



COM-10544 (N.03/97)

The Department of Commerce proposes an order to renumber ss. Comm 16.01 to 16.06, 16.065, and 16.07 to 16.12, Comm 16.17 (1) (c), Comm 16.25 (2m) to (7), Comm 16.25 (b) and (c), and Comm 16.39 (3);

to renumber and amend ss. Comm 16.01 and Comm 16.12;

to amend ss. Comm 16.24 (1), Comm 16.25 (5) (a), Comm 16.26 (intro.) and (1), Comm 16.30 (intro.) and (1), Comm 16.327, Comm 16.392, Comm 16.45 (1) (b) 1., Comm 16.45 (2), and Comm 16.48 (1);

to repeal and recreate Chapter Comm 16 Subchapter III;

and to create ss. Comm 16.013 and Comm 16.930, relating to electrical construction.

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## **ANALYSIS OF PROPOSED RULES**

### **1. Statutes Interpreted.**

Section 101.82 (1), Stats.

### **2. Statutory Authority.**

Section 101.82 (1), Stats.

### **3. Related Statute or Rule.**

- Sections 101.63 (1) and 101.73 (1) Stats.
- Chapters Comm 60 to 66, Wisconsin Commercial Building Code
- Chapters 20 to 25 of the Uniform Dwelling Code
- PSC 114, Public Service Commission.

### **4. Explanation of Agency Authority.**

Section 101.82 (1), Stats., grants the Department of Commerce general authority for protecting the health, safety and welfare of the public by establishing reasonable and effective safety standards for the installation, repair and maintenance of electrical wiring.

### **5. Summary of Proposed Rules.**

The primary revisions to chapter Comm 16 are to adopt the most current edition of the National Electrical Code (NEC). In addition to bringing the state electrical code up to date with current technology, the proposed revisions clarify or supplement the electrical standards contained in the 2008 edition of the NEC. The proposed rules contain a number of modifications to the technical requirements within these standards, reorganization of current

requirements and editorial changes. The following is a summary of the major proposed changes to this chapter:

- a. Adopt by reference the most current edition of the NEC and include correct cross-references to these standards. [Comm 16.014]
- b. Require tamper-resistant receptacles and arc-fault circuit-interrupter protection for all new dwelling construction. [NEC 406.11 and NEC 210.12 and Comm 16.210 (2) (a) and (b) and Comm 16.210 (4)]
- c. Renumber the code sections in subchapters I, II, III and IV to correspond more closely with the article and section numbers in the NEC.
- d. Update or delete several Wisconsin amendments that referenced the NEC because of changes in the 2008 edition.

## **6. Summary of, and Comparison with, Existing or Proposed Federal Regulations.**

There are several existing federal regulations that relate to the installation of electrical wiring and equipment. Some of these regulations require compliance with various editions of the National Electrical Code (NEC). An internet-based search of the *Code of Federal Regulations* (CFR) found the following existing federal regulations relating to the activities to be regulated by this rule:

- Title 7 CFR Part 1755 – Telecommunications Standards and Specifications for Materials, Equipment and Construction. This regulation in the Department of Agriculture applies to telecommunications wiring and equipment, and requires compliance with the 1993 NEC.
- Title 24 CFR Part 3280 – Manufactured Home Construction and Safety Standards Subpart I – Electrical Systems. This regulation in the Department of Housing and Urban Development covers electrical systems in manufactured homes, and requires compliance with the 2005 NEC.
- Title 29 CFR Part 1910 – Occupational Safety and Health Standards. Subpart S of this regulation in the Department of Labor contains detailed electrical safety requirements that are necessary for the practical safeguarding of employees in their workplaces.
- Title 29 CFR Subpart 1926 – Safety and Health Regulations for Construction. Subpart K of this regulation in the Department of Labor contains detailed electrical safety requirements that are necessary for the practical safeguarding of employees involved in construction work.
- Title 30 Part 57 – Safety and Health Standards – Underground Metal and Nonmetal Mines. Subpart K of this regulation in the Department of Labor contains specific

electrical safety requirements for the protection of employees working in underground metal and nonmetal mines.

