

TECHNICAL INFORMATION COMMUNICATION



Quality and Continuous Improvement

Number: TIC2013-0002

Date: 7/1/2013

Title: New Condensing Furnace Drain Line Support

Product Category: Gas Furnaces

Products Affected

New condensing gas furnaces

Situation

Installers and plumbing contractors are not supporting condensate drain lines as required per the national plumbing code in the US and Canada. This can result in nuisance pressure switch tripping or damage to the furnace and/or property.

Condensate drains lines can be accidentally contacted by contractors during home construction or the homeowner. Drain lines at most risk for damage are those running through an attic hidden under insulation. Contacting the drain line can result in one or more of the following scenarios:

- 1) Drain line slope reversal: Condensate flows back to the trap resulting in nuisance pressure switch tripping.
- 2) Broken drain line: Condensate leaks from the fracture point and can cause property damage.
- 3) Broken trap mounting post: Condensate leaks from the trap to collector box seal and can cause furnace damage.

Technical Information

The condensate drain line must be supported per the National Standard Plumbing Code 2009, section 8.7 in the US or the National Plumbing Code of Canada 2010 in Canada (Figure 1-4). Support adds significant strength to the drain line which prevents most fractures. All supports should be spaced to prevent the drain line from sagging.

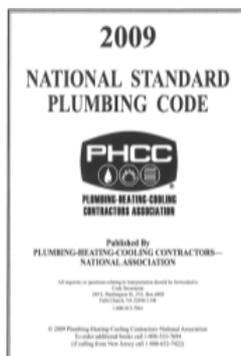


Figure 1

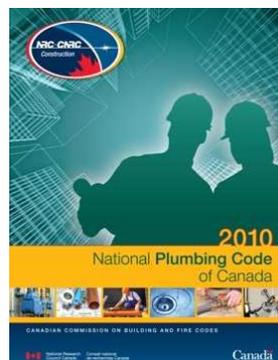


Figure 2

Only trained and qualified personnel should design, install, repair and service HVAC systems and equipment. All national standards and safety codes must be followed when designing, installing, repairing and servicing HVAC systems and equipment. It is the responsibility of the Dealer to ensure local codes, standards, and ordinances are met.

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8.7 SUPPORT OF PLASTIC PIPE

- a. Plastic drain, waste, vent, and pressure pipe shall be installed and supported as recommended by the manufacturer's instructions.
- b. Maximum horizontal support spacing shall be based on the pipe schedule or wall thickness, the pipe size, the system operating temperature, the ambient temperature, and any concentrated loads.
- c. Vertical pipe shall be maintained in straight alignment with supports at each story height. Intermediate supports shall be provided where required for stability.
- d. Pipe shall also be supported at changes of direction or elevation.
- e. Supports shall not compress, distort, cut, or abrade the piping and shall allow free movement.
- f. Provisions shall be made for expansion and contraction of the piping.
- g. Fixture trap arms longer than three feet shall be supported as close as possible to the trap.

Figure 3

Table 2.3.4.5.
Support for Nominally Horizontal Piping
Forming Part of Sentence 2.3.4.5.(2)

| Piping Material | Maximum Horizontal Spacing of Supports, m | Additional Support Conditions |
|--|---|--|
| Galvanized iron or steel pipe | | |
| • diameter \geq 6 inches | 3.75 | |
| • diameter < 6 inches | 2.5 | |
| Lead pipe | Throughout length of pipe | |
| Cast-iron pipe | 3 | At or adjacent to each hub or joint |
| Cast-iron pipe with mechanical joints that is \leq 300 mm long between adjacent fittings | 1 | |
| Asbestos-cement pipe | 2(1) | |
| Asbestos-cement pipe that is \leq 300 mm long between adjacent fittings | 1 | |
| ABS or PVC plastic pipe | 1.2 | At the end of branches or fixture drains and at changes in direction and elevation |
| ABS or PVC plastic trap arm or fixture drain pipe > 1 m long | n/a | As close as possible to the trap |
| CPVC pipe | 1 | |

Figure 4

Commercially available pipe hangers and clamps designed to support plastic pipe maybe used to support furnace and air conditioning condensate drain lines. Perforated metal hanger strap (also called hanger iron or plumber's strap) may also be used. It is recommended that hangers or clamps be installed per the hanger or clamp manufacturer's instructions. In the absence of any pre-packaged installation instructions, consult the local plumbing codes for guidelines on hanging plastic piping. (Educational note: They make some pretty sturdy plastic clamps for drain lines. If we specific metal, some inspectors will hold them to only using metal.)

Straps cut from sheet steel by hand with tin snips should be avoided due to the potential of an exposed sharp edge. The edge could present a cut hazard to anyone working around the piping after installed.

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Wire or rope should not be used since these products may not support the pipe properly, chaff through the pipe or degrade prematurely.

References

National Standard Plumbing Code 2009, National Plumbing Code of Canada 2010

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