# Installation Manual
## Installation & Appliance Set-Up

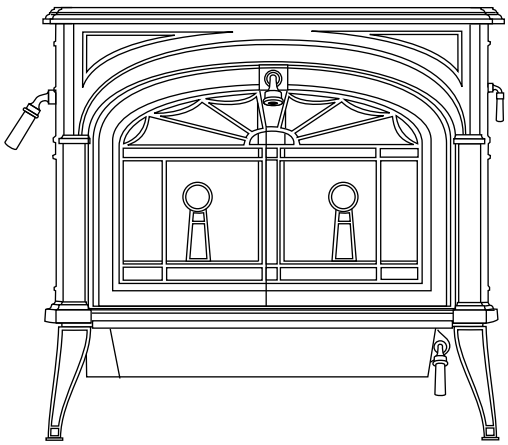
**INSTALLER: Leave this manual with party responsible for use and operation.**
**OWNER: Retain this manual for future reference.**
**Call your dealer for questions on Installation, Operation, or Service.**

***NOTICE: SAVE THESE INSTRUCTIONS***

# FORGE & FLAME

**Defiant CAT-C Wood Stove**

**Model:**
**Vermont Castings Defiant 1975-CAT-C**



For use in the
United States and Canada

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.

hearthED FACTORY TRAINING Fuel Your Fire

NFI NATIONAL FIREPLACE INSTITUTE A CERTIFICATION AGENCY

This heater meets the U.S. Environmental Protection Agency's emission limits for wood heaters sold on or after May 15, 2020.

### ⚠ WARNING

**If the information in these instructions is not followed exactly, a fire may result causing property damage, personal injury, or death.**

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over fire - If appliance or chimney connector glows, you are over firing. Over firing will void your warranty.
- Comply with all minimum clearances to combustibles as specified. Failure to comply may cause house fire.

### ⚠ WARNING

**HOT SURFACES!**
Glass and other surfaces are hot during operation AND cool down.
**Hot glass will cause burns.**

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- Alert children and adults to hazards of high temperatures
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.

### NOTE

To obtain a French translation of this manual, please contact your dealer or visit www.forgenflame.com

Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez www.forgenflame.com

## Safety Alert Key:

- ***DANGER!*** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- ***WARNING!*** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- ***CAUTION!*** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- ***NOTICE:*** Indicates practices which may cause damage to the appliance or to property.

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➔ **= Contains updated information**

# 1 Product Listing and Important Safety Information

## A. Appliance Certification

| | |
|---|---|
| **MODEL:** | Vermont Castings Defiant 1975-CAT-C |
| **LABORATORY:** | OMNI Test Laboratories, Inc |
| **REPORT NO.** | 0135WS043S / 0135WS043E |
| **TYPE:** | Solid Fuel Room Heater / Wood Burning Type |
| **STANDARD(s):** | ASTM E2515, ASTM E2780, UL 1482-2011, ULC-S627-00, CAN/CSA B415.1 |
| **ELECTRICAL RATING:** | 115 VAC, 60 Hz |

## B. BTU & Efficiency Specifications

| | |
|---|---|
| **EPA Report #:** | 212-19 |
| **EPA Certified Emissions:** | 1.3 g/hr |
| ***LHV Tested Efficiency:** | 84.1% |
| ****HHV Tested Efficiency:** | 77.9% |
| *****EPA BTU Output:** | 12,000 - 24,500 |
| ******Peak BTU/Hour Output:** | 56,000 |
| **Vent Size:** | 6 Inch (152 mm)<br>8 Inch (203 mm) |
| **Firebox Size:** | 3.2 cu. ft. |
| **Outside Air Size:** | |
| **Recommended Length:** | 20” (Top Load) |
| **Max. Wood Length:** | 25” Maximum |
| **Fuel Orientation:** | East, West |
| **Fuel** | Seasoned Cordwood (20% moisture or less) |
| *Weighted average LHV efficiency using Douglas Fir dimensional lumber and data collected during EPA emissions test. | |
| **Weighted average HHV efficiency using Douglas Fir dimensional lumber and data collected during EPA emissions test. | |
| ***Efficiencies are based on test results calculated using B415; these calculated efficiencies are then used to calculate output BTU’s. | |
| ******A peak BTU out of the appliance calculated using the maximum first hour burn rate from the High EPA Test and the BTU content of cord wood (8600) times the efficiency. | |

The Defiant CAT-C Wood Appliance meets the U.S. Environmental Protection Agency Certified to comply with the 2020 particulate emission standards.

This wood appliance needs periodic inspection and repair for proper operation. It is against federal regulations to operate this wood appliance in a manner inconsistent with operating instructions in this manual.

## C. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

**WARNING**

**Fire Risk.**
Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with it).
- Do NOT Over fire - If appliance or chimney connector glows, you are over firing.

Any such action that may cause a fire hazard.

NOTE: This installation must conform with local codes. In the absence of local codes you must comply with the UL1482-11, UL 737-11, (UM) 84-HUD and NPFA211 in the U.S.A. and the ULC S627-00 and CAN/CSA-B365 Installation Codes in Canada.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

NOTE: Hearth & Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and/or price without notice.

Hearth & Home Technologies WILL NOT warranty appliances that exhibit evidence of over-firing. Evidence of over-firing includes, but is not limited to:

- Warped Damper
- Deteriorated refractory
- Deteriorated interior components

## D. Non-Combustible Materials

Material which will not ignite and burn, composed of any combination of the following:

- Steel
- Brick
- Concrete
- Glass
- Plaster
- Iron
- Tile
- Slate

Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace of 750° C.**

## E. Combustible Materials

Material made of/or surfaced with any of the following materials:

- Wood
- Plant Fibers
- Plywood/OSB
- Compressed Paper
- Plastic
- Sheet Rock (drywall)

Any material that can ignite and burn: flame proofed or not, plastered or non-plastered.

## F. California

**WARNING**

This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is know to the State of California to cause birth defects or other reproductive harm. For more information go to: www.P65Warnings.ca.gov

# 2 Getting Started

## A. Design and Installation Considerations

Consideration must be given to:

- Safety
- Convenience
- Traffic flow
- Chimney and chimney connector required

It is a good idea to plan your installation on paper, using exact measurements for clearances and floor protection, before actually beginning the installation. If you are not using an existing chimney, place the appliance where there will be a clear passage for a factory-built listed chimney through the ceiling and roof.

We recommend that a qualified building inspector and your insurance company representative review your plans before and after installation.

If this appliance is in an area where children may be near it is recommended that you purchase a decorative barrier to go in front of the appliance. Remember to always keep children away while it is operating and do not let anyone operate this appliance unless they are familiar with these operating instructions.

**Note:** This unit cannot be installed in a factory built fireplace.

**⚠ CAUTION**

Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.

**⚠ WARNING**

**Asphyxiation Risk**

- DO NOT CONNECT THIS APPLIANCE TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE.
- DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

May allow flue gases to enter the house.

## B. Fire Safety

To provide reasonable fire safety, the following should be given serious consideration:

1. Install at least one smoke detector on each floor of your home to ensure your safety. They should be located away from the heating appliance and close to the sleeping areas. Follow the smoke detector manufacturer's placement and installation instructions, and be sure to maintain regularly.
2. A conveniently located Class A fire extinguisher to contend with small fires resulting from burning embers.
3. A CO detector should be installed in the room with the appliance.
4. A practiced evacuation plan, consisting of at least two escape routes.
5. A plan to deal with a chimney fire as follows:
   **In the event of a chimney fire:**
   a. Evacuate the house immediately
   b. Notify fire department.

**Notice:** Hearth & Home Technologies assumes no responsibility for the improper performance of the appliance system caused by:

- Inadequate draft due to environmental conditions
- Down drafts
- Tight sealing construction of the structure
- Mechanical exhausting devices
- Over drafting caused by excessive chimney heights
- Ideal performance is with height of chimney of 16 feet (4.88m) measured from the base of the appliance.

## C. Negative Pressure

**⚠ WARNING**

**Asphyxiation Risk**

- Negative pressure can cause spillage of combustion fumes, soot and carbon monoxide.
- Appliance needs to draft properly for safety.

Negative pressure results from the imbalance of air available for the appliance to operate properly. It can be strongest in lower levels of the house.

**Causes include:**

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water appliances and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
  - Recessed lighting
  - Attic hatch
  - Duct leaks

To minimize the effects of negative air pressure:

- Install outside air to the stove with the intake facing prevailing winds during the heating season
- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the appliance
- Avoid installing the appliance near doors, walkways or small isolated spaces
- Recessed lighting should be a “sealed can” design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed
- Basement installations should be avoided

**WARNING**

**Fire Risk.**

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with appliance).
- Do NOT Over fire - If appliance or chimney connector glows, you are over firing.

**Any such action that may cause a fire hazard.**

## D. Tools And Supplies Needed

Before beginning the installation be sure the following tools and building supplies are available:

- Reciprocating saw
- Pliers
- Hammer
- Phillips screwdriver
- Flat blade screwdriver
- Plumb line
- Level
- Misc. screws and nails
- 1/2-3/4 in. length, #6 or #8 self-drilling screws
- Framing material
- High temp caulking material
- Gloves
- Framing square
- Electric drill and bits
- Safety glasses
- Tape measure

## E. Inspect Appliance and Components

- Remove appliance and components from packaging and inspect for damage.
- Report to your dealer any parts damaged in shipment.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**

**WARNING**

**Fire Risk**

Inspect appliance and components for damage. Damaged parts may impair safe operation.

