TECHNICAL SAFETY BC

# INFORMATION BULLETIN

## SERVICES AND SERVICE EQUIPMENT

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**REVISION 02**

The following bulletin provides guidance on the application of rules pertaining to the 2021 BC Electrical Code Regulation. The requirements of local municipal authorities having jurisdiction may vary. Prior to undertaking work, installers should consult with local authorities having jurisdiction to determine their requirements.

*This Information Bulletin supplements the Directive D-EL 2016-05 on: Services and Service Equipment*

**Topic: Services and Service Equipment**

### A: Services (Supply or Consumer) to Low Buildings

1. Where a service mast is used, a suitable installation will:
   - (a) Use a mast of sufficient height to provide clearances required by Rule 6-112(3);
   - (b) Have its mast located as close as practicable to a point opposite the service pole so that the requirements of Rule 6-116 will be met;
   - (c) Maintain the clearances over roofs required by Rule 12-310 whether the roof is accessible by stairway, door opening or by ladder;
   - (d) In areas of heavy snowfall, where the mast is in the path of sliding snow from a sloping roof of smooth hard material such as plastic or metal, have its mast securely braced or guyed back to a structural roof member; and
   - (e) See Appendix B Rule 6-112(5) for additional information regarding acceptable mast installations.
2. Where doubt exists concerning the correct mast location, the matter should be referred to the electrical safety officer and the Supply Authority before commencing the installation.

3. Rules 54-604(1) and 60-510(1) require that a minimum clearance of 300 mm be maintained at the mast between the lowest service wire and communication service drop wires. The clearances required by Rule 6-112(3) also apply to communication services. Therefore, the service wires must be high enough to permit the communication drops to maintain the minimum clearances above grade.

Note: For clearance requirements at other than service masts, see CSA Standard C22.3 No. 115.

**B: Location of Consumer's Service Equipment and Panelboards**

1. The ready access required by Rule 6-206(1) (b) may be obtained by locating the service equipment within an accessible room or electrical closet within the building.
2. A consumer's service disconnecting means shall be permitted to be located on or in a detached building or on a pole on the same property, see Directive D-EL-2016-05.
3. Plastic, metal, or wood garden sheds are not considered acceptable for the installation of electrical service equipment. Rule 6-208 requires consumer's service conductors to be outside the building (except where necessary to connect to a service box) unless the risk of fire has been reduced by additional measures such as concrete encasement. In addition, Rule 6-206(1) (c) requires the consumer's service box to be located as close as practicable to the point where the consumer's service conductors enter the building. These restrictions are needed to limit the risk of fire, because service conductors lack effective overcurrent protection.
4. A consumer's service raceway or cable that passes through the roof overhang but does not enter the wall is considered to be outside the building.
5. Where metering, supplied from an overhead or underground supply, has been installed on a secondary pole and the consumer's service conductors are run overhead to a service or multiple services, the installation shall comply with Rule 6-310 and 14-100 g).
6. In addition to the option of service equipment being located directly within the main occupancy structure an electrical closet with exterior access is an acceptable option. This does not exclude the requirement to have a service box with a disconnecting means within the building being served. Installers must confirm that structures are acceptable to the local authority having jurisdiction and that they meet local building code requirements.

   The local utility should be consulted regarding service location.

   For closet installations the following shall apply in addition to any Building Code or local authority having jurisdiction requirements:

   (a) doors open which provide unimpeded front access to all equipment;
   (b) a one metre working space with a finished floor is provided as required by Rule 2-308 with the doors open;

(c) headroom clearance is not less than two metres as required by Rule 6-206 1)c)iv);
(d) that portion of the working space between the doors and the front face of the equipment is at least 450 mm;
(e) an external roof is provided which projects one meter from a plane through the front of the equipment;
(f) lighting is provided in accordance with Rule 2-320;
(g) ventilation is provided in accordance with Rule 2-324; and
(h) any heat required based on equipment type (ie. Type 1 Ordinary Location).

**C: Panelboards in Secondary Suites**

Suite is understood to mean a self-contained dwelling unit located within a building of residential occupancy that contains another dwelling unit, where both dwelling units constitute a single real estate entity.

1. The requirements for panels in secondary suites are found in Rule 26-602, a suite or self-contained unit must have its own panelboard when separately metered.
2. Rule 26-602 1) (b) exempts the requirement for a separate panel in a suite where the suite is not individually metered.

