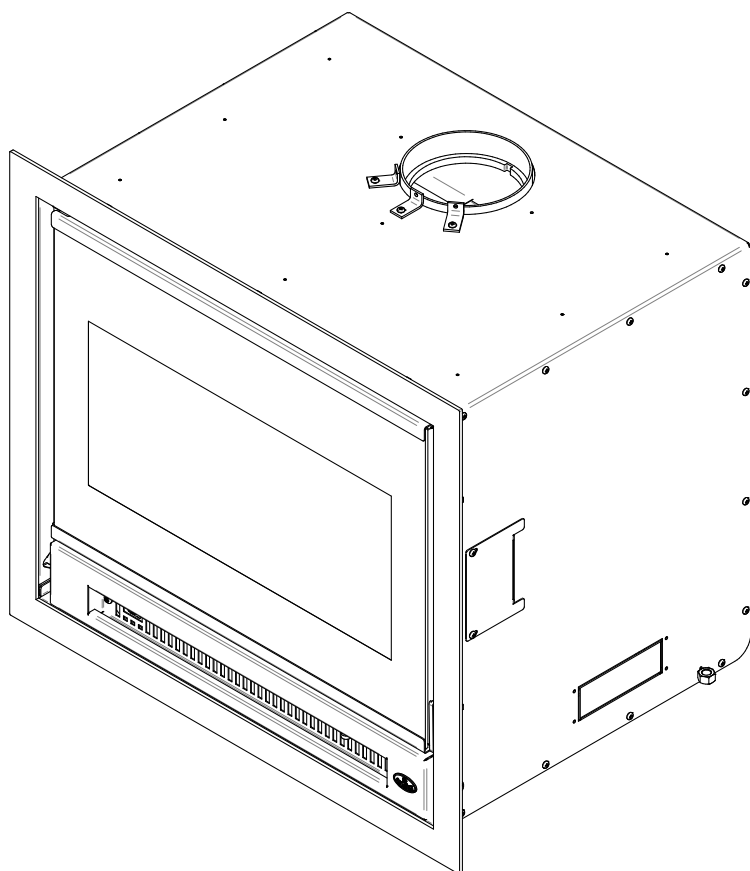




Installation and Operation Manual

INSPIRE 2000-I INSERT

(OB02045 Model)



Safety tested according to
ULC S628, UL 1482 and UL 737
by an accredited laboratory.



CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN LOCAL AREA.

READ THIS ENTIRE MANUAL BEFORE INSTALLATION AND USE OF THIS WOOD INSERT. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH.

READ AND KEEP THIS MANUAL FOR REFERENCE

THANK YOU FOR CHOOSING THIS WOOD INSERT.

If this insert is not installed properly, combustible materials near it may overheat and catch fire.

To reduce the risk of fire, follow the installation instructions in this manual.

As one of North America's largest and most respected wood stove and fireplace manufacturers, Stove Builder International takes pride in the quality and performance of all its products.

The following pages provide general advice on wood heating, detailed instructions for safe and effective installation, and guidance on how to get the best performance from this insert.

It is highly recommended that this wood burning hearth product be installed and serviced by a "Qualified Agency" such as NFI (National Fireplace Institute) or CSIA (Chimney Safety Institute of America) in the United States, in Canada by WETT (Wood Energy Technical Training) and in Quebec by APC (Association des Professionnels du Chauffage).

Contact local building or fire officials about restrictions and installation inspection requirements in the area.

A building permit might be required for the installation of this insert and the chimney that it is connected to. It is also recommended to inform your home insurance company.

Please read this entire manual before installing and using this insert.

A primary alternative heat source should be available in the home. This heating unit may serve as a supplementary heat source. The manufacturer cannot be responsible for additional heating costs associated with the use of an alternative heat source.

ONLINE WARRANTY REGISTRATION

If the unit requires repairs during the warranty period, proof of purchase must be provided. The purchase invoice must be kept. The date indicated on it establishes the warranty period. If it cannot be provided, the warranty period will be determined by the date of manufacture of the product.

It is also highly recommended to register the warranty online at

<https://www.osburn-mfg.com/en/warranty/warranty-registration/>

Registering the warranty will help to quickly find the information needed on the unit.

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Dealer:	_____
Installer:	_____
Phone Number:	_____
Serial Number:	_____

CERTIFICATION PLATE



Intertek

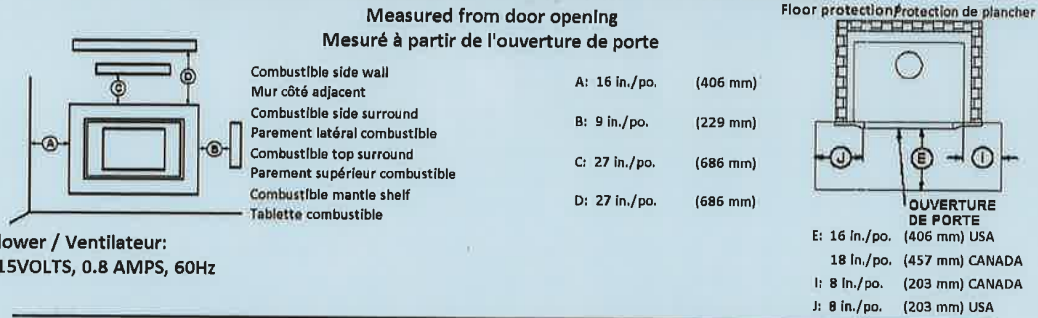
STANDARDS / NORMES D'ESSAI:
 Certified to / Certifié selon ULC S628
 Certified to / Certifié selon UL 1482
 Certified to / Certifié selon UL 737
 CSA B415.1-10
 Control number: 4002461
 (March/Mars 2018)

LISTED SOLID FUEL BURNING
 INSERT APPLIANCE
 APPAREIL ENCASTRABLE À
 COMBUSTIBLE SOLIDE HOMOLOGUÉ

MODEL / MODÈLE :
INSPIRE 2000-I

Serial Number / No. de Série: **1**

Clearances to combustibles / Dégagements aux combustibles



Blower / Ventilateur:
 115VOLTS, 0.8 AMPS, 60Hz

PREVENT HOUSE FIRES

- Install and use only in accordance with the manufacturer's installation and operating instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- Use with solid wood fuel only. Do not use other fuels.
- Risk of smoke and flame spillage. Operate only with door closed. Open door only to reload the stove.
- Do not connect this unit to a chimney serving another appliance.
- Install only in masonry fireplaces. Do not remove bricks or mortar from masonry fireplace.
- The non-combustible floor protection in front of the unit should have an R value equal or greater than 1.00 extending 23 inches (584 mm) in front of the insert if the hearth elevation is lower than 5 inches (127 mm) or extend 16 inches (406 mm) (USA), 18 inches (457 mm) (CANADA) without a R value if the hearth elevation is higher than 5 inches (127 mm).
- Connect to a code-approved masonry chimney or listed factory-built fireplace chimney with a direct flue connector into the first chimney liner section.
- Do not overfire. If stove or chimney connector glows, you are overfiring.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Do not use grate or elevate fire. Build wood fire directly on hearth.
- Replace glass only with ceramic glass.
- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

PRÉVENEZ LES INCENDIES

- Installer et utiliser conformément au manuel d'utilisation du fabricant.
- Contacter les autorités de votre localité ayant juridiction concernant les restrictions et inspections d'installation.
- Utiliser avec le bois seulement. Ne pas utiliser d'autres combustibles.
- Risque de fuite de fumée et de flammes. Utiliser l'appareil la porte fermée uniquement. Ouvrir la porte seulement lors du chargement.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Installer seulement dans un foyer de maçonnerie. Ne pas enlever les briques ou le mortier du foyer de maçonnerie.
- La protection de plancher incombustible au devant de l'encastable devrait avoir un facteur d'isolation R égal ou supérieure à 1,00 et se prolonger 23 pouces (584 mm) au devant de l'appareil lorsque l'âtre possède moins de 5 pouces (127 mm) d'élévation et se prolonger 16 pouces (406 mm) (USA), 18 pouces (457 mm) (CANADA), sans facteur d'isolation R au devant de l'encastable lorsque l'âtre possède plus de 5 pouces (127 mm) d'élévation.
- Raccorder à une cheminée de maçonnerie respectant les codes ou à une cheminée préfabriquée homologuée, directement à la première section de cheminée gainée.
- Ne pas surchauffer. Si l'appareil ou le tuyau rougit, il y a surchauffe.
- Inspecter et nettoyer la cheminée fréquemment. Dans certaines conditions, la formation de créosote peut être rapide.
- Ne pas utiliser de chenets ou de grilles pour élever le feu. Préparer le feu directement sur l'âtre.
- Remplacer la vitre avec un verre de céramique.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistente par rapport au manuel de l'utilisateur consiste une violation de la loi fédérale (USA).

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using cordwood.
 AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.-U. Conforme aux normes d'émission de particules de 2020 avec bûche de bois.

Weighted average emission rate / Moyenne pondérée des émissions: 1.54 g/h

When tested in accordance with / Lorsque testé selon: ASTM E2515

Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1)(iii) and Draft ASTM WK47329-14



WARNING: This product can expose you to carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. (For more information go to www.p65warnings.ca.gov)



CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.

ATTENTION

- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
- UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.

Made in St-Augustin-de-Desmaures (Qc), Canada
 24/10/2018 (# test)



Fabricant de poêles international
 Stove Builder International

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
 24/10/2018 (# test)

27730

PART A - OPERATION AND MAINTENANCE

1. Safety Information

- Operate only with the door fully closed. If the door is left partly open, gas and flame may be drawn out of the opening, creating risks from both fire and smoke.
- This insert is not designed to be used with the door open. The door may be open only during lighting procedures or reloading. Do not leave the insert unattended when the door is slightly opened during ignition. Always close the door after ignition.
- **HOT WHILE IN OPERATION, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. GLOVES MAY BE NEEDED FOR INSERT OPERATION.**
- Using an insert with cracked or broken components, such as glass, firebricks or baffle may produce an unsafe condition and may damage the insert.
- Open the air control fully before opening the loading door.
- **NEVER USE GASOLINE, LANTERN FUEL (NAPHTHA), FUEL OIL, MOTOR OIL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS OR AEROSOLS TO START A FIRE IN THIS INSERT. KEEP ALL SUCH LIQUIDS OR AEROSOLS WELL AWAY FROM THE INSERT WHILE IT IS IN USE.**
- Do not store fuel within heater minimum installation clearances.
- Burn only seasoned natural firewood.
- **DO NOT BURN:**
 - **GARBAGE OF ANY KIND,**
 - **COAL OR CHARCOAL,**
 - **TREATED, PAINTED OR COATED WOOD,**
 - **PLYWOOD OR PARTICLE BOARD,**
 - **FINE PAPER, COLORED PAPER OR CARDBOARD,**
 - **SALT WATER DRIFTWOOD,**
 - **MANUFACTURED LOGS CONTAINING WAX OR CHEMICAL ADDITIVES,**
 - **RAILROAD TIES OR**
 - **LIQUIDS SUCH AS KEROSENE OR DIESEL FUEL TO START A FIRE.**
- This appliance should always be maintained and operated in accordance with these instructions.
- Do not elevate the fire by using a grate.
- A smoke detector, a carbon monoxide detector and a fire extinguisher should be installed in the house. The location of the fire extinguisher should be known by all family members.
- This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov/

2. General Information

2.1 Performances

Values are as measured per test method, except for the recommended heating area, firebox volume, maximum burn time and maximum heat output.

Model	Inspire 2000-I Insert (OB02045)	
Fuel Type	Dry Cordwood	
Recommended heating area (sq. ft.) ¹	500 to 2,100 ft ² (47 to 195 m ²)	
Nominal firebox volume	2.4 ft ³ (0.068 m ³)	
Maximum burn time ¹	8 hours	
Maximum heat output (dry cordwood) ²	75,000 BTU/h (22.0 kW)	
Overall heat output rate (min. to max.) ^{2 3}	14,800 BTU/h to 28,600 BTU/h (4.34 kW to 8.38 kW)	
Average overall efficiency ³ Dry cordwood	69 % (HHV) ⁴	74 % (LHV) ⁵
Optimum efficiency ⁶	77 %	
Average particulate emissions rate ⁷	1.54 g/h (EPA / CSA B415.1-10) ⁸	
Average CO ⁹	89.4 g/h	

¹ Recommended heating area and maximum burn time may vary subject to location in home, chimney draft, heat loss factors, climate, fuel type and other variables. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature in the designated area in case of a power failure.

² The maximum heat output (dry cordwood) is based on a loading density varying between 15 lb/ft³ and 20 lb/ft³. Other performances are based on a fuel load prescribed by the standard. The specified loading density varies between 7 lb/ft³ and 12 lb/ft³. The moisture content is between 19% and 25%.

³ As measured per CSA B415.1-10 stack loss method.

⁴ Higher Heating Value of the fuel.

⁵ Lower Heating Value of the fuel.

⁶ Optimum overall efficiency at a specific burn rate (LHV).

⁷ This appliance is officially tested and certified by an independent agency.

⁸ Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1)(ii) and Draft ASTM WK47329-14.

⁹ Carbon monoxide.

2.2 Specifications

Maximum log length ¹	20 in (508 mm) east-west
Flue outlet diameter	6 in (150 mm)
Recommended connector pipe diameter	6 in (150 mm)
Type of chimney	ULC S635, CAN/ULC-S640, UL 1777
Baffle material	C-Cast
Approved for alcove installation	No
Approved for mobile home installation ²	No
Shipping weight (without option)	420 lb (191 kg)
Appliance weight (without option)	380 lb (172 kg)
Type of door	Simple, glass with steel frame
Type of glass	Ceramic glass
Blower	Included (up to 176 CFM)
Particulate emission standard	EPA / CSA B415.1-10 ³
USA standard (Safety)	UL 1482, UL 737
Canada standard (Safety)	ULC S628

¹ North-south: ends of the logs visible, East-west: (sides of the logs visible).

² Mobile homes (Canada) or manufactured homes (USA): The US Department of Housing and Urban Development describes “manufactured homes” better known as “mobile homes” as follows; buildings built on fixed wheels and those transported on temporary wheels/axles and set on a permanent foundation. In Canada, a mobile home is a dwelling for which the manufacture and assembly of each component is completed or substantially completed prior to being moved to a site for installation on a foundation and connection to service facilities and which conforms to the CAN/CSA-Z240 MH standard.

³ Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1(ii) and Draft ASTM WK47329-14.

2.3 Dimensions

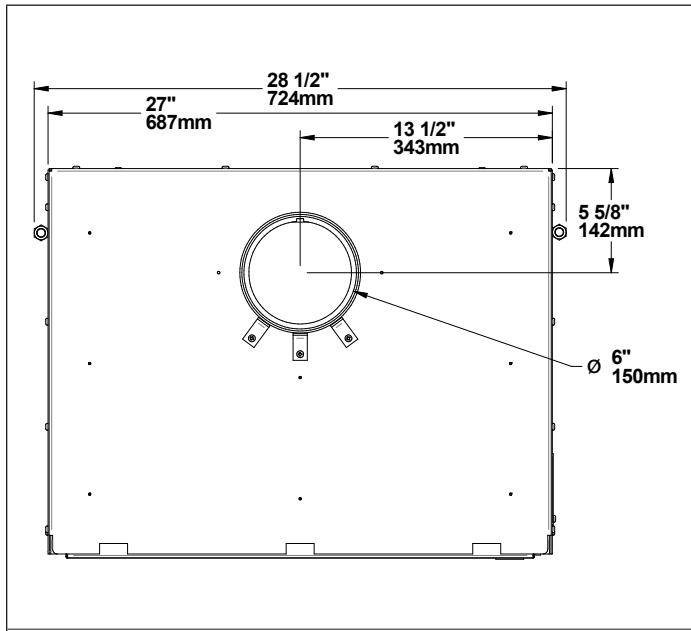


Figure 1: Top View

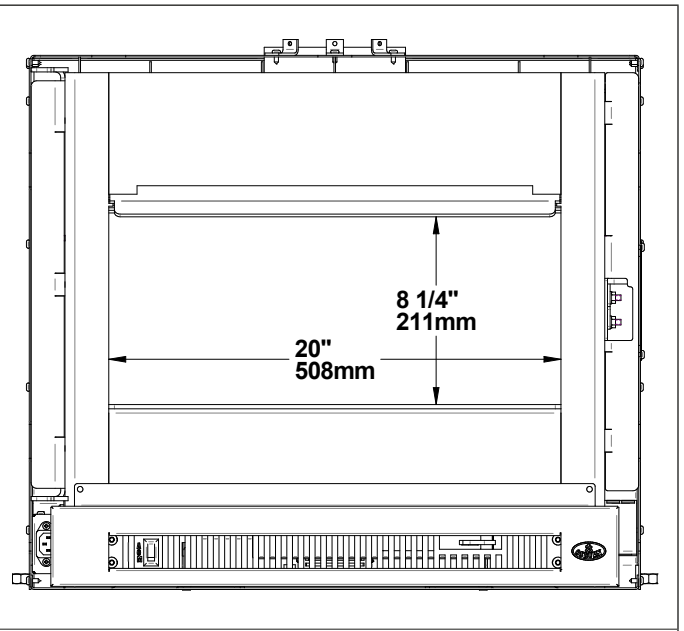


Figure 2: Door opening

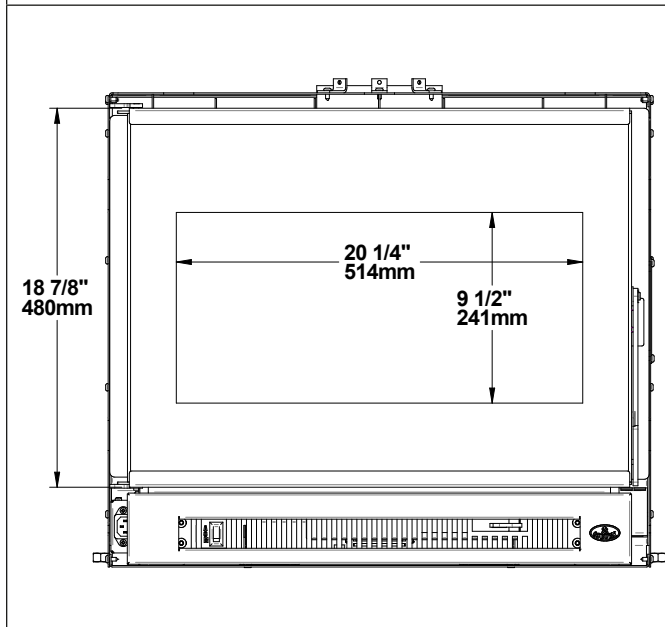


Figure 3: Front View

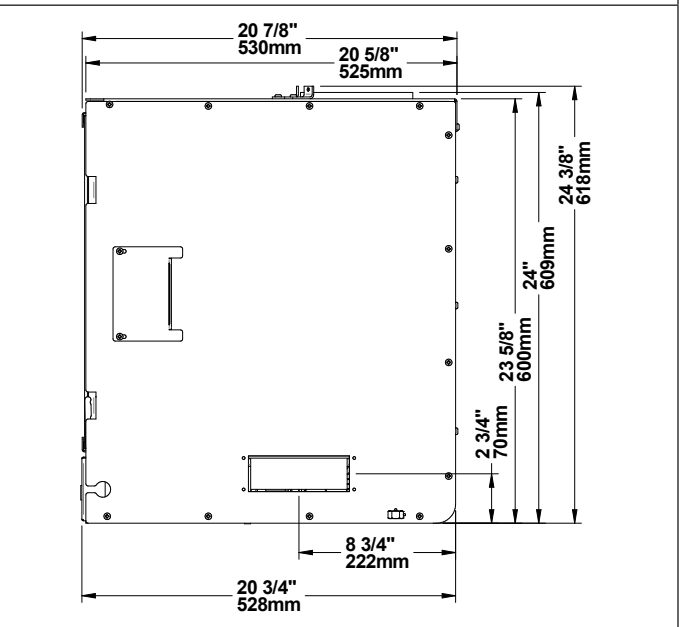


Figure 4: Side View

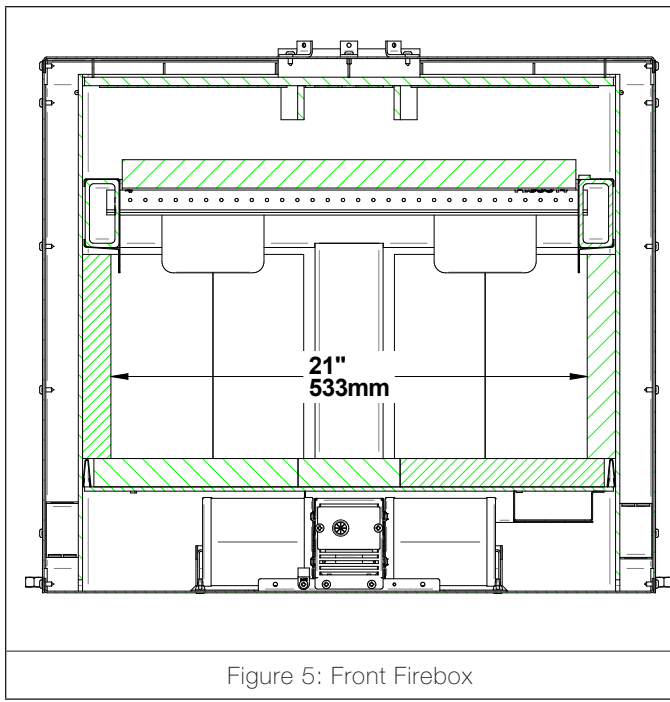


Figure 5: Front Firebox

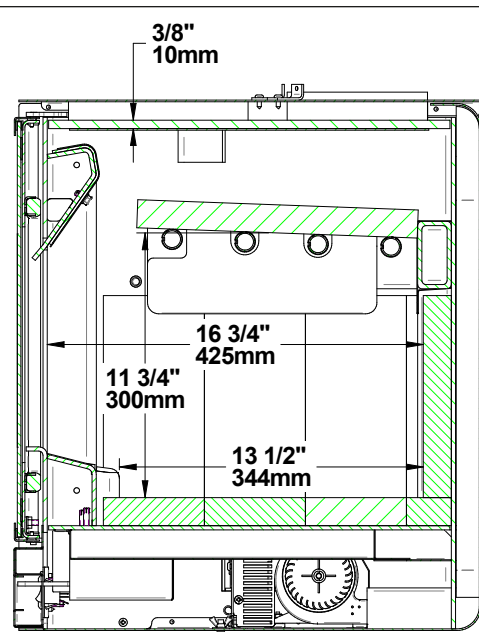


Figure 6: Side Firebox

2.4 Materials

The SBI team is committed to protecting the environment, so they do everything they can to use only materials in their products that will have no lasting negative impact on the environment.

