Installation Manual

Installation & Appliance Set-Up

INSTALLER: Leave this manual with party responsible for use and operation.
OWNER: Retain this manual for future reference.

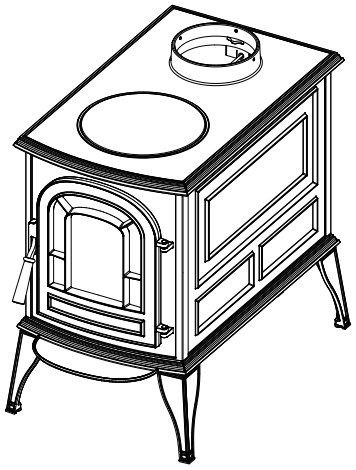
NOTICE: DO NOT DISCARD THIS MANUAL

NOTICE: *SAVE THESE INSTRUCTIONS*

FORGE & FLAME

Aspen C3 Wood Stove

Model:
Vermont Castings Aspen C3



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

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

⚠ 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.

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.

Please read this entire manual before you install and use your new room heater. Failure to follow instructions may result in property damage, bodily injury, or even death.

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➔ **= Contains updated information**

1 Important Safety Information

A. Appliance Certification

MODEL:	Vermont Castings Aspen C3
LABORATORY:	OMNI Test Laboratories, Inc
REPORT NO.	0135WS044S
TYPE:	Solid Fuel Type Room Heaters / Space Heaters for Use with Solid Fuel
STANDARD(s):	ASTM E2515, ASTM E2780, UL1482, ULC-S627-00, CSA B415.1

B. BTU & Efficiency Specifications

EPA Certification Number:	196-19
EPA Certified Emissions:	1.76 g/hr
***LHV Tested Efficiency:**	77%
****HHV tested Efficiency:**	71%
*****EPA BTU Output:**	24,300
******Peak BTU/Hour Output:**	39,300
Other Important Information	
Vent Size:	6 Inch (152 mm)
Firebox Size:	1.25 cu. ft.
Outside Air Size:	3 Inch
Max. Wood Length:	18"
Ideal Wood Length:	16"
Fuel	Seasoned Cordwood (20% moisture) or compressed logs
* 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.	

Certified to comply with 2020 US particulate emissions standard using crib wood at 1.76 g/hr., Certified to comply with 2020 particulate emission standards for single burn rate heaters. This single burn rate wood heater is not approved for use with a flue damper.

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. Mobile Home Approved (USA & Canada)

- This appliance is approved for mobile home installations in the USA & Canada when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The unit must be bolted to the floor. This can be done using an appropriate fastener for the application.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire, and chimney must be listed to UL103 HT or a listed UL-1777 full length six" (152mm) diameter liner must be used.
- Outside air must be installed in a mobile home installation.

D. 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. **APPROVED FOR MOBILE HOME INSTALLATIONS IN the USA & 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 firing. Evidence of firing includes, but is not limited to:

- Warped Damper
- Deteriorated refractory
- Deteriorated interior components

E. Non-Combustible Materials

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

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

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

F. Combustible Materials

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

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

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

G. California Safety Information

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

H. Smoke, 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
- Operate only with front doors and ash pan door closed.
- Unstable firewood could fall out of the firebox creating a fire hazard to your home.

2 Getting Started

A. Design & 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.

⚠ 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 a chimney height 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 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 with the front doors open.
- 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.

WARNING

When this room heater is not properly installed, a house fire may result. To reduce the risk of fire, follow the installation instructions. Contact local building or fire officials about restrictions and installation inspection requirements in your area.

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

NOTE: Flue Collar size is 6” (152mm) diameter (ID)

