
THE MANITOBA HYDRO ACT
(C.C.S.M. c. H190)

Manitoba Electrical Code

Regulation 93/2003
Registered June 12, 2003

Definition

1 In this regulation, "**Code**" means the *Manitoba Electrical Code*, Eighth Edition, 2003. It consists of the *Canadian Electrical Code, Part I*, 19th edition, CSA Standard C22.1-02, as amended by the Schedule to this regulation.

Code adopted with amendments

2 The standards governing the construction, installation, maintenance, repair, extension, alteration and use of electric wiring and related facilities using or intended to use power supplied by Manitoba Hydro, except within The City of Winnipeg, and for mines and quarries as defined in *The Workplace Safety and Health Act*, are those set out in the Code.

Repeal

3 Manitoba Regulation 154/98 is repealed.

May 22, 2003

THE MANITOBA HYDRO-ELECTRIC BOARD:

V.H. Schroeder
Chair

SCHEDULE

AMENDMENTS TO
THE CANADIAN ELECTRICAL CODE, PART I**Amendments to Section 0 — Object, Scope, and Definitions****Section 0 amended****1 Section 0 of the Code is amended**

(a) by replacing the definition "Approved" with the following:

Approved, as applied to electrical equipment, means that:

- (a) the equipment has been submitted for examination and testing to an accredited certification organization, that formal certification has been given by the organization to the effect that the equipment conforms to the appropriate CSA Standards established under the provisions of the Code, or
- (b) the equipment has been given special acceptance by Manitoba Hydro, or
- (c) the equipment has been given special acceptance by the Minister of Labour and Immigration for Manitoba;

(b) by adding the following definition in alphabetical order:

Chief Electrical Inspector means the person designated by Manitoba Hydro as the chief electrical inspector;

(c) by replacing the definition "Inspection department" with the following:

Inspection department means Manitoba Hydro;

Amendments to Section 2 — General Rules**Rule 2-004 replaced****2 Rule 2-004 is replaced with the following:****2-004 Application for Inspection**

- (1) No electrical work with respect to installation, alteration, repair or extension of any electrical equipment shall commence until an electrical permit is issued by the inspection department.
- (2) Notwithstanding Subrule (1), a person licensed under *The Electricians' Licence Act* (Manitoba) is not required to have an electrical permit for the following electrical work:
 - (a) the replacement or repair of wiring devices with an electrical rating no greater than 30 amperes, 150 volts to ground and not associated with a location as described by sections 18 or 20 of the Code; or
 - (b) the replacement or repair of electrical equipment not exceeding 30 amperes, 150 volts to ground and associated with a dwelling unit; or

- (c) electrical installations:
 - (i) where the cost of labour and materials (excluding the cost of utilization equipment supplied by the circuitry) does not exceed one hundred dollars (\$100.00) as determined by the inspection department in accordance with the current Schedule of Electrical Permit Fees; and
 - (ii) which are not associated with a hazardous location as described by sections 18 or 20 of the Code; and
 - (iii) which are not part of a consumers service; and
 - (iv) which do not involve the replacement or addition of distribution panels, fusible switches, motor controllers and similar equipment.
- (3) An electrical permit may be issued to:
 - (a) a person licensed under *The Electricians' Licence Act* (Manitoba) to perform such work as is permitted by the person's licence; or
 - (b) an allied trades person licensed by the Province of Manitoba to perform such electrical work as is permitted by the person's licence; or
 - (c) a qualified person as defined in the *Canada Occupational Safety and Health Regulations* under the *Canada Labour Code* for the purposes of work on premises regulated by those regulations; or
 - (d) an owner or lessee of residential or farm premises where:
 - (i) the applicant occupies or will occupy the premises as a dwelling, or the premises are part of the farm operation; and
 - (ii) the applicant provides electrical plans which have been examined and accepted by the inspection department; and
 - (iii) the premises, if a building, stands alone or is separated from any other occupancy or other part of the building by a fire wall or fire separation; and
 - (iv) the work to be performed is not in a hazardous location, as defined in the Code; and
 - (v) the electrical rating of the installation does not exceed 150 volts to ground, single phase and 200 amperes; or
 - (e) a person whose occupation is in a non-designated trade, or a trade not eligible for a limited specialized trade electrician's licence, to replace or repair electrical equipment directly associated with that trade, where:
 - (i) application has been made to, and approval has been granted by, the Chief Electrical Inspector; and
 - (ii) the applicant has been involved in the related trade for a period of two years; and
 - (iii) the applicant can satisfy the inspection department that he or she is capable of performing the work and will do so in accordance with the Code; and
 - (iv) the equipment involved is a direct replacement or repair that does not involve the installation of any building wiring; and
 - (v) the rating of equipment does not exceed 150 volts to ground and 30 amperes; and
 - (vi) the equipment is associated with a dwelling unit.
- (4) An annual electrical permit may be issued for electrical work of a routine nature in connection with the maintenance or operation of a building or plant where such work is required to be performed at frequent intervals and where the owner or occupant of the building or plant employs his own electricians for that purpose, if the applicant agrees to:
 - (a) keep a record of all such work as the work is performed; and
 - (b) produce this record to the inspection department upon request; and