- Do NOT install damaged components.
- Do NOT install incomplete components.
- Do NOT install substitute components.

Report damaged parts to dealer.

## F. Install Checklist

**ATTENTION INSTALLER:**
**Follow this Standard Work Checklist**

This standard work checklist is to be used by the installer in conjunction with, not instead of, the instructions contained in this installation manual

Customer: _____

Date Installed: _____

Lot/Address: _____

Location of Appliance: _____

Installer: _____

Dealer/ Distributor Phone #: _____

Serial #: _____

Model : _____

**WARNING! Risk of Fire or Explosion!** *Failure to install appliance according to these instructions can lead to a fire or explosion.*

| **Appliance Install** | **YES** | **IF NO, WHY?** |
|---|---|---|
| Verified clearance to combustibles. | | |
| Appliance is leveled and connector is secured to appliance. | | |
| Hearth extension size/height decided. | | |
| Outside Air Installed. | | |
| Floor protection requirements have been met. | | |
| If appliance is connected to a masonry chimney, it should be cleaned and inspected by a professional. If installed to a factory built metal chimney, the chimney must be installed according to the manufacturer's instructions and clearances. | | |
| **Chimney** | | |
| Chimney configuration complies with diagrams. | | |
| Chimney installed, locked and secured in place with proper clearance. | | |
| Chimney meets recommended height requirements (Minimum 16 Feet). | | |
| Roof flashing installed and sealed. | | |
| Terminations installed and sealed. | | |
| **Clearances** | | |
| Combustible materials not installed on non-combustible areas. | | |
| Verified all clearances meet installation manual requirements. | | |
| Mantels and wall projections comply with installation manual requirements. | | |
| Protective hearth strips and hearth extensions installed per manual requirements. | | |
| **Appliance Setup** | | |
| All packaging and protective materials removed. | | |
| Firebrick/Refractory, baffle and ceramic blanket (if applicable) installed correctly | | |
| All labels have been removed from the door. | | |
| All packaging materials are removed from inside/under the appliance. | | |
| Manual bag and all of its contents are removed from inside/under the appliance and given to the party responsible for use and operation. | | |

**Hearth & Home Technologies recommends the following:**

- Photographing the installation and copying this checklist for your file.
- That this checklist remain visible at all times on the appliance until the installation is complete.

**Comments:** Further description of the issues, who is responsible (Installer/Builder/Other Trades, etc.) and corrective action needed:

Comments communicated to party responsible _____ by _____ on _____

(Builder/Gen. Contractor) (Installer) (Date)

# 3 Dimensions and Clearances

## A. Appliance Dimensions

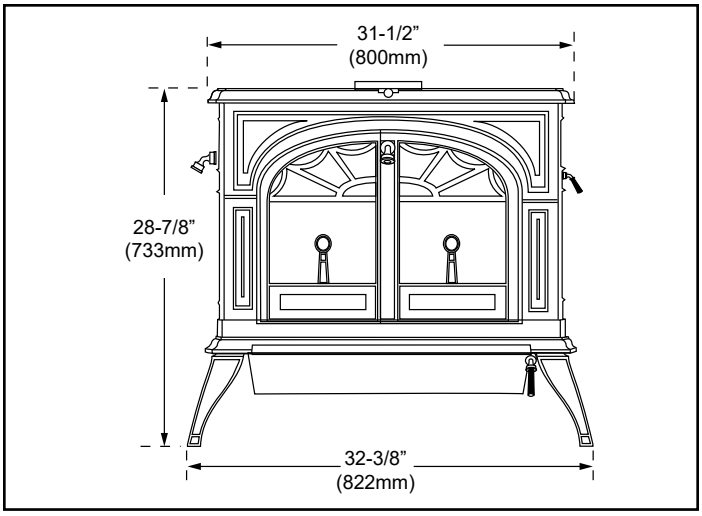



**Figure 3.1** - Front View

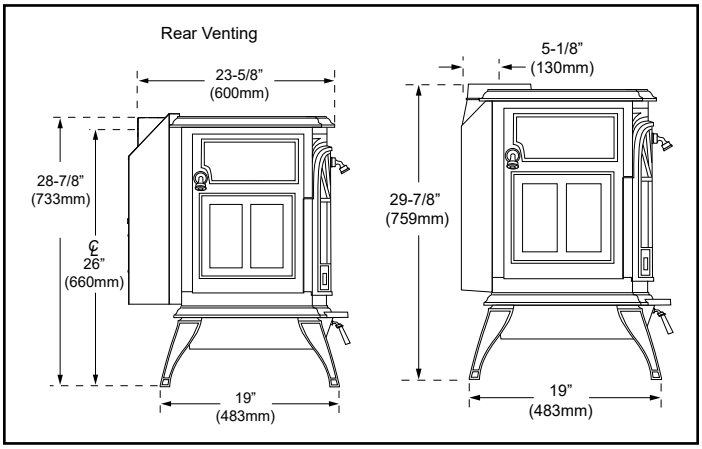



**Figure 3.2** - Side View

**NOTE:** Flue Collar size is 8" oval (203 mm) diameter (ID)

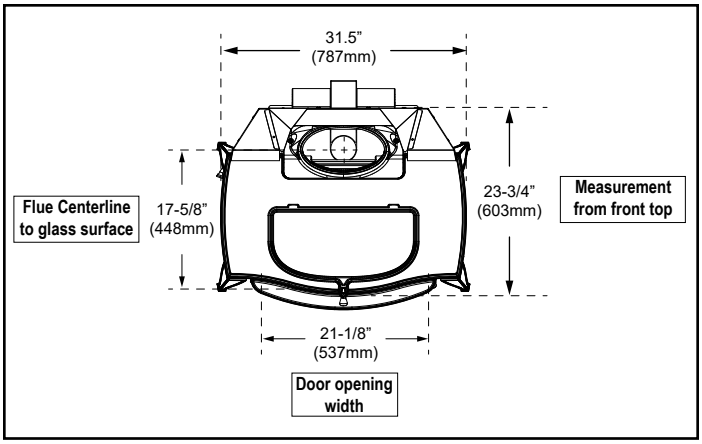



**Figure 3.3** - Top View

## B. Hearth Protection Requirements

**FLOOR PROTECTION: It is necessary to install a Type I floor protector. (Spark & Ember protection ONLY)**

Floor protector must be non-combustible material extending under the appliance to a minimum of 16” (406 mm) in front of glass, and 6” (152 mm) to both sides of the fuel loading door. Open the door and measure 8” (203 mm) from the side edge of the opening in the face of the appliance. *See exception.

**In Canada,** similar floor protection must be provided 18” (457 mm) in front and 8” (203 mm) from the sides and rear of the appliance, Figure 3.7

***EXCEPTION:** Non-combustible floor protections must extend beneath the flue pipe when installed with horizontal venting and extend 2” (51 mm) beyond each side, Figure 3.7.

**WARNING**

**Fire Risk**
Hearth pads must be installed exactly as specified. High temperatures or hot embers may ignite concealed combustibles.

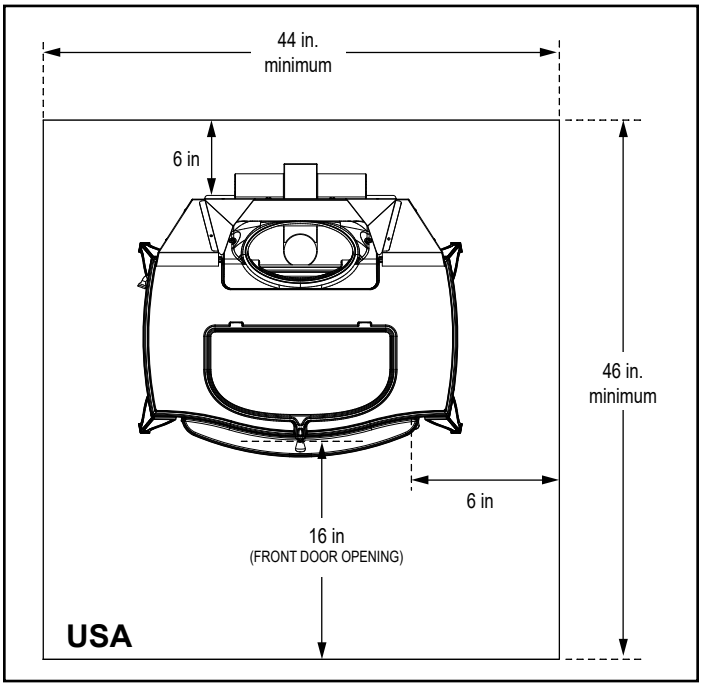



**Figure 3.5**

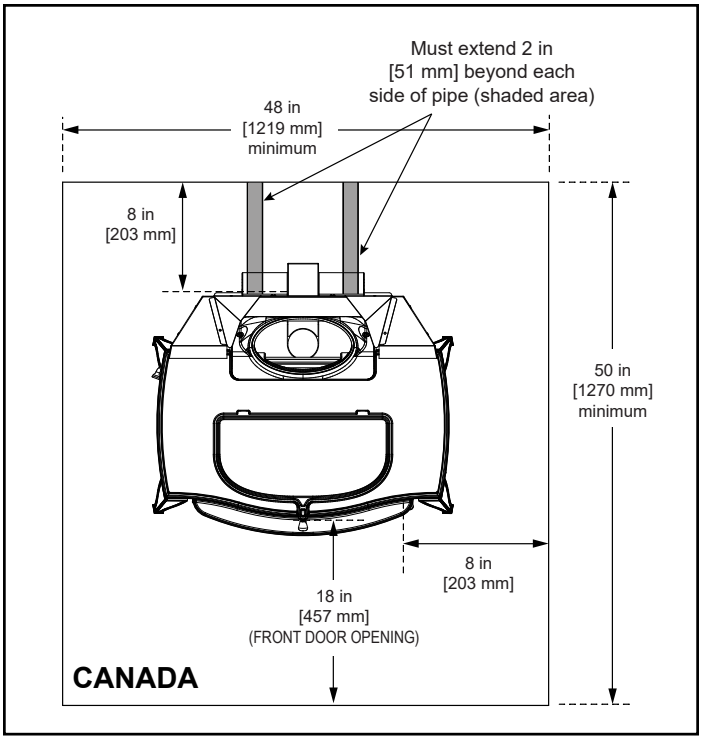



**Figure 3.7**

**CAUTION**

Hearth and Home Technologies does not recommend adhesive based vinyl flooring due to thermal expansion. Floating-style flooring (LVP - luxury vinyl plank or LVT – luxury vinyl tile) can be used, but it will reach temperatures up to 110 °F in a room with ambient temperature of 70 °F. Consult flooring specifications to ensure compatibility.