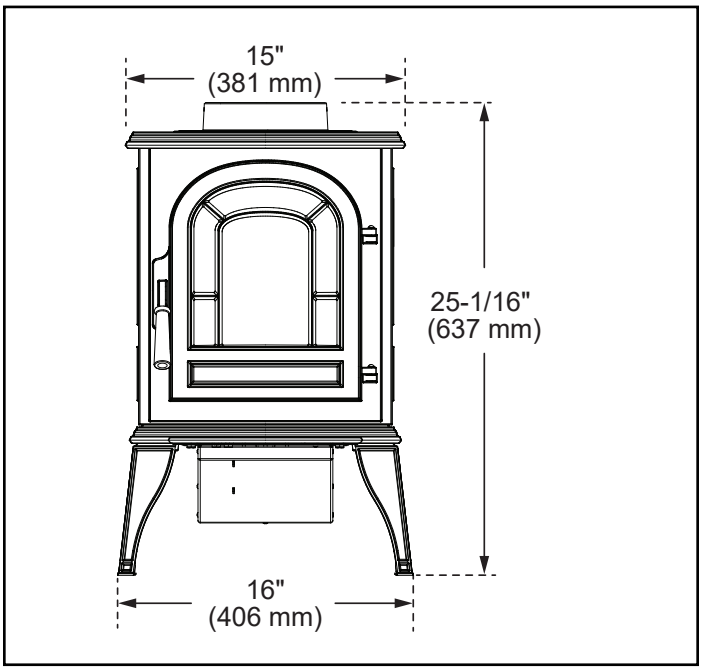


Figure 3.1 - Front View

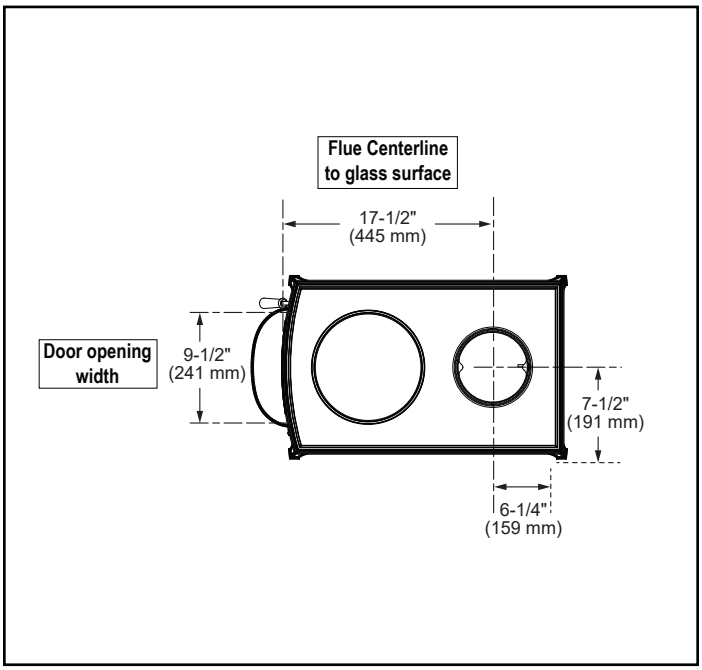


Figure 3.3 - Top View

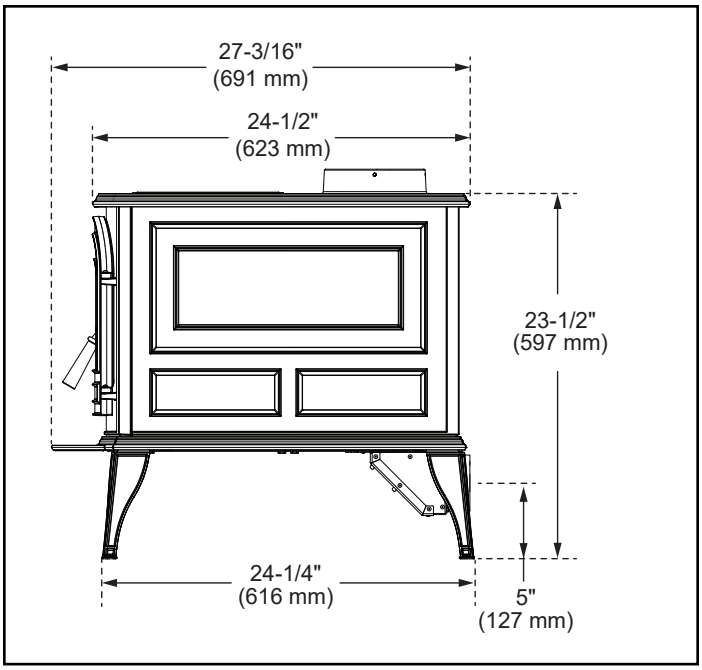


Figure 3.2 - Side View, Outside Air Inlet: 3.5” Diameter (Use with 3” Flex Outside Air Pipe)

B. Hearth Protection Requirements

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.*

The floor area directly under and around the stove will require protection from stray sparks or embers that may escape the firebox. Type 1 hearth pad with no additional "R" value is required.

Use a noncombustible floor protector such as 1/4" non-asbestos mineral board or equivalent, or 24 gauge sheet metal. The floor protector may be covered with a noncombustible decorative material if desired. Do not obstruct the space under the heater.

Protection requirements vary somewhat between the United States and Canada as follows:

U.S. Installations: Non-combustible floor protection is required under the stove and must extend at least 16" from the front of the door opening and 8" from the sides of the door opening. (C, Figure 3.4)

Canadian Installations: Non-combustion floor protection is required under the stove and must extend at least 18" from the front of the stove and 8" from the sides of the stove. It must also extend under the chimney connector and 2" to either side of any horizontal runs. (A, Figure 3.4)

Note: For US installations, floor protection dimensions are measured from the door opening of the unit. For Canadian installations, all dimensions are measured from the sides and front of the unit.

Floor Protection Requirements		
	U.S.	**Canada**
A	8"	8" [203 mm]
B	16"	18" [457 mm]
C	8"	8" [203 mm]
D	40"	50" [1270 mm]
E	25-1/2"	31" [787 mm]

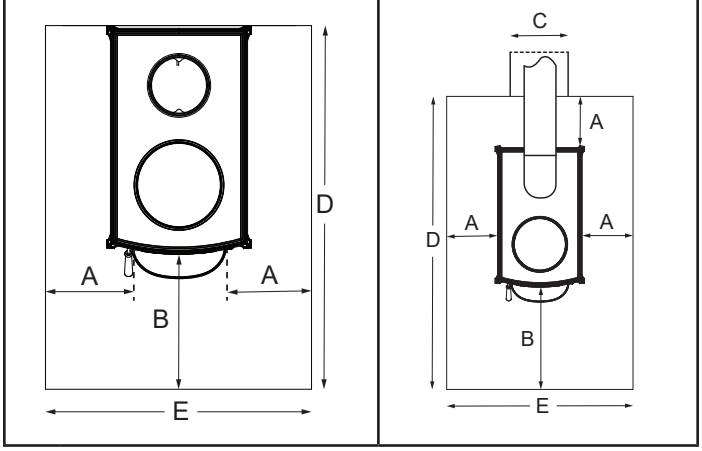


Figure 3.4 - These dimensions are minimum requirements only. Use greater dimensions whenever possible.

Fireplace Hearth Protection:

For all fireplace installations, follow the floor protection guidelines described above.

Keep in mind that many raised hearths will extend less than the required clearance from the front of the heater when it is installed. In such cases, sufficient floor protection as described above must be added in front of the hearth to satisfy the minimum floor protector requirement from the front of the stove: 16" (406 mm) from the front in the United States and 18" (457 mm) from the front in Canada.

Hearth rugs do not satisfy the requirements for floor protection as they are only fire-retardant, not fire proof.

Fireplace installations also have special clearance requirements to the side walls, side decorative trim and fireplace mantel. Refer to the information on fireplace and mantel trim shields in this section.

C. Clearances To Combustibles

Note: It is recommended that you have the unit in place for proper measurements and installation.

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.

