

RULES CERTIFICATE

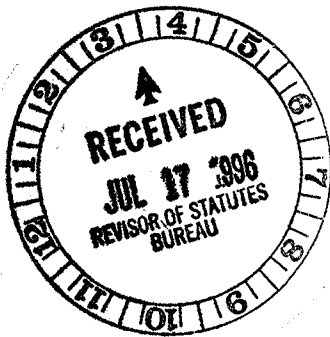
STATE OF WISCONSIN)
) SS
DEPARTMENT OF COMMERCE)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, William J. McCoshen, Secretary of the Department of Commerce,
and custodian of the official records of said department, do hereby certify that the
annexed rule(s) relating to the electrical code, volume 2
(Subject)

were duly approved and adopted by this department on July 15, 1996
(Date)

I further certify that said copy has been compared by me with the original on file in the department and
that the same is a true copy thereof, and of the whole of such original.



IN TESTIMONY WHEREOF, I have hereunto set
my hand and affixed the official seal of the
department at 10:00 a.m.
in the city of Madison, this 15th
day of July A.D. 1996

William J. McCoshen
Secretary
9-1-96

ORDER OF ADOPTION

Pursuant to authority vested in the Department of Commerce by section(s)

101.02 (1), 101.63 (1), 101.73 (1) and 101.82 (1)

Stats., the Department of Commerce creates; amends; repeals and recreates;

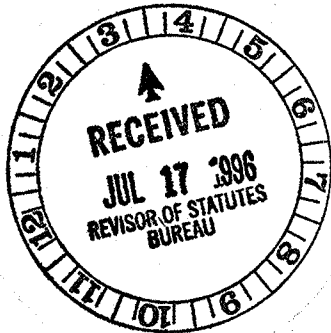
repeals and adopts rules of Wisconsin Administrative Code chapter(s):

Chapter ILHR 16
(Number)

Electrical, Volume 2
(Title)

The attached rules shall take effect on the first day of the month following publication in the Wisconsin

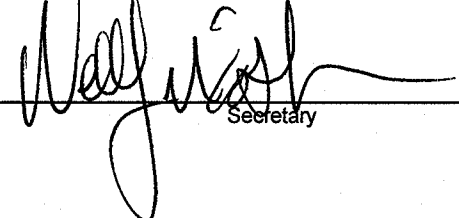
Administrative Register pursuant to section 227.22, Stats.



Adopted at Madison, Wisconsin this

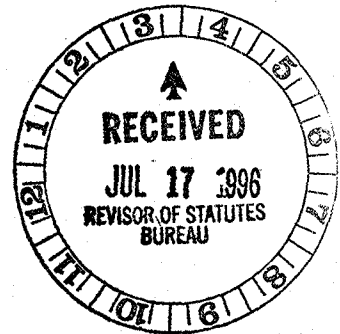
date: July 15, 1996

DEPARTMENT OF COMMERCE


Secretary



RULES in FINAL DRAFT FORM



Rule No.: Chapter ILHR 16

Relating to: Electrical Code, Volume 2

Clearinghouse Rule No.: 96-013

The Wisconsin Department of Industry, Labor and Human Relations proposes an order to repeal ILHR 16.19, ILHR 16.20, ILHR 16.25 (2), ILHR 16.32, ILHR 16.39 (1), ILHR 16.43, ILHR 16.45 (2)(a), ILHR 16.45 (4)(b) and ILHR 16.49; to amend ILHR 16.04 (1), ILHR 16.12 (1), ILHR 16.22 (2), ILHR 16.23, ILHR 16.24 (1)(b), ILHR 16.25 (1)(b), ILHR 16.25 (1)(c), ILHR 16.25 (2), ILHR 16.25 (6)(intro.), ILHR 16.26, ILHR 16.28 (intro.), ILHR 16.28 (2)(a), ILHR 16.325, ILHR 16.34, ILHR 16.35, ILHR 16.45 (4)(a)1., ILHR 16.46 (1) and ILHR 16.50 Article 760 (title); to repeal and recreate ILHR 16.02 (2)(d), ILHR 16.02 (2)(e), ILHR 16.05 (2)Note 1, ILHR 16.17, ILHR 16.18, ILHR 16.25 (1)(a), ILHR 16.25 (4), ILHR 16.45 (2)(b)2. and ILHR 16.50; and to create ILHR 16.02 (1)(e), ILHR 16.04 (2)Note 3, ILHR 16.25 (2m), ILHR 16.295, ILHR 16.355, ILHR 16.395, ILHR 16.42 (2), ILHR 16.42 (3) and ILHR 16.45 (2)(c), relating to the electrical code.