The **body** of this insert, which is most of its weight, is carbon steel. Should it ever become necessary many years in the future, almost the entire insert can be recycled into new products, thus eliminating the need to mine new materials.

The **paint** coating on the insert is very thin. Its VOC content (Volatile Organic Compounds) is very low. VOCs can be responsible for smog, so all the paint used during the manufacturing process meets the latest air quality requirements regarding VOC reduction or elimination.

The **air tubes** are stainless steel, which can also be recycled.

The **baffle** is made of aluminosilicate fibre material that is compressed with a binder to form a rigid board. C-Cast can withstand temperatures above 2,000 °F. It is not considered hazardous waste. Disposal at a landfill is recommended.

The firebricks are mainly composed of silicon dioxide, also known as silica, a product processed from a mined mineral. It is most commonly found in nature in the form of sand and clay. Disposal at a landfill is recommended.

The door and glass **gaskets** are fibreglass which is spun from melted sand. Black gaskets have been dipped into a solvent-free solution. Disposal at a landfill is recommended.

The door **glass** is a 4 mm thick ceramic material that contains no toxic chemicals. It is made of natural raw materials such as sand and quartz that are combined in such a way to form a high temperature glass. Ceramic glass cannot be recycled in the same way as normal glass, so it should not be disposed of with the regular household products. Disposal at a landfill is recommended.

2.5 Zone Heating

This insert is a space heater, which means it is intended to heat the area it is installed in, as well as spaces that connect to that area, although to a lower temperature. This is called zone heating and it is an increasingly popular way to heat homes or spaces within homes.

Zone heating can be used to supplement another heating system by heating a particular space within a home, such as a basement, a family room or an addition that lacks another heat source.

Houses of moderate size and relatively new construction can be heated with a properly sized and located wood insert. Whole house zone heating works best when the insert is in the part of the house where the family spends most of its time. This is normally the main living area where the kitchen, dining and living rooms are located.

Locating the insert in this area will give the maximum benefit of the heat it produces and will achieve the highest possible heating efficiency and comfort. The space where the most time is spent will be warmest, while bedrooms and basement (if there is one) will stay cooler. In this way, less wood is burned than with other forms of heating.

Although the insert may be able to heat the main living areas of the house to an adequate temperature, it is strongly recommended to also have a conventional oil, gas or electric heating system to provide backup heating.

The success of zone heating will depend on several factors, including the correct sizing and location of the insert, the size, layout and age of the home and the climate zone. Three-season vacation homes can usually be heated with smaller inserts than houses that are heated all winter.

2.6 Emissions and Efficiency

The low smoke emissions produced by the special features inside this insert firebox means that the household will release up to 90% less smoke into the outside environment than if an older conventional insert was used. But there is more to the emission control technologies than protecting the environment.

The smoke released from wood when it is heated contains about half of the energy content of the fuel. By burning the wood completely, this insert releases all the heat energy from the wood instead of wasting it as smoke up the chimney. Also, the features inside the firebox allow control of the air supply meaning controlling the heat output, while maintaining clean and efficient flaming combustion, which boosts the efficient delivery of heat to the home.

The emission control and advanced combustion features of this insert can only work properly if the fuel used is in the correct moisture content range of 15% to 20%. See section [«3. Fuel»](#) of this manual for suggestions on preparing fuelwood and judging its moisture.

3. Fuel

Good firewood has been cut to the correct length for the insert, split to a range of sizes and stacked in the open until its moisture content is down to 15% to 20%.

DO NOT BURN:

- **GARBAGE OF ANY KIND,**
- **COAL OR CHARCOAL,**
- **TREATED, PAINTED OR COATED WOOD,**
- **PLYWOOD OR PARTICLE BOARD,**
- **FINE PAPER, COLORED PAPER OR CARDBOARD,**
- **SALT WATER DRIFTWOOD,**
- **MANUFACTURED LOGS CONTAINING WAX OR CHEMICAL ADDITIVES,**
- **RAILROAD TIES AND**
- **LIQUIDS SUCH AS KEROSENE OR DIESEL FUEL TO START A FIRE.**

3.1 Tree Species

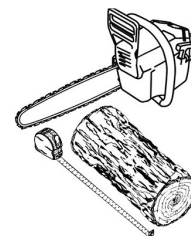
The tree species the firewood is produced from is less important than its moisture content. The main difference in firewood from various tree species is the density of the wood. Hardwoods are denser than softwoods.

Homeowners with access to both hardwood and softwood use both types for different purposes. Softer woods make good fuel for mild weather in spring and fall because they light quickly and produce less heat. Softwoods are not as dense as hardwoods so a given volume of wood contains less energy. Using softwoods avoids overheating the house, which can be a common problem with wood heating in moderate weather. Harder woods are best for colder winter weather when more heat and longer burn cycles are desirable.

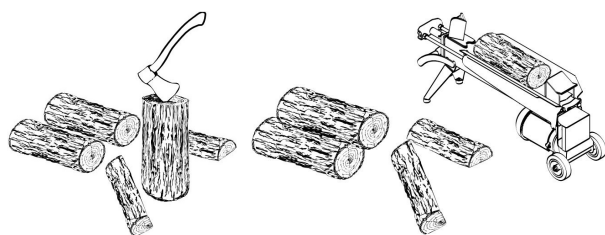
Note that hardwood trees like oak, maple, ash and beech are slower growing and longer lived than softer woods like poplar and birch. That makes hardwood trees more valuable. The advice that only hardwoods are good to burn is outdated. Old, leaky cast iron inserts wouldn't hold a fire overnight unless they were fed large pieces of hardwood. That is no longer true.

3.2 Log Length

Logs should be cut at least 1" (25 mm) shorter than the firebox so they fit in easily. Pieces that are even slightly too long makes loading the insert very difficult. The most common standard length of firewood is 16" (400 mm).



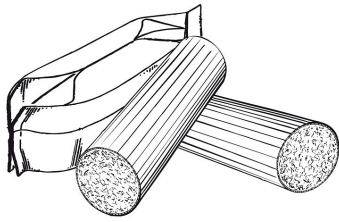
3.3 Piece Size



Firewood dries more quickly when it is split. Large unsplit rounds can take years to dry enough to burn. Even when dried, unsplit logs are difficult to ignite because they don't have the sharp edges where the flames first catch.

Wood should be split to a range of sizes, from about 3" to 6" (75 mm to 150 mm) in cross section. Having a range of sizes makes starting and rekindling fires much easier.

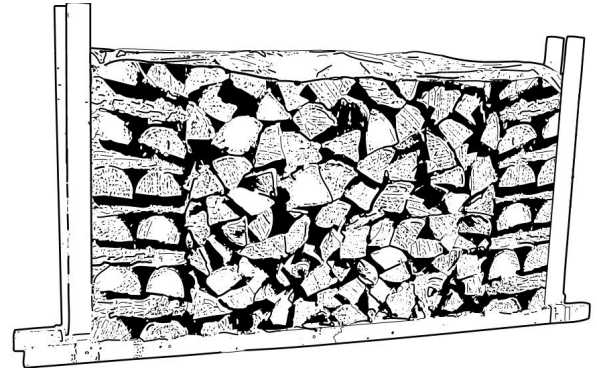
3.4 Compressed Wood Logs



Compressed wood logs made of 100% compressed sawdust can be burned with caution in the number of these logs burned at once. Do not burn compressed logs made of wax impregnated sawdust or logs with any chemical additives. Follow the manufacturer's instructions and warnings.

3.5 Drying Time

Firewood that is not dry enough to burn is the cause of most complaints about wood burning appliances. Continually burning green or unseasoned wood produces more creosote and involves lack of heat and dirty glass door. Firewood with a moisture content between 15% and 20% will allow the insert to produce its highest possible efficiency.

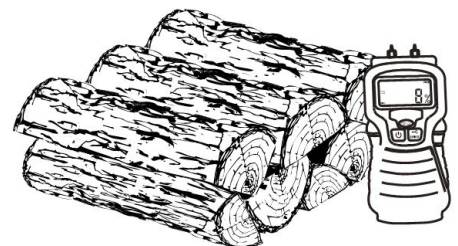


Here are some things to consider in estimating drying time:

- Firewood bought from a dealer is rarely dry enough to burn, so it is advisable to buy the wood in spring and dry it yourself;
- Drying happens faster in dry weather than in a damp climate;
- Drying happens faster in warm summer weather than in winter weather;
- Small pieces dry more quickly than large pieces;
- Split pieces dry more quickly than unsplit rounds;
- Softwoods like pine, spruce, poplar, and aspen take less time to dry than hardwoods. they can be dry enough to burn after being stacked to air dry only for the summer months;
- Hardwoods like oak, maple and ash can take one, or even two years to dry fully, especially if the pieces are big;
- Firewood dries more quickly when stacked outside in a location exposed to sun and wind; it takes much longer to dry when stacked in a wood shed;

The firewood is dry enough to burn when:

- Cracks form at the ends of logs as they dry;
- The wood turns from white or cream colored to grey or yellow;
- Two pieces of wood struck together sounds hollow;
- Dry wood is much lighter in weight than wet wood,
- The face of a fresh cut feels warm and dry;
- The moisture content read by a moisture meter is between 15% to 20%.



4. Operating the Insert

Before using the insert, the following steps should be followed:

- Install the faceplate (See [«Appendix 1. Faceplate Installation»](#))
- Plug in the blower power cord. The sleeve **(A)** and the power cord **(B)** can be found in the owner's manual kit. Refer to the following figure.

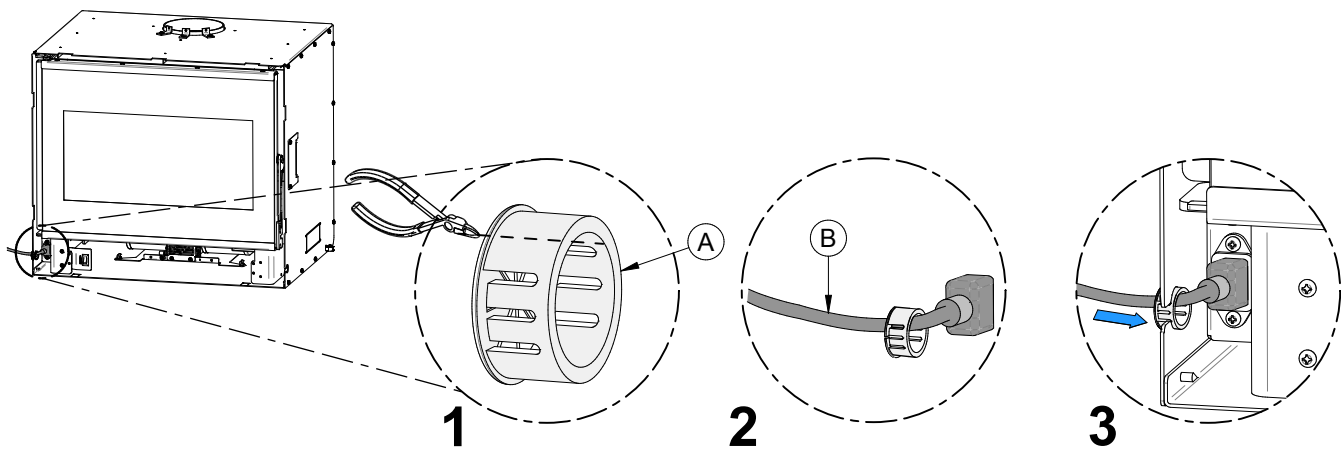


Figure 7: Plugging in the blower power cord

The following steps are optional :

- Install the fresh air intake (See [«Appendix 2. Optional Fresh Air Intake Kit Installation»](#))
- Install the refractory slabs (See [«Appendix 5. Optional Refractory Panels Installation»](#))

4.1 Cold Hand

The cold hand is a handle, supplied with the insert. It allows to open the door and avoid burns. To open, insert the cold hand into the opening on the right side of the insert. Pull on the cold hand to open the door. Push to close the door. The cold hand should not remain on the insert when it is in use and should be kept outside the heat radiation zone of the appliance.

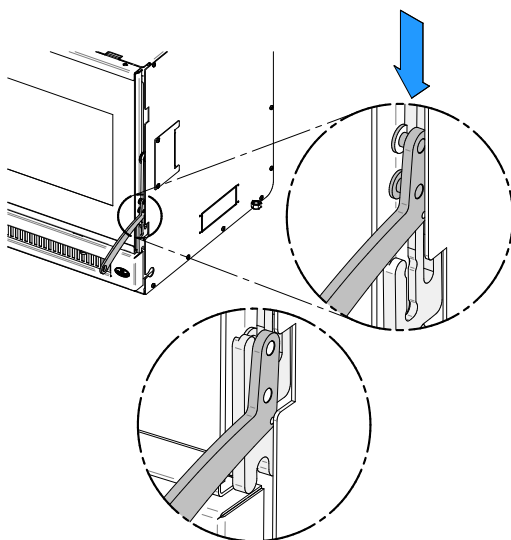


Figure 8: Opening on the right side of the insert

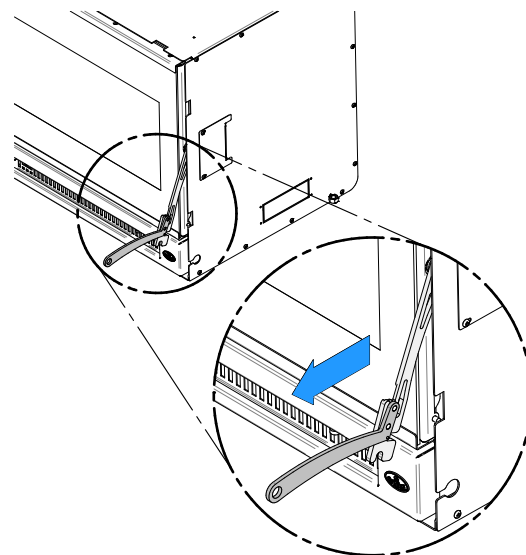


Figure 9: Pull on the cold hand to open the door.

4.2 Blower Operation

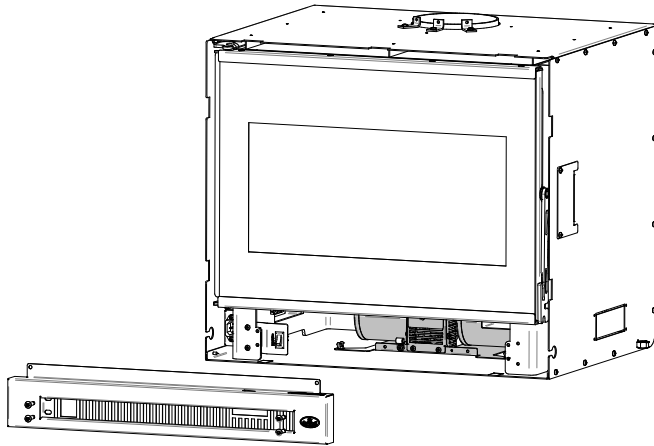


Figure 10: Blower location

A blower is already installed on this insert. It is located behind the bottom louver of the insert. Its function is to increase airflow through the heat exchanger and improve hot air circulation in the room. When used regularly, the blower can provide a small increase in efficiency, up to 2%. However, it should not be used as a way to gain more output from an insert that is undersized for the space it is intended to heat.



Ensure the blower cord is not in contact with any surface of the insert to prevent electrical shock or fire damage. Do not run cord underneath the insert.

Allow the insert to reach operating temperature (approximately one hour) before turning on the blower, since increased airflow from the blower will remove heat and affect the start up combustion efficiency.

The blower is equipped with a heat sensor. Therefore, the switch can be left in the automatic position **(A)**. The blower will start automatically when the insert is hot enough and it will stop when the insert has cooled down. The switch can also be set to the manual position **(M)** to turn on the blower manually and have it run continuously. The position **(O)** stops the blower and prevents it from starting automatically when the insert is hot enough.

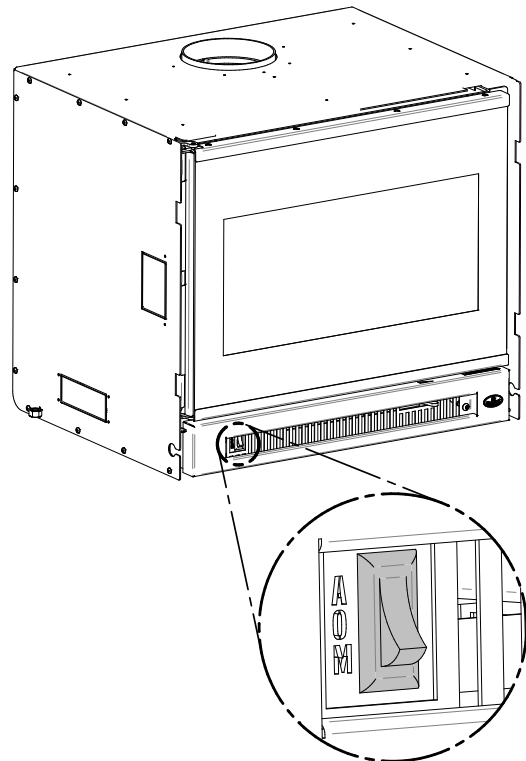


Figure 11: Blower modes

5. Burning Wood Efficiently

5.1 First Use

Two things happen when burning the first few fires; the paint cures and the internal components of the insert are conditioned. As the paint cures, some of the chemicals vaporize. The vapors are not poisonous, but they smell bad. When lighting the insert for the first few times, be prepared by opening doors or windows to ventilate the house.

Burn one or two small fires to begin the curing and conditioning process. Then build bigger and hotter fires until there is no longer paint smell from the insert. As hotter and hotter fires are burned, more of the painted surfaces reach the curing temperature of the paint. The smell of curing paint does not disappear until one or two very hot fires have been burned.

5.2 Lighting Fires

Each person heating with wood develops its own favorite way to light fires. Regardless of the method chosen, the goal should be to have a hot fire burning, quickly. A fire that ignites fast produces less smoke and deposits less creosote in the chimney.



Never use gasoline, gasoline-type lantern fuel (naphtha), fuel oil, motor oil, kerosene, charcoal lighter fluid, or similar liquids or aerosols to start or 'freshen up' a fire in this wood insert.

Here are three popular and effective ways to ignite wood fires.

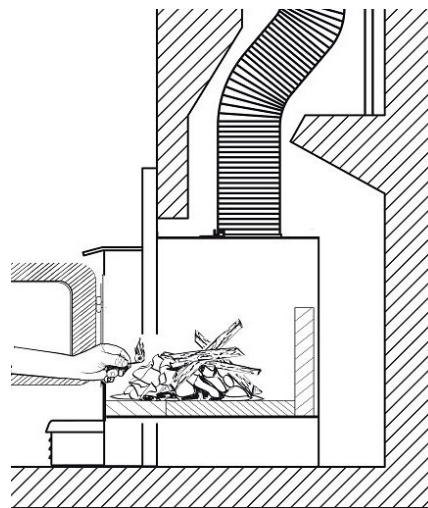
5.2.1 Conventional Method

The conventional method to build a wood fire is to crumple 5 to 10 sheets of newspaper and place them in the firebox and hold them in place with ten pieces of kindling wood. The kindling should be placed on and behind the newspaper.

Then add two or three small pieces of firewood. Open the air intake control completely and ignite the newspaper. Leave the door slightly ajar.

Once the fire has ignited, the door can be closed with the air control still fully open.

When the kindling is almost completely burned, standard firewood pieces can be added.



Do not leave the insert unattended when the door is slightly open. Always close and latch the door after the fire ignites.

5.2.2 The Top Down Method

This method is the opposite of the conventional method and only works properly if well-seasoned wood is used.

Place three or four small, split, dry logs in the firebox. Arrange the kindling wood on the logs in two layers at right angles and place a dozen finely split kindling on the second row. It is possible to use ragged paper but it may not hold in place since it tends to roll while it is burning. The best is to wrap a sheet on itself, grab the ends of the roll and make a knot. Use four or five sheets of paper tied together and put them on top and around the kindling.

Open the air intake control completely, ignite the paper and close the door.

The down fire method has two advantages over the traditional method: first, the fire does not collapse on itself, and it is not necessary to add wood gradually since the combustion chamber is full before the fire is lit.

5.2.3 Two Parallel Logs Method

Two spit logs are placed in the firebox with a few sheets of twisted newspapers in between the logs. Fine kindling is added across the two logs and some larger kindling across those, log cabin style. Newspaper is lit.

5.2.4 Using Fire Starters

Commercial fire starters can be used instead of a newspaper. Some of these starters are made of sawdust and wax and others are made of specialized flammable solid chemicals. Always follow the package directions when using.

Gel starters can also be used, but only to light a fire, in a cold combustion chamber without hot embers inside.

5.3 Combustion Cycles

Wood heating with a space heater is very different than other forms of heating. There will be temperature variations in different parts of the house and there will be temperature variations throughout day and night. This is normal, and for experienced wood burners these are advantages of zone heating woodburning.

Wood inserts don't have a steady heat output. It is normal for the temperature to rise after a new load of wood is ignited and for its temperature to gradually decrease throughout the burning cycle. This increasing and decreasing temperature can be matched with the household routines. For example, the temperature in the area can be cooler when the household is active, and it can be warmer when it is inactive.

Wood burns best in cycles. A cycle starts when a new load of wood is ignited by hot coals and ends when that load has been consumed down to a bed of charcoal about the same size as it was when the wood was loaded.

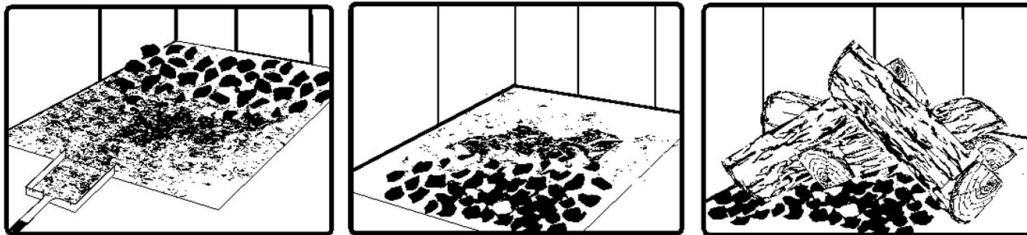
Trying to produce a steady heat output by placing a single log on the fire at regular intervals is not recommended. Always place at least three, and preferably more pieces on the fire at a time so that the heat radiated from one piece helps to ignite the pieces next to it. Each load of wood should provide several hours of heating. The size of each load may vary depending on the amount of heat required.

Burning in cycles means the insert door does not need to be opened while the wood is flaming. This is an advantage since it is preventing smoke leaking from the insert when the door is opened as a full fire is burning. This is especially true if the chimney is on the outside wall of the house.

