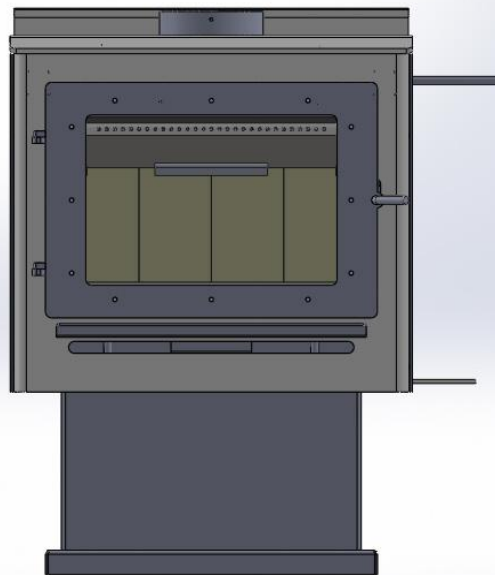


# FLAME INNOVATION



**Model: Chinook**

**VCV 2.1.5**

**Chinook VCV 2.1.5 Wood Stove Installation and Operation Manual  
EPA / UL/ CSA Mobile Home Approved in USA and Canada**



UL 1482-2022 CAN/ULC-S627:2023 Project # 24-283

Manuel en français Disponible sur FlameInnovation.com en bas de la première page.

**Chinook VCV 2.1.5 Wood Stove Installation and Operation Manual**

**EPA / UL/ CSA Mobile Home Approved in USA and Canada**

**Room Heater, Solid Fuel Type, Also for Use in Mobile Homes**

**This Stove needs to be installed with the correct stove pipe, as tested, and listed in this manual. Failure to do so will VOID the Warranty on this stove.**

ASTM E 3053 Weighted Averages

PM Emission Rate - g/h

1.29

CO Emissions Rate - g/h (Arithmetic Average)

1.29
37.7

CO Emissions Rate - g/min (Arithmetic Average)

37.7
0.6

Overall Efficiency - CSA B415.1-10

0.6

% HHV Basis

79%

% LHV Basis

79%
85%

Heat Output Range - Btu/h

85%
9800
to
36400

Manufactured By Flame Innovation  
509 Fabrications, Inc.  
dba: Flame Innovation  
6512 W. Seltice Way  
Post Falls, ID 83854



[info@509Fab.com](mailto:info@509Fab.com) Proudly Made in the USA

Rev. 4.0 10/2025

**Disclaimer: All Wood stoves burn differently in how they are controlled, Type and BTU content of wood used, capacity of the fire box, and chimney height, elevation etc.**

**CALIFORNIA PROPOSITION 65 WARNING: This product can expose you to chemicals including benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information: [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

**This wood heater contains a catalytic combustor, which needs periodic inspection and replacement for proper operation. It is against federal regulations to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if the catalytic element is deactivated or removed.**

**CAUTION:** This unit must be installed in accordance with these instructions and must comply with local building and fire codes. Failure to do so could result in a chimney or house fire. Keep children, furniture, fixtures, and all combustible materials away from any heating appliance. Refer to this owner's manual for all clearances to combustible materials.

## **SAVE THESE INSTRUCTIONS**

**ANY AND ALL SAFETY PRECAUTIONS MUST BE TAKEN AT ALL TIMES DURING OPERATION AND MAINTENANCE OF YOUR STOVE.** Read this entire manual before you install and use your new room heater. If this heater is not properly installed, a structure fire may result. To reduce the risk of fire, follow the installation instructions. Failure to follow instructions may result in property damage, bodily injury, or even death.

**CAUTION:** Stove is heavy (480 lbs.) In addition, when handling any sheet metal products, be aware that there may be sharp edges or burrs on the edges of the metal. Although we make every effort to eliminate any sharp edges, please use caution when handling any metal parts. Remember to always allow the stove to completely cool down before performing any maintenance.

**CAUTION:** If you have any doubt concerning your ability to complete your installation in a professional-like manner after reading these instructions, you should obtain the services of an installer who is versed in all aspects as to the correct and safe installation. Do not use temporary, makeshift compromises during installation.

## **Precautionary Statements**

Flame Innovation highly recommends the use ***of Smoke Detectors and Carbon Monoxide*** detectors with any hearth product, including this unit. Follow all manufacturer's instructions when using smoke or Carbon Monoxide detectors. **DO NOT INSTALL THIS STOVE IN A SLEEPING ROOM**

**CAUTION ONCE AGAIN PLEASE READ AND FOLLOW.** If you have any doubt concerning your ability to complete your installation in a professional-like manner after reading these instructions, you should obtain the services of an installer who is versed in all aspects as to the correct and safe installation. Do not use temporary, makeshift compromises during installation.

**WARNING: THINGS TO REMEMBER IN CASE OF A CHIMNEY FIRE: 1. CLOSE DRAFT CONTROL 2. CALL THE FIRE DEPARTMENT**

## BEFORE INSTALLATION OF YOUR APPLIANCE

**HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA, OR ENGINE OIL.**

1. Check with the building inspector's office for compliance with local codes; a permit may be required, even though this is a recreational stove.
2. **A 6" diameter flue is required for proper performance.** Minimum Height of stack 8ft. (Will vary with the Elevation where the stove is installed, you may need more chimney)
3. Always connect this unit to a chimney and NEVER vent to another room or inside a building.
4. DO NOT connect to any duct work to which another appliance is connected, such as a furnace.
5. DO NOT connect this unit to a chimney flue serving another appliance.
6. **DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE.**
7. The connector pipe and chimney should be inspected periodically and cleaned if necessary.
8. Remember the clearance distances when you place furniture or other objects within the area. **DO NOT** store wood, flammable liquids or other combustible materials too close to the unit.
9. Contact your local fire authority for information on how to handle a chimney fire. Have a clearly understood plan to handle a chimney fire. In the event of a chimney fire, turn air control to a closed position and CALL THE FIRE DEPARTMENT.
10. DO NOT tamper with the combustion air control beyond normal adjustment.
11. Once the required draw is obtained, operate only with door closed; Open door slowly when refueling.
12. Clean the stove glass before lighting the stove.
15. Visit our web site at [FlameInnovation.com](http://FlameInnovation.com) or call us at 509-993-3767 or 208-660-3109

ALWAYS PROVIDE A SOURCE OF FRESH AIR INTO THE ROOM WHERE THE UNIT IS INSTALLED. FAILURE TO DO SO MAY RESULT IN AIR STARVATION OF OTHER FUEL BURNING APPLIANCES AND THE POSSIBLE DEVELOPMENT OF HAZARDOUS CONDITIONS.

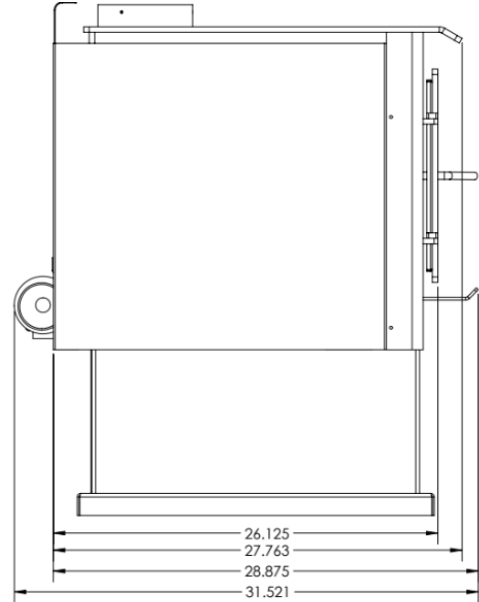
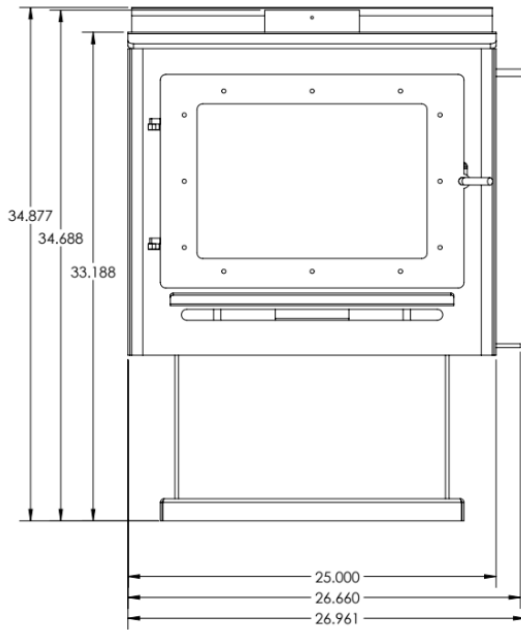
**Note on Outside Air Hookup:** **We highly recommend outside combustion air.** This involves connecting an aluminum flex pipe (usually three inches (4") in diameter from the air inlet opening located on the back of the stove and using an adapter through your floor or wall. The outside end of this pipe should be covered in some manner (i.e. with a screen) to keep it clear of foreign matter. Be sure to keep it above the snowdrift line and clear of leaves and other debris.

**NOTE: INSTALL TAKING ALL PRECAUTIONS AND TEST YOUR CLEARANCE TO COMBUSTIBLES AFTER INSTALL TO MAKE SURE SURFACES AROUND THE STOVE DO NOT GET HOT!!!**

### FIRST FIRE/ VERY IMPORTANT

Remember to ventilate well. Allow the stove to cure, making several small fires before burning for long periods of time at high temperatures. Flat spots on the painted surface are normal. Shiny spots on the painted surface (before burning) are normal. **SMALL FIRES OF 8 TO 10 INCHES IN DIAMETER.**

1. Do not use a grate or elevate the fire inside the firebox.
2. Use only Dry (Seasoned) Wood in 16" to 18" Length and 6" wide at most.
3. When the stove is used for the first time, solvents in the paint will smoke off as the stove "cures."



## INSTALLATION

### **THIS ROOM HEATER MUST BE CONNECTED TO:**

- 1.) A chimney complying with the requirements for Type-HT Chimneys in the Standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103 or
- 2.) A code-approved masonry chimney with a flue liner.
- 3.) **DO NOT INSTALL IN AN ALCOVE.**
- 4.) **DO NOT CONNECT TO OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATIONS.**
- 5.) **DO NOT INSTALL IN ANY FIREPLACE.**
- 6.) Floor Protection R-2 Hearth Pad required for Mobile Home Installation.