Parallel Wall Installation - Vertical Vent		
	Description	**Single-Wall Pipe**
A	Side Wall to Appliance	14" [356 mm]
B	Back Wall to Appliance	8" [203 mm]
C	Side Wall to Connector Pipe	18-1/2" [470 mm]
D	Back Wall to Connector Pipe	11" [279 mm]
E	Minimum Floor to Ceiling	96” [2438 mm]
	Description	**Double-Wall Pipe**
A	Side Wall to Appliance	14" [356 mm]
B	Back Wall to Appliance	3" [76 mm]
C	Side Wall to Vent Pipe	18" [457 mm]
D	Back Wall to Vent Pipe	5-1/2" [140 mm]
E	Minimum Floor to Ceiling	96” [2438 mm]

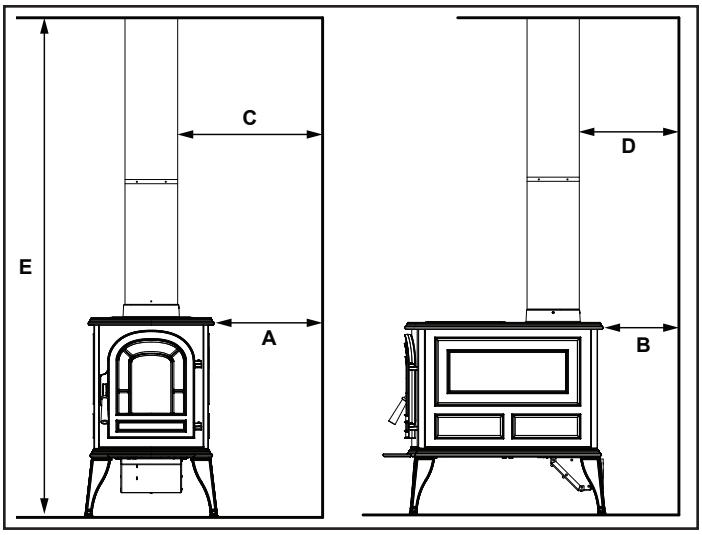


Figure 3.5

Vertical Vent, Corner Configuration		
	Location	**Single-Wall Pipe**
G	Corner to Wall	6" [152 mm]
H	Vent Pipe to Wall	12-3/4" [324 mm]
	Location	**Double-Wall Pipe**
G	Corner to Wall	3" [76 mm]
H	Vent Pipe to Wall	9" [229 mm]

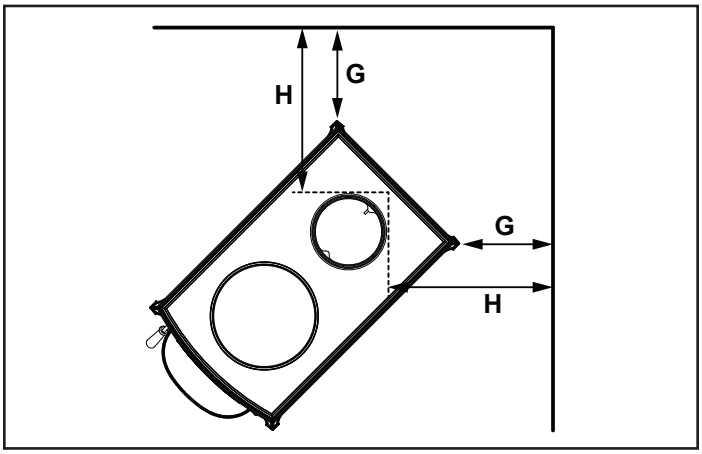


Figure 3.6

Parallel Wall, Backwall Exit w/Reduced Ceiling		
	Description	**Single-Wall Pipe**
A	Side Wall to Appliance	14" / 356 mm
B	Back Wall to Appliance	8" / 203 mm
C	Side Wall to Connector Pipe	18-1/2" / 470 mm
D	Back Wall to Connector Pipe	11" / 279 mm
E	Ceiling from Floor	63" / 1600 mm
F	Ceiling - from Connector Pipe	20” / 508 mm

Note: If mantle clearance specifications are not listed or to reduce mantle clearances you can follow NFPA 211 regulations to assure safe installation of this product. Please consult with your local building inspector before attempting any clearance reductions.

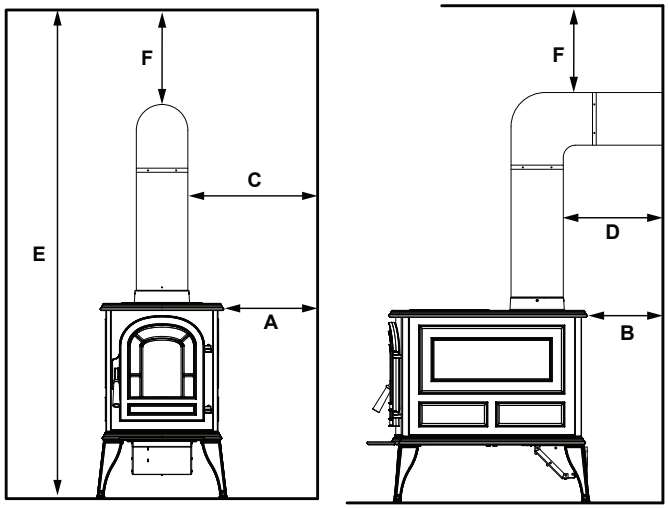


Figure 3.7

Fireplace Clearances:

A fireplace installation requires special clearance between the side of the stove and the right and left walls, the side of the stove and the decorative side trim on the fireplace face, and the top of the stove and the mantel.

Maximum Mantel depth (A, Figure 3.8) of a combustible mantel is 9” (230 mm). At that depth, the clearance to the stove top (B) must be a minimum of 22-1/2" (572 mm).

Top Trim (C) protruding less than 1-1/2" (38 mm) from the face of the fireplace must be a minimum of 12" (305 mm) from the stove top. This clearance may not be reduced by shielding.

For every 1-1/2" (38 mm) increment that the trim or mantel extends in depth, the clearance from the stove top must also be increased by 1-1/2" (38 mm).

Side Trim must have a minimum clearance of 8" (203 mm), measured from the stove's top edge. (D, Figure 3.9)

When:
A = 9" (229 mm) Max.
B = 22-1/2 (572 mm) Min.

A = 7-1/2" (191 mm) Max.
B = 21" (533 mm) Min.

A = 6" (152 mm) Max.
B = 19-1/2" (495 mm) Min.

A = 4-1/2" (114 mm) Max.
B = 18" (457 mm) Min.

A = 3" (76 mm) Max.
B = 16-1/2" (419 mm) Min.

A = 1-1/2" (38 mm) Max.
B = 15" (381 mm) Min.

