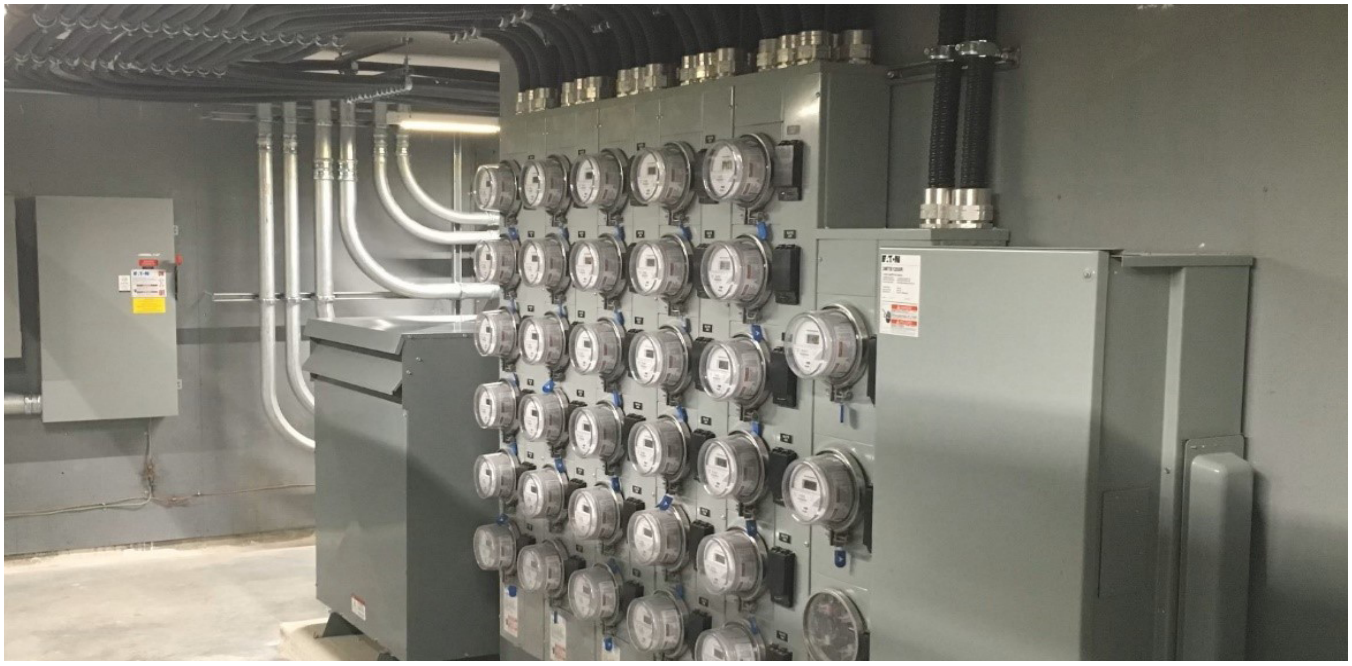
Electrical permit application guide for contractors



This guide provides electrical contractors with documentation requirements and work descriptions for electrical permit applications. It is based on the Winnipeg Electrical By-law (winnipeg.ca/electricalcentre). Refer to Appendix G in the Canadian Electrical Code for related building code requirements. Other applicable codes and standards may apply.

Before submitting your electrical permit application:

1. In each section below, required documents are identified by checkmarks in the corresponding tables. Additional details are provided in the notes following, as required. All documents submitted as part of your application must include:

- project address
- unit number (if applicable)
- project name
- related building permit number (if applicable)

2. The description of work should be as detailed as possible and note the following:

- The permit and work description will be public. It will be viewable on our Permit search by address webpage (winnipeg.ca/permitsearchbyaddress) once your permit is issued.
- It is common for a building to have multiple active electrical permits. A detailed description makes it easier to distinguish one permit from another.
- Include the name of the tenant or occupant for whom the work is being done.

3. Review and confirm your application package is complete, including details (i.e. devices, equipment) and work descriptions as outlined in this guide. Incomplete applications will result in delays.