ANALYSIS OF PROPOSED RULES

Statutory Authority: ss. 101.02 (1), 101.63 (1), 101.73 (1) and 101.82 (1), Stats.

Statutes Interpreted: ss. 101.63 (1), 101.73 (1), 101.82 (1) and 101.865, Stats.

Chapter ILHR 16, Electrical Code, Volume 2, covers the installation of electrical wiring, communication systems and electrical equipment in places of employment, public buildings, dwellings and other premises such as carnivals, parking lots, mines, trenches, mobile homes and recreational vehicles.

Chapter ILHR 16 incorporates by reference the National Fire Protection Association (NFPA) standard NFPA 70 - National Electrical Code. In addition, this chapter includes amendments which clarify or supplement the electrical standards contained in the National Electrical Code.

The proposed rules consist of an update of chapter ILHR 16, including the incorporation by reference of the 1996 edition of the National Electrical Code. Permission for that incorporation by reference was obtained from the Attorney General and the Revisor of Statutes on January 3, 1996.

The following is a summary of the major changes being proposed in chapter ILHR 16.

1. Deleting several amendments to the National Electrical Code (NEC) which are covered by changes in the 1996 edition of the NEC. For example, because of the changes in the 1996 NEC relating to electric signs and outline wiring, section ILHR 16.43 is being deleted.
2. Adding the new wording from the 1996 NEC Scope relating to electric utility installations. [ILHR 16.02(1) & (2)]
3. Adopting the NEC requirement for the plaque or directory denoting identification of building services where a building is supplied by more than one service. [ILHR 16.25(1)(a)]

4. Adding a Wisconsin exemption from the NEC exception allowing one set of service-entrance conductors to a single-family dwelling unit and a separate structure. [ILHR 16.25(2m)]

5. Allowing intersystem bonding in metering enclosures that are specifically designed for such bonding. [ILHR 16.26]

6. Requiring raceways to be sealed where they pass from an interior location to an exterior location. [ILHR 16.295]

7. Adding a rule requiring ceiling outlet boxes intended for a lighting fixture in a habitable room to be listed for ceiling fan support. [ILHR 16.355]

8. Modifying the NEC rule relating to emergency controls at attended self-service stations by allowing the controls to be located over 100 feet from a dispenser. [ILHR 16.395]

9. Allowing the option of installing wire mesh in the concrete floor of livestock confinement areas. If the wire mesh is installed, however, it must be bonded to the building grounding electrode system to provide an equipotential plane. [ILHR 16.42(2)]

10. Revising the emergency circuit wiring rule by allowing the use of flexible cord connectors for certain emergency lighting fixtures. [ILHR 16.45 (2)(b)2.]