**WARNING: DO NOT INSTALL IN A SLEEPING ROOM. IF INSTALLING IN A MOBILE HOME, THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL AND ROOF / CEILING MUST BE CHECKED AND MAINTAINED AND A HEARTH PAD MUST BE INSTALLED TO DISTRIBUTE THE WEIGHT. FRESH AIR MUST BE SUPPLIED TO THE BACK OF THE UNIT.**

**Canada: A Chimney connector shall not pass through an attic or roof space, closet or similar concealed space, or a floor, or ceiling. Where passage through a wall or partition of combustible construction is desired. The installation shall conform to CAN/CSA-B365. Installation code for Solid-Fuel-Burning Appliances and equipment. Floor Protection R2 Hearth Pad must be installed in a Mobile Home. 18" In Front and 8" Per side and Back. 48" x 48" 1219mm x 1219 mm**

**\*IMPROPER INSTALLATION:** The manufacturer will not be held responsible for damage caused by the malfunction of a stove due to improper installation, CHIMNEY FIRES OR OVER-FIRING THE STOVE. It is very important to use only specified Components when installing Do not use makeshift methods or material which may compromise the installation. Improper Parts used can cause chimney fire and poor stove performance including exposure to carbon Monoxide. Flame Innovation will not be liable for consequential or indirect damage to property or persons resulting from the use of this product. Consult a professional installer if you have any questions.

**THIS ROOM HEATER MUST BE CONNECTED TO A CHIMNEY COMPLYING WITH THE REQUIREMENTS FOR TYPE-HT CHIMNEYS IN THE STANDARD FOR CHIMNEYS, FACTORY-BUILT, RESIDENTIAL TYPE AND BUILDING APPLIANCE, UL-103 OR A CODE-APPROVED MASONARY CHIMNEY WITH A FLUE LINER.**

1. Remove all parts from inside the stove body. Loose fire bricks must be placed correctly before installation. (See Brick Install Section.) check that the Baffle board is placed correctly and slides to the back of the stove wall with no gaps.)
2. Select the proper location for the stove. These appliances must not be installed any closer than the minimum clearance to combustibles. (See State and county regulations)
3. The stove must be installed on a non-combustible surface w/ 16" in front of the door
4. If non-combustible materials have been installed on the walls, obtain the minimum clearances from either the manufacturer of these materials or the local building inspector's office.
5. Install the stovepipe INSIDE the flue collar on the top of the stove, between the stove and the chimney. Attach mounting screws in holes provided in flue collar.
6. **DO NOT use a grate to elevate the fire inside the firebox. Build Fire directly on hearth.**
7. A minimum clearance between the stove pipe and combustible materials is required. Check with authorities having jurisdiction in your area with any questions. Double and triple wall pipes vary for clearances. Read the labels on the pipe.
8. Unless noted on several stove pipe manufacturers stove pipe, all the pipe sections **MUST BE** connected with the male (crimped) end toward the stove.
9. Fasten the stove pipe to the flue collar using three metal screws. Do the same at each additional joint to make the entire installation rigid.
10. Maintain the required 6" diameter flue for the entire installation according to local rules and regulations.
11. It is recommended that no more than two 90-degree bends be used in the stovepipe installation. More than two 90-degree bends may decrease the amount of draw, and possibly cause smoke spillage.
12. An inline damper is not required in this installation. Remove the damper plate in the chimney or secure it in the OPEN position. **FAILURE TO FOLLOW THE MINIMUM CLEARANCE REQUIREMENTS MAY RESULT IN AN UNSAFE INSTALLATION.**
13. **ALWAYS Check for Leaks**

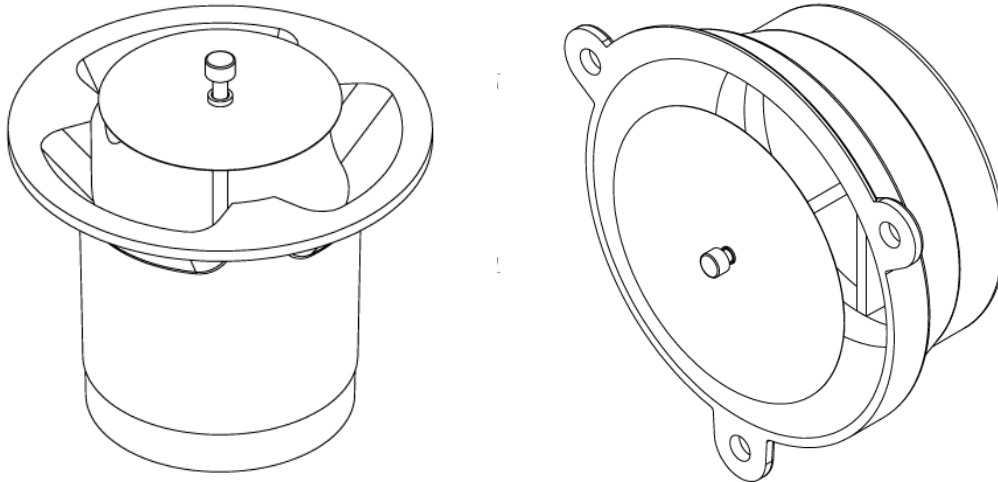
## VCV Installation

### **Remove the VCV's from the box inside the stove. Wrench Included.**

The Primary VCV will be installed first. From the back of the stove reach under and slide the small end of the VCV up inside the provided round collar. Tighten the set screw even with the casting line marked with black marker on the VCV.

The secondary VCV will install the same way tightening the set screw.

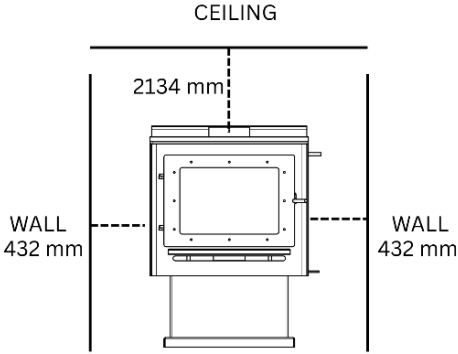
Make sure both VCV's are level in appearance under the stove. **DO NOT OVERTIGHTEN. BE CAREFULL NOT TO BEND THE RODS WHERE THE DISCS SLIDE UP AND DOWN AS YOU INSTALL THE VCV. DISC HEIGHTS ARE FACTORY SET**



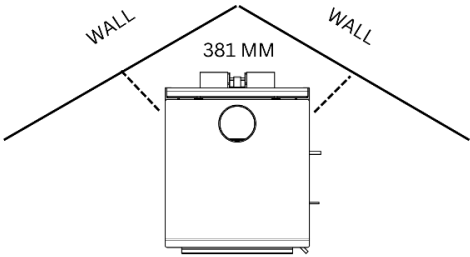
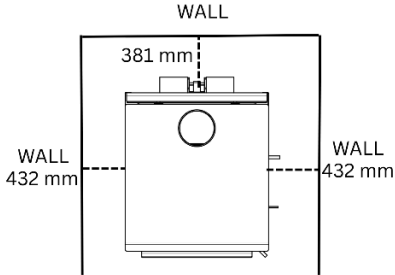
**PRIMARY VCV ON THE LEFT / SECONDARY VCV ON THE RIGHT**

**FRESH OUTSIDE COMBUSTION AIR IS HIGHLY RECOMMENDED.** USE 4" FLEXIBLE ALUMINUM TUBE

# Clearance To Combustibles Canada

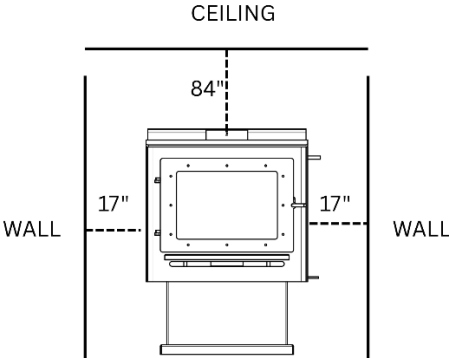


**Floor to Ceiling 2134MM**

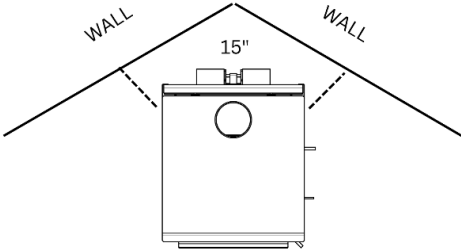
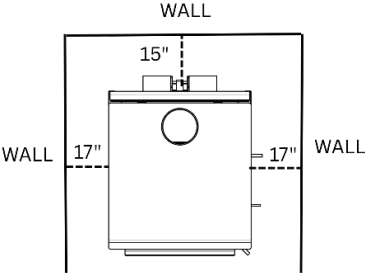


**Corner Installation**

# Clearance To Combustibles USA



**Floor to Ceiling 84"**



**Corner Installation**

## MASONRY CHIMNEY

Ensure that a masonry chimney meets the minimum standards of the National Fire Protection Association (NFPA) by having it inspected by a professional. Make sure there are no cracks, loose mortar or other signs of deterioration and blockage. Have the chimney cleaned before the stove is installed and operated. When connecting the stove through a combustible wall to a masonry chimney, special methods are needed. Refer to Combustible Wall Chimney Connector Pass-Throughs.

## MASONRY FIREPLACE

There are listed kits available to connect a stove to a masonry fireplace. The kit is an adapter that is installed at the location of the fireplace damper. The existing damper may have to be removed to allow installation.

**Canada: To comply with CSA B365, Installation Code for Solid-Fuel-Burning Appliances and Equipment, any combustible covering beneath the appliance and/or within the area extending horizontally at least 450 mm (18 in) beyond the appliance on any side equipped with a door, and at least 200 mm (8 in) beyond the appliance on other sides, shall be protected by a continuous, durable, non-combustible pad that will provide ember protection. The 450 mm (18 in) ember protection required on any side with a door shall extend for the full width of the appliance plus the 200 mm (8 in) required on each side of the appliance without a door. Where an appliance is installed less than 200 mm (8 in) from a wall, the ember pad needs only extend to the base of the wall. An ember pad shall not be placed on top of a carpet unless the pad is structurally supported to prevent displacement and distortion.**

**NOTE: Do not install the chimney directly at the outlet of the appliance. A chimney connector (flue pipe) is required unless the appliance is specifically approved for that type of installation.**

- **If the stove is installed in a transportable building, the chimney must be removed.**
- **Completely seal all penetrations of the chimney with high temp sealant and fresh air holes to maintain continuity of the air barrier system.**
- **Make Sure all Baffles and Bricks are located in the correct position before final placement or any more moving of the stove.**
- **Installation An R-2 Hearth Pad is Required for Free-Standing**

**Installation: An R-2 Hearth Pad is Required for Free-Standing Installation in a mobile Home in the US. Minimum Ember Protection in all Installations. 16" in Front of Door USA / 18" 457mm Canada. All other sides 8" / 203MM**

Type 2 – Traditional Hearth Pads

Fully non-combustible, with an R-value of **2.24** or **1.592** (R-value information), it provides protection well above the minimum requirements for Type 2 hearth pads (minimum requirement of R-value=1.0).