Table of Contents

Engineering requirements

Where engineering is required, documents must be sealed by a professional engineer licensed to practice in the Province of Manitoba and skilled in the area of work. Projects requiring engineering must be accompanied by a Required Professional Designer's Certificate (RPDC) and Owner statement.

Per the Winnipeg Electrical By-law, a professional engineer is required for the following types of electrical installations:

- installations where Sections 18, 20, 24 or 36 of the Electrical Code are applicable
- buildings referred to in Sentence 1.3.3.2.(1) of the Manitoba Building Code (MBC) (i.e. Part 3 buildings)
- buildings where the electrical service requirements exceed 750 KVA
- fire alarm systems for Part 3 buildings
- fire pumps
- generators 50 kW or larger and generators supplying life safety systems
- lightning protection systems for high buildings as defined in the MBC
- power factor correction of electrical installations, other than individual motor applications
- solar photovoltaic installations (except for installations less than 10 kW for single detached dwellings)
- any other type of installation where the designated employee requires it under Subrule 2-002 1)

Single line diagram requirements

Single line diagrams (SLD) must detail the installation, including:

- Any modifications to existing distribution equipment.
- The ampere, hp, kW, kVA and voltage ratings of all equipment, as applicable, for existing & new equipment, and the source of supply.
- Conductor sizes and types and how they are being installed (free air, in conduit, multi-conductor cable, direct buried, fire rating, method of protection, etc.).

Other requirements in this guide that apply to SLDs must also be followed.

Electrical plan requirements

If electrical plans are required for your project, they must be made reasonably to scale. They must show the locations of all applicable equipment, including the source of supply. Other requirements in this guide also apply.

Electrical equipment

A/C units (greater than 100 kW)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	–	✓	✓ if > 750 kVA	✓ if > 750 kVA	✓ if > 750 kVA

Sample work description: "Install a 150 kW, 600 V A/C unit for an existing apartment building."

Capacitors (other than individual motor applications)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	✓	✓	✓	✓	✓

Sample work description: "Install a 150 kVAR, 600 V capacitor bank for power factor correction for an existing furniture manufacturing plant."

Plan: Must show the locations of:

- power supply
- power monitoring equipment
- capacitors
- route of the conductors

SLD: Must show the kVAR rating of the capacitor and the rating and voltage of the supply source. If required information for the SLD can be clearly indicated on the plan, a separate SLD may not be needed.

Elevators/lifts

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
✓	✓	✓	–	–	–

Prerequisite permit: You need a building permit to install a new elevator or lift. The electrical plan and SLD must be included with the building permit application.

Sample work description: "Wire and connect new elevator in an existing 3-storey church."

Plan: Must show the locations of all related equipment including:

- supply source
- disconnect
- routing of the feeder conductors

SLD: Must include the rating and voltage of the supply source. Protection of conductors (i.e. fire rating) must comply with MBC Sentence 3.2.6.5.(6) and Clause 3.3.1.7.(a)(i), where required

Application: Building permit number must be provided on the electrical permit application.

EV equipment

	Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement	Load Calculations
Level 2 charger (3 or less on one OC)	✓	✓	✓	–	–	–	✓
Level 2 charger (all other)	✓	✓	✓	✓	✓	✓	✓
Level 3 charger	✓	✓	✓	✓	✓	✓	✓
EV EMS	–	✓	✓	✓	✓	✓	–

Prerequisite permit: You need a development permit for any level 2 or level 3 charger if it is **outdoors** and:

- occupies part of an existing commercial parking space, making the dimensions or parking count non-compliant
- eliminates any existing trees or shrubs
- is part of a new commercial parking area or parking lot reconfiguration

You need a development permit for any level 2 or level 3 charger if it is in an **indoor** parking garage where the installation:

- reduces the number of parking spaces
- reduces the dimensions of existing parking spaces

You need a building permit for any level 2 or 3 charger if it is inside a commercial building (e.g. parkade).

The electrical plan, SLD and load calculations, must be included with the building permit application.

Sample work description: "Install two level 2 EV chargers in the showroom and two level 3 EV chargers in the parking lot of an existing auto dealership."

