

DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

DIRECTOR'S OFFICE

CONSTRUCTION CODE

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(By authority conferred on the director of the department of licensing and regulatory affairs by section 4 of 1972 PA 230, MCL 125.1504, and Executive Reorganization Order Nos. 2003-1, 2008-4, and 2011-4, MCL 445.2011, 445.2025, and 445.2030)

R 408.30801, R 408.30811, R 408.30813, R 408.30818, R 408.30819, R 408.30834, R 408.30838, R 408.30869, R 408.30870, R 408.30871, and R 408.30873, of the Michigan Administrative Code are amended and R 408.30865 is rescinded as follows:

PART 8. ELECTRICAL CODE

R 408.30801 National electrical code; adoptions by reference; inspection; purchase.

Rule 801. (1) The standards contained in the national electrical code, ~~2011~~**2014** edition, except sections 110.24, 501.30B, 502.30B, 503.30B, 505.25B, 506.25B, 547.1 to 547.10, and Annex H, as published by the national fire protection association (NFPA), shall govern the installation, replacement, alteration, relocation, and use of electrical systems or material. With the exceptions noted, the national electrical code is adopted in these rules by reference.

(2) Informational notes contained within the body of the code are not adopted as a part of the code.

(3) All references to the ANSI/ASME A17.1 2010, safety code for elevators and escalators mean the Michigan elevator code and all references to the national electrical code mean the Michigan electrical code.

(4) NFPA 110, standard for emergency and standby power systems, ~~2010~~**2013** edition and NFPA 111, standard on stored electrical energy emergency and standby power systems, ~~2010~~**2013** edition, are adopted by reference in these rules.

(5) The codes are available for inspection at the Okemos office of the Michigan department of licensing and regulatory affairs, bureau of construction codes.

(6) The National Electrical Code, NFPA 110, and NFPA 111 may be purchased from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, or from the Michigan Department of Licensing and Regulatory Affairs, Bureau of Construction Codes, 2501 Woodlake Circle, Okemos, Michigan 48864, at a cost as of the time of adoption of these rules of ~~\$90.00~~**\$82.00**, ~~\$39.00~~**\$42.00**, and ~~\$39.00~~**\$42.00** each, respectively.

R 408.30811 Duties and powers of ~~the~~ code official.

Rule 811. ~~Section~~ **Sections** 80.14, 80.14.1, 80.14.2, ~~and~~ **80.14.3 and 80.14.4** are added to the code to read as follows:

80.14. Duties and powers of the code official. The code official is authorized and directed to enforce the provisions of this code. The code official may render interpretations of this

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code and adopt policies and procedures in order to clarify the application of its provisions. These interpretations, policies, and procedures shall be in compliance with the intent and purpose of this code. These policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

80.14.1. Department records. The enforcing agency shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, notices and orders issued. These records shall be retained in the official records for the period required for the retention of public records.

80.14.2. Identification. The code official shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

80.14.3. Right of Entry. Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the code official has reasonable cause to believe that there exists in any building or upon any premises any conditions or violations of this code that make the building or premises unsafe, unsanitary, dangerous, or hazardous, the code official shall have the authority to enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the code official by this code. If the building or premises is occupied, the code official shall present credentials to the occupant and request entry. If the building or premises is unoccupied, the code official shall first make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry. If entry is refused, the code official shall have recourse to every remedy provided by law to secure entry.

80.14.4. Verification of the installation of the concrete encased electrode. The inspection of a concrete encased electrode meeting the requirements of the 2014 NEC NFPA 70 sections 250.50 and 250.52(A)(2) and (3) except for the connection of the grounding electrode conductor to the electrode shall be completed by 1 of the following:

(1) The electrical inspector for the enforcing agency.

(2) The building inspector for the enforcing agency if all of the following conditions are met:

(a) Both the electrical and building inspectors for the enforcing agency shall sign a written agreement which shall remain on file with the enforcing agency that designates authority to the building inspector for that agency to inspect a concrete encased electrode.

