

The Winnipeg Electrical By-law

**By-law 72/2022
including Electrical Technical Interpretations
2022**

**A publication issued by
The City of Winnipeg
Planning, Property and Development Department
Development and Inspections Division**

An electronic copy of this publication is available under “Fees & Related By-laws” on the City of Winnipeg Electrical Info Centre at winnipeg.ca/ppd/InfoCentre/Electrical/default.stm

Table of Contents

Preface	4
City of Winnipeg Electrical By-law	6
Amendments	
Section 0 Definitions	9
Section 2 Administrative	10
4-004 Ampacity of wires and cables	23
4-006 Temperature limitations	23
6-212 Wiring space in enclosures	23
6-400 Metering equipment	23
10-102 Grounding electrodes	24
10-116 Installation of grounding conductors	24
10-118 Grounding conductor connection to grounding electrodes	24
10-210 Grounding connections for solidly grounded as systems supplied by the supply authority	24
10-212 Grounding connections for solidly grounded separately derived as systems	25
10-612 Installation of bonding conductors	25
12-022 Cables or raceways installed in roof decking systems	25
12-300 Exterior exposed wiring rules	26
12-500 Non-metallic sheathed cable rules	26
12-514 Protection of cables in non-concealed locations	26
12-904 Conductors in raceways	26
12-2200 Cable trays – method of installation	26
12-2208 Cable trays – provisions for bonding	26
14-606 Panelboard overcurrent protection	27
14-612 Transfer equipment for standby power systems	27
14-614 Current supply from more than one system	27
26-012 Dielectric liquid-filled equipment – outdoors	27
26-656 Branch circuits for dwelling units	28
26-700 Receptacles – general	28
26-704 Protection of receptacles by a ground fault circuit interrupter of the Class A type	28
26-708 Receptacles exposed to the weather	28
26-724 Receptacles for single dwellings	28
28-602 Motors and generators – types and ratings of disconnecting means	29
30-500 Lighting in buildings of residential occupancy – lighting equipment at entrances	29

30-502	Lighting in buildings of residential occupancy – luminaires in dwelling units	29
30-504	Lighting in buildings of residential occupancy – stairways	29
30-506	Lighting in buildings of residential occupancy – basements	29
30-508	Lighting in buildings of residential occupancy – storage rooms	30
30-510	Lighting in buildings of residential occupancy – garages and carports	30
36-302	Station ground electrode	30
38-051	Elevators – disconnecting means.....	30
60-500	Overhead conductors on poles.....	31
62-126	Field repair, modification, or assembly or series trace heater sets	31
64-060	Solar photovoltaic systems – disconnecting means.....	31
64-110	Unbalanced interconnections	31
76-006	Service entrance equipment.....	32
Technical Interpretations		33

Preface

This publication is produced by:

The City of Winnipeg, Development and Inspections Division

It forms a compilation of the following documents:

- **The Winnipeg Electrical By-law No. 72/2022**
- **The 2022 City of Winnipeg Electrical Technical Interpretations**

The 2021 Canadian Electrical Code, Part I, 25th Edition

The Twenty-fifth Edition of the Canadian Electrical Code Part I, CSA Standard C22.1-21 has been adopted, with specific amendments, by City of Winnipeg By-law (effective July 1, 2022) and is known as:

The Winnipeg Electrical By-Law No. 72/2022

The amendments are reprinted in this publication.

In addition to a copy of the City of Winnipeg By-law, this publication contains technical interpretations for use in the application of the Code.

The 25th Edition of the Canadian Electrical Code, Part I and the Canadian Electrical Code Handbook, in hardcopy or PDF format are available from CSA at www.csa.ca

Electrical Information Centre

winnipeg.ca/ppd/InfoCentre/Electrical/default.stm

The following brochures and forms, produced by The City of Winnipeg, are available online from our Electrical Info Centre.

Related Brochures

- “Help Us Help You” guide for commercial electrical permit document requirements
- Electrical Drawing Requirements for New Construction
- Fire Alarm Verifications (qualification requirements for personnel conducting F.A. VI’s)
- Emergency Lighting and Exit Signs
- Electrical Requirements in the Building Code
- Homeowners’ Guides for:
 - Electrical Installations
 - Lower Level Development
 - Pools, Hot Tubs/Spas
 - Detached Garages & Accessory Structures
 - Decks

Forms & Documents

- Homeowner Electrical Permit Declaration Form
- Electromagnetic Locks Checklist
- Photoluminescent Exit Signs Checklist
- Patient Care Areas Declaration Form
- Schedule ‘A’ for Fire Alarm Monitoring
- After Hours Inspection Request Form
- Building Site & Design Summary (BSDS)
- Commercial Alteration Design Summary (CADS)
- Professional Designer’s Certificate (RPDC)
- Owner Statement
- Optional Professional Designer Program certificate (OPCP)
- Wording for Letters of Certification – Final, Interim, and No Occupancy
- Inspection Request Forms – Housing and Commercial
- Housing Inspection Extension Request Form
- Request for Code Deviation Form
- Electrical Permit Applications Forms for:
 - Commercial
 - Housing
 - Signs
 - Annual
- Worksheets for Multi-Residential Building Calculations:
 - Service Calculations
 - Suite Calculations

Planning, Property & Development

Home : [Planning, Property & Development](#) : [Building & Renovating](#) : [Electrical Info Centre](#)

Electrical Information Centre

The Zoning & Permits Branch is not accepting walk-in customers and [permit applications must be submitted digitally](#). If you have any questions, call Permits Direct Line at 204-986-5140.

The Electrical Information Centre provides one convenient location for all City of Winnipeg permit-related electrical documents and information for both homeowners and professional contractors.

[Expand all](#) [Collapse all](#)

1. Related Brochures
2. Forms and Documents
3. Contractor Licencing & Exams
4. Fees & Related By-Laws
5. Related Links

Information Bulletins

This document is an unofficial publication of the by-law which has been prepared for the convenience of the user. The City of Winnipeg expressly disclaims any responsibility for errors or omissions. For the official and definitive version of the By-law, please contact the Office of the City Clerk.

THE CITY OF WINNIPEG

THE WINNIPEG ELECTRICAL BY-LAW

NO. 72/2022

A By-law of THE CITY OF WINNIPEG
adopting and varying the 2021 Canadian Electrical Code.

THE CITY OF WINNIPEG, in Council assembled, enacts as follows:

Title

1 This By-law shall be referred to as the **Winnipeg Electrical By-law**.

Definitions

2 In this By-law:

“Code” means the *2021 Canadian Electrical Code, Part I, Twenty-fifth Edition, C22.1-21, Safety Standard for Electrical Installations* adopted by this By-law or a subsequent and similar Code adopted by this By-law.

“Designated employee” means the Manager of Development and Inspections of the Planning, Property and Development Department of the City of Winnipeg and any employee of the City to whom he or she has delegated authority to administer or enforce all or part of this By-law.

Adoption of Canadian Electrical Code

3(1) Except as varied by this By-law, the 2021 Canadian Electrical Code, Part I, Twenty-fifth Edition, C22.1-21, Safety Standard for Electrical Installations published by the Canadian Standards Association is hereby adopted as part of this By-law, and a violation or contravention of the Code is a violation or contravention of this By-law.

3(2) Where in this By-law reference is made to a Rule or Section number, the reference shall be understood to mean that rule or section in the Code.

3(3) In the event of any conflict, explicit or implied, between the provisions set out in the Code and the provisions set out in this By-law, the provisions set out in this By-law shall prevail.

Application

4 No person shall install electrical wiring or electrical apparatus and no person shall use electrical current except as provided in this By-law.

Authority

5(1) Designated employees are authorized to conduct inspections and take steps to administer and enforce this By-law or remedy a contravention of this By-law in accordance with *The City of Winnipeg Charter* and, for those purposes, have the powers of a “designated employee” under *The City of Winnipeg Charter*.

5(2) Without restricting the generality of subsection (1), designated employees are hereby given the authority in an emergency associated with construction governed by this By-law or the Code to take whatever actions and measures are necessary to meet the emergency and to eliminate or reduce its effects.

5(3) The details of any construction which are not specifically dealt within this By-law shall be performed to the satisfaction of a designated employee, which authority shall be reasonably exercised by the designated employee.

5(4) Designated employees are hereby authorized to determine whether equipment, techniques, conditions, circumstances and all other matters meet the standards and requirements of this By-law or are otherwise acceptable and, where in this By-law such terms as “proper”, “adequate”, “sufficient”, “ample”, “suitable”, “substantial”, “secure”, “necessary”, “dangerous” and the like or derivatives thereof, are used, they mean “proper”, “adequate”, “sufficient”, “ample”, “suitable”, “substantial”, “secure”, “necessary”, “dangerous” to the satisfaction or in the reasonable opinion of the designated employee, and such terms as “where practicable”, “where required”, “as far as possible” have a like significance.

5(5) In exercising their discretion to determine the acceptability or satisfactory nature of equipment, techniques, conditions, circumstances and all other matters under this By-law and whether or not they are “proper”, “adequate”, “sufficient”, “ample”, “suitable”, “substantial”, “secure”, “necessary”, “dangerous” and the like, designated employees shall act reasonably and with the objective of ensuring and promoting the safe and efficient use of electricity.

Authority to conduct certain Electrical Inspections

6 Electrical inspections of one and two family dwellings, row housing and related structures and equipment may be carried out by inspectors who are employed by the City of Winnipeg and who

- (a) hold an electrician’s journeyperson Licence; or
- (b) have successfully completed an inspection training program provided by
 - (i) the City of Winnipeg;
 - (ii) an educational institution approved by the Manager of Development and Inspections; or
 - (iii) a building code development, training and certification organization with a course content approved for the purpose of this section by the Manager of Development and Inspections.

Variations to the Code

7 The Code is varied by the provisions of Schedule “A” to this By-law, which is hereby incorporated into and forms part of this by-law.

Repeal of By-law No. 86/2018

8 The Winnipeg Electrical By-Law No. 86/2018 is hereby repealed.

Coming into effect

9 This By-law comes into effect on July 1, 2022 and applies to all permit applications made on or after that date.

DONE AND PASSED in Council assembled, this 26th day of May, 2022.

SCHEDULE "A" TO WINNIPEG ELECTRICAL BY-LAW NO. 72/2022

The 2021 Canadian Electrical Code, Part I, Twenty-fifth Edition, C22.1-21, Safety Standard for Electrical Installations, published by the Canadian Standards Association is hereby varied as follows:

Variations to Section 0 of the Code Object, Scope and Definitions

Definitions

Section 0 is varied by:

- (a) deleting the following definitions:

Acceptable
Approved
Electrical Contractor
Inspection Department

- (b) adding the following definitions in alphabetical order:

Acceptable means acceptable to a designated employee.

Accredited Field Evaluation Agency means an agency that has been accredited by the Standards Council of Canada, in accordance with specific criteria, procedures and requirements, to operate on a continuing basis as a special inspection body for electrical equipment.

Δ **Approved**, when used with reference to any electrical equipment means:

- a) that the equipment has been certified by an accredited certification organization as
- i) meeting CSA Group Standards; or,
 - ii) where CSA Group Standards do not exist or are not applicable, other recognized standards; or
- b) that the equipment:
- i) has been approved by Inspections and Technical Services Manitoba or an accredited field evaluation agency after examining the equipment or a sample and finding that it conforms to the applicable standards for the equipment and presents no undue hazard to persons or property; and
 - ii) is acceptable to the designated employee.;

City means the City of Winnipeg.

Construction means the installation of electrical equipment in or about any building or premises and includes all electrical equipment installed.

Designated employee means the Manager of Development and Inspections of the Planning, Property and Development Department of the City of Winnipeg and any employee of the City to whom he or she has delegated authority to administer or enforce all or part of this Code.

Electrical contractor means an individual to whom an Electrical Contractor's Licence has been issued.

Δ **Engineering Licensee** (or Eng. L.) means an individual who has been registered as specified scope of practice licensee and is entitled to practice professional engineering in the Province of Manitoba in accordance with the provisions of The Engineering and Geoscientific Professions Act and the specified scope granted

Examining Committee means the committee established by Subrule 2-006 6).

Inspection Department means the Electrical Section of the Commercial Inspections Branch and the Housing Inspections Branch of the Development and Inspections Division of the Planning, Property and Development Department of the City of Winnipeg, or its successor.

Licence means an electrical contractor licence as provided for in this Code.

Owner means a person or the agent, servant or employee of a person who owns, manages or is in possession of land or a building to which this By-law applies, or who is in receipt of the whole or a part of any rents or profits therefrom, whether the rents and profits are received on the person's own account, or as agent or trustee for another person.

Person includes an individual, corporation, partnership, firm or entity.

Professional Engineer means a professional engineer who is a member of Engineers Geoscientists Manitoba and who is entitled to practice in the Province of Manitoba.

Single Detached Dwelling means a building designed for residential occupancy and containing no more than one dwelling unit and no other occupancy. Includes modular and ready-to-move homes, but does not include mobile homes.

Structure means anything constructed or erected with a fixed location on or in the ground or attached to something having a fixed location on the ground and includes but is not limited to buildings, walls, fences, signs, billboards, poster panels, light standards, and swimming pools.

Variations to Section 2 of the Code General Rules

Administrative

Section 2 is varied by deleting Rules 2-000 to 2-032 and substituting the following:

ADMINISTRATIVE

2-000 Duty of owner regarding design and inspection

- Δ 1) Unless the designated employee concludes it is not necessary in order to ensure that it complies with this Code and the Manitoba Building Code, the owner must ensure that a Professional Engineer or Engineering Licensee entitled to practice in the Province of Manitoba and skilled in the application of this Code to the design and construction of the structure represented in the plans, drawings and related documents has signed and sealed plans, drawings, specifications

and a certificate submitted as part of an application for a building permit or an electrical permit, and has reviewed the electrical installation and provided certification required by the designated employee that the installation has been installed in accordance with this Code and the applicable by-laws, for any of the following types of electrical installations.

- a) installations where Sections 18, 20, 24 or 36 of the Code are applicable;*
 - b) buildings referred to in Sentence 1.3.3.2.(1) of the Manitoba Building Code;*
 - c) buildings where the electrical service requirements exceed 750 KVA;*
 - d) fire alarm systems for buildings noted in Item b);*
 - e) fire pumps;*
 - f) generators 50 kW or larger and those supplying life safety systems;*
 - g) lightning protection systems for high buildings as defined in the Manitoba Building Code;*
 - h) power factor correction of electrical installations, other than individual motor applications;*
 - Δ i) solar photovoltaic installations in all applications except for installations less than 10 kW for single detached dwellings;*
 - j) any other type of installation where the designated employee requires it under Subrule 2-002 1).*
- 2) The owner must immediately advise the designated employee if the Professional Engineer who has signed and sealed drawings, specifications and the certificate submitted as part of an application for a Building Permit will not review and certify the construction or installation of the electrical installations referred to in the drawings, specifications and certificate.*
 - 3) The owner must ensure that the construction or installation of the electrical installations does not deviate from the requirements of the conditions of the permit, including the plans, drawings and other documents accepted as part of a building permit, without first obtaining from the designated employee permission to do so, except for minor changes which conform to this Code. Where, in the reasonable opinion of the designated employee, deviations from the conditions of the permit are substantial and require an additional review of the plans, drawings or other documents, he or she shall treat the proposed deviations as a new application and the process associated with a new application, including the payment of fees, must then be followed.*
 - 4) When completed construction or installation of electrical installations is not in compliance with this Code or an applicable by-law, the owner must, at his or her expense, rectify the non-compliance within a reasonable period of time.*

2-002 Engineer's responsibility

- Δ 1) Where, in the reasonable opinion of a designated employee, the character of the proposed construction requires technical knowledge for the preparation of drawings and specifications, as provided in Subrule 2-000 1) j), the drawings and specifications shall be prepared, signed and sealed by a Professional Engineer and the construction reviewed by a Professional Engineer or Engineering Licensee or a suitably qualified person reporting to the Professional Engineer or Engineering Licensee.*
- Δ 2) Where Subrule 2-000 1) applies, a designated employee shall not issue a Building Permit or, where a Building Permit is not required, an Electrical Permit, until the responsible Professional*

Engineer or Engineering Licensee has submitted plans, drawings and specifications for the construction or installation of the electrical installations and a certificate required by the designated employee under Subrule 2-032 5) concerning the compliance of the plans and drawings with this Code and applicable by-laws containing the following statement:

I hereby certify that I have complied with all applicable legislation and professional codes in affixing my seal to the plans, drawings and related documents which are being submitted as part of this application for a permit under the Winnipeg Building By-law or the Winnipeg Electrical By-law.