Your hearth pad is the layer of material that sits between your stove or fireplace and the floor or subfloor under it. Often made of natural stone tile, ceramic tile, thin set cement board and other building materials, the hearth pad protects the subfloor from the heat of the fire above it. Its R-value, or thermal resistance, tells you how well it insulates the subfloor. To find the R-value, you need to know what materials the hearth pad is made of and their relative R-values, K-values or C-values. These other two values measure thermal conductivity.

Look at the edge of the hearth pad, so you can see a cross-section of all its materials. If you have already installed the hearth pad, you might have to remove a decorative tile bevel or some other sort of edging to see the cross-section.

Measure the height in inches of each material used in the hearth pad. For example, if the hearth pad has a layer of cement board on the bottom, a layer of thin set in the middle and a layer of ceramic or stone tile on top, measure the height of each layer.

Consult an R-value chart to determine the R-value of each layer. Hearth manufacturers, insulation manufacturers and utility companies may have these charts on their websites or in their stores or offices.

Add the R-values of all the layers in the hearth pad to find the hearth pad's total R-value.

Measure the thickness of any layers of the hearth pad for which you know the K-value. You don't need to measure the layers for which you know the C-value.

Divide 1 by the K-value of the layer. Multiply the result by the thickness of the layer. This gives you its R-value. For example, if you have a 1/2-inch layer of a material with a K-value of 0.3, divide 1 by 0.3 to get 3.333, then multiply that by 0.5 to get an R-value of 1.667.

Divide 1 by the C-value of a layer. This gives you the R-value. For example, if you have a layer with a C-value of 1.15, divide 1 by 1.15 to get an R-value of 0.87.

Repeat these calculations for any remaining layers. Add the R-values together to get the total R-value for the hearth pad.

**METHOD A.**

12" (304.8 mm) Clearance to Combustible Wall Member: Using a minimum thickness 3.5" (89 mm) brick and a 5/8" (15.9 mm) minimum wall thickness clay liner, construct a wall pass-through. The clay liner must conform to ASTM C315 (Standard Specification for Clay Fire Linings) or its equivalent. Keep a minimum of 12" (304.8 mm) of brick masonry between the clay liner and wall combustibles. The clay liner shall run from the brick masonry outer surface to the inner surface of the chimney flue liner but not past the inner surface. Firmly grout or cement the clay liner in place to the chimney flue liner.

**METHOD B.**

9" (228.6 mm) Clearance to Combustible Wall Member: Using a 6" (152.4 mm) inside diameter, listed, factory-built Solid-Pak chimney section with insulation of 1" (25.4 mm) or more, build a wall passthrough with a minimum 9" (228.6 mm) air space between the outer wall of the chimney length and wall combustibles. Use sheet metal supports fastened securely to wall surfaces on all sides, to maintain the 9" (228.6 mm) air space. When fastening supports to chimney length, do not penetrate the chimney liner (the inside wall of the Solid-Pak chimney). The inner end of the Solid-Pak chimney section shall be flush with the inside of the masonry chimney flue, and sealed with a non-water-soluble refractory cement. Use this cement to also seal to the brick masonry penetration.

**METHOD C.**

6" (152.4 mm) Clearance to Combustible Wall Member: Starting with a minimum 24 gage (.024" [.61 mm]) 6" (152.4 mm) metal chimney connector, and a minimum 24 gage ventilated wall thimble which has two air channels of 1" (25.4 mm) each, construct a wall pass-through. There shall be a minimum 6" (152.4) mm separation area containing fiberglass insulation, from the outer surface of the wall thimble to wall combustibles. Support the wall thimble, and cover its opening with a 24- gage minimum sheet metal support. Maintain the 6" (152.4 mm) space. There should also be a support sized to fit and hold the metal chimney connector. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure the metal chimney connector does not penetrate chimney flue liner.

**METHOD D.**

2" (50.8 mm) Clearance to Combustible Wall Member: Start with a solid-pack listed factory-built chimney section at least 12" (304 mm)

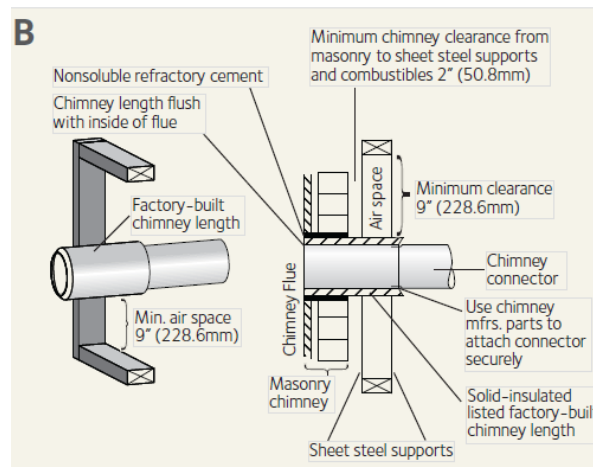
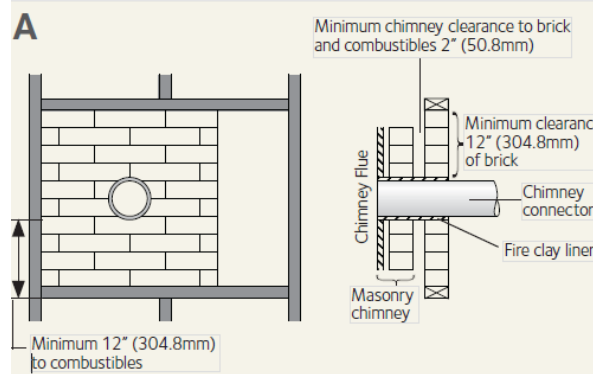
long, with insulation of 1" (25.4 mm) or more, and an inside diameter of 8" (2 inches [51 mm] larger than the 6" [152.4 mm] chimney connector). Use this as a pass-through for a minimum 24-gage single wall steel chimney connector. Keep solid-pack section concentric with and spaced 1" (25.4 mm) off the chimney connector by way of sheet metal support plates at both ends of chimney section. Cover opening with and support chimney section on both sides with 24 ga minimum sheet metal supports. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners are used to secure chimney flue liner.

**NOTES:**

1. Connectors to a masonry chimney, excepting method B, shall extend in one continuous section through the wall pass-through system and the chimney wall, but not past the inner flue liner face.

1. A chimney connector shall not pass through an attic or roof space, closet or similar concealed space, or a floor, or ceiling.

**2. THE VCV STOVE DOES NOT HAVE A REAR EXHAUST OUTLET, THEREFOR DO NOT INSTALL IN OR UP A BUILT IN FIREPLACE / HEARTH FIREPLACE. DO NOT MOUNT THE STOVE IN FRONT OF A BUILT IN FIREPLACE AND RUN THE CHIMNEY UP THROUGH THE OPENING AT GROUND LEVEL. ONLY INSTALL AS DESCRIBED ABOVE BY A THROUGH WALL PENETRATION TO THE CHIMNEY LINER.**



## FLUE SYSTEM

### CANADA

#### Chimney Must be Labeled CAN/ULC-S629 or Code Compliant Chimney or Single Wall Stainless Steel Chimney where Clearance to Combustibles is Met

The VCV 2.1.5 Wood Stove is designed for use with a 6" Flue System either in single wall (Minimum 28 ga. Metal or Stainless Steel for 18" Clearance to combustibles) or Double Wall Chimney pipe or Class "A" 6" Pipe for 6" Clearance to combustibles around the pipe only, not the stove at any time. Read instructions on the labels of the non-single wall pipe. (The black or non-painted connector pipe should be at least 28 ga. steel and a minimum of eighteen inches (18.0") from a combustible wall and eighteen inches (18.0") from ceiling. It is permissible to use single wall pipe, **BUT NOT RECOMMENDED** and Class A pipe both if you follow your counties rules and regulations with no single wall pipe penetrating any surface without 18" Clearance to combustibles around it. It is recommended in this situation to convert to Double Wall or Class A pipe at the ceiling box transition. 8 ft or more chimney is best. If you need more draft, add a section of chimney pipe.

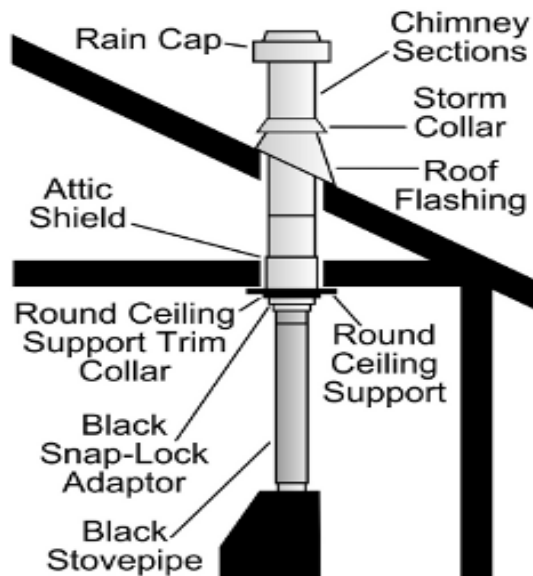
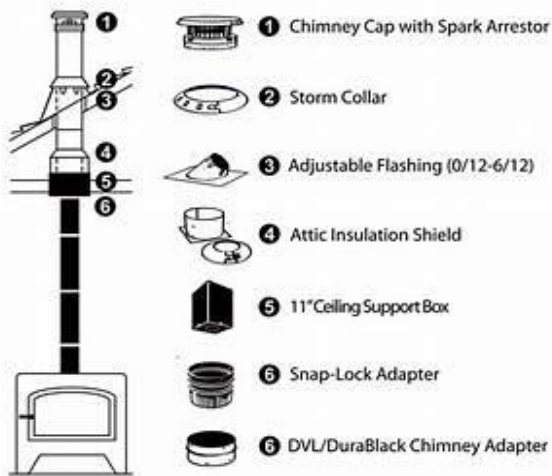
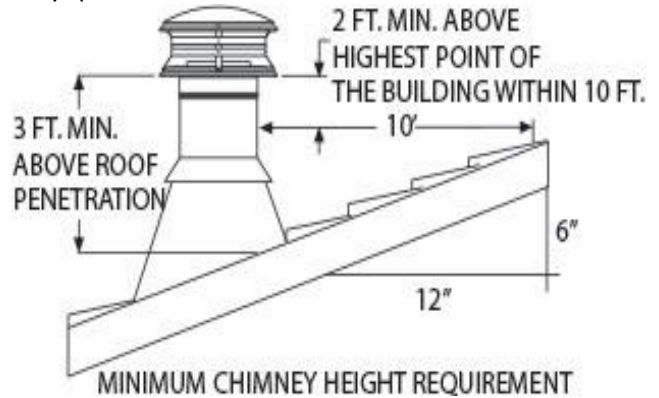
***It is not permitted to connect this unit to a chimney that is servicing another unit.***

