
STANDATA bulletin 24-ECB-006R2

Electrical

2024 Canadian Electrical Code Part 1, Section 6 – Services and service equipment

Date Issued: July 2026

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Purpose

To clarify Section 6 of the 2024 Canadian Electrical Code (CE Code), Part 1, which outlines the installation requirements for services, service equipment, and metering equipment.

Discussion

Rule 6-102 Number of supply services permitted

Row housing type residential dwelling units

Rule 6-102 permits a multi-unit residential building of a row house type to have more than one supply service, one to each self-contained occupancy, provided there is:

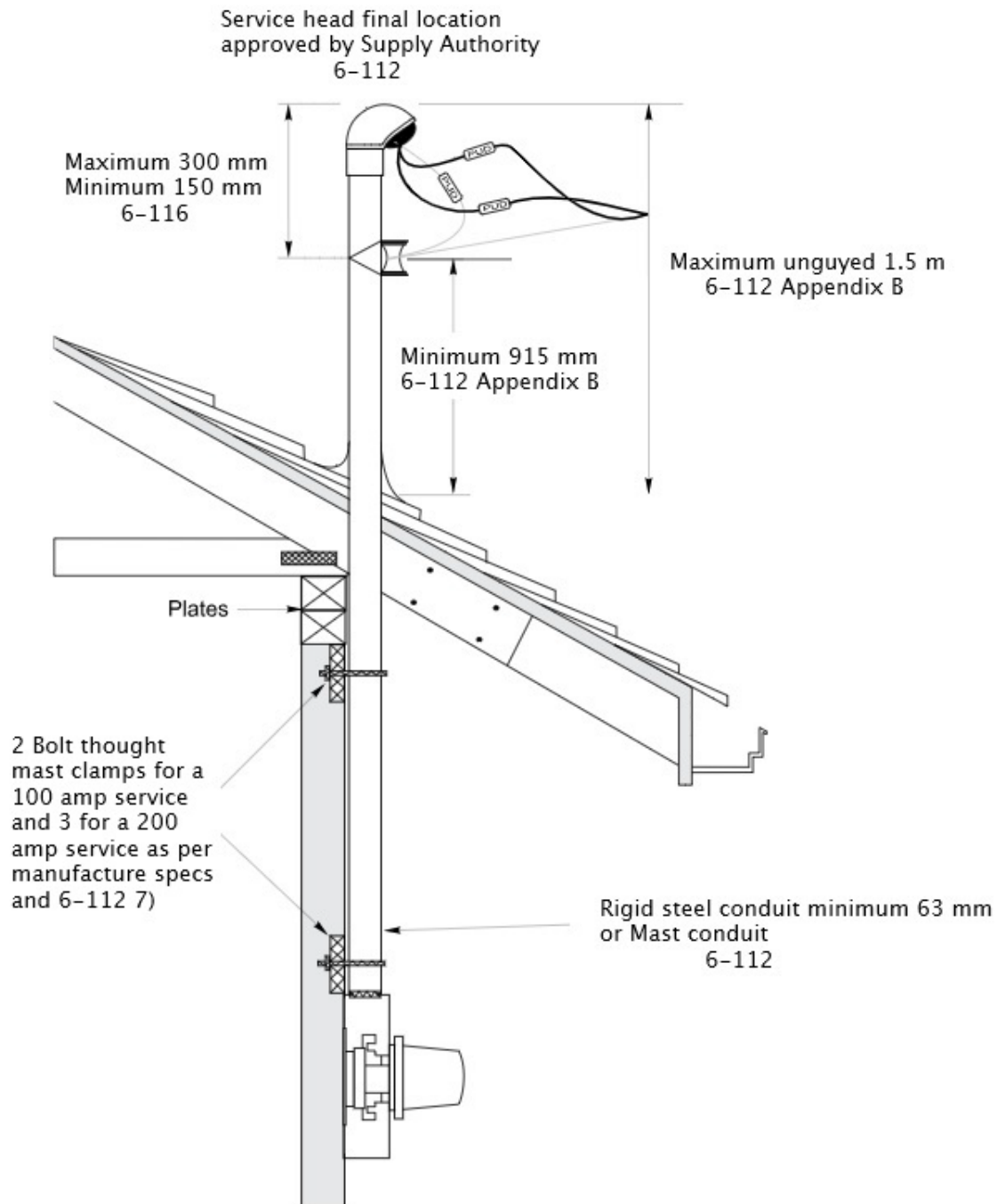
- a fire-separation, meeting the requirements of the National Building Code (NBC)2023– Alberta Edition, separates each occupancy, and
- each occupancy has a separate entrance with direct access to ground level.

