

Woodstove

And Freestanding Fireplace

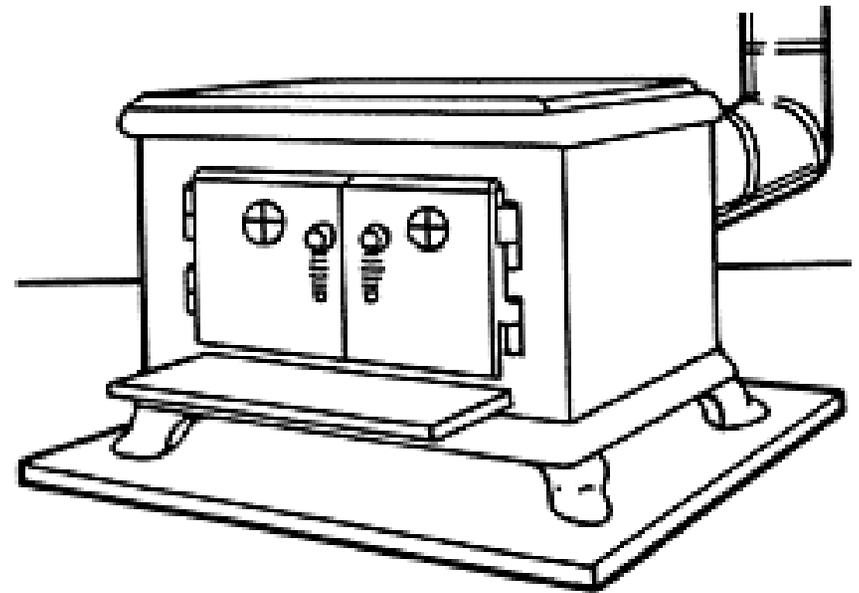
Installation

Guide

We hope you will follow the rules in this pamphlet. If you have questions, please call the Building Department at 208-756-6913, ext. 263, ext. 264, or ext. 270.

***** Happy Heating *****

***** Please remember to call for all inspections *****



Presented in the interest of public safety by the
City and County Building Department

Prepared by the Building Official, Gary Goodman

Preface

Each year, improperly installed and/or maintained woodstoves and fireplaces are responsible for a large number of fires and fire-related damage. These problems can be overcome if basic safety measures are observed. The purpose of this pamphlet is to outline the requirements of the City of Salmon and County of Lemhi building departments, and to give the installer and user of wood burning fireplaces and stoves a guide to assist them in obtaining a safe and efficient installation. Of course, once the unit is installed, proper maintenance and common sense are needed to keep it from becoming a fire hazard. We hope this pamphlet will help you to obtain the maximum enjoyment, and at the same time, peace of mind from your fireplace or woodstove.

IRC TABLE R1001.1
SUMMARY OF REQUIREMENTS FOR MASONRY FIREPLACES AND CHIMNEYS

ITEM	LETTER ^a	REQUIREMENTS
Hearth slab thickness	A	4"
Hearth extension (each side of opening)	B	8" fireplace opening < 6 square foot. 12" fireplace opening ≥ 6 square foot.
Hearth extension (front of opening)	C	16" fireplace opening < 6 square foot. 20" fireplace opening ≥ 6 square foot.
Hearth slab reinforcing	D	Reinforced to carry its own weight and all imposed loads.
Thickness of wall of firebox	E	10" solid brick or 8" where a firebrick lining is used. Joints in firebrick 1/4" maximum.
Distance from top of opening to throat	F	8"
Smoke chamber wall thickness Unlined walls	G	6" 8"
Chimney Vertical reinforcing ^b	H	Four No. 4 full-length bars for chimney up to 40" wide. Add two No. 4 bars for each additional 40" or fraction of width or each additional flue.
Horizontal reinforcing	J	1/4" ties at 18" and two ties at each bend in vertical steel.
Bond beams	K	No specified requirements.
Fireplace lintel	L	Noncombustible material.
Chimney walls with flue lining	M	Solid masonry units or hollow masonry units grouted solid with at least 4 inch nominal thickness.
Distances between adjacent flues	-	See Section R1003.13.
Effective flue area (based on area of fireplace opening)	P	See Section R1003.15.
Clearances: Combustible material Mantel and trim Above roof	R	See Sections R1001.11 and R1003.18. See Section R1001.11, Exception 4. 3' at roofline and 2' at 10'.
Anchorage ^b Strap Number Embedment into chimney Fasten to Bolts	S	3/16" × 1" Two 12" hooked around outer bar with 6" extension. 4 joists Two 1/2" diameter.
Footings Thickness Width	T	12" min. 6" each side of fireplace wall.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 square foot = 0.0929m².

