# Installation and Operating Instructions for the ESSE Cookstove

Save these Instructions



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# Table of Contents

SAFETY NOTES	<u>1</u>
OPERATING INSTRUCTIONS	
Your Stove.	2
Lighting and Controlling the Fire	2
Correct Running Temperatures	5
Extended burning	5
Fuel	6
Operating the Oven and Hob	6
Cleaning the Stove	7
INSTALLATION INSTRUCTIONS	
Chimney and Flue Information	8
Flue Draught Guide	13
Positioning and Flue Connection	14
Parts Diagram	15

# **Safety Notes**

Properly installed, operated and maintained, this appliance will not emit fumes into the dwelling. However occasional fumes from de–ashing and re–fuelling may occur. Persistent fume emission is potentially dangerous and must not be tolerated. If fume emission does persist, open doors and windows to ventilate the room. Let the fire burn out or eject and safely dispose of fuel from the appliance. Once the fire is cold, check the flue and chimney for blockages and clean if required.

For Canada: The authority having jurisdiction (such as municipal building department, fire department, fire prevention bureau, etc.) should be consulted before installation to determine the need to obtain a permit

- DO NOT ATTEMPT TO RELIGHT THE FIRE UNTIL THE CAUSE OF THE FUME EMISSION HAS BEEN IDENTIFIED AND CORRECTED. SEEK EXPERT ADVICE IF NECESSARY.
- DO NOT FIT AN EXTRACTOR FAN IN THE SAME ROOM AS THE APPLIANCE.
- AN ADEQUATE AIR SUPPLY FOR COMBUSTION AND VENTILATION IS ESSENTIAL. AIR
  OPENINGS PROVIDED FOR THIS PURPOSE MUST NOT BE RESTRICTED.
- IT IS IMPORTANT THAT FLUE WAYS ARE CLEANED FREQUENTLY AND THE CHIMNEY SWEPT REGULARLY. ALSO THE STOVE MUST BE MAINTAINED IN GOOD MECHANICAL ORDER.
- IF THE CHIMNEY WAS PREVIOUSLY USED FOR AN OPEN FIRE, IT IS POSSIBLE THAT THE HIGHER FLUE GAS TEMPERATURES GENERATED BY THE STOVE MAY LOOSEN DEPOSITS THAT WERE FIRMLY ADHERING TO THE INNER SURFACE OF THE CHIMNEY AND CAUSE BLOCKAGE OF THE FLUEPIPE. WE RECOMMEND THAT IN SUCH A SITUATION A SECOND SWEEPING OF THE CHIMNEY SHOULD BE CARRIED OUT WITHIN ONE MONTH OF REGULAR USE OF THE STOVE AFTER INSTALLATION.
- THE FIREGUARD SUPPLIED SHOULD BE USED WHEN THE COOKSTOVE IS IN OPERATION.
   THE FIRE GUARD SHOULD BE HUNG FROM THE HAND RAIL AND POSITIONED IN FRONT OF THE FIRE DOOR.
- AVOID THE USE OF AEROSOL SPRAYS IN THE VICINITY OF THE STOVE WHEN IT IS IN OPERATION.
- THE FRONT OF THE STOVE BECOMES VERY HOT WHEN IN USE. DO NOT PLACE TOWELS ON THE HAND RAIL WHEN THE STOVE IS ALIGHT.
- DO NOT INSTALL IN A MOBILE HOME
- DO NOT CONNECT TO OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK
  UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATIONS.
- DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE.
- DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.
- HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS.

# Operating Instructions

# **Your Stove**

**Figure 1** shows the stove and its controls. The large glass door on the left is the loading door through which the fire is lighted and refuelled. The small door at the bottom on the left is the ash door. The large door to the right of the stove is the oven and the small door at the bottom right is the oven flue access door.

Included inside your stove is a multi purpose—operating tool - for lifting the ash pan, adjusting the primary and secondary air supply and opening the doors. A fire guard is also supplied which should be hung from the rail in front of the fire door when the stove is in operation.

The stove is suitable for burning wood only.

# **Lighting and Controlling the Fire**

<u>Warning:</u> The front of the stove becomes very hot when in use. Do not place towels on the hand rail when the stove is alight and keep children and pets away from the stove. Always use the fire guard supplied.

