FOR11

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Safe Home Use of Firewood [1]

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Home Safety in The Use of Firewood

Heating the home with convenience fuels such as gas, oil and electricity is so common that most of us seldom think of the safety aspects. We have become accustomed to turning a thermostat to the desired temperature setting with confidence that evenly controlled heat will result. The fuels are so uniform in consistency that they can easily be moved through pipe or conduit and can be regulated automatically. Even coal can be prepared in such form that automatic, mechanized handling is commonplace. Cleaning, adjusting burners, regulating pilot lights and other activities have been left to the utility companies or vendors that supply the fuel.

Use of wood in home heating is quite a different matter. Firewood is derived from many tree species, each with its own special characteristics. Firewood comes in many different shapes and sizes, and the convenience and safety of burning varies widely. Unlike the uniform convenience fuels, each stick of wood will burn differently from the next and each individual piece must be handled by a member of the household. Safety suddenly becomes more important.

Earlier in this century children were reared with the fireplace, the wood-burning heater and cook stove. Caution in the use of fire and respect for heating appliances were almost inbred. This is not true today. Many of us, who have lost touch with the art of woodburning, find heating with wood to be a new adventure. An awareness of dangers associated with wood should be developed by each family member; not only in burning the wood but also in finding, cutting, hauling, and handling it. Safety should be a prime consideration in the decision to change to wood as a fuel for back-up or as a main source of home heat.

Insurance Regulations and Building Codes

Before you lay the first fire you should contact your insurance company to determine if you are in compliance with their rules and regulations. They may offer excellent advice on safe installation of your wood-fueled heating system. The insurance company doesn't want you to damage or burn your house any more than you do. The wise homeowner will solicit a statement of acceptance from the company to be filed with the insurance policy. Failure to notify your company could make your coverage worthless.

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Installation of any heating system must be done in compliance with local building codes. In some cases a permit will be required. To be certain, contact your building inspection department or fire department.

Chimneys

Each piece of wood-burning equipment will require a chimney or flue suitable for use with solid fuels. Metal flues used to vent your gas furnace are not suitable for your wood burner. Whether masonry or metal, the chimney should be properly constructed. Required clearances from combustible materials and sufficient flue dimensions should accommodate the heating unit you choose (Figure 1). Manufacturers usually specify flue dimensions and chimney requirements for their products. A fabricated triple-walled or insulated metal chimney should have a label saying "UL listed." This means that a chimney of this design has passed a safety test. If you install the chimney yourself, adhere strictly to the manufacturer's instructions.

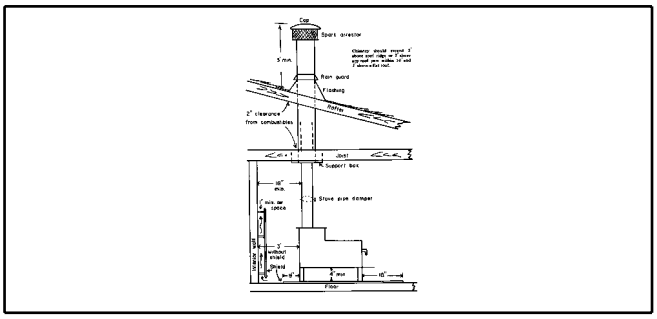

Figure 1 .

Chimneys should extend at least 2 feet above the roof ridge or 2 feet above any point of the roof within 10 feet of the chimney. On flat roofs be sure that the chimney extends at least 3 feet above roof level. If a factory built chimney extends more than 4 feet above the roof, additional support should be provided.

There are special requirements for mobile homes. For instance, the chimney must connect directly to the heater. Regular thin walled stove pipe connections are not permitted. Since mobile home roofs are not built to the same specifications as house roofs extra care should be taken not to weaken the roof structure. A chimney cap and spark arrester are required. Be sure that the chimney is strong enough to withstand normal wind velocities in your area.

Some older homes have fireplaces in every room. It is not uncommon to find four or more fireplaces with flues which merge into a common vent at some point above the fireplace openings. This was common practice in early house construction and posed no particular problem since chimneys were built with flue dimensions large enough to accommodate 4 fires. The loss of air through open fireplaces was of no consequence in houses without central heat. Venting more than one appliance into a common flue is still permitted in some states and localities. Multiple use of a single flue is dangerous, especially if a spark or burning soot or creosote has access to the house through an unused opening. Additional problems with fluctuating draft can be experienced if a wood stove and an oil or gas hot water heater are connected to the same flue. Back puffing could extinguish the pilot in the water heater causing, at the least, an inconvenience.

Annual cleaning is not necessary in most homes; however, you should make certain that your chimney is clear of soot, creosote, or obstructions before using it each season. A chimney fire can be terrifying and it will almost certainly cause some damage to a masonry chimney and flue lining. If a chimney fire lasts long enough it can start a fire in surrounding combustible material. It is reported that in 1977 there were over 40,000 chimney fires nationwide resulting in $23 million worth of damage. The use of modern airtight stoves increases the risk of creosote deposition.