11. Revising the additional Wisconsin requirements relating to electrical wiring connected to a fire alarm system. [ILHR 16.50]

The proposed rules have been developed with the assistance of the Electrical Code Project Committee. The members of that citizen advisory committee are as follows:

<u>Name</u>	<u>Representing</u>
Chuck Forster	Wisconsin Electric Cooperative Association
Charles B. Gustafson	Wisconsin Utilities Association
Jerry Hill	Wisconsin Builders Association
Ron Jahnke	NECA, Wisconsin Chapter
Ronald E. Maassen	NECA, Milwaukee Chapter
Randall Roth	Associated Builders and Contractors of Wisconsin
Steven Sauer	Department of Agriculture, Trade and Consumer Protection
John Schwab	International Association of Electrical Inspectors, Wisconsin Chapter
Lanny L. Smith	Public Service Commission
Paul Welnak	Wisconsin State AFL-CIO

SECTION 1. ILHR 16.02 (1)(e) is created to read:

ILHR 16.02 (1)(e) Installations in buildings used by the electric utility, such as office buildings, warehouses, garages, machine shops and recreational buildings, that are not an integral part of a generating plant, substation or control center.

SECTION 2. ILHR 16.02 (2)(d) is repealed and recreated to read:

ILHR 16.02 (2)(d) Installations, including associated lighting, under the exclusive control of electric utilities for the purpose of communications, metering, generation, control, transformation, transmission or distribution of electric energy. Such installations shall be located in buildings used exclusively by utilities for such purposes; outdoors on property owned or leased by the utility; on or along public highways, streets, roads or similar public thoroughfares; or outdoors on private property by established rights such as easements.

SECTION 3. ILHR 16.02 (2)(e) is repealed and recreated to read:

ILHR 16.02 (2)(e) Installations for the purpose of street or area lighting owned and under exclusive control of electrical utilities or municipal electric departments where located outdoors on property owned or leased by the utility; on or along public highways, streets, roads or similar public thoroughfares; or outdoors on private property by established rights of easement, where such installations are in compliance with ch. PSC 114.

SECTION 4. ILHR 16.04 (1) is amended to read:

ILHR 16.04 (1) DEPARTMENT AUTHORITY. The department shall have the authority and responsibility for interpreting this chapter and the National Electrical Code, and granting special permission as specified in this chapter. A formal interpretation of this chapter shall remain in effect until rescinded or changed or until the edition of the National Electrical Code is changed in s. ILHR 16.12.

SECTION 5. ILHR 16.04 (2) Note 3 is created to read:

ILHR 16.04 (2) Note 3: Section ILHR 66.04 (1) (a) prohibits any municipality from adopting an ordinance establishing restrictions on the electrical construction of multifamily dwellings covered by the Uniform Multifamily Dwelling Code.

SECTION 6. ILHR 16.05 (2) Note 1 is repealed and recreated to read:

ILHR 16.05 (2) Note 1: The petition for variance application form (SBD-9890) is available from the Safety and Buildings Division, Customer Service Center, P.O. Box 7969, Madison, WI 53707, telephone 608/266-3151.

SECTION 7. ILHR 16.12 (1) is amended to read:

ILHR 16.12 (1) CONSENT TO INCORPORATE. (a) Pursuant to s. 227.21, Stats., the attorney general and the revisor of statutes have consented to the incorporation by reference of the National Electrical Code, NEC-~~1993~~ 1996, subject to those changes, additions, or omissions specified in subch. III.

(b) The National Electrical Code, NEC-~~1993~~ 1996, subject to the changes, additions or omissions specified in subch. III is hereby incorporated by reference into this chapter.

SECTION 8. ILHR 16.17 is repealed and recreated to read:

ILHR 16.17 DEFINITIONS. [NEC 100] (1) ADDITIONS. The following are department definitions in addition to the definitions in NEC Article 100:

(a) "Department" means the department of industry, labor and human relations.

(b) "Floors" means stories as specified in chs. ILHR 50 to 64 and 66.

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

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

Note: See s. ILHR 51.04 for fire-resistive standards.

(b) "Special permission" means the written consent of the department.

Note: Special permission is different from a petition for variance. The use of the special permission procedure is only allowed where specifically stated in this chapter or the NEC.

SECTION 9. ILHR 16.18 is repealed and recreated to read:

ILHR 16.18 INSTALLATION AND USE. [NEC 110-3] Substitute the following wording for 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.