If the door must be opened while the fire is flaming, fully open air control for a few minutes then open the door slowly.

5.4 Rekindling a Fire

When all that remains is embers, remove excess ash from the front of the firebox and bring the ashes forward. Place a new load of wood on, and at the back of the embers. Open the air control completely and close the door.



Raking the coals is useful for two reasons. First, it brings them near where most of the combustion air enters the firebox. This will ignite the new load quickly. Secondly, the charcoal will not be smothered by the new load of wood. When the embers are simply spread inside the combustion chamber, the new load smoulder for a long time before igniting.

Close the air control only when the firebox is full of bright turbulent flames, the wood is charred, and its edges are glowing.

The insert should not be left unattended during ignition and the fire should not burn at full intensity for more than a few minutes.

When lighting a new load, the appliance produces a heat surge. This heat surge is pleasant when the room temperature is cool but can be unpleasant when the room is already warm. Therefore, it is best to let each load of wood burn completely so that the room cools down before putting a load of wood back on.

5.5 Removing Ashes

Ash should be removed from the firebox every two to three days of full time heating. Ash should not accumulate excessively in the firebox since it will affect the proper operation of the insert.

The best time to remove ash is in the morning, after an overnight fire when the insert is relatively cold, but there is still a little chimney draft to draw the ash dust into the insert and prevent going out into the room.

Ashes almost always contain live embers that can stay hot for days and which release carbon monoxide gas. Ashes should be placed in a tightly covered metal container. The container must be placed on a non-combustible floor or on the ground well away from all combustible materials.

If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be kept in a closed metal container until they are completely cooled. No other waste should be placed in this container.



NEVER STORE ASHES INDOORS OR IN A NON-METALLIC CONTAINER OR ON A WOODEN DECK.

5.6 Air Intake Control

Once the firewood, firebox and chimney are hot, air intake can be reduced to achieve a steady burn.

As the air intake is reduced, the burn rate decreases. This has the effect of distributing the thermal energy of the fuel over a longer period of time. In addition, the flow rate of exhaust through the insert and flue pipe slows down, which increases the duration of the energy transfer of the exhaust gases. As the air intake is reduced, the flame slows down.

If the flames diminish to the point of disappearing, the air intake has been reduced too early in the combustion cycle or the wood used is too wet. If the wood is dry and the air control is used properly, the flames should decrease, but remain bright and stable.

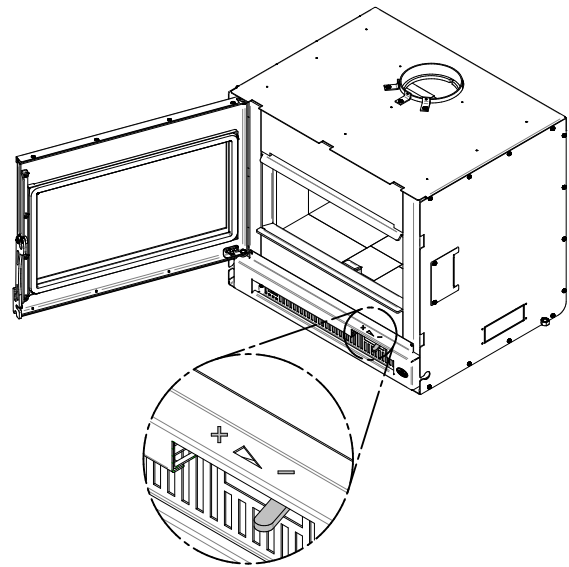


Figure 12: Air Intake Control

5.7 Fire Types

Using the air intake control is not the only way to match the insert heat output to the desired temperature in the house. A house will need far less heating in October than in January to maintain a comfortable temperature. Filling the firebox full in fall weather will overheat the space. Otherwise, the combustion rate will have to be reduced to a minimum and the fire will be smoky and inefficient. Here are some suggestions for building fires suitable for different heating needs.

5.7.1 Flash Fire

To build a small fire that will produce a low heat output, use small pieces of firewood and load them crisscross in the firebox. The pieces should only be 3" to 4" in diameter. After raking the coals, lay two pieces parallel to each other diagonally in the firebox and lay two more across them in the other direction. Open the air control fully and only reduce the air after the wood is fully flaming.

This kind of fire is good for mild weather and should provide enough heat for up to four hours. Small fires like this are a good time to use softer wood species and avoid overheating the house.

5.7.2 Long Lasting Fire

For a fire that will last up to eight hours but will not produce intense heat, use soft wood and place the logs compactly in the firebox. Before reducing the air intake, the load will have to burn at full heat for long enough for charring the surface of the logs. The flame must be bright before letting the fire burn by itself.

5.7.3 High Output Fires

When heating needs are high during cold weather, the fire should burn steadily and brightly. This is the time to use larger pieces of hardwood. Place the biggest pieces at the back of the firebox and place the rest of the pieces compactly. A densely built fire like this will produce the longest combustion this insert is capable of.

Special attention must be paid when building fires like this since if the air intake is reduced too quickly, the fire could smoulder. The wood must be flaming brightly before leaving the fire to burn.

5.7.4 Maximum Burn Cycle Times

The burn cycle time is the period between loading wood on a coal bed and the consumption of that wood back to a coal bed of the same size. The flaming phase of the fire lasts for roughly the first half of the burn cycle and the second half is the coal bed phase during which there is little or no flame. The burning time expected from this insert, including both phases, will vary depending on a number of things, such as:

- firebox size,
- the amount of wood loaded,
- the species of wood,
- the wood moisture content,
- the size of the space to be heated,
- the climate zone where the house is, and
- the time of the year.

The table below gives an approximate maximum burn cycle times, based on firebox volume.

Table 1 : Approximate Maximum Burn Cycle Time

FIREBOX VOLUME	MAXIMUM BURN CYCLE TIME
<1.5 cubic feet	3 to 5 hours
1.5 c.f. to 2.0 c.f.	5 to 6 hours
2.0 c.f. to 2.5 c.f.	6 to 8 hours
2.5 c.f. to 3.0 c.f.	8 to 9 hours
>3.0 c.f.	9 to 10 hours

A longer burning time is not necessarily an indication of efficient insert operation. It is preferable to build a smaller fire that will provide three or four hours of heating than to fully load the firebox for a much longer burn. Shorter burn cycles make it easier to match the heat output of the insert to the heat demand for the space.

5.7.5 Logs Orientation

In a relatively square firebox, the wood can be loaded north-south (ends of the logs visible) or east-west (sides of the logs visible).

North-south loads allow more wood to be loaded at the same time. On the other hand, they break into smaller pieces faster. North-south loading is good for high output, long lasting fires for cold weather.

East-west loads allow a limited amount of wood since too many logs could cause them to fall on the glass. East-west loads, placed in a compact way, take a long time before breaking down. They are excellent for low-intensity, long-lasting fires in relatively mild weather.

6. Maintenance

This insert will give many years of reliable service if used and maintained properly. Internal components of the firebox such as firebricks or refractory panels, baffle and air tubes will wear over time. Defective parts should always be replaced with original parts. See [«Appendix 7. Exploded Diagram and Parts List»](#).

To avoid premature deterioration of the insert follow the lighting and reloading procedures in [«5. Burning Wood Efficiently»](#) and also avoid letting the insert run with the air intake fully open for entire burn cycles.

6.1 Insert

6.1.1 Cleaning and Painting the Insert

Painted and plated surfaces can be wiped down with a soft, damp cloth. If the paint is scratched or damaged, it is possible to repaint the insert with a heat-resistant paint. **Do not clean or paint the insert when it is hot.** Before painting, the surface should be sanded lightly with sandpaper and then wiped off to remove dust. Apply two thin layers of paint.

6.1.2 Refractory Materials and Baffle

Inspect the firebricks or the refractory panels and the baffle for damage periodically and replace anything that is broken.

Operation of the insert with a cracked or missing baffle may cause unsafe temperatures and hazardous conditions and will void the warranty.

6.2 Glass Door

6.2.1 Cleaning

Under normal conditions, the door glass should stay relatively clear. If the firewood is dry enough and the operating instructions in this manual are followed, a whitish, dusty deposit will form on the inner surface of the glass after a week or so of use. This is normal and can be easily removed when the insert is cold by wiping with a damp cloth or paper towel and then drying.

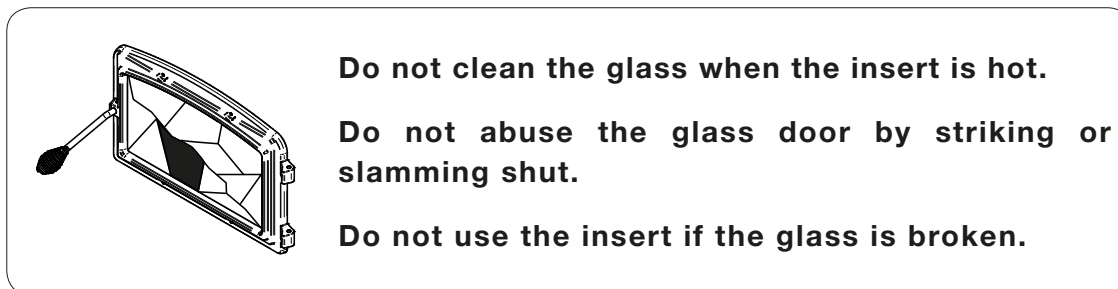
When the insert runs at a low combustion rate, light brown stains may form, especially in the lower corners of the glass. This indicates that the fire has been smoky and some of the smoke has condensed on the glass. It also indicates incomplete combustion of the wood, which also means more smoke emissions and faster formation of creosote in the chimney.

The deposits that form on the glass are the best indication of the fuel quality and success in properly using the insert. These stains can be cleaned with a special wood insert glass cleaner.

Do not use abrasive products to clean the insert glass.

The goal should be having a clear glass with no brown stains. If brown stains appear regularly on the glass, something about the fuel or the operating procedure needs to be changed.

When brown streaks are coming from the edge of the glass, it is time to replace the gasket around the glass. The glass gasket should be self-adhesive. Follow the instructions in section «[6.2.3 Gasket](#)» for installation. Always replace the gasket with a genuine one. See «[Appendix 7. Exploded Diagram and Parts List](#)».



6.2.2 Replacement

The glass used is a ceramic glass, 4 mm thick with a dimension of 24 13/16" X 18 1/2" (63 cm X 47 cm) tested to reach temperatures up to 1400° F. If the glass breaks, it must be replaced with one having the same specification.

Tempered glass or ordinary glass will not withstand the high temperatures of this unit.

To replace the glass **(D)**, use the following procedure

1. Remove the door from its hinges and lay it on a soft, flat surface.
2. Remove the upper glass retainer **(A)** and the lower glass retainer **(B)** held in place by the screws **(C)**.
3. Remove the glass **(D)**. If it is damaged install a new one in place. The replacement glass must have a gasket. See the installation procedure.
4. Reinstall the glass, being careful to centre the glass in the door and not to over-tight retaining screws.
5. Repeat the steps in reverse order to reinstall the door on the insert.

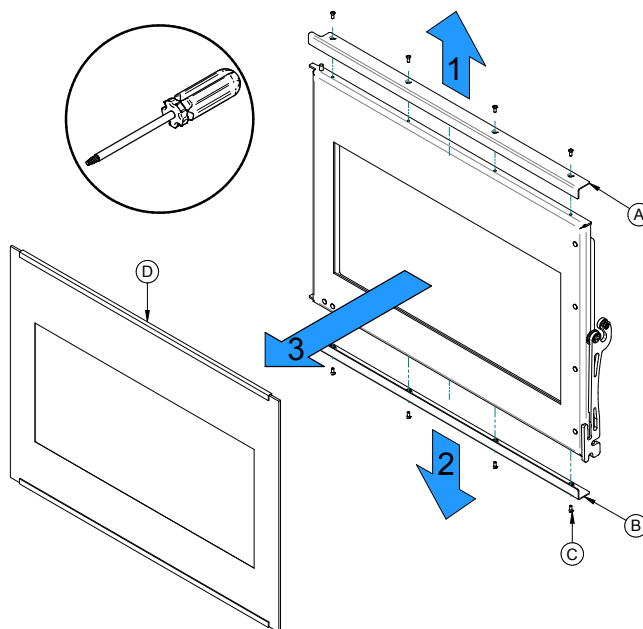


Figure 13: Replacing the glass

6.2.3 Gasket

It is a good idea to replace the glass gasket when the door gasket is being replaced. The new gasket is flat, adhesive-backed and made of woven fibreglass.

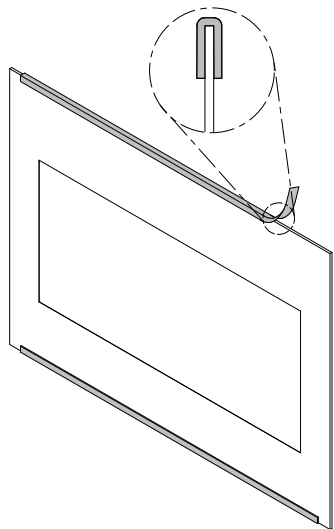


Figure 14: Glass gasket

Location	Length	Dimension
Top and bottom of the glass	24 13/16" (63 cm)	Flat 1" (25 mm)

1. Remove the glass following the first three steps of the «Replacement» section.
2. Remove the old gasket and clean the glass thoroughly.
3. Peel back a section of the paper covering the adhesive and place the gasket on a table with the adhesive side up.
4. Stick the end of the gasket to the middle of one edge, then press the edge of the glass down onto the gasket, taking care that it is perfectly centered on the gasket.
5. Cut the gasket to the required length.
6. Pinch the gasket onto the glass in a U shape.
7. Repeat for the other side of the glass.

Another glass gasket **(A)** is located between the door and the glass. The gasket is stuck on the exterior surface of the door **(B)**. Install according to the following illustrations.

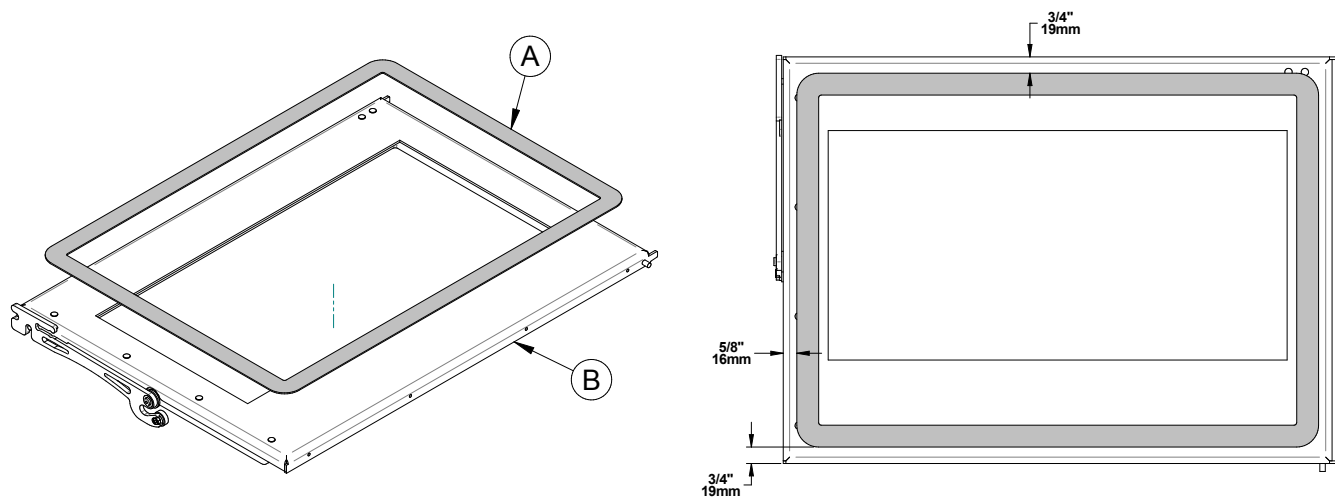


Figure 15: Replacing the glass gasket on the door

Location	Length	Dimension
Behind the door	92 1/2" (235 cm)	Flat 1" (25 mm)

6.3 Door

In order for the insert to burn at its best efficiency, the door must provide a perfect seal with the firebox. The tightness of the door seal can be verified by closing and latching the door on a strip of paper. The test must be performed all around the door. If the paper slips out easily anywhere, either adjust the door or replace the gasket.

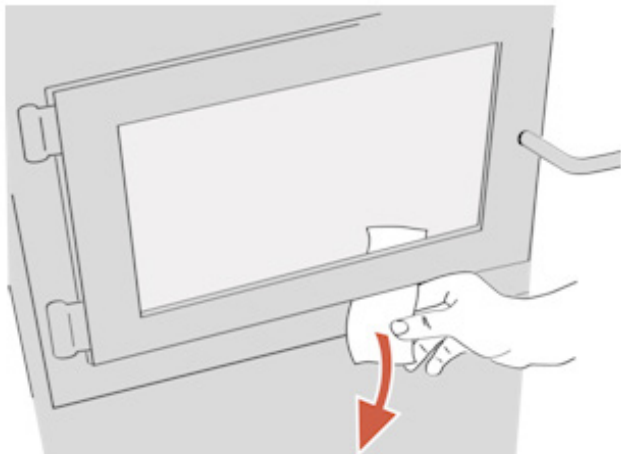


Figure 16: Door gasket seal verification

6.3.1 Adjustment

The gasket seal may be improved with a simple latch mechanism adjustment to increase or reduce the pressure on the gasket:

1. Open the door and unscrew the four nuts **(A)** holding the bracket **(B)** in place.
2. To increase the pressure on the gasket, remove as much washers **(C)** as necessary. To decrease the pressure on the door, add washers **(C)**.
3. Reinstall the bracket **(B)** with the nuts **(A)**.

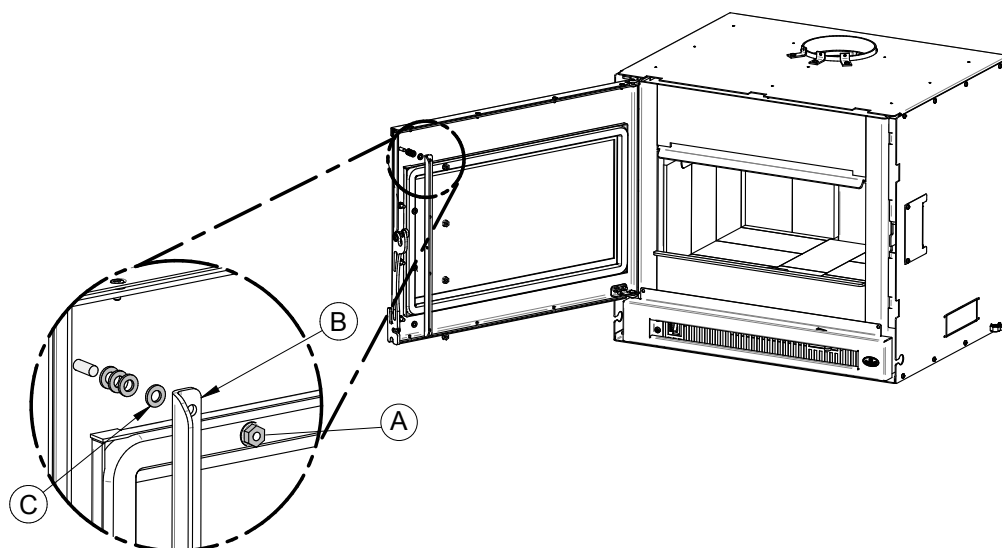
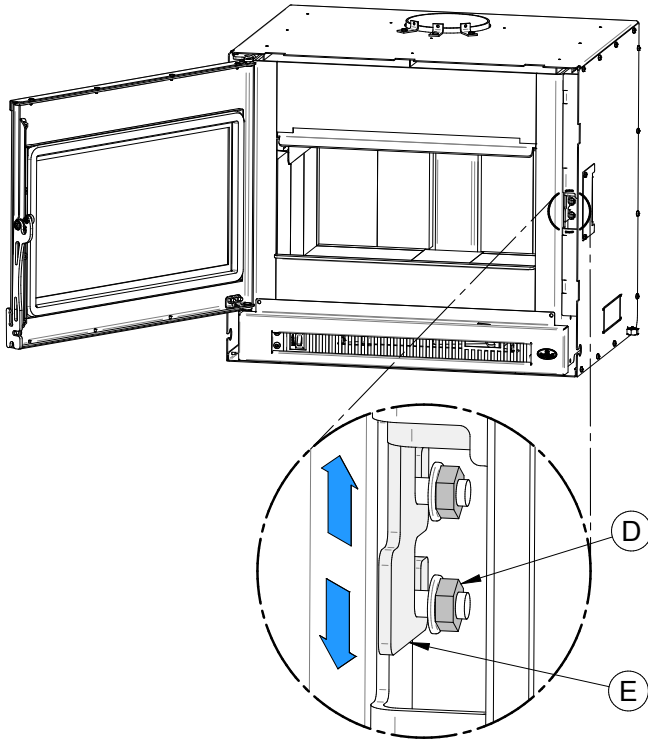


Figure 17: Door adjustment with bracket

It is also possible to fix the handle angle by adjusting the door latch mechanism, located on the right hand side opening of the insert.



4. Unscrew the nuts **(D)** and lift the door latch mechanism **(E)** to increase the pressure on the door. Lower the mechanism **(E)** to release pressure.

Figure 18: Door handle angle adjustment

The door angle can also be adjusted by unscrewing the nuts **(F)** and sliding the bracket **(G)** towards the left or the right.