- Title 30 Part 75 – Mandatory Safety Standards – Underground Coal Mines. Subpart F of this regulation in the Department of Labor contains specific electrical safety requirements for the protection of employees working in underground coal mines.

## **7. Comparison with Rules in Adjacent States.**

An Internet-based search found that all adjacent states except Illinois adopt by reference various editions of the NEC. Michigan also creates amendments to the adopted standard similar to Wisconsin.

- Illinois does not administer a state electrical code.
- The Iowa Department of Public Safety administers the Iowa Building Code that adopts the 2005 edition of the NEC with no amendments.
- The Michigan Department of Labor and Economic Growth administers the Michigan Construction Code that adopts the 2005 edition of the NEC with amendments. The arc-fault protection requirement was adopted as part of the 2003 Michigan Residential Code that became effective February 29, 2004.
- The Minnesota Department of Labor and Industry, Building Codes and Standards Division, administers the Minnesota State Building Code that adopts the 2005 edition of the NEC with no amendments.

## **8. Summary of Factual Data and Analytical Methodologies.**

The primary methodology for updating the Wisconsin Electrical Code, chapter Comm 16 has been a review and assessment of the latest edition of the national technical standards that serve as the basis for Wisconsin code. Staff prepared a comprehensive comparison of the changes in the 2008 edition of the NEC to the 2005 edition currently adopted under Comm 16. The department's review and assessment process involved the participation of the Electrical Code Advisory Council. The members of that Council represent the many stakeholders involved in the electrical industry including utility representatives, inspectors, labor and building contractors. (A listing of the Electrical Code Advisory Council is provided at the end of this analysis.)

The department believes the national model codes reflect current societal values with respect to safeguarding people and property from hazards arising from the use of electricity.

The NEC (formally known as ANSI/NFPA 70) is a national standard for the safe installation of electrical wiring and equipment. It is part of the National Fire Codes series published by

the National Fire Protection Association (NFPA). The NEC is developed by NFPA's Committee on the National Electrical Code, which consists of 20 code-making panels and a technical correlating committee. The NEC is approved as an American National Standard by the American National Standards Institute (ANSI). First published in 1897, the NEC is updated and published every three years. The 2008 Code is the most recent edition, approved on August 15, 2007. Most states adopt the most recent edition within a couple of years of its publication.

More information on the development of these national model codes may be obtained from the NFPA web site at [www.nfpa.org](http://www.nfpa.org) or from the NEC web site at [www.necplus.org](http://www.necplus.org).

## **9. Analysis and Supporting Documents Used to Determine Effect on Small Business or in Preparation of Economic Impact Report.**

The department used the Electrical Code Advisory Council to gather and analyze information on potential impacts in complying with both the technical and administrative requirements of the codes. Many small businesses belong to the industry associations that sit on the advisory council. A responsibility of council members is to bring forth concerns that their respective organizations may have with the requirements including economic impact.

The proposed rule changes also were shared with the Commercial Buildings Code Council, Uniform Dwelling Code Council, and Multifamily Dwelling Code Council.

In addition to posting rule development and council activities on the department's web site, the department offers an Email subscription service that is available to all small businesses. This service provides Email notification of council meetings, meeting, agendas and council meeting progress reports so small businesses can follow proposed code changes.

Adopting the most current edition of the NEC will not impose a significant impact on small businesses involved in the inspection, maintenance, service and installation of electrical wiring.

## **10. Effect on Small Business.**

The department believes the rules will not increase the effect on small businesses from what the current rules impose on them. An economic impact report is not required pursuant to s. 227.137, Stats.

## **11. Agency Contact Person.**

Joe Hertel, Program Manager, [joe.hertel@wisconsin.gov](mailto:joe.hertel@wisconsin.gov), (608) 266-5649.

