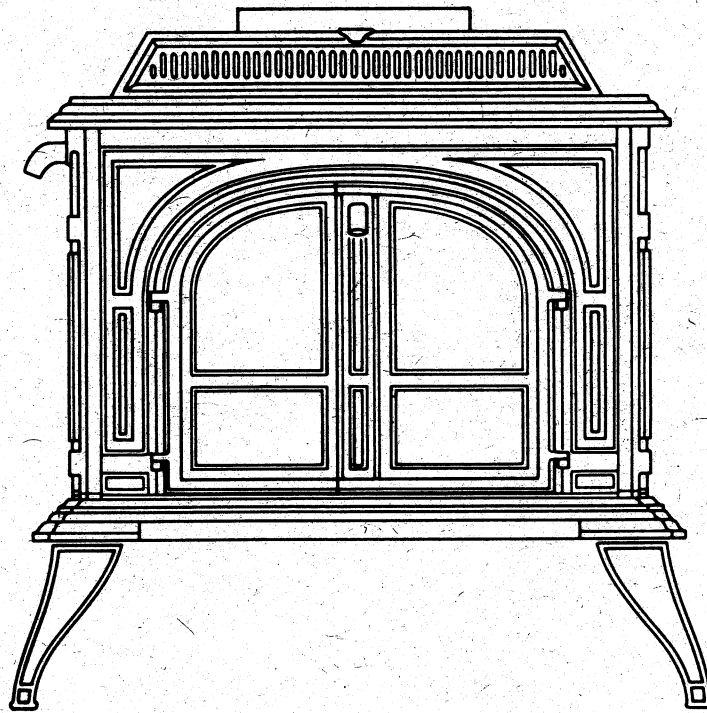


Vermont Castings OPERATION MANUAL



For the
Defiant[®], Vigilant[®], Resolute[®]
and
Intrepid[®]
Wood Parlor Stoves

Covering models manufactured prior to 1990

A Philosophy...A Commitment

We build wood stoves because we believe there are sensible ways to heat our homes without exhausting our precious oil supplies. Vermont Castings was founded on this philosophy and it continues to guide us today.

When we began making stoves, wood was our first choice as an alternative to heating with oil. The chemical reaction that occurs within the leaf is the only known natural exchange that can store the sun's energy. In every sense, wood heat is a loan from the sun. If we fail to use it to warm ourselves, wood heat will eventually be consumed by rot, and decay into the atmosphere. The loan is brief, not much longer than the span of a human life. We encourage you, through the ownership of our stoves, to take this loan and use it wisely for your benefit and pleasure. If we are careful in the harvesting of wood, our forests will supply us with a lasting supply of fuel.

While wood is our only renewable fuel source, coal is one of America's most abundant resources. For many persons, especially our urban friends, it is difficult to find a ready supply of wood. Recognizing this, we recently introduced a coal burning stove, and a coal conversion unit for existing wood stoves.

Known coal reserves can meet our heating needs for years to come. But, as stewards of the earth we must abide by an ethic that mandates we burn coal as sparingly and efficiently as possible. By doing so, we ensure that there will be ample supplies of coal to warm the homes of future generations.

As responsible users of one of the earth's natural resources, we cannot ignore pollution problems related to the burning of coal. We made our stoves to be as efficient as possible and designed them to burn premium grade anthracite, the least polluting of any of the coal types. We suggest you check the availability of this coal in your area before making a decision to burn with coal.

Buying a wood or coal stove, especially a highly sophisticated one like ours, is a commitment. As the owner of one of the finest stoves made, you have made a commitment toward a lifestyle founded on the notion that one technology does not replace another, but allows us to become reconnected to the natural systems which support us. In doing so you acquire a new vocabulary. This operation manual summarizes our knowledge. Combined with your effort, it will provide the information you need to reach your goals. We at Vermont Castings feel that your commitment to your new stove, in some cases a very new experience, will be amply awarded.

How To Use This Manual

This manual contains a great deal of information and is not easily digested in one sitting. Before you light your first fire, read it thoroughly, especially the Operations instructions. Otherwise you might damage your stove. Read it again after the stove has been in service for a while. Many of the difficult to understand points will become clear. If you have specific questions about the installation of your stove and the clearances necessary for safe operation, please contact your Authorized Dealer or our Customer Service Department. We have an installation guide and other technical information available to help answer your questions. We will be happy to discuss your particular problems.



WELCOME

As a Vermont Castings' stove owner, you join a unique community of persons dedicated to using alternate energy sources. Whether or not this is your first experience with wood or coal, you are assured of our continued support and guidance to help you gain the maximum benefit and enjoyment from your new stove.

This special relationship is extended to you through our Vermont Castings Authorized Dealers, our Customer Service Department and the Owners' News. Vermont Castings people are well versed in every aspect of heating with wood and coal. Periodically you will receive copies of our Owners' News. Your first copy was packed in your stove. In it we provide helpful hints which will give you the benefit, not only of our experiences, but those of other customers as well. Please take advantage of the Owners' News to share secrets you discover with other stove owners.

It has always been the philosophy of Vermont Castings to maintain direct contact with our customers. We hope to learn as much from you as you learn from us. If problems do occur, we can draw on the experience of thousands of stove owners to help you. Very few manufacturers have this advantage, an advantage which becomes yours when you purchase your Vermont Castings stove.

We have tried to make this manual as easy to read as possible. We urge you to familiarize yourself with it before setting up your stove. Familiarize yourself with the parts of the stove and their functions so that it will be easier to understand the information in the manual. The clear chapter headings should facilitate your task. Read the chapters in order. If you have already completed your plans and the work necessary for installation, you might like to move ahead to the chapter on setting up the stove. Once again we caution you to please read through the material at least once before you make the final installation connection and build your first fire.

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SAFETY NOTICE:

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THE INSIDE STORY

Economics & Efficient Combustion The How & Why

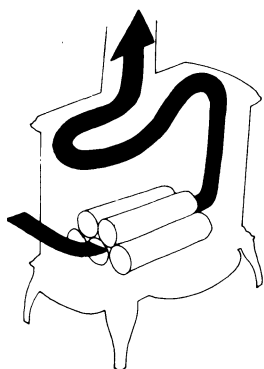
It has been our experience that if you understand the inner workings of your stove you will be better equipped to use your stove wisely and to gain maximum savings and pleasure from its daily use. That is why this section on the efficiency and combustion principles of the stoves is included before you reach the installation information.

Our four stoves share the same design and combustion principles. The Intrepid differs a little in interior arrangement and air flow patterns. Intrepid owners, see *The Intrepid*, page 5.

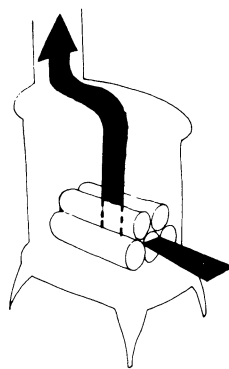
Let us start your tour of the inner workings of the stoves with a discussion of *horizontal combustion*, a fundamental concept behind the operation of our wood stoves. In horizontal combustion, the flames move horizontally as they leave the primary combustion zone. Many stoves employ *updraft combustion*, in which flames rise up through the fuel load. All wood loaded into an updraft stove becomes part of the fire mass unless oxygen is restricted to a low level. Our horizontal flamepath allows only the bottom of the wood load to burn. The logs on top are dried by heat and fall into the flame area as those below are consumed. Thus, a full wood load can provide heat all night long.

The use of horizontal combustion allows for us to place the fuel in a *magazine* where the fueling of the fire is automatically accomplished by gravity.

The horizontal combustion mode will be used by most wood burners under normal conditions as it will ordinarily produce more usable heat in the room per pound of wood loaded into the stove than the updraft mode. However, where there are special conditions to be met, low draft, a need for extra heat in extreme weather, or an unseasoned wood supply, for example, the updraft mode may serve you better. Our stoves are combustion controlled (sometimes called "air-tight") in either mode. Burn rate and heat output may be controlled by adjusting the thermostat lever.



Horizontal combustion



Updraft combustion

Fuel Limiting:

There are two ways to control the volume of power output in a combustion device: fuel limiting and oxygen limiting. An automobile is fuel-limited. If you need more power, you supply the engine with more fuel. If you make an uncontrolled amount of gasoline available to the spark plugs at once, the engine becomes an inefficient source of power.

An updraft stove places the entire fuel supply in the combustion zone at once. If the fire is partially smothered to control the rate of the burn, thick smoke and low efficiencies may result. Our magazine system uses no more than the amount of fuel necessary in the combustion zone at any one time in order to produce the maximum amount of heat for which the stove was designed. In order to slow the fire below these points, we use oxygen limiting with an automatic *thermostat* which provides the fire with an appropriate level of oxygen.

Air Control Systems

Primary Air Systems

In both our wood and coal stoves, oxygen enters at the thermostatically controlled *Inlet Air Shutter* and travels through passages where it is heated before being fed to the fire mass through the *Primary Air Ports*.

When a fuel is heated and burns, the volatile combustible gases naturally locked in it are driven off. In an updraft combustion stove or fireplace, these volatiles may be left unburned for two reasons. First, by the time the gases have left the fuel, they are too cool to ignite. Second, the oxygen that enters the stove is usually consumed by the glowing coals at the base of the fire mass, so the gases rise through an atmosphere too deficient in oxygen to allow combustion to take place. The loss of volatile gases is serious in the case of wood, for it represents approximately half the total heat value.

Secondary Air Systems

Our stoves facilitate the burning of these volatiles in several ways. By using horizontal combustion, the gases are forced to pass close to hot coals which maintain a sufficiently high temperature (as high as 1200° Fahrenheit) for ignition.

Our stoves also employ a sophisticated system which introduces another source of preheated air (secondary air) to encourage combustion of these volatile gases. The *secondary combustion* of gases that, because of an insufficient oxygen supply, were unable to ignite within the primary combustion zone, are encouraged to release their heat. Secondary air treatment of the coal stoves is different because of the individual characteristics of coal and wood.

The inner workings of the Defiant

Heat-regulating thermostat.

Automatically controls air intake to assure steady, even heat all day, all night long.

Two-position damper.

Permits use as fireplace; or when adjusted, helps provide maximum heating efficiency.

Secondary Air Cover.

Allows air to enter the secondary air tube and become preheated as it passes behind the fireback. The cover should remain open when burning wood.

Primary air entry ports.

Disperse preheated air evenly into combustion zone.

Secondary combustion chamber.

Allows unburned gases to combine with oxygen, providing additional heat.

The baffle.

Creates a longer flamepath for maximum heat transfer.

Secondary air tube.

Feeds preheated oxygen to secondary combustion chamber.

Smoke shelf.

Directs spent gases into upper chamber, where they release additional heat before rising up flue.

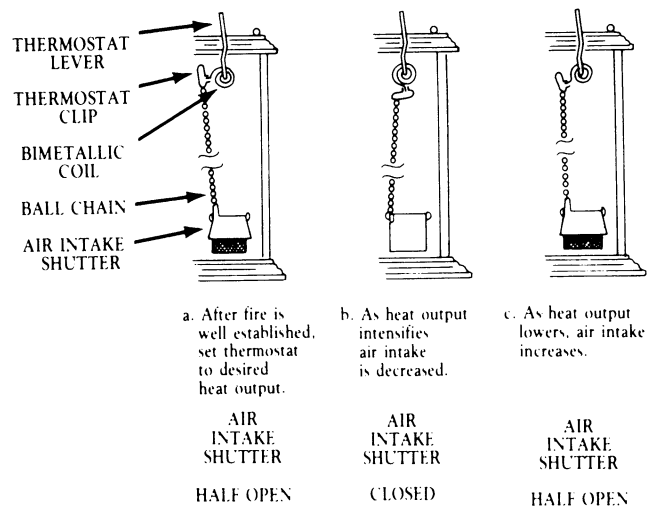
Thermostat Control

The thermostat lever at the back of the stove controls the Inlet Air Shutter, and thus the amount of air entering the stove for combustion. Attached to this lever is a bimetallic coil which contracts or expands to the heat given off from the stove. A ball chain connects the lever to the air inlet shutter, thus regulating the flow of incoming combustion air. As a result the stove's heat output intensifies and the air supply is decreased. The combustion rate slows, heat output drops, and the air supply is again allowed to increase as the bimetallic coil reopens the air intake shutter.

The thermostat lever can be set to accommodate your individual heating requirements. The overall heat output throughout the burn period is determined by the lever setting. The length of burn is similarly related to the lever setting as a high heat output will necessarily allow faster fuel consumption than will a lower heat output setting. The most efficient use of the stove and fuel can be made by setting the thermostat to allow a moderately hot fire. Long, smoldering burn periods should be avoided.

THERMOSTAT OPERATION

- View of thermostat for Defiant and Vigilant is with thermostat cover removed
- Resolute bimetallic coil is reversed



YOUR WOOD STOVE

The Internal Parts & How They Contribute To Efficient Operation

Secondary Combustion Chamber

Secondary air enters our wood stoves at the lower left end of the stove through the circular Secondary Air Entrance Port. Under normal conditions, this remains open all the way at all times. This air passes down the Secondary Air Tube where it is preheated. The air supply is then directed into the Secondary Combustion Chamber through numerous air ports, so that it can mix with and ignite the combustible gases. A *Secondary Combustion Chamber* allows the gases to expand as they are further heated by their own combustion. A large portion of the stove's exterior surface encloses this chamber, thus allowing for transfer of the maximum possible amount of heat to the room.

Behind the *Fireback* are the smoke passages. These passages consist of a series of *Baffles* that conduct the flue gases in a serpentine manner back and forth across the length of the stove. The gases are channeled close to the thermostat coil in order to give it maximum sensitivity to the changing fire conditions within the stove. The back of the *Vigilant* and the back and sides of the *Resolute* have been deeply convoluted, like old Victorian steam radiators, to provide a large surface of cast iron exposed to the room, ensuring a good radiating surface.

The Flamepath

The *Secondary Combustion Chamber*, taken together with the smoke passages, make up the flamepath.

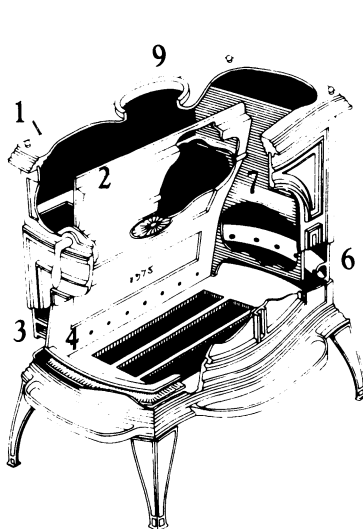
The *Defiant's* sixty inch flamepath is one of the longest of any cast iron stove currently on the market. The *Vigilant* flamepath measures fifty-five inches; the *Resolute* fifty inches. A long flamepath is important to the heating capability for two reasons.

The considerable heat of the flue gases is transferred to the surface of the stove, where in turn it is given off to the room, rather than being lost up the chimney. Secondly, because the passages are adjacent to the combustion chamber, higher temperatures are maintained within the fire mass itself, which aids in the burning of the volatiles. It can easily be seen that unless the flamepath is concentrated tightly within the stove, the heat of the flue gases will not contribute to the temperature of the primary fire mass, nor will the gases maintain their necessary high temperatures in order to ensure combustion of the volatiles.

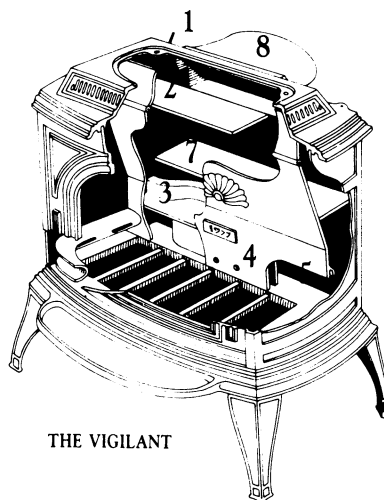
The Damper

The damper is the last of the important internal parts. In its vertical or up position, the damper is closed and flames exit from the stove by way of the long flamepath described, allowing the horizontal combustion mode. When lowered flat, the damper is open and the stove is converted to an updraft combustion device, allowing flue gases to escape directly from the magazine into the chimney connector. (The various requirements of the two functions are explained in the section titled "Operation.") It is important to note the relation of the handle to the damper. On the *Defiant* and *Vigilant*, when the damper is closed, both it and the handle are vertical. On the *Resolute*, the spirally wound wire handle is down when the damper is closed and up when it is open.

