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### HEG82-159 Wood Stoves: Location in the Home

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## Wood Stoves *Location in the Home*

This publication outlines some factors that affect efficient location of a wood stove in the home.

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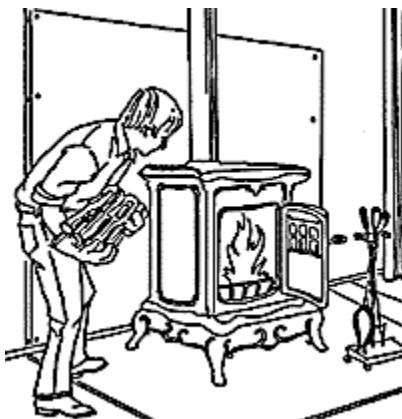
*Kathleen Parrott, Extension Specialist (Housing and Interior Design)*

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Shopping for a wood stove involves making many decisions--size, style and materials--to name a few. Before making the final selection, consider where the stove will be located. The stove's location affects the efficiency of its operation, distribution of heat, convenience, and most importantly, safety.

### Local Codes and Insurance Requirements



Check your local building codes before deciding on the location of your wood stove. These codes may have specific requirements for its installation, which may limit your options on its location.

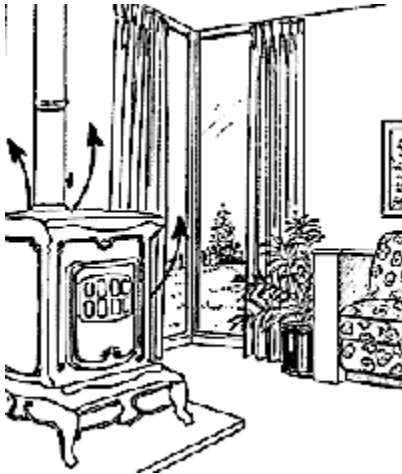
Also check your homeowner's insurance. Many insurance companies have specific requirements for installing wood burning equipment. Failure to meet these can be grounds for the insurance company to refuse a claim in the event of a fire. These requirements may be especially strict when installing a stove in a mobile home.

The recommendations in this NebGuide are based on the standards of the [National Fire Protection Association](#) (NFPA). In most cases, these standards satisfy local building codes and insurance companies.

### Location of the Stove for Efficient Operation

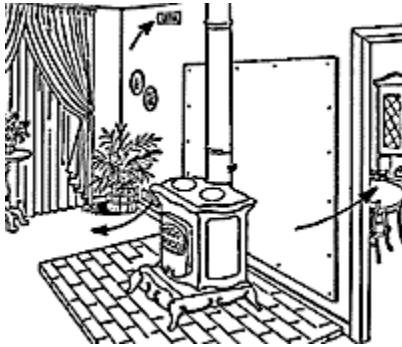
#### Heat Distribution

The ideal location for a wood stove is close to the center of the area to be heated. This gives the best heat distribution. Avoid locating it near an exterior wall as this increases the heat loss to the outside, and decreases the heat gained from the stove.



**Installing the stove on an outside wall allows its heat to be lost through the wall and windows.**

If the stove is to be used to heat more than one room, air circulation must be considered. Room air heated by the stove rises to the ceiling. Doorways open to the ceiling aid circulation of this air to other rooms. Ceiling level registers located in walls between rooms can also increase heat distribution. You will also need floor-level registers for cool air return.



**Locating the stove on an inside wall provides more efficient heating; vents and doorways promote air circulation between rooms.**

A ceiling fan can increase circulation of the air warmed by the stove. The fan pushes the air down from the ceiling and increases circulation through doors and openings between rooms.

Locating a stove near a stairway is not a good choice. The stairway serves as a natural chimney for convective currents of rising warm air.

This can be a hazard in the event of a fire.

## **Thermal Mass**

The thermal mass or heat capacity of the stove's surroundings affects its heat distribution. Materials with a high thermal mass, such as brick, stone or concrete, absorb heat from the stove and then slowly release it to the air. This reduces temperature fluctuations and gives a more evenly heated space. This is especially important at night, when the stove is putting out little or no heat. The stored heat is released into the room and keeps nighttime temperatures higher.

## **Location for Safe Installation**

### **Chimney and Stovepipe**

An important determinant of the location of a wood stove is the chimney. The stove must be located so that there is less than 10 feet of stovepipe connecting it to the chimney.

The stovepipe must have no more than two elbows, each of which should be less than 90 degrees. The length of the horizontal portions of the stovepipe should be no more than 75 percent of the length of the vertical portions. In addition, the horizontal runs of the stovepipe should slope upwards from the stove at the rate of at least 1/4 inch per foot. These recommendations encourage adequate chimney draw and allow excess creosote to drip back into the stove.