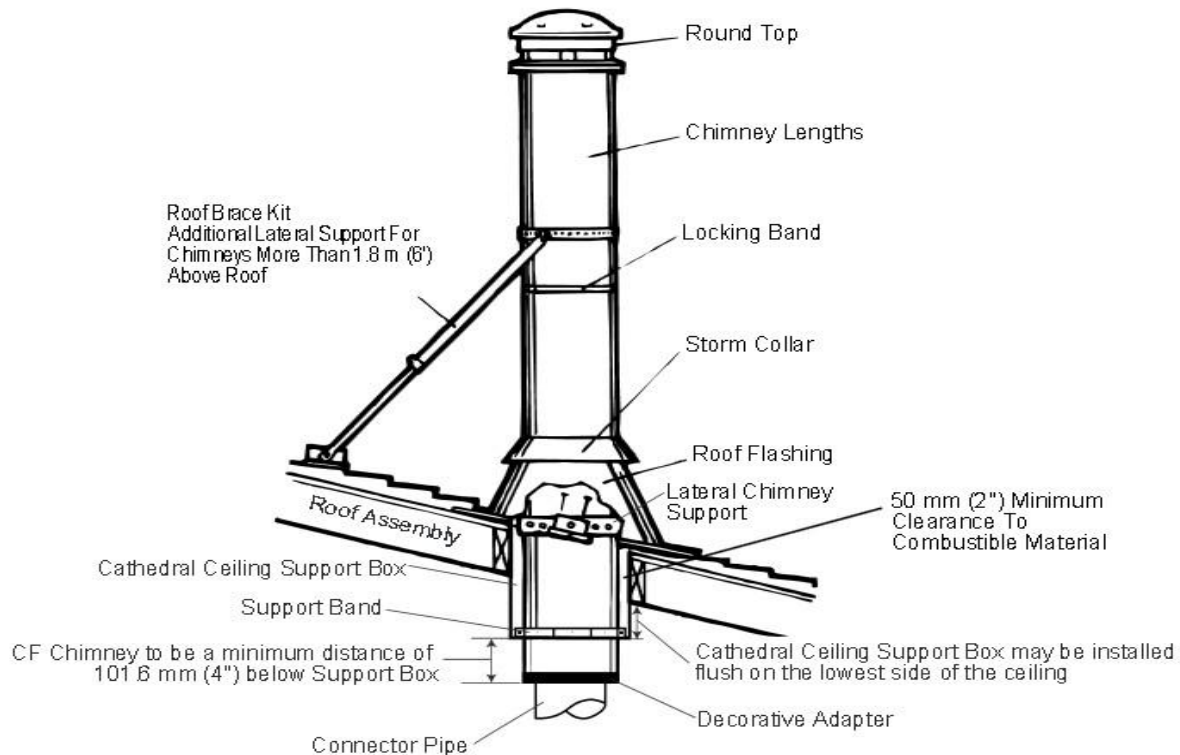
**Flue Size**-The proper flue size is determined by measuring the inside diameter of the flue collar on the unit. This stove is equipped with a SIX-inch (6") TOP EXHAUST FLUE COLLAR. Therefore, the connector pipe should be six inches (6") and never less in diameter than the collar on the stove. Different manufacturers of stove pipe have different parts to adapt to stoves and their brand of stove pipe to accommodate 6" Pipe. This is necessary to accommodate pipe variation from different manufacturers and maintain a good seal. All Joints should be sealed and checked for leaks.

**ALL CHIMNEY PIPES AFTER BURNING AND INSTALLING SHOULD BE CLEANED AND INSPECTED ON A REGULAR BASIS DEPENDING ON HOW MUCH YOU ARE BURNING.**

It is the consumer's responsibility to ensure the chimney system is safe and in good operating condition. **The manufacturer will not be held responsible for an accident attributed to a unit connected to a faulty chimney system. This stove carries a 5 warranty except for shipping damage, which must be reported with 5 days of receiving shipment to ensure replacement or repair from a warranty claim through the shipping company. THERE IS NO WARRANTY ON WEAR PARTS SUCH AS BURN TUBES, BAFFLE, BLANKET, PAINT, GLASS, BRICKS, ETC.**

**\*IMPROPER INSTALLATION:** The manufacturer will not be held responsible for damage caused by the malfunction of a stove due to improper installation, CHIMNEY FIRES OR OVER-FIRING THE STOVE. Do not use makeshift methods or material which may compromise the installation. 509 STOVES will not be liable for consequential or indirect damages to property or persons resulting from the use of this product. Consult a professional installer if you have any questions.





Examples of single wall 6" to Double Wall or Class A 6" Insulated / Triple wall Chimney at ceiling. **EVERY INSTALL IS DIFFERENT, THESE ARE SUGGESTIONS**

Note: You must Maintain 18" From Ceiling with single wall Pipe and minimum 13" to 18" From walls with 1" Air Gap behind Non-Flammable wall boards.

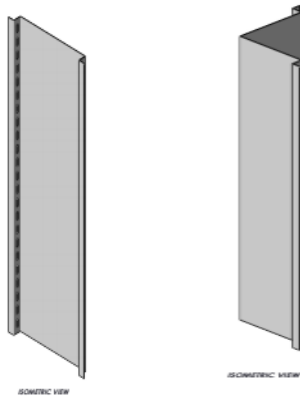
**FLOOR AND WALL PROTECTION**

1. You will not need any floor protection if your floor is constructed of non-combustible material such as brick, metal, or concrete. If your floor is constructed with combustible material such as hardwood, carpet, or linoleum, you must place protection between the stove and the combustible material. There are many floor and wall board manufacturers. The type of board you choose should be U.L. rated and listed Fiber Board or Masonite of some type. After examining the area you plan to place your stove and determining it requires a board, the next step is to select the proper size. The stove you choose will determine the size board that is required. The approved protector board should be large enough to provide a minimum of eight inches (8") behind the unit, eight inches (8") on either side and sixteen inches (16") in the front where the door is located. This stove requires a minimum of 42.0" D x 34" W for floor protection.
2. **Installation on a Concrete Floor** An appliance mounted on a concrete floor does not require floor protection. Carpeting and any other combustible material must not cover the Floor Protector. If a combustible surface is applied to the concrete floor, clearance must be maintained equivalent to the area reserved for the floor protector. Floor Protection Foot-Print Minimum Size 42.0" x 34"

**Installation on a Combustible Floor** If the appliance is to be installed on a combustible floor or a combustible floor covering, it must be installed on a 1" thick non-combustible millboard floor protector or a durable equivalent, with a "R" factor of no less than "2." The pad must be installed beneath the unit, extending 16" (U.S.) on the side equipped with a door, and 8" on all other sides. The pad must cover any horizontal chimney connector runs and extend 2" beyond each side.

### **Wall Protection (Cont'd)**

In some areas local codes may require thirty-six inches (36") from a combustible, therefore it is especially important that you check with local officials. If you need to place your unit closer to a combustible wall, some protection will be necessary. If an approved wall board is used this will reduce your clearance by two thirds (2/3); however, a one inch (1") air space has to be between the board and the wall. If you have a ceiling flue hook-up, you will need protection from the floor to the ceiling if you do not meet the normal clearances. If you have a wall flue hook up, you will need wall protection at least twelve inches (12") above the wall thimble.



**Examples of wall protection with 1" Air gap**

## **Outside Air Connection**

The stove can accept a 4-inch aluminum flex tube for outside air. Make sure when connecting the fresh air tube to the outside that you cover the end with a screen of some sort, but not a screen that would restrict air in-flow. **Utilize a screen with wider openings ONLY.**

### **WE WILL REPEAT: THE FIRST FIRE IS VERY IMPORTANT**

Remember to ventilate well. Allow the stove to cure with several small fires before burning for long periods of time at high temperatures. Flat spots on the painted surface are normal. Shiny spots on the painted surface (before burning) are normal. **SMALL FIRES OF 4 TO 5 INCHES IN DIAMETER.**

1. Do not use a grate or elevate the fire inside the firebox.
2. Use only Dry (Seasoned) Wood in 16" to 18" or smaller lengths and 6" wide at most.
3. When the stove is used for the first time, solvents in the paint will smoke off as the stove "cures."

**CLEAN AND INSPECT YOUR CHIMNEY REGULARLY AND WATCH OUTSIDE FREQUENTLY TO LOOK FOR SMOKE TO INSURE CORRECT DRAFT PLACEMENT FOR EFFECTIVE CLEAN EFFICIENT BURNING.**

**ALWAYS STORE YOUR LOGS/ WOOD IN A WELL-VENTILATED AREA AWAY FROM DIRECT MOISTURE.**

WOOD/FUEL – Higher efficiency and lower emissions generally result when burning NATURAL SAWDUST LOGS. Cord wood must be dry and split. **DO NOT OVERFIRE THE STOVE** Use only dry, seasoned wood. **Green wood, besides burning at only 60 percent of the fuel value of dry wood, deposits creosote on the inside of the stove and along the chimney. This can cause extreme danger of chimney fire.**

To be called “seasoned,” wood must be dried for a year. Regardless of whether the wood is green or seasoned, it should be stored in a ventilated, sheltered area to allow proper drying during the year. Wood should be stored beyond recommended clearances from combustibles.