Rule 6-112 Support for the attachment of overhead supply or consumer's service conductors or cables (see Appendix B)

Point of attachment

Rules 6-112 and 6-116 clarify the requirements for point of attachment for overhead services and states the following:

- Use the mast kit manufacturer recommendation as per 2-024; and
- If a rigid conduit is being used or if there is no available manufacturer information, the specified distance in the CE Code is observed.
 - 6-112 2) d) service head location in compliance with the supply authority
 - 6-112 App B max unguyed 1.5m
 - 6-112 App B minimum point of attachment off the roofline 915mm
 - 6-112 7) support bolt(s) through mast clamps



Rule 6-200 Service equipmentService equipment

Equipment approved as switchgear, industrial control equipment, or distribution panelboards may not incorporate the features necessary to comply with the CE Code definition of a “service box.” To meet this code definition, the equipment used should conform with the applicable requirements of the CSA Group Standards. The following is a general guide for determining the suitability of a switch or circuit breaker forming part of the assembly for the use as a service entrance:

1. The main switch or circuit breaker is separated from the feeder or branch circuit distribution compartment by sheet metal barriers or equivalent with bushed holes for the necessary wiring between compartments.
2. The main switch or circuit breaker compartment has a separate access cover with means for locking or sealing the cover in the closed position.
3. The service disconnecting means is manually operable with the cover closed and no bare live parts are exposed.
4. The operating handle of the switch or circuit breaker is capable of being locked in the "OFF" position.
5. The service enclosure has a neutral assembly with an adequate number of wire connectors for individual conductors.
6. A solderless connector, clamp, or other suitable means for bonding the enclosure to the neutral assembly in the main compartment when required. The CE Code allows the grounded conductor to be bonded to the grounding conductor once only. If this is done in the meter socket, it would not be allowed to be done in the service box as well.
7. The equipment is factory labeled as “SUITABLE FOR USE AS SERVICE EQUIPMENT”.

In some jurisdictions in Alberta, rural properties with services up to 200 amperes have been permitted to use the utility-owned equipment as the consumer service disconnect. This has led to inconsistent application of CE Code requirements in the province. It is now recognized that the previously permitted installation is not compliant with the CE Code requirement for consumers' services. Utility-owned equipment such as the commonly used “economizer/totalizer” for rural services typically does not comply with the definition of “service box” and, therefore, cannot be considered acceptable as a consumer service disconnect.

Several code-compliant installation methods exist and should provide sufficient flexibility for rural services under 200 amperes. The installation of the utility-owned equipment is not restricted under the requirements of the CE Code and the installation of an “economizer/totalizer” is not prevented by this bulletin. However, this piece of equipment cannot be considered the consumer's service disconnect required by Rule 6-200 1). Users are reminded to consider Sections 6 and 10 requirements when planning any consumer's service.

Rule 6-206 Consumer's service equipment locationLength of service conductors in buildings

Rule 6-206 1) c) requires service equipment be located as close as practical to the point where the service conductors enter the building. Rule 6-208 outlines where the conductors must be located. Both rules recognize service conductors must enter the building to make connection to the service equipment. While it is generally agreed that, in the interest of safety, the unfused conductors within the building should be as short as possible, this distance is not clear.

A recommended practice in Alberta is to limit the length of service conductor in the building to 3 metres. Where this is not practical, service conductors may extend further inside the building provided they are mechanically protected in rigid metal conduit. The maximum distance for service conductors inside a building should not exceed 7.5 metres.

Alternatively, Rule 6-206 3) may be applied in situations when the service panel cannot be located near the point of entry of the consumer's service conductors. In this case, a safety codes officer must evaluate each situation on an individual basis.

Service equipment in areas prone to flooding

Rule 6-206 1) v) prohibits the installation of service boxes or other consumer's service equipment in areas below the flood elevation. Flood elevation is defined in Section 0 as the elevation of surface water resulting from a flood event designated in accordance with the NBC or applicable local legislation. Users of the CE Code are reminded to check with local planning departments regarding flood elevation in the area of concern.

Rule 6-300 Installation of underground consumer's service conductors

Underground service entrance facilities on the consumer's premises

Electrical utilities do not always install underground service entrance facilities (conductors, cable, raceway) on the consumer's premises. In these situations, it is necessary for the property owner, developer, or contractor to arrange for the safe and reliable installation of these facilities. The following guidelines are recommended:

