



TEST REPORT

SCOPE: EMISSIONS, EFFICIENCY AND OUTPUT

FUEL: CORDWOOD

TEST STANDARD: EPA

MODEL: Gateway 3500 WOOD STOVE



Test load procedure for certification of 3.5 Series wood stove using ASTM E3053-17 according to EPA Alt-127

Low burn rate

Stove lighting: 14.1 lbs

Split the start-up fuel log into 8 pieces. Crisscross the 8 pieces on the brick, leaving some space between each wood pieces (3 in the bottom, 3 in the middle and 2 on the top). Crisscross the kindling on the top of the start-up fuel. The kindling is made of between 14-16 finly split piece of wood that are 10% of moisture content. Place crumbled newspaper on top of the kindling (5 full sheets). Light up the paper and let the door ajar at 90° until the flue temperature reaches 170°F, then close the door. The fan is always OFF.

Pre-load (high burn): 29 lbs

When there is coal bed of 3.3 lb left, break ashes and level coal bed, then add pre-load in an East-West configuration divided in 3 columns: 2 smallest logs in the back, 2 logs in the middle and 2 logs in the front. Leave one inch or air space between the rear bricks and the first column, another one inch between the first two columns, and finally leave no space between the second and the third column. Let the door ajar to leave a space of one inch on the door handle's side for 3 minutes (including loading time). Close the door and let burn until the weight is down to target.

When the average stove temperature gets to 355°F, slightly level the coal bed. Let the door ajar by one inch for one minute. There should be approximately 4.5 to 4.6 lb of coal bed and the average temperature should be around 350°F.

Loading: 34 lbs

For the loading, put 2 logs at the back, 2 in the center and 2 in the front. The distance between the logs and the rear brick shall be approximately 1 inch. There should be one inch of air space between all the columns. Let the door ajar for 6 minutes 20 seconds and then close the door with the primary air control open. When the oxygen falls below 7.5% and the CO increase above 3500ppm, close the primary air control by introducing a ½" cylinder into the primary air intake. Remove the cylinder. Close the primary air control completely at 16 minutes 20 seconds or when 15% of the load weight has been consumed, whichever comes first. Start the fan at minimum speed at 30 minutes.

Medium burn rate

Stove lighting: 14.1 lbs

Use the same method than for low burn rate.

Pre-load (high burn): 29 lbs

Use the same method than for low burn rate.

**Loading: 34 lbs**

For the loading, put 2 logs at the back, 2 in the center and 2 in the front. The distance between the logs and the rear brick shall be approximately 1 inch. There should be one inch of air space between all the columns. Let the door ajar for 6 minutes 20 seconds and then close the door with the primary air control open. When the oxygen falls below 7.5% and the CO increase above 3500ppm, close the primary air control by introducing a ½" cylinder into the primary air intake. Remove the cylinder. Close the primary air control using a ¼" cylinder into the primary air intake at 16 minutes 20 seconds or when 15% of the load weight has been consumed, whichever comes first. Remove the cylinder. Start the fan at medium speed at 30 minutes.

High burn rate

Note: For this test run, according to ASTM E3053-17, the sampling starts as soon as the kindling is ignited (cold start).

Stove lighting: 14.1 lbs

Split the start-up fuel log into 8 pieces. Crisscross the 8 pieces on the brick, leaving some space between each wood pieces (3 in the bottom, 3 in the middle and 2 on the top). Crisscross the kindling on the top of the start-up fuel. The kindling is made of between 14-16 finely split piece of wood that are 10% of moisture content. Place crumbled newspaper on top of the kindling (5 full sheets). Light up the paper and let the door ajar at 90° until the flue temperature reaches 170°F, then close the door. The fan is always OFF.

High burn: 29 lbs

When there is coal bed of 3.3 lb left, break ashes and level coal bed, then add the load in an East-West configuration divided in 3 columns: 2 smallest logs in the back, 2 logs in the middle and 2 logs in the front. Leave one inch or air space between the rear bricks and the first column, another one inch between the first two columns, and finally leave no space between the second and the third column. Let the door ajar to leave a space of one inch on the door handle's side for 3 minutes (including loading time). Close the door. Start the fan at full speed.



LISTING REPORT FOR APPLICANT

ISSUED: May 31 2019 2:49PM

INSPECTION TESTS AND EVALUATION OF
**SBI Series 3.5(Solution 3.5, Escape 2100, HT-3000, Gateway 3500, Osburn 3500) Emissions and Efficiency -
EPA (44826)**

RENDERED TO
Stove Builder International Inc.
250, rue de Copenhague
St-Augustin-de-Desmaures, QC G3A 2H3
Canada

GENERAL: This report gives the results of the inspection, tests and evaluation of the above for compliance with applicable requirements of the following standards: CSA B415.1 (2010), ASTM E2515 Ed. 2011 (R2017), ASTM E3053 (2017)

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

PRODUCT DESCRIPTION

Product Covered:

SBI Series 3.5(Solution 3.5, Escape 2100, HT-3000, Gateway 3500, Osburn 3500) Emissions and Efficiency - EPA

Product Description:

Product covered

Series 3.5 (Solution 3.5, Escape 2100, HT-3000, Gateway 3500, Osburn 3500)Wood Fuel Room Heaters
Final emission results are as follows:

Model	Series 3.5 (Solution 3.5, Escape 2100, HT-3000, Gateway 3500, Osburn 3500)	Units
Maximum Output	49,500	Btu/hr
Weighted average Emission Rate	1.32	g/hr
Weighted Average CO Emissions Rate	1.37	g/min
Weighted Average Efficiency	71	%HHV
Test Fuel	Cordwood	

Attribute	Value
Criteria	CSA B415.1 (2010)
Criteria	ASTM E2515 Ed. 2011 (R2017)
Criteria	ASTM E3053 (2017)
CSI Code	10 30 00 Fireplaces and Stoves
Intertek Services	Certification
Listed or Inspected	LISTED
Listing Section	SOLID FUEL EMISSIONS AND EFFICIENCY
Report Number	G103536746
Spec ID	44826
Test Original Issue Date	July 13, 2018
Verification Testing	No

DRAWING INDEX

Certificate of Conformity - SBI - Solution 3.5 Series Emissions and Efficiency - EPA

CERTIFICATE OF CONFORMITY - SBI - SOLUTION 3.5 SERIES EMISSIONS AND EFFICIENCY - EPA



Certificate of Conformity

Emissions – Adjustable burn rate wood burning heater

ASTM E3053-17, ASTM E2515-2011, CSA B415.1-2010

Certificate number: WHI18 – 21514309

Organization:

Company Name: Stove Builder International inc.
Address: 250 de Copenhague
City, State: St-Augustin-de-Desmaures
Zip Code: G3A 2H3
Country: Canada

This is a certificate of conformity to certify that the bearer has successfully completed the requirements of the above scheme which include the testing of products, the initial assessment, and are subject to continuing annual assessments of their compliance and testing of samples of products taken from production (as applicable to the scheme) and has been registered within the scheme for the products detailed.

Product Model Series 3.5 (Escape 2100, HT-3000, Solution 3.5, Osburn 3500, Gateway 3500)
Maximum Output: 49 500 Btu/hour
Weighted Average Emissions Rate: 1.32 g/hr
Weighted Average CO Emissions Rate: 1.37 g/min
Weighted Average Efficiency: 71% HHV
Test Fuel Type: Cordwood
Compliance: Certified to comply with 2020 particulate emissions standard.
Report Number: 103536746MTL-002

Certification body: Intertek Testing Services NA, Inc.
Initial registration: July 31-2018
Date of expiry: No expiry date
Issue status: 2

Charles Meyers
Certification Manager

03/05/2019

Name

Signature

Date

Registered address:
Intertek Testing Services NA, Inc. 545 E. Algonquin Rd. Arlington Heights, IL 60005 USA

www.intertek.com

The certificate and schedule are held in force by regular annual surveillance visits by Intertek Testing Services NA, Inc. and the reader or user should contact Intertek to validate its status. This certificate remains the property of Intertek Testing Services NA, Inc. and must be returned to them on demand. This Certificate is for the exclusive use of Intertek's Client and is provided pursuant to the Certification agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this certificate. Only the Client is authorized to permit copying or distribution of this certificate and then only in its entirety. Use of Intertek's Certification mark is restricted to the conditions laid out in the agreement. Any further use of the Intertek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. Initial Factory Assessments and Follow up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this respect.

MANUFACTURING INFORMATION

Product Covered

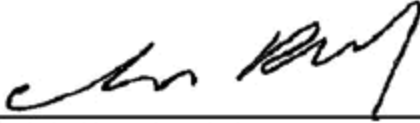
The Solution Series 3.5 (with models Solution 3.5, Escape 2100, HT-3000, Gateway 3500, Osburn 3500) is a Wood Fuel Room Heater. The models are constructed of sheet steel. The outer dimensions are 33 3/4-inches deep, 34 7/16-inches high, and 27 9/16-inches wide. The units have a door located on the front with a viewing glass.

Proprietary drawings and manufacturing methods are on file at the Intertek site at 1829 32nd Avenue Montreal (Lachine), QC Canada H8T 3J1 and in the EPA filing system. Drawings can also be found in this specification and in the EPF system.

The Solution 3.5, (the representative unit) unit was tested. It is considered a representative unit of the Series 3.5 (Solution 3.5, Escape 2100, HT-3000, Gateway 3500, Osburn 3500).

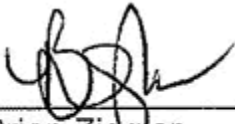
SIGNATURE PAGE

Reported By:



Claude Pelland, P.Eng.
Staff Engineer
Intertek Lachine

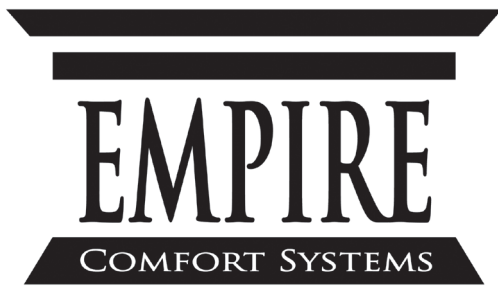
Reviewed By:



Brian Ziegler
Project Team Leader
Building Products Division

DRAWING INDEX

- 1 - Installation Manual Series 3.5 English
- 1 - Installation Manual Series 3.5 French
- 1 - Installation Manual Solution 3.5 English
- 1 - Installation Manual Solution 3.5 French
- 2 - Labels
- 3 - Drawings Solution 3.5
- 3 - Drawings Escape 2500
- 3 - Drawings Gateway 3500
- 3 - Drawings HT 3000
- 3 - Drawings Osburn 3500
- 3 - Drawings Solution 3.5



SINCE 1932

Installation and Operation Manual

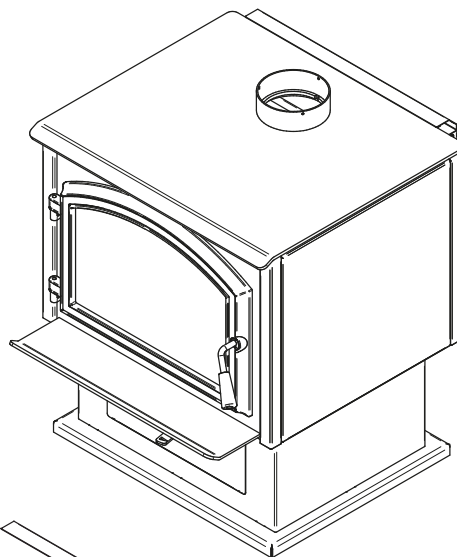
GATEWAY 3500

(WB35FS model)

EPA
 ≤ 2.5 g/h

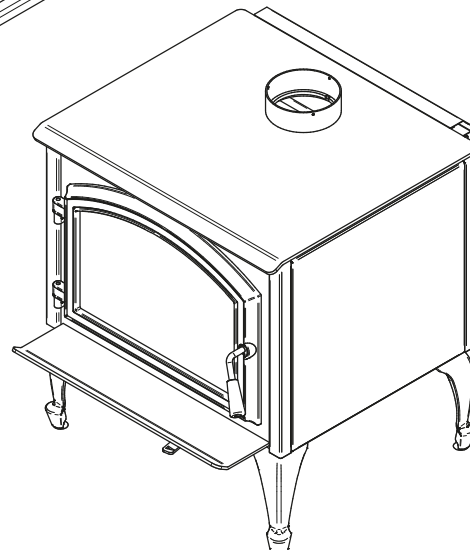
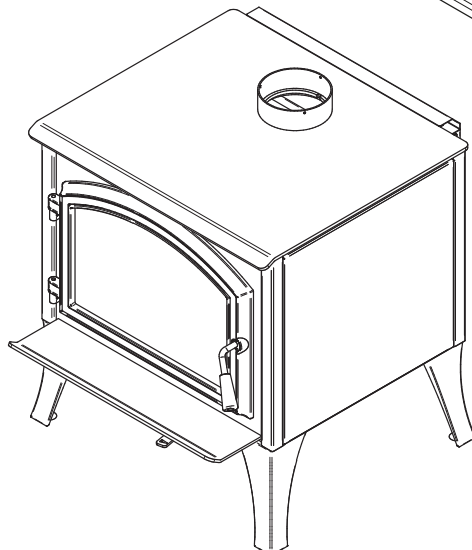


PEDESTAL VERSION ONLY



US Environmental Protection Agency phase II certified wood stove compliant with 2020 cordwood standard.

Safety tested according to ULC S627, UL 1482 and UL 737 standards by an accredited laboratory.



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

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

READ AND KEEP THIS MANUAL FOR REFERENCE

THANK YOU FOR CHOOSING THIS WOOD STOVE.

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

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

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

It is highly recommended that this wood burning hearth product 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 and in Canada by WETT (Wood Energy Technology Transfer) or in Quebec by APC (Association des Professionnels du Chauffage).

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

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

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

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

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Dealer:

Installer:

Phone Number:

Serial Number:

CERTIFICATION PLATE

ENGLISH



Intertek

May/Mai 2019

Control number: 4002461

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:

Certified to/Certifié selon ULC S627

Certified to/Certifié selon UL 1482

Certified to/Certifié selon UL 737

Certified to/Certifié selon CSA B415.1-10

Certified to/Certifié selon ASTM E3053-17

Certified to/Certifié selon ASTM E2515-11 (R2017)

LISTED SOLID FUEL BURNING APPLIANCE

POÊLE À COMBUSTIBLE SOLIDE HOMOLOGUÉ

MODEL / MODÈLE :

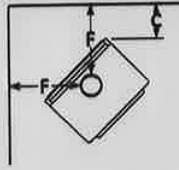
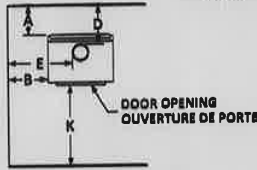
GATEWAY 3500

Serial Number

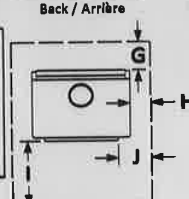
No. de Série

1

Clearances to combustibles / Dégagements aux combustibles



MOBILE HOME MAISONS MOBILES			
Double wall connector Tuyau à paroi double			
A: 9 in./po.	(229 mm)	D: 13.75 in./po.	(349 mm)
B: 19 in./po.	(483 mm)	E: 29.875 in./po.	(759 mm)
C: 10 in./po.	(254 mm)	F: 20.75 in./po.	(527 mm)



CANADA

Single wall connector
Tuyau à paroi simple

Double wall connector
Tuyau à paroi double

A: 13.25 in./po. (337 mm)

B: 14 in./po. (356 mm)

C: 7.25 in./po. (184 mm)

D: 18 in./po. (457 mm)

E: 24.875 in./po. (632 mm)

F: 18 in./po. (457 mm)

Floor-ceiling/plancher-plafond: 84 in./po. (213 cm)

U.S.A.

Single wall connector
Tuyau à paroi simple

Double wall connector
Tuyau à paroi double

A: 13 in./po. (330 mm)

B: 14 in./po. (356 mm)

C: 7.25 in./po. (184 mm)

D: 17.75 in./po. (451 mm)

E: 24.875 in./po. (632 mm)

F: 18 in./po. (457 mm)

U.S.A.

Double wall connector
Tuyau à paroi double

A: 7 in./po. (152 mm)

B: 14 in./po. (356 mm)

C: 7 in./po. (178 mm)

D: 11.75 in./po. (273 mm)

E: 24.875 in./po. (632 mm)

F: 17.75 in./po. (451 mm)

Protection de plancher/Floor protection

CANADA

G: 8 in./po. (203 mm)

H: 8 in./po. (203 mm)

I: 18 in./po. (457 mm)

J: 48 in./po. (1219 mm)

K: 48 in./po. (1219 mm)

U.S.A.

I: 16 in./po. (406 mm)

J: 8 in./po. (203 mm)

K: 36 in./po. (914 mm)

PREVENT HOUSE FIRES

- Install and use only in accordance with the manufacturer's installation and operating instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- Use listed 152 mm / 6 in. diameter single or double wall connectors with prefabricated chimneys approved UL 103 HT (US) and ULC S629 (CAN) suitable for solid fuels or lined masonry chimneys.
- See local building code and manufacturer's instructions for precautions required for passing a chimney through a combustible wall or ceiling.
- Do not pass connector through combustible wall or ceiling.
- Do not connect this unit to a chimney serving another appliance.
- Use with wood only. Do not use other fuels.
- Operate only with door closed or door open with firescreen installed. Open door or remove firescreen to feed the stove only.
- Do not obstruct the space underneath the stove.
- Do not use grate or elevate fire. Build fire directly on hearth.
- Do not overfire. If heater or chimney connector glows, you are overfiring.
- Inspect and clean chimney frequently. Under certain condition of use, creosote buildup may occur rapidly.
- Replace glass with ceramic type only.
- Install unit on a non-combustible material extending as shown above on this label.
- Suitable for mobile-home installation. Floor protection may vary from pedestal to legs version refer to owner's manual.
- Combustion air openings shall not be obstructed.
- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

Optional blower: (115V, 0.8A, 60Hz)

PRÉVENEZ LES INCENDIES

- Installer et utiliser conformément au manuel d'utilisation du fabricant.
- Contacter les autorités de votre localité ayant juridiction concernant les restrictions et inspections d'installation.
- Utiliser des tuyaux d'évacuation à paroi simple ou double homologués d'un diamètre de 6 po. (152 mm) avec une cheminée préfabriquée approuvée UL 103 HT (US) et ULC S629 (CAN) pour utilisation au bois ou une cheminée de maçonnerie gainée.
- Voir les codes locaux et le manuel d'installation du fabricant pour le passage de la cheminée à travers un mur ou un plafond combustible.
- Ne pas traverser un plafond ou un mur combustible avec un tuyau d'évacuation.
- Ne pas raccorder cet appareil à une cheminée desservant un autre appareil.
- Brûler du bois seulement. Ne pas utiliser d'autres combustibles.
- Garder la porte fermée ou le pare-étincelle en place en tout temps. Ouvrir la porte ou retirer le pare-étincelle que lors du chargement.
- Ne rien entreposer sous l'appareil.
- Ne pas utiliser de grilles ou de chenets pour surélever le feu. Préparer le feu directement sur l'âtre.
- Ne pas surchauffer. Si l'appareil ou le tuyau rougit, il y a surchauffe.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, l'accumulation de crésote peut être rapide.
- Remplacer la vitre seulement avec un verre de céramique.
- Installer l'appareil sur une plaque non combustible tel qu'indiqué sur l'étiquette.
- Poêle approuvé pour maison mobile. La protection de plancher peut varier entre la version piédestal et sur pattes. Voir le manuel d'installations.
- Les entrées d'air servant à la combustion ne doivent pas être obstruées.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistante par rapport au manuel de l'utilisateur constitue une violation de la loi fédérale (USA).

Option ventilateur: (115V, 0.8A, 60Hz)

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

Weighted average emission rate / Moyenne pondérée des émissions: 1.32 g/h
Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1)(ii)



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



CAUTION

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

ATTENTION

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

Made In St-Augustin-de-Desmaures (Qc), Canada

10/06/2019

(# test)



SINCE 1932

Fabrique à St-Augustin-de-Desmaures (Qc), Canada

10/06/2019

(# test)

27777

PART A - OPERATION AND MAINTENANCE

1. Safety Information

- This stove has been tested for use with an open door in conjunction with a fire screen, sold separately. The door may be opened, or fire screen removed only during lighting procedures or reloading. Always close the door or put back on the fire screen after ignition. Do not leave the stove unattended when the door is opened with or without the fire screen.
- **WARNING : OPERATE ONLY WITH THE DOOR FULLY CLOSED OR FULLY OPEN WITH THE FIRE SCREEN IN PLACE. IF THE DOOR IS LEFT PARTLY OPEN, GAS AND FLAME MAY BE DRAWN OUT OF THE OPENING, CREATING RISKS FROM BOTH FIRE AND SMOKE.**
- **HOT WHILE IN OPERATION, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. GLOVES MAY BE NEEDED FOR THE STOVE OPERATION.**
- Using a stove with cracked or broken components, such as glass, firebricks or baffle may produce an unsafe condition and may damage the stove.
- 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 STOVE. KEEP ALL SUCH LIQUIDS OR AEROSOLS WELL AWAY FROM THE STOVE WHILE IT IS IN USE.**
- Do not store fuel within heater minimum installation clearances.
- Burn only seasoned natural firewood.
- This appliance should always be maintained and operated in accordance with these instructions.
- Do not elevate the fire by using a grate.
- Do not use makeshift materials or make any compromises when installing this appliance.
- 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.
- A smoke detector, a carbon monoxide detector and a fire extinguisher should be installed in the house. The location of the fire extinguisher should be known by all family members.



This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov/

2. General Information

2.1 Performances

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

Model	Gateway 3500	
Fuel Type	Dry Cordwood	
Combustion Technology	Non-Catalytic	
Recommended heating area (sq. ft.) ¹	1,000 to 2,700 ft ² (93 to 251 m ²)	
Nominal firebox volume	3.5 ft ³ (0.099 m ³)	
Maximum burn time ¹	10 hours	
Maximum heat output (dry cordwood) ²	110,000 BTU/h (32.2 kW)	
Overall heat output rate (min. to max.) ^{2 3}	18,200 BTU/h to 49,500 BTU/h (5.3 kW to 14.5 kW)	
Average overall efficiency ³ Dry cordwood	71 % (HHV) ⁴	76 % (LHV) ⁵
Optimum efficiency ⁶	77 %	
Average particulate emissions rate ⁷	1.32 g/h (EPA / CSA B415.1-10) ⁸	
Average CO ⁹	92 g/h	

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

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

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

⁴ Higher Heating Value of the fuel.

⁵ Lower Heating Value of the fuel.

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

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

⁸ Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1)(ii) and ASTM E3053-17

⁹ Carbon monoxide.

2.2 Specifications

Maximum log length ¹⁰	22 in (560 mm) east-west
Flue outlet diameter	6 in (150 mm)
Recommended connector pipe diameter	6 in (150 mm)
Type of chimney	ULC S629, UL 103 HT (2100 °F)
Baffle material	C-Cast
Approved for alcove installation	Yes
Approved for mobile home installation ¹¹	Yes
Type of door	Simple, glass with cast iron frame
Type of glass	Ceramic glass
Blower	Optional (up to 130 CFM)
Particulate emission standard ¹²	EPA / CSA B415.1-10
USA standard (Safety)	UL 1482, UL 737
Canada standard (Safety)	ULC S627

¹⁰ North-south: ends of the logs visible, East-west: sides of the logs visible.

¹¹ Mobile homes (Canada) or manufactured homes (USA): The US Department of Housing and Urban Development describes “manufactured homes” better known as “mobile homes” as follows; buildings built on fixed wheels and those transported on temporary wheels/axles and set on a permanent foundation. In Canada, a mobile home is a dwelling for which the manufacture and assembly of each component is completed or substantially completed prior to being moved to a site for installation on a foundation and connection to service facilities and which conforms to the CAN/CSA-Z240 MH standard.

¹² Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1)(ii) and ASTM E3053-17.

2.3 Dimensions

2.3.1 Stove Dimensions with Queen Anne Legs

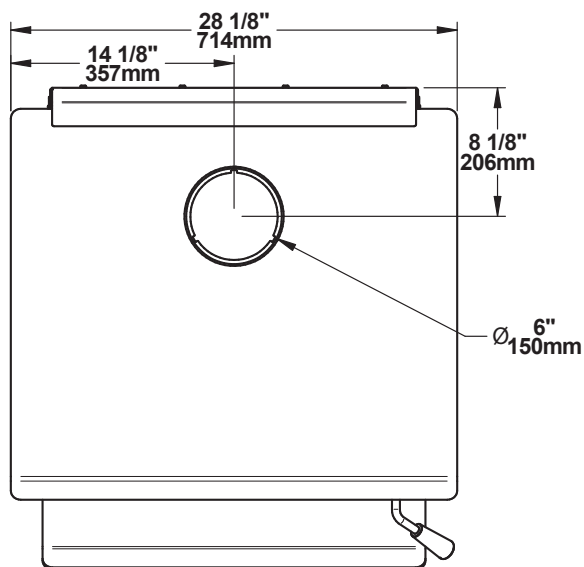


Figure 1: Top View

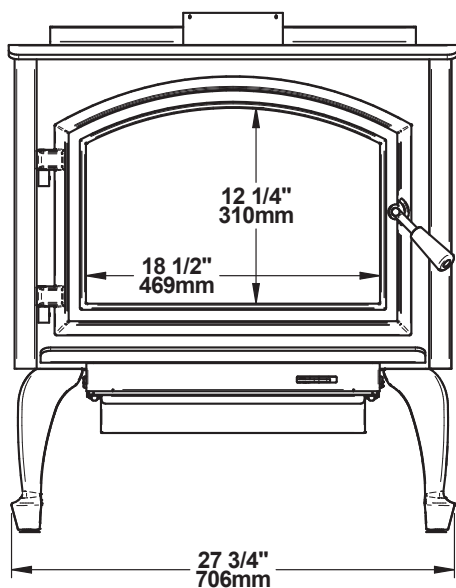


Figure 2: Front View

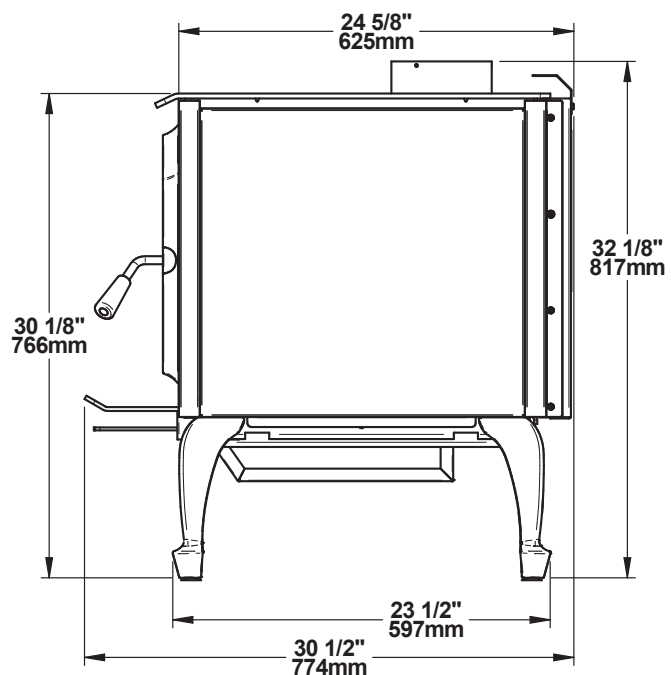


Figure 3: Side View

2.3.2 Stove Dimensions with Straight Legs

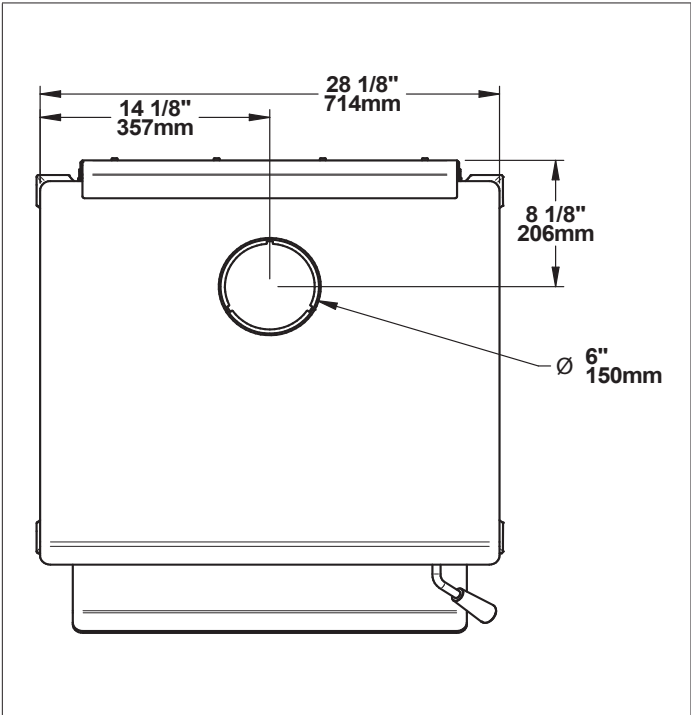


Figure 4: Top View

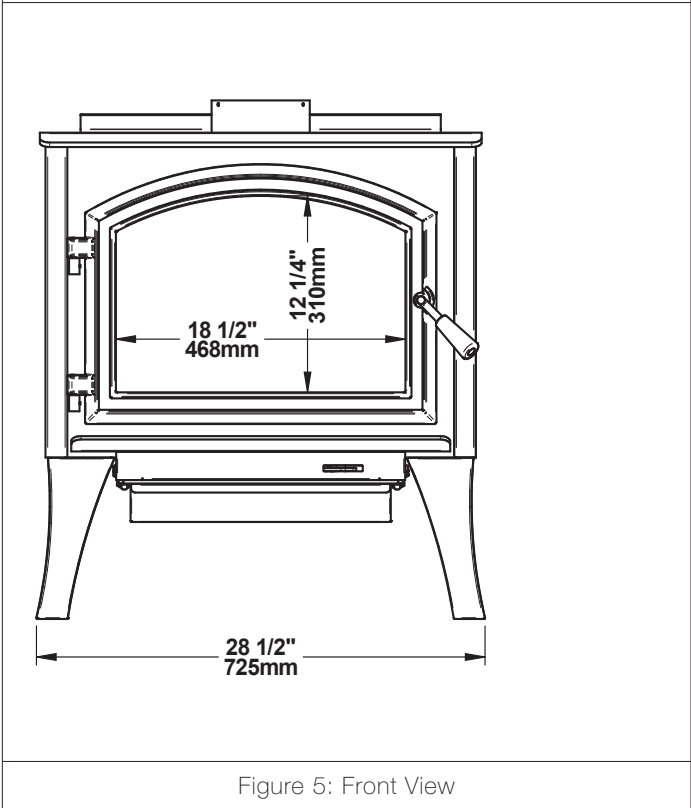


Figure 5: Front View

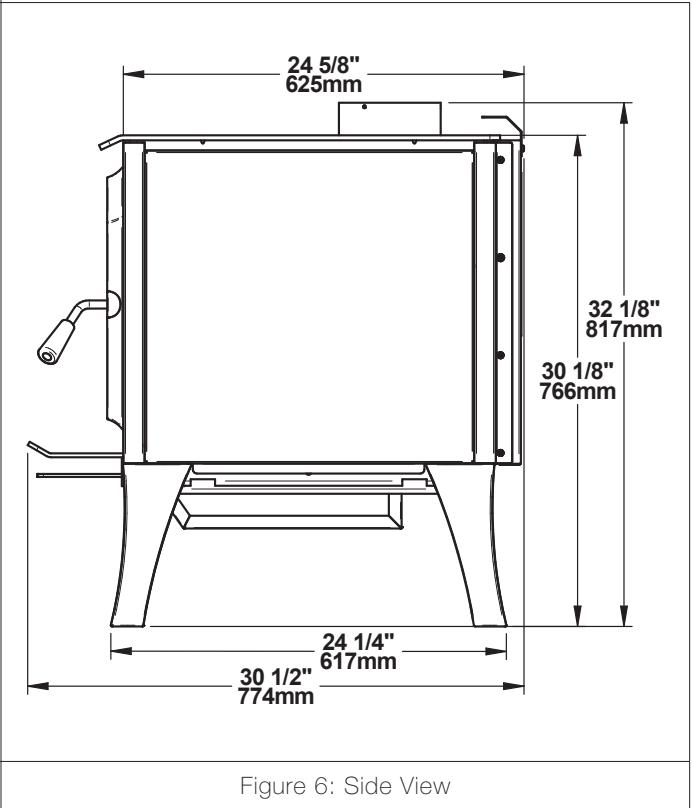


Figure 6: Side View

2.3.3 Dimensions with pedestal

ENGLISH

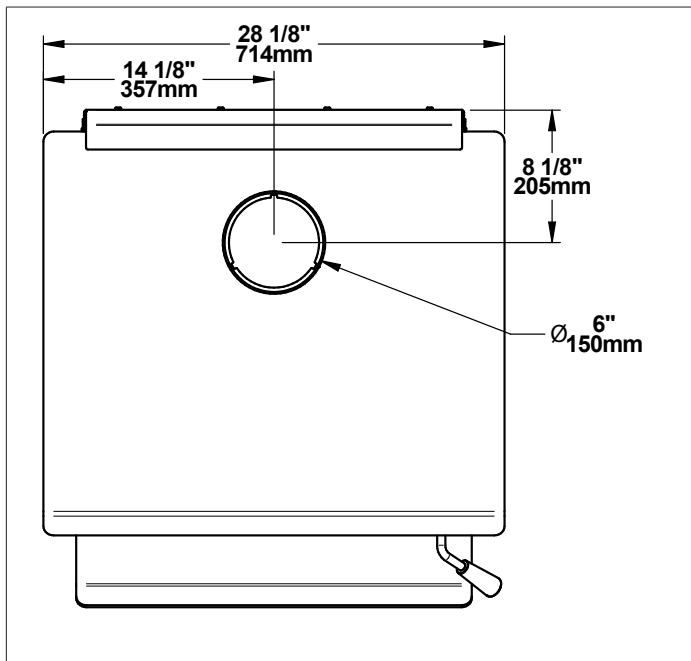


Figure 7: Top View

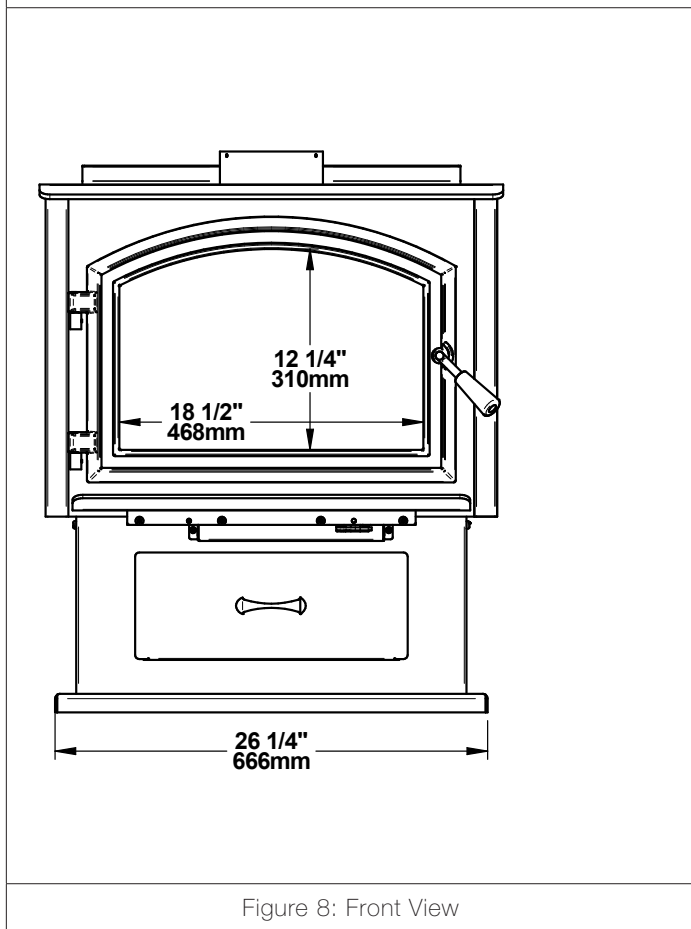


Figure 8: Front View

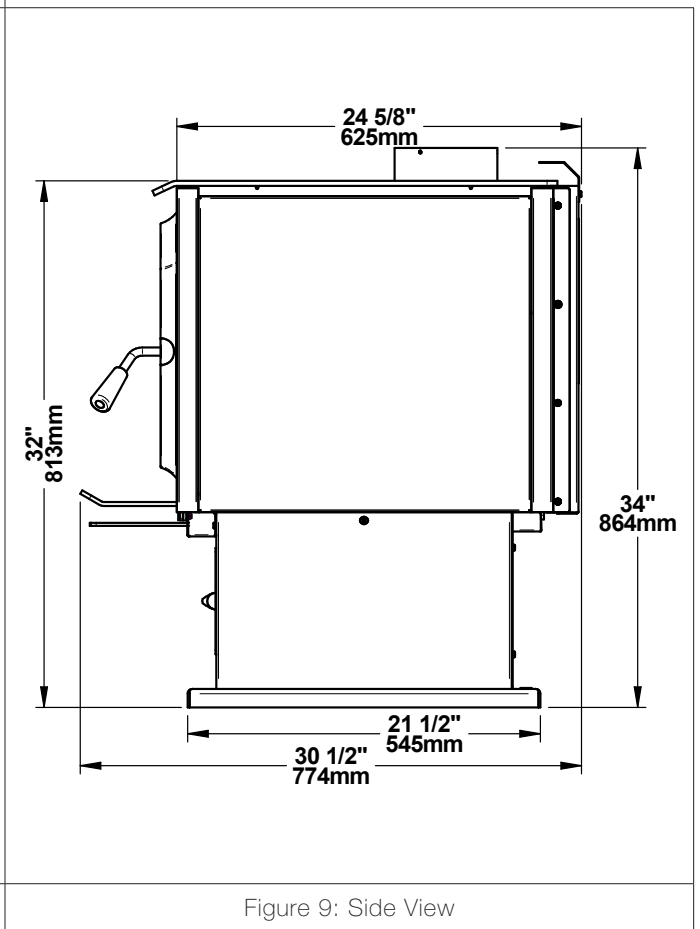


Figure 9: Side View

2.3.4 Combustion Chamber Dimensions

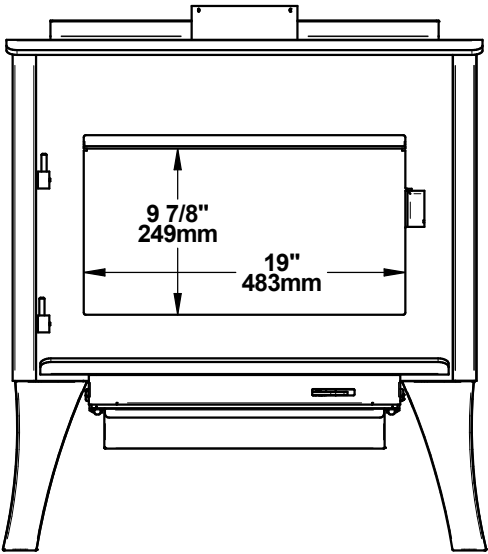


Figure 10: Door Opening

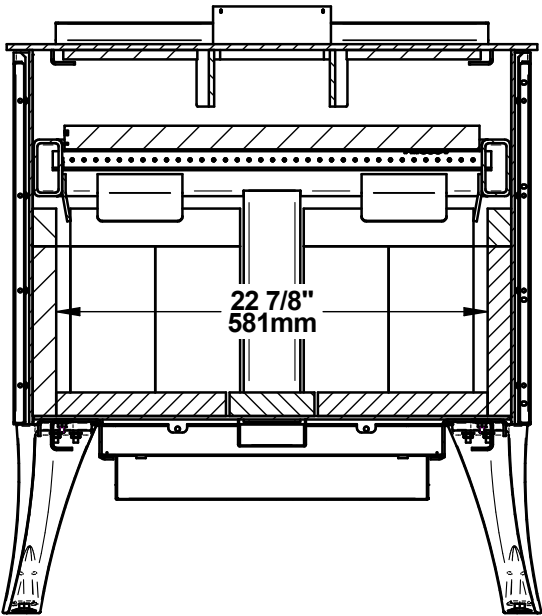


Figure 11: Front View - Combustion Chamber

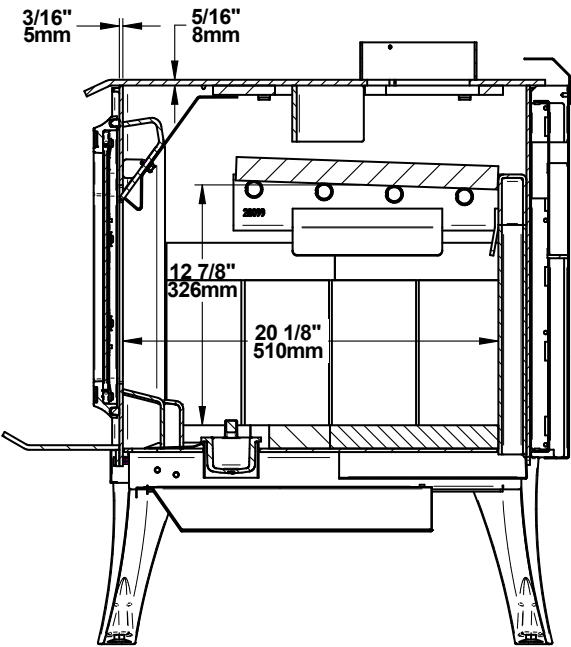


Figure 12: Side View - Combustion Chamber

2.4 Materials

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

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

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

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

The **firebrick** is 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 waste management center is recommended.

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

The door **glass** is a 5/32" (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 regular household products. Disposal at a waste management center is recommended.

2.5 Zone Heating

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

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

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

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

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

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

2.6 Emissions and Efficiency

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

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

The emission control and advanced combustion features of this stove can only work properly if the fuel used is in the correct moisture content range of 15% to 20%. Refer to the following section of suggestions on preparing fuelwood and judging its moisture.

3. Fuel

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

DO NOT BURN:

- **GARBAGE;**
- **LAWN CLIPPINGS OR YARD WASTE;**
- **MATERIALS CONTAINING RUBBER, INCLUDING TIRES;**
- **MATERIALS CONTAINING PLASTIC;**
- **WASTE PETROLEUM PRODUCTS, PAINTS OR PAINT THINNERS, 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 SALT WATER SATURATED MATERIALS;**
- **UNSEASONED WOOD; OR**
- **PAPER PRODUCTS, CARDBOARD, PLYWOOD, OR PARTICLE BOARD. THE PROHIBITION AGAINST BURNING THESE MATERIALS DOES NOT PROHIBIT THE USE OF FIRE STARTERS MADE FROM PAPER, CARDBOARD, SAW DUST, WAX AND SIMILAR SUBSTANCES FOR THE PURPOSE OF STARTING A FIRE IN AN AFFECTED WOOD HEATER.**

BURNING THESE MATERIALS MAY RESULT IN THE RELEASE OF TOXIC FUMES OR RENDER THE HEATER INEFFECTIVE AND CAUSE SMOKE.

3.1 Tree Species

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

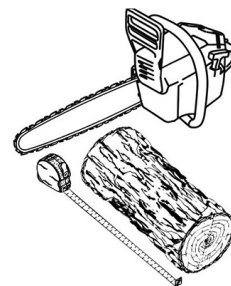
Homeowners with access to both hardwood and softwood use both types for different purposes.

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

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.

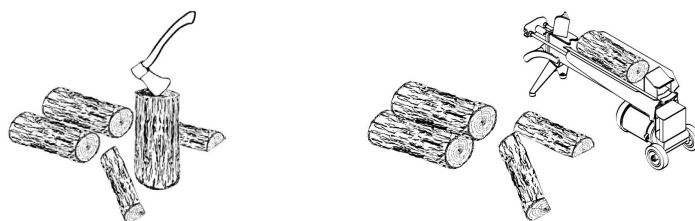
3.2 Log Length

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



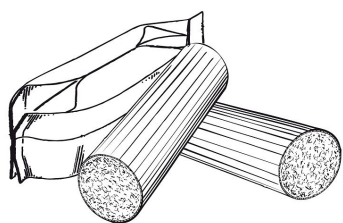
3.3 Piece Size

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



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

3.4 Compressed Wood Logs



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

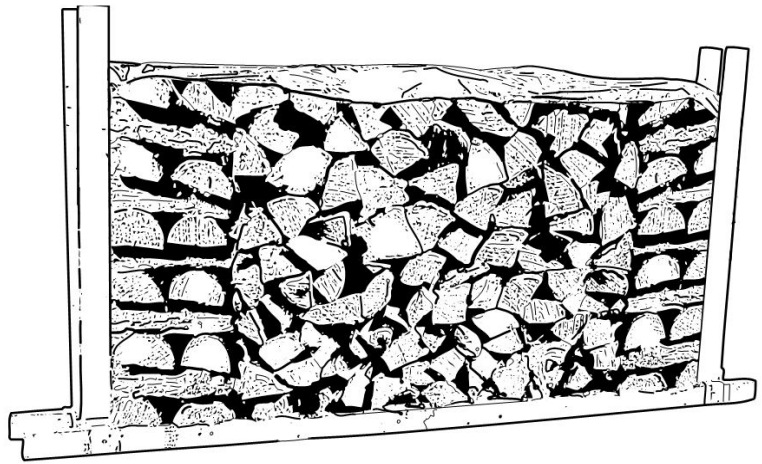
3.5 Drying Time

Firewood that is not dry enough to burn is the cause of most complaints about wood burning appliances. Continually burning green or unseasoned wood produces more creosote and involves lack of heat and dirty glass door.

Firewood with a moisture content between 15% and 20% will allow the stove to produce its highest possible efficiency.

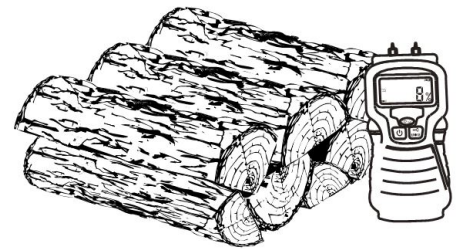
Here are some facts to consider in estimating drying time:

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



Firewood is dry enough to burn when:

- Cracks form at the end of logs;
- The wood turns from white or cream colored to grey or yellow;
- Two pieces of wood struck together sounds hollow;
- The face of a fresh cut feels warm and dry;
- The moisture content read by a moisture meter is between 15% to 20%.



4. Operating the Stove



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.

Before using the stove, the following steps should be completed :

- Install the leg kit (see [«Appendix 1: Legs Installation»](#)) or the pedestal (see [«Appendix 2: Pedestal Installation»](#)).
- Install the overlay (see [«Appendix 3: Door Overlay Installation»](#)).

The following steps are optional

- Install the step top add on (see [«Appendix 5: Optional Step Top Add On Installation»](#))
- Install the blower (See [«Appendix 8: Optional Blower Installation»](#))
- Install the thermodisc (See [«Appendix 9: Optional Thermodisc Installation»](#))
- Install the fresh air intake (see [«Appendix 6: Optional Fresh Air Intake Kit Installation»](#))

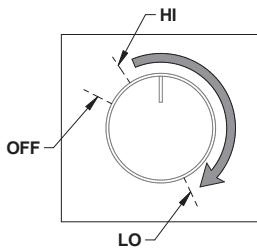
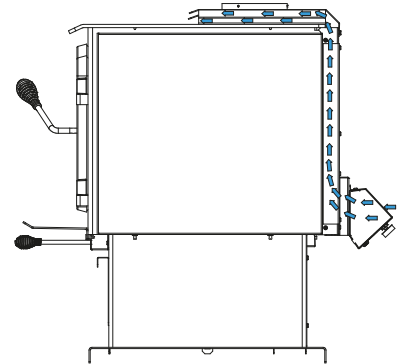
4.1 Blower Operation

A blower can be installed on this stove. It is optional and is sold separately. See [«Appendix 12: Exploded Diagram and Parts List»](#) for genuine part number. The blower must be installed on the back of the stove. See [«Appendix 8: Optional Blower Installation»](#) for instructions. The blower is used to increase the airflow through the heat exchanger and improve hot air circulation in the room.

When used regularly, the blower can provide a small increase in efficiency, up to 2%. However, the use of a blower should not be used as a way to gain more output from a stove that is undersized for the space it is intended to heat.



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



The blower has a variable speed control that can be adjusted in three different positions; either from high (HI) to low (LO) or closed (OFF).

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

It is also possible to install a heat sensor that works with the blower. The thermodisc is optional and is sold separately. The heat sensor must also be installed at the back of the stove. See [«Appendix 9: Optional Thermodisc Installation»](#). When the blower is on (position between HI and LO), the heat sensor will make the blower start automatically when the stove is hot enough and will make it stop when the stove has cooled down. Therefore, the blower speed control can be left at the desired setting.

4.2 The Use of a Fire Screen

This stove has been tested for use with an open door in conjunction with a fire screen, sold separately. The fire screen must be properly secured on the stove to avoid any risk of sparks damaging the flooring. When the fire screen is in use, do not leave the stove unattended to respond promptly in the event of smoke spillage into the room. Potential causes of smoke spillage are described in Section [«9. The Venting System»](#) of this manual. See [«Appendix 7: Optional Fire Screen Installation»](#) for installation instructions.

Operating the stove with a fire screen increases possibilities of generating carbon monoxide. Carbon monoxide is an odourless gas that is highly toxic which can cause death at high concentration in air. Installation of a carbon monoxide detector is highly recommended.

5. Burning Wood Efficiently

5.1 First Use

Two things happen when burning the first few fires; the paint cures and the internal components are conditioned. As the paint cures, some of the chemicals vaporize. The vapors are not poisonous, but they smell bad. Fresh paint fumes can also trigger false alarms in smoke detectors.

When lighting the heater for the first few times, it may be wise to open doors and windows to ventilate the house.

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

5.2 Lighting Fires

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

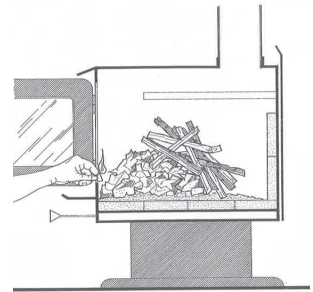


Never use gasoline, gasoline-type lantern fuel (naphtha), fuel oil, motor oil, kerosene, charcoal lighter fluid, or similar liquids or aerosols to start or 'freshen up' a fire in this wood stove. Keep all such liquids well away from the stove while it is in use.

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

5.2.1 Conventional Method

The conventional method to build a wood fire is to crumple 5 to 10 sheets of newspaper and place them in the firebox and hold them in place with ten pieces of kindling wood. The kindling should be placed on and behind the newspaper. Then add two or three small pieces of firewood. Open the air intake control completely and ignite the newspaper. Leave the door slightly ajar.



Once the fire has ignited, the door can be closed with the air control still fully open. When the kindling is almost completely burned, standard firewood pieces can be added.

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

5.2.2 The Top Down Method

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

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

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

5.2.3 Two Parallel Logs Method

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

5.2.4 Using Fire Starters

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

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

5.3 Combustion Cycles

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

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

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

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

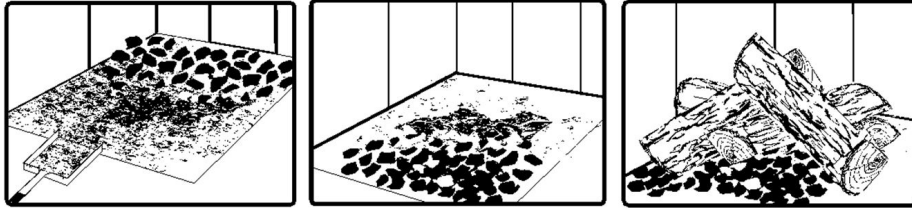
Burning in cycles means the loading door does not need to be opened while the wood is flaming. This is an advantage since it is preventing smoke leaking from the heater when the door is opened as a full fire is burning. This is especially true if the chimney is on the outside wall of the house.

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

5.4 Rekindling a Fire

When the temperature of the room is lower and all that remains is embers, it is time to reload. Most of the remaining embers will be at the back of the firebox. Remove excess ash from the front of the firebox and bring the embers forward before reloading. Place a new load of wood on, and at the back of the embers. Open the air control completely and close the door.

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



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

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

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

5.5 Removing Ashes

Ash should be removed from the firebox every two to three days of full-time heating. Ash should not accumulate excessively in the firebox since it will affect the proper operation of the appliance. The best time to remove ash is in the morning, after an overnight fire when the heater is relatively cold, but there is still a little chimney draft to draw the ash dust into the heater and prevent going out into the room.

Ashes should be placed in a tightly covered metal container. The container must be placed on a non-combustible floor or on the ground well away from all combustible materials. Ashes almost always contain live embers that can stay hot for days and which release carbon monoxide gas. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be kept in a closed metal container until they are completely cooled. No other waste should be placed in this container.

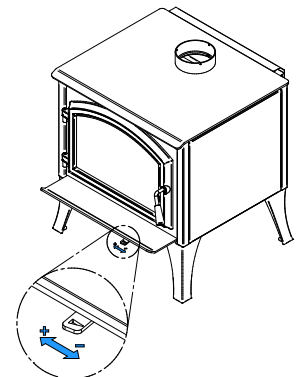


NEVER STORE ASHES INDOORS OR IN A NON-METALLIC CONTAINER OR ON A WOODEN DECK.

5.6 Air Intake Control

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

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



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

On the other hand, too much air can 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.

5.7 Fire Types

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

Here are some suggestions for building fires suitable for different heating needs.

5.7.1 Flash Fire

To build a small fire that will produce a low heat output, use small pieces of firewood and load them crisscross in the firebox. The pieces should only be 3" (80 mm) to 4" (100 mm) in diameter. After raking the coals, lay two pieces parallel to each other diagonally in the firebox and lay two more across them in the other direction. Open the air control fully and only reduce the air after the wood is fully flaming.

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

5.7.2 Long Lasting Fire

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

5.7.3 High Output Fires

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

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

5.7.4 Burn Cycle Time

The burn cycle time is the period between loading wood on a coal bed and the consumption of that wood back to a coal bed of the same size. The flaming phase of the fire lasts for roughly the first half of the burn cycle and the second half is the coal bed phase during which there is little or no flame.

The burning time expected from this stove, including both phases, will vary depending on a number of things, such as:

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

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

Table 1 : Approximate Maximum Burn Cycle Time

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

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

5.7.5 Logs Orientation

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

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

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

5.7.6 Carbon Monoxide

When unburned logs remain in the firebox and the flame disappears, go outside and look at the chimney exit. If there is visible smoke, it means that there is still combustible to burn but that the fire lacks air to burn properly. In this situation, the CO rate will increase so it is important to react. Open the door slightly and move the log with a poker. Turn it over and create a passage for the air below, making a trench with the coal bed. Add small pieces of wood to restart the combustion.

6. Maintenance

This heater will give many years of reliable service if used and maintained properly. Internal components of the firebox such as firebricks or refractory panels, baffle and air tubes will wear over time. Defective parts should always be replaced with original parts.

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

6.1 Cleaning and Painting

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

6.2 Refractory Materials and Baffle

Periodically inspect the firebricks or the refractory panels and the baffle for damage. Replace anything that is damaged or broken.

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

6.3 Glass Door

6.3.1 Cleaning

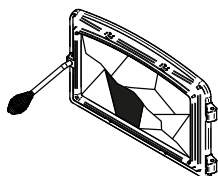
Under normal conditions, the door glass should stay relatively clear. If the firewood is dry enough and the operating instructions in this manual are followed, a whitish, dusty deposit will form on the inner surface of the glass after a week or so of use. This is normal and can be easily removed when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

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

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

Do not use abrasive products to clean the glass.

The goal should be having a clear glass with no brown stains. If brown stains appear regularly on the glass, something about the fuel or the operating procedure needs to be changed. When brown streaks are coming from the edge of the glass, it is time to replace the gasket around the glass. The glass gasket should be self-adhesive. Always replace the gasket with a genuine one.



Do not clean the glass when the stove is hot.

Do not abuse the glass door by striking or slamming shut.

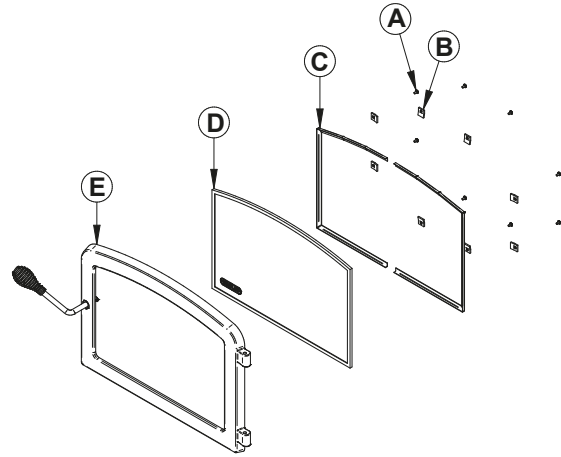
Do not use the stove if the glass is broken.

6.3.2 Replacement

The glass used is a ceramic glass, 5/32" (4 mm) thick, 18 1/2" x 12 1/4" (468 mm x 310 mm), tested to reach temperatures up to 1400° F. If the glass breaks, it must be replaced with one having the same specification.

To remove or replace the glass **(D)**:

1. Remove the door **(E)** from its hinges and lay it on a soft, flat surface.
2. Remove the screws **(A)**, the glass retainers **(B)**, and the metal frames **(C)**.
3. Remove the glass **(D)**. If it is damaged install a new one in place. The replacement glass must have a gasket all around (see procedure below).
4. Reinstall the glass, being careful to centre the glass in the door and not to over-tightening the retaining screw.

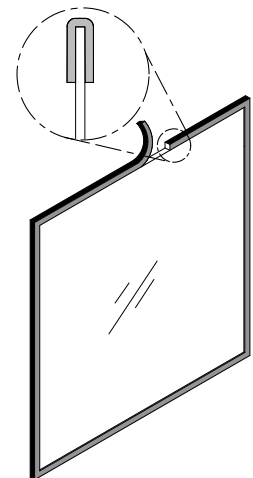


The two main causes of broken door glass are uneven placement in the door and over-tightening the retaining screws.

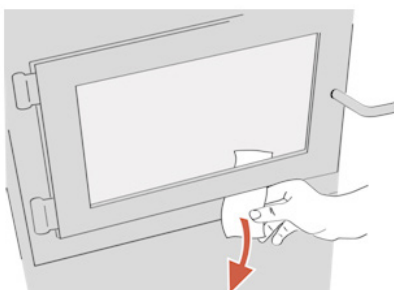
6.3.3 Gasket

The glass gasket is flat, adhesive-backed, woven fibreglass. The gasket must be centred on the edge of the glass.

1. Follow the steps of the previous section to remove the glass. Remove the old gasket and clean the glass thoroughly.
2. Peel back a section of the paper covering the adhesive and place the gasket on a table with the adhesive side up.
3. 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.
4. Peel off more of the backing and rotate the glass. The gasket must not be stretched during installation.
5. Cut the gasket to the required length. Pinch the gasket onto the glass in a U-shape, all around the glass.



6.4 Door



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

6.4.1 Adjustment

The door seal may be improved with a simple latch mechanism adjustment:

1. Remove the split pin by pulling and turning it using pliers.
2. Turn the handle one counterclockwise turn to increase pressure.
3. Reinstall the split pin with a small hammer.

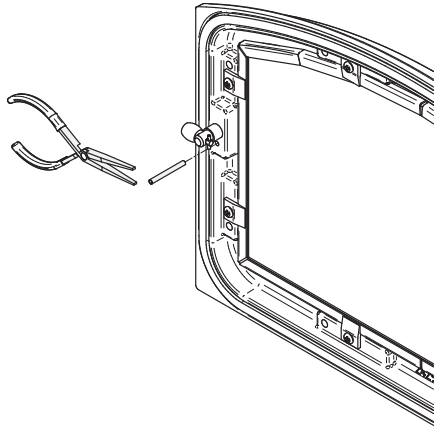


Figure 13: Removing the split pin

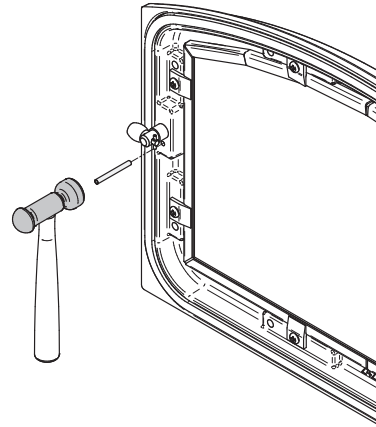
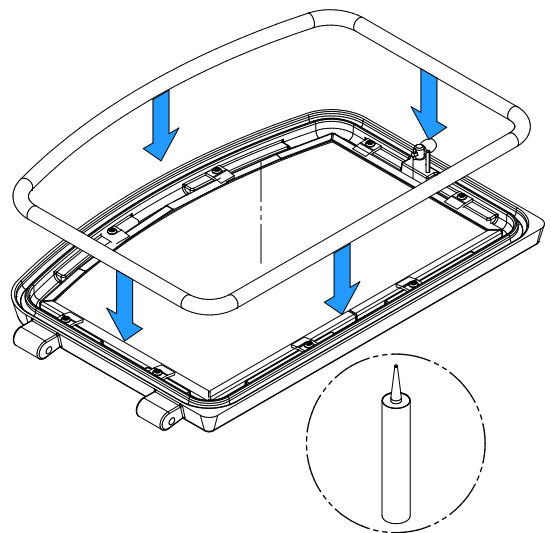


Figure 14: Installing the split pin

6.4.2 Gasket

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

1. Remove the door and place it face-down on something soft like a cushion of rags or a piece of carpet.
2. Remove the old gasket from the door. Use a screwdriver to scrape the old gasket adhesive from the door gasket groove.
3. Apply a bead of approximately 3/16" (5 mm) of high temperature silicone in the door gasket groove. Starting from the middle, hinges side, press the gasket into the groove. The gasket must not be stretched during installation.
4. Leave about 1/2" (10 mm) long of the gasket when cutting and press the end into the groove. Tuck any loose fibers under the gasket and into the silicone.
5. Close the door. Do not use the stove for 24 hours.