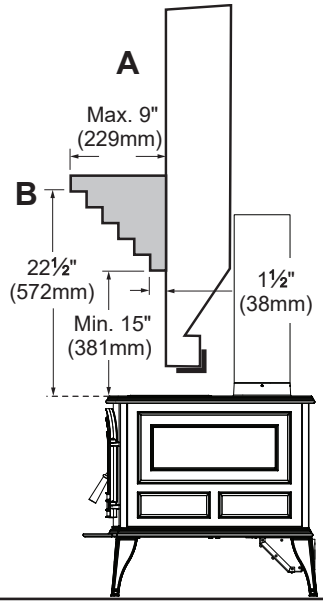
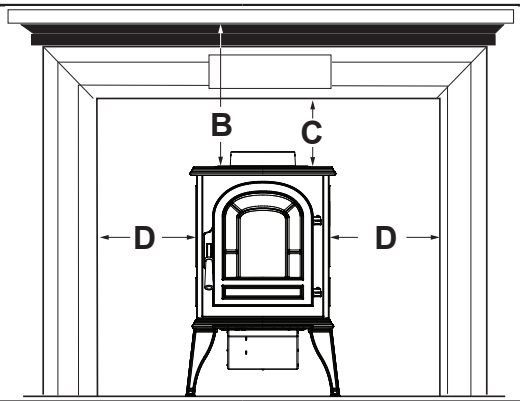


Figure 3.8 - Mantel and trim clearances.



B	Mantel	22-1/2" (572 mm)
C	*Top Trim	12" (305 mm)
D	Side Trim	8" (203 mm)
*Material is less than 1-1/2" (38 mm) Thick		

Figure 3.9 - Mantel and trim clearances.

D. Locating Your Appliance & Chimney

Location of the appliance and chimney will affect performance. As shown in Figure 3.10 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.

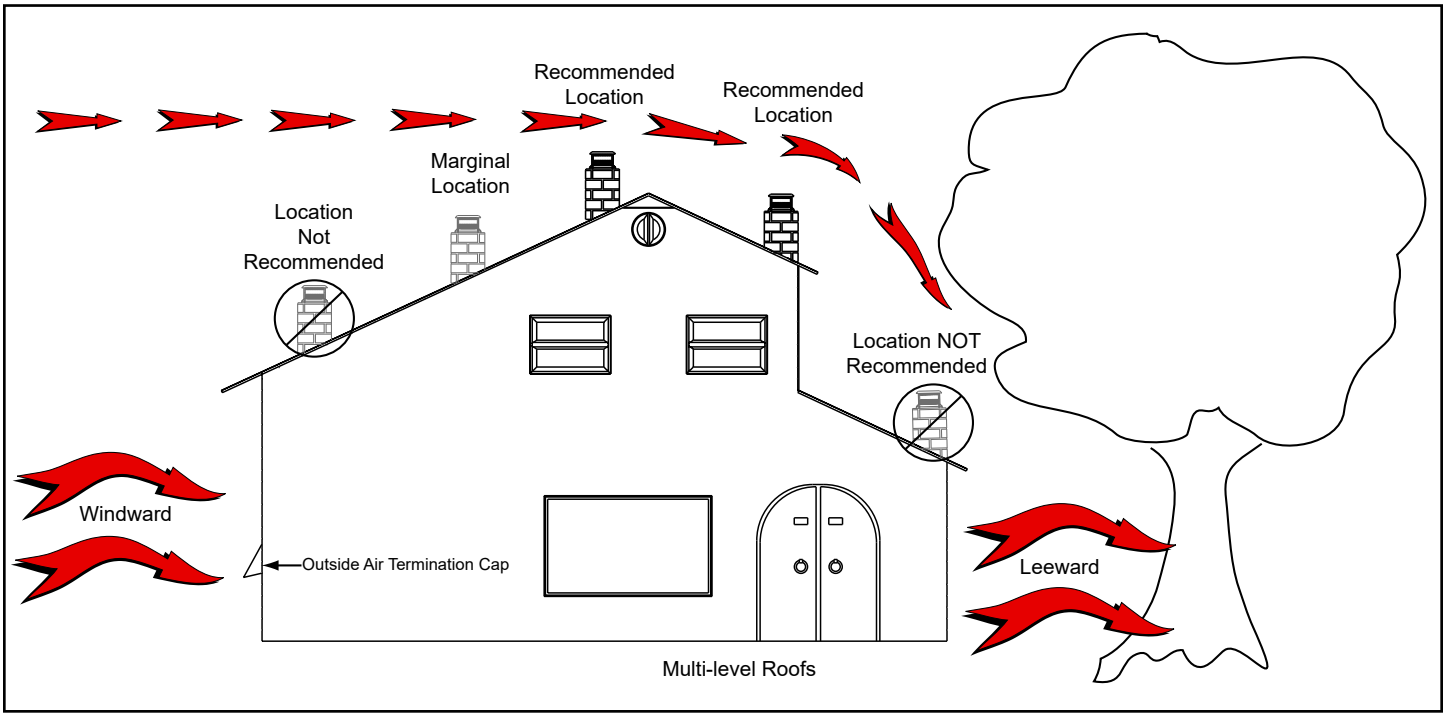


Figure 3.10

E. Chimney Termination Requirements

Follow manufacturer's instructions for clearance, securing flashing and terminating the chimney. Figures 3.11 & 3.12.

- 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.