(b) Upon inspection and verification by the building inspector of a concrete encased electrode, the building inspector shall provide written documentation to the electrical inspector that the installation of the concrete incased electrode meets the requirements set forth in 250.52(A)(2) and (3) and 250.68(C)(3).

(c) Verification of approval of the concrete encased electrode shall be made at the construction site by signature of either the electrical inspector or the building inspector for the enforcing agency on the field copy of the building permit noting that the concrete encased electrode was approved along with the footing inspection or by a readily available inspection tag attached to the accessible grounding electrode reinforcing bar.

(d) The grounding electrode conductor connection to the concrete encased electrode shall be inspected by the electrical inspector for the enforcing agency.

Rule 813. Section 90.3 of the code is amended to read as follows:

90.3. Code arrangement. The code includes an administration section. Additionally, the code is divided into the introduction and 9 chapters. Chapters 1, 2, 3, and 4 apply generally; chapters 5, 6, and 7 apply to special occupancies, special equipment, or other special conditions. Chapters 5, 6, and 7 supplement or modify the general rules. Chapters 1 to 4 apply except as amended by chapters 5, 6, and 7 for the particular conditions. Chapter 8 covers communications systems and is not subject to the requirements of chapters 1 to 7 except where the requirements are specifically referenced in chapter 8. Chapter 9 consists of tables that are applicable as referenced. **Informative annexes**~~Annexes~~ are not part of the requirements of the code but are included for informational purposes only.

R 408.30818 Permits and certificates.

Rule 818. Sections 80.19, 80.19.1, 80.19.2, 80.19.3, 80.19.4, 80.19.5, 80.19.6, 80.19.7, 80.19.8, 80.19.9, 80.19.10, 80.19.11, 80.19.12 and 80.19.13 are added to the code to read as follows:

80.19. Permits and certificates. A person shall not equip a building with electrical conductors or equipment or make an alteration of, change in, or addition to, electrical conductors or equipment without receiving a written permit to do the work described. If the electrical installation or alterations of, changes in, or addition to, electrical conductors or equipment are found to be in compliance with the provision of the code and if the work has passed the inspection of the enforcing agency, then the enforcing agency shall, upon the request of the permit holder to whom the permit was issued, issue a certificate of final electrical inspection. The certificate certifies that the provisions of the code have been complied with. This section does not apply to installations that are referred to in section 7(3)(a), (b), (c), (d), (e), (f), (h), (k), (l), **(m)**, or (o) of **the electrical administrative act, 1956 PA 217, MCL 338.887.**

80.19.1. To whom permits are issued.

(1) A permit for any type of electrical installation may be secured by 1 of the following:

(a) A holder of an electrical contractor license or the qualifying master for the electrical contractor when authorized by the electrical contractor to secure a permit.

(b) A homeowner who occupies or will occupy a single-family dwelling and other accessory structures located on the same lot intended for use by the homeowner for which the permit is obtained and who will install the electrical equipment as certified by the homeowner on the permit application pursuant to the act.

(2) A permit for a fire alarm system may be secured by the holder of a fire alarm specialty contractor license or the qualifying fire alarm specialty technician qualifying the fire alarm specialty contractor when authorized by the fire alarm specialty contractor to secure a permit.

(3) A permit for an electrical sign or outline lighting, as defined in section 1b(1) and (2) of 1956 PA 217 **the electrical administrative act, MCL 338.881b(1) and (2)**, may be secured by the holder of a sign specialty contractor license or the sign specialty technician qualifying the sign specialty contractor when authorized by the sign specialty contractor to secure a permit.