Before lighting ensure that all the internal components are correctly in position. See Figure 3.

Open the ash door on the bottom left of the stove by inserting the operating tool into the handle slot and turning it in an anti–clockwise direction.

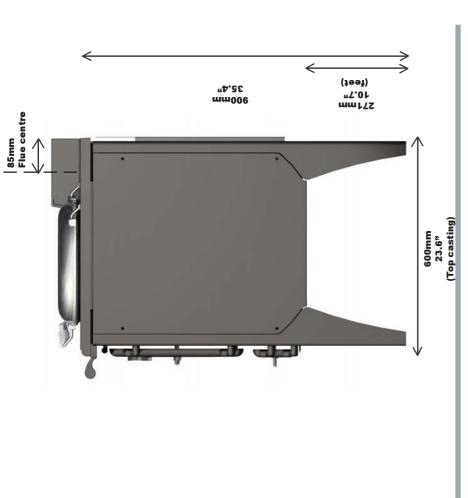
**Figure 1** shows the primary air control lever on the left. Push the lever left to open and right to close. To light the stove the air control should be fully open.

Open the loading door by lifting the handle either manually or using the operating tool. Caution: when the stove is running the handle will become hot and the operating tool alone should then be used. **Figure 1** shows the secondary air control to the left and the direct flue damper to the right. As with the primary air control, the lever should be pushed left to open and right to close. The flue damper is open when the knob is pulled out and closed when it is pushed in. To light the stove the secondary air control should be fully open and the damper knob pulled out. This will allow fumes to escape directly up the flue whilst the stove warms up.

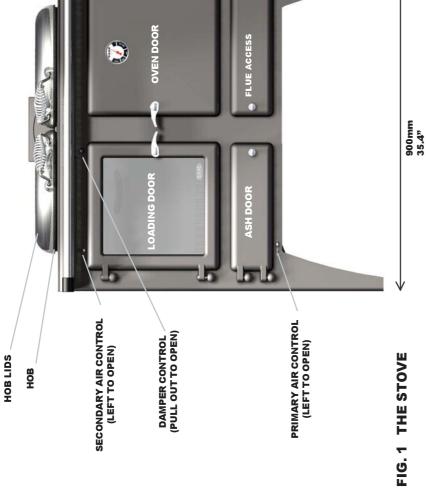
Open the air wash control and the primary air control fully. Place some tightly rolled paper on top of some crumpled paper on the base towards the back of the stove. On top of this, place some small pieces of wood. Light the crumpled paper and close the door.

Never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, or similar liquids to start or 'freshen up' a fire in this heater. Keep all such liquids well away from the heater while it is in use.

Once the fire becomes established add some larger pieces of wood. As the stove comes up to temperature close the primary air inlet. The burning rate of the stove can now be regulated by the rate at which fuel is added and by adjusting the air wash control.







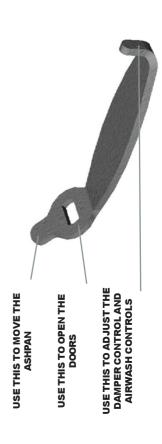


FIG. 2 OPERATING TOOL

3



Clearances	USA	Canada	
A – Back Wall to Connector	13.5"	15.5"	
B - Back Wall to Stove	13"	15"	
C - Side Wall to Connector	26"	30"	
D - Side Wall to Stove	11"	15"	
	Canada 200mm US = 6"	Canada 200mm on-combustible materi having an equal or bette insulating value of k = 0	al er

If the chimney connector goes horizontally through a wall, the floor protection must extend under the connector and 2"(50mm) beyond each side.

# WARNING: DO NOT STORE WOOD WITHIN THE CLEARANCE AREA

#### **Notes on Woodburning**

Wood burns most efficiently when the air for combustion is supplied from above the fire bed rather than below. The air supplied above the fire bed provides the oxygen necessary for the volatile gases (smoke), given off by the wood as it heats, to combust. This ensures that the gases are burnt and used to heat the stove instead of being wasted up the chimney or condensing and forming tarry deposits inside the stove, in the flue or on the stove glass. Running the stove with the primary air control open and the air wash control closed will provide oxygen for the wood to burn on the fire bed but will not provide air for the volatile gases above the fire bed to combust resulting in a smoky inefficient fire. With the above in mind it is plain to see that the stove should ideally be run with the primary air inlet closed and the air wash control open whenever possible. Another advantage of running the stove with the air wash open is that the air being drawn into the stove travels across the glass forming an air barrier between the glass and the fire bed helping to prevent smoke particles sticking to the glass. If the fire dies down too low, opening the primary air control for a short period will revive it.