- (c) remit to the inspection department such fees as are prescribed by the inspection department upon application for an annual permit; and
 - (d) pay in full any outstanding fees due to a change in status of the building or plant before the permit is renewed.
- (5) An application for an electrical permit shall be made to the inspection department giving the location and ownership of the premises in, upon or about which electrical work is to be done, the purpose of the work, details of the installation as required by Rule 2-014 and any other particulars required by the inspection department.
- (6) If an application is approved by the inspection department an electrical permit will be issued.
- (7) The inspection department may refuse to issue an electrical permit if:
- (a) electrical work done previously by the applicant has not been completed to the satisfaction of the inspection department; or
 - (b) there are outstanding fees on previous work done by the applicant.
- (8) A permittee shall notify the inspection department as soon as the electrical work authorized by the electrical permit is completed or when an inspection is required.
- (9) At the request of the permittee, or in other circumstances determined by the Chief Electrical Inspector, the inspection department may inspect the electrical installation pursuant to the electrical permit. If the installation conforms to the Code and the appropriate fees have been paid in full in accordance with the current Schedule of Electrical Permit Fees, the inspection department will, on request, issue a Certificate of Approval.
- (10) The Chief Electrical Inspector may establish terms and conditions for the purposes of the Code, based on criteria including but not limited to safety and compliance with the Code. The inspection department may elect to forgo an inspection where the permittee or an electrician employed by the permittee has been registered by the inspection department. An electrician shall:
- (a) notify the inspection department when an installation has been completed; and
 - (b) supply the inspection department with a signed declaration that the installation complies with the Code.
- The inspection department reserves the right to audit and inspect installations by registered electricians for compliance with the Code and the Schedule of Electrical Permit Fees.
- (11) The inspection department may direct the alteration or repair of an existing electrical installation that does not conform with the requirements of the Code.
- (12) Where an application for an electrical permit is refused or where a permittee does not agree with an electrical inspection report, defect notice or interpretation of Code rules issued on any particular installation, an appeal may be made by contacting the office of the Chief Electrical Inspector of Manitoba Hydro.

- (13) The inspection department may:
 - (a) prohibit the use of an installation until inspected, tested and approved;
 - (b) direct the permittee to carry out and produce results of tests on equipment as considered necessary to ensure that the installation is properly installed.
- (14) An electrical permit will expire 90 days from the date of issuance unless the installation authorized by the electrical permit is commenced or the inspection department, in its discretion, grants an extension.
- (15) An electrical permit will expire 12 calendar months from the date of issuance unless the installation authorized by the electrical permit is not completed and the inspection department, in its discretion, grants an extension.
- (16) The issuance of an electrical permit does not obligate the owner of the premises to have the work done by the permittee.

Rule 2-006 struck out

3 Rule 2-006 (Application for Inspection) is struck out.

Rule 2-008 replaced

4 Rule 2-008 (Fees) is replaced with the following:

2-008 Fees

- (1) The amount and manner of payment of any fee payable for electrical permits or inspection of electrical installations are as prescribed by the inspection department in the Schedule of Electrical Permit Fees.
- (2) Unless an electrical permit fee is payable in accordance with the terms and conditions established under Subrule (3) for pre-authorized monthly billing accounts, an electrical permit fee shall be paid in full before an electrical permit is issued.
- (3) Manitoba Hydro may establish terms and conditions for pre-authorized monthly billing accounts for the payment of electrical permit fees.
- (4) A cheque or money order in payment of electrical permit or inspection fees shall be made payable to Manitoba Hydro.
- (5) The inspection department has the right at any time to make adjustments in the electrical permit fee payable as a result of additions or deletions to the work specified in the electrical permit or to correct errors in the calculation of fees made at the time the electrical permit was issued.
- (6) The inspection department will refund any fee paid for an unused electrical permit if application is made within one year of the date of the issuance of the electrical permit, but reserves the right to deduct an amount equal to any costs and expenses that it incurs in connection therewith and will in any case deduct an amount equal to the current minimum fee.