## 12. Public Hearing Comments.

A public hearing has been scheduled for June 18, 2008. The hearing record on this proposed rulemaking will remain open until July 2, 2008, to permit submittal of written comments from persons who are unable to attend the hearing or who wish to supplement testimony offered at the hearing. Written comments should be submitted to Joe Hertel at the Department of Commerce, P.O. Box 2689, Madison, WI 53701-2689, or Email at [joe.hertel@wisconsin.gov](mailto:joe.hertel@wisconsin.gov).

### Council Members and Representatives

The proposed rules have been developed with the assistance of the Electrical Code Advisory Council. The members of that citizen advisory council are as follows:

<u>Name</u>	<u>Representing</u>
Kevin Benner	IAEI – WI Chapter
Shannon Clark	WI Electric Cooperative Association
Mark Cook	WI Public Service Commission
Brad Gruenewald	Wisconsin Utilities Assoc., Inc.
David Hansen	WI Dept of Agriculture, Trade and Consumer Protection
David Helgeson	Wisconsin Electrical Trades Council
Ron Janikowski	IAEI – WI Chapter
Charles L. Johansen	WI Builders Association
Jeff Knudtson	NECA – WI Chapter
Richard Lynes	Associated Builders & Contractors of WI Inc
Tim O’Rorke	Wisconsin Healthcare Engineering Association
Leo Sokolik	WI State AFL – CIO
David Washebek	NECA – Milwaukee Chapter

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SECTION 1. Comm 16.01 is renumbered Comm 16.001 and Comm 16.001 (2), as renumbered, is amended to read:

**Comm 16.001 (2) CODE INTENTION.** This chapter is not intended as a design specification or as an instruction manual for untrained persons.

SECTION 2. Comm 16.02 to 16.06 are renumbered Comm 16.002 to 16.006, Comm 16.065 is renumbered Comm 16.007 and Comm 16.07 to 16.11 are renumbered Comm 16.008 to 16.012.

SECTION 3. Comm 16.013 is created to read:

**Comm 16.013 Electric fences.** The following are department rules in addition to the requirements of the NEC:

**(1) ELECTRIC FENCE CONTROLLERS.** (a) Electric fence controllers shall be of a type listed by a nationally recognized testing laboratory.

Note: The department recognizes UL 69—Electric Fence Controllers as acceptable standards that satisfy the requirements of par. (a). Copies are available from U.L. Laboratories, Inc., 333 Pfingsten Road, Northbrook, Illinois 60062.

(b) Electric fence controllers shall be installed and used in the exact manner and for the exact purpose indicated by the manufacturer's instructions, markings, listings or labels.

**(2) GROUNDING.** Electric fence controllers shall be grounded as specified in NEC 250, except that where stray voltages in dairy barns or milking parlors create physical problems to the animals, the use of a single made electrode shall be permitted.

SECTION 4. Comm 16.12 is renumbered Comm 16.014 and amended to read:

**Comm 16.014 Adoption of standards by reference.** The National Electrical Code, NEC-~~2005~~ 2008, subject to the changes, additions or omissions specified in subch. III, is hereby incorporated by reference into this chapter.

SECTION 5. Chapter Comm 16 Subchapter III is repealed and recreated to read:

#### SUBCHAPTER III — CHANGES, ADDITIONS OR OMISSIONS TO THE NEC

**Comm 16.015 Changes, additions or omissions to NEC.** Changes, additions or omissions to the National Electrical Code (NEC) are specified in this subchapter and are rules of the department and not requirements of the NEC.

**Note:** The referenced NEC article or section number will correspond with the Comm designation number and title and will precede the text of the rule. Example: Comm 16.100 [NEC 100].

**Comm 16.090 Purpose, scope and enforcement.** The requirements specified in NEC 90.1, NEC 90.2 and NEC 90.4 are not included as part of this chapter.

**Comm 16.100 Definitions. (1) ADDITIONS.** The following are department definitions in addition to the definitions in NEC Article 100:

(a) “Department” means the department of commerce.

(b) “Floors” means stories as specified in chs. Comm 60 to 66.

