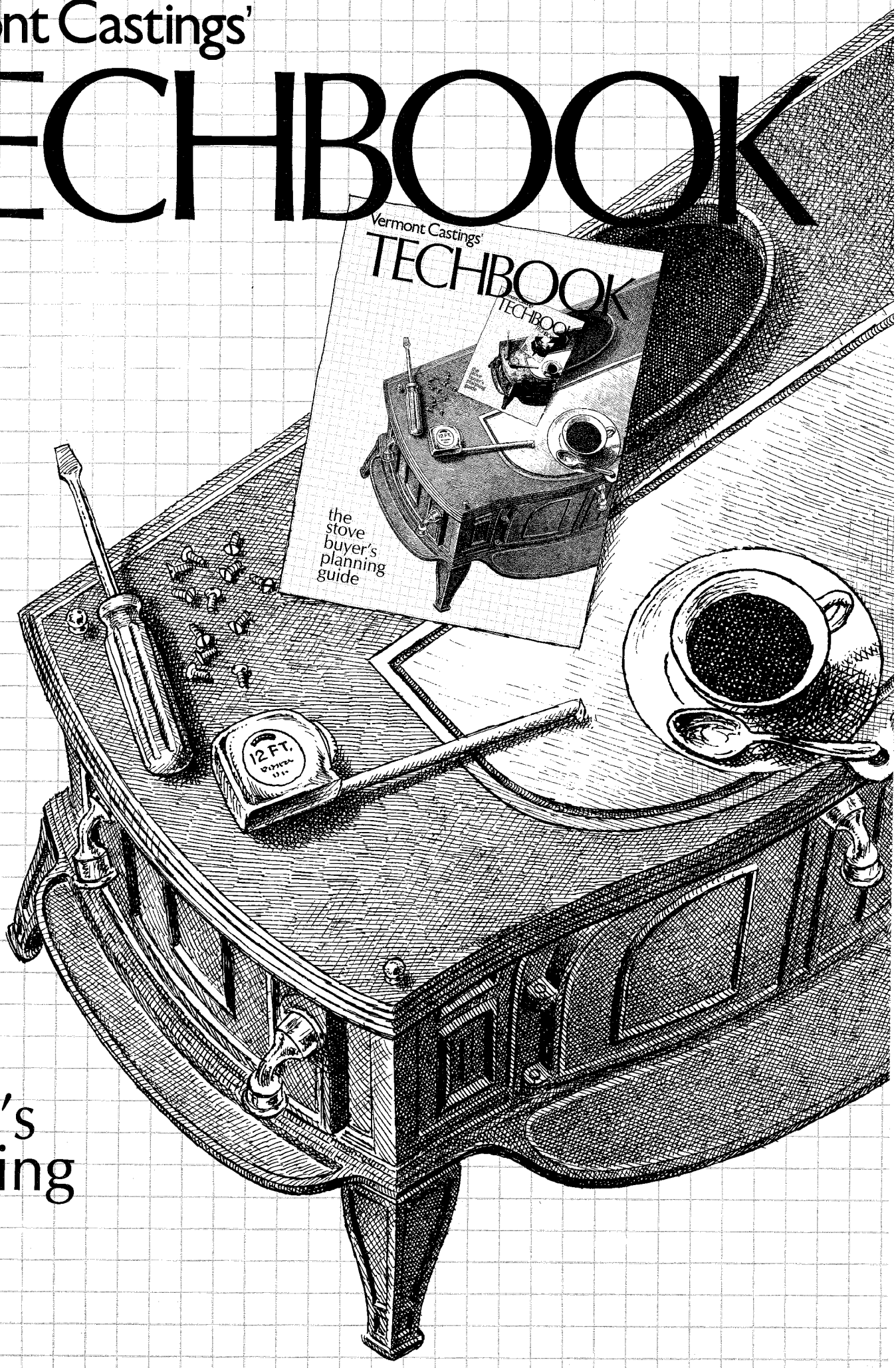
Vermont Castings'

TECHBOOK



the stove buyer's planning guide

The Techbook has been designed as a resource for those new to wood- and coal-burning. It is not meant to be a comprehensive guide to stove installation procedures; rather, its purpose is to familiarize the reader with the selection, installation, and use of a stove by giving an overview of many of the principles involved. Complete detailed information on the installation and operation of a Vermont Castings stove may be found in the *Installation Planning Guide* and in the respective Operation Manuals for each stove.

Your city or town may already have a set of guidelines for stove installation. Many municipalities do have such regulations, or codes, that govern how solid fuel-burning appliances should be installed. Since these codes often vary from city to city, be sure to check with your local building officials first to determine if you must comply with special procedures such as a building permit, an approval of your installation design, or an inspection of the completed installation. Also, some insurance companies require notification of intent when you plan to install a wood- or coal-burning heater.

In all cases, your local officials are the final authorities on whether or not your installation will be approved.

Each Vermont Castings stove comes with a metal label permanently attached to the back plate. This label indicates that the stove has been tested to current UL standards, gives the name of the testing laboratory, and provides clearance and installation information. In most cases, local authorities will accept the label as evidence that, when the stove is installed according to the information given on the label, the installation will satisfy their code and may be approved.

For questions left unanswered after reading this techbook, the *Installation Planning Guide* and the Operation Manual, we recommend that you refer to the National Fire Protection Association ANSI/NFPA 211-1984 Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances. This standard is the basis for many national codes. It is nationally recognized, and is accepted by most local authorities. Your local Vermont Castings Authorized Dealer or your local building official may have a copy; or, it may be ordered from the NFPA, Batterymarch Park, Quincy, MA 02269.

In addition, government regulations require that the following definitive statement be printed below:

SAFETY NOTICE: IF A HEATER IS NOT PROPERLY INSTALLED, OPERATED AND MAINTAINED, A HOUSE FIRE MAY RESULT. FOR YOUR SAFETY, FOLLOW ALL INSTALLATION, OPERATION, AND MAINTENANCE DIRECTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

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1 A Guide To Vermont Castings Stoves

Selecting The Right Stove For Your Needs

Choosing a stove that is correctly matched to your heating needs is an important first step in your purchase decision. A stove that is too small may fall short of your expectations; a stove that is too large may produce more heat than is needed, and attempts to operate a large stove at low temperatures can cause performance to suffer and increase the possibility of smoke condensing in the flue as creosote. As a general rule, it is usually better to select a slightly undersized stove and burn it hotter than to select the largest size available and damp it down.

Vermont Castings' stoves are rated by the amount of cubic feet they can be expected to heat. (Cubic feet, either for a single room or for an entire house, is calculated by multiplying the height X width X length of living area.) The figures in the accompanying chart are derived from laboratory results as well as from field performance in thousands of homes throughout the world. The figures assume a typical structure and installation in a climate similar to Vermont, using wood dried at least six months or, for coal stoves, high quality anthracite.

Stove	**Maximum area heated in cubic feet (wood/coal)**
Defiant®	*10,000*
Defiant Encore™	*8,000*
Vigilant®	*8,500/8,500 (multi fuel)*
Resolute®	*7,000/6,000*
Intrepid®	*4,500/3,500*
FirePlace™Insert	*7,000/8,500*

In addition to considering the cubic footage you'd like to heat, there are several other factors that should be addressed.

In What Climate Do You Live?

How many heating degree day units does your area experience each year? Put more simply, residents in northern states generally require a greater heating capacity than do their southern cousins.

Is Your House Energy Efficient?

How would you rate your home's level of energy efficiency? Age, tightness, amount of insulation, and similar factors should all be considered. An older, drafty house in Texas may require a larger stove than a newly built, well-insulated building of the same size in Minnesota.

How Will You Use The Stove?

Another important consideration is the role your stove will play in the overall heating plan for your home.

Most stoveowners prefer to use a stove as a *primary* source of heat. A primary source supplies 50% to 75% of the heat needed, with a backup source of heat for those times when the winter temperatures are at their coldest or when stovetenders are away for a weekend or longer.

Others prefer to use their wood or coal stoves as a *secondary* source of heat to supplement the main source (oil, gas or electricity), or to provide heat for a part of the home that the main source cannot effectively reach.

A third approach is to use a stove as the *sole* source of heat. Generally, homes that employ a parlor stove as a sole source of heat are well insulated, with a relatively open floor plan.

One additional way many people enjoy using a stove is purely as *recreation*. Even if you have no intention or need to burn wood to heat your home, you might very well enjoy the comfort and charm of a crackling fire. Many Vermont Castings stoves are purchased for this very purpose, throughout the country, including such places as Florida and Hawaii.

A stove used as a primary source may be smaller than a stove used as a sole source of heat, since the backup heat source can supply extra heat needed in extemely cold weather. A stove used recreationally for fire viewing might be chosen more on the criteria of aesthetic preference.

Where In The House Will Your Stove Be Placed?

The location of the stove within the house will greatly influence how effectively the heat is utilized. The best results will usually be achieved when the stove is located near the center of the house. Distant corners will be cooler than areas immediately around the stove, but this offers a range of temperatures to suit the comfort preferences of different family members and for different activities. (FIGURE 1).

A stove located in an outside corner or against an outside wall of a house will provide comfortable heat for the living area surrounding the stove. The farther away you go from the stove, the cooler you will be. This arrangement works particularly well if the cool zone is the sleeping area, where the cooler temperature range is desirable.

Basement installations are most effective for heating the basement and, to a lesser extent, the floor above. Floor registers will facilitate the passage of warm air to the floor above, as will an open stairway. Basement walls should be insulated to prevent heat from being absorbed by their cool surface. It may be difficult to achieve satisfactory whole-house heating from a basement installation.

Most homes contain architectural features that influence the level to which they may be heated efficiently. An open stairway, for example, will allow warm air to rise steadily to the floor above. Stoves placed very near the stairway may allow more heat than is desirable to rise directly upward. In order to force more lateral movement of air through the house before it rises, the stove should be located at a greater distance from the stairs.

High ceilings can allow the warm air to rise and stratify in the top few feet of the room. This results in a great deal of the heat pooling in an area where it cannot be used, while allowing the first five or six feet off the floor to remain uncomfortably cool. A good solution to this is one or more ceiling fans. (FIGURE 2).

Older homes often were built with smaller rooms, and more rooms per floor than modern constructions. The walls serve as obstructions to heat circulation, making uniform heating more difficult. Wall registers will often facilitate air movement in homes of this type. (FIGURE 3). Another solution is to use two stoves on opposite ends of the home rather than a single large stove. When stoves are installed in small areas, either appropriately small stoves should be selected, or methods for circulating the heat out of the room must be provided.