By affixing my seal, I am representing that:

- **I am fully aware of the provisions of the Manitoba Building Code and the Winnipeg Electrical By-law that are applicable to these plans and drawings;**
- **I have applied a professional standard of care to ensure compliance of these plans and drawings with the applicable provisions of the Manitoba Building Code and the Winnipeg Electrical By-law.**

- Δ 3) *The responsible Professional Engineer or Engineering Licensee shall submit a certificate required by the designated employee under Subrule 2-032 5) concerning the compliance of the construction or installation of the electrical installations with this Code and all applicable referenced standards associated with the installation prior to issuance of an interim or final Building Occupancy Permit or, where a Building Occupancy Permit is not required, upon completion of the construction.*
- Δ 4) The plans, specifications and certificates referred to in this Rule shall not be accepted by the designated employee unless they have been signed and sealed by a Professional Engineer or Engineering Licensee.
- 5) No person may sign and seal all the documents referred to in this Rule unless he or she is a member in good standing with Engineers and Geoscientists Manitoba and is skilled in the application of this Code to the construction or installation of the electrical installations referred to in the documents.

2-004 Electrical permit

1. *Subject to Subrule 2), no person shall commence electrical construction or permit commencement of electrical construction until an electrical permit for the construction has been issued by the designated employee and no person may engage in construction, connection, reconnection, alteration, repair or extension of any electrical installation prior to an electrical permit being issued by the designated employee for that construction.*
2. *Notwithstanding Subrule 1), no electrical permit is required for*
 - a. *electrical construction within the category that is authorized to be done by the holder of a Provincial Voice Data Video Licence and the electrical construction takes place in a single detached dwelling; or*
 - b. *the installation of replacement luminaires, general-use switches, motors, ballasts and receptacles by the owner of a single detached dwelling or the holder of a valid, current*

Journeyman Electrician's Licence, if the luminaire, general-use switch, motor, ballast or receptacle is:

- i. installed in an owner-occupied single detached dwelling;*
- ii. installed in a branch circuit having a rating not exceeding 20A and 130V;*
- iii. interchangeable with the equipment being replaced in function, electrical rating, size and weight without having to change any part of the branch circuit;*
- iv. installed in the same location as the equipment being replaced;*
- v. not connected to aluminum wiring;*
- vi. approved in accordance with Rule 2-024;*
- vii. not electrical equipment forming part of an electrical installation to which Section 68 of this Code applies;*
- viii. not recessed luminaires to which Rules 30-900 to 30-912 apply; and*
- ix. connected to a branch circuit where a grounding means exists.*

- Δ 3) *A designated employee shall issue an electrical permit only to an individual*
- a) who holds an Electrical Contractor's Licence authorizing that individual to carry on his or her occupation, trade or business in the City of Winnipeg;*
 - b) who holds a valid, current and applicable Journeyman Electrician's Licence under the Electricians' Licence Act authorizing that individual to do construction on a single detached dwelling owned and occupied by that individual as his or her principal residence or which will be occupied by that individual upon completion as his or her principle residence;*
 - c) subject to Subrule 5), authorizing that individual to do construction on a single detached dwelling owned and occupied by that individual as his or her principal residence where the construction authorized is not electrical work for any of the following:*
 - i) work greater than 200 Amps;*
 - ii) renewable energy systems (e.g.: solar photovoltaic systems or wind systems);*
 - iii) generators;*
 - iv) electric vehicle charging stations; or*
 - v) indoor plant growth facilities, or.*
 - d) subject to Subrule 5), authorizing that individual to do construction on a single detached dwelling owned by that individual which will be occupied by that individual upon completion as his or her principal residence where the construction authorized is not electrical work for any of the following:*
 - i) work greater than 200 Amps;*
 - ii) renewable energy systems (e.g.: solar photovoltaic systems or wind systems);*
 - iii) generators;*
 - iv) electric vehicle charging stations; or*
 - v) indoor plant growth facilities.*
- 4) *The designated employee may reject the application if the applicant for a permit*
- a) fails within a reasonable period of time to provide information required to process the application or fails to respond to communication from the City, or*
 - b) otherwise appears to have abandoned the application, or*
 - c) if required by the designated employee under Subrule 5), fails to pass a test or demonstrate his or her competence to do the work for which a permit is sought.*

The designated employee may give the applicant notice of a decision to reject an application by sending the notice to the applicant at the address provided by the applicant in the permit application.

- 5) *Before issuing a permit under Subrule 3) c) or d), the designated employee may, if he or she considers it appropriate for reasons of safety and Code compliance, require that the owner occupant of a single detached dwelling pass a test or otherwise provide evidence of his or her competency to do the work for which a permit is sought.*
- 6) *A permit automatically expires and is thereafter null and void if the construction or other work authorized by the permit*
 - a) *subject to Subrule 7), is not initiated within 6 months after the permit is issued;*
 - b) *subject to Subrule 7), is not completed within*
 - i) *three years after the date the permit is issued; or*
 - ii) *a greater length of time as determined to be reasonable by the designated employee in the case of extraordinarily large construction projects; and*
 - c) *fails to comply with the conditions imposed on the permit or a provision of the Code.*
- 7) *Upon application by the owner, a designated employee may grant an extension to the dates by which construction or other work must be initiated and completed. The extension may extend the time period for initiation and completion by no more than the time period set out in Subrule 6) for the initiation or completion, as the case may be, of the construction or other work authorized by the permit. In order to qualify for the extension, the owner must*
 - a) *submit, and undertake to implement, a work plan which sets reasonable and measurable targets for stages of construction or other work to be completed; and*
 - b) *provide a deposit in an amount equal to the cost of the permit which must be refunded, without interest, if the construction or other work is completed within the extended time period.*
- 8) *A designated employee may revoke a permit by giving notice to the owner at the address provided by the owner in the permit application if*
 - a) *the construction or other work authorized by the permit is not proceeding reasonably to completion after being initiated; or*
 - b) *the owner does not meet the targets set out in the work plan referred to in Item 7) a) for stages of construction or other work to be completed.*
- 9) *Where a designated employee has revoked a permit under Subrule 8) and the same owner applies for a new permit in respect of substantially the same construction project, the designated employee may require that the owner provide a deposit in an amount equal to the cost of the permit before issuing the permit. The deposit must be refunded, without interest, if the owner complies with Subrule 6) in respect of the construction or other work for which the permit is issued.*
- 10) *A permit is void and all rights under the permit are terminated if the negotiable instrument used for payment of the permit fee is returned for any reason.*
- 11) *All construction being carried out under an electrical permit issued prior to the effective date of this By-law shall:*

- a) *be completed in accordance with the By-law requirements applicable at the time of permit application and any special conditions described on the electrical permit and approved plans; and*
 - b) *proceed at a satisfactory rate in the reasonable opinion of a designated employee.*
- 12) *If the requirements set out in Item 6) c) are not met, a designated employee may cancel the electrical permit, in which case,*
- a) *a new electrical permit shall be obtained before construction may be continued; and*
 - b) *all construction undertaken under the authority of the new permit shall comply with the provisions of this Bylaw.*
- Δ 13) *Permits may not be transferred, sold, or assigned.*
- Δ 14) *Annual electrical permit*
- a) *Notwithstanding Subrules 6) a) and b), 7), 8), 9), and 11), a designated employee may issue an Annual Electrical Permit to an individual holding an Electrical Contractor's Licence "A" or "B" and the Permit must specify the particular site or sites to which it applies.*
 - b) *Notwithstanding Subrule 1), construction, connection, re-connection, alteration, repair or extension of an electrical installation may take place under the supervision and responsibility of the holder of an Annual Electrical Permit without the necessity of a permit being issued for the specific construction, connection, re-connection, alteration, repair or extension of an electrical installation.*
 - c) *The designated employee may issue an Annual Electrical Permit subject to reasonable terms or conditions.*
 - d) *An Annual Electrical Permit expires on the thirty-first day of December of the year for which it was issued.*
 - e) *The designated employee may suspend, withdraw or refuse to re-issue an Annual Electrical Permit where*
 - i) *the permit holder has failed to comply with the applicable codes and by-laws or the terms and conditions of the Annual Electrical Permit;*
 - ii) *the permit holder has failed to remit the permit fees applicable to the construction, connection, re-connection, alteration, repair or extension of an electrical installation that has taken place under the authority of the Annual Electrical Permit within the time set out in the Planning, Development and Building Fees By-law;*
 - iii) *a log book setting out specifics of the work undertaken on each project has not been maintained or is not available for inspection.*

2-006 Electrical contractor licences

- 1) *Except for a homeowner who has obtained a permit under Items b), c) or d) of Subrule 2-004 3), and subject to Subrule 2-004 3) c) or d), no person may place, install, maintain, repair or replace any electrical equipment in the City of Winnipeg unless the person is operating under the authority of an Electrical Contractor Licence issued under this By-law.*
- 2) *An Electrical Contractor Licence may only be issued to an individual; in order for a corporation, partnership, governmental department or some other legal entity to operate as an Electrical Contractor, an employee or officer of the entity shall obtain an Electrical Contractor Licence on*

behalf of the entity.

- 3) *An individual applying for a licence, whether on his or her own behalf or on behalf of a legal entity, shall satisfy the licensing requirements and pay the established licensing and examination fees before being issued a licence.*
- 4) *The holder of a licence, or an agent authorized in writing to do so on behalf of the licence holder, is eligible to obtain permits to perform electrical construction within the scope of the licence as follows:*
 - a) *The holder of an Electrical Contractor Licence “A” or his/her agent may obtain permits for any electrical construction governed by City of Winnipeg By-laws and The Electricians’ Licence Act; and*
 - b) *The holder of an Electrical Contractor Licence “B” or his/her agent may obtain permits to install and maintain electrical installations in premises owned, leased or managed by the corporation, firm, company or government department on behalf of whom the Licence is held as permitted by City of Winnipeg By-laws and The Electricians’ Licence Act; and*
 - c) *The holder of an Electrical Contractor Licence “C” or his/her agent may obtain permits for limited electrical construction as authorized by this By-law and the Limited Specialized Trade Electrician’s Licence issued under The Electricians’ Licence Act.*
- 5) *In order to obtain a licence, an individual shall meet the following requirements:*
 - a) *to qualify for an Electrical Contractor Licence “A” the applicant shall:*
 - i) *hold a valid, current Journeyman Electrician’s Licence as required by The Electricians’ Licence Act; and*
 - ii) *have passed an examination set out by the Examining Committee.*
 - b) *to qualify for an Electrical Contractor Licence “B”, the applicant shall:*
 - i) *hold a valid, current Journeyman Electrician’s Licence as required by The Electricians’ Licence Act; and*
 - ii) *have passed an examination set out by the Examining Committee.*
 - c) *to qualify for an Electrical Contractor Licence “C”, the applicant shall:*
 - i) *hold a limited specialized trade electrician’s Licence, issued under The Electricians’ Licence Act; and*
 - ii) *have passed an examination set out by the Examining Committee.*
- 6) *An Examining Committee, consisting of the designated employee and any other person whom the designated employee may appoint, is hereby established with responsibility to:*
 - a) *prescribe the subjects on which candidates for the Electrical Contractor Licence shall be examined;*
 - b) *prepare, organize and conduct or supervise the examination of the candidates; and*
 - c) *report on the results of the examinations to the designated employee.*
- 7) *Where an applicant fails to pass an examination set out by the Examining Committee on two successive occasions, he or she must complete a training course acceptable to the designated employee before being eligible to apply again for a licence.*
- 8) *Every licence holder is responsible for construction carried out under the authority of a permit issued to him or her and, where an individual holds a licence on behalf of a corporation,*

partnership, governmental department or some other legal entity, the licence holder is responsible and may be prosecuted under this By-law for the activities of all individuals operating under that licence, even if the licence holder is no longer employed or retained by the corporation, partnership, governmental department or other legal entity.

- 9) *Where it appears that a licence holder may have violated any provisions of this By-law or that construction carried out under the authority of a licence holder fails to meet the standards and requirements set out in this Code, the designated employee may hold a hearing to investigate the matter and may revoke or suspend any licence as a result of the hearing.*
- 10) *Notwithstanding Subrule 9), the designated employee may immediately suspend a licence for a period of up to 30 days where it appears that the licence holder has violated this Bylaw in a way that endangers the life or health of an individual or endangers property, but the designated employee must reinstate the licence after 30 days unless a hearing to investigate the matter provides justification to further suspend or to revoke the licence.*
- 11) *Licences may not be transferred, sold or assigned.*
- 12) *A licence may be issued for single or multiple years and terminates on the date indicated on the licence.*
- 13) *Electrical contractor licences, terms and fees, including administrative fees for licences that are renewed after their expiry date, are as published in the City of Winnipeg annual Fees and Charges schedule.*
- 14) *Where an individual is unlicensed for more than 6 months, he or she must re-qualify for a licence under Subrule 5).*

Δ 2-008 Electrical permit and inspection fees

The electrical permit and inspection fees are as published in the City of Winnipeg annual Fees and Charges schedule (<https://winnipeg.ca/ppd/fees/pdf/Planning-Development-and-Building-Fees-and-Charges.pdf>).

2-010 Special requirements

Requirements and standards in this Code that apply to particular types of installations are in addition to general requirements and standards in this Code and, in the event of a conflict between them, the requirements and standards that apply to particular types of installations shall prevail.

2-012 Inspection and availability of work for inspection

- 1) *An electrical contractor is responsible for notifying the applicable Inspections Branch when construction is ready for inspection and shall do so at such time or times as will permit inspection being made before any construction or portion thereof is concealed.*
- 2) *No person may render electrical construction inaccessible by lathing, boarding, or other building construction until it has been inspected and approved by a designated employee.*

2-014 Plans and specifications

- 1) *Until the designated employee has reviewed and accepted plans and specifications for the construction and an electrical permit has been issued, no person may begin construction on*
 - a) *wiring installations of public buildings, industrial establishments, factories, and other buildings in which public safety is involved; or*
 - b) *large light and power installations and the installation of apparatus such as generators, transformers, switchboards, large storage batteries, etc.; or*
 - c) *other installations specified by the designated employee*
- 2) *The owner is responsible for submitting the plans and specifications referred to in Subrule 1) in the form required by the designated employee.*

2-016 Connection

- 1) *No electrical installation, extension, alteration, or addition shall be connected or reconnected to any service or other source of electrical energy by a supply authority, electrical contractor, or other person, until the designated employee has issued an electrical permit and given authorization to make such connection or reconnection.*
- 2) *Subrule 1) does not apply to Manitoba Hydro when it reconnects electrical power to a location where the service has been cut off for non-payment of bills or a change of occupant, provided there have been no alterations or additions to the installation subsequent to the last authorization.*

2-020 Re-inspection

The designated employee may re-inspect any installation if and when he or she reasonably considers such action to be necessary.

