Technical Requirements for Residential Service

Scope:

This document applies to standard multi-party residential electric and gas services meeting the following criteria:

- Electric services of 200 amp or less; and
- Gas Services delivering:
  - 7" W.C. (0.25 psig) with a maximum possible connected gas load of 430,000 BTUh, or
  - 2 psig with a maximum connected gas load of 380,000 BTUh.

Out of Scope:

- Electric services larger than 200 amp.
- Electric services with switches (not integral to the meter), secondary sources (generators), Distributed Energy Resource (DER), batteries, automation equipment and electric vehicle infrastructure are not covered in this document.
- Multi-dwelling residential services are not covered in this document
- Gas services with delivery pressures and connected loads greater than those indicated above

Contact Manitoba Hydro at SMCESApplications@hydro.mb.ca if the service doesn't meet the criteria listed above.

Service Points:

In most residential developments, the underground services (electrical, natural gas, telephone and cable) to new houses are installed at the same time with all service points installed closely together. This is a multi-party arrangement commonly referred to as the Four-Party Utility Arrangement. Like many things in new house construction, there are standards and codes that apply to the service points that must be met to provide an installation that can be safely maintained in the future. Manitoba Hydro has developed a standard service point installation design suitable for the typical house in Manitoba's pre-serviced residential developments. As shown in the following figures, the standard service points are installed within a two-meter utility space and restricted area on the side of the house starting immediately on the front corner.

Pre-serviced Developments

Provisions for the future connection of services to new houses are made when the electrical, gas and communication mains are installed in a pre-serviced development. Service stubs are installed and left buried in the ground for future extension and connection to the new house. The buried service stubs are identified above grade on site with yellow post markers. The post markers must not be removed, and care must be taken to prevent damage.

The house service point must match the location of the service stubs (right or left side of the lot). All customer's electrical equipment, including communication, must be roughed in prior to Manitoba Hydro's contractor installing the underground services from the service stub to the house service point. Once the customer electrical equipment is installed, Manitoba Hydro's contractor will trench between the mains at the street and the service point to install services. Construction areas are busy places with many contractors working at the same time, and construction materials, waste materials or fill are often piled up on site. To facilitate service installation, the trench area must be within 150mm (6") of finished grade and clear of any materials that would prevent the installation of the underground services.

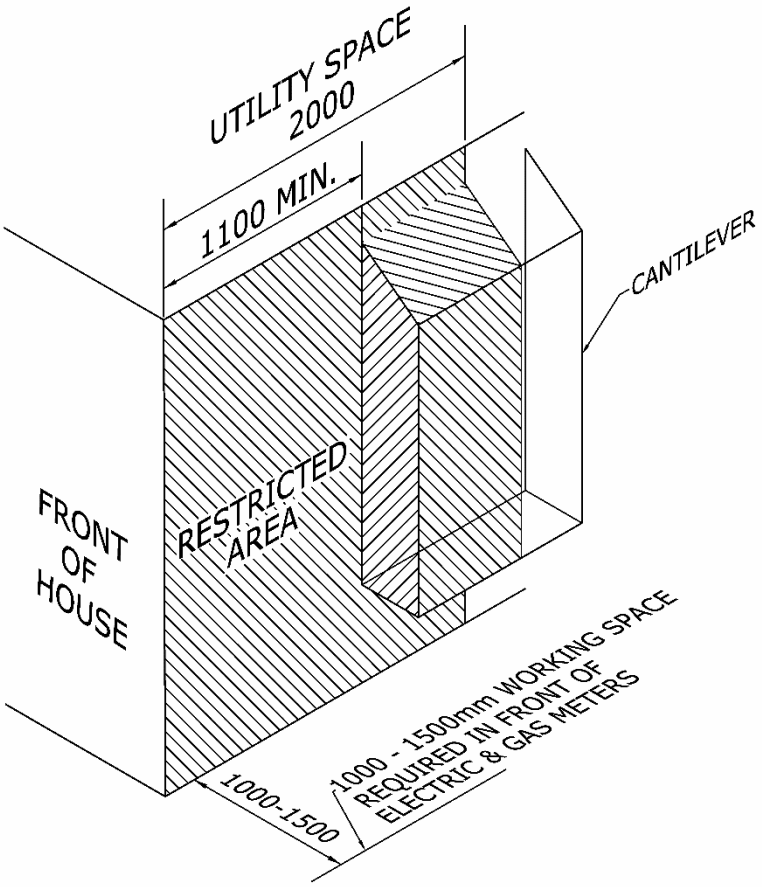
Utility Space and Restricted Area

Manitoba Hydro requires a minimum two-meter utility space and restricted area on the exterior wall of the house reserved for the electrical, gas and communications equipment installation. This utility space and restricted area must be maintained free of prohibited building features. Refer to Figure 1.

