

UI Extension Forestry Information Series

The Beauty of Warming with Wood

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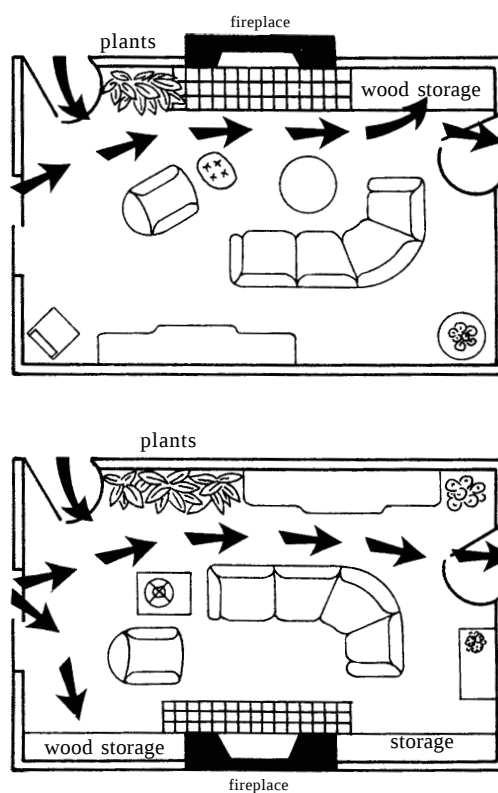
A fireplace or a wood burning stove is an important part of the room furnishing. When you have decided to have a wood burning unit in your home, choosing the right one involves weighing many factors. We will consider one important factor here: appearance. Efficiency and ease of operation are covered in other literature.

A built-in fireplace is part of the architectural design of the home interior. A free-standing fireplace or stove, although more of a furnishing unit, has necessary fireproof floor and wall surroundings that are strong architectural features. If you are aware of the many possibilities and choices available, and are knowledgeable of basic criteria, your choice of the right wood-burning furnishing for your home will be easier.

Where to Locate a Fireplace or Stove. Certain structural limitations such as chimney location, foundation strength, venting to other rooms or adequate space will limit your choice. A masonry fireplace has foundation requirements that a small airtight stove does not have. Discuss these things with the architect, builder or local building inspector.

Your way of living is an important factor. Examine the reasons you want a wood-burning unit and decide if you would enjoy it more in one location than another (Figure 1). How will you use it? Do you entertain large groups? Does everyone gather in the living room or the kitchen? These questions can narrow down the location. When the room has been chosen placement within that room becomes important. Consider the traffic between seating and the unit. Consider also tending the fire: how is the wood brought in and stored. Can you provide adequate seating for family and guests to enjoy the fire? If you enjoy houseplants, excess heat and dry air can be very detrimental to the

Figure 1. Location for the fireplace within a room is important. Drawing at top shows poor fireplace location; at bottom, good placement.



plants if they are too close to the fire.

Size and Proportion. For built-in or masonry units, firm guidelines are available to help you determine the size of the opening. Heating efficiency in a firebox 30 inches wide, well filled with flame is much greater than in the same fire built in a 48-inch firebox. A big fire in a big fireplace will probably drive you out of the room. Consider room size, fire size and fireplace opening size as all fitting well together. Proportion is an important design factor. A unit that is too big or too small for the size of the room is visually disturbing. If you choose a

small airtight stove that does not have the visual importance the room requires, the placement and materials used for installation can improve the visual balance.

The placement of the masonry can also make a difference in your enjoyment and use of the heat produced. For the masonry fireplace with a masonry chimney, some of the usable heat comes from the hot gases conducting heat through the chimney and in turn radiating heat from the surface. The heat is stored and released slowly, extending the time for heat gain from the fire. It is good common sense to make use of the heat gain from all sides by not building the chimney on an outside wall. Another consideration is to design this masonry mass as a passive solar heat storage unit as well as a chimney, and increase its usefulness. As sunlight passes through the window glass, its heat is trapped inside the room. If the sunlight strikes a masonry surface, the heat is absorbed and then slowly released as radiant heat. A chimney, fireplace or hearth could all act as this solar heat sink if placed correctly in the room.

Free-standing units will have direct radiation from all heated surfaces including the chimney or stove pipe (Figure 2). This energy release can be useful directly or can in turn be absorbed by masonry material used to fireproof the surrounding walls and floor. The slow

release of this heat extends the time warmth is received from the fire.

Construction Materials. The outside appearance of the wood-burning unit has a strong impact on room design. A wide variety of colors, textures and finishes are available.

Non-combustible materials at least 6 inches wide must surround the fireplace opening at the sides and top and form a front hearth at least 20 inches deep. A free-standing unit must have non-combustible material between it and a wall if closer than 36 inches. It also should have floor protection extending 12 inches beyond the unit on three sides and 18 inches where the wood is added. Check local codes for exact requirements.