2-024 Use of approved equipment

- 1) *Electrical equipment used in electrical installations shall be approved, and shall be of a kind or type and rating approved for the specific purpose for which it is to be employed.*
- 2) *No person may connect unapproved electrical equipment.*

2-026 Withdrawal of approval (See Appendix B)

The designated employee may withdraw approval of electrical equipment at any time if

- a) *the equipment is of lesser quality than the sample on which approval was based;*
- b) *the conditions of use indicate that the equipment is not suitable; or*
- c) *the terms of the approval agreement are not being carried out.*

2-028 Damage and interference with electrical equipment

- 1) *No person shall damage any electrical installation or a component of an electrical installation.*
- 2) *Unless prior permission has been obtained from the designated employee, no person shall cut, break or interfere with any lock or seal that has been placed on any electrical equipment by or at the direction of the designated employee.*
- 3) *No person shall interfere with any electrical installation or component of an electrical installation except when, in the course of alterations or repairs to non-electrical equipment or structures, it is necessary to disconnect or move components of an electrical installation, in which case it is the responsibility of the person carrying out the alterations or repairs to ensure that the electrical installation is restored to a safe operating condition as soon as the progress of the alterations or repairs will permit.*
- 4) *Electrical equipment that has been exposed to ingress of water shall be subjected to evaluation to ascertain whether or not the equipment may be placed back into service.*

2-030 Deviations or postponements

- 1) *The designated employee may grant special permission to deviate from or postpone compliance with the requirements and standards of this Code where the deviation or postponement will not, in the reasonable opinion of the designated employee, jeopardize the safety of people or property and will permit substantial compliance with the objects of the requirement or standard, but such permission applies solely to the specific installation and circumstances for which it is granted.*
- 2) *Requests for special permission or deviation must be submitted to the designated employee via a "Request for code deviation" form.*

2-032 Role of the designated employee

- 1) *The designated employee is responsible for the administration and enforcement of this Code and for these purposes he or she and all individuals to whom he or she has delegated authority to administer or enforce all or part of this Code have all the powers of a "designated employee" under The City of Winnipeg Charter.*
- 2) *An order from a designated employee requiring that construction be stopped on a project shall set out the conditions under which the construction may be resumed.*
- 3) *The designated employee shall accept as satisfactory any construction or condition that lawfully existed prior to the effective date of this By-law, so long as the construction or condition does not constitute an unsafe condition.*
- 4) *The designated employee is authorized to determine the type and form of plans, drawings and other documents that are required under Rule 2-000 to be submitted as part of an application for an electrical permit.*
- 5) *Without restricting the generality of Subrule 4), but subject to Subrule 2-002 2), the designated employee is authorized to establish the text of a certificate signed and sealed by a Professional*

Engineer that the owner must submit as part of an application for a building permit, an electrical permit, an interim building occupancy permit or a building occupancy permit.

- 6) *For the purposes of complying with the City's obligation to inspect and approve plans relating to construction prior to a building permit being issued, the designated employee may rely on a certificate or representation of a Professional Engineer as to the compliance of plans and drawings or other documents, or of construction, with this By-law and the Winnipeg Building By-law.*
- 7) *In relying on a certificate or representation of a Professional Engineer pursuant to Subrule 6), the designated employee may establish circumstances in which no examination or review whatsoever of certain aspects or parts, or of the entirety, of the plans or drawings or other documents signed and sealed by a Professional Engineer, or of construction reviewed by a Professional Engineer, will be conducted by the City of Winnipeg before a building permit, an electrical permit or an interim or final building occupancy permit is issued.*
- 8) *As part of the authority granted by Subrule 6), the designated employee is authorized to determine:*
 - a) *subject to this Rule, the form and content of the certification or representation to be provided, including a signed statement using specific text approved by the designated employee, or sealed plans and drawings;*
 - b) *the amount of professional liability insurance, if any, that must be carried by a Professional Engineer who provides certifications or representations;*
 - c) *the criteria, if any, for determining when the City of Winnipeg will not rely solely or at all on the required certificates or representations submitted by specific individual Professional Engineers; and*
 - d) *the form of an audit or other programs, if any, to encourage compliance of submitted plans and specifications with this Code and applicable by-laws.*
- 9) *Subject to Subrule 10), the designated employee may institute a program in which building permits and occupancy permits authorizing the construction or installation of electrical installations or of interim or final occupancy of buildings to which Rule 2-000 does not apply are issued by the City with minimal examination or review by the City of plans, drawings or specifications for compliance with this By-law and with minimal or no inspection of construction or installation of electrical facilities.*
- 10) *The program referred to in Subrule 9) must include an audit function which subjects the unexamined plans or specifications as well as the construction of the building to random, systematic or targeted review.*
- 11) *As part of the authority granted by this Rule, the designated employee is authorized to establish the circumstances in which the program authorized in Subrule 9) will apply and to determine the form of the audit function established as part of the program.*
- 12) *Notwithstanding that permits have been issued under this rule on the basis of plans, specification or certifications signed and sealed by a Professional Engineer, where a designated employee determines, through an audit or otherwise, that plans, specifications or certifications, or actual construction based upon those plans and specifications fail to comply with this By-law or the Building By-law, the designated employee may order the Professional Engineer or the owner, or both, to rectify the point of non-compliance within a reasonable time. A Professional Engineer or owner who fails to comply with an order issued under this provision commits an offence.*

- 13) *The designated employee may refuse to issue an electrical permit or permits:*
- a) *whenever information submitted is inadequate to determine compliance with the provision of this By-law;*
 - b) *whenever incorrect information is submitted;*
 - c) *to any person who has failed to pay any fee or payment due and owing to the City of Winnipeg under this By-law or the City of Winnipeg Fees and Charges Schedule;*
 - d) *if a violation of another By-law, standard, act or regulation could result from the electrical construction permitted by it; or*
 - e) *if, in the case of an addition, alteration, repair or extension to any wiring system, in, on or through any building or place, the existing wiring is not in accordance with the provisions of this By-law.*
- 14) *The designated employee may cancel any electrical permit if:*
- a) *in the opinion of the designated employee, the privileges granted by that permit are being misused;*
 - b) *any condition under which the permit was issued is not being observed;*
 - c) *the permit was issued in error;*
 - d) *the permit was issued on the basis of incorrect information; or*
 - e) *in the reasonable opinion of the designated employee, the electrical construction is not proceeding at a satisfactory rate.*

2-034 Duties of the owner

- 1) *Every owner shall make or have made at his own expense such tests or inspections as are necessary to demonstrate to the designated employee that the equipment or action proposed complies with this By-law.*
- 2) *When required by the designated employee, every owner shall uncover and replace at his own expense any construction that has been covered contrary to Rule 2-012.*
- 3) *The owner of a building must ensure that the electrical installations in the building are in compliance with the Electrical Code that was in effect at the time that the electrical installations were constructed or installed. This requirement applies whether or not the owner owned the building at the time that the electrical installations were constructed or installed.*
- 4) *The owner shall maintain the electrical installations associated with the property in a safe condition.*
- 5) *When the electrical installations on a property are in an unsafe condition, the owner shall immediately take all necessary action to put the building electrical installations in a safe condition.*
- 6) *The owner shall maintain in good working order all safeguards or devices that are required to be installed in the building pursuant to the Winnipeg Building By-law or this Code.*
- 7) *Every owner shall ensure that no unsafe condition exists or will exist because of the work being undertaken and not completed, should occupancy exist or occur prior to the completion of any work being undertaking that requires a permit.*

- 8) *When a “stop work” order is issued by a designated employee, the owner shall ensure that the person or persons to whom it is directed stops construction immediately, except for the installation or erection of covers or guards so as to be able to maintain the site in a safe condition.*
- 9) *When required by the designated employee, every owner shall provide a letter to certify compliance with the requirements of this By-law and of any permits required.*
- 10) *An owner shall ensure that electrical installations on his or her premises are not overloaded, defective or being misused.*
- 11) *An owner shall remove or cause to be removed from the premises*
 - a) *unsafe electrical appliances or wiring;*
 - b) *dead or unused electrical wires or equipment that are or may become a hazard.*
- 12) *An owner shall comply with orders made by a designated employee.*

2-036 Duties of the permit holder

- 1) *Every permit holder shall ensure that all construction safety requirements of this By-law are complied with.*
- 2) *Every permit holder shall ensure that all construction is carried out in accordance with this By-law and all provisions as described on the permit and accepted drawings.*
- 3) *Every permit holder shall give notice to a designated employee:*
 - a) *when construction is ready to be inspected prior to covering; and*
 - b) *when construction has been completed so that a final inspection can be made.*
- 4) *Every permit holder is jointly and severally responsible with the owner for any construction actually undertaken.*
- 5) *When required by the designated employee, the permit holder shall provide a statutory declaration that the electrical installation was constructed in accordance with the accepted plans, specifications and requirements of the Winnipeg Electrical By-law and the Winnipeg Building By-law.*
- 6) *When a “stop work” order is issued by a designated employee, a permit holder shall ensure that the construction ceases immediately, except for the installation or erection of covers or guards so as to be able to maintain the site in a safe condition.*
- 7) *A permit holder shall comply with orders made by a designated employee.*

2-038 Service of orders and other documents

Orders to remedy a contravention of this By-law or a decision made by the designated employee that is subject to an appeal shall be served in accordance with The City of Winnipeg Charter and, where an address for sending an order or decision is required; one of the following shall be used:

- a) *if the person to be served is the owner of real property, the address maintained by the*

- tax collector for the purpose of issuing the tax notice for that property; and*
- b) if the person to be served is the occupant of real property, the street address for that property; and*
 - c) if the document to be served relates to a permit, licence or other document for which the person to be served has applied, the address provided by the person in the application.*

2-040 Appeals

An appeal from an order to remedy a contravention of this By-law or a decision made by the designated employee that is subject to appeal may be made to the Standing Policy Committee on Property and Development, Heritage and Downtown Development in accordance with The City of Winnipeg Charter.

Variations to Section 4 of the Code Conductors

Δ 4-004 Ampacity of wires and cables

Section 4 of the Code is varied by adding Subrule 4-004 26) as follows:

26) If other derating factors are applied to reduce the conductor ampacity, the conductor size shall be the greater of that so determined or that determined by Rule 8-104 5) or 6).

4-006 Temperature limitations

Section 4 of the Code is varied by adding “75 °C” to the end of Subrule 4-006 2) and deleting Items 4-006 2) a) and b).

Variations to Section 6 of the Code Services and service equipment

Control and protective equipment

6-212 Wiring space in enclosures

Section 6 of the Code is varied by deleting Subrule 6-212 3).

Metering equipment

6-400 Metering equipment

Section 6 of the Code is varied by renumbering the present Rule 6-400 as Subrule 6-400 1) and by adding the following Subrule immediately after it:

- 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, inclusive.*

**Variations to Section 10 of the Code
Grounding and bonding**

Grounding

Grounding - General

10-102 Grounding electrodes

Section 10 of the Code is varied by re-numbering Items 10-102 2) a) i), ii) and iii) as Items iii), iv) and v), respectively, and adding Items i) and ii) as follows:

- i) copper-clad;*
- ii) not less than 15.8 mm in diameter;*

10-116 Installation of grounding conductors

Section 10 of the Code is varied by deleting Subrules 10-116 1) and 5) and substituting the following:

- 1) *The grounding conductor for a system shall be without joint or splice throughout its length, except in the case of busbars, thermit-welded joints, compression connectors applied with a compression tool compatible with the particular connector.*
- 5) *A grounding conductor installed in the same raceway with other conductors of the system to which it is connected shall be insulated, except that an uninsulated grounding conductor shall be permitted where the length of the raceway*
 - a) does not exceed 15 m between pull points; and*
 - b) does not contain more than the equivalent of two quarter bends between pull points.*

Δ 10-118 Grounding conductor connection to grounding electrodes

Section 10 of the Code is varied by adding the following after Subrule 10-118 2):

- 3) *Where the grounding electrode is a metal water-piping system to which a common grounding conductor or the grounding conductor of a system is attached, the point of attachment shall be on the street side of the water meter.*

10-210 Grounding connections for solidly grounded ac systems supplied by the supply authority

Section 10 of the Code is varied by deleting Rule 10-210 and substituting the following:

- 1) *The grounded conductor of a solidly grounded ac system supplied by the supply authority shall*
 - a) be connected to a grounding conductor at each consumer's service with the connection being made on the supply side of the service disconnecting means in the service box;*
 - b) have a minimum size as specified*
 - i) for a bonding conductor; and*
 - ii) for a neutral conductor when the grounded conductor also serves as a neutral;*
 - c) be connected to the equipment bonding terminal by a system bonding jumper; and*
 - d) have no other connection to the non-current-carrying conductive parts of electrical equipment on the load side of the grounding connection.*

- 2) *Where two or more buildings or structures are supplied from a single consumer's service,*
 - a) *the grounded circuit conductor at each of the buildings or structures shall be connected to a grounding electrode and be connected to the equipment bonding terminal by a system bonding jumper; or*
 - b) *the non-current-carrying conductive parts of the electrical equipment in or on the building or structure shall be bonded to ground by a bonding conductor run with the feeder or branch circuit conductors.*
- 3) *Where the system is grounded at any point, the grounded conductor shall be run to each individual service.*

10-212 Grounding connections for solidly grounded separately derived ac systems

Section 10 of the Code is varied by deleting Subrule 10-212 2).

Bonding

Equipment bonding

Δ **10-612 Installation of bonding conductors**

Section 10 of the Code is varied by adding the following Subrules after Subrule 10-612 7):

- 8) *The bonding jumper, in the case of receptacles having grounding terminals isolated from the mounting strap required for special equipment, shall be permitted to be extended directly back to the distribution panel.*
- 9) *Electronic equipment rated to operate at a supply voltage not exceeding 150 volts-to-ground and that requires a separate bonding conductor shall be permitted to be bonded to ground by an insulated conductor extended directly back to the distribution panel, provided that*
 - a) *the separate bonding conductor is enclosed in the same raceway or cable containing the circuit conductors throughout the length of that cable or raceway;*
 - b) *the separate bonding conductor is sized not less than as given in Rule 10-616 for each leg of the run; and*
 - c) *the bonding requirements of Rules 10-600 are met.*

**Variations to Section 12 of the Code
Wiring methods**

Δ **12-022 Cables or raceways installed in roof decking systems**

Section 12 of the Code is varied by deleting Rule 12-022 and substituting the following:

Where wiring is concealed within the roof decking system, a warning label shall be affixed at all permanently installed roof access points, where provided, and in conspicuous locations in the roof area where the wiring is installed.

Exposed wiring on exteriors of buildings and between buildings on the same premises

12-300 Exterior exposed wiring Rules

Section 12 of the Code is varied by renumbering the existing Rule 12-300 as Subrule 12-3001) and by adding the following Subrule immediately after it:

- 2) *Exposed overhead wiring on the exteriors of buildings and between buildings or structures on the same premises shall not be permitted, except by special permission or deviation from the designated employee.*

Δ 12-500 Non-metallic sheathed cable Rules

Section 12 of the Code is varied by deleting “Types NMD-90 and NMWU” from Rule 12-500.

Δ 12-514 Protection of cables in non-concealed locations

Section 12 of the Code is varied by deleting Item 12-514 1) a) and substituting the below Item, and by adding Subrule 5) after Subrule 4):

- 1) a) *the upper faces of ceiling joists in attic or roof spaces, where the vertical distance between the joists exceeds 1 m;*

5) *Notwithstanding Subrules 1) to 4), this shall not apply to fished in cable installations.*

Raceways – General

12-904 Conductors in raceways

Section 12 of the Code is varied by deleting “Except for cable tray,” in Subrule 12-904 2).

Cable trays

12-2200 Method of installation

Section 12 of the Code is varied by deleting Subrule 12-2200 7).

12-2208 Provisions for bonding

Section 12 of the Code is varied by deleting Rule 12-2208 and substituting the following:

Metal cable trays shall be adequately bonded at intervals not exceeding 15 m and the size of bonding conductors shall be based on the ampacity of the largest ungrounded conductor in the circuits or equivalent for multiple parallel conductors carried by the cable tray in accordance with the requirements of Rule 10-616.