The standard meter layout for the Four-Party Utility Arrangement with the minimum space required is illustrated by Figures 3 and 4. These figures illustrate the most compact version of the utility arrangement, and it's critical that the electrical and communications conduits be installed at the dimensions shown. Utility spaces that do not comply with the minimum requirements will be issued non-conformances and will experience delays in service installation and energization.

For houses built on larger properties where the side lot is more than 3000mm, there may be some flexibility in the location of the service points. Please contact the local Energy Services Coordinator for further information.

Figure 1 – Utility Space and Restricted Area



Shaded area denotes the restricted area prohibiting the placement of building features including, but not limited to, the following:

- Doors
- Operable windows
- Gas appliance combustion air intakes
- Exhaust vents (building exhaust, dryer exhaust, HRV exhaust)
- Arc-producing electrical equipment (non-utility equipment)
- Source of ignition – outdoor gas appliances
- Sump pump discharge
- Outdoor water tap

The following building features require a three-metre horizontal clearance from the gas regulator relief vent:

- Mechanical air intakes
- Source of ignition – open flames

Notes:

1. Figure 1 above illustrates the restricted utility space area and the minimum distance from the front corner of the building.
2. The utility space shall be a flat surface (i.e. no cantilevers – except as noted, faux columns or other obstructions).
3. Non-operable, permanently sealed windows and architectural overhangs can be located above the electric and gas meters; however, such features must be located a minimum of 1-metre above the electric meter.
    a. Architectural overhangs must comply with the gas regulator vent separation distance and location requirements provided in the next section.
4. The installation of a rain gutter downspout shall not interfere with the utility equipment.
5. Dimensions are shown in millimetres.

Separation Distance Requirements from Natural Gas Regulator Vent

The separation distance between the natural gas regulator and various building components, sources of ignition and/or potential sources of ice build-up is an important consideration for the utility arrangement. The minimum separation distance requirements for the installation of the gas service are identified in Figure 2 and Tables 1 and 2.

These separation distances are applicable to natural gas regulators meeting the delivery pressure and connected load criteria listed in the Scope section. Gas services not meeting the criteria require additional relief vent separation distance.

Additionally, the regulator vents must:

- be located on a straight wall or at an outside corner of the building or located more than one metre from an inside corner (except for a building cantilever less than one metre wide)
- not be located in a recess of two metres or less in width or greater than one metre deep
- not be located under an overhang greater than one and a half metres in depth

The separation requirement is to include the entire horizontal distance, including measuring around a corner, from the vent termination to the building feature as identified in Table 1.

Figure 2 applies to the termination of the regulator vent. Where a vent extension is used, the spacing shall be taken from the end of the vent extension.

Figure 2 is not intended to describe separation requirements between various building openings.

If the required separation distances are not met, Manitoba Hydro will issue a non-conformance resulting in delays in service. The following are examples of measures that may be required to resolve non-conformances:

- building elements may require relocation (e.g. relocation of mechanical intakes)
- building elements may require modification (e.g. permanent sealing of operable windows)
- Installation of the service points on the front of the building
- installation of the service points on a remote meter structure away from the home on the property
    - the builder is responsible for the provision of the remote service facilities, and to extend the services from this remote location to the building
    - the homeowner is the owner of these remote service points and will be responsible for the costs and any work needed to maintain these service points in acceptable conditions for the life of the house

Non-standard installation requirements may require additional time to coordinate and install.

Contact Manitoba Hydro if the service does not meet the clearance criteria listed above.