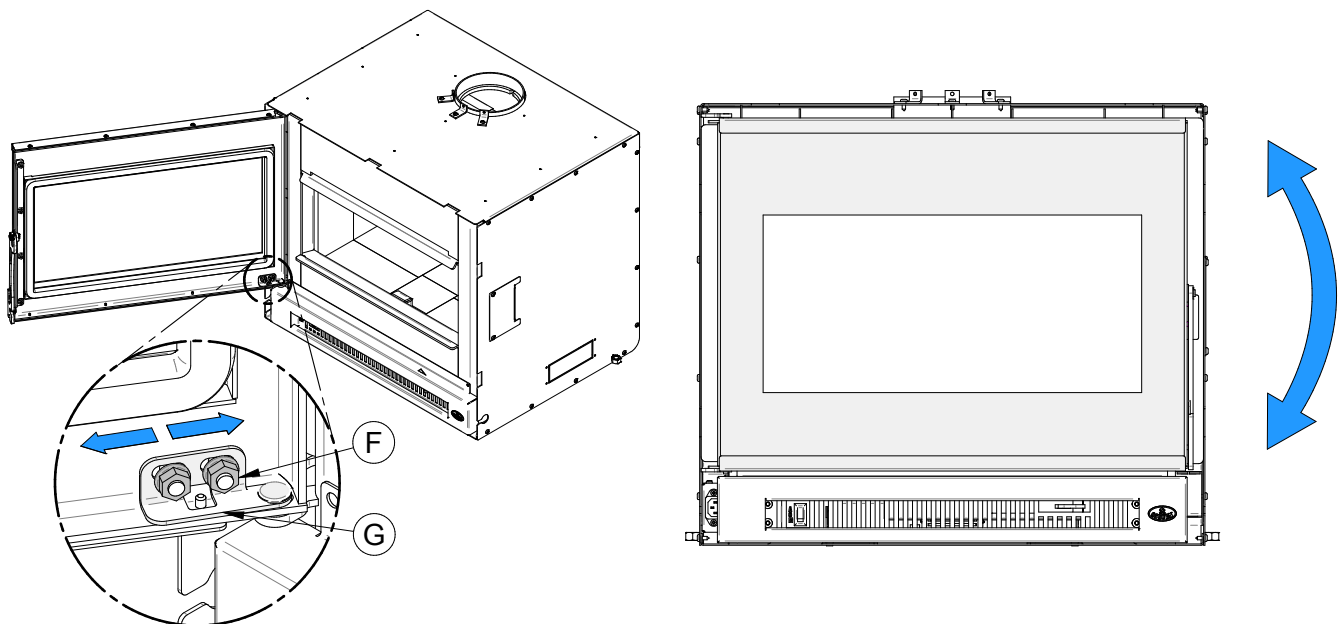


Figure 19: Door angle adjustment

6.3.2 Gasket

It is important to replace the gasket with another having the same diameter and density to maintain a good seal.

1. Remove the door and place it face-down on something soft like a cushion of rags or a piece of carpet.
2. Remove the old gasket from the door. Use a screwdriver to scrape the old gasket adhesive from the door gasket groove.
3. Apply a bead of approximately 5 mm of high temperature silicone in the door gasket groove. Starting from the middle, hinges side, press the gasket into the groove. The gasket must not be stretched during installation.
4. Leave about ½" long of gasket when cutting and press the end into the groove. Tuck any loose fibers under the gasket and into the silicone.
5. Close the door. Do not use the insert for 24 hours.

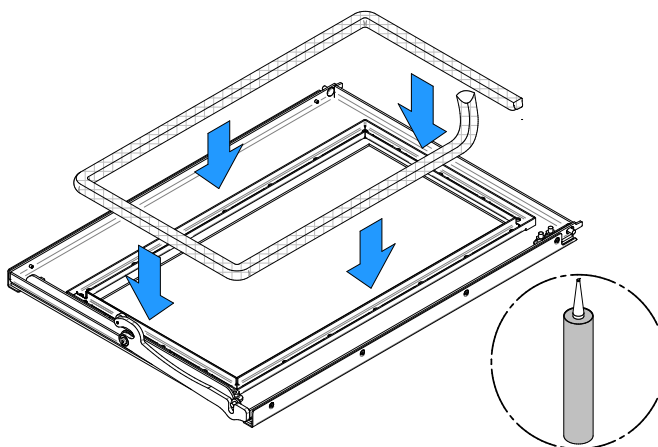


Figure 20: Door gasket

Location	Length	Dimension
Door frame	79 ½" 202 cm	Round 7/8" (23 mm)

6.4 Exhaust System

Wood smoke can condense inside the chimney, forming a inflammable deposit called creosote. If creosote builds up in the system, it can ignite when a hot fire is burned in the insert. A very hot fire can progress to the top of the chimney. Severe chimney fires can damage even the best chimneys. Smouldering, smoky fires can quickly cause a thick layer of creosote to form. When the insert is operated properly, the exhaust from the chimney is mostly clear and creosote builds up more slowly.

6.4.1 Frequency

It is not possible to predict how much or how quickly creosote will form in the chimney. It is important, therefore, to check the build-up in the chimney monthly until the rate of creosote formation is determined. Even if creosote forms slowly in the system, the chimney should be cleaned and inspected at least once each year.

6.4.2 Sweeping the Chimney

Chimney sweeping can be a difficult and dangerous job. People with no chimney sweeping experience will often prefer to hire a professional chimney sweep to inspect and clean the system for the first time. After seeing the cleaning process, some will choose to do it themselves.



The chimney should be checked regularly for creosote build-up. Inspection and cleaning of the chimney can be facilitated by removing the baffle. See [«Appendix 4. Air Tubes and Baffle Installation»](#) for more details.

6.4.3 Chimney Fire

Regular chimney maintenance and inspection can prevent chimney fires. If you have a chimney fire, follow these steps:

1. Close the insert door and the air intake control;
2. Alert the occupants of the house of the possible danger;
3. If you require assistance, alert the fire department;
4. If possible, use a dry chemical fire extinguisher, baking soda or sand to control the fire. Do not use water as it may cause a dangerous steam explosion;

Do not use the fireplace again until the insert and its chimney have been inspected by a qualified chimney sweep or a fire department inspector.

PART B - INSTALLATION

7. Masonry Fireplace Requirements

The masonry fireplace must meet the minimum requirements found in the building code enforced locally, or the equivalent, for a safe installation. Contact the local building inspector for requirements in the area. An inspection of the fireplace should include the following:

Condition of the fireplace and chimney

- The masonry fireplace and chimney should be inspected prior to installation, to confirm that they are free from cracks, loose mortar, creosote deposits, blockage, or other signs of deterioration. If evidence of deterioration is noted, the fireplace or chimney should be upgraded and cleaned prior to installation.
- Masonry or steel, including the damper plate, may be removed from the smoke shelf and adjacent damper frame if necessary to accommodate the insert's chimney liner, provided that their removal will not weaken the structure of the fireplace and chimney, and will not reduce protection for combustible materials to less than what is required by the building code.

Installation into an existing factory-built zero-clearance fireplace

- It is possible to install a wood insert into an existing factory-built zero-clearance fireplace. However, there currently exists no standard specific to that type of installation. The factory-built zero clearance fireplace must be listed; that is, safety certified by an accredited certification agency. It must be suitable for use with solid fuel and nothing in the owner's manual must specifically prohibit the installation of a fireplace insert. When in doubt, check with the fireplace manufacturer.
- The installation of the zero-clearance fireplace **MUST** be thoroughly inspected by a qualified person to ensure that it still meets the manufacturer's specifications. The chimney must be at least 1" (25 mm) larger in diameter than the stainless steel liner that will run from the insert flue collar to the top of the chimney termination.
- Never remove parts intended to insulate the zero-clearance fireplace from combustible material. Only readily detachable parts that are easily replaced, such as damper parts, screens, and doors, are to be removed from the fireplace. These parts should be stored and available for reinstallation if the insert is ever removed.
- Removal of any parts, which render the fireplace unfit for use with solid fuel, requires the fireplace to be permanently labelled by the installer as being no longer suitable for solid fuel, until the removed parts are replaced and the fireplace is restored to its original certified condition. Also, any air vents, grilles, or louvers that allow air circulation around the fireplace must not be removed or blocked.

Chimney caps

- Mesh type chimney caps must have provision for regular cleaning, or the mesh should be removed to eliminate the potential of plugging.

Adjacent Combustibles

- The fireplace should be inspected to make sure that there is adequate clearance to combustibles, both exposed combustibles to the top, side, and front as well as concealed combustibles, in the chimney and mantle area. The local inspector should have information on whether older fireplaces are of adequate construction.

Opening Size

- Refer to section [«9.3 Minimum Masonry Opening and Clearances to Combustibles»](#) for suitable size fireplace openings.

8. Safety Information and Standards

- The information given on the certification label affixed to the appliance always overrides the information published, in any other media (owner's manual, catalogues, flyers, magazines and web sites).
- Mixing of appliance components from different sources or modifying components may result in hazardous conditions. Where any such changes are planned, Stove Builder International Inc. Should be contacted in advance.
- Any modification of the appliance that has not been approved in writing by the testing authority violates CSA B365 (Canada), and ANSI NFPA 211 (USA).
- Connect this insert only to a listed stainless steel chimney liner for use with solid fuel.
- If required, a supply of combustion air shall be provided to the room.
- **DO NOT CONNECT TO OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATION.**
- **DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.**
- The insert and its stainless steel chimney liner are to be installed only within a lined masonry chimney and masonry fireplace conforming to building codes for use with solid fuel. Do not remove bricks or mortar from the existing fireplace when installing the insert.

8.1 Regulations Covering Insert Installation

When installed and operated as described in these instructions, this wood insert is suitable for use in residential installations but is not intended for installation in a bedroom.

In Canada, the CSA B365 Installation Code for Solid Fuel Burning Appliances and Equipment and the CSA C22.1 Canadian National Electrical Code are to be followed in the absence of local code requirements. In the USA, the ANSI NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances and the ANSI NFPA 70 National Electrical Code are to be followed in the absence of local code requirements.

This insert must be installed with a continuous chimney liner of 6" diameter extending from the insert to the top of the chimney. The chimney liner must conform to the Class 3 requirements of CAN/ULC-S635, Standard for Lining Systems for Existing Masonry or Factory-built Chimneys and Vents, or CAN/ULC-S640, Standard for Lining Systems for New Masonry Chimneys.

The insert is not approved for use with a so-called "positive flue connection" to the clay tile of a masonry chimney.

8.2 Certification Label

Since the information given on the certification label attached to the appliance always overrides the information published in any other media, it is important to refer to it to have a safe and compliant installation. The model and the serial number can also be found on the label.

The certification label is usually located on the side of the insert, towards the front. The faceplate may need to be removed to see it. Therefore, it is recommended to note the insert serial number on page 5 of this manual. It will be needed to identify the version of the appliance in the event replacement parts or technical assistance is required. It is also recommended to [register the warranty online](#).

8.3 Masonry Fireplace Throat Damper

If the fireplace draft control system is to remain in the masonry fireplace, it must be locked open for easy access to the chimney liner or removed entirely. If it is removed from the masonry hearth, the notice plate 27009 must be installed in a visible place, inside the masonry hearth. The plate can be found in the owner's manual kit.

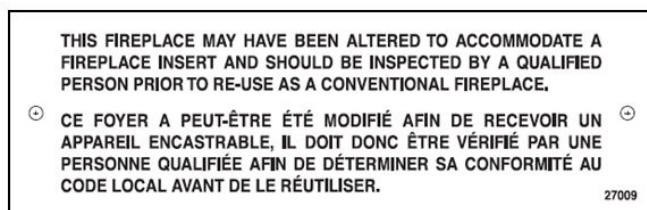


Figure 21: Notice Plate 27009

9. Clearances to Combustible Material

The clearances shown in this section have been determined by tests according to procedures set out in safety standards ULC S628 (Canada), UL1482 (U.S.A.) and UL737 (U.S.A.). When the insert is installed so that its surfaces are at or beyond the minimum clearances specified, combustible surfaces will not overheat under normal and even abnormal operating conditions.

NO PART OF THE INSERT MAY BE LOCATED CLOSER TO THE COMBUSTIBLE THAN THE MINIMUM CLEARANCE FIGURES GIVEN.

9.1 Installation of a Combustible Mantel Shelf

It is possible to install a combustible shelf with a maximum depth of 12" at a height of at least 27" above the insert. At a height of more than 27", the shelf must still have a maximum depth of 12". Refer to [«Figure 22: Shelf Clearances»](#).

Table 2 : Mantel Shelf Clearances

MAXIMUM MANTEL SHELF DIMENSION (X)	MANTEL SHELF CLEARANCES (I)
12" (305mm) max.	27" (686 mm) min.

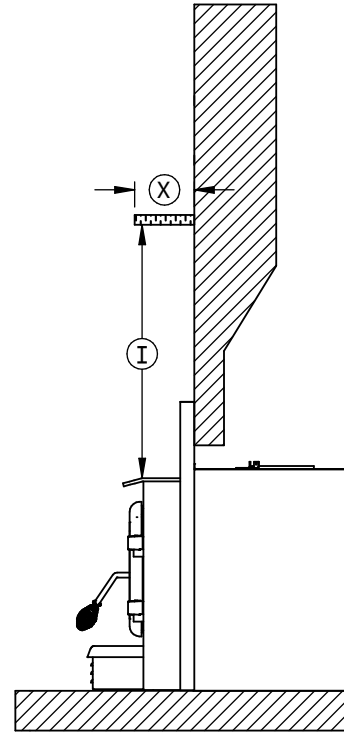


Figure 22: Shelf Clearances

9.2 Floor Protection

It is necessary to have a floor protection made of non-combustible materials that meets the measurements specified in the [«Table 3 : Floor Protection»](#) below.

Table 3 : Floor Protection

	FLOOR PROTECTION	
	Canada	USA
B	18" (457 mm) ¹	16" (406 mm) ¹
M	8" (203 mm)	N/A
N	N/A	8" (203 mm)

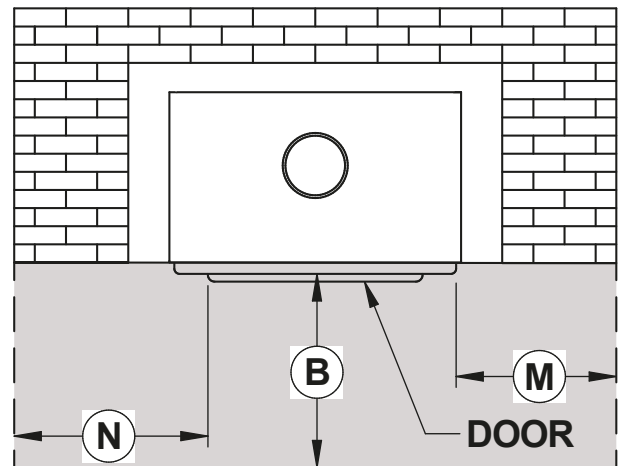


Figure 23: Floor Protection

¹ From door opening. The depth of the hearth extension in front of the insert is included in the calculation of the floor protector's dimensions. The masonry hearth should be at least 5" (127 mm) higher than the combustible floor in front of it and a floor protection must extend at least 16" (406 mm USA) and at least 18" (457 mm Canada) without an R value. If the hearth elevation is lower than 5" (127 mm), the non-combustible (B) floor protector in front of the insert should have an R value equal or greater than 1.00 and shall extend 23" (584 mm) in front of the unit.

9.2.1 Installation Raised of 5" and Less

If non-combustible material floor protection needs to be added in front of and level with the hearth extension of the masonry fireplace (F = 5" or less), an R-value equal to or greater than 1.00 is required and should extend at least 23" (584 mm) in front of the unit **(B)**.

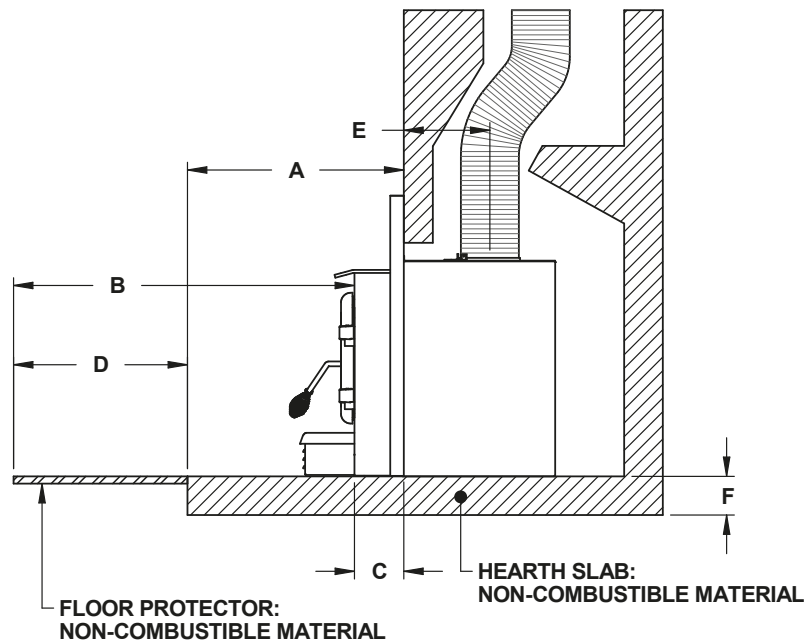


Figure 24: 5" or less raised base installation

9.2.2 Installation Raised of More Than 5"

If the extension of the masonry hearth is raised at least 5" (127 mm) from the floor protection, a non-combustible material, without an R-value, must extend at least 16" (406 mm in USA) or 18" (457 mm in Canada) in front of the unit.

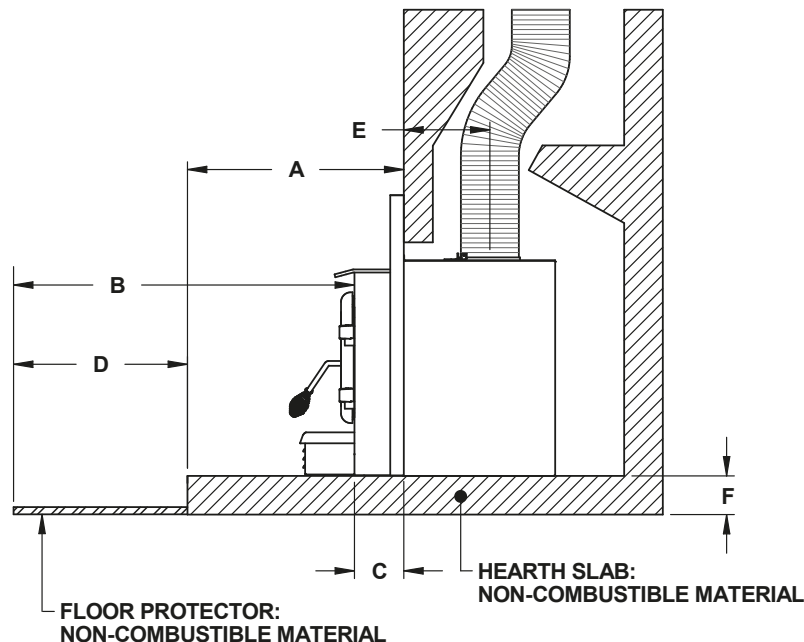


Figure 25: More than 5" raised base installation

9.2.3 R Value

There are two ways to calculate the R-value of the floor protection. First, by adding the R-values of materials used, or by the conversion if the K factor and thickness of the floor protection are given.

To calculate the total R value from R values of the materials used, simply add the R-values of materials. If the result is equal to or greater than the R-value requirements, the combination is acceptable. R-values of some selected materials are shown below :

Table 4 : Thermal Characteristics of Common Floor Protection Materials*

MATERIAL	CONDUCTIVITY (K) PER INCH	RESISTANCE (R) PER INCH THICKNESS
Micore® 160	0.39	2.54
Micore® 300	0.49	2.06
Durock®	1.92	0.52
Hardibacker®	1.95	0.51
Hardibacker® 500	2.3	0.44
Wonderboard®	3.23	0.31
Cement mortar	5.00	0.2
Common brick	5.00	0.2
Face brick	9.00	0.11
Marble	14.3 – 20.00	0.07 – 0.05
Ceramic tile	12.5	0.008
Concrete	1.050	0.950
Mineral wool insulation	0.320	3.120
Limestone	6.5	0.153
Ceramic board (Fibremax)	0.450	2.2
Horizontal still air (1/8" thick)	0.135	0.920**

*Information as reported by manufacturers and other resources

** Horizontal still air can't be «stack» to accumulate R-values; each layer must be separated with another non-combustible material.

Example:

Required floor protection R of 1.00. Proposed materials: four inches of brick and one inch of Durock® board.

Four inches of brick ($R = 4 \times 0,2 = 0,8$) plus 1 inch of Durock® ($R = 1 \times 0.52 = 0.52$).

$$0.8 + 0.52 = 1.32.$$

This R value is larger than the required 1.00 and is therefore acceptable.

In the case of a known K and thickness of alternative materials to be used in combination, convert all K values to R by dividing the thickness of each material by its K value. Add R values of the proposed materials as shown in the previous example.

Example:

K value = 0.75

Thickness = 1

R value = Thickness/K = $1/0.75 = 1.33$

9.3 Minimum Masonry Opening and Clearances to Combustibles

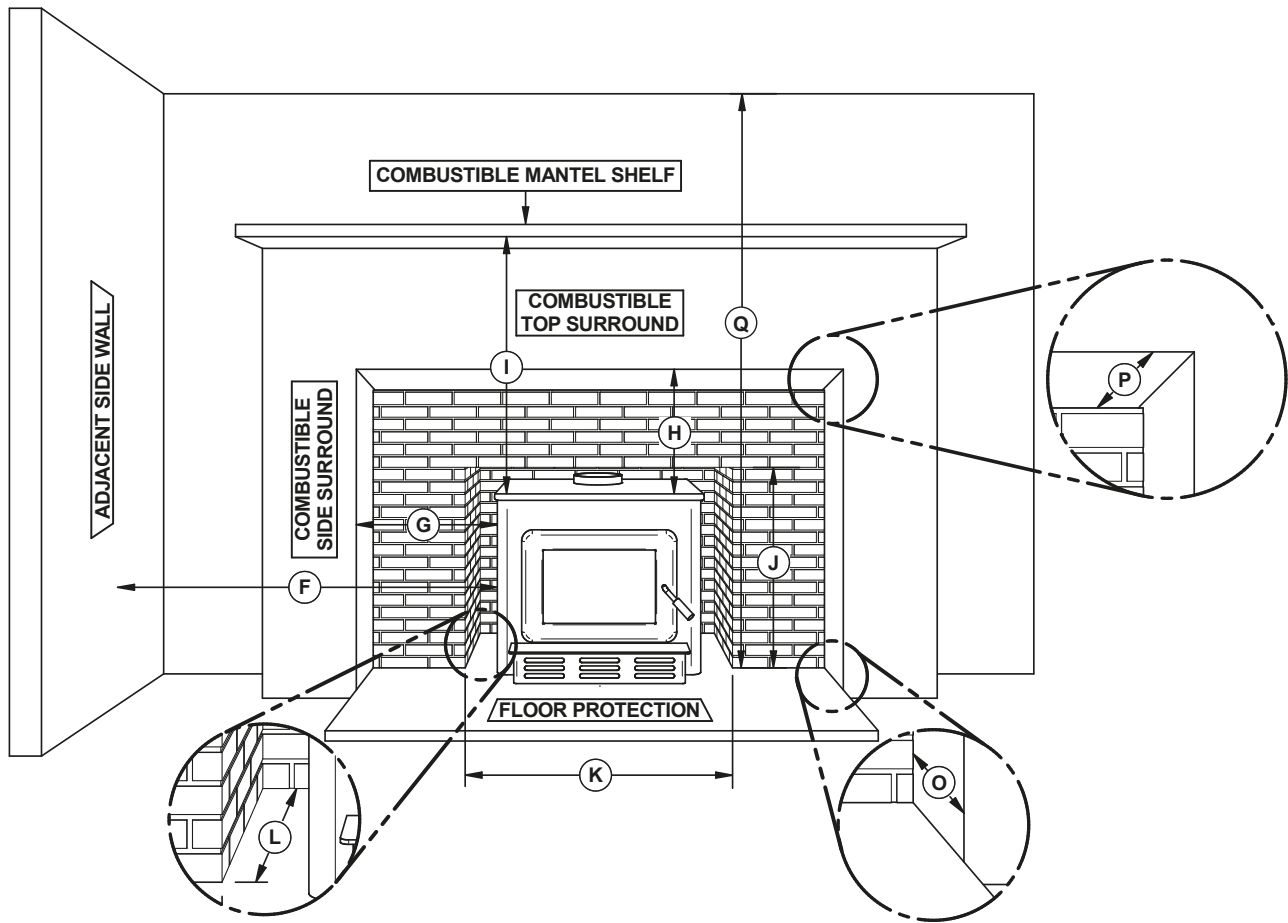


Figure 26: Masonry Opening and Clearances

	CLEARANCES
F	16" (406 mm)
G	9" (229 mm)
H	27" (686 mm)
I	27" (686 mm)
Q	84" (213 cm)

	MINIMUM MASONRY OPENING
J	24 5/8" (625 mm)
K	29" (737 mm)*
L	20 3/4" (528 mm)

	MAXIMUM THICKNESS
O	5" (127 mm)
P	12" (305 mm)

* If a fresh air intake is required, it is recommended to add at least 4" to the width of the minimum opening of the hearth.

