

Inspection and Technical Services

Gas Equipment Bulletin: Providing Combustion Air to Residential, Commercial and Industrial Installation

ITS 21-024

CSA B149.1- 2015 - Natural gas and propane installation code

8.3 Air-supply openings and ducts

8.4 Air-supply requirements for appliances having a total input exceeding 400,000 Btuh (120 kW)

Topic

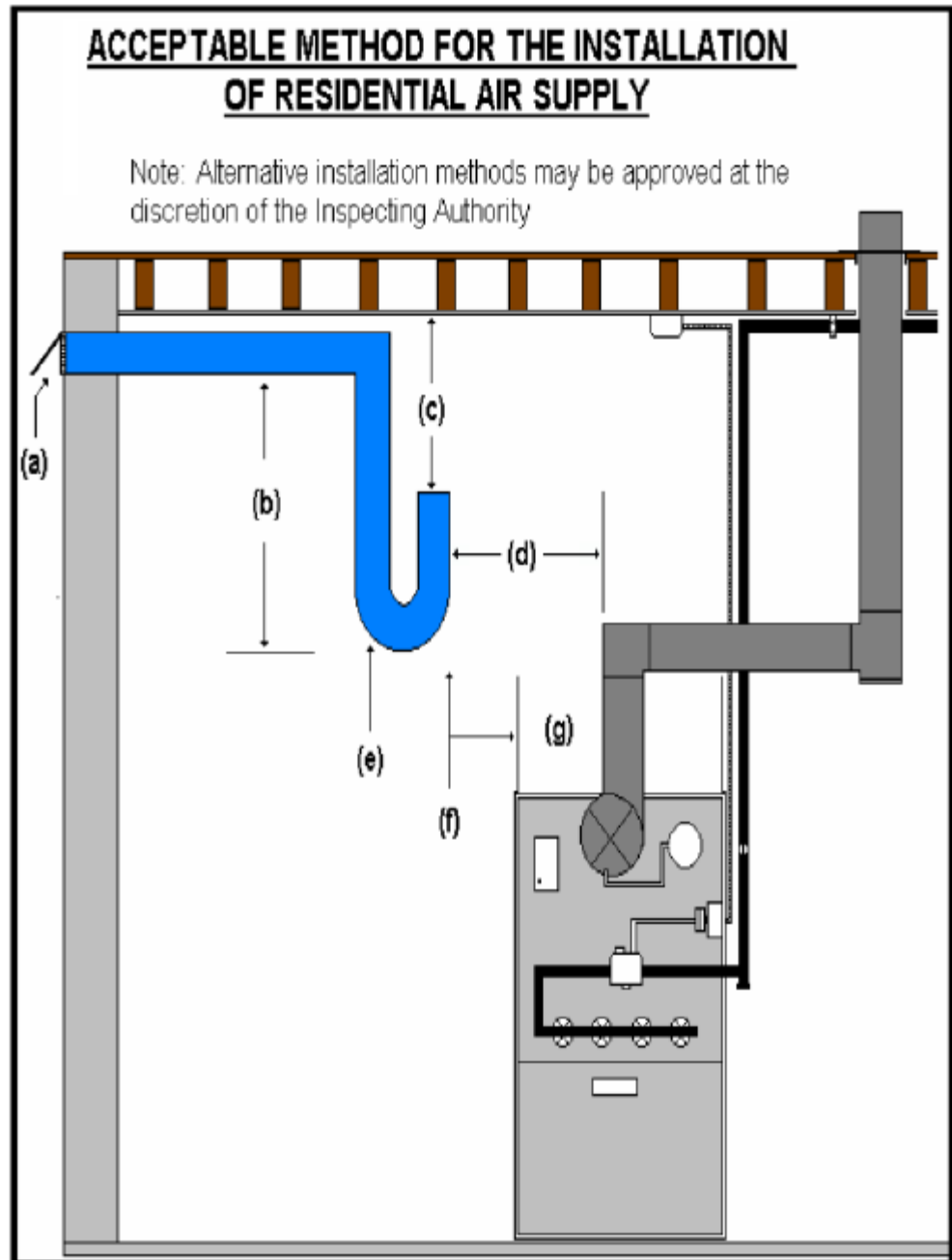
CSA B149.1- 2015 - Natural gas and propane installation code provides methods of providing air supply to gas-fired equipment. Considering Manitoba's cold winter climate, it is important to design installations that provide free flow of combustion air to residential or commercial/industrial gas-fired equipment, without delivering excessive cold air to the space.

