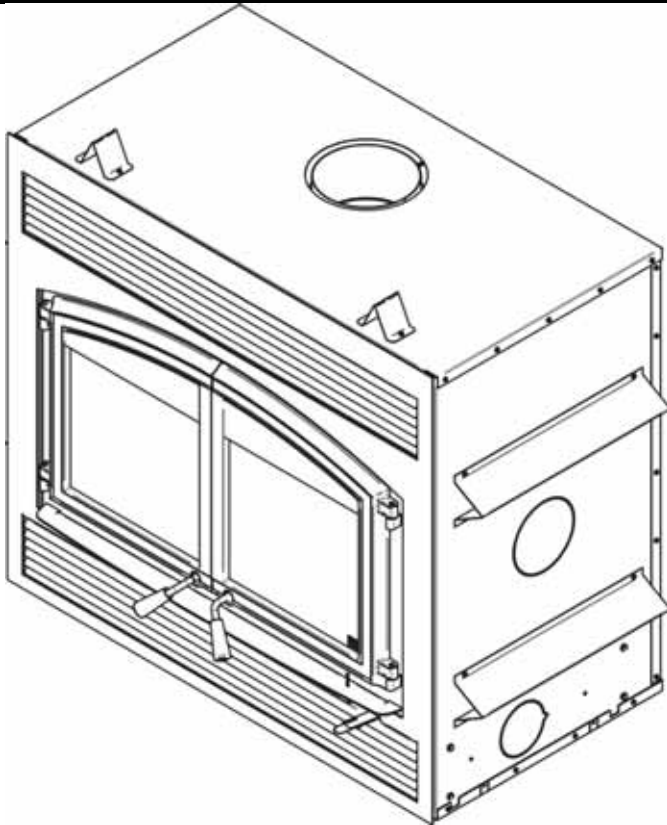




INSTALLATION AND OPERATION MANUAL

St. Clair 4300 (WB43FP-1 model)



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

US Environmental Protection Agency phase II certified wood insert compliant with 2020 cord wood standard.



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



This manual is available for free download on the manufacturer's web site. It is a copyrighted document. Re-sale is strictly prohibited. The manufacturer may update this manual from time to time and cannot be responsible for problems, injuries, or damages arising out of the use of information contained in any manual obtained from unauthorized sources.

THANK YOU FOR CHOOSING THIS EMPIRE COMFORT SYSTEMS WOOD FIREPLACE

As one of North America's largest and most respected wood stove and fireplace manufacturers, Empire Comfort Systems takes pride in the quality and performance of all its products. We want to help you get maximum satisfaction as you use this product.

In the pages that follow you will find general advice on wood heating, detailed instructions for safe and effective installation, and guidance on how to get the best performance from this fireplace as you build and maintain fires, and maintain your wood heating system.

We recommend that our woodburning hearth products be installed and serviced by professionals who are certified 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) or in Quebec by APC (Association des Professionnels du Chauffage).

Congratulations on making a wise purchase.

If this fireplace is not properly installed, combustible materials near it may overheat. To reduce the risk of fire, follow the installation instructions in this manual exactly. Contact local building or fire officials about restrictions and installation inspection requirements in your area.

Please read this entire manual before you install and use your new fireplace. You may need to get a building permit for the installation of this fireplace and the chimney that it is connected to. Consult your municipal building department or fire department before installation. We recommend that you also inform your home insurance company to find out if the installation will affect your policy.

This heating unit is designed to serve as a supplementary heat source. We recommend that a primary heat source also be available in the home. The manufacturer cannot be responsible for costs associated with the use of another heating system.

CAUTION

- **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/OR WEB SITES).**
- **MIXING OF APPLIANCE COMPONENTS FROM DIFFERENT SOURCES OR MODIFYING COMPONENTS IS PROHIBITED AND WILL VOID THE WARRANTY. ANY MODIFICATION OF THE FIREPLACE THAT HAS NOT BEEN APPROVED IN WRITING BY THE TESTING AUTHORITY IS PROHIBITED AND VIOLATES CSA B365 (CANADA) AND NFPA 211 (USA).**
- **EMPIRE GRANTS NO WARRANTY, IMPLIED OR STATED, FOR THE POOR INSTALLATION OR LACK OF MAINTENANCE OF YOUR FIREPLACE AND ASSUMES NO RESPONSIBILITY OF ANY CONSEQUENTIAL DAMAGES.**

TABLE OF CONTENT

PART A - OPERATION AND MAINTENANCE	6
1 Safety Information	6
1.1 Summary of Operation and Maintenance Cautions and Warnings.....	6
2 General Information	8
2.1 Appliance performance ⁽¹⁾	8
2.2 General features	9
2.3 Measurements.....	10
2.4 Zone heating and how to make it work for you	12
2.5 The benefits of low emissions and high efficiency	12
2.6 The SBI commitment to you and the environment	12
2.6.1 <i>What is your new fireplace made of?</i>	13
3 Fuel	13
3.1 How to prepare or buy good firewood	14
3.1.1 <i>What is good firewood?</i>	14
3.1.2 <i>Tree species</i>	14
3.1.3 <i>Log length</i>	14
3.1.4 <i>Piece size</i>	15
3.1.5 <i>How to dry firewood</i>	15
3.1.6 <i>Judging firewood moisture content</i>	16
3.2 Manufactured logs.....	16
4 Operating Your Fireplace	17
4.1 Your first fires	17
4.2 Lighting fires	17
4.2.1 <i>BEST PRACTICE: The top down fire</i>	17
4.2.2 <i>Conventional fire starting</i>	17
4.2.3 <i>Two parallel logs</i>	18
4.2.4 <i>Using fire starters</i>	18
4.3 Maintaining wood fires.....	18
4.3.1 <i>General advice</i>	18
4.3.2 <i>Ash removal</i>	19
4.3.3 <i>Raking charcoal</i>	19
4.3.4 <i>Firing each new load hot</i>	19
4.3.5 <i>Shutting down the air supply</i>	20
4.3.6 <i>Building different fires for different needs</i>	22
5 Maintaining Your Wood Heating System	24
5.1 Fireplace maintenance	24

5.1.1	<i>Plated finish maintenance</i>	24
5.1.2	<i>Glass door cleaning</i>	24
5.1.3	<i>Door adjustment</i>	25
5.1.4	<i>Door alignment</i>	26
5.1.5	<i>Replacing the door gasket</i>	27
5.1.6	<i>Replacing the door glass</i>	28
5.1.7	<i>Cleaning and painting the fireplace</i>	29
5.2	Chimney and chimney liner maintenance	29
5.2.1	<i>Why chimney cleaning is necessary</i>	29
5.2.2	<i>How often should you clean the chimney?</i>	30
5.2.3	<i>Cleaning the chimney</i>	30
5.2.4	<i>Fire baffle removal prior to cleaning the chimney</i>	31
5.2.5	<i>Chimney fire</i>	31
PART B – INSTALLATION		32
6	Safety Information	32
6.1	Summary of installation cautions and warnings.....	32
6.2	Regulations covering fireplace installation.....	33
6.3	Fireplace installation.....	33
6.3.1	<i>Standoff installation</i>	33
6.3.2	<i>Transportation packaging</i>	34
6.3.3	<i>Locating the St. Clair 4300</i>	34
6.3.4	<i>Clearances to combustible materials</i>	34
6.3.5	<i>Hearth extension construction options</i>	35
6.3.6	<i>Minimum Heart Extension Requirements</i>	42
6.3.7	<i>Framing construction</i>	43
6.3.8	<i>Facing</i>	46
6.3.9	<i>Installation of a non-combustible shelf</i>	47
7	The Venting System	48
7.1	General	48
7.2	Suitable chimneys.....	48
7.3	Minimum chimney height.....	48
7.4	The relationship between the chimney and the house.....	48
7.4.1	<i>Why the chimney should penetrate the highest heated space</i>	48
7.5	Chimney installation notes	49
7.6	Chimney Installation Instructions	52
7.6.1	<i>Examples of typical chimney installation</i>	52
7.6.2	<i>Exterior offset installation</i>	53
7.6.3	<i>Installation instructions</i>	53

7.6.4 *Offset chimney installation*55

7.7 Angled wall radiation shield58

7.8 Chimney support installation.....58

7.8.1 *Universal roof support*.....58

7.8.2 *Universal offset support*58

7.9 Installation instructions for masonry application58

7.9.1 *Installation instructions*.....59

7.10 Supply of combustion air59

7.10.1 *Air intake in conventional houses*60

APPENDIX 1 – INSTALLING THE DOOR OVERLAY 61

APPENDIX 2 - WARM AIR CIRCULATION GRILL (WB2WG) 62

APPENDIX 3 - FORCED AIR DISTRIBUTION KIT* (WB2FA) 63

APPENDIX 4 - BLOWER MAINTENANCE OR REPLACEMENT 65

APPENDIX 5 - INSTALLING THE FRESH AIR INTAKE KIT 67

APPENDIX 6 - REFRACTORY SLABS REPLACEMENT 71

APPENDIX 7 - INSTALLATION OF SECONDARY AIR TUBES AND BAFFLE..... 72

APPENDIX 8 – AIR CONTROL SNAP DISC REPLACEMENT 74

APPENDIX 9 – ELECTRICAL WIRING..... 75

APPENDIX 10 - EXPLODED DIAGRAM AND PARTS LIST..... 77

EMPIRE LIMITED LIFETIME WARRANTY 81

REGISTER YOUR WARRANTY ONLINE

To receive full warranty coverage, you will need to show evidence of the date you purchased your stove. Keep your sales invoice. We also recommend that you register your warranty online at:

<http://empirezoneheat.com/support/register/>

Registering your warranty online will help us to quickly track the information we need about your stove.

PART A - OPERATION AND MAINTENANCE

1 SAFETY INFORMATION

1.1 Summary of Operation and Maintenance Cautions and Warnings

CAUTION - OPERATION

- **USING A FIREPLACE WITH CRACKED OR BROKEN COMPONENTS, SUCH AS GLASS OR FIREBRICKS OR BAFFLES MAY PRODUCE AN UNSAFE CONDITION AND MAY DAMAGE THE FIREPLACE.**
- **OPERATE ONLY WITH DOOR FULLY CLOSED. IF DOOR IS LEFT PARTLY OPEN, GAS AND FLAME MAY BE DRAWN OUT OF THE OPENING, CREATING RISKS FROM BOTH FIRE AND SMOKE.**
- **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 FIREPLACE. KEEP ALL SUCH LIQUIDS OR AEROSOLS WELL AWAY FROM THE FIREPLACE WHILE IT IS IN USE.**
- **HOT WHILE IN OPERATION, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. GLOVES MAY BE NEEDED FOR FIREPLACE OPERATION.**
- **DO NOT STORE FUEL WITHIN HEATER MINIMUM INSTALLATION CLEARANCES.**
- **BURN ONLY SEASONED NATURAL FIREWOOD.**
- **DO NOT BURN SCRAP OR GARBAGE, TREATED WOOD OR WOOD SUCH AS DRIFTWOOD FROM THE OCEAN WHICH HAS BEEN EXPOSED TO SALT OR OTHER CHEMICALS. SALT OR CHEMICALS CAN CORRODE THE FIREBOX AND CHIMNEY. DO NOT BURN LARGE AMOUNTS OF PAPER, CARDBOARD, TREE BRANCHES OR BUILDING CONSTRUCTION MATERIALS. INTENSE FIRING WITH THESE MATERIALS MAY OVERHEAT THE FIREPLACE, CAUSING DAMAGE TO THE UNIT, A HOME FIRE OR EVEN POSSIBLY IGNITING A CHIMNEY FIRE IF THE CHIMNEY IS CREOSOTED.**
- **THIS APPLIANCE SHOULD BE MAINTAINED AND OPERATED AT ALL TIMES IN ACCORDANCE WITH THESE INSTRUCTIONS.**
- **DO NOT ELEVATE THE FIRE BY MEANS OF GRATES, ANDIRONS OR OTHER MEANS.**
- **DO NOT OBSTRUCT AIR INTLETS. THIS FIREPLACE NEEDS AIR FOR ITS GOOD OPERATION.**
- **DO NOT BLOCK THE HOT AIR VENTS TO THE FIREPLACE AS THIS WILL CAUSE THE FIREPLACE TO OVERHEAT.**

CAUTION - INSTALLATION

- DO NOT INSTALL THE FIREPLACE OUTDOORS.
- THE FIREPLACE AND CHIMNEY MUST BE IN AN ENCLOSURE UP TO THE ATTIC.
- SOME JURISDICTIONS IN THE USA REQUIRE A SUPPLY OF OUTDOOR COMBUSTION AIR FOR THE FIREPLACE. IN CANADA, AN OUTDOOR AIR SUPPLY IS NOT REQUIRED, IF A CARBON MONOXIDE (CO) DETECTOR/ALARM IS LOCATED IN THE ROOM IN WHICH THE FIREPLACE IS INSTALLED. THE CO DETECTOR WILL PROVIDE WARNING IF FOR ANY REASON THE WOOD FIREPLACE FAILS TO FUNCTION CORRECTLY. IF YOU ARE REQUIRED TO INSTALL AN OUTDOOR AIR SUPPLY, WE RECOMMEND THAT YOU ALSO INSTALL A CO DETECTOR/ALARM TO PROVIDE WARNING IF SMOKE SPILLAGE FROM THE FIREPLACE OCCURS.
- KEEP COMBUSTIBLE MATERIALS AT LEAST 48 INCHES AWAY FROM THE FRONT OF THE FIREPLACE OPENING.
- DO NOT USE A FIREPLACE INSERT AND OTHER PRODUCTS NOT SPECIFIED FOR USE WITH THIS FIREPLACE.
- DO NOT INSTALL IN A MOBILE HOME (CANADA) OR MANUFACTURED HOME (USA).
- A SMOKE DETECTOR, A CARBON MONOXIDE DETECTOR AND A FIRE EXTINGUISHER SHOULD BE INSTALLED IN THE HOUSE. LOCATION OF DETECTORS SHOULD BE CHOSEN WISELY TO AVOID FALSE ALARM WHEN RELOADING THE APPLIANCE. THE LOCATION OF THE FIRE EXTINGUISHER SHOULD BE KNOWN BY ALL FAMILY MEMBERS.
- THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIRS FOR THE PROPER OPERATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH OPERATING INSTRUCTIONS IN THIS MANUAL.

WARNING

- DO NOT USE MATERIALS OTHER THAN THOSE LISTED IN THE REPLACEMENT PARTS SECTION DURING INSTALLATION AS THEY MAY BE SAFETY HAZARDS AND A FIRE COULD RESULT.
- THIS FIREPLACE HAS NOT BEEN TESTED WITH AN UNVENTED OR VENTED GAS LOG SET. TO REDUCE RISK OF FIRE OR INJURY, DO NOT INSTALL AN UNVENTED GAS LOG SET INTO THIS FIREPLACE.

PLEASE NOTE THAT THE PICTURES SHOWN IN THIS MANUAL ARE GENERIC AND MAY NOT MATCH EXACTLY THE LOOK OF YOUR FIREPLACE.



WARNING: 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 Appliance performance⁽¹⁾

Fuel type	Dry cordwood	
Recommended heating area ^[*]	1,000 to 2,800 ft ² (93 to 260 m ²)	
Firebox volume	4,28 ft ³ (0,113 m ³)	
Maximum burn time ^[*]	11 h	
Maximum heat output ⁽²⁾ (dry cordwood)	95 000 BTU/h	
Overall heat output rate (min. to max) ⁽²⁾⁽³⁾	16,610 BTU/h to 43,021 BTU/h (4,9 kW to 12,6 kW)	
Average overall efficiency ⁽³⁾ - EPA Cribs / Douglas Fir	To come (HHV ⁽⁴⁾)	To come (LHV ⁽⁵⁾)
Average overall efficiency ⁽³⁾ - Dry cordwood	63.9% (HHV ⁽⁴⁾)	68.4% (LHV ⁽⁵⁾)
Optimum efficiency ⁽²⁾⁽⁶⁾	69.7%	
Average particulate emissions rate ⁽⁷⁾	1.6 g/h (EPA)	
Average CO ⁽⁸⁾	157.4 g/h	

[*] 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.

⁽¹⁾ Values are as measured per test method, except for the recommended heating area, firebox volume, maximum burn time and maximum heat output.

⁽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⁾ Carbon monoxide.

2.2

General features

Maximum log length ¹	25 in (635 mm) east-west*
Flue outlet diameter	8 in (203 mm)
Chimney diameter	8 in (203 mm)
Type of chimney	CAN/ULC S629, UL 103 HT (2100 °F)
Baffle material	C-Cast
Approved for alcove installation	Not approved
Approved for mobile home installation‡	Not approved
Type of door	Double, glass with cast iron frame
Type of glass	Ceramic glass
Blower	Included (up to 176 CFM)
Particulate emission standard	EPA / ASTM WK47329
USA standard (safety)	UL 127
Canadian standard (safety)	ULC-S610

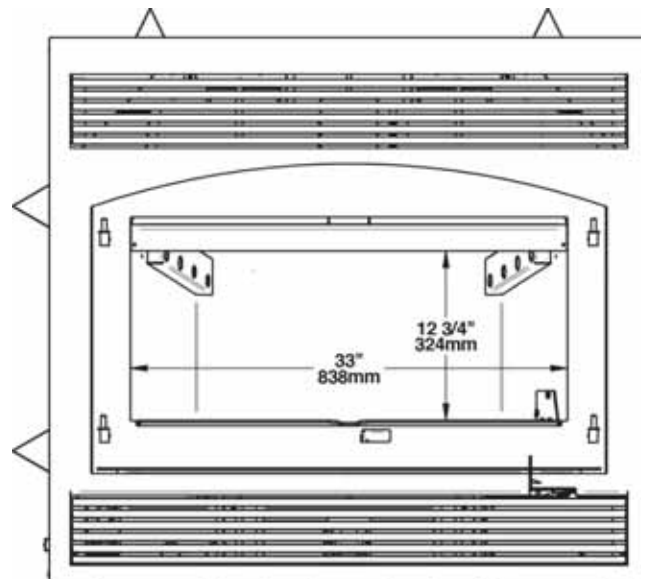
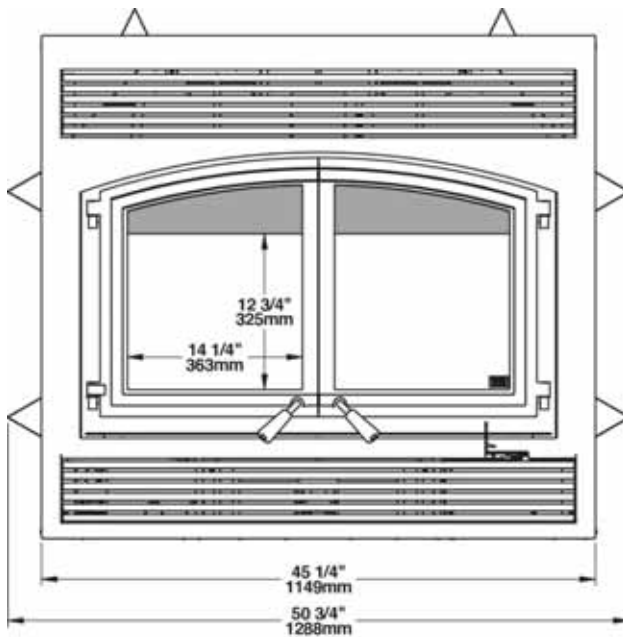
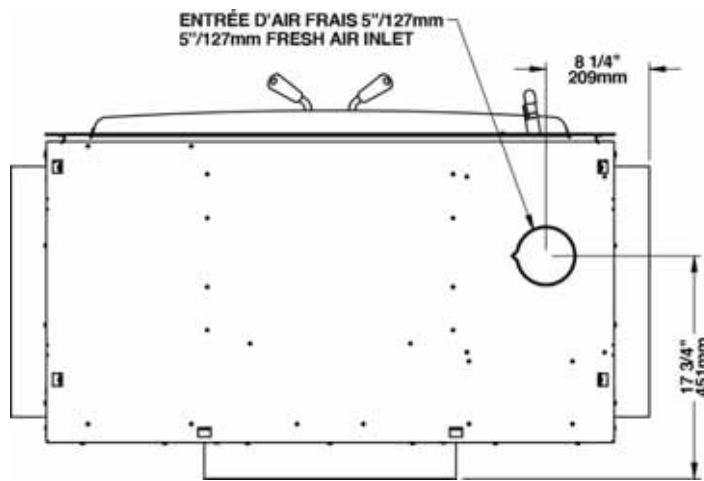
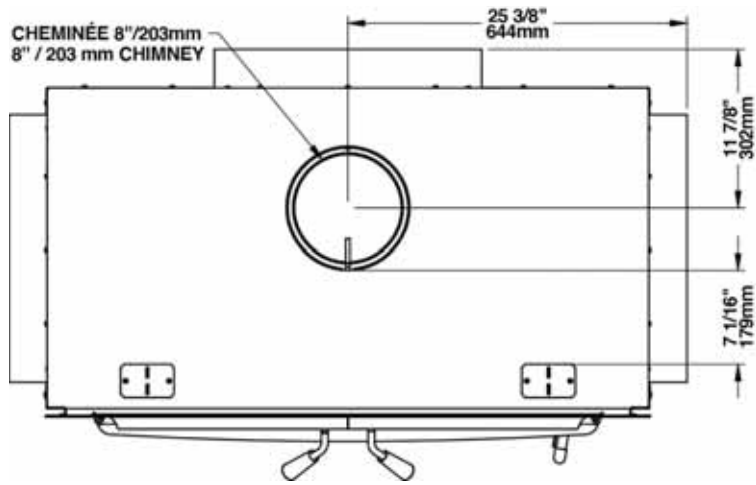
*East-west: through the door you see the longitudinal sides of the logs; north-south: through the door you see the tips of the logs.

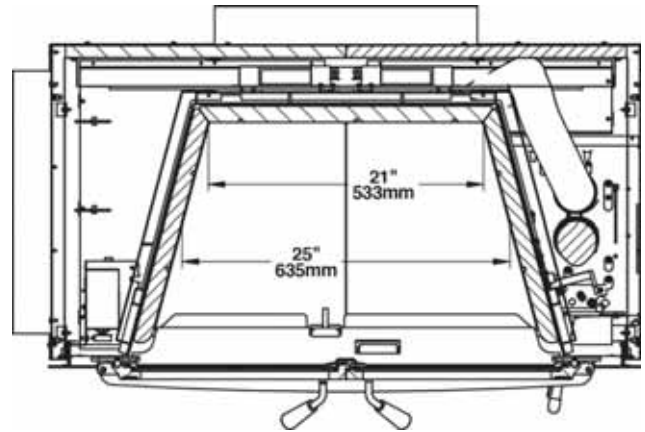
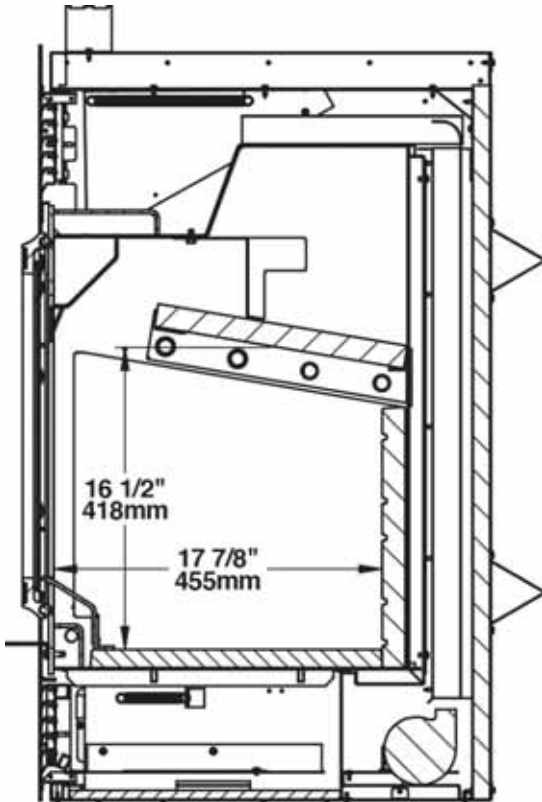
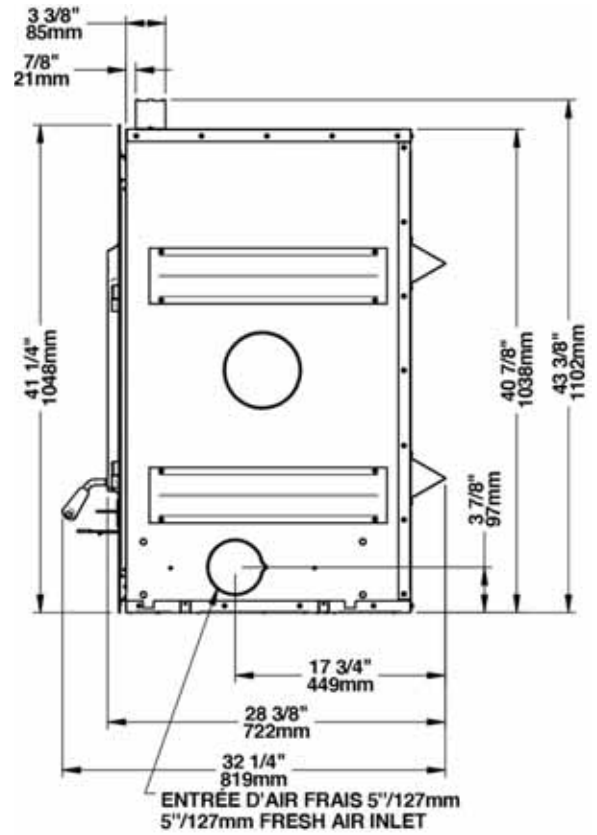
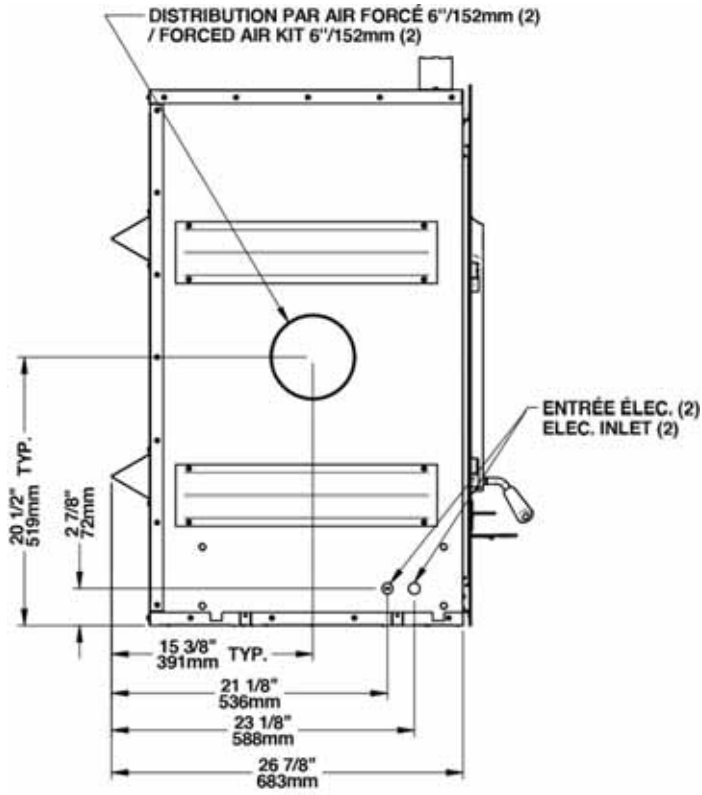
‡ Mobile home (Canada) or manufactured home (USA): The US department of Housing and Urban Development describes “manufactured homes” better known as “mobile homes” as followed; buildings built on fixed wheels and those transported on temporary wheels/axles and set on a permanent foundation. In Canada, 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.

¹ The recommended log length is 16 inches, placed in the north-south orientation. For more details see section 3 – Fuel.

2.3

Measurements





2.4

Zone heating and how to make it work for you

Your new St. Clair 4300 wood fireplace 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 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 fireplace. Whole house zone heating works best when the fireplace is located 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. By locating the fireplace in this area, you will get the maximum benefit of the heat it produces and will achieve the highest possible heating efficiency and comfort. The space where you spend most of your time will be warmest, while bedrooms and basement (if there is one) will stay cooler. In this way, you will burn less wood than with other forms of heating.

Although the fireplace may be able to heat the main living areas of your house to an adequate temperature, we strongly recommend that you also have a conventional oil, gas or electric heating system to provide backup heating.

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

2.5 The benefits of low emissions and high efficiency

The low smoke emissions produced by the special features inside the St. Clair 4300 firebox mean that your household will release up to 90 percent less smoke into the outside environment than if you used an older conventional stove. 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, your fireplace releases all the heat energy from the wood instead of wasting it as smoke up the chimney. Also, the features inside the firebox allow you to reduce the air supply to control heat output, while maintaining clean and efficient flaming combustion, which boosts the efficient delivery of heat to your home.

The emission control and advanced combustion features of your fireplace can only work properly if your fuel is in the correct moisture content range of 15 to 20 percent. see **Section 3 - Fuel** of this manual for suggestions on preparing fuel wood and judging its moisture.

2.6 The SBI commitment to you and the environment

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

2.6.1 What is your new fireplace made of?

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

The **paint** coating on your fireplace 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 C-Cast **baffle** is made of an 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.

Moulded refractory bricks 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 steel mesh contained in some refractory bricks can be recycled.

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 your regular household products. Disposal at a landfill is recommended.

3 FUEL

CAUTION

- **DO NOT BURN: GARBAGE; LAWN CLIPPINGS OR YARD WASTE; MATERIALS CONTAINING RUBBER, INCLUDING TIRES; MATERIALS CONTAINING PLASTIC; WASTE PETROLEUM PRODUCTS, PAINTS OR PAINTTHINNERS, OR ASPHALT PRODUCTS; MATERIALS CONTAINING ASBESTOS; CONSTRUCTION OR DEMOLITION DEBRIS; RAILROAD TIES OR PRESSURE-TREATED WOOD; MANURE OR ANIMAL REMAINS; SALT WATER DRIFTWOOD OR OTHER PREVIOUSLY SALTWATER SATURATED MATERIALS; UNSEASONED WOOD; OR PAPER PRODUCTS, CARDBOARD, PLYWOOD, OR PARTICLEBOARD. THE PROHIBITION AGAINST BURNING THESE MATERIALS DOES NOT PROHIBIT THE USE OF FIRESTARTERS MADE FROM PAPER, CARDBOARD, SAW DUST, WAX AND SIMILAR SUBSTANCES FOR THE PURPOSE OF STARTING A FIRE IN AN AFFECTED WOOD HEATER.**
- **DO NOT OVER FIRE THIS HEATER OVER FIRING CAN RESULT IN A SAFETY HAZARD AND CAN PERMANENTLY DAMAGE THE FIREPLACE AND CHIMNEY.**

3.1 How to prepare or buy good firewood

3.1.1 What is good firewood?

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

3.1.2 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. People who live in the coldest regions of North America usually have only spruce, birch and poplar, other low-density species to burn and yet they can heat their homes successfully.