SECTION 10. ILHR 16.19 is repealed.

SECTION 11. ILHR 16.20 is repealed.

SECTION 12. ILHR 16.22 (2) is amended to read:

ILHR 16.22 (2) OUTDOOR OUTLETS. [NEC 210-52(e)] This is a department rule in addition to the requirements of NEC 210-52(e):

For a multi-family dwelling, at least one receptacle outlet accessible at grade level and not more than 6 feet 6 inches above grade shall be installed outdoors for each dwelling unit which is at grade level and which has individual exit doors to grade.

SECTION 13. ILHR 16.23 is amended to read:

ILHR 16.23 BRANCH CIRCUITS REQUIRED. [NEC 220-4] This is a department rule in addition to the requirements of NEC 220-4:

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 a separate 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).

SECTION 14. ILHR 16.24 (1)(b) is amended to read:

ILHR 16.24 (1)(b) Substitute the following wording for the note to NEC 225-18:

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

SECTION 15. ILHR 16.25 (1)(a) is repealed and recreated to read:

ILHR 16.25 (1)(a) These are department informational notes to be used under NEC 230-2(a):

Note 1: See definition of building in s. ILHR 16.17.

Note 2: It is recommended that the electric utility or cooperative supplying electric current be contacted prior to service equipment installations for any special requirements.

SECTION 16. ILHR 16.25 (1)(b) is amended to read:

ILHR 16.25 (1)(b) Substitute the following wording for NEC 230-2(a), Exception No. 5:

Exception No. 5. Two or more service drops or laterals may be installed 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.

SECTION 17. ILHR 16.25 (1)(c) is amended to read.

ILHR 16.25 (1) (c) This is a department exception in addition to the exceptions of NEC 230-2(a):

Exception No. 8. For rowhouse construction as defined in ch. ILHR 57 66, a separate service drop or lateral shall be permitted for each 2 attached units.

SECTION 18. ILHR 16.25 (2) is repealed.

SECTION 19. ILHR 16.25 (2m) is created to read:

ILHR 16.25 (2m) NUMBER OF SERVICE-ENTRANCE CONDUCTOR SETS. [NEC 230-40] NEC 230-40 Exception No. 3 does not apply in Wisconsin.

SECTION 20. ILHR 16.25 (4) is repealed and recreated to read:

ILHR 16.25 (4) LOCATION. [NEC 230-70(a)] Substitute the following wording for the first paragraph of NEC 230-70(a):

(a) The service disconnecting means shall be installed at a readily accessible location either outside of a building or structure, or inside nearest the point of entrance of the service conductors. 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.

SECTION 21. ILHR 16.25 (6)(intro.) is amended to read:

ILHR 16.25 (6)(intro.) MAXIMUM NUMBER OF DISCONNECTS. [NEC 230-71] These exceptions are department rules in addition to the requirements exception in NEC 230-71(a):

SECTION 22. ILHR 16.26 is amended to read:

ILHR 16.26 SERVICE EQUIPMENT. [NEC 250-71] This is a department rule in addition to the requirements of NEC 250-71(b):

Bonding to other systems shall not be done on or within a ~~meter socket~~ metering enclosure unless a means of bonding, intended for intersystem bonding, is furnished as part of a listed joint-use metering enclosure.

SECTION 23. ILHR 16.28 (intro.) is amended to read:

ILHR 16.28 (title) ELECTRICAL REQUIREMENTS FOR PRIVATE SEWAGE SYSTEMS. [NEC 300] These are department rules apply to private sewage systems and are in addition to the requirements of NEC 300:

SECTION 24. ILHR 16.28 (2)(a) is amended to read:

ILHR 16.28 (2)(a) Circuit terminations, connections and splices shall not be prohibited located within the pump chamber or holding tank ~~except by approved direct burial splicing methods.~~

SECTION 25. ILHR 16.295 is created to read:

ILHR 16.295 RACEWAYS EXPOSED TO DIFFERENT TEMPERATURES. [NEC 300-7] This is a department rule in addition to the requirements of NEC 300-7(a):

Where portions of raceways pass from an interior location to an exterior location, the raceways shall be sealed to reduce the circulation of air through the raceways.