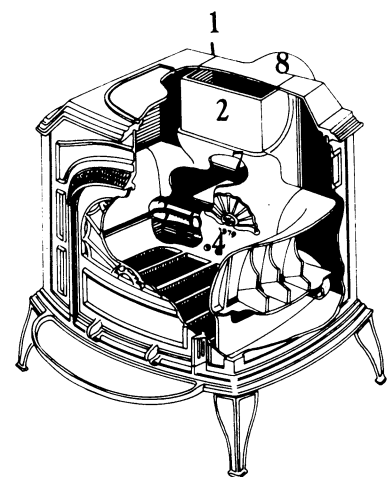
Smoke will come out of any opened loading door if the damper is closed. The interlock with the damper handle and the loading door on the *Defiant* is designed to prevent opening the door while the damper is closed. The griddle of the *Vigilant* will not open all the way should you forget to lower the damper first. These serve as reminders that you can only load wood smokelessly when your stove is in an updraft configuration and the damper is in the open position. The section on *Operation* will explain the proper steps to take before closing the damper when you use the horizontal burning mode.



THE DEFIANT



THE VIGILANT



THE RESOLUTE

1. Thermostat
2. Damper
3. Secondary Air Entrance Port
4. Primary Air Ports
5. Secondary Combustion Chamber
6. Secondary Air Tube
7. The Baffles
8. Reversible Flue Collar
9. Top or Rear Exit Model

THE INTREPID

The Intrepid is designed with several features that differ from our three larger parlor stoves. Air flow patterns, ash removal and maintenance procedures specific to the Intrepid are described here. Basic combustion principles remain the same for all four stoves, so the operation and installation sections of the manual apply equally well to the Intrepid.

Air Flow

Glass doors for fire-viewing are a standard feature in the Intrepid. Air flow through the stove is designed so pre-heated air washes past the glass to prevent carbon deposits from forming.

Combustion air enters through the air inlet in the back of the stove, passes forward through the air tubes at the left and right sides of the bottom of the stove and flows past the glass.

Some of the air goes directly back through the fire mass and provides air for combustion in the primary combustion zone. Excess air flows over the fire mass and contributes to further combustion.

Damper Open Operation

When the damper is open (handle pointed forward) the stove is in the damper open mode. Fire and smoke leaving the primary combustion zone go directly to the flue collar and chimney connector. These exhaust gases carry heat to the flue. A warm flue is helpful in establishing and maintaining good draft. Updraft operation will be used when starting a fire, loading your stove, or enlivening the fire after a long burn. It may also be used anytime a warmer flue will provide better performance.

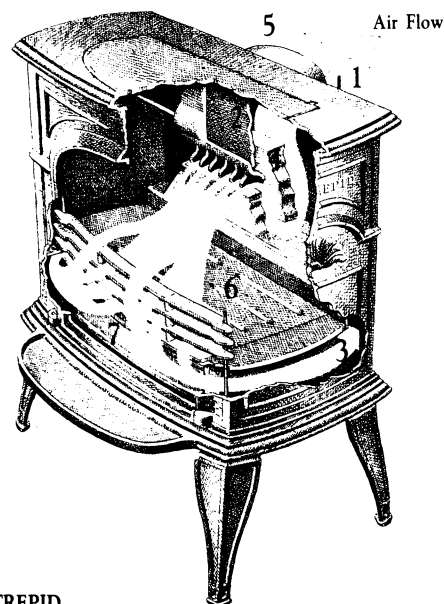
Damper Closed Operation

When the damper is closed (handle pointed down) the stove is in the damper closed mode. Fire and smoke leaving the primary combustion zone are directed through the louvers in the Upper Fireback, down through the firebrick-lined secondary chamber then to the flue collar and chimney connector. The high temperatures maintained in the secondary combustion chamber encourage further burning of volatile gases in the smoke. Horizontal operation will usually be used during extended burns.

Ash Handling

Slots in the bottom grate allow ash to fall through into the ash pan. Slicing the ashes on the bottom grate with the slicer/poker will help the ashes fall through the slots.

Empty the ash pan once a day or as necessary to keep the ash pan from overflowing. Use the hook on the end of the slicer/poker to pull the ash pan part way out of the stove. Wear heavy gloves as you draw the pan out of the stove and dispose of the ashes properly. Your metal ash container must have a tight-fitting lid and be located outdoors, away from any combustible material.



THE INTREPID

- | | |
|--|---------------------------|
| 1. Thermostat | 5. Reversible Flue Collar |
| 2. Damper | 6. Bottom Grate |
| 3. Air Ports | 7. Ash Pan |
| 4. Firebrick-Lined Secondary
Combustion Chamber | |

When you replace the ash pan in the Intrepid, be sure it is seated properly and pushed all the way to the rear of the stove so it does not block the front ends of the air tubes. Too much ash on the bottom of the stove may prevent proper seating of the ash pan.

Fireplace Operation

With the stove damper in the open position, and the front doors open, a wood stove may be used as a fireplace. It is ideally suited for those times when you do not require a great deal of heat output such as in the spring and fall, or when you want to enjoy the romance of a crackling fire. Always keep the sparkscreen in place when the doors are open.

Thermostat Function

Whenever the front doors are closed, all air entering the stove is regulated by the air intake shutter which is linked to a bimetallic thermostat coil and lever at the right side of the flue collar. Push the lever back to admit maximum air for hotter fires. Pull the lever forward to reduce air and slow the combustion rate. The bimetallic coil and, consequently, the air intake shutter, continually open and close in relation to temperature fluctuations within the stove to maintain an even heat output. Generally, the lever should be kept in medium to high setting. Very long, smoldering wood fires should be avoided.

INSTALLATION

SAFETY NOTICE:

IF YOUR DEFIANT, VIGILANT, RESOLUTE OR INTREPID IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. FOR YOUR SAFETY, FOLLOW THE INSTALLATION DIRECTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

A separate bulletin, "The Vermont Castings Installation Planning Guide" also entitled the "Tech Book", contains detailed information to help you plan your installation. Read this manual and the Guide before installing your stove.

Building and safety codes vary in different localities. Check your installation plans with local officials before you install your stove.

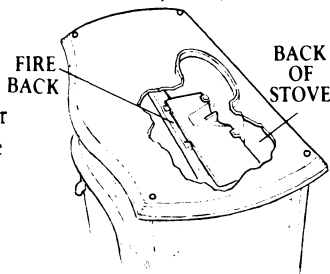
The Resolute and Intrepid have been tested for use in mobile homes. Special mobile home chimney, clearance, and installation requirements are detailed in the Mobile Home Components Installation Instructions.

When either the Vigilant or Resolute is equipped with a Vermont Castings Energy Extender, clearance requirements may change. The Energy Extender Installation Instructions give special clearance information.

The set screw in the lower left front of the Vigilant and Resolute will be removed if the stove is converted to coal burning. The hole should be plugged when burning wood.

Packed inside your stove is a "Fall-Away Insert Handle" to operate the doors and damper. So that it will stay cool, store the handle in the hole drilled in one of the stove legs.

Defiant owners: Install the smoke shelf by closing the damper and angling the shelf through the flue collar opening. Position the shelf as shown.



Set Up

Our stoves are heavy and require at least two people to move and set them up. To make the job a bit easier, you may lift off the loading doors and remove the griddle.

DO NOT TRY TO MOVE THE STOVE ALONE AS THE STOVE CAN BE DAMAGED BY MISHANDLING.

Place the stove close to its final position before installing the stove legs. You will find stove leg assembly instructions in the leg bolt package.

The griddle has not been painted in order to allow cooking directly on its surface. In order to protect the surface from rust during shipping, a coating of grease has been applied. Be sure to wash the griddle thoroughly with soap and water. As the stove is used, the griddle will gradually darken to match the color of the stove.

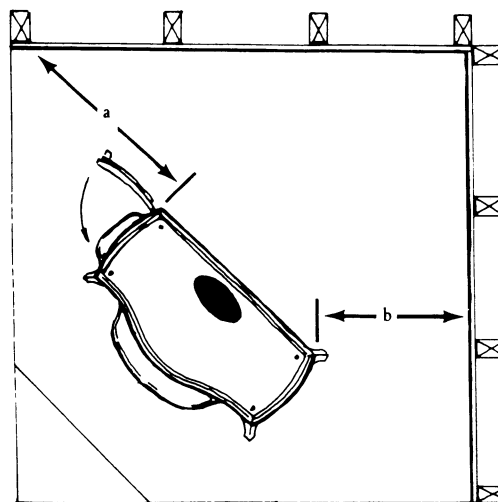


FIG.1
CORNER INSTALLATION
NO SHIELDING
COMBUSTIBLE WALL

a) Load door end requires min. 36" to wall
b) Min. 36" clearance to wall from rear and side

So that you can easily secure the first section of stove pipe to the stove, three holes have been drilled in the flue collar and three sheet metal screws are included in the leg bolt package.

If you have ordered any accessories such as andirons or heat shields, they will come with their own installation instructions. Generally speaking, nothing more complicated than a screwdriver is involved in the installation of accessories.

Clearances

It is important for proper installation that the stove is located with adequate clearance (empty space) to combustible walls and room furnishings. The recommended minimum clearance for stoves is usually 36".

Vermont Castings stoves have been tested by independent laboratories for installation with reduced clearances when specific clearance reduction systems are used. Clearance reductions may vary depending on the stove and type of installation.

Consult the *Vermont Castings Installation Planning Guide* or *Tech Book* for specific clearance reductions for Vermont Castings stoves.

Chimneys

Many homes are already equipped with a sound freestanding masonry chimney or a fireplace chimney. Either of these can provide an excellent flue through which to vent a wood or coal stove, provided they are built according to local building codes. We recommend that prior to installing a stove into an existing flue, you have the chimney inspected by a qualified professional. Your local building inspector will know who is qualified to assess the condition of your chimney. If your masonry chimney is not constructed with a clay tile liner, we cannot recommend that you use it in its existing state with any wood or coal burning device. An unlined chimney may have unseen loose mortar which could allow chimney gases to escape into the house, or, a chimney fire could ignite nearby wooden members.

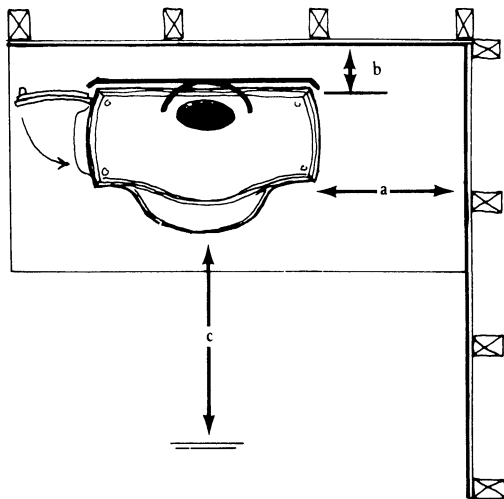


FIG. 2
SIDE INSTALLATION
REAR PIPE AND STOVE SHIELDS
COMBUSTIBLE WALL

- a) Min. 36" clearance to wall from side
- b) Min. 10" clearance to wall with use of stove and pipe heat shields
- c) Min. 36" clearance from loading door to any combustible room furnishings

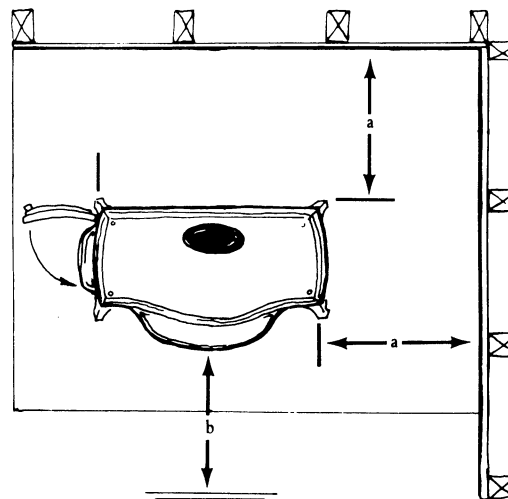


FIG. 3
TOP EXIT DEFIANT
SIDE INSTALLATION
NO PROTECTION
COMBUSTIBLE WALL

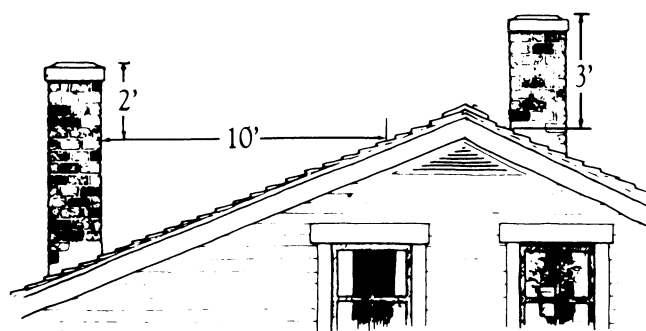
- a) Min. 36" clearance to wall from side and rear
- b) Min. 36" clearance from load or front doors to any combustible materials, i.e., furniture

If you are building a chimney from scratch, we cannot stress strongly enough the importance of an interior chimney. When properly built, it is the best chimney of all, and will more than repay you for the space that it requires. Besides minimizing condensation of creosote, the draft produced in an interior masonry chimney will be stronger, helping the stove burn more efficiently. In new masonry construction, allow for the use of a minimum of eight by eight inch clay flue tile. The chimney must be constructed in accordance with your local building code.

You may prefer to install a factory built metal chimney. Prefabricated chimney systems require no foundation and are relatively quick and easy to install. Other advantages of prefabricated chimneys are that they generally require less space and are less

expensive than their masonry counterpart. Make sure that such a chimney is approved for solid fuel and is listed by a nationally recognized testing laboratory such as the Underwriters Laboratory (UL). It must be installed in accordance with the manufacturer's instructions. CLASS B type chimneys may not be used with wood or coal stoves. These flues are designed to vent gas appliances only. There are several prefabricated chimney designs available; we recommend those which will help maintain high flue gas temperatures, such as the double wall or static air insulated type. Ask your local dealer about specific manufacturers.

Do not connect the stove to a chimney flue serving another appliance.



FLUE HEIGHT REQUIREMENTS

The chimney must extend 3 feet above the level of roof penetration and a minimum of 2 feet higher than any roof surface within 10 feet. Check your local codes for additional regional guidelines. While a minimum chimney height of 16 feet is generally recommended, factors affecting stove performance such as local terrain, prevailing winds, and adjacent structures may necessitate use of a taller flue.

IDEAL FLUE SIZES

Vermont Castings stoves are designed to perform most efficiently when vented through flues having the following dimensions:

	Liner Size (nominal)	Round Liner Diameter
Defiant/Vigilant	8"x8" or 8"x12"	8" interior diameter
Resolute/Intrepid	8"x8" or 8"x12"	6" interior dia.

Larger flues (12"x12", 12"x20"), although generally effective, can lessen chimney draft and promote cool flue gas temperatures. Vermont Castings stoves are not listed for installation into flues smaller than the sizes recommended above.

If you are planning to vent a small stove into a large flue, particularly an exterior masonry one, you may find it necessary to insulate the chimney, reline the chimney, or operate the stove to maintain high flue temperatures.