(c) “Nonrated construction” means Types III, IV and V construction in accordance with chs. Comm 60 to 66 and is considered to be nonfire-rated for the purposes of this chapter.

(d) “Private sewage system” has the meaning specified under s. 145.01 (12), Stats.

**Note:** Under s. 145.01 (12), Stats., “private sewage system” means a sewage treatment and disposal system serving a single structure with a septic tank and soil absorption field located on the same parcel as the structure. This term also means an alternative sewage system approved by the department including a substitute for the septic tank or soil absorption field, a holding tank, a system serving more than one structure or a system located on a different parcel than the structure. A private sewage system may be owned by the property owner or a special purpose district.

**(2) SUBSTITUTIONS.** The following department definitions are substitutions for the respective definitions in NEC Article 100:

(a) “Building” means a structure that stands alone or is separated from adjoining structures by fire walls having not less than a 3-hour fire-resistance rating with all openings in the wall protected with 3-hour rated fire door assemblies.

**Note:** See chs. Comm 60 to 66 for fire-resistance standards.

(b) “Special permission” means a petition for variance in accordance with Comm 16.005.

**Comm 16.110 Requirements for electrical installation. (1) INSTALLATION AND USE.** Substitute the following wording for the requirements in NEC 110.3 (B): Listed or labeled equipment shall be installed or used, or both, in accordance with any instructions included in the listing or labeling, provided the instructions, listing or labeling do not conflict with this chapter.

**(2) CIRCUIT IMPEDANCE AND OTHER CHARACTERISTICS.** This is a department exception to the requirements of NEC 110.10:

Exception: The requirements specified in NEC 110.10 do not apply to meter sockets and meter pedestals.

**Comm 16.210 Branch circuits. (1) IDENTIFICATION FOR BRANCH CIRCUITS.** This is a department informational note to be used under NEC 210.5 (C):

**Note:** For 277/480 volt systems, the recommended wire colors are brown, orange and yellow. For 120/208 volt systems, the recommended wire colors are black, red and blue.

**(2) GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL.**

(a) *Dwelling units.* Substitute the following wording for NEC 210.8 (A) (7): Laundry, utility, bedroom and wet bar sinks, where the receptacles are installed within 6 feet of the outside edge of the sink.

(b) *Other than dwelling units.* This is a department rule in addition to the requirements of NEC 210.8: All 125-volt single phase 15- and 20-ampere receptacles installed in the repair areas and storage areas in commercial garages where electrical diagnostic equipment, electric hand tools or portable lighting equipment may be used shall have ground fault circuit-interrupter protection for personnel.

**(3) BRANCH CIRCUITS REQUIRED.** This is a department rule in addition to the requirements of NEC 210.11: Where an air conditioner sleeve is provided in a building wall, a receptacle outlet shall be located within 4 feet of the sleeve. If a circuit is not run to the outlet, a raceway shall be provided. When the air conditioner is installed in the sleeve, it shall be supplied by an individual branch circuit. A receptacle outlet installed for an air conditioner shall not be counted as one of the receptacles required by NEC 210.52 (A).

**(4) ARC-FAULT CIRCUIT-INTERRUPTER PROTECTION.** Substitute the following wording for NEC 210.12 (B) Exception No. 1: Where RMC, IMC, EMT or steel armored cable, Type AC or Type MC, meeting the requirements of 250.118 using metal outlet and junction boxes is installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install a combination AFCI at the first outlet to provide protection for the remaining portion of the branch circuit.

**(5) COMMON AREA BRANCH CIRCUITS.** This is a department rule in addition to the requirements of NEC 210.25: For service upgrades for existing 2-family dwellings only, separation of common area branch circuits will not be required.

**(6) LIGHTING OUTLETS REQUIRED.** Substitute the following wording for NEC 210.70 (A) (1): At least one wall switch-controlled lighting outlet shall be installed in every habitable room, kitchen and bathroom.