It is best to have an interior chimney. Heat in the chimney is transferred to the interior of the home. Because interior chimneys are warmer, they are less likely to have creosote problems.

A decision to use an existing masonry chimney for a wood stove must be considered carefully. Make a thorough inspection of the chimney to determine if it has the correct tile liner and is in good repair.

Before connecting a wood stove to an existing prefabricated chimney, check to be sure it's rated as an "all fuel" type chimney. One that was installed for a gas or oil furnace is not likely to be of this type. "All fuel" chimneys are needed to withstand the very high temperatures possible with a wood stove.

Do not connect a wood stove to a chimney already used for another stove, fireplace, furnace or water heater. Sparks or smoke from the fire may be pushed out the other opening, creating a hazard. It is also more difficult to shut down the air intake in the event of a chimney fire, making a fire more difficult to control.

## Locating the Stove within the Home's Interior

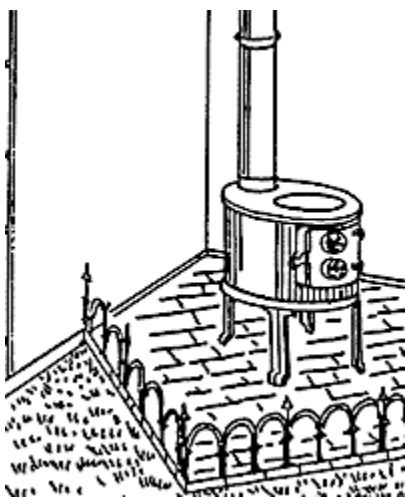
### Interior Space

The wood stove must be located where there is adequate space. As a permanent item in a room, it affects the arrangement of other furnishings. Adequate distance must be maintained between the stove and combustible materials, such as walls, draperies and furniture. You must plan for a greater amount of space than for just the stove itself.

Consider how the stove will affect the interior design of the room. How will the furniture be arranged? What will the traffic pattern be? Will the style of the stove and materials used for installation blend with the room's decor?

Also consider the type of activities that take place in the area where the stove will be installed. For example, if you put a stove in a playroom or family room, is there a chance that people will bump into it?

### Children



If you have small children, or children visit frequently, consider them when planning the location of a wood stove. It is difficult for a small child to let the discipline of "don't touch" overcome his or her curiosity. The surface of a wood stove can be hot enough to instantly burn a small hand.

It is best to install a rail or type of fence around the stove to keep the child, and perhaps the family pet, away. Putting the stove on a raised hearth or platform can also be deterrent. Wrought iron and masonry are two non-combustible materials that can be attractively used to keep out an inquisitive toddler.

### Structural Support

If you are planning to install a heavy cast-iron stove, or plan to surround the stove with heavy masonry, consider structural support. This is especially important if the stove is being installed on the second (or higher) floor. Check with a reliable builder or contractor to determine how you can increase structural support under the stove.

## **Thermostat**

The location of the thermostat to your home's central heating system will also affect the location of the wood stove. If the thermostat is near the stove, it will give a false reading and the rest of your house may be uncomfortably cool.

It is best not to locate a wood stove in the same room as the thermostat, especially if you are only heating a limited area with the stove. You want to be able to control the two heating systems separately. Readjust the heating vents in the room with the stove so the area does not become too warm when the main heating system is operating.

If the thermostat's location is a problem, check with a heating contractor about relocating it. You may want to move the thermostat so you can install the wood stove in the best location.

## **Maintenance**

Wood stoves require work. Wood must be carried in and ashes removed. The stove should be located where it is convenient to the wood storage area. It should also be convenient to an exterior door for easy ash removal. When planning to install the stove, allow space to store a metal container for the ashes.

Wood and ashes will create some dust and dirt, and may bring insects or debris into the home. This should be considered in the location of the stove as there may be parts of the home in which you especially want to avoid these problems.

## **Summary**

The purpose of this publication has been to outline the factors that affect efficient location of a wood stove in the home. Using wood stoves for heat is a growing trend in Nebraska. Careful planning, an understanding of safe installation practices, and thoughtful attention to details can give you years of safe and enjoyable wood burning.

The Cooperative Extension office in your county has other useful information on burning wood. Publications on growing, harvesting and storing wood, chimneys, economics of burning wood, and the selection and installation of wood stoves are available.

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### ***File HEG159 under: CONSUMER EDUCATION***

#### ***B-11, Energy Conservation***

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