#### Correct running temperatures for wood burning

To get the best results from your stove it is recommended that a wood stove thermometer (available from your stove dealer) be fitted to the flue pipe above the stove, at eye level if possible. The figures below show the recommended temperature of the flue gases:

# 115 °C - 245 °C (240 °F - 475 °F)

The flue gases should be in this temperature band for the safest, most efficient and most economical operation of your stove.

#### Below 115°C (240°F)

This is below the condensation point of wood gases and may cause the build up of tar in the chimney, dirty the sto<sup>5</sup>ve glass and result in the inefficient burning of fuel.

#### Above 245 °C (475°F)

Too hot. Heat will be wasted up the chimney. Excess heat may damage the stove or ignite an existing accumulation of tar resulting in a chimney fire.

Don not overfire the cookstove. If the stove or chimney connector glows, you are overfiring.

#### **Extended Wood Burning**

Loading a large amount of wood into the stove all at once will reduce the temperature inside the stove. If the temperature is too low, the gases given off from the wood will be too low to combust resulting in a lot of smoke covering the inside of the stove, including the glass, with soot. To combat this problem it is a good idea to increase the temperature of the stove before loading by further opening the air inlets. Load the wood and leave the air controls open until the moisture is driven out of the wood and the stove is back up to an efficient operating temperature. The air inlets can then be reduced to hold the temperature of the stove. Loading the stove little and often will help keep the stove temperature steady.

**Note:** The above text should be used as a guide only. The ideal operation of your stove depends on a number of factors, which vary with each installation, and so gaining experience operating your stove is the only way to learn its best operation.

# **Creosote - Formation and Need for Removal**

When wood is burned slowly, it produces tar and other organic vapours, which combine with expelled moisture to form creosote. The creosote vapours condense in the relatively cool chimney flue of a slow burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire.

The chimney and chimney connector should be inspected at least once every two months during the heating season to determine if creosote build up has occured. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

#### Types of wood for fuel

For best results use well seasoned hardwood. Allow wood to dry out under cover in well–ventilated conditions for at least twelve months. Wood is ready for burning when radial cracks appear in the end of the logs. Burning wood that is not seasoned will result in tar being deposited in the stove, on the glass and in the flueways. This build up of tar is a hazard and if it ignites may cause a chimney fire. Resinous softwood burns well and gives a high output for short periods but is not as efficient and does not last as long as hardwood.

WARNING: DO NOT STORE WOOD WITHIN THE CLEARANCE AREA OF THE STOVE

# <u>Ash Removal</u>

Wood burns best on its own ash and a manageable layer of ash on the grate is of benefit to the efficient running of your stove. To empty the ashes from the ashpan below the grate, open the door on the bottom left of the stove using the operating tool by inserting the tool into the slot and turning anti–clockwise. Insert the tool into the slot on the ash pan and pull forwards to remove. Ashes should be placed in a metal container with a tight lid. The closed container of ashes should be placed on a noncombustible floor 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 thoroughly cooled.

# **Operating the Oven and Hobs**

The temperature of the hob is graduated from left to right. The left side is hotter and so is used for boiling, and the right side for simmering. The oven door and the fire door are opened by lifting the handle either manually or using the operating tool. Both handles will become hot during operation when a cloth or the operating tool provided is recommended.

The oven and hobs are heated directly by the fire. In order to heat up the oven and hobs the fire should be lit as described. Once the fire is established the flue damper should be pushed in. This will allow the hot fumes from the fire to circulate around the inner cavity between the stove and the oven thus heating up both the hobs and the oven.

The hob lids can be left in the down position when the hob is not being used in order to keep the hotplate warm. In the up position the they will allow more heat to come into the room.

To reduce the heat going to the oven when the stove is up and running, the flue damper knob can be pulled out. This will allow the hot fumes to escape directly up the chimney via the boiling side of the hotplate thus reducing the heat to the oven but maintaining a hot hotplate.