Cleaning should begin with disconnecting the single-wall stove pipe from the stove and chimney. You may want to stuff newspaper in the ends and take the pipe outside for cleaning. Often there is no accumulation but occasionally the pipe can be almost totally clogged with soot and creosote. Sometimes wire brushing is necessary or it might be cheaper to put in new pipe. Be sure that joints are secured with at least two sheet metal screws.

Chimneys are more difficult to clean because you may be operating from a ladder, roof top or both. In very difficult situations a professional cleaner may have to be called upon. Wire brushes made to fit several flue shapes and dimensions may be obtained from your local woodstove dealer either for a fee or

for goodwill. Some homeowners have made up brushes by fastening several wire brushes around a block and securing the block to an extension pole. Others have enlisted the aid of a neighbor or family member to pull a sack full of straw up and down the flue with ropes above and below. Old Christmas trees have served as makeshift brushes. Whether professional or do-it-yourself, this messy operation is nonetheless a necessary part of heating with wood.

Safe Installation of Wood Burning Equipment

Safety begins with the choice of your wood burning appliance. Although safety may not be your prime consideration when buying, be aware that appliances bearing an Underwriters Laboratory listing have been safety tested to withstand stresses far beyond those you would impose during normal use. You should also be informed of local code restrictions. These are usually formulated from recommendations of the National Fire Protection Association (N.F.P.A.) and are based on long years of observation and experience.

When you install a piece of wood-burning equipment you are usually bringing a fire in the midst of your living area. Your main concern should be in maintaining enough separation between the fire and those things which will burn. There are two ways that unwanted fires can be caused. One is by some of the burning material getting outside the stove or fireplace. For example, a spark may be projected over a screen or through an air vent; a log may roll out of a fireplace; a burning piece of soot, paper, or creosote may fall on the roof; or a flame may find its way through a crack or defective mortar joint. The other is by radiant heat warming nearby combustibles beyond the kindling point, bringing about spontaneous combustion.

Most fires originating with wood-fueled equipment are caused by improper installation of the stove or other parts of the system, including the chimney. Heating equipment differs in design and purpose. Consequently, clearances or distance from flammables recommended by N.F.P.A. vary. Generally, single-walled stoves which produce radiant heat should be spaced at least three feet from combustible surfaces and stove pipe connectors should be at least 18 inches away. A circulating stove is manufactured with a surrounding shield which controls the flow of heat away from the firebox. These shielded stoves can be placed nearer to combustible walls. Manufacturers usually recommend an adequate clearance. You may provide your own wall shielding by screening the combustible surface with non-combustible barriers such as sheet metal, asbestos board, brick or tile. An air space of at least an inch but preferably two inches should be left between the wall and the shield. Air currents will carry away the heat transmitted through the steel. A brick or stove wall built directly against a combustible wall is false security and sometimes worse than no shield at all.

A masonry hearth, a thick layer of sand or gravel, or a mat of asbestos sandwiched between layers of sheet metal should be beneath the stove. The mat should extend 9 to 12 inches to the back and sides, and 18 inches beyond the door or doors. Legs of the stove should provide a 4 inch minimum clearance between the stove bottom and the hearth or mat. For stoves with large heat producing bottoms or legs less than 4 inches long, additional floor protection is needed. Two to four inch thick ventilated concrete building blocks laid flat beneath the stove are suggested additions to the hearth or mat.

Selecting a Safe Fuel

Firewood burned in airtight stoves should be well seasoned and as dry as possible. Much of the problem of creosote accumulating in the chimney is caused by burning wet or green wood. Creosote does not build up on hot flue walls when sufficient draft is present. Much of the heat produced by burning wet wood is used to turn water into steam. This loss of heat causes the chimney flue or stove pipe to cool. When flue temperatures drop below 250° F, creosote will accumulate on the flue surface.

Freshly cut green wood can have a moisture content of 100 percent based on the oven-dry weight. This means that the weight of water in a piece of wood can exceed the weight of the wood itself. Under Florida conditions green wood should be air dried in well ventilated stacks for at least 6 months prior to use in an airtight stove or furnace.

Spring is a good time to cut and prepare your fire wood or to buy it in freshly cut form. Small pieces of round wood or wood split into small pieces will dry best because it has large surface area.

Wood should be stacked with the greenest near the bottom of the stack or back of the storage area. When adding fresh wood to the storage area during the burning season, stack it in such a way that you can use the old wood first. This allows the freshly cut wood as much time as possible to season.

Publications on Wood Heat Safety

For additional information you may wish to purchase or obtain a copy from your neighborhood library of the following:

1. *Wood Heat Safety* by Jay Shelton. Published by Garden Way Publishing, Charlotte, VT 05445.

2. *The Woodburner's Encyclopedia* by Jay Shelton and A. B. Shapiro. Published by Vermont Crossroads Press, Waitsfield, VT.

3. *Fireplaces and Chimneys* , Farmers Bulletin No. 1889, U.S. Dept. of Agriculture. Should be available from your Extension Service Office or may be purchased from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price 15 cents.

4. A list of safety publications can be obtained from the National Fire Protection Association, 470 Atlantic Ave., Boston, MA.

You can obtain information locally from your building inspector who has copies of current building code requirements, your fire department, and your Extension Service office. Some insurance companies and wood stove dealers are good sources of information.

Remember, much of your home is made of wood. Don't let it go up in smoke!