6.5 Exhaust System

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

«Creosote - Formation and Need to Removal

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

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred.

If a significant layer of creosote has accumulated ($\frac{1}{8}$ " [3 mm] or more) it should be removed to reduce the risk of a chimney fire.»

6.5.1 Cleaning Frequency

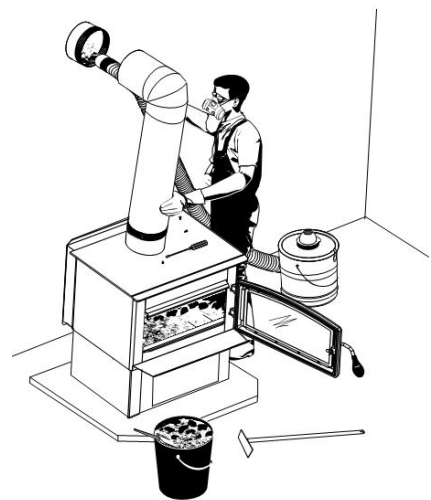
It is not possible to predict how much or how quickly creosote will form in the chimney. It is important, therefore, to check the build-up in the chimney monthly until the rate of creosote formation is determined. Even if creosote forms slowly in the system, the chimney should be cleaned and inspected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

Establish a routine for the fuel, wood burner and firing technique. Check daily for creosote build-up until experience shows how often you need to clean to be safe. Be aware that the hotter the fire the less creosote is deposited, and weekly cleaning may be necessary in mild weather even though monthly cleaning may be enough in the coldest months. 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.

6.5.2 Sweeping the Chimney

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

The chimney should be checked regularly for creosote build-up. Inspection and cleaning of the chimney can be facilitated by removing the baffle. See [«Appendix 10: Air Tubes and Baffle Installation»](#) for more details.



6.5.3 Chimney Fire

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

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

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

PART B - INSTALLATION

7. Safety Information and Standards

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

7.1 Mobile Home

- May be installed in a mobile home. The installation requires a fresh air kit, sold separately.
- **WARNING : DO NOT INSTALL IN THE SLEEPING ROOM.**
- **THE STOVE MUST BE ATTACHED TO THE STRUCTURE OF THE MOBILE HOME.**
- **CAUTION : THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL, CEILING AND ROOF MUST BE MAINTAINED.**

7.2 Regulations Covering Stove Installation

When installed and operated as described in these instructions, this wood stove is suitable for use as a freestanding heater 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.

This stove must be connected to a chimney complying with the requirements for Type HT chimneys in the Standard for Factory-Built Chimneys for Residential Type and Building Heating Appliances, UL 103 and ULC S629 or to a code-approved masonry chimney with a flue liner.

7.3 Location of the Certification Label

The information given on the certification label always overrides the information published in any other media (owner's manual, catalogues, flyers, magazines and web sites). It is important to refer to it in order to have a safe and compliant installation. Important information about the stove can also be found (model, serial number, etc.). The certification label is located on the back of the stove. It is recommended to note the stove serial number on [page 5](#) of this manual since it will be needed to precisely identify the version of the appliance in the event replacement parts or technical assistance is required.

8. Clearances to Combustible Material

The clearances shown in this section have been determined by tests according to procedures set out in safety standards ULC S627 (Canada), UL 1482 (U.S.A.) and UL 737 (U.S.A.). When the stove is installed so that its surfaces are at or beyond the minimum clearances specified, combustible surfaces will not overheat under normal and even abnormal operating conditions.

No part of the stove or flue pipe may be located closer to the combustible than the minimum clearance figures given.

The clearances to combustible walls may be slightly different in Canada and the U.S.A. and may also differ depending on whether single or double wall flue pipe is used. The proper clearances should be used depending on the stove location and the type of flue pipe used.

The clearances of the appliance and the flue pipes must be met individually, meaning the appliance cannot be installed closer to the combustible materials than the single or double wall pipe allows. For a safe way to reduce clearances refer to section [«8.3 Reducing Clearances Safely»](#)

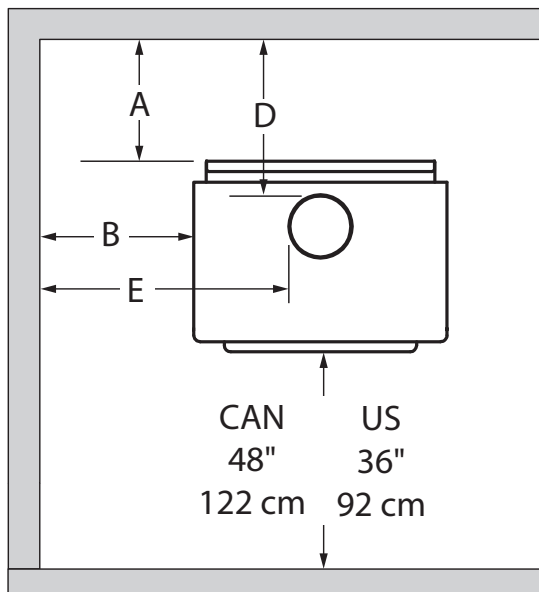


Figure 16: Clearances - Top

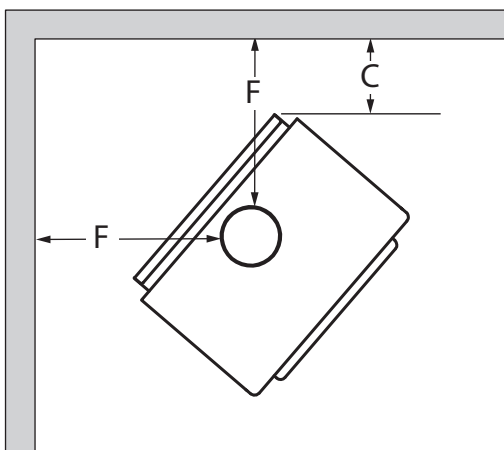


Figure 17: Clearances - Corner

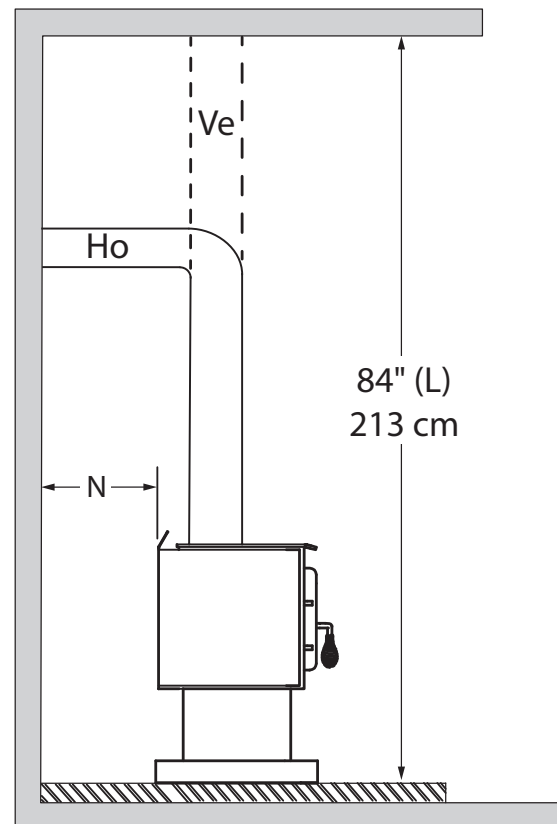


Figure 15: Clearances - Side

8.1 Clearances

	APPLIANCE CLEARANCES WITH SINGLE WALL PIPE CONNECTOR	
	Canada	USA
A	13 ¼" (337 mm)	13" (330 mm)
B	14" (356 mm)	14" (356 mm)
C	7 ¼" (184 mm)	7 ¼" (184 mm)

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	7" (178 mm)	7" (178 mm)
B	14" (356 mm)	14" (356 mm)
C	7" (178 mm)	7" (178 mm)

If the above clearances are met, then the distances measured from the flue outlet will be:

	DISTANCES ¹³ FROM PIPE CONNECTOR WITH SINGLE WALL PIPE CONNECTOR	
	Canada	USA
D	18" (457 mm)	17 ¾" (451 mm)
E	24 ⅞" (632 mm)	24 ⅞" (632 mm)
F	18" (457 mm)	18" (457 mm)

	DISTANCES ¹³ FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	11 ¾" (298 mm)	11 ¾" (298 mm)
E	24 ⅞" (632 mm)	24 ⅞" (632 mm)
F	17 ¾" (451 mm)	17 ¾" (451 mm)

8.1.1 With Heat Shield AC02710 or AC02762¹⁴

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	2 ½" (64 mm)	2 ½" (64 mm)
B	2 ½" (64 mm)	2 ½" (64 mm)
C	2 ½" (64 mm)	2 ½" (64 mm)

	DISTANCES ¹³ FROM DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	7 ¼" (184 mm)	7 ¼" (184 mm)
E	13 ⅜" (340 mm)	13 ⅜" (340 mm)
F	13 ¼" (337 mm)	13 ¼" (337 mm)

¹³The pipe distances listed in this table refer to the distances obtained when the stove is installed in accordance with the appliance clearances above mentioned.

¹⁴ Note that to reduce the clearances of an appliance using a single wall pipe connector, the use of a heat shield certified with the single wall pipe connector to be used as close as 6" from combustible materials must be used. Only in this case, the same clearances as a certified double wall pipe connector can be used.

8.1.2 With Step Top Add On¹⁵

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	6" (152 mm)	6" (152 mm)
B	14" (356 mm)	14" (356 mm)
C	7" (178 mm)	7" (178 mm)

	DISTANCES ¹⁶ FROM DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	10 ¾" (273 mm)	10 ¾" (273 mm)
E	24 ⅞" (632 mm)	24 ⅞" (632 mm)
F	17 ¾" (451 mm)	17 ¾" (451 mm)

8.1.4 With Lowered Ceiling

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	11" (279 mm)	11" (279 mm)
B	16" (406 mm)	16" (406 mm)
C	10" (254 mm)	10" (254 mm)
L	72" (1,830 mm)	72" (1,830 mm)

	DISTANCES ¹⁶ FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	15 ¾" (400 mm)	15 ¾" (400 mm)
E	26 ⅞" (683 mm)	26 ⅞" (683 mm)
F	20 ¾" (527 mm)	20 ¾" (527 mm)

8.1.5 With Heat Shield AC02710 or AC02762 and Lowered Ceiling¹⁵

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	2 ½" (64 mm)	2 ½" (64 mm)
B	2 ½" (64 mm)	2 ½" (64 mm)
C	2 ½" (64 mm)	2 ½" (64 mm)
L	74" (1,880 mm)	74" (1,880 mm)

	DISTANCES ¹⁶ FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	7 ¼" (184 mm)	7 ¼" (184 mm)
E	13 ⅝" (340 mm)	13 ⅝" (340 mm)
F	13 ¼" (337 mm)	13 ¼" (337 mm)

¹⁵ Note that to reduce the clearances of an appliance using a single wall pipe connector, the use of a heat shield certified with the single wall pipe connector to be used as close as 6" from combustible materials must be used. Only in this case, the same clearances as a certified double wall pipe connector can be used.

¹⁶ The pipe distances listed in this table refer to the distances obtained when the stove is installed in accordance with the appliance clearances above mentioned.

8.1.6 Inside an Alcove

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	11" (279 mm)	11" (279 mm)
B	16" (406 mm)	16" (406 mm)
K	48" (1220 mm)	36" (910 mm)
L	74" (1,880 mm)	74" (1,880 mm)

	DISTANCES ¹⁷ FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	15 ¾" (400 mm)	15 ¾" (400 mm)
E	26 ⅞" (683 mm)	26 ⅞" (683 mm)

8.1.7 Mobile Home

It is strictly **forbidden** to install a unit with **a single wall pipe** in a **mobile home**.

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	10" (254 mm)	10" (254 mm)
B	19" (483 mm)	19" (483 mm)
C	10" (254 mm)	10" (254 mm)

	DISTANCES ¹⁷ FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	14 ¾" (375 mm)	14 ¾" (375 mm)
E	29 ⅞" (759 mm)	29 ⅞" (759 mm)
F	20 ¾" (527 mm)	20 ¾" (527 mm)

8.1.8 Mobile Home with Step Top Add On

It is strictly **forbidden** to install a unit with **a single wall pipe** in a **mobile home**.

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	9" (229 mm)	9" (229 mm)
B	19" (483 mm)	19" (483 mm)
C	10" (254 mm)	10" (254 mm)

	DISTANCES ¹⁷ FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	13 ¾" (349 mm)	13 ¾" (349 mm)
E	29 ⅞" (759 mm)	29 ⅞" (759 mm)
F	20 ¾" (527 mm)	20 ¾" (527 mm)

¹⁷ The pipe distances listed in this table refer to the distances obtained when the stove is installed in accordance with the appliance clearances above mentioned.

8.1.9 Mobile Home With Heat Shield AC02710 or AC02762

It is strictly **forbidden** to install a unit with a **single wall pipe** in a **mobile home**.

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
A	3" (76 mm)	3" (76 mm)
B	5" (127 mm)	5" (127 mm)
C	3" (76 mm)	3" (76 mm)

	DISTANCES ¹⁸ FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	USA
D	7 ¾" (197 mm)	7 ¾" (197 mm)
E	15 ⅞" (403 mm)	15 ⅞" (403 mm)
F	13 ¾" (349 mm)	13 ¾" (349 mm)

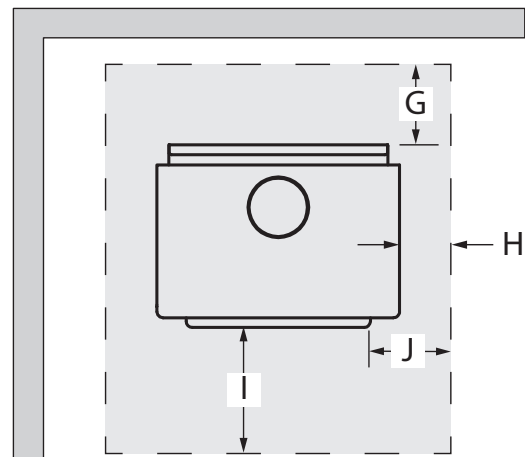
8.2 Floor Protection

This stove is designed to prevent the floor from overheating. However, it must be placed on a non-flammable surface to protect the floor from hot embers that may fall during loading. The floor protection must be a continuous, non combustible material, such as steel with a minimum thickness of 0.015" (0.38 mm) or ceramic tiles sealed together with grout. Cement board, brick, or any other approved or listed material suited for floor protection. No R factor required.

A material is considered non-combustible when made entirely of steel, iron, bricks, tiles, concrete, slate, glass or a combination of these materials. Materials corresponding to ASTM E136 and UL 763 are considered to be non-combustible materials with the exception of gypsum.

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. No protection is required if the unit is installed on a non-combustible floor (ex: concrete).

	FLOOR PROTECTION	
	Canada	USA
G¹⁹	8" (203 mm)	N/A
H	8" (203 mm)	N/A
I	18" (457 mm) From door opening	16" (203 mm) From door opening
J	N/A	8" (203 mm)
N	N/A	See Note 20

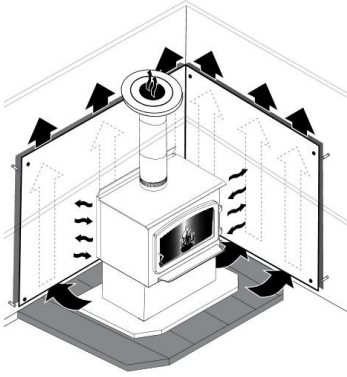


¹⁸ The pipe distances listed in this table refer to the distances obtained when the stove is installed in accordance with the appliance clearances above mentioned.

¹⁹ The floor protection at the back of the stove is limited to the stove's required clearance if such clearance is smaller than 8 inches (203 mm).

²⁰ Only required under the horizontal section (Ho) of the connector. Must exceed each side of the connector by at least 2 inches (51 mm). See «Figure 15: Clearances - Side»

8.3 Reducing Clearances Safely



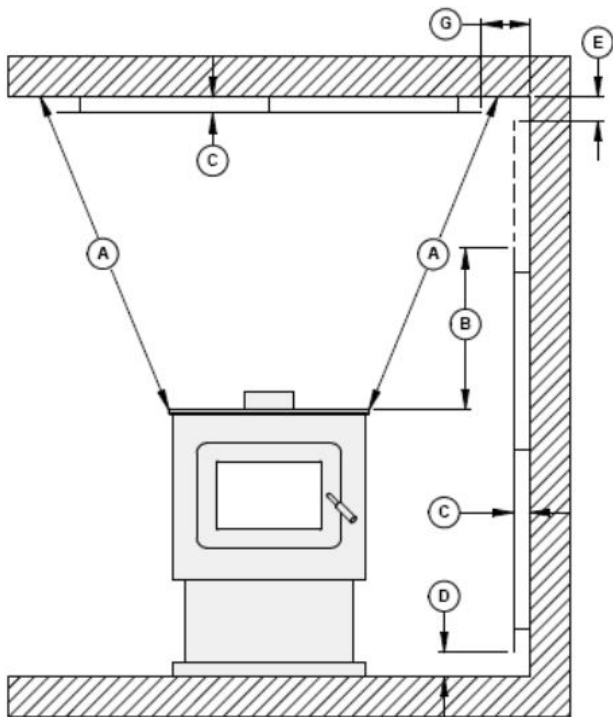
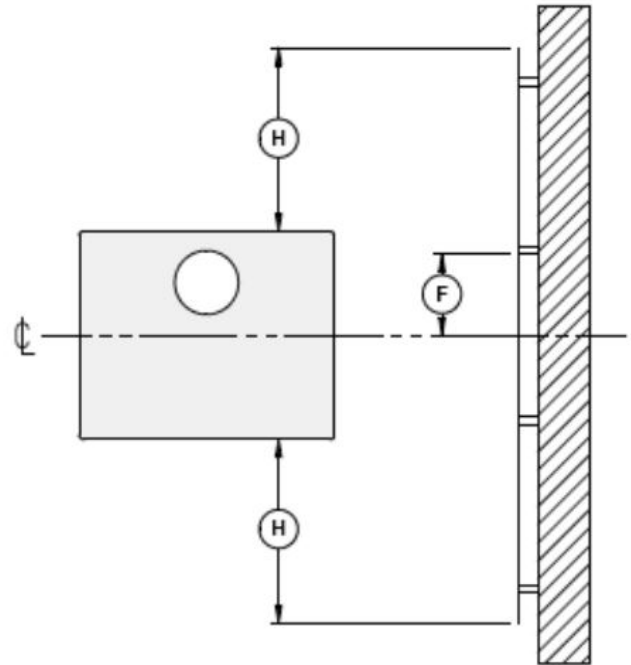
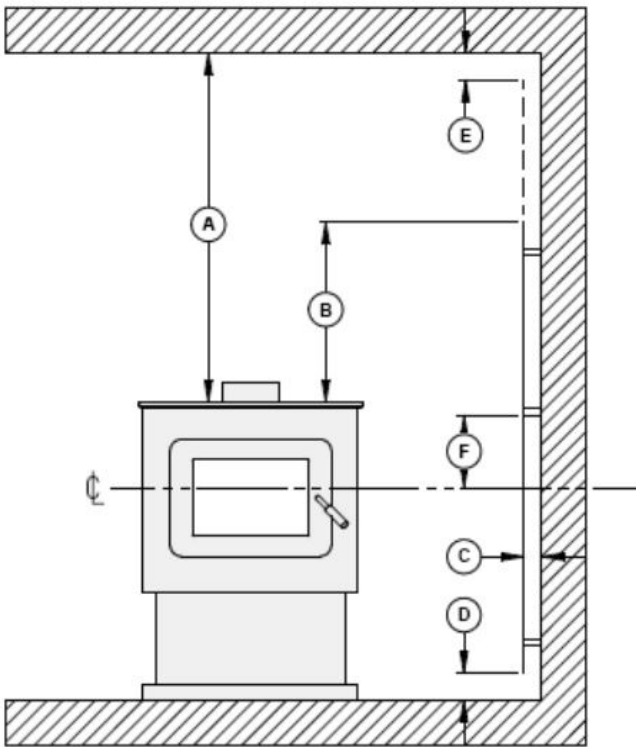
It is often desired to use as little space as possible when installing a wood stove. To do this, it is possible to reduce the clearances safely and install the stove closer to the walls by permanently installing a heat shield between the stove and the flammable material. The rules for heat shields are sometimes complicated. Read and apply the instructions carefully. Some regions may have different regulations. Consult the local building code or contact the fire department for restrictions, inspection and installation requirements in the area.

8.3.1 Shield Construction Rules

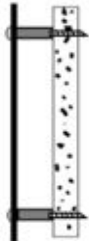
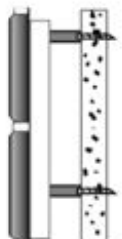
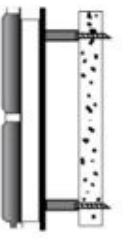
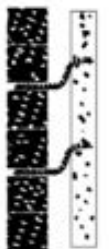
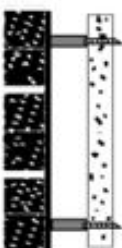
- Adhesives used in shield construction must not ignite or lose adhesive qualities at temperatures likely to be encountered.
- Mounting hardware which extends from the shield surface into combustibles may be used only at the edges of the shield.
- Mounting hardware must allow full vertical ventilation.

See figures for shield construction to match each letter to a clearance.

- A) Minimum clearance between the appliance top and an unshielded combustible ceiling: (41 $\frac{7}{8}$ " (1064 mm) .
- B) Shield extension above the appliance: 20" (500 mm).
- C) Minimum space behind the shield: 1" (25 mm). In Canada $\frac{7}{8}$ " (21 mm).
- D) Clearance along the bottom of the shield: minimum 1" (25 mm) and maximum 3" (75 mm).
- E) Minimum clearance along the top of the shield at the ceiling: 3" (75 mm).
- F) Mounting hardware must not be located closer than 8" (200 mm) from the vertical centre line of the appliance.
- G) Edge clearance for ceiling shields to side and back walls: 3" (75 mm).
- H) Shield extension beyond each side of the appliance: 18" (450 mm).



8.3.2 Type of shield

TYPE OF SHIELD	CLEARANCES MAY BE REDUCED BY THESE PERCENTAGES				
	SIDES, CORNER AND REAR		TOP (CEILING)		
	CAN / USA (%)	USA MIN.	CAN / USA (%)	USA MIN.	
Sheet metal, a minimum of 24 gauge (0.61 mm) in thickness , spaced out at least 1" (25 mm)* by non-combustible spacers	67	12" (305 mm)	50	18" (457 mm)	
Ceramic tiles, or equivalent non-combustible material, on non-combustible board spaced out at least 1" (25 mm)* by non-combustible spacers	50	18" (457 mm)	33	24" (610 mm)	
Ceramic tiles, or equivalent non-combustible material, on non-combustible board, with a minimum of 24 gauge (0.61 mm) sheet metal backing spaced out at least 1" (25 mm)* by non-combustible spacers	67	12" (305 mm)	50	24" (610 mm)	
Brick, spaced out at least 1" (25 mm)* by non-combustible spacers	50	18" (457 mm)	N/A	N/A	
Brick, with a minimum of 24 gauge (0.61 mm) sheet metal backing, spaced out at least 1" (25 mm)* by non-combustible spacers	67	12" (305 mm)	N/A	N/A	

* In Canada this space can be 7/8" (21 mm).

9. The Venting System

The venting system, made of the chimney and the connecting pipe between the stove and the chimney, acts as the engine that drives the wood heating system. Even the best stove will not function safely and efficiently if it is not connected to a suitable chimney.

The heat in the flue gases that pass from the stove and chimney connector 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 stove and safely vents exhaust to outside. The heat in the flue gas can be seen as the fuel the chimney uses to create draft.

9.1 Suitable Chimneys

This stove will provide optimum efficiency and performance when connected to a 6" (150 mm) diameter chimney flue system. The connection to a chimney having a diameter of at least 5" (130 mm) (Canada only) or no more than 7" (180 mm) is permitted, if it allows the proper venting of combustion gases and that such application is verified and authorized by a qualified installer. Otherwise, the diameter of the flue should be 6" (150 mm).

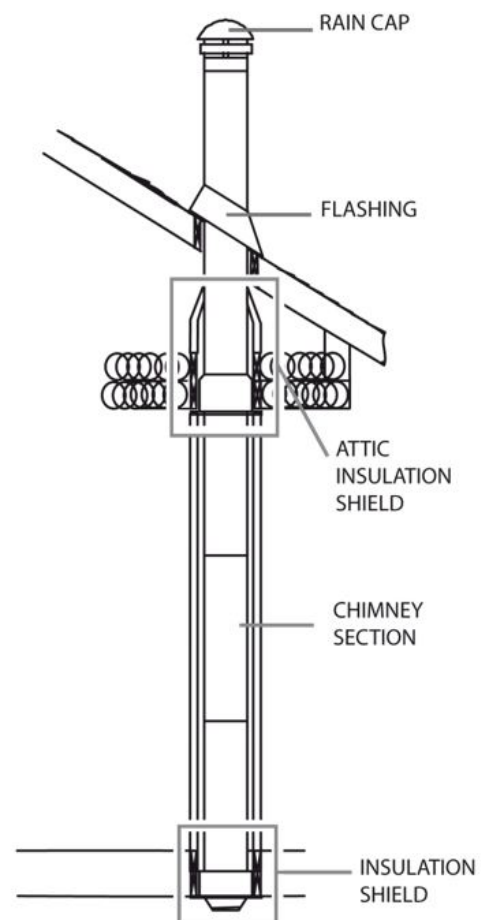
To be suitable, a factory-built metal chimney must comply with UL 103 HT (U.S.A.) or ULC S629 (Canada).

9.1.1 Factory-Built Metal Chimney

These are sometimes referred to as 'high temp' chimneys because they have the specific characteristics to withstand temperatures that can be created by wood burning stoves.

Factory-built chimneys are tested as a system with all the necessary components for installation. The instructions provided with the chimney by its manufacturer are the only reliable source of installation guidelines.

To be safe and effective, the chimney must be installed exactly in accordance with the manufacturer's instructions. Only components intended for the brand and model of chimney should be used. Never fabricate or substitute parts from other chimney brands. The chimney must be a type suitable for solid fuel.

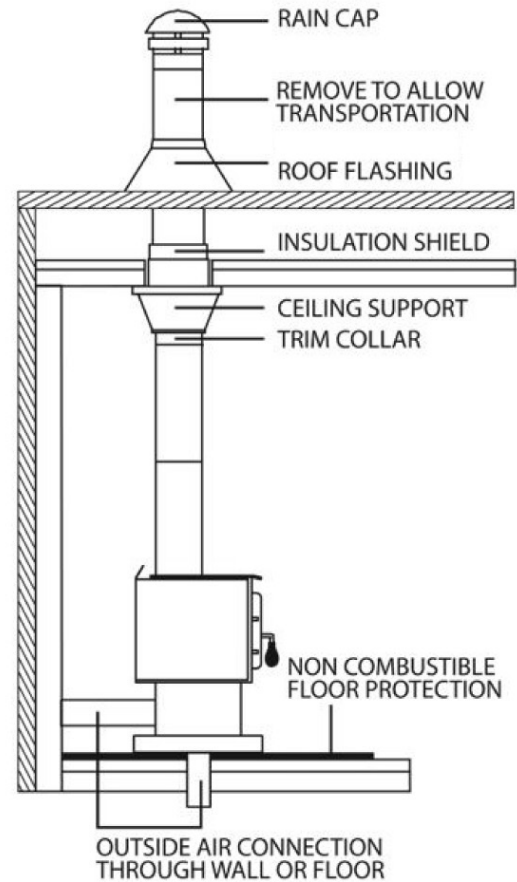


9.1.2 Factory-Built Metal Chimney in Mobile Home

For use in a mobile home, this stove is to be connected to a 6" (150 mm) double wall factory built chimney pipe conforming to ULC-S629 or UL 103 HT standards for 650°C Factory-built chimney.

The total length of the flue system should be at least 12' (3,6 m) including elbows, from the top of the stove.

To maintain an effective vapour barrier, insulation and waterproof at the chimney and outside flue pipe, a roof flashing must be installed and sealed with silicone adhesive.

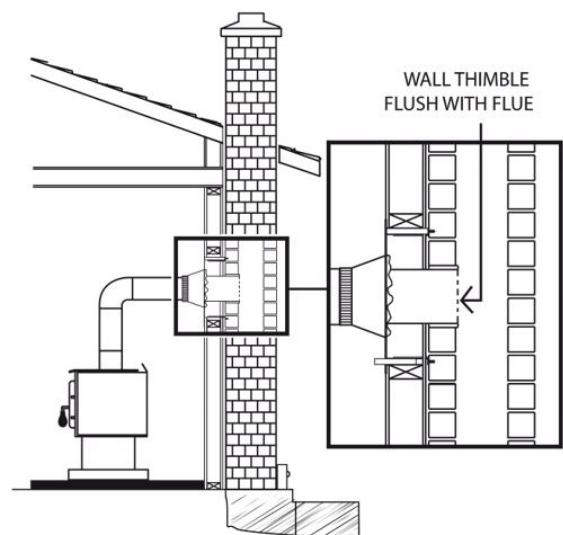


9.1.3 Masonry Chimney

The stove may also be connected to a masonry chimney, provided the chimney complies with the construction rules found in the building code enforced locally.

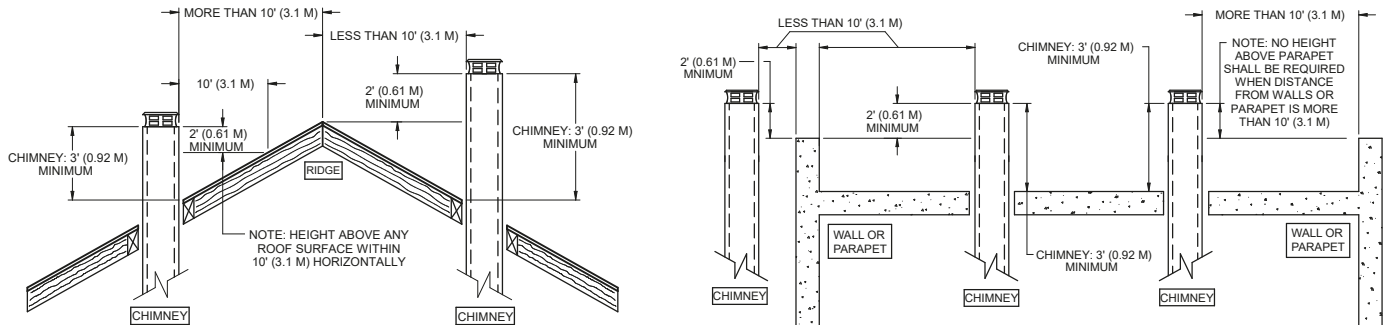
The chimney must have either a clay liner or a suitably listed stainless steel liner. If the masonry chimney has a square or rectangular liner that is larger in cross-sectional area than a round 6" (150 mm) flue, it should be relined with a suitably listed 6" (150 mm) stainless steel liner.

Do not downsize the flue to less than 6" (150 mm) unless the venting system is straight and exceeds 25' (7,6 m) in height. When passing through a combustible wall, the use of an insulated listed thimble is required.



9.2 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 3 ft. (1 m) above the highest point of contact with the roof, and at least 2 ft. (60 cm) higher than any roof line or obstacle within a horizontal distance of 10 ft. (3 m). The total system height, from the floor the appliance is mounted on to the top of the chimney, should never be less than 15 feet (4.6 m).



9.3 Chimney Location

The location of the chimney is crucial for the proper functioning of the appliance. The chimney should be installed within the house rather than up an outside wall and should rise straight up through the tallest part of the house. This installation benefits from being enclosed within the warm house environment, produce stronger draft, accumulate fewer creosote deposits and will be unaffected by cold temperatures or harsh winds.

Outside chimneys will lead to cold back drafting when there is no fire in the stove, slow kindling of new fires, and smoke roll-out when the door is open 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.

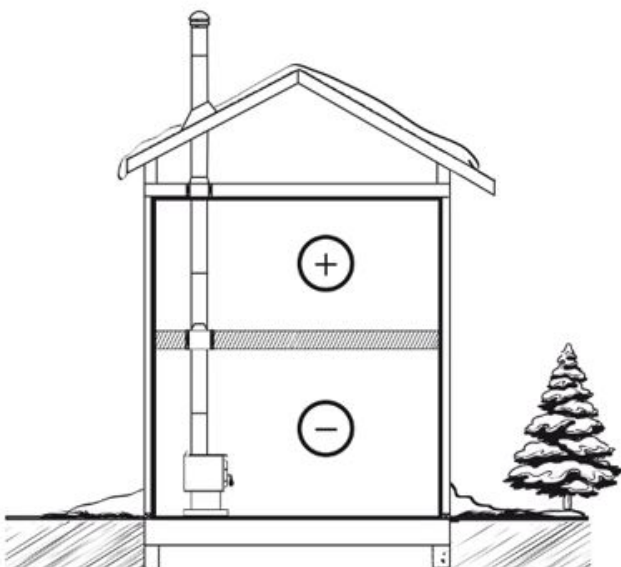


Figure 18: Good System Design

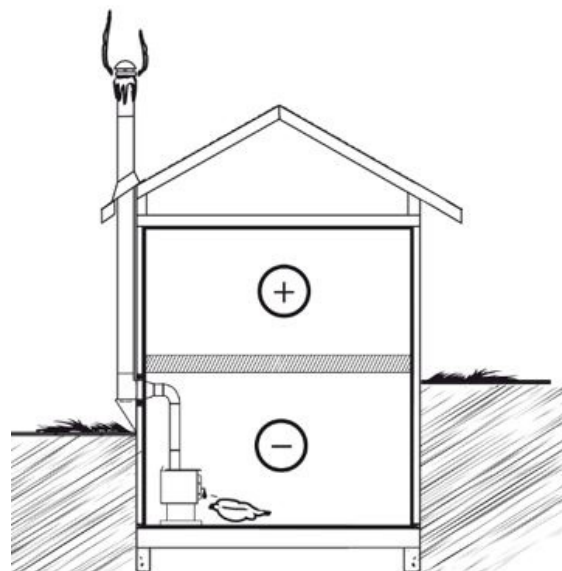


Figure 19: Inferior System Design

9.4 Supply of Combustion Air

9.4.1 Mobile Home

This stove is approved to be installed in a mobile home. It must therefore have a supply of combustion air from outdoors. The air intake must not draw air from the attic, from the basement, from a garage or any enclosed space. Air must be drawn from a ventilated crawl space under the floor or directly from outside.

Install a flexible or rigid, insulated pipe (HVAC type, must comply to ULC S110 and/or UL 181, Class 0 or Class 1) to the fresh air intake. The outside termination must have a weather protection cap with a wire mesh. Where a mobile home has been converted to a standard house by mounting it on a permanent basement foundation, the supply of outdoor air is not mandatory.

9.4.2 Conventional House

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

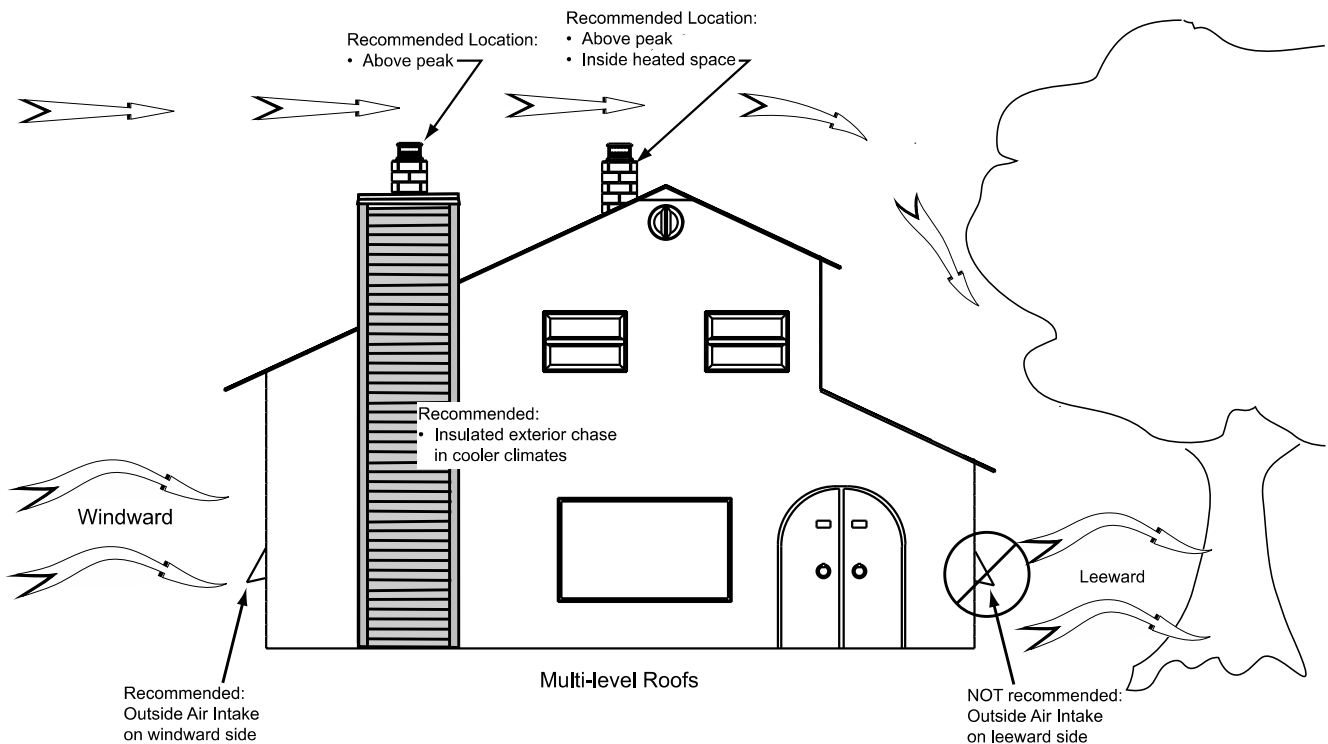


Figure 20: Air supply in conventional houses

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

9.5 Chimney Connector

The chimney connector is the single or double wall pipe installed between the stove flue collar and the chimney breech.

Double wall chimney connectors are tested and certified. The rules concerning installation are found in the manufacturer's installation instructions.

Single wall pipe components are available from most hardware and building supply stores. These components are usually not tested to a particular standard and certified as compliant. Therefore, a list of rules found in solid fuel installation codes apply to the installation of single wall pipe.

9.5.1 Installation configuration

The best installation configuration is the one that rises straight up from the stove to the base of the chimney with no elbows. Straight assemblies are less likely to cause problems like smoke roll-out when the door is opened for loading. They are also more stable and easier to maintain than assemblies with elbows. Horizontal runs of flue pipe should be avoided where possible because they reduce chimney draft.

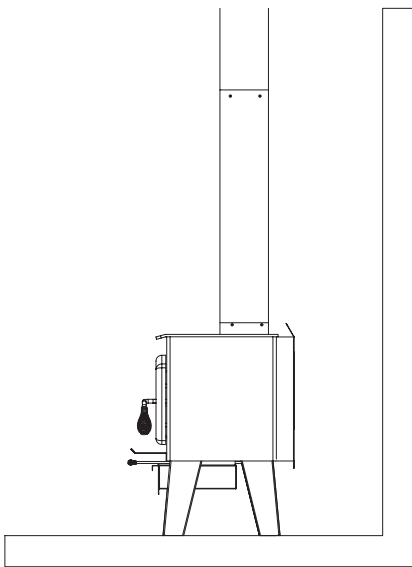


Figure 21: Best

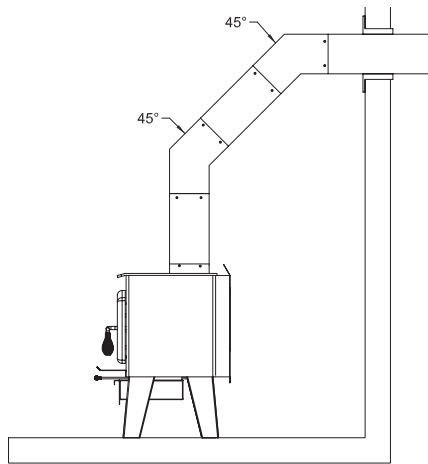


Figure 22: Acceptable

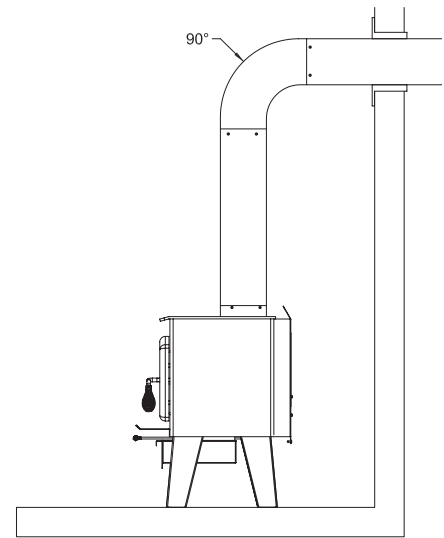


Figure 23: Avoid

9.5.2 Installation Rules

Failure to install the chimney connector properly can result in house fires. The rules below are based on those found in the CSA B365 installation code. Carefully follow these installation instruction rules, or those enforced by the local code.

- Maximum overall length of horizontal pipe: 10' (3 m) including elbows.
- Minimum clearance from combustible material: 18" (450 mm). The minimum clearance may be reduced by 50%, to 9" (225 mm) if proper heat shield is installed either on the pipe or on the combustible surface.

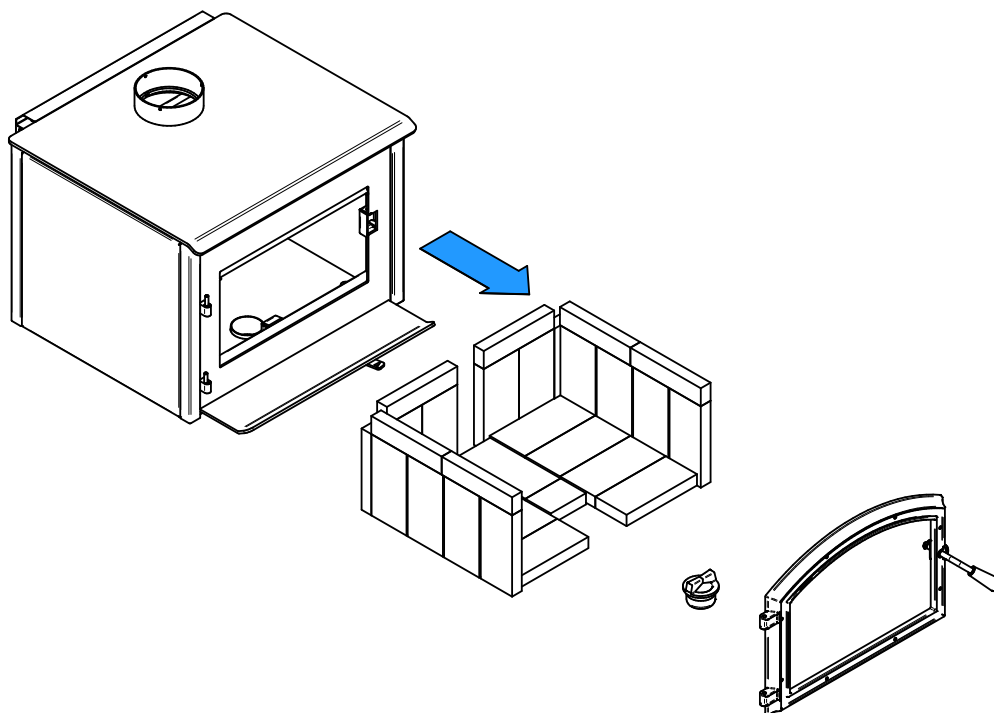
- The assembly should be as short and direct as possible between the stove and chimney. The use of two 45° elbows is preferable to a single 90° elbow.
- The minimum overall height of the chimney system, measured from the stove top to the exterior termination cap of the chimney should be at least 12' (3.66 m). A chimney which is too short may lack the "tunnel effect" required to obtain a proper draft.
- Maximum number of 90° elbows: 2.
- Maximum unsupported horizontal length: 3' (1 m).
- Galvanized flue pipes must not be used because the coatings vaporize at high temperatures and release dangerous gases. Use black painted flue pipes.
- Flue pipes must be at least 24 gauge in thickness.
- Flue pipe joints should overlap at least 1 ¼" (30 mm).
- Each joint in the assembly must be fastened with at least three screws.
- The installation must allow expansion: elbows in assemblies allow for expansion; straight assemblies should include an inspection wrap with one end unfastened, or a telescopic section.
- Minimum upward slope towards the chimney: ¼ in/ft. (20 mm/m).
- One end of the assembly must be securely fastened to the flue collar with 3 sheet metal screws and the other end securely fastened to the chimney.
- There must be provision for cleaning of the pipes, either through a clean out or by removal of the pipe assembly. Removal of the assembly should not require that the stove be moved.
- The male ends of the sections must be oriented towards the appliance so that ashes and condensation stay inside the pipe.
- A flue pipe must never pass through a combustible floor or ceiling or through an attic, roof space, closet or concealed space. Where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365, Installation Code for Solid-Fuel-Burning Appliances and Equipment.
- The chimney connector must be clean and in good condition.

APPENDIX 1: LEGS INSTALLATION

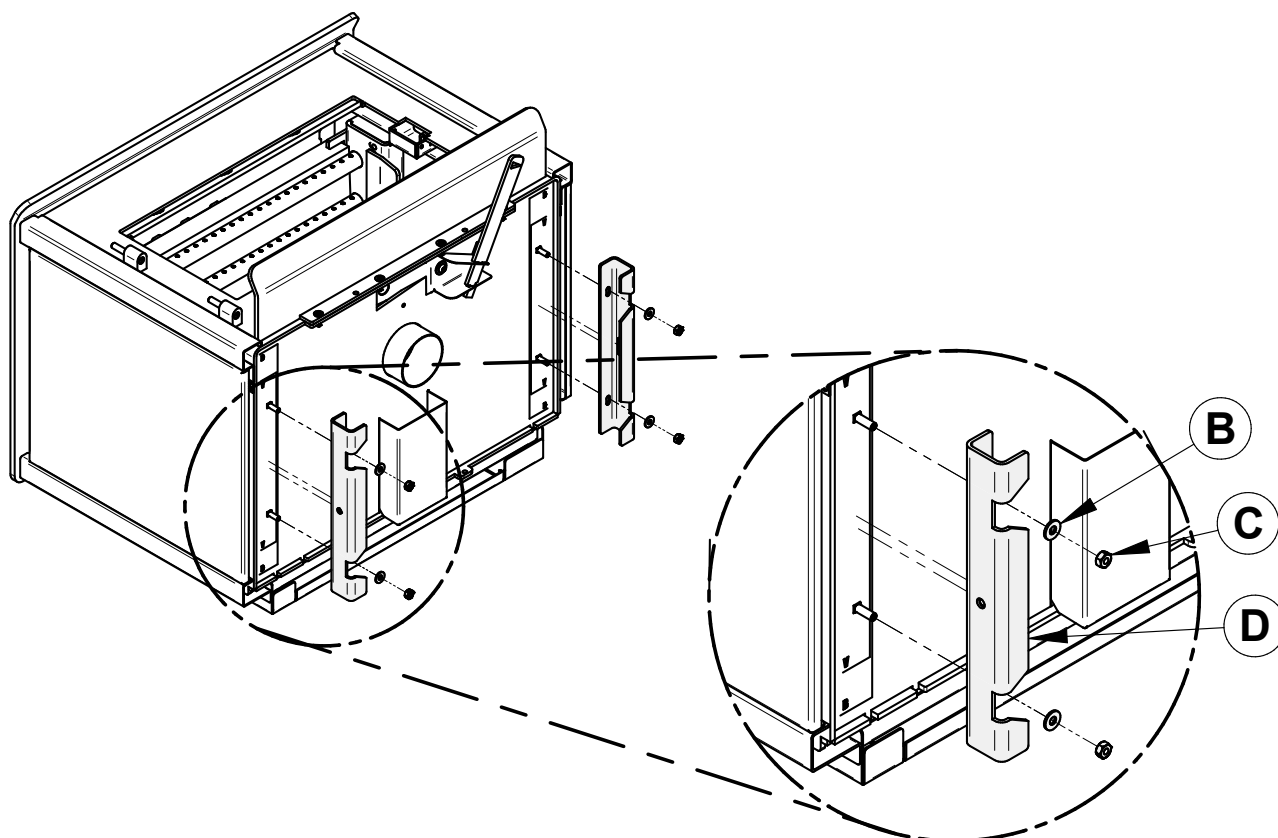


This stove is mobile home approved when installed in the pedestal version only.

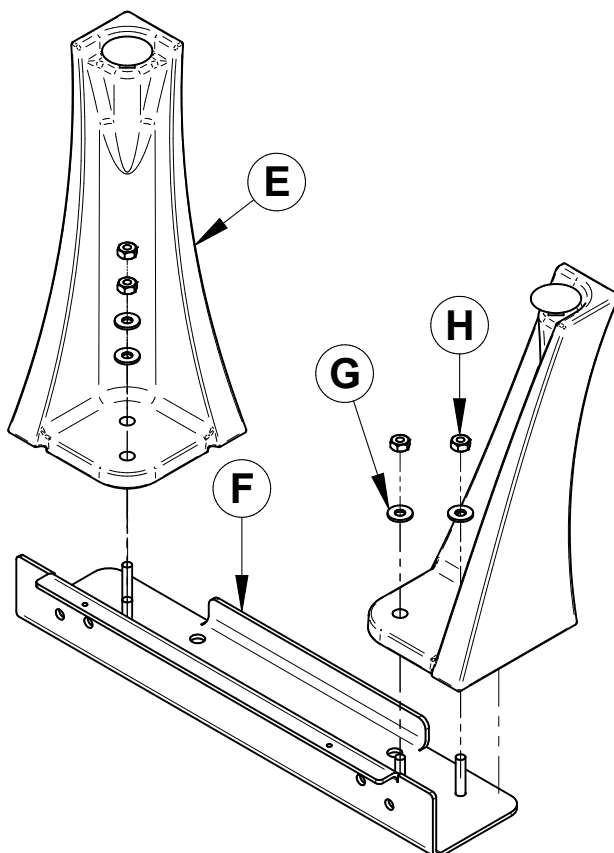
1. Remove the door, the firebricks, and the ash plug from the stove, if desired.



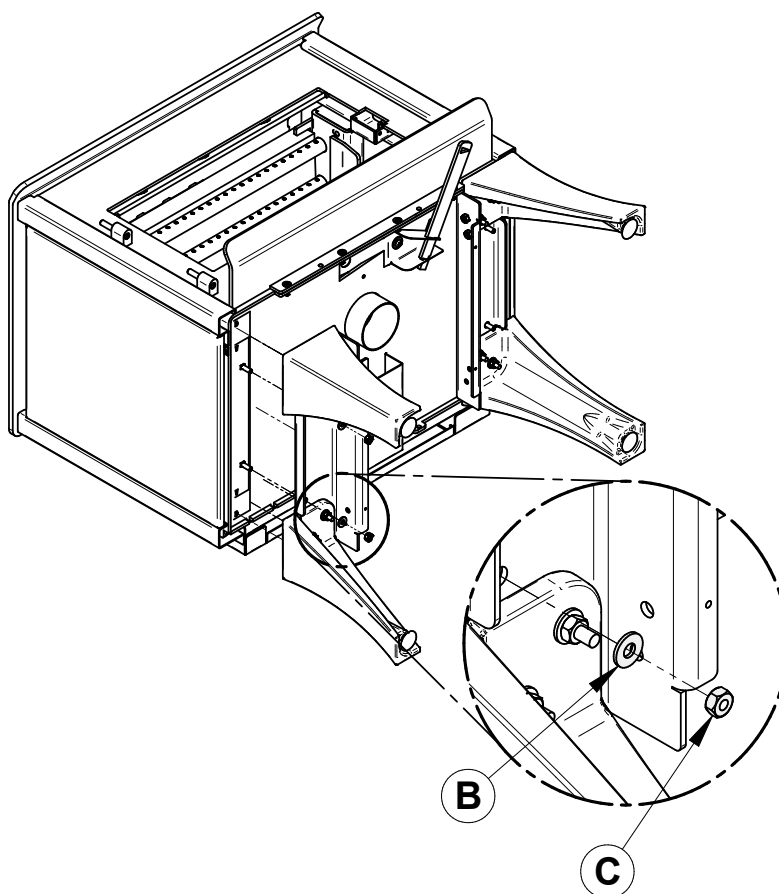
2. Put the stove on its back. Remove and dispose of the two freight supports **(D)**. Keep the nuts **(C)** and washers **(B)** for step 4.



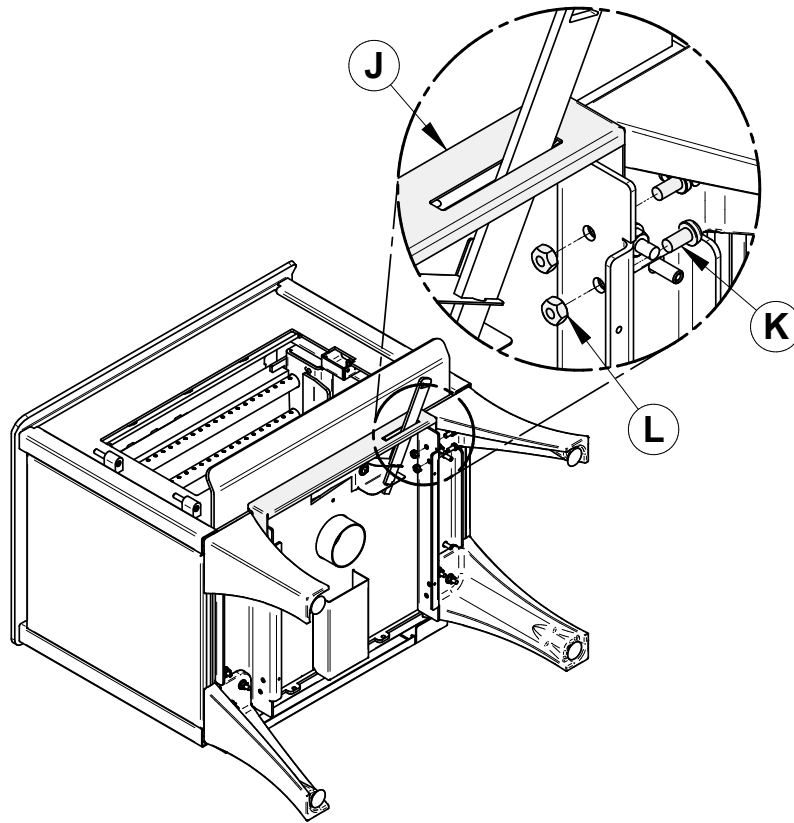
3. Install the legs **(E)** on the legs supports **(F)**. Secure with the washers **(G)** and nuts **(H)** supplied with the leg assembly.



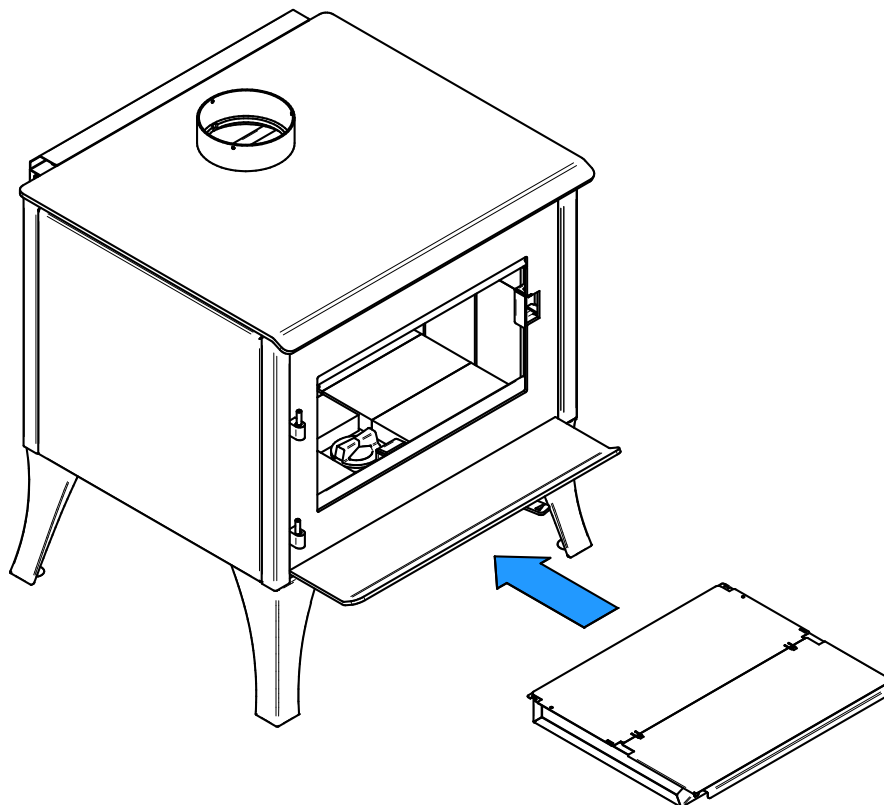
4. With the nuts **(C)** and washers **(B)** removed in step 1, secure both leg assemblies to the stove.



5. Install the air control cover (**J**) with screws (**K**) and nuts (**L**).



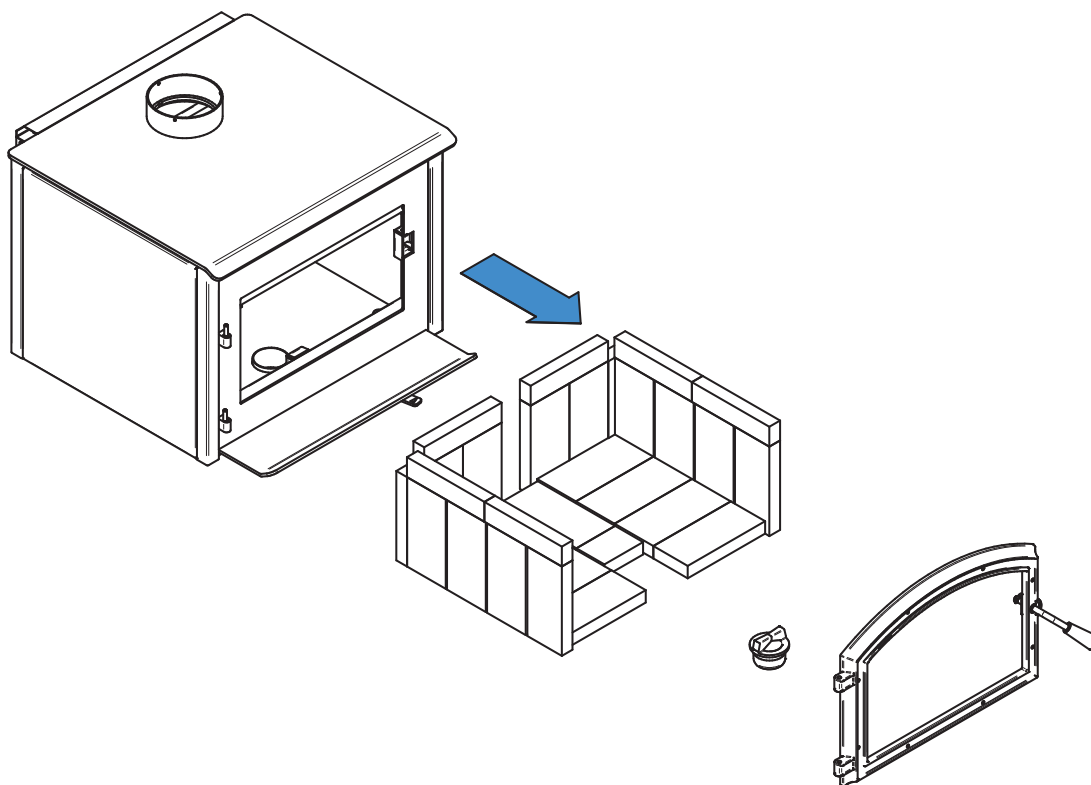
6. Put the stove on its legs, install the ash drawer included with the kit. Put back the firebricks, the ash plug and the door on the stove. See step 1.



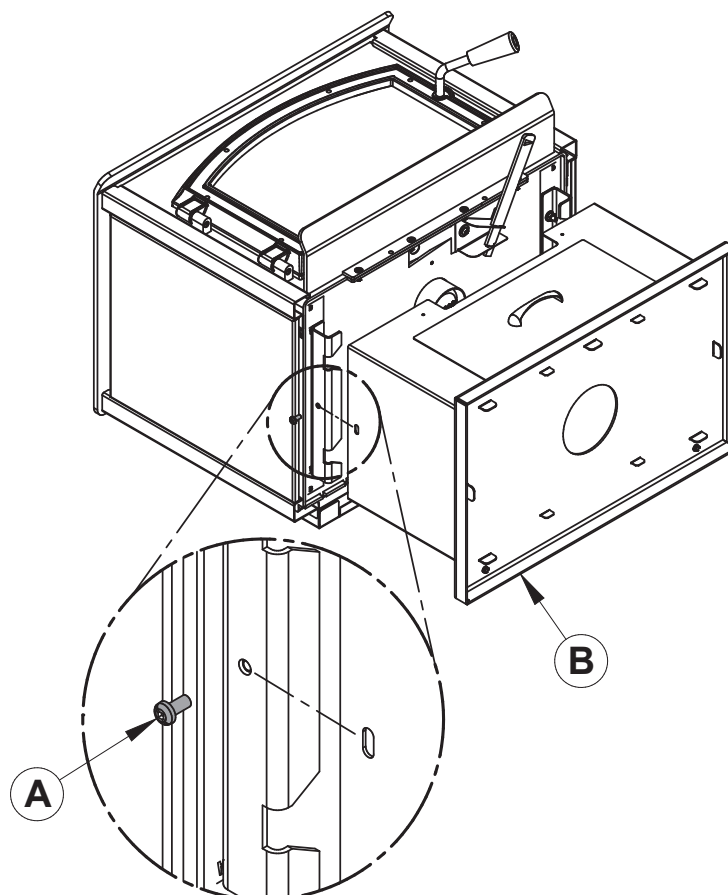
The baffle and the bricks must be put back in the right place after the final positioning of the stove.

