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WHAT Were They THINKING?

Maintain a Safe Distance

Homes are filled with things that need to be kept a safe distance from each other. A gas can and heat-generating equipment, such as water heaters and furnaces, is an obvious example. Other examples are less obvious but no less important. Here are a few less obvious examples.

Fuel-Fired Equipment Vents and Combustibles

The International Residential Code (IRC) and other building codes require maintaining a safe distance between fuel-fired equipment vents and combustible materials. The most common types of fuel-fired equipment are gas- and oil-fired water heaters, furnaces, and boilers. The most obvious types of combustible materials are wood and wood products, such as plywood and oriented strand board (OSB). Less obvious combustible materials include flexible heating and air conditioning ducts and various forms of insulation. While some of these less obvious materials may not burn easily, they can be damaged by the heat contained in a vent, and they can cause the vent to overheat. Overheating can damage the vent, and the excess heat can ignite nearby combustible materials.

Insulating pipes is usually a good idea, but not if it burns down the house. Gas-fired equipment that has a draft hood usually requires at least 6 inches between the draft hood and any combustible materials. Any single-wall vent pipes used in this venting system also require the same 6 inches of clearance.

Double-wall type B vents used with gas-fired equipment require 1 inch between the vent and combustible materials. In Photo 1, we see a type B vent that is too close to wood. This is a fire hazard. In Photo 2, we see air conditioning coolant tube insulation in contact with a type B vent. In Photo 3 , we see flexible duct in contact with a type B vent. Photos 2 and 3 are examples where the more likely result would be damage to the insulation and to the duct, but a house fire is a possibility.

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Beginning from the top left and moving clockwise: In Photo 1, a type B vent is too close to wood; in Photo 2 and Photo 3, type B vents are too close to air conditioning coolant tube insulation and flex duct, respectively; Photo 4 shows a vent passing through loose-fill insulation without an insulation shield. All these scenarios present a fire hazard.

Fuel-Fired Equipment Vents and Attic Insulation

Almost all fuel-fired equipment vents require distance between the vent and attic insulation. Most insulation does not burn easily, but lack of appropriate distance can cause problems, as I explained above. The exception is the kraft paper used as a vapor retarder on most fiberglass batt insulation. This material is highly flammable, and the distance between it and heat sources must be maintained. You must not leave kraft paper exposed in attics. In almost all areas of the country, install the kraft paper toward the conditioned area of the home.

The IRC requires installation of an insulation shield around fuel-fired equipment vents that pass through insulated spaces. This shield should surround the vent and extend at least 2 inches above the insulation. See IRC Section G2426.4. Most vent manufacturers require some clearance between the vent and insulation. Refer to manufacturer's installation instructions for the vent and for the equipment. In Photo 4, we see a vent passing through loose-fill cellulose insulation without an insulation shield or the required distance between the vent and the insulation. This is a fire hazard.

Insulation is usually good, and more insulation is usually better. In our quest for more energy-efficient homes, we must not forget safety. Maintaining distance between hot vents and combustible materials is a safety requirement. He

—Bruce A. Barker

Bruce A. Barker is president of Dream Home Consultants, LLC, a Phoenix, Arizona-based building inspection and consulting firm. He is the author of ***Everybody's Building Code****, a book for homeowners, contractors, real estate agents, home inspectors, and anybody else who wants to understand the International Residential Code without wading through the dry and often confusing language of the code itself.*

For more information:

For more on ***Everybody's Building Code***, go to www.everybodysbuildingcode.com.