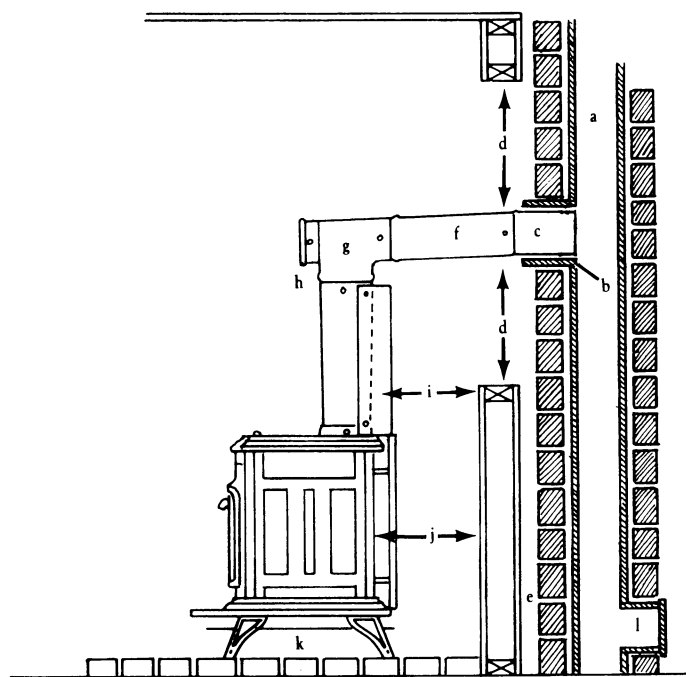
Stovepipe/Chimney Connector

We recommend that stoves be placed close to their chimneys so that the stovepipe can be as direct and short as possible, with a minimum of elbows and angles. Exhaust gases from the stove will flow unrestricted into the chimney flue. Long horizontal runs of stovepipe should be avoided since they tend to build up ash and soot more quickly and, therefore, require more frequent cleaning.

The size of a stovepipe and chimney thimble should never be smaller than the flue collar area of the stove. A minimum 8 inch diameter stovepipe and chimney thimble are required for the Defiant and Vigilant, and 6 inch minimum diameter for the Resolute.

The stovepipe must be constructed of 24 gauge or thicker sheetmetal. All stovepipe sections should be fastened together with three sheetmetal screws, spaced equidistant around the perimeter of the pipe to prevent separation during use. In addition, the stovepipe should be fastened to the thimble and to the flue collar of the stove.

Stovepipe systems should be designed if possible with the crimped end of the stovepipes pointing downward so that any soot or creosote which is formed will run down back into the stove and be consumed.



TOP-EXIT STOVE INSTALLED IN THIMBLE THROUGH COMBUSTIBLE WALL

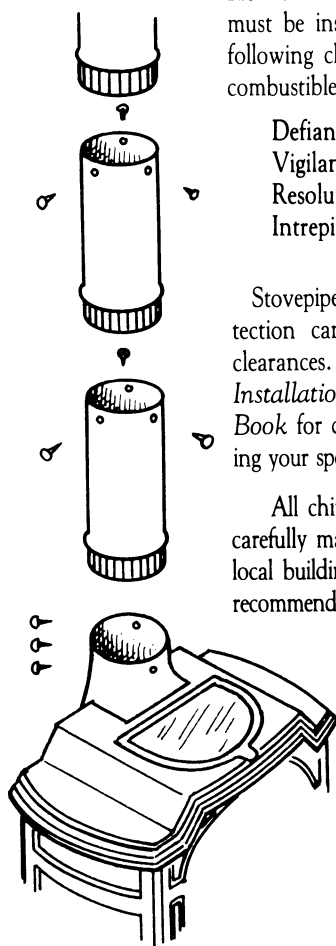
- a) Tile liner
- b) Thimble
- c) Stovepipe extends until flush with chimney liner.
- d) Proper clearance between pipe and unprotected combustible materials.
- e) 2" min. between chimney and combustible materials
- f) $\frac{1}{4}$ " rise per foot of horizontal run
- g) Clean-out tee
- h) All pipe joints secured with 3 sheet metal screws
- i) Stovepipe heat shield allows 10" clearance to combustible materials
- j) Stove heat shield allows 10" clearance to combustible materials
- k) Bottom heat shield
- l) Clean-out access with tight door

Horizontal or vertical runs of stovepipe must be installed to maintain the following clearances to unprotected combustible materials.

Defiant Installation - 22"
 Vigilant Installation - 22"
 Resolute Installation - 23"
 Intrepid Installation - 25"

Stovepipe heat shields and/or wall protection can be used to reduce these clearances. See the *Vermont Castings Installation Planning Guide* or *Tech Book* for detailed information concerning your specific installation requirements.

All chimney connections should be carefully made in accordance with all local building codes and manufacturers' recommendations.



Stovepipe Dampers

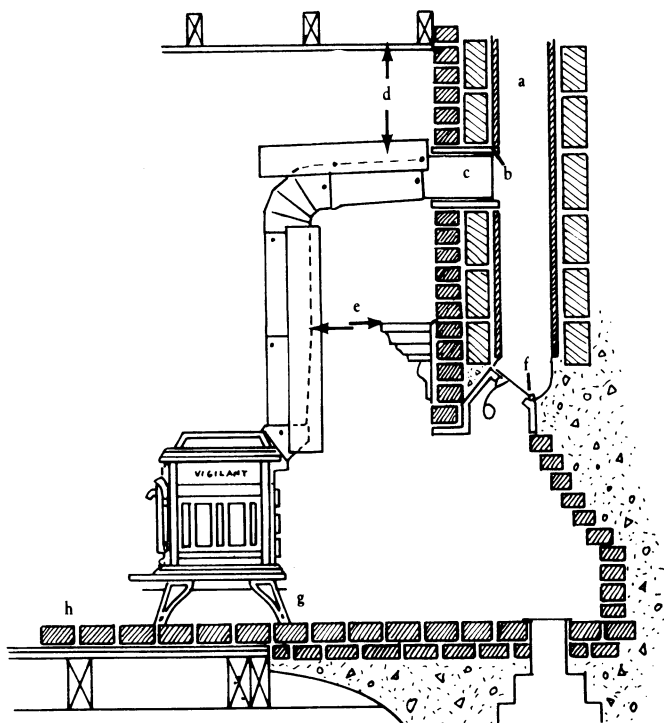
Because of the draft requirements of our stoves, we do not recommend the use of an in-flue damper. Not only is this an unnecessary restriction in the flue, but it is an additional surface directly in the path of flue gases upon which deposits can form, creating a potential hazard. Combustion air entering Vermont Castings stoves is controlled effectively by the thermostat, so no flue damper is required.

Floor Protection

Even though temperatures under our stoves are significantly lower than those to the sides of the stoves, no stove should ever be installed on a combustible surface because of the possibility of falling embers. Our stoves have generous ashtraps, but some coals may escape from time to time. For this reason, and to provide heat protection to your floor, we recommend you install a hearth consisting of two sheets of $\frac{1}{4}$ -inch asbestos cementboard or equivalent covered by one sheet of 24 gauge galvanized sheet metal.

If you prefer a more decorative hearth cover than the above recommendations, the installation of an optional Vermont Castings' bottom heat shield will allow use of a variety of materials. Details concerning those options are printed in Vermont Castings' *Installation Planning Guide* or *Tech Book*.

We recommend that your hearth or stove pad extend a minimum of twelve inches beyond the back and sides of the stove



FIREPLACE INSTALLATION—ABOVE DAMPER

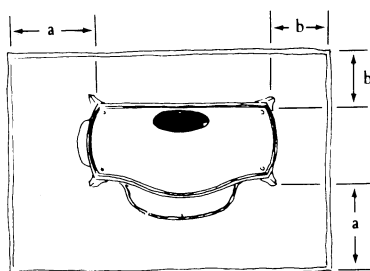
- a) Tile-lined masonry chimney
- b) Thimble
- c) Stovepipe should not project into flue
- d) Horizontal pipe heat shield allows min. 7" clearance to combustible ceiling
- e) Vertical pipe heat shield allows min. 7" clearance to combustible mantle
- f) Damper closed and sealed
- g) Bottom heat shield protects combustibles beneath hearth
- h) Hearth extension provides floor protection min. 18" from stove front, load door & 12" from stove sides

and eighteen inches beyond the front and loading door end. This means that the minimum hearth pad dimensions for the three stoves are as follows:

- Defiant: 64 inches wide x 48 inches deep
- Vigilant: 53 inches wide x 48 inches deep
- Resolute: 52 inches wide x 46 inches deep
- Intrepid: 46 inches wide x 46 inches deep

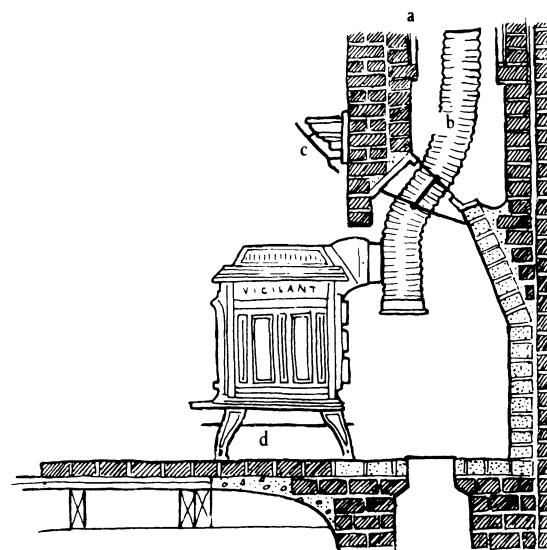
The hearth pad must also cover the floor directly under the stovepipe and extend two inches on either side of the pipe.

With the legs installed, the hearth in place, the flue connections made, and the stovepipe connections secured the only additional preparation that needs to be done is the addition of about 1½ inches of ashes or sand to the bottom of the Defiant, Vigilant and Resolute as an insulating, protective layer. This should be spread evenly across the bottom of the stove to protect the bottom of the stove as well as the floor beneath from excessive heat. Ashes taken from another stove or fireplace are preferable, but sand may be used as well.



DEFIANT FLOOR PROTECTION

- a = 18"
- b = 12"



VERMONT CASTINGS STOVE-TO-FIREPLACE FLEX CONNECTOR SYSTEM

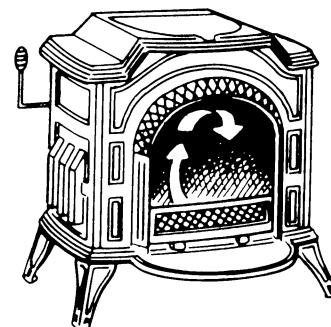
- a) Tile-lined masonry chimney built to or in compliance of National Building Code standards
- b) Vermont Castings Stove-to-FirePlace Flex Connector System
- c) Combustible mantle protected by custom fabricated heat shield—allows 18" clearance to stove top
- d) Bottom heat shield
- e) Hearth extension to provide min. 18" floor protection from stove front load door and 12" from side of stove

Wall Protection

Clearances to combustible walls can be further reduced with the use of **a.** Vermont Castings stove and stovepipe heatshields and/or **b.** a properly sized and constructed wall shield. In our Installation Planning Guide wall shields should be constructed of ¼" non-combustible mineral board, and spaced at least 1" from the wall on non-combustible spacers. The ventilated shield should be supported one inch off the floor and, if extended to the ceiling, should stop one inch below the ceiling to allow for adequate air circulation. Materials applied directly to a sheetrock and stud walls may not provide adequate protection because they will transfer heat to the combustible wall or framing members behind them. For further information regarding wall shield sizing and construction refer to the Vermont Castings Installation Planning Guide or Tech Book.

Resolute and Vigilant Ash Fettles

The ash fettle serves as a log and ash barrier at the base of the front door. It can be removed by pulling one end up and out; for the Vigilant pull upward on the RIGHT end, for the Resolute pull upward on the LEFT end.



OPERATION

Please read this section carefully. Improper stove operation can create hazardous conditions and may result in damage to your stove.

Cast iron expands as it is heated and contracts as it is cooled. Like an old Model A, your wood stove requires a break-in period to allow the cast iron plates to settle in. If allowed to gradually adjust to these changes, the metal will withstand a great deal of thermal stress with no damage. Extreme, rapid temperature changes, however, may cause the castings to fracture or fatigue.

Before kindling your first fire, the bottom of the Defiant, Vigilant and Resolute must be insulated with 1½" of sand or ashes. Never start a fire in the stove without this insulating layer. The Intrepid does not require an insulating layer on the bottom.

Be sure to wash the oil coating off of the griddle with warm, soapy water and then towel it dry. The griddle will gradually darken as it is heated.

The First Fire

The break-in procedure consists simply of a series of eight to twelve small to moderate fires burned in the updraft mode. Set the damper in the open (updraft) position and move the thermostat lever to open the air intake shutter. The secondary air inlet, on the left side of the Defiant, Vigilant, and Resolute, should also be left open. Build a small paper and kindling fire. After the kindling has caught well and a good draft has been established, add two or three small diameter logs to the kindling charge. Let this fire burn out and allow the stove to cool down before lighting the next fire.

DO NOT USE CHARCOAL LIGHTER FLUID, GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, OR OTHER FLAMMABLE LIQUID TO START OR 'FRESHEN' UP A FIRE IN YOUR STOVE. KEEP ALL FLAMMABLE LIQUIDS WELL AWAY FROM THE HEATER WHILE IT IS IN USE. ALSO, NEVER USE SELF-STARTING CHARCOAL BRIQUETTES.

We suggest that the damper be left open during the break-in period. The temperature generated by these small fires may not be high enough to sustain draft strength if the damper is closed. Maintain a small, lively fire. Avoid the extremes of a slow, smokey fire or a very rapid burn rate.

Preheat the System

Kindle every fire in the same manner as you did during the break-in period. When a moderately hot fire has been established, (500 degree stovetop temperature), you may fully load the firebox. Since a new charge of wood may slow the fire, leave the damper open until the fire has recovered sufficiently to bring the surface temperature back to at least 500 degrees. *Do this each time you add wood.* Preheating the stove and flue system before adjusting your stove for a long burn will promote efficient wood combustion and minimize creosote development.

Your stove is now ready to be set for a long burn in either the horizontal (damper closed) mode or the updraft (damper open) mode.

The Long Burn

For a long burn in the Horizontal Mode, close the damper and after 5 to 10 minutes adjust the thermostat lever to maintain the desired burn rate and heat output during the burn period. Leave the secondary cover open.

For a long burn in the Updraft Mode, leave the damper open and adjust the thermostat lever for the desired heat output. Close the secondary air cover so all incoming air will be regulated by the automatic thermostat coil. Consumption of wood may be greater, and more frequent loadings may be required when burning updraft.

Surface Temperatures

Monitor griddle temperatures with a surface thermometer. The usual operating range is 350-600 degrees, although slightly higher temperatures are all right when extra heat is needed.

Surface temperatures higher than 700 degrees are considered excessive. If any part of your stove or chimney connector glows you are overfiring. Should overfiring occur, close the air inlet shutter enough to reduce the intensity of the fire.

Daily Maintenance

Good performance depends on air flow through the stove. Every day, clear ash accumulations from the air ports in the fireback and at the left side of the stove.

Develop the habit of burning moderately hot fires twice daily for 30 to 40 minutes in the updraft mode. This will help prevent a build-up of creosote in the flue.

Loading/Fireplace Use

When the stove has been burning in the horizontal mode (damper closed), and you wish to open the doors for loading or viewing, first open the damper and air inlet. This will re-establish a fast, direct air flow through the stove into the flue and prevent smoking when the doors are opened. Check through the side or griddle door and move any wood or coals leaning against the front doors before opening them.

When using the stove as a fireplace, always keep the spark screen in place to reduce the hazard of flying sparks or embers.

RECOMMENDATIONS

All stoves behave differently; even a single stove will react differently to different types of wood and chimneys. It will take time to accustom yourself to your new stove and to its responses to various conditions. Remember, our Customer Service Personnel or Authorized Dealers are always a phone call or letter away if you encounter a particularly perplexing problem.

Listed below are a number of ideas that will help you get the maximum benefits from your stove. The most exacting situation occurs when the stove is used around the clock as the primary heat source. Although these suggestions are aimed primarily at this usage, they should be helpful to all.

Do not add large amounts of fuel to a slow fire and leave the setting low. This may smother the fire. Adding large quantities of cold fuel to a slow fire is like asking an automobile to go up a hill in high gear from a standing start. The bigger the hill, the longer the running start you need. Allowing the fire to build up heat is the running start.