SECTION 26. ILHR 16.32 is repealed.

SECTION 27. ILHR 16.325 is amended to read:

ILHR 16.325 (title) EXPOSED WORK - GENERAL. [NEC 336-6] Substitute the following wording for NEC 336-10 ~~6~~ (intro.):

In exposed work, ~~except as provided in NEC 336-12 and 336-13,~~ the cable shall be installed as specified in (a) and (b) below.

SECTION 28. ILHR 16.34 is amended to read:

ILHR 16.34 (title) CONDUCTORS ENTERING BOXES, CONDUIT BODIES, OR FITTINGS. [NEC 370-17] This is a department exception in addition to the requirements of NEC 370-7 17 (b) and (c):

Exception. Cable shall not be required to be secured to the box or cabinet where it is enclosed within a raceway for mechanical protection providing the cable is secured within 12 inches of where it leaves the raceway. The raceway shall be at least 12 inches in length and sealed to prevent entrance of foreign materials.

SECTION 29. ILHR 16.35 is amended to read:

ILHR 16.35 (title) IN WALL OR CEILING. [NEC 370-20] This is a department rule in addition to the requirements of NEC 370-40 20:

A wall with wood studs covered by plaster or gypsum board is considered to be a wall of noncombustible material for the purposes of NEC 370-40 20.

SECTION 30. ILHR 16.355 is created to read:

ILHR 16.355 OUTLET BOXES. [NEC 370-27] This is a department rule in addition to the requirements of NEC 370-27(a):

In a dwelling unit, a ceiling outlet box installed for use as a lighting fixture outlet in a habitable room and located where a ceiling fan could be installed shall be a type listed for ceiling fan support.

SECTION 31. ILHR 16.39 (1) is repealed.

SECTION 32. ILHR 16.395 is created to read:

ILHR 16.395 CIRCUIT DISCONNECTS. [NEC 514-5] Substitute the following wording for NEC 514-5(b):

At attended self-service stations, emergency controls as specified in NEC 514-5(a) shall be installed at a location acceptable to the authority having jurisdiction. Where such controls are located over 100 feet from any dispenser, a two-way means of communication shall be provided between all dispenser locations and the attendant's area.

SECTION 33. ILHR 16.42 (2) is created to read:

ILHR 16.42 (2) CONCRETE EMBEDDED ELEMENTS. [NEC 547-8(b)] Substitute the following wording for the first paragraph of NEC 547-8(b):

Wire mesh or other conductive elements, if installed in the concrete floor of livestock confinement areas, shall be bonded to the building grounding electrode system to provide an equipotential plane that has a voltage gradient at entrances and exits. The bonding conductor shall be copper, insulated, covered or bare, and not smaller than No. 8. The means of bonding to wire mesh or conductive elements shall be by pressure connectors or clamps of brass, copper, copper alloy, or an equally substantial approved means.

SECTION 34. ILHR 16.42 (3) is created to read:

ILHR 16.42 (3) PHYSICAL PROTECTION. [NEC 547-10] Substitute the following wording for NEC 547-10:

All electrical wiring and equipment shall be protected where exposed to physical damage in the areas defined in NEC 547-1(a) and (b).

SECTION 35. ILHR 16.43 is repealed.

SECTION 36. ILHR 16.45 (2)(a) is repealed.