Note: This table provides a summary of major requirements for the construction of masonry chimneys and fireplaces. Letter references are to Figure R1001.1, which shows examples of typical construction. This table does not cover all requirements, nor does it cover all aspects of the indicated requirements. For the actual mandatory requirements of the code, see the indicated section of text.

a. The letters refer to Figure R1001.1.

b. Not required in Seismic Design Category A, B or C

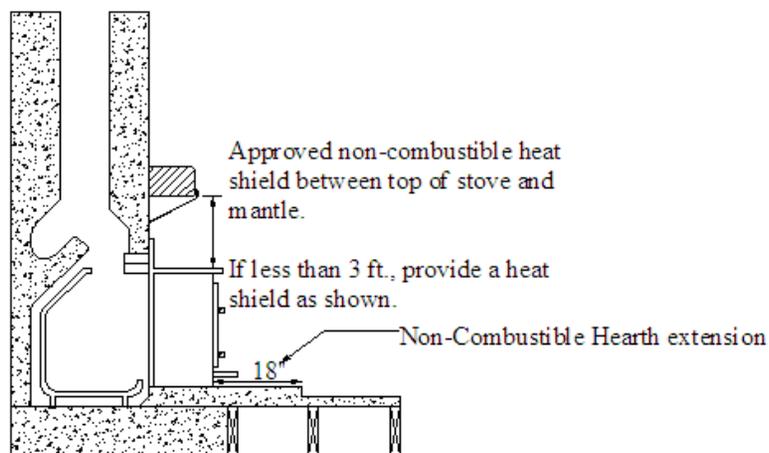
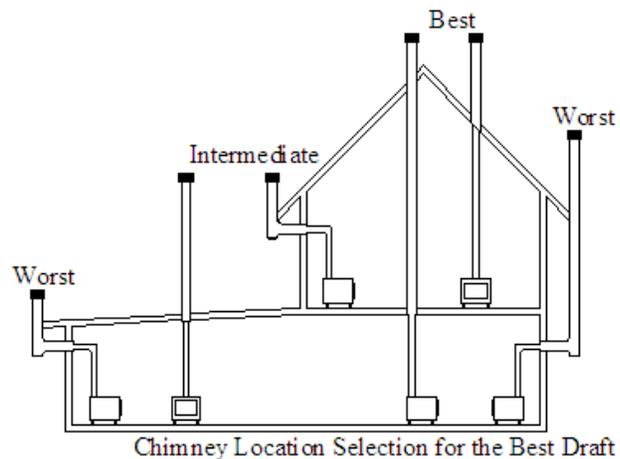


Illustration 7

The homeowner may do his own work, provided they follow the provisions of the code. The homeowner is responsible for the permit, but the person actually doing the work is responsible for making sure the permit was issued and calling for all required inspections. The person actually doing the work is the one that will be held responsible for the installation, and making sure that it complies with code. Installing a fireplace, or woodstove, or makes changes to the same without a permit is a violation of the law, in addition to the fact that it could be dangerous. Please check with our department before any work is commenced and please call for all inspections, as we will not make automatic inspections, even though a permit is issued. The inspection must be called for and scheduled with us before using. Many insurance companies are now requiring “Certificates of Compliance” before they will renew or issue fire insurance to the home where a particular woodstove or fireplace is installed.

Listed and Unlisted Units. The requirement contained in this pamphlet concerning clearances from unprotected and protected combustibles apply to units that have not been tested and listed by an approved testing agency such as U.L., F.M., I.C.C., E.S., etc. Those units that are listed by such agencies must be installed according to the requirements set forth by the manufacturer and the listing agency. The Building Official/Inspector having jurisdiction must approve the installation of all listed and unlisted units in accordance with the codes.

Manufactured Home Installations. Due to the generally tighter and less fire resistive construction of manufactured homes, special precautions must be taken when installing woodstoves or fireplaces in them. The state of Idaho and

this agency requires that woodstoves or fireplaces being installed in manufactured homes meet the federal standards for manufactured home installation. Units that meet these standards will have a plate or metal tag attached to the unit so indicating. A permit for a manufactured home installation will not be issued without evidence of compliance with the above, so before you purchase a stove or fireplace for a manufactured home, make sure it qualifies as “Manufactured Home Approved”. In addition, it should be stressed that any cutting of the structural members of the manufactured home may invalidate the certification of compliance with Idaho Manufactured Home Regulations.

