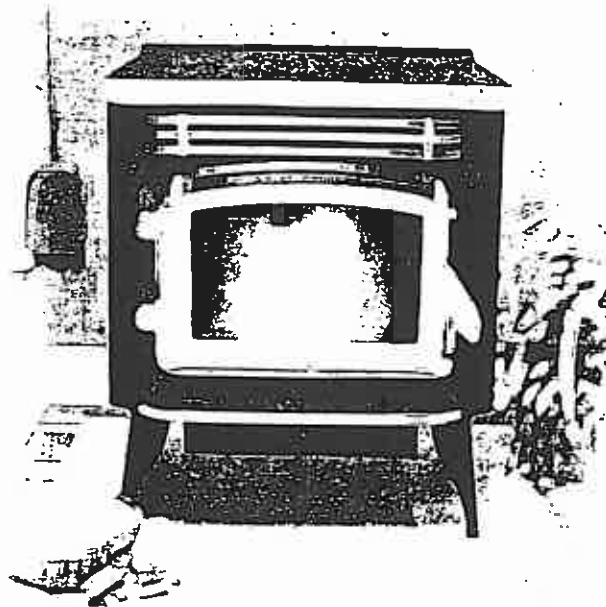




INSTALLATION AND OPERATION MANUAL

FREESTANDING
PELLET FIRED
STOVE



RETAIN THESE
INSTRUCTIONS
FOR FUTURE
REFERENCE

MODEL Cascade



These appliances must be properly installed and operated in order to prevent the possibility of a house fire. Please read this entire owner's manual before installing and using your pellet stove. Failure to follow these instructions could result in property damage, bodily injury or even death. Contact your local building or fire officials to obtain a permit and information on any installation restrictions and inspection requirements in your area.

P/N 775024M, REV. B, 04/01

**CONGRATULATIONS ON THE PURCHASE OF YOUR NEW PELLET STOVE
MANUFACTURED BY LENNOX HEARTH PRODUCTS.**

When you purchased your new pellet stove, you joined the ranks of thousands of concerned individuals whose answer to their home heating needs reflects their concern for aesthetics, efficiency and our environment. We extend our continued support to help you achieve the maximum benefit and enjoyment available from your new pellet stove.

It is our goal at Lennox Hearth Products to provide you, our valued customer, with an appliance that will ensure you years of trouble free warmth and pleasure.

Thank you for selecting a Lennox Hearth Products stove as the answer to your home heating needs.

Sincerely,
All of us at Lennox Hearth Products

SAVE THESE INSTRUCTIONS

TABLE OF CONTENTS

Safety Precautions.	1
Safety Notice.	1
Installation Disclaimer	1
Detailed Safety Precautions.	1
Safety Testing.	2
Safety / Listing Label.	3
Pellets.	4
General Information	4
Clinkering	4
Ash.	4
Fuel Feed Rates.	4
Stove Operating Controls.	5
Operating Instructions.	6
Pre-Lighting Instructions.	6
Starting Your Whitfield Pellet Stove.	6
Turning Off Your Whitfield Stove.	6
General Operating Considerations.	7
Proper Burn Characteristics.	7
Pellet Feed/Pellet Size	7
Long Burn Time.	7
Automatic Safety Features.	8
Power Outage.	8
Overheating.	8
Safe Shut Down of Your Stove.	8
Routing Cleaning.	9
BurnGrate.	9
Heat Exchanger Tubes.	9
Ash Pan.	10
Firebox.	10
Cleaning of Internal Exhaust Passages.	10
Stove Installation.	11
Stove Installation Check List.	11
Pre-Installation Assembly.	12
Pallet Removal.	12
Door Handle Assembly.	12
Stove Installation Clearances.	13
Floor Protection.	13
Clearances to Combustible's.	13
Stove Vent Pipe/Intake Installation.	14

TABLE OF CONTENTS (Cont'd)

General Guidelines For Installing Exhaust System.	14
Determining Equivalent Pipe Length.	15
Installing Your Freestanding Pellet Stove.	16
Standard Horizontal Exhaust Installation.	16
Stove Dimensions.	17
Install Configurations.	18
Horizontal & Vertical Vent Configurations.	18
Venting Into An Existing Masonry Chimney.	19
Mobile Home Installation Configuration.	20
Routine Maintenance.	21
Door Gasket.	21
Exhaust Vent.	21
Exhaust Passage Clean-out.	21
Control Panel Removal.	22
Appendices	
Appendix A -- Cascade Troubleshooting Guide	23
Appendix B -- Cascade Wiring Diagram	26
Appendix C -- Optional Accessories	27
Appendix D -- Replacement Parts List	28

PLEASE NOTE: The drawings in this manual are not drawn to architectural scale and should be used for reference only. Actual dimensions as printed in the text, pictures and drawings of this manual are accurate. Refer to this manual for detailed installation dimensions, instructions, specifications and other requirements.

SAFETY PRECAUTIONS

SAFETY NOTICE

THIS STOVE MUST BE PROPERLY INSTALLED AND OPERATED IN ORDER TO PREVENT THE POSSIBILITY OF A HOUSE FIRE. PLEASE READ THIS ENTIRE OWNER'S MANUAL BEFORE INSTALLING AND USING YOUR WHITFIELD PELLET STOVE. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH. CONTACT YOUR LOCAL BUILDING OR FIRE OFFICIALS TO OBTAIN A PERMIT AND INFORMATION ON ANY INSTALLATION RESTRICTIONS AND INSPECTION REQUIREMENTS IN YOUR AREA.

INSTALLATION DISCLAIMER

THIS STOVE'S EXHAUST SYSTEM WORKS WITH NEGATIVE COMBUSTION CHAMBER PRESSURE AND A SLIGHTLY POSITIVE CHIMNEY PRESSURE. THEREFORE, IT IS IMPERATIVE THAT THE EXHAUST SYSTEM BE GAS-TIGHT AND INSTALLED CORRECTLY. SINCE Lennox Hearth Products, HAS NO CONTROL OVER THE INSTALLATION OF YOUR STOVE, PYRO INDUSTRIES GRANTS NO WARRANTY IMPLIED OR STATED FOR THE INSTALLATION OR MAINTENANCE OF YOUR STOVE, AND ASSUMES NO RESPONSIBILITY FOR ANY CONSEQUENTIAL DAMAGE(S).

DETAILED SAFETY PRECAUTIONS

Fuel - With it's advanced UltraGrate technology, the Whitfield Cascade is designed and approved for the burning of wood residue pellets with up to 3% ash content. The burning of agricultural residues (i.e...corn, alfalfa etc...) and waste paper, cardboard, etc. in pellet form is not permitted. Failure to comply with this restriction will void all warranties and the safety listing of the stove. Confer with your dealer for more information on approved pellet fuels in your area.

Cleaning- There will be some build-up of dust and smaller quantities of soot or creosote in the exhaust system over the burn season. This will vary due to the ash content of the fuel being burned. A precautionary inspection on a regular basis is advisable to determine the necessity of cleaning.

Liquid Flammables- Gasoline or other flammable liquids must NEVER be used to start or "freshen up" the fire. Keep all such liquids well away from the stove at all times.

Ashes - Any ashes removed from the Whitfield Cascade must be deposited in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a non-combustible surface 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.

Power - The appliance is provided with a grounded electrical cord. This cord should be connected to a standard, 115 volt, 60 Hz grounded electrical outlet. The approximate power requirement is 200 watts. The power supply cord must be routed to avoid contact with any of the hot or sharp exterior surface areas of the stove. In addition, any Whitfield Cascade stove that is installed in a mobile home must be connected to a source of outside air, *electrically grounded to the steel chassis* and bolted to the floor in compliance with and according to H.U.D. requirements unless otherwise specified by state or local authorities.

Soot Formation - Burning with insufficient combustion air will result in the formation of soot, which will be deposited on the windows, in the flue, the heat exchanger, and when vented through the wall, the soot may stain the outside of the house. This is a hazardous situation in addition to being inefficient and a wasteful use of pellets. Check you stove frequently, and adjust damper as required. See Damper Control on page 5 for more information.

Auger - Pellet fuel is fed to the burn grate by a screw auger. This auger is driven by a high torque motor. The auger is capable of doing serious harm to fingers. Keep pellets in the hopper at all times and keep fingers away from auger. The auger can start and stop automatically at any time while the stove is running.

Smoke Detector - Depending on your local codes, a smoke detector may be required in the room where the stove is installed. We recommend that smoke detectors be installed in all homes and maintained in an operational condition at all times, whether you are using a heating appliance or not.

SAFETY TESTING

In accordance with the specifications and procedures listed in ASTM E-1509 for Pellet Heaters and UL 1482 for solid fuel room heaters, the Whitfield Cascade pellet stove has been independently tested and listed by Warnock Hersey, (an accredited testing laboratory) to ASTM, UL, ULC and CSA standards. UL 1482 states requirements for installation as a freestanding room heater. The safety listing label is located on the underside of the hopper lid on the Cascade stove. Please read this safety label carefully. It contains important information about installation and operation of your Whitfield Pellet Stove. This Owner's Manual is provided to you to supplement, rather than replace or update, the information contained on the safety label. Note that your stove's serial number is located on this label. Your stove's serial number is preceded by a "WH-C".

This appliance is designed specifically for use only with pelletized fuels. It is tested and listed for residential installation according to current national and local building codes as:

A Freestanding Room Heater

A Mobile Home Heating Appliance

Note: This stove is not intended for use in commercial installations other than where the stove is being sold without prior approval from Lennox Hearth Products

The stove will not operate using natural draft, nor without a power source for the blower and fuel feeding systems. The appliance is provided with an exhaust connector for a 3 inch type "L" double wall listed pellet vent pipe with a stainless steel inner liner. Single wall, stainless steel rigid or flexible pipe is not approved for any type of installation with this pellet stove.

Whitfield pellet stoves and fireplace inserts are safety tested and listed
by Warnock Hersey Professional Services, Ltd.

SAFETY / LISTING LABEL

LISTED ROOM HEATER FOR USE WITH APF/IFFI APPROVED PELLETTIZED WOOD FUEL ONLY. MAY BE INSTALLED IN MOBILE HOMES. MODEL: WPS CASCADE TESTED TO ASTM E-1508 / JUL 1482 / ULC-S627 / CSA B386.2M / WHPN-025 REPORT NO. 476-1129 (APRIL 1995).



INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. SEE LOCAL BUILDING CODE AND MANUFACTURER'S INSTRUCTIONS FOR PRECAUTIONS REQUIRED FOR PASSING A CHIMNEY THROUGH A COMBUSTIBLE WALL OR CEILING. THIS PELLET FIRED APPLIANCE HAS BEEN TESTED AND LISTED FOR USE IN MANUFACTURED HOMES IN ACCORDANCE WITH OREGON ADMINISTRATIVE RULES 814-23-900 THROUGH 814-23-906.

OPERATE ONLY WITH FIREBRICK IN PLACE. WARNING: OPERATE ONLY WITH VIEWING DOOR CLOSED. INSPECT FLUE FREQUENTLY TO PREVENT ACCUMULATION OF SOOT. THE HEATER AND FLUE MUST BE IN GOOD CONDITION. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIALS WELL AWAY FROM HEATER.

ROUTINE MAINTENANCE REMINDER

FREQUENCY OF CLEANING AND MAINTENANCE OF YOUR STOVE DEPENDS ON THE ASH CONTENT OF THE PELLETS YOU BURN. CHECK THE FOLLOWING PARTS OF YOUR STOVE WEEKLY FOR THE FIRST MONTH TO DETERMINE THE FREQUENCY OF CLEANING.

- A. BURN GRATE
- B. HEAT EXCHANGER TUBES
- C. ASHPAN AND EXHAUST PIPE

SEE YOUR MANUAL AND/OR DEALER FOR MORE INFORMATION.
INPUT RATING RANGE: 1.5 TO 3.5 LBS./HOUR (NOMINAL)
ELECTRICAL RATING: 80 HZ, 115 V, 5 A

DO NOT REMOVE THIS LABEL



WH-C

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

FREESTANDING STOVE INSTALLATION	MOBILE HOME OR RESIDENTIAL INSTALLATION	
	HORIZONTAL FLUE - DIRECTLY THROUGH WALL INSTALLATION	INTERIOR VERTICAL FLUE INSTALLATION
SCREEN WALL TO UNIT	4" / 100 MM	4" / 100 MM
BACK WALL TO UNIT	1" / 25 MM	6" / 200 MM
CEILING TO UNIT	1" / 25 MM	1" / 25 MM
ALCOVE TO FUEL HOPPER	4" / 100 MM	4" / 100 MM
MAX DEPTH OF ALCOVE PLUS TO WALL PROTECTION OVER EDGE	24" / 610 MM	24" / 610 MM
PROTECTION OVER EDGE	3" / 75 MM	3" / 75 MM
MINIMUM ALCOVE HEIGHT	46" / 1170 MM	46" / 1170 MM
MINIMUM AL COVE WIDTH	22" / 560 MM	22" / 560 MM



CAUTION: HOT SURFACES WHILE IN OPERATION. DO NOT TOUCH. CONTACT MAY CAUSE SKIN BURNS. KEEP CHILDREN, COMBUSTIBLE MATERIAL AND FURNISHINGS A CONSIDERABLE DISTANCE AWAY. SEE NAMEPLACE AND INSTRUCTIONS. TYPE OF FUEL: PELLETTIZED WOOD FUEL ONLY.

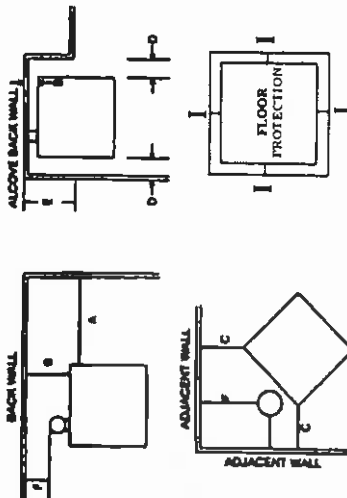
COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING BENEATH THE HEATER AND 6" TO THE FRONT AND SIDES AS INDICATED OR TO THE NEAREST PERMITTED COMBUSTIBLE MATERIAL.

USE 3" / 76mm Type "L" LISTED PELLET VENT AND COMPLETE COMPONENTS.

Model: Cascade



Manufactured by:
Lennox Hearth Products
4325 Artesia Avenue
Fullerton, CA 92833



Rev. A

PELLETS - IMPORTANT: PLEASE READ

GENERAL INFORMATION

Using the UltraGrate burn system, the Whitfield Cascade has been designed to burn wood residue pellets with up to 3% ash content. Agricultural pellets (i.e. corn, alfalfa, etc.) and waste paper, cardboard, etc. in pellet form are not permitted to be burned in your stove. Dirty fuel will adversely affect the performance of the stove. **Caution:** The use of unapproved, dirty, wet and/or high salt content fuel will void the warranty!

Wood pellets manufactured to the Pellet Fuel Institute (P.F.I.) Certification Standard are available in two grades, “Standard” and “Premium”. The primary difference between the two is the ash content of the pellets.

The P.F.I. specifications for “Standard Grade” & “Premium Grade” residential pellet fuel is as follows:

CHLORIDES (Salt):	Less than 300 p.p.m.
BULK DENSITY:	40 lb./cu.ft. minimum
MOISTURE CONTENT:	8% maximum
ASH CONTENT:	3% maximum (Standard Grade) 1% maximum (Premium Grade)
FINES:	0.5% maximum through a 1/8” screen

CLINKERING

Silica (or sand) in the fuel, along with other impurities, can cause clinkering. A clinker is a hard mass of silica formed in the burning process. Clinkering is a function of the fuel (not the stove), but adversely effects the performance of the stove by blocking off the air passages in the grate. Even a P.F.I. approved pellet fuel may tend to clinker. A clinker can be removed from the burn grate and placed in the ash pan with the use of a grate scraper/ash pan tool furnished with your stove. See **Routine Cleaning** for more information on cleaning.

ASH

The frequency of removal of the ash and maintenance performed on the stove is directly proportional to the ash content of the fuel and the operation of your Whitfield stove. Low ash fuel may allow longer intervals between cleaning, however, a stove burning high ash fuel may need to be cleaned everyday.

PLEASE NOTE: Lennox Hearth Products, has no control over the manufacturing of all pellet fuel (other than the Whitfield brand pellets) and will not be held responsible for poor stove performance or any damage caused by inferior pellet fuels.

FUEL FEED RATES

Different brands of pellets will feed at varying rates due to their size and density (length and diameter). This may require a slight adjustment in the damper rod or the pellet feed trim control to compensate. See Operating Instructions in this manual.

STOVE OPERATING CONTROLS

Heat Output Switch - The Heat Output switch activates both the convection and combustion blowers and the auger motor. If the exhaust does not reach operation temperature within 25 minutes, the stove will automatically shut down. If this occurs, repeat the lighting procedure (see next page).

"OFF" position - The "OFF" position on the Heat Output switch will turn the stove off by turning off the auger motor. The remaining fuel in the grate will safely burn up. Once the stove has cooled sufficiently the blowers will shut off automatically.

"HIGH HEAT" position - The "HIGH HEAT" position on the Heat Output switch will increase the fuel feed rate and blower speed for maximum heat output.

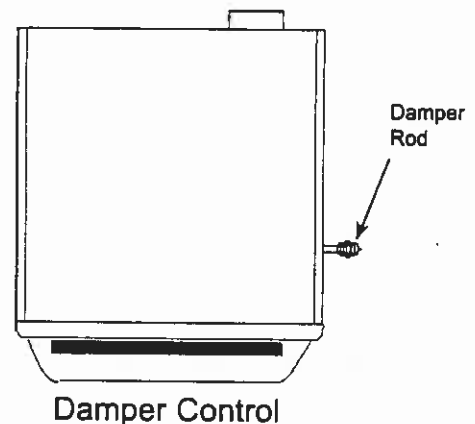
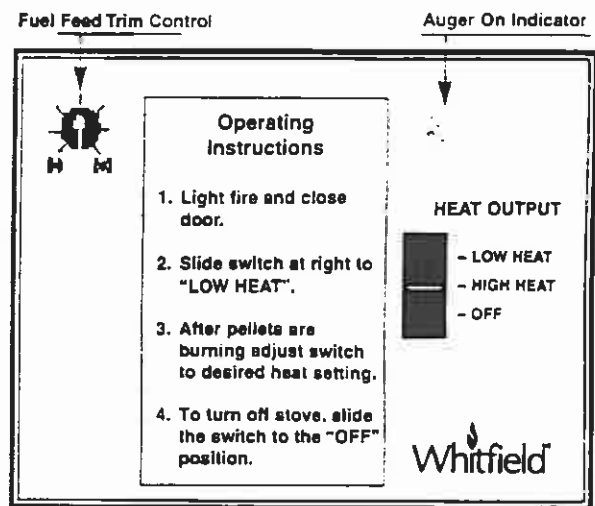
"LOW HEAT" position - The "LOW HEAT" position on the Heat Output switch will decrease the fuel feed rate and blower speed.

Auger "On" Light - The red L.E.D. light on the control panel indicates when there is power to the auger motor. Under normal operation, this light will blink on and off.

Fuel Feed Trim Control - The fuel feed trim control on the control panel should be used when the damper control will not correct a poor combustion problem. Turning the trim control counter clockwise will decrease the amount of fuel entering the burn grate and turning the trim control clockwise will increase the amount of fuel entering the burn grate.

Damper Control - The Damper Control is located on the right side of the stove. **THE DAMPER SHOULD BE PUSHED ALL THE WAY IN TOWARD THE STOVE DURING INITIAL OPERATION.** It may need to be manually adjusted outward depending on the type of pellet fuel being burned. The damper control adjusts the amount of combustion air to the burn grate. When the damper has been correctly adjusted, you will observe a brisk, yellow-to-whitish flame. Fuel should not "pile-up" in the grate. The proper air settings will vary from stove to stove due to installation, altitude, and the fuel being burned.

NOTE: If the flame is smoky red/orange with evidence of soot at the top of the flame, your stove needs more combustion air; adjust the damper outward until the flame begins to "dance." If the flame is "short" at the higher burn rates or if the pellets are burning up in the grate before new pellets are fed into the fire, adjust the damper "in" for slightly less combustion air. The damper opening will probably need to be changed once. The damper may need to be adjusted slightly when switching from a premium grade pellet fuel to a standard grade or other higher ash content pellet.



OPERATING INSTRUCTIONS

PRE-LIGHTING INSTRUCTIONS

When lighting your Whitfield stove for the first time, the auger feed tube must be primed with pellets. **DO NOT OPERATE STOVE WITHOUT THE BURN GRATE IN PLACE, THE ASH SLIDE PLATES OPEN OR THE ASH PAN AJAR** (See pages 9 & 10).