Firmly establish a strong fire before closing the damper and changing the stove to its horizontal combustion mode. It only takes a short time, and the increased efficiency is well worth the trouble. A strong fire will increase turbulence, giving a better gas/oxygen mix and allowing flames to lick under the baffle, thereby assisting secondary combustion.

A good bed of coals is necessary to keep the volatiles hot as they leave the primary combustion chamber. When you want to shut the stove down before going to bed or leaving the house in the morning, try to let the temperature build up first. Ideally, you should load most of the wood thirty minutes before shutting the damper. Then, top off the magazine just before shutting down the stove and adjusting your thermostat. Your stove will burn cleaner and give you more heat if you follow these steps.

If you need more heat, remember that your stove is truly a combination stove and will operate either in an updraft or horizontal combustion mode. In its horizontal configuration, only a limited amount of wood can actually become part of the primary fire mass at any given time. This obviously reduces the amount of heat generated. If in extremely bitter weather you need more heat, simply switch to an updraft mode. All the wood in the magazine can now be incorporated into the primary fire mass, thus producing more heat. Keep in mind that the trade off made for this greatly increased output is increased wood consumption and shorter burn times.

Try to let the stove run fairly hot at least some of the time. If you find that your room seems too small to require high heat, try using the stove as a fireplace with the screen in position. A strong fire can be kept going at a high level with just a couple of sticks of wood and will not become too hot for the room. These practices will prevent too many deposits from building up inside the magazine. Large accumulations of black flaky deposits inside the magazine are a sign that the stove would be happier at higher temperatures and should occasionally be run in updraft.

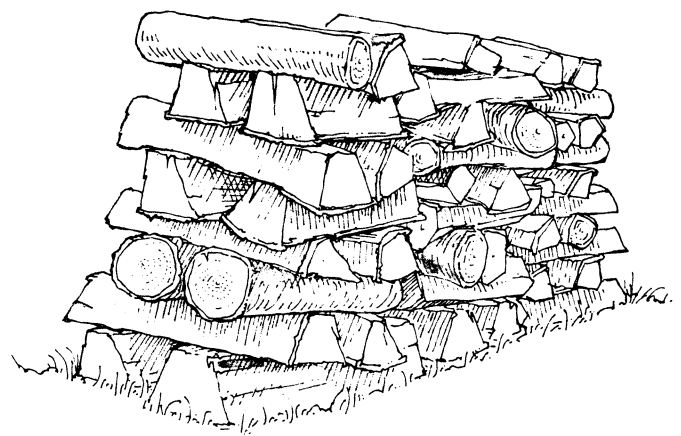
When we designed these stoves we had in mind a handsome cast iron heater and fireplace unit. Although they will consume any combustible material, we do not really think of them as trash incinerators. Excessive amounts of paper and greasy or plastic materials may burn too hot, ignite a chimney fire, or create a rapid build-up of ash. When using the stove to dispose of waste materials, treat it with common sense and respect and be aware of what the stove was designed to do.

Wood: The drier the better. It takes heat to boil off the water in a piece of green wood. (There can be over a ton of it in a cord of green wood, or more than 250 gallons.) This lost heat is not recoverable and lowers internal temperatures, reducing the likelihood of secondary combustion. Split lengths of dense hardwoods should be dried under cover for at least eight months, though a year is preferable.

Wood grows outward from the center in a series of concentric cylinders or rings. When wood dries, water moves in the spaces between the cylinders ten times faster than it does across or through the cylinder walls. This means that unsplit wood dries only through the ends of the logs. Large and long logs should be split to expose the spaces between the rings in order to aid the drying process. It really does not help too much to cut the wood and let it dry for a summer and then split it just before use.

Wood should not be cut too small, as this speeds up the gasification process and causes it to burn too quickly. If you are having trouble getting the stove to hold a fire for as long as you would like, perhaps your wood is too small. Anything over twelve inches long and four inches measured across the end of the log will do. The stoves work well with as large a piece of wood as can be fit in. Irregular shapes with stubs of branches that hold the logs apart are not good, and rotten wood is the worst. Burning and rotting are similar chemically; so, in effect, rotten wood is partially consumed and has already given up some, if not most, of its heat value.

Under no circumstances should a piece of wood with ice or snow on it ever be put into any stove. The sudden thermal shock can crack the iron. Leaning an ice-covered piece against the stove to melt the ice is also likely to cause damage. We do not warrant our stoves against such abuse.



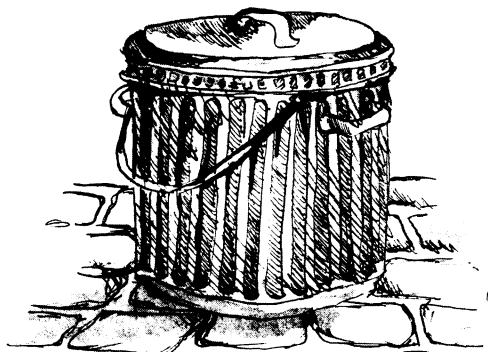
MAINTENANCE

ASH REMOVAL

During constant use, ashes should be removed every few days, or when they have built up around the air distribution ports to noticeably affect operation. This is easily done when the stove has died down with only a log or so left, as in the morning.

To empty the ashes, a few shovel scoops is all that is required. They may be taken from any door which allows good access, even with a log or two still left within the firebox.

In order to achieve the high efficiencies which horizontal combustion offers, it is necessary to burn the primary fire mass in as compact and hot a manner as possible. Burning logs lying directly on a good bed of hot coals, which in turn are insulated from the cooling iron of the bottom, is the best way to do this. Grates with relatively cool air circulating underneath, tend to disperse the high temperatures required by allowing coals to fall from the fire zone. Grates make it more difficult to control oxygen flow to the fire mass.



CHIMNEY CLEANING

A wood-fired heating system requires maintenance of the whole system. Inspection of the chimney and flues should be performed prior to every heating season and twice monthly while the stove is in use. The flaky, crusty lining of creosote deposits must be removed periodically. We recommend you clean your chimney whenever inspection reveals the build-up of creosote. Because this build-up is governed by the type of wood burned, the manner in which you burn it, and the characteristics of the chimney itself, there are no hard and fast rules as to how the chimney should be cleaned. Generally speaking, outside chimneys will require more cleaning more often. Large flue sizes will require more attention than smaller ones. Check the safety of your chimney during each inspection and repair or replace damaged or worn chimney parts when necessary.

If you clean your chimneys yourself, proper cleaning tools and safety equipment are essential. If you are at all unsure of your ability to do the job, we strongly recommend that you hire a trained chimney sweep.

STOVE CLEANING

Some creosote production often occurs in air-controlled stoves like the Defiant, Vigilant, Resolute and Intrepid precisely because they are such efficient heat transfer devices. You must learn to watch for creosote, to control it, and to get rid of it.

Improperly seasoned wood and excessive operation with low, smoldering fires are two major causes of creosote production. Choosing the proper size stove for the space to be heated is your best defense against creosote.

If the stove is oversized for its heating area, it will not have the opportunity to burn at a sufficiently high combustion rate. As mentioned earlier, the lower end burning rates are less efficient, therefore more chimney deposits will be formed. A smaller stove operating at a higher burn rate will give better heat distribution, control and efficiencies than a larger stove burning at too low a setting.

NOTE: In the event that you should have a chimney fire, close all the doors, the damper and the air intake shutter. Then call your local fire department for help.

Some creosote deposits in the firebox of a horizontal combustion burner are normal and require no attention as they burn off when the stove is used as a fireplace or in updraft configuration. During each heating season it is a good idea to remove the chimney connector periodically and inspect the stovepipe and chimney for abnormal build-up. At this time it is also a good idea to touch the vacuum cleaner nozzle to each distribution port and to the air inlets.

With a normal draft—unless the ashes in the firebox have been allowed to build up too high around the ports—these ports will be self-cleaning and require only an annual check.

NEW STOVES

New stoves should be carefully checked within the first month of service.

- Be sure leg bolts are snug.
- New gasketing may compress quickly at first. Handle adjustment may be necessary.
- Inspect chimney connector and flue for signs of creosote build-up. Rapid accumulation of deposits in the stove or chimney system may indicate a need for changes in stove operation.
- Inspect the whole chimney system to ensure all joints are secure and tight.
- Check to see that glass panels or cast iron panels in doors are secure. Snug up retaining screws if necessary.

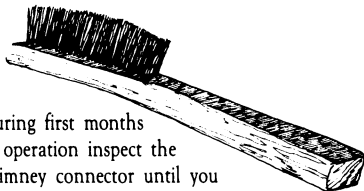
PORCELAIN ENAMEL

Clean your enamel stove with a cleaner specifically designed for porcelain-enamel surfaces. Wipe any spills immediately, the cleaner may damage brass trim or handles.

MAINTENANCE GUIDELINES

Since each stove, installation and operation has its' own individual characteristics, no maintenance schedule can apply to all situations.

These suggestions can serve as guidelines while you develop your maintenance program.

	STOVE	CHIMNEY & CHIMNEY CONNECTOR
DAILY	• Check the ash level in the bottom of the stove. Clear the primary air ports in the fireback and left side of the stove if they are blocked. Restrictions to the flow of combustion air may result in a slow, inefficient burn. • Be sure Air Inlet Shutter moves freely as you adjust the thermostat lever. • Clean the area around your stove and be sure all tools and equipment are readily available.	 • During first months of operation inspect the chimney connector until you learn the rate of soot accumulation.
TWO WEEKS	• Clean the glass panes in doors if necessary. Be sure glass is cool. Wipe up spills immediately.	
TWO MONTHS	• Check to be sure doors are closing securely. Gasketing becomes compressed over time. Handle adjustment may be necessary. Preventing air from leaking into your stove will help in giving you close control over the burn rate.	• Inspect chimney and connector, giving extra attention to elbows and horizontal runs. Clean when necessary.
YEARLY	• Thoroughly clean stove interior. • Check that all controls work freely. • Remove chimney connector and clean baffle system between fireback and back of stove. • Replace gasketing and firebricks (Intrepid only) as needed. • Clean dust off all heat shields. • Check stove seams, and re-cement if necessary. • Re-paint the stove. • Lubricate handle shafts.	• Thoroughly brush the chimney and connector to remove all ash. • Inspect the chimney and chimney connector for any signs of deterioration. Have a professional mason repair the chimney. Replace chimney connector sections if any appear to be corroded.

INTREPID MAINTENANCE

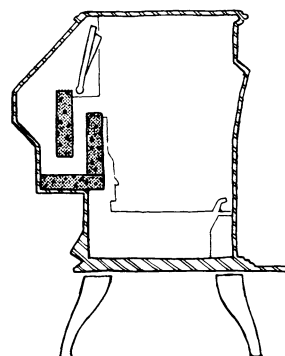
Under normal firing conditions, soot or fly ash may accumulate in the bottom of the secondary combustion chamber. These deposits should be removed periodically to insure proper air flow through the stove. Clean the chamber when you clean your chimney flue and stovepipe. We suggest you inspect the chamber once per month until you determine how quickly build-up occurs.

Access to the secondary combustion chamber is gained from the inside of the stove with removal of the upper fireback. Loosen the two 5/8" acorn nuts on the outside of the back plate. The fireback weld screws can then be turned and the fireback removed. Disengage the damper from the damper rod and remove the two vertical firebricks. **Be Certain The Stove Is Completely Cold Before Removing Ashes.**

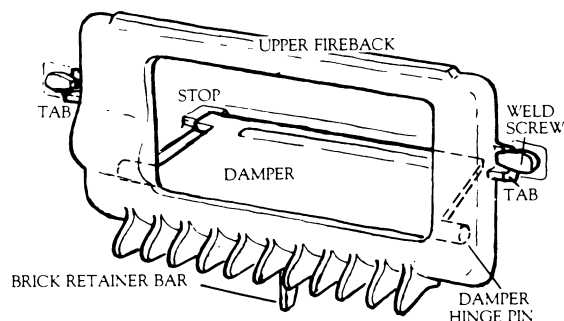
When you replace the two vertical firebricks, be sure they are positioned as shown.

Engage the damper with the damper rod and set the damper flat on the firebricks. Tilt the upper fireback into position, keeping the brick retainer bar behind the front firebrick. As you push the upper fireback against the rear plate of the stove, the back edge of the damper must be above the stop on the back of the stove.

Turn the weld screws back over the fireback tabs and retighten the acorn nuts on the back of the stove only until snug.



CORRECT FIREBRICK PLACEMENT - CROSS SECTION.

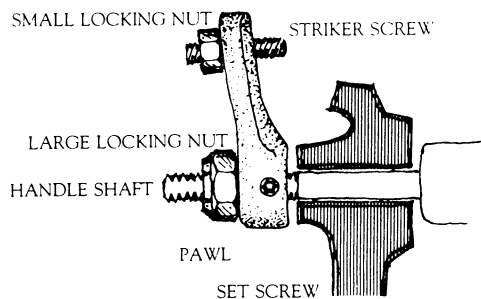


DETAIL OF THE UPPER FIREBACK

HANDLES & LATCHES

The insert handle is designed so that you will always have a cool handle with which to operate your stove. Extra ceramic parts and bolts are available in case of damage to the assembled handle.

The door latches were carefully designed to permit easy adjustment, ensuring an airtight fit over the years. We have included a 1/8-inch Allen wrench to help you. After a period of time the gasketing may compress and you will want to tighten the latch mechanism. Loosen the small locking nut on the striker screw. Tighten the screw a turn or two with the small Allen wrench, and retighten the locking nut. The large locking nut holds the pawl on the shaft and should not require any adjustment.



A large Allen wrench (5/32 inches) is included in the De-fiant and Vigilant to allow you to tighten the damper handle should it work loose after extended use.

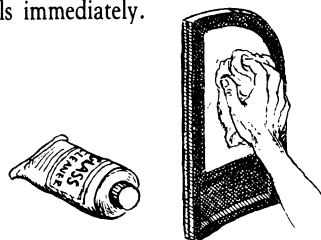
GASKETS

Gaskets in good condition provide a seal around the doors and griddle opening of the stove. If over a period of time you notice that the gaskets have become worn or frayed they should be replaced with Vermont Castings brand gaskets.

GLASS DOORS

Depending upon the mode of burning and rate of burn, carbon deposits may form on the **inside** of the glass. Hot, updraft fires help keep glass clean, while slow horizontal fires are likely to cause soot to form. It is important that the glass be completely cooled as any cleaning agent applied to hot glass may permanently etch it. Once the glass is cool, any common glass cleaner will do the job. Remove all traces of cleaner and dry the glass before firing the stove. If the glass is ever damaged, replace it immediately with Vermont Castings high temperature glass which is specially designed for safe stove operation.

Some glass cleaning agents may discolor porcelain enamel surfaces, so wipe any spills immediately.



QUESTIONS & ANSWERS

The stove does not hold a fire as long as you would like:

Check the thermostat adjustment. When the stove is warm (too hot to touch, but not overly hot) move the thermostat lever to its lowest setting. Does the *Inlet Air Shutter* close? If not, then adjust the ball chain at the bottom down a ball or two and try again.

Perhaps your wood is too small in diameter or too short, as was mentioned earlier, and the charge is just burning too quickly. Burning soft woods such as pine will significantly reduce the burn time because they will combust at a more rapid rate than hardwood. Maximum burn time is achieved by burning hard wood cut to proper length.

Did you remember to close the damper and adjust the thermostat? It is very easy to forget these two things.

Check the gasketing. Perhaps a piece of charcoal has dislodged or compressed the gasketing so that the door has lost its seal. In time the door latches will need to be tightened.

It is possible (though it happens rarely) that you have excessive draft. This usually occurs with a tall interior masonry chimney that is located so that prevailing breezes constantly blow across the top, as in the case of a house located high on a hill or near the shore. Should this prove to be the case, first experiment with closing down the secondary air control slightly. Easy does it here. A 30 percent closing is probably all that it will require. In extreme cases, try installing a flue damper to partially restrict the draft.

The stove smokes as a fireplace:

Chimney deposits may have built up in the stovepipe or chimney and are restricting the draft. Remove the pipe and clean. Is there another stove or heating device on the same flue? An oil furnace is open vented and the draft may be pulling air from the basement rather than through the stove. If your stove is connected to a chimney with a fireplace on the same flue, make sure the fireplace dampers are closed or the opening blocked off to ensure a strong draft.