10. The Venting System

10.1 General

The venting system, made of the chimney and the liner inside the chimney, acts as the engine that drives the wood heating system. Even the best insert will not function safely and efficiently as intended if it is not connected to a suitable chimney and liner system.

The heat in the flue gases that pass from the insert into the chimney is not waste heat. This heat is what the chimney uses to make the draft that draws in combustion air, keeps smoke inside the insert and safely vents exhaust to outside. The heat in the flue gas can be seen as the fuel the chimney uses to create draft.

10.2 Block-off Plate

To reduce the possibility of a cold air back draft from the masonry chimney into the room, the installation of a sheet metal block-off plate **(A)** is recommended. When fabricating the block-off plate, cut the pipe hole slightly larger than the liner diameter and pass the liner through the hole. Install the block-off plate and secure it with masonry nails. Seal the joints between the plate and the chimney with high temperature silicone and use stove cement to seal between the pipe and the plate.

In Canada, the CSA B365 Standard permits «Roxul» type wool to be stuffed around the liner as it passes through the throat area as an alternative to a sheet metal block-off plate. However, this method is less efficient than using a plate.

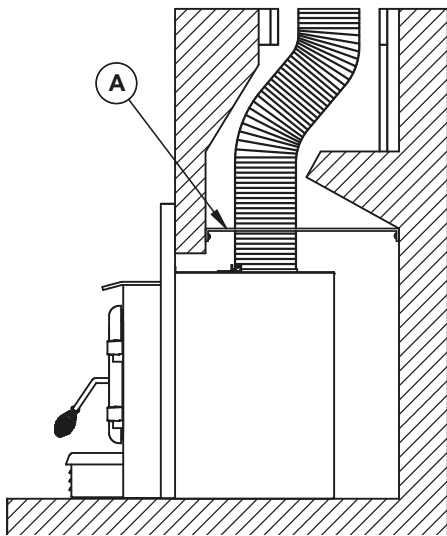


Figure 27: Block-off Plate



Figure 28: Block-off Plate

10.3 Suitable Chimneys

This wood insert will provide optimum efficiency and performance when connected to a 6" diameter chimney liner. The connection to a chimney having a diameter of at least 5" (Canada only) is permitted if it allows the proper venting of combustion gases and that such application is verified and authorized by a qualified installer. Otherwise, the diameter of the flue should be 6". The reduction of the liner diameter to less than 6" should only be done if the total height of the masonry chimney is greater than 20 feet.

10.4 Chimney Liner Installation

The use of a chimney liner (rigid or flexible) is recommended to ensure the best performance. To ensure an optimal draft, it is also strongly recommend adding a minimum of 12" rigid liner between the top of the masonry chimney and the rain cap. In all cases, liners should be installed in accordance with the liner manufacturer's instructions, including instructions for extension above the masonry.

Use chimney liners listed UL 1777, ULC S635 or CAN/ULC S640.

In order to connect the insert to the liner, refer to section [«10.5 Chimney Liner Installation»](#).

ATTENTION INSTALLER:

When positioning the unit in a fireplace opening, prior to the flue installation, install the insert into the opening until the top lip of air jacket is flush with fireplace facing.

If lag bolts or anchors are to be used to secure the insert, the hole location should be marked with the unit in place. Remove the insert and locate the anchors.

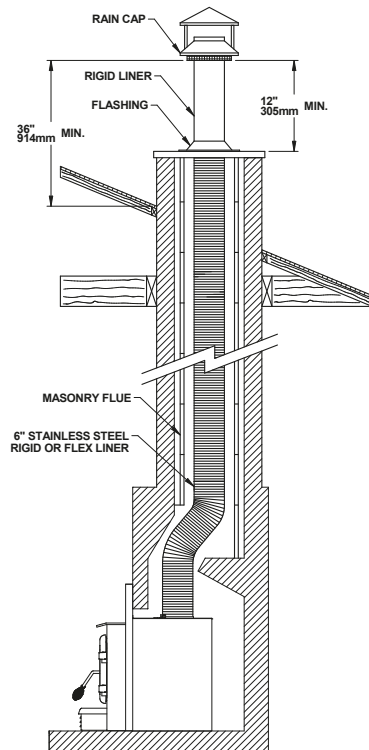


Figure 29: Liner Installation

10.5 Liner Connection

Two options are possible to connect the liner to the insert:

10.5.1 Liner Starter Adaptor

Install the chimney liner starter adaptor, provided with the chimney liner. Follow the chimney liner starter adaptor manufacturer's instructions.

In order to connect the chimney liner starter adaptor to the flue outlet, install three brackets with the three screws, all provided in the user manual, on top of the insert. The long end of the brackets must be attached to the insert. Insert the chimney liner into the flue collar of the unit and secure the liner to the brackets with three self-tapping screws (not included).

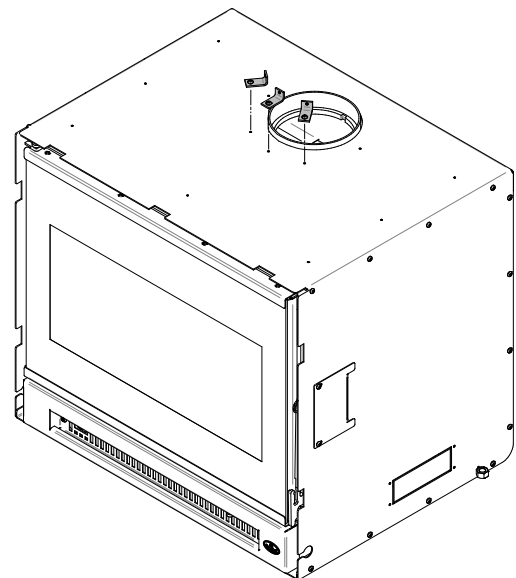


Figure 30: Securing the brackets

The dealer may offer a liner fastening system, sold separately. Follow the installation instructions provided with the liner fastening system.

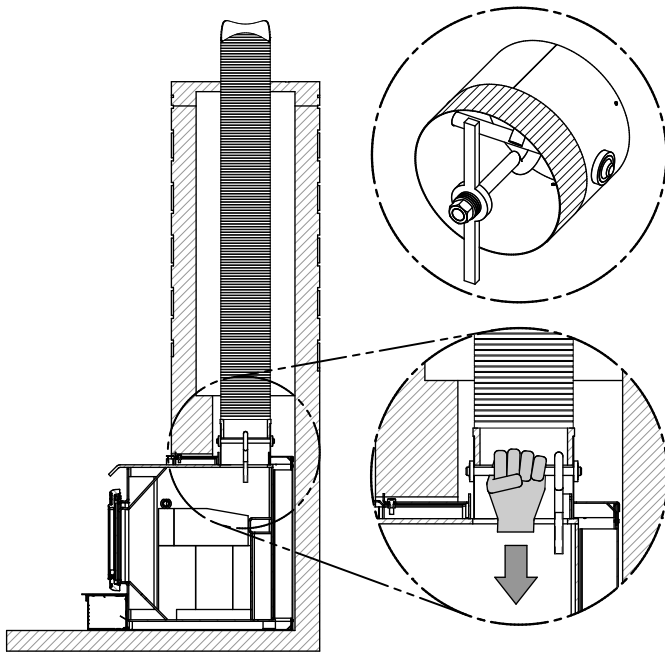


Figure 31: Liner fastening system

10.5.2 Liner Offset Adaptor

A liner offset adaptor, sold separately, can also be installed. This should only be installed if no other option is possible and if the total height of the fireplace and chimney is at least 20 feet. This kind of adaptor is restricting the free flow of exhaust gases and may result in smoke roll-out from the insert when the door is open for reloading. When installing a liner offset adaptor, secure the three brackets provided in the user manual on top of the insert. The long end of the brackets must be attached to the insert. Then, follow the instructions in the manual provided with the liner offset adaptor kit.

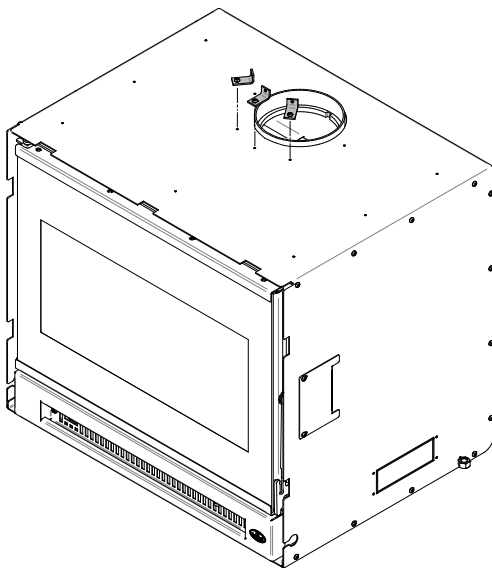


Figure 32: Securing the brackets

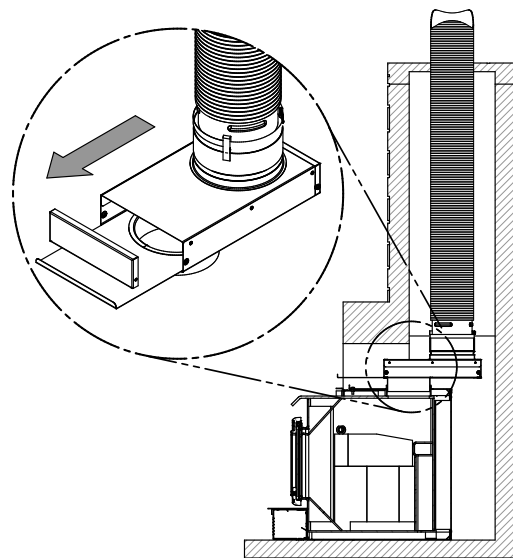
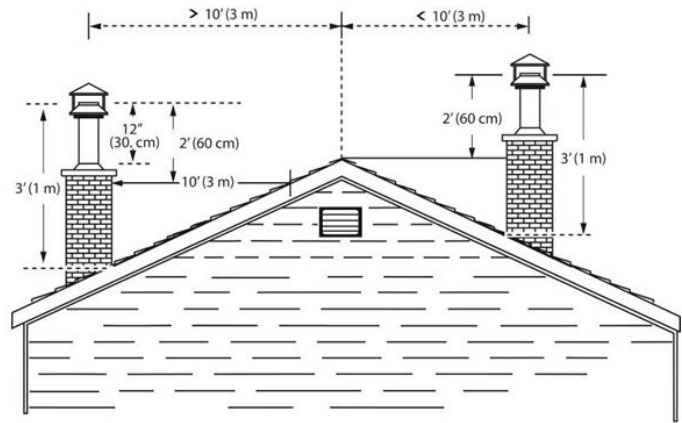


Figure 33: Offset liner adaptor

10.6 Minimum Chimney Height

The top of the chimney should be tall enough to be above the air turbulence caused when wind blows against the house and its roof. The chimney must extend at least 1 m (3 ft.) above the highest point of contact with the roof, and at least 60 cm (2 ft.) higher than any roof line or obstacle within a horizontal distance of 3 m (10 ft.).



10.7 Chimney Location

Because the venting system is the engine that drives the wood heating system, it must have the right characteristics. The signs of bad system design are cold back drafting when there is no fire in the insert, slow kindling of new fires, and smoke roll-out when the door is open for loading.

When it is cold outside, the warm air in the house is buoyant so it tends to rise. This creates a slight pressure difference in the house. Called 'stack effect', it produces a slightly negative pressure in the lower part of the house (compared to the outside) and a slightly positive pressure zone in the high part of the house. If there is no fire burning in a heater connected to a chimney that is shorter than the warm space inside the house, the slight negative pressure in the lower part of the house will compete against the desired upward flow in the chimney. This occurs for the two following reasons:

First, the chimney runs up the outside of the house, so the air in it is colder and denser than the warm air in the house. And second, the chimney is shorter than the heated space of the house, meaning the negative pressure in the lower part of the house will draw cold air down the chimney, through the insert and into the room. Even the finest insert will not work well when connected to this chimney.

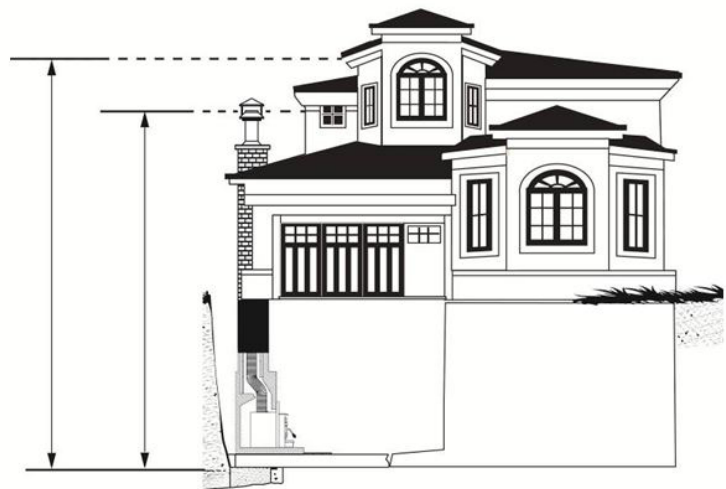


Figure 34: Chimney location in the house

10.8 Supply of Combustion Air

In Canada, wood inserts are not required to have a combustion air supply from outside. Research has shown that outside air supply do not compensate for the depressurization of the house and may not be sufficient to provide a supply of combustion air in windy weather. However, to reduce the risks against smoke spillage due to house depressurization, a carbon monoxide (CO) detector is required in the room where the insert is installed. The CO detector will provide warning if for any reason the wood insert fails to function correctly.

The safest and most reliable supply of combustion air for a wood insert is from the room in which it is installed. Room air is already preheated so it will not chill the fire, and its availability is not affected by wind pressures on the house. Contrary to commonly expressed concerns, almost all tightly sealed new houses have enough natural leakage to provide a small amount of air needed by the insert. The only case in which the wood insert may not have adequate access to combustion air is if the operation of a powerful exhaust device (such as a kitchen range exhaust) causes the pressure in the house to become negative relative to outdoors.

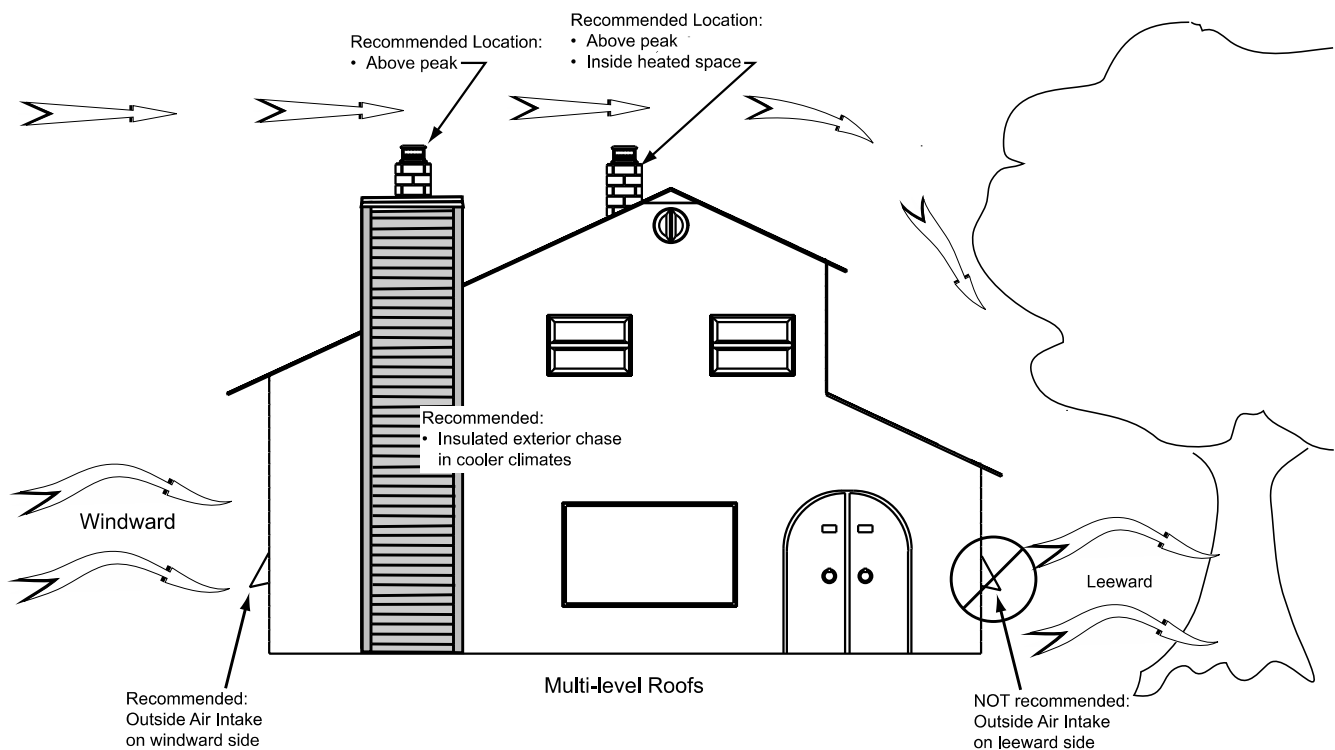


Figure 35: Air supply in conventional houses

If an air intake is installed through the wall of the house, its pressure can vary during windy weather. If there are changes in wood insert performance in windy weather, and in particular if smoke puffs from the insert, the air duct should be disconnected from the insert to determine if it is the cause of the problem. In some windy conditions, negative pressure at the duct weather hood outside the house wall may draw hot exhaust gases from the insert backwards through the duct to outdoors. Check the outdoor air duct for soot deposits when the full system is cleaned and inspected at least once each year.

APPENDIX 1. FACEPLATE INSTALLATION

Three faceplates are available with this wood insert. For more details about the installation, refer to the faceplate installation instructions.