(4) A permit for electrical wiring associated with the installation, removal, alteration, or repair of a water well pump on a single-family dwelling to the first point of attachment in the house from the well, may be secured by a registered pump installer under part 127 of **the public health code, 1978 PA 368, MCL 333.12701 to 333.12771.**

(5) A permit for wiring associated with existing mechanical and plumbing systems referenced in section 7(3)(i) of **the electrical administrative act**, 1956 PA 217, MCL 338.887(3)(i), may be secured by the following:

(a) A holder of a mechanical contractor license issued pursuant to section 6(3)(a), (b), (d), (e), and (f) of **the Forbes mechanical contractors act**, 1984 PA 192, MCL 338.976(3)(a), (b), (d), and (f).

(b) A holder of a plumbing contractor license issued pursuant to **the state plumbing act**, 2002 PA 733, MCL 338.3511 to 338.3569.

80.19.2. Application for permit. Each application for a permit, with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The permit application shall contain all applicable information pursuant to with the act and shall include the signature of the applicant in compliance with section 80.19.1 of the code.

80.19.3. Permit expiration. Each permit issued by the code official under the provisions of the code shall expire by limitation and become null and void if the work authorized by the permit is not begun within 180 days from the date of the permit or if not inspected after the work is begun for a period of 180 days. Before the work may be restarted, the permit shall be reinstated if the code has not changed. If the code has changed and the work was not started, a new permit is required based on the current requirements.

80.19.3.1. Posting of permit. The permit or a copy shall be kept on site of the work until the project is completed.

80.19.4. Uncompleted installation notification. If a person to whom a permit is issued for the installation and inspection of electrical conductors and electrical equipment quits the installation for any reason, then the person shall notify the enforcing agency.

80.19.5. Inspection and refunds for partial installation. If an installation is partially completed, then a permit holder, upon quitting the installation, shall notify the enforcing agency and shall request an inspection. The inspector shall record the acceptance of, or violations against, the work installed on the permit record according to the findings of the inspector. The enforcing agency shall not grant a refund to the permit holder of the permit fee covering electrical equipment installed and inspected.

80.19.6. Owner notification to enforcing agency. If a permit holder quits an installation after the electrical equipment is installed and fails to notify the enforcing agency, then the building owner or his or her agent may notify the enforcing agency and request inspection. Upon inspection, the enforcing agency shall send the permit holder a notice of a violation. The owner may then secure another licensed contractor to proceed with the work if the new contractor is properly covered by a permit.

80.19.7. Transfer of permit. An electrical permit is not transferable.

80.19.8. Fraudulent application for permit. A permit that is issued in violation of the laws of this state or as a result of false or fraudulent information or misinterpretation of conditions is subject to revocation at the direction of the enforcing agency. The enforcing agency shall notify the person holding the permit to appear and show cause why the permit should not be revoked. Failure to appear is sufficient grounds for revocation of the permit.

80.19.9. Suspension or revocation of permit. The code official shall have the authority to suspend or revoke a permit issued under the provisions of this code whenever the permit is issued in error or on the basis of incorrect, inaccurate, or incomplete information, or in violation of any ordinance or regulation or any of the provisions of this code.

80.19.10. Annual permit. In place of an individual permit for each alteration to an already approved electrical installation, the enforcing agency may issue an annual permit upon application to any person, firm, or corporation. The applicant shall be licensed pursuant to the electrical administrative act, 1956 PA 217, MCL 338.881 to 338.892.

80.19.11. Annual permit records. The person, firm, and corporation to whom an annual permit is issued shall keep a detailed record of alterations made under an annual permit. Access to the records shall be provided at all times and the records shall be filed with the enforcing agency.

80.19.12. Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless the application has been pursued in good faith or a permit has been issued; except that the code official may grant 1 or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause shall be demonstrated.

80.19.13. Validity of permit. The issuance of a permit or approval of construction documents shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or any other ordinance of the jurisdiction. No permit presuming to give authority to violate or cancel the provisions of this code shall be valid.

The issuance of a permit based upon construction documents and other data shall not prevent the code official from thereafter requiring the correction of errors in the construction documents and other data, or from preventing building operations being carried on thereunder, when in violation of this code or other ordinances of this jurisdiction.

R 408.30819 Plans and specifications.