Whatever your specific individual heating requirements, be realistic about your goals and be flexible in how you attain them. Your local Vermont Castings Authorized Dealer is an expert resource for all your questions on selecting the best stove for your needs.

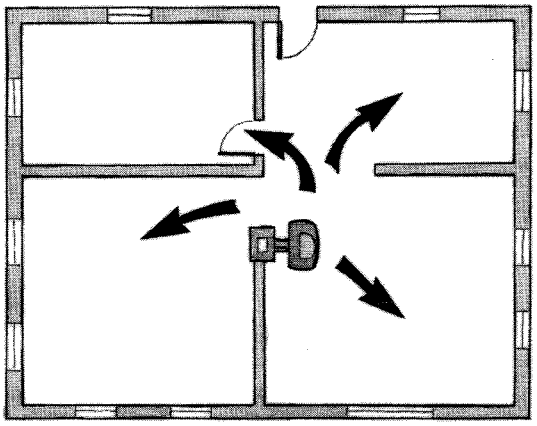


FIGURE 1.
A centrally located stove will most effectively utilize existing air circulation to heat all rooms on one floor and possibly upper levels.

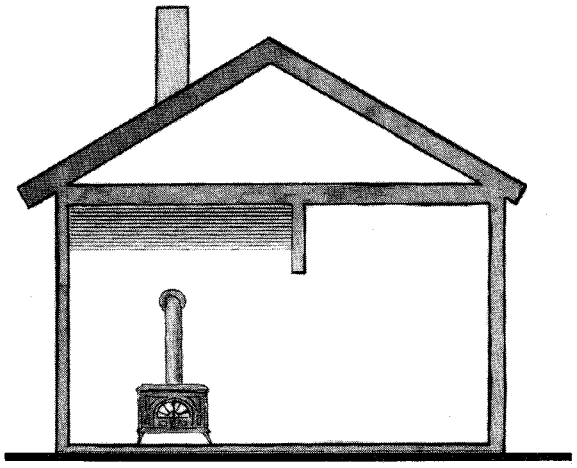


FIGURE 2.
High ceilings and room walls prevent air movement and form "heat lakes". Temperatures at the floor level and in other rooms will be cool.

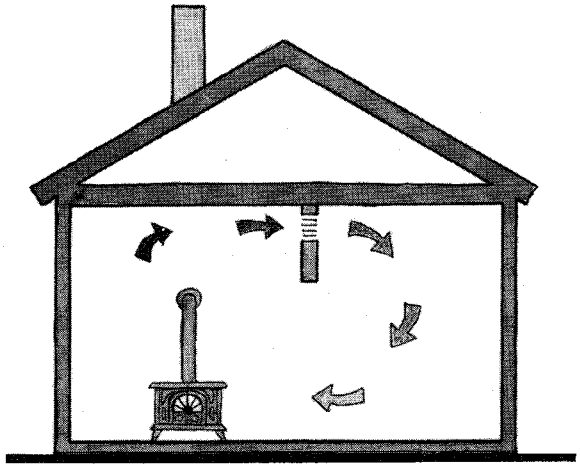
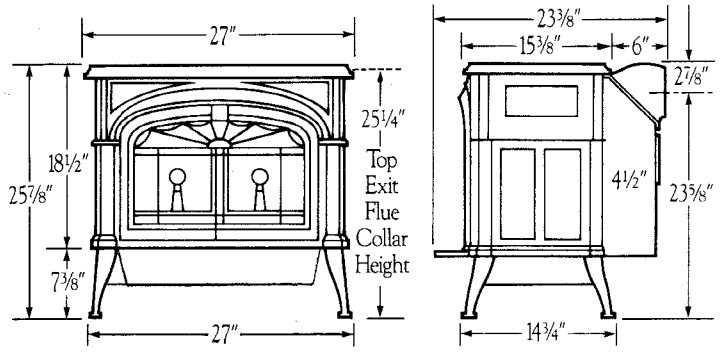


FIGURE 3.
Registers installed in walls or ceilings will encourage good air circulation and promote even heating around the house.

Vermont Castings stoves are available in five models, each representing a different size. A sixth model, the FirePlace Insert, is especially designed for fireplace installations. The model you choose will be the one that has a heating capability closest to your home heating requirements. Keep in mind one general rule: For best performance, it is best to choose a stove slightly smaller than you need rather than one that is larger than you need.

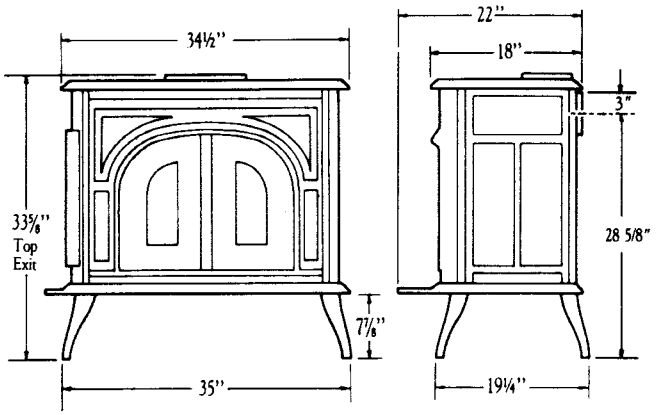
THE DEFIANT ENCORE™

Named after the first Vermont Castings stove to revolutionize the way people heated their homes, the Defiant Encore is considered by some experts to be the finest engineered stove available today. Whether your concern is cutting down on the amount of fuel burned or minimizing emissions that leave your chimney, or both, the Defiant Encore offers the sophisticated high-efficiency technology you'll need. Other great features include a large, specially designed, super-clean glass area for fire viewing, and a swing-out ash pan that just may be the most convenient design on the market. The Defiant Encore provides up to 47,000 BTU's per hour for heating up to 8500 cubic feet, and will hold 18" logs that may be loaded through the front as well as the top.



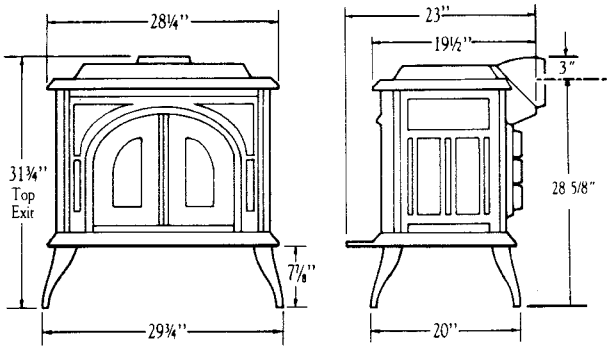
THE DEFIANT®

The Defiant is the largest model offered by Vermont Castings. It is a good choice for a central location in large, open areas, or in large rooms with high ceilings. The Defiant holds long logs — up to 24 inches — so you'll handle fewer pieces of wood in the course of a winter. You'll enjoy the greatest degree of re-fueling convenience with the Defiant, with top, side, or front loading. The largest Vermont Castings heater will produce up to 60,000 BTU's per hour to heat up to 10,000 cubic feet. (Room height X length X width =cubic feet) Available in Classic Black only, the Defiant burns wood logs only. Many people heat their entire homes with a Defiant. As with all Vermont Castings stoves, a firescreen is included.



THE VIGILANT®

The Vigilant is the favorite of many as a primary source of heat, even in northernmost climates. It is capable of heating all or part of an average-sized home through all but the coldest weather. (Many Vigilant owners have reported that they don't require an additional heat source unless a prolonged, sub-zero cold spell occurs) The Vigilant loads conveniently through the top as well as the front, takes 18 inch logs, and has doors that open for a view of the fire. It has the power to produce up to 50,000 BTU's per hour to heat up to 8,500 cubic feet of living space. The Vigilant comes standard in Classic Black or in any of seven handsome optional enamel colors.

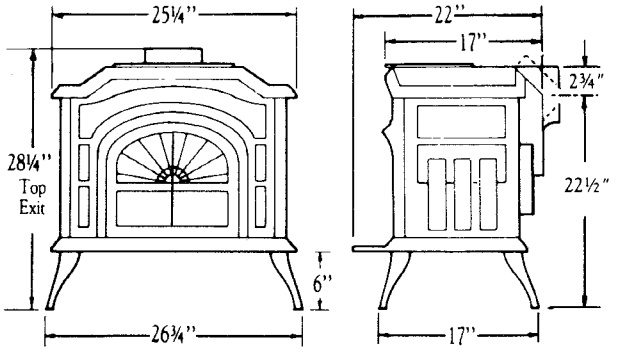


THE VIGILANT® COAL STOVE

The Vigilant Coal Stove is endowed with all the favorite features of the traditional Vigilant with some great new convenience features added: the ability to burn wood or coal in the same stove without a special conversion, a removable ash pan, an extra-rugged, firebrick-lined combustion chamber, and an improved easy-service interior design.

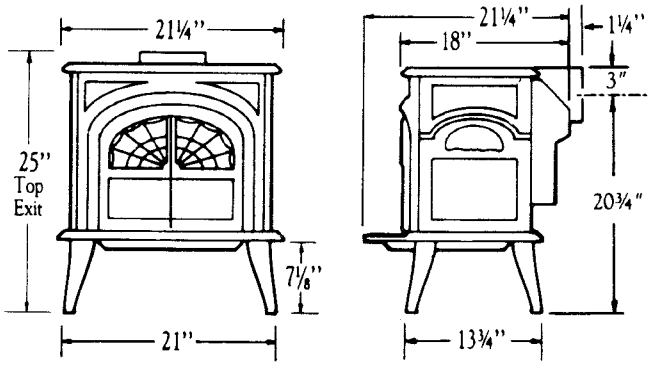
THE RESOLUTE®

Possibly the most popular cast iron stove in America, the Resolute is the frequent choice in smaller vacation homes, or in homes that require more than one stove. Its compact size and aggressive heating capability make it perfectly suited for homes with smaller sized rooms that are spread out: a Resolute on each end of the floor plan can provide whole-house heating that would be impossible with a single stove, regardless of size. Like the Defiant and the Vigilant, the Resolute loads conveniently through the top griddle and has front doors that open for a view of the fire. It will accept up to 16 inch logs and produce up to 40,000 BTU's per hour. That's enough to heat up to 7,000 cubic feet. When burning coal, the Resolute holds 32 pounds, and produces up to 35,000 BTU's per hour to heat up to 6,000 cubic feet. The Resolute comes standard in Classic Black. Any of seven porcelain enamel colors is available as an option.