To prime the auger feed tube:

1. Ensure all packing material and foreign objects are removed from the hopper. Fill the hopper with recommended pellet fuel and plug the stove into the wall outlet.
2. Move the Heat Output switch on the control panel to the "HIGH HEAT" position to activate the auger and blowers.
3. Look through the combustion chamber door and when you can see the first pellets dropping into the grate, the auger is fully primed. This will take up to 10 minutes.

STARTING YOUR WHITFIELD PELLETT STOVE

1. After auger is fully primed, move Heat Output switch to "OFF", place a recommended fire starter (see your dealer for an appropriate fire starter) in the burn grate and put a handful of pellets on top of the starter (if using a gel starter, put the pellets in the grate first), **DO NOT USE FLAMMABLE LIQUIDS TO START YOUR STOVE.**
2. Light the fire starter in the grate with a match and close the door.
3. After approximately 10 seconds, move the Heat Output switch on the control panel to the "LOW HEAT" position. You will notice that the fire will become active and there will be air coming from the heat exchanger tubes and pellets will now begin to feed into the burn grate.
4. After the fire is burning well, adjust the Heat Output switch to the desired setting. Adjust the damper control if necessary for proper combustion. Look for a brisk, bright yellow to whitish flame.

TURNING OFF YOUR WHITFIELD STOVE

1. Move the Heat Output switch to the "OFF" position. This will stop the fuel feed and any remaining fuel in the grate will safely burn up. The blowers will continue to run until the stove has cooled off sufficiently and will then shut off automatically.

GENERAL OPERATING CONSIDERATIONS

PROPER BURN CHARACTERISTICS

The flame in your stove should be bright yellow under normal operation. If the flame becomes lazy with a reddish/orange color, the damper position will need to be changed to provide more combustion air. Excessive amounts of fly-ash build-up in the grate, clinkers in the grate, or leakage of air (if the grate is not properly seated) will starve the fire for air. (See **Routine Maintenance** for information on cleaning the stove), If the problem persists review the **Troubleshooting** section at the end of this manual.

PELLET FEED/PELLET SIZE

The pellet feed system is designed to handle a wide range of pellet sizes up to a maximum of 5/16" (8 mm) diameter. Different pellets may feed at considerably different rates. You may notice a difference in the burn if you change pellet fuel sizes. The longer the pellet, the slower it will feed and vice versa. If the stove will not stay burning at the "LOW HEAT" setting, those particular pellets may not be feeding fast enough. If this happens, **reduce the amount of combustion air by adjusting the damper control slightly INWARD on the side of the stove and/or increase the pellet feed rate by adjusting the fuel feed control clockwise.**

LONG BURN TIME

The stove may be safely operated on a continuous basis, but it is recommended that it be turned down overnight or when the room is vacated for long periods of time. A 40 lb. (18.2 kg) bag of pellets should last approximately 10 hours on the "HIGH HEAT" setting and up to 25 hours on the "LOW HEAT" setting, depending on the type and size of pellets you are burning.

AUTOMATIC SAFETY FEATURES

POWER OUTAGE

During a power outage, the stove will shut down safely. It will not automatically restart when the power is restored. However, a momentary power interruption may not shut your stove down. Following a loss of power a small amount of smoke will likely leak from the top of the window glass, the hopper and from the combustion air intake, if the stove is vented horizontally. This will not persist for more than 3 to 5 minutes and will not be a safety hazard. *Your smoke alarm could go off.*

To re-light the stove, follow the normal procedure for starting your stove.

NOTE: If the area in which you live is prone to frequent power outages, it is recommended that a minimum of 8 ft. (2.5m) of vertical vent pipe be included in the installation to induce a natural draft in the event of a power outage.

OVERHEATING

A high temperature switch will automatically shut down the stove if it overheats. The stove will need to be manually re-lit. Allow up to 45 minutes cooling time before re-lighting. If the overheating continues, contact your dealer for more information.

ROUTINE CLEANING

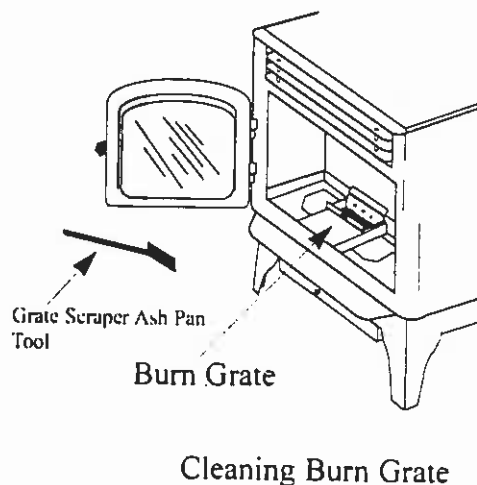
NOTE: STOVE WILL NEED TO BE SHUT OFF AND COOLED ENOUGH TO HANDLE BEFORE ROUTINE CLEANING IS PERFORMED. **ALWAYS** DISCONNECT POWER BEFORE DOING ANY ROUTINE CLEANING.

The amount of fly ash build-up in your stove is directly proportional to the ash content of the fuel that you are using (see **PELLETS**, page 4). After a period of time (a week, or so) inspect the heat exchanger tubes and the burn grate. You will want to gauge your routine maintenance accordingly.

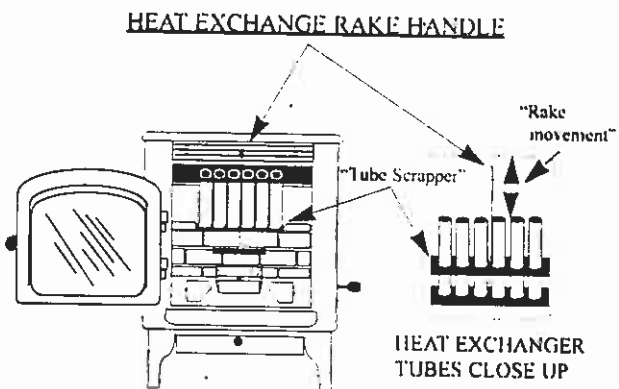
THE FOLLOWING AREAS NEED TO BE INSPECTED DURING ROUTINE CLEANING:

- Burn Grate
- Heat Exchanger Tubes
- Ash Pan

Burn Grate: The burn grate should be inspected periodically to ensure that the airflow has not become blocked with ash or clinkers. The burn grate can easily be cleaned with the grate scraper/ash pan tool, or it can be removed for more extensive cleaning. It is very important to monitor the ash build up under the burn grate, as excessive build up may starve the fire of combustion air. When burning "Standard" grade pellets, it will be necessary to clean the ash pan more often than when burning "Premium" grade pellets.



Heat Exchanger Tubes: A rod located above the convention air louvers is used for cleaning the tubes. Be sure the door is closed while you are scraping these tubes. By pulling this rod up and down a few times, you will clean the fly ash off the heat exchanger tubes. A hole is provided in the handle of your grate scraper tool for pulling this rod on a hot stove. **NOTE:** If your stove was recently turned off, the rod will still be hot.

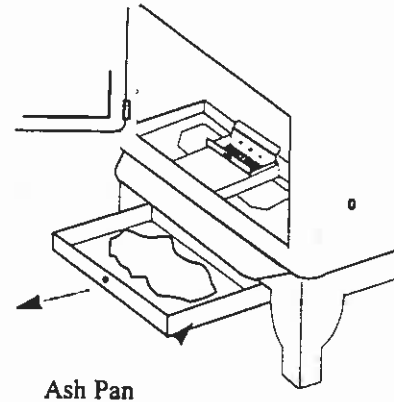


ROUTINE CLEANING (Con't)

Ash Pan: The ash pan will have to be emptied periodically. Be sure to dump the ashes into a non-combustible container. When finished, slide the ash pan back into the stove.

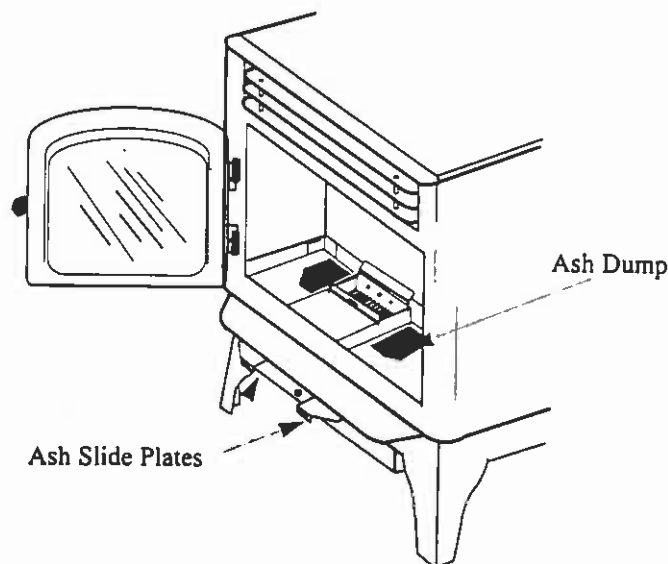
Dispose of the ash in accordance with the instructions found on page 2 of this manual!

NOTE: Periodically check for ash build up under the burn grate. If the ash is allowed to build up to the bottom of the burn grate, there will be a loss of combustion air and the pellets will start to pile up on the grate.



Emptying Ash Pan

Firebox: The firebox may be cleaned by depositing the ash into the ash pan by simply opening the two ash slide plates. The ash slide plates are located under the ash lip of the stove. Using the ash pan tool, grasp each plate and pull it toward you. This will allow the ash to dump or be swept into the ash pan below. **Do not operate your stove with the ash slide plates open! This will cause poor combustion and the pellets will pile up in the grate.** NOTE: It is recommended to pull the ash slide plates every half ton of fuel burned, this will vary depending on the ash content of the fuel being burned.



Cleaning Firebox with Ash Slide Plates

STOVE INSTALLATION

STOVE INSTALLATION CHECK LIST

Check off each item as you go through your installation.

As part of the installation process:

- Read the ENTIRE Stove Installation section, first.
- Determine the appropriate measurements and locations for your installation.
- Follow the general installation directions under Stove Installation
- Be sure to measure and pre-fit all items before you install, cut, fasten, or set up the stove permanently.