**DO NOT BURN:** Logs with Additives, Treated Wood, Garbage, Solvents, Trash, Cardboard, Colored Paper, or Coal. (Spiders are ok)

**NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR ‘FRESHEN UP’ A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE HEATER WHILE IT IS IN USE.**

## **BUILDING AND LIGHTING A FIRE**

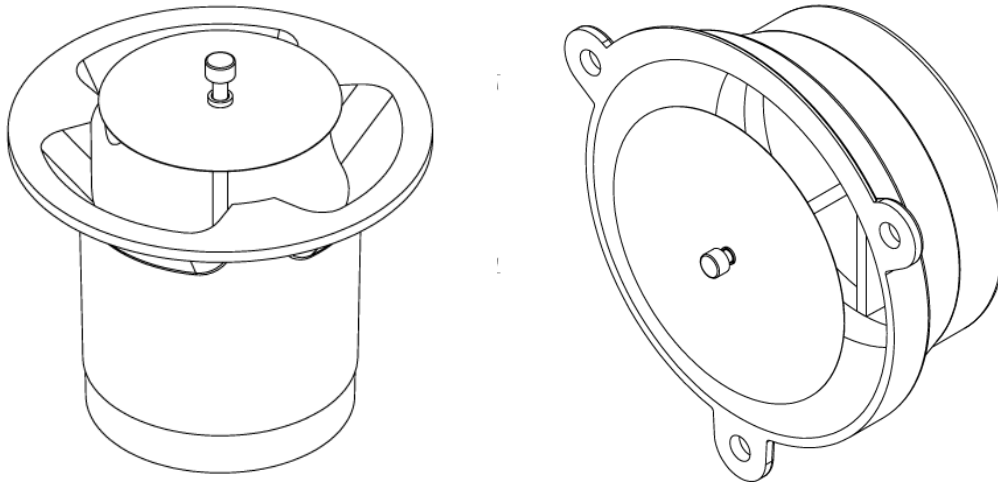
Before building a fire, make sure your fire box is clean, the door glass is clean, and only a small amount of ash is left on the brick floor. **OPEN THE UPPER BYPASS CONTROL ON THE RIGHT SIDE OF THE STOVE.**

To build your kindle fire, use smaller (4” TO 6” Split diameter) pieces of wood on the bottom layer against the brick running front to back, making sure you have space in between them and the stove side walls. At your second layer and up, cross your pieces leaving air gaps in between. The smallest kindling is placed on top. Light the fire from the top small kindling and let it burn down to the bigger pieces, making sure you have a good flame to your original start. **AT THE END OF THIS PERIOD OF BURNING AND GETTING A GOOD FIRE GOING, CLOSE THE BYPASS CONTROL.**

**DO NOT OVER FILL THE FIREBOX ON THE INITIAL LOAD. THIS WILL ALLOW YOU TO BUILD A COAL BED FOR ADDING WOOD AT A LATER TIME.**

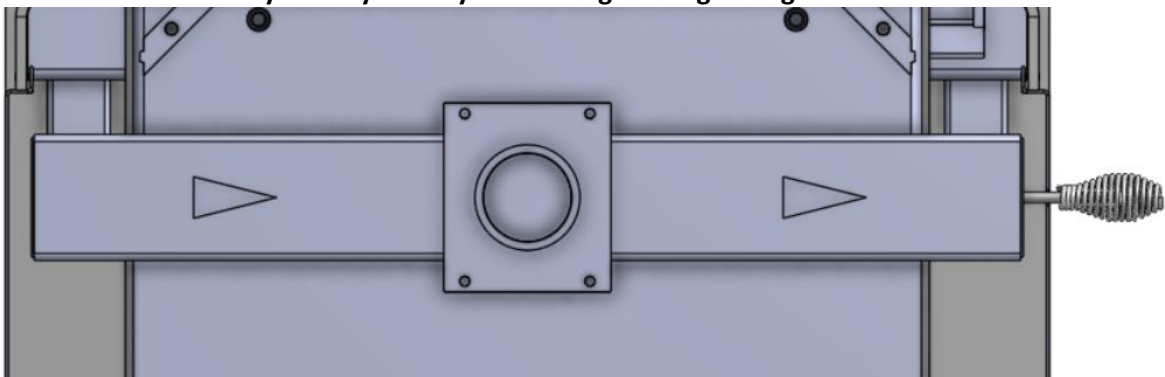
**Always make sure to close the door immediately after starting the fire.** A couple of times lighting the stove, you will figure out what works best for you. **Different lengths of chimney, and types of chimneys used for configuration, elevation, and temperature play roles in how the fire will burn. Find your best damper control locations as you test your stove and learn how it operates the stove.**

## DRAFT / AIR CONTROLS / VCV'S

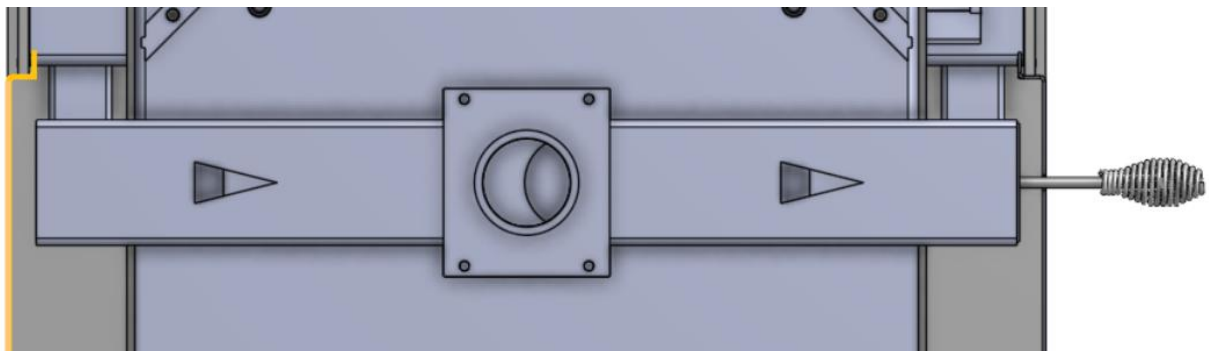


### PRIMARY VCV ON THE LEFT / SECONDARY VCV ON THE RIGHT

The Primary and Secondary VCV's are mechanically operated by the draft of the stove. When the stove is on low setting, the primary disc will "Float" inside the chamber of the VCV and when draft becomes fast enough, it will close that air supply by going up further inside of the body of the VCV and will automatically drop when the door is open. The Secondary VCV will operate controlling the air to the secondary burn system by monitoring and regulating air flow based on draft as well.



**Example Damper Shown Fully Closed (View Under Stove)**



**Example Damper Shown Partially Open (View Under Stove)**

The Damper is located on the bottom right side of the stove. Sliding the damper all the way in will shut off all the air to the stove. Pulling out to the low position will let the stove burn on low and let the primary and secondary VCV's work in tandem. Pulling out to medium position will open up some of the triangles you see in the picture and also let the primary and secondary VCV's work in tandem to regulate the air flow into the stove. Pulling the damper all the way out to the high position will open all the air available to the stove fully opening the triangle air ports on the damper plate and only let the secondary VCV regulate what portion of air will enter the stove in the secondary burn chamber based on the draft volume of the chimney stack.

LOW: First mark on the damper slide rod even with the edge of the side shield of the stove.

MEDIUM: Second mark on the damper slide rod even with the side panel of the stove.

HIGH: Damper pulled all the way out to the stop position.

**DAMPER OPERATION CAUTION** This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

**Use Gloves to adjust drafts when stove is hot, especially when the stove is in operation**

### **Catalytic Stove / Off Season Burning**

WOOD BURNING IN THE SHOULDER SEASON: There are a few things to consider if you choose to light a fire during the spring or fall seasons when the outside temperature is milder, perhaps 55°F to 70°F (13°C to 21°C). You may notice smoke spillage out of the loading door when it is opened during start up or reloading. This is caused by a lack of natural draft within the chimney system. The temperature difference between the chimney system and the outside air causes flue gasses to be drawn up and out of the chimney. Smaller temperature differences produce less draft in your chimney system than larger temperature differences. This air movement, referred to as Stack Effect, is also influenced by air density and moisture differences. To eliminate the smoke spillage, you may have to stoke the fire for longer than usual. Once the fire warms the chimney the draft will improve, and spillage will be reduced. When operating the appliance on a lower setting, the resultant lower flue temperatures can cause your chimney system to cool down. This also decreases natural draft and spillage may occur. General Rules for burning in the shoulder season: • Run your appliance on HIGH for 30 minutes after start up and reloading before gradually turning the damper down to the desired heat output setting. • The damper setting needs to be high enough to keep the catalytic combustor in the active red fired color. If you do not see red color, which does not mean the combustor is not firing, step outside and verify no smoke from the chimney. Repeat as required. • If your appliance is producing too much heat, try to reduce the volume of wood fuel loads rather than turning your damper down. It is good burning practice to build smaller, hotter fires on milder days in the spring and fall.

**ICE - FORMATION AND PREVENTION** Most of what you see coming from the chimney of a properly operating catalytic appliance is water vapor. In extremely cold weather, and with some exterior chimneys, this vapor may freeze in the chimney to the point of actually blocking the chimney and extinguishing the fire. In such weather, burn the appliance for 5 to 10 minutes with the damper set to HIGH to melt any possible ice build-up.

## **NOTE: VCV Catalyst Properties**

**2.54 x 13 x 2.16**

**Metal Foil Monolith / Cell Dimension 50 CPSI/Stainless Steel Frame  
403/304 14 ga. /Foil Type DIN1.4767, .002" FeCRAlloy foil/ Foil Height 2"  
Coated with Proprietary PGM/Wash coat U3. Airflow through 2.16" side**

### **Catalyst Properties**

**Catalyst / Combustor Part # WF-4150001407** Burning of materials other than the specified fuels make the catalyst in the combustor inactive. The Performance of the Catalytic device or its durability has not been evaluated as part of the certification of the stove. The Combustor is Fragile / Handle Carefully.

### **Catalyst Monitoring**

#### **WARNING WARNING WARNING**

DO NOT USE THE APPLIANCE WITHOUT A COMBUSTOR It is important to periodically monitor the operation of the catalytic combustor to ensure that it is functioning properly. A non-functioning combustor will result in a loss of heating efficiency, and an increase in creosote and emissions. Following is a list of items that should be checked on a periodic basis:

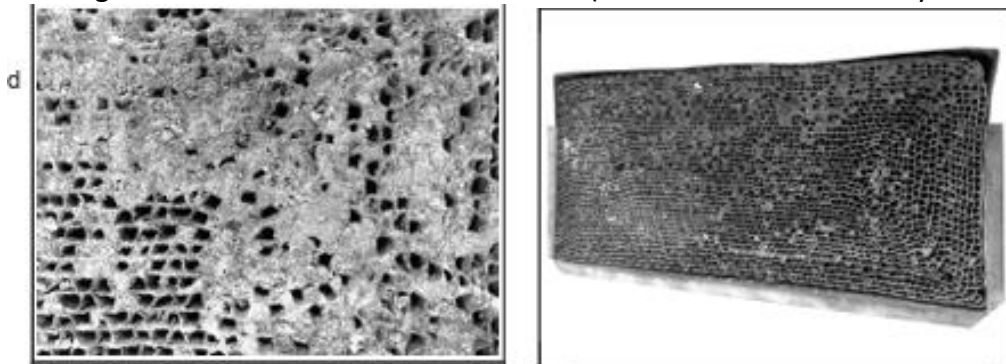
- Combustors should be visually inspected at least three times during the heating season to determine if physical degradation has occurred. Actual removal of the combustor is not recommended unless more detailed inspection is warranted because of decreased performance. Refer to "CATALYTIC COMBUSTOR TROUBLESHOOTING" on next page. Properly functioning combustors typically maintain temperatures in excess of 500°F and often reach temperatures in excess of 1000°F. If catalyst temperatures fall below 500°F, refer to next step and to "CATALYTIC COMBUSTOR, TESTING" below.
- You can get an indication of whether the catalyst is working by comparing the amount of smoke leaving the chimney when the smoke is going through the combustor and catalyst light-off has been achieved, to the amount of smoke leaving the chimney when smoke is not routed through the combustor (bypass mode):

- Light the appliance as per the lighting instructions (see "LIGHTING THE FIRE"). With smoke routed through the catalyst, go outside and observe the emissions leaving the chimney.
- Open the bypass mechanism, wait approximately 15 minutes, and again observe the emissions leaving the chimney. Significantly more smoke will be seen when the exhaust is not routed through the combustor (bypass mode). Some smoke may be visible shortly after you start the fire and shortly after reloading the fire. Allow 20 to 30 minutes for the fire to stabilize before making observations.