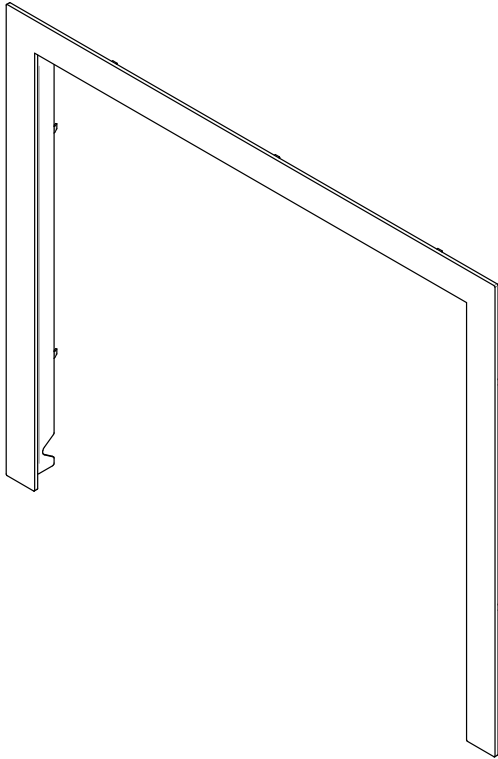


Figure 36: U shaped narrow faceplate

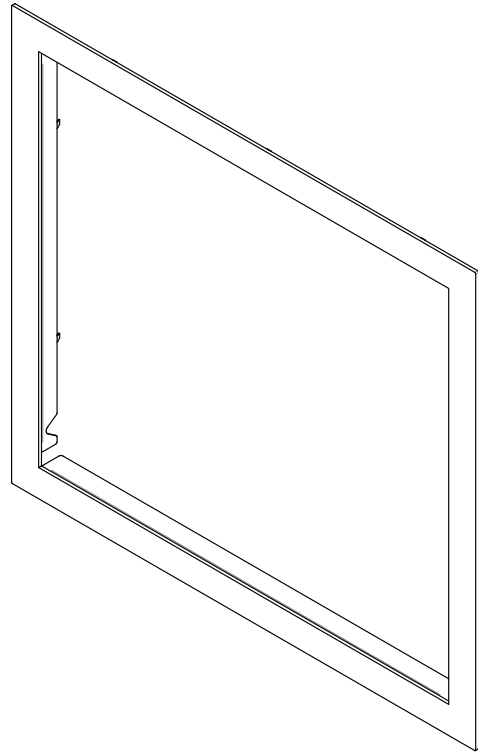


Figure 37: Narrow faceplate

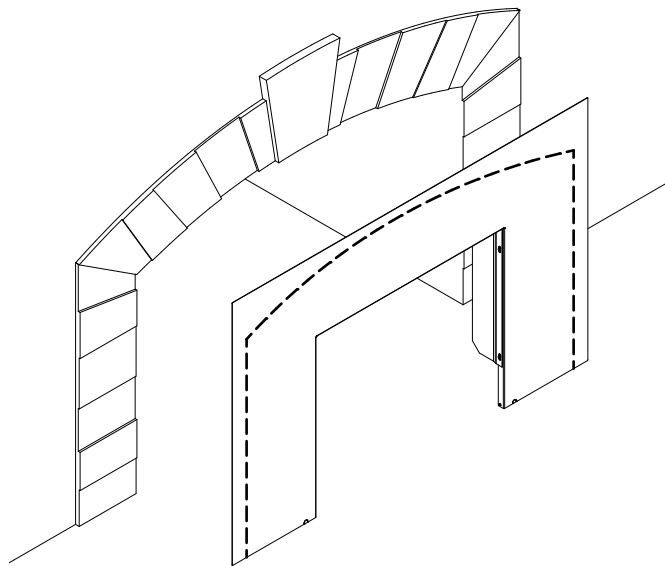
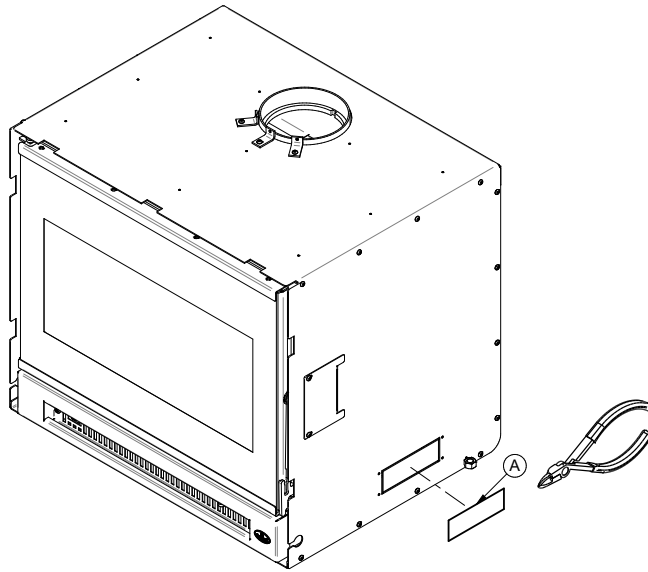


Figure 38: Cuttable faceplate

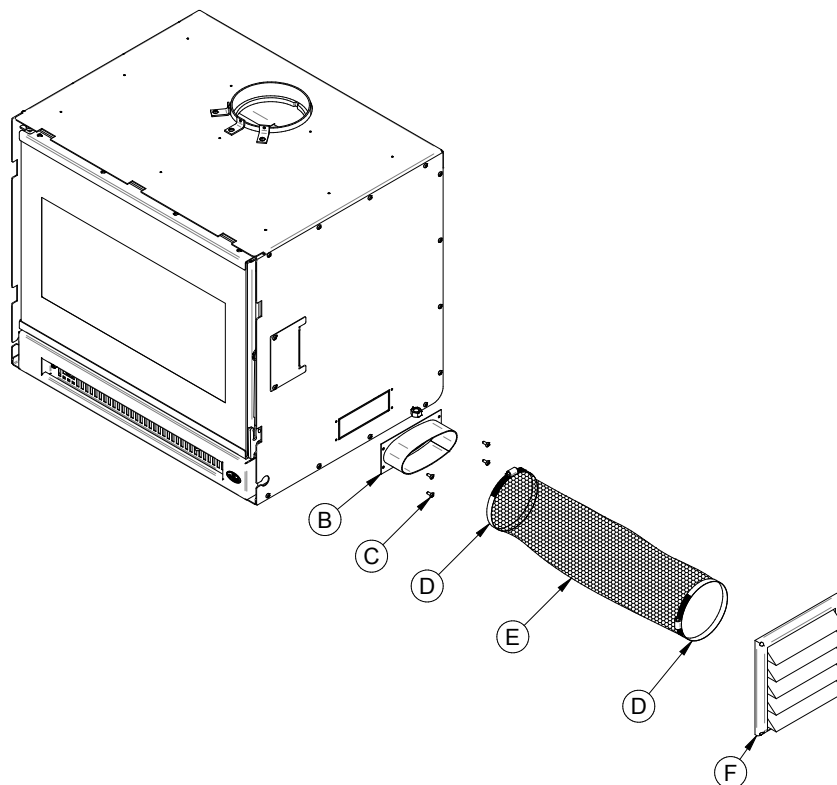
APPENDIX 2. OPTIONAL FRESH AIR INTAKE KIT INSTALLATION

Only remove the knock-out that will be connected to the fresh air inlet.

Using pliers, remove the rectangular knockout plate **(A)** located on the left or right side of the convection air jacket. Choose the side that is best for the installation.



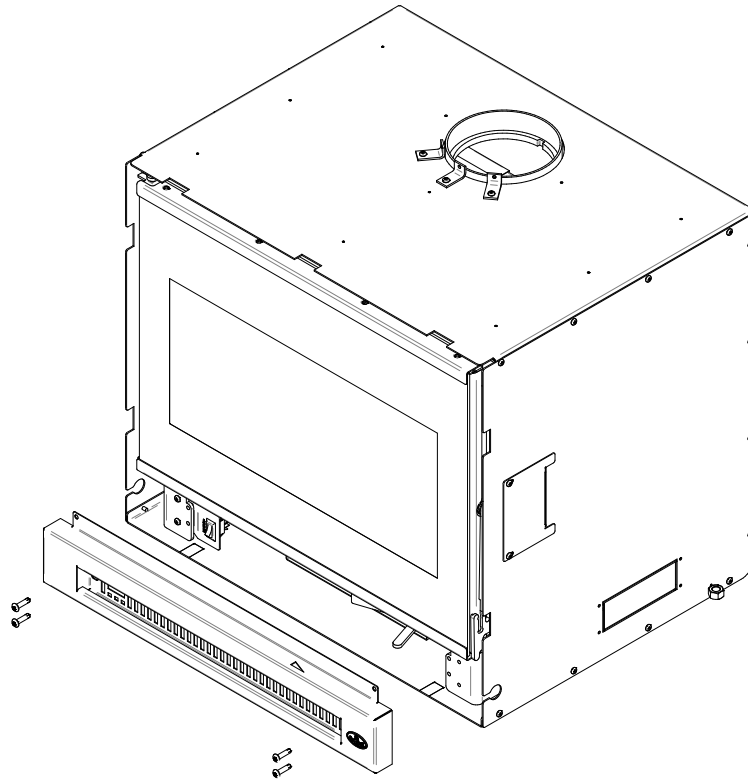
Install the fresh air kit adapter **(B)** using 4 screws **(C)**. Secure the flexible pipe¹ **(E)** to the adapter **(B)** using one of the adjustable pipe clamps **(D)**. Secure the other end of the pipe to the outside wall termination **(F)** using the second adjustable pipe clamp **(D)**. The outside wall termination **(F)** must be installed outside of the building.



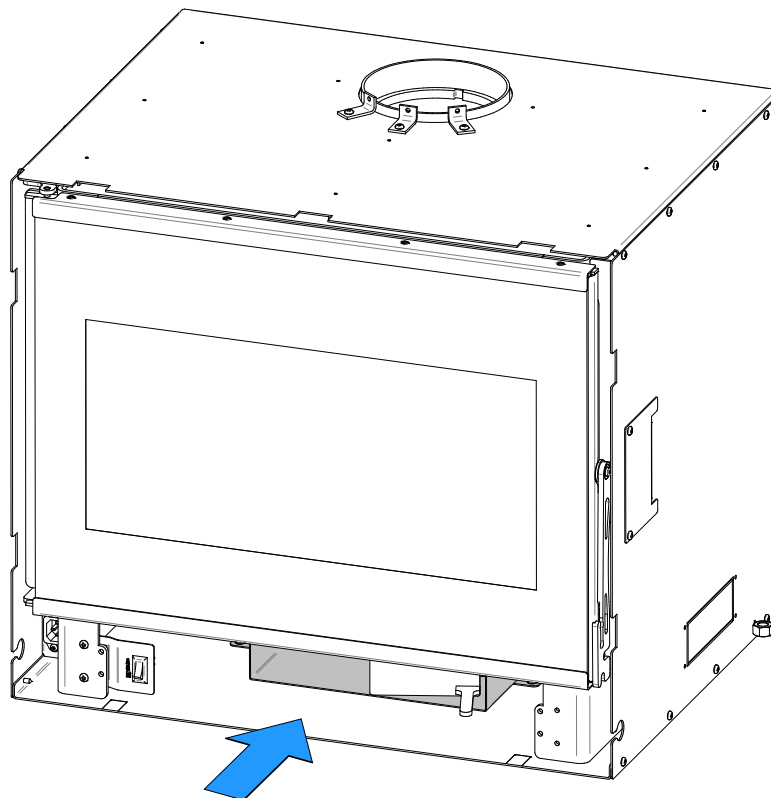
¹ The pipe must be HVAC type, insulated, and must comply with ULC S110 and/or UL 181, Class 0 or Class 1.

APPENDIX 3. BLOWER REPLACEMENT

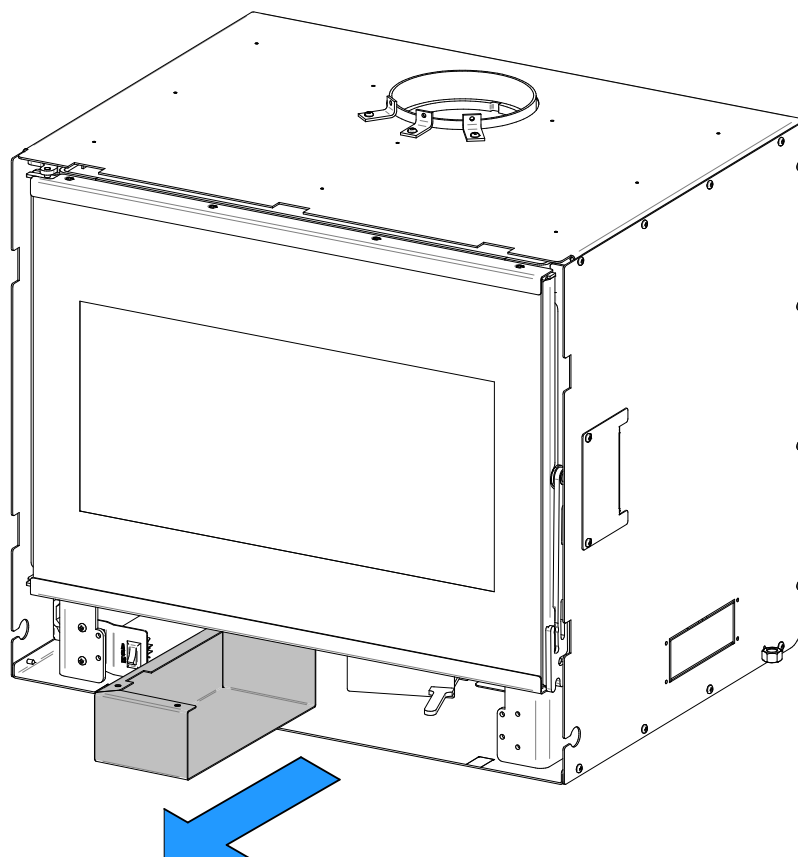
1. Unplug the blower and remove all electrical sources on the wood insert.
2. Remove the bottom faceplate by removing the four screws holding it in place.



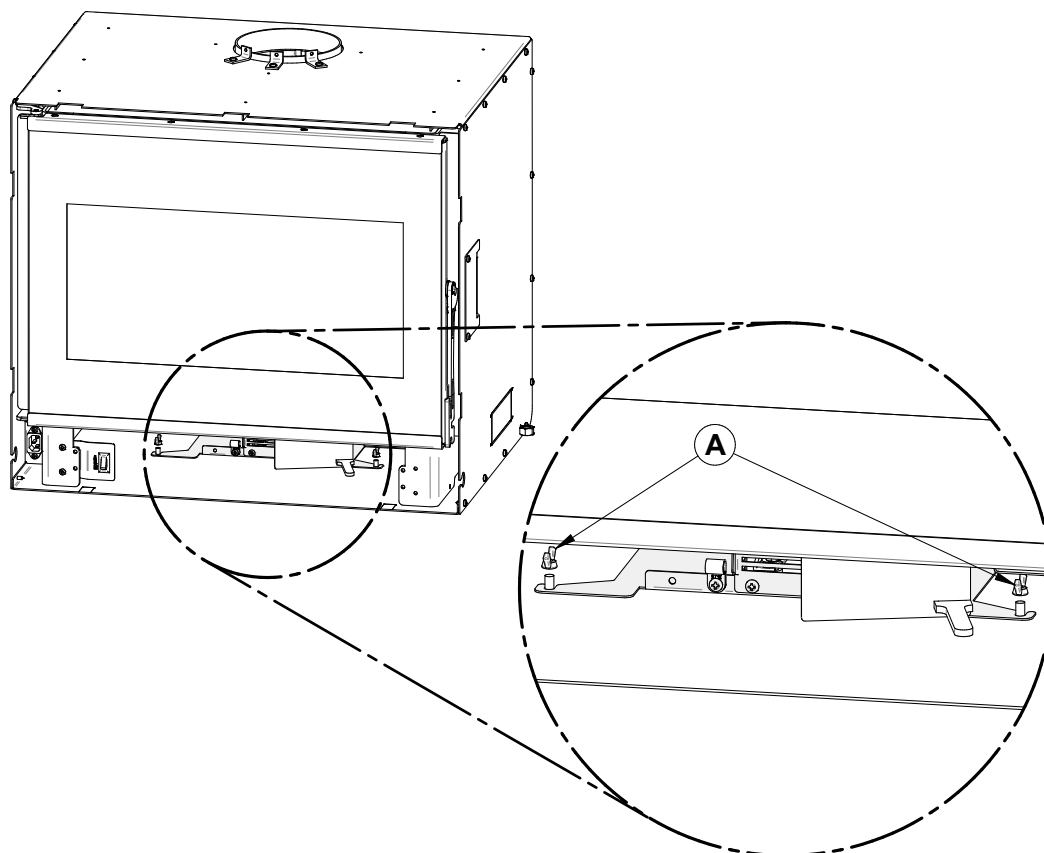
3. Locate the cover under the wood insert.



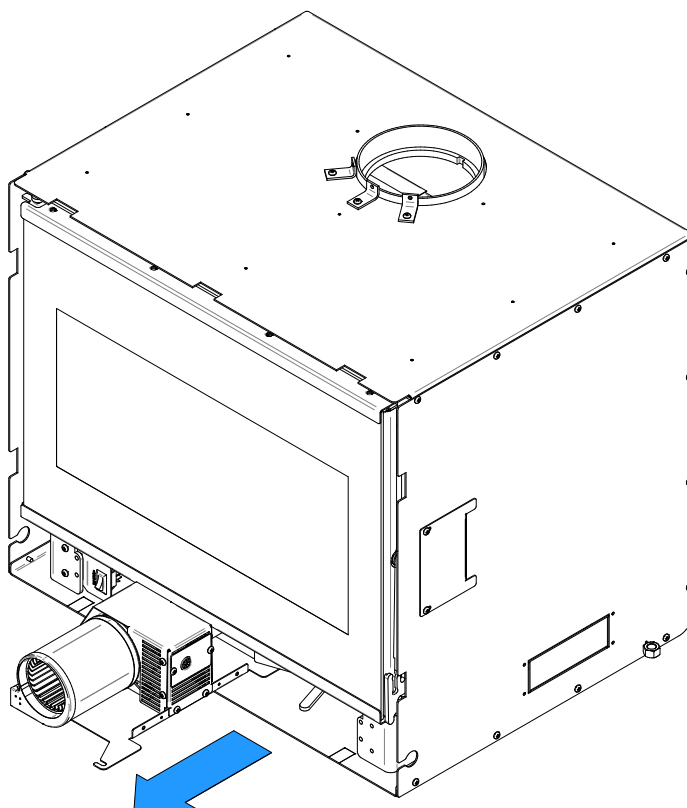
4. Push and rotate counterclockwise to remove the cover.



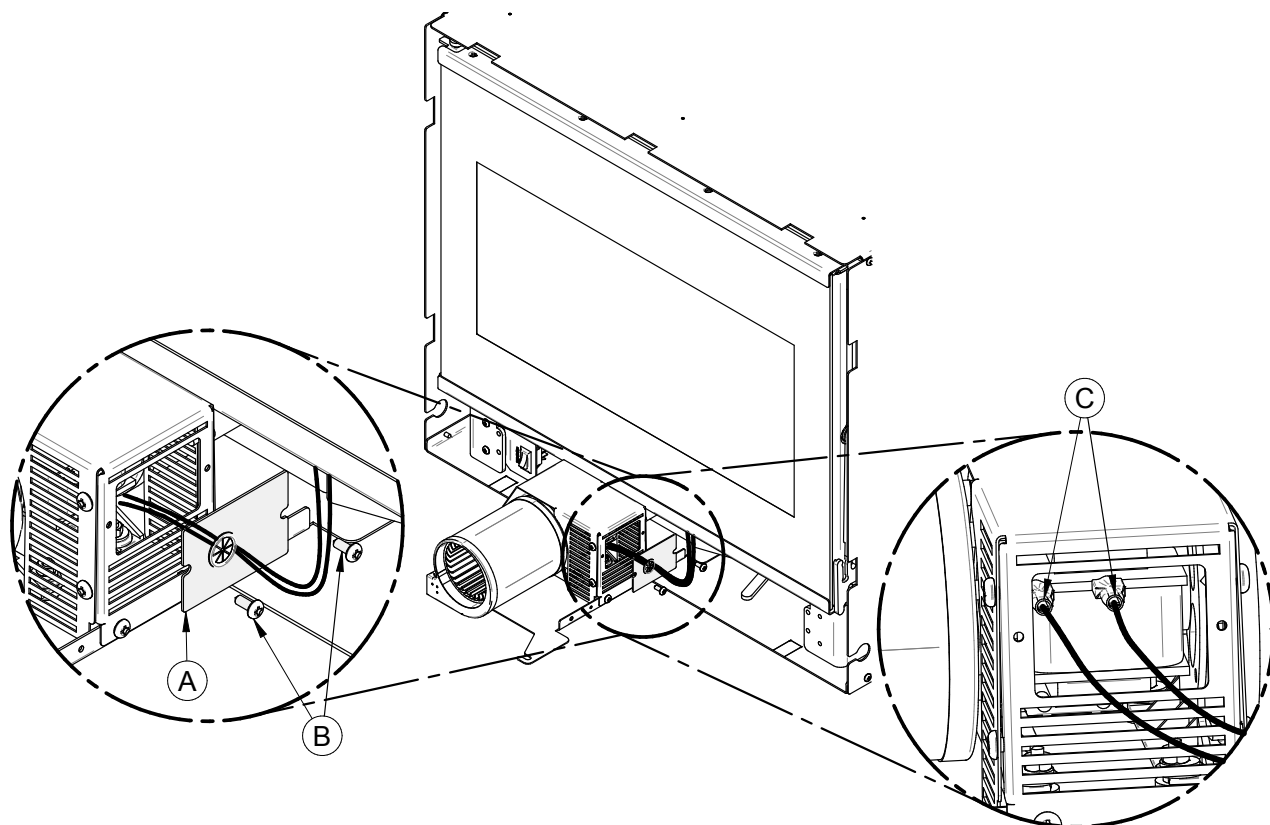
5. Remove both wing nuts **(A)** holding the blower mounting plate.

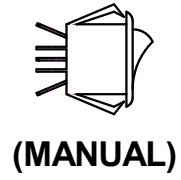
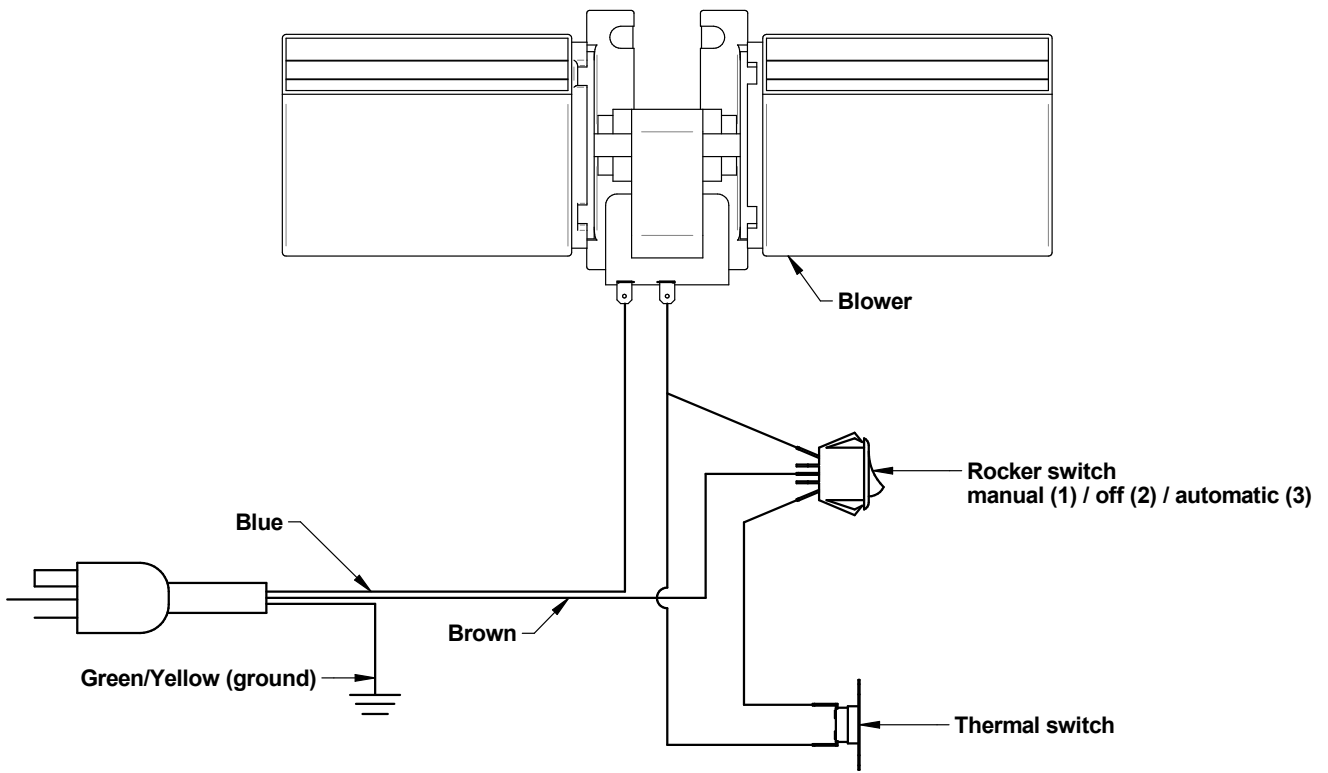


6. Rotate the blower counterclockwise and gently pull on the blower.



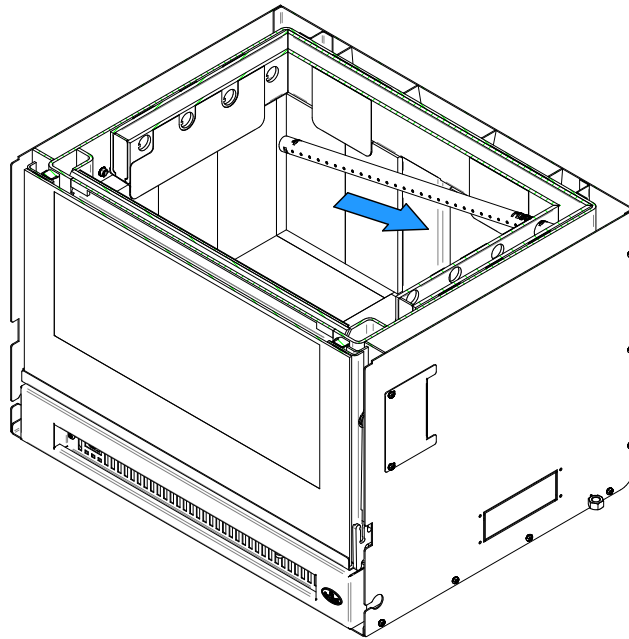
7. Remove both screws **(B)** and gently pull on the plate **(A)**. Unplug the blower wires **(C)**. Once the blower is unplugged, pull gently for removal.