Rule 819. Sections 80.21, 80.21.1, 80.21.2, 80.21.3 and 80.21.4 are added to the code to read as follows:

80.21. Plans and specifications. An applicant shall submit a detailed set of plans and specifications with the application for an electrical permit for any wiring or alteration to an electrical system if the system requires installation of electrical equipment that has an ampacity of more than 400 amperes for the service or feeder and if the calculated floor area in a building is more than 3,500 square feet. The enforcing agency may request plans for projects that include an unusual design. The electrical drawings shall include all of the following details:

- (a) Lighting layout.
- (b) Circuiting.
- (c) Switching.
- (d) Conductor and raceway sizes.
- (e) Wattage schedule.
- (f) Service location and riser diagram.
- (g) Load calculations and available fault current calculations.
- (h) A proposed method of construction that is drawn with symbols of a standard form.

All conductors are assumed to be copper unless otherwise stated in the plan. Specifications, when provided, shall also include the information listed in this rule. The selection of suitable disconnect and overcurrent devices to provide proper coordination and interrupting capacity for a wiring system is the responsibility of the designer. The enforcing agency, when approving electrical plans, does not assume responsibility for the design or for any deviations from any electrical drawings. The permit holder shall ensure that the plans and specifications

approved by the enforcing agency, or a certified copy of the plans and specifications, where required, are available on the jobsite for the use of the enforcing agency.

80.21.1. Preparation of plans. An architect or engineer shall prepare, or supervise the preparation of, all plans and specifications for new construction work or repair, expansion, addition, or modification work. The architect or engineer shall be licensed under **the occupational code**, 1980 PA 299, MCL 339.101 to 339.2919. The plans and specifications shall be sealed and signed pursuant to **the occupational code**, 1980 PA 299, MCL 339.101 to 339.2919.

Note: For exceptions, see **the occupational code**, 1980 PA 299, MCL 339.101 to 339.2919.

80.21.2. Application and permits. The code official shall receive applications, review construction documents, and issue permits for the installation and alteration of electrical systems, inspect the premises for which the permits have been issued, and enforce compliance with the code.

The code official may issue a permit for the construction of and part of an electrical system before the entire construction documents for the whole system have been submitted or approved, provided adequate information, and detailed statements have been filed complying with all pertinent requirements of this code. The holders of the permit shall proceed at their own risk without assurance that the permit for the entire electrical system will be granted.

Work shall be installed pursuant to the code and approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents.

80.21.3. Previous approvals. This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been previously issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

80.21.4 . Retention of construction documents. The code official shall retain 1 set of approved construction documents for a period of not less than 180 days from the date of final inspection of the permitted work.

80.21.5. Information on construction documents. Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents may be submitted when approved by the enforcing agency. Construction documents shall be of sufficient clarity to indicate the location, nature, and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules, and regulations as determined by the enforcing agency.

R 408.30834 Maximum number of disconnects.

Rule 834. Section 230.71(A) of the code is amended to read as follows:

230.71(A). General. The service disconnecting means for each service permitted by section 230.2 of the code, or for each set of service-entrance conductors permitted by section 230.40, exception nos. 1, 3, or 4, of the code, shall consist of not more than 6 switches or sets of circuit breakers, or a combination of not more than 6 switches and sets of circuit breakers, mounted in a single enclosure, in a group of separate enclosures, ~~in a switchboard or on a switchboard~~ **in or on a switchboard, or in switchgear**. There shall be not more than 6 sets of disconnects per service grouped in any 1 location.

For the purpose of this section, disconnecting means installed as part of listed equipment and used solely for the following, shall not be considered a service disconnecting means:

- (1) Power monitoring equipment.
- (2) Surge-protective device or devices.
- (3) Control circuit of the ground-fault protection system.
- (4) Power-operable service disconnecting means.

R 408.30838 NFPA code; adoption by reference.