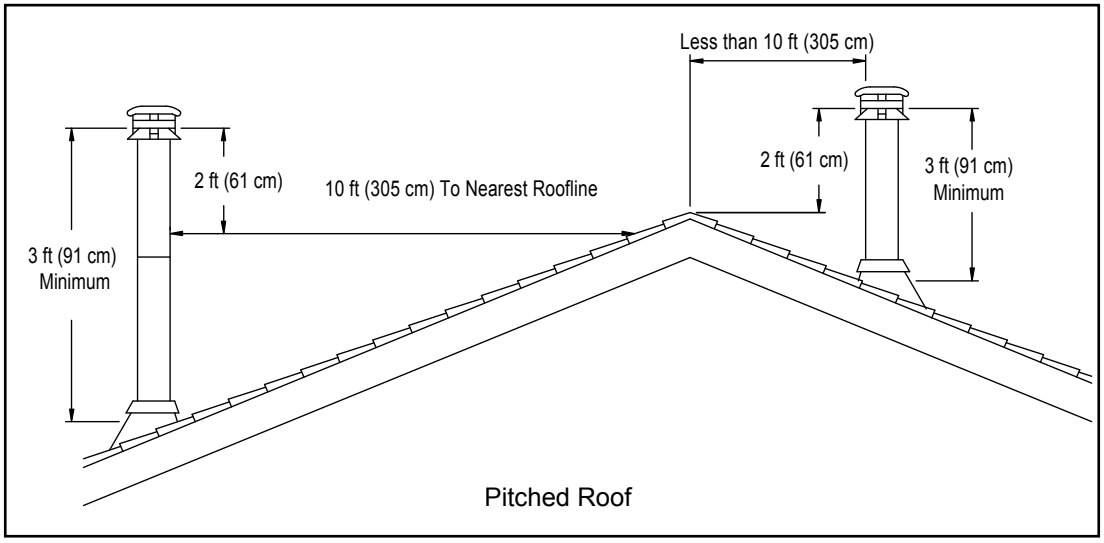


Figure 3.11

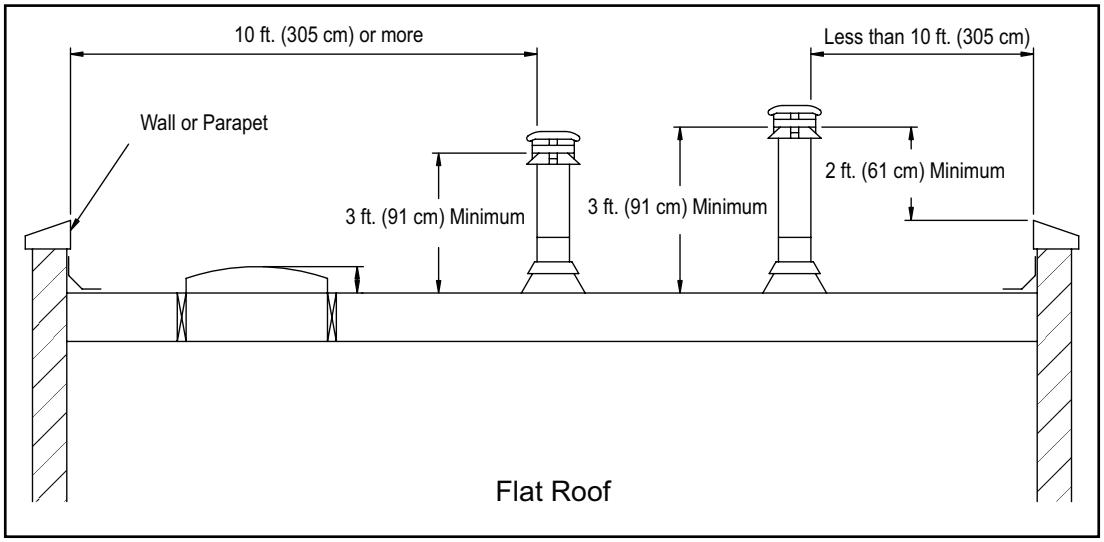


Figure 3.12

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.

Note: Elbow and Tee's reduce the draft of a chimney system. Design the installation to minimize changes in direction. No more than 2 tee's or elbows may be used.

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.

Draft
The Aspen C3 requires a minimum draft of 10 Pa or .04" of W.C. Draft too low can cause low heat output and a sluggish burn. Draft higher than 30 Pa or .12 of W.C. can result in short burn times and overfiring. Ensure the draft of the chimney is in correct range for operating the Aspen C3.

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.

Pipe & Chimney Layout
Every turn the exhaust must take as it travels to the chimney top will slow it down. The ideal pipe and chimney layout is to vent vertically into a completely straight and vertical chimney. If you are starting from scratch, use this layout if possible. If the stovepipe must elbow to enter a chimney, locate the thimble about midway between the stove top and the ceiling. This achieves several goals: it allows the gases to speed up before they must turn, it leaves some pipe in the room for heat transfer, and it gives you long-term flexibility for installing a different stove without relocating the thimble.

There should be no more than eight feet of single-wall stove pipe between the stove and a chimney; longer runs can cool the exhaust enough to cause draft and creosote problems. With prefabricated chimney, bring it down to six to eight feet from the stove. With a masonry chimney, arrange the pipe so that it turns into the chimney within eight feet of the stove.

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 “Chimney Systems”.

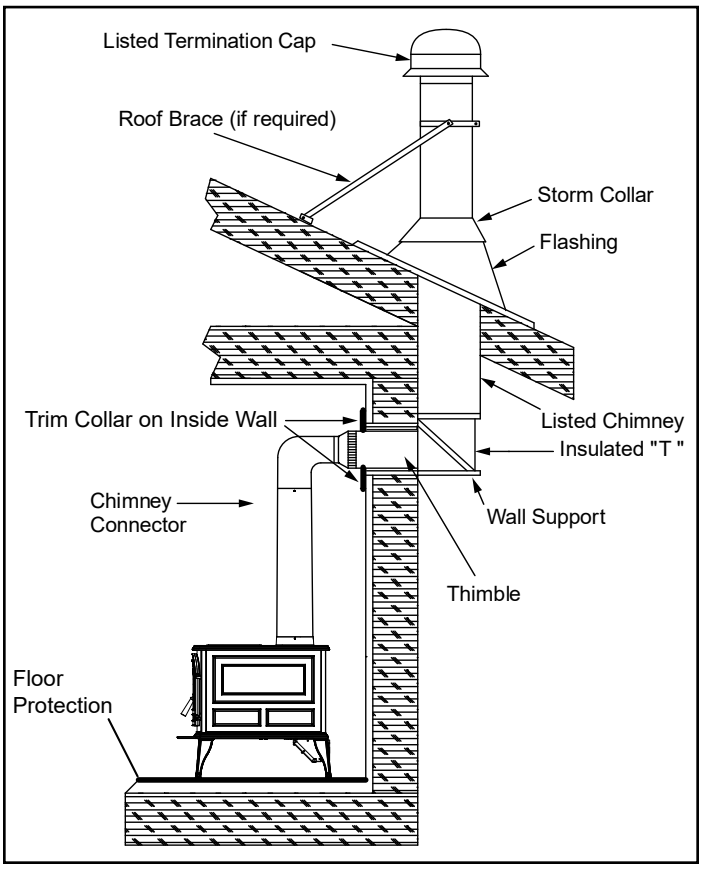


Figure 4.1 - Prefabricated Exterior Chimney

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: In 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.**

