



BUILDINGS
2021-001
BULLETIN
TECHNICAL
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PURPOSE: This bulletin clarifies the applicability of section FGC 502.1 that mandates the use of listed and labeled plastic pipe as vent pipe serving category IV appliances.

SUBJECT(S): Venting systems for gas-fired appliances; Chlorinated Polyvinyl Chloride pipe; CPVC; Category IV appliances

RELATED CODE/ZONING/RULE/LOCAL LAW SECTIONS:
FGC 502.1, FGC 503.7, UL 1738

I. Background

Category IV appliances are condensing, high efficiency appliances. They operate with positive vent pressure and condense flue gases in the vent piping. These appliances require airtight vent passageways and a method of collecting and draining condensation.

The vent system for a Category IV appliance is usually constructed of polypropylene, CPVC, or stainless-steel piping because they are resistant to condensing acidic flue gases resulting from low flue temperatures.

The 2008 FGC section 502.1 allowed unlisted plastic vents including PVC and CPVC for Category IV appliances where such vents were specified by the appliance manufacturer and installed in accordance with the appliance manufacturer's installation instructions. However, this Code section has since been modified by the 2014 FGC, effective December 31, 2014. The 2014 FGC, Section 502.1 requires that plastic piping used for venting appliances be listed. Note that PVC piping, even when listed, is not allowed. Listed plastic piping shall be installed in accordance with the terms of its listing and the manufacturer's instructions. The use of unlisted plastic piping to vent category IV appliances is prohibited even if the appliance manufacturer would permit its use. Unlisted CPVC pipe shall not be installed on category IV appliances to vent flue gases. Observations of discoloration and melting of unlisted PVC piping are attributed to a change in the properties of the pipe material when subject to high temperatures associated with flue gas exhaust (see FIGURE 1). As such, the equipment manufacturers' or manufacturers' installation instructions should be followed to determine how their gas-fired heating appliances should be properly vented.

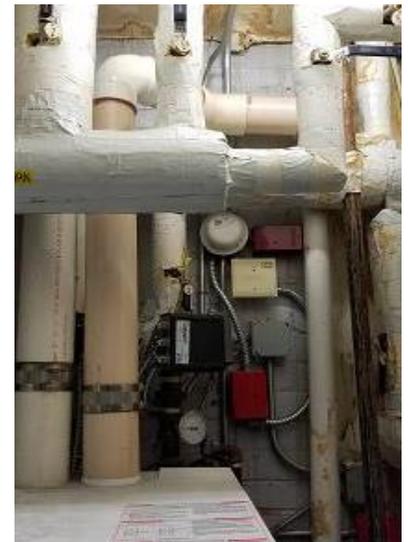


FIGURE 1: Discolored unlisted PVC Vent for Category IV Boiler

II. Testing Requirements

The 2014 FGC governs the installation, alteration, maintenance, design, minimum safety requirements, repair and approval of vents and connectors serving gas-fired appliances. Section FGC 502.1 requires that vents, except as provided in FGC 503.7 (Single-wall metal pipe), be listed and labeled. Since vents for Category II

and III appliances must be tested in accordance with UL 1738, *Standard for Venting Systems for Gas-Burning Appliances, Categories II, III, and IV*, the Department accepts that vents for Category IV appliances also be tested in accordance with UL 1738.