To maintain a good cooking temperature in the oven only requires a small amount of fuel. To reduce the effective size of the firebox, the fuel bar can be moved towards the back, and thus used to hold a smaller amount of fuel at the rear of the firebox, see **Figure 5**. This also has the advantage of reducing the heat radiated through the window making life easier for the cook.

The temperature gauge on the oven door provides an indication of the oven temperature. It should be noted however that since the gauge is attached to the door it will drop if the door is left open for any prolonged period, in which case, the oven may be hotter than is indicated on the dial. Once the door is closed again the gauge will come back to temperature.

#### **Cleaning the Stove**

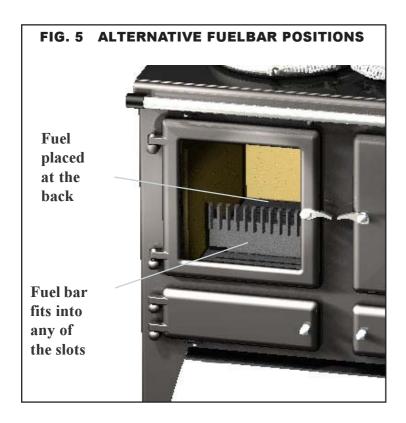
The stove should only be cleaned when it is cold. The exterior can be dusted with a firm brush. Do not use a cloth, as this will drag on the paint finish leaving lint on the surface.

As the stove top is used for cooking, normal wear and tear will occur. Spills should be wiped up immediately with a damp cloth, but oven cleaners should not be used on the hob surface.

The exterior of the stove is painted with high temperature stove paint and from time to time it may become necessary to renovate the exterior by repainting. The surface must be prepared by rubbing down with a wire brush. The stove paint will not key to the surface if there are fat deposits or food particles on the area to be resprayed. High temperature stove paints are available in aerosol form from your stove dealer. Do not use this paint until the stove is completely cold and always follow the instructions on the container before starting to paint. The usual precautions should be taken such as covering adjoining surfaces and protecting the bolster lids.

The bolster lids are made from stainless steel. These have been treated with oil at the factory to prevent fingerprints and marks forming. The lids can be wiped clean with a damp cloth and proprietary stainless steel cleaners may be used. It is recommended that after such cleaning, the lids be again treated with oil by wiping over with a lint free cloth. This will prevent fingerprints and smears. Baby oil or similar is recommended for this purpose.

The loading door glass should stay relatively clean if the correct type of fuel is used as described above, but from time to time this can be cleaned when cold with a proprietary glass cleaner and a dry cloth, or depending on soot build up, a nylon pan scourer. Vinegar and newspaper may also successfully be used.



# **Installation Instructions**

# **Important Installation Notes:**

- a) When this stove 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.
- b) For the US this room heater must be connected to:
  - 1) A chimney complying with the requirements for Type HT chimneys in the Standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103, or
  - 2) A code-approved masonary chimney with a flue liner.
- c) Please read this entire manual before you install and use your new stove. Failure to follow instructions may result in property damage, bodily injury or even death.

# **Chimney and Flue**

The successful operation of the stove relies on the adequate performance of the chimney to which it is connected. The chimney must:

- · Be suitable for solid fuel.
- · Have an internal cross section of no less than 320 cm.sq (8" Dia.). (If a flue liner is used it should be 6" diameter and suitable for solid fuel).
- Be a minimum 15' (4.6m) high from hearth level to pot.
- Be terminated at least 40" (1m) above roof level so that the chimney does not terminate in a pressure zone. **See Figure 6**.
- Be free from cracks, severe bends, voids, and obstructions.
- · New chimneys must be built in accordance with local building regulations.
- · If the stove is installed as a freestanding appliance, it should not support any part of the chimney.
- · Voids in the chimney should be avoided, as these will prevent a steady flue draught. The stove flue pipe should pass beyond the narrowing of the chimney.
- · A flue/chimney access point may also be required so that the state of the chimney can be checked and any fallen soot removed.
- External flues must be insulated to prevent heat loss.
- Where passage through a wall, or partition of combustible consruction is desired, the installation shall conform to CAN/CSA-B365, Installation Code fo Solid-Fuel-Burning Appliances and Equipment (Canada).
- DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.
- DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

# **Chimney Connection**

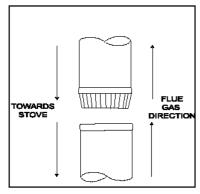
The chimney connector is a single walled pipe used to connect the stove to the chimney. The chimney connector MUST be 6" in diameter, with a minimum thickness of 24 gauge black steel or 26 gauge blued steel.