How tight is your house? Sometimes new homes are constructed and insulated so effectively that a sufficient volume of oxygen is not available for the burning process. Try opening a window a crack. If this solves your problem, then you know your house is too tight and outside air will have to be introduced.

In moderate weather establish a strong fire with the front doors closed, then open the front doors to the fireplace mode. This will prime the chimney to maximize the draft.

Back Puffing:

In the spring you will notice your draft is less strong. If you experience back puffing during unusual weather conditions, this usually means that you have temporarily lost the chimney draft. To regain a positive draft open the damper and adjust the thermostat to the open position. This condition can be prevented by closing the secondary air control and leaving the stove on updraft. Cold weather back puffing usually is a result of gusts of wind and can be partially avoided by the use of a chimney cap.

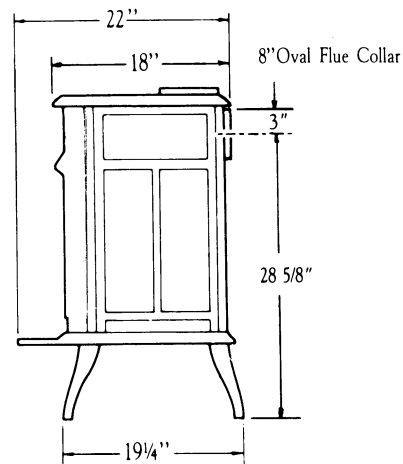
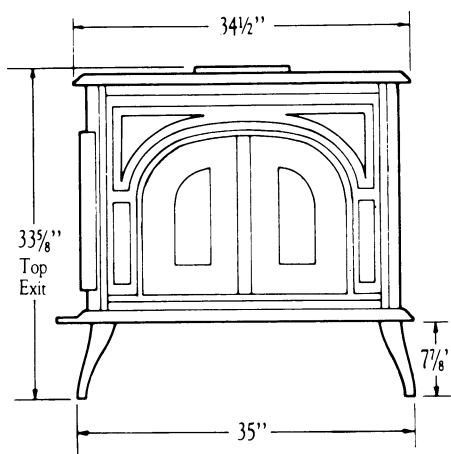
STOVE DIMENSIONS

The following elevations indicate dimensions which will enable you to plan your installation as accurately as possible. Variables inherent in the manufacturing process can result in differences of up to $\frac{3}{8}$ " between these dimensions and those of your stove. Be careful to plan stove placement so as not to restrict the side loading access to the Defiant or the top loading access to the Vigilant, Resolute, and Intrepid.

Some installations, such as into a low fireplace, will require a reduction in the height of the stove. By substituting short legs for the standard length legs, the height of each stove can be reduced as indicated.

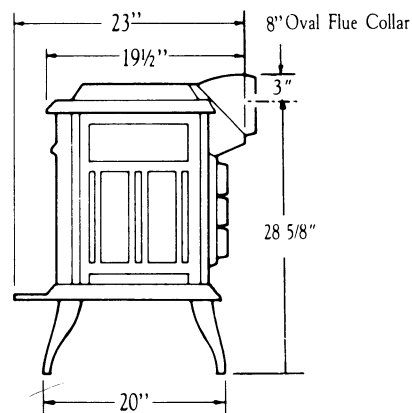
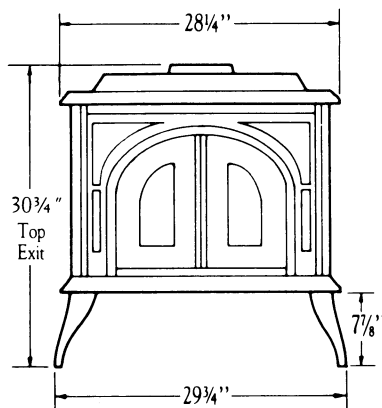
Defiant®

Short legs reduce the height of the Defiant by $\frac{1}{4}$ ".



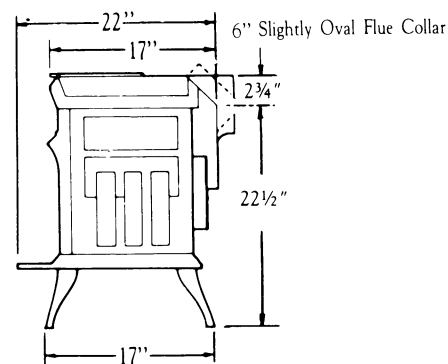
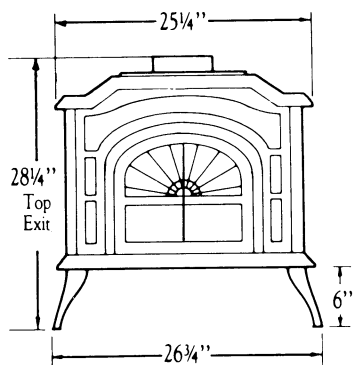
Vigilant®

Short legs reduce the height of the Vigilant by $\frac{1}{4}$ ".



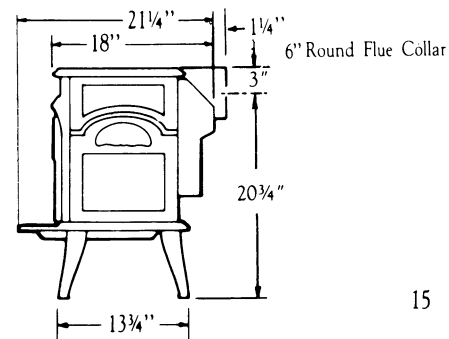
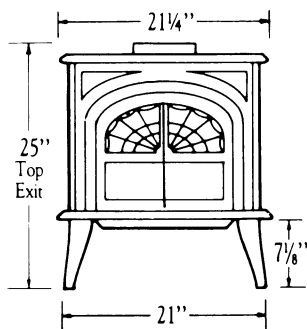
Resolute®

Short legs reduce the height of the Resolute by $\frac{1}{2}$ ".



Intrepid®

Short legs reduce the height of the Intrepid by $\frac{1}{4}$ ".



WARRANTY - FOR USE IN THE U.S.A. LIMITED 3 YEAR WARRANTY

Vermont Castings, Inc. warrants that your stove will be free of defects in materials and workmanship for a period of three years from the date received except that the catalyst, thermostat assembly, handles, glass door panels, gasketing, coal grates, coal linkages, and coal magazine throat shall be warranted as described below.

Vermont Castings, Inc. will repair or replace at its option, any part found to be defective when the stove is returned to an authorized Vermont Castings service center. The customer must pay for the return shipping or any transportation costs for returning the stove to the authorized service center.

If, upon inspection, the defect is found to be the fault of the manufacturer, repairs will be authorized at no charge to the customer for parts and labor.

Any stove or stove part, other than the catalyst, that is repaired or replaced during the Limited 3 year Warranty will be warranted for a period not to exceed the remaining term of the original Limited Warranty or six (6) months, whichever is longer.

LIMITED 1 YEAR WARRANTY

Parts subject to normal wear & tear

With the exception of the catalyst (which is covered solely by the Catalyst Warranty below), certain parts of the stove which are subject to normal wear & tear are warranted to be free of defects in material and workmanship for a period of one year from the date you receive it. Examples of such parts include the thermostat assembly, handles, glass door panels, gasketing, coal grates, coal linkages, and the coal magazine throat. Any such parts found to be defective will be repaired or replaced at no charge, upon the return of said part to an authorized Vermont Castings service center with postage prepaid.

CATALYST WARRANTY

(For Defiant Encore™ only)

The catalyst will be warranted for a six year period as follows:

If the original catalyst or replacement catalyst proves defective within 24 months from the date the stove is received, the catalyst will be replaced free. From 25-72 months a pro-rated credit will be allowed against a replacement catalyst. The purchaser will be liable for the difference in cost between the credit and the retail price of the catalyst at the time of replacement.

AMOUNT OF TIME SINCE PURCHASE	CREDIT TOWARD REPLACEMENT COST
0-24 months	100%
25-36 months	50%
37-48 months	30%
49-60 months	20%
61-72 months	10%

Any replacement catalyst will be warranted under the terms of the catalyst warranty for the remaining term of the original warranty. The purchaser must provide the following information in order to receive a replacement catalyst under the terms of this limited warranty.

1. Name, address, and telephone number.
2. Proof of original purchase date.
3. Date of failure of catalyst.
4. Any relevant information or circumstances regarding determination of failure.

In addition, the owner must return the failed catalyst with shipping charges prepaid to an authorized Vermont Castings service center.

EXCLUSIONS AND LIMITATIONS:

1. The warranty is transferable. However, proof of original retail purchase is required.
2. This warranty does not cover misuse of the stove. Misuse includes overfiring which will result if the stove is used in such a manner as to cause one or more of the stove plates to glow red. Overfiring can later be identified by warped plates and areas where the paint pigment has burned off. Overfiring in enamel stoves is identified by bubbling, cracking, chipping, and discoloration of the porcelain enamel finish. Porcelain enamel parts are subject to bubbling, chipping, cracking, crazing and discoloration when subjected to abnormally high temperatures or thermal shock. Vermont Castings offers no warranty on porcelain enamel surfaces subjected to these conditions.
3. This warranty does not cover a stove which has been the subject of other than normal repairs by an authorized Vermont Castings service center.
4. This warranty does not cover any modification to the design of the stove unless authorized by a Vermont Castings representative in writing.
5. Damage to stove while in transit is not covered by this warranty but is subject to a claim against the carrier. (Do not burn the stove as this may negate the claim with the carrier.)
6. This warranty does not cover claims involving stove installations that do not conform to local building and fire codes, or to the recommendations in our Operation Manual.
7. Vermont Castings shall have no obligation to enhance or update any unit once manufactured.

IN NO EVENT SHALL VERMONT CASTINGS BE LIABLE FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES. ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS ARE LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. THIS WARRANTY SUPERCEDES ALL OTHER ORAL OR WRITTEN WARRANTIES.

Some states do not allow the exclusion or limitations of incidental and consequential damages or limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific rights, and you may have other rights which vary from state to state.

HOW TO OBTAIN SERVICE:

If a defect is subject to warranty, the purchaser should contact the nearest Vermont Castings Authorized Dealer with the following information:

1. Name, address, and telephone number of purchaser.
2. Date of delivery and place of purchase.
3. Serial number from the back of the stove.
4. Nature of defect or damage.
5. Any relevant information or circumstances, i.e. insulation, mode of operation when defect was noted.

Vermont Castings reserves the right to withhold final approval of a warranty claim pending a visual inspection of the defect by authorized representatives.

S P E C I F I C A T I O N S

Italicized Figures Pertain To Coal Or Multi-Fuel Models

FEATURES	DEFIANT®	VIGILANT®	RESOLUTE®	INTREPID®	FIREPLACE INSERT
MAXIMUM HEAT OUTPUT* (BTU/HR.)	60,000	50,000 50,000 MULTI-FUEL	40,000 35,000	25,000 20,000	40,000 50,000
MAXIMUM AREA HEATED** (CU. FT.)	10,000	8,500 8,500 MULTI-FUEL	7,000 6,000	4,500 3,500	7,000 8,500
HEIGHT***	33¾"	31¾"	28¾"	25"	FITS FIREPLACE OPENING OF: 23¾"
WIDTH	35"	29¾"	26¾"	21¼"	29½" FRONT 22¼" REAR
DEPTH	19¼"	20"	17"	13¾"	18"
HEIGHT WITH SHORT LEGS¹	28"	28"	23"	21"	N/A
FUEL CAPACITY (LBS.)	65	55 45 COAL MULTI-FUEL²	45 32	22 22	30 53
SIZE & TYPE OF FUEL	24" WOOD LOGS	18" WOOD LOGS PEA, NUT ANTHRACITE	16" WOOD LOGS PEA, NUT ANTHRACITE	16" WOOD LOGS NUT, STOVE ANTHRACITE	18" WOOD LOGS ANTHRACITE STOVE, NUT, PEA
LOADING	TOP, SIDE, OR FRONT	TOP OR FRONT	TOP OR FRONT	TOP OR FRONT	FRONT
FLUE SIZE	8"	8"	6"	6"	8"
FLUE EXIT POSITIONS	TOP OR REAR	ADJUSTABLE TOP & REAR	ADJUSTABLE TOP & REAR	ADJUSTABLE TOP & REAR	TOP
PRIMARY AIR CONTROL	THERMOSTAT	THERMOSTAT	THERMOSTAT	THERMOSTAT	THERMOSTAT
STOVE WEIGHT (LBS.)	354	295 425 MULTI-FUEL	253 306	200 225	425 411
PORCELAIN ENAMEL FINISH	N/A	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
GLASS DOOR PANELS	N/A	OPTIONAL	OPTIONAL	STANDARD	STANDARD
ENERGY EXTENDER	N/A	OPTIONAL	OPTIONAL	N/A	N/A
DOMESTIC WATER HEATER	OPTIONAL	OPTIONAL³	OPTIONAL	N/A	N/A
ASHPAN	N/A	N/A STANDARD	N/A STANDARD	STANDARD STANDARD	STANDARD STANDARD
MOBILE HOME COMPONENTS	N/A	N/A	OPTIONAL	OPTIONAL	N/A
OUTSIDE AIR DUCT	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	N/A
REAR & BOTTOM HEAT SHIELDS	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	MANTEL ONLY
CLEARANCE TO COMBUSTIBLE MATERIALS US/CANADA	REAR: 36"/36" SIDE: 36"/36"	36"/36" 36"/36"	30"/36" 24"/36"	30"/30" 24"/24"	MANTEL & UPPER TRIM: 16½" SIDE TRIM: 6"

Clearances may be reduced using ventilated wall shields or Vermont Castings optional heat shields. See Vermont Castings manuals for further details and specifications. Contact your local fire or building officials regarding inspection and installation requirements that may apply to you.

*These values can vary depending on how the stove is operated, the type and moisture content of the fuel used, as well as the design, construction, and climatic location of your home. Figures shown are based on maximum fuel consumption obtained under laboratory conditions and on average wood and coal stove efficiencies.

**These values are based on operation in building-code conforming homes under typical winter climate conditions in New England. If your home is of non-standard construction (e.g., unusually well-insulated, not insulated, built underground, etc.) or if you live in a more severe or more temperate climate, these figures may not apply. Since so many variables affect stove sizing, consult your Vermont Castings representative to determine which model is right for your home.

***See Vermont Castings manuals for complete dimensional information.

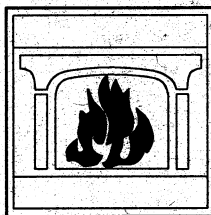
¹ These 3" legs are designed to allow for low clearance fireplace installations. Figures given are the height of the flue collar using the short, rather than the standard legs.

² 55 with optional magazine.

³ not available with Multi-Fuel.

Printed in USA

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VERMONT
CASTINGS

THE
MAJESTIC
PRODUCTS COMPANY

1000 East Market St. • Huntington, IN 46750-2579 • 219-356-8000

OK

for use in the United States



Understanding and Planning

The decision you have made to convert from, or to supplement, a central heating system to a radiant heating system expresses a certain character of self-reliance.

It shows your commitment to becoming more personally involved in providing for your families' heating needs. We at Vermont Castings not only share this philosophy, we feel a responsibility to provide you with guidelines that encourage well-planned and safe installation practices.

This guide discusses installation factors that influence a stove's performance, addresses methods to reduce clearances between stoves and adjacent combustible materials, and suggests decorative options so your installation can be consistent with the room decor. And further, we've included information to familiarize you with chimney requirements, tested clearances, wall and floor protection, stove dimensions and stove specifications.

Recently there has been an increase in the number of municipalities which have ordinances concerning the correct installation of solid-fuel burning appliances. Since codes often vary, check with local building officials **first** to determine if you need a building permit, an approval of your installation design, or an inspection of the completed installation. Some insurance companies require notification of proposed use of solid-fuel heaters as well, so you may wish to contact your insurance agent.