Prior to lighting your stove:

- Review the Safety Precautions: section.
- Review the Pellets section.
- Review the Operating Instructions
- Follow the Operating Instructions

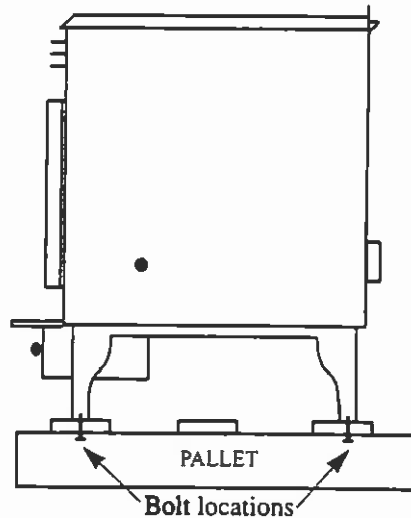
After you have begun operation of your stove:

- Review the Routine Cleaning/Maintenance information
- Enjoy the warmth from your new Whitfield Cascade Pellet Stove!

PRE-INSTALLATION ASSEMBLY

PALLET REMOVAL:

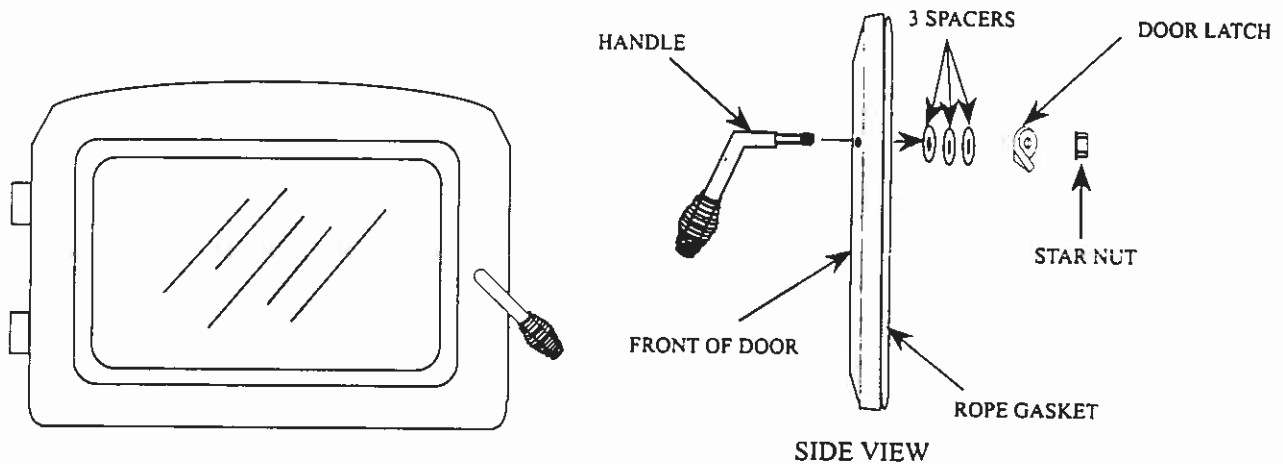
1. After removing the packaging from the stove, lift the hopper lid, and remove any pre-packaged items that were shipped in the hopper. Also open the combustion chamber door and remove any pre-packaged items.
2. Using a 3/8" socket or open end wrench, remove the four bolts from the leg bottoms that secure the stove to the wooden pallet.



REMOVING STOVE FROM PALLET

DOOR HANDLE ASSEMBLY:

1. Remove door handle from packaging and attach to door as illustrated below.



DOOR HANDLE ASSEMBLY

STOVE INSTALLATION CLEARANCES

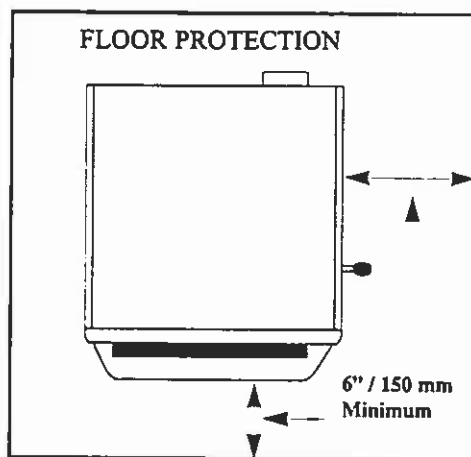
YOUR WHITFIELD CASCADE MAY BE INSTALLED AS:

A freestanding stove placed on a non-combustible floor pad

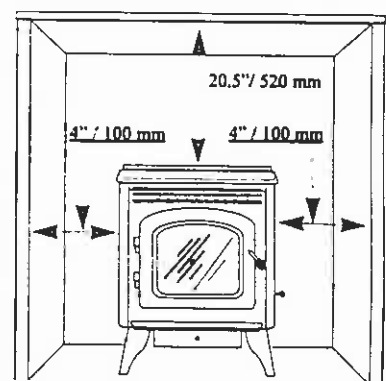
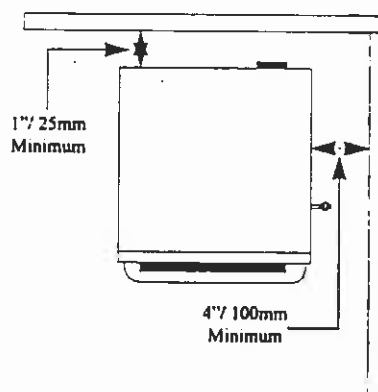
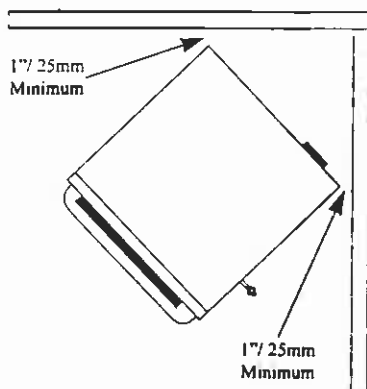
A mobile home heater placed on a non-combustible floor pad, with a source of outside air, bolted down and electrically grounded to the chassis of the home (See page 20).

FLOOR PROTECTION

Your Whitfield pellet stove must be installed on a non-combustible protective floor pad of minimum 3/8" (10 mm) thickness material or a masonry hearth. The hearth or floor pad must extend a minimum of 6" (150 mm) in front of the door and from each side of the stove or the nearest permitted combustible material less than 6" (150 mm).



CLEARANCES TO COMBUSTIBLES



The following minimum clear-

ances to combustible materials must be maintained.

Keep all combustibles at least 18" (460 mm) horizontally away from the glass window. Maximum Alcove depth: 24" (610 mm). Minimum Alcove height 49" (1254 mm).

STOVE VENT PIPE / INTAKE INSTALLATION

THE FOLLOWING INSTALLATION GUIDELINES MUST BE FOLLOWED TO ENSURE CONFORMITY WITH BOTH THE SAFETY LISTING OF THE STOVE AND LOCAL BUILDING CODES.

GENERAL GUIDELINES FOR INSTALLING VENT SYSTEM WITH A CASCADE PELLET STOVE.

A listed 3”(75 mm) to 4” (100 mm) type “L” pellet vent exhaust system must be used and attached (and sealed) to the pipe connector provided on the back of the stove. Use a 3” (75 mm) -to-4” (100 mm)adapter or a 3” (75 mm) - to - 4” (100 mm) “Tee” in order to run 4” (100 mm)pipe. NOTE: We strongly suggest the use of a Whitfield “Quick Disconnect” pipe connector (part number 12051500) when installing your vent system. This will allow easy removal of the vent pipe for annual maintenance without breaking the silicone seal.

The outside vent termination must be located no less than 48”(1.2m) from any opening through which flue gases could re-enter the building (i.e. windows and doors) not less than 24” (.6m) from an adjacent building, and not less than 7’ (2.2m) above grade when located near public walk ways. The final termination of the exhaust system must be configured so that flue gases do not jeopardize the safety of people passing by, overheat combustible portions of nearby structures or enter the building. Keep brush, plants, and shrubs at least 36” (.9m) away from vent termination. Since sparks may escape from the exhaust pipe of any stove, always use caution when positioning the vent pipe. Refer to pipe manufacturer’s instructions when installing and terminating the exhaust.

Ninety-degree elbows accumulate fly ash and soot which reduces the exhaust flow and performance of the stove. Horizontal runs of pipe will collect fly ash as well. It is recommended that a single or double clean-out ‘tee’ be installed at every 90 degree turn so that fly ash can accumulate at the bottom of the ‘tee’. If a 90 degree turn connects a vertical run of pipe to a horizontal run (as you follow the exhaust away from the stove), a tee is not required. At any other 90 degree turn, installation of a clean out tee is recommended to permit periodic cleaning of both the horizontal and vertical runs of pipe.

Total length of horizontal vent **must not exceed 10 ft. (3m).**

WARNING: Do not vent into a flue serving another appliance. Do not install a flue damper in the vent pipe.

CAUTION: On all horizontal direct vent installations (short, horizontal runs); care should be taken when choosing a location for terminating the vent. *It is not recommended to directly vent the exhaust on the prevailing wind side of the house.*