Smoke Detectors. If you do not already have smoke detectors in compliance with current code, then you are required to buy, properly install, and maintain smoke detectors in conjunction with the installation of wood burning stoves or fireplaces. Contact your Building Official if you have specific questions regarding this issue.

Clearances from Combustible Materials. As noted previously, the following figures apply only to those stoves or fireplaces that are unlisted or untested by an approved testing agency. Listed units should be installed according to the manufacturer’s instructions. Any deviations must meet the approval of the agency having jurisdiction. The national fire protection association as well as the IMC (International Mechanical Code) and other nationally recognized agencies all require a Minimum of 3-feet from unprotected combustible material of any type, whether it be a wall, furniture, curtains, or any other type of material that might ignite. In some cases there may be a problem finding the room to allow this much space between the stove and the adjacent wall. In these cases, shielding may be pro-

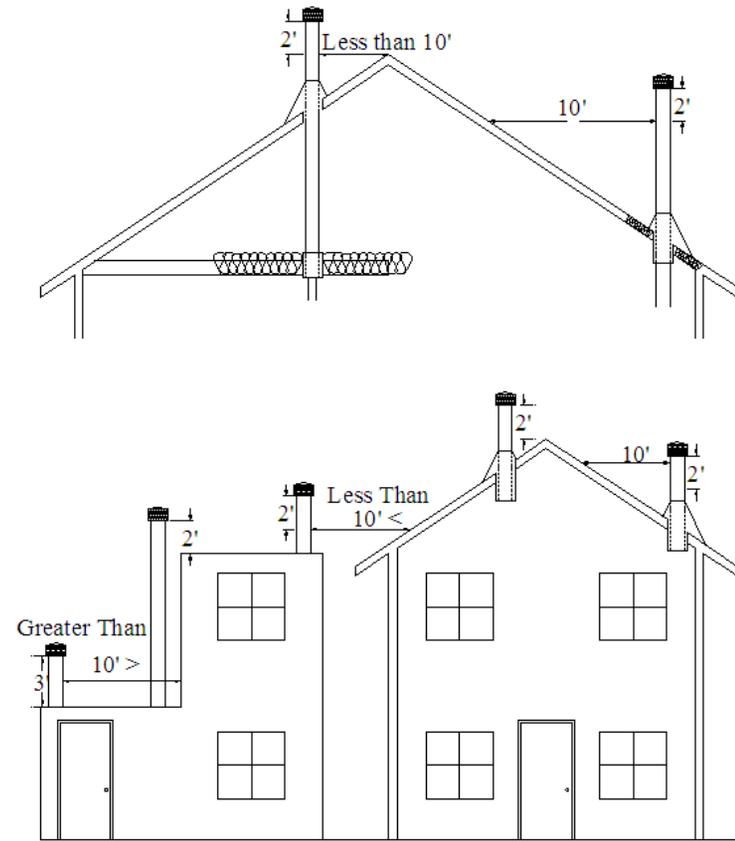


Illustration 6

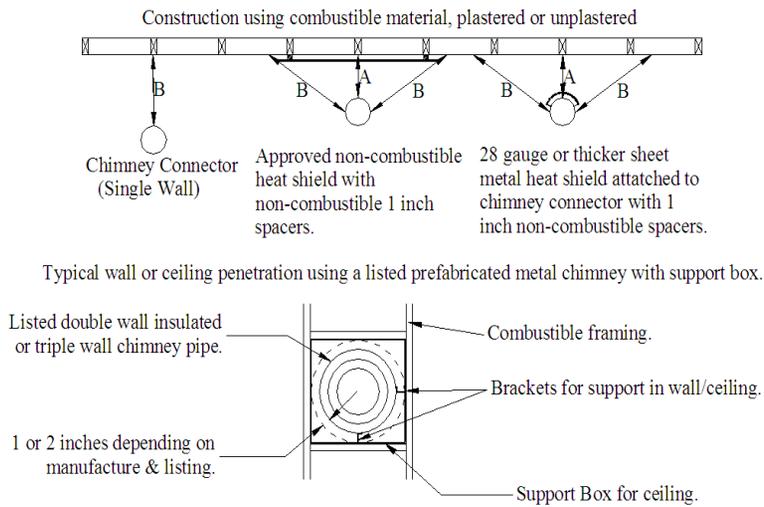


Illustration 5

vided for either the wall or the stove or fireplace in question and spacing may be reduced to 12-inches and 18-inches respectively, as shown in illustrations 1, 3, and 4. A wall shield may consist of any of the following: Brick, Stone, Lava Rock, Brick, 24-gauge (or thicker) sheet metal, 5/8-inch type “X” fire rated gypsum board or cement board covered with an approved non-combustible material, such as ceramic tile, “Z” Brick, or stucco. The authority having jurisdiction must approve other heat shield materials. Shielding applied to a stove must be metal, (not aluminum) at least 24-gauge. As shown in illustrations 1, 3, and 4, the wall shield and stove shield must be at least one-inch (1”) from the wall or stove to which they are applied. Non-combustible spacers, such as section of metal pipe, ceramic or a double thickness of ½-inch gypsum board must be used for the wall shield spacers. Only metal spacers may be used on the stove shield. Both the stove and wall shields should be open at the top and bottom to allow air to flow behind them to facilitate cooling. Louvers or vents on a wall shield large enough to permit the free flow of air would be acceptable on a wall shield. A wall shield must extend beyond the sides and above the stove as shown in the illustrations. The stove shield must be at least as large as the side or rear of the stove that it protects.

