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# Hearth and Home Technologies

Project # 19-538

Brand: Quadra Fire

Model: 43M-ACC-C

Additional Models: 43ST-ACC-C,  
Discovery-III-C, FF-WP-300

Type: Residential Non-catalytic Wood  
Fired Heater

December 19, 2019

Revised Date: February 12, 2025

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## **EPA Test Method 28R for Certification and Auditing of Wood Heaters**

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Prepared by: Aaron Kravitz, Laboratory  
Manager

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## Revision Summary

Date: December 19, 2019 – Original Issue

Date: August 5, 2024– The manufacturer changed a k-list component (fuel loading door) and added an additional model name. The new fuel loading door has been reviewed and determined to be only aesthetic changes (door frame shape is now square), glass and gaskets are equivalent to the original door.

Date: August 19,2024 – The following changes were made at the request of EPA:

- Added calculations for Total and Usable Firebox Volume, see page 12-13
- Added raw efficiency data to Appendix A- See page 187 of Non-CBI PDF
- Added note to conditioning data describing fuel moisture content and air setting, see Appendix A. See page 199 of Non-CBI PDF
- Added barometer ID# 64 calibration certificate to Appendix C -See page 584 of Non-CBI PDF
- Added additional calibration certificate for analytical balance ID#107 to Appendix C: -See page 585 on Non CBI PDF
- Added table showing emissions results are computed with negative catch weights uncorrected, see page 10
- Added table showing emissions results sample train precision expressed as a percent, see page 10.

Date: February 12, 2025 – The following changes were made at the request of EPA:

- Added analytical balance audit weight results to the individual data sheets on page 60, 97, 123, 146 and 184.

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## Affidavit

PFS-TECO was contracted by Hearth & Home Technologies (HHT) to provide testing services for the 43M-ACC-C Non-Catalytic Wood-Fired Room Heater per EPA Method 28R, *Certification and Auditing of Wood Heaters*. All testing and associated procedures were conducted at HHT's Colville, WA laboratory beginning on 12/3/2019 and ending on 12/6/2019. HHT's Colville Laboratory is located at 1445 N. Highway Suite A, Colville, WA 99114. Testing procedures followed EPA Method 28R and ASTM E2780, *Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters*. Particulate sampling was performed per ASTM E2515, *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel*.

PFS-TECO is accredited by the U.S. Environmental Protection Agency for the certification and auditing of wood heaters pursuant to subpart AAA of 40 CFR Part 60, New Source Performance Standards for Residential Wood Heaters and subpart QQQQ of 40 CFR Part 60, Standards of Performance for New Hydronic Heaters and Forced Air Furnaces, Methods 28R, 28WHH, 28 WHH-PTS, and all methods listed in Sections 60.534 and 60.5476. PFS-TECO holds EPA Accreditation Certificate Numbers 4 and 4M (mobile). PFS-TECO is accredited by IAS to ISO 17020:2012 "Criteria for Bodies Performing Inspections", and ISO 17025:2005 "Requirements for Testing Laboratories." PFS-TECO is also accredited by Standards Council of Canada to ISO 17065:2012 "Requirements for Bodies Operating Product Certification Systems."

The following people were associated with the testing, analysis and report writing associated with this project.



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Aaron Kravitz, Testing Supervisor

## Introduction

Hearth and Home Technologies of Halifax, PA, contracted with PFS-TECO to perform EPA certification testing on 43M-ACC-C Non-Catalytic Wood-Fired Room Heater. All testing was performed at HHT's Colville, WA laboratory. Testing was performed by Mr. Aaron Kravitz.

## Notes

- Prior to start of testing, 50 hours of conditioning was performed per ASTM E2780.
- Prior to start of testing, the dilution tunnel was cleaned with a steel brush.
- Front filters were changed on sample train A at one hour for all 5 test runs.
- A total of 5 test runs were performed in accordance with EPA Method 28R, 1 at the maximum burn rate category, 1 at the medium high burn rate category, 2 at the medium low burn rate category, one of which was meets the 1.00 kg/hr or less requirement for stoves operating at minimum air setting, and 1 fan confirmation test, see Run Narrative section for further detail on each run.

## Wood Heater Identification and Testing

- Appliance Tested: **43M-ACC-C**
- Serial Number: **Un-serialized Prototype – PFS Tracking Number 0050**
- Manufacturer: **Hearth and Home Technologies**
- Catalyst: **No**
- Heat exchange blower: **Optional**
- Type: **Wood Stove**
- Style: **Free Standing**
- Date Received: **Monday, December 09, 2019**
- Wood Heater Aging: **November 6, 2019 – December 2, 2019**
- Testing Period – Start: **Tuesday, December 03, 2019**      Finish: **Friday, December 06, 2019**
- Test Location: **HHT's Colville Laboratory, 1445 N. Highway Suite A, Colville, WA 99114**
- Elevation: **≈1500 Feet above sea level**
- Test Technician(s): **Aaron Kravitz**
- Observers: **Matt Owings of HHT**

## Test Procedures and Equipment

All Sampling and analytical procedures were performed by Aaron Kravitz. All procedures used are directly from ASTM E2780 and ASTM E2515. See the list below for equipment used. See Appendix C submitted with this report for calibration data.

### Equipment List:

Equipment ID#	Equipment Description
140	Delmhorst J-2000 Wood Moisture Meter
050	Digiweigh DWP12i Platform Scale
129	APEX XC-50-DIR Digital Emissions Sampling Box A
130	APEX XC-50-DIR Digital Emissions Sampling Box B
141	Microtector
109A/B	Troemner 100mg/200mg Audit Weights
107	Sartorius Analytical Balance
051	10 lb audit weight
064	Digital Barometer
101	Dewalt Tape Measure
102	Digital Calipers
095	Anemometer
N/A	Horiba Model MEXA-584L Combustion Gas analyzer
ETC6-1	Mettler Toledo Panther Platform Scale – 1000lb
EB0088221	OXARC Calibration gas

## Results

A total of 5 test runs were performed on the 43M-ACC-C. Run #5, a fan confirmation test, was not used in any weighted average results calculations. The weighted average emissions rate for the 4 run test series was measured to be **1.6 g/hr** with a Higher Heating Value efficiency of **74.2%**. The average CO emission rate for the 4 tests was **1.9 g/min**. The HHT 43M-ACC-C Non-Catalytic Wood-Fired Room Heater meets the 2020 crib wood PM emission standard of  $\leq 2.0$  g/hr per CFR 40 part 60, §60.532 (b).

Detailed individual run data can be found in Appendix A submitted with this report.

### Summary Table

	Cat. 2 $\leq 1.00$ kg/hr.	Cat. 2 0.80 - 1.25 kg/hr.	Cat. 3 1.25 - 1.90 kg/hr.	Cat. 4 Max Burn Rate	Fan Confirmation (Cat. 2) <sup>1</sup>
Date	12/3/2019	12/4/2019	12/5/2019	12/5/2019	12/6/2019
Run Number	1	2	3	4	5
Emission Rate (g/hr).	1.65	1.22	1.56	2.99	0.92
Burn Rate (kg/hr)	0.95	1.09	1.74	2.79	1.07
Heat Output (Btu/hr)	13,239	15,131	23,813	36,757	14,921
Overall Efficiency (% HHV)	75.1%	74.7%	73.8%	71.2%	74.8%
CO Emissions (g/MJ Output)	7.56	6.38	3.58	4.06	6.43
CO Emissions (g/kg Dry Fuel)	112.50	94.41	52.37	57.30	95.19
CO Emissions (g/min)	1.76	1.70	1.50	2.62	1.68
ASTM E2515 Emissions – First Hour (g/hr)	3.44	2.31	2.22	5.51	3.84
<b>Weighted particulate emission average of 4 test runs: 1.6 grams per hour.</b>					
<b>Weighted average HHV efficiency of 4 test runs: 74.2%.</b>					
<b>Average CO emissions of 4 test runs: 1.9 g/min.</b>					

<sup>1</sup>Fan Confirmation test not included in weighted average calculations.



## Weighted Average Calculation Summary

### EPA Method 28R Weighted Average Emissions

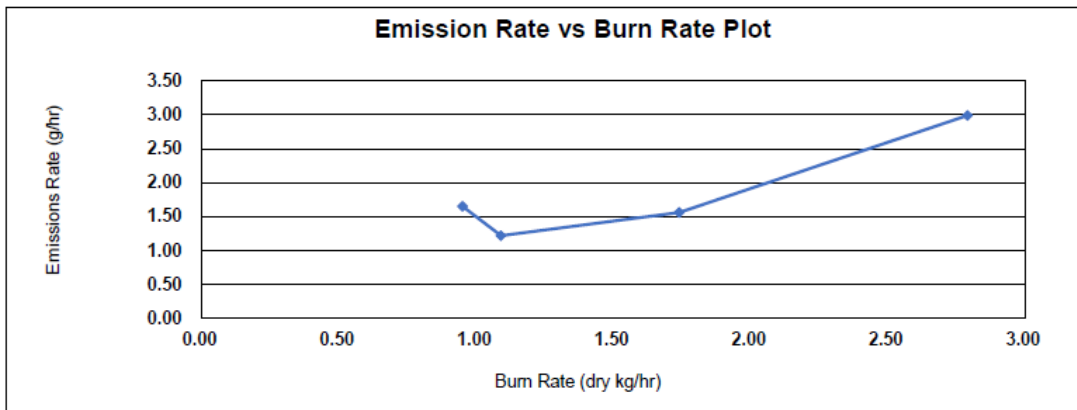
Client: HHT  
 Stove Model: 4300  
 Test Dates: 12/2/19-12/5/19  
 Job Number: 19-538

Signature/Date: \_\_\_\_\_

<b>Weighted Average Particulate Emissions (g/hr):</b>	<b>1.60</b>
<b>Weighted Average HHV Efficiency (%):</b>	<b>74.2%</b>
<b>Weighted Average LHV Efficiency (%):</b>	<b>80.2%</b>
<b>Average CO Emissions (g/min):</b>	<b>1.9</b>

#### Individual Run Summaries

<p>Run Number: 1                  Burn Rate (dry kg/hr): 0.95                  Emissions Rate (g/hr): 1.65                  HHV Efficiency (%): 75.1%                  LHV Efficiency (%): 81.1%                  Weighting Percentage (%): 27.21%</p>	<p>Run Number: 2                  Burn Rate (dry kg/hr): 1.09                  Emissions Rate (g/hr): 1.22                  HHV Efficiency (%): 74.7%                  LHV Efficiency (%): 80.7%                  Weighting Percentage (%): 31.82%</p>
<p>Run Number: 3                  Burn Rate (dry kg/hr): 1.74                  Emissions Rate (g/hr): 1.56                  HHV Efficiency (%): 73.8%                  LHV Efficiency (%): 79.7%                  Weighting Percentage (%): 32.11%</p>	<p>Run Number: 4                  Burn Rate (dry kg/hr): 2.79                  Emissions Rate (g/hr): 2.99                  HHV Efficiency (%): 71.2%                  LHV Efficiency (%): 76.9%                  Weighting Percentage (%): 8.86%</p>



## Test Run Narrative

### *Run 1*

Run 1 was performed on 12/3/2019 as a category 2 test, per EPA Method 28R. The total test time was 359 minutes. The particulate emissions rate for the test was 1.65 g/hr, the burn rate was 0.95 kg/hr with an HHV efficiency of 75.1%. The Train A front filter was changed at 1 hr to determine 1<sup>st</sup> hour emissions. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

### *Run 2*

Run 2 was performed on 12/4/2019 as a category 2 test, per EPA Method 28R. The total test time was 316 minutes. The particulate emissions rate for the test was 1.22 g/hr, the burn rate was 1.09 kg/hr with an HHV efficiency of 74.7%. The Train A front filter was changed at 1 hr to determine 1<sup>st</sup> hour emissions. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

### *Run 3*

Run 3 was performed on 12/5/2019 as a category 3 test, per EPA Method 28R. The total test time was 194 minutes. The particulate emissions rate for the test was 1.56 g/hr, the burn rate was 1.74 kg/hr with an HHV efficiency of 73.8%. The Train A front filter was changed at 1 hr to determine 1<sup>st</sup> hour emissions. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

### *Run 4*

Run 4 was performed on 12/5/2019 as a category 4 test, per EPA Method 28R. The total test time was 121 minutes. The particulate emissions rate for the test was 2.99 g/hr, the burn rate was 2.79 kg/hr with an HHV efficiency of 71.2%. The Train A front filter was changed at 1 hr to determine 1<sup>st</sup> hour emissions. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

### *Run 5*

Run 5 was performed on 12/6/2019 as a category 2 fan confirmation test, per EPA Method 28R. The total test time was 322 minutes. The particulate emissions rate for the test was 0.92 g/hr with a burn rate of 1.07 kg/hr. All test results were appropriate and valid. There were no anomalies and all test criteria were met. Since the particulate emissions rate is within 1.0 g/hr of another category 2 test (run 2, 1.22 g/hr) the blower is determined not to have a significant impact on emissions performance and may therefore be approved as an optional accessory. This test run is not included in the weighted average calculations presented in the results summary.

Samples were observed to have negative catch weights for all 5 runs, and these catch values were corrected to zero in the results reported above. If these negative weights are left uncorrected, the results are as follows:

Runs	Emissions Rate, Negative Weights Uncorrected (g/hr)
1	1.63
2	1.19
3	1.54
4	2.93
5	0.87

Emissions sample train precisions expressed as percent are shown below:

Runs	Difference From Avg Particulate Emissions (%) – Train A	Difference From Avg Particulate Emissions (%) – Train B
1	0.0%	0.0%
2	0.5%	0.5%
3	6.1%	6.1%
4	6.4%	6.4%
5	6.1%	6.1%

## Test Conditions Summary

Testing conditions for all runs fell within allowable specifications of ASTM E2780 and ASTM E2515. A summary of facility conditions, fuel burned, and run times is listed below.

Runs	Ambient (°F)		Average Barometric Pressure (In. Hg.)	Preburn Fuel Weight (lbs)	Test Fuel Weight (lbs)	Test Fuel Moisture (%DB)	Test Run Time (Min)
	Pre	Post					
1	74	68	28.59	2.6	14.80	19.6	359
2	77	72	28.38	2.9	14.90	19.4	316
3	74	72	28.47	2.6	14.90	21.7	194
4	76	74	28.38	13.2	15.00	22.8	121
5	76	72	28.44	2.8	15.00	19.4	322

## Appliance Operation and Test Settings

The appliance was operated according to procedures as described in the Operations Manual, found in Appendix B submitted with this report. Detailed run information can be found in Appendix A submitted with this report.

## Settings & Run Notes

	Pre-Burn Air Setting	Test Run Air and Fan Settings
<b>Run 1</b>	Primary air set to 0.443" open*, measured as longest chord length in open cross section. Rear air set to fully closed	Primary air set to 0.443" open*, rear air set to fully closed. Fan on.
<b>Run 2</b>	Primary air open 0.75", rear air fully closed.	Primary air open 0.75", rear air fully closed. Fan on.
<b>Run 3</b>	Primary air fully open, rear air fully closed.	Primary air fully open, rear air fully closed. Fan on.
<b>Run 4</b>	Primary air fully open, rear air fully open.	Primary air fully open, rear air fully open. Fan on.
<b>Run 5</b>	Primary air open 0.75", rear air fully closed.	Primary air open 0.75", rear air fully closed. Fan off.

\*Refers to setting on prototype unit. A fixed stop was added at this position, details of which are shown in Appendix C. All other air opening measurements are therefore offset by 0.443" compared to production units.

## Appliance Description

**Model(s):** 43M-ACC-C

**Additional Models Discussion:** In addition to the 43M-ACC-C, the manufacturer also offers the models 43ST-ACC-C and Discovery-III-C, which are identical in firebox construction and air intake/control. The difference between the 43M and 43ST models is that the 43ST has a stepped top, which does not affect flue gas passageways or firebox volume. The 43ST also features legs rather than a pedestal base. The Discovery-III-C has a third style of base, which includes decorative outer panels and a wood storage area under the firebox. The difference between the three models is not expected to cause to appliance to exceed to required emissions limit.

**Appliance Type:** Non-Catalytic Wood-Fired Room Heater

**Firebox Volume:** Total volume 2.35 ft<sup>3</sup>, usable volume 2.26 ft<sup>3</sup>

**Air Introduction System:** Primary Air enters the appliance through an opening located on the right side of the firebox near the top of the appliance. The primary air opening is varied via use of a control arm at the upper right of the firebox, which moves up (open) and down (closed). Secondary combustion air enters a manifold near the rear of the appliance and is channeled to four air tubes mounted in the top of the firebox directly under the baffle. A third air source is located on the right side of the appliance near the bottom of the firebox. The control for this air source extends out the front of the appliance near the bottom right. Pushing the control in and releasing locks the control open providing combustion air to openings in the rear of the firebox and to an opening located in the front of the firebox near the floor. If this control is pushed in and then pulled out it activates a timer that slowly closes these openings over a time of approximately 25 minutes. Dimensions of these features can be found in Appendix D.

**Baffles:** A pair of mating 9.5" x 15.7" x 0.5" C-Cast baffle boards mate together to form a baffle which rests on top of the secondary air tubes, a 1/2" ceramic fiber blanket rest on top of the baffle boards.

**Refractory Insulation:** The firebox is lined with 1.25" thick firebrick.

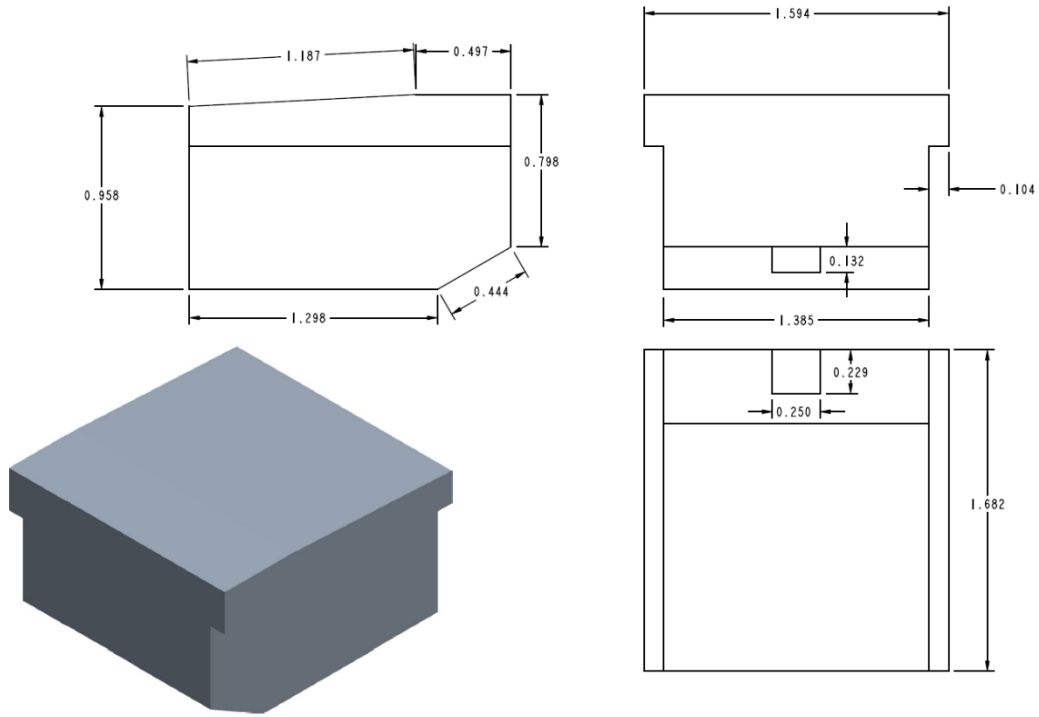
**Flue Outlet:** 6-inch exhaust outlet located on the top of the appliance.

**Fan:** The appliance is optionally offered with a convection fan that attached to the rear of the appliance.

Appliance design drawings can be found in Appendix D submitted with the CBI copy of this report.

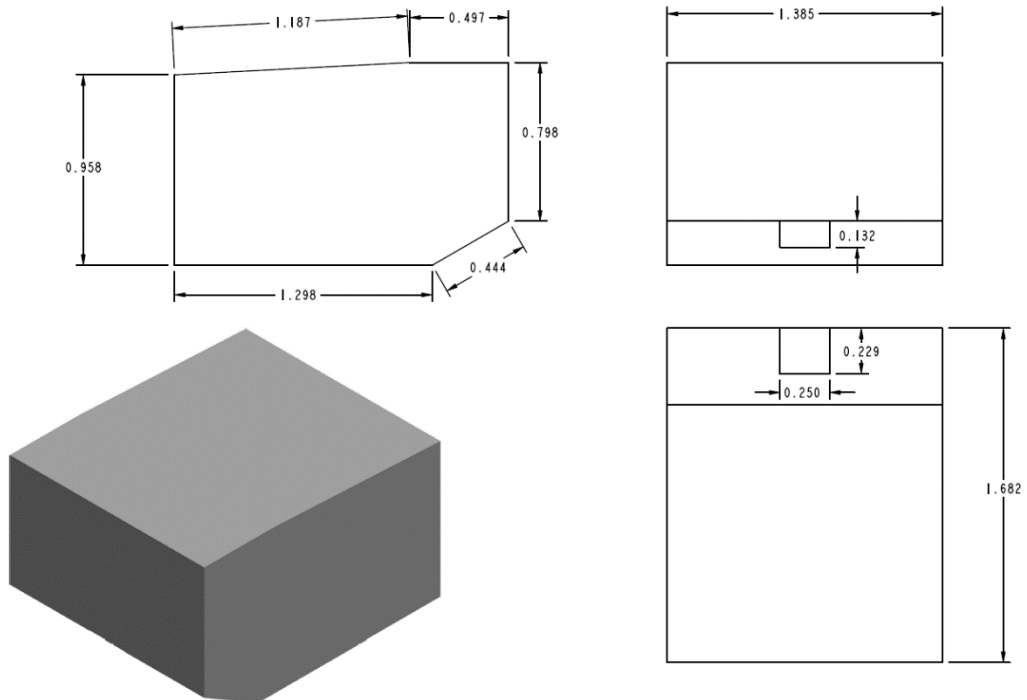
### Firebox Volume Calculation

Total Volume:



TOTAL FIRE BOX VOLUME: 2.35 Cubic Ft.

Usable Volume:

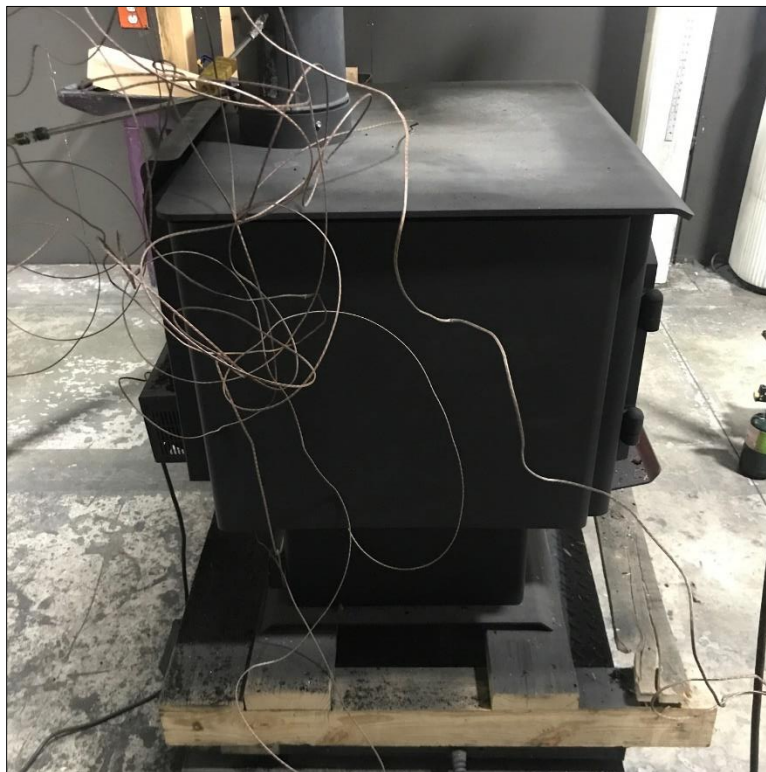


FIRE BOX VOLUME: 2.26 Cubic Ft.

Appliance Front



Appliance Left



### Appliance Right



### Appliance Rear





## Test Fuel Properties

Test fuel used was dimensional Doug fir lumber, air-dried to the specified moisture content range. Typical fuel loads are pictured below:

Typical Test Fuel Load Configuration



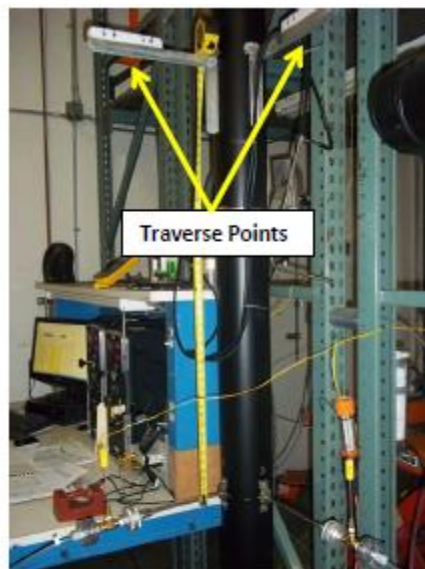
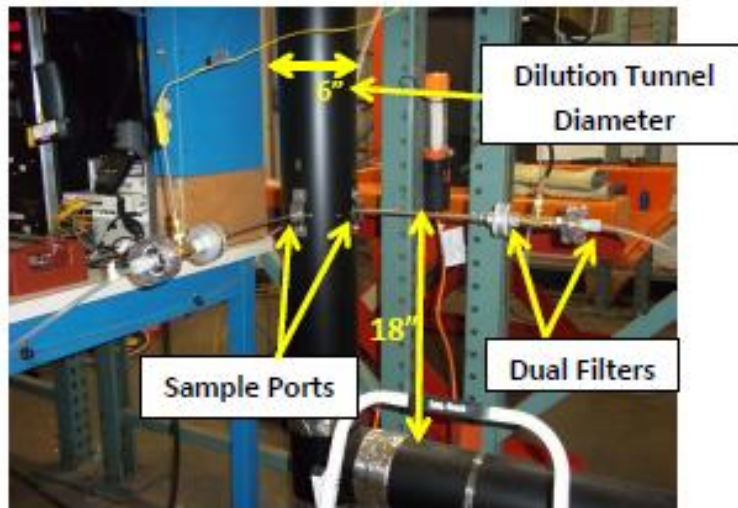
Typical Test Fuel Loaded in Test Stove



## Sampling Locations and Descriptions

Sample ports are located 16.5 feet downstream from any disturbances and 1 foot upstream from any disturbances. Flow rate traverse data was collected 12 feet downstream from any disturbances and 5.5 feet upstream from any disturbances. (See below).

### Sample Points



## Sampling Methods

ASTM E2515 was used in collecting particulate samples. The dilution tunnel is 6 inches in diameter. All sampling conditions per ASTM E2515 were followed. No alternate procedures were used, and no sampling intervals fell outside of proportional rates of +/- 10%.

## Analytical Methods Description

All sample recovery and analysis procedures followed ASTM E2515 procedures. At the end of each test run, filters, O-Rings and probes were removed from their housings, dessicated for a minimum of 24 hours, and then weighed at 6 hour intervals to a constant weight per ASTM E2515-11 Section 10.

## Calibration, Quality Control and Assurances

Calibration procedures and results were conducted per EPA Method 28R, ASTM E2515-11 and ASTM E2780. Test method quality control procedures (leak checks, volume meter checks, stratification checks, proportionality results) followed the procedures outlined.

## Appliance Sealing and Storage

Upon completion of testing, the appliance was secured with metal strapping and the seal below was applied, the appliance was then returned to the manufacturer’s location at: 1445 N. Highway Suite A, Colville, WA 99114, for archival.

### Sealing Label

**ATTENTION:**

THIS SEAL IS NOT TO BE BROKEN WITHOUT PRIOR AUTHORIZATION FROM THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY.

THIS APPLIANCE HAS BEEN SEALED INACCORDANCE WITH REQUIREMNTS OF 40CFR PART 60 SUBPART AAA §60.535 (a)(2)(vii)

REPORT # \_\_\_\_\_

DATE SEALED \_\_\_\_\_

MANUFACTURER \_\_\_\_\_

MODEL # \_\_\_\_\_

### Sealed Unit



## List of Appendices

The following appendices have been submitted electronically in conjunction with this report:

Appendix A – Test Run Data, Technician Notes, Sample Analysis, and Photos

Appendix B – Labels and Manuals

Appendix C – Equipment Calibration Records

Appendix D – Design Drawings (CBI Report Only)

Appendix E – Manufacturer QAP (CBI Report Only)

**WOOD STOVE TEST DATA PACKET**  
**ASTM E2780/E2515**



**Run 1 Data Summary**

Client:	Hearth and Home
Model:	4300ACC-C
Job #:	19-538
Tracking #:	0050
Test Date:	12/3/2019

  
\_\_\_\_\_  
Technician Signature

12/18/2019  
\_\_\_\_\_  
Date

# TEST RESULTS - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

<b>Burn Rate (kg/hr):</b>	<b>0.95</b>
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	0.000	56.735	59.558	9.318
Average Gas Velocity in Dilution Tunnel (ft/sec)	18.8			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	12104.6			
Average Gas Meter Temperature (°F)	71.1	75.8	75.8	75.1
Total Sample Volume (dscf)	0.000	53.433	56.335	8.787
Average Tunnel Temperature (°F)	82.3			
Total Time of Test (min)	359			
Total Particulate Catch (mg)	0.0	7.3	7.7	2.5
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0001366	0.0001367	0.0002845
Total PM Emissions (g)	0.00	9.89	9.90	3.44
Particulate Emission Rate (g/hr)	0.00	1.65	1.65	3.44
Emissions Factor (g/kg)	-	1.75	1.75	-
Difference from Average Total Particulate Emissions (g)	-	0.00	0.00	-
Difference from Average Emissions Factor (g/kg)	-	0.00	0.00	-

Final Average Results	
Total Particulate Emissions (g)	9.90
Particulate Emission Rate (g/hr)	1.65
Emissions Factor (g/kg)	1.75
HHV Efficiency (%)	75.1%
LHV Efficiency (%)	81.1%
CO Emissions (g/min)	1.76

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	80.0	OK
Face Velocity	< 30 ft/min	9.3	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min: 68 / Max: 76	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-2.7%	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	110.4	OK

## B415.1 Efficiency Results

**Manufacturer:** Hearth and Home  
**Model:** 4300ACC-C  
**Date:** 12/03/19  
**Run:** 1  
**Control #:** 19-538  
**Test Duration:** 359  
**Output Category:** 2

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	75.1%	81.1%
<b>Combustion Efficiency</b>	91.9%	91.9%
<b>Heat Transfer Efficiency</b>	81.6%	88.2%

<b>Output Rate (kJ/h)</b>	13,957	13,239	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	0.94	2.07	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	18,590	17,635	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.61	12.38	<b>dry lb</b>
<b>MC wet (%)</b>	16.38		
<b>MC dry (%)</b>	19.59		
<b>Particulate (g )</b>	9.90		
<b>CO (g)</b>	632		
<b>Test Duration (h)</b>	5.98		

	Particulate	CO
<b>Emissions</b>		
<b>g/MJ Output</b>	0.12	7.56
<b>g/kg Dry Fuel</b>	1.76	112.50
<b>g/h</b>	1.65	105.57
<b>g/min</b>	0.03	1.76
<b>lb/MM Btu Output</b>	0.28	17.58

<b>Air/Fuel Ratio (A/F)</b>	13.91
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VERSION:

2.2

12/14/2009



# WOODSTOVE FUEL DATA - ASTM E2780

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	8.00	19.9				
2x4	8.00	18.8				
2x4	8.00	23.1				
Total Fuel Weight (lbs):		2.6	Average Moisture (%DB):		20.6	

Firebox Volume (ft<sup>3</sup>): 2.26  
 Total 2x4 Crib Weight, with spacers (lbs): 6.50  
 Total 4x4 Crib Weight, with spacers (lbs): 8.30  
 Total Wet Fuel Weight, with spacers (lbs): 14.80

**Coal Bed Range (20-25%):**  
 Min (lbs): 2.96  
 Max (lbs): 3.70

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
4x4	15.50	3.80	20.0	19.2	19.7	3.18
4x4	15.50	4.00	20.9	19.7	20.5	3.32
2x4	15.50	1.80	19.8	19.2	20.0	1.50
2x4	15.50	1.70	18.6	19.3	19.5	1.43
2x4	15.50	1.90	18.7	19.7	19.1	1.59
Total Dry Weight, no spacers (lbs):						11.03
Total Dry Weight, with spacers (lbs):						12.48

Spacer Moisture Readings (%DB)						
10.0						
10.0						
10.0						
10.0						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	30.5	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	6.55	OK
2x4 Fuel Mix	35 - 65 % of total weight	44%	OK

## DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: <b>Hearth and Home</b>	Job #: <b>19-538</b>
Model: <b>4300ACC-C</b>	Tracking #: <b>0050</b>
Run #: <b>1</b>	Technician: <b>AK</b>
Test Start Time: <b>11:25</b>	Date: <b>12/3/2019</b>

Total Sampling Time (min): <b>359</b>		<b>Pre-Test</b>	<b>Post Test</b>	<b>Avg.</b>
Recording Interval (min): <b>1</b>		Barometric Pressure (in. Hg) <b>28.66</b>	<b>28.52</b>	<b>28.59</b>
		Relative Humidity (%)		
Meter Box $\gamma$ Factor: <b>0.998 (A)</b>		Room Air Velocity (ft/min)	<b>0</b>	<b>0</b>
Meter Box $\gamma$ Factor: <b>1.002 (B)</b>		Scale Audit (lbs)	<b>10.0</b>	<b>10.0</b>
Meter Box $\gamma$ Factor: <b>1.000 (Ambient)</b>		Ambient Sample Volume:		ft <sup>3</sup>

Induced Draft Check (in. H <sub>2</sub> O): <b>0</b>	<b>Sample Train Post-Test Leak Checks</b>
Smoke Capture Check (%): <b>100%</b>	(A) <b>0.000</b> cfm @ <b>-6 in. Hg</b>
Date Flue Pipe Last Cleaned: <b>11/25/2019</b>	(B) <b>0.000</b> cfm @ <b>-8 in. Hg</b>
	(Ambient) <b>0.000</b> cfm @ <b>in. Hg</b>

## DILUTION TUNNEL FLOW

**Traverse Data**

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.046	88
2	0.090	88
3	0.116	88
4	0.048	88
5	0.058	88
6	0.096	88
7	0.104	88
8	0.048	88
Center	0.120	88

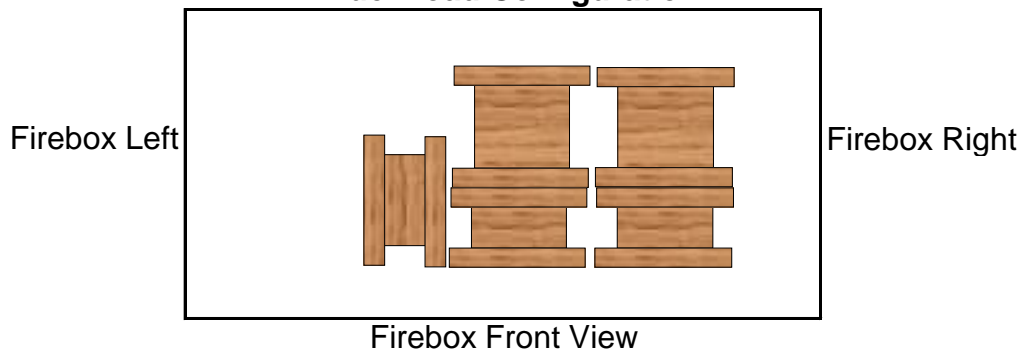
Dilution Tunnel H <sub>2</sub> O:	<b>2.00</b> percent
Tunnel Diameter:	<b>6</b> inches
Pitot Tube Cp:	<b>0.99</b> [unitless]
Dilution Tunnel MW(dry):	<b>29.00</b> lb/lb-mole
Dilution Tunnel MW(wet):	<b>28.78</b> lb/lb-mole
Tunnel Area:	<b>0.1963</b> ft <sup>2</sup>
$V_{strav}$ :	<b>19.28</b> ft/sec
$V_{scent}$ :	<b>23.92</b> ft/sec
$F_p$ :	<b>0.806</b> [ratio]
Initial Tunnel Flow:	<b>198.6</b> scf/min

Static Pressure: **-0.720** in. H<sub>2</sub>O

## TEST FUEL PROPERTIES

Default Fuel Values			Actual Fuel Used Properties	
Fuel Type:	D. Fir	Oak	Fuel Type:	<b>D. Fir</b>
HHV (kJ/kg)	19,810	19,887	HHV (kJ/kg)	<b>19,810</b>
%C	48.73	50	%C	<b>48.73</b>
%H	6.87	6.6	%H	<b>6.87</b>
%O	43.9	42.9	%O	<b>43.9</b>
%Ash	0.5	0.5	%Ash	<b>0.5</b>
			MC (%DB)	<b>19.6</b>

### Fuel Load Configuration



# WOODSTOVE PREBURN DATA - ASTM E2780

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Recording Interval (min): 1  
 Run Time (min): 122

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)						Stove Surface Average	Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom				
0	13.6	-0.090	318	251	332	786	245	386.4	627	926	
1	13.6	-0.085	330	257	344	792	253	395.2	620	926	
2	13.7	-0.081	343	264	357	794	261	403.8	622	4151	
3	13.6	-0.096	355	273	369	795	269	412.2	622	69	
4	13.6	-0.083	368	281	383	799	276	421.4	624	70	
5	13.8	-0.085	380	288	396	805	284	430.6	621	69	
6	13.6	-0.082	392	297	412	804	292	439.4	612	70	
7	13.6	-0.083	404	307	429	805	300	449.0	598	69	
8	13.6	-0.081	416	316	444	796	308	456.0	588	69	
9	13.7	-0.083	427	325	463	787	316	463.6	570	70	
10	13.6	-0.080	438	333	484	776	324	471.0	550	70	
11	13.6	-0.076	448	341	508	755	332	476.8	525	70	
12	13.6	-0.073	457	351	534	742	340	484.8	509	69	
13	13.6	-0.069	467	359	561	727	348	492.4	493	69	
14	13.6	-0.077	475	368	585	711	356	499.0	480	70	
15	13.6	-0.066	483	376	605	692	364	504.0	469	70	
16	13.6	-0.068	489	383	623	678	372	509.0	456	71	
17	13.6	-0.068	496	390	636	660	380	512.4	450	70	
18	13.6	-0.062	501	397	648	647	387	516.0	447	71	
19	13.6	-0.066	506	403	657	635	395	519.2	437	71	
20	13.6	-0.065	510	408	665	620	402	521.0	435	70	
21	13.6	-0.068	514	413	670	609	409	523.0	431	71	
22	13.6	-0.055	516	418	674	594	416	523.6	427	70	
23	13.6	-0.063	519	422	678	587	422	525.6	426	71	
24	13.6	-0.070	522	425	680	576	428	526.2	418	70	
25	13.6	-0.069	523	428	681	568	434	526.8	414	71	
26	13.6	-0.065	525	431	682	557	440	527.0	413	70	
27	13.6	-0.056	527	432	685	546	446	527.2	332	70	
28	13.6	-0.063	528	440	686	527	453	526.8	323	70	
29	13.6	-0.070	529	443	679	507	459	523.4	389	70	
30	13.5	-0.074	529	443	668	509	465	522.8	473	70	
31	13.7	-0.083	529	442	656	543	470	528.0	575	71	
32	13.6	-0.081	528	441	644	593	473	535.8	595	70	
33	13.6	-0.083	527	442	633	642	475	543.8	624	70	
34	13.7	-0.084	526	444	624	686	477	551.4	635	71	
35	13.6	-0.090	525	444	614	726	478	557.4	657	70	
36	13.6	-0.096	524	443	608	757	478	562.0	655	70	
37	13.6	-0.094	523	449	602	780	478	566.4	657	70	
38	13.8	-0.092	522	452	596	801	477	569.6	661	71	
39	13.6	-0.088	523	453	589	817	477	571.8	671	71	
40	13.7	-0.086	523	453	582	833	476	573.4	672	71	
41	13.6	-0.088	525	452	578	846	474	575.0	672	70	
42	13.6	-0.090	527	453	573	852	473	575.6	670	71	
43	13.7	-0.085	529	455	569	863	472	577.6	670	71	
44	13.6	-0.089	532	455	566	874	471	579.6	671	71	
45	13.6	-0.093	535	455	564	880	469	580.6	672	71	

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Recording Interval (min): 1  
 Run Time (min): 122

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)						Stove Surface Average	Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom				
46	13.6	-0.086	538	457	564	885	468	582.4	672	71	
47	13.7	-0.089	541	458	563	897	467	585.2	669	71	
48	13.7	-0.084	545	460	563	904	466	587.6	666	72	
49	13.6	-0.084	549	462	565	909	465	590.0	667	71	
50	13.7	-0.084	552	464	567	916	464	592.6	660	71	
51	13.7	-0.082	556	467	569	922	463	595.4	656	71	
52	13.7	-0.085	560	471	572	925	462	598.0	654	71	
53	13.6	-0.095	564	476	577	927	462	601.2	654	72	
54	13.5	-0.082	568	480	582	929	461	604.0	653	72	
55	13.6	-0.087	572	481	589	925	461	605.6	645	71	
56	13.5	-0.088	575	484	598	927	461	609.0	643	71	
57	13.6	-0.078	579	486	607	921	461	610.8	629	72	
58	13.7	-0.079	583	490	616	912	461	612.4	625	72	
59	13.6	-0.086	586	493	625	904	462	614.0	614	72	
60	13.6	-0.075	589	496	633	894	462	614.8	584	72	
61	13.6	-0.077	591	499	642	879	462	614.6	564	73	
62	13.6	-0.068	598	516	655	814	463	609.2	435	72	
63	13.6	-0.055	606	520	667	772	464	605.8	382	72	
64	13.6	-0.059	610	522	675	727	464	599.6	352	72	
65	13.6	-0.050	613	523	677	688	465	593.2	329	72	
66	13.6	-0.056	615	525	676	650	466	586.4	311	72	
67	13.5	-0.045	616	525	673	615	466	579.0	296	71	
68	13.5	-0.045	615	525	668	582	467	571.4	284	72	
69	13.5	-0.045	613	525	662	552	468	564.0	273	72	
70	13.7	-0.045	610	523	654	525	468	556.0	262	72	
71	13.4	-0.037	607	520	645	501	469	548.4	255	73	
72	13.6	-0.038	604	520	637	477	469	541.4	247	72	
73	13.7	-0.033	599	516	629	457	470	534.2	241	72	
74	13.6	-0.051	595	556	621	438	470	536.0	275	71	
75	13.6	-0.041	591	566	615	419	470	532.2	242	71	
76	13.7	-0.037	586	567	610	404	471	527.6	237	71	
77	13.6	-0.043	581	564	604	389	471	521.8	241	71	
78	13.6	-0.049	576	561	597	382	471	517.4	259	71	
79	13.7	-0.045	571	559	591	378	471	514.0	253	71	
80	13.6	-0.044	567	556	585	371	470	509.8	246	71	
81	13.6	-0.037	562	553	579	365	470	505.8	243	71	
82	13.7	-0.037	556	550	573	357	469	501.0	236	72	
83	13.6	-0.033	552	547	568	351	467	497.0	234	74	
84	13.6	-0.030	547	544	563	345	466	493.0	230	73	
85	13.6	-0.042	542	541	557	341	464	489.0	227	74	
86	13.5	-0.037	537	538	552	334	463	484.8	224	74	
87	13.6	-0.035	533	535	546	329	461	480.8	221	75	
88	13.6	-0.038	529	531	541	325	459	477.0	221	75	
89	13.6	-0.034	524	528	537	319	457	473.0	221	75	
90	13.5	-0.041	520	525	532	315	455	469.4	224	74	
91	13.6	-0.042	517	521	527	314	453	466.4	230	75	

## WOODSTOVE PREBURN DATA - ASTM E2780

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Recording Interval (min): 1  
 Run Time (min): 122

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
92	13.6	-0.038	513	518	522	316	451	464.0	235	75	
93	13.6	-0.032	509	515	517	318	449	461.6	235	75	
94	13.7	-0.036	505	512	514	318	447	459.2	231	75	
95	13.7	-0.043	501	509	510	316	445	456.2	228	74	
96	13.7	-0.031	498	506	506	316	443	453.8	224	75	
97	13.6	-0.035	494	503	502	313	442	450.8	222	75	
98	13.6	-0.039	491	501	498	311	440	448.2	219	76	
99	13.6	-0.029	488	498	494	306	438	444.8	215	76	
100	13.6	-0.033	484	496	491	304	436	442.2	215	76	
101	13.6	-0.023	481	493	488	302	434	439.6	215	76	
102	13.6	-0.040	477	491	484	302	432	437.2	217	75	
103	13.6	-0.040	474	488	481	301	431	435.0	219	75	
104	13.6	-0.035	471	486	479	303	429	433.6	222	76	
105	13.6	-0.032	468	484	475	304	427	431.6	226	75	
106	13.6	-0.036	466	482	473	307	426	430.8	230	76	
107	13.6	-0.038	463	480	471	311	424	429.8	233	74	
108	13.5	-0.037	461	478	467	316	423	429.0	233	74	
109	13.5	-0.034	458	476	465	319	421	427.8	230	75	
110	13.5	-0.039	456	475	463	318	420	426.4	227	75	
111	13.6	-0.038	454	473	460	317	418	424.4	224	74	
112	13.7	-0.032	452	471	458	314	417	422.4	217	74	
113	13.6	-0.031	450	469	456	310	415	420.0	213	75	
114	13.7	-0.028	448	467	453	306	414	417.6	210	75	
115	13.7	-0.030	447	465	451	302	413	415.6	205	75	
116	13.6	-0.027	445	463	449	297	412	413.2	203	75	
117	13.6	-0.033	443	461	446	294	410	410.8	200	75	
118	13.6	-0.030	441	459	444	288	409	408.2	196	75	
119	14.9	-0.026	439	457	442	285	408	406.2	198	75	
120	13.8	-0.049	439	441	441	276	408	401.0	236	76	
121											

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.008		0.109	0.02	74	2		14.8		87	184	74	74
1	0.134	0.126	0.108	0.91	74	2	84	14.8	-0.02738	106	203	75	75
2	0.292	0.158	0.106	1.03	74	2	106	14.6	-0.16339	97	296	75	74
3	0.450	0.158	0.107	1.01	74	2	106	14.4	-0.24377	103	412	76	73
4	0.606	0.156	0.109	0.99	74	2	105	14.1	-0.21856	109	480	76	73
5	0.763	0.157	0.110	1.04	74	2	105	14.0	-0.10838	113	502	76	74
6	0.920	0.157	0.096	0.99	74	2	111	13.9	-0.09648	105	433	76	74
7	1.076	0.156	0.098	0.98	74	2	109	13.8	-0.18093	103	423	76	74
8	1.229	0.153	0.095	0.95	73	2	109	13.6	-0.12842	103	417	77	74
9	1.385	0.156	0.091	0.96	73	2	114	13.4	-0.18367	103	415	77	74
10	1.542	0.157	0.089	1.00	73	2	116	13.3	-0.14657	103	420	77	74
11	1.699	0.157	0.100	1.01	73	2	109	13.2	-0.13894	103	422	77	74
12	1.854	0.155	0.100	1.02	73	2	108	13.0	-0.12026	103	423	77	73
13	2.007	0.153	0.102	0.98	73	2	106	12.9	-0.15731	104	423	77	74
14	2.164	0.157	0.104	1.00	73	2	107	12.7	-0.137	104	432	77	74
15	2.321	0.157	0.102	1.00	73	2	108	12.6	-0.16099	104	436	77	74
16	2.478	0.157	0.102	0.97	73	2	108	12.4	-0.17663	104	440	77	75
17	2.634	0.156	0.100	0.98	73	2	109	12.3	-0.11993	105	438	78	74
18	2.790	0.156	0.098	0.99	73	2	110	12.2	-0.13093	105	440	78	75
19	2.945	0.155	0.096	0.98	73	2	110	12.0	-0.16751	104	438	78	74
20	3.099	0.154	0.095	1.02	73	2	110	11.8	-0.18165	105	443	78	74
21	3.257	0.158	0.096	1.00	73	2	112	11.6	-0.17935	104	442	78	74
22	3.412	0.155	0.096	0.98	74	2	110	11.5	-0.13906	104	441	78	75
23	3.571	0.159	0.095	1.00	74	2	113	11.4	-0.13846	105	437	78	75
24	3.724	0.153	0.097	1.00	74	2	108	11.2	-0.11064	104	434	78	75
25	3.882	0.158	0.101	1.00	74	2	109	11.1	-0.10898	103	431	78	75
26	4.038	0.156	0.100	0.96	74	2	108	10.9	-0.21001	102	424	78	75
27	4.196	0.158	0.100	1.03	74	2	110	10.8	-0.07959	102	416	78	75
28	4.349	0.153	0.103	1.02	74	2	104	10.6	-0.19803	101	404	78	75
29	4.506	0.157	0.103	0.99	74	2	107	10.6	-0.09717	101	397	78	75
30	4.662	0.156	0.104	0.98	74	2	106	10.4	-0.1733	101	388	78	75
31	4.816	0.154	0.108	1.03	74	2	103	10.2	-0.18187	100	375	78	75
32	4.970	0.154	0.110	0.95	74	2	102	10.1	-0.07482	99	362	78	75

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
33	5.126	0.156	0.112	0.99	75	2	102	10.0	-0.11845	99	353	79	75
34	5.283	0.157	0.110	0.98	75	2	103	9.9	-0.09165	98	346	79	75
35	5.437	0.154	0.108	0.98	75	2	102	9.8	-0.11697	98	343	79	75
36	5.591	0.154	0.107	0.97	75	2	103	9.7	-0.08862	98	340	79	75
37	5.747	0.156	0.105	1.03	76	2	105	9.6	-0.06205	97	333	79	76
38	5.904	0.157	0.105	1.01	76	2	105	9.6	-0.06966	97	328	79	74
39	6.058	0.154	0.108	1.00	76	2	102	9.5	-0.11497	96	319	79	74
40	6.214	0.156	0.106	0.99	76	2	104	9.4	-0.0814	96	317	79	74
41	6.368	0.154	0.107	0.99	76	2	102	9.3	-0.07622	95	311	79	75
42	6.524	0.156	0.109	0.97	77	2	102	9.2	-0.05949	95	303	79	75
43	6.680	0.156	0.105	0.99	77	2	104	9.2	-0.08266	94	300	79	75
44	6.836	0.156	0.103	0.99	77	2	105	9.1	-0.09931	94	294	79	75
45	6.992	0.156	0.105	1.03	77	2	104	9.0	-0.06468	93	290	79	75
46	7.146	0.154	0.106	0.97	77	2	102	8.9	-0.05231	93	284	79	75
47	7.300	0.154	0.104	1.02	77	2	103	8.9	-0.07485	93	280	79	75
48	7.455	0.155	0.106	1.02	77	2	103	8.8	-0.09435	92	277	79	74
49	7.611	0.156	0.106	1.00	77	2	104	8.7	-0.03963	92	276	79	74
50	7.767	0.156	0.106	0.98	77	2	104	8.6	-0.09114	92	273	78	75
51	7.922	0.155	0.103	0.99	78	2	104	8.6	-0.064	91	270	78	74
52	8.080	0.158	0.103	1.03	78	2	106	8.5	-0.03828	91	267	78	75
53	8.238	0.158	0.102	0.94	78	2	107	8.4	-0.09258	91	264	78	75
54	8.393	0.155	0.099	0.99	78	2	106	8.4	-0.07267	91	261	78	74
55	8.550	0.157	0.100	1.00	78	2	107	8.3	-0.04244	90	258	78	75
56	8.706	0.156	0.101	1.00	78	2	106	8.2	-0.12531	90	257	78	74
57	8.860	0.154	0.098	0.97	78	2	106	8.1	-0.07592	90	253	78	74
58	9.013	0.153	0.100	1.00	78	2	104	8.1	-0.05061	90	256	78	73
59	9.169	0.156	0.102	0.97	78	2	105	8.0	-0.06172	89	257	78	74
60	9.326	0.157	0.102	1.01	78	2	106	7.9	-0.08022	89	257	78	73
61	9.486	0.160	0.105	0.99	78	2	106	7.9	-0.06598	89	257	77	73
62	9.643	0.157	0.109	1.03	78	2	102	7.8	-0.09549	89	257	77	73
63	9.800	0.157	0.110	0.97	78	2	102	7.7	-0.08678	89	256	77	74
64	9.956	0.156	0.112	1.03	78	2	100	7.6	-0.07275	89	257	77	73
65	10.114	0.158	0.113	1.00	78	2	101	7.5	-0.10753	89	260	77	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
66	10.271	0.157	0.110	1.01	78	2	102	7.5	-0.04142	89	260	77	74
67	10.429	0.158	0.110	1.02	78	2	103	7.4	-0.09758	89	262	77	73
68	10.587	0.158	0.110	0.98	78	2	103	7.3	-0.08492	89	262	77	74
69	10.743	0.156	0.110	1.04	78	2	101	7.2	-0.09168	89	261	77	74
70	10.900	0.157	0.110	1.00	78	2	102	7.1	-0.11766	89	263	77	73
71	11.058	0.158	0.110	1.02	78	2	103	7.0	-0.04809	89	264	77	73
72	11.214	0.156	0.110	1.00	78	2	101	6.9	-0.08307	89	262	77	73
73	11.371	0.157	0.111	1.00	78	2	102	6.9	-0.07823	89	264	77	74
74	11.531	0.160	0.114	1.04	79	2	102	6.8	-0.1123	89	264	77	74
75	11.688	0.157	0.116	0.99	79	2	99	6.7	-0.07019	89	263	77	74
76	11.846	0.158	0.114	1.03	79	2	101	6.6	-0.06335	89	265	77	74
77	12.006	0.160	0.117	1.01	79	2	101	6.5	-0.12208	89	262	77	75
78	12.161	0.155	0.118	1.02	79	2	97	6.4	-0.09101	88	262	77	74
79	12.317	0.156	0.115	0.96	79	2	99	6.4	-0.044	88	263	77	74
80	12.477	0.160	0.112	0.97	79	2	103	6.3	-0.1074	88	263	77	74
81	12.634	0.157	0.119	0.98	79	2	98	6.2	-0.07534	88	261	77	73
82	12.791	0.157	0.113	0.97	79	2	100	6.1	-0.08862	88	267	77	74
83	12.950	0.159	0.111	0.97	79	2	102	6.0	-0.06606	88	265	77	74
84	13.107	0.157	0.114	0.96	79	2	100	5.9	-0.0877	88	260	77	74
85	13.263	0.156	0.114	1.02	79	2	99	5.9	-0.07219	88	257	77	74
86	13.424	0.161	0.112	1.02	79	2	103	5.8	-0.09562	88	254	77	74
87	13.580	0.156	0.116	1.04	79	2	98	5.7	-0.03724	88	251	77	73
88	13.737	0.157	0.114	0.98	79	2	100	5.7	-0.07044	88	250	77	74
89	13.896	0.159	0.110	1.05	79	2	103	5.6	-0.1114	88	251	77	74
90	14.053	0.157	0.106	1.02	79	2	103	5.5	-0.06558	87	251	77	74
91	14.210	0.157	0.107	0.96	79	2	103	5.4	-0.04536	88	253	77	73
92	14.369	0.159	0.106	1.01	79	2	105	5.3	-0.09581	88	254	77	75
93	14.527	0.158	0.109	1.01	79	2	103	5.3	-0.09268	87	251	77	74
94	14.685	0.158	0.110	1.05	79	2	102	5.2	-0.06478	87	256	77	74
95	14.843	0.158	0.118	1.00	79	2	99	5.1	-0.06676	88	260	77	74
96	15.001	0.158	0.116	1.00	79	2	100	5.0	-0.09559	88	258	77	74
97	15.158	0.157	0.119	1.00	79	2	98	5.0	-0.06798	88	255	77	73
98	15.319	0.161	0.121	1.01	79	2	99	4.9	-0.06094	87	257	77	73



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
99	15.476	0.157	0.123	0.97	79	2	96	4.8	-0.09574	87	254	77	74
100	15.633	0.157	0.120	0.96	79	2	97	4.7	-0.05071	87	248	77	74
101	15.793	0.160	0.118	1.01	79	2	100	4.7	-0.04839	87	245	77	73
102	15.949	0.156	0.113	0.98	79	2	99	4.6	-0.07066	87	242	77	74
103	16.108	0.159	0.111	0.97	79	2	102	4.6	-0.06651	87	239	77	74
104	16.266	0.158	0.112	0.99	79	2	101	4.5	-0.03856	86	236	77	74
105	16.422	0.156	0.110	1.03	79	2	101	4.5	-0.06844	86	234	77	74
106	16.580	0.158	0.116	1.05	79	2	99	4.4	-0.03457	86	230	77	75
107	16.740	0.160	0.120	1.02	79	2	99	4.4	-0.06437	86	229	77	74
108	16.896	0.156	0.122	1.02	79	2	96	4.3	-0.04696	86	225	77	75
109	17.055	0.159	0.116	1.03	79	2	100	4.2	-0.06457	86	221	77	74
110	17.212	0.157	0.121	1.04	79	2	97	4.2	-0.02791	85	220	77	74
111	17.368	0.156	0.121	1.05	79	2	96	4.1	-0.07254	85	220	77	74
112	17.527	0.159	0.118	1.00	79	2	99	4.1	-0.04521	85	218	77	74
113	17.686	0.159	0.113	1.04	79	2	101	4.0	-0.06761	85	218	77	74
114	17.843	0.157	0.116	1.01	79	2	99	4.0	-5.8E-05	85	216	77	74
115	18.005	0.162	0.114	0.98	79	2	103	4.0	-0.04653	85	215	77	74
116	18.165	0.160	0.109	1.00	79	2	104	3.9	-0.05581	85	213	77	75
117	18.322	0.157	0.108	1.01	79	2	102	3.9	-0.02752	85	211	77	74
118	18.482	0.160	0.113	0.98	79	2	102	3.9	-0.02158	84	209	77	75
119	18.640	0.158	0.114	0.96	79	2	100	3.8	-0.05632	84	207	77	75
120	18.798	0.158	0.114	1.01	79	2	100	3.8	-0.03738	84	206	77	74
121	18.958	0.160	0.121	1.00	79	2	98	3.7	-0.0666	84	204	77	74
122	19.117	0.159	0.123	0.98	79	2	97	3.7	-0.00649	84	204	77	74
123	19.274	0.157	0.122	1.03	79	2	96	3.7	-0.02065	84	202	76	74
124	19.432	0.158	0.124	1.00	79	2	96	3.7	-0.04146	84	202	76	73
125	19.590	0.158	0.124	1.02	79	2	96	3.6	-0.04317	84	200	76	74
126	19.748	0.158	0.121	1.00	79	2	97	3.6	-0.05216	84	200	76	73
127	19.907	0.159	0.122	0.98	79	2	97	3.5	-0.03193	83	199	76	74
128	20.064	0.157	0.123	1.04	79	2	96	3.5	-0.03789	83	197	76	74
129	20.222	0.158	0.123	1.03	79	2	96	3.5	-0.0343	83	198	76	74
130	20.382	0.160	0.122	0.97	79	2	98	3.4	-0.03026	83	197	76	74
131	20.539	0.157	0.118	1.06	79	2	97	3.4	-0.03615	83	197	76	74

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
132	20.700	0.161	0.117	1.02	79	2	100	3.4	-0.00518	83	197	76	74
133	20.858	0.158	0.115	1.01	79	2	99	3.3	-0.04621	83	194	76	74
134	21.014	0.156	0.114	1.03	79	2	99	3.3	-0.04995	83	193	76	75
135	21.173	0.159	0.116	1.01	79	2	100	3.3	0.0025	83	191	76	74
136	21.332	0.159	0.121	1.01	79	2	98	3.2	-0.04958	83	190	76	74
137	21.486	0.154	0.120	1.03	79	2	95	3.2	-0.02878	82	188	76	74
138	21.647	0.161	0.121	1.03	79	2	99	3.2	-0.01326	82	187	76	73
139	21.806	0.159	0.122	1.02	79	2	97	3.2	0.00094	82	187	76	73
140	21.961	0.155	0.124	1.02	79	2	94	3.1	-0.07692	82	187	76	73
141	22.121	0.160	0.119	0.97	79	2	99	3.1	0.00493	82	184	76	73
142	22.279	0.158	0.123	0.99	79	2	96	3.1	-0.00075	82	182	76	74
143	22.436	0.157	0.122	0.99	79	2	96	3.1	-0.0515	82	180	76	74
144	22.594	0.158	0.123	1.01	79	2	96	3.1	-0.01531	82	180	76	73
145	22.752	0.158	0.118	1.03	79	2	98	3.0	-0.03559	82	178	76	73
146	22.910	0.158	0.119	1.01	79	2	98	3.0	-0.00832	82	178	76	73
147	23.069	0.159	0.112	0.99	79	2	101	3.0	-0.05852	82	177	76	73
148	23.227	0.158	0.111	0.99	79	2	101	3.0	-0.00062	81	176	76	73
149	23.386	0.159	0.112	0.98	79	2	102	2.9	-0.02685	81	175	76	74
150	23.544	0.158	0.117	1.04	79	2	99	2.9	-0.03419	81	174	76	73
151	23.703	0.159	0.120	1.02	79	2	98	2.9	0.04406	81	175	75	73
152	23.861	0.158	0.122	1.03	79	2	97	2.9	-0.0623	81	156	75	73
153	24.022	0.161	0.124	0.98	79	2	97	2.8	-0.0437	81	144	75	73
154	24.178	0.156	0.122	1.04	79	2	95	2.8	7E-05	81	143	75	73
155	24.336	0.158	0.118	1.03	79	2	98	2.8	-0.04729	81	144	75	73
156	24.493	0.157	0.120	0.98	79	2	97	2.7	-0.04543	81	143	75	72
157	24.652	0.159	0.122	1.03	79	2	97	2.7	0.0044	81	142	75	73
158	24.813	0.161	0.120	1.03	79	2	99	2.7	-0.00439	81	142	75	72
159	24.970	0.157	0.120	0.98	79	2	97	2.7	-0.0151	80	142	75	71
160	25.129	0.159	0.119	1.05	79	2	98	2.7	-0.02394	80	142	75	71
161	25.290	0.161	0.118	1.03	79	2	100	2.7	-0.00173	80	141	75	71
162	25.447	0.157	0.112	1.02	79	2	100	2.7	-0.03467	80	141	75	70
163	25.607	0.160	0.111	1.03	79	2	102	2.6	-0.01518	80	140	75	70
164	25.767	0.160	0.114	1.03	79	2	101	2.6	-0.02379	80	140	75	71

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
165	25.924	0.157	0.115	1.01	79	2	99	2.6	-9.6E-05	80	139	75	71
166	26.085	0.161	0.117	1.02	79	2	100	2.6	-0.04208	80	140	75	71
167	26.245	0.160	0.122	0.98	79	2	98	2.6	0.00149	80	139	74	71
168	26.404	0.159	0.123	1.02	79	2	97	2.6	-0.00291	80	139	74	70
169	26.565	0.161	0.124	0.97	79	2	97	2.6	-0.01974	79	144	74	70
170	26.723	0.158	0.123	1.04	78	2	96	2.5	-0.04691	79	139	74	70
171	26.884	0.161	0.118	1.00	78	2	100	2.5	-0.00113	79	140	74	70
172	27.044	0.160	0.115	0.97	78	2	100	2.5	-0.0222	79	139	74	70
173	27.201	0.157	0.112	1.03	78	2	100	2.5	-0.00623	79	137	74	71
174	27.361	0.160	0.108	1.02	78	2	104	2.5	-0.00724	79	138	74	70
175	27.521	0.160	0.109	0.95	77	2	103	2.5	-0.00883	78	138	74	70
176	27.677	0.156	0.111	1.02	77	2	100	2.4	-0.04308	78	138	74	70
177	27.839	0.162	0.114	0.99	77	2	103	2.4	-0.004	78	138	74	70
178	27.996	0.157	0.116	1.01	77	2	98	2.4	0.00065	78	136	73	70
179	28.155	0.159	0.119	0.98	77	2	99	2.4	-0.03356	78	136	73	69
180	28.315	0.160	0.117	1.00	77	2	100	2.4	0.01175	78	136	73	70
181	28.474	0.159	0.113	1.00	77	2	101	2.4	-0.03374	78	135	73	69
182	28.633	0.159	0.115	1.02	76	2	100	2.4	-0.01299	78	135	73	70
183	28.793	0.160	0.117	1.01	76	2	100	2.4	-0.00258	78	134	73	70
184	28.949	0.156	0.116	0.97	76	2	98	2.3	-0.01858	78	136	73	69
185	29.109	0.160	0.121	1.01	76	2	98	2.3	0.00413	77	134	73	69
186	29.267	0.158	0.126	0.98	76	2	95	2.3	-0.00487	77	134	73	69
187	29.425	0.158	0.122	1.01	75	2	97	2.3	-0.03542	77	134	73	69
188	29.584	0.159	0.120	1.01	75	2	98	2.3	-0.00572	77	135	73	69
189	29.742	0.158	0.119	1.05	75	2	98	2.3	-0.0305	77	133	73	69
190	29.899	0.157	0.120	0.99	75	2	97	2.3	0.00599	77	133	73	69
191	30.059	0.160	0.118	1.00	75	2	100	2.3	-0.00346	77	133	73	69
192	30.215	0.156	0.120	1.02	75	2	96	2.2	-0.02404	77	133	72	69
193	30.373	0.158	0.121	0.97	74	2	97	2.2	0.00136	77	133	72	69
194	30.531	0.158	0.121	1.02	74	2	97	2.2	-0.02074	77	133	72	69
195	30.690	0.159	0.118	0.99	74	2	99	2.2	-0.02433	77	131	72	69
196	30.852	0.162	0.119	0.99	74	2	101	2.2	0.0076	77	132	72	69
197	31.010	0.158	0.121	1.03	74	2	97	2.2	-0.00529	76	131	72	69

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
198	31.169	0.159	0.122	1.02	74	2	97	2.2	-0.0204	76	131	72	69
199	31.328	0.159	0.124	1.01	74	2	97	2.2	-0.00499	76	130	72	69
200	31.488	0.160	0.127	0.98	74	2	96	2.2	-0.014	76	131	72	69
201	31.648	0.160	0.126	1.01	73	2	97	2.2	-0.00127	76	131	72	69
202	31.806	0.158	0.124	0.99	73	2	96	2.1	-0.02644	76	130	72	69
203	31.968	0.162	0.124	1.05	73	2	99	2.1	-0.02418	76	130	72	69
204	32.126	0.158	0.121	1.03	73	2	98	2.1	0.00106	76	131	72	69
205	32.286	0.160	0.120	1.00	73	2	99	2.1	-0.03079	76	129	72	69
206	32.444	0.158	0.121	1.02	73	2	97	2.1	0.00112	76	129	71	69
207	32.603	0.159	0.122	0.99	73	2	98	2.1	-0.01412	76	130	71	69
208	32.763	0.160	0.122	1.04	73	2	98	2.0	-0.0338	76	129	71	69
209	32.923	0.160	0.127	0.99	73	2	96	2.0	0.0131	76	128	71	69
210	33.082	0.159	0.124	1.02	73	2	97	2.0	-0.00272	76	128	71	68
211	33.240	0.158	0.121	1.03	73	2	97	2.0	-0.04655	76	127	71	69
212	33.401	0.161	0.120	1.01	73	2	100	2.0	-0.00404	76	127	71	69
213	33.561	0.160	0.118	1.08	73	2	100	2.0	0.01048	76	128	71	69
214	33.720	0.159	0.115	1.04	73	2	100	2.0	-0.02107	75	127	71	69
215	33.879	0.159	0.115	1.03	73	2	100	1.9	-0.04086	76	128	71	69
216	34.038	0.159	0.116	1.00	73	2	100	1.9	-0.00587	75	127	71	69
217	34.198	0.160	0.121	1.04	73	2	99	1.9	-0.00019	76	127	71	69
218	34.356	0.158	0.120	1.05	73	2	98	1.9	-0.00091	76	127	71	69
219	34.517	0.161	0.119	1.03	73	2	100	1.9	-0.0283	76	127	71	69
220	34.677	0.160	0.120	1.04	73	2	99	1.9	-0.01987	76	126	71	69
221	34.835	0.158	0.120	1.02	73	2	98	1.9	-0.00442	76	125	71	69
222	34.996	0.161	0.118	1.04	73	2	101	1.9	0.0046	76	125	71	69
223	35.153	0.157	0.122	0.98	73	2	96	1.9	-0.03179	76	125	71	70
224	35.314	0.161	0.122	1.03	73	2	99	1.9	0.00475	76	126	71	69
225	35.473	0.159	0.123	1.05	73	2	97	1.9	0.00588	76	125	71	69
226	35.632	0.159	0.120	1.03	73	2	98	1.8	-0.06013	75	125	71	69
227	35.793	0.161	0.119	0.99	73	2	100	1.8	-0.01478	75	124	71	69
228	35.950	0.157	0.115	1.05	73	2	99	1.8	-0.00092	75	124	71	69
229	36.110	0.160	0.115	1.05	73	2	101	1.8	0.00266	75	124	71	69
230	36.266	0.156	0.115	1.02	74	2	98	1.8	-0.03161	75	124	71	69

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
231	36.425	0.159	0.117	0.98	74	2	100	1.8	0.03217	75	126	71	69
232	36.584	0.159	0.117	1.03	74	2	100	1.8	-0.03786	75	126	71	69
233	36.741	0.157	0.117	0.98	74	2	98	1.7	-0.02951	75	126	71	68
234	36.902	0.161	0.116	1.01	74	2	101	1.7	-0.00147	75	126	71	68
235	37.060	0.158	0.115	1.03	73	2	100	1.7	0.0074	75	126	71	68
236	37.221	0.161	0.116	1.06	73	2	101	1.7	-0.02484	75	126	71	68
237	37.379	0.158	0.116	1.03	73	2	99	1.7	0.01279	75	126	71	69
238	37.537	0.158	0.118	1.03	73	2	99	1.7	-0.01096	75	126	71	69
239	37.697	0.160	0.120	0.99	73	2	99	1.7	-0.02672	75	124	71	70
240	37.855	0.158	0.120	1.00	73	2	98	1.7	-0.02299	75	125	71	69
241	38.016	0.161	0.120	1.04	73	2	100	1.6	-0.01654	75	125	71	70
242	38.174	0.158	0.124	1.01	73	2	96	1.6	-0.00327	75	124	71	69
243	38.333	0.159	0.124	1.00	73	2	97	1.6	-0.01443	75	124	71	69
244	38.493	0.160	0.126	1.00	73	2	97	1.6	0.00084	75	123	71	70
245	38.650	0.157	0.125	1.00	73	2	95	1.6	0.00126	75	124	71	69
246	38.810	0.160	0.124	1.04	73	2	97	1.6	-0.04615	75	122	71	69
247	38.967	0.157	0.123	1.03	73	2	96	1.6	-0.00109	76	123	71	69
248	39.128	0.161	0.120	1.00	73	2	100	1.5	-0.02954	75	123	71	69
249	39.287	0.159	0.120	1.00	73	2	99	1.5	-0.00162	75	124	71	69
250	39.443	0.156	0.121	1.07	73	2	96	1.5	-0.021	75	123	71	69
251	39.604	0.161	0.120	0.98	73	2	100	1.5	0.00169	75	122	71	69
252	39.762	0.158	0.119	1.00	73	2	98	1.5	-0.02204	75	121	71	69
253	39.921	0.159	0.122	1.05	73	2	98	1.5	-0.00114	75	121	71	69
254	40.079	0.158	0.117	1.03	73	2	99	1.5	-0.01749	75	122	71	69
255	40.236	0.157	0.118	1.01	73	2	98	1.5	0.00072	75	120	71	69
256	40.396	0.160	0.117	1.03	73	2	100	1.4	-0.04636	75	120	71	69
257	40.552	0.156	0.116	1.00	73	2	98	1.4	0.00282	75	120	71	69
258	40.714	0.162	0.115	1.02	73	2	103	1.4	-0.00304	75	120	71	69
259	40.872	0.158	0.121	1.05	73	2	98	1.4	-0.03359	75	121	71	69
260	41.031	0.159	0.119	1.01	73	2	99	1.4	-0.00499	75	122	71	69
261	41.190	0.159	0.119	1.04	73	2	99	1.4	-0.00541	75	121	71	69
262	41.347	0.157	0.117	1.04	73	2	98	1.4	-0.00154	75	121	71	68
263	41.506	0.159	0.117	1.06	73	2	100	1.4	-0.02472	75	119	71	69

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
264	41.664	0.158	0.116	0.99	73	2	100	1.3	-0.02194	75	120	71	69
265	41.822	0.158	0.117	1.00	74	2	99	1.4	0.0032	75	119	71	69
266	41.981	0.159	0.119	1.05	74	2	99	1.3	-0.00341	75	120	71	69
267	42.139	0.158	0.118	1.01	74	2	98	1.3	-0.00069	75	119	71	69
268	42.298	0.159	0.120	1.01	74	2	98	1.3	-0.04885	75	120	70	69
269	42.456	0.158	0.116	0.99	74	2	99	1.3	-0.00304	75	119	70	69
270	42.615	0.159	0.115	1.05	74	2	100	1.3	-0.01879	76	122	70	68
271	42.773	0.158	0.114	1.01	74	2	100	1.3	0.01952	75	120	70	69
272	42.931	0.158	0.116	1.01	74	2	99	1.3	-0.02234	75	119	70	68
273	43.092	0.161	0.112	1.06	74	2	103	1.3	-0.02186	76	120	70	68
274	43.248	0.156	0.113	1.00	74	2	99	1.3	0.00078	76	120	70	68
275	43.407	0.159	0.115	1.01	74	2	100	1.2	-0.00588	76	119	70	68
276	43.568	0.161	0.116	1.03	74	2	101	1.2	-0.04406	76	121	70	68
277	43.725	0.157	0.117	1.05	74	2	99	1.2	-0.00168	76	120	70	68
278	43.885	0.160	0.121	1.01	74	2	98	1.2	-0.02017	76	120	70	69
279	44.042	0.157	0.124	1.02	74	2	95	1.2	-0.007	75	121	70	68
280	44.202	0.160	0.125	1.04	75	2	97	1.2	0.00113	76	120	70	68
281	44.360	0.158	0.127	1.05	74	2	95	1.2	-0.02174	75	120	70	68
282	44.518	0.158	0.129	1.03	74	2	94	1.1	-0.01985	75	121	70	68
283	44.677	0.159	0.129	0.98	74	2	95	1.1	-0.00561	75	121	70	68
284	44.835	0.158	0.129	1.03	74	2	94	1.1	-0.01847	75	120	70	68
285	44.994	0.159	0.128	1.05	75	2	95	1.1	0.00262	75	122	70	68
286	45.153	0.159	0.129	0.99	75	2	94	1.1	-0.03193	75	121	70	68
287	45.311	0.158	0.127	1.04	75	2	95	1.1	0.00091	75	120	70	68
288	45.472	0.161	0.126	1.00	75	2	97	1.0	-0.04994	75	121	70	68
289	45.629	0.157	0.123	1.03	75	2	96	1.1	0.03028	75	121	70	68
290	45.789	0.160	0.120	1.00	75	2	99	1.0	-0.02966	75	120	70	68
291	45.949	0.160	0.119	1.04	75	2	99	1.0	-0.01397	75	120	70	68
292	46.106	0.157	0.120	1.00	75	2	97	1.0	0.00308	75	120	70	68
293	46.266	0.160	0.122	1.02	75	2	98	1.0	-0.00188	75	119	70	68
294	46.425	0.159	0.124	1.02	75	2	96	1.0	-0.00238	75	120	70	68
295	46.584	0.159	0.127	0.99	75	2	95	1.0	-0.04581	75	120	69	68
296	46.742	0.158	0.126	1.00	75	2	95	0.9	-0.05584	75	120	70	68

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
297	46.903	0.161	0.125	1.00	75	2	97	0.9	0.00202	75	121	70	68
298	47.062	0.159	0.124	1.05	75	2	97	0.9	-0.00191	75	120	70	68
299	47.220	0.158	0.123	0.98	74	2	96	0.9	0.00048	75	121	70	68
300	47.380	0.160	0.125	1.05	74	2	97	0.9	-0.02144	75	122	70	68
301	47.539	0.159	0.126	1.01	74	2	96	0.9	-0.00017	75	121	70	68
302	47.698	0.159	0.124	1.00	74	2	97	0.9	-0.01622	75	121	70	68
303	47.856	0.158	0.123	0.98	74	2	96	0.8	-0.0339	75	121	70	68
304	48.014	0.158	0.122	0.99	74	2	97	0.8	0.00417	75	121	70	68
305	48.175	0.161	0.116	1.02	74	2	101	0.8	-0.00273	75	122	70	68
306	48.332	0.157	0.112	1.02	74	2	100	0.8	-0.01388	75	121	70	68
307	48.490	0.158	0.112	0.99	74	2	101	0.8	0.00179	75	122	70	68
308	48.648	0.158	0.111	0.99	74	2	101	0.8	-0.03085	74	121	70	68
309	48.807	0.159	0.111	1.04	74	2	102	0.8	-0.02216	74	122	70	68
310	48.968	0.161	0.116	1.04	74	2	101	0.8	-0.00282	75	121	70	68
311	49.126	0.158	0.119	0.97	74	2	98	0.7	-0.02777	75	121	70	68
312	49.285	0.159	0.119	1.02	74	2	99	0.8	0.00659	75	122	70	68
313	49.446	0.161	0.119	1.04	74	2	100	0.7	-0.01013	75	121	70	68
314	49.603	0.157	0.120	1.00	74	2	97	0.7	-0.03318	75	121	70	68
315	49.762	0.159	0.120	1.02	74	2	98	0.7	-0.02378	75	123	70	68
316	49.920	0.158	0.119	0.98	74	2	98	0.7	0.00062	75	123	70	68
317	50.079	0.159	0.120	1.05	74	2	98	0.7	0.00502	75	124	70	69
318	50.238	0.159	0.120	1.03	74	2	98	0.7	-0.03403	75	125	70	69
319	50.396	0.158	0.117	1.01	74	2	99	0.6	-0.02312	75	125	70	69
320	50.557	0.161	0.116	1.03	74	2	101	0.6	-0.04827	75	126	70	69
321	50.713	0.156	0.117	1.06	75	2	98	0.6	0.00536	75	126	70	69
322	50.871	0.158	0.121	1.05	75	2	97	0.6	-0.0269	75	127	70	69
323	51.028	0.157	0.120	1.00	75	2	97	0.6	0.02531	75	127	70	68
324	51.187	0.159	0.122	1.03	75	2	97	0.6	-0.02197	75	127	70	68
325	51.346	0.159	0.121	1.02	75	2	98	0.5	-0.04809	75	128	70	68
326	51.503	0.157	0.118	1.05	75	2	98	0.5	-0.01862	75	127	70	68
327	51.660	0.157	0.115	1.03	75	2	99	0.5	0.00318	76	128	70	68
328	51.820	0.160	0.114	0.98	75	2	101	0.5	0.00153	76	129	71	68
329	51.978	0.158	0.112	1.04	75	2	101	0.5	-0.03533	76	128	71	69

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and HomeJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 1Technician: AKDate: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
330	52.137	0.159	0.113	1.03	75	2	101	0.5	-0.01489	76	125	71	69
331	52.296	0.159	0.114	1.03	75	2	101	0.4	-0.04237	76	125	71	68
332	52.454	0.158	0.112	1.00	75	2	101	0.4	-0.00028	76	125	71	69
333	52.613	0.159	0.112	0.97	75	2	102	0.4	-0.02838	76	124	71	69
334	52.770	0.157	0.115	1.03	75	2	99	0.4	0.00114	75	123	71	68
335	52.927	0.157	0.115	1.03	75	2	99	0.4	-0.02127	75	123	71	69
336	53.086	0.159	0.118	0.99	75	2	99	0.3	-0.02854	75	122	71	68
337	53.242	0.156	0.118	1.02	75	2	97	0.3	-0.01769	75	122	71	68
338	53.404	0.162	0.118	1.06	75	2	101	0.3	-0.00282	75	122	71	68
339	53.559	0.155	0.115	1.05	75	2	98	0.3	-0.02417	75	122	71	68
340	53.719	0.160	0.115	1.02	75	2	101	0.3	0.02768	75	122	71	68
341	53.877	0.158	0.114	1.05	75	2	100	0.3	-0.04338	75	121	71	68
342	54.036	0.159	0.117	0.99	75	2	99	0.3	0.0161	75	122	71	68
343	54.195	0.159	0.118	1.03	75	2	99	0.2	-0.04399	75	121	71	68
344	54.351	0.156	0.117	1.00	75	2	97	0.3	0.00799	75	122	71	68
345	54.510	0.159	0.116	1.05	75	2	100	0.2	-0.02469	75	120	71	68
346	54.668	0.158	0.114	1.02	75	2	100	0.2	0.00281	75	121	71	69
347	54.825	0.157	0.114	1.05	75	2	99	0.2	-0.0251	75	122	71	68
348	54.984	0.159	0.117	1.04	75	2	99	0.2	-0.0122	75	121	71	68
349	55.143	0.159	0.118	0.97	75	2	99	0.2	-0.01774	75	120	71	69
350	55.303	0.160	0.118	1.02	75	2	100	0.2	-0.01814	75	120	71	69
351	55.463	0.160	0.122	1.06	75	2	98	0.1	-0.01553	75	120	71	69
352	55.620	0.157	0.122	1.04	75	2	96	0.1	-0.00388	75	119	71	68
353	55.781	0.161	0.121	0.98	75	2	99	0.1	0.00136	75	119	71	69
354	55.940	0.159	0.121	0.98	75	2	98	0.1	-0.03299	75	120	71	69
355	56.100	0.160	0.119	1.03	75	2	99	0.1	-0.04164	75	120	71	69
356	56.258	0.158	0.117	1.01	75	2	99	0.1	-0.00322	75	120	71	69
357	56.416	0.158	0.115	1.07	75	2	100	0.0	-0.02158	75	120	71	69
358	56.575	0.159	0.112	1.02	75	2	102	0.0	-0.00364	75	119	71	69
359	56.735	0.160	0.107	1.02	75	2	105	0.0	-0.04133	75	119	71	68
Avg/Tot	56.735	0.158	0.115	1.01	76	2.00	100			82	191	74	71.1



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.004		0.00	73	2		76	0.000	0.71	0.23
1	0.140	0.136	1.05	74	2	87	76	-0.030	6.21	0.91
2	0.300	0.160	1.10	74	2	102	76	-0.050	10.27	0.39
3	0.461	0.161	1.10	73	2	103	77	-0.070	12.87	0.24
4	0.622	0.161	1.10	73	2	103	77	-0.080	13.78	0.37
5	0.778	0.156	1.07	73	2	100	77	-0.060	13.15	0.38
6	0.936	0.158	1.09	73	2	107	77	-0.060	13.03	0.30
7	1.098	0.162	1.10	73	2	108	77	-0.060	12.90	0.41
8	1.264	0.166	1.15	73	2	113	77	-0.070	12.98	0.43
9	1.431	0.167	1.18	73	2	116	78	-0.070	12.55	0.42
10	1.595	0.164	1.14	73	2	115	78	-0.070	12.98	0.38
11	1.757	0.162	1.14	73	2	107	78	-0.070	12.91	0.35
12	1.924	0.167	1.12	73	2	111	78	-0.060	12.91	0.34
13	2.094	0.170	1.13	73	2	112	78	-0.070	12.80	0.36
14	2.261	0.167	1.13	73	2	108	78	-0.060	13.89	0.48
15	2.431	0.170	1.13	73	2	112	78	-0.070	13.56	0.43
16	2.592	0.161	1.15	73	2	106	78	-0.060	13.26	0.46
17	2.760	0.168	1.13	73	2	112	78	-0.070	13.23	0.40
18	2.919	0.159	1.14	73	2	107	78	-0.060	12.88	0.36
19	3.085	0.166	1.13	74	2	112	78	-0.070	12.81	0.31
20	3.246	0.161	1.13	74	2	110	78	-0.060	12.71	0.29
21	3.411	0.165	1.14	74	2	111	79	-0.060	13.07	0.31
22	3.573	0.162	1.11	74	2	109	79	-0.070	12.55	0.30
23	3.740	0.167	1.10	74	2	114	79	-0.060	12.77	0.31
24	3.906	0.166	1.13	74	2	111	79	-0.060	12.76	0.32
25	4.069	0.163	1.12	74	2	107	79	-0.060	12.48	0.32
26	4.237	0.168	1.12	74	2	111	79	-0.060	12.78	0.36
27	4.399	0.162	1.11	74	2	107	79	-0.060	12.32	0.42
28	4.566	0.167	1.10	74	2	108	79	-0.070	12.46	0.41
29	4.727	0.161	1.12	74	2	105	79	-0.060	11.91	0.37
30	4.891	0.164	1.13	74	2	106	79	-0.060	11.44	0.26
31	5.056	0.165	1.13	75	2	105	79	-0.060	11.54	0.23
32	5.217	0.161	1.11	75	2	101	79	-0.060	11.19	0.23

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
33	5.385	0.168	1.10	75	2	105	79	-0.060	11.27	0.23
34	5.545	0.160	1.12	75	2	100	79	-0.050	11.75	0.17
35	5.705	0.160	1.10	76	2	101	79	-0.060	11.63	0.14
36	5.866	0.161	1.10	76	2	102	80	-0.060	11.27	0.14
37	6.032	0.166	1.11	76	2	106	80	-0.050	10.79	0.12
38	6.200	0.168	1.12	76	2	107	80	-0.050	10.65	0.20
39	6.363	0.163	1.09	76	2	103	80	-0.060	10.75	0.25
40	6.530	0.167	1.09	77	2	106	80	-0.050	10.55	0.28
41	6.699	0.169	1.11	77	2	107	80	-0.050	10.21	0.27
42	6.870	0.171	1.09	77	2	107	80	-0.050	9.96	0.46
43	7.038	0.168	1.11	77	2	107	80	-0.040	9.61	0.49
44	7.205	0.167	1.11	77	2	107	80	-0.050	9.37	0.52
45	7.379	0.174	1.11	77	2	110	80	-0.050	9.27	0.58
46	7.546	0.167	1.08	78	2	106	80	-0.050	9.34	0.63
47	7.714	0.168	1.10	78	2	107	80	-0.040	9.08	0.70
48	7.885	0.171	1.10	78	2	108	80	-0.040	9.10	0.72
49	8.053	0.168	1.10	78	2	106	80	-0.050	9.10	0.63
50	8.221	0.168	1.10	78	2	106	79	-0.040	9.16	0.65
51	8.384	0.163	1.12	78	2	104	79	-0.040	9.06	0.69
52	8.549	0.165	1.10	78	2	106	79	-0.050	8.87	0.80
53	8.708	0.159	1.11	78	2	102	79	-0.050	8.69	0.86
54	8.868	0.160	1.11	78	2	105	79	-0.040	8.78	0.93
55	9.033	0.165	1.11	78	2	107	79	-0.040	9.02	1.14
56	9.194	0.161	1.10	78	2	104	79	-0.040	9.04	1.10
57	9.355	0.161	1.09	78	2	105	79	-0.050	9.10	1.08
58	9.516	0.161	1.12	78	2	105	79	-0.040	9.23	1.12
59	9.674	0.158	1.11	78	2	102	79	-0.040	9.54	1.10
60	9.835	0.161	1.12	78	2	103	79	-0.050	9.54	1.09
61	9.995	0.160	1.10	78	2	101	79	-0.050	9.71	1.10
62	10.156	0.161	1.11	78	2	100	79	-0.040	10.09	1.26
63	10.321	0.165	1.11	78	2	102	79	-0.040	10.00	1.13
64	10.486	0.165	1.12	78	2	101	79	-0.040	10.11	1.02
65	10.651	0.165	1.13	79	2	101	79	-0.040	10.30	1.01

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
66	10.815	0.164	1.10	79	2	101	79	-0.040	10.44	1.07
67	10.979	0.164	1.11	79	2	101	79	-0.040	10.62	1.04
68	11.139	0.160	1.11	79	2	99	78	-0.040	10.65	1.09
69	11.308	0.169	1.10	79	2	104	78	-0.040	10.42	0.99
70	11.476	0.168	1.12	79	2	104	78	-0.040	10.49	1.00
71	11.641	0.165	1.08	79	2	102	78	-0.040	10.41	1.08
72	11.808	0.167	1.10	79	2	103	78	-0.040	10.55	0.97
73	11.969	0.161	1.10	79	2	99	78	-0.040	10.42	1.09
74	12.133	0.164	1.11	79	2	99	78	-0.040	10.49	1.06
75	12.298	0.165	1.09	79	2	99	78	-0.040	10.77	1.14
76	12.464	0.166	1.11	79	2	101	78	-0.050	10.71	1.02
77	12.630	0.166	1.10	79	2	99	78	-0.040	10.59	1.07
78	12.794	0.164	1.13	79	2	97	78	-0.040	10.66	1.09
79	12.958	0.164	1.10	79	2	99	78	-0.030	10.37	1.03
80	13.123	0.165	1.12	79	2	101	78	-0.040	10.63	1.04
81	13.289	0.166	1.11	79	2	99	78	-0.050	10.42	1.08
82	13.455	0.166	1.11	79	2	101	78	-0.040	10.60	0.87
83	13.623	0.168	1.11	79	2	103	78	-0.040	10.31	1.00
84	13.788	0.165	1.11	79	2	100	78	-0.040	10.01	1.16
85	13.954	0.166	1.10	80	2	100	78	-0.050	10.02	1.14
86	14.120	0.166	1.12	80	2	101	78	-0.040	9.87	1.20
87	14.285	0.165	1.09	80	2	99	78	-0.040	9.72	1.24
88	14.451	0.166	1.12	80	2	100	78	-0.030	9.86	1.17
89	14.616	0.165	1.10	80	2	101	78	-0.040	9.94	1.15
90	14.784	0.168	1.11	80	2	105	78	-0.030	10.47	1.20
91	14.947	0.163	1.11	80	2	102	78	-0.030	10.26	1.18
92	15.114	0.167	1.10	80	2	105	78	-0.040	10.65	1.17
93	15.277	0.163	1.10	80	2	101	78	-0.040	10.17	1.09
94	15.443	0.166	1.12	80	2	102	78	-0.040	10.89	0.88
95	15.610	0.167	1.14	80	2	99	78	-0.040	10.89	0.83
96	15.775	0.165	1.11	80	2	99	78	-0.040	10.53	0.84
97	15.946	0.171	1.12	79	2	102	78	-0.040	10.35	0.99
98	16.109	0.163	1.09	79	2	96	78	-0.040	9.74	1.07

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
99	16.275	0.166	1.10	79	2	97	78	-0.030	9.42	1.15
100	16.440	0.165	1.09	79	2	97	78	-0.040	9.36	1.08
101	16.607	0.167	1.12	79	2	99	78	-0.050	9.60	1.03
102	16.772	0.165	1.11	79	2	100	78	-0.040	9.39	1.04
103	16.938	0.166	1.10	79	2	102	78	-0.030	9.35	1.07
104	17.103	0.165	1.12	79	2	101	78	-0.030	9.10	1.07
105	17.271	0.168	1.10	79	2	104	78	-0.030	9.12	1.05
106	17.439	0.168	1.11	79	2	100	78	-0.030	8.61	1.06
107	17.601	0.162	1.09	79	2	95	78	-0.040	8.73	1.08
108	17.769	0.168	1.10	79	2	98	78	-0.030	8.61	1.07
109	17.933	0.164	1.10	79	2	98	78	-0.030	8.52	1.03
110	18.102	0.169	1.10	79	2	99	78	-0.030	8.62	1.07
111	18.263	0.161	1.09	79	2	94	78	-0.030	8.60	1.04
112	18.430	0.167	1.11	79	2	99	78	-0.030	8.45	1.00
113	18.596	0.166	1.08	79	2	101	78	-0.030	8.54	0.95
114	18.764	0.168	1.08	79	2	101	78	-0.030	8.27	0.94
115	18.930	0.166	1.11	79	2	100	78	-0.030	8.37	1.04
116	19.095	0.165	1.12	79	2	102	78	-0.030	8.24	0.98
117	19.259	0.164	1.11	79	2	102	78	-0.030	8.15	0.98
118	19.426	0.167	1.12	80	2	101	78	-0.030	8.33	0.96
119	19.593	0.167	1.13	80	2	100	78	-0.020	8.24	1.01
120	19.755	0.162	1.10	80	2	98	78	-0.030	8.15	0.94
121	19.924	0.169	1.12	80	2	99	78	-0.030	8.17	0.94
122	20.087	0.163	1.12	80	2	95	78	-0.010	7.94	0.91
123	20.256	0.169	1.12	80	2	98	78	-0.040	8.15	0.94
124	20.421	0.165	1.10	80	2	95	78	-0.030	7.90	0.89
125	20.588	0.167	1.10	80	2	97	78	-0.020	8.02	0.93
126	20.751	0.163	1.11	80	2	95	78	-0.030	7.89	0.94
127	20.915	0.164	1.11	80	2	96	78	-0.030	8.07	0.97
128	21.085	0.170	1.10	80	2	98	78	-0.030	7.61	0.93
129	21.251	0.166	1.09	80	2	96	78	-0.030	7.81	1.01
130	21.419	0.168	1.09	80	2	98	78	-0.020	7.74	1.01
131	21.584	0.165	1.10	80	2	97	78	-0.030	7.82	1.05

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
132	21.752	0.168	1.12	80	2	100	78	-0.030	7.83	1.07
133	21.916	0.164	1.11	80	2	98	78	-0.020	7.85	1.00
134	22.084	0.168	1.12	80	2	101	78	-0.030	7.45	1.03
135	22.246	0.162	1.13	80	2	97	78	-0.020	7.45	1.16
136	22.415	0.169	1.12	80	2	99	78	-0.020	7.12	1.25
137	22.580	0.165	1.09	79	2	97	78	-0.030	6.59	1.26
138	22.749	0.169	1.12	80	2	99	77	-0.010	6.91	1.35
139	22.914	0.165	1.08	79	2	96	77	-0.030	7.02	1.46
140	23.084	0.170	1.11	79	2	98	77	-0.020	6.54	1.37
141	23.251	0.167	1.10	79	2	99	77	-0.020	6.64	1.45
142	23.416	0.165	1.08	79	2	96	77	-0.020	6.27	1.43
143	23.586	0.170	1.13	79	2	99	77	-0.020	6.42	1.54
144	23.752	0.166	1.10	79	2	96	77	-0.020	6.25	1.51
145	23.921	0.169	1.11	79	2	100	77	-0.020	6.46	1.59
146	24.083	0.162	1.09	79	2	96	77	-0.030	6.36	1.55
147	24.253	0.170	1.12	79	2	103	77	-0.020	6.37	1.44
148	24.417	0.164	1.09	79	2	100	77	-0.020	6.83	1.44
149	24.583	0.166	1.11	79	2	101	77	-0.020	6.76	1.41
150	24.751	0.168	1.12	79	2	100	77	-0.020	6.67	1.40
151	24.916	0.165	1.11	79	2	97	77	-0.020	6.67	1.34
152	25.080	0.164	1.11	79	2	95	77	-0.010	7.25	1.41
153	25.246	0.166	1.11	79	2	96	77	-0.020	6.96	1.36
154	25.412	0.166	1.13	79	2	97	77	-0.020	7.08	1.38
155	25.580	0.168	1.12	79	2	99	77	-0.020	6.98	1.36
156	25.746	0.166	1.11	79	2	98	77	-0.020	7.01	1.41
157	25.910	0.164	1.09	79	2	95	77	-0.010	6.84	1.37
158	26.079	0.169	1.11	79	2	99	77	-0.020	6.92	1.43
159	26.243	0.164	1.11	79	2	96	77	-0.020	6.69	1.37
160	26.409	0.166	1.13	79	2	98	76	-0.010	6.77	1.37
161	26.576	0.167	1.11	79	2	99	76	-0.020	6.50	1.33
162	26.745	0.169	1.11	79	2	102	76	-0.020	6.60	1.38
163	26.910	0.165	1.10	79	2	100	76	-0.020	6.67	1.42
164	27.078	0.168	1.12	79	2	101	76	-0.030	6.63	1.43

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
165	27.240	0.162	1.12	79	2	97	76	-0.020	6.48	1.40
166	27.408	0.168	1.11	79	2	100	76	-0.020	6.59	1.41
167	27.576	0.168	1.10	79	2	98	76	-0.020	6.57	1.43
168	27.742	0.166	1.11	79	2	96	76	-0.020	6.55	1.41
169	27.910	0.168	1.12	79	2	97	76	-0.030	6.28	1.35
170	28.075	0.165	1.13	78	2	96	76	-0.010	6.38	1.34
171	28.243	0.168	1.09	78	2	99	75	-0.020	6.30	1.32
172	28.412	0.169	1.13	78	2	101	75	-0.010	6.22	1.31
173	28.580	0.168	1.10	78	2	102	75	-0.020	6.32	1.32
174	28.746	0.166	1.10	78	2	103	75	-0.030	6.46	1.36
175	28.912	0.166	1.09	78	2	102	75	-0.020	6.30	1.32
176	29.078	0.166	1.12	77	2	101	75	-0.020	6.08	1.34
177	29.246	0.168	1.10	77	2	101	75	-0.020	6.10	1.33
178	29.411	0.165	1.14	77	2	98	75	-0.020	6.26	1.30
179	29.578	0.167	1.11	77	2	99	75	-0.030	5.95	1.22
180	29.739	0.161	1.10	77	2	96	75	-0.030	6.14	1.27
181	29.905	0.166	1.11	77	2	100	74	-0.020	5.99	1.27
182	30.073	0.168	1.13	76	2	101	74	-0.010	5.88	1.24
183	30.242	0.169	1.13	76	2	100	74	-0.020	5.86	1.23
184	30.406	0.164	1.11	76	2	98	74	-0.020	6.11	1.29
185	30.575	0.169	1.11	76	2	99	74	-0.020	6.02	1.28
186	30.739	0.164	1.10	76	2	94	74	-0.020	6.07	1.29
187	30.906	0.167	1.12	75	2	98	74	-0.010	5.95	1.26
188	31.070	0.164	1.11	75	2	97	74	-0.020	5.98	1.28
189	31.240	0.170	1.17	75	2	100	74	-0.020	5.93	1.25
190	31.408	0.168	1.10	75	2	99	74	-0.020	6.05	1.28
191	31.574	0.166	1.10	74	2	99	74	-0.010	6.00	1.26
192	31.740	0.166	1.13	74	2	98	74	-0.010	6.19	1.31
193	31.907	0.167	1.13	74	2	98	73	-0.020	5.98	1.28
194	32.069	0.162	1.10	74	2	95	73	-0.020	5.77	1.27
195	32.240	0.171	1.13	74	2	102	73	-0.020	5.88	1.29
196	32.403	0.163	1.11	73	2	97	73	-0.010	5.47	1.26
197	32.571	0.168	1.10	73	2	99	73	-0.020	5.64	1.16

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
198	32.738	0.167	1.12	73	2	98	73	-0.010	5.92	1.23
199	32.905	0.167	1.12	73	2	97	73	-0.020	5.74	1.19
200	33.072	0.167	1.10	73	2	96	73	-0.020	5.80	1.22
201	33.241	0.169	1.12	73	2	97	73	-0.020	5.88	1.23
202	33.407	0.166	1.14	73	2	96	73	-0.020	5.83	1.24
203	33.575	0.168	1.12	72	2	98	73	-0.010	5.60	1.19
204	33.743	0.168	1.10	72	2	99	72	-0.020	5.81	1.25
205	33.911	0.168	1.12	72	2	99	72	-0.020	5.90	1.25
206	34.077	0.166	1.09	72	2	98	72	-0.020	5.82	1.26
207	34.243	0.166	1.13	72	2	98	72	-0.010	5.72	1.24
208	34.409	0.166	1.13	72	2	97	72	-0.020	5.79	1.27
209	34.577	0.168	1.12	72	2	97	72	-0.010	5.87	1.19
210	34.744	0.167	1.13	72	2	97	72	-0.020	6.17	1.15
211	34.911	0.167	1.10	72	2	98	72	-0.020	6.00	1.12
212	35.077	0.166	1.12	72	2	98	72	-0.010	5.83	1.14
213	35.246	0.169	1.15	72	2	101	72	-0.010	5.86	1.16
214	35.411	0.165	1.13	72	2	100	72	-0.020	6.06	1.21
215	35.580	0.169	1.13	72	2	102	72	-0.010	5.91	1.18
216	35.744	0.164	1.11	72	2	98	72	-0.010	5.73	1.17
217	35.913	0.169	1.11	72	2	100	72	-0.010	5.82	1.22
218	36.080	0.167	1.12	72	2	99	72	-0.020	5.97	1.25
219	36.250	0.170	1.13	72	2	101	72	-0.010	5.84	1.24
220	36.419	0.169	1.12	72	2	100	72	-0.020	5.86	1.17
221	36.587	0.168	1.12	72	2	99	72	-0.020	6.19	1.24
222	36.751	0.164	1.10	72	2	98	72	-0.010	5.91	1.20
223	36.920	0.169	1.15	72	2	99	72	-0.020	5.92	1.21
224	37.084	0.164	1.13	72	2	96	72	-0.010	5.93	1.22
225	37.253	0.169	1.13	72	2	99	72	-0.010	5.74	1.19
226	37.419	0.166	1.14	72	2	98	72	-0.010	5.92	1.23
227	37.589	0.170	1.12	72	2	101	72	-0.020	5.97	1.25
228	37.751	0.162	1.12	72	2	98	72	-0.010	5.85	1.25
229	37.921	0.170	1.12	72	2	103	72	-0.020	6.08	1.28
230	38.085	0.164	1.13	73	2	99	72	-0.010	6.01	1.33

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
231	38.251	0.166	1.11	73	2	99	72	-0.010	6.00	1.38
232	38.414	0.163	1.10	73	2	97	72	-0.010	5.83	1.36
233	38.583	0.169	1.15	73	2	101	72	-0.010	5.82	1.38
234	38.747	0.164	1.11	73	2	98	72	-0.010	5.90	1.43
235	38.915	0.168	1.12	72	2	102	72	-0.010	5.79	1.43
236	39.080	0.165	1.10	72	2	99	72	-0.010	5.79	1.45
237	39.248	0.168	1.12	72	2	101	72	-0.020	5.62	1.44
238	39.410	0.162	1.13	72	2	97	72	-0.020	5.57	1.45
239	39.581	0.171	1.11	72	2	101	72	-0.020	5.67	1.46
240	39.746	0.165	1.12	72	2	97	72	-0.010	5.86	1.53
241	39.916	0.170	1.12	72	2	100	72	-0.020	5.44	1.44
242	40.080	0.164	1.12	72	2	95	72	-0.020	5.66	1.55
243	40.246	0.166	1.13	72	2	96	72	-0.010	5.42	1.51
244	40.411	0.165	1.12	72	2	95	72	-0.020	5.32	1.47
245	40.579	0.168	1.13	72	2	97	72	-0.020	5.34	1.54
246	40.744	0.165	1.14	72	2	96	72	-0.010	5.27	1.53
247	40.910	0.166	1.14	72	2	97	72	-0.010	5.44	1.66
248	41.074	0.164	1.10	72	2	97	72	-0.020	5.20	1.69
249	41.242	0.168	1.11	72	2	99	72	-0.010	5.33	1.72
250	41.407	0.165	1.11	72	2	97	72	-0.020	5.20	1.70
251	41.577	0.170	1.13	72	2	100	72	-0.020	5.19	1.72
252	41.743	0.166	1.12	72	2	99	72	-0.020	5.14	1.72
253	41.911	0.168	1.10	72	2	98	72	-0.010	5.35	1.86
254	42.076	0.165	1.12	71	2	99	72	-0.010	5.15	1.76
255	42.245	0.169	1.13	71	2	101	72	-0.010	5.26	1.80
256	42.409	0.164	1.10	71	2	98	72	-0.020	5.14	1.74
257	42.575	0.166	1.12	71	2	100	72	-0.010	5.27	1.78
258	42.741	0.166	1.11	71	2	101	72	-0.020	5.25	1.81
259	42.909	0.168	1.12	71	2	99	72	-0.010	5.22	1.88
260	43.074	0.165	1.12	72	2	98	72	-0.010	5.28	1.92
261	43.242	0.168	1.14	72	2	100	72	-0.010	5.54	1.66
262	43.405	0.163	1.10	73	2	97	72	-0.010	5.51	1.69
263	43.573	0.168	1.13	73	2	100	72	-0.020	5.23	1.63



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
264	43.739	0.166	1.12	73	2	100	72	-0.010	5.23	1.67
265	43.908	0.169	1.15	73	2	101	72	-0.010	5.26	1.71
266	44.073	0.165	1.09	73	2	98	72	-0.020	5.21	1.74
267	44.242	0.169	1.12	74	2	100	72	-0.010	5.10	1.71
268	44.408	0.166	1.11	74	2	98	72	0.000	5.19	1.78
269	44.574	0.166	1.15	74	2	99	72	-0.010	5.29	1.77
270	44.740	0.166	1.10	74	2	100	72	-0.010	5.27	1.89
271	44.909	0.169	1.12	74	2	102	72	0.000	5.13	1.94
272	45.078	0.169	1.13	74	2	101	72	-0.010	5.01	1.95
273	45.244	0.166	1.13	74	2	101	71	-0.010	5.18	1.93
274	45.412	0.168	1.12	74	2	102	71	-0.010	5.15	1.90
275	45.580	0.168	1.13	74	2	101	71	-0.010	5.38	2.04
276	45.745	0.165	1.11	74	2	99	71	-0.010	5.35	1.85
277	45.913	0.168	1.11	74	2	100	71	-0.010	5.33	1.92
278	46.078	0.165	1.13	74	2	97	71	-0.010	5.51	1.74
279	46.247	0.169	1.13	74	2	98	71	-0.010	5.25	1.79
280	46.412	0.165	1.12	74	2	95	71	-0.020	5.15	1.87
281	46.580	0.168	1.13	74	2	96	71	-0.020	5.32	1.96
282	46.744	0.164	1.10	74	2	93	71	0.000	5.33	1.95
283	46.912	0.168	1.13	74	2	95	71	-0.010	5.29	1.91
284	47.078	0.166	1.12	74	2	94	71	-0.010	5.27	1.88
285	47.246	0.168	1.14	74	2	96	71	-0.020	5.30	1.88
286	47.409	0.163	1.11	74	2	92	71	-0.020	5.33	1.86
287	47.578	0.169	1.14	74	2	97	71	-0.010	5.39	1.89
288	47.742	0.164	1.12	74	2	94	71	-0.010	5.41	1.86
289	47.910	0.168	1.12	74	2	98	71	-0.010	5.34	1.79
290	48.077	0.167	1.13	74	2	98	71	-0.010	5.36	1.80
291	48.243	0.166	1.11	74	2	98	71	-0.010	5.57	1.76
292	48.409	0.166	1.11	74	2	98	71	-0.010	5.55	1.75
293	48.577	0.168	1.11	74	2	98	71	-0.010	5.60	1.79
294	48.741	0.164	1.12	74	2	95	71	-0.010	5.53	1.82
295	48.910	0.169	1.14	74	2	97	71	-0.010	5.60	1.92
296	49.076	0.166	1.10	74	2	96	71	-0.010	5.48	1.96

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
297	49.249	0.173	1.12	74	2	100	71	-0.020	5.66	1.86
298	49.411	0.162	1.11	74	2	94	71	-0.020	5.68	1.91
299	49.582	0.171	1.12	74	2	99	71	-0.010	5.48	1.89
300	49.744	0.162	1.12	74	2	93	71	-0.020	5.53	1.96
301	49.913	0.169	1.12	74	2	97	71	-0.020	5.44	1.91
302	50.077	0.164	1.11	74	2	95	71	-0.020	5.36	1.89
303	50.245	0.168	1.12	75	2	97	71	-0.010	5.40	2.10
304	50.409	0.164	1.14	75	2	95	71	-0.020	5.41	2.05
305	50.576	0.167	1.12	75	2	100	71	-0.010	5.42	2.04
306	50.740	0.164	1.11	75	2	100	71	-0.010	5.19	2.21
307	50.907	0.167	1.13	75	2	102	71	-0.010	5.24	2.03
308	51.072	0.165	1.13	75	2	101	71	-0.010	5.28	1.96
309	51.241	0.169	1.16	75	2	103	71	-0.010	5.25	2.07
310	51.405	0.164	1.14	75	2	98	71	-0.010	5.09	2.03
311	51.570	0.165	1.12	75	2	97	71	-0.010	5.25	2.15
312	51.736	0.166	1.12	75	2	98	71	-0.020	5.30	2.12
313	51.904	0.168	1.12	75	2	99	71	-0.020	5.20	1.83
314	52.067	0.163	1.11	75	2	96	71	-0.020	5.95	1.59
315	52.239	0.172	1.14	75	2	101	71	-0.020	6.09	1.51
316	52.402	0.163	1.11	75	2	96	71	-0.010	6.17	1.49
317	52.571	0.169	1.12	75	2	99	71	-0.020	6.13	1.49
318	52.734	0.163	1.10	75	2	96	71	-0.020	6.10	1.51
319	52.902	0.168	1.11	75	2	100	71	-0.020	6.10	1.52
320	53.064	0.162	1.13	75	2	97	71	-0.020	6.29	1.59
321	53.233	0.169	1.12	75	2	101	71	-0.020	6.02	1.52
322	53.396	0.163	1.11	75	2	96	71	-0.010	5.99	1.49
323	53.562	0.166	1.12	75	2	98	71	-0.030	6.00	1.49
324	53.727	0.165	1.13	75	2	96	71	-0.020	6.29	1.58
325	53.894	0.167	1.11	75	2	98	71	-0.020	6.41	1.64
326	54.058	0.164	1.11	75	2	97	71	-0.020	6.44	1.59
327	54.227	0.169	1.10	75	2	102	71	-0.020	6.19	1.55
328	54.391	0.164	1.14	75	2	99	71	-0.010	6.29	1.58
329	54.558	0.167	1.11	75	2	102	71	-0.020	6.20	1.61

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
330	54.722	0.164	1.10	75	2	99	72	-0.010	5.93	1.64
331	54.889	0.167	1.11	75	2	101	72	-0.010	5.93	1.69
332	55.053	0.164	1.12	75	2	100	72	-0.010	6.13	1.80
333	55.219	0.166	1.12	75	2	101	72	-0.010	5.85	1.74
334	55.386	0.167	1.13	75	2	100	72	-0.010	6.00	1.82
335	55.555	0.169	1.12	75	2	101	72	-0.010	5.68	1.83
336	55.718	0.163	1.13	75	2	96	72	-0.010	5.83	1.86
337	55.887	0.169	1.10	75	2	100	72	-0.010	5.80	1.87
338	56.051	0.164	1.12	75	2	97	72	-0.020	5.77	1.83
339	56.220	0.169	1.12	75	2	101	72	-0.010	6.05	1.91
340	56.385	0.165	1.13	75	2	99	72	-0.010	6.08	1.90
341	56.555	0.170	1.12	75	2	103	72	-0.010	5.98	1.88
342	56.719	0.164	1.12	75	2	98	72	-0.010	5.78	1.83
343	56.885	0.166	1.12	75	2	99	72	-0.020	5.98	1.87
344	57.048	0.163	1.12	75	2	97	72	-0.010	6.31	1.98
345	57.216	0.168	1.13	75	2	100	72	-0.010	6.08	1.76
346	57.379	0.163	1.11	75	2	98	72	-0.010	6.02	1.76
347	57.547	0.168	1.12	75	2	101	72	-0.020	6.27	1.85
348	57.712	0.165	1.12	75	2	98	72	-0.010	6.23	1.84
349	57.881	0.169	1.12	75	2	100	72	-0.010	5.86	1.76
350	58.047	0.166	1.11	76	2	98	72	-0.020	6.07	1.87
351	58.215	0.168	1.11	76	2	98	72	-0.010	5.96	1.81
352	58.381	0.166	1.13	76	2	97	72	-0.010	6.10	1.84
353	58.550	0.169	1.14	76	2	99	72	-0.010	6.33	1.88
354	58.713	0.163	1.11	76	2	95	72	-0.020	6.32	1.84
355	58.883	0.170	1.11	76	2	100	72	-0.010	6.21	1.77
356	59.049	0.166	1.10	76	2	99	72	-0.020	5.49	1.99
357	59.217	0.168	1.13	76	2	101	72	-0.010	5.80	1.92
358	59.384	0.167	1.12	76	2	102	72	-0.010	5.65	1.87
359	59.558	0.174	1.12	76	2	108	72	-0.010	5.61	1.95
Avg/Tot	59.558	0.166	1.11	76	2.00	100	75	-0.026	7.48	1.28

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

**Stove ΔT:** 110

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
0	433	409	431	259	407	387.8	N/A	
1	430	438	424	273	407	394.4	N/A	
2	427	419	415	274	406	388.2	N/A	
3	425	415	405	299	406	390.0	N/A	
4	423	409	396	347	405	396.0	N/A	
5	420	416	387	406	404	406.6	N/A	
6	417	415	382	454	403	414.2	N/A	
7	414	412	377	489	402	418.8	N/A	
8	412	409	374	517	401	422.6	N/A	
9	409	406	370	545	400	426.0	N/A	
10	406	405	367	564	398	428.0	N/A	
11	404	396	364	586	397	429.4	N/A	
12	402	383	361	602	395	428.6	N/A	
13	400	377	358	616	393	428.8	N/A	
14	398	374	355	630	392	429.8	N/A	
15	396	375	353	645	390	431.8	N/A	
16	395	385	351	654	388	434.6	N/A	
17	394	384	349	663	387	435.4	N/A	
18	393	389	348	672	385	437.4	N/A	
19	393	390	346	680	384	438.6	N/A	
20	392	389	345	684	382	438.4	N/A	
21	392	387	344	692	380	439.0	N/A	
22	391	385	343	695	379	438.6	N/A	
23	391	385	342	700	377	439.0	N/A	
24	391	384	341	696	376	437.6	N/A	
25	391	384	341	702	374	438.4	N/A	
26	392	384	340	700	372	437.6	N/A	
27	392	384	340	703	371	438.0	N/A	
28	392	384	339	696	369	436.0	N/A	
29	393	384	339	699	368	436.6	N/A	
30	393	383	338	693	366	434.6	N/A	
31	396	384	341	647	365	426.6	N/A	
32	398	384	342	635	363	424.4	N/A	
33	399	385	342	621	362	421.8	N/A	
34	399	385	341	608	360	418.6	N/A	
35	399	385	340	595	359	415.6	N/A	
36	399	386	338	582	358	412.6	N/A	
37	399	391	336	573	356	411.0	N/A	
38	399	382	333	560	355	405.8	N/A	
39	398	382	331	552	354	403.4	N/A	
40	398	381	329	540	352	400.0	N/A	
41	397	381	327	527	351	396.6	N/A	
42	396	380	325	517	350	393.6	N/A	
43	395	379	323	506	349	390.4	N/A	
44	394	378	321	496	348	387.4	N/A	
45	393	379	320	486	346	384.8	N/A	
46	392	380	318	474	345	381.8	N/A	
47	391	379	317	463	344	378.8	N/A	
48	390	379	315	455	343	376.4	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

**Stove ΔT:** 110

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
49	389	380	314	445	342	374.0	N/A	
50	387	376	313	438	341	371.0	N/A	
51	386	366	312	429	339	366.4	N/A	
52	384	364	311	420	338	363.4	N/A	
53	383	362	310	413	337	361.0	N/A	
54	382	361	309	406	336	358.8	N/A	
55	381	362	308	401	335	357.4	N/A	
56	380	361	307	394	334	355.2	N/A	
57	378	359	306	387	333	352.6	N/A	
58	377	358	305	381	332	350.6	N/A	
59	376	357	305	377	331	349.2	N/A	
60	375	357	304	374	330	348.0	N/A	
61	374	356	303	371	329	346.6	N/A	
62	373	356	303	368	328	345.6	N/A	
63	372	355	303	365	327	344.4	N/A	
64	372	355	302	366	326	344.2	N/A	
65	371	355	302	365	325	343.6	N/A	
66	371	357	302	364	325	343.8	N/A	
67	371	365	303	365	324	345.6	N/A	
68	370	361	303	366	323	344.6	N/A	
69	370	358	303	366	322	343.8	N/A	
70	370	359	303	369	321	344.4	N/A	
71	370	360	304	368	320	344.4	N/A	
72	370	360	304	369	319	344.4	N/A	
73	370	358	305	370	319	344.4	N/A	
74	370	358	305	369	318	344.0	N/A	
75	371	357	306	368	317	343.8	N/A	
76	371	356	306	368	316	343.4	N/A	
77	372	358	307	369	315	344.2	N/A	
78	372	360	307	369	315	344.6	N/A	
79	372	360	308	368	314	344.4	N/A	
80	373	360	308	369	313	344.6	N/A	
81	373	360	309	368	312	344.4	N/A	
82	374	361	309	369	312	345.0	N/A	
83	374	360	310	370	311	345.0	N/A	
84	374	360	311	370	310	345.0	N/A	
85	375	360	311	370	309	345.0	N/A	
86	375	360	312	366	309	344.4	N/A	
87	376	360	313	362	308	343.8	N/A	
88	376	360	313	359	307	343.0	N/A	
89	376	360	315	355	306	342.4	N/A	
90	376	361	315	352	306	342.0	N/A	
91	377	361	315	352	305	342.0	N/A	
92	377	360	316	351	304	341.6	N/A	
93	377	360	317	351	304	341.8	N/A	
94	377	361	317	351	303	341.8	N/A	
95	377	361	318	354	302	342.4	N/A	
96	377	362	319	356	302	343.2	N/A	
97	378	362	320	357	301	343.6	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

**Stove ΔT:** 110

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
98	378	363	320	359	301	344.2	N/A	
99	378	363	322	358	300	344.2	N/A	
100	378	363	323	356	299	343.8	N/A	
101	378	363	323	355	299	343.6	N/A	
102	378	364	325	350	298	343.0	N/A	
103	378	364	325	347	298	342.4	N/A	
104	378	364	327	342	297	341.6	N/A	
105	378	366	328	337	297	341.2	N/A	
106	378	368	329	333	296	340.8	N/A	
107	378	368	330	328	296	340.0	N/A	
108	378	365	331	325	295	338.8	N/A	
109	377	365	332	321	295	338.0	N/A	
110	377	365	333	318	294	337.4	N/A	
111	377	365	334	314	294	336.8	N/A	
112	376	366	335	311	294	336.4	N/A	
113	376	366	336	307	293	335.6	N/A	
114	376	366	337	304	293	335.2	N/A	
115	375	365	338	302	292	334.4	N/A	
116	374	363	338	300	292	333.4	N/A	
117	374	363	339	297	292	333.0	N/A	
118	373	360	340	294	291	331.6	N/A	
119	372	359	341	292	291	331.0	N/A	
120	372	355	341	291	291	330.0	N/A	
121	371	353	342	288	291	329.0	N/A	
122	370	351	342	287	290	328.0	N/A	
123	369	352	343	283	290	327.4	N/A	
124	368	352	342	280	290	326.4	N/A	
125	368	349	343	279	290	325.8	N/A	
126	367	349	343	277	290	325.2	N/A	
127	367	349	343	275	290	324.8	N/A	
128	366	349	343	273	290	324.2	N/A	
129	365	348	344	271	289	323.4	N/A	
130	364	348	344	269	289	322.8	N/A	
131	363	348	344	268	289	322.4	N/A	
132	363	348	344	267	289	322.2	N/A	
133	362	348	344	264	289	321.4	N/A	
134	362	348	344	264	289	321.4	N/A	
135	361	351	344	262	289	321.4	N/A	
136	360	356	344	261	289	322.0	N/A	
137	359	363	344	260	289	323.0	N/A	
138	358	357	344	258	290	321.4	N/A	
139	358	355	344	258	290	321.0	N/A	
140	357	355	343	256	290	320.2	N/A	
141	357	355	343	254	290	319.8	N/A	
142	356	354	343	251	290	318.8	N/A	
143	355	354	343	249	290	318.2	N/A	
144	354	353	342	246	290	317.0	N/A	
145	353	353	342	245	290	316.6	N/A	
146	353	352	341	243	290	315.8	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

**Stove ΔT:** 110

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
147	352	352	341	241	291	315.4	N/A	
148	351	351	341	238	291	314.4	N/A	
149	350	350	340	236	291	313.4	N/A	
150	349	349	340	234	291	312.6	N/A	
151	349	349	339	233	291	312.2	N/A	
152	348	348	339	231	291	311.4	N/A	
153	348	348	339	230	292	311.4	N/A	
154	347	347	339	228	292	310.6	N/A	
155	346	346	338	227	292	309.8	N/A	
156	346	346	338	226	292	309.6	N/A	
157	345	345	338	226	292	309.2	N/A	
158	344	345	338	224	292	308.6	N/A	
159	344	344	338	223	293	308.4	N/A	
160	343	344	338	222	293	308.0	N/A	
161	342	344	338	221	293	307.6	N/A	
162	342	343	338	221	293	307.4	N/A	
163	341	342	337	219	294	306.6	N/A	
164	340	342	337	219	294	306.4	N/A	
165	340	341	336	218	294	305.8	N/A	
166	339	341	336	216	294	305.2	N/A	
167	338	341	336	216	295	305.2	N/A	
168	338	340	336	216	295	305.0	N/A	
169	337	340	335	215	295	304.4	N/A	
170	337	339	335	214	295	304.0	N/A	
171	336	339	335	213	296	303.8	N/A	
172	335	339	335	212	296	303.4	N/A	
173	334	338	334	211	296	302.6	N/A	
174	333	338	334	211	297	302.6	N/A	
175	333	338	334	210	297	302.4	N/A	
176	332	337	333	209	297	301.6	N/A	
177	331	337	333	209	298	301.6	N/A	
178	331	337	333	208	298	301.4	N/A	
179	330	336	332	208	298	300.8	N/A	
180	329	335	332	206	299	300.2	N/A	
181	328	335	332	206	299	300.0	N/A	
182	327	334	331	204	299	299.0	N/A	
183	326	334	331	204	300	299.0	N/A	
184	326	334	330	202	300	298.4	N/A	
185	325	334	330	202	301	298.4	N/A	
186	324	333	329	202	301	297.8	N/A	
187	323	333	329	200	301	297.2	N/A	
188	322	333	329	200	302	297.2	N/A	
189	321	333	328	199	302	296.6	N/A	
190	320	332	328	199	302	296.2	N/A	
191	319	332	327	198	303	295.8	N/A	
192	318	332	327	197	303	295.4	N/A	
193	317	332	326	197	303	295.0	N/A	
194	317	332	326	196	304	295.0	N/A	
195	316	332	325	196	304	294.6	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

**Stove ΔT:** 110

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
196	315	331	325	195	304	294.0	N/A	
197	314	331	324	194	305	293.6	N/A	
198	313	331	324	193	305	293.2	N/A	
199	312	331	324	193	305	293.0	N/A	
200	312	330	323	193	306	292.8	N/A	
201	311	330	323	192	306	292.4	N/A	
202	310	330	323	191	306	292.0	N/A	
203	309	330	322	191	306	291.6	N/A	
204	308	329	322	190	306	291.0	N/A	
205	307	329	322	190	307	291.0	N/A	
206	307	329	322	189	307	290.8	N/A	
207	306	329	321	189	307	290.4	N/A	
208	305	328	321	189	307	290.0	N/A	
209	305	328	321	188	307	289.8	N/A	
210	304	328	321	188	307	289.6	N/A	
211	303	328	321	188	308	289.6	N/A	
212	303	327	321	188	308	289.4	N/A	
213	302	327	320	187	308	288.8	N/A	
214	302	327	320	187	308	288.8	N/A	
215	301	327	320	187	308	288.6	N/A	
216	300	326	320	186	308	288.0	N/A	
217	300	336	320	186	308	290.0	N/A	
218	299	336	320	186	308	289.8	N/A	
219	299	337	319	186	308	289.8	N/A	
220	298	337	319	185	308	289.4	N/A	
221	297	337	319	186	308	289.4	N/A	
222	297	336	319	185	309	289.2	N/A	
223	296	337	319	184	309	289.0	N/A	
224	296	336	319	184	309	288.8	N/A	
225	295	336	319	184	309	288.6	N/A	
226	295	336	320	184	309	288.8	N/A	
227	295	336	320	184	309	288.8	N/A	
228	294	335	320	184	309	288.4	N/A	
229	293	335	320	184	309	288.2	N/A	
230	293	335	320	183	309	288.0	N/A	
231	292	335	320	183	309	287.8	N/A	
232	292	335	320	184	309	288.0	N/A	
233	291	335	320	184	309	287.8	N/A	
234	291	334	319	184	309	287.4	N/A	
235	291	334	319	184	309	287.4	N/A	
236	290	334	319	183	309	287.0	N/A	
237	290	334	319	184	309	287.2	N/A	
238	290	333	318	183	309	286.6	N/A	
239	289	333	318	183	309	286.4	N/A	
240	288	333	318	183	309	286.2	N/A	
241	288	332	318	183	309	286.0	N/A	
242	288	332	318	183	309	286.0	N/A	
243	288	332	317	182	309	285.6	N/A	
244	288	331	317	182	308	285.2	N/A	



# WOODSTOVE SURFACE TEMPERATURE DATA

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

**Stove ΔT:** 110

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
245	287	331	317	182	308	285.0	N/A	
246	287	330	316	181	308	284.4	N/A	
247	287	330	316	181	308	284.4	N/A	
248	286	330	316	180	308	284.0	N/A	
249	286	329	315	179	308	283.4	N/A	
250	286	329	315	179	308	283.4	N/A	
251	286	328	315	179	308	283.2	N/A	
252	285	328	315	179	307	282.8	N/A	
253	285	327	314	178	307	282.2	N/A	
254	285	327	314	178	307	282.2	N/A	
255	285	326	314	177	307	281.8	N/A	
256	284	326	314	177	306	281.4	N/A	
257	284	325	313	177	306	281.0	N/A	
258	284	325	313	177	306	281.0	N/A	
259	283	324	313	176	306	280.4	N/A	
260	283	324	313	176	305	280.2	N/A	
261	282	323	312	175	305	279.4	N/A	
262	282	323	312	175	305	279.4	N/A	
263	282	323	312	175	304	279.2	N/A	
264	281	322	312	175	304	278.8	N/A	
265	282	321	311	175	304	278.6	N/A	
266	281	321	311	174	303	278.0	N/A	
267	281	320	311	175	303	278.0	N/A	
268	280	320	310	174	303	277.4	N/A	
269	280	319	310	174	303	277.2	N/A	
270	280	319	310	174	302	277.0	N/A	
271	279	318	310	174	302	276.6	N/A	
272	279	318	310	174	302	276.6	N/A	
273	279	317	309	173	301	275.8	N/A	
274	279	317	309	173	301	275.8	N/A	
275	279	317	309	173	301	275.8	N/A	
276	278	316	309	172	301	275.2	N/A	
277	278	315	309	173	300	275.0	N/A	
278	278	315	308	172	300	274.6	N/A	
279	277	315	308	172	300	274.4	N/A	
280	277	314	308	172	300	274.2	N/A	
281	277	314	308	171	299	273.8	N/A	
282	276	313	308	171	299	273.4	N/A	
283	276	313	308	171	299	273.4	N/A	
284	276	312	308	172	298	273.2	N/A	
285	276	312	308	171	298	273.0	N/A	
286	275	312	308	171	298	272.8	N/A	
287	275	311	307	171	298	272.4	N/A	
288	275	311	307	171	297	272.2	N/A	
289	275	310	307	170	297	271.8	N/A	
290	275	310	307	171	297	272.0	N/A	
291	274	309	307	170	297	271.4	N/A	
292	274	309	307	171	297	271.6	N/A	
293	274	308	307	171	296	271.2	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

**Stove ΔT:** 110

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
294	274	308	307	171	296	271.2	N/A	
295	273	308	307	170	296	270.8	N/A	
296	273	307	307	171	296	270.8	N/A	
297	273	307	306	170	296	270.4	N/A	
298	273	306	306	171	296	270.4	N/A	
299	273	306	306	171	296	270.4	N/A	
300	273	306	306	170	295	270.0	N/A	
301	273	305	306	171	295	270.0	N/A	
302	273	305	306	171	295	270.0	N/A	
303	272	305	306	171	295	269.8	N/A	
304	272	304	306	170	295	269.4	N/A	
305	272	304	306	170	295	269.4	N/A	
306	272	304	306	170	295	269.4	N/A	
307	272	304	306	170	295	269.4	N/A	
308	272	303	306	171	295	269.4	N/A	
309	272	303	306	171	295	269.4	N/A	
310	272	303	306	170	295	269.2	N/A	
311	271	303	306	170	295	269.0	N/A	
312	271	299	306	170	295	268.2	N/A	
313	271	299	306	170	295	268.2	N/A	
314	271	298	306	170	295	268.0	N/A	
315	271	298	306	170	295	268.0	N/A	
316	271	298	307	171	295	268.4	N/A	
317	271	298	307	171	295	268.4	N/A	
318	271	298	307	171	295	268.4	N/A	
319	271	297	308	171	295	268.4	N/A	
320	271	297	309	172	295	268.8	N/A	
321	272	297	310	172	295	269.2	N/A	
322	272	297	310	172	295	269.2	N/A	
323	272	298	311	172	295	269.6	N/A	
324	272	298	312	173	295	270.0	N/A	
325	272	298	313	173	295	270.2	N/A	
326	273	298	314	174	295	270.8	N/A	
327	273	298	316	174	295	271.2	N/A	
328	274	298	317	174	295	271.6	N/A	
329	274	299	319	174	295	272.2	N/A	
330	274	299	320	175	296	272.8	N/A	
331	275	299	322	175	296	273.4	N/A	
332	276	300	323	174	296	273.8	N/A	
333	276	300	325	175	296	274.4	N/A	
334	277	300	326	175	297	275.0	N/A	
335	278	271	327	175	297	269.6	N/A	
336	278	271	328	175	297	269.8	N/A	
337	279	271	329	175	297	270.2	N/A	
338	279	271	330	175	298	270.6	N/A	
339	280	271	331	175	298	271.0	N/A	
340	280	271	332	174	298	271.0	N/A	
341	281	271	333	174	299	271.6	N/A	
342	282	271	334	175	299	272.2	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

**Stove ΔT:** 110

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
343	282	271	335	174	299	272.2	N/A
344	282	271	336	174	299	272.4	N/A
345	283	271	338	174	299	273.0	N/A
346	283	271	339	174	299	273.2	N/A
347	284	271	340	174	300	273.8	N/A
348	284	271	342	174	300	274.2	N/A
349	284	270	343	174	300	274.2	N/A
350	285	270	344	174	300	274.6	N/A
351	285	270	346	173	300	274.8	N/A
352	285	270	347	173	300	275.0	N/A
353	286	270	349	173	300	275.6	N/A
354	286	270	351	173	300	276.0	N/A
355	287	270	353	173	300	276.6	N/A
356	287	270	355	173	300	277.0	N/A
357	287	270	356	172	301	277.2	N/A
358	288	270	357	172	301	277.6	N/A
359	288	269	358	171	301	277.4	N/A
Average	331	339	326	277	312	317	N/A

## LAB SAMPLE DATA - ASTM E2515

Client: Hearth and Home  
 Model: 4300ACC-C  
 Run #: 1

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/3/2019

	Sample ID	Tare, mg	Total, mg	Final, mg	Catch, mg
<b>Train A Filters - First Hour</b>	3637	121.6	121.6	124.1	2.5
<b>Train A Filters - Remainder</b>	3638	117.2	234.2	239.0	4.8
	3639	117.0			
<b>Train A Probe</b>	2A	116241.7	116241.7	116241.5	0.0*
<b>Train A O-Rings</b>	2A	3553.3	3553.3	3553.3	0.0
<b>Train B Filters</b>	3640	122.5	356.5	364.2	7.7
	3641	116.5			
	3642	117.5			
<b>Train B Probe</b>	2B	116329.8	116329.8	116329.8	0.0
<b>Train B O-Rings</b>	2B	3572.5	3572.5	3572.5	0.0
<b>Background Filter</b>			0.0	0.0	

\*Negative value corrected to zero

<b>Placed in Dessicator on:</b>	12/7/2019
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**Balance Audit (mg):**      200.0                      200.0

	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
<b>Train A Filters - First Hour</b>	124.1	12/9 9:09	124.1	12/10 14:34				
<b>Train A Filters - Remainder</b>	239.1	12/9 9:09	239.0	12/10 14:33				
<b>Train A Probe</b>	116241.5	12/9 8:58	116241.5	12/10 14:23				
<b>Train A O-Rings</b>	3553.4	12/9 9:04	3553.3	12/10 14:30				
<b>Train B Filters</b>	364.4	12/9 9:10	364.2	12/10 14:34				
<b>Train B Probe</b>	116329.8	12/9 8:58	116329.8	12/10 14:23				
<b>Train B O-Rings</b>	3572.4	12/9 9:03	3572.5	12/10 14:30				
<b>Background Filter</b>								

1st hour Sub-Total, mg:	2.5
Remainder Sub-Total, mg:	4.8
<b>Train 1 Aggregate, mg:</b>	<b>7.3</b>
<b>Train 2 Aggregate, mg:</b>	<b>7.7</b>
Ambient Aggregate, mg:	0.0

## ASTM E2780 Wood Heater Run Sheets

Client: HHT Job Number: 19-538 Tracking #: 0050  
 Model: 4300ACC-C Run Number: 1 Test Date: 12/3/19

### Wood Heater Run Notes

#### Test Control Settings

Primary Air Setting(s): Open 0.443" (~0.05" from fixed stop)  
 Targeted Burn Category: I

#### Preburn Notes

Time	Notes
	Began PB at logger = 62:00, 3.8 lb

#### Test Notes

Test Burn Start Time: 11:25 Test Fuel Loaded by: 30 seconds  
 Door Closed: 35 seconds Air Control Set at: 300 seconds  
 Other Loading Notes: Rear air shut at 300 sec

Time	Notes
60:00	Changed filter A

Test Burn End Time: 17:24


#### Flue Gas Concentration Measurement

**Calibration Gas Values:** Span Gas CO<sub>2</sub> (%): 16.93 CO (%): 4.33  
 Mid Gas CO<sub>2</sub> (%): 10.00 CO (%): 2.51

#### Calibration Results:

	Zero	Span	Zero	Span
Time	10:47	10:48	09:06	09:09
CO <sub>2</sub>	0.00	9.99	0.10	10.05
CO	0.00	1.00	0.03	1.00

**Flue Gas Probe Leak Check:** Initial: No Leakage Final: No Leakage

Technician Signature:  Date: 12/18/2019

# ASTM E2780 Wood Heater Run Sheets

Client: HHT  
Model: 4300ACC-C

Job Number: 19-538  
Run Number: 1

Tracking #: 0050  
Test Date: 12/3/19



**Test Fuel Side View**



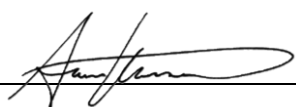
**Test Fuel Iso View**



**Test Fuel Loaded in Stove**



**Air Setting**

Technician Signature: 

Date: 12/18/2019

**WOOD STOVE TEST DATA PACKET  
ASTM E2780/E2515**



**Run 2 Data Summary**

Client: HHT  
Model: 4300ACC-C  
Job #: 19-538  
Tracking #: 0050  
Test Date: 12/4/2019

  
\_\_\_\_\_  
Technician Signature

12/18/2019  
\_\_\_\_\_  
Date

## TEST RESULTS - ASTM E2780 / ASTM E2515

Client: HHTJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 2Technician: AKDate: 12/4/2019

<b>Burn Rate (kg/hr):</b>	<b>1.09</b>
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	0.000	50.370	52.694	9.347
Average Gas Velocity in Dilution Tunnel (ft/sec)	18.6			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11783.6			
Average Gas Meter Temperature (°F)	73.8	79.6	79.2	80.1
Total Sample Volume (dscf)	0.000	46.757	49.153	8.666
Average Tunnel Temperature (°F)	87.8			
Total Time of Test (min)	316			
Total Particulate Catch (mg)	0.0	4.8	5.1	1.7
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0001027	0.0001038	0.0001962
Total PM Emissions (g)	0.00	6.37	6.44	2.31
Particulate Emission Rate (g/hr)	0.00	1.21	1.22	2.31
Emissions Factor (g/kg)	-	1.11	1.12	-
Difference from Average Total Particulate Emissions (g)	-	0.03	0.03	-
Difference from Average Emissions Factor (g/kg)	-	0.01	0.01	-

Final Average Results	
Total Particulate Emissions (g)	6.41
Particulate Emission Rate (g/hr)	1.22
Emissions Factor (g/kg)	1.12
HHV Efficiency (%)	74.7%
LHV Efficiency (%)	80.7%
CO Emissions (g/min)	1.70

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	84.0	OK
Face Velocity	< 30 ft/min	9.5	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min: 67 / Max: 79	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	72.2	OK



## B415.1 Efficiency Results

**Manufacturer:** HHT  
**Model:** 4300ACC-C  
**Date:** 12/04/19  
**Run:** 2  
**Control #:** 19-538  
**Test Duration:** 316  
**Output Category:** 2

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	74.7%	80.7%
<b>Combustion Efficiency</b>	93.3%	93.3%
<b>Heat Transfer Efficiency</b>	80.0%	86.5%

<b>Output Rate (kJ/h)</b>	15,950	15,131	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	1.08	2.38	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	21,360	20,262	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.68	12.52	<b>dry lb</b>
<b>MC wet (%)</b>	16.22		
<b>MC dry (%)</b>	19.37		
<b>Particulate (g )</b>	6.41		
<b>CO (g)</b>	536		
<b>Test Duration (h)</b>	5.27		

	Particulate	CO
<b>Emissions</b>		
<b>g/MJ Output</b>	0.08	6.38
<b>g/kg Dry Fuel</b>	1.13	94.41
<b>g/h</b>	1.22	101.80
<b>g/min</b>	0.02	1.70
<b>lb/MM Btu Output</b>	0.18	14.83

<b>Air/Fuel Ratio (A/F)</b>	14.64
-----------------------------	-------

VERSION:

2.2

12/14/2009

## WOODSTOVE FUEL DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	8.00	23.8				
2x4	8.00	22.4				
2x4	8.00	22.0				
Total Fuel Weight (lbs):		2.9	Average Moisture (%DB):		22.7	

Firebox Volume (ft <sup>3</sup> ):	2.26
Total 2x4 Crib Weight, with spacers (lbs):	6.90
Total 4x4 Crib Weight, with spacers (lbs):	8.10
Total Wet Fuel Weight, with spacers (lbs):	14.90

**Coal Bed Range (20-25%):**  
 Min (lbs): 2.98  
 Max (lbs): 3.73

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
4x4	15.50	3.80	19.7	18.8	19.3	3.19
2x4	15.50	1.80	18.6	20.3	20.1	1.50
2x4	15.50	1.70	20.1	19.2	19.1	1.42
2x4	15.50	1.90	19.0	18.6	19.5	1.60
4x4	15.50	3.60	20.1	19.6	18.5	3.02
Total Dry Weight, no spacers (lbs):						10.72
Total Dry Weight, with spacers (lbs):						12.63

Spacer Moisture Readings (%DB)						
10.0						
10.0						
10.0						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	29.7	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	6.59	OK
2x4 Fuel Mix	35 - 65 % of total weight	46%	OK

## DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: **HHT**  
 Model: **4300ACC-C**  
 Run #: **2**  
 Test Start Time: **11:18**

Job #: **19-538**  
 Tracking #: **0050**  
 Technician: **AK**  
 Date: **12/4/2019**

Total Sampling Time (min): **316**  
 Recording Interval (min): **1**

Meter Box  $\gamma$  Factor: **0.998 (A)**  
 Meter Box  $\gamma$  Factor: **1.002 (B)**  
 Meter Box  $\gamma$  Factor: **1.000 (Ambient)**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	28.37	28.38	28.38
Relative Humidity (%)			
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:			ft <sup>3</sup>

Induced Draft Check (in. H<sub>2</sub>O): **0**  
 Smoke Capture Check (%): **100%**  
 Date Flue Pipe Last Cleaned: **11/25/2019**

**Sample Train Post-Test Leak Checks**

(A)	0.000	cfm @	-6 in. Hg
(B)	0.000	cfm @	-7 in. Hg
(Ambient)		cfm @	in. Hg

## DILUTION TUNNEL FLOW

**Traverse Data**

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.040	93
2	0.122	93
3	0.092	93
4	0.056	93
5	0.054	93
6	0.084	93
7	0.102	93
8	0.060	93
Center	0.120	93

Dilution Tunnel H<sub>2</sub>O: **2.00** percent  
 Tunnel Diameter: **6** inches  
 Pitot Tube Cp: **0.99** [unitless]  
 Dilution Tunnel MW(dry): **29.00** lb/lb-mole  
 Dilution Tunnel MW(wet): **28.78** lb/lb-mole  
 Tunnel Area: **0.1963** ft<sup>2</sup>

$V_{strav}$ : **19.54** ft/sec  
 $V_{scent}$ : **24.15** ft/sec  
 $F_p$ : **0.809** [ratio]  
 Initial Tunnel Flow: **197.8** scf/min

Static Pressure: **-0.710** in. H<sub>2</sub>O

## TEST FUEL PROPERTIES

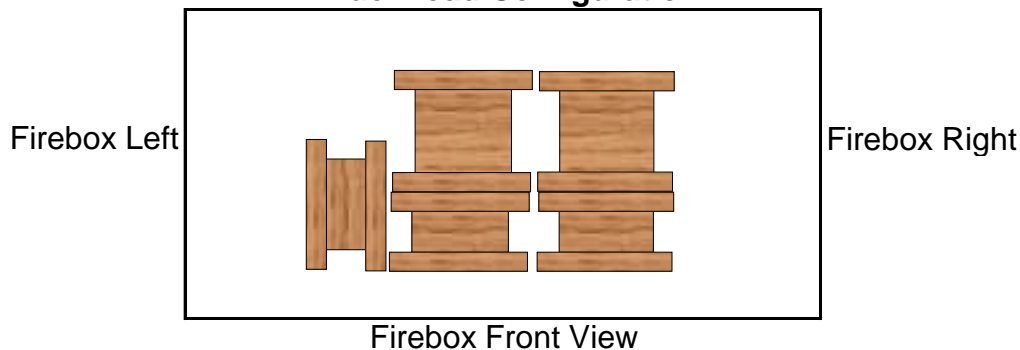
**Default Fuel Values**

Fuel Type:	D. Fir	Oak
HHV (kJ/kg)	19,810	19,887
%C	48.73	50
%H	6.87	6.6
%O	43.9	42.9
%Ash	0.5	0.5

**Actual Fuel Used Properties**

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	19.4

**Fuel Load Configuration**



# WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Recording Interval (min): 1  
 Run Time (min): 63

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)						Stove Surface Average	Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom				
0	13.7	-0.089	583	444	708	917	467	623.8	661	77	
1	13.7	-0.076	587	447	714	908	467	624.6	654	77	
2	13.6	-0.069	593	459	724	869	468	622.6	608	78	
3	13.7	-0.071	602	464	735	834	469	620.8	533	77	
4	13.7	-0.064	609	469	741	795	470	616.8	480	78	
5	13.7	-0.059	614	473	742	759	471	611.8	439	78	
6	13.8	-0.057	617	477	738	719	472	604.6	406	78	
7	13.7	-0.054	619	479	732	681	472	596.6	379	78	
8	13.5	-0.049	620	481	726	646	473	589.2	357	79	
9	13.7	-0.049	619	482	719	609	474	580.6	338	78	
10	13.5	-0.050	618	483	711	579	475	573.2	322	78	
11	13.7	-0.045	615	484	703	553	475	566.0	308	78	
12	13.7	-0.042	613	483	696	528	476	559.2	297	78	
13	13.4	-0.043	609	482	687	503	476	551.4	286	78	
14	13.6	-0.038	606	481	679	481	477	544.8	278	78	
15	13.7	-0.041	601	479	671	461	477	537.8	270	78	
16	13.8	-0.039	597	478	664	445	477	532.2	263	78	
17	13.7	-0.056	592	479	657	428	477	526.6	264	79	
18	13.7	-0.042	588	484	649	412	478	522.2	261	78	
19	13.7	-0.040	583	482	644	400	478	517.4	257	78	
20	13.7	-0.044	579	478	638	391	479	513.0	260	78	
21	13.7	-0.047	574	475	630	388	479	509.2	263	78	
22	13.7	-0.045	571	474	622	383	478	505.6	265	77	
23	13.7	-0.044	567	470	614	382	478	502.2	270	78	
24	13.7	-0.051	563	467	607	385	477	499.8	274	78	
25	13.7	-0.049	559	464	598	384	476	496.2	275	77	
26	13.6	-0.050	556	460	592	384	475	493.4	274	77	
27	13.7	-0.047	553	455	585	381	473	489.4	271	78	
28	13.7	-0.046	549	452	577	379	471	485.6	268	77	
29	13.7	-0.046	546	449	570	376	469	482.0	267	78	
30	13.6	-0.044	542	444	563	371	467	477.4	266	78	
31	13.7	-0.046	539	441	557	371	465	474.6	266	78	
32	13.7	-0.048	536	438	550	369	463	471.2	265	77	
33	13.7	-0.045	532	435	544	364	461	467.2	264	78	
34	13.6	-0.047	529	431	537	364	459	464.0	263	77	
35	13.7	-0.047	526	427	532	363	457	461.0	263	78	
36	13.7	-0.039	523	424	527	361	455	458.0	262	77	
37	13.7	-0.032	520	421	522	361	453	455.4	262	78	
38	13.3	-0.045	517	418	517	359	451	452.4	261	78	
39	13.6	-0.042	514	414	513	357	449	449.4	261	78	
40	13.8	-0.035	511	412	508	357	447	447.0	261	77	
41	13.7	-0.039	508	410	503	357	445	444.6	260	77	
42	13.7	-0.046	505	407	499	357	443	442.2	261	77	
43	14.1	-0.042	502	405	494	357	441	439.8	261	77	
44	13.5	-0.038	500	403	490	356	440	437.8	262	77	
45	13.4	-0.046	497	400	487	358	438	436.0	263	77	

## WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Recording Interval (min): 1  
 Run Time (min): 63

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
46	13.4	-0.039	495	398	483	359	436	434.2	263	77	
47	13.5	-0.047	492	397	480	359	435	432.6	262	77	
48	13.6	-0.042	490	394	477	359	433	430.6	258	78	
49	13.6	-0.042	488	392	475	356	432	428.6	254	78	
50	13.6	-0.038	486	391	472	351	430	426.0	250	78	
51	14.4	-0.035	483	390	469	348	429	423.8	247	77	
52	13.6	-0.039	481	388	467	344	427	421.4	245	77	
53	13.6	-0.036	479	387	464	342	426	419.6	243	77	
54	13.6	-0.039	477	385	461	338	425	417.2	240	78	
55	13.6	-0.029	475	384	459	334	423	415.0	236	77	
56	13.6	-0.036	473	384	456	328	422	412.6	230	77	
57	13.6	-0.038	471	383	453	322	421	410.0	225	77	
58	13.6	-0.030	468	383	451	315	420	407.4	221	77	
59	13.6	-0.029	466	382	448	309	419	404.8	217	77	
60	13.7	-0.040	464	378	446	303	418	401.8	226	77	
61	13.7	-0.030	461	375	443	295	418	398.4	226	77	
62	13.6	-0.030	459	374	440	288	417	395.6	218	77	
63	13.6	-0.025	456	372	437	282	417	392.8	210	77	

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.001		0.111	0.08	77	2		14.9		89	206	78	77
1	0.128	0.127	0.111	0.96	77	2	81	14.9	-0.02565	106	206	79	77
2	0.280	0.152	0.111	1.04	77	2	97	14.8	-0.15513	103	230	79	77
3	0.443	0.163	0.111	1.03	77	2	104	14.6	-0.17687	103	290	79	77
4	0.602	0.159	0.107	1.05	78	2	103	14.4	-0.15178	108	362	79	78
5	0.763	0.161	0.106	1.04	78	2	106	15.0	0.52005	112	429	80	77
6	0.925	0.162	0.107	0.99	78	2	105	14.0	-0.90668	108	431	80	77
7	1.085	0.160	0.106	1.05	78	2	105	13.9	-0.19007	108	434	80	77
8	1.244	0.159	0.100	1.05	78	2	107	13.7	-0.1618	108	440	80	77
9	1.402	0.158	0.104	1.01	78	2	104	13.5	-0.18003	109	448	80	77
10	1.561	0.159	0.103	0.96	78	2	105	13.3	-0.18329	110	459	80	76
11	1.723	0.162	0.103	1.03	78	2	107	13.1	-0.20485	111	468	80	77
12	1.881	0.158	0.107	1.04	78	2	103	13.0	-0.16259	112	476	80	78
13	2.038	0.157	0.110	1.02	78	2	101	12.7	-0.24637	113	482	81	77
14	2.196	0.158	0.111	1.00	78	2	101	12.5	-0.18734	114	486	81	77
15	2.349	0.153	0.113	0.96	78	2	97	12.3	-0.20172	114	490	81	77
16	2.506	0.157	0.108	1.02	78	2	102	12.2	-0.16232	114	493	81	77
17	2.662	0.156	0.108	1.05	79	2	101	12.0	-0.20228	115	495	81	76
18	2.818	0.156	0.108	1.02	79	2	102	11.7	-0.23185	115	497	81	76
19	2.974	0.156	0.109	0.99	79	2	101	11.5	-0.23433	115	497	81	76
20	3.129	0.155	0.111	1.00	79	2	100	11.3	-0.18233	116	498	82	76
21	3.286	0.157	0.114	1.01	79	2	100	11.1	-0.18621	116	499	82	76
22	3.444	0.158	0.111	1.03	79	2	101	10.9	-0.2008	116	500	82	76
23	3.599	0.155	0.111	0.98	79	2	99	10.7	-0.23702	117	500	82	76
24	3.755	0.156	0.108	1.02	79	2	101	10.5	-0.15272	117	502	82	76
25	3.914	0.159	0.104	0.98	79	2	106	10.4	-0.16377	117	503	82	76
26	4.073	0.159	0.103	0.98	80	2	106	10.2	-0.20439	117	506	82	76
27	4.228	0.155	0.103	1.02	80	2	103	10.0	-0.17853	117	508	83	76
28	4.384	0.156	0.102	0.97	80	2	104	9.8	-0.17374	114	493	83	77
29	4.543	0.159	0.102	0.97	80	2	106	9.7	-0.14851	112	467	83	77
30	4.697	0.154	0.102	1.03	80	2	102	9.5	-0.16841	110	448	83	76
31	4.855	0.158	0.106	1.02	80	2	103	9.3	-0.2477	109	430	83	77
32	5.012	0.157	0.105	0.98	80	2	103	9.1	-0.11566	108	413	83	77

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
33	5.167	0.155	0.108	0.96	80	2	100	9.1	-0.0558	107	398	83	78
34	5.325	0.158	0.108	0.98	81	2	102	8.9	-0.13919	107	386	83	78
35	5.483	0.158	0.111	0.98	81	2	100	8.9	-0.08376	106	376	83	77
36	5.637	0.154	0.109	1.00	81	2	98	8.7	-0.11062	105	367	83	77
37	5.795	0.158	0.110	1.07	81	2	100	8.6	-0.12262	105	359	83	77
38	5.953	0.158	0.110	0.98	81	2	101	8.5	-0.08812	104	353	83	77
39	6.109	0.156	0.112	1.00	81	2	98	8.4	-0.1302	103	348	83	79
40	6.266	0.157	0.113	1.00	81	2	98	8.3	-0.07799	103	343	83	78
41	6.422	0.156	0.112	0.99	82	2	98	8.2	-0.0803	102	338	83	78
42	6.577	0.155	0.111	1.03	82	2	98	8.2	-0.09232	102	332	83	78
43	6.734	0.157	0.111	0.97	82	2	99	8.1	-0.07464	101	327	83	78
44	6.895	0.161	0.109	1.01	82	2	102	8.0	-0.11313	101	322	83	77
45	7.049	0.154	0.105	0.96	82	2	99	7.9	-0.04094	100	318	83	78
46	7.207	0.158	0.106	1.01	82	2	102	7.8	-0.08981	100	314	83	77
47	7.364	0.157	0.107	1.01	82	2	101	7.7	-0.10177	100	311	83	77
48	7.519	0.155	0.108	0.99	82	2	99	7.6	-0.13333	99	308	82	77
49	7.675	0.156	0.109	0.96	82	2	99	7.5	-0.06913	99	306	82	78
50	7.833	0.158	0.111	1.03	82	2	99	7.4	-0.10031	99	305	82	77
51	7.988	0.155	0.114	0.99	82	2	96	7.4	-0.07918	99	303	82	78
52	8.144	0.156	0.113	0.94	83	2	97	7.3	-0.09673	98	303	82	77
53	8.295	0.151	0.112	0.95	83	2	94	7.2	-0.09764	98	302	82	77
54	8.446	0.151	0.113	0.98	83	2	94	7.1	-0.10273	98	303	82	77
55	8.597	0.151	0.110	0.91	83	2	95	7.0	-0.09034	98	305	82	78
56	8.747	0.150	0.109	0.91	83	2	95	6.9	-0.07366	99	308	82	77
57	8.899	0.152	0.110	0.95	83	2	96	6.7	-0.16225	99	311	82	78
58	9.048	0.149	0.111	0.94	83	2	93	6.6	-0.09307	99	313	82	78
59	9.198	0.150	0.108	0.96	83	2	96	6.5	-0.13891	99	315	82	77
60	9.348	0.150	0.108	0.92	83	2	95	6.4	-0.06935	99	317	82	77
61	9.506	0.158	0.108	0.96	83	2	100	6.3	-0.10659	99	319	81	78
62	9.664	0.158	0.108	1.04	83	2	101	6.2	-0.11346	99	320	81	77
63	9.822	0.158	0.105	1.01	83	2	102	6.1	-0.09704	99	321	81	77
64	9.979	0.157	0.108	1.00	83	2	100	6.0	-0.13751	99	322	81	78
65	10.140	0.161	0.109	1.06	83	2	102	5.9	-0.09522	99	322	82	77

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
66	10.299	0.159	0.107	1.05	83	2	102	5.8	-0.10466	99	322	82	77
67	10.457	0.158	0.108	0.99	83	2	101	5.6	-0.12561	99	322	82	77
68	10.619	0.162	0.107	1.05	83	2	104	5.5	-0.10902	99	322	82	78
69	10.777	0.158	0.104	1.00	83	2	102	5.4	-0.09159	99	322	82	77
70	10.937	0.160	0.104	1.05	83	2	104	5.4	-0.08869	99	321	82	78
71	11.093	0.156	0.104	1.03	83	2	101	5.2	-0.12098	99	321	82	77
72	11.255	0.162	0.102	0.98	83	2	106	5.1	-0.10962	99	320	82	78
73	11.413	0.158	0.101	1.04	84	2	104	5.1	-0.07275	98	319	82	78
74	11.573	0.160	0.101	1.05	83	2	105	4.9	-0.10652	98	319	82	77
75	11.733	0.160	0.106	1.05	83	2	103	4.9	-0.07562	98	317	82	77
76	11.891	0.158	0.107	0.99	83	2	101	4.8	-0.09285	98	315	82	78
77	12.052	0.161	0.107	1.04	83	2	103	4.7	-0.11048	97	313	82	78
78	12.211	0.159	0.109	0.98	83	2	101	4.6	-0.04159	97	309	82	78
79	12.373	0.162	0.114	1.01	83	2	100	4.5	-0.10025	97	306	82	77
80	12.532	0.159	0.107	1.01	83	2	101	4.5	-0.06738	97	303	82	77
81	12.693	0.161	0.108	1.04	84	2	102	4.4	-0.06566	96	301	82	77
82	12.851	0.158	0.106	1.04	84	2	101	4.3	-0.07237	96	299	82	77
83	13.012	0.161	0.109	1.03	84	2	102	4.3	-0.07018	96	298	82	78
84	13.171	0.159	0.102	1.01	84	2	103	4.2	-0.0666	96	296	81	77
85	13.330	0.159	0.109	1.04	84	2	100	4.1	-0.0487	96	292	81	78
86	13.490	0.160	0.106	1.02	84	2	102	4.1	-0.06298	95	288	81	78
87	13.650	0.160	0.108	1.06	84	2	101	4.0	-0.04645	95	284	81	77
88	13.811	0.161	0.106	1.00	84	2	103	4.0	-0.04335	94	280	81	77
89	13.970	0.159	0.107	1.07	84	2	101	3.9	-0.05228	94	274	81	78
90	14.131	0.161	0.106	0.99	84	2	103	3.9	-0.03959	94	268	81	77
91	14.291	0.160	0.109	1.00	84	2	101	3.9	-0.03662	93	262	81	78
92	14.453	0.162	0.111	0.98	84	2	101	3.8	-0.05928	93	256	81	77
93	14.611	0.158	0.111	0.99	84	2	99	3.8	-0.02076	93	250	81	77
94	14.773	0.162	0.114	1.05	84	2	100	3.7	-0.0417	92	245	81	78
95	14.932	0.159	0.112	0.98	84	2	99	3.7	-0.02243	92	240	81	78
96	15.091	0.159	0.111	0.98	84	2	99	3.6	-0.07487	92	236	81	78
97	15.253	0.162	0.113	1.03	84	2	100	3.6	-0.00564	91	232	81	78
98	15.413	0.160	0.111	1.00	84	2	100	3.6	-0.03882	91	229	81	78



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
99	15.574	0.161	0.107	1.00	84	2	102	3.6	-0.0197	91	225	81	78
100	15.732	0.158	0.108	1.03	84	2	99	3.5	-0.04039	90	222	80	79
101	15.894	0.162	0.108	1.00	84	2	102	3.5	-0.0438	90	220	80	79
102	16.054	0.160	0.104	1.02	84	2	103	3.5	-0.02037	90	217	80	78
103	16.215	0.161	0.108	1.04	84	2	101	3.5	-0.0081	90	214	80	77
104	16.372	0.157	0.110	0.98	84	2	98	3.4	-0.0419	90	212	80	78
105	16.536	0.164	0.109	1.02	84	2	103	3.4	-0.02181	89	209	80	78
106	16.697	0.161	0.111	0.99	84	2	100	3.4	-0.03166	89	207	80	78
107	16.857	0.160	0.112	1.07	84	2	99	3.3	-0.04499	89	205	80	77
108	17.016	0.159	0.109	1.00	84	2	100	3.3	-0.01579	89	204	80	77
109	17.177	0.161	0.113	1.00	84	2	99	3.3	-0.04322	88	202	80	77
110	17.337	0.160	0.113	0.99	84	2	99	3.2	-0.02529	88	200	80	77
111	17.497	0.160	0.109	1.04	84	2	100	3.2	-0.02966	88	199	80	77
112	17.657	0.160	0.112	1.06	83	2	99	3.2	-0.01923	88	198	80	77
113	17.817	0.160	0.115	1.05	83	2	98	3.1	-0.04502	88	197	80	76
114	17.979	0.162	0.109	1.00	83	2	102	3.1	-0.01752	88	196	80	77
115	18.140	0.161	0.109	0.98	83	2	101	3.1	-0.03014	87	195	80	77
116	18.302	0.162	0.110	1.03	83	2	101	3.1	-0.02989	87	194	79	77
117	18.460	0.158	0.110	1.06	83	2	98	3.0	-0.01976	87	192	79	76
118	18.622	0.162	0.111	1.01	83	2	101	3.0	-0.04299	87	190	79	75
119	18.781	0.159	0.113	1.04	83	2	98	3.0	0.00258	86	189	79	75
120	18.943	0.162	0.112	0.99	83	2	100	3.0	-0.00109	86	187	79	75
121	19.101	0.158	0.116	1.02	83	2	96	3.0	-0.03874	86	185	79	74
122	19.264	0.163	0.110	1.07	83	2	102	2.9	-0.02284	86	185	78	75
123	19.422	0.158	0.112	1.03	83	2	98	2.9	-0.02557	86	184	78	74
124	19.583	0.161	0.109	1.01	83	2	101	2.9	0.00608	86	182	78	75
125	19.742	0.159	0.110	1.00	83	2	99	2.9	-0.01626	85	181	78	74
126	19.902	0.160	0.107	1.05	83	2	101	2.9	-0.00055	85	180	78	74
127	20.062	0.160	0.113	1.06	82	2	99	2.9	-0.05054	85	179	78	74
128	20.223	0.161	0.110	0.99	82	2	100	2.9	0.00309	85	178	78	74
129	20.383	0.160	0.111	1.01	82	2	99	2.8	-0.01265	85	177	78	74
130	20.545	0.162	0.112	0.98	82	2	100	2.8	-0.06479	85	176	77	75
131	20.703	0.158	0.114	1.07	82	2	97	2.8	0.03648	85	175	77	75

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
132	20.866	0.163	0.111	1.08	82	2	101	2.8	-0.03176	85	174	77	75
133	21.026	0.160	0.108	1.03	82	2	101	2.8	-0.01429	84	173	77	75
134	21.188	0.162	0.111	1.01	82	2	101	2.8	0.00561	84	173	77	75
135	21.349	0.161	0.113	1.06	82	2	99	2.8	-0.02311	84	172	77	74
136	21.511	0.162	0.110	1.02	82	2	101	2.7	-0.00375	84	172	77	74
137	21.671	0.160	0.110	0.98	82	2	100	2.7	-0.04747	84	171	77	74
138	21.834	0.163	0.113	1.02	82	2	100	2.7	0.00935	84	171	77	74
139	21.994	0.160	0.110	1.05	82	2	100	2.7	0.0191	84	170	77	75
140	22.157	0.163	0.112	1.06	81	2	101	2.7	-0.03809	84	170	77	74
141	22.320	0.163	0.114	1.01	81	2	100	2.7	-0.02289	84	169	77	74
142	22.482	0.162	0.116	1.00	81	2	99	2.7	0.00093	84	169	77	74
143	22.644	0.162	0.113	1.03	81	2	100	2.6	-0.02389	83	168	76	74
144	22.805	0.161	0.114	1.04	81	2	99	2.6	0.0045	83	168	76	75
145	22.964	0.159	0.111	1.00	81	2	99	2.6	-0.00504	83	167	76	75
146	23.124	0.160	0.113	1.04	81	2	98	2.6	-0.04165	83	167	76	74
147	23.285	0.161	0.115	1.04	81	2	98	2.6	-0.00263	83	167	76	74
148	23.446	0.161	0.118	1.00	81	2	97	2.6	-0.02588	83	167	76	74
149	23.605	0.159	0.117	1.03	81	2	96	2.6	-0.01586	83	167	76	74
150	23.766	0.161	0.117	1.01	81	2	97	2.6	0.00177	83	167	76	74
151	23.927	0.161	0.114	1.01	81	2	99	2.5	-0.0409	83	166	76	74
152	24.087	0.160	0.109	1.07	80	2	100	2.5	-0.01482	83	166	76	74
153	24.247	0.160	0.109	1.07	80	2	101	2.5	-0.02059	83	166	76	74
154	24.406	0.159	0.110	1.06	80	2	99	2.5	0.00032	83	166	76	75
155	24.567	0.161	0.108	1.04	80	2	102	2.5	0.00185	83	165	76	74
156	24.726	0.159	0.109	1.02	80	2	100	2.5	-0.01927	83	165	76	75
157	24.891	0.165	0.112	1.00	80	2	102	2.4	-0.02733	82	165	76	75
158	25.051	0.160	0.110	0.99	80	2	100	2.4	-0.0154	83	166	76	76
159	25.213	0.162	0.111	1.01	80	2	101	2.4	-0.00214	82	166	76	76
160	25.372	0.159	0.110	1.04	80	2	99	2.4	-0.01783	82	166	75	76
161	25.533	0.161	0.105	1.01	80	2	103	2.4	-0.02695	82	166	75	75
162	25.694	0.161	0.102	1.02	79	2	104	2.4	-0.00419	82	166	75	75
163	25.856	0.162	0.107	1.06	79	2	103	2.4	0.00669	82	166	75	74
164	26.016	0.160	0.105	1.04	79	2	103	2.3	-0.04205	82	166	75	74

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
165	26.176	0.160	0.106	1.01	79	2	102	2.3	-0.00067	82	166	75	74
166	26.334	0.158	0.114	1.02	79	2	97	2.3	0.00084	82	166	75	74
167	26.495	0.161	0.118	1.05	79	2	97	2.3	-0.022	82	165	75	74
168	26.656	0.161	0.115	1.05	79	2	98	2.3	-0.02685	82	165	75	74
169	26.816	0.160	0.117	1.02	79	2	97	2.3	0.0055	82	165	75	74
170	26.978	0.162	0.117	1.02	79	2	98	2.3	-0.03212	82	165	75	74
171	27.139	0.161	0.112	1.04	79	2	100	2.2	-0.01903	82	165	75	74
172	27.301	0.162	0.110	1.04	79	2	101	2.2	-0.02077	82	164	75	74
173	27.461	0.160	0.111	1.01	79	2	99	2.2	-0.02181	82	164	75	74
174	27.624	0.163	0.107	1.01	79	2	103	2.2	-0.00057	82	164	75	74
175	27.784	0.160	0.108	1.01	79	2	101	2.2	0.00544	82	164	75	74
176	27.944	0.160	0.110	1.01	79	2	100	2.2	-0.0272	82	164	75	74
177	28.102	0.158	0.108	1.04	79	2	100	2.2	-0.02252	82	164	75	74
178	28.264	0.162	0.107	1.05	79	2	103	2.1	-0.02712	82	164	75	74
179	28.423	0.159	0.109	1.06	79	2	100	2.1	-0.00025	82	164	75	74
180	28.585	0.162	0.111	1.06	79	2	101	2.1	-0.01583	82	164	75	74
181	28.745	0.160	0.112	1.01	79	2	99	2.1	0.02177	82	163	75	74
182	28.905	0.160	0.111	1.00	79	2	99	2.1	-0.05375	82	163	75	75
183	29.065	0.160	0.113	1.06	79	2	99	2.1	-0.00388	82	163	75	75
184	29.229	0.164	0.112	1.04	79	2	102	2.1	0.0049	82	162	75	75
185	29.387	0.158	0.110	1.06	79	2	99	2.1	-0.0051	82	162	75	75
186	29.549	0.162	0.106	1.02	79	2	103	2.1	-0.0092	82	162	75	75
187	29.709	0.160	0.109	1.07	79	2	100	2.0	-0.04791	82	162	75	75
188	29.870	0.161	0.105	1.04	79	2	103	2.0	-0.00108	82	162	75	76
189	30.030	0.160	0.106	1.00	79	2	102	2.0	-0.02155	81	161	75	75
190	30.191	0.161	0.107	1.01	79	2	102	2.0	-0.00035	81	161	75	75
191	30.352	0.161	0.109	1.00	79	2	101	2.0	0.00028	81	160	75	75
192	30.512	0.160	0.107	1.02	79	2	102	2.0	-0.02575	81	160	75	73
193	30.673	0.161	0.111	1.00	79	2	100	1.9	-0.03041	81	160	75	73
194	30.831	0.158	0.113	1.07	79	2	97	1.9	-0.01644	81	160	75	73
195	30.992	0.161	0.112	1.04	79	2	100	1.9	-0.00041	81	160	75	73
196	31.151	0.159	0.114	1.06	79	2	98	1.9	-0.03523	81	160	75	73
197	31.312	0.161	0.118	1.03	79	2	97	1.9	-0.00859	81	160	75	72