1. Only qualified people should install underground service entrance facilities.
2. Obtain the appropriate electrical permits from the authority having jurisdiction.
3. To facilitate connection to the utility distribution system, terminate the supply end of the service conductors in a location and manner acceptable to the supply authority.
4. Seal the exposed supply end of the consumer's service conductors to prevent the entry of moisture.
5. Provide mechanical protection as necessary to prevent damage pending connection by the supply authority.
6. The supply authority is responsible for connecting the consumer's service conductors to the supply service.
7. Ensure service conductors and cables are approved and suitable for the application in accordance with Rule 2-024, 6-300 and Table 19. The use of an underground service entrance cable (USEB) with an accompanying bond between the meter and consumer service box is only permitted in an approved raceway. Wall-cavities are considered a concealed location. As per table 19, USEB is not permitted in a concealed location.
8. Where settlement of earth is likely to occur, position conductors in a manner that will prevent settlement of the surrounding earth from placing any strain on the conductors entering the meter socket or building. Trench to a depth where the conductors will be laid on solid undisturbed ground.
9. To prevent strain on the connections in the meter socket, arrange the service conductors to form an inverted "U" before connecting to the line side terminals.
10. Label the service box with wording similar to:

Warning - This building is supplied by an
underground electric service.

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11. To avoid inconvenience and unnecessary costs to the customer, coordinate the installation of the power conductors with telecommunications services (telephone, television, internet).

- Telecommunications cables may be installed without a fixed minimum separation from the power service conductors, provided:
 - a concentric neutral cable or metal covered cable is used for the power conductors, or
 - the power conductors are installed in a conduit or plastic pipe.
- Otherwise, the separation between the telecommunication cables and the power service conductors should be not less than 300 millimetres of well-tamped earth, 100 millimetres of brick, or 75 millimetres of concrete.

12. Place service conductors loosely on undisturbed earth and install and protect them in accordance with Rule 12-012.

Depth of burial

Rule 6-300 1) b) references Rule 12-012 for underground installation requirements. Rule 12-012 further references Table 53 for proper burial depths. It is recommended that the minimum cover requirements for direct buried service entrance conductors, cables or raceways meet the requirements for vehicular areas as shown in Table 53, even in non-vehicular areas.

Connection of consumer's service conductors to utility pad mounted transformers

The supply authority is responsible for the safety and acceptability of the secondary terminations on their pad mount transformers regardless of who makes the actual connections. The following guidelines are recommended regarding safety procedures for the connection of a consumer's service to the secondary terminals of a utility pad mount transformer:

1. Obtain written authorization and supplementary instructions from the supply authority before commencing electrical work in the pad mount transformer enclosure.
2. Supply and install terminating lugs: approved for the type of conductors used, and compatible with the secondary terminals or bus of the transformer.
3. Ensure the supply authority inspects the terminations prior to energizing the transformer.

Maintenance of underground consumer services

If a breakdown occurs in underground service conductors or repairs become necessary, the local electrical utility must be contacted to disconnect and isolate the consumer's service conductors from the power supply. Also disconnect and isolate renewable back-up power sources where applicable.

The electrical utility companies have an agreement with "Utility Safety Partners" to locate and mark the location of the underground service conductors for digging postholes or other excavation and digging operations.

Electrical conductors and gas services in the same trench

The CE Code does not establish specific requirements for installing electrical conductors in the same trench as gas-lines. Gas service installed by gas utilities are subject to requirements administered by the Industry Governance and Rural Utilities Branch of Agriculture and Irrigation. If you wish to install electrical conductors in the same trench as a gas service, consult the local gas utility for advice.

Gas secondary lines (i.e., house to garage) are the owner's responsibility under the Gas Code Regulation. When electrical conductors are installed in the same trench, the requirements are covered under CSA B149.1:2025 which states the two systems must have a minimum separation of 12 in (300 mm) between the gas system and the electrical system.