Rule 2-010 struck out

5 Rule 2-010 (Posting of Permit) is struck out.

Rule 2-014 replaced

6 Rule 2-014 (Plans and Specifications) is replaced with the following:

2-014 Plans and Specifications

- (1) Plans and specifications are required for:
 - (a) electrical installations where:
 - (i) the installation is carried out by an owner or lessee of farm or residential premises; or
 - (ii) the ampacity of the service entrance equipment exceeds 200 amperes single phase or the supply service is multi-phase; or
 - (iii) the installation operates at voltages in excess of 750 volts; or
 - (b) installations covered by section 18, 20, 22 or 24 of the Code; or
 - (c) such other installations as may be prescribed by the inspection department.
- (2) Plans and specifications required by Subrule (1) shall be submitted to the inspection department (one copy to be retained by the inspection department) within 10 days after the electrical permit is issued.
- (3) Drawings and specifications as required by Subrule (1)(a)(iii) shall be prepared and signed by, and bear the seal of, a registered professional engineer.
- (4) The responsible professional engineer for a large or complex installation, as determined by the Chief Electrical Inspector, shall submit a letter to the inspection department stating his or her responsibility for the inspection of construction for the installation to ensure conformity with the approved plans and specifications.
- (5) Upon completion of an installation under Subrule (4), the responsible professional engineer shall submit a certificate stating:

"I hereby certify that I have inspected the installation for compliance to the approved plans and specifications and find the installation in compliance with the requirements of the *Manitoba Electrical Code*."
- (6) Where current transformer revenue metering is required for an installation, plans and a list of loads, as required by the Manitoba Hydro Customer Metering Standards, are required to be submitted before the revenue metering will be ordered by the inspection department.

Rule 2-025 added

7 The following is added after Rule 2-024:

2-025 Special Acceptance Inspection

A special acceptance inspection may be made of electrical equipment that is not approved by or does not bear the approval mark of an accredited certification organization. In general, this applies to electrical equipment:

- (a) of other than a regular line of manufacture; or
- (b) manufactured or produced singly or in small quantities; or
- (c) built to a customer's order.

Rule 2-030 replaced

8 Rule 2-030 (Deviation or Postponement) is replaced with the following:

2-030 Deviation or Postponement

Notwithstanding Rule 2-004(9), the inspection department may by special permission approve an installation that does not conform to the standards established by this Code where, in the opinion of the inspection department, the installation provides a standard of safety equivalent to the standard provided by the Code. The special permission shall specify the aspects of the installation that do not conform to the Code and the equivalent electrical requirements.

Amendment to Section 6 — Services and Service Equipment**Rule 6-400 amended**

9 Rule 6-400 (Metering Equipment) is amended by renumbering it as Rule 6-400(1) and by adding the following as Subrule (2):

- (2) For determining the type of metering equipment required by the supply authority, reference shall be made to supply authority metering standards which shall be amendatory or additional to Rules 6-402 to 6-412.

Amendment to Section 10 — Grounding and Bonding**Rule 10-702(3) amended**

10 Rule 10-702(3) (Artificial Grounding Electrodes) is amended by replacing paragraph (a) with the following:

- (a) Be copper clad and not less than 15.8 mm in diameter; and

Amendment to Section 12 — Wiring Methods

Rule 12-2208 replaced

11 Rule 12-2208 (Provisions for Bonding) is replaced with the following:

12-2208 Provisions for Bonding

Metal cable trays shall be adequately bonded at intervals not exceeding 15 m and the size of bonding conductors shall be based on the maximum rating or setting of an overcurrent device in the circuits carried by the cable tray in accordance with Rule 10-814.

Amendments to Section 22 — Locations in Which Corrosive Liquids or Vapours or Excessive Moisture Are Likely to be Present

Rule 22-700 added

12 The following is added after Rule 22-600:

Sewage Lift and Treatment Plants

22-700 Application

- (1) Rules 22-702 to 22-710 apply to the installation of electrical facilities in:
- (a) sewage lift and pumping stations; and
 - (b) primary and secondary sewage treatment plants.