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
198	31.472	0.160	0.117	1.04	79	2	97	1.9	0.00157	81	160	75	73
199	31.632	0.160	0.116	1.01	79	2	97	1.9	0.00703	81	160	75	73
200	31.792	0.160	0.120	1.03	79	2	96	1.9	-0.02913	81	160	75	73
201	31.954	0.162	0.119	1.08	79	2	97	1.8	-0.01811	81	159	75	73
202	32.113	0.159	0.115	1.02	79	2	97	1.8	-0.02628	81	159	74	73
203	32.274	0.161	0.115	1.03	79	2	98	1.8	-0.00382	81	159	75	73
204	32.433	0.159	0.115	1.02	79	2	97	1.8	-0.0429	81	159	75	73
205	32.595	0.162	0.114	1.07	79	2	100	1.8	-0.00224	81	159	75	73
206	32.755	0.160	0.108	1.03	79	2	101	1.8	-0.00087	81	158	74	73
207	32.914	0.159	0.108	0.99	79	2	100	1.8	0.00566	81	158	74	73
208	33.075	0.161	0.106	1.04	80	2	102	1.7	-0.0508	81	158	74	73
209	33.236	0.161	0.110	1.00	80	2	100	1.7	0.00091	81	158	74	73
210	33.397	0.161	0.107	1.06	80	2	102	1.7	-0.03897	81	158	74	73
211	33.556	0.159	0.111	1.06	80	2	99	1.7	0.02213	81	158	74	73
212	33.718	0.162	0.113	1.05	79	2	100	1.7	-0.02513	81	158	74	73
213	33.877	0.159	0.114	1.07	79	2	98	1.7	0.00138	81	157	74	73
214	34.037	0.160	0.109	1.01	79	2	100	1.6	-0.04657	81	157	74	73
215	34.197	0.160	0.110	1.06	79	2	100	1.6	-0.00474	81	157	74	72
216	34.360	0.163	0.108	1.09	79	2	103	1.6	-0.00452	81	157	74	72
217	34.518	0.158	0.103	1.07	79	2	102	1.6	-0.01153	81	157	74	71
218	34.680	0.162	0.103	1.00	79	2	105	1.6	-0.02184	81	157	74	71
219	34.840	0.160	0.104	1.06	79	2	103	1.6	-0.01501	81	157	74	71
220	35.002	0.162	0.109	1.02	78	2	102	1.6	0.00046	81	157	74	71
221	35.161	0.159	0.111	1.05	78	2	99	1.5	-0.03588	80	157	74	71
222	35.322	0.161	0.115	1.04	78	2	99	1.5	0.00115	80	157	74	71
223	35.482	0.160	0.118	1.04	78	2	97	1.5	0.00038	80	157	74	71
224	35.643	0.161	0.118	1.06	78	2	97	1.5	-0.01746	80	157	73	71
225	35.803	0.160	0.114	1.03	78	2	98	1.5	-0.02776	80	157	73	71
226	35.966	0.163	0.111	1.00	78	2	102	1.5	-0.00224	80	157	73	71
227	36.125	0.159	0.111	0.99	77	2	99	1.5	-0.00174	80	157	73	71
228	36.286	0.161	0.108	1.01	77	2	102	1.5	-0.01509	80	157	73	70
229	36.445	0.159	0.111	1.03	77	2	99	1.5	0.00145	80	157	73	70
230	36.607	0.162	0.110	1.05	77	2	101	1.5	-0.01983	80	157	73	70

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
231	36.767	0.160	0.115	1.05	77	2	98	1.4	-0.03027	80	157	73	70
232	36.928	0.161	0.119	0.97	77	2	97	1.4	-0.01826	79	157	73	70
233	37.088	0.160	0.119	1.03	77	2	96	1.4	-0.0054	79	157	73	70
234	37.248	0.160	0.113	1.03	77	2	99	1.4	-0.02191	79	157	73	69
235	37.410	0.162	0.113	1.02	77	2	100	1.4	-0.00102	79	157	73	70
236	37.570	0.160	0.112	1.04	77	2	99	1.4	-0.00066	79	157	73	70
237	37.730	0.160	0.111	1.05	77	2	100	1.3	-0.03484	79	157	73	69
238	37.891	0.161	0.114	1.04	77	2	99	1.3	-0.01126	79	157	73	70
239	38.054	0.163	0.118	1.05	77	2	99	1.3	-0.02488	79	157	73	69
240	38.213	0.159	0.122	0.99	77	2	95	1.3	0.00159	79	157	73	69
241	38.374	0.161	0.117	1.06	77	2	98	1.3	-0.00282	79	157	73	69
242	38.534	0.160	0.114	1.01	77	2	98	1.3	0.00758	79	157	72	70
243	38.696	0.162	0.111	1.00	77	2	101	1.3	-0.06623	79	157	72	70
244	38.855	0.159	0.111	1.05	77	2	99	1.2	-0.00399	79	157	72	69
245	39.016	0.161	0.104	1.01	77	2	103	1.2	-0.02299	79	157	72	69
246	39.175	0.159	0.108	1.05	77	2	100	1.2	-0.01912	78	156	72	69
247	39.336	0.161	0.108	1.03	77	2	102	1.2	-0.00212	78	156	72	69
248	39.494	0.158	0.112	1.04	77	2	98	1.2	-0.02443	78	156	72	69
249	39.657	0.163	0.113	1.08	77	2	101	1.2	-0.02214	78	157	72	69
250	39.816	0.159	0.115	1.05	77	2	97	1.2	0.00438	78	157	72	69
251	39.978	0.162	0.112	1.05	77	2	100	1.1	-0.02557	78	157	72	69
252	40.137	0.159	0.113	1.01	77	2	98	1.1	-0.01884	78	157	72	69
253	40.298	0.161	0.108	1.02	77	2	102	1.1	-0.03169	78	157	72	69
254	40.457	0.159	0.104	1.03	77	2	102	1.1	-0.02979	78	157	72	69
255	40.618	0.161	0.106	1.01	76	2	103	1.1	0.00706	78	157	71	69
256	40.778	0.160	0.110	1.06	76	2	100	1.0	-0.02413	78	156	71	69
257	40.939	0.161	0.112	1.04	76	2	100	1.0	0.0064	77	156	71	69
258	41.101	0.162	0.116	1.05	76	2	99	1.0	-0.05722	77	155	71	68
259	41.262	0.161	0.121	1.05	76	2	96	1.0	-0.00601	77	155	71	68
260	41.423	0.161	0.123	1.03	76	2	95	1.0	0.0041	77	155	71	68
261	41.582	0.159	0.120	1.02	76	2	95	1.0	0.00098	77	154	71	68
262	41.745	0.163	0.117	1.05	76	2	99	1.0	-0.00688	77	154	70	68
263	41.905	0.160	0.119	1.01	76	2	96	1.0	0.00446	77	154	70	69

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
264	42.065	0.160	0.116	1.05	76	2	98	1.0	-0.02995	77	154	70	68
265	42.227	0.162	0.114	1.07	76	2	99	0.9	-0.00685	77	154	70	68
266	42.388	0.161	0.114	1.08	76	2	99	0.9	-0.04435	77	153	70	68
267	42.547	0.159	0.114	1.04	75	2	98	0.9	-0.01996	76	153	70	68
268	42.710	0.163	0.110	1.01	75	2	102	0.9	-0.0005	76	153	70	68
269	42.868	0.158	0.111	1.06	75	2	99	0.9	-0.02571	76	153	70	68
270	43.029	0.161	0.109	1.01	75	2	101	0.8	-0.01748	76	154	70	68
271	43.187	0.158	0.108	1.01	76	2	100	0.8	0.00216	76	154	70	68
272	43.348	0.161	0.108	1.00	76	2	101	0.8	-0.03493	76	155	70	68
273	43.508	0.160	0.106	1.04	76	2	102	0.8	-0.04613	76	156	70	67
274	43.669	0.161	0.107	1.04	75	2	102	0.8	0.02696	76	157	70	67
275	43.828	0.159	0.108	1.03	75	2	101	0.7	-0.04827	76	158	70	67
276	43.988	0.160	0.110	1.02	75	2	100	0.7	0.00248	76	158	70	68
277	44.148	0.160	0.108	1.04	75	2	101	0.7	-0.00116	76	158	70	67
278	44.308	0.160	0.113	1.02	75	2	99	0.7	-0.04669	76	158	70	67
279	44.468	0.160	0.110	1.04	75	2	100	0.7	0.00318	76	159	70	67
280	44.626	0.158	0.109	1.08	75	2	99	0.7	-0.01513	76	159	70	68
281	44.787	0.161	0.107	1.04	75	2	102	0.7	-0.02586	76	159	70	68
282	44.945	0.158	0.110	1.01	75	2	99	0.7	-0.00147	76	159	71	68
283	45.106	0.161	0.105	1.01	75	2	103	0.6	-0.0339	76	159	71	68
284	45.264	0.158	0.105	1.05	75	2	101	0.6	-0.01096	76	159	71	69
285	45.425	0.161	0.109	1.05	75	2	101	0.6	-0.0188	76	160	71	69
286	45.584	0.159	0.112	1.01	75	2	99	0.6	-0.02574	77	160	71	69
287	45.745	0.161	0.113	1.03	75	2	100	0.5	-0.02484	77	160	71	69
288	45.904	0.159	0.114	1.05	75	2	98	0.5	-0.00348	77	160	71	69
289	46.064	0.160	0.113	1.05	75	2	99	0.5	-0.04965	77	159	71	69
290	46.223	0.159	0.112	1.02	75	2	99	0.5	0.00044	77	159	71	70
291	46.383	0.160	0.110	1.06	75	2	101	0.5	0.00853	77	158	71	69
292	46.544	0.161	0.112	1.05	75	2	100	0.5	-0.02713	77	158	71	70
293	46.701	0.157	0.112	0.98	75	2	98	0.4	-0.02629	77	157	71	70
294	46.864	0.163	0.113	0.99	75	2	101	0.4	0.00576	77	157	71	70
295	47.022	0.158	0.114	1.03	75	2	98	0.4	-0.04668	78	156	71	70
296	47.184	0.162	0.116	1.04	75	2	99	0.4	-0.00224	78	156	71	70

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
297	47.342	0.158	0.116	1.03	75	2	96	0.4	-0.01576	78	156	71	70
298	47.501	0.159	0.118	1.04	75	2	97	0.4	-0.02451	78	156	71	71
299	47.660	0.159	0.117	1.02	75	2	97	0.3	-0.02537	78	155	71	71
300	47.818	0.158	0.118	1.05	76	2	96	0.3	-0.03826	78	155	72	71
301	47.979	0.161	0.118	1.07	76	2	97	0.3	0.01594	78	157	72	71
302	48.137	0.158	0.113	1.03	76	2	98	0.3	-0.01796	79	158	72	71
303	48.298	0.161	0.115	1.01	76	2	99	0.3	0.00298	79	160	72	70
304	48.456	0.158	0.115	1.00	77	2	97	0.3	-0.04447	79	161	72	71
305	48.616	0.160	0.109	1.05	77	2	101	0.2	-0.05782	79	162	72	71
306	48.775	0.159	0.108	1.05	77	2	100	0.2	-0.00288	79	163	72	70
307	48.934	0.159	0.111	1.02	77	2	99	0.2	-0.02881	79	163	72	71
308	49.095	0.161	0.108	1.00	77	2	102	0.2	-0.01109	79	164	72	71
309	49.253	0.158	0.109	1.03	77	2	99	0.1	-0.01856	79	165	72	71
310	49.413	0.160	0.111	1.05	77	2	100	0.1	-0.02339	79	165	72	71
311	49.572	0.159	0.110	1.01	77	2	99	0.1	-0.003	79	165	72	71
312	49.735	0.163	0.108	1.04	77	2	103	0.1	-0.03318	79	165	72	71
313	49.892	0.157	0.108	1.01	77	2	99	0.1	-0.00819	79	164	72	71
314	50.052	0.160	0.107	1.01	77	2	102	0.0	-0.03071	79	164	72	71
315	50.212	0.160	0.106	0.99	77	2	102	0.0	0.00557	79	164	72	71
316	50.370	0.158	0.105	1.05	77	2	101	0.0	-0.04	79	163	72	72
Avg/Tot	50.370	0.159	0.110	1.02	80	2.00	100			88	224	77	73.8

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.000		0.00	76	2		78	0.000	3.08	0.91
1	0.145	0.145	1.10	76	2	88	79	-0.030	1.13	0.20
2	0.301	0.156	1.07	76	2	95	79	-0.050	6.97	1.06
3	0.460	0.159	1.07	76	2	97	79	-0.060	9.33	0.78
4	0.620	0.160	1.09	76	2	100	79	-0.060	11.91	0.39
5	0.780	0.160	1.07	76	2	101	80	-0.060	13.56	0.26
6	0.936	0.156	1.07	76	2	97	80	-0.060	13.33	0.58
7	1.092	0.156	1.06	76	2	98	80	-0.070	13.98	0.81
8	1.251	0.159	1.04	76	2	102	80	-0.070	14.36	0.70
9	1.411	0.160	1.07	77	2	101	80	-0.070	14.13	0.67
10	1.569	0.158	1.07	77	2	100	80	-0.060	13.92	0.61
11	1.728	0.159	1.16	77	2	101	80	-0.070	14.51	0.73
12	1.893	0.165	1.15	77	2	103	81	-0.070	14.72	0.69
13	2.060	0.167	1.11	77	2	103	81	-0.080	14.56	0.64
14	2.232	0.172	1.14	77	2	106	81	-0.060	14.86	0.56
15	2.397	0.165	1.13	77	2	101	81	-0.070	15.03	0.54
16	2.562	0.165	1.11	78	2	103	81	-0.080	14.86	0.44
17	2.728	0.166	1.11	78	2	103	81	-0.070	15.00	0.34
18	2.896	0.168	1.11	78	2	105	82	-0.070	14.84	0.30
19	3.059	0.163	1.07	78	2	101	82	-0.080	14.91	0.29
20	3.225	0.166	1.12	78	2	102	82	-0.070	15.11	0.28
21	3.390	0.165	1.10	78	2	100	82	-0.080	15.09	0.27
22	3.556	0.166	1.12	79	2	102	82	-0.070	15.27	0.25
23	3.721	0.165	1.10	79	2	101	82	-0.070	15.27	0.27
24	3.883	0.162	1.11	79	2	101	83	-0.070	15.13	0.34
25	4.048	0.165	1.08	79	2	105	83	-0.080	15.03	0.39
26	4.211	0.163	1.08	79	2	104	83	-0.070	14.54	0.31
27	4.376	0.165	1.08	79	2	105	83	-0.070	14.29	0.27
28	4.541	0.165	1.09	80	2	105	83	-0.070	13.84	0.99
29	4.705	0.164	1.08	80	2	104	83	-0.070	13.09	0.58
30	4.872	0.167	1.09	80	2	106	83	-0.060	12.16	0.20
31	5.035	0.163	1.08	80	2	101	83	-0.060	11.48	0.14
32	5.200	0.165	1.10	80	2	103	83	-0.060	10.86	0.22



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
33	5.365	0.165	1.07	80	2	101	83	-0.050	10.56	0.27
34	5.528	0.163	1.10	81	2	100	83	-0.060	10.64	0.31
35	5.693	0.165	1.11	81	2	100	83	-0.050	10.07	0.32
36	5.858	0.165	1.09	81	2	101	83	-0.060	10.06	0.40
37	6.025	0.167	1.08	81	2	101	83	-0.060	9.83	0.41
38	6.189	0.164	1.10	81	2	100	84	-0.060	9.95	0.57
39	6.352	0.163	1.07	82	2	98	84	-0.050	9.70	0.53
40	6.518	0.166	1.09	82	2	99	84	-0.050	9.84	0.52
41	6.681	0.163	1.07	82	2	98	83	-0.050	9.11	0.45
42	6.843	0.162	1.10	82	2	98	83	-0.050	9.36	0.44
43	7.011	0.168	1.06	82	2	101	83	-0.050	9.27	0.37
44	7.176	0.165	1.12	82	2	100	83	-0.060	8.81	0.33
45	7.341	0.165	1.13	82	2	102	83	-0.050	9.20	0.45
46	7.505	0.164	1.13	82	2	101	83	-0.050	8.90	0.46
47	7.670	0.165	1.13	82	2	101	83	-0.050	9.46	0.51
48	7.831	0.161	1.10	82	2	98	83	-0.050	9.00	0.49
49	7.999	0.168	1.12	82	2	102	83	-0.050	9.12	0.47
50	8.164	0.165	1.11	82	2	99	83	-0.050	9.45	0.52
51	8.332	0.168	1.14	83	2	99	83	-0.040	9.72	0.54
52	8.495	0.163	1.13	83	2	97	83	-0.040	9.74	0.57
53	8.665	0.170	1.15	83	2	101	83	-0.050	10.21	0.60
54	8.829	0.164	1.13	83	2	98	83	-0.050	10.70	0.54
55	8.996	0.167	1.12	83	2	101	83	-0.050	11.46	0.44
56	9.162	0.166	1.13	83	2	101	83	-0.060	11.52	0.31
57	9.330	0.168	1.13	83	2	101	83	-0.050	11.49	0.33
58	9.494	0.164	1.14	83	2	98	83	-0.050	11.85	0.31
59	9.659	0.165	1.11	83	2	100	83	-0.030	11.75	0.27
60	9.824	0.165	1.13	83	2	100	83	-0.040	11.74	0.36
61	9.988	0.164	1.12	83	2	100	83	-0.060	11.87	0.38
62	10.150	0.162	1.09	83	2	99	83	-0.060	11.68	0.43
63	10.312	0.162	1.11	83	2	100	83	-0.040	11.74	0.40
64	10.474	0.162	1.13	83	2	99	83	-0.050	11.85	0.44
65	10.635	0.161	1.11	83	2	97	83	-0.050	11.88	0.45

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
66	10.798	0.163	1.12	83	2	100	83	-0.050	11.83	0.43
67	10.962	0.164	1.12	83	2	100	83	-0.050	11.96	0.43
68	11.129	0.167	1.13	83	2	102	83	-0.050	11.97	0.44
69	11.294	0.165	1.10	83	2	102	83	-0.050	11.34	0.42
70	11.462	0.168	1.15	83	2	104	83	-0.050	11.56	0.42
71	11.625	0.163	1.10	83	2	101	83	-0.050	11.25	0.39
72	11.795	0.170	1.11	83	2	106	83	-0.050	11.40	0.35
73	11.962	0.167	1.11	83	2	105	83	-0.040	11.79	0.34
74	12.133	0.171	1.10	83	2	107	83	-0.050	11.41	0.33
75	12.298	0.165	1.13	83	2	101	83	-0.050	11.37	0.37
76	12.467	0.169	1.15	83	2	103	83	-0.050	11.47	0.35
77	12.632	0.165	1.12	83	2	101	83	-0.050	10.87	0.37
78	12.798	0.166	1.13	83	2	100	83	-0.050	10.86	0.35
79	12.962	0.164	1.11	83	2	97	83	-0.050	10.61	0.26
80	13.129	0.167	1.13	83	2	102	83	-0.040	10.82	0.34
81	13.298	0.169	1.14	83	2	102	83	-0.040	10.47	0.31
82	13.467	0.169	1.12	83	2	103	83	-0.040	10.10	0.33
83	13.634	0.167	1.12	83	2	101	83	-0.050	10.19	0.31
84	13.800	0.166	1.14	83	2	103	82	-0.050	9.83	0.34
85	13.970	0.170	1.11	83	2	103	82	-0.040	9.47	0.41
86	14.135	0.165	1.14	83	2	101	82	-0.040	9.22	0.55
87	14.307	0.172	1.14	83	2	104	82	-0.030	8.80	0.56
88	14.468	0.161	1.10	83	2	98	82	-0.040	8.39	0.61
89	14.637	0.169	1.14	83	2	103	82	-0.050	7.98	0.77
90	14.805	0.168	1.12	83	2	102	82	-0.040	7.68	0.73
91	14.971	0.166	1.12	83	2	100	82	-0.040	7.48	0.75
92	15.141	0.170	1.11	83	2	101	82	-0.030	7.13	0.72
93	15.309	0.168	1.10	83	2	100	82	-0.040	6.99	0.80
94	15.472	0.163	1.14	83	2	96	82	-0.030	6.77	0.90
95	15.637	0.165	1.13	83	2	98	82	-0.040	6.70	0.97
96	15.807	0.170	1.12	83	2	101	82	-0.030	6.60	1.01
97	15.970	0.163	1.16	83	2	96	82	-0.030	6.49	1.05
98	16.139	0.169	1.10	83	2	101	82	-0.040	6.45	1.06

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
99	16.308	0.169	1.11	83	2	102	82	-0.030	6.29	1.10
100	16.472	0.164	1.14	83	2	99	81	-0.030	6.30	1.17
101	16.641	0.169	1.14	82	2	102	81	-0.020	6.18	1.16
102	16.812	0.171	1.13	83	2	105	81	-0.030	6.00	1.22
103	16.986	0.174	1.15	83	2	105	81	-0.020	6.01	1.24
104	17.157	0.171	1.14	82	2	103	81	-0.030	6.01	1.29
105	17.329	0.172	1.11	82	2	103	81	-0.030	6.02	1.31
106	17.495	0.166	1.14	82	2	99	81	-0.030	5.94	1.25
107	17.660	0.165	1.11	82	2	98	81	-0.030	6.00	1.27
108	17.828	0.168	1.11	82	2	101	81	-0.030	5.94	1.25
109	18.000	0.172	1.14	82	2	102	81	-0.030	5.97	1.24
110	18.171	0.171	1.13	82	2	101	81	-0.030	5.94	1.23
111	18.335	0.164	1.13	82	2	99	80	-0.030	6.04	1.28
112	18.501	0.166	1.13	82	2	98	80	-0.020	6.14	1.25
113	18.669	0.168	1.12	82	2	98	80	-0.020	5.98	1.24
114	18.840	0.171	1.15	82	2	103	80	-0.030	5.95	1.23
115	19.016	0.176	1.13	82	2	106	80	-0.020	5.92	1.34
116	19.187	0.171	1.13	82	2	102	80	-0.010	5.68	1.39
117	19.356	0.169	1.14	82	2	101	80	-0.020	5.46	1.41
118	19.522	0.166	1.15	82	2	99	80	-0.020	5.52	1.47
119	19.692	0.170	1.14	82	2	100	80	-0.020	5.28	1.55
120	19.861	0.169	1.13	82	2	100	80	-0.020	5.35	1.52
121	20.031	0.170	1.14	82	2	99	80	-0.030	5.30	1.55
122	20.200	0.169	1.14	82	2	101	80	-0.020	5.63	1.40
123	20.363	0.163	1.12	82	2	97	80	-0.030	5.37	1.48
124	20.528	0.165	1.14	82	2	99	80	-0.020	5.14	1.52
125	20.696	0.168	1.13	82	2	100	80	-0.020	5.05	1.49
126	20.862	0.166	1.16	82	2	100	80	-0.010	5.03	1.63
127	21.030	0.168	1.14	82	2	99	79	-0.020	4.84	1.56
128	21.194	0.164	1.15	81	2	98	79	-0.020	5.15	1.65
129	21.362	0.168	1.15	82	2	99	79	-0.020	5.00	1.59
130	21.537	0.175	1.12	81	2	104	79	-0.020	4.99	1.57
131	21.709	0.172	1.12	81	2	101	79	-0.030	4.97	1.55

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
132	21.885	0.176	1.14	81	2	105	79	-0.030	5.06	1.56
133	22.056	0.171	1.15	81	2	103	79	-0.020	5.03	1.53
134	22.229	0.173	1.14	81	2	103	79	-0.020	4.93	1.50
135	22.404	0.175	1.12	81	2	103	79	-0.020	4.92	1.52
136	22.572	0.168	1.15	81	2	100	79	-0.030	4.91	1.51
137	22.745	0.173	1.12	81	2	103	79	-0.020	5.00	1.53
138	22.918	0.173	1.13	81	2	102	79	-0.020	4.94	1.50
139	23.086	0.168	1.12	81	2	100	79	-0.020	5.06	1.53
140	23.251	0.165	1.15	81	2	98	79	-0.020	5.05	1.52
141	23.416	0.165	1.14	81	2	97	78	-0.020	5.03	1.50
142	23.587	0.171	1.17	81	2	100	78	-0.010	5.06	1.51
143	23.753	0.166	1.13	81	2	98	78	-0.020	5.05	1.51
144	23.921	0.168	1.13	81	2	99	78	-0.020	5.03	1.52
145	24.093	0.172	1.15	81	2	102	78	-0.010	5.08	1.53
146	24.263	0.170	1.14	81	2	100	78	-0.020	5.07	1.50
147	24.435	0.172	1.14	81	2	100	78	-0.020	4.96	1.45
148	24.610	0.175	1.13	81	2	101	78	-0.020	4.90	1.43
149	24.780	0.170	1.13	81	2	98	78	-0.020	4.99	1.46
150	24.957	0.177	1.13	80	2	102	78	-0.020	5.05	1.47
151	25.123	0.166	1.10	80	2	98	78	-0.030	5.15	1.50
152	25.292	0.169	1.14	80	2	101	78	-0.020	4.90	1.43
153	25.450	0.158	1.09	80	2	95	78	-0.020	5.05	1.46
154	25.613	0.163	1.06	80	2	97	78	-0.010	5.08	1.41
155	25.782	0.169	1.13	80	2	102	78	-0.020	5.20	1.32
156	25.949	0.167	1.11	80	2	100	78	-0.020	5.27	1.35
157	26.114	0.165	1.12	80	2	97	78	-0.020	5.47	1.38
158	26.282	0.168	1.13	80	2	100	78	-0.020	5.33	1.30
159	26.445	0.163	1.10	80	2	97	78	-0.020	5.41	1.31
160	26.613	0.168	1.11	80	2	100	78	-0.020	5.45	1.30
161	26.779	0.166	1.13	80	2	101	78	-0.020	5.43	1.30
162	26.944	0.165	1.13	80	2	102	78	-0.020	5.40	1.29
163	27.111	0.167	1.09	79	2	101	78	-0.020	5.49	1.29
164	27.276	0.165	1.10	79	2	101	77	-0.020	5.37	1.27

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
165	27.444	0.168	1.12	79	2	102	77	-0.020	5.39	1.27
166	27.608	0.164	1.10	79	2	96	77	-0.010	5.28	1.25
167	27.777	0.169	1.11	79	2	98	77	-0.020	5.46	1.32
168	27.943	0.166	1.12	79	2	97	77	-0.020	5.21	1.27
169	28.113	0.170	1.10	79	2	99	77	-0.010	5.25	1.29
170	28.281	0.168	1.11	79	2	98	77	-0.020	5.32	1.31
171	28.450	0.169	1.11	79	2	100	77	-0.010	5.31	1.35
172	28.615	0.165	1.09	79	2	99	77	-0.010	5.26	1.35
173	28.783	0.168	1.09	79	2	100	77	-0.010	5.25	1.36
174	28.949	0.166	1.12	79	2	100	77	-0.020	5.15	1.33
175	29.117	0.168	1.13	79	2	101	77	-0.020	5.16	1.34
176	29.280	0.163	1.11	79	2	97	77	-0.020	5.32	1.38
177	29.450	0.170	1.09	79	2	103	77	-0.020	5.09	1.34
178	29.615	0.165	1.12	79	2	100	77	-0.020	5.18	1.37
179	29.780	0.165	1.11	79	2	99	77	-0.010	5.15	1.37
180	29.947	0.167	1.10	79	2	99	77	-0.020	5.16	1.38
181	30.115	0.168	1.10	80	2	99	77	-0.010	5.09	1.35
182	30.284	0.169	1.11	79	2	100	77	-0.020	5.19	1.39
183	30.451	0.167	1.12	79	2	99	77	-0.020	5.21	1.39
184	30.616	0.165	1.08	79	2	98	77	-0.010	5.51	1.28
185	30.781	0.165	1.12	79	2	99	77	-0.020	5.54	1.28
186	30.948	0.167	1.09	79	2	102	77	-0.020	5.53	1.29
187	31.114	0.166	1.11	79	2	100	77	-0.020	5.49	1.28
188	31.284	0.170	1.12	79	2	104	77	-0.020	5.29	1.35
189	31.451	0.167	1.11	79	2	102	77	-0.020	5.54	1.47
190	31.622	0.171	1.14	79	2	104	77	-0.010	5.32	1.40
191	31.788	0.166	1.10	79	2	99	77	-0.020	5.35	1.40
192	31.958	0.170	1.13	79	2	103	77	-0.020	5.36	1.39
193	32.120	0.162	1.12	79	2	96	77	-0.020	5.29	1.39
194	32.291	0.171	1.11	79	2	101	77	-0.020	5.22	1.45
195	32.456	0.165	1.11	79	2	98	77	-0.020	5.36	1.52
196	32.623	0.167	1.13	79	2	98	77	-0.010	5.35	1.50
197	32.789	0.166	1.12	79	2	96	77	-0.020	5.31	1.50

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
198	32.957	0.168	1.12	79	2	97	77	-0.020	5.26	1.53
199	33.123	0.166	1.11	79	2	97	77	-0.010	5.21	1.50
200	33.290	0.167	1.11	79	2	96	77	-0.020	5.28	1.51
201	33.456	0.166	1.10	79	2	95	77	-0.020	5.32	1.53
202	33.623	0.167	1.12	79	2	98	77	-0.030	5.41	1.57
203	33.789	0.166	1.13	79	2	97	77	-0.010	5.39	1.56
204	33.959	0.170	1.08	79	2	99	77	-0.020	5.24	1.51
205	34.126	0.167	1.10	79	2	98	77	-0.010	5.20	1.57
206	34.296	0.170	1.12	79	2	102	77	-0.020	5.23	1.59
207	34.462	0.166	1.08	79	2	100	77	-0.030	5.25	1.62
208	34.630	0.168	1.13	79	2	102	77	-0.020	5.18	1.59
209	34.795	0.165	1.13	79	2	99	76	-0.010	5.30	1.63
210	34.963	0.168	1.11	79	2	102	76	-0.020	5.22	1.61
211	35.129	0.166	1.13	79	2	99	76	-0.020	5.09	1.51
212	35.295	0.166	1.11	79	2	98	76	-0.010	5.40	1.57
213	35.463	0.168	1.11	79	2	98	76	-0.020	5.20	1.48
214	35.631	0.168	1.12	79	2	101	76	-0.010	5.34	1.52
215	35.798	0.167	1.11	79	2	100	76	-0.020	5.32	1.51
216	35.964	0.166	1.12	79	2	100	76	-0.010	5.30	1.50
217	36.128	0.164	1.12	79	2	101	76	-0.010	5.32	1.47
218	36.294	0.166	1.07	79	2	103	76	-0.020	5.34	1.47
219	36.463	0.169	1.12	79	2	104	76	-0.010	5.23	1.38
220	36.631	0.168	1.11	79	2	101	75	-0.020	5.12	1.33
221	36.799	0.168	1.14	79	2	100	75	-0.010	5.26	1.38
222	36.966	0.167	1.10	78	2	98	75	-0.010	5.29	1.39
223	37.133	0.167	1.11	78	2	96	75	-0.020	5.26	1.39
224	37.299	0.166	1.11	78	2	96	75	-0.010	5.24	1.37
225	37.469	0.170	1.13	78	2	100	75	-0.020	5.43	1.43
226	37.635	0.166	1.11	78	2	99	74	-0.010	5.17	1.36
227	37.804	0.169	1.12	78	2	100	74	-0.020	5.27	1.41
228	37.969	0.165	1.09	77	2	100	74	-0.030	5.27	1.41
229	38.138	0.169	1.13	77	2	101	74	-0.020	5.27	1.44
230	38.306	0.168	1.11	77	2	100	74	-0.010	5.25	1.43

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
231	38.472	0.166	1.12	77	2	97	74	-0.030	5.41	1.49
232	38.638	0.166	1.14	77	2	96	74	-0.020	5.35	1.45
233	38.805	0.167	1.13	77	2	96	74	-0.020	5.43	1.48
234	38.974	0.169	1.12	77	2	100	74	-0.020	5.57	1.44
235	39.140	0.166	1.11	77	2	98	74	-0.010	5.71	1.40
236	39.309	0.169	1.12	77	2	100	74	-0.010	5.72	1.39
237	39.475	0.166	1.12	77	2	99	74	-0.020	5.81	1.38
238	39.648	0.173	1.13	77	2	102	74	-0.020	5.81	1.38
239	39.815	0.167	1.11	77	2	97	74	-0.020	5.88	1.41
240	39.985	0.170	1.14	77	2	97	74	-0.020	5.80	1.39
241	40.151	0.166	1.08	77	2	96	74	-0.030	5.84	1.38
242	40.318	0.167	1.12	77	2	98	74	-0.020	5.81	1.39
243	40.485	0.167	1.12	77	2	99	74	-0.020	5.91	1.40
244	40.655	0.170	1.11	77	2	101	74	-0.020	5.91	1.38
245	40.824	0.169	1.13	77	2	104	74	-0.020	5.95	1.37
246	40.990	0.166	1.12	77	2	100	74	-0.020	5.83	1.34
247	41.163	0.173	1.11	77	2	104	73	-0.010	6.01	1.35
248	41.328	0.165	1.12	77	2	98	73	-0.020	6.02	1.32
249	41.497	0.169	1.12	77	2	100	73	-0.020	6.06	1.30
250	41.661	0.164	1.13	77	2	96	73	-0.010	6.15	1.33
251	41.831	0.170	1.13	77	2	101	73	-0.020	6.09	1.31
252	41.999	0.168	1.11	77	2	99	73	-0.020	5.99	1.29
253	42.165	0.166	1.12	77	2	100	73	-0.020	6.04	1.30
254	42.331	0.166	1.11	77	2	102	73	-0.020	5.90	1.27
255	42.498	0.167	1.12	77	2	102	73	-0.010	5.98	1.32
256	42.667	0.169	1.09	76	2	101	73	-0.020	5.46	1.40
257	42.832	0.165	1.13	76	2	98	72	-0.020	5.50	1.39
258	43.001	0.169	1.10	76	2	98	72	-0.020	5.42	1.37
259	43.167	0.166	1.11	76	2	95	72	-0.020	5.43	1.37
260	43.338	0.171	1.14	76	2	97	72	-0.020	5.20	1.31
261	43.507	0.169	1.12	76	2	97	72	-0.020	5.33	1.34
262	43.676	0.169	1.13	76	2	98	72	-0.010	5.41	1.35
263	43.844	0.168	1.13	76	2	96	72	-0.020	5.45	1.36

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
264	44.011	0.167	1.14	76	2	97	72	-0.020	5.48	1.35
265	44.177	0.166	1.11	76	2	97	72	-0.030	5.37	1.32
266	44.344	0.167	1.10	76	2	98	72	-0.020	5.50	1.39
267	44.511	0.167	1.14	76	2	98	72	-0.010	5.48	1.38
268	44.677	0.166	1.12	76	2	99	71	-0.020	5.51	1.39
269	44.845	0.168	1.12	76	2	100	71	-0.020	5.39	1.35
270	45.010	0.165	1.08	76	2	99	71	-0.010	5.42	1.36
271	45.179	0.169	1.12	76	2	102	72	-0.020	5.51	1.40
272	45.344	0.165	1.14	75	2	100	72	-0.020	5.46	1.50
273	45.510	0.166	1.13	75	2	101	72	-0.020	5.46	1.54
274	45.676	0.166	1.13	75	2	101	72	-0.020	5.37	1.53
275	45.845	0.169	1.13	75	2	102	72	-0.010	5.51	1.55
276	46.010	0.165	1.11	74	2	99	71	-0.010	5.38	1.51
277	46.177	0.167	1.14	74	2	101	71	-0.010	5.40	1.52
278	46.345	0.168	1.10	74	2	99	71	-0.020	5.52	1.51
279	46.509	0.164	1.13	74	2	98	72	-0.020	5.28	1.43
280	46.679	0.170	1.12	74	2	102	71	-0.020	5.47	1.47
281	46.847	0.168	1.12	74	2	102	72	-0.020	5.52	1.50
282	47.014	0.167	1.11	74	2	100	72	-0.020	5.47	1.48
283	47.181	0.167	1.13	74	2	103	72	-0.020	5.60	1.52
284	47.349	0.168	1.12	74	2	103	72	-0.010	5.51	1.49
285	47.514	0.165	1.11	74	2	99	72	-0.020	5.45	1.46
286	47.685	0.171	1.12	74	2	102	72	-0.020	5.37	1.47
287	47.850	0.165	1.13	74	2	98	72	-0.020	5.56	1.53
288	48.018	0.168	1.10	74	2	99	72	-0.020	5.62	1.54
289	48.188	0.170	1.12	74	2	101	72	-0.010	5.40	1.50
290	48.353	0.165	1.13	75	2	98	72	-0.020	5.39	1.49
291	48.522	0.169	1.10	75	2	101	72	-0.020	5.40	1.54
292	48.689	0.167	1.12	75	2	99	72	-0.020	5.43	1.55
293	48.858	0.169	1.11	75	2	100	72	-0.020	5.44	1.57
294	49.024	0.166	1.11	75	2	98	72	-0.010	5.38	1.56
295	49.191	0.167	1.11	75	2	99	72	-0.020	5.33	1.55
296	49.355	0.164	1.14	75	2	96	73	-0.020	5.43	1.58



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
297	49.522	0.167	1.14	75	2	97	73	-0.020	5.40	1.61
298	49.689	0.167	1.13	75	2	97	73	-0.020	5.47	1.63
299	49.857	0.168	1.10	75	2	98	73	-0.010	5.46	1.63
300	50.024	0.167	1.12	76	2	96	73	-0.010	5.61	1.67
301	50.193	0.169	1.12	76	2	98	73	-0.020	5.67	1.58
302	50.360	0.167	1.12	76	2	99	73	-0.020	5.77	1.61
303	50.528	0.168	1.11	76	2	98	73	-0.010	6.20	1.31
304	50.693	0.165	1.13	76	2	97	73	-0.030	6.27	1.19
305	50.860	0.167	1.12	76	2	101	74	-0.010	6.33	1.19
306	51.028	0.168	1.14	76	2	101	74	-0.020	6.29	1.17
307	51.196	0.168	1.12	77	2	100	74	-0.020	6.39	1.21
308	51.361	0.165	1.11	77	2	99	74	-0.030	6.29	1.17
309	51.531	0.170	1.12	77	2	102	74	-0.020	6.27	1.21
310	51.695	0.164	1.11	77	2	98	74	-0.020	6.15	1.25
311	51.865	0.170	1.11	77	2	102	74	-0.020	6.22	1.24
312	52.030	0.165	1.12	77	2	100	74	-0.010	6.04	1.36
313	52.197	0.167	1.12	77	2	101	74	-0.020	5.78	1.41
314	52.360	0.163	1.13	77	2	99	74	-0.020	5.95	1.47
315	52.529	0.169	1.12	77	2	103	74	-0.020	5.77	1.42
316	52.694	0.165	1.10	77	2	101	74	-0.020	5.62	1.39
Avg/Tot	52.694	0.167	1.11	79	2.00	100	78	-0.030	7.20	1.13

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
0	454	371	435	279	416	391.0	N/A
1	451	454	428	292	416	408.2	N/A
2	448	450	420	289	415	404.4	N/A
3	445	446	412	302	414	403.8	N/A
4	442	442	405	333	413	407.0	N/A
5	439	438	398	378	413	413.2	N/A
6	435	435	393	425	412	420.0	N/A
7	432	431	390	469	411	426.6	N/A
8	428	428	386	508	409	431.8	N/A
9	425	425	384	548	408	438.0	N/A
10	422	422	381	582	407	442.8	N/A
11	419	419	378	610	405	446.2	N/A
12	417	417	376	637	404	450.2	N/A
13	415	415	373	657	402	452.4	N/A
14	413	413	371	678	400	455.0	N/A
15	412	411	369	695	399	457.2	N/A
16	411	410	367	704	397	457.8	N/A
17	411	409	365	721	396	460.4	N/A
18	411	408	364	733	394	462.0	N/A
19	411	408	363	738	392	462.4	N/A
20	412	407	362	742	391	462.8	N/A
21	413	407	361	753	389	464.6	N/A
22	414	407	360	759	388	465.6	N/A
23	415	408	360	760	386	465.8	N/A
24	416	408	359	762	384	465.8	N/A
25	418	408	359	774	383	468.4	N/A
26	419	409	359	781	381	469.8	N/A
27	421	410	359	785	380	471.0	N/A
28	422	412	360	783	379	471.2	N/A
29	424	414	361	781	377	471.4	N/A
30	426	416	361	772	376	470.2	N/A
31	431	418	365	720	374	461.6	N/A
32	434	420	367	696	373	458.0	N/A
33	436	421	367	676	372	454.4	N/A
34	438	423	367	656	371	451.0	N/A
35	439	424	366	636	370	447.0	N/A
36	440	425	365	618	368	443.2	N/A
37	440	425	363	601	367	439.2	N/A
38	440	426	361	586	366	435.8	N/A
39	440	426	360	573	365	432.8	N/A
40	439	426	358	561	364	429.6	N/A
41	438	426	356	551	363	426.8	N/A
42	437	426	355	538	362	423.6	N/A
43	436	426	353	528	361	420.8	N/A
44	436	425	351	519	360	418.2	N/A
45	434	425	350	508	359	415.2	N/A
46	433	424	348	499	358	412.4	N/A
47	431	424	347	491	357	410.0	N/A
48	430	423	346	485	356	408.0	N/A

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
49	429	422	344	479	355	405.8	N/A
50	428	421	343	470	354	403.2	N/A
51	426	421	342	464	353	401.2	N/A
52	425	420	341	458	352	399.2	N/A
53	424	420	340	455	351	398.0	N/A
54	423	420	340	451	350	396.8	N/A
55	422	419	339	449	349	395.6	N/A
56	422	419	339	451	348	395.8	N/A
57	421	419	338	456	347	396.2	N/A
58	421	419	338	457	346	396.2	N/A
59	420	419	337	462	345	396.6	N/A
60	420	420	337	463	344	396.8	N/A
61	420	420	337	469	344	398.0	N/A
62	419	420	337	471	343	398.0	N/A
63	419	420	337	472	342	398.0	N/A
64	419	421	337	476	341	398.8	N/A
65	419	421	337	478	340	399.0	N/A
66	418	421	337	479	339	398.8	N/A
67	418	421	337	480	338	398.8	N/A
68	418	422	338	481	338	399.4	N/A
69	418	422	338	482	337	399.4	N/A
70	418	422	339	482	336	399.4	N/A
71	418	423	339	483	335	399.6	N/A
72	418	423	340	482	335	399.6	N/A
73	418	423	340	483	334	399.6	N/A
74	419	424	341	482	333	399.8	N/A
75	419	424	342	480	333	399.6	N/A
76	418	424	343	479	332	399.2	N/A
77	419	425	344	478	331	399.4	N/A
78	419	425	344	474	331	398.6	N/A
79	419	425	345	469	330	397.6	N/A
80	419	426	346	466	329	397.2	N/A
81	419	426	347	463	329	396.8	N/A
82	419	426	348	460	328	396.2	N/A
83	419	427	349	457	328	396.0	N/A
84	418	427	350	455	327	395.4	N/A
85	418	427	352	451	327	395.0	N/A
86	417	428	353	446	326	394.0	N/A
87	416	428	355	441	326	393.2	N/A
88	416	428	356	432	326	391.6	N/A
89	414	428	358	426	325	390.2	N/A
90	414	429	358	416	325	388.4	N/A
91	413	429	359	404	325	386.0	N/A
92	412	429	360	395	324	384.0	N/A
93	411	429	360	384	324	381.6	N/A
94	410	428	361	375	324	379.6	N/A
95	408	428	361	367	323	377.4	N/A
96	407	428	361	358	323	375.4	N/A
97	406	427	361	349	323	373.2	N/A

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
98	405	427	361	342	323	371.6	N/A	
99	404	426	361	335	323	369.8	N/A	
100	402	425	361	328	322	367.6	N/A	
101	401	425	360	322	322	366.0	N/A	
102	399	424	359	317	322	364.2	N/A	
103	397	423	360	311	322	362.6	N/A	
104	396	422	358	305	322	360.6	N/A	
105	394	421	358	301	321	359.0	N/A	
106	392	420	357	296	321	357.2	N/A	
107	391	418	356	290	321	355.2	N/A	
108	389	417	355	286	321	353.6	N/A	
109	388	416	355	284	321	352.8	N/A	
110	386	415	354	279	321	351.0	N/A	
111	384	414	353	275	321	349.4	N/A	
112	383	413	353	273	321	348.6	N/A	
113	381	411	352	269	320	346.6	N/A	
114	380	410	351	267	320	345.6	N/A	
115	378	409	350	265	320	344.4	N/A	
116	377	408	350	261	320	343.2	N/A	
117	375	408	349	260	320	342.4	N/A	
118	373	407	348	257	320	341.0	N/A	
119	371	406	348	255	320	340.0	N/A	
120	370	405	347	251	320	338.6	N/A	
121	368	403	346	249	320	337.2	N/A	
122	367	402	346	246	320	336.2	N/A	
123	366	401	345	244	320	335.2	N/A	
124	364	400	344	241	319	333.6	N/A	
125	363	399	344	239	319	332.8	N/A	
126	361	398	343	236	319	331.4	N/A	
127	360	397	342	233	319	330.2	N/A	
128	358	396	341	231	319	329.0	N/A	
129	357	395	341	228	319	328.0	N/A	
130	355	394	340	226	319	326.8	N/A	
131	354	393	339	224	318	325.6	N/A	
132	353	392	338	222	318	324.6	N/A	
133	351	391	338	219	318	323.4	N/A	
134	350	389	337	218	318	322.4	N/A	
135	349	388	336	217	318	321.6	N/A	
136	347	387	336	215	318	320.6	N/A	
137	346	386	335	213	318	319.6	N/A	
138	345	385	334	212	318	318.8	N/A	
139	344	384	334	211	317	318.0	N/A	
140	343	383	333	210	317	317.2	N/A	
141	341	382	332	208	317	316.0	N/A	
142	340	381	332	207	317	315.4	N/A	
143	339	380	331	206	317	314.6	N/A	
144	338	379	331	205	317	314.0	N/A	
145	337	378	330	205	317	313.4	N/A	
146	336	377	330	204	317	312.8	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
147	334	376	329	203	317	311.8	N/A
148	334	375	329	202	317	311.4	N/A
149	332	374	328	202	317	310.6	N/A
150	331	373	328	202	317	310.2	N/A
151	330	372	327	201	316	309.2	N/A
152	330	371	327	200	316	308.8	N/A
153	329	370	326	200	316	308.2	N/A
154	328	369	326	199	316	307.6	N/A
155	327	368	325	199	316	307.0	N/A
156	326	367	325	198	316	306.4	N/A
157	325	367	324	198	316	306.0	N/A
158	324	366	324	198	316	305.6	N/A
159	324	365	323	197	315	304.8	N/A
160	323	364	323	198	315	304.6	N/A
161	322	363	322	197	315	303.8	N/A
162	322	362	322	197	315	303.6	N/A
163	321	361	321	197	315	303.0	N/A
164	320	360	321	197	315	302.6	N/A
165	320	360	320	196	315	302.2	N/A
166	319	359	320	196	315	301.8	N/A
167	319	358	320	196	314	301.4	N/A
168	318	357	319	196	314	300.8	N/A
169	318	356	319	196	314	300.6	N/A
170	317	356	318	196	314	300.2	N/A
171	317	355	318	195	314	299.8	N/A
172	316	354	317	195	314	299.2	N/A
173	316	354	317	195	314	299.2	N/A
174	316	353	317	194	314	298.8	N/A
175	315	352	316	194	314	298.2	N/A
176	315	352	316	194	314	298.2	N/A
177	315	351	316	194	313	297.8	N/A
178	314	350	315	193	313	297.0	N/A
179	314	350	315	193	313	297.0	N/A
180	314	349	315	193	313	296.8	N/A
181	314	348	315	193	313	296.6	N/A
182	313	348	315	192	313	296.2	N/A
183	313	347	315	192	313	296.0	N/A
184	313	346	314	191	313	295.4	N/A
185	313	346	314	191	313	295.4	N/A
186	313	345	314	191	312	295.0	N/A
187	313	345	314	191	312	295.0	N/A
188	313	344	315	191	312	295.0	N/A
189	312	343	315	189	312	294.2	N/A
190	312	343	315	190	312	294.4	N/A
191	312	342	315	189	312	294.0	N/A
192	313	342	315	189	312	294.2	N/A
193	312	341	315	188	312	293.6	N/A
194	312	340	316	187	312	293.4	N/A
195	312	340	316	187	312	293.4	N/A

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
196	313	339	316	187	312	293.4	N/A	
197	312	339	316	187	312	293.2	N/A	
198	312	338	317	187	312	293.2	N/A	
199	312	338	317	187	312	293.2	N/A	
200	313	337	317	186	312	293.0	N/A	
201	313	337	317	186	312	293.0	N/A	
202	313	336	318	186	312	293.0	N/A	
203	313	336	318	186	312	293.0	N/A	
204	313	335	318	186	312	292.8	N/A	
205	313	335	319	185	312	292.8	N/A	
206	313	334	319	185	312	292.6	N/A	
207	313	334	319	184	312	292.4	N/A	
208	313	333	320	184	312	292.4	N/A	
209	314	333	320	184	312	292.6	N/A	
210	314	332	320	183	312	292.2	N/A	
211	313	332	320	184	312	292.2	N/A	
212	314	332	320	183	312	292.2	N/A	
213	313	331	320	183	312	291.8	N/A	
214	313	331	320	183	312	291.8	N/A	
215	313	330	320	182	312	291.4	N/A	
216	313	330	320	182	312	291.4	N/A	
217	313	329	320	182	312	291.2	N/A	
218	314	329	320	182	312	291.4	N/A	
219	313	328	320	182	312	291.0	N/A	
220	313	328	320	181	312	290.8	N/A	
221	313	328	319	181	312	290.6	N/A	
222	313	327	320	181	312	290.6	N/A	
223	313	327	320	181	312	290.6	N/A	
224	313	327	320	181	312	290.6	N/A	
225	313	326	320	181	312	290.4	N/A	
226	313	326	320	181	312	290.4	N/A	
227	313	326	320	180	311	290.0	N/A	
228	313	325	320	180	312	290.0	N/A	
229	313	325	320	180	311	289.8	N/A	
230	313	325	320	180	311	289.8	N/A	
231	313	324	321	180	311	289.8	N/A	
232	313	324	321	179	311	289.6	N/A	
233	313	324	321	179	311	289.6	N/A	
234	313	324	322	179	311	289.8	N/A	
235	313	324	322	179	311	289.8	N/A	
236	313	323	323	179	311	289.8	N/A	
237	313	323	323	178	311	289.6	N/A	
238	313	323	324	179	311	290.0	N/A	
239	313	323	325	179	311	290.2	N/A	
240	312	323	327	179	311	290.4	N/A	
241	313	323	328	179	311	290.8	N/A	
242	313	323	329	179	311	291.0	N/A	
243	313	324	330	179	311	291.4	N/A	
244	313	324	332	179	312	292.0	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
245	313	324	334	179	312	292.4	N/A
246	313	324	335	179	312	292.6	N/A
247	313	325	337	178	312	293.0	N/A
248	313	325	339	178	312	293.4	N/A
249	313	325	341	178	312	293.8	N/A
250	313	326	343	178	312	294.4	N/A
251	313	326	346	179	312	295.2	N/A
252	314	327	348	179	312	296.0	N/A
253	314	327	351	179	312	296.6	N/A
254	314	328	353	180	312	297.4	N/A
255	315	328	356	180	312	298.2	N/A
256	315	329	359	179	312	298.8	N/A
257	315	329	361	179	312	299.2	N/A
258	316	330	363	179	312	300.0	N/A
259	316	330	365	178	312	300.2	N/A
260	316	331	366	179	312	300.8	N/A
261	316	331	367	179	313	301.2	N/A
262	317	332	368	179	313	301.8	N/A
263	317	332	369	178	313	301.8	N/A
264	317	332	369	178	313	301.8	N/A
265	317	332	370	178	313	302.0	N/A
266	317	333	371	178	313	302.4	N/A
267	317	333	371	178	313	302.4	N/A
268	318	333	372	178	313	302.8	N/A
269	318	333	372	178	313	302.8	N/A
270	318	334	373	178	313	303.2	N/A
271	318	334	374	178	313	303.4	N/A
272	318	334	374	178	313	303.4	N/A
273	318	334	375	178	313	303.6	N/A
274	318	334	376	178	313	303.8	N/A
275	318	334	377	178	313	304.0	N/A
276	318	334	378	178	313	304.2	N/A
277	318	334	379	178	313	304.4	N/A
278	318	334	380	178	313	304.6	N/A
279	318	334	381	178	313	304.8	N/A
280	318	335	382	178	313	305.2	N/A
281	318	335	383	178	313	305.4	N/A
282	319	335	385	178	313	306.0	N/A
283	319	335	386	178	313	306.2	N/A
284	319	335	388	178	313	306.6	N/A
285	319	336	389	178	313	307.0	N/A
286	320	336	391	178	313	307.6	N/A
287	320	336	392	178	313	307.8	N/A
288	320	336	394	179	312	308.2	N/A
289	320	337	395	179	312	308.6	N/A
290	321	337	397	179	312	309.2	N/A
291	321	337	399	179	312	309.6	N/A
292	321	338	400	179	312	310.0	N/A
293	322	338	401	179	311	310.2	N/A

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

**Stove ΔT:** 72

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
294	322	338	402	179	311	310.4	N/A
295	322	338	403	179	311	310.6	N/A
296	322	339	405	180	311	311.4	N/A
297	323	339	406	180	311	311.8	N/A
298	323	339	407	180	310	311.8	N/A
299	323	339	408	179	310	311.8	N/A
300	324	340	409	179	310	312.4	N/A
301	324	340	410	179	310	312.6	N/A
302	324	340	411	180	310	313.0	N/A
303	324	340	411	181	309	313.0	N/A
304	324	340	412	181	309	313.2	N/A
305	324	340	414	181	309	313.6	N/A
306	325	340	414	182	309	314.0	N/A
307	325	340	416	183	309	314.6	N/A
308	325	340	417	184	308	314.8	N/A
309	325	340	418	185	308	315.2	N/A
310	326	340	419	185	308	315.6	N/A
311	327	340	421	187	308	316.6	N/A
312	328	340	422	187	308	317.0	N/A
313	329	340	424	186	308	317.4	N/A
314	329	340	425	187	308	317.8	N/A
315	330	340	426	187	309	318.4	N/A
316	331	340	427	187	309	318.8	N/A
<b>Average</b>	358	375	350	301	328	342	N/A



## LAB SAMPLE DATA - ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 2

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/4/2019

	Sample ID	Tare, mg	Total, mg	Final, mg	Catch, mg
<b>Train A Filters - First Hour</b>	3643	123.2	123.2	124.9	1.7
<b>Train A Filters - Remainder</b>	3644	121.7	237.3	240.4	3.1
	3645	115.6			
<b>Train A Probe</b>	3A	116075.9	116075.9	116075.9	0.0
<b>Train A O-Rings</b>	3A	3581.0	3581.0	3580.8	0.0*
<b>Train B Filters</b>	3646	117.6	241.4	246.5	5.1
	3647	123.8			
<b>Train B Probe</b>	3B	116339.9	116339.9	116339.9	0.0
<b>Train B O-Rings</b>	3B	3569.0	3569.0	3569.0	0.0
<b>Background Filter</b>			0.0	0.0	

\*Negative value corrected to zero

**Placed in Dessicator on:**

**Balance Audit (mg):**

200.0

200.0

	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
<b>Train A Filters - First Hour</b>	125.0	12/9 9:10	124.9	12/10 14:34				
<b>Train A Filters - Remainder</b>	240.4	12/9 9:11	240.4	12/10 14:35				
<b>Train A Probe</b>	116075.9	12/9 8:59	116075.9	12/10 14:24				
<b>Train A O-Rings</b>	3581.0	12/9 9:04	3580.8	12/10 14:30				
<b>Train B Filters</b>	246.5	12/9 9:11	246.5	12/10 14:35				
<b>Train B Probe</b>	116339.8	12/9 8:59	116339.9	12/10 14:24				
<b>Train B O-Rings</b>	3569.3	12/9 9:05	3569.0	12/10 14:31	3569.0	12/11 8:45		
<b>Background Filter</b>								

1st hour Sub-Total, mg:	1.7
Remainder Sub-Total, mg:	3.1
<b>Train 1 Aggregate, mg:</b>	<b>4.8</b>
<b>Train 2 Aggregate, mg:</b>	<b>5.1</b>
Ambient Aggregate, mg:	0.0

## ASTM E2780 Wood Heater Run Sheets

Client: HHT Job Number: 19-538 Tracking #: 0050  
 Model: 4300ACC-C Run Number: 2 Test Date: 12/4/19

### Wood Heater Run Notes

#### Test Control Settings

Primary Air Setting(s): Open 0.75"  
 Targeted Burn Category: II

#### Preburn Notes

Time	Notes
10:00	Added final preburn fuel

#### Test Notes

Test Burn Start Time: 11:18 Test Fuel Loaded by: 30 seconds  
 Door Closed: 55 seconds Air Control Set at: 300 seconds  
 Other Loading Notes: Rear air shut at 300 sec

Time	Notes
60:00	Changed filter A

Test Burn End Time: 16:34


#### Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO<sub>2</sub> (%): 9.99 CO (%): 1.00

#### Calibration Results:

	Pre Test		Post Test	
	Zero	Span	Zero	Span
Time	10:02	10:06	8:31	8:33
CO <sub>2</sub>	0.00	10.05	0.01	10.05
CO	0.00	1.00	0.01	1.00

Flue Gas Probe Leak Check: Initial: No Leakage Final: No Leakage

Technician Signature:  Date: 12/18/2019

# ASTM E2780 Wood Heater Run Sheets

Client: HHT  
Model: 4300ACC-C

Job Number: 19-538  
Run Number: 2

Tracking #: 0050  
Test Date: 12/4/19



**Test Fuel Side View**



**Test Fuel Iso View**



**Test Fuel Loaded in Stove**



**Air Setting**

Technician Signature: \_\_\_\_\_

Date: 12/18/2019

**WOOD STOVE TEST DATA PACKET**  
**ASTM E2780/E2515**



**Run 3 Data Summary**

Client: HHT  
Model: 4300ACC-C  
Job #: 19-538  
Tracking #: 0050  
Test Date: 12/5/2019

  
\_\_\_\_\_  
Technician Signature

12/18/2019  
\_\_\_\_\_  
Date

# TEST RESULTS - ASTM E2780 / ASTM E2515

Client: HHT

Job #: 19-538

Model: 4300ACC-C

Tracking #: 0050

Run #: 3

Technician: AK

Date: 12/5/2019

<b>Burn Rate (kg/hr):</b>	<b>1.74</b>
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	0.000	30.780	32.015	9.393
Average Gas Velocity in Dilution Tunnel (ft/sec)	19.7			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	12116.9			
Average Gas Meter Temperature (°F)	76.5	81.6	82.1	80.5
Total Sample Volume (dscf)	0.000	28.552	29.798	8.731
Average Tunnel Temperature (°F)	104.0			
Total Time of Test (min)	194			
Total Particulate Catch (mg)	0.0	3.9	3.6	1.6
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0001366	0.0001208	0.0001833
Total PM Emissions (g)	0.00	5.35	4.73	2.22
Particulate Emission Rate (g/hr)	0.00	1.66	1.46	2.22
Emissions Factor (g/kg)	-	0.95	0.84	-
Difference from Average Total Particulate Emissions (g)	-	0.31	0.31	-
Difference from Average Emissions Factor (g/kg)	-	0.05	0.05	-

Final Average Results	
Total Particulate Emissions (g)	5.04
Particulate Emission Rate (g/hr)	1.56
Emissions Factor (g/kg)	0.89
HHV Efficiency (%)	73.8%
LHV Efficiency (%)	79.7%
CO Emissions (g/min)	1.50

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	83.0	OK
Face Velocity	< 30 ft/min	9.2	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min: 72 / Max: 82	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-2.6%	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	74.6	OK

## B415.1 Efficiency Results

**Manufacturer:** HHT  
**Model:** 4300ACC-C  
**Date:** 12/05/19  
**Run:** 3  
**Control #:** 19-538  
**Test Duration:** 194  
**Output Category:** 3

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	73.8%	79.7%
<b>Combustion Efficiency</b>	96.3%	96.3%
<b>Heat Transfer Efficiency</b>	76.6%	82.7%

<b>Output Rate (kJ/h)</b>	25,104	23,813	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	1.72	3.79	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	34,034	32,285	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.56	12.24	<b>dry lb</b>
<b>MC wet (%)</b>	17.83		
<b>MC dry (%)</b>	21.70		
<b>Particulate (g )</b>	5.04		
<b>CO (g)</b>	291		
<b>Test Duration (h)</b>	3.23		

Emissions	Particulate	CO
<b>g/MJ Output</b>	0.06	3.58
<b>g/kg Dry Fuel</b>	0.91	52.37
<b>g/h</b>	1.56	89.98
<b>g/min</b>	0.03	1.50
<b>lb/MM Btu Output</b>	0.14	8.33

<b>Air/Fuel Ratio (A/F)</b>	13.63
-----------------------------	-------

VERSION:

2.2

12/14/2009

# WOODSTOVE FUEL DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
		23.0				
		19.6				
		20.1				
Total Fuel Weight (lbs):		2.6	Average Moisture (%DB):		20.9	

Firebox Volume (ft <sup>3</sup> ):	2.26
Total 2x4 Crib Weight, with spacers (lbs):	6.80
Total 4x4 Crib Weight, with spacers (lbs):	8.10
Total Wet Fuel Weight, with spacers (lbs):	14.90

**Coal Bed Range (20-25%):**  
 Min (lbs): 2.98  
 Max (lbs): 3.73

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
4x4	15.50	3.60	21.7	19.5	18.8	3.00
4x4	15.50	3.90	23.1	21.2	22.1	3.19
2x4	15.50	1.90	21.4	18.2	25.2	1.56
2x4	15.50	1.80	23.1	19.0	23.7	1.48
2x4	15.50	1.80	23.1	22.3	23.1	1.47
Total Dry Weight, no spacers (lbs):						10.70
Total Dry Weight, with spacers (lbs):						12.42

Spacer Moisture Readings (%DB)						
10.0						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	29.6	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	6.59	OK
2x4 Fuel Mix	35 - 65 % of total weight	46%	OK

## DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3  
 Test Start Time: 14:20

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Total Sampling Time (min): 194  
 Recording Interval (min): 1

Meter Box  $\gamma$  Factor: 0.998 (A)  
 Meter Box  $\gamma$  Factor: 1.002 (B)  
 Meter Box  $\gamma$  Factor: 1.000 (Ambient)

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	28.37	28.56	28.47
Relative Humidity (%)			
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:			ft <sup>3</sup>

Induced Draft Check (in. H<sub>2</sub>O): 0  
 Smoke Capture Check (%): 100%  
 Date Flue Pipe Last Cleaned: 11/25/2019

**Sample Train Post-Test Leak Checks**

(A)	0.000	cfm @	-10 in. Hg
(B)	0.000	cfm @	-9 in. Hg
(Ambient)		cfm @	in. Hg

## DILUTION TUNNEL FLOW

**Traverse Data**

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.036	92
2	0.104	92
3	0.094	92
4	0.050	92
5	0.066	100
6	0.088	100
7	0.102	100
8	0.092	100
Center	0.116	107

Dilution Tunnel H<sub>2</sub>O: 2.00 percent  
 Tunnel Diameter: 6 inches  
 Pitot Tube Cp: 0.99 [unitless]  
 Dilution Tunnel MW(dry): 29.00 lb/lb-mole  
 Dilution Tunnel MW(wet): 28.78 lb/lb-mole  
 Tunnel Area: 0.1963 ft<sup>2</sup>

V<sub>strav</sub>: 19.90 ft/sec  
 V<sub>scnt</sub>: 24.04 ft/sec  
 F<sub>p</sub>: 0.828 [ratio]  
 Initial Tunnel Flow: 201.5 scf/min

Static Pressure: -0.740 in. H<sub>2</sub>O

## TEST FUEL PROPERTIES

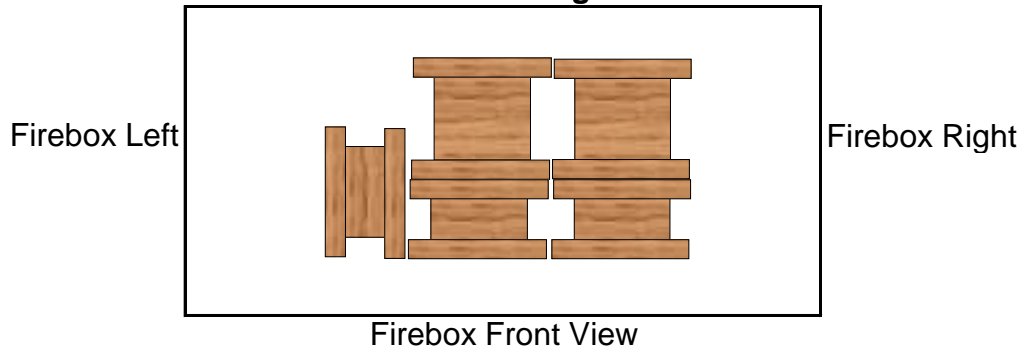
**Default Fuel Values**

Fuel Type:	D. Fir	Oak
HHV (kJ/kg)	19,810	19,887
%C	48.73	50
%H	6.87	6.6
%O	43.9	42.9
%Ash	0.5	0.5

**Actual Fuel Used Properties**

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	21.7

**Fuel Load Configuration**





# WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Recording Interval (min): 1  
 Run Time (min): 76

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)						Stove Surface Average	Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom				
0	13.7	-0.087	520	551	614	777	483	589.0	656	72	
1	13.7	-0.089	520	550	609	796	482	591.4	659	72	
2	13.7	-0.091	521	550	605	814	481	594.2	663	72	
3	13.6	-0.090	522	550	603	830	481	597.2	666	72	
4	13.6	-0.085	523	550	601	842	480	599.2	668	73	
5	13.7	-0.090	524	551	601	853	479	601.6	669	72	
6	13.7	-0.088	527	552	602	860	478	603.8	670	73	
7	13.7	-0.085	528	552	603	868	477	605.6	670	72	
8	13.7	-0.085	531	554	604	877	476	608.4	668	72	
9	13.6	-0.090	533	555	605	886	475	610.8	666	72	
10	13.6	-0.082	536	556	606	894	474	613.2	665	72	
11	13.6	-0.078	539	558	607	898	473	615.0	663	72	
12	13.7	-0.087	542	560	609	903	472	617.2	658	73	
13	13.7	-0.081	545	561	611	906	471	618.8	653	73	
14	13.7	-0.089	548	563	613	908	470	620.4	649	73	
15	13.7	-0.084	551	565	616	909	469	622.0	645	73	
16	13.7	-0.088	554	568	620	912	468	624.4	642	73	
17	13.6	-0.095	564	573	632	863	468	620.0	658	74	
18	13.7	-0.082	572	577	641	850	468	621.6	626	74	
19	13.7	-0.075	579	581	646	834	468	621.6	597	76	
20	13.7	-0.081	584	583	646	825	468	621.2	575	77	
21	13.6	-0.074	588	585	641	814	467	619.0	556	73	
22	13.6	-0.074	590	587	634	798	467	615.2	538	74	
23	13.7	-0.073	592	588	626	783	467	611.2	523	73	
24	13.7	-0.074	592	588	619	760	466	605.0	510	74	
25	13.7	-0.071	592	587	612	740	465	599.2	495	74	
26	13.7	-0.066	592	586	604	713	464	591.8	479	74	
27	13.7	-0.072	592	585	597	688	463	585.0	463	74	
28	13.7	-0.066	591	583	590	666	462	578.4	448	73	
29	13.7	-0.064	590	581	584	641	461	571.4	434	73	
30	13.7	-0.057	588	579	578	618	460	564.6	419	73	
31	13.7	-0.060	587	576	572	597	458	558.0	408	74	
32	13.7	-0.059	584	574	567	574	457	551.2	398	73	
33	13.7	-0.054	582	571	562	558	456	545.8	390	73	
34	13.7	-0.061	580	569	557	540	455	540.2	383	73	
35	13.7	-0.059	576	566	553	525	453	534.6	377	73	
36	13.7	-0.047	574	563	548	512	452	529.8	371	73	
37	13.7	-0.060	571	560	544	500	451	525.2	366	73	
38	13.7	-0.059	568	557	540	490	450	521.0	363	73	
39	13.7	-0.061	566	554	536	479	449	516.8	360	73	
40	13.7	-0.059	563	552	533	473	448	513.8	358	74	
41	13.6	-0.059	560	549	530	470	447	511.2	358	73	
42	13.8	-0.057	558	546	527	465	446	508.4	356	73	
43	13.7	-0.058	555	544	523	461	445	505.6	352	74	
44	13.8	-0.052	552	541	521	454	444	502.4	348	74	
45	13.7	-0.059	550	539	518	449	443	499.8	345	74	

## WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Recording Interval (min): 1  
 Run Time (min): 76

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
46	13.8	-0.053	547	536	515	444	443	497.0	344	73	
47	13.7	-0.054	544	534	513	440	442	494.6	342	73	
48	13.7	-0.057	541	532	511	434	442	492.0	340	74	
49	13.7	-0.052	538	530	509	427	441	489.0	336	73	
50	13.7	-0.051	535	528	507	421	441	486.4	330	73	
51	13.7	-0.050	532	527	505	413	440	483.4	324	73	
52	13.7	-0.042	529	525	503	405	440	480.4	319	73	
53	13.7	-0.057	526	523	501	398	440	477.6	314	73	
54	13.7	-0.049	524	522	500	391	440	475.4	310	73	
55	13.7	-0.049	521	520	498	383	439	472.2	306	73	
56	13.7	-0.049	518	519	496	376	439	469.6	302	73	
57	13.7	-0.042	516	517	494	368	439	466.8	297	73	
58	13.6	-0.044	514	515	492	359	439	463.8	292	73	
59	13.7	-0.045	511	514	491	351	439	461.2	287	73	
60	13.7	-0.041	509	512	489	343	439	458.4	282	72	
61	13.7	-0.046	507	510	487	337	439	456.0	278	73	
62	13.7	-0.042	504	508	485	330	439	453.2	275	73	
63	13.7	-0.036	502	506	483	324	439	450.8	272	72	
64	13.7	-0.045	500	504	481	318	439	448.4	269	73	
65	13.6	-0.036	498	502	479	313	439	446.2	266	72	
66	13.7	-0.037	496	500	477	308	439	444.0	264	73	
67	13.7	-0.043	494	499	475	303	439	442.0	262	73	
68	13.7	-0.034	492	497	474	300	439	440.4	260	72	
69	13.7	-0.033	490	495	472	296	439	438.4	258	72	
70	13.5	-0.039	487	494	470	292	439	436.4	256	73	
71	13.6	-0.033	485	492	468	288	439	434.4	254	72	
72	13.7	-0.036	483	491	467	285	438	432.8	252	74	
73	13.5	-0.045	481	490	465	282	438	431.2	250	73	
74	13.6	-0.031	478	488	464	280	438	429.6	248	73	
75	13.7	-0.040	478	488	464	273	438	428.2	250	74	
76	13.7	-0.037	477	486	462	270	438	426.6	247	74	

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.112	0.07	74	2		14.9		98	246	76	74
1	0.141	0.141	0.112	1.05	74	2	92	14.8	-0.1	116	240	77	73
2	0.301	0.160	0.114	1.06	74	2	103	14.8	-0.04451	109	264	77	74
3	0.459	0.158	0.114	1.00	75	2	102	14.6	-0.16808	112	329	77	74
4	0.618	0.159	0.113	1.00	75	2	103	14.4	-0.15253	118	407	78	74
5	0.775	0.157	0.112	1.02	75	2	103	14.2	-0.27995	125	481	78	73
6	0.931	0.156	0.112	0.98	75	2	103	13.9	-0.24834	126	517	79	74
7	1.086	0.155	0.110	1.02	75	2	103	13.6	-0.27715	127	538	76	75
8	1.245	0.159	0.108	0.98	75	2	107	13.4	-0.23951	128	552	74	77
9	1.400	0.155	0.108	0.95	75	2	104	13.1	-0.28669	131	565	74	78
10	1.554	0.154	0.111	0.99	76	2	102	12.9	-0.22835	132	576	74	78
11	1.712	0.158	0.110	0.97	76	2	105	12.6	-0.27551	134	584	74	78
12	1.868	0.156	0.113	1.03	76	2	102	12.3	-0.26029	134	589	74	78
13	2.022	0.154	0.113	1.03	77	2	101	12.1	-0.27527	135	593	74	78
14	2.175	0.153	0.112	0.95	77	2	101	11.8	-0.26881	136	597	74	79
15	2.329	0.154	0.108	0.97	77	2	104	11.5	-0.25154	136	599	75	79
16	2.483	0.154	0.112	0.95	78	2	102	11.2	-0.30239	136	600	75	79
17	2.636	0.153	0.112	0.99	78	2	101	11.0	-0.24974	137	598	75	76
18	2.789	0.153	0.113	0.95	78	2	101	10.8	-0.20282	137	595	75	76
19	2.941	0.152	0.114	0.99	78	2	99	10.5	-0.28009	137	591	75	77
20	3.093	0.152	0.116	0.92	78	2	98	10.3	-0.25298	136	586	75	78
21	3.245	0.152	0.114	0.94	79	2	99	10.0	-0.23436	136	581	76	79
22	3.398	0.153	0.107	0.97	79	2	103	9.8	-0.22246	135	576	76	79
23	3.552	0.154	0.106	0.94	79	2	104	9.6	-0.23361	135	569	76	79
24	3.706	0.154	0.107	0.92	80	2	103	9.3	-0.2284	134	562	76	79
25	3.859	0.153	0.110	1.04	80	2	101	9.2	-0.18428	133	553	76	80
26	4.016	0.157	0.110	1.03	80	2	104	8.9	-0.23318	131	544	76	80
27	4.174	0.158	0.115	1.01	80	2	102	8.8	-0.16654	130	534	77	80
28	4.334	0.160	0.117	1.03	81	2	102	8.6	-0.19932	129	524	77	80
29	4.490	0.156	0.117	0.99	81	2	99	8.3	-0.21394	128	515	77	80
30	4.649	0.159	0.118	0.99	81	2	101	8.2	-0.15019	127	506	77	82
31	4.808	0.159	0.117	0.99	81	2	101	8.0	-0.20853	126	497	77	80
32	4.966	0.158	0.116	1.01	82	2	100	7.8	-0.13917	125	489	78	80

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
33	5.124	0.158	0.115	0.99	82	2	101	7.7	-0.15973	124	481	78	80
34	5.282	0.158	0.113	1.00	82	2	102	7.5	-0.13458	123	475	78	81
35	5.438	0.156	0.112	1.01	82	2	101	7.4	-0.1916	123	470	78	80
36	5.599	0.161	0.112	0.97	83	2	104	7.2	-0.11065	122	465	78	80
37	5.758	0.159	0.115	0.97	83	2	101	7.0	-0.20205	122	462	78	81
38	5.915	0.157	0.116	0.96	83	2	99	6.9	-0.13909	121	458	78	81
39	6.074	0.159	0.112	1.05	83	2	103	6.8	-0.11802	121	455	79	81
40	6.232	0.158	0.109	1.04	83	2	103	6.6	-0.15625	120	451	79	82
41	6.390	0.158	0.107	0.96	83	2	104	6.5	-0.17583	119	447	79	81
42	6.549	0.159	0.101	0.98	84	2	108	6.3	-0.13227	119	444	79	81
43	6.707	0.158	0.102	1.01	84	2	106	6.2	-0.13439	119	441	79	82
44	6.864	0.157	0.104	1.02	84	2	104	6.1	-0.10183	119	439	79	80
45	7.025	0.161	0.105	0.98	84	2	107	5.9	-0.13806	119	438	79	81
46	7.182	0.157	0.109	0.99	84	2	102	5.8	-0.1382	119	436	79	81
47	7.341	0.159	0.111	0.98	84	2	102	5.7	-0.14395	118	435	79	81
48	7.500	0.159	0.107	0.99	84	2	104	5.6	-0.10686	118	435	79	82
49	7.656	0.156	0.112	1.04	84	2	100	5.4	-0.14803	118	436	79	82
50	7.814	0.158	0.113	0.99	85	2	101	5.3	-0.14145	118	437	79	81
51	7.972	0.158	0.110	0.99	85	2	102	5.1	-0.1491	118	439	79	81
52	8.131	0.159	0.113	0.95	85	2	102	5.0	-0.13356	118	440	79	82
53	8.290	0.159	0.114	1.00	85	2	101	4.9	-0.12983	118	442	79	82
54	8.448	0.158	0.113	0.98	85	2	101	4.7	-0.13716	118	444	79	81
55	8.605	0.157	0.114	0.97	85	2	100	4.6	-0.15467	118	445	79	82
56	8.763	0.158	0.112	0.98	85	2	101	4.4	-0.11784	118	446	79	81
57	8.921	0.158	0.111	1.02	85	2	102	4.3	-0.13696	118	445	79	81
58	9.078	0.157	0.113	0.99	85	2	100	4.2	-0.14282	118	444	79	81
59	9.236	0.158	0.113	0.98	85	2	101	4.1	-0.11218	118	443	79	81
60	9.393	0.157	0.107	1.00	85	2	103	3.9	-0.13159	117	440	79	82
61	9.553	0.160	0.109	1.03	85	2	104	3.8	-0.1142	117	437	79	80
62	9.697	0.144	0.110	0.97	85	2	93	3.7	-0.11663	117	433	80	78
63	9.857	0.160	0.109	0.98	85	2	104	3.6	-0.11504	117	429	80	78
64	10.017	0.160	0.111	1.04	85	2	103	3.5	-0.1138	116	425	81	78
65	10.172	0.155	0.115	0.97	85	2	98	3.4	-0.08508	116	421	81	80

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
66	10.332	0.160	0.114	0.98	85	2	102	3.3	-0.07595	116	418	82	81
67	10.490	0.158	0.113	1.01	85	2	101	3.2	-0.10863	116	414	83	82
68	10.647	0.157	0.116	0.97	85	2	99	3.1	-0.09898	114	409	83	81
69	10.806	0.159	0.115	1.01	85	2	100	3.0	-0.11699	114	404	83	77
70	10.963	0.157	0.117	1.02	85	2	98	2.9	-0.06648	114	398	83	77
71	11.120	0.157	0.117	1.01	85	2	98	2.8	-0.07153	113	391	78	76
72	11.280	0.160	0.115	1.06	84	2	101	2.8	-0.06436	113	385	77	76
73	11.438	0.158	0.112	1.00	84	2	101	2.7	-0.04306	112	381	76	75
74	11.596	0.158	0.113	1.01	84	2	100	2.7	-0.07949	111	377	75	75
75	11.755	0.159	0.112	0.97	84	2	101	2.6	-0.03261	111	374	74	75
76	11.913	0.158	0.113	0.99	84	2	100	2.5	-0.09574	111	371	74	75
77	12.074	0.161	0.115	1.04	84	2	101	2.5	-0.02265	110	368	74	75
78	12.232	0.158	0.113	1.06	83	2	100	2.4	-0.0836	110	364	73	76
79	12.391	0.159	0.111	1.01	83	2	102	2.3	-0.081	109	361	73	76
80	12.550	0.159	0.111	1.00	83	2	102	2.3	-0.04872	108	357	73	75
81	12.709	0.159	0.115	1.05	83	2	100	2.2	-0.0407	108	352	73	74
82	12.868	0.159	0.116	1.03	83	2	100	2.2	-0.04197	107	348	72	75
83	13.029	0.161	0.118	0.99	83	2	100	2.2	-0.04585	107	344	72	74
84	13.187	0.158	0.118	1.04	83	2	98	2.1	-0.05655	106	341	72	74
85	13.347	0.160	0.115	0.99	83	2	101	2.1	-0.01278	106	337	72	75
86	13.505	0.158	0.116	0.96	83	2	99	2.1	-0.02214	105	330	72	75
87	13.665	0.160	0.116	1.02	83	2	100	2.0	-0.07334	104	324	72	74
88	13.826	0.161	0.118	1.04	83	2	100	2.0	-0.0268	103	317	72	75
89	13.985	0.159	0.116	1.03	83	2	99	1.9	-0.04929	102	311	72	75
90	14.146	0.161	0.119	1.07	83	2	99	1.9	0.00232	102	305	71	75
91	14.305	0.159	0.112	1.05	83	2	101	1.9	-0.01542	101	299	71	74
92	14.466	0.161	0.113	1.05	82	2	102	1.9	-0.03068	101	294	71	74
93	14.624	0.158	0.114	1.00	82	2	99	1.9	-0.01643	100	290	71	76
94	14.783	0.159	0.119	1.01	83	2	98	1.9	0.00014	100	285	71	77
95	14.943	0.160	0.117	1.00	83	2	99	1.8	-0.07353	99	281	71	77
96	15.101	0.158	0.124	1.05	83	2	95	1.8	-0.02061	98	278	71	77
97	15.261	0.160	0.124	1.01	83	2	96	1.8	-0.00035	98	275	71	76
98	15.418	0.157	0.119	1.05	83	2	96	1.7	-0.04254	98	272	71	77

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
99	15.577	0.159	0.117	1.05	83	2	98	1.7	-0.02766	97	270	71	77
100	15.737	0.160	0.118	1.01	83	2	98	1.7	0.00815	97	269	71	77
101	15.897	0.160	0.115	1.01	83	2	100	1.7	-0.02636	96	266	71	78
102	16.057	0.160	0.116	1.02	83	2	99	1.7	-0.02298	96	263	71	77
103	16.217	0.160	0.120	1.02	83	2	98	1.6	-0.05114	95	260	71	77
104	16.379	0.162	0.119	0.99	83	2	99	1.6	0.00744	95	258	71	77
105	16.537	0.158	0.117	1.05	83	2	98	1.6	-0.0502	95	256	71	77
106	16.699	0.162	0.116	1.02	83	2	100	1.6	0.02847	94	254	71	77
107	16.862	0.163	0.116	1.00	83	2	101	1.5	-0.04491	94	253	71	77
108	17.022	0.160	0.113	1.01	83	2	100	1.5	0.00106	94	252	71	77
109	17.185	0.163	0.108	1.01	83	2	104	1.5	-0.02416	94	250	71	76
110	17.345	0.160	0.113	1.00	82	2	100	1.5	-0.04664	93	249	71	76
111	17.505	0.160	0.114	1.01	82	2	100	1.5	-0.00438	93	247	71	76
112	17.666	0.161	0.110	1.05	82	2	103	1.5	0.00713	93	247	71	76
113	17.825	0.159	0.110	0.96	82	2	101	1.5	-0.02236	93	246	71	77
114	17.985	0.160	0.118	0.98	82	2	98	1.4	-0.0213	93	245	71	76
115	18.144	0.159	0.114	1.00	82	2	99	1.4	-0.0184	92	244	71	76
116	18.306	0.162	0.112	1.00	82	2	102	1.4	-0.02564	92	243	71	76
117	18.466	0.160	0.113	0.98	82	2	100	1.4	-0.02029	92	243	71	76
118	18.629	0.163	0.115	1.07	82	2	101	1.4	-0.00348	92	242	71	76
119	18.794	0.165	0.111	0.99	82	2	104	1.3	-0.02123	92	242	71	76
120	18.951	0.157	0.111	1.03	82	2	99	1.3	-0.0232	92	241	71	76
121	19.112	0.161	0.113	0.99	82	2	101	1.3	-0.01797	92	241	70	76
122	19.273	0.161	0.114	1.04	82	2	101	1.3	-0.02509	92	241	70	75
123	19.433	0.160	0.116	1.01	82	2	99	1.2	-0.0494	91	240	70	75
124	19.595	0.162	0.118	1.01	82	2	99	1.2	0.00618	91	240	70	76
125	19.756	0.161	0.122	1.02	82	2	97	1.2	-0.03432	91	240	70	76
126	19.919	0.163	0.122	1.02	82	2	98	1.2	-0.0136	91	239	70	76
127	20.078	0.159	0.124	1.03	82	2	95	1.2	-0.02738	91	239	70	76
128	20.239	0.161	0.120	1.06	82	2	98	1.1	-0.02293	91	238	70	76
129	20.398	0.159	0.121	1.06	82	2	96	1.1	-0.02289	91	238	70	76
130	20.556	0.158	0.122	1.04	82	2	95	1.1	-0.01474	91	237	70	75
131	20.716	0.160	0.121	1.02	82	2	97	1.1	-0.02844	91	236	70	76

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
132	20.874	0.158	0.119	1.03	82	2	96	1.1	-0.00539	90	236	70	76
133	21.036	0.162	0.119	1.06	82	2	99	1.0	-0.03516	90	235	70	75
134	21.194	0.158	0.118	1.02	82	2	97	1.0	-0.01555	90	235	70	76
135	21.355	0.161	0.111	1.05	82	2	102	1.0	-0.00054	90	234	70	75
136	21.517	0.162	0.111	1.03	82	2	102	1.0	-0.0293	90	234	70	75
137	21.677	0.160	0.114	1.04	82	2	100	1.0	-0.02146	90	234	70	75
138	21.837	0.160	0.114	1.03	82	2	100	0.9	-0.02593	90	234	70	75
139	21.995	0.158	0.113	0.98	82	2	99	0.9	-0.00369	90	233	70	75
140	22.156	0.161	0.117	1.01	82	2	99	0.9	-0.02395	90	233	70	75
141	22.315	0.159	0.122	1.02	82	2	96	0.9	-0.03611	90	233	70	75
142	22.475	0.160	0.121	0.97	82	2	97	0.9	-0.0027	90	232	70	75
143	22.638	0.163	0.118	1.00	82	2	100	0.8	-0.0325	89	231	70	75
144	22.795	0.157	0.118	0.98	82	2	96	0.8	0.01011	89	230	70	75
145	22.957	0.162	0.114	1.03	82	2	101	0.8	-0.02052	89	230	70	75
146	23.116	0.159	0.112	1.03	82	2	100	0.8	-0.0244	89	229	70	75
147	23.276	0.160	0.111	1.02	81	2	101	0.8	-0.02627	89	227	70	75
148	23.438	0.162	0.116	1.04	81	2	100	0.8	-0.0001	89	227	70	75
149	23.596	0.158	0.120	1.01	81	2	96	0.8	-0.01862	89	226	70	75
150	23.756	0.160	0.123	1.00	81	2	96	0.7	-0.02279	89	225	69	75
151	23.915	0.159	0.123	1.01	81	2	95	0.7	-0.01953	88	225	69	75
152	24.074	0.159	0.125	1.04	81	2	95	0.7	-0.03079	88	224	69	75
153	24.233	0.159	0.124	1.05	81	2	95	0.7	-0.02424	88	223	69	75
154	24.392	0.159	0.124	1.01	81	2	95	0.7	0.00321	88	223	69	75
155	24.553	0.161	0.124	1.06	81	2	96	0.6	-0.02675	88	222	69	75
156	24.712	0.159	0.119	0.99	81	2	97	0.6	-0.04014	88	222	69	74
157	24.873	0.161	0.117	1.02	81	2	99	0.6	-0.023	88	222	69	75
158	25.033	0.160	0.112	1.06	81	2	101	0.6	0.00144	88	222	69	74
159	25.193	0.160	0.110	0.98	81	2	101	0.6	-0.0011	88	221	69	74
160	25.352	0.159	0.108	1.05	81	2	102	0.6	-0.02147	88	221	69	74
161	25.511	0.159	0.114	1.00	81	2	99	0.5	-0.01863	87	220	69	74
162	25.673	0.162	0.117	1.01	81	2	99	0.5	-0.0231	87	220	69	74
163	25.831	0.158	0.119	1.05	81	2	96	0.5	0.00201	87	219	69	74
164	25.994	0.163	0.120	1.04	81	2	99	0.5	-0.04583	87	219	69	74

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
165	26.154	0.160	0.121	0.98	81	2	97	0.5	-0.00292	87	218	69	74
166	26.314	0.160	0.119	1.00	81	2	98	0.4	-0.02078	87	217	69	74
167	26.476	0.162	0.116	1.05	81	2	100	0.4	-0.00483	87	216	69	74
168	26.634	0.158	0.119	1.04	81	2	96	0.4	-0.02062	87	215	69	74
169	26.796	0.162	0.118	0.98	81	2	99	0.4	0.0029	87	215	69	74
170	26.954	0.158	0.122	0.98	81	2	95	0.4	-0.04782	87	214	69	74
171	27.115	0.161	0.120	0.99	81	2	98	0.4	-0.00025	86	213	69	74
172	27.274	0.159	0.118	1.07	81	2	97	0.3	-0.02702	86	213	68	74
173	27.434	0.160	0.114	1.06	81	2	100	0.3	-0.04309	86	212	68	73
174	27.595	0.161	0.113	1.07	81	2	101	0.3	0.02175	86	212	68	73
175	27.753	0.158	0.107	0.99	81	2	102	0.3	-0.02178	86	211	68	73
176	27.914	0.161	0.111	1.02	81	2	102	0.3	-0.00139	86	211	68	72
177	28.072	0.158	0.109	1.03	81	2	100	0.3	-0.01446	86	211	68	72
178	28.232	0.160	0.111	1.04	81	2	101	0.3	-0.02779	86	211	68	73
179	28.391	0.159	0.111	1.00	81	2	100	0.2	-0.04657	86	210	68	73
180	28.549	0.158	0.114	0.98	81	2	98	0.2	0.0308	86	210	68	73
181	28.708	0.159	0.111	1.04	81	2	100	0.2	-0.02557	86	210	68	73
182	28.866	0.158	0.112	1.05	81	2	99	0.2	0.00147	86	210	68	73
183	29.028	0.162	0.113	0.99	81	2	101	0.2	-0.02306	86	210	68	73
184	29.188	0.160	0.115	1.00	81	2	99	0.2	-0.02601	86	210	68	73
185	29.348	0.160	0.111	1.03	80	2	101	0.2	-0.01444	86	210	68	73
186	29.508	0.160	0.115	1.03	80	2	99	0.1	-0.02658	86	210	68	73
187	29.664	0.156	0.118	1.02	80	2	96	0.1	-0.01657	86	210	68	73
188	29.825	0.161	0.116	1.02	80	2	99	0.1	-0.02247	85	209	68	72
189	29.984	0.159	0.113	1.03	80	2	99	0.1	-0.00467	85	209	68	73
190	30.144	0.160	0.118	1.03	80	2	98	0.1	-0.02532	85	209	68	73
191	30.303	0.159	0.115	1.02	80	2	99	0.1	0.00319	85	209	68	73
192	30.461	0.158	0.112	0.96	80	2	99	0.0	-0.04198	85	208	68	73
193	30.623	0.162	0.115	1.00	80	2	101	0.0	-0.01448	85	209	68	73
194	30.780	0.157	0.125	1.02	80	2	93	0.0	-0.00607	85	208	68	72
Avg/Tot	30.780	0.159	0.114	1.00	82	2.00	100			104	334	73	76.5



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.001		0.00	74	2		78	0.000	4.15	0.79
1	0.142	0.141	1.12	74	2	89	78	-0.030	1.13	0.27
2	0.299	0.157	1.09	74	2	97	78	-0.060	6.02	1.22
3	0.463	0.164	1.07	74	2	102	78	-0.070	10.08	0.68
4	0.626	0.163	1.08	74	2	102	79	-0.080	12.74	0.29
5	0.787	0.161	1.06	75	2	102	79	-0.080	14.65	0.14
6	0.942	0.155	1.04	75	2	98	79	-0.080	15.53	0.74
7	1.095	0.153	1.04	75	2	98	76	-0.080	15.41	1.02
8	1.254	0.159	1.02	75	2	102	74	-0.080	14.83	0.77
9	1.410	0.156	1.14	75	2	101	74	-0.080	15.63	0.91
10	1.574	0.164	1.13	76	2	104	74	-0.080	15.99	0.96
11	1.739	0.165	1.13	76	2	106	74	-0.080	15.96	0.89
12	1.901	0.162	1.14	76	2	102	74	-0.070	16.14	0.67
13	2.061	0.160	1.11	77	2	101	74	-0.080	16.00	0.51
14	2.227	0.166	1.10	77	2	105	75	-0.090	16.06	0.54
15	2.385	0.158	1.10	78	2	102	75	-0.080	16.23	0.69
16	2.547	0.162	1.11	78	2	103	75	-0.080	15.96	0.52
17	2.709	0.162	1.10	78	2	103	75	-0.080	15.87	0.43
18	2.869	0.160	1.12	78	2	101	75	-0.080	15.65	0.41
19	3.030	0.161	1.09	78	2	101	76	-0.070	15.44	0.37
20	3.191	0.161	1.10	79	2	100	76	-0.070	15.17	0.37
21	3.351	0.160	1.06	79	2	100	76	-0.080	15.13	0.34
22	3.511	0.160	1.08	80	2	103	76	-0.080	14.94	0.35
23	3.672	0.161	1.08	80	2	104	76	-0.080	14.68	0.35
24	3.829	0.157	1.06	80	2	102	76	-0.080	14.46	0.31
25	3.987	0.158	1.09	81	2	101	77	-0.080	14.33	0.33
26	4.153	0.166	1.12	81	2	105	77	-0.070	13.90	0.32
27	4.314	0.161	1.10	81	2	100	77	-0.070	13.87	0.27
28	4.476	0.162	1.09	82	2	99	77	-0.070	13.72	0.26
29	4.640	0.164	1.12	82	2	100	77	-0.070	13.51	0.24
30	4.799	0.159	1.10	82	2	97	77	-0.070	13.25	0.24
31	4.960	0.161	1.11	83	2	98	77	-0.070	12.55	0.20
32	5.124	0.164	1.12	83	2	100	77	-0.070	12.77	0.20

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
33	5.285	0.161	1.09	83	2	99	77	-0.070	13.10	0.21
34	5.447	0.162	1.09	84	2	100	78	-0.060	12.54	0.17
35	5.609	0.162	1.10	84	2	101	78	-0.070	12.29	0.17
36	5.771	0.162	1.09	84	2	101	78	-0.070	12.48	0.18
37	5.935	0.164	1.10	84	2	100	78	-0.060	12.29	0.27
38	6.094	0.159	1.11	84	2	97	78	-0.070	11.81	0.22
39	6.253	0.159	1.08	84	2	98	78	-0.070	11.91	0.21
40	6.417	0.164	1.10	85	2	103	78	-0.060	11.49	0.22
41	6.577	0.160	1.07	85	2	101	78	-0.060	11.38	0.22
42	6.738	0.161	1.08	85	2	105	78	-0.060	11.40	0.27
43	6.902	0.164	1.08	85	2	106	78	-0.070	11.83	0.26
44	7.062	0.160	1.08	85	2	102	78	-0.070	11.39	0.33
45	7.226	0.164	1.08	85	2	105	78	-0.060	11.39	0.37
46	7.388	0.162	1.10	85	2	101	78	-0.060	11.66	0.33
47	7.546	0.158	1.10	85	2	98	78	-0.050	11.68	0.31
48	7.709	0.163	1.07	86	2	103	78	-0.070	12.05	0.32
49	7.873	0.164	1.08	86	2	101	78	-0.060	11.91	0.32
50	8.033	0.160	1.10	86	2	98	78	-0.060	12.40	0.33
51	8.194	0.161	1.06	86	2	100	78	-0.060	12.37	0.31
52	8.353	0.159	1.09	86	2	98	78	-0.060	12.34	0.32
53	8.518	0.165	1.14	86	2	101	78	-0.060	12.68	0.30
54	8.687	0.169	1.12	86	2	104	78	-0.060	12.83	0.31
55	8.852	0.165	1.15	86	2	101	78	-0.070	12.86	0.33
56	9.019	0.167	1.17	86	2	103	78	-0.060	12.37	0.31
57	9.184	0.165	1.12	86	2	102	78	-0.060	12.43	0.32
58	9.352	0.168	1.12	86	2	103	78	-0.070	12.31	0.30
59	9.518	0.166	1.12	86	2	102	79	-0.060	12.39	0.27
60	9.683	0.165	1.14	86	2	104	79	-0.060	12.05	0.31
61	9.852	0.169	1.31	87	2	105	79	-0.060	11.90	0.29
62	10.019	0.167	1.13	87	2	104	79	-0.080	11.96	0.31
63	10.186	0.167	1.14	86	2	104	79	-0.060	11.71	0.30
64	10.352	0.166	1.13	86	2	103	78	-0.060	11.67	0.30
65	10.517	0.165	1.13	86	2	100	78	-0.070	11.63	0.21

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
66	10.685	0.168	1.15	86	2	103	79	-0.060	11.63	0.20
67	10.851	0.166	1.13	86	2	101	79	-0.070	11.07	0.24
68	11.021	0.170	1.13	86	2	103	79	-0.060	10.70	0.23
69	11.186	0.165	1.11	86	2	100	79	-0.060	10.26	0.20
70	11.355	0.169	1.14	86	2	101	78	-0.060	9.69	0.20
71	11.521	0.166	1.15	86	2	100	76	-0.050	9.52	0.22
72	11.689	0.168	1.15	86	2	102	75	-0.060	9.39	0.24
73	11.854	0.165	1.13	86	2	101	75	-0.060	9.47	0.25
74	12.022	0.168	1.17	85	2	103	75	-0.060	9.41	0.25
75	12.192	0.170	1.15	85	2	104	75	-0.050	9.77	0.24
76	12.358	0.166	1.14	85	2	101	75	-0.050	9.55	0.23
77	12.527	0.169	1.14	85	2	102	75	-0.060	9.42	0.23
78	12.694	0.167	1.12	85	2	102	75	-0.060	9.13	0.27
79	12.862	0.168	1.14	85	2	103	75	-0.050	8.93	0.32
80	13.032	0.170	1.15	85	2	104	75	-0.050	9.01	0.33
81	13.200	0.168	1.14	85	2	101	75	-0.060	8.50	0.35
82	13.370	0.170	1.16	85	2	102	75	-0.050	8.46	0.33
83	13.534	0.164	1.15	85	2	98	75	-0.050	8.05	0.33
84	13.701	0.167	1.16	85	2	99	75	-0.050	7.88	0.28
85	13.870	0.169	1.16	85	2	102	75	-0.040	7.62	0.29
86	14.035	0.165	1.12	85	2	99	75	-0.050	7.15	0.43
87	14.200	0.165	1.12	85	2	99	75	-0.050	6.62	0.59
88	14.367	0.167	1.12	85	2	99	75	-0.040	6.40	0.67
89	14.532	0.165	1.12	85	2	99	75	-0.050	6.27	0.69
90	14.699	0.167	1.11	84	2	99	74	-0.040	6.19	0.75
91	14.866	0.167	1.10	84	2	101	74	-0.040	6.28	0.80
92	15.033	0.167	1.12	84	2	101	74	-0.050	6.19	0.81
93	15.200	0.167	1.14	84	2	101	74	-0.040	6.08	0.84
94	15.365	0.165	1.11	84	2	98	74	-0.040	6.15	0.85
95	15.532	0.167	1.12	84	2	99	74	-0.030	6.30	0.88
96	15.698	0.166	1.14	84	2	96	74	-0.040	6.20	0.86
97	15.863	0.165	1.10	84	2	95	74	-0.030	6.26	0.83
98	16.029	0.166	1.13	84	2	98	74	-0.040	6.34	0.78

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
99	16.197	0.168	1.12	84	2	100	74	-0.040	6.36	0.77
100	16.362	0.165	1.13	84	2	97	74	-0.040	6.46	0.77
101	16.527	0.165	1.12	83	2	99	74	-0.040	6.05	0.76
102	16.692	0.165	1.12	83	2	98	74	-0.040	5.90	0.77
103	16.861	0.169	1.11	83	2	99	74	-0.030	6.02	0.77
104	17.026	0.165	1.11	83	2	97	74	-0.030	5.80	0.75
105	17.192	0.166	1.10	82	2	99	74	-0.040	5.86	0.76
106	17.358	0.166	1.09	82	2	99	74	-0.040	5.92	0.76
107	17.523	0.165	1.11	82	2	99	74	-0.040	5.89	0.77
108	17.688	0.165	1.11	82	2	100	74	-0.030	5.92	0.79
109	17.853	0.165	1.10	82	2	102	74	-0.040	5.83	0.77
110	18.018	0.165	1.11	81	2	100	74	-0.030	5.78	0.76
111	18.183	0.165	1.09	81	2	99	74	-0.050	5.77	0.76
112	18.349	0.166	1.08	81	2	102	74	-0.050	5.76	0.76
113	18.517	0.168	1.11	81	2	103	74	-0.040	5.94	0.69
114	18.684	0.167	1.12	80	2	99	74	-0.030	5.87	0.67
115	18.851	0.167	1.11	80	2	101	74	-0.030	5.84	0.65
116	19.018	0.167	1.13	80	2	102	74	-0.030	5.92	0.64
117	19.185	0.167	1.11	81	2	101	74	-0.020	5.87	0.63
118	19.349	0.164	1.11	81	2	98	74	-0.030	5.78	0.61
119	19.515	0.166	1.12	81	2	101	74	-0.040	5.92	0.62
120	19.680	0.165	1.13	81	2	101	74	-0.030	6.00	0.63
121	19.847	0.167	1.10	81	2	101	74	-0.030	5.94	0.63
122	20.012	0.165	1.13	82	2	99	74	-0.040	5.96	0.63
123	20.179	0.167	1.09	82	2	100	74	-0.030	5.97	0.63
124	20.345	0.166	1.09	82	2	98	74	-0.030	6.06	0.68
125	20.515	0.170	1.12	82	2	99	74	-0.030	5.83	0.67
126	20.678	0.163	1.10	82	2	94	74	-0.030	5.88	0.69
127	20.848	0.170	1.11	82	2	98	73	-0.030	5.89	0.68
128	21.013	0.165	1.11	82	2	96	73	-0.030	5.88	0.69
129	21.180	0.167	1.12	82	2	97	73	-0.030	5.80	0.68
130	21.344	0.164	1.13	82	2	95	73	-0.020	5.82	0.69
131	21.511	0.167	1.10	82	2	97	73	-0.030	5.93	0.70

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
132	21.677	0.166	1.09	82	2	97	73	-0.030	5.67	0.68
133	21.844	0.167	1.11	82	2	98	73	-0.040	5.66	0.68
134	22.008	0.164	1.14	82	2	97	73	-0.030	5.52	0.68
135	22.175	0.167	1.12	82	2	102	73	-0.040	5.28	0.70
136	22.341	0.166	1.11	82	2	101	73	-0.040	5.12	0.66
137	22.507	0.166	1.12	83	2	99	73	-0.030	5.44	0.70
138	22.671	0.164	1.10	83	2	98	73	-0.040	5.32	0.68
139	22.840	0.169	1.11	83	2	102	73	-0.030	5.42	0.69
140	23.005	0.165	1.10	83	2	97	73	-0.030	5.35	0.68
141	23.173	0.168	1.11	83	2	97	73	-0.040	5.23	0.67
142	23.339	0.166	1.10	83	2	97	73	-0.040	5.41	0.70
143	23.508	0.169	1.11	83	2	99	73	-0.040	5.12	0.72
144	23.671	0.163	1.13	83	2	96	73	-0.020	5.06	0.74
145	23.838	0.167	1.11	82	2	100	73	-0.030	5.11	0.76
146	24.005	0.167	1.11	82	2	101	73	-0.030	5.00	0.77
147	24.173	0.168	1.13	82	2	102	73	-0.020	5.14	0.79
148	24.340	0.167	1.14	82	2	99	73	-0.030	5.14	0.79
149	24.507	0.167	1.11	82	2	98	73	-0.040	5.09	0.78
150	24.671	0.164	1.13	82	2	94	73	-0.030	5.18	0.80
151	24.838	0.167	1.13	82	2	96	73	-0.030	5.13	0.80
152	25.006	0.168	1.10	82	2	96	73	-0.030	5.10	0.82
153	25.173	0.167	1.11	82	2	96	72	-0.040	5.18	0.82
154	25.340	0.167	1.13	82	2	96	72	-0.030	5.16	0.82
155	25.506	0.166	1.10	82	2	95	72	-0.030	5.15	0.81
156	25.671	0.165	1.12	82	2	97	72	-0.030	5.26	0.85
157	25.838	0.167	1.14	82	2	99	72	-0.030	5.28	0.84
158	26.007	0.169	1.13	82	2	102	72	-0.030	5.13	0.81
159	26.173	0.166	1.12	82	2	101	72	-0.030	5.23	0.84
160	26.343	0.170	1.13	82	2	104	72	-0.020	5.19	0.83
161	26.508	0.165	1.12	82	2	99	72	-0.040	5.14	0.83
162	26.675	0.167	1.13	82	2	98	72	-0.030	5.09	0.81
163	26.842	0.167	1.14	82	2	98	72	-0.020	5.20	0.82
164	27.013	0.171	1.11	82	2	100	72	-0.030	4.81	0.89

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
165	27.180	0.167	1.10	82	2	97	72	-0.020	4.74	0.90
166	27.346	0.166	1.10	82	2	97	72	-0.040	4.60	0.90
167	27.512	0.166	1.15	81	2	98	72	-0.030	4.68	0.93
168	27.681	0.169	1.13	81	2	99	72	-0.030	4.68	0.95
169	27.847	0.166	1.12	81	2	98	72	-0.030	4.75	0.95
170	28.015	0.168	1.12	81	2	97	71	-0.030	4.69	0.93
171	28.181	0.166	1.12	81	2	97	71	-0.030	4.86	0.96
172	28.349	0.168	1.12	81	2	99	71	-0.030	4.73	0.96
173	28.512	0.163	1.14	81	2	98	71	-0.020	4.73	0.96
174	28.680	0.168	1.11	81	2	101	71	-0.030	4.64	0.94
175	28.847	0.167	1.12	81	2	103	71	-0.030	4.69	0.97
176	29.012	0.165	1.12	81	2	100	71	-0.030	4.67	0.98
177	29.179	0.167	1.11	81	2	102	71	-0.030	4.72	1.02
178	29.347	0.168	1.13	81	2	102	71	-0.030	4.70	1.00
179	29.515	0.168	1.11	81	2	102	71	-0.030	4.73	1.01
180	29.680	0.165	1.13	80	2	99	71	-0.030	4.65	0.95
181	29.850	0.170	1.13	80	2	103	71	-0.030	4.60	0.95
182	30.017	0.167	1.15	80	2	101	71	-0.020	4.51	0.95
183	30.185	0.168	1.14	80	2	101	71	-0.030	4.67	0.99
184	30.351	0.166	1.10	80	2	99	71	-0.020	4.73	1.01
185	30.519	0.168	1.14	80	2	102	71	-0.030	4.68	1.02
186	30.684	0.165	1.12	80	2	98	71	-0.030	4.73	1.02
187	30.852	0.168	1.11	79	2	99	71	-0.030	4.74	1.02
188	31.016	0.164	1.11	79	2	98	71	-0.030	4.70	1.01
189	31.184	0.168	1.13	79	2	101	71	-0.040	4.60	1.00
190	31.349	0.165	1.12	79	2	97	71	-0.030	4.62	1.02
191	31.519	0.170	1.13	79	2	102	71	-0.030	4.55	1.02
192	31.684	0.165	1.12	79	2	100	71	-0.030	4.67	1.05
193	31.850	0.166	1.13	79	2	99	71	-0.030	4.58	1.04
194	32.015	0.165	1.11	79	2	95	71	-0.030	4.57	1.02
Avg/Tot	32.015	0.165	1.11	82	2.00	100	75	-0.047	8.35	0.61

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

**Stove ΔT:** 75

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
0	476	486	461	270	437	426.0	N/A
1	473	485	457	284	437	427.2	N/A
2	471	482	450	287	437	425.4	N/A
3	469	480	443	312	436	428.0	N/A
4	467	477	437	356	436	434.6	N/A
5	465	476	434	382	435	438.4	N/A
6	464	473	432	437	434	448.0	N/A
7	461	471	430	485	433	456.0	N/A
8	458	468	427	526	432	462.2	N/A
9	456	466	424	560	430	467.2	N/A
10	454	463	420	591	429	471.4	N/A
11	453	461	417	617	427	475.0	N/A
12	451	460	412	637	425	477.0	N/A
13	451	459	408	654	424	479.2	N/A
14	451	458	405	669	422	481.0	N/A
15	451	457	402	684	420	482.8	N/A
16	452	457	399	696	419	484.6	N/A
17	453	457	396	709	417	486.4	N/A
18	453	457	394	716	415	487.0	N/A
19	455	457	391	717	414	486.8	N/A
20	456	458	390	721	412	487.4	N/A
21	457	458	388	725	410	487.6	N/A
22	459	459	387	726	409	488.0	N/A
23	461	460	386	726	407	488.0	N/A
24	462	461	385	726	406	488.0	N/A
25	464	462	384	720	404	486.8	N/A
26	465	463	384	716	402	486.0	N/A
27	467	463	383	710	401	484.8	N/A
28	468	464	383	702	399	483.2	N/A
29	470	465	383	698	398	482.8	N/A
30	471	466	383	690	396	481.2	N/A
31	473	467	383	681	395	479.8	N/A
32	474	467	383	670	394	477.6	N/A
33	475	468	383	665	392	476.6	N/A
34	476	469	383	655	391	474.8	N/A
35	477	469	383	647	390	473.2	N/A
36	478	470	383	642	389	472.4	N/A
37	479	470	384	636	387	471.2	N/A
38	479	470	384	633	386	470.4	N/A
39	480	471	385	625	385	469.2	N/A
40	480	471	385	620	384	468.0	N/A
41	481	471	386	612	383	466.6	N/A
42	481	471	386	608	382	465.6	N/A
43	481	471	387	601	381	464.2	N/A
44	481	472	387	596	380	463.2	N/A
45	481	471	388	594	379	462.6	N/A
46	482	472	388	590	378	462.0	N/A
47	482	472	389	589	378	462.0	N/A
48	482	472	390	588	377	461.8	N/A

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHTJob #: 19-538Model: 4300ACC-CTracking #: 0050Run #: 3Technician: AKDate: 12/5/2019Stove ΔT: 75

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
49	482	473	391	588	376	462.0	N/A
50	482	473	392	589	375	462.2	N/A
51	482	473	394	592	374	463.0	N/A
52	483	474	396	593	374	464.0	N/A
53	483	475	397	597	373	465.0	N/A
54	483	475	399	600	372	465.8	N/A
55	484	476	402	603	372	467.4	N/A
56	484	477	404	602	371	467.6	N/A
57	485	478	407	604	370	468.8	N/A
58	486	479	410	605	370	470.0	N/A
59	487	480	413	603	369	470.4	N/A
60	487	481	416	603	368	471.0	N/A
61	488	482	419	598	368	471.0	N/A
62	488	483	422	592	367	470.4	N/A
63	489	484	425	588	367	470.6	N/A
64	489	485	429	580	366	469.8	N/A
65	489	486	433	574	366	469.6	N/A
66	490	487	437	567	365	469.2	N/A
67	490	488	442	561	365	469.2	N/A
68	490	489	446	553	365	468.6	N/A
69	490	489	449	544	364	467.2	N/A
70	490	490	453	537	364	466.8	N/A
71	490	491	456	527	364	465.6	N/A
72	490	491	460	517	364	464.4	N/A
73	490	492	464	509	364	463.8	N/A
74	490	493	468	499	363	462.6	N/A
75	490	493	471	493	363	462.0	N/A
76	489	493	475	488	363	461.6	N/A
77	489	494	478	482	363	461.2	N/A
78	488	494	481	475	363	460.2	N/A
79	488	495	484	469	364	460.0	N/A
80	487	495	486	463	364	459.0	N/A
81	486	496	489	456	364	458.2	N/A
82	486	496	492	448	364	457.2	N/A
83	485	496	495	441	364	456.2	N/A
84	484	497	497	434	364	455.2	N/A
85	483	497	498	427	365	454.0	N/A
86	482	497	500	420	365	452.8	N/A
87	481	497	501	410	365	450.8	N/A
88	481	497	502	402	366	449.6	N/A
89	479	497	502	393	366	447.4	N/A
90	478	496	503	385	366	445.6	N/A
91	476	495	502	376	367	443.2	N/A
92	474	494	502	368	367	441.0	N/A
93	473	493	502	359	368	439.0	N/A
94	471	492	502	352	368	437.0	N/A
95	470	491	502	345	369	435.4	N/A
96	468	490	502	338	369	433.4	N/A
97	466	489	502	332	369	431.6	N/A



# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

**Stove ΔT:** 75

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
98	464	488	503	328	370	430.6	N/A	
99	463	487	503	323	370	429.2	N/A	
100	461	485	503	318	370	427.4	N/A	
101	459	484	503	314	371	426.2	N/A	
102	457	483	503	310	371	424.8	N/A	
103	455	482	503	305	371	423.2	N/A	
104	454	481	503	300	372	422.0	N/A	
105	452	480	502	296	372	420.4	N/A	
106	451	479	501	293	372	419.2	N/A	
107	449	478	500	290	372	417.8	N/A	
108	447	477	499	286	372	416.2	N/A	
109	446	475	498	283	373	415.0	N/A	
110	444	474	497	281	373	413.8	N/A	
111	443	473	496	278	373	412.6	N/A	
112	441	471	495	276	373	411.2	N/A	
113	440	470	494	274	373	410.2	N/A	
114	439	468	494	272	373	409.2	N/A	
115	437	467	493	270	373	408.0	N/A	
116	436	465	494	269	373	407.4	N/A	
117	434	464	493	268	373	406.4	N/A	
118	433	463	493	266	372	405.4	N/A	
119	431	461	493	264	372	404.2	N/A	
120	430	460	493	264	372	403.8	N/A	
121	429	459	492	264	372	403.2	N/A	
122	427	457	492	262	372	402.0	N/A	
123	426	456	492	261	371	401.2	N/A	
124	425	455	492	260	371	400.6	N/A	
125	424	453	492	259	371	399.8	N/A	
126	423	452	492	258	371	399.2	N/A	
127	422	451	492	257	370	398.4	N/A	
128	421	450	492	256	370	397.8	N/A	
129	420	449	492	255	370	397.2	N/A	
130	419	448	491	254	370	396.4	N/A	
131	418	447	491	254	369	395.8	N/A	
132	417	446	490	253	369	395.0	N/A	
133	416	445	490	252	369	394.4	N/A	
134	416	444	489	252	369	394.0	N/A	
135	415	443	489	250	369	393.2	N/A	
136	415	442	488	249	368	392.4	N/A	
137	414	441	488	249	368	392.0	N/A	
138	413	440	486	247	368	390.8	N/A	
139	413	439	485	248	368	390.6	N/A	
140	412	438	484	247	367	389.6	N/A	
141	411	436	483	246	367	388.6	N/A	
142	410	435	481	245	367	387.6	N/A	
143	409	434	480	244	367	386.8	N/A	
144	409	433	479	242	366	385.8	N/A	
145	408	432	477	240	366	384.6	N/A	
146	407	431	476	240	366	384.0	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

**Stove ΔT:** 75

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
147	406	429	475	239	366	383.0	N/A
148	406	428	473	237	365	381.8	N/A
149	405	427	472	236	365	381.0	N/A
150	404	426	471	236	365	380.4	N/A
151	404	425	470	235	364	379.6	N/A
152	403	424	469	234	364	378.8	N/A
153	403	423	468	232	364	378.0	N/A
154	403	421	467	232	364	377.4	N/A
155	402	420	466	231	363	376.4	N/A
156	401	419	465	230	363	375.6	N/A
157	401	418	464	229	363	375.0	N/A
158	400	417	463	229	362	374.2	N/A
159	400	416	462	228	362	373.6	N/A
160	399	415	462	227	362	373.0	N/A
161	398	414	461	227	361	372.2	N/A
162	398	413	460	226	361	371.6	N/A
163	397	412	460	225	361	371.0	N/A
164	397	411	459	225	361	370.6	N/A
165	396	411	459	224	360	370.0	N/A
166	395	410	458	224	360	369.4	N/A
167	394	409	458	223	360	368.8	N/A
168	393	408	457	222	359	367.8	N/A
169	393	408	456	221	359	367.4	N/A
170	392	407	455	220	359	366.6	N/A
171	391	406	455	219	358	365.8	N/A
172	390	405	454	219	358	365.2	N/A
173	389	404	453	219	358	364.6	N/A
174	388	404	452	219	357	364.0	N/A
175	387	403	451	219	357	363.4	N/A
176	386	402	450	217	356	362.2	N/A
177	385	402	449	217	356	361.8	N/A
178	384	401	448	216	356	361.0	N/A
179	382	400	447	216	355	360.0	N/A
180	382	400	446	215	355	359.6	N/A
181	380	399	445	215	355	358.8	N/A
182	380	398	444	215	354	358.2	N/A
183	379	398	444	214	354	357.8	N/A
184	378	397	443	213	354	357.0	N/A
185	377	397	442	213	353	356.4	N/A
186	376	396	441	212	353	355.6	N/A
187	375	396	440	212	353	355.2	N/A
188	375	395	440	212	352	354.8	N/A
189	374	395	440	211	352	354.4	N/A
190	373	394	440	211	352	354.0	N/A
191	372	394	439	210	351	353.2	N/A
192	371	393	438	210	351	352.6	N/A
193	370	393	438	210	351	352.4	N/A
194	369	392	437	209	350	351.4	N/A
Average	443	456	451	400	376	425	N/A

## LAB SAMPLE DATA - ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 3

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

	Sample ID	Tare, mg	Total, mg	Final, mg	Catch, mg
<b>Train A Filters - First Hour</b>	3648	121.9	121.9	123.5	1.6
<b>Train A Filters - Remainder</b>	3649	118.2	238.6	240.5	1.9
	3650	120.4			
<b>Train A Probe</b>	4A	116183.7	116183.7	116183.6	0.0*
<b>Train A O-Rings</b>	4A	3624.3	3624.3	3624.7	0.4
<b>Train B Filters</b>	3651	119.1	237.7	240.6	2.9
	3652	118.6			
<b>Train B Probe</b>	4B	116367.0	116367.0	116367.1	0.1
<b>Train B O-Rings</b>	4B	3581.0	3581.0	3581.6	0.6
<b>Background Filter</b>			0.0	0.0	

\*Negative value corrected to zero

**Placed in Dessicator on:**

**Balance Audit (mg):**      200.0      200.0

	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
<b>Train A Filters - First Hour</b>	123.6	12/9 9:12	123.5	12/10 14:35				
<b>Train A Filters - Remainder</b>	240.7	12/9 9:17	240.5	12/10 14:38				
<b>Train A Probe</b>	116183.5	12/9 9:00	116183.6	12/10 14:25				
<b>Train A O-Rings</b>	3624.8	12/9 9:05	3624.7	12/10 14:31				
<b>Train B Filters</b>	240.6	12/9 9:13	240.6	12/10 14:38				
<b>Train B Probe</b>	116367.2	12/9 9:00	116367.1	12/10 14:25				
<b>Train B O-Rings</b>	3581.4	12/9 9:05	3581.6	12/10 14:32				
<b>Background Filter</b>								

1st hour Sub-Total, mg:	1.6
Remainder Sub-Total, mg:	2.3
<b>Train 1 Aggregate, mg:</b>	<b>3.9</b>
<b>Train 2 Aggregate, mg:</b>	<b>3.6</b>
Ambient Aggregate, mg:	0.0

## ASTM E2780 Wood Heater Run Sheets

Client: HHT Job Number: 19-538 Tracking #: 0050  
 Model: 4300ACC-C Run Number: 3 Test Date: 12/5/19

### Wood Heater Run Notes

#### Test Control Settings

Primary Air Setting(s): Fully open, rear air fully closed  
 Targeted Burn Category: III

#### Preburn Notes

Time	Notes

#### Test Notes

Test Burn Start Time: 11:05 Test Fuel Loaded by: 25 seconds  
 Door Closed: 30 seconds Air Control Set at: 0 seconds  
 Other Loading Notes: Rear air shut at 300 sec

Time	Notes
60:00	Changed filter A

Test Burn End Time: 16:34


#### Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO<sub>2</sub> (%): 9.99 CO (%): 1.00

#### Calibration Results:

	Pre Test		Post Test	
	Zero	Span	Zero	Span
Time	08:13	08:14	19:02	19:06
CO <sub>2</sub>	0.00	9.96	0.03	10.01
CO	0.00	0.99	0.01	1.00

Flue Gas Probe Leak Check: Initial: No Leakage Final: No Leakage

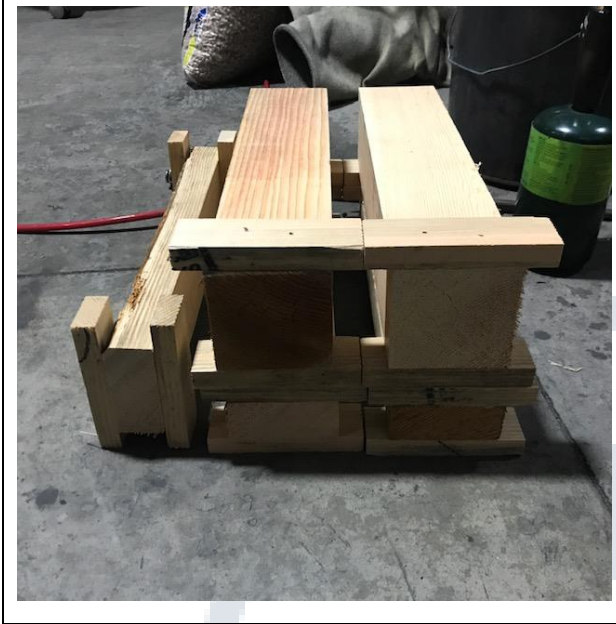
Technician Signature:  Date: 12/18/2019

# ASTM E2780 Wood Heater Run Sheets

Client: HHT  
Model: 4300ACC-C

Job Number: 19-538  
Run Number: 3

Tracking #: 0050  
Test Date: 12/5/19



Test Fuel Side View




Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: 

Date: 12/18/2019

**WOOD STOVE TEST DATA PACKET**  
**ASTM E2780/E2515**



**Run 4 Data Summary**

Client:	HHT
Model:	4300ACC-C
Job #:	19-538
Tracking #:	0050
Test Date:	12/5/2019

  
\_\_\_\_\_  
Technician Signature

12/18/2019  
\_\_\_\_\_  
Date

# TEST RESULTS - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

<b>Burn Rate (kg/hr):</b>	<b>2.79</b>
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	0.000	19.230	19.953	9.490
Average Gas Velocity in Dilution Tunnel (ft/sec)	19.5			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11570.5			
Average Gas Meter Temperature (°F)	76.0	79.9	79.3	79.1
Total Sample Volume (dscf)	0.000	17.839	18.611	8.817
Average Tunnel Temperature (°F)	122.3			
Total Time of Test (min)	121			
Total Particulate Catch (mg)	0.0	4.9	4.5	4.2
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0002747	0.0002418	0.0004764
Total PM Emissions (g)	0.00	6.41	5.64	5.51
Particulate Emission Rate (g/hr)	0.00	3.18	2.80	5.51
Emissions Factor (g/kg)	-	1.14	1.00	-
Difference from Average Total Particulate Emissions (g)	-	0.38	0.38	-
Difference from Average Emissions Factor (g/kg)	-	0.07	0.07	-

Final Average Results	
Total Particulate Emissions (g)	6.03
Particulate Emission Rate (g/hr)	2.99
Emissions Factor (g/kg)	1.07
HHV Efficiency (%)	71.2%
LHV Efficiency (%)	76.9%
CO Emissions (g/min)	2.62

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	83.0	OK
Face Velocity	< 30 ft/min	9.4	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min: 74 / Max: 78	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-4.4%	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	49.0	OK

## B415.1 Efficiency Results

**Manufacturer:** HHT  
**Model:** 4300ACC-C  
**Date:** 12/05/19  
**Run:** 4  
**Control #:** 19-538  
**Test Duration:** 121  
**Output Category:** 4

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	71.2%	76.9%
<b>Combustion Efficiency</b>	95.9%	95.9%
<b>Heat Transfer Efficiency</b>	74.2%	80.2%

<b>Output Rate (kJ/h)</b>	38,748	36,757	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	2.75	6.06	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	54,454	51,655	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.54	12.22	<b>dry lb</b>
<b>MC wet (%)</b>	18.55		
<b>MC dry (%)</b>	22.77		
<b>Particulate (g )</b>	6.03		
<b>CO (g)</b>	318		
<b>Test Duration (h)</b>	2.02		

	Particulate	CO
<b>Emissions</b>		
<b>g/MJ Output</b>	0.08	4.06
<b>g/kg Dry Fuel</b>	1.09	57.30
<b>g/h</b>	2.99	157.49
<b>g/min</b>	0.05	2.62
<b>lb/MM Btu Output</b>	0.18	9.45

<b>Air/Fuel Ratio (A/F)</b>	11.02
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VERSION:

2.2

12/14/2009



# WOODSTOVE FUEL DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
	15.00	18.9			11.50	18.6
	15.00	19.9				
	15.00	20.1				
	15.00	16.9				
	11.50	24.5				
	11.50	23.2				
	11.50	20.4				
	11.50	22.4				
Total Fuel Weight (lbs):		13.2	Average Moisture (%DB):		20.5	

Firebox Volume (ft <sup>3</sup> ):	
Total 2x4 Crib Weight, with spacers (lbs):	6.50
Total 4x4 Crib Weight, with spacers (lbs):	8.50
Total Wet Fuel Weight, with spacers (lbs):	15.00

**Coal Bed Range (20-25%):**  
 Min (lbs): 3.00  
 Max (lbs): 3.75

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
4x4	15.50	4.10	23.1	22.0	22.0	3.35
4x4	15.50	3.80	23.6	23.8	19.4	3.11
2x4	15.50	1.70	24.1	24.2	23.4	1.37
2x4	15.50	1.60	25.0	24.2	24.8	1.28
2x4	15.50	1.90	19.7	18.9	23.4	1.57
Total Dry Weight, no spacers (lbs):						10.69
Total Dry Weight, with spacers (lbs):						12.42

Spacer Moisture Readings (%DB)							
10.0							


Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	29.6	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	#DIV/0!	#DIV/0!
2x4 Fuel Mix	35 - 65 % of total weight	43%	OK

## DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4  
 Test Start Time: 14:20

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Total Sampling Time (min): 121  
 Recording Interval (min): 1

Meter Box  $\gamma$  Factor: 0.998 (A)  
 Meter Box  $\gamma$  Factor: 1.002 (B)  
 Meter Box  $\gamma$  Factor: 1.000 (Ambient)

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	28.37	28.38	28.38
Relative Humidity (%)			
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:			ft <sup>3</sup>

Induced Draft Check (in. H<sub>2</sub>O): 0  
 Smoke Capture Check (%): 100%  
 Date Flue Pipe Last Cleaned: 11/25/2019

**Sample Train Post-Test Leak Checks**

(A)	0.000	cfm @	-10 in. Hg
(B)	0.000	cfm @	-9 in. Hg
(Ambient)		cfm @	in. Hg

## DILUTION TUNNEL FLOW

**Traverse Data**

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.036	92
2	0.104	92
3	0.094	92
4	0.050	92
5	0.066	100
6	0.088	100
7	0.102	100
8	0.092	100
Center	0.116	107

Dilution Tunnel H<sub>2</sub>O: 2.00 percent  
 Tunnel Diameter: 6 inches  
 Pitot Tube Cp: 0.99 [unitless]  
 Dilution Tunnel MW(dry): 29.00 lb/lb-mole  
 Dilution Tunnel MW(wet): 28.78 lb/lb-mole  
 Tunnel Area: 0.1963 ft<sup>2</sup>

V<sub>strav</sub>: 19.90 ft/sec  
 V<sub>scnt</sub>: 24.04 ft/sec  
 F<sub>p</sub>: 0.828 [ratio]  
 Initial Tunnel Flow: 201.2 scf/min

Static Pressure: -0.740 in. H<sub>2</sub>O

## TEST FUEL PROPERTIES

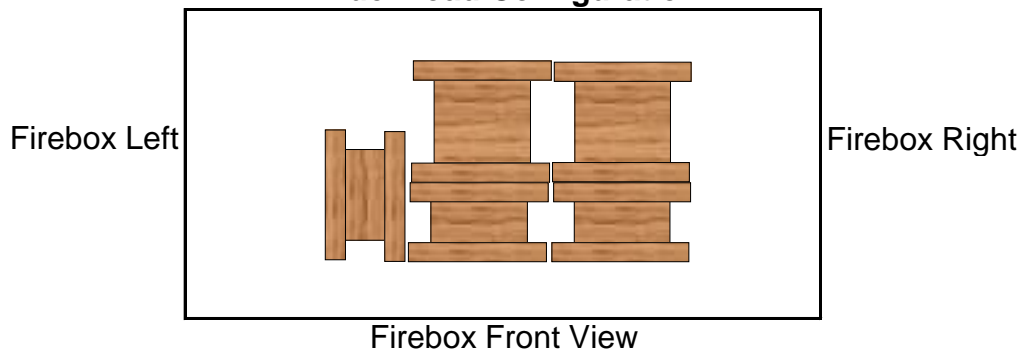
**Default Fuel Values**

Fuel Type:	D. Fir	Oak
HHV (kJ/kg)	19,810	19,887
%C	48.73	50
%H	6.87	6.6
%O	43.9	42.9
%Ash	0.5	0.5

**Actual Fuel Used Properties**

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	22.8

**Fuel Load Configuration**



# WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Recording Interval (min): 1  
 Run Time (min): 93

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)						Stove Surface Average	Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom				
0	13.6	-0.086	418	397	438	860	359	494.4	681	74	
1	13.7	-0.086	427	402	447	872	361	501.8	679	74	
2	13.7	-0.086	436	408	456	880	364	508.8	677	74	
3	13.7	-0.087	446	413	467	888	366	516.0	676	74	
4	13.6	-0.090	455	419	477	895	369	523.0	675	74	
5	13.7	-0.078	465	425	488	900	372	530.0	674	74	
6	13.7	-0.089	474	432	499	901	376	536.4	675	74	
7	13.6	-0.090	482	438	511	906	379	543.2	675	75	
8	13.7	-0.080	491	445	523	909	383	550.2	674	74	
9	13.7	-0.085	500	452	535	902	387	555.2	670	74	
10	13.7	-0.085	508	459	550	903	390	562.0	661	75	
11	13.6	-0.078	517	467	566	894	394	567.6	643	75	
12	13.7	-0.074	524	474	582	884	397	572.2	622	75	
13	13.7	-0.079	532	482	599	866	401	576.0	605	75	
14	13.6	-0.077	539	489	612	853	405	579.6	589	75	
15	13.6	-0.075	545	497	626	836	408	582.4	575	75	
16	13.7	-0.072	551	505	640	816	412	584.8	556	75	
17	13.8	-0.068	555	513	654	793	415	586.0	535	75	
18	13.6	-0.071	560	521	666	767	419	586.6	515	75	
19	13.7	-0.064	563	528	677	744	423	587.0	498	75	
20	13.7	-0.066	565	536	687	720	427	587.0	483	75	
21	13.6	-0.069	567	543	692	700	431	586.6	470	75	
22	13.7	-0.060	569	549	697	680	435	586.0	459	75	
23	13.7	-0.063	570	554	698	662	439	584.6	450	75	
24	13.7	-0.057	570	559	699	644	443	583.0	442	74	
25	13.6	-0.066	570	563	699	630	447	581.8	434	75	
26	13.6	-0.060	570	566	696	617	451	580.0	427	75	
27	13.7	-0.052	569	568	695	599	454	577.0	421	74	
28	13.7	-0.064	568	571	693	588	458	575.6	416	74	
29	13.6	-0.060	567	572	691	579	461	574.0	411	74	
30	13.8	-0.059	566	573	689	572	464	572.8	407	73	
31	13.7	-0.060	564	574	686	561	467	570.4	402	74	
32	13.7	-0.063	563	574	683	553	470	568.6	399	73	
33	13.7	-0.071	561	577	683	542	473	567.2	384	74	
34	13.6	-0.065	564	578	681	498	477	559.6	389	73	
35	13.7	-0.080	565	578	676	502	480	560.2	442	74	
36	13.6	-0.081	566	577	667	535	483	565.6	516	74	
37	13.7	-0.081	566	576	657	574	485	571.6	562	74	
38	13.6	-0.090	565	575	645	611	487	576.6	595	74	
39	13.7	-0.085	564	573	633	647	488	581.0	616	74	
40	13.7	-0.083	563	571	622	677	489	584.4	630	74	
41	13.6	-0.085	562	568	611	701	489	586.2	642	74	
42	13.6	-0.084	561	566	600	721	489	587.4	648	74	
43	13.7	-0.088	560	564	590	737	488	587.8	652	74	
44	13.6	-0.082	559	562	582	751	487	588.2	654	74	
45	13.6	-0.088	559	560	574	763	486	588.4	657	74	

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Recording Interval (min): 1  
 Run Time (min): 93

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)						Stove Surface Average	Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom				
46	13.7	-0.091	559	558	567	771	485	588.0	660	75	
47	13.7	-0.081	559	556	560	780	483	587.6	660	74	
48	13.6	-0.085	558	555	554	788	482	587.4	661	75	
49	13.7	-0.086	559	554	547	793	480	586.6	662	75	
50	13.6	-0.092	559	553	543	796	479	586.0	661	75	
51	13.6	-0.082	560	552	539	799	477	585.4	661	75	
52	13.6	-0.088	561	552	536	806	475	586.0	659	75	
53	13.7	-0.086	562	552	533	809	474	586.0	657	76	
54	13.6	-0.086	563	552	531	809	472	585.4	656	76	
55	13.7	-0.081	565	553	529	812	471	586.0	654	77	
56	13.6	-0.090	566	553	528	809	470	585.2	650	76	
57	13.7	-0.088	568	554	527	815	468	586.4	649	76	
58	13.7	-0.082	570	555	527	812	467	586.2	647	76	
59	13.6	-0.090	572	556	527	815	466	587.2	643	76	
60	13.6	-0.082	574	557	527	816	465	587.8	637	76	
61	13.6	-0.081	577	559	527	816	464	588.6	631	77	
62	13.6	-0.085	579	561	529	822	463	590.8	624	77	
63	13.6	-0.082	582	562	530	820	463	591.4	619	77	
64	13.7	-0.083	585	564	533	818	462	592.4	618	77	
65	13.6	-0.083	588	566	534	818	462	593.6	615	77	
66	13.6	-0.087	592	568	537	818	462	595.4	614	78	
67	13.7	-0.081	595	570	540	817	462	596.8	619	77	
68	13.7	-0.080	599	573	545	809	461	597.4	620	77	
69	13.6	-0.077	603	575	549	802	461	598.0	611	77	
70	13.6	-0.078	606	577	556	784	461	596.8	595	77	
71	13.6	-0.069	609	580	563	759	462	594.6	576	77	
72	13.6	-0.067	612	582	570	738	462	592.8	558	78	
73	13.7	-0.076	615	585	578	714	462	590.8	539	77	
74	13.6	-0.076	617	587	586	690	462	588.4	520	77	
75	13.7	-0.069	619	590	594	666	462	586.2	501	78	
76	13.6	-0.073	619	592	601	640	462	582.8	484	78	
77	13.6	-0.071	620	594	609	616	463	580.4	469	77	
78	13.6	-0.068	620	595	617	596	463	578.2	456	77	
79	13.6	-0.064	619	597	624	574	463	575.4	444	77	
80	13.7	-0.061	618	598	629	555	464	572.8	434	77	
81	13.6	-0.065	616	599	633	535	465	569.6	425	77	
82	13.7	-0.059	615	599	635	519	465	566.6	417	77	
83	13.7	-0.057	613	600	637	503	466	563.8	410	76	
84	13.6	-0.066	611	600	638	488	467	560.8	403	77	
85	13.6	-0.059	609	600	638	476	468	558.2	398	77	
86	13.6	-0.058	607	599	638	462	469	555.0	392	76	
87	13.6	-0.058	604	599	637	451	470	552.2	387	77	
88	13.7	-0.056	602	598	634	441	471	549.2	383	77	
89	13.6	-0.058	599	597	633	433	472	546.8	379	76	
90	13.6	-0.066	597	599	632	422	473	544.6	367	76	
91	13.6	-0.058	595	597	628	407	475	540.4	357	76	

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Recording Interval (min): 1  
 Run Time (min): 93

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
92	13.6	-0.057	593	596	624	396	476	537.0	352	76	
93	13.7	-0.052	590	594	619	389	477	533.8	347	76	

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.003		0.117	0.01	76	2		15.0		109	344	78	76
1	0.137	0.134	0.118	1.01	76	2	82	14.9	-0.1	133	317	80	76
2	0.296	0.159	0.114	1.03	76	2	98	14.7	-0.17916	123	343	80	76
3	0.454	0.158	0.112	0.97	76	2	99	14.5	-0.22556	124	411	80	76
4	0.609	0.155	0.109	1.02	76	2	99	14.2	-0.25498	129	469	81	76
5	0.766	0.157	0.103	0.98	77	2	102	13.9	-0.30203	132	516	73	76
6	0.921	0.155	0.104	0.98	77	2	101	13.7	-0.27122	135	554	72	76
7	1.074	0.153	0.106	0.63	77	2	99	13.3	-0.31882	138	580	72	76
8	1.237	0.163	0.105	1.03	77	2	106	13.1	-0.29243	141	602	73	77
9	1.396	0.159	0.108	1.04	77	2	102	12.8	-0.30017	142	620	73	76
10	1.551	0.155	0.111	1.05	77	2	99	12.4	-0.31006	144	633	73	76
11	1.711	0.160	0.107	1.02	77	2	104	12.1	-0.36026	146	641	74	76
12	1.867	0.156	0.102	0.99	77	2	104	11.8	-0.32211	146	647	74	76
13	2.021	0.154	0.102	1.01	77	2	102	11.4	-0.33897	148	651	74	76
14	2.177	0.156	0.099	1.00	77	2	106	11.1	-0.29607	149	653	74	76
15	2.333	0.156	0.096	1.03	77	2	107	10.8	-0.2957	149	654	75	76
16	2.486	0.153	0.094	1.00	78	2	106	10.5	-0.34539	150	654	75	77
17	2.643	0.157	0.095	1.09	78	2	108	10.2	-0.32803	150	653	75	76
18	2.803	0.160	0.093	1.04	78	2	111	9.9	-0.29232	150	653	75	76
19	2.959	0.156	0.092	1.04	78	2	109	9.5	-0.32264	150	654	75	77
20	3.119	0.160	0.096	0.99	78	2	110	9.2	-0.32393	150	654	75	76
21	3.277	0.158	0.098	1.05	78	2	107	8.9	-0.27427	150	653	76	76
22	3.436	0.159	0.099	1.01	78	2	107	8.6	-0.31814	150	651	76	76
23	3.595	0.159	0.100	1.03	79	2	107	8.4	-0.26927	150	650	76	77
24	3.750	0.155	0.101	1.00	79	2	104	8.1	-0.28129	151	650	76	76
25	3.909	0.159	0.101	1.03	79	2	106	7.8	-0.30189	151	649	77	76
26	4.065	0.156	0.099	1.04	79	2	105	7.5	-0.2698	150	646	77	77
27	4.221	0.156	0.096	1.03	79	2	107	7.2	-0.27499	150	640	77	77
28	4.377	0.156	0.099	1.02	79	2	105	7.0	-0.27701	150	640	77	77
29	4.533	0.156	0.096	1.07	79	2	107	6.7	-0.27905	149	641	77	77
30	4.691	0.158	0.092	1.04	79	2	111	6.4	-0.23654	149	641	77	77
31	4.851	0.160	0.095	1.06	80	2	110	6.2	-0.20818	148	638	77	77
32	5.011	0.160	0.102	1.04	80	2	106	6.0	-0.20749	147	636	77	77

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
33	5.169	0.158	0.098	1.04	80	2	106	5.8	-0.22544	147	633	77	77
34	5.329	0.160	0.098	1.03	80	2	108	5.6	-0.22915	146	629	77	77
35	5.488	0.159	0.101	1.04	80	2	106	5.4	-0.21228	145	622	77	78
36	5.649	0.161	0.097	1.04	80	2	109	5.2	-0.20073	144	613	77	77
37	5.806	0.157	0.094	1.02	80	2	108	5.0	-0.17995	143	606	77	77
38	5.970	0.164	0.092	1.02	80	2	114	4.8	-0.22253	142	600	76	78
39	6.130	0.160	0.096	1.01	80	2	108	4.6	-0.15496	141	592	76	77
40	6.290	0.160	0.098	1.04	80	2	107	4.4	-0.1567	139	583	76	77
41	6.449	0.159	0.101	1.02	80	2	105	4.3	-0.11729	138	571	76	78
42	6.607	0.158	0.103	1.00	81	2	103	4.2	-0.14007	135	556	76	77
43	6.767	0.160	0.104	1.01	81	2	103	4.1	-0.12956	134	542	77	77
44	6.925	0.158	0.110	1.06	81	2	99	3.9	-0.12476	132	529	77	78
45	7.085	0.160	0.109	1.02	81	2	101	3.8	-0.12172	131	517	77	77
46	7.245	0.160	0.109	1.06	81	2	101	3.7	-0.09268	130	506	77	78
47	7.406	0.161	0.110	1.07	81	2	101	3.6	-0.1197	129	497	77	78
48	7.565	0.159	0.115	1.02	81	2	97	3.5	-0.07118	127	489	77	77
49	7.727	0.162	0.113	1.04	81	2	100	3.4	-0.08957	126	482	77	77
50	7.886	0.159	0.113	1.05	81	2	98	3.3	-0.12091	125	476	77	77
51	8.048	0.162	0.117	1.05	81	2	98	3.2	-0.08324	124	469	77	77
52	8.208	0.160	0.117	1.03	81	2	97	3.2	-0.06896	123	463	77	77
53	8.369	0.161	0.114	1.04	81	2	99	3.1	-0.08751	123	458	77	77
54	8.531	0.162	0.114	1.03	81	2	99	3.0	-0.09737	122	454	77	77
55	8.691	0.160	0.112	1.01	81	2	98	2.9	-0.06397	121	450	77	77
56	8.852	0.161	0.112	1.04	81	2	99	2.8	-0.11806	121	447	77	77
57	9.012	0.160	0.109	1.06	81	2	100	2.7	-0.10125	120	444	77	77
58	9.174	0.162	0.108	1.03	81	2	102	2.6	-0.05676	120	442	77	77
59	9.332	0.158	0.108	1.04	81	2	99	2.5	-0.09769	120	440	77	77
60	9.493	0.161	0.112	1.03	81	2	99	2.5	-0.06919	119	438	77	77
61	9.647	0.154	0.112	0.94	81	2	95	2.4	-0.0884	119	435	79	77
62	9.805	0.158	0.115	1.03	81	2	96	2.3	-0.10262	118	432	76	77
63	9.965	0.160	0.113	1.06	81	2	98	2.2	-0.05612	118	430	76	77
64	10.124	0.159	0.108	0.99	81	2	99	2.2	-0.05006	117	427	76	77
65	10.284	0.160	0.106	1.02	81	2	101	2.1	-0.09332	117	425	76	77



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
66	10.444	0.160	0.104	0.99	81	2	102	2.0	-0.06628	116	424	76	77
67	10.603	0.159	0.104	1.04	81	2	101	1.9	-0.06366	116	423	76	77
68	10.762	0.159	0.108	1.04	81	2	99	1.9	-0.07683	116	422	76	76
69	10.921	0.159	0.113	1.05	81	2	97	1.8	-0.0523	116	421	76	76
70	11.082	0.161	0.109	1.04	81	2	100	1.7	-0.07823	115	420	76	76
71	11.240	0.158	0.113	1.06	81	2	96	1.7	-0.04808	115	420	76	76
72	11.400	0.160	0.110	1.06	81	2	99	1.6	-0.09272	115	419	76	76
73	11.558	0.158	0.110	1.01	81	2	98	1.5	-0.06396	114	415	76	76
74	11.718	0.160	0.108	1.04	81	2	100	1.5	-0.03004	114	412	76	76
75	11.878	0.160	0.110	0.99	81	2	99	1.4	-0.05993	113	409	76	76
76	12.036	0.158	0.109	1.05	81	2	98	1.4	-0.04564	113	404	76	76
77	12.198	0.162	0.111	1.02	81	2	99	1.4	-0.04355	112	399	76	76
78	12.356	0.158	0.113	1.05	81	2	96	1.3	-0.04075	111	393	76	76
79	12.517	0.161	0.113	1.04	81	2	98	1.3	-0.03238	111	387	76	76
80	12.676	0.159	0.117	1.02	81	2	95	1.2	-0.06507	110	382	76	76
81	12.836	0.160	0.119	1.01	81	2	95	1.2	-0.02901	109	377	75	76
82	12.993	0.157	0.120	1.00	81	2	92	1.2	-0.01026	109	372	75	76
83	13.154	0.161	0.116	1.04	81	2	96	1.1	-0.08147	108	368	75	76
84	13.314	0.160	0.118	0.99	81	2	95	1.1	-0.02045	108	364	75	76
85	13.473	0.159	0.116	1.03	81	2	95	1.0	-0.04157	107	361	75	76
86	13.633	0.160	0.112	1.01	81	2	97	1.0	-0.00656	107	357	75	76
87	13.791	0.158	0.113	1.06	81	2	96	1.0	-0.04945	106	354	75	76
88	13.952	0.161	0.118	1.05	81	2	95	0.9	-0.04572	106	351	75	75
89	14.111	0.159	0.118	1.00	81	2	94	0.9	0.00173	106	349	75	75
90	14.272	0.161	0.119	1.05	81	2	95	0.9	-0.04271	105	347	75	75
91	14.430	0.158	0.118	1.00	81	2	94	0.9	-0.01604	105	345	75	75
92	14.591	0.161	0.115	1.07	81	2	96	0.8	-0.0607	105	343	75	75
93	14.749	0.158	0.113	1.00	81	2	96	0.8	-0.01432	105	341	75	75
94	14.909	0.160	0.112	1.03	81	2	97	0.8	-0.04571	104	339	75	75
95	15.070	0.161	0.115	1.02	81	2	96	0.7	-0.02289	104	338	75	75
96	15.230	0.160	0.116	1.04	81	2	95	0.7	-0.0206	104	336	74	75
97	15.391	0.161	0.118	1.07	81	2	95	0.7	-0.02865	104	334	74	75
98	15.550	0.159	0.116	0.99	81	2	95	0.7	-0.00357	103	332	74	75

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
99	15.711	0.161	0.114	1.03	81	2	97	0.6	-0.05863	103	330	74	75
100	15.870	0.159	0.106	1.00	80	2	99	0.6	-0.02639	102	328	74	75
101	16.032	0.162	0.110	0.99	80	2	99	0.6	-0.04145	102	326	74	75
102	16.192	0.160	0.105	1.00	80	2	100	0.5	-0.02517	102	325	74	75
103	16.352	0.160	0.109	1.01	80	2	98	0.5	-0.01716	102	324	74	75
104	16.509	0.157	0.110	1.04	80	2	96	0.5	-0.02377	102	323	74	74
105	16.671	0.162	0.113	1.00	80	2	98	0.5	-0.03066	101	322	74	75
106	16.831	0.160	0.111	1.04	80	2	97	0.4	-0.01491	101	321	74	74
107	16.990	0.159	0.113	1.02	80	2	96	0.4	-0.05772	101	320	74	75
108	17.149	0.159	0.112	1.00	81	2	96	0.4	0.0065	101	319	74	75
109	17.309	0.160	0.112	1.04	81	2	97	0.3	-0.04657	101	319	74	75
110	17.469	0.160	0.111	1.03	81	2	97	0.3	-0.0209	101	318	74	74
111	17.628	0.159	0.112	1.01	81	2	96	0.3	-0.01855	101	317	74	74
112	17.789	0.161	0.114	1.03	80	2	97	0.3	-0.04878	100	316	74	74
113	17.948	0.159	0.116	1.07	80	2	95	0.2	-0.02256	100	316	73	74
114	18.109	0.161	0.115	1.01	80	2	96	0.2	-0.04952	100	316	73	74
115	18.269	0.160	0.117	1.06	80	2	95	0.2	-0.01839	100	316	73	75
116	18.430	0.161	0.114	1.03	80	2	97	0.2	-0.00037	100	316	73	74
117	18.588	0.158	0.112	1.06	80	2	96	0.1	-0.08079	100	315	73	74
118	18.750	0.162	0.110	1.01	80	2	99	0.1	0.00115	100	315	73	75
119	18.909	0.159	0.108	1.04	80	2	98	0.0	-0.03974	100	314	73	74
120	19.071	0.162	0.104	0.99	80	2	102	0.0	0.0027	100	314	73	74
121	19.230	0.159	0.108	1.06	80	2	98	0.0	-0.04952	99	313	73	74
Avg/Tot	19.230	0.159	0.108	1.02	80	2.00	100			122	460	76	76.0

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.002		0.00	76	2		82	0.000	4.35	0.62
1	0.140	0.138	1.10	76	2	81	83	-0.050	1.29	0.18
2	0.301	0.161	1.09	76	2	96	83	-0.070	8.44	0.60
3	0.462	0.161	1.08	76	2	97	83	-0.080	13.69	0.20
4	0.620	0.158	1.10	76	2	97	83	-0.070	15.45	0.52
5	0.783	0.163	1.09	76	2	103	77	-0.080	16.26	1.04
6	0.945	0.162	1.09	76	2	102	74	-0.090	16.61	1.21
7	1.104	0.159	1.12	76	2	99	73	-0.080	16.76	1.20
8	1.269	0.165	1.12	76	2	104	74	-0.090	16.94	1.16
9	1.431	0.162	1.12	76	2	100	74	-0.090	17.21	1.20
10	1.594	0.163	1.10	77	2	100	74	-0.080	17.50	1.19
11	1.754	0.160	1.10	77	2	100	74	-0.090	17.66	1.25
12	1.913	0.159	1.10	77	2	102	74	-0.080	17.60	1.24
13	2.075	0.162	1.09	77	2	104	75	-0.090	17.70	1.35
14	2.233	0.158	1.08	77	2	103	75	-0.090	17.72	1.30
15	2.393	0.160	1.07	77	2	106	75	-0.090	17.68	1.46
16	2.553	0.160	1.08	77	2	107	75	-0.080	17.73	1.39
17	2.716	0.163	1.10	77	2	109	75	-0.090	17.58	1.50
18	2.875	0.159	1.10	78	2	107	76	-0.090	17.61	1.44
19	3.038	0.163	1.10	78	2	110	76	-0.080	17.43	1.29
20	3.199	0.161	1.09	78	2	106	76	-0.090	17.36	1.24
21	3.357	0.158	1.08	78	2	103	76	-0.080	17.72	1.24
22	3.520	0.163	1.07	78	2	106	76	-0.090	17.72	1.19
23	3.679	0.159	1.07	79	2	103	76	-0.080	17.69	1.07
24	3.834	0.155	1.08	79	2	100	76	-0.080	17.60	0.98
25	3.990	0.156	1.05	79	2	100	76	-0.080	17.50	0.98
26	4.150	0.160	1.10	79	2	104	76	-0.090	17.22	0.95
27	4.313	0.163	1.08	79	2	108	76	-0.080	16.97	1.33
28	4.475	0.162	1.08	79	2	105	76	-0.080	16.74	1.60
29	4.639	0.164	1.10	79	2	108	76	-0.090	16.47	1.31
30	4.802	0.163	1.11	80	2	110	76	-0.080	16.20	1.07
31	4.965	0.163	1.10	80	2	108	77	-0.080	15.85	0.89
32	5.126	0.161	1.11	80	2	103	77	-0.080	15.91	0.55

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
33	5.288	0.162	1.10	80	2	105	77	-0.080	15.63	0.53
34	5.453	0.165	1.12	80	2	107	77	-0.080	15.48	0.43
35	5.615	0.162	1.10	80	2	104	77	-0.080	14.86	0.51
36	5.780	0.165	1.11	80	2	107	77	-0.080	14.56	0.27
37	5.942	0.162	1.07	80	2	107	77	-0.080	14.52	0.28
38	6.098	0.156	1.08	80	2	104	77	-0.080	14.35	0.36
39	6.269	0.171	1.24	80	2	111	77	-0.080	13.85	0.34
40	6.444	0.175	1.23	81	2	113	77	-0.080	13.51	0.19
41	6.617	0.173	1.24	81	2	110	77	-0.080	12.81	0.13
42	6.784	0.167	1.07	81	2	104	76	-0.080	12.00	0.10
43	6.949	0.165	1.13	81	2	103	76	-0.060	11.41	0.08
44	7.113	0.164	1.13	81	2	99	76	-0.070	10.99	0.10
45	7.278	0.165	1.13	81	2	100	76	-0.070	10.75	0.09
46	7.442	0.164	1.13	81	2	99	75	-0.070	10.70	0.08
47	7.607	0.165	1.13	81	2	99	75	-0.080	10.45	0.07
48	7.773	0.166	1.13	81	2	98	75	-0.060	10.44	0.07
49	7.942	0.169	1.14	81	2	100	75	-0.060	10.19	0.07
50	8.108	0.166	1.14	81	2	98	75	-0.070	10.06	0.07
51	8.277	0.169	1.13	80	2	99	75	-0.070	10.01	0.08
52	8.441	0.164	1.15	81	2	95	75	-0.060	9.94	0.08
53	8.608	0.167	1.13	81	2	99	76	-0.070	9.92	0.09
54	8.772	0.164	1.12	81	2	96	76	-0.060	9.89	0.08
55	8.940	0.168	1.15	81	2	99	76	-0.070	9.75	0.08
56	9.103	0.163	1.13	81	2	97	76	-0.070	9.77	0.08
57	9.270	0.167	1.13	81	2	100	76	-0.060	9.82	0.08
58	9.433	0.163	1.13	80	2	99	76	-0.060	9.86	0.08
59	9.598	0.165	1.14	80	2	100	76	-0.060	9.87	0.08
60	9.766	0.168	1.13	80	2	100	76	-0.070	9.80	0.08
61	9.932	0.166	1.16	80	2	98	75	-0.060	9.54	0.11
62	10.098	0.166	1.14	80	2	97	75	-0.060	9.53	0.11
63	10.263	0.165	1.13	80	2	97	75	-0.060	9.51	0.11
64	10.432	0.169	1.14	80	2	102	75	-0.050	9.48	0.11
65	10.599	0.167	1.15	80	2	102	75	-0.060	9.61	0.11

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
66	10.766	0.167	1.17	80	2	103	75	-0.070	9.53	0.10
67	10.930	0.164	1.14	80	2	101	75	-0.060	9.39	0.10
68	11.099	0.169	1.13	80	2	102	75	-0.070	9.28	0.11
69	11.268	0.169	1.12	80	2	100	75	-0.060	9.19	0.11
70	11.434	0.166	1.14	80	2	99	75	-0.070	9.19	0.10
71	11.601	0.167	1.13	80	2	98	75	-0.060	9.28	0.10
72	11.766	0.165	1.12	80	2	98	75	-0.060	9.12	0.10
73	11.934	0.168	1.12	80	2	100	75	-0.060	8.74	0.12
74	12.097	0.163	1.12	80	2	98	75	-0.060	8.43	0.12
75	12.266	0.169	1.13	80	2	100	75	-0.060	8.41	0.15
76	12.432	0.166	1.13	80	2	99	75	-0.050	8.17	0.18
77	12.599	0.167	1.13	80	2	99	75	-0.060	7.83	0.20
78	12.764	0.165	1.13	80	2	97	75	-0.060	7.68	0.22
79	12.933	0.169	1.13	80	2	99	75	-0.060	7.54	0.24
80	13.099	0.166	1.13	80	2	95	75	-0.060	7.36	0.26
81	13.267	0.168	1.13	80	2	96	75	-0.060	7.13	0.29
82	13.433	0.166	1.13	80	2	94	75	-0.060	6.98	0.28
83	13.599	0.166	1.13	80	2	96	74	-0.050	7.05	0.29
84	13.769	0.170	1.14	81	2	97	74	-0.060	7.01	0.30
85	13.932	0.163	1.12	81	2	94	74	-0.050	6.96	0.32
86	14.099	0.167	1.14	81	2	98	74	-0.060	6.75	0.34
87	14.266	0.167	1.12	80	2	97	74	-0.050	6.74	0.36
88	14.433	0.167	1.14	80	2	95	74	-0.060	6.79	0.38
89	14.599	0.166	1.14	80	2	95	74	-0.050	6.81	0.38
90	14.765	0.166	1.14	80	2	94	74	-0.050	6.76	0.38
91	14.934	0.169	1.17	80	2	97	74	-0.060	6.82	0.39
92	15.100	0.166	1.15	80	2	96	74	-0.060	6.68	0.41
93	15.268	0.168	1.14	79	2	98	74	-0.050	6.63	0.43
94	15.433	0.165	1.13	79	2	97	74	-0.050	6.63	0.41
95	15.600	0.167	1.15	79	2	97	74	-0.050	6.52	0.43
96	15.767	0.167	1.13	79	2	96	73	-0.050	6.39	0.48
97	15.934	0.167	1.14	79	2	95	73	-0.050	6.39	0.50
98	16.103	0.169	1.13	79	2	97	73	-0.050	6.31	0.53

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
99	16.268	0.165	1.13	79	2	96	73	-0.050	6.30	0.56
100	16.436	0.168	1.15	79	2	101	73	-0.050	6.24	0.55
101	16.601	0.165	1.13	79	2	97	73	-0.050	6.27	0.57
102	16.769	0.168	1.15	79	2	102	73	-0.040	6.18	0.57
103	16.935	0.166	1.14	79	2	99	73	-0.060	6.18	0.55
104	17.100	0.165	1.15	79	2	98	73	-0.050	6.16	0.56
105	17.269	0.169	1.13	79	2	98	73	-0.050	6.21	0.57
106	17.435	0.166	1.14	79	2	97	73	-0.050	6.09	0.58
107	17.605	0.170	1.15	79	2	99	73	-0.050	6.08	0.58
108	17.773	0.168	1.13	79	2	98	73	-0.050	6.29	0.58
109	17.942	0.169	1.15	79	2	99	73	-0.050	6.14	0.54
110	18.108	0.166	1.15	79	2	98	73	-0.050	6.02	0.52
111	18.274	0.166	1.14	79	2	97	72	-0.050	6.02	0.53
112	18.445	0.171	1.16	79	2	99	72	-0.050	6.13	0.54
113	18.609	0.164	1.13	79	2	94	72	-0.050	6.32	0.56
114	18.778	0.169	1.15	79	2	98	72	-0.050	6.21	0.55
115	18.945	0.167	1.15	79	2	96	72	-0.050	6.24	0.57
116	19.112	0.167	1.14	79	2	97	72	-0.040	6.22	0.59
117	19.283	0.171	1.14	79	2	100	72	-0.050	6.12	0.59
118	19.451	0.168	1.14	79	2	99	72	-0.040	6.08	0.60
119	19.620	0.169	1.15	79	2	100	72	-0.050	6.14	0.63
120	19.785	0.165	1.17	79	2	100	72	-0.040	6.10	0.63
121	19.953	0.168	1.13	79	2	100	72	-0.050	6.02	0.63
Avg/Tot	19.953	0.165	1.12	79	2.00	100	75	-0.065	10.57	0.52

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

**Stove ΔT:** 49

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
0	588	593	616	385	478	532.0	N/A	
1	585	594	614	371	479	528.6	N/A	
2	582	591	606	368	479	525.2	N/A	
3	579	587	594	399	480	527.8	N/A	
4	576	584	581	441	481	532.6	N/A	
5	572	580	568	489	481	538.0	N/A	
6	568	575	559	528	481	542.2	N/A	
7	564	571	549	567	481	546.4	N/A	
8	559	566	541	603	481	550.0	N/A	
9	555	562	534	631	480	552.4	N/A	
10	551	558	530	658	479	555.2	N/A	
11	549	554	525	682	478	557.6	N/A	
12	547	551	518	700	477	558.6	N/A	
13	545	548	511	718	475	559.4	N/A	
14	545	546	507	733	474	561.0	N/A	
15	544	544	505	743	472	561.6	N/A	
16	545	543	505	755	470	563.6	N/A	
17	546	541	504	763	468	564.4	N/A	
18	547	541	506	771	466	566.2	N/A	
19	549	540	508	777	464	567.6	N/A	
20	551	540	510	781	463	569.0	N/A	
21	552	540	511	785	461	569.8	N/A	
22	555	540	513	789	459	571.2	N/A	
23	557	541	514	794	457	572.6	N/A	
24	560	542	512	796	455	573.0	N/A	
25	563	543	510	799	453	573.6	N/A	
26	566	544	509	798	451	573.6	N/A	
27	570	546	507	796	450	573.8	N/A	
28	573	547	507	794	448	573.8	N/A	
29	577	549	506	798	447	575.4	N/A	
30	580	551	507	796	445	575.8	N/A	
31	583	553	508	792	444	576.0	N/A	
32	586	555	508	793	443	577.0	N/A	
33	589	557	509	788	443	577.2	N/A	
34	592	559	510	784	442	577.4	N/A	
35	595	561	512	779	441	577.6	N/A	
36	597	564	514	771	441	577.4	N/A	
37	599	566	516	766	440	577.4	N/A	
38	601	569	518	758	440	577.2	N/A	
39	602	571	520	750	440	576.6	N/A	
40	604	574	522	736	440	575.2	N/A	
41	606	576	525	724	440	574.2	N/A	
42	608	578	528	708	440	572.4	N/A	
43	608	581	531	692	441	570.6	N/A	
44	609	583	535	676	441	568.8	N/A	
45	610	585	540	659	441	567.0	N/A	
46	610	587	544	644	441	565.2	N/A	
47	611	589	549	631	442	564.4	N/A	
48	611	591	554	617	442	563.0	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

**Stove ΔT:** 49

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
49	611	593	558	604	443	561.8	N/A
50	611	595	563	590	443	560.4	N/A
51	611	597	567	578	444	559.4	N/A
52	611	598	573	568	444	558.8	N/A
53	611	599	577	558	445	558.0	N/A
54	611	600	582	547	446	557.2	N/A
55	610	600	586	540	447	556.6	N/A
56	610	601	590	533	447	556.2	N/A
57	609	601	594	525	448	555.4	N/A
58	609	601	597	519	449	555.0	N/A
59	608	601	599	514	450	554.4	N/A
60	607	601	602	510	451	554.2	N/A
61	606	601	604	505	452	553.6	N/A
62	605	601	607	501	452	553.2	N/A
63	604	601	610	495	453	552.6	N/A
64	603	600	613	494	454	552.8	N/A
65	602	600	616	490	455	552.6	N/A
66	601	600	620	487	456	552.8	N/A
67	600	599	622	482	457	552.0	N/A
68	599	599	625	480	458	552.2	N/A
69	598	598	627	477	459	551.8	N/A
70	597	598	629	472	459	551.0	N/A
71	596	597	631	472	460	551.2	N/A
72	594	597	632	471	461	551.0	N/A
73	593	596	634	468	462	550.6	N/A
74	592	595	637	463	462	549.8	N/A
75	591	595	638	459	463	549.2	N/A
76	590	594	639	455	464	548.4	N/A
77	588	594	641	450	464	547.4	N/A
78	587	593	642	444	465	546.2	N/A
79	586	592	642	438	465	544.6	N/A
80	584	591	641	432	466	542.8	N/A
81	583	591	641	426	466	541.4	N/A
82	582	590	640	418	467	539.4	N/A
83	581	589	639	412	467	537.6	N/A
84	580	588	637	406	468	535.8	N/A
85	578	587	636	401	468	534.0	N/A
86	577	586	635	396	469	532.6	N/A
87	575	585	633	389	469	530.2	N/A
88	574	584	631	386	469	528.8	N/A
89	572	582	630	382	470	527.2	N/A
90	571	581	628	377	470	525.4	N/A
91	570	580	626	372	470	523.6	N/A
92	568	579	624	368	471	522.0	N/A
93	566	577	622	365	471	520.2	N/A
94	565	576	620	361	471	518.6	N/A
95	563	575	619	358	471	517.2	N/A
96	561	574	617	357	471	516.0	N/A
97	560	572	614	351	471	513.6	N/A



# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

**Stove ΔT:** 49

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
98	559	571	612	349	471	512.4	N/A
99	557	569	609	345	471	510.2	N/A
100	556	568	607	341	471	508.6	N/A
101	553	566	606	339	471	507.0	N/A
102	552	565	604	335	471	505.4	N/A
103	550	563	601	334	471	503.8	N/A
104	549	561	598	332	471	502.2	N/A
105	547	560	596	328	470	500.2	N/A
106	545	558	593	328	470	498.8	N/A
107	543	556	591	326	470	497.2	N/A
108	541	555	589	323	470	495.6	N/A
109	540	554	589	321	470	494.8	N/A
110	538	552	586	319	469	492.8	N/A
111	536	551	584	317	469	491.4	N/A
112	535	550	583	315	469	490.4	N/A
113	534	549	582	314	468	489.4	N/A
114	532	548	581	312	468	488.2	N/A
115	531	546	581	311	468	487.4	N/A
116	530	546	580	310	467	486.6	N/A
117	529	545	580	309	467	486.0	N/A
118	529	544	580	308	466	485.4	N/A
119	528	543	579	306	466	484.4	N/A
120	527	542	579	306	465	483.8	N/A
121	527	541	578	305	464	483.0	N/A
<b>Average</b>	575	573	576	526	461	542	N/A

## LAB SAMPLE DATA - ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 4

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/5/2019

	Sample ID	Tare, mg	Total, mg	Final, mg	Catch, mg
<b>Train A Filters - First Hour</b>	3653	118.6	118.6	122.8	4.2
<b>Train A Filters - Remainder</b>	3654	119.6	238.2	238.9	0.7
	3655	118.6			
<b>Train A Probe</b>	5A	116767.1	116767.1	116767.1	0.0
<b>Train A O-Rings</b>	5A	3535.9	3535.9	3535.9	0.0
<b>Train B Filters</b>	3656	118.7	239.5	243.0	3.5
	3657	120.8			
<b>Train B Probe</b>	5B	116875.2	116875.2	116875.0	0.0*
<b>Train B O-Rings</b>	5B	3531.7	3531.7	3532.7	1.0
<b>Background Filter</b>			0.0	0.0	

\*Negative value corrected to zero

**Placed in Dessicator on:**

**Balance Audit (mg):**

200.0

200.0

	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
<b>Train A Filters - First Hour</b>	122.7	12/9 9:13	122.8	12/10 14:39				
<b>Train A Filters - Remainder</b>	239.1	12/9 9:13	238.9	12/10 14:39				
<b>Train A Probe</b>	116767.3	12/9 9:01	116767.1	12/10 14:26				
<b>Train A O-Rings</b>	3536.0	12/9 9:06	3535.9	12/10 14:29				
<b>Train B Filters</b>	243.2	12/9 9:14	243.0	12/10 14:39				
<b>Train B Probe</b>	116875.1	12/9 9:01	116875.0	12/10 14:26				
<b>Train B O-Rings</b>	3532.7	12/9 9:07	3532.7	12/10 14:29				
<b>Background Filter</b>								

1st hour Sub-Total, mg:	4.2
Remainder Sub-Total, mg:	0.7
<b>Train 1 Aggregate, mg:</b>	<b>4.9</b>
<b>Train 2 Aggregate, mg:</b>	<b>4.5</b>
Ambient Aggregate, mg:	0.0

## ASTM E2780 Wood Heater Run Sheets

Client: HHT Job Number: 19-538 Tracking #: 0050  
 Model: 4300ACC-C Run Number: 4 Test Date: 12/5/19

### Wood Heater Run Notes

#### Test Control Settings

Primary Air Setting(s): Fully open, rear air fully open  
 Targeted Burn Category: IV

#### Preburn Notes

Time	Notes

#### Test Notes

Test Burn Start Time: 16:22 Test Fuel Loaded by: 45 seconds  
 Door Closed: 82 seconds Air Control Set at: 0 seconds  
 Other Loading Notes: None

Time	Notes
60:00	Changed filter A

Test Burn End Time: 18:23


#### Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO<sub>2</sub> (%): 9.99 CO (%): 1.00

#### Calibration Results:

	Pre Test		Post Test	
	Zero	Span	Zero	Span
Time	08:13	08:14	19:02	19:06
CO <sub>2</sub>	0.00	9.96	0.03	10.01
CO	0.00	0.99	0.01	1.00

Flue Gas Probe Leak Check: Initial: No Leakage Final: No Leakage

Technician Signature:  Date: 12/18/2019

# ASTM E2780 Wood Heater Run Sheets

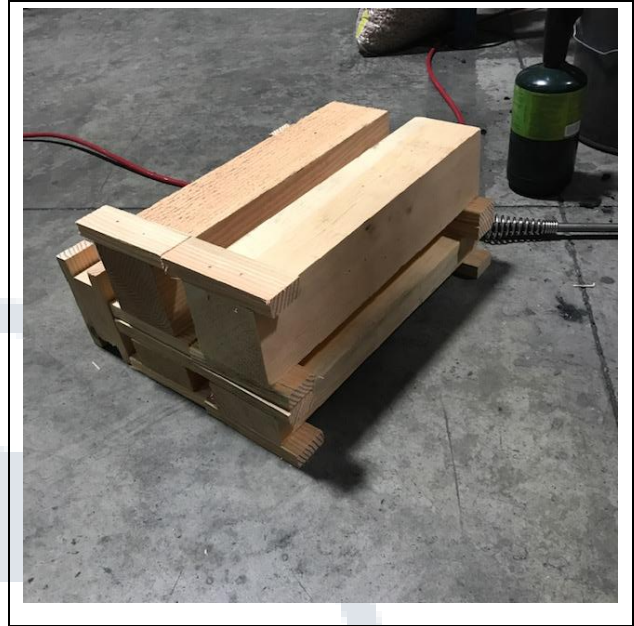
Client: HHT  
Model: 4300ACC-C

Job Number: 19-538  
Run Number: 4

Tracking #: 0050  
Test Date: 12/5/19



**Test Fuel Side View**



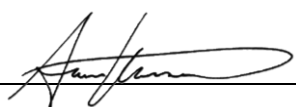
**Test Fuel Iso View**



**Test Fuel Loaded in Stove**



**Air Setting**

Technician Signature: 