Figure 2 – Separation Distance Requirements for Gas Service

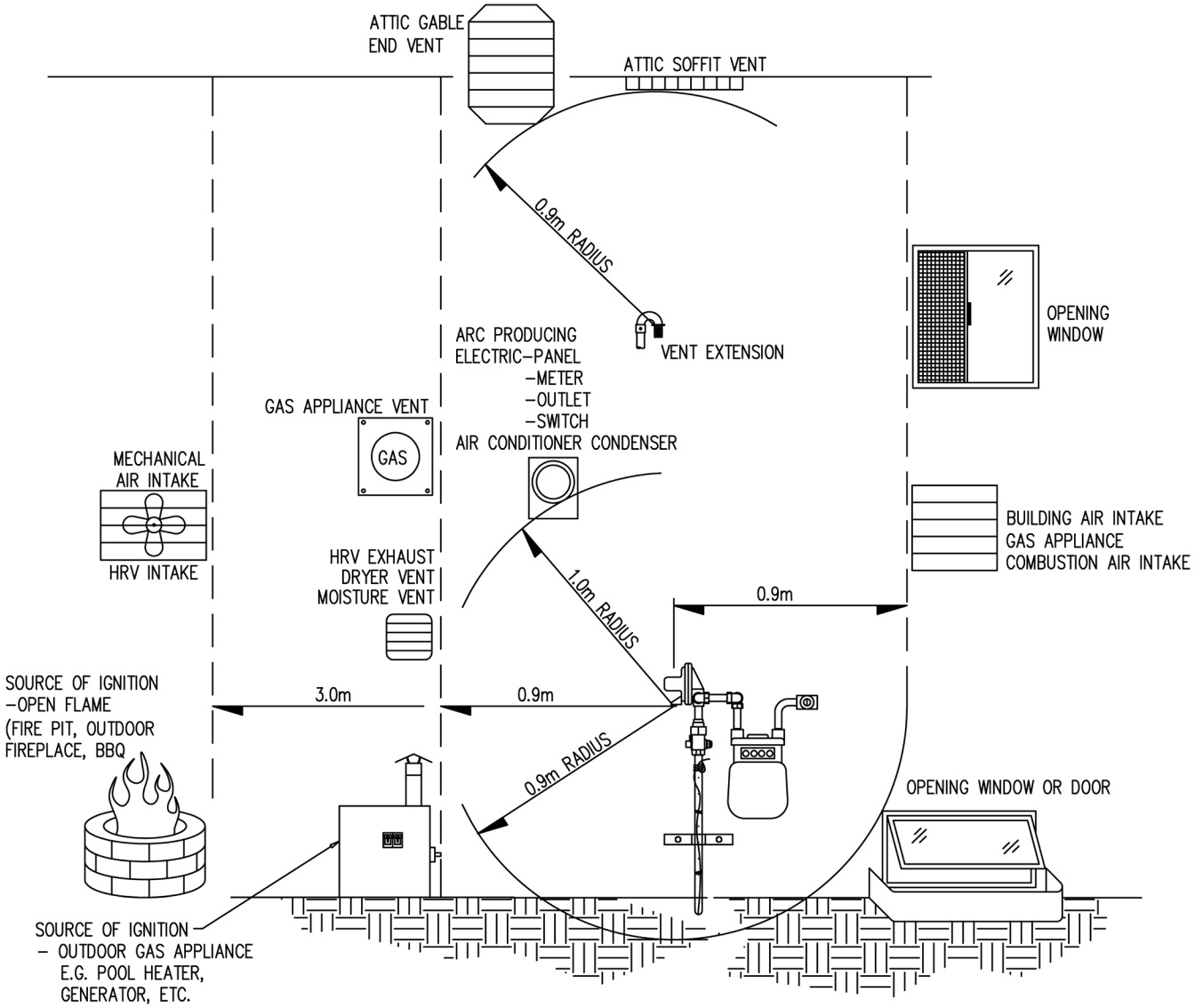


Table 1

Separation Requirement Between Natural Gas Regulator Vent and Select Building Features

