



Underground Residential Service Inspection Checklist

This checklist is intended to provide a summary of the installation requirements for underground residential electricity services 200 Amp or less. All items noted below must be complete and visible for inspection.

Inspection requests shall be submitted via email to ServiceInspectionRequest@epcor.com. Include the following details: Site Address, Permit Number, Inspection Type (Underground or Service). For underground inspection requests please include 3 clear, hi-resolution photos of the direct earth buried installation; 1 photo from the end of the trench with the cable, bell end and building address on the foundation visible, 1 photo from above showing the cable from the service box to the conduit bell end, 1 photo close-up of the conduit bell end. Please submit 1 address per email inspection request. If adequate photos are provided, then the portion of cable between the service box and end of the conduit may be sanded and covered prior to inspection. When photographs are not provided this portion of cable will be subject to on-site inspection. Photos submitted will be reviewed on site and if found deficient, corrections and possible exposure of cables to verify installation will be required. Completed inspection reports will be sent to the email address noted on the permit.

Residential Underground Inspection:

The underground inspection is to ensure the underground service conduit and cable installations below grade comply with Section 5 and Drawing 5.3 of the EPCOR Customer Connection Guide.

- Final grade must be clearly identified on the foundation wall at the front, back & riser locations
- Electrical conduit shall be installed & affixed to the foundation wall unless the minimum depth cannot be achieved
- Electrical service cables shall be installed in a minimum 63 mm rigid PVC conduit
- Electrical conduit affixed to the foundation shall be a minimum depth of 1.0m to top of conduit
- When the electrical conduit leaves the foundation the depth shall match that of the cable where it enters the site at the service box locations, but shall not be less than 1.0m at a depth greater than 1.3m, the conduit depth shall be transitioned to a depth of 1.0m to 1.3m before terminating the conduit, or if the service entry point at the service box is deeper than 1.3m, the depth of the conduit shall match that at the service box
- Affixing electrical conduit to the foundation:
 - 1 two-hole 63mm rigid steel strap on the vertical below the bell fitting on the 90° bend
 - 1 two-hole 63mm rigid steel strap horizontal just after the 90° bend
 - 1 two-hole 63mm rigid strap every 1800 mm on the horizontal between these 2 straps and 1 two-hole 63mm rigid steel strap
 - 1 two-hole 63mm rigid strap within 150 mm of corner of the building foundation
 - ICF foundations must use 20 mm (3/4") pressure treated plywood secured with longer anchor bolts
 - For installations where the foundation does not extend to a depth greater than 1.0m (such as grade beams), 1 two-hole strap shall be placed on the concrete before the conduit extends past the concrete
- The service conduit sleeve shall be inside diameter of 100 mm (4") and 600mm long with 300mm above grade and 300mm below grade
- Electrical conduit shall be fully supported after it leaves the foundation wall. Native backfill, sand, sandbags or other similar backfill material (scrap lumber & other construction materials are not acceptable) may be used to ensure the conduit is not suspended in the air
- A bell end shall be installed on the end of the conduit within 1m of the utility easement or property line

Utility Separation:

- Where gas and electrical services are run in the same trench a minimum of 300 mm separation is required
- Where gas crosses over the electrical service, sand cover or a minimum of 3 filled sandbags shall be used to maintain 300mm separation
- Parallel runs of electrical service cable where the cable will enter and terminate within the same electrical enclosure shall meet the separation requirement of 190mm as established in CSA C22.1, 4-004

Backfill:

- Suitable native backfill directly over the conduit must be fine-grain clay, to avoid deforming or damaging conduit, it shall be free of clumps over 152mm (6") or rocks over 19mm (3/4")
- Soft, clean bedding or fill sand, shall be placed 150mm below and 300mm above the electrical service cable in all cases for any portion of the cable that is direct earth buried. The cable may be covered for inspection after proper photographs are taken
- All sand shall be free of clay, rocks, organic materials, and any deleterious contents
- Marking tape is required midway between conduit and finished grade
- Backfill may be completed only after the installation has passed the underground inspection with an acceptable sticker applied to the riser

Residential Service Inspection:

The underground service inspection is to ensure that the installation of the service riser and meter base meet the requirements set out in Drawing 5.3 and Section 10 of the EPCOR Customer Connection Guide.

- 1 mast clamp must be installed to properly secure the riser to the wall
- Meter base shall be 1.4m to 1.7m from final grade to center of the meter base
- Meter base shall be 200 Amp rated, 400mm (H) x 280mm (W) x 100mm (D)
(For residential services greater than 200 Amp, please refer to the EPCOR Customer Connection Guide)
- A minimum working space of 1.0 m from center of the meter to either side by 2.2 m high is required in front of all electrical equipment, with no exhaust vents installed within this space.
- It is not permissible to have other pipes, ducts for vents capable of discharging water directly above the meter
- The Contractor shall make the termination on the load side of the meter socket.
- The Contractor shall terminate to the line side of the meter socket. When doing so, the following requirements shall be adhered to:
 - All conductors are to be tucked to the side of the enclosure and the run to the top of the meter enclosure prior to coming down to the termination points.
 - The neutral conductor shall be either equipped with a white insulated sleeve or taped white for its entirety within the enclosure.
 - The jacket of the conductor shall be trimmed as close as possible to the connector while still extending through.
 - The load side conductor length shall be kept to a minimum, but allowing enough conductor to terminate in a neat and orderly fashion.
- The main breaker in the electrical panel shall be terminated and in the off position
- The CSA certification label or stamp and the connection on the electrical ground plate visible for inspection
 - Other acceptable grounding methods (such as ground rods) shall be left exposed for inspection

Example photos:

#1



#2



#3