Date: 12/18/2019

**WOOD STOVE TEST DATA PACKET  
ASTM E2780/E2515**



**Run 5 Data Summary**

Client:	HHT
Model:	4300ACC-C
Job #:	19-538
Tracking #:	0050
Test Date:	12/6/2019

  
\_\_\_\_\_  
Technician Signature

12/18/2019  
\_\_\_\_\_  
Date

## TEST RESULTS - ASTM E2780 / ASTM E2515

Client: HHT

Job #: 19-538

Model: 4300ACC-C

Tracking #: 0050

Run #: 5

Technician: AK

Date: 12/6/2019

<b>Burn Rate (kg/hr):</b>	<b>1.07</b>
---------------------------	-------------

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft <sup>3</sup> )	0.000	50.832	52.782	9.336
Average Gas Velocity in Dilution Tunnel (ft/sec)	18.8			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11993.5			
Average Gas Meter Temperature (°F)	71.6	72.8	72.5	75.7
Total Sample Volume (dscf)	0.000	47.889	49.966	8.748
Average Tunnel Temperature (°F)	84.8			
Total Time of Test (min)	322			
Total Particulate Catch (mg)	0.0	3.9	3.6	2.8
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000814	0.0000720	0.0003201
Total PM Emissions (g)	0.00	5.24	4.64	3.84
Particulate Emission Rate (g/hr)	0.00	0.98	0.86	3.84
Emissions Factor (g/kg)	-	0.91	0.80	-
Difference from Average Total Particulate Emissions (g)	-	0.30	0.30	-
Difference from Average Emissions Factor (g/kg)	-	0.05	0.05	-

Final Average Results	
Total Particulate Emissions (g)	4.94
Particulate Emission Rate (g/hr)	0.92
Emissions Factor (g/kg)	0.86
HHV Efficiency (%)	74.8%
LHV Efficiency (%)	80.8%
CO Emissions (g/min)	1.68

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	81.0	OK
Face Velocity	< 30 ft/min	9.1	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min: 67 / Max: 78	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-2.6%	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	71.8	OK

## B415.1 Efficiency Results

**Manufacturer:** HHT  
**Model:** 4300ACC-C  
**Date:** 12/06/19  
**Run:** 5  
**Control #:** 19-538  
**Test Duration:** 322  
**Output Category:** 2

### Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
<b>Overall Efficiency</b>	74.8%	80.8%
<b>Combustion Efficiency</b>	93.3%	93.3%
<b>Heat Transfer Efficiency</b>	80.1%	86.6%

<b>Output Rate (kJ/h)</b>	15,729	14,921	<b>(Btu/h)</b>
<b>Burn Rate (kg/h)</b>	1.06	2.34	<b>(lb/h)</b>
<b>Input (kJ/h)</b>	21,039	19,958	<b>(Btu/h)</b>

<b>Test Load Weight (dry kg)</b>	5.70	12.56	<b>dry lb</b>
<b>MC wet (%)</b>	16.25		
<b>MC dry (%)</b>	19.41		
<b>Particulate (g )</b>	4.94		
<b>CO (g)</b>	543		
<b>Test Duration (h)</b>	5.37		

	Particulate	CO
<b>Emissions</b>		
<b>g/MJ Output</b>	0.06	6.43
<b>g/kg Dry Fuel</b>	0.87	95.19
<b>g/h</b>	0.92	101.10
<b>g/min</b>	0.02	1.68
<b>lb/MM Btu Output</b>	0.14	14.94

<b>Air/Fuel Ratio (A/F)</b>	14.59
-----------------------------	-------

VERSION:

2.2

12/14/2009

# WOODSTOVE FUEL DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	8.00	23.8				
2x4	8.00	24.1				
2x4	8.00	20.6				
Total Fuel Weight (lbs):		2.8	Average Moisture (%DB):		22.8	

Firebox Volume (ft <sup>3</sup> ):	2.26
Total 2x4 Crib Weight, with spacers (lbs):	6.90
Total 4x4 Crib Weight, with spacers (lbs):	8.10
Total Wet Fuel Weight, with spacers (lbs):	15.00

**Coal Bed Range (20-25%):**  
 Min (lbs): 3.00  
 Max (lbs): 3.75

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
4x4	15.50	3.30	19.2	19.6	18.7	2.77
4x4	15.50	4.10	19.3	19.2	20.1	3.43
2x4	15.50	1.80	19.3	19.2	18.9	1.51
2x4	15.50	1.70	19.9	19.3	18.9	1.42
2x4	15.50	2.00	19.9	20.1	19.5	1.67
Total Dry Weight, no spacers (lbs):						10.80
Total Dry Weight, with spacers (lbs):						12.71

Spacer Moisture Readings (%DB)						
10.0						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft <sup>3</sup> , DB)	29.9	OK
Loading Density	6.3 - 7.7 (lbs/ft <sup>3</sup> , WB)	6.64	OK
2x4 Fuel Mix	35 - 65 % of total weight	46%	OK



## DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: **HHT**  
 Model: **4300ACC-C**  
 Run #: **5**  
 Test Start Time: **10:48**

Job #: **19-538**  
 Tracking #: **0050**  
 Technician: **AK**  
 Date: **12/6/2019**

Total Sampling Time (min): **322**  
 Recording Interval (min): **1**

Meter Box  $\gamma$  Factor: **0.998 (A)**  
 Meter Box  $\gamma$  Factor: **1.002 (B)**  
 Meter Box  $\gamma$  Factor: **1.000 (Ambient)**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	28.44	28.44	28.44
Relative Humidity (%)			
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	10.0	10.0	
Ambient Sample Volume:			ft <sup>3</sup>

Induced Draft Check (in. H<sub>2</sub>O): **0**  
 Smoke Capture Check (%): **100%**  
 Date Flue Pipe Last Cleaned: **11/25/2019**

**Sample Train Post-Test Leak Checks**

(A)	0.000	cfm @	-5 in. Hg
(B)	0.000	cfm @	-5 in. Hg
(Ambient)		cfm @	in. Hg

## DILUTION TUNNEL FLOW

### Traverse Data

Point	dP (in H <sub>2</sub> O)	Temp (°F)
1	0.056	89
2	0.090	89
3	0.102	89
4	0.066	89
5	0.054	89
6	0.091	89
7	0.080	89
8	0.042	89
Center	0.121	89

Dilution Tunnel H<sub>2</sub>O: **2.00** percent  
 Tunnel Diameter: **6** inches  
 Pitot Tube Cp: **0.99** [unitless]  
 Dilution Tunnel MW(dry): **29.00** lb/lb-mole  
 Dilution Tunnel MW(wet): **28.78** lb/lb-mole  
 Tunnel Area: **0.1963** ft<sup>2</sup>

$V_{strav}$ : **19.14** ft/sec  
 $V_{scent}$ : **24.13** ft/sec  
 $F_p$ : **0.793** [ratio]  
 Initial Tunnel Flow: **195.0** scf/min

Static Pressure: **-0.720** in. H<sub>2</sub>O

## TEST FUEL PROPERTIES

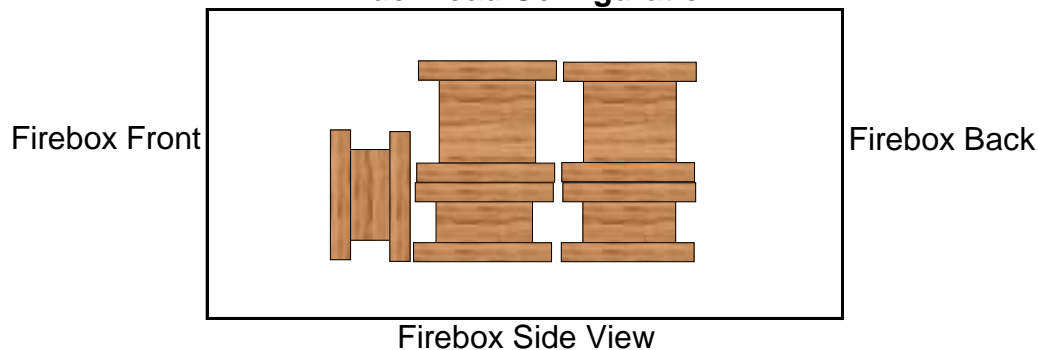
**Default Fuel Values**

Fuel Type:	D. Fir	Oak
HHV (kJ/kg)	19,810	19,887
%C	48.73	50
%H	6.87	6.6
%O	43.9	42.9
%Ash	0.5	0.5

**Actual Fuel Used Properties**

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	19.4

### Fuel Load Configuration



# WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Recording Interval (min): 1  
 Run Time (min): 97

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)						Stove Surface Average	Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom				
0	13.6	-0.085	519	510	558	707	459	550.6	642	75	
1	13.6	-0.093	523	509	558	716	458	552.8	645	75	
2	13.7	-0.081	527	509	560	727	458	556.2	645	76	
3	13.8	-0.087	532	509	563	735	457	559.2	645	75	
4	13.6	-0.094	536	509	568	741	457	562.2	644	75	
5	13.7	-0.090	540	509	572	745	456	564.4	643	75	
6	13.7	-0.085	545	509	577	750	455	567.2	643	75	
7	13.7	-0.086	549	510	581	754	455	569.8	641	75	
8	13.6	-0.087	554	511	587	756	454	572.4	639	75	
9	13.7	-0.087	559	512	593	761	454	575.8	637	75	
10	13.7	-0.088	563	513	601	768	453	579.6	635	76	
11	13.7	-0.085	568	515	609	773	453	583.6	633	76	
12	13.7	-0.087	572	517	617	780	453	587.8	631	75	
13	13.7	-0.088	576	519	625	784	453	591.4	628	76	
14	13.7	-0.076	580	521	632	787	453	594.6	626	76	
15	13.7	-0.090	584	523	639	789	453	597.6	625	76	
16	13.7	-0.088	588	525	646	788	453	600.0	623	76	
17	13.6	-0.081	591	528	652	784	453	601.6	619	76	
18	13.6	-0.082	595	531	659	781	454	604.0	613	75	
19	13.7	-0.080	598	533	665	772	454	604.4	606	76	
20	13.7	-0.074	601	536	671	769	455	606.4	599	76	
21	13.7	-0.079	604	539	677	766	455	608.2	594	76	
22	13.7	-0.079	606	542	683	760	456	609.4	587	76	
23	13.6	-0.083	608	545	687	756	457	610.6	576	76	
24	13.6	-0.079	609	549	692	743	457	610.0	562	77	
25	13.7	-0.076	610	552	695	730	458	609.0	548	77	
26	13.7	-0.063	611	556	699	723	459	609.6	518	77	
27	13.7	-0.054	605	560	701	718	461	609.0	459	78	
28	13.6	-0.059	602	565	701	696	462	605.2	414	77	
29	13.7	-0.054	600	569	698	668	463	599.6	377	77	
30	13.7	-0.045	598	572	694	646	465	595.0	349	77	
31	13.6	-0.045	595	575	688	621	466	589.0	326	77	
32	13.7	-0.039	593	577	682	602	467	584.2	307	76	
33	13.7	-0.043	589	578	676	588	468	579.8	292	77	
34	13.7	-0.042	586	578	669	569	469	574.2	279	77	
35	13.7	-0.040	583	578	663	555	470	569.8	269	77	
36	13.7	-0.036	579	578	656	541	471	565.0	260	77	
37	13.7	-0.042	575	577	650	528	471	560.2	252	77	
38	13.7	-0.044	571	575	643	515	471	555.0	246	77	
39	13.7	-0.061	567	574	638	504	472	551.0	244	77	
40	13.7	-0.034	564	571	632	491	472	546.0	255	77	
41	13.7	-0.039	560	568	627	481	473	541.8	248	77	
42	13.7	-0.043	556	565	623	474	473	538.2	243	76	
43	13.6	-0.043	551	563	618	467	473	534.4	241	77	
44	13.6	-0.053	547	561	614	464	472	531.6	242	76	
45	13.7	-0.049	543	559	609	463	472	529.2	243	77	

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Recording Interval (min): 1  
 Run Time (min): 97

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
46	13.7	-0.042	539	557	603	462	471	526.4	242	77	
47	13.7	-0.040	535	554	598	460	470	523.4	240	77	
48	13.7	-0.037	531	552	593	457	468	520.2	238	76	
49	13.7	-0.049	527	549	588	454	466	516.8	236	76	
50	13.6	-0.044	523	546	583	450	464	513.2	236	76	
51	13.7	-0.042	519	543	578	448	462	510.0	237	76	
52	13.7	-0.045	515	540	573	449	460	507.4	237	76	
53	13.7	-0.047	512	537	568	446	458	504.2	235	76	
54	13.7	-0.039	508	534	564	444	455	501.0	233	76	
55	13.7	-0.041	505	531	560	441	453	498.0	231	76	
56	13.6	-0.044	501	528	555	440	451	495.0	229	76	
57	13.7	-0.043	498	525	550	433	448	490.8	228	76	
58	13.7	-0.038	495	521	546	434	446	488.4	226	76	
59	13.7	-0.033	492	518	542	430	443	485.0	225	76	
60	13.7	-0.042	488	515	538	429	441	482.2	224	76	
61	13.7	-0.034	485	512	534	426	439	479.2	223	76	
62	13.8	-0.038	482	510	530	424	436	476.4	221	76	
63	13.7	-0.042	479	506	526	422	434	473.4	221	76	
64	13.7	-0.040	477	504	523	420	432	471.2	220	76	
65	13.7	-0.032	474	501	520	416	430	468.2	219	76	
66	13.7	-0.043	471	498	517	417	428	466.2	218	75	
67	13.7	-0.034	469	495	514	415	426	463.8	218	76	
68	13.7	-0.033	467	493	511	415	424	462.0	218	76	
69	13.6	-0.034	464	491	508	416	422	460.2	219	76	
70	13.7	-0.039	462	489	505	415	420	458.2	221	75	
71	13.7	-0.043	460	487	503	419	418	457.4	223	76	
72	13.7	-0.049	458	485	500	421	416	456.0	226	76	
73	13.7	-0.048	457	482	497	428	415	455.8	229	76	
74	13.7	-0.044	455	480	494	429	413	454.2	232	76	
75	13.7	-0.047	454	478	491	439	412	454.8	235	76	
76	13.7	-0.036	453	476	489	443	410	454.2	236	76	
77	13.7	-0.040	452	475	487	446	409	453.8	234	76	
78	13.7	-0.036	451	473	484	445	407	452.0	231	76	
79	13.6	-0.037	450	472	482	443	405	450.4	228	75	
80	13.6	-0.039	449	470	480	439	404	448.4	224	75	
81	13.6	-0.029	448	469	478	436	402	446.6	220	76	
82	13.6	-0.032	447	467	476	431	401	444.4	216	76	
83	13.6	-0.033	446	465	473	425	400	441.8	212	76	
84	13.7	-0.026	445	463	470	421	398	439.4	209	77	
85	13.7	-0.031	443	461	469	416	397	437.2	206	76	
86	13.7	-0.035	442	459	467	411	396	435.0	203	76	
87	13.7	-0.036	440	457	464	406	395	432.4	200	75	
88	13.6	-0.034	438	455	462	401	394	430.0	198	76	
89	13.7	-0.028	436	454	460	394	393	427.4	195	75	
90	13.7	-0.032	434	451	458	391	392	425.2	193	75	
91	13.7	-0.031	433	449	455	383	391	422.2	191	76	

# WOODSTOVE PREBURN DATA - ASTM E2780

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Recording Interval (min): 1  
 Run Time (min): 97

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H <sub>2</sub> O)	Temperatures (°F)							Flue	Ambient
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average			
92	13.6	-0.033	431	448	453	377	390	419.8	189	76	
93	13.6	-0.030	429	446	451	374	389	417.8	187	75	
94	13.7	-0.035	427	444	448	371	389	415.8	185	75	
95	13.7	-0.026	425	441	446	364	388	412.8	184	76	
96	13.7	-0.024	423	440	443	359	388	410.6	182	75	
97	13.7	-0.040	421	439	442	358	387	409.4	189	75	

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.001		0.110	0.03	73	2		15.0		90	192	76	76
1	0.132	0.131	0.109	1.02	73	2	88	14.8	-0.16889	101	194	76	75
2	0.288	0.156	0.110	0.96	73	2	104	14.7	-0.11931	103	210	76	76
3	0.443	0.155	0.111	1.00	73	2	103	14.6	-0.15742	101	251	77	75
4	0.599	0.156	0.114	1.01	73	2	102	14.4	-0.13702	108	321	77	75
5	0.751	0.152	0.117	0.97	73	2	99	14.2	-0.26334	114	397	77	75
6	0.904	0.153	0.117	0.97	73	2	99	14.1	-0.10188	105	401	77	75
7	1.060	0.156	0.114	0.99	73	2	102	13.9	-0.14022	104	397	77	75
8	1.220	0.160	0.115	1.07	73	2	104	13.8	-0.15889	104	395	77	76
9	1.378	0.158	0.114	1.01	73	2	103	13.6	-0.19192	104	398	78	76
10	1.536	0.158	0.116	1.01	73	2	103	13.5	-0.1096	105	406	78	76
11	1.692	0.156	0.116	1.06	73	2	102	13.2	-0.23185	106	415	78	76
12	1.849	0.157	0.118	1.01	73	2	101	13.0	-0.17429	107	423	78	76
13	2.007	0.158	0.118	0.96	73	2	102	12.9	-0.18749	108	431	78	76
14	2.160	0.153	0.119	1.01	73	2	99	12.7	-0.20216	109	437	78	76
15	2.317	0.157	0.115	0.97	74	2	103	12.4	-0.20893	110	443	79	76
16	2.474	0.157	0.114	0.97	74	2	103	12.3	-0.15751	111	449	79	75
17	2.629	0.155	0.113	1.03	74	2	103	12.1	-0.21294	111	453	79	76
18	2.786	0.157	0.111	1.03	74	2	105	11.9	-0.17681	111	457	79	76
19	2.943	0.157	0.108	1.05	74	2	106	11.7	-0.21371	111	459	79	76
20	3.098	0.155	0.111	1.02	75	2	103	11.5	-0.16307	113	461	79	77
21	3.252	0.154	0.111	0.99	75	2	102	11.3	-0.22436	112	462	80	76
22	3.409	0.157	0.113	1.04	75	2	104	11.1	-0.16744	113	462	80	77
23	3.566	0.157	0.114	1.05	75	2	103	10.9	-0.20739	113	461	80	77
24	3.720	0.154	0.119	1.02	75	2	99	10.8	-0.16399	113	460	80	77
25	3.875	0.155	0.122	1.03	75	2	99	10.6	-0.19276	113	460	80	77
26	4.031	0.156	0.123	0.97	76	2	99	10.4	-0.18369	112	460	80	76
27	4.185	0.154	0.116	1.00	76	2	100	10.2	-0.13557	110	451	80	76
28	4.341	0.156	0.119	1.03	76	2	100	10.1	-0.14136	107	429	80	76
29	4.498	0.157	0.116	1.02	76	2	102	10.0	-0.13247	106	411	80	77
30	4.654	0.156	0.114	0.99	76	2	102	9.8	-0.18844	104	396	80	77
31	4.809	0.155	0.115	1.00	76	2	101	9.7	-0.09334	103	384	80	77
32	4.965	0.156	0.120	0.97	77	2	99	9.6	-0.13489	102	373	80	77

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
33	5.115	0.150	0.118	0.77	77	2	96	9.4	-0.11936	102	365	80	77
34	5.240	0.125	0.117	1.03	77	2	80	9.4	-0.08529	102	359	80	77
35	5.397	0.157	0.115	0.99	77	2	102	9.2	-0.11794	101	354	80	77
36	5.554	0.157	0.113	1.00	77	2	102	9.1	-0.09664	101	348	80	77
37	5.714	0.160	0.115	1.01	77	2	103	9.0	-0.12348	100	344	80	77
38	5.869	0.155	0.114	1.04	77	2	100	8.9	-0.1054	100	339	80	78
39	6.028	0.159	0.117	1.00	77	2	102	8.8	-0.08936	99	334	80	77
40	6.185	0.157	0.117	1.05	77	2	100	8.7	-0.11891	99	329	80	76
41	6.342	0.157	0.116	1.04	77	2	101	8.6	-0.09975	98	323	80	77
42	6.500	0.158	0.109	1.00	77	2	104	8.5	-0.05575	98	318	80	76
43	6.658	0.158	0.114	0.99	77	2	102	8.4	-0.0977	98	313	80	76
44	6.814	0.156	0.111	0.98	77	2	102	8.3	-0.13633	98	309	80	76
45	6.972	0.158	0.111	0.97	77	2	103	8.2	-0.06556	97	305	80	77
46	7.131	0.159	0.113	1.06	77	2	103	8.1	-0.16093	97	302	80	77
47	7.287	0.156	0.116	0.97	78	2	100	8.0	-0.07501	97	299	80	76
48	7.446	0.159	0.113	1.03	78	2	103	7.9	-0.10512	97	296	80	77
49	7.603	0.157	0.112	1.00	78	2	102	7.8	-0.08693	97	294	80	77
50	7.760	0.157	0.113	1.00	78	2	102	7.7	-0.12565	96	293	80	76
51	7.919	0.159	0.112	1.02	78	2	103	7.6	-0.14134	96	292	80	77
52	8.075	0.156	0.114	0.97	78	2	101	7.4	-0.10743	96	291	80	77
53	8.233	0.158	0.116	1.04	78	2	101	7.4	-0.0884	96	291	80	77
54	8.391	0.158	0.117	0.99	78	2	100	7.3	-0.09196	95	290	80	77
55	8.547	0.156	0.119	1.00	78	2	99	7.2	-0.07798	96	289	79	77
56	8.704	0.157	0.119	1.02	78	2	99	7.1	-0.10312	96	289	79	78
57	8.863	0.159	0.119	1.02	78	2	100	7.0	-0.11561	95	291	80	77
58	9.019	0.156	0.118	0.98	78	2	99	6.9	-0.11313	95	292	79	77
59	9.178	0.159	0.119	1.00	78	2	100	6.7	-0.11637	96	295	79	77
60	9.337	0.159	0.121	1.06	78	2	99	6.6	-0.09339	96	297	79	78
61	9.498	0.161	0.118	1.03	78	2	102	6.5	-0.11695	96	300	79	78
62	9.657	0.159	0.120	0.99	78	2	100	6.4	-0.11238	96	302	79	76
63	9.816	0.159	0.119	0.98	78	2	100	6.3	-0.1638	96	305	79	77
64	9.976	0.160	0.119	1.05	79	2	101	6.1	-0.1305	96	307	79	77
65	10.134	0.158	0.118	1.01	79	2	100	6.1	-0.04587	96	310	79	77

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
66	10.293	0.159	0.122	1.05	79	2	99	5.9	-0.13999	96	313	79	77
67	10.451	0.158	0.118	0.98	79	2	100	5.9	-0.06701	96	314	79	76
68	10.610	0.159	0.116	1.07	79	2	102	5.8	-0.06752	96	315	79	77
69	10.771	0.161	0.117	0.98	79	2	102	5.7	-0.14395	96	316	79	76
70	10.928	0.157	0.115	1.00	79	2	101	5.6	-0.08004	96	316	79	76
71	11.086	0.158	0.112	1.05	79	2	103	5.5	-0.07157	95	316	79	77
72	11.243	0.157	0.114	1.01	79	2	101	5.4	-0.11472	95	315	79	77
73	11.403	0.160	0.117	1.04	79	2	101	5.3	-0.13797	95	314	79	77
74	11.563	0.160	0.117	0.98	79	2	101	5.2	-0.07444	94	312	79	76
75	11.720	0.157	0.114	1.00	79	2	101	5.1	-0.06105	94	309	79	77
76	11.880	0.160	0.118	0.98	79	2	101	5.0	-0.08914	94	306	79	76
77	12.037	0.157	0.116	0.99	79	2	100	5.0	-0.03489	94	303	79	76
78	12.197	0.160	0.116	1.03	79	2	102	4.9	-0.12963	93	299	79	75
79	12.356	0.159	0.115	0.97	79	2	102	4.8	-0.07142	93	296	79	76
80	12.515	0.159	0.116	1.02	79	2	101	4.8	-0.02708	92	292	79	75
81	12.676	0.161	0.118	1.04	79	2	102	4.7	-0.08097	92	287	79	75
82	12.834	0.158	0.120	1.05	79	2	99	4.6	-0.07033	91	283	79	74
83	12.995	0.161	0.119	1.00	79	2	101	4.6	-0.02	91	280	78	74
84	13.151	0.156	0.121	1.03	79	2	97	4.5	-0.10286	91	277	78	74
85	13.310	0.159	0.123	1.03	79	2	98	4.4	-0.05898	91	274	78	73
86	13.469	0.159	0.116	1.01	79	2	101	4.4	-0.02394	90	272	78	74
87	13.625	0.156	0.113	0.99	78	2	101	4.3	-0.07492	90	270	78	73
88	13.783	0.158	0.111	0.97	78	2	103	4.3	-0.03869	90	267	78	73
89	13.941	0.158	0.108	1.02	78	2	104	4.2	-0.07185	89	265	78	73
90	14.099	0.158	0.105	1.01	77	2	106	4.2	-0.02391	89	262	78	74
91	14.259	0.160	0.110	1.00	77	2	104	4.2	-0.04133	89	260	77	73
92	14.416	0.157	0.114	0.97	76	2	101	4.1	-0.0437	89	257	77	73
93	14.574	0.158	0.114	0.98	76	2	102	4.0	-0.07516	88	254	77	73
94	14.734	0.160	0.120	1.00	76	2	100	4.0	-0.0436	88	252	77	73
95	14.888	0.154	0.124	1.01	75	2	95	3.9	-0.04865	87	249	77	73
96	15.047	0.159	0.123	1.03	75	2	99	3.8	-0.09624	87	247	77	73
97	15.205	0.158	0.120	1.03	75	2	99	3.9	0.02214	87	244	77	73
98	15.362	0.157	0.119	1.00	74	2	99	3.8	-0.06412	87	242	76	73

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
99	15.521	0.159	0.118	0.99	74	2	101	3.8	-0.04246	86	240	76	73
100	15.678	0.157	0.116	1.06	74	2	100	3.7	-0.06481	86	237	76	72
101	15.836	0.158	0.113	0.98	74	2	102	3.7	-0.02909	86	235	76	72
102	15.994	0.158	0.114	1.00	74	2	102	3.6	-0.04307	86	233	76	72
103	16.152	0.158	0.120	1.02	73	2	100	3.6	-0.0276	86	231	76	72
104	16.312	0.160	0.117	1.00	73	2	102	3.6	-0.03523	86	229	76	72
105	16.469	0.157	0.120	1.00	73	2	99	3.5	-0.02999	85	227	76	72
106	16.627	0.158	0.120	0.97	73	2	99	3.5	-0.01575	85	225	76	72
107	16.787	0.160	0.117	0.99	72	2	102	3.4	-0.07582	85	223	76	71
108	16.944	0.157	0.116	1.00	72	2	100	3.4	-0.01647	85	222	75	71
109	17.103	0.159	0.119	1.05	72	2	101	3.4	0.00017	85	221	75	72
110	17.260	0.157	0.119	1.03	72	2	99	3.3	-0.08237	84	219	75	71
111	17.420	0.160	0.121	1.03	72	2	100	3.3	-0.03898	84	218	75	71
112	17.579	0.159	0.126	1.00	72	2	98	3.3	-0.04266	84	216	75	71
113	17.735	0.156	0.122	1.00	72	2	97	3.3	-0.00185	84	215	75	71
114	17.896	0.161	0.119	1.02	71	2	102	3.2	-0.04506	84	214	75	71
115	18.054	0.158	0.116	1.01	71	2	101	3.2	-0.01394	83	212	75	71
116	18.213	0.159	0.117	1.02	71	2	101	3.1	-0.07187	83	211	75	71
117	18.372	0.159	0.116	1.05	71	2	102	3.1	0.0021	83	209	75	71
118	18.528	0.156	0.116	1.04	71	2	100	3.1	-0.04725	83	208	75	71
119	18.689	0.161	0.121	0.98	71	2	101	3.1	-0.02058	83	206	74	71
120	18.846	0.157	0.122	1.04	71	2	98	3.1	-0.00316	82	204	74	71
121	19.004	0.158	0.122	1.00	71	2	99	3.1	0.01729	82	202	74	70
122	19.165	0.161	0.120	1.01	71	2	101	3.0	-0.06375	82	200	74	70
123	19.321	0.156	0.117	1.04	71	2	99	3.0	-0.00192	82	198	74	70
124	19.480	0.159	0.117	0.99	71	2	101	3.0	-0.03453	82	197	74	70
125	19.638	0.158	0.118	1.06	71	2	100	3.0	-0.00461	81	195	74	70
126	19.797	0.159	0.117	1.04	71	2	101	3.0	-0.01999	81	194	74	69
127	19.956	0.159	0.120	1.02	71	2	100	2.9	-0.0517	81	193	74	70
128	20.113	0.157	0.122	1.06	71	2	98	2.9	-0.00098	81	192	74	70
129	20.272	0.159	0.117	1.02	70	2	101	2.9	-0.01963	81	190	74	69
130	20.430	0.158	0.118	0.99	70	2	100	2.9	-0.00452	81	189	73	69
131	20.590	0.160	0.118	1.00	70	2	102	2.9	-0.01817	81	188	73	69



## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
132	20.749	0.159	0.122	1.04	70	2	99	2.8	-0.02196	80	187	73	69
133	20.906	0.157	0.121	1.01	70	2	98	2.8	0.00183	80	186	73	70
134	21.066	0.160	0.123	1.01	70	2	99	2.8	0.00437	80	185	73	69
135	21.222	0.156	0.124	1.00	70	2	96	2.8	-0.05009	80	184	73	69
136	21.381	0.159	0.125	1.04	70	2	98	2.8	-0.00148	80	184	73	69
137	21.541	0.160	0.120	0.97	70	2	101	2.8	0.00127	80	183	73	69
138	21.697	0.156	0.122	1.05	70	2	97	2.7	-0.05148	80	182	73	69
139	21.858	0.161	0.121	0.99	70	2	101	2.7	-0.00555	80	181	73	69
140	22.016	0.158	0.121	1.01	70	2	99	2.7	0.00231	79	180	73	69
141	22.175	0.159	0.118	1.03	70	2	101	2.7	-0.02624	79	180	73	69
142	22.335	0.160	0.117	1.01	70	2	102	2.7	-0.00256	79	179	73	69
143	22.493	0.158	0.116	1.00	70	2	101	2.7	-0.00948	79	179	72	69
144	22.655	0.162	0.117	1.07	70	2	103	2.7	-0.02689	79	178	72	69
145	22.812	0.157	0.112	1.00	70	2	102	2.6	-0.04982	79	177	72	69
146	22.971	0.159	0.111	1.04	70	2	104	2.6	0.00056	79	177	72	69
147	23.130	0.159	0.115	1.01	70	2	102	2.6	-0.00971	79	176	72	69
148	23.290	0.160	0.117	1.02	70	2	102	2.6	0.01048	78	175	72	69
149	23.450	0.160	0.117	0.99	70	2	102	2.6	-0.036	79	175	72	69
150	23.608	0.158	0.119	1.06	70	2	99	2.6	-0.0087	78	175	72	69
151	23.767	0.159	0.122	1.04	70	2	99	2.6	0.0006	79	174	72	69
152	23.926	0.159	0.122	1.02	70	2	99	2.6	0.00881	78	174	72	69
153	24.082	0.156	0.119	1.04	70	2	98	2.5	-0.05178	78	173	72	69
154	24.243	0.161	0.121	1.04	70	2	100	2.6	0.03237	78	173	72	68
155	24.399	0.156	0.119	1.03	69	2	98	2.5	-0.03489	78	172	72	68
156	24.559	0.160	0.119	1.02	69	2	101	2.5	0.01224	78	172	72	68
157	24.718	0.159	0.119	1.04	69	2	100	2.5	-0.04427	78	172	71	69
158	24.878	0.160	0.120	1.00	69	2	100	2.5	0.01946	78	171	71	69
159	25.037	0.159	0.118	1.00	69	2	101	2.5	-0.03919	78	171	71	69
160	25.194	0.157	0.119	1.01	69	2	99	2.4	-0.03914	78	171	71	68
161	25.353	0.159	0.120	1.03	69	2	100	2.4	-0.03809	77	171	71	68
162	25.512	0.159	0.118	1.02	69	2	101	2.4	0.00053	77	170	71	68
163	25.670	0.158	0.119	0.97	69	2	100	2.4	0.00268	78	170	71	68
164	25.829	0.159	0.118	0.98	69	2	101	2.4	-0.01893	77	169	71	68

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
165	25.987	0.158	0.118	1.00	69	2	100	2.4	0.0181	77	169	71	68
166	26.147	0.160	0.115	1.03	69	2	103	2.4	-0.04127	77	168	71	68
167	26.306	0.159	0.116	1.00	70	2	101	2.4	-0.0082	77	168	71	68
168	26.465	0.159	0.114	0.98	69	2	102	2.3	-0.01275	77	168	71	68
169	26.625	0.160	0.114	1.02	69	2	103	2.3	0.00126	77	167	71	68
170	26.782	0.157	0.114	0.99	69	2	101	2.3	-0.00078	77	167	71	68
171	26.942	0.160	0.116	1.02	69	2	102	2.3	0.00129	77	167	71	68
172	27.100	0.158	0.109	1.00	69	2	104	2.3	-0.02255	77	166	71	68
173	27.258	0.158	0.113	1.01	69	2	102	2.3	-0.02256	77	166	71	68
174	27.417	0.159	0.113	1.06	69	2	103	2.3	0.00074	77	166	70	68
175	27.575	0.158	0.114	1.01	69	2	102	2.2	-0.07423	76	166	70	68
176	27.734	0.159	0.112	1.02	69	2	104	2.2	0.00242	77	166	70	68
177	27.891	0.157	0.120	0.99	69	2	99	2.2	0.00488	77	165	70	68
178	28.049	0.158	0.118	1.03	69	2	100	2.2	-0.02387	77	165	70	68
179	28.209	0.160	0.117	1.01	69	2	102	2.2	0.01686	77	165	70	67
180	28.366	0.157	0.115	0.98	69	2	101	2.2	-0.01829	76	165	70	67
181	28.525	0.159	0.116	0.99	69	2	102	2.2	-0.00132	77	165	70	67
182	28.683	0.158	0.114	1.07	69	2	102	2.2	0.00231	76	165	70	67
183	28.842	0.159	0.114	1.03	69	2	102	2.2	0.00211	77	164	70	67
184	29.003	0.161	0.116	1.00	69	2	103	2.2	-0.05681	77	164	70	67
185	29.160	0.157	0.117	1.00	69	2	100	2.2	0.00288	77	164	70	68
186	29.319	0.159	0.119	1.05	69	2	100	2.1	-0.01789	77	164	70	68
187	29.477	0.158	0.122	1.03	68	2	98	2.1	0.00571	76	164	70	68
188	29.636	0.159	0.119	0.98	68	2	100	2.1	-0.0062	77	163	70	68
189	29.796	0.160	0.123	1.06	68	2	100	2.1	-0.04423	77	163	70	68
190	29.954	0.158	0.121	1.01	68	2	99	2.1	-0.03977	76	163	70	68
191	30.114	0.160	0.123	1.05	68	2	100	2.0	-0.02376	76	163	70	68
192	30.273	0.159	0.124	1.00	68	2	98	2.1	0.02134	76	163	70	68
193	30.433	0.160	0.128	1.05	68	2	97	2.1	0.00455	76	162	70	68
194	30.593	0.160	0.127	1.00	68	2	98	2.0	-0.02959	76	162	70	68
195	30.751	0.158	0.128	1.00	68	2	96	2.0	-0.01737	76	162	70	68
196	30.912	0.161	0.123	1.05	68	2	100	2.0	-0.00627	76	162	70	68
197	31.069	0.157	0.121	1.06	68	2	98	2.0	-0.01459	76	162	70	68

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
198	31.227	0.158	0.117	0.99	68	2	101	2.0	0.02086	76	161	70	68
199	31.385	0.158	0.112	1.02	67	2	103	2.0	-0.01945	76	161	70	68
200	31.542	0.157	0.112	0.97	67	2	102	2.0	-0.01785	77	161	70	68
201	31.703	0.161	0.115	1.01	67	2	104	1.9	-0.02894	76	161	70	68
202	31.860	0.157	0.113	0.98	67	2	102	1.9	-0.03183	77	161	70	68
203	32.017	0.157	0.111	1.01	67	2	103	1.9	0.00139	77	161	70	69
204	32.176	0.159	0.117	0.98	67	2	102	1.9	-0.04232	77	161	70	68
205	32.335	0.159	0.116	1.00	67	2	102	1.9	0.02889	77	161	70	68
206	32.495	0.160	0.114	1.01	67	2	104	1.9	-0.03483	77	160	70	69
207	32.654	0.159	0.116	1.03	67	2	102	1.9	-0.01309	77	160	70	68
208	32.813	0.159	0.119	1.00	67	2	101	1.9	0.00282	77	160	70	69
209	32.973	0.160	0.117	1.02	67	2	102	1.9	0.00095	76	160	70	68
210	33.128	0.155	0.117	1.01	67	2	99	1.8	-0.04451	76	160	70	68
211	33.286	0.158	0.119	0.97	67	2	100	1.8	-0.00267	77	160	70	69
212	33.445	0.159	0.115	1.02	67	2	102	1.8	-0.02195	77	160	70	69
213	33.603	0.158	0.117	1.01	67	2	101	1.8	0.0011	77	160	70	69
214	33.762	0.159	0.118	1.00	67	2	101	1.8	-0.02139	76	160	70	69
215	33.919	0.157	0.119	1.04	67	2	99	1.7	-0.03415	77	160	70	69
216	34.077	0.158	0.116	1.04	68	2	101	1.7	0.00062	77	160	70	68
217	34.237	0.160	0.118	0.99	68	2	102	1.7	0.00071	77	160	70	69
218	34.393	0.156	0.118	1.02	68	2	99	1.7	-0.04275	77	159	70	69
219	34.553	0.160	0.118	0.98	67	2	102	1.7	-0.02194	77	159	70	69
220	34.711	0.158	0.117	1.04	68	2	101	1.7	0.0316	77	159	70	69
221	34.869	0.158	0.120	1.05	68	2	100	1.7	-0.03006	77	159	70	69
222	35.029	0.160	0.123	1.04	68	2	100	1.7	0.00161	77	159	70	69
223	35.186	0.157	0.126	0.98	68	2	97	1.7	-0.02123	77	159	70	69
224	35.345	0.159	0.127	1.00	68	2	97	1.6	-0.02544	77	159	70	69
225	35.503	0.158	0.126	1.00	68	2	97	1.6	-0.0342	77	158	70	69
226	35.661	0.158	0.128	1.03	69	2	96	1.6	-0.01814	77	158	71	69
227	35.821	0.160	0.129	1.01	69	2	97	1.5	-0.03474	77	158	71	69
228	35.978	0.157	0.123	1.02	70	2	97	1.5	-0.00205	77	157	71	69
229	36.138	0.160	0.118	1.04	70	2	101	1.5	-0.00219	77	157	71	69
230	36.297	0.159	0.119	1.01	70	2	100	1.5	-0.04414	77	157	71	70

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
231	36.453	0.156	0.120	1.00	71	2	98	1.5	0.01898	77	157	71	69
232	36.612	0.159	0.117	1.03	71	2	101	1.5	-0.01706	77	157	71	69
233	36.768	0.156	0.121	1.03	71	2	97	1.5	-0.02162	77	156	71	69
234	36.926	0.158	0.123	0.98	71	2	98	1.4	-0.029	77	156	71	69
235	37.084	0.158	0.124	1.02	72	2	97	1.5	0.02232	77	156	71	69
236	37.241	0.157	0.119	1.00	72	2	99	1.4	-0.04701	77	156	71	69
237	37.399	0.158	0.116	1.02	72	2	100	1.4	-0.04577	77	156	71	69
238	37.559	0.160	0.116	1.00	72	2	102	1.4	0.0516	77	155	71	69
239	37.714	0.155	0.117	1.05	73	2	98	1.4	-0.05152	77	155	71	69
240	37.873	0.159	0.118	1.03	73	2	100	1.4	-0.00878	77	155	71	69
241	38.029	0.156	0.121	1.02	73	2	97	1.4	-0.00561	77	155	71	69
242	38.187	0.158	0.123	1.03	73	2	97	1.4	0.00445	77	155	71	69
243	38.345	0.158	0.123	1.03	73	2	97	1.4	-0.00066	77	155	71	69
244	38.501	0.156	0.124	1.06	73	2	96	1.3	-0.02331	77	155	71	69
245	38.661	0.160	0.116	1.01	73	2	101	1.3	-0.00419	77	155	71	69
246	38.818	0.157	0.113	1.01	73	2	101	1.3	-0.04654	77	155	71	69
247	38.974	0.156	0.112	1.01	73	2	101	1.3	-0.02065	77	155	71	69
248	39.135	0.161	0.113	1.00	73	2	104	1.2	-0.02604	77	155	71	69
249	39.291	0.156	0.114	1.01	73	2	100	1.2	-0.01246	77	155	71	69
250	39.451	0.160	0.118	1.01	73	2	101	1.3	0.04429	77	155	71	69
251	39.610	0.159	0.122	0.99	73	2	98	1.2	-0.07809	77	155	71	69
252	39.767	0.157	0.122	0.97	73	2	97	1.2	0.00179	77	155	71	69
253	39.927	0.160	0.122	1.05	73	2	99	1.2	-0.04619	77	155	71	69
254	40.084	0.157	0.121	0.99	73	2	97	1.2	0.0299	77	155	71	70
255	40.243	0.159	0.122	0.99	73	2	98	1.2	-0.0263	77	155	71	70
256	40.401	0.158	0.121	1.00	73	2	98	1.2	0.03171	77	155	71	70
257	40.557	0.156	0.123	1.04	73	2	96	1.1	-0.04878	77	156	71	70
258	40.716	0.159	0.125	1.04	73	2	97	1.1	-0.00063	77	157	71	70
259	40.873	0.157	0.122	1.01	73	2	97	1.1	-0.02617	78	158	71	70
260	41.030	0.157	0.124	1.03	73	2	97	1.1	-0.0221	78	159	71	70
261	41.190	0.160	0.125	1.03	73	2	98	1.1	-0.02231	78	159	71	70
262	41.347	0.157	0.124	1.04	73	2	97	1.0	-0.02211	78	160	71	70
263	41.504	0.157	0.117	1.03	73	2	99	1.0	0.00014	78	160	71	70

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
264	41.663	0.159	0.120	0.98	73	2	99	1.0	-0.03855	78	160	71	71
265	41.818	0.155	0.118	1.00	73	2	98	1.0	-0.00906	78	160	71	71
266	41.979	0.161	0.116	1.01	73	2	102	1.0	-0.02366	78	161	71	71
267	42.135	0.156	0.117	1.04	73	2	99	1.0	-0.02195	78	161	71	71
268	42.293	0.158	0.121	1.02	73	2	98	0.9	-0.04393	78	161	71	71
269	42.451	0.158	0.120	1.00	73	2	99	0.9	-0.02656	78	161	71	71
270	42.609	0.158	0.120	0.97	73	2	99	0.9	0.02824	78	161	71	70
271	42.767	0.158	0.119	1.03	73	2	99	0.9	-0.02873	78	161	71	70
272	42.925	0.158	0.119	1.02	73	2	99	0.8	-0.04173	78	162	71	70
273	43.083	0.158	0.115	0.98	73	2	101	0.8	-0.01723	78	162	71	71
274	43.242	0.159	0.117	1.01	73	2	101	0.8	-0.0033	78	163	71	71
275	43.398	0.156	0.117	1.00	73	2	99	0.8	-0.02127	78	163	71	71
276	43.557	0.159	0.114	0.97	73	2	102	0.8	0.02365	78	163	71	71
277	43.716	0.159	0.115	1.02	73	2	101	0.7	-0.07784	78	163	71	71
278	43.871	0.155	0.120	1.01	73	2	97	0.7	-0.02453	79	164	71	71
279	44.031	0.160	0.119	1.01	73	2	100	0.7	-0.01421	78	164	71	71
280	44.187	0.156	0.117	1.03	74	2	98	0.7	0.01452	79	164	71	71
281	44.345	0.158	0.122	1.03	74	2	98	0.7	-0.02019	78	164	71	71
282	44.504	0.159	0.122	1.04	74	2	98	0.6	-0.05147	79	165	71	71
283	44.660	0.156	0.120	0.98	74	2	97	0.6	0.00215	79	165	72	72
284	44.819	0.159	0.122	1.01	74	2	98	0.6	-0.01358	79	165	72	71
285	44.976	0.157	0.127	1.03	74	2	95	0.6	-0.00231	79	166	72	71
286	45.134	0.158	0.126	1.03	74	2	96	0.6	-0.04745	79	166	72	71
287	45.293	0.159	0.122	1.05	74	2	98	0.6	-0.00092	79	166	72	71
288	45.449	0.156	0.123	1.02	74	2	96	0.6	-0.02653	79	166	72	71
289	45.607	0.158	0.122	1.00	74	2	98	0.6	0.00267	79	166	72	71
290	45.767	0.160	0.119	0.99	74	2	100	0.5	-0.04527	79	166	72	71
291	45.923	0.156	0.118	1.02	74	2	98	0.5	-0.02312	79	166	72	72
292	46.083	0.160	0.123	1.00	74	2	99	0.5	-0.00294	79	166	72	72
293	46.239	0.156	0.120	0.97	74	2	97	0.5	0.00609	79	166	72	71
294	46.397	0.158	0.120	1.01	74	2	99	0.5	-0.02895	79	166	72	72
295	46.556	0.159	0.120	1.02	75	2	99	0.4	-0.02369	79	166	72	71
296	46.714	0.158	0.123	1.05	75	2	97	0.4	-0.04193	79	166	72	72

## BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Dilution Tunnel dP (in H <sub>2</sub> O)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
297	46.873	0.159	0.119	1.00	75	2	99	0.4	0.01246	79	166	72	71
298	47.032	0.159	0.123	0.98	75	2	98	0.4	-0.01595	79	166	72	72
299	47.188	0.156	0.120	1.02	75	2	97	0.4	0.00152	79	167	72	71
300	47.348	0.160	0.118	1.05	75	2	101	0.3	-0.07255	79	167	72	71
301	47.504	0.156	0.119	1.04	75	2	98	0.3	0.02368	79	167	72	71
302	47.662	0.158	0.122	1.02	75	2	98	0.3	-0.01762	79	167	72	72
303	47.822	0.160	0.119	1.03	75	2	100	0.3	-0.0197	79	167	72	72
304	47.979	0.157	0.122	1.03	75	2	97	0.3	0.01609	79	168	72	71
305	48.139	0.160	0.123	0.99	75	2	98	0.3	-0.05559	79	168	72	71
306	48.298	0.159	0.122	1.05	75	2	98	0.3	-0.01134	79	168	72	72
307	48.456	0.158	0.122	0.96	75	2	98	0.3	-0.00043	79	168	72	72
308	48.615	0.159	0.124	1.04	75	2	98	0.3	0.00074	79	168	72	71
309	48.771	0.156	0.120	1.00	75	2	97	0.2	-0.03891	79	168	72	72
310	48.931	0.160	0.124	1.01	75	2	98	0.2	-0.03124	79	169	72	71
311	49.088	0.157	0.119	0.98	75	2	98	0.2	-0.00469	79	169	72	72
312	49.246	0.158	0.118	1.00	75	2	99	0.1	-0.04383	79	169	72	72
313	49.405	0.159	0.120	1.01	75	2	99	0.2	0.00736	79	169	72	72
314	49.561	0.156	0.122	1.06	75	2	96	0.1	-0.00257	79	169	72	72
315	49.721	0.160	0.117	1.01	75	2	101	0.2	0.02319	79	170	72	71
316	49.881	0.160	0.122	0.98	75	2	99	0.1	-0.08056	79	170	72	71
317	50.038	0.157	0.118	1.01	75	2	98	0.1	0.00157	79	170	72	72
318	50.198	0.160	0.118	1.00	75	2	101	0.1	-0.01155	79	170	72	72
319	50.356	0.158	0.117	1.02	75	2	100	0.1	0.00122	79	170	72	72
320	50.516	0.160	0.119	1.02	75	2	100	0.1	0.00215	79	170	72	72
321	50.675	0.159	0.117	1.04	75	2	100	0.0	-0.04429	79	171	72	72
322	50.832	0.157	0.129	0.99	75	2	94	0.0	-0.03998	79	171	72	72
Avg/Tot	50.832	0.158	0.118	1.01	73	2.00	100			85	221	74	71.6

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
0	418	430	438	347	387	404.0	N/A
1	416	436	434	339	387	402.4	N/A
2	415	434	427	335	386	399.4	N/A
3	413	431	419	340	386	397.8	N/A
4	410	427	410	371	386	400.8	N/A
5	408	415	402	417	386	405.6	N/A
6	405	387	396	457	385	406.0	N/A
7	403	385	390	490	385	410.6	N/A
8	401	391	385	513	384	414.8	N/A
9	399	395	381	539	383	419.4	N/A
10	397	398	377	569	382	424.6	N/A
11	396	396	374	594	381	428.2	N/A
12	395	391	370	615	380	430.2	N/A
13	394	384	367	631	379	431.0	N/A
14	394	383	364	647	378	433.2	N/A
15	394	381	363	669	377	436.8	N/A
16	394	380	360	685	375	438.8	N/A
17	394	379	358	694	374	439.8	N/A
18	395	378	356	713	373	443.0	N/A
19	396	377	355	724	371	444.6	N/A
20	398	377	354	731	370	446.0	N/A
21	399	377	352	741	369	447.6	N/A
22	400	377	351	744	367	447.8	N/A
23	402	378	351	752	366	449.8	N/A
24	403	378	351	755	364	450.2	N/A
25	405	379	350	748	363	449.0	N/A
26	406	379	350	760	362	451.4	N/A
27	407	313	350	762	360	438.4	N/A
28	409	314	350	755	359	437.4	N/A
29	411	316	351	743	357	435.6	N/A
30	412	317	351	739	356	435.0	N/A
31	413	319	351	732	355	434.0	N/A
32	414	318	351	724	353	432.0	N/A
33	415	319	350	714	352	430.0	N/A
34	416	320	351	706	351	428.8	N/A
35	416	320	350	702	350	427.6	N/A
36	417	320	350	701	349	427.4	N/A
37	417	320	350	695	347	425.8	N/A
38	417	320	350	685	346	423.6	N/A
39	417	320	350	683	345	423.0	N/A
40	417	320	350	672	344	420.6	N/A
41	417	319	350	661	343	418.0	N/A
42	417	319	350	650	342	415.6	N/A
43	418	320	351	637	340	413.2	N/A
44	418	321	351	623	339	410.4	N/A
45	417	320	352	613	338	408.0	N/A
46	417	320	352	603	337	405.8	N/A
47	417	319	352	591	336	403.0	N/A
48	417	320	353	583	335	401.6	N/A

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	
49	417	320	353	577	334	400.2	N/A
50	417	320	353	568	333	398.2	N/A
51	417	320	354	563	332	397.2	N/A
52	416	321	354	557	331	395.8	N/A
53	416	321	354	561	330	396.4	N/A
54	416	320	355	558	329	395.6	N/A
55	416	321	355	558	328	395.6	N/A
56	416	320	356	557	327	395.2	N/A
57	416	321	356	557	327	395.4	N/A
58	416	321	357	562	326	396.4	N/A
59	416	321	357	565	325	396.8	N/A
60	416	321	358	569	324	397.6	N/A
61	416	321	358	577	323	399.0	N/A
62	416	321	359	582	322	400.0	N/A
63	416	321	359	587	321	400.8	N/A
64	417	321	360	590	321	401.8	N/A
65	417	321	361	600	320	403.8	N/A
66	417	321	362	607	319	405.2	N/A
67	418	322	362	612	319	406.6	N/A
68	418	321	363	615	318	407.0	N/A
69	418	321	364	622	317	408.4	N/A
70	419	322	364	626	316	409.4	N/A
71	419	322	365	630	316	410.4	N/A
72	419	322	366	631	315	410.6	N/A
73	419	323	367	633	315	411.4	N/A
74	420	322	368	633	314	411.4	N/A
75	419	323	369	632	313	411.2	N/A
76	420	323	371	628	313	411.0	N/A
77	420	324	372	621	312	409.8	N/A
78	419	325	374	622	312	410.4	N/A
79	419	324	376	616	311	409.2	N/A
80	419	325	377	608	311	408.0	N/A
81	419	325	379	598	310	406.2	N/A
82	419	325	380	586	310	404.0	N/A
83	419	327	382	582	309	403.8	N/A
84	418	327	383	574	309	402.2	N/A
85	418	327	383	567	308	400.6	N/A
86	417	328	384	564	308	400.2	N/A
87	417	329	385	557	308	399.2	N/A
88	416	329	386	555	307	398.6	N/A
89	415	330	387	550	307	397.8	N/A
90	414	331	388	543	307	396.6	N/A
91	414	331	389	537	307	395.6	N/A
92	413	332	389	531	306	394.2	N/A
93	412	332	390	524	306	392.8	N/A
94	411	332	390	519	306	391.6	N/A
95	410	333	391	507	306	389.4	N/A
96	409	334	391	505	305	388.8	N/A
97	408	334	392	501	305	388.0	N/A



# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
98	407	334	392	495	305	386.6	N/A	
99	406	335	393	491	305	386.0	N/A	
100	405	336	393	484	305	384.6	N/A	
101	404	336	393	476	305	382.8	N/A	
102	403	336	393	470	305	381.4	N/A	
103	402	336	393	466	305	380.4	N/A	
104	401	336	394	461	305	379.4	N/A	
105	400	337	394	454	305	378.0	N/A	
106	400	336	394	452	305	377.4	N/A	
107	399	336	394	443	305	375.4	N/A	
108	398	337	394	440	305	374.8	N/A	
109	397	337	395	435	305	373.8	N/A	
110	396	338	395	435	305	373.8	N/A	
111	395	337	395	433	305	373.0	N/A	
112	394	337	396	428	305	372.0	N/A	
113	393	337	396	426	305	371.4	N/A	
114	392	336	396	419	305	369.6	N/A	
115	391	336	396	416	305	368.8	N/A	
116	390	337	396	415	305	368.6	N/A	
117	389	336	396	414	305	368.0	N/A	
118	388	336	396	410	305	367.0	N/A	
119	387	335	396	407	304	365.8	N/A	
120	386	335	396	401	304	364.4	N/A	
121	385	335	396	399	304	363.8	N/A	
122	384	335	395	397	304	363.0	N/A	
123	383	334	395	394	304	362.0	N/A	
124	382	333	395	391	304	361.0	N/A	
125	381	334	394	387	304	360.0	N/A	
126	380	332	393	381	304	358.0	N/A	
127	379	333	393	379	304	357.6	N/A	
128	378	331	392	377	304	356.4	N/A	
129	377	331	392	371	304	355.0	N/A	
130	376	330	391	373	304	354.8	N/A	
131	375	330	390	370	304	353.8	N/A	
132	374	330	390	364	304	352.4	N/A	
133	372	329	389	364	304	351.6	N/A	
134	371	330	388	363	305	351.4	N/A	
135	370	329	388	358	305	350.0	N/A	
136	369	328	387	354	305	348.6	N/A	
137	368	327	386	354	305	348.0	N/A	
138	367	328	386	351	305	347.4	N/A	
139	366	327	385	350	305	346.6	N/A	
140	365	327	384	344	305	345.0	N/A	
141	364	326	384	343	305	344.4	N/A	
142	363	325	383	340	305	343.2	N/A	
143	362	326	383	339	305	343.0	N/A	
144	361	325	382	338	305	342.2	N/A	
145	360	325	381	336	305	341.4	N/A	
146	359	324	380	335	305	340.6	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
147	358	323	380	331	305	339.4	N/A	
148	356	323	379	330	305	338.6	N/A	
149	356	323	379	330	305	338.6	N/A	
150	355	322	378	329	305	337.8	N/A	
151	354	322	377	329	305	337.4	N/A	
152	353	321	377	325	305	336.2	N/A	
153	352	321	376	323	305	335.4	N/A	
154	351	319	376	324	305	335.0	N/A	
155	350	319	375	321	305	334.0	N/A	
156	349	319	375	322	305	334.0	N/A	
157	349	319	375	321	305	333.8	N/A	
158	348	318	374	320	305	333.0	N/A	
159	347	317	374	317	305	332.0	N/A	
160	347	317	374	316	305	331.8	N/A	
161	346	316	374	316	305	331.4	N/A	
162	345	315	374	313	305	330.4	N/A	
163	344	314	374	313	305	330.0	N/A	
164	344	314	373	314	305	330.0	N/A	
165	343	314	373	312	305	329.4	N/A	
166	343	312	373	311	305	328.8	N/A	
167	342	312	373	310	305	328.4	N/A	
168	342	312	373	310	305	328.4	N/A	
169	341	311	372	309	305	327.6	N/A	
170	341	312	372	309	305	327.8	N/A	
171	340	310	372	306	305	326.6	N/A	
172	340	311	372	307	305	327.0	N/A	
173	339	310	372	305	305	326.2	N/A	
174	339	310	372	307	305	326.6	N/A	
175	338	309	372	306	305	326.0	N/A	
176	337	309	371	305	305	325.4	N/A	
177	337	308	371	303	305	324.8	N/A	
178	336	308	371	303	305	324.6	N/A	
179	336	308	371	302	305	324.4	N/A	
180	335	307	370	302	305	323.8	N/A	
181	334	307	370	300	305	323.2	N/A	
182	334	307	370	301	305	323.4	N/A	
183	333	307	370	302	305	323.4	N/A	
184	333	307	369	301	305	323.0	N/A	
185	332	306	370	301	305	322.8	N/A	
186	331	306	370	298	305	322.0	N/A	
187	330	306	370	299	305	322.0	N/A	
188	330	305	370	299	305	321.8	N/A	
189	329	304	369	296	305	320.6	N/A	
190	328	305	370	298	305	321.2	N/A	
191	328	304	369	296	305	320.4	N/A	
192	328	305	369	295	305	320.4	N/A	
193	327	305	369	297	305	320.6	N/A	
194	326	305	370	294	305	320.0	N/A	
195	326	304	370	293	305	319.6	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
196	325	304	370	292	305	319.2	N/A	
197	325	304	370	293	305	319.4	N/A	
198	324	304	370	293	305	319.2	N/A	
199	324	303	371	292	304	318.8	N/A	
200	323	303	372	293	304	319.0	N/A	
201	323	302	372	294	304	319.0	N/A	
202	323	301	373	294	304	319.0	N/A	
203	322	301	373	292	304	318.4	N/A	
204	322	300	374	293	304	318.6	N/A	
205	322	301	374	293	304	318.8	N/A	
206	322	299	375	291	304	318.2	N/A	
207	322	300	376	292	303	318.6	N/A	
208	322	299	376	290	303	318.0	N/A	
209	322	300	376	291	303	318.4	N/A	
210	322	300	377	292	303	318.8	N/A	
211	322	299	377	290	303	318.2	N/A	
212	322	299	377	290	303	318.2	N/A	
213	322	299	377	290	303	318.2	N/A	
214	322	299	377	290	303	318.2	N/A	
215	322	299	378	290	303	318.4	N/A	
216	322	299	378	290	303	318.4	N/A	
217	322	299	378	289	303	318.2	N/A	
218	322	299	379	289	302	318.2	N/A	
219	322	298	379	289	302	318.0	N/A	
220	322	299	380	289	302	318.4	N/A	
221	322	298	379	289	302	318.0	N/A	
222	322	298	380	289	302	318.2	N/A	
223	322	298	380	288	302	318.0	N/A	
224	322	298	380	288	302	318.0	N/A	
225	322	297	381	289	302	318.2	N/A	
226	323	297	381	288	302	318.2	N/A	
227	323	296	380	288	301	317.6	N/A	
228	323	297	380	287	301	317.6	N/A	
229	323	298	380	287	301	317.8	N/A	
230	323	298	379	286	301	317.4	N/A	
231	324	301	379	286	301	318.2	N/A	
232	324	302	378	283	301	317.6	N/A	
233	324	303	378	285	301	318.2	N/A	
234	324	304	378	284	301	318.2	N/A	
235	324	305	377	284	301	318.2	N/A	
236	323	304	377	284	301	317.8	N/A	
237	323	304	377	283	301	317.6	N/A	
238	323	303	375	282	300	316.6	N/A	
239	323	304	375	282	300	316.8	N/A	
240	323	305	374	283	300	317.0	N/A	
241	322	304	373	282	300	316.2	N/A	
242	322	304	372	282	300	316.0	N/A	
243	322	302	372	280	300	315.2	N/A	
244	321	301	371	281	300	314.8	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
245	321	302	370	279	300	314.4	N/A	
246	320	302	370	280	300	314.4	N/A	
247	320	302	370	279	300	314.2	N/A	
248	320	302	369	278	299	313.6	N/A	
249	320	300	369	278	299	313.2	N/A	
250	319	301	369	279	299	313.4	N/A	
251	319	301	369	275	299	312.6	N/A	
252	319	301	369	278	299	313.2	N/A	
253	319	301	369	278	299	313.2	N/A	
254	319	300	370	278	299	313.2	N/A	
255	318	299	370	275	299	312.2	N/A	
256	318	299	371	277	298	312.6	N/A	
257	318	298	371	278	298	312.6	N/A	
258	319	298	372	278	298	313.0	N/A	
259	319	298	373	278	298	313.2	N/A	
260	319	298	374	278	298	313.4	N/A	
261	319	299	375	278	298	313.8	N/A	
262	319	299	376	278	298	314.0	N/A	
263	320	298	378	278	298	314.4	N/A	
264	320	298	380	278	298	314.8	N/A	
265	321	297	381	279	298	315.2	N/A	
266	321	297	383	278	298	315.4	N/A	
267	321	296	385	278	298	315.6	N/A	
268	322	296	386	278	297	315.8	N/A	
269	323	295	388	276	297	315.8	N/A	
270	323	298	390	278	298	317.4	N/A	
271	324	298	392	277	298	317.8	N/A	
272	325	298	394	275	298	318.0	N/A	
273	325	297	396	278	298	318.8	N/A	
274	326	296	398	275	298	318.6	N/A	
275	327	296	400	278	298	319.8	N/A	
276	327	296	402	279	298	320.4	N/A	
277	328	295	405	279	298	321.0	N/A	
278	328	293	407	277	298	320.6	N/A	
279	329	294	409	280	298	322.0	N/A	
280	330	293	411	279	299	322.4	N/A	
281	331	294	413	277	299	322.8	N/A	
282	331	293	415	278	299	323.2	N/A	
283	332	293	416	280	299	324.0	N/A	
284	332	293	418	280	299	324.4	N/A	
285	333	293	420	281	300	325.4	N/A	
286	334	293	421	279	300	325.4	N/A	
287	334	293	423	281	300	326.2	N/A	
288	335	292	424	281	300	326.4	N/A	
289	335	293	425	282	300	327.0	N/A	
290	336	293	427	281	301	327.6	N/A	
291	336	292	428	280	301	327.4	N/A	
292	337	291	429	282	301	328.0	N/A	
293	337	292	430	280	301	328.0	N/A	

# WOODSTOVE SURFACE TEMPERATURE DATA

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

**Stove ΔT:** 72

Elapsed Time (min)	Temperature Data (°F)						Stove Surface Average	Catalyst Exit
	FB Left	FB Right	FB Back	FB Top	FB Bottom			
294	338	292	431	282	302	329.0	N/A	
295	338	292	432	282	302	329.2	N/A	
296	339	291	433	282	302	329.4	N/A	
297	339	291	434	283	303	330.0	N/A	
298	339	294	434	283	303	330.6	N/A	
299	340	293	435	283	303	330.8	N/A	
300	340	293	434	282	303	330.4	N/A	
301	340	292	435	284	304	331.0	N/A	
302	340	292	434	282	304	330.4	N/A	
303	340	292	433	282	304	330.2	N/A	
304	340	292	433	283	305	330.6	N/A	
305	340	292	432	284	305	330.6	N/A	
306	340	292	432	282	305	330.2	N/A	
307	340	293	432	284	305	330.8	N/A	
308	340	293	432	284	306	331.0	N/A	
309	340	293	431	283	306	330.6	N/A	
310	340	293	431	284	306	330.8	N/A	
311	340	293	431	284	307	331.0	N/A	
312	340	293	431	285	307	331.2	N/A	
313	340	293	431	285	307	331.2	N/A	
314	340	294	431	284	307	331.2	N/A	
315	340	294	432	285	308	331.8	N/A	
316	340	294	431	286	308	331.8	N/A	
317	340	294	431	285	308	331.6	N/A	
318	340	294	432	286	309	332.2	N/A	
319	340	294	431	285	309	331.8	N/A	
320	340	294	432	286	309	332.2	N/A	
321	340	294	432	286	309	332.2	N/A	
322	340	295	432	284	310	332.2	N/A	
Average	364	319	383	402	314	356	N/A	

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
0	0.000		0.00	73	2		77	0.000	2.33	0.80
1	0.130	0.130	1.13	73	2	84	77	-0.030	0.72	0.20
2	0.261	0.131	1.10	73	2	84	78	-0.050	1.63	0.32
3	0.405	0.144	1.11	73	2	92	78	-0.060	7.47	0.80
4	0.566	0.161	1.08	73	2	102	78	-0.070	10.90	0.34
5	0.724	0.158	1.09	73	2	99	79	-0.070	12.71	0.20
6	0.883	0.159	1.07	73	2	99	79	-0.070	12.40	0.33
7	1.041	0.158	1.11	73	2	100	79	-0.070	11.70	0.36
8	1.206	0.165	1.12	73	2	104	79	-0.070	11.86	0.32
9	1.367	0.161	1.14	73	2	102	79	-0.060	12.45	0.40
10	1.531	0.164	1.12	73	2	103	79	-0.070	13.32	0.47
11	1.693	0.162	1.09	73	2	102	79	-0.070	13.71	0.46
12	1.857	0.164	1.12	73	2	102	79	-0.070	14.19	0.65
13	2.020	0.163	1.13	73	2	102	79	-0.060	14.33	0.73
14	2.179	0.159	1.09	73	2	99	79	-0.070	14.73	0.89
15	2.341	0.162	1.13	74	2	102	80	-0.070	14.54	0.92
16	2.502	0.161	1.12	74	2	102	80	-0.070	14.77	0.88
17	2.666	0.164	1.10	74	2	104	80	-0.070	14.49	0.78
18	2.827	0.161	1.09	74	2	103	80	-0.060	14.45	0.71
19	2.986	0.159	1.12	74	2	103	80	-0.080	14.49	0.62
20	3.148	0.162	1.09	75	2	104	80	-0.080	14.56	0.55
21	3.311	0.163	1.10	75	2	104	80	-0.070	14.64	0.45
22	3.471	0.160	1.07	75	2	102	80	-0.070	14.47	0.39
23	3.633	0.162	1.08	75	2	103	81	-0.080	14.58	0.31
24	3.786	0.153	1.01	75	2	95	81	-0.070	14.24	0.28
25	3.939	0.153	1.02	75	2	94	81	-0.070	14.39	0.30
26	4.092	0.153	1.00	76	2	93	81	-0.070	14.61	0.31
27	4.248	0.156	1.00	76	2	97	81	-0.060	14.16	0.41
28	4.402	0.154	1.00	76	2	95	81	-0.070	13.03	1.38
29	4.555	0.153	1.01	76	2	95	81	-0.070	12.24	0.80
30	4.708	0.153	1.00	76	2	96	81	-0.060	11.71	0.50
31	4.860	0.152	1.00	76	2	95	81	-0.060	11.21	0.28
32	5.014	0.154	1.02	77	2	94	81	-0.060	10.96	0.22

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
33	5.162	0.148	1.13	76	2	91	80	-0.060	11.22	0.11
34	5.330	0.168	1.17	76	2	104	80	-0.060	11.39	0.11
35	5.496	0.166	1.15	77	2	103	81	-0.050	11.45	0.12
36	5.661	0.165	1.14	77	2	104	81	-0.050	10.87	0.12
37	5.827	0.166	1.14	77	2	103	81	-0.060	10.30	0.22
38	5.993	0.166	1.14	77	2	103	81	-0.060	9.89	0.37
39	6.159	0.166	1.15	77	2	102	81	-0.060	10.24	0.41
40	6.323	0.164	1.11	77	2	101	81	-0.050	10.02	0.64
41	6.487	0.164	1.11	77	2	101	80	-0.060	10.02	0.95
42	6.647	0.160	1.10	77	2	102	81	-0.060	9.89	0.97
43	6.810	0.163	1.07	77	2	102	80	-0.050	10.12	1.03
44	6.969	0.159	1.09	77	2	100	80	-0.050	10.06	1.06
45	7.131	0.162	1.08	77	2	102	80	-0.040	9.72	1.02
46	7.296	0.165	1.07	77	2	103	80	-0.060	10.09	1.12
47	7.460	0.164	1.11	77	2	101	80	-0.050	9.94	1.10
48	7.622	0.162	1.11	77	2	101	80	-0.050	10.10	1.15
49	7.784	0.162	1.09	78	2	102	80	-0.050	10.30	1.25
50	7.949	0.165	1.10	78	2	103	80	-0.050	10.28	1.19
51	8.113	0.164	1.11	78	2	103	80	-0.050	10.47	1.23
52	8.274	0.161	1.09	78	2	100	80	-0.050	10.61	1.23
53	8.437	0.163	1.10	78	2	100	80	-0.050	10.17	1.11
54	8.600	0.163	1.10	78	2	100	80	-0.050	10.14	1.17
55	8.762	0.162	1.11	78	2	99	80	-0.050	10.13	1.11
56	8.926	0.164	1.09	78	2	99	80	-0.050	10.65	1.16
57	9.089	0.163	1.09	78	2	99	80	-0.050	11.07	0.78
58	9.253	0.164	1.09	78	2	100	80	-0.050	10.84	0.76
59	9.415	0.162	1.09	78	2	99	80	-0.060	11.22	0.69
60	9.574	0.159	1.08	78	2	96	80	-0.050	11.38	0.69
61	9.740	0.166	1.08	78	2	101	80	-0.050	11.54	0.65
62	9.901	0.161	1.11	78	2	97	80	-0.050	11.68	0.64
63	10.064	0.163	1.09	79	2	99	80	-0.050	11.53	0.57
64	10.229	0.165	1.08	79	2	100	80	-0.060	11.88	0.58
65	10.390	0.161	1.08	79	2	98	80	-0.070	12.26	0.51

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
66	10.553	0.163	1.07	79	2	98	80	-0.060	12.21	0.48
67	10.715	0.162	1.08	79	2	99	80	-0.060	12.25	0.44
68	10.877	0.162	1.08	79	2	100	80	-0.060	12.06	0.43
69	11.039	0.162	1.11	79	2	99	80	-0.050	11.98	0.45
70	11.199	0.160	1.08	79	2	99	80	-0.050	12.00	0.42
71	11.365	0.166	1.08	79	2	104	80	-0.050	11.86	0.39
72	11.529	0.164	1.10	79	2	101	80	-0.050	11.85	0.42
73	11.691	0.162	1.08	79	2	99	80	-0.060	11.73	0.42
74	11.856	0.165	1.10	79	2	101	80	-0.050	11.63	0.49
75	12.018	0.162	1.10	79	2	100	80	-0.050	11.32	0.49
76	12.180	0.162	1.09	79	2	99	80	-0.050	10.92	0.58
77	12.343	0.163	1.10	79	2	100	80	-0.050	10.47	0.59
78	12.503	0.160	1.11	79	2	98	80	-0.050	10.19	0.65
79	12.667	0.164	1.11	79	2	101	80	-0.050	10.39	0.59
80	12.829	0.162	1.09	79	2	99	80	-0.050	9.40	0.75
81	12.992	0.163	1.11	79	2	99	79	-0.040	8.99	0.70
82	13.156	0.164	1.10	79	2	99	79	-0.050	9.05	0.69
83	13.318	0.162	1.08	79	2	98	79	-0.040	9.24	0.52
84	13.481	0.163	1.11	79	2	98	79	-0.050	9.49	0.53
85	13.642	0.161	1.11	79	2	96	79	-0.050	9.29	0.56
86	13.809	0.167	1.09	79	2	102	79	-0.040	9.27	0.56
87	13.973	0.164	1.07	78	2	102	79	-0.040	9.02	0.61
88	14.136	0.163	1.07	78	2	102	79	-0.040	8.84	0.58
89	14.303	0.167	1.09	77	2	106	78	-0.040	8.92	0.56
90	14.463	0.160	1.09	77	2	103	78	-0.040	8.79	0.68
91	14.629	0.166	1.11	76	2	104	78	-0.040	8.46	0.74
92	14.791	0.162	1.08	76	2	100	78	-0.040	8.20	0.76
93	14.956	0.165	1.08	76	2	102	78	-0.040	8.17	0.72
94	15.120	0.164	1.08	75	2	99	77	-0.040	8.24	0.73
95	15.287	0.167	1.11	75	2	99	77	-0.040	8.02	0.70
96	15.453	0.166	1.08	75	2	99	77	-0.040	7.85	0.67
97	15.617	0.164	1.10	75	2	99	77	-0.050	7.95	0.72
98	15.784	0.167	1.12	74	2	101	77	-0.050	7.85	0.77



## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
99	15.946	0.162	1.11	74	2	99	77	-0.040	7.74	0.69
100	16.113	0.167	1.11	74	2	103	77	-0.040	7.79	0.68
101	16.276	0.163	1.12	74	2	101	77	-0.040	7.72	0.75
102	16.442	0.166	1.10	74	2	103	76	-0.030	7.78	0.81
103	16.608	0.166	1.08	73	2	101	76	-0.040	7.48	0.80
104	16.773	0.165	1.10	73	2	101	76	-0.040	7.40	0.83
105	16.939	0.166	1.09	73	2	100	76	-0.040	7.54	0.85
106	17.103	0.164	1.12	73	2	99	76	-0.030	7.53	0.83
107	17.268	0.165	1.11	72	2	101	76	-0.040	7.40	0.86
108	17.432	0.164	1.10	72	2	101	76	-0.040	7.39	0.90
109	17.599	0.167	1.10	72	2	102	76	-0.030	7.43	0.88
110	17.764	0.165	1.11	72	2	100	75	-0.030	7.37	0.95
111	17.929	0.165	1.11	72	2	99	75	-0.040	7.51	0.98
112	18.093	0.164	1.12	71	2	97	75	-0.040	7.36	0.97
113	18.259	0.166	1.11	71	2	100	75	-0.030	7.32	0.99
114	18.424	0.165	1.11	71	2	101	75	-0.030	7.21	0.97
115	18.586	0.162	1.09	71	2	100	75	-0.030	7.25	1.02
116	18.751	0.165	1.13	71	2	101	75	-0.030	7.20	0.99
117	18.913	0.162	1.10	71	2	100	74	-0.030	6.96	1.03
118	19.081	0.168	1.12	71	2	104	74	-0.030	6.84	0.96
119	19.244	0.163	1.09	70	2	99	74	-0.040	6.51	0.96
120	19.410	0.166	1.11	70	2	100	74	-0.030	5.77	1.34
121	19.572	0.162	1.11	70	2	98	74	-0.030	5.73	1.42
122	19.738	0.166	1.10	70	2	101	74	-0.040	5.68	1.34
123	19.903	0.165	1.10	70	2	101	74	-0.030	5.70	1.34
124	20.069	0.166	1.10	70	2	102	74	-0.030	5.77	1.34
125	20.236	0.167	1.12	70	2	102	74	-0.030	5.73	1.31
126	20.401	0.165	1.11	70	2	101	73	-0.040	5.74	1.29
127	20.568	0.167	1.10	70	2	101	73	-0.030	5.72	1.26
128	20.731	0.163	1.09	70	2	98	73	-0.030	6.00	1.31
129	20.899	0.168	1.12	70	2	103	73	-0.030	5.75	1.23
130	21.065	0.166	1.11	70	2	101	73	-0.030	5.65	1.21
131	21.232	0.167	1.10	70	2	102	73	-0.020	5.75	1.25

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
132	21.396	0.164	1.12	70	2	99	73	-0.020	5.82	1.27
133	21.564	0.168	1.12	70	2	101	73	-0.030	5.92	1.27
134	21.726	0.162	1.10	70	2	97	73	-0.020	5.74	1.20
135	21.893	0.167	1.12	69	2	100	73	-0.030	5.65	1.19
136	22.059	0.166	1.10	69	2	99	73	-0.030	5.87	1.23
137	22.228	0.169	1.12	69	2	103	72	-0.030	5.67	1.16
138	22.390	0.162	1.12	69	2	98	72	-0.020	5.75	1.19
139	22.556	0.166	1.12	69	2	100	72	-0.030	5.59	1.14
140	22.722	0.166	1.08	69	2	100	72	-0.030	5.70	1.15
141	22.886	0.164	1.11	69	2	100	72	-0.030	5.86	1.15
142	23.052	0.166	1.10	69	2	102	72	-0.020	5.61	1.12
143	23.215	0.163	1.12	69	2	101	72	-0.030	5.67	1.12
144	23.381	0.166	1.11	69	2	102	72	-0.040	5.75	1.13
145	23.546	0.165	1.11	69	2	103	72	-0.030	5.52	1.14
146	23.714	0.168	1.11	69	2	106	72	-0.020	5.54	1.14
147	23.874	0.160	1.11	68	2	99	72	-0.030	5.39	1.14
148	24.039	0.165	1.12	69	2	101	72	-0.030	5.52	1.17
149	24.204	0.165	1.12	69	2	101	72	-0.020	5.42	1.17
150	24.372	0.168	1.12	69	2	102	72	-0.030	5.37	1.17
151	24.536	0.164	1.12	69	2	99	72	-0.030	5.64	1.25
152	24.702	0.166	1.12	68	2	100	71	-0.020	5.60	1.24
153	24.865	0.163	1.12	68	2	99	71	-0.020	5.59	1.19
154	25.031	0.166	1.11	68	2	100	71	-0.020	5.75	1.22
155	25.193	0.162	1.11	68	2	99	71	-0.020	5.74	1.24
156	25.357	0.164	1.11	68	2	100	71	-0.030	5.54	1.21
157	25.522	0.165	1.11	68	2	101	71	-0.020	5.71	1.24
158	25.687	0.165	1.12	68	2	100	71	-0.030	5.84	1.27
159	25.853	0.166	1.11	68	2	102	71	-0.020	5.77	1.27
160	26.019	0.166	1.11	68	2	101	71	-0.030	5.65	1.22
161	26.184	0.165	1.11	68	2	100	71	-0.020	5.76	1.22
162	26.350	0.166	1.10	68	2	102	71	-0.020	5.74	1.10
163	26.518	0.168	1.12	69	2	102	71	-0.020	5.69	1.08
164	26.681	0.163	1.11	69	2	99	71	-0.030	5.73	1.08

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
165	26.848	0.167	1.11	69	2	102	71	-0.030	5.80	1.09
166	27.011	0.163	1.12	69	2	101	71	-0.020	5.58	1.08
167	27.179	0.168	1.12	69	2	103	71	-0.020	5.72	1.08
168	27.343	0.164	1.11	69	2	102	71	-0.020	5.70	1.07
169	27.507	0.164	1.13	69	2	102	71	-0.030	5.73	1.06
170	27.673	0.166	1.10	69	2	103	71	-0.030	5.69	1.05
171	27.841	0.168	1.12	69	2	103	71	-0.020	5.52	1.00
172	28.005	0.164	1.10	69	2	104	71	-0.030	5.75	1.04
173	28.174	0.169	1.12	69	2	105	70	-0.020	5.65	1.08
174	28.338	0.164	1.12	68	2	102	70	-0.020	5.53	1.04
175	28.505	0.167	1.13	68	2	104	70	-0.020	5.41	1.03
176	28.668	0.163	1.14	68	2	102	70	-0.020	5.67	1.09
177	28.837	0.169	1.12	68	2	103	70	-0.030	5.81	1.11
178	29.002	0.165	1.12	68	2	101	70	-0.020	5.62	1.08
179	29.167	0.165	1.13	68	2	101	70	-0.030	5.72	1.10
180	29.329	0.162	1.12	68	2	100	70	-0.030	5.50	1.06
181	29.494	0.165	1.12	68	2	102	70	-0.020	5.42	1.05
182	29.655	0.161	1.12	68	2	100	70	-0.030	5.63	1.11
183	29.821	0.166	1.13	68	2	103	70	-0.020	5.62	1.11
184	29.983	0.162	1.11	68	2	100	70	-0.030	5.63	1.12
185	30.151	0.168	1.10	68	2	103	70	-0.020	5.45	1.13
186	30.314	0.163	1.12	68	2	99	70	-0.030	5.57	1.17
187	30.480	0.166	1.11	67	2	100	70	-0.020	5.72	1.10
188	30.643	0.163	1.14	67	2	99	70	-0.020	5.73	1.10
189	30.809	0.166	1.10	67	2	100	70	-0.020	5.72	1.11
190	30.972	0.163	1.13	67	2	98	70	-0.020	5.85	1.16
191	31.139	0.167	1.11	67	2	100	70	-0.020	5.58	1.11
192	31.303	0.164	1.13	67	2	98	70	-0.030	5.68	1.19
193	31.469	0.166	1.13	67	2	97	70	-0.020	5.53	1.18
194	31.633	0.164	1.13	67	2	97	70	-0.020	5.53	1.21
195	31.798	0.165	1.12	67	2	97	70	-0.020	5.66	1.18
196	31.965	0.167	1.13	67	2	100	70	-0.020	5.81	1.21
197	32.131	0.166	1.12	67	2	100	70	-0.010	5.83	1.22

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
198	32.295	0.164	1.10	67	2	101	70	-0.020	5.78	1.22
199	32.459	0.164	1.11	67	2	103	70	-0.020	5.69	1.21
200	32.621	0.162	1.12	67	2	102	70	-0.020	5.69	1.23
201	32.788	0.167	1.12	67	2	103	70	-0.020	5.69	1.22
202	32.955	0.167	1.12	67	2	105	70	-0.020	5.76	1.25
203	33.119	0.164	1.10	67	2	103	70	-0.030	5.79	1.26
204	33.285	0.166	1.12	67	2	102	70	-0.030	5.72	1.22
205	33.446	0.161	1.12	67	2	99	70	-0.020	5.69	1.17
206	33.616	0.170	1.12	67	2	106	70	-0.020	5.71	1.17
207	33.781	0.165	1.10	67	2	102	70	-0.020	5.86	1.20
208	33.947	0.166	1.11	67	2	101	70	-0.020	5.73	1.20
209	34.110	0.163	1.12	67	2	100	70	-0.030	5.75	1.18
210	34.277	0.167	1.15	67	2	103	70	-0.020	5.80	1.20
211	34.441	0.164	1.13	67	2	100	70	-0.020	5.82	1.14
212	34.608	0.167	1.13	67	2	103	70	-0.020	5.69	1.19
213	34.771	0.163	1.13	67	2	100	70	-0.020	5.63	1.20
214	34.940	0.169	1.13	67	2	103	70	-0.020	5.77	1.26
215	35.102	0.162	1.10	67	2	99	70	-0.020	5.51	1.24
216	35.267	0.165	1.11	68	2	101	70	-0.020	5.58	1.27
217	35.429	0.162	1.11	68	2	99	70	-0.030	5.39	1.24
218	35.596	0.167	1.13	68	2	102	70	-0.030	5.57	1.29
219	35.759	0.163	1.10	68	2	100	70	-0.020	5.45	1.29
220	35.925	0.166	1.10	68	2	102	70	-0.010	5.56	1.35
221	36.087	0.162	1.11	68	2	98	70	-0.010	5.56	1.35
222	36.254	0.167	1.12	68	2	100	70	-0.020	5.49	1.31
223	36.420	0.166	1.13	68	2	98	71	-0.020	5.45	1.22
224	36.587	0.167	1.13	68	2	98	71	-0.010	5.30	1.31
225	36.750	0.163	1.10	69	2	96	71	-0.020	5.19	1.40
226	36.916	0.166	1.12	69	2	97	71	-0.030	5.02	1.34
227	37.081	0.165	1.13	70	2	96	71	-0.030	5.18	1.42
228	37.245	0.164	1.12	70	2	98	71	-0.020	5.00	1.48
229	37.410	0.165	1.10	70	2	100	71	-0.020	5.00	1.50
230	37.573	0.163	1.08	71	2	98	71	-0.030	5.07	1.50

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
231	37.739	0.166	1.13	71	2	100	71	-0.020	5.09	1.50
232	37.901	0.162	1.10	71	2	99	71	-0.020	5.09	1.48
233	38.069	0.168	1.13	72	2	100	71	-0.020	5.09	1.48
234	38.232	0.163	1.12	72	2	97	71	-0.020	5.02	1.47
235	38.398	0.166	1.14	72	2	98	71	-0.030	5.20	1.45
236	38.562	0.164	1.11	72	2	99	71	-0.030	5.17	1.43
237	38.729	0.167	1.13	72	2	102	71	-0.020	5.12	1.39
238	38.890	0.161	1.11	72	2	98	71	-0.020	5.17	1.45
239	39.055	0.165	1.13	72	2	100	71	-0.030	5.20	1.46
240	39.220	0.165	1.09	72	2	100	71	-0.020	5.25	1.49
241	39.388	0.168	1.13	72	2	100	71	-0.020	5.10	1.45
242	39.552	0.164	1.11	72	2	98	71	-0.020	5.03	1.51
243	39.721	0.169	1.11	72	2	100	71	-0.010	4.97	1.54
244	39.885	0.164	1.11	72	2	97	71	-0.030	5.02	1.53
245	40.052	0.167	1.12	72	2	102	71	-0.030	5.15	1.57
246	40.217	0.165	1.14	72	2	102	71	-0.010	5.00	1.53
247	40.383	0.166	1.12	72	2	103	71	-0.010	5.05	1.42
248	40.548	0.165	1.10	72	2	102	71	-0.020	5.11	1.34
249	40.715	0.167	1.11	72	2	103	72	-0.010	5.30	1.38
250	40.882	0.167	1.11	72	2	101	71	-0.010	5.38	1.40
251	41.047	0.165	1.13	72	2	99	72	-0.020	5.49	1.39
252	41.212	0.165	1.14	72	2	98	72	-0.020	5.50	1.40
253	41.376	0.164	1.12	72	2	98	72	-0.020	5.47	1.42
254	41.544	0.168	1.13	72	2	101	72	-0.030	5.68	1.43
255	41.706	0.162	1.12	72	2	97	72	-0.020	5.69	1.41
256	41.874	0.168	1.12	72	2	101	72	-0.020	5.69	1.23
257	42.041	0.167	1.12	72	2	99	72	-0.020	5.89	1.22
258	42.207	0.166	1.13	72	2	98	72	-0.020	6.01	1.33
259	42.371	0.164	1.14	72	2	98	72	-0.030	5.87	1.23
260	42.537	0.166	1.08	72	2	98	72	-0.020	5.85	1.19
261	42.700	0.163	1.13	72	2	96	72	-0.020	5.86	1.19
262	42.864	0.164	1.10	72	2	97	72	-0.020	6.10	1.20
263	43.025	0.161	1.14	72	2	98	72	-0.020	5.88	1.15

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
264	43.192	0.167	1.13	72	2	101	72	-0.020	6.06	1.16
265	43.354	0.162	1.11	72	2	98	72	-0.020	6.03	1.16
266	43.522	0.168	1.11	72	2	103	72	-0.020	6.01	1.11
267	43.690	0.168	1.12	72	2	102	72	-0.020	6.05	1.11
268	43.859	0.169	1.11	73	2	101	72	-0.020	5.68	1.08
269	44.021	0.162	1.11	72	2	98	72	-0.020	5.69	1.07
270	44.188	0.167	1.12	72	2	101	72	-0.030	5.73	1.08
271	44.351	0.163	1.10	72	2	98	72	-0.030	5.71	1.09
272	44.516	0.165	1.11	73	2	100	72	-0.020	5.94	1.10
273	44.682	0.166	1.08	73	2	102	72	-0.030	5.81	1.05
274	44.846	0.164	1.12	73	2	100	72	-0.030	6.00	1.07
275	45.011	0.165	1.12	73	2	100	72	-0.020	5.83	1.05
276	45.179	0.168	1.10	73	2	103	72	-0.010	5.93	1.09
277	45.345	0.166	1.10	73	2	102	72	-0.020	6.22	1.13
278	45.508	0.163	1.12	73	2	98	72	-0.030	6.02	1.12
279	45.677	0.169	1.12	73	2	102	72	-0.020	5.65	1.07
280	45.842	0.165	1.12	74	2	100	73	-0.010	6.16	1.18
281	46.010	0.168	1.12	74	2	100	73	-0.020	5.89	1.14
282	46.172	0.162	1.10	74	2	96	73	-0.030	5.78	1.16
283	46.341	0.169	1.14	74	2	101	73	-0.020	5.63	1.12
284	46.506	0.165	1.13	74	2	98	73	-0.020	5.71	1.15
285	46.674	0.168	1.10	74	2	98	73	-0.020	5.74	1.16
286	46.837	0.163	1.13	74	2	95	73	-0.020	5.90	1.15
287	47.003	0.166	1.12	74	2	99	73	-0.030	5.87	1.15
288	47.167	0.164	1.12	74	2	97	73	-0.030	5.69	1.13
289	47.335	0.168	1.13	74	2	100	73	-0.020	5.73	1.12
290	47.499	0.164	1.10	74	2	99	73	-0.030	5.83	1.15
291	47.665	0.166	1.11	74	2	101	73	-0.020	5.83	1.14
292	47.829	0.164	1.12	74	2	97	73	-0.020	5.72	1.17
293	47.995	0.166	1.11	74	2	100	73	-0.020	5.70	1.20
294	48.161	0.166	1.12	75	2	100	73	-0.020	5.71	1.22
295	48.327	0.166	1.11	75	2	99	73	-0.010	5.52	1.18
296	48.491	0.164	1.12	75	2	97	73	-0.020	5.60	1.22

## BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft <sup>3</sup> )	Sample Rate (cfm)	Orifice dH (in H <sub>2</sub> O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H <sub>2</sub> O)	CO <sub>2</sub> (%)	CO (%)
297	48.653	0.162	1.13	75	2	98	73	-0.020	5.53	1.28
298	48.818	0.165	1.10	75	2	98	73	-0.030	5.59	1.08
299	48.983	0.165	1.12	75	2	99	73	-0.020	5.60	1.04
300	49.151	0.168	1.13	75	2	102	73	-0.010	5.56	1.04
301	49.317	0.166	1.08	75	2	100	73	-0.020	5.58	1.03
302	49.483	0.166	1.12	75	2	99	73	-0.030	5.52	0.99
303	49.645	0.162	1.11	75	2	98	73	-0.020	5.57	0.97
304	49.809	0.164	1.12	75	2	97	73	-0.020	5.73	1.00
305	49.971	0.162	1.11	75	2	96	73	-0.020	5.58	1.01
306	50.137	0.166	1.09	75	2	99	73	-0.020	5.48	1.00
307	50.300	0.163	1.11	75	2	97	73	-0.020	5.58	1.01
308	50.467	0.167	1.10	75	2	99	73	-0.030	5.68	0.99
309	50.633	0.166	1.11	75	2	100	73	-0.020	5.46	0.93
310	50.795	0.162	1.10	75	2	95	73	-0.020	5.47	0.93
311	50.959	0.164	1.13	75	2	99	73	-0.020	5.53	0.94
312	51.124	0.165	1.12	75	2	100	73	-0.020	5.51	0.89
313	51.290	0.166	1.11	75	2	100	73	-0.020	5.85	0.95
314	51.456	0.166	1.08	75	2	99	73	-0.030	5.67	0.88
315	51.623	0.167	1.10	75	2	101	73	-0.030	5.74	0.91
316	51.788	0.165	1.13	75	2	98	73	-0.030	5.81	0.92
317	51.953	0.165	1.12	75	2	100	73	-0.020	5.62	0.89
318	52.120	0.167	1.12	75	2	101	73	-0.030	5.53	0.90
319	52.286	0.166	1.11	75	2	101	73	-0.020	5.45	0.90
320	52.451	0.165	1.11	75	2	99	73	-0.020	5.50	0.92
321	52.617	0.166	1.11	75	2	101	73	-0.020	5.37	0.98
322	52.782	0.165	1.10	75	2	95	73	-0.020	5.40	1.01
Avg/Tot	52.782	0.164	1.10	73	2.00	100	74	-0.034	7.35	1.00

## LAB SAMPLE DATA - ASTM E2515

Client: HHT  
 Model: 4300ACC-C  
 Run #: 5

Job #: 19-538  
 Tracking #: 0050  
 Technician: AK  
 Date: 12/6/2019

	Sample ID	Tare, mg	Total, mg	Final, mg	Catch, mg
<b>Train A Filters - First Hour</b>	3658	120.6	120.6	123.4	2.8
<b>Train A Filters - Remainder</b>	3659	118.9	237.3	238.3	1.0
	3660	118.4			
<b>Train A Probe</b>	6A	116545.6	116545.6	116545.5	0.0*
<b>Train A O-Rings</b>	6A	3616.1	3616.1	3616.2	0.1
<b>Train B Filters</b>	3661	121.6	242.1	245.7	3.6
	3662	120.5			
<b>Train B Probe</b>	6B	116119.5	116119.5	116119.5	0.0
<b>Train B O-Rings</b>	6B	3397.4	3397.4	3397.1	0.0*
<b>Background Filter</b>			0.0	0.0	

\*Negative value corrected to zero

**Placed in Dessicator on:** 12/7/2019

**Balance Audit (mg):**      200.0      200.0

	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
<b>Train A Filters - First Hour</b>	123.2	12/9 9:15	123.4	12/10 14:40				
<b>Train A Filters - Remainder</b>	238.3	12/9 9:15	238.3	12/10 14:40				
<b>Train A Probe</b>	116545.4	12/9 9:02	116545.5	12/10 14:27				
<b>Train A O-Rings</b>	3616.1	12/9 9:07	3616.2	12/10 14:28				
<b>Train B Filters</b>	245.7	12/9 9:15	245.7	12/10 14:40				
<b>Train B Probe</b>	116119.3	12/9 9:02	116119.5	12/10 14:27				
<b>Train B O-Rings</b>	3397.3	12/9 9:08	3397.1	12/10 14:28				
<b>Background Filter</b>								

1st hour Sub-Total, mg:	2.8
Remainder Sub-Total, mg:	1.1
<b>Train 1 Aggregate, mg:</b>	<b>3.9</b>
<b>Train 2 Aggregate, mg:</b>	<b>3.6</b>
Ambient Aggregate, mg:	0.0



## ASTM E2780 Wood Heater Run Sheets

Client: HHT Job Number: 19-538 Tracking #: 0050  
 Model: 4300ACC-C Run Number: 5 Test Date: 12/5/19

### Wood Heater Run Notes

#### Test Control Settings

Primary Air Setting(s): Open 0.75", rear air full closed  
 Targeted Burn Category: II – Fan confirmation

#### Preburn Notes

Time	Notes
	Fan confirmation run

#### Test Notes

Test Burn Start Time: 10:48 Test Fuel Loaded by: 45 seconds  
 Door Closed: 39 seconds Air Control Set at: 300 seconds  
 Other Loading Notes: Closed rear air @ 5 min

Time	Notes
60:00	Changed filter A

Test Burn End Time: 18:23


#### Flue Gas Concentration Measurement

**Calibration Gas Values:** Span Gas CO<sub>2</sub> (%): 9.99 CO (%): 1.00

#### Calibration Results:

	Zero	Span	Zero	Span
Time	07:47	007:48	18:28	18:29
CO <sub>2</sub>	0.00	9.90	0.00	9.94
CO	0.00	0.96	0.00	1.00

**Flue Gas Probe Leak Check:** Initial: No Leakage Final: No Leakage

Technician Signature:  Date: 12/18/2019

# ASTM E2780 Wood Heater Run Sheets

Client: HHT  
Model: 4300ACC-C

Job Number: 19-538  
Run Number: 5

Tracking #: 0050  
Test Date: 12/5/19



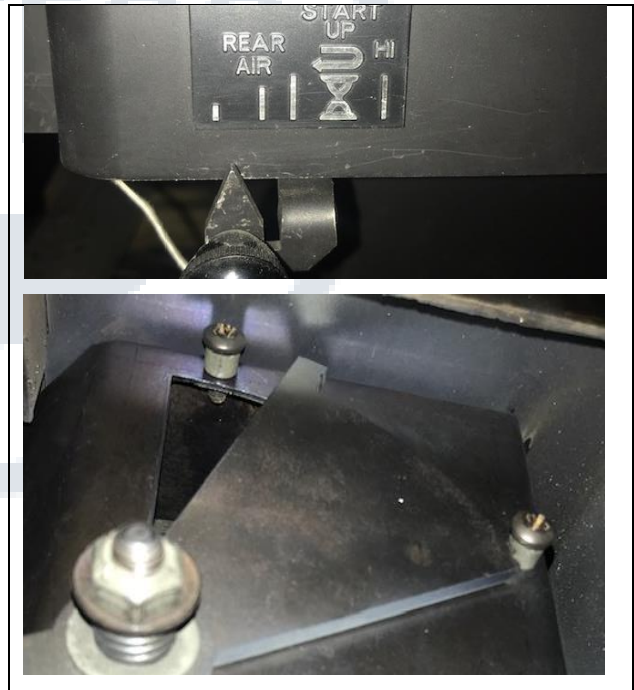
Test Fuel Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Settings

Technician Signature: \_\_\_\_\_

A handwritten signature in black ink, written over a horizontal line. The signature is cursive and appears to be "A. J. [unclear]".

Date: 12/18/2019























## **Test Instruction Recommendations: 4300**

Created on/by: 12/2/2019; Joshua Chambers – HHT Design Engineer

Purpose: To create repeatability in test protocol for coal bed establishment and loading of the stove.

### Coal Bed establishment (Low, Medium Low)

Wood Load: 2 loads of 2x4's. Each load will consist of 5 pieces at 11.5" and 4 pieces at 15". The second wood load should be loaded when the first load has burnt down to around 2 pounds.

Air Settings: Unit air control should be fully open with the ACC locked open.

Fan Settings: No fan on for coal bed establishment

### Coal Bed establishment (Medium High)

Wood Load: 2 loads of 2x4's. Each load will consist of 5 pieces at 11.5" and 4 pieces at 15". The second wood load should be loaded when the first load has burnt down to around 2 pounds.

Air Settings: Unit air control should be fully open with the ACC locked open.

Fan Settings: No fan on for coal bed establishment

### Coal Bed establishment (High)

Wood Load: 1 Load of 2x4's. Load will consist of 5 Pieces at 11.5" and 4 Pieces at 15"

Air Settings: Unit air control should be fully open with ACC locked open.

Fan Settings: no fan on for coal bed establishment

### Pre-Burn (Low, Medium-Low)

When the unit weight is at the top end of the coal bed for the test load, pre-burn should be started.

Pre-burn load: At 15mins into pre-burn, insert 3 pieces of 2x4's at 8" in length.

Air Controls: Primary air control should be closed to (.442in for **Low** or .75in for **Med-Low**). ACC should be fully closed as well.



Fan Settings: Unit fan should be on high for the duration of pre-burn.

Coal Bed Break Down: Coal Bed should be broken down at 55 minutes into pre-burn. Rake coals forward to create a slight slope parallel to the unit's baffle. Clear out coals directly in front of the primary air outlet.

#### Test Burn (Low, Medium-Low)

Loading: Make sure two 2x4's are on the bottom with a 4x4 on top of each of the 2x4's. The last 2x4 will stand on it's side to the left of the rest of the fuel load. When loading, make sure the wood is just behind the top lip of the primary air channel. Load from right to left with the first 2x4 followed by the 4x4 that will be placed on top. Following that, place the next set of the 2x4 and 4x4 with the last piece of fuel being loaded is the 2x4 on it's side. Make sure the 2x4 on its side is not touching the bricks. If necessary, move coals that are blocking the primary air outlet. Turn on fan to the high setting at 30 minutes.

Air Controls: Before opening the door to load set primary air control to full open and have ACC open. At 5 minutes, set the primary air control to (.442in for **Low** or .75in for **Med-Low**) and activate ACC.

#### Pre-Burn (Medium-High)

When the unit weight is at roughly 5.5, pre-burn should be started.

Pre-burn load: At start of pre-burn, insert 3 pieces of 2x4's at 8" in length

Air Controls: Primary air control should be set so that the base of the opening triangle is open". ACC should be fully closed as well.

Fan Settings: Unit fan should be on high for the duration of pre-burn.

Coal Bed Break Down: Coal Bed should be broken down at 55 minutes into pre-burn. Rake coals forward to create a slight slope parallel to the unit's baffle. Clear out coals directly in front of the primary air outlet.

#### Test Burn (Medium-High)

Loading: Make sure two 2x4's are on the bottom with a 4x4 on top of each of the 2x4's. The last 2x4 will stand on it's side to the left of the rest of the fuel load. Fan will stay on from pre burn on the high setting. When loading, make sure the wood is just behind the top lip of the primary air channel. Load from right to left with the first 2x4 followed by the 4x4 that will be placed on top. Following that, place the next set of the 2x4 and 4x4 with the last piece of fuel being loaded is



the 2x4 on it's side. Make sure the 2x4 on its side is not touching the bricks. If necessary, move coals that are blocking the primary air outlet.

Air Controls: Before opening the door to load, open primary air control and ACC. At 5 minutes, activate ACC and leave primary air control open.

#### Pre-Burn (High)

When the unit weight is at 2.0lb, pre-burn should be started.

Pre-burn load: 5 pieces of 2x4's at 11.5" in length and 4 pieces of 2x4's at 11.5" in length

Air Controls: Primary air control should be opened all the way to the mechanical stop and the ACC should be locked open

Coal Bed Break Down: Coal Bed should be broken down at 55 minutes into pre-burn. Rake coals forward to create a slight slope parallel to the unit's baffle. Clear out coals directly in front of the primary air outlet.

#### Test Burn (High)

Loading: Make sure two 2x4's are on the bottom with a 4x4 on top of each of the 2x4's. The last 2x4 will stand on it's side to the left of the rest of the fuel load. Fan will stay on from pre burn on the high setting. When loading, make sure the wood is just behind the top lip of the primary air channel. Load from right to left with the first 2x4 followed by the 4x4 that will be placed on top. Following that, place the next set of the 2x4 and 4x4 with the last piece of fuel being loaded is the 2x4 on it's side. Make sure the 2x4 on its side is not touching the bricks. If necessary, move coals that are blocking the primary air outlet.

Air Controls: Air controls do not change from their pre-burn setting.

## Conditioning Data

Client: HHT	Job #: 19-538
Model: 43M-ACC-C	Tracking #: 0050
Date(s):	Technician: AK

All conditioning was conducted with douglas fir of moisture content 19-25% DB.  
Air setting used was medium (open 0.75")

Elapsed Time (hrs)	Scale Reading (lbs)	Weight Change (lbs)	Average:	315.2	74.4	N/A
			Flue (°F)	Ambient (°F)	Catalyst Exit (°F)	
0	3.4	-	190	74	N/A	
1	13.6	10.2	421	79	N/A	
2	10.2	-3.3	291	77	N/A	
3	7.9	-2.3	243	76	N/A	
4	6.7	-1.2	183	75	N/A	
5	6.2	-0.5	157	74	N/A	
6	6.0	-0.3	149	72	N/A	
7	5.7	-0.3	144	70	N/A	
8	5.3	-0.4	145	69	N/A	
9	14.3	9.0	261	75	N/A	
10	10.9	-3.3	668	75	N/A	
11	8.3	-2.7	429	75	N/A	
12	7.0	-1.2	383	75	N/A	
13	6.4	-0.6	274	73	N/A	
14	5.9	-0.5	253	73	N/A	
15	5.5	-0.4	244	73	N/A	
16	5.1	-0.4	241	72	N/A	
17	4.7	-0.5	238	72	N/A	
18	4.3	-0.4	228	72	N/A	
19	13.4	9.1	213	71	N/A	
20	9.9	-3.5	756	79	N/A	
21	7.2	-2.7	543	76	N/A	
22	6.1	-1.1	447	75	N/A	
23	5.6	-0.5	323	74	N/A	
24	5.2	-0.4	262	72	N/A	
25	4.7	-0.4	226	72	N/A	
26	4.3	-0.5	230	71	N/A	
27	3.8	-0.4	230	72	N/A	
28	3.5	-0.4	216	72	N/A	
29	13.9	10.4	663	80	N/A	
30	10.6	-3.3	408	79	N/A	
31	8.0	-2.7	401	78	N/A	
32	6.8	-1.1	277	77	N/A	
33	6.1	-0.7	245	76	N/A	
34	5.7	-0.4	254	74	N/A	
35	5.3	-0.4	249	74	N/A	
36	4.9	-0.3	230	72	N/A	
37	4.6	-0.4	231	71	N/A	
38	4.1	-0.4	229	71	N/A	
39	13.6	9.4	649	78	N/A	
40	10.4	-3.2	397	80	N/A	
41	7.7	-2.7	376	79	N/A	
42	6.5	-1.2	290	76	N/A	
43	5.9	-0.6	263	76	N/A	
44	5.4	-0.5	255	75	N/A	
45	5.0	-0.4	249	74	N/A	
46	4.6	-0.4	239	73	N/A	
47	4.3	-0.4	233	72	N/A	
48	3.9	-0.3	225	71	N/A	
49	18.4	14.5	602	72	N/A	
50	13.4	-5.0	520	77	N/A	



## Sample Calculations – ASTM E2780 & E2515

Client: HHT  
 Model: 4300ACC-C  
 Run: 2

Equations used to calculate the parameters listed below are described in this appendix. Sample calculations are provided for each equation. The raw data and printout results from a sample run are also provided for comparison to the sample calculations.

- $M_{Sdb}$  – Weight of test fuel spacers, dry basis, kg
- $M_{Cdb}$  – Weight of test fuel crib, excluding nails and spacers, dry basis, kg
- $D_{Cdb}$  - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft<sup>3</sup>
- $M_{FTAdb}$  - Total weight of fuel crib excluding nails, dry basis, kg
- BR – Dry burn rate, kg/hr
- $V_s$  – Average gas velocity in the dilution tunnel, ft/sec
- $Q_{sd}$  – Average gas flow rate in dilution tunnel, dscf/hr
- $V_{m(std)}$  – Volume of gas sampled, corrected to dry standard conditions, dscf
- $m_n$  – Total particulate matter collected, mg
- $C_s$  - Concentration of particulate matter in tunnel gas, dry basis, corrected to STP, g/dscf
- $E_T$  – Total particulate emissions, g
- PR - Proportional rate variation
- $PM_R$  – Particulate emissions for test run, g/hr
- $PM_F$  – Particulate emission factor for test run, g/dry kg of fuel burned



**$M_{Sdb}$  – Weight of test fuel spacers, dry basis, kg**

ASTM E2780 equation (1)

$$M_{Sdb} = (M_{Swb})(100/(100 + FM_S))$$

Where,

$FM_S$  = average fuel moisture of test fuel spacers, % dry basis

$M_{Swb}$  = weight of test fuel spacers, wet basis, kg

Sample Calculation:

$$FM_S = 10.0 \%$$

$$M_{Swb} = 2.1 \text{ lbs}$$

0.4536 = Conversion factor from lbs to kg

$$M_{Sdb} = [(2.1 \times 0.4536) (100/(100 + 10.0))]$$

$$M_{Sdb} = \mathbf{0.87 \text{ kg}}$$

**$M_{Cdb}$**  – Weight of test fuel crib, excluding nails and spacers, dry basis, kg  
ASTM E2780 equation (2)

$$M_{Cdb} = \Sigma[(M_{CPnwb})(100/(100 + FM_{CPn}))]$$

Where,

$M_{CPnwb}$  = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg

$FM_{CPn}$  = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation (test fuel piece 1):

$$M_{CPnwb} = 3.8$$

$$FM_{CPn} = 19.3$$

$$= 3.8 (100/(100 + 19.3))$$

$$= 3.2 \text{ lbs}$$

Total dry crib weight, excluding spacers = 10.72 lbs

$$M_{Cdb} = \mathbf{4.86 \text{ kg}}$$

**D<sub>Cdb</sub> - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft<sup>3</sup>**  
ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb}/V_C$$

Where,

$$V_C = \text{Volume of fuel crib, ft}^3$$

Sample calculation:

$$V_C = 623.9 \text{ in}^3$$

$$1728 = \text{conversion from in}^3 \text{ to ft}^3$$

$$D_{Cdb} = 10.72 / 623.9 * 1728$$

$$= \mathbf{29.7 \text{ lbs/ft}^3}$$

**$M_{FTAdb}$  - Total weight of fuel crib excluding nails, dry basis, kg**  
ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample calculation:

$$M_{FTAdb} = 0.87 + 4.86$$

$$= \mathbf{5.73 \text{ kg}}$$

**BR – dry burn rate, kg/hr**

ASTM E2780 equation (5)

$$BR = \frac{60 M_{FTAdb}}{\theta}$$

Where,

$$\theta = \text{Total length of test run, min}$$

Sample Calculation:

$$M_{Bdb} = 5.73 \quad \text{kg}$$

$$\theta = 316 \quad \text{min}$$

$$BR = \frac{60 \times 5.73}{316}$$

$$BR = \mathbf{1.09} \quad \text{kg/hr}$$

**V<sub>s</sub> – Average gas velocity in the dilution tunnel, ft/sec**

ASTM E2515 equations (9)

$$V_s = F_p \times k_p \times C_p \times (\sqrt{\Delta P})_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where:

- F<sub>p</sub> = Adjustment factor for pitot tube center point reading =  $\frac{V_{strav}}{V_{scent}}$ , ASTM E2515 Equation (1)
- V<sub>scent</sub> = Dilution tunnel velocity calculated after the multi-point pitot traverse at the center, ft/sec
- V<sub>strav</sub> = Dilution tunnel velocity calculated after the multi-point pitot traverse, ft/sec
- k<sub>p</sub> = Pitot tube constant, 85.49
- C<sub>p</sub> = Pitot tube coefficient: 0.99, unitless
- ΔP\* = Velocity pressure in the dilution tunnel, in H<sub>2</sub>O
- T<sub>s</sub> = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
- P<sub>s</sub> = Absolute average gas static pressure in dilution tunnel, = P<sub>bar</sub> + P<sub>g</sub>, in Hg
- P<sub>bar</sub> = Barometric pressure at test site, in. Hg
- P<sub>g</sub> = Static pressure of tunnel, in. H<sub>2</sub>O; (in Hg = in H<sub>2</sub>O/13.6)
- M<sub>s</sub> =

\*\*The dilution tunnel wet molecular weight; M<sub>s</sub> = 28.78 assuming a dry weight of 29 lb/lb-mole

Sample calculation:

$$F_p = \frac{19.54}{24.15} = 0.809$$

$$V_s = 0.809 \times 85.49 \times 0.99 \times 0.332 \times \left( \left( \frac{87.8 + 460}{28.38 + \frac{-0.71}{13.6}} \right) \times 28.78 \right)^{1/2}$$

$$V_s = \mathbf{18.64} \text{ ft/s}$$

\*The ASTM test standard mistakenly has the square root of the average delta p instead of the average of the square root of delta p. The current EPA Method 2 is also incorrect. This was verified by Mike Toney at EPA.

\*\*The ASTM test standard mistakenly identifies M<sub>s</sub> as the dry molecular weight. It should be the wet molecular weight as indicated in EPA Method 2.

**Q<sub>sd</sub> – Average gas flow rate in dilution tunnel, dscf/hr**

ASTM E2515 equation (3)

$$Q_{sd} = 3600 \times (1 - B_{ws}) \times v_s \times A \times \frac{T_{std}}{T_{s(avg)}} \times \frac{P_s}{P_{std}}$$

Where:

- 3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
- B<sub>ws</sub> = Water vapor in gas stream, proportion by volume; assume 2%
- A = Cross sectional area of dilution tunnel, ft<sup>2</sup>
- T<sub>std</sub> = Standard absolute temperature, 528 °R
- P<sub>s</sub> = Absolute average gas static pressure in dilution tunnel, = P<sub>bar</sub> + P<sub>g</sub>, in Hg
- T<sub>s(avg)</sub> = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
- P<sub>std</sub> = Standard absolute pressure, 29.92 in Hg

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.02) \times 18.64 \times 0.1963 \times \frac{528}{87.8 + 460} \times \frac{28.38 + \frac{-0.71}{13.6}}{29.92}$$

Q<sub>sd</sub> = **11783.6** dscf/hr

$V_{m(std)}$  – Volume of Gas Sampled Corrected to Dry Standard Conditions, dscf  
 ASTM E2515 equation (6)

$$V_{m(std)} = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

- $K_1$  = 17.64 °R/in. Hg
- $V_m$  = Volume of gas sample measured at the dry gas meter, dcf
- $Y$  = Dry gas meter calibration factor, dimensionless
- $P_{bar}$  = Barometric pressure at the testing site, in. Hg
- $\Delta H$  = Average pressure differential across the orifice meter, in. H<sub>2</sub>O
- $T_m$  = Absolute average dry gas meter temperature, °R

Sample Calculation:

Using equation for Train 1:

$$V_{m(std)} = 17.64 \times 50.370 \times 0.998 \times \frac{\left( 28.38 + \frac{1.02}{13.6} \right)}{\left( 79.6 + 460 \right)}$$

$$V_{m(std)} = \mathbf{46.757} \text{ dscf}$$

Using equation for Train 2:

$$V_{m(std)} = 17.64 \times 52.694 \times 1.002 \times \frac{\left( 28.38 + \frac{1.11}{13.6} \right)}{\left( 79.2 + 460 \right)}$$

$$V_{m(std)} = \mathbf{49.153} \text{ dscf}$$

Using equation for ambient train:

$$V_{m(std)} = 17.64 \times 0.00 \times 1 \times \frac{\left( \underline{28.375} + \frac{0.00}{13.6} \right)}{\left( 73.8 + 460 \right)}$$

$$V_{m(std)} = \mathbf{0} \text{ dscf}$$



**$m_n$  – Total Particulate Matter Collected, mg**

ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

- $m_p$  = mass of particulate matter from probe, mg
- $m_f$  = mass of particulate matter from filters, mg
- $m_g$  = mass of particulate matter from filter seals, mg

Sample Calculation:

Using equation for Train A (first hour):

$$m_n = 0.0 + 1.7 + 0.0$$

$$m_n = 1.7 \text{ mg}$$

Using equation for Train A (post-first hour):

$$m_n = 0.0 + 3.1 + 0.0$$

$$m_n = 3.1 \text{ mg}$$

Train A aggregate:

$$m_n = 1.7 + 3.1$$

$$m_n = 4.8 \text{ mg}$$

Using equation for Train B:

$$m_n = 0 + 5.1 + 0$$

$$m_n = 5.1 \text{ mg}$$

**C<sub>s</sub> - Concentration of particulate matter in tunnel gas, dry basis, corrected to STP, g/dscf**  
ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(\text{std})}}$$

Where:

- K<sub>2</sub> = Constant, 0.001 g/mg
- m<sub>n</sub> = Total mass of particulate matter collected in the sampling train, mg
- V<sub>m(std)</sub> = Volume of gas sampled corrected to dry standard conditions, dscf

Sample calculation:

For Train 1:

$$C_s = 0.001 \times \frac{4.8}{46.76}$$

$$C_s = \mathbf{0.00010} \text{ g/dscf}$$

For Train 2

$$C_s = 0.001 \times \frac{5.1}{49.15}$$

$$C_s = \mathbf{0.00010} \text{ g/dscf}$$

For Ambient Train

$$C_r = 0.001 \times \frac{0.0}{0}$$

$$C_r = \mathbf{0} \text{ g/dscf}$$

**$E_T$  – Total Particulate Emissions, g**

ASTM E2515 equation (15)

$$E_T = (c_s - c_r) \times Q_{std} \times \theta$$

Where:

- $C_s$  = Concentration of particulate matter in tunnel gas, g/dscf
- $C_r$  = Concentration particulate matter room air, g/dscf
- $Q_{std}$  = Average dilution tunnel gas flow rate, dscf/hr
- $\theta$  = Total time of test run, minutes

Sample calculation:

For Train 1

$$E_T = (0.000103 - 0) \times 11783.6 \times 316 / 60$$
$$E_T = \mathbf{6.37} \text{ g}$$

For Train 2

$$E_T = (0.000104 - 0) \times 11783.6 \times 316 / 60$$
$$E_T = \mathbf{6.44} \text{ g}$$

Average

$$E = \mathbf{6.41} \text{ g}$$

Total emission values shall not differ by more than 7.5% from the total average emissions

- 7.5% of the average = **0.48**
- Train 1 difference = **0.03**
- Train 2 difference = **0.03**

**PR - Proportional Rate Variation**

ASTM E2515 equation (16)

$$PR = \left[ \frac{\theta \times V_m \times V_s \times T_m \times T_{si}}{\theta_i \times V_{mi} \times V_{si} \times T_{mi} \times T_s} \right] \times 100$$

Where:

- $\theta$  = Total sampling time, min
- $\theta_i$  = Length of recording interval, min
- $V_{mi}$  = Volume of gas sample measured by the dry gas meter during the "ith" time interval, dcf
- $V_m$  = Volume of gas sample as measured by dry gas meter, dcf
- $V_{si}$  = Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec
- $V_s$  = Average gas velocity in the dilution tunnel, ft/sec
- $T_{mi}$  = Absolute average dry gas meter temperature during the "ith" time interval, °R
- $T_m$  = Absolute average dry gas meter temperature, °R
- $T_{si}$  = Absolute average gas temperature in the dilution tunnel during the "ith" time interval, °R
- $T_s$  = Absolute average gas temperature in the dilution tunnel, °R

Sample calculation (for the first 1 minute interval of Train 1):

$$PR = \left( \frac{316 \times 0.127 \times 18.64 \times (106.0 + 460) \times (79.6 + 460)}{1 \times 50.37 \times 19.04 \times (87.8 + 460) \times (77.0 + 460)} \right) \times 100$$

PR = **81 %**

**PM<sub>R</sub> – Particulate emissions for test run, g/hr**

ASTM E2780 equation (6)

$$PM_R = 60 (E_T/\theta)$$

Where,

$E_T$  = Total particulate emissions, grams

$\theta$  = Total length of full integrated test run, min

Sample Calculation:

$$E_T \text{ (Dual train average)} = 6.41 \text{ g}$$

$$\theta = 316 \text{ min}$$

$$PM_R = 60 \times ( 6.41 / 316 )$$

$$PM_R = 1.22 \text{ g/hr}$$

**PM<sub>F</sub> – Particulate emission factor for test run, g/dry kg of fuel burned**  
ASTM E2780 equation (7)

$$PM_F = E_T / M_{FTAdb}$$

Sample Calculation:

$$E_T \text{ (Dual train average)} = 6.41 \text{ g}$$

$$M_{Bdb} = 5.73 \text{ kg}$$

$$PM_F = 6.41 / 5.73$$

$$PM_F = 1.12 \text{ g/kg}$$

# ASTM E2515 - Glass Filters

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
3613	116.0	115.9	-	-	SB	19-524	#3
3614	122.9	122.7	-	-	SB	↓	↓
3615	123.7	123.8	-	-	SB	↓	↓
3616	117.2	117.2	-	-	SB	↓	↓
3617	116.1	116.1	-	-	SB	19-531	#1
3618	122.0	121.9	-	-	SB	↓	↓
3619	123.1	123.1	-	-	SB	↓	↓
3620	117.3	117.2	-	-	SB	↓	↓
3621	123.0	123.1	-	-	SB	↓	↓
3622	122.7	122.7	-	-	SB	19-531	#2
3623	116.1	116.0	-	-	SB	↓	↓
3624	117.2	117.1	-	-	SB	↓	↓
3625	123.1	123.1	-	-	SB	↓	↓
3626	116.6	116.6	-	-	SB	↓	↓
3627	121.8	121.8	-	-	SB	19-546	#1
3628	117.5	117.6	-	-	SB	↓	↓
3629	122.8	122.9	-	-	SB	↓	↓
3630	122.1	122.1	-	-	SB	↓	↓

Weight 1 Date/Time:
9/26 - 14:00
Weight 2 Date/Time:
9/27 - 8:00
Weight 3 Date/Time:
Weight 4 Date/Time:

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
3631	116.2	116.3	-	-	A	19-546	#1
3632	117.5	117.7	-	-	A	19-546	#2
3633	122.9	123.0	-	-	A	↓	↓
3634	116.0	116.0	-	-	A	↓	↓
3635	123.3	123.2	-	-	A	↓	↓
3636	117.1	117.0	-	-	A	↓	↓
3637	121.8	121.6	-	-	A	19-538	#1
3638	117.0	117.2	-	-	A	↓	↓
3639	117.0	117.0	-	-	A	↓	↓
3640	122.5	122.5	-	-	A	↓	↓
3641	116.3	116.5	-	-	A	↓	↓
3642	117.4	117.5	-	-	A	↓	↓
3643	123.3	123.2	-	-	A	↓	#2
3644	121.6	121.7	-	-	A	↓	↓
3645	115.4	115.6	-	-	A	↓	↓
3646	117.5	117.6	-	-	A	↓	↓
3647	123.6	123.8	-	-	A	↓	↓
3648	121.8	121.9	-	-	A	↓	#7

Weight 1 Date/Time:
11/11 11:30
Weight 2 Date/Time:
11/12 17:00
Weight 3 Date/Time:
Weight 4 Date/Time:

# ASTM E2515 - Glass Filters

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
3649	118.0	118.2	-	-	A1	19-538	#3
3650	120.4	120.4	-	-	A1		↓
3651	119.1	119.1	-	-	A2		↓
3652	118.5	118.6	-	-	A2		↓
3653	118.7	118.6	-	-	A2		#4
3654	119.6	119.6	-	-	A2		↓
3655	118.6	118.6	-	-	A2		↓
3656	118.7	118.7	-	-	A2		↓
3657	120.7	120.8	-	-	A2		↓
3658	120.6	120.6	-	-	A2		#5
3659	119.0	118.9	-	-	A1		↓
3660	118.3	118.4	-	-	A2		↓
3661	121.4	121.6	-	-	A1		↓
3662	120.4	120.5	-	-	A1		↓
3663	118.7	118.5	-	-	A2		
3664	118.2	118.2	-	-	A1		
3665	120.9	120.9	-	-	A2		
3666	119.8	119.9	-	-	A1		

Weight 1 Date/Time:
11/21 16:00
Weight 2 Date/Time:
11/26 10:00
Weight 3 Date/Time:
Weight 4 Date/Time:

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
3667	118.8	119.0	-	-	A1		
3668	119.0	119.0	-	-	A1		
3669	120.9	121.0	-	-	A1		
3670	116.7	116.8	-	-	A1		
3671	122.8	122.8	-	-	A1		
3672	117.6	117.8	-	-	A1		
3673	117.8	117.7	-	-	A1		
3674	124.5	124.4	-	-	A1		
3675	122.6	122.6	-	-	A1		
3676	115.2	115.2	-	-	A1		
3677	118.0	117.9	-	-	A1		
3678	124.7	124.7	-	-	A1		
3679	118.7	118.8	-	-	A1		
3680	118.5	118.5	-	-	A1		
3681	119.0	119.0	-	-	A1		
3682	118.7	118.6	-	-	A1		
3683	119.0	118.9	-	-	A1		
3684	119.0	119.0	-	-	A1		

Weight 1 Date/Time:
11/21 16:00
Weight 2 Date/Time:
11/26 10:00
Weight 3 Date/Time:
Weight 4 Date/Time:



# ASTM E2515 - O-Rings

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
1A	3568.0	3567.8	-	-	SB	19-537	#3
1B	3556.4	3556.2	-	-	SB		
2A	3553.7	3553.3	3553.3	-	AV	19-538	#1
2B	3572.9	3572.5	3572.5	-	A		
3A	3581.2	3581.0	-	-	SB	19-538	#2
3B	3569.6	3569.2	3569.0	-	A		
4A	3264.7	3524.1	3624.3	-	A	19-538	#3
4B	3581.4	3581.0	3581.0	-	A		
5A	3536.1	3565.9	-	-	SB	19-538	#4
5B	3531.7	3531.7	-	-	SB		

Weight 1 Date/Time:  
11/21 16:00

Weight 2 Date/Time:  
11/25 7:30

Weight 3 Date/Time:  
11/26 7:10

Weight 4 Date/Time:

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
6A	3616.0	3616.1	-	-	A	19-538	#5
6B	3307.4	3307.4	-	-	A		
7A	35773.7	3573.6	-	-	A	-	-
7B	3523.5	3522.9	3522.8	-	A		
8A	3552.2	3552.2	-	-	A	19-530	#1
8B	3586.0	3586.0	-	-	A		
9A	3581.8	3581.8	-	-	A	19-530	#2
9B	3524.7	3524.6	-	-	A		
10A	3432.0	3431.8	-	-	A	19-530	#3
10B	3571.0	3571.0	-	-	A		

Weight 1 Date/Time:  
11/26 7:10

Weight 2 Date/Time:  
11/27 10:00

Weight 3 Date/Time:  
11/28/2019 8:16

Weight 4 Date/Time:

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
11A	3424.6	3424.6	-	-	SB	19-530	#4
11B	4234.4	4254.3	-	-	SB		
12A	3396.0	3396.1	-	-	SB	19-530	#5
12B	3406.5	3406.5	-	-	SB		
13A	3361.4	3361.2	-	-	SB	19-530	#6
13B	3446.7	3446.5	-	-	SB		
14A	3367.5	3367.7	-	-	SB	19-530	#7
14B	3341.3	3341.9	-	-	SB		
15A	3570.3	3570.2	-	-	SB	-	-
15B	3570.9	3570.9	-	-	SB		

Weight 1 Date/Time:  
12/5 9:00

Weight 2 Date/Time:  
12/6 8:00

Weight 3 Date/Time:

Weight 4 Date/Time:

# ASTM E2515 - Probes

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
1A	115628.6	115628.4	-	-	SB	19-537	#3
1B	115901.6	115901.4	-	-	SB		
2A	116241.4	116240.8	116241.5	116241.7	A	19-538	#1
2B	116330.0	116329.8	-	-	SB		
3A	116076.1	116075.9	-	-	SB	19-538	#2
3B	116340.1	116339.9	-	-	SB		
4A	116183.4	116183.0	116183.5	116183.7	A	19-538	#3
4B	116367.1	116367.0	-	-	SB		
5A	116767.3	116766.9	116767.1	-	A	19-538	#4
5B	116875.0	116874.6	116875.0	116875.2	A		

Weight 1 Date/Time:  
11/21 16:00

Weight 2 Date/Time:  
11/25 7:30

Weight 3 Date/Time:  
11/26 - 7:30

Weight 4 Date/Time:  
11/27 - 10:00

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
6A	116545.4	116545.6	-	-	A	19-538	#5
6B	116114.3	116114.5	-	-	A		
7A	116740.2	116740.3	-	-	A	-	-
7B	117287.4	117287.6	-	-	A		
8A	116825.4	116824.4	116824.3	-	A	19-530	#1
8B	116826.9	116827.0	-	-	A		
9A	116714.3	116714.2	-	-	A	19-530	#2
9B	117414.4	117420.0	-	-	A		
10A	116819.9	116820.4	116821.4	116819.8	SB	19-530	#3
10B	117905.6	117905.6	-	-	A		

Weight 1 Date/Time:  
11/26 - 7:45

Weight 2 Date/Time:  
11/27 - 10:00

Weight 3 Date/Time:  
12/2 - 8:00

Weight 4 Date/Time:  
12/5 - 9:00

Sample	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
11A	117035.7	117035.9	-	-	SB	19-530	#4
11B	117489.6	117489.7	-	-	SB		
12A	116889.5	116889.7	-	-	SB	19-530	#5
12B	117957.4	117957.5	-	-	SB		
13A	117455.9	117456.0	-	-	SB	19-530	#6
13B	117054.4	117054.4	-	-	SB		
14A	116771.8	116817.9	-	-	SB	19-530	#7
14B	116817.8	116772.0	-	-	SB		
15A	117417.9	117418.0	-	-	SB	-	-
15B	116904.4	116905.0	-	-	SB		

Weight 1 Date/Time:  
12/5 - 9:00

Weight 2 Date/Time:  
12/6 - 8:00

Weight 3 Date/Time:

Weight 4 Date/Time:

# EPA Method 28R Weighted Average Emissions

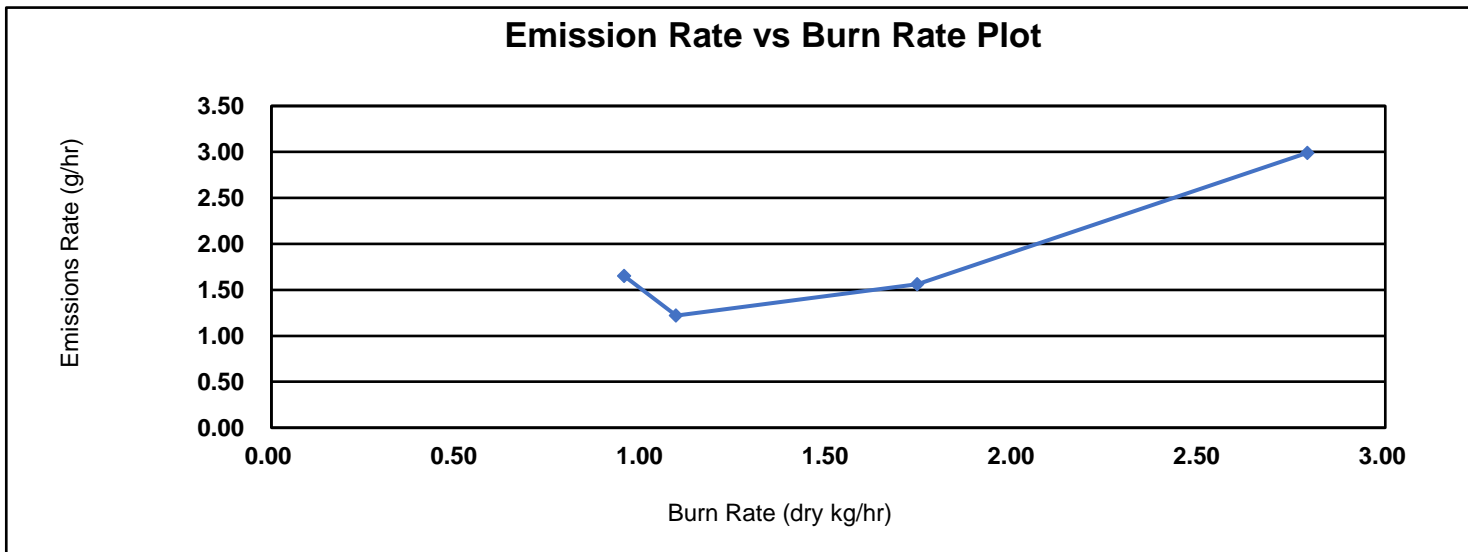
Client: HHT  
 Stove Model: 4300  
 Test Dates: 12/2/19-12/5/19  
 Job Number: 19-538

Signature/Date: \_\_\_\_\_ 

<b>Weighted Average Particulate Emissions (g/hr):</b>	<b>1.60</b>
<b>Weighted Average HHV Efficiency (%):</b>	<b>74.2%</b>
<b>Weighted Average LHV Efficiency (%):</b>	<b>80.2%</b>
<b>Average CO Emissions (g/min):</b>	<b>1.9</b>

### Individual Run Summaries

<p>Run Number: 1                  Burn Rate (dry kg/hr): 0.95                  Emissions Rate (g/hr): 1.65                  HHV Efficiency (%): 75.1%                  LHV Efficiency (%): 81.1%                  Weighting Percentage (%): 27.21%</p>	<p>Run Number: 2                  Burn Rate (dry kg/hr): 1.09                  Emissions Rate (g/hr): 1.22                  HHV Efficiency (%): 74.7%                  LHV Efficiency (%): 80.7%                  Weighting Percentage (%): 31.82%</p>
<p>Run Number: 3                  Burn Rate (dry kg/hr): 1.74                  Emissions Rate (g/hr): 1.56                  HHV Efficiency (%): 73.8%                  LHV Efficiency (%): 79.7%                  Weighting Percentage (%): 32.11%</p>	<p>Run Number: 4                  Burn Rate (dry kg/hr): 2.79                  Emissions Rate (g/hr): 2.99                  HHV Efficiency (%): 71.2%                  LHV Efficiency (%): 76.9%                  Weighting Percentage (%): 8.86%</p>



**CAUTION ATTENTION**

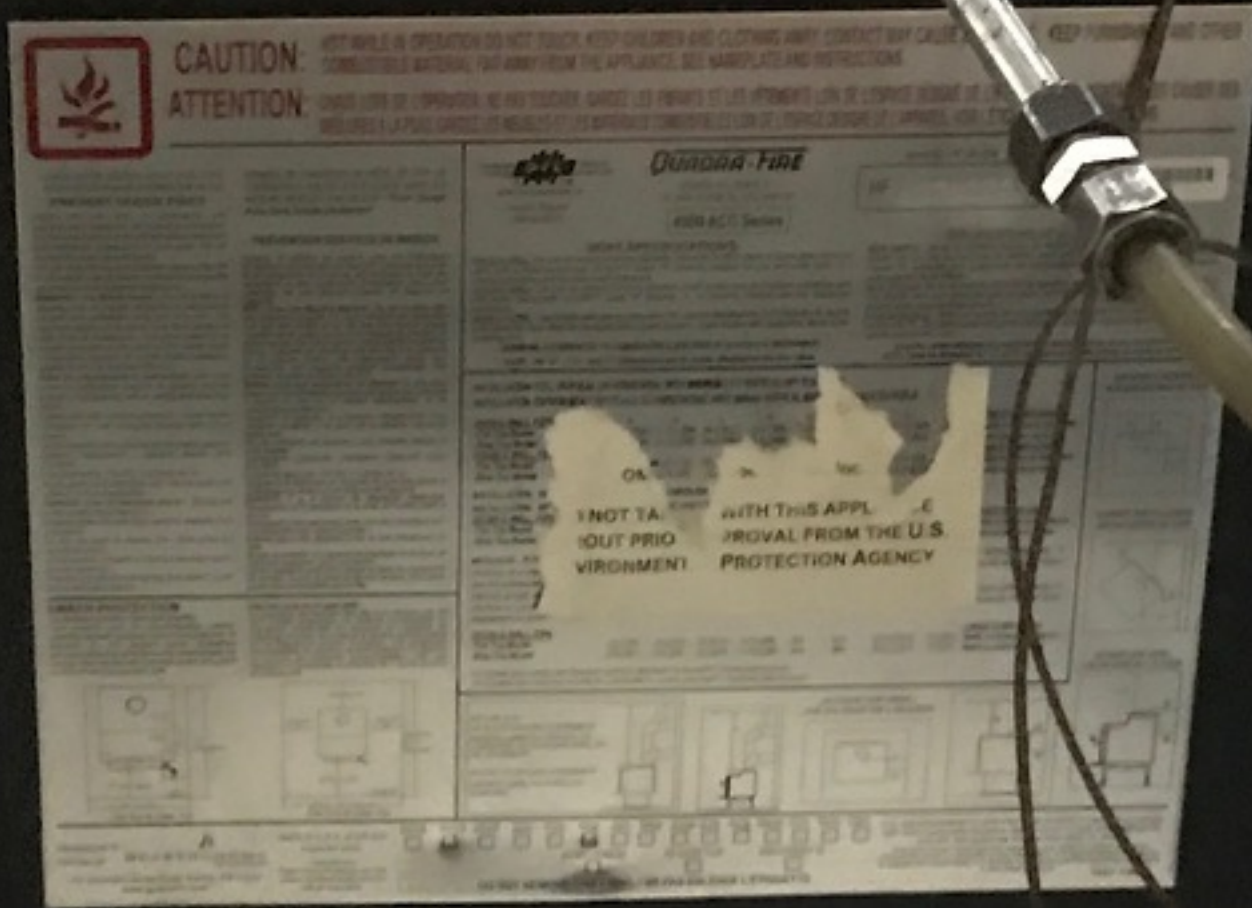
KEEP FIRE AWAY FROM OTHER COMBUSTIBLE MATERIAL. FOR REMOVAL FROM THE APPLIANCE, SEE WARNINGS AND INSTRUCTIONS.

NEVER LEAVE AN OPERATING HEATER UNATTENDED. ALWAYS USE COMMON SENSE AND CAUTION. ALWAYS USE THE APPLIANCE IN ACCORDANCE WITH THE INSTRUCTIONS. ALWAYS USE THE APPLIANCE IN A WELL-VENTILATED AREA. ALWAYS USE THE APPLIANCE IN A WELL-VENTILATED AREA.

**DURORA FIRE**

4000 BTU Series

DO NOT TAKE OUT PRIOR APPROVAL FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY

















REAR  
AIR

START  
UP

HI







ITEM	PART NUMBER	PART NAME	QTY
1	8390-079	SERIAL RATING PLATE	1



**CAUTION:** HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN AND CLOTHING AWAY. CONTACT MAY CAUSE SKIN BURNS. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIAL FAR AWAY FROM THE APPLIANCE. SEE NAMEPLATE AND INSTRUCTIONS.  
**ATTENTION:** CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. GARDEZ LES MEUBLES ET LES MATÉRIAUX COMBUSTIBLES LOIN DE L'ESPACE DÉSIGNÉ DE L'APPAREIL. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.



FF-WP-300



Serial No. / N° de série

HF

BARCODE LABEL

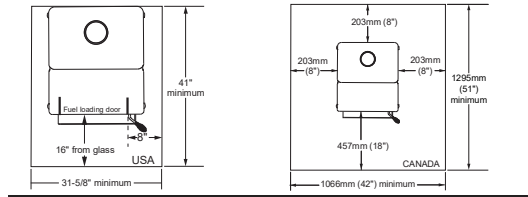
TESTED TO / TESTÉ À:  
ASTM E2515,  
UL 1482-11 (R2015), ULC S627-00.

LISTED ROOM HEATER, SOLID FUEL TYPE. ALSO FOR USE IN MOBILE HOMES. (UM) 84 HUD / APPAREIL DE CHAUFFAGE DE PIÈCE, DE TYPE DE COMBUSTIBLE SOLIDE, POUR USAGE DANS LES MAISONS MOBILES. (UM) 84 HUD. "Pour Usage Avec Bois Solide Seulement". To be installed as a freestanding room heater with the clearances in the manufacturer's installation instructions. Not to be installed in any factory-built fireplace / À installer comme radiateur d'ambiance autonome avec les dégagements indiqués dans les instructions d'installation du fabricant. Ne pas installer dans un foyer préfabriqué.

**PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON**  
 Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and installation inspections in your area. Do not obstruct the space beneath heater. For use only with leg and pedestal options intended for this model, refer to owner's manual for appropriate part numbers and installation instructions. **WARNING - For Mobile Homes:** Do not install in a sleeping room. An outside combustion air inlet must be provided and unrestricted white unit is in use. The structural integrity of the mobile home floor, ceiling and walls must be maintained. The stove needs to be properly grounded to the frame of the mobile home. Components required for mobile home installation: Outside Air Kit, Part Number OAK-ACC. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling and maximum offsets. Inspect and clean chimney frequently - Under Certain Conditions of Use, Creosote Buildup May Occur Rapidly. Do not connect this unit to a chimney serving another appliance. Optional Components: Optional Blower, Part BK-ACC. Electrical Rating: 115 VAC, 1.2 Amps, 60 Hz. Route power cord away from unit. Do not route cord under or in front of appliance. **DANGER:** Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic available from your dealer. Do not use grate or elevate fire. Build wood fire directly on hearth. Do not overfire - if heater or chimney connector glows, you are overfiring. Operate only with the fuel loading door closed. Open only to add fuel to the fire. / Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruer l'espace en dessous de l'appareil. **AVIS - Pour Les Maisons Mobiles:** Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air ne doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. L'appareil de chauffage doit être fixé à la charpente de la maison mobile. Les composants requis pour l'installation des maisons mobiles: Assemblage d'air extérieur, Numéro de Pièce OAK-ACC. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustible, et les compensations maximums. Inspectez et nettoyez la cheminée fréquemment. Sous certaines conditions, il se peut que le créosote s'accumule rapidement. Ne pas connecter cet appareil à une cheminée servant un autre appareil. Composants Optionnels: Ventilateur Optionnel, Pièce BK-ACC. Puissance Électrique: 115 VAC, 1.2 Amps, 60 Hz. Éloignez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. **DANGER:** Il y a risque de décharge électrique. Déconnectez le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. N'élevez pas le feu. Baissez le feu de bois directement sur l'âtre. Ne pas surchauffer. Si l'appareil de chauffage ou le tuyau de cheminée rugissent, vous surchauffez. Opérez l'appareil seulement lorsque la porte de chargement est fermée. Ouvrez la porte seulement lorsque vous devez ajouter des combustibles dans le feu.

**EMBER PROTECTION:**  
 It is necessary to install a type I floor protector.  
 Floor protector must be non-combustible material, extending beneath appliance and to front/sides/rear as indicated on the diagram below. Exception: Non-combustible floor protections must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side.

**PROTECTION DU PLANCHER:**  
 Le protecteur de plancher doit être d'un minimum de 3/8 inch (10mm) d'épaisseur de matériel incombustible ou équivalent, s'étendant du dessous de l'appareil de chauffage à l'avant, aux côtés et à l'arrière comme indiqué sur le diagramme suivant. Exception: Les protections incombustibles du plancher doivent s'étendre en dessous du conduit de cheminée lorsqu'installées avec une ventilation à l'horizontale et s'étendre de 2 inches (51mm) de chaque côté.



Date of Manufacture / Date de fabrication:

2024	2025	2026	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
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DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE

**VENT SPECIFICATIONS: / SPÉCIFICATIONS DE LA VENTILATION:**  
**SINGLE WALL:** Six inch (6 inches) (152mm) diameter, minimum 24 MSG black or blued steel connector pipe, with a listed factory-built UL103HT\* Class "A" chimney, suitable for use with solid fuels, or a masonry chimney, and the referenced clearances. / **MUR SIMPLE:** De six (6 inches) (152mm) de diamètre le connecteur de conduit de minimum d'acier noir ou bleu de minimum de 24MSG, avec une cheminée bâtit en usine UL103HT\* de Classe "A", adéquate pour usage avec les combustions solides, ou une cheminée de briques, avec espaces libres référés.  
**DOUBLE WALL:** Six inch (6 inches) (152mm) diameter, listed double wall air insulated connector pipe with listed factory-built UL103HT\* Class "A" chimney, or a masonry chimney and the referenced clearances. / **MUR DOUBLE:** De six (6 inches) (152mm) de diamètre, le connecteur du conduit d'air isolé pour mur double avec une cheminée bâtit en usine UL103HT\* de Classe "A", ou une cheminée de briques, avec espaces libres alloués.  
**MOBILE HOME:** Use double wall pipe by Dura-Vent DVL, Sekirik Metalbestos DS or Security DL, double wall connector pipe. Must be equipped with a spark arrester. Apply double wall clearances below when installing unit. / **MAISON MOBILE:** Utiliser un conduit de mur double par Dura-Vent DVL, Sekirik Metalbestos DS ou Security DL. Doit être équipé d'un arrêt d'éclincelle. Utiliser les espaces libres pour mur double comme mentionné ci-bas.  
**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS:** In Inches & (Millimeters) / **ESPACES LIBRES MINIMUM DES MATÉRIAUX COMBUSTIBLES:** En Pouce(s) & (millimètres)  
**NOTE:** All "A", "C" and "F" Dimensions are to inside diameter of the flue collar. / **NOTE:** Toutes les dimensions "A", "C", et "F" sont à partir du diamètre intérieur de l'entrée du conduit.

**INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FT VERTICAL OFF STOVE TOP / INSTALLATION: ENTièrement VERTICALE OU HORIZONTALE AVEC 609mm VERTICAL MINIMUM DU HAUT DU POÊLE**

SINGLE WALL PIPE / TUYAU MURAL À AILES	A	B	C	D	E	F	G	H
FF-WP-300	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
<b>DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE</b>								
FF-WP-300	12 (305)	5.25 (133)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)

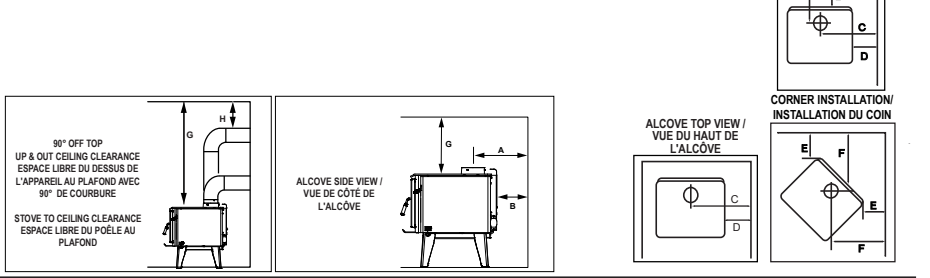
**INSTALLATION: 90° ELBOW OFF TOP OF STOVE THROUGH BACKWALL / INSTALLATION: 90° DU COURBURE AU DESSUS DE HAUT DU POÊLE À TRAVERS LE MUR ARRIÈRE**

DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE	A	B	C	D	E	F	G	H
FF-WP-300	11.5 (292)	4.75 (121)	27.5 (699)	15 (381)	14.5 (368)	20.5 (521)	53.5 (1359)	N/A

**INSTALLATION: ALCOVE -** Six inch (6 inches) (152mm) diameter listed DOUBLE WALL air insulated connector pipe with UL103 HT\* listed factory-built Class "A" chimney, or a masonry chimney. (Mobile Home must be equipped with a spark arrester). Maximum depth of Alcove shall be no more than 48 inches (1219mm) and the referenced alcove clearances.  
**INSTALLATION: ALCÔVE -** Six pouces (6 pouces) (152mm) de diamètre listé air isolé tuyau de raccordement à double paroi avec UL103 HT \*\* cotée Classe usine construite "A" cheminée ou une cheminée de maçonnerie. (Mobile Home doit être équipé d'un pare-étincelles). Profondeur maximale d'Alcove ne doit pas être plus de 48 pouces (1219mm) et les dégagements en alcove référencés.

DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE	A	B	C	D	E	F	G	H
FF-WP-300	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)

\*In Canada must comply with Standard CAN/ULC-S629-M87 for the 650°C Factory-built chimney.  
 \*Au Canada doit conformer à CAN/ULC-S629-M87 la norme pour 650°C cheminée bâtit en usine.



Manufactured by / Fabriqué par:  
**HEARTH & HOME technologies**  
 352 Mountain House Road,  
 Halifax, PA 17032  
 www.forgeandflame.com

Made in U.S.A. of US and imported parts.  
 Fabriqué aux États-Unis d'Amérique par des pièces d'origine américaine et pièces importées.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
 Certified to comply with 2020 particulate emission standards at 1.6 g/hr EPA Method 28 and 5G.  
 This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

- NOTE:**
1. MATERIAL: NON-ANODIZED ALUMINUM 0.020 THICK
  2. BACKGROUND: SILVER
  3. COPY: BLACK & RED
  4. ADHESIVE: 3M #468 PERMANENT ACRYLIC
  5. TEMPERATURE RATING: -50 F TO 350 F

UNLESS OTHERWISE SPECIFIED DIMS ARE INCHES[MM] & : TOLERANCES ARE: (2) PLACE DEC: ± 0.03 (3) PLACE DEC: ± 0.005 ANGLE: ± 2° FRACTION: ± 1/16				
←←← OUTSIDE MATERIAL. ←←← NORMAL DIM & INSIDE MATERIAL. ←←← OUTSIDE APEX ←←← INSIDE APEX - DIMS ENCLOSED BY AN OVAL ARE CRITICAL DIMENSIONS				
PART NAME: FF-WP-300, SERIAL LABEL (10"X8")				
DRAWN BY: TPS		SCALE: NTS		MATERIAL: SEE NOTE
THIS PRINT IS CHECKED AND CONTROLLED BY THE ENGINEERING DEPARTMENTS OF HEARTH & HOME TECHNOLOGIES INC.			SHEET: 1 OF 1	PART NUMBER: 8390-079
REV: A	REVISIONS	ECO #	DATE	BY



CONFIDENTIAL PROPERTY OF HEARTH & HOME TECHNOLOGIES INC.

8390-079A



**CAUTION:**  
**ATTENTION:**

**HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN AND CLOTHING AWAY. CONTACT MAY CAUSE SKIN BURNS. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIAL FAR AWAY FROM THE APPLIANCE. SEE NAMEPLATE AND INSTRUCTIONS.**  
**CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. GARDEZ LES MEUBLES ET LES MATÉRIEAUX COMBUSTIBLES LOIN DE L'ESPACE DÉSIGNÉ DE L'APPAREIL. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.**



**FF-WP-300**



TESTED TO: / TESTÉ À:  
ASTM E2515,  
UL 1482-11 (R2015), ULC S627-00.

Serial No. / N° de série

**HF**

BARCODE LABEL

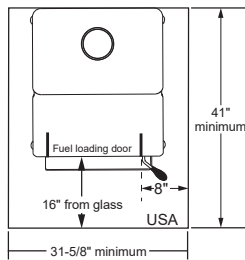
LISTED ROOM HEATER, SOLID FUEL TYPE. ALSO FOR USE IN MOBILE HOMES. (UM) 84 HUD / APPAREIL DE CHAUFFAGE DE PIÈCE, DE TYPE DE COMBUSTIBLE SOLIDE, POUR USAGE DANS LES MAISONS MOBILES. (UM) 84 HUD. "Pour Usage Avec Bois Solide Seulement". To be installed as a freestanding room heater with the clearances in the manufacturer's installation instructions. Not to be installed in any factory-built fireplace / À installer comme radiateur d'ambiance autonome avec les dégagements indiqués dans les instructions d'installation du fabricant. Ne pas installer dans un foyer préfabriqué.

**PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON**

Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and installation inspections in your area. Do not obstruct the space beneath heater. For use only with leg and pedestal options intended for this model, refer to owner's manual for appropriate part numbers and installation instructions. **WARNING - For Mobile Homes:** Do not install in a sleeping room. An outside combustion air inlet must be provided and unrestricted while unit is in use. The structural integrity of the mobile home floor, ceiling and walls must be maintained. The stove needs to be properly grounded to the frame of the mobile home. Components required for mobile home installation: Outside Air Kit, Part Number OAK-ACC. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling and maximum offsets. Inspect and clean chimney frequently - Under Certain Conditions of Use, Creosote Buildup May Occur Rapidly. Do not connect this unit to a chimney serving another appliance. Optional Components: Optional Blower, Part BK-ACC. Electrical Rating: 115 VAC, 1.2 Amps, 60 Hz. Route power cord away from unit. Do not route cord under or in front of appliance. **DANGER:** Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic available from your dealer. Do not use grate or elevate fire. Build wood fire directly on hearth. Do not overfire - if heater or chimney connector glows, you are overfiring. Operate only with the fuel loading door closed. Open only to add fuel to the fire. / Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruer l'espace en dessous de l'appareil. **AVIS - Pour Les Maisons Mobiles:** Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. L'appareil de chauffage doit être fixé à la charpente de la maison mobile. Les composants requis pour l'installation des maisons mobiles: Assemblage d'air extérieur, Numéro de Pièce OAK-ACC. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustibles, et les compensations maximums. Inspectez et nettoyez la cheminée fréquemment. Sous certaines conditions, il se peut que la créosote s'accumule rapidement. Ne pas connecter cet appareil à une cheminée servant un autre appareil. Composants Optionnels: Ventilateur Optionnel, Pièce BK-ACC. Puissance Électrique: 115 VAC, 1,2 Amps, 60 Hz. Éloignez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. **DANGER:** Il y a un risque de décharge électrique. Déconnectez le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. N'élevez pas le feu. Bâissez le feu de bois directement sur l'âtre. Ne pas surchauffer. Si l'appareil de chauffage ou le tuyau de cheminée rougissent, vous surchauffez. Opérez l'appareil seulement lorsque la porte de chargement est fermée. Ouvrez la porte seulement lorsque vous devez ajouter des combustibles dans le feu.

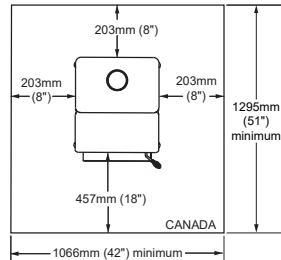
**EMBER PROTECTION:**

It is necessary to install a **Type I floor protector**. Floor protector must be non-combustible material, extending beneath appliance and to front/sides/rear as indicated on the diagram below. **Exception:** Non-combustible floor protections must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side.



**PROTECTION DU PLANCHER:**

Le protecteur de plancher doit être d'un minimum de 3/8 inch (10mm) d'épaisseur de matériel incombustible ou équivalent, s'étendant du dessous de l'appareil de chauffage à l'avant, aux cotés et à l'arrière comme indiqué sur le diagramme suivant. **Exception:** Les protections incombustibles du plancher doivent s'étendre en dessous du conduit de cheminée lorsqu'installées avec une ventilation à l'horizontale et s'étendre de 2 inches (51mm) de chaque côté.



**VENT SPECIFICATIONS: / SPÉCIFICATIONS DE LA VENTILATION:**

**SINGLE WALL:** Six inch (6 inches) (152mm) diameter, minimum 24 MSG black or blued steel connector pipe, with a listed factory-built UL103HT\* Class "A" chimney, suitable for use with solid fuels, or a masonry chimney, and the referenced clearances. / **MUR SIMPLE:** De six (6 inches) (152mm) de diamètre le connecteur de conduit de minimum d'acier noir ou bleu de minimum de 24MSG, avec une cheminée bâtit en usine UL103HT\* de Classe "A", adéquate pour usage avec les combustions solides, ou une cheminée de briques, avec espaces libres référés.

**DOUBLE WALL:** Six inch (6 inches) (152mm) diameter, listed double wall air insulated connector pipe with listed factory-built UL103HT\* Class "A" chimney, or a masonry chimney and the referenced clearances / **MUR DOUBLE:** De six (6 inches) (152mm) de diamètre, le connecteur du conduit d'air isolé pour mur double avec une cheminée bâtit en usine UL103HT\* de Classe "A", ou une cheminée de briques, avec espaces libres alloués.

**MOBILE HOME:** Use double wall pipe by Dura-Vent DVL, Selkirk Metalbestos DS or Security DL double wall connector pipe. Must be equipped with a spark arrestor. Apply double wall clearances below when installing unit. / **MAISON MOBILE:** Utiliser un conduit de mur double par Dura-Vent DVL, Selkirk Metalbestos DS ou Security DL. Doit être équipé d'un arrêt d'étincelle. Utiliser les espaces libres pour mur double comme mentionné ci-bas.

**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS: In Inches & (Millimeters) / ESPACES LIBRES MINIMUM DES MATÉRIEAUX COMBUSTIBLES: En Pouces & (millimètres)**

**NOTE: All "A", "C" and "F" Dimensions are to inside diameter of the flue collar. / NOTE: Toutes les dimensions "A", "C", et "F" sont à partir du diamètre intérieur de l'entrée du conduit.**

**INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FT VERTICAL OFF STOVE TOP /**

**INSTALLATION: ENTIÈREMENT VERTICALE OU HORIZONTALE AVEC 609mm VERTICAL MINIMUM DU HAUT DU POÊLE**

**SINGLE WALL PIPE / TUYAU MURAL À AILES**

	A	B	C	D	E	F	G	H
<b>FF-WP-300</b>	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)

**DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE**

<b>FF-WP-300</b>	12 (305)	5.25 (133)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
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**INSTALLATION: 90° ELBOW OFF TOP OF STOVE THROUGH BACKWALL / INSTALLATION: 90° DU COURBURE AU DESSUS DE HAUT DU POÊLE A TRAVERS LE MUR ARRIÈRE**

**DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE**

<b>FF-WP-300</b>	11.5 (292)	4.75 (121)	27.5 (699)	15 (381)	14.5 (368)	20.5 (521)	53.5 (1359)	N/A
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**INSTALLATION: ALCOVE -** Six inch (6 inches) (152mm) diameter listed DOUBLE WALL air insulated connector pipe with UL103 HT\*\* listed factory-built Class "A" chimney, or a masonry chimney. (Mobile Home must be equipped with a spark arrestor.) Maximum depth of Alcove shall be no more than 48 inches (1219mm) and the referenced alcove clearances.

**INSTALLATION: ALCÔVE -** Six pouces (6 pouces) (152mm) de diamètre listé air isolé tuyau de raccordement à double paroi avec UL103 HT \*\* cotée Classe usine construite "A" cheminée ou une cheminée de maçonnerie. (Mobile Home doit être équipé d'un pare-étincelles.) Profondeur maximale de Alcove ne doit pas être plus de 48 pouces (1219mm) et les dégagements en alcove référencés.

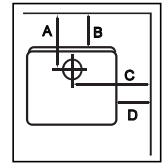
**DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE**

<b>FF-WP-300</b>	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)
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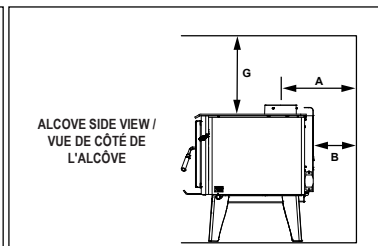
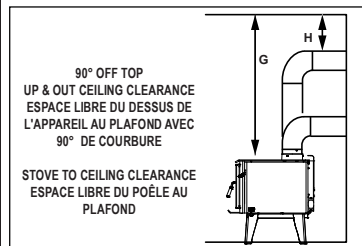
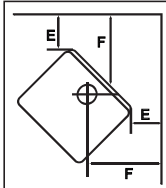
\*In Canada must comply with Standard CAN/ULC-S629-M87 for the 650°C Factory-built chimney.

\*Au Canada doit conformer a CAN/ULC-S629-M87 la norme pour 650°C cheminée bâtit en usine.

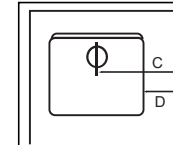
**BACKWALL/SIDEWALL  
MUR ARRIÈRE/MUR DE CÔTÉ**



**CORNER INSTALLATION/  
INSTALLATION DU COIN**



**ALCOVE TOP VIEW /  
VUE DU HAUT DE  
L'ALCÔVE**



Manufactured by/  
Fabriqué par:  
**HEARTH & HOME**  
technologies  
352 Mountain House Road,  
Halifax, PA 17032  
www.forgenflame.com

Made in U.S.A. of US and imported parts.  
Fabriqué aux États-Unis-d'Amérique par des pièces  
d'origine américaine et pièces importées.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
Certified to comply with 2020 particulate emission standards at 1.6 g/hr  
EPA Method 28 and 5G.

This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

**Date of Manufacture / Date de fabrication:**

2024 2025 2026 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

**DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE**

8390-079A

# Owner's Manual

## Operation & Care

**INSTALLER:** Leave this manual with party responsible for use and operation.  
**OWNER:** Retain this manual for future reference.

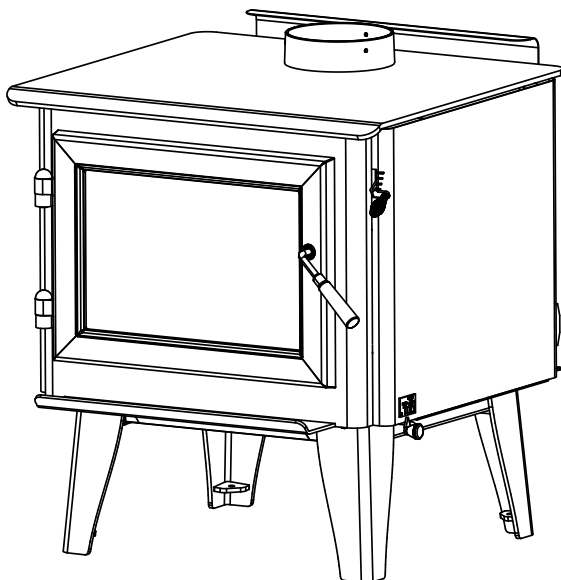
Contact your dealer with questions on installation, operation, or service.

**NOTICE: DO NOT DISCARD THIS MANUAL**

 **FORGE & FLAME**

**WOOD PRO 300  
WOOD APPLIANCE  
AUTOMATIC COMBUSTION  
CONTROL (ACC)**

**MODEL NUMBER:  
FF-WP-300**



**PFS**  
C US

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.

**hearthED**  
FACTORY TRAINING  
Fuel Your Fire

**NFI** NATIONAL  
FIREPLACE  
INSTITUTE®  
A CERTIFICATION AGENCY



### WARNING



If the information in these instructions is not followed exactly, a fire could result causing property damage, personal injury, or death.

- Do not store or use gasoline or other ammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over- re - If appliance or chimney connector glows, you are over- ring. ver- ring will void your warranty.
- Comply with all minimum clearances to combustibles as speci ed.

Failure to comply may cause house re.



### WARNING



#### HOT SURFACES!

Glass and other surfaces are hot during operation AND cool down.

- Hot glass and appliance will cause burns.
- Do not touch glass until it is cooled
- Use leather gloves when reloading fuel
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as appliance.
- Alert children and adults to hazards of high temperatures
- High temperatures may ignite clothing or other ammable materials.
- Keep clothing, furniture, draperies and other ammable materials away.



### WARNING



#### Fire Risk.

For use with solid wood fuel only.

ther fuels may over- re and generate poisonous gases (i.e. carbon monoxide).

**NOTE:** To obtain a French translation of this manual, please contact your dealer or visit [www.forgen\\_ame.com](http://www.forgen_ame.com)

**REMARQUE :** Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez [www.forgen\\_ame.com](http://www.forgen_ame.com)



# Congratulations

## and Welcome to the Quadra-Fire Family!

**NOTE: Clearances may only be reduced by means approved by the regulatory authority having jurisdiction**

### A. Sample of Serial Number / Safety Label

CATI N: Bac of appliance



**CAUTION:** HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN AND CLOTHING AWAY. CONTACT MAY CAUSE SKIN BURNS. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIAL FAR AWAY FROM THE APPLIANCE. SEE NAMEPLATE AND INSTRUCTIONS.  
**ATTENTION:** CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. GARDEZ LES MEUBLES ET LES MATÉRIEAUX COMBUSTIBLES LOIN DE L'ESPACE DÉSIGNÉ DE L'APPAREIL. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.



FF-WP-300

TESTED TO / TESTÉ À:  
ASTM E2515,  
UL 1482-11 (R2015), ULC S627-00.

HF

Serial No. / N° de série



**LISTED ROOM HEATER, SOLID FUEL TYPE / DE CHAUFFAGE DE PIÈCE, TYPE DE COMBUSTIBLE SOLIDE, POUR USAGE DANS LES MAISONS MOBILES (UM) 84 HUD / APPAREIL 84 HUD, "Four Usage Avec Bois Solide Seulement"** To be installed as a freestanding room heater with the clearances in the manufacturer's installation instructions. Not to be installed in any factory-built fireplace. À installer comme radiateur d'ambiance autonome avec les dégagements indiqués dans les instructions d'installation du fabricant. Ne pas installer dans un foyer préfabriqué.

**PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON**  
 Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and installation inspections in your area. Do not obstruct the space beneath heater. For use only with leg and pedestal options intended for this model, refer to owner's manual for appropriate part numbers and installation instructions. **WARNING - For Mobile Homes:** Do not install in a sleeping room. An outside combustion air inlet must be provided and unobstructed while unit is in use. The structural integrity of the mobile home floor, ceiling and walls must be maintained. The stove needs to be properly grounded to the frame of the mobile home. Components required for mobile home installation: Outside Air Kit, Part Number OAK-ACC. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling and maximum offsets. Inspect and clean chimney frequently - Under Certain Conditions of Use, Creosote Buildup May Occur Rapidly. Do not connect this unit to a chimney serving another appliance. **Optional Components:** Optional Blower, Part BK-ACC. Electrical Rating: 115 VAC, 1.2 Amps, 60 Hz. Route power cord away from unit. Do not route cord under or in front of appliance. **DANGER:** Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic available from your dealer. Do not use grate or elevate fire. Build wood fire directly on hearth. Do not overfire - If heater or chimney connector glows, you are overfiring. Operate only with the fuel loading door closed. Open only to add fuel to the fire. / Installer et utiliser en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruer l'espace en dessous de l'appareil. **AVIS - Pour Les Maisons Mobiles:** Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrée du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. L'appareil doit être correctement relié à la charpente de la maison mobile. Les composants requis pour l'installation des maisons mobiles: Assemblage d'air extérieur, Numéro de Pièce OAK-ACC. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustibles, et les compositions maximums. Inspectez et nettoyez la cheminée fréquemment. Sous certaines conditions, il se peut que la croûte s'accumule rapidement. Ne pas connecter cet appareil à une cheminée servant un autre appareil. **Composants Optionnels:** Ventilateur Optionnel, Pièce BK-ACC. Puissance électrique: 115 VAC, 1.2 Amps, 60 Hz. Égarez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. **DANGER:** Il y a un risque de décharge électrique. Déconnecter le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. N'élevez pas le feu. Bâillez le feu de bois directement sur l'âtre. Ne pas surchauffer. Si l'appareil ou chauffage ou le tuyau de cheminée rouillent, vous surchauffez. Ouvrez l'appareil seulement lorsque la porte de chargement est fermée. Ouvrez la porte de chargement lorsque vous devez ajouter des combustibles dans le feu.

**VENT SPECIFICATIONS / SPÉCIFICATIONS DE LA VENTILATION:**  
 SINGLE WALL: Six inch (6 inches) (152mm) diameter, minimum 24 MSG black or blued steel connector pipe, with a listed factory-built UL103HT™ Class "A" chimney, suitable for use with solid fuels, or a masonry chimney, and the referenced clearance chimney built in same UL103HT™ de Classe "A", adéquate pour usage avec les combustibles solides, ou une cheminée de briques, avec espaces libres référés.  
 DOUBLE WALL: Six inch (6 inches) (152mm) diameter, listed double wall air insulated connector pipe with listed factory-built UL103HT™ Class "A" chimney, or a masonry chimney and the referenced clearances / MUR DOUBLE: De six (6 inches) (152mm) de diamètre, le connecteur du conduit d'air isolé pour mur double avec une cheminée bâtit en usine UL103HT™ de Classe "A", ou une cheminée de briques, avec espaces libres autorisés.  
 MOBILE HOME: Use double wall pipe by Dura-Vent DVL, Selkirik Metalbestos DS or Security DL double wall connector pipe. Must be equipped with a spark arrester. Apply double wall clearances below pour un conduit de mur double par Dura-Vent DVL, Selkirik Metalbestos DS ou Security DL. Doit être équipé d'un arrêt d'étréicelle. Utiliser les espaces libres MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS: In Inches & (Millimeters) / ESPACES LIBRES MINIMUM DES MATÉRIEAUX COMBUSTIBLES En Pouces & (millimètres)  
 NOTE: All "A", "C" and "F" Dimensions are to inside diameter of the flue collar. / NOTE: Toutes les dimensions "A", "C", et "F" sont à partir du diamètre intérieur de l'entrée du conduit.

INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FT VERTICAL OFF-STOVE TOP / INSTALLATION: ENTIEREMENT VERTICALE OU HORIZONTALE AVEC 609mm VERTICAL MINIMUM DU HAUT DU POÊLE

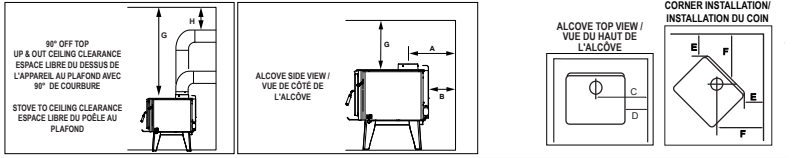
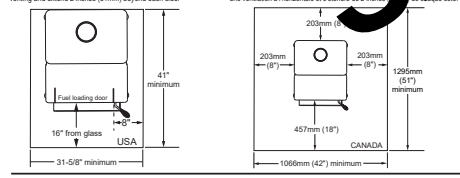
	A	B	C	D	E	F	G	H
<b>SINGLE WALL PIPE / TUYAU MURAL À AILES</b>	18.5 (470)	11.75 (296)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
<b>DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE</b>	12 (305)	5.5 (140)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
<b>DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE</b>	11.5 (292)	4.75 (120)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	N/A
<b>DOUBLE WALL PIPE / CONDUIT DU MUR DOUBLE</b>	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)

INSTALLATION: 90° ELBOW OFF TOP OF STOVE THROUGH BACK WALL / INSTALLATION: 90° DU COURBURE AU DESSUS DE HAUT DU POÊLE À TRAVERS LE MUR ARRIÈRE

INSTALLATION: ALCOVE - Six inch (6 inches) (152mm) diameter listed DOUBLE WALL air insulated connector pipe with UL103 HT™ listed factory-built Class "A" chimney, or a masonry chimney. (Mobile Home must be equipped with standard CAN/ULC-S629-M87 for the 650°C Factory-built chimney. \*Always use connector a CAN/ULC-S629-M87 la norme pour 650°C cheminée bâtit en usine.

Serial No.  
 Safety & Emissions Test Report Name  
 Test Lab & Report Numbers

**EMBER PROTECTION:** If necessary install a Type I floor protector. Floor protector must be non-combustible material, extending beneath appliance and to front/sides/rear as indicated on the diagram below. Exception: Non-combustible floor protections must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side.



Date of Manufacture / Date de fabrication:

2024	2025	2026	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE

Manufactured by / Fabriqué par:  
**HEARTH & HOME** Technologies  
 352 Mountain House Road,  
 Halifax, PA 17032  
 www.forgeandflame.com

Made in U.S.A. of US and imported parts.  
 Fabriqué aux États-Unis-d'Amérique par des pièces d'origine américaine et pièces importées.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
 Certified to comply with 2020 particulate emission standards at 1.6 g/hr EPA Method 28 and 5G.  
 This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

8390-079A

Mfg. Date



### Safety Alert Key:

- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

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➔ = Contains updated information

## B. Warranty Policy

### Hearth & Home Technologies LLC LIMITED WARRANTY

Hearth & Home Technologies LLC (“HHT”) extends the following warranty for HHT gas, wood, pellet and electric hearth appliances (each a “Product” and collectively, the “Product(s)”) and certain component parts set forth in the table below (“Component Part(s)”) that are purchased from a HHT authorized dealer or distributor.