HHT recommends wood stoves and inserts have 57 inches of alternative flooring in front of the stove before using LVP/LVT regardless if they sit flush on the floor or are elevated on a raised hearth.

For all other flooring, continue to follow clearance to combustible requirements in the installation manual.

***NOTICE:** Clearances that do not meet the minimum guidelines could result in damage or buckling to the vinyl flooring and is done at the installer’s or homeowner’s risk.*

## C. Clearances to Combustibles

| Minimum Clearances to Combustible Materials<br>Note: A, C and F Dimensions are to the center of the flue collar | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Installation: 6” or 8” Chimney Connector** | | | | | | | | |
| | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** |
| Single Wall Pipe | 21” | 21” | 36-1/2” | 21” | 5” | 16” | 55” | 18” |
| Double Wall Pipe | 21” | 21” | 36-1/2” | 21” | 5” | 16” | 55” | 18” |
| Alcove Single Wall Pipe | | 15” | | 19-1/2” | | | 40” | |
| **Installation: Rear Vent 6” or 8” Chimney Connector** | | | | | | | | |
| Single Wall Pipe | | 16” | 36-1/2” | 21” | | | | |
| **NOTE:** Double wall pipe clearances are for US installations **ONLY**. Canadian installations must conform with local code. In the absence of local codes you must comply with the ULC S627-00 and CAN/CSA-B365. *Follow pipe manufacturers clearances as required. | | | | | | | | |

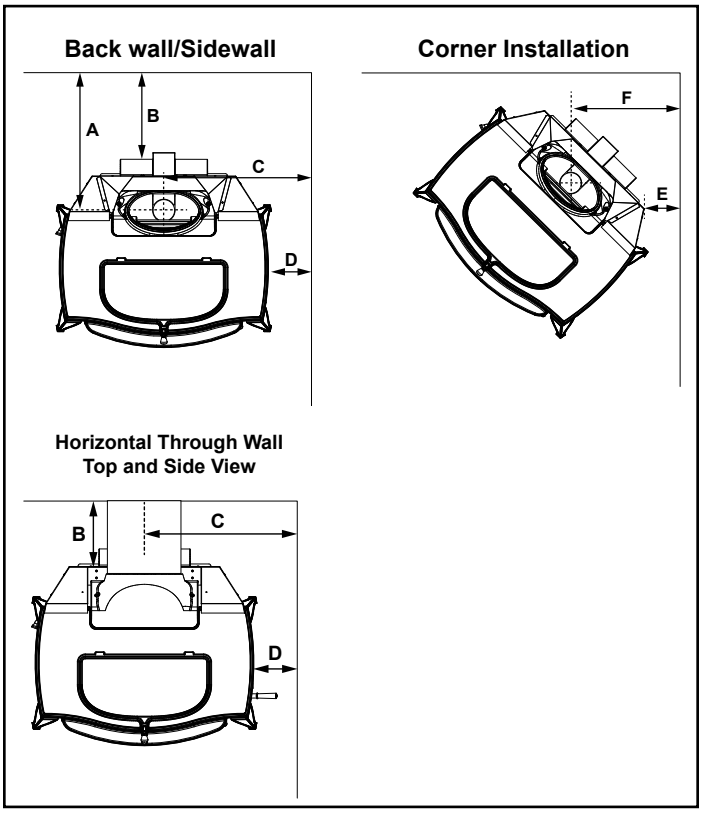



**Figure 3.9**

**WARNING**

**Fire Risk**

- Comply with all minimum clearances to combustibles as specified.
- Failure to comply may cause house fire.

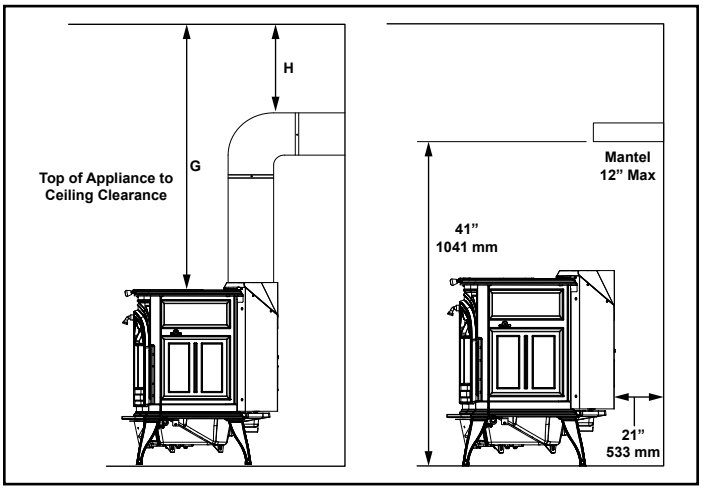
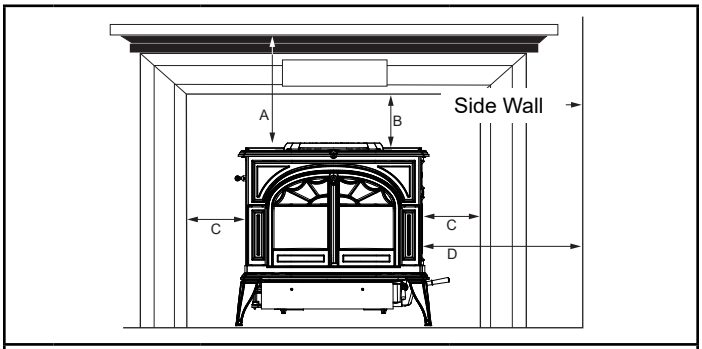



**Figure 3.10**




| Fireplace and Mantel Trim Clearances | | | |
|---|---|---|---|
| | | **Unprotected** | **NFPA 211 Protected** |
| **A** | Mantel Trim | 41" (1041 mm) | 29" (737 mm) |
| **B** | Top Trim | 28" (711 mm) | 21" (533 mm) |
| **C** | Side Trim | 14" (356 mm) | 14" (356 mm) |
| **D** | Side Wall | 14" (356 mm) | 11" (280 mm) |

**Figure 3.11** - Maintain clearances to combustibles components of the mantel piece.

## D. Locating Your Appliance & Chimney

Location of the appliance and chimney will affect performance. As shown in Figure 3.12 the chimney should:

- Install through the warm space enclosed by the building envelope. This helps to produce more draft, especially during lighting and die down of the fire.
- Penetrate the highest part of the roof. This minimizes the affects of wind turbulence and down drafts.
- Consider the appliance location in order to avoid floor and ceiling attic joists and rafters.
- Locate termination cap away from trees, adjacent structures, uneven roof lines and other obstructions.

Your local dealer is the expert in your geographic area and can usually make suggestions or discover solutions that will easily correct your flue problem.

