

TECHNICAL INFORMATION COMMUNICATION



Quality and Continuous Improvement

Number: TIC2013-0007

Date: 10/1/2013

Title: New 35" Condensing Furnace Condensate Drain

Product Category: Heating Products

Products Affected

New 35" condensing gas furnaces

Situation

When a common drain pipe is used for evaporator coil and condensing gas furnace condensate, installers are not providing or locating the air gap (standpipe) between the evaporator coil and gas furnace condensate drain pipes as required in the condensing gas furnace Installation Instructions. No air gap (standpipe) or an incorrectly located air gap (standpipe) results in nuisance furnace pressure switch trips.

The condensing furnace Installation Instructions uses the plumbing term "open standpipe". Some installers may not be familiar with this term, resulting in a misinterpretation of Figure 13 in the Installation Instructions.

In some cases, plumbers are installing the drain pipe without reviewing Installation Instructions. Some plumbers are not aware of the furnace condensate drain requirements and install the drain pipe incorrectly.

Technical Information

The furnace blower creates positive pressure in the evaporator coil. The coil drain port is open to the positive pressure area within the coil cabinet. Air flowing through the evaporator coil enters the coil condensate drain pipe. This air pressurizes the condensate pipe preventing consistent condensate flow from the condensing furnace drain. See Figure 1.

When furnace condensate flows against positive pressure in the drain pipe, furnace pressure becomes erratic. This can result in the pressure falling below the pressure switch break point. Under high static duct pressure, furnace condensate can back up into the trap, collector box and inducer; which opens the pressure switch.

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.

TECHNICAL INFORMATION COMMUNICATION

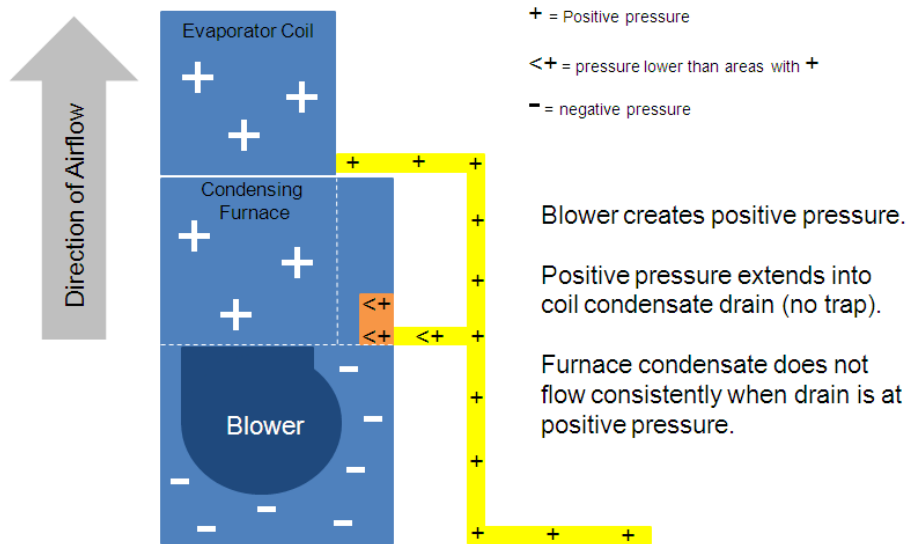


Figure 1: Drain Pipe Pressurization

Open Standpipe: An open standpipe is used to relieve condensate drain pressurization and prevent damage to the furnace. The Installation Instructions for the new condensing furnace platform shows an “open standpipe” between the evaporator coil and furnace condensate drain pipe as shown below. An “open standpipe” is a vertical pipe that is open at the upper end. See Figure 2. The opening relieves pressure in the pipe below the opening. The opening also provides a location for condensate to exit the drain pipe in the event of a downstream drain pipe blockage. This prevents damage to furnace components.