#### **WARRANTY COVERAGE:**

HHT warrants that the Products and their Component Parts will be free from defects in materials and workmanship for the applicable period of Warranty coverage set forth in the table below (“Warranty Period”). If a Product or Component Parts are found to be defective in materials or workmanship during the applicable Warranty Period, HHT will, at our discretion, repair the applicable Component Part(s), replace the applicable Component Part(s), or refund the purchase price of the applicable Product(s). The maximum amount recoverable under this Warranty is limited to the purchase price of the Product. This Warranty is transferable from the original purchaser to subsequent owners, but the Warranty Period will not be extended in duration or expanded in coverage for any such transfer. This Warranty is subject to conditions, exclusions, and limitations as described below.

#### **WARRANTY PERIOD:**

Warranty coverage begins at the date of installation. In the case of new home constructions, Warranty coverage begins six months after invoice of the final sale of the Product(s) by an independent, authorized HHT dealer or distributor. However, the Warranty coverage shall commence no later than 24 months following the date of Product shipment from HHT, regardless of the installation or purchase date.

Warranty Period		HHT Manufactured Appliances and Venting					
Component Parts	Labor	Gas	Pellet	Wood	Electric	Component Parts Covered by this Warranty	
1 Year		X	X	X		All parts including handles, external enameled components and other material except as covered by Warranty Conditions, Warranty Exclusions, and Warranty Limitations listed	
2 Years					X	All parts except as covered by Warranty Conditions, Warranty Exclusions, and Warranty Limitations listed	
			X	X		Glass, Electrical components limited to heating element/igniters, Top feed auger assembly, Blowers, Junction Box, Remotes/Wall switches, linear actuator, power cord, vacuum switch, snap disc, wire harnesses and thermocouple	
		X				Electrical components limited to modules, remotes/wall switches, valves, pilots, blowers, junction boxes, wire harnesses, transformers and lights (excluding light bulbs)	
		X		X		Cement Refractory Panels, Glass Liner Panels	
3 years			X			Firepots, burnpots, Harman mechanical feeders	
5 years		X		X		Catalysts, Vented and Vent Free burners and logs	
10 years	1 year	X				Burners, logs and metal/fiber refractory components of HHT manufactured fireplaces or stoves, venting due to poor workmanship	
10 years	3 years		X	X		Castings, Medallions & Baffles, FlexBurn® System (engine, inner cover, access cover and fireback), Firebox and heat exchanger, HHT Chimney & Terminations, Manifolds	
20 years	3 years	X				Firebox and heat exchanger	
<b>All purchased replacement parts and optional accessories</b>							
1 Year	None	X	X	X	X	All purchased replacement parts and optional accessories	

## **WARRANTY CONDITIONS:**

- Because HHT cannot control the quality of any Products sold by unauthorized sellers, this Warranty only covers Products that are purchased through an HHT authorized dealer or distributor unless otherwise prohibited by law; a list of HHT authorized dealers is available on the HHT branded websites.
- This Warranty is only valid while the applicable Product remains at the site of original installation.
- This Warranty is only valid in the country in which the HHT authorized dealer or distributor that sold the applicable Product is authorized to sell applicable Product.
- Contact your installing distributor or dealer for Warranty service. If the installing dealer or distributor is unable to provide necessary parts, contact the nearest HHT authorized dealer or supplier. Additional service fees may apply if you are seeking Warranty service from a dealer other than the dealer from whom you originally purchased the applicable Product.
- No HHT consumer should bear cost of warranty service or costs incurred while servicing warranty claims (i.e., travel, gas, or mileage) when the service is performed within the terms of this Warranty. Check with your dealer or distributor in advance for any costs to you when arranging a warranty call. Travel and shipping charges for parts are not covered by this Warranty.

## **WARRANTY EXCLUSIONS:**

This Warranty does not cover the following:

- Changes in surface finishes as a result of normal use. As a heating appliance, some changes in color of interior and exterior surface finishes may occur. This is not a flaw and is not covered under the Warranty.
- Damage to printed, plated, or enameled surfaces caused by fingerprints, accidents, misuse, scratches, melted items or other external sources and residues left on the plated surfaces from the use of abrasive cleaners or polishes.
- Repair or replacement of parts that are subject to normal wear and tear during the Warranty Period are not covered. These parts include: paint, wood and pellet gaskets, firebricks, wood grates, flame guides, batteries and the discoloration of glass.
- Minor expansion, contraction, or movement of certain parts causing noise. These conditions are normal and complaints related to this noise are not covered by this Warranty.
- Damages resulting from: (1) failure to install, operate, or maintain the applicable Product in accordance with the installation instructions, operating instructions, and listing agent identification label furnished with the applicable Product; (2) failure to install the applicable Product in accordance with local building codes; (3) shipping or improper handling; (4) improper operation, abuse, misuse, continued operation with damaged, corroded or failed components, accident, or improperly/incorrectly performed repairs; (5) environmental conditions, inadequate ventilation, negative pressure, or drafting caused by tightly sealed constructions, insufficient make-up air supply, or handling devices such as exhaust fans or forced air furnaces or other such causes; (6) use of fuels other than those specified in the operation instructions; (7) installation or use of components not supplied with the applicable Product or any other components not expressly authorized and approved by HHT; (8) modification of the appliance not expressly authorized and approved by HHT in writing; and/or (9) interruptions or fluctuations of electrical power supply to the applicable Product.
- Non-HHT venting components, hearth connections or other accessories used in conjunction with the applicable Product.
- Any part of a pre-existing fireplace system in which an insert or a decorative gas applicable Product is installed.
- HHT's obligation under this Warranty does not extend to the Product's capability to heat the desired space. Information is provided to assist the consumer and the dealer in selecting the proper Product for the application. Consideration must be given to the Product location and configuration, environmental conditions, insulation and air tightness of the structure.

### **This warranty is void if:**

- The applicable Product has been over-fired, operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals. Over-firing can be identified by, but not limited to, warped plates or tubes, deformation/warping of interior cast iron structure or components, rust colored cast iron, bubbling, cracking and discoloration of steel or enamel finishes.
- The applicable Product is subjected to prolonged periods of dampness or condensation.
- There is any damage to the applicable Product due to water or weather damage which is the result of, but not limited to, improper chimney or venting installation.

## **LIMITATIONS OF REMEDIES AND LIABILITY:**

- **EXCEPT TO THE EXTENT PROVIDED BY LAW, HHT MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. The owner's exclusive remedy and HHT's sole obligation under this Warranty or in contract, tort or otherwise, shall be limited to, at HHT's sole option, replacement of the Component Part(s), repair of the Component Part(s), or refund of the original purchase price of the applicable Product(s). In no event will HHT be liable for any incidental or consequential damages caused by defects in the applicable Product. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights and you may also have other rights which vary from State to State. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE FOR THE APPLICABLE PRODUCT. Some States do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.**

**C. Quick Start Guide**

**NOTE:** These are generic drawings and may not represent your specific model.

**ITEMS NEEDED FOR FIRST FIRE:** 10 Pieces of Newspaper, 10-20 Pieces of Dry kindling and Few Pieces of Dry split wood.

**OPEN AIR CONTROLS**

HIGH  
BURN RATE CONTROL (Upper Right Corner)  
HIGH  
AUTOMATIC COMBUSTION CONTROL (ACC) (Middle right hand side)

**1**

**LOAD WOOD**

**2**

**ADD NEWSPAPER**

**3**

**ADD KINDLING**

**LIGHT THE PAPER**

**4**

**Warning! Risk of Fire.**

Close and securely latch the door after the fire has started, and after refueling, to prevent:

- spillage of smoke, flame and carbon monoxide
- spillage of sparks, coals, and logs
- over firing

DO NOT leave the appliance unattended with the door open.

Starting a fire may not require an open door for draft. The air control should supply adequate draft.

**5**

**ADD MORE WOOD**

**6**

**REDUCE AIR CONTROLS**

Set to desired heat output.

LOW  
BURN RATE CONTROL (Upper Right Corner)  
LOW  
AUTOMATIC COMBUSTION CONTROL (ACC) (Middle right hand side)

**7**

**The appliance is ready for normal operation.**

# 1 Listing and Code Approvals

## A. Appliance Safety Certification

<b>Model Number:</b>	FF- P-300
<b>Laboratory:</b>	PF -TEC
<b>Report Number:</b>	19-538
<b>Type:</b>	Listed Room Heater, Solid Fuel Type
<b>Standard:</b>	UL1482, ULC S627-00 and (UM) 84-HUD, Mobile Home Approved.

## B. Appliance Emissions Certification

<b>Model Number:</b>	FF- P-300
<b>Laboratory:</b>	PF -TEC
<b>Report Number:</b>	19-538
<b>Standard:</b>	Method 28 and 5G, and ASTM E2515
<b>Can be found at:</b>	<a href="http://www.forgentame.com/about-us/epa-certification">www.forgentame.com/about-us/epa-certification</a>

The P-300 are Certified to comply with 2020 crib wood particulate emission standards.



This wood appliance needs periodic inspection and repair for proper operation. It is against federal regulations to operate this wood appliance in a manner inconsistent with operating instructions in this manual.

**NOTE:** This installation must conform with local codes. In the absence of local codes you must comply with **(UM) 84-HUD and NFPA211 in the U.S.A. and CAN/CSA-B365 Installation Codes in Canada.**

**This room heater shall not be installed in a factory built fireplace.**

## C. BTU & Efficiency Specifications

<b>EPA Certification Number:</b>	Number: N A
<b>EPA Certified Emissions:</b>	1.6 grams per hour
<b>*LHV Tested Efficiency:</b>	80.2%
<b>**HHV Tested Efficiency:</b>	74.2%
<b>***EPA BTU Output:</b>	12,200 to 36,800 / hr.
<b>****Peak BTU/Hour Output:</b>	61,700
<b>Vent Size:</b>	6 inches
<b>Firebox Size:</b>	2.26 cubic feet
<b>Recommended Log Length:</b>	18 inches
<b>Fuel</b>	seasoned Cord wood (20% moisture)
<p>eighted average low heating value efficiency using Douglas Fir dimensional lumber and data collected during EPA emission tests in accordance with the requirements of C A B415.1. assumes the moisture is already in a vapor state so there is no loss in energy to vaporize.</p>	
<p>eighted average high heating value efficiency using Douglas Fir dimensional lumber and data collected during EPA emission tests in accordance with the requirements of C A B415.1. includes the energy required to vaporize the water in the fuel.</p>	
<p>A range of BT outputs calculated using Efficiency and the burn rates from the EPA tests, using Douglas Fir dimensional lumber.</p>	
<p>A peak BT out of the appliance calculated using the maximum first hour burn rate from the high EPA Test and BT content of seasoned cordwood 600 times the efficiency.</p>	

## D. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

## E. Mobile Home Approved

- This appliance is approved for mobile home installations when not installed in a sleeping room and when an outside combustion air inlet is provided.

The structural integrity of the mobile home floor, ceiling, and walls must be maintained.

- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire, and chimney must be listed to UL103 HT or a listed UL-1777 full length six inch (152mm) diameter liner must be used.

Outside Air Kit, part #A-ACC must be installed in a mobile home installation.

## F. Sleeping Room

When installed in a sleeping room it is recommended that a smoke and/or CO alarm be installed in the bedroom. The size of the room must be at least 50ft<sup>2</sup> per 1,000 Btu/hr stove input, if the stove exceeds the room size, outside air must be installed.

## G. California - Prop65

### WARNING

This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: [WWW.P65Warnings.ca.gov](http://WWW.P65Warnings.ca.gov)



### WARNING



#### Fire Risk.

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with appliance).
- Do NOT over fire - If appliance or chimney connector glows, you are over firing.

Any such action that may cause a fire hazard.



Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

**NOTE:** Hearth & Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and or price without notice.

# 2 Operating Instructions

## A. Over-Firing Your Appliance

	<b>WARNING</b>
	<p><b>Fire Risk. Do not over-fire.</b> Over-firing may ignite creosote or will damage the appliance and chimney. To prevent over-firing your appliance, <b>D N T:</b></p> <ul style="list-style-type: none"><li>Use flammable liquids</li><li>Overload with wood</li><li>Burn trash or large amounts of scrap lumber</li><li>Permit too much air to the fire</li></ul>

Visit [www.forgen.ame.com/shopping-tools/videos](http://www.forgen.ame.com/shopping-tools/videos) to view product and use & care videos.

### 1. Symptoms of Over-Firing

Symptoms of over-firing may include one or more of the following:

- Chimney connector or appliance glowing
- Roaring, rumbling noises
- Loud cracking or banging sounds
- Metal warping
- Chimney creosote

### 2. What To Do if Your Appliance is Over-Firing

- Immediately close the door and air controls to reduce air supply to the fire.
- If you suspect a chimney fire, call the fire department and evacuate your house.
- Contact your local chimney professional and have your appliance and appliance pipe inspected for any damage.
- Do not use your appliance until the chimney professional informs you it is safe to do so.

Earth Home Technologies I N T warranty appliances that exhibit evidence of over-firing. Evidence of over-firing includes, but is not limited to:

- Warped air tube
- Deteriorated refractory brick retainers
- Deteriorated base and other interior components

## B. Wood Selection & Storage

Burn only dry seasoned wood. Store wood under cover, out of the rain and snow. Dry and well-seasoned wood will not only minimize the chance of creosote formation, but will give you the most efficient fire. Even dry wood contains at least 15% moisture by weight, and should be burned hot enough to keep the chimney hot for as long as it takes to dry the wood out - about one hour. It is a waste of energy to burn unseasoned wood of any kind.

Dead wood lying on the forest floor should be considered wet, and requires full seasoning time. Standing dead wood can be considered to be about 2/3 seasoned. To tell if wood is dry enough to burn, check the ends of the logs. If there are cracks radiating in all directions from the center, it is dry. If your wood splits in the fire, even though the surface is dry, it may not be fully cured.

Splitting wood before it is stored reduces drying time.

Wood should be stacked so that both ends of each piece are exposed to air, since more drying occurs through the cut ends than the sides. This is true even with wood that has been split. Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood, etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.

## C. Burning Process

In recent years there has been an increasing concern about air quality. Much of the blame for poor air quality has been placed on the burning of wood for home heating. In order to improve the situation, we at Forge & Flame have developed cleaner-burning wood appliances that surpass the requirements for emissions established by our governing agencies. These wood appliances, like any other appliances, must be properly operated in order to insure that they perform the way they are designed to perform. Improper operation can turn most any wood appliance into a smoldering environmental hazard.

1. **Kindling or First Stage:** It helps to know a little about the actual process of burning in order to understand what goes on inside a appliance. The first stage of burning is called the kindling stage. In this stage, the wood is heated to a temperature high enough to evaporate the moisture which is present in all wood. The wood will reach the boiling point of water (212°F) and will not get any hotter until the water is evaporated. This process takes heat from the coals and tends to cool the appliance.

Fire requires three things to burn - fuel, air and heat. So, if heat is robbed from the appliance during the drying stage, the new load of wood has reduced the chances for a good clean burn. For this reason, it is always best to burn dry, seasoned rewood. When the wood isn't dry, you must open the air controls and burn at a high burn setting for a longer time to start it burning. The heat generated from the fire should be warming your home and establishing the true draft, not evaporating the moisture out of wet, unseasoned wood, resulting in wasted heat.

2. **Second Stage:** The next stage of burning, the secondary stage, is the period when the wood gives off flammable gases which burn above the fuel with bright flames. During this stage of burning it is very important that the flames be maintained and not allowed to go out. This will ensure the cleanest possible fire. If the flames tend to go out, it is set too low for your burning conditions. The air control located at the upper right hand corner is used to adjust for burn rates. This is called the **Burn Rate Air Control (Figure 10.1)**.

3. **Final Stage:** The final stage of burning is the charcoal stage. This occurs when the flammable gases have been mostly burned and only charcoal remains. This is a naturally clean portion of the burn. The coals burn with hot blue flames.



It is very important to reload your appliance while enough lively hot coals remain in order to provide the amount of heat needed to dry and rekindle the new load of wood. It is best to open the Burn Rate Air and Start-Up Air Controls before reloading. This livens up the coal bed and reduces excessive emissions opacity smoke. Open door slowly so that ash or smoke does not enter the appliance through opening. You should also break up any large chunks and distribute the coals so that the new wood is laid on hot coals.

Air quality is important to all of us, and if we choose to use wood to heat our homes we should do so responsibly. To do this we need to learn to burn our appliances in the cleanest way possible. Doing this will allow us to continue using our wood appliances for many years to come.

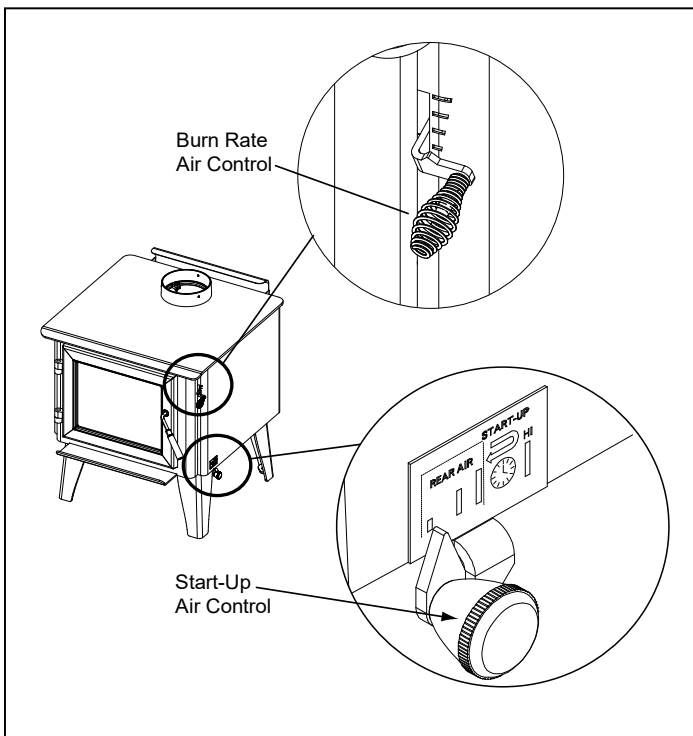


Figure 10.1

## D. Burn Rates and Operating Efficiency

### For maximum operating efficiency

This wood appliance 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 appliance in a manner inconsistent with operating instructions in this manual.

Burn dry, well-seasoned wood.

### Burn Rates

#### 1. Low burn setting:

- Burn Rate Air Control spring handle up to high position for 5 minutes.
- Then activate the ACC timer system by pushing the knob all the way back toward the appliance to I then pull forwards towards the front of the appliance until the knob stops **Figure 10.1**.
- At that point close the Burn Rate Air Control by moving the spring handle to the low setting.

#### 2. Medium low burn setting:

- Burn Rate Air Control spring handle up to high position for 5 minutes.
- Then activate the ACC timer system by pushing the knob all the way back toward the appliance to I then pull forwards towards the front of the appliance until the knob stops.
- At that point move the Burn Rate Air Control spring handle to 1 - 1/2 from the low setting.

#### 3. Medium high burn setting:

- Burn Rate Air Control spring handle up to high position.
- Then activate the ACC timer system by pushing the knob all the way back toward the appliance to I then pull forwards towards the front of the appliance until the knob stops.
- At that point move the Burn Rate Air Control spring handle to 1/2 - high.

#### 4. High burn setting:

- Burn Rate Air Control spring handle up to high position
- Also activate ACC timer system knob pushed back to the I position.

### **Surface Thermometer is a Valuable Guide to Operation**

A surface thermometer tells you when to adjust the air control, and when to refuel.

For example, when the thermometer registers at least 450°F (230°C) on the stove top after start-up you know the stove is hot enough and it may be time to adjust the air control if a sufficient ember bed has also been established. Note that the stove will warm up much sooner than the chimney, though a warm chimney is the key to easy, effective stove operation. When thermometer readings drop below 350°F (175°C) it's time to adjust the air control for a higher burn rate or to reload the stove. A temperature reading over 650°F (340°C) is a sign to reduce the air supply to slow the burn rate.

Use the following temperature ranges as a guide:

- Readings in the 350°-500°F. (175°-260°C) range indicate low to medium heat output.
- 500°-600°F. (260°-315°C) readings indicate medium heat output.
- Readings of 600°-650°F. (315-340°C) indicate high heat output. Operating your wood stove continuously at stove top temperatures higher than 650° F (340°C) may damage your wood stove.

**NOTE:** If using the optional blower, for burn rate settings 1-3, the blower shall be off for the first 30 minutes and then be operated in the high position at 30 minutes. For high burn setting, blower may continue to be on full after the loading of the fuel.

**NOTE:** The above information is provided as a guideline only. Altitude and other circumstances may require control adjustments to achieve the desired burn rates.

**NOTE:** Operate appliance on High Burn 45 minutes a day to help keep chimney clean.

**! WARNING**



**Risk of Fire.**

When set on High Burn Rate and over-riding the Automatic Combustion Control system an over-re situation can occur and may result in a chimney fire.

Over-riding will void the appliance warranty.

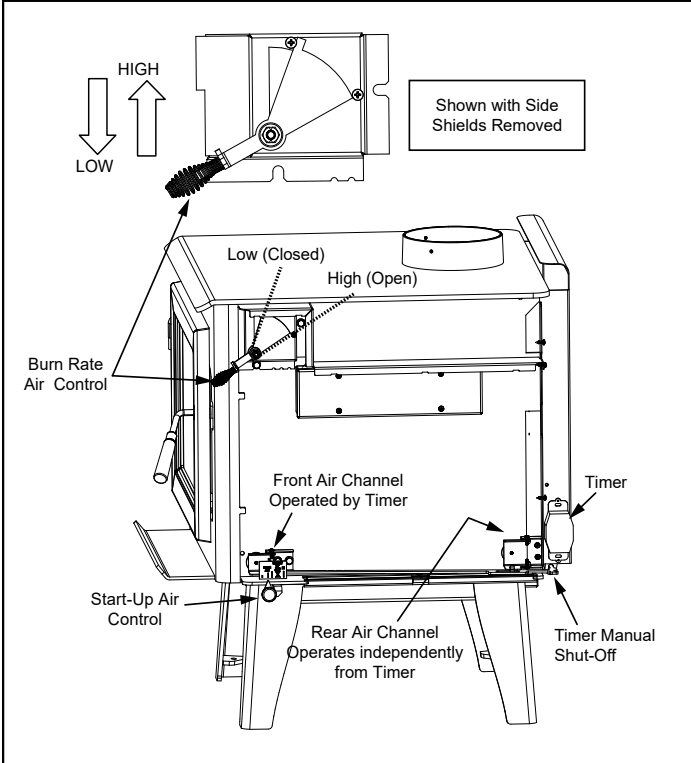


Figure 11.1

After activating the timer (ACC), if the control is placed within the rear air section on the label it will allow rear air to enter the reboiler. This will not interfere with the timer gradually closing the front air channel in 25 minutes. If control is set on HI it over-rides the timer ACC.

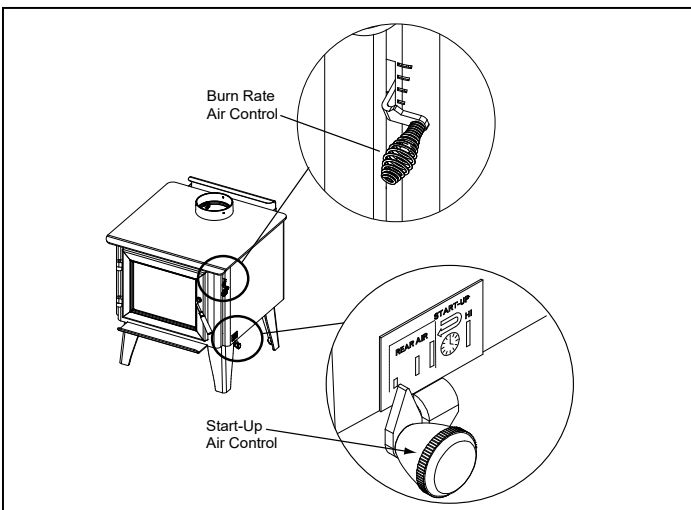


Figure 11.2

**! CAUTION**



**Injury Risk.**

- Gloves recommended

**Manual Timer Over-Ride:** If you need to shut the ACC system off before it goes through the cycle of shutting itself off 25 minutes, reach towards the back of the appliance on the right side and pull the lever towards the front of the appliance (Figure 11.3).

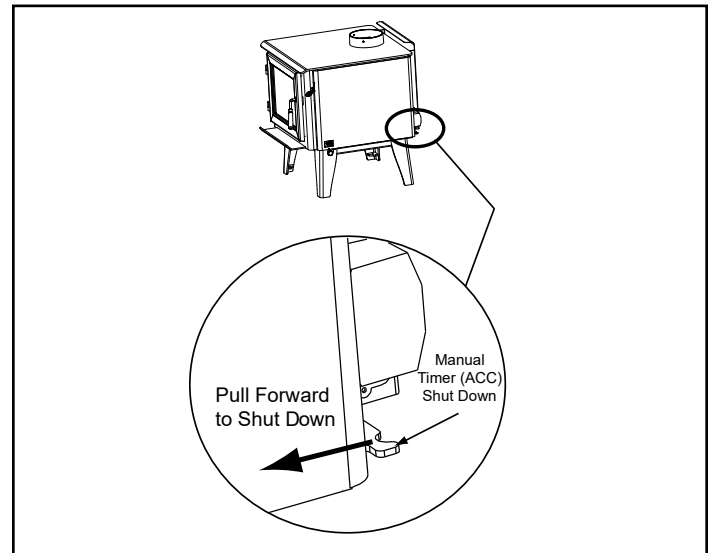


Figure 11.3

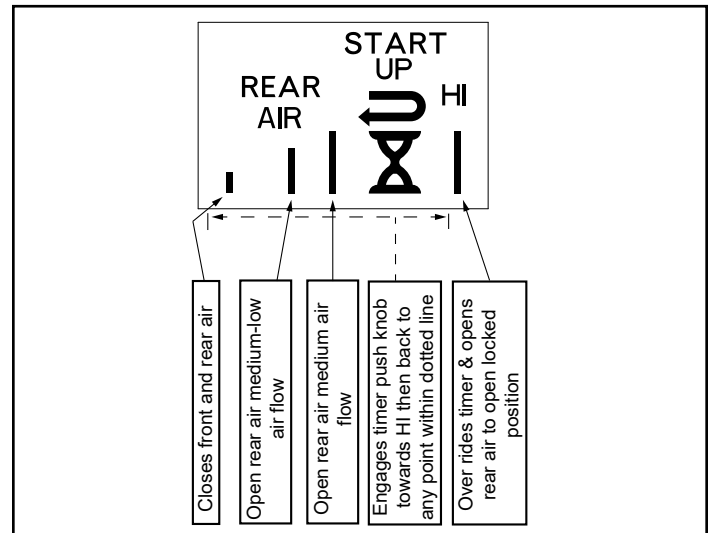


Figure 11.4

## E. Building A Fire

Before lighting your first fire in the appliance:

**NOTE:** The special high temperature paint that your appliance is finished with will cure as your appliance heats. You will notice an odor and perhaps see some vapor rise from the appliance surface; this is normal. We recommend that you open a window until the odor dissipates and paint is cured.

1. Confirm the baffle is correctly positioned. It should be even with the front tube and resting on all tubes (**Figure 12.1 and Figure 12.2**).

2. Remove all labels from glass and inside of appliance.

There are many ways to build a fire. The basic principle is to light easily-ignitable tinder or paper, which ignites the fast burning kindling, which in turn ignites the slow-burning rewood. Here is one method that works well:

1. Open the Burn Rate Air and ACC Controls fully (refer to the **Quick Start Guide** on [page 6](#)).

2. Place several wads of crushed paper on the reboiler. Soaking the fuel with slightly crumpled newspaper before adding kindling keeps smoke to a minimum.

3. Lay small dry sticks of kindling on top of the paper.

4. Make sure that no matches or other combustibles are in the immediate area of the appliance. Be sure the room is adequately ventilated and the fuel unobstructed.

5. Light the paper in the appliance. **NEVER** light or rekindle fire with kerosene, gasoline, or charcoal lighter fluid. The results can be fatal.

6. Once the kindling is burning quickly, add several full-length logs 3 inches (76mm) or 4 inches (102mm) in diameter. Be careful not to smother the fire. Stack the pieces of wood carefully near enough to keep each other hot, but far enough away from each other to allow adequate air flow between them.

7. Set the Burn Rate Air Control and activate the ACC timer system.

When ready to reload, it is best to fully open both the Burn Rate Air and Start-up Air Controls **before reloading**. This livens up the coal bed and reduces excessive emissions opacity smoke. Open door slowly so that ash or smoke does not exit appliance through opening. Large logs burn slowly, holding a fire longer. Small logs burn fast and hot, giving quick heat.

9. As long as there are hot coals, repeating steps 6 through 7 will maintain a continuous fire.

**NOTE:**

- Build fire on brick reboiler.
- Do NOT use grates, andirons or other methods to support fuel. It will adversely affect emissions.



**WARNING**

**Fire Risk.**

Do NOT store wood:

- Closer than required clearances to combustibles to appliance within space required for loading or ash removal.

Do NOT operate appliance:

- with appliance door open.
- with ash removal system door open.

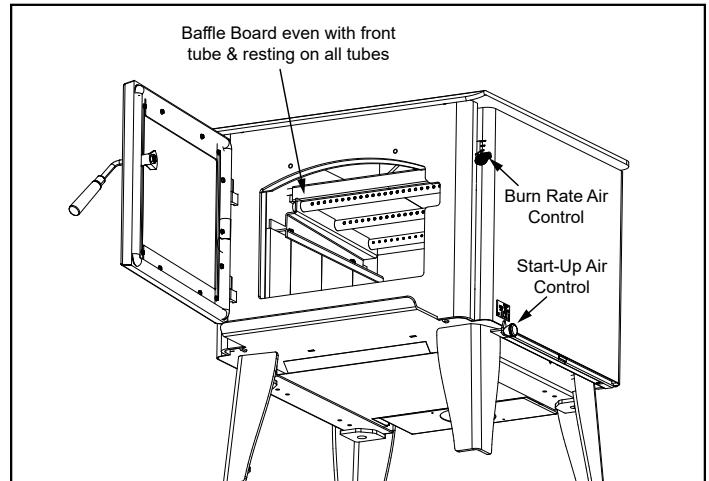


Figure 12.1

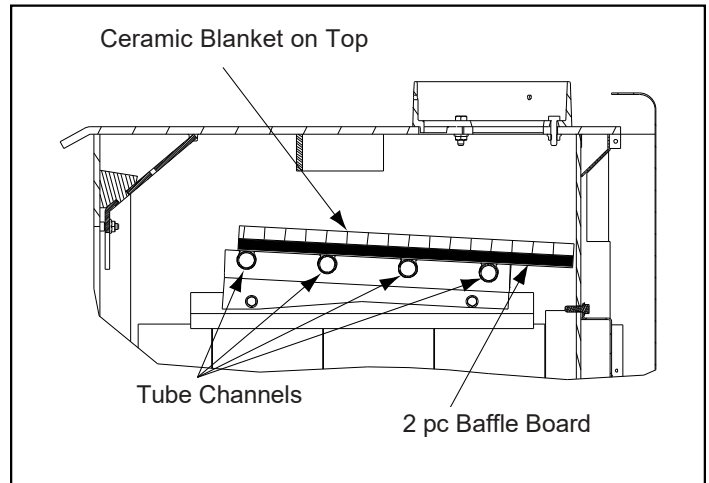


Figure 12.2



**WARNING**

**Fire Risk.**

Do not leave the fire unattended when the door is unlatched or when using the fire screen.

Unstable rewood could fall out of the reboiler creating a fire hazard to your home.



**WARNING**

**Fire Risk.**

Do NOT burn wet or green wood.

- Store wood in dry location. Stack wood so both ends are exposed to air. Wet, unseasoned wood can cause accumulation of creosote.




## F. Opacity (Smoke)

This is the measure of how cleanly your appliance is burning. Opacity is measured in percent. 100% opacity is when an object is totally obscured by the smoke column from a chimney, and 0% opacity means that no smoke column can be seen. As you become familiar with your appliance, you should periodically check the opacity. This will allow you to know how to burn as nearly smoke-free as possible (goal of 0% opacity).

**! WARNING**

**Fire Risk.**




Do NOT burn treated wood or wood with salt (driftwood).

- May generate carbon monoxide if burn material other than wood.

May result in illness or possible death.

**! WARNING**

**Fire Risk.**



Keep combustible materials, gasoline and other flammable vapors and liquids clear of appliance.

Do NOT store flammable materials in the appliance's vicinity.

Do NOT store flammable materials in the appliance's vicinity.

**FIRE IN THIS Appliance.**

- Keep all such liquids well away from the appliance while it is in use.
- Combustible materials may ignite.

**! CAUTION**

When burning your first fire, you will experience smoke and odor from the appliance resulting from the curing of paint and burning off of any oils remaining from manufacturing.

**OPEN WINDOWS DURING INITIAL BURN TO DISSIPATE SMOKE AND ODORS!**

Smoke may be irritating to sensitive individuals.  
Smoke detectors may activate.

## G. Clear Space

**NOTE:** Do NOT place combustible objects within 4 ft (1.2m) of the front of appliance (**Figure 13.1**).

- Mantel:** Avoid placing candles and other heat-sensitive objects on mantel or hearth. Heat may damage these objects.

**! WARNING**

Do NOT place combustible objects in front of the appliance. High temperatures may ignite clothing, furniture or draperies.

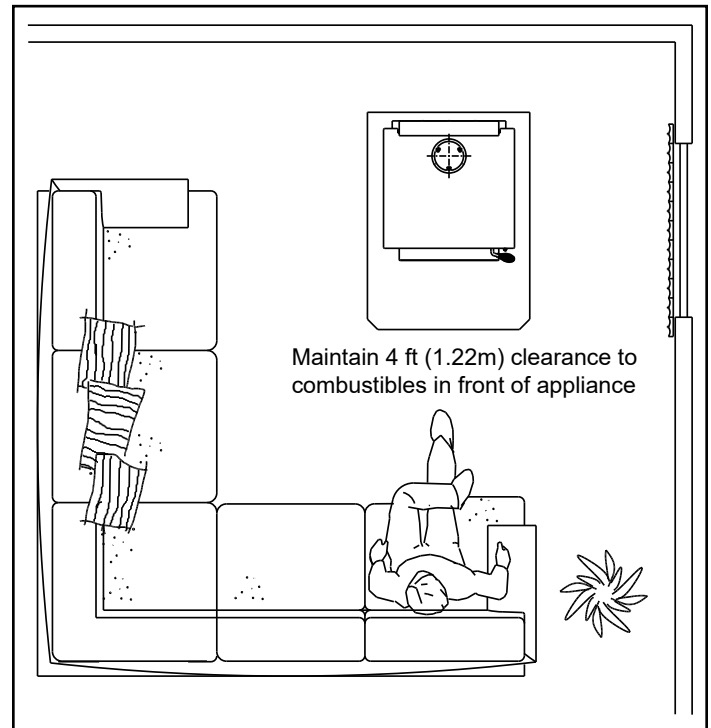


Figure 13.1



# 3 Maintenance and Service

## A. Quick Reference Maintenance Guide

When properly maintained, your fireplace will give you many years of trouble-free service. Contact your dealer to answer questions regarding proper operation, troubleshooting and service for your appliance. Visit [www.forgem-ame.com/owner-resources](http://www.forgem-ame.com/owner-resources) to view basic troubleshooting, FAQs, use & care videos.



### CAUTION

Allow the appliance to completely cool down before performing any cleaning or maintenance. Start the first inspection after the first 2 months of use, or if performance changes, and adjust your schedule accordingly. Maintenance is required for safe operation and must be performed to maintain your warranty.

	FREQUENCY	TASK
<p><b>Baffle Blanket</b></p>	<p>NT or after every one (1) cord of wood</p>	<p>Baffle and blanket placement is critical to heat output, efficiency and overall life of the appliance. Make sure the baffle is pushed all the way to the back of the firebox and the blanket is laying flat. Inspect baffle for cracks.</p>
<p><b>Chimney System</b></p>	<p>EE NT or after every four (4) cords of wood</p>	<p>The chimney and chimney cap must be inspected for soot and creosote every two months during the burn season or more frequently if chimney exceeds or is under 14-16 ft (4.3m-4.8m) measured from bottom of appliance.</p> <p>This will prevent pipe blockage, poor draft, and chimney fires. Always burn dry wood to help prevent cap blockage and creosote build-up.</p>
<p><b>Firebrick Ash Removal</b></p>	<p>EE or after every 25 loads of wood</p>	<p>Ashes must be cool before you can dispose of the ashes in a non-combustible container.</p> <p>Firebrick is designed to protect your firebox. After ashes are removed, inspect the firebrick and replace firebricks that are crumbling, cracked or broken.</p>
<p><b>Door &amp; Glass Assemblies</b></p>	<p>EE or after every 25 loads of wood</p>	<p>Keep door and glass gas set in good shape to maintain good burn. <b>To test:</b> place a dollar bill between the appliance and door and then shut the door. If you can pull the dollar out, remove one washer from door handle behind latch cam and try again. If you can still pull it out, replace the door gas set.</p> <p>Check the glass frame for loose screws to prevent air leakage.</p> <p>Check glass for cracks.</p>
<p><b>Door Handles</b></p>	<p>EE or after every 25 loads of wood</p>	<p>Check the door latch for proper adjustment. This is very important especially after the door rope has formed to the appliance face.</p> <p>Check door handle for smooth cam operation.</p>

Table 15.1

*These are generic drawings and may not represent your model.*

## B. General Maintenance

### 1. Creosote (Chimney) Cleaning

- **Frequency:** Every 2 months during heating season or as recommended by a certified chimney sweep more frequently if chimney exceeds or is under 14-16 ft. (measured from bottom of appliance)

- **By:** Certified Chimney sweep

Remove all ash from the rebore and extinguish all hot embers before disposal. Allow the appliance to cool completely. Disconnect the pipe or remove baffle and ceramic blanket from appliance before cleaning chimney. Otherwise residue can pile up on top of the baffle and ceramic blanket and the appliance will not work properly. See **Baffle Removal** on [page 22](#). Close the door tightly. The creosote or soot should be removed with a brush specifically designed for the type of chimney in use. Clean out fallen ashes from the rebore.

It is also recommended that before each heating season the entire system be professionally inspected, cleaned and repaired if necessary.



**Inspection:** Inspect the system at the appliance connection and at the chimney top. Cooler surfaces tend to build creosote deposits quicker, so it is important to check the chimney from the top as well as from the bottom.



**Formation and Need For 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 cool chimney due to a newly-started or a slow-burning fire. As a result, creosote residue accumulates on the flue lining.

When ignited, this creosote creates an extremely hot fire which may damage the chimney or even destroy the house.

The chimney connector and chimney should be inspected once every 2 months during the heating season to determine if a creosote or soot buildup has occurred. If creosote or soot has accumulated, it should be removed to reduce the risk of a chimney fire.

 <b>WARNING</b>	
	<b>Fire Risk.</b> Prevent creosote buildup.
	<ul style="list-style-type: none"><li>• Inspect chimney connector and chimney once every two months during heating season.</li><li>• Remove creosote to reduce risk of chimney fire.</li><li>• Ignited creosote is extremely hot.</li></ul>



 <b>WARNING</b>	
	<b>Fire Risk.</b>
	<ul style="list-style-type: none"><li>• Do not use chimney cleaners or flame colorants in your appliance. They will corrode chimney pipe.</li></ul>

### 2. Disposal of Ashes

- **Frequency:** When ash is within 1-3 4 in. 44mm of rebore lip
- **By:** Homeowner

 <b>WARNING</b>	
	<b>Fire Risk.</b> Ashes could contain hot embers.

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

 <b>WARNING</b>	
	<b>Fire Risk. Disposal of Ashes</b>
	<ul style="list-style-type: none"><li>• Ashes should be placed in metal container with tight fitting lid.</li><li>• Do not place metal container on combustible surface.</li><li>• Ashes should be retained in closed container until all cinders have thoroughly cooled.</li></ul>

### 3. Appliance Inspection

- **Frequency:** Every 2 months at the same time the chimney and chimney connector are inspected.
- **By:** Homeowner

#### Check for:

- Cracks in glass
- Door handle - smooth cam operation
- Baffle and ceramic blanket correct placement
- Baffle for warp-age
- Firebrick for cracks, broken or crumbly
- Door gas jet Dollar bill test : Place a dollar bill between the stove and the door and then shut the door. If you can pull the dollar bill out, replace the door gas jet.
- Glass frame for loose screws

#### 4. Glass Cleaning

- **Frequency:** As desired
- **By:** Homeowner



#### CAUTION

**Handle glass assembly with care. Glass is breakable.**

- Avoid striking, scratching or slamming glass
- Avoid abrasive cleaners
- Do not clean glass while it is hot

Clean glass with a non-abrasive glass cleaner. Abrasive cleaners may scratch and cause glass to crack. If the deposits on the glass are not very heavy, normal glass cleaners work well. Heavier deposits may be removed by using a damp cloth dipped in wood ashes or by using a commercially available oven cleaner.

After using an oven cleaner, it is advisable to remove any residue with a glass cleaner or soap and water. Oven cleaner left on during the next firing can permanently stain the glass and damage the finish on metal surfaces.

A portion of the combustion air entering the rebore is directed down over the inside of the door glass. This airflow washes the glass, helping to keep soot from adhering to its surface.

When operated at a low burn rate, less air will be flowing over the glass and the smokey, relatively cool condition of a low fire will cause the glass to become coated.

Operating the appliance with the Burn Rate Air Control and Start-Up Air Control all the way open for 30-45 minutes should remove the built up coating.



#### CAUTION

- Do not use polishes with abrasives. It will scratch surfaces.

#### 5. Cleaning Plated Surfaces

- **Frequency:** Prior to first burn and then as desired
- **By:** Homeowner

Clean all the fingerprints and oils from plated surfaces **BEFORE** firing the appliance for the first time. If not cleaned properly before lighting your first fire, the oils can cause permanent markings on the plating.

After the plating is cured, the oils will not affect the finish and little maintenance is required. Keep clean as needed.



#### CAUTION

- Do not use polishes with abrasives. It will scratch plated surfaces.

#### 6. Inspect Firebrick

- **Frequency:** After each ash removal
- **By:** Homeowner

Replace the firebrick if they become crumbly and or if there is a 1/4 inch (6.35mm) gap between the bricks.

The rebore is lined with firebrick, which has exceptional insulating properties. Do not use a grate simply build a fire on the rebore floor. Do not operate appliance without firebrick.

1. After the coals have completely cooled, remove all old firebrick and ash from unit and vacuum rebore.
2. Remove new firebrick set from box and lay out to the diagram shown in the instructions that come with the firebrick set or refer to the diagram on the service parts list at the end of this manual.
3. Lay bottom bricks in unit.
4. Install rear bricks on the top of the bottom bricks. Slide top of bricks under clip on back of rebore wall and push bottom of bricks back.
5. Install side bricks. Slide top of brick under clips on side of rebore and push the bottom of the brick until it is flush with the side of the unit.



## C. Correct Baffle & Blanket Placement



### WARNING



#### Fire Risk.

Firebox damage due to improper baffle placement is not covered by warranty. Operate the wood burning appliance with the baffle in the correct position only.

#### Not doing so could result in:

- Reduced efficiency
- Overheating the chimney
- Overheating the rear of the firebox
- Poor performance

Ensure correct baffle placement and replace baffle components if damaged or missing.

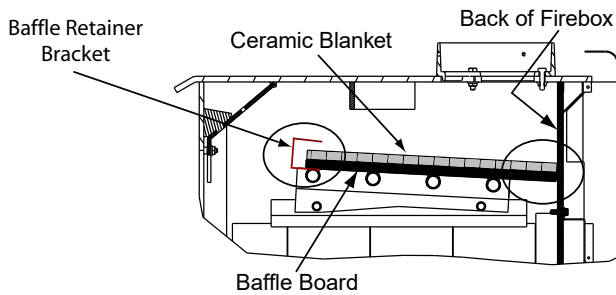


### CAUTION

The baffle boards are F A I E. Use extreme caution when loading firewood to prevent:

- Cracking, breaking or damaging the baffle boards
- DO NOT operate the appliance without baffle boards

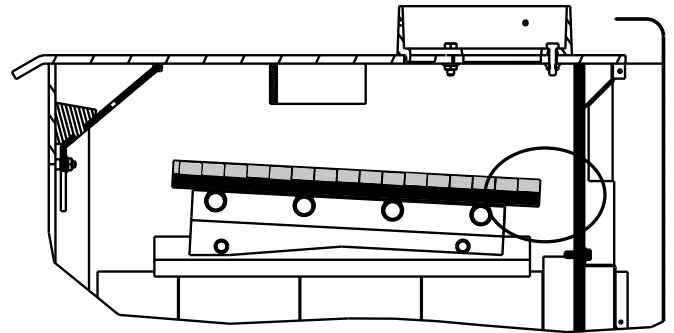
### CORRECT POSITION



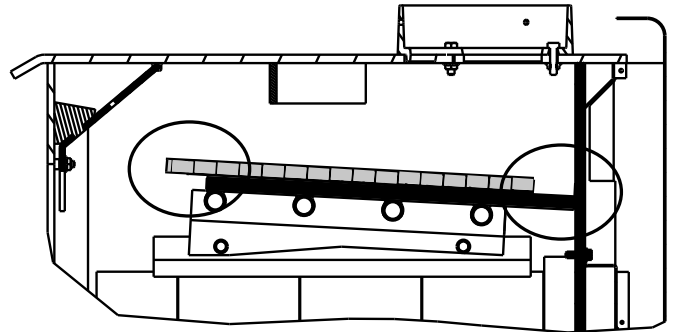
Ceramic Blanket and Baffle Board must be in contact with the back of the firebox and even with each other in the front.

Figure 18.1

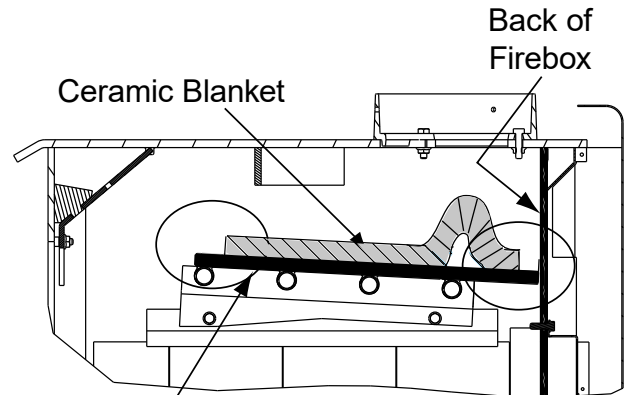
### INCORRECT POSITIONS



Ceramic Blanket and Baffle Board are NOT in contact with the back of the firebox.



Ceramic Blanket is NOT in contact with the back of the firebox and NOT even with the Baffle Board in the front.



Ceramic Blanket is bunched up at the back of the firebox and NOT even with the Baffle Board in the front.

Figure 18.2

# 4 Troubleshooting Guide

With proper installation, operation, and maintenance your wood appliance will provide years of trouble-free service. If you do experience a problem, this troubleshooting guide will assist you or a qualified service person in the diagnosis of a problem and the corrective action to be taken.

Start Fire Problems	Possible Cause	Solution	
Can not get fire started Excessive smoke or spillage Burns too slowly Not enough heat output	Not enough kindling paper or no kindling paper	Use dry kindling, more paper. Arrange kindling wood for air movement.	
	Not enough air for fire to ignite	Check for restricted termination cap	
		Check for blockage of outside air intake if installed.	
		Check for true blockage.	
		Pre-warm true before starting fire refer to <b>Building a Fire</b> on <a href="#">page 12</a> ).	
		Check for adequate vent height (refer to <b>Chimney Height / Rise and Run</b> on <a href="#">page 18</a> of the Installation manual).	
		Open window below the appliance towards the wind.	
	Wood condition is too wet, too large	Use dry, seasoned wood (refer to <b>Wood Selection &amp; Storage</b> on <a href="#">page 9</a> ).	
	Bed of coals not established before adding wood	Start with paper kindling to establish bed of coals (refer to <b>Building a Fire</b> on <a href="#">page 12</a> ).	
Flue blockage such as birds nests or leaves in termination cap	Have chimney inspected for creosote and cleaned by a certified chimney sweep.		
Down draft or negative pressure Competition with exhaust devices	Do not use exhaust fans during start-up (refer to <b>Negative Pressure</b> on <a href="#">page 14</a> ).		
		Open window below the appliance towards the wind.	
Fire burns too fast	Extremely dry or soft wood	Mix in hardwood.	
		Mix in less seasoned wood after fire is established (refer to <b>Wood Selection &amp; Storage</b> on <a href="#">page 9</a> ).	
	Over drafting	Check for correct vent height too much vertical height creates over drafting.	
		Check location of vent termination	

Table 19.1

# 5 Service Parts Replacement

## A. Glass

**NOTE: Replace with 5mm ceramic glass only.**

### Service Part: 7000-012

1. Ensure that the fire is out and the appliance is cool to the touch.
2. Protect a table or counter top with padding or towels. Protect your hands and wear gloves to prevent injury.
3. Remove the door with the broken glass by lifting the door up and out of the hinges.
4. Lay door face down on a table or counter making sure the handle hangs over the edge so the door lays flat, on a soft surface.
5. Remove the screws from each glass retainer and remove the glass. If screws are difficult to remove, soak with penetrating oil first.
6. Center the glass with edges evenly overlapping the opening in the door, (i.e. same space top and bottom, left and right sides).
7. Replace the glass retainers. Be careful not to cross thread the screws.
8. Tighten each retainer just a few turns until each is secured. Check again for centering of glass in door frame. Continue to tighten each retainer alternately, a few turns at a time, until the glass is secure.

**NOTE: DO NOT EXHAUSTIVE CLEANING - can cause glass to break.**

9. Replace the door on the appliance.

Forge & Flame appliances are equipped with ceramic super heat-resistant glass, which can only be broken by impact or misuse.



## WARNING

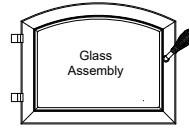


### Injury Risk.

- Use only glass specified in manual.
- DO NOT REPLACE with any other material.



## CAUTION



Handle glass assembly with care.

### When cleaning glass:

Avoid striking, scratching or slamming glass.

Do NOT clean glass when hot.

Do NOT use abrasive cleaners.

Use a hard water deposit glass cleaner on white enamel.

- Use commercial oven cleaner on heavier deposits.
- Remove all residue of oven cleaner or will permanently stain glass on next firing.

**Refer to maintenance instructions.**

## B. Firebrick

Replace the firebrick if they become crumbly and or if there is a 1/4 inch (6.35mm) gap between the bricks.

Inspect the firebrick after each ash removal.

The reboiler is lined with high quality firebrick, which has exceptional insulating properties. There is no need to use a grate simply build a fire on the reboiler floor. Do not operate appliance without firebrick.

1. After the coals have completely cooled, remove all old firebrick and ash from appliance and vacuum reboiler.
2. Remove new firebrick set from box and lay out to diagram shown below.
3. Lay bottom bricks in appliance.
4. Install rear bricks on the top of the bottom bricks. Slide top of bricks under clip on back of reboiler wall and push bottom of brick back.
5. Install side bricks. Slide top of brick under clips on side of reboiler and push the bottom of the brick until it is flush with the side of the appliance.

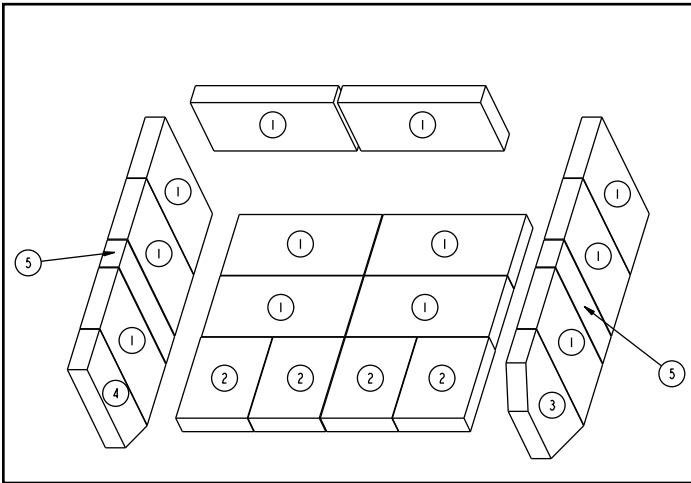


Figure 21.1

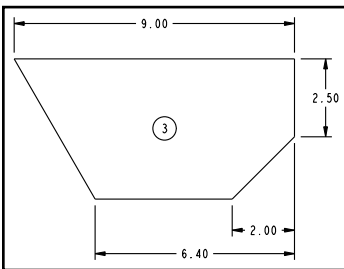


Figure 21.2

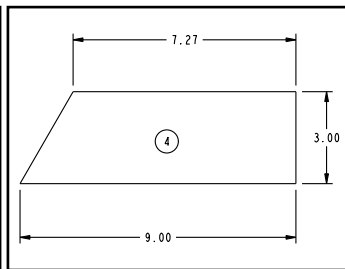


Figure 23.3

Placement	Dimensions	Qty Required
1	9 4.5 1.25	12
2	6 4.5 1.25	4
3	9 4.5 1.25 w Angles	1
4	9 3 1.25 w Angle	1
5	9 2 1.25	2

Table 21.3

## C. Door Handle Assembly

**NOTE:** Do NOT over tighten locking nut door handle needs to move smoothly!

1. Slide door handle through door.
2. Install additional washer(s) as shown in **Figure 21.4**
3. Install key in groove.
4. Align groove in latch cam with key slide latch cam over shaft
5. Install lock nut but do not over tighten, the handle needs to rotate smoothly.
6. Install fiber handle (**Figure 21.4**).

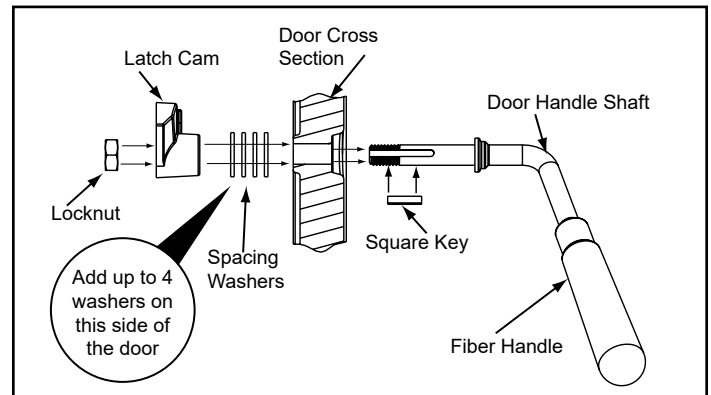


Figure 21.4

## D. Baffle

### Service Part: SRV7037-112

1. Remove all ash from the reburner, and extinguish all hot embers before disposal into a metal container.
2. The baffle board has 2 pieces. With the ceramic blanket still in place, slide one baffle piece over the top of the other one and pull out the top piece through the door opening and then remove the bottom baffle piece (**Figure 22.1**).
3. Remove the ceramic blanket (**Figure 22.2**).
4. Re-install the baffle pieces one piece at a time. Be sure the baffle boards are even with the front manifold tube and is resting on all tubes (**Figure 22.3 and Figure 22.4**).
5. To re-install the ceramic blanket, it is easier to fold it in half first (**Figure 22.2 and Figure 22.4**). Place on top of the baffle board, open up and flatten and smooth out the blanket. Verify the baffle board for correct position (**Figure 22.3 and Figure 22.4**).



Figure 22.1 - Baffle Board



Figure 22.2 - Ceramic Blanket

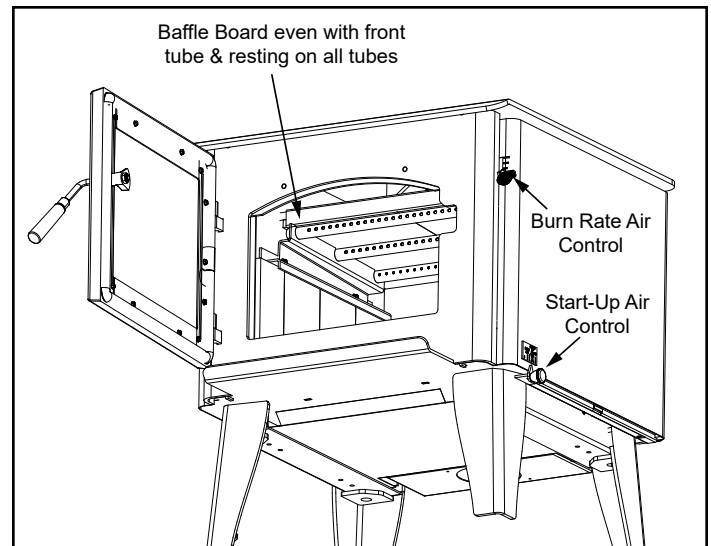


Figure 22.3

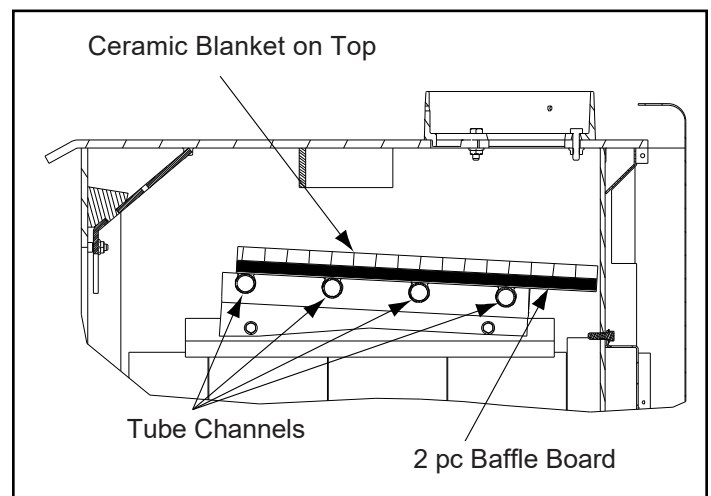


Figure 22.4

## E. Tube Channel Assembly

Service Part: SRV7033-023

### Removing Tube Channel Assembly

1. Remove the right side panel by removing 2 screws in the back using a Phillips head screw driver.
2. Remove 4 screws from channel access cover and remove cover.
3. Locate 2 channel nuts inside of chamber and remove using a 7/16 socket wrench. Slide out tube channel assembly.

**NOTE:** Coat the bolts with penetrating oil for at least 15 minutes before trying to remove them.

### Replacing Tube Channel Assembly

1. Slide one gas jet onto each tube.
2. Slide the tube channel assembly into side of reboiler and insert each tube into the corresponding hole in the tube channel rack starting with the back hole first.
3. Make sure tube channel assembly is flush against the side of the appliance and secure with channel nuts.
4. Re-install channel cover and side shield.

#### **NOTE:** Service Space

In order to replace the tube channel assembly a clearance of 19 inches (483mm) is required on the right side of appliance in order to remove the tubes with the appliance in place.

If space is not available, the appliance will have to be disconnected from the chimney to proceed with the tube replacement.

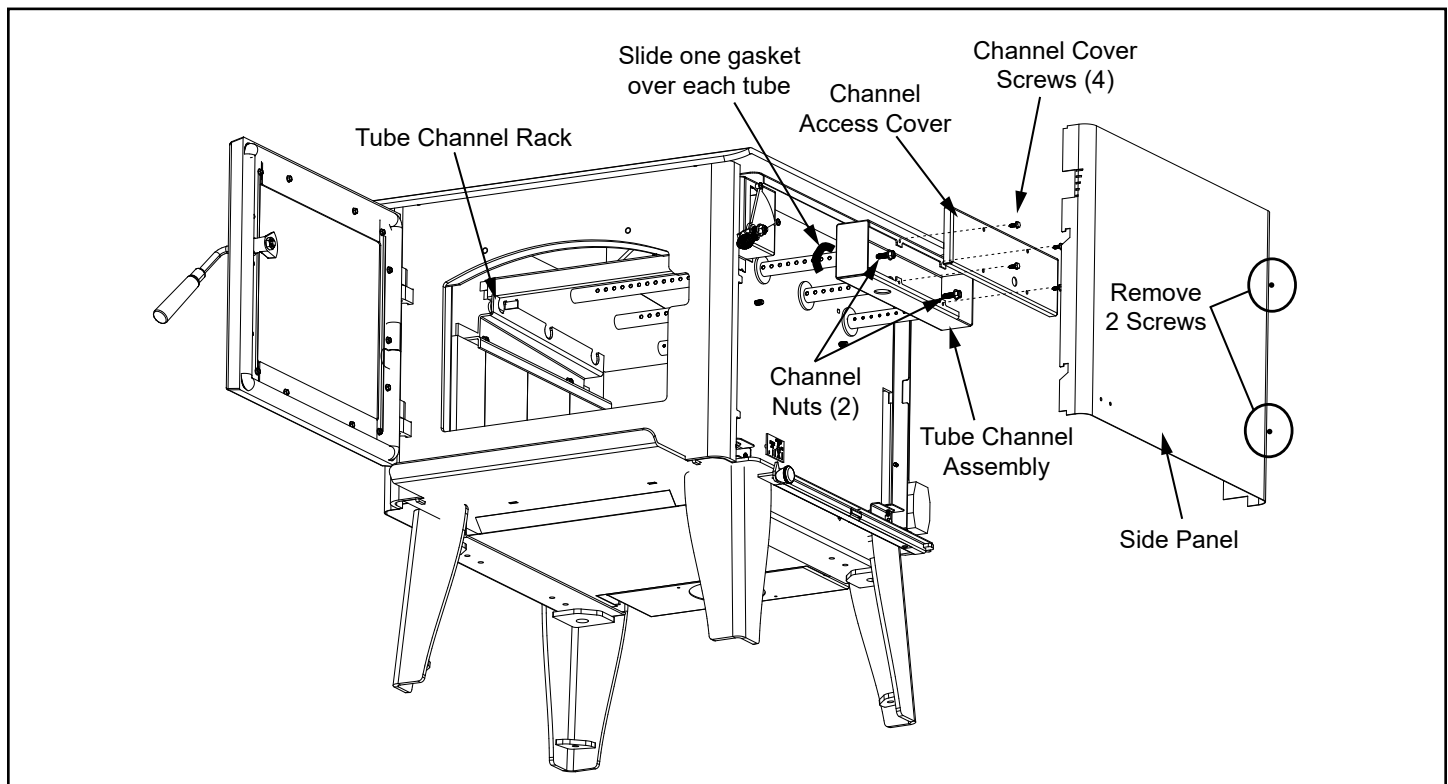


Figure 23.1

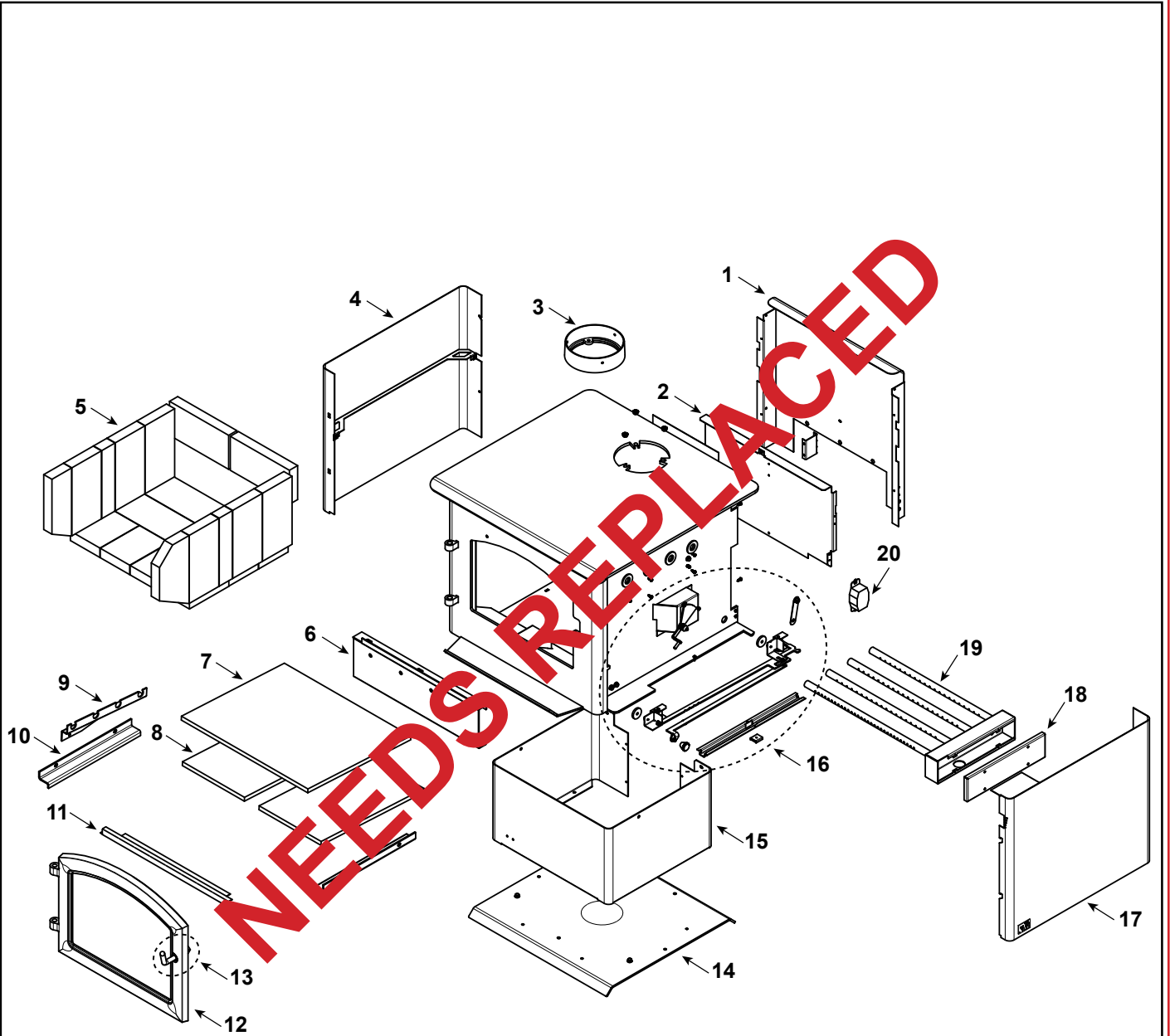


B. Service Parts List

**QUADRA-FIRE**® Service Parts  
Wood Stove

**43M-ACC-C**

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active



Part number list on following page.

04/24



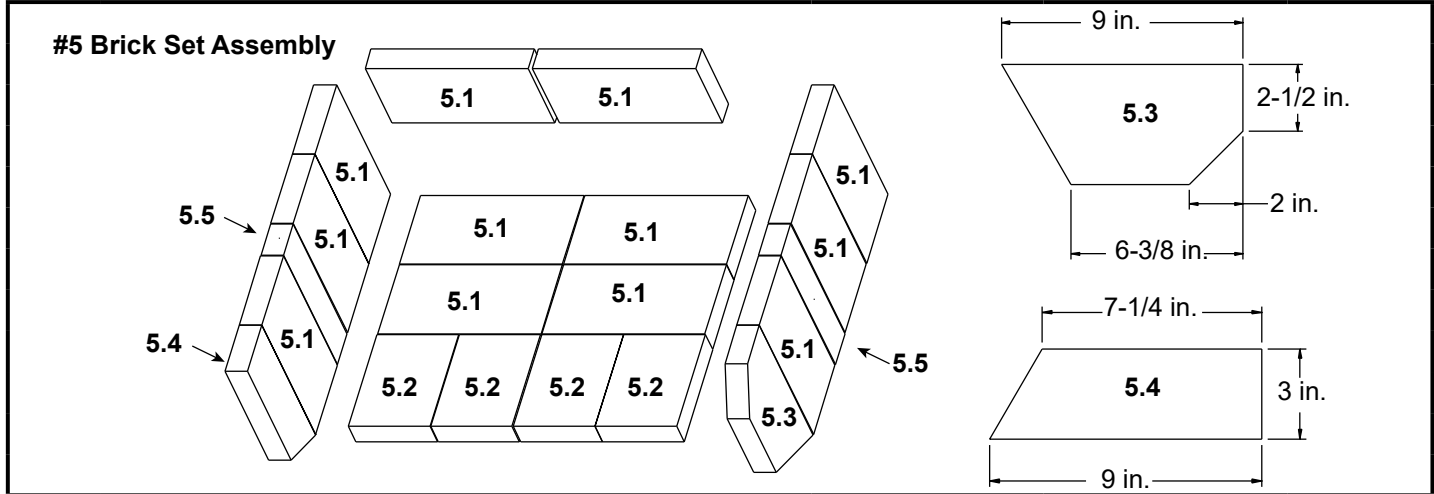
Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.

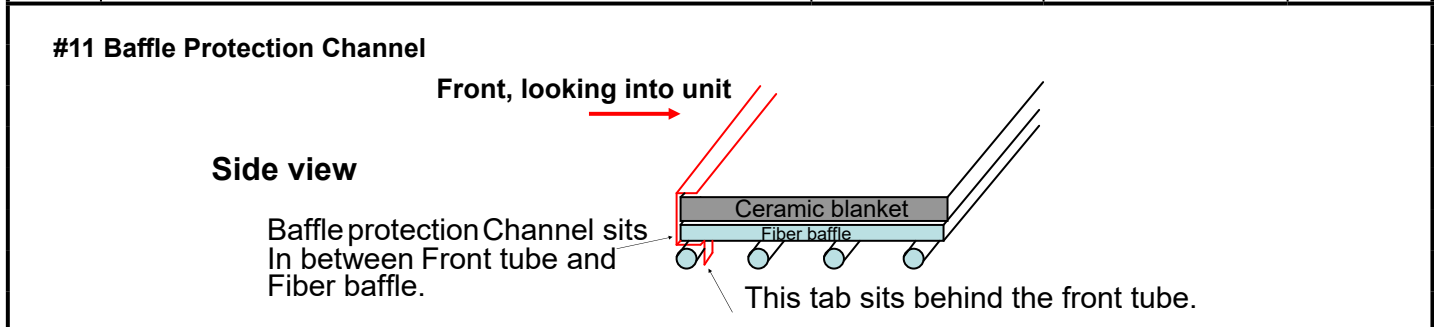


**Stocked at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
1	Air Channel, Convection w/Bracket - <b>Retain original serial # label</b>		SRV7033-144	
2	Air Supply Back		SRV7033-134	
3	Flue Collar		SRV7000-302	Y
4	Panel Assembly, Side, Left		SRV7037-007	



5	Brick Assembly, Complete Set	Pkg of 20	SRV7037-003	
5.1	Brick, 9 x 4.5 x 1.25"	Qty. 12 Req	832-0550	Y
5.2	Brick, 6 x 4.5 x 1.25"	Qty. 4 Reg.	SRV7128-002	
5.3	Brick, 9 x 4.5 x 1.25" w/Angle	Qty. 1 Reg.	SRV7128-806	
5.4	Brick, 9 x 3 x 1.25" w/Angle	Qty. 1 Reg.	SRV7128-618	
5.5	Brick, small 9 x 2 x 1.25"	Qty. 2 Reg.	SRV7128-018	
	Brick, Uncut	Pkg of 6	832-3040	Y
6	Rear Air Channel Assembly		SRV7033-002	Y
7	Ceramic Fiber Blanket, 1/2 " Thick	15 1/2" x 19 1/2"	832-3390	Y
8	Ba e Fiber Board - 9-1 2 15-3 4	Pkg of 2	SRV7037-112	Y
9	Tube Support Rack		SRV7033-148	
10	Brick Retainer		SRV7033-149	

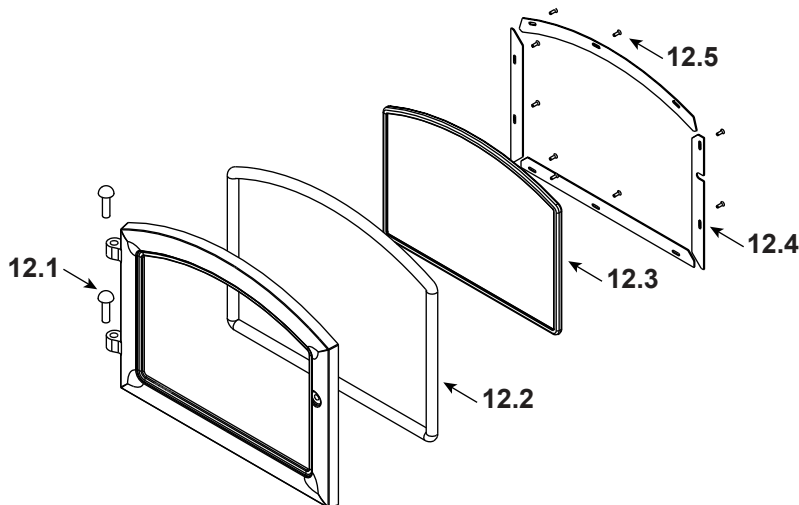


11	Ba e Protection Channel		SRV7033-298	
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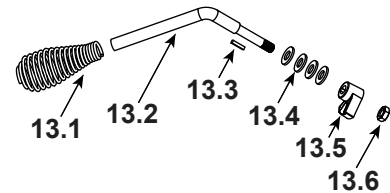
Additional service part numbers appear on following page.

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

### #12 Door Assembly



### #13 Door Handle Assemblies



**IMPORTANT: THIS IS DATED INFORMATION.** Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



**Stocked at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
12	Door Assembly	Black	DR-31/43BK-FH	Y
		Nickel	DR-31/43NL-FH	Y
12.1	Hinge Pins, 1/2"	Black	7000-606/2	Y
		Nickel	SRV430-5320	
12.2	Rope, Door, 3/4" x 84" - Field cut to Size	7 Ft Length	832-1680	Y
12.3	Door Glass Assembly - 15-1 2 13-3		SRV7000-012	Y
	Gasket, Glass Tape - Field cut to Size	5 Ft Length	832-0460	Y
12.4	Glass Frame Set		832-0350	
12.5	Screw, Flat Head Philips 8-32 x 1/2	Pkg of 12	220-0490/12	Y
13	Door Handle Assembly (Does not include Spring Handle)		832-0540	
13.1	Handle, Spring (Not included in Handle Assembly)	Black	SRV7000-613	Y
		Nickel	250-8330	Y
13.2	Door Handle, Formed		SRV430-1131	Y
13.3	Key, Cam Latch		SRV430-1151	
13.4	Latches, AE, 3	Pkg of 3	832-0990	Y
13.5	Cam Latch		SRV430-1141	
13.6	Nut, Locking Door Handle	Pkg of 24	226-0100/24	Y
	Component Pack: (Spring Handles(1) 1/2" & (2) 1/4", 2 Hinge Pins, & Quadra-Fire Logo)	Nickel	436-5360	

Additional service part numbers appear on following page.

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

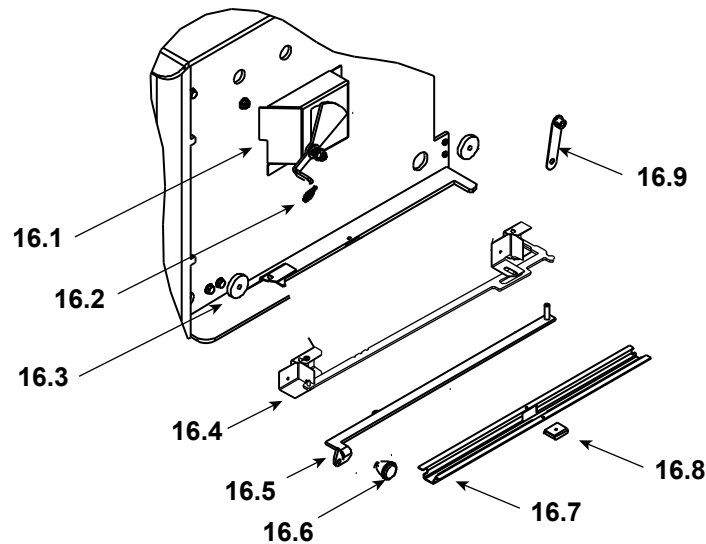
IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



**Stocked  
at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER
14	Pedestal Base		SRV7033-163
15	Pedestal Riser		SRV7033-207

### #16 Burn Rate Control & Associated Parts



16.1	Burn Rate Control Assembly		SRV7037-054	Y
16.2	Spring Handle, 1/4"	Nickel	250-8340	Y
16.3	Door Gasket - Front & Rear Air Timer Doors		7033-282	Y
16.4	Timer Air Control Assembly		SRV7037-018	Y
	Rear Air Door Assembly		SRV7037-013	Y
16.5	Rear Air Control Arm Assembly		SRV7037-005	Y
16.6	Knob - Start-Up Control Knob		SRV7000-343	
16.7	Air Control Rod Guide		SRV7033-210	
16.8	Latch, Magnet - For Air Control		SRV229-0631	
16.9	Timer Arm Assembly		SRV7033-034	Y
17	Panel Assembly, Right Side		SRV7037-006	
18	Tube Channel Access Cover (Top)		SRV7033-237	
19	Tube, Channel Assembly	Manifold Tubes	SRV7033-023	Y
20	Timer (Only) Replacement Assembly		SRV480-1940	Y
	Component Pack (Includes Touch-Up Paint, Fiber Handle, Owner's Manual, & Installation Manual)		SRV7037-052	
	Paint, Touch-Up	Black	3-42-19905	
	Logo, Quadra-Fire	Pkg of 10	7000-649/10	

Additional service part numbers appear on following page.





# FORGE & FLAME

## CONTACT INFORMATION

Hearth & Home Technologies  
 352 Mountain House Road  
 Halifax, PA 17032  
 Division of HNI INDUSTRIES

**Please contact your Forge & Flame dealer with any questions or concerns.  
 For the number of your nearest Forge & Flame dealer  
 log onto [www.forgenflame.com](http://www.forgenflame.com)**



## CAUTION



### DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.



**We recommend that you record the following pertinent information for your heating appliance.**

Date purchased/installed: \_\_\_\_\_

Serial Number: \_\_\_\_\_ Location on appliance: \_\_\_\_\_

Dealership purchased from: \_\_\_\_\_ Dealer Phone: 1( ) - \_\_\_\_\_

Notes: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

This product may be covered by one or more of the following patents: (United States) 5341794, 5263471, 6688302, 7216645, 7047962 or other U.S. and foreign patents pending.



HEARTH & HOME  
 technologies™

8390-077A

# Installation Manual

## Installation & Appliance Set-Up

**INSTALLER:** Leave this manual with party responsible for use and operation.

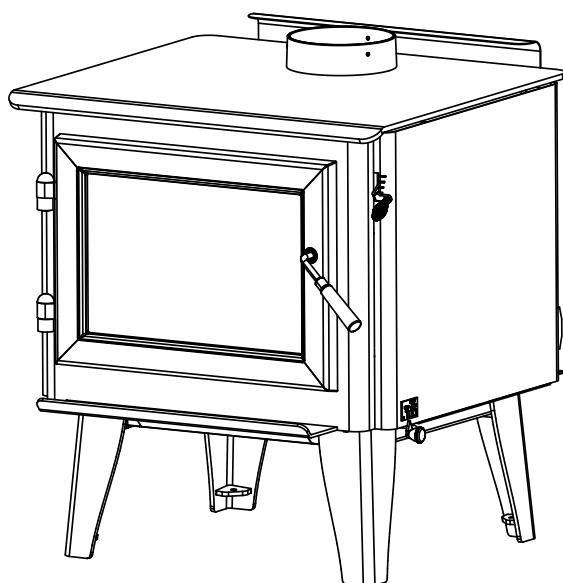
**OWNER:** Retain this manual for future reference.

**NOTICE: DO NOT DISCARD THIS MANUAL**



**WOOD PRO 300  
WOOD APPLIANCE  
AUTOMATIC COMBUSTION  
CONTROL (ACC)**

**MODEL NUMBER:  
FF-WP-300**



Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



### WARNING



If the information in these instructions is not followed exactly, a fire could result causing property damage, personal injury, or death.

- Do not store or use gasoline or other ammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over- re - If appliance or chimney connector glows, you are over- ring. ver- ring will void your warranty.
- Comply with all minimum clearances to combustibles as speci ed.

Failure to comply may cause house re.



### WARNING



#### HOT SURFACES!

Glass and other surfaces are hot during operation AND cool down.

- Hot glass and appliance will cause burns.
- Do not touch glass until it is cooled
- Use leather gloves when reloading fuel
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as appliance.
- Alert children and adults to hazards of high temperatures
- High temperatures may ignite clothing or other ammable materials.
- Keep clothing, furniture, draperies and other ammable materials away.



### WARNING



#### Fire Risk.

For use with solid wood fuel only.

ther fuels may over- re and generate poisonous gases (i.e. carbon monoxide).

**NOTE:** To obtain a French translation of this manual, please contact your dealer or visit [www.forgen\\_ame.com](http://www.forgen_ame.com)

**REMARQUE :** Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez [www.forgen\\_ame.com](http://www.forgen_ame.com)



### Safety Alert Key:

- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
  - **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
  - **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
  - **NOTICE:** Indicates practices which may cause damage to the appliance or to property.
- 

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➔ = Contains updated information

# 1 Important Safety Information

## A. Appliance Safety Certification

<b>Model:</b>	FF-WP-300
<b>Laboratory:</b>	PF -TEC
<b>Report Number:</b>	19-538
<b>Type:</b>	Listed Room Appliance, Solid Fuel Type
<b>Standard:</b>	UL1482, ULC S627-00 and (UM) 84-HUD, Mobile Home Approved.

## B. Appliance Emissions Certification

<b>Model:</b>	FF-WP-300
<b>Laboratory:</b>	PF -TEC
<b>Report Number:</b>	19-538
<b>Standard:</b>	Method 28 and 5G, and ASTM E2515
<b>Can be found at:</b>	<a href="http://www.forgen_ame.com/about-us/epa-certification">www.forgen_ame.com/about-us/epa-certification</a>

The P-300 is Certified to comply with 2020 crib wood particulate emission standards.



This wood appliance needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

**NOTE:** This installation must conform with local codes. In the absence of local codes you must comply with **(UM) 84-HUD and NFPA211 in the U.S.A. and CAN/CSA-B365 Installation Codes in Canada.**

**This room heater shall not be installed in a factory built fireplace.**

## C. BTU & Efficiency Specifications

<b>EPA Certification Number:</b>	Number: N/A
<b>EPA Certified Emissions:</b>	1.6 grams per hour
<b>*LHV Tested Efficiency:</b>	80.2%
<b>**HHV Tested Efficiency:</b>	74.2%
<b>***EPA BTU Output:</b>	13,200 to 36,800 / hr.
<b>****Peak BTU/Hour Output:</b>	61,700
<b>Vent Size:</b>	6 inches
<b>Firebox Size:</b>	2.26 cubic feet
<b>Recommended Log Length</b>	18 inches
<b>Fuel:</b>	Seasoned Cordwood (20% moisture)
<p>eighted average ow eating alue e ciency using Douglas Fir dimensional lumber and data collected during EPA emission tests in accordance with the requirements of CSA B415.1. LHV assumes the moisture is already in a vapor state so there is no loss in energy to vaporize.</p>	
<p>eighted average igh eating alue e ciency using Douglas Fir dimensional lumber and data collected during EPA emission tests in accordance with the requirements of CSA B415.1. HHV includes the energy required to vaporize the water in the fuel.</p>	
<p>A range of BT outputs calculated using E ciency and the burn rates from the EPA tests, using Douglas Fir dimensional lumber.</p>	
<p>**** A peak BTU out of the appliance calculated using the ma imum rst hour burn rate from the igh EPA Test and BTU content of seasoned cordwood (8600) times the e ciency.</p>	



## D. Mobile Home Approved

- This appliance is approved for mobile home installations; when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire, and chimney must be listed to **UL103 HT or a listed UL-1777** full length six inch (152mm) diameter liner must be used.
- Outside Air Kit, part A -ACC must be installed in a mobile home installation.

## E. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

## F. Non-Combustible Materials

Material which will not ignite and burn, composed of any combination of the following:

- Steel
- Plaster
- Brick
- Iron
- Concrete
- Tile
- Glass
- Slate

Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace of 750° C.**

## G. Combustible Materials

Material made of/or surfaced with any of the following materials:

- Wood
- Compressed Paper
- Plant Fibers
- Plastic
- Plywood (B)
- Sheet Rock (drywall)

Any material that can ignite and burn: flame proofed or not, plastered or non-plastered.

## H. Sleeping Room

When installed in a sleeping room it is recommended that a smoke and or CO alarm be installed in the bedroom. The size of the room must be at least 50ft<sup>3</sup> per 1,000 Btu/hr stove input, if the stove exceeds the room size, outside air must be installed.

## I. California - Prop65

### WARNING

This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: [WWW.P65Warnings.ca.gov](http://WWW.P65Warnings.ca.gov)

### WARNING



#### Fire Risk

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with appliance).
- Do NOT over fire - If appliance or chimney connector glows, you are over firing.

Any such action that may cause a fire hazard.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

**NOTE:** Hearth & Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and or price without notice.

Hearth & Home Technologies' LIMITED warranty appliances that exhibit evidence of over-firing. Evidence of over-firing includes, but is not limited to:

- Warped air tube
- Deteriorated refractory brick retainers
- Deteriorated base and other interior components

# 2 Getting Started

## A. Design and Installation Considerations

Consideration must be given to:

- Safety
- Convenience
- Traffic flow
- Chimney and chimney connector required

It is a good idea to plan your installation on paper, using exact measurements for clearances and door protection, before actually beginning the installation. If you are not using an existing chimney, place the appliance where there will be a clear passage for a factory-built listed chimney through the ceiling and roof.

We recommend that a qualified building inspector and your insurance company representative review your plans before and after installation.

If this appliance is in an area where children may be near it is recommended that you purchase a decorative barrier to go in front of the appliance. Remember to always keep children away while it is operating and do not let anyone operate this appliance unless they are familiar with these operating instructions.



### CAUTION

#### Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.



### WARNING

#### Asphyxiation Risk.



- Do NOT connect this appliance to a chimney used servicing another appliance.
  - Do NOT connect to any air distribution duct or system.
- Do not allow fumes to enter the house.

**NOTICE:** Hearth & Home Technologies assumes no responsibility for the improper performance of the appliance system caused by:

- Inadequate draft due to environmental conditions
- Down drafts
- Tight sealing construction of the structure
- Mechanical exhausting devices
- Over drafting caused by excessive chimney heights
- Ideal performance is with height of chimney between 14-16 feet (4.26-4.88m) measured from the base of the appliance.

## B. Fire Safety

To provide reasonable fire safety, the following should be given serious consideration:

1. Install at least one smoke detector on each floor of your home to ensure your safety. They should be located away from the heating appliance and close to the sleeping areas. Follow the smoke detector manufacturer's placement and installation instructions, and be sure to maintain regularly.
2. A conveniently located Class A fire extinguisher to contend with small fires resulting from burning embers.
3. A CO detector should be installed in the room with the appliance.
4. A practiced evacuation plan, consisting of at least two escape routes.
5. A plan to deal with a chimney fire as follows:
  - In the event of a chimney fire:
    - Evacuate the house immediately
    - Notify fire department.

## C. Negative Pressure



### WARNING



#### Asphyxiation Risk.

- Negative pressure can cause spillage of combustion fumes, soot and carbon monoxide.
- Appliance needs to draft properly for safety.

Negative pressure results from the imbalance of air available for the appliance to operate properly. It can be strongest in lower levels of the house.

Causes include:

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water appliances and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
  - Recessed lighting
  - Attic hatch
  - Duct leaks

To minimize the effects of negative air pressure:

- Install optional outside air kit with the intake facing prevailing winds during the heating season
- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the appliance
- Avoid installing the appliance near doors, walkways or small isolated spaces
- Recessed lighting should be a “sealed can” design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed
- Basement installations should be avoided

 <b>WARNING</b>	
	<b>Fire Risk.</b> Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:
	<ul style="list-style-type: none"><li>• Installation and use of any damaged appliance. modification of the appliance.</li><li>• Installation other than as instructed by Hearth &amp; Home Technologies.</li><li>• Installation and/or use of any component part not approved by Hearth &amp; Home Technologies. operating appliance without fully assembling all components. operating appliance without legs attached (if supplied with appliance).</li><li>• <u>Do Not Over-heat</u> - If appliance or chimney connector glows, you are over-heating.</li></ul> <b>Any such action that may cause a fire hazard.</b>

## D. Tools And Supplies Needed



Before beginning the installation be sure the following tools and building supplies are available:

- Reciprocating saw
- Framing material
- Pliers
- High temp caulking material
- Hammer
- Gloves
- Phillips screwdriver
- Framing square
- Flat blade screwdriver
- Electric drill and bits
- Plumb line
- Safety glasses
- Level
- Tape measure
- Miscellaneous screws and nails
- 7/16 socket or wrench 1/2-3/4 in. length, #6 or #8 self-drilling screws

## E. Inspection of Appliance and Components

- Remove appliance and components from packaging and inspect for damage.
- Report to your dealer any parts damaged in shipment.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**

## F. Removal of Appliance from Shipping Materials

 <b>WARNING</b>	
	<b>Fire Risk.</b> Inspect appliance and components for damage. Damaged parts may impair safe operation.
	<ul style="list-style-type: none"><li>• Do NOT install damaged components.</li><li>• Do NOT install incomplete components.</li><li>• Do NOT install substitute components.</li></ul> Report damaged parts to dealer.

1. Remove box and 2x4 structural boards being careful not to damage product.
2. Using 7/16 socket or wrench remove (4) bolts located at each leg of the appliance (**Figure 6.1**).
3. Carefully pull appliance off of pallet and put in desired location following Hearth Pad and Clearance to Combustibles on [page 10](#) and [page 11](#).

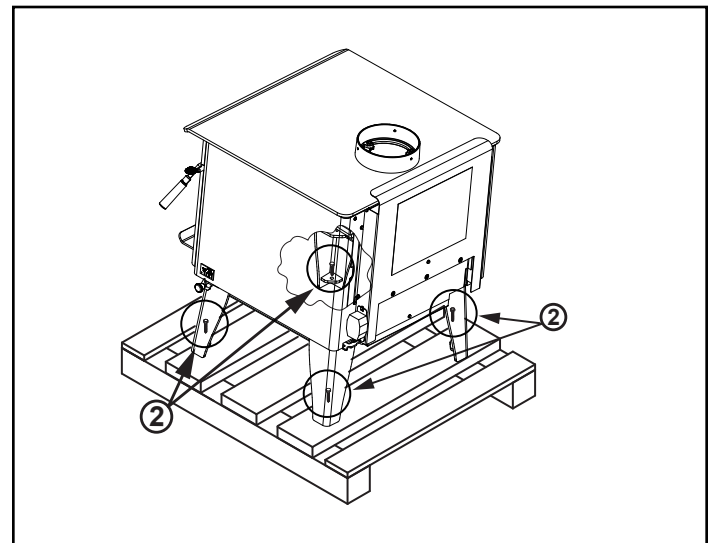


Figure 7.1

## G. Install Checklist

### ATTENTION INSTALLER: Follow this Standard Work Checklist

This standard work checklist is to be used by the installer in conjunction with, not instead of, the instructions contained in this installation manual.

Customer: \_\_\_\_\_  
 Date Installed: \_\_\_\_\_  
 Lot / Address: \_\_\_\_\_  
 Location of Appliance: \_\_\_\_\_  
 Installer: \_\_\_\_\_  
 Dealer / Distributor Phone #: \_\_\_\_\_  
 Serial #: \_\_\_\_\_  
 Model: \_\_\_\_\_

**WARNING! Risk of Fire or Explosion!** Failure to install appliance according to these instructions can lead to a fire or explosion.

#### **Appliance Install**

Verified clearances to combustibles.  
 Appliance is leveled and connector is secured to appliance.  
 Hearth extension size/height decided.  
 Outside air kit installed.  
 Floor protection requirements have been met.  
 If appliance is connected to a masonry chimney, it should be cleaned and inspected by a professional. If installed to a factory built metal chimney, the chimney must be installed according to the manufacturer's instructions and clearances.

YES	IF NO, WHY?
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

#### **Chimney**

Chimney configuration complies with diagrams.  
 Chimney installed, locked and secured in place with proper clearance.  
 Chimney meets recommended height requirements (14-16 feet).  
 Roof flashing installed and sealed.  
 Terminations installed and sealed.

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

#### **Clearances**

Combustible materials not installed in non-combustible areas.  
 Verified all clearances meet installation manual requirements.  
 Mantels and wall projections comply with installation manual requirements.  
 Protective hearth strips and hearth extension installed per manual requirements.

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

#### **Appliance Setup**

All packaging and protective materials removed.  
 Firebrick, baffle and ceramic blanket installed correctly.  
 All labels have been removed from the door.  
 All packaging materials are removed from inside/under the appliance.  
 Manual bag and all of its contents are removed from inside/under the appliance and given to the party responsible for use and operation.

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

Hearth & Home Technologies recommends the following:

- Photographing the installation and copying this checklist for your file.
- That this checklist remain visible at all times on the appliance until the installation is complete.

Comments: Further description of the issues, who is responsible (Installer/Builder/Other Trades, etc.) and corrective action needed:  
 Comments communicated to party responsible \_\_\_\_\_ by \_\_\_\_\_ on \_\_\_\_\_  
 (Builder / Gen. Contractor) (Installer) (Date)

# 3 Dimensions and Clearances

## A. Appliance Dimensions

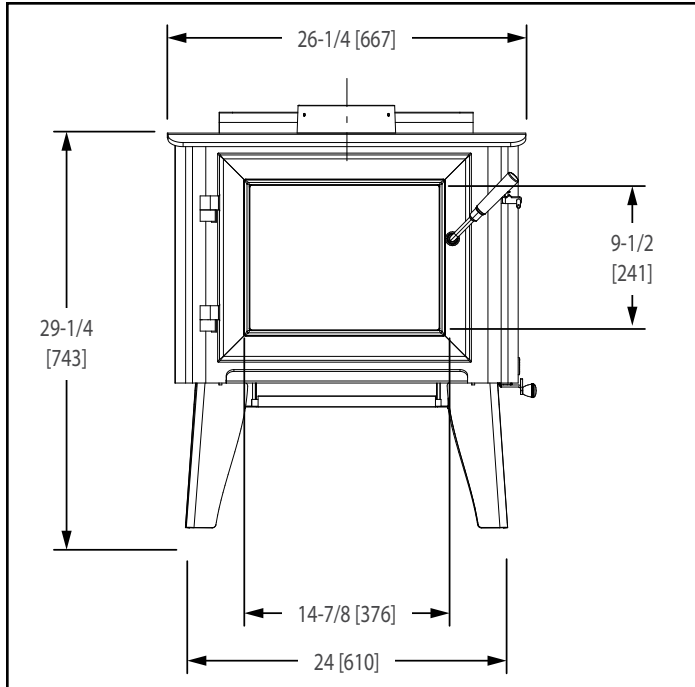


Figure 8.1 - Front View

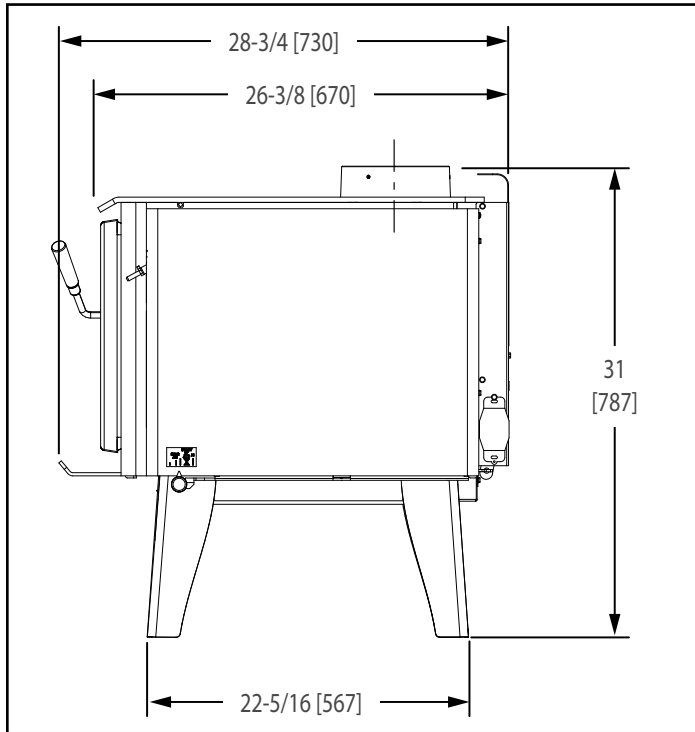


Figure 8.2 - Side View

**NOTE:** Flue Collar size is 6 inch (152mm) diameter (ID)

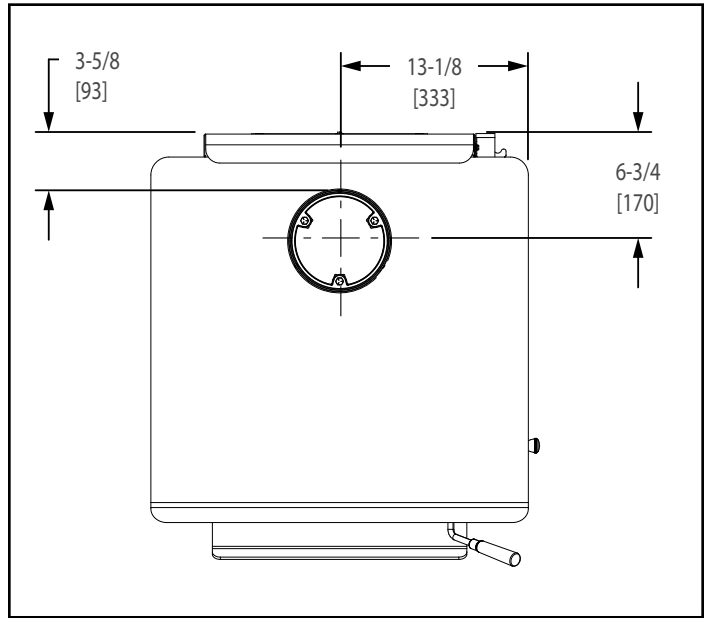


Figure 8.3 - Top View

## B. Hearth Protection Requirements

**EMBER PROTECTION:** Ember protection shall be either a Type 1 floor protector or made of non-combustible material to the requirements below.

Floor protector must be non-combustible material, extending beneath appliance with a minimum of 16 inches (406mm) in front of glass and 8 inches (203mm) to both sides of the fuel loading door. Open the door and measure 16 inches (203mm) from the side edge of the opening in the face of the appliance.

**\*See exception.**

**In Canada,** similar floor protection must be provided 16 inches (457mm) in front and 8 inches (203mm) from the sides and rear of the appliance unless the hearth pad is placed against the wall (see Figure 9.2). Then the clearance may be reduced using double wall pipe and the Clearance to Combustibles table listed on page 10.

**\*Exception:** Non-combustible floor protector must extend beneath the fuel pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side (see Figure 9.2).

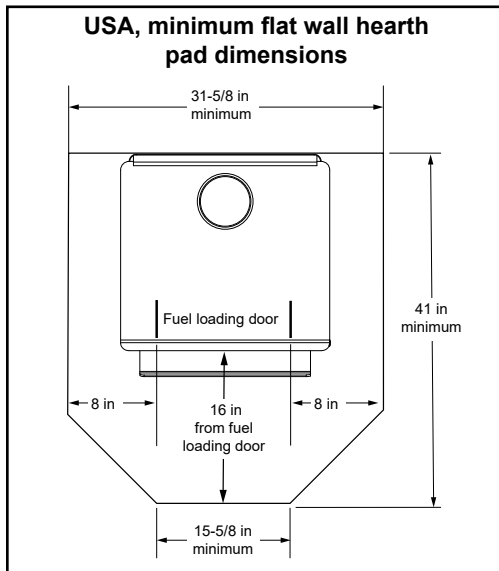


Figure 9.1

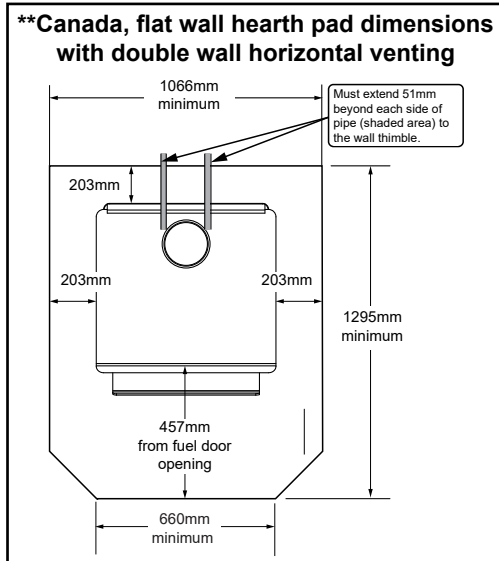


Figure 9.2 - \*\*These dimensions will vary depending installation.

**CAUTION**

Hearth and Home Technologies does not recommend adhesive based vinyl flooring due to thermal expansion. Floating-style flooring (Polyurethane vinyl plank or Polyurethane vinyl tile) can be used, but it will reach temperatures up to 110 °F in a room with ambient temperature of 70 °F. Consult flooring specifications to ensure compatibility.

HHT recommends wood stoves and inserts have 57 inches of alternative flooring in front of the stove before using Polyurethane regardless if they sit flush on the floor or are elevated on a raised hearth.

For all other flooring, continue to follow clearance to combustible requirements in the installation manual.

**NOTICE:** Clearances that do not meet the minimum guidelines could result in damage or buckling to the vinyl flooring and is done at the installer's risk.

**WARNING**

**Fire Risk.**  
Hearth pads must be installed exactly as specified. High temperatures or hot embers may ignite concealed combustibles.

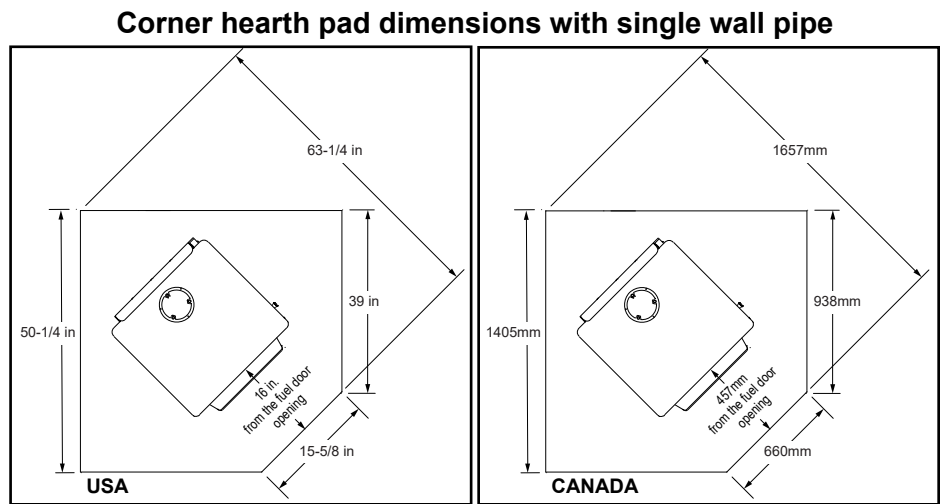


Figure 9.3

Figure 9.5

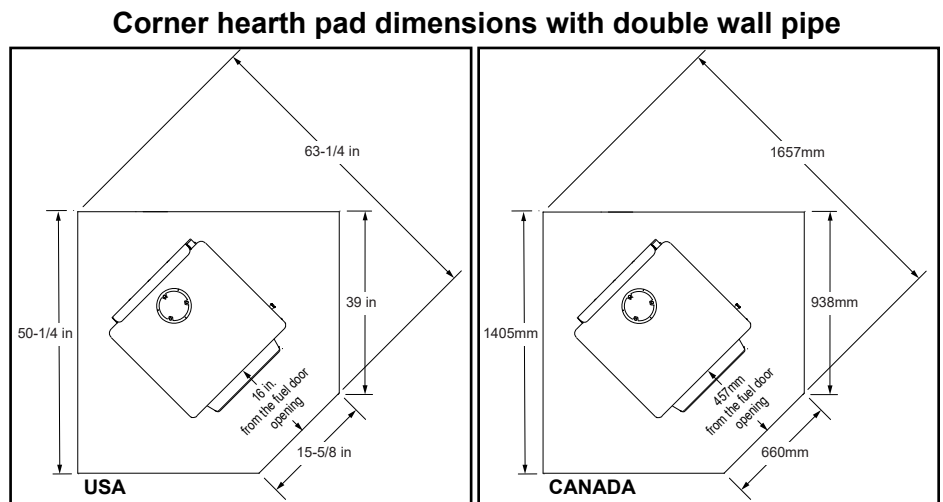


Figure 9.4

Figure 9.6

## C. Clearances to Combustibles

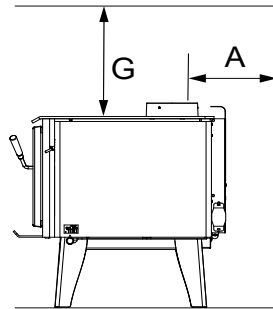
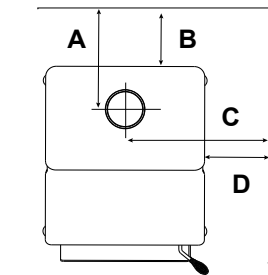
**Note:** If mantle clearance specifications are not listed or to reduce mantle clearances you can follow NFPA211 regulations to assure safe installation of this product. Please consult with your local building inspector before attempting any clearance reductions.

INI C EA ANCE T C B TIB E ATE IA in inches millimeters								
NOTE: A, C, and F Dimensions are to the center of the tube collar								
WP-300 WOOD APPLIANCE (2020)								
	A	B	C	D	E	F	G	H
<b>INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FOOT VERTICAL OFF STOVE TOP</b>								
<b>SINGLE WALL PIPE</b>								
WP-300	18-1/2 (470)	11-3/4 (298)	27-1/2 (699)	14-1/2 (368)	8 (203)	20-1/2 (521)	53-1/2 (1359)	12 (305)
<b>DOUBLE WALL PIPE</b>								
WP-300	12 (305)	5-1/4 (133)	27-1/2 (699)	14-1/2 (368)	8 (203)	20-1/2 (521)	53-1/2 (1359)	12 (305)
<b>INSTALLATION: 90 DEGREE ELBOW OFF TOP OF APPLIANCE THROUGH BACKWALL</b>								
<b>DOUBLE WALL PIPE</b>								
WP-300	11-1/2 (292)	4-3/4 (121)	27-1/2 (699)	14-1/2 (368)	8 (203)	20-1/2 (521)	53-1/2 (1359)	N/A
<b>INSTALLATION: ALCOVE</b>								
<b>DOUBLE WALL PIPE</b>								
WP-300	16 (406)	9-3/8 (238)	27 (686)	13-7/8 (352)	N/A	N/A	53-1/2 (1359)	12 (305)
<b>For alcove only:</b> Six inch diameter listed Double wall air insulated connector pipe with <b>UL103 HT</b> listed factory built Class A chimney or masonry chimney. Maximum depth of Alcove shall be no more than 48 inches (1219mm) and the referenced alcove clearances. Canada must comply with <b>CAN/ULC-S269 M87</b> for the 650° factory built chimney.								
<b>* FOLLOW PIPE MANUFACTURES CLEARANCES AS REQUIRED</b>								

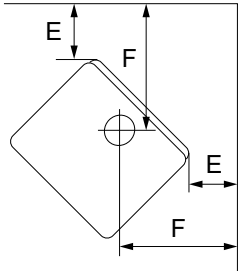
Table 10.1

### BACKWALL / SIDEWALL

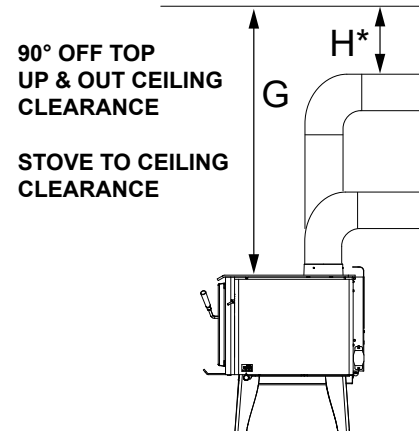
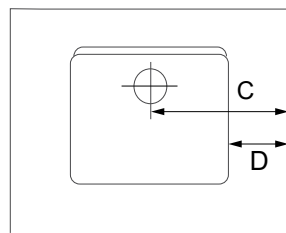
### ALCOVE SIDE VIEW



### CORNER INSTALLATION



### ALCOVE TOP VIEW



\* If H = N/A, follow Pipe Manufacturer's clearances

**NOTE:** Clearances may only be reduced by means approved by the regulatory authority having jurisdiction



### WARNING



#### Fire Risk.

- Comply with all minimum clearances to combustibles as specified.
- Failure to comply may cause house fire.

### NOTE: Service Space

In order to replace the tube channel assembly a clearance of 19 inches (483mm) is required on the right side of appliance in order to remove the tubes with the appliance in place. If space is not available, the appliance will have to be disconnected from the chimney to proceed with the tube replacement.

# 4 Chimney Systems

## A. Locating Your Appliance & Chimney

Location of the appliance and chimney will affect performance. As shown in **Figure 11.1** the chimney should:

- Install through the warm space enclosed by the building envelope. This helps to produce more draft, especially during lightning and die down of the fire.
- Penetrate the highest part of the roof. This minimizes the effects of wind turbulence and down drafts.

Consider the appliance location in order to avoid floor and ceiling attic joists and rafters.

- Locate termination cap away from trees, adjacent structures, uneven roof lines and other obstructions.

Your local dealer is the expert in your geographic area and can usually make suggestions or discover solutions that will easily correct your issue problem.

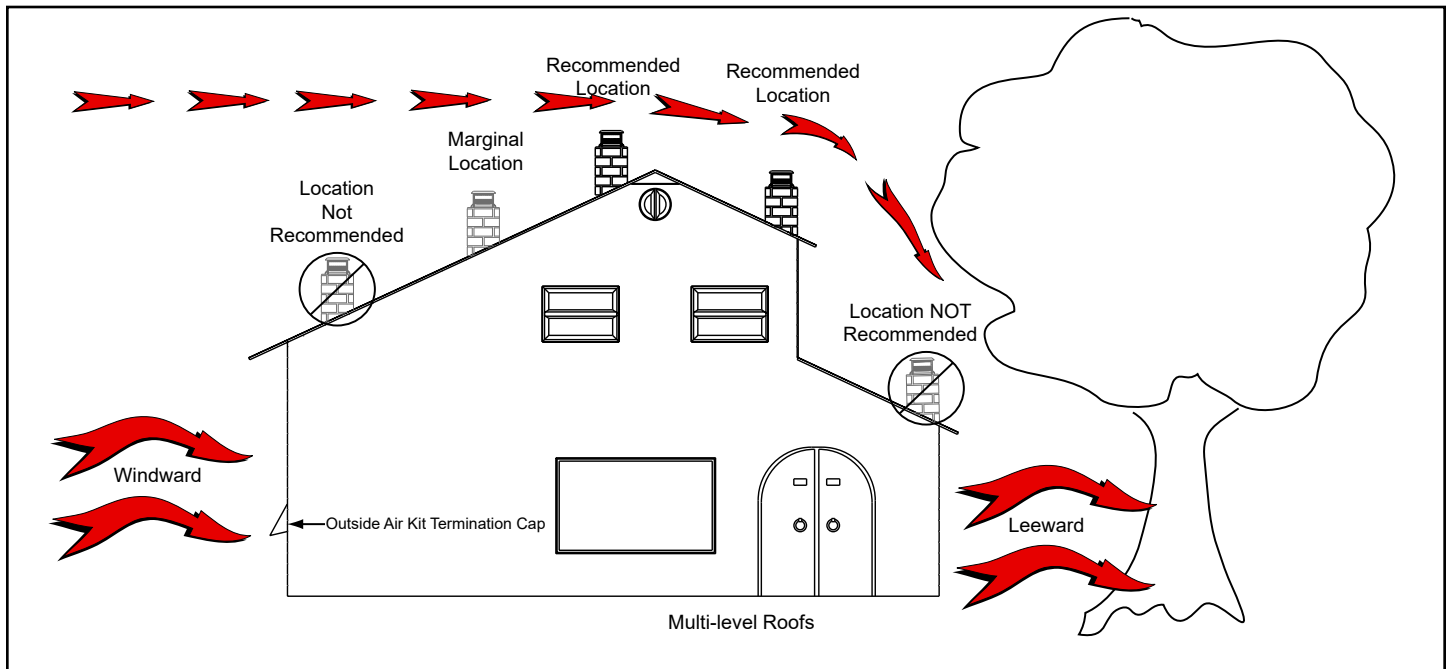


Figure 11.1



## B. Chimney Termination Requirements

Follow manufacturer's instructions for clearance, securing, flashing and terminating the chimney (**Figure 12.1** and **Figure 12.2**).

- Must have an approved and Listed cap
- Must not be located where it will become plugged by snow or other material
- Must terminate at least 3 feet (91cm) above the roof **and** at least 2 feet (61cm) above any portion of the roof within 10 feet (305cm).
- Must be located away from trees or other structures

### NOTICE:

- Chimney performance may vary.
- Trees, buildings, roof lines and wind conditions affect performance.
- Chimney height may need adjustment if smoking or overdraft occurs.

**NOTICE:** Locating the appliance in a basement or in a location of considerable air movement can cause intermittent smoke spillage from appliance. Do not locate appliance near

- Frequently open doors
- Central heat outlets or returns

## C. 2-10-3 Rule

**These are safety requirements and are not meant to assure proper flue draft.**

This appliance is made with a 6 inch (152mm) diameter chimney connector as the ue collar on the appliance.

- Changing the diameter of the chimney can affect draft and cause poor performance.
- It is not recommended to use o sets and elbows at altitudes above 4000 feet above sea level and or when there are other factors that affect ue draft.

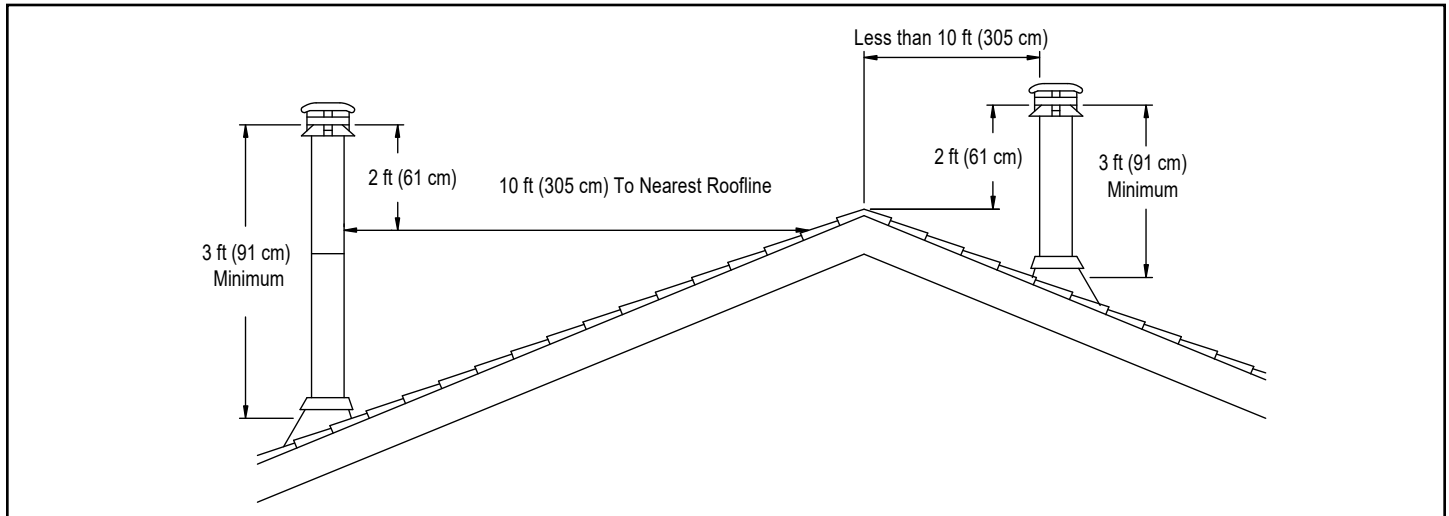


Figure 12.1

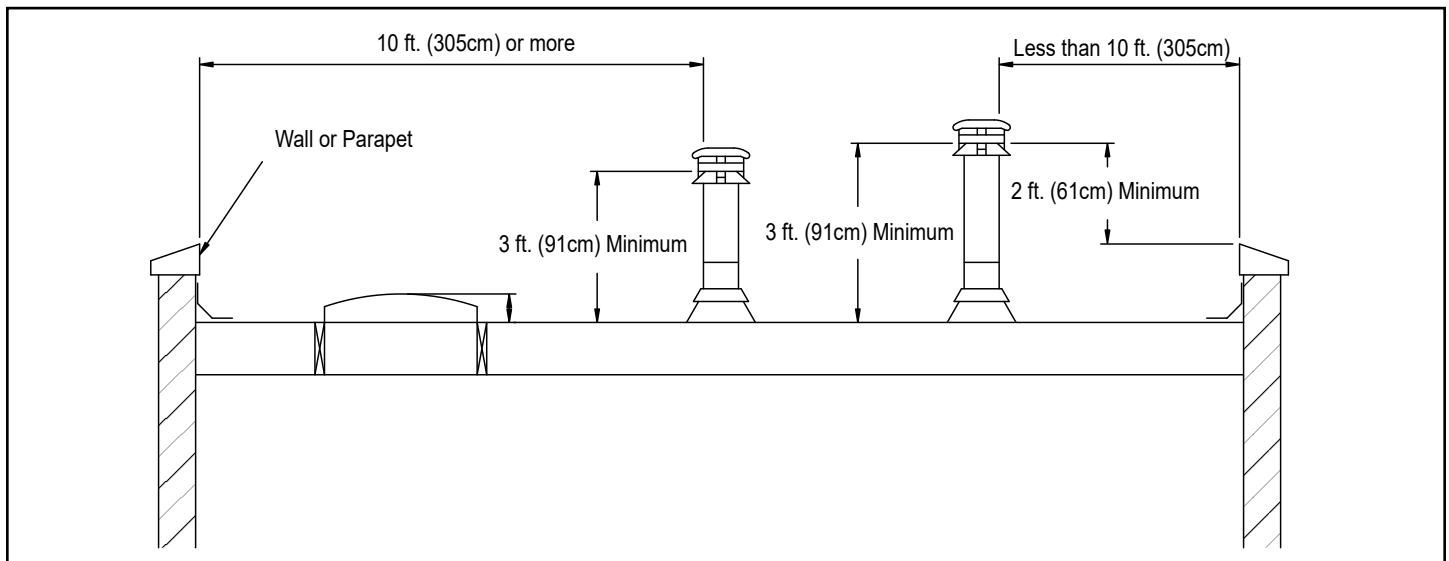




Figure 12.2


## D. Chimney Height / Rise and Run

This product was designed for and tested on a 6 inch (152mm) chimney, 14 to 16 feet (420-480cm) high, (includes appliance height) measured from the base of the appliance. The further your stack height or diameter varies from this configuration, the greater the likelihood it may affect performance.

Chimney height may need to be increased by 2 - 3% per each 1000 feet above sea level. It is not recommended to use offsets or elbows at altitudes above 4000 feet above sea level or when there are other factors that affect the draft.

 <b>WARNING</b>	
	<b>Fire Risk. Inspection of Chimney:</b>
	<ul style="list-style-type: none"> <li>Chimney must be in good condition.</li> <li>Meets minimum standard of <b>NFPA 211</b></li> <li>Factory-built chimney must be 6 inch (152mm) <b>UL103 HT</b>.</li> </ul>

 <b>WARNING</b>	
	<b>Asphyxiation Risk.</b>
	<ul style="list-style-type: none"> <li>Do not connect this appliance to a chimney or vent system.</li> <li>Do not connect this appliance to any ductwork that may allow the gases to enter the house.</li> </ul>

 <b>WARNING</b>	
Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to the owner's information manual provided with this appliance. For assistance or additional information consult a qualified installer, service agency or your dealer.	

## E. Venting Components

**Chimney Connector:** It is also known as the pipe or appliance pipe. The chimney connector joins the appliance to the chimney. It must be a 6 inch (152mm) minimum diameter 24 gauge mild steel black or 26 gauge blue steel, or an approved air-insulated double wall venting pipe.

**Thimble:** A manufactured or site-constructed device installed in combustible walls through which the chimney connector passes to the chimney. It is intended to keep the walls from igniting. Site constructed thimbles must meet **NFPA 211 Standards**. Prefabricated must be suitable for use with selected chimney and meet **UL103 Type HT Standards**. Follow instructions provided by the manufacturer for manufactured thimbles for masonry chimney and prefabricated chimneys.

## Chimney:

The chimney can be new or existing, masonry or prefabricated and must meet the following minimum requirements and as specified in **Chimney Systems**.

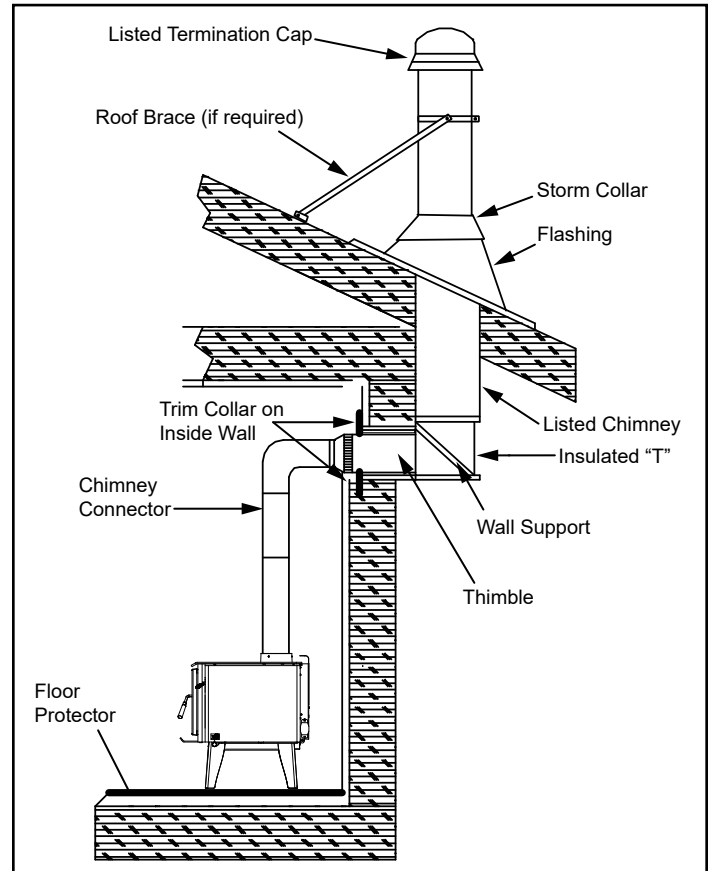


Figure 13.1 - Prefabricated Exterior Chimney

## F. Chimney Systems

### Prefabricated Metal Chimney

- Must be minimum 6 inch (152mm) diameter (ID) high temperature chimney listed to **UL 103 HT (2100°F) or ULC S629M**.
- Must use components required by the manufacturer for installation.
- Must maintain clearances required by the manufacturer for installation.
- Refer to manufacturers instructions for installation.

**NOTE: In Canada,** when using a factory-built chimney it must be safety listed, **Type UL103 HT (2100°F) CLASS "A"** or conforming to **CAN/ULC-S629M, STANDARD FOR 650°C FACTORY-BUILT CHIMNEYS**.

## Thimble

Site constructed for masonry chimney installation:

### Components

A minimum length of 12 inches [305mm] (longer for thicker walls) of solid insulated factory-built chimney length constructed to **UL 103 Type HT 6** inch (152mm) inside diameter. Chimney needs to extend a minimum of 2 inches (51mm) from the interior wall and a minimum of 1 inch (25mm) from the exterior wall.

Wall spacer, trim collar and wall band to fit solid pack chimney selected.

Minimum 8 inch (203mm) diameter clay liner section (if not already present in chimney) and refractory mortar.

When jurisdiction requires install approved chimney liner in masonry chimney.

### Air Clearances

- Masonry chimney clearance must meet **NFPA 211** minimum requirement of 2 inches (51mm) to sheet metal supports and combustibles.
- Minimum of 1 inch (25mm) clearance around the chimney connector.
- Top of wall opening is a minimum of 13-1/2 inches (343mm) from ceiling or 4-1/2 inches (114mm) below minimum clearance specified by chimney connector manufacturer. **NFPA 211** minimum vertical clearance of 18 inches (457mm) from chimney connector and ceiling or minimum recommended by chimney connector manufacturer (**Figure 14.2**).

### Instructions:

1. Open inside wall at proper height for the chimney connector to entry the masonry chimney (**Figure 14.2**).
2. Entry hole to masonry chimney must be lined with an 8 inch (203mm) minimum diameter clay liner, or equivalent, secured with refractory mortar.
3. Construct a 17 inch x 17 inch (432mm x 432mm) outside dimension frame from 2 x 2 framing lumber to fit into wall opening. Inside opening of frame should be no less than 14 inch x 14 inch (356mm x 356mm) (**Figure 14.2**).
4. Attach the wall spacer to the chimney side of the frame.
5. Nail the frame into the wall opening. The spacer should be on the chimney side.
6. Insert the section of the solid insulated chimney into the outer wall of the masonry chimney.
7. Tightly secure the length of the solid insulated chimney with the wall band to the masonry chimney.
8. Insert a section of chimney connector into the chimney. Make sure it does not protrude past the edge of the clay chimney liner inside the chimney.
9. Seal the end of the chimney connector to the clay liner with refractory mortar.
10. Install trim collar around the solid pack chimney section.

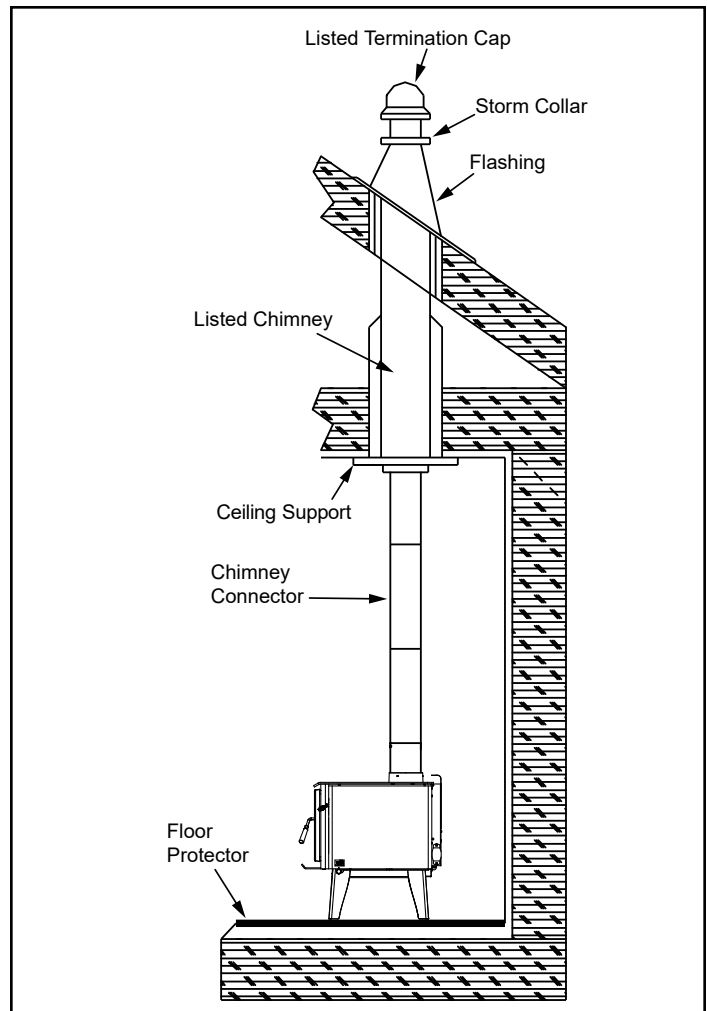


Figure 14.1 - Prefabricated Interior Chimney

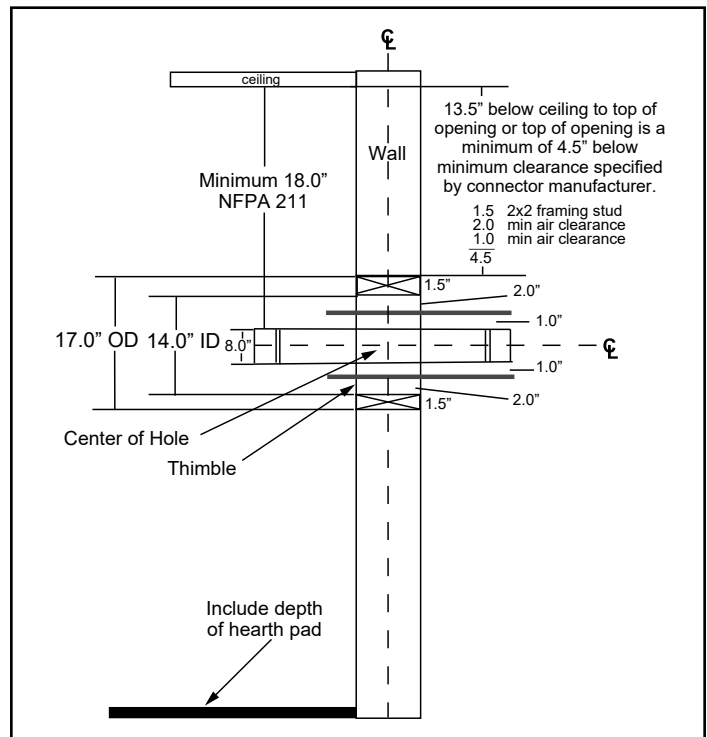


Figure 14.2

## Solid Pack Chimney with Metal Supports as a Thimble

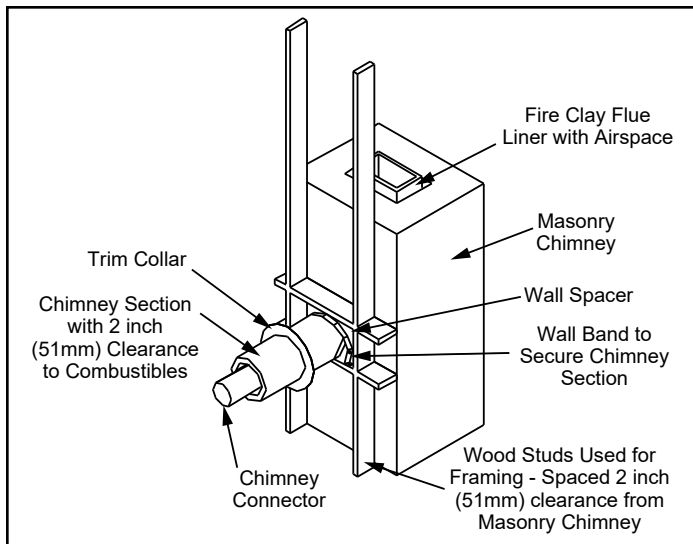




Figure 15.1



### WARNING



**Fire Risk.**  
Do NOT pack insulation or other combustibles between spacers.

- Always maintain specified clearances around venting and spacers.
- Install spacers as specified.

Failure to keep insulation or other material away from vent pipe may cause fire.

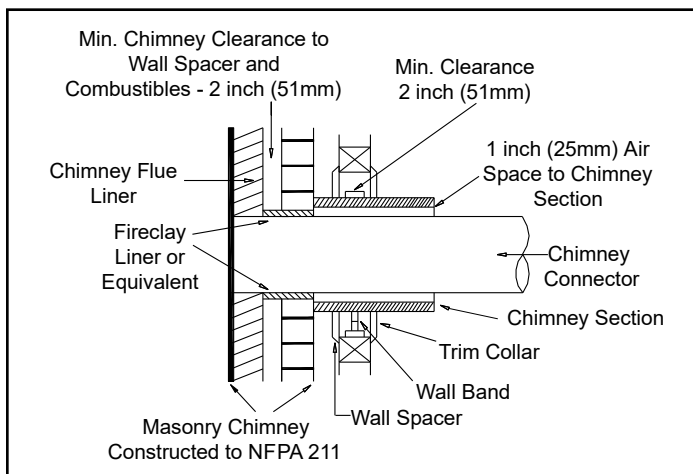


Figure 15.2

## G. Installing Chimney Components

### Chimney Connector

Single wall connector or appliance pipe.

This must be at least 24 gauge mild steel or 26 gauge blue steel. The sections must be attached to the appliance and to each other with the crimped (male) end pointing toward the appliance. All joints, including the connection at the tee collar, should be secured with 3 sheet metal screws. Make sure to follow the minimum clearances to combustibles. Where passage through the wall, or partition of combustible construction is desired in Canada, the installation shall conform to **CAN/CSA-B365**.

Factory-built listed chimney connector (vented).

A listed connector (vented) must be used when installing this appliance in a mobile home. The listed connectors must conform to each other to ensure a proper fit and seal.

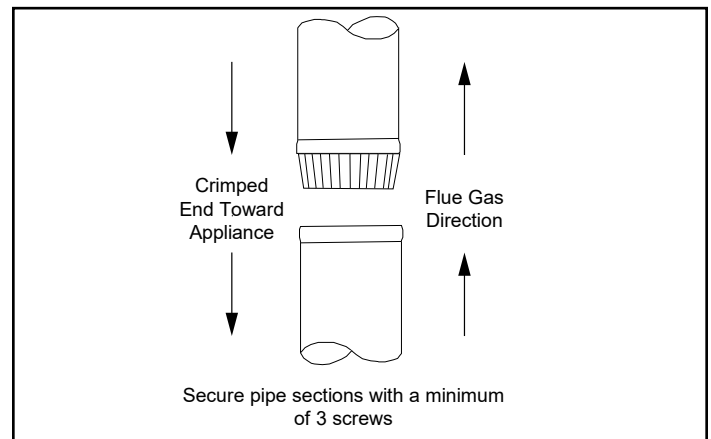




Figure 15.3 - Chimney Connector (Appliance Pipe)



### WARNING



**Fire Risk.**  
Follow Chimney Connector Manufacturer's Instructions for Proper Installation.

Never use connector:

- Within the room, between appliance and ceiling or wall.

Connector shall NOT pass through:

- Attic or roof space
- Closet or similar concealed space
- Floor or ceiling

Maintain minimum clearances to combustibles

## H. Proper Draft

To be sure that your Forge & Flame appliance burns properly, the chimney draft (static pressure) should be approximately -0.10 inches water column (W.C.) during a high burn and -0.04 inches W.C. during a low burn, measured 6 inches (152mm) above the top of the appliance after one hour of operation at each burn setting.

# 5 Appliance Set-Up

## A. Outside Air Kit Installation

A source of air (oxygen) is necessary in order for combustion to take place. Whatever combustion air is consumed by the appliance must be replaced. Air is replaced via air leakage around windows and under doors. In homes that have tightly sealed doors and windows, an outside air source is needed. An optional outside Air Kit is available.

### Items Needed for Installation (not supplied)

- 4 inch aluminum pipe, or if using alternate material, then it shall be made from durable, non-combustible, heat resistant material up to 350°F. Cut the pipe to the required length for your installation.
  - Phillips head screw driver
  - Silicone sealant
  - Drills and saws necessary for cutting holes through the wall or flooring in your home.
1. Remove all materials from packing box.
  2. Using a 2 Phillips screw driver attach the flex adapter to the appliance using 4 screws (**Figure 16.1**).

### 3. Floor & Rear Installation:

Cut a 4 inch 102mm hole in outside wall or floor to accommodate outside air piping. Use 4 inch (102mm) aluminum metal flex or rigid piping to directly connect outside air to appliance intake. Use the supplied termination cap with a rodent screen. Seal between the wall or floor and the pipe with silicone to prevent moisture penetration.

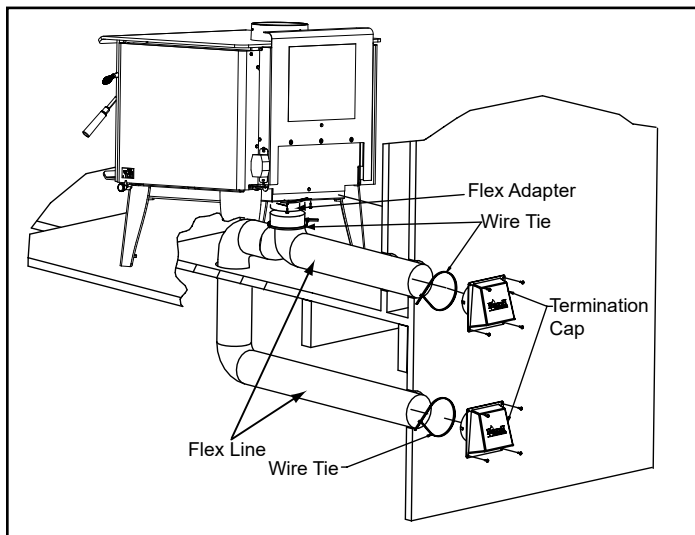






Figure 16.1 - Floor & Rear Installation

 <b>WARNING</b>	
	<b>Asphyxiation Risk.</b> outside air inlet must be located to prevent blockage from:
	<ul style="list-style-type: none"><li>• Leaves</li><li>• Snow or ice other debris</li></ul>
Block may cause combustion air starvation moisture spillage may set off alarms or irritate sensitive individuals.	

 <b>WARNING</b>	
	<b>Asphyxiation Risk.</b> length of outside air supply duct shall NOT exceed the length of the vertical height of the exhaust pipe.
	<ul style="list-style-type: none"><li>• Fire will not burn properly</li><li>• Smoke spillage occurs when door is opened due to air starvation.</li></ul>

# 6 Mobile Home Installation


You must use a **Outside Air Kit Part OAK-ACC**; and (depending on floor installation), **Part SRV7033-041** for installation in a mobile home.

1. An outside air inlet must be provided for combustion (See [page 16](#) for installation information).
2. Appliance must be secured to the mobile home structure by bolting the legs to the floor.
3. Appliance must be grounded with #8 solid copper grounding wire or equivalent and terminated at each end with N.E.C. approved grounding device.
4. Appliance must be installed with an approved **UL103 HT** ventilated chimney connector, **UL103 HT** chimney, and terminal cap with spark arrestor. Never use a single wall connector (appliance pipe) in a mobile home installation. Use only double-wall connector pipe, Dura-Vent DVL, Selkirk Metalbestos DS or Security DL double-wall connector or any listed double-wall connector pipe.
5. In Canada, this appliance must be connected to a 6 inch (152mm) factory-built chimney conforming to **CAN/ULC-629M, STANDARD FOR FACTORY BUILT CHIMNEYS**.
6. Follow the chimney and chimney connector manufacturer's instructions when installing the use system for use in a mobile home.
7. Maintain clearance to combustibles.
8. Floor protection requirements must be followed precisely.
9. Use silicone to create an effective vapor barrier at the location where the chimney or other component penetrates to the exterior of the structure.

**NOTE:** Rises from the vertical, not exceeding 45°, are allowed per **Section 905(a) of the Uniform Mechanical Code (UMC)**. Rises greater than 45° are considered horizontal and are also allowed, providing the horizontal run does not exceed 75% of the vertical height of the vent. Construction, clearance and termination must be in compliance with the **UMC Table 9C**. This installation must also comply with **NFPA 211**.

**NOTE:** Top sections of chimney must be removable to allow maximum clearance of 13.5 feet (411cm) from ground level for transportation purposes.

10. Burn seasoned cord wood only. Other types of fuels may generate poisonous gases (e.g., carbon monoxide).
11. If appliance burns poorly while an exhaust blower is on in home, (i.e., range hood), increase combustion air.
12. Installation shall be in accordance with the **Manufacturers Home & Safety Standard (HUD) CFR 3280, Part 24**.


 **CAUTION**


T E T C T A I N T E I T F T E B I E  
E F , A A N D C E I N F T

**BE MAINTAINED**


**Do NOT cut through:**


- Floor joist, wall, studs or ceiling trusses.
- Any supporting material that would affect the structural integrity.

 **WARNING**



**Asphyxiation Risk.**  
NE E I N T A I N A E E P I N  
Consumes oxygen in the room.

 **WARNING**



**Fire Risk.**  
Do Not use single wall connector pipe anywhere in a mobile home installation.









# FORGE & FLAME

## CONTACT INFORMATION

Hearth & Home Technologies  
 352 Mountain House Road  
 Halifax, PA 17032  
 Division of HNI INDUSTRIES

**Please contact your Forge & Flame dealer with any questions or concerns.  
 For the number of your nearest Forge & Flame dealer  
 log onto [www.forgenflame.com](http://www.forgenflame.com)**



## CAUTION



### DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.



**We recommend that you record the following pertinent information for your heating appliance.**

Date purchased/installed: \_\_\_\_\_

Serial Number: \_\_\_\_\_ Location on appliance: \_\_\_\_\_

Dealership purchased from: \_\_\_\_\_ Dealer Phone: 1( ) - \_\_\_\_\_

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

This product may be covered by one or more of the following patents: (United States) 5341794, 5263471, 6688302, 7216645, 7047962 or other U.S. and foreign patents pending.



HEARTH & HOME  
 technologies™

8390-078A

ITEM	PART NUMBER	PART NAME	QTY
1	7037-800	SERIAL RATING PLATE	1



**CAUTION:** HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN AND CLOTHING AWAY. CONTACT MAY CAUSE SKIN BURNS. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIAL FAR AWAY FROM THE APPLIANCE. SEE NAMEPLATE AND INSTRUCTIONS.

**ATTENTION:** CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. GARDEZ LES MEUBLES ET LES MATÉRIEAUX COMBUSTIBLES LOIN DE L'ESPACE DÉSIGNÉ DE L'APPAREIL. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.



Report / Rapport  
0061WS067S



Report / Rapport  
19-538

4300 ACC SERIES-C



TESTED TO/ TESTÉ À:  
UL 1482-11 (R2015), ULC S627-00.

Serial No. / N° de série

HF

BARCODE LABEL

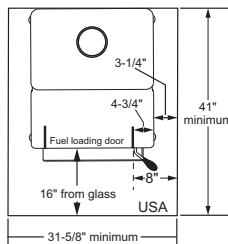
LISTED ROOM HEATER, SOLID FUEL TYPE. ALSO FOR USE IN MOBILE HOMES. (UM) 84 HUD / APPAREIL DE CHAUFFAGE DE PIÈCE, DE TYPE DE COMBUSTIBLE SOLIDE, POUR USAGE DANS LES MAISONS MOBILES. (UM) 84 HUD. "Pour Usage Avec Bois Solide Seulement"

**PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON**

Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and installation inspections in your area. Do not obstruct the space beneath heater. For use only with leg and pedestal options intended for this model, refer to owner's manual for appropriate part numbers and installation instructions. **WARNING - For Mobile Homes:** Do not install in a sleeping room. An outside combustion air inlet must be provided and unrestricted while unit is in use. The structural integrity of the mobile home floor, ceiling and walls must be maintained. The stove needs to be properly grounded to the frame of the mobile home. Components required for mobile home installation: Outside Air Kit, Part Number OAK-ACC. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling and maximum offsets. Inspect and clean chimney frequently - Under Certain Conditions of Use, Creosote Buildup May Occur Rapidly. Do not connect this unit to a chimney serving another appliance. Optional Components: Optional Blower, Part BK-ACC. Electrical Rating: 115 VAC, 1.2 Amps, 60 Hz. Route power cord away from unit. Do not route cord under or in front of appliance. **DANGER:** Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic available from your dealer. Do not use grate or elevate fire. Build wood fire directly on hearth. Do not overfire - if heater or chimney connector glows, you are overfiring. Operate only with the fuel loading door closed. Open only to add fuel to the fire. / Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruer l'espace en dessous de l'appareil. **AVIS - Pour Les Maisons Mobiles:** Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. L'appareil de chauffage doit être fixé à la charpente de la maison mobile. Les composants requis pour l'installation des maisons mobiles: Assemblage d'air extérieur, Numéro de Pièce OAK-ACC. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustibles, et les compensations maximums. Inspectez et nettoyez la cheminée fréquemment. Sous certaines conditions, il se peut que la créosote s'accumule rapidement. Ne pas connecter cet appareil à une cheminée servant un autre appareil. Composants Optionnels: Ventilateur Optionnel, Pièce BK-ACC. Puissance Electrique: 115 VAC, 1.2 Amps, 60 Hz.. Eloignez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. **DANGER:** Il y a risque de décharge électrique. Déconnectez le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. N'élevez pas le feu. Bâissez le feu de bois directement sur l'âtre. Ne pas surchauffer. Si l'appareil de chauffage ou le tuyau de cheminée rougissent, vous surchauffez. Opérez l'appareil seulement lorsque la porte de chargement est fermée. Ouvrez la porte seulement lorsque vous devez ajouter des combustibles dans le feu.

**EMBER PROTECTION:**

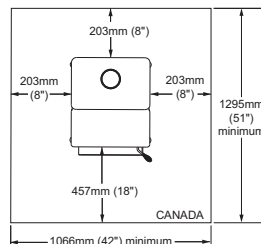
It is necessary to install a Type I floor protector. Floor protector must be non-combustible material, extending beneath appliance and to front/sides/rear as indicated on the diagram below. **Exception:** Non-combustible floor protections must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side.



Discovery III, Flat Top & Step Top

**PROTECTION DU PLANCHER:**

Le protecteur de plancher doit être d'un minimum de 3/8 inch (10mm) d'épaisseur de matériel incombustible ou équivalent, s'étendant du dessous de l'appareil de chauffage à l'avant, aux côtés et à l'arrière comme indiqué sur le diagramme suivant. **Exception:** Les protections incombustibles du plancher doivent s'étendre en dessous du conduit de cheminée lorsqu'installées avec une ventilation à l'horizontale et s'étendre de 2 inches (51mm) de chaque côté.



Discovery III, Flat Top & Step Top

2020	JAN	FEB	MAR	APR	4300 MILLENNIUM-C	Manufactured by: Fabriqué par:
2021	MAY	JUN	JUL	AUG	4300 STEP TOP-C	
2022	SEP	OCT	NOV	DEC	DISCOVERY III-C	



352 Mountain House Road,  
Halifax, PA 17032  
www.quadrafire.com

Made in U.S.A. of US and imported parts.

Fabriqué aux États-Unis-d'Amérique par des pièces d'origine américaine et pièces importées.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
Certified to comply with 2020 particulate emission standards at 1.6 g/hr EPA Method 28 and 5G.  
This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

7037-800A

**VENT SPECIFICATIONS: / SPÉCIFICATIONS DE LA VENTILATION:**

**SINGLE WALL:** Six inch (6 inches) (152mm) diameter, minimum 24 MSG black or blue steel connector pipe, with a listed factory-built UL103HT\* Class "A" chimney, suitable for use with solid fuels, or a masonry chimney, and the referenced clearances. / **MUR SIMPLE:** De six (6 inches) (152mm) de diamètre le connecteur de conduit de minimum d'acier noir ou bleu de minimum de 24MSG, avec une cheminée bâtit en usine UL103HT\* de Classe "A", adéquate pour usage avec les combustions solides, ou une cheminée de briques, avec espaces libres référés.

**DOUBLE WALL:** Six inch (6 inches) (152mm) diameter, listed double wall air insulated connector pipe with listed factory-built UL103HT\* Class "A" chimney, or a masonry chimney and the referenced clearances. / **MUR DOUBLE:** De six (6 inches) (152mm) de diamètre, le connecteur de conduit d'air isolé pour mur double avec une cheminée bâtit en usine UL103HT\* de Classe "A", ou une cheminée de briques, avec espaces libres alloués.

**MOBILE HOME:** Use double wall pipe by Dura-Vent DVL, Selkirk Metalbestos DS or Security DL double wall connector pipe. Must be equipped with a spark arrestor. Apply double wall clearances below when installing unit. / **MAISON MOBILE:** Utiliser un conduit de mur double par Dura-Vent DVL, Selkirk Metalbestos DS ou Security DL. Doit être équipé d'un arrêt d'étincelle. Utiliser les espaces libres pour mur double comme mentionné ci-bas.

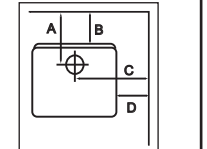
**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS: In Inches & (Millimeters) / ESPACES LIBRES MINIMUM DES MATÉRIEAUX COMBUSTIBLES: En Pouces & (millimètres)**

**NOTE:** All "A", "C" and "F" Dimensions are to inside diameter of the flue collar. / **NOTE:** Toutes les dimensions "A", "C", et "F" sont à partir du diamètre intérieur de l'entrée du conduit.

**INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FT VERTICAL OFF STOVE TOP / INSTALLATION: ENTIÈREMENT VERTICALE OU HORIZONTALE AVEC 609mm VERTICAL MINIMUM DU HAUT DU POÊLE**

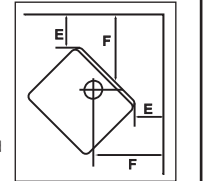
SINGLE WALL PIPE	A	B	C	D	E	F	G	H	CONDUIT DU MUR DOUBLE
Discovery III Model	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Millennium Model	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Step Top Model	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	2.5 (64)	15 (381)	49.5 (1283)	12 (305)	Modèle au dessus en escalier

**BACKWALL/SIDEWALL MUR ARRIÈRE/MUR DE CÔTÉ**



DOUBLE WALL PIPE	A	B	C	D	E	F	G	H	CONDUIT DU MUR DOUBLE
Discovery III Model	12 (305)	5.25 (133)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Millennium Model	12 (305)	5.25 (133)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Step Top Model	10.5 (267)	3.75 (95)	25 (635)	12 (305)	2.5 (63.5)	15 (381)	49.5 (1283)	5 (127)	Modèle au dessus en escalier

**CORNER INSTALLATION/ INSTALLATION DU COIN**



**INSTALLATION: 90° ELBOW OFF TOP OF STOVE THROUGH BACKWALL / INSTALLATION: 90° DU COURBURE AU DESSUS DE HAUT DU POÊLE A TRAVERS LE MUR ARRIÈRE**

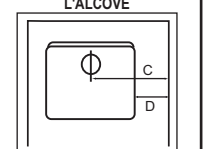
DOUBLE WALL PIPE	A	B	C	D	E	F	G	H	CONDUIT DU MUR DOUBLE
Discovery III Model	11.5 (292)	4.75 (121)	27.5 (699)	15 (381)	14.5 (368)	20.5 (521)	53.5 (1359)	N/A	Modèle au dessus en appartement
4300 Millennium Model	11.5 (292)	4.75 (121)	27.5 (699)	15 (381)	14.5 (368)	20.5 (521)	53.5 (1359)	N/A	Modèle au dessus en appartement
4300 Step Top Model	10.5 (267)	3.75 (95)	22 (559)	9 (229)	9 (229)	15 (381)	49.5 (1283)	5 (127)	Modèle au dessus en escalier

**INSTALLATION: ALCOVE -** Six inch (6 inches) (152mm) diameter listed DOUBLE WALL air insulated connector pipe with UL103 HT\*\* listed factory-built Class "A" chimney, or a masonry chimney. (Mobile Home must be equipped with a spark arrestor.) Maximum depth of Alcove shall be no more than 48 inches (1219mm) and the referenced alcove clearances.

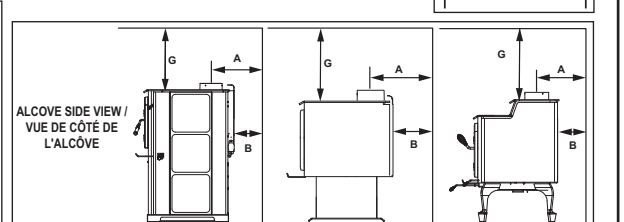
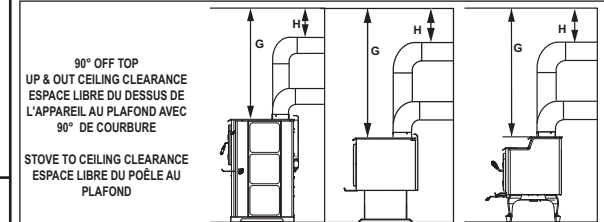
**INSTALLATION: L'ALCÔVE -** Six pouces (6 pouces) (152mm) de diamètre listé air isolé tuyau de raccordement à double paroi avec UL103 HT\*\* cotée Classe usine construite "A" cheminée ou une cheminée de maçonnerie. (Mobile Home doit être équipé d'un pare-étincelles.) Profondeur maximale de Alcove ne doit pas être plus de 48 pouces (1219mm) et les dégagements en alcôve référencés.

DOUBLE WALL PIPE	A	B	C	D	E	F	G	H	CONDUIT DU MUR DOUBLE
Discovery III Model	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Millennium Model	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Step Top Model	10.5 (267)	3.75 (95)	25 (635)	12 (305)	N/A	N/A	49.5 (1257)	5 (127)	Modèle au dessus en escalier

**ALCOVE TOP VIEW / VUE DU HAUT DE L'ALCÔVE**



\*In Canada must comply with Standard CAN/ULC-S629-M87 for the 650°C Factory-built chimney.  
\*Au Canada doit conformer a CAN/ULC-S629-M87 la norme pour 650°C cheminée bâtit en usine.



- NOTE:**
1. MATERIAL: NON-ANODIZED ALUMINUM 0.020 THICK
  2. BACKGROUND: SILVER
  3. COPY: BLACK & RED
  4. ADHESIVE: 3M #468 PERMANENT ACRYLIC
  5. TEMPERATURE RATING: -50 F TO 350 F

UNLESS OTHERWISE SPECIFIED DIMS ARE INCHES[MM] & TOLERANCES ARE: (2) PLACE DEC: ± 0.03 (3) PLACE DEC: ± 0.005 ANGLE: ± 2° FRACTION: ± 1/16  
← OUTSIDE MATERIAL. ← NORMAL DIM & INSIDE MATERIAL. ← OUTSIDE APEX ← INSIDE APEX - DIMS ENCLOSED BY AN OVAL ARE CRITICAL DIMENSIONS



PART NAME: <b>4300 ACC SERIES-C, SERIAL LABEL (10"X8")</b>			
DRAWN BY: <b>IJW</b>	SCALE: <b>NTS</b>	MATERIAL: <b>SEE NOTE</b>	
THIS PRINT IS CHECKED AND CONTROLLED BY THE ENGINEERING DEPARTMENTS OF HEARTH & HOME TECHNOLOGIES INC.		SHEET: <b>1 OF 1</b>	PART NUMBER: <b>7037-800</b>
CONFIDENTIAL PROPERTY OF HEARTH & HOME TECHNOLOGIES INC.		REV: <b>A</b>	

REV	RELEASED TO TOOLING	REVISIONS	ECO #	DATE	BY
A	RELEASED TO TOOLING		89569	12/18/19	IJW



**CAUTION:** HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN AND CLOTHING AWAY. CONTACT MAY CAUSE SKIN BURNS. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIAL FAR AWAY FROM THE APPLIANCE. SEE NAMEPLATE AND INSTRUCTIONS.

**ATTENTION:** CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. GARDEZ LES MEUBLES ET LES MATÉRIAUX COMBUSTIBLES LOIN DE L'ESPACE DÉSIGNÉ DE L'APPAREIL. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.



Report / Rapport  
0061WS067S



Report / Rapport  
19-538

**4300 ACC SERIES-C**



TESTED TO/ TESTÉ À:  
UL 1482-11 (R2015), ULC S627-00.

Serial No. / N° de série

HF

BARCODE LABEL

LISTED ROOM HEATER, SOLID FUEL TYPE. ALSO FOR USE IN MOBILE HOMES. (UM) 84 HUD / APPAREIL DE CHAUFFAGE DE PIÈCE, DE TYPE DE COMBUSTIBLE SOLIDE, POUR USAGE DANS LES MAISONS MOBILES. (UM) 84 HUD. "Pour Usage Avec Bois Solide Seulement"

**PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON**

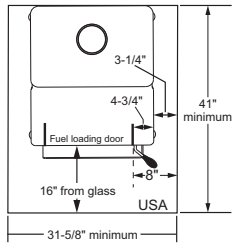
Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and installation inspections in your area. Do not obstruct the space beneath heater. For use only with leg and pedestal options intended for this model, refer to owner's manual for appropriate part numbers and installation instructions. **WARNING - For Mobile Homes:** Do not install in a sleeping room. An outside combustion air inlet must be provided and unrestricted while unit is in use. The structural integrity of the mobile home floor, ceiling and walls must be maintained. The stove needs to be properly grounded to the frame of the mobile home. Components required for mobile home installation: Outside Air Kit, Part Number OAK-ACC. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling and maximum offsets. Inspect and clean chimney frequently - Under Certain Conditions of Use, Creosote Buildup May Occur Rapidly. Do not connect this unit to a chimney serving another appliance. Optional Components: Optional Blower, Part BK-ACC. Electrical Rating: 115 VAC, 1.2 Amps, 60 Hz. Route power cord away from unit. Do not route cord under or in front of appliance. **DANGER:** Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic available from your dealer. Do not use grate or elevate fire. Build wood fire directly on hearth. Do not overfire - if heater or chimney connector glows, you are overfiring. Operate only with the fuel loading door closed. Open only to add fuel to the fire. / Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruer l'espace en dessous de l'appareil. **AVIS - Pour Les Maisons Mobiles:** Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. L'appareil de chauffage doit être fixé à la charpente de la maison mobile. Les composants requis pour l'installation des maisons mobiles: Assemblage d'air extérieur, Numéro de Pièce OAK-ACC. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustibles, et les compensations maximums. Inspectez et nettoyez la cheminée fréquemment. Sous certaines conditions, il se peut que la créosote s'accumule rapidement. Ne pas connecter cet appareil à une cheminée servant un autre appareil, Composants Optionnels: Ventilateur Optionnel, Pièce BK-ACC. Puissance Electrique: 115 VAC, 1.2 Amps, 60 Hz. Eloignez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. **DANGER:** Il y a un risque de décharge électrique. Déconnectez le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. N'élevez pas le feu. Bâtiissez le feu de bois directement sur l'âtre. Ne pas surchauffer. Si l'appareil de chauffage ou le tuyau de cheminée rougissent, vous surchauffez. Opérez l'appareil seulement lorsque la porte de chargement est fermée. Ouvrez la porte seulement lorsque vous devez ajouter des combustibles dans le feu.

**EMBER PROTECTION:**

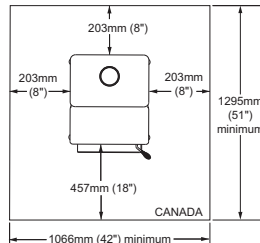
It is necessary to install a Type I floor protector. Floor protector must be non-combustible material, extending beneath appliance and to front/sides/rear as indicated on the diagram below. **Exception:** Non-combustible floor protections must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side.

**PROTECTION DU PLANCHER:**

Le protecteur de plancher doit être d'un minimum de 3/8 inch (10mm) d'épaisseur de matériel incombustible ou équivalent, s'étendant du dessous de l'appareil de chauffage à l'avant, aux côtés et à l'arrière comme indiqué sur le diagramme suivant. **Exception:** Les protections incombustibles du plancher doivent s'étendre en dessous du conduit de cheminée lorsqu'installées avec une ventilation à horizontale et s'étendre de 2 inches (51mm) de chaque côté.



Discovery III, Flat Top & Step Top



Discovery III, Flat Top & Step Top

2020	JAN	FEB	MAR	APR
2021	MAY	JUN	JUL	AUG
2022	SEP	OCT	NOV	DEC

4300 MILLENNIUM-C
4300 STEP TOP-C
DISCOVERY III-C

Manufactured by:  
Fabriqué par:



352 Mountain House Road,  
Halifax, PA 17032  
www.quadrafire.com

Made in U.S.A. of US and imported parts.

Fabriqué aux États-Unis-d'Amérique par des pièces d'origine américaine et pièces importées.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
Certified to comply with 2020 particulate emission standards at 1.6 g/hr EPA Method 28 and 5G.

This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

**VENT SPECIFICATIONS: / SPÉCIFICATIONS DE LA VENTILATION:**

**SINGLE WALL:** Six inch (6 inches) (152mm) diameter, minimum 24 MSG black or blued steel connector pipe, with a listed factory-built UL103HT™ Class "A" chimney, suitable for use with solid fuels, or a masonry chimney, and the referenced clearances. / **MUR SIMPLE:** De six (6 inches) (152mm) de diamètre le connecteur de conduit de minimum d'acier noir ou bleu de minimum de 24MSG, avec une cheminée bâtit en usine UL103HT™ de Classe "A", adéquate pour usage avec les combustions solides, ou une cheminée de briques, avec espaces libres référés.

**DOUBLE WALL:** Six inch (6 inches) (152mm) diameter, listed double wall air insulated connector pipe with listed factory-built UL103HT™ Class "A" chimney, or a masonry chimney and the referenced clearances. / **MUR DOUBLE:** De six (6 inches) (152mm) de diamètre, le connecteur du conduit d'air isolé pour mur double avec une cheminée bâtit en usine UL103HT™ de Classe "A", ou une cheminée de briques, avec espaces libres alloués.

**MOBILE HOME:** Use double wall pipe by Dura-Vent DVL, Selkirk Metalbestos DS or Security DL double wall connector pipe. Must be equipped with a spark arrestor. Apply double wall clearances below when installing unit. / **MAISON MOBILE:** Utiliser un conduit de mur double par Dura-Vent DVL, Selkirk Metalbestos DS ou Security DL. Doit être équipé d'un arrêt d'étrincelle. Utiliser les espaces libres pour mur double comme mentionné ci-bas.

**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS: In Inches & (Millimeters) / ESPACES LIBRES MINIMUM DES MATÉRIAUX COMBUSTIBLES: En Pouces & (millimètres)**

**NOTE:** All "A", "C" and "F" Dimensions are to inside diameter of the flue collar. / **NOTE:** Toutes les dimensions "A", "C", et "F" sont à partir du diamètre intérieur de l'entrée du conduit.

**INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FT VERTICAL OFF STOVE TOP / INSTALLATION: ENTIÈREMENT VERTICALE OU HORIZONTALE AVEC 609mm VERTICAL MINIMUM DU HAUT DU POÊLE**

**SINGLE WALL PIPE**

	A	B	C	D	E	F	G	H
Discovery III Model	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
4300 Millennium Model	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
4300 Step Top Model	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	2.5 (64)	15 (381)	49.5 (1283)	12 (305)

**DOUBLE WALL PIPE**

Discovery III Model	12 (305)	5.25 (133)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
4300 Millennium Model	12 (305)	5.25 (133)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
4300 Step Top Model	10.5 (267)	3.75 (95)	25 (635)	12 (305)	2.5 (63.5)	15 (381)	49.5 (1283)	5 (127)

**INSTALLATION: 90° ELBOW OFF TOP OF STOVE THROUGH BACKWALL / INSTALLATION: 90° DU COURBURE AU DESSUS DE HAUT DU POÊLE A TRAVERS LE MUR ARRIÈRE**

**DOUBLE WALL PIPE**

Discovery III Model	11.5 (292)	4.75 (121)	27.5 (699)	15 (381)	14.5 (368)	20.5 (521)	53.5 (1359)	N/A
4300 Millennium Model	11.5 (292)	4.75 (121)	27.5 (699)	15 (381)	14.5 (368)	20.5 (521)	53.5 (1359)	N/A
4300 Step Top Model	10.5 (267)	3.75 (95)	22 (559)	9 (229)	9 (229)	15 (381)	49.5 (1283)	5 (127)

**INSTALLATION: ALCOVE -** Six inch (6 inches) (152mm) diameter listed DOUBLE WALL air insulated connector pipe with UL103 HT™ listed factory-built Class "A" chimney, or a masonry chimney. (Mobile Home must be equipped with a spark arrestor.) Maximum depth of Alcove shall be no more than 48 inches (1219mm) and the referenced alcove clearances.

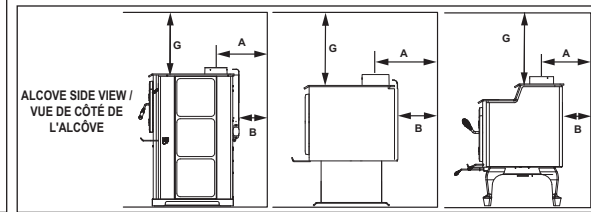
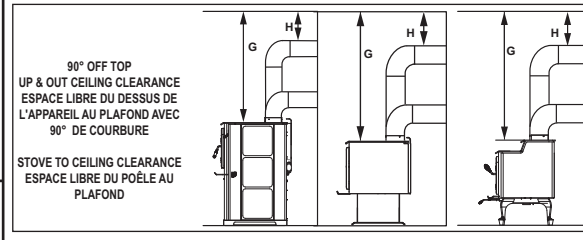
**INSTALLATION: ALCÔVE -** Six pouces (6 pouces) (152mm) de diamètre liste air isolé tuyau de raccordement à double paroi avec UL103 HT™ cotée Classe usine construite "A" cheminée ou une cheminée de maçonnerie. (Mobile Home doit être équipé d'un pare-étincelles.) Profondeur maximale de Alcove ne doit pas être plus de 48 pouces (1219mm) et les dégagements en alcôve référencés.

**DOUBLE WALL PIPE**

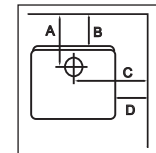
Discovery III Model	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)
4300 Millennium Model	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)
4300 Step Top Model	10.5 (267)	3.75 (95)	25 (635)	12 (305)	N/A	N/A	49.5 (1283)	5 (127)

\*In Canada must comply with Standard CAN/ULC-S629-M87 for the 650°C Factory-built chimney.

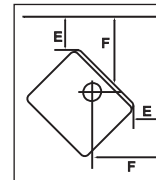
\*Au Canada doit conformer a CAN/ULC-S629-M87 la norme pour 650°C cheminée bâtit en usine.



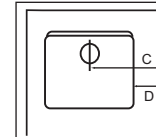
**BACKWALL/SIDEWALL MUR ARRIÈRE/MUR DE CÔTÉ**



**CORNER INSTALLATION/INSTALLATION DU COIN**



**ALCOVE TOP VIEW / VUE DU HAUT DE L'ALCÔVE**



# Installation Manual

## Installation & Appliance Set-Up

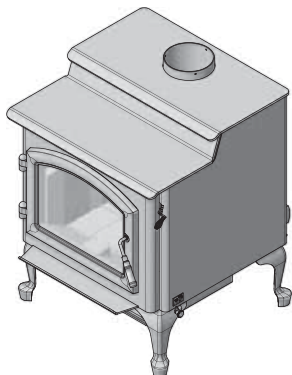
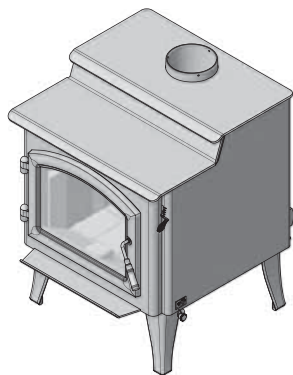
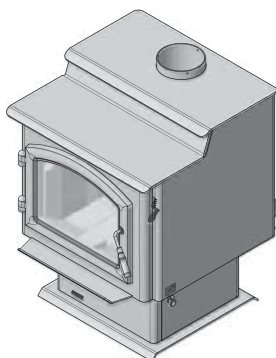
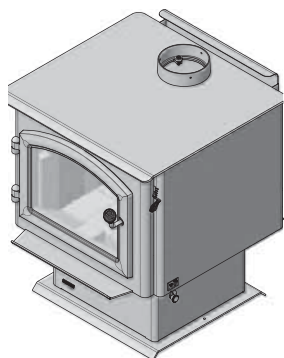
**INSTALLER:** Leave this manual with party responsible for use and operation.  
**OWNER:** Retain this manual for future reference.

**NOTICE: DO NOT DISCARD THIS MANUAL**

# QUADRA-FIRE®

**4300 WOOD APPLIANCE SERIES  
 AUTOMATIC COMBUSTION  
 CONTROL (ACC)**

**MODELS:  
 43M-ACC-C  
 43ST-ACC-C**



Installation and service of this appliance should be performed by qualified personnel. Hearth Home Technologies recommends Factory Trained or NFI certified professionals.



### WARNING



If the information in these instructions is not followed exactly, a fire could result causing property damage, personal injury, or death.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

Do not over fire - If appliance or chimney connector glows, you are over firing. Over firing will void your warranty.

Comply with all minimum clearances to combustibles as specified. Failure to comply may cause house fire.



### WARNING



#### HOT SURFACES!

Glass and other surfaces are hot during operation AND cool down.

#### Hot glass and appliance will cause burns.

Do not touch glass until it is cooled  
 Use leather gloves when reloading fuel  
 NEVER allow children to touch glass  
 Keep children away

CAUTION: NEVER allow children in same room as appliance.

Alert children and adults to hazards of high temperatures  
 High temperatures may ignite clothing or other flammable materials.

Keep clothing, furniture, draperies and other flammable materials away.