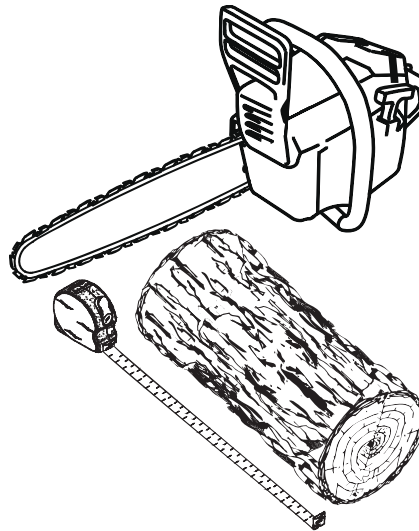
Homeowners with access to both hardwood and softwood fuel sometimes use both types for different purposes. For example, softer woods make good fuel for relatively mild weather in spring and fall because they light quickly and produce less heat. Softwoods are not as dense as hardwoods so a given volume 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 stoves wouldn't hold a fire overnight unless they were fed large pieces of hardwood. That is no longer true. You can successfully heat your home by using the less desirable tree species and give the forest a break at the same time.

3.1.3 Log length

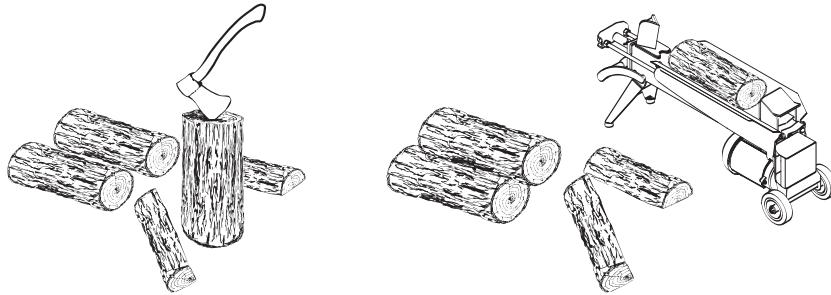
Logs should be cut at least 1" (25 mm) shorter than the firebox so they fit in easily. Pieces that are even slightly too long make loading the fireplace very difficult. The log length recommended for your fireplace is 16" (406mm).

The pieces should be a consistent length, with a maximum of 1" (25 mm) variation from piece to piece.



3.1.4 Piece size

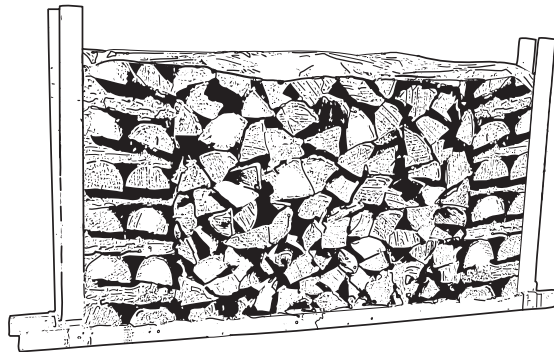
Firewood dries more quickly when it is split. Large unsplit rounds can take years to dry enough to burn. Even when dried, unsplit logs are difficult to ignite because they don't have the sharp edges where the flames first catch. Logs as small as 3" (75 mm) should be split to encourage drying.



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. Often, the firewood purchased from commercial suppliers is not split finely enough for convenient stoking. It is sometimes advisable to resplit the wood before stacking to dry.

3.1.5 How to dry firewood

Firewood that is not dry enough to burn is the cause of most complaints about wood fireplaces. Continually burning green or unseasoned wood produces more creosote and involves lack of heat and dirty glass door. See **Section 5 - Maintaining Your Wood Heating System for concerns about creosote.**



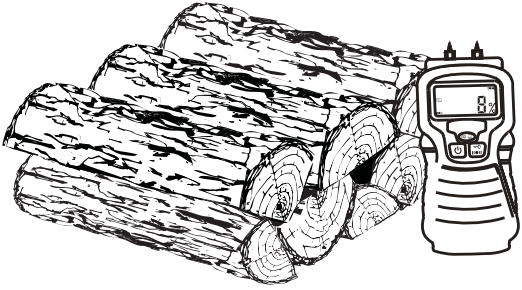
Here are some things to consider in estimating drying time:

- Firewood takes a long time to dry;
- Drying happens faster in dry weather than in damp, maritime climates;
- 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 take less time to dry than hardwoods;
- Firewood that is ready to burn has a moisture content between 15 and 20% by weight and will allow your fireplace to produce its highest possible efficiency;
- 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;
- Softwoods like pine, spruce, and poplar/aspens can be dry enough to burn after being stacked in the open for only 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 in the open where it is exposed to sun and wind; it takes much longer to dry when stacked in a wood shed.

3.1.6 Judging firewood moisture content

You can find out if some firewood is dry enough to burn by using these guidelines:

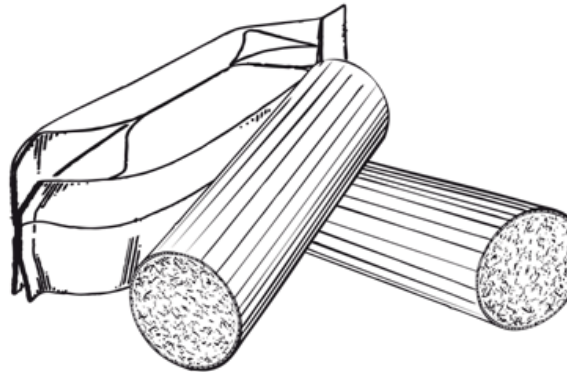
- Cracks form at the ends of logs as they dry;
- As it dries in the sun, the wood turns from white or cream colored to grey or yellow;
- Bang two pieces of wood together; seasoned wood sounds hollow and wet wood sounds dull;
- Dry wood is much lighter in weight than wet wood;
- Split a piece, and if the fresh face feels warm and dry it is dry enough to burn; if it feels damp, it is too wet;
- Burn a piece; wet wood hisses and sizzles in the fire and dry wood does not.



You could buy a wood moisture meter to test your firewood.

3.2 Manufactured logs

Manufactured logs made of 100% wood residues can be burned in your fireplace. However, they must be used carefully. Therefore, you cannot place a large quantity of such logs into your fireplace. Manufactured logs typically release a much larger heat output over a short period of time. Start with one log and see how the fireplace reacts. You can increase the number of logs burned at a time to a maximum of three. Burning more than three manufactured logs at one time can overheat and damage your stove.



CAUTION

- **DO NOT BURN ANY MANUFACTURED LOGS CONTAINING CHEMICAL ADDITIVES. YOU MAY OVERHEAT YOUR FIREPLACE, THEREFORE CAUSING A FIRE HAZARD AND VOIDING YOUR WARRANTY.**
- **DO NOT POKE OR STIR THE LOGS WHILE THEY ARE BURNING.**
- **USE ONLY FIRELOGS THAT HAVE BEEN TESTED FOR USE IN FIREPLACES (SEE ULC/ORD-C127, COMPOSITE FIRELOGS) AND PRIOR TO USE, REFER TO FIRELOG WARNINGS AND CAUTIONS MARKINGS ON PACKAGING.**

4 OPERATING YOUR FIREPLACE

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

4.1 Your first fires

Two things will happen as you burn your first few fires: the paint cures and the internal components of the fireplace are conditioned.

As the paint cures, some of the chemicals vaporize. The vapors are not poisonous, but they do smell bad. Fresh paint fumes can also cause false alarms in smoke detectors. So, when you first light your fireplace, be prepared by opening doors and/or windows to ventilate the house. As you burn hotter and hotter fires, more of the painted surfaces reach the curing temperature of the paint. The smell of curing paint does not disappear until you have burned one or two very hot fires.

Burn one or two small fires to begin the curing and conditioning process. Then build bigger and hotter fires until there is no longer any paint smell from the fireplace. Once the paint smell disappears, your fireplace is ready for serious heating.

4.2 Lighting fires

Each person who heats with wood develops their own favorite way to light fires. Whatever method you choose, your goal should be to get a hot fire burning quickly. A fire that starts fast produces less smoke and deposits less creosote in the chimney. Here are three popular and effective ways to start wood fires.

4.2.1 BEST PRACTICE: The top down fire

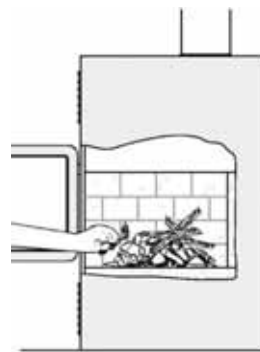
The top down fire starting method solves two problems with the conventional method: first, it does not collapse and smother itself as it burns; and second, it's cleaner. The top down method only works properly if the wood is well-seasoned.

Start by crisscrossing around 10 finely split and dry kindling (0.5 to 1 in) leaving air space between the pieces. Then put at least 5 news paper sheets to the top of the pieces. The best way to have your ignition clean and environmentally friendly is to roll the news papers to make a long cylinder, then to make 2 knots with it. The goal is to have the news papers as compact as possible to make it burn slowly. After the ignition of the news paper, let the door open of 1 in for 5-10 minutes. The air control should be open.

When you have a small coal bed, it's the time to crisscross three or four medium-sized split pieces (2-3 in) of dry firewood in the firebox. You can close the door as soon as you loaded the pieces. Let burn until you have a good coal bed. You are now ready for the main load.

4.2.2 Conventional fire starting

The conventional way to build a wood fire is to bunch up 5 to 10 sheets of plain newspaper and place them in the firebox. Next, place 10 or so pieces of fine kindling on the newspaper. This kindling should be very thin; less than 1" (25 mm). Next, place some larger kindling pieces on the fine kindling. Open the air control fully and light the newspaper. If you have a tall, straight venting system you should be able to close the door immediately and the fire will ignite. Once the fire has ignited, close the door and leave the air control fully open.



A conventional kindling fire with paper under finely split wood.

DO NOT LEAVE THE FIREPLACE UNATTENDED WHEN THE DOOR IS SLIGHTLY OPENED. ALWAYS CLOSE AND LATCH THE DOOR AFTER THE FIRE IGNITES.

After the kindling fire has mostly burned, you can add standard firewood pieces until you have a fire of the right size for the conditions.

CAUTION: PLACE THE WOOD LOGS FAR ENOUGH FROM THE GLASS TO ALLOW PROPER PRIMARY AIR FLOW

4.2.3 Two parallel logs

Place two split logs in the firebox. Place a few sheets of twisted newspaper between the logs. Now place some fine kindling across the two logs and some larger kindling across those, log cabin style. Light the newspaper.

4.2.4 Using fire starters

Many people like to use commercial fire starters instead of newspaper. Some of these starters are made of sawdust and wax and others are specialized flammable solid chemicals. Follow the package directions for use.

Gel starter may be used but only if there are no hot embers present. Use only in a cold firebox to start a fire.

DO NOT USE FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPHTHA, FUEL OIL, MOTOR OIL, OR AEROSOLS TO START OR REKINDLE THE FIRE.

4.3 Maintaining wood fires

4.3.1 General advice

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

Do not expect steady heat output from your fireplace. It is normal for its surface temperature to rise after a new load of wood is ignited and for its temperature to gradually decline as the fire progresses. This rising and falling of temperature can be matched to your household routines. For example, the area temperature can be cooler when you are active, such as when doing housework or cooking, and it can be warmer when you are inactive, such as when reading or watching television.

IMPORTANT: 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. Do not attempt to produce a steady heat output by placing a single log on the fire at regular intervals. Always place at least 5 to 8 pieces on the fire at a time in the North-South orientation 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 can be matched to the amount of heat needed.

When you burn in cycles, you rarely need to open the fireplace's loading door while the wood is flaming. This is an advantage because there is more chance that smoke will leak from the fireplace when the door is opened as a full fire is burning.

IF YOU MUST OPEN THE DOOR WHILE THE FUEL IS FLAMING, OPEN THE AIR CONTROL FULLY FOR A FEW MINUTES, THEN UNLATCH AND OPEN THE DOOR SLOWLY.

4.3.2 Ash removal

Ash should be removed from the firebox every two or three days of full time heating. Do not let the ash build up in the firebox because it will interfere with proper fire management.

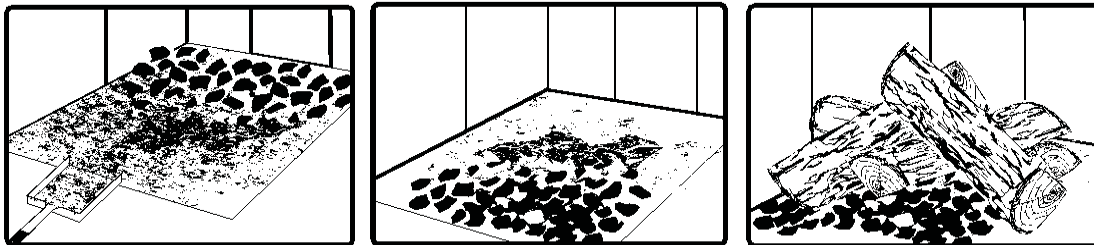
The best time to remove ash is after an overnight fire when the fireplace is relatively cool, but there is still some chimney draft to draw the ash dust into the firebox and prevent it from coming into the room.

After ashes have been removed from the fireplace and placed in a tightly covered metal container, they should be taken outside immediately. The closed container of ashes should be placed on a non-combustible floor or on the ground well away from all combustible materials pending final disposal. Ashes normally contain some live charcoal that can stay hot for several days. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled. Other waste should not be placed in this container.

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

4.3.3 Raking charcoal

Rekindle the fire when you notice that the room temperature has fallen. You will find most of the remaining charcoal at the back of the firebox, furthest from the door. Rake these coals towards the door before loading. There are two reasons for this raking of the coals. First, it concentrates them near where most of the combustion air enters the firebox and where they can ignite the new load quickly, and second, the charcoal will not be smothered by the new load of wood. If you were to simply spread the charcoal out, the new load will smoulder for a long time before igniting.



Remove ash first, and then rake charcoal towards the front of the firebox before loading so that it will ignite the new load.

4.3.4 Firing each new load hot

Place the new load of wood on and behind the charcoal, and not too close to the glass. Close the door and open the air control fully. Leave the air control fully open until the firebox is full of flames, the wood has charred to black and its edges are glowing red. Firing each load of wood hot accomplishes a few things:

- Drives the surface moisture from the wood,
- Creates a layer of char on the wood, which slows down its release of smoke,
- Heats the firebox components so they reflect heat back to the fire, and
- Heats the chimney so it can produce strong, steady draft for the rest of the cycle.

**DO NOT LEAVE THE FIREPLACE UNATTENDED WHILE A NEW LOAD IS BEING FIRED HOT.
DO NOT OVERFIRE.**

When you burn a new load of wood hot, the result will be a surge of heat from the fireplace. This heat surge is welcome when the room temperature is a little lower than desirable, but not welcome if the space is already warm. Therefore, allow each load of wood to burn down so that the space begins to cool off a little before loading. Letting the space cool before loading is one of the secrets to clean burning and effective zone heating.

4.3.5 Shutting down the air supply

The fireplace can operate at three different settings: Maximum combustion rate, medium combustion rate and finally low combustion rate. At the low combustion rate setting, the fireplace is operated with an air control system that regulates the combustion.

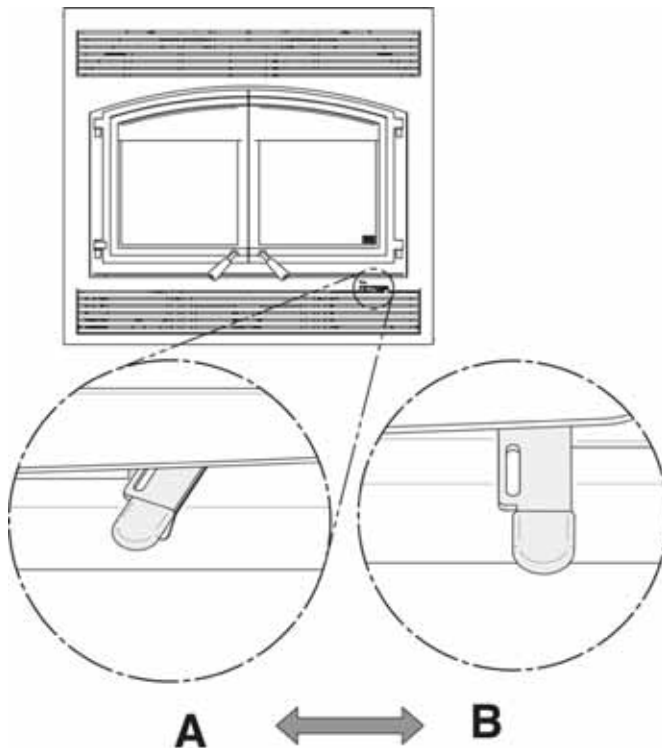
The maximum combustion rate setting is usually for cold startup and when maximum heat is desired (**Position A**). At the maximum combustion rate setting, the air control system is not operating.

NOTE

THE AIR CONTROL SYSTEM IS ACTIVATED ONLY WHEN THE AIR INTAKE IS COMPLETELY CLOSED (POSITION B) AND WHEN THE FIREPLACE IS HOT ENOUGH.

When you close the air intake, you gradually reduce the combustion. Visually you will be able to notice a considerable reduction of combustion. Under these conditions, you will be at the medium combustion rate. Using the secondary air intake lever you you can adjust your combustion system to eventually reach the minimum combustion rate.

If the flames diminish to the point of disappearing when you reduce the air supply, your wood can be too humid. If you have seasoned wood and use the air intake control properly, the flames should decrease, but remain strong and stable, even when operating at low combustion rate.



Position A: In this position, air supply is fully open. You should be using this position for:

- Cold start;
- Maximum burn rate;

Position B: Air control intake is closed. The air control system is activated.

Position B1: Low combustion rate.

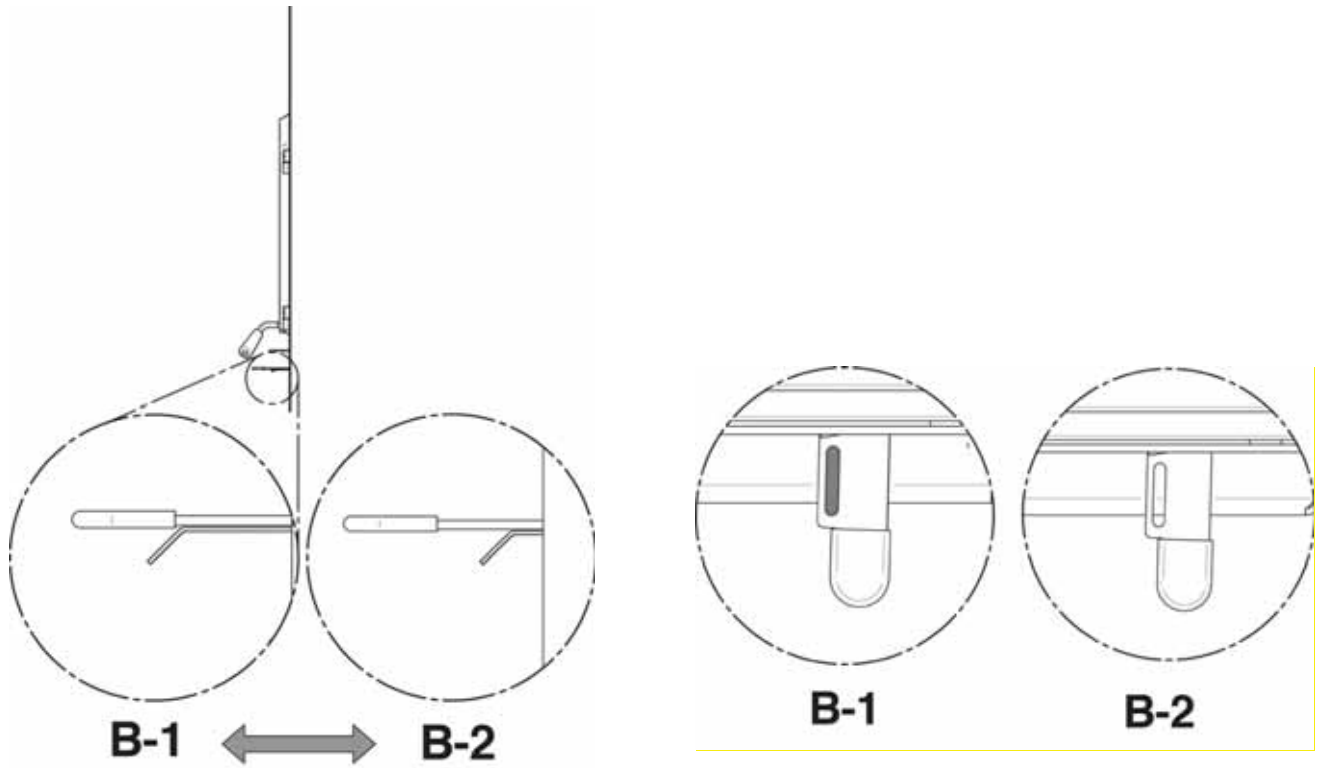
Position B2: Medium combustion rate.

Example of operating sequence:

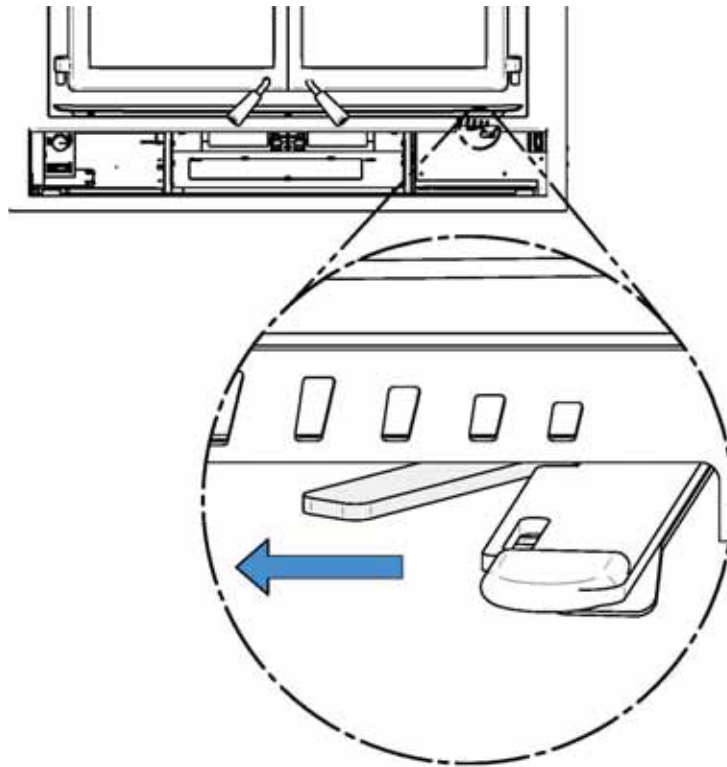
A: Cold start or Maximum burn rate.

B: Mid-High until the factory setting temperature is reached.

B-2 or B-1: Mid-Low or Low once the factory setting is reached.



In the B position, it is also possible to close the air supply manually if a power failure occurs by pushing the small lever to the left.



4.3.6 Building different fires for different needs

Using the air control is not the only way to match the fireplace's heat output to the heat demand. Your house will need far less heat in October than in January to be kept at a comfortable temperature. If you fill the firebox full in fall weather, you will either overheat the space or turn the fireplace down so much that the fire will be smoky and inefficient. Here are some suggestions for building fires to match different heat demand.

4.3.6.1 Small Fires to Take the Chill Off the House

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 be only 3" to 4" in diameter. After raking the coals, you can lay two pieces parallel to each other corner to corner 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 when you are around to tend the fireplace and should provide enough heat for four hours or more. Small fires like this are a good time to use softer wood species so there will be less chance of overheating the house.

4.3.6.2 Long Lasting Low Output Fires

Sometimes you will want to build a fire to last up to eight hours, but don't need intense heat. In this case use soft wood species and place the logs compactly in the firebox so the pieces are packed tightly together. You will need to fire the load hot for long enough to fully char the log surfaces before you can turn the air down. Make sure the fire is flaming brightly before leaving the fire to burn.

4.3.6.3 High Output Fires for Cold Weather

When the heat demand is high during cold weather, you'll need a fire that burns steadily and brightly. This is the time to use larger pieces of hardwood fuel if you have it. Put 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 burn your fireplace is capable of.

You will need to be cautious when building fires like this because if the air is turned down too much, the fire could smoulder. Make sure the wood is flaming brightly before leaving the fire to burn.

4.3.6.4 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 length of burn you can expect from your fireplace, including both the flaming and coal bed phases, will be affected by a number of things, such as:

- Firebox size,
- The amount of wood loaded,
- The species of wood you burn,
- The wood moisture content,
- The size of the space to be heated,
- The climate zone you live in, and
- The time of year.

The table below provides a very general indication of the maximum burn cycle times you are likely to experience, based on firebox volume.

FIREBOX VOLUME	MAXIMUM BURN 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

Long burn times are not necessarily an indication of efficient fireplace operation. When you are home during the day and able to tend the fire, it is preferable to build a smaller fire that might 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 fireplace to the heat demand of the space.

4.3.6.5 How to place the logs

In fireboxes that are roughly square, wood can be loaded so that looking through the glass door you see the ends of the logs (north-south) or the sides of the logs (east-west). This fireplace is designed to burn efficiently in the **north-south** orientation.

East-west loads that are built compactly break down slowly when heated, but the amount of wood you can load is limited because if you put in too many pieces, one may fall against the glass. East-west loads are excellent for long, low output fires for relatively mild weather.

North-south loads break down more quickly, but much more wood can be loaded at a time. This makes north-south loading good for high output, long lasting fires for cold weather.

5 MAINTAINING YOUR WOOD HEATING SYSTEM

5.1 Fireplace maintenance

Your new fireplace will give many years of reliable service if you use and maintain it correctly. Some of the internal components of the firebox, such as refractory slabs, baffles and air tubes, will wear over time under intense heat. You should always replace defective parts with original parts

Firing each load hot to begin a cycle as described above will not cause premature deterioration of the fireplace. However, letting the fireplace run with the air control fully open for the entire burn cycles can cause damage over time. The hotter you run the fireplace throughout burn cycles, the more quickly its components will deteriorate. For that reason, **never leave the fireplace unattended while a new load is being fired hot.**

5.1.1 Plated finish maintenance

If your appliance has a plated finish, use a metal polish and a soft cloth to clean it. Do not use abrasives such as steel wool, steel pads or an abrasive cleaner for they may scratch the finish.

5.1.2 Glass door cleaning

Under normal conditions, your door glass should stay relatively clear. If your firewood is dry enough and you follow the operating instructions in this manual, a whitish, dusty deposit will form on the inside of the glass after a week or so of use. This is normal and can be easily removed when the fireplace is cool by wiping with a damp cloth or paper towel and then drying. **Never try to clean the glass when the fireplace is hot.**

In spring and fall when the fireplace is run at lower temperatures, you may see some light brown stains forming, especially at the lower corners of the glass. This indicates that the fire has been smoky and some of the smoke has condensed on the glass. When the weather is mild, you may find that letting the fire go out is better than trying to maintain a continuous fire. Use the technique described above for building a fire to take the chill off the house.

If you do get brown stains on the glass you can remove them with special cleaners for wood heater glass doors. **Do not use abrasives to clean your fireplace's door glass.**

The deposits that form on the glass are the best indication of the quality of your fuel and how well you are doing in operating the fireplace. Your goal should be clear glass with no brown stains. If you continue to see brown stains on the glass, something about your fuel and operating procedure needs to be changed. Stains on the glass indicate incomplete combustion of the wood, which also means more smoke emissions and faster formation of creosote in the chimney.

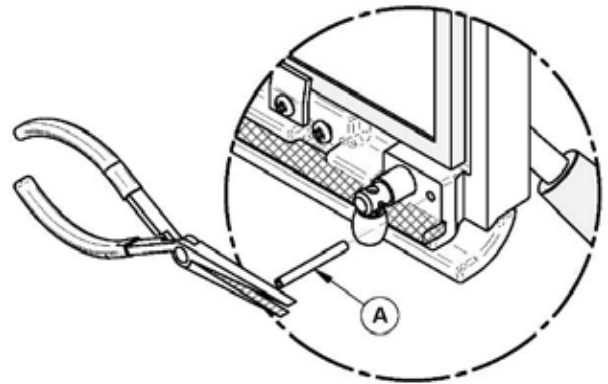
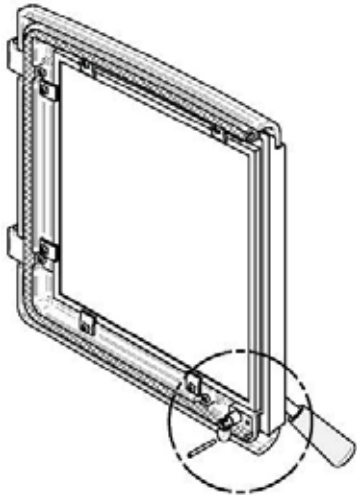
If you see brown streaks coming from the edge of the glass, it is time to replace the gasket around the glass. Visit your fireplace retailer to get the self-adhesive glass gasket and follow the instructions below for installation.

Do not abuse the glass door by striking or slamming shut. Do not use the fireplace if the glass is broken.

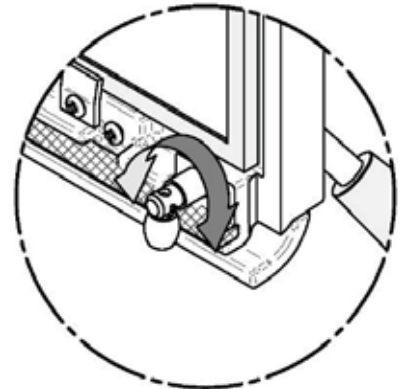
5.1.3 Door adjustment

In order for your fireplace to burn at its best efficiency, the door must provide a perfect seal with the firebox. Therefore, the gasket should be inspected periodically to check for a good seal. The gasket seal may be improved with a simple latch mechanism adjustment. To adjust:

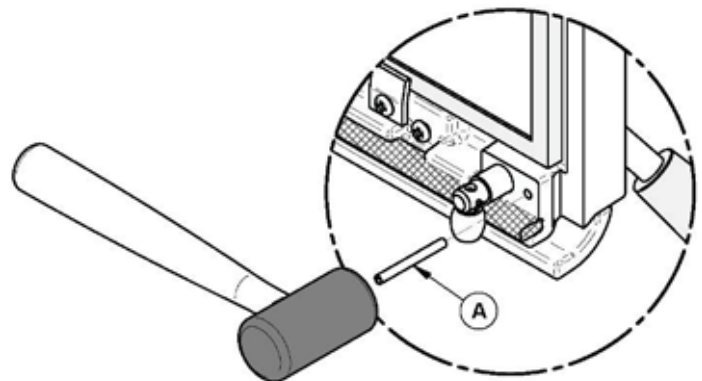
1. Remove the split pin **(A)** by pulling and turning it using pliers.



2. Turn the handle counter clock wise one turn to increase pressure. To reduce the pressure, when installing a new gasket for example, turn clock wise.