Building Feature	Separation Requirement (Minimum)
Building opening Operable window or door Gas appliance air intake (i.e. passive combustion air, direct vent combustion air) Outdoor air intake [NOTE 1/NOTE 2] Gas appliance combustion air intake	0.9 m, horizontal, above the regulator vent for the full height of the building 0.9 m, radial, below the level of the regulator vent
Source of ignition – open flame (e.g. fire pit, outdoor fireplace, BBQ)	3 m, horizontal, above the regulator vent for the full height of the building 3 m, radial, below the level of the regulator vent
Source of ignition – outdoor gas appliance (e.g. pool heater, generator)	0.9m, radial, from the regulator vent
Mechanical air intake [NOTE 2]	3 m, horizontal, for the full height of the building
Arc-producing electrical equipment: Electric meter, panel, switch or outlet. Air conditioner condenser	1 m, radial, from the regulator vent
Gas appliance vent (e.g. flue/direct vent) Moisture vent, Dryer vent HRV exhaust	0.9 m, horizontal, above and below the regulator vent for the full height of the building
Attic soffit vent Attic gable end vent	0.9 m, radial, from the regulator vent extension

Table 1 Notes:

Note 1: Outdoor air intake[NOTE 3] less than 200mm (8”) in diameter or equivalent area shall be considered building openings when using Table 1.

Note 2: Outdoor air intakes [NOTE 3] equal to or greater than 200mm (8”) in diameter or equivalent area shall be considered mechanical air intakes when using Table 1.

Note 3: An outdoor air intake is the ducting that goes from the outside of a structure and terminates into the appliance return air plenum. This may also be referred to as a fresh-air intake.

Table 2

Separation Requirement Between the Natural Gas Regulator Vent and Potential Sources of Ice Build-Up

Building Feature	Separation Requirement (Minimum)
Downspout opening Leaking rain gutter	1 m, horizontal, above the regulator vent for the full height of the building
Sump pump discharge Water tap	0.5 m, horizontal, above the regulator vent for the full height of the building 0.5 m, radial, below the level of the regulator vent