22-702 Definitions

The following definitions apply in Rules 22-702 to 22-710:

Continuous positive pressure ventilation means a ventilation system capable of maintaining a positive pressure in a room or area and changing the air in the room or area at least 6 times an hour with means for detecting ventilation failure;

Dry well means the below ground location that is isolated from the wet well location so as to prevent the migration of gases and vapours into the dry well;

Suitably cut off means an area cut off from adjoining areas with no communication such as doors, windows or ventilation grills between the areas;

Wet well means the below ground location into which the raw sewage is collected before passing through the lift pumps or being processed in a treatment plant.

22-704 Classification of Areas (See Appendix B)

- (1) All below ground locations suitably cut off from locations in which sewage gases are present, other than locations classified as ordinary locations under Subrule (3)(c), shall be classified Category 1.
- (2) All locations in which sewage gases are present shall be classified Category 2.

- (3) The following areas may be classified as ordinary locations:
- (a) all locations suitably cut off from a Category 2 location and not classified as a Category 1 location; and
 - (b) all locations not suitably cut off from a Category 2 location but with adequate continuous positive pressure ventilation; and
 - (c) below ground dry well locations where adequate heating and ventilation is installed.

22-706 Wiring Method

- (1) Wiring methods in a Category 1 or a dry Category 2 location shall be in accordance with the applicable requirements of the Code.
- (2) Wiring methods in a wet or damp Category 2 location shall be in accordance with the applicable requirements of the Code, with the following exceptions:
- (a) rigid steel conduit and electrical metallic tubing shall not be used; and
 - (b) mineral-insulated cable or aluminum-sheathed cable shall be permitted if it is spaced from walls by at least 12 mm, the cable has a corrosion-resistant jacket and the cable connectors are suitably sealed from the corrosive atmosphere; and
 - (c) liquid-tight flexible metal conduit shall be permitted where permitted in accordance with Rule 12-1302, if connectors suitable for the location are used; and
 - (d) grounding and bonding conductors shall be insulated or otherwise protected from corrosion and the point of connection to ground, if exposed to a corrosive atmosphere, shall be protected from corrosion by a suitable sealant.

22-708 Electrical Equipment

- (1) Electrical equipment installed in a Category 1 or a dry Category 2 location shall be in accordance with the applicable requirements of this Code.
- (2) Electrical equipment installed in a wet or damp Category 2 location shall be in accordance with the applicable requirements of the Code, with the following exceptions:
- (a) receptacles shall be fitted with self-closing covers, and if of the duplex type, have individual covers over each half of the receptacle; and
 - (b) lighting switches shall have weatherproof covers; and
 - (c) lighting fixtures shall be totally enclosed; and
 - (d) unit emergency lighting equipment and emergency lighting control units, other than remote lamps, shall not be located in such locations; and
 - (e) heating equipment shall be approved for such locations or installed outside the corrosive location; and
 - (f) motors shall be totally enclosed, fan cooled and shall not incorporate dissimilar metals relative to the motor frame and connection box; and
 - (g) electrical equipment in wet well areas shall not contain devices which will cause an open arc or spark during normal operation.

22-710 Grounding of Structural Steel

Below ground structural steel in contact with the surrounding earth shall be bonded to the system ground.

Amendments to Section 26 — Installation of Electrical Equipment**Rule 26-008 replaced**

13 Rule 26-008 (Sprinklered Equipment) is replaced with the following:

26-008 Sprinklered Equipment

Electrical service and distribution equipment with ventilation openings located in sprinklered buildings or spaces shall be protected where needed by noncombustible hoods or shields so arranged as to minimize interference with the sprinkler equipment.

Rule 26-700(11) replaced

14 Rule 26-700(11) (General) is replaced with the following:

- (11) Except for receptacles installed in accordance with Rule 26-710(h), receptacles located within 2 m of washbasins in bathrooms and washrooms or located within 3 m of bathtubs or shower stalls, shall be protected by a ground fault circuit interrupter of the Class A type.
- (12) Where a sump is required by the Winnipeg Building By-law or the Manitoba Building Code for the control of water from a subsurface drainage (weeping tile) system:
 - (a) A receptacle shall be installed for the connection of the sump pump; and
 - (b) The receptacle for the sump pump shall be supplied from a branch circuit that supplies no other outlets or equipment.