**Comm 16.220 Branch-circuit, feeder and service calculations. (1) GENERAL.** Substitute the following wording for NEC 220.10: Branch-circuit loads shall be calculated as shown in NEC 220.12, 220.14 and 220.16, or under the supervision of a Wisconsin professional engineer, architect or designer of electrical systems, circuit load calculations may use a lower unit load than identified in Table 220.12 when energy codes restrict lighting loads to an amount lower than the table values.

**(2) GENERAL.** This is a department exception to the requirements in NEC 220.40:

Exception: Under the supervision of a Wisconsin professional engineer, architect or designer of electrical systems, the feeder or service size may be computed using diversity factors or historical data of a similar type of building, other than one- and 2-family dwelling units.

**Comm 16.225 Outside branch circuits and feeders. (1) CLEARANCE FOR OVERHEAD CONDUCTORS AND CABLES.** This is a department rule in addition to the requirements of NEC 225.18: Conductors of not over 600 volts nominal shall have a clearance of at least 24.5 feet over track rails of railroads.

**(2) CLEARANCES FROM BUILDINGS FOR CONDUCTORS NOT OVER 600 VOLTS.** Substitute the following wording for NEC 225.19 (A) Exception No. 4: The requirement for maintaining the vertical clearance 3 feet from the edge of the roof shall not apply to the final conductor span to the building.

**(3) NUMBER OF SUPPLIES.** The following are department rules in addition to the requirements in NEC 225.30:

(a) For the purpose of this section, multiple feeders that are supplied from the same distribution point, rated 300 amperes or greater and supply not more than 6 disconnecting means grouped at the same location are considered one supply.

(b) Multi-occupancy buildings or structures shall be permitted to have one set of branch circuit conductors installed from a dwelling unit to the second building or structure's respective occupied space.

**(4) LOCATION.** This is a department rule in addition to the requirements of NEC 225.32: The building disconnect required by NEC 225.31 shall be located in accordance with s. Comm 16.230 (3).

**Note:** See ch. PSC 114 regarding clearances of conductors of over 600 volts and for prohibition of constructing dwellings under or near overhead lines.

**(5) CLEARANCES OVER ROADWAYS, WALKWAYS, RAIL, WATER AND OPEN LAND.** Substitute the following wording for the note to NEC 225.60 (C):

**Note:** For clearances of conductors of over 600 volts, see ch. PSC 114.

**(6) CLEARANCES OVER BUILDINGS AND OTHER STRUCTURES.** Substitute the following wording for the note to NEC 225.61 (B):

**Note:** See ch. PSC 114 regarding clearances of conductors of over 600 volts and for prohibition of constructing dwellings under or near overhead lines.

**Comm 16.230 Services. (1) NUMBER OF SERVICES.** (a) These are department informational notes to be used under NEC 230.2 (intro.):

**Note:** See definition of building in s. Comm 16.100 (2) (a).

**Note:** It is recommended that the electric utility or cooperative supplying electric current be contacted prior to service equipment installations for any special requirements.

(b) Substitute the following wording for NEC 230.2 (B)(2): Two or more service drops or laterals for the same class of service if located more than 150 feet apart, measured in a straight line, and provided that all electrical wiring supplied by each service has no common raceway or connection with any other service.

(c) This is a department rule in addition to the requirements of NEC 230.2 (B): For a building which is not more than 3 stories in height and which contains only 3 or more attached, vertically separated, side-by-side or back-to-back dwelling units, with each dwelling unit served by an individual exterior exit within 6 feet of the exit discharge grade, a separate service drop or lateral shall be permitted for each 2 attached units.

**(2) NUMBER OF SERVICE-ENTRANCE CONDUCTOR SETS.** The requirements specified in NEC 230.40 Exception No. 3 are not included as part of this chapter.

**(3) LOCATION.** This is a department rule in addition to the requirements of NEC 230.70 (A):

(a) Except as provided in par. (b), raceways containing service conductors or cables, or service entrance cable not contained within a raceway, shall not extend longer than 8 feet into a building to the service disconnect or the first service disconnect of a group of disconnects as permitted by NEC 230.71. The raceways or conductors shall be considered to have entered the building at the point where they pass through the outer surface of the building exterior, except as permitted by NEC 230.6.