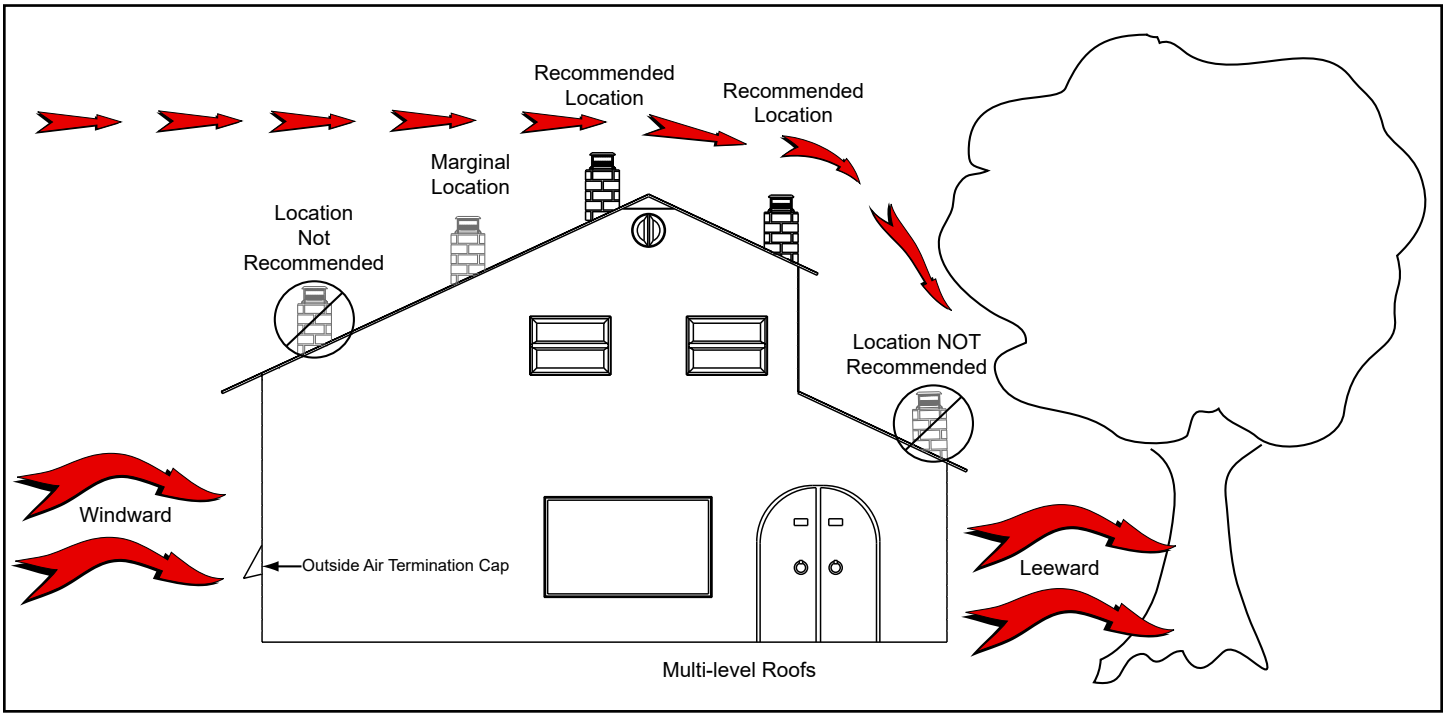



**Figure 3.12**

## E. Chimney Termination Requirements

Follow manufacturer's instructions for clearance, securing flashing and terminating the chimney, Figures 3.13 & 3.14.

- Must have an approved and Listed cap
- Must not be located where it will become plugged by snow or other material
- Must terminate at least 3 feet (91 cm) above the roof and at least 2 feet (61 cm) above any portion of the roof within 10 feet (305 cm).
- Must be located away from trees or other structures

**NOTICE:**

- Chimney performance may vary.
- Trees, buildings, roof lines and wind conditions affect performance.
- Chimney height may need adjustment if smoking or overdraft occurs.

**NOTICE:** Locating the appliance in a basement or in a location of considerable air movement can cause intermittent smoke spillage from appliance. Do not locate appliance near

- Frequently open doors
- Central heat outlets or returns

## F. Chimney Location (2-10-3 Rule)

**These are safety requirements and are not meant to assure proper flue draft.**

This appliance is made with a 6” (152 mm) diameter chimney connector as the flue collar on the appliance.

- Changing the diameter of the chimney can affect draft and cause poor performance.
- It is not recommended to use offsets and elbows at altitudes above 4000 feet above sea level and or when there are other factors that affect flue draft.

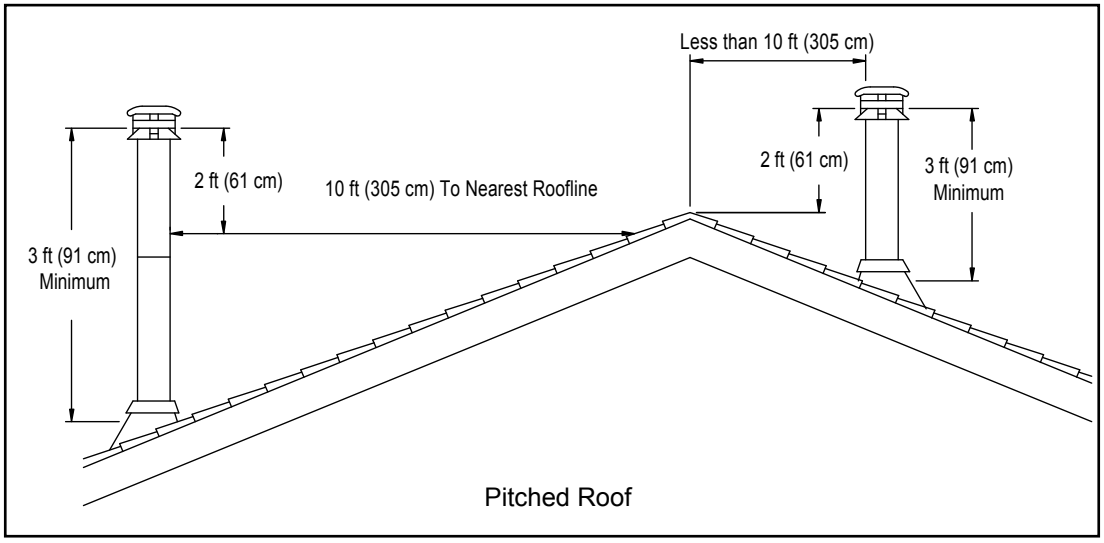



**Figure 3.13**

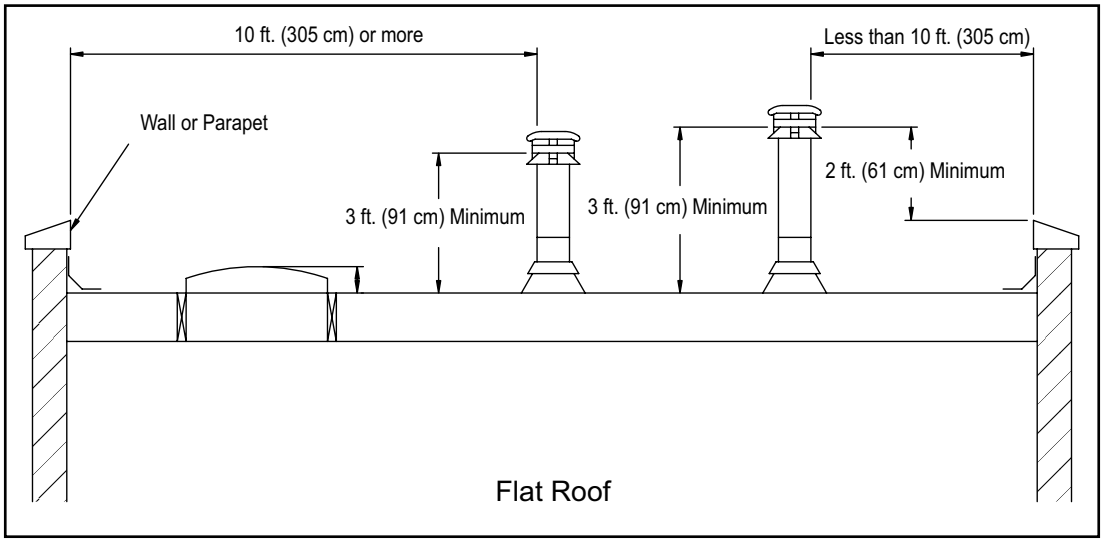



**Figure 3.14**

# 4 Chimneys & Venting

## A. Venting & Draft Management

A stove is part of a system, which includes the chimney, the operator, the fuel, and the home. The other parts of the system will affect how well the stove works. When there is a good match between all the parts, the system works well.

Wood stove or insert operation depends on natural (unforced) draft. Natural draft occurs when the exhaust is hotter (and therefore lighter) than the outdoor air at the top of the chimney. The bigger the temperature difference, the stronger the draft. As the hot gases rise through the chimney they provide suction or 'draw' that pulls air into the stove for combustion. A slow, lazy fire with the stove's air inlets fully open indicates a weak draft. A brisk fire, supported only by air entering the stove through the normal inlets, indicates a good draft. The stove's air inlets are passive; they regulate how much air can enter the stove, but they don't move air into it.

Depending on the features of your installation - steel or masonry chimney, inside or outside the house, matched to the stove's outlet or oversized - your system may warm up quickly, or it may take a while to warm up and operate well. With an 'airtight' stove, one which restricts the amount of air getting into the firebox, the chimney must keep the stove's exhaust warm all the way to the outdoors in order for the stove to work well. Some chimneys do this better than others. Here's a list of features and their effects.

**Draft, Chimney Height & Performance**

This appliance was tested for emissions on a 15 foot chimney, using a combination of single wall chimney connector & insulated class A pipe. The unit requires a draft between .03 and .065 in of H2O. The draft measurement should be taken with an active fire, the damper closed and the air control at the maximum setting. If the draft is below .03 in of H2O, the unit may have issues operating with the damper closed and may back-puff into the room on lower burn settings. If the draft of the chimney system is too low, additional vertical height should be added to the system or the number of elbows/tees in the system should be reduced. The venting system should have no more than a total of 180° of turns (2 x 90° elbows, 4 x 45° elbows or any combination). Two 45° elbows create less draft reduction than a single 90° and can be substituted for installations with low draft. Tall chimney systems, particularly internal Class A systems may generate draft which is well above 0.65 in of H2O. In that case, the unit may experience short burn times, difficulty controlling the burn rate of the stove and the potential for overfiring. In the past, stack dampers could be recommended in these installations, but manufacturers are no longer permitted to specify these on EPA Certified models. The chimney system should be carefully reviewed and draft tested (if possible) prior to installation of this unit.