### WARNING



#### Fire Risk.

For use with solid wood fuel only.  
 Other fuels may over fire and generate poisonous gases (i.e. carbon monoxide).

**NOTE:** To obtain a French translation of this manual, please contact your dealer or visit [www.quadrafire.com](http://www.quadrafire.com)

**REMARQUE :** Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez [www.quadrafire.com](http://www.quadrafire.com)

**Safety Alert Key:**



- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided may result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

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# 1 Important Safety Information

## A. Appliance Certification

<b>Model:</b>	4300 Millennium & Step Top (ACC)
<b>Safety Laboratory:</b>	OMNI Test Laboratories, Inc.
<b>Report No:</b>	0061WS067S
<b>Type:</b>	Listed Room Appliance, Solid Fuel Type
<b>Standard:</b>	UL1482-11 (R2015) and ULC S627-00 and (UM) 84-HUD, Mobile Home Approved.

## B. BTU & Efficiency Specifications

<b>EPA Certification Number:</b>	Number: N/A
<b>EPA Certified Emissions:</b>	1.6 grams per hour
<b>*LHV Tested Efficiency:</b>	80.2%
<b>**HHV Tested Efficiency:</b>	74.2%
<b>***EPA BTU Output:</b>	13,200 to 36,800 / hr.
<b>****Peak BTU/Hour Output:</b>	61,700
<b>Vent Size:</b>	6 inches
<b>Firebox Size:</b>	2.26 cubic feet
<b>Recommended Log Length</b>	18 inches
<b>Fuel:</b>	Seasoned Cordwood (20% moisture)
*Weighted average LHV (Low Heating Value) efficiency using Douglas Fir dimensional lumber and data collected during EPA emission test. LHV assumes the moisture is already in a vapor state so there is no loss in energy to vaporize.	
**Weighted average HHV (High Heating Value) efficiency using Douglas Fir dimensional lumber and data collected during EPA emission test. HHV includes the energy required to vaporize the water in the fuel.	
***A range of BTU outputs calculated using HHV Efficiency and the burn rates from the EPA tests, using Douglas Fir dimensional lumber.	
****A peak BTU out of the appliance calculated using the maximum first hour burn rate from the High EPA Test and BTU content of seasoned cordwood (8600) times the efficiency.	

This 4300 Series is Certified to comply with 2020 crib wood particulate emission standards.



This wood appliance needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

**NOTE:** This installation must conform with local codes. In the absence of local codes you must comply with **(UM) 84-HUD and NFPA211 in the U.S.A. and CAN/CSA-B365 Installation Codes in Canada.**

### C. Mobile Home Approved

- This appliance is approved for mobile home installations; when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire.
- Outside Air Kit, part OAK-ACC must be installed in a mobile home installation.

### D. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

### E. Non-Combustible Materials

Material which will not ignite and burn, composed of any combination of the following:

- Steel
- Plaster
- Brick
- Iron
- Concrete
- Tile
- Glass
- Slate

Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace of 750° C.**

### F. Combustible Materials

Material made of/or surfaced with any of the following materials:


- Wood
- Compressed Paper
- Plant Fibers
- Plastic
- Plywood/OSB
- Sheet Rock (drywall)



**Any material that can ignite and burn:** flame proofed or not, plastered or non-plastered.

### G. Sleeping Room

When installed in a sleeping room it is recommended that a smoke and/or CO alarm be installed in the bedroom. The size of the room must be at least 50ft<sup>3</sup> per 1,000 Btu/hr stove input, if the stove exceeds the room size, out side air must be installed.

### H. California - Prop65

 <b>WARNING</b>
This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: <a href="http://WWW.P65Warnings.ca.gov">WWW.P65Warnings.ca.gov</a>

 <b>WARNING</b>
 <b>Fire Risk</b> Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:
<ul style="list-style-type: none"><li>• Installation and use of any damaged appliance.</li><li>• Modification of the appliance.</li><li>• Installation other than as instructed by Hearth &amp; Home Technologies.</li><li>• Installation and/or use of any component part not approved by Hearth &amp; Home Technologies.</li><li>• Operating appliance without fully assembling all components.</li><li>• Operating appliance without legs attached (if supplied with appliance).</li><li>• <u>Do NOT Over fire</u> - If appliance or chimney connector glows, you are over firing.</li></ul> Any such action that may cause a fire hazard.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

<b>NOTE:</b> Hearth & Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and/or price without notice.
--

Hearth & Home Technologies WILL NOT warranty appliances that exhibit evidence of over-firing. Evidence of over-firing includes, but is not limited to:
<ul style="list-style-type: none"><li>• Warped air tube</li><li>• Deteriorated refractory brick retainers</li><li>• Deteriorated baffle and other interior components</li></ul>

# Install Guide

## 2 Getting Started

### A. Design and Installation Considerations

Consideration must be given to:

- Safety
- Convenience
- Traffic flow
- Chimney and chimney connector required

It is a good idea to plan your installation on paper, using exact measurements for clearances and floor protection, before actually beginning the installation. If you are not using an existing chimney, place the appliance where there will be a clear passage for a factory-built listed chimney through the ceiling and roof.

We recommend that a qualified building inspector and your insurance company representative review your plans before and after installation.

If this appliance is in an area where children may be near it is recommended that you purchase a decorative barrier to go in front of the appliance. Remember to always keep children away while it is operating and do not let anyone operate this appliance unless they are familiar with these operating instructions.



#### CAUTION

##### Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.



#### WARNING



##### Asphyxiation Risk.

- Do NOT connect this appliance to a chimney flue servicing another appliance.
- Do NOT connect to any air distribution duct or system.

May allow flue gases to enter the house.

**NOTICE:** Hearth & Home Technologies assumes no responsibility for the improper performance of the appliance system caused by:

- Inadequate draft due to environmental conditions
- Down drafts
- Tight sealing construction of the structure
- Mechanical exhausting devices
- Over drafting caused by excessive chimney heights
- Ideal performance is with height of chimney between 14-16 feet (4.26-4.88m) measured from the base of the appliance.

### B. Fire Safety

To provide reasonable fire safety, the following should be given serious consideration:

1. Install at least one smoke detector on each floor of your home to ensure your safety. They should be located away from the heating appliance and close to the sleeping areas. Follow the smoke detector manufacturer's placement and installation instructions, and be sure to maintain regularly.
2. A conveniently located Class A fire extinguisher to contend with small fires resulting from burning embers.
3. A CO detector should be installed in the room with the appliance.
4. A practiced evacuation plan, consisting of at least two escape routes.
5. A plan to deal with a chimney fire as follows:
  - In the event of a chimney fire:
    - Evacuate the house immediately
    - Notify fire department.

### C. Negative Pressure



#### WARNING



##### Asphyxiation Risk.

- Negative pressure can cause spillage of combustion fumes, soot and carbon monoxide.
- Appliance needs to draft properly for safety.

Negative pressure results from the imbalance of air available for the appliance to operate properly. It can be strongest in lower levels of the house.

##### Causes include:

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water appliances and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
  - Recessed lighting
  - Attic hatch
  - Duct leaks



**To minimize the effects of negative air pressure:**

- Install optional outside air kit with the intake facing prevailing winds during the heating season
- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the appliance
- Avoid installing the appliance near doors, walkways or small isolated spaces
- Recessed lighting should be a “sealed can” design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed
- Basement installations should be avoided

**E. Inspection of Appliance and Components**

- Remove appliance and components from packaging and inspect for damage.
- Report to your dealer any parts damaged in shipment.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**



**WARNING**



**Fire Risk.**

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with appliance).
- Do NOT Over fire - If appliance or chimney connector glows, you are over firing.

**Any such action that may cause a fire hazard.**

**D. Tools And Supplies Needed**

Before beginning the installation be sure the following tools and building supplies are available:

- Reciprocating saw
- Framing material
- Pliers
- High temp caulking material
- Hammer
- Gloves
- Phillips screwdriver
- Framing square
- Flat blade screwdriver
- Electric drill and bits
- Plumb line
- Safety glasses
- Level
- Tape measure
- Miscellaneous screws and nails
- 7/16 socket or wrench
- 1/2-3/4 in. length, #6 or #8 self-drilling screws

## F. Removal of Appliance from Shipping Materials



### WARNING



#### Fire Risk.

Inspect appliance and components for damage. Damaged parts may impair safe operation.

- Do NOT install damaged components.
- Do NOT install incomplete components.
- Do NOT install substitute components.

Report damaged parts to dealer.

#### Millennium:

1. Remove box and 2x4 structural boards being careful not to damage product.
2. Using 7/16 inch socket or wrench remove one bolt located inside front part of appliance (**Figure 7.1**).
3. Moving to the back of the appliance and using 7/16 inch socket or wrench remove two bolts (**Figure 7.1**).
4. Carefully pull appliance off of pallet and put in desired location following Hearth Pad and Clearance to Combustibles on page 13.

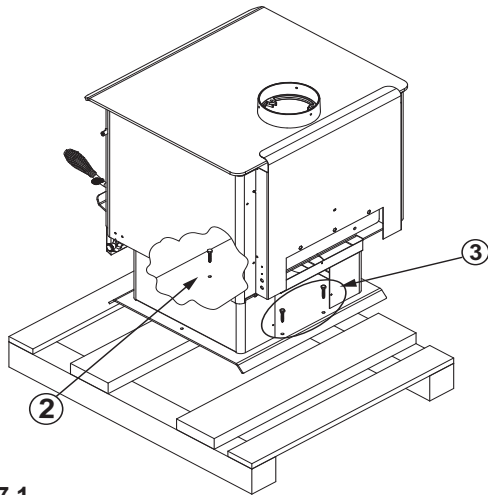


Figure 7.1

#### Step Top:

1. Remove box and 2x4 structural boards being careful not to damage product.
2. Using 7/16 inch socket or wrench, remove and discard the two lag bolts from mounting brackets; one on each side, that is attaching the appliance to the pallet (**Figure 7.2**).
3. Carefully pull appliance off of pallet and lay appliance on back side on a protective surface.
4. Reference Section 5, Appliance Set-Up on page 21 for ash removal system, leg or pedestal attachment options.
5. After appliance is completely assembled place in desired location following Hearth Pad and Clearance to Combustibles on starting on page 13.

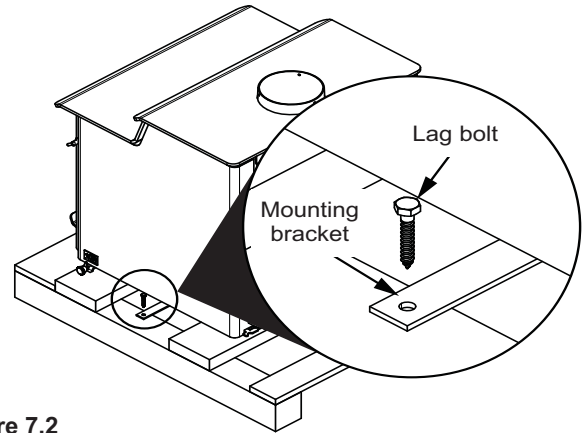


Figure 7.2

**G. Install Checklist**

**ATTENTION INSTALLER:**  
Follow this Standard Work Checklist

This standard work checklist is to be used by the installer in conjunction with, not instead of, the instructions contained in this installation manual.

Customer: \_\_\_\_\_  
 Date Installed: \_\_\_\_\_  
 Lot / Address: \_\_\_\_\_  
 Location of Appliance: \_\_\_\_\_  
 Installer: \_\_\_\_\_  
 Dealer / Distributor Phone #: \_\_\_\_\_  
 Serial #: \_\_\_\_\_  
 Model: \_\_\_\_\_

**WARNING! Risk of Fire or Explosion!** Failure to install appliance according to these instructions can lead to a fire or explosion.

**Appliance Install**

Verified clearances to combustibles.  
 Appliance is leveled and connector is secured to appliance.  
 Hearth extension size/height decided.  
 Outside air kit installed.  
 Floor protection requirements have been met.  
 If appliance is connected to a masonry chimney, it should be cleaned and inspected by a professional. If installed to a factory built metal chimney, the chimney must be installed according to the manufacturer's instructions and clearances.

YES	IF NO, WHY?
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

**Chimney**

Chimney configuration complies with diagrams.  
 Chimney installed, locked and secured in place with proper clearance.  
 Chimney meets recommended height requirements (14-16 feet).  
 Roof flashing installed and sealed.  
 Terminations installed and sealed.

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

**Clearances**

Combustible materials not installed in non-combustible areas.  
 Verified all clearances meet installation manual requirements.  
 Mantels and wall projections comply with installation manual requirements.  
 Protective hearth strips and hearth extension installed per manual requirements.

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

**Appliance Setup**

All packaging and protective materials removed.  
 Firebrick, baffle and ceramic blanket installed correctly.  
 All labels have been removed from the door.  
 All packaging materials are removed from inside/under the appliance.  
 Manual bag and all of its contents are removed from inside/under the appliance and given to the party responsible for use and operation.

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

Hearth & Home Technologies recommends the following:

- Photographing the installation and copying this checklist for your file.
- That this checklist remain visible at all times on the appliance until the installation is complete.

Comments: Further description of the issues, who is responsible (Installer/Builder/Other Trades, etc.) and corrective action needed:  
 Comments communicated to party responsible \_\_\_\_\_ by \_\_\_\_\_ on \_\_\_\_\_  
 (Builder / Gen. Contractor) (Installer) (Date)

# 3 Dimensions and Clearances

## A. Appliance Dimensions

**NOTE:** Flue Collar size is 6 inch (152mm) diameter (ID)

### 4300 MILLENNIUM PEDESTAL MODEL

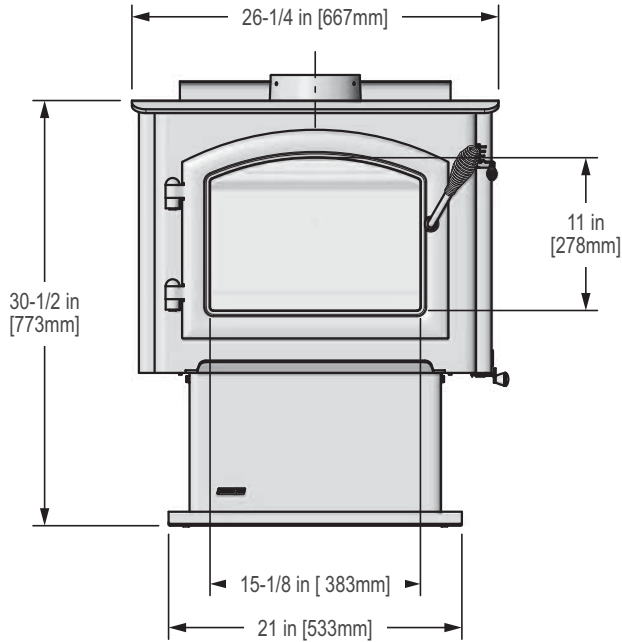


Figure 9.1 - Front View

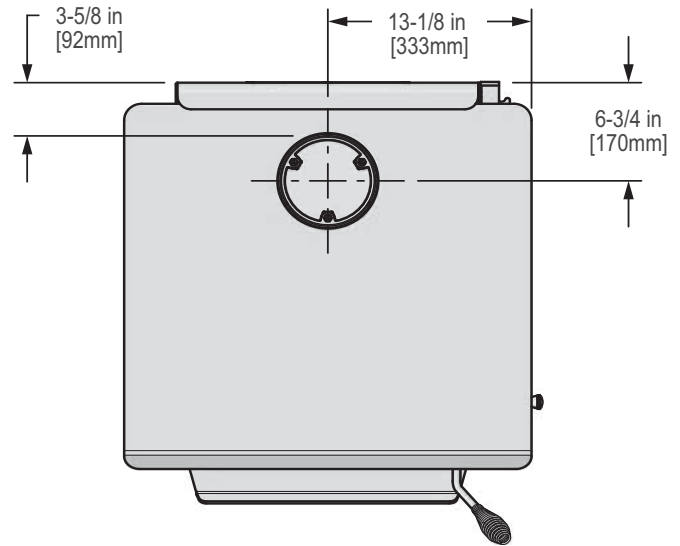


Figure 9.3 - Top View

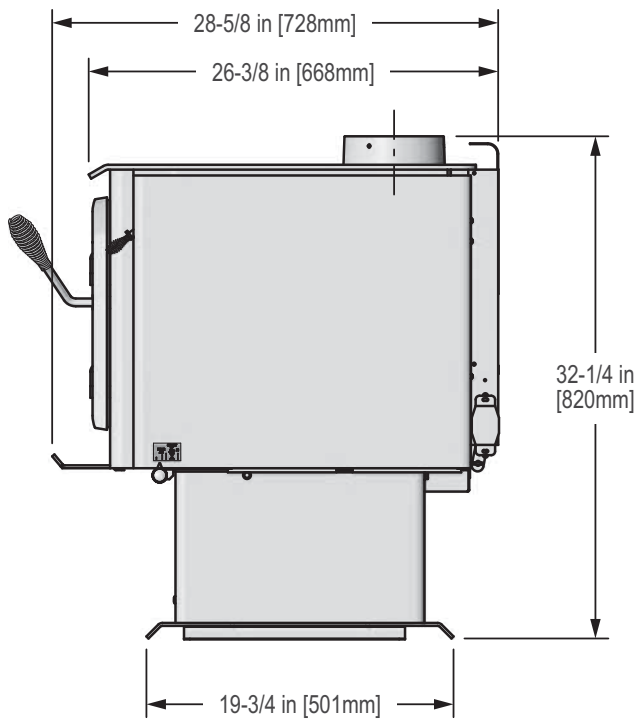


Figure 9.2 - Side View

### 4300 STEP TOP PEDESTAL MODEL

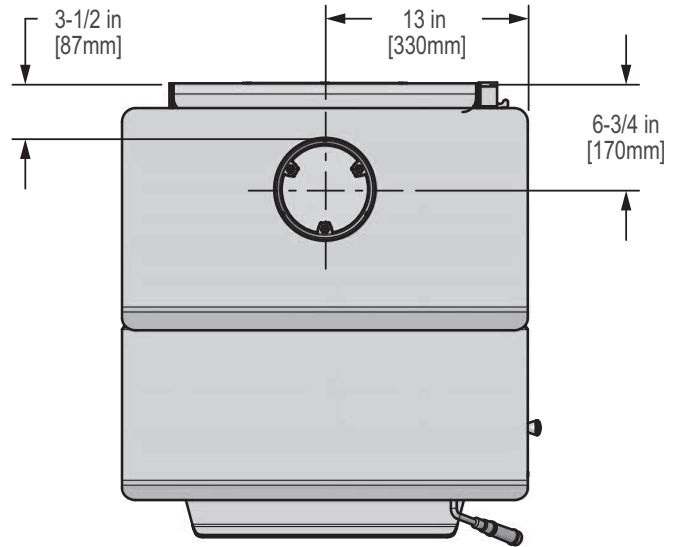
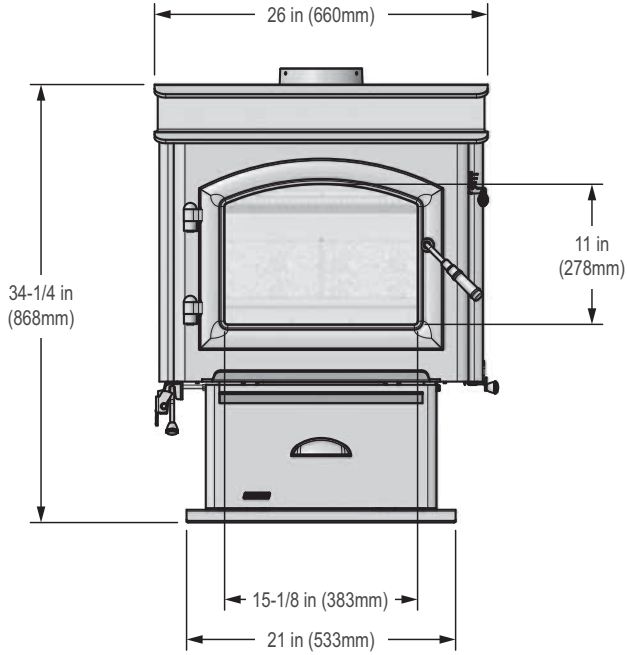


Figure 10.1 - Front View

Figure 10.3 - Top View

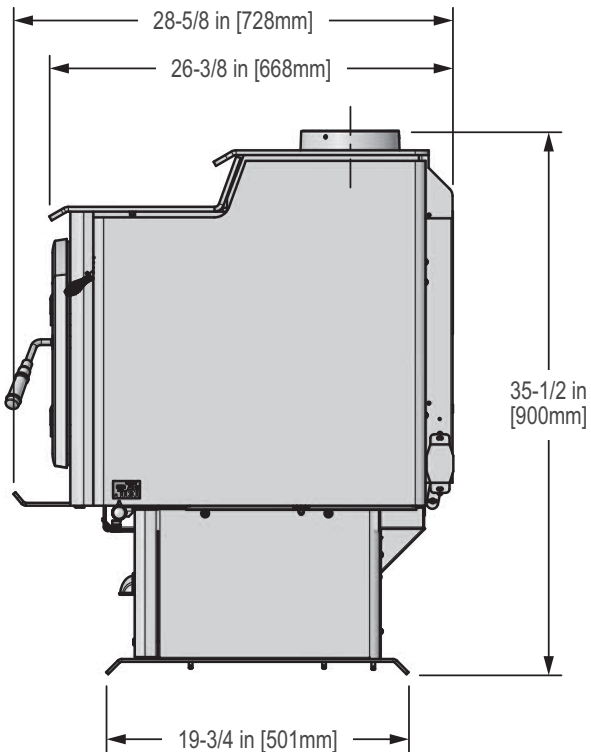


Figure 10.2 - Side View

### 4300 STEP TOP Q ANNE LEG MODEL

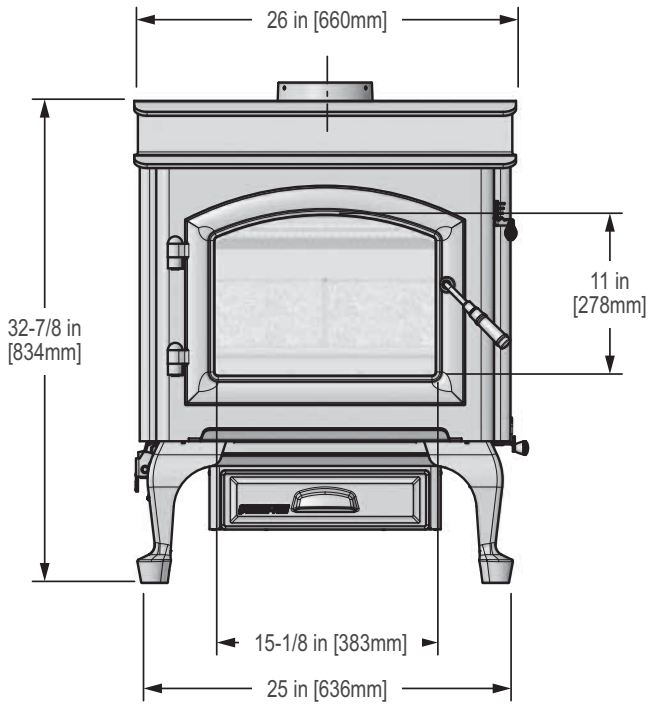


Figure 11.1 - Front View

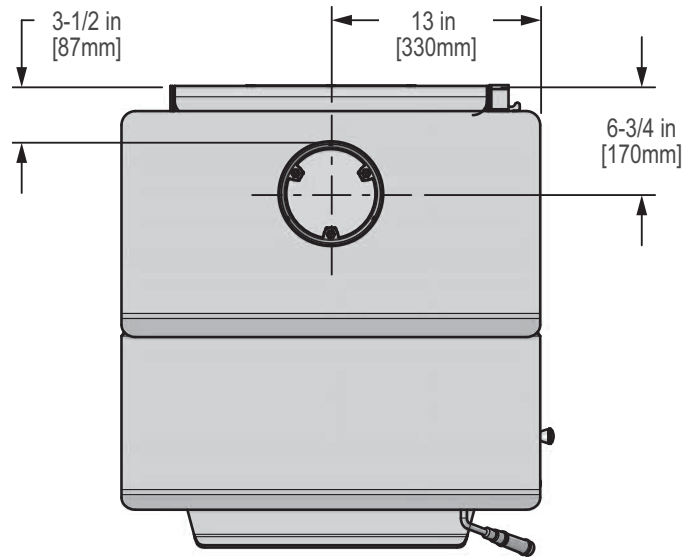


Figure 11.3 - Top View

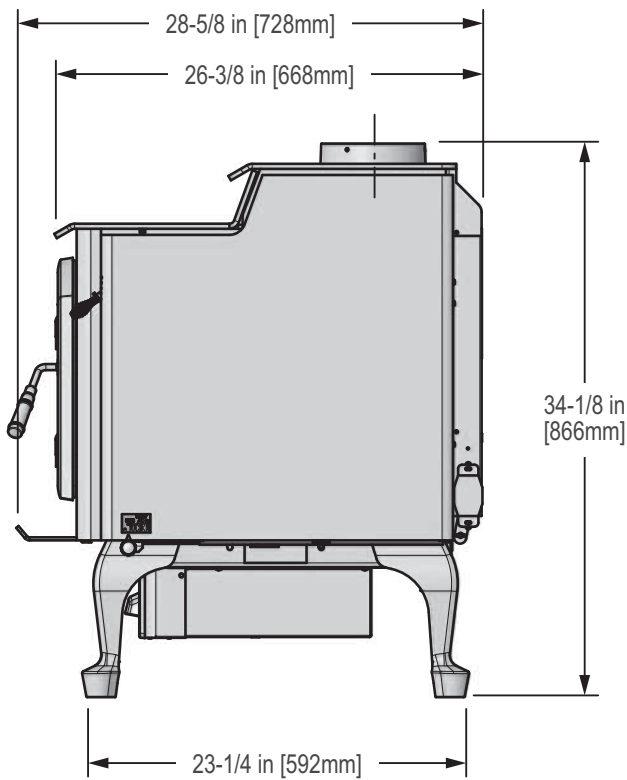


Figure 11.2 - Side View

### 4300 STEP TOP TRADITIONAL LEG MODEL

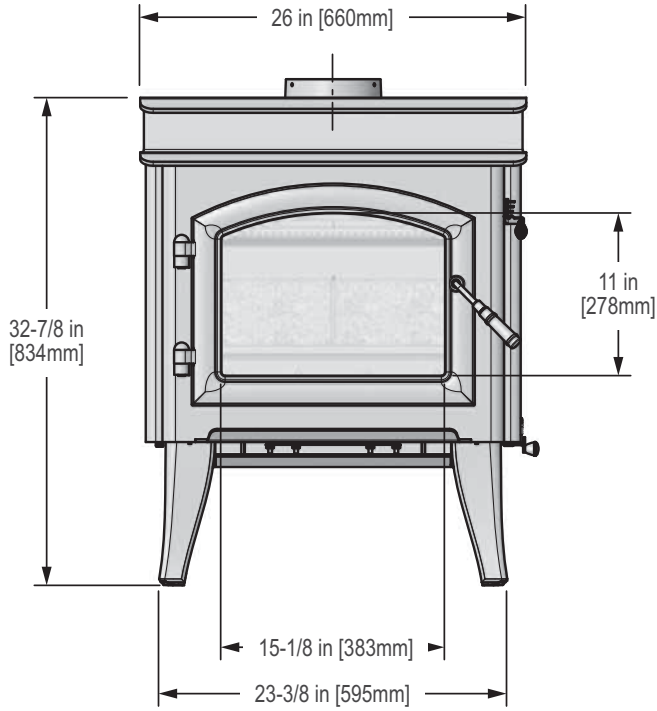


Figure 12.1 - Front View

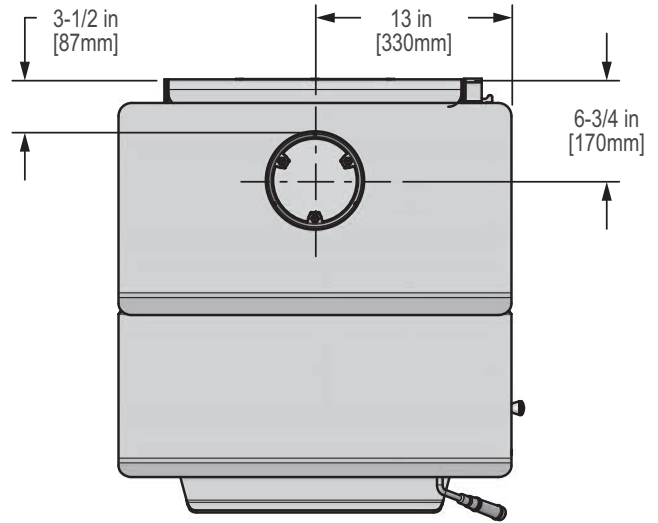


Figure 12.3 - Top View

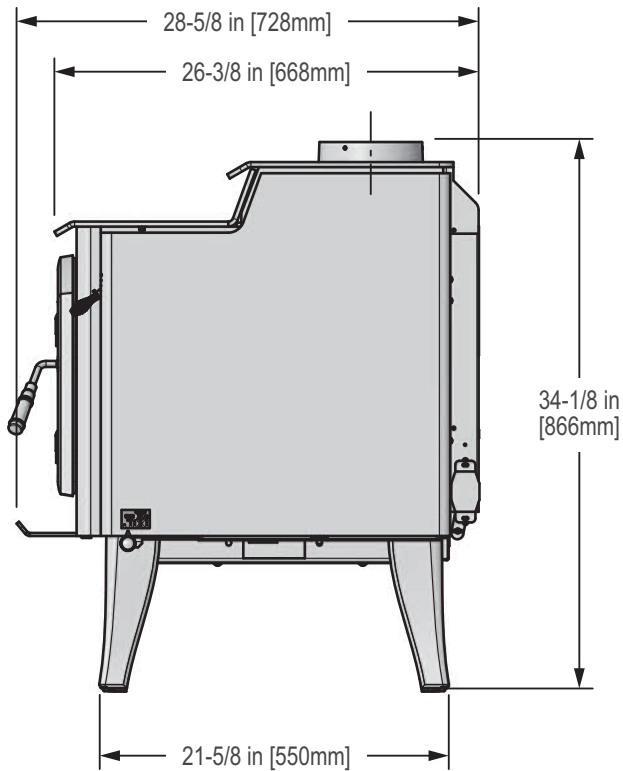


Figure 12.2 - Side View

## B. Hearth Protection Requirements

**EMBER PROTECTION:** It is necessary to install a Type I floor protector.

Floor protector must be non-combustible material, extending beneath appliance with a minimum of 16 inches (406mm) in front of glass and 8 inches (203mm) to both sides of the fuel loading door. Open the door and measure 8 inches (203mm) from the side edge of the opening in the face of the appliance. **\*See exception.**

**In Canada,** similar floor protection must be provided 18 inches (457mm) in front and 8 inches (203mm) from the sides and rear of the appliance unless the hearth pad is placed against the wall (**Figure 13.2 or 14.2 on page 14**). Then the clearance may be reduced using double wall pipe and the Clearance to Combustibles table listed on page 15.

**\*Exception:** Non-combustible floor protector must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side (**See Figure 13.2 or 14.2 on page 14**).

### MILLENNIUM MODEL

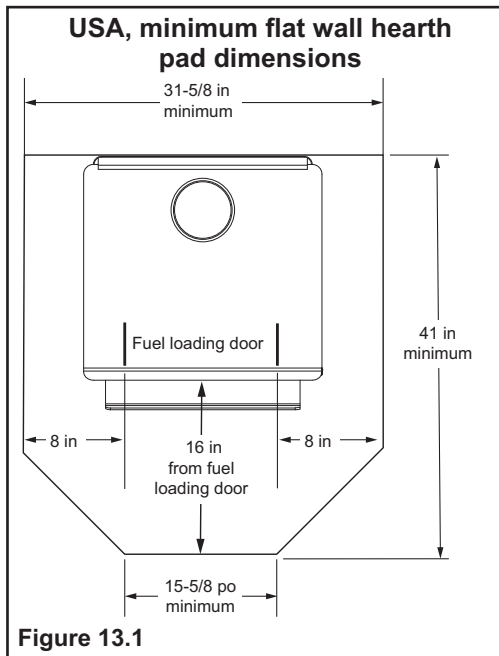


Figure 13.1

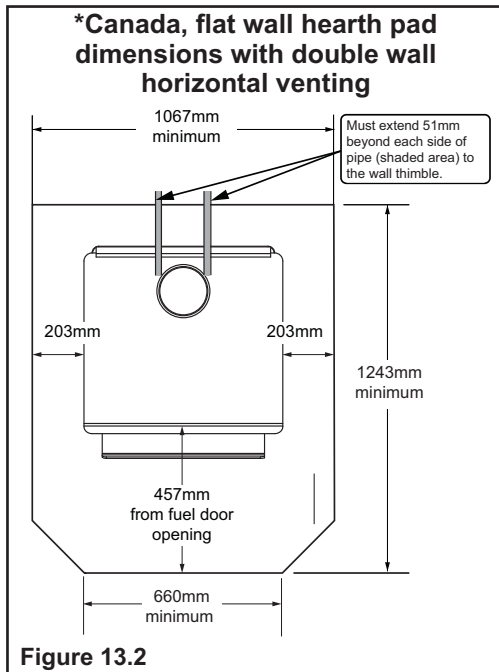




Figure 13.2

\*\*This dimension will vary depending installation.


WARNING



**Fire Risk.**  
Hearth pads must be installed exactly as specified. High temperatures or hot embers may ignite concealed combustibles.

### Corner hearth pad dimensions with single wall pipe

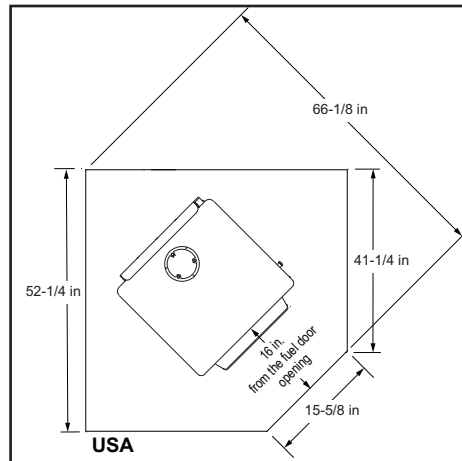


Figure 13.3

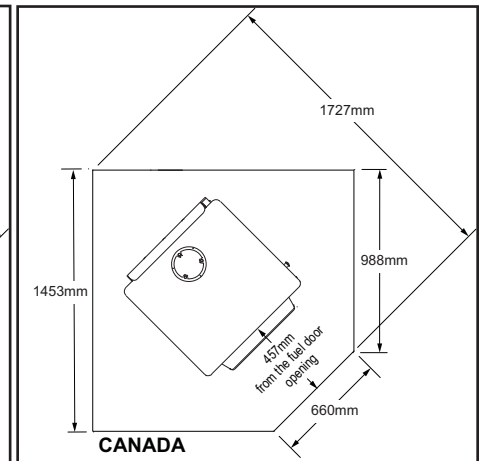


Figure 13.5

### Corner hearth pad dimensions with double wall pipe

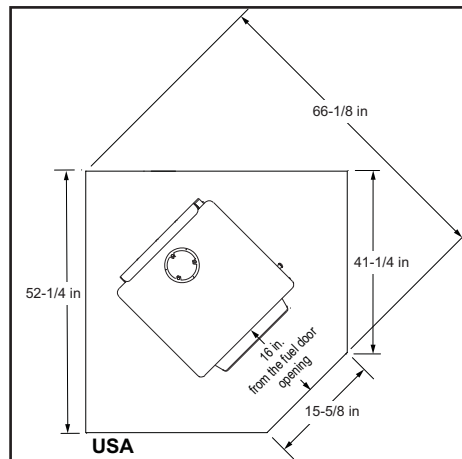


Figure 13.4

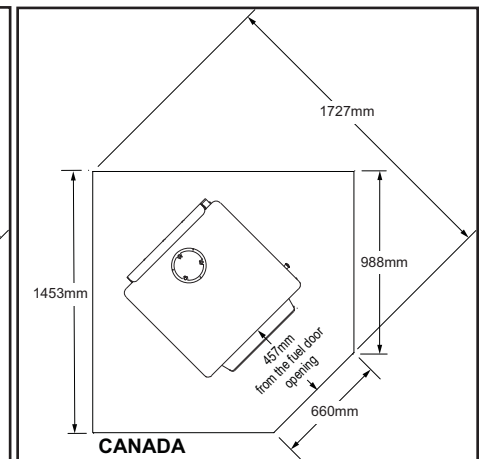


Figure 13.6



## STEP-TOP MODEL

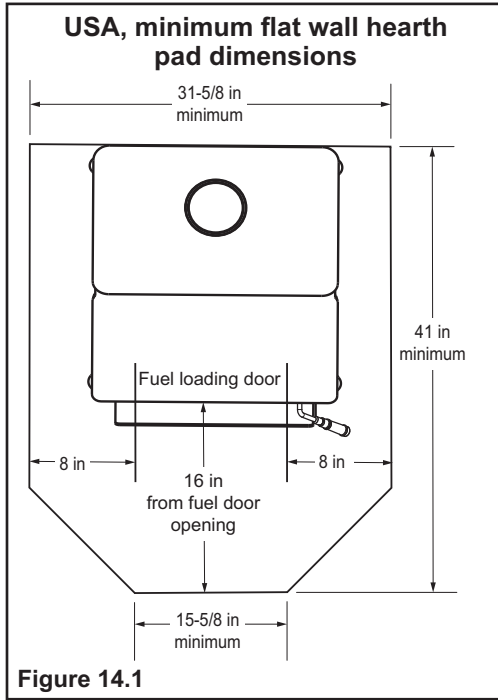


Figure 14.1

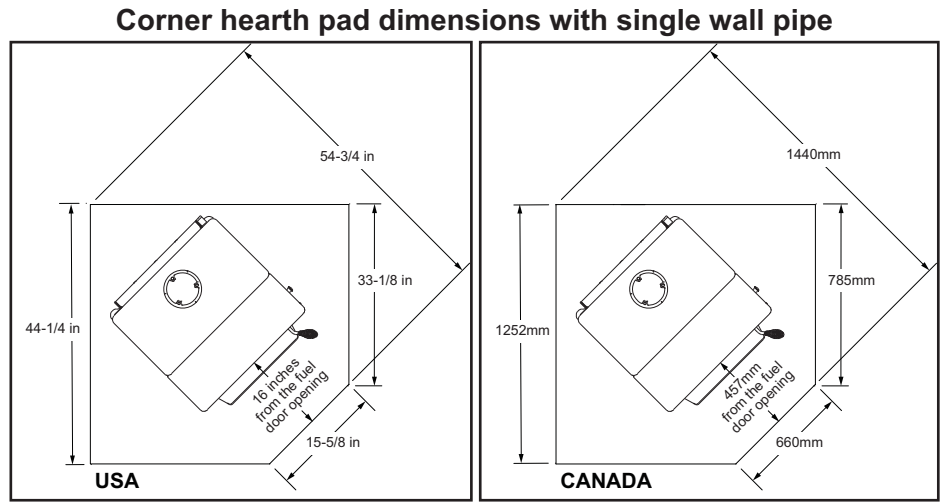


Figure 14.3

Figure 14.5

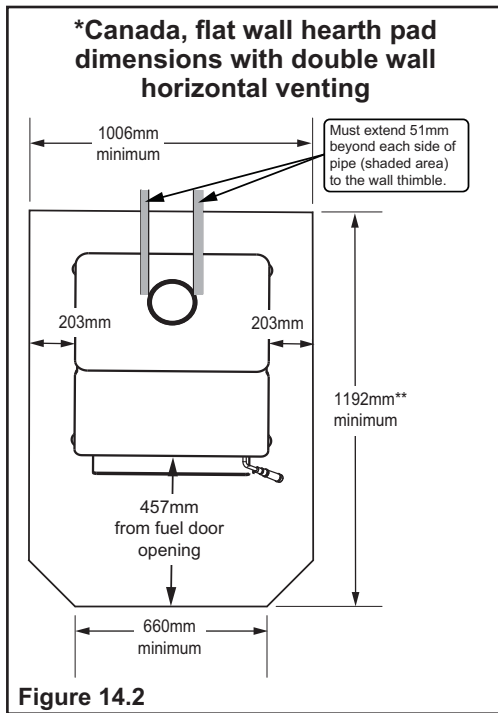


Figure 14.2

\*\*This dimension will vary depending installation.

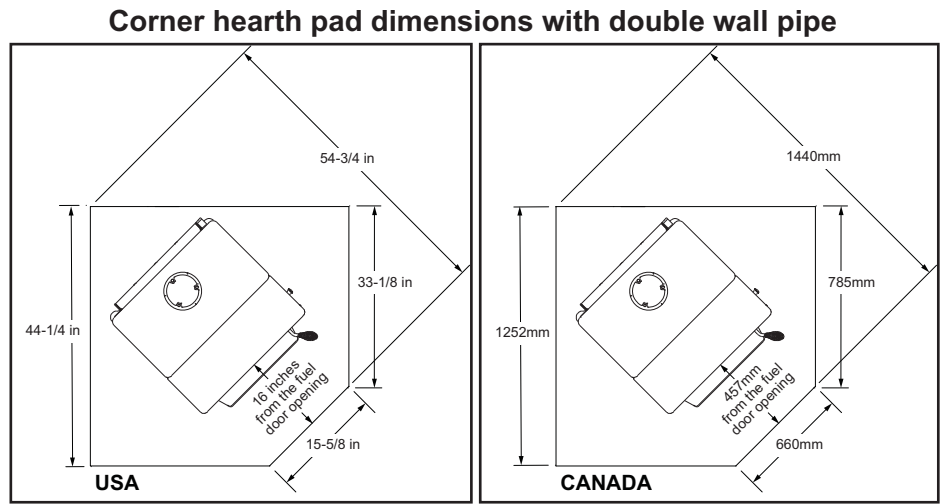


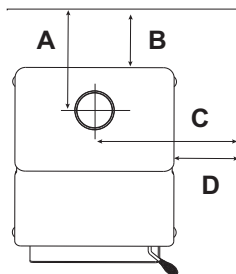
Figure 14.4

Figure 14.6

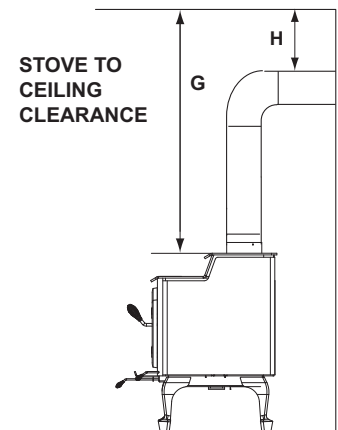
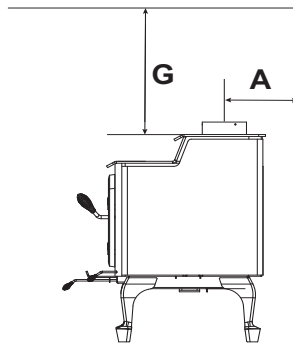
**C. Clearances to Combustibles**

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS in inches (Millimeters)								
NOTE: A, C, and F Dimensions are to the center of the flue collar								
4300 SERIES WOOD APPLIANCE (2020)								
	A	B	C	D	E	F	G	H
<b>INSTALLATION: FULL VERTICAL</b>								
<b>SINGLE WALL PIPE</b>								
<b>4300 MILLENNIUM</b>	18-1/2 (470)	11-3/4 (298)	27-1/2 (699)	14-1/2 (368)	8 (254)	20-1/2 (521)	53-1/2 (1359)	12 (305)
<b>4300 STEP TOP</b>	18-1/2 (470)	11-3/4 (298)	27-1/2 (699)	14-1/2 (368)	2-1/2 (64)	15 (381)	49-1/2 (1283)	12 (305)
<b>DOUBLE WALL PIPE</b>								
<b>4300 MILLENNIUM</b>	12 (305)	5-1/4 (133)	27-1/2 (699)	14-1/2 (368)	8 (254)	20-1/2 (521)	53-1/2 (1359)	12 (305)
<b>4300 STEP TOP</b>	10-1/2 (267)	3-3/4 (95)	25 (635)	12 (305)	2-1/2 (64)	15 (381)	49-1/2 (1283)	5 (127)
<b>INSTALLATION: 90 DEGREE ELBOW OFF TOP OF APPLIANCE THROUGH BACKWALL</b>								
<b>DOUBLE WALL PIPE</b>								
<b>4300 MILLENNIUM</b>	11-1/2 (292)	4-3/4 (121)	27-1/2 (699)	14-1/2 (368)	8 (254)	20-1/2 (521)	53-1/2 (1359)	N/A
<b>4300 STEP TOP</b>	10-1/2 (267)	3-3/4 (95)	22 (559)	9 (229)	2-1/2 (64)	15 (381)	49-1/2 (1283)	5 (127)
<b>INSTALLATION: ALCOVE</b>								
<b>DOUBLE WALL PIPE</b>								
<b>4300 MILLENNIUM</b>	16 (406)	9-3/8 (238)	27 (686)	13-7/8 (352)	N/A	N/A	53-1/2 (1359)	12 (305)
<b>4300 STEP TOP</b>	10-1/2 (267)	3-3/4 (95)	25 (635)	12 (305)	N/A	N/A	49-1/2 (1283)	5 (127)
<p><b>For alcove only:</b> Six inch diameter listed Double wall air insulated connector pipe with <b>UL103 HT</b> listed factory built Class A chimney or masonry chimney. Maximum depth of Alcove shall be no more than 48 inches (1219mm) and the referenced alcove clearances. Canada must comply with <b>CAN/ULC-S269 M87</b> for the 650° factory built chimney.</p>								
<b>* FOLLOW PIPE MANUFACTURES CLEARANCES AS REQUIRED</b>								

**BACKWALL / SIDEWALL**

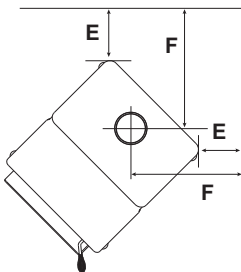


**ALCOVE SIDE VIEW**

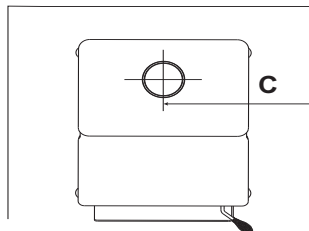


\* If H = N/A, follow Pipe Manufacturer's clearances

**CORNER INSTALLATION**



**ALCOVE TOP VIEW**



**NOTE:** Clearances may only be reduced by means approved by the regulatory authority having jurisdiction

**WARNING**

**Fire Risk.**

- Comply with all minimum clearances to combustibles as specified.
- Failure to comply may cause house fire.

**NOTE: Service Space**

In order to replace the tube channel assembly a clearance of 19 inches (483mm) is required on the right side of appliance in order to remove the tubes with the appliance in place. If space is not available, the appliance will have to be disconnected from the chimney to proceed with the tube replacement.

# 4 Chimney Systems

## A. Locating Your Appliance & Chimney

Location of the appliance and chimney will affect performance. As shown in **Figure 16.1** the chimney should:

- Install through the warm space enclosed by the building envelope. This helps to produce more draft, especially during lighting and die down of the fire.
- Penetrate the highest part of the roof. This minimizes the affects of wind turbulence and down drafts.

- Consider the appliance location in order to avoid floor and ceiling attic joists and rafters.
  - Locate termination cap away from trees, adjacent structures, uneven roof lines and other obstructions.
- Your local dealer is the expert in your geographic area and can usually make suggestions or discover solutions that will easily correct your flue problem.

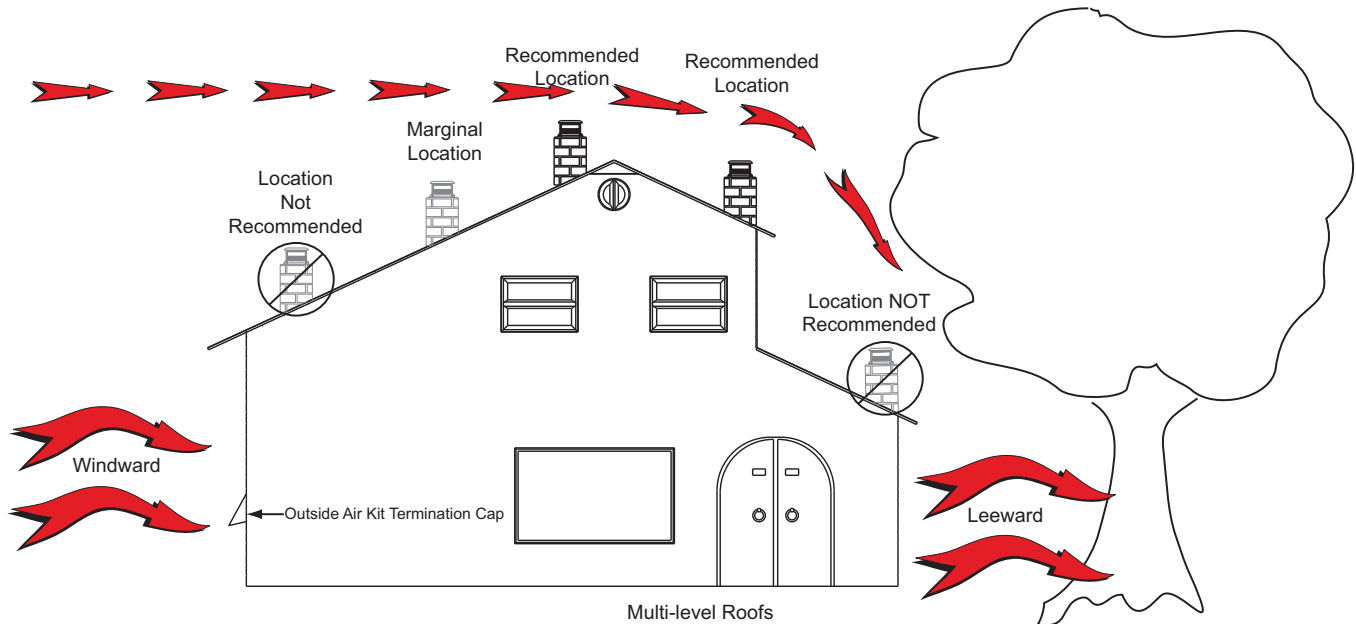


Figure 16.1

### B. Chimney Termination Requirements

Follow manufacturer's instructions for clearance, securing flashing and terminating the chimney (**Figure 17.1 & 17.2**).

- Must have an approved and Listed cap
- Must not be located where it will become plugged by snow or other material
- Must terminate at least 3 feet (91cm) above the roof **and** at least 2 feet (61cm) above any portion of the roof within 10 feet (305cm).
- Must be located away from trees or other structures

**NOTICE:** Locating the appliance in a basement or in a location of considerable air movement can cause intermittent smoke spillage from appliance. Do not locate appliance near

- Frequently open doors
- Central heat outlets or returns

**NOTICE:**

- Chimney performance may vary.
- Trees, buildings, roof lines and wind conditions affect performance.
- Chimney height may need adjustment if smoking or overdraft occurs.

### C. 2-10-3 Rule

**These are safety requirements and are not meant to assure proper flue draft.**

This appliance is made with a 6 inch (152mm) diameter chimney connector as the flue collar on the appliance.

- Changing the diameter of the chimney can affect draft and cause poor performance.
- It is not recommended to use offsets and elbows at altitudes above 4000 feet above sea level and or when there are other factors that affect flue draft.

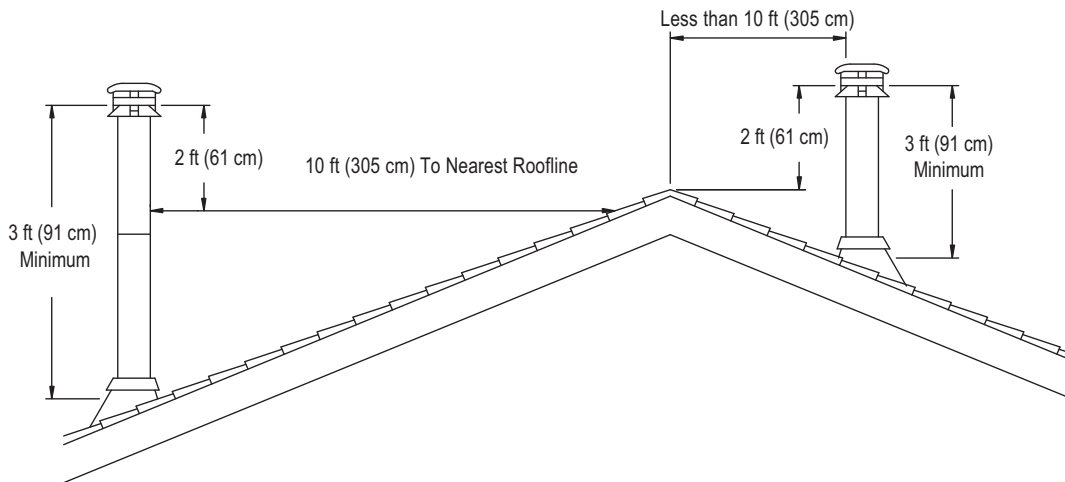


Figure 17.1

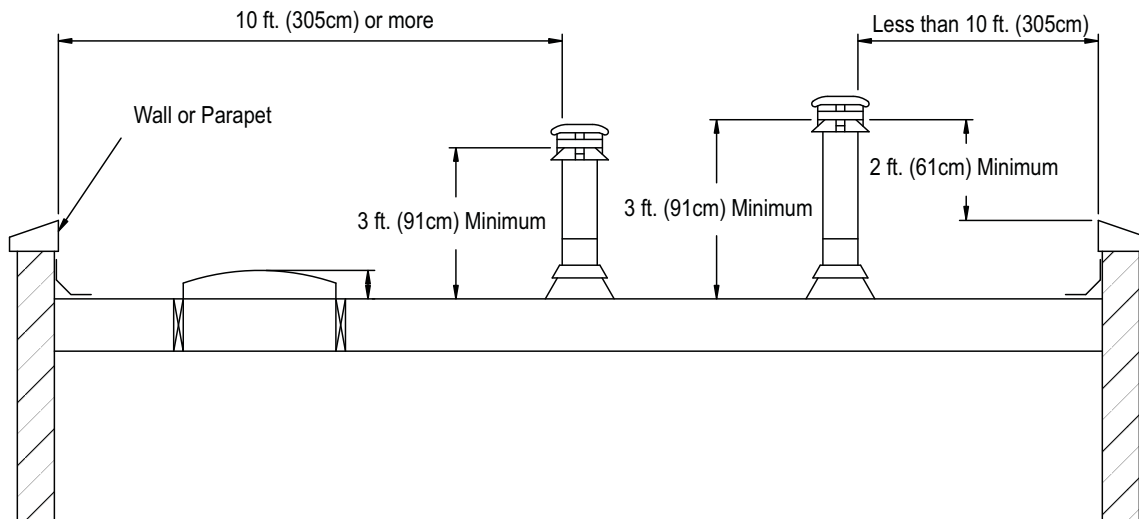





Figure 17.2


### D. Chimney Height / Rise and Run

This product was designed for and tested on a 6 inch (152mm) chimney, 14 to 16 feet (420-480cm) high, (includes appliance height) measured from the base of the appliance. The further your stack height or diameter varies from this configuration, the greater the likelihood it may affect performance.

Chimney height may need to be increased by 2 - 3% per each 1000 feet above sea level. It is not recommended to use offsets or elbows at altitudes above 4000 feet above sea level or when there are other factors that affect flue draft.

	<b>WARNING</b>
	<p><b>Fire Risk. Inspection of Chimney:</b></p> <ul style="list-style-type: none"> <li>Chimney must be in good condition.</li> <li>Meets minimum standard of <b>NFPA 211</b></li> <li>Factory-built chimney must be 6 inch (152mm) <b>UL103 HT</b>.</li> </ul>

	<b>WARNING</b>
	<p><b>Asphyxiation Risk.</b></p> <ul style="list-style-type: none"> <li><b>DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE.</b></li> <li><b>DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.</b></li> </ul> <p>May allow flue gases to enter the house.</p>

	<b>WARNING</b>
<p>Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to the owner's information manual provided with this appliance. For assistance or additional information consult a qualified installer, service agency or your dealer.</p>	

### E. Venting Components

#### Chimney Connector:

It is also known as flue pipe or appliance pipe. The chimney connector joins the appliance to the chimney. It must be a 6 inch (152mm) minimum diameter 24 gauge mild steel black or 26 gauge blued steel, or an approved air-insulated double wall venting pipe.

#### Thimble:

A manufactured or site-constructed device installed in combustible walls through which the chimney connector passes to the chimney. It is intended to keep the walls from igniting. Site constructed thimbles must meet **NFPA 211 Standards**. Prefabricated must be suitable for use with selected chimney and meet **UL103 Type HT Standards**. Follow instructions provided by the manufacturer for manufactured thimbles for masonry chimney and prefabricated chimneys.

#### Chimney:

The chimney can be new or existing, masonry or prefabricated and must meet the following minimum requirements and as specified in Section 4 - Chimney Systems.

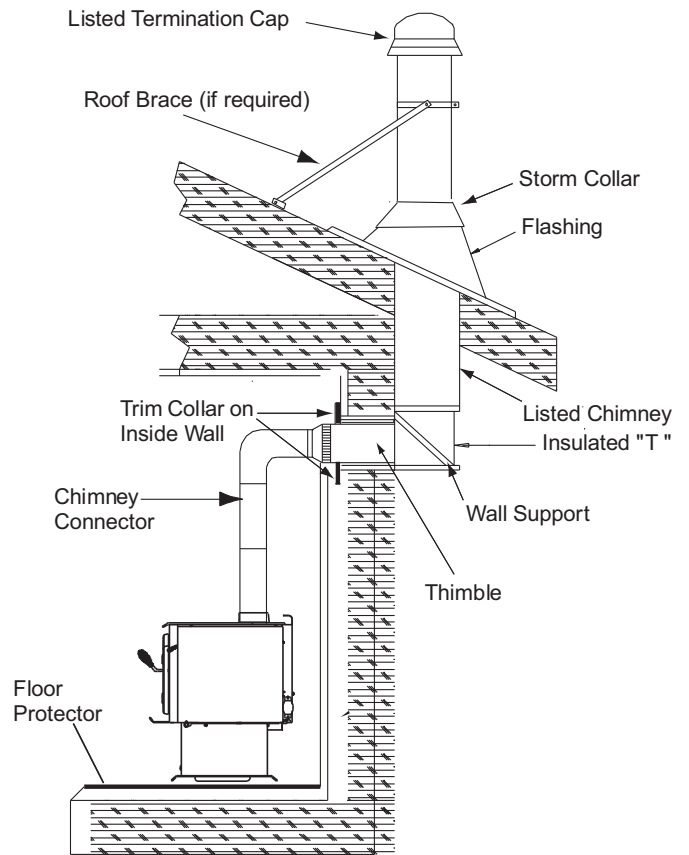


Figure 18.1 - Prefabricated Exterior Chimney

### F. Chimney Systems

#### Prefabricated Metal Chimney

- Must be minimum 6 inch (152mm) diameter (ID) high temperature chimney listed to **UL 103 HT (2100°F)** or **ULC S629M**.
- Must use components required by the manufacturer for installation.
- Must maintain clearances required by the manufacturer for installation.
- Refer to manufacturers instructions for installation.

**NOTE: In Canada**, when using a factory-built chimney it must be safety listed, **Type UL103 HT (2100°F) CLASS "A"** or conforming to **CAN/ULC-S629M, STANDARD FOR 650°C FACTORY-BUILT CHIMNEYS**.

**Thimble**

Site constructed for masonry chimney installation:

**Components**

A minimum length of 12 inches [305mm] (longer for thicker walls) of solid insulated factory-built chimney length constructed to **UL 103 Type HT** 6 inch (152mm) inside diameter. Chimney needs to extend a minimum of 2 inches (51mm) from the interior wall and a minimum of 1 inch (25mm) from the exterior wall.

Wall spacer, trim collar and wall band to fit solid pack chimney selected.

Minimum 8 inch (203mm) diameter clay liner section (if not already present in chimney) and refractory mortar.

When jurisdiction requires install approved chimney liner in masonry chimney.

**Air Clearances**

- Masonry chimney clearance must meet **NFPA 211** minimum requirement of 2 inches (51mm) to sheet metal supports and combustibles.
- Minimum of 1 inch (25mm) clearance around the chimney connector.
- Top of wall opening is a minimum of 13-1/2 inches (343mm) from ceiling or 4-1/2 inches (114mm) below minimum clearance specified by chimney connector manufacturer. **NFPA 211** minimum vertical clearance of 18 inches (457mm) from chimney connector and ceiling or minimum recommended by chimney connector manufacturer (**Figure 19.2**).

**Instructions:**

1. Open inside wall at proper height for the chimney connector to entry the masonry chimney (**Figure 19.2**).
2. Entry hole to masonry chimney must be lined with an 8 inch (203mm) minimum diameter clay liner, or equivalent, secured with refractory mortar.
3. Construct a 17 inch x 17 inch (432mm x 432mm) outside dimension frame from 2 x 2 framing lumber to fit into wall opening. Inside opening of frame should be no less than 14 inch x 14 inch (356mm x 356mm) (**Figure 19.2**).
4. Attach the wall spacer to the chimney side of the frame.
5. Nail the frame into the wall opening. The spacer should be on the chimney side.
6. Insert the section of the solid insulated chimney into the outer wall of the masonry chimney.
7. Tightly secure the length of the solid insulated chimney with the wall band to the masonry chimney.
8. Insert a section of chimney connector into the chimney. Make sure it does not protrude past the edge of the clay chimney liner inside the chimney.
9. Seal the end of the chimney connector to the clay liner with refractory mortar.
10. Install trim collar around the sold pack chimney section.

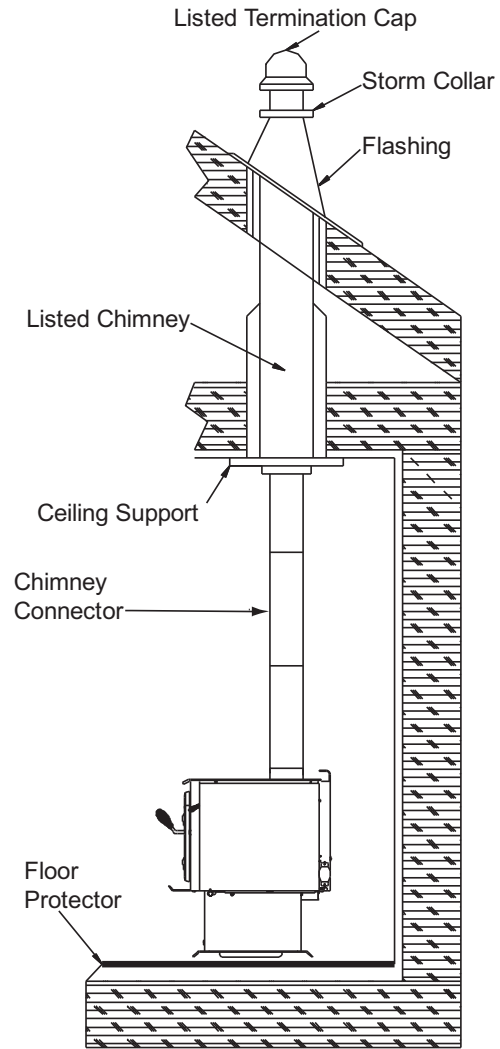


Figure 19.1 - Prefabricated Interior Chimney

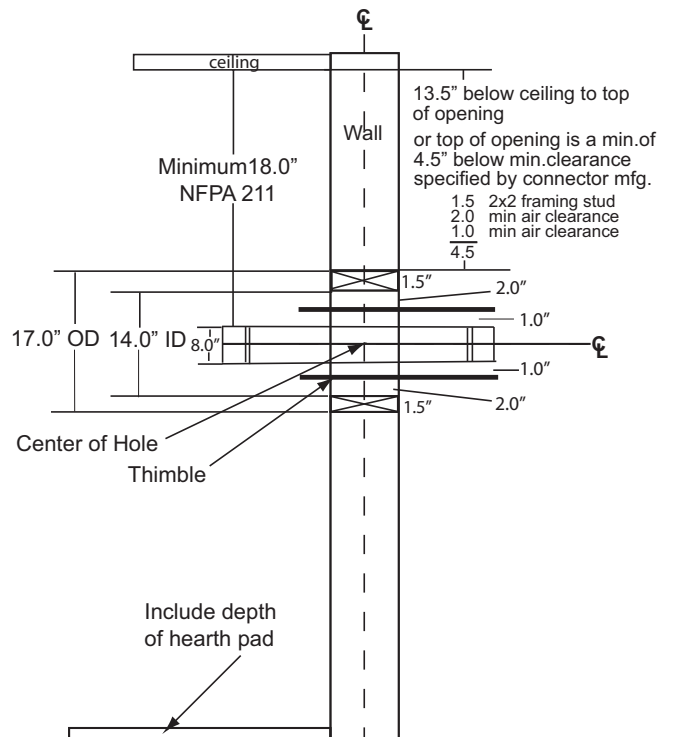


Figure 19.2

**Solid Pack Chimney with Metal Supports as a Thimble**

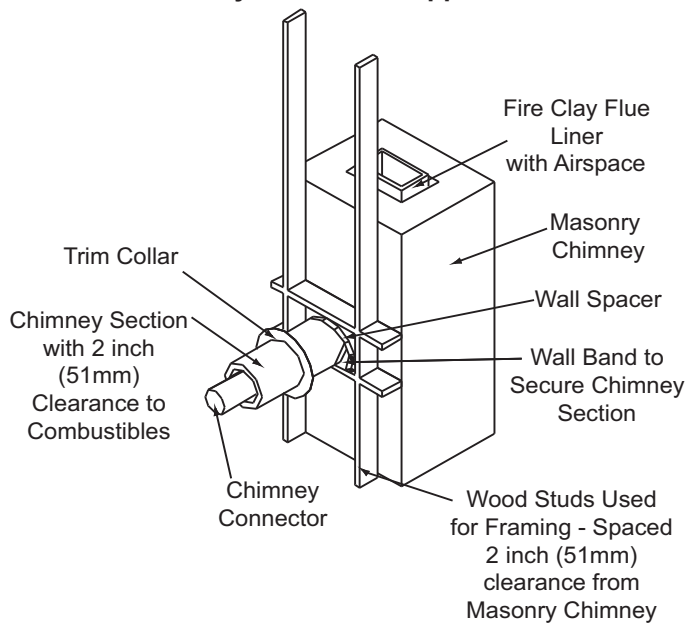


Figure 20.1

	<b>WARNING</b>
	<p><b>Fire Risk.</b> Do NOT pack insulation or other combustibles between spacers.</p> <ul style="list-style-type: none"> <li>• ALWAYS maintain specified clearances around venting and spacers.</li> <li>• Install spacers as specified.</li> </ul> <p>Failure to keep insulation or other material away from vent pipe may cause fire.</p>

**G. Installing Chimney Components**  
**Chimney Connector**

Single wall connector or appliance pipe.  
This must be at least 24 gauge mild steel or 26 gauge blue steel. The sections must be attached to the appliance and to each other with the crimped (male) end pointing toward the appliance. All joints, including the connection at the flue collar, should be secured with 3 sheet metal screws. Make sure to follow the minimum clearances to combustibles. Where passage through the wall, or partition of combustible construction is desired in Canada, the installation shall conform to **CAN/CSA-B365**.

Factory-built listed chimney connector (vented).  
A listed connector (vented) must be used when installing this appliance in a mobile home. The listed connectors must conform to each other to ensure a proper fit and seal.

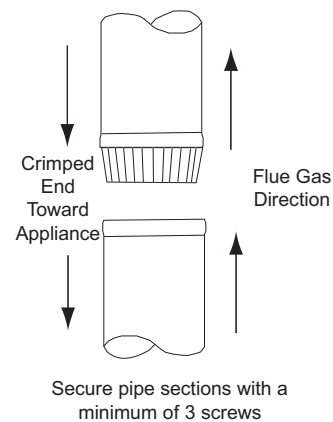


Figure 20.3 - Chimney Connector (Appliance Pipe)

	<b>WARNING</b>
	<p><b>Fire Risk.</b> Follow Chimney Connector Manufacturer's Instructions for Proper Installation.</p>
	<p><b>ONLY use connector:</b></p> <ul style="list-style-type: none"> <li>• Within the room, between appliance and ceiling or wall.</li> </ul> <p><b>Connector shall NOT pass through:</b></p> <ul style="list-style-type: none"> <li>• Attic or roof space</li> <li>• Closet or similar concealed space</li> <li>• Floor or ceiling</li> </ul> <p>Maintain minimum clearances to combustibles</p>

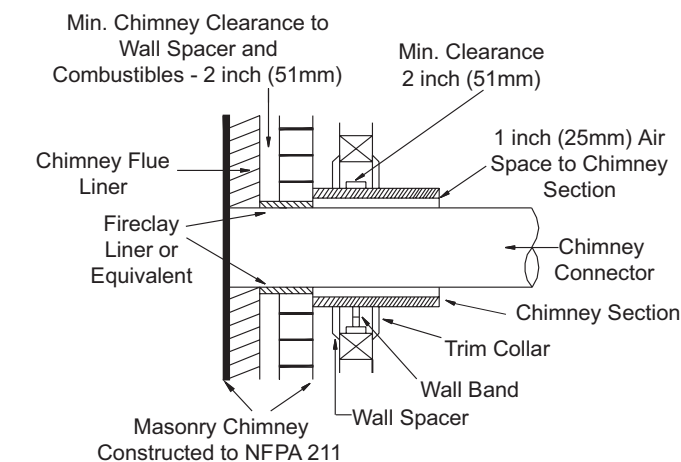


Figure 20.2

**H. Proper Draft**

To be sure that your Quadra-Fire insert burns properly, the chimney draft (static pressure) should be approximately -0.10 inches water column (W.C.) during a high burn and -0.04 inches W.C. during a low burn, measured 6 inches (152mm) above the top of the insert after one hour of operation at each burn setting.

# 5 Appliance Set-Up

## A. Pedestal Assembly & ARS Installation

**NOTE:** The Ash Removal System, must be installed first before installing the pedestal.

### Begin installing the ARS System:

1. Remove leg mount brackets packaged inside of firebox and discard.
2. Remove the 2 bricks in the front most part of the firebox (**Figure 21.1**).
3. Lay appliance on its back on a protective pad or pallet (**Figure 21.2**).
4. Remove heat shield by loosening the four bolts using 3/8 open end wrench (**Figure 21.2**).
5. Remove 8 nuts that hold the cover plate on using a 7/16 socket wrench; discard cover plate (**Figure 21.2**).



### WARNING!

#### CHECK GASKET!

- Verify that the gasket is present and that the glossy side is away from firebox bottom.
- It is important that the gasket is put in correctly for sealing capabilities.

6. Remove knock out from bottom of firebox by using a hammer (**Figure 21.2**).
7. Install ash door assembly by sliding the rod at an angle into the slot on the left side (**Figure 21.3**).
8. Slide the ash door over the 8 screws protruding from the bottom of the appliance. Secure with nuts and washers using 7/16 socket wrench (**Figure 21.3**).
9. Install ARS latch by sliding latch assembly over 2 threaded studs protruding from the bottom on the left hand side of the appliance. Secure by using two nuts use 7/16 socket wrench (**Figure 21.3**).
10. Add knob to handle rod (**Figure 22.2 on page 22**).
11. Using two bolts and two flange nuts to secure ARS channel using 3/8 open end wrench and 7/16 socket wrench (**Figure 22.3 on page 22**).



### WARNING

**Fire Risk. Do NOT operate before fully assembling components.**

Burning your appliance without a pedestal or leg kit attached:

- Will void your warranty.
- May result in property damage or personal injury.

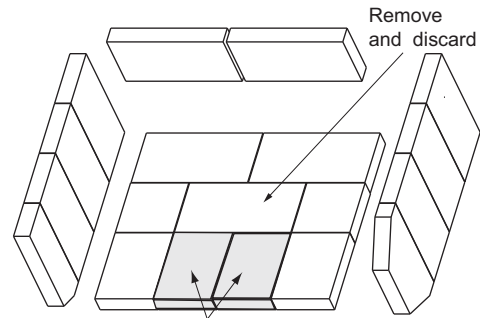


Figure 21.1

Remove 2 bricks for installation and then re-install

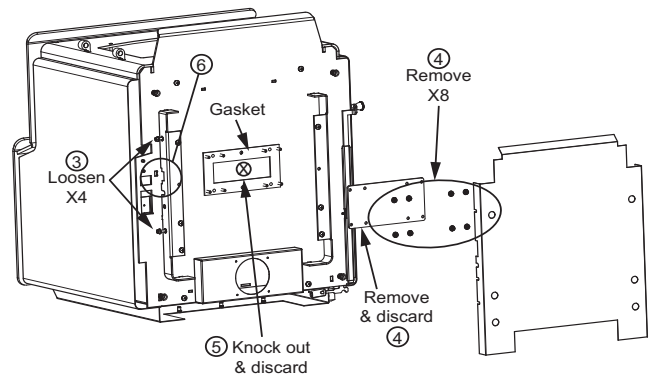


Figure 21.2

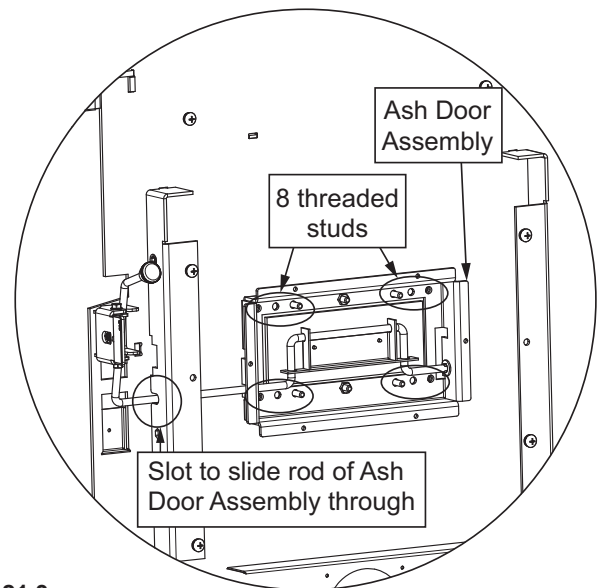


Figure 21.3



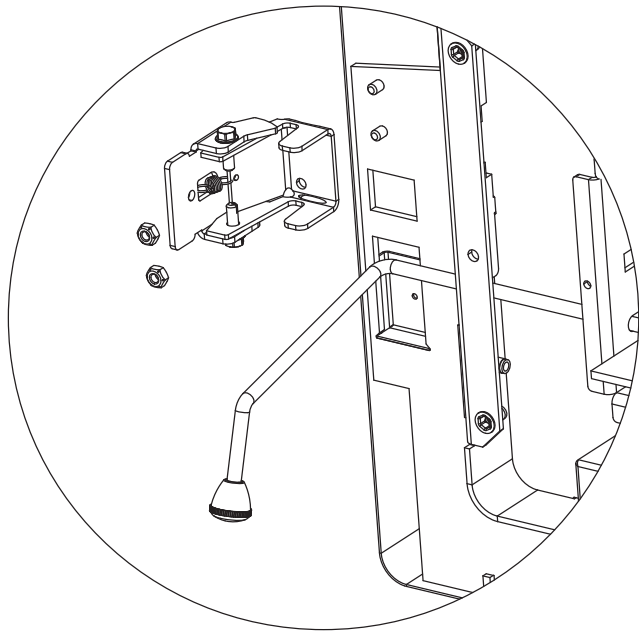


Figure 22.1

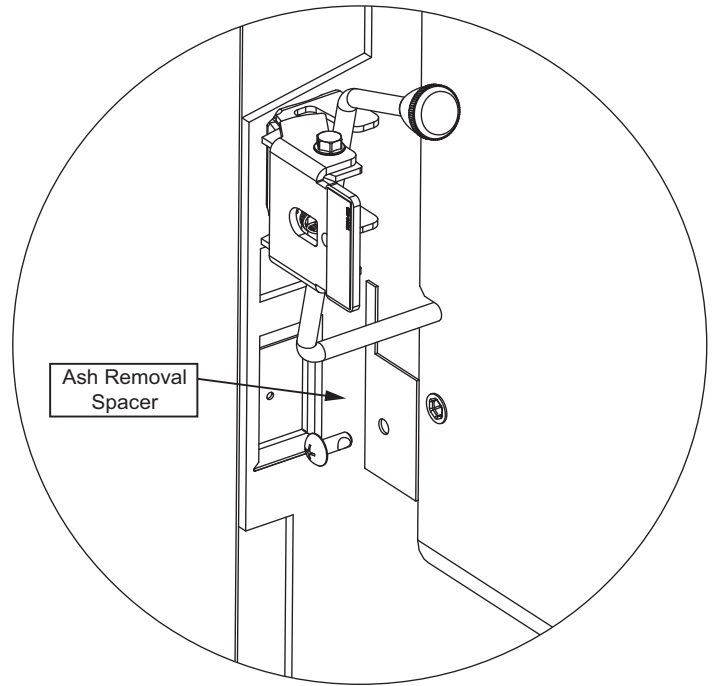


Figure 22.4

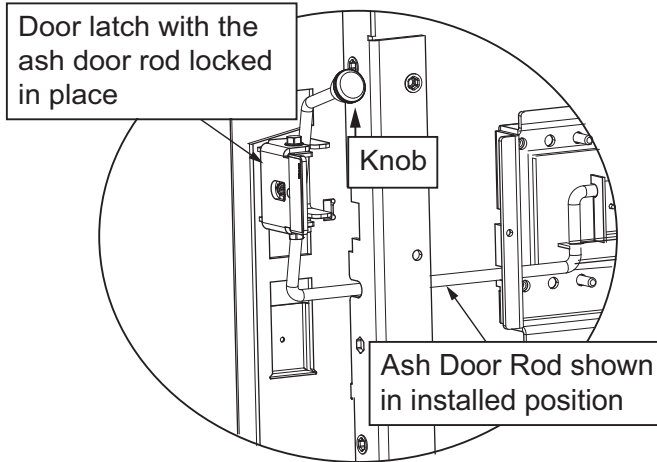


Figure 22.2

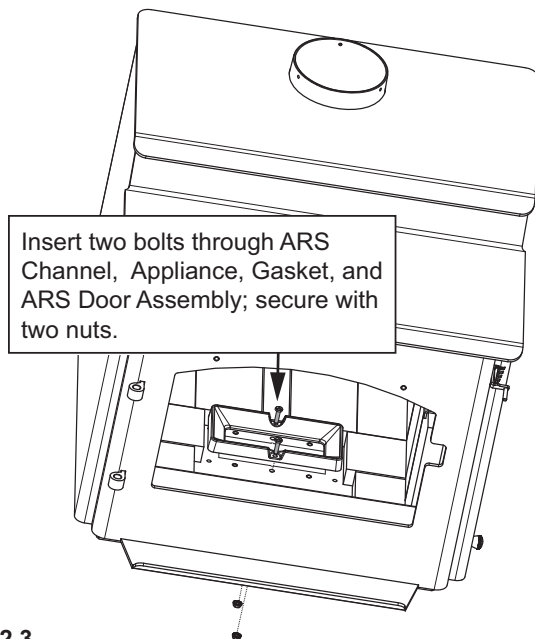


Figure 22.3

### Ped Kit and Ash Removal System (Cont'd)

#### Installing Ped Kit

1. Follow **Begin installing the ARS System** instructions provided on page 21.
2. Slide pedestal over adapter on bottom of appliance and secure with bolts from heat shield (**Figure 23.1 on page 23**).
3. Install ARS Spacer on left hand side with one bolt using Phillips head screwdriver (**Figure 22.4**).
4. Carefully stand appliance up and place in desired location.

#### Finishing the ARS Installation

1. Replace front bricks that were removed in step 1 of **Begin installing the ARS System** on page 21 (**Figure 23.2 on page 23**).
2. Install the ash drawer to pedestal base.
3. Install ARS access cover inside of ARS Channel that is located inside the firebox (**Figure 23.2 on page 23**).



### CAUTION

#### CHECK BAFFLE BOARDS & CERAMIC BLANKET!

- Verify that the baffle boards and ceramic blanket are in their proper locations.
- It is important that the baffle boards and ceramic blanket are correctly installed for proper burn safety.

**NOTE:** If installing a floor installation of an outside air kit on a Step Top model with a pedestal assembly you must attach the enclosed cover plate with 4 screws to the back of the appliance. Other wise you may discard this piece (**Figure 23.3 on page 23**).

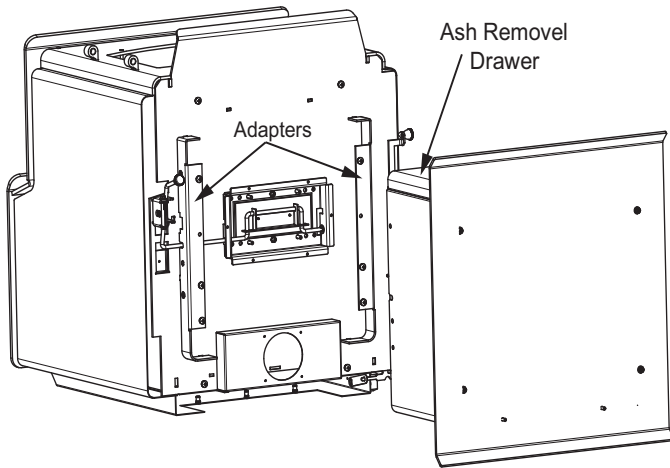


Figure 23.1

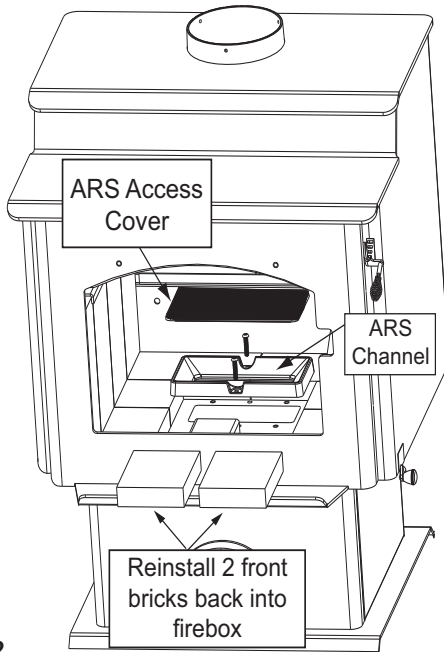


Figure 23.2

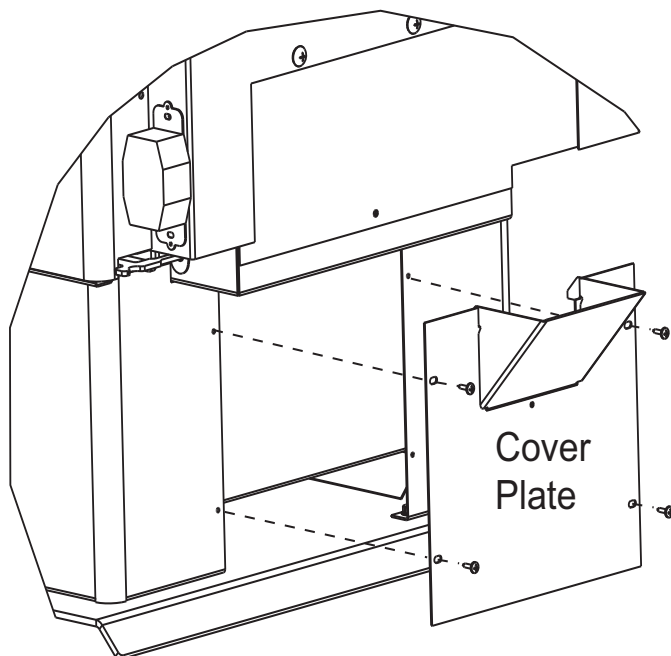


Figure 23.3

## B. Access Cover Handle

Insert Access Cover Handle handle into slot of ARS Cover to remove ARS Cover for cleaning ash out of firebox (Figure 23.4).

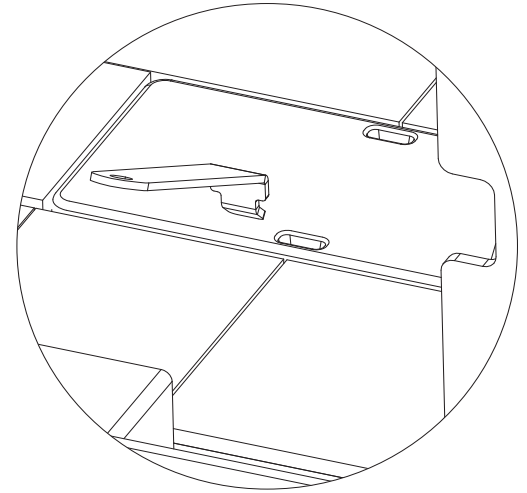


Figure 23.4

## C. Leg Kit & ARS Installation

**NOTE:** The Ash Removal System, must be installed first before installing the legs.

### Begin installing the ARS System.

1. Remove leg mount brackets packaged inside of firebox and set aside.
2. Remove the 2 bricks in the front most part of the firebox (Figure 21.1 on page 21).
3. Lay appliance on its back on a protective pad or pallet (Figure 21.2 on page 21).
4. Remove heat shield by loosening the four bolts using 3/8 open end wrench (Figure 21.2 on page 21).
5. Remove 8 nuts that hold the cover plate on using a 7/16 socket wrench; discard cover plate (Figure 21.2 on page 21).



## WARNING!

### CHECK GASKET!

- Verify that the gasket is present and that the glossy side is away from firebox bottom.
- It is important that the gasket is put in correctly for sealing capabilities.

6. Remove knock out from bottom of firebox by using a hammer (**Figure 21.2 on page 21**).
7. Install ash door assembly by sliding the rod at an angle into the slot on the left side (**Figure 21.3 on page 21**).
8. Slide the ash door over the 8 screws protruding from the bottom of the appliance. Secure with nuts and washers using 7/16 socket wrench (**Figure 21.3 on page 21**).
9. Install ARS latch by sliding latch assembly over 2 threaded studs protruding from the bottom on the left hand side of the appliance. Secure by using two nuts use 7/16 socket wrench (**Figure 22.1 on page 22**).
10. Add knob to handle rod (**Figure 22.2 on page 22**).
11. Use 2 bolts and two flange nuts to secure ARS channel using 3/8 open end wrench and 7/16 socket wrench (**Figure 22.3 on page 21**).

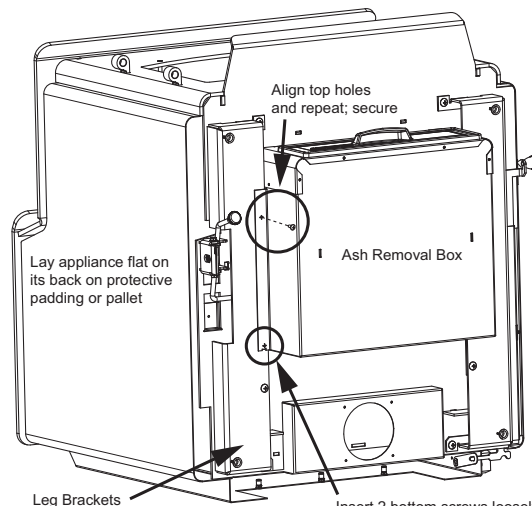


Figure 24.1

### Installing Queen Anne Leg ARS Kit

1. Follow Beginning installing the ARS system instructions provided on page 21.
2. Install ARS Spacer on left hand side with one bolt using Phillips head screwdriver (**Figure 22.4 on page 22**).
3. Install leg brackets and ash drawer using four screws using Phillips head screwdriver.

Start bottom two bolts through ash drawer, leg brackets and into the bottom of the appliance (**Figure 24.1**).

Align top holes and repeat; secure all four bolts.

4. Install legs onto leg brackets making sure the legs are up against the bracket and secure with bolts and washers using a 3/8 open end wrench (**Figure 24.2**).
5. Install leveling bolts into 2 legs; these leveling legs should be in opposite corners (**Figure 24.2**).
6. Carefully stand appliance up and place in desired location.
7. Use leveling bolts on legs to stabilize and level appliance (**Figure 24.3**).

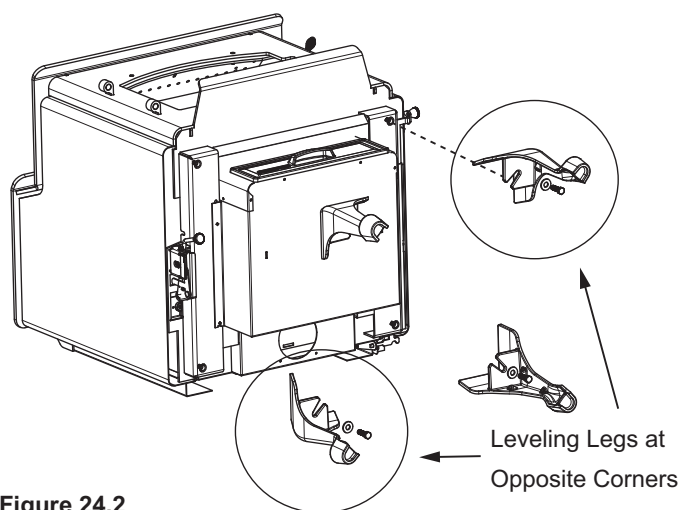


Figure 24.2

### Finishing the ARS Installation

1. Replace 2 front bricks that were removed (**Figure 24.4**).
2. Install the ash drawer to ASH Removal receiver.
3. Install ARS access cover inside of ARS Channel that is located inside the firebox (**Figure 24.4**).

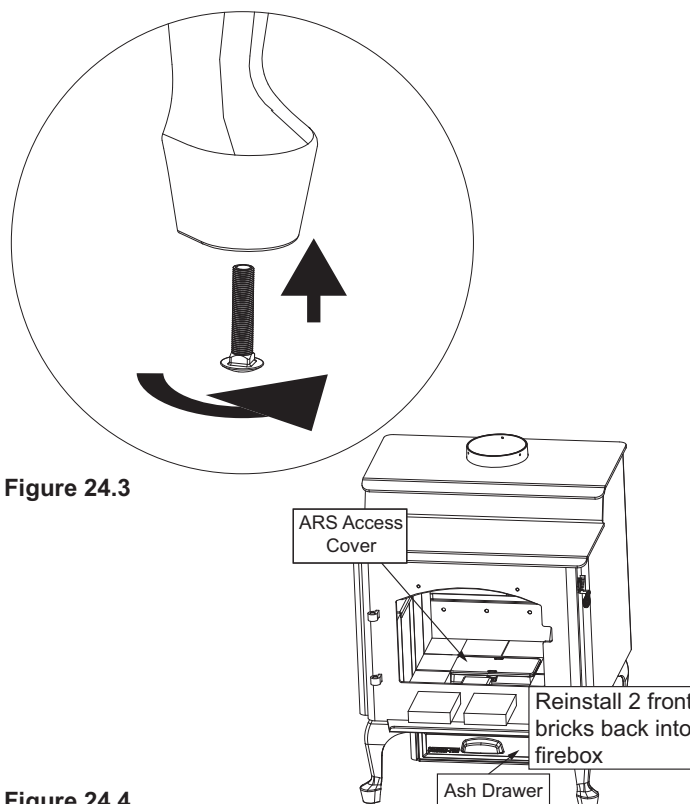


Figure 24.3

Figure 24.4



### CAUTION

#### CHECK Baffle Boards & CERAMIC BLANKET!

- Verify that the baffle boards and ceramic blanket are in their proper locations.
- It is important that the baffle boards and ceramic blanket are correctly installed for proper burn safety.

## D. Traditional Leg Installation

### Installing your traditional legs to your appliance:

1. Remove leg brackets from inside of firebox of appliance.
2. Lay body of appliance on its back on a protective pad or pallet.
3. Remove four screws from bottom of appliance (Figure 25.1).
4. Install leg brackets to bottom of appliance using the four just removed screws in step 3.

**NOTE:** There is a right and a left of the leg brackets (Figure 25.1).

5. Install six screws to the bottom of the leg brackets (Figure 25.1).
6. Attach legs onto leg brackets and secure with bolts and washers.



### CAUTION

#### Do NOT tilt the appliance on the cast iron legs.

- Tilting could lead to property damage.
- Lift the appliance upright and place it into position on the floor protector.

7. Carefully stand appliance up and place in desired location.
8. Thread Allen bolts through nuts until flush (Figure 25.2)
9. Slide Allen bolt/nut assemblies into slots of two of the legs with the nuts on the bottom (Figure 25.3 and 25.4).

**NOTE:** Legs with leveling bolts need to be on opposite sides of the appliance - one in the front and one in the back (Figure 25.1)

10. Use Allen wrench to adjust legs up and down to desired level (Figure 25.5).

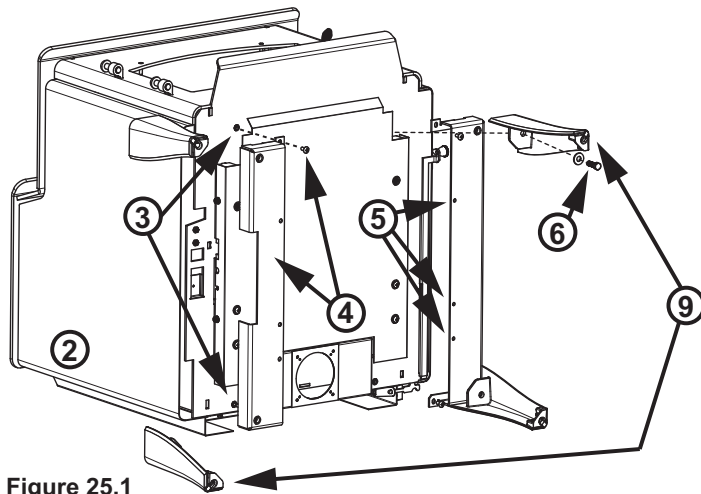


Figure 25.1



### CAUTION!

#### CHECK BAFFLE BOARDS & CERAMIC BLANKET!

- Verify that the baffle boards and ceramic blanket are in their proper locations.
- It is important that the baffle boards and ceramic blanket are correctly installed for proper burn safety.

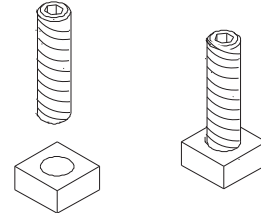


Figure 25.2

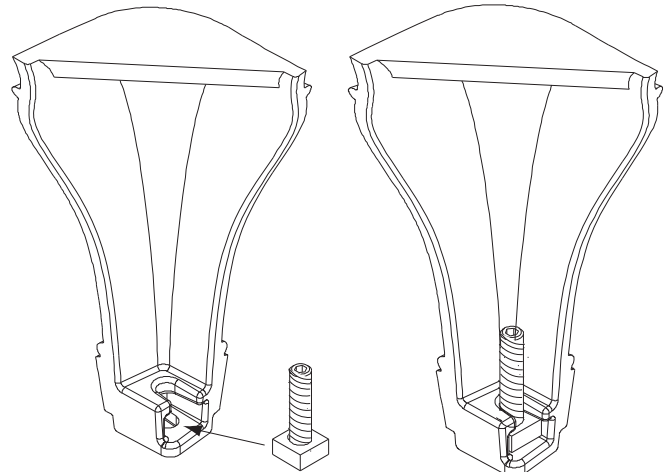


Figure 25.3

Figure 25.4

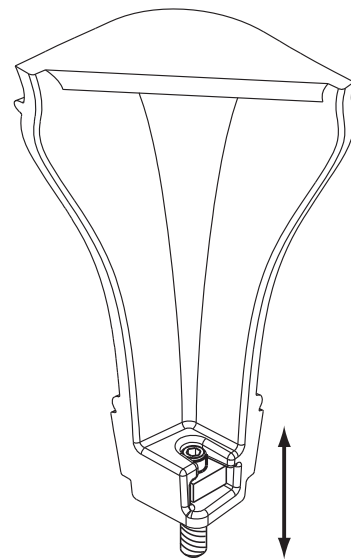


Figure 25.5

## E. Door Handle Assembly

### Installation of Door Handle:

1. Slide door handle shaft through hole on door.
2. Add up to three 3/8 washers on the inside of the door.

**NOTE:** The quantity of washers added will change how the door seals. You may need to tear down the handle assembly a few times to gain the correct seal.

3. Add square key to door handle shaft; may need to use a rubber mallet to ensure key sits firmly into groove of door handle shaft.
4. Slide cast iron cam latch over door handle shaft and locking key.

**NOTE:** DO NOT over tighten locking nut; door handle needs to move smoothly!

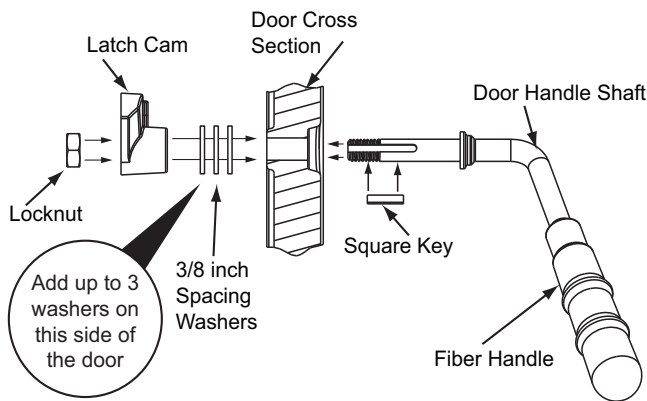


Figure 26.1

## F. Outside Air Kit Installation

A source of air (oxygen) is necessary in order for combustion to take place. Whatever combustion air is consumed by the fire must be replaced. Air is replaced via air leakage around windows and under doors. In homes that have tightly sealed doors and windows, an outside air source is needed. An optional Outside Air Kit is available.

### Items Needed for Installation (not supplied):

- 4 inch flex aluminum pipe, or if using alternate material, then it shall be made from durable, non-combustible, heat resistant material up to 350°F. Cut the pipe to the required length for your installation.
- Phillips head screw driver
- Silicone sealant
- Drills and saws necessary for cutting holes through the wall or flooring in your home.

### Installation Instructions:

1. Remove all materials from packing box.
2. **Floor & Rear Installation:**  
Cut a 4 inch (102mm) hole in outside wall or floor to accommodate outside air piping. Use 4 inch (102mm) aluminum metal flex or rigid piping to directly connect outside air to appliance intake. Use the supplied termination cap with a rodent screen. Seal between the wall (or floor) and the pipe with silicone to prevent moisture penetration.



### WARNING

#### Asphyxiation Risk.

Length of outside air supply duct shall NOT exceed the length of the vertical height of the exhaust flue.

- Fire will not burn properly
- Smoke spillage occurs when door is opened due to air starvation

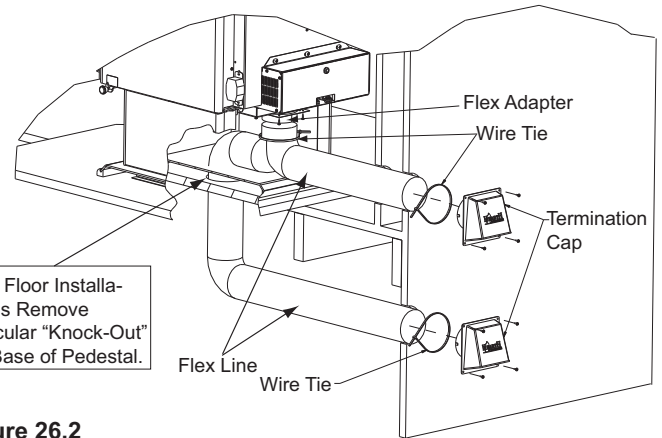


Figure 26.2



### WARNING



#### Fire Risk. Asphyxiation Risk.

Do not draw outside combustion air from:

- Wall, floor or ceiling cavity
- Enclosed space such as an attic or garage.
- Close proximity to exhaust vents or chimneys.

Fumes or odor may result



### WARNING

#### Asphyxiation Risk.

Outside air inlet must be located to prevent blockage from:

- Leaves
- Snow or ice
- Other debris


Block may cause combustion air starvation  
Smoke spillage may set off alarms or irritate sensitive individuals.



### G. Blower (Optional)


1. Locate bolts supplied with the blower.
2. Align holes in mounting flange of blower with bolt holes in appliance. Blower should be positioned at bottom of rear outer skin as shown in **Figure 27.1**
3. Re-insert and tighten bolts, securing blower onto outer wall of appliance.
4. Place the bracket containing the snap disc and magnet under the bottom left rear corner.

See Owner's Manual for detailed operating instructions for the blower and snap disc.



**CAUTION**

---



**Shock Risk.**

- Do NOT remove grounding prong from plug.
- Route cord away from appliance.
- Do NOT route cord under or in front of appliance.
- Plug directly into properly grounded 3 prong receptacle.

### H. Adjusting The Blower Speed Control

The blower speed control for this appliance is adjusted at the factory, and normally does not require further adjustment.

1. With the appliance plugged in, turn the speed control knob to slow (full clockwise).
2. With a small screwdriver, adjust the blower speed by turning the adjustment mechanism through the hole on the side of the speed control.
3. Adjust the speed so the blower runs slowly, but does not stop. Turn clockwise to slow the blower and counterclockwise to increase the speed.

**NOTE:** When the speed control is turned clockwise, it will click on to high speed. Continue to turn the speed control clockwise to decrease the speed. At full clockwise, the blower should blow gently, but should not stop.

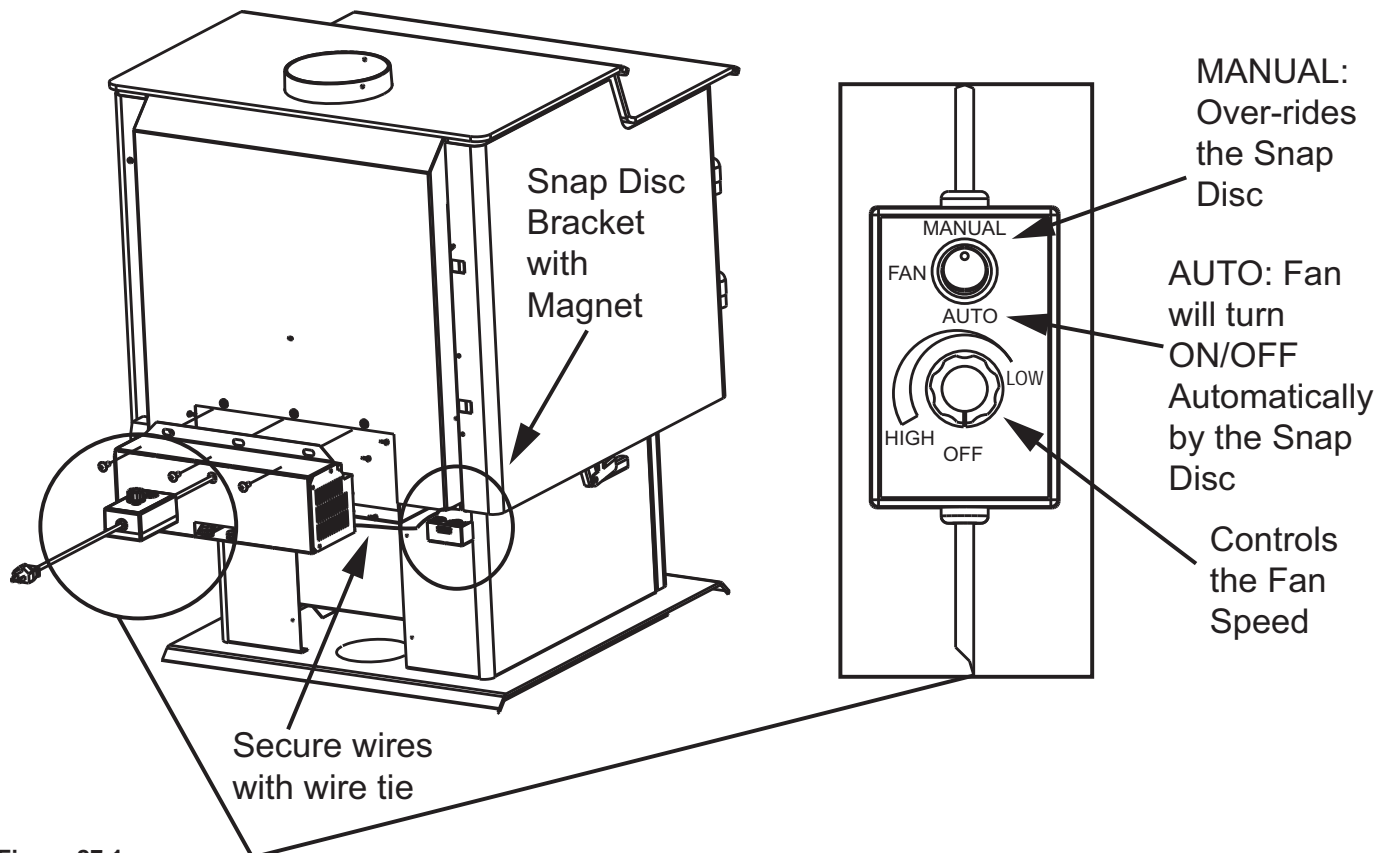


Figure 27.1

# 6 Mobile Home Installation

You must use a Quadra-Fire Outside Air Kit Part OAK-ACC; which is available from you dealer, for installation in a mobile home.

1. An outside air inlet must be provided for combustion.
2. Appliance must be secured to the mobile home structure by bolting the legs to the floor.
3. Appliance must be grounded with #8 solid copper grounding wire or equivalent and terminated at each end with N.E.C. approved grounding device.
4. Appliance must be installed with an approved **UL103 HT** ventilated chimney connector, **UL103 HT** chimney, and terminal cap with spark arrestor. Never use a single wall connector (appliance pipe) in a mobile home installation. Use only double-wall connector pipe, Dura-Vent DVL, Selkirk Metalbestos DS or Security DL double-wall connector or any listed double-wall connector pipe.
5. In Canada, this appliance must be connected to a 6 inch (152mm) factory-built chimney conforming to **CAN/ULC-629M, STANDARD FOR FACTORY BUILT CHIMNEYS**.
6. Follow the chimney and chimney connector manufacturer's instructions when installing the flue system for use in a mobile home.
7. Maintain clearance to combustibles.
8. Floor protection requirements must be followed precisely.
9. Use silicone to create an effective vapor barrier at the location where the chimney or other component penetrates to the exterior of the structure.

**NOTE:** Offsets from the vertical, not exceeding 45°, are allowed per **Section 905(a) of the Uniform Mechanical Code (UMC)**. Offsets greater than 45° are considered horizontal and are also allowed, providing the horizontal run does not exceed 75% of the vertical height of the vent. Construction, clearance and termination must be in compliance with the **UMC Table 9C**. This installation must also comply with **NFPA 211**.

**NOTE:** Top sections of chimney must be removable to allow maximum clearance of 13.5 feet (411cm) from ground level for transportation purposes.

10. Burn seasoned cord wood only. Other types of fuels may generate poisonous gases (e.g., carbon monoxide).
11. If appliance burns poorly while an exhaust blower is on in home, (i.e., range hood), increase combustion air.
12. Installation shall be in accordance with the **Manufacturers Home & Safety Standard (HUD) CFR 3280, Part 24**.



## CAUTION

THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL AND CEILING/ROOF MUST BE MAINTAINED

### Do NOT cut through:

- Floor joist, wall, studs or ceiling trusses.
- Any supporting material that would affect the structural integrity.



## WARNING



### Asphyxiation Risk.

NEVER INSTALL IN A SLEEPING ROOM.  
Consumes oxygen in the room.



## WARNING



### Fire Risk.

Do Not use single wall connector pipe anywhere in a mobile home installation.







## C. 4300 Step Top Accessories

**QUADRA-FIRE**® Service Parts

**43ST-ACC-C**

Beginning Manufacturing Date: Jan 2020

Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.


**Stocked  
at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
<b>Accessories</b>				
	Outside Air Kit, Floor & Rear		OAK-ACC	
	Outside Air Collar Assembly		7033-039	
	Outside Air Shield		SRV33271	Y
	Blower Assembly		BK-ACC	
	Blower, Convection - Replacement Blower		812-4900	Y
	Blower Control Box W/Switch		SRV7000-194	Y
	Snap Disc Bracket Assembly		SRV7033-036	
	Snap Disc, # 1, Convection Blower		SRV230-0470	Y
	Wire Harness (Blower)		7033-262	
	Component Pack		SRV7033-051	
	Upgrade, Door (Nickel Handles, Hinge Pins & Logo)	Nickel	UK-DRNL	
	Logo, Quadra-Fire	Pkg of 10	7000-649/10	
	Cast Legs, Black	Set of 4	TRAD-LEG-BK	
<b>FASTENERS</b>				
	Avk Rivnut Repair Kit - 1/4-20 & 3/8-16 Rivnut Tools		RIVNUT-REPAIR	Y
	Bolt, Hex Head, 1/4-20 X 1	Pkg of 10	25221A/10	Y
	Button Head 1/4-20 X .5	Pkg of 20	32328/20	Y
	Nut, 2-Wy Side-Lock Jam 3	Pkg of 24	226-0100/24	Y
	Nut, Keps Lock, 10-32	Pkg of 40	226-0050/40	Y
	Nut, Keps Lock, 8-32	Pkg of 40	226-0060/40	Y
	Nut, Ser Flange Small 1/4-20	Pkg of 24	226-0130/24	Y
	Screw, Bh, 1/4-20 X 1.25	Pkg of 24	225-0630/24	Y
	Screw, Pan Head Philips 8-32 X 3/4	Pkg of 24	229-1100/24	Y
	Screw, Pan Head Philips Tc 8-32X1/2	Pkg of 25	220-0030/25	Y
	Screw, Sheet Metal #8 X 1/2 S-Grip	Pkg of 40	12460/40	Y
	Screw, Flat Head Philips 8-32 x 1/2	Pkg of 12	220-0490/12	Y
	Washer, Sae, 3/8	Pkg of 3 ea.	832-0990	Y
	Washer, 1/4 Sae	Pkg of 24	28758/24	Y

# QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

## CONTACT INFORMATION

Hearth & Home Technologies  
352 Mountain House Road  
Halifax, PA 17032  
Division of HNI INDUSTRIES

Please contact your Quadra-Fire dealer with any questions or concerns.  
For the number of your nearest Quadra-Fire dealer  
log onto [www.quadrafire.com](http://www.quadrafire.com)



## CAUTION



### DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.



### We recommend that you record the following pertinent information for your heating appliance.

Date purchased/installed: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Location on appliance: \_\_\_\_\_

Dealership purchased from: \_\_\_\_\_

Dealer Phone: 1(     )     -     \_\_\_\_\_

Notes:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This product may be covered by one or more of the following patents: (United States) 5341794, 5263471, 6688302, 7216645, 7047962 or other U.S. and foreign patents pending.

  
**HEARTH & HOME**  
technologies™

# Owner's Manual

## Operation & Care

**INSTALLER:** Leave this manual with party responsible for use and operation.  
**OWNER:** Retain this manual for future reference.

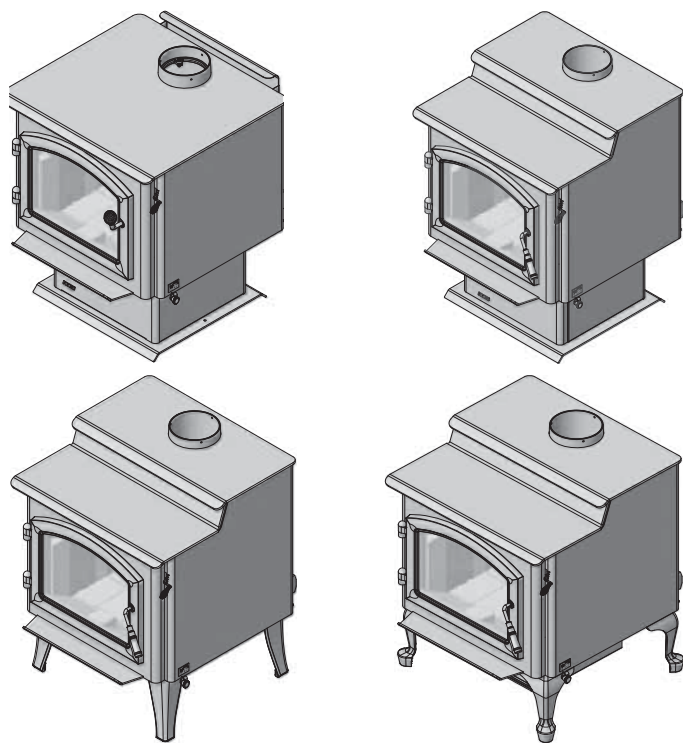
Contact your dealer with questions on installation, operation, or service.

**NOTICE: DO NOT DISCARD THIS MANUAL**

# QUADRA-FIRE®

**4300 WOOD APPLIANCE SERIES  
 AUTOMATIC COMBUSTION  
 CONTROL (ACC)**

**MODELS:  
 43M-ACC-C  
 43ST-ACC-C**



Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



### WARNING



If the information in these instructions is not followed exactly, a fire could result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over-fire - If appliance or chimney connector glows, you are over-firing. Over-firing will void your warranty.
- Comply with all minimum clearances to combustibles as specified. Failure to comply may cause house fire.



### WARNING



#### HOT SURFACES!

Glass and other surfaces are hot during operation AND cool down.

- Hot glass and appliance will cause burns.
- Do not touch glass until it is cooled
- Use leather gloves when reloading fuel
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as appliance.
- Alert children and adults to hazards of high temperatures
- High temperatures may ignite clothing or other flammable materials.
- Keep clothing, furniture, draperies and other flammable materials away.



### WARNING



#### Fire Risk.

For use with solid wood fuel only. Other fuels may over-fire and generate poisonous gases (i.e. carbon monoxide).

**NOTE:** To obtain a French translation of this manual, please contact your dealer or visit [www.quadrafire.com](http://www.quadrafire.com)

**REMARQUE :** Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez [www.quadrafire.com](http://www.quadrafire.com)

# Congratulations




and Welcome to the Quadra-Fire Family!

**NOTE:** Clearances may only be reduced by means approved by the regulatory authority having jurisdiction



## A. Sample of Serial Number / Safety Label

LOCATION: Back of appliance




**CAUTION:** HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN AND CLOTHING AWAY. CONTACT MAY CAUSE SKIN BURNS. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIAL FAR AWAY FROM THE APPLIANCE. SEE NAMEPLATE AND INSTRUCTIONS.

**ATTENTION:** CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. GARDEZ LES MEUBLES ET LES MATÉRIEAUX COMBUSTIBLES LOIN DE L'ESPACE DÉSIGNÉ DE L'APPAREIL. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.


**3400 ACC SERIES-C**



TESTED TO / TESTÉ À:  
UL 1482-11 (R2015), ULC S627-00.

Serial No. / N° de série

HF



---

**LISTED ROOM HEATER, SOLID FUEL TYPE, ALSO FOR USE IN MOBILE HOMES, (JM) 84 HUD / APPAREIL DE CHAUFFAGE DE PIÈCE, DE TYPE DE COMBUSTIBLE SOLIDE POUR USAGE DANS LES MAISONS MOBILES, (JM) 84 HUD. "Pour Usage Avec Bois Solide Seulem"**

**VENT SPECIFICATIONS / SPÉCIFICATIONS DE LA VENTILATION:**  
**SINGLE WALL:** Six inch (6 inches) (152mm) diameter, minimum 24 MSG black or blued steel connector pipe with a listed factory-built UL103HT™ Class "A" chimney, suitable for use with solid fuels, or a masonry chimney, and the referenced clearances. / **MUR SIMPLE:** De six (6 inches) (152mm) de diamètre, le conduit de tuyau doit être en acier au carbone peint en noir ou bleu, d'un diamètre nominal de 152 mm, avec une cheminée bâtie en usine UL103HT™ de Classe "A", adéquate pour usage avec les combustibles solides, ou une cheminée de briques, avec espaces libres référencés.  
**DOUBLE WALL:** Six inch (6 inches) (152mm) diameter, listed double wall air insulated connector pipe with listed factory-built UL103HT™ Class "A" chimney, or a masonry chimney and the referenced clearances. / **MUR DOUBLE:** De six (6 inches) (152mm) de diamètre, le connecteur du conduit d'air isolé pour mur double avec une cheminée bâtie en usine UL103HT™ de Classe "A", ou une cheminée de briques, avec espaces libres alloués.  
**MOBILE HOME:** Use double wall pipe by Dura-Vent DVL, Selkirk Metalbestos DS or Security DL double wall connector pipe. Must be equipped with a spark arrester. Apply double wall clearances below when installing unit. / **MAISON MOBILE:** Utiliser un conduit de mur double par Dura-Vent DVL, Selkirk Metalbestos DS ou Security DL. Doit être équipé d'un arrêt d'étincelle. Utiliser les espaces libres pour mur double comme mentionné ci-haut.

**NOTE:** All "A", "C" and "F" Dimensions are to inside diameter of pipe. / **REMARQUE:** Toutes les dimensions "A", "C", et "F" sont à partir du diamètre intérieur de l'entrée du conduit.

**INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FT VERTICAL CLEARANCE TO CEILING / INSTALLATION: ENTIÈREMENT VERTICALE OU HORIZONTALE AVEC 609mm VERTICALE MINIMUM DU HAUT DU POÊLE**

Model	A	B	C	D	E	F	G	H	CONDUIT DU MUR DOUBLE
4300 Millennium Model	18.5 (467)	18.5 (467)	25 (635)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
4300 Step Top Model	18.5 (467)	18.5 (467)	25 (635)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
4300 Millennium Model	12 (305)	12 (305)	25 (635)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
4300 Step Top Model	12 (305)	12 (305)	25 (635)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)
4300 Millennium Model	10.5 (267)	10.5 (267)	25 (635)	27.5 (699)	15 (381)	14.5 (368)	20.5 (521)	53.5 (1359)	N/A
4300 Step Top Model	10.5 (267)	10.5 (267)	25 (635)	27.5 (699)	15 (381)	14.5 (368)	20.5 (521)	53.5 (1359)	N/A

**DOUBLE WALL PIPE**  
**Discovery III Model**  
**4300 Millennium Model**  
**4300 Step Top Model**

**INSTALLATION: 90° OFF TOP TO CEILING THROUGH BACKWALL / INSTALLATION: 90° DU COURBURE AU DESSUS DE HAUT DU POÊLE À TRAVERS LE MUR ARRIÈRE**

Model	A	B	C	D	E	F	G	H	CONDUIT DU MUR DOUBLE
Discovery III Model	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)	CONDUIT DU MUR DOUBLE
4300 Millennium Model	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Step Top Model	10.5 (267)	3.75 (95)	25 (635)	12 (305)	2.5 (63.5)	15 (381)	49.5 (1263)	5 (127)	Modèle au dessus en escalier

**DOUBLE WALL PIPE**  
**Discovery III Model**  
**4300 Millennium Model**  
**4300 Step Top Model**

**INSTALLATION: 90° OFF TOP TO CEILING THROUGH BACKWALL / INSTALLATION: 90° DU COURBURE AU DESSUS DE HAUT DU POÊLE À TRAVERS LE MUR ARRIÈRE**

**ALCOVE TOP VIEW / VUE DU HAUT DE L'ALCÔVE**

**DOUBLE WALL PIPE**  
**Discovery III Model**  
**4300 Millennium Model**  
**4300 Step Top Model**

Model	A	B	C	D	E	F	G	H	CONDUIT DU MUR DOUBLE
Discovery III Model	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)	CONDUIT DU MUR DOUBLE
4300 Millennium Model	16 (406)	9.375 (238)	27 (686)	13.875 (352)	N/A	N/A	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Step Top Model	10.5 (267)	3.75 (95)	25 (635)	12 (305)	2.5 (63.5)	15 (381)	49.5 (1263)	5 (127)	Modèle au dessus en escalier

**DOUBLE WALL PIPE**  
**Discovery III Model**  
**4300 Millennium Model**  
**4300 Step Top Model**

**INSTALLATION: 90° OFF TOP TO CEILING THROUGH BACKWALL / INSTALLATION: 90° DU COURBURE AU DESSUS DE HAUT DU POÊLE À TRAVERS LE MUR ARRIÈRE**

**ALCOVE SIDE VIEW / VUE DE CÔTÉ DE L'ALCÔVE**

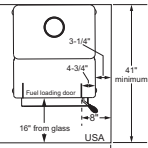
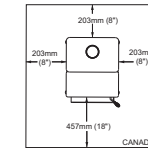
**STOVE TO CEILING CLEARANCE**  
**ESPACE LIBRE DU POÊLE AU PLAFOND**

**90° OFF TOP UP & OUT CEILING CLEARANCE**  
**ESPACE LIBRE DU DESSUS DE L'APPAREIL AU PLAFOND AVEC 90° DE COURBURE**

**STOVE TO CEILING CLEARANCE**  
**ESPACE LIBRE DU POÊLE AU PLAFOND**

**EMBER PROTECTION:** It is necessary to install a Type I floor protector. Floor protector must be non-combustible material, extending beneath appliances and the hearth/dormer as indicated on the diagram below. Exception: Non-combustible floor protectors must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side.

**PROTECTION DU PLANCHER:** Le protecteur de plancher doit être d'un minimum de 3/8 inch (10mm) d'épaisseur de matériau incombustible ou équivalent, s'étendant du dessous de l'appareil de chauffage à l'avant, aux côtés et à l'arrière comme indiqué sur le diagramme suivant. Exception: Les protections incombustibles du plancher doivent s'étendre en dessous du conduit de cheminée lorsqu'installées avec une ventilation à horizontale et s'étendre de 2 pouces (51mm) de chaque côté.

**Discovery III - Flat Top & Step Top**      **Discovery III - Flat Top & Step Top**

Year	JAN	FEB	MAR	APR	Model
2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4300 MILLENIUM-C
2021	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4300 STEP TOP-C
2022	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISCOVERY III-C

Manufactured by: **HEARTHSTONE**

352 Mountain House Road, Halifax, PA 17032 www.quadrafire.com

Made in U.S.A. of U.S. and imported parts.

Fabriqués aux États-Unis d'Amérique par des pièces d'origine américaine et pièces importées.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
 Certified to comply with 2020 particulate emission standards at 1.6 g/hr EPA Method 28 and 5G.  
 This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

**DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE**

Serial No.  
Model Name  
Test Labs & Report Numbers

**Safety Alert Key:**



- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

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**B. Warranty Policy**

**Hearth & Home Technologies  
LIMITED LIFETIME WARRANTY**

Hearth & Home Technologies, on behalf of its hearth brands (“HHT”), extends the following warranty for HHT gas, wood, pellet and electric hearth appliances that are purchased from an HHT authorized dealer.

**WARRANTY COVERAGE:**

HHT warrants to the original owner of the HHT appliance at the site of installation, and to any transferee taking ownership of the appliance at the site of installation within two years following the date of original purchase, that the HHT appliance will be free from defects in materials and workmanship at the time of manufacture. After installation, if covered components manufactured by HHT are found to be defective in materials or workmanship during the applicable warranty period, HHT will, at its option, repair or replace the covered components. HHT, at its own discretion, may fully discharge all of its obligations under such warranties by replacing the product itself or refunding the verified purchase price of the product itself. The maximum amount recoverable under this warranty is limited to the purchase price of the product. This warranty is subject to conditions, exclusions and limitations as described below.

**WARRANTY PERIOD:**

Warranty coverage for consumers begins at the date of installation. In the case of new home construction, warranty coverage begins on the date of first occupancy of the dwelling or six months after the sale of the product by an independent, authorized HHT dealer/distributor, whichever occurs earlier. However, the warranty shall commence no later than 24 months following the date of product shipment from HHT, regardless of the installation or occupancy date. The warranty period for parts and labor for covered components is produced in the following table.

The term “Limited Lifetime” in the table below is defined as: 20 years from the beginning date of warranty coverage for gas appliances, and 10 years from the beginning date of warranty coverage for wood and pellet appliances. These time periods reflect the minimum expected useful lives of the designated components under normal operating conditions.

Warranty Period		HHT Manufactured Appliances and Venting					
Parts	Labor	Gas	Pellet	Wood	Electric	Venting	Components Covered
1 Year		X	X	X	X	x	All parts and material except as covered by Conditions, Exclusions, and Limitations listed
2 years			X	X			Igniters, auger motors, electronic components, and glass
		X	X	X			Factory-installed blowers
				X			Molded refractory panels
		X					Ignition Modules
3 years			X				Firepots, burnpots, mechanical feeders/auger assemblies
5 years	1 year	X					Vent Free burners, Vent Free ceramic fiber logs, Aluminized Burners
			X	X			Castings and Baffles
6 years	3 years			X			Catalyst - limitations listed
7 years	3 years		X	X			Manifold tubes, HHT chimney and termination
10 years	1 year	X					Burners, logs and refractory
Limited Lifetime	3 years	X	X	X			Firebox and heat exchanger, Grate and Stainless Steel Burners, FlexBurn® System (engine, inner cover, access cover and fireback)
90 Days		X	X	X	X	X	All replacement parts beyond warranty period

**WARRANTY CONDITIONS:**

- This warranty only covers HHT appliances that are purchased through an HHT authorized dealer or distributor. A list of HHT authorized dealers is available on the HHT branded websites.
- This warranty is only valid while the HHT appliance remains at the site of original installation.
- This warranty is only valid in the country in which the HHT authorized dealer or distributor that sold the appliance resides.
- Contact your installing dealer for warranty service. If the installing dealer or distributor is unable to provide necessary parts, contact the nearest HHT authorized dealer or supplier. Additional service fees may apply if you are seeking warranty service from a dealer other than the dealer from whom you originally purchased the product.
- Check with your dealer in advance for any costs to you when arranging a warranty call. Travel and shipping charges for parts are not covered by this warranty.
- Limited Catalyst Warranty
  - For wood burning products containing a catalyst, the catalyst will be warranted for a six-year period as follows: if the original catalyst or a replacement catalyst proves defective or ceases to maintain 70% of its particulate emission reduction activity (as measured by an approved testing procedure) within 36 months from the purchase date, the catalyst will be replaced for free.
  - From 37 to 72 months a pro-rated credit will be allowed against a replacement catalyst and labor credit necessary to install the replacement catalyst. The proration rate is as follows:

Amount of Time Since Purchase	Credit Towards Replacement Cost
0 - 36 Months	100%
37 - 48 Months	30%
49 - 60 Months	20%
61 - 72 Months	10%

- Any replacement catalyst will be warranted under the terms of the catalyst warranty for the remaining term of the original warranty. The purchaser must provide the name, address, and telephone number of the location where the product is installed, proof of original purchase date, date of failure, and any relevant information regarding the failure of the catalyst.

**WARRANTY EXCLUSIONS:**

This warranty does not cover the following:

- Changes in surface finishes as a result of normal use. As a heating appliance, some changes in color of interior and exterior surface finishes may occur. This is not a flaw and is not covered under warranty.
- Damage to printed, plated, or enameled surfaces caused by fingerprints, accidents, misuse, scratches, melted items, or other external sources and residues left on the plated surfaces from the use of abrasive cleaners or polishes.
- Repair or replacement of parts that are subject to normal wear and tear during the warranty period are not covered. These parts include: paint, wood and pellet gaskets, firebricks, grates, flame guides, batteries and the discoloration of glass.
- Minor expansion, contraction, or movement of certain parts causing noise. These conditions are normal and complaints related to this noise are not covered by this warranty.
- Damages resulting from: (1) failure to install, operate, or maintain the appliance in accordance with the installation instructions, operating instructions, and listing agent identification label furnished with the appliance; (2) failure to install the appliance in accordance with local building codes; (3) shipping or improper handling; (4) improper operation, abuse, misuse, continued operation with damaged, corroded or failed components, accident, or improperly/incorrectly performed repairs (5) environmental conditions, inadequate ventilation, negative pressure, or drafting caused by tightly sealed constructions, insufficient make-up air supply, or handling devices such as exhaust fans or forced air furnaces or other such causes; (6) use of fuels other than those specified in the operation instructions; (7) installation or use of components not supplied with the appliance or any other components not expressly authorized and approved by HHT; (8) modification of the appliance not expressly authorized and approved by HHT in writing; and/or (9) interruptions or fluctuations of electrical power supply to the appliance.
- Non-HHT venting components, hearth connections or other accessories used in conjunction with the appliance.
- Any part of a pre-existing fireplace system in which an insert or a decorative gas appliance is installed.
- HHT's obligation under this warranty does not extend to the appliance's capability to heat the desired space. Information is provided to assist the consumer and the dealer in selecting the proper appliance for the application. Consideration must be given to the appliance location and configuration, environmental conditions, insulation and air tightness of the structure.



**This warranty is void if:**

- The appliance has been over-fired, operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals. Over-firing can be identified by, but not limited to, warped plates or tubes, deformation/warping of interior cast iron structure or components, rust colored cast iron, bubbling, cracking and discoloration of steel or enamel finishes.
- The appliance is subjected to prolonged periods of dampness or condensation.
- There is any damage to the appliance or other components due to water or weather damage which is the result of, but not limited to, improper chimney or venting installation.

**LIMITATIONS OF LIABILITY**

- The owner's exclusive remedy and HHT's sole obligation under this warranty, under any other warranty, express or implied, or in contract, tort or otherwise, shall be limited to replacement, repair, or refund, as specified above. In no event will HHT be liable for any incidental or consequential damages caused by defects in the appliance. Some states do not allow exclusions or limitation of incidental or consequential damages, so these limitations may not apply to you. This warranty gives you specific rights; you may also have other rights, which vary from state to state. EXCEPT TO THE EXTENT PROVIDED BY LAW, HHT MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE.

**C. Quick Start Guide**

**NOTE:** These are generic drawings and may not represent your specific model.

**ITEMS NEEDED FOR FIRST FIRE:** 10 Pieces of Newspaper, 10-20 Pieces of Dry Kindling and Few Pieces of Dry Split Wood.

**OPEN AIR CONTROLS**

HIGH

BURN RATE CONTROL (Upper Right Corner)

HIGH

AUTOMATIC COMBUSTION CONTROL (ACC) (Middle right hand side)

**1**

**LOAD WOOD**

**2**

**ADD NEWSPAPER**

**3**

**ADD KINDLING**

**LIGHT THE PAPER**

**4**

**Warning! Risk of Fire.**

Close and securely latch the door after the fire has started, and after refueling, to prevent:

- Spillage of smoke, flame and carbon monoxide
- Spillage of sparks, coals, and logs
- Over firing

DO NOT leave the appliance unattended with the door open.

Starting a fire may not require an open door for draft. The air control should supply adequate draft.

**5**

**ADD MORE WOOD**

**6**

**REDUCE AIR CONTROLS**

Set to desired heat output.

LOW

BURN RATE CONTROL (Upper Right Corner)

LOW

AUTOMATIC COMBUSTION CONTROL (ACC) (Middle right hand side)

**7**

**The appliance is ready for normal operation.**

# 1 Listing and Code Approvals

## A. Appliance Certification

<b>Model:</b>	4300 ACC Series
<b>Laboratory:</b>	OMNI Test Laboratories, Inc.
<b>Report No:</b>	0061WS067S
<b>Type:</b>	Listed Room Heater, Solid Fuel Type
<b>Standard:</b>	UL1482-11 (R2015) and ULC S627-00 and (UM) 84-HUD, Mobile Home Approved.

## B. BTU & Efficiency Specifications

<b>EPA Certification Number:</b>	Number: N/A
<b>EPA Certified Emissions:</b>	1.6 grams per hour
<b>*LHV Tested Efficiency:</b>	80.2%
<b>**HHV Tested Efficiency:</b>	74.2%
<b>***EPA BTU Output:</b>	12,200 to 36,800 / hr.
<b>****Peak BTU/Hour Output:</b>	61,700
<b>Vent Size:</b>	6 inches
<b>Firebox Size:</b>	2.26 cubic feet
<b>Recommended Log Length:</b>	18 inches
<b>Fuel</b>	Seasoned Cord Wood (20% moisture)
*Weighted average LHV (Low Heating Value) efficiency using Douglas Fir dimensional lumber and data collected during EPA emission test. LHV assumes the moisture is already in a vapor state so there is no loss in energy to vaporize.	
**Weighted average HHV (High Heating Value) efficiency using Douglas Fir dimensional lumber and data collected during EPA emission test. HHV includes the energy required to vaporize the water in the fuel.	
***A range of BTU outputs calculated using HHV Efficiency and the burn rates from the EPA tests, using Douglas Fir dimensional lumber.	
****A peak BTU out of the appliance calculated using the maximum first hour burn rate from the High EPA Test and BTU content of seasoned cordwood (8600) times the efficiency.	

This 4300 Series is Certified to comply with 2020 crib wood particulate emission standards.



This wood appliance needs periodic inspection and repair for proper operation. It is against federal regulations to operate this wood appliance in a manner inconsistent with operating instructions in this manual.

**NOTE:** This installation must conform with local codes. In the absence of local codes you must comply with **(UM) 84-HUD and NFPA211 in the U.S.A. and CAN/CSA-B365 Installation Codes in Canada.**

### C. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

### D. Mobile Home Approved

- This appliance is approved for mobile home installations when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire, and chimney must be listed to UL103 HT or a listed UL-1777 full length six inch (152mm) diameter liner must be used.
- Outside Air Kit, part OAK-ACC must be installed in a mobile home installation.

### E. Sleeping Room

When installed in a sleeping room it is recommended that a smoke and/or CO alarm be installed in the bedroom. The size of the room must be at least 50ft<sup>3</sup> per 1,000 Btu/hr stove input, if the stove exceeds the room size, out air must be installed.

### F. California - Prop65



#### WARNING

This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: [WWW.P65Warnings.ca.gov](http://WWW.P65Warnings.ca.gov)



#### WARNING



#### Fire Risk.

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
  - Modification of the appliance.
  - Installation other than as instructed by Hearth & Home Technologies.
  - Installation and/or use of any component part not approved by Hearth & Home Technologies.
  - Operating appliance without fully assembling all components.
  - Operating appliance without legs attached (if supplied with appliance).
  - Do NOT Over fire - If appliance or chimney connector glows, you are over firing.
- Any such action that may cause a fire hazard.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.



For assistance or additional information, consult a qualified installer, service agency or your dealer.

**NOTE:** Hearth & Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and/or price without notice.

# User Guide

## 2 Operating Instructions

### A. Over-Firing Your Appliance

	<b>WARNING</b>
	<p><b>Fire Risk. Do not over-fire.</b> Over-firing may ignite creosote or will damage the appliance and chimney.</p>
	<p>To prevent over-firing your appliance, <b>DO NOT:</b></p> <ul style="list-style-type: none"> <li>• Use flammable liquids</li> <li>• Overload with wood</li> <li>• Burn trash or large amounts of scrap lumber</li> <li>• Permit too much air to the fire</li> </ul>

Visit [www.quadrafire.com/shopping-tools/videos](http://www.quadrafire.com/shopping-tools/videos) to view product and use & care videos.

#### 1. Symptoms of Over-Firing

Symptoms of over-firing may include one or more of the following:

- Chimney connector or appliance glowing
- Roaring, rumbling noises
- Loud cracking or banging sounds
- Metal warping
- Chimney fire

#### 2. What To Do if Your Appliance is Over-Firing

- Immediately close the door and air controls to reduce air supply to the fire.
- If you suspect a chimney fire, call the fire department and evacuate your house.
- Contact your local chimney professional and have your appliance and appliance pipe inspected for any damage.
- Do not use your appliance until the chimney professional informs you it is safe to do so.

Hearth & Home Technologies WILL NOT warranty appliances that exhibit evidence of over-firing. Evidence of over-firing includes, but is not limited to:

- Warped air tube
- Deteriorated refractory brick retainers
- Deteriorated baffle and other interior components

### B. Wood Selection & Storage

Burn only dry seasoned wood. Store wood under cover, out of the rain and snow. Dry and well-seasoned wood will not only minimize the chance of creosote formation, but will give you the most efficient fire. Even dry wood contains at least 15% moisture by weight, and should be burned hot enough to keep the chimney hot for as long as it takes to dry the wood out - about one hour. It is a waste of energy to burn unseasoned wood of any kind.

Dead wood lying on the forest floor should be considered wet, and requires full seasoning time. Standing dead wood can be considered to be about 2/3 seasoned. To tell if wood is dry enough to burn, check the ends of the logs. If there are cracks radiating in all directions from the center, it is dry. If your wood sizzles in the fire, even though the surface is dry, it may not be fully cured.

Splitting wood before it is stored reduces drying time. Wood should be stacked so that both ends of each piece are exposed to air, since more drying occurs through the cut ends than the sides. This is true even with wood that has been split. Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood, etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.

### C. Burning Process

In recent years there has been an increasing concern about air quality. Much of the blame for poor air quality has been placed on the burning of wood for home heating. In order to improve the situation, we at Quadra-Fire have developed cleaner-burning wood appliances that surpass the requirements for emissions established by our governing agencies. These wood appliances, like any other appliances, must be properly operated in order to insure that they perform the way they are designed to perform. Improper operation can turn most any wood appliance into a smoldering environmental hazard.

#### 1. Kindling or First Stage

It helps to know a little about the actual process of burning in order to understand what goes on inside a appliance. The first stage of burning is called the kindling stage. In this stage, the wood is heated to a temperature high enough to evaporate the moisture which is present in all wood. The wood will reach the boiling point of water (212°F) and will not get any hotter until the water is evaporated. This process takes heat from the coals and tends to cool the appliance.

Fire requires three things to burn - fuel, air and heat. So, if heat is robbed from the appliance during the drying stage, the new load of wood has reduced the chances for a good clean burn. For this reason, it is always best to burn dry, seasoned firewood. When the wood isn't dry, you must open the air controls and burn at a high burn setting for a longer time to start it burning. The heat generated from the fire should be warming your home and establishing the flue draft, not evaporating the moisture out of wet, unseasoned wood, resulting in wasted heat.

**2. Second Stage**

The next stage of burning, the secondary stage, is the period when the wood gives off flammable gases which burn above the fuel with bright flames. During this stage of burning it is very important that the flames be maintained and not allowed to go out. This will ensure the cleanest possible fire. If the flames tend to go out, it is set too low for your burning conditions. The air control located at the upper right hand corner is used to adjust for burn rates. This is called the Burn Rate Air Control (Figure 11.1).

**3. Final Stage**

The final stage of burning is the charcoal stage. This occurs when the flammable gases have been mostly burned and only charcoal remains. This is a naturally clean portion of the burn. The coals burn with hot blue flames.

It is very important to reload your appliance while enough lively hot coals remain in order to provide the amount of heat needed to dry and rekindle the next load of wood. It is best to open the Burn Rate Air and Start-Up Air Controls before reloading. This livens up the coal bed and reduces excessive emissions (opacity/smoke). Open door slowly so that ash or smoke does not exit appliance through opening. You should also break up any large chunks and distribute the coals so that the new wood is laid on hot coals.

Air quality is important to all of us, and if we choose to use wood to heat our homes we should do so responsibly. To do this we need to learn to burn our appliances in the cleanest way possible. Doing this will allow us to continue using our wood appliances for many years to come.

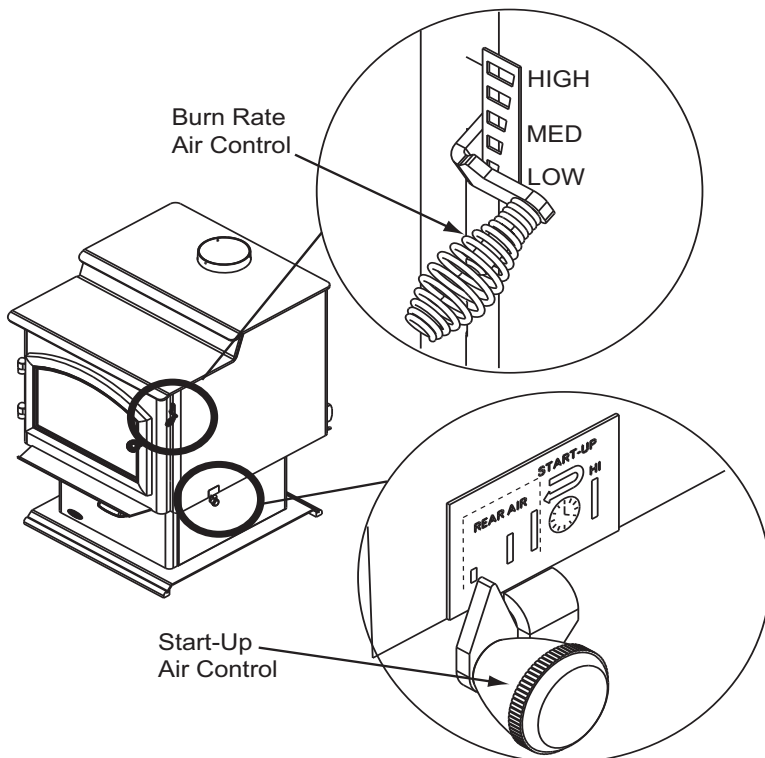


Figure 11.1

**D. Air Controls**

Users will need to find their preferred setting between high and low based on desired heat output, installation configuration, and fuel type.

**1. Burn Rate Air Control**

This air supply enters at the upper front of the firebox, near the top of the glass door. This preheated air supplies the necessary fresh oxygen to mix with the unburned gases, helping to create second, third and fourth combustions. This air is regulated by the Burn Rate Air Control. When the control is moved all the way up it is on the High setting and when moved all the way down it is on the Low setting (Figure 11.1).

**2. Automatic Combustion Control System (ACC)**

To engage the Automatic Combustion Control (ACC) timer system push the lever towards the back of the appliance to the "HI" position, then pull forwards towards the front of the appliance until the knob stops. The timer will slowly close in about 25 minutes. Use this feature when reloading fuel or if you want more air supplied to the fire (Figure 11.2).

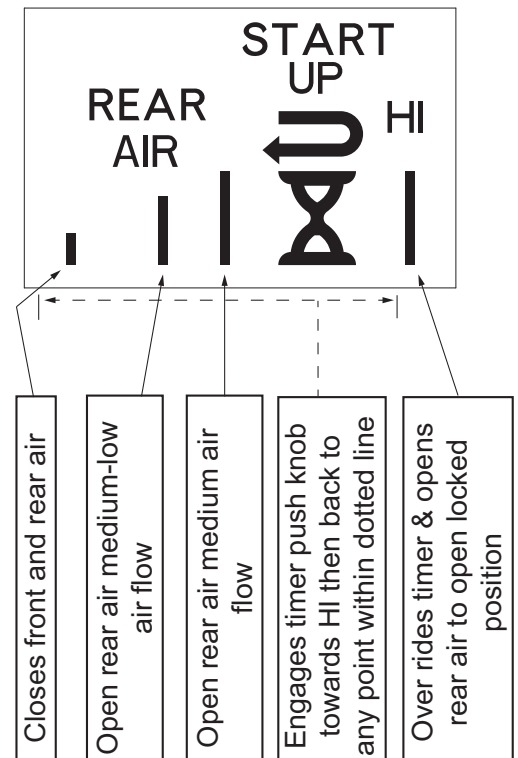



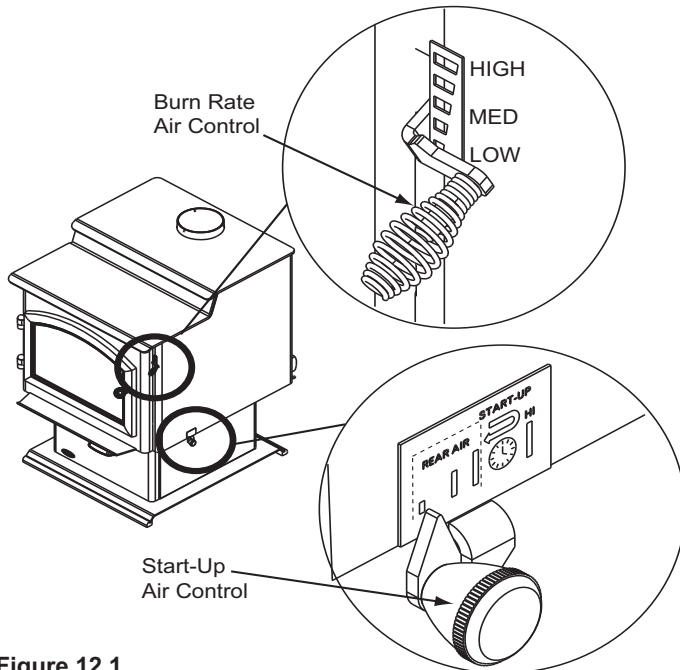
Figure 11.2

**E. Using Burn Rate Air Control & ACC System**

 <p><b>CAUTION</b></p>
 <p><b>Injury Risk.</b></p> <ul style="list-style-type: none"> <li>• Gloves recommended</li> </ul>

**1. Start up and Reloading Fuel**

Open both Burn Rate Air Control and ACC systems fully. To do this with the Burn Rate Air Controls push spring handle up to high. For the ACC timer system push knob towards back of appliance until the knob is located under the high position (**Figure 12.1**).



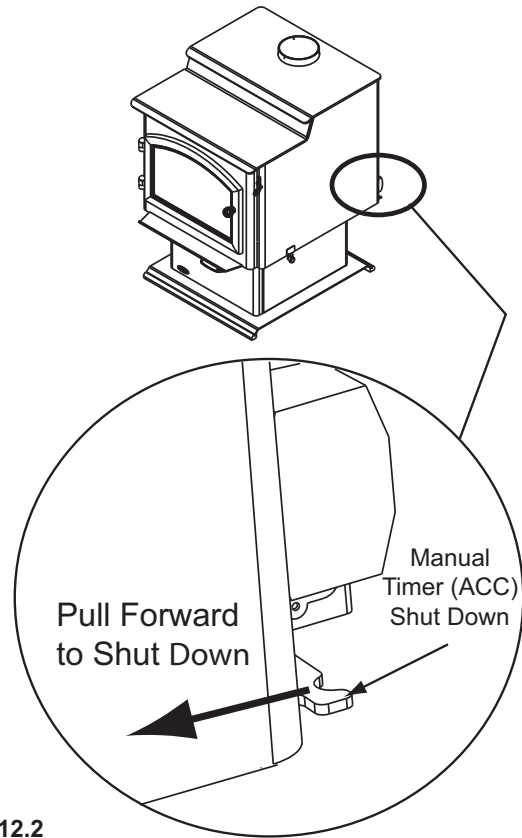
**Figure 12.1**

**2. Maximize Heat with The ACC System**

To maximize heat output with the ACC timer System or also known as high burn push the ACC Air Control lever towards the back of the appliance and leave. This combined with having the main burn rate control lever pushed up will deliver the most amount of air needed to achieve the highest amount of heat output (**Figure 12.1**).

**3. Manual Timer Over-Ride**

If you need to shut the ACC system off before it goes through the cycle of shutting itself off; 25 minutes, reach towards the back of the appliance on the right side and pull the lever towards the front of the appliance (**Figure 12.2**).



**Figure 12.2**

## F. Burn Rates and Operating Efficiency

### For maximum operating efficiency

This wood appliance 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 appliance in a manner inconsistent with operating instructions in this manual.

- Burn dry, well-seasoned wood.

### Burn Rates

#### 1. Low burn setting:

- Burn Rate Air Control spring handle up to high position for 5 minutes.
- Then activate the ACC timer system by pushing the knob all the back toward the appliance to “HI” then pull forwards towards the front of the appliance until the knob stops (**Figure 11.1 and Figure 11.2 on page 11**).
- At that point close the Burn Rate Air Control by moving the spring handle to the low setting.

#### 2. Medium low burn setting:

- Burn Rate Air Control spring handle up to high position for 5 minutes.
- Then activate the ACC timer system by pushing the knob all the back toward the appliance to “HI” then pull forwards towards the front of the appliance until the knob stops.
- At that point move the Burn Rate Air Control spring handle to 1/8” - 1/2” from the low setting.

#### 3. Medium high burn setting:

- Burn Rate Air Control spring handle up to high position.
- Then activate the ACC timer system by pushing the knob all the back toward the appliance to “HI” then pull forwards towards the front of the appliance until the knob stops.
- At that point move the Burn Rate Air Control spring handle to 1/2” – high.



#### 4. High burn setting:

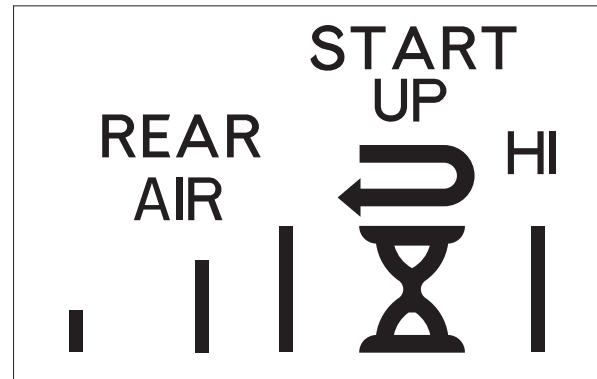
- Burn Rate Air Control spring handle up to high position
- Also activate ACC timer system knob pushed back to the “HI” position.

**NOTE:** If using the optional blower use burn settings 1-3 burn settings the blower shall be off for the first 30 minutes and then be operated in the high position at 30 minutes. For high burn setting, blower may continue to be on full after the loading of the fuel.

**NOTE:** The above information is provided as a guideline only. Altitude and other circumstances may require control adjustments to achieve the desired burn rates.

**NOTE:** Operate appliance on High Burn 45 minutes a day to help keep flue/chimney clean.

	<b>WARNING</b>
	<p><b>Risk of Fire.</b> When set on High Burn Rate and over-riding the Automatic Combustion Control system an over fire situation can occur and may result in a chimney fire. Over firing will void the appliance warranty.</p>



**Figure 13.1**

After activating the timer (ACC), if the control is placed within the rear air section on the label it will allow rear air to enter the firebox. This will not interfere with the timer gradually closing the front air channel in 25 minutes. If control is set on “HI” it over-rides the timer (ACC).



## G. Building A Fire

Before lighting your first fire in the appliance:

**NOTE:** The special high temperature paint that your appliance is finished with will cure as your appliance heats. You will notice an odor and perhaps see some vapor rise from the appliance surface; this is normal. We recommend that you open a window until the odor dissipates and paint is cured.

1. Confirm the baffle is correctly positioned. It should be even with the front tube and resting on all tubes (**Figure 14.1 and Figure 14.2**).
2. Remove all labels from glass and inside of appliance.

There are many ways to build a fire. The basic principle is to light easily-ignitable tinder or paper, which ignites the fast burning kindling, which in turn ignites the slow-burning firewood. Here is one method that works well:

3. Open the Burn Rate Air and ACC Controls fully (Refer to page 7, Start-Up Guide).
4. Place several wads of crushed paper on the firebox floor. Heating the flue with slightly crumpled newspaper before adding kindling keeps smoke to a minimum.
5. Lay small dry sticks of kindling on top of the paper.
6. Make sure that no matches or other combustibles are in the immediate area of the appliance. Be sure the room is adequately ventilated and the flue unobstructed.
7. Light the paper in the appliance. NEVER light or rekindle fire with kerosene, gasoline, or charcoal lighter fluid; the results can be fatal.
8. Once the kindling is burning quickly, add several full-length logs 3 inches (76mm) or 4 inches (102mm) in diameter. Be careful not to smother the fire. Stack the pieces of wood carefully; near enough to keep each other hot, but far enough away from each other to allow adequate air flow between them.
9. Set the Burn Rate Air Control and activate the ACC timer system.
10. When ready to reload, It is best to fully open both the Burn Rate Air and Start-up Air Controls **before reloading**. This livens up the coal bed and reduces excessive emissions (opacity/smoke). Open door slowly so that ash or smoke does not exit appliance through opening. Large logs burn slowly, holding a fire longer. Small logs burn fast and hot, giving quick heat.
11. As long as there are hot coals, repeating steps 6 through 8 will maintain a continuous fire.

### NOTE:

- Build fire on brick firebox floor.
- Do NOT use grates, andirons or other methods to support fuel. It will adversely affect emissions.



## WARNING



### Fire Risk.

#### Do NOT store wood:

- Closer than required clearances to combustibles to appliance
- Within space required for loading or ash removal.

#### Do NOT operate appliance:

- With appliance door open.
- With ash removal system door open.

Baffle Board even with front tube & resting on all tubes

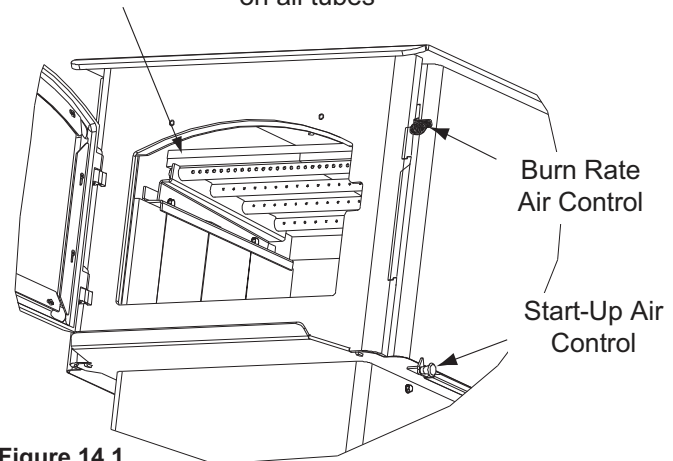


Figure 14.1

Ceramic Blanket on Top

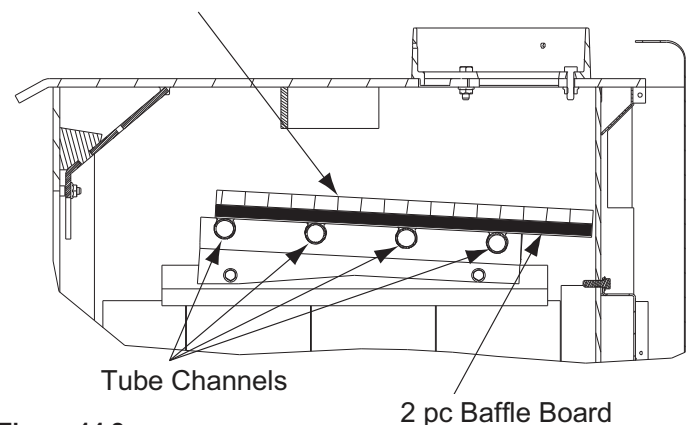


Figure 14.2



## WARNING



### Fire Risk.

- Do NOT burn wet or green wood.
- Store wood in dry location.
- Stack wood so both ends are exposed to air.

Wet, unseasoned wood can cause accumulation of creosote.

## H. Blower Operating Instructions

**NOTE:** If your Quadra-Fire wood appliance is equipped with an optional blower, you should follow these guidelines:

### 1. Initial (cold) start-up and all Burn Settings

The blower can be plugged in and turned on right away. The blower fan is turned on and off by a snap disc. When your appliance has reached a certain temperature the blower will turn on and when your appliance has cooled down to a certain temperature it will turn off. Switch on blower control must be set to auto for this feature to work.

2. The blower is equipped with a speed control. Adjust the fan speed by turning the speed control clockwise to "Low" or counterclockwise to "High".

### 3. Snap Disc Location

If you find the blower coming on and off at undesirable temperatures, relocate the snap disc to another location in the designated zone on the back of the appliance (**Figure 15.1**). There is a manual over-ride switch to deactivate the snap disc, if necessary.

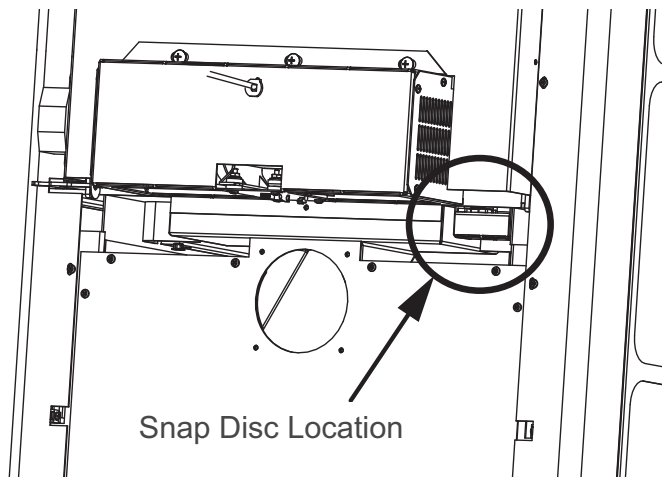


Figure 15.1

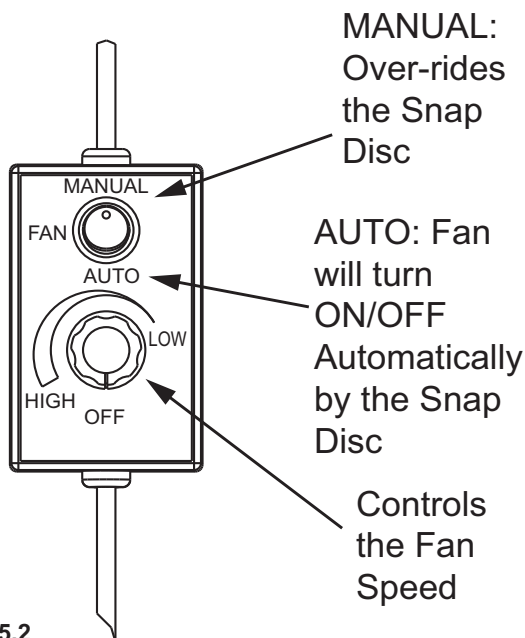


Figure 15.2

## I. Opacity (Smoke)

This is the measure of how cleanly your appliance is burning. Opacity is measured in percent; 100% opacity is when an object is totally obscured by the smoke column from a chimney, and 0% opacity means that no smoke column can be seen. As you become familiar with your appliance, you should periodically check the opacity. This will allow you to know how to burn as nearly smoke-free as possible (goal of 0% opacity).



### WARNING

#### Fire Risk.

- DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.
- Do NOT burn treated wood or wood with salt (driftwood).
- May generate carbon monoxide if burn material other than wood.

May result in illness or possible death.



### WARNING

#### Fire Risk.

Keep combustible materials, gasoline and other flammable vapors and liquids clear of appliance.

- Do NOT store flammable materials in the appliance's vicinity.
- DO NOT USE GASOLINE, LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID OR SIMILAR LIQUIDS TO START OR "FRESHEN UP" A FIRE IN THIS Appliance.
- Keep all such liquids well away from the appliance while it is in use.
- Combustible materials may ignite.



### CAUTION

When burning your first fire, you will experience smoke and odor from the appliance resulting from the curing of paint and burning off of any oils remaining from manufacturing.

#### **OPEN WINDOWS DURING INITIAL BURN TO DISSIPATE SMOKE AND ODORS!**

- Odors may be irritating to sensitive individuals.
- Smoke detectors may activate.

### J. Clear Space

**NOTE:** Do NOT place combustible objects within 4 ft (1.2 m) of the front of appliance (**Figure 16.1**).

- **Mantel:**  
Avoid placing candles and other heat-sensitive objects on mantel or hearth. Heat may damage these objects.



### WARNING

Do NOT place combustible objects in front of the appliance. High temperatures may ignite clothing, furniture or draperies.

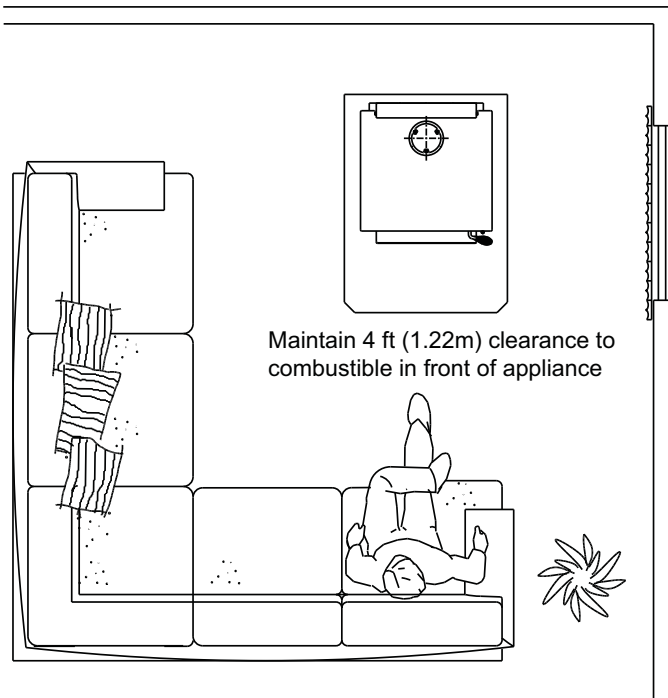


Figure 16.1

### K. Negative Pressure



### WARNING



#### Asphyxiation Risk.

- Negative pressure can cause spillage of combustion fumes, soot and carbon monoxide.
- Appliance needs to draft properly for safety.

Negative pressure results from the imbalance of air available for the appliance to operate properly. It can be strongest in lower levels of the house.

#### Causes include:

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water appliances and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
- Recessed lighting
- Attic hatch
- Duct leaks


#### To minimize the effects of negative air pressure:

- Install the outside air kit with the intake facing prevailing winds during the heating season
- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the appliance
- Avoid installing the appliance near doors, walkways or small isolated spaces
- Recessed lighting should be a "sealed can" design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed


## L. Frequently Asked Questions

ISSUES	SOLUTIONS
Odor from appliance	When first operated, this appliance may release an odor for the first several hours. This is caused by the curing of the paint and the burning off of any oils remaining from manufacturing.
Metallic noise	Noise is caused by metal expanding and contracting as it heats up and cools down, similar to the sound produced by a furnace or heating duct. This noise does not affect the operation or longevity of the appliance.
Whirring sound	If the optional blower has been installed, the blower produces a whirring sound which increases in volume as the speed is increased.

**CONTACT YOUR DEALER for additional information regarding operation and troubleshooting.  
Visit [www.quadrafire.com](http://www.quadrafire.com) to find a dealer.**




**WARNING**




**Fire Risk.**

- DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.
- Do NOT burn treated wood or wood with salt (driftwood).
- May generate carbon monoxide if burn material other than wood.

May result in illness or possible death.



**WARNING**



**Fire Risk.**

Keep combustible materials, gasoline and other flammable vapors and liquids clear of appliance.

- Do NOT store flammable materials in the appliance's vicinity.
- DO NOT USE GASOLINE, LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID OR SIMILAR LIQUIDS TO START OR "FRESHEN UP" A FIRE IN THIS APPLIANCE.
- Keep all such liquids well away from the appliance while it is in use.
- Combustible materials may ignite.

# 3 Maintenance and Service

## A. Quick Reference Maintenance Guide

When properly maintained, your fireplace will give you many years of trouble-free service. Contact your dealer to answer questions regarding proper operation, troubleshooting and service for your appliance. Visit [www.quadrafire.com/owner-resources](http://www.quadrafire.com/owner-resources) to view basic troubleshooting, FAQs, use & care videos.



### CAUTION!

Allow the appliance to completely cool down before performing any cleaning or maintenance. Start the first inspection after the first 2 months of use, or if performance changes, and adjust your schedule accordingly. Maintenance is required for safe operation and must be performed to maintain your warranty.

	FREQUENCY	TASK
<p><b>Baffle &amp; Blanket</b></p>	<p>MONTHLY or after every one (1) cord of wood</p>	<p>Baffle and blanket placement is critical to heat output, efficiency and overall life of the appliance. Make sure the baffle is pushed all of the way to the back of the firebox and the blanket is laying flat. Inspect baffle for cracks.</p>
<p><b>Optional Blower</b></p>	<p>YEARLY or after every four (4) cords of wood</p>	<p>Vacuum the blower impellers.</p>
<p><b>Chimney System</b></p>	<p>EVERY TWO MONTHS or after every four (4) cords of wood</p>	<p>The chimney and chimney cap must be inspected for soot and creosote every two months during the burn season or more frequency if chimney exceeds or is under 14-16 ft (4.3m-4.8m) measured from bottom of appliance.</p> <p>This will prevent pipe blockage, poor draft, and chimney fires. Always burn dry wood to help prevent cap blockage and creosote build-up.</p>
<p><b>Firebrick &amp; Ash Removal</b></p>	<p>WEEKLY or after every 25 loads of wood</p>	<p>Ashes must be cool before you can dispose of the ashes in a non-combustible container.</p> <p>Firebrick is designed to protect your firebox. After ashes are removed, inspect the firebrick and replace firebricks that are crumbling, cracked or broken.</p>
<p><b>Door &amp; Glass Assemblies</b></p>	<p>WEEKLY or after every 25 loads of wood</p>	<p>Keep door and glass gasket in good shape to maintain good burn. <u>To test:</u> place a dollar bill between the appliance and door and then shut the door. If you can pull the dollar out, remove one washer from door handle behind latch cam and try again. If you can still pull it out, replace the door gasket.</p> <p>Check the glass frame for loose screws to prevent air leakage.</p> <p>Check glass for cracks.</p>
<p><b>Door Handles</b></p>	<p>WEEKLY or after every 25 loads of wood</p>	<p>Check the door latch for proper adjustment. This is very important especially after the door rope has formed to the appliance face.</p> <p>Check door handle for smooth cam operation.</p>

*These are generic drawings and may not represent your model.*

## B. Cleaning and Operating the Ash Removal System



### WARNING



#### Fire Risk.

Make sure Ash Removal System door is sealed tight against the gasket.

#### Air leakage may cause:

- Over-fire condition
- Flame and/or smoke spillage
- Wood to burn too fast
- Do NOT use Ash Removal System while stove is burning.

1. The appliance and ashes must be completely cool before using the Ash Removal System (ARS). Locate the ash removal door handle under the left side of the stove in the center. Grasp the handle with your fingers and place your thumb on the latch release. Press the latch release inward. Keep the latch release pressed in and lower the handle gently. Take your thumb off the release once the handle is clear of the latch and guide the handle back until it stops.
2. Remove cast iron cap from inside the firebox using tools supplied. Clean ash through the ash removal system channel into the drawer below (**Figure 19.2**). Make sure all ash is removed from the top of ARS door. Lift up the grate and inspect the top of the door to ensure all ash has been removed. You can rapidly move the ARS latch handle up and down to help remove any ash from the door. Use a small brush to clean off the top of the door if any ash remains. **Be sure to replace the cap before operating the stove.** It is recommended to leave 1/4 to 1/2 inch (6-13mm) of ash on the firebox floor to allow air to flow freely underneath wood.
3. Close the door handle, you will hear a “click” when it closes. The ash drawer will not pull out if the door handle is left in the open position. Wear gloves to remove the drawer. Dispose of the ashes properly as described in your owner’s manual.



### CAUTION



#### Injury Risk.

- Gloves recommended
- May have sharp edges

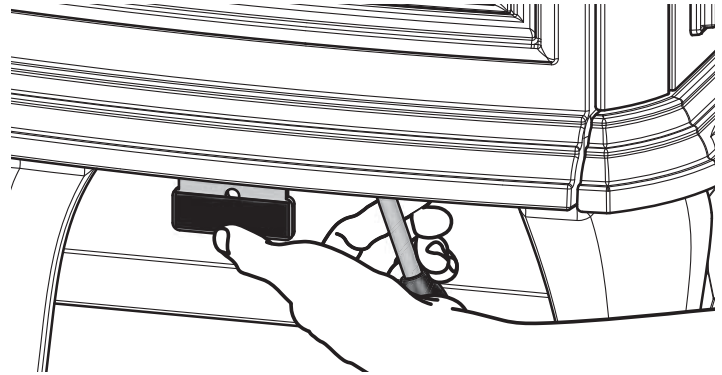


Figure 19.1

#### Access Cover Handle

Insert Access Cover Handle into slot of ARS Cover to remove ARS Cover for cleaning ash out of firebox.

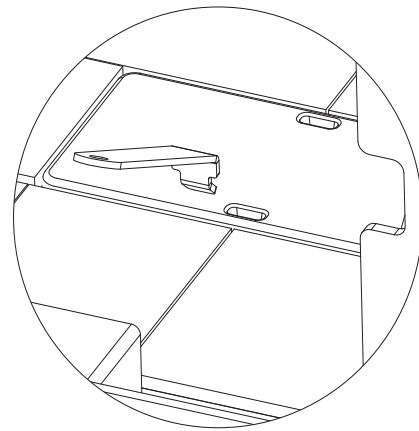


Figure 19.2

## C. General Maintenance

### 1. Creosote (Chimney) Cleaning

- **Frequency:** Every 2 months during heating season or as recommended by a certified chimney sweep; more frequently if chimney exceeds or is under 14-16 ft. (measured from bottom of appliance)
- **By:** Certified Chimney Sweep

Remove all ash from the firebox and extinguish all hot embers before disposal. Allow the appliance to cool completely. Disconnect flue pipe or remove baffle and ceramic blanket from appliance before cleaning chimney. Otherwise residue can pile up on top of the baffle and ceramic blanket and the appliance will not work properly. (See Baffle Removal on page 26). Close the door tightly. The creosote or soot should be removed with a brush specifically designed for the type of chimney in use. Clean out fallen ashes from the firebox.

It is also recommended that before each heating season the entire system be professionally inspected, cleaned and repaired if necessary.

#### Inspection:



Inspect the system at the appliance connection and at the chimney top. Cooler surfaces tend to build creosote deposits quicker, so it is important to check the chimney from the top as well as from the bottom.