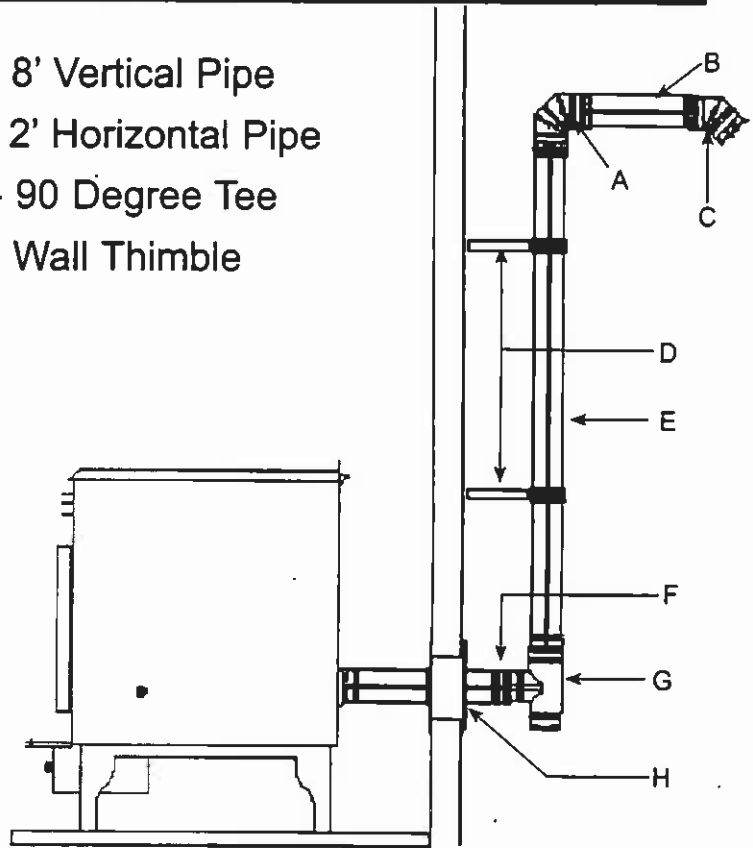
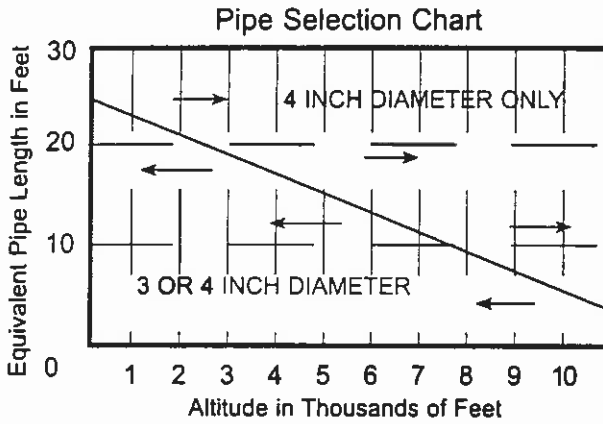
NOTE: IF YOU ARE INSTALLING THE STOVE IN AN AREA WITH FREQUENT POWER OUTAGES, WE RECOMMEND THAT THE STOVE BE INSTALLED WITH A MINIMUM OF 8 FEET OF VERTICAL VENT PIPE. THIS WILL ALLOW FOR NATURAL DRAFT OF THE EXHAUST GASES AND MINIMIZE THE AMOUNT OF SMOKE ENTERING THE LIVING SPACE.

DETERMINING EQUIVALENT PIPE LENGTH

To determine whether a 3"(75 mm) or 4"(100 mm) exhaust system is required for your installation, review the sample installation below. Fill out the top chart, and calculate your total equivalent pipe length. After you have the total equivalent pipe length, use the chart at the bottom of the page to determine if your installation requires 3"(75 mm) or 4"(100 mm) exhaust pipe.

Type of Pipe	# of Elbows or Feet of pipe		Equivalent Feet	Total Equivalent Feet
90°	Elbows	x	5(1.5m)	
45°	Elbows	x	3(1m)	
Horizontal	Pipe	x	1(.3m)	
Vertical	Pipe	x	5(.15m)	

- A- 90 Deg. Elbow
- B- 1' Horizontal Pipe
- C- 45 Degree Elbow
- D- Standoff Braces
- E- 8' Vertical Pipe
- F- 2' Horizontal Pipe
- G- 90 Degree Tee
- H- Wall Thimble



Sample Installation Chart

Type of Pipe	# of Elbows or Feet of pipe		Equivalent Feet	Total Equivalent Feet
90° Elbows/Tee (A & G)	2	x	5 ft. (1.5m)	10 (3m)
45° Elbows (C)	1	x	3 ft. (1m)	3 (1m)
Horizontal Pipe (B&F)	3	x	1 ft. (.3m)	3 (1m)
Vertical Pipe (E)	8	x	.5 ft. (.15m)	4 (1.2m)

TOTAL: 20

INSTALLING YOUR FREESTANDING PELLET STOVE

STANDARD HORIZONTAL EXHAUST INSTALLATION

1. Locate the proper position for the type "L" wall thimble (D). Avoid cutting wall studs when installing your pipe. Use a saber saw or key hole saw to cut the proper diameter hole through the wall to accommodate the wall thimble (D). *Use extreme caution to avoid cutting into power lines within the wall of the home.* The hole size will depend on the brand of pellet vent that you are using. Install the wall thimble in the hole according to the pipe manufacturer's instructions.

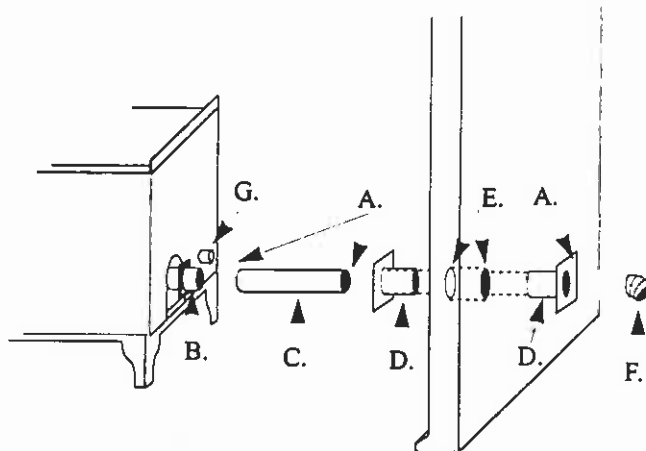
2. Position the stove approximately 12" (.3m) from the wall on the floor pad. Push type "L" pipe (C) through wall thimble (D). Squeeze a bead of high temperature silicone (RTV) sealer (A) around the end of the machined portion of the 3" (76mm) pipe connector on the back of the stove (B) or the quick disconnect pipe connector if used (see page 14). Firmly push on a section of type "L" pipe (C) until inner pipe liner pushes into the bead of RTV sealer.

All interlocking pipe connections within the room must be sealed with RTV sealer to prevent any dust or soot leakage from the vent pipe.

3. Push the stove (with pipe attached) towards wall. Pipe (C) will go through the wall thimble (D). Do not position the back of the stove closer than 1" (25 mm) from the wall. **Note:** Six to eight inches of back clearance will improve the serviceability of the stove.

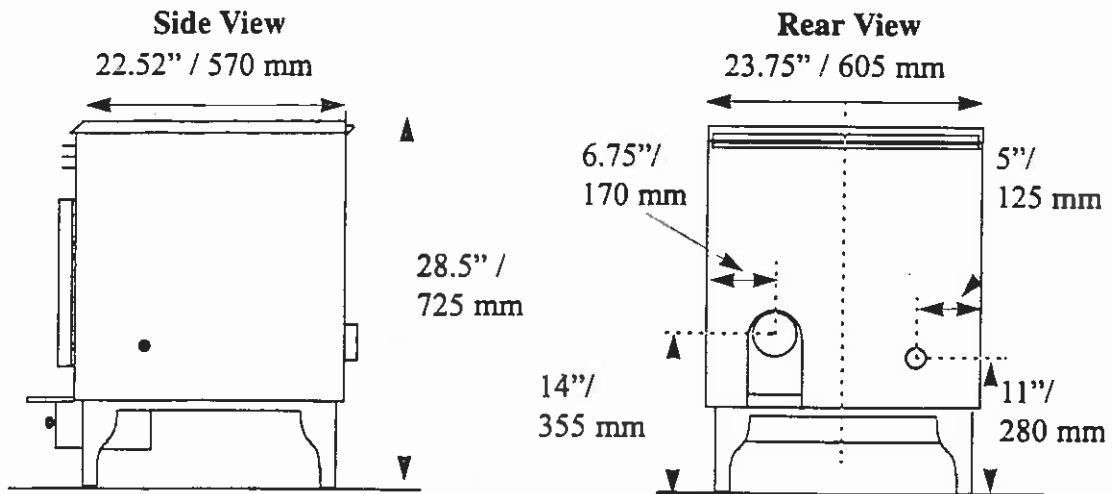
4. Install type "L" 45 degree elbow (F) with rodent screen or cap (optional) on outside end of pipe. The rodent screen should be no less than 1/2" (13 mm) mesh and may clog with soot and ash if left unattended during the burn season. **NOTE:** The end of the exhaust pipe must extend a minimum of 12" (.3m) from the outside of the building.

5. If the installation includes a source of outside combustion air; cut a separate hole through the wall for fresh air tube (G). This tube should be 1-5/8" (42 mm) [min.] diameter, steel only. Connect outside air pipe to the fresh air tube. This tube must be terminated with a 90 degree elbow or hood. **NOTE:** Air may also be drawn from a crawl space under the home.



- A. Use RTV Here
 - B. Quick Disconnect Fitting
 - C. 3"/75 mm PL Vent Pipe
 - D. Wall Thimble
 - E. Hole in Wall
 - F. 45 Elbow or End Cap
 - G. Fresh Air Tube
- NOTE: Connect "C" to "F"**