Variations to Section 14 of the Code Protection and control

Protection and control for miscellaneous apparatus

Δ 14-606 Panelboard overcurrent protection

Section 14 of the Code is varied by deleting Subrule 14-606 2) and substituting the following:

- 2) *Where the voltage does not exceed 1000 Volts, the overcurrent protection required by Subrule 1) shall be permitted to be in the primary of the transformer supplying panelboards or splitters, provided that the panelboard or splitter rating in amperes is not less than the overcurrent rating in amperes multiplied by the ratio of the primary to the secondary voltage.*

Δ 14-612 Transfer equipment for standby power systems

Section 14 of the Code is varied by renumbering the present Rule 14-612 as Subrule 14-612 1) and by adding the following Subrules immediately after it:

- 2) *An enclosed inlet may be supplied with the transfer switch for the connection of a portable generator.*
- 3) *An enclosed inlet installed remotely of the transfer switch for the connection of a portable generator must have an overcurrent installed adjacent to the enclosed inlet.*

Δ 14-614 Current supply from more than one system

Section 14 of the Code is varied by adding the following after Rule 14-612:

Where an installation, or part of an installation, is to be supplied with current from two or more different systems, the switching equipment controlling the various supplies shall be constructed or arranged so that it will be impossible to accidentally switch on power from one source before power from another has been cut off.

Variations to Section 26 of the Code Installation of electrical equipment

General

Δ 26-012 4) c) Dielectric liquid-filled equipment — Outdoors

Section 26 of the Code is varied by deleting Item 26-012 4) c) and substituting the following:

- c) *if installed at ground level, be located on a concrete or fibreglass pad draining away from structures or be in a curbed area filled with coarse crushed stone; and*

Branch circuits

Δ 26-656 Branch circuits for dwelling units

Section 26 of the Code is varied by adding “and” at the end of Item 26-656 h) and adding the following Item:

- i) *at least one branch circuit shall be provided solely for the receptacles provided for each driveway, parking pad and other similar locations where there is provision for vehicle parking in accordance with 26-724 d).*

Receptacles

26-700 General

Section 26 of the Code is varied by adding the following Subrule to Rule 26-700:

- 9) *Where a sump pump is required by the Winnipeg Building By-law for the control of water from a subsurface drainage (weeping tile) system:*
 - a) *a single 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.*

26-704 Protection of receptacles by a ground fault circuit interrupter of the Class A type

Section 26 of the Code is varied by deleting Subrule 26-704 2) and substituting the following:

- 2) *Except for vehicle heater receptacles subject to Rule 8-400, all receptacles having CSA configuration 5-15R or 5-20R, installed outdoors and within 2.5 m of finished grade, shall be protected with a ground fault circuit interrupter of the Class A type.*

26-708 Receptacles exposed to the weather

Section 26 of the Code is varied by deleting Subrules 26-708, 2) and 3), substituting the following.

- 2) *Receptacles of CSA configurations 5-15R, 5-20R, 5-20RA, 6-15R, 6-20R and 6-20RA shall be provided with cover plates suitable for wet locations and marked “Extra Duty.”*
- 3) *Notwithstanding Subrule 2), wet location cover plates not marked “Extra Duty” shall be permitted for receptacles*
 - a) *installed facing downward at an angle of 45° or less from the horizontal; or*
 - b) *located at least 1 m above finished grade or floor level in a damp location.*

Receptacles for residential occupancies

Δ 26-724 Receptacles for single dwellings

Section 26 of the Code is varied by adding the following after Item c) of Rule 26-724:

- d) *at least one receptacle shall be provided for each driveway, parking pad, and other similar locations where there is provision for vehicle parking.*

Variations to Section 28 of the Code Motors and generators

Disconnecting Means

28-602 Types and ratings of disconnecting means

Section 28 of the Code is varied by deleting Subrule 28-602 5).

Variations to Section 30 of the Code Installation of lighting equipment

△ Section 30 of the Code is varied by adding Subsection 30-500 as follows:

Luminaires in Buildings of Residential Occupancy

30-500 Lighting equipment at entrances (see Appendix G)

An exterior luminaire controlled by a wall switch located within the building shall be provided at every entrance to buildings of residential occupancy.

30-502 Luminaires in dwelling units (see Appendix G)

- 1) *Except as provided in Subrule 2), a luminaire controlled by a wall switch shall be provided in kitchens, bedrooms, living rooms, utility rooms, laundry rooms, dining rooms, bathrooms, water closet rooms, vestibules, and hallways in dwelling units.*
- 2) *Where a receptacle controlled by a wall switch is provided in bedrooms or living rooms, such rooms shall not be required to conform to the requirements in Subrule 1).*

30-504 Stairways (see Appendix G)

- 1) *Every stairway shall be lighted.*
- 2) *Except as provided for in Subrule 3), three-way wall switches located at the head and foot of every stairway shall be provided to control at least one luminaire for stairways with four or more risers in dwelling units.*
- 3) *The stairway lighting for basements that do not contain finished space nor lead to an outside entrance or built-in garage, and that serve not more than one dwelling unit, shall be permitted to be controlled by a single switch located at the head of the stairs.*
- 4) *Notwithstanding Subrule 3) and Appendix G, provisions for 3-way switches shall be installed for stairway lighting to basements.*

30-506 Basements (see Appendix G)

- 1) *A luminaire shall be provided for each 30 m² or fraction thereof of floor area in unfinished basements.*
- 2) *The luminaire required in Subrule 1) that is located nearest the stairs shall be controlled by a wall switch located at the head of the stairs.*

30-508 Storage rooms (see Appendix G)

A luminaire shall be provided in storage rooms.

30-510 Garages and carports (see Appendix G)

- 1) A luminaire shall be provided for an attached, built-in, or detached garage or carport.
- 2) Except as provided in Subrule 3), luminaires required in Subrule 1) shall be controlled by a wall switch near the doorway.
- 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 shall be permitted to be used.
- 4) Where a carport is lighted by a luminaire at the entrance to a dwelling unit, additional carport lighting shall not be required.

Variations to Section 36 of the Code High-voltage installations

Grounding and bonding

36-302 Station ground electrode

Section 36 of the Code is varied by deleting Item 36-302 1) a) and substituting the following:

- 1) a) consist of a minimum of four driven copper-clad ground rods not less than 3 m long and 17.09 mm in diameter spaced at least the rod length apart and, where practicable, located adjacent to the equipment to be grounded;

Variations to Section 38 of the Code Elevators, dumbwaiters, material lifts, escalators, moving walks, lifts for persons with physical disabilities, and similar equipment

Δ 38-051 Disconnecting Means

Section 38 of the Code is varied by deleting Subrule 5) and substituting the following:

- 5) a) The disconnecting means shall be located where it is visible on entry to the machinery area and readily accessible to authorized persons.
- b) Notwithstanding item a), for “machine room less” elevators the disconnecting means shall be
 - i) permitted to be located in an electrical room;
 - ii) capable of being locked in the open position; and
 - iii) equipped with permanent signage at the elevator being served, indicating the location of the disconnecting means.

Variations to Section 60 of the Code Electrical communication systems

Outside Conductors

60-500 Overhead Conductors on Poles

Section 60 of the Code is varied by renumbering Rule 60-500 as Subrule 60-500 1) and adding the following Subrule immediately after it:

- 2) *Exposed overhead wiring on the exteriors of buildings and between buildings or structures on the same premises shall not be permitted, except by special permission from the designated employee.*

Variations to Section 62 of the Code Fixed electric heating systems

General

Δ **62-126 Field repair, modification, or assembly of series trace heater sets**

Section 62 of the Code is varied by deleting Rule 62-126.

Variations to Section 64 of the Code Renewable energy systems

Solar Photovoltaic Systems

64-060 Disconnecting means

Section 64 of the Code is varied by deleting Item 64-060 2) g) and substituting the following:

- g) *be located*
 - i) *within sight of the equipment or be lockable in the open position; and*
 - ii) *within 9 m of the equipment or be integral to the equipment.*

64-110 Unbalanced interconnections

Section 64 of the Code is varied by deleting Rule 64-110 and substituting the following:

- 1) *Single-phase inverters for renewable energy systems and ac modules in interactive renewable energy systems shall not be connected to three-phase systems.*
- 2) *Three-phase inverters and three-phase ac modules in interactive systems shall comply with the requirements of Rules 84-008 and 84-018.*

Variations to Section 76 of the Code
Temporary wiring

76-006 Service entrance equipment

Section 76 of the Code is varied by deleting Item 76-006 d) and substituting the following:

- d) *be installed in one of the following ways:*
 - i) *for services not exceeding 200 A, on a pole or on a solid wood post that measures at least 89 mm x 150 mm nominal and is adequately braced;*
 - ii) *for services exceeding 200 A, on a substantial pole structure; or*
 - iii) *for services supplied from an underground distribution, on an adequately braced post.*

Technical Interpretations 2022

The Winnipeg Electrical By-law 72/2022

The Technical Interpretations (T.I.'s) are not amendments but clarifications of how the associated Rules are interpreted by the City of Winnipeg.

A publication issued by
The City of Winnipeg
Planning, Property and Development Department
Development and Inspections Division

Table of Contents – Technical Interpretations
--

Section 0	0-1	Point of demarcation – Interface point between utility communication or community antennadistribution systems and customer systems
	0-2	Installation of wireless wall switch
Section 2	2-1	Insulation and vapour barrier behind electrical equipment
	2-004 A	Electrical Permit
	2-004 B	Permits required for furnace, HWTs and A/C replacements
	2-004 C	Annual electrical permits
	2-024 A	Breakers of differing manufacturers installed in panelboards
	2-024 B	Field modifications of electrical equipment
	2-024 C	Approval of electrical equipment
	2-024 D	Electrical equipment disconnecting means
	2-024 E	Circuit breaker locking devices
	2-112	Mechanical protection of conductors installed in metal studs
	2-126	Grouping of cables in insulated spaces
	2-128	Firestopping
	2-400	Non-rated enclosures for electrical equipment
	2-402	Enclosures with ingress protection (IP) designations only
	2-404	Marking of motors controlled by VFD's/ASD's
Section 4	4-004 A	Single conductor cables
	4-004 B	Ratings of conductors in fibre spacers, metal throats and nipples
Section 6	6-1	Underground supply service termination requirements
	6-2	Manitoba Hydro owned farm service poles and structures
	6-3	Attachments to Manitoba Hydro poles
	6-110	Small services
	6-112 A	Upgrading of existing residential electrical services
	6-112 B	Service masts and attachments
	6-112 C	Means of attachment
	6-116	Aerial service attachment

Technical Interpretations

	6-200 A	Consumer's service boxes
	6-200 B	Hot splitters
	6-200 C	Use of multi-position meter sockets
	6-206	Existing services and panelboards located below the flood elevation
	6-302	Insulation rating for overhead consumer's service conductors
	6-400	Meter sockets served from underground supply systems
Section 8	8-104 A	Maximum continuous load on a circuit
	8-104 B	Variable demand characteristics
	8-106 A	Qualified person
	8-106 B	Demonstrated loads
	8-106 C	Load increases to existing services
Section 10	10-102	Use of single rod grounding electrodes
	10-112	Aluminum grounding conductors and connections
	10-210	Grounding conductor connections to service boxes
	10-700	Bonding of interior gas piping
Section 12	12-1	Preserved wood foundations
	12-010	Electrical equipment in return air plenums
	12-012 A	Direct buried cables and raceways beneath a concrete slab
	12-012 B	Conduits and cables installed in or under floors of residential attached garages
	12-100 A	Type USEB90 and USEI90 cables
	12-100 B	Control and instrumentation cables (ACIC & CIC)
	12-120 & 12-920	Plastic and hook and loop ties as conduit or cable supports
	12-618	Securing non-jacketted armoured cable with tie wire
	12-904 A	Conductors of the same circuit contained in the same raceway
	12-904 B	Wiring systems for modular office furniture
	12-920	Electrical raceway supports
	12-930	Raceways installed where moisture may accumulate
	12-1014	Pneumatic tubing in raceways
	12-1500	Electrical non-metallic tubing (ENT) installed outdoors
	12-3014	Electrical conduit fittings
	12-3032	Multi-section panelboards

Technical Interpretations

Section 14	14-012	Interrupting ratings of overcurrent devices
	14-606	Panelboard/splitter overcurrent protection
Section 16	16-200 to 16-226	Class 2 circuits, 30 volts or less
Section 18	18-250 to 18-254	Woodworking shops
Section 20	20-300	Spray booth field certification
Section 22	22-002 A	Walk-in freezers and coolers
	22-002 B	Greenhouses
	22-002 C	Area classifications for buildings housing livestock or poultry
	22-002 D	Ice Rinks
	22-704	Diagrams for sewage lift and treatment plants
Section 24	24-100	Patient care areas
Section 26	26-012	Use of fiberglass pads
	26-248	“Step-up / step-down” transformer circuit
	26-254	Choking transformers
	26-600	Panelboard mounting heights and headroom clearances in dwelling units
	26-652	Location of GFCI protection in flood hazard zones
	26-658 A	“Dead front” arc fault protection devices
	26-658 B, 26-704 & 26-706	Receptacles for buildings or structures associated with residential occupancies
	26-710	Receptacles for rooftop equipment
	26-722	Receptacles for kitchen islands and peninsulas
Section 28	28-202 & 28-702	Overcurrent protection marked on refrigerant motor compressors
Section 30	30-100	Approval of remote power supplies for LED luminaires
	30-104	Cord connected lighting
	30-400	Cord-connected non-recessed luminaires
	30-900	Installation of recessed luminaires in insulated spaces

Technical Interpretations

Section 32	32-000	Fire alarm systems
	32-200 A	Supply voltage for smoke and carbon monoxide alarms
	32-200 B	Circuits for heat sensors
Section 34	34-200	Approval of remote power supplies for LED signs
Section 36	36-1	Outdoor padmounted high voltage switchgear
	36-2	Grounding conductor to be installed with circuit conductors other than O/H systems
	36-000	Applicable CSA Part III standards for high voltage installations
	36-204	Accessible ground operated switch handles
	36-308 A	Grounding conductor size for LV secondary neutrals when xfmr primary exceeds 750V
	36-308 B	Neutral grounding requirement for pole mounted transformers
Section 46	46-202	Emergency generator sets
	46-304	Emergency lighting supplies
Section 62	62-104	Termination kits for trace heater cables
\Section 64	64-060	AC equipment disconnects with interactive inverters
	64-072, 64-074 & 64-200	Labelling
	64-112 A	Interactive point of connection
	64-112 B	Utility Disconnect
	64-112 C	Metering facilities and busbar ratings
	64-202, 64-210 & 64-220	Array installations in accessible locations
	64-918	Energy storage systems
Section 68	68-058	Bonding requirements for pools, tubs and spas
	68-404	Disconnecting means for spas and hot tubs

**Section 0
Object, Scope, and Definitions**

0-1 Point of Demarcation – Interface Point Between Utility Communication or Community Antenna Distribution Systems and Customer Systems
Section 0 Scope

The function of a communication or community antenna distribution utility ends at the point of demarcation as defined by the CRTC (Canadian Radio Telecommunication Commission). The point of demarcation is the physical point at which the utility’s equipment and wiring ends and the customer’s equipment and wiring begins. If located within the building, the point of demarcation shall be located as close as practicable to the point where the utility conductors enter the building.

Δ 0-2 Installation of Wireless Wall Switch
Section 0 Definitions: Switch

Wireless switches with no physical wiring or local control will not be acceptable to satisfy the requirements of wall switches installed in accordance with Rules 30-500 to 30-510. Such wireless switching shall be permitted as supplementary devices only.

**Section 2
General Rules**

2-1 Insulation and Vapour Barrier Behind Electrical Equipment

Note that the Manitoba Building Code requires the upper part of foundation walls enclosing a heated space to be insulated from the underside of the sub-floor to not less than 2.4 m (8 feet) below finished ground level. The insulation may be installed on the interior or the exterior of the foundation wall.

Installers are reminded that electrical equipment shall be installed to accommodate the vapour barrier and insulation requirements as per Sections 9.25. and 9.36 and Part 5 of the Manitoba Building Code.

Δ 2-004 A Electrical Permit

Rule 2-004 Electrical Permit

Generally, separate electrical residential permits (ER) are required for each civic address. Notwithstanding service conductors and dwelling unit panelboard feeders, electrical installations must be contained within the dwelling unit or the property it serves to which the permit was issued. Where practicable, feeders must be kept outside separately owned dwelling units they do not serve.