**D: Outdoor Services for Permanent Installations**

1. Rules 6-206(1)(c) requires that consumers service equipment be located indoors except as permitted by Sub-rule (3). Acceptable installations for outdoor services will meet the following conditions:
   (a) A pole on which the service equipment is mounted is in accordance with CSA Standard C22.3 No 1, Overhead Systems, or other acceptable standard recognized by the Authority having jurisdiction;
   (b) The requirements of Rule 6-112(1) and (2) are met;
   (c) The service equipment is installed in an enclosure that is approved for the location; and
   (d) The equipment is protected from mechanical damage.
2. Protection from the weather includes protecting the equipment from all environmental conditions that can be expected in that location. This includes ensuring that the equipment is kept free of moisture and that adverse temperatures do not affect the proper operation of the equipment and overcurrent devices. Installers may be required to provide a report by an engineer in order to confirm that these conditions have been adequately mitigated.
3. Type 1 rated equipment is suitable for ordinary locations only. Type 1 rated Service equipment located in Type 3R enclosures is not permitted.

4. Treatment of wood poles shall conform to CSA Standard C22.3 No 1, Overhead Systems, or other standard recognized as acceptable by the Authority having jurisdiction.

5. Structural wood elements shall be suitable for the environment (ie.pressure-treated) as required by the BCBC or equivalent standard as per rule 2-112.

BC Building Code
Section 9.3. Materials, Systems and Equipment
9.3.2.9. Termite and Decay Protection
3) Structural wood elements shall be pressure-treated with a preservative to resist decay,
a) where the vertical clearance between structural wood elements and the finished ground level is less than 150 mm (see also Articles 9.23.2.2. and 9.23.2.3.), or
b) where
i) the wood elements are not protected from exposure to precipitation,
ii) the configuration is conducive to moisture accumulation, and
iii) the moisture index is greater than 1.00.

**Temporary Construction Installations and permanent services connected prior to completion.**

(Refer to Information Bulletin)

**Condensation in Service Raceways and Equipment**

It is considered that condensation will be avoided if a minimum of 12 mm of insulation or a 12 mm space is provided between the service box and the exterior sheathing.

**E: Meters**

1. In installations where the service is connected, but the meter sockets are without meters, the safety requirements of Rules 2-200 and 2-300 will be fulfilled if:

   (a) Meter sockets are fitted with substantial covers to exclude the weather and protect against accidental contact; and

   (b) All unused openings in meter sockets are fitted with screw-type plugs, inserted from within the socket and so secured as to prevent their removal after the meter and seal have been installed.

2. When terminating conductors to the lugs of a meter base, attention must be given to the amount of torque given to a particular meter lug when tightening. Specifications for recommended torque pressure are stated either in the manufacturer's specification sheet for the particular meter, or on the specification

label mounted on the exterior or interior of a meter base. The torque pressure is stated in either lb-ft, in-lb or Nm of torque pressure.

3. There is not sufficient space in the round Type-S meter socket to provide proper clearance from live parts to the locknut and bushing, or to bend the conductors without damage if the conductors enter from the back of the socket. Consequently, back entry to such meter sockets cannot be accepted.

4. There is not sufficient space in round Type-S meter sockets for side entry of conductors larger than No. 6 AWG. When using No. 6 conductors, care must be taken to avoid damage to meter terminals and to avoid interference with the proper seating of the meter.

5. Either back or side entry to the square type of meter socket will produce a satisfactory installation provided that both locations are not used at the same time and that terminal blocks are arranged with the terminals on the outside of the block for back entry and on the inside for side entry.

6. Installers are reminded that Rules 6-116, 6-206, 6-404, 6-408 and 6-410 require compliance with the utility concerned. Because different utilities may have different requirements for the installation of their metering equipment, installers should be aware of current utility requirements.

**F: Location of Consumer's Service Conductors**

Consumer's service conductors should be treated as unprotected until they enter the main service box. If damaged, these conductors can be a potential fire and shock hazard and should therefore be located outside the building to prevent risk of fire. The Code allows for installation methods which permit these unprotected conductors to be run inside a building. Rule 6-208 (1) requires raceways or cables containing consumer's service conductors be located outside buildings unless they are embedded in at least 50 mm of concrete or masonry, directly buried and beneath a concrete slab which is at least 50 mm thick or run in a non-combustible crawl space which is no more than 1.8 m in height and with no combustible materials stored in the crawl space. Sub-rule (2) allows the conductor to enter the building only for the purpose of making a connection to the service box. Rule 6-206 (1)(c) requires that the service box be located "as close as practicable" to the point where the consumer's service conductors enter the building.

Under these rules, "close as practicable" is interpreted to mean that the length of cable or raceway containing consumer's service conductors must be kept as short as possible, without violating any other rules of the Code. It is recommended that a cable or raceway containing consumer service conductor be encased in concrete or buried where the cable or raceway is run inside a building. Cables or raceways not encased in concrete or buried and run inside a building for distances greater than 1.5 m, are not considered to be acceptable without prior consultation with the Authority having jurisdiction.

Provincial Safety Manager – Electrical

**References:**

Bill 19 – 2003 *Safety Standards Act*

B.C. Reg. 100/2004 Electrical Safety Regulation

B.C. Reg. 105/2004 Safety Standards General Regulation C22.1-15 Canadian Electrical Code