If you should have any questions during these important planning stages, please contact your local Vermont Castings Authorized Dealer or our trained staff in Randolph, Vermont (802/728-3111).

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LISTINGS



The Defiant[®], Vigilant[®], Resolute[®], and Intrepid[®] are listed with the following building official organizations:

- Building Officials and Code Administrators International, Inc. (BOCAI), #82-76
- Southern Building Code Congress International, Inc. (SBCCI) #8347

All Vermont Castings stoves are listed by other national building organizations and municipalities. Please contact your Authorized Vermont Castings Dealer or our Customer Service Department in Randolph, Vermont for further information.

REFERENCES

The following publications will provide you with additional information to help insure the safety of your installation:

- NFPA 211, Chimneys, Fireplace and Vents, National Fire Protection Association, Battery March Park, Quincy, MA 02269.
- Wood Heat Safety, J. Shelton, Garden Way Publishing; see the Vermont Castings Catalog.
- The Book of Heat, Stephen Greene Press; see the Vermont Castings Catalog.

PLACEMENT

Since a radiant stove depends on efficient air circulation to disperse the heat it generates, stove placement is critical to overall performance. While your decision may be influenced by the location of an existing chimney, by clearance requirements, or by aesthetic considerations, your first determination should be what role the stove will play in the overall heating plan of your home.

If the stove is to be a primary heat source providing 75% - 100% of your heat, a central, open location is ideal (FIG. 1). Placement in a small or isolated room will probably not promote good heat circulation throughout the rest of the house without the assistance of floor and wall registers (FIG. 2).

A stove to be used as a secondary heater to supplement the main heating system should be placed in the living area or a room which is otherwise difficult to heat. Basement installations can be made effective by insulating the walls and locating floor registers to assist the circulation of heat.

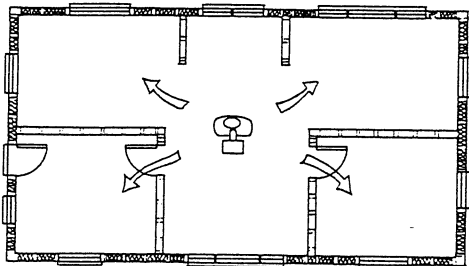


FIGURE 1
A centrally located stove will most effectively utilize existing air circulation to heat all rooms on one floor and possibly upper levels.

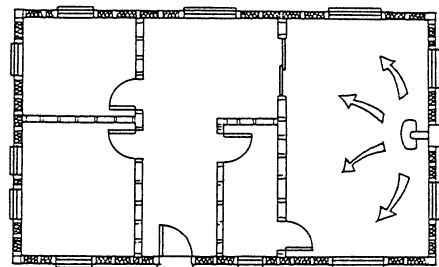


FIGURE 2
Installed at the far end of a house, the stove may over-heat the room in which it is located. Floor and wall registers can assist movement of heat to adjacent rooms and upper levels.

CHIMNEYS

Chimney draft strength is vital to the effectiveness of your stove. A well constructed and maintained chimney will encourage the strong draft that will support efficient fuel combustion under a variety of weather conditions. The unrestricted flow of exhaust gases through the flue, together with proper stove operation, will help minimize creosote or soot accumulation. It is essential that the chimney be constructed to promote durability, ease of maintenance and cleaning, and therefore, overall safety.

You may connect your stove either to an approved masonry chimney with flue liner (Fig. 3) or a factory-built High Temperature (H.T.) chimney which is listed to UL-103-1985 (Fig. 4). If you are building a new chimney, we strongly recommend an interior masonry chimney. Properly built, it will keep flue gases warm resulting in a strong draft and minimal creosote buildup. As a bonus, any heat loss through the masonry will be a heat gain to the house (Fig. 5).

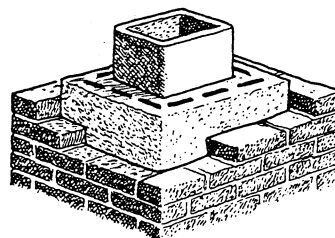


FIGURE 3
Tile-Lined Masonry Chimney

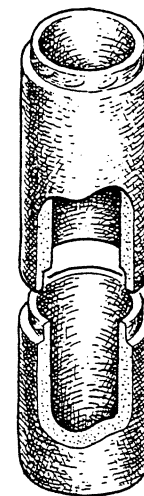


FIGURE 4
High Temperature
Double-Wall,
Insulated Chimney

Masonry chimneys require a solid foundation, a tile or other suitable lining, and careful construction techniques. There should be an accessible clean-out door at the base. Proper clearances must be maintained between the chimney and combustible walls, ceiling, and framing members. Generally, masonry chimneys are more expensive than prefabricated chimneys, but they can last longer.

Prefabricated chimney systems need no foundation, are relatively easy to install, and require less space than their masonry counterparts. Some metal chimneys are not suitable for use with coal stoves. It is essential that a prefabricated chimney be installed in strict accordance with the manufacturer's instructions and used only as its design is intended. There are several prefabricated chimney designs available. We recommend those which will help maintain high flue gas temperatures and are listed for use with solid fuels, such as the double-wall insulated type. Do not use Class B type chimneys; these are designed to vent gas appliances only.

An existing masonry chimney or fireplace chimney can provide an excellent flue provided it is in sound condition, is the correct size, and meets local building code requirements. The flue into which your parlor stove is installed should be used solely for the stove and not for any other appliance. Prior to installing your stove into an existing chimney, we recommend that the entire structure be thoroughly cleaned and then inspected for defects by a qualified mason. If your chimney is unlined, it should not be used to vent any wood or coal burning stove. There are, however, a number of lining systems which have been specifically designed for solid fuel use and will improve both the safety and the performance of an unlined chimney. These systems have also been successfully installed to correct draft problems associated with oversized chimney flues.

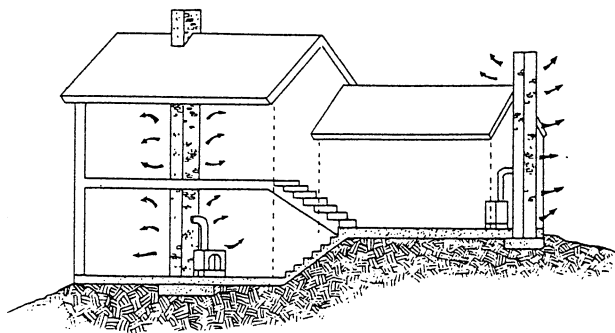


FIGURE 5
An exterior chimney will remain cooler than an interior chimney and, as a result, performance may suffer. Interior chimneys can provide more stable draft and require less maintenance.

FLUE HEIGHT REQUIREMENTS

The chimney must extend 3 feet above the level of roof penetration and a minimum of 2 feet higher than any roof surface within 10 feet. Check your local codes for additional regional guidelines. While a minimum chimney height of 14 feet above the flue collar of the stove is generally recommended, factors affecting stove performance such as local terrain, prevailing winds, and adjacent structures may necessitate use of a taller flue.

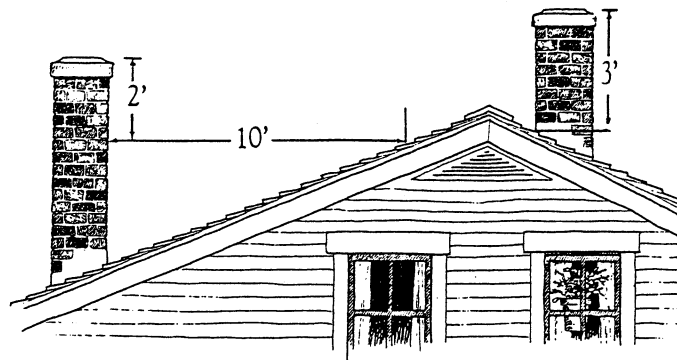


FIGURE 6

IDEAL FLUE SIZES

Vermont Castings stoves are designed to perform most efficiently when vented through flues having the following dimensions:

	Liner Size	Round Liner Diameter
Defiant/Vigilant	8"x8" or 8"x12"	8" interior diameter
Resolute/Intrepid	8"x8" or 8"x12"	6" or 8" interior dia.

Large flues (12"x12", or 12"x20"), although generally effective, can lessen chimney draft and promote cool flue gas temperatures.

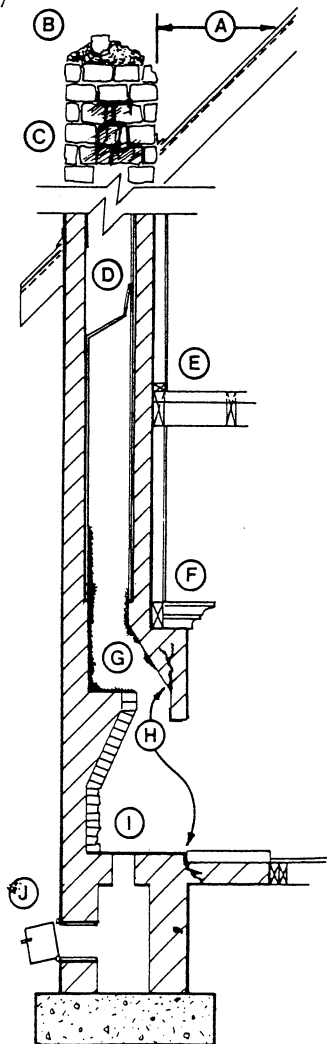
Vermont Castings stoves are not listed for installation into flues smaller than the sizes recommended above.

If you are planning to vent a small stove into a large flue, particularly an exterior masonry one, you may find it necessary to insulate the chimney, reline the chimney, or operate the stove to maintain high flue temperatures.

CHIMNEY INSPECTION

It is important for safe and satisfactory performance of your Vermont Castings stove that fireplace chimneys are well constructed and meet minimum code requirements. The chimney flue should have a code-approved liner made of masonry or pre-cast refractory tiles, straight or flexible stainless steel pipe, or a poured-in-place liner. An unlined chimney should be professionally re-lined. We recommend a nominal flue size of 8" x 8" or larger. Chimney height should be no lower than 14' above the flue collar of the stove.

FIGURE 7



Look for and repair these defects:

- A Improper chimney height and roof clearance.
Check local building codes for proper specifications.
- B Chimney cap deterioration; should be rebuilt.
- C Creosote stains indicate flue damage; should be rebuilt.
- D Blockage within flue; must be removed.
- E Improper clearance between chimney and combustible materials. Generally, a clearance of 2 inches is required to all combustible walls and framing members. Check local codes.
- F Improper clearance between smoke chamber and adjacent framing members. Check local building codes.
- G Creosote accumulation; chimney needs thorough cleaning.
- H Structural deterioration of the fireplace; must be repaired before use.
- I Loose or broken bricks or mortar; replace and remortar.
- J Loose or broken clean-out door; repair or replace.

WALL PROTECTION

It is essential that you locate your stove with safe clearances to combustibles. Generally, the stove should be at least 36" away from all combustible materials unless specified otherwise. Combustible materials include items such as furniture, mantels, bookshelves, and doors. Walls are considered combustible if any materials contained within them can ignite and burn.

Remember, non-combustible materials applied directly to sheetrock or wood studs are not adequate protection. Sheetrock will conduct heat to the combustible materials or framing members behind it.

Clearances can be safely reduced in two ways; by installing Vermont Castings heat shields to the stovepipe and stove, or by protecting the wall with a non-combustible, ventilated shield (FIG. 8). Refer to the Clearance Charts for specific distances. Be sure to check both stove and connector clearances prior to designing your installation.

VERMONT CASTINGS HEAT SHIELDS

If a manufactured wall protection system, which has been tested and listed by an organization such as UL, is used - be sure the shield is sized correctly (see page 4) and installed exactly according to the manufacturer's installation instructions.

We offer stove and stovepipe heat shields as accessories to provide a simple, effective, yet unobtrusive means of reducing clearances between the stove, stovepipe, chimney connector, and combustible walls. Each shield is constructed of 24 gauge sheetmetal and includes the necessary mounting hardware and instruction.

VENTILATED WALL SHIELDS

Ventilated wall shields will protect any combustible wall behind or beside the stove by providing a barrier to radiant heat and allowing a constant current of convected air to cool the wall surface. Use rigid, fire-proof materials, such as mineral board, which will not sag or warp. The shield must be mounted securely, spaced at least 1" from the wall by noncombustible spacers and supported 1" off the floor. A 1" gap should be left at the top to allow air circulation behind the shield. Screening material fastened over the top and bottom openings will prevent objects from falling behind the shield that could reduce the shield's effectiveness. See p. 4 to determine the correct size wall shield for your installation.

The following materials can be used to fabricate ventilated wall protection that is both effective and durable:

- 3" hollow clay tile, mortared.
- 3½" brick (brick placed on edge), mortared.
- ¼" or more of mineral board, or equivalent, approved by your local building inspector.
- ¼" or more of mineral board, or equivalent, approved by your local building inspector, covered by one of the following:
 - 24 gauge sheetmetal, copper or aluminum
 - 1" thick ceramic tile, mortared
 - ½" cement plaster, mortared
 - ½" stucco, or any non-combustible material you like

WALL PASS-THROUGHS

If possible, design your installation so the chimney connector does not pass through a combustible wall. If this is necessary, check with your building inspector for code requirements. The following methods are permitted by some officials:

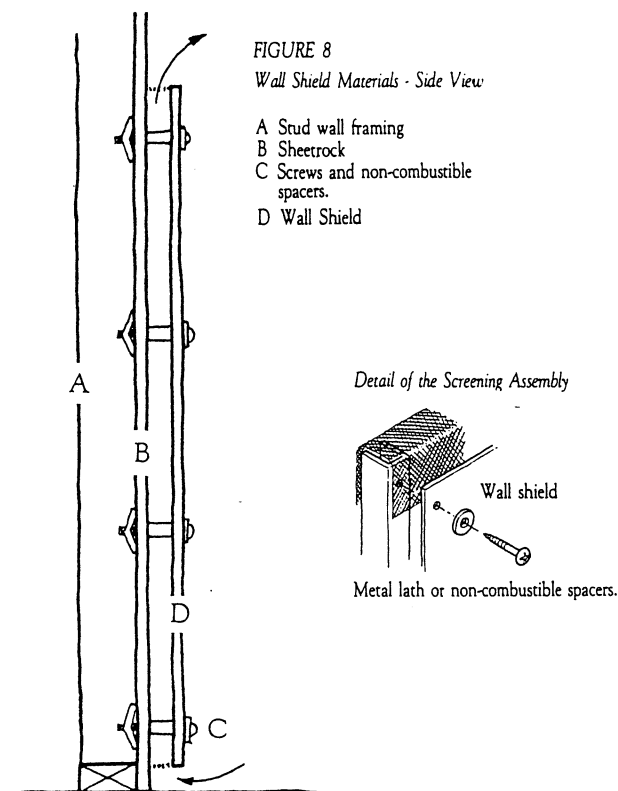
1. The connector is made of sections of a listed factory-built chimney and installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. All combustible material in the wall or partition is cut away from the connector to provide the clearance shown on page 5 for unshielded stovepipe chimney connectors. Any material used to close up such openings shall be non-combustible material.

REDUCING CLEARANCES

We've stressed throughout our literature the importance of maintaining adequate clearances between stoves, their stovepipe chimney connectors and combustible walls and materials (including furnishings). **Clearance means empty space**, except for the non-combustible wall, stove or stovepipe shielding materials, or where it is specifically stated, as in wall pass-throughs, that the space can be filled. Heat is very effectively dissipated by the air circulating around heat shields or wall shields. Don't restrict the circulation of air by filling any clearance space with insulation.

The clearances in the Tables on page 5 are specifically for Vermont Castings stoves. These distances were determined during extensive testing in accordance with Underwriters' Laboratories Standard for Solid Fuel Type Room Heaters, UL 1482, by our own and independent testing laboratories, during high fire tests. This means that if you place your stove at these, or greater, distances from combustible walls or materials, and use the proper stove, stovepipe chimney connector and wall or trim shields as indicated, your installation will meet the standard. Most building inspectors accept clearances which have been tested and are a part of a stove's listing.