△ 2-004 B Permits Required for Furnace, HWT and A/C Replacements
Rule 2-004 Electrical Permit

Permits are required for the replacement of electrical equipment such as electric or gas furnaces, electric hot water tanks, air conditioning units, etc.

2-004 C Annual Electrical Permits
Rule 2-004 14) Electrical Permit

An annual permit can be issued to a contractor who holds an “A” or “B” electrical contractor licence. The annual permit is to perform minor electrical maintenance work to electrical facilities at a premise owned, leased or managed by the corporation, firm, company or government department so named on the permit application over the course of a calendar year. The permit covers “non-capital projects” of a routine maintenance nature such as replacement of ballasts, receptacles, luminaires and other electrical equipment that may require maintenance, replacement or relocation within a plant or facility, at the discretion of the Inspections Branch.

Annual permits do not cover projects where a separate electrical permit is required such as in the following examples:

- when a building permit is required such as for a general renovation or an addition;
- hazardous locations including paint booths;
- fire alarm installations or modifications;
- new services or service repairs;
- modifications to an electrical distribution other than like for like panel replacement or breaker replacement;
- new production lines;
- upgrading of multiple pieces of mechanical or electrical equipment not due to failure.

The electrical contractor will be responsible for maintaining and supplying to the Inspections Branch, prior to the Inspector’s site visit, a record for each property of all work done, locations, quantities and by whom. The permit holder is required to contact the Electrical Inspector in March, June, September and December to arrange for the quarterly and final inspections and to close the permit. Contractors should note that any defects will be subject to extra inspections fees as noted in the Fees and Charges Schedule.

2-024 A Breakers of Differing Manufacturers Installed in Panelboards
Rule 2-024 Use of Approved Equipment

Breakers to be installed in existing or new panelboards shall be approved for use in that panelboard. Manufacturer documentation must be supplied by the installer.

2-024 B Field Modifications of Electrical Equipment
Rule 2-024 Use of Approved Equipment

Any field modification of electrical equipment voids the existing certification on the equipment (e.g.: drilling or tapping bus work or modifications to switchboards, panelboards, MCC’s or other

equipment). The modified equipment shall be re-certified by an organization accredited by the Standards Council of Canada.

2-024 C Approval of Electrical Equipment

Rule 2-024 Use of Approved Equipment

Under the Provisions of the *Electrician's Licence Act* of the Province of Manitoba, electrical equipment shall be approved before the equipment is used, sold, displayed, advertised, offered for sale or distributed in Manitoba except as specified herein.

The following will not be deemed as electrical equipment and therefore is not required to be approved or certified under *the Electrician's Licence Act* and the Winnipeg Electrical By-law:

1. A maximum of four contactors or relays installed in an approved electrical box ("control box") provided that:
 - a) The ampere rating of the control box shall not exceed 20 amperes;
 - b) The control box must have a permanent nameplate installed stating the electrical characteristics as stipulated in the Winnipeg Electrical By-law;
 - c) The control box must have a schematic wiring diagram permanently installed in its interior;
 - d) There shall not be any other electrical equipment (such as control transformers, indicating lights or overload devices) installed in or on the control box;
 - e) The control box must be marked "WARNING: MORE THAN ONE LIVE CIRCUIT" if it is energized from more than one circuit and does not have a means for disconnecting all ungrounded conductors;
 - f) The control box shall only be installed in an ordinary location as stipulated in the Winnipeg Electrical By-law; and
 - g) The installation within the control box is performed by the holder of a valid Journeyman Electrician or applicable Limited Electrician license as recognized under the *Electrician's Licence Act* of Manitoba.

2-024 D Electrical Equipment Disconnecting Means

Rule 2-024 Use of Approved Equipment

All disconnecting means required by the Winnipeg Electrical Bylaw shall be field installed external to the equipment. All integral disconnecting means will only be considered acceptable when:

- Specifically permitted in the Winnipeg Electrical Bylaw, and
- The associated CSA Part II Standard has provisions for the installation and marking of the required disconnect.

2-024 E Circuit Breaker Locking Devices

Rule 2-024 Use of Approved Equipment

In addition to being approved by an Accredited Certification Organization, circuit breaker lock-off and lock-on devices must be identified with the type or catalogue number of the circuit breaker with which it may be used and shall also comply with the following:

- a) Accommodate a padlock that will prevent the operation of the circuit breaker or switch with the padlock in place;
- b) Not depend on the panel enclosure cover to retain the device in place;
- c) Require the use of a tool for removal.
- d) Not interfere with the intended operation of the circuit breaker or switch;
- e) Ensure that the “on-off” marking for the circuit breaker or switch is clearly visible with the padlocking attachment in place;
- f) Have the necessary mechanical strength to ensure reliable and positive mechanical performance;
- g) Be permanently installed; and
- h) Be tested to ensure it operates as intended.

When an approved circuit breaker lock-on or lock-off is required for an installation, it is recommended the breaker manufacturer be consulted for availability prior to the installation.

2-112 Mechanical Protection of Conductors Installed in Metal Studs

Rule 2-112 Quality of Work

For conductors/cables installed under Sections 12, 16, 54, 56 & 60, Rule 2-112 requires that care be taken to prevent damage. Grommets or other acceptable means shall be provided to prevent damage to conductors that are to be installed through metal studs.

Δ 2-126 Grouping of Cables in Insulated Spaces

Rule 2-126 Use of Thermal Insulation

Subrule 1) a) of Rule 2-126 requires the use of “special care” to assure safe conductor operating temperatures when heat dissipation is restricted by conductor/cable grouping in thermal insulation.

The practice of bunching or grouping more than two cables in thermal insulation is not acceptable.

2-128 Firestopping

Rule 2-128 Fire Spread

To delay the spread of fire within a building, certain walls, floors and ceilings are constructed as “fire separations” (See Note 1). Rule 2-128 and Manitoba Building Code Article 3.1.9.1. require that precautions be taken to limit the spread of fire through fire separations where they are penetrated by electrical raceways, cables, or outlet boxes (See Note 2).

Listed below are requirements for commonly encountered situations.

1. Where a fire separation is partly or wholly penetrated by an electrical raceway, cable or outlet box, the penetration shall be:
 - a) sealed by an approved fire stop system that complies with Manitoba Building Code Clause 3.1.9.1.(1)(a); or
 - b) cast in place.
2. Where a firewall (see Note 3) is partly or wholly penetrated by an electrical raceway, cable or outlet box, the penetration shall be sealed using an approved fire stop system that complies with Manitoba Building Code Clause 3.1.9.1.(2).

Notes:

1. *Manitoba Building Code Article 3.1.9.1. refers to both “fire separations” and “assemblies required to have a fire resistance rating”. For ease, only the term “fire separation” is used in this item.*
2. *This item deals only with fire stopping. The Manitoba Building Code Articles 3.1.9.2., 3.1.9.3., and 9.10.9.6. must be consulted for the size and type of electrical penetrations that are permitted.*
3. *A “firewall” is designed to limit the spread of fire from one building to another, whereas a fire separation is only designed to limit the spread of fire within a building. A firewall also has structural requirements to maintain its integrity in a fire event. Firewalls are most frequently constructed of masonry.*

△ 2-400

Non-Rated Enclosures for Electrical Equipment

Rule 2-400 Enclosures, Type Designations, and Use

Enclosures for electrical equipment shall be of the type for use in their environment as per Table 65. The practice of installing non-rated electrical equipment in weatherproof enclosures is not acceptable. Equipment located outdoors must be rated for outdoor use unless it is installed in an enclosure that is constructed as an electrical room (i.e.: with a floor). Any unfinished structure is not an “electrical room,” even if it has a shingled roof.

Note that the meter height relaxations noted in the Manitoba Hydro Customer Metering Standards only apply to multiple metering centres installed in dedicated electrical service rooms.

This will also be enforced for services falling under the requirements of Section 76, Temporary wiring. Enclosures for temporary services are not “electrical service rooms” and must contain rated equipment.

Installers are reminded that electrical service rooms shall be constructed in accordance with the MBC and all Zoning By-Laws.

2-402

Enclosures with Ingress Protection (IP) Designations Only

Subrule 2-402 2) Marking of Enclosures

Ingress protection (IP) designations are not recognized by the Winnipeg Electrical By-law. Enclosures marked with IP designations ONLY will not be accepted for installation. Enclosures marked with the designations noted in Table 65 will be accepted for installation.

2-404 Marking of Motors Controlled by VFDs/ASDs
Rule 2-404 Marking of Motors

Variable frequency drive (VFD) or adjustable speed drive (ASD) controlled motor installations require the appropriate marking on the motors as follows:

New Installations:

Motors and VFDs intended for use in a variable speed application must be compatible and motors must be marked accordingly.

Existing Installations:

Where a new VFD is being installed to control an existing motor, owners and installers are responsible for assessing the compatibility of the motor with the corresponding VFD. The Development and Inspections Division will require a record of the compatibility assessment information and documentation from the motor manufacturer ensuring the motor is compatible with the VFD.

Refer also to Appendix B notes for Rules 18-106 and 28-314.

Section 4
Conductors

4-004 A Single Conductor Cables
Rule 4-004 Ampacity of Wires and Cables

Where the ratings of Tables 1 or 3 are being applied, at least 50% of the total cable length shall be outside the equipment being connected.

4-004 B Ratings of Conductors in Fibre Spacers, Metal Throats and Nipples
Item 4-004 7) a) Ampacity of Wires and Cables

Fibre Spacers, metal throats and nipples not longer than 150 mm in length may be treated as auxiliary gutters in accordance with Rule 4-004 7) a) in which case no de-rating for multiple conductors need be applied to the Table 2 or 4 ratings.

Section 6
Services and Service Equipment

6-1 Underground Supply Service Termination Requirements

The minimum size of rigid conduit required from a meter mounting device or a customer owned supply service termination enclosure to the supply trench to accommodate Manitoba Hydro supply conductors is shown in the table below.

These sizes are based on a maximum conduit fill of 40% in accordance with the Winnipeg Electrical Bylaw governing customer owned installations. Some conduit sizes have been increased to accommodate installation.

Confirmation of the cable size should be obtained from your local Manitoba Hydro Customer Service Centre prior to installation of this conduit.

Insulated Conductor Size	Minimum Conduit Size	Maximum Number of Conductors
1/0 AWG	53 (2")	5
4/0 AWG	63 (2½")	3
3-4/0 & 1-#2	63 (2½")	4
350 KCMIL	78 (3")	4
750 KCMIL	129 (5")	4
1000 KCMIL	155 (6")	5

6-2 Manitoba Hydro Owned Farm Service Poles and Structures

Manitoba Hydro will not normally permit customer owned electric service facilities to be located on Manitoba Hydro owned poles and structures.

Where customer owned facilities are attached to Manitoba Hydro poles and structures, including existing farm service poles, the following procedures shall be adhered to:

When the customer requires work to be conducted on electric facilities located more than 3m above grade on a Manitoba Hydro owned pole or structure, the primary supply shall be de-energized by Manitoba Hydro staff before any work is carried out.

6-3 Attachments to Manitoba Hydro Poles

Except for an overhead service attachment to the secondary rack on a farm yard pole, no attachments may be made to a Manitoba Hydro pole without written permission. Anyone wishing to install a standby transfer switch or splitter for underground wiring or a sign or any other item on a Manitoba Hydro pole must apply to the local District Office giving the location and details of the installation

6-110 Small Services

Rule 6-110 Three-Wire Consumer’s Services

Rule 6-110 states:

“A three-wire consumer’s service shall be provided in all cases where more than two 120V branch circuits are installed, unless such supply is not available from the supply authority.”

Refer to Section 0 definitions for Consumer’s Service and Service Box.

Intent of this rule:

An overcurrent device is required ahead of a panelboard containing more than two circuits.

△ 6-112 A Alterations of Existing Residential Electrical Services

Rule 6-112 Support for the Attachment of Overhead Supply or Consumer's Service Conductors or Cables

When altering an existing consumer's residential service, the existing supply service attachment point will be acceptable provided:

- the building is a single detached dwelling;
- the service attachment point is acceptable to the utility;
- the existing conduit is of sufficient size;
- the service drop clearances in effect at the time of installation have not been decreased through landscaping, addition of buildings, pools, decks, etc.; and
- the attachment point is not less than 3 m above grade except that a variance of 150 mm may be accepted at the discretion of the Inspection Department.

Any alterations not meeting all of the conditions above must meet current code requirements.

NOTE: *Prior to 1972, a 9 foot (2.7 m) service head and supply service clearance was in effect; between 1972 and 1980, this was increased to 11 feet (3.5 m).*

6-112 B Service Masts and Attachments

Rule 6-112 Support for the Attachment of Overhead Supply or Consumer's Service Conductors or Cables

Prior to installing the supply service attachment means, the supply authority shall be consulted to determine whether a single or multi-point rack will be required.

NOTE: *When metal racks are being installed as support for the attachment of overhead consumer's service conductors, they shall be welded or bolted through. The use of spring nuts or similar items will not be accepted.*

6-112 C Means of Attachment

Rule 6-112 Support for the Attachment of Overhead Supply or Consumer's Service Conductors or Cables

A means of attachment shall be provided for all supply or consumer's service conductors. The attachment shall be a service mast or attachment provided by the customer on a building or a customer owned service pole at a location that is acceptable to the supply authority.

NOTE: *When poles are installed they shall be a minimum of a class 6 pole and must be treated with a wood preservative. A timber or post will not meet the requirements of this rule.*

6-116 Aerial Service Attachment

Rule 6-116 Consumer's Service Head Location

Rule 6-116 of the Code has been relaxed to allow the attachment point of an aerial service to be at the same height as the service head where an under-eave bracket is used.

NOTE: *An under-eave bracket shall be used for its intended purpose and shall not be wall mounted.*

△ 6-200 A Consumer's Service Boxes

Rule 6-200 Service Equipment

1. The requirements of 6-200 2) are relaxed to permit outdoor subdivisions of a consumer's service to be made:
 - a) In a transformer rated meter mounting device approved with dual lugs on the load side in a residential application; or
 - b) In an acceptable Customer Service Termination Enclosure (CSTE)
2. For the application of Rule 6-104, each subdivision permitted in Item 1. above shall be considered a consumer's service.
3. Each subdivision of the consumer's service shall terminate in a single service box.
4. No other service may be attached to the consumer's supply service.

△ 6-200 B Hot Splitters

Rule 6-200 Service equipment

Where existing electrical services utilize "hot splitters," no more than four subdivisions are allowed. The City of Winnipeg will no longer accept alterations or additional sub-divisions from existing hot splitters in single dwellings. Should the relocation or addition of loads beyond the capacity of the service, as determined by Rule 8-106 8), require service changes, a single service box in accordance with Rule 6-200 will be required.

When replacing an existing 200 Amp hot splitter with a 200 Amp service box or combination panel in a residential application, existing #2/0 copper service conductors may be re-used.

Notes:

1. *Main breaker lugs **must** be sized to accommodate the service conductors.*
2. *Refer to T.I. 2-1 for insulation requirements behind electrical equipment.*
3. *In single dwellings, the repair of an existing service or replacement of the main breaker in an existing panel due to malfunction or the addition of any circuit breakers in an existing panel are permitted without replacement of the existing hot splitter.*

△ 6-200 C Use of Multi-Position Meter Sockets

Rule 6-200 Service Equipment

As per Rule 6-200 2), multi-position meter sockets may be use to subdivide a consumer's service within the restrictions of Rule 6-104. When using a multi-position meter socket for this purpose (i.e.: no service box installed ahead of the meter assembly), the consumer's service conductors must be sized to suit the rating of the meter assembly. Designers and installers

should note that this may require service conductors to be sized greater than what the demand factor calculations in Section 8 allow.

For installations where the ampacity of the service conductors is less than the rating of the meter assembly, a service box must be installed ahead of the service subdivision.