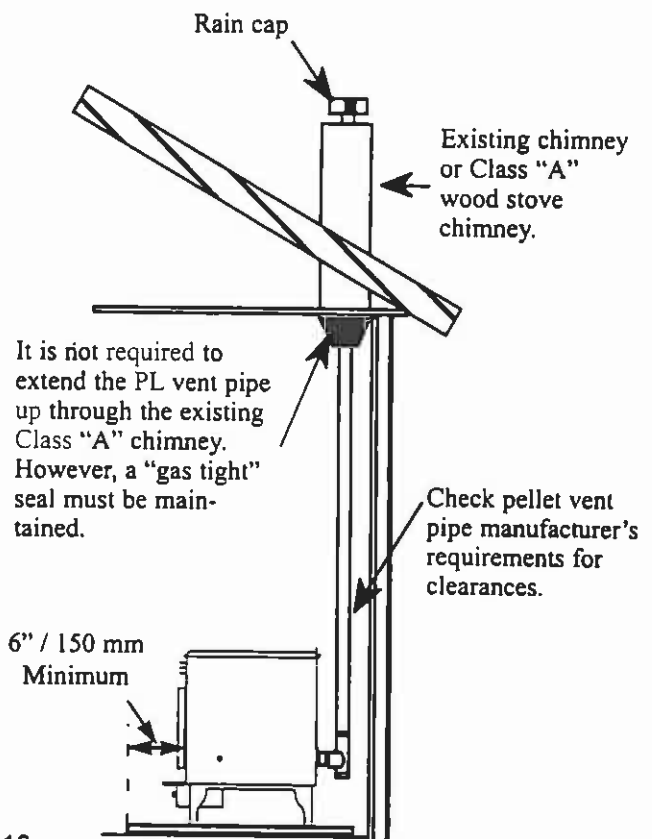
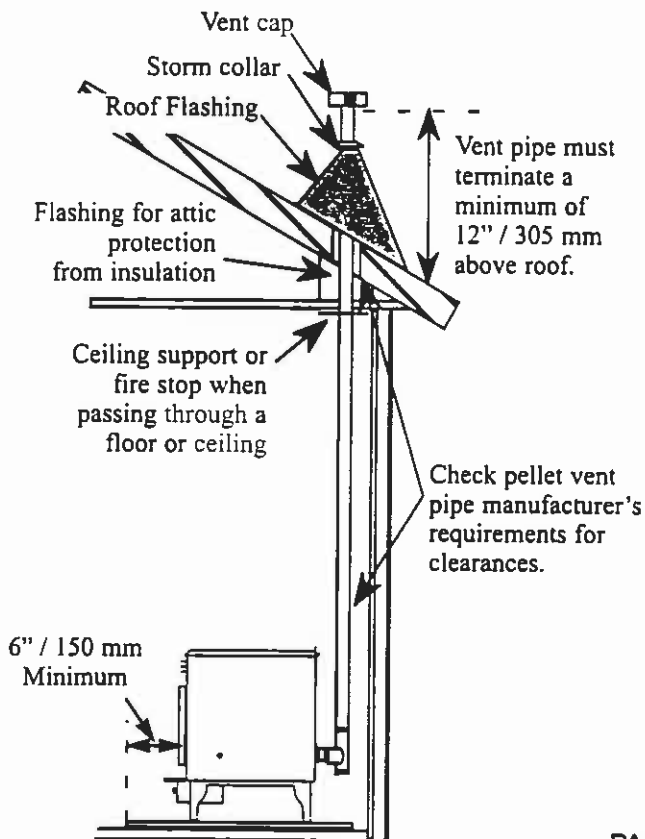
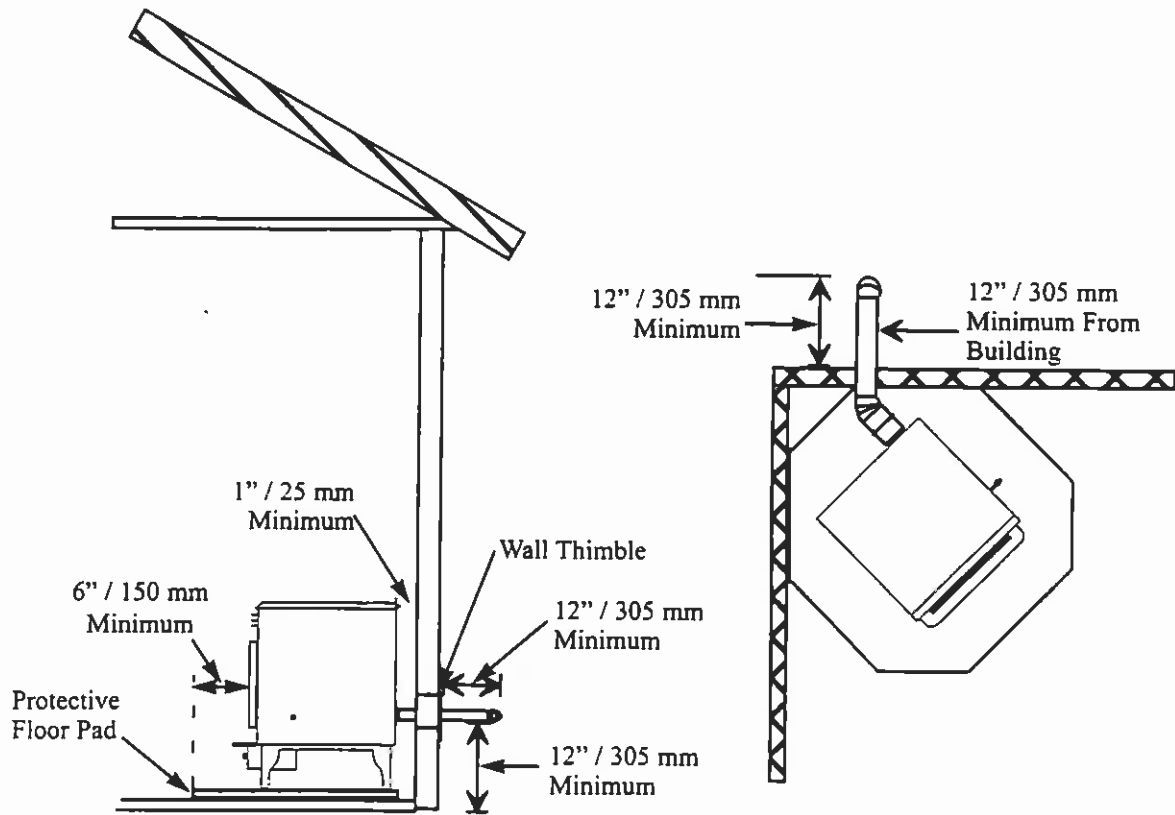
STOVE DIMENSIONS



Dimensional Tolerance +/- 1/4" (6 mm)
Pipe Locations measured to centerline

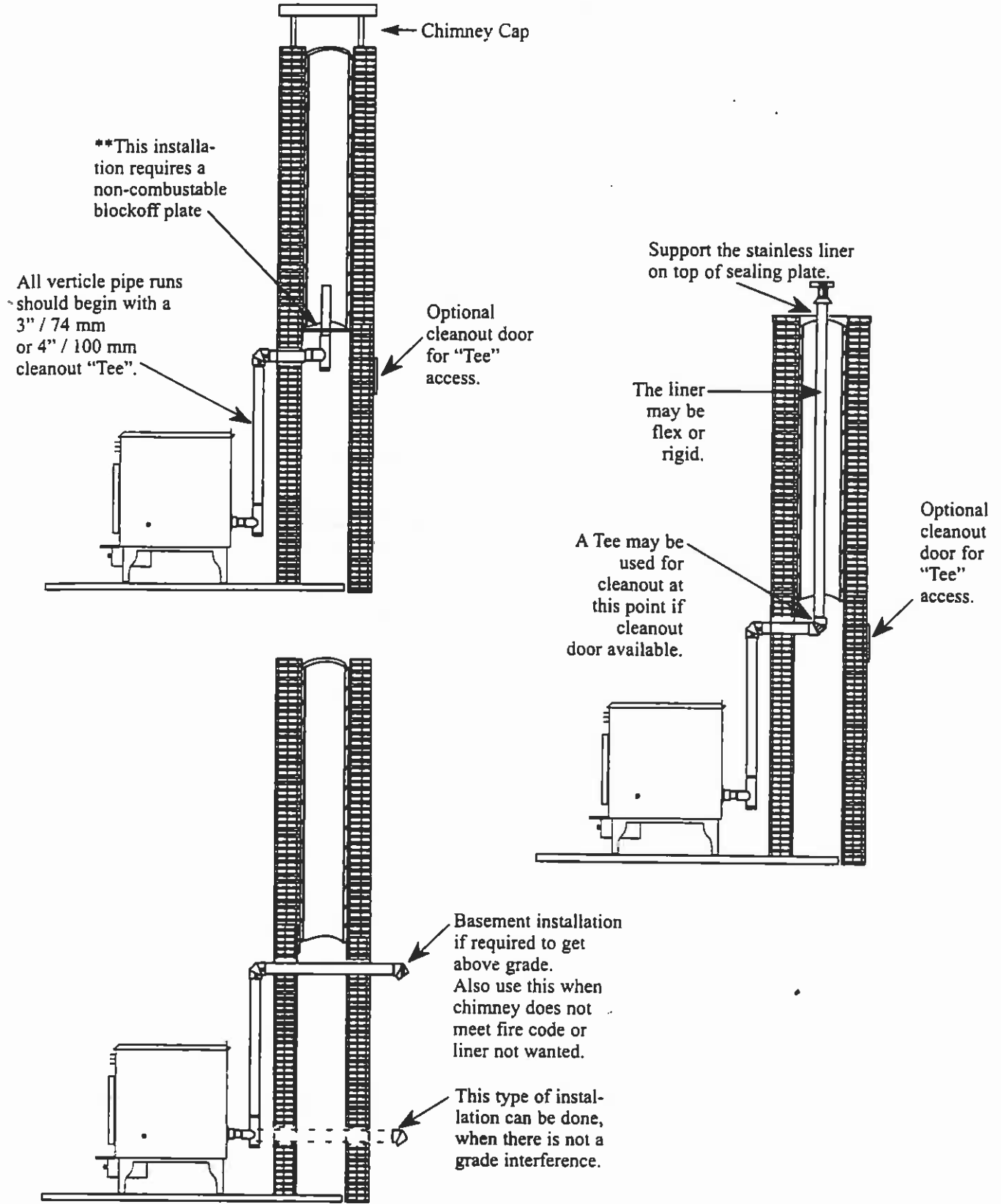
INSTALLATION CONFIGURATIONS

HORIZONTAL AND VERTICAL INSTALLATION CONFIGURATIONS



INSTALLATION CONFIGURATIONS (Con't)