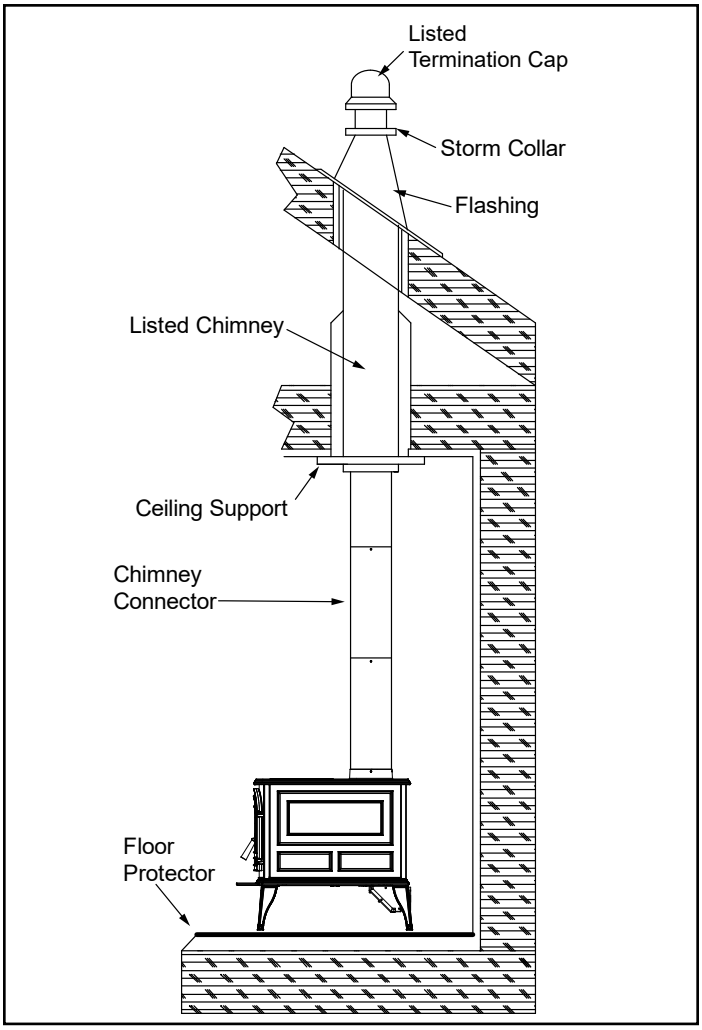


Figure 4.2 - Prefabricated Interior Chimney

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.

Solid Pack Chimney with Metal Supports as a Thimble

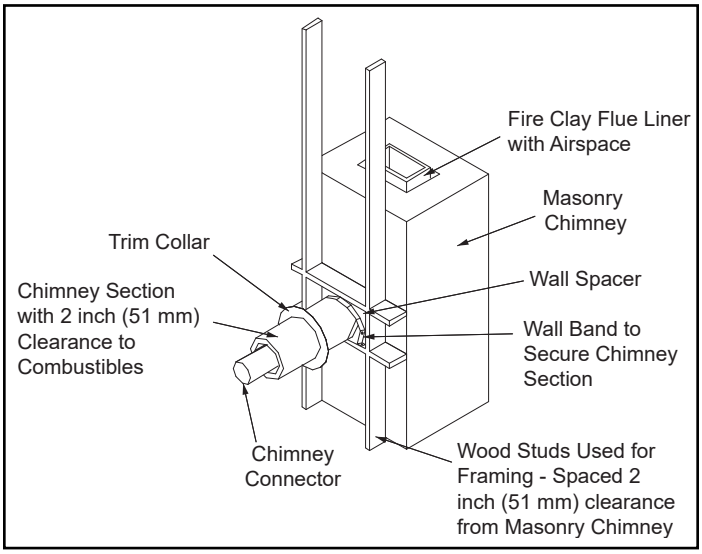


Figure 4.3

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.

Solid Pack Chimney with Metal Supports as a Thimble (Cont’d)

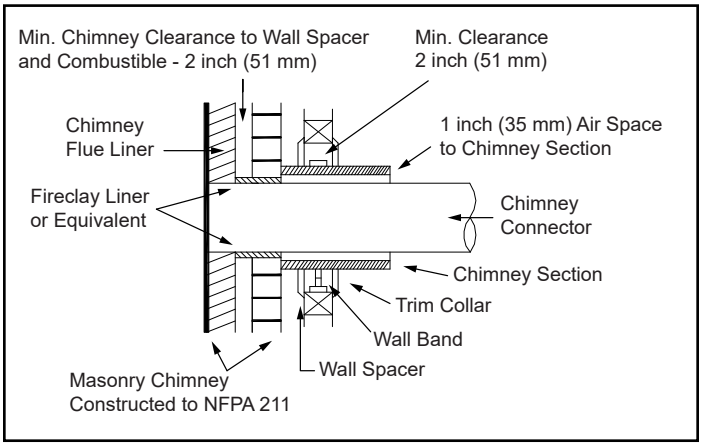


Figure 4.4

Chimney Height / Rise and Run

This product was designed for and tested on a 6" (152mm) chimney, 16 feet (4.88m) high, (includes appliance height) measured from the base of the appliance. The further your stack height or diameter varies from this configuration, the possibility of performance problems exists.

Chimney height may need to be increased by 2 - 3% per each 1000 feet above sea level. It is not recommended to use offsets or elbows at altitudes above 4000 feet above sea level or when there are other factors that affect flue draft.

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.

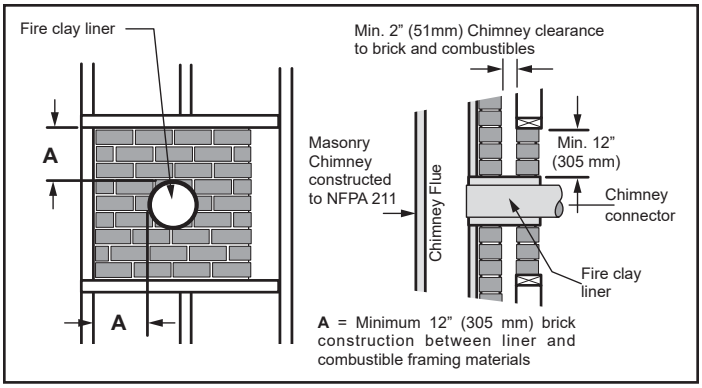


Figure 4.6 - Acceptable method for passing single wall chimney connector through combustible walls.
Note: HHT recommends the use of UL listed single wall thimbles.

