

December 2012 Safety Meeting

Venting Systems Inspection

For gas appliances to operate safely and to the efficiency standard for their designs, adequate air must be provided for combustion, dilution of flue gases and ventilation. The air must be supplied from inside the building which infiltrates through the walls, ceiling joints, around doors and windows or other opening from the outdoors, or it must be supplied directly from outdoor air using specifically designed and constructed passage ways. The complete gas vent installation must develop a positive flow that will exhaust all combustion gases.

One of the most important components of an appliance system is the venting system. The key word is “system,” as the design, application and materials used all work in conjunction with each other. If one of the components fail, the entire system will more than likely fail.

A properly designed and installed venting system is essential to safe and efficient utilization of gas operated equipment. Venting is the removal of combustion products to the outdoors through ducts, flues, vents, chimneys, or stacks especially designed for that purpose. Normally, combustion products of propane in air mixtures are not harmful when the appliance is achieving complete combustion. However, when combustion is incomplete (covered last month) the products can be harmful to both life and property.

Because parts of the venting systems are concealed behind walls and ceilings or in attics, it is not possible to inspect every portion. Your visual inspection procedures are limited to those portions that are visible. The following is a list of things to look for:

- Excessive rust or corrosion – even though constructed of galvanized pipe, over a period of time, corrosion or rust can occur. Look for soft spots or deep rusting, especially at bends, low spots or where connections are made. When performing an inspection, look closely for pinholes.
- Connections should be tight and leak free -- pipes and connections should not move freely with one another. Follow manufacturing instructions for assembling the vent. Pipes without locking connections should be fastened with sheet metal screws.
- Single Wall vents – these must be installed a minimum of 6” from combustibles such as wood, plywood, paneling, blinds, etc. See NFPA 54 for clarification.
- Vent Slope – unless the venting system is sloped upwards, flue gases will become trapped. It is very important that all vent pipe/connections have an upward slope of at least 1/4” for every foot in length. Avoid bends which cause resistance to the flow of combustion products. Keep horizontal runs as short as possible. The maximum length should not exceed 75 percent of the height of the vent.
- All vent pipes must be supported – to prevent vent pipes from separating or not maintaining an upward slope, they must be supported. If the vent pipe extends more than 5 feet above the roof level, it must be securely guyed or braced.
- Venting penetrates the roof – the inspection should verify that the vent flashing and terminating cap are in place. These should comply with manufacturer’s instructions and NFPA 54.

Once the inspection is complete, a draft test should be done on appliances equipped with draft hoods.

- Turn on the gas appliances
- Close all doors and windows
- Turn on the bath exhaust fan and the kitchen exhaust fan if it is vented outside the kitchen
- Allow the appliances to operate for 5 minutes
- After striking a match, blow it out and while it is smoking hold it near the draft hood opening. If the smoke is drawn into the opening, the vent is performing properly. If the appliance will not draw or any of the above conditions exist, you must remove the appliance from service, re-inspect and correct the problem.

Class Discussion

Ask employees to discuss the proper steps for conducting a leak test and what to look for when inspecting a venting system. Ask the group to share venting problems they may have encountered in the field.

Closing

All work should be done according to manufacturer's instructions and the National Fuel Gas Code (NFPA 54). Remember: if what you can see looks bad, the part you can't see may be worse.

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Name: _____

Date: _____

Instructions: Read and answer each of the following questions. When complete, grade the test and review incorrect answers so each employee is “armed” with the correct answers before they leave the training.

1. Pipes without locking connections should be fastened at the joint connection with _____.
 - a. vent tape
 - b. sheet metal screws
 - c. duct tape
 - d. furnace tape

2. A guy or brace must be used, if the vent extends above the roof level more than _____.
 - a. 10 feet
 - b. 6 inches
 - c. 5 inches
 - d. 5 feet

3. The maximum length of the lateral run of the venting system serving a single appliance should not exceed _____ percent of the height of the vent.
 - a. 5
 - b. 25
 - c. 75
 - d. 95

4. Any obstruction inside the vent will add _____ to the flow of the combustion products.
 - a. resistance
 - b. friction loss
 - c. smoke
 - d. clearance

5. A single-wall vent must be installed with a minimum clearance of _____ from combustible materials, but the manufacturer’s literature should be consulted.
 - a. 3 inches
 - b. 6 inches
 - c. 6 feet
 - d. 10 feet

**December 2012 Test
Answer Sheet**

1. B
2. D
3. C
4. A
5. B