Figure 3 – Right Side Four-Party Arrangement

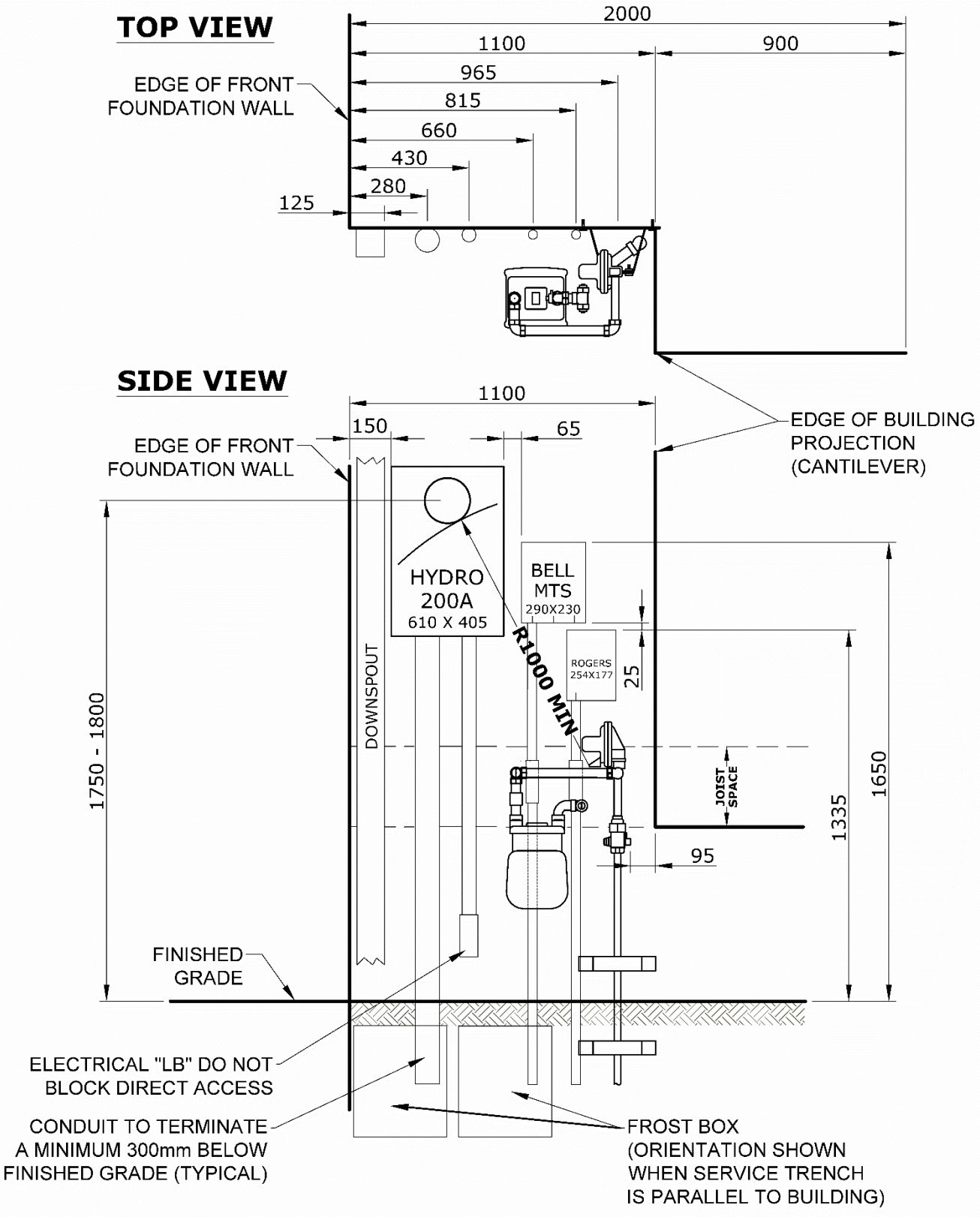


Figure 3A - Photo of Example Right Side Four-Party Utility Arrangement

Installation Notes

1. The builder is required to submit a site plan and side elevation drawings with the application for service. Drawings shall clearly identify service riser locations, restricted utility space and clearances complete with dimensions.
2. A minimum of 1000mm clearance is required from the closest point of the electric meter glass to the gas regulator relief vent.
3. A working space of 1500mm with secure footing is preferred in front of the utility electrical and gas equipment. As per the Manitoba Electrical Code, a minimum working space of 1000mm with secure footing is required in front of all electrical equipment, including the electrical meter socket. This distance must be located on the customer's own property and the measurement cannot extend beyond the customer property line.
4. The 610x405mm (24"x16") Hydro meter box shown is suitable for use with 350kcmil Hydro secondary conductors. All dimensions shown shall apply when a smaller meter box is used.
5. The Right Side Four-Party Arrangement in Figure 3 and 3A shows a gas meter set with a left-hang swing. If space permits, Manitoba Hydro may install the gas meter swinging to the right without changing the relative placement of the gas riser. For reference, Figure 4 and 4A show a gas meter piping configured for right hand swing.
6. The builder must clearly mark the final grade elevation with weather resistant paint applied to the foundation to set the reference for utility service installation height.
7. The builder must clearly identify the building address such that it is visible from the road.
8. Dimensions are shown in millimetres.

