

Residential Stand-Alone Water Heater Metal Venting

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ITS 20-005

The purpose of this notice is to ensure that licensed gas fitters, designers, vendors, builders and contractors are aware of the provisions within the CSA-B149.1 Natural Gas and Propane Installation Code for residential venting gas-fired appliances. This is to assist installers in selecting the appropriate method of venting and use the applicable vent-sizing table so the vent complies with the minimum code requirements.

Definition

A stand-alone water heater: is when the furnace or boiler sharing a metal chimney liner with a domestic water heater is replaced with a high efficient unit and can no longer be common vented, leaving the water heater as the only appliance using the chimney. This may also be referred to as an orphaned water heater.

Rationale

Residences have become more efficient as current heating appliances are being replaced with direct vent heating appliances, eliminating the need for a traditional chimney. Deprived of the additional heat from this equipment, metal chimney liners once sized for a larger BTU capacity can cool, impacting the effectiveness of the chimney's venting action which may result in stack effect, spillage of the products of combustion (containing carbon monoxide), and corrosion of the chimney liner. All appliances requiring venting must effectively vent their products of combustion to the outdoors. Other equipment that removes air from the residence (bathroom fans, kitchen fans, wood burning fireplaces, etc.) will impact the ability to adequately vent flue products through oversized metal venting.

Applicable Codes

The CSA-B149.1 Natural Gas and Propane Installation Code is intended to establish minimum code requirements. Other than specific listed exceptions, the Code states every appliance shall be connected to either an effective chimney or a vent. Therefore, before replacing an existing draft hood equipped appliance that is connected to a vent, the installer shall ensure the existing vent is properly installed per **CSA B149.1-15: Section 8 Venting systems and air supply for appliances** and its size will comply with Clause 8.13.

CSA-B149.1-15: Natural Gas and Propane Installation Code

8.13 Vent and Chimney Sizing

8.13.1

A vent or a chimney serving a single appliance shall provide effective venting and shall be sized so that its effective area is not less than that of the draft-control device outlet or the flue outlet; or in accordance with good engineering practice, such as by the use of Table C.1, C.2, C.5, or C.6 of Annex C for a draft-hood-equipped or a fan-assisted Category I appliance; or engineered venting tables acceptable to the authority having jurisdiction

The intent of 8.13.1(a) implies a vent or a chimney serving a single appliance shall not have an effective area greater than that of the draft-control device outlet or the flue outlet.

Therefore, when the existing vent is oversized for a stand-alone water heater that is going to be replaced, or a water heater, which is going to become stand-alone, properly sized **approved** metal venting shall be installed in accordance with the manufacturer's certified instructions. Otherwise, once modified or changed, all approved metal venting must be sized according to code clause 8.13.1 (b) except in the following cases:

- If a water heater sharing a common chimney with an existing furnace/boiler is replaced, the existing common chimney can remain in place if the chimney is in safe working condition. In this scenario, the venting will be addressed when the furnace/boiler is replaced.
- If an existing direct vent heating appliance is replaced, the existing water heater venting can remain in place if it is in safe working condition. In this scenario, the water heater venting will be addressed when the water heater needs to be replaced.