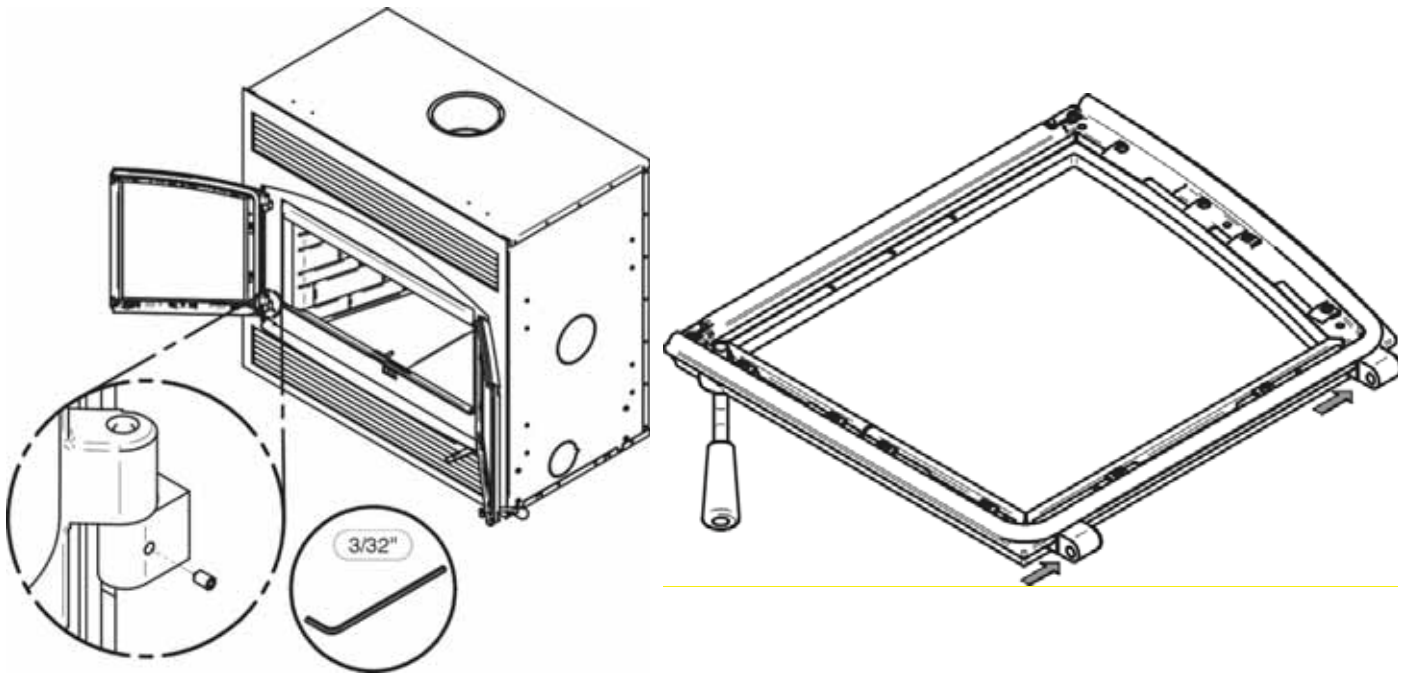


3. Re-install the split pin **(A)** with a small hammer.



5.1.4 Door alignment

To align, open the fireplace's doors and loosen the pressures screws located on the lower and upper hinges of each door using a 3/32" Allen key to free the adjustable hinge rods.

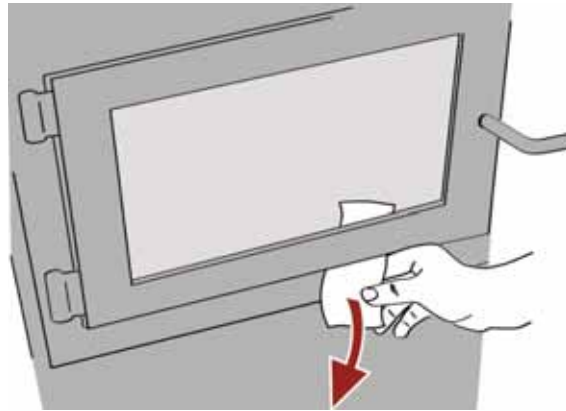


Using a flat screwdriver, turn the adjustable hinge rods in the direction shown to adjust the doors. Tighten all door hinge pressure screws when they are at the desired positions.

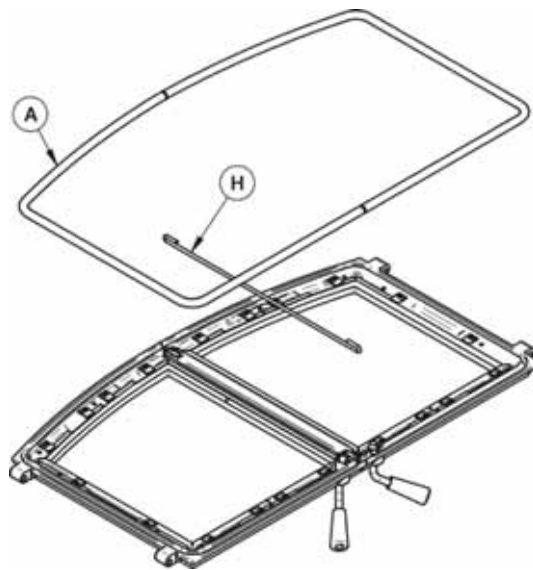
	DOORS POSITION WITH MORE SPACE		DOORS POSITION WITH LESS SPACE		DOORS TILT UP		DOORS TILT DOWN	
	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT
TOP PINTLES								
BOTTOM PINTLES								

5.1.5 Replacing the door gasket

It is important to maintain the gaskets in good condition. After a year or more of use, the door gaskets will compress and become hard, which may allow air to leak past it. You can test the condition of the door gaskets by closing and latching the door on a strip of paper. Test all around the door. If the paper slips out easily anywhere, it is time to replace the gaskets.



Use the correct replacement gasket: **(A)** for the doors and **(H)** for the doors junction. Both can be purchased from your retailer. The diameter and density of the gasket is important to getting a good seal.



Place the door face-down on something soft like a cushion of rags or piece of carpet. Remove the old gaskets from the door by pulling and prying it out with an old screw driver. Then use the screwdriver to scrape the old gasket adhesive from the door. Now run a 1/4" (6 mm) bead of high temperature silicone in the door gasket groove. Starting from the middle of the hinge side, press the gasket into the groove. Do not stretch the gasket as you place it. Leave the gasket about 1/2" long when you cut it and press the end into the groove. Tuck any loose fibres under the gasket and into the silicone. Close the door and do not use the fireplace for 24 hours.

Location	Length	Dimensions
Door frame	65 ¾ " (167 cm)	Round 5/8" (1,59 cm)
Left door	18"	Round 1/4" (0,64cm)

5.1.6 Replacing the door glass

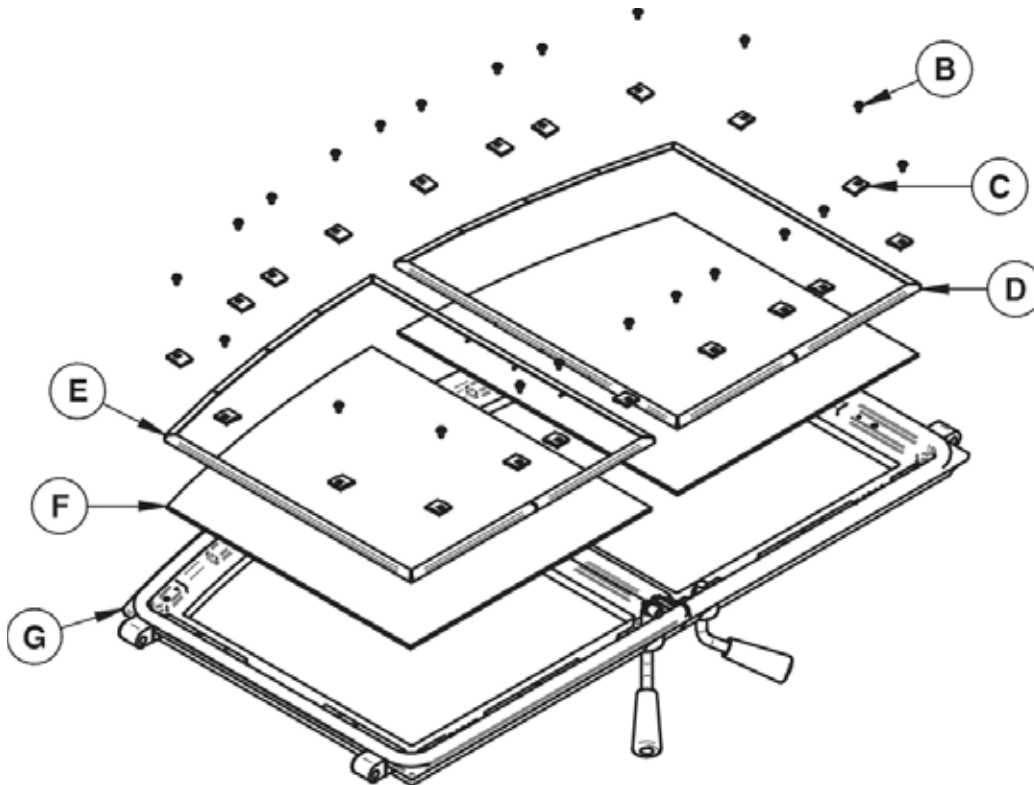
The glass used in the St. Clair 4300 is 4 mm thick of dimension 17.78" x 15.76" (45,16cm x 40,03cm) and tested to reach temperatures up to 1400° F. If the glass breaks, it must be replaced with one having the same specification. Contact your Empire dealer to obtain a genuine replacement part (see "replacement parts", in appendix to get the proper part number).

WARNING

- **TEMPERED GLASS OR ORDINARY GLASS WILL NOT WITHSTAND THE HIGH TEMPERATURES OF THE ST. CLAIR 4300.**
- **DO NOT ABUSE THE GLASS DOOR BY SLAMMING IT AGAINST THE FIREPLACE.**
- **DO NOT OPERATE THE FIREPLACE WITH A CRACKED OR BROKEN GLASS.**

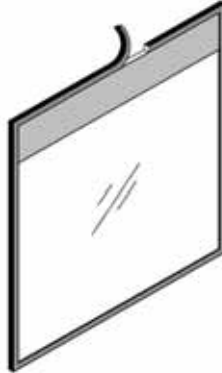
In order to replace the glass, use the following procedure;

- 1- Remove the gasket (E) placed around the door frame (G) and its adhesive.
- 2- Remove the 12 glass retainers (C) held in place by 12 screws (B).
- 3- Remove the glass (F) and/or debris from the frame
- 4- Install the new window into the frame (G) and fasten it in place with the glass retainers (C) and the screws (B) removed earlier.
- 5- Handle the glass with care to avoid injury.



5.1.6.1 Replacing the door glass gasket

The gasket must be centred on the edge of the glass. To do this easily, peel back a section of the paper covering the adhesive and place the gasket on a table with the adhesive side up. 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 centred on the gasket. Peel off more of the backing and rotate the glass and press the next section onto the gasket. Do not stretch the gasket as you place it. Continue until you get to the start and trim the gasket to length. Now pinch the gasket to the glass in a U shape, all around the glass. Reinstall the glass, being careful to centre the glass carefully in the door. Do not over-tighten the screws. Note that the two main causes of broken door glass are uneven placement in the door and over-tightening of retaining screws.



Location	Length	Dimension
Around glass	66" (168 cm)	"U" shaped

Do not abuse the glass door by striking or slamming shut. Do not use the fireplace if the glass is broken. To change the glass, perform the same operation described above.

5.1.7 Cleaning and painting the fireplace

Do not attempt to clean or paint the fireplace when the unit is hot. Painted surfaces can be wiped down with a damp cloth. Plated surfaces may be scratched by abrasive cleaners. To maintain the finish at its original brilliance, use only a damp soft cloth to clean plated surfaces.

If the paint becomes scratched or damaged, you can give your wood fireplace a brand new look by repainting it with heat-resistant paint. Before painting, roughen the surface with fine sand paper, wipe it down to remove dust, and apply two thin coats of paint. For best results, use the same paint that was originally used on the fireplace, which is available in spray cans. See your dealer for details.

5.2 Chimney and chimney liner maintenance

5.2.1 Why chimney cleaning is necessary

Wood smoke can condense inside the chimney liner and chimney, forming a combustible deposit called creosote. If creosote is allowed to build up in the venting system it can ignite when a hot fire is burned in the fireplace and 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 you avoid smouldering so the exhaust from the chimney is mostly clear, creosote builds up more slowly. Your new fireplace has the right characteristics to help you to burn clean fires with little or no smoke, resulting in less creosote in the chimney.

5.2.2 How often should you clean the chimney?

It is not possible to predict how much or how quickly creosote will form in your chimney. It is important, therefore, to check the build-up in your chimney monthly when getting used to the new fireplace until you determine the rate of creosote formation. Even if creosote forms slowly in your system, the chimney should be cleaned and inspected at least once each year. Do not allow more than 1/8" (3 mm) creosote buildup in the chimney.

It is recommended to clean thoroughly the chimney system at the end of every heating season. During summer, the air is damper and with minimal air circulation within the stove or furnace, it can mix with creosote and/or soot deposits in the chimney system to form an acid that could accelerate the corrosion process and induce premature decay of the steel. Corrosion damages are not covered under warranty. Have your chimney system cleaned by a professional chimney sweep. Use a plastic or steel brush.

Contact your local municipal or provincial fire authority for information on how to handle a chimney fire. Have a clearly understood plan to handle a chimney fire.

5.2.3 Cleaning the chimney

Chimney cleaning can be a difficult and dangerous job. If you don't have experience cleaning chimneys, you might want to hire a professional chimney sweep to clean and inspect the system for the first time. After having seen the cleaning process, you can decide if it is a job you would like to take on.

The most common equipment used are fibreglass rods with threaded fittings and stiff plastic brushes. The brush is forced up and down inside the chimney flue to scrub off the creosote.

The chimney should be checked regularly for creosote build-up. Inspection and cleaning of the chimney can be facilitated by removing the baffle.



NOTE

- DO NOT EXPECT CHEMICAL CLEANERS TO KEEP YOUR CHIMNEY CLEAN.
- THE RAIN CAP CAN BE REMOVED FOR INSPECTION AND/OR CLEANING OF THE CHIMNEY.

The chimney should be swept following these steps:

- 1) Remove the fire baffle and air tubes.
- 2) Remove the rain cap.
- 3) Sweep the chimney.
- 4) Clean the inside of the firebox.
- 5) Re-install the baffle, the air tubes and the rain cap.

CAUTION

OPERATION OF YOUR ST. CLAIR 4300 WITHOUT THE BAFFLE MAY CAUSE UNSAFE AND HAZARDOUS TEMPERATURE CONDITIONS AND WILL VOID THE WARRANTY.

5.2.4 Fire baffle removal prior to cleaning the chimney

Before starting to clean your chimney, we recommend that you remove the fire baffle to avoid creosote dust collection on top of the baffle.

Follow the steps below to remove the fire baffle:

1. Remove the front air tube by pulling out the cutter pin on the side of the tube. They are located at the top, underneath the baffle.
2. Lift the baffle assembly and slide it out of the fireplace. You now have access to the chimney.

See **APPENDIX 7 - INSTALLATION OF SECONDARY AIR TUBES AND BAFFLE** for details.

5.2.5 Chimney fire

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

1. Close the fireplace door and the air intake controls;
2. Alert your family of the possible danger;
3. If you require assistance, alert your 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;
5. Check outside to ensure that sparks and hot embers coming out of the chimney are not igniting the roof;
6. Do not use the fireplace again until your chimney and fireplace have been inspected by a qualified chimney sweep or a Fire Department Inspector.

PART B – INSTALLATION

Install the fireplace only as described in these instructions and using only components from the chimney manufacturers listed in **TABLE 4**.

Parts Required

- St. Clair 4300 Fireplace
- Traditional style Faceplate
- Classic moulded refractory brick panels
- Insulated chimney made by the manufacturers listed in **TABLE 4**, with the corresponding specifications:
 - Chimney lengths
 - Elbows (where necessary)
 - Associated components as per these installation instructions

Additional Equipment (optional)

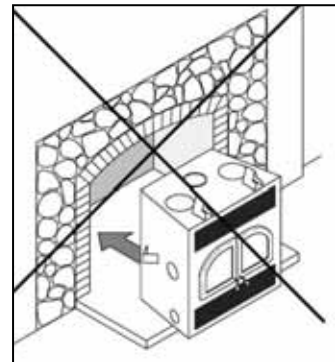
- Forced Air Distribution Kit
- Warm air circulation grille - modern style

6 SAFETY INFORMATION

6.1

Summary of installation cautions and warnings

- **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/OR WEB SITES).**
- **MIXING OF APPLIANCE COMPONENTS FROM DIFFERENT SOURCES OR MODIFYING COMPONENTS MAY RESULT IN HAZARDOUS CONDITIONS.**
- **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).**
- **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.**
- **DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.**
- **THIS FIREPLACE HAS NOT BEEN TESTED TO BE INSTALLED IN A MOBILE HOME.**
- **THIS FIREPLACE HAS NOT BEEN TESTED TO BE INSTALLED INSIDE A MASONRY CHIMNEY.**



6.2

Regulations covering fireplace installation

When installed and operated as described in these instructions, the St. Clair 4300 wood fireplace is suitable for use in residential installations.

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.

NOTE

THE FIREPLACE IS NOT APPROVED FOR USE WITH A SO-CALLED "POSITIVE FLUE CONNECTION" TO THE CLAY TILE OF A MASONRY CHIMNEY.

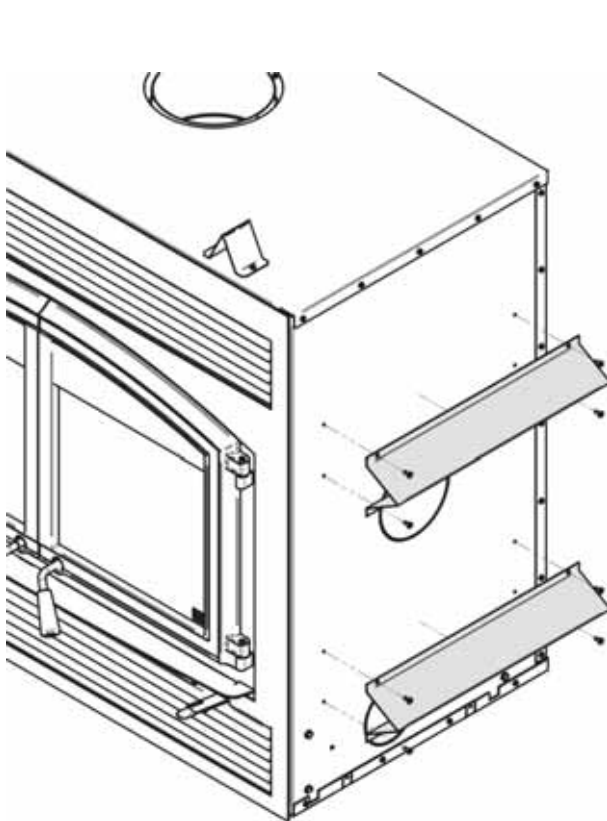
6.3

Fireplace installation

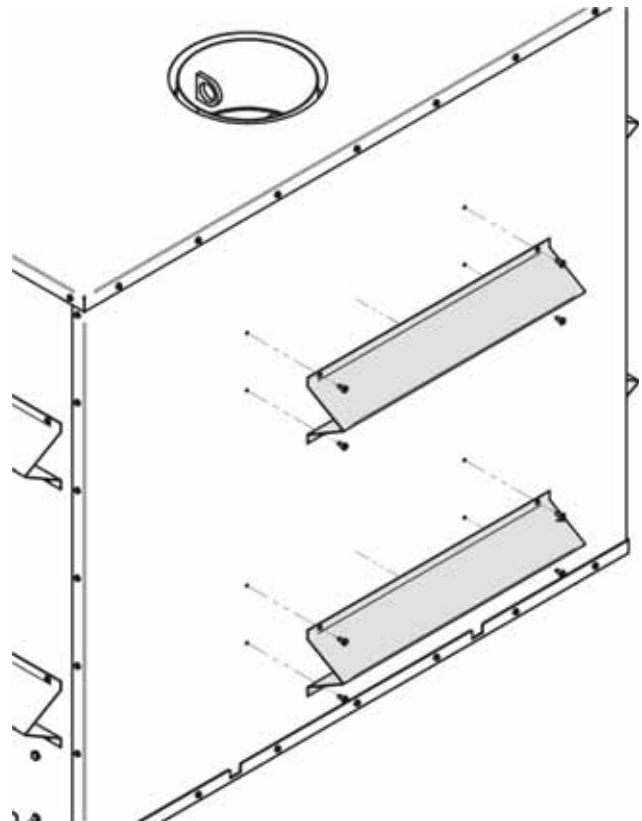
6.3.1 Standoff installation

BEFORE INSTALLING YOUR FIREPLACE, YOU MUST INSTALL THE TWO STANDOFFS ON THE SIDE AND THE TWO STANDOFFS ON THE BACK OF THE FIREPLACE.

The standoffs are in the firebox of the fireplace and the screws are with the manual kit. Using the screws provided, install two standoffs on each side and two standoffs on the back of the fireplace.



Side standoffs



Back standoffs

6.3.2 Transportation packaging

To facilitate transportation of the St. Clair 4300 fireplace before installation, we have designed a transportation packaging that allows reducing the weight. The fireplace refractory panels are in a box you can carry separately. We suggest you install the refractory panels after the setting up of the fireplace. To install the refractory panels, see **APPENDIX 6 - REFRACTORY SLABS REPLACEMENT**.

6.3.3 Locating the St. Clair 4300

The best location to install your fireplace is determined by considering the location of windows, doors, and the traffic flow in the room where the fireplace is located, allowing space in front of the unit for the heart extension and the mantel, and taking into consideration the location of the hot air ducts (optional), outside air kit and chimney. If possible, choose a location where the vent will not interfere with any truss, roof beams, wall studs, water pipes or electrical wiring. It may be easier to relocate the fireplace than to rework the building structure. Also choose a location that allows installing the least amount of offsets in the chimney.

Usually, no additional floor support is needed for the fireplace. The adequacy of the floor can be checked by first estimating the weight of the fireplace system. Weights are given in the section **2.2 - General features**. Next, measure the area occupied by the fireplace which is normally 50 3/4" X 26 7/8" (128.9 cm x 68.6 cm). Note the floor construction and consult your local building code to determine if additional support is needed.

WARNING

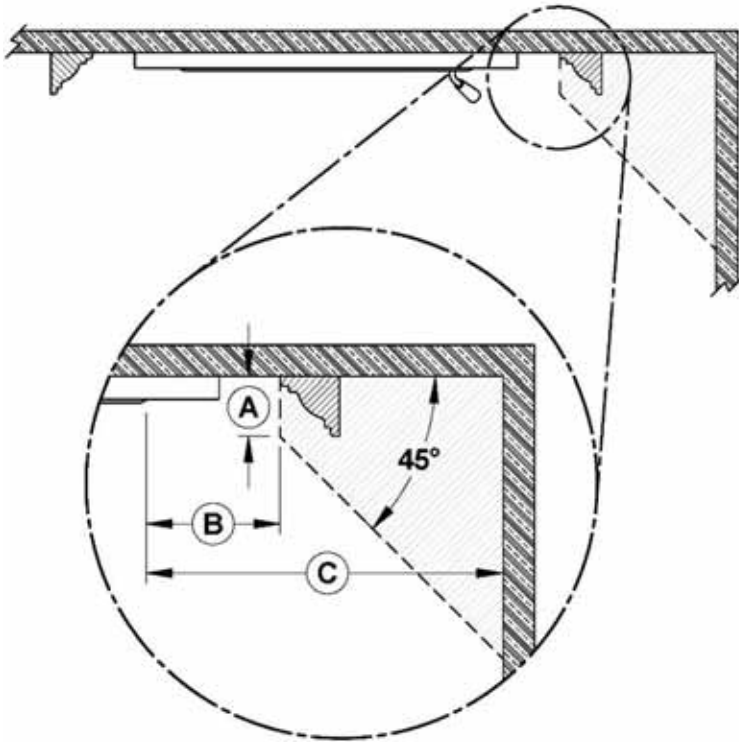
THE FIREPLACE MUST BE INSTALLED ON A LEVEL AND STRAIGHT (NOT UNEVEN) SURFACE.

6.3.4 CLEARANCES TO COMBUSTIBLE MATERIALS

The clearances shown in this section have been determined by test according to procedures set out in safety standards ULC-S610 (Canada) and UL127 (U.S.A.). When the fireplace 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.

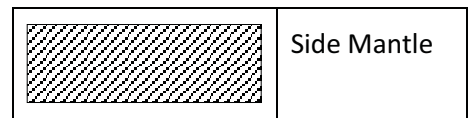
WARNING

NO PART OF THE FIREPLACE MAY BE LOCATED CLOSER TO COMBUSTIBLES THAN THE MINIMUM CLEARANCE FIGURES GIVEN.



	CLEARANCES*
A	6" (152 mm)
B	8" (203 mm)
C	24" (610 mm)

*Measurements are from the door opening.



Wall in front of fireplace: 48"

Ceiling: 84 in. (2.13 m) measured from the base of the fireplace.

Fireplace enclosure:

Back: 0"

Sides: 0"

Floor (under the fireplace): 0"

Chimney: 2" (50 mm)

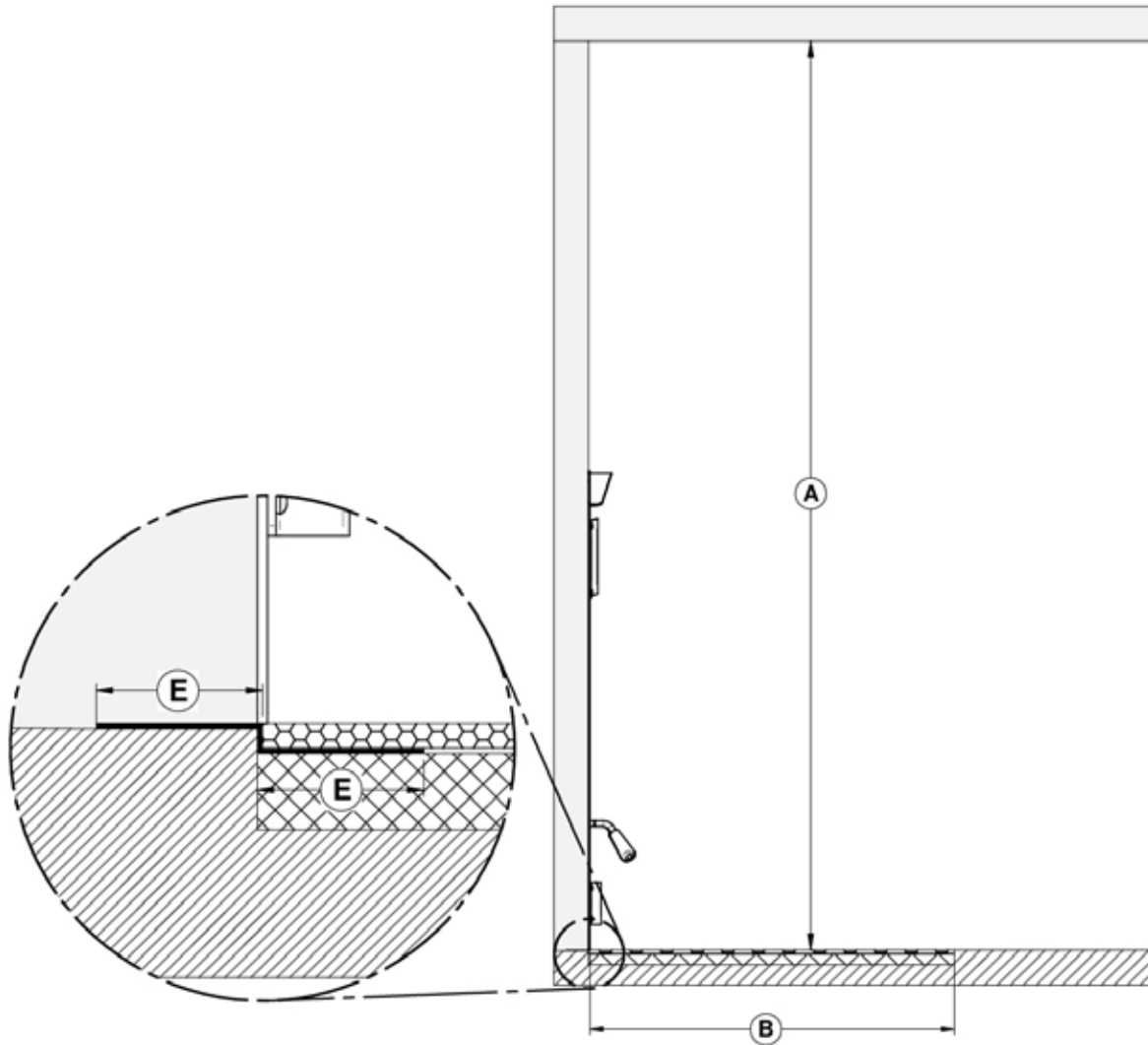
6.3.5 HEARTH EXTENSION CONSTRUCTION OPTIONS




The St. Clair 4300 may be installed directly on the floor or on a raised combustible or non-combustible base. Installation can be done using one of the following options:

Option	Installation type	R factor required	Non-combustible floor protection length
#1	Directly on the floor	Yes (2.00)	32" (813 mm)
#2	Installation raised less than 8" from floor	Yes (2.00)	32" (813 mm)
#3	Installation on a more than 8" raised base	Yes (2.00)	16" (406 mm)
#4	Installation raised between 8" and 12" from floor	Yes (1.00)	20" (508 mm)
#5	Installation raised more than 12" from floor	No	16" (406 mm)

6.3.5.1 Option #1 - Installation directly on the floor

- A 2.00 R value for the hearth extension is required. The non-combustible hearth extension floor area must extend at least 32" (813 mm) (**B**) in front of the hearth.
- The joint between the hearth extension and the fireplace (**E**), for the entire width of the floor protection, must be protected by a bent and continuous piece of sheet metal (not included).
- An 84" clearance between the fireplace base and the ceiling (**A**) must be respected.