Figure 4 – Left Side Four-Party Arrangement

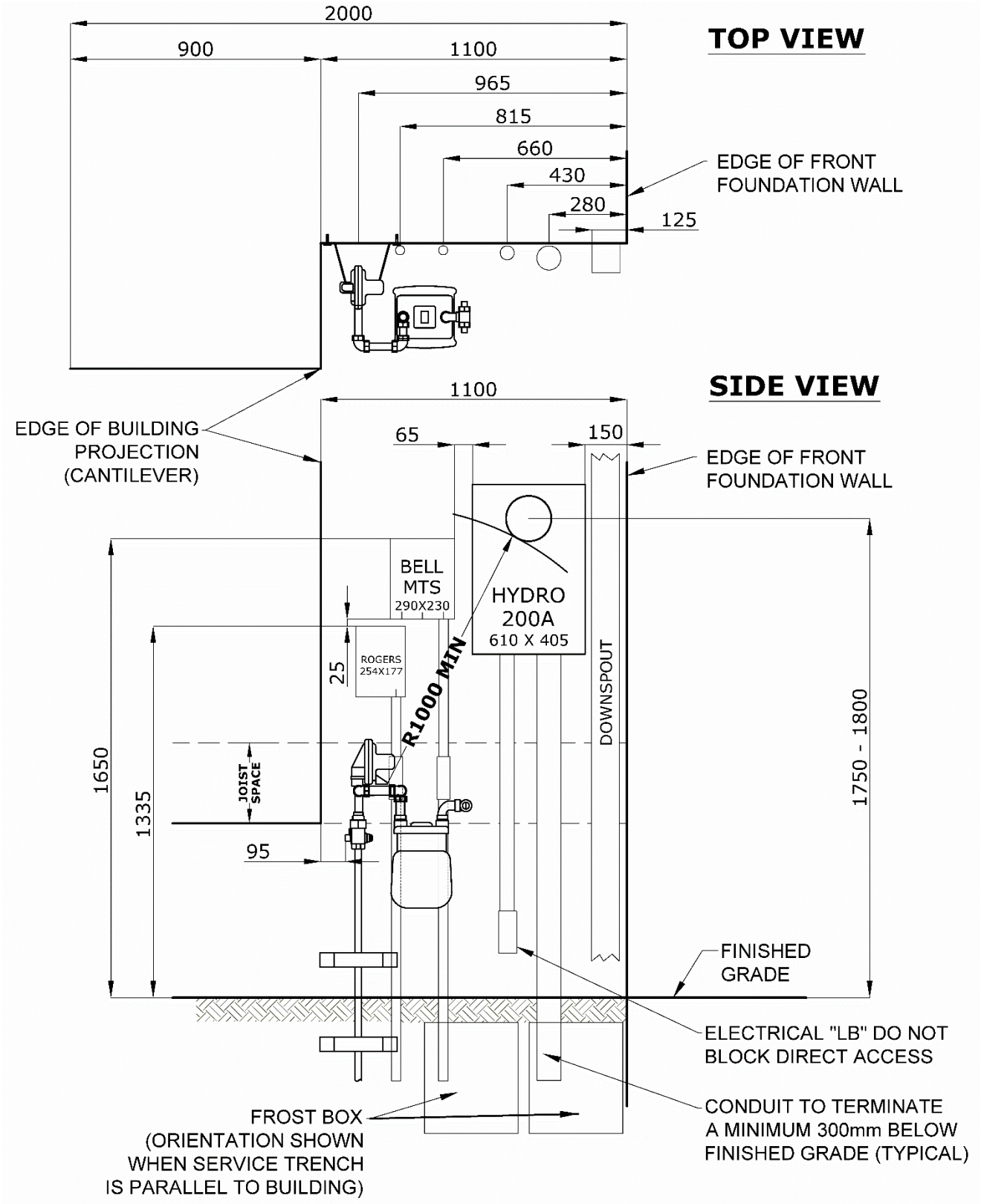
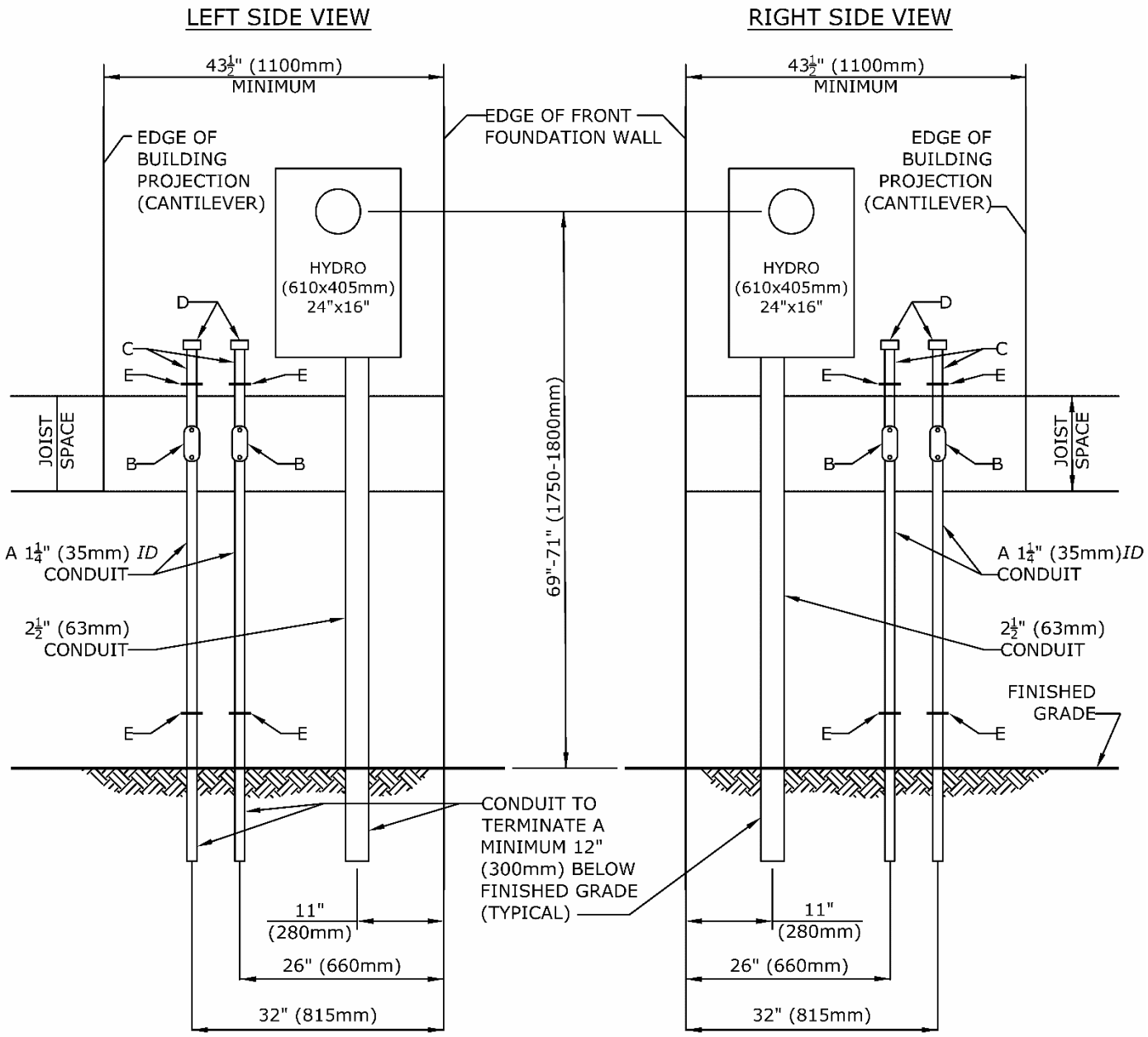