Where the sum of the subdivisions exceeds the rating of the multi-position meter assembly and no service box is installed ahead of the service subdivisions, each service switch, panelboard and the meter assembly shall be marked in a conspicuous, legible and permanent manner with a label consisting of a red background with white lettering stating "No Additional Loads."

△ 6-206 Existing Services and Panelboards Located Below the Flood Elevation
Item 6-206 Consumer’s Service Equipment Location

Item 6-206 1) c) v) does not allow a service box or other consumer’s service equipment to be located in areas below the flood elevation. An existing service entrance rated panelboard installed before August 15, 1981 may be replaced in the same location in accordance with the Manitoba Regulation 266/91 Section 8, Item (b), however service upgrades are required to meet current Code.

6-302 Insulation Rating for Overhead Consumer’s Service Conductors
Subrule 6-302 5) Overhead Consumer’s Service Conductors

For compliance with Subrule 6-302 5), conductor/cable insulation shall be rated for -40°C.

6-400 Meter Sockets Served from Underground Supply Systems
Rule 6-400 Metering Equipment

Single phase meter sockets and meter troughs served from underground supply systems shall be factory equipped with studs on the line side to provide for the connection of compression type wire connectors.

Note: This requirement is not enforced for a combination meter socket and breaker (farm metering unit) or 7 jaw meter sockets.

Section 8
Circuit Loading and Demand Factors

8-104 A Maximum Continuous Load on a Circuit
Rule 8-104 Maximum Circuit Loading

Contractors and designers are cautioned that the maximum continuous load on a circuit is limited under Subrules 8-104 5) and 6) and is based on the circuit rating which is, as per Subrule 1), the lesser of either the rating of the overcurrent device or the allowable ampacity of the conductors.

Designers should also be aware that when using conductors with an allowable ampacity less than the rating of the overcurrent device as permissible by Table 13, the maximum continuous load permitted on the circuit is reduced accordingly.

As per Subrule 2-100 4), where the maximum continuous load is less than the continuous operating marking of the overcurrent device, e.g.: less than 320A on a circuit protected by a 400A breaker marked for 80% operation or less than 400A on a circuit protected by a 400A breaker marked for 100% operation, a lamicoid label must be permanently affixed to the overcurrent device enclosure stating "MAXIMUM CONTINUOUS LOAD ____A."

The following sample calculations are offered using a 400A overcurrent device:

Conductors in Free Air
Tables 1 and 3

Non-Continuous Load Rule 8-104	Continuous Load using 100% rated equipment Rule 8-104 5) b)	Continuous Load using 80% rated equipment Rule 8-104 6) b)
max. allowable circuit loading = 100% of 400A = 400A	max. allowable circuit loading = 85% of 400A = 340A	max. allowable circuit loading = 70% of 400A = <u>280A</u>
Minimum conductor allowable ampacity = 400A	Minimum conductor allowable ampacity = 400A	Minimum conductor allowable ampacity = 400A
	max. allowable circuit loading = 100% of 400A = 400A	max. allowable circuit loading = 80% of 400A = <u>320A</u>
	Minimum conductor allowable ampacity = 471A	Minimum conductor allowable ampacity = 458A

Multi-Conductor Cable and Raceways
Tables 2 and 4

Non-Continuous Load Rule 8-104	Continuous Load using 100% rated equipment Rule 8-104 5) a)	Continuous Load using 80% rated equipment Rule 8-104 6) a)
max. allowable circuit loading = 100% of 400A = 400A	max. allowable circuit loading = 100% of 400A = 400A	max. allowable circuit loading = 80% of 400A = 320A
Minimum conductor allowable ampacity = 400A	Minimum conductor allowable ampacity = 400A	Minimum conductor allowable ampacity = 400A

Refer to Rule 8-104, Subrules 5) & 6) in the CE Code Handbook for additional examples.

△ 8-104 B Variable Demand Characteristics
Rule 8-104 Maximum Circuit Loading

Where only a single maximum ampacity is listed on the equipment nameplate for electrical equipment capable of variable demands, the equipment shall be wired to the ampacity displayed on the nameplate.

8-106 A Qualified Person
Rule 8-106 Use of Demand Factors

For the purposes of the Subrules of Rule 8-106, a “Qualified Person” shall be an engineer licensed to practice in the Province of Manitoba and skilled in the appropriate area of work.

8-106 B Demonstrated Loads
Subrule 8-106 Use of Demand Factors

Designers wishing to use demonstrated loads to determine an acceptable service size for a building as allowed in Subrule 8-106 9) may do so only with pre-approval from a designated employee of the City of Winnipeg Commercial Electrical Plan Examination or Commercial Electrical Inspections branches.

Note that pre-approval for the use of demonstrated loads will only be considered for buildings of similar size, height, occupancy, location, use and function and will not be considered for residential, multi-residential or large industrial buildings. Data must be provided for a 24-month period as noted in Rule 8-002, Special Terminology for Demonstrated Load.

8-106 C Load Increases to Existing Services
Rule 8-106 Use of Demand Factors

Installers should note that Manitoba Hydro requires notification prior to a load increase of 10 kVA/kW/hp or more to any existing service. Furthermore, in the Underground Secondary Network Area, Manitoba Hydro requires notification prior to the addition of 5 hp or more to an existing single phase service.

Section 10
Grounding and Bonding

10-102 Use of Single Rod Grounding Electrodes
Rule 10-102 Grounding Electrodes

- 1. Item 10-700 2) a) for manufactured rod grounding electrodes has been relaxed in its application to permit the use of a single copper-clad rod as a grounding electrode provided the following conditions have been met:
 - a. The service is single phase and not greater than 200 amperes and 150 volts to ground; and

- b. The service is temporary or supplies a bus shelter, cable television distribution equipment, or other similar installation.
 - c. The service supplies a sign and is not greater than 100 Amps and 150 Volts to ground.
2. When a temporary builder's service is located 3 m or less from the supply utility's pad-mounted transformer or cable trench, the supply utility's grounding electrode shall be used in lieu of a customer owned grounding electrode. The customer must supply a grounding conductor between the temporary builder's service and the pad mounted transformer. A customer owned grounding electrode will not be acceptable in order to reduce the risk of damaging buried conductors.

10-112 Aluminum Grounding Conductors and Connections

Rule 10-112 Material for Grounding Conductors

Rule 10-112 permits the use of aluminum grounding conductors only when resistance to corrosion has been considered. Aluminum grounding conductors and connections installed in any corrosive environment must have corrosion protection. For example, bare aluminum grounding conductors or connections to a grounding electrode installed in contact with masonry or earth are subject to corrosion and will not be permitted. For more information see the Appendix B note to rule 10-112.

It is strongly recommended that installers use copper grounding conductors and connections when installing services.

10-210 Grounding Conductor Connections to Service Boxes

Rule 10-210 Grounding Connections for Solidly Grounded AC Systems Supplied by the Supply Authority

For the application of Item 10-210 1), grounding conductors shall not be terminated in meter mounting devices, transformer rated meter mounting devices, network termination enclosures (NTEs) or customer service termination enclosures (CSTE's).

Note: Rule 6-308 permits the service neutral to be bare. The grounded service conductor (neutral) on the supply side of the service box may be insulated or bare and will be permitted to bond the meter mounting device.

10-700 Bonding of Interior Gas Piping

Rule 10-700 Equipotential Bonding of Non-Electrical Equipment

For the gas pipe bonding requirements in single dwellings, the bonding conductor supplied as an integral part of a cable assembly supplying the appliance may be considered a suitable bonding conductor for the circuit supplied by that cable assembly and may be deemed to meet the intent of Subrule 10-700 c).

**Section 12
Wiring Methods**

12-1 Preserved Wood Foundations

Installers are advised that the Manitoba Building Code requires preserved wood foundations to conform to CSA Standard CAN/CSA S406-92, "Construction of Preserved Wood Foundations." This Standard requires that where receptacles or other wiring is placed in exterior walls of a preserved wood foundation, the wiring shall be run vertically within a single stud space, with holes drilled only in the top plates.

Holes are not permitted to be drilled through studs in preserved wood foundations, according to Standard S406-92.

Δ 12-010 Electrical Equipment in Return Air Plenums

Rule 12-010 Wiring in Ducts and Plenum Chambers

In order to comply with Manitoba Building Code Article 3.6.4.3., Plenum Requirements, flame spread requirements and smoke developed classifications must be met for electrical equipment installed in plenums. Transformers and other types of electrical equipment do not meet these requirements and therefore are not permitted to be installed in plenums.

12-012 A Direct Buried Cables and Raceways Beneath a Concrete Slab

Rule 12-012 Underground Installations

For Subrule 12-012 8), a concrete slab at grade level denotes a building floor slab.

12-012 B Conduits and Cables Installed in or Under Floors of Residential Attached Garages

Rule 12-012 Underground Installations

Conduits or cables shall not be run in or under the floors of residential attached garages unless installed to meet the minimum cover requirements of Table 53.

Δ 12-100 A Type USEB90 and USEI90 Cables

Rule 12-100 Types of Insulated Conductors and Cables

USEB and USEI cables may only be used where a portion of the cable installation is underground.

Δ 12-100 B Control and Instrumentation Cables (ACIC & CIC)

Rule 12-100 Types of Insulated Conductors and Cables

Type ACIC and CIC cables are approved under CSA Part II Standards as control and instrumentation cable only and will not be permitted for use as a feeder or branch circuit in accordance with Table 19.

△ **12-120 Plastic and Hook and Loop Ties as Conduit or Cable Supports**
12-920 Rule 12-120 Supporting of Conductors
Rule 12-920 Support of Raceways

Plastic and hook and loop style cable ties (e.g. Velcro) will be not be accepted as a supporting means for overhead conductors, cables and raceways.

Cable Ties will be permitted to secure cables where the weight of the cable is supported in an acceptable manner such as in a cable tray or on top of a unistrut type of supporting means.

△ **12-618 Securing Non-Jacketted Armoured Cable with Tie Wire**
Rule 12-618 Running of Cable Between Boxes, etc.

Galvanized tie wire is not an approved method of supporting cables or raceways but will be permitted to provide support for armoured cables inside a finished wall only. All armoured cables located outside a finished wall shall be supported with an approved strap or device.

12-904 A Conductors of the Same Circuit Contained in the Same Raceway
Rule 12-904 Conductors in Raceways

All conductors of the same circuit shall be contained within the same raceway, unless otherwise permitted in accordance with 12-108 or 4-004 1) d) and 2) d).

12-904 B Wiring Systems for Modular Office Furniture
Rule 12-904 Conductors in Raceways

Office areas are often designed with relocatable partitions that are pre-wired with communication and or branch circuit wiring by the manufacturer. Before connecting such equipment to the building wiring system, installers are advised to carefully check the manufacturer's installation instructions and equipment marking. In some cases, there may be a restriction on the number of circuits or sources that are permitted to supply the pre-wired furniture.

Code users are reminded that where such circuits are supplied from different transformers or different sources of voltage, the circuits shall be separated in accordance with Subrule 12-904 2).

12-920 Electrical Raceway Supports
Rule 12-920 Support of Raceways

Electrical raceways shall be securely fastened in place. The use of suspended ceiling support wires or tie wires are not considered an acceptable means of fastening a raceway.

12-1014 Pneumatic Tubing in Raceways

Rule 12-1014 Insulated Conductors and Cables in Conduit

Electrical raceways may only be used for the purpose of carrying electrical conductors. An exception will be permitted to allow pneumatic tubing in a raceway where all the electrical conductors are designated as Class 2 circuits.

Conduit fill for such raceways shall be calculated in accordance with the requirements of Rule 12-910 using the diameter of the tubing where the Rule specifies “cable diameter.”

12-1500 Electrical Non-Metallic Tubing (ENT) Installed Outdoors

Rule 12-1500 Use of Electrical Non-metallic Tubing

Electrical non-metallic tubing shall not be installed exposed in exterior locations unless specifically approved for sunlight resistance, and so marked as per 2-134, and provided with the required mechanical protection.

12-3014 Electrical Conduit Fittings

Rule 12-3014 Accessibility of Junction Boxes

Under the requirements of Rule 12-3014 1), conduit fittings (LB’s, T’s, etc.) equipped with a cover shall be accessible.

Δ 12-3032 Multi-Section Panelboards

Rule 12-3032 3) Wiring Space in Enclosures

Where two or more panelboard interiors are provided in a single enclosure complete with a factory-installed metal barrier between them, each panelboard section is deemed a separate enclosure and therefore no branch circuit conductors terminating in any one of the panelboards may be fed through the adjacent panelboard.

**Section 14
Protection and Control**

14-012 Interrupting Ratings of Overcurrent Devices

Rule 14-012 Ratings of Protective and Control Equipment

Under the requirements of Rule 14-012, electrical equipment which is required to interrupt fault current, (breakers, fuses and switches) must have ratings sufficient for the voltage employed and for the fault current available at the terminals.

The maximum fault current available at any location is governed by a number of criteria and must therefore be calculated for each installation. Fault current information for individual installations must be obtained from Manitoba Hydro.

To ensure compliance with Rule 14-012, electrical drawings submitted for review shall indicate the expected available fault current and the interrupting ratings of all equipment required to interrupt the fault current.

The following criteria will apply to all fault current calculations:

- 1. The calculation will assume an infinite primary bus.
- 2. The percent impedance for transformers will be the percent impedance of the installed transformer.

Important Note:

For installations for all new services or modifications to existing services within the 125/216V underground secondary network area, service entrance equipment must consist of a circuit breaker or circuit breaker/fuse combination with a rupturing capacity of at least 100,000 Amperes or a disconnecting switch equipped with minimum 100,000 Amperes high rupturing capacity fuses.

Section 16
Class 1 and Class 2 Circuits

16-200 to 16-226 **Class 2 Circuits, 30 Volts or Less**
16-200 to 16-226 Class 2 Circuits

- 1. Class 2 Circuits shall be supplied from Class 2 transformers, or
 - a) A Class 2 power supply or device; or
 - b) Where the voltage does not exceed 20 volts, a 5 ampere (maximum) mini circuit breaker or a 5 ampere non-interchangeable fuse.
- 2. Lighting products, electromedical equipment, equipment for hazardous locations and thermostats incorporating heat anticipators shall be approved in accordance with Subrule 16-222 2).
- 3. The wiring method on the load side of the Class 2 power supply may conform to the applicable requirements of Section 16 of the Code for a Class 2 system.
- 4. The wiring method on the line side of the Class 2 power supply shall conform to the applicable requirements of Section 12 of the Code.
- 5. The Power Supply shall be located and installed in an acceptable manner.

**Section 18
Hazardous Locations**

△ **18-250
to
18-254**

**Woodworking Shops
Rules 18-250 to 18-254 Installations in Zone 22 Locations**

Classification

Woodworking shops are considered to be Zone 22 locations. The following relaxations to Zone 22 requirements will be permitted where adequate dust control equipment is installed and interlocked. For items not specifically listed below, Zone 22 requirements shall apply.

1. Wiring Methods

- a) Surface wiring may be Electrical Metallic Tubing (EMT) utilizing couplings and connectors approved for wet locations. Boxes and fittings shall comply with Subrule 18-252 2).
- b) Concealed wiring may be type AC or NM cable. Concealed boxes and fittings may be ordinary type.
- c) Surface mounted boxes and fittings shall comply with Subrule 18-252 2).
- d) Surface mounted enclosures for equipment disconnects must be marked as suitable for circulating dust as per Table 65.

2. Covers for Switches and Receptacles

Switch and receptacle covers may be of the type marked suitable for wet locations; covers marked Extra Duty (i.e.: in-use covers) are not acceptable. Where duplex receptacles are used, a separate self-closing cover will be required for each section of the receptacle.

3. Lighting

General purpose fluorescent luminaires other than those with T5 lamps, may be installed:

- a) If mounted directly on the ceiling; or
- b) If suspended, provided with adequate dust shields to prevent the accumulation of dust.

LED luminaires, exit signs and emergency lights must be of dust tight construction with a minimum NEMA rating of Type 4 or 12.