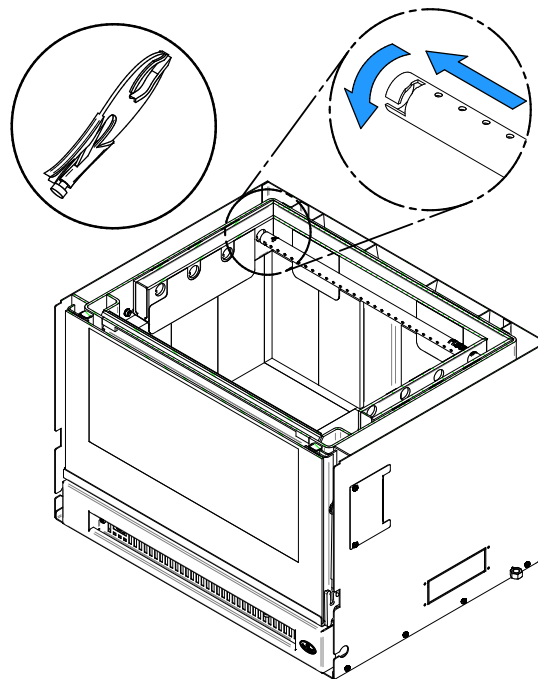


APPENDIX 4. AIR TUBES AND BAFFLE INSTALLATION

1. Starting with the rear tube, lean and insert the right end of the secondary air tube into the rear right channel hole. Then lift and insert the left end of the tube into the rear left channel.

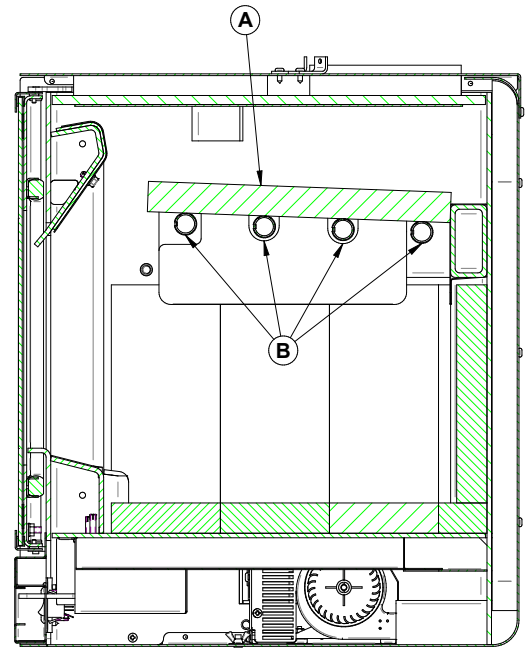
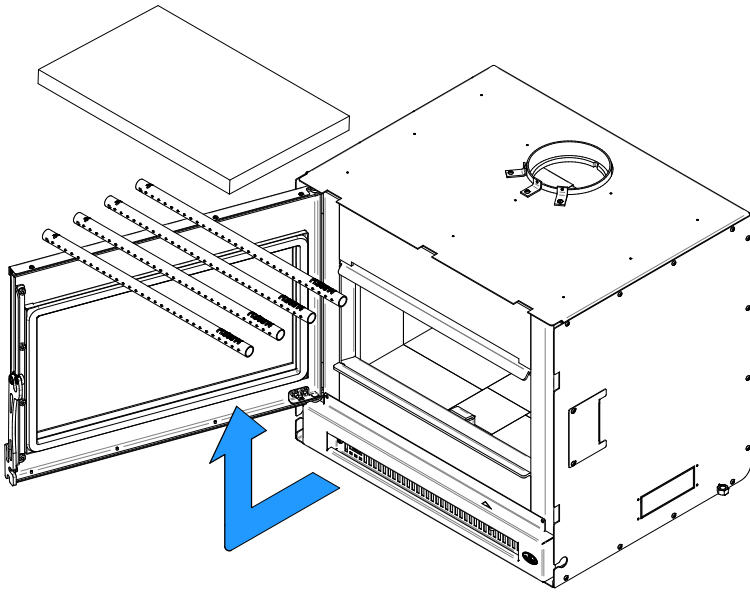


2. Align the notch in the left end of the tube with the key of the left air channel hole. Using a « Wise grip » hold the tube and lock it in place by turning the tube. Make sure the notch reaches the end of the key way.



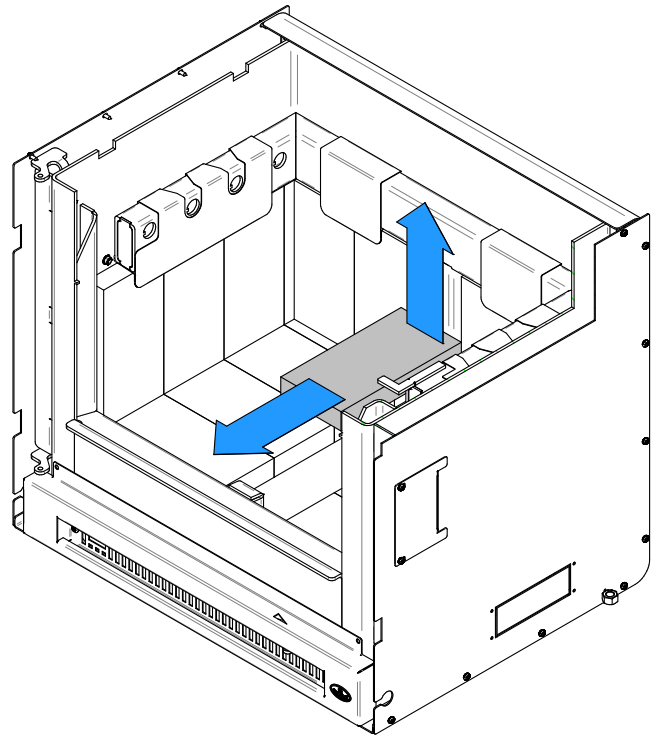
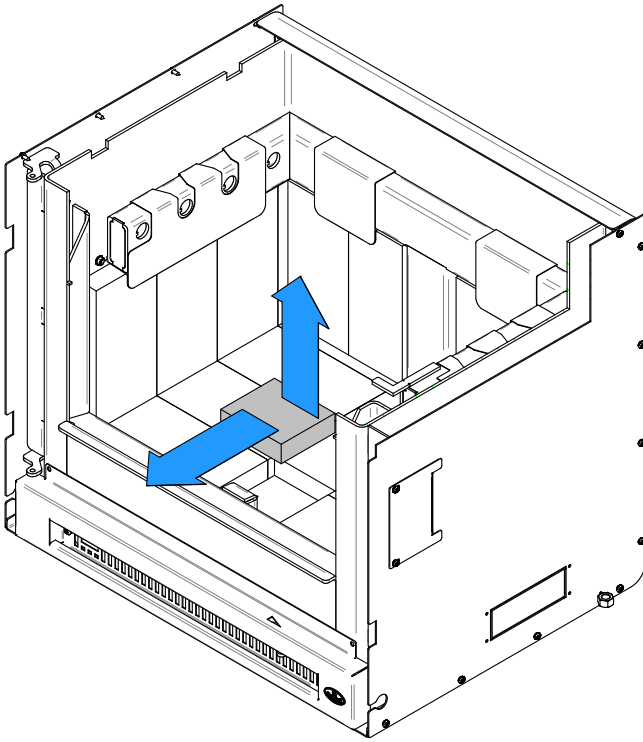
3. Repeat steps 1 and 2 for the two tubes in the back then *install the baffle before installing the two front tubes.*
4. To remove the tubes use the above steps in reverse order.

Note that secondary air tubes (B) can be replaced without removing the baffle board (A) and that all tubes are identical.

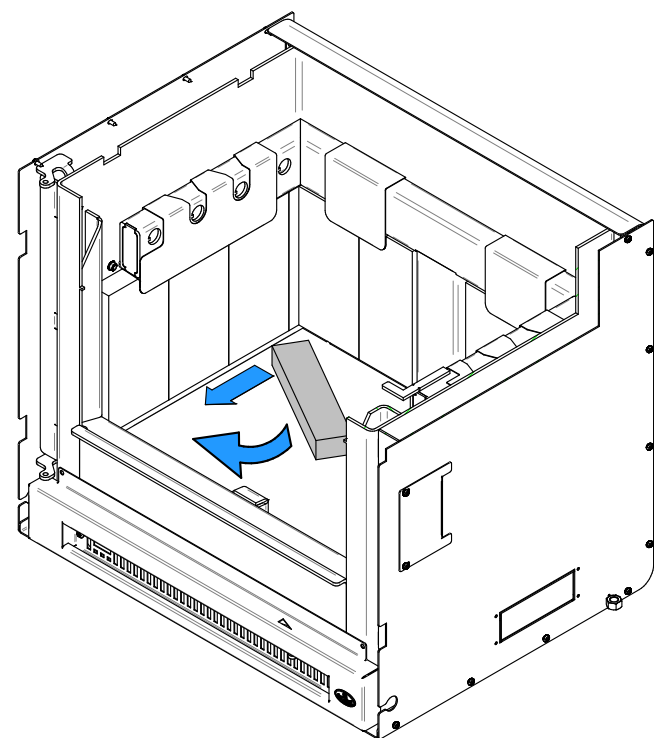
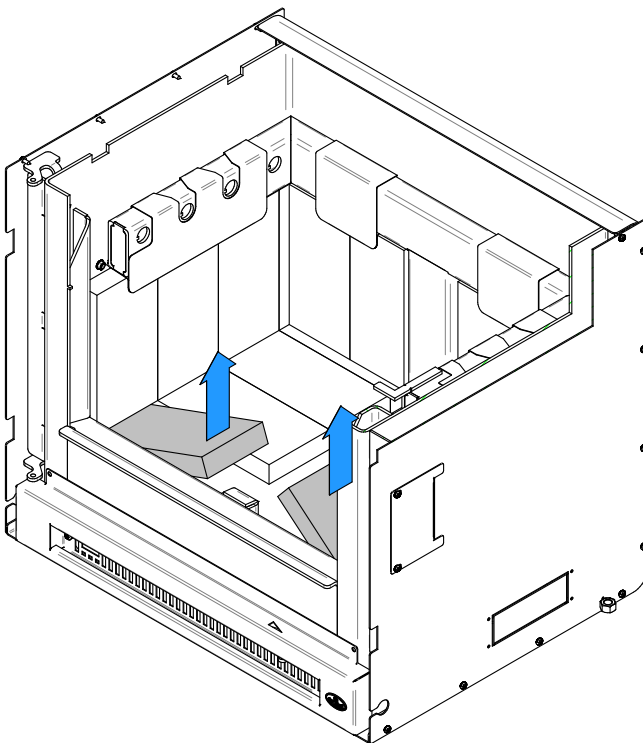


APPENDIX 5. OPTIONAL REFRACTORY PANELS INSTALLATION

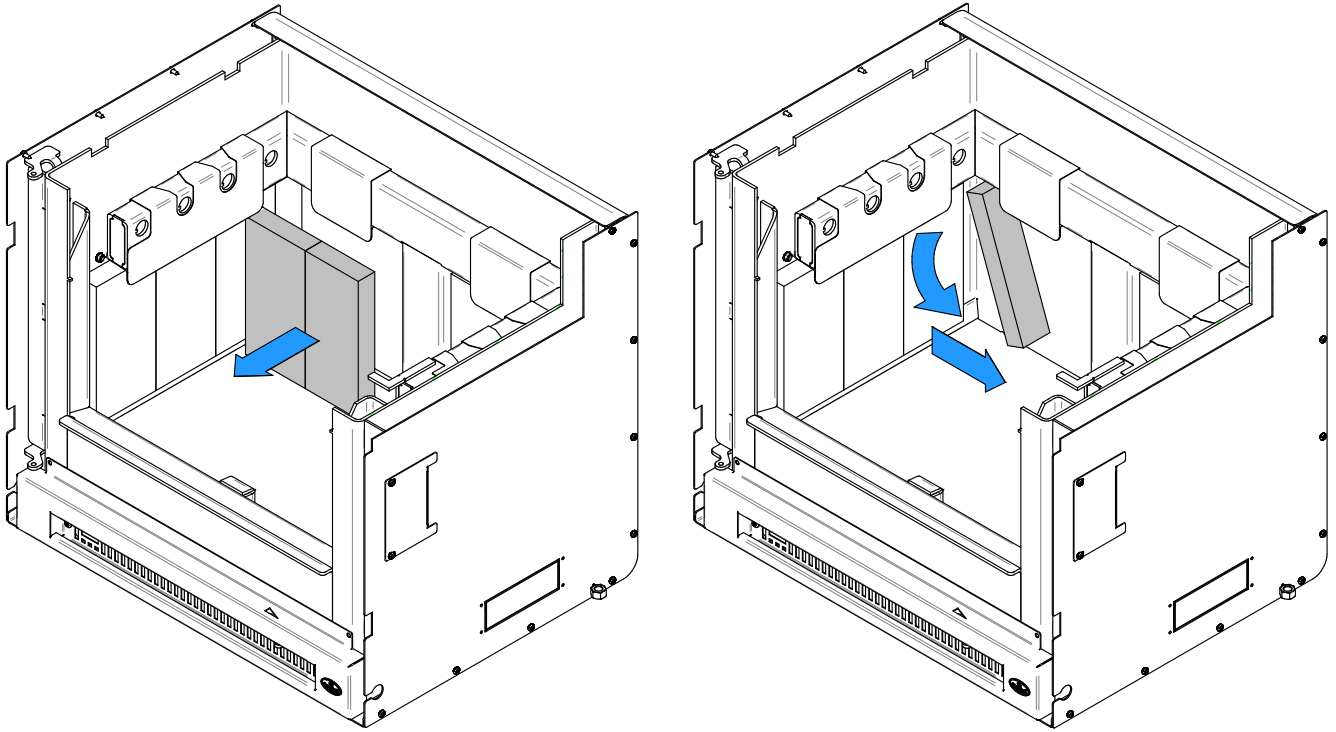
1. Remove the center floor bricks (2).



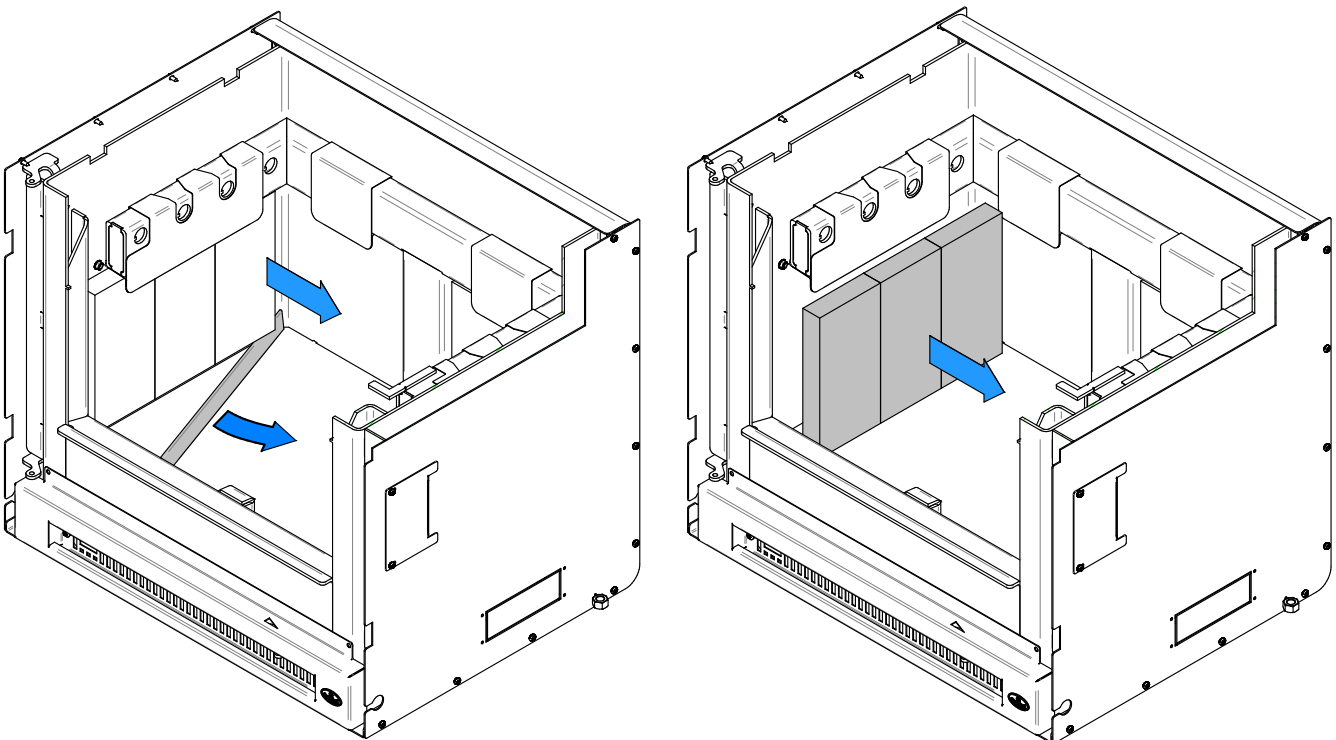
2. Remove the other floor bricks (6). Then, remove the back bottom bricks (2).



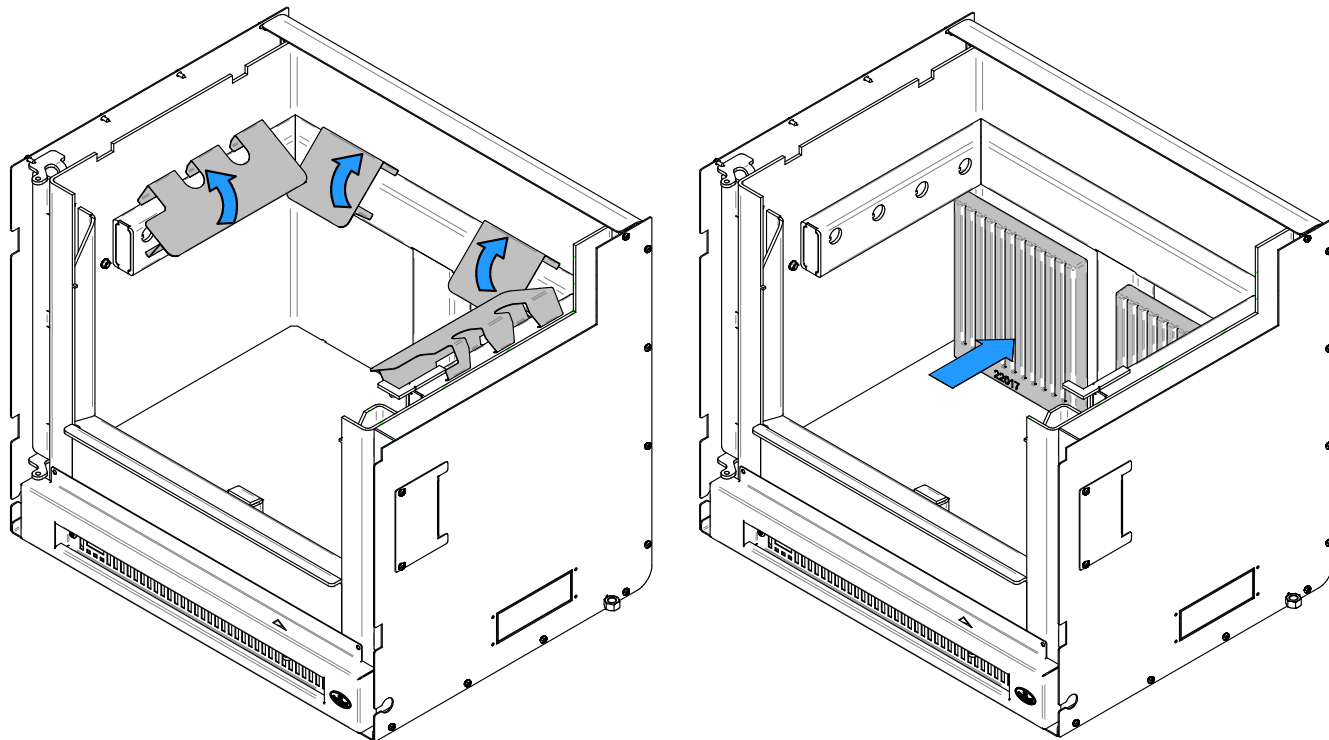
3. Remove the back bricks (4), then remove the back left brick (1).