APPENDIX 2: PEDESTAL INSTALLATION

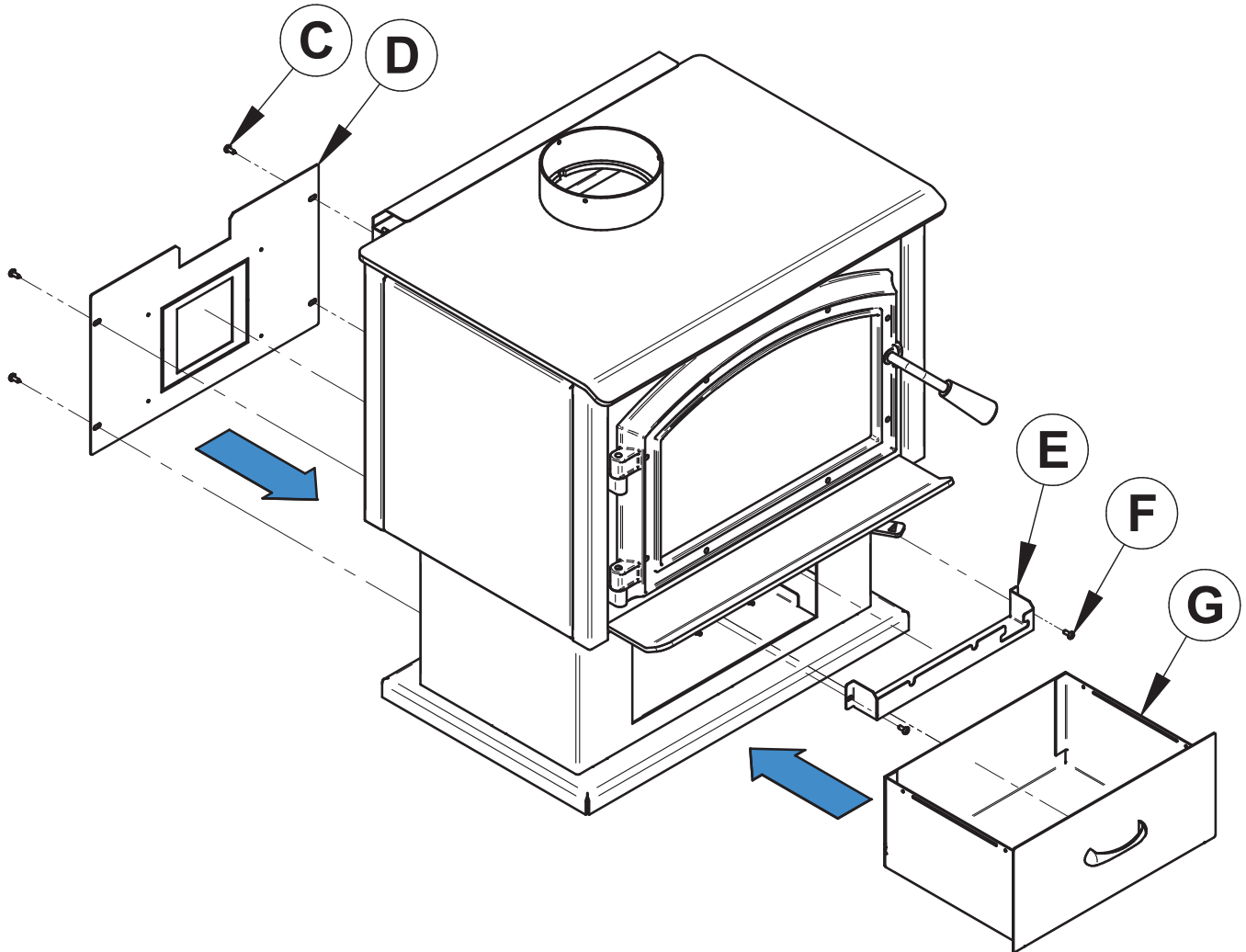
1. Remove the door, the firebricks and the ash plug from the stove, if desired.



2. Install the pedestal **(B)** on the stove and screw it in place using the 2 screws **(A)**.



3. Put the stove on its pedestal and install the fresh air panel **(D)** with the screws **(C)**, the air control cover **(E)** with the screws **(F)** and install the ash drawer **(G)**. Put back the bricks, the spacers, the ash plug and the door on the stove. See step 1.

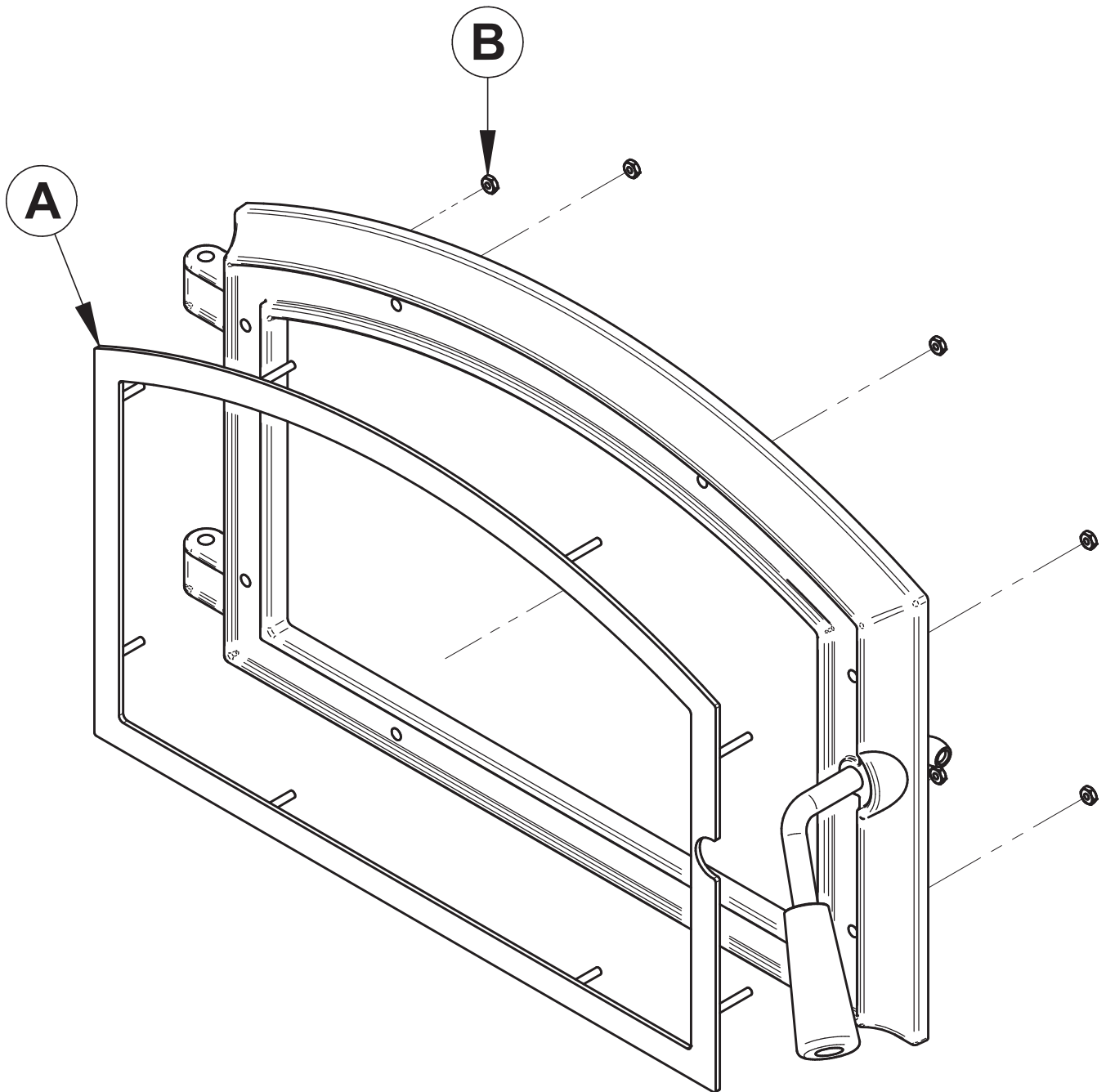


The baffle and the bricks must be put back in the right place after the final positioning of the stove.

APPENDIX 3: DOOR OVERLAY INSTALLATION

Position the overlay **(A)** on the door frame and secure it in place from behind using the nuts **(B)**. To ease the installation, do not tighten the nuts until they are all installed.

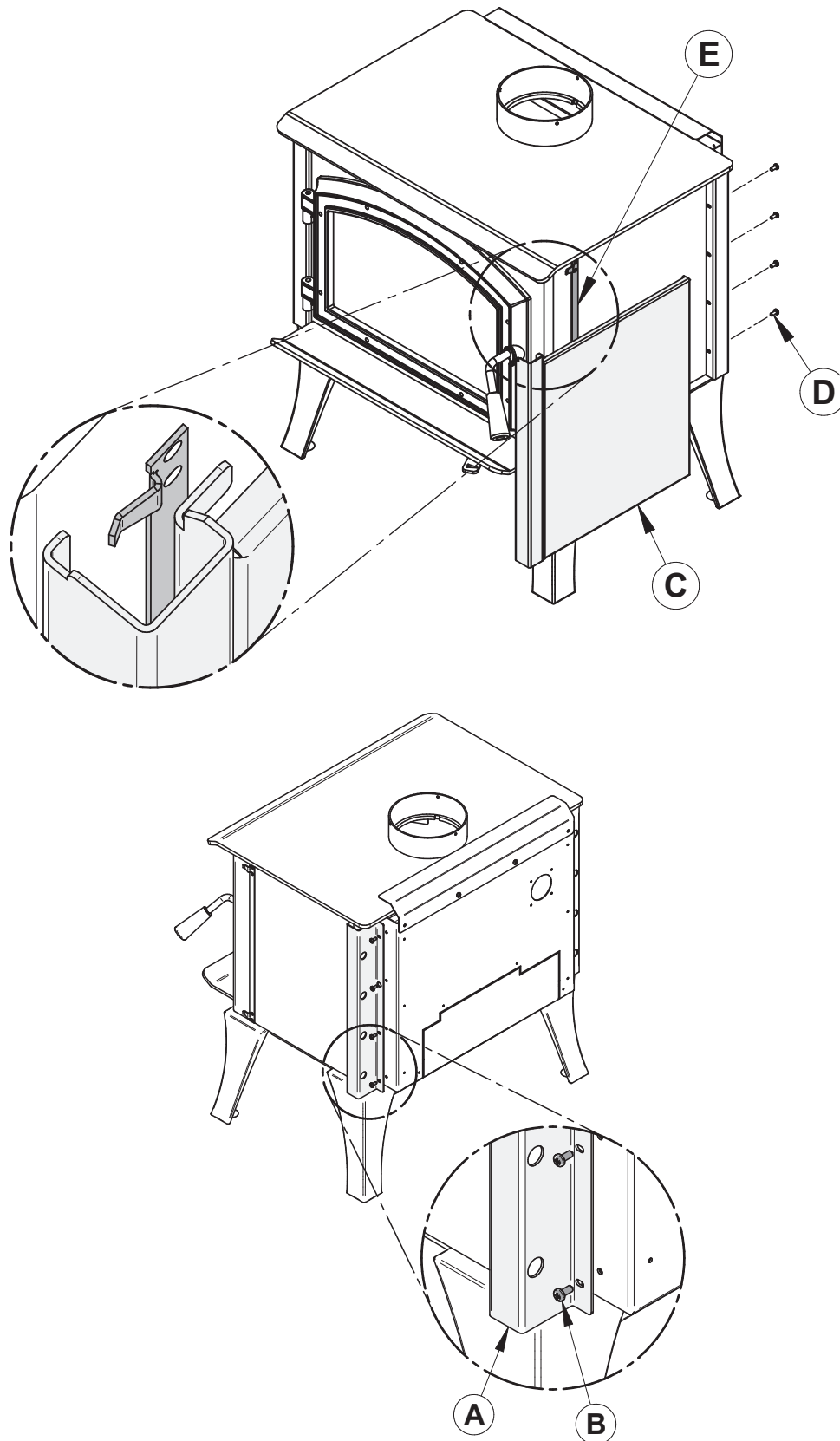
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Note: It is not necessary to remove the glass to install the overlay.

APPENDIX 4: DECORATIVE PANELS

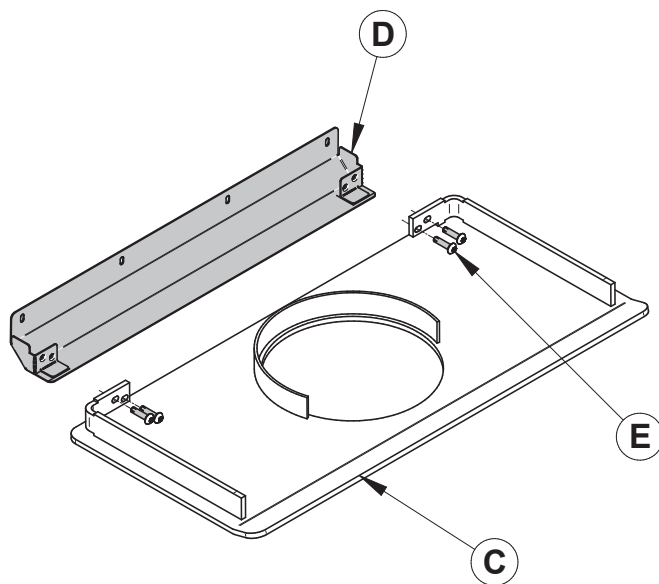
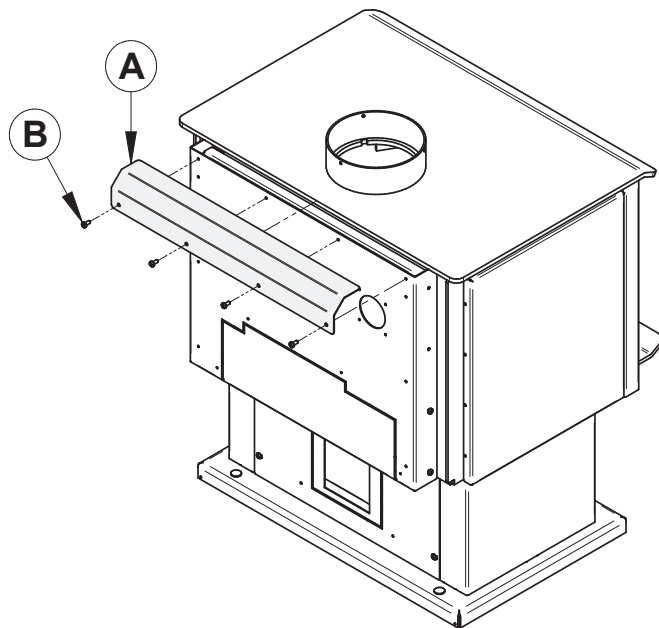
To remove the decorative panel **(C)**, remove the screws **(D)** and push forward on the panel to unhook it from the bracket **(E)**. Once the panels are removed, remove the decorative panel bracket **(A)**, by removing the screws **(B)**.



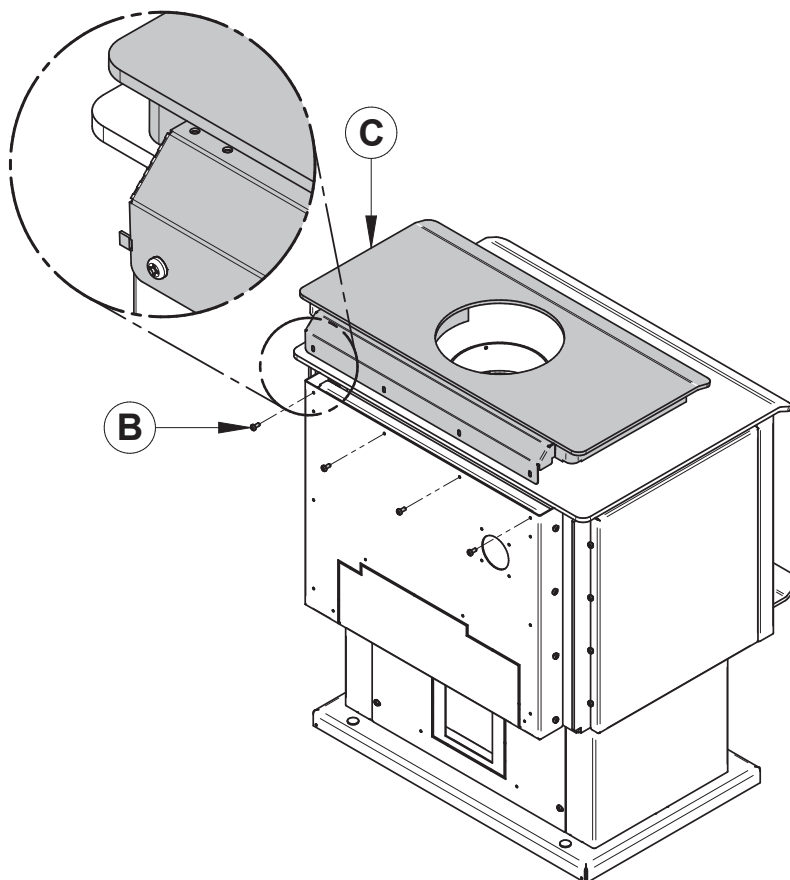
APPENDIX 5: OPTIONAL STEP TOP ADD ON INSTALLATION

This wood stove can be equipped with an optional step top add on. It accumulates heat and increase the airflow.

4. Remove the air deflector **(A)**. Keep the screws **(B)**.
5. Assemble the step top **(C)** with the new deflector **(D)** with four screws **(E)**.



6. Install the step top and fix it in place using the screws **(B)** removed previously.

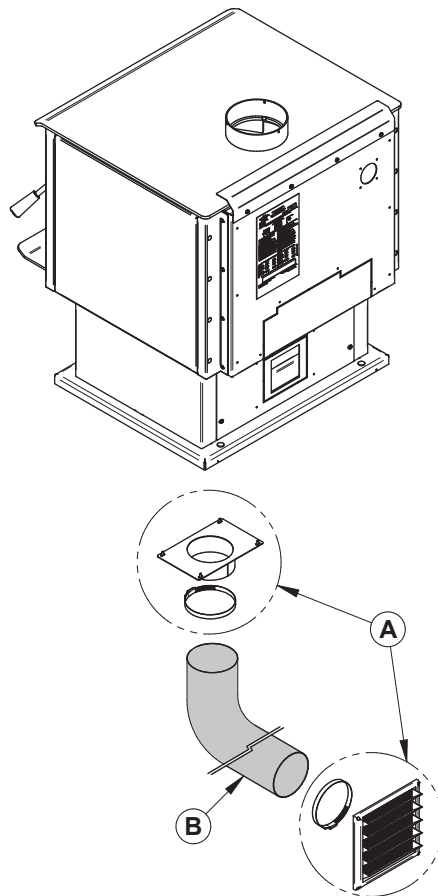
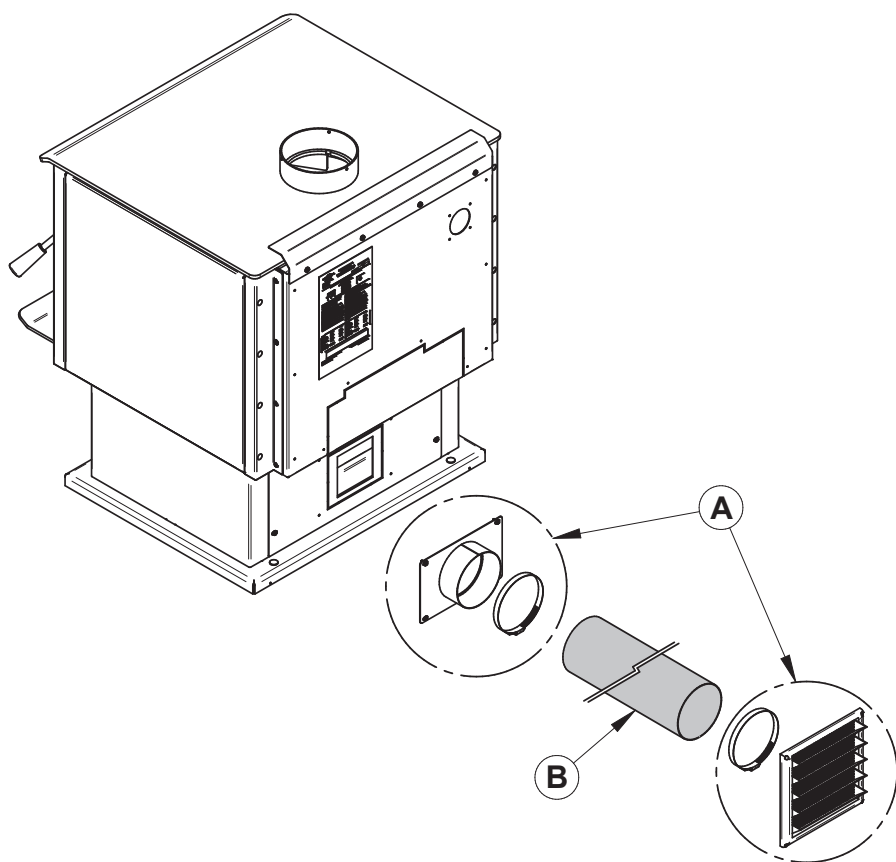


APPENDIX 6: OPTIONAL FRESH AIR INTAKE KIT INSTALLATION



This stove is mobile home approved when installed in the pedestal version only.

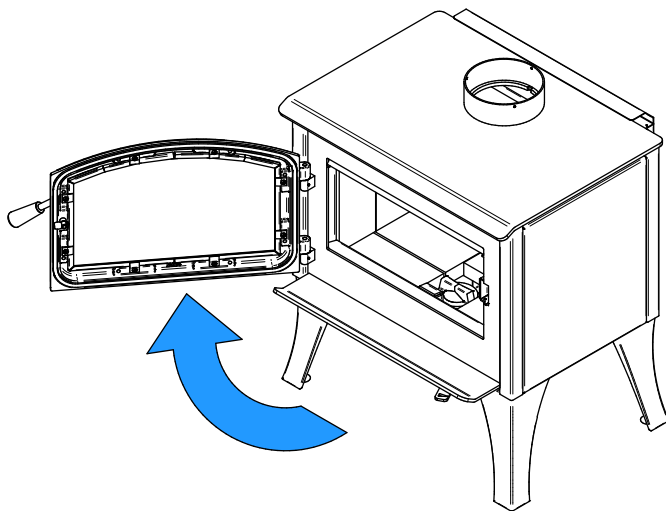
This mobile home approved stove requires the installation of a fresh air intake kit **(A)** and an insulated fresh air intake pipe (HVAC type, must meet ULC S110 or UL 181 class 0 or class 1) **(B)**, sold separately. Refer to air intake kit installation instructions for more details.



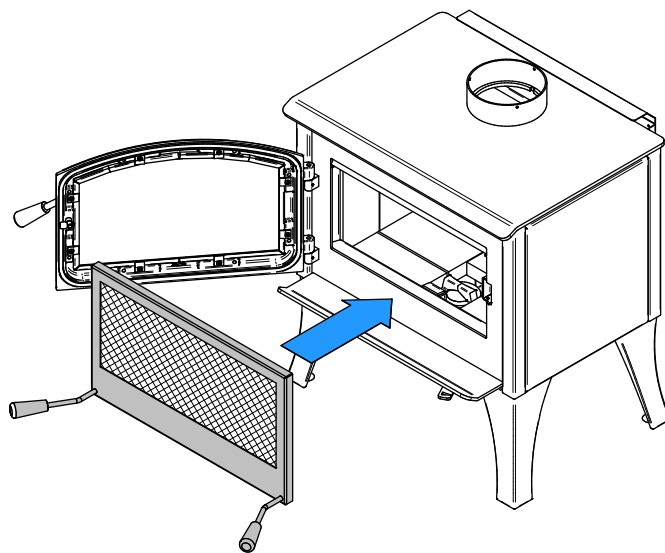
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APPENDIX 7: OPTIONAL FIRE SCREEN INSTALLATION

1. Open the door.

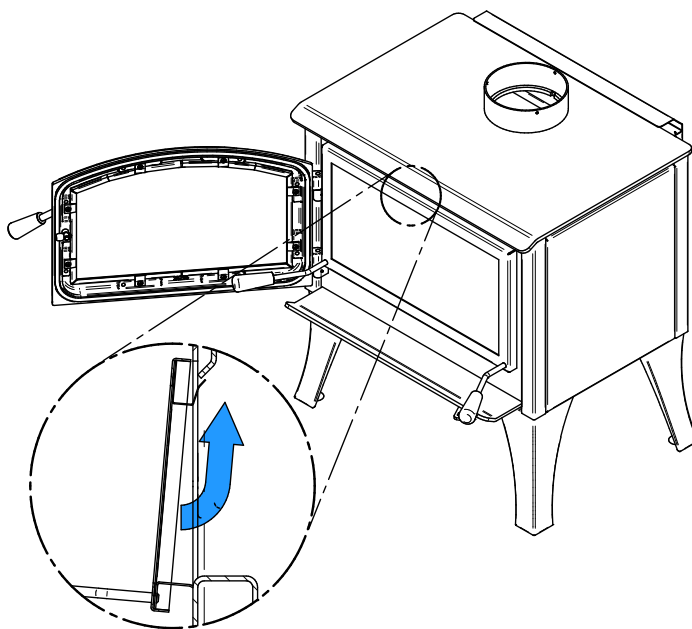


2. Hold the fire screen by the two handles and bring it close to the door opening.



3. Lean the upper part of the fire screen against the top door opening making sure to shove the top fire screen brackets behind the primary air deflector.
4. Lift the fire screen upwards and push the bottom part towards the stove then let the fire screen rest on the bottom of the door opening.

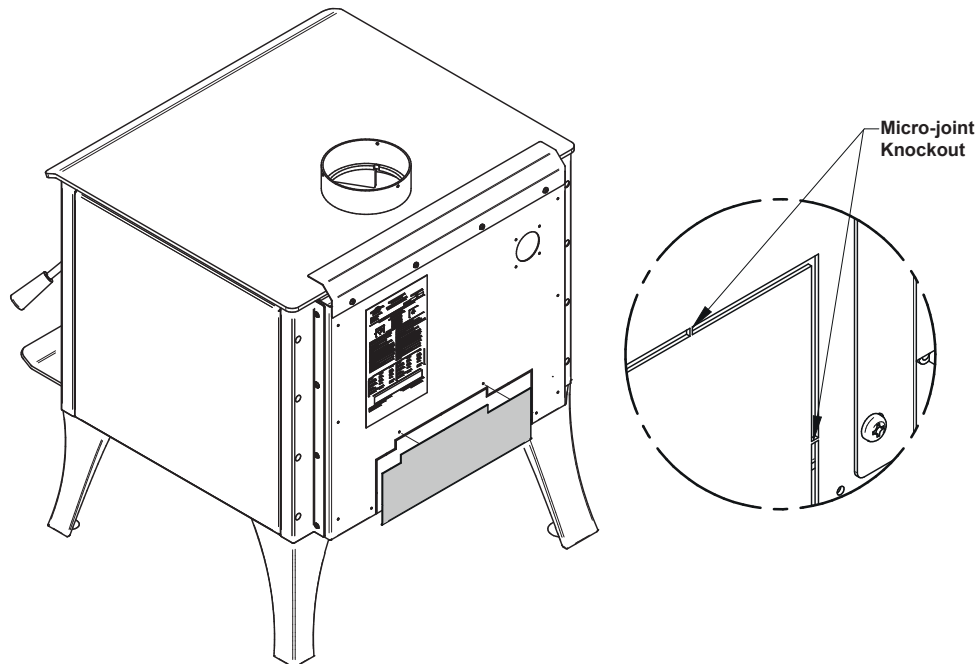
Warning: Never leave the stove unattended while in use with the fire screen.



APPENDIX 8: OPTIONAL BLOWER INSTALLATION

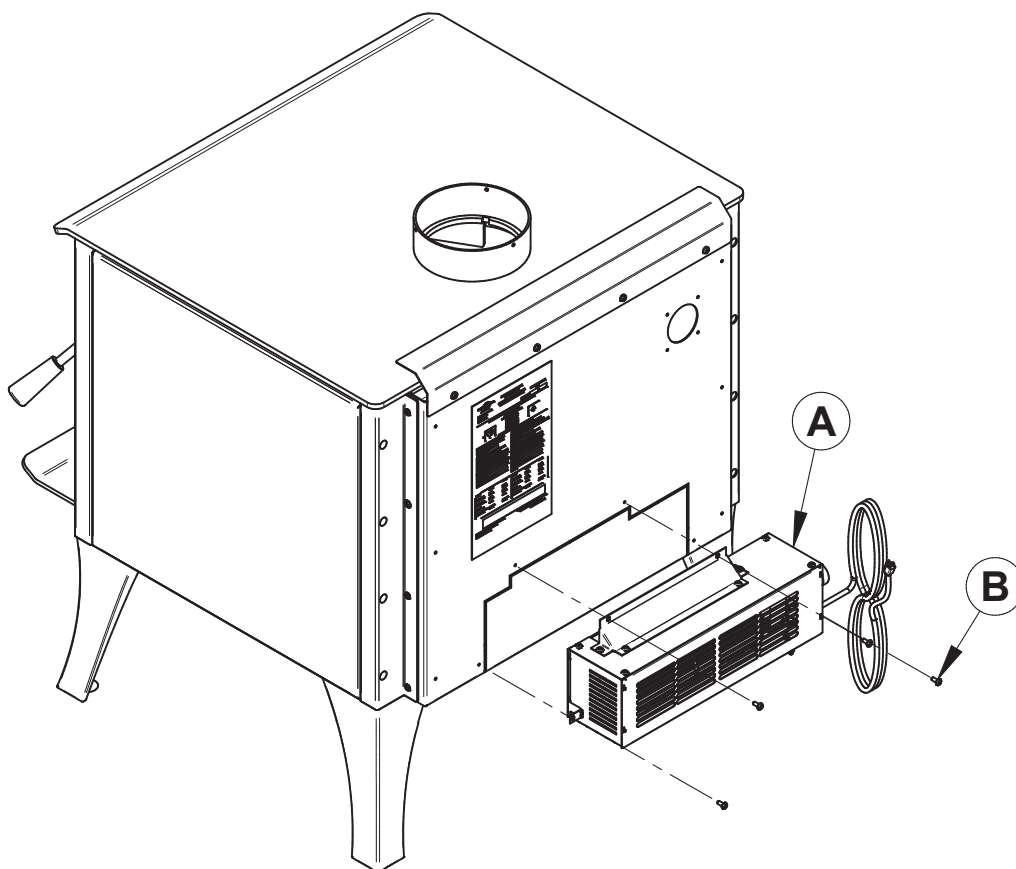
A blower, sold separately, can be installed on the stove.

1. Remove the backplate by cutting the knockouts with pliers.



2. Screw the blower **(A)** in place using the screws **(B)** included in the installation manual.

Ensure that the blower's power cord is not in contact with any surface of the stove to prevent electrical shock or fire damage. Do not run the power cord beneath the stove.

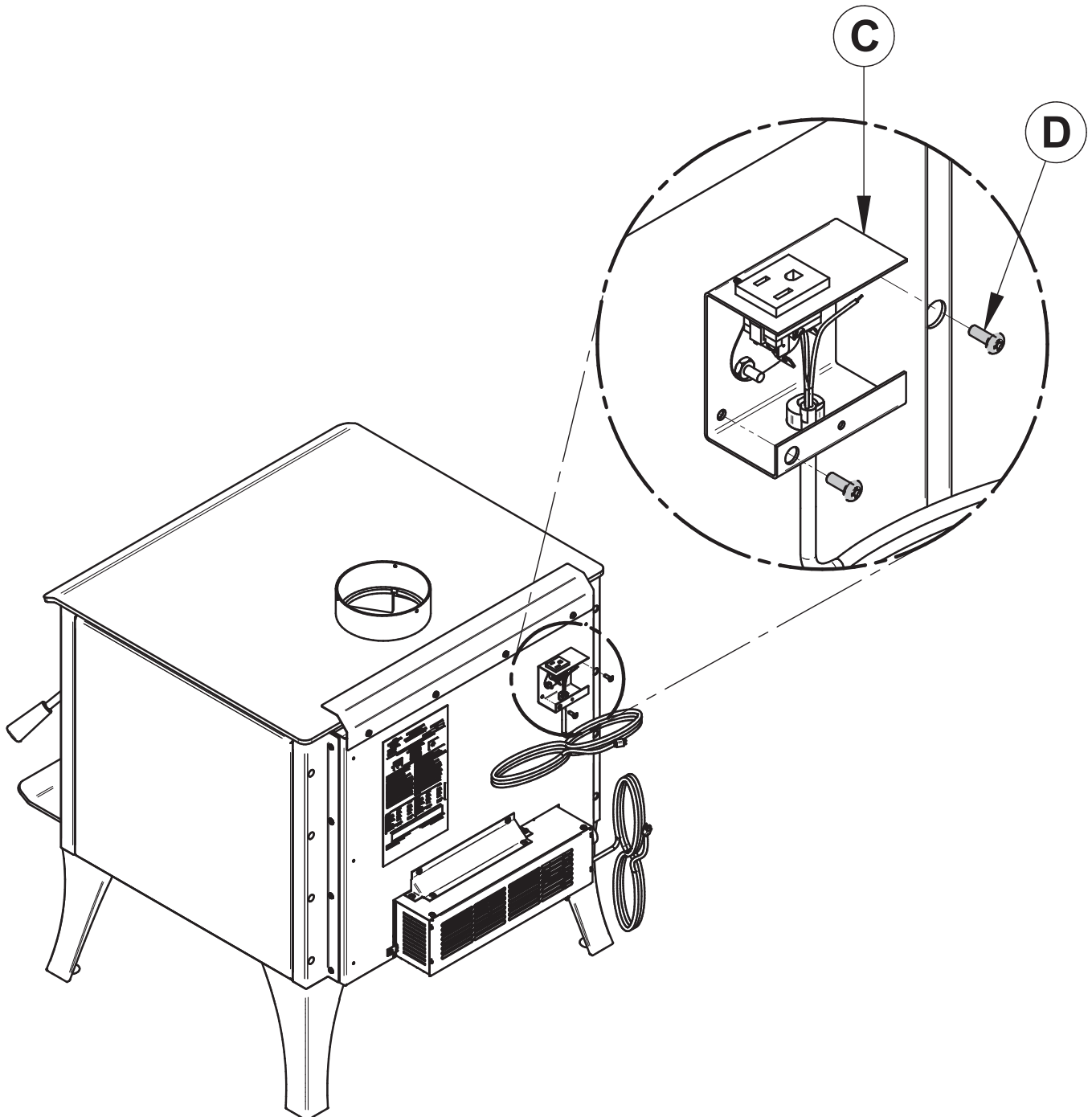


APPENDIX 9: OPTIONAL THERMODISC INSTALLATION

A thermodisc, sold separately, can be installed with the blower. It allows the fan to operate only when the stove is hot enough. See the instructions provided with the thermodisc for more details.

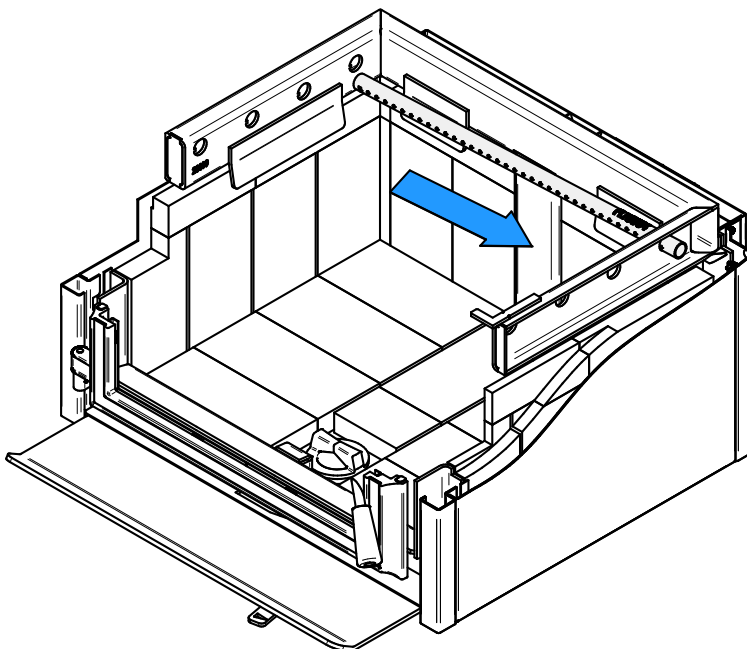
Screw the thermodisc **(C)** with the screws **(D)** provided on the back of the stove.

The electrical cord of the thermodisc should not touch any surface of the stove to avoid electric shock or fire. Do not run the power cord under the stove.

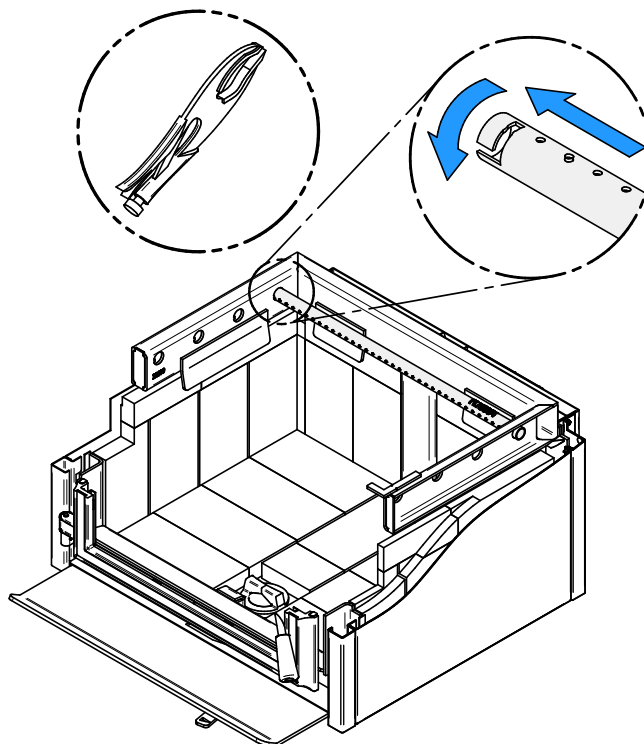


APPENDIX 10: AIR TUBES AND BAFFLE INSTALLATION

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

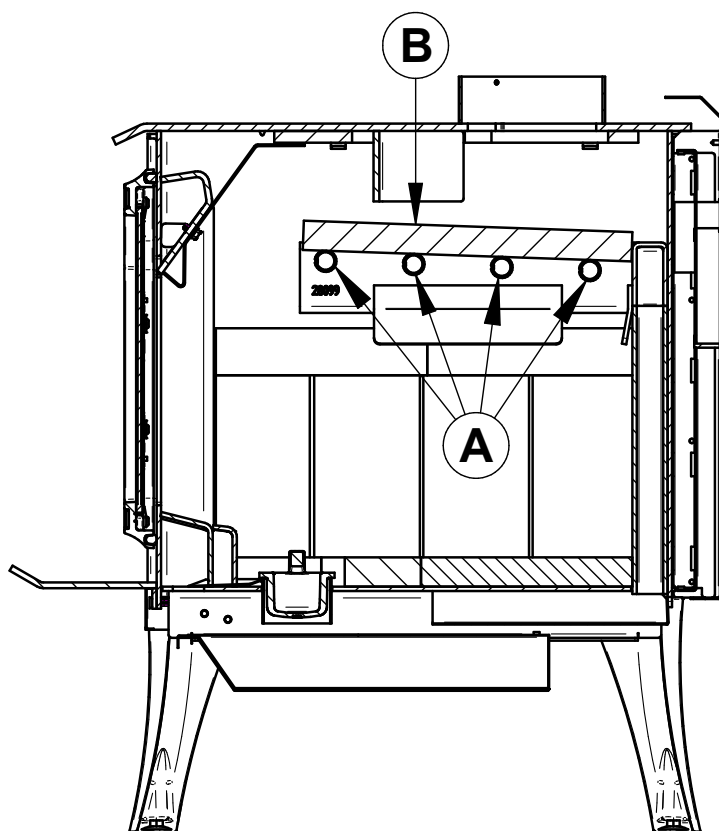
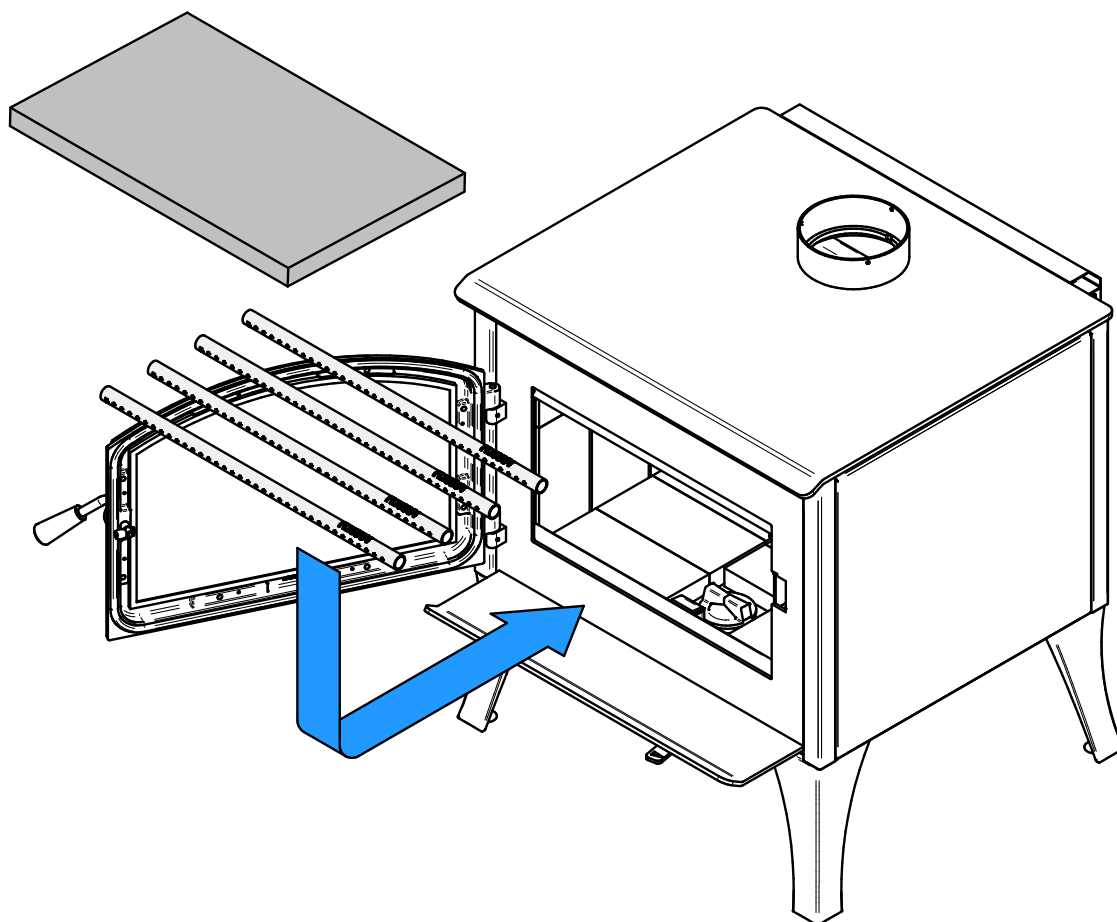


2. Align the notch in the left end of the tube with the key of the left air channel hole. Using a « Wise grip » hold the tube and lock it in place by turning the tube as shown. Make sure the notch reaches the end of the key way.
3. Put the baffle in place.
4. Repeat steps 1 and 2 for the three other tubes.
5. To remove the tubes use the above steps in reverse order.



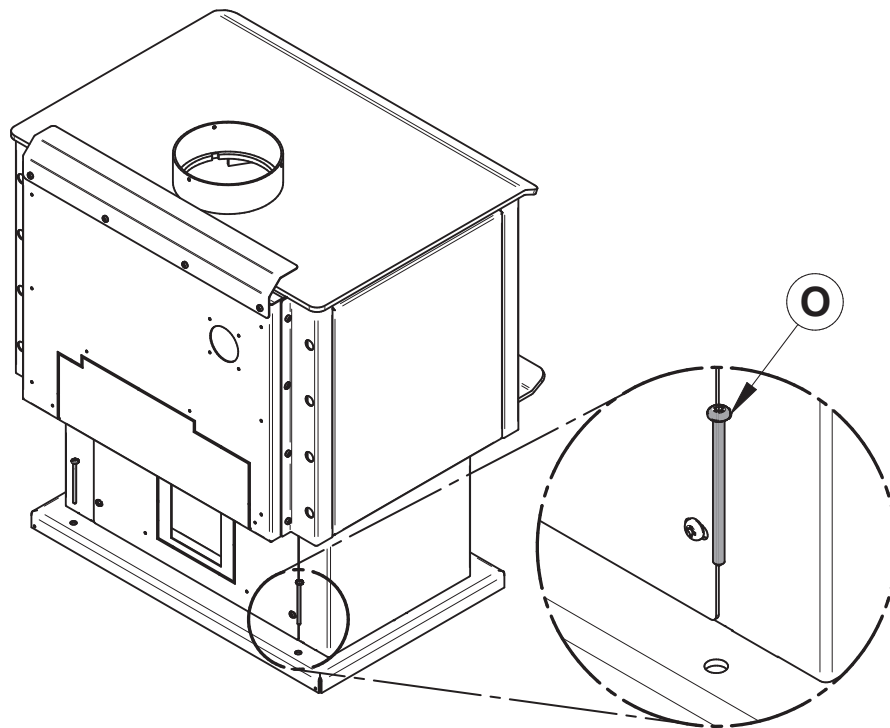
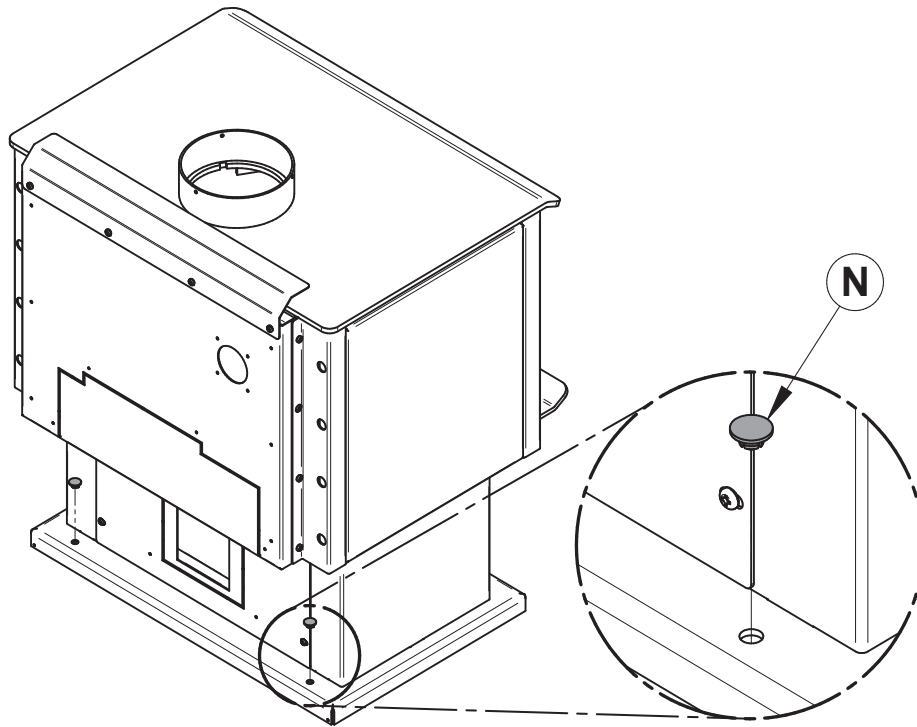
Note that secondary air tubes (A) can be replaced without removing the baffle board (B) and that all tubes are identical.

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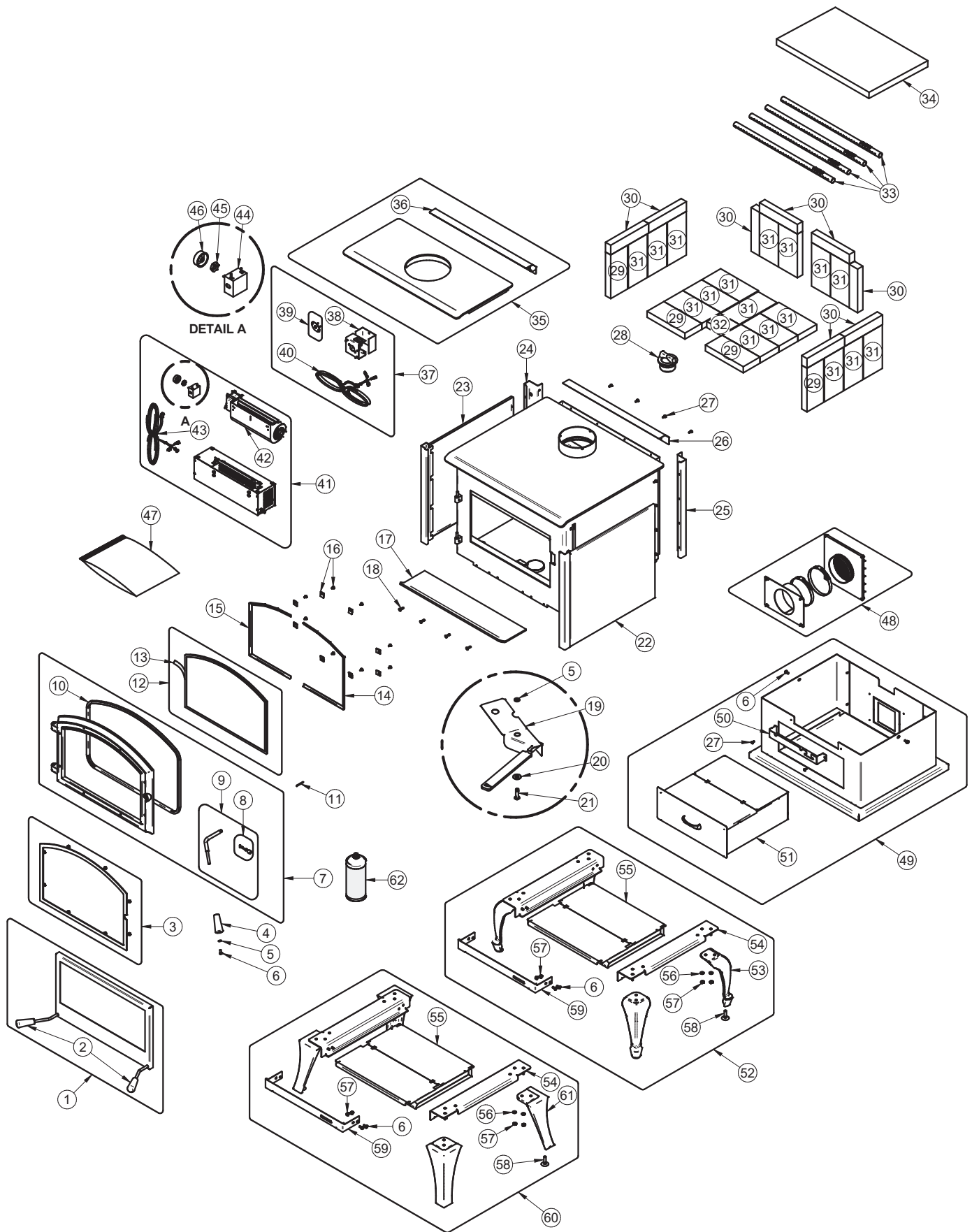


APPENDIX 11: MOBILE HOME INSTALLATION

For a stove on a pedestal remove the plugs **(N)** and screw the base on the floor with the proper hardware **(O)**.



APPENDIX 12: EXPLODED DIAGRAM AND PARTS LIST



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

#	Item	Description	Qty
1	WBS3BL	FIRESCREEN	1
2	30569	ROUND WOODEN HANDLE BLACK	2
3	WD3NB	BRUSH NICKEL DOOR OVERLAY	1
3	WD3BL	BLACK DOOR OVERLAY	1
4	30898	ROUND WOODEN BLACK HANDLE DULL BLACK FINISH	1
5	30187	STAINLESS WASHER ID 17/64" X OD 1/2"	2
6	30025	1/4-20 X 1/2" PAN-HEAD QUADREX BLACK SCREW	5
7	SE24301	GATEWAY 3500 DOOR ASSEMBLY	1
8	AC09185	DOOR LATCH KIT	1
9	SE65024	REPLACEMENT HANDLE WITH LATCH KIT	1
10	AC06500	SILICONE AND 5/8" X 8' BLACK DOOR GASKET KIT	1
11	30101	SPRING TENSION PIN 5/32"Ø X 1 1/2"L	1
12	SE70900	GATEWAY 3500 DOOR GLASS	1
13	AC06400	3/4" (FLAT) X 6' BLACK SELF-ADHESIVE GLASS GASKET	1
14	PL70780	RIGHT GLASS FRAME	1
15	PL70781	LEFT GLASS FRAME	1
16	SE53585	GLASS RETAINER KIT WITH SCREWS (12 PER KIT)	1
17	SE70777	ASH LIP ASSEMBLY	1
18	30507	BLACK TORX SCREW WITH FLAT HEAD TYPE F 1/4-20 X 3/4"	4
19	SE70761	AIR CONTROL DAMPER ASSEMBLY	1
20	30206	ZINC WASHER 5/16"ID X 3/4"OD	1
21	30506	SCREW PAN TORX TYPE F 1/4-20 X 1" BLACK	1
22	SE70769	RIGHT DECORATIVE PANEL	1
23	SE70771	LEFT DECORATIVE PANEL	1
24	PL70772	LEFT DECORATIVE PANEL SUPPORT	1
25	PL70770	RIGHT DECORATIVE PANEL SUPPORT	1
26	PL70829	AIR DEFLECTOR	1
27	30154	BLACK SCREW #10 X 5/8" QUADREX #2 TYPE A	6
28	24096	ROUND CAST IRON ASH PLUG	1
29	29011	4" X 9" X 1 1/4" REFRACTORY BRICK HD	4
30	PL36056	2" X 9" 1 1/4" REFRACTORY BRICK	6
31	29020	4 1/2" X 9" X 1 1/4" REFRACTORY BRICK HD	17
32	PL36758	REFRACTORY BRICK 3 1/4" X 4 1/2" X 1 1/4"	1
33	PL70864	SECONDARY AIR TUBE	4
34	21565	C-CAST 3.5 SERIE BAFFLE	1
35	WT3BL	Step Top Add On	1
36	PL70878	AIR DEFLECTOR	1

#	Item	Description	Qty
37	WT1QC	QUICK CONNECT THERMODISC KIT	1
38	PL05530-02	THERMODISC BOX (COVER)	1
39	44028	CERAMIC THERMODISC F110-20F	1
40	60013	POWER CORD 96" X 18-3 type SJT (50 pcs per carton)	1
41	WB1V	BLOWER ASSEMBLY WITH VARIABLE SPEED CONTROL (UP TO 130 CFM)	1
42	44070	CROSSFLOW BLOWER SINGLE CAGE 130 CFM 115V-60Hz-56W	1
43	44080	RHEOSTAT WITHOUT NUT (MODEL KBMS-13BV)	1
44	44087	RHEOSTAT NUT	1
45	44085	RHEOSTAT KNOB	1
46	SE46100	GATEWAY 3500 INSTRUCTIONS MANUAL KIT	1
47	AC05959	METALLIC BLACK STOVE PAINT - 342 g (12oz) AEROSOL	1
48	WA5PD	5"Ø FRESH AIR INTAKE KIT FOR WOOD STOVE ON PEDESTAL	1
49	WP3BL	PEDESTAL KIT	1
50	PL70837	AIR CONTROL COVER	1
51	SE70820	ASH DRAWER ASSEMBLY	1
52	WLQ3BL	BLACK CAST IRON "QUEEN ANNE" LEGS WITH ASH DRAWER	1
52	WLQ3BN	BRUSH NICKEL CAST IRON "QUEEN ANNE" LEGS WITH ASH DRAWER	1
53	PL24296-01	NICKEL PLATED CAST IRON LEG WITH LEVELING BOLT	4
53	PL24296	PAINTED EMPIRE QUEEN ANNE LEG WITH LEVELING BOLT	4
54	PL70827	LEG SUPPORT	2
55	SE70867	ASH DRAWER ASSEMBLY	1
56	30185	17/64" AA TYPE WASHER BLACK	8
57	30100	BLACK HEX NUT 1/4 - 20	8
58	30050	LEVELING BOLT 3/8-16 X 1 1/2"	4
59	PL70868	AIR CONTROL COVER	1
60	WLS3BL	BLACK CAST IRON STRAIGHT LEGS WITH ASH DRAWER	1
60	WLS3NB	BRUSH NICKEL CAST IRON STRAIGHT LEGS WITH ASH DRAWER	1
61	PL24295	PAINTED EMPIRE RIGHT LEG WITH LEVELING BOLT	4
61	PL24295-01	NICKEL PLATED CAST IRON LEG WITH LEVELING BOLT	4

EMPIRE LIMITED LIFETIME WARRANTY

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

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

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

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

The manufacturer, at its discretion, may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts. The manufacturer shall, in no event, be responsible for any uncommon, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product. A one-time replacement limit applies to all parts benefiting from lifetime coverage. This warranty applies to products purchased after March 1st 2019.

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

*Subject to limitations above. **Picture required.

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

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

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

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

Last revised : March 2019



Empire Comfort Systems, Inc.
918 Freeburg Avenue
Belleville, IL 62220
618 233.7420
www.empirecomfort.com



SINCE 1932

Manuel d'installation et d'utilisation

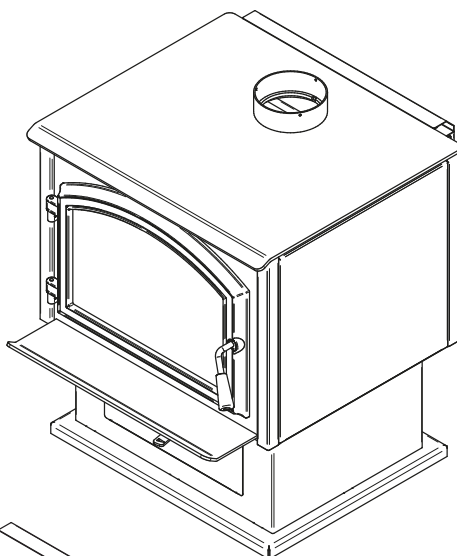
GATEWAY 3500

(modèle WB35FS)

EPA
 ≤ 2.5 g/h

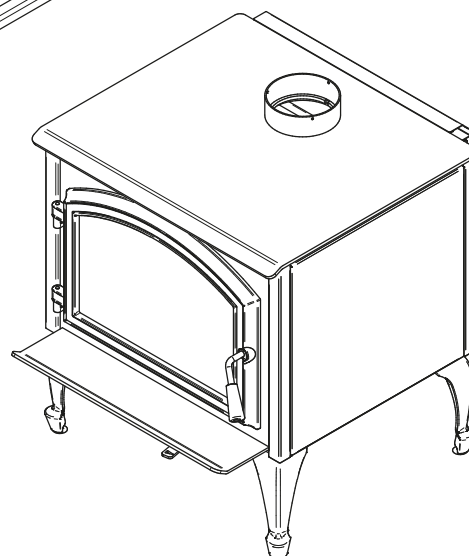
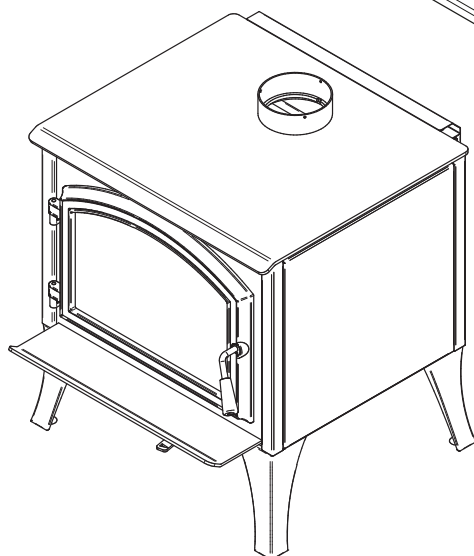


VERSION SUR
PIÉDESTAL
SEULEMENT



Poêle à bois homologué
conformément à la phase II
de l'agence de protection de
l'environnement EPA et certifié
conforme à la norme 2020 bois
de corde.

Essais de sécurité faits
conformément aux normes
ULC S627, UL 1482 et UL 737
par un laboratoire accrédité.



CONSULTER LE CODE DU BÂTIMENT LOCAL OU CONTACTER LE SERVICE MUNICIPAL DES INCENDIES POUR CONNAÎTRE LES RESTRICTIONS ET LES EXIGENCES D'INSPECTION ET D'INSTALLATION DE LA RÉGION.