Aluminium and galvanized steel pipe is not acceptable for use with the woodstove. These materials cannot withstand the extreme temperatures of a wood fire and can give off toxic fumes when heated.

# Do not use the connector pipe as a chimney.

Each chimney connector or stove pipe section must be installed to the stove flue collar and to each other with the male (crimped) end toward the stove.

# **Chimney Connector**



This prevents any amount of condensed or liquid creosote from running down the outside of the pipe or the stove top. All joints, including the flue collar connection must be secured with three sheet metal screws to ensure that the sections do not separate.

No part of the chimney connector may pass through an attic or roof space, closet or other concealed space, or through a floor ceiling. All sections of the chimney connectors must be accessible for cleaning. Where passage through a wall or partition of combustible construction is desired, the installation must conform with NFPA 211 or CAN/CSA-B365.

# **Chimney**

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

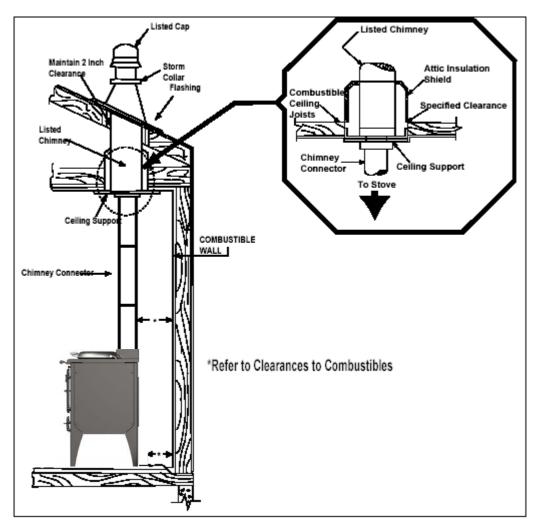
This room heater must be connected to a factory built UL 103 HT chimney (ULC S629, in Canada) or a code-approved masonry chimney with a flue liner.

# **Masonry Chimney**

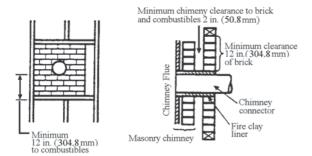
Ensure that a masonry chimney meets the minimum standards of the National Fire Protection Association (NFPA) by having it inspected by a professional. Make sure there are no cracks, loose mortar or other signs of deterioration and blockage. Have the chimney cleaned before the stove is installed and operated.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

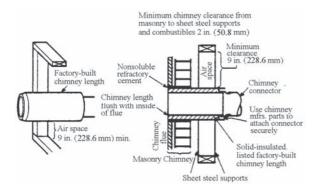
## **Factory Built Chimney**

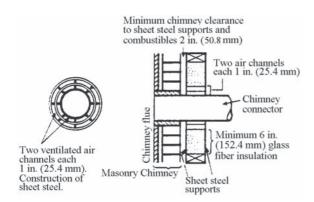
When a metal prefabricated chimney is used, the manufacturer's installation instructions must be followed. You must also purchase (from the same manufacturer) and install the ceiling support package or wall pass-through and "T" section package, firestops (where needed), insulation shield, roof flashing, chimney cap, etc. Maintain proper clearance to the structure as recommended by the manufacturer. The chimney must be the required height above the roof or other obstructions for safety and proper draft operation.