THE INTREPID®

The Intrepid is a specialty stove, designed for the single room or a new home addition. Its diminutive size ensures that it won't take up too much room. At the same time, it will produce a generous 25,000 BTU's per hour to heat an area up to 4,500 cubic feet when burning wood. (Up to 20,000 BTU's per hour and 3,500 cubic feet when burning coal. The Intrepid takes 16 inch logs, can hold up to 53 pounds of coal, has clean glass door panels as well as doors that open, and may be purchased in any of the seven porcelain enamel colors as well as Classic Black.

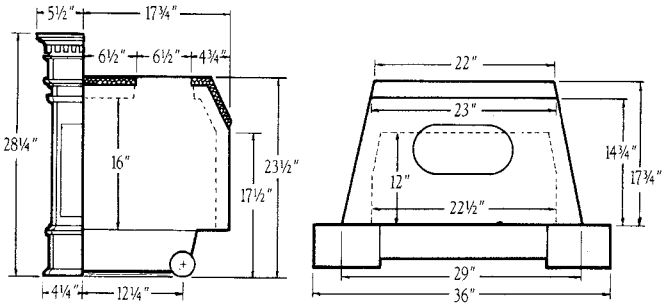


THE FIREPLACE™ INSERT

The FirePlace Insert is made especially for fireplaces. It is a completely self-contained combustion unit that recesses neatly inside the fireplace cavity. Once installed, a FirePlace Insert transforms a drafty, heat-losing fireplace into an efficient heater without losing the charm of the dancing flames.

The FirePlace Insert has large glass doors that stay clean for a view of the fire, and twin fans — adjustable by a variable speed control — to send a steady, soothing flow of warm air into the room. A removable ash pan conveniently simplifies the cleaning job.

The FirePlace Insert burns 18 inch wood logs and, with the necessary option, anthracite coal. It will produce up to 40,000 BTU's per hour to heat an area up to 7,000 cubic feet, and is available in Classic Black, Antique Green enamel, Antique Brown enamel and Midnight enamel with Brass Door Trim.



Vermont Castings stoves are among the finest made anywhere in the world today. Each offers you a truly outstanding collection of great features:

- Seven exciting enamel colors for unlimited decorating flexibility
- Fireviewing as well as airtight efficiency gives you the best of both worlds
- Different sized models mean a size that's just right for your needs
- Handcrafted design, cast iron construction for beauty, safety, durability
- Use freestanding or as a fireplace for numerous installation possibilities
- Cook food on the griddle or over the coals and experience the pleasures of traditional cookery
- Thermostatically controlled heat for steady, even warmth
- Top or front loading for convenient refueling with minimum effort
- Many complementary options to enhance your enjoyment and increase your energy independence

Specifications

Italicized Figures Pertain to Coal Models

FEATURES	DEFIANT ENCORE™	DEFIANT®	VIGILANT®	RESOLUTE®	INTREPID®	FIREPLACE™ INSERT
MAXIMUM HEAT OUTPUT* (BTU/HR.)	47,000	60,000	50,000 *50,000*	40,000 *35,000*	25,000 *20,000*	40,000 *50,000*
AVERAGE AREA HEATED (SQ. FT.)	950-1900	1200-2400	1000-2000 *1000-2000*	800-1600 *700-1400*	500-1000 *400-800*	800-1600 *1000-2000*
HEIGHT	26½"	33¾"	31¾"	28¼"	25"	Fits Fireplace Opening of: 23¾
WIDTH	27"	35"	29¾"	26¾"	21¼"	29½" FRONT 22¼" REAR
DEPTH	21"	19¼"	20"	17"	13¾"	18"
HEIGHT WITH SHORT LEGS	24 5/8'' On Plinth	28"	28"	23"	21"	N/A
FUEL CAPACITY (LBS.)	40	65	55 *45*	45 *32*	22 *22*	30 *53*
SIZE & TYPE OF FUEL	18" Wood Logs	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 or Front	Top, Side, or Front	Top or Front	Top or Front	Top or Front	Front
FLUE SIZE	8"	8"	8"	6"	6"	8"
FLUE EXIT POSITIONS	Reversible Top or Rear	Top or Rear	Reversible Top & Rear	Reversible Top & Rear	Reversible Top & Rear	Top
PRIMARY AIR CONTROL	Thermostat	Thermostat	Thermostat	Thermostat	Thermostat	Thermostat
STOVE WEIGHT (LBS.)	350	354	295 *425*	253 *306*	200 *225*	425 *411*
PORCELAIN ENAMEL FINISH	Optional	N/A	Optional	Optional	Optional	Optional
GLASS DOOR PANELS	Standard	N/A	Standard	Standard	Standard	Standard
DOMESTIC WATER HEATER	N/A	Optional	Optional	Optional	N/A	N/A
ASHPAN	Standard	N/A	N/A *Standard*	N/A *Standard*	Standard *Standard*	Standard
MOBILE HOME COMPONENTS	N/A	N/A	N/A	Optional	Optional	N/A
OUTSIDE AIR DUCT	N/A	Optional	Optional	Optional	Optional	N/A
REAR & BOTTOM HEAT SHIELDS	Optional	Optional	Optional	Optional	Optional	Mantel Only

**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.*

2 Stove Combustion Principles

Most people today give little or no thought to the process that heats their home or office. Concern ends with the thermostat, and the reassurance that a slight movement of the control in the right direction will result magically in an immediate response from the furnace hidden in the bowels of the basement below.

Those who burn wood, on the other hand, are quick to learn that one of the appealing things about heating with solid fuels is the intimacy that is required between the stove and its tender.

A crackling fire on the hearth has long symbolized a feeling of contentment and relaxation, and at least one study has been conducted by a psychiatrist to document the positive emotional effects that occur when people take direct responsibility for keeping themselves warm.

As a stoveowner, you will enjoy not only the hands-on control of your own comfort, but the added satisfaction of actually understanding the entire process as well.

The Combustion Process

Fire is the result of combining three essential ingredients: *fuel, oxygen,* and *heat.* The best *fuel* for a Vermont Castings' stove is dry hardwood, although dry softwood may be used as well. Oxygen is supplied from the air surrounding the stove and, in some cases, from air ducted in from the outside (more on using outside air later). The third ingredient of fire, *heat,* is introduced into the stove with a match to ignite the kindling and newspaper. The heat is then transferred to the small kindling wood you are using to build the fire, and eventually to the small logs that are added when the kindling is well-established. A thick bed of coals will be needed to supply the heat to keep the fire going, and this will begin to form an hour or two after starting the fire.

The best made stoves, like those from Vermont Castings, are "air-controlled." By controlling the supply of air, the stove operator is able to maintain a fire of the proper intensity to give the amount of heat needed. Previously, the term "airtight" was widely used in place of "air-controlled." However, that term is slightly misleading, since no stove can be airtight in the literal sense. In contrast to stoves that are air-controlled, there are some that are poorly designed and allow air to leak through the seams and fittings so that the stove operator has little control over the rate of combustion.

Wood: The Traditional Fuel

Of the three ingredients needed for a wood fire, the fuel is the least constant; and since the type, quality, and chunk-size of wood used can affect your stove's performance, it is a subject worth some discussion.

Burn dense hardwoods if possible, since they contain the most potential heat. Less dense hardwoods as well as soft woods will produce just as much heat as dense hardwoods, but the fire won't last nearly as long and you will put a lot more pieces into the stove in the course of a winter.

Burn dry wood if possible, since it will ignite and burn more readily. The same is true of the degree of fineness to which the wood is split. Wood that has been cut, split, and stacked for six months will be considerably drier than wood recently cut. Wood that has dried a year is ideal. The drier your wood, the happier you will be with the performance of your stove.

Do not burn wood that has been painted or chemically treated, as it can give off noxious fumes.

Coal As An Alternative

One of the many advantages of a Vermont Castings stove is its fuel versatility: with the appropriate coal components installed, you can burn coal as well as wood in most models. This flexibility enables you to take advantage of the price and availability of fuel supplies in your area.

While specific operating techniques may vary slightly from model to model . . . . they may even vary between different installations of the same model . . . . the general principles remain the same. Burn only high quality anthracite (hard coal). The right fuel will ensure you of a clean, efficient burn. Do not burn bituminous (soft) coal, as it will not burn cleanly.

Coal may be purchased in different sizes, and you may use pea, nut, or stove-sized coal in your Vermont Castings stove. (Remove the magazine to burn stove coal) Buy some coal of each size in 50 pound bags initially and experiment to determine which size works best in your installation. Also experiment with different throat settings on your stove's magazine. Once you have determined what works best, you can buy a larger quantity of the size coal you need.

Ask your coal dealer to supply you with an analysis of the coal he sells to determine the ash content. Normally, an ash content of from 8 to 10% is normal for American anthracite. Anthracite with a low ash content will produce less ash that must be cleaned from the grates and emptied from the ash pan.

3 Chimneys & Draft

In function, the chimney is the final (and usually longest) part of the pathway for hot smoke and exhaust gases as they leave the stove to exit outside the home.

Hot gases rise. As they rise in the chimney they create a force, and draft is the measure of that force. Draft draws air into the stove through the air inlet, and carries smoke and exhaust gases to the outside.

A safe chimney is one in good repair so that hot gases, smoke, and flames cannot leak from the chimney and overheat combustible material nearby. All combustible material must be at least 2" from the outside of the chimney unless local codes, or installation instructions for manufactured chimneys, allow less.

If you are planning to install a chimney, an interior location is preferred. Exhaust gases will stay warmer and the resulting draft will stay stronger in an interior chimney than in one located on the outside of the house. Generally, an interior chimney will give better performance and require less maintenance than one on the outside, and these advantages more than compensate for the small amount of interior living space the interior chimney will occupy. (FIGURE 4).

To achieve satisfactory results when using an exterior chimney, it is sometimes necessary to burn the stove hotter, or to operate it with the draft damper open more regularly, than would be necessary with a stove connected to an interior chimney.

For proper draft and optimum performance, the chimney should extend at least 14 feet above the flue collar of the stove.

A new masonry chimney should be constructed to conform to the standards of your local building code, if there is one, or to a recognized national code. Masonry chimneys must be lined with either a code-approved masonry or pre-cast refractory tiles, stainless steel pipe, or a code-approved, poured-in-place liner. The chimney must have a tight-sealing cleanout door.