LIRE CE MANUEL AU COMPLET AVANT L'INSTALLATION DE CE POÊLE À BOIS. IL EST IMPORTANT DE RESPECTER INTÉGRALEMENT LES DIRECTIVES D'INSTALLATION. SI LE POÊLE N'EST PAS INSTALLÉ CORRECTEMENT, IL PEUT EN RÉSULTER UN INCENDIE, DES BLESSURES CORPORELLES OU MÊME LE DÉCÈS.

LIRE LE PRÉSENT MANUEL ET LE CONSERVER POUR CONSULTATION

MERCI D'AVOIR CHOISI CE POÊLE À BOIS.

Lorsque l'appareil n'est pas installé correctement, les matériaux combustibles à proximité peuvent surchauffer et s'enflammer.

Pour réduire les risques d'incendie, suivre les instructions d'installation de ce manuel.

Dans les pages qui suivent se trouvent des conseils d'ordre général sur le chauffage au bois, des instructions détaillées pour une installation sûre et efficace et des indications sur la façon d'obtenir le meilleur rendement de ce poêle.

Il est fortement recommandé que cet appareil de chauffage au bois soit installé et entretenu par des professionnels certifiés par une agence qualifiée tels que NFI (National Fireplace Institute®) ou CSIA (Chimney Safety Institute of America) aux États-Unis, au Canada par WETT (Wood Energy Technology Transfer) ou au Québec par l'APC (Association des Professionnels du Chauffage).

Consulter le code du bâtiment local ou contacter le service des incendies pour connaître les restrictions et les exigences d'inspection et d'installation de la région.

Il se peut qu'un permis soit requis pour l'installation du poêle et de la cheminée à laquelle il est branché. Il est également recommandé d'aviser sa compagnie d'assurance habitation.

Lire ce manuel au complet avant l'installation et l'utilisation du poêle.

Une source de chauffage primaire doit être disponible dans la résidence. Cet appareil de chauffage doit être utilisé comme chauffage d'appoint. En cas de bris, le fabricant ne peut être tenu responsable des coûts de chauffage additionnels pouvant être engendrés par une source de chauffage alternative.

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Détaillant:

Installateur:

Téléphone:

Numéro de série:

PLAQUE D'HOMOLOGATION



Intertek

May/Mai 2019

Control number: 4002461

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK
POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:

Certified to/Certifié selon ULC S627

Certified to/Certifié selon UL 1482

Certified to/Certifié selon UL 737

Certified to/Certifié selon CSA B415.1-10

Certified to/Certifié selon ASTM E3053-17

Certified to/Certifié selon ASTM E2515-11 (R2017)

**LISTED SOLID FUEL BURNING
APPLIANCE**

**POÊLE À COMBUSTIBLE SOLIDE
HOMOLOGUÉ**

MODEL / MODÈLE :

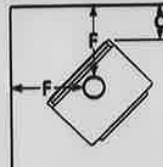
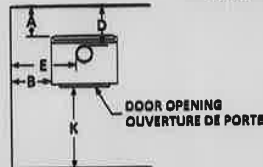
GATEWAY 3500

Serial Number

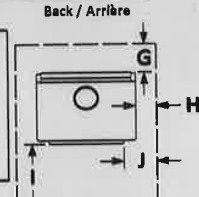
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No. de Série

Clearances to combustibles / Dégagements aux combustibles



MOBILE HOME MAISONS MOBILES Double wall connector Tuyau à paroi double			
A: 9 in./po.	(229 mm)	D: 13.75 in./po.	(349 mm)
B: 19 in./po.	(483 mm)	E: 29.875 in./po.	(759 mm)
C: 10 in./po.	(254 mm)	F: 20.75 in./po.	(527 mm)



CANADA		U.S.A.		Protection de plancher/Floor protection	
Single wall connector Tuyau à paroi simple	Double wall connector Tuyau à paroi double	Single wall connector Tuyau à paroi simple	Double wall connector Tuyau à paroi double	CANADA	U.S.A.
A: 13.25 in./po. (337 mm)	A: 7 in./po. (178 mm)	A: 13 in./po. (330 mm)	A: 7 in./po. (152 mm)	G: 8 in./po. (203 mm)	I: 16 in./po. (406 mm)
B: 14 in./po. (356 mm)	B: 14 in./po. (356 mm)	B: 14 in./po. (356 mm)	B: 14 in./po. (356 mm)	H: 8 in./po. (203 mm)	J: 8 in./po. (203 mm)
C: 7.25 in./po. (184 mm)	C: 7 in./po. (178 mm)	C: 7.25 in./po. (184 mm)	C: 7 in./po. (178 mm)	I: 18 in./po. (457 mm)	K: 36 in./po. (914 mm)
D: 18 in./po. (457 mm)	D: 11.75 in./po. (298 mm)	D: 17.75 in./po. (451 mm)	D: 11.75 in./po. (273 mm)	J: 8 in./po. (203 mm)	
E: 24.875 in./po. (632 mm)	E: 24.875 in./po. (632 mm)	E: 24.875 in./po. (632 mm)	E: 24.875 in./po. (632 mm)	K: 48 in./po. (1219 mm)	
F: 18 in./po. (457 mm)	F: 17.75 in./po. (451 mm)	F: 18 in./po. (457 mm)	F: 17.75 in./po. (451 mm)		
Floor-ceiling/plancher-plafond: 84 in./po. (213cm)					

* See owner's manual for other clearances with lowered ceiling/
voir manuel d'installation pour autres dégagements avec plafond abaissé

PREVENT HOUSE FIRES

- Install and use only in accordance with the manufacturer's installation and operating instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- Use listed 152 mm / 6 in. diameter single or double wall connectors with prefabricated chimneys approved UL 103 HT (US) and ULC S629 (CAN) suitable for solid fuels or lined masonry chimneys.
- See local building code and manufacturer's instructions for precautions required for passing a chimney through a combustible wall or ceiling.
- Do not pass connector through combustible wall or ceiling.
- Do not connect this unit to a chimney serving another appliance.
- Use with wood only. Do not use other fuels.
- Operate only with door closed or door open with firescreen installed. Open door or remove firescreen to feed the stove only.
- Do not obstruct the space underneath the stove.
- Do not use grate or elevate fire. Build fire directly on hearth.
- Do not overfire. If heater or chimney connector glows, you are overfiring.
- Inspect and clean chimney frequently. Under certain condition of use, creosote buildup may occur rapidly.
- Replace glass with ceramic type only.
- Install unit on a non-combustible material extending as shown above on this label.
- Suitable for mobile-home installation. Floor protection may vary from pedestal to legs version refer to owner's manual.
- Combustion air openings shall not be obstructed.
- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

PRÉVENEZ LES INCENDIES

- Installer et utiliser conformément au manuel d'utilisation du fabricant.
- Contacter les autorités de votre localité ayant juridiction concernant les restrictions et inspections d'installation.
- Utiliser des tuyaux d'évacuation à paroi simple ou double homologués d'un diamètre de 6 po. (152 mm) avec une cheminée préfabriquée approuvée UL 103 HT (US) et ULC S629 (CAN) pour utilisation au bois ou une cheminée de maçonnerie gainée.
- Voir les codes locaux et le manuel d'installation du fabricant pour le passage de la cheminée à travers un mur ou un plafond combustible.
- Ne pas traverser un plafond ou un mur combustible avec un tuyau d'évacuation.
- Ne pas raccorder cet appareil à une cheminée desservant un autre appareil.
- Brûler du bois seulement. Ne pas utiliser d'autres combustibles.
- Garder la porte fermée ou le pare-étincelle en place en tout temps. Ouvrir la porte ou retirer le pare-étincelle que lors du chargement.
- Ne rien entreposer sous l'appareil.
- Ne pas utiliser de grilles ou de chenets pour surélever le feu. Préparer le feu directement sur l'âtre.
- Ne pas surchauffer. Si l'appareil ou le tuyau rougit, il y a surchauffe.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, l'accumulation de crésote peut être rapide.
- Remplacer la vitre seulement avec un verre de céramique.
- Installer l'appareil sur une plaque non combustible tel qu'indiqué sur l'étiquette.
- Poêle approuvé pour maison mobile. La protection de plancher peut varier entre la version plédestal et sur pattes. Voir le manuel d'instructions.
- Les entrées d'air servant à la combustion ne doivent pas être obstruées.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistante par rapport au manuel de l'utilisateur consiste une violation de la loi fédérale (USA).

Optional blower: (115V, 0.8A, 60Hz)

Option ventilateur: (115V, 0.8A, 60Hz)

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using cordwood.

AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.-U. Conforme aux normes d'émission de particules de 2020 avec bûche de bois.

Weighted average emission rate / Moyenne pondérée des émissions : 1.32 g/h

Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1)(ii)



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



CAUTION

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

ATTENTION

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

Made in St-Augustin-de-Desmaures (Qc), Canada
10/06/2019 (# test)



Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
10/06/2019 (# test)

27777

PARTIE A – UTILISATION ET ENTRETIEN

1. Sécurité

- Ce poêle a été mis à l'essai pour être utilisé la porte ouverte avec un pare-étincelles, vendu séparément. Ouvrir la porte ou retirer le pare-étincelles seulement pour allumer et recharger le poêle. Toujours fermer la porte ou remettre le pare-étincelles après l'allumage. Ne pas laisser le poêle sans surveillance lorsque la porte est ouverte, avec ou sans pare-étincelles.
- **AVERTISSEMENT: UTILISER CET APPAREIL EN MAINTENANT LA PORTE SOIT COMPLÈTEMENT FERMÉE OU COMPLÈTEMENT OUVERTE AVEC LE PARE-ÉTINCELLES EN PLACE. LORSQUE LA PORTE EST PARTIELLEMENT OUVERTE, DES FLAMMES OU DES GAZ PEUVENT S'ÉCHAPPER CRÉANT DES RISQUES ASSOCIÉS À LA FOIS À LA FUMÉE ET AU FEU.**
- **BRÛLANT LORSQU'EN FONCTION, ÉLOIGNER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES. TOUT CONTACT AVEC LA PEAU PEUT CAUSER DES BRÛLURES. DES GANTS PEUVENT ÊTRE NÉCESSAIRES LORS DE L'UTILISATION DU POÊLE.**
- Le fait d'utiliser un appareil dont des éléments comme la vitre, les briques réfractaires ou le coupe-feu sont fissurés ou brisés peut être dangereux et peut endommager l'appareil.
- Ouvrir complètement l'admission d'air avant d'ouvrir la porte de chargement.
- **NE JAMAIS UTILISER D'ESSENCE, DE COMBUSTIBLE À LANTERNE (NAPHTA), DE MAZOUT, D'HUILE À MOTEUR, DE KÉROSÈNE, DE LIQUIDE D'ALLUMAGE POUR CHARBON DE BOIS, DE LIQUIDES SIMILAIRES OU D'AÉROSOLS POUR ALLUMER UN FEU. GARDER TOUS CES LIQUIDES OU AÉROSOLS LOIN DE L'APPAREIL LORSQU'IL EST EN FONCTION.**
- Ne pas entreposer de carburant en deçà des dégagements minimums de l'appareil.
- Brûler seulement du bois de chauffage naturel sec.
- L'appareil doit être entretenu et utilisé en tout temps conformément aux présentes directives.
- Ne pas surélever le feu en plaçant un chenet dans le poêle.
- Ne pas utiliser de matériaux de fortune et ne faites aucun compromis lors de l'installation de cet appareil.
- Cet appareil de chauffage nécessite des inspections et réparations périodiques pour une utilisation optimale. Il est contre la réglementation fédérale d'utiliser cet appareil de façon incohérente avec les instructions de ce manuel.
- Un détecteur de fumée, un détecteur de monoxyde de carbone ainsi qu'un extincteur devraient être installés dans la maison. L'emplacement de l'extincteur devrait être connu de tous les membres de la famille.



Ce produit peut vous exposer à des agents chimiques, y compris du monoxyde de carbone, identifié par l'État de la Californie comme pouvant causer le cancer ou des malformations congénitales et autres troubles de l'appareil reproducteur. Pour de plus amples informations, prière de consulter le www.P65warnings.ca.gov/

2. Informations générales

2.1 Performances

Valeurs telles qu'obtenues en test, à l'exception de la superficie de chauffage recommandée, le volume de la chambre à combustion, le temps de combustion maximal et la puissance thermique maximale.

Modèle	Gateway 3500	
Type de combustible	Bûches de bois sec	
Technologie de combustion	Non-catalytique	
Superficie de chauffage recommandée (pi ²) ¹	1,000 à 2,700 ft ² (93 à 251 m ²)	
Volume nominal de la chambre à combustion	3.5 ft ³ (0.099 m ³)	
Temps de combustion maximal ¹	10 heures	
Puissance thermique maximale (bûches de bois sec) ²	110,000 BTU/h (32.2 kW)	
Puissance thermique globale (min. à max.) ^{2 3}	18,200 BTU/h à 49,500 BTU/h (5.3 kW à 14.5 kW)	
Rendement moyen global ³ (Bûches de bois sec)	71 % (PCS) ⁴	76 % (PCI) ⁵
Rendement optimal ⁶	77 %	
Taux moyen d'émission de particules ⁷	1.32 g/h (EPA / CSA B415.1-10) ⁸	
Taux moyen de CO ⁹	92 g/h	

¹ La superficie de chauffage recommandée et l'autonomie de combustion peuvent varier selon la localisation de l'appareil dans l'habitation, la qualité du tirage de la cheminée, le climat, les facteurs de perte de chaleur ou le type de bois utilisé et d'autres variables. La superficie de chauffage recommandée pour un appareil est définie par le fabricant comme sa capacité à conserver une température minimale acceptable dans l'espace désignée en cas de panne de courant.

² La puissance thermique maximale (bûches de bois sec) tient compte d'une densité de chargement variant entre 15 lb/pi³ et 20 lb/pi³. Les autres données de performance sont basées sur une charge d'essai prescrite par la norme. La densité de chargement spécifiée varie entre 7 lb/pi³ et 12 lb/pi³. L'humidité varie entre 19% et 25%.

³ Telle que mesurée selon CSA B415.1-10.

⁴ Pouvoir calorifique supérieur du combustible.

⁵ Pouvoir calorifique inférieur du combustible.

⁶ Rendement optimal à un taux de combustion donné (PCI).

⁷ Cet appareil est officiellement testé et certifié par un organisme indépendant.

⁸ Testé et certifié selon CFR 40 part 60, subpart AAA, section 60.534(a)(1)(ii) et ASTM E3053-17.

⁹ Monoxyde de carbone.

2.2 Spécifications

Longueur maximale des bûches ¹⁰	22 po (560 mm) est-ouest
Diamètre de la buse de raccordement	6 po (150 mm)
Diamètre du tuyau de raccordement recommandé	6 po (150 mm)
Type de cheminée	ULC-S629, UL 103 HT (2100 °F)
Matériau du coupe-feu	C-Cast
Approuvé pour installation en alcôve	Oui
Approuvé pour installation en maison mobile ¹¹	Oui
Type de porte	Simple, vitrée, avec cadre en fonte
Type de vitre	Verre céramique
Ventilateur	Optionnel (jusqu'à 130 PCM)
Normes d'émissions de particules ¹²	EPA / CSA B415.1-10
Norme américaine (sécurité)	UL 1482, UL 737
Norme canadienne (sécurité)	ULC-S627

¹⁰ Orientation est-ouest : côté longitudinal des bûches visible; orientation nord-sud : extrémité des bûches visible.

¹¹ Maison mobile (Canada) ou maison préfabriquée (É.-U.) : Le département américain du logement et du développement urbain décrit « maisons préfabriquées » mieux connues pour « maisons mobiles » comme suit ; bâtiments construits sur des roues fixes et ceux transportés sur des roues/essieux temporaires installées sur une fondation permanente. Au Canada, une maison mobile est une habitation dont l'assemblage de chaque composante est achevé ou achevé en grande partie avant le déplacement de celle-ci jusqu'à un emplacement pour y être placée sur des fondations, raccordé à des installations de service et qui rencontre la norme CAN/CSA-Z240 MH.

¹² Testé et certifié selon CFR 40 part 60, subpart AAA, section 60.534(a)(1(ii)) et ASTM E3053-17.

2.3 Dimensions

2.3.1 Dimensions du poêle avec les pattes «Queen Anne»

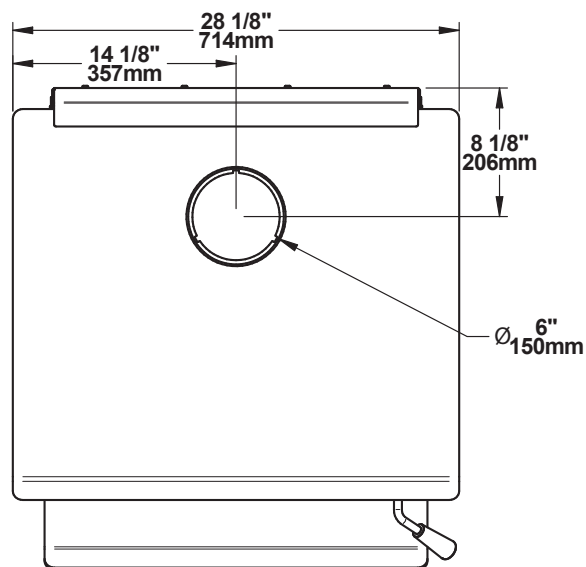


Figure 1: Vue de dessus

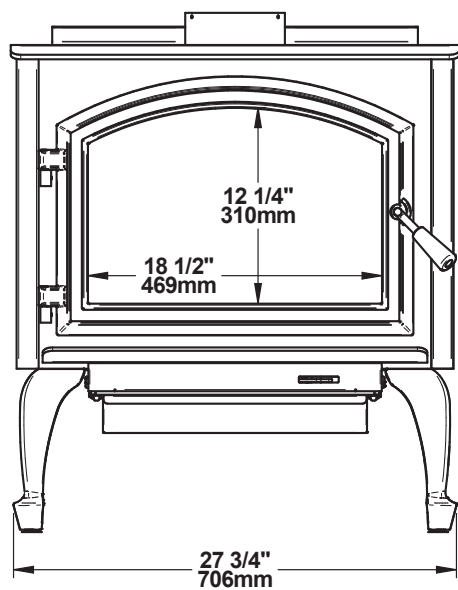


Figure 2: Vue de face

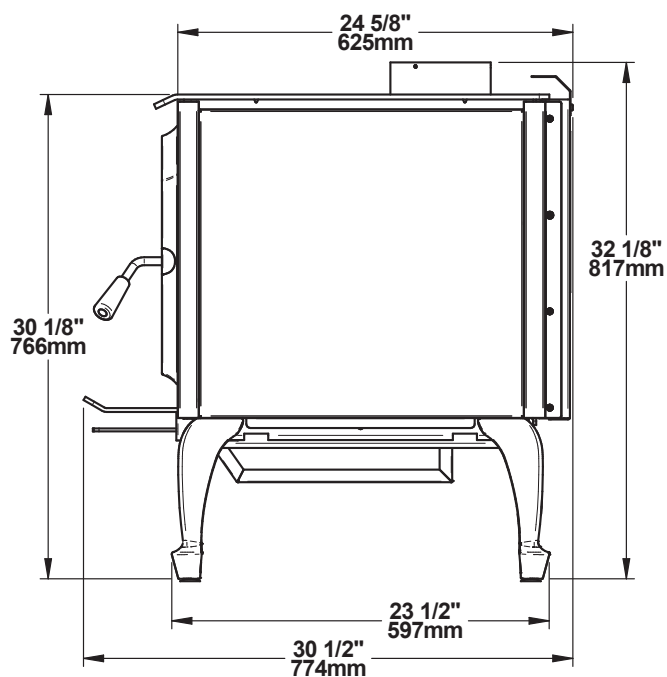


Figure 3: Vue de côté

2.3.2 Dimensions du poêle avec les pattes droites

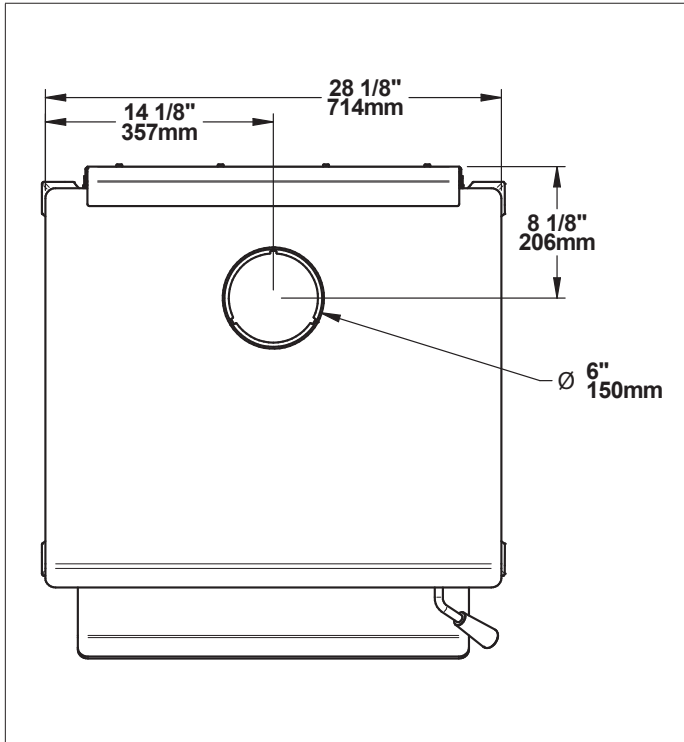


Figure 4: Vue de dessus

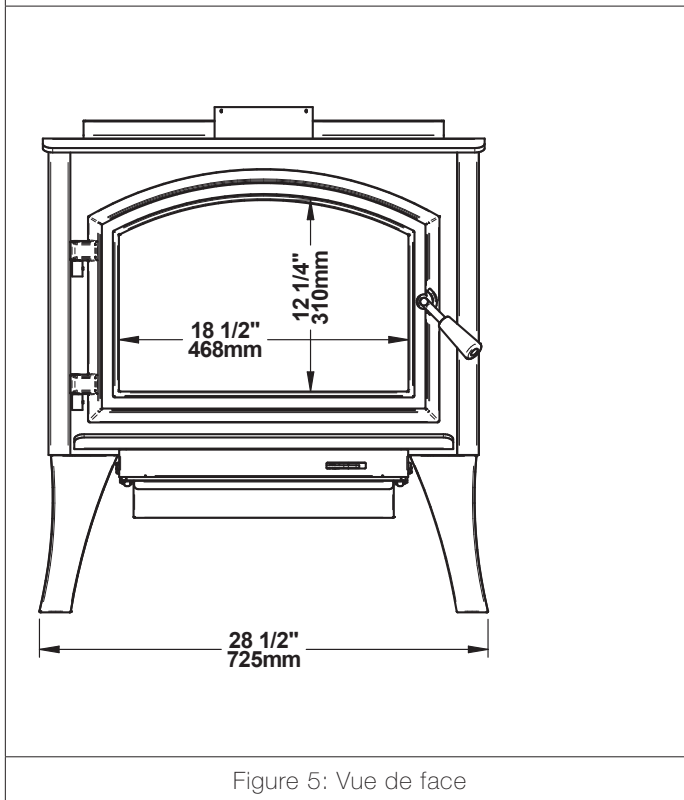


Figure 5: Vue de face

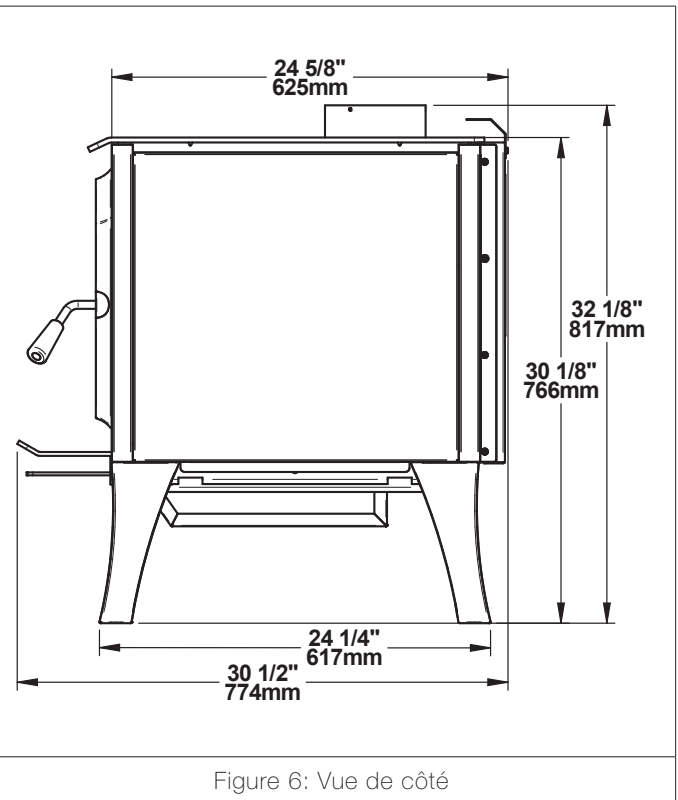


Figure 6: Vue de côté

2.3.3 Dimensions avec le piédestal

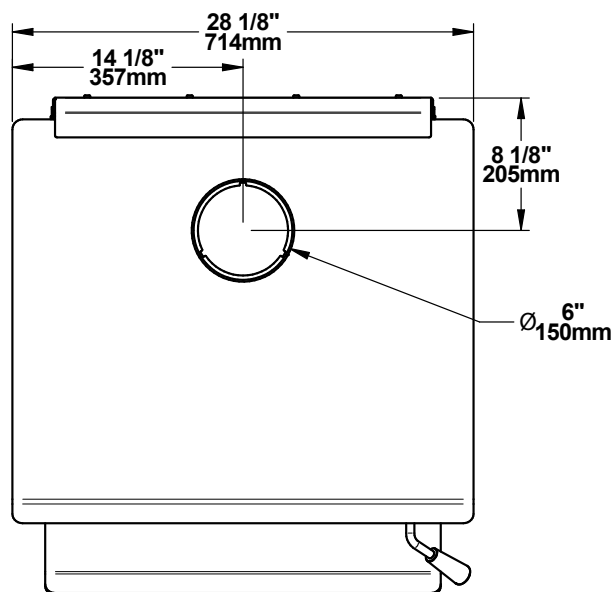


Figure 7: Vue de dessus

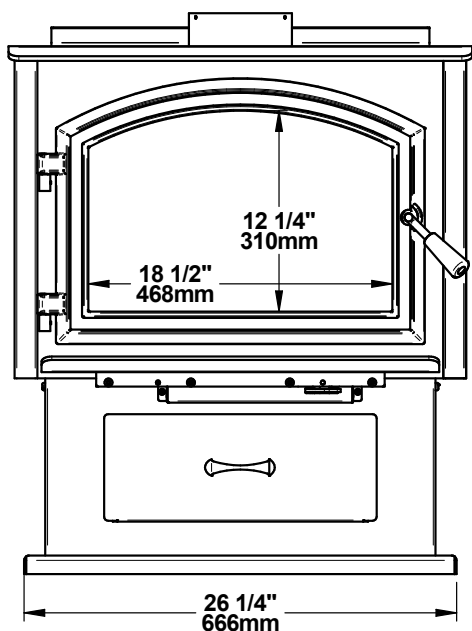


Figure 8: Vue de face

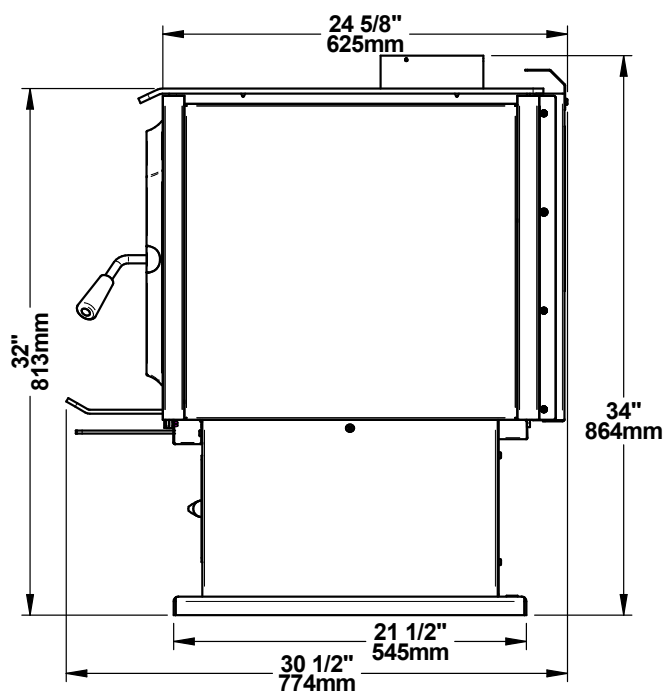


Figure 9: Vue de côté

2.3.4 Dimensions de la chambre à combustion

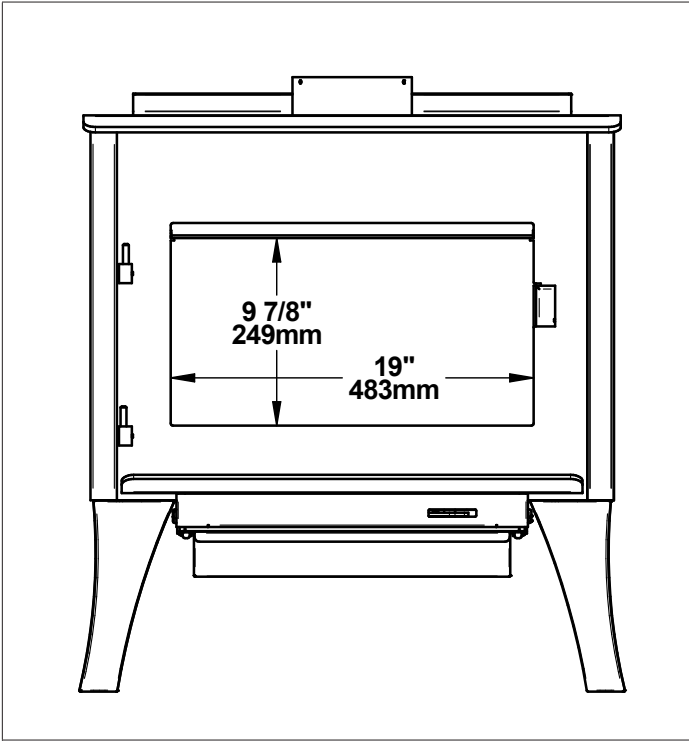


Figure 10: Ouverture de porte

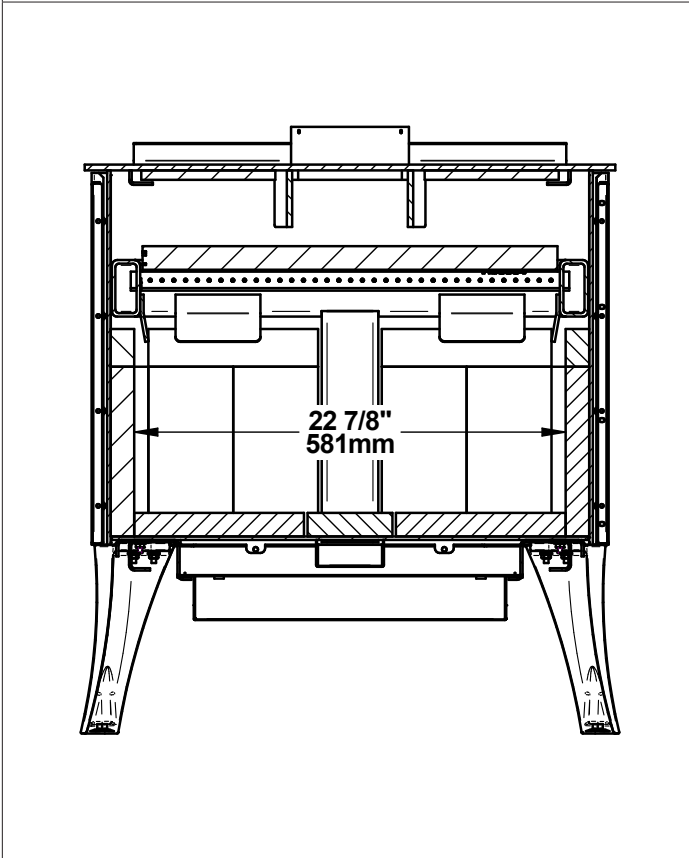


Figure 11: Vue de face - chambre à combustion

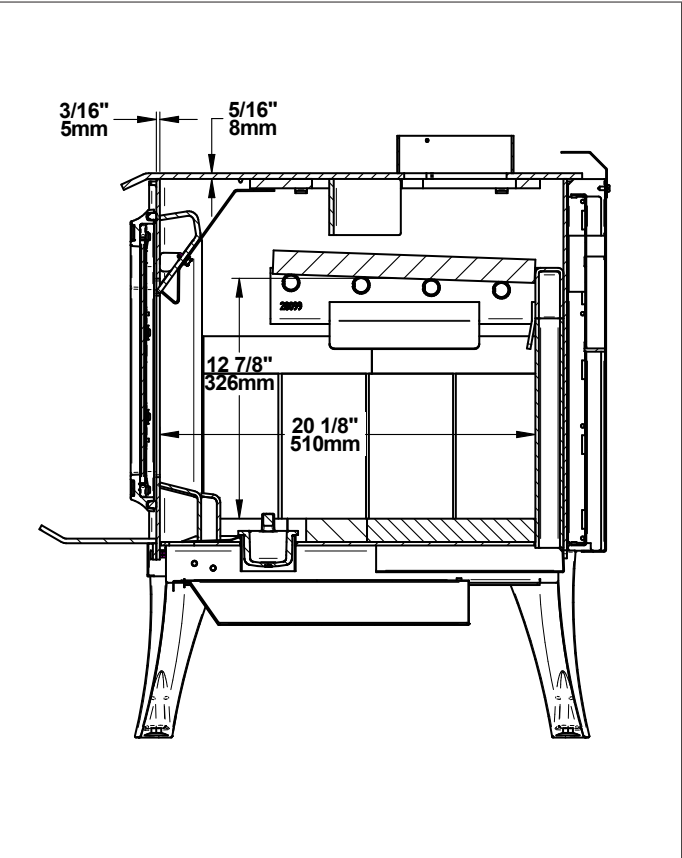


Figure 12: Vue de côté - chambre à combustion

2.4 Matériaux

Le **caisson** du poêle, qui représente la plus grande partie de son poids, est fait d'acier. Si cela devenait nécessaire dans plusieurs années, presque tout le poêle peut être recyclé en nouveaux produits, ce qui évite d'avoir à extraire du nouveau minerai.

La couche de **peinture** est très mince et sa teneur en COV (composés organiques volatils) est très basse. Les COV peuvent provoquer du smog, de sorte que toute la peinture utilisée pendant la fabrication est conforme aux plus récentes exigences sur la qualité de l'air, en ce qui a trait à la réduction ou l'élimination des COV.

Les **tubes d'air** sont faits d'acier inoxydable, qui peut aussi être recyclé.

Le **coupe-feu** est fait d'un matériau en fibres d'aluminosilicate comprimées avec un liant pour former une planche rigide. Le C-Cast peut résister à des températures de plus de 2000 °F. Il n'est pas considéré comme un déchet dangereux. Il est recommandé de les envoyer à l'écocentre.

La **brique réfractaire** est surtout composée de dioxyde de silicium, aussi appelé silice, un produit transformé à partir d'un minerai extrait. On le trouve communément dans la nature sous forme de sable ou d'argile. Il est recommandé de les envoyer à l'écocentre.

Les **joints d'étanchéité** de la porte et de la vitre sont faits de fibre de verre qui est tissée à partir de sable fondu. Les joints d'étanchéité noirs ont été trempés dans une solution sans solvants. Il est recommandé de les envoyer à l'écocentre.

La **vitre** de la porte est faite de céramique de 5/32" (4 mm) d'épais qui ne contient aucun produit chimique toxique. Elle est faite de matières premières provenant du sol comme le sable et le quartz qui sont fusionnées de façon à former de la vitre à haute température. Le verre céramique ne peut être recyclé de la même façon que le verre ordinaire, de sorte qu'il ne doit pas être recyclé avec les produits domestiques courants. Il est recommandé de l'envoyer à l'écocentre.

2.5 Chauffage par zone

Ce poêle au bois sert au chauffage local, ce qui signifie qu'il est prévu pour chauffer le secteur où il est installé, de même que les pièces qui y sont reliées, bien qu'à une température inférieure. Cela s'appelle le chauffage par zone et c'est une façon de plus en plus répandue de chauffer des résidences ou des espaces à l'intérieur des résidences.

Le chauffage par zone peut être utilisé comme appoint pour un autre système de chauffage, en chauffant un espace de la résidence en particulier, comme une salle familiale au sous-sol ou un agrandissement qui n'a pas d'autre système de chauffage.

Les maisons de grandeur moyenne et relativement neuve peuvent être chauffées à l'aide d'un poêle au bois bien situé et de la bonne grosseur. Le chauffage par zone de toute une maison fonctionne mieux lorsque le poêle est placé dans la partie de la maison où la famille passe le plus de temps. Il s'agit généralement du secteur principal où se trouvent la cuisine, la salle à manger et le salon.

En plaçant le poêle dans ce secteur, il sera possible de profiter au maximum de la chaleur qu'il produit, de retirer le maximum de confort et d'obtenir le rendement énergétique le plus élevé. La pièce la plus occupée sera plus chaude, alors que les chambres et le sous-sol (s'il y en a un) resteront plus frais. De cette façon, moins de bois est brûlé qu'avec les autres formes de chauffage.

Bien que le poêle soit capable de chauffer les secteurs principaux de la maison à une température adéquate, il est fortement recommandé d'avoir aussi un système de chauffage conventionnel au mazout, au gaz ou à l'électricité comme source de chauffage complémentaire.

Plusieurs facteurs feront en sorte que le chauffage par zone réussira, y compris le bon emplacement et la bonne grosseur du poêle, la dimension, la disposition et l'âge de la résidence, de même que la zone climatique. Les résidences secondaires utilisées trois saisons par année peuvent généralement être chauffées par des poêles plus petits que les maisons qui sont chauffées tout l'hiver.

2.6 Émissions et rendement

Les faibles émissions de particules qui résultent de la technologie utilisée dans ce poêle signifient que la maisonnée rejettera jusqu'à 90% moins de particules fines dans l'environnement que si un ancien poêle conventionnel était utilisé. Mais la technologie du contrôle des rejets signifie plus que la protection de l'environnement.

La fumée qui provient du bois lorsqu'il est chauffé contient environ la moitié de l'énergie contenue dans ce combustible. En brûlant le bois complètement, le poêle libère toute l'énergie calorifique du bois, plutôt que de la gaspiller en fumée qui s'échappe par la cheminée. De plus, les caractéristiques de la chambre à combustion permettent de réduire l'arrivée d'air afin de contrôler le rendement calorifique, tout en maintenant une flamme de combustion propre et efficace, ce qui augmente la distribution efficace de chaleur dans la maison.

Le contrôle des rejets et la technologie de combustion évoluée de ce poêle ne peuvent bien fonctionner que si le combustible utilisé contient un taux d'humidité moyen convenable de 15% à 20%. Voir la section suivante pour des suggestions sur la préparation du bois de chauffage et l'évaluation de son taux d'humidité.

3. Combustibles

Le bon bois de chauffage est celui qui a été coupé à la bonne longueur pour le poêle, fendu en différentes grosseurs et cordé à l'extérieur jusqu'à ce que sa teneur en humidité ne soit plus que de 15% à 20%.

NE PAS BRÛLER:

- **DES ORDURES;**
- **DE LA PELOUSE OU DES DÉCHETS DE JARDIN;**
- **DES MATÉRIAUX CONTENANT DU CAOUTCHOUC, Y COMPRIS LES PNEUS;**
- **DES MATÉRIAUX CONTENANT DU PLASTIQUE;**
- **DES DÉCHETS CONTENANT DU PÉTROLE, DE LA PEINTURE, DU DILUANT À PEINTURE OU DES PRODUITS À BASE D'ASPHALTE;**
- **DES MATÉRIAUX CONTENANT DE L'AMIANTE;**
- **DES DÉBRIS DE CONSTRUCTION OU DE DÉMOLITION;**
- **DES TRAVERS DE CHEMIN DE FER OU DU BOIS TRAITÉ;**
- **DU FUMIER OU DES CARCASSES D'ANIMAUX;**
- **DU BOIS D'ÉPAVE OU AUTRES MATÉRIAUX SATURÉS À L'EAU SALÉE;**
- **DU BOIS VERT; OU**
- **DES PRODUITS DU PAPIER, DU CARTON, DU CONTREPLAQUÉ OU DES PANNEAUX DE PARTICULES. L'INTERDICTION DE BRÛLER CES MATÉRIAUX N'INTERDIT PAS L'UTILISATION D'ALLUME FEU FABRIQUÉ À PARTIR DE PAPIER, DE CARTON, DE SCIURE DE BOIS, DE CIRE ET DE SUBSTANCES SIMILAIRES POUR ALLUMER UN FEU.**

BRÛLER CES MATÉRIAUX POURRAIT PRODUIRE UNE ÉMANATION DE FUMÉE TOXIQUE, RENDRE L'APPAREIL INEFFICACE ET CAUSER DE LA FUMÉE.

3.1 Essences d'arbres

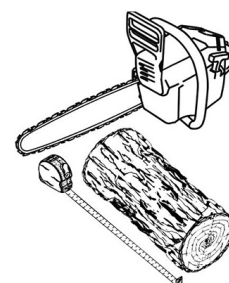
Les essences d'arbres d'où provient le bois de chauffage sont moins importantes que sa teneur en humidité. La principale différence entre les différentes essences d'arbres est la densité du bois. Le bois franc est plus dense que le bois mou.

Les propriétaires de maison qui peuvent obtenir à la fois du bois franc et du bois mou utilisent les deux sortes de bois à différentes fins. Le bois mou est un bon combustible par temps relativement doux au printemps et à l'automne parce qu'il s'enflamme rapidement et produit moins de chaleur. Le bois mou n'est pas aussi dense que le bois franc, de sorte qu'un volume donné de bois contient moins d'énergie. L'utilisation du bois mou évite de surchauffer la maison, ce qui peut être un problème répandu avec le chauffage au bois par temps doux. Le bois franc est meilleur pour les temps froids d'hiver lorsqu'il faut plus de chaleur et un cycle de combustion plus long.

Le bois franc comme le chêne, l'érable, le frêne et le hêtre prend plus de temps à pousser et vit plus longtemps que le bois mou comme le peuplier et le bouleau. Cela donne plus de valeurs aux essences de bois franc. Le conseil voulant que seul le bois franc soit bon à brûler est dépassé. Les vieux poêles à bois de fonte qui fuyaient n'auraient pas pu chauffer toute la nuit à moins qu'on ne les alimente avec de grosses bûches de bois franc.

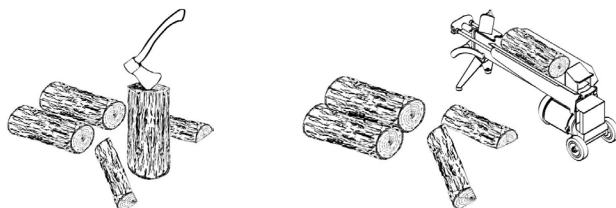
3.2 Longueur des bûches

Les bûches devraient être coupées pour avoir au moins 1" (25 mm) de moins que la chambre à combustion, de façon à y pénétrer facilement. Il est très difficile d'alimenter le poêle avec des bûches qui sont juste un peu trop longues. La longueur la plus commune pour le bois de chauffage est de 16" (400 mm.)



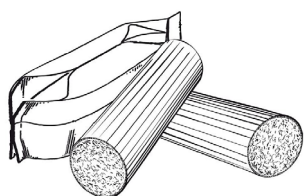
3.3 Grosseur des bûches

Le bois de chauffage sèche plus rapidement lorsqu'il est fendu. Les gros rondins qui ne sont pas fendus peuvent mettre des années à sécher suffisamment pour qu'on puisse les brûler. Même lorsqu'elles sont sèches, les bûches non fendues sont difficiles à allumer parce qu'elles n'ont pas d'arêtes vives où les flammes prennent en premier.



Le bois devrait être fendu de différentes grosseurs, allant de 3" à 6" (75 mm à 150 mm) d'épaisseur. Il est beaucoup plus facile d'allumer et de raviver un feu avec des bûches de différentes grosseurs.

3.4 Bûches densifiées



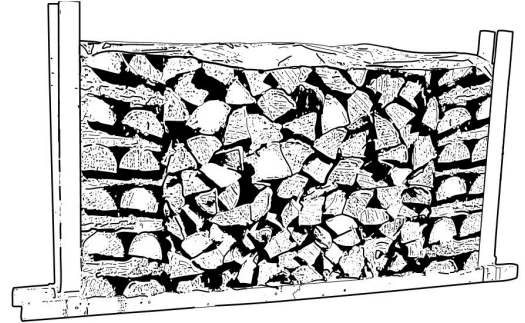
Les bûches densifiées faites à 100 % de sciure comprimée peuvent être brûlées, à condition de ne pas brûler trop de ces bûches à la fois. Ne pas brûler de bûches densifiées contenant de la sciure imprégnée de cire ou de bûches contenant des additifs chimiques. Suivre les instructions et les mises en garde du fabricant.

3.5 Séchage du bois

Le bois de chauffage qui n'est pas suffisamment sec est la cause de la plupart des plaintes concernant les appareils de chauffage au bois. Brûler constamment du bois vert produit plus de créosote et implique généralement un manque de chaleur et des vitres de porte sales. Du bois de chauffage avec une teneur en humidité de 15% à 20% permettra au poêle d'atteindre son rendement le plus élevé.

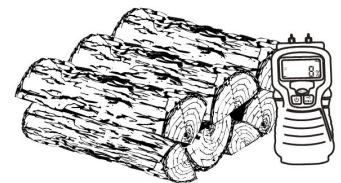
Voici quelques faits à retenir sur le processus de séchage du bois:

- Le bois de chauffage acheté d'un vendeur est rarement suffisamment sec pour être brûlé, il est donc conseillé d'acheter le bois au printemps et de le faire sécher soi-même;
- Le séchage est plus rapide dans un climat sec que dans un climat maritime humide;
- Le séchage est plus rapide l'été par temps chaud que l'hiver;
- Les bûches fendues sèchent plus rapidement que le bois rond;
- Le bois mou sèche comme le pin, l'épinette, le peuplier et le tremble plus rapidement que le bois franc. Il peut être suffisamment sec pour faire du feu après avoir été cordé à l'extérieur seulement pendant les mois d'été;
- Le bois franc comme le chêne, l'érable et le frêne peut mettre un ou même deux ans à sécher complètement, surtout s'il s'agit de grosses bûches;
- Le bois de chauffage sèche plus rapidement lorsqu'il est cordé à l'extérieur où il est exposé au soleil et au vent; il prend beaucoup plus de temps à sécher lorsqu'il est cordé dans une remise à bois;



Le bois de chauffage est suffisamment sec pour brûler, lorsque :

- des fissures apparaissent à l'extrémité des bûches;
- le bois passe d'une coloration blanche ou crèmeuse à gris ou jaune;
- deux morceaux de bois frappés ensemble sonnent creux;
- la face mise à jour d'une bûche fraîchement coupée semble chaude et sèche au toucher;
- le taux d'humidité lu sur un humidimètre est entre 15% à 20%.



4. Utilisation du poêle



Le taux de combustion minimum de ce poêle à bois a été défini par le fabricant et ne doit pas être modifié. Il est contre la réglementation fédérale de modifier ce réglage ou d'utiliser ce poêle à bois d'une manière non conforme aux instructions d'utilisation de ce manuel.

Avant d'utiliser le poêle, les étapes suivantes devraient être complétées :

- Installer l'ensemble de pattes (voir "[Annexe 1: Installation des pattes](#)") ou le piédestal (voir "[Annexe 2: Installation du piédestal](#)").
- Installer le revêtement de porte (voir "[Annexe 3: Installation du revêtement de porte](#)").

Les étapes suivantes sont optionnelles :

- Installer l'échangeur de chaleur supérieur (voir ["Annexe 5: Installation de l'échangeur de chaleur supérieur optionnel"](#)).
- Installer l'entrée d'air frais (voir ["Annexe 6: Installation d'un ensemble d'entrée d'air frais optionnel"](#)).
- Installer le ventilateur (voir ["Annexe 8: Installation du ventilateur optionnel"](#)).
- Installer le thermodisque (voir ["Annexe 9: Installation du thermodisque optionnel"](#)).

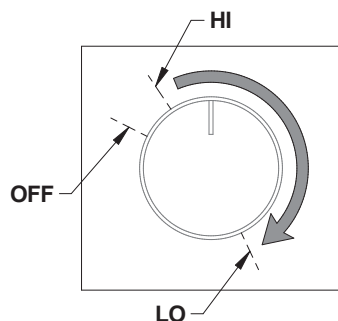
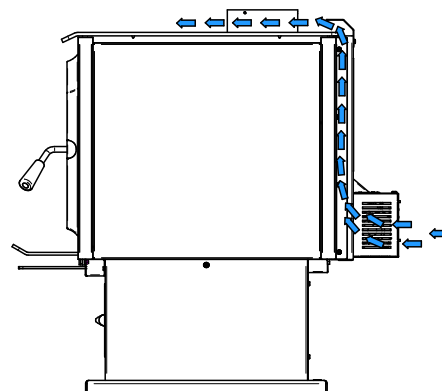
4.1 Fonctionnement du ventilateur

Il est possible d'installer un ventilateur sur cet appareil. Le ventilateur est optionnel et est vendu séparément. Voir ["Annexe 12: Vue éclatée et liste de pièces"](#) pour le numéro de pièce original. Le ventilateur doit être installé à l'arrière du poêle. Voir ["Annexe 8: Installation du ventilateur optionnel"](#). Pour les instructions. Le ventilateur sert à accroître la circulation d'air dans l'échangeur de chaleur et à améliorer la circulation d'air chaud dans la pièce.

S'il est utilisé sur une base régulière, le ventilateur peut accroître le rendement jusqu'à 2%. Cependant, le ventilateur ne doit pas servir à augmenter le rendement d'un poêle trop petit pour l'espace à chauffer.



Le cordon électrique du ventilateur ne doit toucher à aucune des surfaces du poêle de façon à éviter les décharges électriques ou les incendies. Ne faites pas passer le cordon électrique sous le poêle.



Le ventilateur est muni d'un contrôle de vitesse variable comprenant trois différentes positions d'ajustement; soit d'élevé (HI) à faible (LO), ou fermé (OFF).

Il est recommandé de laisser le poêle atteindre sa température de fonctionnement (environ une heure) avant d'actionner le ventilateur. L'augmentation du courant d'air produit par le ventilateur refroidit la chambre à combustion et peut nuire au rendement d'un début de combustion si le ventilateur démarre trop tôt.

Il est aussi possible d'installer un thermodisque qui fonctionne avec le ventilateur. Le thermodisque est optionnel et vendu séparément. Il doit être installé à l'arrière du poêle. Voir ["Annexe 9: Installation du thermodisque optionnel"](#). Lorsque le ventilateur est en marche (position entre LO et HI), le thermodisque mettra le ventilateur en marche automatiquement lorsque le poêle sera assez chaud et l'arrêtera lorsque le poêle aura refroidi. Par conséquent, le contrôle de vitesse variable peut être laissé à la vitesse désirée.

4.2 Utilisation d'un pare-étincelles

Ce poêle a été mis à l'essai pour être utilisé la porte ouverte avec un pare-étincelles, vendu séparément. Le pare-étincelles doit être bien fixé à l'appareil pour éviter que des étincelles endommagent le revêtement de sol. Lorsque le pare-étincelles est utilisé, il est important de ne pas laisser le poêle sans surveillance afin de pouvoir réagir promptement dans l'éventualité d'un retour de fumée dans la pièce. Les causes potentielles de retour de fumée sont décrites à la section ["9. Le système d'évacuation"](#) de ce manuel. Voir ["Annexe 7: Installation du pare-étincelles optionnel"](#), pour les instructions d'installation.

L'utilisation du pare-étincelles augmente les chances de générer du monoxyde de carbone. Le monoxyde de carbone est un gaz inodore qui est hautement toxique et qui peut entraîner la mort lorsqu'il est en forte concentration dans l'air. L'installation d'un détecteur de CO est fortement recommandée.

5. Combustion efficace du bois

5.1 Première utilisation

Deux choses se produisent lors des premières attisées: la peinture durcit et les composantes intérieures se conditionnent. Au fur et à mesure que la peinture durcit, certains éléments chimiques se vaporisent. Les vapeurs ne sont pas nocives, mais elles sentent mauvais. Les vapeurs de peinture fraîche peuvent aussi déclencher de fausses alarmes dans les détecteurs de fumée. Par conséquent, lors du premier allumage, il peut être judicieux d'ouvrir les portes et les fenêtres pour ventiler la maison.

Faire deux ou trois petits feux pour amorcer le processus de durcissement et de conditionnement. Faire ensuite des feux plus gros et plus chauds jusqu'à ce que l'appareil ne dégage plus d'odeur de peinture. Plus les feux sont chauds, plus les surfaces peintes atteignent le point de durcissement de la peinture. L'odeur de la peinture qui durcit ne disparaîtra qu'après avoir fait un ou deux feux très chauds.

5.2 Allumer un feu

Chaque personne qui chauffe au bois développe sa façon préférée de faire du feu. Peu importe la méthode choisie, le but devrait être d'avoir un feu chaud, rapidement. Un feu qui prend rapidement produit moins de fumée et crée moins de créosote dans la cheminée.



Ne pas utiliser de liquides inflammables comme l'essence, le naphte, le mazout, l'huile à moteur ou des aérosols pour allumer ou raviver le feu. Tenir ces liquides éloignés du poêle lors de son utilisation.

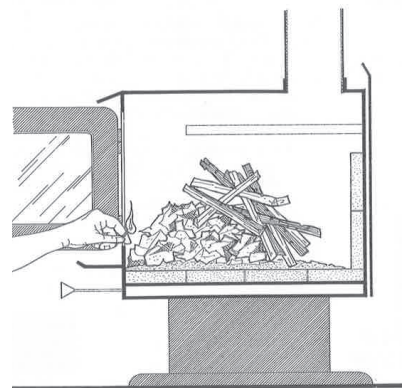
Voici trois façons répandues et efficaces pour faire un feu de bois.

5.2.1 Méthode traditionnelle

La méthode traditionnelle pour faire un feu de bois est de chiffonner 5 à 10 feuilles de papier journal, les placer dans la chambre à combustion et les maintenir en place avec une dizaine de morceaux de bois d'allumage. Le bois d'allumage devrait être placé sur et derrière le papier journal.

Ajouter ensuite deux ou trois petits morceaux de bois de chauffage. Ouvrir le contrôle d'admission d'air complètement et allumer le papier journal. Laisser la porte légèrement entrouverte.

Lorsque le feu est allumé, fermer la porte en conservant le contrôle d'admission d'air ouvert. Lorsque le bois d'allumage est presque entièrement brûlé, ajouter des morceaux de bois jusqu'à ce que le feu soit bien parti.



L'appareil ne doit pas être laissé sans surveillance lorsque la porte est légèrement ouverte. Toujours fermer et verrouiller la porte lorsque le feu est allumé.

5.2.2 *Méthode du feu descendant*

Cette méthode procède à l'inverse de la méthode traditionnelle et ne fonctionne que si du bois très sec est utilisé.

Placer trois ou quatre petites bûches fendues et sèches dans la chambre à combustion. Disposer le bois d'allumage sur les bûches en deux couches à angles droits et placer une dizaine d'éclats fins sur la deuxième rangée. Il est possible d'utiliser du papier chiffonné, mais il risque de ne pas tenir en place puisqu'il a tendance à rouler pendant qu'il brûle. Le mieux est d'enrouler une feuille sur elle-même, de saisir les extrémités du rouleau et de faire un noeud. Utiliser quatre ou cinq feuilles de papier ainsi nouées et les mettre sur le dessus et autour du bois d'allumage. Ouvrir complètement le contrôle d'admission d'air, mettre le feu au papier et refermer la porte.

La méthode du feu descendant présente deux avantages par rapport à la méthode traditionnelle: tout d'abord, le feu ne s'effondre pas sur lui-même, et il n'est pas nécessaire de grossir le feu graduellement puisque la chambre à combustion est pleine avant que le feu soit allumé.

5.2.3 *Deux bûches parallèles*

Placer deux bûches fendues dans la chambre à combustion, avec quelques feuilles de papier journal tordu entre les bûches. Placer quelques éclats fins de travers sur les bûches et des éclats plus gros par-dessus, comme une cabane en bois rond. Allumer le papier journal.

5.2.4 *Utilisation des allume-feu*

Des allume-feu commerciaux peuvent être utilisés plutôt que du papier journal. Certains de ces allume-feu sont faits de sciure et de cire et d'autres sont faits de produits chimiques spéciaux inflammables. Toujours suivre les instructions sur l'emballage lors de l'utilisation. Un allume-feu en gel peut aussi être utilisé, mais seulement pour allumer un feu, dans une chambre à combustion froide et sans braises chaudes à l'intérieur.

5.3 *Cycle de combustion*

Le chauffage au bois par zone est très différent des autres types de chauffage. Il y aura des différences de température dans différents endroits de la maison et il y aura des variations de température le jour et la nuit. Cela est normal et pour les gens qui ont de l'expérience dans le chauffage au bois, ce sont les avantages du chauffage au bois par zones.

Un appareil au bois ne produit pas une chaleur stable. Il est normal que la température augmente après qu'une nouvelle charge de bois soit allumée et que la température diminue graduellement tout au long du cycle de combustion. L'augmentation et la diminution de la température peuvent être synchronisées avec la routine domestique. Par exemple, la température de la zone peut être plus fraîche lorsque la maisonnée est active et plus chaude lorsqu'elle est inactive.

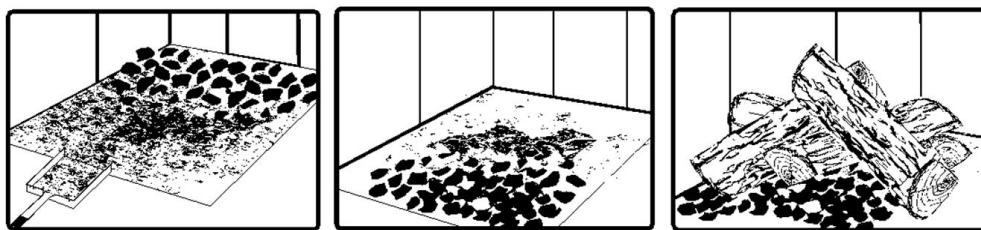
Le bois brûle mieux en cycles. Un cycle commence lorsqu'une nouvelle charge de bois est allumée par les braises chaudes et se termine lorsque celle-ci est consommée et qu'il n'en reste que des braises de la grosseur de celles qui se trouvaient dans le feu lorsque le bois a été rajouté. Il est déconseillé d'essayer d'obtenir un dégagement de chaleur stable en plaçant une seule bûche dans le feu à intervalles réguliers. Mettre au moins trois bûches à la fois et plus de préférence, de sorte que la chaleur produite par une bûche aide à allumer ses voisines. Chaque charge de bois devrait fournir plusieurs heures de chauffage. La grosseur de chaque charge peut varier selon la quantité de chaleur nécessaire.

En alimentant le feu par cycles, la porte est ouverte moins souvent durant la combustion du bois. Ceci est un avantage puisqu'il évite que de la fumée s'échappe de l'appareil lors de l'ouverture de la porte durant un cycle de combustion. Ceci est particulièrement vrai si la cheminée est fixée au mur extérieur de la maison.

Si la porte doit être ouverte durant un cycle de combustion, ouvrir le contrôle d'admission d'air complètement, puis ouvrir la porte lentement.

5.4 Raviver un feu

Lorsque la température de la pièce est plus basse et qu'il ne reste que des braises, il est temps de remettre une charge de bois. La plupart des braises restantes seront situées au fond de la chambre à combustion. Retirer l'excès de cendres à l'avant de la chambre à combustion, puis déplacer les braises vers l'avant avant de remettre du bois. Placer la nouvelle charge de bois sur, et à l'arrière des braises. Ouvrir le contrôle d'air complètement et fermer la porte.



Le déplacement des braises est utile pour deux raisons. Tout d'abord, cela les rassemble près de l'endroit où la plus grande partie de l'air entre dans la chambre à combustion. Elles enflammeront donc la nouvelle charge rapidement. Deuxièmement, les braises ne seront pas étouffées par la nouvelle charge de bois. Lorsque les braises sont simplement étalées, la nouvelle charge brûle en amortissant longtemps avant de s'enflammer.

Fermer le contrôle d'air seulement lorsque les flammes envahissent toute la chambre à combustion, que le bois est noirci et que ses rebords sont rougeoyants.

L'appareil ne doit pas être laissé sans surveillance lors de l'allumage et le feu ne devrait pas brûler à pleine intensité plus de quelques minutes.

Lors de l'allumage d'une nouvelle charge, l'appareil produit une poussée de chaleur. Cette poussée de chaleur est agréable lorsque la température de la pièce est fraîche, mais peut être désagréable lorsque la pièce est déjà chaude. Par conséquent, il est préférable de laisser chaque charge de bois brûler complètement afin que la pièce refroidisse avant de remettre une charge de bois.

5.5 Retirer la cendre

La cendre doit être retirée de la chambre à combustion tous les deux ou trois jours environ en période de chauffage à temps plein. La cendre ne doit pas s'accumuler de façon excessive dans la chambre à combustion puisqu'elle nuira au bon fonctionnement de l'appareil.