**Formation and Need For 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 cool chimney flue of a newly-started or a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote creates an extremely hot fire which may damage the chimney or even destroy the house.

The chimney connector and chimney should be inspected once every 2 months during the heating season to determine if a creosote or soot buildup has occurred. If creosote or soot has accumulated, it should be removed to reduce the risk of a chimney fire.

	<b>WARNING</b>
	<p><b>Fire Risk.</b> Prevent creosote buildup.</p> <ul style="list-style-type: none"> <li>• Inspect chimney connector and chimney once every two months during heating season.</li> <li>• Remove creosote to reduce risk of chimney fire.</li> <li>• Ignited creosote is extremely HOT.</li> </ul>

	<b>WARNING</b>
	<p><b>Fire Risk.</b></p> <ul style="list-style-type: none"> <li>• Do not use chimney cleaners or flame colorants in your appliance. Will corrode chimney pipe.</li> </ul>

**2. Cleaning Plated Surfaces**

- **Frequency:** Prior to first burn and then as desired
- **By:** Homeowner

Clean all the fingerprints and oils from plated surfaces BEFORE firing the appliance for the first time. If not cleaned properly before lighting your first fire, the oils can cause permanent markings on the plating.



After the plating is cured, the oils will not affect the finish and little maintenance is required. Wipe clean as needed.

	<b>CAUTION</b>
<ul style="list-style-type: none"> <li>• Do not use polishes with abrasives. It will scratch plated surfaces.</li> </ul>	

**3. Disposal of Ashes**

- **Frequency:** When ash is within 1-3/4 in. (44mm) of firebox lip
- **By:** Homeowner

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

	<b>WARNING</b>
	<p><b>Fire Risk. Disposal of Ashes</b></p> <ul style="list-style-type: none"> <li>• Ashes should be placed in metal container with tight fitting lid.</li> <li>• Do not place metal container on combustible surface.</li> <li>• Ashes should be retained in closed container until all cinders have thoroughly cooled.</li> </ul>

**4. Glass Cleaning**

- **Frequency:** As desired
- **By:** Homeowner

Clean glass with a non-abrasive glass cleaner. Abrasive cleaners may scratch and cause glass to crack. If the deposits on the glass are not very heavy, normal glass cleaners work well. Heavier deposits may be removed by using a damp cloth dipped in wood ashes or by using a commercially available oven cleaner.

After using an oven cleaner, it is advisable to remove any residue with a glass cleaner or soap and water. Oven cleaner left on during the next firing can permanently stain the glass and damage the finish on metal surfaces.

A portion of the combustion air entering the firebox is deflected down over the inside of the door glass. This air flow “washes” the glass, helping to keep smoke from adhering to its surface.

When operated at a low burn rate, less air will be flowing over the glass and the smokey, relatively cool condition of a low fire will cause the glass to become coated.

Operating the appliance with the Burn Rate Air Control and Start-Up Air Control all the way open for 30-45 minutes should remove the built up coating.

	<b>CAUTION</b>
<ul style="list-style-type: none"> <li>• Do not use polishes with abrasives. It will scratch the glass surface.</li> </ul>	

**C. Correct Baffle & Blanket Placement**



**WARNING**

**Fire Risk.**

Firebox damage due to improper baffle placement is not covered by warranty. Operate the wood burning appliance with the baffle in the correct position only.



Not doing so could result in:

- Reduced efficiency
- Overheating the chimney
- Overheating the rear of the firebox
- Poor performance

Ensure correct baffle placement and replace baffle components if damaged or missing.



**CAUTION**

The baffle boards are **FRAGILE**. Use extreme caution when loading firewood to prevent:

- Cracking, breaking or damaging the baffle boards
- DO NOT** operate the appliance without baffle boards

**CORRECT POSITION**

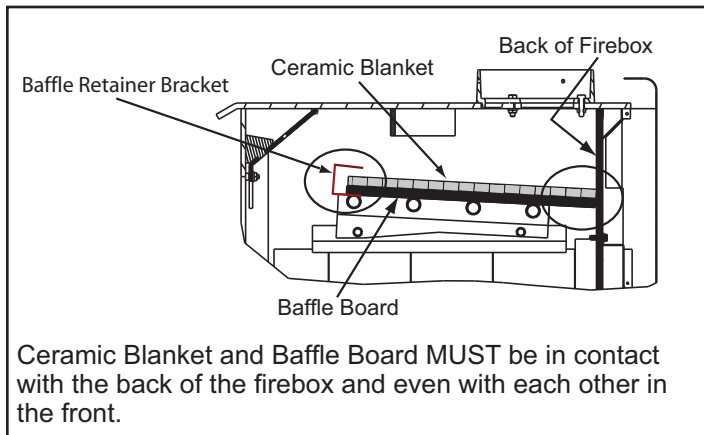
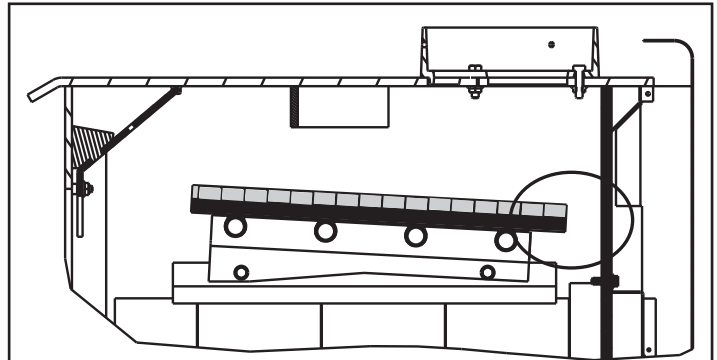
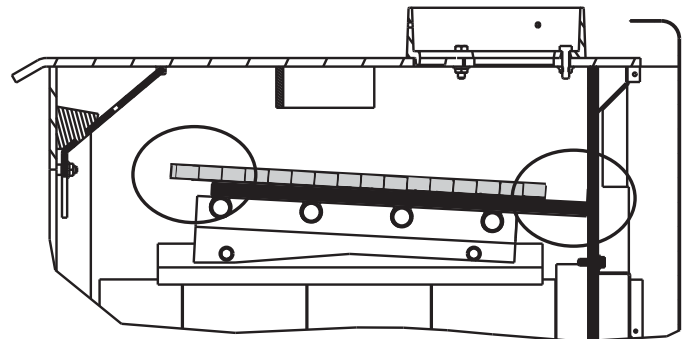


Figure 21.1

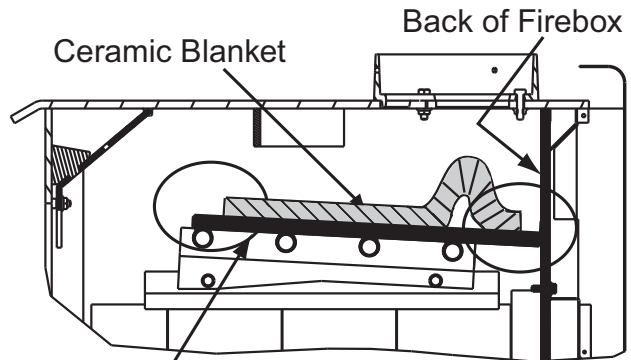
**INCORRECT POSITIONS**



Ceramic Blanket and Baffle Board are **NOT** in contact with the back of the firebox.



Ceramic Blanket is **NOT** in contact with the back of the firebox and **NOT** even with the Baffle Board in the front.



Ceramic Blanket is bunched up at the back of the firebox and **NOT** even with the Baffle Board in the front.

Figure 21.2



# 4 Troubleshooting Guide

With proper installation, operation, and maintenance your wood appliance will provide years of trouble-free service. If you do experience a problem, this troubleshooting guide will assist you or a qualified service person in the diagnosis of a problem and the corrective action to be taken.

Start Fire Problems	Possible Cause	Solution
Can not get fire started Excessive smoke or spillage Burns too slowly Not enough heat output	Not enough kindling/paper or no kindling/paper	Use dry kindling, more paper. Arrange kindling & wood for air movement.
	Not enough air for fire to ignite	Check for restricted termination cap
		Check for blockage of outside air kit (if installed).
		Check for flue blockage.
		Pre-warm flue before starting fire (refer to Building a Fire Section).
		Check for adequate vent height (refer to Chimney Height Section).
	Open window below the appliance towards the wind.	
	Wood condition is too wet, too large	Use dry, seasoned wood (refer to Seasoned Wood Section).
	Bed of coals not established before adding wood	Start with paper & kindling to establish bed of coals (refer to Building a Fire Section).
Flue blockage such as birds' nests or leaves in termination cap	Have chimney inspected for creosote and cleaned by a certified chimney sweep.	
Down draft or negative pressure Competition with exhaust devices	Do not use exhaust fans during start-up (refer to Negative Pressure Section).	
	Open window below the appliance towards the wind.	
Fire burns too fast	Extremely dry or soft wood	Mix in hardwood.
		Mix in less seasoned wood after fire is established (refer to Wood Fuel Section).
	Over drafting	Check for correct vent height; too much vertical height creates over drafting.
		Check location of vent termination (refer to Chimney Termination Requirement Section).

# 5 Service Part Replacement

## A. Glass

**NOTE: Replace with 5mm ceramic glass only.**

**Service Part: 7000-012**

1. Ensure that the fire is out and the appliance is cool to the touch.
2. Protect a table or counter top with padding or towels. Protect your hands and wear gloves to prevent injury.
3. Remove the door with the broken glass by lifting the door up and off of the hinges.
4. Lay door face down on a table or counter making sure the handle hangs over the edge so the door lays flat, on a soft surface.
5. Remove the screws from each glass retainer and remove the glass. (If screws are difficult to remove, soak with penetrating oil first).
6. Center the glass with edges evenly overlapping the opening in the door, (i.e. same space top and bottom, left and right sides).
7. Replace the glass retainers. Be careful not to cross thread the screws.
8. Tighten each retainer just a few turns until each is secured. Check again for centering of glass in door frame. Continue to tighten each retainer alternately, a few turns at a time, until the glass is secure.

**NOTE: DO NOT OVER TIGHTEN RETAINERS - can cause glass to break.**

9. Replace the door on the appliance.

Quadra-Fire appliances are equipped with ceramic super heat-resistant glass, which can only be broken by impact or misuse.



### WARNING

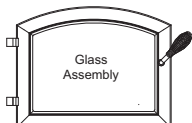


#### Injury Risk.

- Use only glass specified in manual.
- DO NOT REPLACE with any other material.



### CAUTION!



Handle glass assembly with care.  
**When cleaning glass:**

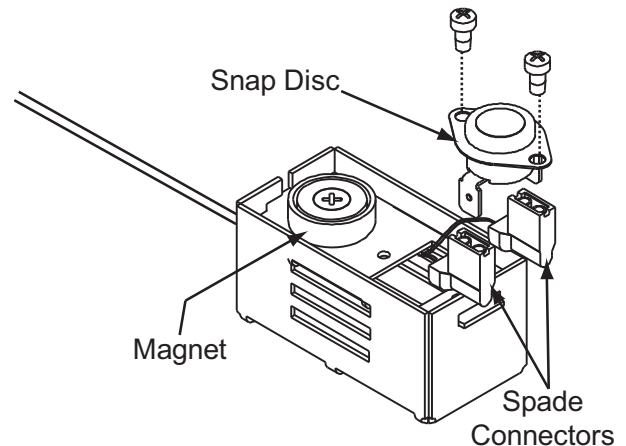
- Avoid striking, scratching or slamming glass.
- Do NOT clean glass when hot.
- Do NOT use abrasive cleaners.
- Use a hard water deposit glass cleaner on white film.
- Use commercial oven cleaner on heavier deposits.
- Remove all residue of oven cleaner or will permanently stain glass on next firing.

**Refer to maintenance instructions.**

## B. Snap Disc

**Service Part: SRV230-0470**

- Locate the snap disc bracket assembly at the bottom left rear corner of the appliance.
- A magnet holds the bracket to the appliance. Pull the bracket down away from the appliance to expose the snap disc.
- Using a Phillips head screw driver, remove the 2 screws from the snap disc and then remove the snap disc from the spade connectors.
- Replace with new snap disc and re-connect to spade connectors.
- Pull the snap disc and spade connectors up and out of bracket as shown in **Figure 23.1**
- Push the snap disc and spade connectors back inside bracket and re-attach the bracket to the appliance.



**Figure 23.1**

**C. Firebrick**

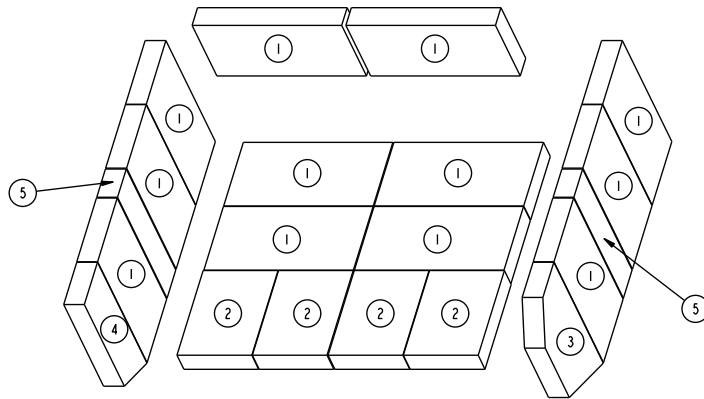
Replace the firebrick if they become crumbly and/or if there is a 1/4 inch (6.35mm) gap between the bricks.

Inspect the firebrick after each ash removal.

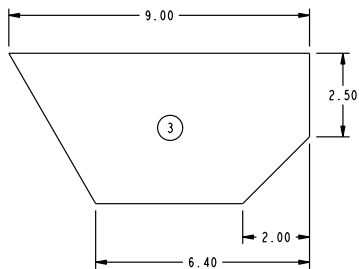
The firebox is lined with high quality firebrick, which has exceptional insulating properties. There is no need to use a grate; simply build a fire on the firebox floor. Do not operate appliance without firebrick.

1. After the coals have completely cooled, remove all old brick and ash from appliance and vacuum firebox.
2. Remove new brick set from box and lay out to diagram shown below.
3. Lay bottom bricks in appliance.
4. Install rear bricks on the top of the bottom bricks. Slide top of bricks under clip on back of firebox wall and push bottom of brick back.
5. Install side bricks. Slide top of brick under clips on side of firebox and push the bottom of the brick until it is flush with the side of the appliance.

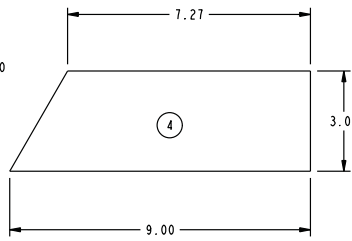
**4300 Millennium Service Part: SRV7037-003**



**Figure 24.1**



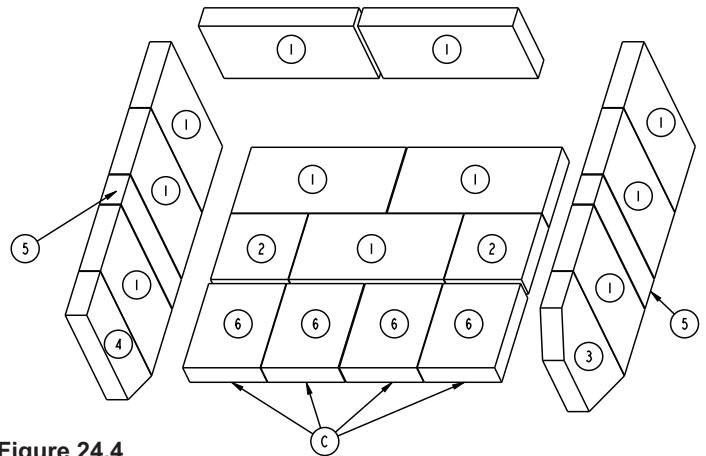
**Figure 24.2**



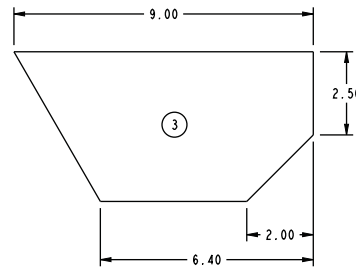
**Figure 24.3**

Placement	Dimensions	Qty Required
1	9" x 4.5" x 1.25"	12
2	6" x 4.5" x 1.25"	4
3	9" x 4.5" x 1.25" w/Angles	1
4	9" x 3" x 1.25" w/Angle	1
5	9" x 2" x 1.25"	2

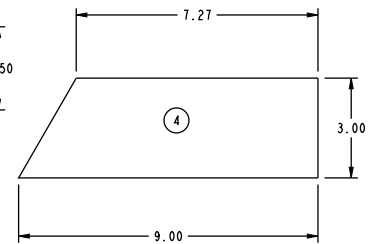
**4300 Step Top Service Part: SRV7037-012**



**Figure 24.4**



**Figure 24.5**



**Figure 24.6**

Placement	Dimensions	Qty Required
1	9" x 4.5" x 1.25"	11
2	4.5" x 4.5" x 1.25"	2
3	9" x 4.5" x 1.25" w/Angles	1
4	9" x 3" x 1.25" w/Angle	1
5	9" x 2" x 1.25"	2
6	6" x 4.5" x 1.25"	4

## D. Door Handle Assembly



### CAUTION

**DO NOT** over tighten lock nut. The door handle needs to move smoothly.

#### 4300 Millennium and 4300 Step Top Service Part: 832-0540

1. Install washer on door handle shaft.
2. Slide door handle through door.
3. Install second washer(s) as shown in **Figure 25.1**.
4. Install key in groove.
5. Align groove in latch cam with key; slide latch cam over shaft
6. Install locknut but do not over tighten, the handle needs to move smoothly.
7. Install spring handle turning in a counter-clockwise motion to **required** 2 inch (51mm) clearance location on door handle rod (**Figure 25.1**).

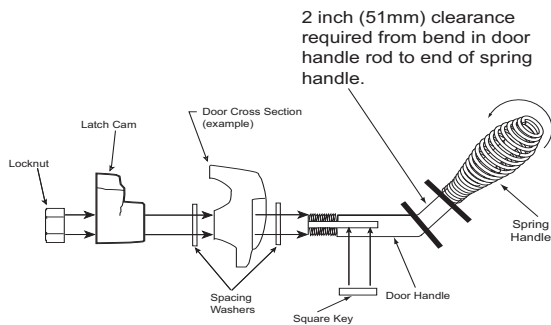


Figure 25.1

#### 4300 Step Top Service Part: SRV7033-071

1. Slide door handle through door.
2. Install additional washer(s) as shown in **Figure 25.2**
3. Install key in groove.
4. Align groove in latch cam with key; slide latch cam over shaft
5. Install locknut but do not over tighten, the handle needs to rotate smoothly.
6. Install fiber handle (**Figure 25.2**).

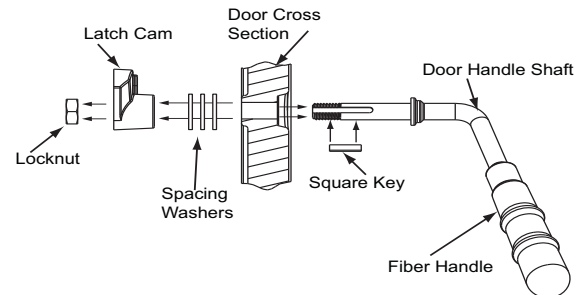
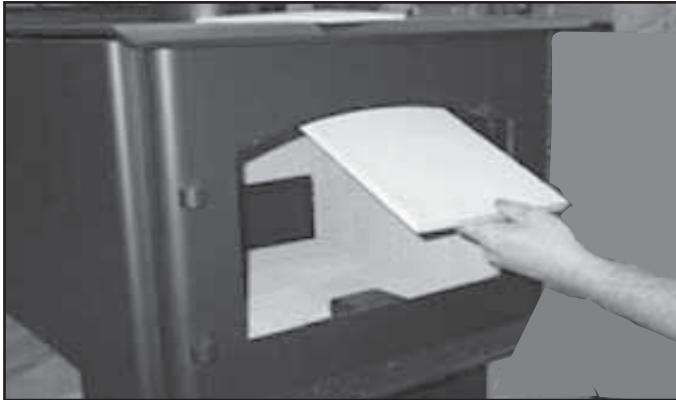


Figure 25.2

**E. Baffle**

**Service Part: SRV7037-112**

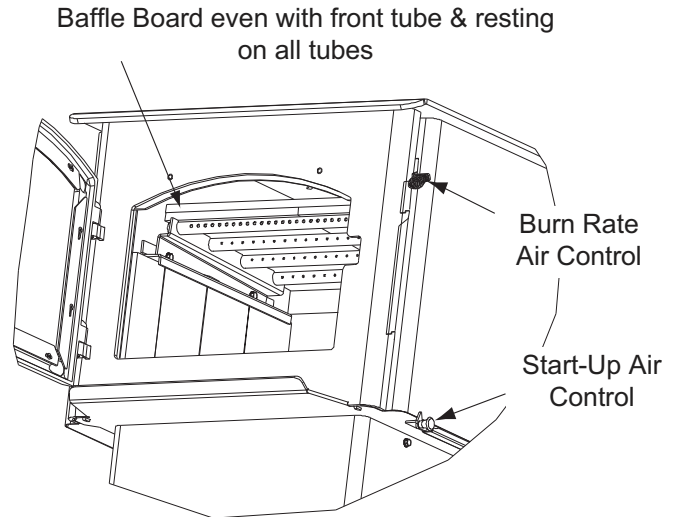
1. Remove all ash from the firebox, and extinguish all hot embers before disposal into a metal container.
2. The baffle board has 2 pieces. With the ceramic blanket still in place, slide one baffle piece over the top of other one and pull out top piece through the door opening and then remove bottom baffle piece (**Figure 26.1**).
3. Remove the ceramic blanket (**Figure 26.2**).
4. Re-install the baffle pieces one piece at a time. Be sure the baffle boards are even with the front manifold tube and is resting on all tubes (**Figure 26.3 and Figure 26.4**).
5. To re-install the ceramic blanket, it is easier to fold it in half first (**Figure 26.2 and Figure 26.4**). Place on top of baffle board, open up and flatten and smooth out the blanket. Verify the baffle board for correct position (**Figure 26.3 and Figure 26.4**).



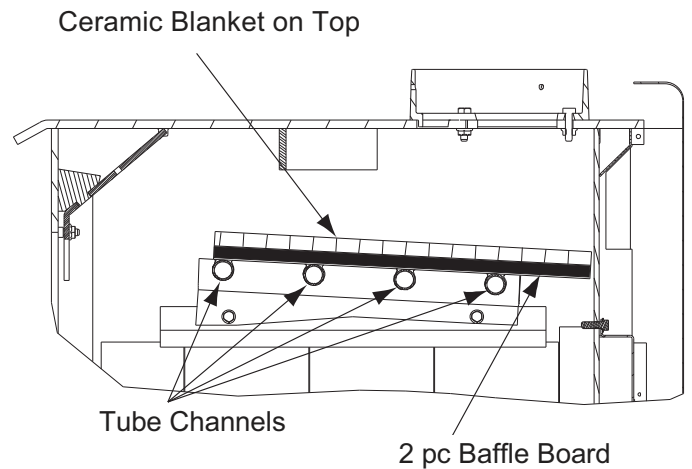
**Figure 26.1 - Baffle Board**



**Figure 26.2 - Ceramic Blanket**



**Figure 26.3**



**Figure 26.4**

## F. Tube Channel Assembly

Service Part: SRV7033-023

### Removing Tube Channel Assembly

1. Remove the right side shield by removing 2 screws in the back using a Phillips head screw driver.
2. Remove 4 screws from channel access cover and remove cover.
3. Locate 2 channel nuts inside of chamber and remove using a 7/16 socket wrench. Slide out tube channel assembly.

**NOTE:** Soak the bolts with penetrating oil for at least 15 minutes before trying to remove them.

### NOTE: Service Space

In order to replace the tube channel assembly a clearance of 19 inches (483mm) is required on the right side of appliance in order to remove the tubes with the appliance in place.

If space is not available, the appliance will have to be disconnected from the chimney to proceed with the tube replacement.

### Replacing Tube Channel Assembly

1. Slide one gasket onto each tube.
2. Slide the tube channel assembly into side of firebox and insert each tube into the corresponding hole in the tube channel rack starting with the back hole first.
3. Make sure tube channel assembly is flush against the side of the appliance and secure with channel nuts.
4. Re-install channel cover and side shield.

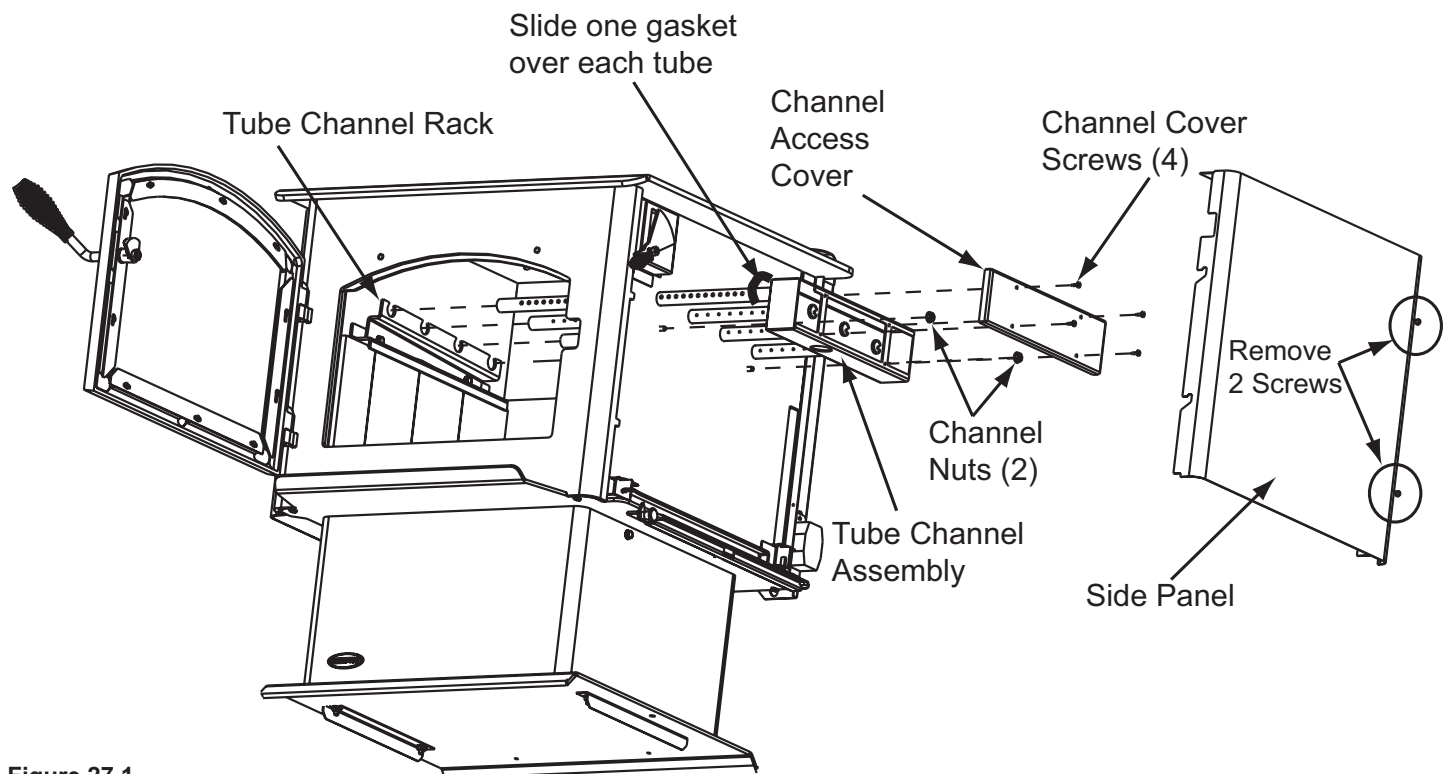


Figure 27.1





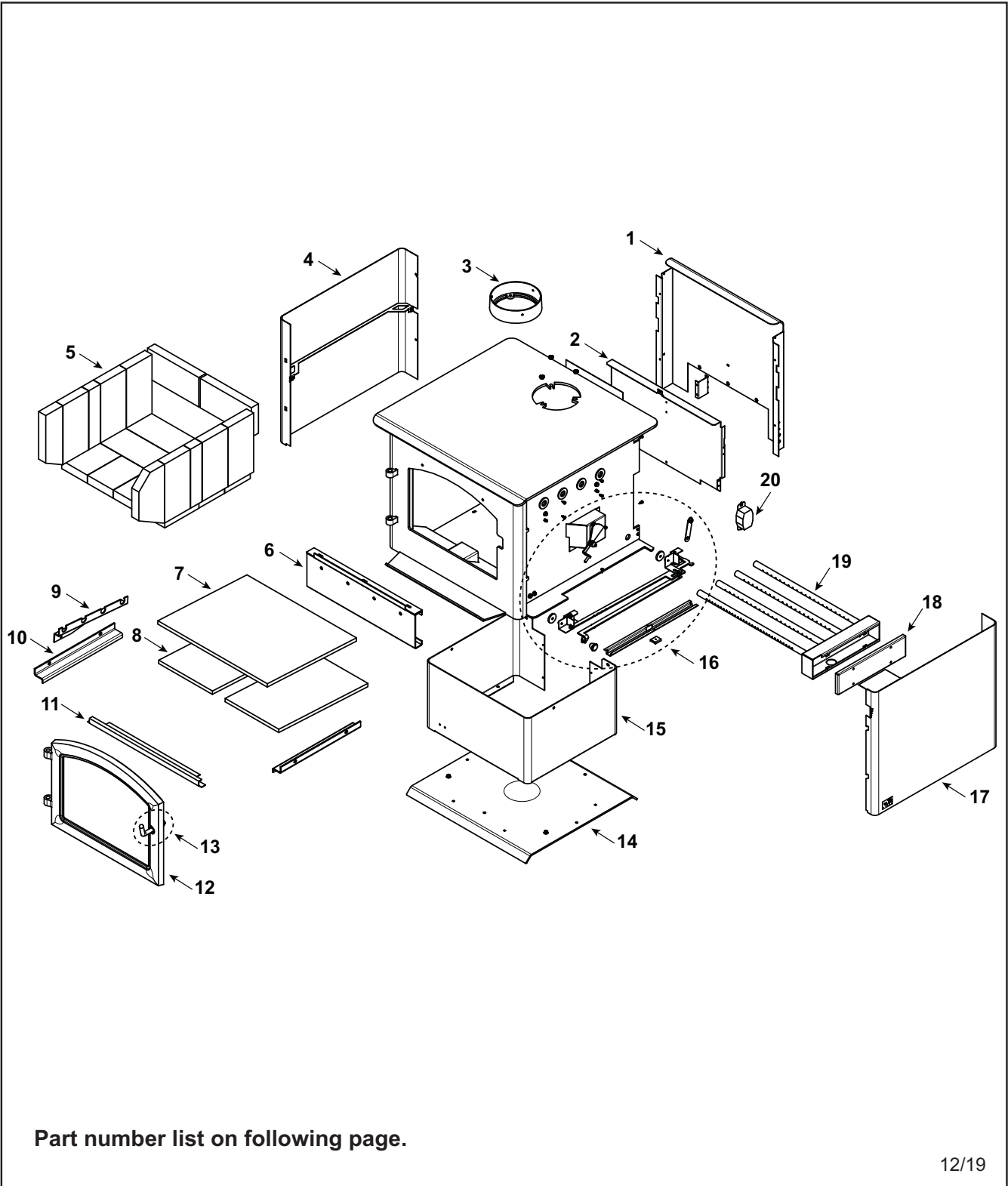


B. 43M-ACC-C

**QUADRA-FIRE**® Service Parts  
Wood Stove

**43M-ACC-C**

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active



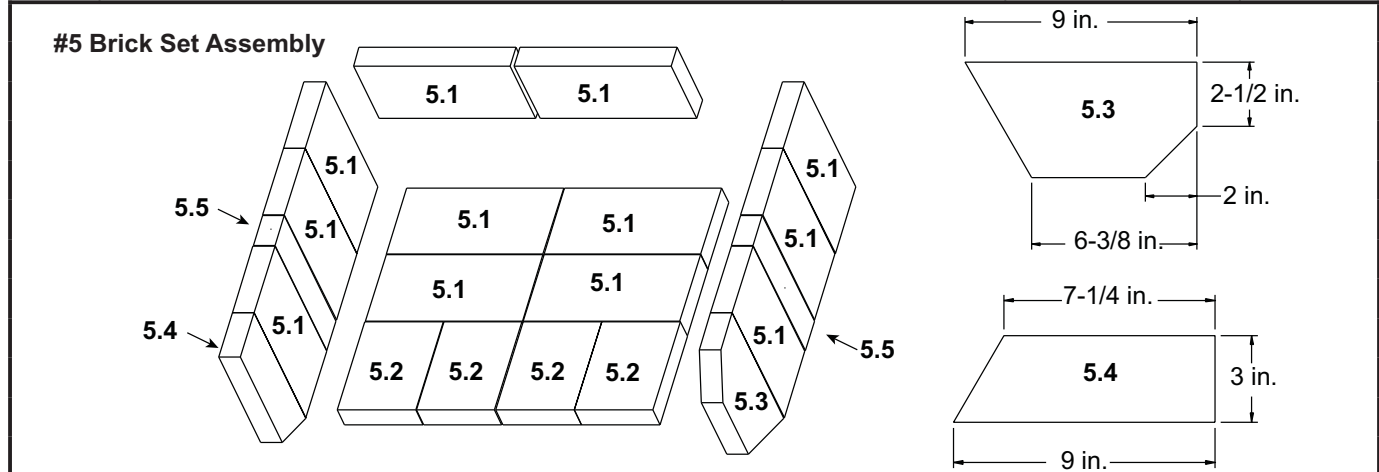
Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.

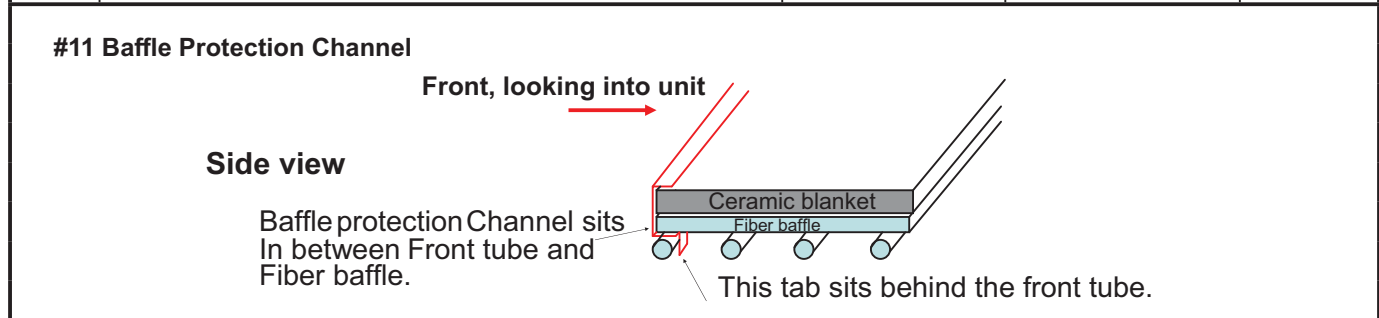


**Stocked at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
1	Air Channel, Convection w/Bracket - <b>Retain original serial # label</b>		SRV7033-144	
2	Air Supply Back		SRV7033-134	
3	Flue Collar		SRV7000-302	Y
4	Panel Assembly, Side, Left		7037-007	

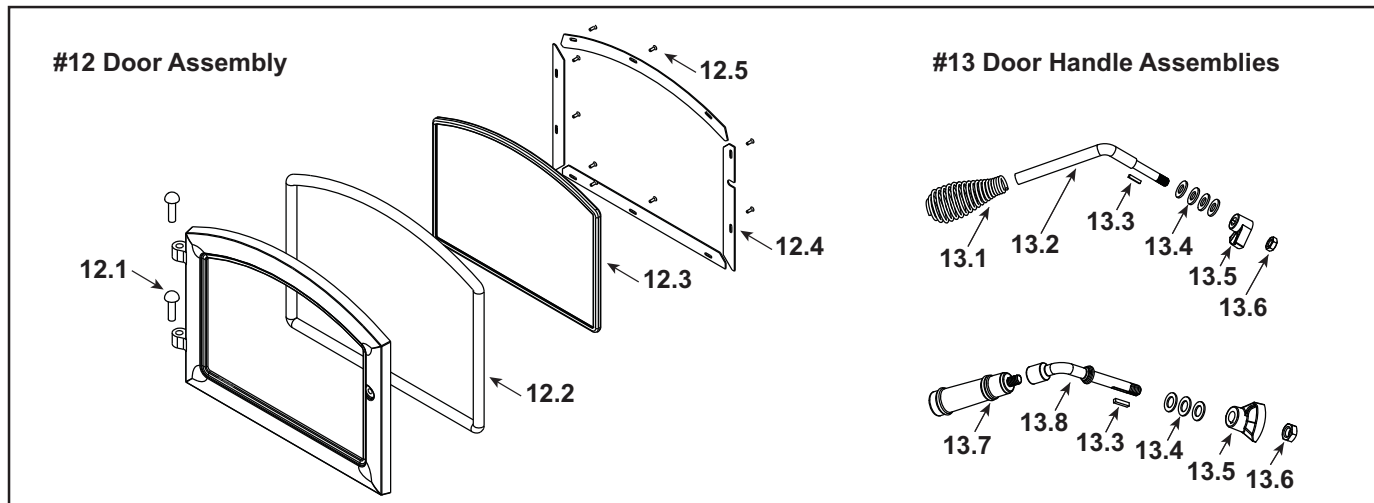


5	Brick Assembly, Complete Set	Pkg of 20	SRV7037-003	
5.1	Brick, 9 x 4.5 x 1.25"	Qty. 12 Req	832-0550	Y
5.2	Brick, 6 x 4.5 x 1.25"	Qty. 4 Reg.	SRV7128-002	
5.3	Brick, 9 x 4.5 x 1.25" w/Angle	Qty. 1 Reg.	SRV7128-806	
5.4	Brick, 9 x 3 x 1.25" w/Angle	Qty. 1 Reg.	SRV7128-618	
5.5	Brick, small 9 x 2 x 1.25"	Qty. 2 Reg.	SRV7128-018	
	Brick, Uncut	Pkg of 6	832-3040	Y
6	Rear Air Channel Assembly		7033-002	Y
7	Ceramic Fiber Blanket, 1/2 " Thick	15 1/2" x 19 1/2"	832-3390	Y
8	Baffle Fiber Board - 9-1/2" W x 15-3/4" H	Qty: 2	SRV7033-209	Y
9	Tube Support Rack		7033-148	
10	Brick Retainer		7033-149	



11	Baffle Protection Channel		SRV7033-298	
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Additional service part numbers appear on following page.



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**Stocked at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
12	Door Assembly	Black	DR-31/43BK-FH	Y
		Nickel	DR-31/43NL-FH	Y
12.1	Hinge Pins, 1/2"	Black	7000-606/2	Y
		Nickel	SRV430-5320	
		Gold	832-0250	Y
12.2	Rope, Door, 3/4" x 84" - Field cut to Size	7 Ft Length	832-1680	Y
12.3	Door Glass Assembly - 15-1/2" W x 13-3/8" H		7000-012	Y
	Gasket, Glass Tape - Field cut to Size	5 Ft Length	832-0460	Y
12.4	Glass Frame Set		832-0350	
12.5	Screw, Flat Head Philips 8-32 x 1/2	Pkg of 12	220-0490/12	Y
13	Door Handle Assembly		832-0540	
13.1	Handle, Spring	Black	SRV7000-613	Y
		Nickel	250-8330	Y
		Gold	832-0620	Y
13.2	Door Handle, Formed		SRV430-1131	Y
13.3	Key, Cam Latch		SRV430-1151	
13.4	Washer, SAE, 3/8	Pkg of 3	832-0990	Y
13.5	Cam Latch		SRV430-1141	
13.6	Nut, Locking Door Handle	Pkg of 24	226-0100/24	Y
	Component Pack: (Spring Handles(1) 1/2" & (2) 1/4", 2 Hinge Pins, & Quadra-Fire Logo)	Nickel	436-5360	
		Or	436-5350	
	Door Handle Assembly		SRV7033-071	
13.7	Handle, Fiber		SRV7060-212	
13.8	Door Handle		SRV7044-188	Y

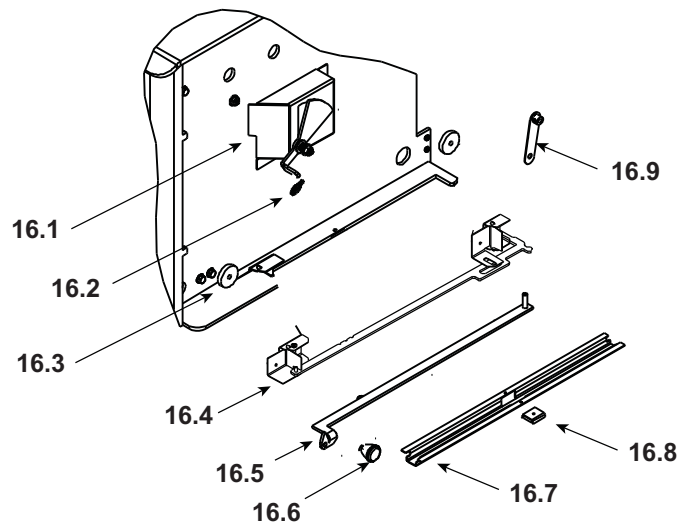
Additional service part numbers appear on following page

Beginning Manufacturing Date: Jan 2020  
 Ending Manufacturing Date: Active

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**Stocked  
at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER
14	Pedestal Base		7033-163
15	Pedestal Riser		7033-207

**#16 Burn Rate Control & Associated Parts**


16.1	Burn Rate Control Assembly		7037-004	Y
16.2	Spring Handle, 1/4"	Nickel	250-8340	Y
16.3	Door Gasket - Front & Rear Air Timer Doors		7033-282	Y
16.4	Timer Air Control Assembly		SRV7037-018	Y
	Rear Air Door Assembly		7037-013	Y
16.5	Rear Air Control Arm Assembly		7037-005	Y
16.6	Knob - Start-Up Control Knob		SRV7000-343	
16.7	Air Control Rod Guide		7033-210	
16.8	Latch, Magnet - For Air Control		SRV229-0631	
16.9	Timer Arm Assembly		7033-034	Y
17	Panel Assembly, Right Side		7037-006	
18	Tube Channel Access Cover (Top)		SRV7033-237	
19	Tube, Channel Assembly	Manifold Tubes	SRV7033-023	Y
20	Timer (Only) Replacement Assembly		SRV480-1940	Y
	Component Pack (Includes Touch-Up Paint, Fiber Handle, Owner's Manual, & Installation Manual)		SRV7037-052	
	Paint, Touch-Up	Black	3-42-19905	
	Logo, Quadra-Fire	Pkg of 10	7000-649/10	

Additional service part numbers appear on following page.



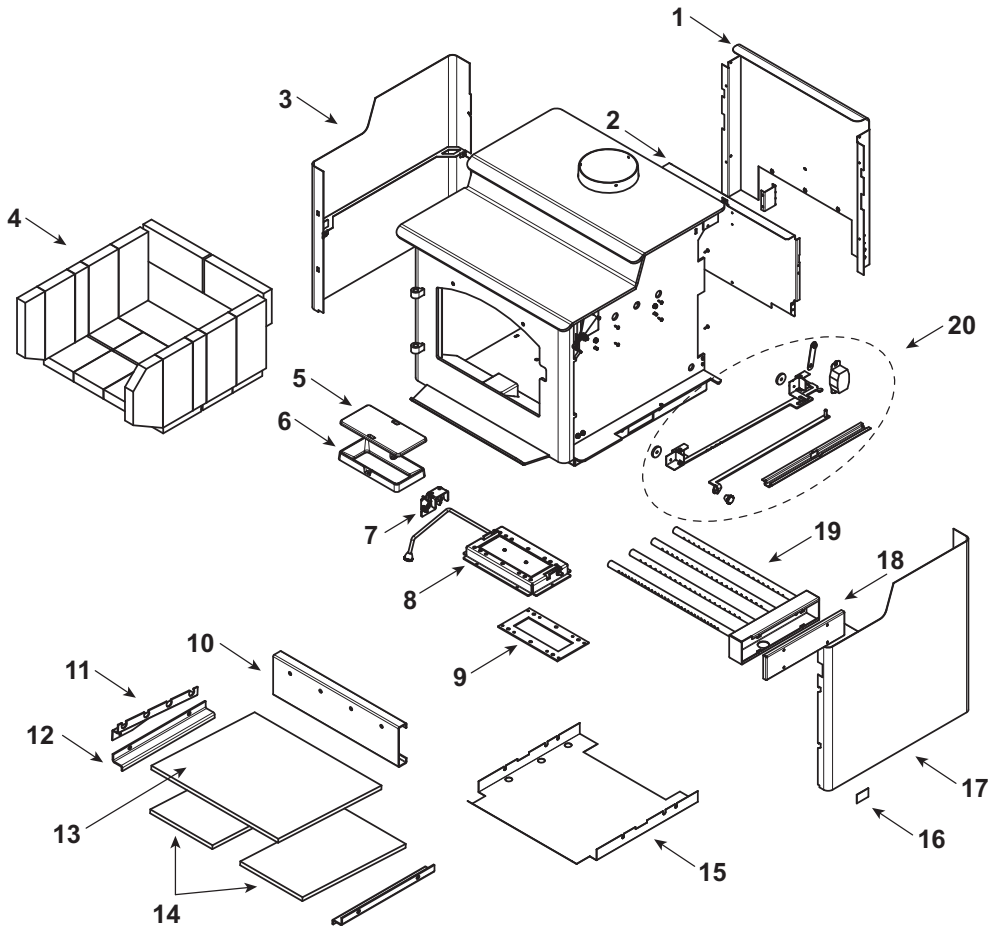
C. 43ST-ACC-C

# QUADRA-FIRE<sup>®</sup> Service Parts

## 43ST-ACC-C

Step Top Model - Wood Stove

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active



Part number list on following page.

12/19

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

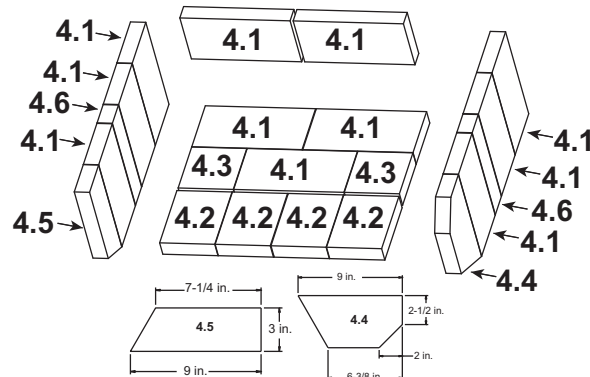
IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked  
at Depot

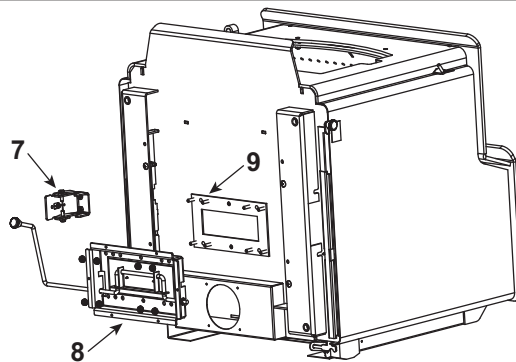
ITEM	DESCRIPTION	COMMENTS	PART NUMBER
1	Air Supply Back		SRV7033-134
2	Air Channel, Convection w/Bracket - <b>Retain original serial # label</b>		SRV7033-144
3	Panel Assembly, Side, Left		7037-011

#### #4 Brick Assembly Set



4	Brick Assembly, Complete Set	Pkg of 20	SRV7037-012
4.1	Brick, 9 x 4.5 x 1.25"	Qty. 11 Reg.	832-0550
4.2	Brick, 6 x 4.5 x 1.25"	Qty. 4 Reg.	SRV7128-002
4.3	Brick, 4.5 x 4.5 x 1.25"	Qty. 2 Reg.	SRV7128-001
4.4	Brick, 9 x 4.5 x 1.25" with angle	Qty. 1 Reg.	SRV7128-806
4.5	Brick, 9 x 3 x 1.25" with angle	Qty. 1 Reg.	SRV7128-618
4.6	Brick, small 9 x 2 x 1.25"	Qty. 2 Reg.	SRV7128-018
	Brick, Uncut (9 x 4.5 x 1.25")	Pkg of 6	832-3040

#### ARS Cast Components



	ARS Cast Components (Includes Access Cover, Handle, & Channel)		SRV7037-038	
5	ARS Access Cover		SRV7038-196	Y
6	ARS Channel		SRV7061-184	Y
7	ARS Latch Assembly		SRV7062-034	Y
8	ARS Door Assembly		SRV7060-048	Y
9	ARS Gasket		SRV7033-296	Y
	Handle, Access Cover		SRV7038-197	

Additional service part numbers appear on following page.

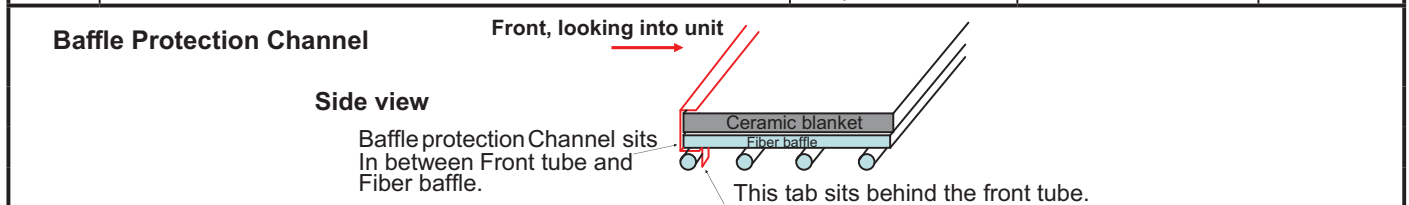
Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

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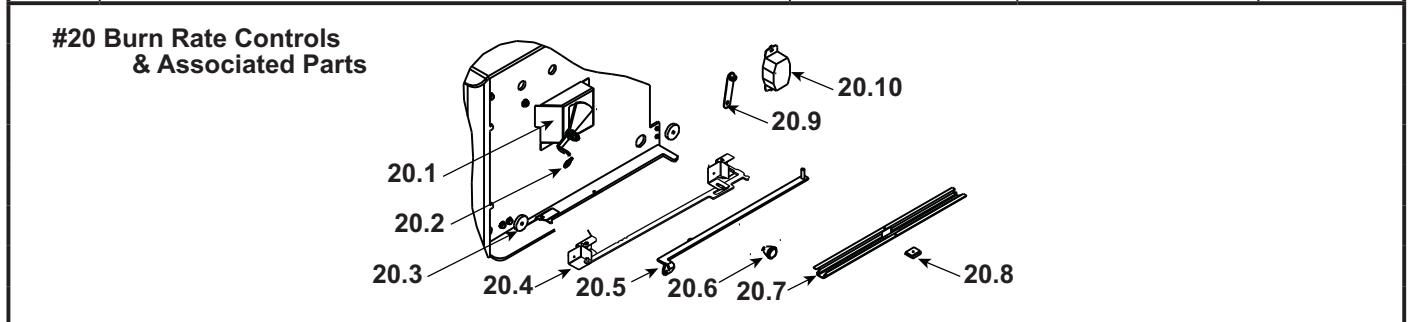


**Stocked at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
10	Rear Channel Assembly		7033-002	Y
11	Tube Support Rack		7033-148	
12	Brick Retainer		7033-149	
13	Ceramic Fiber Blanket, 1/2 " Thick		832-3390	Y
14	Baffle Board - 9-1/2" W x 15-3/4" H	Qty: 2	SRV7037-112	Y



	Baffle Protection Channel		SRV7033-298	
15	Heat Shield		SRV7037-169	
	Label, Burn Rate		SRV7033-160	
16	Label, Start-Up, Acc		SRV7033-166	
17	Panel Assembly, Side, Right		7037-010	
18	Tube Channel Top - Access Cover		SRV7033-237	
19	Tube, Channel Assembly	Manifold Tubes	SRV7033-023	Y
	Gasket, Manifold	Pkg of 4	7038-168/4	Y



20.1	Burn Rate Control Assembly		7037-004	Y
20.2	Spring Handle, 1/4"	Nickel	250-8340	Y
20.3	Door Gasket - Front & Rear Air Timer Doors		7033-282	Y
20.4	Timer Air Control Assembly		SRV7037-018	Y
	Rear Air Door Assembly		7037-013	Y
20.5	Rear Air Control Arm Assembly		7037-005	Y
20.6	Knob - Start-Up Control Knob		SRV7000-343	
20.7	Air Control Rod Guide		7033-210	
20.8	Latch, Magnet - For Air Control		SRV229-0631	
20.9	Timer Arm Assembly		7033-034	Y
20.10	Timer (Only) Replacement Assembly		SRV480-1940	Y

Additional service part numbers appear on following page.



Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

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**Stocked at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
<b>#21 Leg &amp; Ash Pan Pedestal Assembly</b>		<b>#22 Pedestal Assembly</b>		
21	Leg Kit & Ash Removal System(Required to Complete Option)	Black	LEG-KIT-BK	
		Nickel	LEG-KIT-NL	
21.1	Ash Pan Assembly		7033-008	
21.2	Legs, Queen Anne	Black	831-1240	
		Nickel	LEGS-QANL	
21.3	Ash Pan Leg (ARS - Ash Pan Removal System)		SRV7033-050	
21.4	Leg Mount Kit		SRV7037-132	
	Component Pack, Leg Step Top (Includes Gasket For Ash Removal & Fasteners)		7033-048	
22	Pedestal Kit (Required to Complete Option)		PED-KIT-43	
22.1	Pedestal Assembly		7033-013	
22.2	Ash Pan Assembly		7033-010	
22.3	Ash Pan Door Handle		SRV7033-274	
22.4	Outside Air Cover Plate Assembly		SRV7033-041	<b>Y</b>
	Component Pack, Pedestal, Leg Step Top (Includes Gasket For Ash Removal & Fasteners)		7038-048	

Additional service part numbers appear on following page.

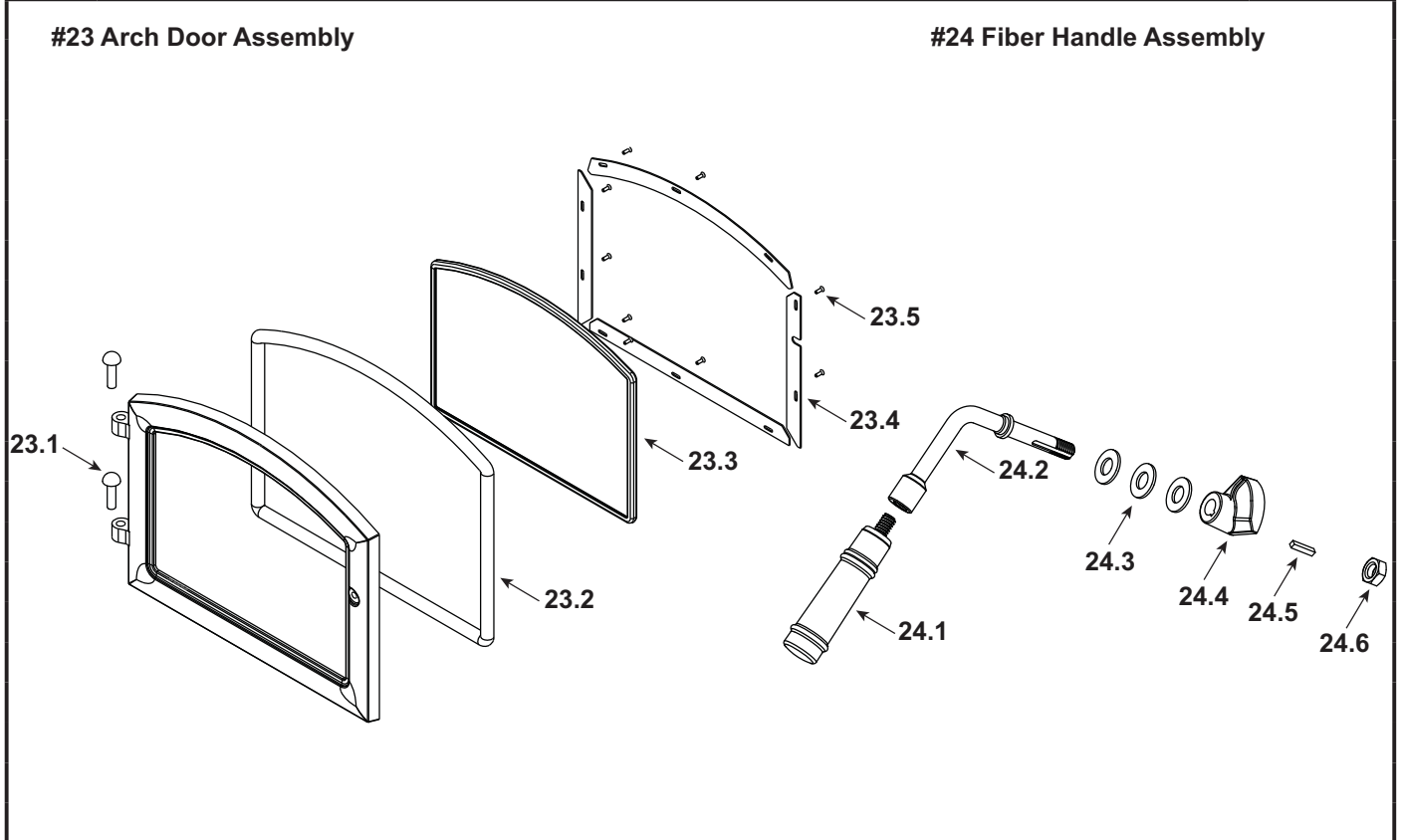
Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

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**Stocked at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER
------	-------------	----------	-------------



23	Door Assembly (Required to Complete Option)	Black	DR-31/43BK-FH	Y
		Nickel	DR-31/43NL-FH	Y
23.1	Hinge Pins, 1/2"	Black	7000-606/2	Y
		Nickel	SRV430-5320	
23.2	Rope, Door, 3/4" x 84" - Field cut to Size	7 Ft Length	832-1680	Y
23.3	Door Glass Assembly - 15-1/2" W x 13-3/8" H		7000-012	Y
	Gasket, Glass Tape - Field cut to Size	5 Ft Length	832-0460	Y
23.4	Glass Frame Set		832-0350	
23.5	Screw, Flat Head Philips 8-32 x 1/2	Pkg of 12	220-0490/12	Y
24	Door Handle Assembly		SRV7033-071	Y
24.1	Handle, Fiber		SRV7060-212	
24.2	Door Handle		SRV7044-188	Y
24.3	Washer, SAE, 3/8	Pkg of 3	832-0990	Y
24.4	Cam Latch		SRV430-1141	
24.5	Key, Cam Latch		SRV430-1151	
24.6	Nut, Locking Door Handle	Pkg of 24	226-0100/24	Y

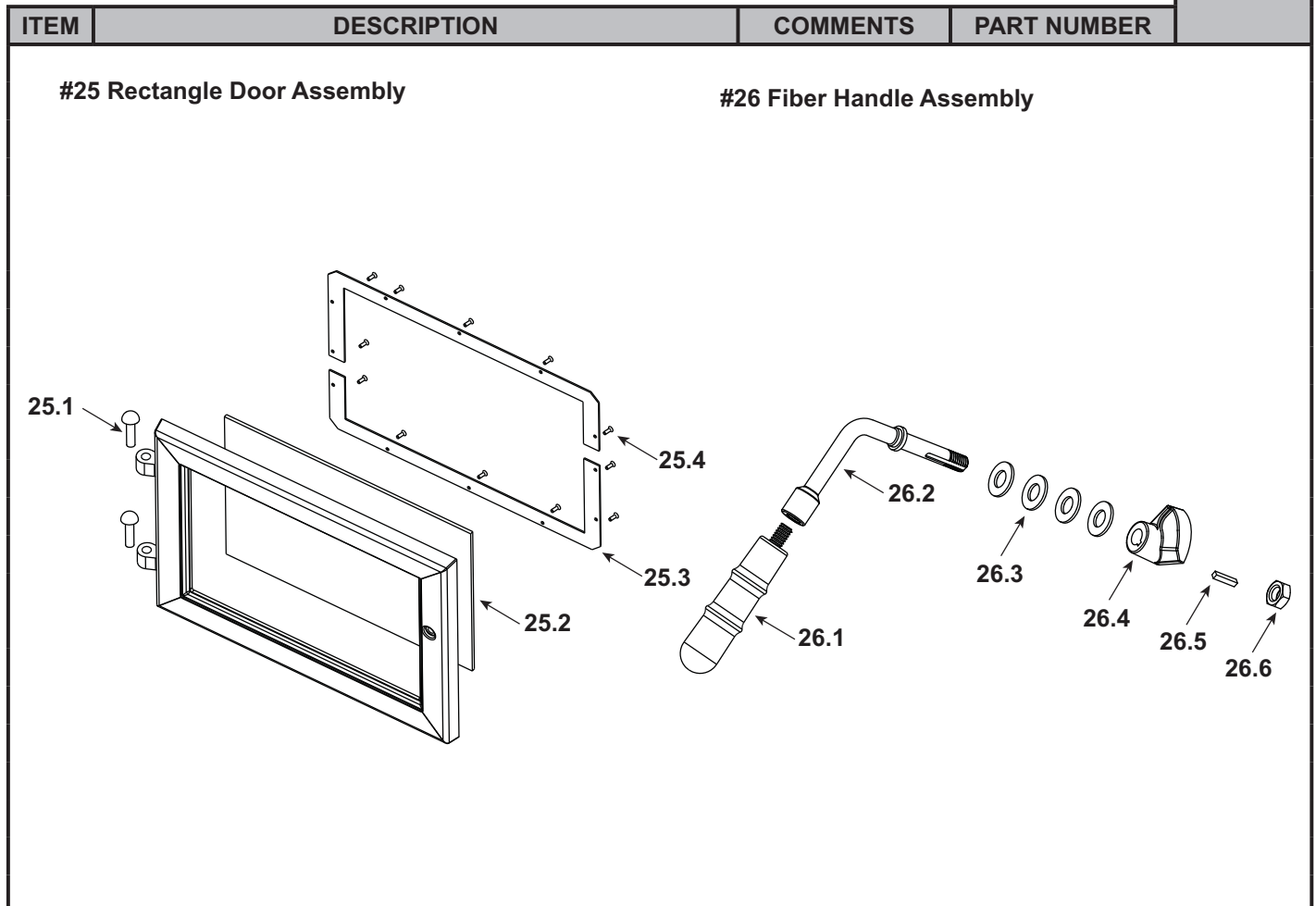
Additional service part numbers appear on following page.

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



**Stocked at Depot**



25	Door Assembly (Required to Complete Option)		DR-31RCT	Y
25.1	Hinge Pins, 1/2"	Black	7000-606/2	Y
25.2	Glass Assembly		SRV7044-027	Y
	Gasket, Glass Tape - Field cut to Size	5 Ft Length	832-0460	Y
25.3	Glass Frame Set	Qty of 2	SRV7044-191	
25.4	Screw, Flat Head Philips 8-32 x 1/2	Pkg of 12	220-0490/12	Y
26	Door Handle Assembly		SRV7044-041	Y
26.1	Handle, Fiber		SRV433-1380	Y
26.2	Door Handle		SRV7044-188	Y
26.3	Washer, SAE, 3/8	Pkg of 3	832-0990	Y
26.4	Cam Latch		SRV430-1141	
26.5	Key, Cam Latch		SRV430-1151	
26.6	Nut, Locking Door Handle	Pkg of 24	226-0100/24	Y

Additional service part numbers appear on following page.



# QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

## CONTACT INFORMATION

Hearth & Home Technologies  
352 Mountain House Road  
Halifax, PA 17032  
Division of HNI INDUSTRIES

Please contact your Quadra-Fire dealer with any questions or concerns.  
For the number of your nearest Quadra-Fire dealer  
log onto [www.quadrafire.com](http://www.quadrafire.com)



## CAUTION



### DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.



**We recommend that you record the following pertinent information for your heating appliance.**

Date purchased/installed: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Location on appliance: \_\_\_\_\_

Dealership purchased from: \_\_\_\_\_

Dealer Phone: 1(     ) - \_\_\_\_\_

Notes:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This product may be covered by one or more of the following patents: (United States) 5341794, 5263471, 6688302, 7216645, 7047962 or other U.S. and foreign patents pending.

  
**HEARTH & HOME**  
technologies™

# Installation Manual

## Installation & Appliance Set-Up

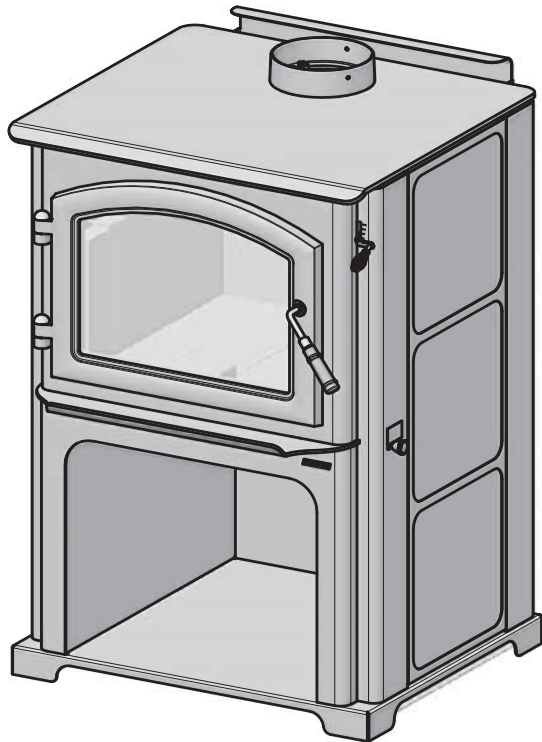
**INSTALLER:** Leave this manual with party responsible for use and operation.  
**OWNER:** Retain this manual for future reference.

**NOTICE: DO NOT DISCARD THIS MANUAL**

# QUADRA-FIRE®

**DISCOVERY III WOOD APPLIANCE  
AUTOMATIC COMBUSTION  
CONTROL (ACC)**

**MODEL:  
DISCOVERY-III-C**



Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



### WARNING



If the information in these instructions is not followed exactly, a fire could result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over fire - If appliance or chimney connector glows, you are over firing. Over firing will void your warranty.
- Comply with all minimum clearances to combustibles as specified. Failure to comply may cause house fire.



### WARNING



#### HOT SURFACES!

Glass and other surfaces are hot during operation AND cool down.

**Hot glass and appliance will cause burns.**

- Do not touch glass until it is cooled
- Use leather gloves when reloading fuel
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as appliance.
- Alert children and adults to hazards of high temperatures
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.



### WARNING



#### Fire Risk.

For use with solid wood fuel only. Other fuels may over fire and generate poisonous gases (i.e. carbon monoxide).

**NOTE:** To obtain a French translation of this manual, please contact your dealer or visit [www.quadrafire.com](http://www.quadrafire.com)

**REMARQUE :** Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez [www.quadrafire.com](http://www.quadrafire.com)



- Safety Alert Key:**
- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
  - **WARNING!** Indicates a hazardous situation which, if not avoided may result in death or serious injury.
  - **CAUTION!** Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.
  - **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

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# 1 Important Safety Information

## A. Appliance Certification

<b>Model:</b>	Discovery III Wood Appliance
<b>Safety Laboratory:</b>	OMNI Test Laboratories, Inc.
<b>Report No:</b>	0061WS067S
<b>Type:</b>	Listed Room Appliance, Solid Fuel Type
<b>Standard:</b>	UL1482-11 (R2015) and ULC S627-00 and (UM) 84-HUD, Mobile Home Approved.

## B. BTU & Efficiency Specifications

<b>EPA Certification #:</b>	Number: N/A
<b>EPA Certified Emissions:</b>	1.6 grams per hour
<b>*LHV Tested Efficiency:</b>	80.2%
<b>**HHV Tested Efficiency:</b>	74.2%
<b>***EPA BTU Output:</b>	12,200 to 36,800 / hr.
<b>****Peak BTU/Hour Output:</b>	61,700
<b>Vent Size:</b>	6 inches
<b>Firebox Size:</b>	2.26 cubic feet
<b>Recommended Log Length:</b>	18 inches
<b>Fuel</b>	Seasoned Cord Wood (20% moisture)
*Weighted average LHV (Low Heating Value) efficiency using Douglas Fir dimensional lumber and data collected during EPA emission test. LHV assumes the moisture is already in a vapor state so there is no loss in energy to vaporize.	
**Weighted average HHV (High Heating Value) efficiency using Douglas Fir dimensional lumber and data collected during EPA emission test. HHV includes the energy required to vaporize the water in the fuel.	
***A range of BTU outputs calculated using HHV Efficiency and the burn rates from the EPA tests, using Douglas Fir dimensional lumber.	
****A peak BTU out of the appliance calculated using the maximum first hour burn rate from the High EPA Test and BTU content of seasoned cordwood (8600) times the efficiency.	

The Discovery III is Certified to comply with 2020 particulate emission standards.



This wood appliance needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

**NOTE:** This installation must conform with local codes. In the absence of local codes you must comply with **(UM) 84-HUD and NFPA211 in the U.S.A. and CAN/CSA-B365 Installation Codes in Canada.**



### C. Mobile Home Approved

- This appliance is approved for mobile home installations; when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire.
- Outside Air Kit, part OAK-ACC must be installed in a mobile home installation.

### D. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

### E. Non-Combustible Materials

Material which will not ignite and burn, composed of any combination of the following:

- Steel
- Plaster
- Brick
- Iron
- Concrete
- Tile
- Glass
- Slate

Materials reported as passing ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace of 750° C.

### F. Combustible Materials

Material made of/or surfaced with any of the following materials:


- Wood
- Compressed Paper
- Plant Fibers
- Plastic
- Plywood/OSB
- Sheet Rock (drywall)

**Any material that can ignite and burn:** flame proofed or not, plastered or non-plastered.

### G. Sleeping Room

When installed in a sleeping room it is recommended that a smoke and/or CO alarm be installed in the bedroom. The size of the room must be at least 50ft<sup>3</sup> per 1,000 Btu/hr stove input, if the stove exceeds the room size, out air must be installed.

### H. California - Prop65

	<b>WARNING</b>
<p>This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: <a href="http://WWW.P65Warnings.ca.gov">WWW.P65Warnings.ca.gov</a></p>	

	<b>WARNING</b>
	<p><b>Fire Risk</b> Hearth &amp; Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:</p> <ul style="list-style-type: none"><li>• Installation and use of any damaged appliance.</li><li>• Modification of the appliance.</li><li>• Installation other than as instructed by Hearth &amp; Home Technologies.</li><li>• Installation and/or use of any component part not approved by Hearth &amp; Home Technologies.</li><li>• Operating appliance without fully assembling all components.</li><li>• Operating appliance without legs attached (if supplied with appliance).</li><li>• <u>Do NOT Over fire</u> - If appliance or chimney connector glows, you are over firing.</li></ul> <p>Any such action that may cause a fire hazard.</p>

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

<p><b>NOTE:</b> Hearth &amp; Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and/or price without notice.</p>
---

<p>Hearth &amp; Home Technologies WILL NOT warranty appliances that exhibit evidence of over-firing. Evidence of over-firing includes, but is not limited to:</p> <ul style="list-style-type: none"><li>• Warped air tube</li><li>• Deteriorated refractory brick retainers</li><li>• Deteriorated baffle and other interior components</li></ul>
---

# Install Guide

## 2 Getting Started

### A. Design and Installation Considerations

Consideration must be given to:

- Safety
- Convenience
- Traffic flow
- Chimney and chimney connector required

It is a good idea to plan your installation on paper, using exact measurements for clearances and floor protection, before actually beginning the installation. If you are not using an existing chimney, place the appliance where there will be a clear passage for a factory-built listed chimney through the ceiling and roof.

We recommend that a qualified building inspector and your insurance company representative review your plans before and after installation.

If this appliance is in an area where children may be near it is recommended that you purchase a decorative barrier to go in front of the appliance. Remember to always keep children away while it is operating and do not let anyone operate this appliance unless they are familiar with these operating instructions.



#### CAUTION

##### Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.



#### WARNING



##### Asphyxiation Risk.

- Do NOT connect this appliance to a chimney flue servicing another appliance.
- Do NOT connect to any air distribution duct or system.

May allow flue gases to enter the house.

**NOTICE:** Hearth & Home Technologies assumes no responsibility for the improper performance of the appliance system caused by:

- Inadequate draft due to environmental conditions
- Down drafts
- Tight sealing construction of the structure
- Mechanical exhausting devices
- Over drafting caused by excessive chimney heights
- Ideal performance is with height of chimney between 14-16 feet (4.26-4.88m) measured from the base of the appliance.

### B. Fire Safety

To provide reasonable fire safety, the following should be given serious consideration:

1. Install at least one smoke detector on each floor of your home to ensure your safety. They should be located away from the heating appliance and close to the sleeping areas. Follow the smoke detector manufacturer's placement and installation instructions, and be sure to maintain regularly.
2. A conveniently located Class A fire extinguisher to contend with small fires resulting from burning embers.
3. A CO detector should be installed in the room with the appliance.
4. A practiced evacuation plan, consisting of at least two escape routes.
5. A plan to deal with a chimney fire as follows:
6. In the event of a chimney fire:
  - a. Evacuate the house immediately
  - b. Notify fire department.

### C. Negative Pressure



#### WARNING



##### Asphyxiation Risk.

- Negative pressure can cause spillage of combustion fumes, soot and carbon monoxide.
- Appliance needs to draft properly for safety.

Negative pressure results from the imbalance of air available for the appliance to operate properly. It can be strongest in lower levels of the house.

##### Causes include:

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water appliances and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
  - Recessed lighting
  - Attic hatch
  - Duct leaks

**To minimize the effects of negative air pressure:**

- Install optional outside air kit with the intake facing prevailing winds during the heating season
- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the appliance
- Avoid installing the appliance near doors, walkways or small isolated spaces
- Recessed lighting should be a “sealed can” design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed
- Basement installations should be avoided



**WARNING**



**Fire Risk.**  
Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with appliance).
- Do NOT Over fire - If appliance or chimney connector glows, you are over firing.

Any such action that may cause a fire hazard.

**D. Tools And Supplies Needed**

Before beginning the installation be sure the following tools and building supplies are available:

- Reciprocating saw
- Framing material
- Pliers
- High temp caulking material
- Hammer
- Gloves
- Phillips screwdriver
- Framing square
- Flat blade screwdriver
- Electric drill and bits
- Plumb line
- Safety glasses
- Level
- Tape measure
- Miscellaneous screws and nails
- 7/16 socket or wrench
- 1/2-3/4 in. length, #6 or #8 self-drilling screws

**E. Inspection of Appliance and Components**

- Remove appliance and components from packaging and inspect for damage.
- Report to your dealer any parts damaged in shipment.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**

**F. Removal of Appliance from Shipping Materials**

1. Remove box and 2x4 structural boards being careful not to damage product.
2. Using a 7/16 inch socket or open end wrench, remove and discard the four lag bolts from mounting brackets (two on each side) attaching the appliance to the pallet.
3. Carefully pull appliance off of pallet and put in desired location following Hearth Pad and Clearance to Combustibles on pages 9 and page 10.

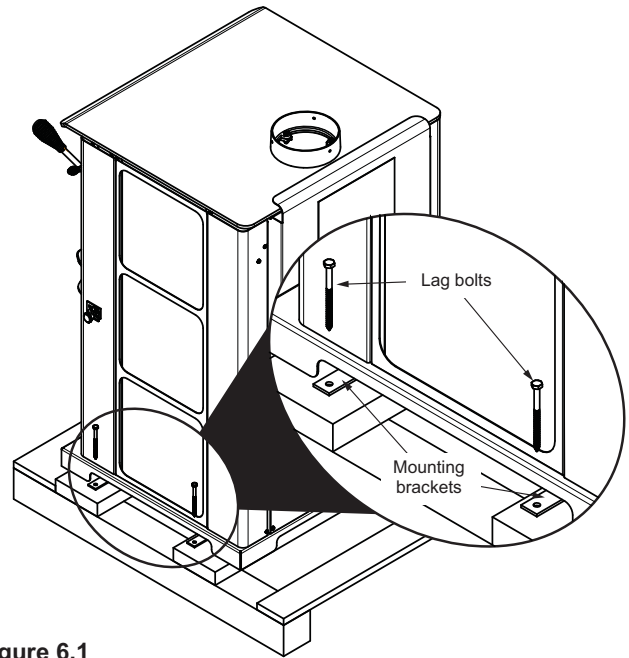




Figure 6.1



**WARNING**



**Fire Risk.**  
Inspect appliance and components for damage. Damaged parts may impair safe operation.

- Do NOT install damaged components.
- Do NOT install incomplete components.
- Do NOT install substitute components.

Report damaged parts to dealer.

G. Install Checklist

ATTENTION INSTALLER:
Follow this Standard Work Checklist

This standard work checklist is to be used by the installer in conjunction with, not instead of, the instructions contained in this installation manual.

Customer: \_\_\_\_\_
Date Installed: \_\_\_\_\_
Lot / Address: \_\_\_\_\_
Location of Appliance: \_\_\_\_\_
Installer: \_\_\_\_\_
Dealer / Distributor Phone #: \_\_\_\_\_
Serial #: \_\_\_\_\_
Model: \_\_\_\_\_

WARNING! Risk of Fire or Explosion! Failure to install appliance according to these instructions can lead to a fire or explosion.

Appliance Install

Verified clearances to combustibles.
Appliance is leveled and connector is secured to appliance.
Hearth extension size/height decided.
Outside air kit installed.
Floor protection requirements have been met.
If appliance is connected to a masonry chimney, it should be cleaned and inspected by a professional. If installed to a factory built metal chimney, the chimney must be installed according to the manufacturer's instructions and clearances.

YES IF NO, WHY?
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_

Chimney

Chimney configuration complies with diagrams.
Chimney installed, locked and secured in place with proper clearance.
Chimney meets recommended height requirements (14-16 feet).
Roof flashing installed and sealed.
Terminations installed and sealed.

[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_

Clearances

Combustible materials not installed in non-combustible areas.
Verified all clearances meet installation manual requirements.
Mantels and wall projections comply with installation manual requirements.
Protective hearth strips and hearth extension installed per manual requirements.

[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_

Appliance Setup

All packaging and protective materials removed.
Firebrick, baffle and ceramic blanket installed correctly.
All labels have been removed from the door.
All packaging materials are removed from inside/under the appliance.
Manual bag and all of its contents are removed from inside/under the appliance and given to the party responsible for use and operation.

[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_
[ ] \_\_\_\_\_

- Hearth & Home Technologies recommends the following:
• Photographing the installation and copying this checklist for your file.
• That this checklist remain visible at all times on the appliance until the installation is complete.

Comments: Further description of the issues, who is responsible (Installer/Builder/Other Trades, etc.) and corrective action needed:
Comments communicated to party responsible \_\_\_\_\_ by \_\_\_\_\_ on \_\_\_\_\_
(Builder / Gen. Contractor) (Installer) (Date)

# 3 Dimensions and Clearances

## A. Appliance Dimensions

**NOTE:** Flue Collar size is 6 inch (152mm) diameter (ID)

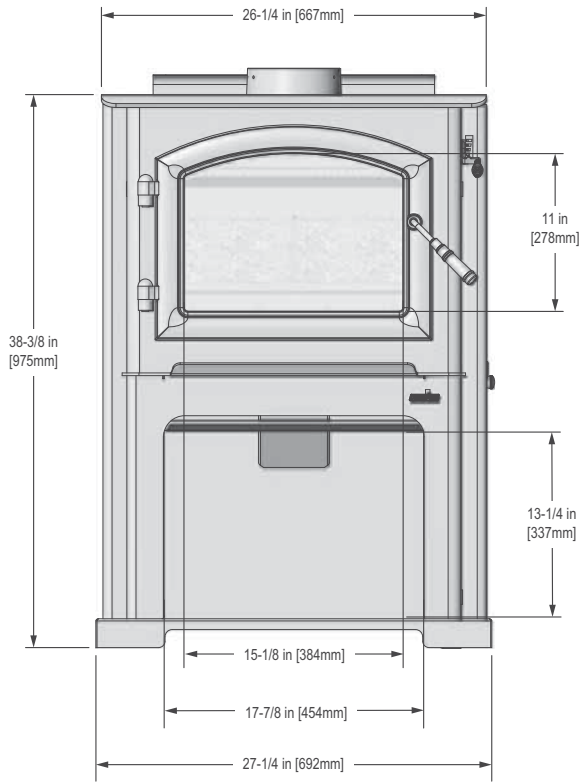


Figure 8.1 - Front View

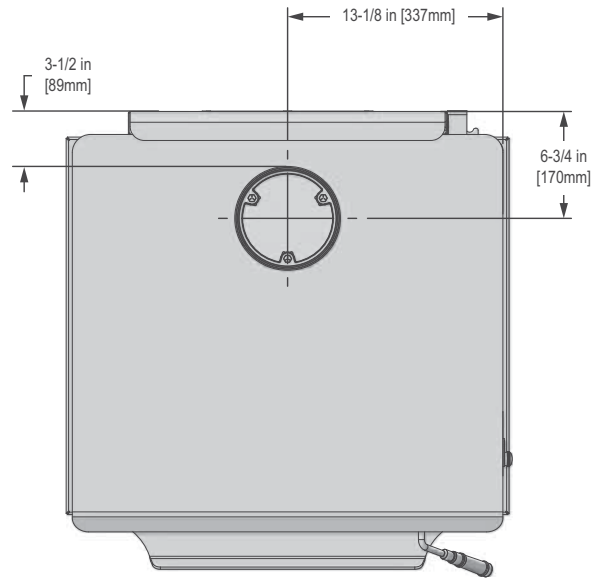


Figure 8.2 - Top View

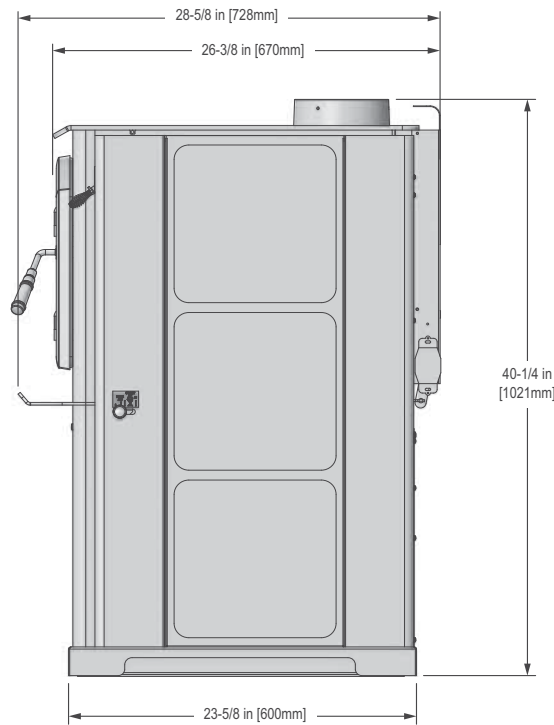


Figure 8.3 - Side View

## B. Hearth Protection Requirements

**EMBER PROTECTION:** It is necessary to install a Type I floor protector.

Floor protector must be non-combustible material, extending beneath appliance with a minimum of 16 inches (406mm) in front of glass and 8 inches (203mm) to both sides of the fuel loading door. Open the door and measure 8 inches (203mm) from the side edge of the opening in the face of the appliance (**\*See exception**).

**In Canada**, similar floor protection must be provided 18 inches (457mm) in front and 8 inches (203mm) from the sides and rear of the appliance unless the hearth pad is placed against the wall (**Figure 9.2**). Then the clearance may be reduced using double wall pipe and the Clearance to Combustibles table listed on page 10.

**\*Exception:** Non-combustible floor protector must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side (**See Figure 9.2**).

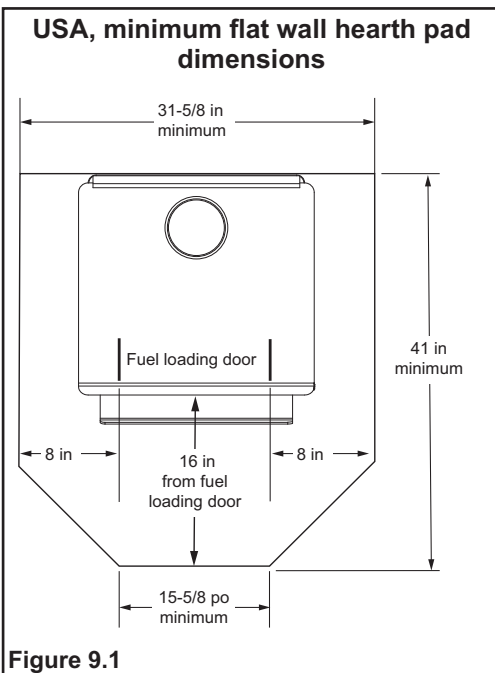




Figure 9.1



### WARNING



**Fire Risk.**  
Hearth pads must be installed exactly as specified. High temperatures or hot embers may ignite concealed combustibles.

### Corner hearth pad dimensions with single wall pipe

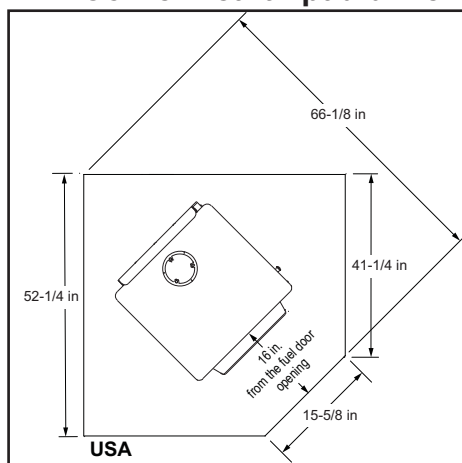


Figure 9.3

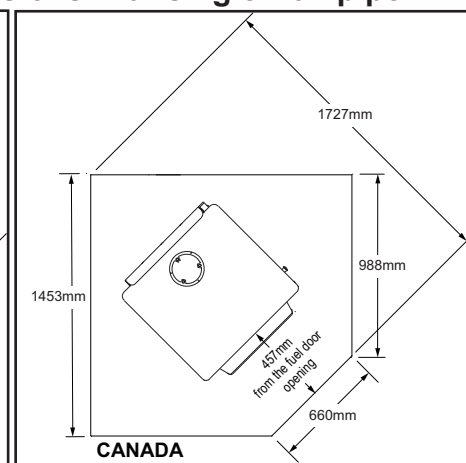


Figure 9.5

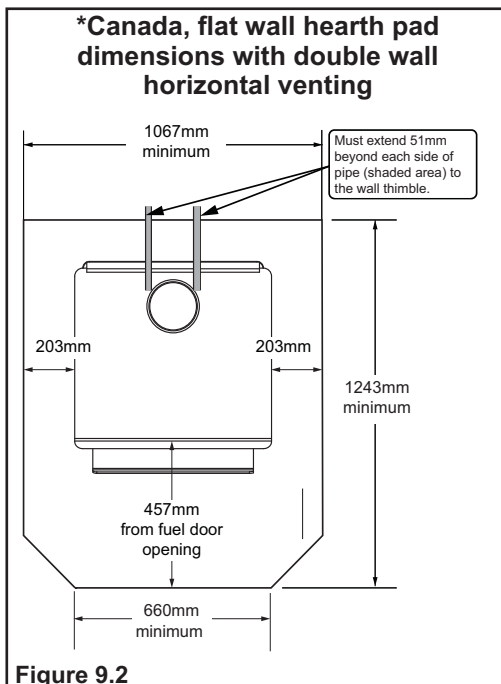


Figure 9.2

\*\*This dimension will vary depending installation.

### Corner hearth pad dimensions with double wall pipe

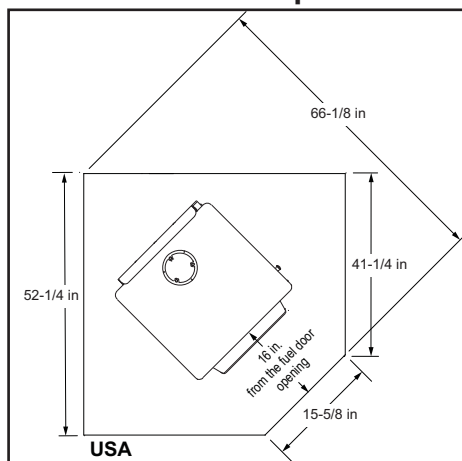


Figure 9.4

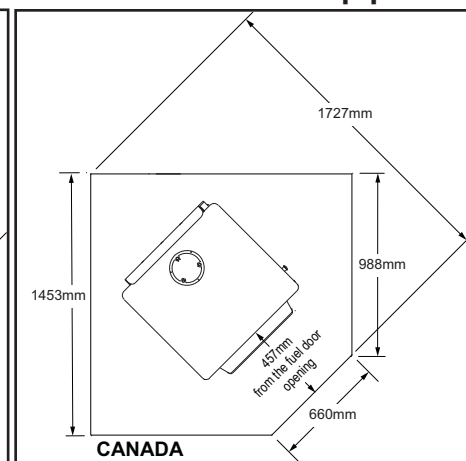
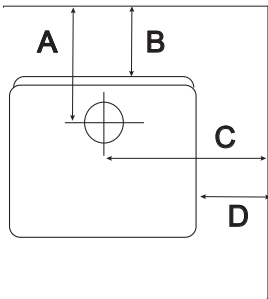


Figure 9.6

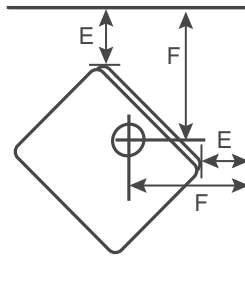
**C. Clearances to Combustibles**

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS in inches (Millimeters)								
NOTE: A, C, and F Dimensions are to the center of the flue collar								
DISCOVERY III WOOD APPLIANCE (2020)								
	A	B	C	D	E	F	G	H
<b>INSTALLATION: FULL VERTICAL</b>								
<b>SINGLE WALL PIPE</b>								
DISCOVERY III	18-1/2 (470)	11-3/4 (298)	27-1/2 (699)	14-1/2 (368)	8 (254)	20-1/2 (521)	53-1/2 (1359)	12 (305)
<b>DOUBLE WALL PIPE</b>								
DISCOVERY III	12 (305)	5-1/4 (133)	27-1/2 (699)	14-1/2 (368)	8 (254)	20-1/2 (521)	53-1/2 (1359)	12 (305)
<b>INSTALLATION: 90 DEGREE ELBOW OFF TOP OF APPLIANCE THROUGH BACKWALL</b>								
<b>DOUBLE WALL PIPE</b>								
DISCOVERY III	11-1/2 (292)	4-3/4 (121)	27-1/2 (699)	14-1/2 (368)	8 (254)	20-1/2 (521)	53-1/2 (1359)	N/A
<b>INSTALLATION: ALCOVE</b>								
<b>DOUBLE WALL PIPE</b>								
DISCOVERY III	16 (406)	9-3/8 (238)	27 (686)	13-7/8 (352)	N/A	N/A	53-1/2 (1359)	12 (305)
<p><b>For alcove only:</b> Six inch diameter listed Double wall air insulated connector pipe with <b>UL103 HT</b> listed factory built Class A chimney or masonry chimney. Maximum depth of Alcove shall be no more than 48 inches (1219mm) and the referenced alcove clearances. Canada must comply with <b>CAN/ULC-S269 M87</b> for the 650° factory built chimney.</p> <p style="text-align: center;"><b>* FOLLOW PIPE MANUFACTURES CLEARANCES AS REQUIRED</b></p>								

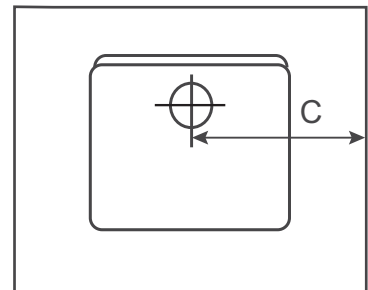
**BACKWALL / SIDEWALL**



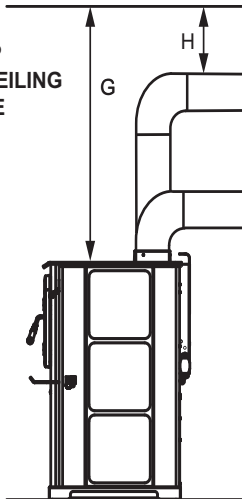
**CORNER INSTALLATION**



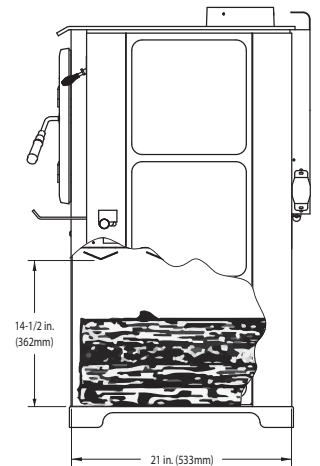
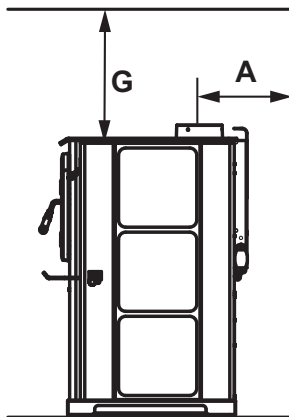
**ALCOVE TOP VIEW**



**90° OFF TOP  
UP & OUT CEILING  
CLEARANCE**



**ALCOVE SIDE VIEW**



**NOTE:** Clearances may only be reduced by means approved by the regulatory authority having jurisdiction



**WARNING**



**Fire Risk.**

- Comply with all minimum clearances to combustibles as specified.
- Failure to comply may cause house fire.

**NOTE: Service Space**

- In order to replace the tube channel assembly a clearance of 19 inches (483mm) is required on the right side of appliance in order to remove the tubes with the appliance in place.
- If space is not available, the appliance will have to be disconnected from the chimney to proceed with the tube replacement.

# 4 Chimney Systems

## A. Locating Your Appliance & Chimney

Location of the appliance and chimney will affect performance. As shown in **Figure 11.1** the chimney should:

- Install through the warm space enclosed by the building envelope. This helps to produce more draft, especially during lighting and die down of the fire.
- Penetrate the highest part of the roof. This minimizes the affects of wind turbulence and down drafts.

- Consider the appliance location in order to avoid floor and ceiling attic joists and rafters.
  - Locate termination cap away from trees, adjacent structures, uneven roof lines and other obstructions.
- Your local dealer is the expert in your geographic area and can usually make suggestions or discover solutions that will easily correct your flue problem.

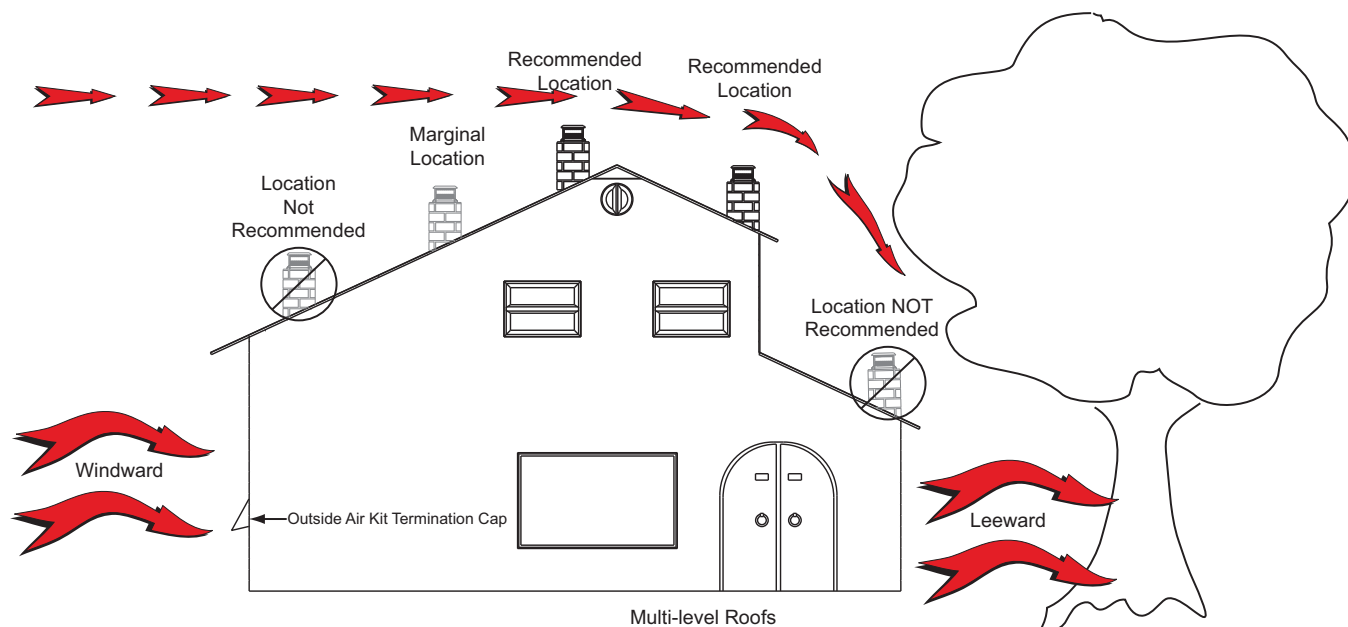


Figure 11.1



**B. Chimney Termination Requirements**

Follow manufacturer’s instructions for clearance, securing flashing and terminating the chimney (**Figure 12.1 and Figure 12.2**).

- Must have an approved and Listed cap
- Must not be located where it will become plugged by snow or other material
- Must terminate at least 3 feet (91cm) above the roof and at least 2 feet (61cm) above any portion of the roof within 10 feet (305cm).
- Must be located away from trees or other structures

**NOTICE:**

- Chimney performance may vary.
- Trees, buildings, roof lines and wind conditions affect performance.
- Chimney height may need adjustment if smoking or overdraft occurs.

**NOTICE:** Locating the appliance in a basement or in a location of considerable air movement can cause intermittent smoke spillage from appliance. Do not locate appliance near:

- Frequently open doors
- Central heat outlets or returns

**C. 2-10-3 Rule**  
**These are safety requirements and are not meant to assure proper flue draft.**

This appliance is made with a 6 inch (152mm) diameter chimney connector as the flue collar on the appliance.

- Changing the diameter of the chimney can affect draft and cause poor performance.
- It is not recommended to use offsets and elbows at altitudes above 4000 feet above sea level and or when there are other factors that affect flue draft.

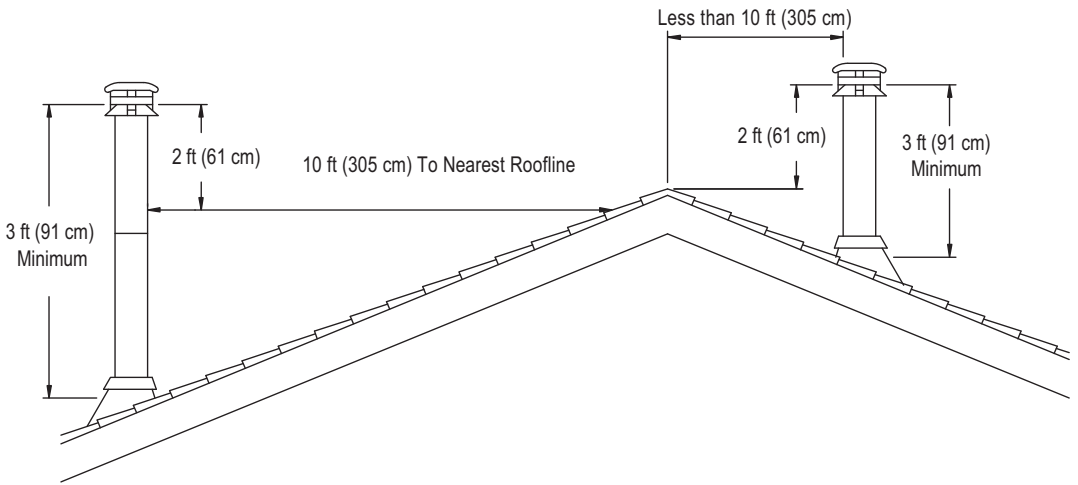


Figure 12.1

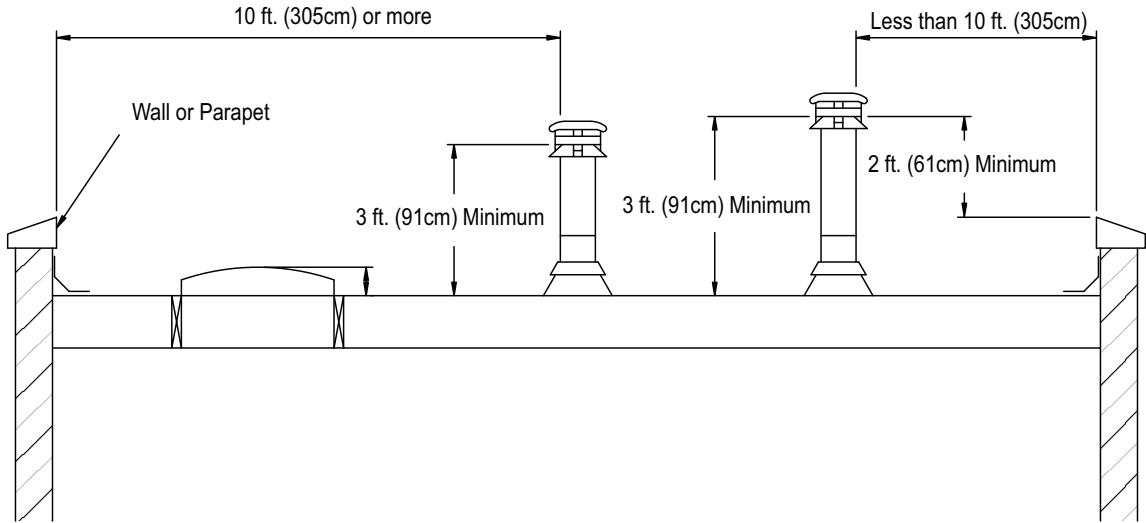


Figure 12.2

## D. Chimney Height / Rise and Run

This product was designed for and tested on a 6 inch (152mm) chimney, 14 to 16 feet (420-480cm) high, (includes appliance height) measured from the base of the appliance. The further your stack height or diameter varies from this configuration, the greater the likelihood it may affect performance.

Chimney height may need to be increased by 2 - 3% per each 1000 feet above sea level. It is not recommended to use offsets or elbows at altitudes above 4000 feet above sea level or when there are other factors that affect flue draft.



### WARNING



#### Fire Risk.

Inspection of Chimney:

- Chimney must be in good condition.
- Meets minimum standard of **NFPA 211**.
- Factory-built chimney must be 6 inch (152mm) **UL103 HT**.



### WARNING



#### Asphyxiation Risk.

- DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE.
  - DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.
- May allow flue gases to enter the house.



### WARNING

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to the owner's information manual provided with this appliance. For assistance or additional information consult a qualified installer, service agency or your dealer.

## E. Venting Components

### Chimney Connector:

It is also known as flue pipe or appliance pipe. The chimney connector joins the appliance to the chimney. It must be a 6 inch (152mm) minimum diameter 24 gauge mild steel black or 26 gauge blued steel, or an approved air-insulated double wall venting pipe.

### Thimble:

A manufactured or site-constructed device installed in combustible walls through which the chimney connector passes to the chimney. It is intended to keep the walls from igniting. Site constructed thimbles must meet **NFPA 211 Standards**. Prefabricated thimbles must be suitable for use with selected chimney and meet **UL103 Type HT Standards**. Follow instructions provided by the manufacturer for manufactured thimbles for masonry chimney and prefabricated chimneys.

### Chimney:

The chimney can be new or existing, masonry or prefabricated and must meet the following minimum requirements and as specified in Section 4F.

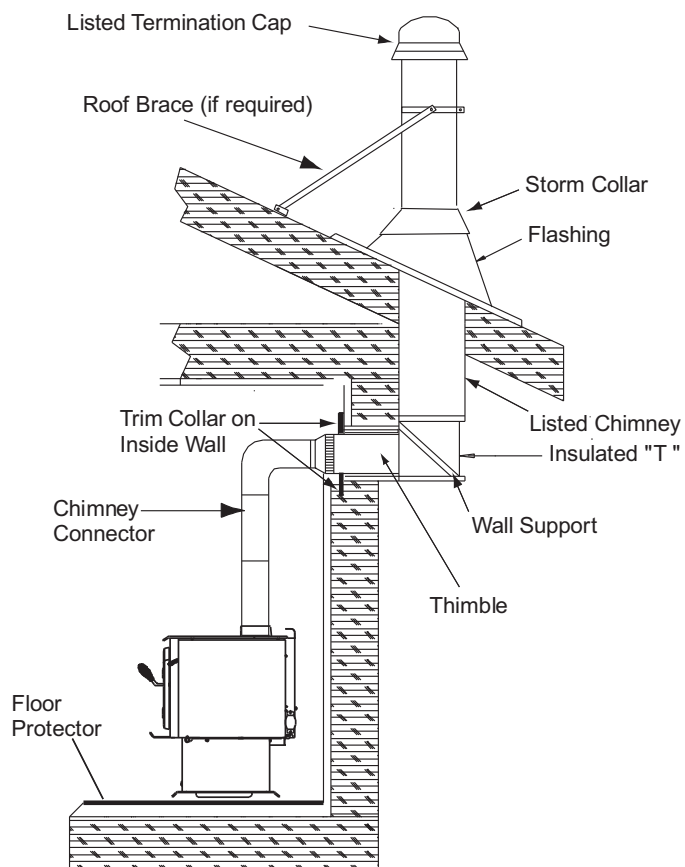


Figure 13.1 - Prefabricated Exterior Chimney

## F. Chimney Systems

### Prefabricated Metal Chimney

- Must be minimum 6 inch (152mm) diameter (ID) high temperature chimney listed to **UL 103 HT (2100°F)** or **ULC S629M**.
- Must use components required by the manufacturer for installation.
- Must maintain clearances required by the manufacturer for installation.
- Refer to manufacturers instructions for installation.

**NOTE:** In Canada when using a factory-built chimney it must be safety listed, **Type UL103 HT (2100°F) CLASS "A"** or conforming to **CAN/ULC-S629M, STANDARD FOR 650°C FACTORY-BUILT CHIMNEYS**.



### Solid Pack Chimney with Metal Supports as a Thimble

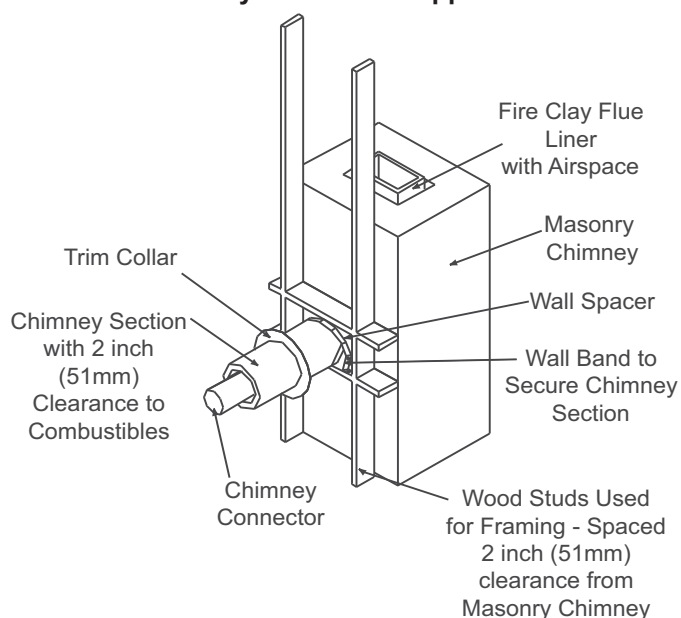


Figure 15.1

	<b>WARNING</b>
	<p><b>Fire Risk.</b> Do NOT pack insulation or other combustibles between spacers.</p> <ul style="list-style-type: none"> <li>• ALWAYS maintain specified clearances around venting and spacers.</li> <li>• Install spacers as specified.</li> </ul> <p>Failure to keep insulation or other material away from vent pipe may cause fire.</p>

### G. Installing Chimney Components Chimney Connector

#### Single wall connector or appliance pipe:

This must be at least 24 gauge mild steel or 26 gauge blue steel. The sections must be attached to the appliance and to each other with the crimped (male) end pointing toward the appliance. All joints, including the connection at the flue collar, should be secured with 3 sheet metal screws. Make sure to follow the minimum clearances to combustibles. Where passage through the wall, or partition of combustible construction is desired in Canada, the installation shall conform to **CAN/CSA-B365**.

#### Factory-built listed chimney connector (vented):

A listed connector (vented) must be used when installing this appliance in a mobile home. The listed connectors must conform to each other to ensure a proper fit and seal.

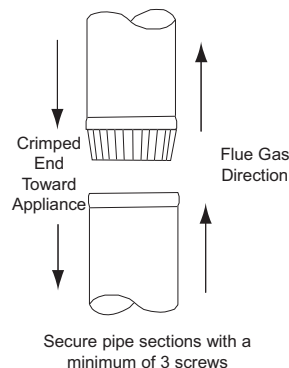


Figure 15.3 - Chimney Connector (Appliance Pipe)

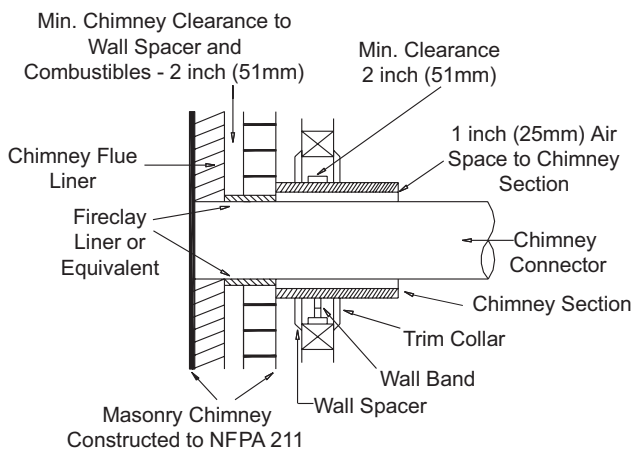


Figure 15.2

	<b>WARNING</b>
	<p><b>Fire Risk.</b> Follow Chimney Connector Manufacturer's Instructions for Proper Installation.</p> <p><b>ONLY use connector:</b></p> <ul style="list-style-type: none"> <li>• Within the room, between appliance and ceiling or wall.</li> </ul> <p><b>Connector shall NOT pass through:</b></p> <ul style="list-style-type: none"> <li>• Attic or roof space</li> <li>• Closet or similar concealed space</li> <li>• Floor or ceiling</li> </ul> <p>Maintain minimum clearances to combustibles</p>

### H. Proper Draft

To be sure that your Quadra-Fire insert burns properly, the chimney draft (static pressure) should be approximately -0.10 inches water column (W.C.) during a high burn and -0.04 inches W.C. during a low burn, measured 6 inches (152mm) above the top of the insert after one hour of operation at each burn setting.

# 5 Appliance Set-Up

## A. Outside Air Kit Installation

A source of air (oxygen) is necessary in order for combustion to take place. Whatever combustion air is consumed by the fire must be replaced. Air is replaced via air leakage around windows and under doors. In homes that have tightly sealed doors and windows, an outside air source is needed. An optional Outside Air Kit is available.

### Items Needed for Installation (not supplied)

- 4 inch flex aluminum pipe, or if using alternate material, then it shall be made from durable, non-combustible, heat resistant material up to 350°F. Cut the pipe to the required length for your installation.
- Phillips head screw driver
- Silicone sealant
- Drills and saws necessary for cutting holes through the wall or flooring in your home.

### Installation Instructions

1. Remove all materials from packing box.
2. **Floor & Rear Installation:**  
Cut a 4 inch (102mm) hole in outside wall or floor to accommodate outside air piping. Use 4 inch (102mm) aluminum metal flex or rigid piping to directly connect outside air to appliance intake. Use the supplied termination cap with a rodent screen. Seal between the wall (or floor) and the pipe with silicone to prevent moisture penetration.

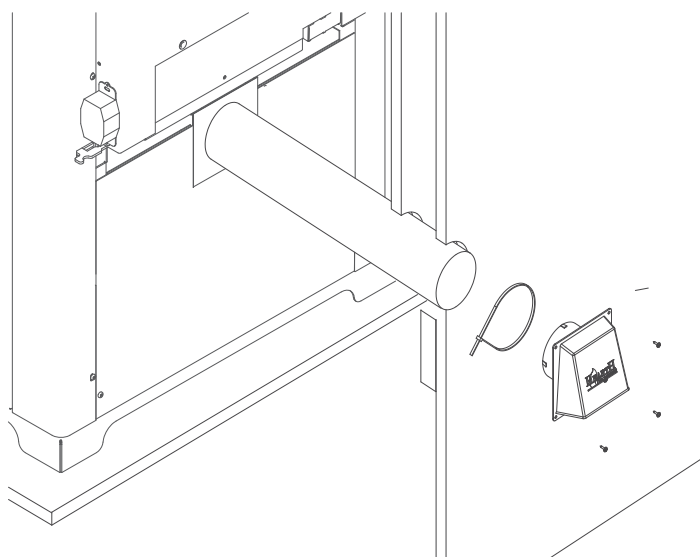


Figure 16.1 - Rear Installation

	<b>WARNING</b>
	<p><b>Fire Risk. Asphyxiation Risk.</b> <u>Do not draw outside combustion air from:</u></p> <ul style="list-style-type: none"> <li>• Wall, floor or ceiling cavity</li> <li>• Enclosed space such as an attic or garage</li> <li>• Close proximity to exhaust vents or chimneys</li> </ul> <p>Fumes or odor may result</p>

	<b>WARNING</b>
	<p><b>Asphyxiation Risk.</b> Outside air inlet must be located to prevent blockage from:</p> <ul style="list-style-type: none"> <li>• Leaves</li> <li>• Snow or ice</li> <li>• Other debris</li> </ul> <p>Block may cause combustion air starvation Smoke spillage may set off alarms or irritate sensitive individuals.</p>

	<b>WARNING</b>
	<p><b>Asphyxiation Risk.</b> Length of outside air supply duct shall NOT exceed the length of the vertical height of the exhaust flue.</p> <ul style="list-style-type: none"> <li>• Fire will not burn properly</li> <li>• Smoke spillage occurs when door is opened due to air starvation.</li> </ul>

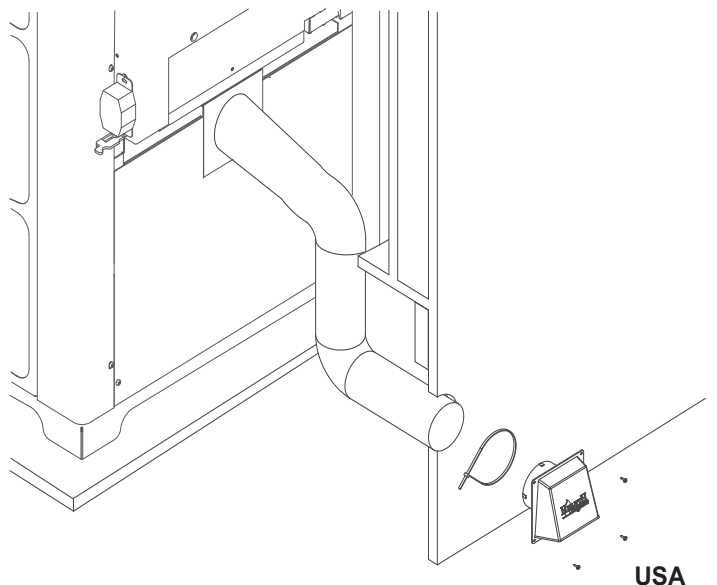


Figure 16.2 - Floor Installation

## B. Decorative Panel Removal & Installation

Your appliance ships with two different side options, one is a solid side panel (**Figure 17.1**) and tile side panel (**Figure 17.2**). There are two of each and no left or right side, these can be changed at anytime.

The appliances are being shipped with a solid side panel securing clip on both sides. Please remove and discard pins prior to use (**Figures 17.3**).

### Solid Side Panel Removal

- Remove solid panel from side by lifting up and pulling away from appliance (use a flat tool to pry from bottom if needed) (**Figure 17.4**).

**NOTE:** 300°F high temp paint can be use to repaint the solid side panel only! **DO NOT** use on the rest of appliance this requires 1200°F high temp paint.

### Tile Panel Installation

- Remove tile frame from side by lifting up and pulling away from appliance (**Figure 17.4** reference **solid side panel removal**).
- Stack non-combustible material tiles in tile frame as shown in **Figure 17.2**.
- Reattach tile frame (**Figure 17.5**).

### Tile Dimensional Requirements:

Max Thickness: 5/16"

Max Length/Width: 11-7/8" square

Min Length/Width: 11-11/16" square

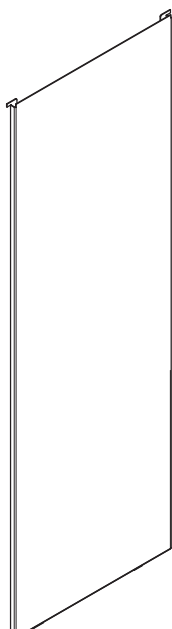


Figure 17.1

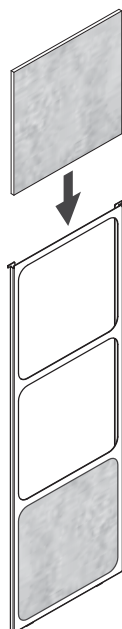


Figure 17.2

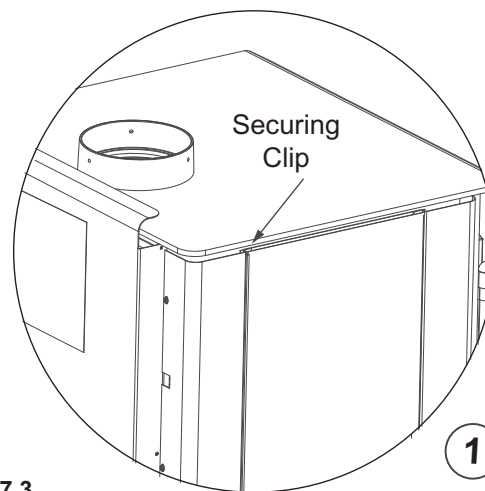


Figure 17.3

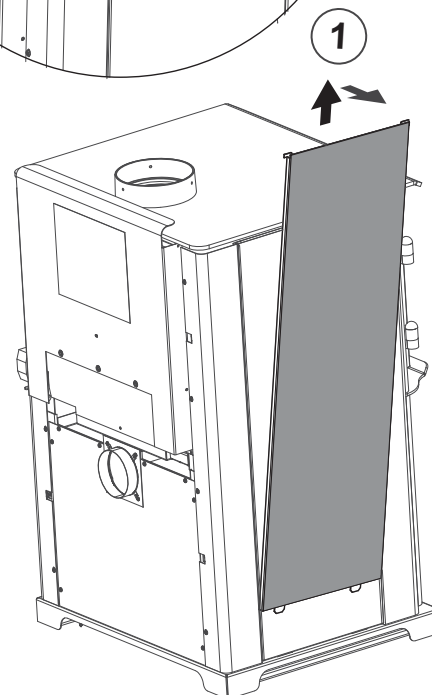


Figure 17.4

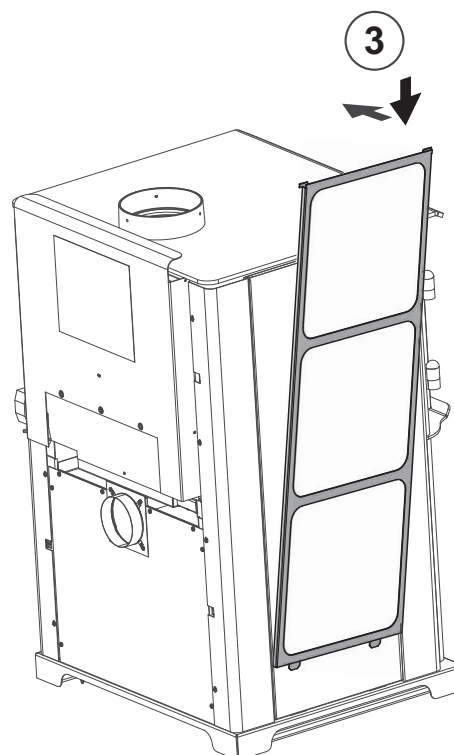


Figure 17.5



## WARNING



### Fire Risk.

Use only noncombustible materials as a decorative tile.

**C. Door Handle Assembly**

1. Install fiber handle to door handle rod.

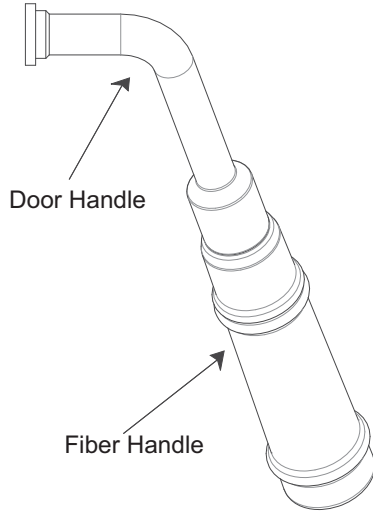




Figure 18.1

**D. Blower (Optional)**

1. Locate bolts supplied with the blower.
2. Align holes in mounting flange of blower with bolt holes in appliance. Blower should be positioned at bottom of rear outer skin as shown in **Figure 18.2**.
3. Re-insert and tighten bolts, securing blower onto outer wall of appliance.
4. Place the bracket containing the snap disc and magnet under the bottom left rear corner.

See **Owner's Manual** for detailed operating instructions for the blower and snap disc.

 <b>CAUTION</b>	
	<b>Shock Risk.</b>
	<ul style="list-style-type: none"> <li>• Do NOT remove grounding prong from plug.</li> <li>• Route cord away from appliance.</li> <li>• Do NOT route cord under or in front of appliance.</li> <li>• Plug directly into properly grounded 3 prong receptacle.</li> </ul>

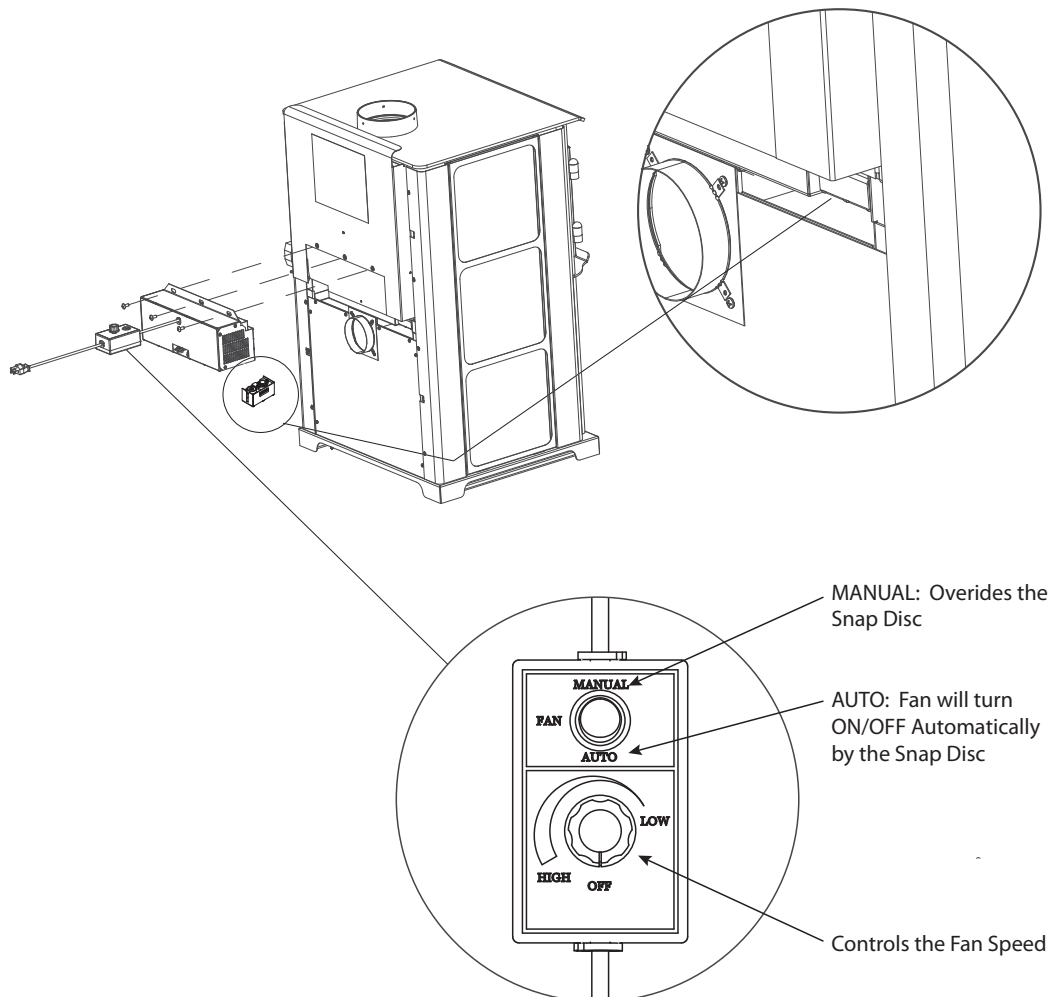


Figure 18.2

# 6 Mobile Home Installation

**You must use a Quadra-Fire Outside Air Kit Part OAK-ACC; which is available from you dealer, for installation in a mobile home.**

1. An outside air inlet must be provided for combustion.
2. Appliance must be secured to the mobile home structure by bolting the legs to the floor.
3. Appliance must be grounded with #8 solid copper grounding wire or equivalent and terminated at each end with N.E.C. approved grounding device.
4. Appliance must be installed with an approved UL103 HT ventilated chimney connector, UL103 HT chimney, and terminal cap with spark arrestor. Never use a single wall connector (appliance pipe) in a mobile home installation. Use only double-wall connector pipe, Dura-Vent DVL, Selkirk Metalbestos DS or Security DL double-wall connector or any listed double-wall connector pipe.
5. In Canada, this appliance must be connected to a 6 inch (152mm) factory-built chimney conforming to CAN/ULC-629M, STANDARD FOR FACTORY BUILT CHIMNEYS.
6. Follow the chimney and chimney connector manufacturer's instructions when installing the flue system for use in a mobile home.
7. Maintain clearance to combustibles.
8. Floor protection requirements must be followed precisely.
9. Use silicone to create an effective vapor barrier at the location where the chimney or other component penetrates to the exterior of the structure.

**NOTE:** Offsets from the vertical, not exceeding 45°, are allowed per **Section 905(a) of the Uniform Mechanical Code (UMC)**. Offsets greater than 45° are considered horizontal and are also allowed, providing the horizontal run does not exceed 75% of the vertical height of the vent. Construction, clearance and termination must be in compliance with the **UMC Table 9C**. This installation must also comply with **NFPA 211**.

**NOTE:** Top sections of chimney must be removable to allow maximum clearance of 13.5 feet (411cm) from ground level for transportation purposes.

10. Burn seasoned cord wood only. Other types of fuels may generate poisonous gases (e.g., carbon monoxide).
11. If appliance burns poorly while an exhaust blower is on in home, (i.e., range hood), increase combustion air.
12. Installation shall be in accordance with the **Manufacturers Home & Safety Standard (HUD) CFR 3280, Part 24**.



## CAUTION

THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL AND CEILING/ROOF MUST BE MAINTAINED

### Do NOT cut through:

- Floor joist, wall, studs or ceiling trusses.
- Any supporting material that would affect the structural integrity.



## WARNING



### Asphyxiation Risk.

Do Not Install in a sleeping room this consumes oxygen in the room.



## WARNING



### Fire Risk.

Do Not use single wall connector pipe anywhere in a mobile home installation.







# QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

## CONTACT INFORMATION

Hearth & Home Technologies  
352 Mountain House Road  
Halifax, PA 17032  
Division of HNI INDUSTRIES

Please contact your Quadra-Fire dealer with any questions or concerns.  
For the number of your nearest Quadra-Fire dealer  
log onto [www.quadrafire.com](http://www.quadrafire.com)



## CAUTION



### DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.



### We recommend that you record the following pertinent information for your heating appliance.

Date purchased/installed: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Location on appliance: \_\_\_\_\_

Dealership purchased from: \_\_\_\_\_

Dealer Phone: 1(     ) - \_\_\_\_\_

Notes:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This product may be covered by one or more of the following patents: (United States) 5341794, 5263471, 6688302, 7216645, 7047962 or other U.S. and foreign patents pending.

  
**HEARTH & HOME**  
technologies™

# Owner's Manual

## Operation & Care

**INSTALLER:** Leave this manual with party responsible for use and operation.  
**OWNER:** Retain this manual for future reference.

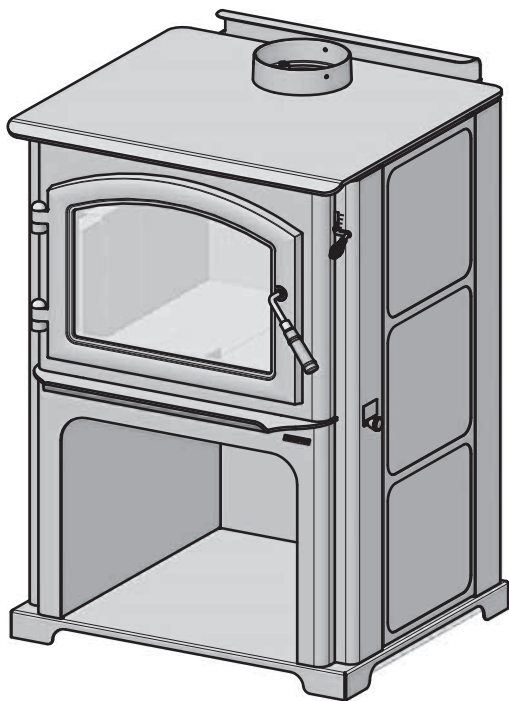
Contact your dealer with questions on installation, operation, or service.

**NOTICE: DO NOT DISCARD THIS MANUAL**

# QUADRA-FIRE®

**DISCOVERY III WOOD APPLIANCE  
AUTOMATIC COMBUSTION  
CONTROL (ACC)**

**MODEL:  
DISCOVERY-III-C**



### WARNING



If the information in these instructions is not followed exactly, a fire could result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over-fire - If appliance or chimney connector glows, you are over-firing. Over-firing will void your warranty.
- Comply with all minimum clearances to combustibles as specified. Failure to comply may cause house fire.



### WARNING



#### HOT SURFACES!

Glass and other surfaces are hot during operation AND cool down.

**Hot glass and appliance will cause burns.**

- Do not touch glass until it is cooled
- Use leather gloves when reloading fuel
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as appliance.
- Alert children and adults to hazards of high temperatures
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.



### WARNING



#### Fire Risk.

For use with solid wood fuel only.  
Other fuels may over-fire and generate poisonous gases (i.e. carbon monoxide).

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



**NOTE:** To obtain a French translation of this manual, please contact your dealer or visit [www.quadrafire.com](http://www.quadrafire.com)

**REMARQUE :** Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez [www.quadrafire.com](http://www.quadrafire.com)

# Congratulations



and Welcome to the Quadra-Fire Family!

**NOTE:** Clearances may only be reduced by means approved by the regulatory authority having jurisdiction

## A. Sample of Serial Number / Safety Label

LOCATION: Back of appliance.

**LISTED ROOM HEATER, SOLID FUEL TYPE. ALSO FOR USE IN MOBILE HOMES. (JM) 84 HUD / APPAREIL DE CHAUFFAGE DE PIÈCE, DE TYPE DE COMBUSTIBLE SOLIDE (JM) 84 HUD. "Pur Usage Avec Bois Solide Sélément"**

**PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON**  
 Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building area. Do not obstruct the space beneath heater. For use only with leg and pedestal options intended for this model. Do not install in a sleeping room. An outside combustion air inlet must be provided and unobstructed while unit is in use. The structural integrity of the mobile home floor, ceiling and walls must be maintained. The stove needs to be properly grounded to the frame of the mobile home. Components required for mobile home installation: Outside Air Kit, Part Number OAK-ACC. Refer to manufacturer's instructions and local codes for precautions required for passing a chimney through a combustible wall or ceiling and maximum offsets. Inspect and clean chimney frequently - Under certain Conditions of Use, Crossflow Buildup May Occur. Do not connect this unit to a chimney serving another appliance. Do not connect this unit to a chimney serving another appliance or in front of appliance. DANGER: Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic available from your dealer. Do not use grate or elevate fire. Build wood fire directly on hearth. Do not overfire - If heater or chimney connector gloves, you are overfiring. Operate only with the fuel loading door closed. Open only to add fuel to the fire. / Installer et utiliser en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruer l'espace en dessous de l'appareil. AVIS - Pour Les Maisons Mobiles: Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. L'appareil de chauffage doit être fixé à la charpente de la maison mobile. Les composants requis pour l'installation des maisons mobiles: Assemblage d'air extérieur, Numéro de Pièce OAK-ACC. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustibles, et les compensations maximums. Inspectez et nettoyez la cheminée fréquemment. Sous certaines conditions, il se peut que la créosote s'accumule rapidement. Ne pas connecter cet appareil à une cheminée servant un autre appareil. Composants Optionnels: Ventilateur Optionnel, Pièce BK-ACC. Puissance Electrique: 115 VAC, 12 Amps, 60 Hz. Déconnectez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. DANGER: Il y a risque de décharge électrique. Déconnectez le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. N'élevez pas le feu. Bâillez le feu de bois directement sur l'âtre. Ne pas surchauffer. Si l'appareil de chauffage ou le tuyau de cheminée rouissent, vous surchauffez. Opérez l'appareil seulement lorsque la porte de chargement est fermée. Couvrez le porté seulement lorsque vous devez ouvrir des combustibles dans le feu.

**EMBER PROTECTION:** It is necessary to install a Type I floor protector. Floor protector must be non-combustible material, extending beneath appliance and to front/sides/rear as indicated on the diagram below. Exception: Non-combustible floor protection must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side.

**PROTECTION DU PLANCHER:** Le protecteur de plancher doit être d'un minimum de 3/8 inch (10mm) d'épaisseur de matériel incombustible ou équivalent, s'étendant du dessous de l'appareil de chauffage à l'avant, aux côtés et à l'arrière comme indiqué sur le diagramme ci-dessous. Exception: Les protections incombustibles du plancher doivent s'étendre en dessous du conduit de cheminée lorsqu'installées avec une ventilation à horizontale et s'étendre de 2 inches (51mm) de chaque côté.

**VENT SPECIFICATIONS: / SPÉCIFICATIONS DE LA VENTILATION:**  
**SINGLE WALL:** Six inch (6 inches) (152mm) diameter, minimum 24 MSG black or blue steel connector pipe, with a listed factory-built UL103HT\* Class "A" chimney, suitable for use with solid fuels, or a masonry chimney, and the referenced clearances. / **MUR SIMPLE:** De six (6 inches) (152mm) de diamètre le connecteur de conduit de minimum d'acier noir ou bleu de minimum de 24MSG, avec une cheminée bâtit en usine UL103HT\* de Classe "A", adéquate pour usage avec les combustions solides, ou une cheminée de briques, avec espaces libres référés.  
**DOUBLE WALL:** Six inch (6 inches) (152mm) diameter, listed double wall air insulated connector pipe with listed factory-built UL103HT\* Class "A" chimney, or a masonry chimney and the referenced clearances. / **MUR DOUBLE:** De six (6 inches) (152mm) de diamètre, le connecteur de conduit d'air isolé pour mur double avec une cheminée bâtit en usine UL103HT\* de Classe "A", ou une cheminée de briques, avec espaces libres alloués.  
**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS:** In Inches & (Millimeters) / **ESPACES LIBRES MINIMUM DES MATERIAUX COMBUSTIBLES:** En Pouce & (millimètres)  
**NOTE:** All "A", "C" and "F" Dimensions are to inside diameter of the flue collar. / **NOTE:** Toutes les dimensions "A", "C", et "F" sont à partir du diamètre intérieur de l'entrée du conduit.

**INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FT VERTICAL OFF STOVE TOP! / INSTALLATION: ENTIEREMENT VERTICALE OU HORIZONTALE AVEC 609mm VERTICAL MINIMUM DU HAUT DU POÊLE**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
<b>Discovery III Model</b>	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1369)	12 (305)																			
<b>4300 Millennium Model</b>	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1369)	12 (305)																			
<b>4300 Step Top Model</b>	18.5 (470)	11.75 (298)	27.5 (699)	14.5 (368)	2.5 (64)	15 (381)	49.5 (1263)	12 (305)																			

**DOUBLE WALL PIPE**  
**Discovery III Model** 12 (305) 5.25 (133) 27.5 (699) 14.5 (368) 8 (203) 20.5 (521) 53.5 (1369) 12 (305)  
**4300 Millennium Model** 12 (305) 5.25 (133) 27.5 (699) 14.5 (368) 8 (203) 20.5 (521) 53.5 (1369) 12 (305)  
**4300 Step Top Model** 10.5 (267) 3.75 (95) 25 (635) 12 (305) 2.5 (63.5) 15 (381) 49.5 (1263) 5 (127)

**INSTALLATION: 90° ELBOW OFF TOP OF STOVE THROUGH BACKWALL / INSTALLATION: 90° DU COURBURE AU HAUT DU POÊLE A TRAVERS LE MUR ARRIERE**  
**DOUBLE WALL PIPE**  
**Discovery III Model** 11.5 (292) 4.75 (121) 27.5 (699) 15 (381) 14.5 (368) 20.5 (521) 53.5 (1369) N/A  
**4300 Millennium Model** 11.5 (292) 4.75 (121) 27.5 (699) 15 (381) 14.5 (368) 20.5 (521) 53.5 (1369) N/A  
**4300 Step Top Model** 10.5 (267) 3.75 (95) 22 (559) 9 (229) 15 (381) 49.5 (1263) 5 (127)

**INSTALLATION: ALCOVE - Six inch (6 inches) (152mm) diameter listed DOUBLE WALL air insulated connector pipe with listed factory-built UL103HT\* Class "A" chimney, or a masonry chimney. (Mobile Home must be equipped with a spark arrestor. Maximum depth of Alcove shall be no more than 48 inches (1219mm) and referenced clearances apply.)**  
**INSTALLATION: L'ALCOVE:** Six pouces (6 pouces) (152mm) de diamètre listé air isolé tuyau de connecteur avec UL103HT\* coté Classe usine construite "A" cheminée ou une cheminée de maçonnerie. (Mobile Home doit être équipé d'un pare-étincelles.) Profondeur maximale de Alcove ne doit pas être plus de 48 inches (1219mm) et les dégagements en alcove référencés.

**DOUBLE WALL PIPE**  
**Discovery III Model** 16 (406) 9.375 (238) 27.5 (699) 14.5 (368) N/A N/A 53.5 (1369) 12 (305)  
**4300 Millennium Model** 16 (406) 9.375 (238) 27.5 (699) 14.5 (368) N/A N/A 53.5 (1369) 12 (305)  
**4300 Step Top Model** 10.5 (267) 3.75 (95) 25 (635) N/A N/A 49.5 (1263) 5 (127)

\*In Canada must comply with Standard CANULC-S625-M97 for factory-built chimney.  
 \*Au Canada doit conformer à CANULC-S625-M97 la norme pour cheminée bâtit en usine.

**STOVE TO CEILING CLEARANCE / ESPACE LIBRE DU POÊLE PLAFOND**

**90° OFF TOP UP & OUT CEILING CLEARANCE / ESPACE LIBRE DU DESSUS DE L'APPAREIL AU PLAFOND AVEC 90° DE COURBURE**

**ALCOVE SIDE VIEW / VUE DE CÔTÉ DE L'ALCOVE**

Manufactured by: **HEARTHSTONE**

352 Mountain House Road, Halifax, PA 17032  
www.quadrafire.com

Made in U.S.A. of US and imported parts.

Fabriqué aux États-Unis d'Amérique par des pièces d'origine américaines et pièces importées.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
 Certified to comply with 2020 particulate emission standards at 1.6 g/EPa Method 28 and SG.  
 This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

**DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE**

Serial No.

Model Name

Test Labs & Report Numbers

Discovery III Flat Top & Step Top				4300 MILLENIUM-C				4300 STEP TOP-C						
2020	JAN	FEB	MAR	APR	2020	JAN	FEB	MAR	APR	2020	JAN	FEB	MAR	APR
2021	MAY	JUN	JUL	AUG	2021	MAY	JUN	JUL	AUG	2021	MAY	JUN	JUL	AUG
2022	SEP	OCT	NOV	DEC	2022	SEP	OCT	NOV	DEC	2022	SEP	OCT	NOV	DEC

Mfg. Date Model

2 7037-804A December 19, 2019



### Safety Alert Key:

- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

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## B. Warranty Policy

### Hearth & Home Technologies LIMITED LIFETIME WARRANTY

Hearth & Home Technologies, on behalf of its hearth brands ("HHT"), extends the following warranty for HHT gas, wood, pellet and electric hearth appliances that are purchased from an HHT authorized dealer.

#### **WARRANTY COVERAGE:**

HHT warrants to the original owner of the HHT appliance at the site of installation, and to any transferee taking ownership of the appliance at the site of installation within two years following the date of original purchase, that the HHT appliance will be free from defects in materials and workmanship at the time of manufacture. After installation, if covered components manufactured by HHT are found to be defective in materials or workmanship during the applicable warranty period, HHT will, at its option, repair or replace the covered components. HHT, at its own discretion, may fully discharge all of its obligations under such warranties by replacing the product itself or refunding the verified purchase price of the product itself. The maximum amount recoverable under this warranty is limited to the purchase price of the product. This warranty is subject to conditions, exclusions and limitations as described below.

#### **WARRANTY PERIOD:**

Warranty coverage for consumers begins at the date of installation. In the case of new home construction, warranty coverage begins on the date of first occupancy of the dwelling or six months after the sale of the product by an independent, authorized HHT dealer/distributor, whichever occurs earlier. However, the warranty shall commence no later than 24 months following the date of product shipment from HHT, regardless of the installation or occupancy date. The warranty period for parts and labor for covered components is produced in the following table.

The term "Limited Lifetime" in the table below is defined as: 20 years from the beginning date of warranty coverage for gas appliances, and 10 years from the beginning date of warranty coverage for wood and pellet appliances. These time periods reflect the minimum expected useful lives of the designated components under normal operating conditions.

Warranty Period		HHT Manufactured Appliances and Venting					
Parts	Labor	Gas	Pellet	Wood	Electric	Venting	Components Covered
1 Year		X	X	X	X	x	All parts and material except as covered by Conditions, Exclusions, and Limitations listed
2 years			X	X			Igniters, auger motors, electronic components, and glass
		X	X	X			Factory-installed blowers
				X			Molded refractory panels
		X					Ignition Modules
3 years			X				Firepots, burnpots, mechanical feeders/auger assemblies
5 years	1 year	X					Vent Free burners, Vent Free ceramic fiber logs, Aluminized Burners
			X	X			Castings and Baffles
6 years	3 years			X			Catalyst - limitations listed
7 years	3 years		X	X			Manifold tubes, HHT chimney and termination
10 years	1 year	X					Burners, logs and refractory
Limited Lifetime	3 years	X	X	X			Firebox and heat exchanger, Grate and Stainless Steel Burners, FlexBurn® System (engine, inner cover, access cover and fireback)
90 Days		X	X	X	X	X	All replacement parts beyond warranty period

**WARRANTY CONDITIONS:**

- This warranty only covers HHT appliances that are purchased through an HHT authorized dealer or distributor. A list of HHT authorized dealers is available on the HHT branded websites.
- This warranty is only valid while the HHT appliance remains at the site of original installation.
- This warranty is only valid in the country in which the HHT authorized dealer or distributor that sold the appliance resides.
- Contact your installing dealer for warranty service. If the installing dealer or distributor is unable to provide necessary parts, contact the nearest HHT authorized dealer or supplier. Additional service fees may apply if you are seeking warranty service from a dealer other than the dealer from whom you originally purchased the product.
- Check with your dealer in advance for any costs to you when arranging a warranty call. Travel and shipping charges for parts are not covered by this warranty.
- Limited Catalyst Warranty
  - o For wood burning products containing a catalyst, the catalyst will be warranted for a six-year period as follows: if the original catalyst or a replacement catalyst proves defective or ceases to maintain 70% of its particulate emission reduction activity (as measured by an approved testing procedure) within 36 months from the purchase date, the catalyst will be replaced for free.
  - o From 37 to 72 months a pro-rated credit will be allowed against a replacement catalyst and labor credit necessary to install the replacement catalyst. The proration rate is as follows:

Amount of Time Since Purchase	Credit Towards Replacement Cost
0 - 36 Months	100%
37 - 48 Months	30%
49 - 60 Months	20%
61 - 72 Months	10%

- o Any replacement catalyst will be warranted under the terms of the catalyst warranty for the remaining term of the original warranty. The purchaser must provide the name, address, and telephone number of the location where the product is installed, proof of original purchase date, date of failure, and any relevant information regarding the failure of the catalyst.

**WARRANTY EXCLUSIONS:**

This warranty does not cover the following:

- Changes in surface finishes as a result of normal use. As a heating appliance, some changes in color of interior and exterior surface finishes may occur. This is not a flaw and is not covered under warranty.
- Damage to printed, plated, or enameled surfaces caused by fingerprints, accidents, misuse, scratches, melted items, or other external sources and residues left on the plated surfaces from the use of abrasive cleaners or polishes.
- Repair or replacement of parts that are subject to normal wear and tear during the warranty period are not covered. These parts include: paint, wood and pellet gaskets, firebricks, grates, flame guides, batteries and the discoloration of glass.
- Minor expansion, contraction, or movement of certain parts causing noise. These conditions are normal and complaints related to this noise are not covered by this warranty.
- Damages resulting from: (1) failure to install, operate, or maintain the appliance in accordance with the installation instructions, operating instructions, and listing agent identification label furnished with the appliance; (2) failure to install the appliance in accordance with local building codes; (3) shipping or improper handling; (4) improper operation, abuse, misuse, continued operation with damaged, corroded or failed components, accident, or improperly/incorrectly performed repairs (5) environmental conditions, inadequate ventilation, negative pressure, or drafting caused by tightly sealed constructions, insufficient make-up air supply, or handling devices such as exhaust fans or forced air furnaces or other such causes; (6) use of fuels other than those specified in the operation instructions; (7) installation or use of components not supplied with the appliance or any other components not expressly authorized and approved by HHT; (8) modification of the appliance not expressly authorized and approved by HHT in writing; and/or (9) interruptions or fluctuations of electrical power supply to the appliance.
- Non-HHT venting components, hearth connections or other accessories used in conjunction with the appliance.
- Any part of a pre-existing fireplace system in which an insert or a decorative gas appliance is installed.
- HHT's obligation under this warranty does not extend to the appliance's capability to heat the desired space. Information is provided to assist the consumer and the dealer in selecting the proper appliance for the application. Consideration must be given to the appliance location and configuration, environmental conditions, insulation and air tightness of the structure.



**This warranty is void if:**

- The appliance has been over-fired, operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals. Over-firing can be identified by, but not limited to, warped plates or tubes, deformation/warping of interior cast iron structure or components, rust colored cast iron, bubbling, cracking and discoloration of steel or enamel finishes.
- The appliance is subjected to prolonged periods of dampness or condensation.
- There is any damage to the appliance or other components due to water or weather damage which is the result of, but not limited to, improper chimney or venting installation.

**LIMITATIONS OF LIABILITY**

- The owner's exclusive remedy and HHT's sole obligation under this warranty, under any other warranty, express or implied, or in contract, tort or otherwise, shall be limited to replacement, repair, or refund, as specified above. In no event will HHT be liable for any incidental or consequential damages caused by defects in the appliance. Some states do not allow exclusions or limitation of incidental or consequential damages, so these limitations may not apply to you. This warranty gives you specific rights; you may also have other rights, which vary from state to state. EXCEPT TO THE EXTENT PROVIDED BY LAW, HHT MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE.

**C. Quick Start Guide**

**NOTE:** These are generic drawings and may not represent your specific model.

**ITEMS NEEDED FOR FIRST FIRE:** 10 Pieces of Newspaper, 10-20 Pieces of Dry Kindling and Few Pieces of Dry Split Wood.

**OPEN AIR CONTROLS**

HIGH  
BURN RATE CONTROL (Upper Right Corner)

HIGH  
AUTOMATIC COMBUSTION CONTROL (ACC) (Middle right hand side)

**1**

**LOAD WOOD**

**2**

**ADD NEWSPAPER**

**3**

**ADD KINDLING**

**LIGHT THE PAPER**

**4**

**Warning! Risk of Fire.**

Close and securely latch the door after the fire has started, and after refueling, to prevent:

- Spillage of smoke, flame and carbon monoxide
- Spillage of sparks, coals, and logs
- Over firing

DO NOT leave the appliance unattended with the door open.  
Starting a fire may not require an open door for draft. The air control should supply adequate draft.

**5**

**ADD MORE WOOD**

**6**

**REDUCE AIR CONTROLS**

Set to desired heat output.

LOW  
BURN RATE CONTROL (Upper Right Corner)

LOW  
AUTOMATIC COMBUSTION CONTROL (ACC) (Middle right hand side)

**7**

**The appliance is ready for normal operation.**

# 1 Listing and Code Approvals

## A. Appliance Certification

<b>Model:</b>	Discovery III Wood Appliance
<b>Safety Laboratory:</b>	OMNI Test Laboratories, Inc.
<b>Report No:</b>	0061WS067S
<b>Type:</b>	Listed Room Appliance, Solid Fuel Type
<b>Standard:</b>	UL 1482-11 (R2015) and ULC S627-00 and (UM) 84-HUD, Mobile Home Approved.

## B. BTU & Efficiency Specifications

<b>EPA Certification #:</b>	Number: N/A
<b>EPA Certified Emissions:</b>	1.6 grams per hour
<b>*LHV Tested Efficiency:</b>	80.2%
<b>**HHV Tested Efficiency:</b>	74.2%
<b>***EPA BTU Output:</b>	12,200 to 36,800 / hr.
<b>****Peak BTU/Hour Output:</b>	61,700
<b>Vent Size:</b>	6 inches
<b>Firebox Size:</b>	2.26 cubic feet
<b>Recommended Log Length:</b>	18 inches
<b>Fuel</b>	Seasoned Cord Wood (20% moisture)
*Weighted average LHV (Low Heating Value) efficiency using Douglas Fir dimensional lumber and data collected during EPA emission test. LHV assumes the moisture is already in a vapor state so there is no loss in energy to vaporize.	
**Weighted average HHV (High Heating Value) efficiency using Douglas Fir dimensional lumber and data collected during EPA emission test. HHV includes the energy required to vaporize the water in the fuel.	
***A range of BTU outputs calculated using HHV Efficiency and the burn rates from the EPA tests, using Douglas Fir dimensional lumber.	
****A peak BTU out of the appliance calculated using the maximum first hour burn rate from the High EPA Test and BTU content of seasoned cordwood (8600) times the efficiency.	

This Discovery III is Certified to comply with 2020 crib wood particulate emission standards.



This wood appliance needs periodic inspection and repair for proper operation. It is against federal regulations to operate this wood appliance in a manner inconsistent with operating instructions in this manual.

**NOTE:** This installation must conform with local codes. In the absence of local codes you must comply with **(UM) 84-HUD and NFPA211 in the U.S.A. and CAN/CSA-B365 Installation Codes in Canada.**

### C. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

### D. Mobile Home Approved

- This appliance is approved for mobile home installations when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire, and chimney must be listed to UL103 HT or a listed UL-1777 full length six inch (152mm) diameter liner must be used.
- Outside Air Kit, part OAK-ACC must be installed in a mobile home installation.

### E. Sleeping Room

When installed in a sleeping room it is recommended that a smoke and/or CO alarm be installed in the bedroom. The size of the room must be at least 50ft<sup>3</sup> per 1,000 Btu/hr stove input, if the stove exceeds the room size, out air must be installed.

### F. California - Prop65



#### WARNING

This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: [WWW.P65Warnings.ca.gov](http://WWW.P65Warnings.ca.gov)



#### WARNING



#### Fire Risk.

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
  - Modification of the appliance.
  - Installation other than as instructed by Hearth & Home Technologies.
  - Installation and/or use of any component part not approved by Hearth & Home Technologies.
  - Operating appliance without fully assembling all components.
  - Operating appliance without legs attached (if supplied with appliance).
  - Do NOT Over fire - If appliance or chimney connector glows, you are over firing.
- Any such action that may cause a fire hazard.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

**NOTE:** Hearth & Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and/or price without notice.

# User Guide

## 2 Operating Instructions

### A. Over-Firing Your Appliance



#### WARNING

##### Fire Risk. Do not over-fire.

Over-firing may ignite creosote or will damage the appliance and chimney.



To prevent over-firing your appliance,

##### DO NOT:

- Use flammable liquids
- Overload with wood
- Burn trash or large amounts of scrap lumber
- Permit too much air to the fire

Visit [www.quadrafire.com/shopping-tools/videos](http://www.quadrafire.com/shopping-tools/videos) to view product and use & care videos.

#### 1. Symptoms of Over-Firing

Symptoms of over-firing may include one or more of the following:

- Chimney connector or appliance glowing
- Roaring, rumbling noises
- Loud cracking or banging sounds
- Metal warping
- Chimney fire

#### 2. What To Do if Your Appliance is Over-Firing

- Immediately close the door and air controls to reduce air supply to the fire.
- If you suspect a chimney fire, call the fire department and evacuate your house.
- Contact your local chimney professional and have your appliance and appliance pipe inspected for any damage.
- Do not use your appliance until the chimney professional informs you it is safe to do so.

Hearth & Home Technologies WILL NOT warranty appliances that exhibit evidence of over-firing. Evidence of over-firing includes, but is not limited to:

- Warped air tube
- Deteriorated refractory brick retainers
- Deteriorated baffle and other interior components

### B. Wood Selection & Storage

Burn only dry seasoned wood. Store wood under cover, out of the rain and snow. Dry and well-seasoned wood will not only minimize the chance of creosote formation, but will give you the most efficient fire. Even dry wood contains at least 15% moisture by weight, and should be burned hot enough to keep the chimney hot for as long as it takes to dry the wood out - about one hour. It is a waste of energy to burn unseasoned wood of any kind.

Dead wood lying on the forest floor should be considered wet, and requires full seasoning time. Standing dead wood can be considered to be about 2/3 seasoned. To tell if wood is dry enough to burn, check the ends of the logs. If there are cracks radiating in all directions from the center, it is dry. If your wood sizzles in the fire, even though the surface is dry, it may not be fully cured.

Splitting wood before it is stored reduces drying time. Wood should be stacked so that both ends of each piece are exposed to air, since more drying occurs through the cut ends than the sides. This is true even with wood that has been split. Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood, etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.

### C. Burning Process

In recent years there has been an increasing concern about air quality. Much of the blame for poor air quality has been placed on the burning of wood for home heating. In order to improve the situation, we at Quadra-Fire have developed cleaner-burning wood appliances that surpass the requirements for emissions established by our governing agencies. These wood appliances, like any other appliances, must be properly operated in order to insure that they perform the way they are designed to perform. Improper operation can turn most any wood appliance into a smoldering environmental hazard.

#### 1. Kindling or First Stage

It helps to know a little about the actual process of burning in order to understand what goes on inside a appliance. The first stage of burning is called the kindling stage. In this stage, the wood is heated to a temperature high enough to evaporate the moisture which is present in all wood. The wood will reach the boiling point of water (212°F) and will not get any hotter until the water is evaporated. This process takes heat from the coals and tends to cool the appliance.

Fire requires three things to burn - fuel, air and heat. So, if heat is robbed from the appliance during the drying stage, the new load of wood has reduced the chances for a good clean burn. For this reason, it is always best to burn dry, seasoned firewood. When the wood isn't dry, you must open the air controls and burn at a high burn setting for a longer time to start it burning. The heat generated from the fire should be warming your home and establishing the flue draft, not evaporating the moisture out of wet, unseasoned wood, resulting in wasted heat.

## 2. Second Stage

The next stage of burning, the secondary stage, is the period when the wood gives off flammable gases which burn above the fuel with bright flames. During this stage of burning it is very important that the flames be maintained and not allowed to go out. This will ensure the cleanest possible fire. If the flames tend to go out, it is set too low for your burning conditions. The air control located at the upper right hand corner is used to adjust for burn rates. This is called the Burn Rate Air Control (Figure 11.1).

## 3. Final Stage

The final stage of burning is the charcoal stage. This occurs when the flammable gases have been mostly burned and only charcoal remains. This is a naturally clean portion of the burn. The coals burn with hot blue flames.

It is very important to reload your appliance while enough lively hot coals remain in order to provide the amount of heat needed to dry and rekindle the next load of wood. It is best to open the Burn Rate Air and Start-Up Air Controls before reloading. This livens up the coal bed and reduces excessive emissions (opacity/smoke). Open door slowly so that ash or smoke does not exit appliance through opening. You should also break up any large chunks and distribute the coals so that the new wood is laid on hot coals.

Air quality is important to all of us, and if we choose to use wood to heat our homes we should do so responsibly. To do this we need to learn to burn our appliances in the cleanest way possible. Doing this will allow us to continue using our wood appliances for many years to come.

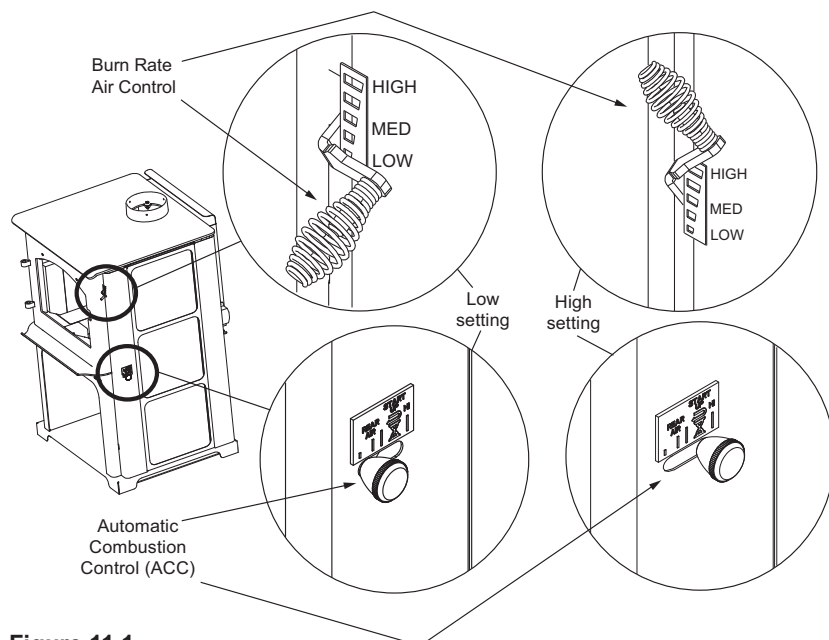


Figure 11.1

## D. Air Controls

Users will need to find their preferred setting between high and low based on desired heat output, installation configuration, and fuel type.

### 1. Burn Rate Air Control

This air supply enters at the upper front of the firebox, near the top of the glass door. This preheated air supplies the necessary fresh oxygen to mix with the unburned gases, helping to create second, third and fourth combustions. This air is regulated by the Burn Rate Air Control. When the control is moved all the way up it is on the High setting and when moved all the way down it is on the Low setting (Figure 11.1).

### 2. Automatic Combustion Control System (ACC)

To engage the Automatic Combustion Control (ACC) timer system push the lever towards the back of the appliance to the "HI" position, then pull forwards towards the front of the appliance until the knob stops. The timer will slowly close in about 25 minutes. Use this feature when reloading fuel or if you want more air supplied to the fire (Figure 11.2).

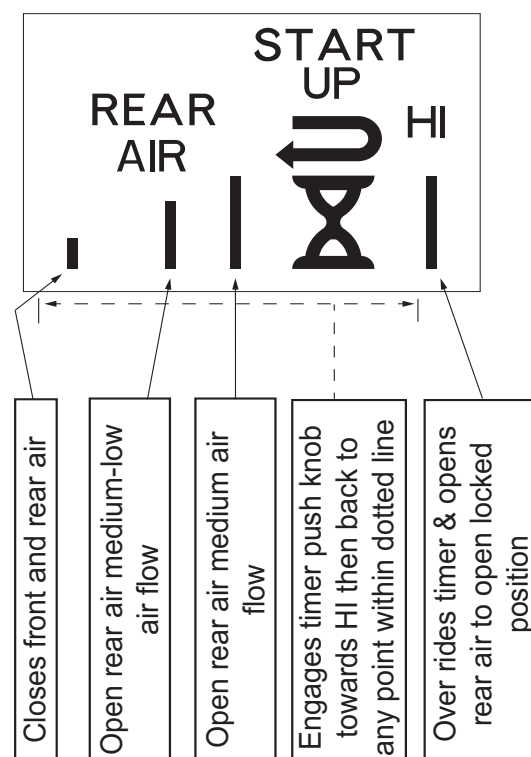
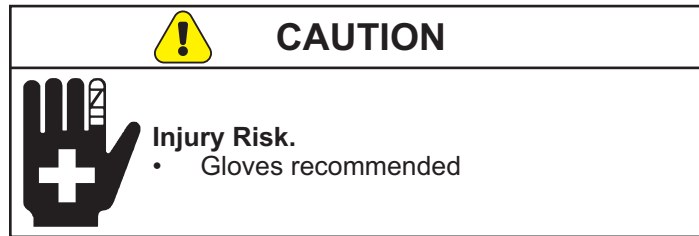


Figure 11.2

## E. Using Burn Rate Air Control & ACC System



### 1. Start up and Reloading Fuel

Open both Burn Rate Air Control and ACC systems fully. To do this with the Burn Rate Air Controls push spring handle up to high. For the ACC timer system push knob towards back of appliance until the knob is located under the high position (**Figure 12.1**).

### 2. Maximize Heat with The ACC System

To maximize heat output with the ACC timer System or also known as high burn push the ACC Air Control lever towards the back of the appliance and leave. This combined with having the main burn rate control lever pushed up will deliver the most amount of air needed to achieve the highest amount of heat output (**Figure 12.1**).

### 3. Manual Timer Over-Ride

If you need to shut the ACC system off before it goes through the cycle of shutting itself off; 25 minutes, reach towards the back of the appliance on the right side and pull the lever towards the front of the appliance (**Figure 12.2**).

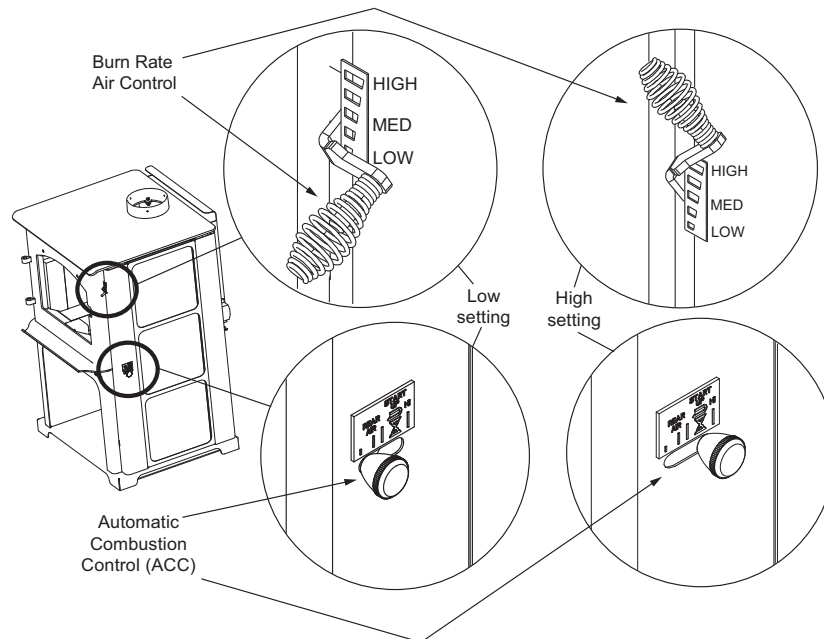


Figure 12.1

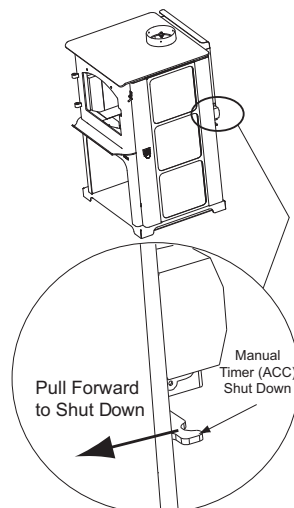


Figure 12.2

## F. Burn Rates and Operating Efficiency

### For maximum operating efficiency

This wood appliance 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 appliance in a manner inconsistent with operating instructions in this manual.

- Burn dry, well-seasoned wood.

### Burn Rates

#### 1. Low burn setting:

- Burn Rate Air Control spring handle up to high position for 5 minutes.
- Then activate the ACC timer system by pushing the knob all the back toward the appliance to “HI” then pull forwards towards the front of the appliance until the knob stops (**Figure 12.1 on page 12**).
- At that point close the Burn Rate Air Control by moving the spring handle to the low setting.

#### 2. Medium low burn setting:

- Burn Rate Air Control spring handle up to high position for 5 minutes.
- Then activate the ACC timer system by pushing the knob all the back toward the appliance to “HI” then pull forwards towards the front of the appliance until the knob stops.
- At that point move the Burn Rate Air Control spring handle to 1/8”-1/2” from the low setting.

#### 3. Medium high burn setting:

- Burn Rate Air Control spring handle up to high position.
- Then activate the ACC timer system by pushing the knob all the back toward the appliance to “HI” then pull forwards towards the front of the appliance until the knob stops.
- At that point move the Burn Rate Air Control spring handle to 1/2” – high.



#### 4. High burn setting:

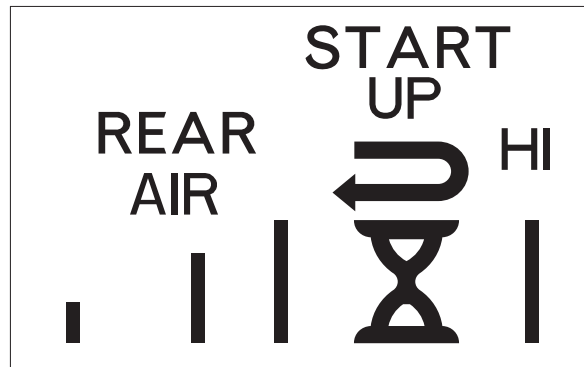
- Burn Rate Air Control spring handle up to high position
- Also activate ACC timer system knob pushed back to the “HI” position.

**NOTE:** If using the optional blower use burn settings 1-3 burn settings the blower shall be off for the first 30 minutes and then be operated in the high position at 30 minutes. For high burn setting, blower may continue to be on full after the loading of the fuel.

**NOTE:** The above information is provided as a guideline only. Altitude and other circumstances may require control adjustments to achieve the desired burn rates.

**NOTE:** Operate appliance on High Burn 45 minutes a day to help keep flue/chimney clean.

	<b>WARNING</b>
	<p><b>Risk of Fire.</b> When set on High Burn Rate and over-riding the Automatic Combustion Control system an over fire situation can occur and may result in a chimney fire. Over firing will void the appliance warranty.</p>



**Figure 13.1**

After activating the timer (ACC), if the control is placed within the rear air section on the label it will allow rear air to enter the firebox. This will not interfere with the timer gradually closing the front air channel in 25 minutes. If control is set on “HI” it over-rides the timer (ACC).



## G. Building A Fire

Before lighting your first fire in the appliance:

**NOTE:** The special high temperature paint that your appliance is finished with will cure as your appliance heats. You will notice an odor and perhaps see some vapor rise from the appliance surface; this is normal. We recommend that you open a window until the odor dissipates and paint is cured.

1. Confirm the baffle is correctly positioned. It should be even with the front tube and resting on all tubes (**Figure 14.1 and 14.2**).
2. Remove all labels from glass and inside of appliance.

There are many ways to build a fire. The basic principle is to light easily-ignitable tinder or paper, which ignites the fast burning kindling, which in turn ignites the slow-burning firewood. Here is one method that works well:

1. Open the Burn Rate Air and ACC Controls fully (Refer to page 7 Start-Up Guide).
2. Place several wads of crushed paper on the firebox floor. Heating the flue with slightly crumpled newspaper before adding kindling keeps smoke to a minimum.
3. Lay small dry sticks of kindling on top of the paper.
4. Make sure that no matches or other combustibles are in the immediate area of the appliance. Be sure the room is adequately ventilated and the flue unobstructed.
5. Light the paper in the appliance. NEVER light or rekindle fire with kerosene, gasoline, or charcoal lighter fluid; the results can be fatal.
6. Once the kindling is burning quickly, add several full-length logs 3 inches (76mm) or 4 inches (102mm) in diameter. Be careful not to smother the fire. Stack the pieces of wood carefully; near enough to keep each other hot, but far enough away from each other to allow adequate air flow between them.
7. Set the Burn Rate Air Control and activate the ACC timer system.
8. When ready to reload, it is best to fully open both the Burn Rate Air and Start-up Air Controls **before reloading**. This livens up the coal bed and reduces excessive emissions (opacity/smoke). Open door slowly so that ash or smoke does not exit appliance through opening. Large logs burn slowly, holding a fire longer. Small logs burn fast and hot, giving quick heat.
9. As long as there are hot coals, repeating steps 6 through 8 will maintain a continuous fire.