**Masonry Chimney**

Masonry is a traditional material for chimneys, but it can perform poorly when it serves an 'airtight' stove. Masonry is a very effective 'heat sink' - it absorbs a lot of heat. It can cool the chimney gases enough to diminish draft. The bigger the chimney, the longer it takes to warm up. It's often very difficult to warm up an outdoor masonry chimney, especially an oversized one, and keep it warm enough to maintain an adequate draft.

**Steel Chimney**

Most factory-made steel chimneys have a layer of insulation around the inner flue. This insulation keeps the chimney warm. The insulation is less dense than masonry, so a steel chimney warms up more quickly than a masonry chimney. Steel doesn't have the good looks of masonry, but it performs much better.

**Indoor/Outdoor Location**

Because the chimney must keep the smoke warm, it's best to locate it inside the house. This uses the house as insulation for the flue and allows some heat release into the home. An indoor chimney won't lose its heat to the outdoors, so it takes less heat from the stove to heat it up and keep it warm.

**Single Venting**

Each 'airtight' stove requires its own flue. If an airtight stove is vented to a flue that also serves an open fireplace, or a leakier stove, it's easier for the chimney draft to pull air in through those channels and performance of the stove suffers. Imagine a vacuum cleaner with a hole in the hose to understand the effect here. In some cases the other appliance can even cause a negative draft through the stove, and result in a dangerous draft reversal.

**Flue Sizing**

The inside size of a chimney for an 'airtight' stove should match the size of the stove's flue outlet. When a chimney serves an airtight stove, more is not better; in fact, it can be a disadvantage. Hot gases lose heat faster as they travel slower through a chimney; if we vent a stove with a six-inch flue collar (28 square inch area) into a 10 x 10" flue, the gases slow to one third their original speed. This allows the gases to cool more rapids, which weakens draft strength. If an oversized flue is also outside the house, the heat it absorbs gets transferred to the outdoor air and the flue usually stays cool.

It is common for a masonry flue, especially one serving a fireplace, to be oversized for the stove. It can take quite a while to warm up such a flue, and the results can be disappointing. The best solution to an oversized flue is an insulated steel chimney liner, the same diameter as the stove or inserts flue outlet; the liner keeps the exhaust warm, and the result is a stronger draft. An non-insulated liner is a second choice - the liner keeps the exhaust restricted to its original size, but the hot gases still must warm up the air around the liner. This makes the warm-up process take longer.

## B. Venting Components

**Chimney Connector:** It is also known as flue pipe or appliance pipe. The chimney connector joins the appliance to the chimney. It must be a 6” (152 mm) minimum diameter 24 gauge mild steel black or 26 gauge blued steel, or an approved air-insulated double wall venting pipe.

**Thimble**: A manufactured or site-constructed device installed in combustible walls through which the chimney connector passes to the chimney. It is intended to keep the walls from igniting. Site constructed thimbles must meet NFPA 211 Standards. Prefabricated must be suitable for use with selected chimney and meet UL103 Type HT Standards. Follow instructions provided by the manufacturer for manufactured thimbles for masonry chimney and prefabricated chimneys.

**Chimney**: The chimney can be new or existing, masonry or prefabricated and must meet the following minimum requirements specified in Section 4C.

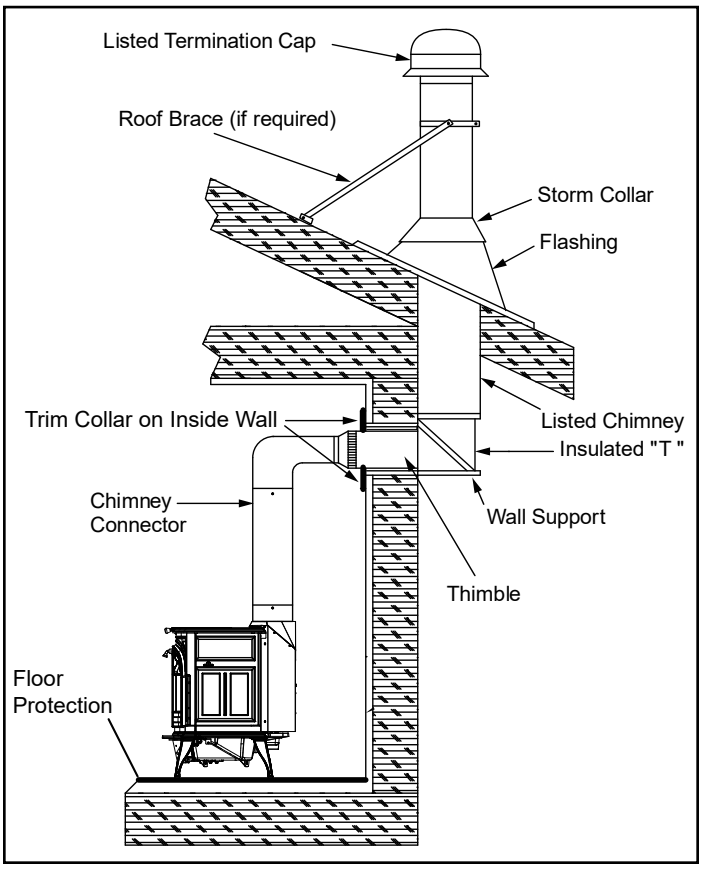



**Figure 4.1** - Prefabricated Exterior Chimney

## C. Chimney Systems

**Prefabricated Metal Chimney**

- Must be minimum 6” (152 mm) diameter (ID) high temperature chimney listed to UL 103 HT (2100 °F) or ULC-S629M.
- Must use components required by the manufacturer for installation.
- Must maintain clearances required by the manufacturer for installation.
- Refer to manufacturers instructions for installation.

**NOTE: I**n Canada when using a factory-built chimney it must be safety listed, **Type UL103 HT (2100 °F) CLASS “A”** or conforming to **CAN/ULC-S629M, STANDARD FOR 650 °C FACTORY-BUILT CHIMNEYS.**

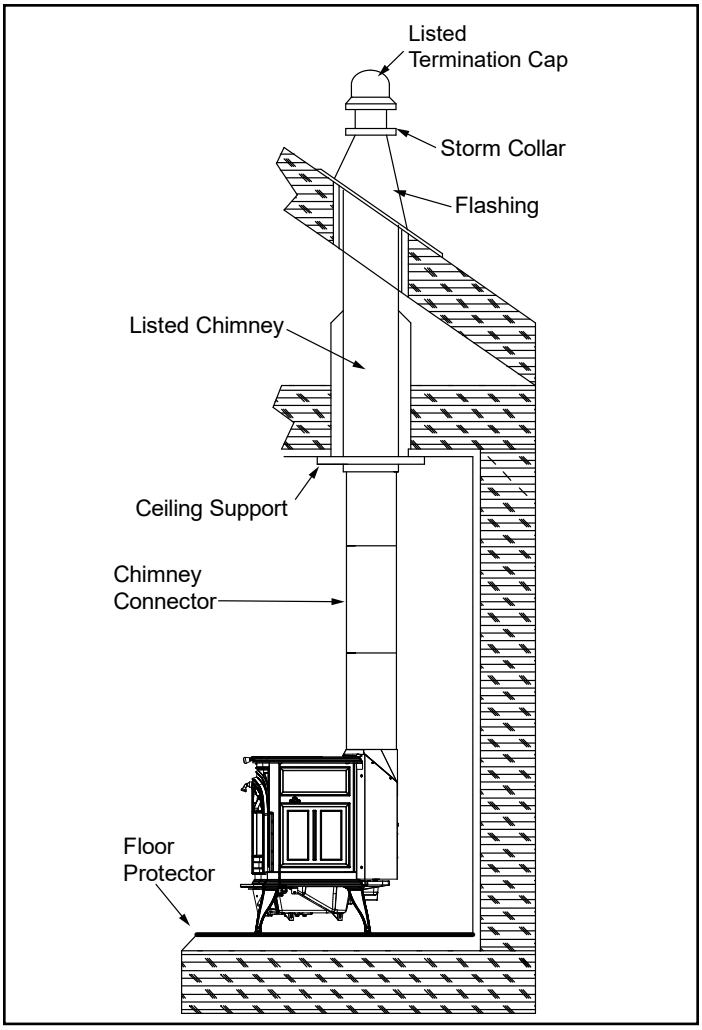



**Figure 4.2** - Prefabricated Interior Chimney

### Thimble

Site constructed for masonry chimney installation:

### Components

- A minimum length of 12” (305 mm) (longer for thicker walls) of solid insulated factory-built chimney length constructed to UL 103 Type HT 6” (152 mm) inside diameter. Chimney needs to extend a minimum of 2” (51 mm) from the interior wall and a minimum of 1” (25 mm) from the exterior wall.
- Wall spacer, trim collar and wall band to fit solid pack chimney selected.
- Minimum 8” (203 mm) diameter clay liner section (if not already present in chimney) and refractory mortar.
- When jurisdiction requires install approved chimney liner in masonry chimney.