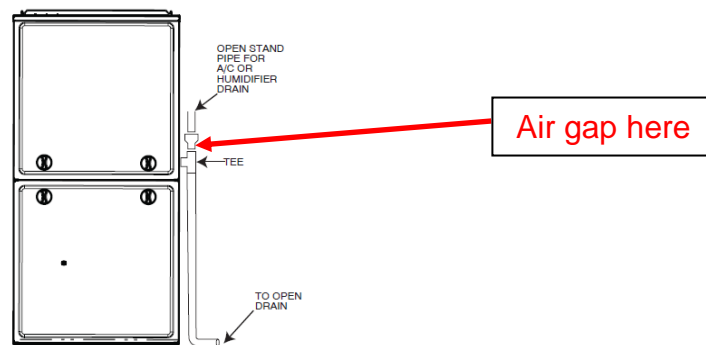


Fig. 13 - Example of Field Drain Attachment

Figure 2: Drain Diagram from Installation Instructions

To ensure free furnace condensate flow, pressure in the evaporator coil drain pipe must be relieved BEFORE the furnace condensate pipe joins the evaporator coil drain pipe. To prevent component damage in the event of a blocked drain pipe, an air gap must be provided near the furnace. See Figure 3.

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.

TECHNICAL INFORMATION COMMUNICATION

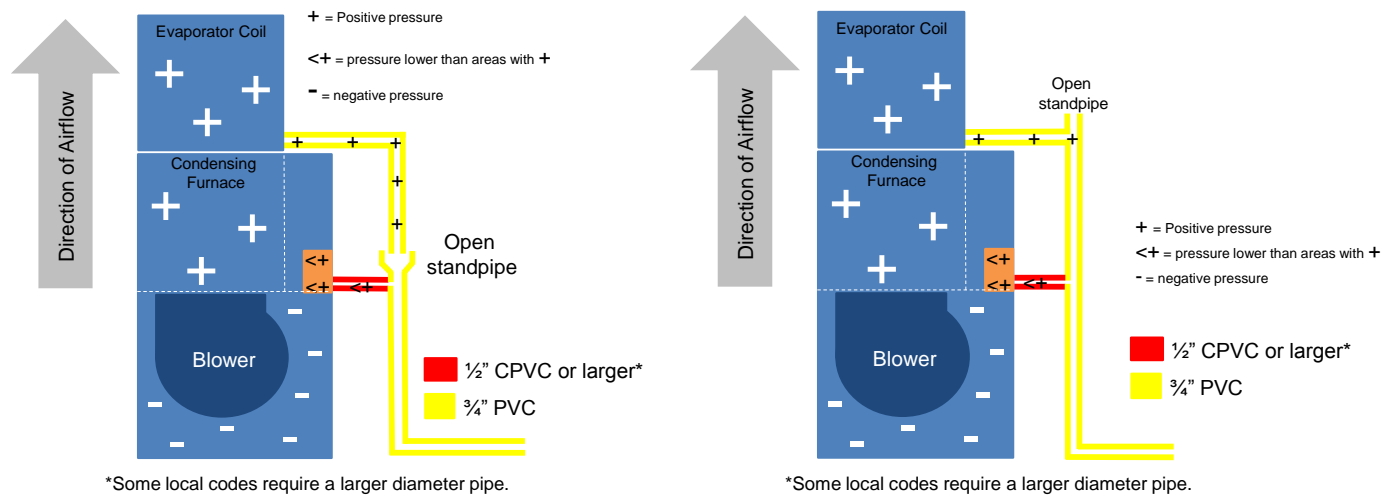


Figure 3: Open Standpipe Configurations

Do not seal an open standpipe. A seal prevents pressure relief resulting in nuisance pressure switch tripping. Also, in the event of a blocked drain pipe, condensate will back up into the furnace and damage internal components.

An evaporator coil trap is NOT an alternate solution to drain pipe pressurization. A trap on the evaporator coil condensate drain pipe prevents airflow from pressurizing the drain pipe after the trap. However, the evaporator coil trap can dry out during the winter resulting in a pressurized condensate drain pipe.

It is acceptable to run separate condensate drain pipes for the evaporator coil and furnace, provided a standpipe is installed on the furnace condensate pipe. A standpipe is also recommended for the evaporator coil drain. See Figure 4.