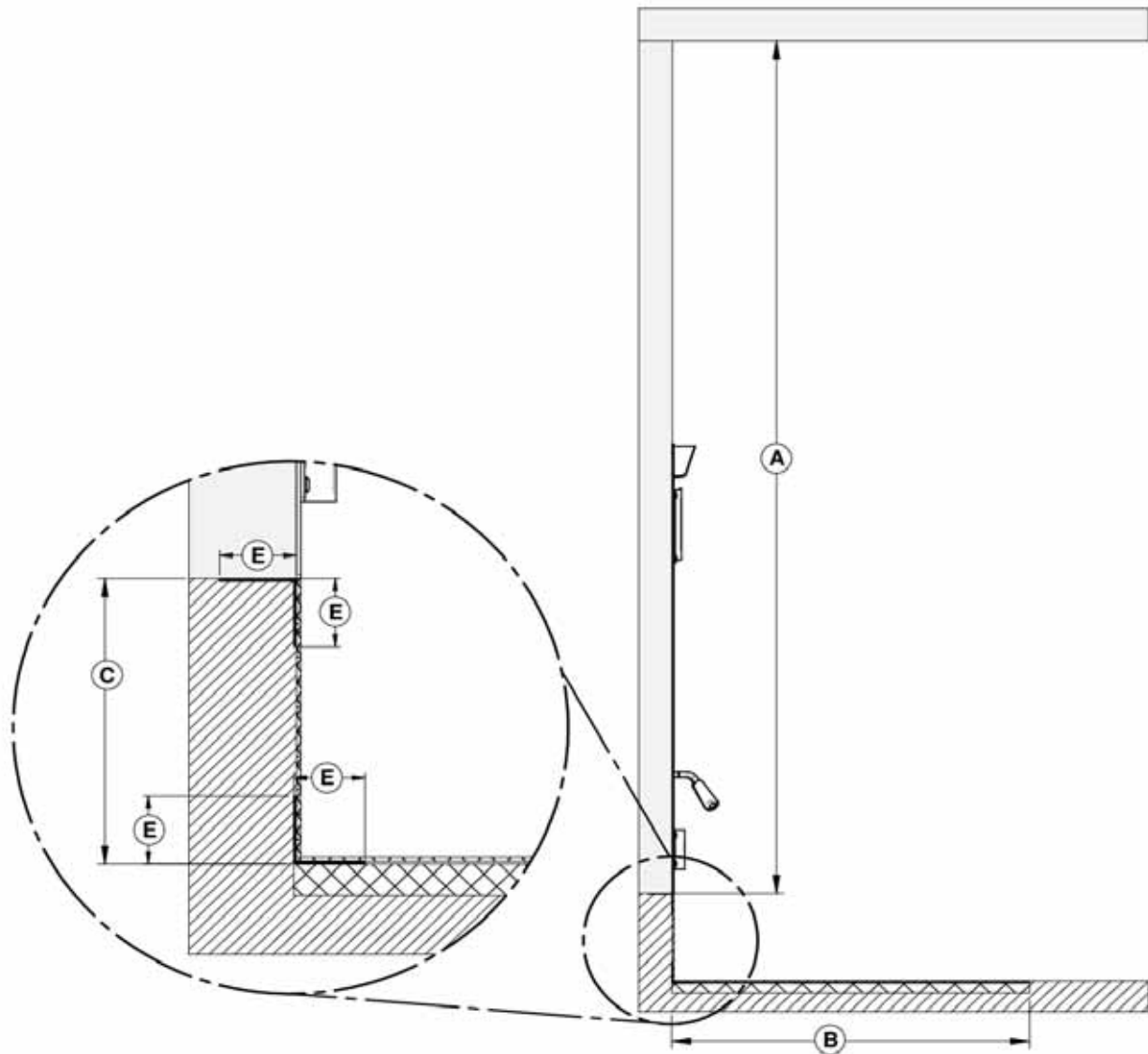
MINIMUM MEASUREMENTS		
A	84" (2134 mm)	 Matériaux combustibles Combustible Materials
B	32" (813mm)	 Protection de plancher Floor protection
E	2" (51 mm)	 Revêtement de plancher Floor covering

NOTE

The floor under the fireplace should match or exceed the height of the floor protection.

6.3.5.2 Option #2 - Installation raised less than 8" from floor

- A 2.00 R value for the hearth extension is required. The non-combustible hearth extension floor area must extend at least 32" (813 mm) **(B)** in front of the hearth.
- The upper and lower angle, for the full width of the floor protection, must be protected 2" horizontally and 2" vertically **(E)** by a bent and continuous piece of sheet metal (not included). Apart from these two corners, the sheet metal does not have to cover the rest of the wall between the base of the fireplace and the floor.
- An 84" clearance between the fireplace base and the ceiling **(A)** must be respected.

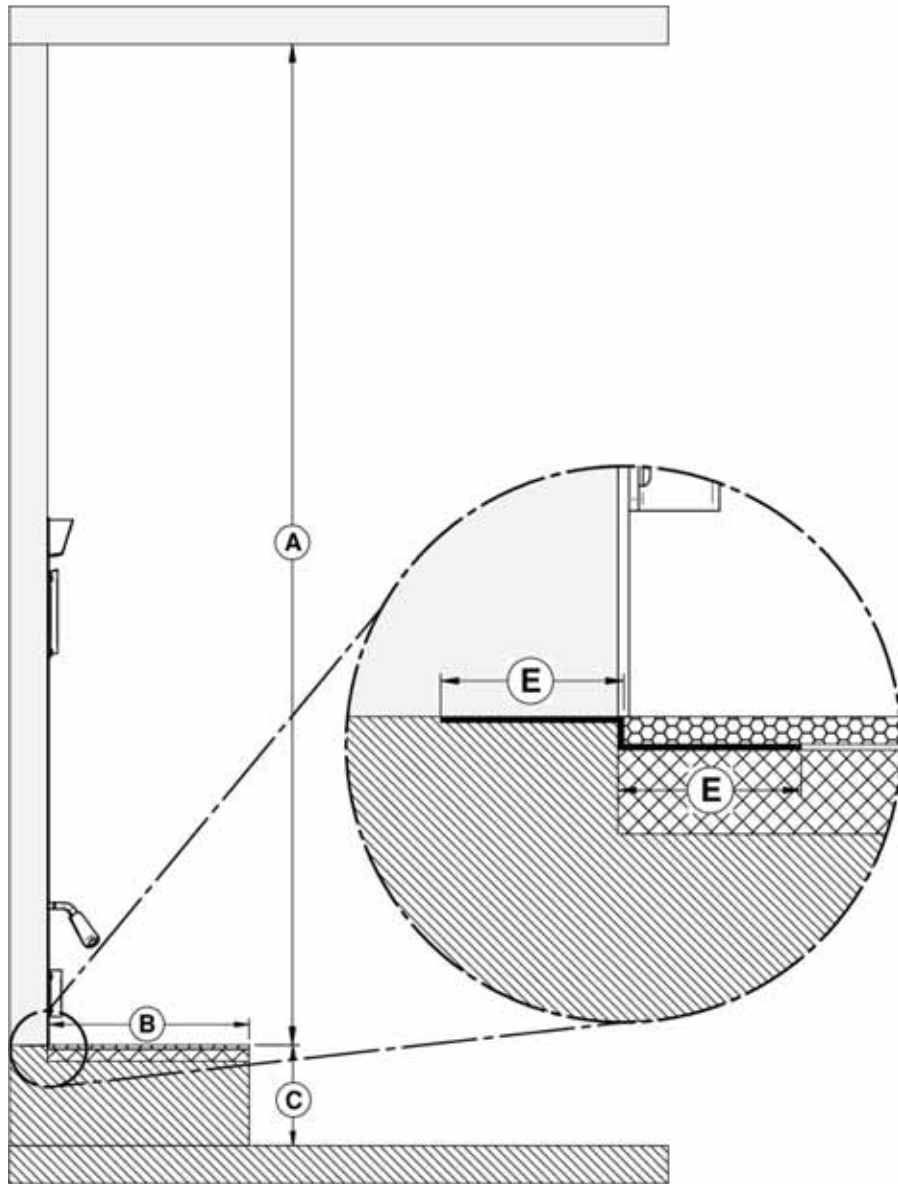


MINIMUM MEASUREMENTS	
A	84" (2134 mm)
B	32" (813mm)
C	Less than 8" (203 mm)
E	2" (51 mm)

	Matériaux combustibles Combustible Materials
	Protection de plancher Floor protection
	Revêtement de plancher Floor covering

6.3.5.3 Option #3 - Installation on a more than 8" raised base

- When installed on a more than 8" (203 mm) raised base **(C)**, A 2.00 R value for the hearth extension is required. The non-combustible hearth extension floor area must extend at least 16" (406 mm) **(B)** in front of the hearth.
- The joint between the hearth extension and the fireplace **(E)**, for the entire width of the floor protection, must be protected by a bent and continuous piece of sheet metal (not included).
- An 84" clearance between the fireplace base and the ceiling **(A)** must be respected.

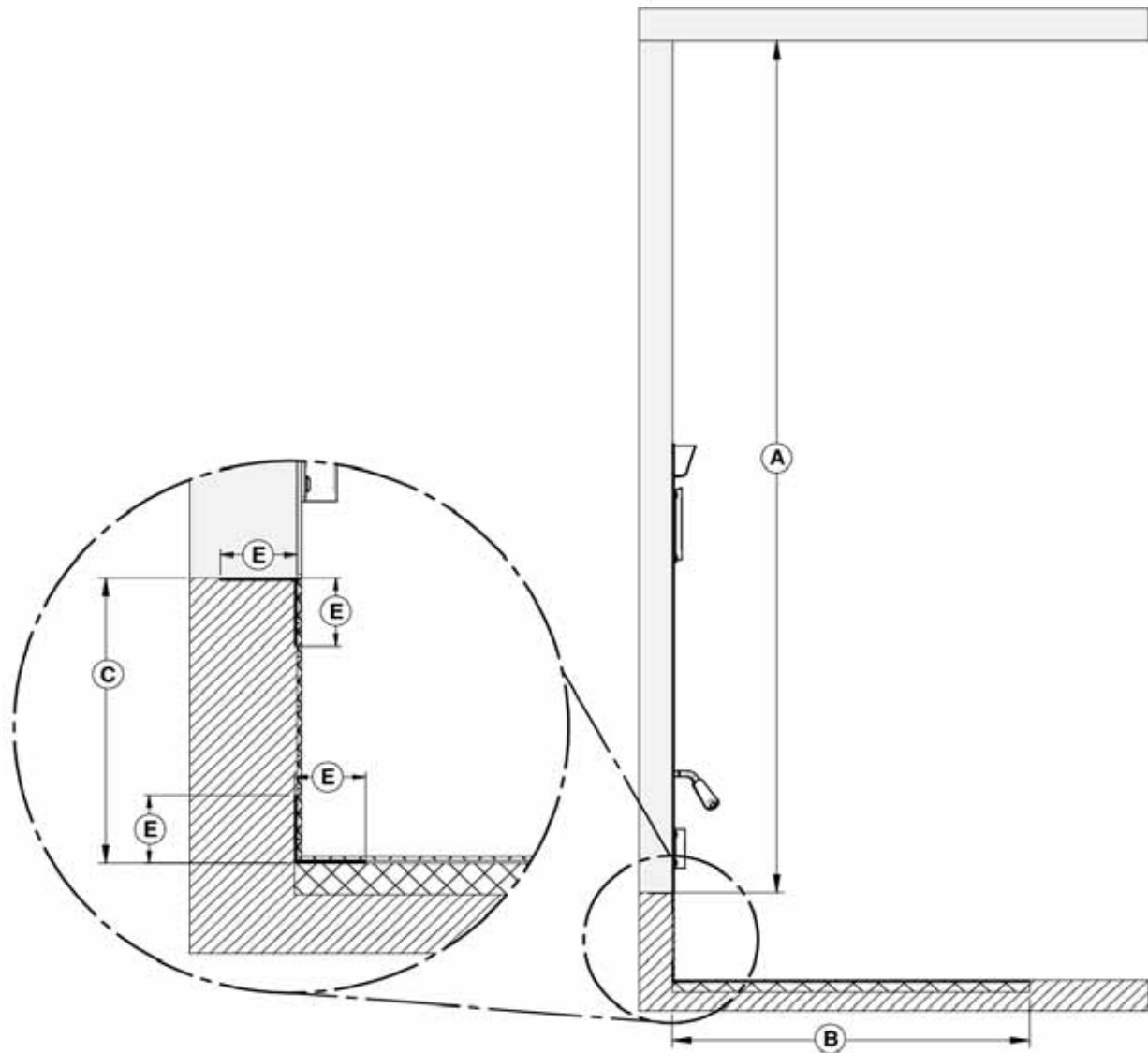


MINIMUM MEASUREMENTS	
A	84" (2134 mm)
B	16" (406mm)
C	More than 8" (203 mm)
E	2" (51 mm)

	Matériaux combustibles Combustible Materials
	Protection de plancher Floor protection
	Revêtement de plancher Floor covering

6.3.5.4 Option #4 - Installation raised between 8" and 12" from floor

- A 1.00 R value for the hearth extension is required. The non-combustible hearth extension floor area must extend at least 20" (508 mm) **(B)** in front of the hearth.
- The upper and lower angle, for the full width of the floor protection, must be protected 2" horizontally and 2" vertically **(E)** by a bent and continuous piece of sheet metal (not included). Apart from these two corners, the sheet metal does not have to cover the rest of the wall between the base of the fireplace and the floor.
- An 84" clearance between the fireplace base and the ceiling **(A)** must be respected.

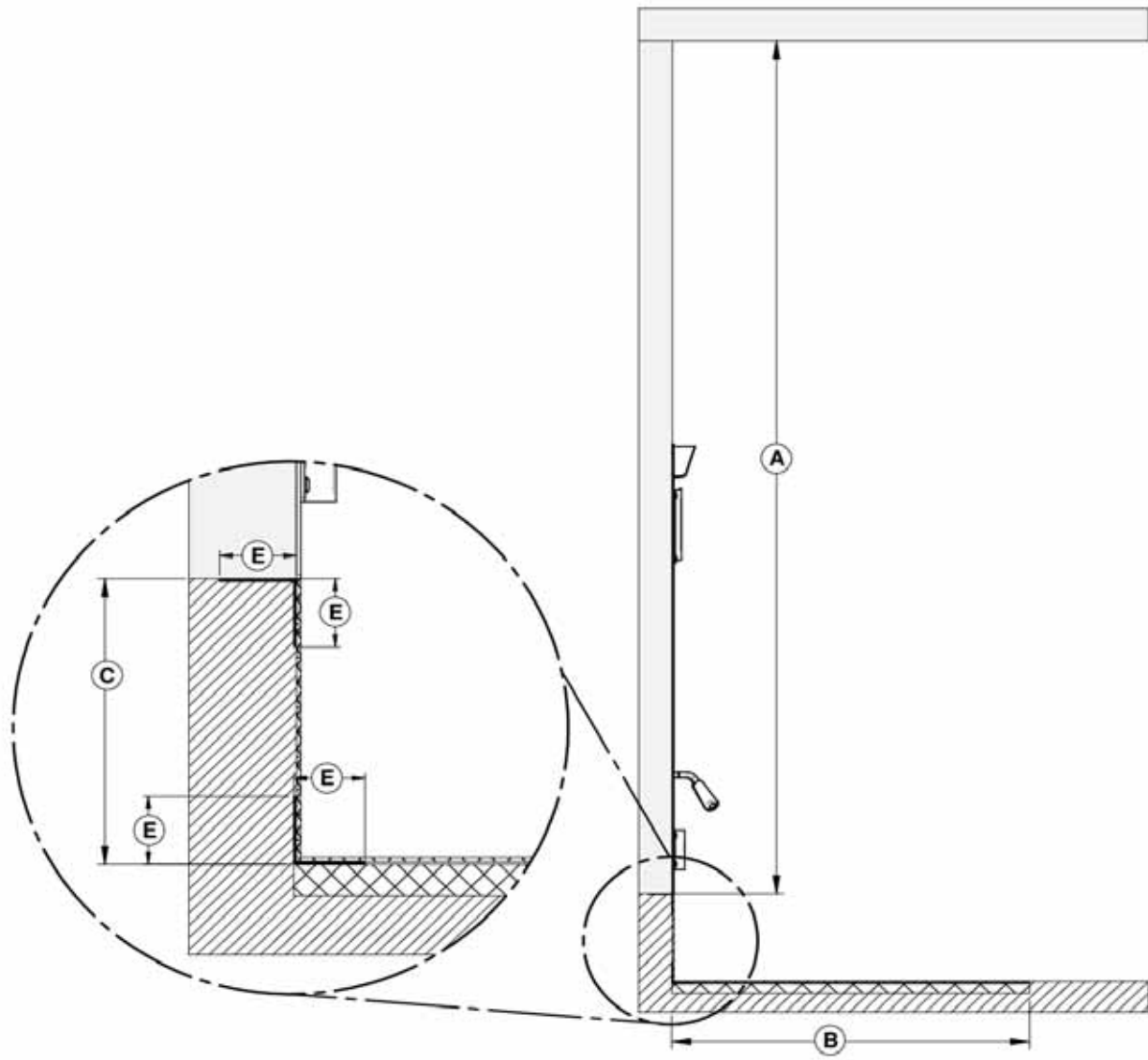


MINIMUM MEASUREMENTS	
A	84" (2134 mm)
B	20" (508 mm)
C	Between 8" and 12"
E	2" (51 mm)

	Matériaux combustibles Combustible Materials
	Protection de plancher Floor protection
	Revêtement de plancher Floor covering

6.3.5.5 Option #5 - Installation raised more than 12" from floor

- No R value for the hearth extension is required. The non-combustible hearth extension floor area must extend at least 16" (406 mm) **(B)** in front of the hearth.
- The upper and lower angle, for the full width of the floor protection, must be protected 2" horizontally and 2" vertically **(E)** by a bent and continuous piece of sheet metal (not included). Apart from these two corners, the sheet metal does not have to cover the rest of the wall between the base of the fireplace and the floor.
- An 84" clearance between the fireplace base and the ceiling **(A)** must be respected.



MINIMUM MEASUREMENTS	
A	84" (2134 mm)
B	16" (406 mm)
C	12" and more
E	2" (51 mm)

	Matériaux combustibles Combustible Materials
	Protection de plancher Floor protection
	Revêtement de plancher Floor covering

6.3.5.6 R Calculations

The use of an R value is convenient when more than one material is going to be used in the hearth extension to cover the combustible surface. This is because R values are additive, whereas K values are not. To find the corresponding R factor to use for some selected materials, please see **Table 1 : Thermal Characteristics of Common Floor Protection Materials***.

There are two ways to calculate the R factor of the floor protection. First, by adding the R-values of the proposed materials or if some K and thickness values are given, by converting them to R values.

To calculate the R factor for a composite floor protection made of a combination of alternative materials, simply add the R-values of those materials. If the result is equal to or larger than the required R value, the combination is acceptable. For R-values of some selected materials, see **Table 1 : Thermal Characteristics of Common Floor Protection Materials***.

Example: If the required floor protection R is equal or higher than 1.00. Proposed materials: four inches of brick and one inch of Durock® board:

Four inches of brick ($R = 4 \times 0.2 = 0.8$) + 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 the R values of your proposed materials as shown in the previous example.

In the previous example: Four inches of brick ($K = 4/5 = 0.8$) + 1 inch of Durock® ($R = 1 / 1.92 = 0.52$). $0.8 + 0.52 = 1.32$.

Table 1 : 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")	0.135	0,920**

* Information as reported by manufacturers and other resources.

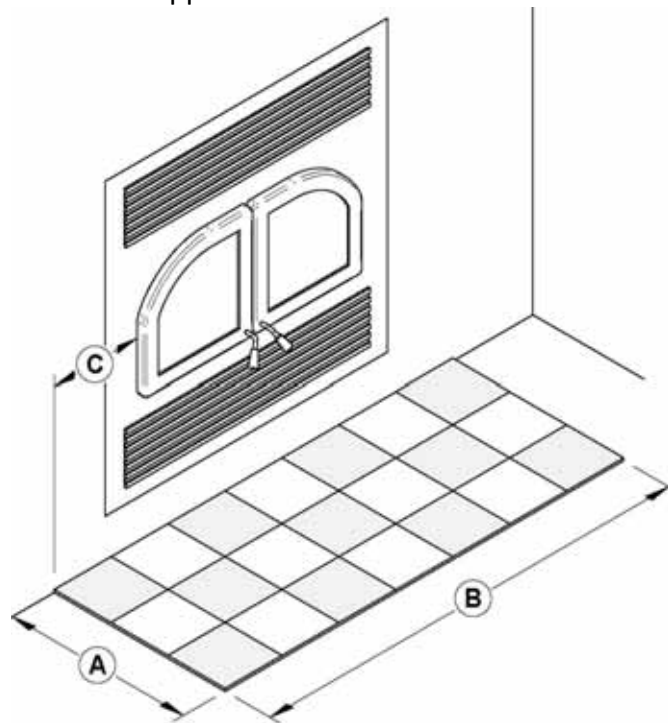
** For a 1/8" thickness. You cannot «stack» horizontal still air to accumulate R-values; you must separate each layer of horizontal still air with another non-combustible material.

6.3.6 MINIMUM HEARTH EXTENSION REQUIREMENTS

Option	Installation type	R factor required	A	B	C
#1	Directly on the floor	Yes (2.00)	32"	49"	8"
#2	Installation raised less than 8" from floor	Yes (2.00)	32"	49"	8"
#3	Installation on a more than 8" raised base	Yes (2.00)	16"	49"	8"
#4	Installation raised between 8" and 12" from floor	Yes (1.00)	20"	49"	8"
#5	Installation raised 12" or more from floor	No	16"	49"	8"

For whether installation, the hearth extension floor area must extend at least 8" (203 mm) on each side of the door opening (**C**). The joint between the hearth extension and the fireplace hearth needs to be made of a piece sheet metal (not included).

The floor protection must be a continuous (grouted joints) non-combustible material such as ceramic tile*, cement board, brick, millboard or equivalent, or any other approved or listed material suited for floor protection. Note that any type of tile will require a continuous non-combustible sheet beneath to prevent the possibility of embers falling through to the combustible floor if cracks or separation should occur in the finished surface. Check local codes for approved alternatives.



CAUTION

DO NOT LEAVE CARPET UNDER THE FLOOR PROTECTION IN FRONT OF THE FIREPLACE.

6.3.7 Framing construction

6.3.7.1 Framing

The construction of the framing, facing, and mantel must be in accordance with the standards and the following instructions:



Frame the sides and back of the fireplace using 2" x 3" (5 cm x 8 cm) or heavier lumber. However, the front studs as well as headers on top of the fireplace must be of a depth no more than the depth of the top standoffs.

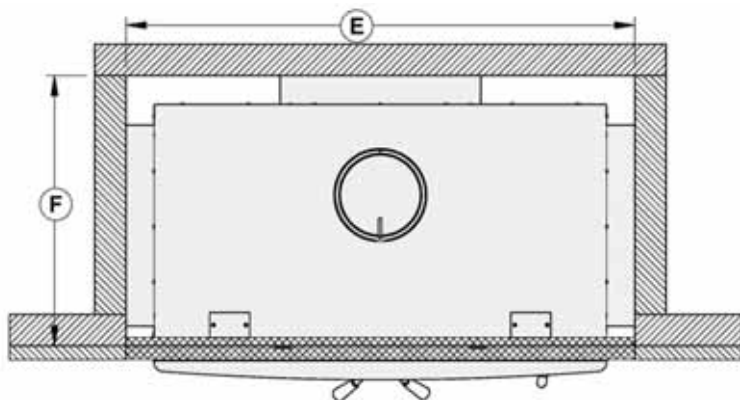
Frame the fireplace with vertical studs at the sides of the fireplace running from floor to ceiling. Position the studs back from the front edge of the fireplace, a space the thickness of the facing material so that the facing can be installed flush with the fireplace facing. Frame headers between the vertical studs only as follows:

- Place the front facing headers in 2" x 3" or of a depth no more than the depth of the top standoffs. Do not put wood or any material within the area above the fireplace.
- Place headers only as required to support the facing and mantel.

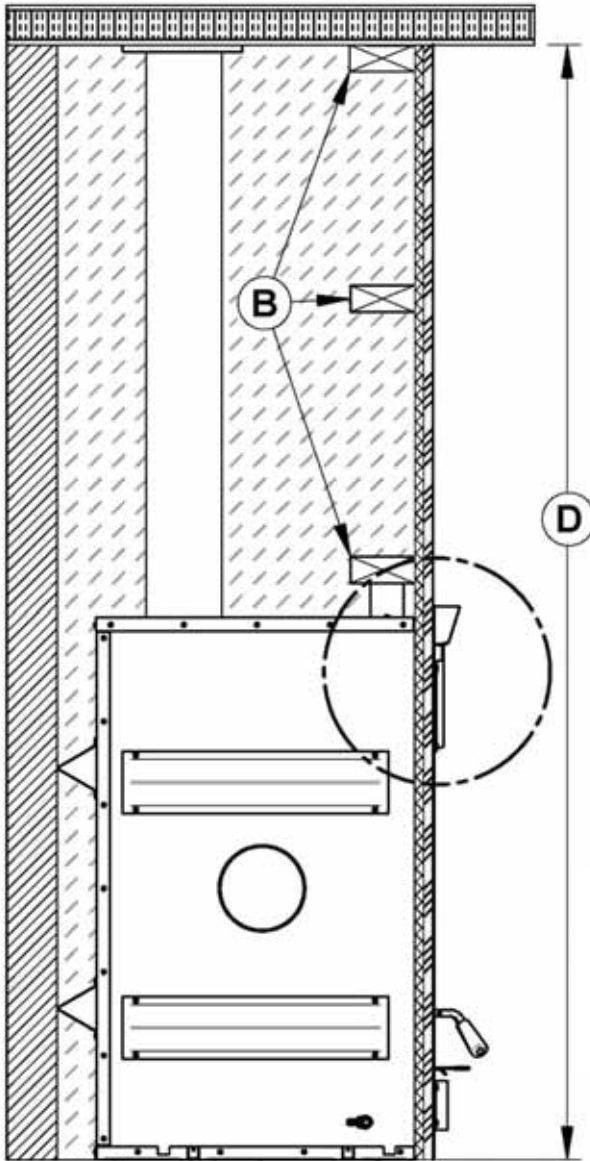
WARNING

- **DO NOT PACK REQUIRED AIR SPACES WITH INSULATION OR OTHER MATERIAL.**
- **THE FIREPLACE MUST NOT BE IN CONTACT WITH ANY INSULATION OR LOOSE FILLING MATERIAL. COVER THE INSULATION WITH DRYWALL PANELS AROUND THE FIREPLACE.**
- **COMBUSTIBLE FRAMING MATERIAL CANNOT BE USED IN THE SPACE DIRECTLY ABOVE THE FIREPLACE. THIS AREA MUST REMAIN EMPTY FOR A HEIGHT OF 84" (2.13 M) MEASURED FROM THE BASE OF THE FIREPLACE.**

LEGEND	
	Combustible material allowed in this area
	Non-combustible material only in this area






MESURES	
E	50 3/4" (128,8 cm)
F	26 7/8" (68,3 cm)



B	NON-COMBUSTIBLE FRAMING (STEEL STUD)
----------	---------------------------------------------

	CLEARANCE
D	84" (2.13m)

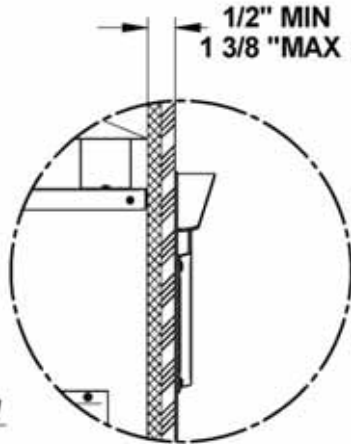
-  **This section must remain empty**
-  **Non-combustible material**
-  **Non-combustible finishing material**

Refer to the building code or the local code for regulations concerning the need to install finishing material inside the chase around the fireplace.

NOTE

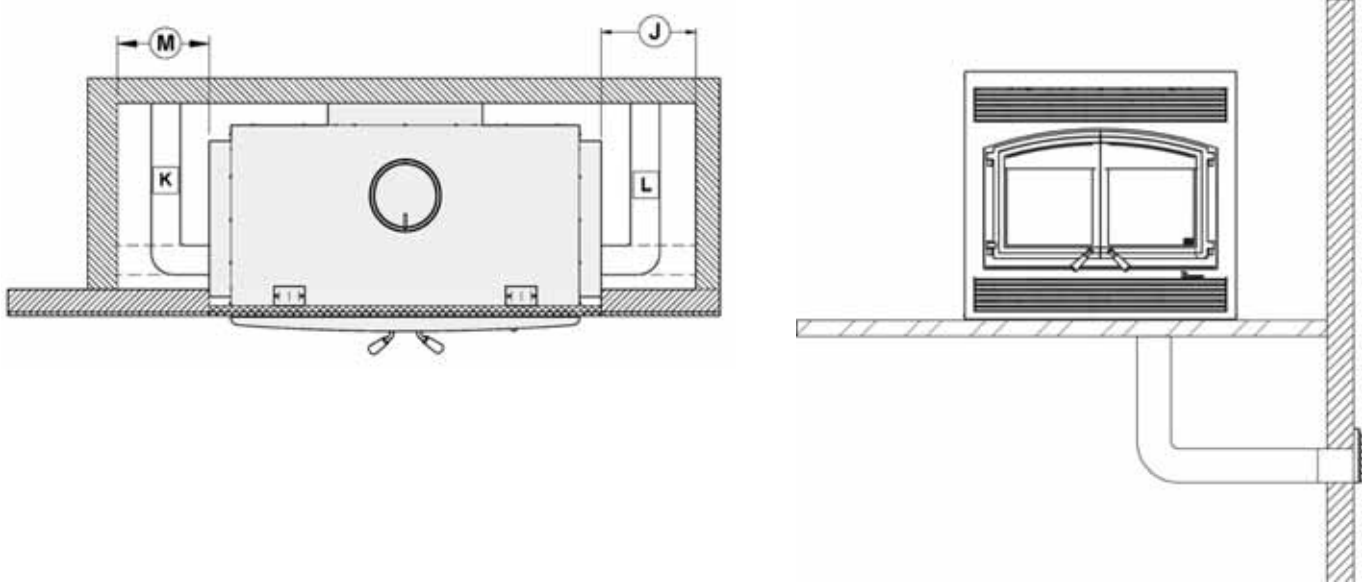
THIS FIREPLACE IS BUILT IN ORDER TO MAINTAIN A 1/2" GAP MINIMUM BETWEEN THE FIREPLACE AND THE FACEPLACE.

IT IS RECOMMENDED TO HAVE THE NON-COMBUSTIBLE MATERIAL FLUSH WITH THE FIREPLACE.



6.3.7.2 Framing when installing a fresh air intake kit or a forced air kit

- See **APPENDIX 5 - INSTALLING THE FRESH AIR INTAKE KIT** for installation instructions of a fresh air intake kit (L).
- See section **APPENDIX 3 - FORCED AIR DISTRIBUTION KIT* (WB2FA)** for more details on installing the forced air kit (K).



Refer to the building code or the local code for regulations concerning the need to install finishing material inside the chase around the fireplace.

CAUTION

FLEXIBLE PIPE IN THE FRAMING ENCLOSURE MUST NOT BE WITHIN STANDOFFS.

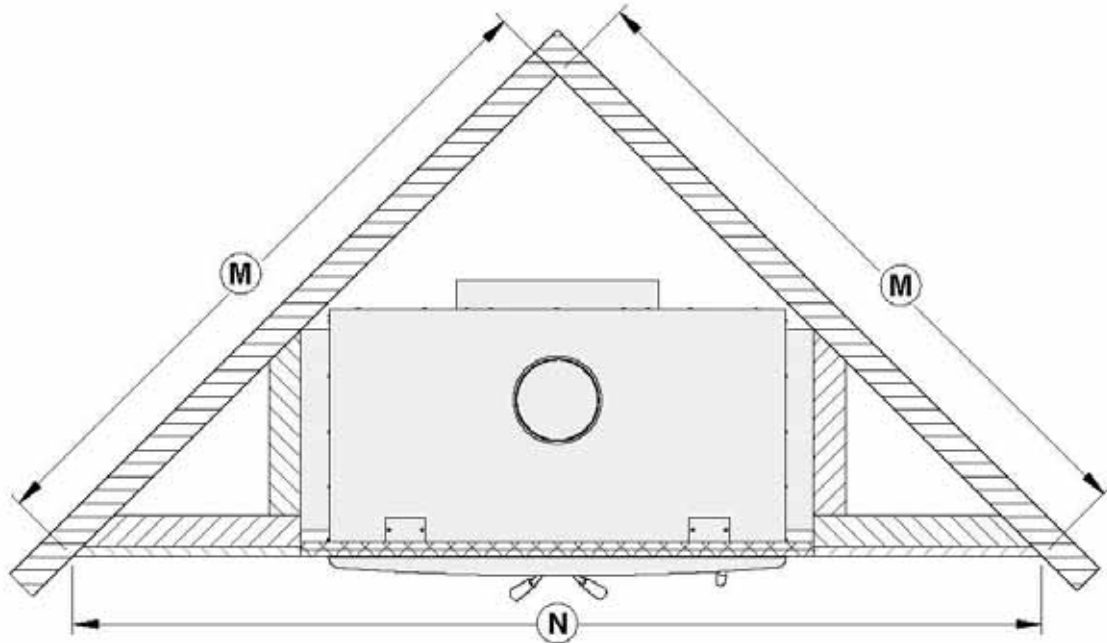
	MINIMUM MEASUREMENTS FOR FRESH AIR INTAKE (J)*	MINIMUM MEASUREMENTS FOR FORCED AIR KIT (M)*
J	6" (152 mm)	
M		10" (254 mm)

* The fresh air intake kit may be installed on the right side and at the bottom of the fireplace. Forced air distribution kit may be installed on either side of the fireplace.