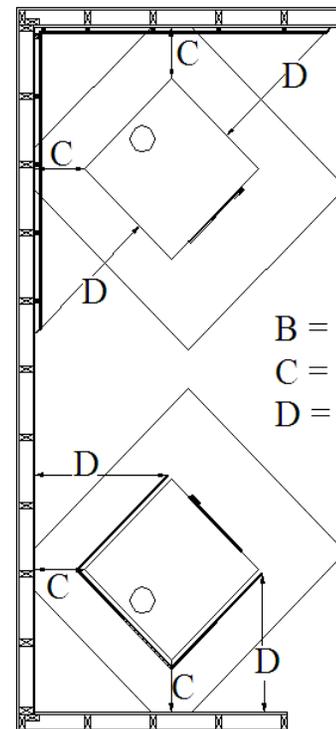
It should be stressed that the clearances mentioned are the **minimum** that could be considered as adequate **if the unit is not over-fired**. This jurisdiction does not assume any responsibility or liability, either expressed or implied, for any damages resulting from the use of the standards outlined in this pamphlet.

Chimney Connectors. The pipe that goes from the stove to the chimney is called the chimney connector. It may be a single wall pipe, but must be approved for use with solid fuels. Aluminum gas vent pipe definitely may **not** be used.

The chimney connector must be at least 18-inches from any unprotected combustible surface. With a heat shield, installed as shown in illustrations 1 and 5, the chimney connector may be as close as 9 inches from any combustible surface such as, a wall, ceiling, or other similar surface. To obtain closer spacing's a class "A" listed triple wall or double wall-insulated chimney must be used. All chimney connectors must have a slope of at least 1/4-inch per foot toward the stove in order to allow liquid condensate to run back into the stove rather than pooling in the pipe.

Chimney Requirements. You may use either a masonry (brick or block) chimney with an approved liner (red fire-clay, stainless steel or other listed lining system). Unlined chimneys or unapproved liners such as black or blue single wall pipe may not be used. Instructions pertaining to the building of a masonry chimney are beyond the scope of this pamphlet. For further information on the building of a masonry chimney, please consult your local building department. Metal chimneys must be installed exactly according to the manufacturer's listed instructions. Usually a 2-inch minimum clearance from combustibles is required from approved triple wall or double wall-insulated pipe. Any chimney flue must have a cross sectional area at least as large as the chimney connector and the chimney connector must be at least as large as the flue outlet of the stove. All chimneys must extend at least 2-feet above the peak. The chimney must also extend at least 3-feet beyond the hole in the roof through which it protrudes, as shown in illustration 6. Above heights, do not include the chimney cap/spark arrester. Spark arrestors are required on any chimney near a wooded, grassy or brush covered area, and are recommended for all chimneys. Spark arrestors should have an area of at least 4-times the area of the flue they serve. They may be made of screen or expanded metal with holes no

Clearances from protected combustible construction.