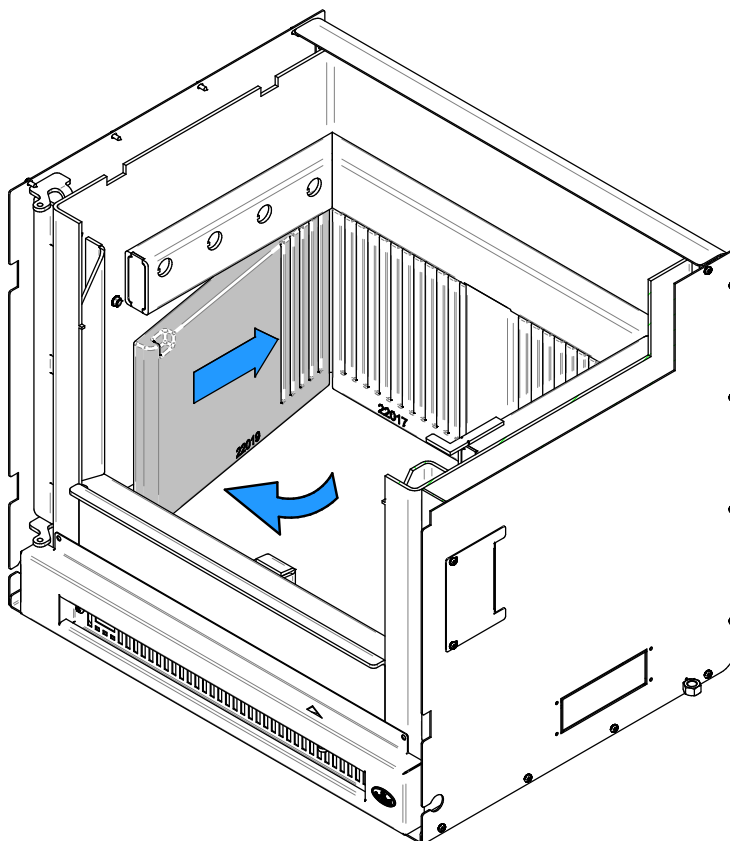
4. Remove the brick retainer (1) and the left bricks (3). Repeat on the right side.



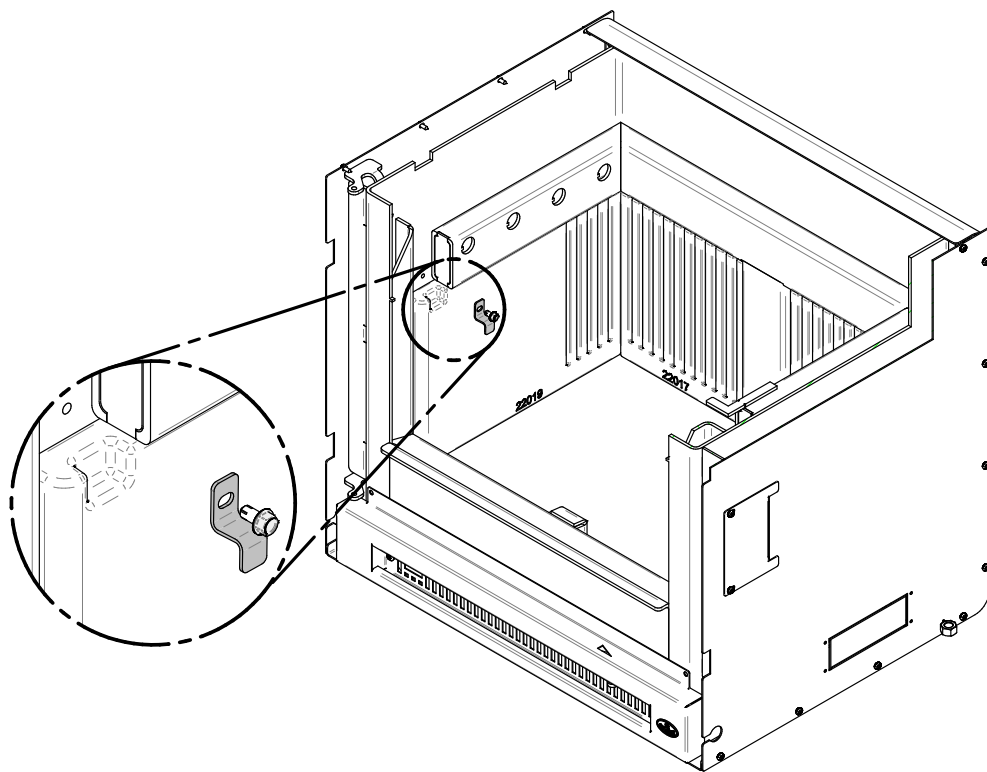
5. Remove the retainers (4) and install the back refractory bricks (2). The retainers cannot be reused after being removed so they can be disposed of.



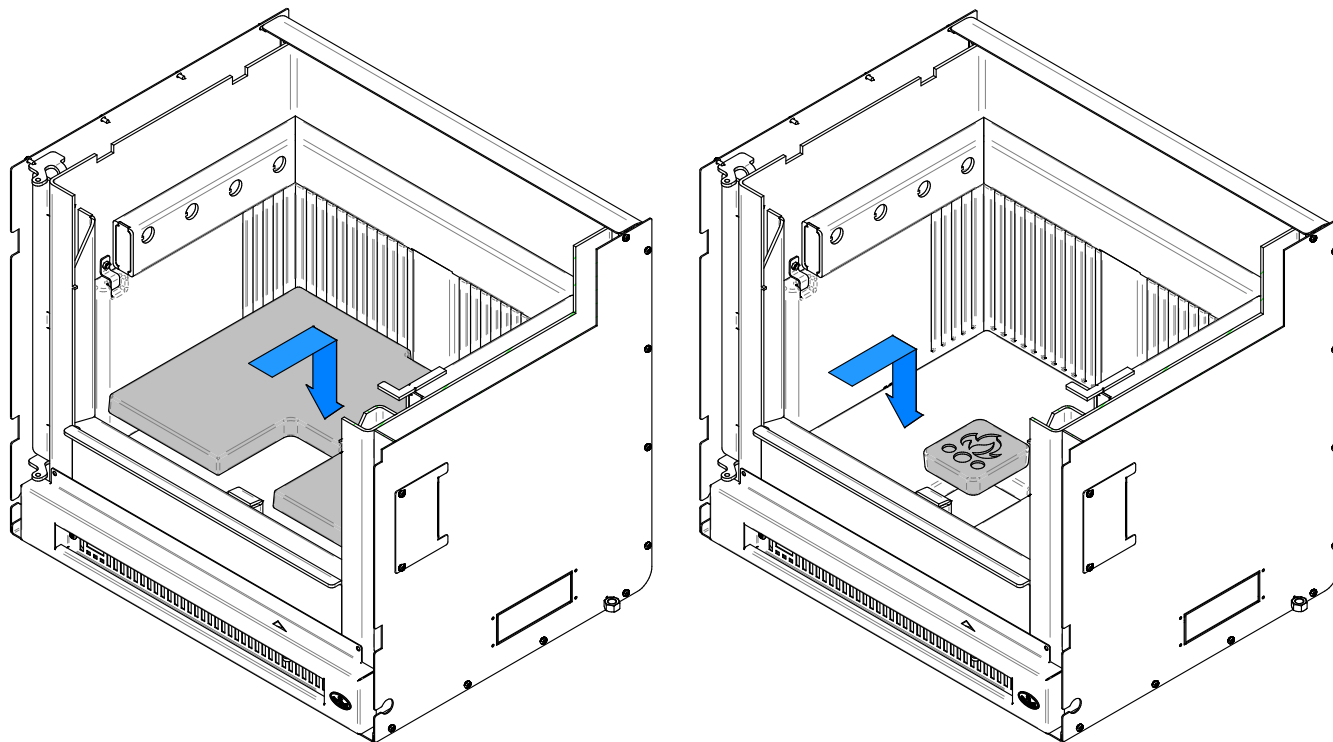
6. Install the sides (2) refractory slabs.



7. Install the refractory slab retainer (2) on both sides and screw them in place .



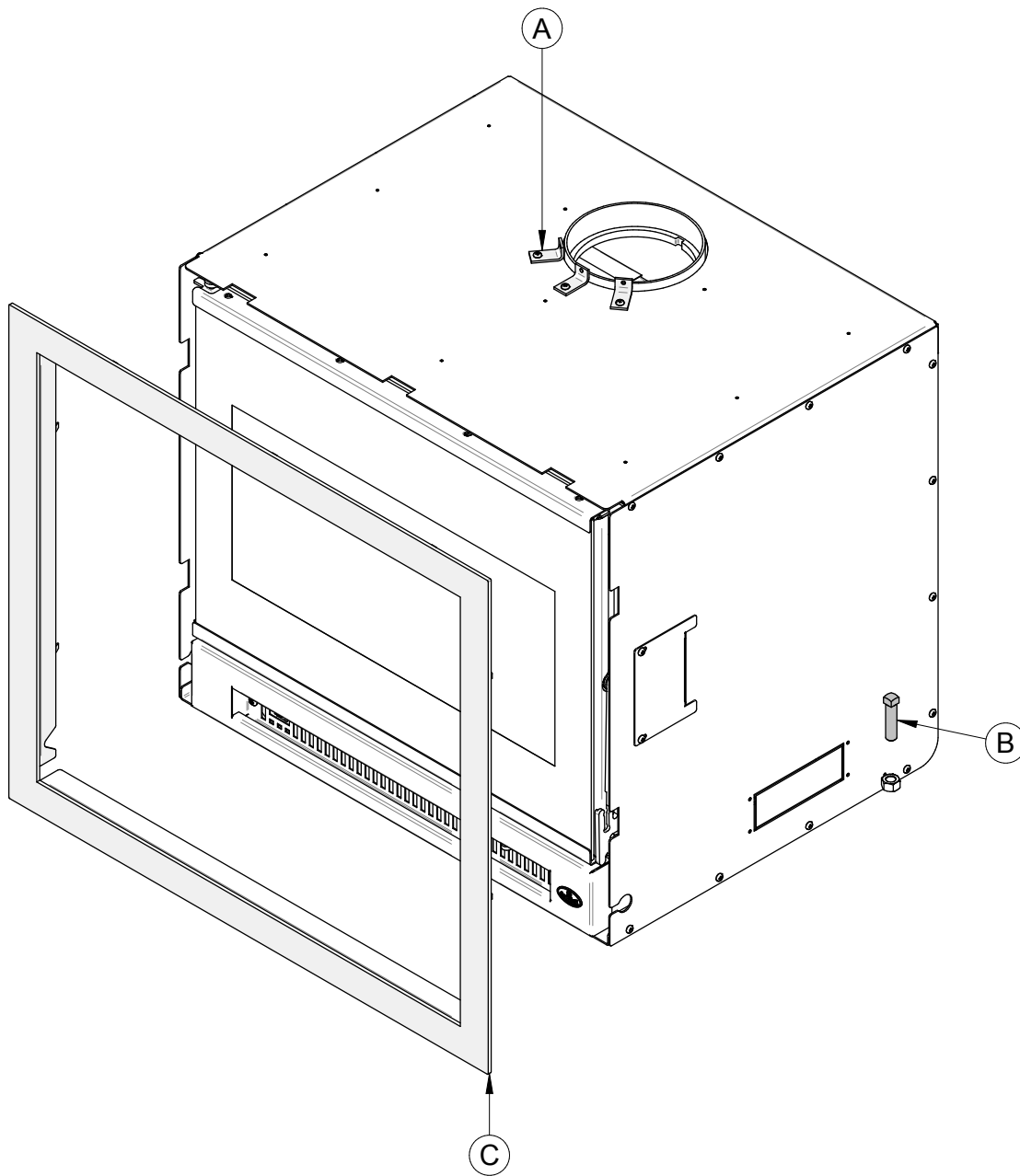
8. Install the floor refractory slabs.



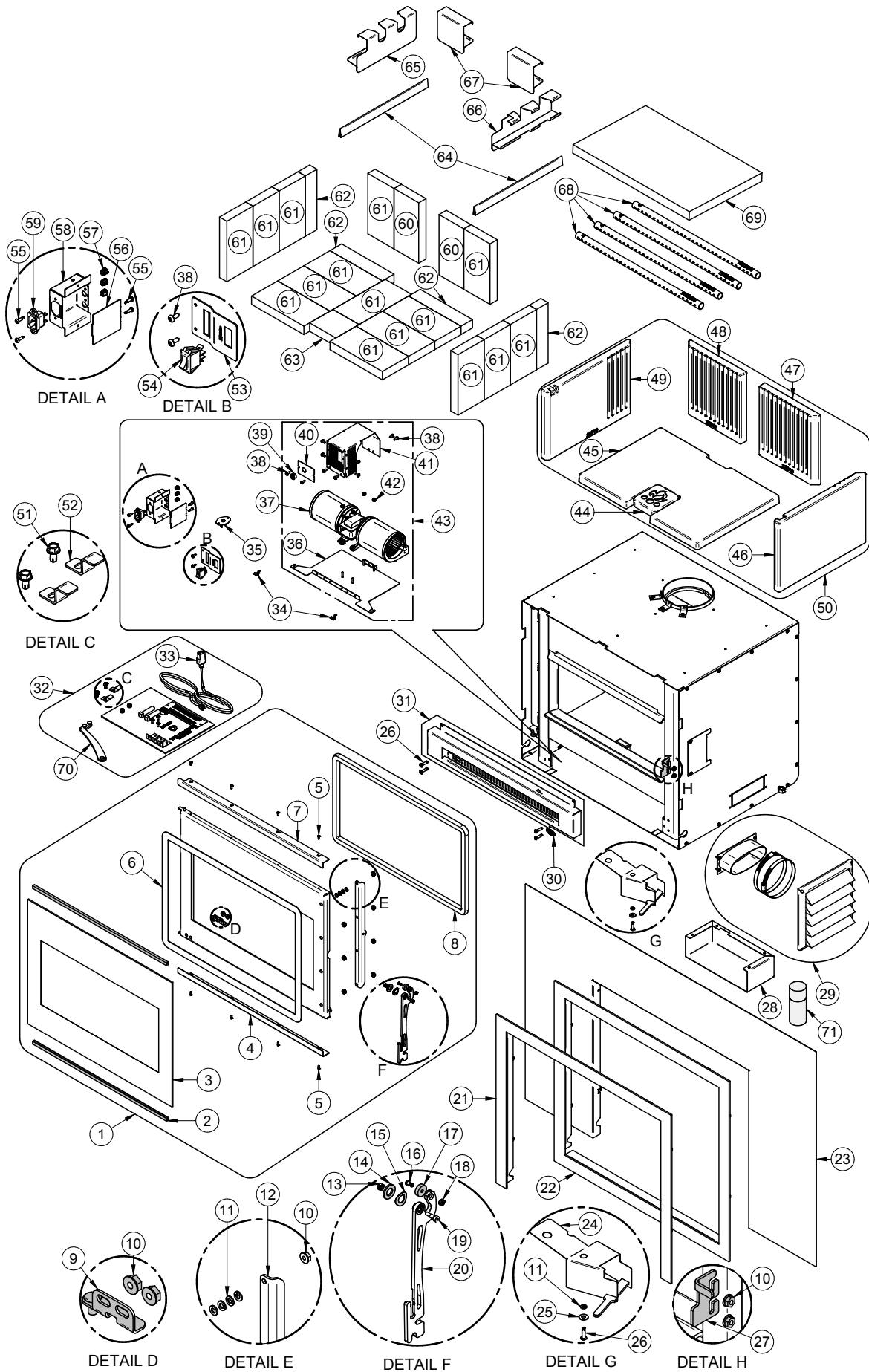
APPENDIX 6. REMOVAL INSTRUCTIONS

For inspecting purposes, the insert may need to be removed. To remove the insert, follow these instructions:

1. Remove the faceplate assembly **(C)** following the faceplate installation instructions.
2. Remove the screws that secure the flue liner to the fixation brackets **(A)**.
3. Unscrew the levelling bolts **(B)** located on each side of the wood insert.
4. Pull-out the wood insert from the fireplace opening to perform the maintenance work.



APPENDIX 7. EXPLODED DIAGRAM AND PARTS LIST



IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for this unit, please provide the model number and the serial number. We reserve the right to change parts due to technology upgrades or availability. Contact an authorized dealer to obtain any of these parts. Never use substitute materials. Use of non-approved parts can result in poor performance and safety hazards.

#	Item	Description	Qty
1	SE65891	Door Assembly	1
2	AC06400	3/4" (Flat) X 6' Black Self-Adhesive Glass Gasket	1
3	23073	Glass - 24 13/16"W X 18 1/2"H	1
4	PL65893	Glass Retainer	1
5	30021	Self Tapping Screw 8-32 "F" Type X 7/16" Flat Head Phillips Black	8
6	AC06810	Self Adhesive Black Gasket Kit 1/8" X 3/8" X 6'	1
7	PL65892	Glass Retainer	1
8	AC06951	Silicone And 5/8" X 9' Black Gasket Kit	1
9	SE65896	Adjustable Hinge Assembly	1
10	30220	Flanged Locknut 1/4-20	5
11	30187	Stainless Washer Id 17/64" X OD 1/2"	16
12	PL65895	Handle Support	1
13	30238	Two-Way Locknut Hex #10-24 Zinc	1
14	30200	Washer Id=13 Mm X Od=24 Mm Zinc	1
15	30801	Black Oxide Spring Washer	1
16	31012	Hex Socket Shoulder Hex Screw #8-32 3/16" X 1/4"	1
17	31011	Ball Bearing	1
18	30007	Hex Lock Nut #8-32	1
19	30754	Hex Socket Shoulder Hex Screw #10-24 X 3/8"	1
20	PL65897	Door Handle	1
21	AC01020	Narrow Faceplate (U Shape)	1
22	AC01022	Narrow Faceplate	1
23	AC01021	32" X 50" Cuttable Faceplate (16 Ga)	1
24	SE65962	Air Control Damper Assembly	1
25	30206	Zinc Washer 5/16"ID X 3/4"OD	1
26	30506	Screw Pan Torx Type F 1/4-20 X 1" Black	5
27	PL65853	Door Locking Plate	1
28	PL65938	Air Intake Casing	1
29	AC01298	5"Ø Fresh Air Intake Kit Oval	1
30	30977	Osburn Sticker	1
31	SE65915	Bottom Faceplate Assembly	1
32	SE45952	Inspire Insert Instruction Manual Kit	1
33	60331	Power Cord 6'	1
34	30484	Wing Nut 1/4-20	2
35	44028	Ceramic Thermodisc F110-20F	1

#	Item	Description	Qty
36	PL65913	Blower Mounting Plate	1
37	44207	Double Cage Blower 176 Cfm (Class H)	1
38	30131	Black Metal Screw #10 X 1/2" Type "A" Pan Quadrex	2
39	30413	Snap Bushing	1
40	PL65851	Access Panel	1
41	PL65914	Blower Hood	1
42	30221	Lock Nut Hex #8-32 Nylon	2
43	SE65914	Blower Assembly	1
44	22022	Moulded Logo/Plug Stone	1
45	22021	Moulded Bottom Stone	1
46	22020	Moulded Right Stone	1
47	22018	Moulded Right Back Stone	1
48	22017	Moulded Left Back Stone	1
49	22019	Moulded Left Stone	1
50	AC01237	Moulded Refractory Panel Kit For Minimalist Base And Insert	1
51	30060	Thread-Cutting Screw 1/4-20 X 1/2" F Hex Steel Slot Washer C102 Zinc	2
52	PL65937	Stone Retainer	2
53	PL65852	Rocker Switch Bracket	1
54	44092	3 Position Rocker Switch	1
55	30155	Metal Screw #8 X 5/8" Phillips Selftapping Tek Zinc	4
56	PL65909	Junction Box Cover	1
57	30090	Black Nylon Open/Closed Bushing	3
58	PL65901	Junction Box	1
59	60196	Power Cord Receptacle	1
60	PL36636	Refractory Brick 4 1/4" X 9" X 1 1/4"	2
61	29020	4 1/2" X 9" X 1 1/4" Refractory Brick Hd	15
62	PL36056	2" X 9" 1 1/4" Refractory Brick	4
63	PL36084	4" X 4 1/2" X 1 1/4" Refractory Brick	1
64	PL30583	Floored Brick Retainer	2
65	PL65115	Left Brick Retainer	1
66	PL65116	Right Brick Retainer	1
67	PL65117	Rear Brick Retainer	2
68	PL65514	Secondary Air Tube	4
69	21389	C-Cast Baffle 20" X 12 1/2" X 1 1/4"	1

OSBURN LIMITED LIFETIME WARRANTY

The warranty of the manufacturer extends only to the original retail purchaser and is not transferable. This warranty covers brand new products only, which have not been altered, modified nor repaired since shipment from factory. Proof of purchase (dated bill of sale), model name and serial number must be supplied when making any warranty claim to your OSBURN dealer.

This warranty applies to normal residential use only. This warranty is void if the unit is used to burn material other than cordwood (for which the unit is not certified by EPA) and void if not operated according to the owner's manual. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation, power failures, downdrafts, venting problems or under-estimated heating area are not covered by this warranty. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature in the designated area in case of a power failure.

This warranty does not cover any scratch, corrosion, distortion, or discoloration. Any defect or damage caused by the use of unauthorized or other than original parts voids this warranty. An authorized qualified technician must perform the installation in accordance with the instructions supplied with this product and all local and national building codes. Any service call related to an improper installation is not covered by this warranty.

The manufacturer may require that defective products be returned or that digital pictures be provided to support the claim. Returned products are to be shipped prepaid to the manufacturer for investigation. Transportation fees to ship the product back to the purchaser will be paid by the manufacturer. Repair work covered by the warranty, executed at the purchaser's domicile by an authorized qualified technician requires the prior approval of the manufacturer. All parts and labour costs covered by this warranty are limited according to the table below.

The manufacturer, at its discretion, may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts. The manufacturer shall, in no event, be responsible for any uncommon, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product. A one-time replacement limit applies to all parts benefiting from lifetime coverage. This warranty applies to products purchased after June 1st, 2015.

DESCRIPTION	WARRANTY APPLICATION*	
	PARTS	LABOUR
Combustion chamber (welds only) and cast iron door frame.	Lifetime	5 years
Ceramic glass (thermal breakage only**), plating (manufacturing defect**), and convector air-mate.	Lifetime	N/A
Surrounds, heat shields, ash drawer, steel legs, pedestal, trims (aluminum extrusions), C-Cast baffle**, vermiculite baffle**, secondary air tubes**, removable stainless steel combustion chamber, deflectors, and supports.	7 years	N/A
Handle assembly, glass retainers and air control mechanism.	5 years	3 years
Removable carbon steel combustion chamber components.	5 years	N/A
Standard and optional blower, heat sensors, switches, rheostat, wiring, and electronics.	2 years	1 year
Paint (peeling**), gaskets, insulation, ceramic fiber blankets, firebricks, and other options.	1 year	N/A
All parts replaced under the warranty.	90 days	N/A

***Subject to limitations above. **Picture required.**

Labour cost and repair work to the account of the manufacturer are based on a predetermined rate schedule and must not exceed the wholesale price of the replacement part.

Shall your unit or a components be defective, contact immediately your **OSBURN** dealer. To accelerate processing of your warranty claim, make sure to have on hand the following information when calling:

- Your name, address and telephone number;
- Bill of sale and dealer's name;
- Installation configuration;
- Serial number and model name as indicated on the nameplate fixed to the back of your unit;
- Nature of the defect and any relevant information.

Before shipping your unit or defective component to our plant, you must obtain an Authorization Number from your OSBURN dealer. Any merchandise shipped to our plant without authorization will be refused automatically and returned to sender.

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