Table 1 indicates the tremendous variety of materials that can be used for construction and facing. For fireplaces, brick is probably the most popular material and the type of brick and the way it is laid in itself is so variant as to determine whether it is traditional or modern, formal or informal in appearance.

Wood paneling, although a combustible material, is often used for fireplace facing in combination with masonry materials. Many materials are now available in panel form that can simulate a masonry wall and provide a fire-resistant surface. These vary from thin photographic prints on a hardboard base to actual slices of bricks or stone. They can come in 4 x 8-foot sheets that you install as wall panels or individual pieces that you glue to the flat surface and “grout” in between. Manufactured materials are available to simulate most of the face materials listed. Check the literature carefully to determine the non-flammability and wearing quality of both the material and the method of adhesion. If you have questions, consult a competent builder or building inspector.

Hearth. The hearth is an area of masonry or other fire-proof material in front or beneath the fire opening designed to protect the floor from sparks and the heat of the fire. The hearth of a fireplace may be flush with the floor, raised or cantilevered. Sometimes a hearth is extended to accommodate a seating area or platform for other furnishings or sculpture. A raised hearth can

Figure 2. Take advantage of heat storage and radiation from chimney, stove pipe and masonry fireproofing material.

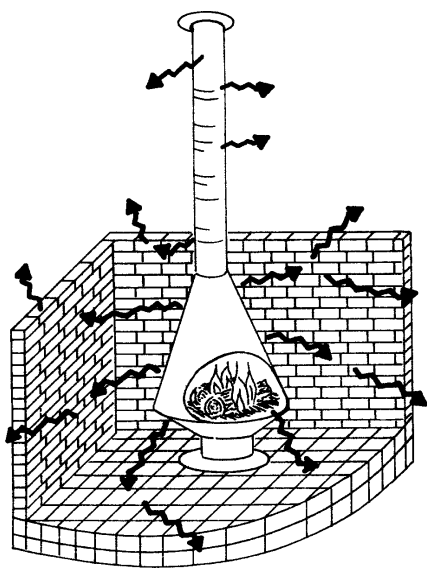


Table 1. Materials for construction and facing.

Materials		Finishes
BRICK	Sizes	Patterns
	Colors	Bonds
	Textures	Joints
	Glazed	Mortar
	Used	
CONCRETE	Standard	Floated
	Adobe	Brushed
	Exposed	Pre-cast
	Aggregate	
	Terrazzo	Hammered
STONE	Marble	Ground
	Granite	Polished
	Limestone	Carved
	Boulders	Random
	Fieldstone	
CERAMICS	Split face	
	Quarry tile	Decorated
	Terra cotta	Metallic
	Glazed tile	Variegated
	Mosaic tile	Colors
	Glass	Sizes and shapes
		Textures
		Patterns

be designed to provide convenient wood storage. The materials used are usually the same as the facing materials with more attention paid to durability, smoothness and ease of cleaning, especially if this surface is walked on.

Loose non-combustible material can be used for this purpose if it is contained in some way. Smooth pebbles, rock chips and sand are examples. These materials would need to be replaced occasionally as they become soiled.

Free-Standing Fireplaces and Stoves. These units are available in a wide variety of materials. Because they become a prominent piece of furnishing in any room, consider design carefully (Figure 3). Many types are made primarily of metal; some are made of pottery, ceramic, tile or stone; some are made of glass. Many are constructed of combinations of these materials.

Two main construction categories are single wall and double wall. The single wall are generally of a heavier material such as cast-iron or formed pottery and

provide mostly radiant heat. The double walled stoves may be lighter weight material and heat primarily by convection. The layer of air between the two walls circulates through vents into the room. Some thin metal units are lined with fire brick or other absorbitive materials to act as a heat sink and to increase the life of the metal.

Metal Stoves. Most metal wood-burning stoves are made of sheet metal, plate steel, cast-iron or combinations of these. These materials are available in many finishes. To evaluate the materials you should consider your heating needs, the durability compared to cost and your personal aesthetic requirements.

Finishes. Some finishes are designed to increase the heat radiating surface, some to absorb heat for later slow release, some to prevent rust or surface deterioration and some are purely decorative (Figure 4).

- *Porcelain* is a durable heat-resistant surface fired onto metal. This type of finish prevents rust, lasts well, and comes in many colors in flat or shiny finish, but may chip or craze.
- *Enamel* is a painted surface on metal. It can burn off and need replacing. Enamel finishes are inexpensive and available in a wide range of colors.
- *Surface designs* are usually on cast metal. A leather-grained effect is most common, but some have a fabric-like texture or raised dots. Some have embossed pictorial designs (animal, forest, or medieval scenes). These can increase the radiant surface and also strengthen the cast material.
- *Tile or soapstone over metal* is an exterior decoration that adds thickness to the metal. This protects it from rust, increases slow release radiation and adds color and textural interest.