Factory-built (Double-Wall) listed chimney connector

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

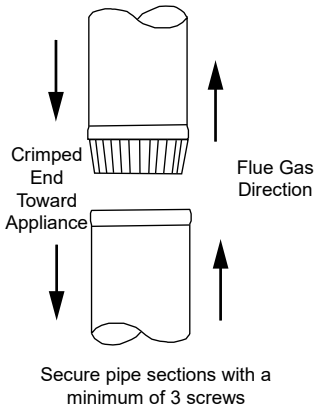


Figure 4.7 - Chimney Connector (Appliance Pipe)

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. Removing Unit from Skid

1. Inspect the stove and contents for shipping damage or missing parts. Immediately notify your dealer of any damage. Do not install this stove if any damage is evident or any parts are missing.
2. Remove (4) 5/16 X 2" lag screws from shipping brackets.

B. Install Stove Legs

Leg installation will be accomplished most easily with the help of an assistant who can tilt the stove onto its side while you attach the legs.

1. With your assistant holding the stove up on its side, remove (2) shipping brackets by removing the 3/8" Hex bolts and washer*s.* **Note: DO NOT** discard these bolts and washers as they will be re-used to install the legs.
2. Place legs at each corner of the unit and install the 3/8" hex head bolts and washer previously removed. The shoulder of the legs should seat within the locator bosses cast into the stove bottom at each corner, Figure 5.1. Tighten the bolts with the wrench. **CAUTION: Overtighening can strip tapped threads.**
3. With your assistant, lift the stove up onto its legs and hold it in a tilted position to install the remaining two legs with hex bolts and washers.

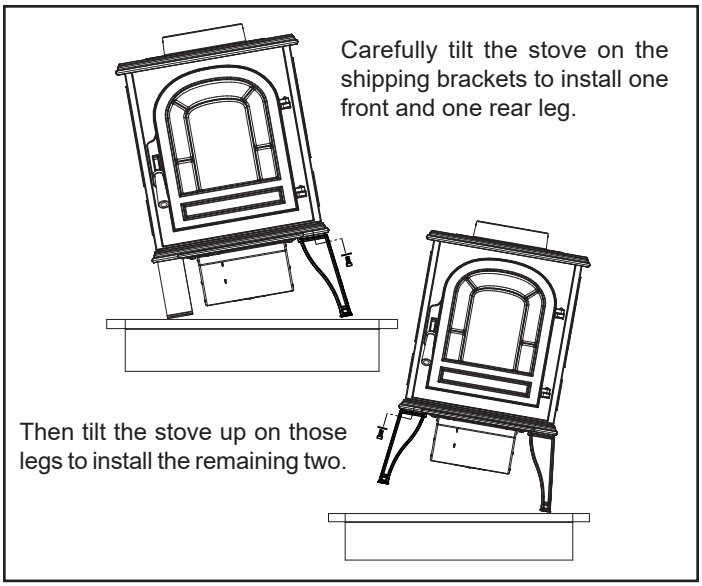


Figure 5.1 - Install legs on one side of stove then the other.

Adjust the Leg Levelers

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

C. Install Fire Brick

Install the Firebrick in the following order: Bottom Bricks first, Rear Bricks second and Side Bricks third, Figure 5.2.

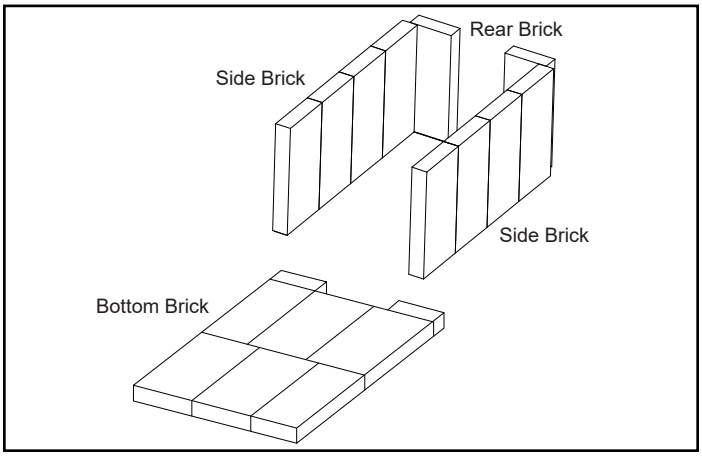


Figure 5.2 - Install Firebrick

⚠ 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

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 with the front doors open.
- 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. Outside Air Installation

A source of air (oxygen) is necessary in order for combustion to take place. Whatever combustion air is consumed by the fire must be replaced. Air is replaced via air leakage around windows and under doors. In homes that have tightly sealed doors and windows, an outside air source is needed. An Outside Air box is installed from factory to accommodate outside air. An optional outside air kit is available

Items Needed for Installation (not supplied)

- Phillips head screw driver
- Wire ties
- Plastic outside air vent
- 3” Flex or Rigid Duct
- 3” Outside Air Termination Cap with Screen
- Silicone sealant
- Drills and saws necessary for cutting holes through the wall or flooring in your home.

1. Remove all materials from packing box.
2. Using a #2 Phillips screw driver attach the flex adapter to the appliance using 4 screws. Figure 5.3 & 5.4.
3. Floor & Rear Installation: Cut a 3” (76 mm) hole in outside wall or floor to accommodate outside air piping. Use 3” (76 mm) aluminum metal flex or rigid piping to directly connect outside air to appliance intake. Install the termination cap with a rodent screen. Seal between the wall (or floor) and the pipe with silicone to prevent moisture penetration.