VENTING INTO AN EXISTING MASONRY CHIMNEY

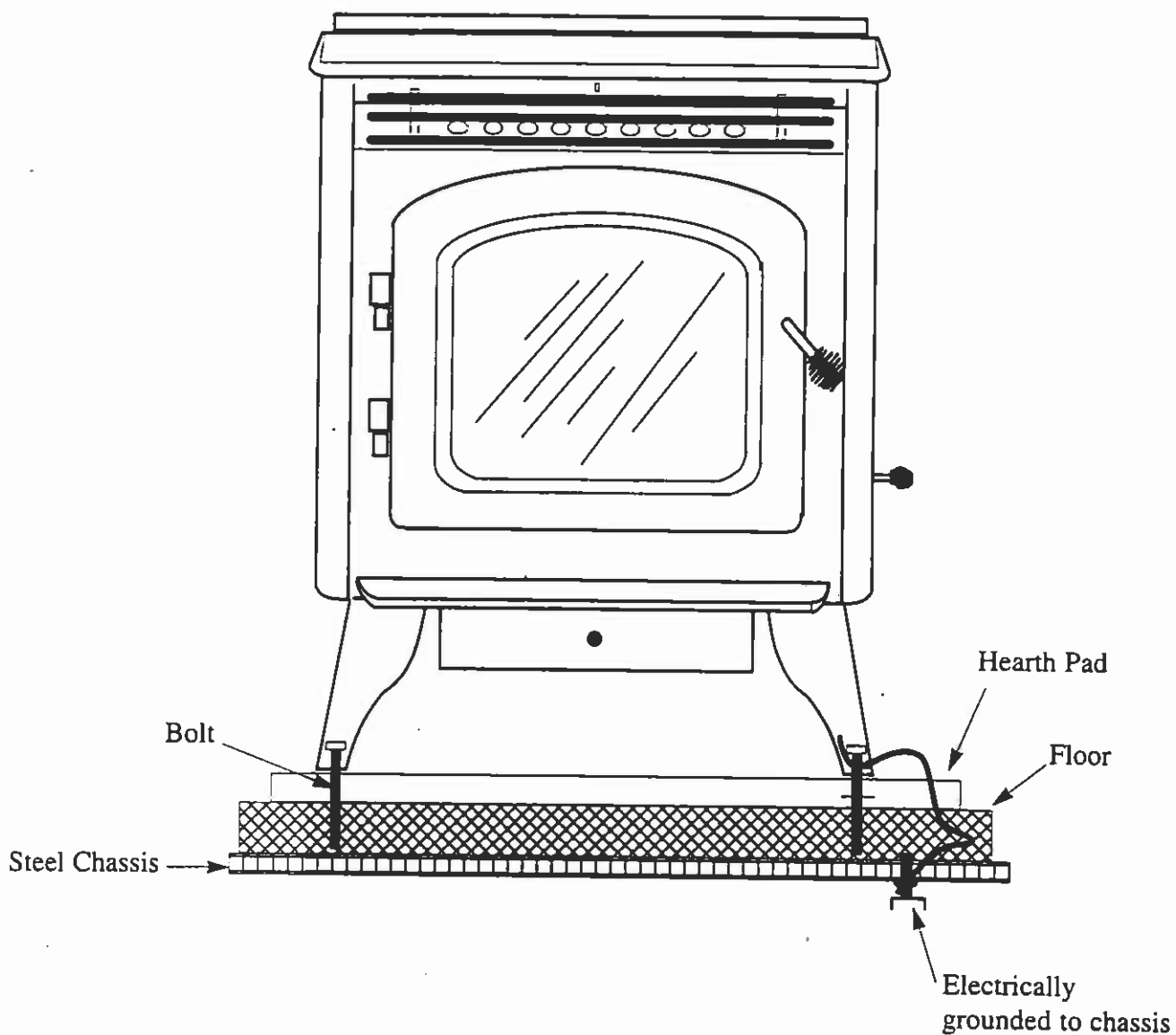


MOBILE HOME INSTALLATION

IN ADDITION TO THE STANDARD INSTALLATION INSTRUCTIONS, THE FOLLOWING INSTRUCTIONS MAY BE REQUIRED BY LOCAL, STATE OR FEDERAL BUILDING CODES:

- Stove must be permanently bolted to the floor.
- Stove must have permanent outside air source connected to fresh air tube on back of stove.
- Stove must be permanently electrically grounded to the steel chassis of the home.
WARNING: Do not install in a space used as a bedroom.

CAUTION: The structural integrity of the manufactured home floor, wall and ceiling/roof must be maintained.

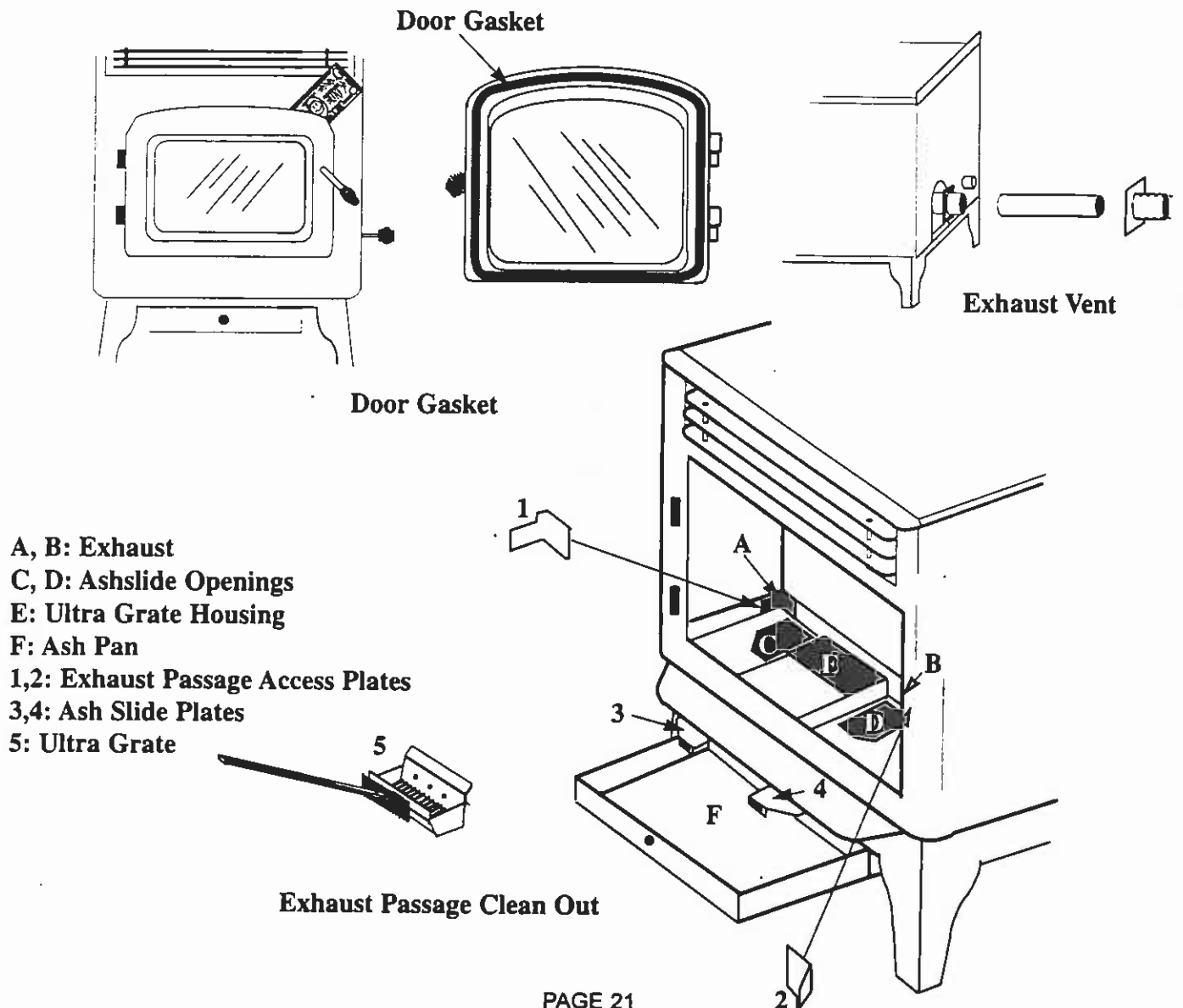


ROUTINE MAINTENANCE

The following areas need to be inspected as part of routine maintenance:

Door Rope Gasket: The condition of the rope gasket around the door and windows should be checked periodically and replaced or repaired if necessary. A one inch strip of paper may be used to perform a test of the integrity of the door seal. Close the door on the paper in several different locations and pull. It is normal to feel only a slight amount of friction. The door gasket does not need to be "tight" in all areas, since a small amount of air drawn into the stove around the gasket is not hazardous or detrimental to the performance of your stove.

Exhaust Passages and Vent: Inspect frequently and clean when necessary. Fly ash will accumulate at all bends in the exhaust system. Note: Large amounts of fly ash build-up will create a loss of combustion air and pellets will begin to pile up in the grate. Access to the stove's internal exhaust passages (items A & B) may be gained by simply removing the two access plates (items 1 & 2 in the diagram, one on either side of the burn grate, just above the ash slide plates). Remove all ash build-up in these areas. Clean rodent screen at vent terminations (if used).



CONTROL BOARD REMOVAL

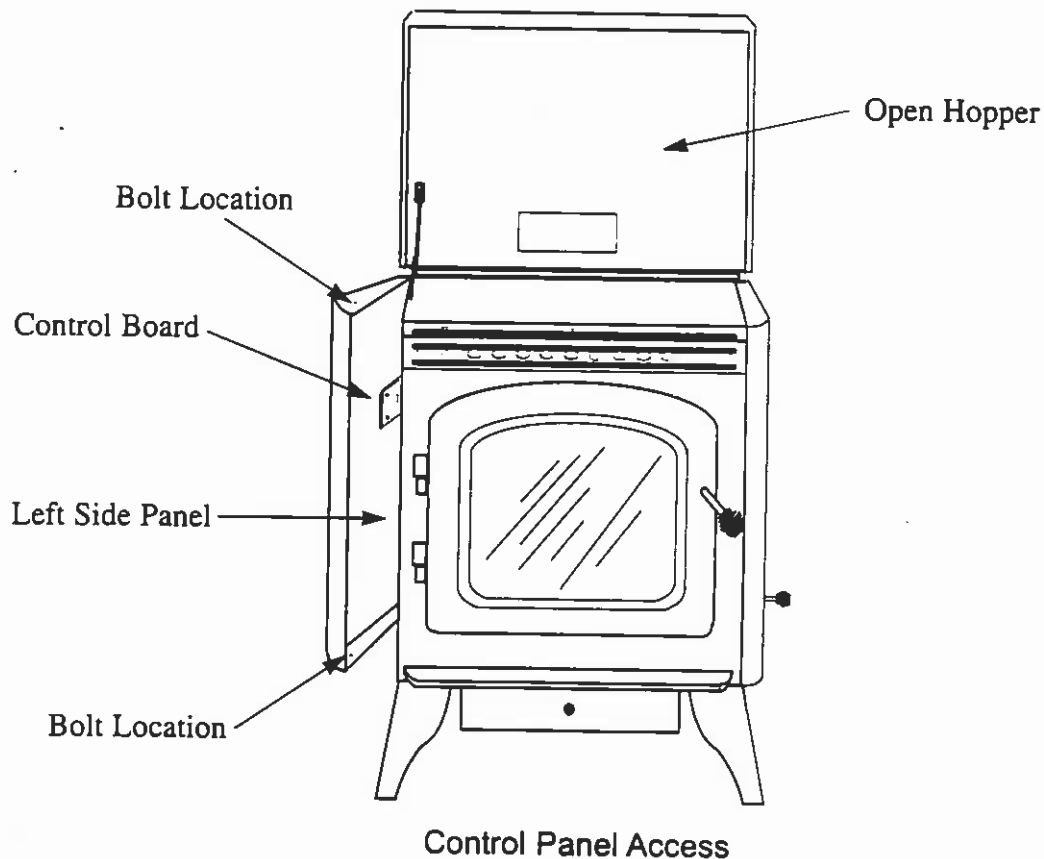
UNPLUG STOVE BEFORE PERFORMING ANY SERVICE WORK

The electronic control board is very reliable and should be one of the last components replaced when trouble shooting a stove operational problem.