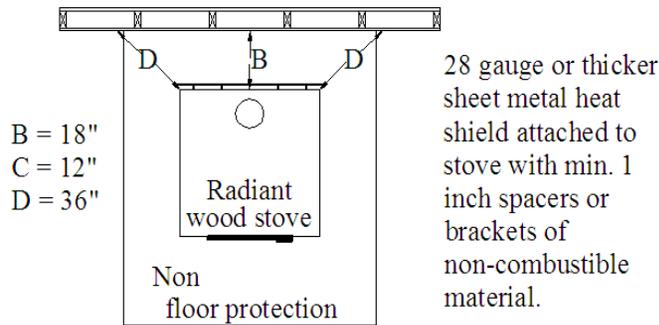
Approved non-combustible heat shield with minimum 1 inch non-combustible spacers.

Construction using combustible materials, plastered or unplastered.

28 gauge or thicker sheet metal heat shield attached to stove with minimum 1 inch non-combustible spacers/brackets.

Illustration 4

Clearances from protected combustible construction



Construction using combustible materials, plastered or unplastered.

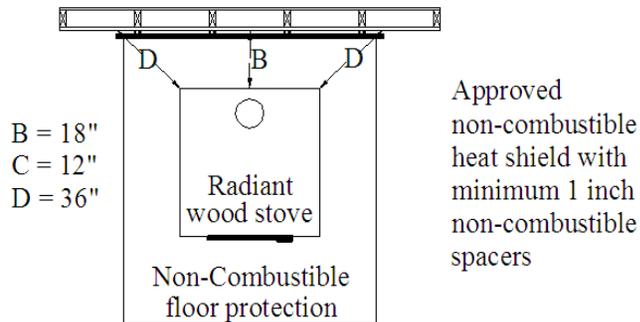


Illustration 3

smaller than 3/8-inch in one dimension and no larger than 1/2-inch in any one dimension. Multiple appliances on a single flue are prohibited. For safety reasons, each solid-fuel burning appliance must have its own flue. A metal chimney extending more than 4-feet beyond the roof should be well supported with guy-wires to keep it from being blown down by the wind.

Protection of Combustible Floors. Combustible floor protection for listed units shall be provided as per manufacturer's instructions. Combustible floor protection for unlisted units shall be provided as follows: where the stove has legs that provide at least 18-inches of open space between the bottom of the firebox and the floor. A minimum of 24-gauge sheet metal is required. Where the stove has legs that provide between 6-inches and 17-inches of open space between the bottom of the firebox and the floor, the minimum protection needed is 3/8 inch non-combustible material (such as ceramic tile, brick, concrete, etc.) Where the stove has legs that provide less than 6 inches of space between the underside of the firebox and the floor, the minimum protection is 4-inches of hollow masonry, laid to provide horizontal air circulation through the masonry layer. In all the above cases, the required protection must extend at least 12-inches beyond the sides and rear of the stove, and 18-inches beyond the front or loading side, as shown in illustration 2.

Fireplace Inserts. Inserts for fireplaces may be thought of as just woodstoves without legs that are designed to sit at least partially in the mouth of an existing masonry fireplace. Inserts are not allowed in metal "Zero Clearance" fireplaces. Inserts generally follow the same rules as woodstoves regarding clearances, etc. Provisions must be made

for the cleaning of the area in the fireplace behind the insert periodically. A direct connection from the insert to the chimney flue is recommended whenever possible in order to facilitate cleaning and minimize creosote build-up. A clean-out door in a chimney on an accessible exterior wall is another way to get at the interior of a fireplace with an insert. See illustration 7.

Proper Cleaning, Fire and Maintenance. Once you have gone to the trouble of getting a safe installation, you can keep it safe by observing the following safety precautions:

1. Do not over-fire your stove! Over-firing can cause warpage of a metal stove and chimney parts, or cracking in the case of cast-iron units. It can also cause wood to decompose to pyrophoric carbon if the wood is subject to high heat over a long period of time.

2. Watch for and immediately repair any deterioration in the chimney or connectors such as loose mortar, cracks in metal stoves, loose pipe connections, etc.