A new prefabricated metal chimney should be tested and listed for use with solid fuel-burning appliances. Some types of prefabricated metal chimneys have interior walls constructed of metal especially chosen for use with coal-burning stoves. If you plan to burn coal in a stove connected to a prefabricated metal chimney, be sure it is a chimney designed for this use.

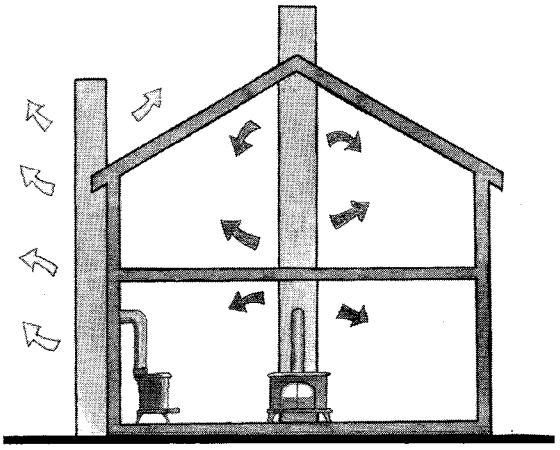


FIGURE 4.
An exterior chimney will lose heat to the outdoors. Cold outside temperatures can promote creosote accumulation and physical deterioration.
An interior chimney will help warm the house and require less maintenance.

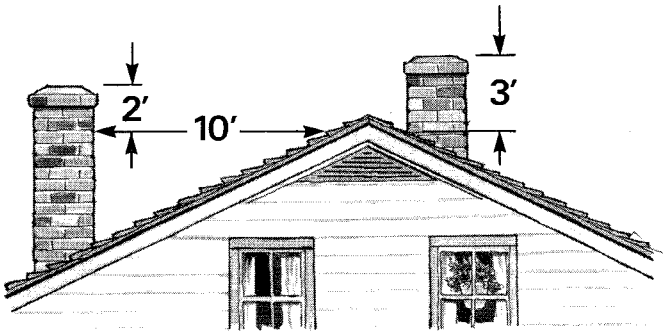


FIGURE 5.
A chimney should extend at least 3 feet above the highest point where it passes through a roof, and at least 2 feet higher than any portion of a building within 10 feet.

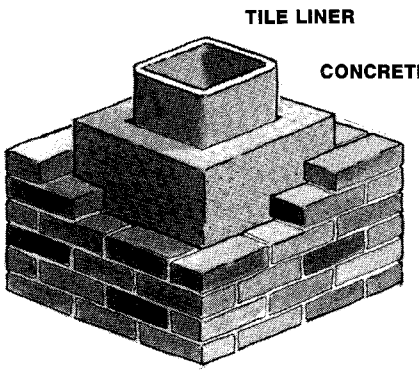


FIGURE 6.
Standard masonry chimney construction.

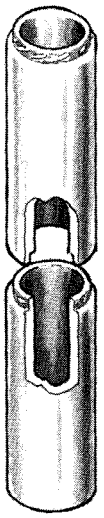


FIGURE 7.
Stainless steel, double-wall, prefabricated chimney. A densely-packed layer of insulation keeps flue temperatures hot and exterior temperatures cool.

Chimney Size:
Prefabricated Metal Chimneys

Prefabricated metal chimneys for the Defiant, Defiant Encore, and Vigilant should be 8" in diameter, inside dimension. For the Resolute and Intrepid, the chimneys should be 6" or 8" in diameter, inside dimension.

Masonry Chimneys

Square or Rectangular Liner Size		Round Liner Size
All Stoves:	8" X 8" or 8" X 12" (nominal)	**Defiant Encore/ Defiant/Vigilant:** 8" interior dimension **Resolute/Intrepid:** 6" or 8" interior dimension

Chimneys with openings larger than 8" X 12" may experience rapid cooling of smoke and reduction in draft, especailly if they are located outside the home. These large chimneys may need to be insulated or the flues re-lined for good stove performance. Vermont Castings offers chimney lining accessories to help make the connection between stainless steel chimney and the Vermont Castings heaters.

Existing Chimneys

You may be able to use an existing masonry chimney, but be sure to have it carefully inspected before using it. If you are not sure you can make the inspection yourself, your local professional chimney sweep, building inspector, or fire inspector will be able to make the inspection or direct you to someone who can. The chimney should be thoroughly cleaned before being used with your stove.

Here are a few things to look for when evaluating an existing chimney: (FIGURE 8).

First, check to see that the chimney has a lining. If none is evident, consult your local stove dealer for information about approved chimney lining systems. In addition, look for and make any necessary corrections of the following:

A. *Inadequate chimney height*
B. *Deteriorated chimney cap*
C. *Structural defects, indicated by creosote stains on the outside of the chimney*
D. *Blockage within chimney*
E. *Improper clearance between chimney and nearby combustible material (usually 2", check local codes)*
In a fireplace chimney . . . . .
F. *Improper clearance between smoke chamber and nearby framing material (usually 2", check local codes)*
G. *Creosote accumulation on smoke shelf*
H. *Structural deterioration*
I. *Loose or broken bricks or mortar*
J. *Loose or broken cleanout door*

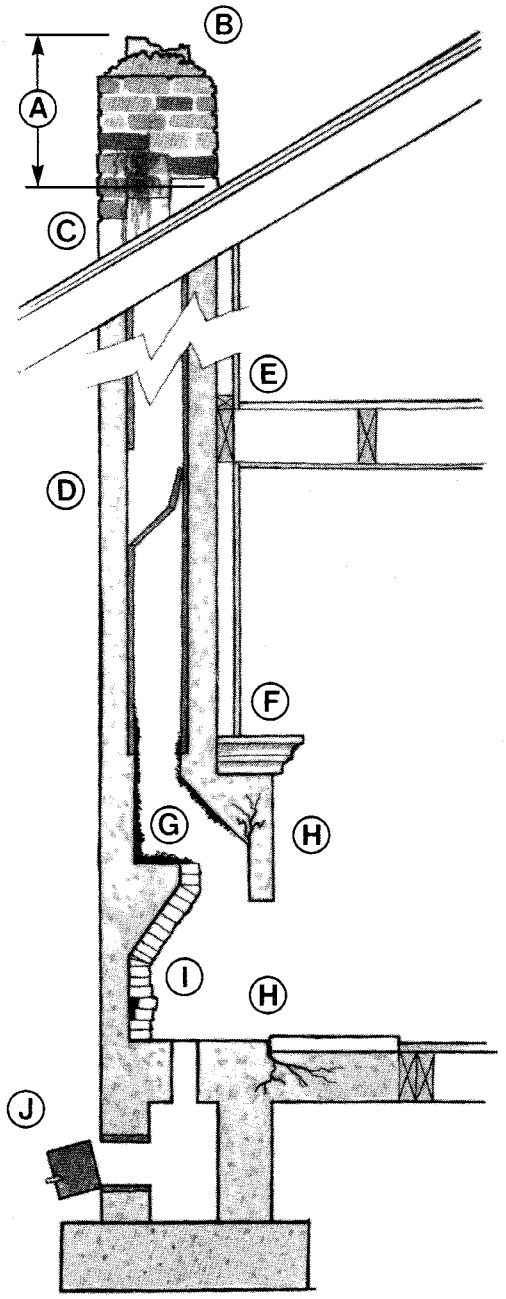


FIGURE 8.
Possible hazards in an existing masonry chimney.

Note: Existing masonry chimneys, especially older ones, may have two or more thimbles located in different rooms and on different floors of the house. Unused thimbles should be sealed with masonry to the thickness of the chimney wall. Unused thimbles sealed any other way are a hazard.

DO NOT CONNECT YOUR STOVE OR FIREPLACE INSERT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE

4 Chimney Connectors: The Vital Link

The stovepipe/chimney connector should be made of 24 gauge or thicker sheetmetal, and should be 8" in diameter for the Vigilant, Defiant, and Defiant Encore, or 6" in diameter for the Intrepid and Resolute. The first section of the chimney connector should be screwed to the flue collar of the stove. Individual sections of the chimney connector must be screwed together with at least three sheet metal screws. The last section should be securely attached to the chimney. In addition, the following rules should be observed:

- The chimney connector should be as short and direct as possible, with no more than two 90° turns.
- A horizontal run of stovepipe should be no longer than 8 feet. A vertical run of stovepipe to a prefabricated metal chimney should be no longer than 8 feet as well. In cathedral ceiling installations, the prefabricated chimney can be brought down to within 8 feet of the stove.
- Never pass a chimney connector through a combustible ceiling. (FIGURE 10).
- Do not pass the chimney connector through a combustible wall if it can be avoided. If this cannot be avoided, be sure that this part of your installation conforms to your local building codes*. (FIGURE 11).
- The entire chimney connector should be exposed and accessible for inspection and cleaning.
- Galvanized stovepipe should not be used. When exposed to high temperatures, galvanized pipe may release toxic fumes.
- Horizontal runs of chimney connectors should slope upward ¼" per foot going from the stove toward the chimney.

Note: An exception to the above rules occurs when the Resolute or Intrepid is installed in a mobile home. In such cases, the only acceptable chimney connector is a double-walled, ventilated chimney connector manufactured by Security Chimneys, Ltd.

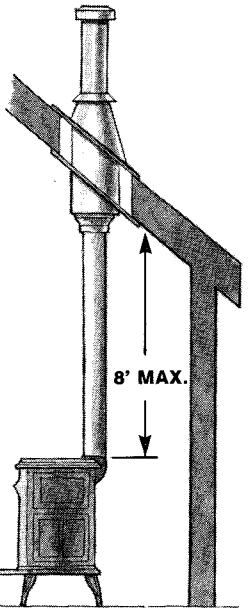


FIGURE 9.
Installations with cathedral ceilings commonly use a "roof-support package" to join the chimney to the chimney connector.

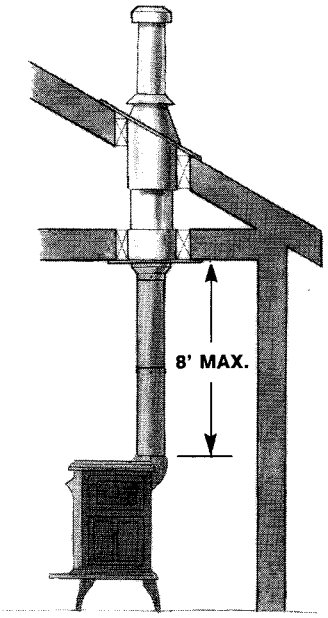


FIGURE 10.
A "ceiling-support package" is used to form a safe chimney connection through a combustible ceiling.