4. Heating

Unit electric air heaters, other than those approved for the location, will be permitted provided the following requirements are met:

- a) Motors are of the totally enclosed type;
- b) The unit is designed to minimize the accumulation of dust and other debris;
- c) The enclosures for electrical parts of the heater shall prevent the entrance of dust; and
- d) The exposed surface* temperature of the heater shall not exceed 165 degrees Celsius under normal conditions and 218 degrees Celsius under abnormal conditions such as fan failure.

* Exposed surface means a surface exposed to the air, e.g. motor enclosure, heater sheath, etc. A “GX” rated heater will generally meet these requirements.

5. **Equipment**

All other types of woodworking equipment in the hazardous location shall be of dust tight construction.

**Section 20
Flammable Liquid and Gasoline Dispensing, Service Stations, Garages, Bulk Storage
Plants, Finishing Processes, and Aircraft Hangars**

**Δ 20-300 Spray Booth Field Certification
Rules 20-300 to 20-314 Finishing Processes**

Site assembled spray booths require a field evaluation by an accredited field evaluation agency.

The agency must be accredited for the certification of electrical equipment intended for use in, or that creates, a hazardous location.

**Section 22
Locations in Which Corrosive Liquids or Vapours
or Excessive Moisture are likely to be Present**

**22-002 A Walk-In Freezers and Coolers
Rule 22-002 Category Definitions – Appendix B**

Walk-in freezers are considered Category 1, wet locations, and walk-in coolers are considered ordinary locations in accordance with the definitions in Section 0.

**Δ 22-002 B Greenhouses
Rule 22-002 Category Definitions – Appendix B**

Greenhouses are considered a Category 1 (wet) location. Greenhouses provided with positive mechanical ventilation could be reduced to a lesser classification when supported by a document sealed by an engineer licensed to practice in the Province of Manitoba and skilled in the area of work detailing the measures taken to reduce the classification and what the new classification is.

**Δ 22-002 C Area Classifications for Buildings Housing Livestock or Poultry
Rule 22-002 Category Definitions – Appendix B**

Dairy barns and stables for horses are considered Category 1, wet locations. All other buildings housing livestock or poultry are considered “Category 2 Wet” locations, i.e.: Category 1 wet and Category 2 corrosive locations.

- a) Category 1 and Category 2 Wet locations shall only contain electrical equipment essential to that operation. Electrical equipment installed in these areas shall be approved, and marked accordingly for that environment.
- b) Enclosure designations and markings for Category 2 Wet locations shall comply with Rule 2-400 and Table 65 for corrosive areas, and hose-down and splashing water (minimum 4X-wet and corrosive). The City of Winnipeg reserves the right to request certified test reports that demonstrate the equipment meets all applicable CSA Part 2 standards. Ingress Protection (IP) standards and markings are not acceptable.

Δ 22-002 D Ice Rinks

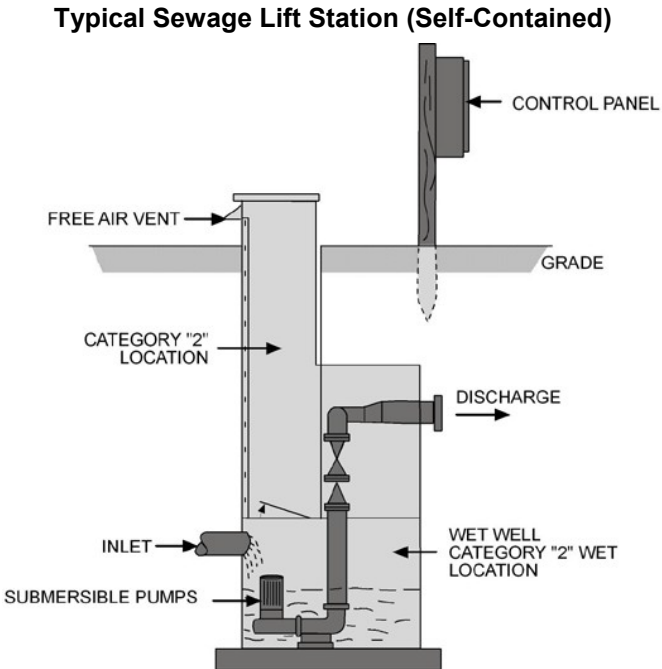
Rule 22-002 Category Definitions – Appendix B

For ice rinks, the area containing the ice surface is considered a Category 1, wet location. Rinks provided with positive mechanical ventilation could be reduced to a lesser classification with an engineer stamped document stating measures taken and the new classification.

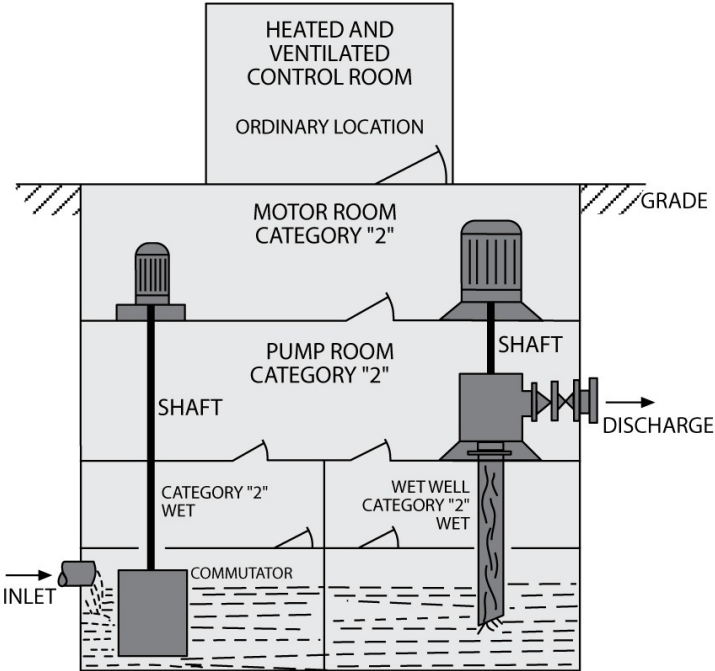
22-704 Diagrams for Sewage Lift and Treatment Plants

Rule 22-704 Classification of Areas

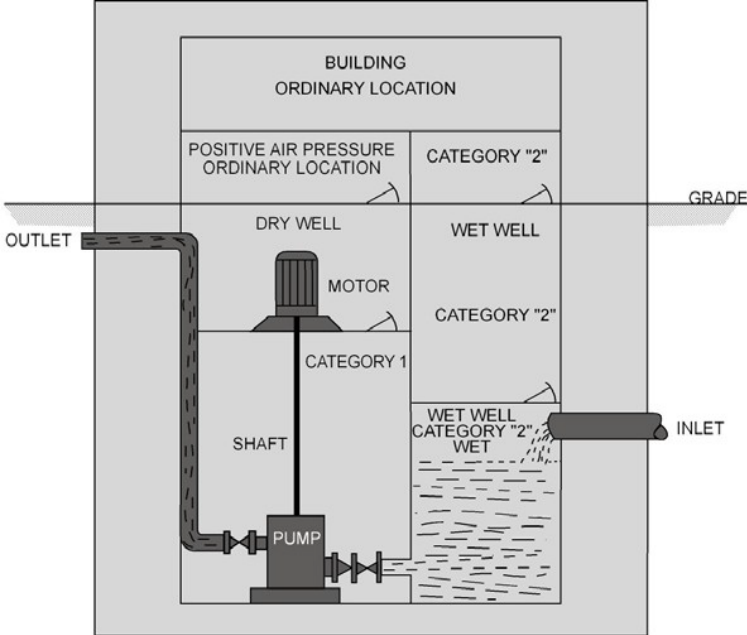
The following diagrams detail typical installations and area classifications for sewage lift and treatment plants:



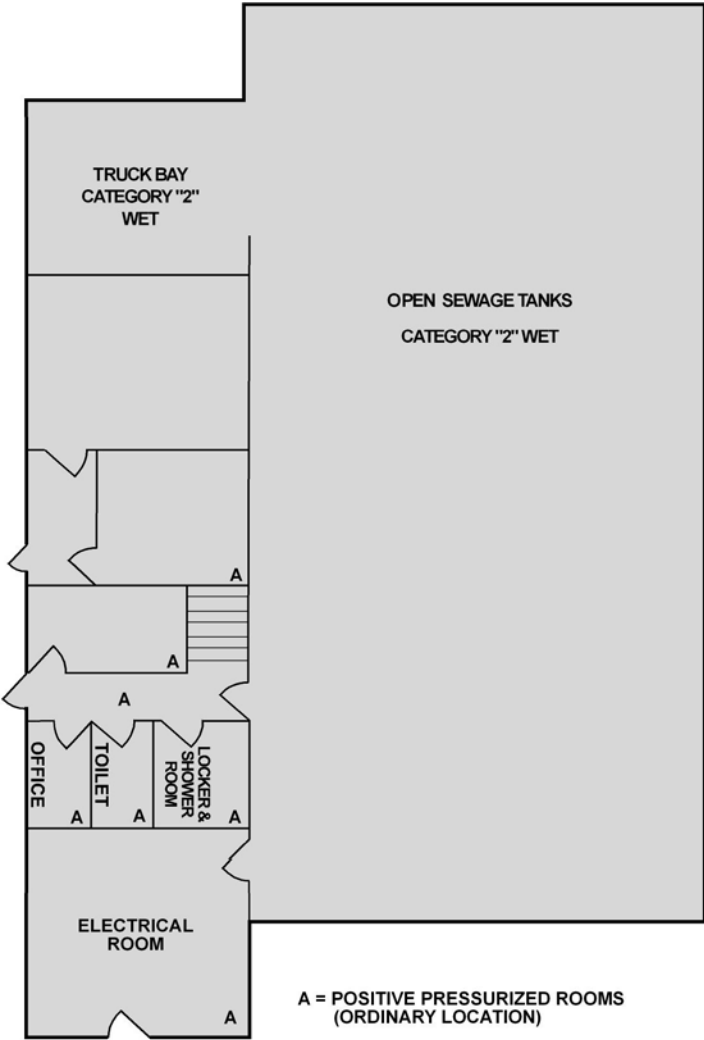
Typical Sewage Lift Station (Control Building on top of wet well)



Typical Sewage Lift Station (Side-by-Side)



Typical Sewage Treatment Plant



Section 24
Patient Care Areas

△ 24-100 Patient Care Areas
Rule 24-100 Rules for Patient Care Areas

The Patient Care Area Declaration Form identifying patient care areas, or the absence thereof, must be submitted for **all** projects for health care facilities.

Refer to the Guide to Patient Care Areas for additional information and requirements.
winnipeg.ca/ppd/Documents/InfoCentre/Electrical/Patient-Care-Areas-Guide.pdf

Section 26
Installation of Electrical Equipment

△ 26-248 "Step-Up / Step-Down" Transformer Circuit

Rule 26-248 Disconnecting Means for Transformers

For the application of this Rule, where a transformer is installed to step up voltage to reduce voltage drop and then stepped down using another transformer to feed the load, a separate disconnecting means will be required in the primary circuit of each transformer in such a "step-up/step-down" application. The disconnect for the step- down transformer shall be located within sight of and within 3 m of the transformer.

△ 26-254 Choking Transformers

Rule 26-254 Overcurrent Protection for Dry-Type Transformer Circuits Rated 750V or Less

As per the transformer manufacturer, "choking" of transformers smaller than 75 kVA may not be permitted. Transformers 75 kVA or larger shall be permitted to be "choked" by a maximum of one standard transformer size.

Example: If primary overcurrent protection adequate for a 75 kVA, 600 Volt transformer is installed (i.e.: 80 Amp circuit breaker), the maximum larger size transformer permitted to be installed with that size of overcurrent device is 112½ kVA (i.e.: one standard transformer size larger). See table below:

3 phase xfmr. size (kVA)	Minimum allowable overcurrent for choked xfmr.
75	44 A
112.5	73 A
150	109 A
225	145 A
300	217 A

A transformer is considered as being "choked" if the primary protection is less than the rated primary current of the transformer. For example, a 75 kVA, 600 Volt transformer is considered as "choked" when protected by a 70 Amp primary breaker since the rated primary current of the transformer is 72.2 Amps.

When a "choked" transformer is installed, a permanently affixed lamicoïd label is required on the primary overcurrent device indicating the maximum allowable size of overcurrent protection.

26-600 Panelboard Mounting Heights and Headroom Clearances in Dwelling Units

Rule 26-600 Locations of Panelboards

Subrule 26-600 2) requires that panelboards in dwelling units be installed as high as possible, with no overcurrent device operating handle being more than 1.7 m above the finished floor.

Installers are advised that the 1.7 m restriction will not be applied to an overcurrent device located in the service box portion of a combination service entrance panelboard. Code users are also reminded that Rule 6-206 requires a minimum headroom clearance of not less than 2 m where service boxes, including combination service entrance panelboards, are located.

Δ 26-652 Location of GFCI Protection in Flood Hazard Zones

Rule 26-652 Branch Circuits Below Ground Level in Areas Designated as Flood Hazard Zones

The GFCI protection required by Rule 26-652 shall be located above the flood hazard zone. For renovations or alterations, the protection shall not be located at an elevation lower than the existing panelboard feeding the branch circuit.

Δ 26-658 A “Dead Front” Arc-Fault Protection Devices

Rule 26-656 Arc-Fault Protection of Branch Circuits for Dwelling Units

A “dead front” arc-fault device will be accepted as suitable arc protection for receptacles required to be on a separate branch circuit, e.g.: wash machine, microwave, etc., where it is demonstrated that an arc-fault from the panel manufacturer is not available or the existing panel doesn’t afford the space for an arc-fault breaker. The “dead front” arc-fault device must be installed adjacent to the panel supplying the circuit, wired as per 26-656 2) b) and labelled as to the appliance it protects. “Dead front” arc-fault devices will not be accepted for new construction unless it can be demonstrated that nuisance tripping has been identified with the arc-fault breaker and reported by filing an AFCI Product Assistance Report to Electro Federation Canada at <https://www.electrofed.com/>.

Δ 26-658 B Receptacles for Buildings or Structures Associated with Residential Occupancies
26-704
26-706

Rule 26-658 Arc-Fault Protection of Branch Circuits for Dwelling Units
Rule 26-704 Protection of Residential Fault Circuit Interrupter of the Class A Type
Rule 26-706 Tamper Resistance Receptacles

Clarification of the ground fault circuit interrupter, tamper resistant and arc-fault protection requirements for receptacles and branch circuits that are installed in or on buildings or structures associated with residential occupancies (includes dwelling units and single dwellings) is provided in the following table:

Building or structure	Arc-fault Rule 26-658	Ground fault ¹ Rule 26-704	Tamper resistant Rule 26-706
Detached garages	x	✓	✓
Carports	x	✓	✓
Sheds	x	✓	✓
Posts or fences	x	✓	✓

¹ For receptacles installed outdoors and within 2.5 m of finished grade.

△ 26-710 Receptacles for Rooftop Equipment

Rule 26-710 Receptacles for Maintenance of Equipment Located on Rooftops

Receptacles are required for the maintenance of equipment located on rooftops (HVAC equipment, dust extracting equipment, solar panels, etc.). In addition to the code requirements of Rule 26-710, the following apply:

- The receptacle shall be mounted independent of the equipment; a receptacle provided with the equipment is not acceptable to meet the requirements of this Rule.
- The branch circuit conductors cannot be run through the equipment (i.e.: the equipment cannot be used as a raceway).
- A maximum of two 5-20R receptacles may be wired to a single 20 Amp circuit.
- Receptacles must have wet location cover plates marked “extra-duty,” i.e.: “in-use” cover plates.