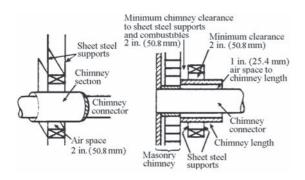


# **Combustible Wall Chimney Connector Pass-Throughs**









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

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

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

Method D. 2" (50.8 mm) Clearance to Combustible Wall Member: Start with a solid-pak listed factory built chimney section at least 12" (304 mm) long, with insulation of 1" (25.4 mm) or more, and an inside diameter of 8" (2 inches [51 mm] larger than the 6" [152.4 mm] chimney connector). Use this as a pass-through for a minimum 24-gage single wall steel chimney connector. Keep solid-pak section concentric with and spaced 1" (25.4 mm) off the chimney connector by way of sheet metal support plates at both ends of chimney section. Cover opening with and support chimney section on both sides with 24 gage minimum sheet metal supports. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure chimney flue liner.

#### NOTES:

- 1. Connectors to a masonry chimney, excepting method B, shall extend in one continuous section through the wall pass-through system and the chimney wall, to but not past the inner flue liner face.
- 2. A chimney connector shall not pass through an attic or roof space, closet or similar concealed space, or a floor, or ceiling.

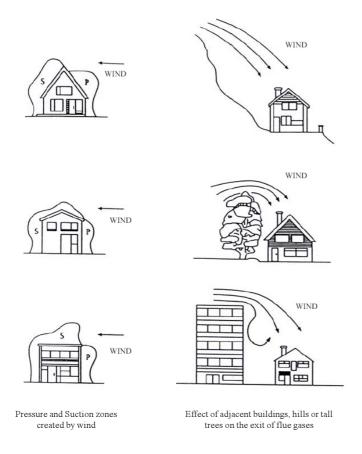
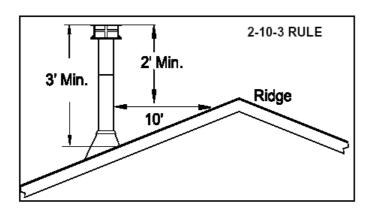


Figure 6. Chimney and flue performance.

# **Chimney Height**

A masonry chimney or a listed factory-build chimney must be the required height above the roof and any other nearby obstructions. The chimney must be at least 3' (90 cm) higher than the highest point where it passes through the roof and at least 2' (60 cm) higher than the highest part of the roof or structure that is within 10' (305 cm) of the chimney, measured horizontally.



# Flue Draught

The chimney can be checked, before the stove is installed, with a smoke match. If the chimney doesn't pull the smoke it may suggest the chimney needs attention (see the Flue Diagnosis Table below). Note: This test is only a guide as an apparently poor flue may improve once the stove is installed, lit and the flue is warmed. If, once the stove is installed, there is any doubt that the chimney is providing an adequate draught, a flue draught reading can be taken with the stove lit. Two flue draught readings should be taken, one with the stove at minimum firing rate and one at maximum firing rate.

# **Measurement**

The flue draught test hole must be drilled in the flue pipe as close to the stove as possible and before any flue draught stabiliser.

## Minimum

The stove should be lit and allowed to warm the flue thoroughly. The air controls can then be set so that the stove burns on a low setting. Allow the burning rate to become steady. The flue draught reading should now be taken with the primary air intake closed and the airwash control fully open.

## **Maximum**

The primary air intake can now be opened to allow the stove to burn at maximum rate. Give the stove some time for the burning rate to become steady and then close the primary air intake, make sure the airwash control is fully open and take a flue draught reading immediately.

Ideally, the flue draught readings should range between 1 mm wg (0.04 in wg) and 2.5 mm wg (0.1 in wg). Any readings significantly outside this range may indicate the need for remedial action.

Low flue draught—symptoms: difficult to light and smoke coming into the room.			
Cause	Remedy		
Cold chimney	Line the chimney		
Chimney too short	Extend the chimney		
Down draught	Relocate/extend the chimney terminal. Fit an anti down draught cowl		
Chimney diameter too large	Line chimney		
Chimney obstruction	Clear/sweep chimney		
Restricted air supply	Check for competing draughts (other chimneys, extractor hoods/fans), Fit an air vent if the room is sealed.		
High flue draught—symptoms: f	ire difficult to control, fuel will not last, stove too hot, stove damage,		
Cause	Remedy		
External wind conditions combined with chimney terminal	Fit s tabilizer cowl. Fit flue draught stabilizer.		