### Air Clearances

- Masonry chimney clearance must meet NFPA 211 minimum requirement of 2” (51 mm) to sheet metal supports and combustibles.
- Minimum of 1” (25 mm) clearance around the chimney connector.
- Top of wall opening is a minimum of 13-1/2” (343 mm) from ceiling or 4-1/2” (114 mm) below minimum clearance specified by chimney connector manufacturer. NFPA 211 minimum vertical clearance of 18” (457mm) from chimney connector and ceiling or minimum recommended by chimney connector manufacturer, Figure 4.3

### Instructions

1. Open inside wall at proper height for the chimney connector to enter the masonry chimney, Figure 4.3
2. Entry hole to masonry chimney must be lined with an 8” (203 mm) minimum diameter clay liner, or equivalent, secured with refractory mortar.
3. Construct a 17” x 17” (432 mm x 432 mm) outside dimension frame from 2 x 2 framing lumber to fit into wall opening. Inside opening of frame should be no less than 14” x 14” (356 mm x 356 mm), Figure 4.4.
   Attach the wall spacer to the chimney side of the frame.
5. Nail the frame into the wall opening. The spacer should be on the chimney side.
6. Insert the section of the solid insulated chimney into the outer wall of the masonry chimney.
7. Tightly secure the length of the solid insulated chimney with the wall band to the masonry chimney.
8. Insert a section of chimney connector into the chimney. Make sure it does not protrude past the edge of the clay chimney liner inside the chimney.
9. Seal the end of the chimney connector to the clay liner with refractory mortar.
10. Install trim collar around the sold pack chimney section.

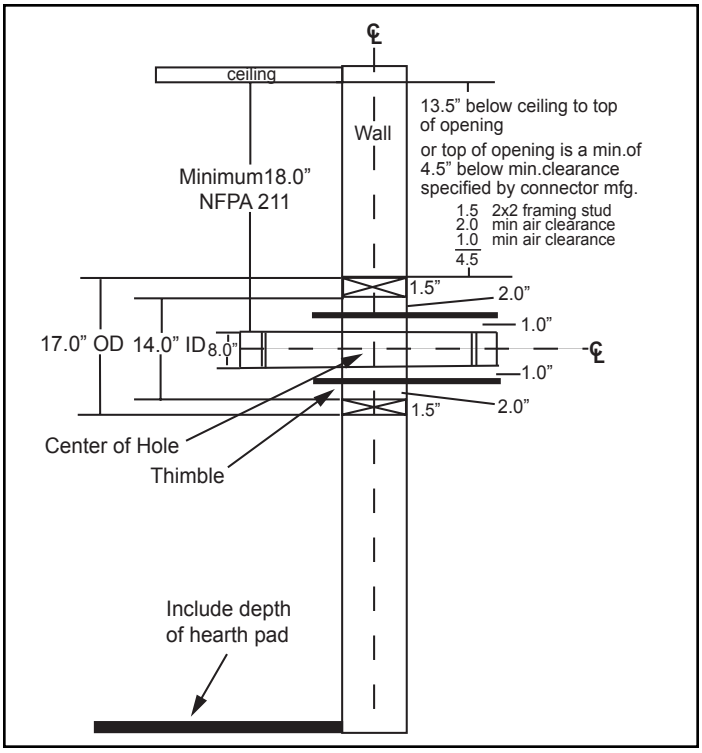



**Figure 4.3**

### Solid Pack Chimney with Metal Supports as a Thimble

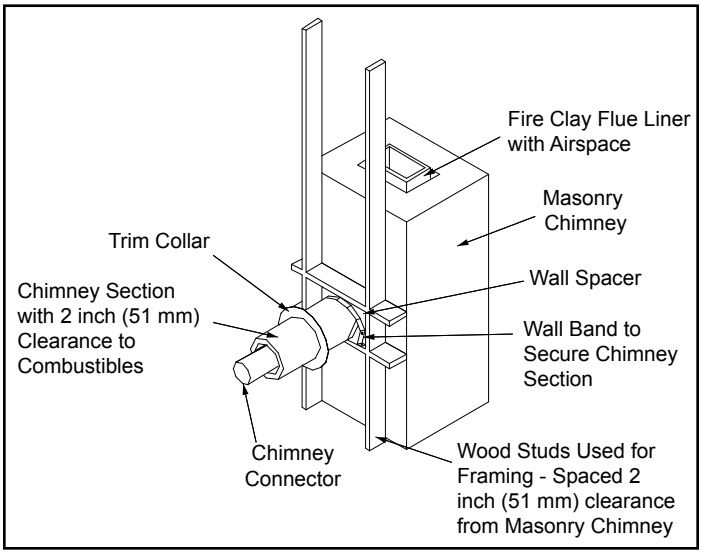



**Figure 4.4**

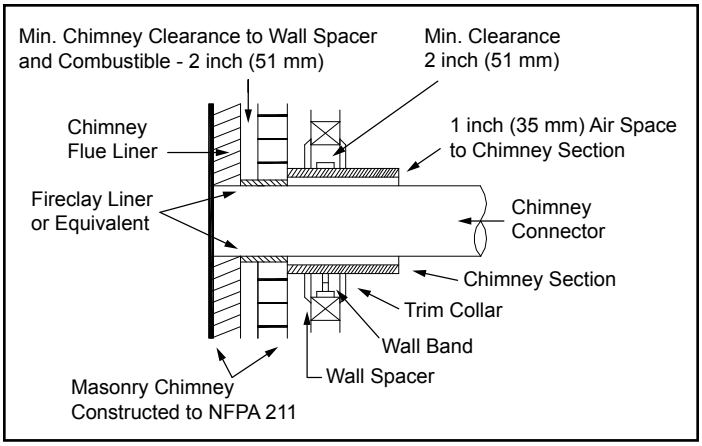



**Figure 4.5**

**WARNING**

**Fire Risk**

Do NOT pack insulation or other combustibles between spacers.

- ALWAYS maintain specified clearances around venting and spacers.
- Install spacers as specified.

Failure to keep insulation or other material away from vent pipe may cause fire.

**WARNING**

**Fire Risk**

Inspection of Chimney:

- Chimney must be in good condition.
- Meets minimum standard of NFPA 211
- Factory-built chimney must be 6” (152mm) UL103 HT.

**WARNING**

**Asphyxiation Risk**

- DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE.
- DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

May allow flue gases to enter the house.

**WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to the owner’s information manual provided with this appliance. For assistance or additional information consult a qualified installer, service agency or your dealer.

## D. Installing Chimney Components

### Chimney Connector

Single wall connector or appliance pipe

This must be at least 24 gauge mild steel or 26 gauge blue steel. The sections must be attached to the appliance and to each other with the crimped (male) end pointing toward the appliance. All joints, including the connection at the flue collar, should be secured with 3 sheet metal screws. Make sure to follow the minimum clearances to combustibles. Where passage through the wall, or partition of combustible construction is desired in Canada, the installation shall conform to CAN/CSA-B365.

Factory-built (Double-Wall) listed chimney connector

A listed connector (vented) must be used when installing this appliance in a mobile home (US) or Transportable building (CAN). The listed connectors must conform to each other to ensure a proper fit and seal.

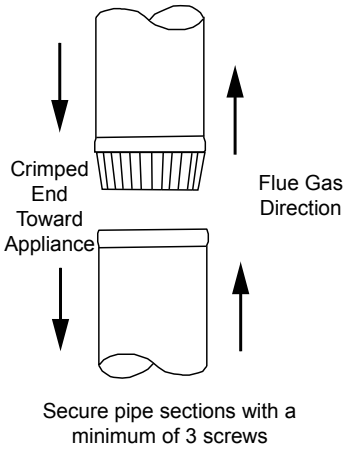



**Figure 4.6 - Chimney Connector (Appliance Pipe)**

**WARNING**

**Fire Risk**

Follow Chimney Connector Manufacturer’s Instructions for Proper Installation.

ONLY use connector:

- Within the room, between appliance and ceiling or wall.

Connector shall NOT pass through:

- Attic or roof space
- Closet or similar concealed space
- Floor or ceiling

Maintain minimum clearances to combustibles

# 5 Appliance Set-Up

## A. Setting up your Stove

Remove the unit from the shipping brackets by removing (2) 1/4-20 hex head bolts from each shipping bracket, leaving brackets attached to the skid, Figure 5.1. (Save the 1/4-20 hex head bolts as they will be needed later to install heat shield.)

**NOTE:** When moving the stove, lift the stove to take weight off the legs whenever possible. Dragging or sliding the stove, especially across rough surfaces can cause the legs to loosen or even break.

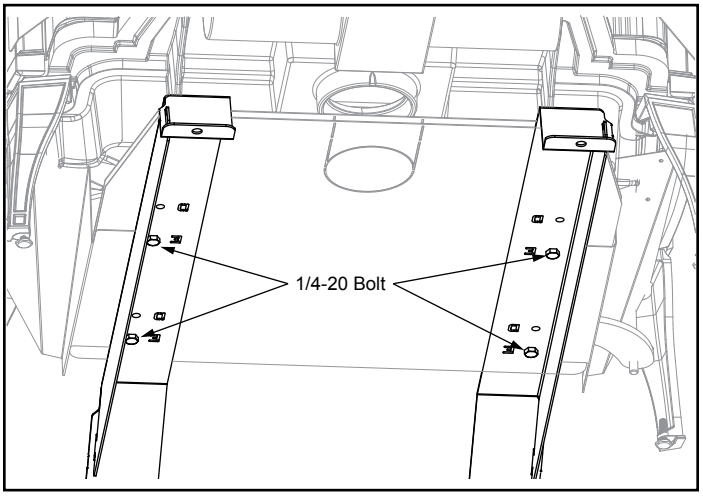



**Figure 5.1** - Remove unit from shipping brackets.

Wipe the protective coating of oil from the griddle with a clean dry rag or a paper towel.

Install the handle on the griddle. First, place the griddle upside down at the edge of a flat surface and assemble the handle, Figure 5.2.