Application: Development permit number and/or building permit number must be provided on the electrical permit application, if applicable.

Generators

	Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
Generators (life safety and all generators greater than 50 kW)	✓	✓	✓	✓	✓	✓
Generators (50 kW or less supplying non-life safety loads)	✓	✓	✓	–	–	–

Prerequisite permit: You need a development permit for any generators located outdoors.

You need a building permit for any generators located on rooftops or inside a building.

The electrical plan and SLD must be included with the building permit application.

Sample work description: "Install a 30 kW, 208 V non-life safety diesel generator in the parking lot of an existing office building to provide backup power to computer loads. Also installing a 100 A, 208 V transfer switch in the existing electrical room."

Plan: Show locations of all applicable equipment, such as:

- generator
- control panel
- routing of conductors
- transfer switch(es)
- DC emergency lighting

If a generator is for life-safety purposes, the plan must show compliance with CSA C282.

Application: Development permit number or building permit number must be provided on the electrical permit application, as applicable.

If the fuel source for a life-safety generator is off-site (i.e. no on-site fuel storage), documentation must be provided to show the reliability of the fuel supply.

High voltage

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement	Shop drawings
–	✓	✓	✓	✓	✓	✓

Other requirements in this guide for electrical plans, SLDs, and work descriptions also apply.

Drawings: Must show in detail that the installation complies with Section 36 of the Winnipeg Electrical By-law.

The drawings must include:

1. High voltage equipment shop drawings bearing the engineer's review stamp.
2. Size of ground conductors and expected maximum fault current, showing compliance with Table 51 and Rules 36-300 to 36-310.
3. Calculated station ground electrode resistance (using worst case soil conditions) and station ground potential rise (GPR), showing compliance with Subrule 36-304 1).
4. Calculated touch and step voltages, showing compliance with Table 52 and Subrules 36-304 2), 36-308 3), and 36-312 5).

Except as permitted by Rule 36-306, the resistance of the installed station ground electrode must be tested. Any necessary changes must be made as described in Subrule 36-304 4).

Hazardous touch voltages can appear on metal building parts or other metallic structures that are electrically connected to the station ground electrode, even if they are outside of the station ground electrode area. If deviating from the underground cable configurations in the Code and using IEEE 835 to calculate cable ampacities, you must provide the cable installation configurations and calculations with the drawings.

Motors (greater than 100 hp)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	–	✓	✓ if > 750 kVA	✓ if > 750 kVA	✓ if > 750 kVA

Sample work description: "Install a 125 hp, 600 V separating machine in an existing recycling plant."

Panels (400A or greater)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	–	✓	✓ if > 750 kVA	✓ if > 750 kVA	✓ if > 750 kVA

Sample work description: "Install a new 400A, 208V panelboard to accommodate new computer work stations."

Services (400A or greater)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	✓	✓	✓ if > 750 kVA	✓ if > 750 kVA	✓ if > 750 kVA

Sample work description: "Install a new 400A, 208V/3ph/4w O/H service to replace existing damaged service of same size."

SLD: Must show installation from the customer service point (CSTE, utility transformer, O/H service mast, etc. to any distribution changes included in the permit application. If there are additional remaining services to the building, the size, voltage and quantity must also be shown on the SLD.

Plan: Site plan or building plan must show the locations of:

- utility transformer
- customer service point
- routing of service conductors
- service switch
- all distribution equipment

Service and suite demand calculations (as noted below in this guide) must be provided for new services in multi-residential buildings.

Spray Booths

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
✓	✓	–	✓	✓	✓

Prerequisite permit: You need a building permit to install a spray booth.

Electrical plans (as detailed below) must be included with the building permit application.

Sample work description: "Install 2 spray booths."

Plan: Must show electrically hazardous locations & classifications, and compliance of the electrical installation. If required information for the plan can be clearly demonstrated in an engineer's report, a separate plan may not be needed. Refer to:

- "hazardous locations" section in this guide
- "Painting, coating types of operations" Information Bulletin (winnipeg.ca/ppd/InfoCentre/InformationBulletins.stm)

Fees: There is one fee for spray booth installations applied to the building permit. Despite no fee being charged for an electrical permit, it is still mandatory to obtain one.