6.3.7.3 Framing for a corner installation

CAUTION

VALUES (M) AND (N) ARE MINIMUM MEASUREMENTS. THEY MAY NEED TO BE INCREASED TO ALLOW INSTALLATION OF A FRESH AIR INTAKE KIT OR FORCED AIR KIT, OR DEPENDING ON THE FINISH MATERIAL USED.



	MEASUREMENTS*
M	67 5/8" (1718 mm)
N	95 11/16" (2430 mm)

Refer to the building code or the local code for regulations concerning the need to install finishing material inside the chase around the fireplace.

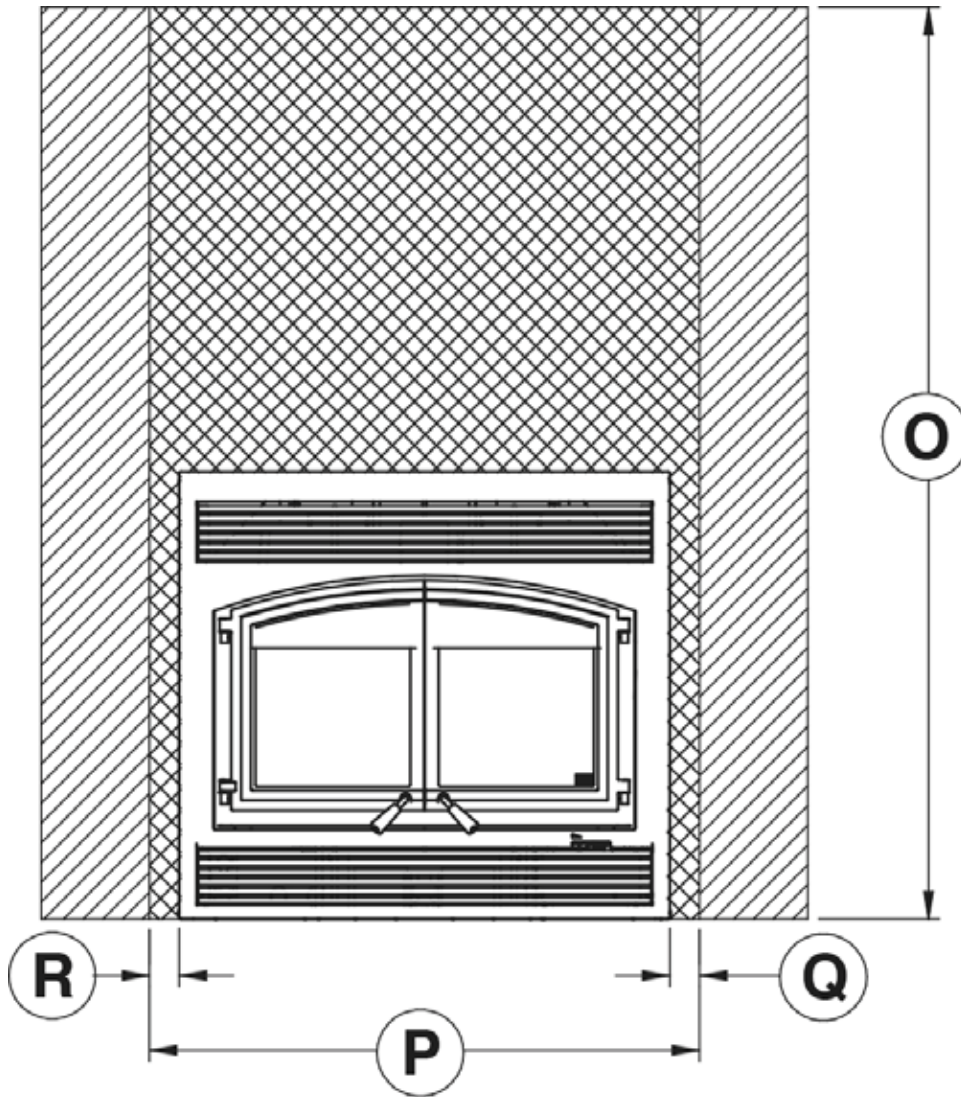
6.3.8 Facing

Materials directly in the front of the fireplace, must be non-combustible and have the minimum dimensions shown on the following figure.



Non-combustible materials such as brick, stone or ceramic tile may project in front of and onto the fireplace decorative frame.

CAUTION

MATERIALS MUST BE INSTALLED SO THAT THE FACEPLATE MAY BE REMOVED AFTER THE INSTALLATION. THE FACEPLATE IS DESIGNED TO OVERLAP THE MATERIAL SURROUNDING THE FIREPLACE. IF THE MATERIAL IS THICKER, USE A FACEPLATE GAUGE FOR POSITIONING AND MAKE SURE THAT THE FACEPLATE CAN BE REMOVED AFTER IT HAS BEEN INSTALLED.



MEASUREMENTS	
O	84" (2134mm)
P	50 3/4" (1289mm)
Q	3 1/16" (78 mm)
R	3" (76 mm)

LEGEND	
	Combustible material allowed in this area
	Non-combustible material only in this area

6.3.9 Installation of a non-combustible shelf

It is possible to install a shelf but it must be made of non combustible materials. It must be installed at at least 52" from the base of the fireplace.

WARNING

THE SHELF WILL BE HOT. DO NOT PUT COMBUSTIBLE MATERIALS ON THE SHELF.

7 THE VENTING SYSTEM

7.1 General

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

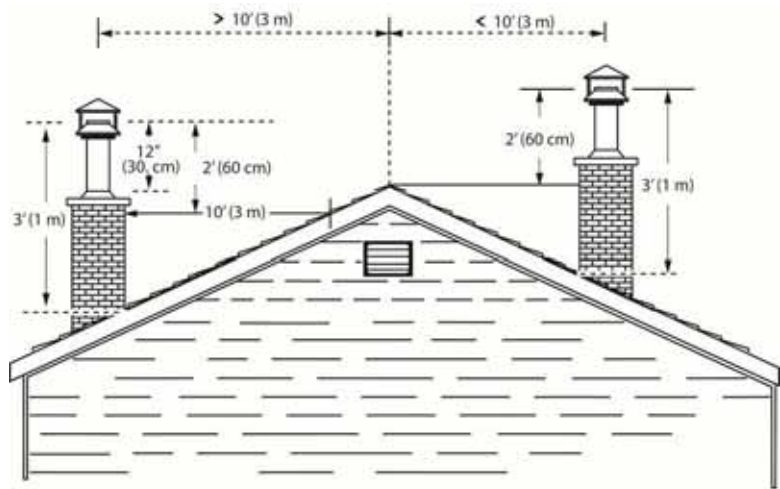
The heat in the flue gases that pass from the fireplace into the chimney is not waste heat. This heat is what the chimney uses to make the draft that draws in combustion air, keeps smoke inside the fireplace and safely vents exhaust to outside. You can think of heat in the flue gas as the fuel the chimney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

7.2 Suitable chimneys

Your wood fireplace will provide optimum efficiency and performance when connected to a 8-inch diameter chimney.

7.3 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.).



7.4 The relationship between the chimney and the house

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 backdrafting when there is no fire in the fireplace, slow kindling of new fires, and smoke roll-out when the door is opened for loading. On the other hand, excessive draft will make the fire uncontrollable, creating very high temperatures in the unit as well as in the chimney and seriously damaging them. A reddish glow on the unit and on the chimney components indicates overheating. Excessive temperatures can cause a chimney fire.

7.4.1 Why the chimney should penetrate the highest heated space

When it is cold outside, the warm air in the house is buoyant so it tends to rise. This tendency of warm air to rise creates a slight pressure difference in the house. Called 'stack effect', it produces a slightly negative pressure low in the house (relative to outside) and a slightly positive pressure zone high in 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 low in the house will compete against the desired upward flow in the chimney.

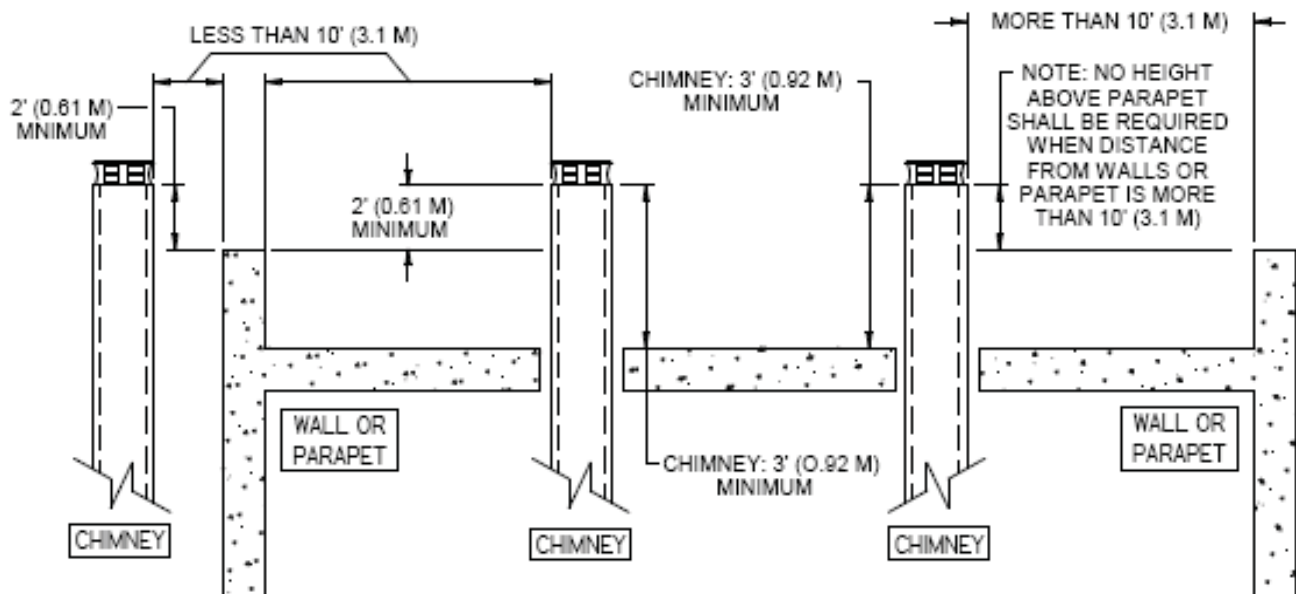
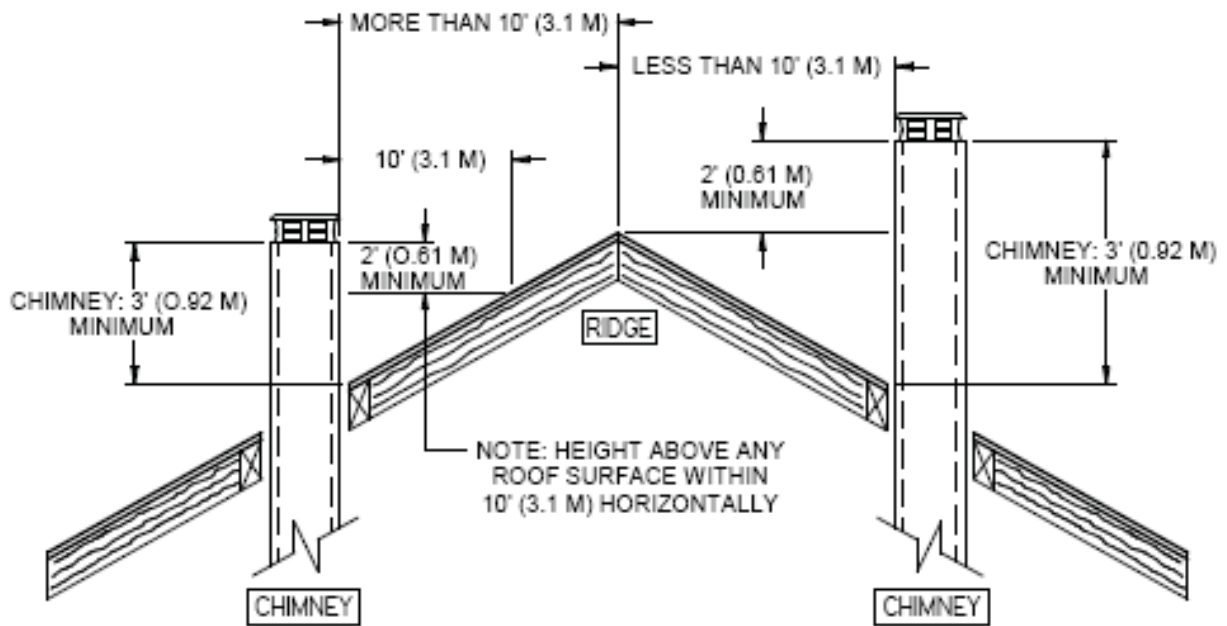
There are two reasons why the chimney in the house at right will cold backdraft when it is cold outside and there is no fire burning in the fireplace. First, the chimney runs up the outside of the house, so the air in it is colder and denser than the warm air in the house. And second, the chimney is shorter than the heated space of the house, meaning the negative pressure low in the house will pull outside air down the chimney, through the fireplace and into the room. Even the finest fireplace will not work well when connected to this chimney.



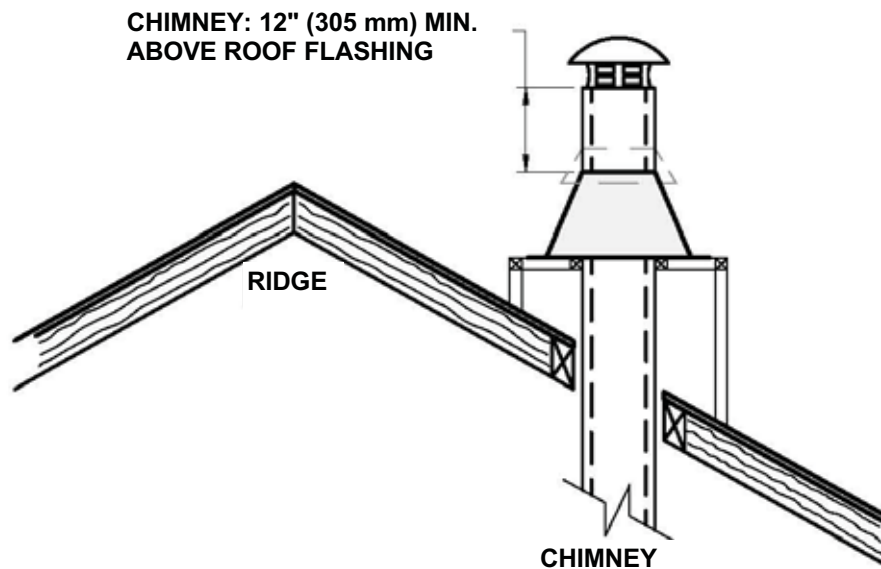
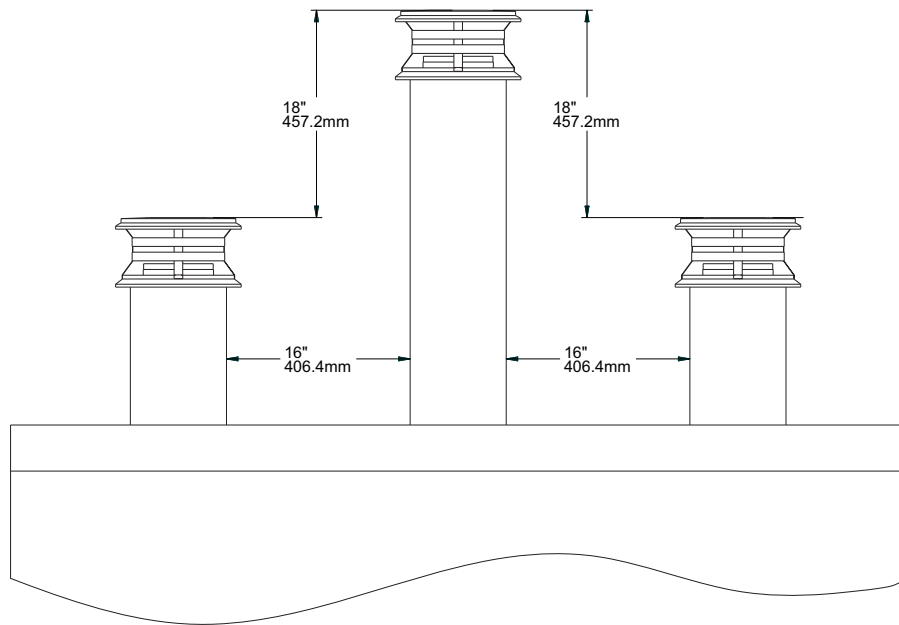
7.5

Chimney installation notes

- If possible, install an interior chimney as it will provide better performance. In areas with continuous temperatures below -18°C (0°F), the use of an exterior chimney increases the likelihood of operating problems such as low draft, high rate of creosoting, and poor start-up characteristics. Exterior chimneys are also prone to down-drafting and flow reversal. Installations, which are located on lower floors in the house, such as in a basement, in combination with outside chimney, are especially prone to flow reversal.
- The St. Clair 4300 is listed only with chimney systems described in **TABLE 4 : LISTED CHIMNEYS FOR YOUR St.Clair 4300.**
- A chimney venting a fireplace shall not vent any other appliance.
- The minimum chimney system height for a straight installation is 15 ft. (4.6 m).
- All chimney installations must include at least one support. Reducing the amount of chimney weight on the fireplace will help avoid the noise created when the fireplace expands. This can be achieved by having the chimney supported by the supports. The maximum chimney length that should be supported by the fireplace is 9 ft. (2.75 m) for 2" Solid Pack Chimney and 12 ft. (3.7 m) for 1" Solid Pack Chimney.
- The chimney must extend at least 3 ft. (92 cm) above its point of contact with the roof and at least 2 ft. (61 cm) higher than any wall, roof or building within 10 ft. (3.1 m) of it. See the figures on point 11 below to determine the configuration that applies to your roof (flat or sloped roof and the distance between the chimney and the highest point of the roof and/or the nearest chimney).
- Deviations should be avoided whenever possible, especially the most pronounced. Each deviation adds some restriction to the chimney system and may lead to draft problems.
- If the chimney extends higher than 5 ft. (1.5 m) above its point of contact with the roof, it must be secured using a roof brace.
- A rain cap must be installed on top of the chimney.
- Cut and frame square holes in all floors, ceilings, and roof that the chimney will go through to provide a 2" (50 mm) minimum clearance between the chimney and any combustible materials. Do not fill this 2" space with insulation or any other combustible material.
- Portions of the chimney which may extend through accessible spaces must be enclosed to avoid contact with combustible materials or damage the chimney.



- For installations where more than one chimney is located in the same non-chase or within the same area, we suggest that their terminations be separated by at least 16" (410 mm) horizontally, and 18" (460 mm) vertically. This separation is to prevent smoke migrating from one chimney to another.



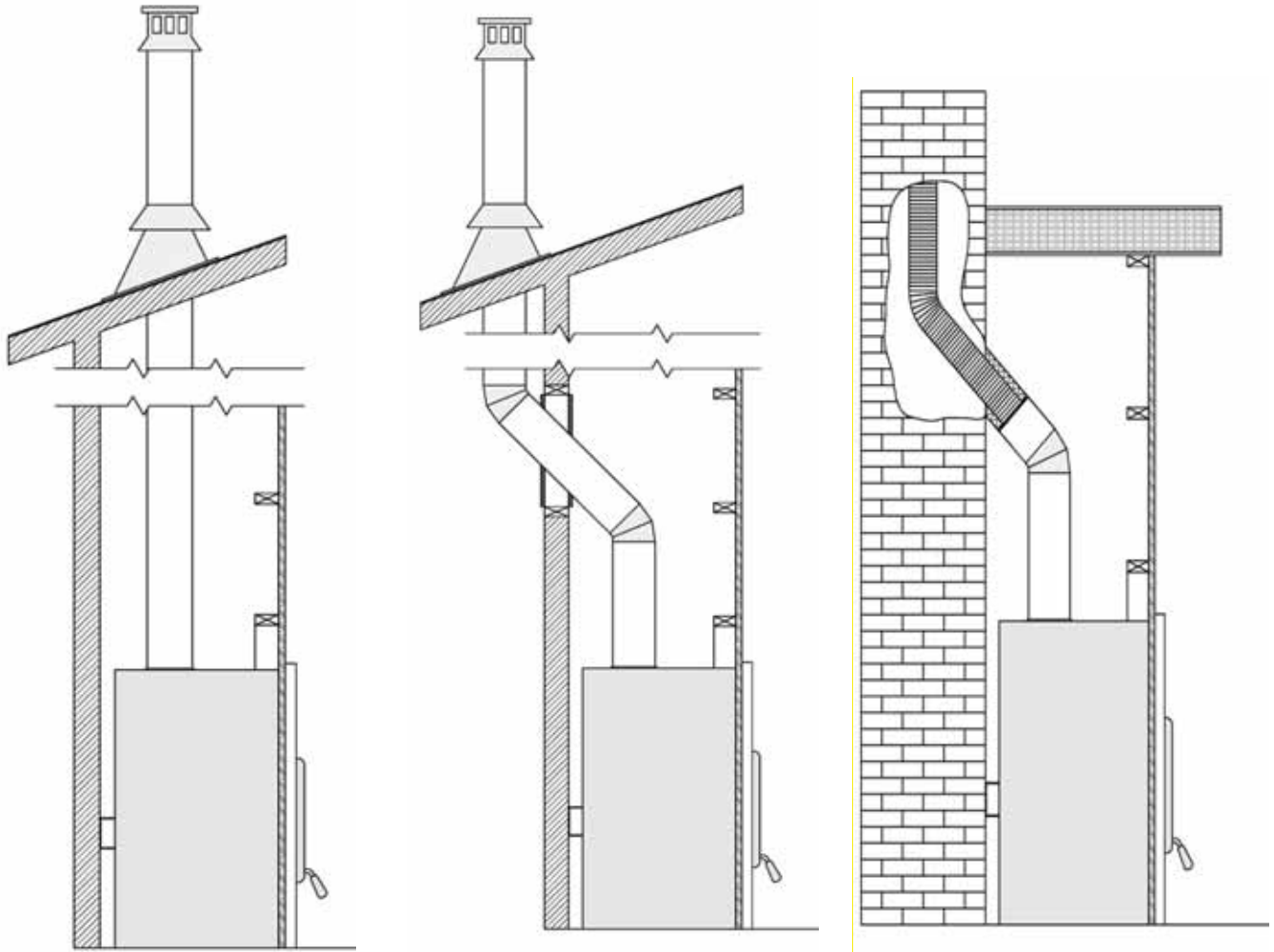
Note: The chimney chase on the roof must be the same size as the flashing.

7.6

Chimney Installation Instructions

Always refer to the chimney manufacturer's Installation manual to ensure a safe installation. Some non-illustrated parts may be required.

7.6.1 Examples of typical chimney installation

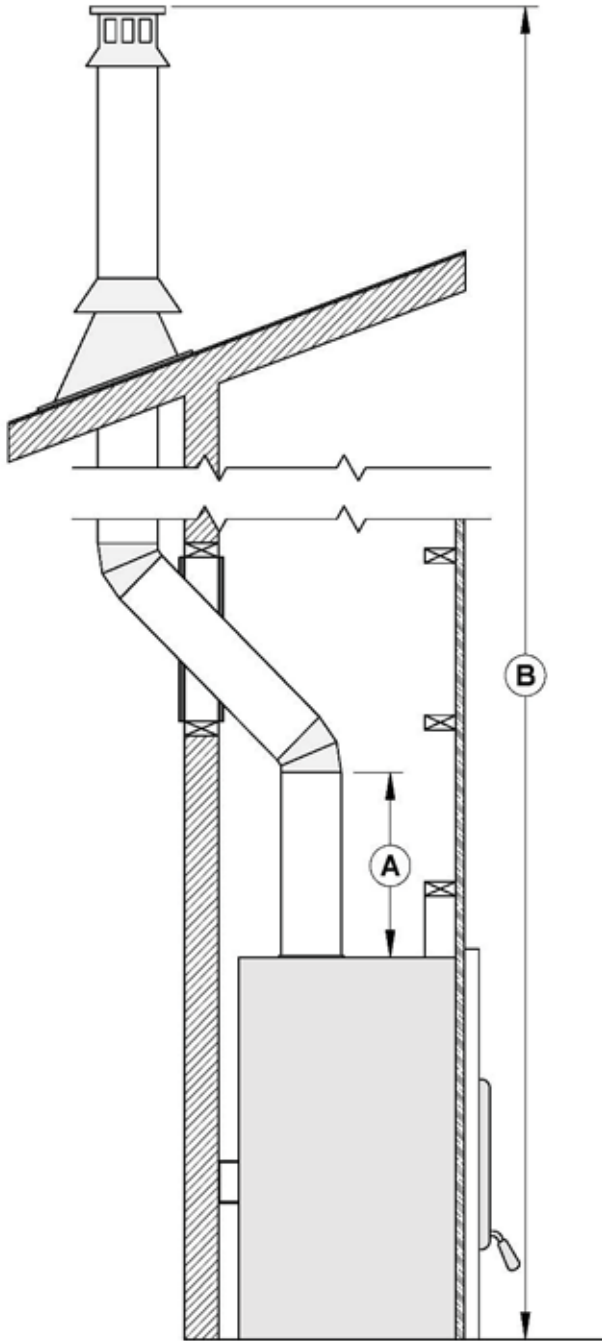


Straight Installation

Exterior offset installation

Connection to a masonry chimney

7.6.2 Exterior offset installation



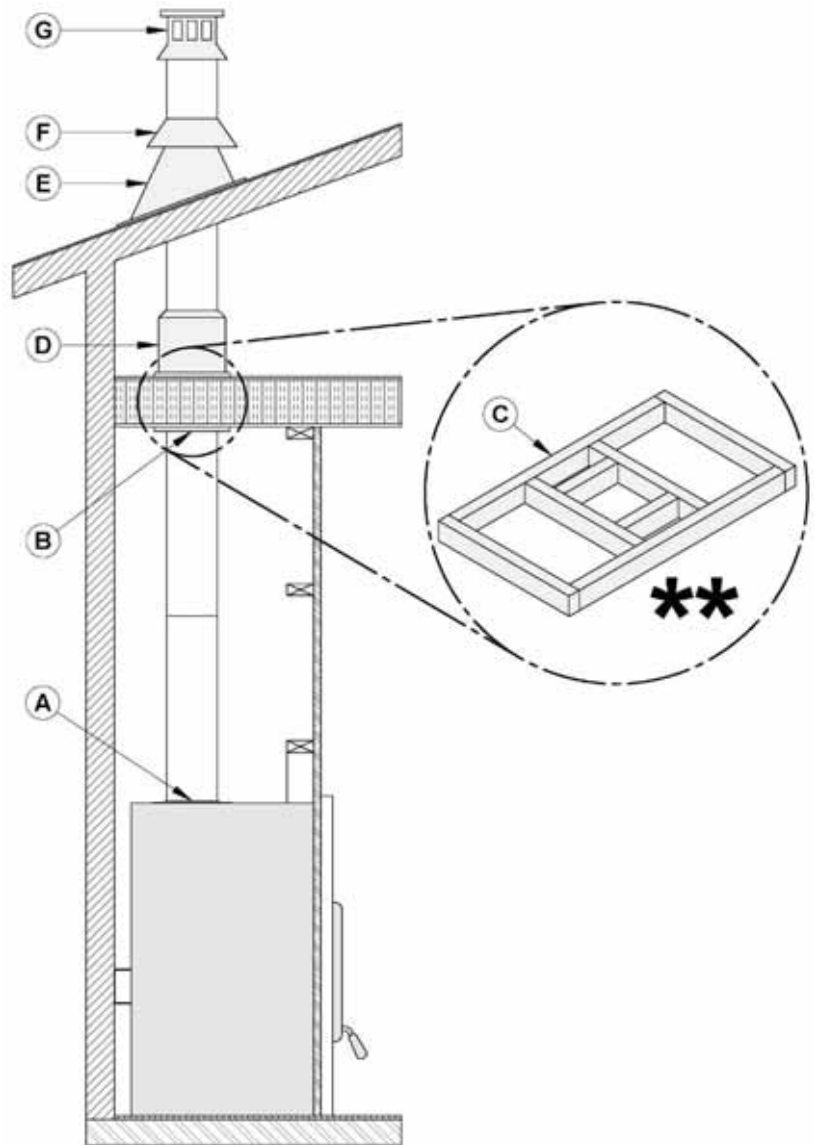
A	To insure a good draft, it is recommended to have a length of 18 inches from the top of the unit to the first offset. However, starting using a 30° or 45° elbow is also approved.
B	Mandatory measure of 15 ft. from the bottom of the fireplace to the top of the outside chimney.

7.6.3 Installation instructions

WARNING

- **THE STRUCTURAL INTEGRITY OF THE FLOOR, WALL, AND CEILING/ROOF MUST BE MAINTAINED.**
- **THE FLOOR AND WALLS BELOW THE ATTIC MUST BE INSULATED USING THE SAME INSULATION.**

1. Cut and frame the holes in the ceiling, floor and roof where the chimney will pass. Use a plumb bob to line up the center of the holes. Make sure that the size of the floor and ceiling holes are in accordance with the chimney manufacturer's instructions.
2. From below, install a firestop (**B**) supplied by the chimney manufacturer in each ceiling/floor separation through which the chimney will pass. At the attic level, install a radiation shield from above (**D**).
3. Follow the chimney's manufacturers' instructions and place the first chimney length on the fireplace. For all chimneys, you must use an anchor plate (**A**) supplied by the chimney manufacturer before installing the first chimney length. Continue installing chimney lengths making sure to lock each length in place.
4. Cut and frame square holes in all floors, ceilings, and roof that the chimney will go through (**C**) to provide a 2" (50 mm) minimum clearance between the chimney and any combustible materials. Do not fill this space with insulation or any other combustible material.
5. Every time the chimney passes through a ceiling or a wall, install the appropriate firestop (**B**). When you reach the desired height, install the roof support (not shown). (Refer to instructions included with the support).
6. Then, put the roof flashing (**E**) in place and seal the joint between the roof and the flashing with roofing pitch. For sloping roofs, place the flashing under the upper shingles and on top of the lower shingles. Nail the flashing to the roof, using roofing nails.
7. Place the storm collar (**F**) over the flashing, and tighten it with the bolt supplied. Finally, seal the joint between the storm collar and the chimney, using silicone caulking.
8. Install the chimney cap (**G**).
9. When a ventilated roof flashing is installed, precautions are to be taken not to caulk or seal the ventilating openings.