Le meilleur moment pour retirer la cendre est le matin, après avoir chauffé toute la nuit lorsque l'appareil est relativement froid, mais qu'il y a encore un peu de tirage pour aspirer la poussière de cendres vers l'intérieur de l'appareil et l'empêcher de sortir dans la pièce.

La cendre doit être placée dans un contenant métallique avec un couverct étanche. Le contenant doit être déposé sur un plancher non combustible ou sur le sol loin de tout matériau inflammable. Les cendres peuvent contenir des braises brûlantes qui peuvent rester chaudes pendant plusieurs jours et qui libèrent du monoxyde de carbone. Si les cendres sont disposées par enfouissement dans le sol ou dispersées sur place, elles devraient être maintenues dans le contenant métallique fermé, jusqu'à ce qu'elles soient complètement refroidies. Aucun autre déchet ne doit être placé dans ce contenant.

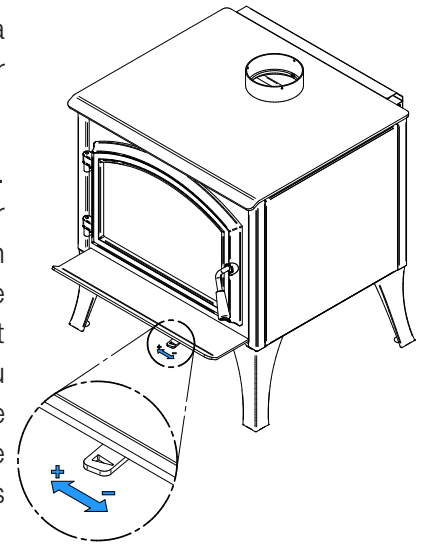


LES CENDRES NE DEVRAIENT JAMAIS ÊTRE CONSERVÉES À L'INTÉRIEUR, NI DANS UN CONTENANT NON MÉTALLIQUE NI SUR UNE GALERIE EN BOIS.

5.6 Contrôle de l'admission d'air

Lorsque le bois de chauffage, la chambre à combustion et la cheminée sont chauds, l'admission d'air peut être réduite pour obtenir une combustion stable.

Lorsque l'admission d'air est réduite, le taux de combustion diminue. Ceci a pour effet de répartir l'énergie thermique du combustible sur une plus grande période de temps. De plus, le taux d'évacuation de l'appareil et de la cheminée ralentit, ce qui augmente la durée du transfert d'énergie des gaz évacués. Plus l'admission d'air est réduite, plus les flammes diminuent. Si les flammes diminuent au point de disparaître, c'est que l'air a été réduit trop tôt dans le cycle de combustion ou que le bois utilisé est trop humide. Si le bois est sec et que le contrôle d'air est utilisé correctement, les flammes devraient diminuer, mais rester vives et stables.



D'un autre côté, une trop grande admission d'air peut rendre le feu incontrôlable, créant des températures très élevées dans l'appareil ainsi que dans la cheminée et les endommager sérieusement. Une lueur rougeâtre sur l'appareil ainsi que sur les composants de la cheminée indique une surchauffe. Des températures excessives peuvent provoquer un feu de cheminée.

5.7 Types de feux

L'utilisation du contrôle de l'admission d'air n'est pas la seule façon de synchroniser le rendement thermique de l'appareil et les besoins en chauffage. Une maison nécessite beaucoup moins de chauffage en octobre qu'en janvier pour conserver une température confortable. Une chambre à combustion remplie en automne surchauffera la pièce. Sinon, la combustion devra être réduite au minimum et le feu brûlera en amortissant et sera inefficace. *Voici quelques suggestions pour faire des feux convenant à différents besoins de chauffage.*

5.7.1 Feu éclair

Pour faire un petit feu qui produira peu de chaleur et qui chassera l'humidité de la maison, utiliser de petits morceaux de bois, placés en croisé dans la chambre à combustion. Les morceaux ne devraient avoir que 3" (80 mm) ou 4" (100 mm) de diamètre. Lorsque les braises sont ramenées à l'avant, placer deux morceaux l'un à côté de l'autre, en diagonale dans la chambre à combustion, puis deux autres par-dessus en croisé. Ouvrir le contrôle d'air complètement et ne réduire l'air qu'une fois le bois totalement enflammé.

Ce type de feu est bon pour les températures modérées et devrait fournir suffisamment de chaleur pendant environ quatre heures. C'est le bon moment pour utiliser du bois mou et éviter de surchauffer la maison.

5.7.2 Feu de longue durée

Pour avoir un feu qui durera jusqu'à huit heures, mais qui ne produira pas de chaleur intense, utiliser du bois mou et placer les bûches de façon compacte dans la chambre à combustion. Avant de réduire l'admission d'air, la charge devra brûler à pleine chaleur pendant assez longtemps pour que la surface des bûches devienne complètement noircie. La flamme doit être vive avant de laisser le feu brûler par lui-même.

5.7.3 Feu par temps froid

Lorsque les besoins de chauffage sont élevés par temps froid, le feu devra être stable et vif. C'est le temps de brûler de grosses bûches de bois franc. Placer les plus grosses bûches au fond de la chambre à combustion et placer le reste des bûches de façon compacte. Un feu aussi dense produira la combustion la plus longue que le poêle peut donner.

Une attention particulière doit être apportée en faisant ce type de feu, puisque si l'admission d'air est réduite trop vite, le feu brûlera en amortissant. La flamme doit être vive avant de laisser le feu brûler par lui-même.

5.7.4 Temps de combustion

Le temps de combustion est la période entre l'ajout de bois sur un lit de braises et la combustion de ce bois en braises de même dimension. La phase des flammes du feu est la première partie du cycle de combustion et la deuxième partie est la phase des braises, pendant laquelle il y a peu ou pas de flamme.

La durée de combustion dont est capable ce poêle, comprenant les deux phases, variera selon des éléments comme :

- la dimension de la chambre à combustion;
- la quantité de bois;
- l'essence du bois de chauffage;
- la teneur en humidité du bois;
- la dimension de la pièce à chauffer;
- la zone climatique où se trouve l'habitation; et
- la période de l'année.

Le tableau suivant donne un temps approximatif de combustion maximum, selon le volume de la chambre à combustion.

Tableau 1 : Temps approximatif de combustion maximum

VOLUME DE LA CHAMBRE À COMBUSTION	TEMPS DE COMBUSTION MAXIMUM
< 1.5 pi. cu.	3 à 5 heures
1.5 pi. cu. à 2 pi. cu	5 à 6 heures
2 pi. cu. à 2.5 pi. cu.	6 à 8 heures
2.5 pi. cu. à 3.0 pi. cu.	8 à 9 heures
>3.0 pi. cu	9 à 10 heures

Un temps de combustion plus long n'indique pas nécessairement que le rendement de l'appareil est bon.

Il est préférable de faire de petits feux qui fourniront de trois à quatre heures de chaleur, plutôt que de remplir la chambre à combustion pour avoir une combustion plus longue. Il est plus facile d'ajuster la quantité de chaleur nécessaire au besoin de chauffage de la pièce avec des cycles de combustion plus courts.

5.7.5 Orientation des bûches

Dans une chambre à combustion relativement carrée, le bois peut être placé droit (extrémité des bûches visible) ou sur le côté (côté des bûches visible).

Les charges placées droites permettent une plus grande quantité de bois à la fois. Par contre, elles se brisent en petits morceaux plus rapidement. Ce type de chargement est utile pour des feux à haut rendement qui durent longtemps par temps froid. Les charges sur le côté permettent une quantité limitée de bois puisqu'une trop grande quantité de bûches risquerait de les faire tomber sur la vitre. Placées de façon compacte, elles mettent longtemps avant de se défaire. Elles sont excellentes pour des feux à basse intensité, qui durent longtemps par temps relativement doux.

5.7.6 Monoxyde de carbone

Lorsqu'il reste des bûches non brûlées dans la chambre à combustion et que la flamme disparaît, sortir à l'extérieur et regarder la sortie de la cheminée. S'il y a de la fumée visible, cela signifie qu'il reste du combustible à brûler, mais que le feu manque d'air pour brûler correctement. Dans cette situation, le taux de CO augmentera. Il est donc important de réagir. Ouvrir légèrement la porte et déplacer la bûche avec un tisonnier. Retournez-la et créer un passage pour l'air en dessous, en faisant une tranchée avec le lit de charbon. Ajouter de petits morceaux de bois pour redémarrer la combustion.

6. Entretien

Cet appareil donnera des années de bon service s'il est utilisé et entretenu correctement. Les composants internes de la chambre à combustion, comme les briques réfractaires, le coupe-feu et les tubes d'air s'useront avec le temps. Les pièces défectueuses devraient toujours être remplacées par des pièces d'origine. Pour éviter la détérioration prématurée, suivre les directives d'allumage et de recharge présentée à la section ["5. Combustion efficace du bois"](#) et éviter de faire fonctionner l'appareil avec le contrôle d'air complètement ouvert durant des cycles de combustion complets.

6.1 Nettoyage et peinture

Les surfaces peintes ou plaquées peuvent être essuyées avec un linge doux et humide. Si la peinture est rayée ou endommagée, il est possible de repeindre l'appareil à l'aide d'une peinture résistante à la chaleur. **Ne pas nettoyer ou peindre l'appareil lorsqu'il est chaud.** Avant de peindre, la surface doit être poncée légèrement à l'aide de papier sablé et par la suite essuyée pour enlever la poussière. Appliquer deux minces couches de peinture.

6.2 Matériaux réfractaires et coupe-feu

Inspecter les briques ou les pierres réfractaires et le coupe-feu périodiquement. Remplacer ce qui est cassé ou endommagé.

L'utilisation de l'appareil avec un coupe-feu endommagé ou manquant pourrait créer des températures et des conditions dangereuses et annulera la garantie.

6.3 Vitre

6.3.1 Nettoyage

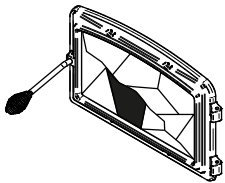
Dans des conditions normales, la vitre devrait rester relativement propre. Si le bois de chauffage est suffisamment sec et que les instructions d'utilisation de ce manuel sont suivies, il se formera un dépôt blanchâtre et poussiéreux sur la surface intérieure de la vitre après environ une semaine d'utilisation. Cela est normal et s'enlève facilement lorsque l'appareil est froid, en essuyant la vitre à l'aide d'un linge humide ou d'un essuie-tout, puis en l'asséchant.

Lorsque le poêle fonctionne à bas régime, il se peut qu'il se forme des taches brun pâle, surtout dans les coins inférieurs de la vitre. Cela indique que le bois brûle en fumant et qu'une partie de la fumée s'est condensée sur la vitre.

Ces taches indiquent aussi une combustion incomplète du bois, ce qui signifie aussi plus de rejets de fumée et une formation plus rapide de crésote dans la cheminée. Les dépôts qui se forment sur la vitre sont la meilleure indication de la qualité du combustible et de la réussite à bien utiliser le poêle. Ces taches peuvent être nettoyées à l'aide d'un nettoyant spécial pour vitre de poêle à bois.

Ne pas utiliser de produits abrasifs pour nettoyer la vitre.

Le but devrait être d'avoir une vitre propre, sans taches brunes. Si des taches brunes se forment régulièrement sur la vitre, quelque chose doit être changé soit dans la façon d'opérer l'appareil soit dans le combustible. Lorsque les traces brunes proviennent du rebord de la vitre, il est temps de changer le joint d'étanchéité autour de la vitre. Le joint d'étanchéité doit être auto-adhésif. Toujours remplacer le joint d'étanchéité par un autre d'origine.



Ne pas nettoyer la vitre lorsque le poêle est chaud.

Ne jamais faire un usage abusif de la porte en la frappant ou en la claquant.

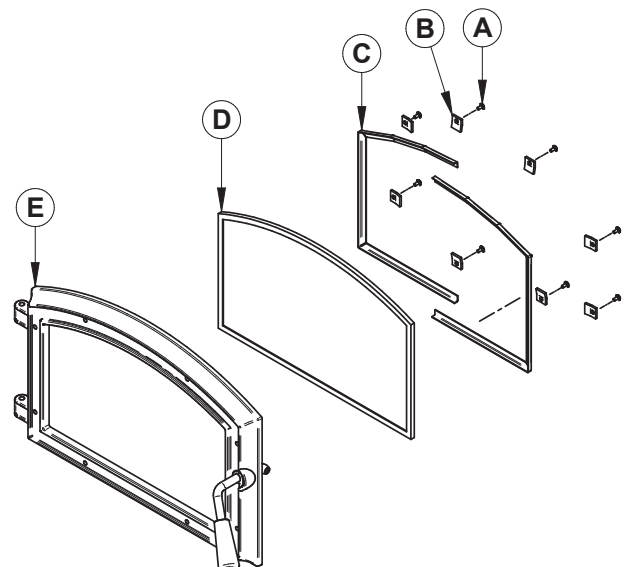
Ne pas utiliser l'appareil si la vitre est craquée ou brisée.

6.3.2 Remplacement

La vitre utilisée est un verre céramique 5/32" (4 mm) d'épaisseur, 18½" x 12 ¼" (468 mm x 310 mm), testée pour des températures pouvant atteindre 1400 °F. Si la vitre se brise, il faudra la remplacer avec un verre céramique ayant les mêmes spécifications.

Pour retirer ou remplacer la vitre **(D)**:

1. Soulever la porte **(E)** pour la retirer de ses pentures et la déposer sur une surface douce et plane.
2. Retirer les vis **(A)**, les dispositifs de retenue de vitre **(B)**, ainsi que les cadres retiens vitre en métal **(C)**.
3. Retirer la vitre. Si elle est endommagée, installer une nouvelle vitre en place. La nouvelle vitre doit avoir un joint d'étanchéité tout le tour. Voir la procédure d'installation.
4. Réinstaller la vitre, en prenant soin de bien la centrer dans la porte. Ne pas trop serrer les vis.

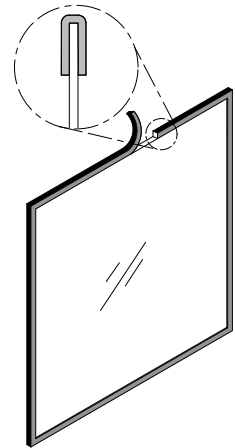


Les deux principales causes de bris de vitre sont un positionnement inégal dans la porte et des vis de rétention trop serrées.

6.3.3 Joint d'étanchéité

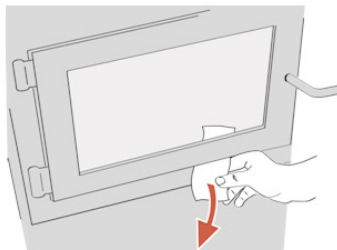
Le nouveau joint est plat, encollé et est fait de fibre de verre tressée. Le joint doit être centré sur la vitre.

1. Suivre les instructions de la section précédente pour retirer la vitre. Retirer le vieux joint d'étanchéité et laver la vitre soigneusement.
2. Retirer une partie du papier qui recouvre l'adhésif et placer le joint sur une table, adhésif vers le haut.
3. Coller l'extrémité du joint au milieu d'un des côtés de la vitre, puis presser la vitre sur le joint, en prenant soin de bien la centrer sur le joint.
4. Retirer une plus grande partie du papier et tourner la vitre. Le joint ne doit pas être étiré durant l'installation.
5. Couper le joint à la longueur nécessaire. Pincer le joint sur la vitre en faisant chevaucher le rebord, sur tout le pourtour.



FRANÇAIS

6.4 Porte



Afin d'obtenir un rendement optimal, la porte doit être parfaitement étanche avec la chambre à combustion. L'étanchéité de la porte peut être vérifiée en fermant et en verrouillant la porte sur un bout de papier. Le tour complet de la porte doit être vérifié. Si le papier glisse facilement à n'importe quel endroit, il faut soit ajuster la porte ou remplacer le joint d'étanchéité.

6.4.1 Ajustement

L'étanchéité de la porte peut être améliorée avec un ajustement simple du mécanisme de verrouillage :

1. Retirer la goupille de retenue fendue en tirant et tournant à l'aide d'une pince.
2. Tourner la poignée d'un tour dans le sens contraire des aiguilles d'une montre afin d'augmenter la pression entre le cadrage de la porte et la structure du poêle.
3. Réinstaller la goupille de retenue fendue en utilisant un petit marteau.

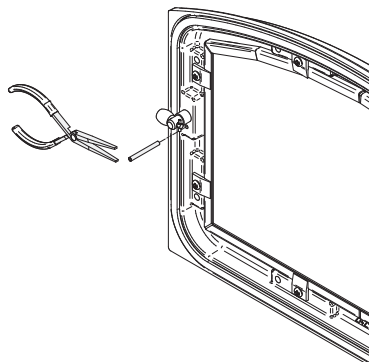


Figure 13: Retrait de la goupille de retenue

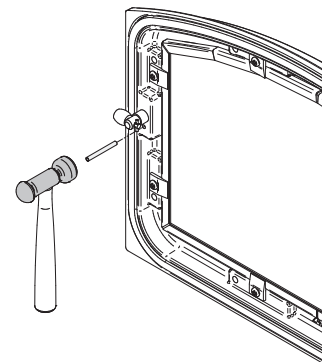
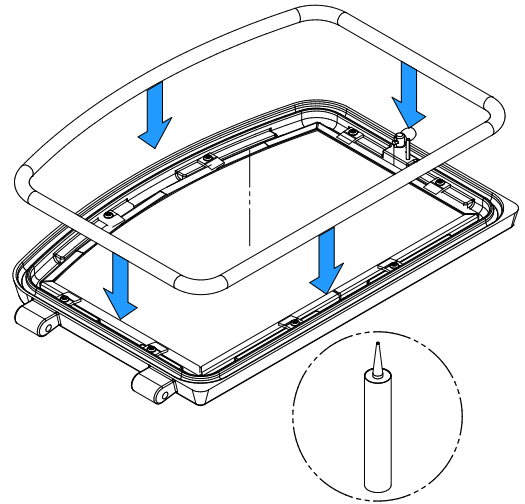


Figure 14: Installation de la goupille de retenue

6.4.2 Joint d'étanchéité

Il est important de remplacer le joint d'étanchéité avec un autre ayant le même diamètre et la même densité afin de conserver une bonne étanchéité.

1. Retirer la porte et la placer face vers le bas sur une surface douce comme un torchon ou un morceau de tapis.
2. Retirer le vieux joint d'étanchéité de la porte. Utiliser un tournevis pour gratter la vieille colle à joint qui se trouve dans la rainure de la porte.
3. Appliquer un cordon d'environ 3/16" (5 mm) de silicone haute température dans la rainure de la porte. En partant du centre, côté charnières, installer le joint dans la rainure. Le joint ne doit pas être étiré lors de l'installation.
4. Laisser environ 1/2" (10 mm) de joint dépasser au moment de le couper et pousser l'extrémité dans la rainure. Repousser les fibres qui dépassent sous le joint vers le silicone.
5. Fermer la porte. Ne pas utiliser le poêle pendant 24 heures.



6.5 Système d'évacuation

La fumée de bois se condense à l'intérieur de la cheminée, formant un dépôt inflammable appelé créosote. Lorsque la créosote s'accumule dans le système d'évacuation, elle peut s'enflammer lorsqu'un feu très chaud est fait dans le poêle. Un feu extrêmement chaud peut progresser jusqu'à l'extrémité de la cheminée. De graves feux de cheminée peuvent endommager même les meilleures cheminées. Des feux fumants peuvent rapidement causer la formation d'une épaisse couche de créosote. Lors d'une bonne combustion, les gaz sortant de la cheminée sont presque transparents, donc la créosote se forme plus lentement.

«Créosote - Formation et nécessité de la retirer

Lorsque le bois brûle lentement, il produit du goudron et d'autres vapeurs organiques qui se combinent à la vapeur d'eau évacuée pour former de la créosote. Ces vapeurs se condensent dans un conduit de cheminée relativement froid d'un appareil qui brûle lentement. Par conséquent, les résidus de créosote s'accumulent dans le conduit. Lorsqu'elle prend feu, la créosote produit un feu extrêmement chaud.

Le raccord de cheminée et la cheminée doivent être inspectés au moins une fois tous les deux mois pendant la saison de chauffage pour déterminer si une accumulation de créosote s'est produite. Si la créosote s'est accumulée (1/8" [3mm] ou plus), il faut l'enlever pour réduire le risque de feu de cheminée »

6.5.1 Fréquence de nettoyage

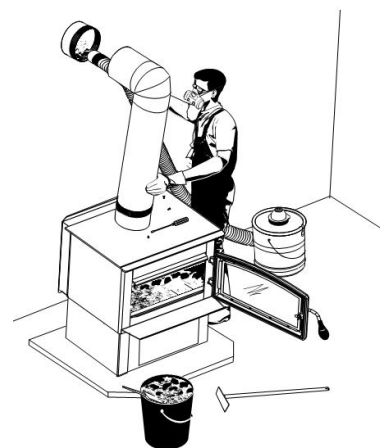
Il n'est pas possible de prédire en combien de temps ou combien de créosote se formera dans la cheminée. Il est important, par conséquent, de vérifier mensuellement s'il y a des dépôts dans la cheminée, jusqu'à ce que le taux de formation de la créosote soit connu. Même si la créosote se forme lentement dans le système, la cheminée devrait être inspectée et nettoyée au moins une fois par année.

Établir une routine pour le bois, le poêle à bois et la technique d'allumage. Vérifier quotidiennement l'accumulation de créosote jusqu'à ce que l'expérience montre à quelle fréquence le nettoyage doit être fait. Plus le feu est chaud, moins de créosote est déposée. Un nettoyage hebdomadaire peut être nécessaire par temps doux, bien qu'un nettoyage mensuel puisse être suffisant pendant les mois les plus froids. Contacter les services d'incendie municipaux ou provinciaux de la région pour savoir comment gérer un feu de cheminée. Avoir un plan bien compris pour gérer un feu de cheminée.

6.5.2 Ramonage de la cheminée

Le ramonage de la cheminée peut être difficile et dangereux. Les personnes n'ayant pas d'expérience dans le ramonage de cheminées préféreront souvent engager un ramoneur professionnel pour inspecter et nettoyer le système pour la première fois. Après avoir vu comment se déroule le ramonage, certains choisiront de le faire eux-mêmes. La cheminée devrait être vérifiée régulièrement afin d'éviter une accumulation de créosote.

L'inspection et le nettoyage de la cheminée peuvent être facilités en retirant le coupe-feu. Voir "[Annexe 10: Installation des tubes d'air et du coupe-feu](#)" pour plus de détails.



6.5.3 Feu de cheminée

L'entretien et l'inspection régulière du système de cheminée peuvent éviter les feux de cheminée. Si un feu de cheminée se déclare, procéder comme suit :

1. Fermer la porte et le contrôle d'admission d'air du poêle;
2. Alerter les occupants de la maison du danger;
3. Si vous avez besoin d'aide, appeler le service d'incendies;
4. Si possible, utiliser un extincteur chimique à poudre, du soda à pâte ou du sable pour maîtriser le feu. **Ne pas utiliser d'eau**, car il pourrait se produire une explosion de vapeur;

L'inspection et le nettoyage du poêle par un ramoneur qualifié ou le service des incendies sont obligatoires avant la remise en service de l'appareil.

PARTIE B - INSTALLATION

7. Sécurité et normes

- Les informations inscrites sur la plaque d'homologation de l'appareil ont toujours préséance sur les informations contenues dans tout autre média publié (manuels, catalogues, circulaires, revues et les sites web).
- Le fait de mélanger des composantes provenant de diverses sources ou de modifier des éléments peut amener des situations dangereuses. Lorsque de tels changements sont prévus, Fabricant de poêle international inc. doit être contacté à l'avance.
- Toute modification de l'appareil qui n'a pas été approuvée par écrit par l'autorité d'homologation ou le fabricant viole les normes CSA B365 (Canada) et ANSI NFPA 211 (É.-U.).
- **NE PAS RELIER À UN SYSTÈME OU À UN CONDUIT DE DISTRIBUTION D'AIR SAUF SI APPROUVÉ EXPRESSÉMENT POUR UNE TELLE INSTALLATION.**
- **NE PAS RACCORDER CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL.**
- Brancher le poêle seulement à une cheminée préfabriquée homologuée pour utilisation avec du combustible solide ou à une cheminée de maçonnerie conforme aux codes du bâtiment national et local.
- Si nécessaire, un apport d'air de combustion doit être apporté à la pièce.

7.1 Maison mobile

- Cet appareil peut être installé dans une maison mobile. Son installation requiert l'installation d'un ensemble d'entrée d'air frais, vendu séparément.
- **AVERTISSEMENT : NE PAS INSTALLER DANS UNE CHAMBRE À COUCHER.**
- **LE POÊLE DOIT ÊTRE FIXÉ À LA STRUCTURE DE LA MAISON MOBILE.**
- **ATTENTION : L'INTÉGRITÉ STRUCTURALE DU PLANCHER, DES MURS, DU PLAFOND ET DU TOIT DE LA MAISON MOBILE DOIT ÊTRE MAINTENUE.**

7.2 Règlements régissant l'installation d'un poêle

Lorsqu'il est installé et utilisé tel que décrit dans les présentes instructions, ce poêle à bois convient comme appareil de chauffage autoportant pour installation résidentielle.

Au Canada, il faut respecter le CSA B365 Installation des appareils de chauffage à combustible solide et du matériel connexe et le CSA C22.1 Code canadien de l'électricité en l'absence de code local. Aux États-Unis, il faut suivre le ANSI NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances et le ANSI NFPA 70 National Electrical Code en l'absence de code local.

Ce poêle doit être raccordé à une cheminée conforme aux exigences de cheminées de type HT dans la norme pour cheminées préfabriquées de type résidentiel et appareils de chauffage de bâtiment, UL 103 et ULC S629 ou à une cheminée de maçonnerie approuvée selon le code avec une gaine de cheminée.

7.3 Localisation de la plaque d'homologation

Puisque les informations inscrites sur la plaque d'homologation de l'appareil ont toujours préséance sur les informations contenues dans tout autre média publié (manuels, catalogues, circulaires, revues et sites web) il est important de s'y référer afin d'avoir une installation sécuritaire et conforme. De plus, des informations importantes concernant l'appareil s'y trouvent (modèle, numéro de série, etc.). La plaque d'homologation est située au dos de l'appareil.

Il est recommandé de noter le numéro de série de l'appareil à la [page 5](#) de ce manuel, car il sera nécessaire pour identifier précisément la version de l'appareil, dans le cas où des pièces de rechange ou une assistance technique seraient nécessaires.

8. Dégagements par rapport aux matériaux combustibles

Les dégagements donnés dans la présente section ont été établis à partir d'essais conformément aux procédures décrites dans les normes ULC S627 (Canada), UL 1482 (É.-U.) et UL 737 (É.-U.). Lorsque le poêle est installé de façon à ce que ses surfaces respectent les dégagements minimums indiqués ou plus, les surfaces combustibles ne surchaufferont pas en usage normal et même anormal.

Aucune partie du poêle ou du conduit de fumée ne peut être placée plus près des matériaux combustibles que les dégagements minimums indiqués.

Les dégagements par rapport aux murs inflammables peuvent être légèrement différents entre le Canada et les É.-U. et peuvent aussi varier selon l'utilisation d'un tuyau de fumée à paroi simple ou double. Le bon dégagement doit être utilisé selon l'emplacement du poêle et le type de tuyau.

Les dégagements de l'appareil et des tuyaux doivent être rencontrés de façon individuelle, c'est-à-dire que l'appareil ne peut être installé plus près des matériaux combustibles que ce que le tuyau simple ou double permet. Pour connaître la façon sécuritaire de réduire les dégagements, voir la section ["8.3 Réduction sécuritaire des dégagements"](#)

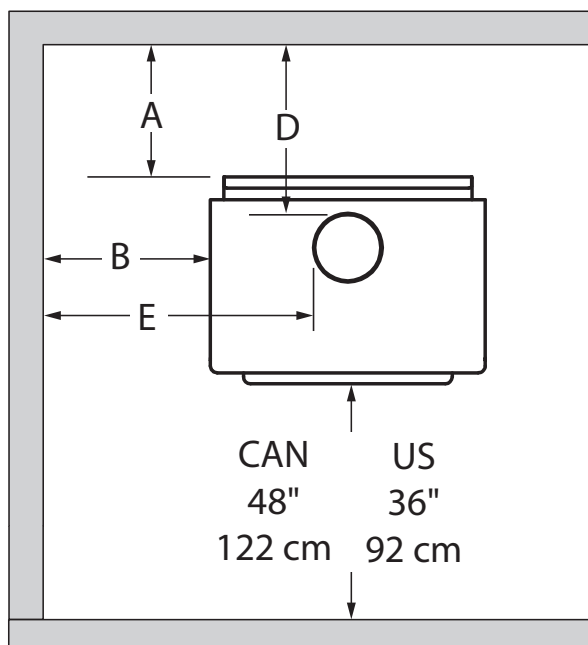


Figure 15: Développements - Dessus

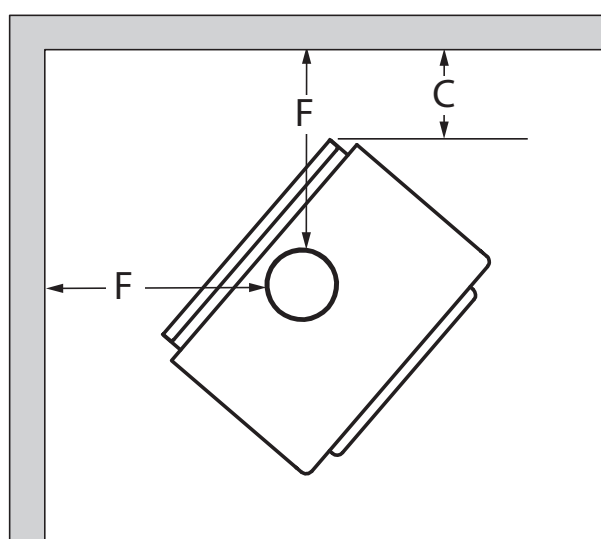


Figure 16: Développements - Coin

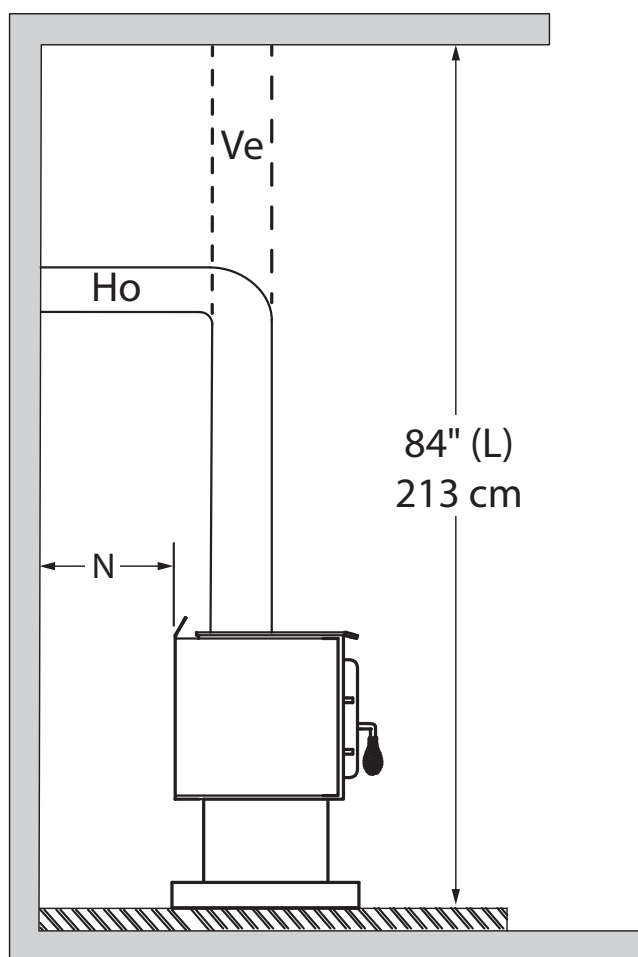


Figure 17: Développements - Côté

8.1 Dégagements

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI SIMPLE	
	Canada	USA
A	13 ¼" (337 mm)	13" (330 mm)
B	14" (356 mm)	14" (356 mm)
C	7 ¼" (184 mm)	7 ¼" (184 mm)

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE	
	Canada	USA
A	7" (178 mm)	7" (178 mm)
B	14" (356 mm)	14" (356 mm)
C	7" (178 mm)	7" (178 mm)

Si les dégagements ci-dessus sont rencontrés, alors les distances mesurées à partir de la buse seront :

	DISTANCES ¹³ DE LA BUSE AVEC TUYAU À PAROI SIMPLE	
	Canada	USA
D	18" (457 mm)	17 ¾" (451 mm)
E	24 ⅞" (632 mm)	24 ⅞" (632 mm)
F	18" (457 mm)	18" (457 mm)

	DISTANCES ¹³ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA
D	11 ¾" (298 mm)	11 ¾" (298 mm)
E	24 ⅞" (632 mm)	24 ⅞" (632 mm)
F	17 ¾" (451 mm)	17 ¾" (451 mm)

8.1.1 Avec écran mural AC02710 ou AC02762¹⁴

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE	
	Canada	USA
A	2 ½" (64 mm)	2 ½" (64 mm)
B	2 ½" (64 mm)	2 ½" (64 mm)
C	2 ½" (64 mm)	2 ½" (64 mm)

	DISTANCES ¹³ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA
D	7 ¼" (184 mm)	7 ¼" (184 mm)
E	13 ⅜" (340 mm)	13 ⅜" (340 mm)
F	13 ¼" (337 mm)	13 ¼" (337 mm)

¹³ Les distances de tuyau listées dans ce tableau se réfèrent aux distances obtenues lorsque le poêle est installé en accord avec les dégagements de l'appareil mentionnés ci-dessus.

¹⁴ Pour réduire les dégagements d'un appareil utilisant un tuyau à paroi simple, l'utilisation d'un écran pare-chalet certifié avec le tuyau à paroi simple, à 6" des matériaux combustibles, doit être utilisé. Seulement dans ce cas, les mêmes dégagements qu'avec un tuyau double certifié peuvent être utilisés.

8.1.2 Avec échangeur de chaleur supérieur¹⁵

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE	
	Canada	USA
A	6" (152 mm)	6" (152 mm)
B	14" (356 mm)	14" (356 mm)
C	7" (178 mm)	7" (178 mm)

	DISTANCES ¹⁶ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA
D	10 ¾" (273 mm)	10 ¾" (273 mm)
E	24 ⅞" (632 mm)	24 ⅞" (632 mm)
F	17 ¾" (451 mm)	17 ¾" (451 mm)

8.1.4 Avec le plafond abaissé

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE	
	Canada	USA
A	11" (279 mm)	11" (279 mm)
B	16" (406 mm)	16" (406 mm)
C	10" (254 mm)	10" (254 mm)
L	72" (1,830 mm)	72" (1,830 mm)

	DISTANCES ¹⁶ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA
D	15 ¾" (400 mm)	15 ¾" (400 mm)
E	26 ⅞" (683 mm)	26 ⅞" (683 mm)
F	20 ¾" (527 mm)	20 ¾" (527 mm)

8.1.5 Avec écran mural AC02710 ou AC02762 et le plafond abaissé¹⁵

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE	
	Canada	USA
A	2 ½" (64 mm)	2 ½" (64 mm)
B	2 ½" (64 mm)	2 ½" (64 mm)
C	2 ½" (64 mm)	2 ½" (64 mm)
L	74" (1,880 mm)	74" (1,880 mm)

	DISTANCES ¹⁶ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA
D	7 ¼" (184 mm)	7 ¼" (184 mm)
E	13 ⅜" (340 mm)	13 ⅜" (340 mm)
F	13 ¼" (337 mm)	13 ¼" (337 mm)

¹⁵ Pour réduire les dégagements d'un appareil utilisant un tuyau à paroi simple, l'utilisation d'un écran pare-chaleur certifié avec le tuyau à paroi simple, à 6" des matériaux combustibles, doit être utilisé. Seulement dans ce cas, les mêmes dégagements qu'avec un tuyau double certifié peuvent être utilisés.

¹⁶ Les distances de tuyau listées dans ce tableau se réfèrent aux distances obtenues lorsque le poêle est installé en accord avec les dégagements de l'appareil mentionnés ci-dessus.

8.1.6 Dans une alcôve

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE	
	Canada	USA
A	11" (279 mm)	11" (279 mm)
B	16" (406 mm)	16" (406 mm)
K	48" (1220 mm)	36" (910 mm)
L	74" (1,880 mm)	74" (1,880 mm)

	DISTANCES ¹⁷ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA
D	15 ¾" (400 mm)	15 ¾" (400 mm)
E	26 ⅞" (683 mm)	26 ⅞" (683 mm)

8.1.7 Maison mobile¹⁸

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	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE	
	Canada	USA
A	10" (254 mm)	10" (254 mm)
B	19" (483 mm)	19" (483 mm)
C	10" (254 mm)	10" (254 mm)

	DISTANCES ¹⁷ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA
D	14 ¾" (375 mm)	14 ¾" (375 mm)
E	29 ⅞" (759 mm)	29 ⅞" (759 mm)
F	20 ¾" (527 mm)	20 ¾" (527 mm)

8.1.9 Maison mobile avec échangeur de chaleur supérieur¹⁸

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE	
	Canada	USA
A	9" (229 mm)	9" (229 mm)
B	19" (483 mm)	19" (483 mm)
C	10" (254 mm)	10" (254 mm)

	DISTANCES ¹⁷ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA
D	13 ¾" (349 mm)	13 ¾" (349 mm)
E	29 ⅞" (759 mm)	29 ⅞" (759 mm)
F	20 ¾" (527 mm)	20 ¾" (527 mm)

¹⁷ Les distances de tuyau listées dans ce tableau se réfèrent aux distances obtenues lorsque le poêle est installé en accord avec les dégagements de l'appareil mentionnés ci-dessus.

¹⁸ Il est strictement **interdit** d'installer un appareil avec un **tuyau à simple paroi** dans une **maison mobile**.

8.1.10 Maison mobile avec écran mural AC02710 ou AC02762¹⁹

	DÉGAGEMENTS DE L'APPAREIL AVEC UN TUYAU À PAROI DOUBLE			DISTANCES ²⁰ DE LA BUSE AVEC TUYAU À PAROI DOUBLE	
	Canada	USA		Canada	USA
A	3" (76 mm)	3" (76 mm)	D	7 ¾" (197 mm)	7 ¾" (197 mm)
B	5" (127 mm)	5" (127 mm)	E	15 ⅞" (403 mm)	15 ⅞" (403 mm)
C	3" (76 mm)	3" (76 mm)	F	13 ¾" (349 mm)	13 ¾" (349 mm)

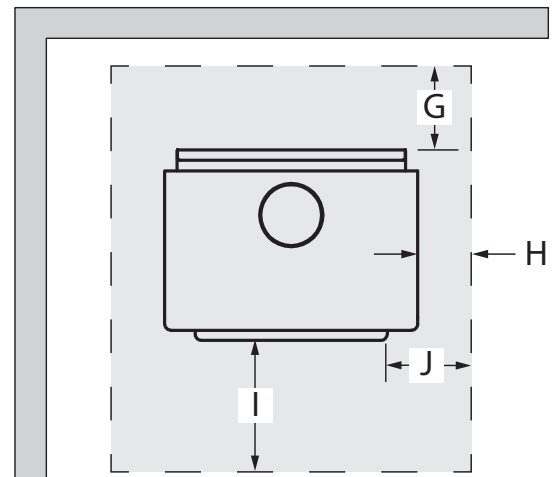
8.2 Protection du plancher

Cet appareil est conçu pour empêcher le plancher de surchauffer. Il faut toutefois le placer sur une surface ininflammable pour protéger le plancher des tisons chauds qui pourraient tomber lors du chargement. La protection de plancher doit être une surface incombustible continue telle que de l'acier d'une épaisseur minimale de 0.015" (0.38 mm), de la céramique, un panneau de béton, de la brique ou tout autre matériel équivalent approuvé comme protection de plancher. Aucun facteur R n'est requis.

Un matériau est considéré comme étant non-combustible lorsqu'il est fait entièrement d'acier, de fer, de briques, de tuiles, de béton, d'ardoise, de verre ou d'une combinaison de ces matériaux. Les matériaux correspondants à la norme ASTM E136 et à la norme UL 763 sont considérés comme étant des matériaux non-combustibles à l'exception du gypse.

La céramique doit être placée sur un panneau incombustible continu afin d'éviter que des tisons puissent être mis en contact avec le plancher à travers des fissures ou des manques dans le coulis de la céramique. Consulter le code local pour les alternatives approuvées. Aucune protection n'est requise si l'appareil est installé sur une surface incombustible (ex : plancher de béton).

	PROTECTION DE PLANCHER	
	Canada	USA
G²¹	8" (203 mm)	N/A
H	8" (203 mm)	N/A
I	18" (457 mm) à partir de l'ouverture de porte	16" (203 mm) à partir de l'ouverture de porte
J	N/A	8" (203 mm)
N	N/A	voir note 22



¹⁹ Il est strictement **interdit** d'installer un appareil avec un **tuyau à simple paroi** dans une **maison mobile**.

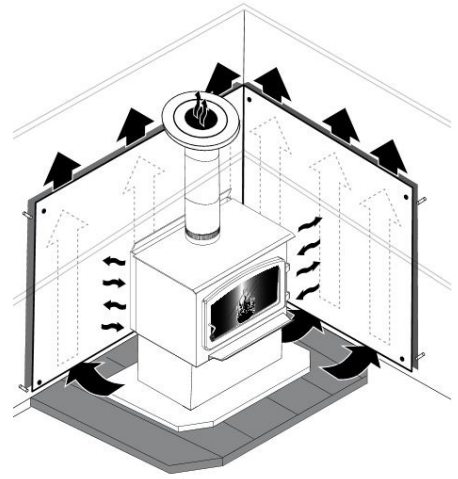
²⁰ Les distances de tuyau listées dans ce tableau se réfèrent aux distances obtenues lorsque le poêle est installé en accord avec les dégagements de l'appareil mentionnés ci-dessus.

²¹ La protection de plancher se limite au dégagement arrière (G) si ce dernier est inférieur à 8 pouces (203 mm).

²² Seulement requis sous la section horizontale (Ho) du connecteur. Doit excéder d'au moins 2" (51 mm) de chaque côté du connecteur. Voir "Figure 17: Dégagements - Côté"

8.3 Réduction sécuritaire des dégagements

Il est souvent désiré d'occuper le moins d'espace possible lors de l'installation d'un poêle à bois. Pour ce faire, il est possible de réduire les dégagements de façon sécuritaire et rapprocher l'appareil plus près des murs en installant, de façon permanente, un écran entre le poêle et le matériau inflammable. Les règles s'appliquant aux écrans de sécurité sont parfois compliquées. Lire et appliquer les instructions soigneusement. Certaines régions peuvent avoir une réglementation différente de celle-ci. Consulter le code du bâtiment local ou contacter le service des incendies pour connaître les restrictions et les exigences d'inspection et d'installation de la région.

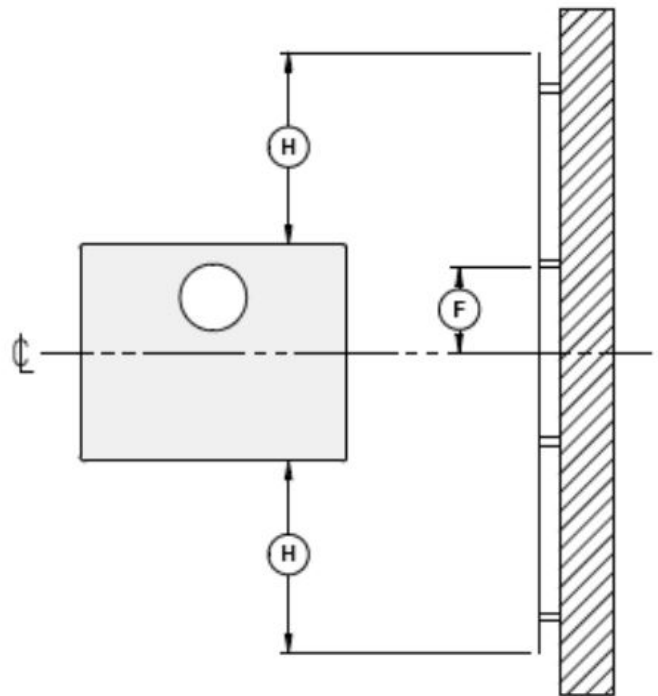
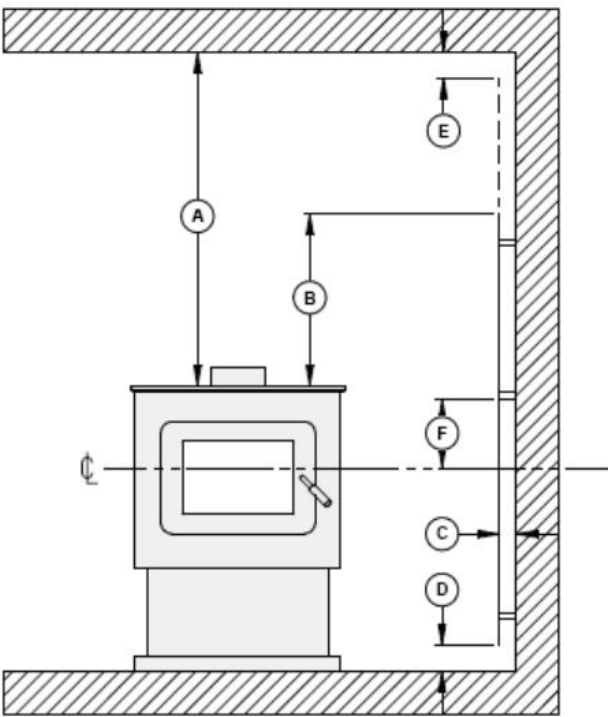


8.3.1 Règles de construction de l'écran

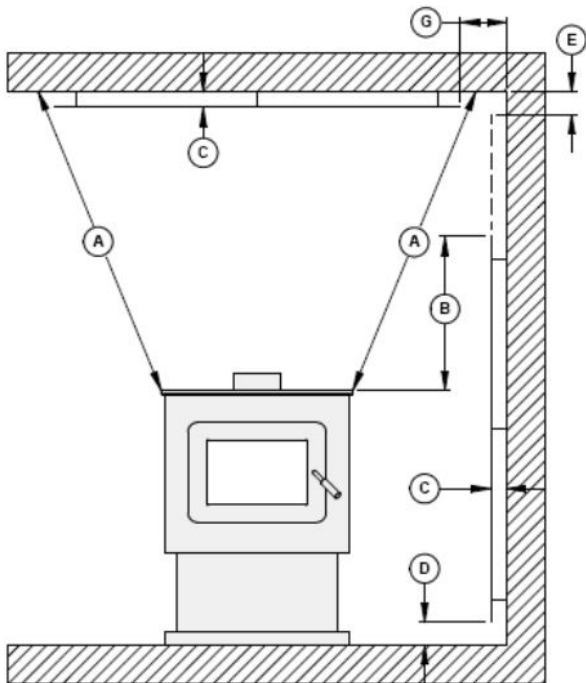
- Les colles utilisées dans la construction des écrans ne doivent ni s'enflammer ni perdre leurs propriétés adhésives aux températures qui seront atteintes.
- La quincaillerie d'assemblage doit permettre une ventilation verticale complète.
- La quincaillerie d'assemblage qui pénètre dans le matériau combustible à partir de la surface de l'écran ne peut être utilisée que sur les rebords de l'écran

Consulter les figures de la page suivante afin d'associer chaque lettre au dégagement correspondant.

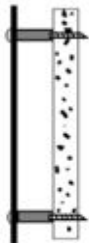
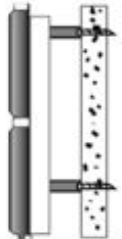
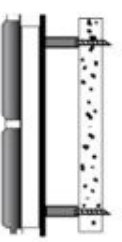
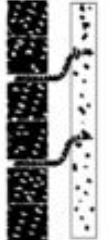
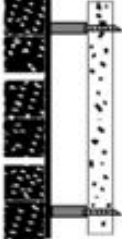
- A) Dégagement minimum entre le dessus de l'appareil et le plafond sans protection : (41 $\frac{7}{8}$ " (1064 mm)
- B) Dépassement de l'écran plus haut que l'appareil : 20" (500 mm)
- C) Espace minimum derrière l'écran : 1" (25 mm). Au Canada $\frac{7}{8}$ " (21 mm)
- D) Dégagement au bas de l'écran : minimum 1" (25 mm) et maximum 3" (75 mm)
- E) Dégagement minimum du haut de l'écran au plafond : 3" (75 mm)
- F) La quincaillerie d'assemblage ne doit pas être placée à moins de 8" (200 mm) de l'axe central de l'appareil.
- G) Dégagement des rebords de l'écran aux murs de côtés et arrière pour écrans de plafond : 3" (75 mm)
- H) Dépassement de l'écran au-delà des côtés de l'appareil : 18" (450 mm)



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8.3.3 Type d'écran

TYPE D'ÉCRAN	POURCENTAGES DE RÉDUCTION DES DÉGAGEMENTS PERMIS				
	CÔTÉS, COINS ET ARRIÈRE		DESSUS (PLAFOND)		
	CAN /É-U (%)	É-U MIN.	CAN /É-U (%)	É-U MIN.	
Tôle, épaisseur 24ga au minimum (0,61 mm), espacé du mur d'au moins 1 po (25 mm)* par des cales ininflammables.	67	12" (305 mm)	50	18" (457 mm)	
Tuiles de céramique ou d'un matériau ininflammable équivalent placées sur un panneau ininflammable espacé du mur d'au moins 1 po (25 mm)* par des cales ininflammables.	50	18" (457 mm)	33	24" (610 mm)	
Tuiles de céramique ou d'un matériau ininflammable équivalent placées sur un panneau ininflammable recouvert d'une tôle d'au moins 24 ga d'épaisseur (0,61 mm) espacé du mur d'au moins 1 po (25 mm)* par des cales ininflammables.	67	12" (305 mm)	50	24" (610 mm)	
Brique, espacée du mur d'au moins 1 po (25 mm)* par des cales ininflammables.	50	18" (457 mm)	N/A	N/A	
Brique, devant une tôle d'une épaisseur d'au moins 24ga (0,61 mm), espacée du mur d'au moins 1 po (25 mm)* par des cales ininflammables.	67	12" (305 mm)	N/A	N/A	

* Au Canada, cet espace peut être de 7/8" (21 mm)

9. Le système d'évacuation

Le système d'évacuation, composé de la cheminée et du tuyau qui raccorde le poêle à la cheminée, agit comme le moteur qui entraîne le système de chauffage au bois. Même le meilleur des poêles ne fonctionnera pas de façon aussi sécuritaire et efficace s'il n'est pas raccordé à une cheminée adéquate.

La chaleur contenue dans les gaz d'évacuation qui passent du poêle au raccord de cheminée, puis à la cheminée, n'est pas de la chaleur perdue. Cette chaleur est utilisée par la cheminée pour créer le tirage qui aspire l'air de combustion, garde la fumée dans le poêle et évacue les gaz de façon sécuritaire vers l'air libre. La chaleur contenue dans les gaz d'évacuation peut être vue comme le combustible dont se sert la cheminée pour créer le tirage.

9.1 Des cheminées appropriées

Ce poêle à bois a une performance et une efficacité optimale lorsqu'il est raccordé à une cheminée ayant un conduit de fumée de 6" (150 mm) de diamètre. Le raccordement à une cheminée ayant un diamètre au minimum de 5" (130 mm) (Canada seulement) ou d'au plus 7" (180 mm) est toléré, s'il permet l'évacuation adéquate des gaz de combustion et que cette application est vérifiée et autorisée par un installateur qualifié. Autrement, le diamètre du conduit de fumée doit être de 6" (150 mm).

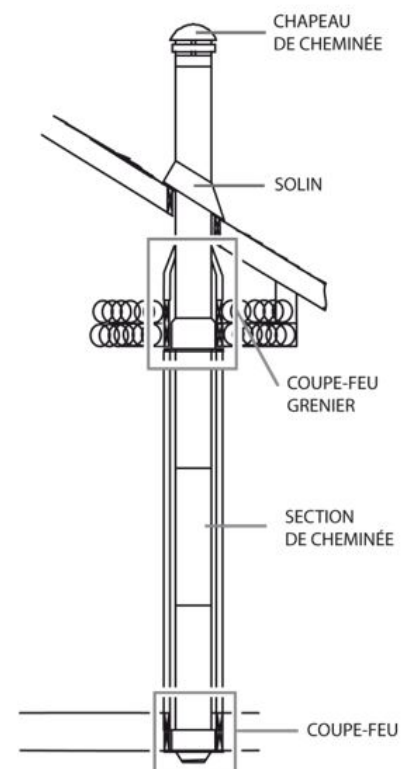
Pour être appropriée, une cheminée de métal préfabriquée doit être conforme aux normes UL 103 HT (É.-U.) ou ULC S629 (Canada).

9.1.1 Cheminée de métal préfabriquée

Ces cheminées sont souvent appelées cheminées «à haute température», parce qu'elles possèdent des caractéristiques spéciales pour supporter les températures qui peuvent être générées par les poêles à bois. Les cheminées préfabriquées subissent des essais en tant que système comportant tous les éléments nécessaires pour l'installation.

Les instructions fournies avec la cheminée par le fabricant sont les seules sources de directives d'installation fiables. Pour être sécuritaire et efficace, la cheminée doit être installée exactement selon les instructions du fabricant. Seulement des éléments conçus pour la marque et le modèle de cheminée doivent être utilisés.

Aucun composant de la cheminée ne devrait être fabriqué ou remplacé par d'autres provenant de marques de cheminée différentes. La cheminée doit être d'un type approprié pour les combustibles solides.

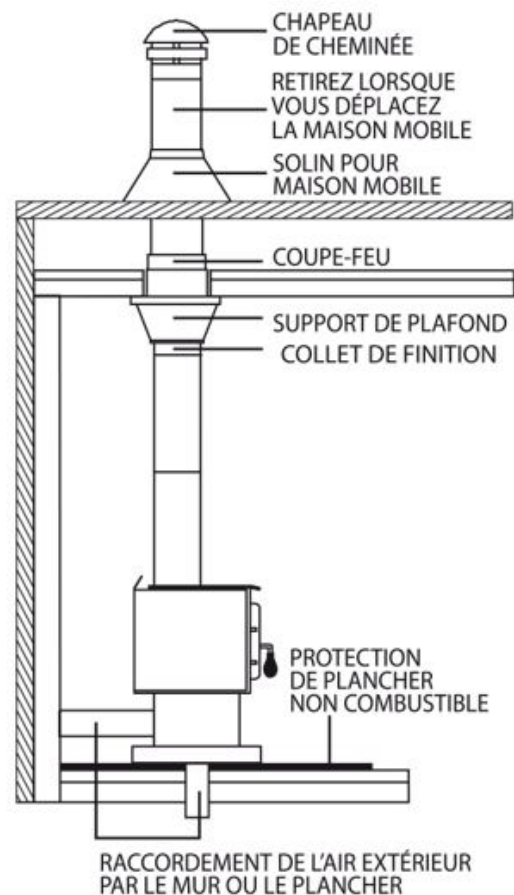


9.1.2 Cheminée de métal préfabriquée pour maison mobile

Pour une utilisation dans une maison mobile, ce poêle doit être raccordé à un tuyau préfabriqué à double paroi de 6" (150 mm) de diamètre conforme à la norme ULC S629 ou UL 103HT, pour les cheminées préfabriquées pour des températures n'excédant pas 650°C.

La longueur totale du système de cheminée, incluant les coudes, doit être au moins 12' (3,6 m) à partir du dessus poêle.

Pour maintenir une barrière efficace contre la vapeur, une bonne isolation et l'imperméabilité, à la cheminée et aux ouvertures par lesquelles entrent les sections de cheminées extérieures, un solin de toit pour maison mobile doit être installé et scellé avec un adhésif à base de silicone.

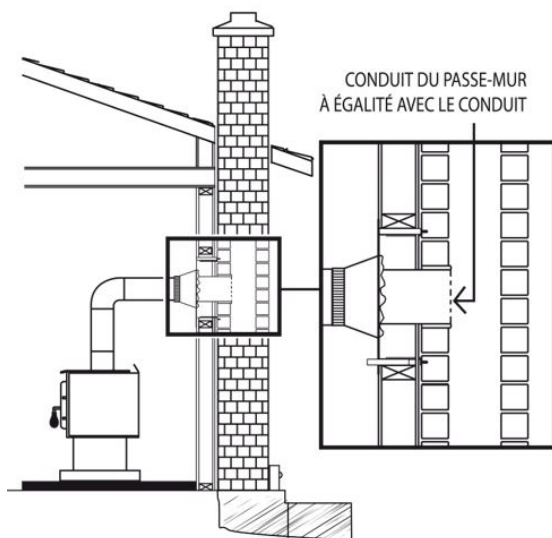


9.1.3 Cheminée de maçonnerie

Le poêle peut aussi être raccordé à une cheminée de maçonnerie, pourvu que la cheminée soit conforme aux règles de construction du code du bâtiment local.

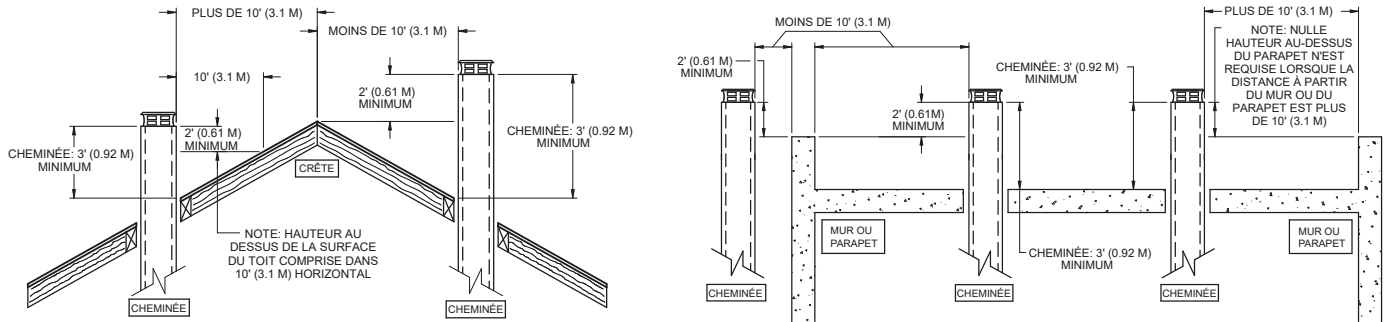
La cheminée doit être munie d'un conduit d'argile ou d'une chemise d'acier inoxydable (gaine) homologuée appropriée. Si la cheminée de maçonnerie a une chemise carrée ou rectangulaire dont la section transversale est supérieure à celle d'une cheminée ronde de 6" (150 mm), il faut y insérer une chemise d'acier inoxydable (gaine) de 6" (150 mm) homologuée appropriée.

Le conduit de fumée ne doit pas être réduit à moins de 6" (150 mm) à moins que le système d'évacuation ne soit droit et excède 25' (7,6 m) de hauteur. Si un mur combustible doit être traversé, un coupe-feu isolé homologué est obligatoire.



9.2 Hauteur minimale de la cheminée

L'extrémité de la cheminée doit être suffisamment haute pour dépasser la turbulence d'air causée par le vent contre la maison et le toit. La cheminée doit dépasser d'au moins 3' (1 m) au-dessus de son point de sortie du toit le plus haut et d'au moins 2' (60 cm) toute portion du toit ou d'un obstacle situé à une distance horizontale de moins de 10 pi. (3 m). La hauteur totale du système, à partir de la base de l'appareil jusqu'au sommet de la cheminée, ne doit jamais être inférieure à 15 pieds (4,6 m).



9.3 Emplacement de la cheminée

L'emplacement de la cheminée est crucial pour le bon fonctionnement de l'appareil. La cheminée doit être installée à l'intérieur plutôt que sur un mur extérieur et doit monter directement à travers la partie la plus haute de la maison. Cette installation profite de l'environnement chaud pour produire une tire plus puissante, accumule moins de dépôts de créosote et ne sera pas affectée par les températures froides ou les vents violents.

Les cheminées extérieures conduiront à des courants d'air froids lorsqu'il n'y a pas de feu dans le poêle, à l'allumage lent des nouveaux feux et au dégagement de fumée lorsque la porte est ouverte pour le chargement.

D'un autre côté, un tirage excessif peut rendre le feu incontrôlable, créant des températures très élevées dans l'appareil ainsi que dans la cheminée et les endommager gravement. Une lueur rougeâtre sur l'appareil et sur les composants de la cheminée indique une surchauffe. Des températures excessives peuvent provoquer un feu de cheminée.