(b) Service entrance busway shall be permitted to exceed 8 feet where standard lengths are used.

**(4) GENERAL.** This is a department rule in addition to the requirements of NEC 230.70: Disconnecting means shall be provided to disconnect the utility wiring from the premises wiring at any point where utility wiring terminates and premises wiring extends overhead or underground to more than one building or structure.

**(5) RATING OF SERVICE DISCONNECTING MEANS.** This is a department rule in addition to the requirements of NEC 230.79:

(a) *Two- or multi-family dwellings.* Except as provided in par. (b), for 2-family or multi-family dwellings, the service equipment shall have a rating of not less than 150 amperes, 3-wire or 4-wire. Where the combined rating of all service disconnecting means is 150 amperes or larger, the service or feeder equipment rating for each dwelling unit shall have a rating of not less than 60 amperes.

(b) *Exception.* Service equipment having a rating of not less than 100 amperes, 3-wire or 4-wire, shall be permitted to be installed in an existing 2-family dwelling only where both of the following conditions are complied with:

1. The load computed in accordance with NEC 220 does not exceed 80 amperes.
2. Specific written approval is granted by the municipal inspection department having jurisdiction.

**Comm 16.250 Grounding and bonding. (1) RESISTANCE OF ROD, PIPE, AND PLATE ELECTRODES.** Substitute the following wording for NEC 250.56: A single electrode consisting of a rod, pipe or plate shall be augmented by one additional electrode of any of the types specified 250.52 (A) (4) through (A) (8). Where multiple rod, pipe or plate electrodes are installed to meet the requirements of this section, they shall not be less than 1.8 m (6 ft) apart.

**(2) TYPES OF EQUIPMENT GROUNDING CONDUCTORS.** This is a department rule in addition to the requirements of NEC 250.118: A metallic raceway installed in direct contact with earth, in concrete slabs or floors poured on earth, or in exterior concrete walls below grade shall be augmented with a supplemental equipment grounding conductor identified in NEC 250.118 (1). This supplemental conductor shall be sized in accordance with NEC 250.122. An aluminum equipment grounding conductor used for this purpose shall be insulated.

**Comm 16.300 Wiring methods. (1) ELECTRICAL REQUIREMENTS FOR PRIVATE SEWAGE SYSTEMS.** These department rules apply to private sewage systems and are in addition to the requirements of NEC 300:

(a) *Wiring methods.* All effluent pump circuit wiring shall comply with the approved wiring methods as specified in NEC 300 and all of the following requirements:

1. Effluent pumps shall be supplied by a separate branch circuit supplying no other loads.
2. Alarm wiring may not be connected to the pump circuit.
3. All aboveground cables and flexible cords shall be enclosed to protect against physical damage.
4. The neutral conductor shall not be common to both alarm and pump circuits.

**Note:** This prohibits use of a multi-wire branch circuit to supply both the alarm and pump.

**Note:** See NEC 430.102 for location of disconnects.

(b) *Ground-fault circuit protection.* A single receptacle located at the pump chamber that has an alarm or pump connected to it does not require ground-fault circuit-interrupter protection.

**(2) PROTECTION AGAINST PHYSICAL DAMAGE.** The requirements specified in NEC 300.4 (D) are not included as part of this chapter.

**Comm 16.310 Ampacities for conductors rated 0-2000 volts.** This is a department exception in addition to the exceptions specified in NEC 310.15 (B) (2) (a):

Exception No. 6: The derating factors shown in Table 310.15 (B) (2) (a) do not apply to branch circuits supplying an individual dwelling unit.