7.6.4 Offset chimney installation

TABLE 2 : MINIMUM SYSTEM HEIGHT WHEN USING OFFSETS

Fireplace model	ST. CLAIR 4300
Chimney model	All models (see TABLE 3)
Vertical installation	15 ft. (4.6 m)
Two (2) offsets	15 ft. (4.6 m)
Four (4) offsets	17 ft. (5.2 m)

After reaching the location requiring the elbow, proceed as follows:

1. To insure a good draft, it is recommended, to have a length of 18 inches (457 mm) from the top of the unit to the first offset. Install the first elbow; turn it in the required direction. Secure it to the chimney according to the chimney manufacturer's instructions. In many cases, it is recommended to secure connections with three (3) ½" (12 mm) metal screws.
2. Install the necessary chimney lengths to achieve the required offset. Lock the chimney lengths together according to the chimney manufacturer's instructions. In many cases, it is recommended to use three (3) ½" (12 mm) screws. If the offset length is made of two (2) chimney lengths or more, many chimney manufacturers may require that you use an offset or roof support halfway up the offset. If penetrating a wall, install a wall radiation shield supplied by the chimney manufacturer.
3. Use another elbow to turn the chimney vertically. Secure the elbow.
4. Use a plumb bob to line up the centre of the hole. Cut a hole for the chimney in the ceiling/floor. Frame this hole as described previously.
5. From below, install a firestop supplied by the chimney manufacturer (see preceding figure).
6. A support must be used on the first 15' section (4.6 m).
7. Continue with the regular installation.

WARNING

- **IN EVERY CASE, THE CHIMNEY MUST START WITH AN 8" DIAMETER ANCHOR PLATE SECURED TO THE FIREPLACE. (SOLD SEPARATELY).**
- **IF THE MALE NOZZLE (A) OF THE ANCHOR PLATE EXCEEDS 2" (51 MM) IN LENGTH (SEE IMAGE BELOW), IT SHALL BE CUT ABOVE THE LIFTING HOOKS WELDED TO THE INSIDE OF THE FLUE OUTLET SO THAT THE ANCHOR PLATE RESTS PERFECTLY ON TOP OF THE FIREPLACE.**

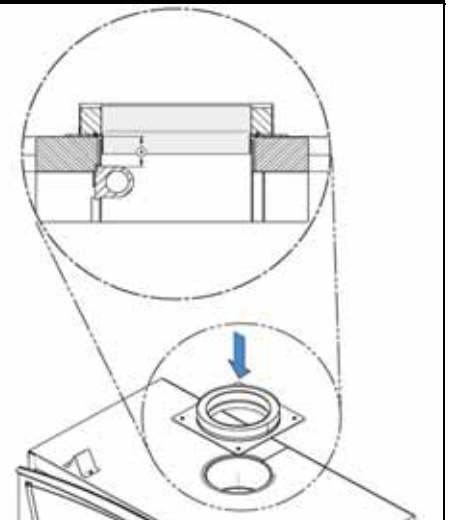


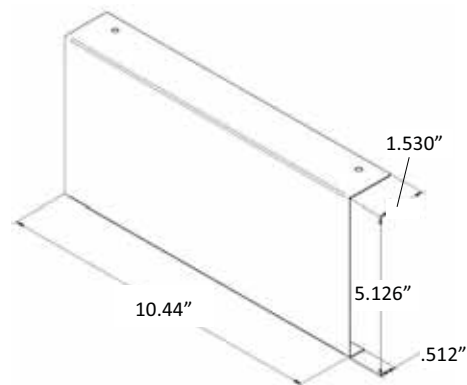
TABLE 4 : LISTED CHIMNEYS FOR YOUR St. Clair 4300

CHIMNEY MANUFACTURER	BRAND	TYPE	INNER DIAMETER
Simpson DuraVent	DuraTech	1" Solid Pack	8" (20 cm)
Simpson DuraVent	DuraTech Canada (DTC)	1" Solid Pack	8" (20 cm)
ICC	Excel	1" Solid Pack	8" (20 cm)
ICC	Model RIS	1" Solid Pack	8" (20 cm)
Selkirk	Ultra-Temp	1" Solid Pack	8" (20 cm)
Selkirk	SuperVent (JSC)	1" Solid Pack	8" (20 cm)
Selkirk	SuperPro	1" Solid Pack	8" (20 cm)
SBI Venting Division	Ventis	1" Solid Pack	8" (20 cm)
SBI Venting Division	Nexvent	1" Solid Pack	8" (20 cm)
Olympia Chimney	Champion Chimney System	1" Solid Pack	8" (20 cm)
Olympia Chimney	Rockford Chimney Systems	1" Solid Pack	8" (20 cm)
Cheminée sécurité	Secure temp ASHT+	1" Solid Pack	8" (20 cm)
Metal fab	Model - TG (Temp Guard)	1" Solid Pack	8" (20 cm)
Simpson DuraVent	DuraTech Premium (DTP)	2" Solid Pack	8" (20 cm)
Simpson DuraVent	DuraPlus HTC	2" Solid Pack	8" (20 cm)
Selkirk	Ultimateone	1" Solid Pack	8" (20 cm)
Selkirk	CF Sentinel	2" Solid Pack	8" (20 cm)
Selkirk	SuperVent 2100 (JM)	2" Solid Pack	8" (20 cm)
Selkirk	SuperPro 2100 (ALT)	2" Solid Pack	8" (20 cm)
Cheminée sécurité	Secure Temp S2100+	2" Solid Pack	8" (20 cm)
Simpson DuraVent	DuraPlus	Air cooled insulated	8" (20 cm)
Amerivent	Model HS / HSS	Air cooled insulated	8" (20 cm)

TABLE 5 : LIST OF MANDATORY COMPONENTS

CHIMNEY MANUFACTURER	MANDATORY COMPONENTS	TYPE/MODEL
Olympia Chimney	<ul style="list-style-type: none"> Ventilated roof flashing. Rafter protector at the roof level if chimney is enclosed at the attic level. 	1" Solid Pack
Selkirk	<ul style="list-style-type: none"> Ventilated roof flashing. Must have rafter protectors at the roof level if the chimney is enclosed at the attic level. 	CF Sentinel (CF), Super Pro 2100 (ALT), Super Vent 2100 (JM)
Security Chimney	<ul style="list-style-type: none"> Rafter protector at the roof level if chimney is enclosed at the attic level. Requires insulated attic radiation shield unless chimney is enclosed at the attic level. 	2" Solid Pack: S-2100+
DuraVent	<ul style="list-style-type: none"> Ventilated roof flashing. Rafter protector at the roof level if chimney is enclosed at the attic level. 	2" Solid Pack : Dura Plus HTC AC Triple Wall : Dura Plus
American Metal	<ul style="list-style-type: none"> Chimney cannot be enclosed at the attic level. 	AC Triple wall : HS, AC Triple wall : HSS

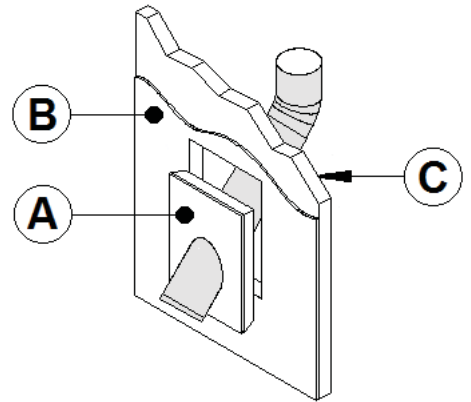
* The rafter protectors must be made of galvanized steel of 22 GA or more and must at least have the dimensions presented in this diagram.



7.7 Angled wall radiation shield

When passing through a combustible wall with the chimney at a 30° or 45° angle (30° or 45° in Canada and 30° only in the USA), an angled firestop or wall radiation shield provided by the chimney manufacturer must be installed. Only one is required. Follow the chimney manufacturer's installation instructions.

In cold climate locations, it is recommended that you use the insulated wall radiation shield since it will maintain the home's thermal barrier.



7.8 Chimney support installation

7.8.1 Universal roof support

This support has three possible uses:

1. It must be used on a roof to support the chimney.
2. It may be used on a floor, ceiling or roof above an offset to support the chimney above the offset.
3. It may be used on a floor, ceiling or roof as a supplementary support.

For roof support installation, refer to the instructions provided with the support by the chimney manufacturer. Many manufacturers will provide the maximum height of chimney that can be supported by the support. Make sure you respect those parameters.

A	INSULATED WALL RADIATION SHIELD
B	GYPROCK
C	INSULATED WALL

a
the chimney. For offset support installation, refer to the instructions provided with the support by the chimney manufacturer. Many manufacturers will provide the maximum height of chimney that can be supported by the support. Make sure you respect those parameters.

7.8.2 Universal offset support

This support is used to support the chimney above an offset. When the chimney offset is used to pass through wall, this support may be used on the wall to support

7.9 Installation instructions for masonry application

WARNING

BEFORE STARTING THE INSTALLATION, THE MASONRY CHIMNEY MUST BE INSPECTED BY A QUALIFIED CHIMNEY SWEEPER.

The following requirements must be respected:

1. The chimney must be absolutely clear of any soot residue or creosote. Check for cracks, loose or missing bricks that could inhibit correct installation of the liner.
2. The clearance to combustible material must be a minimum of 2" between the outside of the masonry and any wood framing or loose insulation.
3. The chimney must be built in accordance with the current building code.
4. No other appliance can be connected to the same chimney.

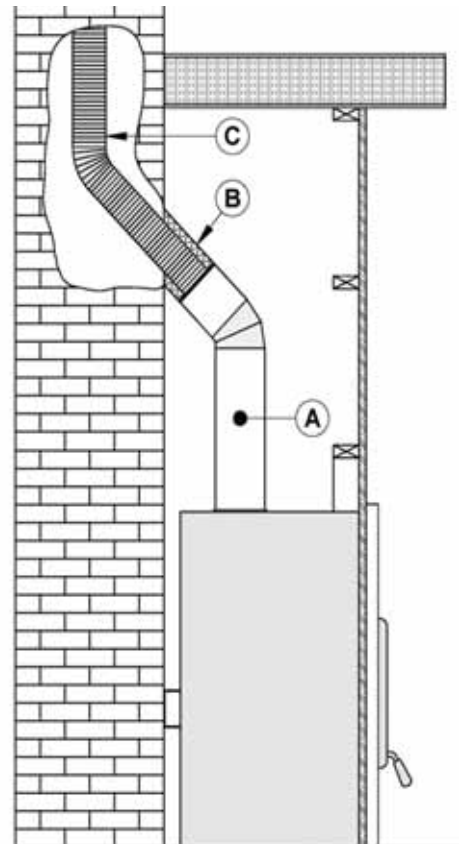
NOTE

- **THE CHIMNEY MUST BE RELINED WITH A STAINLESS STEEL LINER OF THE SAME DIAMETER AS THE OUTLET OF THE FIREPLACE.**
- **FOR CONNECTION AT 30° OR 45° ANGLE (30° OR 45° IN CANADA AND 30° ONLY IN THE USA), A SPECIAL CONNECTOR MUST BE USED TO CONNECT THE LINER TO THE INSULATED CHIMNEY. VERIFY AVAILABILITY AND INSTALLATION INSTRUCTIONS FOR THIS CONNECTOR WITH THE CHIMNEY MANUFACTURER.**

7.9.1 Installation instructions

1. Position the fireplace in its location. Temporarily install the elbow or chimney section **(A)** on the top of the fireplace and, using a level, mark with an oval the location where the flue liner will enter the masonry chimney.
2. In the middle of the oval, drill a hole in the masonry chimney at 45° or 30°.
3. Increase the size of the hole until a 45° or 30° insulated liner adapter **(B)** can be easily slipped through.
4. Slide the liner **(C)** down from the top of the masonry chimney until you reach the hole level.
5. Slip through the hole a 45° or 30° insulated liner adapter and connect it to the liner.
6. Seal the opening around the liner with high temperature refractory cement.
7. Then, follow the chimney manufacturer's instructions to connect the extended liner section to the special chimney connector.

Note: Make sure the liner exceeds at least 12" (30 cm) the top of masonry chimney.



7.10 Supply of combustion air

Legally, it is not mandatory to connect your fireplace to a fresh air intake unless it is required by the local code or the manufacturer. However, if you want to meet the Novo Climate or R2000 requirements, an external air intake will be required. The fresh air intake promotes proper combustion and prevents the risk of house depressurization. Although the external air supply is not a guarantee against the risk of smoke return caused by house depressurization, it will certainly minimize the risk.

NOTE

- **IT IS STRONGLY RECOMMENDED TO INSTALL A MECHANICAL DAMPER TO CLOSE THE FRESH AIR INTAKE WHEN THE FIREPLACE IS NOT IN USE.**
- **IT IS STRONGLY RECOMMENDED TO INSTALL A CARBON MONOXIDE (CO) DETECTOR/ALARM IN THE ROOM WHERE THE FIREPLACE IS INSTALLED. THE CO DETECTOR WILL WARN YOU IF, FOR ANY REASON, THE WOOD FIREPLACE FAILS TO FUNCTION CORRECTLY.**

7.10.1 AIR INTAKE IN CONVENTIONAL HOUSES

The easiest and most reliable supply of combustion air for your wood fireplace is from the room in which it is installed. The room air is already preheated so it will not cool the fire and its availability is not affected by the pressure of the wind on the house. However, the combustion of wood requires a large volume of air. It will take only a few hours to consume the equivalent of the entire volume of air contained inside your home. This air will be replaced by new cold air from outside either through tiny cracks in your home or via your air exchanger. It is strongly recommended to install an external air intake to increase your heating efficiency and to avoid consuming the preheated air you already paid for.

Some states or counties require that fireplace are connected to a fresh air intake. If you install a fresh air intake on an external wall, its pressure may vary in windy conditions. It would be therefore preferable not to install the air intake on a heavily windward wall. If you experience difficulties with your fireplace and you suspect strong winds as the source of the problem, a mechanical damper with help you diagnose and solve the problem. Check the outdoor air duct for soot deposits when the venting system is cleaned and inspected.

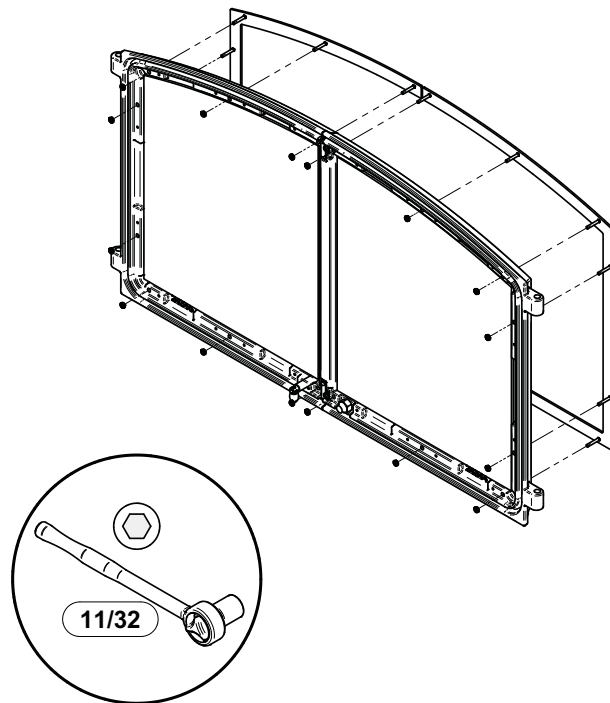
APPENDIX 1 – INSTALLING THE DOOR OVERLAY

In order to complete the assembly of your St. Clair 4300 wood fireplace, you need to install the door overlay. See figure below for installation instructions:

Position the overlays on the door frames and secure them from the inside of the doors using the 16 included nuts.

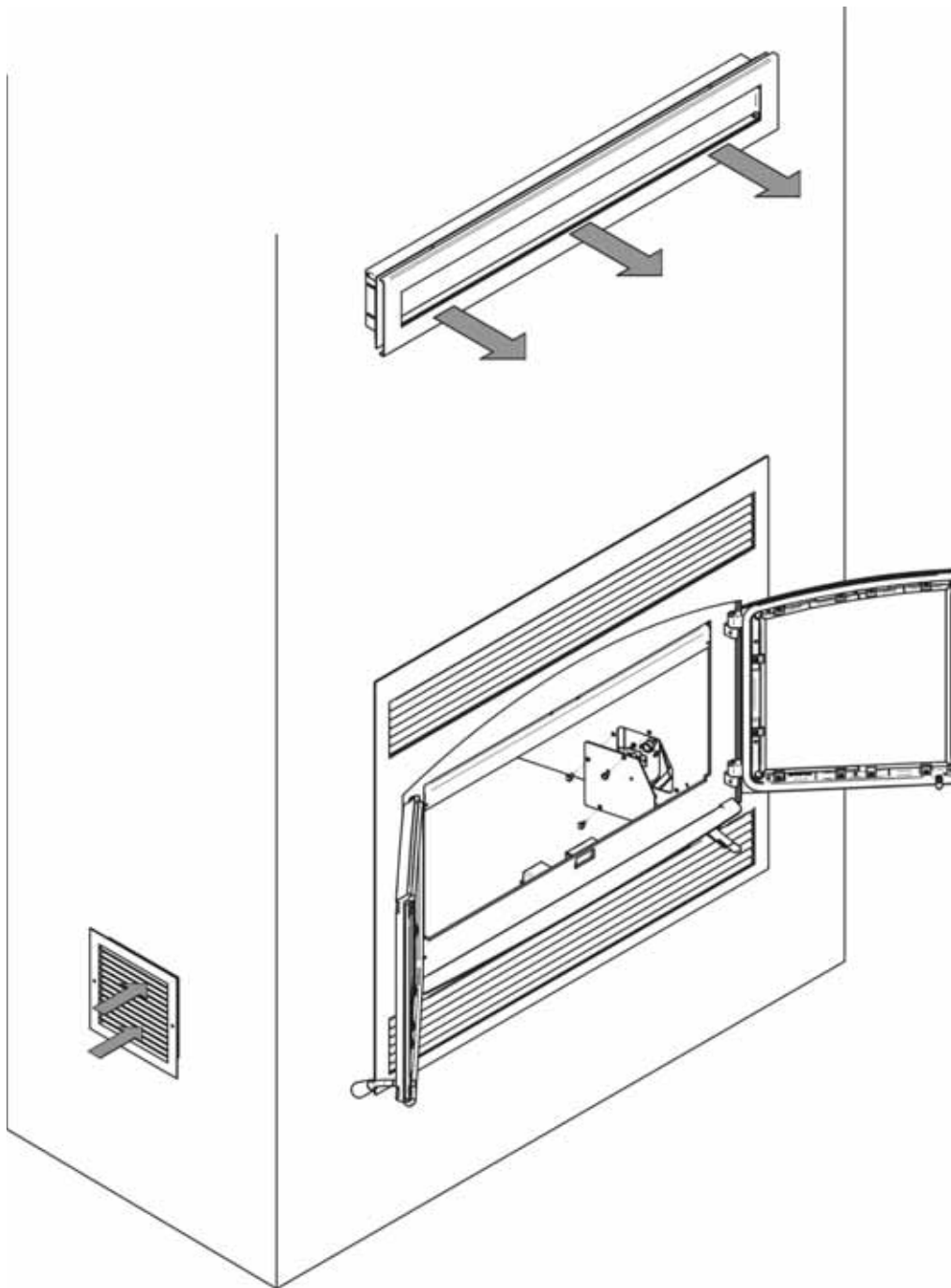
To facilitate the installation, do not tighten the nuts until they are all installed.

Note : It is not necessary to remove the glass or any other component to install the overlay.



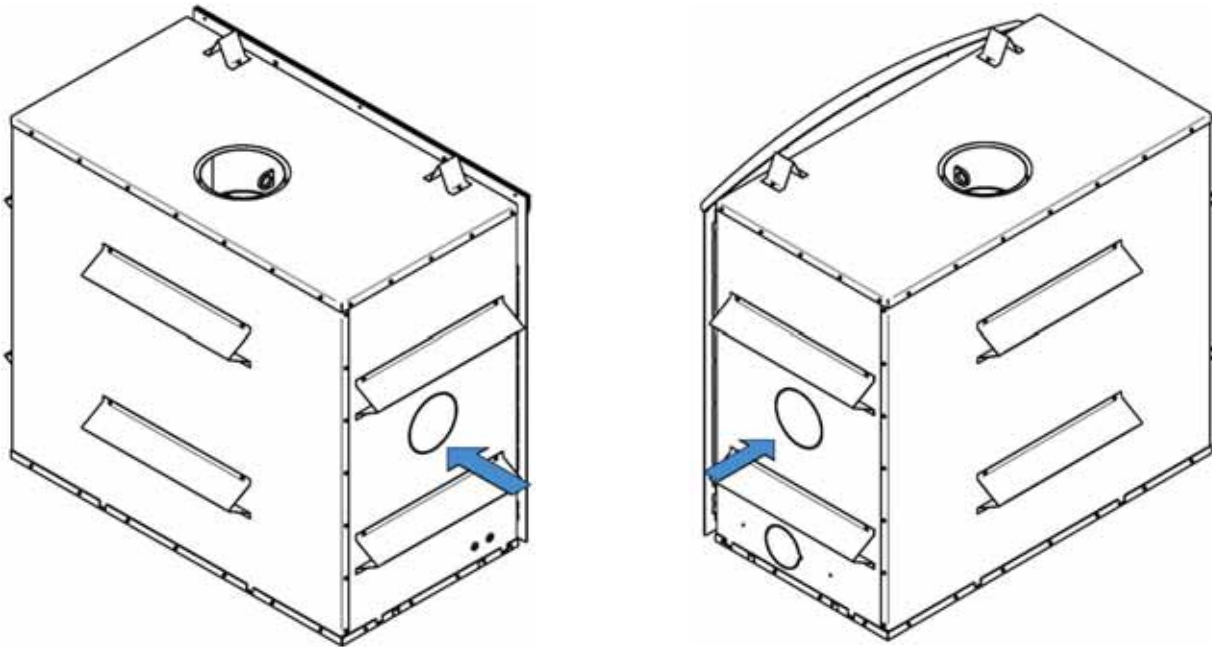
APPENDIX 2 - WARM AIR CIRCULATION GRILL (WB2WG)

It is possible to connect a warm air circulation grille kit in the fireplace facing. This kit allows distributing heat to the room using natural convection. For the complete installation procedure, see the installation manual provided with the kit. You can also download this manual on the website.

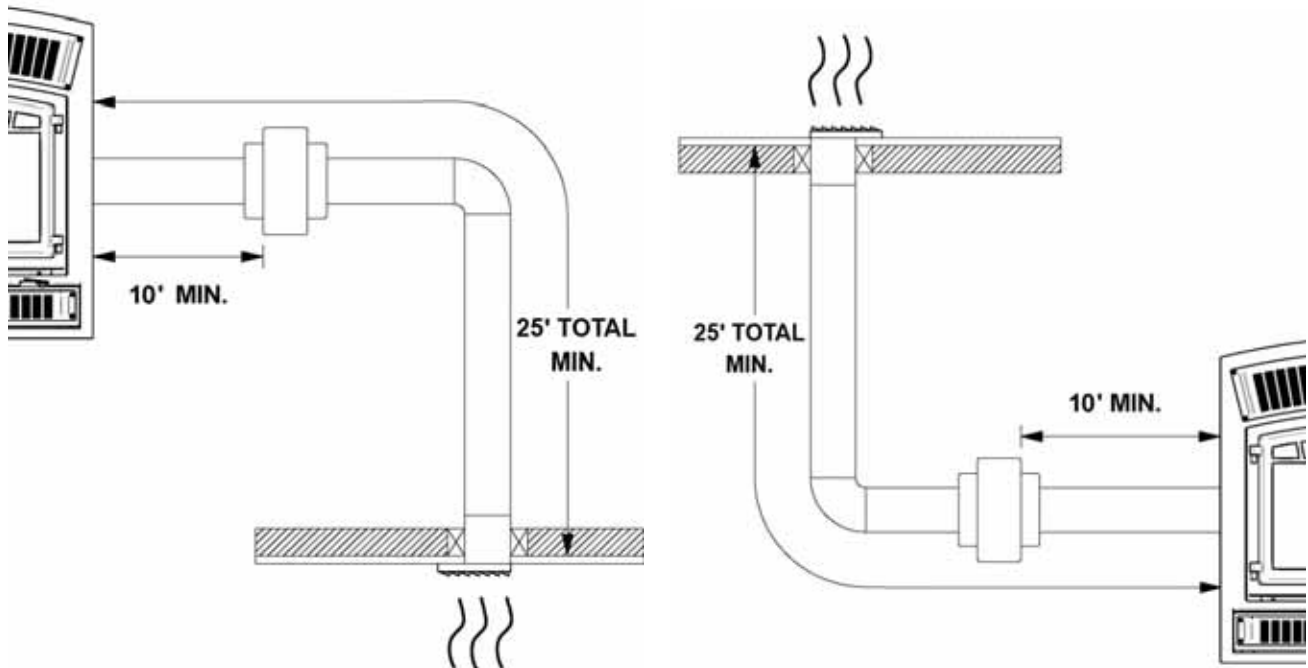


APPENDIX 3 - FORCED AIR DISTRIBUTION KIT* (WB2FA)

It is possible to connect a forced air distribution kit on either side of the St. Clair 4300.



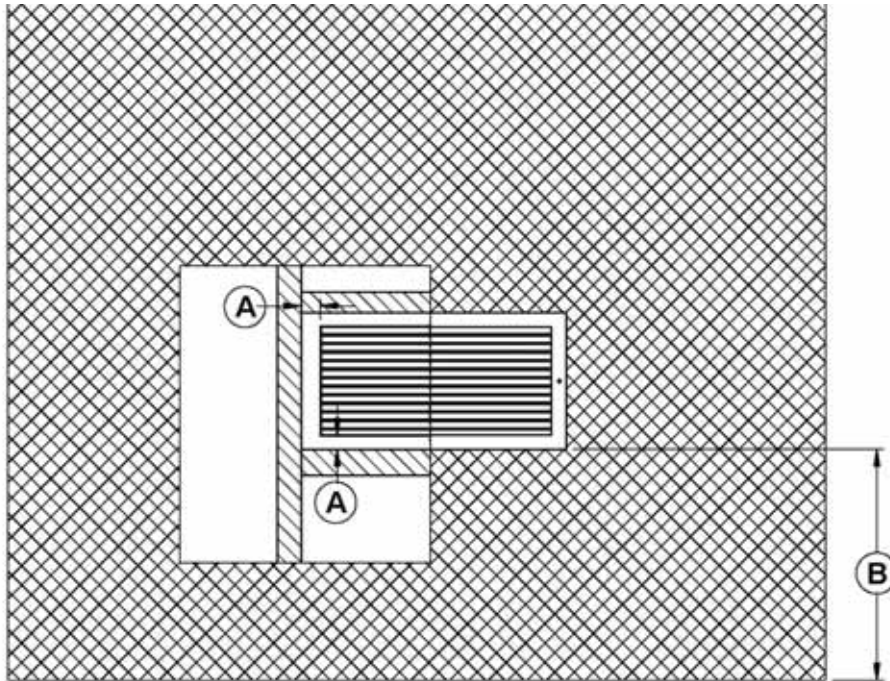
This kit allows distributing heat to another room up to 50 feet (15 m) of the fireplace. The insulated flexible pipe (not included in the kit) must be HVAC type pipe and must comply with ULC S110 and/or UL 181, Class 0 or Class 1 Standards and must withstand temperatures up to 250 °F.



** The EPA standard states that it is necessary to perform certification testing with any ventilation that is likely to alter the units' performance. For this reason, SBI has tested the effects of the forced air kit on the emissions of fine particles. Due to the design of our appliance and more specifically to the temperature sensor that is installed to control stops and starts, the forced air kit does not affect the emission results. In fact, this option promotes the recovery of excess heat to later redistribute it to other rooms. During our testing, it was noted that the convection blowers underneath the firebox had more of an effect on the fine particles emission due to the air being directed onto the firebox thus cooling the unit. However, this appliance has already been tested for emission with one or more convection blowers. In conclusion, we have satisfied the environmental requirements efficiently.*

WARNING

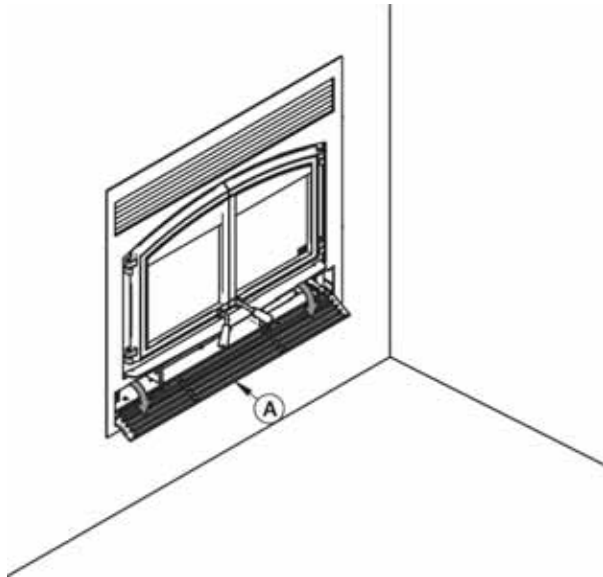
- IN CANADA, THE TERMINATION GRILL MUST BE INSTALLED AT LEAST 59" (150CM) FROM THE FLOOR (B).
- A 1" CLEARANCE TO COMBUSTIBLE MATERIALS (A) MUST BE LEFT AROUND THE TERMINATION GRILL.



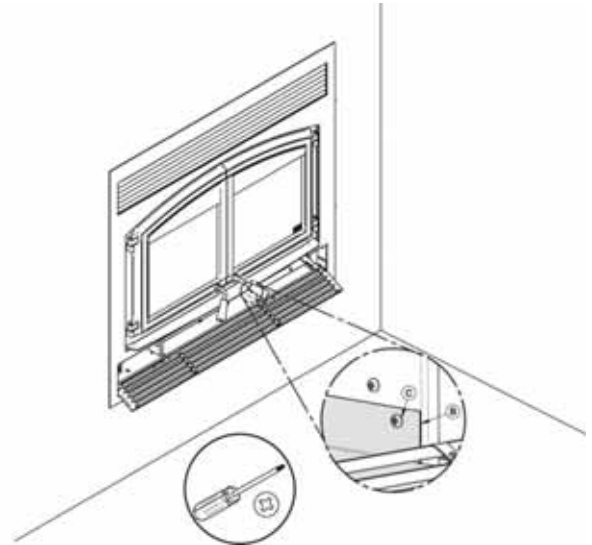
For the complete installation procedure, see the installation manual provided with the kit. You can also download this manual on the web site www.empirecomfort.com (see St. Clair 3000 manual)

APPENDIX 4 - BLOWER MAINTENANCE OR REPLACEMENT

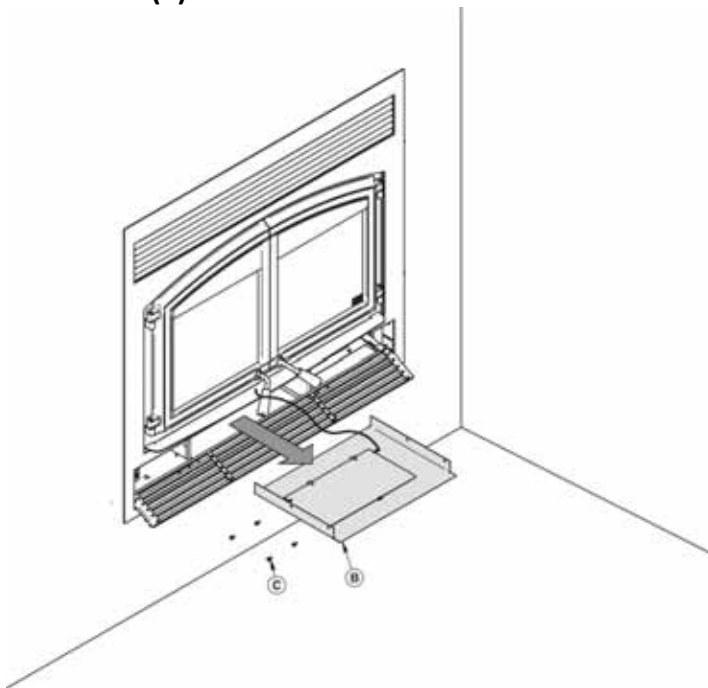
1. Open the bottom louver (A).