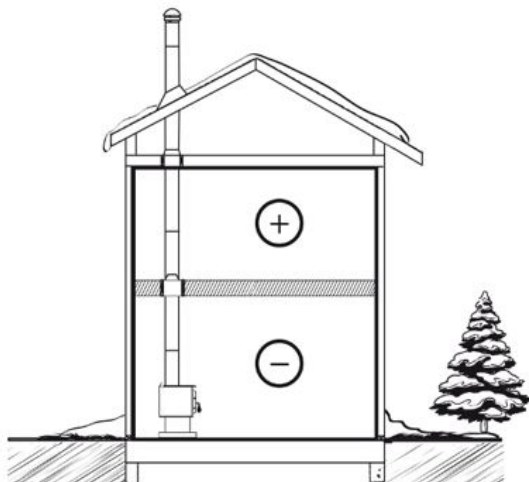


Figure 18: Bonne conception du système

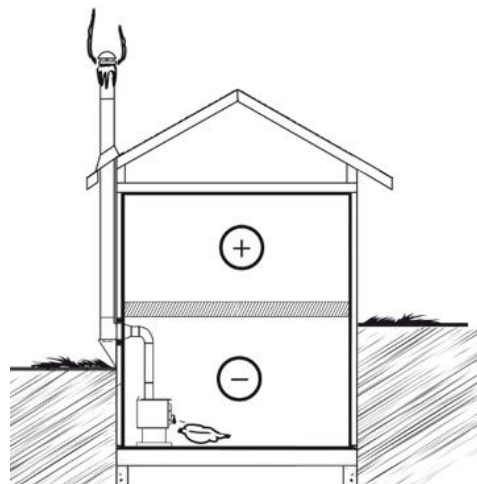


Figure 19: Conception de système inférieure

9.4 Apport d'air de combustion

9.4.1 Maison mobile

Ce poêle est homologué pour être installé dans une maison mobile. Il doit donc avoir un apport d'air de combustion provenant de l'extérieur. Il est interdit de puiser l'air du sous-sol, du grenier, d'un garage ou de tout espace clos. L'air doit être puisé à partir d'un vide sanitaire ventilé sous le plancher ou directement à l'extérieur. Installer un conduit isolé, souple ou rigide, de type HVAC (doit être conforme aux normes ULC S110 ou UL 181, classe 0 ou classe 1) sur l'adaptateur d'air frais. L'extrémité extérieure devrait être munie d'un capuchon contre les intempéries avec grillage. Lorsqu'une maison mobile a été transformée en maison standard en l'installant sur une fondation permanente, l'approvisionnement en air extérieur n'est pas obligatoire.

9.4.2 Maison conventionnelle

L'apport d'air de combustion le plus sûr et le plus fiable pour le poêle à bois provient de la pièce dans laquelle il est installé. L'air de la pièce est déjà préchauffé de sorte qu'il ne refroidira pas le feu et sa disponibilité n'est pas affectée par la pression du vent sur la maison. La plupart des maisons ont suffisamment de fuites naturelles pour fournir la petite quantité d'air dont le poêle a besoin. Le seul cas où le poêle à bois peut ne pas avoir suffisamment d'apport d'air de combustion est lorsqu'un puissant appareil de ventilation (comme une hotte de cuisinière) rend la pression d'air de la maison négative par rapport à l'air extérieur.

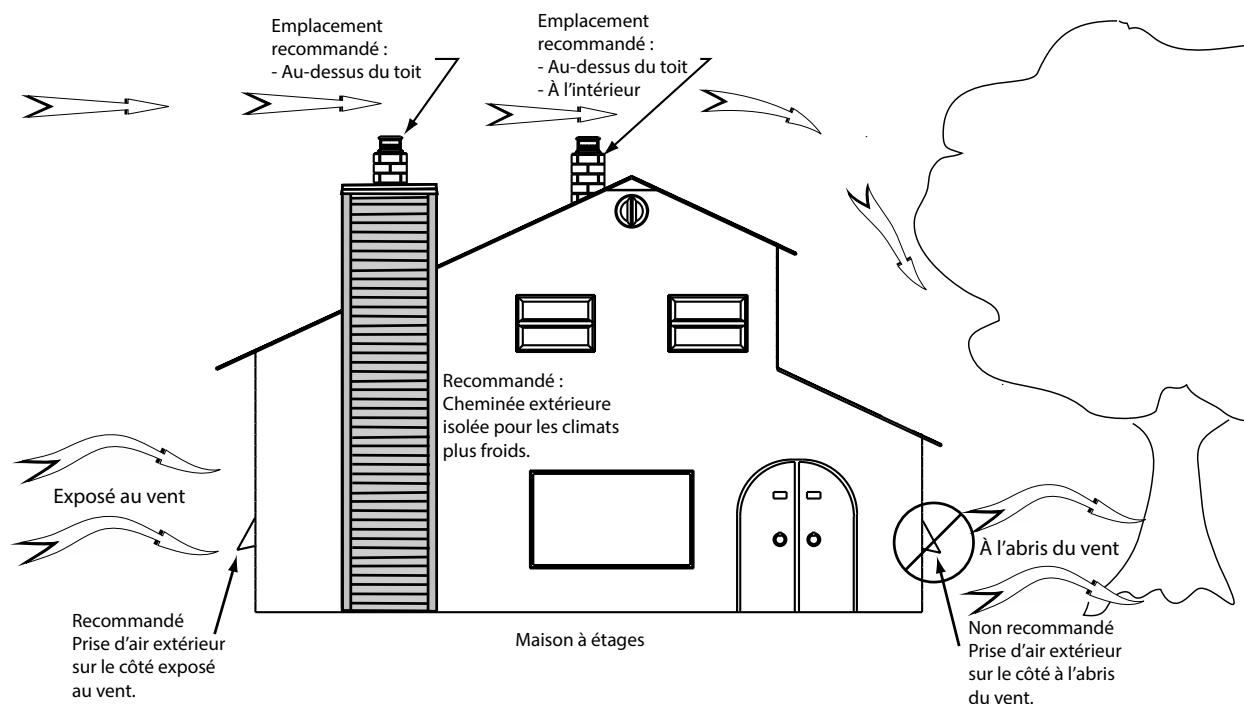


Figure 20: Apport d'air dans les maisons conventionnelles

Si une entrée d'air est installée sur le mur extérieur de la maison, sa pression peut varier par temps venteux. Si des bouffées de fumée sortent du poêle, le conduit d'apport d'air devrait être débranché afin de vérifier si ce dernier constitue la cause du problème.

Dans certaines conditions venteuses, la pression négative près de la grille peut aspirer la fumée chaude du poêle dans le conduit, vers l'extérieur. Vérifier s'il n'y a pas de dépôts de suie sur le conduit d'apport d'air extérieur lors du nettoyage et de l'inspection du système, une fois l'an.

9.5 Installation du raccord de cheminée

Le raccord de cheminée est le tuyau à paroi simple ou double, installé entre la buse du poêle et la bague de cheminée.

Les raccords de cheminée à paroi double ont subi des essais et sont homologués. Les règles concernant l'installation se trouvent dans les instructions d'installation du fabricant.

Les raccords de tuyau à paroi simple se vendent dans la plupart des quincailleries et magasins de matériaux de construction. Ils n'ont généralement pas subi d'essais selon une norme précise ni été homologués. Par conséquent, une série de règles que l'on retrouve dans les codes d'installation pour appareil de chauffage au combustible solide s'appliquent à l'installation de tuyau à paroi simple.

9.5.1 Configuration d'installation

La meilleure configuration d'installation est celle qui monte directement du poêle jusqu'à la base de la cheminée sans aucun coude. Les installations droites causeront moins de problèmes, comme les retours de fumée, lorsque la porte est ouverte pour recharger le poêle. Elles sont aussi plus stables et plus faciles à entretenir que les installations comportant des coudes. Il faut éviter autant que possible les sections horizontales de tuyau de fumée parce qu'elles réduisent le tirage de la cheminée.

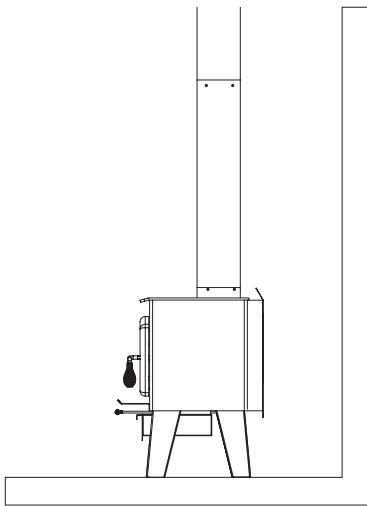


Figure 21: Meilleure

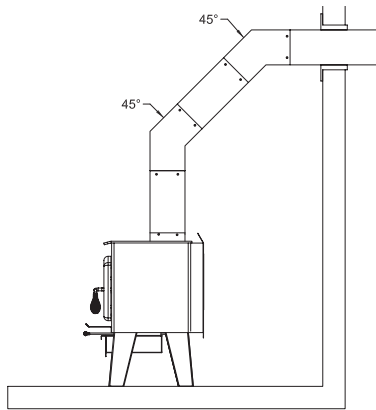


Figure 22: Acceptable

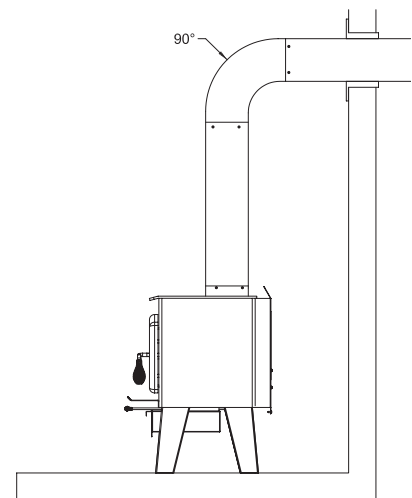


Figure 23: Éviter

9.5.2 Règles d'installation

Une mauvaise installation du raccord de cheminée peut provoquer un incendie. Les règles ci-dessous sont basées sur celles que l'on retrouve dans le code d'installation CSA B365. Suivre soigneusement ces instructions d'installation ou celles en vigueur dans la région.

- Longueur maximum de tuyau horizontal : 10' (3 m) incluant les coudes.
- Dégagement minimum par rapport aux matériaux inflammables : 18" (450 mm). Le dégagement minimum peut être réduit de 50%, à 9" (225 mm), si un écran approprié est installé, soit sur le tuyau, soit sur la surface inflammable.
- L'installation doit être aussi courte et droite que possible entre le poêle et la cheminée. Il est préférable d'utiliser deux coudes à 45° plutôt qu'un seul coude à 90°.

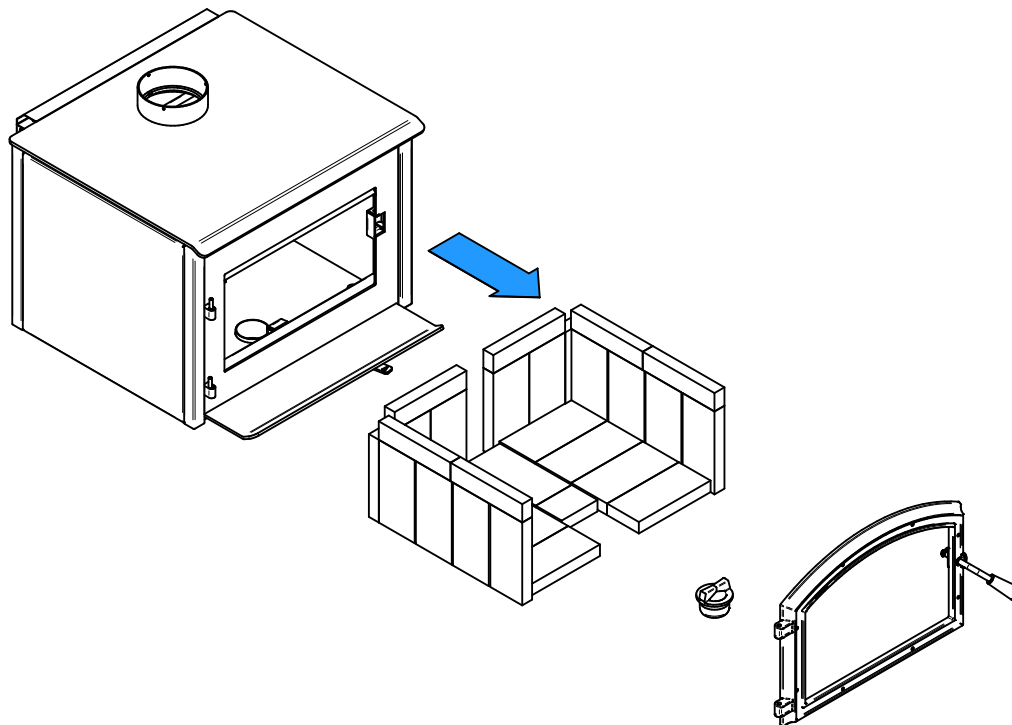
- La hauteur minimale hors tout du système de cheminée, mesurée du dessus du poêle au chapeau de la cheminée, doit être d'au moins 12' (3,66 m). Une cheminée trop courte peut ne pas avoir «l'effet de cheminée» nécessaire pour obtenir un tirage adéquat.
- Nombre maximal de coudes à 90° : 2.
- Longueur horizontale maximum sans support : 3' (1 m)
- Les tuyaux de fumée galvanisés ne doivent pas être utilisés parce que leur enduit se vaporise à haute température et produit des gaz dangereux. Utiliser des tuyaux de fumée noirs.
- Les tuyaux de fumée doivent avoir une épaisseur de 24ga au moins.
- Les raccords des tuyaux de fumée doivent se chevaucher sur au moins 1 ¼". (30 mm)
- Chaque raccord de l'installation doit être fixé à l'aide d'au moins trois vis.
- L'installation doit pouvoir prendre de l'expansion : les coudes d'une installation permettent l'expansion; les installations droites doivent comporter un tuyau d'accouplement dont une extrémité doit être sans attache ou encore une section télescopique.
- Pente ascendante minimum vers la cheminée : 1/4" /pieds. (20 mm/m).
- L'une des extrémités de l'installation doit être fixée solidement à la buse du poêle à l'aide de trois vis à métaux et l'autre extrémité fixée solidement à la cheminée.
- Il doit être possible de nettoyer les tuyaux, soit par un regard ou en enlevant les tuyaux. L'enlèvement des tuyaux ne doit pas exiger le déplacement du poêle.
- Les parties mâles des sections de tuyau doivent être orientées vers l'appareil de sorte que la cendre et la condensation restent à l'intérieur du tuyau.
- Un tuyau de fumée ne doit jamais traverser un plancher ou un plafond inflammable ou traverser un grenier, un faux comble, un placard ou un vide dissimulé. Lorsque le passage à travers un mur ou une cloison en matériaux combustibles est souhaité, l'installation doit être conforme à la norme CSA B365, code d'installation des appareils à combustibles solides et du matériel connexe.
- Le raccord de cheminée doit être propre et en bon état.

ANNEXE 1: INSTALLATION DES PATTES

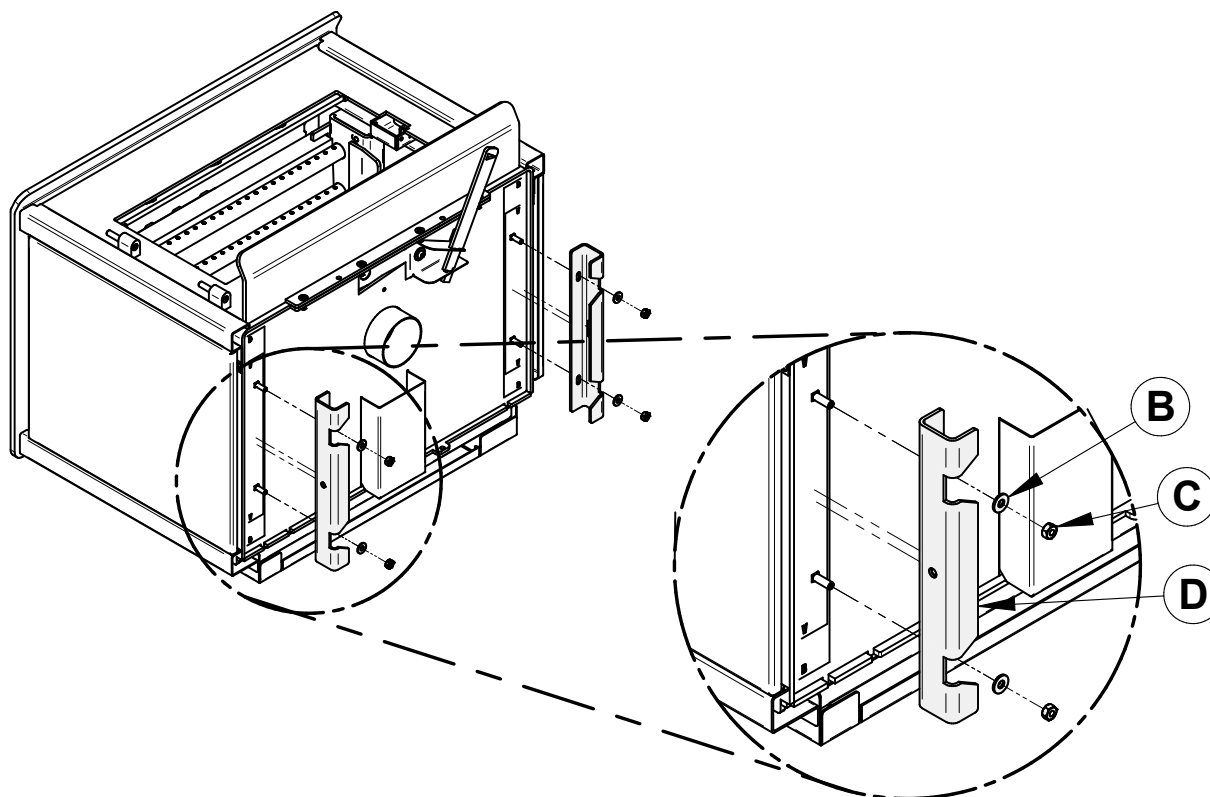


Ce poêle est approuvé maison mobile en version sur piédestal seulement.

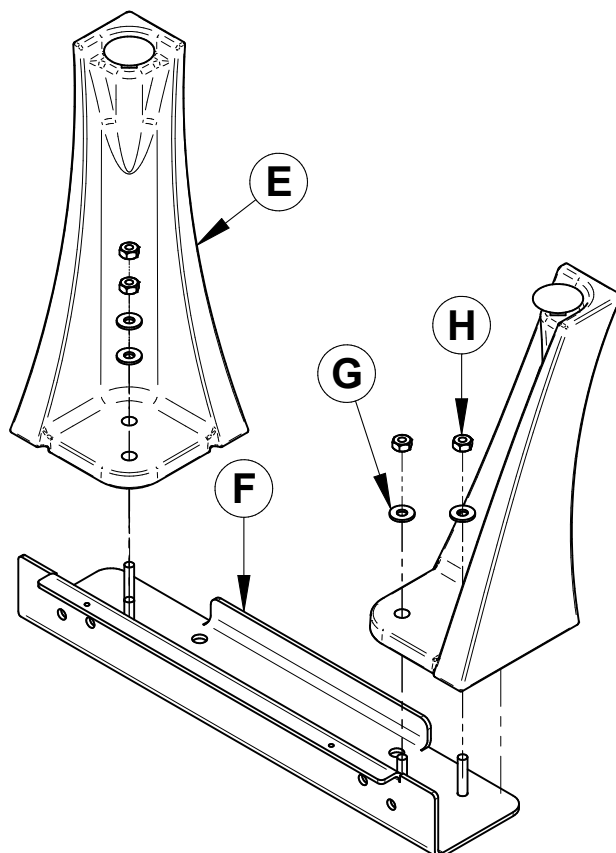
1. Retirer la porte, les briques réfractaires et le bouchon à cendres du poêle, si désiré.



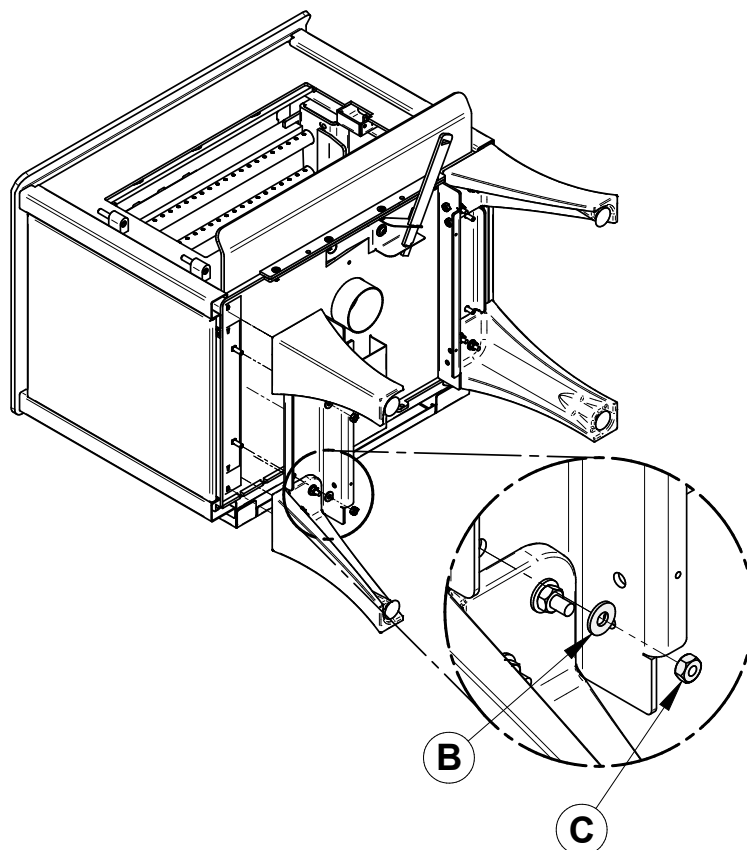
2. Déposer le poêle sur le dos. Retirer et jeter les deux supports de transport **(D)**. Conserver les écrous **(C)** et les rondelles **(B)** pour l'étape 4.



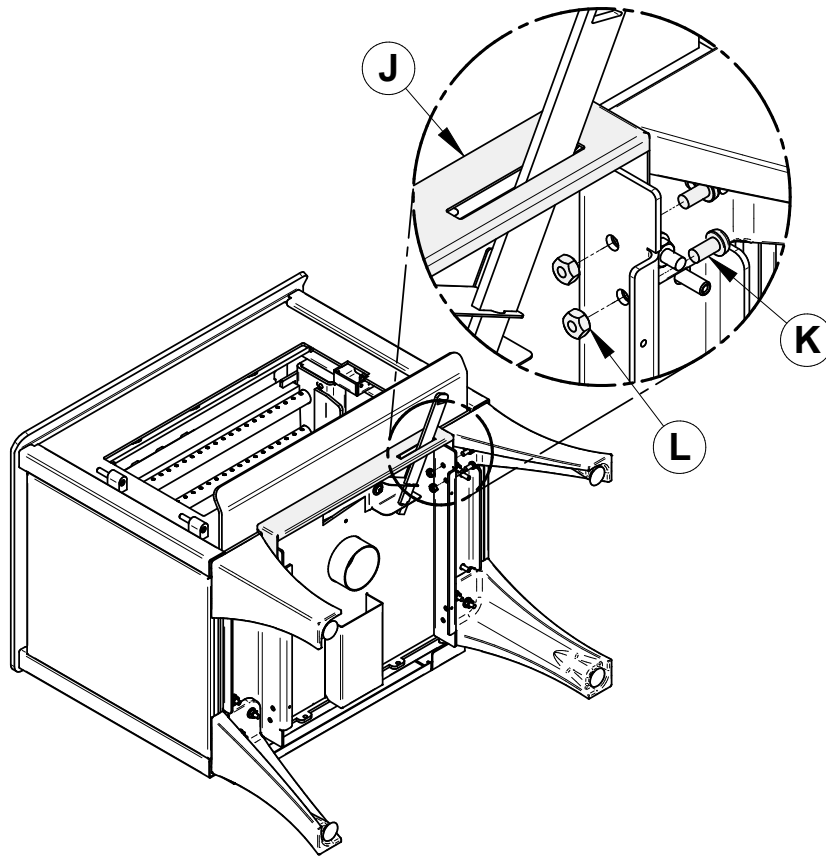
3. Installer les pattes **(E)** sur les supports de pattes **(F)**. Installer la rondelle **(G)** et visser l'écrou **(H)**.



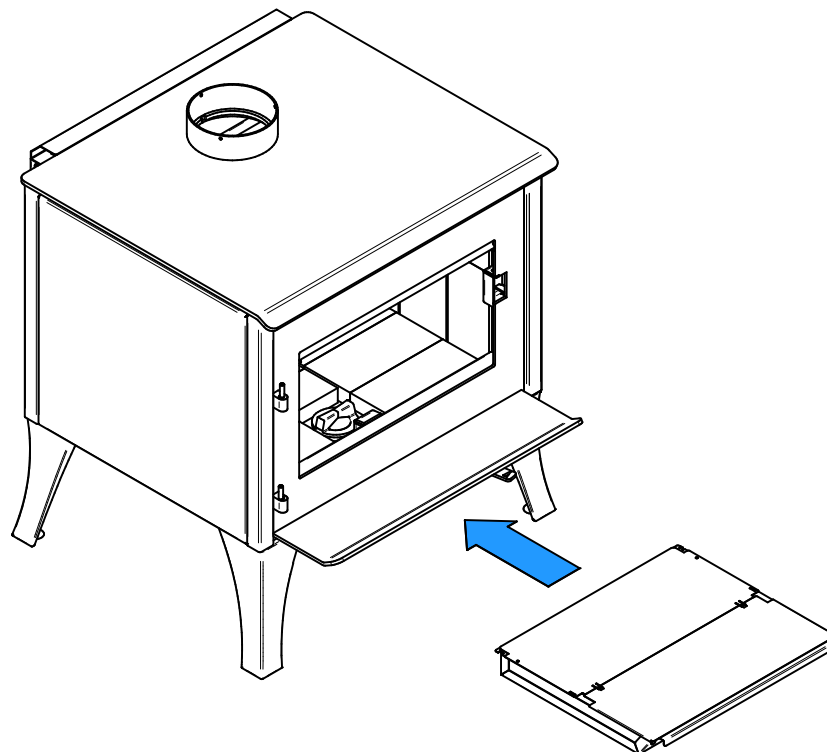
4. Installer les supports de pattes sur le poêle avec la rondelle **(B)** et visser l'écrou **(C)** provenant de l'étape 1.



5. Installer le couvercle du contrôle d'air **(J)** avec les vis **(K)** et les écrous **(L)**.



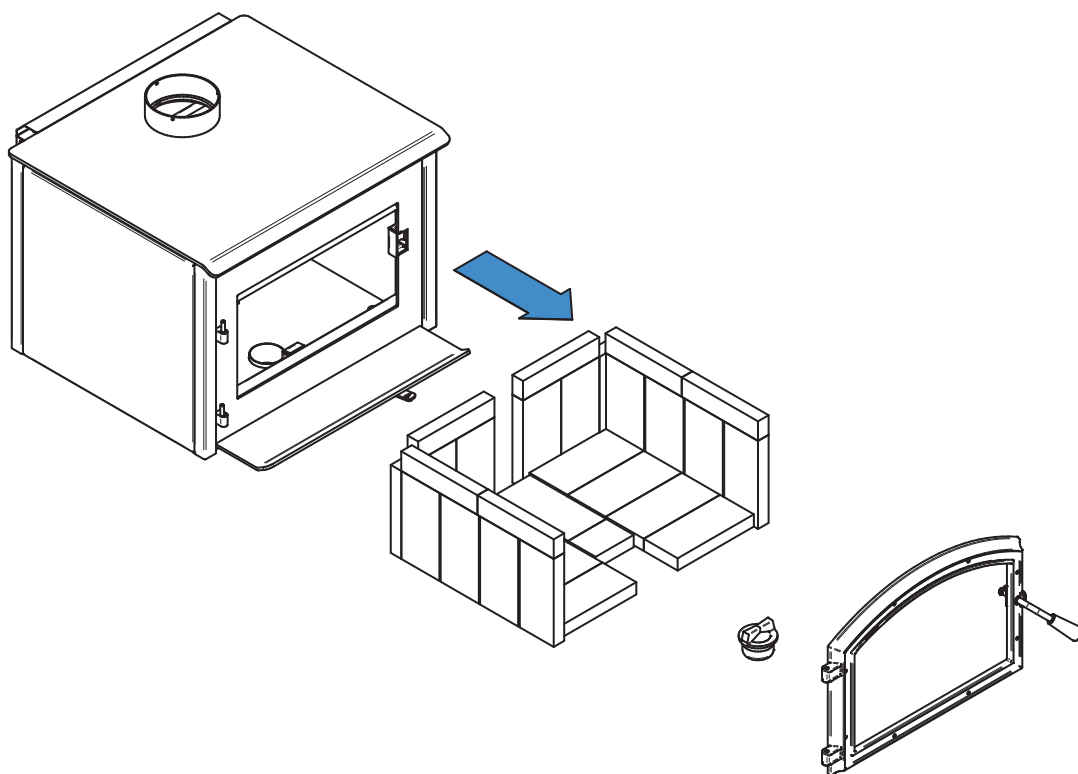
6. Mettre le poêle sur ses pattes et installer le tiroir à cendres. Remettre les briques réfractaires, le bouchon à cendre ainsi que la porte sur le poêle. (Voir étape 1)



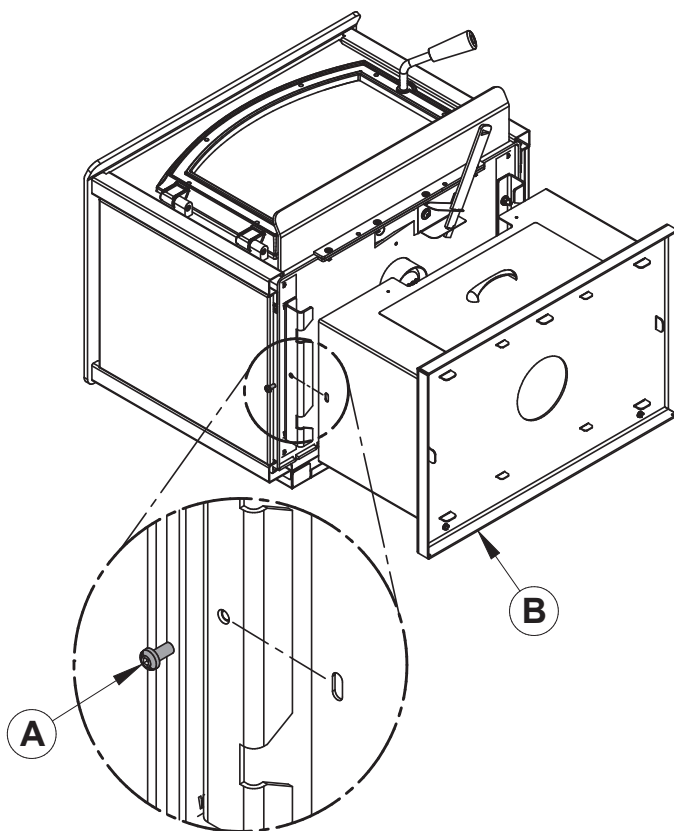
Le coupe-feu et les briques doivent être remis au bon endroit après le positionnement final de l'appareil

ANNEXE 2: INSTALLATION DU PIÉDESTAL

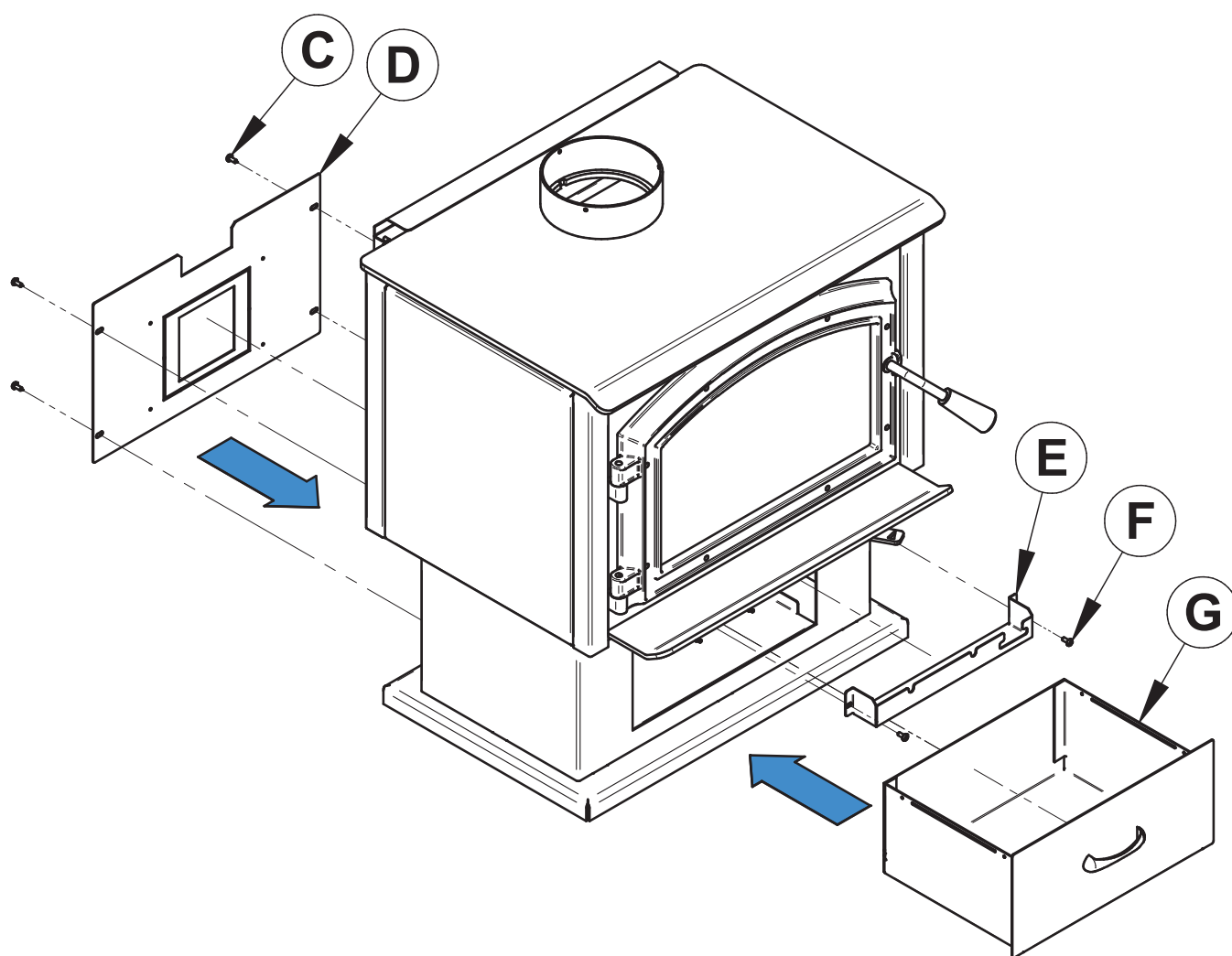
1. Retirer la porte, les briques réfractaires et le bouchon à cendres du poêle, si désiré.



2. Déposer le poêle sur le dos. Installer le piédestal **(B)** sur le poêle et le fixer en place avec deux vis **(A)**.



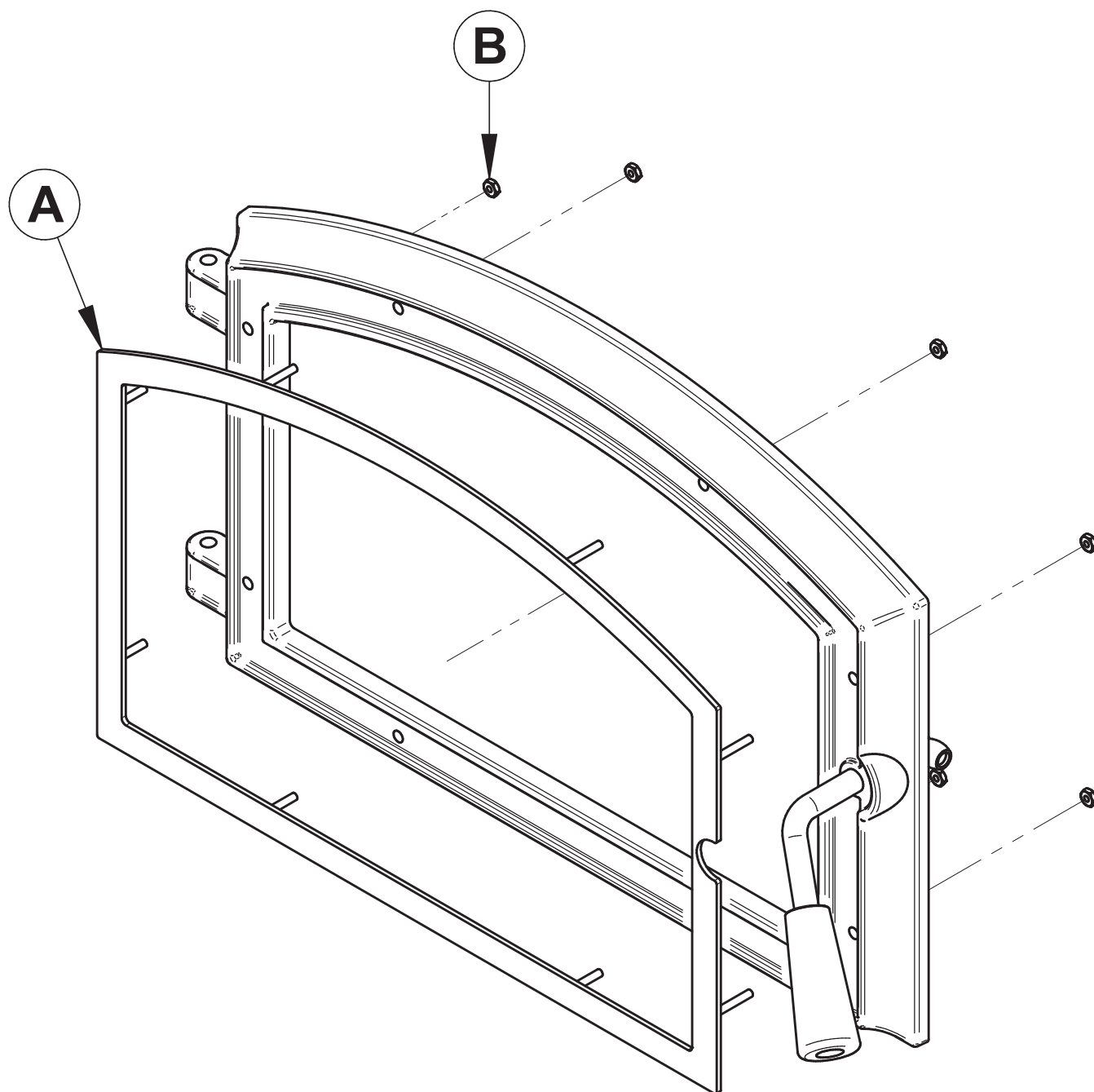
3. Mettre le poêle sur son piédestal et installer le panneau d'entrée d'air frais **(D)** avec les vis **(C)**, le couvercle de contrôle d'air **(E)** avec les vis **(F)** et insérer le tiroir à cendre **(G)**. Remettre les briques réfractaires, le bouchon à cendres ainsi que la porte sur le poêle. Voir l'étape 1.



Le coupe-feu et les briques doivent être remis au bon endroit après le positionnement final de l'appareil

ANNEXE 3: INSTALLATION DU REVÊTEMENT DE PORTE

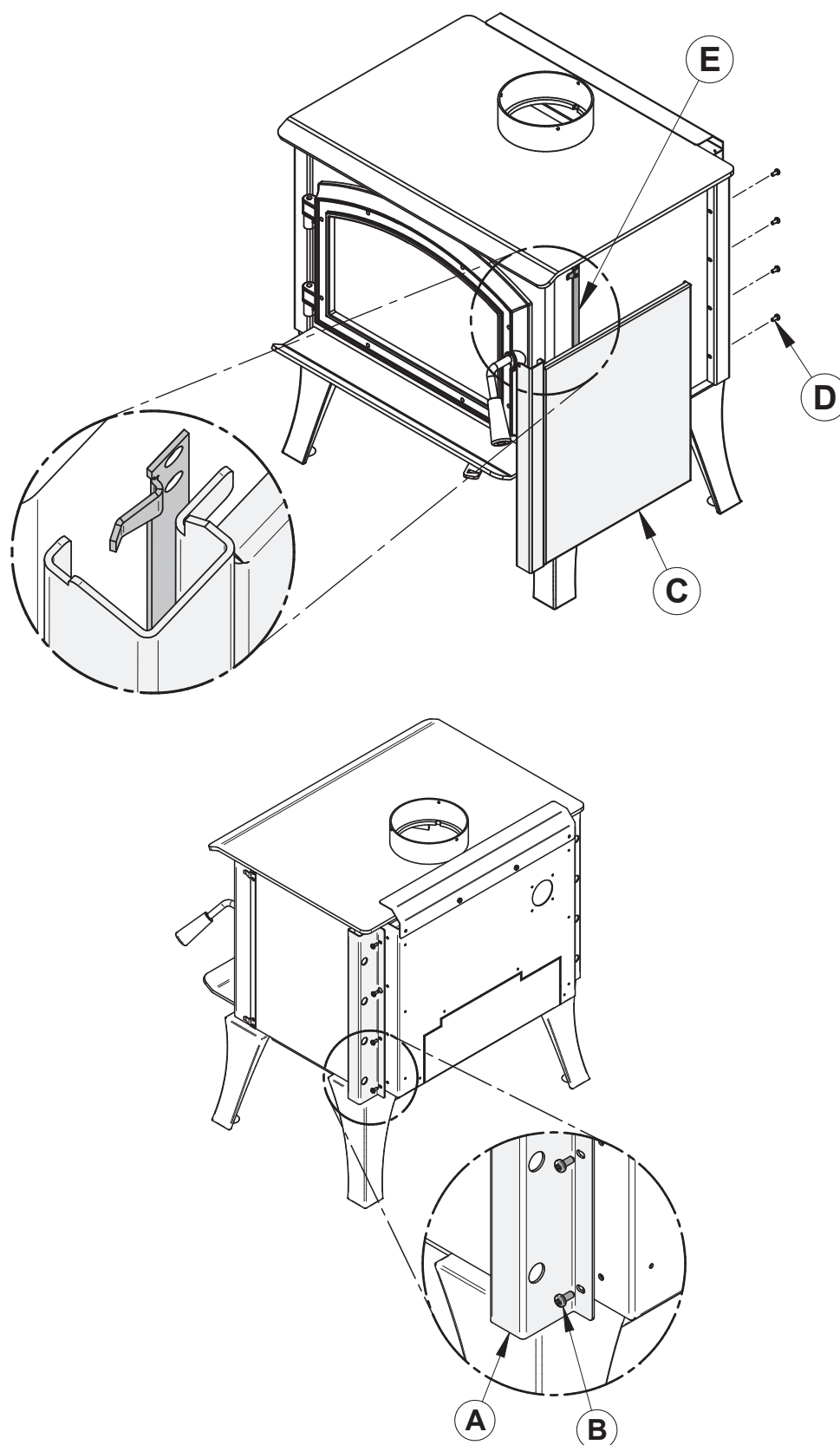
Positionner le revêtement de porte **(A)** sur la porte et visser avec les écrous **(B)**. Pour faciliter l'installation, ne pas serrer les vis au fond avant qu'elles ne soient toutes installées.



Note: Il n'est pas nécessaire d'enlever la vitre pour installer le revêtement de porte.

ANNEXE 4: PANNEAUX DÉCORATIFS

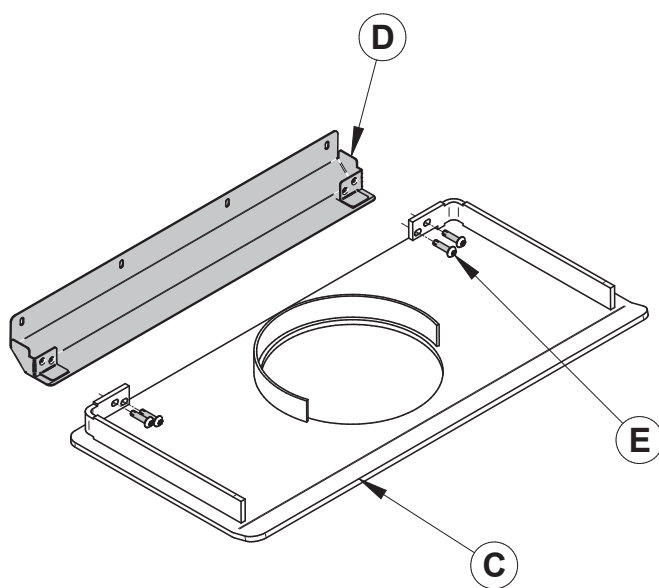
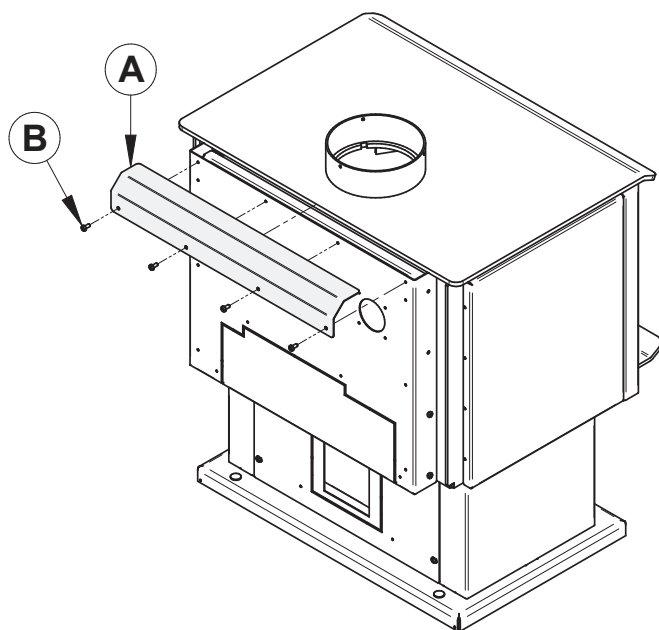
Pour retirer le panneau décoratif **(C)**, retirez les vis **(D)** et pousser sur le panneau pour le décrocher du support **(E)**. Lorsque les panneaux sont retirés, retirer les vis **(B)** et les supports de panneau décoratif **(A)**.



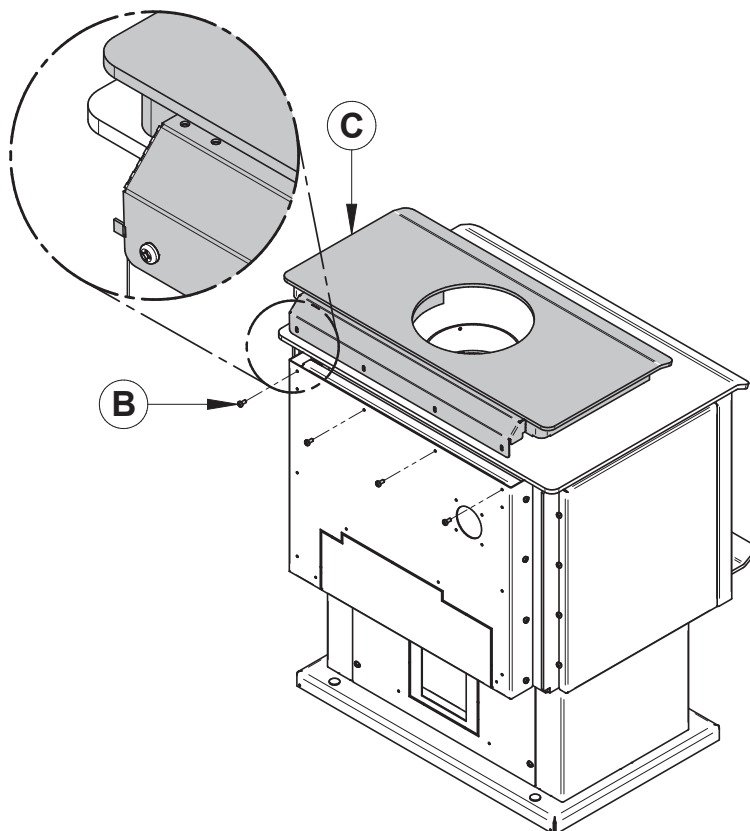
ANNEXE 5: INSTALLATION DE L'ÉCHANGEUR DE CHALEUR SUPÉRIEUR OPTIONNEL

Ce poêle à bois peut être muni d'un échangeur de chaleur supérieur. Celui-ci accumule la chaleur et augmente l'échange de chaleur.

1. Retirer le déflecteur d'air **(A)**. Conserver les vis **(B)**.
2. Assembler l'échangeur de chaleur **(C)** avec le nouveau déflecteur **(D)** avec quatre vis **(E)**.



3. Installer l'échangeur de chaleur et le fixer en place avec les quatre vis **(B)** conservées de l'étape précédente.

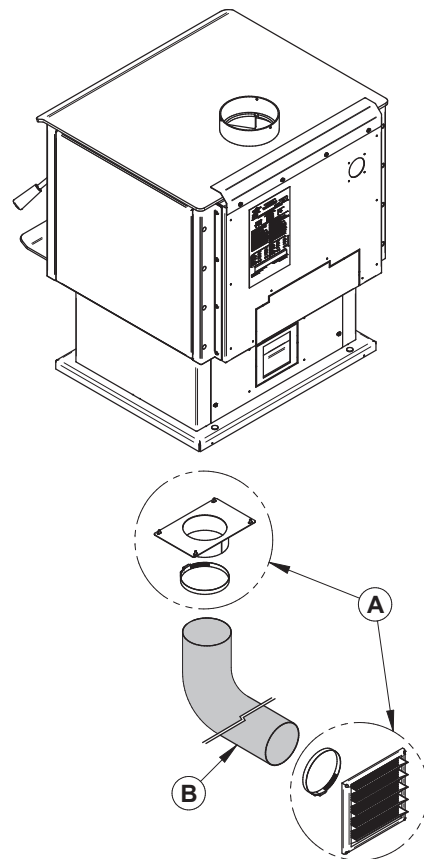
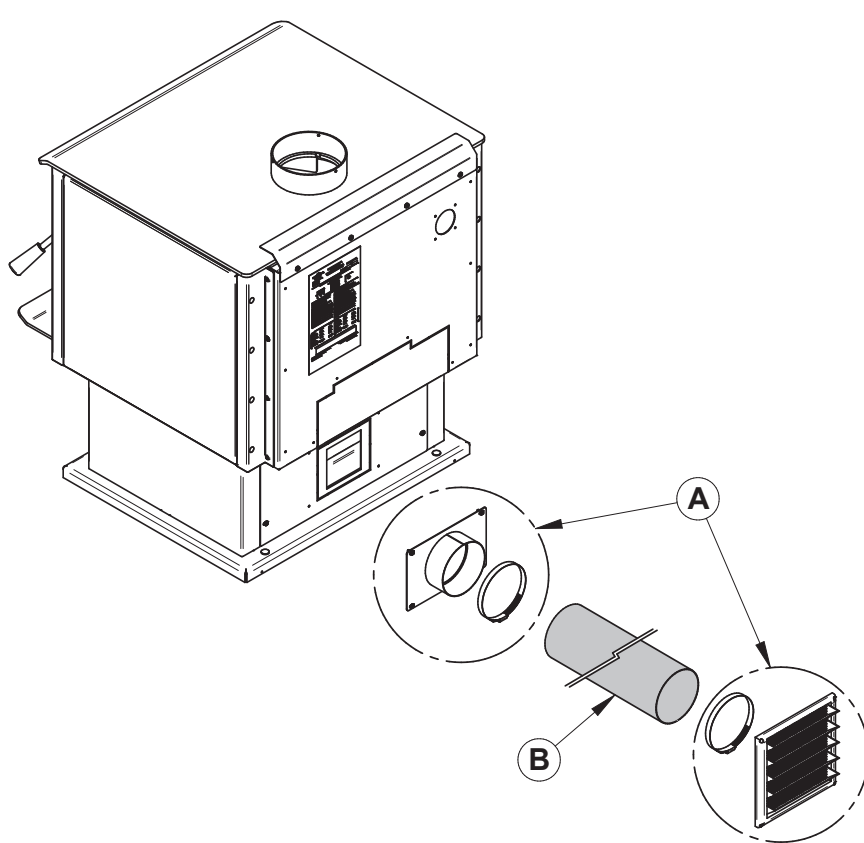


ANNEXE 6: INSTALLATION D'UN ENSEMBLE D'ENTRÉE D'AIR FRAIS OPTIONNEL



Ce poêle est approuvé maison mobile en version sur piédestal seulement.

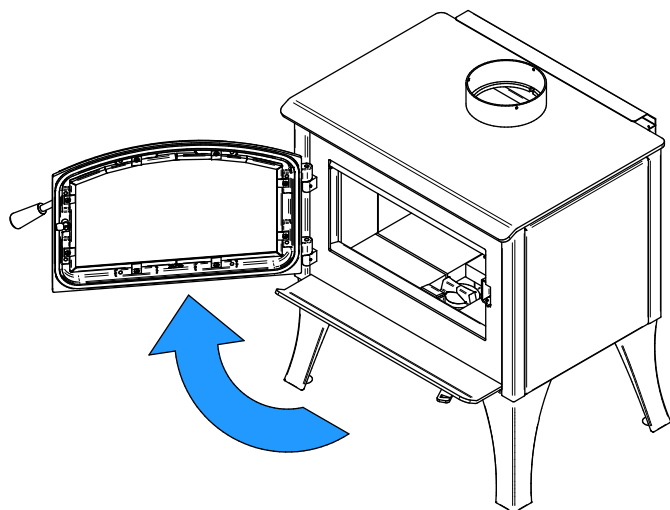
Ce poêle, approuvé maison mobile, requiert l'installation d'un ensemble d'entrée d'air frais **(A)** et d'un tuyau isolé flexible **(B)** de type HVAC (doit être conforme aux normes ULC S110 ou UL 181, classe 0 ou classe 1), vendu séparément. Voir le manuel d'installation de l'ensemble d'entrée d'air frais pour plus de détails.



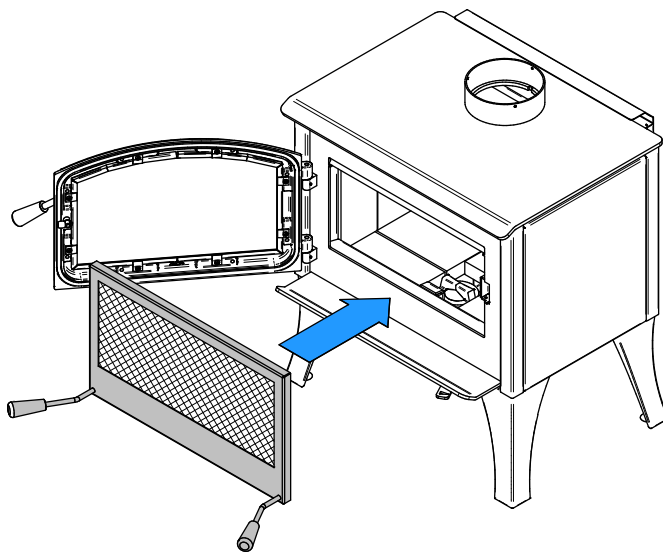
FRANÇAIS

ANNEXE 7: INSTALLATION DU PARE-ÉTINCELLES OPTIONNEL

1. Ouvrir la porte.

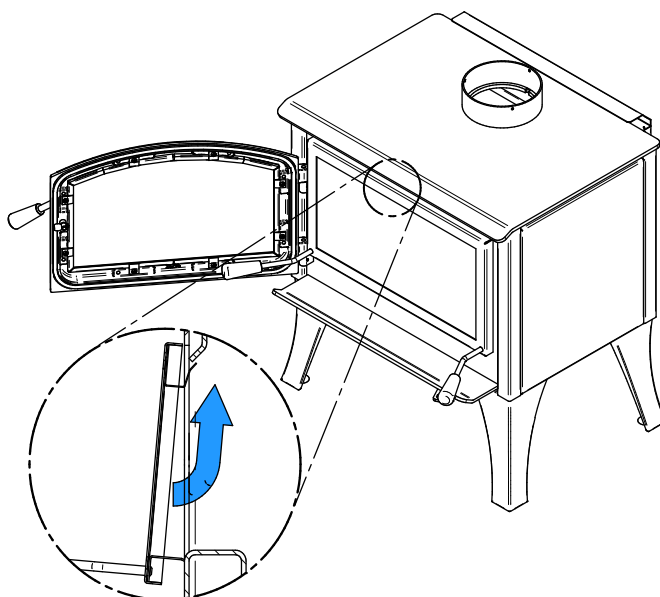


2. Tenir le pare-étincelles à l'aide des deux poignées et l'approcher de l'ouverture de porte.



3. Incliner la partie supérieure du pare-étincelles vers le haut de l'ouverture de porte. Ensuite, insérer les deux crochets au haut du pare-étincelles derrière le déflecteur d'air primaire tel qu'illustré.
4. Soulever le pare-étincelles et pousser la partie inférieure vers le poêle puis le laisser descendre jusqu'à ce que les crochets du bas soient derrière le rebord d'ouverture de porte inférieur.

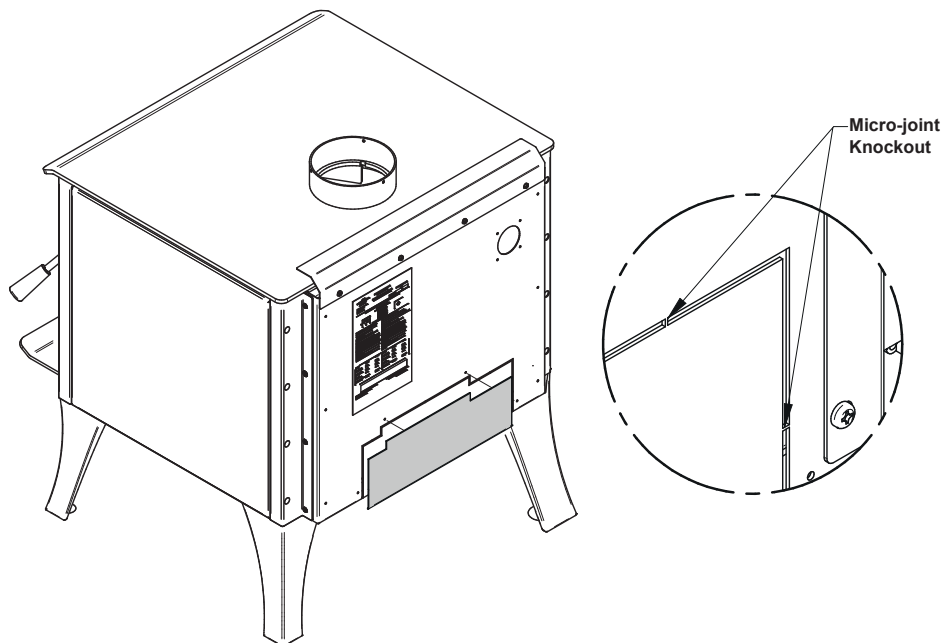
Attention: Ne jamais laisser l'appareil sans surveillance lorsque le pare-étincelles est utilisé.



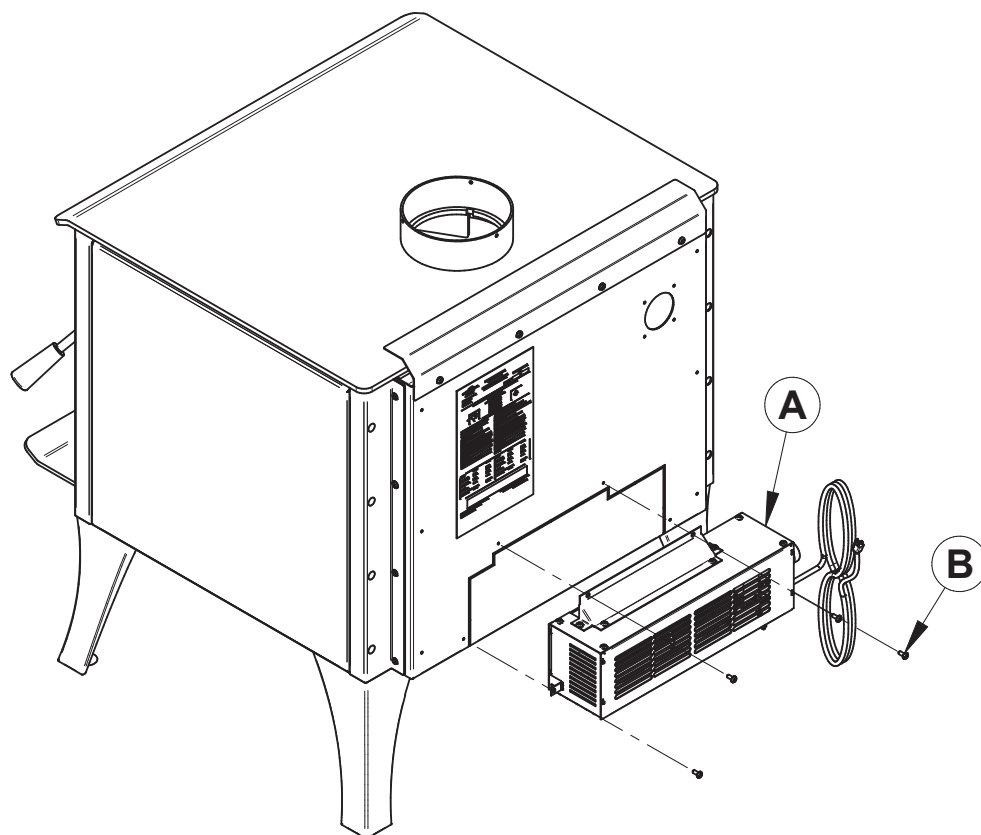
ANNEXE 8: INSTALLATION DU VENTILATEUR OPTIONNEL

Un ventilateur, vendu séparément, peut être installé sur le poêle.