Figure 3. Placement and materials used for installation can add visual balance to a small stove.

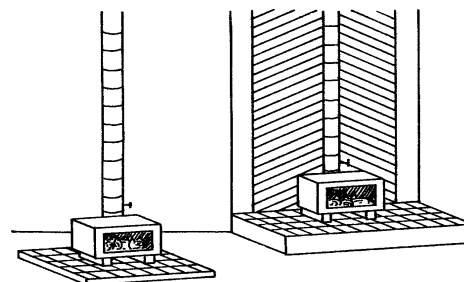
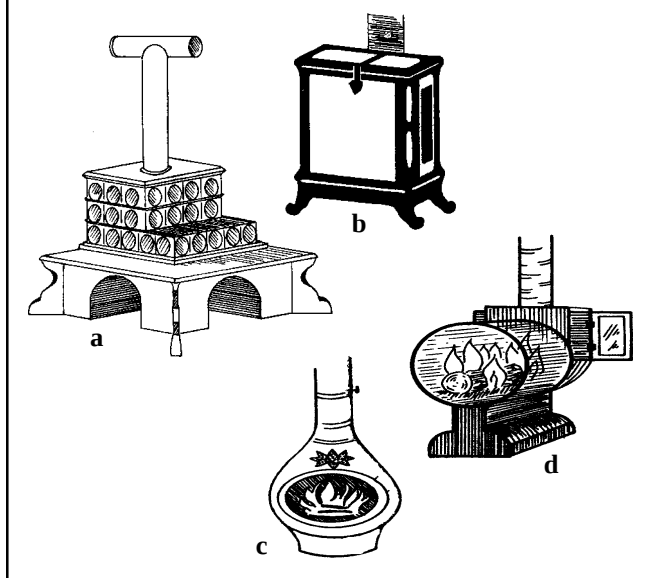


Figure 4. Stoves are made from many materials in addition to cast iron or steel. Included are a) the tile stoves of Central Europe and units made from soapstone, b) tile, and c) glass d).



- *Trim and handles* should be designed of heat resistant materials that can be handled when hot. These are usually made of porcelain or nickel plated coiled metal. (Chrome discolors from the heat.)

Some stove manufacturers advertise by stating their metal is a certain gauge. Gauge numbers vary inversely to thickness, so the smaller the gauge number, the thicker and heavier the metal. Some manufacturers will state the thickness of metal in fractions of an inch. Metal between 3 and 10 gauge – approximately between 1/4- and 1/8- inch thick – would be satisfactory for stove construction. Thinner metals will burn out faster and warp, so they require a liner of firebrick, sand or other material to make them more durable.

Tile and Ceramic Stoves. Most of the stoves in American history were cast-iron baroque – but a few early settlers brought with them knowledge of the Central European tile stoves. The Moravian potters of North Carolina made tile stoves well into the 19th century. Possibly these did not catch on well because they are much slower to start than the cast-iron stove, a significant factor on a cold morning. Once started, they do produce a constant, even warmth. The larger

stoves were built of bricks and were covered with glazed tiles. Some had cast-iron fireboxes with the loading door in an adjacent hallway or room which also contained the wood supply, thus eliminating the mess created by carrying wood across the living room floor. It also eliminated drafts caused by the combustion air being drawn from the room.

Soapstone stoves were a compromise as they are similar to cast-iron stoves in appearance, are slow to start, but produce an even warm glow. These were developed for use on salt water boats since soapstone will not rust.

From south of the border and our southern states come ceramic stoves or fireplaces. These are formed of clay by hand or on the potter's wheel. The size is limited because of the method of forming and firing the clay, but they can come in one piece or several that you assemble. They are generally a natural red or light brown clay color. Some are pure pottery forms; others are decorated with raised or incised designs. The absorptive quality of these units is much like brick and the radiant heat continues after the fire dies down.

Glass Stoves. Many free-standing stoves have doors, openings and peep holes of heat resistant glass that allows you to enjoy the fire while controlling the air intake. A few companies make units that are primarily glass. These produce the novel experience of an open fire in your home with built-in draft control and protection from sparks.

Summary. The array of choices and combinations available to the shopper of wood heating units is very large. Combining the information on choosing a unit for size and efficiency with this information on aesthetics and personal needs should help you find the right one. Consider the guidelines on placement, size, shape, textures and materials. With so many variations available, your personal satisfaction should be guaranteed.

This information first appeared as CIS 511 and was part of the *Wood as a Fuel Series*.

About the Author: Shirley Nilsson is a former Extension Housing and Equipment Specialist and Professor at the University of Idaho.