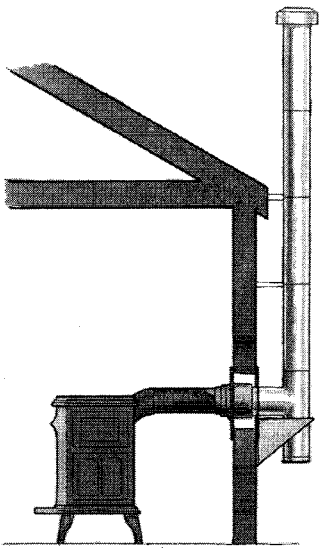


FIGURE 11.
Prefabricated wall pass-throughs are available that are specifically designed and listed for use in joining the chimney to the chimney connector through an exterior wall or for passing a chimney connector through an interior wall.

***Wall Pass Throughs**

The National Fire Protection Association Standard 211-1984 states that a chimney connector may pass through a combustible wall if:

1. The connector is made of sections of a factory-built chimney (not single wall stovepipe) and installed in accordance with the listing and the manufacturer's instructions. Be sure any accessory used for a wall pass-through is tested and listed for *exactly* this purpose. Do not use an accessory designed for some other purpose as a wall pass-through.

2. All combustible material in the wall or partition is cut away from the connector a sufficient distance to provide the required clearance for the connector. Any material used to close up the opening shall be non-combustible material.

5 Clearances: What They Are and Why You Need Them

As it applies to stove installations, the word "clearance" has a very specific and very important meaning: Clearance is the distance between your stove or stovepipe and any nearby combustible surfaces such as walls, ceilings, floors, furniture, curtains, etc. Inadequate clearance can result in a combustible material overheating and a possible safety hazard. And since like a lightbulb, a stove and its chimney connector give off heat in all directions, careful planning is necessary to ensure adequate clearance from all adjacent surfaces.

Firewood that has been recently cut is said to be green and will not ignite easily because it contains a high level of moisture. Leave it under cover in a sunny spot for a year and it will burn much more readily. The same principle is at work in the wood that makes up the floor beneath a stove or a nearby wall when inadequate clearances exist: The ignition point can be driven lower by constant exposure to the stoves heat, and a possible overheating could eventually occur.

When properly installed according to the directions, however, your stove will be perfectly safe. All Vermont Castings' stoves have been thoroughly tested by independent laboratories to determine safe clearances. These clearances are listed in the Clearance Chart in this booklet and in the literature that is packed with your stove. When the clearances given in the Clearance Chart are maintained and the recommended installation, operation, and maintenance procedures are followed, you won't need to worry about combustible materials near your stove.

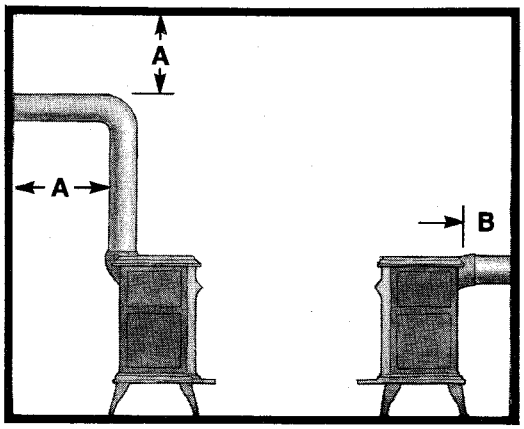
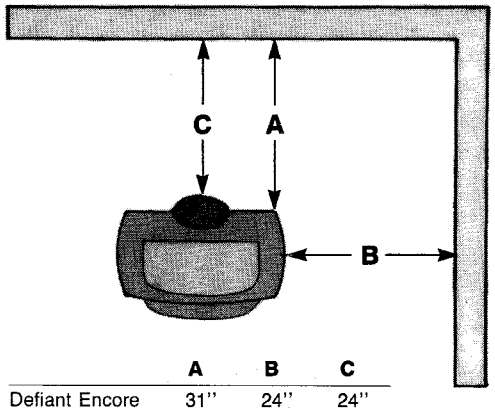


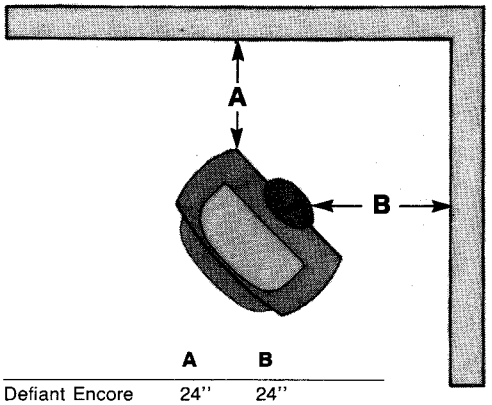
FIGURE 12.
In Top-Exit installations, clearance between combustible surfaces and the chimney connector (A) are often the limiting factor in determining stove position.
In most Rear-Exit situations, the only relevant clearance is between the stove (measured from the top plate) and the closest combustible surface (B).

FIGURE 13.
Minimum Clearance to Rear & Side
(with no protection)



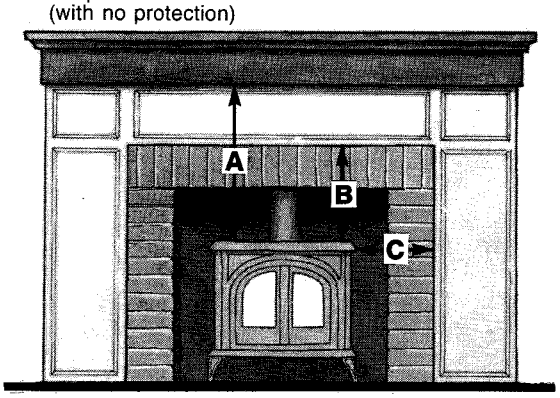
	A	B	C
Defiant Encore	31"	24"	24"
Defiant	36"	36"	22"
Vigilant	36"	36"	22"
Resolute	30"	24"	23"
Intrepid	30"	24"	25"

FIGURE 14.
Minimum Clearance to Corners
(with no protection)



	A	B
Defiant Encore	24"	24"
Defiant	36"	22"
Vigilant	36"	22"
Resolute	30"	23"
Intrepid	20"	25"

FIGURE 15.
Fireplace Clearances
(with no protection)



	A	B	C
Defiant Encore	39"	39"	10"
Defiant	36"	36"	18"
Vigilant	36"	36"	18"
Resolute	36"	36"	18"
Intrepid	30"	24"	15"

6 Clearance Reductions:

Following the stated clearances will give you a safe installation. However, when sufficient space is not available to achieve required clearances, special protective heat shields and wall shields may be employed to make safe clearance reductions.

Vermont Castings black or brass-plated heat shields attached to the rear of the stove or stovepipe allow reductions in clearance. (See accompanying chart.) (Clearance reductions are the same whether you use black or brass-plated heat shields). Mounted about 2" in back of the stove or stovepipe, these shields are left unpainted on the side facing the stove or pipe. This enables the shield to reflect heat away from combustible materials behind the stove.

DEFIANT®		UNPROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	36"	36"	36"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	36"	23"	18"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	36"	10"	18"
	WITH STOVE & STOVEPIPE HEATSHIELDS	36"	10"	18"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	22"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	10"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 36"	TOP TRIM B 36"	SIDE TRIM C 18"

RESOLUTE®		UNPROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	24"	30"	30"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	24"	25"	18"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	24"	10"	18"
	WITH STOVE & STOVEPIPE HEATSHIELDS	24"	10"	12"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	23"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	10"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 36"	TOP TRIM B 36"	SIDE TRIM C 18"

DEFIANT ENCORE™		UNPROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	24"	31"	24"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	24"	31"	24"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	24"	19"	24"
	WITH STOVE & STOVEPIPE HEATSHIELDS	24"	19"	17"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	24"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	12"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 39"	TOP TRIM B 39"	SIDE TRIM C 10"

VIGILANT®		UNPROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	36"	36"	36"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	36"	25"	18"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	36"	10"	18"
	WITH STOVE & STOVEPIPE HEATSHIELDS	36"	10"	18"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	22"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	7"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 36"	TOP TRIM B 36"	SIDE TRIM C 18"

INTREPID®		UNPROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	24"	30"	20"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	24"	30"	20"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	24"	13"	20"
	WITH STOVE & STOVEPIPE HEATSHIELDS	24"	13"	12"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	25"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	9"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 30"	TOP TRIM B 24"	SIDE TRIM C 15"

Wall shields surrounding the stove will also allow clearance reductions. Wall shield sizing charts and construction details are given in the *Installation Planning Guide*. The greatest clearance reductions are possible when wall shields as well as heat shields for the stove and stovepipe are employed.

Note: Non-combustible materials such as brick or tile applied directly to combustible walls **do not** provide adequate protection for the clearance reductions given in our Vermont Castings clearance charts. Heat will pass through the brick or tile to the wood framing members behind it. To use the clearance reductions in the charts, ventilated air space is necessary.

The information provided in this booklet is to familiarize you with the concepts and possibilities of clearance reduction. Before installing your stove, be sure to study the clearance reduction information that is provided in the *Installation Planning Guide* as well as in the specific Operation Manual for your stove.