Rule 838. Sections ~~700.8700.9~~ and ~~701.8701.9~~ of the code are amended to read as follows:

~~700.8700.9~~. Installation. Emergency systems shall be installed pursuant to NFPA 110 and NFPA 111, ~~2010~~**2013** editions, which are adopted by reference in these rules.

~~701.8701.9~~. Installation. Legally required standby systems shall be installed pursuant to NFPA 110 and NFPA 111, ~~2010~~**2013** editions, which are adopted by reference in these rules.

R 408.30865 ~~Switches controlling lighting loads~~**Rescinded.**

Rule 865. ~~Section 404.2(C) of the code is amended to read as follows:~~

~~404.2(C). Switches controlling lighting loads. Where switches control lighting loads supplied by a grounded general purpose branch circuit, the grounded circuit conductor for the controlled lighting circuit shall be provided at the switch location.~~

~~Exception 1: The grounded circuit conductor shall be permitted to be omitted from the switch enclosure where either of the following conditions apply:~~

~~(1) Conductors for switches controlling lighting loads enter the box through a raceway. The raceway shall have sufficient cross-sectional area to accommodate the extension of the grounded circuit conductor of the lighting circuit to the switch location whether or not the conductors in the raceway are required to be increased in size to comply with 310.15(B)(3)(a).~~

~~(2) Cable assemblies for switches controlling lighting loads enter the box through a framing cavity that is open at the top or bottom on the same floor level, or through a wall, floor, or ceiling that is unfinished on 1 side.~~

~~Exception 2: Where lighting loads supplied by a grounded general purpose circuit and controlled by 3-way, or 3-way and 4-way switches, the grounded neutral conductor shall be required to be supplied to only 1 switch location.~~

R 408.30869 Grounding conductors.

Rule 869. Section 250.118 of the code is amended to read as follows:

250.118. Types of equipment grounding conductors. The equipment grounding conductor run with or enclosing the circuit conductors shall be 1 or more or a combination of the following:

- (1) A copper, aluminum, or copper-clad aluminum conductor. This conductor shall be solid or stranded; insulated, covered, or bare; and, in the form of a wire or a busbar of any shape.
- (2) Rigid metal conduit.
- (3) Intermediate metal conduit.
- (4) Electrical metallic tubing.
- (5) Flexible metallic tubing where the tubing is terminated in listed fittings and meeting both of the following conditions:

- (a) The circuit conductors contained in the tubing are protected by overcurrent devices rated at 20 amperes or less.
- (b) The length of flexible metallic tubing in the ground return path does not exceed 1.8m (6 feet).
- (6) Armor of type AC cable as provided in section 320.108 of the code.
- (7) The copper sheath of mineral-insulated, metal-sheathed cable **type MI**.
- (8) Type MC cable that provides an effective ground-fault current path pursuant to 1 or more of the following:
 - (a) It contains an insulated or uninsulated equipment grounding conductor in compliance with 250.118(1).
 - (b) The combined metallic sheath and uninsulated equipment grounding or bonding conductor of interlocked metal tape-type MC cable that is listed and identified as an equipment grounding conductor.
 - (c) The metallic sheath or the combined metallic sheath and equipment grounding conductors of the smooth or corrugated tube-type MC cable that is listed and identified as an equipment grounding conductor.
- (9) Cable trays as permitted by sections ~~392.3(e) and 392.7~~**392.10 and 392.60** of the code.
- (10) Cablebus framework as permitted by section ~~370.3~~**370.60(1)** of the code.
- (11) Other listed electrically continuous metal raceways and listed auxiliary gutters.
- (12) Surface metal raceways listed for grounding.

R 408.30870 Overcurrent protection.

Rule 870. Section ~~625.21~~**625.40** of the code is amended to read as follows:
~~625.21~~**625.40** Overcurrent protection. Overcurrent protection for feeders supplying electric vehicle supply equipment shall be sized for continuous duty and shall have a rating of not less than 125% of the maximum load of the electric vehicle supply equipment. When noncontinuous loads are supplied from the same feeder, the overcurrent device shall have a rating of not less than the sum of the noncontinuous loads plus 125% of the continuous loads. The branch circuit supplying the electric vehicle equipment shall be an individual branch circuit sized for continuous duty and shall have a rating of not less than 125% of the maximum load of the electric vehicle supply equipment.