3. Keep your chimney, stove, and chimney connector clean and free of soot and creosote. Creosote and soot are the by-products of the combustion of wood. They are basically unburned hydrocarbons that are carried up in the smoke and are deposited on the interior of the chimney and the chimney connector. When the fire does not have enough air and is burning at a relatively low temperature is when creosote builds up the fastest. A cool flue also causes the creosote to condense more rapidly than normal. We recommend that each time you light the stove or at least once a day you allow it to burn with the maximum amount of air for at least

Clearances from unprotected combustibles

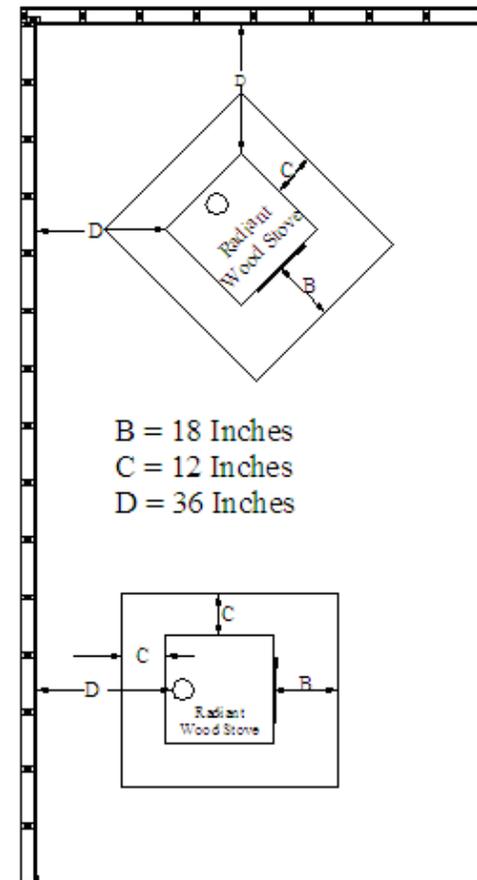


Illustration 2

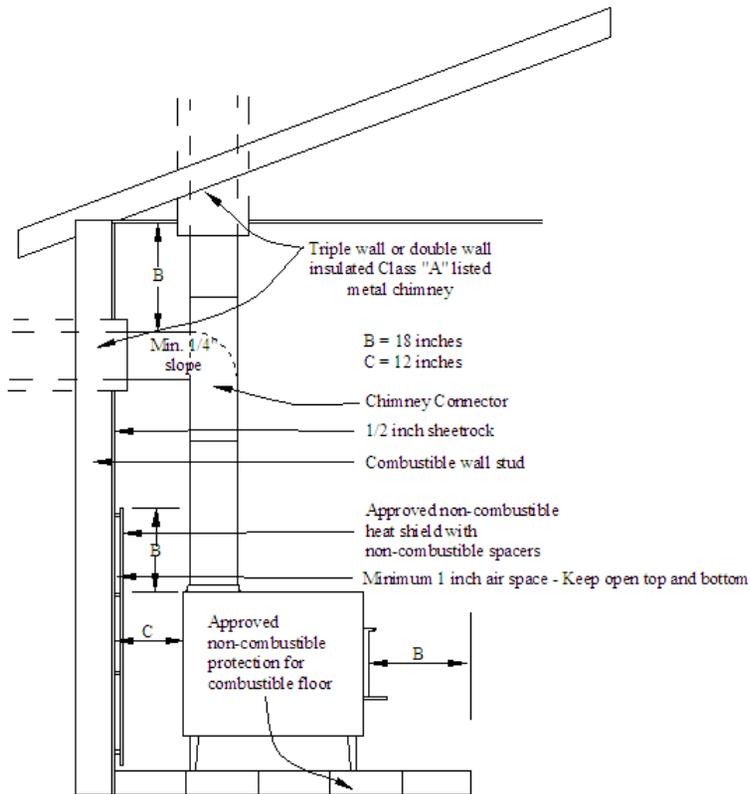


Illustration 1

30-minutes to adequately warm up the flue, and then allow enough air to maintain a chimney connector temperature of between 250-300 degrees Fahrenheit, measured by a chimney connector thermometer. Thermometers may be purchased at your local hardware store or at a wood-heating specialty shop. A typical scenario in which creosote build-up is rapid is when the homeowner fills the stove completely full of wood and cuts the air to a bare minimum before retiring for the night, in order to get an all-night burn. This practice is therefore discouraged. An innovation on the market, which has shown some promise, is the **catalytic combustor**. This unit lowers the temperature at which the creosote will ignite, thus providing more heat and less creosote build-up. For more information on these devices, see you local hardware or wood stove dealer/distributor.

4. Ash Disposal. Never, we repeat, never put ashes in a cardboard, wooden, or paper container, even though you think they are completely cold. Ashes insulate hot coals and keep them hot for long periods of time. Ashes should be put directly into a metal container and taken directly outside, away from buildings or combustibles of any kind.