DEFIANT®		PROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	14"	18"	14"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	14"	18"	10"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	14"	6"	10"
	WITH STOVE & STOVEPIPE HEATSHIELDS	14"	6"	10"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	10"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	7"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 18"	TOP TRIM B 18"	SIDE TRIM C 12"

RESOLUTE®		PROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	8"	10"	12"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	8"	8"	12"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	8"	6"	12"
	WITH STOVE & STOVEPIPE HEATSHIELDS	8"	6"	6"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	8"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	4"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 18"	TOP TRIM B 18"	SIDE TRIM C 8"

DEFIANT ENCORE™		PROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	8"	15"	8"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	8"	15"	8"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	8"	11"	8"
	WITH STOVE & STOVEPIPE HEATSHIELDS	8"	17"	7"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	8"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	10"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 18"	TOP TRIM B 18"	SIDE TRIM C 8"

VIGILANT®		PROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	14"	10"	14"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	14"	10"	14"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	14"	6"	14"
	WITH STOVE & STOVEPIPE HEATSHIELDS	14"	6"	10"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	7"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	4"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 18"	TOP TRIM B 18"	SIDE TRIM C 12"

INTREPID®		PROTECTED WALLS & MATERIALS SIDE	REAR	CORNER
STOVE SURFACES MEASURE FROM TOP PLATE TO COMBUSTIBLES	WITH NO HEATSHIELDS	12"	16"	10"
	TOP EXIT WITH STOVE HEATSHIELDS ONLY	12"	16"	10"
	REAR EXIT WITH STOVE HEATSHIELDS ONLY	12"	9"	10"
	WITH STOVE & STOVEPIPE HEATSHIELDS	12"	9"	10"
CHIMNEY CONNECTOR MEASURE FROM STOVEPIPE TO COMBUSTIBLES	WITH NO HEATSHIELDS	11"		
	WITH STOVE & STOVEPIPE HEATSHIELDS	4"		
FIREPLACE INSTALLATION MEASURE FROM STOVE TOP TO MANTEL OR TRIM		MANTEL A 14"	TOP TRIM B 14"	SIDE TRIM C 10"

7 Floor Protection:
Why It Is Important and How To Provide It.

The floor under your stove needs protection from heat, sparks, and falling embers. The only exception is if your stove is installed on a noncombustible surface such as a bare, unpainted concrete basement floor with only dirt beneath it.

In most fireplaces (except basement fireplaces) the brick or concrete hearth in front of the fireplace opening is supported by heavy wooden framing. Bricks and concrete are not good insulators, so heat radiated to the floor under the stove and in front of the stove will pass through the hearth and reach the wooden supports. Floor protection can be provided by bottom heat shields and properly constructed decorative hearth pads.

For each Vermont Castings stove, with the exception of the Defiant Encore, the hearth should extend 12" (Encore; 8"), beyond the body of the stove on sides where there is no loading door, and 18" beyond the body of the stove on sides where there is a loading door. (The 18" measurement should be made from the body of the stove, not the ash lip.) The hearth should also extend under horizontal runs of stovepipe for the full length of the pipe. (FIGURE 16).

For 8" stovepipe, the hearth under the pipe should be 12" wide, centered under the pipe. For 6" pipe, the hearth should be 10" wide. Minimum hearth sizes for the individual stoves are given in the chart below:

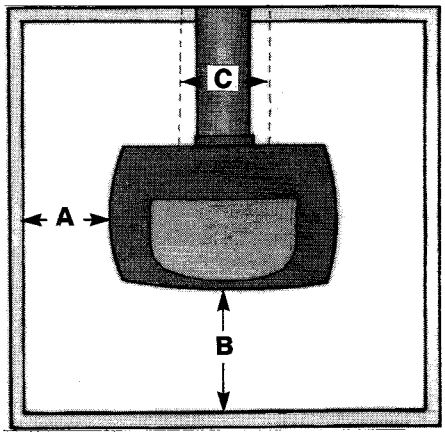
Defiant Encore:	46" wide x 44" deep
Defiant:	65" wide x 48" deep
Vigilant:	53" wide x 48" deep
Resolute:	52" wide x 46" deep
Intrepid:	46" wide x 46" deep

Existing hearths that do not meet the construction or size requirements may be modified by extending the existing hearth or by adding a floor protector over the hearth already there. The addition of bottom heat shields may also provide a solution to the problem.

Note: Since the Defiant requires a floor protector which extends 18" beyond the left end of the stove (because of the loading door), and only 12" beyond the right end, it cannot be centered on the minimum 65" X 48" floor protector. If you wish to center the Defiant on the floor protector, a 72" X 48" size will be required.

The FirePlace Insert has a different set of hearth requirements, and these may be found in the *FirePlace Insert Installation and Operation Manual.*

FIGURE 16.
Area of Floor Protection:



	A	B	C
Defiant Encore	8"	18"	12"
Defiant	18"	18"	12"
Vigilant	12"	18"	12"
Resolute	12"	18"	10"
Intrepid	12"	18"	10"

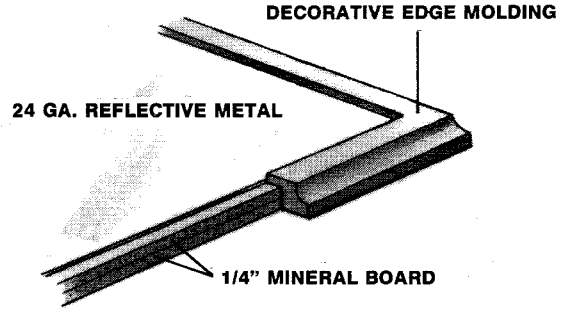
Customize Your Hearth

Whether you want to build your own floor protector or hire a contractor to do it for you, the following guidelines will help you to understand the range of possibilities.

Floor Protector Construction For A Stove With Regular Length Legs And No Bottom Heat Shield (FIGURE 17).

This floor protector should consist of two sheets of ¼" mineral board, covered by a sheet of 24 gauge or heavier reflective metal. (Copper, steel, or brass are some possibilities.) "Wonderboard," a manufactured non-combustible insulating board that is tested and listed for use with radiant stoves, is included in the listing by the testing lab for use as an alternative to two ¼" sheets of mineral board. (A reflective metal covering must still be used.) Check with your local building inspector for approval of use of Wonderboard or other substitutes for mineral board.

FIGURE 17.
Standard Hearth Construction
(with no Bottom Heatshield)



Floor Protector Construction For A Stove With Regular Length Legs When A Bottom Heat Shield Is Installed (FIGURE 18).

Installation of the Vermont Castings' Bottom Heat Shield allows a number of decorative hearth construction possibilities. This shield, attached about 1" below the stove, is unpainted on the side next to the stove and serves as a heat reflector. As a result, temperatures on the floor under the stove will stay much lower. When the bottom heat shield is used, the floor protector may consist of:

- 1" of stone, slate, tile, concrete, or any combination of these materials. Individual pieces should be mortared so sparks cannot fall through.

— or —

- One layer of common brick, 3½", mortared

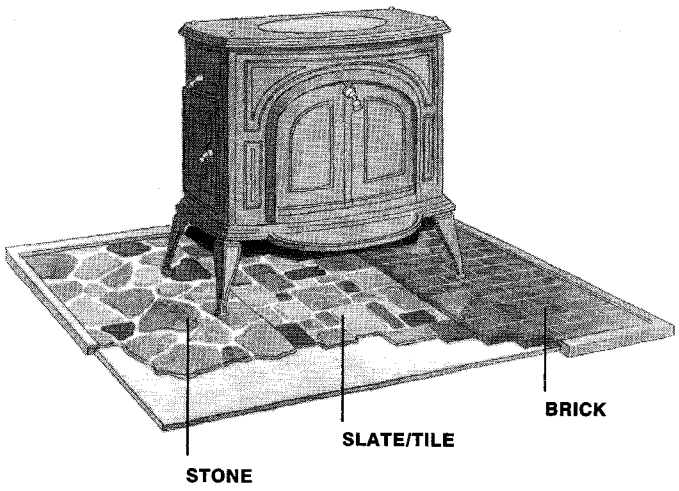
— or —

- One layer of ¼" mineral board, or any equivalent approved by your local building inspector, covered with any non-combustible material.

— or —

- A prefabricated floor protector tested and listed by an independent laboratory (such as UL) for use with radiant heaters.

FIGURE 18.
Use of a Bottom Heat Shield allows you to choose from a wide variety of attractive hearth materials.



Floor Protector Construction When Short Legs And Bottom Heat Shield(s) Are Installed

If the optional short (3") legs are used on your stove, greater protection of the hearth will be required than is necessary with the regular legs.

Bottom heat shields must be used, two with the Defiant and Vigilant and one with the Resolute and Intrepid. The floor protector may consist of:

- 1½" of stone, slate, tile, concrete, or any combination of these materials; individual pieces should be mortared together so sparks cannot fall through.

— or—

- One layer of common brick, 3½", mortared

— or —

- One layer of ¼" mineral board, or an equivalent approved by your local building inspector, covered by 1" of stone, slate, tile, concrete, or one sheet of 24 gauge sheet metal.

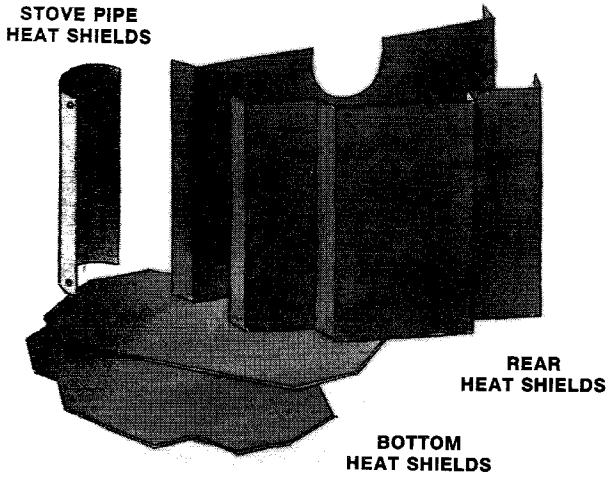
Note: Short legs may be used without bottom heat shields **only** if the stove is installed on a bare, unpainted, concrete or masonry floor that contains no combustible supports such as wooden framing.

8 A Guide To Vermont Castings Accessories

Vermont Castings offers a wide variety of accessories that will help to make your installation safe and attractive, and that will also simplify installation procedures.

Vermont Castings Heat Shields

Important clearance reductions are often possible when heat shields are attached to stoves and stovepipe. Vermont Castings offers brass-plated stove and stovepipe heat shield, and black stove, stovepipe, and bottom heat shields. The shields are installed with an air space between the stove (or stovepipe) and the shield. All installation hardware and complete instructions are included with each shield.



Vermont Castings Stovepipe

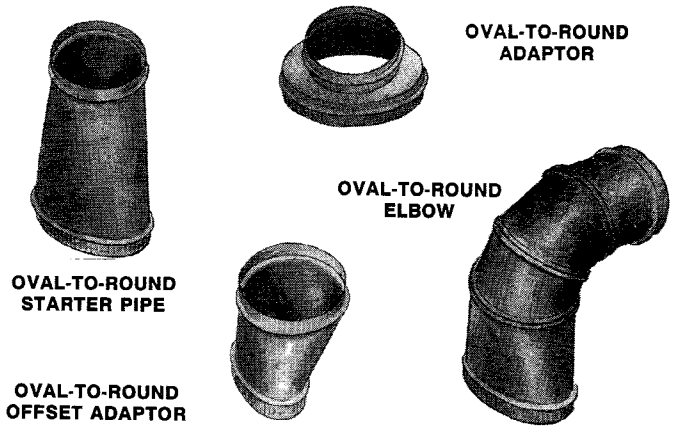
Stovepipe sections are uniform in appearance and fit together smoothly. They are completely assembled at the factory. Pre-drilled holes at the top of each section (except the double crimped section) simplify attaching the sections with screws.