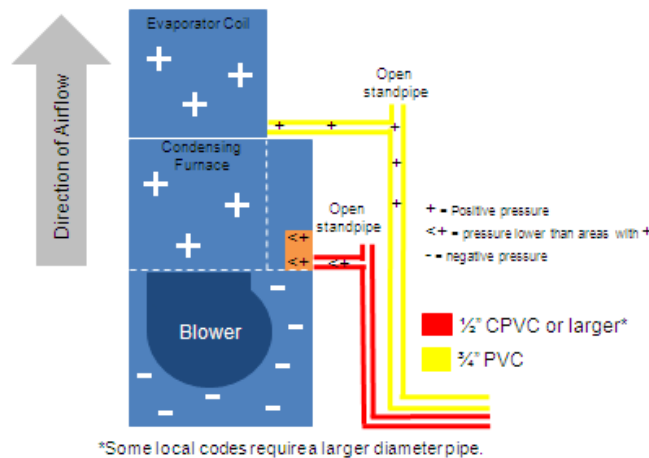


Figure 4: Separate Condensate Drain Pipes

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.

TECHNICAL INFORMATION COMMUNICATION

The following configurations will trip the gas furnace pressure switch and are not recommended. See Figures 5.

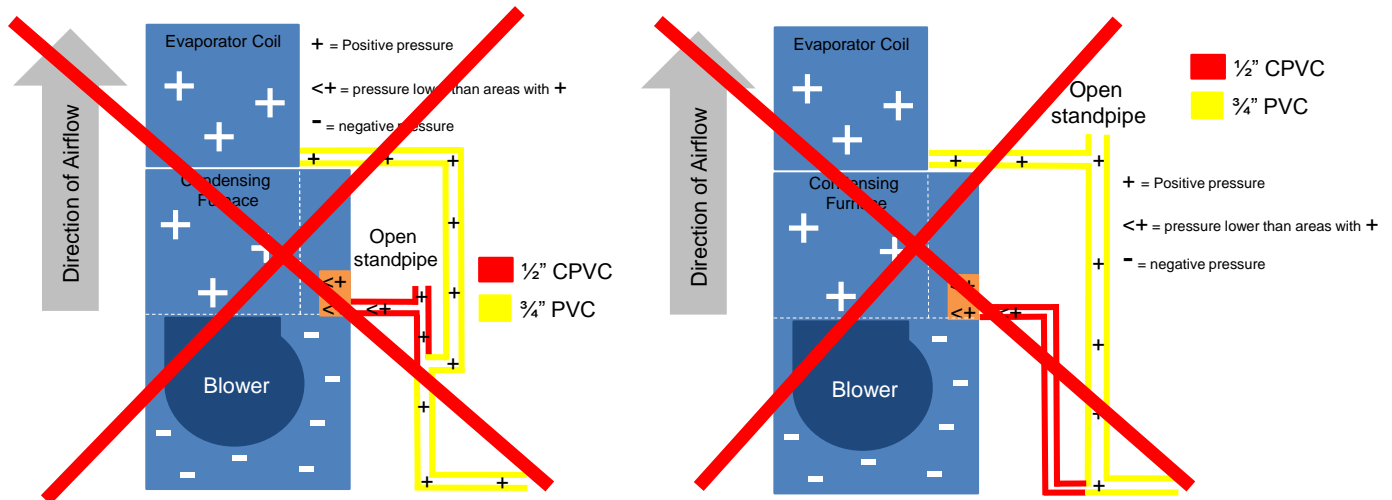


Figure 5: Drain Configurations That Are Not Recommended

Warranty Coverage: Warranty does not cover component damaged due to a blocked drain pipe.

THIS WARRANTY DOES NOT COVER:

1. Labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing or handling of either defective parts, or replacement parts, or new units.
2. Any product purchased over the Internet.
3. Normal maintenance as outlined in the installation and servicing instructions or Owner's Manual, including filter cleaning and/or replacement and lubrication.
4. Failure, damage or repairs due to faulty installation, misapplication, abuse, improper servicing, unauthorized alteration or improper operation.
5. Failure to start due to voltage conditions, blown fuses, open circuit breakers, or damages due to the inadequacy or interruption of electrical service.
6. Failure or damage due to floods, winds, fires, lightning, accidents, corrosive environments (rust, etc) or other conditions beyond the control of Company.
7. Parts not supplied or designated by Company, or damages resulting from their use.

References

New 35" Condensing Furnace Installation Instructions
Evaporator Coil Installation Instructions

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.