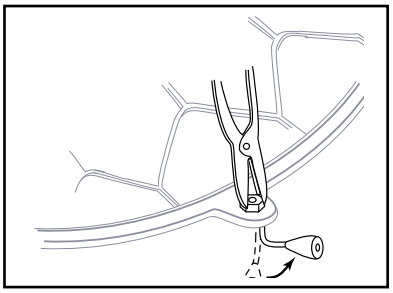


**Figure 5.2** - Attach the griddle handle.

With the handle pointing 45° from its final position, tighten the nut as far as possible with the pliers. Move the handle to its final position while still holding the nut with the pliers.

**⚠ CAUTION**

Overtightening can strip tapped threads.

**Storing the Handle**

Use the removable handle to open or close the doors. After using it, remove the handle so it will not get hot. Store the handle in the handle holder installed behind the right front leg, Figure 5.3.

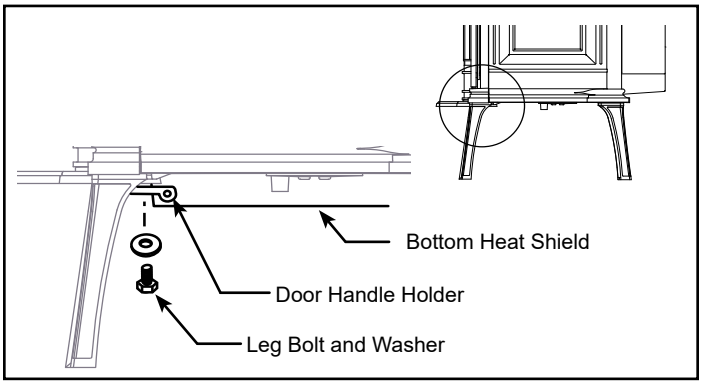



**Figure 5.3** - Handle holder and heat shield positions.

## B. Install the Bottom Heat Shield

**NOTE:** The Bottom Heat Shield is required in most installations. Refer to Floor Protection, Section 2F, for further details.

1. Install (4) 1/4-20 x 3/8" hex bolts supplied in the manual bag into the four holes located under the stove, Figure 3.4.
2. Align the bottom heat shield key holes to the four hex bolts previously installed into base, Figure 5.4. The outside air cutout hole should be toward the rear of the stove.
3. Attach the heat shield sides by passing the slots over the bolt heads. Tighten the hex head bolts, Figure 5.4.

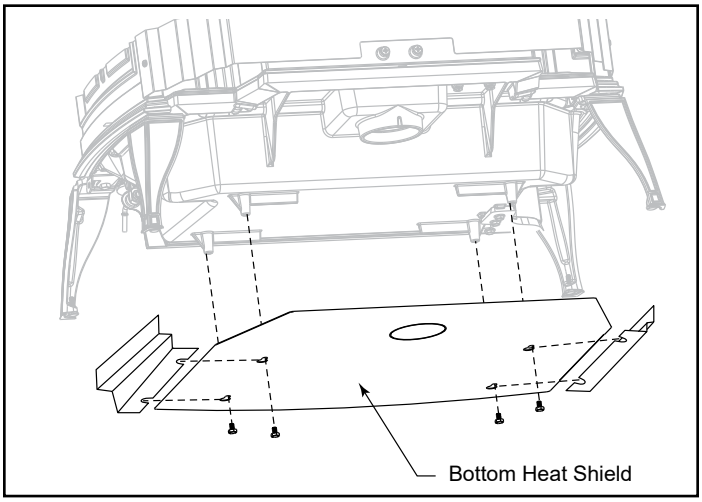



**Figure 5.4** - Attach the bottom heat shield.

## C. Adjusting Leg Levelers

Lift the stove slightly so there is no weight on the leg while making the adjustment.

## D. Reverse Flue Collar (If necessary)

Reverse the flue collar by removing the two screws that attach it to the back of the stove. Be sure the gasket around the flue collar opening is in position when you screw the collar back onto the stove.

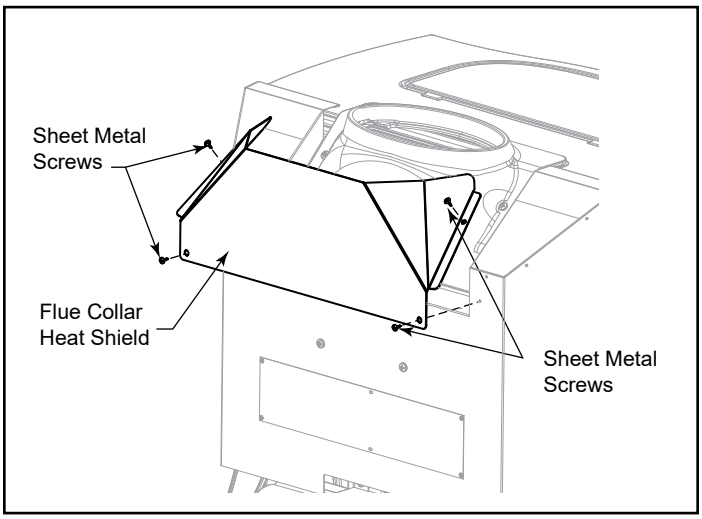



**Figure 5.5** - Install flue collar heat shield.

**WARNING**

The flue collar heat shield must be installed in all vertical installations. The flue collar heat shield is not used when the flue collar is in the rear exit position.

## E. Attach Catalyst Bypass Damper Handle

Use the 1/4"-20 x 3" screw to attach the catalyst bypass damper handle to the catalyst bypass damper stub on the left side.

## F. Install Catalyst Temperature Probe

To install the catalyst temperature probe, remove the hole plug from the cast iron wall behind the rear shield, Figure 5.6. Use two #10 sheet metal screws and bracket supplied, secure the bracket and probe to the back of your stove, Figure 5.6.

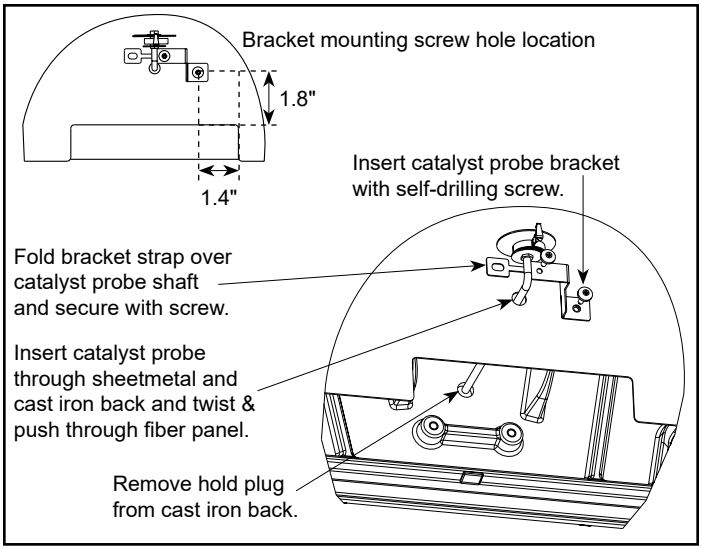



**Figure 5.6** - Install the Catalyst Temperature Probe

## G. Attach Primary Air Thermostat Handle

The primary air thermostat handle is the smaller of the two black handles. Secure the handle to the stub on the right side of the stove with an 8-32 x 2" slot head machine screw, Figure 5.7.

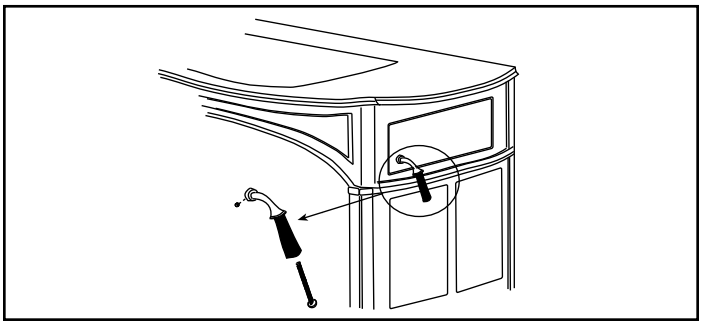


**Figure 5.7** - Attach the thermostat handle.

## H. Assemble Removable Insert Handle

The wooden removable insert handle opens and closes the front doors. Remove after each use, and store it in the handle holder behind the right front leg. Assemble the handle by passing the 3-3/8" screw through the wooden shaft and into the bright metal nub, Figure 5.8. Tighten carefully until snug.

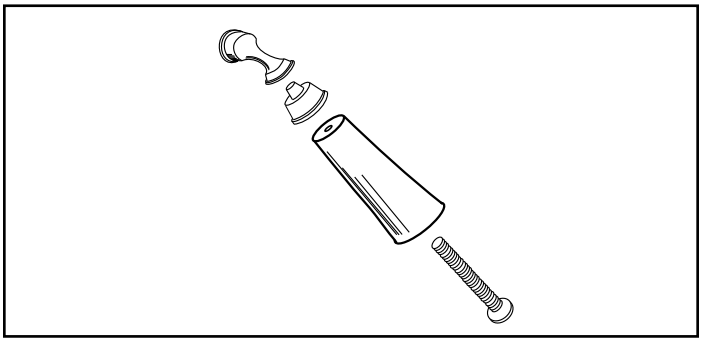


**Figure 5.8** - Assemble the front door handle.

## I. Fan Kit Installation

1. Attach the fan assembly at the bottom edge of the inner back with two (2) 1/4-20 x 3/4" hex head screws.
2. Attach snapstat to the mounting holes on the underside of the bottom with two (2) 1/4-20 pan head screws.
3. Attach the rheostat holder under the right front wing of the bottom heat shield with two (2) #10 sheet metal screws.
4. Attach the rheostat to its holder by inserting the rheostat control shaft through the holder hole. Install the retaining ring and rheostat knob onto the shaft.
5. Secure the rheostat cable to the underside of the bottom heat shield using the wire tie provided and the hole at the right rear edge of the heat shield.
6. Fan will not operate until stove reaches approximately 109°F.
7. Plug blower cord into a grounded outlet. Do not remove ground prong from plug. Route power cord to avoid heat from the stove or other damage. Do not route cord under or in front of appliance.