Application: Building permit number must be provided on the electrical permit application.

Solar PV

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement	Shop drawings
✓	✓	✓	✓*	✓*	✓*	✓

* Not required for installations less than 10 kW for single detached dwellings

Prerequisite permit: You need a development permit when the solar PV installation is located on a building and mounted less than 8 ft. above grade.

You need a building permit for building mounted solar PV installations.

Refer to the "Solar photovoltaic installations" Information Bulletin (winnipeg.ca/ppd/InfoCentre/InformationBulletins.stm) for document requirement details. Electrical documents must be included with the building permit application.

Application: Building permit number must be provided on the electrical permit application.

Transformers (greater than 100 kVA)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	–	✓	✓ if > 750 kVA	✓ if > 750 kVA	✓ if > 750 kVA

Sample work description: "Install a new 225 kVA, 600V/3ph/3w:208V/3ph/4w transformer replacing existing 150 kVA transformer to accommodate new line equipment."

Life safety equipment

Door holders

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	✓	–	–	–	–

Sample work description: "Install two door holders located in Building A, second floor."

Plan: Must show the floor area where the door holders are being installed. The floor plan must show the entire floor area and not just the immediate door areas. Required smoke detection must be shown, whether existing or new. If smoke detection is not being provided on both sides of the doors, ceiling heights must be indicated.

Also refer to the "fire alarm equipment" section in this guide.

Electromagnetic locks

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement	Electromagnetic locks checklist
✓	✓	–	–	–	–	✓

Prerequisite permit: You need a building permit to confirm that compliant access to exit is maintained. Building permit documents must be signed and sealed by an architect or engineer.

You must submit the plan and the electromagnetic locks checklist (winnipeg.ca/electricalcentre) with the building permit application. Electromagnetic locks cannot be added to existing permits via a post plan review change notice. A separate building permit application is required.

Sample work description: "Install three electromagnetic locks located on the main floor, west wing."

Plan: Must show the floor area where the electromagnetic locks are being installed. The floor plan must be of the entire floor area and not just of the immediate door areas. Also refer to the "fire alarm equipment" section in this guide.

Application: Building permit number must be provided on the electrical permit application.

Emergency lighting (more than 4)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	✓	–	–	–	–

Sample work description: "Replace and upgrade emergency lighting on the main and second floors of an existing high school to meet current code requirements." (The description must justify why additional emergency lighting is required when no related building work is being done.)

Plan: Must show locations of emergency lighting equipment and must show compliance with Winnipeg Electrical By-law Subrule 46-304 4) and its associated Technical Interpretation.

Exit signs

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement	Photoluminescent exit sign checklist
–	✓	–	✓ if PL	✓ if PL	✓ if PL	✓ if PL

Sample work description: "Install new exit sign on the third floor at the rear stair to accommodate new shelving unit impeding the view of the existing sign." (The description must justify why exit signage is being installed when no related building work is being done.)

Plan: Must show locations of exit signage. Installations for photoluminescent exit signs must be sealed by an engineer and must be accompanied by a "Photoluminescent exit signs" checklist (winnipeg.ca/electricalcentre).

Fire alarm equipment (more than 4 fire alarm devices or more than 2 sprinkler switches)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement	Fire alarm zone schedule	Fire alarm specs.
–	✓	–	✓ if a new FAS in a Pt 3 bldg	✓ if a new FAS in a Pt 3 bldg	✓ if a new FAS in a Pt 3 bldg	✓ if a new FAS	✓ if a new FAS

Sample work description: "Install a new fire alarm system in an existing 2-storey apartment building to replace old 120 V system." (Provide a description that details the extent of the fire alarm installation – new system, replace specific devices, additional devices, etc.)

Plan: Must be drawn to scale and, if not computer generated, drawn with a straight edge. Must show locations of all fire alarm system components and devices. Room names must be identified.

Also required:

- fire alarm specifications including a project specific sequence of operations
- project-specific fire alarm riser diagram and zone schedule showing compliance with the current enforced version of CAN/ULC S524

If you're replacing an existing fire alarm panel and all devices, it is considered a new fire alarm installation and must meet current code requirements.