Important Information

Methods of providing air supply to gas-fired equipment must comply with the current CSA B149.1. However, to prevent excessive cold air entering rooms where residential or commercial/industrial gas-fired equipment is installed, the air supply inlet may be ducted in accordance with Figure (1) for residential, Figure (2a) and (2b) for commercial/industrial installations, or by a method approved by the inspecting authority.

Note: This method is intended to provide air for combustion purposes only and does not provide air that may be required by other systems in the building, such as high-volume exhaust fans and dryers. All other air requirements must be assessed and adequate provision for total building air requirements must be made.

Figure (1)



- (a) An inlet protected by a device that prevents rain, snow or rodents from entering the building. This inlet should be installed 12 inches (30 cm) above grade.
- (b) Trap with minimum depth of 2 feet (60 cm).
- (c) Duct terminate not less than 1 foot (30cm) from the ceiling.
- (d) Duct a minimum distance of 3 feet (90 cm) from the venting.
- (e) Duct insulated throughout its entire length.
- (f) Duct terminate with a horizontal distance of 2 feet (60 cm) from the plenum.

Figure (2a)

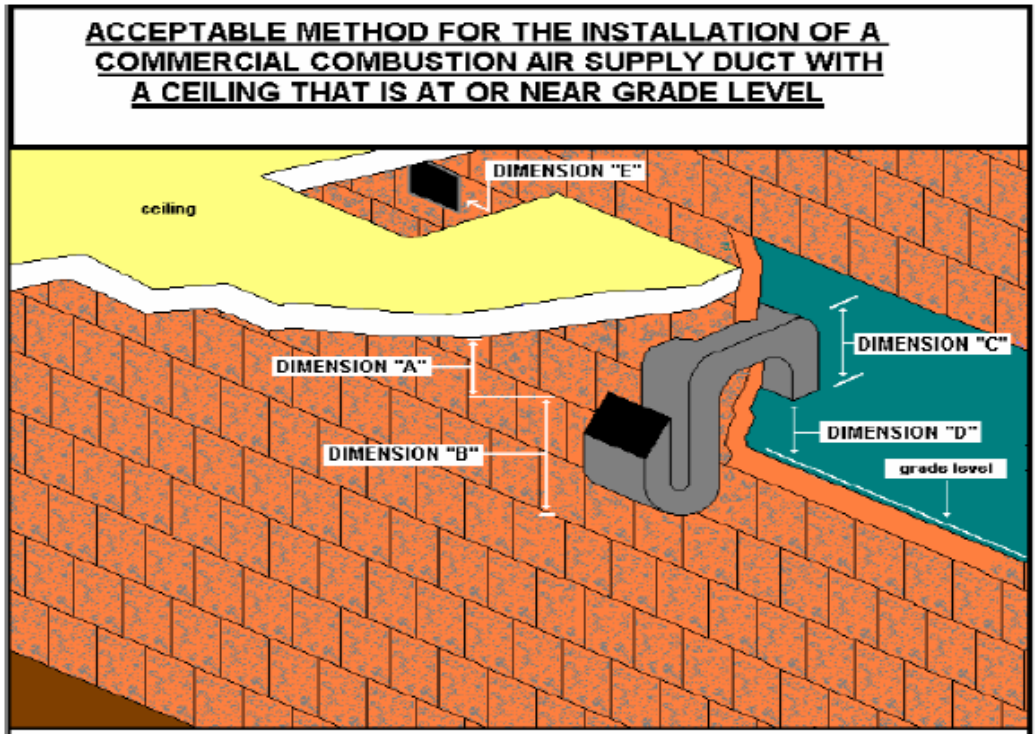
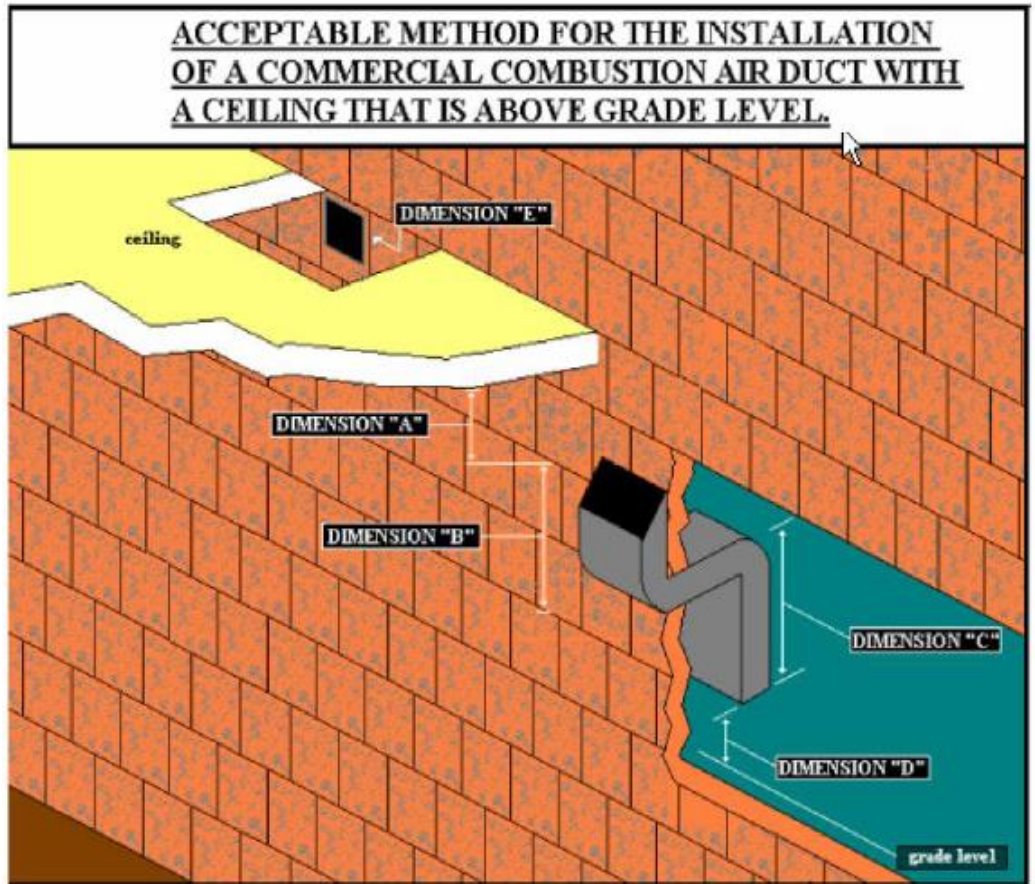


Figure (2b)



- (a) The duct should not terminate closer than 12 inches (30 cm) from the ceiling.
- (b) & (c) The duct should be formed in the shape of an 'S' with the outlet directed upward towards the ceiling. The length of the portion turned upward inside the building and also the length of the portion turned downward outside must be equal to at least the depth of the duct.
- (d) An air inlet opening from the outdoors should be located not less than 3 feet (100 cm) above the outside grade level.
- (e) Ventilation air should be installed as close to the ceiling and as far from the combustion air supply duct as is practicable.
- (f) Air supply ducts are to be sized to the current CSA B149.1

Reference Documents:

Gas and Oil Burner Regulation 104/87 R

CSA B149.1- 2015- Natural gas and propane installation code