Since stoves differ in their heating capacity as well as their heat radiating characteristics clearances will differ from stove to stove. Our stoves are tested individually so each has its' own clearance chart.



WALL SHIELD SIZING		INTREPID	RESOLUTE	VIGILANT	DEFIANT
WIDTH	Rear: centered behind stove (A, FIG. 9)	36"	57"	64"	72"
	Side: (B, C, FIG. 9)	36", extending 16" from the stove front, and 7" from the rear	A shield must extend 18" behind the stove (unless this distance has already been reduced by a rear heat shield or a wall shield), and 30" out beyond the front of the stove.		
	Corner: (A, B, FIG. 10)	48", butt together at the corner	The shields must extend 18" in front of a projection of the stove on the wall, measured from a point perpendicular to the front corner of the top plate; and must extend back to the corner behind the stove.		
	Beside, Behind, or Above Chimney Connector (B, FIG. 12)	28"	28"	34"	34"
HEIGHT	Top Exiting Stove and Chimney Connector (A, B, FIG. 11 A, FIG. 12)	A shield must be raised 1" off the floor and extend as high as the top of the chimney connector, or as high as necessary to shield all combustible materials adjacent to the stove and connector, but no closer than 1" to the ceiling. The air space at the top and bottom are necessary to allow air circulation behind the shield. ¹			
	Rear Exiting Stove (exiting directly back into chimney) (C, FIG. 12)	35"	44"	48"	48"

¹The Defiant shield may be reduced to 48" in height when the wall shield is installed to the side of the stove or when the clearance is 18" or greater in a corner installation.

FIGURE 9 Rear and Side

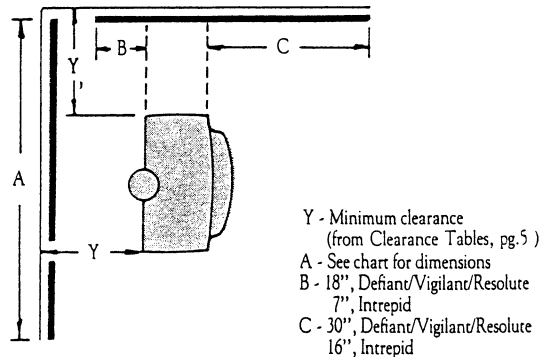


FIGURE 10 Corner Installation

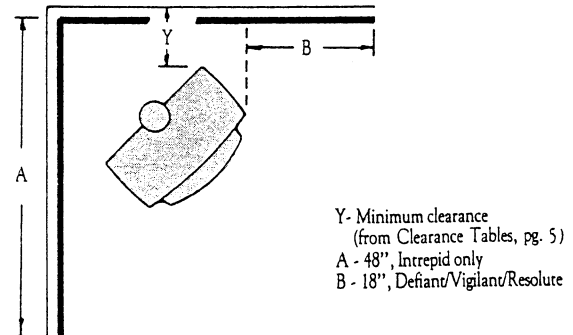
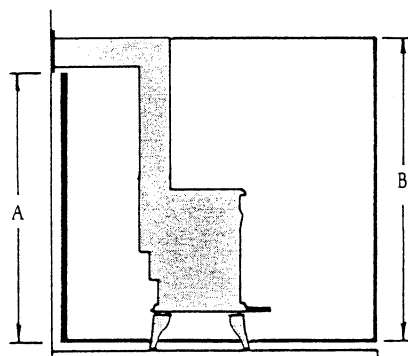
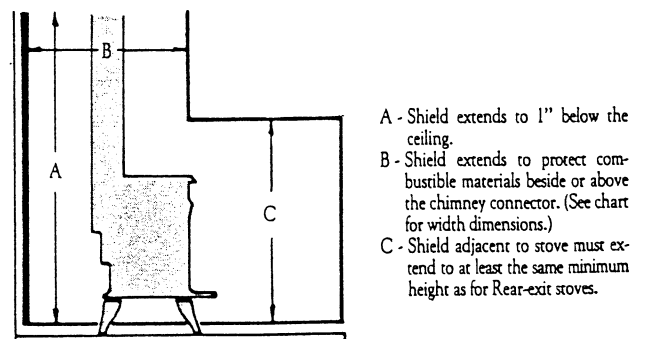


FIGURE 11 Chimney Connection at Rear



- A - Rear shield extends to protect combustible materials adjacent to chimney connector
- B - Side shield extends to top of chimney connector

FIGURE 12 Chimney Connection at Ceiling



Note: For Intrepid installation where connection is made to a prefabricated chimney, see Page 7 under Prefabricated Chimneys.

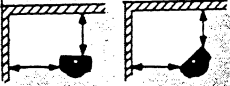
CLEARANCE TABLES

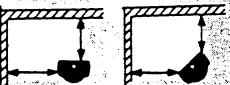
The first line in each chart shows the minimum clearances required if no shielding is used between the stove and stovepipe chimney connector, and nearby combustible materials. To meet a variety of installation needs, reduced clearances were established using stove and stovepipe heat shield, wall shields, or both.

Distances given in the top third of each chart consider both stove and stovepipe chimney clearance requirements in most common installations.

After planning the position of your stove, you can double-check your chimney connector clearances in the middle section of each chart.

Clearances for the Energy Extenders, the Intrepid and the Resolute Mobile Home stoves are different than those listed below. Please refer to installation guidelines with each of these four products for specific clearance information.

		DEFLIANT®						VIGILANT®					
		UNPROTECTED WALLS & MATERIALS			PROTECTED WALLS ¹ & MATERIALS			UNPROTECTED WALLS & MATERIALS			PROTECTED WALLS ¹ & MATERIALS		
		Side	Rear	Corner	Side	Rear	Corner	Side	Rear	Corner	Side	Rear	Corner
STOVE SURFACES Measure from top plate of stove to combustibles 	NO HEAT SHIELDS 	36"	36"	36"	14"	18"	18"	36"	36"	36"	14"	10"	14"
	Rear Stove Heat Shield 	36"	Top Exit 23" 10" Rear Exit	18"	14"	Top Exit 18" 6" Rear Exit	10"	36"	Top Exit 25" 10" Rear Exit	18"	14"	Top Exit 10" 6" Rear Exit	14"
	Rear & Stovepipe Heat Shields 	36"	10"	18"	14"	6"	10"	36"	10"	18"	14"	6"	10"
STOVEPIPE CHIMNEY CONNECTOR Measure from nearest point on chimney connector to combustibles 	NO HEAT SHIELDS 	22"			10"			22"			7"		
	STOVEPIPE HEAT SHIELD 	10"			7"			7"			4"		
FIREPLACE INSTALLATION Measure from stove top to mantel or trim. 		Mantel	Top Trim	Side Trim	Mantel	Top Trim	Side Trim	Mantel	Top Trim	Side Trim	Mantel	Top Trim	Side Trim
		36"	36"	18"	18"	18"	12"	36"	36"	18"	18"	18"	12"

		RESOLUTE®						INTREPID®					
		UNPROTECTED WALLS & MATERIALS			PROTECTED WALLS ¹ & MATERIALS			UNPROTECTED WALLS & MATERIALS			PROTECTED WALLS ¹ & MATERIALS		
		Side	Rear	Corner	Side	Rear	Corner	Side	Rear	Corner	Side	Rear	Corner
STOVE SURFACES Measure from top plate of stove to combustibles 	NO HEAT SHIELDS 	24"	30"	30"	8"	10"	12"	24"	30"	20"	12"	16"	10"
	Rear Stove Heat Shield 	24"	Top Exit 25" 10" Rear Exit	18"	8"	Top Exit 8" 6" Rear Exit	12"	24"	Top Exit 30" 13" Rear Exit	20"	12"	Top Exit 16" 9" Rear Exit	10"
	Rear & Stovepipe Heat Shields 	24"	10"	12"	8"	6"	6"	24"	13"	12"	12"	9"	10"
STOVEPIPE CHIMNEY CONNECTOR Measure from nearest point on chimney connector to combustibles 	NO HEAT SHIELDS 	23"			8"			25"			11"		
	STOVEPIPE HEAT SHIELD 	8"			4"			9" ²			4" ²		
FIREPLACE INSTALLATION Measure from stove top to mantel or trim. 		Mantel	Top Trim	Side Trim	Mantel	Top Trim	Side Trim	Mantel	Top Trim	Side Trim	Mantel	Top Trim	Side Trim
		36"	36"	18"	18"	18"	8"	30"	24"	15"	14"	14"	10"

¹ Protected Wall:

1/4" cementboard, millboard, or non-combustible mineral board spaced one inch from combustible wall on non-combustible spacers or equivalent protection approved by local building code officials. Walls are considered combustible if any part of the wall will burn. Non-combustible materials glued to sheetrock or plaster over wood framing are not adequate protection.

² Stovepipe heat shields may be used to reduce clearances behind the Intrepid when constructed according to the guidelines on page 7 under Connection to Prefabricated Chimneys.

FLOOR PROTECTION

Although temperatures under the stoves are significantly lower than those to the sides, a non-combustible hearth is necessary to protect the floor from radiant heat and from occasional sparks or falling embers.

Your hearth should extend a minimum of 12" beyond the back and sides of the stove and 18" beyond the front and, in the case of the Defiant, the loading door end.

The minimum hearth protection required for use with our stoves using standard legs is two sheets of 1/4" mineral board (or equivalent) approved by your local building inspector. This should then be covered by one sheet of 24 gauge galvanized sheetmetal, left exposed (FIG. 13).

The installation of the optional Vermont Castings Bottom Heat Shield will allow you to use any one of the materials listed below to construct a more decorative hearth cover (FIG. 14).

- 1" of stone, slate, tile, concrete, or any combination of these materials, mortared.
- One layer of common brick, 3 1/2", mortared.
- One layer of 1/4" mineral board, or equivalent - covered with any non-combustible material.

A variety of prefabricated hearth pads, listed for use with radiant stoves, can also provide adequate floor protection if they are the proper size (see Minimum Hearth Pad Dimensions).

Often, when installing the Defiant, Vigilant, or Resolute in front of a low fireplace opening, Vermont Castings' optional Short Legs will be needed. When using short legs, bottom heat shields are needed; two with the Defiant and Vigilant, and one with the Resolute and Intrepid (see the Vermont Castings Catalog). Hearth and floor protection will have to be constructed according to the guidelines above, using the following materials:

- 1 1/2" of stone, slate, tile concrete, or any combination of these.
- one layer of common brick, 3 1/2", mortared.
- 1 layer of 1/4" mineral board, or equivalent covered by 1" of the non-combustible materials listed above or by 1 sheet of 28 gauge galvanized sheetmetal.

Short legs may be used without the bottom heat shields only if the stove is installed on a concrete or masonry floor that contains no combustible supports or framing members.

Existing fireplace hearths not meeting clearance requirements can be modified by adding a bottom heat shield to the stove, building an additional hearth pad over the fireplace hearth, or extending the hearth.

The materials you choose and the design of your floor covering can compliment your installation as well as fulfill safety requirements. The hearth should be durable so it can withstand constant use during each heating season. Construction begins with a rigid foundation that will not flex beneath the stove, such as 3/4" plywood. Next, fasten the non-combustible materials to the foundation and end with the decorative layer on top. You can add a frame to contain all the materials, protect the edges of the hearth, and give a finished appearance to the installation.

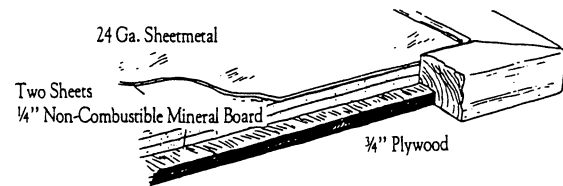


FIGURE 13
Minimum Hearth Construction and Materials for use with the standard legs.

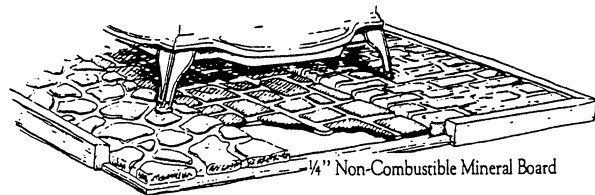


FIGURE 14
Decorative Hearth Coverings for use with Vermont Castings Bottom Heat Shield: Slate, Tile, Brick.

MINIMUM HEARTH PAD DIMENSIONS:

Defiant	65" wide x 48" deep
Vigilant	53" wide x 48" deep
Resolute	52" wide x 46" deep
Intrepid	46" wide x 46" deep

The hearth must also extend under the stovepipe and 2" to either side of the pipe. This means the hearth directly under 8" pipe must be 12" wide; and under 6" pipe must be 10" wide, extending the whole length of the horizontal run.

CHIMNEY CONNECTOR

The series of stovepipe sections used to connect the stove to the chimney is called the chimney connector (FIG. 15). The primary functions of the chimney connector are to direct the flow of exhaust gases into the chimney flue, and to provide a safe connection between the stove and the chimney.

CONSTRUCTION GUIDELINES

- Stovepipe and chimney thimble diameters must not be less than 8" for the Defiant and Vigilant or 6" for the Resolute and Intrepid. Use 24 gauge or heavier sheetmetal stovepipe, (do not use galvanized).
- The chimney connector should be as short and direct as possible. Use of more than two elbows may reduce chimney draft and encourage creosote formation in the flue.
- Single wall stovepipe should not be used as a chimney and must never pass through a combustible ceiling. When unavoidable, wall pass-throughs should be designed according to local building codes. Keep in mind that the entire chimney connection must be exposed and readily accessible for periodic inspection and cleaning.
- Safe clearances must be maintained between the stovepipe and combustible materials. (See Clearance Chart).
- Assemble the stovepipe with the crimped end of each section pointing downward or toward the stove. Secure the first section to the stove flue collar and each joint thereafter with 3 sheetmetal screws to prevent separation during use.

Stovepipe dampers and heat reclaimers are not generally recommended for use with our stoves. These devices present an unnecessary restriction within the flue and can promote rapid creosote accumulation.

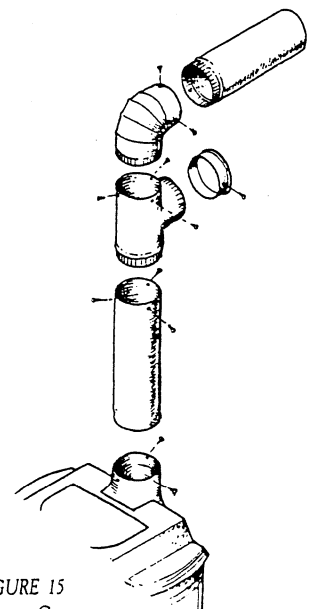


FIGURE 15
Chimney Connector
Cleanout Tee incorporated into the connector in either the horizontal or vertical run to make easier access for inspection.

CONNECTION TO A MASONRY CHIMNEY

The chimney connector should be inserted into a metal or ceramic chimney thimble until it is flush with the flue lining of the chimney (FIG. 16). The thimble should be at the same height as or above the level of the stove. The connector should fit snugly; any leaks surrounding the connector or thimble can be sealed with furnace cement or non-combustible gasketing.

A clean-out door in the base of the chimney must be accessible for cleaning and inspection, and must fit tightly when closed.

Consult your local building inspector regarding approved methods for passing stovepipe through a combustible wall. See p. 3.