Rule 26-714 amended

15 Rule 26-714 (Receptacles in Single Dwellings) is amended by replacing paragraph (c) with the following:

- (c) At least one receptacle shall be provided for each driveway and each car space in a garage or carport of a single dwelling.

Amendments to Section 30 — Installation of Lighting Equipment**Rule 30-504 amended**

16 Rule 30-504 (Stairways) is amended by adding the following after Subrule (3):

- (4) Notwithstanding Subrule (3) and Appendix G, provisions for 3-way switches must be installed for stairway lighting to basements.

Rule 30-510 amended

17 Rule 30-510 (Garages and Carports) is amended by replacing Subrule (3) with the following:

- (3) Where the luminaire required in Subrule (1) is ceiling mounted above an area not normally occupied by a parked car, or is wall mounted, a luminaire with a built-in switch accessible to an adult of average height is permitted to be used.

Amendment to Section 36 — High-Voltage Installations**Rule 36-006 amended**

18 Rule 36-006 (Warning Notices) is amended in Subrule (1) by adding "and" at the end of paragraph (d) and by adding the following as paragraph (e):

- (e) On all fences guarding stations:
 - (i) on all gates; and
 - (ii) at intervals of not more than 15 m of horizontal distance; and
 - (iii) 1.5 m above finished grade; and
 - (iv) in a manner that is visible on all sides.

**Amendment to Section 46 — Energy Systems,
Unit Equipment, and Exit Signs****Rule 46-108 amended**

19 Rule 46-108 (Method of Wiring) is amended by replacing Subrule (2) with the following:

- (2) Conductors installed in buildings of combustible construction in accordance with Section 12 of this Code shall be:
 - (a) nonmetallic sheathed cable; or
 - (b) installed in totally enclosed nonmetallic raceway.

Amendment to Section 68 — Pools, Tubs, and Spas**Rule 68-302 amended**

20 Rule 68-302 (Control) is amended by adding the following after Subrule (2):

- (3) Subject to Subrule (2) and notwithstanding Subrule 68-068(6), ground fault interrupters shall be permitted to be closer to the hydromassage bathtub than 3 m but not less than 1.5 m from the hydromassage bathtub wall.

Amendment to Section 72 — Mobile Home and Recreational Vehicle Parks**Rule 72-110 amended**

21 Rule 72-110 (Connection Facilities for Recreational Vehicles and Mobile Homes) is amended by replacing Subrule (4) with the following:

- (4) The receptacle described in Subrule (1)(a) or (b) shall be protected by a ground fault circuit interrupter of the Class A type.

Amendment to Section 76 — Temporary Wiring

Rule 76-008 replaced

22 Rule 76-008 (Service Entrance Equipment) is replaced with the following:

76-008 Service Entrance Equipment

- (1) Service entrance equipment shall be in a temporary building adjacent to the construction or demolition site, but if such a building is not available the equipment shall be:
 - (a) accessible to authorized persons only; and
 - (b) capable of being locked; and
 - (c) protected against the weather and mechanical damage.
- (2) If not in or on a building, the temporary service shall be mounted:
 - (a) on a pole, or solid wood post measuring at least 89 mm x 140 mm nominal and adequately braced for services not exceeding 200 amperes; or
 - (b) on a substantial pole structure for services exceeding 200 amperes; or
 - (c) on an adequately braced post for services supplied from underground distribution.

Amendment to Appendix B — Notes on Rules

Note to Rule 22-704 added

23 Appendix B (Notes on Rules) is amended by adding the following after the note to Subrule 22-204(5):

22-704 *Diagrams 11, 12, 13 and 14 detail typical installations and area classifications for sewage lift and treatment plants.*

Sewage lift and treatment plants produce a combination of conditions which require specialized attention to the electrical installation. The wet well area normally contains an atmosphere of high humidity and corrosive hydrogen sulphide vapours. Abnormal hazardous conditions can occur in the wet wells due to spills of chemicals, gasoline or other volatile liquids into the sewer system.

An extreme hazard to personnel working in wet wells exists because of the presence of sewer gas (hydrogen sulphide). This gas is treacherous as the ability to sense it by smell is quickly lost. If workers ignore first notice of the gas, their senses will give them no further warning. If the concentration is high enough, unconsciousness and death can result.

Before work in wet well locations begins, the air in the wet well area should be purged, and ventilation with fresh air should be continued while work continues in the area.