All sections, except the double crimped and non-crimped sections, are crimped at the bottom and accept crimped sections at the top. The metal used in Vermont Castings stovepipe meets or exceeds thickness requirements of all state and local codes. All sections are engineered with permanent welded or hammerlock seams.

Slip pipes are used to form telescoping joints. Use of telescoping joints usually make it unnecessary to cut pipe to fit the installation, and also make it easy to assemble or disassemble the connector system for inspection and cleaning.

Vermont Castings Starter Pipes

The Defiant, Defiant Encore, and Vigilant have oval flue collars approximately 6" X 10". They use starter pipes to make the change from the oval shape of the flue collar to the round shape of standard pipe. To meet a variety of needs, Vermont Castings offers four starter pipes for use with the Defiant, Defiant Encore and Vigilant.



The **Oval-to-Round Starter Pipe** makes a gradual change in shape in 12". (Net length 11") Use as the first section of pipe from stove.

The **Oval-to-Round Adaptor** makes the change in 5" when a quick change in shape is needed. When this Adaptor is installed in the flue collar of a top-exiting stove and an adjustable 90 degree elbow is added, the top of the elbow will be 15" above the top of the stove. (Net length 5") (Not recommended as a starter piece)

The **Oval-to-Round Offset Adaptor** is straight on one side and offsets 2" on the other. When installed in the flue collar of a rear-exiting stove with the offset side down, the top of this Adaptor stays at the same level as the top of the flue collar. This is especially helpful when the connector pipe must pass into low fireplace openings. (Net length 7")

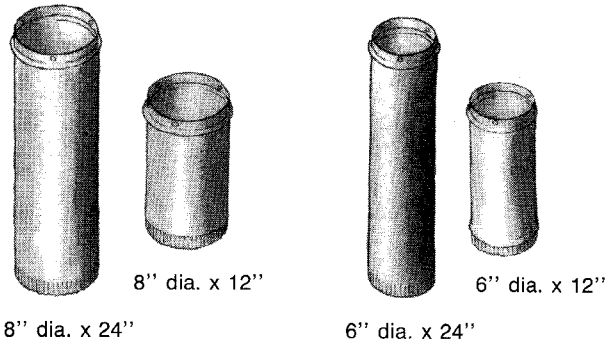
The **Oval-to-Round Elbow** combines the change in shape with a fixed 90 degree elbow. When installed in the flue collar of a top-exiting stove, the top of the elbow will be 14" above the top of the stove.

Resolutes have slightly oval flue collars. Standard black pipe can be ovalized by hand to fit the flue collar. Enamel pipe cannot be ovalized, so enamel starter pipes are used for the Resolute.

Intrepids have round flue collars, and do not need starter pipes.

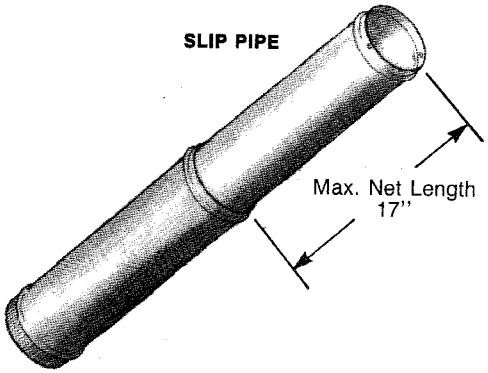
Vermont Castings Straight Pipe Sections

Straight stovepipe sections are available in 12" and 24" lengths, and in 6" and 8" diameters.



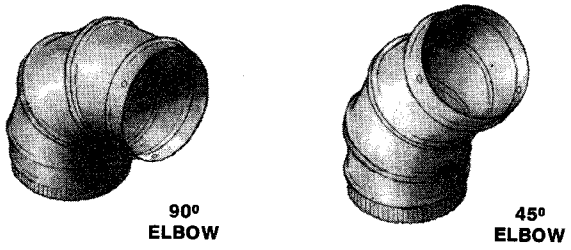
Slip Pipes

Slip pipes are used in horizontal or vertical runs of stovepipe when a telescoping joint will be helpful. The top of the pipe has the same shape as standard sections, but the barrel is smaller so it will slip easily into a standard section. By inserting the Slip Pipe varying distances into a standard section, the length of the chimney connector can be adjusted. Use of a telescoping joint eases the installation of the chimney connector. When it is time to disassemble the connector system for inspection or cleaning, the chimney connector may be shortened at the telescoping joint to permit easy disassembly.



Elbows

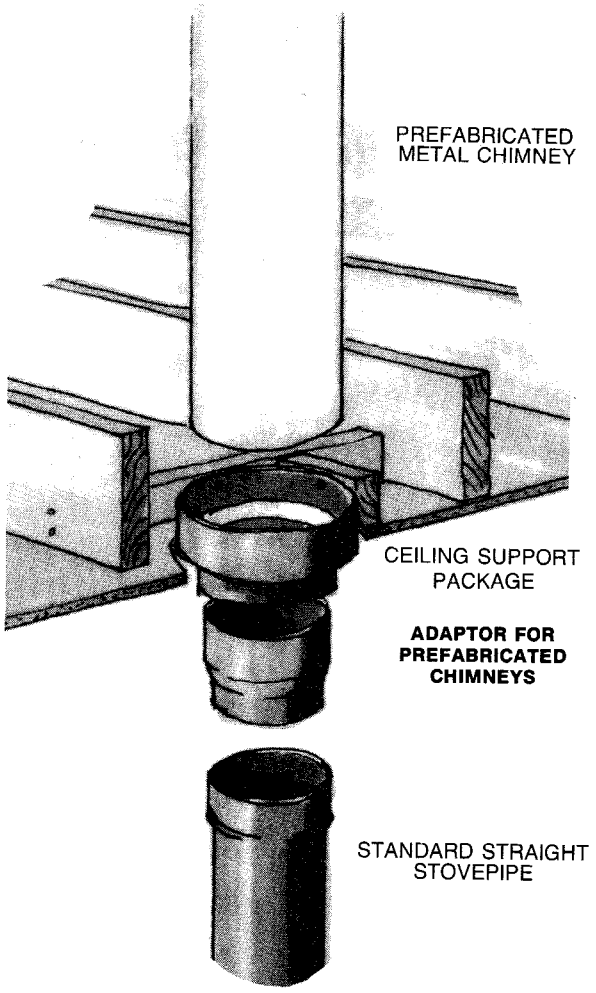
45 degree and 90 degree elbows are used to make a change in direction in the chimney connector. The black elbows are adjustable. The enamel elbows are fixed.



Adaptor for Prefabricated Metal Chimneys

This Adaptor makes the connection between a prefabricated double-wall insulated chimney with walls approximately 1" thick, and the single wall chimney connector. The top of the Adaptor is secured directly to the prefabricated chimney in cathedral ceiling installations. It is screwed to the ceiling support package in installations where the chimney is supported at the ceiling. The chimney connector is screwed to the bottom of the Adaptor in both installations.

The Adaptor fits outside the inner wall of the chimney and inside the chimney connector. Deposits falling from the inside of the chimney are funnelled inside the chimney connector.



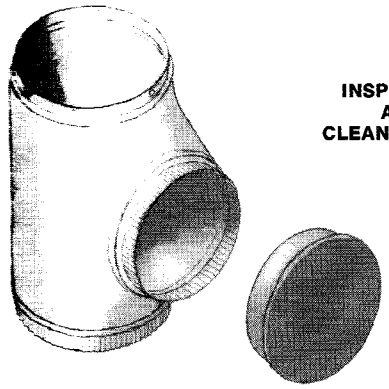
Thimble Sleeve

The Sleeve is used to make a connection between the chimney connector and a masonry chimney. It is slightly smaller in diameter than standard stovepipe and most chimney thimbles. It is inserted into the chimney thimble until it is flush with the inner face of the flue liner. The last section of the chimney connector is screwed to the sleeve.

Inspection and Clean-Out Tee

The Tee is installed at a convenient height in a vertical run of stovepipe. The cap on the Tee is removable to provide easy access to inspect the connector. If the chimney extends straight up from the connector, the whole system may be inspected.

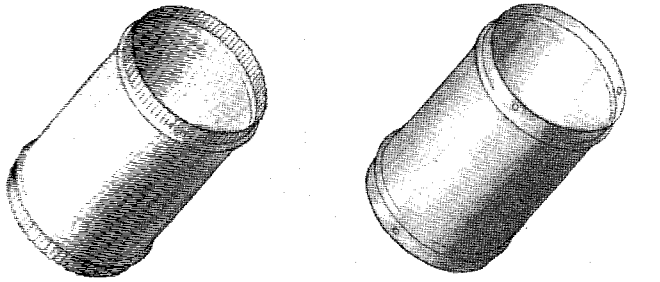
In the 8" size, a chimney brush mounted on flexible rods will fit through the Tee, so the chimney may be cleaned from inside the house.



INSPECTION AND CLEAN-OUT TEE

Non-Crimped and Double-Crimped Sections

Most stovepipe sections will be installed with the crimped end pointing down. In a few special cases, it may be necessary to reverse the direction of the crimp. Double-crimped and double non-crimped pieces are available in 6" and 8" sizes.

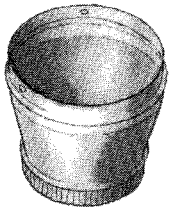


DOUBLE-CRIMPED STOVEPIPE

NON-CRIMPED STOVEPIPE

6" to 8" Increaser

When stoves are connected to existing stovepipes and chimneys, it is sometimes necessary to increase the size of the stovepipe. The 6" to 8" increaser is designed to connect 6" stovepipe to 8" stovepipe or 8" chimney thimbles. We do *not* recommend making any reductions in any part of the chimney connector or chimney.