1. Retirer la plaque à l'arrière du poêle en coupant les microjoints avec des pinces.



2. Visser le ventilateur **(A)** en place en utilisant les vis **(B)** incluses dans le manuel d'installation. **Le cordon électrique du ventilateur ne doit pas toucher à aucune surface du poêle de façon à éviter les décharges électriques ou les incendies. Le cordon électrique ne doit pas passer sous le poêle.**

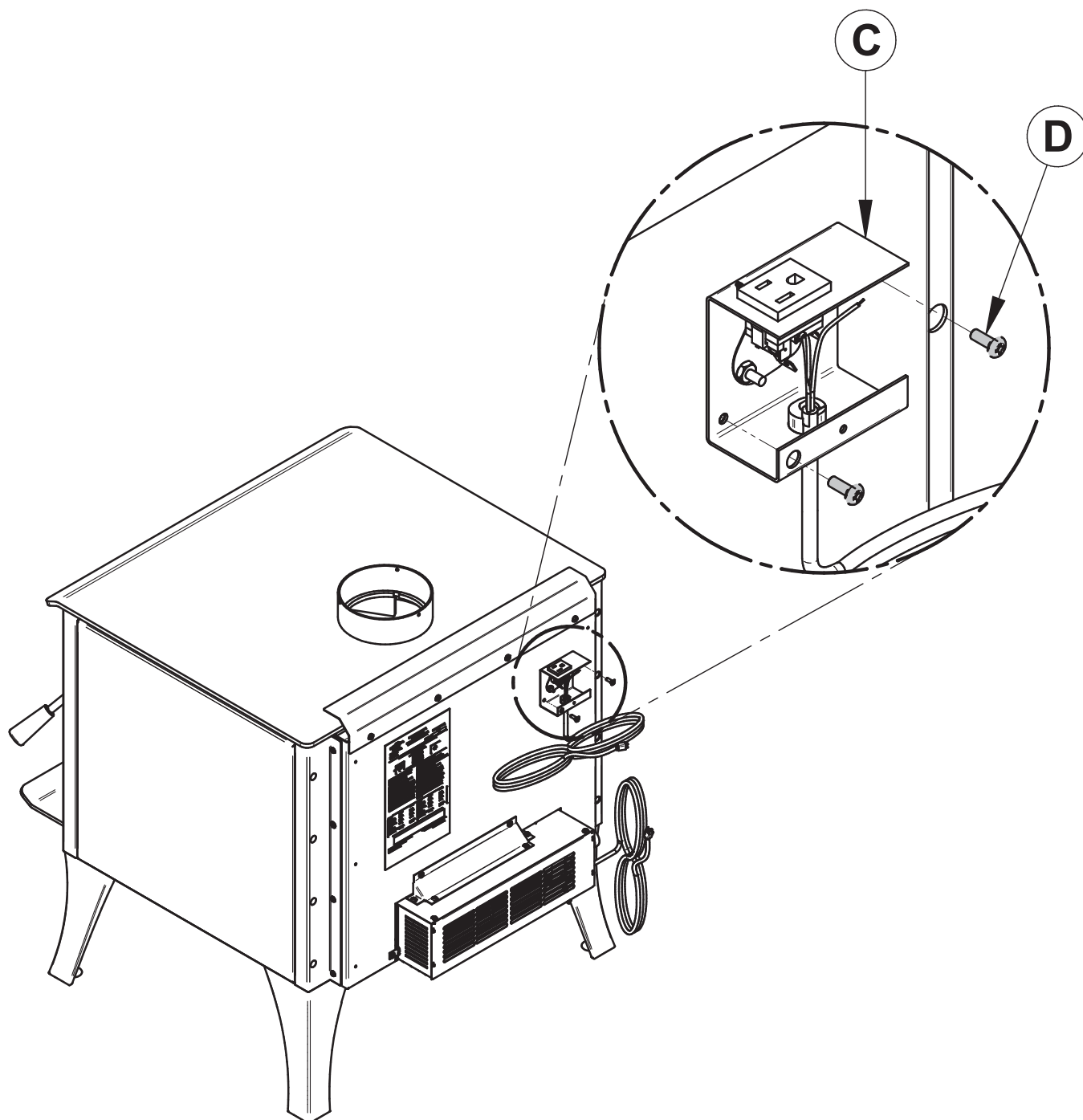


ANNEXE 9: INSTALLATION DU THERMODISQUE OPTIONNEL

Un thermodisque, vendu séparément, peut être installé avec le ventilateur. Il permet au ventilateur de fonctionner seulement lorsque le poêle est suffisamment chaud. Voir les instructions fournies avec le thermodisque pour plus de détails.

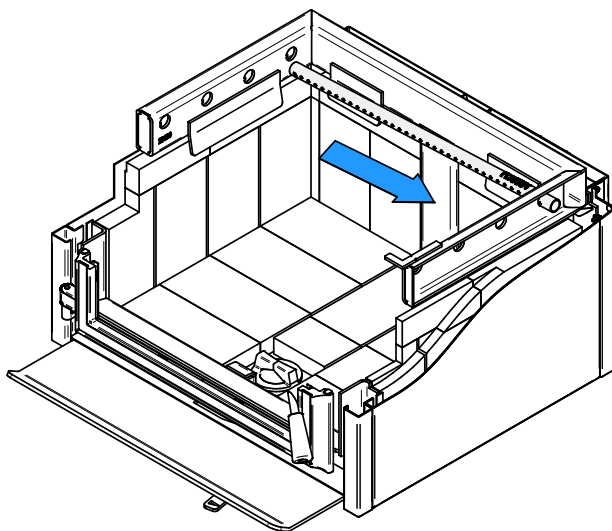
Visser le thermodisque **(C)** avec les vis **(D)** fournies à l'arrière du poêle.

Le cordon électrique du thermodisque ne doit pas toucher à aucune surface du poêle de façon à éviter les décharges électriques ou les incendies. Le cordon électrique ne doit pas passer sous le poêle.

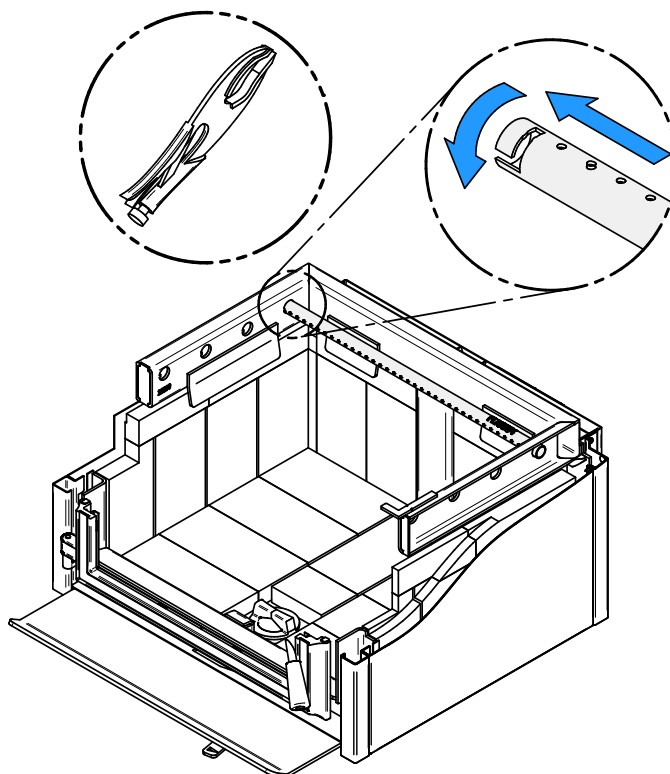


ANNEXE 10: INSTALLATION DES TUBES D'AIR ET DU COUPE-FEU

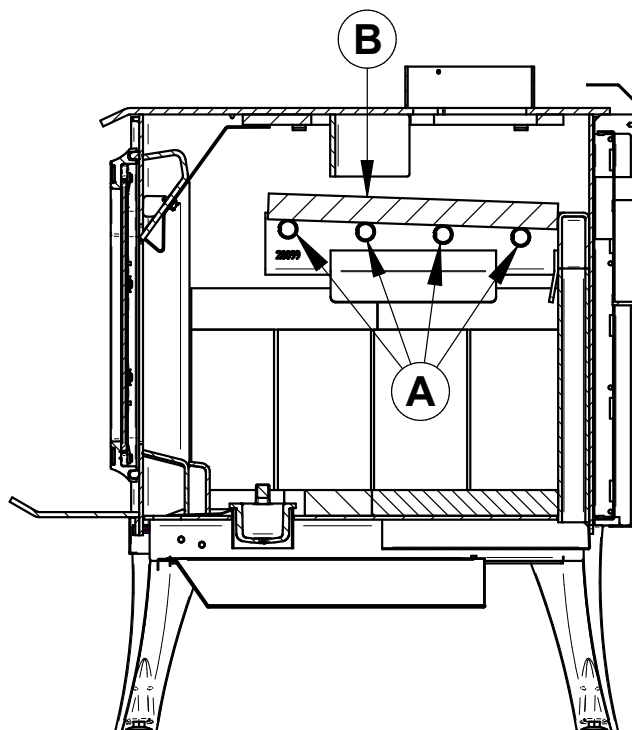
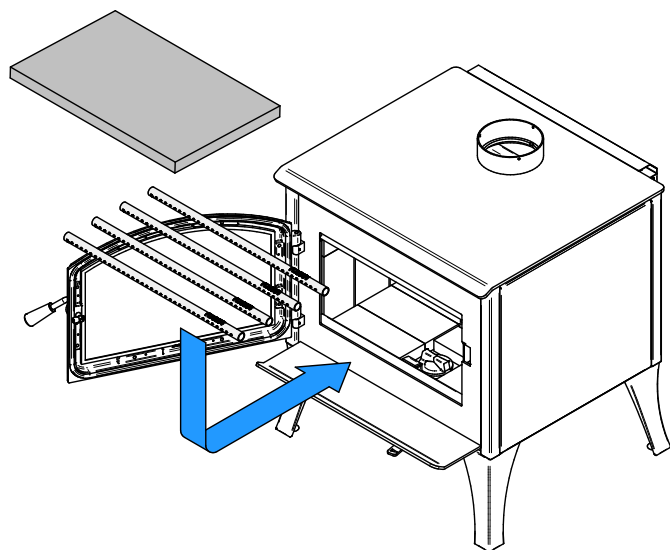
1. En commençant vers l'arrière, incliner et insérer le tube d'air secondaire arrière dans le trou du fond de la canalisation droite. Ensuite, lever et pousser le tube vers la gauche dans le trou correspondant de la canalisation de gauche.



2. Aligner le chemin du tube et la dent dans le trou de la canalisation. Tenir le tube à l'aide d'une pince de serrage et suivre le mouvement décrit dans la figure ci-contre, pour le sécuriser en place. S'assurer que la dent touche le fond du chemin du tube.
3. Installer le coupe-feu
4. Répéter les étapes 1 et 2 pour les autres tubes d'air secondaire.
5. Retirer dans l'ordre inverse.

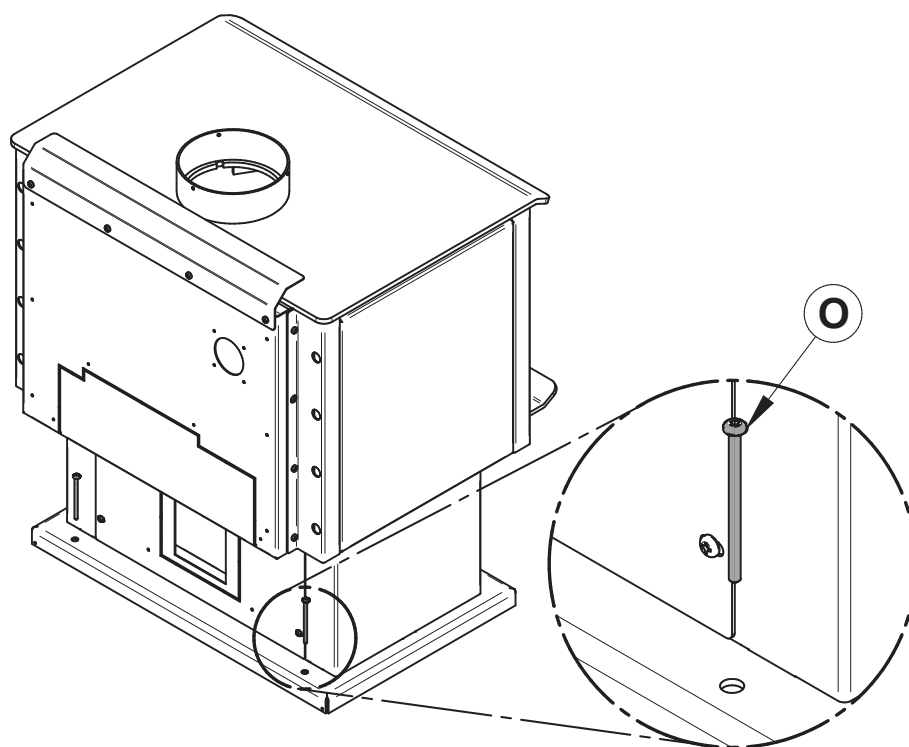
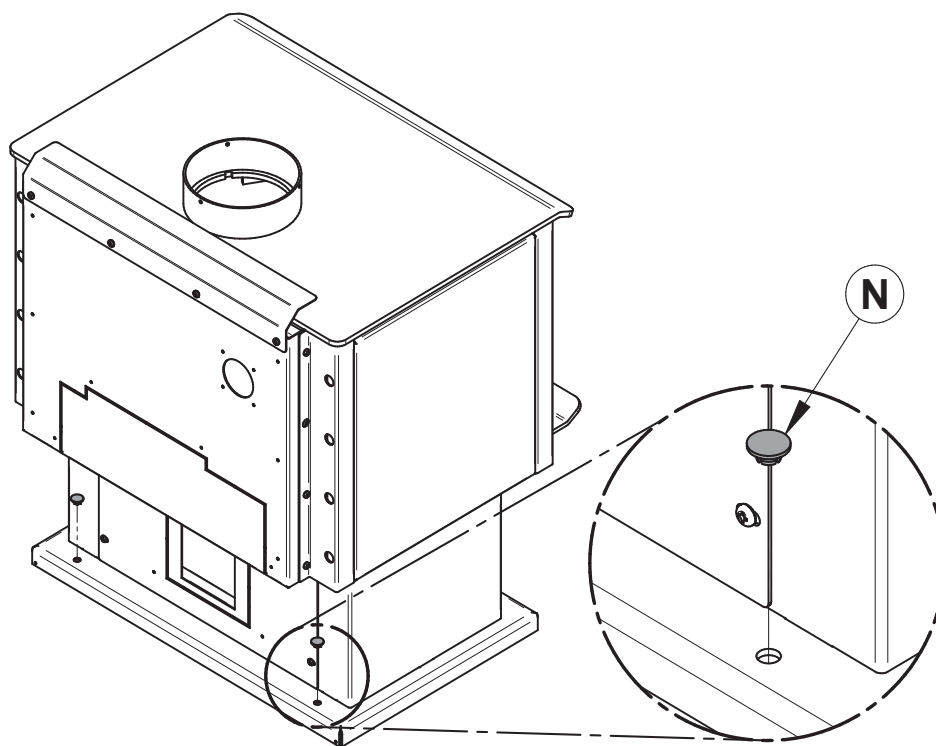


Prendre note que n'importe quel tube (A) peut être remplacé sans retirer le coupe-feu (B) et que les tubes sont tous identiques.



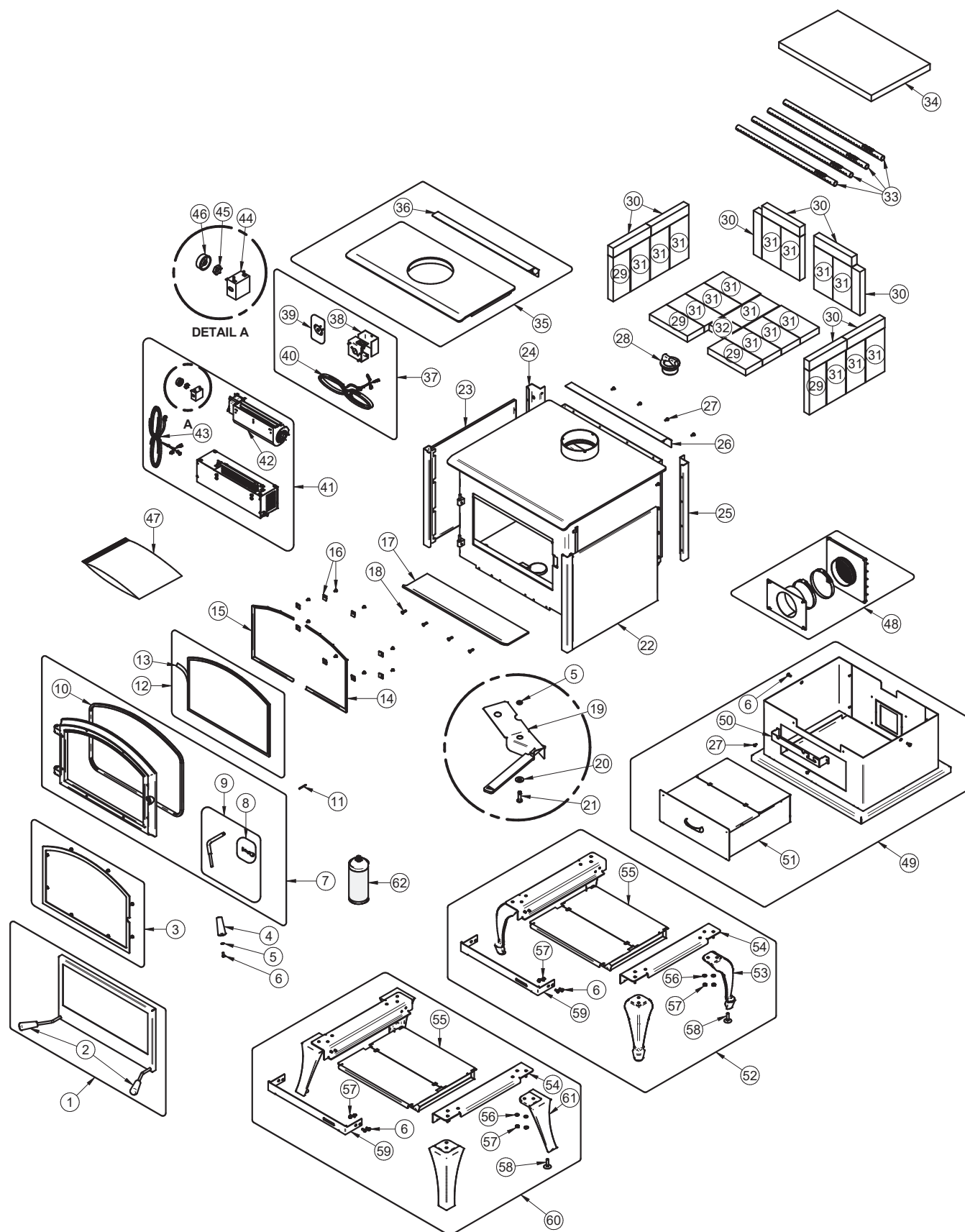
ANNEXE 11: INSTALLATION DANS UNE MAISON MOBILE

Retirer les bouchons **(N)** et visser la base en place avec la quincaillerie appropriée **(O)**.



ANNEXE 12: VUE ÉCLATÉE ET LISTE DE PIÈCES

FRANÇAIS



IMPORTANT: IL S'AGIT D'INFORMATIONS ACTUALISÉES. Lors de la demande de service ou de pièces de remplacement pour ce poêle, le numéro de modèle et le numéro de série doivent être fournis. Cette liste de pièces peut être modifiée en raison de mise à niveau technologique ou de disponibilité. Contacter un détaillant autorisé pour obtenir une de ces pièces. Ne jamais utiliser de matériaux de substitution. L'utilisation de pièces non approuvées peut entraîner de mauvaises performances et des risques pour la sécurité.

#	Item	Description	Qté
1	WBS3BL	PARE-ÉTINCELLES	1
2	30569	POIGNÉE EN BOIS RONDE NOIRE	2
3	WD3NB	REVÊTEMENT DE PORTE ARGENT BROSSÉ	1
3	WD3BL	REVÊTEMENT DE PORTE NOIR	1
4	30898	POIGNÉE DE BOIS RONDE NOIR FINI NOIR MAT	1
5	30187	RONDELLE EN ACIER INOX 17/64" Ø INT. X 1/2" Ø EXT.	2
6	30025	VIS MÉCANIQUE 1/4-20 X 1/2" PAN QUADREX NOIR	5
7	SE24301	PORTE GATEWAY 3500 ASSEMBLÉE	1
8	AC09185	ENSEMBLE DE BARRURE DE PORTE	1
9	SE65024	ENSEMBLE DE POIGNÉE DE REMPLACEMENT AVEC BARRURE	1
10	AC06500	ENSEMBLE SILICONE ET CORDON NOIR 5/8" X 8' POUR CONTOUR DE PORTE	1
11	30101	GOUPILLE TENDEUSE À RESSORT 5/32"Ø X 1 1/2"L	1
12	SE70900	VITRE GATEWAY 3500	1
13	AC06400	CORDON DE VITRE NOIR PRÉENCOLLÉ 3/4" (PLAT) X 6'	1
14	PL70780	CADRE DE VITRE DROIT	1
15	PL70781	CADRE DE VITRE GAUCHE	1
16	SE53585	ENSEMBLE DE (12) RETENEURS DE VITRE AVEC VIS	1
17	SE70777	TABLETTE À CENDRE ASSEMBLÉE	1
18	30507	VIS TÊTE PLATE TORX TYPE F 1/4-20 X 3/4" NOIR	4
19	SE70761	TRAPPE D'ENTRÉE D'AIR PRIMAIRE ASSEMBLÉE	1
20	30206	RONDELLE ZINC 5/16"Ø INT. X 3/4"Ø EXT.	1
21	30506	VIS TÊTE PAN TORX TYPE F 1/4-20 X 1" NOIR	1
22	SE70769	CÔTÉ DÉCORATIF DROIT ASSEMBLÉ	1
23	SE70771	CÔTÉ DÉCORATIF GAUCHE ASSEMBLÉ	1
24	PL70772	PARTIE ARRIÈRE CÔTÉ DÉCORATIF GAUCHE	1
25	PL70770	PARTIE DÉCORATIVE ARRIÈRE DROIT	1
26	PL70829	DÉFLECTEUR D'AIR TOLE DE DOS	1
27	30154	VIS NOIRE #10 X 5/8" QUADREX #2 TYPE A	6
28	24096	BOUCHON À CENDRES ROND EN FONTE	1
29	29011	BRIQUE RÉFRACTAIRE 4" X 9" X 1 1/4" HD	4
30	PL36056	BRIQUE RÉFRACTAIRE 2" X 9" 1 1/4"	6
31	29020	BRIQUE RÉFRACTAIRE 4 1/2" X 9" X 1 1/4" HD	17
32	PL36758	BRIQUE RÉFRACTAIRE 3 1/4" X 4 1/2" X 1 1/4"	1
33	PL70864	TUBE D'AIR SECONDAIRE	4
34	21565	COUPE-FEU EN C-CAST SÉRIE 3.5	1
35	WT3BL	ÉCHANGEUR DE CHALEUR SUPÉRIEUR	1
36	PL70878	DÉFLECTEUR D'AIR	1

#	Item	Description	Qté
37	WT1QC	ENSEMBLE DU THERMODISQUE À BRANCHEMENT ÉCLAIR	1
38	PL05530-02	BOITE POUR THERMODISQUE (COUVERCLE)	1
39	44028	THERMODISQUE F110-20F EN CÉRAMIQUE	1
40	60013	CORDON D'ALIMENTATION 96" X 18-3 Gaine SJT	1
41	WB1V	ÉLÉMENT ÉLECTRIQUE 18KW POUR SIERRA 140	1
42	44070	VENTILATEUR TANGENTIEL CAGE UNIQUE 130 PCM 115V-60Hz-56W	1
43	44080	RHÉOSTAT SANS ÉCROU	1
44	44087	ÉCROU DU RHÉOSTAT	1
45	44085	BOUTON DE RHÉOSTAT	1
46	SE46100	KIT DE MANUEL D'INSTRUCTIONS GATEWAY 3500	1
47	AC05959	PEINTURE POUR POÊLE NOIR MÉTALLIQUE - 342 g (12oz) AÉROSOL	1
48	WA5PD	ENSEMBLE D'ENTRÉE D'AIR FRAIS 5"Ø POUR POÊLE À BOIS SUR PIÉDESTAL	1
49	WP3BL	ENSEMBLE DE PIÉDESTAL	1
50	PL70837	FAÇADE DÉCORATIVE	1
51	SE70820	TIROIR À CENDRE ASSEMBLÉ	1
52	WLQ3BL	PATTES "QUEEN ANNE" EN FONTE NOIRE AVEC TIROIR À CENDRE	1
52	WLQ3BN	PATTES "QUEEN ANNE" EN FONTE ARGENT BROSSÉ AVEC TIROIR À CENDRE	1
53	PL24296-01	PATTE DE FONTE PLAQUÉE NICKEL AVEC BOULON DE NIVELAGE	4
53	PL24296	PATTE EMPIRE QUEEN ANNE PEINTE AVEC BOULON DE NIVELAGE PEINT	4
54	PL70827	SUPPORT DE PATTES	2
55	SE70867	TIROIR À CENDRE ASSEMBLÉ	1
56	30185	RONDELLE 17/64" TYPE AA NOIRE	8
57	30100	ÉCROU HEX NOIR 1/4-20 (NON-HUILÉ)	8
58	30050	BOULON DE NIVELAGE 3/8-16 X 1 1/2"	4
59	PL70868	FAÇADE DE CONTRÔLE D'AIR	1
60	WLS3BL	PATTES DROITES EN FONTE NOIRE AVEC TIROIR À CENDRE	1
60	WLS3NB	PATTES DROITES EN FONTE ARGENT BROSSÉ AVEC TIROIR À CENDRE	1
61	PL24295	PATTE EMPIRE DROITE PEINTE AVEC BOULON DE NIVELAGE	4
61	PL24295-01	PATTE DE FONTE PLAQUÉE NICKEL AVEC BOULON DE NIVELAGE	4

GARANTIE À VIE LIMITÉE EMPIRE

La garantie du fabricant ne s'applique qu'à l'acheteur au détail original et n'est pas transférable. La présente garantie ne couvre que les produits neufs qui n'ont pas été modifiés, altérés ou réparés depuis leur expédition de l'usine. Il faut fournir une preuve d'achat (facture datée), le nom du modèle et le numéro de série au détaillant lors d'une réclamation sous garantie.

La présente garantie ne s'applique que pour un usage résidentiel normal. Cette garantie devient invalide si l'appareil est utilisé pour brûler du matériel autre que du bois de chauffage (pour lequel l'appareil n'est pas certifié par l'EPA) et s'il n'est pas utilisé conformément aux instructions du manuel d'utilisation. Les dommages provenant d'une mauvaise utilisation, d'un usage abusif, d'une mauvaise installation, d'un manque d'entretien, d'une surchauffe, d'une négligence, d'un accident pendant le transport, d'une panne de courant, d'un manque de tirage, d'un retour de fumée ou d'une sous-évaluation de la surface de chauffage ne sont pas couverts par la présente garantie. La surface de chauffage recommandée pour un appareil est définie par le fabricant comme sa capacité à conserver une température minimale acceptable dans l'espace désigné en cas de panne de courant.

La présente garantie ne couvre pas les égratignures, la corrosion, la déformation ou la décoloration. Tout défaut ou dommage provenant de l'utilisation de pièces non autorisées ou autres que des pièces originales, annule la garantie. Un technicien qualifié autorisé doit procéder à l'installation en conformité avec les instructions fournies avec le produit et avec les codes du bâtiment locaux et nationaux. Tout appel de service relié à une mauvaise installation n'est pas couvert par la présente garantie.

Le fabricant peut exiger que les produits défectueux lui soient retournés ou que des photos numériques lui soient fournies pour appuyer la réclamation. Les produits retournés doivent être expédiés port payé au fabricant pour étude. Les frais de transport pour le retour du produit à l'acheteur seront payés par le fabricant. Tout travail de réparation couvert par la garantie et fait au domicile de l'acheteur par un technicien qualifié autorisé doit d'abord être approuvé par le fabricant. Tous les frais de pièces et main-d'œuvre couverts par la présente garantie sont limités au tableau ci-dessous.

Le fabricant peut, à sa discrétion, décider de réparer ou remplacer toute pièce ou unité après inspection et étude du défaut. Le fabricant peut, à sa discrétion, se décharger de toutes ses obligations en ce qui concerne la présente garantie en remboursant le prix de gros de toute pièce défectueuse garantie. Le fabricant ne peut, en aucun cas, être tenu responsable de tout dommage extraordinaire, indirect ou consécutif, quelle qu'en soit la nature, qui dépasserait le prix d'achat original du produit. Les pièces couvertes par une garantie à vie sont sujettes à une limite d'un seul remplacement sur la durée de vie utile du produit. Cette garantie s'applique aux produits achetés après le 1^{er} mars 2019.

DESCRIPTION	APPLICATION DE LA GARANTIE*	
	PIÈCES	MAIN-D'OEUVRE
Chambre à combustion (soudures seulement) et cadrage de porte en acier coulé (fonte).	À vie	5 ans
Verre céramique (bris thermique seulement**), placage (défaut de fabrication**) et échangeur de chaleur supérieur.	À vie	S.O.
Habillage, écran coupe-chaleur, tiroir à cendres, pattes en acier, piédestal, moulures décoratives (extrusions), coupe-feu en C-Cast**, coupe-feu en vermiculite**, tubes d'air secondaire**, déflecteurs et supports amovibles de la chambre à combustion en acier inoxydable.	7 ans	S.O.
Ensemble de poignée, moulures de vitre et mécanisme de contrôle d'air.	5 ans	3 ans
Pièces amovibles de la chambre à combustion en acier.	5 ans	S.O.
Ventilateur standard ou optionnel, capteurs thermiques, interrupteurs, rhéostats, câblage et électroniques.	2 ans	1 an
Peinture (écaillage**), joints d'étanchéité, isolants, laines céramiques, briques réfractaires et autres options.	1 an	S.O.
Toutes les pièces remplacées au titre de la garantie.	90 jours	S.O.

*Sous réserve des limitations ci-dessus. **Photos exigées.

Les frais de main-d'œuvre et de réparation portés au compte du fabricant sont basés sur une liste de taux prédéterminés et ne doivent pas dépasser le prix de gros de la pièce de rechange. Si votre appareil ou une pièce sont défectueux, communiquez immédiatement avec votre détaillant EMPIRE. Avant d'appeler, ayez en main les renseignements suivants pour le traitement de votre réclamation sous garantie :

- Votre nom, adresse et numéro de téléphone;
- La facture et le nom du détaillant;
- La configuration de l'installation;
- Le numéro de série et le nom du modèle tel qu'indiqué sur la plaque signalétique de l'appareil;
- La nature du défaut et tout renseignement important.

Avant d'expédier votre appareil ou une pièce défectueuse à notre usine, vous devez obtenir un numéro d'autorisation de votre détaillant EMPIRE. Toute marchandise expédiée sans autorisation sera automatiquement refusée et retournée à l'expéditeur.



Empire Comfort Systems, Inc.
918 Freeburg Avenue
Belleville, IL 62220
618 233.7420
www.empirecomfort.com

APPENDIX I - EPA CORRESPONDANCE



OMB Control No. 2060-0161
Approval expires 3/31/2019

OMB Control No. 2060-0693
Approval expires 3/31/2019

EPA Form 6400-03

RESIDENTIAL WOOD HEATER CERTIFICATE OF COMPLIANCE APPLICATION

INSTRUCTIONS

Pursuant to the 2015 Clean Air Act Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces, 40 CFR Part 60 Subparts AAA and QQQQ (2015 Wood Heater Rule), any manufacturer of an affected residential wood heater must apply to the EPA for a certificate of compliance for each model line. Without applying for and obtaining a certificate of compliance, a manufacturer may not manufacture, advertise for sale, offer for sale, or sell affected residential wood heaters in the United States.

Under Subpart AAA, affected residential wood-burning room heaters currently include, but are not limited to, adjustable burn rate stoves, catalytic adjustable burn rate stoves; hybrid adjustable burn rate stoves; single burn rate stoves; and pellet stoves.

Under Subpart QQQQ, affected residential wood-burning central heaters currently include, but are not limited to, indoor hydronic heaters ("wood boilers"); outdoor hydronic heaters ("outdoor wood boilers"); and forced-air furnaces ("warm air furnaces").

By completing and submitting this application to EPA, you will satisfy the requirement to apply for a certificate of compliance. To submit a complete application, this application must include the following:

- (1) Certification test report prepared by an EPA-approved test laboratory
- (2) Certification of conformity by an EPA-approved third party certifier
- (3) Quality assurance plan
- (4) All required supporting documentation and manufacturer statements pursuant to the 2015 Wood Heater Rule (Sections 60.533 or 60.5475)

This application must be signed by a responsible representative of the manufacturer or an authorized representative. Once completed with all required information/documentation included, this application must be submitted to WoodHeaterReports@epa.gov.

The public reporting and recordkeeping burden for this collection of information is estimated to average 8 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Regulatory Support Division, U.S. Environmental Protection Agency (EPA) (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed application to this address.

Disclaimer: The statutory provisions and the EPA regulations described in this document contain legally binding requirements. This document is not a substitute for those provisions or regulations, nor is it a regulation itself. In the event of a discrepancy, please refer to Part 60 Subparts AAA AND QQQQ, Sections 60.537 and 60.5479. If you have additional questions, please contact Rafael Sanchez at 202-

APPENDIX I - EPA CORRESPONDANCE (2 OF 19)

564-7028, Residential Wood Heater Compliance Program Lead, or via email at
sanchez.rafael@epa.gov.

MANUFACTURER INFORMATION

Manufacturer's Name: Stove Builder International

Manufacturer's Physical Address:
250 rue de Copenhagen
Saint-Augustin-de-Desmaures,
Canada, G3A 2H3

Manufacturer's Mailing Address (if different from physical address):

Name and Title of Manufacturer's Responsible/Authorized Representative Submitting this Application:
Guillaume Thibodeau-Fortin

Manufacturer's Contact E-mail: gthibodeaufortin@sbi-international.com

Manufacturer's Phone Number: 1-418-878-3040 x224

Manufacturer's Website Address:
www.sbi-international.com

Manufacturer's Website Address where the test report and owner's manual will be posted, if known:
www.drolet.ca

AFFECTED WOOD HEATER MODEL INFORMATION

Model Name(s) (as appearing on the certification test report). Please note: the model name and design number must clearly distinguish one model from another. The name and design number cannot include the EPA symbol or logo or name or derivatives such as "EPA": 3.5 Series

Model Number(s) (as appearing on the certification test report): Solution 3.5

Heater Type Check one):	☒ Adjustable Burn Rate Wood Stover	☐ Pellet Stove	☐ Single Burn Rate Wood Stove	☐ Hydronic Heater	☐ Forced-Air Furnace (FAF)
Hydronic Heater Type (Check one):	☐ Full Storage	☐ Partial Storage	☐ Indoor	☐ Outdoor	
Forced-Air Furnace Type (Check one):	☐ Small (less than 65,000 BTU/hr heat output)		☐ Large (greater than 65,000 BTU/hr heat output)		
Fuel Tested (Check one):	☐ Crib	☐ Pellet	☒ Cordwood	☐ Wood Chips	☐ Other:
Certification Step:	☐ 2015	☐ 2016 (FAFs only)	☐ 2017 (FAFs only)	☒ 2020 (ALL HEATERS)	
Was this heater tested using an EPA-approved Alternative Test Method (ATM)? ☒ Yes ☐ No If yes, provide date of EPA approval and attach copy of EPA approved ATM letter): 2/28/2018 If not, what Test Method(s) did the test laboratory use for the certification test? (List all applicable test methods):				Heater equipped with a catalytic combustor? ☐ Yes ☒ No	

APPENDIX I - EPA CORRESPONDANCE (3 OF 19)

Date of submission of 30-Day Notice to the EPA: 4/6/2018		
What was the proposed date(s) of testing? 5/7/2018		
What was the actual date(s) of testing? 5/22/2018		
Was the compliance test postponed or suspended? ☒ Y ☐ N If yes, date of EPA notification of postponement or suspension: 5/3/2018		
Explain reason for postponing or suspending the certification test: We had a safety issue with the stove, needed to modify door opening due to smoke spillage.		
EPA-APPROVED TEST LABORATORY		
Name of EPA-Approved Test Laboratory: Intertek		
Name(s) of Person(s) Authorized and/or Responsible for Conducting Certification Test: Claude Pelland, Eng.		
Position/Title: Project Engineer		
Address: 1829, 32 nd avenue		
City: Lachine	State: Québec	ZIP Code: H8T 3J1
Phone: 1-514-631-3100 x277	Email: claud.pellant@intertek.com	
EPA-APPROVED THIRD PARTY CERTIFIER		
Name of EPA-Approved Third-Party Certifier: Intertek		
Name(s) of Person(s) Authorized and/or Responsible for Reviewing Test Report and/or Issuing Certification of Conformity: Brian Ziegler		
Position/Title: Technical Team Leader		
Address: 8431 Murphy Drive		
City: Middleton	State: WI	ZIP Code: 53562
Phone: 608-824-7425	Email: brian.ziegler@intertek.com	

APPENDIX I - EPA CORRESPONDANCE (4 OF 19)

REQUIRED SUPPORTING DOCUMENTATION/MANUFACTURER STATEMENTS

NOTE: TO COMPLETE THIS APPLICATION, ALL REQUIRED DOCUMENTATION AND MANUFACTURER STATEMENTS MUST ACCOMPANY THIS APPLICATION.

1. Engineering Drawings

Engineering drawings and specifications of components that may affect emissions (including specifications for each component listed in paragraphs (k)(2), (3) and (4) of 60.533(b) and 60.5475(b). Manufacturers may use assembly or design drawings that have been prepared for other purposes, but must designate on the drawings the dimensions of each component listed in paragraph (k) of this section. Manufacturers must identify tolerances of components listed in paragraph (k)(2) of 60.533(b) and 60.5475(b) that are different from those specified in that paragraph, and show that such tolerances cannot reasonably be anticipated to cause wood heaters in the model line to exceed the applicable emission limits. The drawings must identify how the emission-critical parts, such as air tubes and catalyst, can be readily inspected and replaced.

2. Firebox Statement Requirement

A statement whether the firebox or any firebox component (including the materials listed in paragraph (k)(3) of 60.533(b) and 60.5475(b)) will be composed of material different from the material used for the firebox or firebox component in the wood heater on which certification testing was performed, a description of any such differences and demonstration that any such differences may not reasonably be anticipated to adversely affect emissions or efficiency.

3. Confidential Business Information

Clear identification of any claimed confidential business information (CBI). Submit such information under separate cover to the EPA CBI Office; Attn: Residential Wood Heater Compliance Program Lead, 1200 Pennsylvania Ave., NW, Room 7149-D, MS:2227A, Washington, DC 20460. **Note that all emissions data, including all information necessary to determine emission rates in the format of the standard, cannot be claimed as CBI.**

4. All Documentation Pertaining to a Valid Certification Test

All documentation pertaining to a valid certification test including the complete test report and, for all test runs: Raw data sheets, laboratory technician notes, calculations and test results. Documentation must include the items specified in the applicable test methods. Documentation must include discussion of each test run and its appropriateness and validity, and must include detailed discussion of all anomalies, whether all burn rate categories were achieved, any data not used in the calculations and, for any test runs not completed, the data collected during the test run and the reason(s) that the test run was not completed and why. The burn rate for the low burn rate category must be no greater than the rate that an operator can achieve in home use and no greater than is advertised by the manufacturer or retailer. The test report must include a summary table that clearly presents the individual and overall emission rates, efficiencies and heat outputs. Submit the test report and all associated required information, according to the procedures for electronic reporting specified in § 60.537(f) and 60.5475(f).

5. Warranties

A copy of the warranties for the model line, which must include a statement that the warranties are void if the unit is used to burn materials for which the unit is not certified by the EPA and void if not operated according to the owner's manual.

6. Quality Assurance Program Statement

A statement that the manufacturer will conduct a quality assurance program for the model line that satisfies the requirements of § 60.533(m).

7. Laboratory Sealing of Unit

A statement describing how the tested unit was sealed by the laboratory after the completion of certification testing and asserting that such unit will be stored by the manufacturer in the sealed state until 5 years after the certification test.

8. Statements that the Wood Heaters Manufactured under this Certificate will be:

- (i) Similar in all material respects that would affect emissions as defined in § 60.531 to the wood heater submitted for certification testing, and
- (ii) Labeled as prescribed in § 60.536 and 60.5478, and
- (iii) Accompanied by an owner's manual that meets the requirements in § 60.536 and 60.5478. In addition, a copy of the owner's manual must be submitted to the EPA and be available to the public on the manufacturer's web site.

9. Third Party Certification Statement

A statement that the manufacturer has entered into contracts with an approved laboratory and an approved third-party certifier that satisfy the requirements of § 60.533(f).

10. Approved Laboratory/Third Party Statement

A statement that the approved laboratory and approved third-party certifier are allowed to submit information on behalf of the manufacturer, including any claimed to be CBI.

11. Manufacturer's Website Certification Test Reports Availability Statement

A statement that the manufacturer will place a copy of the certification test report and summary on the manufacturer's web site available to the public within 30 days after the EPA issues a certificate of compliance.

12. Transferability Acknowledgement Statement

A statement of acknowledgment that the certificate of compliance cannot be transferred to another manufacturer or model line without written approval by the EPA.

APPENDIX I - EPA CORRESPONDANCE (5 OF 19)

13. Statement about Selling Wood Heaters without an EPA Certificate

A statement acknowledging that it is unlawful to sell, distribute or offer to sell or distribute an affected wood heater without a valid certificate of compliance.

PLEASE ACKNOWLEDGE THAT ALL REQUIRED SUPPORTING DOCUMENTATION AND MANUFACTURER STATEMENTS ACCOMPANY THIS APPLICATION.

Initials



SIGNATURE OF RESPONSIBLE OFFICER OR AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER CERTIFYING THE ACCURACY AND COMPLETENESS OF THIS APPLICATION:

Signature:



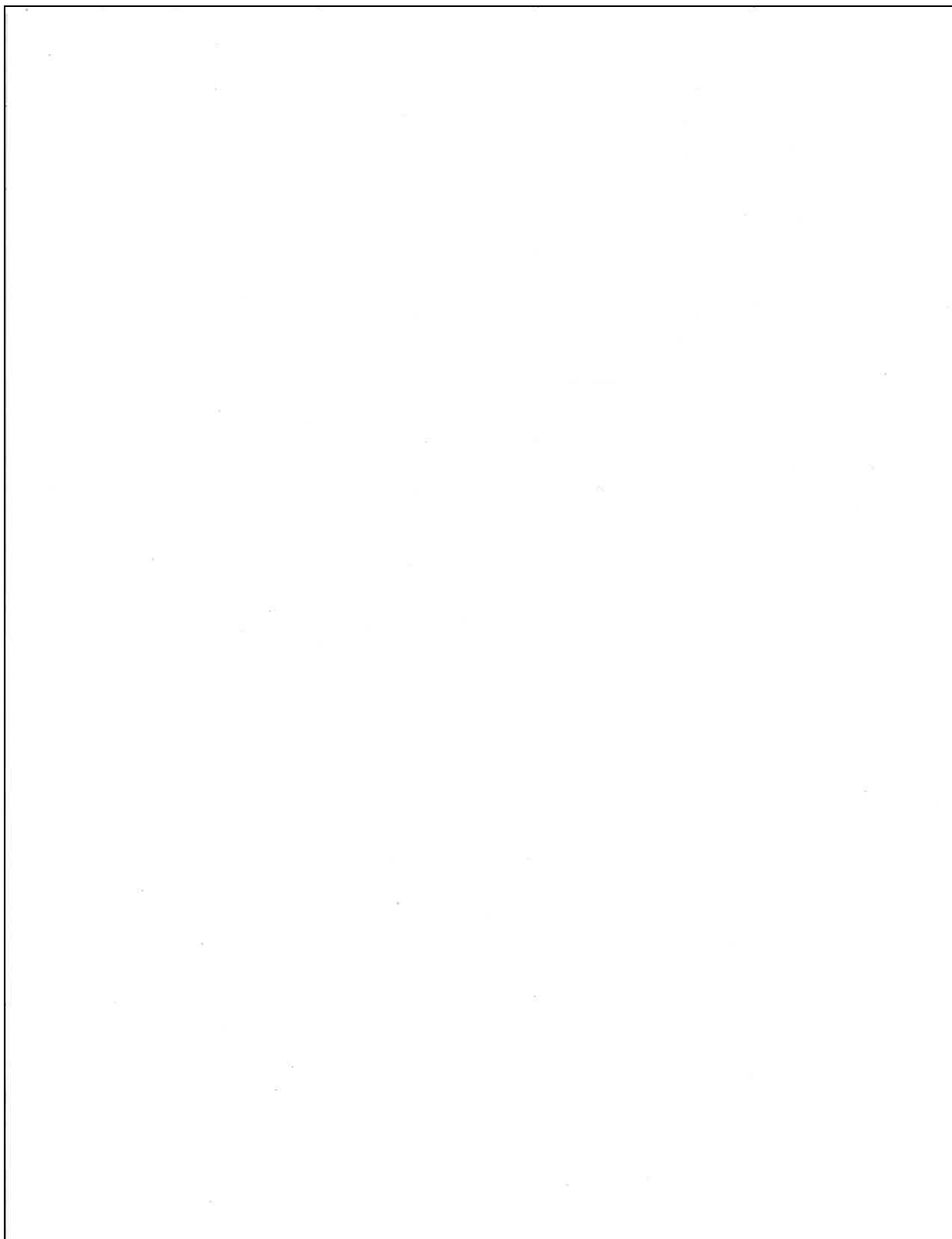
Print Name: Guillaume Thibodeau-Fortin

Title: Engineer

Date: 2018, June 8th

The responsible officer or authorized representative of the manufacturer whose signature is above is certifying that the manufacturer has complied with all requirements of the 2015 Wood Heater Rule for compliance certification and will continue to do so. The manufacturer remains responsible for compliance regardless of any error by the EPA-approved test laboratory or third-party certifier.

APPENDIX I - EPA CORRESPONDANCE (6 OF 19)



APPENDIX I - EPA CORRESPONDANCE (7 OF 19)



Fabricant de poêles international inc.
Stove Builder International Inc.

Notre *passion* devient source d'énergie
We Turn *passion* Into Energy

June 8th, 2018

Air Branch/Wood Heater Program Lead
Monitoring, Assistance, and Media Programs Division
Office of Compliance
U.S. EPA
1200 Pennsylvania Ave., NW
MS:2227A
Washington, DC 20004
Attn: EPA Administrator

Subject: Compliance Statements and Acknowledgements

Dear Administrator,

As stated in the application for certificate of compliance, Stove Builder International Inc (SBI) states and acknowledges the 13 items below.

1. SBI provided all engineering drawing (including specifications for each component listed in paragraphs (k)(2), (3) and (4) of 60.533(b) and 60.5475(b) available in Intertek Test Report 103536746MTL-002 at Appendix D. Tolerances are identified on all part draft and cannot reasonably be anticipated to cause wood heater in the model line to exceed the applicable emission limits. The user's manual shows how to replace and inspect emission-critical part such as the secondary tubes.
2. SBI confirm that the firebox or any firebox component (including the materials listed in paragraph (k)(3) of 60.533(b) and 60.5475(b) will be composed of material similar from the material used for the firebox or firebox component in the wood heater on which certification testing was performed. Individual brick size and color may vary but the specification of the material remains the same. The inner firebox brick coverage remains also always the same. If other differences occur over time, a description of any such differences and demonstration that any such differences may not reasonably be anticipated to adversely affect emissions or efficiency will be communicate with Residential Wood Heater Compliance Program Lead.
3. SBI will provide to Residential Wood Heater Compliance Program Lead the Confidential Business Information (CBI) report including all test data and drawings by e-mail to Sanchez.Rafael@epa.gov.
4. SBI provided all documentation that proves that the certification tests were valid. Raw data sheets, laboratory technician notes, calculations and test results were provided to Residential Wood Heater Compliance Program Lead in the appendix of Intertek Test Report 103536746MTL-002. SBI confirms that the burn rate for the low burn rate category is no greater than the rate that an operator can achieve in home use and no greater than is advertised by the manufacturer or retailer.
5. SBI provided in Appendix D of Intertek Test Report 103536746MTL-002 a copy of the warranty that stated: "This warranty is void if the unit is used to burn materials other than cordwood (for which the unit is not certified by the EPA) and void if not operated according to the owner's manual. This warranty applies to normal residential use only. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation, power failures, downdrafts, venting problems or under-estimated heating area are not covered by this warranty. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum

250, rue De Copenhagen, Saint-Augustin-de-Desmaures, Qc G3A 2H3 • Tél.: 418-878-3040 • Fax : 418-878-3001
www.sbi-international.com

APPENDIX I - EPA CORRESPONDANCE (8 OF 19)



Fabricant de poêles international inc.
Stove Builder International Inc.

Notre passion devient source d'énergie
We Turn passion Into Energy

acceptable temperature in the designated area in case of a power failure.”

6. SBI, with the help of the certification laboratory, Intertek, built a Quality Assurance Program. A quality control is performed for each unit produced and 4 times a year, Intertek audits our production line to make sure that the models in production comply with the certification unit.
7. SBI confirms that the certification model was sealed by Intertek as per picture of Appendix H. Permanent straps holds the unit on a wooden palette and prevent the door from opening. Intertek logo is painted over the unit and the strap as a protection. The sealed unit will be store at SBI laboratory as long as the unit is in production, but a least for 5 years after certification test.
8. SBI states that the units produce under this certificate will be:
 - a. Similar in all material respects that would affect emissions as defined in § 60.531 to the wood heater submitted for certification testing, and labeled as prescribed in § 60.536 and 60.5478.
 - b. Accompanied by an owner's manual that meets the requirements in § 60.536 and 60.5478. A copy of the owner's manual was submitted to the Administrator and will be available to the public on the manufacturer's web site at production launch.
9. SBI has entered into contracts with an approved laboratory and third-party certifier which is Intertek. Intertek Montreal is the approved laboratory and the third-party certifier is the Middleton chapter of Intertek.
10. SBI allows the approved laboratory and approved third-party certifier to submit information to Residential Wood Heater Compliance Program Lead on behalf of SBI, including any claimed to be CBI.
11. SBI will place a copy of the certification test report, summary and all non-CBI on the manufacturer's web site available to the public within 30 days after the Administrator issues a certificate of compliance.
12. SBI acknowledges that the certificate of compliance cannot be transferred to another manufacturer or model line without written approval by the Administrator.
13. SBI acknowledges that it is unlawful to sell, distribute or offer to sell or distribute an affected wood heater without a valid certificate of compliance.

Print name and title : Guillaume Thibodeau-Fortin, Eng. Date : 2018-06-08

Signature of responsible representative of the manufacturer certifying the accuracy of the above statements:

The authorized or responsible party whose signature is above is certifying that the manufacturer has complied with and will continue to comply with all requirements of the 2015 CAA Standards for compliance certification and that the manufacturer remains responsible for compliance regardless of any error by the test laboratory or third-party certifier.

APPENDIX I - EPA CORRESPONDANCE (9 OF 19)

Guillaume Thibodeau-Fortin

De: Guillaume Thibodeau-Fortin
Envoyé: 3 mai 2018 12:20
À: 'Sanchez, Rafael'
Cc: 'Claude Pelland' Intertek'
Objet: RE: 30-days notification - 3.4 series

Hi Rafael,

We had a safety issue with the stove earlier this week so we need to delay the certification planned on May 7th. It is going to be on May 14th or 21st, I need to discuss with the lab for availability. I will be able to confirm you which date the certification will start next Monday or Tuesday (7 or 8th).

If you have any question, please let me know.



Guillaume Thibodeau-Fortin, Ing./Eng.

Ingénieur mécanique
Mechanical Engineer



T : 418-878-3040 ext.5224



De : Guillaume Thibodeau-Fortin
Envoyé : 6 avril 2018 10:42
À : WoodHeaterReports
Cc : Sanchez, Rafael ; 'Claude Pelland Intertek'
Objet : 30-days notification - 3.4 series

Hi,

Here is a 30-days notification for the upcoming certification of the 3.4 series room heater on cordwood.

Please note that I am waiting for an update of the Alt-125 from Mike Toney and Steffan Johnson, I should receive that early next week. I could transfer you the information at this time.

Thank you and have a great week-end.



Guillaume Thibodeau-Fortin, Ing./Eng.

Ingénieur mécanique
Mechanical Engineer



T : 418-878-3040 ext.5224



[Numéro de page]

APPENDIX I - EPA CORRESPONDANCE (10 OF 19)



[Numéro de page]

APPENDIX I - EPA CORRESPONDANCE (11 OF 19)



OMB Control No. 2060-0161
Approval expires 03/31/2019

OMB Control No. 2060-0693
Approval expires 03/31/2019

EPA Form 6400-05

Office of Enforcement and Compliance Assurance

30-DAY NOTIFICATION

2015 CLEAN AIR ACT (CAA) STANDARDS OF PERFORMANCE FOR NEW RESIDENTIAL WOOD HEATERS, NEW RESIDENTIAL HYDRONIC HEATERS AND FORCED-AIR FURNACES 40 CFR PART 60 SUBPARTS AAA AND QQQQ

The public reporting and recordkeeping burden for this collection of information is estimated to average 2 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Regulatory Support Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Disclaimer: The statutory provisions and the EPA regulations described in this document contain legally binding requirements. This document is not a substitute for those provisions or regulations, nor is it a regulation itself. In the event of a discrepancy, please refer to 40 CFR PART 60 Subparts AAA AND QQQQ, sections 60.537 and 60.5479. If you have additional questions, please contact Rafael Sanchez at 202-564-7028 or via email at sanchez.rafael@epa.gov.

Instructions: The manufacturer of an affected wood/pellet heater/central heater model line must notify the Administrator of the date that certification testing is scheduled to begin by email to WoodHeaterReports@epa.gov. This notice must be received by the EPA at least 30 days before the start of testing.

GENERAL INFORMATION						
Manufacturer's Name: Stove Builder International						
Heater Type (Check one):	☒ Adjustable Burn Rate Wood Heater	☐ Pellet Stove	☐ Single Burn Rate Heater	☐ Hydronic Heater	☐ Forced Air Furnace	☐ Other:
Hydronic Heater Type (Check one):	☐ Full Storage	☐ Partial Storage	☐ Indoor	☐ Outdoor	☐ Other:	
Forced-Air Furnace Type (Check one):	☐ Small (less than 65,000 BTU/hr heat output)		☐ Large (greater than 65,000 BTU/hr heat output)			
Fuel Tested (Check one):	☐ Crib	☐ Pellet	☒ Cordwood	☐ Wood Chips	☐ Other:	
Model Name(s) (as will appear on test report): 3.4 Series						
Model Number(s) (as will appear on test report): HT2000						
Equipped with a catalytic combustor? ☐ Yes ☒ No						

APPENDIX I - EPA CORRESPONDANCE (12 OF 19)



OMB Control No. 2060-0161
Approval expires 03/31/2019

OMB Control No. 2060-0693
Approval expires 03/31/2019

EPA Form 6400-05

Office of Enforcement and Compliance Assurance

30-DAY NOTIFICATION

2015 CLEAN AIR ACT (CAA) STANDARDS OF PERFORMANCE FOR NEW RESIDENTIAL WOOD HEATERS, NEW RESIDENTIAL HYDRONIC HEATERS AND FORCED-AIR FURNACES 40 CFR PART 60 SUBPARTS AAA AND QQQQ

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Mailing Address: Same as street address		
Street Address: 250 rue de Copenhagen		
City: Saint-Augustin-de-Desmaures	State: Québec	ZIP Code: G3A 2H3
Phone: 1-418-878-3040 x5224	Fax: 1-418-878-3001	Web Site: www.sbi-international.com
Address of Manufacturer: Same as above.		
City:	State	ZIP Code:
EPA APPROVED TEST LABORATORY		
Name and Title of Authorized Representative: Claude Pelland, Project Engineer		
Company: Intertek		
Phone: 1-514-631-3100 x277	E-mail: claud.pelland@intertek.com	Fax: 1-514-631-1133

APPENDIX I - EPA CORRESPONDANCE (13 OF 19)



OMB Control No. 2060-0161
Approval expires 03/31/2019

OMB Control No. 2060-0693
Approval expires 03/31/2019

EPA Form 6400-05

Office of Enforcement and Compliance Assurance

30-DAY NOTIFICATION

2015 CLEAN AIR ACT (CAA) STANDARDS OF PERFORMANCE FOR NEW RESIDENTIAL WOOD HEATERS, NEW RESIDENTIAL HYDRONIC HEATERS AND FORCED-AIR FURNACES 40 CFR PART 60 SUBPARTS AAA AND QQQQ

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City: Lachine	State: Québec	ZIP Code: H8T 3J1
EPA APPROVED THIRD-PARTY CERTIFIER		
Name and Title of Authorized Representative: Brian Ziegler		
Company: Intertek		
Phone: 608-824-7425	E-mail: brian.ziegler@intertek.com	Fax:
City: Middleton	State: WI	ZIP Code: 53562
COMPLIANCE TEST INFORMATION		
Test Method(s): ASTM E3053-17 as per letter the Broadly Applicable Alternative Test Method from EPA of 2/28/2018 (Alt-125)		
Date(s) of Proposed Test: May 7 th , 2018		

APPENDIX I - EPA CORRESPONDANCE (14 OF 19)



OMB Control No. 2060-0161
Approval expires 03/31/2019

OMB Control No. 2060-0693
Approval expires 03/31/2019

EPA Form 6400-05

Office of Enforcement and Compliance Assurance

30-DAY NOTIFICATION

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Instructions: The manufacturer of an affected wood/pellet heater/central heater model line must notify the Administrator of the date that certification testing is scheduled to begin by email to WoodHeaterReports@epa.gov. This notice must be received by the EPA at least 30 days before the start of testing.

Testing Location (Name and Address): Stove Builder International Laboratory
250 rue de Copenhague, Saint-Augustin-de-Desmaures,
Québec, Canada, G3A 2H3

Contact Name: Guillaume Thibodeau-Fortin

Title: Engineer

Phone Number: 1-418-878-3040 x224

Email Address: gthibodeaufortin@sbi-international.com

APPENDIX I - EPA CORRESPONDANCE (15 OF 19)



OMB Control No. 2060-0161
Approval expires 03/31/2019

OMB Control No. 2060-0693
Approval expires 03/31/2019

EPA Form 6400-05

Office of Enforcement and Compliance Assurance

30-DAY NOTIFICATION

2015 CLEAN AIR ACT (CAA) STANDARDS OF PERFORMANCE FOR NEW RESIDENTIAL WOOD HEATERS, NEW RESIDENTIAL HYDRONIC HEATERS AND FORCED-AIR FURNACES 40 CFR PART 60 SUBPARTS AAA AND QQQQ

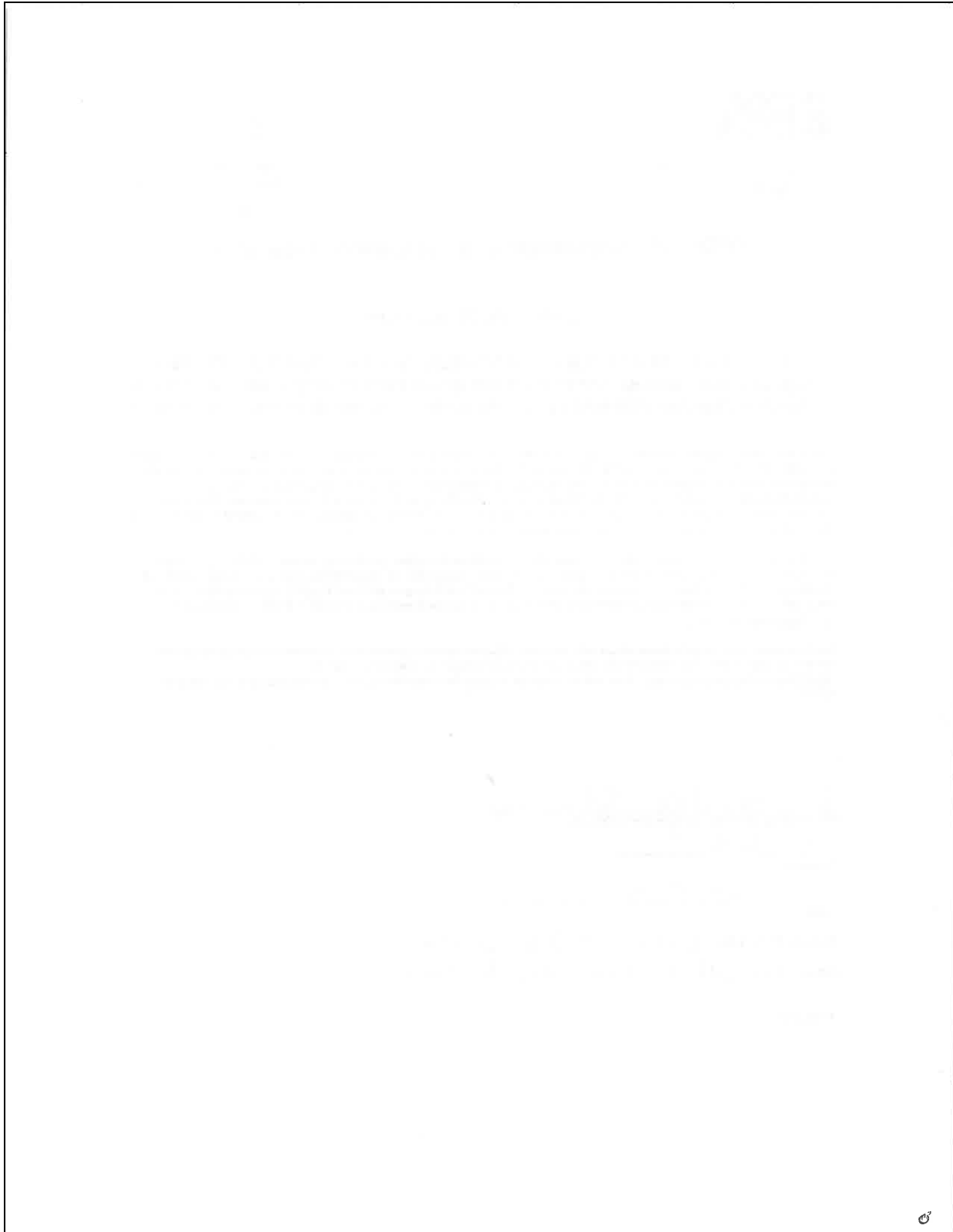
The public reporting and recordkeeping burden for this collection of information is estimated to average 2 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Regulatory Support Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

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Instructions: The manufacturer of an affected wood/pellet heater/central heater model line must notify the Administrator of the date that certification testing is scheduled to begin by email to WoodHeaterReports@epa.gov. This notice must be received by the EPA at least 30 days before the start of testing.