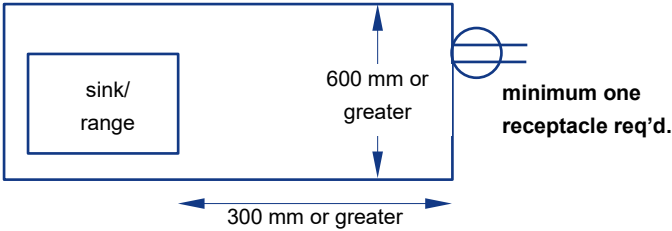
△ 26-722 Receptacles for Kitchen Islands and Peninsulas

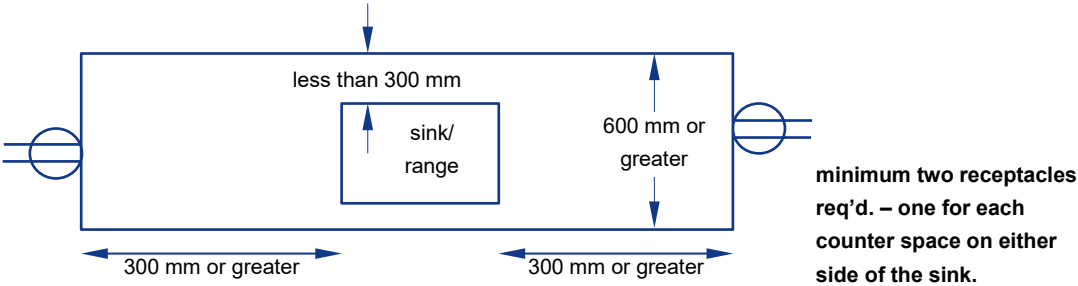
Rule 26-722 Receptacles for Dwelling Units

- 1) Item 26-722 d) iv) requires that at least one receptacle be installed at each permanently fixed island counter space with a long dimension of 600 mm or greater and a short dimension of 300 mm or greater.

For the purpose of this rule, an island is considered to be permanently fixed unless mounted on wheels.

- 2) The Appendix B note to Items 26-722 d) iv) and v) states that a continuous counter surface is one that is not interrupted by sinks, ranges and other built-in equipment.
- 3) Receptacles for kitchen island and peninsular counter spaces shall be located in one or more of the following:
 - a) On or above the countertop or work surface, but not more than 500 mm above it.
 - b) Below the countertop or work surface but not more than 300 mm below it and not located where the countertop or work surface extends more than 150 mm beyond its support base.





**Section 28
Motors and Generators**

- 28-202 Overcurrent Protection Marked on Refrigerant Motor- Compressors**
- 28-702 Rule 28-202 Overcurrent Protection Marked on Equipment**
- Rule 28-702 Marking**

For the application of these Rules, installations of overcurrent devices exceeding the marked nameplate ratings will **not** be accepted.

**Section 30
Installation of Lighting Equipment**

- Δ 30-100 Approval of Remote Power Supplies for LED Luminaires**
- Rule 30-100 General**

Remote mounted power supplies for LED luminaires shall be approved for the purpose in accordance with Rule 2-024 and marked with supply voltage, current rating and frequency. Wiring methods shall be in accordance with other applicable sections of the Code. Installers are reminded that these remote power supplies are not included in the approval of the luminaire and therefore are not considered approved electrical equipment unless specifically marked as such.

All retrofit kits must be approved for use with the existing luminaire installed and must bear the mark of a recognized certification organization or the converted luminaire must be field evaluated and re-certified.

- Δ 30-104 Cord Connected Lighting**
- Rule 30-104 Protection**

Cord connected lighting must follow the Rules for luminaires including the protection requirements of 30-104. The maximum rating of an overcurrent device protecting a branch circuit containing luminaires, lampholders, or lighting track shall be followed, i.e. In a dwelling unit, no more than 15 Amp overcurrent may be used for all luminaires, including grow lights.

△ 30-400 Cord-Connected Non-Recessed Luminaires

Rule 30-400 Wiring of Luminaires

- 1. Cord-connected luminaires must be manufactured and certified with the cord.
- 2. Luminaires that are modified in any way (for example: to alter the length of the cord, incorporate a cord, or remove the cord cap) are no longer approved and will require re-certification as permitted by the Winnipeg Electrical By-law.
- 3. An approved chain or hook suspended luminaire’s cord, upon reaching the building structure or ceiling, shall:
 - a) Be supported by a Kellems type strain relief grip, and
 - b) Have a maximum length of 1.5 meters, and
 - c) Utilize a strain relief connection if not approved with a cord cap, and
 - d) Meet the requirements of Rule 12-402.

30-900 Installation of Recessed Luminaires in Insulated Spaces and Fire Rated Assemblies

Rule 30-900 Recessed Luminaires, General

Rule 30-906 requires that recessed luminaires, when blanketed with thermal insulation be identified as approved for such use. A number of approved luminaires are available in the market place.

Where the installation of a standard recessed luminaire in an insulated or fire-rated ceiling is desired, a box shall be constructed around the luminaire to allow adequate heat dissipation. The capacity of the box in cubic cm shall be based on the maximum rated wattage of the luminaire multiplied by 800.

The installation shall comply with Rule 30-900.

Example:

Rating of luminaire:	100 watts
Capacity of the box:	100 X 800 = 80,000 cm ³
Proposed box length and width:	40 cm X 40 cm = 1,600 cm ²
Minimum depth:	80,000 cm ³ / 1,600 cm ² = 50 cm deep
Box dimensions:	40 cm X 40 cm X 50 cm

Section 32
Fire Alarms Systems, Fire Pumps, and Carbon Monoxide Alarms

32-000 Fire Alarm Systems

Rules 32-000 Scope

The intent of this Rule is that all installations of Fire Alarm Systems shall meet all the requirements of Section 32.

△ 32-200 A Supply Voltage for Smoke and Carbon Monoxide Alarms
Rule 32-200 Installation of Smoke Alarms and Carbon Monoxide Alarms in Dwelling Units

To meet the requirements of Rule 32-200 1) a), 120V smoke alarms and carbon monoxide alarms will be required.

△ 32-200 B Circuits for Heat Sensors
Rule 32-200 Installation of Smoke Alarms and Carbon Monoxide Alarms in Dwelling Units

Where a heat sensor is required to be installed in attached garages of dwelling units as per Manitoba Building Code Article 9.10.19.A., it must be connected to a lighting circuit that is not protected by an AFCI or GFCI.

Section 34
Signs and Outline Lighting

△ 34-200 Approval of Remote Power Supplies for LED Signs
Rule 34-200 Enclosures

Remote mounted power supplies for LED signs and outline lighting shall be approved for the purpose in accordance with Rule 2-024 and marked with supply voltage, current rating and frequency. Wiring methods shall be in accordance with other applicable sections of the Code. Installers are reminded that these remote power supplies may not be included in the approval of the sign and therefore are not considered approved electrical equipment unless specifically marked as such.

All retrofitted signs must bear the mark of a recognized certification organization or it must be field evaluated and re-certified.

Section 36
High-Voltage Installations

36-1 Outdoor Pad Mounted High Voltage Switchgear

The following conditions shall be met for all Outdoor Pad Mounted High Voltage Switchgear installations:

1. Outdoor Pad Mounted High Voltage Switchgear shall be provided with a suitable hasp for Manitoba Hydro to install a padlock on all compartments containing Manitoba Hydro terminations or metering facilities. An exception to this would be front doors of front operated switches where the customer shall have access to replace fuses etc. (In these cases the CSA standard requires a dead front over the line terminations).
2. Where Outdoor Pad Mounted High Voltage Switchgear is accessible to the public, all doors of “customer compartments” accessing live parts shall be locked or secured with acceptable tamperproof devices.

Notes:

- *Switchgear inside a locked station fence or suitable enclosure is not considered accessible to the public.*
- *Tamperproof devices should be other than those used by Manitoba Hydro on its own equipment.*

36-2 Grounding Conductor to be Installed with Circuit Conductors other than Overhead Systems

To meet the requirements of the Winnipeg Electrical By-law, a grounding conductor shall be installed with every set of circuit conductors. The grounding conductor shall be not less than 2/0 AWG copper and shall have sufficient ampacity to carry the maximum ground fault current in accordance with Table 51.

△ 36-000 Applicable CSA Part III Standards For High Voltage Installations Rule 36-000 Scope

High-voltage installations not covered in the Winnipeg Electrical By-law shall meet the requirements of the applicable CSA Part III standards.

36-204 Accessible Ground Operated Switch Handles Rule 36-204 Overcurrent Protection

Each break load interrupting device or break air break switch required by Items 36-204 1) b) and c) shall have a ground operated switch handle located in a readily accessible location. This will apply to single phase and three phase installations.

36-308 A Grounding Conductor Size for Low Voltage Secondary Neutrals when Transformer Primary Exceeds 750 Volts Rule 36-308 Connections to the Station Ground Electrode

To meet the requirements of the Winnipeg Electrical By-law, the grounding conductor required by Item 36-308 6) b) shall be not less than 2/0 copper. There will be no requirement to increase this conductor based on the ground fault current of the transformer.

36-308 B Neutral Grounding Requirement for Pole Mounted Transformers Rule 36-308 Connections to the Station Ground Electrode

It shall be permitted to use the grounding conductor specified in Item 36-308 2) b) i) to ground the neutral of a pole mounted transformer provided the size has a sufficient ampacity to carry the maximum ground fault current of the transformer in accordance with Table 51.

Section 46
Emergency Power Supply, Unit Equipment, Exit Signs, and Life Safety Systems

46-202 Emergency Generator Sets

46-202 Types of Emergency Power Supply

The Manitoba Building Code states that required emergency equipment, such as that for fire alarm systems, emergency lighting and fire pumps, be provided with emergency power.

Where the emergency power is supplied by a generator, it shall be installed in accordance with the currently enforced version of CSA Standard C282, "Emergency Electrical Power Supply for Buildings."

Section 10 of CSA Standard C282, specifies a number of tests be performed on the completed installation to ensure conformance to the standard.

Documentation supporting satisfactory performance of the installation during these tests shall be submitted to the Electrical Inspections Branch prior to occupancy approval.

CSA Standard CAN/CSA C282, "Emergency Electrical Power Supply for Buildings," is available from the Canadian Standards Association.

46-304 Emergency Lighting Supplies

Rule 46-304 Supply Connections

Where emergency lighting is required by the authority having jurisdiction, the requirements of Subrule 46-304 4) shall be met. The intent of this Subrule is to ensure illumination in the area being served by the unit equipment is maintained when power to the normal lighting in the area fails.

Note: Detailed information is available in the Canadian Electrical Code Handbook.

Section 62
Fixed Electric Space and Surface Heating Systems

Δ 62-104 Termination Kits for Trace Heater Cables

Rule 62-104 Installation of Heating Devices and Bonding

Installers are reminded that trace heating cable terminations shall be made only with the materials and methods specified in the trace heating cable manufacturer's instructions. Failure to use the specified materials and methods will void the trace heating cable approval.

**Section 64
Renewable Energy Systems**

64-060 AC Equipment Disconnects with Interactive Inverters
Rule 64-060 Disconnecting Means

All AC disconnect switches supplied with two sources of voltage are to be connected with the utility source to the line side and inverter output to the load side. All AC disconnecting means utilizing fuses and energized from two sources shall be provided with an additional adjacent disconnecting means on the load side as per 64-060 and 14-402.

64-072 Labelling
64-074 Rule 64-072 Marking
64-200 Rule 64-074 Warning Notice and Diagram
Rule 64-200 Solar Photovoltaic Systems, Marking

All labels for renewable energy systems as required by the Winnipeg Electrical By-law shall be permanently attached, engraved lamincoid. The lamincoid shall have a red background with white lettering.

64-112 A Interactive Point of Connection
Rule 64-112 Interactive Point of Connection

The only interactive point of connection Manitoba Hydro, as the supply authority, will permit is a connection on the load side of the service disconnecting means.

This connection shall be done at a panelboard or switchboard. Each source interconnection at the panelboard, switchboard or splitter shall be made at a dedicated circuit breaker or fusible disconnecting means.

When electrical equipment is supplied by multiple sources, an adjacent disconnecting means shall be installed for all sources as per Rule 14-414.

64-112 B Utility Disconnect
Rule 64-112 Interactive Point of Connection

Rule 64-112 1) requires the output of an interactive inverter intended to be connected to the supply authority to be in accordance with Section 84. As the supply authority, Manitoba Hydro will require a utility disconnect to be installed for all solar photovoltaic systems. The utility disconnect shall be installed adjacent to the utility meter where practicable and must always be installed outdoors. When the Inspections Branch has deemed it not practicable to locate the utility disconnect adjacent to the meter, a label must be installed on the meter enclosure that indicates the location of the utility disconnect.

Manitoba Hydro, as the supply authority, will not mandate the application of Rule 84-024 1) c) and will not require the utility disconnect to have the contact operation verifiable by direct visible means (viewing window).

△ 64-112 C **Metering Facilities and Busbar Ratings**
Rule 64-112 Interactive Point of Connection

Metering facilities permitted for the subdivision of the consumer’s service and supplied simultaneously by a primary power source and one or more utility-interactive inverters shall comply with the bus bar requirements of 64-112 4) and the following:

Customer Service Termination Enclosures (CSTE):

For calculating busbar ratings, the ampere rating of the CSTE shall be used for the utility source overcurrent device ampere rating. The ampere rating of the CSTE shall be deemed the bus bar rating on an existing CSTE that is not marked with a bus bar ampacity. You may also have the manufacturer re-label the CSTE with a bus bar rating provided the equipment is re-approved in accordance with the Winnipeg Electrical By-law. The sum of the connected solar cannot exceed the ampere rating of the CSTE.

Transformer Rated Meter Mounting Devices (TRMMD):

The sum of the ampere rating of the overcurrent devices for connected consumer’s services shall not exceed the ampere rating of the TRMMD.

Dual Lug Meter Sockets (DLMS):

The sum of the ampere rating of the overcurrent devices for connected consumer’s services shall not exceed the ampere rating of the DLMS.

Examples:

- 400 Amp rated TRMMD – One 400 Amp or two 200 Amp consumer’s services are permitted.
- 200 amp rated DLMS – Two 100 Amp consumer’s services are permitted

64-202 **Array Installations in Accessible Locations**
 64-210 **Rule 64-202 Voltage of Solar Photovoltaic Systems**
 64-220 **Rule 64-210 Wiring Method**
Rule 64-220 Attachment Plugs and Similar Wiring Devices

For the application of Rules 64-202 4) a), 64-210 2) & 3) and 64-220 2), PV installations that are not protected by elevation or fencing require an acceptable barrier for making conductors and connectors inaccessible. An acceptable barrier shall consist of:

1. Sheet metal not less than 1.3 mm thick.
2. Metal screening not less than 1.3 mm thick and where openings are a maximum size of 6.75 mm.

Installations in excess of 750 Volts will require other effective means such as fenced enclosures in accordance with Rule 26-300 or elevation.

Note: For application Class B modules, sheet metal or screening is not considered an acceptable method for making installations inaccessible.

△ 64-918 **Energy Storage Systems**
Rule 64-918 Location and Separation Requirements for Energy Storage Systems

The UL 9540 / NFPA 855 / 2021 IRC R328 Standards are **not** harmonized with the Winnipeg Electrical By-law for the location requirements for energy storage systems (ESS). The requirements in the Winnipeg Electrical By-law shall prevail.

**Section 68
Pools, Tubs, and Spas**

68-058 Bonding Requirements for Pools, Tubs and Spas
Rule 68-058 Bonding

The bond conductor required by Rule 68-058, must terminate at the panelboard supplying the pool equipment.

68-404 Disconnecting Means for Spas and Hot Tubs
Rule 68-404 Controls and Other Electrical Equipment

When required, a disconnecting means for spas and hot tubs shall follow the manufacturer’s installation instructions.

**The City of Winnipeg, Planning, Property and Development Department
Development and Inspections Division**

Housing Inspections Branch ppd-seniorhousinginspect@winnipeg.ca

Commercial Inspections Branch ppd-commbldg@winnipeg.ca

Commercial Plan Examination Branch ppd-epx@winnipeg.ca

Contractor Licencing contractorlicence@winnipeg.ca

June 2022
revised Nov 2022