SECTION 37. ILHR 16.45 (2)(b)2. is repealed and recreated to read:

ILHR 16.45 (2)(b)2. Emergency lighting fixtures may use flexible cord connections for the following 2 types of fixtures:

a. The fixture shall be the high intensity discharge type with instant restrike or quartz lighting. The fixture shall be provided with internal control to ensure the area is lighted. The fixture mounting height shall exceed 15 feet. The fixture operating voltage shall be 208 volts or greater. The cord cap and receptacle shall be of the twist-lock type.

b. The fixture shall be a listed electric discharge type. The fixture shall incorporate cord and canopy connection.

SECTION 38. ILHR 16.45 (2)(c) is created to read:

ILHR 16.45 (2)(c) NEC 700-9(c) does not apply in Wisconsin.

SECTION 39. ILHR 16.45 (4)(a)1. is amended to read:

ILHR 16.45 (4)(a)1. Emergency illumination shall include all required exit lights and emergency lighting required by the Illumination Code, ch. ~~Ind 19~~ ILHR 73, Part G.

SECTION 40. ILHR 16.45 (4)(b) is repealed.

SECTION 41. ILHR 16.46 (1) is amended to read:

ILHR 16.46 (1) WHERE REQUIRED. Standby emergency power of a type recognized by NEC 700-12 (a), (b), (c) or ~~(e)~~ (e) shall be provided as a source of supply for required exit lights, emergency lighting or power in occupancies where people are housed, assembled or confined with a capacity or area equal to or greater than those listed in Column B of Table 16.46.

Note: See s. ILHR 16.45 (4) for requirements relating to ch. ~~Ind-19~~ ILHR 73, Part G.

SECTION 42. ILHR 16.49 is repealed.

SECTION 43. ILHR 16.50 Article 760 (title) is amended to read:

ARTICLE 760 -
FIRE PROTECTIVE SIGNALING ALARM SYSTEMS

SECTION 44. ILHR 16.50 is repealed and recreated to read:

ILHR 16.50 FIRE ALARM SYSTEMS. [NEC 760] These are department rules in addition to the requirements of NEC 760:

(1) Except as provided in sub. (2), all electrical wiring connected to a listed fire alarm control panel shall comply with the following:

(a) Fire alarm circuits shall be installed in listed raceways or type MC cable. These raceways or cables shall contain no circuits other than fire alarm circuits.

(b) Listed fire alarm control panels shall be supplied from an approved standby emergency source recognized by s. ILHR 16.46 (1).

(2) Smoke detectors installed within individual dwelling units or sleeping areas and where not connected to a listed fire alarm control panel need not comply with sub. (1).

(END)

EFFECTIVE DATE

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

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Tommy Thompson
Governor



Mailing Address:
123 West Washington Avenue
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Telephone (608) 266-1018

William J. McCoshen
Secretary

State of Wisconsin Department of Commerce

July 15, 1996

Gary Poulson
Assistant Revisor of Statutes
Suite 800
131 West Wilson Street
Madison, Wisconsin 53703-3233

Douglas LaFollette
Secretary of State
10th Floor
30 West Mifflin Street
Madison, Wisconsin 53703

Dear Messrs. Poulson and LaFollette:

TRANSMITTAL OF RULE ADOPTION

CLEARINGHOUSE RULE NO.: 96-013

RULE NO.: Chapter ILHR 16

RELATING TO: Electrical Code, Volume 2

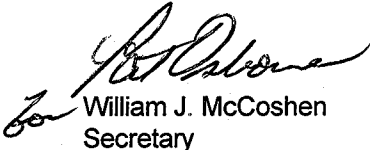
Pursuant to section 227.20, Stats., agencies are required to file a certified copy of every rule adopted by the agency with the offices of the Secretary of State and the Revisor of Statutes.

At this time, the following material is being submitted to you:

1. Order of Adoption.
2. Rules Certificate Form.
3. Rules in Final Draft Form.

Pursuant to section 227.114, Stats., a summary of the final regulatory flexibility analysis is included for permanent rules. A fiscal estimate and fiscal estimate worksheet is included with an emergency rule.

Respectfully submitted,


William J. McCoshen
Secretary