CATALYTIC COMBUSTOR, TESTING Light the fire per the lighting instructions. After 1 hour of burning a well-established fire, position the DAMPER to a medium - low burn rate setting. A properly functioning combustor will have an active temperature greater than 500F. Repeat this procedure for at least 3 burn cycles. If, after several burn cycles, the COMBUSTOR will not indicate an ACTIVE / RED reading your combustor may require cleaning or replacement. If, after cleaning and reburning, your combustor is still not producing an ACTIVE/RED reading you should contact your dealer for a replacement combustor

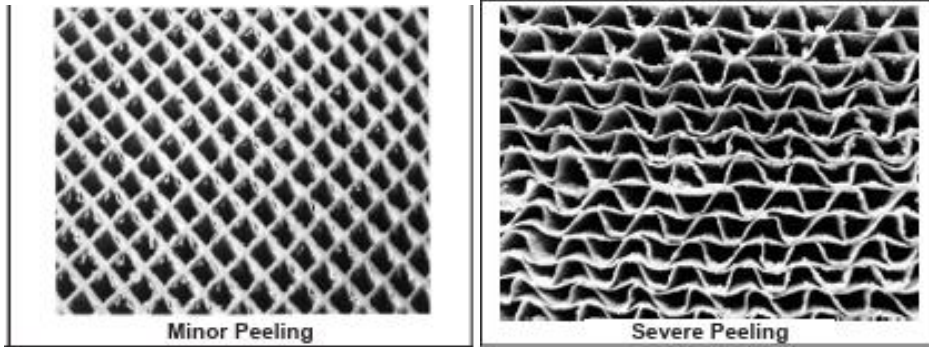
**CATALYTIC COMBUSTOR, CLEANING** Under certain conditions, ash particles may become attached to the face of the combustor. These may be seen while the combustor is in the glowing stage, or when the fire is out. Any deposit on the visible face of the combustor should be removed. Wait until the fire is out and the appliance is cold before performing any cleaning. Brushing the combustor with a soft bristle paint brush will remove some deposits. Passing a vacuum cleaner wand or brush near the face of the combustor will remove most deposits. (Hot ash in a vacuum cleaner bag will burn, may melt the vacuum or cause a house fire. Exercise caution and never clean the appliance when the appliance or ashes are hot.) Never scrape the combustor with any hard tool or brush. Never run pipe cleaner through the individual cells of the combustor. This is not needed and may do more harm than good. Limit cleaning to the face of the combustor. **NOTE:** Never remove a combustor without approved combustor gasket in hand as original gasket will fall apart when removed from appliance. Remember to re-install the **CAT PROTECTOR** (the perforated plate) in same position it was found. **TIP:** A hot fire will usually prove to be the best method of cleaning the combustor of deposits.

**PROBLEM - CREOSOTE PLUGGING** Possible Cause: Burning materials that produce a lot of char and fly-ash. Solution: Do not burn materials such as garbage, gift wrap, or cardboard. Possible Cause: Burning wet, pitchy woods or burning large loads of small diameter wood with the combustor in the operating temperature range. Solution: Burn dry, seasoned wood, don't engage the bypass until the temperatures are high enough to initiate light-off. Possible Cause: Combustor not functioning. If proper burning procedures have been followed to no avail, the combustor is not functioning. Solution: Replace the combustor with a genuine Flame Innovation combustor (failure to do so will void your warranty).



### **CREOSOTE PLUGGING**

**PROBLEM - CATALYST PEELING** Possible Cause: Extreme temperatures (above 1800°F, or 1000°C.) at combustor surface can cause the catalysts to peel. Over firing and flame impingement on the combustor are primary causes. Minor peeling photo shows minor peeling that is normal and does not affect function. Severe peeling photo shows that are closed or plugged. Solution: Avoid extreme temperatures and flame impingement. If peeling is severe, remove and replace combustor.



**PROBLEM - CATALYST DEACTIVATION** Possible Cause: Burning large quantities of trash, pressure treated lumber or painted woods. Solution: Burn quality woods available in your area. If you decide the catalyst has been deactivated, replace combustor with a genuine Flame Innovation combustor (failure to do so will void your warranty).

**NOTE: NEXT SECTION SHOWS “ROUND COMBUSTORS” FOR EXAMPLES ONLY OF THE SURFACE AREA OF YOUR RECTANGULAR SHAPED COMBUSTOR.**

<p><b>PROBLEM - CATALYST MASKING</b> (The catalyst is coated with a layer of fly-ash or soot which prevents catalytic activity)</p> <p><b>Possible Cause:</b> Accumulation of fly-ash <b>Solution:</b> Brush cooled combustor with a soft-bristled brush or vacuum lightly at least once per burning season.</p>	
<p><b>PROBLEM - THERMAL CRACKING</b></p> <p><b>Possible Cause:</b> Normal operation, as long as the combustor remains intact. <b>Solution:</b> If cracking causes large pieces to fall out, replace the combustor.</p>	
<p><b>PROBLEM - MECHANICAL CRACKING</b></p> <p><b>Possible Cause:</b> Mishandling, abuse, or operating without a properly gasket sealed combustor. <b>Solution:</b> Handle with care</p> <p><b>Possible Cause:</b> Distortion of holding collar. <b>Solution:</b> Combustor should be held firmly in its can. It should slide easily into and out of the holding collar of the stove. If severe cracking has resulted in loss of large chunks of combustor, replace combustor. Also replace any warped stove parts.</p>	
<p><b>PROBLEM - CRUMBLING</b></p> <p><b>Possible Cause:</b> Air leaks <b>Solution:</b> Inspect door gasket. (see <i>MAINTENANCE</i>)</p> <p><b>Possible Cause:</b> High draft <b>Solution:</b> Maintain draft to manufactured specifications.</p>	

REFER TO “BUILDING A FIRE” AS YOU ARE READING THIS SECTION

1. Do not use a grate or elevate the fire inside the firebox.
2. Build the wood fire directly on the bricks inside the stove. The brick lined firebox should not be altered or overfilled. At least 2 pieces of wood must be lined side by side inside the stove and not too tightly to burn correctly. Build your kindling with smaller sizes as you build up. Do not overfill the firebox on the initial fire of the day. Build your coal bed before filling your fire box with wood. It is best to use split wood, not round logs that are not split.

**When the stove is used for the first time, solvents in the paint on the stove and stove pipe will smoke off as the stove “cures.”**

WOOD/FUEL – This heater is designed to burn Cordwood. Natural SAWDUST LOGS without additives can be burned in the stove **ONLY ONE AT A TIME**. Higher efficiency and lower emissions generally result when burning NATURAL SAWDUST LOGS, but these logs burn at a much higher temperature **AND CAUTION MUST BE TAKEN**.

Use only dry, seasoned wood. Green wood, besides burning at only 60 percent of the fuel value of dry wood, deposits creosote on the inside of the stove and along the chimney. This can cause extreme danger of chimney fire.

To be called “seasoned,” wood must be dried for a year. Regardless of whether the wood is green or seasoned, it should be stored in a ventilated, sheltered area to allow proper drying during the year. **Wood should be stored beyond recommended clearances from combustibles around heaters and flame.**

**DO NOT BURN:** Treated Wood, Garbage, Solvents, Trash, Cardboard, Colored Paper or Coal.

**NEVER USE LOGS THAT HAVE ADDITIVES IN THEM LIKE WAX, OILS, OR OTHER BINDING AGENTS. USE OF THESE TYPES OF LOGS CAN CAUSE A FIRE THAT IS OUT OF CONTROL VERY QUICKLY DUE TO THE ADDITIVES.**

**ALWAYS STORE YOUR WOOD IN A WELL-VENTILATED AREA AWAY FROM DIRECT MOISTURE.**

### **GLASS CARE**

The following use and safety tips should be observed:

1. Inspect the glass regularly for cracks or breaks. Surface scratches are acceptable and normal, but if this glass becomes cracked in any area, the unit should be shut down and the window replaced with high-temperature Neo-Ceram glass. (6.50” x 10.00”)
2. Do not slam the door or otherwise impact the glass on the front of the stove trying to force wood into the stove. When closing doors, make sure that foreign objects do not protrude and impact on the glass.
3. Do not clean the glass with materials which may scratch (or otherwise damage) the glass. Scratches on the glass can develop into cracks or breaks.
4. Never attempt to clean the glass while the unit is hot. If the deposit is not very heavy, normal glass cleaners are adequate with a plain, non-abrasive scouring pad. Heavier deposits may be removed with the use of a razor blade scraper.

5. NEVER put substances that can ignite explosively inside the unit, since even small explosions in confined areas can blow out the glass.
6. Inspect the glass seal periodically to ensure proper seal. If the gaskets become frayed or worn, replace them immediately. Contact your dealer or Customer Service at) 509-993-3767 for approved replacement parts.
7. Keeping your glass clean is essential to notice if you are burning the stove correctly. If the glass dirties and doesn't clean off during operations, it is a clear sign you are not burning correctly or a draft control is not open correctly, or you are burning too low.

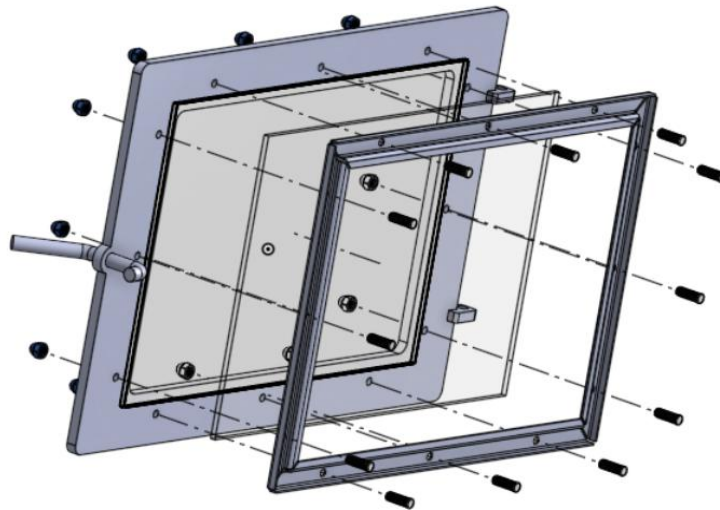
### **Glass / Door Gasket Replacement**

After extensive use, the sealing material which provides glass and door seal may need to be replaced if it does not sustain its resilience. Inspect the glass and door seal periodically to ensure proper seal. If the gaskets become frayed or worn, replace it immediately.