6" to 8" INCREASER

Vermont Castings Fireplace Chimney Connection Systems

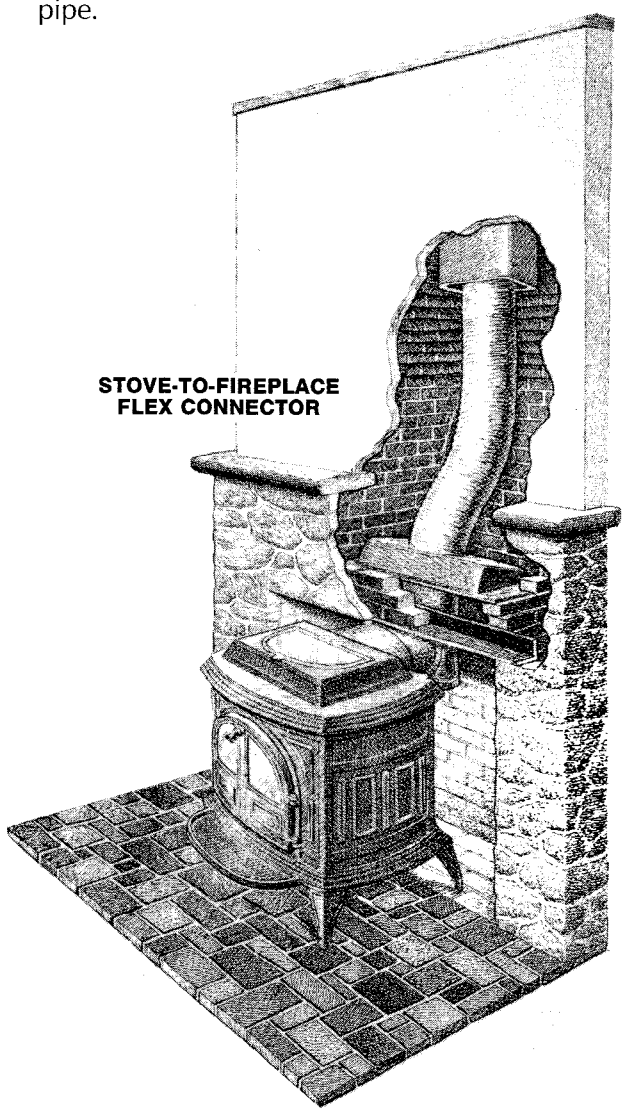
Existing masonry fireplace chimneys are often used to vent stoves and fireplace inserts. Vermont Castings offers components to make a safe efficient connection between a stove installed on a fireplace hearth, or a fireplace insert installed in the fireplace opening.

Stove-to-FirePlace Flex Connector

The Vermont Castings Stove-to-FirePlace Flex Connector is used when a stove that is installed on a fireplace hearth is vented through the fireplace opening. It ducts smoke past the damper opening and smoke chamber of the fireplace to the chimney.

Made of flexible stainless steel, it can be formed to the required curves as it passes from the stove to the chimney. It is ovalized so it will pass through narrow (4½") damper openings.

The stove is connected to a 6" or 8" collar near the base of the Connector. The cover on the bottom end of the Connector can be removed to empty any soot or ash that falls to the bottom of the pipe.

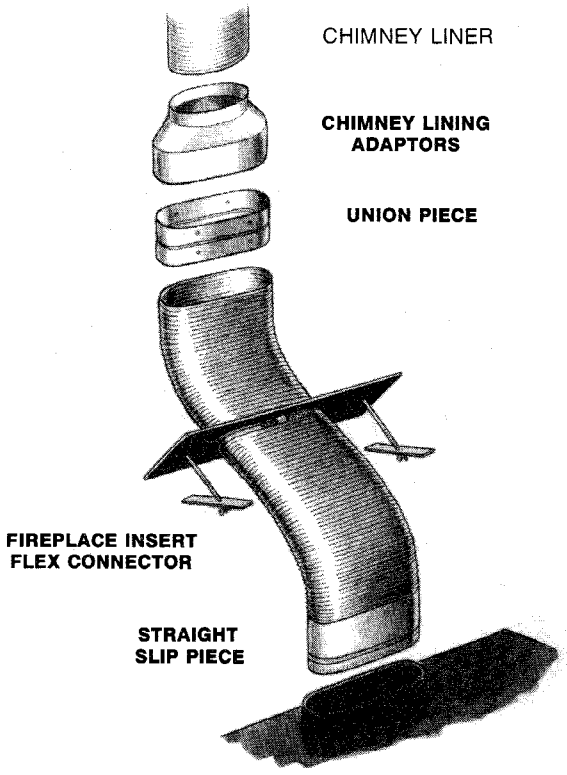


STOVE-TO-FIREPLACE FLEX CONNECTOR

FirePlace Insert Flex Connector

The Vermont Castings' FirePlace Insert Flex Connector is used to connect the flue collar of the FirePlace Insert with the fireplace chimney. It is made of flexible stainless steel, and can be formed to required shapes. It is ovalized to pass through narrow (4½") damper openings.

The bottom of this Flex Connector fits inside any of the three Vermont Castings Slip Pieces. The Slip Pieces slide up and down on the Flex Connector to form a telescoping joint. The Slip Piece is raised above the flue collar when the Insert is being moved in or out. The Slip Piece is drawn down into the flue collar when the Insert is in position.



Straight, 20 Degree, and Rear Offset Slip Pieces

The Straight Slip Piece is used when the Flex Connector comes down to the flue collar of the Insert in a straight line.

The 20 Degree Slip Piece is used when the Flex Connector comes down at a 20 degree angle to the flue collar.

The Rear Offset Slip Piece is used when the fireplace has a wide lintel (the masonry above the fireplace opening). This Slip Piece offsets the flue collar to the rear so the Flex Connector can pass behind wide (6½" to 11") lintels. The collar at the top of this Slip Piece can be adjusted to four angles to adapt to a variety of fireplaces.

Chimney Lining Accessories

Chimneys larger than 8" x 12" may allow flue gases to expand and cool so rapidly that draft is reduced. Re-lining oversized chimneys to a smaller size can help keep gases hot and draft strong.

Chimneys that have defective linings may be made safer by installing a new stainless steel liner.

Vermont Castings offers stainless steel accessories to help make the connection between chimney liners, and our stoves and fireplace inserts.

Chimney Lining Adaptors

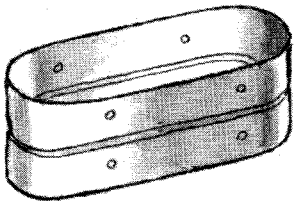
Three sizes of Chimney Lining Adaptors make the transition from 7" or 8" round or 8" oval stainless steel chimney liners to a Flex Connector or a Slip Piece.

The tops of the Adaptors are large enough to accept either rigid or flexible chimney liners. The bottoms of the Adaptors are joined to a Flex Connector with a Union Piece, or fit into a Slip Piece just above the flue collar of the insert.

Union Piece

The Union Piece joins the bottom of the Chimney Lining Adaptor to a Flex Connector, or joins two pieces of Flex Connector.

UNION PIECE

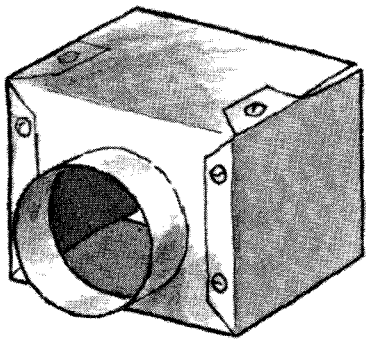


Universal Air Duct Adaptor

The Vermont Castings Universal Air Duct Adaptor connects a 3" round air duct to the air inlet of Vermont Castings stoves. The air duct brings air from outside the home directly to the air inlet of the stove. Using outside air for combustion instead of room air can result in improved stove performance.

The Adaptor is designed to fit the stove, although some trimming may be necessary. Operation of the thermostat lever and air inlet shutter is not affected.

UNIVERSAL AIR DUCT ADAPTOR



CHECKLIST

Under the Stove

Combustible material under the stove must be protected from radiant heat and from falling sparks. All floors should be considered combustible with the exception of bare, cement, basement floors or slabs. The size and construction of the protective hearth will depend on the model of stove, the length of the legs used, and whether or not bottom heat shields are used.

* *This informaton starts on page 15.*

Behind and Beside the Stove

Combustible material behind and beside the stove must be protected from radiant heat from the stove *and* chimney connector. Protection is provided by clearance (empty space) and shields, or both. Protection requirements depend on the model of stove, and the type of installation.

* *This information starts on page 13.*

Near the Stovepipe

Combustible material near single-wall chimney connectors must be protected from radiant heat. Although the clearance charts give minimum clearaces which consider both stove and stovepipe in most standard installations, double check stovepipe clearances. This is especially true where the chimney connector has long horizontal or vertical runs which may cause it to pass near combustible material.

* *This information starts on page 12.*

Above the Stove and Stovepipe

Combustible material above the stove and chimney connector must be protected. A combustible fireplace mantel, or a ceiling above a horizontal run of chimney connector may need protection.

* *This information is found in the charts starting on page 12.*

Chimney Through the Ceiling

Where a chimney passes through a roof or ceiling, clearance must be provided. Most prefabricated metal chimneys must be kept at least 2" from combustible material. Check with the manufacturer of the chimney. According to NFPA, the minimum air space between interior masonry chimneys (any part of the chimney is within the exterior of the house) and combustible material is 2". The minimum air space between exterior masonry chimneys (the chimney is completely outside the exterior of the house) and combustible materials is 1". Check with your local building official.

Chimney Connector Through the Wall

A chimney connector must not pass through a floor or ceiling. *If properly installed,* the connector may pass through a combustible wall.

* *This information starts on 11.*

Defiant Encore, Defiant,
Vigilant, Resolute, & Intrepid

UPDATE

Addendum to all Operation Manuals.

FACTORY-BUILT (PRE-FAB) CHIMNEYS

Recent changes have occurred in requirements for factory-built chimneys for wood-burning stoves in the United States. The following information will supersede the factory-built chimney information currently printed in this manual.

Only factory-built chimneys which have been tested and listed to the High Temperature (H.T.) Chimney Standard, UL-103-1985 (2100° F.), by a nationally recognized testing laboratory are acceptable for use with your Vermont Castings' woodstove. The flue size recommended for your stove remains as currently outlined in this manual.

MASONRY CHIMNEYS

In addition, the following information should be considered if using a masonry chimney. Other information presented on masonry chimneys in this manual is still relevant.

Only masonry chimneys which are constructed in accordance with national and local building code requirements, including a flue liner, are acceptable for use with your Vermont Castings' woodstove. The flue size recommended is as currently outlined in this manual.

PLEASE TURN FOR IMPORTANT INFORMATION