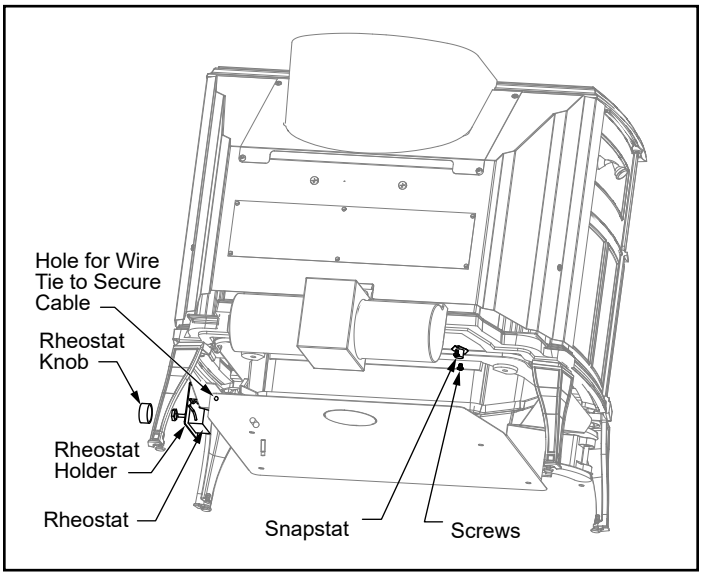



**Figure 5.9** - Fan installation

## J. Installing / Removing Catalyst

1. Remove the access cover by gently lifting up and pulling out from the bottom edge, Figure 5.10.
2. Remove the inner cover by pulling it straight out, Figure 5.11.
3. Remove the catalyst by gently pulling it straight out, Figure 5.12 Place the catalyst where the catalyst's ceramic components will not be damaged.

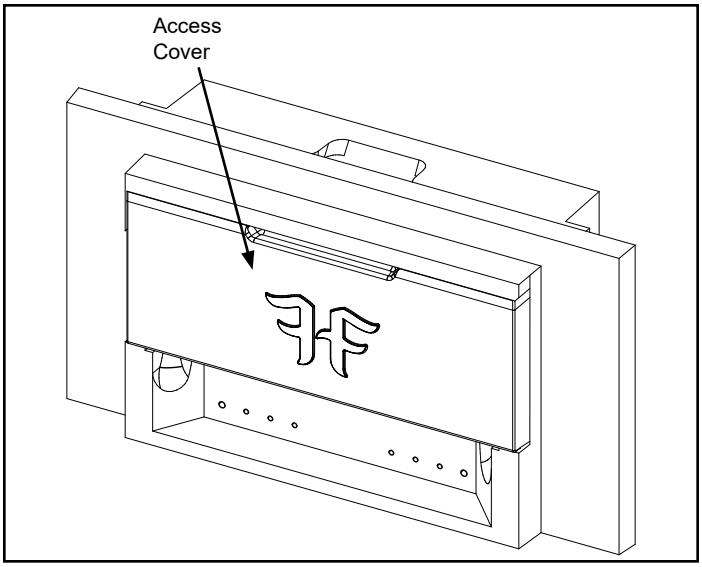



**Figure 5.10** - Remove access cover.

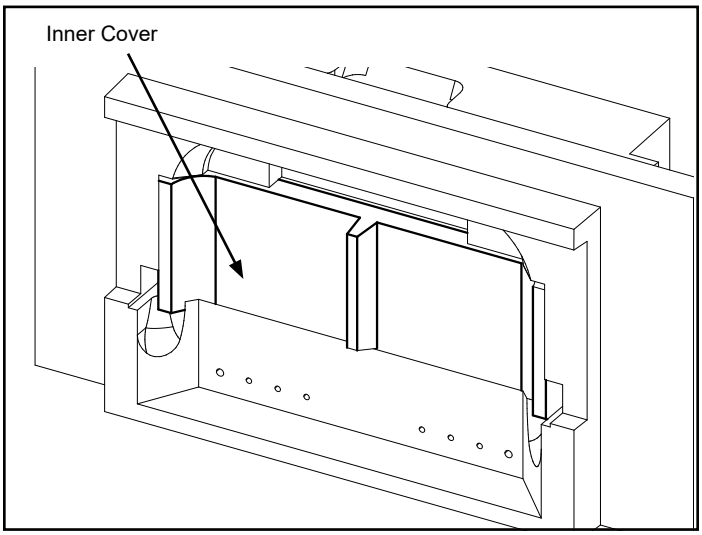



**Figure 5.11** - Remove inner cover.

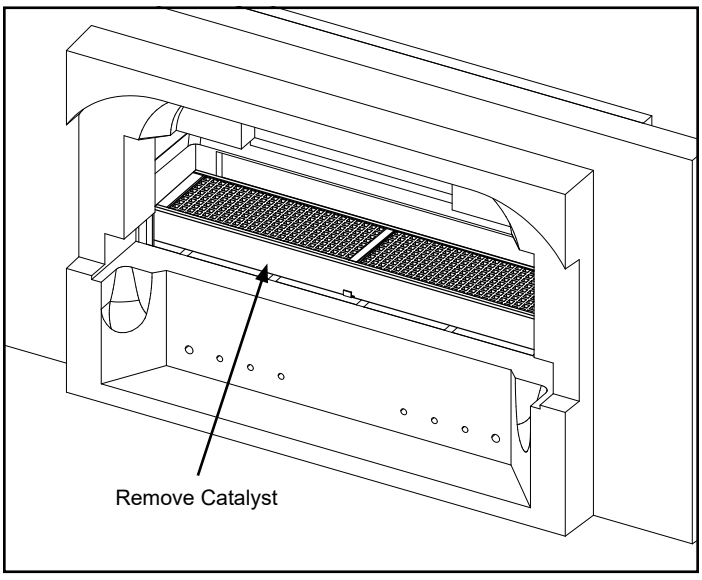



**Figure 5.12** - Remove catalyst.

**WARNING**

**Fire Risk**

**Asphyxiation Risk**

Do not draw outside combustion air from:

- Wall, floor or ceiling cavity
- Enclosed space such as an attic or garage
- Close proximity to exhaust vents or chimneys

Fumes or odor may result

**WARNING**

**Asphyxiation Risk**

Outside air inlet must be located to prevent blockage from:

- Leaves
- Snow or ice
- Other debris

Blockage may cause combustion air starvation

Smoke spillage may set off alarms or irritate sensitive individuals.

**WARNING**

**Asphyxiation Risk**

Length of outside air supply duct shall NOT exceed the length of the vertical height of the exhaust flue.

- Fire will not burn properly
- Smoke spillage occurs when door is opened due to air starvation

## K. Smoke and CO Detectors & Safety Tips

**Smoke and CO Detectors**

The use of smoke and carbon monoxide (CO) detectors throughout the home is strongly advised, even if not required by building codes or insurance regulations. It is a good idea to install a smoke detector in the living areas and each bedroom. Follow the smoke/CO detector manufactures placement and installation instructions and maintain regularly.

You may not, however, wish to install a detector in the immediate vicinity of the stove. Depending on the sensitivity of the unit, the alarm can be set off while you are tending the fire or emptying the ashes. If you install a detector in the same room, locate it as far away from the stove as possible.

**Safety Tips**

Conveniently locate a “Class A” fire extinguisher to contend with small fires. Be sure the fire extinguisher works and is clearly visible. All occupants of the house should know where it is, and how it operates. Have heavy stove gloves available near the stove. Have special safety accessories (e.g., Child Guard Screen) available for use if small children will be in the home.

In the event of a stove pipe or chimney fire….

- Evacuate the house immediately
- Notify the fire department
- If the fire isn’t too threatening, closing down the stove tight, (damper, primary air, all doors) will help to smother the fire.
- Inspect your stove, vent pipe and chimney for any damage caused by the fire and correct any damage before using your stove again.

**WARNING**

**Fire Risk**

- Do not leave the fire unattended when the door is unlatched or when using the fire screen.
- Unstable firewood could fall out of the firebox creating a fire hazard to your home.

# FORGE & FLAME

## CONTACT INFORMATION

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Halifax, PA 17032
Division of HNI INDUSTRIES

**Please contact your Forge & Flame dealer with any questions or concerns.**
**For the number of your nearest Forge & Flame dealer**
**log onto www.forgenflame.com**

## CAUTION

### DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.

**We recommend that you record the following pertinent information for your heating appliance.**

| | |
|---|---|
| Date purchased/installed: | |
| Serial Number: | Location on appliance: |
| Dealership purchased from: | Dealer Phone: 1( ) - |
| Notes: | |

This product may be covered by one or more of the following patents: (United States) 5341794, 5263471, 6688302, 7216645, 7047962 or other U.S. and foreign patents pending.