade. The Part 8 rules of P.A. 230 of 1972 do not apply to one-family and two-family dwellings. The wiring of those facilities is covered by the *Michigan Residential Code*. The wiring rules in the *MRC* are nearly the same as the wiring rules in the *MEC*. Since the numbering system for the *MEC* and the *MRC* are drastically different, it is sometimes hard to cross-reference these two wiring standards. Two cross-references are available to the public at the previously stated web site, and can be printed at no charge. These cross-references are Tech Note 112 and Tech Note 114.

Michigan Residential Code: The *Michigan Residential Code (MRC)* applies in the case of one-family and two-family dwellings. The current edition of the *MRC* carries the date 2006. In the past there were a few differences between the *MRC* and the *MEC*. An attempt has been made to make adjustments to the documents to eliminate differences. The following is a brief review of the major changes that were made to the *MRC* to rectify differences between the *MEC* and the *MRC*.

Use of FMC and LFMC for Grounding and Bonding: Changes were made to section E3808.1 and E3808.2 dealing with Flexible Metal Conduit and Liquidtight Flexible Metal Conduit. In the *MRC* it now specifically states that these materials are not permitted to be used as an equipment grounding conductor or as a bonding conductor the same as Rule 867, Rule 868, and Rule 869.

Table E3702.1: This table lists general installation and support requirements for wiring methods. In the previous edition of the *MRC* there was a requirement in this table that set 2 in. as the minimum distance from the edge of a bored hole to the edge of a horizontal framing member. That requirement was deleted from the table. For the purpose of protection of the

cable from damage, the minimum distance is 1¼ in. but from the standpoint of strength of a load bearing horizontal member, a hole located only 1¼ in. from the bottom edge of the horizontal member can weaken the support member.

E3307.3 Exception 2: The *MEC* and the *MRC* were different in the past in the case where a nonmetallic sheathed cable was used as a wiring method for a switch loop. In that case the white wire in the cable was required to be marked to identify it as an ungrounded conductor. The *MEC* did not permit the re-identified white wire to be the return wire to the light or outlet. The *MRC* did not specify. Now the *MEC* and the *MRC* are the same because of the new Exception 2. The re-identified white wire is **not** permitted to be the return to the light or outlet.

E3501.6.3: This is a section that was added to the *MRC* to deal with a specific installation in some areas of Michigan. This same section was also in the previous edition of the *MRC*. When a service consists of up to six separate disconnects those disconnects are required to be grouped. This section permits separately metered heating or air-conditioning equipment installed outside a building to have it's disconnecting means on the outside of the single- or two-family dwelling next to the meter where the service panel is located inside the dwelling. This is illustrated in Figure 6.

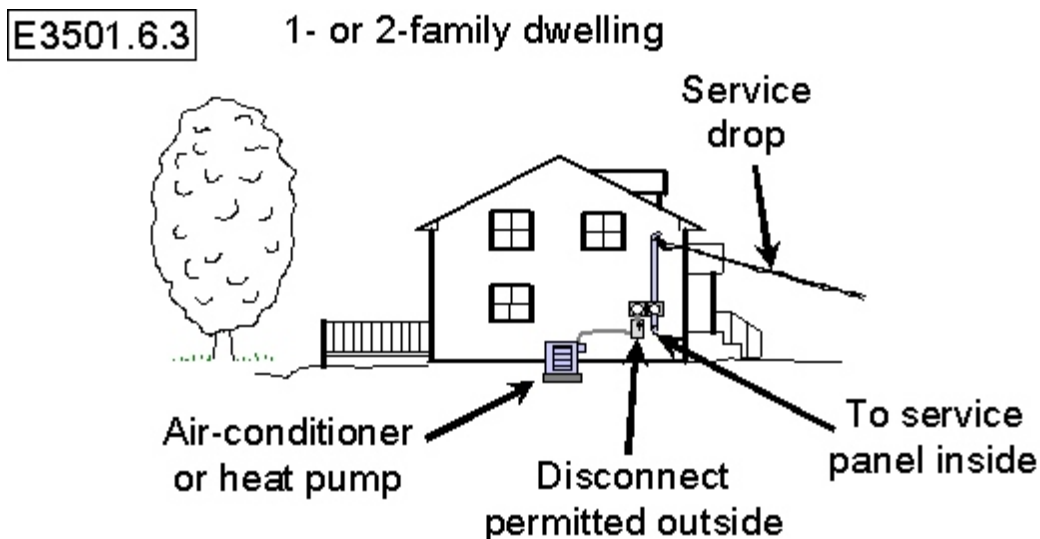


Figure 6 In the case of a single- or two-family dwelling, it is permitted to provide a separate disconnecting means on the outside of the house for separately metered space conditioning equipment.