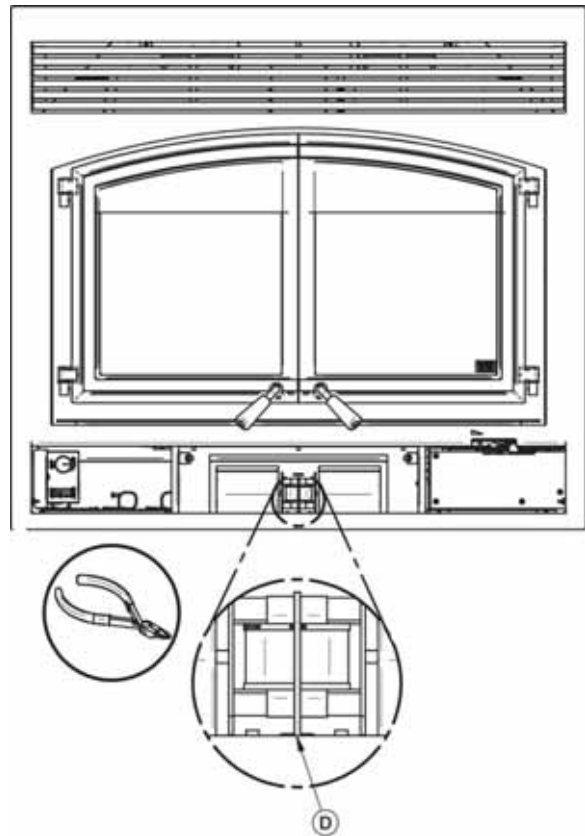
2. With a short square head screwdriver, remove the 4 screws (C) holding in place the heat shield (B).



3. Remove and keep the heat shield (B) and the screws (C).

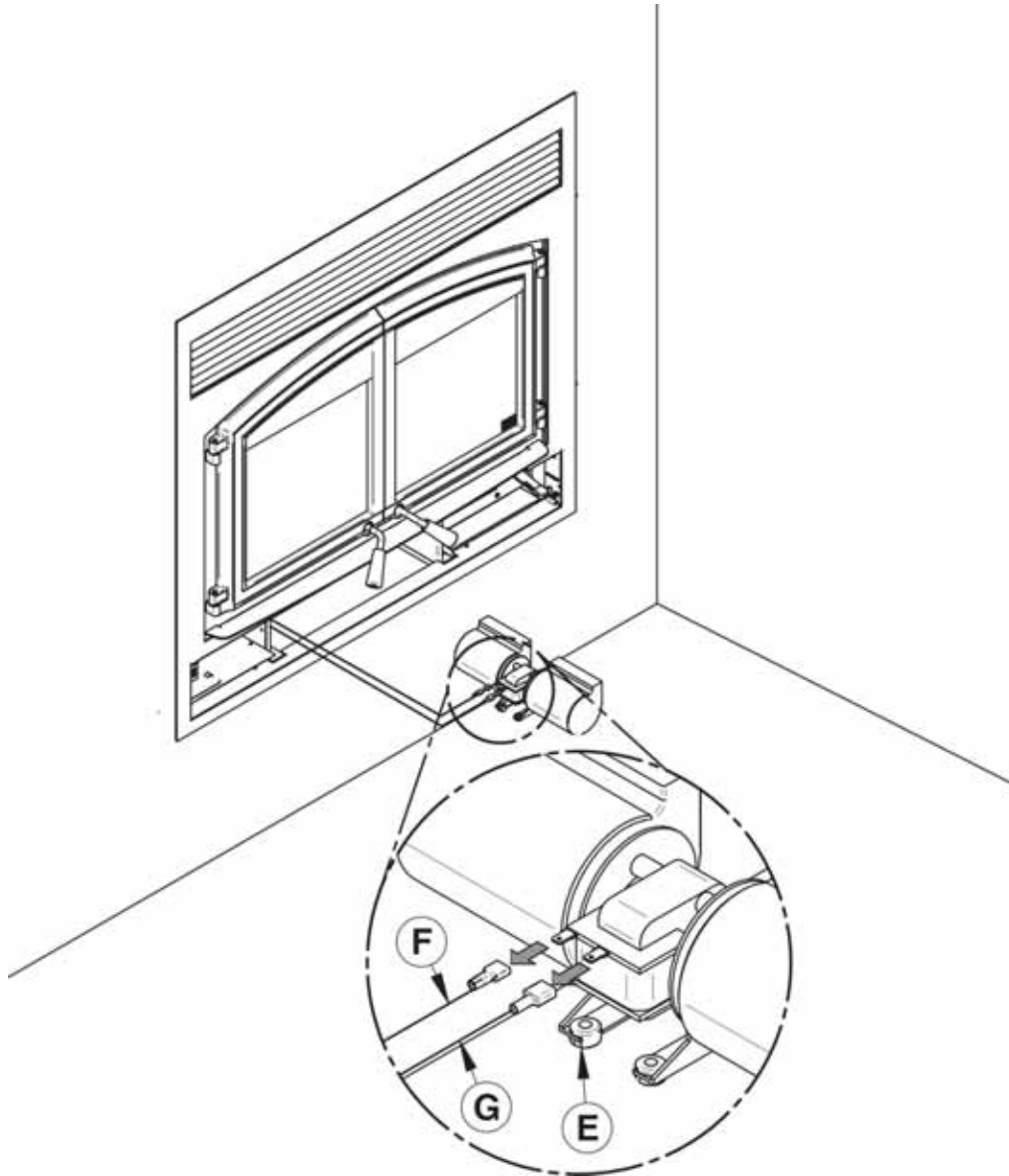


4. Cut the Tie wrap (D).



5. Unplug the blower's electric wires **(F)** and **(G)**.
6. Lift the blower **(E)** located under the firebox towards the back.
7. Turn 90° to pull out.

Repeat the steps in reverse order to reinstall the blower.

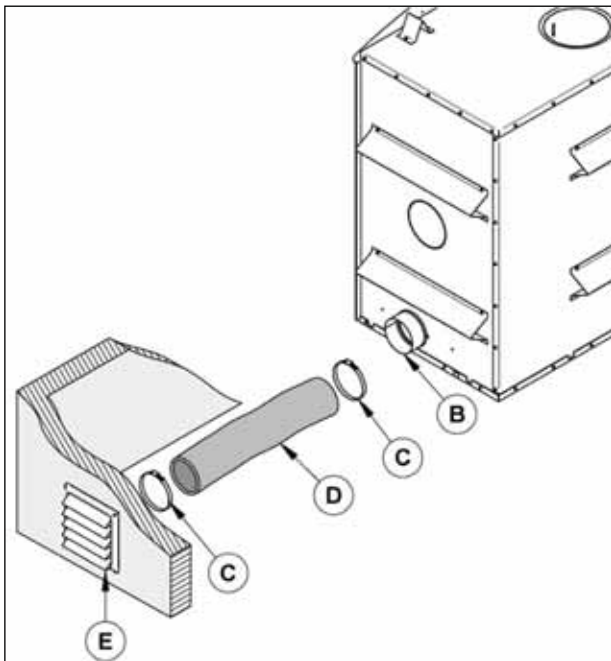


APPENDIX 5 - INSTALLING THE FRESH AIR INTAKE KIT

During operation, the fireplace requires fresh air for combustion and draws air out of the house. It may starve other fuel burning appliances such as gas or oil furnaces. As well, exhaust fans may compete for air, causing negative pressure in the house, resulting in smoke entering the house from the fireplace. This situation is aggravated in modern airtight houses. To overcome this problem, we strongly recommend that you bring fresh air to the fireplace. **Check with local authorities having jurisdiction in your area, it may be mandatory.**

Fresh air intake kit installation

Follow these instructions to install a fresh air intake kit



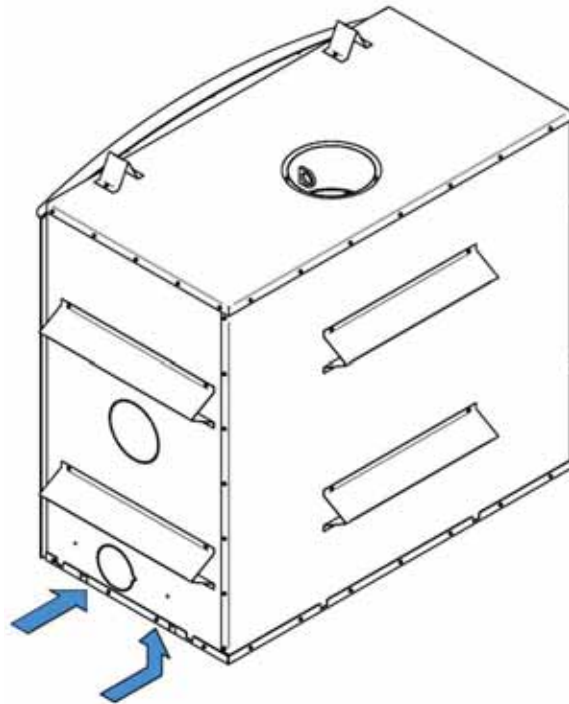
- The insulated flexible pipe length **(D)** should be sufficient and have a configuration to avoid condensation.
- The outside wall termination **(E)** must not be installed:
 - At more than 50% of the total height of the chimney;
 - At more than 10 ft. (3 m) above the base of the fireplace;
 - At more than 3 ft. Below the base of the fireplace.
- The fresh air must come from outside the house. The air intake must not draw air from the attic, from the basement, or from a garage.

- The outside wall termination should be installed where it is not likely to be blocked by snow or exposed to extreme wind and away from automobile exhaust fumes, gas meter and other vents.
- The insulated flexible pipe and the outside wall termination can be installed over or under the floor level.
- The fresh air intake kit included with the fireplace contains the following components:
 - One (1) 5" adaptor;
 - One (1) air inlet block-off plate;
 - Four (4) screws.
- The following components are not included:
 - A 5" insulated flexible pipe **(D)** (This HVAC type pipe must comply to ULC S110 and/or UL 181, Class 0 or Class 1 Standards and must withstand temperatures up to 250 °F;
 - The outside wall termination **(E)**;
 - Adjustable clamps (2X) **(C)**.

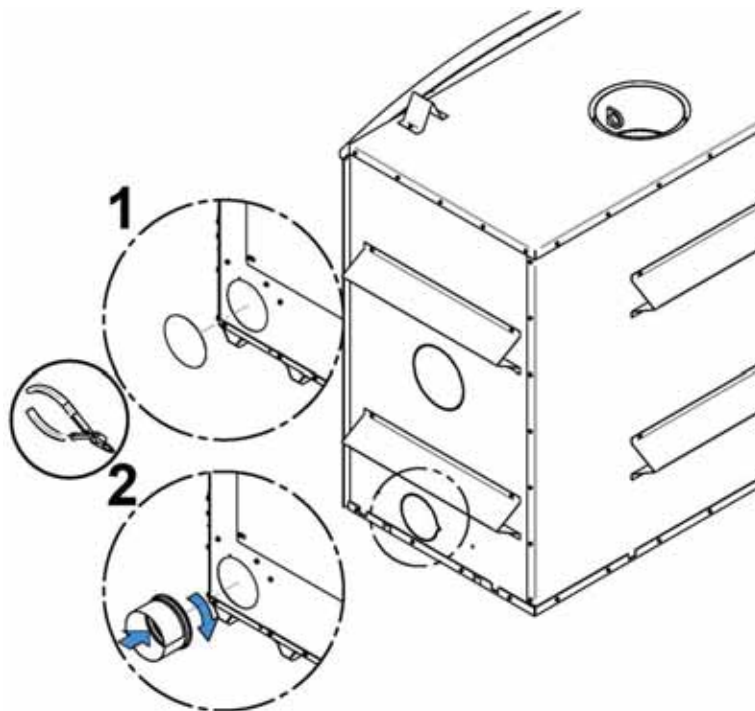
Note: Only remove the knock-out that will be connected to the fresh air inlet.

The fresh air intake kit may be installed on two different places on the fireplace.

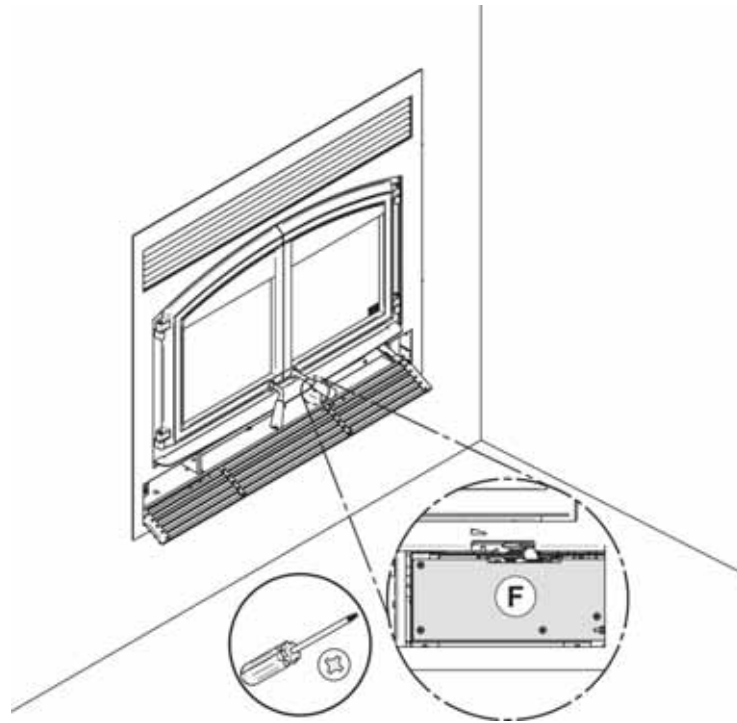
- 1- On the right side of the appliance (most common).
- 2- On the right side under the appliance.



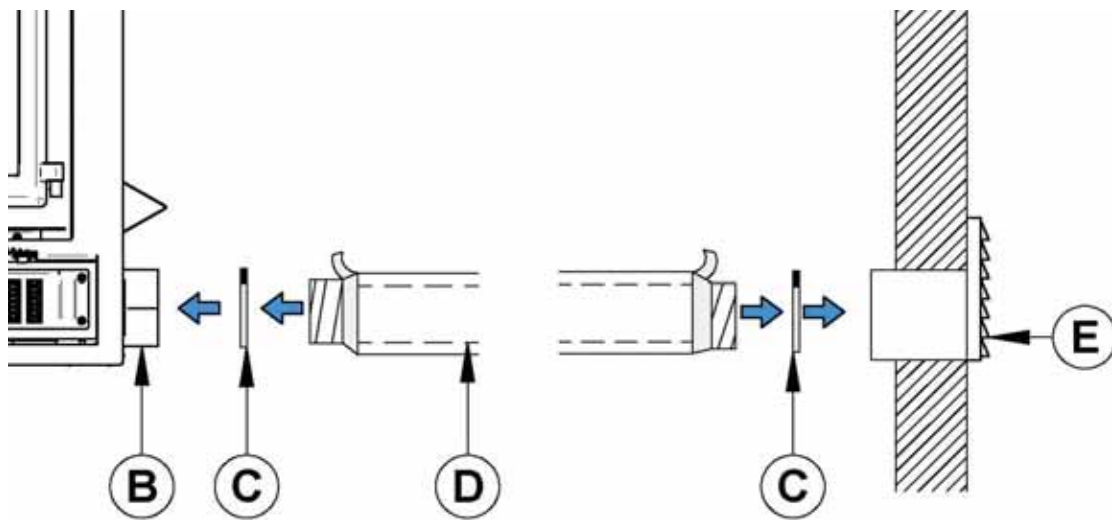
1. Remove the knock out located on the right-hand side of your fireplace.
2. Install the 5" adapter included in your fireplace. Align the notch on the adaptor with the one on the fireplace and turn clockwise.



- Flip the fireplace lower decorative louver. Install the blocking plate (F) included with the fireplace, on the front opening of the air control housing. Using a screwdriver, secure with four screws located in the user's manual.



Then, install the flexible pipe* (D) (not supplied) to the fresh air intake adapter (B) using one of the adjustable pipe clamps (C). Secure the other end of the pipe to the outside wall termination (E) using the second adjustable pipe clamp (C). The outside wall termination (E) must be installed outside of the building.

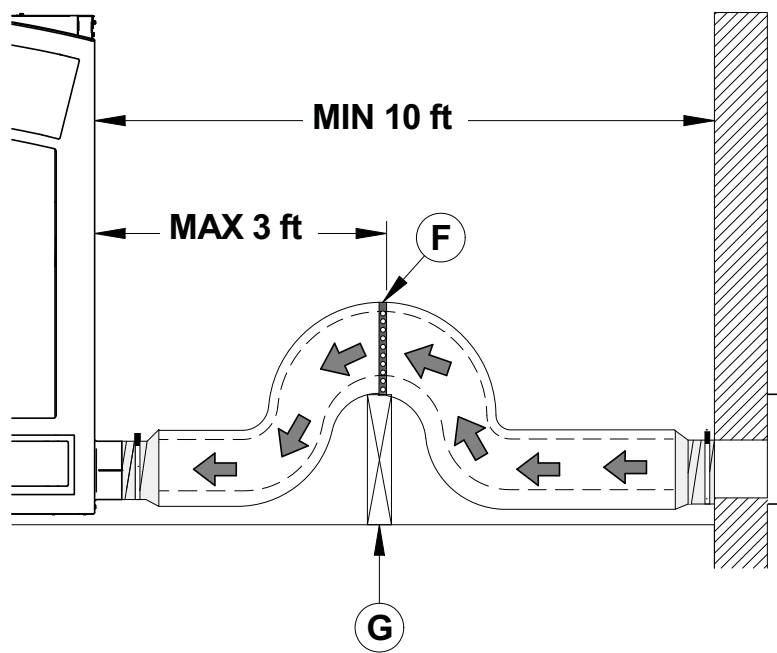


*For a pipe length less than 20 ft, use a 5" pipe diameter. For a pipe length of more than 20ft, or having more than two deviations, use a 6" pipe diameter. The maximum pipe length is 30 ft (9 m).

WARNING

TO AVOID CONDENSATION AND RUST IN YOUR FIREPLACE, IT IS RECOMMENDED TO USE AN INSULATED PIPE LONG ENOUGH (MINIMUM 10FT) AND CONTAINING A "P-TRAP".

This configuration can be found inside the chase, but must at all times maintain clearances to combustibles. The following figure is shown as an example.



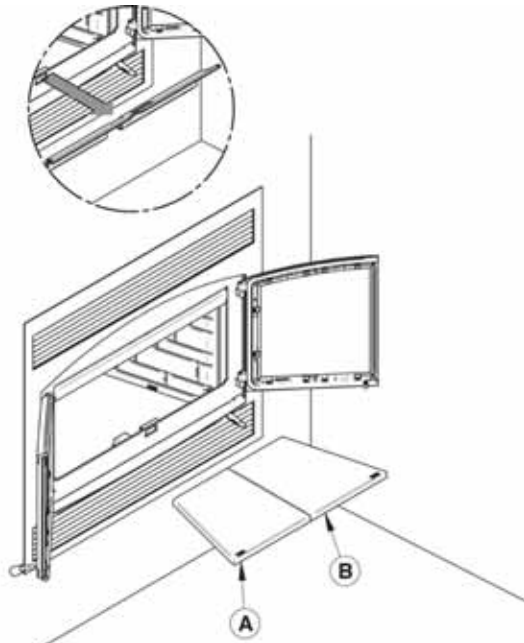
To complete the installation, make a hole of 1/4" to 1/2" (6 mm à 13 mm) bigger than the insulate pipe diameter in the outside wall of the house at the chosen location. From outside, place the outside wall termination in the hole (open side down) and fasten the register to the wall, with screws.

Place the insulated pipe over the wall termination tube and over the fireplace outside air connector. At each end, carefully pull back the insulation and plastic cover, exposing the flexible pipe. Attach the flexible pipe using pipe clamps. For a better seal, you may also use aluminum tape. Wrap the tape around the joint between the flexible pipe and the air inlets. Carefully push the insulation and plastic cover back over the pipe. Fix the plastic in place using aluminum tape.

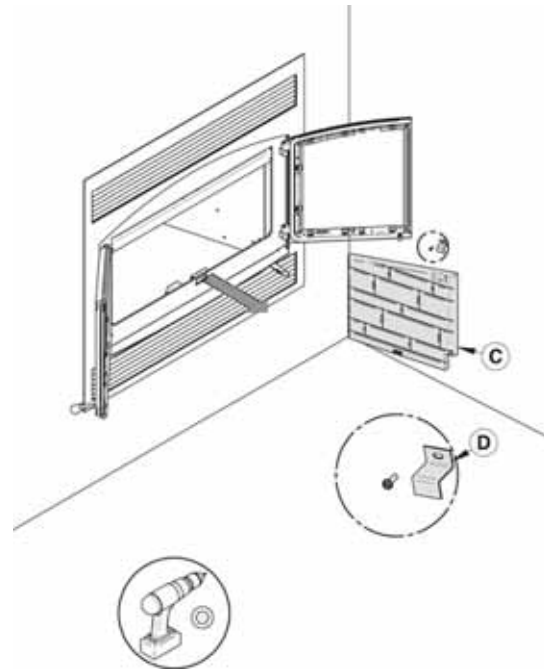
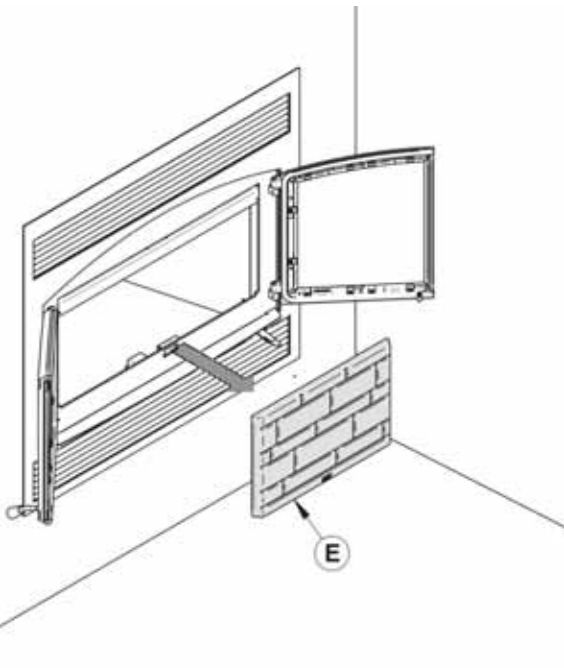
APPENDIX 6 - REFRACTORY SLABS REPLACEMENT

The intense heat of the fire will normally cause hairline cracks in the refractory slabs. These cracks can be minimized by proper curing as described in "First Fires". They will not normally diminish the effectiveness of the refractory slabs. If large cracks develop, then the refractory slabs should be replaced. To replace the refractory slabs, follow these steps:

- 1- Remove the inner ash retainer and the floor refractory slabs **(A & B)**.
- 2- Using a power screwdriver and hex tip 5/16", remove the slab holders **(D)** and the left and right refractory slabs **(C)**.

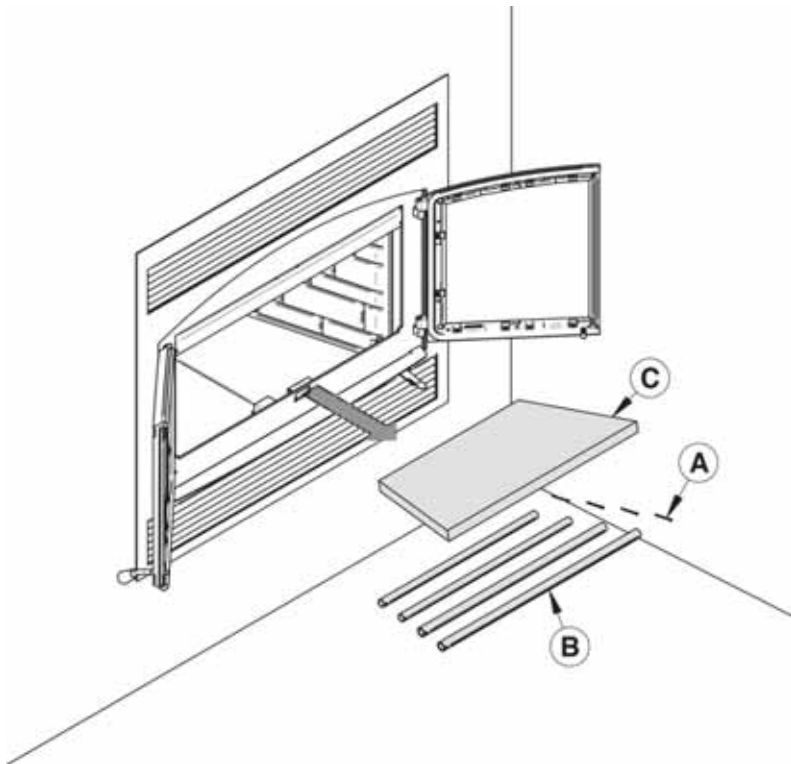


- 3- Remove the rear refractory slab **(E)**.



To install new refractory slabs, follow the above steps in reverse.

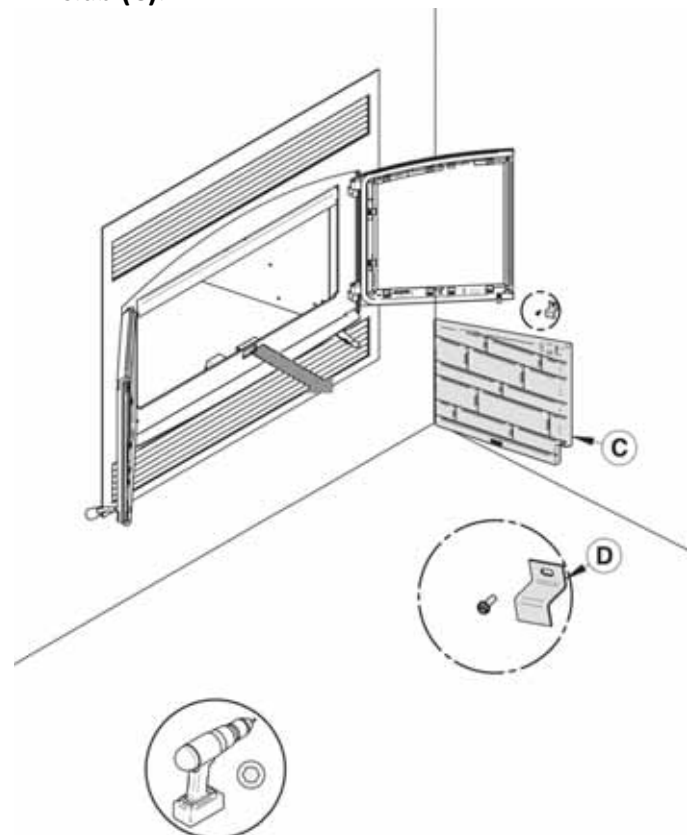
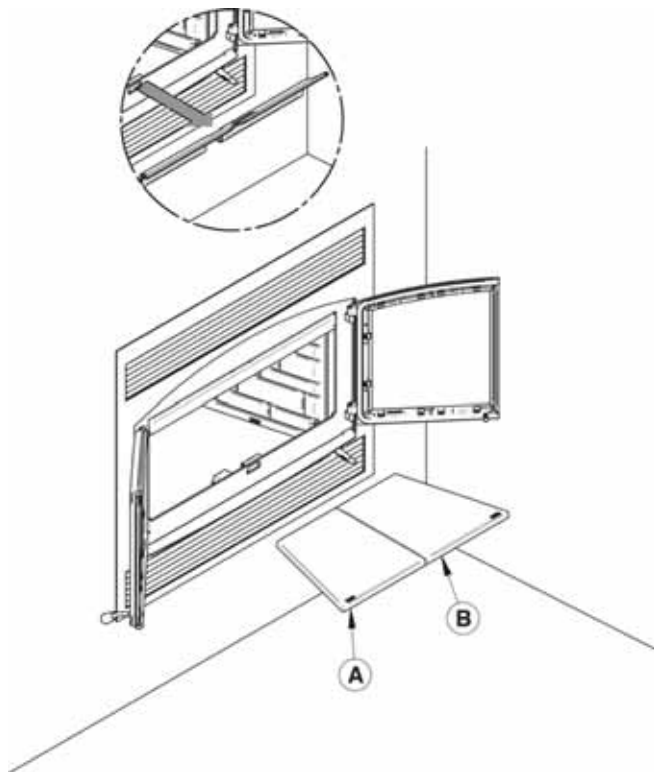
APPENDIX 7 - INSTALLATION OF SECONDARY AIR TUBES AND BAFFLE



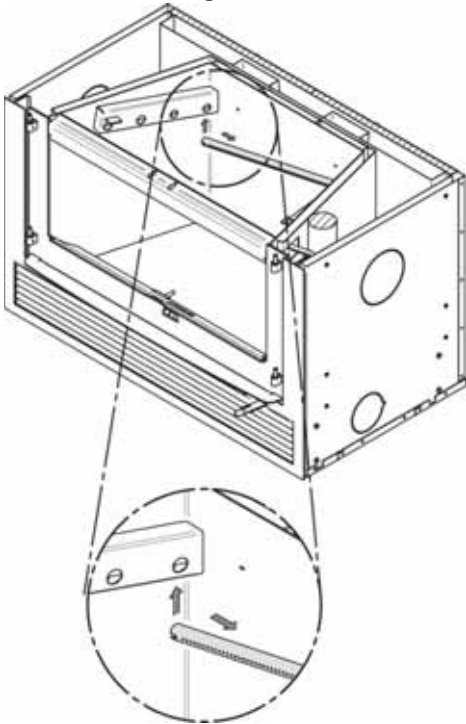
REMOVABLE PARTS	
A	Cotter pins (x4)
B	Air tubes (x4)
C	C-Cast baffle (x1)

1. Remove the inner ash retainer and the floor refractory slab (A & B).

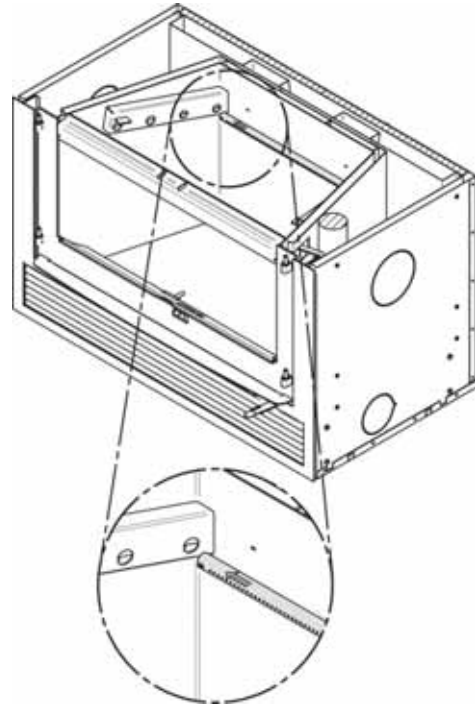
2. Using a power screwdriver and hex tip 5/16", remove the slab holder (D) and the left refractory slab (C).