- A Tile Liner
- B Steel or clay thimble
- C Stovepipe should not extend into flue
- D Adequate clearance to unprotected combustible materials
- E 2" minimum clearance between chimney and combustible materials
- F Horizontal pipe rise of $\frac{1}{4}$ " per foot
- G All joints secured with 3 sheetmetal screws
- H Stove and stovepipe heat shields allow reduced clearance to combustible wall
- I Bottom heat shield
- J Clean-out access with tight door

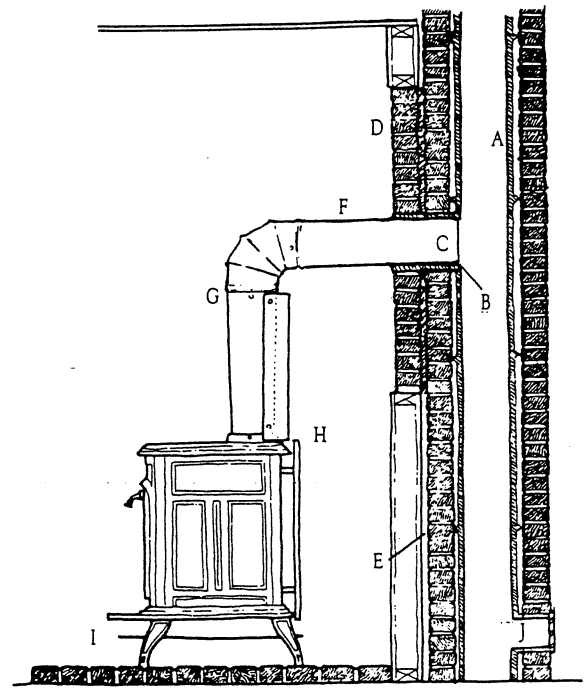


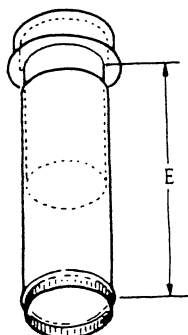
FIGURE 16
Installation into a Masonry Chimney through a Combustible Wall.

CONNECTION TO A PREFABRICATED CHIMNEY

If you plan an installation into a prefabricated, factory-built chimney, it must be a chimney listed and approved for use with solid fuel appliances by a nationally recognized testing laboratory. It is important that you install the chimney in accordance with the manufacturer's installation instructions and clearance specifications (see p. 5). Class B gas vent chimneys must not be used with any wood or coal stoves.

The Vermont Castings Connector Pipe for Prefabricated Chimney is designed to provide a simple, effective connection between the stovepipe chimney connector and a double-wall, insulated, prefabricated chimney. The telescoping action formed by the connector pipe and a section of standard stovepipe allows you to lift the chimney connector up from the flue collar of the stove for cleaning without having to disconnect individual pipe sections.

Special note for Intrepid installations in which stovepipe heat shields are used to reduce clearances. Stovepipe chimney connector shields must not extend directly upward to the ceiling when venting into a prefabricated chimney unless a ventilated shield, as shown in Fig. 18, is used around the prefabricated chimney at the ceiling. As an alternative, extend the prefabricated pipe 22" down from the ceiling and make the transition to single-wall pipe at that point. Extend stovepipe heat shields to 1" below the prefabricated pipe.



Detail of Connector Pipe.

- A Ceiling Support Package sold by the manufacturer of the double-wall chimney.
- B Vermont Castings Connector Pipe for prefabricated chimneys.
- C Stovepipe section.
- D Inspection Tee allows easy inspection and cleaning access.
- E Slip distance: 17"

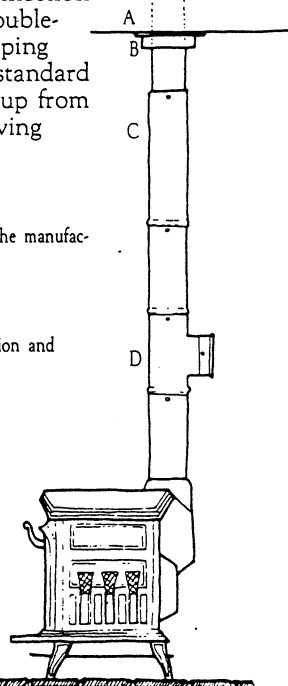
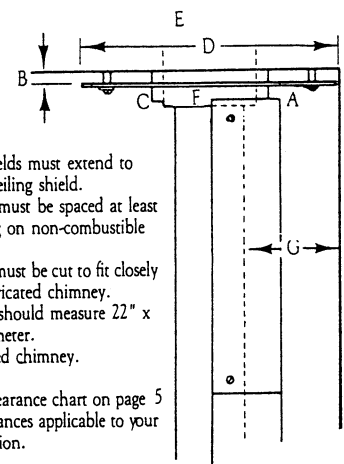


FIGURE 17



- A. Stovepipe heat shields must extend to within 1" of the ceiling shield.
- B. The ceiling shield must be spaced at least 1" from the ceiling on non-combustible spacers.
- C. The ceiling shield must be cut to fit closely around the prefabricated chimney.
- D. The ceiling shield should measure 22" x 22" or 22" in diameter.
- E. Listed, prefabricated chimney.
- F. Trim Collar.
- G. See the Intrepid clearance chart on page 5 for minimum clearances applicable to your individual installation.

FIGURE 18
Detail of Intrepid installation into prefabricated chimney with reduced clearance to combustible wall.

FIREPLACE INSTALLATIONS

There are two installation methods we recommend to vent your stove into a fireplace chimney; installing a thimble into the chimney above the fireplace opening (Fig. 19), or connecting to the chimney through the fireplace damper with the Vermont Castings Stove-to-Fireplace Connector and Sealing Package (Fig. 20). A custom-fabricated adaptor (Fig. 21) may also be used.

Regardless of which method you choose, a safe installation must incorporate the following features:

Flue Lining

The chimney must contain either a ceramic tile or other suitable code-approved liner in good condition. Consult your mason, chimney sweep, or stove dealer regarding flue liner retro-fit systems available in your area.

Inspection & Cleaning Access

The installation must be designed to allow access for inspection and periodic cleaning.

Secure Connection to Flue

Air leaks around the chimney connector or chimney thimble must be sealed. All stovepipe sections should be secured using 3 sheetmetal screws at each joint.

Fireplace Must Be Made Inoperable

The existing damper must be effectively sealed open or removed (FIG. 20 & 21), or sealed closed (FIG. 19)

Adequate Hearth Protection

Although composed of non-combustible materials, the existing hearth often requires enlargement or additional protection. (See Floor Protection.)

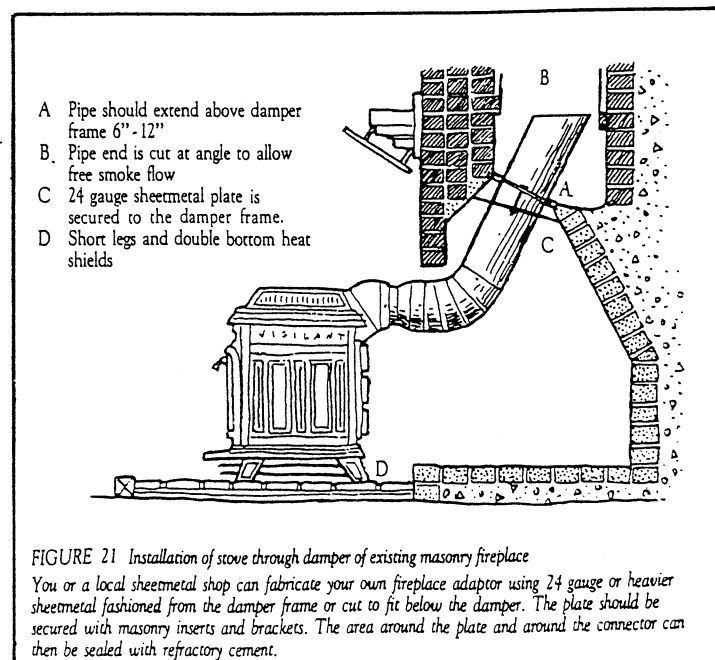
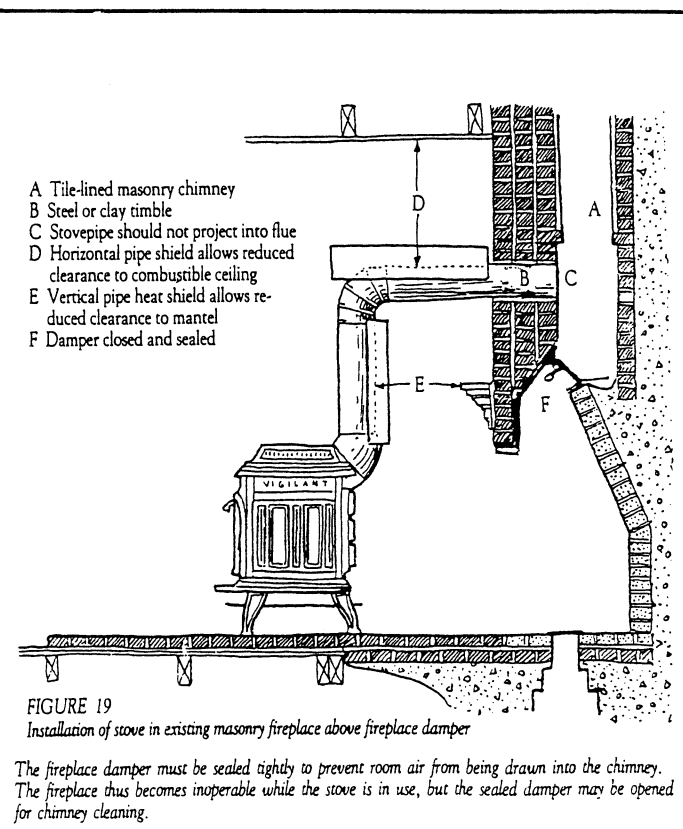
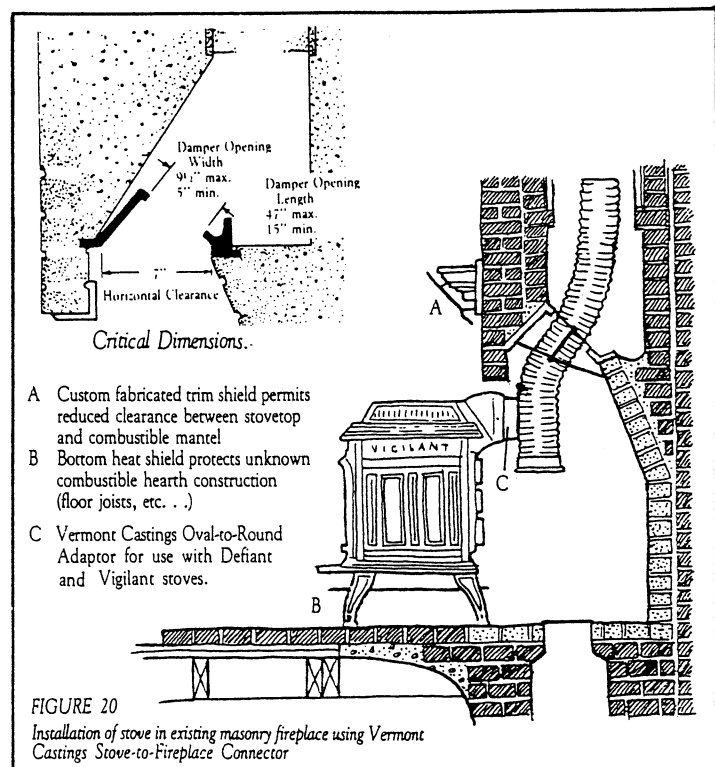
Adequate Clearance to Combustibles

Refer to the Clearance Tables on Page 5 to determine the appropriate clearance that must be maintained between your stove and any combustible mantel or fireplace trim. Clearance reductions, as indicated in the tables, can be made with use of ventilated metal or mineral board shields, spaced 1" away on non-combustible spacers (see A, FIG. 20). Side trim shields must protect the entire length of the trim. Mantel and top trim shields must be 50" for the Defiant, 36" for the Vigilant, Resolute, and Intrepid (or longer) and be centered over the stove.

The Vermont Castings Stove-to-Fireplace Connector is ideally suited to adapt to a variety of fireplaces. The corrugated, stainless steel connector is oval in shape and is designed to pass through most dampers with an opening 5" or more. It can be flexed to bypass angles within the smoke chamber above the damper and into, or just below, the first chimney tile. The chimney connector from the stove is secured to the attachment collar with three sheetmetal screws.

The Vermont Castings Sealing Package, or your custom made sealing system, will fit securely around the connector at the damper opening to prevent room air from escaping up the chimney.

We do not recommend stove installations into factory-built (zero-clearance) fireplaces. These appliances and their chimneys are specifically designed for use as fireplaces; it may void their listing or be hazardous to adapt them for any other use.



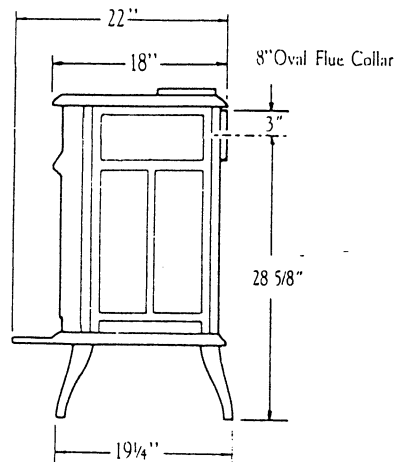
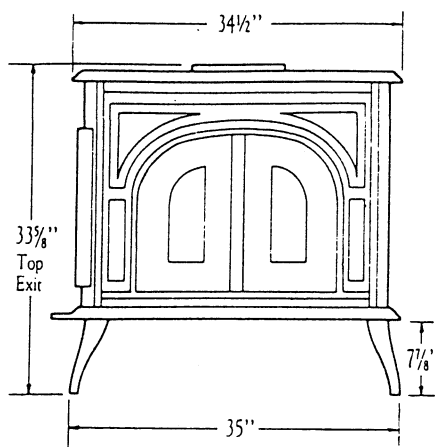
STOVE DIMENSIONS

The following elevations indicate dimensions which will enable you to plan your installation as accurately as possible. Variables inherent in the manufacturing process can result in differences of up to $\frac{3}{8}$ " between these dimensions and those of your stove. Be careful to plan stove placement so as not to restrict the side loading access to the Defiant or the top loading access to the Vigilant, Resolute, and Intrepid.

Some installations, such as into a low fireplace, will require a reduction in the height of the stove. By substituting short legs for the standard length legs, the height of each stove can be reduced as indicated.

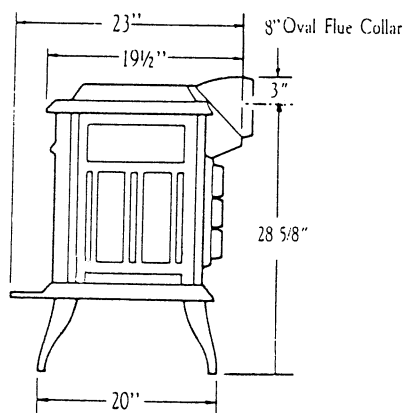
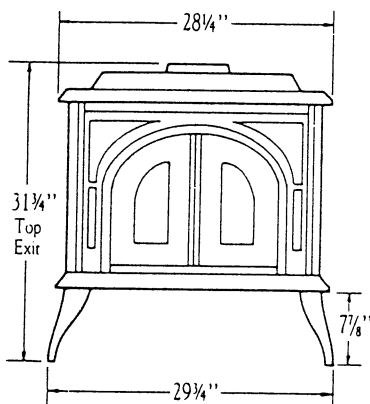
Defiant®

Short legs reduce the height of the Defiant by $\frac{1}{4}$ ".



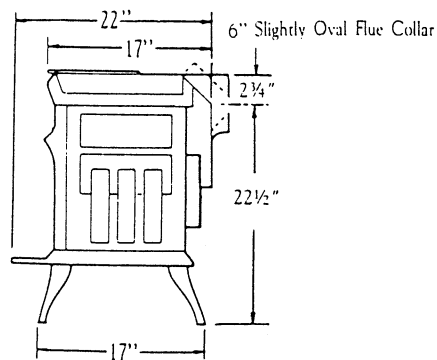
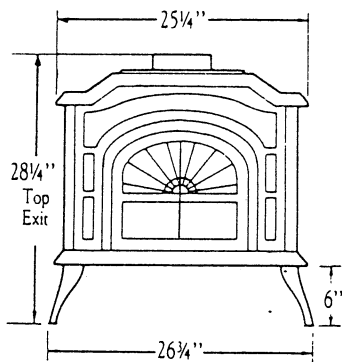
Vigilant®

Short legs reduce the height of the Vigilant by $\frac{1}{4}$ ".



Resolute®

Short legs reduce the height of the Resolute by 3".



Intrepid®

Short legs reduce the height of the Intrepid by 4".