Figure 4A – Photo of Example Left Side Four-Party Utility Arrangement

Installation Notes:

1. The builder is required to submit a site plan and side elevation drawings with the application for service. Drawings shall clearly identify service riser locations, restricted utility space and clearances complete with dimensions.
2. A minimum of 1000mm clearance is required from the closest point of the electric meter glass to the gas regulator relief vent.
3. A working space of 1500mm with secure footing is preferred in front of the utility electrical and gas equipment. As per the Manitoba Electrical Code, a minimum working space of 1000mm with secure footing is required in front of all electrical equipment, including the electrical meter socket. This distance must be located on the customer's own property and the measurement cannot extend beyond the customer property line.
4. The 610x405mm (24"x16") Hydro meter box shown is suitable for use with 350kcmil Hydro secondary conductors. All dimensions shown shall apply when a smaller meter box is used.
5. The builder must clearly mark the final grade elevation with weather resistant paint applied to the foundation to set the reference for utility service installation height.
6. The builder must clearly identify the building address such that it is visible from the road.
7. Dimensions are shown in millimetres.

Figure 5 - Electric Meter Layout - Electrical Contractor Rough-in



NOTES:

MANITOBA HYDRO SERVICE INSTALLATION WILL NOT PROCEED IF ROUGH-IN IS NOT INSTALLED AS SHOWN.

A: 1.25" (35mm) ID PVC CONDUIT

B: 1.25" (35mm) ID TB ACCESS FITTING (BACK ENTRY) WITH 16" (406mm) - 1.25" (35mm) ID PVC CONDUIT STUB INTO HOUSE

C: 6" (153mm) - 1.25" (35 mm) ID PVC CONDUIT STUB ON TOP OF TB

D: 1.25" (35mm) CONDUIT CAP

E: 1.25" (35mm) PVC CONDUIT CLAMP