R 408.30871 Bonding other metal piping.

Rule 871. Section 250.104(B) of the code is amended to read as follows:

- 250.104(B). (1) ~~Bonding other~~**Other** metal piping. If installed in or attached to a building or structure, a metal piping system, including gas piping, capable of becoming energized shall be bonded to **any of the following**: ~~the service equipment enclosure, the grounded conductor at the service, the grounding electrode conductor if of sufficient size, or to 1 or more grounding electrodes used.~~
- ~~(2) Other than corrugated stainless steel tubing (csst). The bonding jumper shall be sized in accordance with table 250.122 using the rating of the circuit capable of energizing the piping. The equipment grounding conductor for the circuit that is capable of energizing the piping may serve as the bonding means.~~
- ~~(3) Corrugated stainless steel tubing (csst). Csst gas piping systems shall be bonded by connection to a metallic piping segment or fitting, either outside or inside the building, between the individual gas meter and the first csst fitting. The bonding jumper shall be sized~~

~~in accordance with Table 250.66 based on the size of the service-entrance conductor or feeder supplying each occupancy and as permitted in Table 250.66, but not smaller than 6 AWG copper (or equivalent).~~

(a) Equipment grounding conductor for the circuit that is likely to energize the piping system.

(b) Service equipment enclosure.

(c) Grounded conductor at the service.

(d) Grounding electrode conductor, if of sufficient size.

(e) One or more grounding electrodes used.

Either the bonding conductor or conductors, or the jumper or jumpers shall be sized pursuant to section 250.122, using the rating of the circuit that is likely to energize the piping system or systems. The points of attachment of the bonding jumper or jumpers shall be accessible.

(2) Corrugated stainless steel tubing (CSST). Listed corrugated stainless steel tubing gas piping systems shall be bonded to the electrical service grounding electrode system. The bonding jumper shall connect to a metallic pipe or fitting between the point of delivery and the first downstream CSST fitting. The bonding jumper shall be not smaller than 6 AWG copper wire or equivalent. A gas piping system that is bonded pursuant to this section shall be considered effectively bonded regardless of the amount of CSST in the system.

Exception: Listed CSST piping systems approved for installation without additional bonding by the manufacturer.

R 408.30873 Uses permitted.

Rule 873. Sections ~~Section~~ 334.10 and 334.12(A) of the code is-are amended to read as follows:

334.10. Uses Permitted. Type NM, type NMC, and type NMS cables may be used in the following, **except as prohibited in section 334.12:**

(1) One- and 2-family dwellings and their attached or detached garages, and their storage buildings.

(2) Multifamily dwellings ~~except as prohibited in section 334.12 of the code.~~

(3) ~~Other structures except as prohibited in section 334.12 of the code.~~ In **other** structures exceeding 1 floor above grade, cables shall be concealed within walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire rated assemblies pursuant to the Michigan building code.

(4) Cable trays in structures permitted to be types III, IV, or V where the cables are identified for the use.

334.12(A). Uses not permitted. Types NM, NMC, and NMS cable shall not be permitted as follows:

(1) In any dwelling or structure not specifically permitted in section 334.10(1), (2) and (3).

(2) Exposed in dropped or suspended ceilings in other than 1- and 2-family and multifamily dwellings.

(3) As service-entrance cable.

(4) In commercial garages having hazardous or classified locations as defined in section 511.3.

- (5) In theaters and similar locations, except where permitted in section 518.4(B).**
- (6) In motion picture studios.**
- (7) In storage battery rooms.**
- (8) In hoistways or on elevators or escalators.**
- (9) Embedded in poured cement, concrete, or aggregate.**
- (10) In hazardous or classified locations, except where specifically permitted by other articles in this code.**