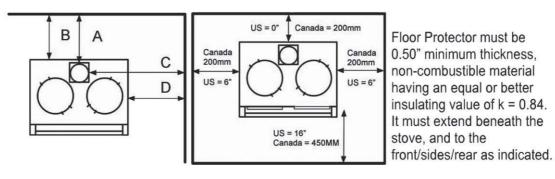
#### Flue Stabilizer

A flue stabilizer can be fitted to reduce the draught through the stove if the flue draught is too high. The flue stabilizer should; be fitted in the same room as the stove, be the same size as the flue pipe and be fitted no closer than 28" (700mm) to the flue outlet of the appliance

# **Positioning**

The overall dimensions of the stove are shown in **Figure 1**. The figure below shows the requied clearances around the stove

Clearances	USA	Canada
A – Back Wall to Connector	13.5"	15.5"
B – Back Wall to Stove	13"	15"
C – Side Wall to Connector	26"	30"
D – Side Wall to Stove	11"	15"



If the chimney connector goes horizontally through a wall, the floor protection must extend under the connector and 2"(50mm) beyond each side.

For Canada: Clearances may only be reduced by means approved by the regulatory authority.

# WARNING: DO NOT STORE WOOD WITHIN THE CLEARANCE AREA

# Flue connection

# DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE

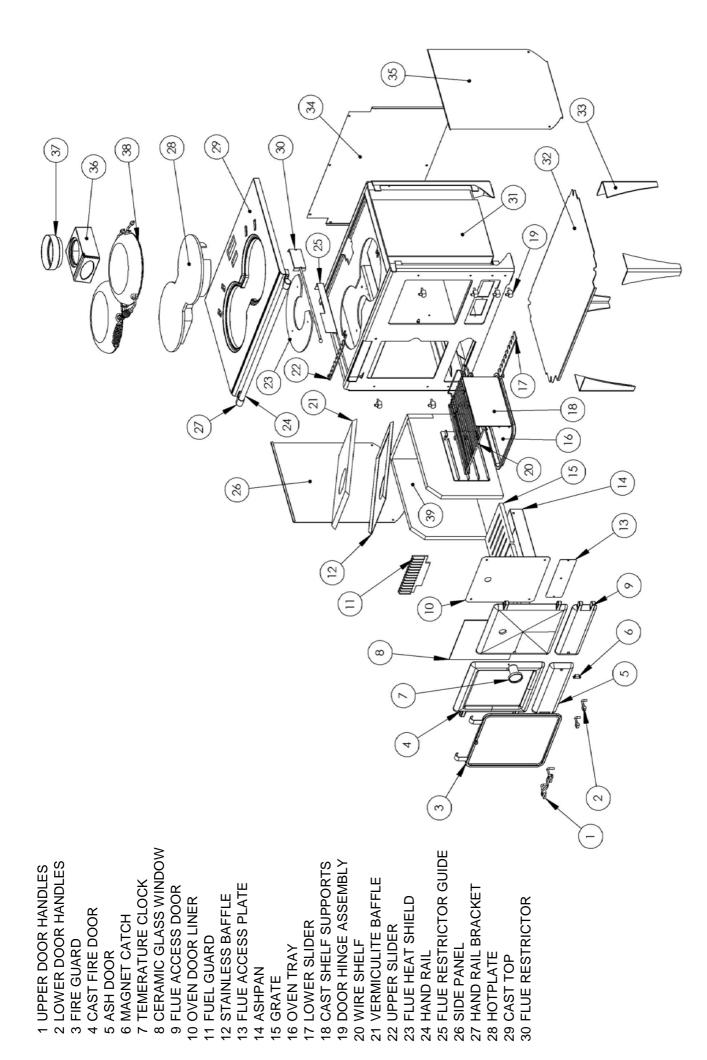
The flue pipe used to connect the stove to the chimney is 6" (150mm) in diameter. The flue connection is on the top of the stove, in the centre at the back.

#### Important notes:

- 1. The installation must allow for adequate chimney sweeping.
- 2. Avoid using bends greater than 45° to the vertical. All pipe flue sections should be as close to vertical as possible.
- 3. All joints in the flue system must be effectively sealed.
- 4. All flue sockets must face upwards.

On completing the installation, check that all the internal components of the stove are positioned correctly. Check:

- Grate, baffle, ashpan, insulation bricks, fuel bar. See Figure 3.





THE AUTHENTIC ORIGINAL

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