**Comm 16.312 Cabinets, cutout boxes and meter socket enclosures. (1) CABLES.** Substitute the following wording for NEC 312.5 (C) Exception (intro.):

Exception: Cables with entirely nonmetallic sheaths shall be permitted to enter an enclosure through one or more nonflexible raceways of not less than 12 inches and not more than 10 feet in length, provided all of the following conditions are met:

(2) OMISSION. The requirements specified in NEC 312.5 (C) Exception paragraph (b) are not included as part of this chapter.

(3) FITTING. Substitute the following wording for NEC 312.5 (C) Exception paragraph (c): A fitting is provided on each end of the raceway to protect the cable from abrasion.

**Comm 16.314 Outlet, device, pull and junction boxes; conduit bodies; fittings; and manhole enclosures. (1) CONDUCTORS ENTERING BOXES, CONDUIT BODIES, OR FITTINGS.** This is a department exception to the requirements of NEC 314.17 (B) and (C):

Exception: Nonmetallic sheathed cable is not required to be secured to the box or conduit body where it is installed in accordance with the wiring method specified in s. Comm 16.312.

(2) OUTLET BOXES. This is a department rule in addition to the requirements of NEC 314.27 (A): In a dwelling unit, a ceiling outlet box installed for use as a lighting fixture outlet in a habitable room or kitchen and located where a ceiling fan could be installed shall be a type listed for ceiling fan support.

**Comm 16.334 Nonmetallic-sheathed cable: Types NM, NMC and NMS. (1) USES PERMITTED.** Substitute the following wording for NEC 334.10 (intro.) (3): Other structures permitted to be of Types III, IV, and V construction except as prohibited in NEC 334.12.

(2) The requirements specified in NEC 334.12 (A) (2) are not included as part of this chapter.

**Comm 16.358 Uses permitted.** This is a department rule in addition to the requirements of NEC 358.12: Electrical metallic tubing may not be used in direct contact with earth, in concrete slabs or floors poured on earth, or in exterior concrete walls below grade.

**Comm 16.400 Uses not permitted.** This is a department exception in addition to the exception in NEC 400.8 (4):

Exception No. 2: Flexible cords and cables permitted by NEC 400.7 (A) that are connected to sources other than busways shall be permitted to be attached to adequately supported

equipment or building surfaces provided the type of cord or cable, the attachment to the building and equipment, and the support comply with the provisions of NEC 368.56 (B).

**Comm 16.430 Location.** Substitute the following wording for NEC 430.102 (B) and Exception: A separate disconnecting means shall be located in sight from the motor location and the driven machinery location.

Exception: A disconnecting means, in addition to the controller disconnecting means as required in accordance with NEC 430.102 (A), shall not be required for the motor where the disconnecting means for the controller is individually capable of being locked in the open position. The provision for locking or adding a lock to the disconnecting means shall be installed on or at the switch or circuit breaker used as the disconnecting means and shall remain in place with or without the lock installed.

**Comm 16.450 Transformers and transformer vaults. (1) OVERCURRENT PROTECTION.** This is a department rule in addition to the requirements in NEC Table 450.3 (A) Note 3: The qualified person can be either an employee at that location or an employee contracted for this purpose who is readily available.

**(2) LOCATION.** Substitute the following wording for NEC 450.41: Vaults containing oil-insulated transformers shall be located where the vaults can be ventilated to the outside air without using flues or ducts, except where a petition for variance is approved.

**Comm 16.511 Classifications of locations.** The requirements specified in Area Classifications, General 511.3 (C) (1) (a) and 511 (C) (2) (a) are not included as part of this chapter.

**Comm 16.517 Application of other articles.** This is a department rule in addition to the requirements of NEC 517.26: Essential electrical system overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices for faults with a duration of 0.1 seconds or longer. The selection and coordination of the overcurrent devices shall be documented and stamped by a professional engineer or designer of electrical systems and approved by the engineer of record for the project. This study and all associated documentation shall be made available for review by the authority having jurisdiction.