The electronic control board is located on the left hand side of the stove. It is mounted to the side panel with four nuts. The control board can be removed or replaced by simply opening the left-hand side panel.

The control cable is fitted with a quick-disconnect plug that snaps into the back of the control board. The blower and motor wires are all part of the stove wiring harness.

1. Unplug your stove from the wall outlet.
2. Open the left side panel by removing the two bolts located on the top and bottom side of the panel. Pull the edge closest to the door firmly away from the stove and swing side panel open.
3. Disconnect the wiring harness from the control board
4. Locate and remove the four nuts that secure the control board to the side panel of the stove.
5. To re-install your control panel, reverse procedures above.
6. Plug the stove into your wall outlet.



APPENDIX A

TROUBLE-SHOOTING

Unplug Stove Before Performing any Service work

PROBLEM	CAUSE(S)	SOLUTIONS
<p>Fire burns with a lazy orange flame. Pellets build up in the grate and the window gets sooted up.</p>	<p>There is insufficient combustion air.</p>	<p>Remove any clinkers or ash from the bottom of the grate that might be obstructing the primary air holes (between the rods). Empty ash pan.</p> <p>Change to a better grade of fuel if necessary.</p> <p>Check that the damper has been opened enough for the amount of combustion air.</p> <p>Check that the heat exchange tubes are not coated with ash.</p> <p>Clean internal exhaust passages.</p> <p>Check gasket seal around the door. Use a thin strip of paper, 1 in. (25 mm) wide. Open the door and close it on the paper strip. A slight friction should be felt when the paper strip is pulled. Repeat this process at various locations around the door gasket. Replace the door gasket if necessary</p> <p>Check for blockage in the air inlet or exhaust pipe. Clean as necessary or empty the ash pan.</p>

APPENDIX A

TROUBLE-SHOOTING (CONT'D...)

Unplug Stove Before Performing any Service work

PROBLEM	CAUSE(S)	SOLUTIONS
Fire goes out or stove shuts down automatically	The hopper is empty	Refill hopper.
	Pellets are not feeding.	See "Pellets will not feed" below.
	The high limit temperature switch has tripped.	Allow stove to cool for 1 hour and re-light. If the stove has been operating at a medium to high burn rate, and the convection fan has been turned down low, then the fan should be switched to the higher setting. If this problem persists (particularly at lower burn rates) then the high limit snap switch should be replaced.
	There is too much combustion air for the amount of fuel.	Adjust the damper to reduce combustion air flow.
Pellets will not feed.	The hopper is empty.	Refill hopper.
	Foreign object in hopper. The auger motor or circuit board may be defective. The pressure switch tap or hose may be blocked.	Check hopper. Rock auger motor free jammed auger. Check to be sure that there is no blockage in the pressure switch hose.
Stove runs for 25 minutes then shuts down.	The exhaust gases are not up to temperature.	Re-light stove if necessary.
	The low limit snap switch is not operating correctly.	Replace the low limit snap switch.
	The wires to the low limit snap switch are loose or disconnected.	Check the connections between the snap switch and the wiring harness. Make sure that the connections between the switch and harness terminals are secure.

APPENDIX A

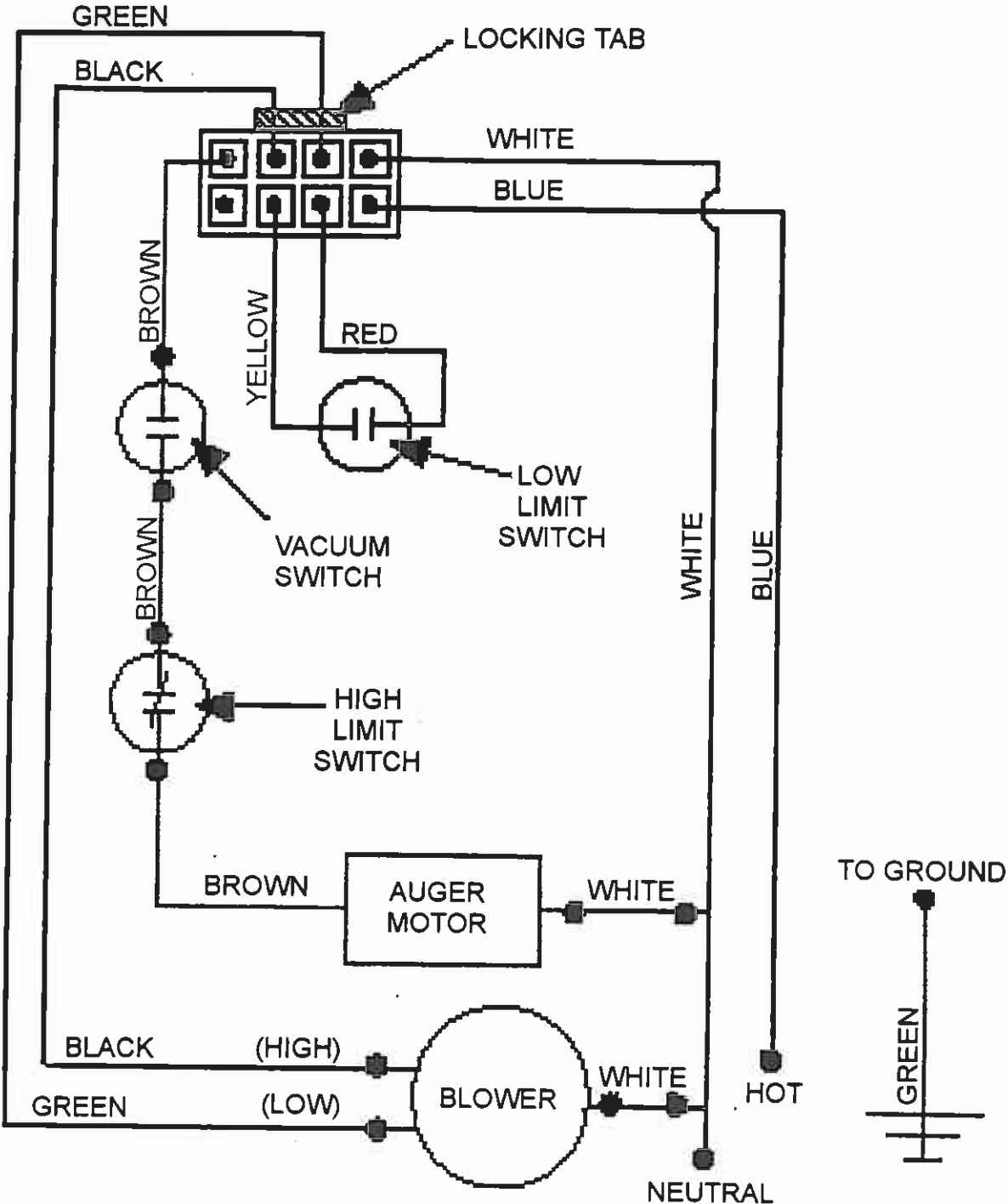
TROUBLE-SHOOTING (CONT'D...)

Unplug Stove Before Performing any Service work

PROBLEM	CAUSE(S)	SOLUTIONS
Blowers will not shut off after the fuel has been switched off and the stove has cooled down.	The low limit snap switch has failed in the closed position.	Replace the low limit snap switch.
Blowers will not operate when the Heat Output switch is moved from the "OFF" position.	There is no power to the blower.	<p>Check that the stove is plugged in to the wall outlet.</p> <p>Check to see whether the circuit breaker has tripped.</p> <p>Check the wire connections between the high limit snap switch and the control board and blower.</p>
There is soot or fly ash in the house.	The window is being cleaned when the stove is operating.	Turn down the convection fan or turn off stove before cleaning to prevent dispersion of ash and soot into the room.
	There is leakage at the joints between the combustion fan, connection or exhaust pipe connections. This will be evidenced by dust on the impeller of the convection fan, and in the heat exchanger tubes.	Seal up any leaks in the exhaust system with high temperature silicone sealer (RTV).
	The vacuum cleaner is leaking.	DO NOT use a standard household vacuum. Clean the stove with an approved Ash Vacuum ONLY .

APPENDIX B

CASCADE WIRING DIAGRAM



Note: Switch conditions given at room temperature (stove off)

p/n 60020057

APPENDIX C

OPTIONAL ACCESSORIES

- * Gold Plated Door
- * Quick Disconnect Pipe Connector
- * Gold Plated Louver

APPENDIX E

REPLACEMENT PARTS

PART NUMBER	
#17151146	Ash Lip (black) Powder Coated
#17152018	Ash Pan (black)
#12046300	Auger Motor
#17140110	Blower Kit
#17150027	Control Board
#17150029	Damper Rod
#17150086	Door Handle
#17150025	Firebrick Panel
#17157100	Gasket Kit for Door and Glass Window
#12055500	Grate Scraper
#17150084	Glass Window
#17150126	Harness, Wiring
#12150162	High Limit Snap Switch
#17150028	Knob for Control Board
#17151132	Leg Set (black) Powder Coated
#12150080	Low Limit Snap Switch
#17151154	Panel, Right Side (black) Powder Coated
#17151153	Panel, Left Side (black) Powder Coated
#17151150	Panel Top (black) Powder Coated
#12058820	Power Cord
#17150243	UltraGrate (burn grate)
#17150075	Pressure Switch
#40020076	Video, Operation & Maintenance
#12151412	Knob for Ashpan
#17151147	Louver, Assembly (black) Powder Coated
#17155147	Louver, Assembly (gold)
#13740005	Lock Arm Lid Support
#17150046	Ash Lip (black) Painted Met. Black
#17150030	Leg Set (black) Painted Met. Black
#17150163	Panel, Right Side (Painted Met. Black)
#17150164	Panel, Left Side (Painted Met. Black)
#17150150	Panel Top (Painted Met. Black)
#17150147	Louver, Assembly (Painted Met. Black)

LENNOX[®]

HEARTH PRODUCTS

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