The following steps should be followed for replacement of the glass or door gasket:

1. Ensure that the appliance is not in operation and is thoroughly cooled.
2. Remove the acorn nuts and slide out the glass clip Brackets.
3. Lift glass out from glass clips.
4. Remove the old gasket and clean the glass.
5. Replace the new gasket, starting at the bottom of the glass and working along the edges. Be sure to center the gasket channel on the glass.
6. Trim the gasket to length and butt the ends together.
7. Replace the glass in the front, being sure not to overtighten the nuts, this will break the glass.

REPLACE GLASS ONLY WITH HIGH-TEMPERATURE NEO-CERAM OF THE PROPER SIZE AND THICKNESS. 3/16" x 11.25 x 16.375" You may order parts and options on our web site: [FlameInnovation.com](http://FlameInnovation.com) or by calling (509) 993-3767

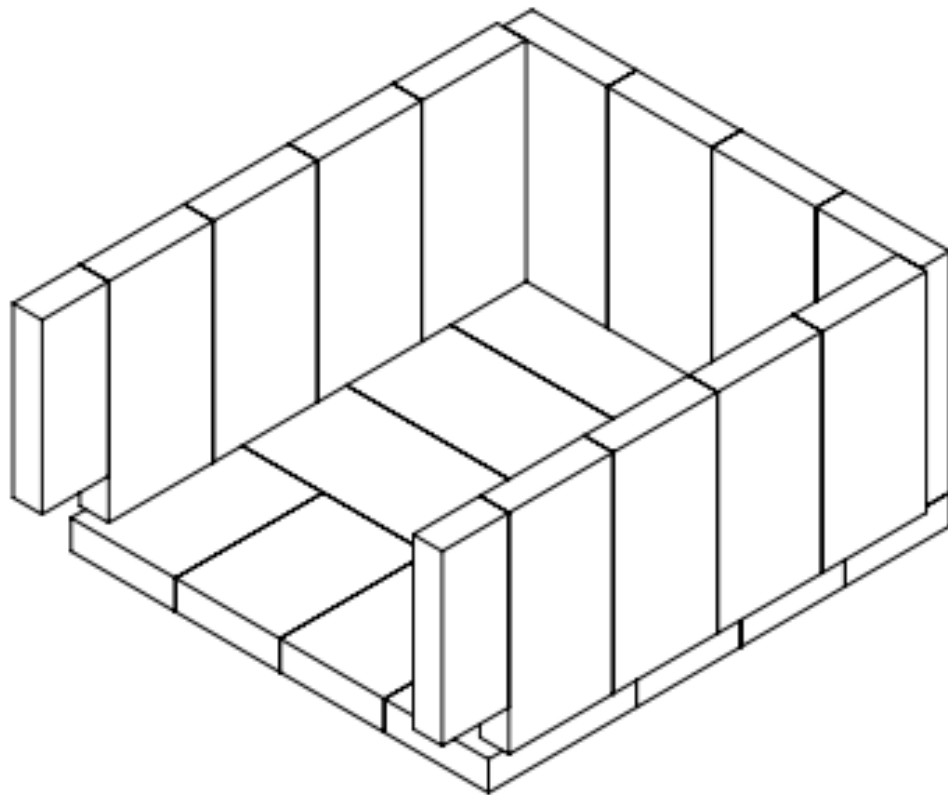


### **Door Gasket**

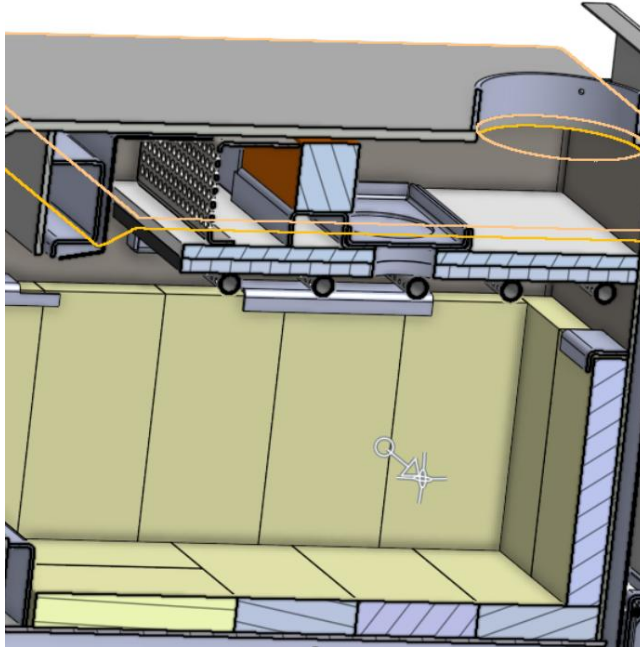
The door gasket is  $\frac{3}{4}$ " Rope Gasket. You will have to dig the gasket out of the channel and then clean all the old gasket cement out of the channel being careful not to bend the rope channels. Use only  $\frac{3}{4}$ " Fire Rope to replace the door gasket. You can find it on our website as well. Use high Temp Stove Gasket Sealer on all 3 sides of the channels to secure rope in place. Place a weight, like a big book, over the gasket overnight and then re-install door. Note: A clean surface is crucial to your new gasket sealing properly. DO NOT Try and re-seal over old gasketing Cement.

## BRICK CARE AND LAYOUT

**Inspect your bricks each time you start a fire for correct placement, checking for broken or dislodged bricks. If broken or dislodged bricks are found, they need to be replaced in position or replaced entirely if damaged.**

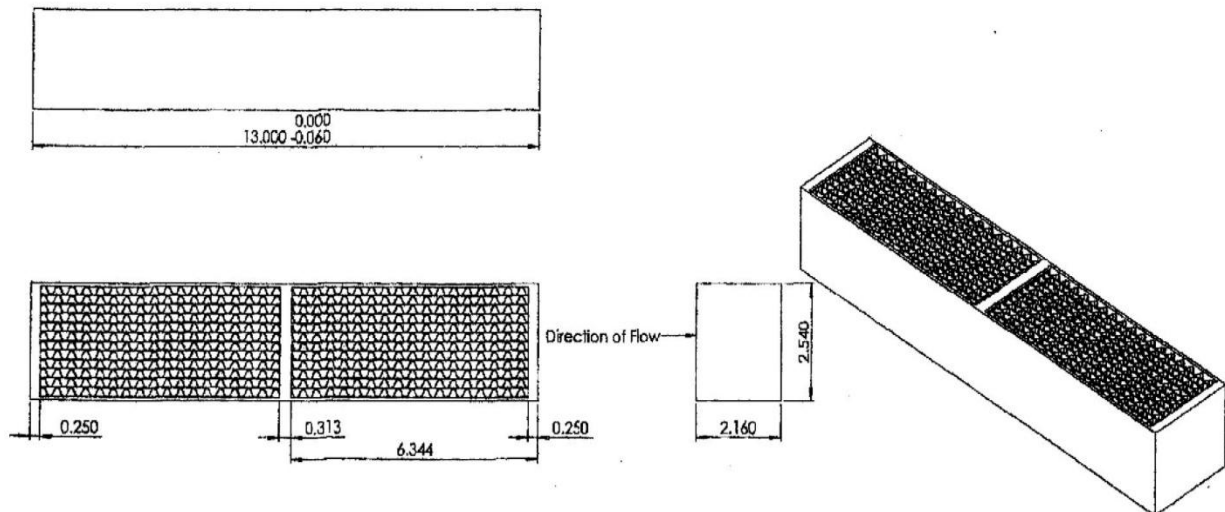


***View: Open end is the Front of the stove. (Brick Retainers Not Shown).***

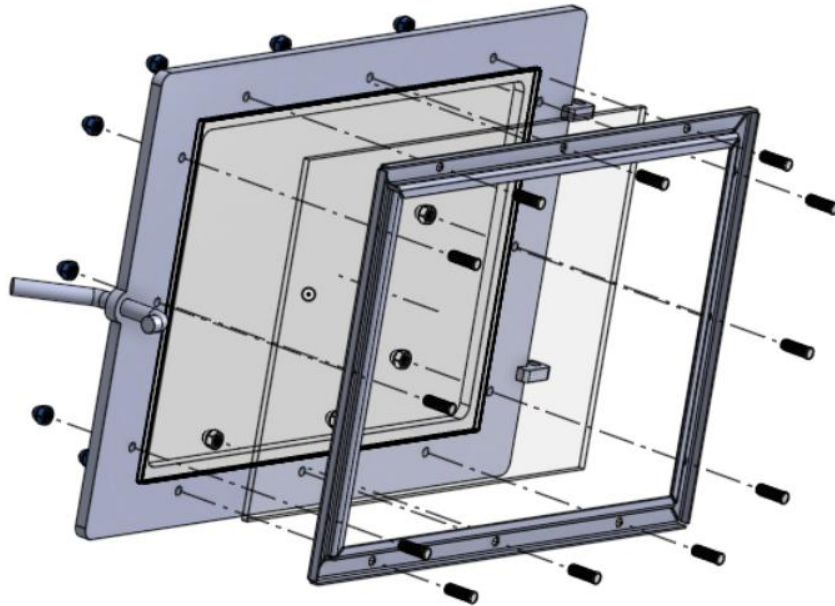


## CAT PROTECTOR / CAT REMAOVAL / REPLACEMENT / GRAY BAFFLE BOARD KAO WOOL BLANKET PLACEMENT LOCATIONS AND INSTRUCTIONS

1. Remove 3 bolts in the air wash diverter located just above door opening, remove plate
2. Remove bolts on left and right side of Cat Protector
3. Remove Cat Protector and catalytic converter.
4. Slide out the baffle and blanket down through the secondary burn tubes.
5. When Installing the Catalyst back in the stove it must be installed with 2 full wraps of INTERRAM TAPE before putting the cat protector back on and re-lighting the stove.