**Comm 16.620 Branch circuits for other utilization equipment.** This is a department informational note to be used under NEC 620.25:

**Note:** See NEC 620.53, 620.54 and 620.55 for additional requirements.

**Comm 16.675 Disconnecting means.** This is a department rule in addition to the requirements of NEC 675.8: A service disconnecting means with overcurrent protection shall be provided at the service point in accordance with NEC 230 VI.

**Comm 16.700 Emergency systems. (1) WIRING, EMERGENCY SYSTEM.** This is a department rule in addition to the requirements of NEC 700.9 (B):

(a) Except as provided in par. (b), emergency circuit wiring shall be listed raceways, Type AC cable or Type MC cable.

(b) Emergency lighting fixtures may use flexible cord connections in compliance with NEC 410.62 (C) for electric discharge luminaries.

**(2) GENERAL REQUIREMENTS.** This is a department rule in addition to the requirements in NEC 700.12 (intro.): The enclosure of the alternate source of power located outdoors for emergency systems shall be located at least 10 feet horizontally from any combustible portion of a Type III, Type IV, or Type V building and at least 20 feet from an outdoor electrical transformer, electrical metering, service equipment or normal power distribution equipment. These dimensions may be reduced where a noncombustible barrier is installed that extends at least 3 feet beyond each side of the alternate power source and transformer. The height of the barrier shall be at least one foot above the top of the transformer, electrical metering, service equipment, or alternate power source, whichever is higher.

**(3) GENERAL REQUIREMENTS.** The requirements specified in NEC 700.12 (B) (3) are not included as part of this chapter.

**Note:** See chs. Comm 60 to 66 for further requirements.

**(4) COORDINATION.** Substitute the following wording for NEC 700.27: Emergency system overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices for faults with a duration of 0.1 seconds or longer.

Exception: Selective coordination shall not be required in the following:

1. Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exist on the transformer secondary.

2. Between overcurrent protective devices or set of overcurrent protective devices of the same ampere rating in series.

**Comm 16.701 Legally required standby systems. (1) ADDITION.** This is a department rule in addition to the requirements in NEC 700.12 (intro.): The enclosure of the alternate source of power located outdoors for legally required standby systems shall be located at least 10 feet horizontally from any combustible portion of a Type III, Type IV, or Type V building and at least 20 feet from an outdoor electrical transformer, electrical metering, service equipment or normal power distribution equipment. These dimensions may be reduced where a noncombustible barrier is installed that extends at least 3 feet beyond each side of the alternate power source and transformer. The height of the barrier shall be at least one foot above the top of the transformer, electrical metering, service equipment, or alternate power source, whichever is higher.

**(2) DELETION.** The requirements specified in NEC 701.11 (B) (3) are not included as part of this chapter.

**Note:** See chs. Comm 60 to 66 for further requirements.

**(3) COORDINATION.** Substitute the following wording for NEC 701.18: Legally required standby system overcurrent devices shall be selectively coordinated with all supply side overcurrent devices for faults with a duration of 0.1 seconds or longer.

Exception: Selective coordination shall not be required in the following:

1. Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exist on the transformer secondary.

2. Between overcurrent protective devices or set of overcurrent protective devices of the same ampere rating in series.

**Comm 16.708 Coordination.** Substitute the following wording for NEC 708.54: Critical operations power system overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices for faults with a duration of 0.1 seconds or longer.

Exception: Selective coordination shall not be required in the following:

1. Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary.

2. Between overcurrent protective devices of the same ampere rating in series.

SECTION 6. Comm 16.60 to 16.64 are renumbered Comm 16.900, 16.905, 16.910, 16.915 and 16.920.

SECTION 7. Comm 16.930 is created to read:

**Comm 16.930 Electrical plan review.** Upon request, the department may perform electrical plan review for dwellings, public buildings, places of employment and electrical services.

SECTION 8. Comm 16.65 to 16.67 are renumbered Comm 16.940, 16.950 and 16.960.

**END**

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**EFFECTIVE DATE**

Pursuant to s. 227.22 (2)(intro.), Stats., these rules shall take effect on the first day of the month following the publication in the Wisconsin Administrative Register.

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