### NOTE:

- Build fire on brick firebox floor.
- Do NOT use grates, andirons or other methods to support fuel. It will adversely affect emissions.



### WARNING



#### Fire Risk.

##### Do NOT store wood:

- Closer than required clearances to combustibles to appliance
- Within space required for loading or ash removal.

##### Do NOT operate appliance:

- With appliance door open.
- With ash removal system door open.

Baffle Board even with front tube & resting on all tubes

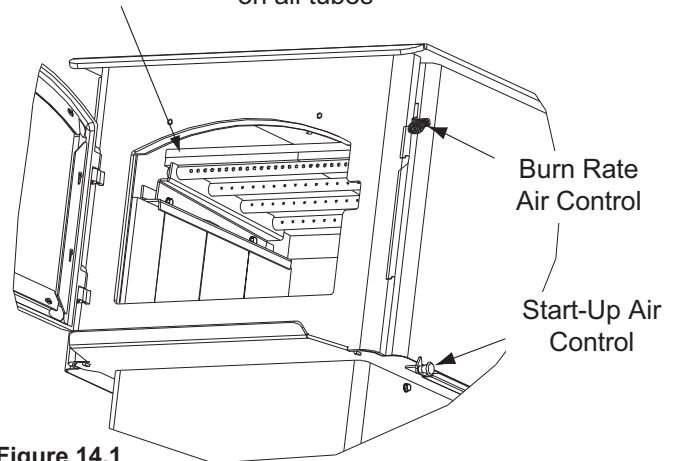


Figure 14.1

Ceramic Blanket on Top

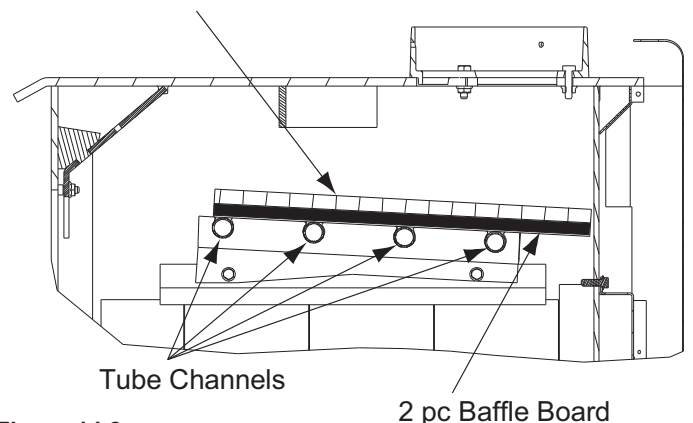


Figure 14.2



### WARNING



#### Fire Risk.

- Do NOT burn wet or green wood.
- Store wood in dry location.
- Stack wood so both ends are exposed to air.

Wet, unseasoned wood can cause accumulation of creosote.

## H. Blower Operating Instructions

**NOTE:** If your Quadra-Fire wood appliance is equipped with an optional blower, you should follow these guidelines:

### 1. Initial (cold) start-up and all Burn Settings

The blower can be plugged in and turned on right away. The blower fan is turned on and off by a snap disc. When your appliance has reached a certain temperature the blower will turn on and when your appliance has cooled down to a certain temperature it will turn off. Switch on blower control must be set to auto for this feature to work.

2. The blower is equipped with a speed control. Adjust the fan speed by turning the speed control clockwise to "Low" or counterclockwise to "High".

### 3. Snap Disc Location

If you find the blower coming on and off at undesirable temperatures, relocate the snap disc to another location in the designated zone on the back of your appliance (**Figure 15.1**). There is a manual over-ride switch to deactivate the snap disc, if necessary.

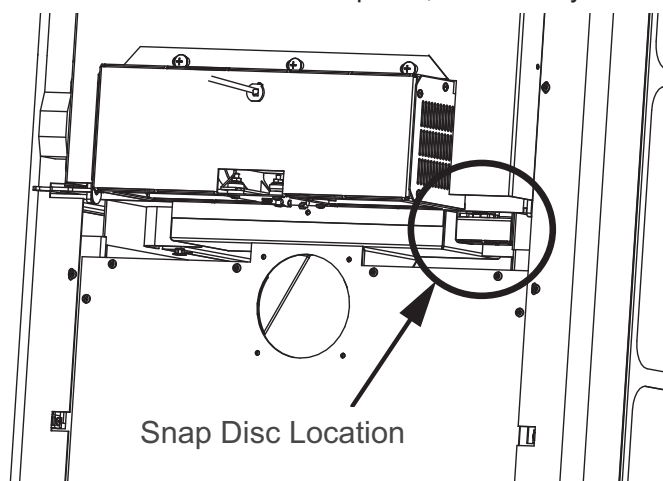


Figure 15.1

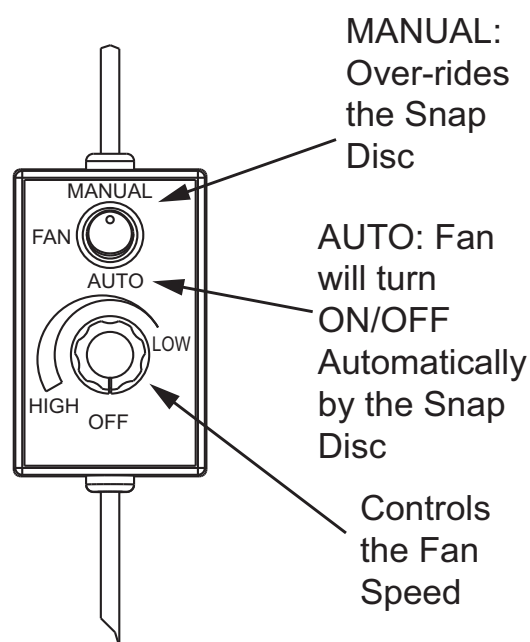


Figure 15.2

## I. Opacity (Smoke)

This is the measure of how cleanly your appliance is burning. Opacity is measured in percent; 100% opacity is when an object is totally obscured by the smoke column from a chimney, and 0% opacity means that no smoke column can be seen. As you become familiar with your appliance, you should periodically check the opacity. This will allow you to know how to burn as nearly smoke-free as possible (goal of 0% opacity).



### WARNING



#### Fire Risk.

- DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.
- Do NOT burn treated wood or wood with salt (driftwood).
- May generate carbon monoxide if burn material other than wood.

May result in illness or possible death.



### WARNING



#### Fire Risk.

Keep combustible materials, gasoline and other flammable vapors and liquids clear of appliance.

- Do NOT store flammable materials in the appliance's vicinity.
- DO NOT USE GASOLINE, LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID OR SIMILAR LIQUIDS TO START OR "FRESHEN UP" A FIRE IN THIS Appliance.
- Keep all such liquids well away from the appliance while it is in use.
- Combustible materials may ignite.



### CAUTION

When burning your first fire, you will experience smoke and odor from the appliance resulting from the curing of paint and burning off of any oils remaining from manufacturing.

#### OPEN WINDOWS DURING INITIAL BURN TO DISSIPATE SMOKE AND ODORS!

- Odors may be irritating to sensitive individuals.
- Smoke detectors may activate.

## J. Clear Space

**NOTE:** Do NOT place combustible objects within 4 ft (1.2 m) of the front of appliance (**Figure 16.1**).

- **Mantel:**  
Avoid placing candles and other heat-sensitive objects on mantel or hearth. Heat may damage these objects.



### WARNING

Do NOT place combustible objects in front of the appliance. High temperatures may ignite clothing, furniture or draperies.

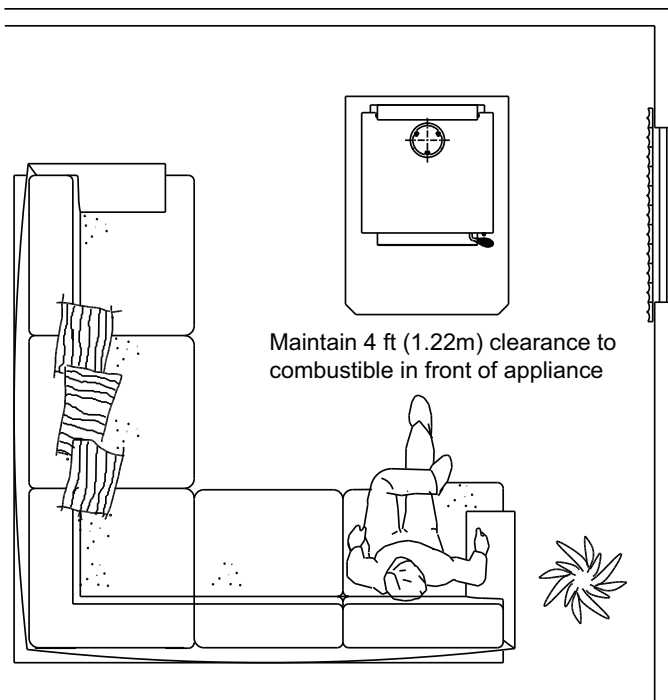


Figure 16.1

## K. Negative Pressure



### WARNING



#### Asphyxiation Risk.

- Negative pressure can cause spillage of combustion fumes, soot and carbon monoxide.
- Appliance needs to draft properly for safety.

Negative pressure results from the imbalance of air available for the appliance to operate properly. It can be strongest in lower levels of the house.

#### Causes include:

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water appliances and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
  - Recessed lighting
  - Attic hatch
  - Duct leaks



#### To minimize the effects of negative air pressure:



- Install the outside air kit with the intake facing prevailing winds during the heating season
- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the appliance
- Avoid installing the appliance near doors, walkways or small isolated spaces
- Recessed lighting should be a "sealed can" design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed

## L. Frequently Asked Questions

ISSUES	SOLUTIONS
Odor from appliance	When first operated, this appliance may release an odor for the first several hours. This is caused by the curing of the paint and the burning off of any oils remaining from manufacturing.
Metallic noise	Noise is caused by metal expanding and contracting as it heats up and cools down, similar to the sound produced by a furnace or heating duct. This noise does not affect the operation or longevity of the appliance.
Whirring sound	If the optional blower has been installed, the blower produces a whirring sound which increases in volume as the speed is increased.

**CONTACT YOUR DEALER for additional information regarding operation and troubleshooting.  
Visit [www.quadrafire.com](http://www.quadrafire.com) to find a dealer.**

 <b>WARNING</b>
 <p><b>Fire Risk.</b></p> <ul style="list-style-type: none"> <li>• DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.</li> <li>• Do NOT burn treated wood or wood with salt (driftwood).</li> <li>• May generate carbon monoxide if burn material other than wood.</li> </ul> <p>May result in illness or possible death.</p>

 <b>WARNING</b>
 <p><b>Fire Risk.</b></p> <p>Keep combustible materials, gasoline and other flammable vapors and liquids clear of appliance.</p> <ul style="list-style-type: none"> <li>• Do NOT store flammable materials in the appliance's vicinity.</li> <li>• DO NOT USE GASOLINE, LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID OR SIMILAR LIQUIDS TO START OR "FRESHEN UP" A FIRE IN THIS APPLIANCE.</li> <li>• Keep all such liquids well away from the appliance while it is in use.</li> <li>• Combustible materials may ignite.</li> </ul>

# 3 Maintenance and Service

## A. Quick Reference Maintenance Guide

When properly maintained, your fireplace will give you many years of trouble-free service. Contact your dealer to answer questions regarding proper operation, troubleshooting and service for your appliance. Visit [www.quadrafire.com/owner-resources](http://www.quadrafire.com/owner-resources) to view basic troubleshooting, FAQs, use & care videos.



### CAUTION!

Allow the appliance to completely cool down before performing any cleaning or maintenance. Start the first inspection after the first 2 months of use, or if performance changes, and adjust your schedule accordingly. Maintenance is required for safe operation and must be performed to maintain your warranty.

	FREQUENCY	TASK
<p><b>Baffle &amp; Blanket</b></p>	MONTHLY or after every one (1) cord of wood	Baffle and blanket placement is critical to heat output, efficiency and overall life of the appliance. Make sure the baffle is pushed all of the way to the back of the firebox and the blanket is laying flat. Inspect baffle for cracks.
<p><b>Optional Blower</b></p>	YEARLY or after every four (4) cords of wood	Vacuum the blower impellers.
<p><b>Chimney System</b></p>	EVERY TWO MONTHS or after every four (4) cords of wood	<p>The chimney and chimney cap must be inspected for soot and creosote every two months during the burn season or more frequency if chimney exceeds or is under 14-16 ft (4.3m-4.8m) measured from bottom of appliance.</p> <p>This will prevent pipe blockage, poor draft, and chimney fires. Always burn dry wood to help prevent cap blockage and creosote build-up.</p>
<p><b>Firebrick &amp; Ash Removal</b></p>	WEEKLY or after every 25 loads of wood	<p>Ashes must be cool before you can dispose of the ashes in a non-combustible container.</p> <p>Firebrick is designed to protect your firebox. After ashes are removed, inspect the firebrick and replace firebricks that are crumbling, cracked or broken.</p>
<p><b>Door &amp; Glass Assemblies</b></p>	WEEKLY or after every 25 loads of wood	<p>Keep door and glass gasket in good shape to maintain good burn. <u>To test:</u> place a dollar bill between the appliance and door and then shut the door. If you can pull the dollar out, remove one washer from door handle behind latch cam and try again. If you can still pull it out, replace the door gasket.</p> <p>Check the glass frame for loose screws to prevent air leakage.</p> <p>Check glass for cracks.</p>
<p><b>Door Handles</b></p>	WEEKLY or after every 25 loads of wood	<p>Check the door latch for proper adjustment. This is very important especially after the door rope has formed to the appliance face.</p> <p>Check door handle for smooth cam operation.</p>

*These are generic drawings and may not represent your model.*

## B. General Maintenance

### 1. Creosote (Chimney) Cleaning

- **Frequency:** Every 2 months during heating season or as recommended by a certified chimney sweep; more frequently if chimney exceeds or is under 14-16 ft. (measured from bottom of appliance)
- **By:** Certified Chimney Sweep

Remove all ash from the firebox and extinguish all hot embers before disposal. Allow the appliance to cool completely. Disconnect flue pipe or remove baffle and ceramic blanket from appliance before cleaning chimney. Otherwise residue can pile up on top of the baffle and ceramic blanket and the appliance will not work properly. (See Baffle Removal on page 24). Close the door tightly. The creosote or soot should be removed with a brush specifically designed for the type of chimney in use. Clean out fallen ashes from the firebox.

It is also recommended that before each heating season the entire system be professionally inspected, cleaned and repaired if necessary.

#### Inspection:



Inspect the system at the appliance connection and at the chimney top. Cooler surfaces tend to build creosote deposits quicker, so it is important to check the chimney from the top as well as from the bottom.



#### Formation and Need For 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 cool chimney flue of a newly-started or a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote creates an extremely hot fire which may damage the chimney or even destroy the house.

The chimney connector and chimney should be inspected once every 2 months during the heating season to determine if a creosote or soot buildup has occurred. If creosote or soot has accumulated, it should be removed to reduce the risk of a chimney fire.

	<b>WARNING</b>
	<b>Fire Risk.</b> Prevent creosote buildup.
	<ul style="list-style-type: none"> <li>• Inspect chimney connector and chimney once every two months during heating season.</li> <li>• Remove creosote to reduce risk of chimney fire.</li> <li>• Ignited creosote is extremely HOT.</li> </ul>

	<b>WARNING</b>
	<b>Fire Risk.</b>
	<ul style="list-style-type: none"> <li>• Do not use chimney cleaners or flame colorants in your appliance. Will corrode chimney pipe.</li> </ul>

### 2. Cleaning Plated Surfaces

- **Frequency:** Prior to first burn and then as desired
- **By:** Homeowner

Clean all the fingerprints and oils from plated surfaces **BEFORE** firing the appliance for the first time. If not cleaned properly before lighting your first fire, the oils can cause permanent markings on the plating.



After the plating is cured, the oils will not affect the finish and little maintenance is required. Wipe clean as needed.

	<b>CAUTION</b>
<ul style="list-style-type: none"> <li>• Do not use polishes with abrasives. It will scratch the glass surface.</li> </ul>	

### 3. Disposal of Ashes


- **Frequency:** When ash is within 1-3/4 in. (44mm) of firebox lip
- **By:** Homeowner

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

	<b>WARNING</b>
	<b>Fire Risk. Disposal of Ashes</b>
	<ul style="list-style-type: none"> <li>• Ashes should be placed in metal container with tight fitting lid.</li> <li>• Do not place metal container on combustible surface.</li> <li>• Ashes should be retained in closed container until all cinders have thoroughly cooled.</li> </ul>

### 4. Glass Cleaning

- **Frequency:** As desired
- **By:** Homeowner

	<b>CAUTION</b>
<ul style="list-style-type: none"> <li>• Do not use polishes with abrasives. It will scratch the glass surface.</li> </ul>	

Clean glass with a non-abrasive glass cleaner. Abrasive cleaners may scratch and cause glass to crack. If the deposits on the glass are not very heavy, normal glass cleaners work well. Heavier deposits may be removed by using a damp cloth dipped in wood ashes or by using a commercially available oven cleaner.

After using an oven cleaner, it is advisable to remove any residue with a glass cleaner or soap and water. Oven cleaner left on during the next firing can permanently stain the glass and damage the finish on metal surfaces.

## Discovery III

A portion of the combustion air entering the firebox is deflected down over the inside of the door glass. This air flow "washes" the glass, helping to keep smoke from adhering to its surface.

When operated at a low burn rate, less air will be flowing over the glass and the smokey, relatively cool condition of a low fire will cause the glass to become coated.

Operating the appliance with the Burn Rate Air Control and Start-Up Air Control all the way open for 30-45 minutes should remove the built up coating.

### C. Correct Baffle & Blanket Placement



#### WARNING

##### Fire Risk.

Firebox damage due to improper baffle placement is not covered by warranty. Operate the wood burning appliance with the baffle in the correct position only.



Not doing so could result in:

- Reduced efficiency
- Overheating the chimney
- Overheating the rear of the firebox
- Poor performance

Ensure correct baffle placement and replace baffle components if damaged or missing.

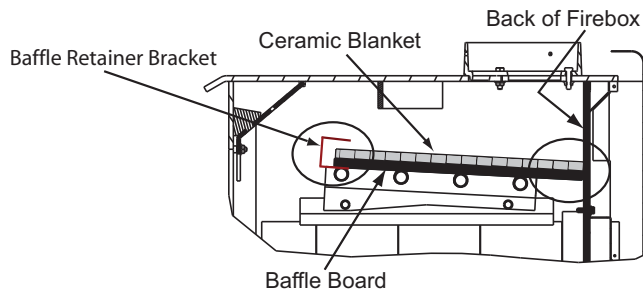


#### CAUTION

The baffle boards are FRAGILE. Use extreme caution when loading firewood to prevent:

- Cracking, breaking or damaging the baffle boards
- DO NOT operate the appliance without baffle boards

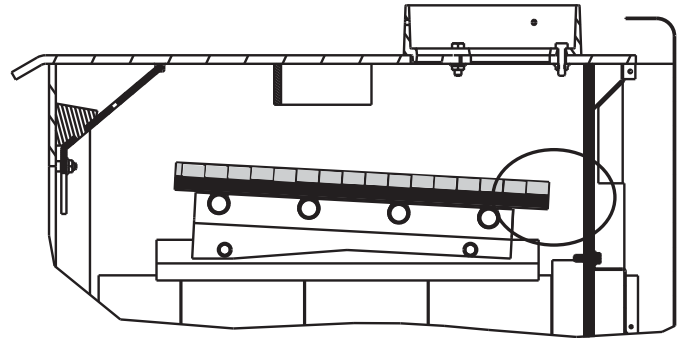
### CORRECT POSITION



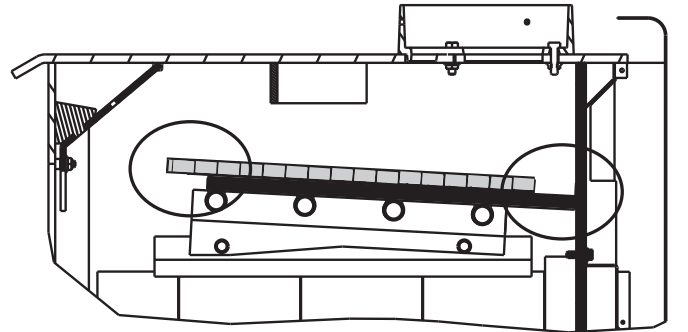
Ceramic Blanket and Baffle Board **MUST** be in contact with the back of the firebox and even with each other in the front.

Figure 20.1

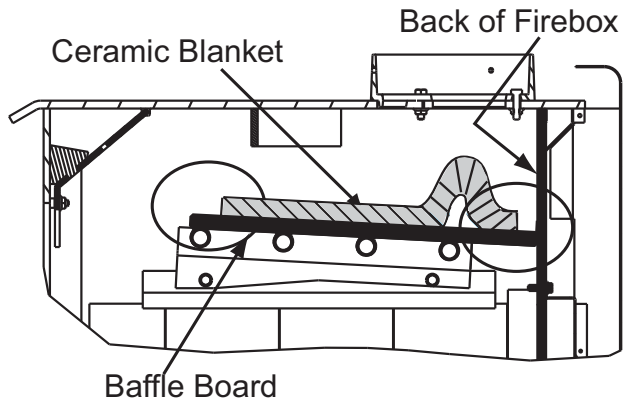
### INCORRECT POSITIONS



Ceramic Blanket and Baffle Board are **NOT** in contact with the back of the firebox.



Ceramic Blanket is **NOT** in contact with the back of the firebox and **NOT** even with the Baffle Board in the front.



Ceramic Blanket is bunched up at the back of the firebox and **NOT** even with the Baffle Board in the front.

Figure 20.2

# 4 Troubleshooting Guide

With proper installation, operation, and maintenance your wood appliance will provide years of trouble-free service. If you do experience a problem, this troubleshooting guide will assist you or a qualified service person in the diagnosis of a problem and the corrective action to be taken.

Start Fire Problems	Possible Cause	Solution
Can not get fire started Excessive smoke or spillage Burns too slowly Not enough heat output	Not enough kindling/paper or no kindling/paper	Use dry kindling, more paper. Arrange kindling & wood for air movement.
	Not enough air for fire to ignite	Check for restricted termination cap
		Check for blockage of outside air kit (if installed).
		Check for flue blockage.
		Pre-warm flue before starting fire (refer to Building a Fire Section).
		Check for adequate vent height (refer to Chimney Height Section).
	Open window below the appliance towards the wind.	
	Wood condition is too wet, too large	Use dry, seasoned wood (refer to Seasoned Wood Section).
	Bed of coals not established before adding wood	Start with paper & kindling to establish bed of coals (refer to Building a Fire Section).
	Flue blockage such as birds' nests or leaves in termination cap	Have chimney inspected for creosote and cleaned by a certified chimney sweep.
Down draft or negative pressure Competition with exhaust devices	Do not use exhaust fans during start-up (refer to Negative Pressure Section).	
	Open window below the appliance towards the wind.	
Fire burns too fast	Extremely dry or soft wood	Mix in hardwood.
		Mix in less seasoned wood after fire is established (refer to Wood Fuel Section).
	Over drafting	Check for correct vent height; too much vertical height creates over drafting.
		Check location of vent termination (refer to Chimney Termination Requirement Section).



# 5 Service Part Replacement

## A. Glass

**NOTE: Replace with 5mm ceramic glass only**


**Service Part: 7000-012**

1. Ensure that the fire is out and the appliance is cool to the touch.
2. Protect a table or counter top with padding or towels. Protect your hands and wear gloves to prevent injury.
3. Remove the door with the broken glass by lifting the door up and off of the hinges.
4. Lay door face down on a table or counter making sure the handle hangs over the edge so the door lays flat, on a soft surface.
5. Remove the screws from each glass retainer and remove the glass. (If screws are difficult to remove, soak with penetrating oil first).
6. Center the glass with edges evenly overlapping the opening in the door, (i.e. same space top and bottom, left and right sides).
7. Replace the glass retainers. Be careful not to cross thread the screws.
8. Tighten each retainer just a few turns until each is secured. Check again for centering of glass in door frame. Continue to tighten each retainer alternately, a few turns at a time, until the glass is secure.


**NOTE: DO NOT OVER TIGHTEN RETAINERS - can cause glass to break.**

9. Replace the door on the appliance.

Quadra-Fire appliances are equipped with ceramic super heat-resistant glass, which can only be broken by impact or misuse.




### WARNING

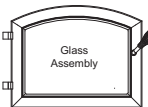


**Injury Risk.**

- Use only glass specified in manual.
- DO NOT REPLACE** with any other material.



### CAUTION



Handle glass assembly with care.

**When cleaning glass:**

- Avoid striking, scratching or slamming glass.
- Do NOT clean glass when hot.
- Do NOT use abrasive cleaners.
- Use a hard water deposit glass cleaner on white film.
- Use commercial oven cleaner on heavier deposits.
- Remove all residue of oven cleaner or will permanently stain glass on next firing.

**Refer to maintenance instructions.**

## B. Firebrick

**Service Part: SRV7037-003**

Replace the firebrick if they become crumbly and/or if there is a 1/4 inch (6.35mm) gap between the bricks.

Inspect the firebrick after each ash removal.

The firebox is lined with high quality firebrick, which has exceptional insulating properties. There is no need to use a grate; simply build a fire on the firebox floor. Do not operate appliance without firebrick.

1. After the coals have completely cooled, remove all old brick and ash from appliance and vacuum firebox.
2. Remove new brick set from box and lay out to diagram shown.
3. Lay bottom bricks in appliance.
4. Install rear bricks on the top of the bottom bricks. Slide top of bricks under clip on back of firebox wall and push bottom of brick back.
5. Install side bricks. Slide top of brick under clips on side of firebox and push the bottom of the brick until it is flush with the side of the appliance.

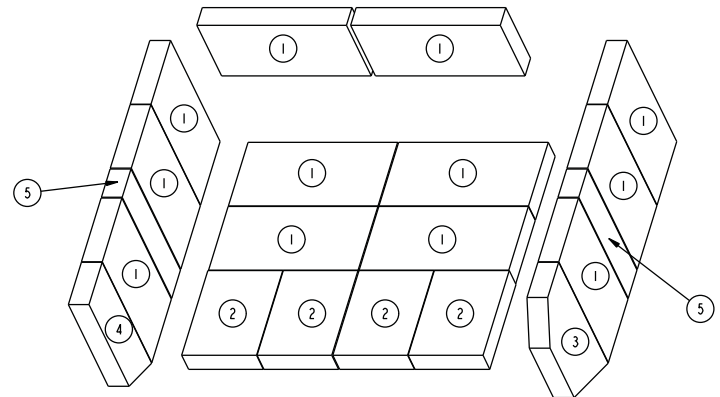


Figure 22.1

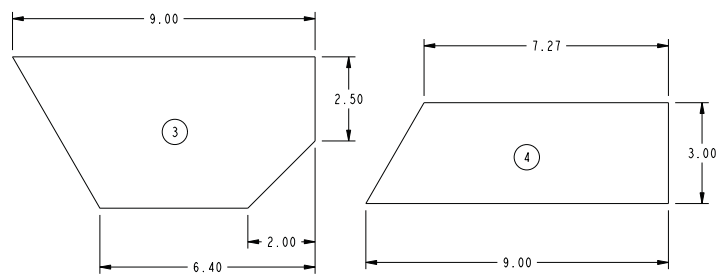


Figure 22.2

Figure 22.3

Placement	Dimensions	Qty Required
1	9" x 4.5" x 1.25"	12
2	6" x 4.5" x 1.25"	4
3	9" x 4.5" x 1.25" w/Angles	1
4	9" x 3" x 1.25" w/Angle	1
5	9" x 2" x 1.25"	2

## C. Snap Disc

Service Part: SRV230-0470

1. Locate the snap disc bracket assembly at the bottom left rear corner of the appliance.
2. A magnet holds the bracket to the appliance. Pull the bracket down away from the appliance to expose the snap disc.
3. Using a Phillips head screw driver, remove the 2 screws from the snap disc and then remove the snap disc from the spade connectors.
4. Replace with new snap disc and re-connect to spade connectors.
5. Pull the snap disc and spade connectors up and out of bracket as shown in **Figure 23.1**
6. Push the snap disc and spade connectors back inside bracket and re-attach the bracket to the appliance.

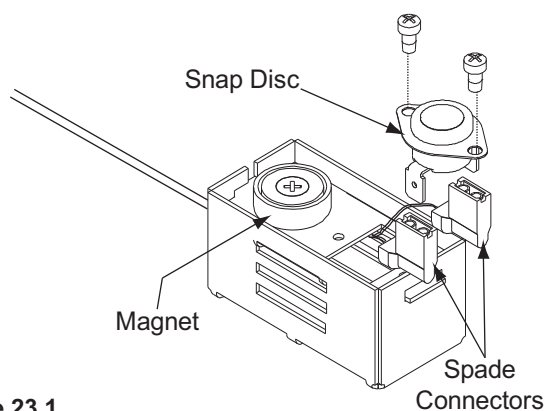


Figure 23.1

## D. Door Handle Assembly

Service Part: SRV7033-071

1. Slide door handle through door.
2. Install additional washer(s) as shown in **Figure 23.2**.
3. Install key in groove.
4. Align groove in latch cam with key; slide latch cam over shaft
5. Install locknut but do not over tighten, the handle needs to rotate smoothly.
6. Install fiber handle (**Figure 23.2**).



### CAUTION

**DO NOT** over tighten lock nut. The door handle needs to move smoothly.

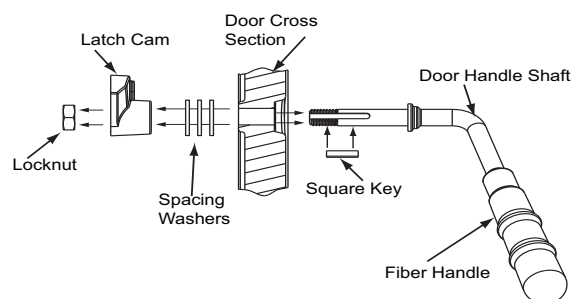


Figure 23.2

## E. Baffle

## Service Part: SRV7033-209

1. Remove all ash from the firebox, and extinguish all hot embers before disposal into a metal container.
2. The baffle board has 2 pieces. With the ceramic blanket still in place, slide one baffle piece over the top of other one and pull out top piece through the door opening and then remove bottom baffle piece (**Figure 24.1**).
3. Remove the ceramic blanket (**Figure 24.2**).
4. Re-install the baffle pieces one piece at a time. Be sure the baffle boards are even with the front manifold tube and is resting on all tubes (**Figure 24.3 and Figure 24.4**).
5. To re-install the ceramic blanket, it is easier to fold it in half first (**Figure 24.2 and Figure 24.4**). Place on top of baffle board, open up and flatten and smooth out the blanket. Re-check the baffle board for correct positioning (**Figure 24.3 and Figure 24.4**).



Figure 24.1



Figure 24.2 - Ceramic Blanket

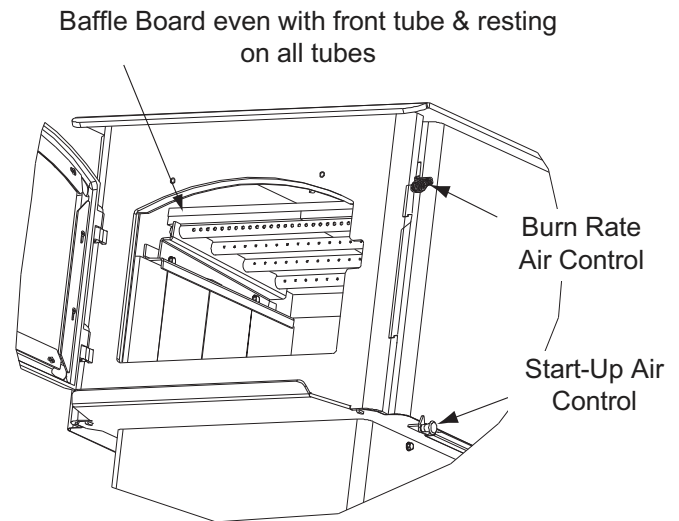


Figure 24.3

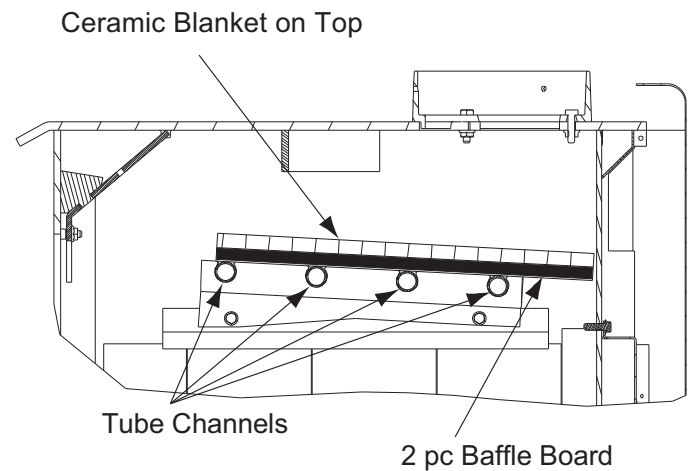


Figure 24.4



## F. Decorative Side Panel

Side Panel Service Part: SRV7037-027  
 Tile Frame Service Part: SRV7033-324  
 Frame Blank Service Part: SRV7033-346

Your appliance ships with two different side options, one is a solid side panel (Figure 25.1) and tile side panel (Figure 25.2). There are two of each and no left or right side, these can be changed at anytime.

### Solid Side Panel Removal

1. Remove solid panel from side by lifting up and pulling away from appliance (use a flat tool to pry from bottom if needed) (Figure 25.3).

	<b>CAUTION</b>
	<p><b>Asphyxiation Risk.</b></p> <ul style="list-style-type: none"> <li>• 300°F high temp paint can be use to repaint the solid side panel only.</li> <li>• <b>DO NOT</b> use on the rest of appliance this requires 1200°F high temp paint.</li> </ul>

### Tile Panel Installation

2. Remove tile frame from side by lifting up and pulling away from appliance (Figure 25.3 reference solid side panel removal).
3. Stack non-combustible material tiles in tile frame as shown in Figure 25.2.
4. Reattach tile frame (Figure 25.4).

### Tile Dimensional Requirements:

Max Thickness: 5/16"

Max Length/Width: 11-7/8" square

Min Length/Width: 11-11/16" square

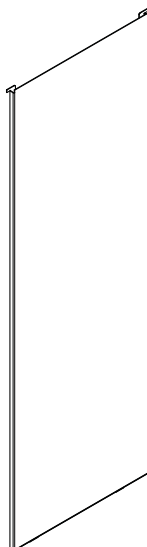


Figure 25.1

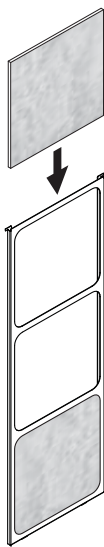


Figure 25.2

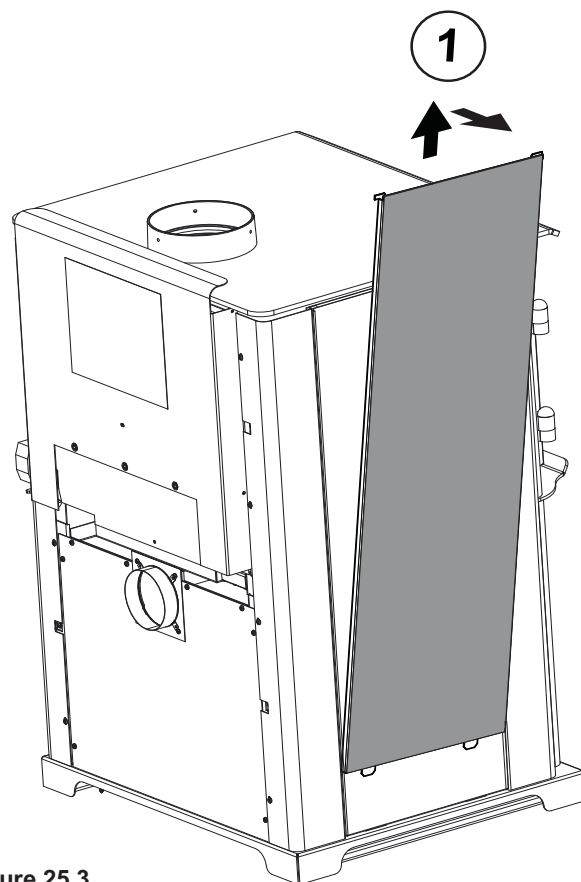


Figure 25.3

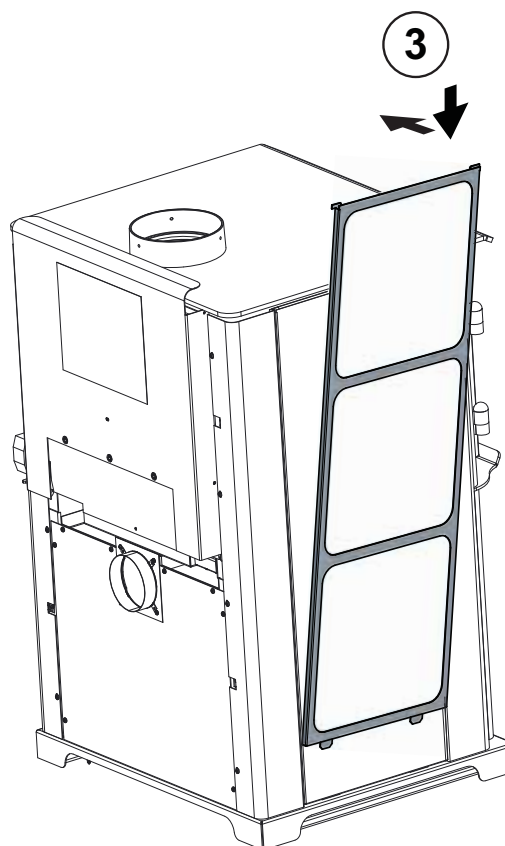




Figure 25.4

	<b>WARNING</b>
	<p><b>Fire Risk.</b>          Use only noncombustible materials as a decorative tile.</p>

## G. Tube Channel Assembly

Service Part: SRV7033-023

### Removing Tube Channel Assembly

1. Remove the right side shield by removing 2 screws in the back using a Phillips head screw driver.
2. Remove 4 screws from channel access cover and remove cover.
3. Locate 2 channel nuts inside of chamber and remove using a 7/16 socket wrench. Slide out tube channel assembly.

**NOTE:** Soak the bolts with penetrating oil for at least 15 minutes before trying to remove them.

### NOTE: Service Space

In order to replace the tube channel assembly a clearance of 19 inches (483mm) is required on the right side of appliance in order to remove the tubes with the appliance in place.

If space is not available, the appliance will have to be disconnected from the chimney to proceed with the tube replacement.

### Replacing Tube Channel Assembly

1. Slide one gasket onto each tube.
2. Slide the tube channel assembly into side of firebox and insert each tube into the corresponding hole in the tube channel rack starting with the back hole first.
3. Make sure tube channel assembly is flush against the side of the appliance and secure with channel nuts.
4. Re-install channel cover and side shield.

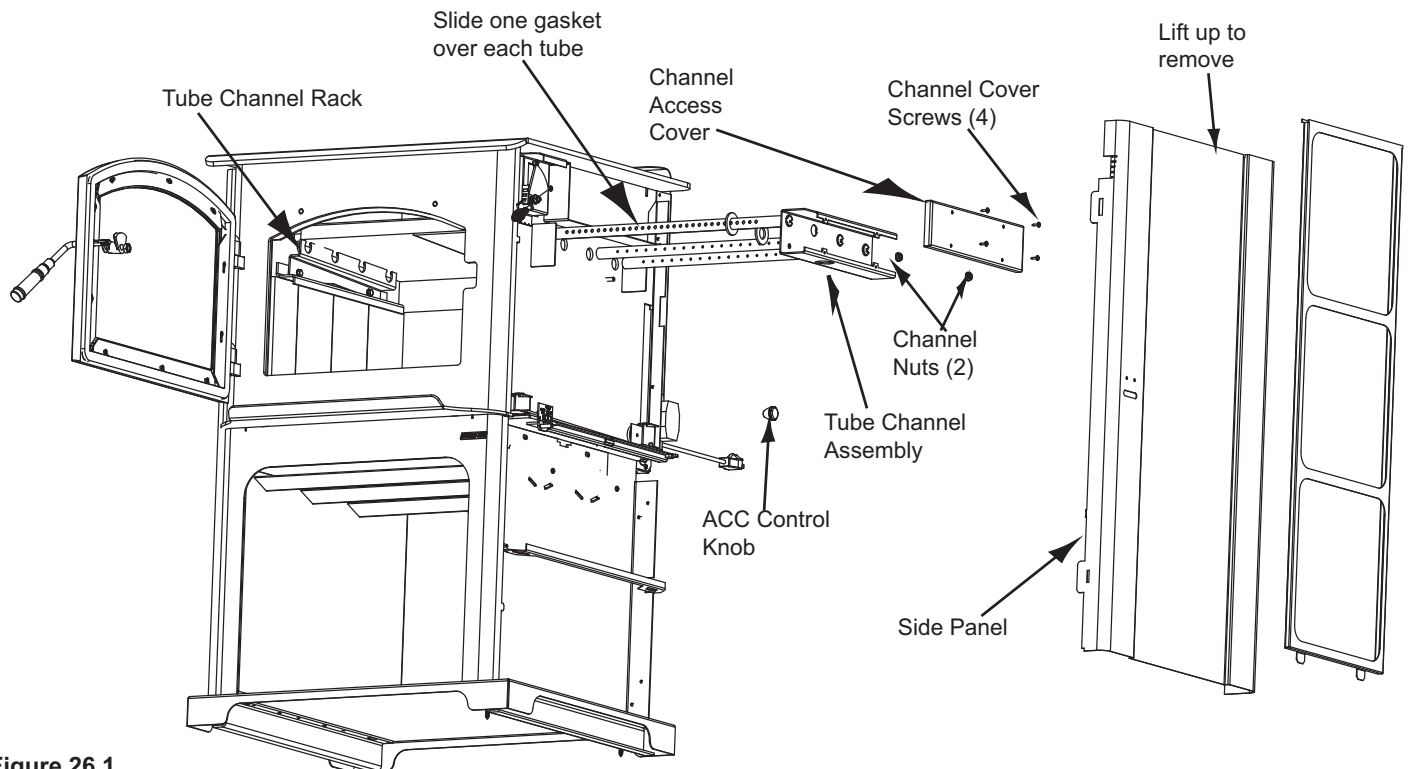


Figure 26.1











B. Exploded View

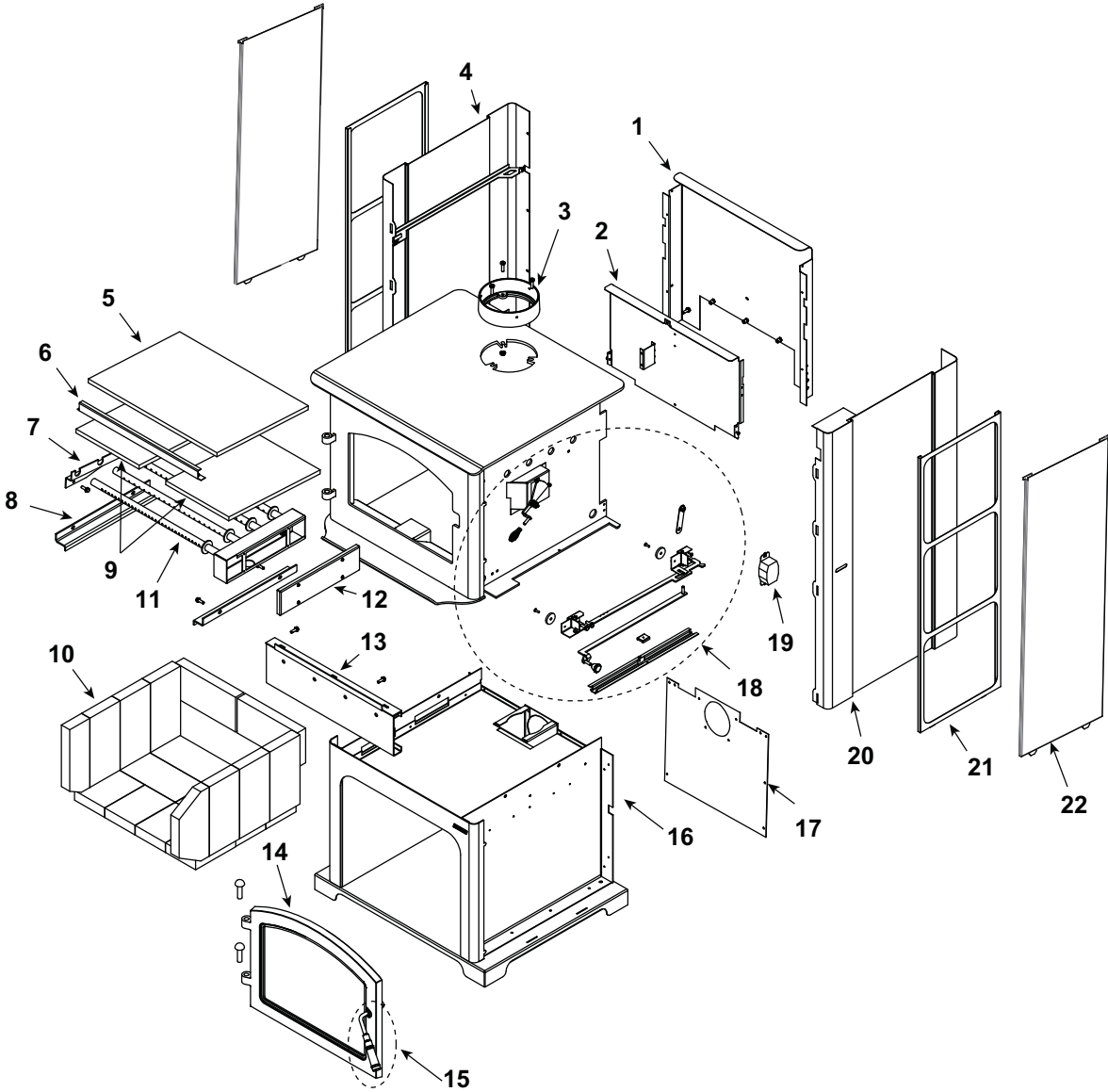


Service Parts

DISCOVERY-III-C

Wood Stove

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active



Part number list on following page.

## C. Service Parts

# QUADRA-FIRE®

Service Parts

DISCOVERY-III-C

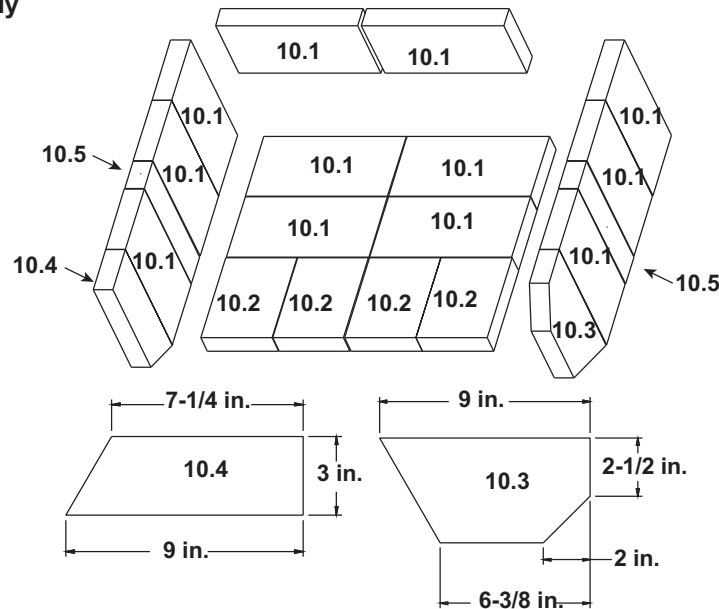
 Beginning Manufacturing Date: Jan 2020  
 Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.


**Stocked  
at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
1	Air Channel, Convection w/Bracket (Retain Original SN Label)		SRV7033-144	
2	Air Supply Back		SRV7033-134	
3	Flue Collar		SRV7000-302	
4	Panel Assembly, Side, Left		SRV7037-026	Y
5	Ceramic Fiber Blanket, 1/2" Thick		832-3390	
6	Baffle Protection Channel		SRV7033-298	
7	Tube Support Rack		7033-148	
8	Brick Retainer		7033-149	
9	Baffle Board	Pkg of 2	SRV7033-209	

### #10 Brick Set Assembly



10	Brick Assembly, Complete Set	Pkg of 20	SRV7037-003	
10.1	Brick, 9 x 4.5 x 1.25"	Qty. 12 Req	832-0550	Y
10.2	Brick, 6 x 4.5 x 1.25"	Qty. 4 Reg.	SRV7128-002	
10.3	Brick, 9 x 4.5 x 1.25" w/Angle	Qty. 1 Reg.	SRV7128-806	
10.4	Brick, 9 x 3 x 1.25" w/Angle	Qty. 1 Reg.	SRV7128-618	
10.5	Brick, small 9 x 2 x 1.25"	Qty. 2 Reg.	SRV7128-018	
	Brick, Uncut	Pkg of 6	832-3040	Y
11	Tube, Channel Assembly		SRV7033-023	
12	Tube Channel Top		SRV7033-237	Y
13	Rear Channel Assembly		7033-002	Y

Additional service part numbers appear on following page.

Beginning Manufacturing Date: Jan 2020

Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



**Stocked  
at Depot**

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
14	Door Assembly (Required to Complete Option)	Black	DR-31/43BK-FH	Y
		Nickel	DR-31/43NL-FH	Y
14.1	Hinge Pins, 1/2"	Black	7000-606/2	Y
		Nickel	SRV430-5320	
14.2	Rope, Door, 3/4" x 84" - Field cut to Size	7 Ft Length	832-1680	Y
14.3	Door Glass Assembly - 15-1/2" W x 13-3/8" H		7000-012	Y
	Gasket, Glass Tape - Field cut to Size	5 Ft Length	832-0460	Y
14.4	Glass Frame Set		832-0350	
14.5	Screw, Flat Head Philips 8-32 x 1/2	Pkg of 12	220-0490/12	Y
15	Door Handle Assembly		SRV7033-071	Y
15.1	Handle, Fiber		SRV7060-212	
15.2	Door Handle		SRV7044-188	Y
15.3	Washer, SAE, 3/8	Pkg of 3	832-0990	Y
15.4	Cam Latch		SRV430-1141	
15.5	Key, Cam Latch		SRV430-1151	
15.6	Nut, Locking Door Handle	Pkg of 24	226-0100/24	Y
16	Pedestal Assembly		SRV7037-025	
	Logo, Quadra-Fire	Pkg of 10	7000-649/10	
	Pedestal Base		SRV7037-029	
17	Rear Cover, Pedestal		SRV7037-152	

Additional service part numbers appear on following page.

Beginning Manufacturing Date: Jan 2020  
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked  
at Depot

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
<b>#18 Burn Rate Control Assembly</b>				
18.1	Burn Rate Control Assembly		7037-004	Y
18.2	Spring Handle, 1/4"	Nickel	250-8340	Y
18.3	Door Gasket - Front & Rear Air Timer Doors		7033-282	Y
18.4	Timer Air Control Assembly		SRV7037-018	Y
	Rear Air Door Assembly		7037-013	Y
18.5	Rear Air Control Arm Assembly		7037-005	Y
18.6	Knob - Start-Up Control Knob		SRV7000-343	
18.7	Air Control Rod Guide		7033-210	
18.8	Latch, Magnet - For Air Control		SRV229-0631	
18.9	Timer Arm Assembly		7033-034	Y
19	Timer (Only) Replacement Assembly		SRV480-1940	Y
20	Panel Assembly, Side Right		SRV7037-027	
21	Tile Frame		SRV7033-324	
22	Frame Blank		SRV7033-346	
	Component Pack (Includes Touch-Up Paint, Fiber Handle, Owner's Manual, & Installation Manual)		SRV7037-048	
	Paint, Touch-Up	Black	3-42-19905	



# QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

## CONTACT INFORMATION

Hearth & Home Technologies  
352 Mountain House Road  
Halifax, PA 17032  
Division of HNI INDUSTRIES

Please contact your Quadra-Fire dealer with any questions or concerns.  
For the number of your nearest Quadra-Fire dealer  
log onto [www.quadrafire.com](http://www.quadrafire.com)



## CAUTION



### DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.



### We recommend that you record the following pertinent information for your heating appliance.

Date purchased/installed: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Location on appliance: \_\_\_\_\_

Dealership purchased from: \_\_\_\_\_

Dealer Phone: 1(     ) - \_\_\_\_\_

Notes:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This product may be covered by one or more of the following patents: (United States) 5341794, 5263471, 6688302, 7216645, 7047962 or other U.S. and foreign patents pending.

  
**HEARTH & HOME**  
technologies™

# Manuel d'installation

## Installation et mise en place de l'appareil

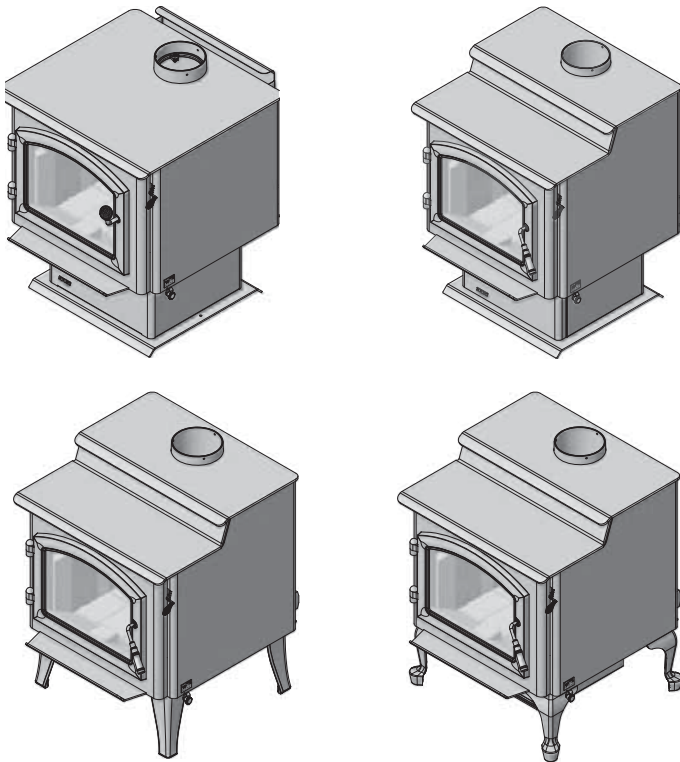
INSTALLATEUR : Ce manuel doit être confié aux personnes responsables de l'utilisation et du fonctionnement.  
PROPRIÉTAIRE : Veuillez conserver ce manuel à titre de référence.

**AVIS : NE PAS JETER CE MANUEL**

# QUADRA-FIRE®

APPAREIL AU BOIS SÉRIE 4300  
CONTRÔLE AUTOMATIQUE DE LA  
COMBUSTION (ACC)

MODÈLE :  
43M-ACC-C  
43ST-ACC-C



### AVERTISSEMENT



Le non-respect de ces instructions peut entraîner des dommages matériels, des blessures, voire la mort.

- Ne pas entreposer ni utiliser de l'essence ou d'autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil électrique.
- Ne chauffez pas excessivement – Si l'appareil de chauffage ou le carneau devient rouge, le feu est trop intense. Un chauffage excessif annulera votre garantie.
- Respectez les dégagements spécifiés pour les matériaux inflammables. Le non-respect de ces consignes peut déclencher un incendie.



### AVERTISSEMENT



#### SURFACES CHAUDES !

La vitre et les autres surfaces sont chaudes pendant l'utilisation ET le refroidissement.

**La vitre chaude peut provoquer des brûlures.**

- Ne pas toucher la vitre avant qu'elle ne soit refroidie.
- Ne laissez JAMAIS les enfants toucher la vitre.
- Éloignez les enfants.
- **SURVEILLEZ ATTENTIVEMENT** les enfants présents dans la pièce où le foyer est installé.
- Avertir les enfants et les adultes des dangers associés aux températures élevées.
- **La température élevée peut enflammer les vêtements ou d'autres matériaux inflammables.**
- Éloignez les vêtements, meubles, rideaux ou autres matières inflammables.



### AVERTISSEMENT



#### Risque d'incendie.

À n'utiliser qu'avec des combustibles solides à base de bois.

Les autres combustibles risquent de provoquer des feux incontrôlables et d'émettre des gaz toxiques (par exemple, du monoxyde de carbone).

L'installation et l'entretien de cet appareil doivent être effectués par des techniciens autorisés. Hearth & Home Technologies recommande des professionnels formés dans les usines de HTT ou certifiés NFI.



**NOTE :** To obtain a English translation of this manual, please contact your dealer or visit [www.quadrafire.com](http://www.quadrafire.com)

**REMARQUE :** Pour obtenir une traduction anglaise de ce manuel, veuillez contacter votre revendeur ou visitez [www.quadrafire.com](http://www.quadrafire.com)



## Définition des avertissements de sécurité :



- **DANGER!** Indique une situation dangereuse qui entraînera la mort ou des blessures graves si elle n'est pas évitée.
- **AVERTISSEMENT!** Indique une situation dangereuse pouvant entraîner la mort ou des blessures graves si elle n'est pas évitée.
- **ATTENTION!** Indique une situation dangereuse pouvant provoquer des blessures mineures ou modérées si elle n'est pas évitée.
- **AVIS :** Désigne des actions pouvant endommager l'appareil ou d'autres biens matériels.

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# 1 Importantes informations concernant la sécurité

## A. Certification de l'appareil

<b>Modèle :</b>	Millennium 4300 monobloc à dessus étagé (ACC)
<b>Laboratoire De La Sécurité :</b>	OMNI Test Laboratories, Inc.
<b>N° et date du rapport :</b>	061-S-67-6
<b>Type :</b>	CHAUFFAGE D'AMBIANCE HOMOLOGUÉ À COMBUSTIBLE SOLIDE.
<b>Norme :</b>	UL1482, ULC S627-00 et (UM) 84-HUD, approuvé pour les maisons mobiles.

## B. Puissance calorifique et rendement

<b>N° de certification EPA :</b>	Numéro: N/A
<b>EPA, Émissions certifiées :</b>	1.6 gramme par heure
<b>*PCI, Efficacité testée :</b>	80.2 %
<b>**PCS, Efficacité testée :</b>	74.2 %
<b>***EPA, Sortie en BTU :</b>	de 13 200 à 36 800 BTU/h
<b>****Pointe d'émission de BTU/heure :</b>	61 700
<b>Taille du conduit :</b>	152 mm (6 po)
<b>Taille de la boîte à feu :</b>	0,06 m <sup>3</sup> (2,26 pi <sup>3</sup> )
<b>Recommandé Longueur De Bûches :</b>	457 mm (18 po)
<b>Combustible :</b>	Avec Bois de corde sec (20% d'humidité)
*Moyenne pondérée du PCI (Faible Valeur calorifique) l'efficacité de l'aide de Sapin de Douglas de bois de dimensions et données collectées au cours de l'EPA test d'émission. PCI suppose que l'humidité est déjà dans un état de vapeur, donc il n'y a pas de perte d'énergie pour vaporiser.	
**Moyenne pondérée HHV (Haut pouvoir calorifique) l'efficacité de l'aide de Sapin de Douglas de bois de dimensions et données collectées au cours de l'EPA test d'émission. HHV comprend la quantité d'énergie nécessaire pour vaporiser l'eau dans le carburant.	
***Une gamme de BTU sorties calculée à l'aide de l'HHV l'Efficacité et le taux de brûlures de l'APE tests à l'aide de Sapin de Douglas de bois de dimensions.	
****Un pic BTU hors de l'appareil calculé en utilisant le maximum de la première heure du taux de combustion du Haut de Test EPA et de BTU contenu de assaisonnée bois (8600) fois l'efficacité.	

Cette Série 4300 est Certifié conforme à 2020 crèche en bois d'émissions de particules des normes.



Cet appareil à bois doit être inspecté et réparé périodiquement pour un bon fonctionnement. Consultez le manuel du propriétaire pour de plus amples informations. Il est contraire aux règlements fédéraux d'utiliser ce chauffe-bois d'une manière incompatible avec les instructions d'utilisation du manuel du propriétaire.

**REMARQUE :** Cette installation doit être conforme aux codes locaux. En l'absence de codes locaux, vous devez être en conformité avec les codes d'installation **UL1482-07, (UM) 84-HUD et NFPA211 aux États-Unis et les codes ULC S627-00 et CAN/CSA-B365 au Canada.**

## C. Approuvé pour les maisons mobiles

- Cet appareil peut être installé dans les maisons mobiles, à l'exclusion de la chambre à coucher, à condition qu'une prise d'air extérieure de combustion ait été installée.
- L'intégrité de la structure du sol, des murs et du plafond de la maison mobile doit être maintenue.
- L'appareil doit être correctement fixé à la charpente de la maison mobile avec un fil de mise à terre en cuivre n° 8, et utiliser uniquement une conduite d'évacuation homologuée à double paroi.
- L'ensemble de prise d'air extérieur, n° de pièce OAK-ACC, doit être installé en cas d'utilisation dans une maison mobile.

## D. Spécifications de la porte vitrée

Cet appareil comporte une porte vitrée en vitrocéramique de 5 mm d'épaisseur. N'utilisez que des vitres en vitrocéramique de 5 mm pour remplacer une vitre endommagée. Veuillez contacter votre détaillant si vous devez remplacer la vitre.

## E. Matériaux incombustibles

Matériaux qui ne s'enflamment pas et ne brûlent pas, formés par une combinaison des éléments suivants :

- Acier
- Plâtre
- Brique
- Fer
- Béton
- Tuiles
- Verre
- Ardoise

Matériaux rapportés comme ayant passé **ASTM E 136, méthode standard de détermination du comportement des métaux dans un four à tube vertical de 750°C.**

## F. Matériaux inflammables

Matériel composé/recouvert de l'un des matériaux suivants :

- Bois
- Papier compressé
- Fibres végétales
- Plastique
- Contreplaqué/ panneau de copeaux
- Panneaux de plâtre (cloison sèche)

**Tout matériau qui peut s'enflammer ou brûler**, à l'épreuve des flammes ou non, recouvert de plâtre ou non.

## G. Sleeping Room

Lorsqu'il est installé dans une chambre à coucher, il est recommandé d'installer un avertisseur de fumée et / ou de monoxyde de carbone dans la chambre à coucher. La taille de la pièce doit être d'au moins 50 pi<sup>3</sup> par 1 000 Btu / heure d'entrée du poêle, si le poêle dépasse la taille de la pièce, l'air doit être installé.

## H. Californie - Prop65



### ATTENTION

Ce produit et les carburants utilisés pour faire fonctionner ce produit (bois), ainsi que les produits de combustion de ces carburants, peuvent vous exposer à des produits chimiques tels que le noir de carbone, connu par l'État de Californie pour causer le cancer, et le monoxyde de carbone connu de l'État de Californie pour provoquer des malformations congénitales ou d'autres problèmes de reproduction. Pour plus d'informations, visitez:  
[WWW.P65Warnings.ca.gov](http://WWW.P65Warnings.ca.gov)



### AVERTISSEMENT



#### Risque d'incendie.

Hearth & Home Technologies décline toute responsabilité et annulera la garantie dans les cas suivants :

- Installation et utilisation d'un appareil endommagé.
  - Modification de l'appareil.
  - Non-respect des instructions d'installation de Hearth & Home Technologies.
  - Installation et/ou utilisation de composants non autorisés par Hearth & Home Technologies.
  - Utilisation de l'appareil sans tous les composants installés.
  - Utilisation de l'appareil sans les pieds (si fournis avec l'appareil).
  - **Ne PAS Sur-le feu** - Si l'appareil ou le raccord de cheminée brille, vous êtes plus la cuisson.
- Ou toute autre action qui risque de créer un danger d'incendie.

Les installations, réglages, modifications, entretiens ou maintenances inappropriés peuvent provoquer des blessures et des dommages matériels.

Pour obtenir une assistance ou des renseignements supplémentaires, consultez un installateur, un réparateur qualifié ou votre fournisseur.

**REMARQUE :** Le fabricant de cet appareil, Hearth & Home Technologies, se réserve le droit de modifier sans préavis ses produits, leurs spécifications ou leurs prix.

Hearth & Home Technologies NE GARANTIRA PAS les appareils qui présentent des preuves de surchauffe. La preuve d'une surchauffe du foyer peut en outre comprendre :

- Gauchissement du conduit d'air
- Attaches de brique réfractaire détériorées
- Déфлекteur et autres composants intérieurs détériorés

# Manuel de l'installateur

## 2 Par où commencer

### A. Considérations techniques et conseils d'installation

Tenir compte de :

- La sécurité
- L'aspect pratique
- Du volume de circulation
- De la cheminée et du carneau requis

Il est recommandé de préparer un schéma d'installation avant de commencer les travaux, en utilisant des dimensions exactes pour les dégagements et les zones de protection du sol. Si vous n'utilisez aucune cheminée existante, placez l'appareil à un endroit où vous pourrez installer une cheminée homologuée qui traversera le plafond et le toit.

Nous vous recommandons de faire contrôler vos plans par un inspecteur du bâtiment et un représentant de votre compagnie d'assurance avant de commencer l'installation.

Si cet appareil est placé dans un endroit où des enfants sont présents, il est recommandé d'acheter une barrière décorative et de la placer devant l'appareil. Éloignez toujours les enfants pendant son fonctionnement et ne permettez à personne d'utiliser cet appareil sans avoir lu les instructions de fonctionnement.



### ATTENTION

**Vérifiez les codes de construction du bâtiment avant l'installation.**

- L'installation DOIT être en conformité avec les codes et réglementations locaux, régionaux, provinciaux et nationaux.
- Consultez la société d'assurance, les responsables locaux de la construction, les pompiers ou les autorités compétentes pour les restrictions, l'inspection des installations et les permis.



### AVERTISSEMENT



#### Danger d'asphyxie.

- Ne branchez PAS cet appareil à un conduit de cheminée utilisé par un autre appareil.
- Ne branchez à AUCUN conduit ou système de distribution d'air.

Les gaz de combustion risquent d'envahir la maison.

**AVIS :** Hearth & Home Technologies n'assume aucune responsabilité pour une performance inadéquate du système de l'appareil causée par :

- Mauvais tirage en raison des conditions ambiantes
- Contre-tirage
- Étanchéité de la structure
- Appareils de ventilation mécanique
- Surtirage causé par des hauteurs de cheminée excessive
- Le rendement idéal est avec une hauteur de cheminée entre 4,26 et 4,88 m (14 et 16 pi) mesurée depuis la base de l'appareil.

### B. Sécurité incendie

Pour obtenir une sécurité incendie adéquate, prenez sérieusement en considération ce qui suit :

1. Installez au minimum un détecteur de fumée à chaque étage de la maison pour garantir votre sécurité. Ils doivent être placés loin de l'appareil et près des chambres à coucher. Suivez les instructions de l'emplacement et d'installation du fabricant des détecteurs de fumée et effectuez régulièrement leur entretien.
2. Placez un extincteur classe A à un endroit facilement accessible pour pouvoir éteindre les petits incendies dus à des braises incandescentes.
3. Un détecteur de CO doit être installé dans la même pièce que l'appareil.
4. Préparez et testez un plan d'évacuation avec au minimum deux chemins d'évacuation.
5. Préparez un plan à suivre en cas d'incendie de cheminée :
  - En cas d'un feu de cheminée :
    - Évacuez immédiatement de la maison
    - Avisez les pompiers.

### C. Pression négative



### AVERTISSEMENT



#### Danger d'asphyxie.

- En cas de pression négative, il pourrait y avoir propagation de fumée, de suie et de monoxyde de carbone.
- Pour qu'il brûle correctement, l'appareil a besoin d'un bon tirage.

Si le volume d'arrivée d'air est insuffisant pour permettre le bon fonctionnement de l'appareil, la pression devient négative. La fumée peut être plus épaisse aux étages inférieurs de la maison.

#### Les causes incluent :

- Ventilateurs d'évacuation (cuisine, salle de bain, etc.)
- Hottes d'aspiration pour cuisinières
- Exigences en air de combustion pour les fournaies, chauffe-eau et autres appareils de chauffage
- Sèche-linge
- Emplacement des conduits de retour d'air à la chaudière ou au système de climatisation.
- Mauvais fonctionnement du système de traitement d'air CVC
- Fuites d'air à l'étage supérieur telles que :
  - Éclairage encastré
  - Trappe d'accès au grenier
  - Fuites du conduit

**Pour minimiser les effets d'une pression d'air négative :**

- Installez l'ensemble de prise d'air extérieur en l'orientant face au vent dominant soufflant pendant la saison de chauffage.
- Assurez un débit d'air extérieur suffisant pour satisfaire les besoins de tous les appareils de combustion et de l'équipement d'évacuation des gaz.
- Contrôlez que la chaudière et les bouches de retour d'air de la climatisation ne sont pas situées à proximité immédiate de l'appareil.
- Évitez d'installer l'appareil près des portes, couloirs ou petits espaces isolés.
- L'éclairage encastré doit être de conception étanche.
- Les trappes d'accès au grenier doivent être protégées contre les intempéries ou scellées.
- Les systèmes de conduits et les joints du traitement de l'air installés dans le grenier doivent être scellés au ruban.
- Éviter les installations dans un sous-sol.

**E. Inspection de l'appareil et des composants**

- Retirez l'appareil et ses composants de l'emballage et inspectez pour tout dommage.
- Informez votre détaillant si des pièces ont été endommagées pendant l'expédition.
- **Lisez toutes les instructions avant de commencer l'installation. Suivre attentivement ces instructions pendant l'installation pour garantir une sécurité et une performance optimale.**



**AVERTISSEMENT**



**Risque d'incendie.**

Hearth & Home Technologies décline toute responsabilité et annulera la garantie dans les cas suivants :

- Installation et utilisation d'un appareil endommagé.
- Modification de l'appareil.
- Non-respect des instructions d'installation de Hearth & Home Technologies.
- Installation ou utilisation de composants non autorisés par Hearth & Home Technologies.
- Utilisation de l'appareil sans tous les composants installés.
- Utilisation de l'appareil sans les pieds (si fournis avec l'appareil).
- **Ne surchauffez PAS** – si l'appareil ou le carneau devient rouge, le feu est trop intense.

**N'importe quelle de ces actions peut créer un danger d'incendie.**

**D. Outils et fournitures nécessaires**

Avant de commencer l'installation, s'assurer que les outils et fournitures suivants sont disponibles.

- Une scie alternative
- Les matériaux de charpente
- Pincés
- Du mastic pour hautes températures
- Un marteau
- Des gants
- Un tournevis à tête cruciforme
- Une équerre de charpentier
- Un tournevis à tête plate
- Une perceuse électrique et des mèches
- Un fil à plomb
- Des lunettes de sécurité
- Un niveau
- Un ruban à mesurer
- Divers vis et clous
- Des vis autotaraudeuses de 1/2 – 3/4 po de long, n° 6 ou 8.

## F. Enlèvement des appareils des matériaux d'expédition



### AVERTISSEMENT



#### Risque d'incendie.

Inspecter l'appareil et ses composants pour s'assurer qu'ils ne sont pas endommagés. Les pièces endommagées risquent de compromettre le fonctionnement du poêle.

- Ne PAS installer des composants endommagés.
  - Ne PAS installer des composants incomplets.
  - Ne PAS substituer des composants.
- Informez le détaillant si des pièces sont endommagées.

#### Millénaire:

1. Retirez la boîte et les panneaux de structure 2x4 en prenant soin de ne pas endommager le produit.
2. En utilisant une douille ou une clé à 7/16, retirez un boulon situé à l'intérieur de l'appareil avant (**Figure 7.1**).
3. Déplacer à l'arrière de l'appareil et en utilisant une douille ou une clé à 7/16, enlevez deux vis (**Figure 7.1**).
4. Retirez délicatement l'appareil de la palette et placez l'endroit souhaité à la suite de Hearth Pad et Clearance to Combustibles aux page 13.

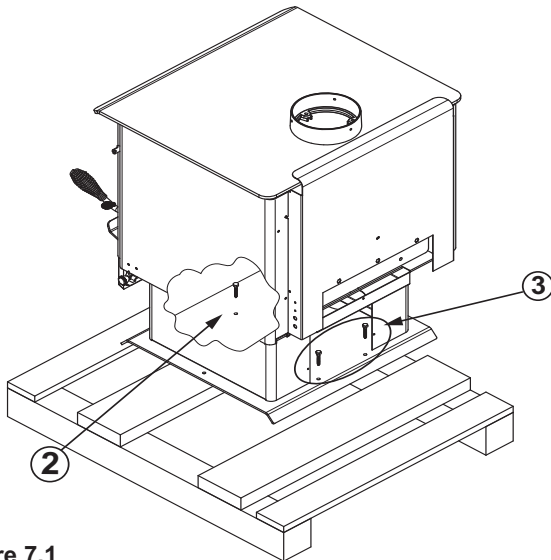


Figure 7.1

#### Step Top:

1. Retirez la boîte et les panneaux de structure 2x4 en prenant soin de ne pas endommager le produit.
2. À l'aide d'une douille ou d'une clé de 7/16 pouces, retirez et jetez les deux tire-fonds des supports de montage; un de chaque côté, c'est-à-dire la fixation de l'appareil à la palette (**Figure 7.2**).
3. Retirez délicatement l'appareil de la palette et posez l'appareil à l'arrière sur une surface de protection.
4. Reportez-vous à la section 5, Configuration de l'appareil à la page 21 pour les options de système d'élimination des cendres, de jambe ou de piédestal.
5. Une fois l'appareil complètement assemblé, placez-le à l'emplacement souhaité, après le coussin de foyer et le dégagement aux combustibles, à partir de la page 13.

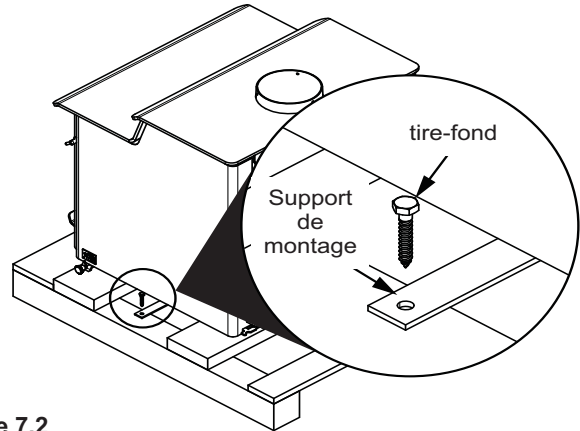


Figure 7.2

## G. Liste de vérification de l'installation

### ATTENTION INSTALLATEUR :

#### Suivez cette liste de vérification d'une installation régulière

Cette liste de vérification d'une installation régulière doit être utilisée par l'installateur avec, et non au lieu, des instructions contenues dans ce manuel d'installation.

Client : \_\_\_\_\_

Date d'installation : \_\_\_\_\_

Lot/Adresse : \_\_\_\_\_

Emplacement du foyer : \_\_\_\_\_

Installateur : \_\_\_\_\_

N° téléphone du détaillant/fournisseur : \_\_\_\_\_

N° de série : \_\_\_\_\_

Modèle (encercler un) :

**AVERTISSEMENT! Risque d'incendie ou d'explosion !** Ne pas installer le foyer selon ces instructions peut mener à un incendie ou une explosion.

#### **Installation de l'appareil**

Dégagements par rapport aux matériaux inflammables vérifiés.

Le foyer est de niveau et le connecteur est bien fixé à l'appareil.

Décision prise quant à la taille/hauteur du prolongement de l'âtre.

Ensemble de prise d'air extérieur installé.

Les exigences de protection du sol ont été respectées.

Si l'appareil est branché à une cheminée en maçonnerie, elle doit être nettoyée et inspectée par un professionnel. Si la cheminée en maçonnerie est installée à une cheminée métallique fabriquée en usine, la cheminée doit être installée selon les instructions du fabricant et les dégagements.

OUI

SI NON, POURQUOI?

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#### **Cheminée Section 4**

La configuration de la cheminée respecte les schémas.

La cheminée est installée, verrouillée et bien fixée en place avec le dégagement adéquat.

La cheminée satisfait aux exigences relatives à la hauteur (14 à 16 pieds).

Le solin du toit est installé et scellé.

Les extrémités sont installées et scellées.


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#### **Dégagements Section 3**

Absence de matériaux inflammables dans les zones exigeant des matériaux incombustibles.

La conformité avec toutes les exigences de dégagement du manuel d'installation a été vérifiée.

Le manteau de foyer et la saillie du mur sont conformes aux exigences du manuel d'installation.

Les bandes de protection et le prolongement de l'âtre sont installés selon les exigences du manuel.


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#### **Mise au point de l'appareil Section 5**

Tout le matériel d'emballage et de protection a été retiré.

La brique réfractaire, le déflecteur et la laine céramique isolante ont été correctement installés.

Toutes les étiquettes ont été enlevées de la porte vitrée.

Tout le matériel d'emballage a été retiré de l'intérieur/extérieur/dessus du foyer.

Le sac du manuel et son contenu ont été retirés de l'intérieur/dessous du foyer.

et est confié à la personne responsable de l'utilisation et du fonctionnement du foyer.


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#### **Hearth & Home Technologies recommande :**

- Que vous photographiez l'installation et copiez cette liste de vérification pour vos dossiers.
- Que cette liste de vérification demeure visible en tout temps sur le foyer, jusqu'à ce que l'installation soit terminée.

**Commentaire :** De plus amples descriptions des problèmes, de la personne qui en est responsable (installateur/constructeur/autres gens du métier, etc.) et les actions correctives requises :

Commentaires communiqués à la partie responsable \_\_\_\_\_ par \_\_\_\_\_ le \_\_\_\_\_  
(Constructeur/entrepreneur général) (Installateur) (Date)

# 3 Dimensions et dégagements

## A. Dimensions de l'appareil

REMARQUE : Buse d'un diamètre intérieur à 152 mm (6 po)

### MODÈLE MILLENNIUM 4300 À PIÉDESTAL

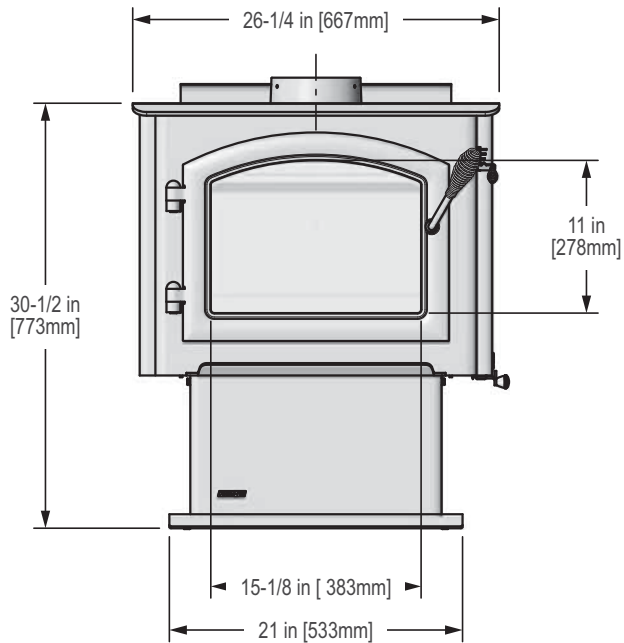


Figure 9.1 - Vue avant

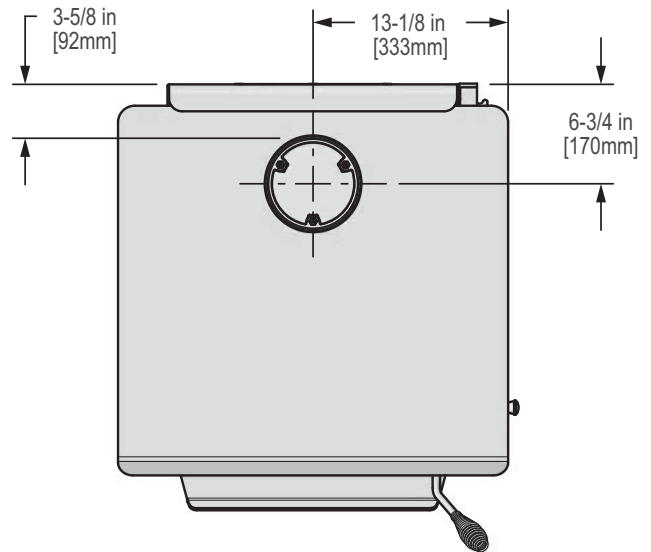


Figure 9.3 - Vue de dessus

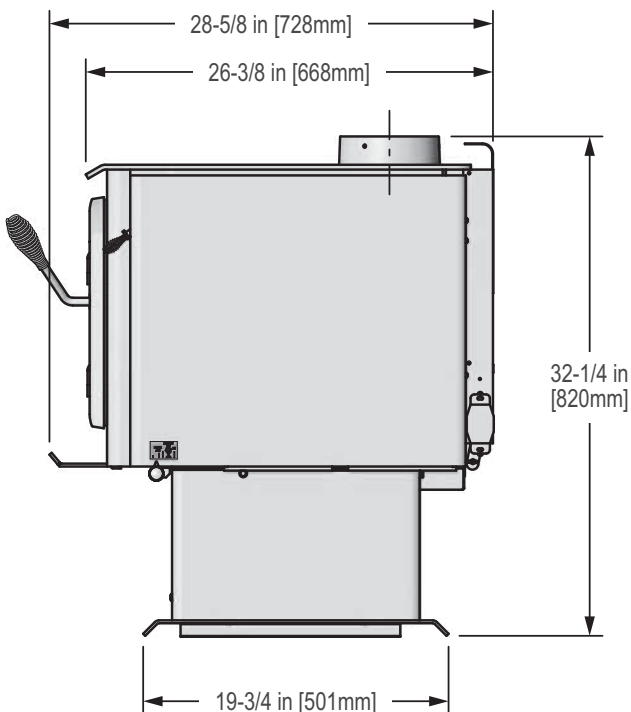


Figure 9.2 - Vue latérale



## MODÈLE 4300 À DESSUS ÉTAGÉ ET À PIÉDESTAL

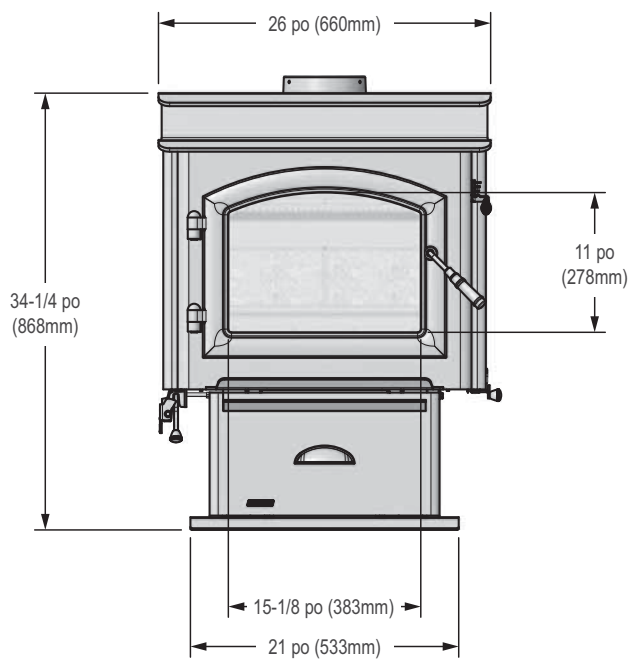


Figure 10.1 - Vue avant

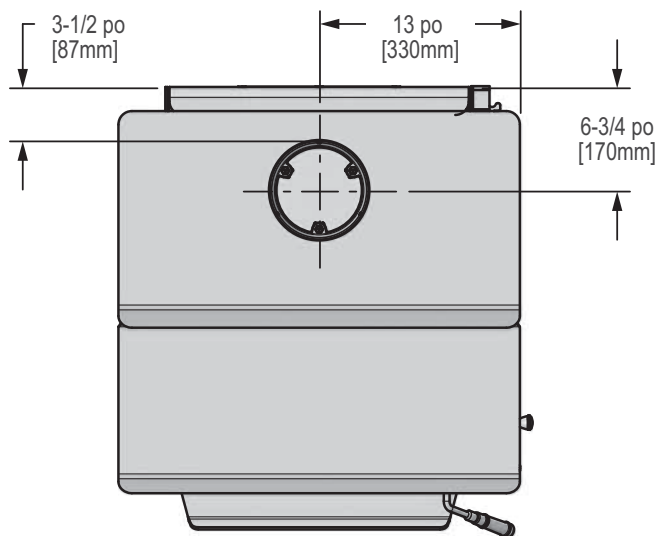


Figure 10.3 - Vue de dessus

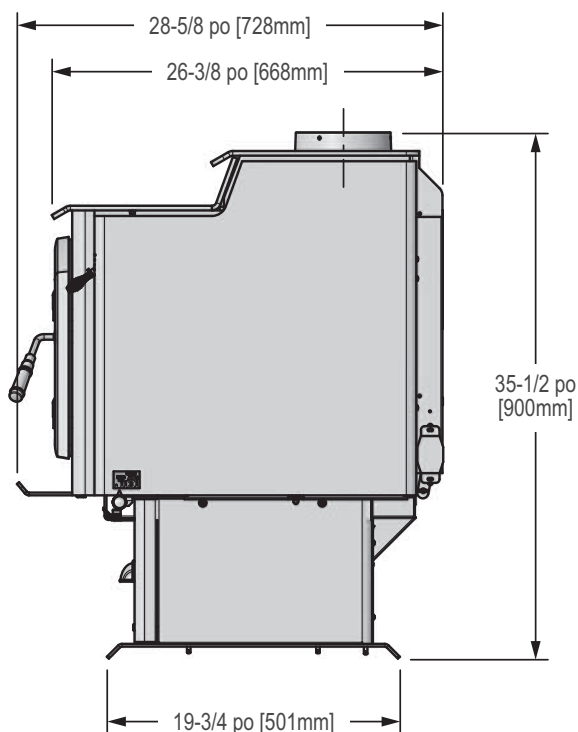


Figure 10.2 - Vue latérale

## MODÈLE Q ANNE 4300 À DESSUS ÉTAGÉ ET À PIEDS

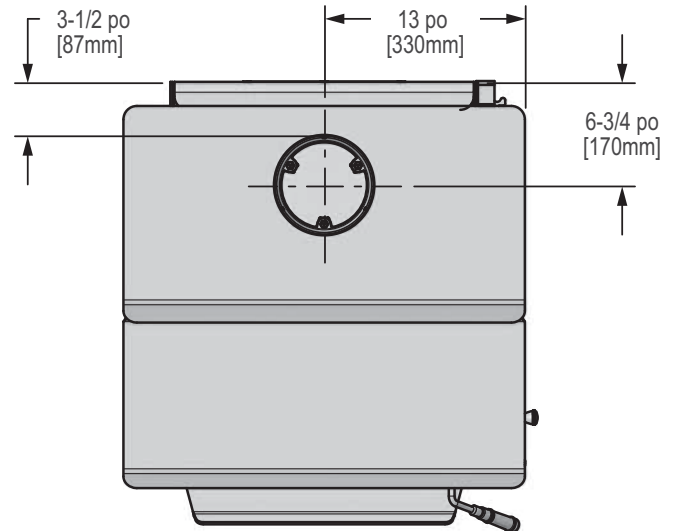
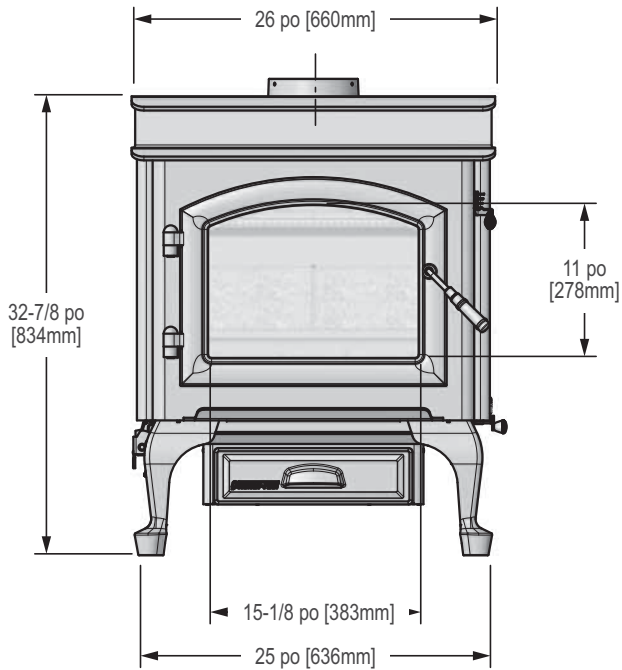


Figure 11.1 - Vue avant

Figure 11.3 - Vue de dessus

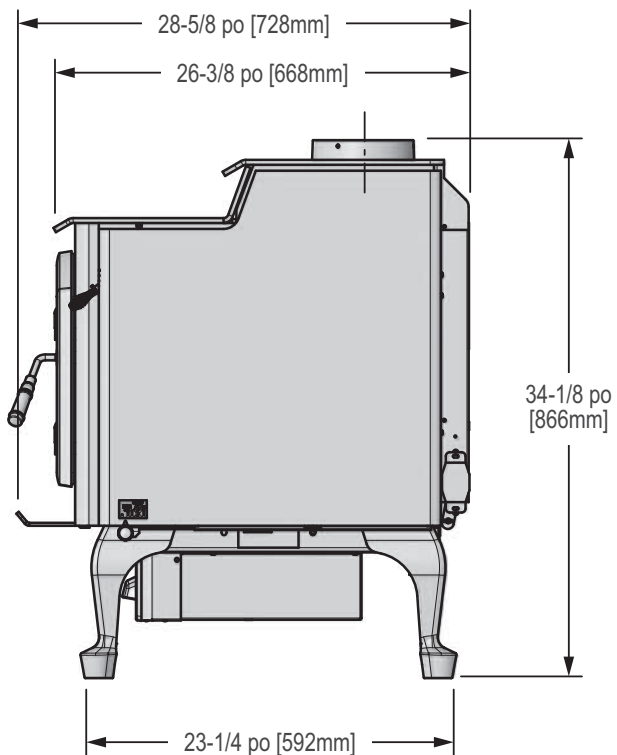


Figure 11.2 - Vue latérale

## MODÈLE TRADITIONAL 4300 À DESSUS ÉTAGÉ ET À PIEDS

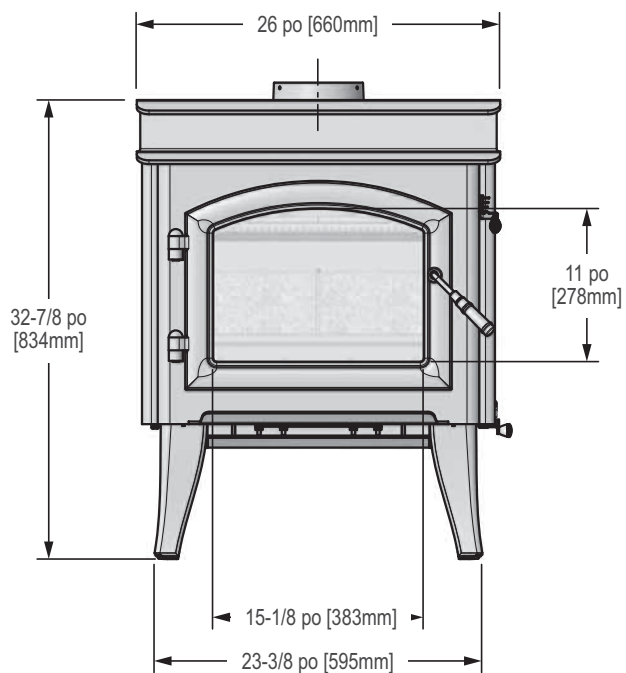


Figure 12.1 - Vue avant

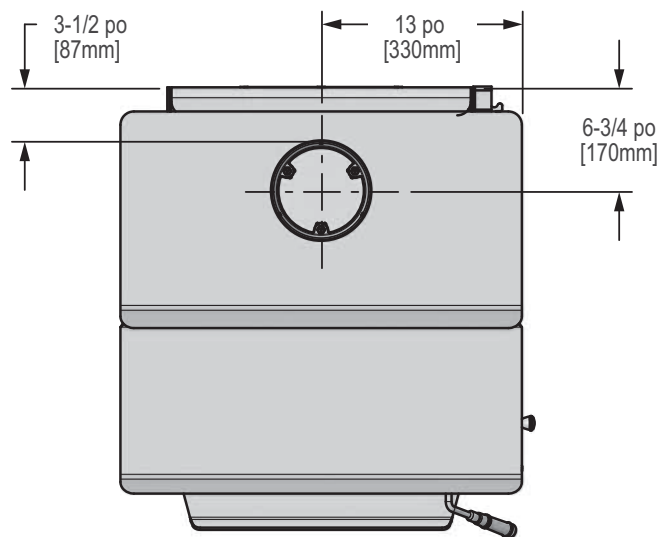


Figure 12.3 - Vue de dessus

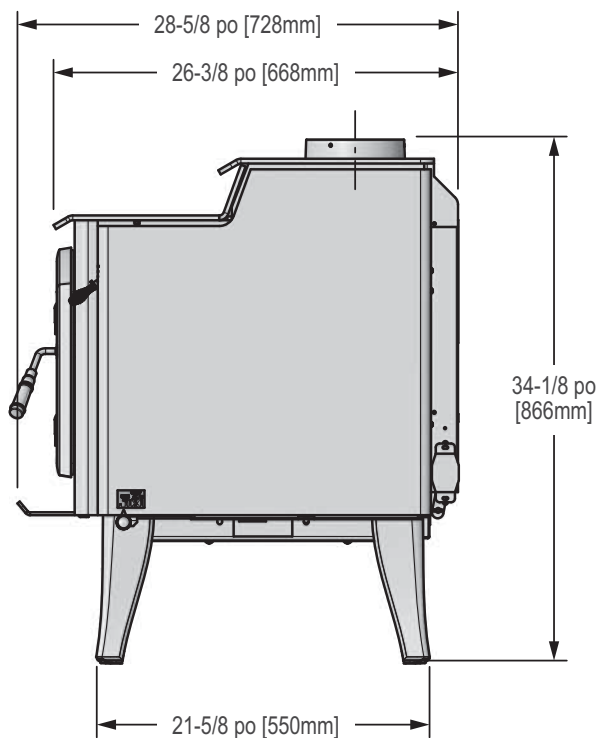


Figure 12.2 - Vue avant

## B. Exigences de protection de l'âtre

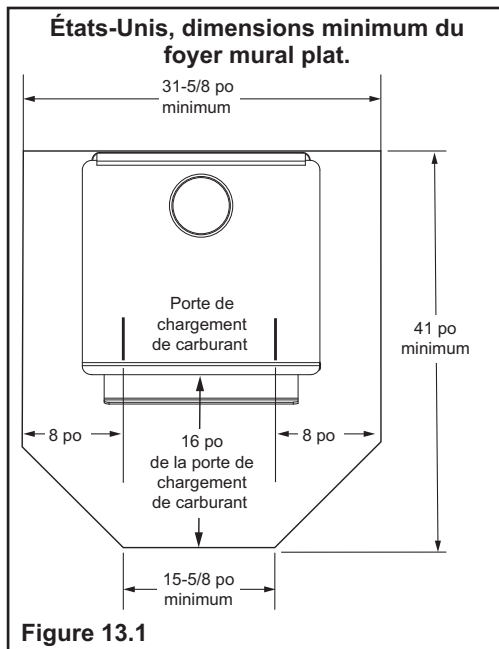
**PROTECTION CONTRE LES BRAISES :** Il est nécessaire d'installer une protection de sol de type I.

Le protecteur de sol doit être d'un matériau incombustible, se prolongeant sous l'appareil avec au moins 406 mm (16 po) devant la vitre et 203 mm (8 po) de chaque côté de la porte de chargement du combustible. Ouvrez la porte et mesurez une distance de 203 mm (8 po) depuis le bord latéral de l'ouverture sur la face du poêle.

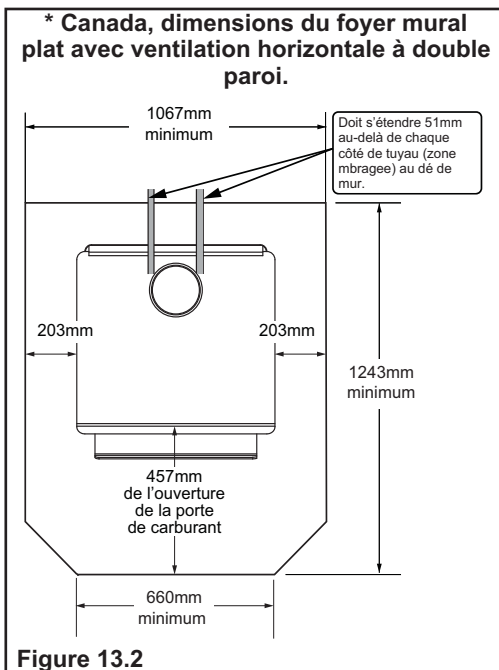
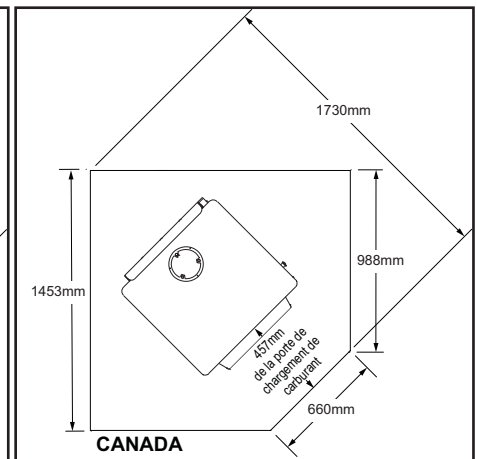
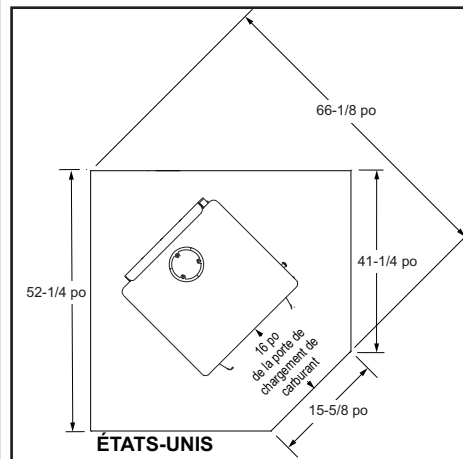
**Au Canada,** une protection de sol similaire doit être fournie à 457 mm (18 pouces) à l'avant et à 203 mm (8 pouces) des côtés et de l'arrière de l'appareil, à moins que le foyer ne soit contre le mur (**Figure 13.2 et 14.2 à la page 14**). Ensuite, le dégagement peut être réduit à l'aide d'un tuyau à double paroi et du tableau Dégagement par rapport aux matériaux inflammables indiqué à la page 15.

**\*Exception :** Les protections incombustibles pour le sol doivent s'étendre sous le conduit lorsque l'évacuation est horizontale et se prolonger de 51 mm (2 po) de chaque côté du conduit (**Voir figure 13.2 et 14.2 à la page 14**).

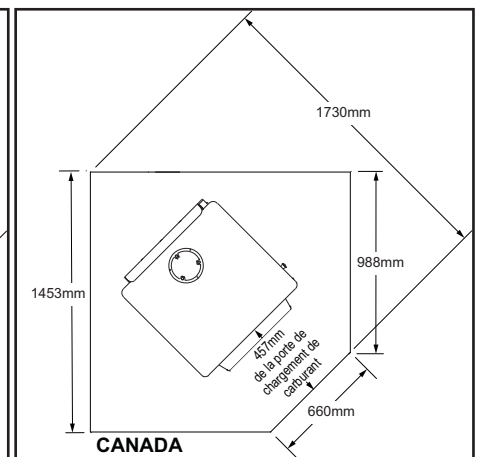
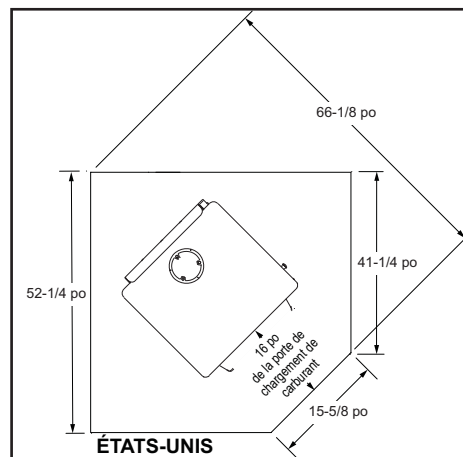
### MODÈLE MILLENNIUM



### Dimensions du coussinet du coin avec un seul tuyau mural:



### Dimensions du coussinet du coin avec tuyau double paroi:

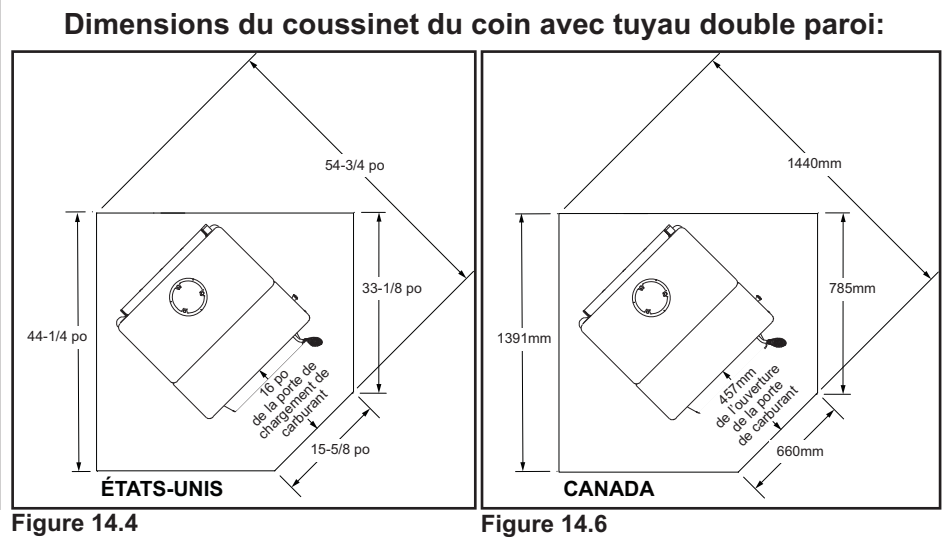
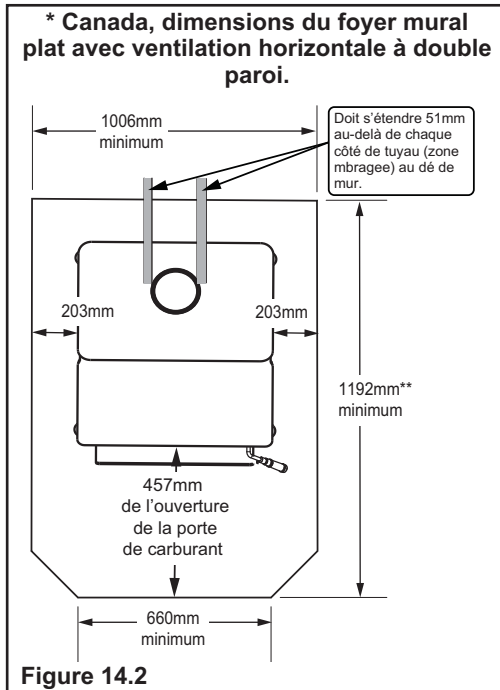
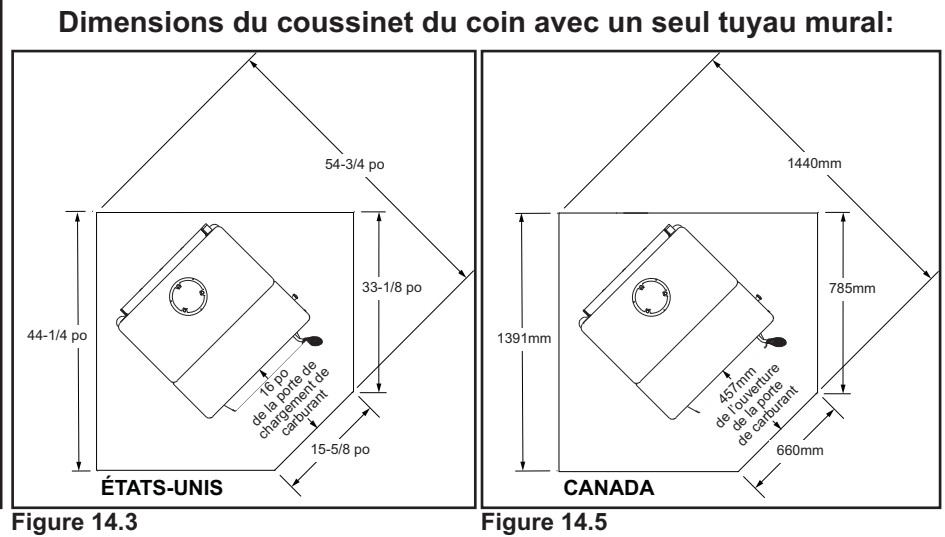
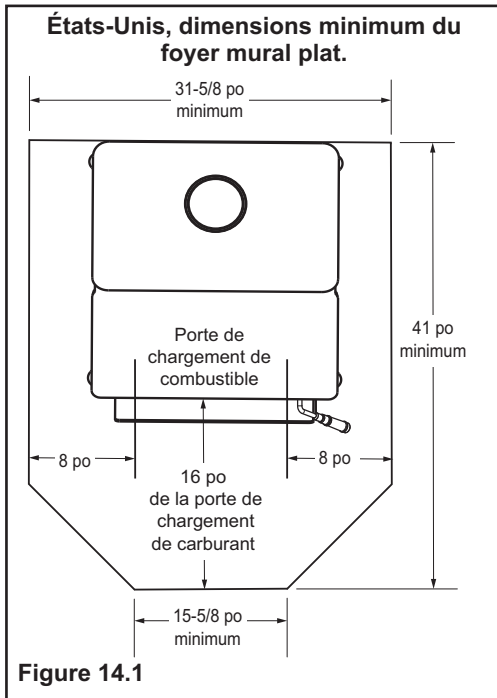


\*\* Cette dimension varie en fonction de l'installation.

**AVERTISSEMENT**

**Risque d'incendie.**  
Les socles d'âtre doivent être installés exactement comme spécifié. Les températures élevées ou les braises peuvent enflammer les matériaux inflammables dissimulés.

## MODÈLE MONOBLOC À DESSUS ÉTAGÉ

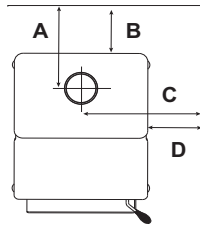


\*\* Cette dimension varie en fonction de l'installation.

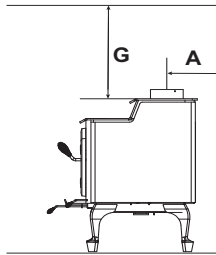
## C. Dégagement par rapport aux matériaux inflammables

DÉGAGEMENTS MINIMUMS PAR RAPPORT AUX MATÉRIAUX INFLAMMABLES en millimètre (pouces)								
Remarque : Les dimensions « A », « C » et « F » sont mesurées par rapport au centre de la buse.								
4300 SERIES WOOD APPLIANCE (2020)								
	A	B	C	D	E	F	G	H
<b>INSTALLATION : ENTIÈREMENT VERTICAL</b>								
<b>CONDUIT À SIMPLE PAROI</b>								
4300 MILLENNIUM	470 (18-1/2)	298 (11-3/4)	699 (27-1/2)	368 (14-1/2)	254 (8)	521 (20-1/2)	1359 (53-1/2)	305 (12)
4300 STEP TOP	470 (18-1/2)	298 (11-3/4)	699 (27-1/2)	368 (14-1/2)	64 (2-1/2)	381 (15)	1283 (49-1/2)	305 (12)
<b>CONDUIT À DOUBLE PAROI</b>								
4300 MILLENNIUM	305 (12)	133 (5-1/4)	699 (27-1/2)	368 (14-1/2)	254 (8)	521 (20-1/2)	1359 (53-1/2)	305 (12)
4300 STEP TOP	267 (10-1/2)	95 (3-3/4)	635 (25)	305 (12)	64 (2-1/2)	381 (15)	1283 (49-1/2)	127 (5)
<b>INSTALLATION : COUDE DE 90° EN HAUT DU POËLE ET À TRAVERS LE MUR ARRIÈRE</b>								
<b>CONDUIT À DOUBLE PAROI</b>								
4300 MILLENNIUM	292 (11-1/2)	121 (4-3/4)	699 (27-1/2)	368 (14-1/2)	254 (8)	521 (20-1/2)	1359 (53-1/2)	S.O.
4300 STEP TOP	267 (10-1/2)	95 (3-3/4)	559 (22)	229 (9)	64 (2-1/2)	381 (15)	1283 (49-1/2)	127 (5)
<b>INSTALLATION: ALCOVE</b>								
<b>CONDUIT À DOUBLE PAROI</b>								
4300 MILLENNIUM	406 (16)	238 (9-3/8)	686 (27)	352 (13-7/8)	S.O.	S.O.	1359 (53-1/2)	305 (12)
4300 STEP TOP	267 (10-1/2)	95 (3-3/4)	635 (25)	305 (12)	S.O.	S.O.	1283 (49-1/2)	127 (5)
<b>En alcôve seulement :</b> Connecteur de conduit homologué de six pouces à double paroi isolé à l'air avec une cheminée préfabriquée homologuée <b>UL103 HT</b> de Classe A ou une cheminée de maçonnerie. L'alcôve ne doit pas avoir une profondeur supérieure à 1219 mm (48 po) et dépasser les dégagements de référence. Au Canada, les cheminées préfabriquées de 650 °C doivent être en conformité avec <b>CAN/ULC-S269 M87</b> .								
* RESPECTEZ LES DÉGAGEMENTS DU CONDUIT ÉTABLIS PAR LE FABRICANT								

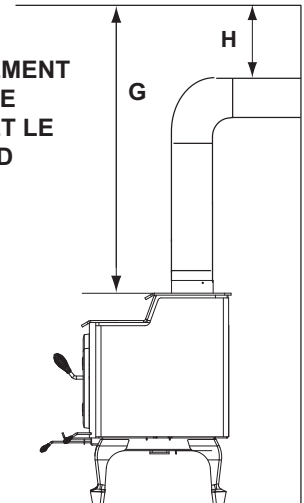
MUR ARRIÈRE/MUR LATÉRAL



VUE LATÉRALE DE L'ALCÔVE

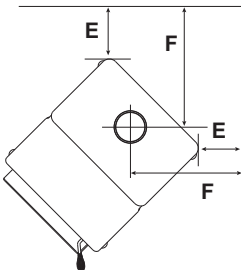


DÉGAGEMENT  
ENTRE LE  
POËLE ET LE  
PLAFOND

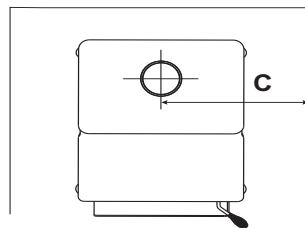


\* Si H = S.O., suivez les dégagements du fabricant du conduit

INSTALLATION DANS UN COIN



VUE DU DESSUS DE L'ALCÔVE



**REMARQUE :** Les dégagements ne peuvent être diminués que si cela est autorisé par les autorités compétentes.



### AVERTISSEMENT



#### Risque d'incendie.

- Respectez les dégagements spécifiés pour les matériaux combustibles.
- Le non-respect de ces consignes peut causer un incendie.

**REMARQUE :** Dégagement pour l'entretien  
Pour remplacer l'ensemble de tubes, un dégagement de 483 mm (19 pouces) est nécessaire sur le côté droit du poêle pour pouvoir enlever les tubes sans déplacer le poêle. Si un tel espace n'est pas disponible, le poêle devra être déconnecté de la cheminée pour pouvoir procéder au remplacement des tubes.

# 4 Systèmes de cheminée

## A. Déterminer l'emplacement de votre appareil et cheminée

L'emplacement choisi pour l'appareil et la cheminée aura une influence sur leurs performances. Comme il est indiqué à la Figure 16.1, le conduit d'évacuation :

- Doit traverser l'espace d'air chaud à l'intérieur du bâtiment. Cela permet d'améliorer le tirage, surtout pendant l'allumage et l'extinction du feu.
- Traversez le toit dans sa partie la plus haute. Cela minimise l'impact de l'action des vents.

- Quand vous choisissez l'emplacement de l'appareil, évitez les solins du plafond et du grenier ainsi que les chevrons.
- Placez le chapeau de l'extrémité loin des arbres, structures adjacentes, lignes de toit irrégulières et autres obstacles. Votre détaillant connaît bien votre région et peut généralement faire des suggestions ou proposer des solutions efficaces à vos problèmes de cheminée.

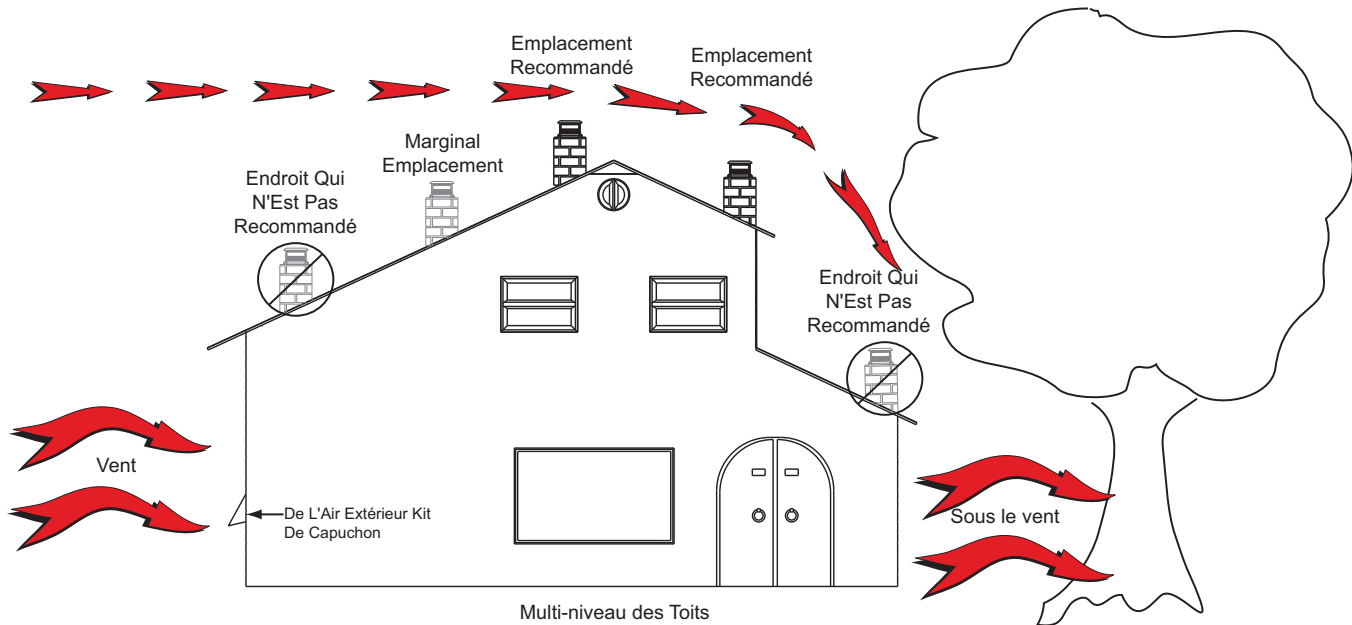


Figure 16.1

## B. Exigences relatives à l'extrémité de la cheminée

Suivez les instructions du fabricant en ce qui concerne les dégagements, les attaches, les solins à tôle galvanisée et le chapeau de l'extrémité de la cheminée (**Figure 17.1 et 17.2**).

- La cheminée doit être dotée d'un chapeau homologué et approuvé.
- Elle ne doit pas se trouver à un endroit où la neige ou d'autres matériaux risquent de la boucher.
- Son extrémité doit se trouver à au moins 914 mm (3 pi) au-dessus du toit **et** à au moins 610 mm (2 pi) au-dessus de toute partie du toit se trouvant à moins 305 cm (10 pi).
- Elle doit être loin des arbres et autres structures

### AVIS :

- La performance d'une cheminée peut être variable.
- Les arbres, les bâtiments, l'inclinaison du toit et les conditions de vent peuvent affecter les performances de la cheminée.
- La hauteur de la cheminée devra éventuellement être ajustée si le poêle fume ou qu'il y a surtirage.

**AVIS :** Placer l'appareil dans un sous-sol ou un endroit où peuvent survenir de considérables mouvements d'air peut provoquer une propagation intermittente de fumée de l'appareil. Ne pas situer l'appareil près de

- Portes fréquemment ouvertes
- Sorties ou retours de chauffage central

## C. Règle du 2-10-3

**Il s'agit d'exigences de sécurité uniquement. Elles n'ont pas pour but de garantir un bon tirage.**

Cet appareil a un carneau de 152 mm (6 po) de diamètre à titre de buse sur l'appareil.

- La modification du diamètre de la cheminée peut altérer la tire et causer une faible performance.
- Il n'est pas recommandé d'utiliser des dévoiements et des coudes aux altitudes supérieures à 1219 m (4000 pi) au-dessus du niveau de la mer, ou lorsque d'autres facteurs peuvent influencer le tirage de la cheminée.

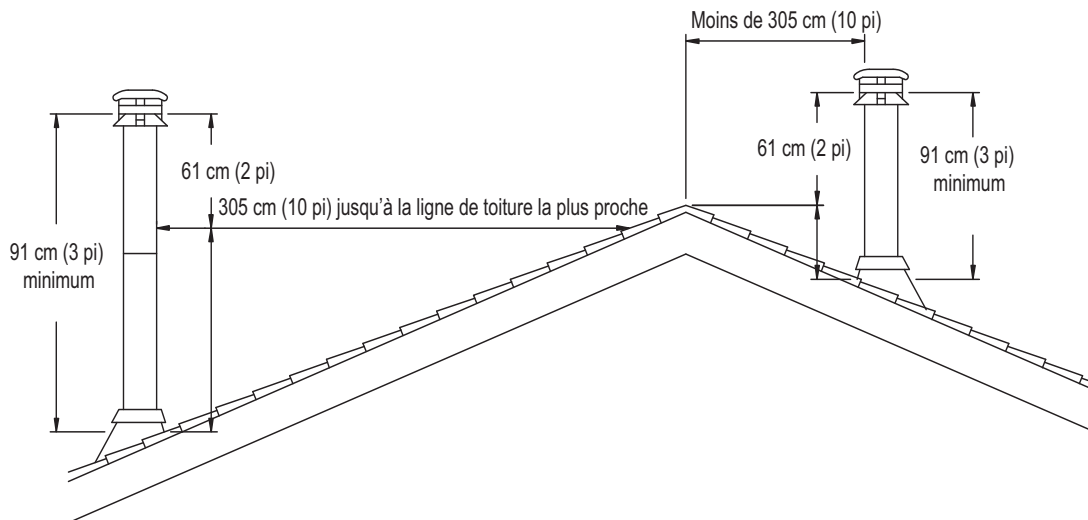


Figure 17.1

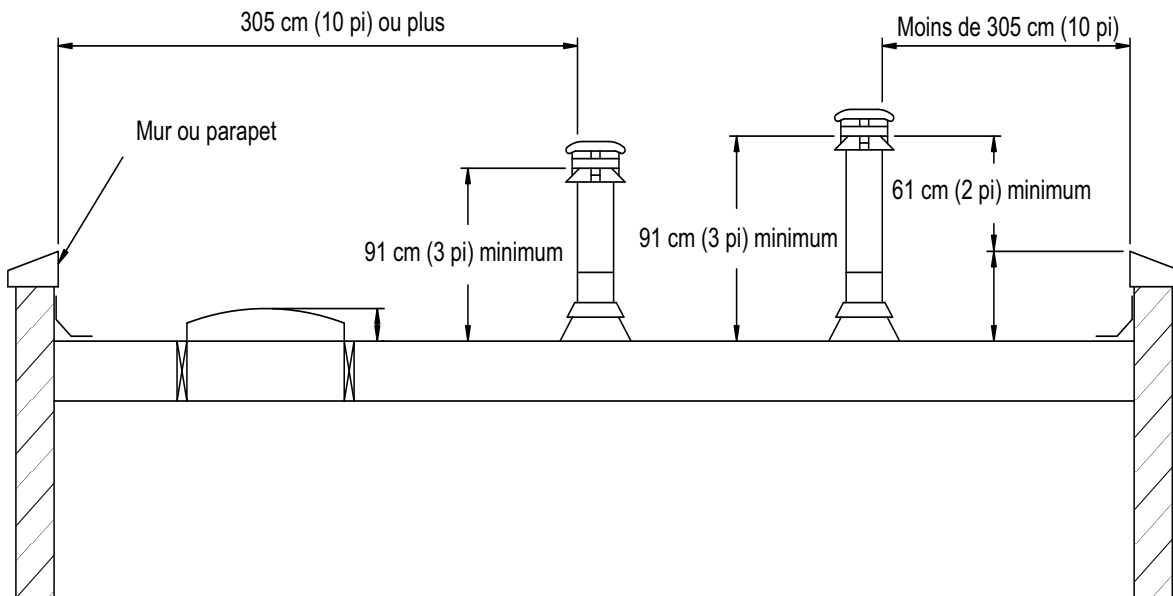


Figure 17.2



## D. Hauteur/déclivité de la cheminée

Ce produit a été conçu et testé pour une cheminée de 152 mm (6 po) de diamètre et 4,23 à 4,88 m (14 à 16 pi) de hauteur (hauteur de l'appareil inclus) mesurée depuis la base de l'appareil. Moins vous respectez ces dimensions, plus vous risquez de compromettre les performances.

La hauteur de la cheminée devra éventuellement être augmentée de 2 à 3 % pour chaque tranche de 300 m (1000 pi) au-dessus du niveau de la mer. Il n'est pas recommandé d'utiliser des dévoiements ou des coudes aux altitudes supérieures à 1219 m (4000 pi) au-dessus du niveau de la mer lorsque d'autres facteurs peuvent influencer le tirage de la cheminée.



### AVERTISSEMENT



#### Risque d'incendie. Inspection de la cheminée :

- La cheminée doit être en bon état.
- Elle doit être en conformité avec la norme NFPA 211.
- La cheminée préfabriquée doit être de 152 mm (6 po) selon UL103 HT.



### AVERTISSEMENT



#### Danger d'asphyxie.

- NE BRANCHEZ PAS CET APPAREIL À UN CONDUIT DE CHEMINÉE UTILISÉ PAR UN AUTRE APPAREIL.
- NE BRANCHER À AUCUN CONDUIT OU SYSTÈME DE DISTRIBUTION D'AIR.

Les gaz de combustion risquent d'envahir la maison.



### AVERTISSEMENT

Les installations, réglages, modifications, entretiens ou maintenances inappropriés peuvent provoquer des blessures et des dommages matériels. Consultez les informations du manuel fourni avec ce poêle. Pour obtenir une assistance ou des renseignements supplémentaires, consultez un installateur, un réparateur qualifié ou votre détaillant.

## Cheminée :

Peu importe que la cheminée soit neuve ou existante, en maçonnerie ou préfabriquée, elle doit satisfaire aux exigences minimales et comme il est spécifié à la section 4F.

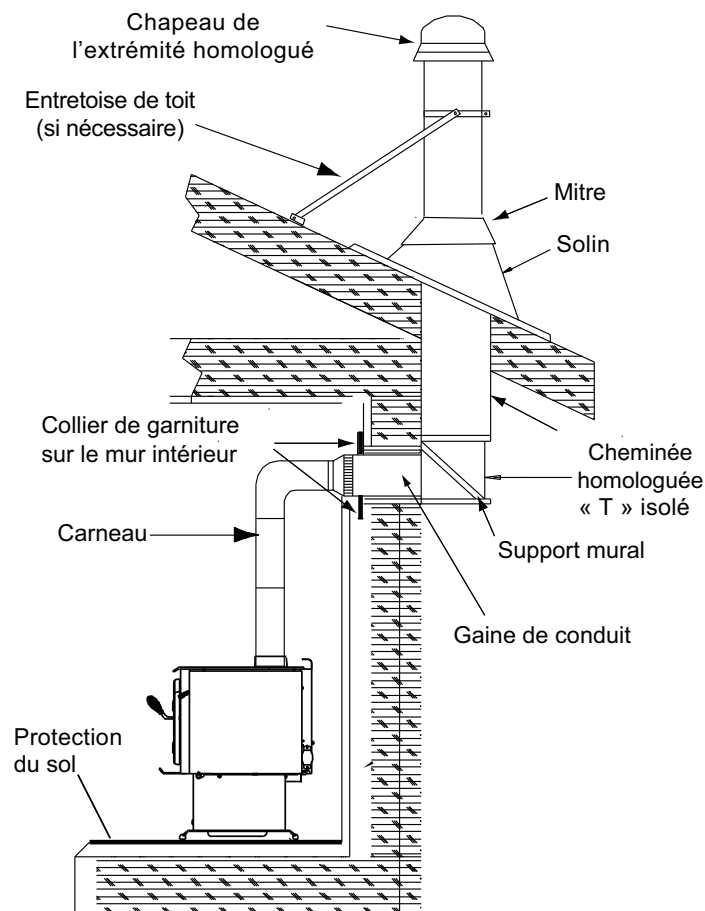


Figure 18.1 - Cheminée préfabriquée pour l'extérieur

## E. Composants d'évacuation des gaz

### Carneau :

On l'appelle également conduit de fumée ou tuyau de l'appareil. Le carneau connecte l'appareil à la cheminée. Il doit être en acier doux noir de calibre 24 ou en acier cuivré de calibre 26 et avoir un diamètre minimum de 152 mm (6 po). On peut également utiliser un conduit à double paroi approuvé avec lame d'air.

### Gaine de conduit :

Dispositif préfabriqué ou fabriqué sur place et installé dans des murs inflammables par lequel passe le carneau vers la cheminée. Elle évite aux murs de s'enflammer. Les gaines de conduit fabriquées sur place doivent être en conformité avec les normes NFPA 211. Les gaines préfabriquées doivent être adaptées à la cheminée sélectionnée et être conformes aux normes UL 103 Type HT. Suivez les instructions des fabricants de gaines préfabriquées pour cheminées en maçonnerie et cheminées préfabriquées.

## F. Systèmes de cheminée

### Cheminée préfabriquée en métal

- Elle doit avoir un diamètre intérieur de 152 mm (6 po), être conçue pour des températures élevées et être homologuée UL 103 HT (2100oF) ou ULC S629M.
- Vous devez utiliser les composants requis par le fabricant pour l'installation.
- Vous devez respecter les dégagements requis par le fabricant pour l'installation.
- Reportez-vous aux instructions d'installation des fabricants.

**REMARQUE :** Au Canada, une cheminée préfabriquée doit être conforme aux normes de sécurité, être homologuée **UL103HT (2100°F) classe « A »** ou être en conformité avec la **NORME CAN/ULC-S629M APPLICABLE AUX CHEMINÉES PRÉFABRIQUÉES de 650°C.**

**Gaine de conduit**

Construite sur place pour une cheminée en maçonnerie :

**Composants**

- Une cheminée préfabriquée isolée (isolant plein) doit avoir une longueur minimum de 305 mm (12 po) (plus longue si les murs sont plus épais), un diamètre intérieur de 152 mm (6 po) et être en conformité avec UL 103 type HT. La cheminée doit dépasser du mur intérieur de 51 mm (2 po) minimum et du mur extérieur de 25 mm (1 po) minimum.
- L'entretoise, le collier de garniture et la bride murale doivent être adaptés à la cheminée pleine choisie.
- Boisseau d'argile d'un diamètre minimum de 203 mm (8 po) (si elle n'est pas déjà installée dans la cheminée) et mortier réfractaire.
- Lorsque la juridiction nécessite l'installation d'un doublage de cheminée approuvée dans la cheminée de maçonnerie.

**Dégagements**

- Les dégagements d'une cheminée en maçonnerie doivent être en conformité avec NFPA 211, à savoir 51 mm (2 po) minimum par rapport aux supports métalliques et matériaux inflammables.
- Le dégagement autour du carneau doit être de 25 mm (1 po) minimum.
- L'ouverture en haut du mur doit être à au moins 343 mm (13-1/2 po) du plafond ou à 114 mm (4-1/2 po) au-dessus du dégagement minimum spécifié par le fabricant du carneau. Le dégagement vertical minimum selon NFPA 211 est de 457 mm (18 po) depuis le carneau et le plafond ou égal à la valeur minimale recommandée par le fabricant du carneau (**Figure 19.2**).

**Instructions :**

1. Pratiquez une ouverture dans le mur intérieur à la hauteur prévue pour l'entrée du carneau dans la cheminée en maçonnerie (**Figure 19.2**).
2. Cette ouverture doit comporter un revêtement en argile ou équivalent d'un diamètre minimum de 203 mm (8 po), retenu par du mortier réfractaire.
3. Construisez un cadre de 432 x 432 mm (17 x 17 po) (dimensions extérieures) pour l'ouverture du mur en utilisant du bois de charpente de 51 x 51 mm (2 x 2 po). L'intérieur de ce cadre doit avoir une ouverture de 356 x 356 mm (14 x 14 po) minimum (**Figure 19.2**).
4. Installez l'entretoise du mur sur le côté cheminée du cadre.
5. Clouez le cadre à l'ouverture du mur. L'entretoise doit être placée du côté cheminée.
6. Insérez le tronçon de cheminée avec isolation dans la paroi extérieure de la cheminée en maçonnerie.
7. Utilisez une bride murale pour attacher solidement la cheminée avec isolation pleine à la cheminée en maçonnerie.
8. Insérez un tronçon de carneau dans la cheminée. Contrôlez qu'il ne dépasse pas le bord du revêtement de boisseau d'argile de la cheminée à l'intérieur de la cheminée.
9. Scellez l'extrémité du carneau au boisseau d'argile au moyen de mortier réfractaire.
10. Installez le collier de garniture sur le tronçon de cheminée à isolation pleine.

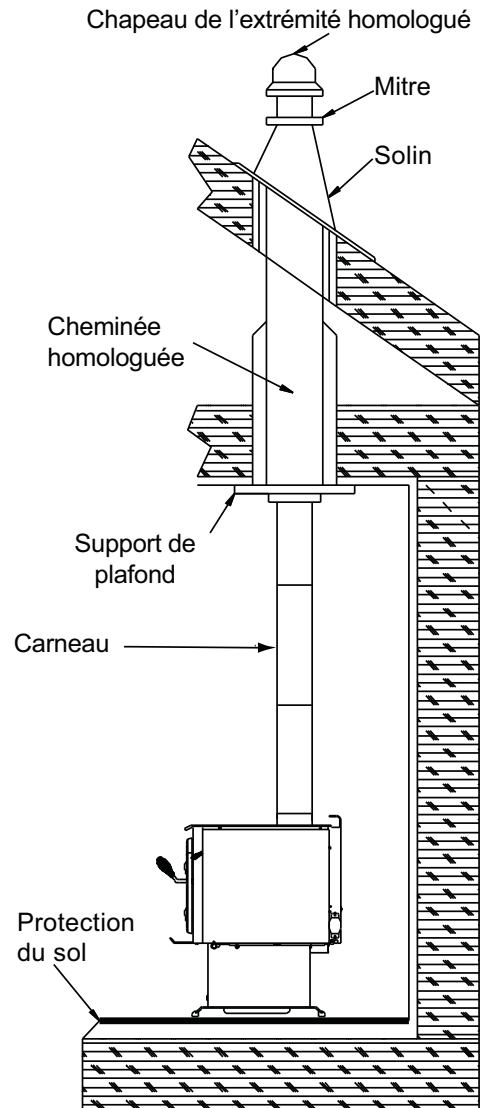


Figure 19.1 - Cheminée préfabriquée pour l'intérieur

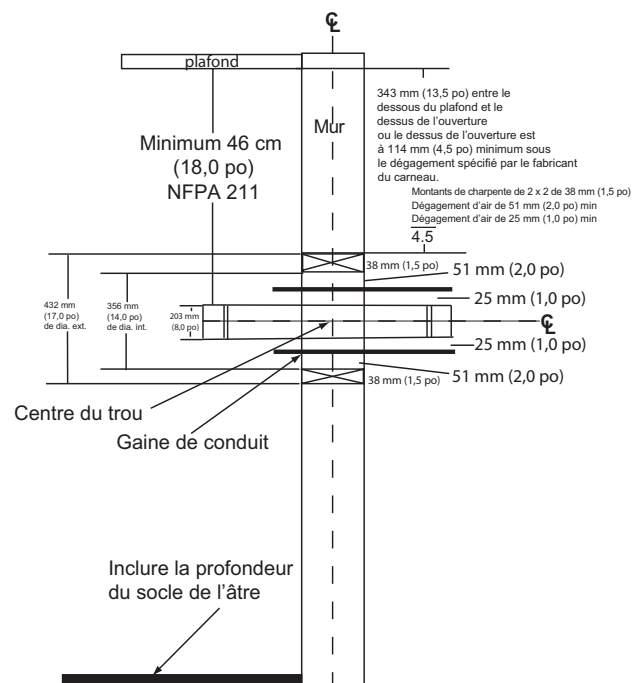


Figure 19.2

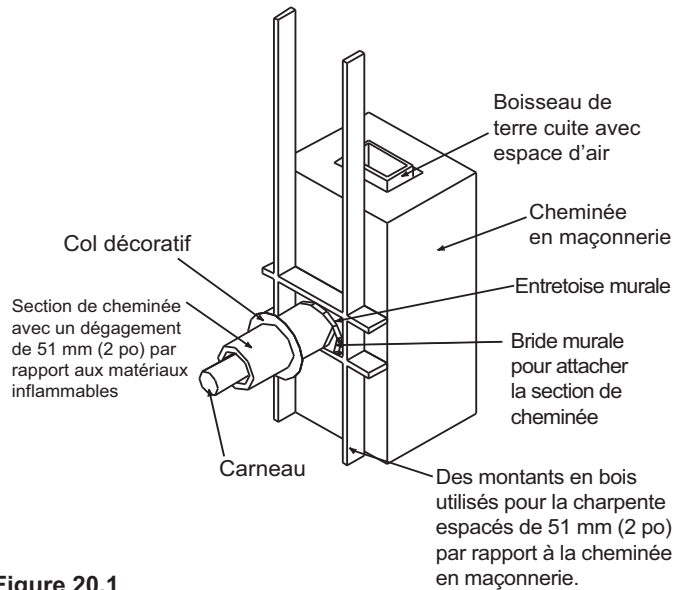
**Cheminée pleine et supports métalliques constituant la gaine du conduit.**

Figure 20.1

**G. Installation des composants de la cheminée****Carneau**Carneau à une seule paroi ou tuyau d'appareil.

Il doit être en acier doux de calibre 24 ou en acier cuivré de calibre 26. Ces sections doivent être fixées entre elles et à l'appareil en orientant l'extrémité ondulée (mâle) en direction de l'appareil. Pour tous les raccordements, y compris celui de la buse, utilisez 3 vis autotaraudeuses. Vous devez observer les dégagements minimum par rapport aux matériaux inflammables. Au Canada, si on souhaite traverser une paroi ou une cloison en matériau inflammable, l'installation doit être en conformité avec **CAN/CSA-B365**.

Carneaux préfabriqués (avec évent) homologués.

Un carneau (avec évent) homologué doit être utilisé si l'appareil est installé dans une maison mobile. Les carneaux homologués doivent être adaptés les uns aux autres pour obtenir un bon ajustement et une bonne étanchéité.

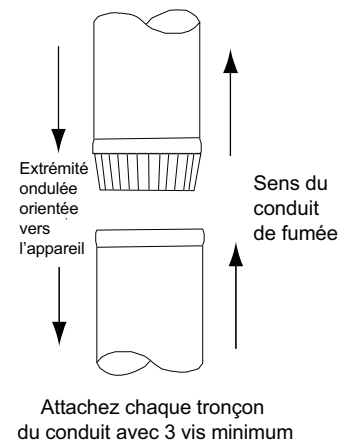


Figure 20.3 - Carneau (tuyau d'appareil)

**AVERTISSEMENT****Risque d'incendie.**

Ne PAS utiliser de matériau isolant ou d'autres matériaux inflammables entre les entretoises.

- TOUJOURS respecter les dégagements spécifiés autour des conduits d'évacuation et des entretoises.
- Installer les entretoises comme spécifié.

Ne pas maintenir l'isolation ou d'autres matériaux à distance du conduit d'évacuation peut provoquer un incendie.

Min. de dégagement entre la cheminée et l'entretoise murale et les matériaux inflammables – 51 mm (2 po)

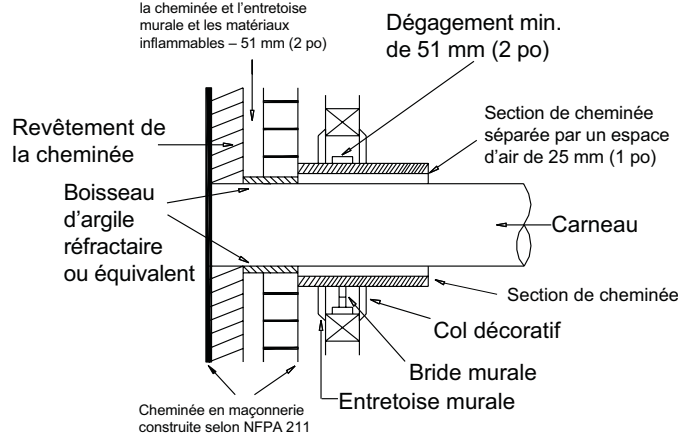


Figure 20.2

**AVERTISSEMENT****Risque d'incendie.**

Suivez les instructions d'installation du fabricant du carneau.

**Utilisez UNIQUEMENT des connecteurs :**

- Dans la pièce, entre l'appareil et le plafond ou le mur.

**Le connecteur ne doit PAS traverser :**

- Un grenier ou des combles
- Un placard ou tout autre espace clos similaire
- Le plancher ou le plafond

Respectez tous les dégagements minimums définis par rapport aux matériaux inflammables.

**H. Tirage approprié**

Pour garantir le bon fonctionnement de votre foyer encastré Quadra-Fire, le tirage de votre cheminée (pression statique) doit être d'environ -0,10 po (CE) sur la position de combustion élevée et de -0,04 po (CE) sur la position basse; la pression est mesurée à 152 mm (6 po) au-dessus du foyer, après une heure de fonctionnement sur chaque position.

# 5 Installation de l'appareil

## A. Installation du piédestal et du système d'élimination des cendres

**REMARQUE :** Le système d'élimination des cendres doit être installé avant le piédestal.

### Commencez l'installation du système ARS.

- Sortez les supports d'installation des pieds rangés dans la boîte à feu et jetez l'emballage.
- Retirez les 2 briques de la partie avant de la boîte à feu (**Figure 21.1**).
- Couchez l'appareil sur son dos, sur une surface rembourrée ou une palette (**Figure 21.2**).
- Retirez l'écran thermique en desserrant les quatre boulons à l'aide de la clé ouverte 3/8 (**Figure 21.2**).
- Retirez les 8 écrous maintenant le couvercle à l'aide de la clé à douille 7/16; jetez le couvercle (**Figure 21.2**).



### AVERTISSEMENT!

#### VÉRIFIEZ LE JOINT D'ÉTANCHÉITÉ!

- Vérifiez que le joint d'étanchéité est présent et que le côté brillant ne touche pas au bas de la boîte à feu.
- Il est important que le joint d'étanchéité soit bien en place pour assurer un bon scellement.

- Retirez l'alvéole défonçable du bas de la boîte à feu à l'aide du marteau (**Figure 21.2**).
- Installez la porte à cendres en glissant de biais la tige dans la fente sur le côté gauche (**Figure 21.3**).
- Glissez la porte à cendres sur les 8 vis sortant du fond de l'appareil. Fixez les écrous et les rondelles en utilisant une clé à douille 7/16 (**Figure 21.3**).
- Installez le verrou de l'ARS en glissant l'ensemble du verrou sur les 2 goujons sortant du fond gauche de l'appareil. Fixez en utilisant deux écrous à l'aide de la clé à douille 7/16 (**Figure 21.3**).
- Ajoutez le bouton à la tige de la poignée (**Figure 22.2 à la page 22**).
- À l'aide de deux boulon et deux écrous à embase, fixez la rainure de l'ARS avec la clé ouverte 3/8 et la clé à douille 7/16 (**Figure 22.3 on page 22**).



### AVERTISSEMENT



**Les Risques D'Incendie. Ne PAS faire fonctionner avant de donner pleinement à l'assemblage des composants.**

La gravure de votre appareil sans piédestal ou de la jambe, kit de joints:

- Annulera votre garantie.
- Peut entraîner des dommages matériels ou corporels.

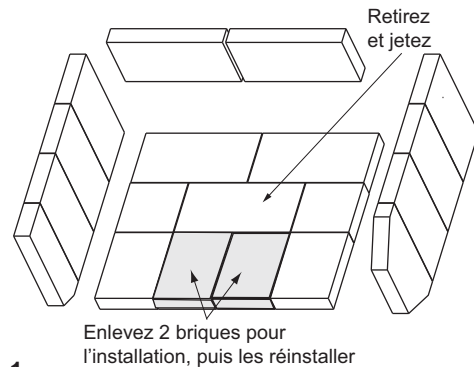


Figure 21.1

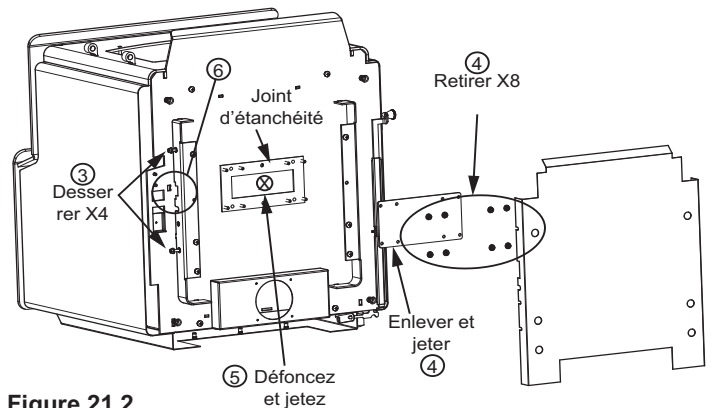


Figure 21.2

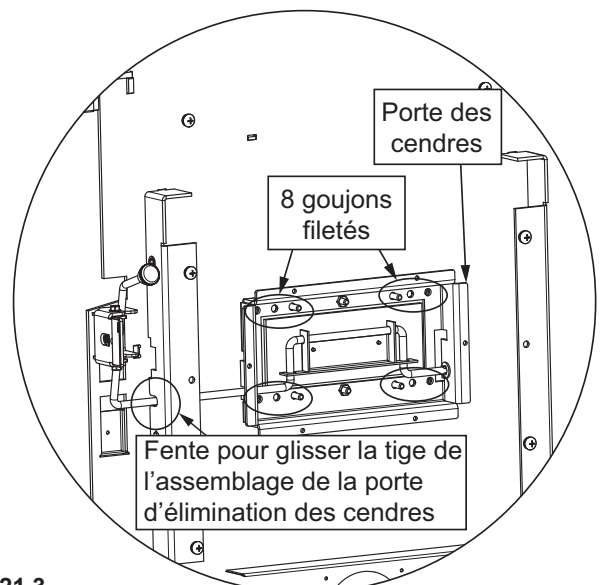


Figure 21.3

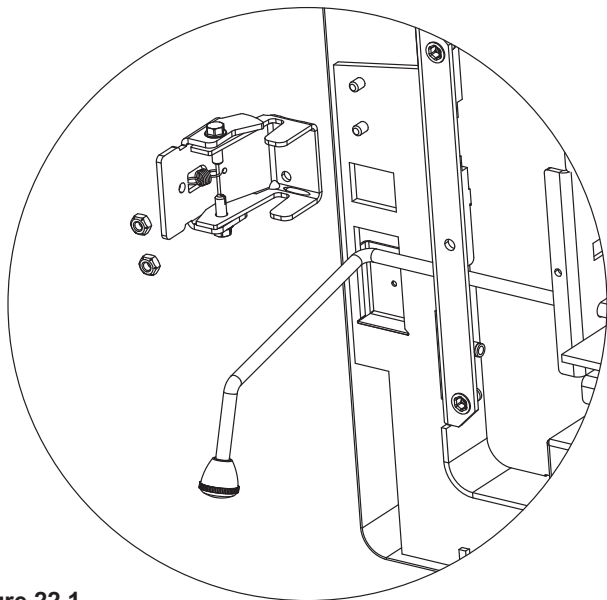


Figure 22.1

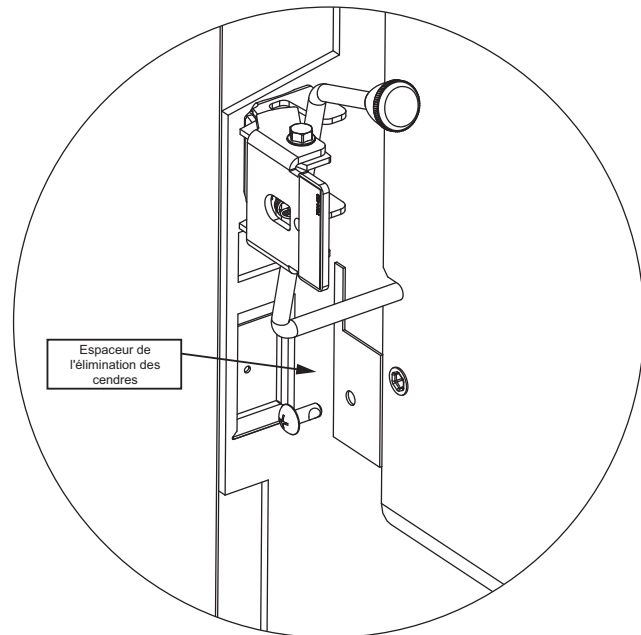


Figure 22.4

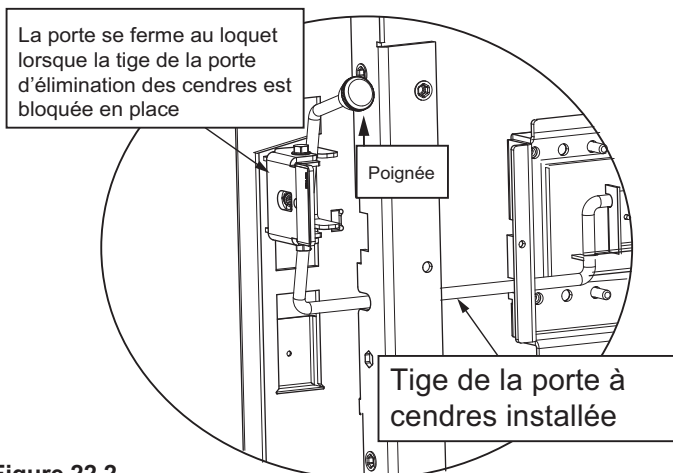


Figure 22.2

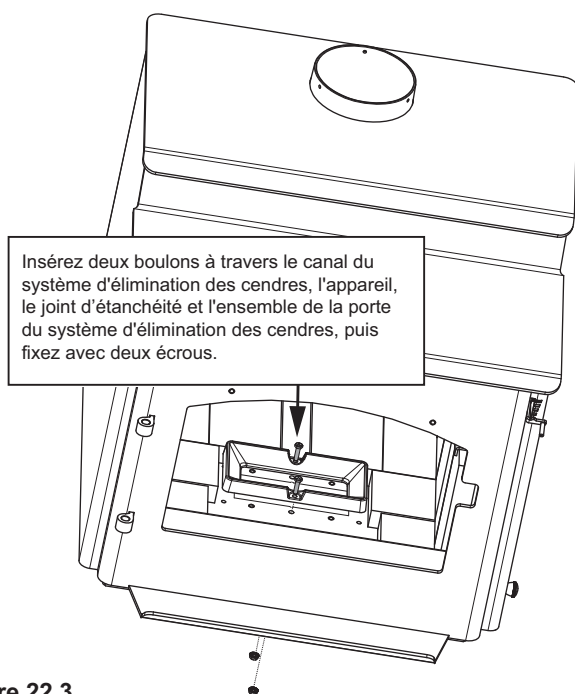


Figure 22.3

### Ensemble du piédestal et du système d'élimination des cendres (suite)

#### Installation de l'ensemble du piédestal

1. Suivez les instructions Commencez l'installation du système ARS de la page 21.
2. Glissez le piédestal par-dessus l'adaptateur à la base de l'appareil et fixez avec les boulons de l'écran thermique (Figure 23.1 à la page 23).
3. Installez l'espaceur ARS sur le côté gauche à l'aide d'un boulon et le tournevis cruciforme (Figure 22.4).
4. Remettez le poêle en procédant avec précaution, puis placez-le à l'emplacement souhaité.

#### Finir l'installation du système de l'ARS

1. Remettez en place les briques retirées de l'avant à l'étape 1 de Commencez l'installation du système ARS de la page 18 (Figure 23.2 à la page 23).
2. Installez le tiroir à cendres dans la base du piédestal.
3. Installez le couvercle d'accès à l'ARS à l'intérieur de la rainure située à l'intérieur de la boîte à feu (Figure 23.2 à la page 23).



### ATTENTION!

#### VÉRIFIEZ LES PANNEAUX DU DÉFLECTEUR ET LA LAINE CÉRAMIQUE ISOLANTE!

- Vérifiez que chaque panneau de déflecteur et la laine céramique isolante sont à l'endroit approprié.
- Il est important que les panneaux de déflecteur et la laine céramique isolante soient correctement installés pour assurer un brûlage sécuritaire.

**REMARQUE :** Si vous effectuez une installation au sol de l'ensemble de la prise d'air extérieur sur un modèle à dessus étagé avec piédestal, vous devez fixer la plaque de recouvrement jointe à l'aide des 4 vis, à l'arrière du poêle. Vous pouvez jeter cette pièce si vous n'en avez pas besoin (Figure 23.3 à la page 23).

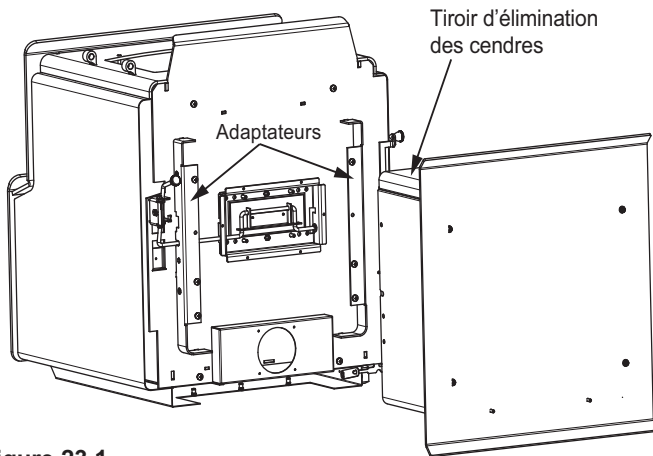


Figure 23.1

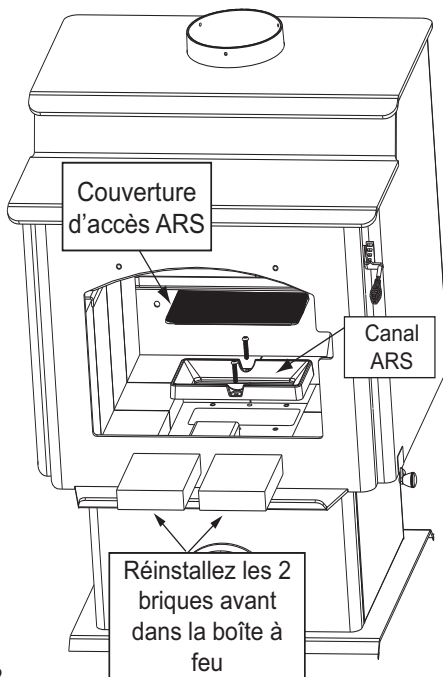


Figure 23.2

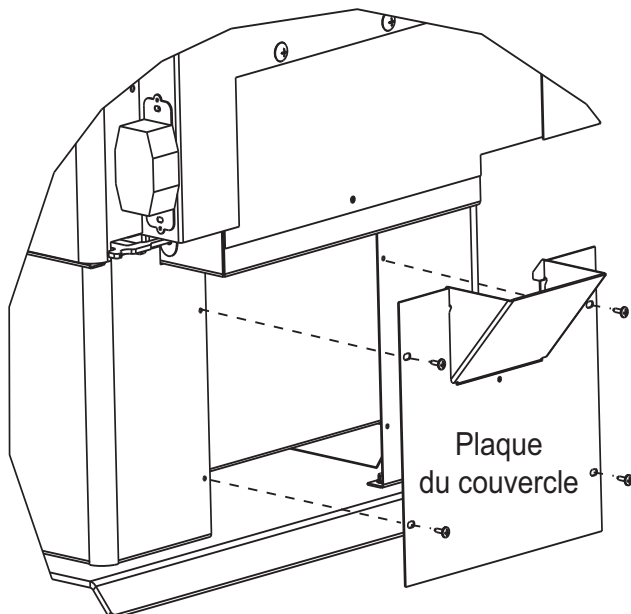


Figure 23.3

## B. Poignée du couvercle d'accès

Insérez la poignée du couvercle d'accès dans la fente du couvercle de l'ARS pour l'enlever en vue de retirer les cendres de la boîte à feu (Figure 23.4).

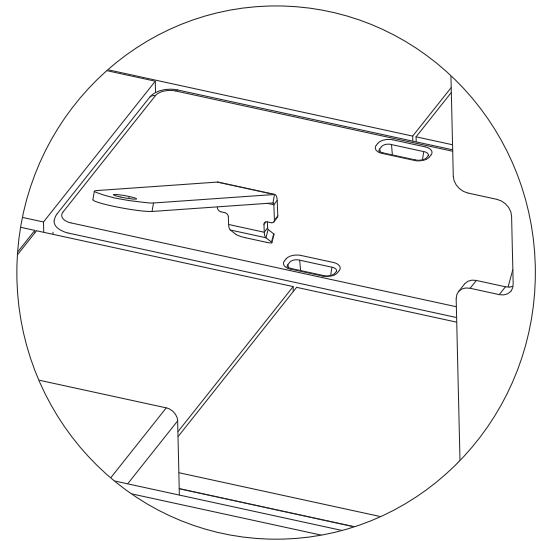


Figure 23.4

## C. Installation de l'ensemble de pieds et du système d'élimination des cendres (ARS)

**REMARQUE :** Le système d'élimination des cendres doit être installé avant les pieds.

### Commencez l'installation du système ARS.

1. Sortez les supports d'installation des pieds rangés dans la boîte à feu et mettez de côté.
2. Retirez les 2 briques de la partie avant de la boîte à feu (Figure 21.1 à la page 21).
3. Couchez l'appareil sur son dos, sur une surface rembourrée ou une palette (Figure 21.2 à la page 21).
4. Retirez l'écran thermique en desserrant les quatre boulons à l'aide de la clé ouverte 3/8 (Figure 21.2 à la page 21).
5. Retirez les 8 écrous maintenant le couvercle à l'aide de la clé à douille 7/16; jetez le couvercle (Figure 21.2 à la page 21).



## AVERTISSEMENT!

### VÉRIFIEZ LE JOINT D'ÉTANCHÉITÉ!

- Vérifiez que le joint d'étanchéité est présent et que le côté brillant ne touche pas au bas de la boîte à feu.
- Il est important que le joint d'étanchéité soit bien en place pour assurer un bon scellement.

6. Retirez l'alvéole défonçable du bas de la boîte à feu à l'aide du marteau (**Figure 21.2 à la page 21**).
7. Installez la porte à cendres en glissant de biais la tige dans la fente sur le côté gauche (**Figure 21.3 à la page 21**).
8. Glissez la porte à cendres sur les 8 vis sortant du fond de l'appareil. Fixez les écrous et les rondelles en utilisant une clé à douille 7/16 (**Figure 21.3 à la page 21**).
9. Installez le verrou de l'ARS en glissant l'ensemble du verrou sur les 2 goujons sortant du fond gauche de l'appareil. Fixez en utilisant deux écrous à l'aide de la clé à douille 7/16 (**Figure 22.1 à la page 22**).
10. Ajoutez le bouton à la tige de la poignée (**Figure 22.2 à la page 22**).
11. À l'aide de 2 boulons et deux écrous à embase, fixez la rainure de l'ARS avec la clé ouverte 3/8 et la clé à douille 7/16 (**Figure 22.3 on page 22**).

#### Installer l'ensemble de pieds et ARS du modèle Queen Anne

1. Suivez les instructions Commencez l'installation du système ARS de la page 21.
2. Installez l'espaceur ARS sur le côté gauche à l'aide d'un boulon et le tournevis cruciforme (**Figure 22.4 à la page 22**).
3. Installez les supports de pieds et le tiroir à cendres à l'aide de quatre vis et un tournevis cruciforme.

Commencez par les deux boulons du bas à travers le tiroir à cendres et dans la base de l'appareil (**Figure 24.1**).

Alignez les trous supérieurs, répétez, puis fixez chacun des quatre boulons.

4. Installez les pieds dans les supports de fixation en vous assurant que ceux-ci reposent contre le support, puis fixez-les avec les boulons et rondelles à l'aide d'une clé ouverte 3/8 (**Figure 24.2**).
5. Installez les boulons de mise à niveau dans 2 pieds; ceux-ci devraient être placés dans des coins opposés (**Figure 24.2**).
6. Remettez le poêle debout en procédant avec précaution, puis placez-le à l'emplacement souhaité.
7. Utilisez les boulons de mise à niveau des pieds pour stabiliser et mettre le poêle à niveau (**Figure 24.3**).

#### Finir l'installation du système de l'ARS

1. Remettez les 2 briques en place (**Figure 24.4**).
2. Installez le tiroir à cendres dans le capteur d'élimination des CENDRES.
3. Installez le couvercle d'accès à l'ARS à l'intérieur de la rainure située à l'intérieur de la boîte à feu (**Figure 24.4**).

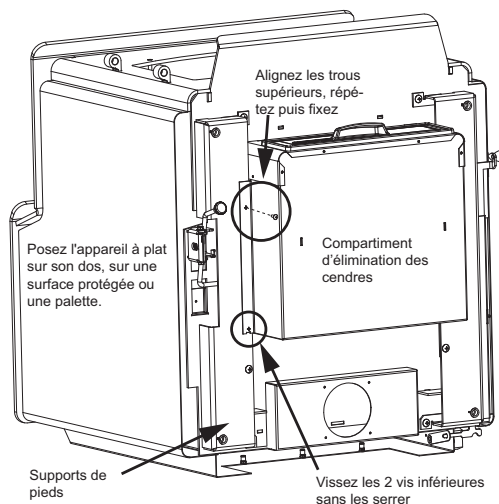


Figure 24.1

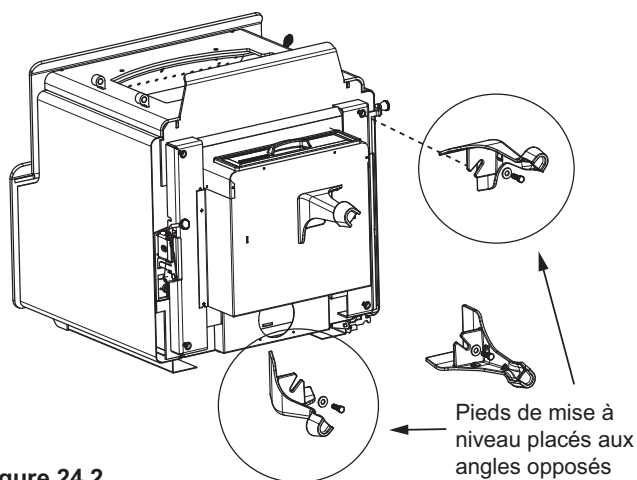


Figure 24.2

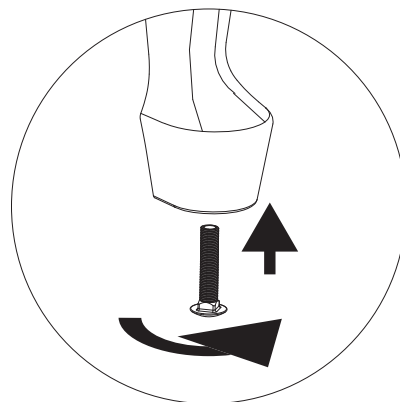



Figure 24.3

	<h3>ATTENTION!</h3>
<p><b>VÉRIFIEZ LES PANNEAUX DU DÉFLECTEUR ET LA LAINE CÉRAMIQUE ISOLANTE!</b></p> <ul style="list-style-type: none"> <li>• Vérifiez que chaque panneau de déflecteur et la laine céramique isolante sont à l'endroit approprié.</li> <li>• Il est important que les panneaux de déflecteur et la laine céramique isolante soient correctement installés pour assurer un brûlage sécuritaire.</li> </ul>	

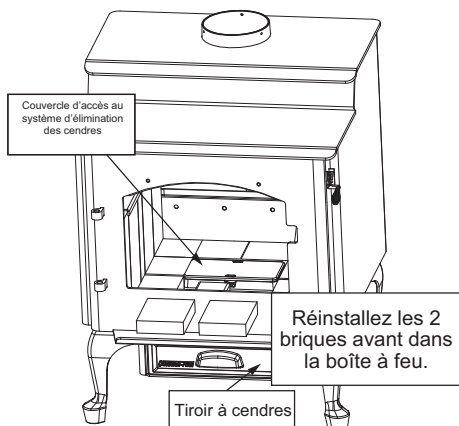


Figure 24.4

## D. Installation des pieds sur le modèle Traditional

### Installation de votre appareil Traditional sur pieds

1. Retirez les supports de pieds de l'intérieur de la boîte à feu de l'appareil.
2. Couchez le poêle sur son dos, sur une surface rembourrée ou une palette.
3. Retirez les quatre vis de l'appareil (**Figure 25.1**).
4. Installez les supports de pieds à la base de l'appareil à l'aide des quatre vis retirées à l'étape 3.

**REMARQUE :** Il y a un sens droit et gauche d'installation des pieds (**Figure 25.1**).

5. Installez six vis au bas des supports de pieds (**Figure 25.1**).
6. Attachez les pieds sur les supports de pieds et fixez à l'aide des boulons et rondelles.
7. Remettez le poêle debout en procédant avec précaution, puis placez-le à l'emplacement souhaité.
8. Vissez les boulons Allen dans les écrous jusqu'à ce qu'ils soient à égalité (**Figure 25.2**).
9. Glissez les assemblages de boulons/écrous Allen dans les fentes de deux des pieds, les écrous vers le bas (**Figure 25.3 et 25.4**).



### ATTENTION

**Ne penchez PAS le poêle sur ses pieds en fonte.**

- Cela risque de provoquer des dommages matériels.
- Mettez le poêle debout et placez-le sur la protection de sol.

**REMARQUE :** Les pieds comportant un boulons de mise à niveau doivent être aux coins opposés de l'appareil - un à l'avant et un à l'arrière (**Figure 25.1**).

10. Utilisez une clé Allen pour ajuster les pieds à la hausse ou à la baisse (**Figure 25.4**).

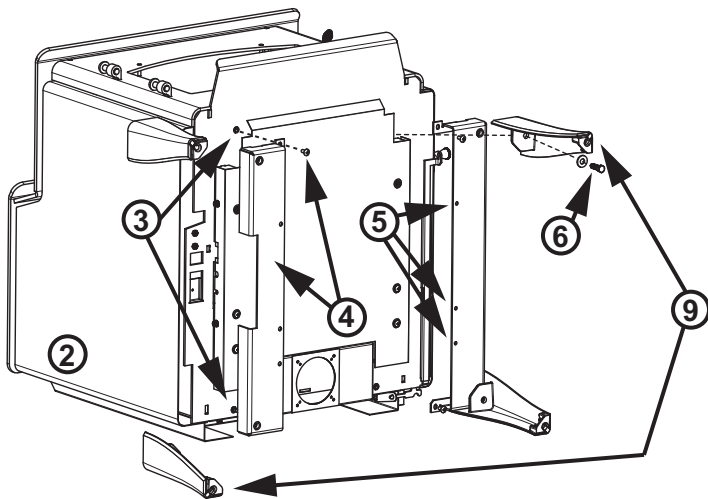


Figure 25.1



### ATTENTION!

**VÉRIFIEZ LES PANNEAUX DU DÉFLECTEUR ET LA LAINE CÉRAMIQUE ISOLANTE!**

- Vérifiez que chaque panneau de déflecteur et la laine céramique isolante sont à l'endroit approprié.
- Il est important que les panneaux de déflecteur et la laine céramique isolante soient correctement installés pour assurer un brûlage sécuritaire.

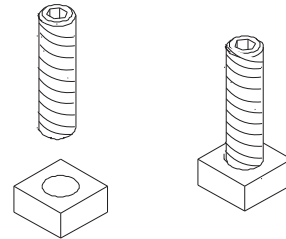


Figure 25.2

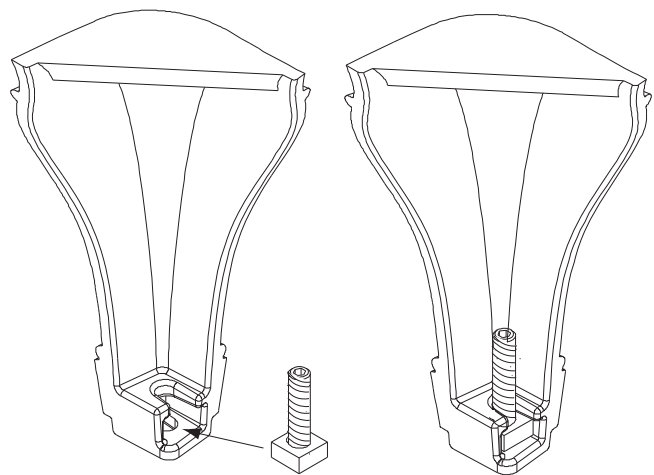


Figure 25.3

Figure 25.4

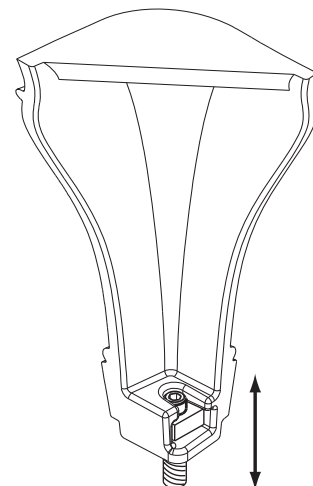


Figure 25.5



## E. Ensemble de poignée de porte

### Installation de poignée de porte:

1. Faites glisser l'arbre de la poignée de porte à travers le trou de la porte.
2. Ajoutez jusqu'à trois rondelles 3/8 à l'intérieur de la porte.

**REMARQUE :** La quantité de rondelles ajoutée va changer la façon dont la porte scelle. Vous avez souvent besoin de démonter l'assemblage de la poignée plusieurs fois pour obtenir la bonne étanchéité.

3. Ajouter une clé carrée à l'arbre de la poignée de porte; Vous devrez peut-être utiliser un maillet en caoutchouc pour vous assurer que la clé est fermement insérée dans la rainure de l'axe de la poignée de porte.
4. Faites glisser le loquet de came en fonte sur l'axe de la poignée de porte et la clé de verrouillage.

**REMARQUE :** NE PAS trop serrer l'écrou de blocage; la poignée de la porte doit bouger en douceur!

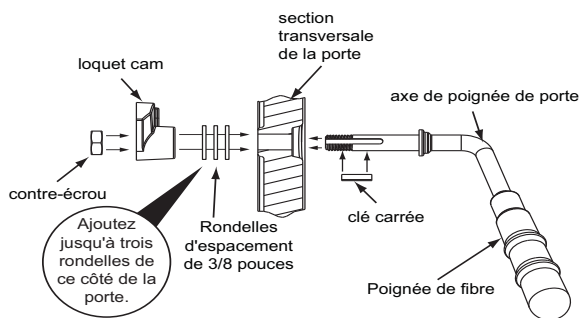


Figure 26.1

## F. Installation de l'ensemble de la prise d'air extérieur

Une source d'air (oxygène) est nécessaire à la combustion. L'air de combustion consommé par le feu doit être remplacé. Il est remplacé par l'air frais qui s'infiltré à travers les fenêtres et les portes. Dans les maisons équipées de portes et de fenêtres étanches, une prise d'air extérieur est nécessaire. Un ensemble de prise d'air extérieur en option est disponible.