Although only new fire alarm system installations in Part 3 buildings are required to have engineered documents, other installations may also need sealed documents if the Plan Examiner determines it's necessary because of the scope, complexity, or risks of the work.

Fire pumps

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
✓	✓	✓	✓	✓	✓

Prerequisite permit: You need a building permit for all new fire pump installations. Replacement of an existing fire pump may not require a building permit if the new pump is an exact replacement (i.e. the same size electrically, mechanically, and physically). Per the Residential Buildings Fire Safety By-law No. 4304/86, if an existing fire pump is replaced, the new pump shall be sized and installed to current MBC requirements (Schedule F, Clause 7.(4)).

The electrical plan and SLD must be included with the building permit application.

Sample work description: "Install a 50 hp, 600 Volt fire pump located in the main mechanical room on the basement level."

Plan: Must show the location of:

- all related equipment
- routing of conductors
- main service
- emergency supply
- required DC emergency lighting

SLD: Must show the fire pump transfer switch and controller, the normal and emergency power supplies and the routing of the feeder conductors.

Application: Building permit number must be provided on the electrical permit application.

Special locations

Hazardous locations

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement
–	✓	–	✓	✓	✓

Plan: When installing within an electrically hazardous location, you need a report or plan showing:

- classifications of electrically hazardous locations
- specific gas or dust groups
- maximum allowable surface operating temperature of electrical equipment (T-code)
- ambient operating temperature
- compliance of the electrical installation

Multi-residential buildings (electrical upgrades)

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement	Load calculations
–	✓	✓	✓ if > 750 kVA	✓ if > 750 kVA	✓ if > 750 kVA	✓

Includes suite upgrades, building upgrades and electrical service upgrades.

Sample work description: "Install a new 800 A, 208 V/3 ph U/G service for an existing 3-storey, 12-unit apartment building to accommodate the conversion to electric heat."

A general description of the extent of the electrical work is required, including the number of storeys in the building and the number of existing and new suites. If a new service is being installed, state why the existing service is no longer adequate (e.g. addition of new suites, conversion to electric heat, EV chargers).

Plan: If a service upgrade is included as part of the project, all service and distribution equipment must be shown. Plan must show:

- location of all related equipment
- routing and protection of conductors, if required
- main service

If the electrical renovations are significant or if new (additional) suites are being created, circuited plans of all typical suites must be provided.

Refer to requirements in the "emergency lighting," "exit signs" and "fire alarm equipment" sections in this guide if upgrades to these systems are being undertaken.

Electric heating layouts in suites do not need to be shown if no other suite upgrades are being done.

SLD: You need a SLD if any distribution upgrades are taking place, including replacement of suite panels.

Also provide:

- detailed scope of electrical work in point form
- scope of building work from the building owner in point form
- suite panelboard schedule when new suite panels are being installed
- suite and building demand calculations
- information listed in this guide for "services (400A or greater)", if applicable
- information listed in this guide for "EV equipment" if EV chargers are being installed

Patient care areas

Prerequisite permit	Electrical plan	Single line diagram (SLD)	Engineering	RPDC	Owner statement	Patient care area declaration
–	✓	–	✓	✓	✓	✓

Patient care areas apply to all health care facilities with medical electrical equipment, not just hospitals. As per the CSA Z32 standard, health care facilities include:

- physicians' offices
- dental clinics
- physiotherapy clinics
- massage clinics
- chiropractic clinics

The facility administrator must complete the "Patient care areas declaration form" (winnipeg.ca/electricalcentre).

For detailed requirements, see the "Guide to patient care areas" Information Bulletin (winnipeg.ca/ppd/InfoCentre/InformationBulletins.stm).

Winnipeg | **Planning, Property & Development**
Urbanisme, biens et aménagement

Zoning & Permits Branch
Unit 31 - 30 Fort Street, Winnipeg, Manitoba R3C 4X7 | winnipeg.ca/ppd

Permits Direct Line
204-986-5140 | ppd-permit@winnipeg.ca

Updated: November 2024