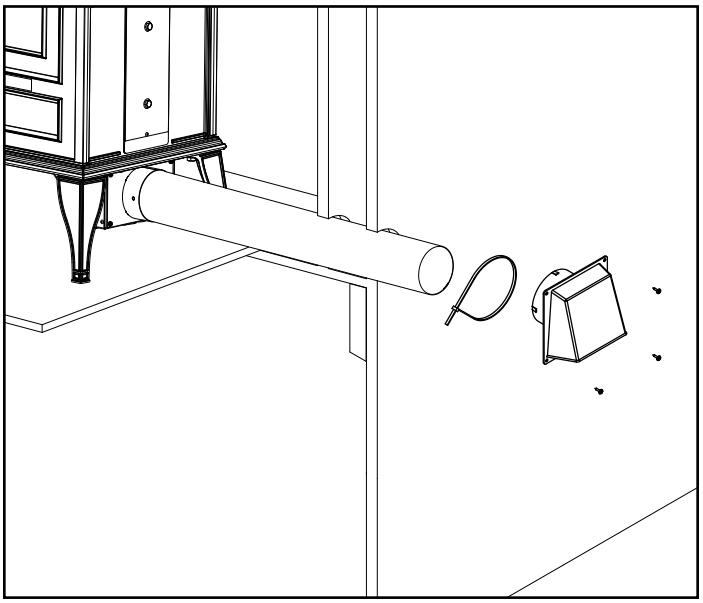


Figure 5.3 - Rear Installation

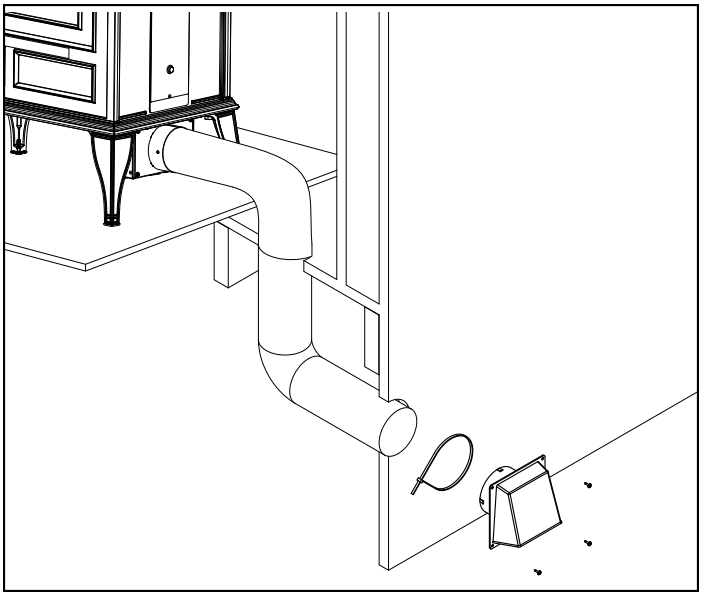


Figure 5.4 - Floor Installation

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

6 Mobile Home Installation - Approved for USA & Canada Installations

A. Mobile Home Installation

Mobile home approval - USA & Canada.

The Aspen C3 is approved for use in manufactured (mobile) homes when installed with the Mobile Home Brackets and any approved local codes.

In addition to the standard installation requirements described in this manual, the following guidelines apply to mobile home installations:

1. The stove must be permanently secured to the floor using the mobile home brackets supplied (located at the rear of the unit under the outside air box) along with screws or lag bolts (not supplied). **Note:** The mobile home brackets will need to removed from the outside air box. **Note:** The mobile home brackets get installed between the leg leveler and cast leg, Figure 6.1

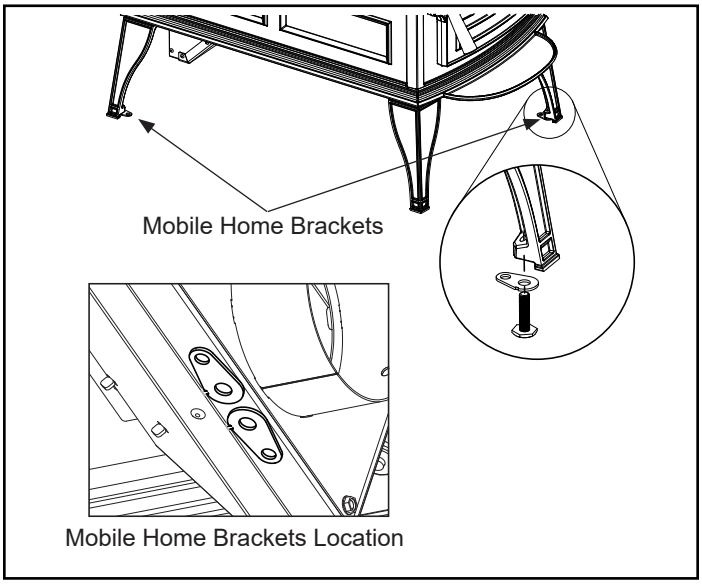


Figure 6.1

2. The stove must have a permanent connection to the outside to supply combustion air.
3. A listed chimney system, including roof thimble, spark arrestor, chimney supports, roof flashing and any other components suitable for use in mobile homes must be used. The chimney system must comply with the standard for Chimneys Factory-Built Residential Type and Building Heating Appliances UL 103.
4. The chimney must be attached directly to the stove and must extend at least 3’ (914 mm) above the part of the roof through which it passes. The top of the chimney must extend at least 2’ (610 mm) above the highest point of any part of the mobile home structure within 10’ (3 m) of the chimney.
5. If the chimney exits the mobile home through a wall at a point 7 feet or less above the ground level on which the mobile home is located, a guard or other noncombustible enclosure must be fitted at the point of exit and extend up to a height of 7’ (2.1 m). Any openings in this guard must be smaller than 3/4” (19 mm).
6. Check all local building codes, specifically those related to mobile homes. Other requirements may be applicable to chimney system removal for transportation of the mobile home.
7. Seal all penetrations between the venting system and mobile home structure with silicone (or other acceptable sealant) to completely seal the dwelling from outside air infiltration.

⚠ CAUTION

MAINTAIN STRUCTURAL INTEGRITY OF MOBILE HOME:

- **FLOOR, WALL, CEILING AND/OR ROOF. DO NOT CUT THROUGH:**
- **FLOOR JOIST, WALL STUDS, OR CEILING TRUSSES.**
- **ANY SUPPORTING MATERIAL THAT WOULD AFFECT THE STRUCTURAL INTEGRITY.**

⚠ CAUTION

NEVER DRAW OUTSIDE COMBUSTION AIR FROM:

- **WALL, FLOOR OR CEILING CAVITY.**
- **ENCLOSED SPACE SUCH AS AN ATTIC OR GARAGE**

⚠ WARNING

INSTALLATIONMUSTCOMPLYWITHMANUFACTURED HOME AND SAFETY STANDARD (HUD), CFR 3280, PART 24.

⚠ WARNING

NEVER INSTALL IN A ROOM INTENDED FOR SLEEPING.

FORGE & FLAME

CONTACT INFORMATION

Hearth & Home Technologies
352 Mountain House Road
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.