

Bulletin 2-10-17
Electrical equipment near combustible gas equipment
Rules 2-328 and 6-408

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Scope

- 1) Background
- 2) Direction for the application of Rule 2-328
- 3) Clearances from sources of ignition

1) Background

Rule 2-328 states that, for areas not classified as per Section 18 and Annex J18, the clearance between arc-producing electrical equipment and a combustible gas relief device or vent shall be in accordance with the requirements of CSA B149.1, “Natural gas and propane installation code,” and B149.2 “Propane storage and handling Code,” which uses the terms “source of ignition” and “discharge openings of relief devices”.

In Ontario, CSA B149.1 is amended and replaced by the Technical Standards & Safety Authority’s (TSSA) document FS-255-21 “Gaseous Fuels Code Adoption Document Amendment”.

The Appendix B note to Rule 2-328 considers the following (not limited to) arc-producing electrical equipment to be considered as sources of ignition: receptacles, switches, meter base plug in transfer devices, meter base plug in devices with an internal service disconnecting feature, electric metering equipment with an internal service disconnecting feature, air conditioning units, and related disconnecting means. This interpretation is consistent with the rules concerning the use of electrical equipment in Class 1 Zone 2 locations.

An energy management system (EMS) and/or electrical vehicle supply equipment (EVSE) typically contain internal make-break connections (internal disconnecting features) as part of its functionality to control the charging process.

Meter bases, conventional mechanical meters and conventional smart meters are not a source of ignition and are permitted to be located within 1 metre of a natural gas discharge opening and 3 metres of a propane gas discharge opening. A meter is considered a conventional meter if it does not contain an internal service disconnecting feature.

All sources of ignition, regardless of the date of installation, shall be kept outside of the clearance shown in Figure B1. Meter mounting device (meter base) locations, as per Rule 6-408 f), shall be in compliance with the requirements of the supply authority.

2) Direction for the application of Rule 2-328

The following metering equipment are not considered to be sources of ignition:

1. Conventional mechanical meters (*Photo B1*); and
2. Conventional smart meters, no service disconnecting feature (*Photo B2*).



Photo B1



Photo B2

The following metering equipment are considered to be sources of ignition:

1. Electrical metering equipment (e.g. smart meters) with an internal service disconnecting feature (*Photo B3*). These meters may include a schematic drawing of the service switch. In the example below a dotted rectangular box indicates where the disconnect lies within the circuit.
2. Meter base plug in transfer devices (*Photo B4*); and
3. Meter base plug in devices with an internal service disconnecting feature, including remote disconnects (*Photo B5*).

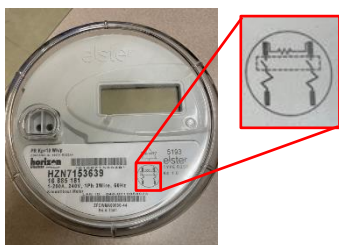


Photo B3



Photo B4



Photo B5

Note: Installers may need to contact the local distribution companies (LDCs) to get more information about the types of metering equipment.

Question 1

Is an EMS considered an arc producing device for the application of Rule 2-328?

Answer 1

Yes, unless documentation is provided from the manufacturer that the EVSE or EVEMS is not an arc-producing device.

3) Clearances from sources of ignition

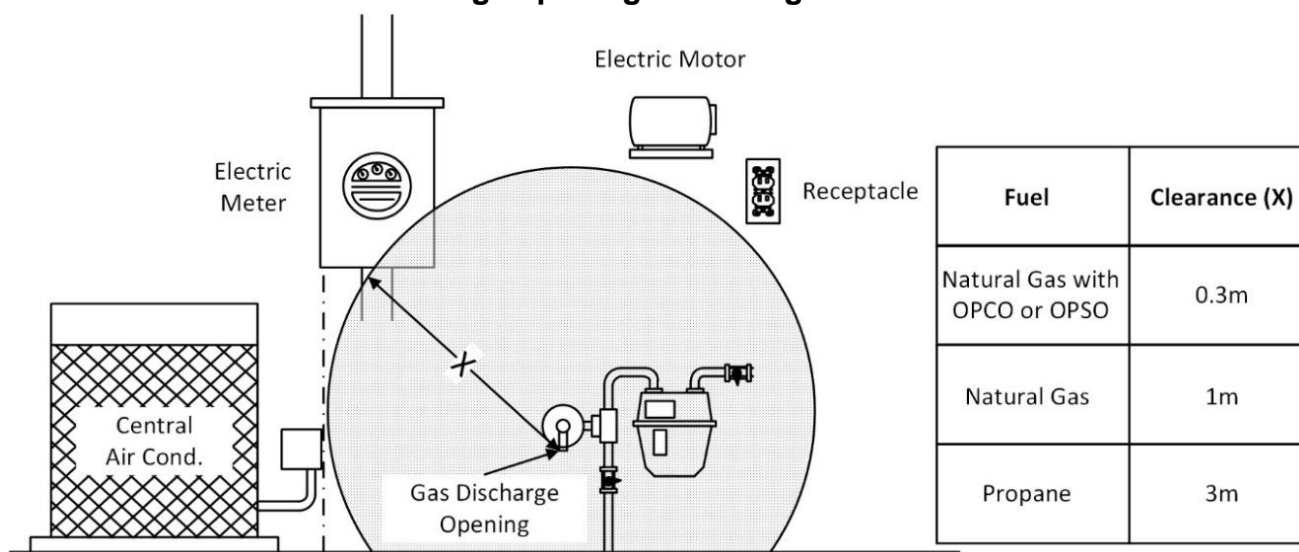
FS-255-21 “Gaseous Fuels Code Adoption Document Amendment” Section 5.6.4 contains the following:

- Table 5.3 lists the “Clearance from discharge openings of relief devices located in supply lines”
 - For a natural gas certified OPCO conforming to ANSI Z21.80/CSA 6.22, the clearance from a source of ignition is 0.3 m
 - Table 5.3 is used when the relief device is located *downstream* of the utility termination
- Table 5.4 lists the “Clearance from discharge openings of service relief devices”
 - For natural gas service regulators certified to CSA 6.18, incorporating OPCO system and with limited relief of 1.5 m³/h (50 scf/h), the clearance from a source of ignition is 0.3 m
 - Table 5.4 is used when the relief device is located *upstream* of the utility termination

On residential sites where there is very little space to obtain the required clearance of 1 m, the use of a natural gas certified OPCO or OPSO regulator is an acceptable solution to the problem of separation. This may be applied for any type of equipment that is considered a source of ignition located at a distance of less than 1 m from the discharge opening. Figure B1 illustrates an example of an installation that complies with the minimum requirements.

Photo B7 is provided to show the demarcation point and shows a relief device that is located upstream of the utility termination.

Figure B1 - Minimum clearance required between electrical equipment and gas discharge opening according to FS-255-21



Question 2

Is it permitted to install arc producing electrical equipment which are considered a source of ignition (e.g. A/C unit) at a distance of less than 1 m from the discharge opening of a natural gas relief device or vent?

Answer 2

No, unless a certified Overpressure Cut-Off (OPCO) with limited relief (LR) of 1.5m³/h (or less), or no relief (P) that is also referred as Overpressure Shut-Off (OPSO) device (as per CSA standard 6.18) is installed. In this case, sources of ignition may be installed no closer than 0.30 m (1 ft.) from the gas discharge opening of the relief device. The overpressure relief device must be marked “LR-OPCO”, “P-OPCO”, or “OPSO” (see the example in Photo B6).

Photo B6 – OPCO device



Photo B7 – Typical demarcation point between Gas Company and customer house line