Guillaume Thibodeau-Fortin P.Eng.	
Print Name and Title of Authorized Official	
Signature	
April 6th, 2018	
Date	
Telephone Number: 1-418-878-3040 x5224	
Email Address: gthibodeau@stbi-international.com	
Remarks:	
v1	

APPENDIX I - EPA CORRESPONDANCE (16 OF 19)



APPENDIX I - EPA CORRESPONDANCE (17 OF 19)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

FEB 28 2018

Mr. Justin White
Hearthstone QHPP, Inc.
#17 Stafford Ave.
Morrisville, VT 05661

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Dear Mr. White,

I am writing in response to your letter dated January 12, 2018, regarding wood heaters manufactured by Hearthstone QHPP, Inc. (Hearthstone). This response, dated February 28, 2018, supercedes our previous response (dated February 26, 2018) to correct an inaccuracy regarding required changes to ASTM E3053-17.

You are requesting to use an alternative test method, using cord wood, as referenced in section 60.532(c) of 40 CFR part 60, Subpart AAA, Standards of Performance for New Residential Wood Heaters (Subpart AAA) to meet the 2020 cord wood alternative compliance option. The 2020 cord wood alternative compliance option states that each affected wood heater manufactured or sold at retail for use in the United States on or after May 15, 2020, must not discharge into the atmosphere any gases that contain particulate matter in excess of 2.5 g/hr. Compliance must be determined by a cord wood test method approved by the Administrator along with the procedures in 40 CFR 60.534. You have requested approval to use the procedures and specifications found in ASTM Method E3053-17, a cord wood test method titled, "Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters using Cordwood Test Fuel," in conjunction with ASTM E2515-11 and Canadian Standards Administration (CSA) Method CSA-B415.1-10, which are specified in 40 CFR 60.534.

We understand that Hearthstone is also requesting that the alternative method proposed above be approved to apply broadly to all wood heaters manufactured by Hearthstone meeting the requirements of Subpart AAA, from the approval date of this request until such time that Subpart AAA is revised or replaced to require a different cord wood certification method, providing all requirements of section 60.533 of Subpart AAA are met.

With the caveats set forth below, we approve your alternative test method request for certifying wood heaters using ASTM E3053-17 in conjunction with section 60.534 of Subpart AAA to meet the 2020 cord wood compliance option until such time that Subpart AAA is revised or replaced to require a different cord wood certification method. We also approve application of this alternative method to all wood heaters manufactured by Hearthstone meeting the requirements of Subpart AAA.

APPENDIX I - EPA CORRESPONDANCE (18 OF 19)

2

As required in Subpart AAA, section 60.354(d), you or your approved test laboratory must also measure the first hour of particulate matter emissions for each test run using a separate filter in one of the two parallel sampling trains. These results must be reported separately and also included in the total particulate matter emissions per run. Also, as required by Subpart AAA, section 60.534(e), you must have your approved laboratory measure the efficiency, heat output, and carbon monoxide emissions of the tested wood heater using CSA-B415.1-10. For measurement of particulate matter emission concentrations, ASTM 2515-11 must be used.

The following change to ASTM E3053-17 must be followed:

1. Coal bed conditions prior to loading test fuel. The coal bed shall be a level plane without valleys or ridges for all test runs in the high, low, and medium burn rate categories.

The following changes to ASTM E2515-11 must be followed:

1. The filter temperature must be maintained between 80 and 90 degrees F during testing.
2. Filters must be weighed in pairs to reduce weighing error propagation; see ASTM 2515-11, Section 10.2.1 Analytical Procedure.
3. Sample filters must be Pall TX-40 or equivalent Teflon-coated glass fiber, and of 47 mm, 90 mm, 100 mm, or 110 mm in diameter.
4. Only one point is allowed outside the +/- 10 percent proportionality range per test run.

A copy of this letter must be included in each certification test report where this alternative test method is utilized.

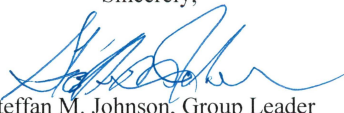
It is reasonable that this alternative test method approval be broadly applicable to all wood heaters subject to the requirements of 40 CFR part 60, Subpart AAA. For this reason, we will post this letter as ALT-125 on our website at <http://www3.epa.gov/ttn/emc/approalt.html> for use by other interested parties. As noted earlier in this letter, this alternative method approval is valid until such time that Subpart AAA is revised or replaced to require a different cord wood certification method, and at such time, this alternative will be reconsidered and possibly withdrawn.

APPENDIX I - EPA CORRESPONDANCE (19 OF 19)

3

If you have additional questions regarding this approval, please contact Michael Toney of my staff at 919-541-5247 or toney.mike@epa.gov.

Sincerely,



Steffan M. Johnson, Group Leader
Measurement Technology Group

cc: Amanda Aldridge, EPA/OAQPS/OID
Adam Baumgart-Getz, EPA/OAQPS/OID
Rafael Sanchez, EPA/OECA
Michael Toney, EPA/OAQPS/AQAD

PRODUCT EVALUATION REPORT 103536746MTL-003



STOVE BUILDER INTERNATIONAL PRODUCT EVALUATION

PRODUCT EVALUATED

ESCAPE 2100, HT-3000, GATEWAY 3500, OSBURN 3500

EVALUATION PROPERTY

U.S. ENVIRONMENTAL PROTECTION AGENCY 40 CFR PART 60

REPORT NUMBER

103536746-MTL003

ORIGINAL ISSUE DATE

02/11/19

LAST REVISED DATE

ORIGINAL

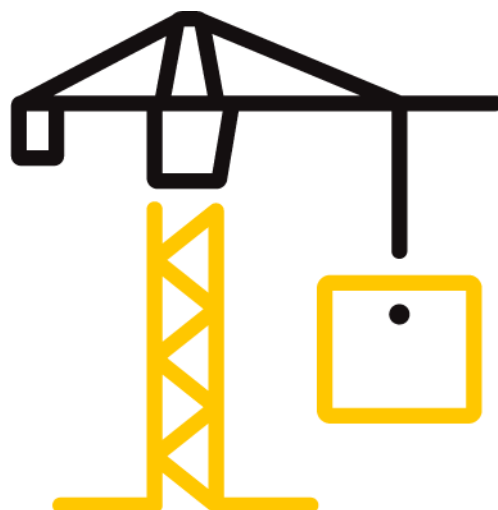
PAGES

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DOCUMENT CONTROL NUMBER

SFT-BC-OP-19H

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PRODUCT EVALUATION REPORT 103536746MTL-003 (2 OF 50)



Total Quality. Assured.

PRODUCT EVALUATION FOR STOVE BUILDER INTERNATIONAL
Report No.: 103536746-MTL003
Date: 02/11/19

1829, 32nd Avenue
Lachine, Quebec H8T 3J1

Telephone: (514)631-3100
Facsimile: (514)631-1133
www.intertek.com/building

PRODUCT EVALUATION RENDERED TO:	
Company Name:	Stove Builder International
Address:	250 rue de Copenhague
	St-Augustin-de-Desmaures, QC
	G3A 2H3, Canada
Contact Person:	Guillaume Thibodeau-Fortin
Tel:	1-418-878-3040 x5224
Email:	gthibodeaufortin@sbi-international.com

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This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample(s) tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

PRODUCT EVALUATION REPORT 103536746MTL-003 (3 OF 50)



Total Quality. Assured.

1829, 32nd Avenue
Lachine, Quebec H8T 3J1

Telephone: (514)631-3100
Facsimile: (514)631-1133
www.intertek.com/building

PRODUCT EVALUATION FOR STOVE BUILDER INTERNATIONAL

Report No.: 103536746-MTL003

Date: 02/11/19

1 Introduction

Intertek Testing Services NA Ltd./Inc. (Intertek) is conducting a product evaluation for Stove Builder International, on Escape 2100, HT-3000, Gateway 3500, Osburn 3500, to evaluate if the differences with the previously certified Solution 3.5 will increase particulate matter emission rate limit. The evaluation is being conducted to determine if items listed in *U.S. Environmental Protection Agency 40 CFR Part 60 Standards of Performance for New Residential Wood Heaters; Final Rule, SECTION 60.533(k)* will show equivalency with the previously tested Solution 3.5 Stove.

2 Product and Assembly Description

2.1. Product Description:

The model Solution 3.5 Wood Fuel Room Heater is constructed of sheet steel. The outer dimensions are 33 3/4-inches deep, 34 7/16-inches high, and 27 9/16-inches wide. The unit has a door located on the front with a viewing glass.

Construction drawings are in appendix and named EB00053_CERTIF.

This PEV refers to a product described in Intertek Test Report 103536746-MTL002. Consult that document for additional information and specific test conditions.

2.2. Product Traceability:

The test specimen identification is as provided by the client and Intertek accepts no responsibility for any inaccuracies therein.

2.3. Product Certification:

Stove Builder International is an Intertek testing client and an Intertek Listing and Follow-up Service client. Stove models Escape 2100, HT-3000, Gateway 3500 and Osburn 3500 are in the process of listing within Intertek. Intertek currently does not have any Listings for Escape 2100, HT-3000, Gateway 3500 and Osburn 3500 contained in Intertek's Directory of Listed Building Products.

Authorities Having Jurisdiction (AHJ) should be consulted in all cases as to the particular requirements covering the installation and use of Intertek certified products, equipment, systems, devices and materials. The AHJ should be consulted before construction. Fire resistance assemblies and products are developed by the design submitter and have been investigated by Intertek for compliance with specific requirements. The published information (product and design listings) cannot always address every construction nuance encountered in the field. When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the test standard referenced for each Intertek certified product. The test standard includes specifics concerning alternate materials and alternate methods of construction. Only products which bear Intertek's Mark are considered as certified. The appearance of a company's name or product in Intertek Directory of Listed Building Products does not in itself assure that products so identified have been manufactured under Intertek's Follow-Up Service. Only those products bearing the Intertek Mark should be considered to be Listed and covered under Intertek's Follow-Up Service. Always verify the Mark on the product before using it.

PRODUCT EVALUATION REPORT 103536746MTL-003 (4 OF 50)



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Report No.: 103536746-MTL003

Date: 02/11/19

3 Reference Documents

As part of this evaluation, Intertek has directly or indirectly used the following referenced documents:

- U.S. Environmental Protection Agency 40 CFR Part 60 Standards of Performance for New Residential Wood Heaters; Final Rule, SECTION 60.533(k)
- SBI drawings number : DB03129-V01; DB07300-V01; OB03500-V01; SF00615-V01; EB00053_CERTIF
- Intertek Testing Report No. : 103536746-MTL002

4 Evaluation Method

This PEV represents the results of an evaluation on free standing stove models listed in object when compared to the previously tested Solution 3.5 Stove as mentioned in appendix.

The Models listed in subject are stove models manufactured based on the construction of the Solution 3.5. The combustion room of all the mentioned units are identical so is their combustion air intake.

The variations are esthetical only and they are as follows:

- The loading door differs by shape;
- The façade differs by shape;
- The pedestal or leg differs by shape and materials;
- The decorative side panels differ by shape.

This investigation was authorized by SBI in February 2019. Drawings number DB03129-V01; DB07300-V01; OB03500-V01; SF00615-V01 and EB00053_CERTIF were received on February 5th, 2019 at the Intertek Lachine facility. These drawings can be found in appendix.

The Models mentioned in Subject share similar features and are designed after an EPA certified wood burning stove Model Solution 3.5.

Design drawings were evaluated to determine similarities between the above-mentioned models. Drawings show internal fire box size to be the same at 17 7/8" deep, 12 3/16" high (from brick to higher tube) and 22 13/16" wide. All appliances share a 6" flue collar and have the same primary air intake controls.

Differences noted during this evaluation were on the door shape, pedestal, legs, decorative side panels as well as the typical look of the façade of all units inspired by their typical branding look.

5 Conclusion

Intertek has conducted this product evaluation for Stove Builder International, on Escape 2100, HT-3000, Gateway 3500 and Osburn 3500, to evaluate if the differences with the previously certified Solution 3.5 are likely to increase particulate matter emission rate limit. The evaluation was conducted to determine if items listed in U.S. Environmental Protection Agency 40 CFR Part 60 Standards of Performance for New Residential Wood Heaters; Final Rule, SECTION 60.533(k) will show equivalency with the previously tested Solution 3.5 Stove.

PRODUCT EVALUATION REPORT 103536746MTL-003 (5 OF 50)



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Based on the information contained and referenced herein, it is Intertek's professional judgment based on sound engineering principles that the following is true:

- Changes made are only aesthetical and do not increase particulate matter emission rate limit.

INTERTEK TESTING SERVICES NA LTD.

Reported by:

Claude Pelland, P.Eng.
Manager, Intertek B&C

Reviewed by:

Brian Ziegler
Technical Team Leader -
Hearth

PRODUCT EVALUATION REPORT 103536746MTL-003 (6 OF 50)



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6 APPENDIX

Drawing EB00053_CERTIF(reference unit)
Drawing DB03129-V01 (Escape 2100);
Drawing DB07300-V01(HT-3000);
Drawing OB03500-V01(Osburn 3500);
Drawing SF00615-V01(Gateway 3500)

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7 LAST PAGE & REVISION SUMMARY

DATE	SUMMARY	REPORTER	REVIEWER
02/11/19	Original	Claude Pelland	Brian Ziegler

TEST REPORT 103536746MTL-002



STOVE BUILDER INTERNATIONAL INC. TEST REPORT

SCOPE OF WORK

EPA EMISSIONS TESTING/ 3.5 SERIES (SOLUTION 3.5, OSBURN 3500, GATEWAY 3500, ESCAPE 2100, HT-3000)/WOOD FUEL ROOM HEATERS.

REPORT NUMBER

103536746MTL-002

TEST DATE(S)

05/22/18 - 05/25/18

ISSUE DATE

07/13/18

[REVISED DATE]

FIRST ISSUE

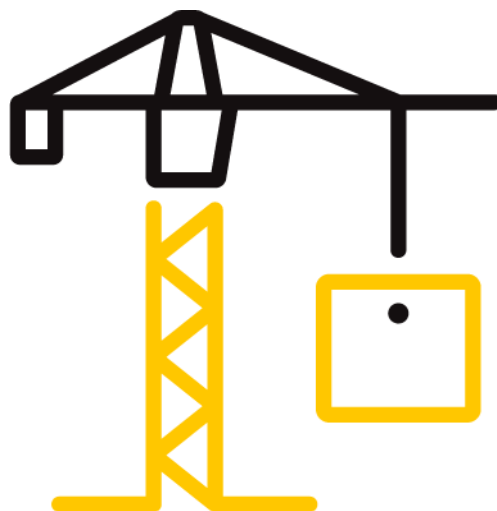
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21

DOCUMENT CONTROL NUMBER

GFT-OP-10c (05/10/17)

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TEST REPORT 103536746MTL-002 (2 OF 21)



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Report No.: 103536746MTL-002

Date: 07/13/18

REPORT ISSUED TO

STOVE BUILDER INTERNATIONAL, INC.

250 de Copenhague

ST-Augustin-de-Desmaures, Qc, G3A 2H3

SECTION 1

SCOPE

Intertek Testing Services NA (Intertek) has conducted testing for Stove Builder International Inc., on model Solution 3.5, a representative unit of the 3.5 Series composed of the following models (SOLUTION 3.5, OSBURN 3500, GATEWAY 3500, ESCAPE 2100, HT-3000) Wood Burning Room Heater to evaluate all applicable performance requirements included in "Determination of particulate matter emissions from wood heaters."

The test was conducted to determine if the unit is in accordance with U.S EPA requirements under EPA 40 CFR Part 60 "Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces". This evaluation was conducted on May 22nd to May 25th 2018. The following test methods were applicable:

ASTM E2515-11- Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel

ASTM E3053-17 - Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters using Cordwood Test Fuel. It is based on the ALT-125 send by EPA on February 28th, 2018.

CSA B415.1-10 - Performance Testing of Solid-Fuel-Burning Heating Appliances

Testing was performed by the undersigned at client's facility.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

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SECTION 2

SUMMARY OF TEST RESULTS

The appliance tests resulted in the following performance:

Particulate Emissions: 1.32 g/hr

Carbon Monoxide Emissions: 1.37 g/min

Heating Efficiency: 71% (Higher Heating Value Basis)

For INTERTEK B&C:

COMPLETED

BY:

Claude Pelland, P.E.

TITLE:

Manager B&C,
Intertek, Quebec

SIGNATURE:

DATE:

07/13/18

aaa:bbb

REVIEWED BY:

Brian Ziegler

TITLE:

Technical Team Leader -
Hearth

SIGNATURE:

DATE:

5/14/19

SECTION 3

TEST METHOD(S)

The specimen was evaluated in accordance with the following:

ASTM E2515-11- Standard Test Method for Determination of Particulate Matter Emissions
Collected by a Dilution Tunnel

ASTM E3053-17 - Standard Test Method for Determining Particulate Matter Emissions from
Wood Heaters using Cordwood Test Fuel. It is based on the ALT-125 send by EPA on February
28th, 2018.

CSA B415.1-10 - Performance Testing of Solid-Fuel-Burning Heating Appliances

SECTION 4

MATERIAL SOURCE

A sample was submitted to Intertek directly from the client. The sample was not independently
selected for testing. The test unit was handed to the Intertek representative at client's facility in
St-Augustin-de-Desmaures, Quebec. The unit was inspected upon receipt and found to be in
good condition. The unit was set up following the manufacturer's instructions without difficulty.

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Following assembly, the unit was placed on the test stand. Prior to beginning the emissions tests, the manufacturer operated the unit for a minimum of 50 hours at medium burn rates to break-in the stove. The unit was found to be operating satisfactory during this break-in. The 50 plus hours of pre-burning were conducted from April 18th to May 14th. The fuel used for the break-in process was beech cordwood.

Following the pre-burn break-in process the unit was allowed to cool and ash and residue were removed from the firebox. The unit's chimney system and laboratory dilution tunnels were cleaned using standard wire brush chimney cleaning equipment. On May 18th 2018, the unit was set-up for testing.

SECTION 5 EQUIPMENT

Equipment	INV Number	Calibration Due	MU
Handheld Thermocouple Thermometer	SBI-004	April 19, 2019	±0.5°F
Floor scale	SBI-014	March 31, 2019	± 0.022 kg
DGM system 1	SBI-046	April 25, 2019	±2% F.S.
DGM System 2	SBI-047	April 25, 2019	±2% F.S.
Thermometer calibrator	SBI-096	April 05, 2019	±0.5°F
Reference DGM	SBI-103	October 10, 2018	±2% F.S.
10 kg weight	SBI-191	April 16, 2019	±0.22 g
Temperature acquisition	SBI-197	June 29, 2018	±0.5°F
Pitot tube type S	SBI-204	September 05, 2018	±0.003
Analytical scale	SBI-206	April 30, 2019	±0.000088 g
Table scale	SBI-222	March 31, 2019	±0.58 g
100 mg weight	SBI-237	July 24, 2018	±0.0017 mg
10 g weight	SBI-238	July 24, 2018	±0.0079 mg
Anemometer	SBI-241	October 13, 2018	±5.8 ft/min
Magnesense	SBI-249	February 05, 2019	±0.00015" H2O
Magnesense	SBI-252	August 25, 2018	±0.00015" H2O
DGM system 3	SBI-276	April 19, 2019	±2% F.S.
Pressure transmitter	SBI-293	June 16, 2018	±9.4e-003 psi

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Pressure transmitter	SBI-294	June 16, 2018	±9.5e-003 psi
Vacuum transmitter	SBI-301	June 16, 2018	±6.5e-003 in.HG
Vacuum transmitter	SBI-302	June 16, 2018	±6.5e-003 in.HG
Pressure gauge	SBI-307	June 20, 2018	±5.8e-002 psi
Vacuum gauge	SBI-308	June 20, 2018	±5.8e-002 in.HG
Relative humidity temperature meter	SBI-310	November 03, 2018	±3%
200 g weight	SBI-312	October 01, 2018	±0.034 mg

SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Guillaume Thibodeau-Fortin	Stove Builder International Inc.
Claude Paré	Stove Builder International Inc.
Claude Pelland, P.E.	Intertek B&C

SECTION 7

TEST PROCEDURE

From May 22nd to May 25th, the unit was tested for EPA emissions. For Wood stoves, the test was conducted in accordance with ASTM E3053-17 and ASTM E2515-11. The fuel used for the test run was Beech Cordwood.

The applicable EPA regulatory limits are:

Step 1 – 2015 – 4.5 grams per hour.

Step 2 – 2020 – 2.0 grams per hour.

TEST SET-UP DESCRIPTION

A 6" flue is connected to a standard 6" diameter vertical single wall pipe and insulated chimney system was installed to 15' above floor level. The single wall pipe extended to 8 feet above the floor and insulated chimney extended the remaining height.

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AIR SUPPLY SYSTEM

Combustion air enters at the bottom of the heater, which is directed to the firebox. All gases exit through the 6" flue located on top of the heater.

TEST FUEL PROPERTIES

The species of fuel used was mainly beech. The fuel was split cordwood of nominal length of 16 inches. The fuel was dried in air to an average moisture content between 18% and 28% on a dry basis. Cordwood fuel was loaded from side to side into the firebox per manufacturer's instructions.

SAMPLING LOCATIONS

Particulate samples are collected from the dilution tunnel at point 20 feet from the tunnel entrance. The tunnel has two elbows and two mixing baffles in the system ahead of the sampling section. (See Figure 3.) The sampling section is a continuous 13-foot section of 8-inch diameter pipe straight over its entire length. Tunnel velocity pressure is determined by a type "S" Pitot tube located 100 inches from the beginning of the sampling section. The dry bulb thermocouple is located on the pitot tube. Tunnel samplers are located 48 inches downstream of the Pitot tube and 36 inches upstream from the end of this section. (See Figure 1.)

Stack gas samples are collected from the steel chimney section 8 feet $\pm$ 6 inches above the scale platform.

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FIGURE 1 – DILUTION TUNNEL

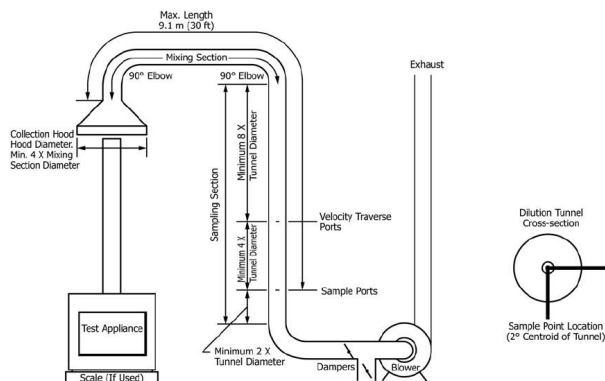


FIGURE 2 – STACK GAS SAMPLE TRAIN

SAMPLING METHODS

PARTICULATE SAMPLING

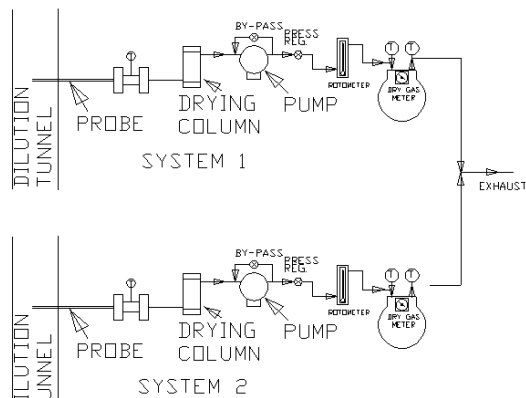


Figure 2

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Particulates were sampled in strict accordance with ASTM E2515-2011. This method uses two identical sampling systems with Gelman A/E 61631 binder free, 47-mm diameter filters. The dryers used in the sample systems are filled with "Drierite" before each test run. In order to measure first-hour emissions rates the a third filter set is prepared at one hour into the test run, the filter sets are changed in one of the two sample trains. The two filter sets used for this train are analyzed individually to determine the first hour and total emissions rate.

At the conclusion of each test program the dry gas meters are checked against our standard dry gas meter. Three runs are made on each dry gas meter used during the test program. The average calibration factors obtained are then compared with the six-month calibration factor and, if within 5%, the six-month factor is used to calculate standard volumes. Results of this calibration are contained in Appendix E.

An integral part of the post-test calibration procedure is a leak check of the pressure side by plugging the system exhaust and pressurizing the system to 10" W.C. The system is judged to be leak free if it retains the pressure for at least 10 minutes.

The standard dry gas meter is calibrated every 6 months using a Spirometer designed by the EPA Emissions Measurement Branch. The process involves sampling the train operation for 1 cubic foot of volume. With readings made to .001 ft³, the resolution is .1%, giving an accuracy higher than the ±2% required by the standard.

STACK SAMPLE ROTAMETER

The stack sample rotameter is checked by running three tests at each flow rate used during the test program. The flow rate is checked by running the rotameter in series with one of the dry gas meters for 10 minutes with the rotameter at a constant setting. The dry gas meter volume measured is then corrected to standard temperature and pressure conditions. The flow rate determined is then used to calculate actual sampled volumes.

GAS ANALYZERS

The continuous analyzers are zeroed and spanned before each test with appropriate gases. A mid-scale multi-component calibration gas is then analyzed (values are recorded). At the conclusion of a test, the instruments are checked again with zero, span and calibration gases (values are recorded only). The drift in each meter is then calculated and must not exceed 5% of the scale used for the test.

At the conclusion of each unit test program, a three-point calibration check is made. This calibration check must meet accuracy requirements of the applicable standards. Consistent deviations between analyser readings and calibration gas concentrations are used to correct data before computer processing. Data is also corrected for interferences as prescribed by the instrument manufacturer's instructions.

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TEST METHOD PROCEDURES

LEAK CHECK PROCEDURES

Before and after each test, each sample train is tested for leaks. Leakage rates are measured and must not exceed 0.02 CFM or 4% of the sampling rate. Leak checks are performed checking the entire sampling train, not just the dry gas meters. Pre-test and post-test leak checks are conducted with a vacuum of 10 inches of mercury. Vacuum is monitored during each test and the highest vacuum reached is then used for the post test vacuum value. If leakage limits are not met, the test run is rejected. During, these tests the vacuum was typically less than 2 inches of mercury. Thus, leakage rates reported are expected to be much higher than actual leakage during the tests.

TUNNEL VELOCITY/FLOW MEASUREMENT

The tunnel velocity is calculated from a center point Pitot tube signal multiplied by an adjustment factor. This factor is determined by a traverse of the tunnel as prescribed in EPA Method 1. Final tunnel velocities and flow rates are calculated from EPA Method 2, Equation 6.9 and 6.10. (Tunnel cross sectional area is the average from both lines of traverse.)

Pitot tubes are cleaned before each test and leak checks are conducted after each test.

PM SAMPLING PROPORTIONALITY

Proportionality was calculated in accordance with ASTM E2515-11. The data and results are included in Appendix B.

DEVIATIONS FROM STANDARD METHOD:

The following deviations were requested by EPA:

Changes to ASTM E3053-17 are:

1. Coal bed conditions prior to loading test fuel : The coal bed should be a level plane without valleys or ridges for all test runs in the high fire, low and medium burn rate categories.

Changes to ASTM E2515-11 must be as followed:

- 1- The filter temperature must be maintained between 80 and 90 Degrees F during testing.
- 2- Filters must be weighed in pairs to reduce weighing error propagation.
- 3- Sample filters must be Pall TX-40 or equivalent Teflon coated glass fiber, and of 47 mm, 90mm, 100mm or 110mm in diameter.
- 4- Only one point is allowed outside the +/- 10% proportionality range per test run.

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SECTION 8

TEST CALCULATIONS

Weight of test fuel load, dry basis ASTM E3053

$$M_{FLdb} = \sum((M_{FLnwb})(100)(100 + MC_{FLn}))$$

where:

- M_{FLdb} = weight of test fuel load, dry basis, lb (kg);
 M_{FLnwb} = weight of each test fuel piece, n , in test fuel load per 8.4.1, wet basis, lb (kg);
 MC_{FLn} = average fuel moisture of test fuel piece, n , in test fuel load, % dry basis; and
 n = individual test fuel pieces that comprise the test fuel load, as applicable.

Weighted Average Determination ASTM E3053

$$V_{iWA} = 0.4(V_{iLAve}) + 0.4(V_{iMAve}) + 0.2(V_{iHAve})$$

where:

- V_{iWA} = Weighted average for variable i ;
 V_i = Test result variable (Particulate Matter: g/h, g/kg, lb/MMBtu; % Overall Efficiency: HHV, LHV; Carbon Monoxide: g/h, etc.)
 V_{iLAve} = Arithmetic average for variable V_i for all test runs (except per 8.6.13 or 8.9) that are included in the low fire burn rate category
 V_{iMAve} = Arithmetic average for variable V_i for all test runs (except per 8.6.13 or 8.9) that are included in the medium fire burn rate category;
 V_{iHAve} = Arithmetic average for variable V_i for all test runs (except per 8.9) that are included in the high fire burn rate category.

NOMENCLATURE FOR ASTM E2515:

- A = Cross-sectional area of tunnel m² (ft²).
 B_{ws} = Water vapor in the gas stream, proportion by volume (assumed to be 0.02 (2.0 %)).
 C_p = Pitot tube coefficient, dimensionless (assigned a value of 0.99).
 C_r = Concentration of particulate matter room air, dry basis, corrected to standard conditions, g/dscm (gr/dscf) (mg/dscf).
 C_s = Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions, g/dscm (gr/dscf) (mg/dscf).
 E_T = Total particulate emissions, g.
 F_p = Adjustment factor for center of tunnel pitot tube placement.
 $F_p = V_{straw}/V_{scent}$

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K_p = Pitot Tube Constant, $34.97 \frac{m}{sec} \left[\frac{\left(\frac{g}{mole} \right) (mm\ Hg)}{(K)(mm\ water)} \right]^{\frac{1}{2}}$

or

= Pitot Tube Constant, $85.49 \frac{ft}{sec} \left[\frac{\left(\frac{lb}{mole} \right) (in\ Hg)}{(R)(in\ water)} \right]^{\frac{1}{2}}$

L_a = Maximum acceptable leakage rate for either a pretest or post-test leak-check, equal to 0.0003 m³/min (0.010 cfm) or 4 % of the average sampling rate, whichever is less.

L_p = Leakage rate observed during the post-test leak-check, m³/min (cfm).

m_p = mass of particulate from probe, mg.

m_f = mass of particulate from filters, mg.

m_g = mass of particulate from filter gaskets, mg.

m_r = mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly, mg.

m_n = Total amount of particulate matter collected, mg.

M_s = the dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole (lb/lb mole)).

P_{bar} = Barometric pressure at the sampling site, mm Hg (in. Hg).

P_g = Static Pressure in the tunnel (in. water).

P_R = Percent of proportional sampling rate.

P_s = Absolute average gas static pressure in dilution tunnel, mm Hg (in. Hg).

P_{std} = Standard absolute pressure, 760 mm Hg (29.92 in. Hg).

Q_{std} = Average gas flow rate in dilution tunnel.

$$Q_{std} = 60 (1 - B_{ws}) V_s A [T_{std} P_s / T_s P_{std}]$$

dscm/min (dscf/min).

T_m = Absolute average dry gas meter temperature, K (R).

T_{mi} = Absolute average dry gas meter temperature during each 10-min interval, i , of the test run.

$$T_{mi} = (T_{mi(b)} + T_{mi(e)})/2$$

where:

$T_{mi(b)}$ = Absolute dry gas meter temperature at the beginning of each 10-min test interval, i , of the test run, K (R), and

$T_{mi(e)}$ = Absolute dry gas meter temperature at the end of each 10-min test interval, i , of the test run, K (R).

T_s = Absolute average gas temperature in the dilution tunnel, K (R).

T_{si} = Absolute average gas temperature in the dilution tunnel during each 10-min interval, i , of the test run, K (R).

$$T_{si} = (T_{si(b)} + T_{si(e)})/2$$

where:

$T_{si(b)}$ = Absolute gas temperature in the dilution tunnel at the beginning of each 10-min test interval, i , of the test run, K (R), and

$T_{si(e)}$ = Absolute gas temperature in the dilution tunnel at the end of each 10-min test interval, i , of the test run, K (R).

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V_m = Volume of gas sample as measured by dry gas meter, dcm (dcf).
 V_{mc} = Volume of gas sampled corrected for the post test leak rate, dcm (dcf).
 V_{mi} = Volume of gas sample as measured by dry gas meter during each 10-min interval, i, of the test run, dcm.
 $V_{m(std)}$ = Volume of gas sample measured by the dry gas meter, corrected to standard conditions.

$$V_{m(std)} = K_1 V_m Y [(P_{bar} + (\Delta H/13.6))/T_m]$$

where:

K_1 = 0.3855 K/mm Hg for SI units and = 17.64 R/in. Hg for inch-pound units.

$$V_{m(std)} = K_1 V_{mc} Y [(P_{bar} + (\Delta H/13.6))/T_m]$$

where:

V_{mc} = $V_m - (L_p - L_a)u$

V_{mr} = Volume of room air sample as measured by dry gas meter, dcm (dcf), and

$V_{mr(std)}$ = Volume of room air sample measured by the dry gas meter, corrected to standard conditions.

$$V_{m(std)} = K_1 V_{mr} Y [(P_{bar} + (\Delta H/13.6))/T_m]$$

Where:

K_1 = 0.3855 K/mm Hg for SI units and = 17.64 R/in. Hg for inch-pound units, and

V_s = Average gas velocity in the dilution tunnel.

$$V_s = F_p K_p C_p (\sqrt{\Delta P_{avg}})(V(T_s/P_s M_s))$$

V_{si} = Average gas velocity in dilution tunnel during each 10-min interval, i, of the test run.

$$V_{si} = F_p K_p C_p (\sqrt{\Delta P_i})(V(T_{si}/P_s M_s))$$

V_{scent} = Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse.

V_{strav} = Average gas velocity calculated after the multipoint Pitot traverse.

Y = Dry gas meter calibration factor.

ΔH = Average pressure at the outlet of the dry gas meter or the average differential pressure across the orifice meter, if used, mm water (in. water).

ΔP_{avg} = Average velocity pressure in the dilution tunnel, mm water (in. water).

ΔP_i = Velocity pressure in the dilution tunnel as measured with the Pitot tube during each 10-min interval, i, of the test run.

$$\Delta P_i = (\Delta P_{i(b)} + \Delta P_{i(e)})/2$$

where:

$\Delta P_{i(b)}$ = Velocity pressure in the dilution tunnel as measured with the Pitot tube at the beginning of each 10-min interval, i, of the test run, mm water (in. water), and

$\Delta P_{i(e)}$ = Velocity pressure in the dilution tunnel as measured with the Pitot tube at the end of each 10-min interval, i, of the test run, mm water (in. water).

θ = Total sampling time, min.

10 = ten min, length of first sampling period.

13.6 = Specific gravity of mercury.

100 = Conversion to percent.

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TOTAL PARTICULATE WEIGHT – ASTM E2515

$$M_n = m_p + m_f + m_g$$

PARTICULATE CONCENTRATION – ASTM E2515

$$C_s = K_2(m_n/V_{m(std)}) \text{ g/dscm (g/dscf)}$$

where:

$$K_2 = 0.001 \text{ g/mg}$$

TOTAL PARTICULATE EMISSIONS (g) – ASTM E2515

$$E_T = (C_s - C_r)Q_{std}\theta$$

PROPORTIONAL RATE VARIATION (%) – ASTM E2515

$$PR = [\theta(V_{mi} V_s T_{si}) / (10(V_m V_{si} T_{mi}))] \times 100$$

MEASUREMENT OF UNCERTAINTY – ASTM E2515

$$MU_{\text{weighing}} = \sqrt{0.1^2} \cdot X$$

GENERAL FORMULA – ASTM E2515

$$uY = \sqrt{((\delta Y / \delta x_1) \times u_1)^2 + \dots + ((\delta Y / \delta x_n) \times u_n)^2}$$

Where:

$\delta Y / \delta x_i$ = Partial derivative of the combining formula with respect to individual measurement x_i ,

u_i = is the uncertainty associated with that measurement.

TOTAL PARTICULATE EMISSIONS – ASTM E2515

$$E_T = (C_s - C_r) Q_{std} \theta$$

where:

C_s = sample filter catch/(sample flow rate x test duration), g/dscf,

C_r = room background filter catch/(sample flow x sampling time), g/dscf,

Q_{std} = average dilution tunnel flow rate, dscf/min, and

θ = sampling time, minutes.

MU OF C_s

$$C_s = F_c / (Q_{\text{sample}} \times \theta) = 0.025 / (0.25 \times 180) = 0.0005555$$

$$\delta C_s / \delta F_c = 1 / Q_{\text{sample}} \cdot \theta = 1 / 0.25 \cdot 180 = 0.0222$$

$$\delta C_s / \delta Q_{\text{sample}} = -F_c / Q_{\text{sample}}^2 \cdot \theta = -0.025 / 0.25^2 \cdot 180 = -0.00222$$

$$\delta C_s / \delta \theta = -F_c / Q_{\text{sample}} \cdot \theta^2 = -0.025 / 0.25 \cdot 180^2 = -0.000003$$

$$MU_{C_s} = \sqrt{(0.00027 \cdot 0.0222)^2 + (0.0025 \cdot -0.00222)^2}$$

$$+ (0.1 \cdot -0.000003)^2 = 0.0000091\text{g}$$

Thus, C_s would be 0.555 mg/dscf $\pm$ 0.0081 mg/dscf at 95% confidence level.

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MU OF c_r

$$c_r = BG_c / (QBG \times \theta) = 0.002 / (0.15 \times 180) = 0.000074$$

$$\delta c_r / \delta BG_c = 1 / QBG \cdot \theta = 1 / 0.15 \cdot 180 = 0.03704$$

$$\delta c_r / \delta QBG = -BG_c / Q_{BG}^2 \cdot \theta = -0.002 / 0.15^2 \cdot 180 = -0.0004938$$

$$\delta c_r / \delta \theta = -BG_c / QBG \cdot \theta^2 = -0.002 / 0.15 \cdot 180^2 = -0.0000004$$

$$MU_{c_r} = \sqrt{(0.00027 \cdot 0.03704)^2 + (0.0015 \cdot -0.0004938)^2}$$

$$\sqrt{+ (0.1 \cdot -0.0000004)^2} = 0.00001g$$

Thus, c_r would be 0.074 mg/dscf $\pm$ 0.01 mg/dscf at 95% confidence level.

E_T AND MU_{ET}

$$E_T = (c_s - c_r) Q_{std} \theta = (0.000555 - 0.000074) \times 150 \times 180 = 13.00g$$

$$\delta E_T / \delta c_s = Q_{std} \cdot \theta = 150 \cdot 180 = 27,000$$

$$\delta E_T / \delta c_r = Q_{std} \cdot \theta = 150 \cdot 180 = 27,000$$

$$\delta E_T / \delta Q_{std} = c_s \cdot \theta - c_r \cdot \theta = 0.000555 \cdot 180 - 0.000074 \cdot 180 = 0.08667$$

$$\delta E_T / \delta \theta = c_s \cdot Q_{std} - c_r \cdot Q_{std} = 0.000555 \cdot 180 - 0.000074 \cdot 180 = 0.07222$$

$$MU_{ET} = \sqrt{(27,000 \cdot 0.0000081)^2 + (27,000 \cdot 0.00001)^2 (0.08667 \cdot 3)^2}$$

$$\sqrt{+ (0.07222 \cdot 0.1)^2} = 0.436$$

Thus the result in this example would be:

ET = 13.00g $\pm$ 0.44 g at a 95% confidence level.

EFFICIENCY – CSA B415.1

The change in enthalpy of the circulating air shall be calculated using the moisture content and temperature rise of the circulating air, as follows:

$$\Delta h = \Delta t (1.006 + 1.84x)$$

Where:

Δh = change in enthalpy, kJ/kg

Δt = temperature rise, °C

1.006 = specific heat of air, kJ/kg °C

1.84 = specific heat of water vapor, kJ/kg °C

x = humidity ratio, kg/kg

The equivalent duct diameter shall be calculated as follows:

$$ED = 2HW / H + W$$

Where:

ED = equivalent duct diameter

H = duct height, m

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W = duct width, m

The air flow velocity shall be calculated as follows:

$$V = F_p \times C_p \times 34.97 \times \sqrt{T/28.56(P_{\text{baro}} + P_s)}$$

where

V = velocity, m/s

F_p = Pitot tube calibration factor determined from vane anemometer measurements

C_p = Pitot factor

= 0.99 for a standard Pitot tube or as determined by calibration for a Type S Pitot tube

34.97 = Pitot tube constant

Note: The Pitot tube constant is determined on the basis of the following units:

$$\text{m/s}[\text{g/g mole (mm Hg)/(K)(mm H}_2\text{O)}]^{0.5}$$

ΔP = velocity pressure, mm H₂O

T = temperature, K

28.56 = molecular weight of air

P_{baro} = barometric pressure, mm Hg

P_s = duct static pressure, mm Hg

The mass flow rate shall be calculated as follows:

$$m = 3600VAp$$

where:

m = mass flow rate, kg/h

V = air flow velocity, m/s

3600 = number of seconds per hour

A = duct cross-sectional area, m²

p = density of air at standard temperature and pressure (use 1.204 kg/m³)

The rate of heat release into the circulating air shall be calculated using the air flow and change in enthalpy, as follows:

$$\Delta e = \Delta h \times m$$

Where:

Δe = rate of heat release into the circulating air, kJ/h

Δh = change in enthalpy of the circulating air, kJ/kg

m = mass air flow rate, kg/h

The heat output over any time interval shall be calculated as the sum of the heat released over each measurement time interval, as follows:

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$$E_t = \sum (\Delta e \times i) \text{ for } i = t_1 \text{ to } t_2$$

Where:

E_t = delivered heat output over any time interval $t_2 - t_1$, kJ

i = time interval for each measurement, h

The average heat output rate over any time interval shall be calculated as follows:

$$e_t = E_t / t$$

where

e_t = average heat output, kJ/h

t = time interval over which the average output is desired, h

The total heat output during the burn shall be calculated as the sum of all the heat outputs over each time interval, as follows:

$$E_d = \sum (E_t) \text{ for } t = t_0 \text{ to } t_{\text{final}}$$

Where:

E_d = heat output over a burn, kJ/h (Btu/h)

E_t = heat output during each time interval, kJ/h (Btu/h)

The efficiency shall be calculated as the total heat output divided by the total energy input, expressed as a percentage as follows:

$$\text{Efficiency, \%} = 100 \times E_d / I$$

Where:

E_d = total heat output of the appliance over the test period, kJ/kg

I = input energy (fuel calorific value as-fired times weight of fuel charge), kJ/kg (Btu/lb)

SECTION 9

TEST SPECIMEN DESCRIPTION

The model Solution 3.5 Series Wood Fuel Room Heater is constructed of sheet steel. The outer dimensions are 33.75-inches deep, 34.438-inches high, and 27.563-inches wide. The unit has a door located on the front with a viewing glass.

SECTION 10

TEST RESULTS

DESCRIPTION OF TEST RUNS:

RUN #1 (May 22nd 2018) Air control was set at the targeted burn rate, burn time was 510 minutes with a category "low burn rate" of 1.5 kg/hr. Let the door ajar for 6.5 minutes, and then closed.

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The air control was opened for 16.5 minutes or when 15% of the load weight has been consumed, and then set at the lowest burn rate. The fan was turned on at low speed at 30 minutes. Due to a bad manipulation in the post leak check of the sampling system, black soot got sucked by one of the filter train. After weighting, the deviation ratio was above 7.5 % which leads to an invalid test run.

RUN #2 (May 23rd 2018) Air control set at the targeted burn rate, burn time was 600 minutes with a category "Low burn rate" of 1.3 kg/hr. Let the door ajar for 6.5 minutes, and then closed. The air control was opened for 16.5 minutes or when 15% of the load weight has been consumed, and then set at the targeted burn rate. The fan was turned on at low speed at 30 minutes.

RUN #3 (May 24th 2018) Air control set at the targeted burn rate, burn time was 470 minutes with a category "Medium burn rate" of 1.7 kg/hr. Let the door ajar for 6.5 minutes, and then closed. The air control was opened for 16.5 minutes or when 15% of the load weight has been consumed, and then set at the targeted burn rate. The fan was turned on at medium speed at 30 minutes.

RUN #4 (May 25th 2018) Air control set fully opened, burn time was 200 minutes with a category High burn rate of 3.9 kg/hr. The door was open for 5 minutes, then closed. The air control was fully opened. Start the fan at full speed.

TABLE 1 – EMISSIONS

RUN#	TEST DATE	BURN RATES (kg/hr)(Dry)	PARTICULATE EMISSION RATE (g/hr)	1 st HOUR EMISSIONS (g)	CO EMISSIONS (g/min)	HEATING EFFICIENCY (%HHV)
2	May 23, 2018	1.3	0.74	6.34	1.3	72%
3	May 24, 2018	1.7	1.48	5.29	1.7	71%
4	May 25, 2018	3.9 ^{*1}	2.18*	4.59	1.4	68%

*Data including the cold-Start

TABLE 2 – TEST FACILITY CONDITIONS

RUN #	ROOM TEMP BEFORE (°F)	ROOM TEMP AFTER (°F)	BARO PRES BEFORE (in/Hg)	BARO PRES AFTER (in/Hg)	R. H. BEFORE (%)	R. H. AFTER (%)	AIR VEL BEFORE (ft/min)	AIR VEL AFTER (ft/min)
2	85	84	30	30	28	21	0	0
3	87	86	30	30	17	13	0	0
4	73	89	30	30	32	23	0	0

TABLE 3 – DILUTION TUNNEL FLOW RATE MEASUREMENTS AND SAMPLING DATA

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RUN #	BURN TIME (min)	VELOCITY (ft/sec)	VOLUMETRIC FLOW RATE (dscf/min)	AVG TEMP (°R)	SAMPLE VOLUME (dscf)		PARTICULATE CATCH (mg)	
					1	2	1	2
2	600	23.61	464.88	551	97.504	97.435	2.7	2.5
3	470	23.78	463.55	556	77.030	77.634	4.2	4.0
4	200	23.51	436.38	577	30.330	29.755	2.5	2.5

TABLE 4 - DILUTION TUNNEL DUAL TRAIN PRECISION

RUN #	SAMPLE RATIOS		TOTAL EMISSIONS (g)		DEVIATION (%)	DEVIATION (g/kg)
	TRAIN 1	TRAIN 2	TRAIN 1	TRAIN 2		
2	2861	2863	7.724	7.157	3.81%	0.95%
3	2828	2806	11.879	11.225	2.83%	0.71%
4	2878	2933	7.194	7.333	0.96%	0.24%

TABLE 5 - GENERAL SUMMARY OF RESULTS

RUN #	BURN RATE (kg/hr)(dry) (OVERALL)	Change in Surface Temp (°F)	INITIAL DRAFT (in/H ₂ O)	RUN TIME (min)	AVERAGE DRAFT (in/H ₂ O)
2	1.3	134.7	0.053	600	0.052
3	1.7	159.1	0.055	470	0.057
4	3.0*	286	0.006	200	0.078

*Data including the cold-Start

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TABLE 6 - CSA B415.1 RESULTS

BURN RATE (kg/hr)(dry)	CO EMISSIONS (g/min)	HEATING EFFICIENCY (% HHV)	Heating Efficiency (% LHV)	HEAT OUTPUT (Btu/hr)
Low – 1.3	1.3	72%	78%	18,100
Medium – 1.7	1.7	71%	76%	22,700
High – 3.9	1.6	68%	73%	49,500

TABLE 7 – WEIGHTED AVERAGE CALCULATION

Test No.	Burn Rate	(E) Average Emission Rate g/hr	(CO) Avera ge Emissi on Rate g/hr	Heat Output (Btu/hr)	HHV	LHV	(K) Weightin g Factor	(KxE) g/hr	(KxC O) g/hr	(KxC O) g/min	(KxH HV)	(KxLH V)
2	1.3	0.74	81	18,200	72	77	40%	0.30	32	0.84	29	31
3	1.7	1.48	97	22,700	71	76	40%	0.59	39	0.37	28	30
4	3.9*	2.18	33	51,100	69	75	20%	0.44	7	0.16	14	15
TOTALS:							100%	1.32	78	1.37	71	77

SECTION 11

CONCLUSION

This test demonstrates that this unit is an affected facility under the definition given in the regulation. The emission rate of 1.37 g/hr meets the EPA requirements for the Step 2 limits. The Solution 3.5 is a representative unit of the 3.5 series made of SOLUTION 3.5, OSBURN 3500, GATEWAY 3500, ESCAPE 2100, HT-3000.

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SECTION 12 PHOTOGRAPHS



Photo No. 1
Isometric view of unit



Photo No. 2
Typical load

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SECTION 13 REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	07/13/18	N/A	Original Report Issue

COMPONENTS

ETL Mark Minimum Labeling Requirements (new Intertek Mark)

MINIMUM MARKING REQUIREMENTS FOR PRODUCTS BEARING THE ETL MARK

The ETL Listing Certification Mark Label consists of the following four items:

1. The ETL Certification Mark with "US" and/or "C" as identifiers. The letter "C" adjacent and to the lower left side of the ETL Certification Mark indicates that the product complies with a Canadian standard. The letters "US" adjacent and to the lower right side of the ETL Certification Mark indicates that the product complies with a US standard. The required minimum size of the identifiers is 2 mm.
2. The word, "Listed" or "Classified" or "Recognized Component" (whichever is appropriate). The word, "Listed" is to be incorporated into the ETL Certification Mark. If upon reduction, the word "listed" is not legible as part of the trademark, it shall also appear separately.
3. The Control Number issued by Intertek Testing Services. This five to eleven digit number is unique to the manufacturing site for each applicant.
4. A standard description, which refers to the national standard used for certification shall be used.
Example:
 - For US standards, the words, "Certified to" shall appear with the standard number along with the word, "Standard" or "Std." Example: "Certified to ANSI/UL Std. XX."
 - For Canadian standards, the words "Certified to CAN/CGA Standard CXX No. XX", shall be used, or abbreviated, "Cert. to CAN/CSA Std CXX No. XX".
 - If the manufacturer wishes, they may use the standard title, example "Telephone Equipment."
5. The following phrase: "Refer to Intertek's Directory of Building Products for detailed information."

Nothing selected

Nothing selected

Listing Report General Information

LISTING REPORT GENERAL INFORMATION

The Applicant has agreed to produce, test and label Intertek Listed products in accordance with the requirements of the Listing Report. The Applicant has also agreed to notify Intertek and request authorization prior to using alternate parts, components or materials.

INSTRUCTIONS FOR USE

A copy of the Listing Report is provided to the Applicant and is used by the Intertek Field Representative for Follow-up Service Inspections; and one copy is retained in files at the Intertek Regional Certification Center.

The Listing Report will provide the Applicant with a guide for the operation of the certification program.

In the case where a discrepancy exists between the product and the Listing Report, the Listing Report currently on the SpecDirect website will be considered correct, and therefore the Applicant has the responsibility for making the necessary corrections so that the product will meet the specifications stated herein.

By signing the Certification Agreement, Manufacturers agree to the same terms and conditions as the Applicant. The Applicant is to use this Report as a guide for the operation of the certification program, and will manufacture the Listed product(s) in accordance with the specifications information stated herein.

CERTIFICATION MARK

The Intertek Certification Mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the Intertek Certification Mark is subject to the control of Intertek.

MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in the Factory Audit Manual, or Manufacturing Section found in the Listing Report.

FOLLOW-UP SERVICE

Follow-up Service Inspections of the manufacturing facility shall be conducted by Intertek and shall be unannounced unless otherwise permitted by Intertek. A Periodic Inspection Report (PIR) shall be issued after each visit.

Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in the Listing Report.
2. Conformance of the use of the Intertek Certification Mark with the requirements of the Listing Report and the Intertek Certification Agreement.
3. In-plant quality control procedures and personnel.
4. Manufacturing processes and changes.
5. Performance of specified manufacturing and production tests.
6. Collection of Verification samples for confirmatory testing, if applicable.

In the event that the Intertek Field Representative identifies variance(s) to any provision of the Listing Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the Intertek Certification Mark from non-conforming product.
3. Contact the Intertek Certification office (bpcerthelpdesk@intertek.com) for additional instructions.

GENERAL REQUIREMENTS AND DEFINITIONS

Accepted - Accepted by Intertek. All inquiries regarding change to Listed products must be presented to Intertek in writing for consideration and acceptance.

Applicant – The term Applicant shall mean the company who submitted the product for evaluation

and certification and owns rights to Listing Reports.

Authorization to Mark - The term Authorization to Mark ("ATM") shall mean a written document from Intertek that authorizes the Manufacturer to apply an Intertek certification mark to a specific product.

Authorized - Authorized by Intertek. All inquiries regarding change to Listed products (or systems?) must be presented to Intertek in writing for consideration and approval.

Certification Agreement – An agreement executed between Intertek and the Applicant, and, when applicable, between Intertek and the Manufacturer setting forth the terms and conditions for Listing, Labeling and Follow-up Services provided by Intertek.

Certified - Material or assembly included in a list published by a nationally recognized certification agency that conducts periodic inspections of production of Listed materials or assemblies and whose listing states either that the material or assembly meets recognized standards or has been tested and found suitable for use in a specified manner. See also Listed.

Discrepancy or Variance - A difference between the Listing Report and a product or procedure described in the Listing Report. This will result in the filing of a Variance Report on which a management level decision for the corrective action will be based.

Installation, Operating and Safety Instructions - Instructions for installation and use of the product or system are provided by the Manufacturer.

Listed - Materials or assemblies included in a list published by a nationally recognized certification agency that conducts periodic inspections of production of listed materials or assemblies, and whose listing states either that the materials or assemblies meets nationally recognized standards, or has been tested and found suitable for use in a specified manner. See also Certified.

Listed Component - Identifies any product that is a component of the Intertek Listed product or system that is covered under the Listing or Certification service of another certification body.

Manufacturer - The term Manufacturer shall mean the company who carries out or controls certain stages in the manufacture, assessment, handling, and storage of a product that enables it to accept responsibility for continued compliance of the product with the relevant requirements and undertakes all obligations to apply the certification labels.

Markings - The Intertek Certification Mark shall be visible after installation. Other markings may be required as identified in this Report. If evaluated to a Canadian standard, the products may be required to have markings in both French and English. If so, it is the responsibility of the Applicant to determine any such requirement and provide bilingual markings, where applicable, in accordance with the Canadian Provincial Regulatory Authorities.

Production Test Requirements - When applicable, the Manufacturer shall have the necessary test facilities to carry out production tests on the Listed product.

Product - The product as described under "Authorization to Mark" is eligible to carry the Intertek

Certification Mark. [From the Cert Agreement: The term Product shall mean an Applicant's device, equipment, material, or system that has been submitted for testing or evaluation, and found to be in compliance with Intertek Requirements and approved for Listing.

Recognized Component - Identifies any component, part or sub-assembly, covered under the recognition service of an NRTL (US) or a CO (Canada), and intended for use in Intertek Listed, Intertek Classified, or Intertek Recognized products.

Standards - The Manufacturer shall have access to all the current standards/specifications for the Listed product.

Unlisted Component – Because unlisted components are uncontrolled, and they do not fall under a third-party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process.

Use of Mark - The method of applying the Intertek Certification Mark (i.e. ink stamps, labels) must be kept secured and must not leave the designated manufacturing plant(s) location(s) unless authorized by Intertek. Records on the use of the mark are to be maintained. The Intertek Certification Mark and associated product identification must be clearly visible and legible when applied to the finished product. Products to be marked must have successfully passed the production tests and scrutiny of the quality control personnel, determining that the product complies with the specifications stated in this Report. Failure to comply with procedures constitutes ground for withdrawal of Intertek authorization to use the Intertek Certification Mark.

Ordering Labels - When using Intertek supplied labels, it is the responsibility of the Applicant to ensure that an adequate stock of labels is maintained. Label quantities in stock are indicated on all packing slips issued by Intertek.

Modification Procedure - Intertek may approve modifications of a product based on an additional evaluation or tests. Fees are charged for this service. If modifications are desired, such as substituting a different material, changing the cosmetic appearance, changing the rating, altering a component to simplify the manufacturing or improve the product, or any other change, the following procedure must be followed:

1. Communicate to the Intertek office that issued this Report requesting an evaluation of the modification required. Include a clear description and detailed drawings if required showing exactly what is involved, and state your reason for wanting to make the modifications.
2. Wait until written authorization is received from Intertek complete with additional or revised pages to be inserted into your Report. Only after written authorization is received may the Applicant proceed with the modification.

PREQUALIFICATION AUDIT

This activity is required when a client is seeking third-party certification for ETL or WH Mark, Intertek CCRR, US Coast Guard Approval, etc. for the first time or in a plant not previously qualified. This includes a full assessment of the manufacturing and quality assurance program at the plant, and developing the Quality Control Documentation (In-Plant QC Specifications) required for the listing. Only an Engineer trained in the specific product area to develop plant quality assurance specs may

perform this type of inspection.

INITIAL FACTORY AUDIT

The purpose of this audit is to ensure the following:

1. The Plant Manager, Foreman and Quality Control Personnel are familiar with this Report.
2. The Plant Quality Control Program will assure that the product is manufactured to the requirements in this Report.
3. Key personnel are familiar with and recognize the need for Follow-up Service Inspections as well as proper handling of the Intertek Certification Mark and the use of log sheets, where applicable.
4. The duties of the Controller of the Intertek Certification Mark are properly understood.

Equipment or Supplies Needed

1. Applicable Specifications and Standards.
2. Supply of log sheets where applicable.
3. Intertek Certification Mark Controller instruction sheet with sample log sheet.
4. Supply of open stock/custom labels or stamp, etc.

Initial Factory Audit Procedures - The initial inspection (pre-arranged with date and time agreeable to both the Applicant and the Intertek Field Representative) will consist of an initial meeting with the Plant Manager, Plant Foreman, Quality Control Manager and other key personnel. The initial meeting will cover a complete review of the Report and production facilities.

INTERTEK FOLLOW-UP SERVICE INSPECTIONS

At each Follow-up Service Inspection, the Intertek Field Representative shall determine that the product is manufactured in accordance with the Listing Report, and that label procedures are followed.

For Intertek-supplied Labels:

Label Control - Record serial numbers of labels if applicable, in the plant. Inspect label log sheets. The following information should be recorded in the label log sheets by the manufacturer:

1. Label numbers, date labeled or shipped, product labeled, and destination.
2. Labels removed from, returned, freight damage, or rejected products should be picked up.

Examination of Product - at each Follow-up Service Inspection, the Intertek Field Representative shall determine that the product which is intended to bear the Intertek Certification Mark is manufactured in accordance with the approved Factory Audit Manual or manufacturing specifications stated in the Listing Report.

Examination of Applicant's Quality Control Program - At each Follow-up Service Inspection, the Intertek Field Representative shall determine that the Applicant's program conforms to the specifications included in the quality control procedures. The Intertek Field Representative shall pay attention to the following:

1. The Applicant's quality control program conforms to the procedure accepted by Intertek and included in this Report.

2. The equipment used for quality control conforms to the specifications in the quality control procedure. The work area is suitable for a good quality control program.
3. Regular manufacturing production line tests are carried out by the Applicant, as required in the Factory Audit Manual or manufacturing section of the Listing Report.

Variances - In the case of a variance, the Intertek Field Representative shall complete a Periodic Inspection Report detailing the variance and issue a Variance Report. A signature on the Intertek Field Representative's copy shall be obtained from the Applicant's representative, giving evidence they were issued a copy. Copies shall be forwarded to the Intertek Regional Certification Office.

The Intertek Field Representative shall require that the Applicant remove the Intertek Certification Mark from all products which do not meet the conformance requirements of this Report, and advise the Applicant not to use the Intertek Certification Mark until further advised.

In the case of minor cosmetic changes the Intertek Field Representative will note the variance on his Follow-up Services Inspection Report and determine the action to be taken by the Applicant. Actions may be to have the Applicant apply to Intertek for an evaluation of the variance and if approved, the subsequent modification of this Report, or to have the Applicant agree to correct the variance on all affected units.

On subsequent routine Follow-up Service Inspections, the Intertek Field Representative will pay special attention to any variances listed in previous Follow-up Inspection Reports. If it is found that a variance has not been corrected as agreed to by the Applicant, the Intertek Field Representative will contact Intertek Regional Certification Center for appropriate instructions. In extreme cases, service could be immediately suspended.

In the case of a difference existing between this Report and the product that could result in a safety hazard, the Intertek Field Representative will fill out a Variance Report. The determination of what constitutes a variance is left to the discretion of the Intertek Field Representative, but any modification or change that could affect the operating characteristics of a product must be reported. The action taken by Intertek will be:

1. Removal of all labels or the Intertek Certification Mark or halting the shipping of the affected product until the Applicant corrects the variance, or has an evaluation carried out by Intertek, the modification approved, and this Report updated.
2. For units already shipped, procedures must be taken per Intertek GMS-QC-06.

CONFIDENTIALITY

All test data, reports and design documentation produced under the Listing Report is considered the proprietary confidential property of the Applicant and will not be released to any other party without the Applicant's expressed written authorization.

Nothing selected

Nothing selected

ADDITIONAL REQUIREMENTS DRAWING INDEX

Intertek ETL Certification Marks

INTERTEK ETL CERTIFICATION MARKS