3. 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 push the tube towards the right inside the hole in the right channel.

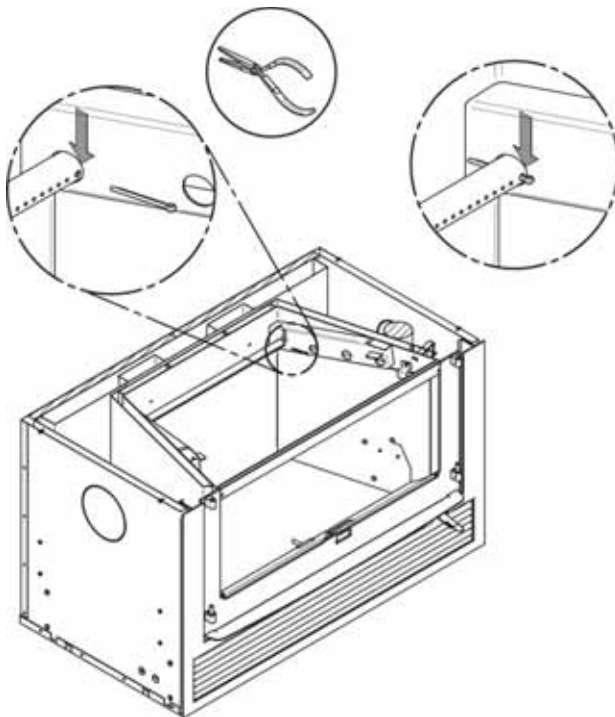


4. Align the notch in the left end of the tube with the tab of the left air channel hole.



5. Insert a cotter pin in the last hole on the right side of the tube. Then bend the tabs on the pin to keep in place.

6. Repeat **steps 4, 5 and 6** for the two tubes in the back then install the baffle. Then, install the two front tubes.

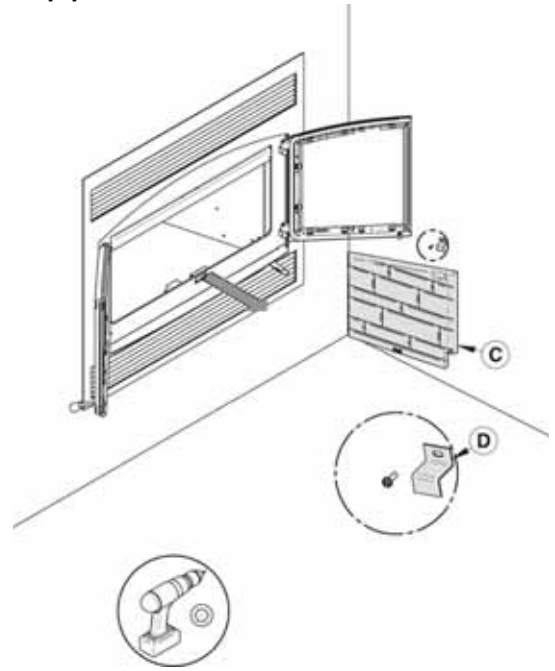
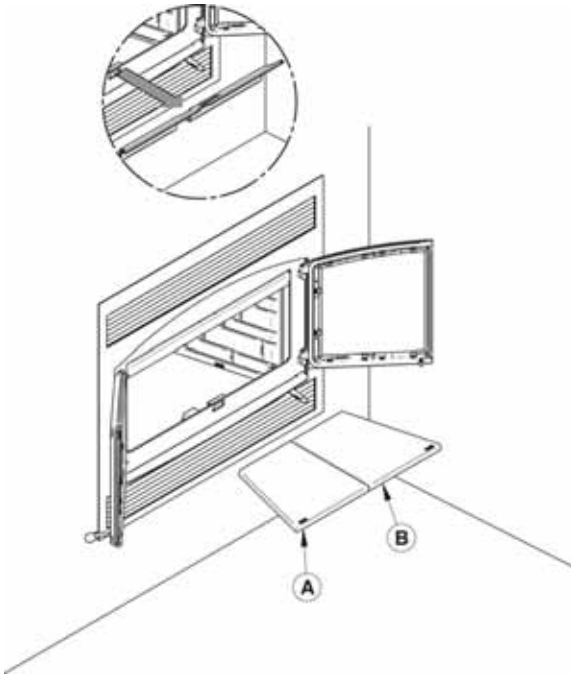


To remove the tubes use the above steps in reverse order.

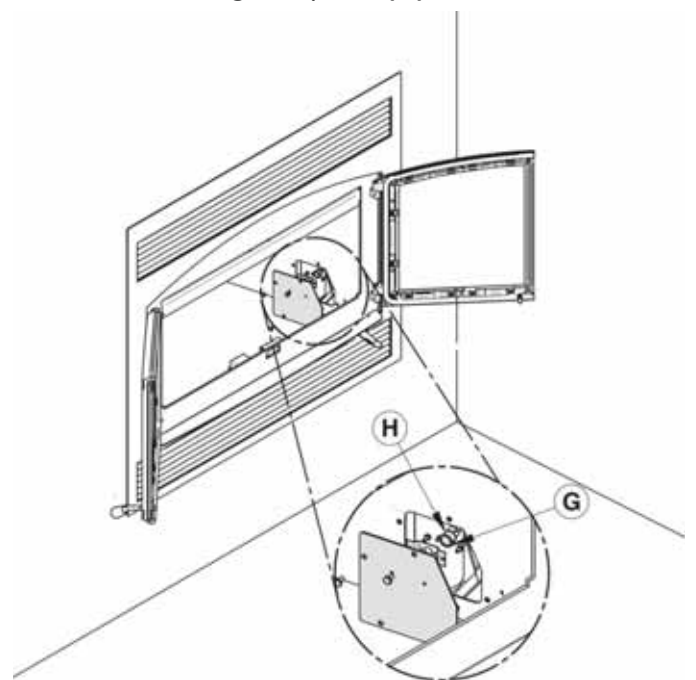
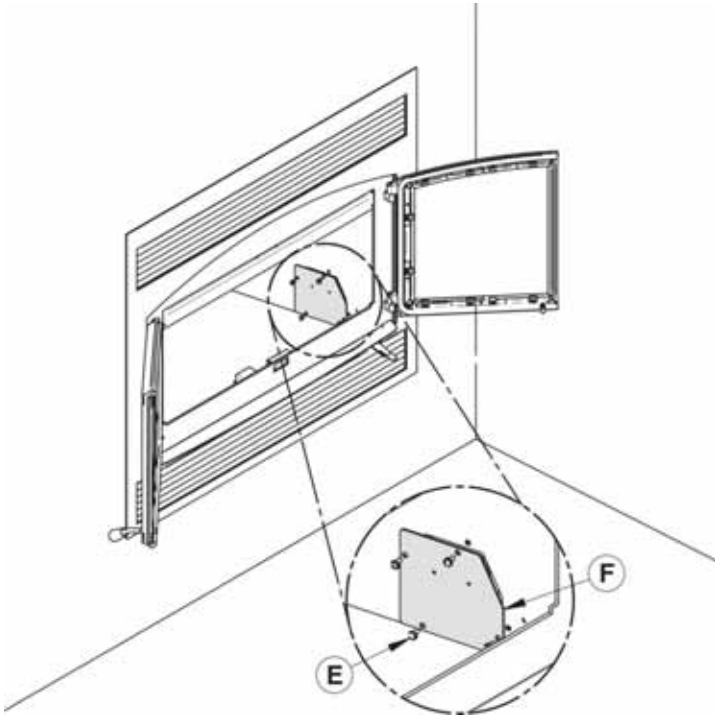
Note that secondary air tubes can be replaced without removing the baffle board.

APPENDIX 8 – AIR CONTROL SNAP DISC REPLACEMENT

1. Remove the inner ash retainer and the floor refractory slab (**A & B**).
2. Using a power screwdriver and hex tip 5/16", remove the slab holder (**D**) and the left refractory slab (**C**).

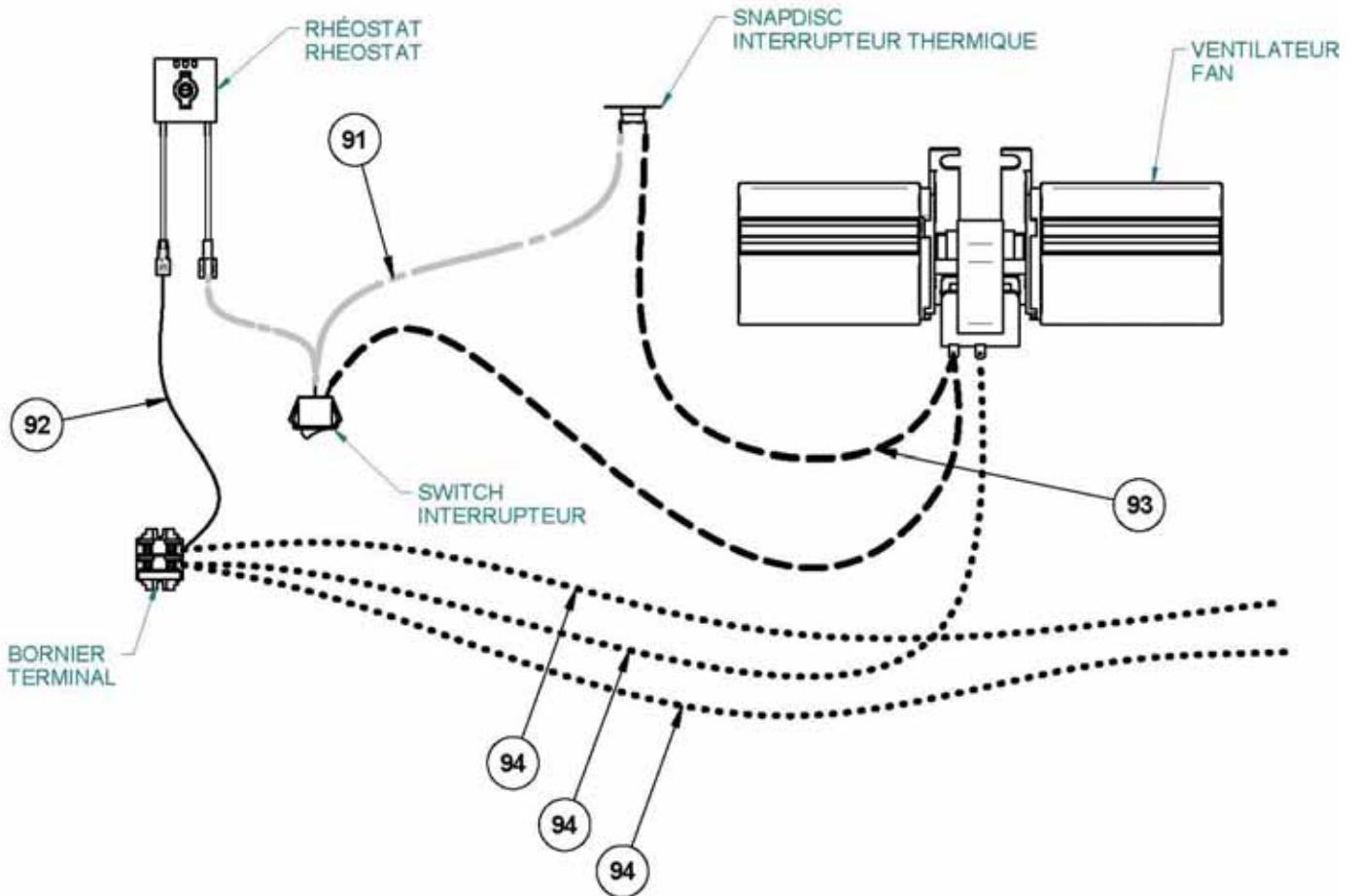


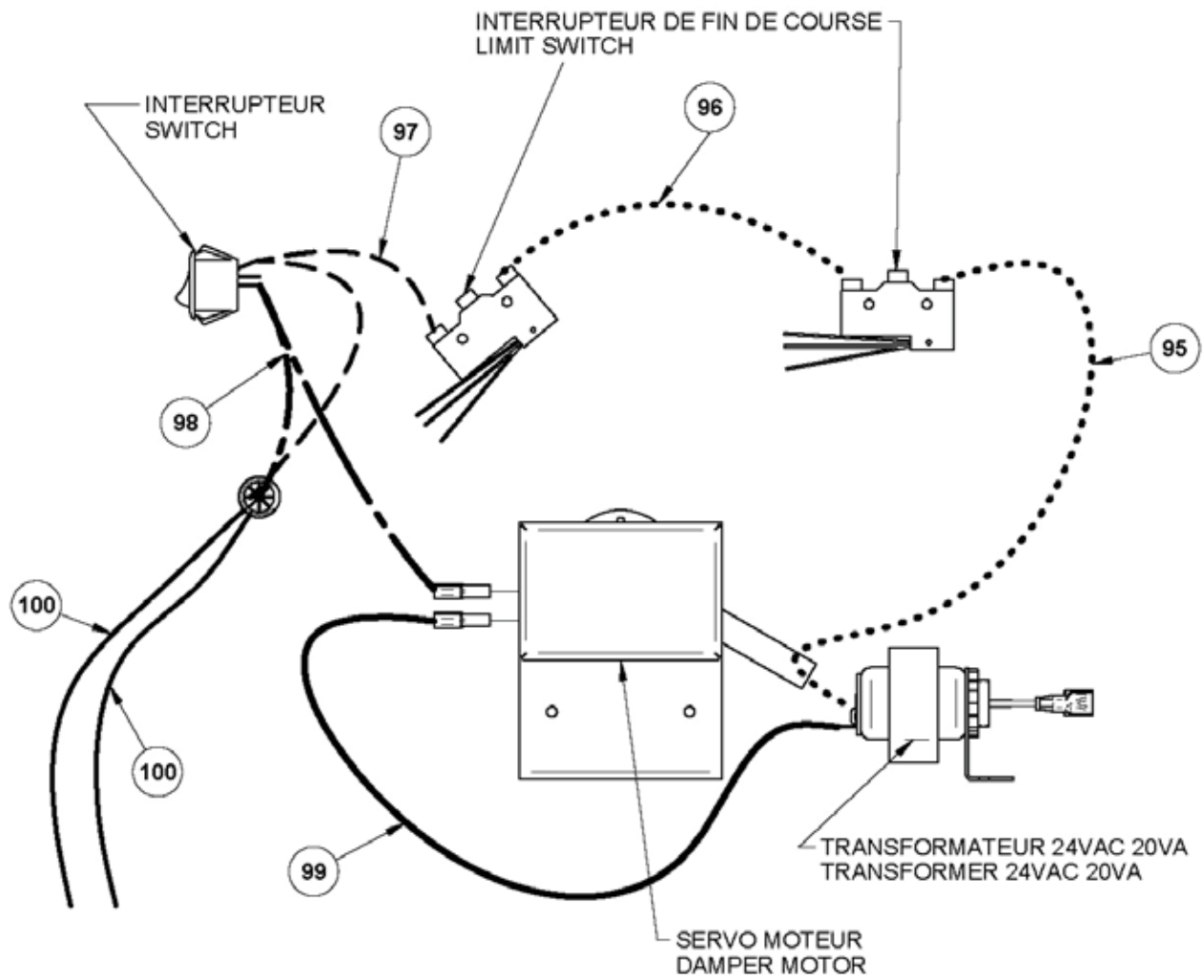
3. Remove the 4 bolts (**E**) holding the access door (**F**) with a 1/4" ratchet.
4. Remove the thermodisc (**H**) by unscrewing the 2 screws holding it in place (**G**).



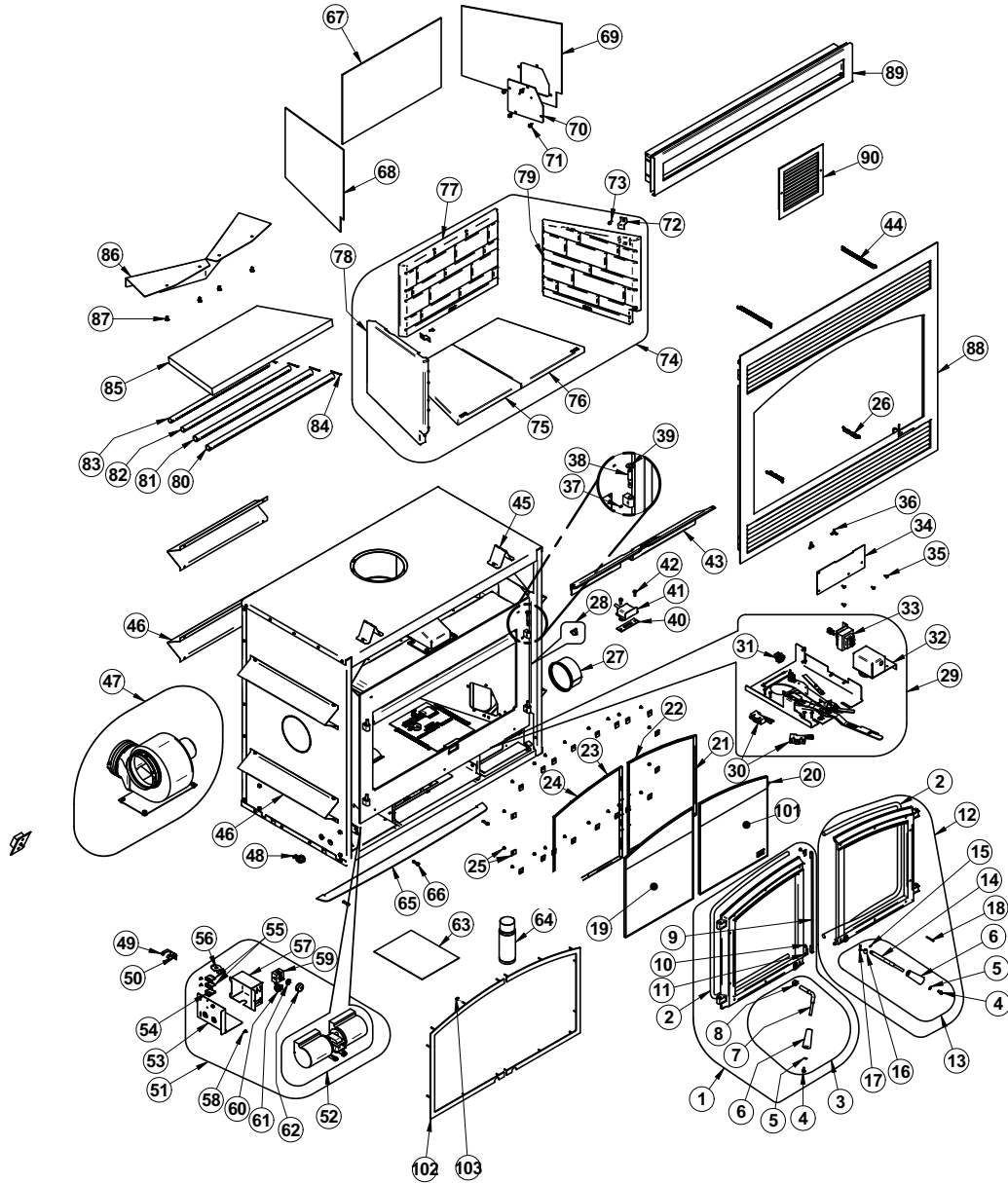
APPENDIX 9 – ELECTRICAL WIRING

Have the wiring installed by a qualified electrician. Connect the wires from the power outlet to the terminal block, making sure that the white wire matches the white wire on the terminal. Connect the black wire with the black wire of the terminal block. The ground (green or skinned wire) must be attached to the fireplace metal frame. See appendix 9 for parts list.





APPENDIX 10 - EXPLODED DIAGRAM AND PARTS LIST



IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for your stove, please provide the model number and the serial number. We reserve the right to change parts due to technology upgrade 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.

* Available as an accessory only

Some accessories required for fireplace operation

#	Item	Description	Qty
1	SBISE24344	LEFT DOOR FRAME WITH HANDLE AND GASKET	1
2	SBIAC06500	SILICONE AND 5/8" X 8' BLACK DOOR GASKET KIT	1
3	SBISE68960	LEFT HANDLE AND LATCH KIT	1
4	SBI30025	1/4-20 X 1/2" PAN-HEAD QUADREX BLACK SCREW	2
5	SBI30187	STAINLESS WASHER ID 17/64" X OD 1/2"	2
6	SBI30898	ROUND WOODEN BLACK HANDLE	2
7	SBIPL68960	LEFT HANDLE DOOR	1
8	SBI30039	NUT 1/2-20	1
9	SBI40030	6 mm GASKET	2
10	SBIPL68998	GASKET RETAINER	2
11	SBI30124	SCREW #8 - 32 X 5/16" TRUSS QUADREX ZINC	2
12	SBISE24345	RIGHT DOOR FRAME WITH HANDLE AND GASKET	1
13	SBISE68961	RIGHT HANDLE AND LATCH KIT	1
14	SBIPL68961	RIGHT DOOR HANDLE	1
15	SBI30062	SPRING PIN 3/32" X 1/2"	1
16	SBI30043	CLEVIS PIN 3/16" x 7/8"	1
17	SBI843508	BLACK OXIDE LATCH MECHANISM BEARING	1
18	SBI30101	SPRING TENSION PIN 5/32"Ø X 1 1/2"L	1
19	SBISE23100	ST-CLAIR 4300 LEFT GLASS ASSEMBLY 15 3/8"W X 17 7/8"H	1
20	SBIAC06400	3/4" (FLAT) X 6' BLACK SELF-ADHESIVE GLASS GASKET	2
21	SBIPL68400	GLASS FRAME	1
22	SBIPL68402	GLASS FRAME	1
23	SBIPL68401	GLASS FRAME	1
24	SBIPL68403	GLASS FRAME	1
25	SBISE53585	GLASS RETAINER KIT WITH SCREWS (12 PER KIT)	1
26	SBI30472	SPRING 1/2" OUTSIDE Ø X 3"L	2
27	SBIPL68915	ADAPTER 5"	1
28	SBI44191	THERMODISC 36T12 F275	1
29	SBISE68877	AIR CONTROL MECHANISM ASSEMBLY	1
30	SBI44190	LIMIT SWITCH	2
31	SBI44091	ROCKER SWITCH 2 POSITION MSR-8	1
32	SBI51000	HONEYWELL 24V DAMPER MOTOR	1
33	SBI60208	TRANSFORMER 120 V/24 V 20 VA	1
34	SBIPL68781	AIR INLET PLATE	1
35	SBI30131	BLACK METAL SCREW #10 X 1/2" TYPE "A" PAN QUADREX	4
36	SBI30485	WING NUT 1/4-20 X 1/2" ZINC PLATTED	2

#	Item	Description	Qty	
37	SBI30117	SOCKET SET SCREW #10-32 X 1/4"	2	
38	SBI30586	HINGE PIN	2	
39	SBI30205	ZINC WASHER ID 13/32" X OD 13/16"	2	
40	SBI21490	PILOT INSULATION	1	
41	SBISE68758	PILOT ASSEMBLY	1	
42	SBI30094	HEX SCREW WASHER HEAD 1/4-20 X 3/4" F ZINC TYPE	1	
43	SBIPL68759	INNER ASH RETAINER	1	
44	SBI30767	SPRING 1/2"Ø OUTSIDE X 8"L	1	
45	SBIPL60266	LONG TOP STANDOFF	2	
46	SBIPL68952	SIDE STANDOFF	6	
*	47	WB2FA	FORCED AIR KIT	1
48	SBI60201	CONNECTOR 1 SCREW 3/8" FOR BX WIRE	1	
49	SBIPL66523	THERMODISC SUPPORT	1	
50	SBI30133	METAL SCREW #8 X 3/8" PAN QUADREX TYPE "A" ZINC	2	
51	SBISE68951	WIRED ELECTRICAL PARTS WITH JUNCTION BOX	1	
52	SBI44122	DOUBLE CAGE BLOWER 176 CFM (CLASS H)	1	
53	SBIPL68950	JUNCTION BOX COVER	1	
54	SBI60204B	TERMINAL BLOCK (END SECTION)	1	
55	SBI60204A	TERMINAL 3/8" SECTION	2	
56	SBI44028	CERAMIC THERMODISC F110-20F	1	
57	SBIPL68951	CONNECTOR BLOCK CASE	1	
58	SBI30154	BLACK SCREW #10 X 5/8" QUADREX #2 TYPE A	1	
59	SBI44080	RHEOSTAT WITHOUT NUT (MODEL KBMS-13BV)	1	
60	SBI44091	ROCKER SWITCH 2 POSITION MSR-8	1	
61	SBI44087	RHEOSTAT NUT	1	
62	SBI44085	RHEOSTAT KNOB	1	
63	SBISE46211	ST-CLAIR 4300 MANUAL KIT	1	
64	SBIAC05959	METALLIC BLACK STOVE PAINT - 342 g (12oz) AEROSOL	1	
65	SBI30506	SCREW PAN TORX TYPE F 1/4-20 X 1" BLACK	3	
66	SBIPL68839	DÉCORATIVE ASH LIP	1	
67	SBI21463	REAR COMBUSTION CHAMBER INSULATION (0.51m2)	1	
68	SBI21464	LEFT COMBUSTION CHAMBER INSULATION (0.51 m2)	1	
69	SBI21465	RIGHT COMBUSTION CHAMBER INSULATION (0.51m2)	1	
70	SBIPL68873	THERMODISC ACCESS	1	
71	SBI30084	NUT 1/4-20 X 1/2" GRADE 5	4	
72	SBIPL53145	REFRACTORY BRICK PANEL RETAINER	2	
73	SBI30026	THREAD CUTTING SCREW 10-24 F 5/8" HEX WASHER HEAD	2	
*	74	WR5C	CLASSIC MOULDED BRICK PANELS	1
75	SBI22025	LEFT FLOOR REFRACTORY BRICK	1	
76	SBI22026	RIGHT FLOOR REFRACTORY BRICK	1	
77	SBI22027	REAR REFRACTORY BRICK PANEL	1	
78	SBI22028	LEFT REFRACTORY BRICK PANEL	1	
79	SBI22029	RIGHT REFRACTORY BRICK PANEL	1	

#	Item	Description	Qty	
80	SBIPL68762	FRONT SECONDARY AIR TUBE	1	
81	SBIPL68763	CENTER FRONT SECONDARY AIR TUBE	1	
82	SBIPL68764	REAR SECONDARY AIR TUBE	1	
83	SBIPL68765	CENTER SECONDARY AIR TUBE	1	
84	SBISE36250	STAINLESS STEEL COTTER PIN 1/8" X 1 1/2" (12 UNITS)	4	
85	SBI21265	C-CAST BAFFLE 20 3/8" X 27 1/2" X 13 3/4" X 1 1/4"	1	
86	SBIPL68850	BAFFLE DEFLECTOR	1	
87	SBI30060	THREAD-CUTTING SCREW 1/4-20 X 1/2" F HEX STEEL SLOT WASHER C102 ZINC	4	
*	88	WF5TBL	TRADITIONAL FACEPLATE FOR ST. CLAIR 4300	1
*	89	WB2WG	ASSEMBLED LOUVERED FACE	1
90	SBI30540	HOT AIR GRAVITY KIT GRILL	1	
91	SBI60380	ELECTRIC WIRE DOUBLE BLACK SEW2 200°C 18 AWG 4" ET 35"	1	
92	SBI60381	ELECTRIC WIRE WHITE TEW 105°C 18 AWG 6"	1	
93	SBI60379	ELECTRIC WIRE DOUBLE BLACK SEW2 200°C 18 AWG 16" ET 35 "	1	
94	SBI60374	ELECTRIC WIRE WHITE SEW2 200°C 18 AWG 46"	3	
95	SBI60375	ELECTRIC WIRE WHITE TEW 105°C 18 AWG 12.5"	1	
96	SBI60376	ELECTRIC WIRE WHITE TEW 105°C 18 AWG 6.5"	1	
97	SBI60377	ELECTRIC WIRE DOUBLE WHITE TEW 105°C 18 AWG 6" ET 6"	1	
98	SBI60378	ELECTRIC WIRE DOUBLE BLACK TEW 105°C 18 AWG 6" ET 6"	1	
99	SBI60278	ELECTRIC WIRE BLACK TEW 105 DEG C 18 AWG 6"	1	
100	SBI60291	ELECTRIC WIRE BLACK SEW2 200°C 18 AWG 12"	2	
101	SBISE23101	ST-CLAIR 4300 RIGHT GLASS ASSEMBLY 15 3/8"W X 17 7/8"H	1	
*	102	WD5BL	BLACK OVERLAY FOR ST. CLAIR 4300	1
	102	WD5NB	BRUSHED NICKEL OVERLAY FOR ST. CLAIR 4300	1
103	SBI31126	DOOR OVERLAY HARDWARE BAG	2	

WARRANTY

EMPIRE LIMITED LIFETIME WARRANTY

Empire Comfort Systems Inc. warrants this hearth product to be free from defects at the time of purchase and for the periods specified below. This warranty applies to the original purchaser only and is not transferable. All warranty repairs must be accomplished by a qualified gas appliance technician.

Limited Lifetime Parts Warranty – Factory-Installed Glass

If factory-installed glass fails because of defective workmanship or material, Empire will repair or replace it at Empire's option.

Limited Lifetime Parts Warranty – Combustion Chamber, Heat Exchanger

If the combustion chamber or heat exchanger (see parts list) fails because of defective workmanship or material, Empire will repair or replace it at Empire's option.

Limited Three-Year Parts Warranty – All Other Components (Except Remote Controls, Thermostats, Lights, Accessories and Replacement Parts)

Should any part fail because of defective workmanship or material within three years from the date of purchase, Empire will repair or replace it at Empire's option.

Limited One-Year Parts Warranty – Remote Controls, Thermostats, Lights, Accessories, and Replacement Parts

Should any remote control, thermostat, lighting system, accessory, or replacement part fail because of defective workmanship within one year from the date of purchase, Empire will repair or replace it at Empire's option.

Duties of the Owner

Have the appliance installed by a qualified installer, and operate and maintain it in accordance with the furnished instructions
Provide proof of purchase (receipt) to establish the purchase date, which determines the warranty start date.
Provide ready access to the appliance for service.

What Is Not Covered

Damage caused by misuse or improper installation.
Damage caused by improper maintenance or lack of maintenance.
Claims that do not involve defective workmanship or materials.
Unauthorized service or replacement parts.
Travel, diagnostic costs and freight charges on warranted parts to and from the factory.
Removal and reinstallation cost.

How to Get Service

Provide the dealer with the model number, serial number, type of gas, and proof of purchase. The installing dealer is responsible for providing service and will contact the factory to initiate any warranted parts replacements. Empire will make replacement parts available at the factory. Shipping expenses are not covered.
If, after contacting your Empire dealer, the service received has not been satisfactory, send an e-mail describing the issue and any actions taken to info@empirecomfort.com with "Consumer Relations" in the subject line.

Your Rights under State Law

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.



SINCE 1932

Empire Comfort Systems Inc.
Belleville, IL

If you have a general question about our products, please e-mail us at info@empirecomfort.com.

If you have a service or repair question, please contact your dealer.

www.empirecomfort.com