## WINDOW GLASS REPLACEMENT



Breakdown of glass replacement if needed. **3/16 Ceramic Glass Only.** Glass Measurements are 11.25" x 16.375" / 285.75mm x 416mm. (See Door Gasket Replacement) Studs are welded in each glass retainer / Gasket piece individually. Glass wrapped with Stove Window Glass Channel tape  $\frac{3}{4}$ ". Remove outer Acorn nuts to take out glass and brackets. Door Gasketing ( $\frac{3}{4}$ " Fire Rope) will need to be removed and all gasket cement will need to be scraped clean before new Fire rope can be replaced over the studded brackets holding in the stove glass if the gasket is damaged.

## CREOSOTE

When Sawdust Logs or wood is burned slowly, it produces tar and other organic vapors. These combine with moisture to form creosote. Creosote vapors condense in the relatively cool chimney flue of a slow-burning fire – as a result, creosote residue accumulates on the lining of the flue. If ignited, this creosote makes an extremely hot fire. The chimney should be inspected on a regular basis during the heating season, to determine if a creosote build-up has accumulated. If it has, the creosote should be removed to reduce the risk of chimney fire. **Always Inspect the chimney for creosote buildup a minimum of twice monthly during burning season.**

### CANADA

Establish a routine for the fuel, wood burner, and firing technique. Check daily for creosote build-up until experience shows how often you need to clean the flue pipe to be

safe. Be aware that the hotter the fire, the less creosote is deposited, and weekly cleaning may be necessary in mild weather even though monthly cleaning may be enough in the coldest months. Contact your local municipal or provincial fire authority for information on how to handle a chimney fire. Have a clearly understood plan to handle a chimney fire.

#### WAYS TO PREVENT AND KEEP UNIT FREE OF CREOSOTE

1. Burn with the air control fully open for several minutes at numerous intervals throughout each day during the heating season, being careful not to over-fire the unit. This should remove the slight film of creosote that accumulates during low burn periods.
2. Burn the stove with the draft control fully open for approximately 20 minutes every time you apply fresh wood. This allows fuel in the stove to achieve the charcoal stage faster and burns the vapors which might otherwise be deposited within the system. **Do not over fire the stove!** If the stove is red or the chimney is red in color you have over-fired the stove.
3. **IF YOU CHOOSE TO BURN DRY MANUFACTURED LOGS, BURN ONLY ONE AT A TIME.**
4. Avoid burning wet logs or green and wet wood. Seasoned wood is wood that has been dried for at least one year.
5. A small, hot fire is preferable to a large, smoldering fire that can deposit creosote within the system.
6. **Establish a routine for fuel, burning and firing technique. Check daily for creosote build-up until experience shows you how often you need to clean to be safe.** Keep in mind that the hotter the fire, the less creosote is deposited, and weekly cleanings may be necessary in milder weather, although monthly cleanings may be enough in the coldest months. Contact your local authority for information on how to handle a chimney fire and have a clearly understood plan to handle a chimney fire.

**ASH BUILDUP** Regularly inspect the ash build-up in your unit and remove it as necessary. Ashes can be removed from the unit by shoveling out bottom of the stove bed.

**BEING CAREFUL NOT TO DAMAGE THE FIREBRICKS.**

#### ALWAYS DISPOSE OF ASH CORRECTLY AS NOTED BELOW

##### Disposal of Ashes

Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have been thoroughly cooled. **OTHER WASTE SHALL NOT BE PLACED IN THE**

##### **CONTAINER.**

ASH VACUUM'S can be used for cleaning the stove. **Caution:** The ashes can be extremely hot!! Never remove red-hot ashes from the appliance; allow ashes to cool before cleaning. Ashes should be placed in a metal container with an airtight lid. The ashes should be placed outside on a noncombustible surface and completely away from any combustible materials. The ashes should remain in the airtight container until they have completely cooled.

## **WARNING: THINGS TO REMEMBER IN CASE OF A CHIMNEY FIRE: 1. CLOSE DRAFT CONTROL 2. CALL THE FIRE DEPARTMENT**

### **What can cause a poor draft?**

There are several common factors that can contribute to poor draft:

A. Atmospheric Pressure and Air Supply. Atmospheric pressure affecting the draft from a chimney can be outside the home, inside the home, or both. Outside the home, a high-pressure (clear and cool) day generally creates a better draft in the chimney than a low-pressure (overcast and damp) day. Inside the home, household appliances, such as forced-air furnaces or clothes dryers, compete for air, often resulting in inadequate amounts of air available to fuel a fire and creating a condition known as negative pressure. Extreme conditions of negative pressure can cause the combustion by-products to be drawn from the chimney and into the house. This condition is commonly known as “down drafting.”

B. There are several factors that can affect the amount of air available in the home. Increased amounts of insulation, vinyl windows, extra caulking in various places and door seals can all keep heat in but may also make a home too airtight. If you are in doubt as to whether there is sufficient air in your home for your stove, refrain from using those appliances known to consume air when possible or open a door or a window to allow some air to enter the home.

C. Environmental Conditions: High trees, a low-lying house location (such as in a valley), tall buildings or structures surrounding your house and even windy conditions can cause poor draft or down drafting.

D. Cold Chimney Temperature. Avoid cold chimney temperatures by burning a hot fire for the first fifteen to thirty minutes after building a fire, being careful not to over-fire. If any part of the chimney or parts of the stove start to glow, you are over-firing the stove. Where possible, install a temperature gauge on the chimney so temperature drops can be seen.

E. Chimney Installation and Maintenance. Avoid using too many elbows or long horizontal runs. If in doubt, contact a chimney expert and/or chimney manufacturer for help. Clean your chimney, rain cap(s) and especially the spark arrester regularly, to prevent creosote build-up – which can significantly reduce chimney draw and possibly create a chimney fire.

### **Should I close or open the air control fully when shutting down the stove?**

When shutting down the stove with a very small amount of fuel left, fully open the air control. This will allow chimney temperatures to remain as high as possible for as long as possible. Remember, cold chimney temperatures create creosote.

**IF THERE IS SIGNIFICANT FUEL LEFT IN THE STOVE, IT IS BEST TO LEAVE THE DRAFT SETTING AT A LOWER RATE IF THE FIRE IS BURNING CONSISTENTLY AND EFFICIENTLY (NOT SMOKING OUTSIDE)**

## MAINTENANCE

**RUN-AWAY OR CHIMNEY FIRE A CHIMNEY FIRE CAN PERMANENTLY DAMAGE YOUR CHIMNEY SYSTEM. THIS DAMAGE CAN ONLY BE REPAIRED BY REPLACING THE DAMAGED COMPONENT PARTS. CHIMNEY FIRE DAMAGE IS NOT COVERED BY THE LIMITED WARRANTY.**

### CAUSES:

1. Using incorrect fuel, or small pieces of fuel which would normally be used as kindling.
2. Leaving the door ajar too long and creating extreme temperatures as the air rushes in the open door. It is not recommended to leave the door open after lighting. The VCV's are designed to eliminate this function in the stove operation by injecting air immediately.
3. Improperly installed or worn gaskets.
4. Creosote buildup in the chimney.

### SOLUTIONS:

1. Do not burn treated or processed wood, coal, charcoal, colored paper or cardboard.
2. Be careful not to over fire the appliance by leaving the door open too long after the initial start-up.
3. Replace worn, dried out (inflexible) gaskets.
4. Have your chimney cleaned regularly.

### WHAT TO DO IF A RUN-AWAY OR CHIMNEY FIRE STARTS:

1. Close the draft fully (lowest position) by shutting off thermostat, and make sure firebox is closed tightly.
2. Call the local fire department.
3. Examine the chimney, attic and roof of the house, to see if any part has become hot enough to catch fire. If necessary spray it with a fire extinguisher or water from a garden hose.
4. Do not operate the appliance again until you are certain the chimney has not been damaged.

## CHIMNEY MAINTENANCE

The most efficient method to sweep the chimney is using a hard brush. Brush downwards so soot and creosote residues will come off the inner surface and fall to the bottom of the chimney where they can be removed easily. The chimney must be checked regularly and if creosote has accumulated, it must be removed without delay. Cleaning on a regular basis should be sufficient during the coldest months. ENSURE THE BYPASS DOOR IS OPEN AND BAFFLE AND BLANKET ARE REMOVED PRIOR TO CLEANING THE CHIMNEY SO THE SOOT AND CREOSOTE FALLS INTO THE FIREBOX. Chimney / Flue Inspection: 1. The chimney should be inspected regularly during the heating season. 2. If possible, the chimney should be dismantled and cleaned. 3. The chimney should be inspected for possible damage. 4. If it is in good condition, put the chimney back in place; otherwise, it must be replaced.

**FIRE EXTINGUISHERS AND SMOKE DETECTORS** All homes with a solid fuel burning appliance should have at least one fire extinguisher in a central location, known to all, and at least one smoke detector in the room containing the appliance. If the detector sounds an alarm, correct the cause but do not de-activate or relocate the smoke detector.

## **OPERATIONAL / INSPECTION / MAINTENANCE**

**IT IS VERY IMPORTANT TO KEEP ALL DOORS CLOSED DURING OPERATION UNLESS LOADING THE STOVE.** The glass gasket and door gasket must be kept in good working order and seals inspected and maintained for a good seal.

Do not use substitute materials when changing gaskets, seals, or glass on the stove. Do not slam the door closed or use the door as a pushing tool to shove fuel into the stove which would otherwise not fit.

Do not operate the stove with broken glass, or any broken seal, or dampers that do not function to close off the air supply to the stove.

Inspect bricks for wear or broken chunks when cleaning the stove and replace if necessary.

**NOTE:** This section is intended as an aid and does not supersede any local, state or like requirements. Check with officials or authorities having jurisdiction in your area.

**SEE ACCESSORIES LIST. IT IS HIGHLY RECCOMENDED TO TAKE OFF CHIMNEY CAP AND INSTALL A PLUG BEFORE BEING MOBILE IN YOUR STRUCTURE TO AVOID ASH BLOWING INSIDE THE STRUCTURE. IN A MOBILE BUILDING THE CHIMNEY MUST BE DISASSEMBLED.**

Links to videos about this stove will be posted on our website.

**NOTE:**

Parts and accessories are also available on our web site: [www.FlameInnovation.com](http://www.FlameInnovation.com)

If you have any questions or problems, contact the Manufacturer or Dealer.

**WARRANTY:** Stove body is warrantied for a period of 10 years. No warranty on consumable parts such as inner bricks, burn tubes, catalytic converter, glass, baffle board, blanket, paint, etc. Shipping damage needs to be noted, and pictures sent at time of delivery to determine if you should accept the shipment or not and return stove shipment. **WARRANTY CLAIMS MUST BE DIRECTED TO MAUFACTURER.**

**BURN AT OWNERS RISK. NOT RESPONSIBLE FOR ANY STOVE INSTALLATION**

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