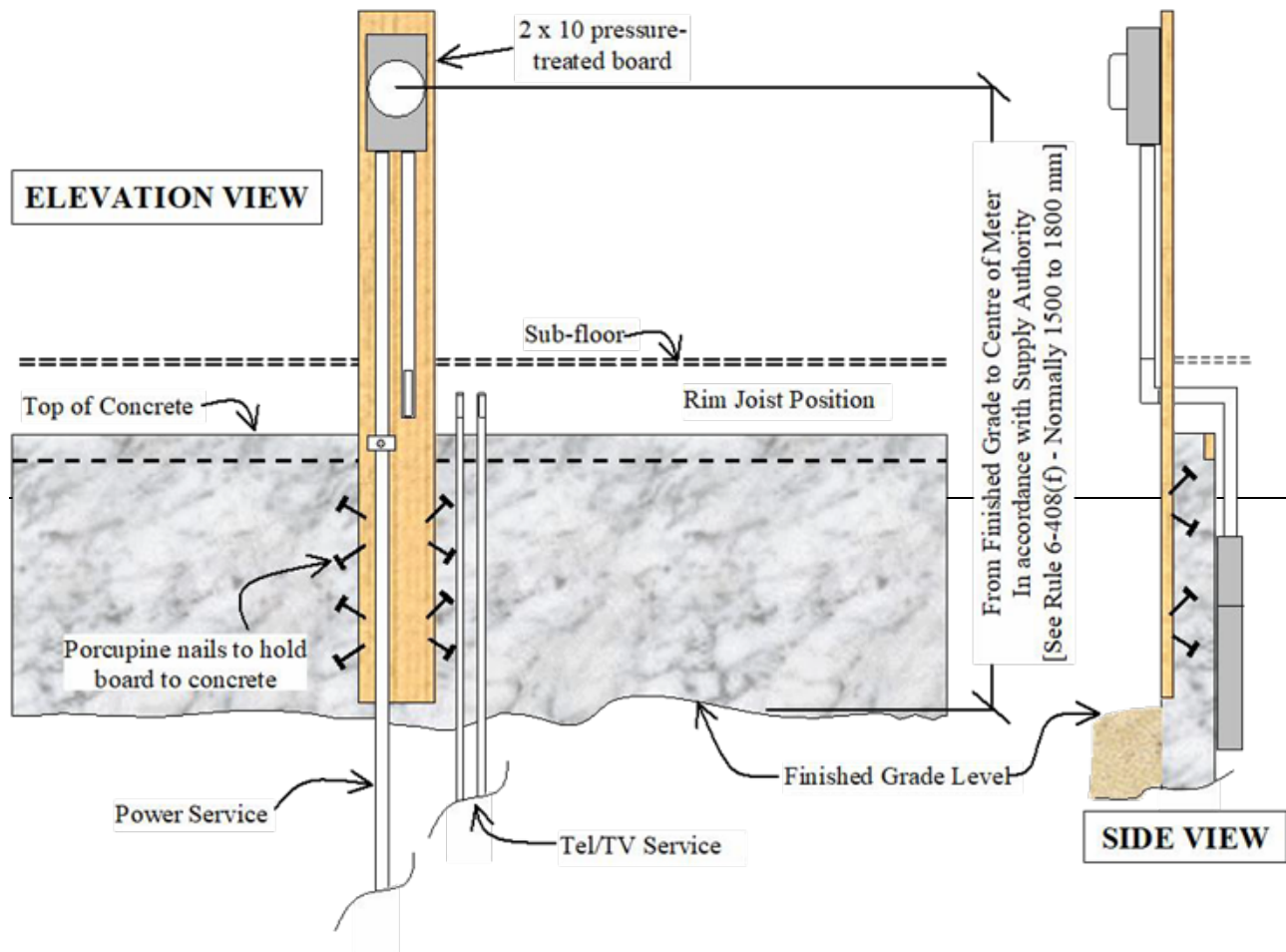
Rule 6-312 Condensation in consumer's service raceway

The industry has expressed concern with the use of fiberglass thermal insulation for sealing service raceways. The insulation often becomes saturated with moisture making it no longer effective and increasing the potential for rupture of the raceway during "freeze/thaw" cycles. Rule 2-126 2) does not permit the use of thermal insulation for this purpose. "Duct Seal" or other approved compounds are acceptable.

Rule 6-400 to 6-412 Metering equipment

The location and type of metering equipment must be acceptable to the supply authority. Consult the local supply authority for metering requirements to avoid costly changes and delays in getting a power connection.

1. Residential permanent meter socket support



Normally, the meter socket and service equipment are installed once the outside walls are constructed. Some contractors, however, have introduced alternate means of supporting the meter prior to outside walls being constructed in order to provide electrical service earlier during the construction phase of the residence. In these circumstances, consideration must be given to ensuring the meter is effectively supported. The diagram above shows one acceptable method of supporting the meter.

In addition to effective meter support, precautions must be taken to protect the panelboard from the effects of rain until the sub-floor is in place.

Installation of current transformers

For protection and safety of workers, the industry is reminded to short circuit the terminals of current transformers before opening the metering circuit while the system is energized. By design, current transformers may produce an extremely high open circuit voltage with the potential for serious shock hazard and equipment damage.

At installation, an accessible shorting block or similar mechanism should be provided for workers to be able to readily short circuit the current transformer circuit prior to opening the circuit.

Disclaimer:

The information in this bulletin is not intended to provide professional design advice. If professional expertise is required with respect to a specific issue or circumstance, the service of a professional should be sought.

Unless stated otherwise, all Code references in this STANDATA are to the 2024 Canadian Electrical Code, Part 1

Issued by the Provincial Electrical Administrator

Kevin Glubrecht

Alberta Municipal Affairs – Technical and Corporate Services

Email: safety.services@gov.ab.ca Phone: 1-866-421-6929

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