### Éléments nécessaires à l'installation (non fournis)

- Tuyau flexible en aluminium de 102 mm (4 po). Si vous utilisez un autre matériau, il doit être durable, incombustible et résistant à une température de 177 °C (350 °F). Coupez le tuyau à la longueur requise pour votre installation.
- Tournevis à tête cruciforme
- Silicone pour joints
- Mèches et scies pour percer des trous dans le mur ou le sol de votre maison.

### Instructions d'installation

1. Déballiez toutes les pièces.
2. **Installation au sol et à l'arrière :**  
Percez un trou de 102 mm (4 po) dans le mur extérieur ou dans le sol pour le tuyau d'entrée de l'air extérieur. Utilisez un tuyau en aluminium flexible ou rigide de 102 mm (4 po) pour la connexion directe de l'appareil à la prise d'air extérieur. Utilisez le chapeau de l'extrémité fourni, incluant une grille anti-rongeurs. Utilisez de la silicone pour créer un joint étanche entre le mur (ou le sol) et le tuyau et empêcher l'infiltration d'humidité.



## AVERTISSEMENT



### Danger d'asphyxie.

La longueur du tuyau connecté à la prise d'air extérieur ne doit PAS dépasser la hauteur verticale du conduit de fumée.

- Sinon, le feu ne brûlera pas correctement.
- La fumée se propage dans la pièce quand la porte est ouverte, en raison du manque d'air.

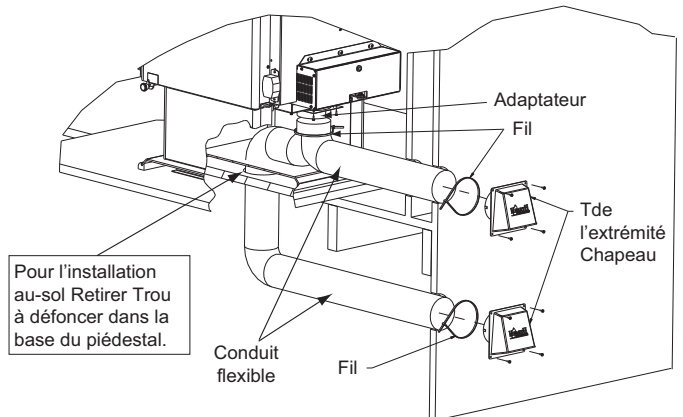


Figure 26.2



## AVERTISSEMENT



### Risque d'incendie. Danger d'asphyxie.

Ne laissez pas entrer l'air de combustion extérieur :

- D'une cavité du mur, du sol ou du plafond.
- D'un espace fermé, par exemple dans un grenier ou garage.
- Près de conduits d'évacuation ou de cheminées.



Cela risque de provoquer de la fumée ou des odeurs.



## AVERTISSEMENT



### Danger d'asphyxie.

L'entrée d'air extérieur doit être située de façon à ce qu'elle ne puisse pas être bouchée par :

- Des feuilles
- De la neige ou de la glace
- D'autres débris


Si elle est obstruée, le débit d'air de combustion risque d'être insuffisant.

Une propagation de fumée dans la maison peut déclencher les alarmes ou gêner les personnes sensibles.

## G. Ventilateur refoulant (optionnel)

1. Localisez les boulons fournis avec le ventilateur.
2. Alignez les trous de la bride de montage du ventilateur avec les trous sur l'appareil. Le ventilateur refoulant doit être placé sur le côté inférieur arrière du revêtement extérieur, comme illustré à la **figure 27.1**.
3. Remettez et serrez les boulons pour installer le ventilateur sur la paroi extérieure de l'appareil.
4. Placez le support doté du disque d'arrêt et de l'aimant sous l'angle inférieur gauche.

Voir le **Manuel du propriétaire** pour obtenir des instructions d'utilisation détaillées du ventilateur refoulant et du disque d'arrêt.



### ATTENTION

**Danger de décharge électrique.**

- N'enlevez PAS la broche de mise à terre de la fiche.
- Éloignez le cordon de l'appareil.
- Ne placez PAS le cordon sous ou devant l'appareil.
- Introduisez-le directement dans une prise à 3 broches correctement mise à terre.

## H. Réglage du contrôle de la vitesse du ventilateur refoulant

Sur ce poêle, la vitesse du ventilateur est réglée en usine et aucun autre réglage n'est généralement nécessaire.

1. Alors que l'appareil est sous tension, tournez la commande de vitesse sur vitesse lente (à fond dans le sens des aiguilles d'une montre).
2. Réglez la vitesse du ventilateur de convection en introduisant un tournevis dans le trou sur la face latérale de la commande de vitesse.
3. Réglez la vitesse de façon à ce que le ventilateur de convection tourne lentement, mais sans s'arrêter. Tournez dans le sens des aiguilles d'une montre pour ralentir le ventilateur de convection, dans le sens contraire aux aiguilles d'une montre pour l'accélérer.

**REMARQUE :** Lorsque le contrôle de la vitesse est tourné dans le sens horaire, il va cliquer sur haute vitesse. Continuer à tourner le contrôle de la vitesse des aiguilles d'une montre pour diminuer la vitesse. Au complet dans le sens horaire, le ventilateur doit souffler doucement, mais ne devrait pas s'arrêter.

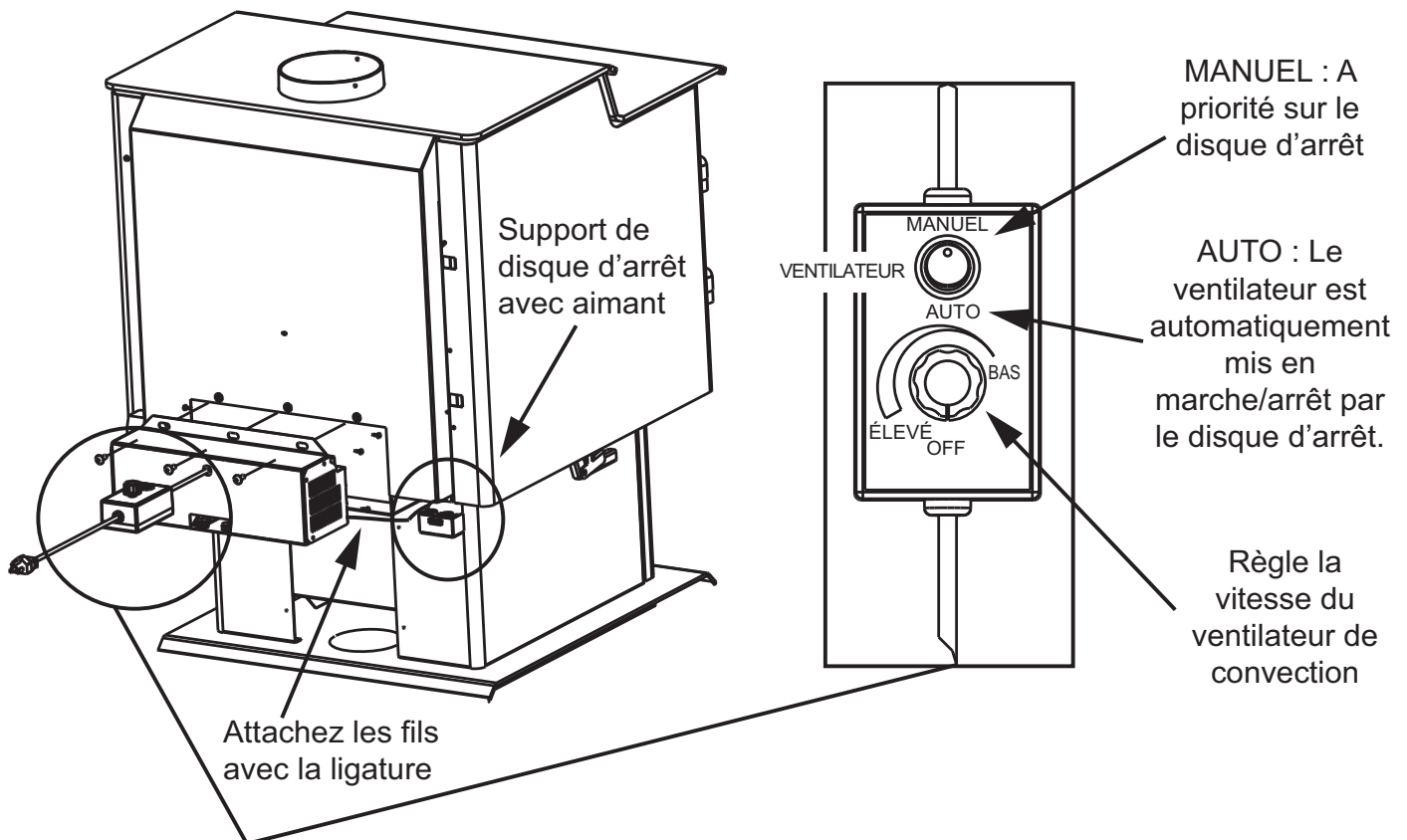


Figure 27.1

## 6 Installation dans une maison mobile

**Vous devez utiliser l'ensemble de prise d'air extérieur OAK-ACC, disponible chez votre détaillant, pour une installation dans une maison mobile.**

1. Vous devez installer une prise d'air extérieur.
2. L'appareil doit être arrimé à la structure de la maison mobile au moyen de boulons aux pieds ou au sol par le piédestal.
3. L'appareil doit être mis à la terre au moyen d'un fil de cuivre plein de no 8 ou équivalent dont les extrémités sont pourvues de connexions de mise à la terre NEC approuvées.
4. L'appareil doit être raccordé à un carneau avec évent **UL103 HT** et une cheminée **UL103 HT** approuvés; le chapeau de l'extrémité de cheminée doit être doté d'un pare-étincelles. N'utilisez jamais un carneau (tuyau de l'appareil) à paroi simple dans une maison mobile. N'utilisez que des conduits à double paroi type Dura-Vent DVL, Selkirk Metalbestos DS, Security DL, ou tout autre carneau à double paroi homologué.
5. Au Canada, l'appareil doit être connecté à une cheminée préfabriquée de 152 mm (6 po) conforme à la **NORME CAN/ULC-629M POUR CHEMINÉES PRÉFABRIQUÉES**.
6. Suivez les instructions du fabricant de la cheminée et du carneau quand vous installez des conduits de fumée dans une maison mobile.
7. Respectez les dégagements définis pour les matériaux inflammables.
8. Respectez rigoureusement les exigences de protection du sol.
9. Utilisez du silicone pour créer une barrière pare-vapeur efficace aux endroits où la cheminée ou les autres composants pénètrent l'extérieur de la structure.

**REMARQUE :** Des dévoiements dont l'angle avec la verticale ne dépasse pas 45° sont autorisés en vertu de la **section 905(a) de la norme UMC (Uniform Mechanical Code)**. Les dévoiements supérieurs à 45° sont considérés comme horizontaux et sont permis tant que la longueur horizontale ne dépasse pas 75 % de la longueur verticale du conduit. La construction, les dégagements et le chapeau de l'extrémité doivent être en conformité avec le **tableau 9C de la norme UMC**. Cette installation doit également être en conformité avec **NFPA 211**.

**REMARQUE :** Les sections supérieures de la cheminée doivent être démontables pour que la hauteur depuis le sol ne dépasse pas 4,11 m (13,5 pi) lors du transport.

10. Ne brûlez que des cordes de bois séché. Les autres combustibles risquent de provoquer l'émission de gaz toxiques (par exemple du gaz carbonique).
11. Si l'appareil brûle mal quand un ventilateur de tirage fonctionne dans la maison (par exemple, celui d'une hotte de cuisinière), augmentez l'air de combustion.
12. L'installation doit être en conformité avec les **Normes de construction et de sécurité pour maisons mobiles (HUD) CRF 3280, partie 24**.



### ATTENTION

L'INTÉGRITÉ DE LA STRUCTURE DU PLANCHER, DES MURS ET DU PLAFOND/TOITURE DE LA MAISON MOBILE DOIT ÊTRE MAINTENUE.

**Ne coupez PAS à travers :**

- Les solives du sol, les montants des murs ou les entretoises du plafond.
- Les matériaux de soutien susceptibles d'affaiblir l'intégrité structurelle.



### AVERTISSEMENT



**Danger d'asphyxie.**

**NE JAMAIS INSTALLER DANS UNE CHAMBRE À COUCHER.**

Consommation de l'oxygène présent dans la pièce.



### AVERTISSEMENT



**Risque d'incendie.**

Ne Pas utiliser seul mur tuyau de raccordement n'importe où dans une installation dans une maison mobile.







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Pour obtenir le numéro de téléphone du distributeur Quadra-Fire le plus proche,  
connectez-vous à [www.quadrafire.com](http://www.quadrafire.com)**



## ATTENTION



### NE PAS JETER CE MANUEL

- Il contient d'importantes instructions d'utilisation et de maintenance.
- Assurez-vous de lire, comprendre et respecter ces instructions pour garantir une installation et un fonctionnement sûrs.
- Ce manuel doit être confié aux personnes responsables de l'utilisation et du fonctionnement.



### Nous vous recommandons de noter les informations pertinentes suivantes concernant votre appareil.

Date d'achat/installation : \_\_\_\_\_

Numéro de série : \_\_\_\_\_

Emplacement sur l'appareil : \_\_\_\_\_

Fournisseur du produit : \_\_\_\_\_

Numéro de téléphone du fournisseur : 1(     ) - \_\_\_\_\_

Remarques : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ce produit peut être couvert par l'un ou l'autre des brevets suivants : (États-Unis) 5341794, 5263471, 6688302, 7216645, 7047962 ou autres brevets américains et étrangers en attente.

  
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# Manuel du propriétaire

## Entretien et utilisation

**INSTALLATEUR :** Ce manuel doit être confié aux personnes responsables de l'utilisation et du fonctionnement de l'appareil.  
**PROPRIÉTAIRE :** Conservez ce manuel à titre de référence.

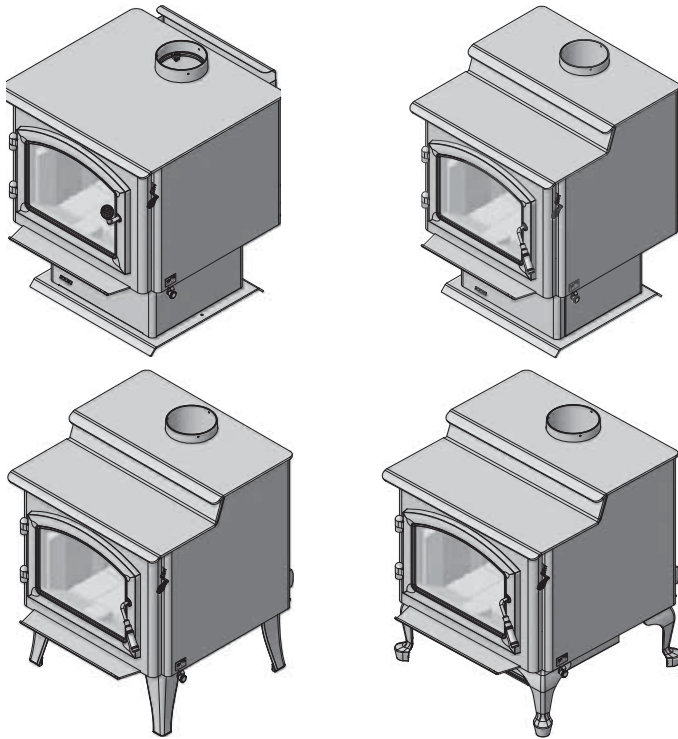
Communiquez avec votre détaillant pour les questions concernant l'installation, l'utilisation, ou l'entretien.

AVIS : NE PAS JETER CE MANUEL

# QUADRA-FIRE®

APPAREIL AU BOIS SÉRIE 4300  
CONTRÔLE AUTOMATIQUE DE LA  
COMBUSTION (ACC)

MODÈLE :  
43M-ACC-C  
43ST-ACC-C



Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



### AVERTISSEMENT



Le non-respect de ces instructions peut entraîner des dommages matériels, des blessures, voire la mort.

- Ne pas entreposer ni utiliser de l'essence ou d'autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil électrique.
- Ne chauffez pas excessivement – Si l'appareil de chauffage ou le carneau devient rouge, le feu est trop intense. Un chauffage excessif annulera votre garantie.
- Respectez les dégagements spécifiés pour les matériaux inflammables. Le non-respect de ces consignes peut déclencher un incendie.



### AVERTISSEMENT



#### SURFACES CHAUDES !

La vitre et les autres surfaces sont chaudes pendant l'utilisation ET le refroidissement.

**La vitre chaude peut provoquer des brûlures.**

- Ne pas toucher la vitre avant qu'elle ne soit refroidie.
- Ne laissez JAMAIS les enfants toucher la vitre.
- Éloignez les enfants.
- SURVEILLEZ ATTENTIVEMENT les enfants présents dans la pièce où le foyer est installé.
- Avertissez les enfants et les adultes des dangers associés aux températures élevées.
- **La température élevée peut enflammer les vêtements ou d'autres matériaux inflammables.**
- Éloignez les vêtements, meubles, rideaux ou autres matières inflammables.



### AVERTISSEMENT



#### Risque d'incendie.

À n'utiliser qu'avec des combustibles solides à base de bois.

Les autres combustibles risquent de provoquer des feux incontrôlables et d'émettre des gaz toxiques (par exemple, du monoxyde de carbone).

**NOTE :** To obtain a English translation of this manual, please contact your dealer or visit [www.quadrafire.com](http://www.quadrafire.com)

**REMARQUE :** Pour obtenir une traduction anglaise de ce manuel, veuillez contacter votre revendeur ou visitez [www.quadrafire.com](http://www.quadrafire.com)





**Définition des avertissements de sécurité :**

- **DANGER!** Indique une situation dangereuse qui entraînera la mort ou des blessures graves si elle n'est pas évitée.
- **AVERTISSEMENT!** Indique une situation dangereuse pouvant entraîner la mort ou des blessures graves si elle n'est pas évitée.
- **ATTENTION!** Indique une situation dangereuse pouvant provoquer des blessures mineures ou modérées si elle n'est pas évitée.
- **AVIS :** Désigne des actions pouvant endommager l'appareil ou d'autres biens matériels.

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## B. Politique de garantie

### Hearth & Home Technologies GARANTIE À VIE LIMITÉE

Hearth & Home Technologies, au nom de ses marques (« HHT »), étend la garantie suivante aux appareils HHT au gaz, bois, granulés, et électrique achetés d'un détaillant HHT autorisé.

#### COUVERTURE DE LA GARANTIE :

HHT garantit au propriétaire d'origine de l'appareil, sur le site d'installation d'origine, ainsi qu'à tout cessionnaire devenant le propriétaire de l'appareil sur le site d'installation d'origine dans les deux ans suivant la date originale d'achat, que l'appareil HHT est sans défauts de matériau et de fabrication au moment de sa confection. Si après son installation, des composants fabriqués par HHT et couverts par la garantie présentent des défauts de matériau ou de fabrication avant l'échéance de la garantie, HHT réparera ou remplacera, à son gré, les composants couverts. HHT peut, à son gré, se libérer de toute obligation découlant de la garantie en remplaçant le produit lui-même ou en remboursant le prix d'achat vérifié du produit. Le montant maximum remboursé en vertu de cette garantie est le prix d'achat du produit. Cette garantie est soumise aux conditions, exclusions et restrictions décrites ci-dessous.

#### PÉRIODE DE GARANTIE :

La période de garantie du consommateur entre en vigueur à la date d'installation. Dans le cas d'une maison neuve, la garantie entre en vigueur à la date de la première occupation de la maison ou six mois après la vente du produit par un détaillant/distributeur HHT indépendant autorisé, selon ce qui survient en premier. Cependant, la garantie entre en vigueur au plus tard 24 mois après la date d'expédition du produit de chez HHT, quelle que soit la date d'installation ou d'occupation. La période de garantie couvrant les pièces et la main-d'œuvre pour les composants concernés figure dans le tableau suivant.

Le terme « durée de vie limitée » dans le tableau ci-dessous est défini comme suit : 20 ans à compter de l'entrée en vigueur de la couverture de la garantie pour les appareils au gaz et 10 ans pour les appareils au bois et à granulés. Ces périodes reflètent les durées de vie utile minimum attendues des composants concernés, dans des conditions de fonctionnement normales.

Période de garantie	Appareils et conduits d'évacuation fabriqués par HHT							
	Pièces	Main-d'œuvre	Gaz	Granulés	Bois	Électrique	Évacuation des gaz	Composants couverts
1 an			X	X	X	X	X	Toutes les pièces et le matériel, à l'exclusion de ceux figurant dans les conditions, exclusions et limitations.
2 ans				X	X			Allumeurs, moteurs de vis sans fin, composants électroniques et vitre
			X	X	X			Ventilateurs refoulant installés en usine
					X			Panneaux réfractaires moulés
		X						Module d'allumage
3 ans				X			Assemblages du creuset de combustion, pots de combustion, dispositif d'alimentation mécanique/vis sans fin	
5 ans	1 an		X					Brûleurs non raccordés, bûches en fibre de céramique non raccordées, brûleurs aluminés
				X	X			Pièces moulées et déflecteurs
6 ans	3 ans				X		Catalyseur - restrictions indiquées	
7 ans	3 ans			X	X		Tubes collecteurs, cheminée et extrémité HHT	
10 ans	1 an		X				Brûleurs, bûches et briques réfractaires	
À vie limitée	3 ans		X	X	X		Boîte à feu et échangeur de chaleur, grille et brûleurs en acier inoxydable, système FlexBurn® (moteur, couvercle intérieur, couvercle d'accès et contre-feu)	

**CONDITIONS DE LA GARANTIE :**

- La garantie ne couvre que les appareils HHT achetés chez un détaillant ou distributeur HHT autorisé. Une liste des détaillants HHT approuvés est disponible sur les sites Web des produits HHT.
- Cette garantie n'est valable que si l'appareil HHT demeure sur le site d'installation d'origine.
- Cette garantie n'est valide que dans le pays où réside le détaillant ou distributeur autorisé HHT qui a vendu l'appareil.
- Contactez le détaillant qui a effectué l'installation pour les réparations sous garantie. Si le détaillant ou le distributeur qui a effectué l'installation est incapable de fournir les pièces nécessaires, contactez le détaillant ou fournisseur HHT autorisé le plus près. Des frais de réparation supplémentaires peuvent être applicables si la réparation sous garantie est effectuée par un autre détaillant que celui qui vous a fourni le produit à l'origine.
- Contactez à l'avance votre détaillant pour savoir si la réparation sous garantie entraînera des coûts. Les frais de déplacement et les frais d'expédition des pièces ne sont pas couverts par cette garantie.
- Garantie limitée du catalyseur
  - o o pour les produits de brûlage au bois comportant un catalyseur, le catalyseur sera garanti comme suit, pendant une période de 6 ans : si le catalyseur original ou un catalyseur de remplacement s'avérait défectueux ou cessait de maintenir 70 % de son activité de réduction de particules (tel que mesuré par une procédure d'essai approuvé) au cours des 36 mois qui suivent la date d'achat, le catalyseur sera remplacé gratuitement.
  - o o entre 37 et 72 mois, un crédit au prorata sera remis pour le remplacement d'un catalyseur et un crédit pour la main-d'œuvre nécessaire à installer le catalyseur de remplacement. Le taux de proportion est calculé ainsi :

Temps total écoulé depuis l'achat	Crédit remis pour le coût de remplacement
0 à 36 mois	100 %
37 à 48 mois	30 %
49 à 60 mois	20 %
61 à 72 mois	10 %

- o o tout remplacement du catalyseur sera garanti sous les modalités de la garantie du catalyseur, pour le reste de la période de la garantie originale. L'acheteur doit fournir le nom, l'adresse et le numéro de téléphone du lieu où le produit est installé, la preuve de la date originale d'achat, la date du bris, et toute information pertinente au défaut du catalyseur.

**EXCLUSIONS DE LA GARANTIE :**

Cette garantie ne couvre pas ce qui suit :

- Modification au fini de la surface résultant d'une utilisation normale. Comme il s'agit d'un appareil de chauffage, une légère modification de la couleur et de l'état des surfaces intérieures et extérieures est possible. Il ne s'agit pas d'un défaut et cela n'est pas couvert par la garantie.
- La détérioration des surfaces imprimées, plaquées ou émaillées en raison des marques de doigts, accidents, abus, égratignures, pièces qui ont fondu ou autres causes externes, ainsi que les résidus laissés sur les surfaces en raison de l'utilisation de nettoyeurs ou produits à polir abrasifs.
- La réparation ou le remplacement des pièces soumises à une usure normale pendant la période de garantie ne sont pas couverts. Ces pièces comprennent : peinture, joints d'étanchéité bois et granulés, briques réfractaires, grilles, guide de flammes, piles et décoloration de la vitre.
- Expansion, contraction ou déplacements mineurs de certaines pièces qui provoquent du bruit. Ces conditions sont normales et les réclamations liées à ce bruit ne sont pas couvertes.
- Dommages causés par : (1) l'installation, l'utilisation ou la maintenance de l'appareil sans tenir compte des instructions d'installation et d'utilisation, et sans consultation de l'étiquette d'identification de l'agent homologué; (2) le non-respect des codes du bâtiment locaux pendant l'installation de l'appareil; (3) l'expédition ou la mauvaise manutention; (4) la mauvaise utilisation, l'abus, l'utilisation continue avec des composants endommagés, corrodés ou défectueux, l'utilisation après un accident, les réparations négligentes/incorrectes; (5) les conditions liées à l'environnement, une mauvaise ventilation, une pression négative ou un mauvais tirage en raison de l'étanchéité de la construction, l'admission insuffisante d'air d'appoint ou d'autres dispositifs tels que des ventilateurs de tirage, des générateurs d'air chaud à air pulsé ou toute autre cause; (6) l'utilisation de combustibles autres que ceux mentionnés dans les instructions d'utilisation; (7) l'installation ou l'utilisation de composants qui n'ont pas été fournis avec l'appareil ou de tout autres composants qui n'ont pas été expressément autorisés et approuvés par HHT; (8) les modifications de l'appareil qui n'ont pas été expressément autorisées et approuvées par écrit par HHT; et/ou (9) les interruptions ou fluctuations de l'alimentation électrique de l'appareil.
- Composants d'évacuation des gaz, connecteurs d'âtre ou accessoires utilisés avec l'appareil qui n'ont pas été fournis par HHT.
- Toute partie d'un système de foyer préexistant où un foyer encastré ou un appareil décoratif au gaz a été installé.
- Les obligations de HHT, en vertu de cette garantie, ne couvrent pas la capacité de l'appareil à chauffer l'espace souhaité. Des informations sont fournies pour aider le consommateur et le détaillant lors de la sélection de l'appareil adéquat pour l'application envisagée. On doit tenir compte de l'emplacement et de la configuration de l'appareil, des conditions liées à l'environnement, de l'isolation et de l'étanchéité de la structure.

**Cette garantie est nulle si:**

- L'appareil a été tiré, exploités en atmosphères contaminées par le chlore, le fluor ou d'autres produits chimiques nocifs. La surcuisson peut être identifiée par, mais non limité à, déformé de plaques ou de tubes, déformation déformation de l'intérieur de la structure de fonte ou de composants, de couleur rouille en fonte, des bulles, la fissuration et à la décoloration de l'acier ou de l'émail de finition.
- L'appareil est soumis à de longues périodes de l'humidité ou de la condensation.
- Il y a des dommages à l'appareil ou d'autres composants à cause de l'eau ou de dommages causés par des intempéries qui est le résultat d', mais non limité à, une mauvaise de la cheminée ou de ventilation de l'installation.

**LES LIMITATIONS DE RESPONSABILITÉ**

- Le propriétaire exclusif de recours et de VRD de la seule obligation en vertu de cette garantie, en vertu de toute autre garantie, expresse ou implicite, ou d'un contrat, d'un délit ou autre, doit être limitée au remplacement, à la réparation ou au remboursement, comme spécifique ci-dessus. En aucun cas, VRD être tenu pour responsable des dommages directs ou indirects causés par des défauts de l'appareil. Certains états n'autorisent pas l'exclusion ou la limitation des dommages accessoires ou consécutifs, de sorte que ces limitations peuvent ne pas s'appliquer à vous. Cette garantie vous donne des droits spécifiques; vous pouvez également avoir d'autres droits qui varient d'état à état. SAUF DANS LA MESURE PRÉVUE PAR LA LOI, VRD NE FAIT AUCUNE GARANTIE EXPRESSE AUTRE QUE LA GARANTIE SPÉCIFIÉE CI-APRÈS. LA DURÉE DE TOUTE GARANTIE IMPLICITE EST LIMITÉE À LA DURÉE DE LA GARANTIE EXPRESSE INDIQUÉE CI-DESSUS.

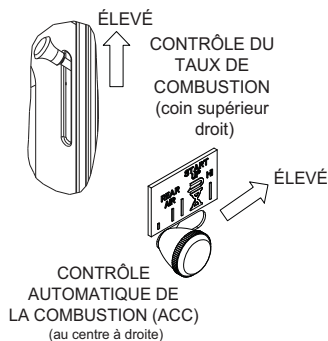
C. Guide de démarrage rapide

**REMARQUE :** Ce sont des dessins génériques et peuvent ne pas représenter votre modèle spécifique.

**ÉLÉMENTS NÉCESSAIRES  
POUR LE PREMIER FEU :**

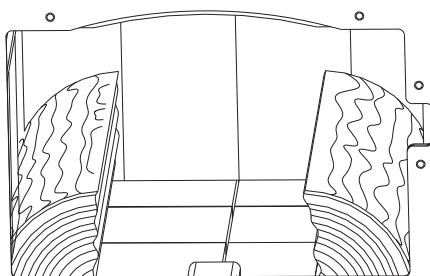
10 morceaux de journal, 10 à 20 morceaux de petit bois sec d'allumage et quelques morceaux de bois bien séchés.

**OUVREZ LES  
ENTRÉES D'AIR**



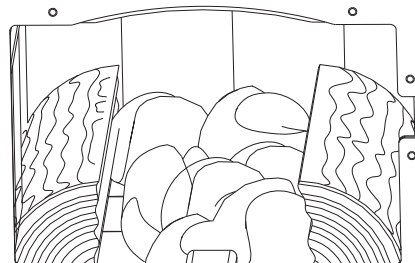
**1**

**AJOUTEZ DU BOIS**



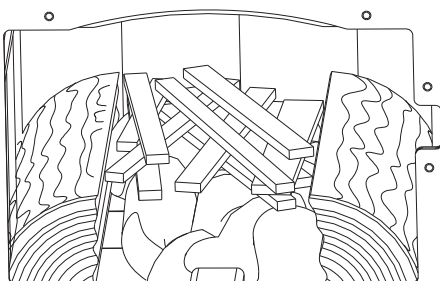
**2**

**AJOUTEZ DU JOURNAL**



**3**

**AJOUTEZ DU PETIT BOIS**



**ALLUME LE PAPIER**

**4**

**AVERTISSEMENT!  
Risque d'incendie**

Fermez et verrouillez la porte de manière sécuritaire une fois le feu allumé, et après le remplissage, pour éviter :

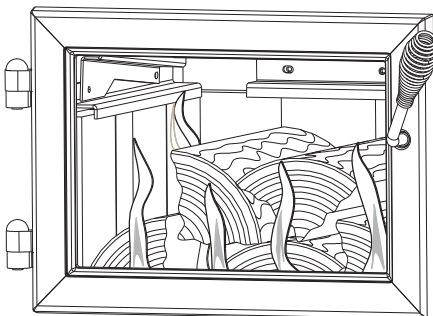
- La propagation de fumée, de flammes et de monoxyde de carbone
- La propagation d'étincelles, de charbons et de bûches
- Les feux incontrôlés

NE PAS laisser le poêle sans surveillance avec la porte ouverte.

Allumer un feu peut ne pas nécessiter de laisser la porte ouverte pour assurer un tirage. L'entrée d'air doit approvisionner un tirage suffisant.

**5**

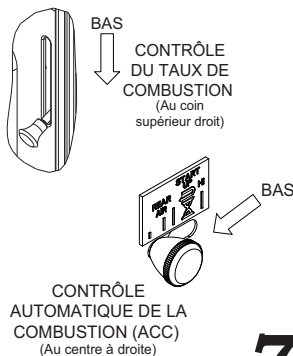
**AJOUTEZ PLUS DE BOIS**



**6**

**RÉDUISEZ LE CONTRÔLE  
D'AIR**

Réglez à la sortie de chaleur désirée



**7**

**Le poêle est  
prêt à fonctionner  
normalement.**

# 1 Homologations et codes approuvés

## A. Certification de l'appareil

<b>Modèle :</b>	Millennium 4300 monobloc à dessus étagé (ACC)
<b>Laboratoire De La Sécurité :</b>	OMNI Test Laboratories, Inc.
<b>N° et date du rapport :</b>	061-S-67-6
<b>Type :</b>	CHAUFFAGE D'AMBIANCE HOMOLOGUÉ À COMBUSTIBLE SOLIDE.
<b>Norme :</b>	UL1482, ULC S627-00 et (UM) 84-HUD, approuvé pour les maisons mobiles.

## B. Puissance calorifique et rendement

<b>N° de certification EPA :</b>	Numéro: N/A
<b>EPA, Émissions certifiées :</b>	1.6 gramme par heure
<b>*PCI, Efficacité testée :</b>	80,2 %
<b>**PCS, Efficacité testée :</b>	74,2 %
<b>***EPA, Sortie en BTU :</b>	de 13 200 à 36 800 BTU/h
<b>****Pointe d'émission de BTU/heure :</b>	61 700
<b>Taille du conduit :</b>	152 mm (6 po)
<b>Taille de la boîte à feu :</b>	0,06 m <sup>3</sup> (2,26 pi <sup>3</sup> )
<b>Recommandé Longueur De Bûches :</b>	457 mm (18 po)
<b>Combustible :</b>	Avec Bois de corde sec (20% d'humidité)
*Moyenne pondérée du PCI (Faible Valeur calorifique) l'efficacité de l'aide de Sapin de Douglas de bois de dimensions et données collectées au cours de l'EPA test d'émission. PCI suppose que l'humidité est déjà dans un état de vapeur, donc il n'y a pas de perte d'énergie pour vaporiser.	
**Moyenne pondérée HHV (Haut pouvoir calorifique) l'efficacité de l'aide de Sapin de Douglas de bois de dimensions et données collectées au cours de l'EPA test d'émission. HHV comprend la quantité d'énergie nécessaire pour vaporiser l'eau dans le carburant.	
***Une gamme de BTU sorties calculée à l'aide de l'HHV l'Efficacité et le taux de brûlures de l'APE tests à l'aide de Sapin de Douglas de bois de dimensions.	
****Un pic BTU hors de l'appareil calculé en utilisant le maximum de la première heure du taux de combustion du Haut de Test EPA et de BTU contenu de assaisonnée bois (8600) fois l'efficacité.	

Cette Série 4300 est Certifié  
conforme à 2020 crèche en bois  
d'émissions de particules des normes.



Cet appareil à bois doit être inspecté et réparé périodiquement pour un bon fonctionnement. Consultez le manuel du propriétaire pour de plus amples informations. Il est contraire aux règlements fédéraux d'utiliser ce chauffe-bois d'une manière incompatible avec les instructions d'utilisation du manuel du propriétaire.

**REMARQUE :** Cette installation doit être conforme aux codes locaux. En l'absence de codes locaux, vous devez être en conformité avec les codes d'installation **UL1482-07, (UM) 84-HUD et NFPA211 aux États-Unis et les codes ULC S627-00 et CAN/CSA-B365 au Canada.**

**C. Spécifications de la porte vitrée**

Cet appareil comporte une porte vitrée en vitrocéramique de 5 mm d'épaisseur. N'utilisez que des vitres en vitrocéramique de 5 mm pour remplacer une vitre endommagée. Veuillez contacter votre détaillant si vous devez remplacer la vitre.

**D. Approuvé pour les maisons mobiles**

- Cet appareil peut être installé dans les maisons mobiles, à l'exclusion de la chambre à coucher, à condition qu'une prise d'air extérieure de combustion ait été installée.
- L'intégrité de la structure du sol, des murs et du plafond de la maison mobile doit être maintenue.
- L'appareil doit être correctement fixé à la charpente de la maison mobile avec un fil de mise à terre en cuivre n° 8, et la cheminée doit être homologuée UL103 HT ou un conduit homologué UL-1777 de 15 cm (6 po) de diamètre doit être utilisé sur toute la longueur.
- L'ensemble de prise d'air extérieur, n° de pièce OAK-ACC, doit être installé en cas d'utilisation dans une maison mobile.

**E. Chambre à coucher**

Lorsqu'il est installé dans une chambre à coucher, il est recommandé d'installer un avertisseur de fumée et / ou de monoxyde de carbone dans la chambre à coucher. La taille de la pièce doit être d'au moins 50 pi<sup>3</sup> par 1 000 Btu / heure d'entrée du poêle, si le poêle dépasse la taille de la pièce, l'air doit être installé.

**F. Californie - Prop65****ATTENTION**

Ce produit et les carburants utilisés pour faire fonctionner ce produit (bois), ainsi que les produits de combustion de ces carburants, peuvent vous exposer à des produits chimiques tels que le noir de carbone, connu par l'État de Californie pour causer le cancer, et le monoxyde de carbone connu de l'État de Californie pour provoquer des malformations congénitales ou d'autres problèmes de reproduction. Pour plus d'informations, visitez:  
[WWW.P65Warnings.ca.gov](http://WWW.P65Warnings.ca.gov)

**AVERTISSEMENT****Risque d'incendie.**

Hearth & Home Technologies décline toute responsabilité et annulera la garantie dans les cas suivants :

- Installation et utilisation d'un appareil endommagé.
- Modification de l'appareil.
- Non-respect des instructions d'installation de Hearth & Home Technologies.
- Installation ou utilisation de composants non autorisés par Hearth & Home Technologies.
- Utilisation de l'appareil sans tous les composants installés.
- Utilisation de l'appareil sans les pieds (si fournis avec l'appareil).
- **Ne surchauffez PAS** – si l'appareil ou le carneau devient rouge, le feu est trop intense.

Les installations, réglages, modifications, entretiens ou maintenances inadéquats peuvent provoquer des blessures et des dommages matériels.

Pour obtenir une assistance ou des renseignements supplémentaires, consultez un installateur, un réparateur qualifié ou votre fournisseur.



**REMARQUE** : Le fabricant de cet appareil, Hearth & Home Technologies, se réserve le droit de modifier sans préavis ses produits, leurs spécifications ou leurs prix.



# Guide de l'utilisateur

## 2 Instructions d'utilisation

### A. Surchauffe de votre appareil

	<b>AVERTISSEMENT</b>
	<p><b>Risque d'incendie</b> Ne surchauffez pas. La surchauffe peut enflammer la créosote ou peut endommager l'APPAREIL et la cheminée.</p>
	<p>Pour éviter de surchauffer votre appareil, <b>NE PAS :</b></p> <ul style="list-style-type: none"> <li>• Utiliser de liquides inflammables</li> <li>• Trop remplir de bois</li> <li>• Brûler des déchets ou de grandes quantités de bois de rebut</li> <li>• Laisser trop d'air pénétrer dans le feu</li> </ul>

Visitez [www.quadrafire.com/shopping-tools/videos](http://www.quadrafire.com/shopping-tools/videos) pour voir les vidéos sur les produits et l'utilisation et les soins.

#### 1. Symptôme de la surchauffe

Un ou plusieurs des symptômes suivants peuvent indiquer une surchauffe du foyer :

- Le carneau ou l'appareil sont incandescents
- Des bruits de rugissement ou de grondement
- Des forts bruits de craquelure ou de claquement
- Le gauchissement du métal
- Un feu de cheminée

#### 2. Que faire si votre appareil surchauffe

- Fermez immédiatement la porte et les entrées d'air pour réduire l'alimentation en air du feu.
- Si vous soupçonnez un feu dans la cheminée, appelez les pompiers et évacuez votre maison.
- Contactez votre professionnel local d'entretien de la cheminée et faites inspecter votre appareil et votre cheminée pour tout dommage.
- N'utilisez pas votre appareil tant qu'il n'a pas été inspecté par un professionnel de l'entretien de cheminée.

Hearth & Home Technologies NE GARANTIRA PAS les appareils qui présentent des preuves de surchauffe. La preuve d'une surchauffe du foyer peut en outre comprendre :

- Gauchissement du conduit d'air
- Attaches de brique réfractaire détériorés
- Déфлекteur et autres composants intérieurs détériorés

### B. Sélection et entreposage du bois

Ne brûlez que du bois sec. Stockez le bois à l'abri de la pluie et de la neige. Le bois sec réduit non seulement la formation de créosote, mais il brûle aussi plus efficacement que le bois vert. Même le bois sec contient au minimum 15 % d'humidité. Il faut donc qu'il puisse brûler à une température suffisamment élevée pour que la cheminée reste chaude jusqu'à l'évaporation complète de l'humidité, à savoir environ une heure. Brûler du bois vert est un gaspillage d'énergie.

Le bois mort tombé des arbres doit être considéré comme étant mouillé et doit donc être séché. On peut considérer le bois mort encore sur les arbres comme sec à 66 %. Pour savoir si le bois est assez sec pour être brûlé, contrôlez les extrémités des bûches. Si elles sont fendues de toutes parts, elles sont sèches. Si votre bois grésille quand il brûle, il pourrait ne pas être entièrement sec, même si sa surface est sèche.

Fendre le bois avant de l'entreposer accélère son séchage. Le bois doit être empilé de façon à ce que les deux extrémités de chaque bûche soient exposées à l'air. Le séchage est alors plus rapide. Cela est vrai même si le bois a été fendu. Entreposez le bois de façon à ce qu'il soit couvert, par exemple dans une remise ou sous une bâche, un plastic, du papier goudronné, des panneaux de contreplaqué usés, etc., car le bois peut autrement absorber l'eau de pluie ou la neige fondue, ce qui retarde son séchage.

### C. Processus de combustion

Depuis quelques années, les gens s'intéressent de plus en plus à la qualité de l'air. L'une des principales causes de la mauvaise qualité de l'air est attribuée au chauffage au bois. Pour améliorer la situation, nous avons développé chez Quadra-Fire des poêles à bois plus propres, dépassant même les exigences établies par nos agences gouvernementales sur les émissions polluantes. Ces appareils au bois, tout comme les autres appareils, doivent être utilisés correctement pour procurer des performances optimales. L'utilisation inadéquate peut transformer n'importe quel appareil au bois en une menace pour l'environnement.

#### 1. Embrassement ou première étape

Il est bon de connaître un peu le processus de combustion pour comprendre ce qui se passe à l'intérieur d'un appareil. La première étape de la combustion est l'embrassement. Pendant cette étape, le bois est chauffé à une température suffisante pour que l'humidité s'en évapore. Le bois atteint la température d'ébullition de l'eau de 100 °C (212 °F) et reste à cette température jusqu'à ce que toute l'eau se soit évaporée. Ce processus capte la chaleur des briquettes et a tendance à refroidir l'appareil.

Le feu a besoin de trois ingrédients – du combustible, de l'air et de la chaleur. Par conséquent, si l'appareil est privé de chaleur pendant le séchage, il a moins de chances de produire une combustion propre et efficace. Pour cette raison, il est toujours préférable de brûler du bois sec. Si le bois n'est pas sec, vous devez ouvrir l'arrivée d'air et régler le poêle sur une position de combustion plus rapide pendant plus longtemps pour démarrer la combustion. La chaleur produite par le feu doit chauffer votre maison et créer un bon triage, au lieu d'être gaspillée pour le séchage du bois vert.

## 2. Deuxième étape

Pendant l'étape suivante de la combustion, le bois émet des gaz inflammables qui brûlent au-dessus du combustible en produisant des flammes intenses. Il est très important que les flammes ne s'éteignent pas pendant cette étape.

Ceci garantira un feu aussi propre que possible. Si les flammes s'éteignent, le taux de combustion est réglé à un niveau trop bas pour entretenir la combustion. Le réglage d'air situé dans l'angle supérieur droit sert à régler le taux de combustion. Il est appelé réglage de l'air de combustion (Figure 11.1).

## 3. Étape finale

L'étape finale est la combustion du charbon. Cela se produit quand pratiquement tous les gaz inflammables ont été brûlés et que seul le charbon reste. Il s'agit de la phase de combustion la plus propre. Le charbon brûle en produisant des flammes d'un bleu chaud.

Il est très important de recharger l'appareil alors qu'il contient encore assez de charbon chaud pour fournir la chaleur nécessaire au séchage et rallumage de la nouvelle charge de bois. Il est préférable d'ouvrir le réglage de l'air de combustion et à l'allumage avant de remettre du bois dans le poêle. Cela ravive le lit de charbon et diminue les émissions excessives (opacité/fumée). Ouvrez lentement la porte de l'appareil pour que les cendres et la fumée ne s'échappent pas. Cassez les grands morceaux et répartissez le charbon pour que le nouveau bois repose sur du charbon chaud.

Nous sommes tous soucieux de la qualité de l'air et, si nous voulons chauffer nos maisons au bois, nous devons le faire de façon responsable. Ainsi, vous devez apprendre comment utiliser votre appareil de la manière la plus propre et efficace possible. Ceci vous permettra de profiter de votre appareil au bois pendant de nombreuses années.

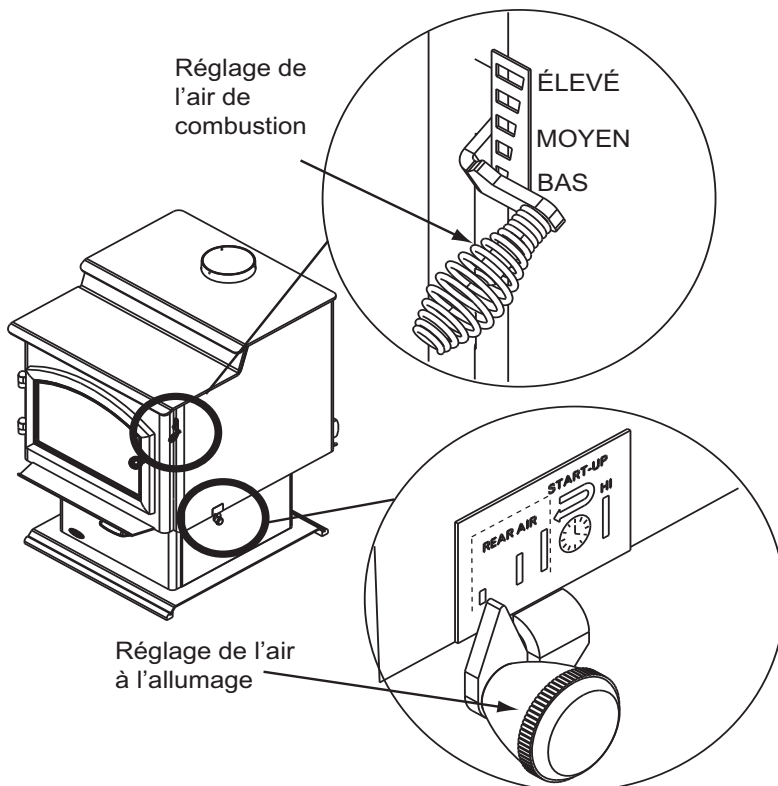


Figure 11.1

## D. Contrôles de l'air

Les utilisateurs devront découvrir leurs réglages préférés (entre élevé et bas) en fonction de la chaleur souhaitée, de la configuration de l'installation et du genre de combustible.

### 1. Réglage de l'air de combustion

Cette admission d'air est située en haut sur l'avant de la boîte à feu, près du bord supérieur de la porte vitrée. Cet air préchauffé fournit l'oxygène nécessaire au mélange des gaz non brûlés pour créer une deuxième, troisième et quatrième combustion. Cet air est régulé par le réglage de l'air de combustion. Lorsque la commande est déplacée vers le haut, elle est sur le réglage maximum. Si elle est déplacée vers le bas, elle est sur le réglage minimum (Figure 11.1).

### 2. Système de contrôle automatique de la combustion (ACC)

Pour engager le système de minuterie du contrôle automatique de la combustion (ACC), poussez le levier vers l'arrière de l'appareil à la position élevée, puis tirez vers l'avant de l'appareil, jusqu'à ce que le bouton s'arrête. La minuterie fermera lentement l'arrivée d'air en 25 minutes. Utilisez cette fonction lors du rechargement de combustible ou si vous désirez augmenter l'arrivée d'air (Figure 11.2).

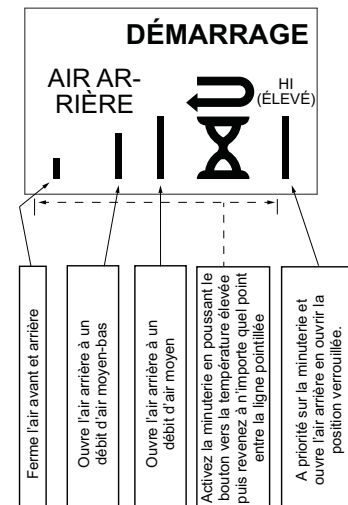


Figure 11.2

## E. Utiliser le réglage de l'air de combustion et le système ACC

### ATTENTION

**Risque de blessures.**

- Il est recommandé de porter des gants

### 1. Allumage et recharge de combustible

Ouvrez entièrement les systèmes de réglage de l'air de combustion et de l'ACC. Pour le Réglage de l'air de combustion, poussez la poignée à ressort vers le haut. Pour le système de minuterie de l'ACC, poussez le bouton vers l'arrière de l'appareil jusqu'à ce qu'il soit situé sous la position élevée (Figure 12.1).

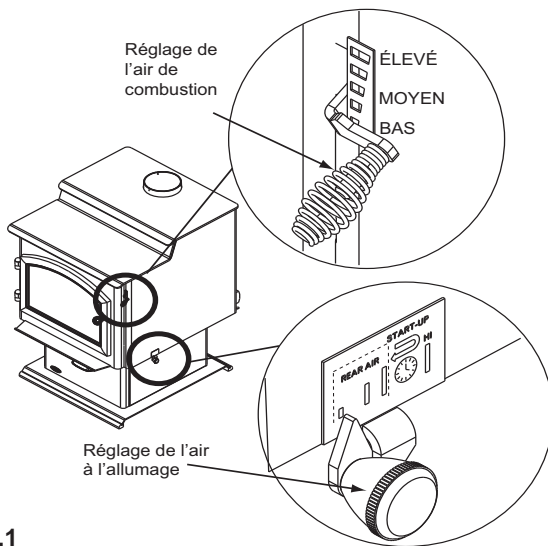


Figure 12.1

### 2. Maximiser la chaleur par le système ACC

Afin de maximiser la sortie de chaleur par le système de minuterie ACC, aussi connu comme brûlage élevé, poussez le levier de commande du réglage de l'air de l'ACC vers l'arrière de l'appareil et laissez-le ainsi. Ceci, combiné avec le levier principal du taux de combustion poussé vers le haut à la position la plus élevée, vous obtiendrez la plus grande quantité d'air nécessaire à obtenir la plus grande quantité de chaleur (Figure 12.1).

### 3. Commande manuelle de la minuterie

Si vous avez besoin de fermer le système ACC avant qu'il n'entre lui-même dans son cycle de fermeture, soit 25 minutes, recherchez le levier à l'arrière droit de l'appareil et tirez-le vers l'avant de l'appareil (Figure 12.2).

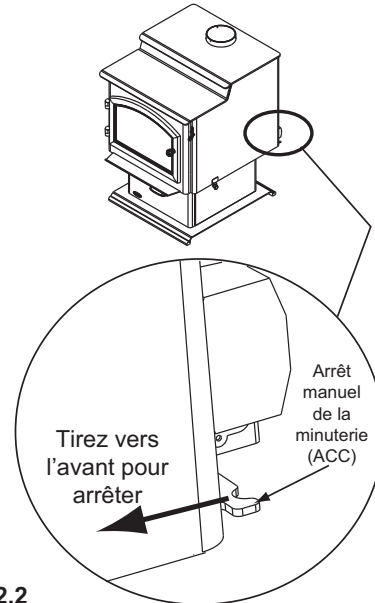


Figure 12.2

## F. Taux de combustion et rendement

### Pour obtenir un rendement maximum

Cet appareil au bois possède un taux de combustion réduit minimum prédéfini par le fabricant qui ne doit pas être altéré. Altérer ce paramètre ou autrement utiliser cet appareil au bois sans suivre les directives du présent manuel, contrevient aux réglementations fédérales.

- Ne brûlez que du bois sec.

### Les Taux De Brûlures

#### 1. Réglage de combustion faible :

- Placez la poignée à ressort du réglage de l'air de combustion en position élevée pendant 5 minutes.
- Activez ensuite le système de minuterie ACC en poussant le bouton en position élevée, complètement vers l'arrière de l'appareil, puis ramenez-le vers l'avant de l'appareil jusqu'à ce que le bouton s'arrête (**Figure 11.1 et Figure 11.2 à la page 11**).
- À ce point, fermez le réglage de l'air de combustion en déplaçant la poignée à ressort au réglage bas.

#### 2. Réglage de combustion moyen-bas :

- Placez la poignée à ressort du réglage de l'air de combustion en position élevée pendant 5 minutes.
- Activez ensuite le système de minuterie ACC en poussant le bouton en position élevée, complètement vers l'arrière de l'appareil, puis ramenez-le vers l'avant de l'appareil jusqu'à ce que le bouton s'arrête.
- À ce point, déplacez la poignée à ressort de réglage de l'air de combustion d'environ 3 à 13 mm (1/8 à 1/2 po) à partir du réglage bas.

#### 3. Réglage de combustion moyennement élevé :

- Placez la poignée à ressort du réglage de l'air de combustion en position élevée.
- Activez ensuite le système de minuterie ACC en poussant le bouton en position élevée, complètement vers l'arrière de l'appareil, puis ramenez-le vers l'avant de l'appareil jusqu'à ce que le bouton s'arrête.
- À ce point, déplacez la poignée à ressort de réglage de l'air de combustion d'environ 13 mm (1/2 po) à partir du réglage bas, vers la position élevée.


#### 4. Réglage de combustion élevé :

- Placez la poignée à ressort du réglage de l'air de combustion en position élevée.
- Activez également le bouton du système de minuterie de l'ACC en le poussant vers l'arrière à la position élevée.


**REMARQUE :** Si vous utilisez le ventilateur refoulant optionnel aux réglages de combustion 1 à 3, il doit être arrêté pendant les 30 premières minutes puis fonctionner ensuite à position élevée pendant 30 minutes. Pour un réglage de brûlage élevé, le ventilateur refoulant peut continuer à fonctionner pleinement après avoir remis du combustible.

**REMARQUE :** L'information précédente est fournie uniquement à titre indicatif. L'altitude et d'autres circonstances, peuvent exiger un réglage du contrôle permettant d'atteindre le taux de combustion désiré.

**REMARQUE :** Utilisez l'appareil à la position élevée de brûlage pendant 45 minutes chaque jour afin que le conduit de fumée/la cheminée demeure propre.



## AVERTISSEMENT



**Risque d'incendie.**  
 Quand vous utilisez un taux de combustion élevé, vous annulez l'action du contrôle automatique de la combustion. Le feu peut devenir incontrôlable et se transmettre à la cheminée. La surchauffe annulera votre garantie.



Figure 13.1

Si vous activez la minuterie de l'ACC et que la commande est réglée sur l'admission d'air arrière, l'air entre dans la boîte à feu par l'arrière. Cela n'empêche pas la minuterie de fermer graduellement (en 25 minutes) l'admission d'air avant. Si la commande est sur « HI », celle-ci a priorité sur la minuterie (ACC).

## G. Préparation d'un feu

Avant d'allumer votre premier feu dans l'appareil :

**REMARQUE :** La peinture spéciale à haute température constituant la finition de votre appareil doit durcir pendant que l'appareil chauffe. Vous remarquerez une odeur et peut-être quelques vapeurs s'échapper de la surface de l'appareil, ce qui est normal. Nous recommandons d'ouvrir une fenêtre jusqu'à ce que l'odeur se dissipe et que la peinture soit durcie.

1. Confirmez que la position du déflecteur est correcte. Il doit affleurer le tube avant et reposer sur tous les tubes. (**Figure 14.1 et Figure 14.2**).
2. Enlevez toutes les étiquettes de la porte vitrée de l'appareil.

Un feu peut être allumé de plusieurs façons. Le principe de base consiste à allumer d'abord du petit bois ou du papier qui brûle rapidement. Après avoir obtenu des braises, chargez quelques grosses bûches qui brûleront plus lentement. Voici quelques méthodes qui fonctionnent bien :

3. Ouvrez entièrement l'air de combustion et les contrôles de l'ACC (se référer à la page 7 du guide de démarrage).
4. Placez quelques feuilles de papier chiffonné dans la boîte à feu. Chauffez le conduit de fumée avec quelques feuilles de papier journal chiffonné pour réduire au minimum le dégagement de fumée.
5. Placez ensuite du petit bois sur le papier.
6. Assurez-vous qu'aucune allumette et aucun autre matériau inflammables ne se trouvent à proximité de l'appareil. Assurez-vous que la pièce est adéquatement ventilée et que le conduit de fumée n'est pas obstrué.
7. Allumez le papier dans l'appareil. N'allumez ou ne rallumez JAMAIS un feu avec du kérosène, de l'essence ou un liquide d'allumage pour charbon de bois ; cela est très dangereux.
8. Quand le petit bois brûle rapidement, ajoutez des bûches entières d'un diamètre de 76 mm à 102 mm (3 à 4 po). Faites attention de ne pas étouffer le feu. Empilez soigneusement les bûches en les plaçant assez près les unes des autres pour qu'elles se chauffent mutuellement, mais gardez de l'espace entre elles pour permettre à l'air de circuler.
9. Ajustez le réglage de l'air de combustion et activez le système de minuterie de l'ACC.
10. Au moment de rajouter du bois, il est conseillé d'ouvrir à la fois les contrôles de l'air de combustion et de l'allumage avant d'ajouter du bois. Cela ravive le lit de charbon et diminue les émissions excessives (opacité/fumée). Ouvrez lentement la porte de l'appareil pour que les cendres et la fumée ne s'échappent pas. Les bûches de grande taille brûlent lentement et pendant plus longtemps. Les bûches de petite taille brûlent rapidement en produisant beaucoup de chaleur.
11. Tant qu'il reste des braises, répétez les étapes 6 à 8 pour maintenir le feu.

### REMARQUE :

- Préparez le feu sur le fond en briques de la boîte à feu.
- N'utilisez AUCUNE grille, chenet ou autre méthode pour soutenir le combustible. Cela aurait un effet néfaste sur les émissions.



## AVERTISSEMENT



### Risque d'incendie

N'entreposez PAS de bois :

- À des distances inférieures aux dégagements requis aux combustibles à l'appareil.
- Dans l'espace de chargement des granulés ou de vidage des cendres.

Ne PAS utiliser l'appareil :

- Si la porte de l'appareil est ouverte.
- Quand la porte du système d'élimination des cendres est ouverte.

Le panneau du déflecteur doit être à niveau avec le tube avant et reposer sur tous les tubes.

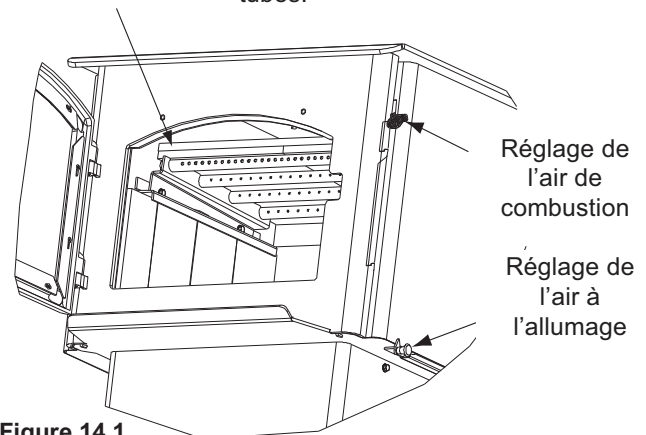


Figure 14.1

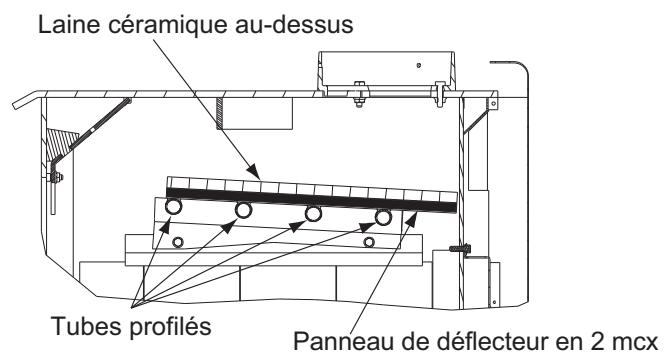


Figure 14.2



## AVERTISSEMENT



### Risque d'incendie.

- Ne PAS utiliser de bois mouillé ou de bois vert.
  - Entreposez le bois dans un endroit sec.
  - Empilez le bois de façon à ce que les deux extrémités des bûches soient exposées à l'air.
- Le bois mouillé ou vert peut augmenter les dépôts de créosote.

## H. Instructions d'utilisation du ventilateur refoulant

**REMARQUE :** Si votre appareil à bois Quadra-Fire est équipé d'un ventilateur refoulant en option, suivez les directives suivantes :

- Allumage initial (à froid) et tous les réglages de la combustion**  
Le ventilateur refoulant peut être installé et mis en marche immédiatement. Le ventilateur refoulant est allumé et arrêté par un disque d'arrêt. Quand votre appareil atteint une température donnée, le ventilateur refoulant se met en marche. Il s'arrête quand l'appareil redescend à une certaine température. L'interrupteur sur le ventilateur refoulant doit être réglé à automatique pour utiliser cette caractéristique.
- Le ventilateur refoulant est équipé d'un réglage de la vitesse. Pour changer la vitesse du ventilateur, tournez le réglage en sens horaire à « Low » (bas) ou en sens antihoraire à « High » (haut).
- Emplacement du disque d'arrêt**  
Si le ventilateur refoulant se met en marche et s'arrête à des températures indésirables, placez le disque d'arrêt à un autre endroit de la zone désignée à l'arrière de l'appareil (**Figure 15.1**). Un interrupteur ayant priorité sur le disque d'arrêt peut être utilisé pour désactiver ce dernier si nécessaire.

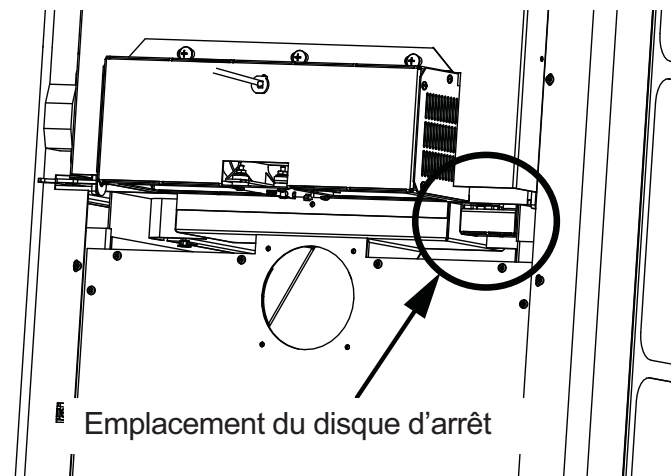


Figure 15.1

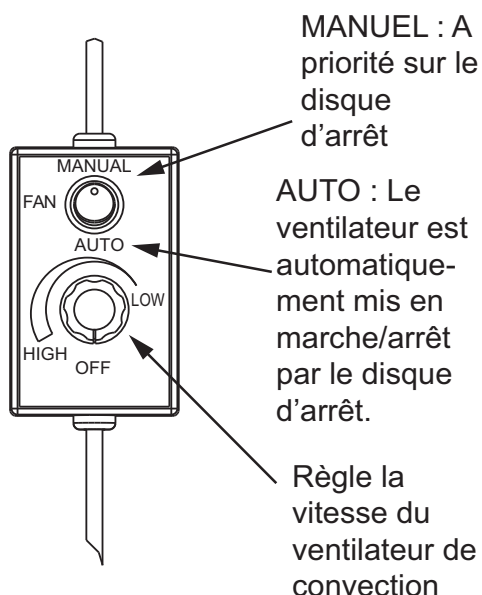


Figure 15.2

## I. Opacité (fumée)

C'est une indication de l'efficacité et de la propreté du brûlage de votre appareil. L'opacité est exprimée en valeur relative : un taux de 100 % correspond à une situation dans laquelle un objet est entièrement caché par la colonne de fumée sortant de la cheminée et 0 % correspondant à l'absence de fumée visible. Au fur et à mesure que vous devenez familier avec votre appareil, vous devriez vérifier périodiquement le niveau d'opacité. Cela vous apprendra à maîtriser la combustion de votre poêle (0 % d'opacité étant le but).



### AVERTISSEMENT



#### Risque d'incendie.

- NE BRÛLEZ AUCUN DÉCHET OU LIQUIDE INFLAMMABLE TEL QUE DE L'ESSENCE, DU NAPHTÉ OU DE L'HUILE DE MOTEUR.
  - Ne brûlez PAS de bois traité ou de bois contenant du sel (bois flotté).
  - Brûler un autre matériau que du bois peut dégager du monoxyde de carbone.
- Cela peut provoquer des malaises, voire la mort.



### AVERTISSEMENT



#### Risque d'incendie.

Éloignez les matériaux inflammables, l'essence et les autres vapeurs et liquides inflammables de l'appareil.

- Ne PAS entreposer de matériaux inflammables à proximité de l'appareil.
- N'UTILISEZ PAS D'ESSENCE, D'HUILE DE LAMPE, DE KÉROSÈNE, DE LIQUIDE D'ALLUMAGE DE CHARBON DE BOIS OU DE LIQUIDES SIMILAIRES POUR DÉMARRER CET appareil OU LE RALLUMER.
- Éloignez tous ces liquides de l'appareil quand il est en marche.
- Les matériaux inflammables peuvent s'enflammer.



### ATTENTION

Lors de votre premier feu, il y aura de la fumée et une odeur provenant de l'appareil, entraînant une cuisson de la peinture et de la combustion des huiles utilisées pendant la fabrication.

#### **OUVREZ LES FENÊTRES PENDANT LA COMBUSTION INITIALE POUR DISSIPER LA FUMÉE ET LES ODEURS !**

- Les odeurs peuvent gêner les personnes sensibles.
- Les détecteurs de fumée pourraient s'activer.

## J. Espace libre

**REMARQUE :** Ne placez AUCUN objet inflammable à moins de 1,2 m (4 pi) devant l'appareil (**Figure 16.1**).

- **Manteau de foyer :**  
Ne placez aucune bougie ou aucun autre objet sensible à la chaleur sur le manteau du foyer ou l'âtre. La chaleur peut endommager ces objets.



## AVERTISSEMENT

Ne placez AUCUN objet inflammable devant l'appareil. Les températures élevées peuvent enflammer les vêtements, les meubles ou les rideaux.

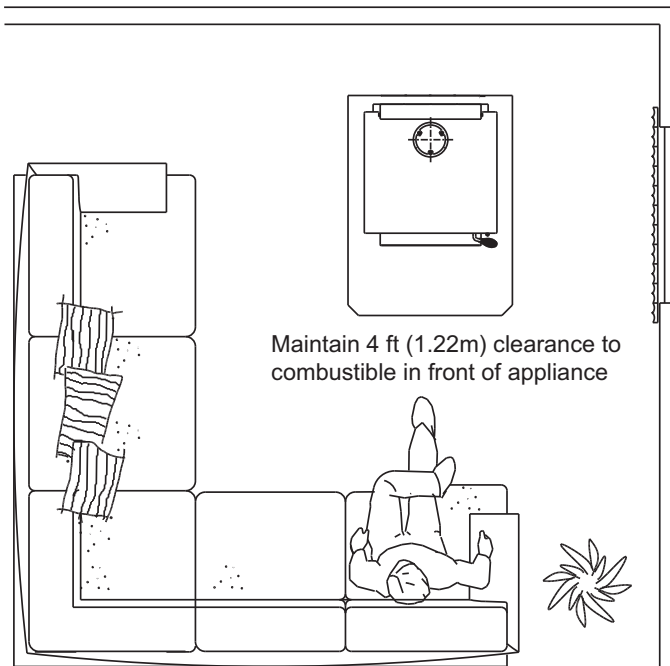


Figure 16.1

## K. Pression négative



## AVERTISSEMENT



### Danger d'asphyxie.

- En cas de pression négative, il pourrait y avoir propagation de fumée, de suie et de monoxyde de carbone.
- Pour qu'il brûle correctement, l'appareil a besoin d'un bon tirage.

Si le volume d'arrivée d'air est insuffisant pour permettre le bon fonctionnement de l'appareil, la pression devient négative. La fumée peut être plus épaisse aux étages inférieurs de la maison.

### Les causes incluent :

- Ventilateurs d'évacuation (cuisine, salle de bain, etc.)
- Hottes d'aspiration pour cuisinières
- Exigences en air de combustion pour les fournaies, chauffe-eau et autres appareils de chauffage
- Sèche-linge
- Emplacement des conduits de retour d'air à la chaudière ou au système de climatisation.
- Mauvais fonctionnement du système de traitement d'air CVC
- Fuites d'air à l'étage supérieur telles que :
  - Éclairage encastré
  - Trappe d'accès au grenier
  - Fuites du conduit


### Pour minimiser les effets d'une pression d'air négative :

- Installez la prise d'air extérieur en l'orientant face au vent dominant soufflant pendant la saison de chauffage
- Assurez un débit d'air extérieur suffisant pour satisfaire les besoins de tous les appareils de combustion et de l'équipement d'évacuation des gaz.
- Contrôlez que la chaudière et les bouches de retour d'air de la climatisation ne sont pas situées à proximité immédiate de l'appareil.
- Évitez d'installer l'appareil près des portes, couloirs ou petits espaces isolés.
- L'éclairage encastré doit être de conception étanche.
- Les trappes d'accès au grenier doivent être protégées contre les intempéries ou scellées.
- Les systèmes de conduits et les joints du traitement de l'air installés dans le grenier doivent être scellés au ruban.


## L. Questions souvent posées

PROBLÈMES	SOLUTIONS
Odeur provenant de l'appareil	Quand l'appareil est utilisé pour la première fois, il peut dégager une odeur pendant quelques heures. Cela provient de la cuisson de la peinture et de la combustion des huiles utilisées laissées à la fabrication.
Bruit métallique	Le bruit est dû à l'expansion et la contraction du métal pendant le chauffage et le refroidissement. Il ressemble au bruit provoqué par une chaudière ou un conduit de chauffage. Ce bruit n'a aucun effet sur le fonctionnement et la longévité de l'appareil.
Bruit du ventilateur de convection	Si le ventilateur soufflant est installé, son bruit augmente en intensité à mesure que sa vitesse augmente.

**CONTACTEZ VOTRE DÉTAILLANT** pour plus d'information concernant l'utilisation et le dépannage.  
Visitez [www.quadrafire.com](http://www.quadrafire.com) pour trouver un détaillant.




### AVERTISSEMENT




**Risque d'incendie.**

- NE BRÛLEZ AUCUN DÉCHET OU LIQUIDE INFLAMMABLE TEL QUE DE L'ESSENCE, DU NAPHTÉ OU DE L'HUILE DE MOTEUR.
- Ne brûlez PAS de bois traité ou de bois contenant du sel (bois flotté).
- Brûler un autre matériau que du bois peut dégager du monoxyde de carbone.

Cela peut provoquer des malaises, voire la mort.



### AVERTISSEMENT



**Risque d'incendie.**

Éloignez les matériaux inflammables, l'essence et les autres vapeurs et liquides inflammables de l'appareil.

- Ne PAS entreposer de matériaux inflammables à proximité de l'appareil.
- N'UTILISEZ PAS D'ESSENCE, D'HUILE DE LAMPE, DE KÉROSÈNE, DE LIQUIDE D'ALLUMAGE DE CHARBON DE BOIS OU DE LIQUIDES SIMILAIRES POUR DÉMARRER CET APPAREIL OU LE RALLUMER.
- Éloignez tous ces liquides de l'appareil quand il est en marche.
- Les matériaux inflammables peuvent s'enflammer.



# 3 Maintenance et entretien

## A. Guide de référence rapide pour maintenance

Avec un entretien adéquat, votre foyer vous procurera plusieurs années de service sans problèmes. Communiquez avec votre détaillant pour vos questions concernant la bonne utilisation, le dépannage et l'entretien de votre appareil. Visitez [www.quadrafire.com/owner-resources](http://www.quadrafire.com/owner-resources) pour consulter les dépannages de base, les FAQ, les vidéos d'utilisation et d'entretien.



### ATTENTION

#### Risque de blessure.

- Attendez que l'appareil soit froid avant de procéder au nettoyage ou d'effectuer l'entretien.
- Commencez la première inspection après 2 mois d'utilisation. Si le rendement change, ajustez votre horaire en conséquence.
- Un entretien est requis pour une opération sécuritaire et doit être effectué pour assurer votre garantie.

	FRÉQUENCE	TÂCHE
<b>Déflexeur et laine céramique isolante</b> 	MENSUELLE ou Après chaque corde de bois	L'emplacement du déflexeur et de la laine céramique isolante est essentiel à la sortie de chaleur, l'efficacité et la durée de vie générale de l'appareil. Assurez-vous que le déflexeur est entièrement poussé à l'arrière de la boîte à feu et que la laine céramique est à plat. Vérifiez le déflexeur pour déceler les fissures.
<b>Ventilateur de convection en option</b> 	UNE FOIS PAR AN ou Après toutes les quatre cordes de bois	Passez l'aspirateur sur la roue à ailettes du ventilateur.
<b>Système de cheminée</b> 	TOUS LES 2 MOIS ou Après toutes les quatre cordes de bois	La cheminée et le chapeau de l'extrémité doivent être inspectés pour déceler la suie et le crésote tous les deux mois pendant l'hiver ou plus souvent si la cheminée excède ou est inférieure à 4,3 à 4,8 m (14 à 16 pi), mesurée depuis la base de l'appareil.  Ceci empêchera l'obstruction des tuyaux, un faible tirage et les feux de cheminée. Toujours brûler du bois sec pour aider à prévenir l'obstruction du capuchon et l'accumulation de crésote.
<b>Piédestal et élimination des cendres</b> 	HEBDOMADAIRE ou Après chaque 25 chargements de bois	Les cendres doivent être refroidies avant de les mettre au rebut dans un contenant incombustible.  La brique réfractaire est conçue pour protéger votre boîte à feu. Une fois les cendres retirées, inspectez la brique et remplacez les briques détériorées, craquées ou brisées.
<b>Porte et panneau de verre fixe</b> 	HEBDOMADAIRE ou Après chaque 25 chargements de bois	Gardez la porte et le cordon d'étanchéité en bon état pour conserver de bonnes durées de combustion sur un réglage à combustion faible. <u>Pour effectuer un test</u> : placez un billet de un dollar entre le poêle et la porte, puis fermez la porte. Si vous pouvez enlever le billet, retirez une rondelle de la poignée de la porte derrière la came du loquet et réessayez. Si vous pouvez toujours le retirer, remplacez le joint d'étanchéité.  Vérifiez le cadre du panneau de verre pour déceler les vis lâches afin de prévenir les fuites d'air.  Vérifiez le panneau de verre pour déceler les fissures.
<b>Poignée de porte</b> 	HEBDOMADAIRE ou Après chaque 25 chargements de bois	Vérifiez le verrou de porte pour un ajustement approprié. Il est très important, particulièrement lorsqu'un cordon de porte s'est formé sur la face du poêle.  Vérifiez la poignée de la porte pour un bon fonctionnement de la came.

*These are generic drawings and may not represent your model.*

## B. Nettoyage et fonctionnement du système d'élimination des cendres



### AVERTISSEMENT



#### Risque d'incendie

Assurez-vous que le système d'élimination des cendres est bien scellé contre le joint.

#### Les fuites d'air peuvent causer :

- Un état de surchauffe
- La propagation de flammes et de la fumée
- Le bois brûle trop rapidement
- Ne PAS utiliser le système d'élimination des cendres lorsque le poêle brûle.

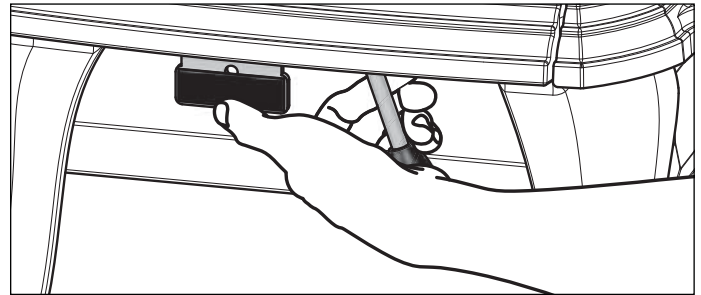


Figure 19.1

#### Poignée du couvercle d'accès

Insérez la poignée du couvercle d'accès dans la fente du couvercle de l'ARS pour l'enlever en vue de retirer les cendres de la boîte à feu.

1. L'appareil et les cendres doivent être entièrement froids avant d'utiliser le système d'élimination des cendres (ARS). Localisez la poignée de la porte du système d'élimination des cendres située sous le côté gauche de la partie centrale du poêle. Saisissez la poignée avec vos doigts et placez votre pouce sur le verrou. Appuyez sur le verrou vers l'intérieur. Gardez le verrou enfoncé et abaissez doucement la poignée. Retirez votre pouce du verrou une fois que la poignée est dégagée du verrou et tournez la poignée jusqu'à la butée.
2. Retirez le couvercle en fonte depuis l'intérieur de la boîte à feu à l'aide des outils fournis. Videz les cendres à travers le canal du système d'élimination des cendres et vers le tiroir placé dessous (Figure 19.2). S'assurer que toutes les cendres soient éliminées du dessus de la porte de l'ARS. Soulevez la grille et inspectez le dessus de la porte pour vous assurer que toutes les cendres aient été retirées. Vous pouvez rapidement déplacer la poignée du verrou du système d'élimination des cendres vers le haut et vers le bas pour aider à retirer les cendres de la porte. Utilisez une petite brosse pour nettoyer le dessus de la porte s'il reste des cendres. N'oubliez pas de remettre le couvercle en place avant d'utiliser le poêle. Laissez une couche de cendres de 6 à 13 mm (1/4 à 1/2 po) au fond de la boîte à feu de façon à former une grille naturelle et permettre à l'air de circuler sous le bois.
3. Remettez la poignée de porte en position fermée, vous entendrez un déclic au moment de sa fermeture. Le tiroir à cendres ne peut pas être sorti si la poignée de porte n'est pas fermée. Portez des gants pour enlever le tiroir. Mettez les cendres au rebut de la manière décrite au manuel du propriétaire.

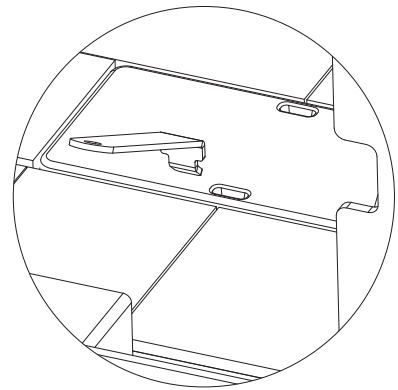


Figure 19.2



### ATTENTION



#### Risque de blessures.

- Il est recommandé de porter des gants
- Certains bords peuvent être tranchants

## C. Maintenance générale

### 1. Élimination de la créosote présente dans la cheminée

- **Fréquence** : Tous les 2 mois pendant la saison de chauffage ou selon la recommandation d'une entreprise de ramonage certifiée. De manière plus fréquente si une cheminée excède ou est inférieure à 4,3 à 4,9 m (14 à 16 pi) (mesurée à partir du bas de l'appareil)
  - **Par** : Entreprise de ramonage de cheminées certifiée
- Videz les cendres de la boîte à feu, en éteignant toutes les braises chaudes avant leur mise au rebut. Attendez que l'appareil soit complètement refroidi. Déconnectez le conduit de fumée ou enlevez le déflecteur et la laine céramique isolante de l'appareil avant de nettoyer la cheminée. Sinon, des résidus peuvent se déposer sur le déflecteur et la laine céramique isolante, causant un mauvais fonctionnement de l'appareil. (Voir l'enlèvement du déflecteur à la page 26). Fermez bien la porte. La créosote ou la suie doit être enlevée avec une brosse spéciale adaptée au type de cheminée utilisée. Enlevez les cendres tombées dans la boîte à feu.

Il est également recommandé de faire inspecter tout le système par un spécialiste avant la saison de chauffage et de le nettoyer et le réparer si nécessaire.

#### Inspection :



Inspectez le raccordement de l'appareil et le chapeau de l'extrémité de la cheminée. La créosote a tendance à s'accumuler plus rapidement sur les surfaces froides. Il est donc important de contrôler la cheminée depuis le haut et le bas.

### Formation de dépôt et nettoyage :

Quand le bois brûle lentement, il crée du goudron et des vapeurs organiques qui se combinent avec l'humidité expulsée et forment de la crésote.

Les vapeurs de crésote se condensent dans le conduit de fumée lorsqu'il est relativement froid, par exemple lorsque le feu vient d'être allumé ou qu'il brûle lentement. Par conséquent, les résidus de crésote s'accumulent sur le revêtement du conduit de fumée. Si la crésote prend feu, elle crée un feu extrêmement chaud qui peut endommager la cheminée, voir détruire la maison.

Le carneau et la cheminée doivent être inspectés tous les 2 mois pendant la saison de chauffage pour déterminer si des dépôts de crésote ou de suie se sont formés. Si un dépôt de crésote ou de suie s'est formé, il doit être enlevé pour diminuer le risque de feu de cheminée.

	<b>AVERTISSEMENT</b>
	<b>Risque d'incendie.</b> Empêchez l'accumulation de crésote. <ul style="list-style-type: none"><li>• Inspectez le carneau et la cheminée une fois tous les deux mois pendant la saison de chauffage.</li><li>• Enlevez la crésote pour diminuer les risques de feu de cheminée.</li><li>• La crésote brûle à très HAUTE température.</li></ul>

	<b>AVERTISSEMENT</b>
	<b>Risque d'incendie.</b> <ul style="list-style-type: none"><li>• N'utilisez aucun nettoyant de cheminée ou colorant de flamme dans votre poêle. Ceci causerait la corrosion du conduit de cheminée.</li></ul>

### 2. Nettoyage des surfaces plaquées

- **Fréquence** : Avant le premier emploi et puis ensuite selon les besoins
  - **Par** : Le propriétaire de l'habitation
- Nettoyez les empreintes de doigts et les taches d'huile présentes sur les surfaces plaquées **AVANT** d'allumer l'appareil pour la première fois. Si les taches d'huile ne sont pas entièrement éliminées avant votre premier feu, elles risquent de laisser des empreintes permanentes sur le placage.



Une fois le placage cuit, les taches d'huile n'affecteront plus l'état de la surface et une maintenance minimale suffira. Essayez si nécessaire.

	<b>ATTENTION</b>
<ul style="list-style-type: none"><li>• N'utilisez aucun produit à polir contenant des substances abrasives. Il égratignerait les surfaces plaquées.</li></ul>	

### 3. Jeter les cendres

- **Fréquence** : Lorsque les cendres sont à moins de 44 mm (1 3/4 po) de la boîte à feu
- **Par** : Le propriétaire de l'habitation

Les cendres doivent être placées dans un récipient en métal recouvert d'un couvercle bien ajusté. Le récipient de cendres fermé doit être placé sur un plancher incombustible ou sur le sol, loin des matériaux inflammables, en attendant sa mise au rebut finale. Si les cendres sont enterrées ou dispersées sur place, elles doivent rester dans le récipient fermé, jusqu'à ce qu'elles soient complètement refroidies.

	<b>AVERTISSEMENT</b>
	<b>Risque d'incendie. Jeter les cendres</b> <ul style="list-style-type: none"><li>• Les cendres doivent être placées dans un récipient en métal avec un couvercle bien ajusté.</li><li>• Ne placez pas le récipient en métal sur une surface inflammable.</li><li>• Elles doivent être conservées dans un récipient fermé jusqu'à ce qu'elles aient pu complètement refroidir.</li></ul>

### 4. Nettoyage de la vitre

- **Fréquence** : Au besoin
  - **Par** : Le propriétaire de l'habitation
- Nettoyez la vitre au moyen d'un nettoyant non abrasif. Les nettoyants abrasifs peuvent égratigner la vitre et la fragiliser. Si les dépôts sur la vitre ne sont pas épais, vous pouvez utiliser un nettoyant pour vitres normal. Si les dépôts sont plus épais, vous pouvez les enlever au moyen d'un chiffon humide trempé dans des cendres ou imbibé d'un produit à nettoyer les fours disponible sur le marché.

Après avoir utilisé un produit à nettoyer les fours, il est recommandé d'essuyer les résidus avec un nettoyant pour verre ou de l'eau savonneuse. Si du produit à nettoyer les fours reste sur la vitre pendant le feu suivant, il risque de tacher en permanence la vitre et d'endommager les surfaces métalliques plaquées.

Une partie de l'air de combustion entrant dans la boîte à feu est déviée vers le bas et balaie la surface intérieure de la porte vitrée. Ce courant d'air « nettoie » le verre et empêche la fumée d'y créer des dépôts.

Lorsque le taux de combustion est bas, moins d'air passe sur la vitre et la fumée et les températures relativement basses créent des dépôts sur la vitre.

Pour éliminer ces dépôts, faites fonctionner l'appareil pendant 30 à 45 minutes en ouvrant entièrement le réglage de l'air de combustion et de l'allumage.

	<b>ATTENTION</b>
<ul style="list-style-type: none"><li>• N'utilisez aucun produit à polir contenant des substances abrasives. Il égratignerait les surfaces plaquées.</li></ul>	

### C. Emplacement adéquat du déflecteur et de la laine céramique isolante



#### AVERTISSEMENT

##### Risque d'incendie

Un dégât à la boîte à feu provoqué par une disposition incorrecte du déflecteur n'est pas couvert par la garantie. Utilisez l'appareil au bois uniquement avec un déflecteur correctement en place.



##### Une utilisation inadéquate du déflecteur entraînera :

- un rendement réduit
- une surchauffe de la cheminée
- une surchauffe de l'arrière de la boîte à feu
- un mauvais rendement

Assurez-vous de la disposition adéquate du déflecteur et remplacez les composants du déflecteur, s'ils sont endommagés ou manquants.



#### ATTENTION

Les plaques du déflecteur sont **FRAGILES**. Faites preuve de prudence au moment de remettre du bois dans le poêle pour éviter :

- De fissurer, casser ou endommager les plaques du déflecteur

Ne PAS utiliser l'appareil sans les plaques du déflecteur

### POSITIONS CORRECTES

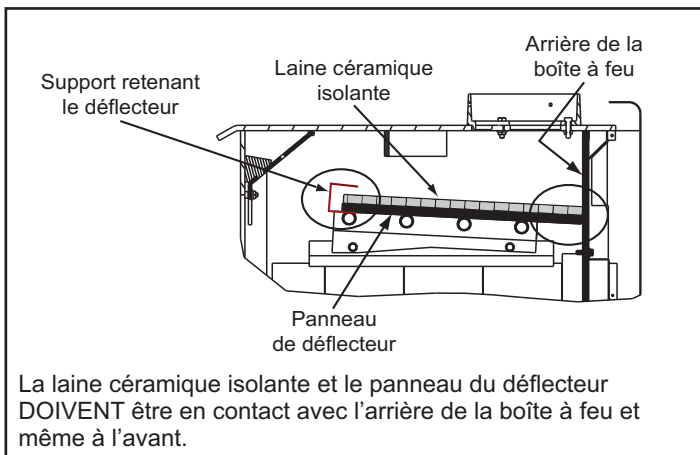
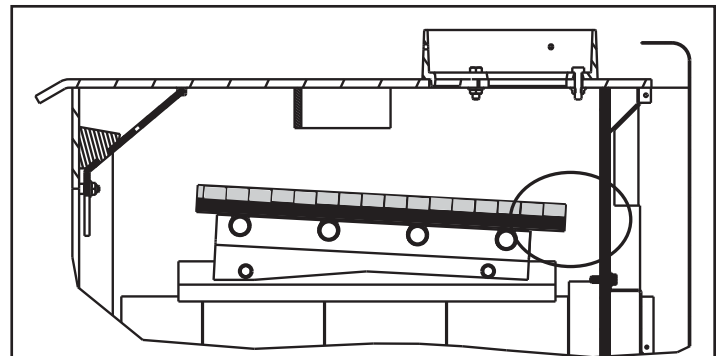
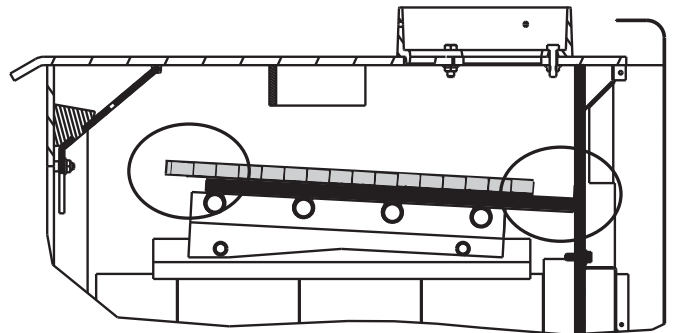


Figure 21.1

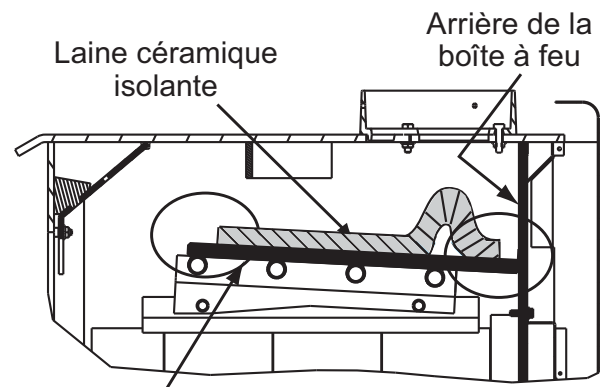
### POSITIONS INCORRECTES



La laine céramique isolante et le panneau du déflecteur ne sont PAS en contact avec l'arrière de la boîte à feu.



La laine céramique isolante n'est PAS en contact avec l'arrière de la boîte à feu, NI avec le déflecteur à l'avant.



Panneaux de déflecteur

La laine céramique isolante est retroussée à l'arrière de la boîte à feu et ne touche PAS le déflecteur à l'avant.

Figure 21.2

# 4 Guide de dépannage

Avec une installation, utilisation et maintenance appropriées, votre appareil au bois fonctionnera sans problème pendant de nombreuses années. Si vous rencontrez des problèmes de fonctionnement, ces directives de dépannage permettront au technicien de localiser et d'éliminer la panne.

Problèmes pour démarrer un feu	Cause possible	Solution
Impossible de démarrer un feu Fumée excessive ou propagation Brûle trop lentement Sortie de chaleur insuffisante	Pas suffisamment de petit bois/papier ou aucun petit bois/papier	Utilisez du petit bois sec, plus de papier. Disposez le petit bois et les bûches de façon à faciliter la circulation de l'air.
	Air insuffisant pour que le feu s'alimente	Vérifiez toute restriction au chapeau de l'extrémité
		Vérifiez l'obstruction de l'ensemble de prise d'air extérieur (si installé).
		Vérifiez l'obstruction du conduit de fumée.
		Préchauffez le conduit de fumée avant de faire le feu (reportez-vous à la section Préparation d'un feu).
		Vérifiez pour une hauteur adéquate du conduit d'évacuation (reportez-vous à la section de la hauteur de la cheminée).
	Ouvrez une fenêtre sous l'appareil en direction du vent.	
	Le bois est trop mouillé, trop gros	Utilisez du bois sec (reportez-vous à la section Bois sec).
	Un lit de charbon est non établi avant d'ajouter du bois	Commencez avec du papier et du petit bois pour faire un lit de charbon (reportez-vous à la section Préparation d'un feu).
Obstruction du conduit de fumée, comme des nids-d'oiseau ou des feuilles dans le chapeau de l'extrémité.	Inspectez la cheminée pour déceler toutes traces de créosote et faites-la nettoyer par une entreprise de ramonage de cheminées certifiée.	
Contre-tirage ou pression négative Les ventilateurs de tirage créent une dépression	N'utilisez pas les ventilateurs d'évacuation pendant l'allumage (reportez-vous à la section Pression négative).	
	Ouvrez une fenêtre sous l'appareil en direction du vent.	
Le bois brûle trop rapidement	Bois extrêmement sec ou tendre	Mélange de bois dur.
		Mélangez avec du bois moins sec après avoir démarré le feu. (reportez-vous à la section Combustible à base de bois.)
	Surtirage	Vérifiez que la hauteur du conduit d'évacuation est appropriée; une hauteur verticale excessive crée un surtirage.
		Vérifiez l'emplacement de l'extrémité du conduit (référez-vous à la section Exigences relatives à l'extrémité de la cheminée).

# 5 Remplacement des pièces de rechange

## A. Remplacement de la vitre

**REMARQUE:** Remplacer avec 5 mm verre céramique.

Service: SRV7000-012

1. Contrôlez que le feu est éteint et que l'appareil est froid au toucher.
2. Protégez une table ou surface de travail avec un tissu matelassé ou des serviettes. Enfilez des gants pour protéger vos mains.
3. Enlevez la porte avec la vitre cassée en la soulevant et en la décrochant des charnières.
4. Posez la porte, face vers le bas, sur une table ou surface de travail de façon à ce que la poignée dépasse du bord et que la porte repose à plat sur la protection.
5. Enlevez les vis du dispositif de retenue de la vitre et enlevez la vitre. (Si les vis sont difficiles à enlever, recouvrez-les d'abord d'une huile pénétrante.)
6. Placez la vitre au centre de l'ouverture de la porte (les bords de la vitre étant à la même distance en haut, en bas et sur les côtés).
7. Remettez les arrêteurs de vitre. Faites attention de ne pas endommager le filetage des vis.
8. Serrez de quelques tours les vis jusqu'à ce qu'elles soient bien serrées. Contrôlez encore une fois le centrage de la vitre dans le cadre de porte. Continuez à serrer les vis à tour de rôle, de quelques tours, jusqu'à ce que la vitre soit bien fixée.

**REMARQUE :** NE SERREZ PAS les dispositifs de retenue - peut provoquer la rupture de la vitre.

9. Remplacez la porte sur l'appareil.

Quadra-Fire appareils sont équipés de la céramique super verre résistant à la chaleur, qui ne peut être brisé que par l'impact ou de la mauvaise utilisation.

## B. Remplacement du disque d'arrêt

Service: SRV230-0470

1. Débranchez l'appareil.
2. Localisez le support du disque d'arrêt dans l'angle inférieur gauche à l'arrière de l'appareil.
3. Le support est fixé à l'appareil par un aimant. Tirez le support vers le bas en l'éloignant de l'appareil pour exposer le disque d'arrêt.
4. Tirez le disque d'arrêt et les connexions à cosses rectangulaires vers le haut pour les sortir du support comme illustré à la **Figure 23.1**.
5. Enlevez les 2 vis du disque d'arrêt au moyen d'un tournevis à tête cruciforme, puis déconnectez le disque d'arrêt des connecteurs à cosses rectangulaires. Remplacez-le par un nouveau disque d'arrêt et connectez-le.
6. Repoussez le disque d'arrêt et les cosses rectangulaires dans le support et remontez le support sur le poêle. Réinstallez-le en procédant dans l'ordre inverse.

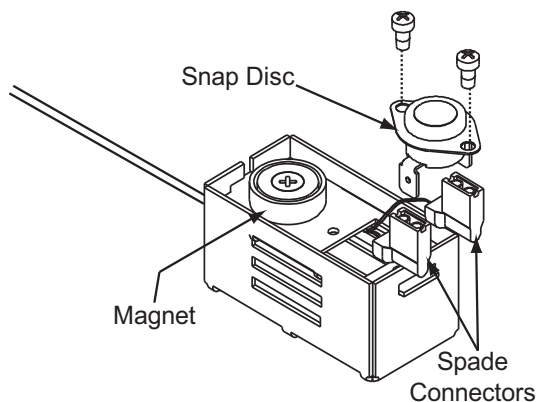


Figure 23.1



### AVERTISSEMENT

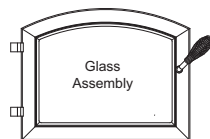


#### Risque de blessures.

- N'utilisez que le verre spécifié dans le manuel.
- N'UTILISEZ AUCUN AUTRE type de matériau.



### ATTENTION



Manipuler le panneau de verre fixe avec prudence.

#### Pendant le nettoyage de la vitre :

- Évitez de cogner, de rayer ou de claquer la porte vitrée.
- Ne PAS nettoyer la vitre quand elle est chaude.
- Ne PAS utiliser de nettoyants abrasifs.
- Utilisez un nettoyant à vitre pour dépôts calcaires sur le film blanc.
- Utilisez un nettoyant à four vendu dans le commerce si les dépôts sont plus épais.
- Enlevez tous les résidus de nettoyant à four, sinon la vitre sera tachée de façon permanente lors du prochain chauffage.

**Se reporter aux instructions de maintenance.**

### C. Remplacement des briques réfractaires

Remplacez les briques réfractaires si elles deviennent friables ou si la fente entre les briques dépasse 6 mm (1/4 po).

Inspectez la brique réfractaire après chaque nettoyage des cendres.

La boîte à feu est recouverte de briques réfractaires de haute qualité aux propriétés isolantes exceptionnelles. Il n'est pas nécessaire d'utiliser une grille, il suffit de préparer un feu sur le fond de la boîte à feu. N'utilisez pas l'appareil sans briques réfractaires.

1. Quand les cendres sont froides, enlevez les anciennes briques et les cendres de l'appareil et nettoyez la boîte à feu avec un aspirateur.
2. Sortez les nouvelles briques de la boîte et placez-les comme illustré.
3. Placez les briques du fond de l'appareil.
4. Installez les briques arrière sur les briques du fond. Faites glisser le haut des briques sous le clip à l'arrière de la boîte à feu et repoussez le bas des briques vers l'arrière.
5. Installez les briques latérales. Glissez le haut de la brique sous les clips latéraux de la boîte à feu et poussez le bas de la brique jusqu'à ce qu'elle soit à égalité avec le côté de l'appareil.

4300 Millénaire Pour Le Service De La Partie : SRV7037-003

4300 Étape De Service Supérieure De La Partie : SRV7037-012

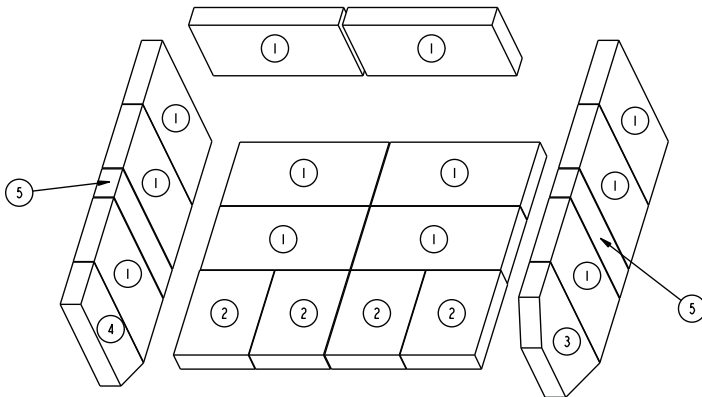


Figure 24.1

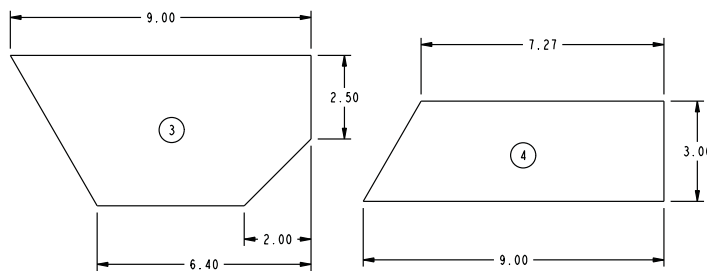


Figure 24.2

Figure 24.3

Placement	Dimensions	Qté Requis
1	9" x 4.5" x 1.25"	12
2	6" x 4.5" x 1.25"	4
3	9" x 4.5" x 1.25" w/Angles	1
4	9" x 3" x 1.25" w/Angle	1
5	9" x 2" x 1.25"	2

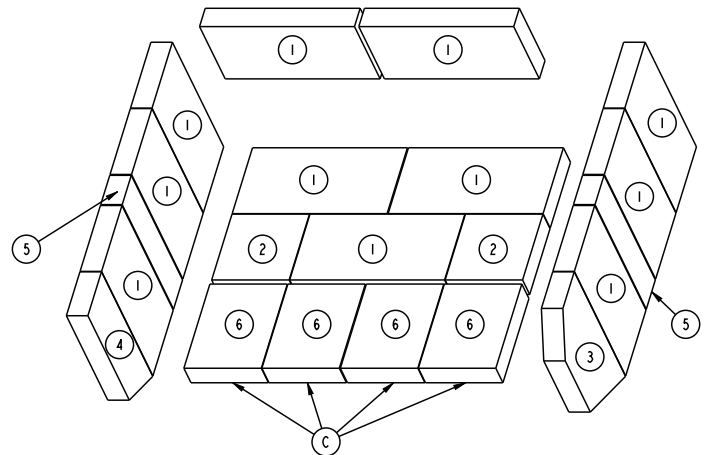


Figure 24.4

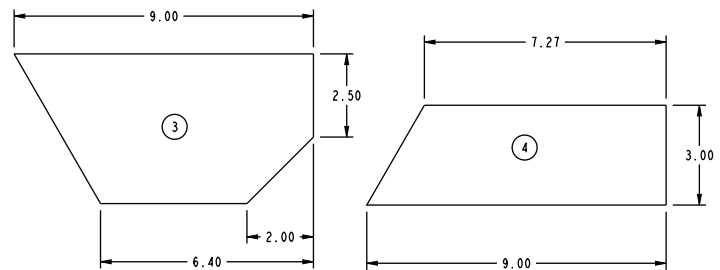


Figure 24.5

Figure 24.6

Placement	Dimensions	Qté Requis
1	9" x 4.5" x 1.25"	11
2	4.5" x 4.5" x 1.25"	2
3	9" x 4.5" x 1.25" w/Angles	1
4	9" x 3" x 1.25" w/Angle	1
5	9" x 2" x 1.25"	2
6	6" x 4.5" x 1.25"	4

## D. Ensemble de poignée de porte



### ATTENTION

Ne pas trop serrer le contre-écrou. La poignée de porte doit pouvoir bouger librement.

#### 4300 Millénaire et 4300 Étape de Service Supérieure de la Partie: 832-0540

1. Installer la rondelle sur la poignée de la porte de l'arbre.
2. Faites glisser la poignée de la porte par la porte.
3. L'installation de la seconde rondelle(s) comme le montre la **Figure 25.1**.
4. Installez la clé dans la gorge.
5. Alignez la rainure dans loquet à came avec clé; faites glisser le loquet à came sur l'arbre
6. Installez le contre-écrou mais ne pas trop serrer, la poignée doit se déplacer en douceur.
7. Installer le ressort de la poignée en tournant dans le sens antihoraire pour exigée de 2 pouces (51 mm) de dégagement localisation sur la poignée de la porte de la tige (**Figure 25.1**).

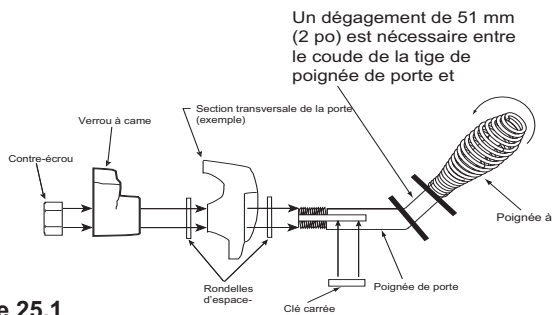


Figure 25.1

#### 4300 Étape De Service Supérieure De La Partie: SRV7033-071

1. Introduisez la poignée de porte dans la porte.
2. Placez une deuxième ou plusieurs rondelles comme il est indiqué à la **Figure 25.2**.
3. Placez la clé dans la rainure.
4. Alignez la rainure dans la came de verrouillage avec la clé. Glissez la came de verrouillage sur l'axe.
5. Installez le contre-écrou sans trop le serrer, car la poignée doit pouvoir bouger librement.
6. Installez la poignée en fibre (**Figure 25.2**).

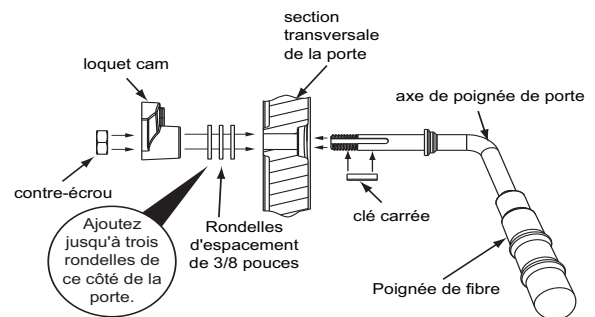


Figure 25.2



## E. Démontage du déflecteur

Service: SRV7037-112

1. Enlevez les cendres de la boîte à feu, en éteignant toutes les braises chaudes avant leur mise au rebut dans un récipient métallique.
2. Le panneau du déflecteur est en 2 morceaux. Quand la laine céramique isolante est en place, glissez une des parties du déflecteur par-dessus l'autre et sortez-la par l'ouverture de la porte, puis enlevez l'autre partie (**Figure 26.1**).
3. Enlevez la laine céramique isolante (**Figure 26.2**).
4. Re-installer le déflecteur morceau un à un. Assurez-vous que le déflecteur planches sont même à l'avant du collecteur tube et repose sur tous les tubes (**Figure 26.3 et la Figure 26.4**).
5. Réinstallez les deux parties du déflecteur l'une après l'autre en dessous de la laine céramique (**Figure 26.2 et Figure 26.4**). Contrôlez que les deux parties du déflecteur soient à égalité avec le collecteur à tubes avant et qu'elles reposent sur tous les tubes (**Figures 26.3 et Figure 26.4**).



Figure 26.1 - Déflecteur Conseil

Le panneau du déflecteur doit être à niveau avec le tube avant et reposer sur tous les tubes.

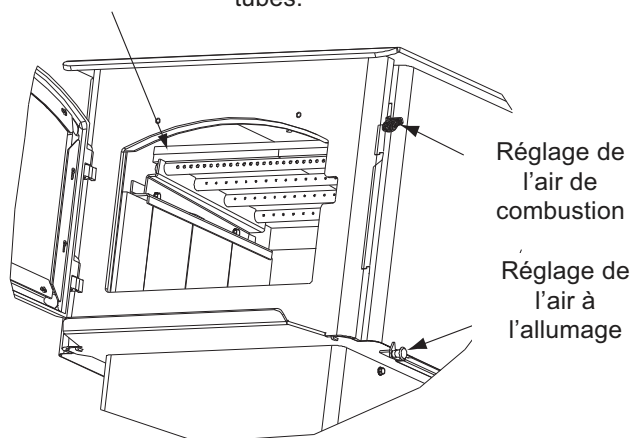


Figure 26.3



Figure 26.2 - Laine céramique isolante

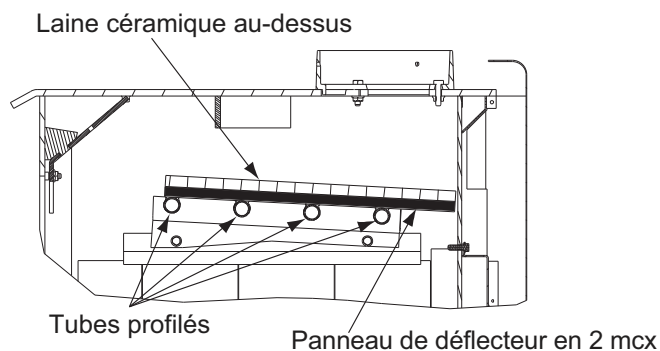


Figure 26.4

## F. Remplacement de l'ensemble de tubes profilés

### Démontage de l'ensemble des tubes profilés

1. Retirez le protecteur de droite en le soulevant vers le côté.
2. Enlevez les 4 vis du couvercle d'accès au canal et enlevez le couvercle.
3. Enlevez les 2 écrous du canal situés dans la chambre au moyen d'une clé à douilles de 7/16 po. Sortez l'ensemble de tubes.

**REMARQUE :** Recouvrez les boulons d'huile pénétrante pendant 15 minutes minimum avant d'essayer de les enlever.

**REMARQUE :** Dégagement pour l'entretien  
Afin de remplacer l'ensemble de tubes, un dégagement de 433 mm (19 po) est nécessaire sur le côté droit de l'appareil pour pouvoir enlever les tubes sans déplacer l'appareil.

Si un tel espace n'est pas disponible, l'appareil devra être déconnecté de la cheminée pour pouvoir procéder au remplacement des tubes.

### Remplacement de l'ensemble de tubes profilés

1. Glissez un joint sur chaque tube.
2. Glissez l'ensemble de tubes dans la face latérale de la boîte à feu et insérez chaque tube dans le trou correspondant du support de l'ensemble, en commençant par le trou arrière.
3. Assurez-vous que l'ensemble de tubes est à égalité contre le côté de l'appareil et fixé avec les écrous.
4. Réinstallez le couvercle du canal et le protecteur latéral.

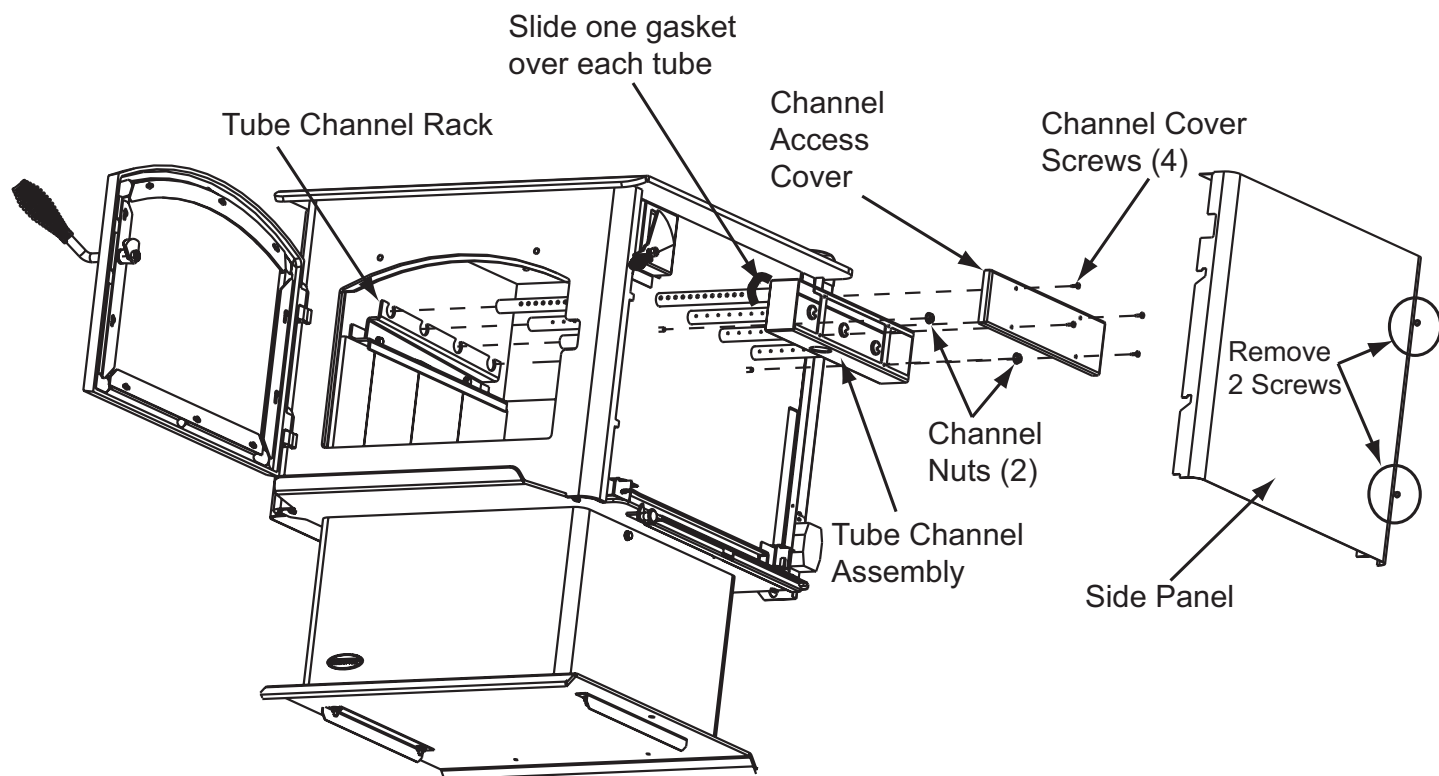


Figure 27.1





B. 43M-ACC

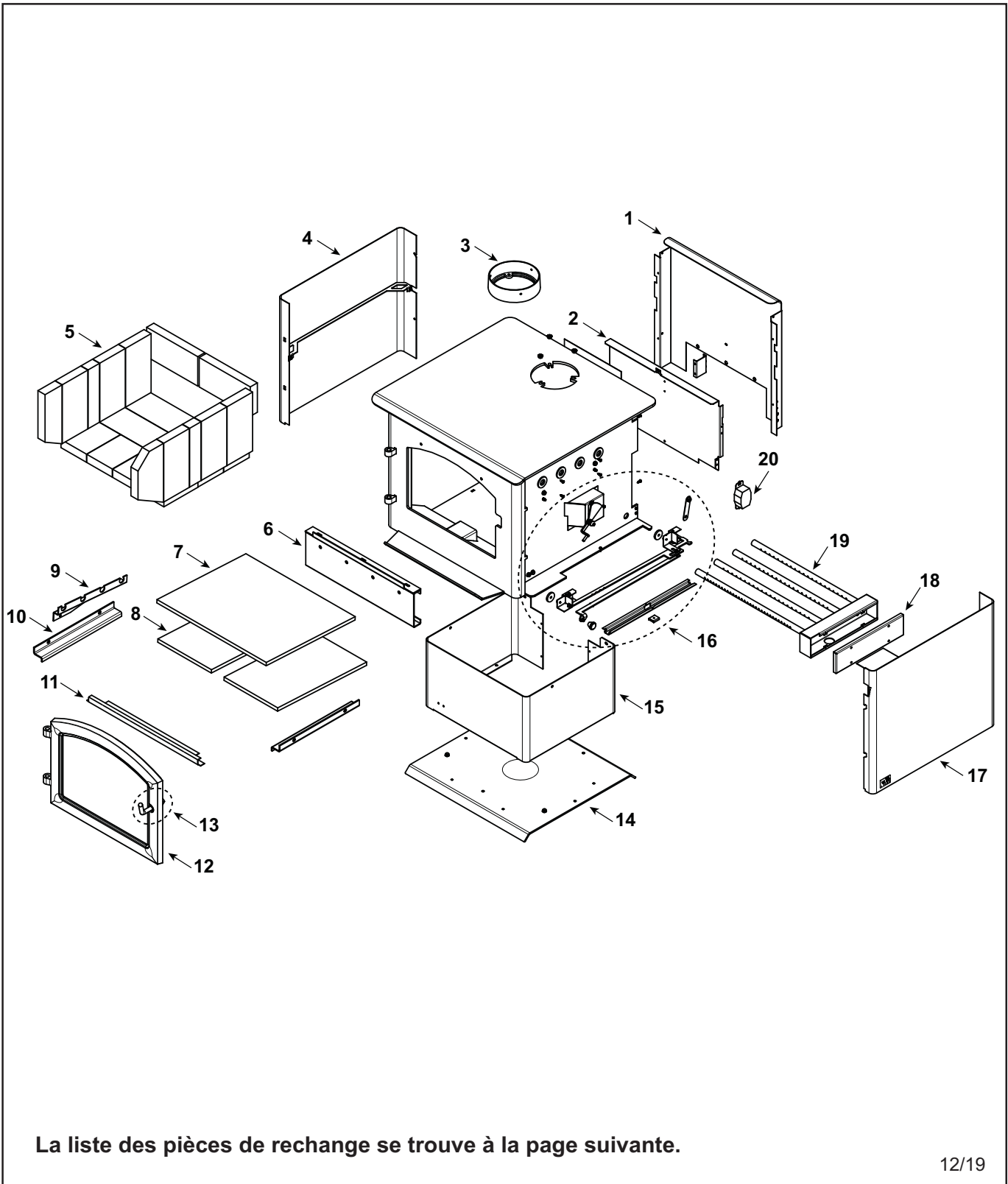
**QUADRA-FIRE**® Pièces de rechange

**43M-ACC-C**

Poêle à bois

Date de début de la fabrication: Jan 2020

Date de fin de la fabrication : Actif



La liste des pièces de rechange se trouve à la page suivante.

Date de début de la fabrication: Jan 2020

Date de fin de la fabrication : Actif

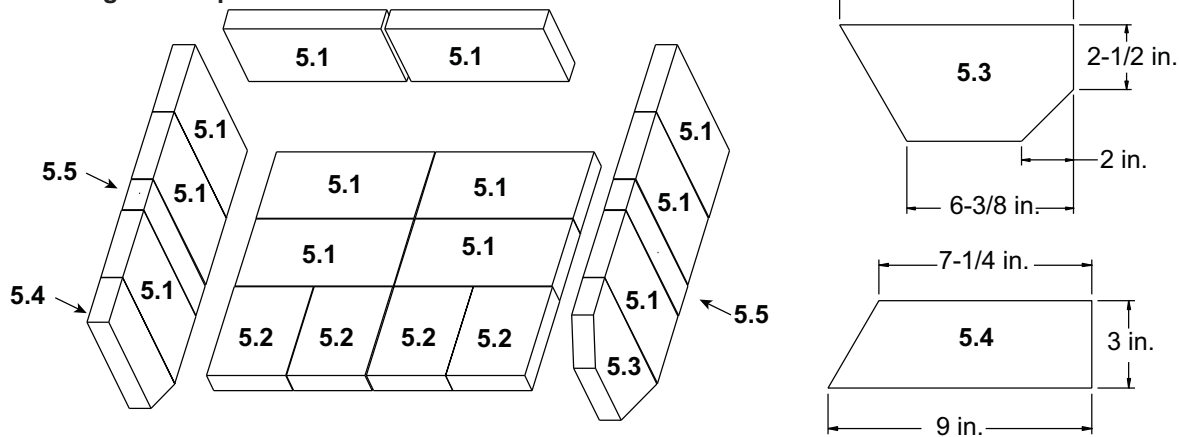
**IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR.** Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.



Entreposé  
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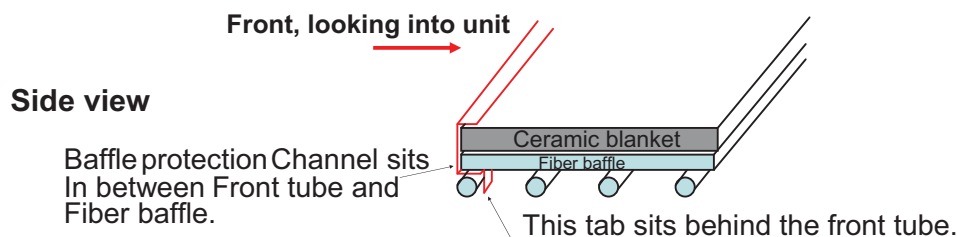
ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE	
1	Canal d'air, Convection avec support - <b>Conserver l'étiquette du n° de série original</b>		SRV7033-144	
2	Arrivée d'air arrière		SRV7033-134	
3	Buse		SRV7000-302	Oui
4	Assemblage du panneau, côté, gauche		7037-007	

### Assemblage de briques n° 5



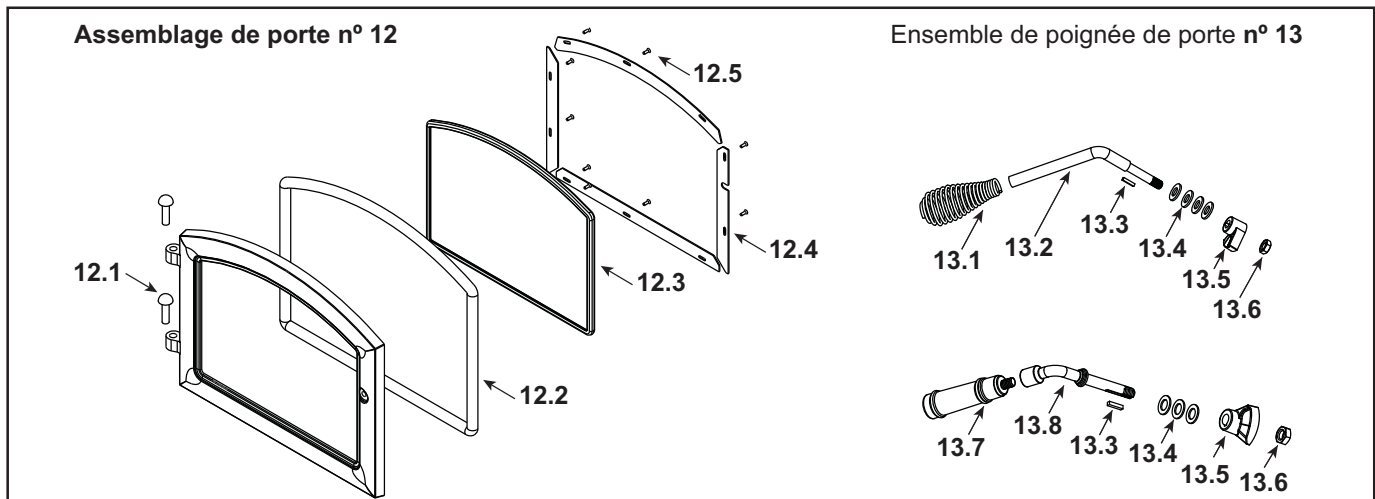
5	Assemblage de briques, jeu complet	Pqt de 20	SRV7037-003	
5.1	Brique, 229 x 114 x 32 mm (9 x 4.5 x 1.25 po)	Qté 12 rég.	832-0550	Oui
5.2	Brique, 152 x 114 mm (6 x 4.5 x 1.25 po)	Qté 4 rég.	SRV7128-002	
5.3	Brique, 229 x 114 mm (9 x 4.5 x 1.25 po) avec angle	Qté 1 rég.	SRV7128-806	
5.4	Brique, 229 x 76 mm (9 x 3 x 1.25 po) avec angle	Qté 1 rég.	SRV7128-618	
5.5	Brique, petite 229 x 51 mm (9 x 3 x 1.25 po)	Qté 2 rég.	SRV7128-018	
	Brique, non coupée	Pqt de 6	832-3040	Oui
6	Assemblage du canal d'air arrière		7033-002	Oui
7	Laine céramique en fibre, 13 mm (1/2 po) épaisseur, 394 x 495 mm (15 1/2 x 19 1/2 po)		832-3390	Oui
8	Panneau de fibre pour déflecteur - (lar. x haut) 241 x 400 mm (9-1/2 x 15-3/4 po)	Qté : 2	SRV7033-209	Oui
9	Support de tubes		7033-148	
10	Pièce de retenue de la brique		7033-149	

### Rainure de protection du déflecteur n° 11



11	Rainure de protection du déflecteur		SRV7033-298	
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Des numéros de pièces de rechange supplémentaires figurent à la page suivante.

Date de début de la fabrication: Jan 2020  
Date de fin de la fabrication : Actif

**IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR.** Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.

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ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE	
12	Assemblage de porte	Noir	DR-31/43BK-FH	Oui
		Nickel	DR-31/43NL-FH	Oui
12.1	Tiges de charnière, 13 mm (1/2 po)	Noir	7000-606/2	Oui
		Nickel	SRV430-5320	
		Or	832-0250	Oui
12.2	Cordon, porte, 19 mm x 2,13 m (3/4 x 84 po), coupé sur place	2,13 m (7 pi) long	832-1680	Oui
12.3	Ensemble de porte vitrée - (lar. x haut) 394 x 340 mm (15-1/2 x 13-3/8 po)		7000-012	Oui
	Joint d'étanchéité, ruban de la vitre - coupé sur place à la bonne longueur, 1,52 m (5 pi) long		832-0460	Oui
12.4	Ensemble du cadre de verre	Qté : 4 mcx	832-0350	
12.5	Vis, à tête plate cruciforme, 8-32 X 1/2	Pqt de 12	220-0490/12	Oui
13	Ensemble de poignée de porte		832-0540	
13.1	Poignée de porte, à ressort	Noir	SRV7000-613	Oui
		Nickel	250-8330	Oui
		Or	832-0620	Oui
13.2	Poignée de porte, formé		SRV430-1131	Oui
14.3	Clé, verrou à came		SRV430-1151	
13.4	Rondelle, Sae, 3/8	Pqt de 3 chac.	832-0990	Oui
13.5	Verrou à came		SRV430-1141	
13.5	Écrou, poignée de porte à verrouillage	Pqt de 24	226-0100/24	Oui
	Ensemble de composants (poignées à ressort dorées de (1) 13 mm (1/2 po) et (2) 6 mm (1/4 po), (2) tiges de charnière dorées, logo Quadra-Fire	Nickel	436-5360	
		Or	436-5350	
	Ensemble de poignée de porte		SRV7033-071	
13.7	Poignée de porte, Fibre		SRV7060-212	
13.8	Poignée de porte, formé		SRV7044-188	Oui

Des numéros de pièces de rechange supplémentaires figurent à la page suivante.

Date de début de la fabrication: Jan 2020

Date de fin de la fabrication : Actif

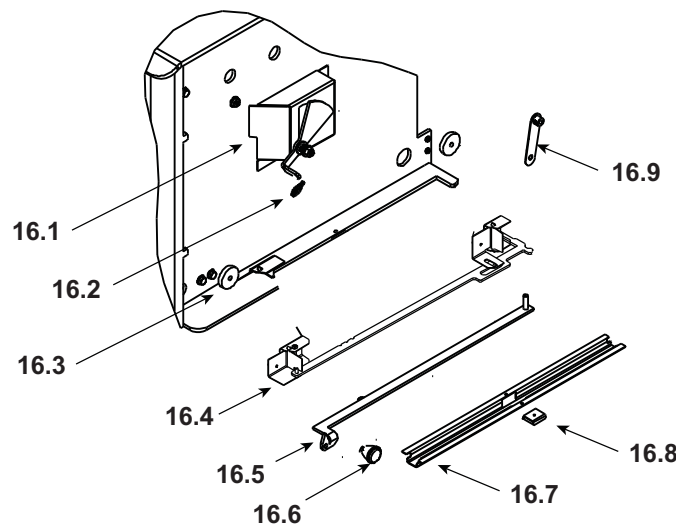
**IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR.** Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.



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14	Base du piédestal		7033-163	
15	Section verticale du piédestal		7033-207	

### Assemblage du contrôle du taux de combustion n° 16



16.1	Assemblage du contrôle du taux de combustion		7037-004	Oui
16.2	Poignée à ressort, 6 mm (1/4 po)	Nickel	250-8340	Oui
16.3	Joint d'étanchéité de la porte - portes d'aération à minuterie avant et arrière		7033-282	Oui
16.4	Assemblage du contrôle d'air par minuterie		SRV7037-018	Oui
	Assemblage de la porte d'aération arrière		7037-013	Oui
16.5	Assemblage de la manette du contrôle d'air arrière		7037-005	Oui
16.6	Bouton - Bouton de contrôle de la mise en marche		SRV7000-343	
16.7	Guide de la tige du contrôle de l'air		7033-210	
16.8	Verrou, aimant - pour le contrôle de l'air		229-0631	
16.9	Assemblage de la manette de la minuterie		7033-034	Oui
17	Assemblage du panneau, côté droit		7037-006	
18	Couvercle d'accès aux tubes profilés (haut)		SRV7033-237	
19	Assemblage du tube profilé	Tubes collecteurs	SRV7033-023	Oui
20	Assemblage du remplacement de la minuterie seulement		SRV480-1940	Oui
	Ensemble des composants		SRV7037-052	
	Peinture de retouche	Noir	3-42-19905	
	Logo, Quadra-Fire	Pqt de 10	7000-649/10	

Des numéros de pièces de rechange supplémentaires figurent à la page suivante.





C. 43ST-ACC-B

**QUADRA-FIRE**

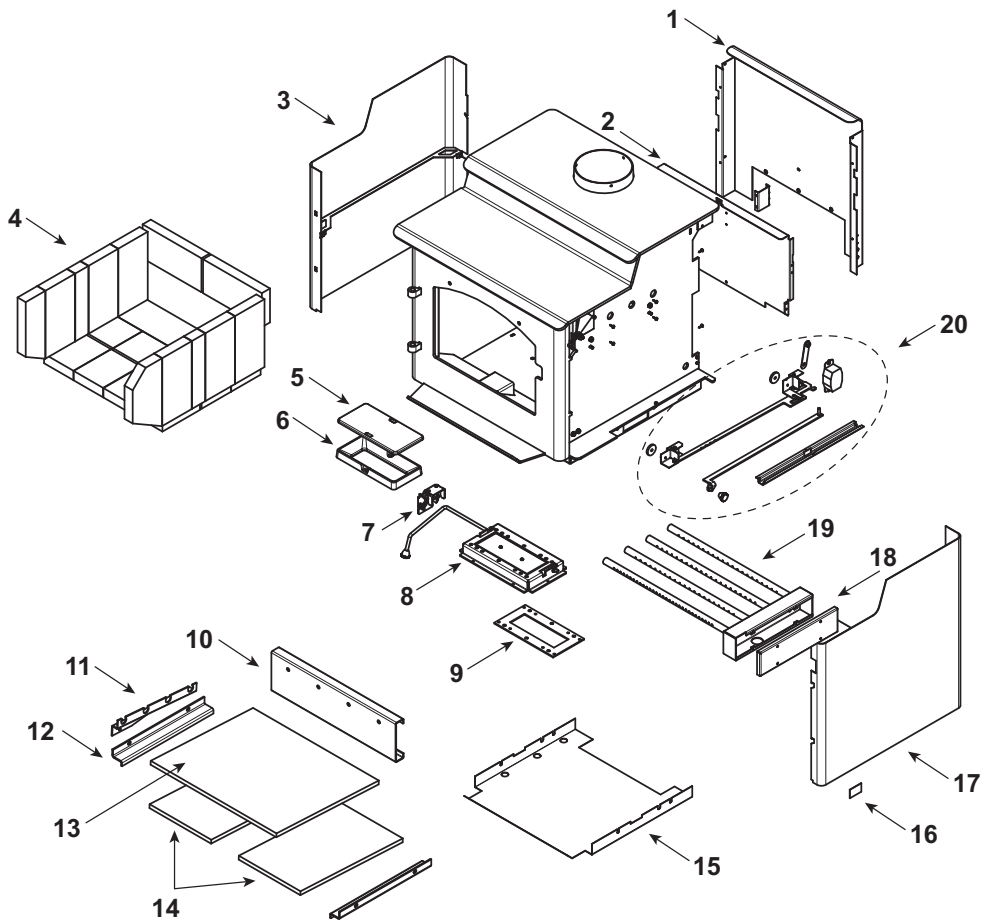
Pièces de rechange

**43ST-ACC-C**

Date de début de la fabrication : Jan 2020

Modèle haut de gamme - Poêle à bois

Date de fin de la fabrication : Actif



La liste des pièces de rechange se trouve à la page suivante.

12/19

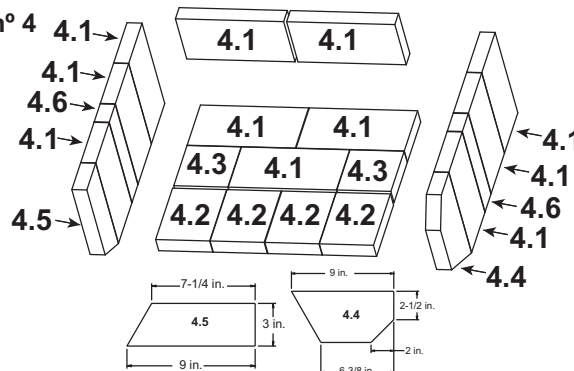
IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR. Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.



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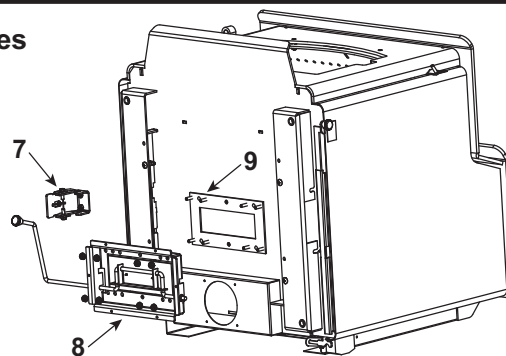
ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE
1	Arrivée d'air arrière		SRV7033-134
2	Canal d'air, Convection avec support - <b>Conserver l'étiquette du n° de série original</b>		SRV7033-144
3	Assemblage du panneau, côté, gauche		7037-011

#### Assemblage de briques n° 4



4	Assemblage de briques, jeu complet	Pqt de 20	SRV7037-012
4.1	Brique, 229 x 114 x 32 mm (9 x 4.5 x 1.25 po)	Qté 11 rég.	832-0550
4.2	Brique, 152 x 114 mm (6 x 4.5 x 1.25 po)	Qté 4 rég.	SRV7128-002
4.3	Brique, 114 x 114 x 108 mm (4.5 x 4.5 x 1.25 po)	Qté 2 rég.	SRV7128-001
4.4	Brique, 229 x 114 mm (9 x 4.5 x 1.25 po) avec angle	Qté 1 rég.	SRV7128-806
4.5	Brique, 229 x 76 mm (9 x 3 x 1.25 po) avec angle	Qté 1 rég.	SRV7128-618
4.6	Brique, petite 229 x 51 mm (9 x 3 x 1.25 po)	Qté 2 rég.	SRV7128-018
	Brique, non coupée	Pqt de 6	832-3040

#### Système de dépose de cendres



	Composant en fonte de l'ARS		SRV7037-038	
5	Couvercle d'accès à l'ARS		SRV7038-196	Oui
6	Canal de l'ARS		SRV7061-184	Oui
7	Assemblage du verrou de l'ARS		SRV7062-034	Oui
8	Assemblage de porte de l'ARS		SRV7060-048	Oui
9	Joint d'étanchéité de l'ARS		SRV7033-296	Oui
	Poignée, couvercle d'accès		SRV7038-197	

Des numéros de pièces de rechange supplémentaires figurent à la page suivante.

Date de début de la fabrication : Jan 2020

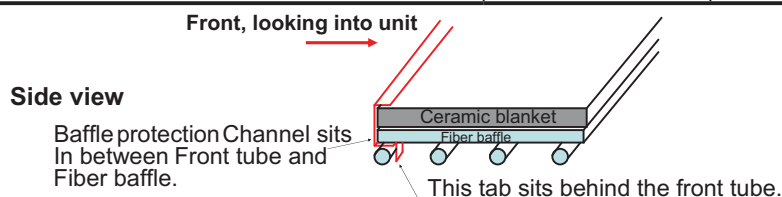
Date de fin de la fabrication : Actif

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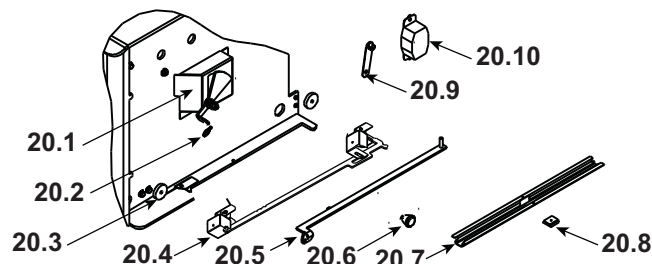
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ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE	
10	Assemblage du canal arrière		7033-002	Oui
11	Support de tubes		7033-148	
12	Pièce de retenue de la brique		7033-149	
13	Laine céramique en fibre, 13 mm (1/2 po) épaisseur		832-3390	Oui
14	Panneau du déflecteur - (lar. x haut) 241 x 400 mm (9-1/2 x 15-3/4 po)	Qté : 2	SRV7037-112	Oui



	Rainure de protection du déflecteur		SRV7033-298	
15	Écran thermique		SRV7037-169	
	Étiquette, taux de combustion		SRV7033-160	
16	Étiquette, mise en marche, acc.		SRV7033-166	
17	Panneau latéral droit		7037-010	
18	Haut du tube profilé - couvercle d'accès		SRV7033-237	
19	Assemblage du tube profilé	Tubes collecteurs	SRV7033-023	Oui
	Joint d'étanchéité, collecteur	Pqt de 4	7038-168/4	Oui

### Assemblage du contrôle du taux de combustion n° 20



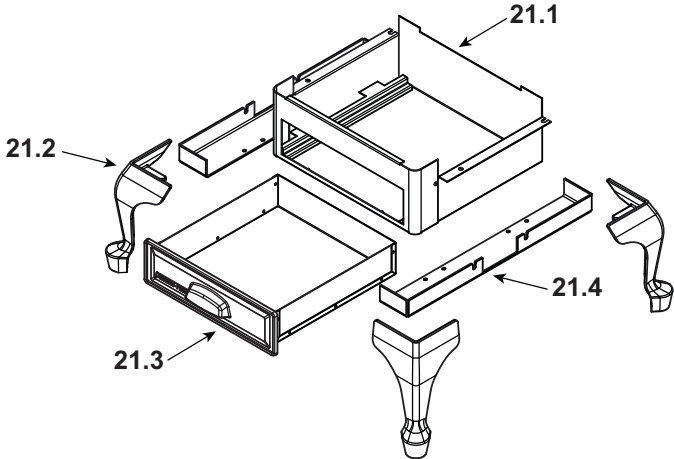
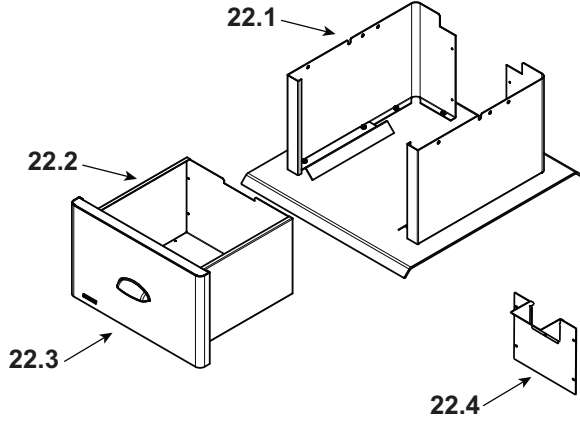
20.1	Assemblage du contrôle du taux de combustion		7037-004	Oui
20.2	Poignée à ressort, 6 mm (1/4 po)	Nickel	250-8340	Oui
20.3	Joint d'étanchéité de la porte - portes d'aération à minuterie avant et arrière		7033-282	Oui
20.4	Assemblage du contrôle d'air par minuterie		SRV7037-018	Oui
	Assemblage de la porte d'aération arrière		7037-013	Oui
20.5	Assemblage de la manette du contrôle d'air arrière		7037-005	Oui
20.6	Bouton - Bouton de contrôle de la mise en marche		SRV7000-343	
20.7	Guide de la tige du contrôle de l'air		7033-210	
20.8	Verrou, aimant - pour le contrôle de l'air		229-0631	
20.9	Assemblage de la manette de la minuterie		7033-034	Oui
20.10	Assemblage du remplacement de la minuterie seulement		SRV480-1940	Oui

Des numéros de pièces de rechange supplémentaires figurent à la page suivante.

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ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE	
n° 21 Assemblage de cuvette et cendrier		n° 22 Piédestal et cendrier		
				
	Ensemble de pieds et système d'élimination des cendres	Noir	LEG-KIT-BK	
		Nickel	LEG-KIT-NL	
21.1	Assemblage du bac à cendres		7033-008	
21.2	Pieds, Queen Anne	Noir	831-1240	
		Nickel	LEGS-QANL	
21.3	Pied du bac à cendres(ARS - Système d'élimination des cendres)		SRV7033-050	
21.4	Ensemble de montage des pieds		SRV7037-132	
	Ensemble de composants, pied du modèle à dessus étagé - (comprend le joint du système d'élimination des cendres et les attaches)		7033-048	
22	Piédestal		PED-KIT-43	
22.1	Ensemble du piédestal		7033-013	
22.2	Assemblage du bac à cendres		7033-010	
22.3	Poignée de la porte du bac à cendres		SRV7033-274	
22.4	Assemblage de la plaque du couvercle de la prise d'air extérieur		SRV7033-041	Oui
	Ensemble de composants, piédestal, pied du modèle à dessus étagé - (comprend le joint du système d'élimination des cendres et les attaches)		7038-048	

Des numéros de pièces de rechange supplémentaires figurent à la page suivante.

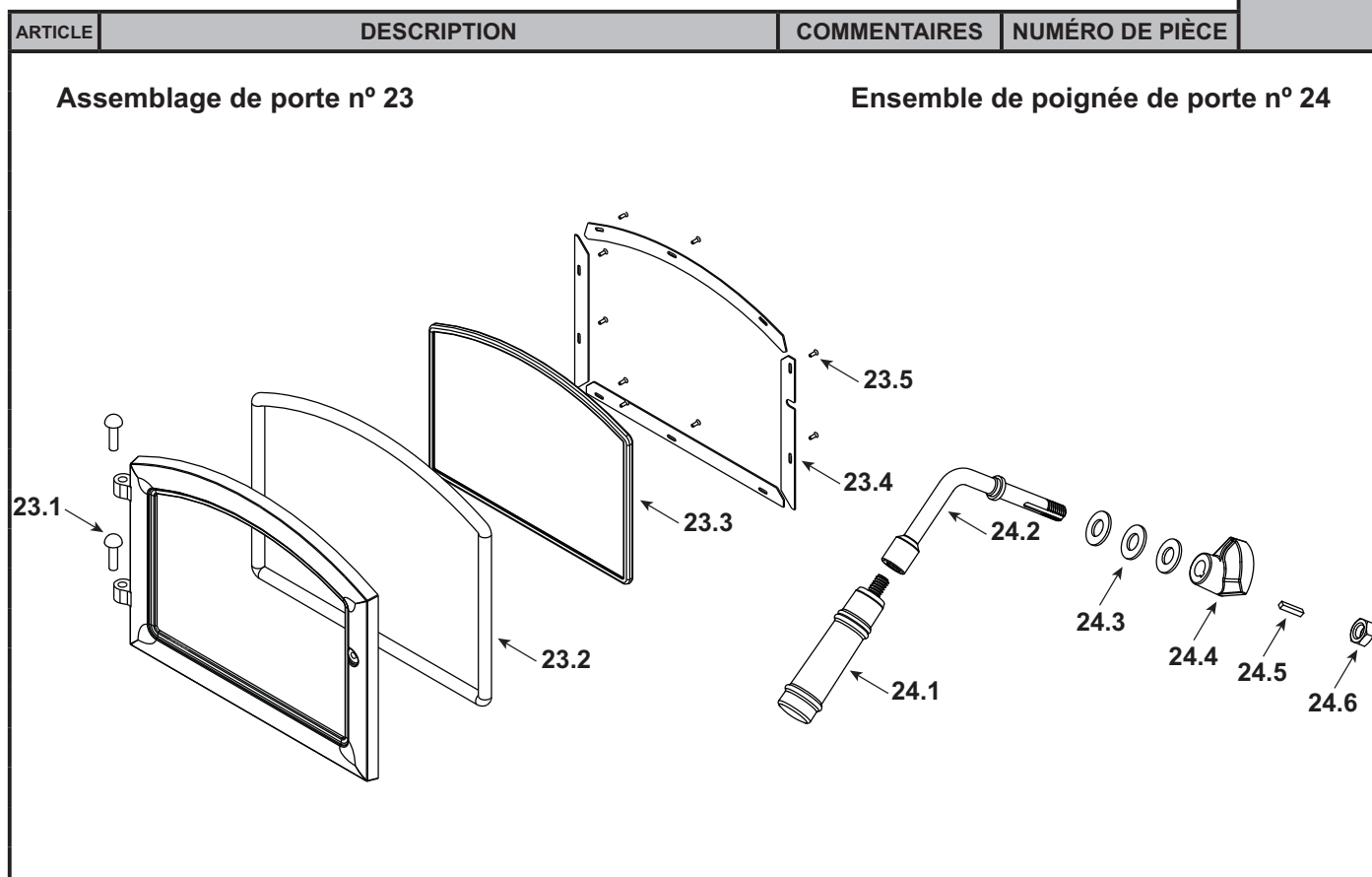
Date de début de la fabrication : Jan 2020

Date de fin de la fabrication : Actif

IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR. Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.



Entreposé  
au dépôt



ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE	
23	Assemblage de porte	Noir	DR-31/43BK-FH	Oui
		Nickel	DR-31/43NL-FH	Oui
23.1	Tiges de charnière, 13 mm (1/2 po)	Noir	7000-606/2	Oui
		Nickel	SRV430-5320	
23.2	Cordon, porte, 19 mm x 2,13 m (3/4 x 84 po), coupé sur place	2,13 m (7 pi) long	832-1680	Oui
23.3	Ensemble de porte vitrée - (lar. x haut) 394 x 340 mm (15-1/2 x 13-3/8 po)		7000-012	Oui
	Joint d'étanchéité, ruban de la vitre - coupé sur place à la bonne longueur, 1,52 m (5 pi) long		832-0460	Oui
23.4	Ensemble du cadre de vitre	Qté : 4 mcx	832-0350	
23.5	Vis, à tête plate cruciforme, 8-32 X 1/2	Pqt de 12	220-0490/12	Oui
24	Ensemble de poignée de porte	Fibre	SRV7033-071	Oui
24.1	Poignée de porte, Fibre		SRV7060-212	
24.2	Poignée de porte, formé		SRV7044-188	Oui
24.3	Rondelle, Sae, 3/8	Pqt de 3 chac.	832-0990	Oui
24.4	Verrou à came		SRV430-1141	
24.5	Clé, verrou à came		SRV430-1151	
24.6	Écrou, poignée de porte à verrouillage	Pqt de 24	226-0100/24	Oui

Des numéros de pièces de rechange supplémentaires figurent à la page suivante.

IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR. Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.

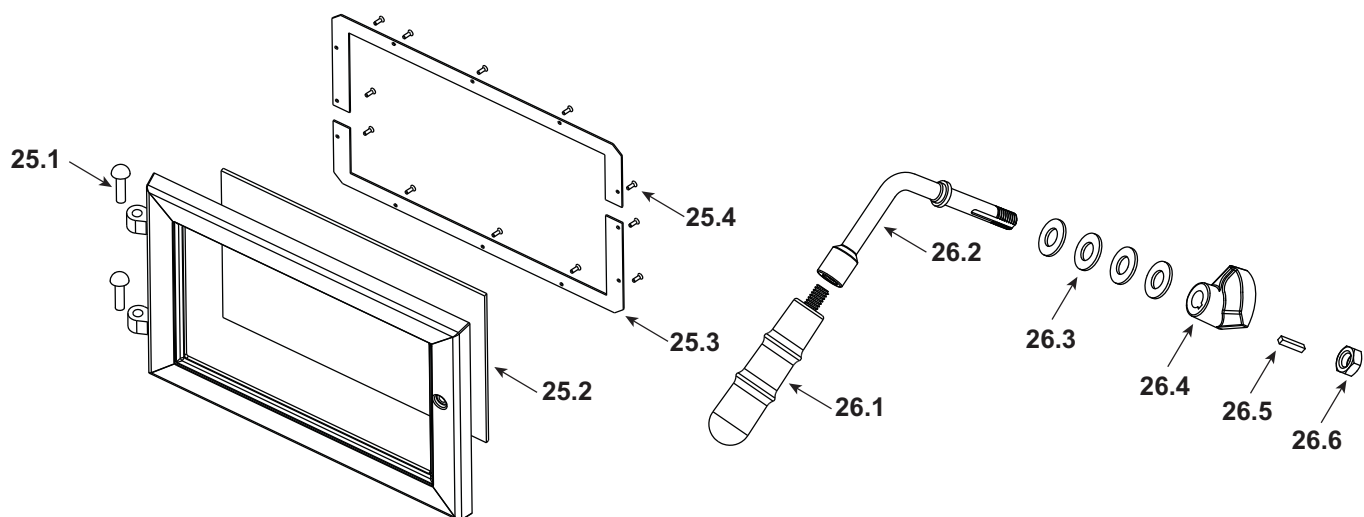


Entreposé  
au dépôt

ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE
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### Assemblage de porte n° 25

### Ensemble de poignée de porte n° 26



25	Assemblage de porte		DR-31RCT	Oui
25.1	Tiges de charnière, 13 mm (1/2 po)	Noir	7000-606/2	Oui
25.2	Ensemble de porte vitrée		SRV7044-027	Oui
	Joint d'étanchéité, ruban de la vitre - coupé sur place à la bonne longueur, 1,52 m (5 pi) long		832-0460	Oui
25.3	Ensemble du cadre de vitre	Qté : 4 mcx	SRV7044-191	
23.5	Vis, à tête plate cruciforme, 8-32 X 1/2	Pqt de 12	220-0490/12	Oui
24	Ensemble de poignée de porte	Fibre	SRV7044-041	Oui
24.1	Poignée de porte, Fibre		SRV433-1380	Oui
24.2	Poignée de porte, formé		SRV7044-188	Oui
24.3	Rondelle, Sae, 3/8	Pqt de 3 chac.	832-0990	Oui
24.4	Verrou à came		SRV430-1141	
24.5	Clé, verrou à came		SRV430-1151	
24.6	Écrou, poignée de porte à verrouillage	Pqt de 24	226-0100/24	Oui

Des numéros de pièces de rechange supplémentaires figurent à la page suivante.





# QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

## COORDONNÉES

Hearth & Home Technologies  
352 Mountain House Road  
Halifax, PA 17032  
Division of HNI INDUSTRIES

**Veillez contacter votre fournisseur Quadra-Fire pour toute question.  
Pour obtenir le numéro de téléphone du distributeur Quadra-Fire le plus proche,  
connectez-vous à [www.quadrafire.com](http://www.quadrafire.com)**



## ATTENTION



### NE PAS JETER CE MANUEL

- Il contient d'importantes instructions d'utilisation et de maintenance.
- Assurez-vous de lire, comprendre et respecter ces instructions pour garantir une installation et un fonctionnement sûrs.
- Ce manuel doit être confié aux personnes responsables de l'utilisation et du fonctionnement.



### Nous vous recommandons de noter les informations pertinentes suivantes concernant votre appareil.

Date d'achat/installation : \_\_\_\_\_

Numéro de série : \_\_\_\_\_

Emplacement sur l'appareil : \_\_\_\_\_

Fournisseur du produit : \_\_\_\_\_

Numéro de téléphone du fournisseur : 1( ) - \_\_\_\_\_

Remarques : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ce produit peut être couvert par l'un ou l'autre des brevets suivants : (États-Unis) 5341794, 5263471, 6688302, 7216645, 7047962 ou autres brevets américains et étrangers en attente.

  
**HEARTH & HOME**  
technologies™

# Manuel d'installation

## Installation et mise en place de l'appareil

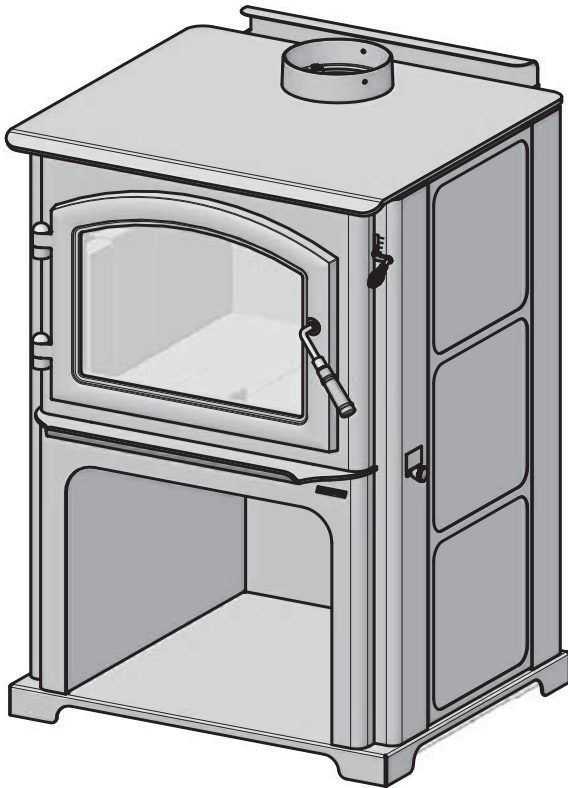
INSTALLATEUR : Ce manuel doit être confié aux personnes responsables de l'utilisation et du fonctionnement.  
PROPRIÉTAIRE : Conservez ce manuel à titre de référence.

**AVIS : NE PAS JETER CE MANUEL**

# QUADRA-FIRE®

APPAREIL AU BOIS DISCOVERY III  
CONTRÔLE AUTOMATIQUE DE LA  
COMBUSTION (ACC)

MODÈLE :  
DISCOVERY-III-C



L'installation et l'entretien de cet appareil doivent être effectués par des techniciens autorisés. Hearth & Home Technologies recommande des professionnels formés dans les usines de HTT ou certifiés NFI.



### AVERTISSEMENT



Le non-respect de ces instructions peut entraîner des dommages matériels, des blessures, voire la mort.

- Ne pas entreposer ni utiliser de l'essence ou d'autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil électrique.
- Ne chauffez pas excessivement – Si l'appareil de chauffage ou le carneau devient rouge, le feu est trop intense. Un chauffage excessif annulera votre garantie.
- Respectez les dégagements spécifiés pour les matériaux inflammables. Le non-respect de ces consignes peut déclencher un incendie.



### AVERTISSEMENT



#### SURFACES CHAUDES !

La vitre et les autres surfaces sont chaudes pendant l'utilisation ET le refroidissement.

**La vitre chaude peut provoquer des brûlures.**

- Ne pas toucher la vitre avant qu'elle ne soit refroidie.
- Ne laissez JAMAIS les enfants toucher la vitre.
- Éloignez les enfants.
- **SURVEILLEZ ATTENTIVEMENT** les enfants présents dans la pièce où le foyer est installé.
- Avertir les enfants et les adultes des dangers associés aux températures élevées.
- La température élevée peut enflammer les vêtements ou d'autres matériaux inflammables.
- Éloignez les vêtements, meubles, rideaux ou autres matières inflammables.



### AVERTISSEMENT



#### Risque d'incendie.

À n'utiliser qu'avec des combustibles solides à base de bois. Les autres combustibles risquent de provoquer des feux incontrôlables et d'émettre des gaz toxiques (par exemple, du monoxyde de carbone).

**NOTE :** To obtain a English translation of this manual, please contact your dealer or visit [www.quadrafire.com](http://www.quadrafire.com)

**REMARQUE :** Pour obtenir une traduction anglaise de ce manuel, veuillez contacter votre revendeur ou visitez [www.quadrafire.com](http://www.quadrafire.com)

## Définition des avertissements de sécurité :



- DANGER! Indique une situation dangereuse qui entraînera la mort ou des blessures graves si elle n'est pas évitée.
- AVERTISSEMENT! Indique une situation dangereuse pouvant entraîner la mort ou des blessures graves si elle n'est pas évitée.
- ATTENTION! Indique une situation dangereuse pouvant provoquer des blessures mineures ou modérées si elle n'est pas évitée.
- AVIS : Désigne des actions pouvant endommager l'appareil ou d'autres biens matériels.

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# 1 Importantes informations concernant la sécurité

## A. Certification de l'appareil

<b>Modèle :</b>	Appareil au bois Discovery III
<b>Laboratoire De La Sécurité :</b>	OMNI Test Laboratories, Inc.
<b>N° et date du rapport :</b>	061-S-67-6
<b>Type :</b>	CHAUFFAGE D'AMBIANCE HOMOLOGUÉ À COMBUSTIBLE SOLIDE.
<b>Norme :</b>	UL1482, ULC S627-00 et (UM) 84-HUD, approuvé pour les maisons mobiles.

## B. Puissance calorifique et rendement

<b>N° de certification EPA :</b>	Numéro: N/A
<b>EPA, Émissions certifiées :</b>	1,6 gramme par heure
<b>*PCI, Efficacité testée :</b>	80,2 %
<b>**PCS, Efficacité testée :</b>	74,2 %
<b>***EPA, Sortie en BTU :</b>	de 13 200 à 36 800 BTU/h
<b>****Pointe d'émission de BTU/heure :</b>	61 700
<b>Taille du conduit :</b>	152 mm (6 po)
<b>Taille de la boîte à feu :</b>	0,06 m <sup>3</sup> (2,26 pi <sup>3</sup> )
<b>Recommandé Longueur De Bûches :</b>	457 mm (18 po)
<b>Combustible :</b>	Avec Bois de corde sec (20% d'humidité)
*Moyenne pondérée du PCI (Faible Valeur calorifique) l'efficacité de l'aide de Sapin de Douglas de bois de dimensions et données collectées au cours de l'EPA test d'émission. PCI suppose que l'humidité est déjà dans un état de vapeur, donc il n'y a pas de perte d'énergie pour vaporiser.	
**Moyenne pondérée HHV (Haut pouvoir calorifique) l'efficacité de l'aide de Sapin de Douglas de bois de dimensions et données collectées au cours de l'EPA test d'émission. HHV comprend la quantité d'énergie nécessaire pour vaporiser l'eau dans le carburant.	
***Une gamme de BTU sorties calculée à l'aide de l'HHV l'Efficacité et le taux de brûlures de l'APE tests à l'aide de Sapin de Douglas de bois de dimensions.	
****Un pic BTU hors de l'appareil calculé en utilisant le maximum de la première heure du taux de combustion du Haut de Test EPA et de BTU contenu de assaisonnée bois (8600) fois l'efficacité.	

Cette Discovery III est Certifié conforme à 2020 crèche en bois d'émissions de particules des normes.



Cet appareil à bois doit être inspecté et réparé périodiquement pour un bon fonctionnement. Consultez le manuel du propriétaire pour de plus amples informations. Il est contraire aux règlements fédéraux d'utiliser ce chauffe-bois d'une manière incompatible avec les instructions d'utilisation du manuel du propriétaire.

**REMARQUE :** Cette installation doit être conforme aux codes locaux. En l'absence de codes locaux, vous devez être en conformité avec les codes d'installation **UL1482-07, (UM) 84-HUD et NFPA211 aux États-Unis et les codes ULC S627-00 et CAN/CSA-B365 au Canada.**

## C. Approuvé pour les maisons mobiles

- Cet appareil peut être installé dans les maisons mobiles, à l'exclusion de la chambre à coucher, à condition qu'une prise d'air extérieure de combustion ait été installée.
- L'intégrité de la structure du sol, des murs et du plafond de la maison mobile doit être maintenue.
- L'appareil doit être correctement fixé à la charpente de la maison mobile avec un fil de mise à terre en cuivre n° 8, et utiliser uniquement une conduite d'évacuation homologuée à double paroi.
- L'ensemble de prise d'air extérieur, n° de pièce OAK-ACC, doit être installé en cas d'utilisation dans une maison mobile.

## D. Spécifications de la porte vitrée

Cet appareil comporte une porte vitrée en vitrocéramique de 5 mm d'épaisseur. N'utilisez que des vitres en vitrocéramique de 5 mm pour remplacer une vitre endommagée. Veuillez contacter votre détaillant si vous devez remplacer la vitre.

## E. Matériaux incombustibles

Matériaux qui ne s'enflamment pas et ne brûlent pas, formés par une combinaison des éléments suivants :

- Acier
- Plâtre
- Brique
- Fer
- Béton
- Tuiles
- Verre
- Ardoise

Matériaux rapportés comme ayant passé **ASTM E 136, méthode standard de détermination du comportement des métaux dans un four à tube vertical de 750°C.**

## F. Matériaux inflammables

Matériel composé/recouvert de l'un des matériaux suivants :

- Bois
- Papier compressé
- Fibres végétales
- Plastique
- Contreplaqué/ panneau de copeaux
- Panneaux de plâtre (cloison sèche)

Tout matériau qui peut s'enflammer ou brûler, à l'épreuve des flammes ou non, recouvert de plâtre ou non.

## G. Sleeping Room

Lorsqu'il est installé dans une chambre à coucher, il est recommandé d'installer un avertisseur de fumée et / ou de monoxyde de carbone dans la chambre à coucher. La taille de la pièce doit être d'au moins 50 pi<sup>3</sup> par 1 000 Btu / heure d'entrée du poêle, si le poêle dépasse la taille de la pièce, l'air doit être installé.

## H. Californie - Prop65



### ATTENTION

Ce produit et les carburants utilisés pour faire fonctionner ce produit (bois), ainsi que les produits de combustion de ces carburants, peuvent vous exposer à des produits chimiques tels que le noir de carbone, connu par l'État de Californie pour causer le cancer, et le monoxyde de carbone connu de l'État de Californie pour provoquer des malformations congénitales ou d'autres problèmes de reproduction. Pour plus d'informations, visitez: [WWW.P65Warnings.ca.gov](http://WWW.P65Warnings.ca.gov)



### AVERTISSEMENT



#### Risque d'incendie.

Hearth & Home Technologies décline toute responsabilité et annulera la garantie dans les cas suivants :

- Installation et utilisation d'un appareil endommagé.
  - Modification de l'appareil.
  - Non-respect des instructions d'installation de Hearth & Home Technologies.
  - Installation et/ou utilisation de composants non autorisés par Hearth & Home Technologies.
  - Utilisation de l'appareil sans tous les composants installés.
  - Utilisation de l'appareil sans les pieds (si fournis avec l'appareil).
  - Ne chauffez PAS de trop
- Ou toute autre action qui risque de créer un danger d'incendie.

Les installations, réglages, modifications, entretiens ou maintenances inappropriés peuvent provoquer des blessures et des dommages matériels.

Pour obtenir une assistance ou des renseignements supplémentaires, consultez un installateur, un réparateur qualifié ou votre fournisseur.

**REMARQUE :** Le fabricant de cet appareil, Hearth & Home Technologies, se réserve le droit de modifier sans préavis ses produits, leurs spécifications ou leurs prix.

Hearth & Home Technologies **NE GARANTIRA PAS** les appareils qui présentent des preuves de surchauffe. La preuve d'une surchauffe du foyer peut en outre comprendre :

- Gauchissement du conduit d'air
- Attaches de brique réfractaire détériorées
- Déflecteur et autres composants intérieurs détériorés

# Manuel de l'installateur

## 2 Par où commencer

### A. Considérations techniques et conseils d'installation

Tenir compte de :

- La sécurité
- L'aspect pratique
- Du volume de circulation
- De la cheminée et du carneau requis

Il est recommandé de préparer un schéma d'installation avant de commencer les travaux, en utilisant des dimensions exactes pour les dégagements et les zones de protection du sol. Si vous n'utilisez aucune cheminée existante, placez l'appareil à un endroit où vous pourrez installer une cheminée homologuée qui traversera le plafond et le toit.

Nous vous recommandons de faire contrôler vos plans par un inspecteur du bâtiment et un représentant de votre compagnie d'assurance avant de commencer l'installation.

Si cet appareil est placé dans un endroit où des enfants sont présents, il est recommandé d'acheter une barrière décorative et de la placer devant l'appareil. Éloignez toujours les enfants pendant le fonctionnement de l'appareil et ne permettez à personne de l'utiliser sans avoir lu les instructions de fonctionnement.



### ATTENTION

**Vérifiez les codes de construction du bâtiment avant l'installation.**

- L'installation DOIT être en conformité avec les codes et réglementations locaux, régionaux, provinciaux et nationaux.
- Consultez la société d'assurance, les responsables locaux de la construction, les pompiers ou les autorités compétentes pour les restrictions, l'inspection des installations et les permis.



### AVERTISSEMENT

**Danger d'asphyxie.**

- Ne branchez PAS cet appareil à un conduit de cheminée utilisé par un autre appareil.
- Ne branchez à AUCUN conduit ou système de distribution d'air.

Les gaz de combustion risquent d'envahir la maison.



**AVIS :** Hearth & Home Technologies n'assume aucune responsabilité pour une performance inadéquate du système de l'appareil causée par :

- Mauvais tirage en raison des conditions ambiantes
- Courants descendants
- Étanchéité de la structure
- Appareils de ventilation mécanique
- Surchauffe causée par des hauteurs de cheminée excessive
- Le rendement idéal est avec une hauteur de cheminée entre 4,26 et 4,88 m (14 et 16 pi) mesurée depuis la base de l'appareil.

### B. Sécurité incendie

Pour obtenir une sécurité incendie adéquate, prenez sérieusement en considération ce qui suit :

1. Installez au minimum un détecteur de fumée à chaque étage de la maison pour garantir votre sécurité. Ils doivent être placés loin de l'appareil et près des chambres à coucher. Suivez les instructions de l'emplacement et d'installation du fabricant des détecteurs de fumée et effectuez régulièrement leur entretien.
2. Placez un extincteur classe A à un endroit facilement accessible pour pouvoir éteindre les petits incendies dus à des braises incandescentes.
3. Un détecteur de CO doit être installé dans la même pièce que l'appareil.
4. Préparez et testez un plan d'évacuation avec au minimum deux chemins d'évacuation.
5. Préparez un plan à suivre en cas d'incendie de cheminée :
  - En cas d'un feu de cheminée :
    - Évacuez immédiatement de la maison
    - Avisez les pompiers.

### C. Pression négative



### AVERTISSEMENT



**Danger d'asphyxie.**

- En cas de pression négative, il pourrait y avoir propagation de fumée, de suie et de monoxyde de carbone.
- Pour qu'il brûle correctement, l'appareil a besoin d'un bon tirage.

Si le volume d'arrivée d'air est insuffisant pour permettre le bon fonctionnement de l'appareil, la pression devient négative. La fumée peut être plus épaisse aux étages inférieurs de la maison.

**Les causes incluent :**

- Ventilateurs d'évacuation (cuisine, salle de bain, etc.)
- Hottes d'aspiration pour cuisinières
- Exigences en air de combustion pour les fournaies, chauffe-eau et autres appareils de chauffage
- Sèche-linge
- Emplacement des conduits de retour d'air à la chaudière ou au système de climatisation.
- Mauvais fonctionnement du système de traitement d'air CVC
- Fuites d'air à l'étage supérieur telles que :
  - Éclairage encastré
  - Trappe d'accès au grenier
  - Fuites du conduit

**Pour minimiser les effets d'une pression d'air négative :**

- Installez l'ensemble de prise d'air extérieur en l'orientant face au vent dominant soufflant pendant la saison de chauffage.
- Assurez un débit d'air extérieur suffisant pour satisfaire les besoins de tous les appareils de combustion et de l'équipement d'évacuation des gaz.
- Contrôlez que la chaudière et les bouches de retour d'air de la climatisation ne sont pas situées à proximité immédiate de l'appareil.
- Évitez d'installer l'appareil près des portes, couloirs ou petits espaces isolés.
- L'éclairage encastré doit être de conception étanche.
- Les trappes d'accès au grenier doivent être protégées contre les intempéries ou scellées.
- Les systèmes de conduits et les joints du traitement de l'air installés dans le grenier doivent être scellés au ruban.
- Éviter les installations dans un sous-sol.

**AVERTISSEMENT****Risque d'incendie.**

Hearth & Home Technologies décline toute responsabilité et annulera la garantie dans les cas suivants :

- Installation et utilisation d'un appareil endommagé.
- Modification de l'appareil.
- Non-respect des instructions d'installation de Hearth & Home Technologies.
- Installation ou utilisation de composants non autorisés par Hearth & Home Technologies.
- Utilisation de l'appareil sans tous les composants installés.
- Utilisation de l'appareil sans les pieds (si fournis avec l'appareil).
- Ne surchauffez PAS – si l'appareil ou le carneau devient rouge, le feu est trop intense.

N'importe quelle de ces actions peut créer un danger d'incendie.

**D. Outils et fournitures nécessaires**

Avant de commencer l'installation, s'assurer que les outils et fournitures suivants sont disponibles.

- Une scie alternative
- Les matériaux de charpente
- Pincettes
- Du mastic pour hautes températures
- Un marteau
- Des gants
- Un tournevis à tête cruciforme
- Une équerre de charpentier à tête cruciforme
- Un tournevis à tête plate
- Une perceuse électrique et des mèches
- Un fil à plomb
- Des lunettes de sécurité
- Un niveau
- Un ruban à mesurer
- Divers vis et clous
- Des vis autotaraudeuses de 1/2 – 3/4 po de long, no 6 ou 8.

**E. Inspection de l'appareil et des composants**

- Retirez l'appareil et ses composants de l'emballage et inspectez pour tout dommage.
- Informez votre détaillant si des pièces ont été endommagées pendant l'expédition.
- **Lisez toutes les instructions avant de commencer l'installation. Suivre attentivement ces instructions pendant l'installation pour garantir une sécurité et une performance optimale.**

**F. Enlèvement des appareils des matériaux d'expédition**

1. Retirez la boîte et les panneaux de structure 2x4 en prenant soin de ne pas endommager le produit.
2. À l'aide d'une douille de 7/16 pouces ou d'une clé à fourche, retirez et jetez les quatre tire-fonds des supports de montage (deux de chaque côté) fixant l'appareil à la palette.
3. Retirez délicatement l'appareil de la palette et placez-le à l'emplacement souhaité en respectant le coussin de foyer et le dégagement aux combustibles aux pages 9 et 10.

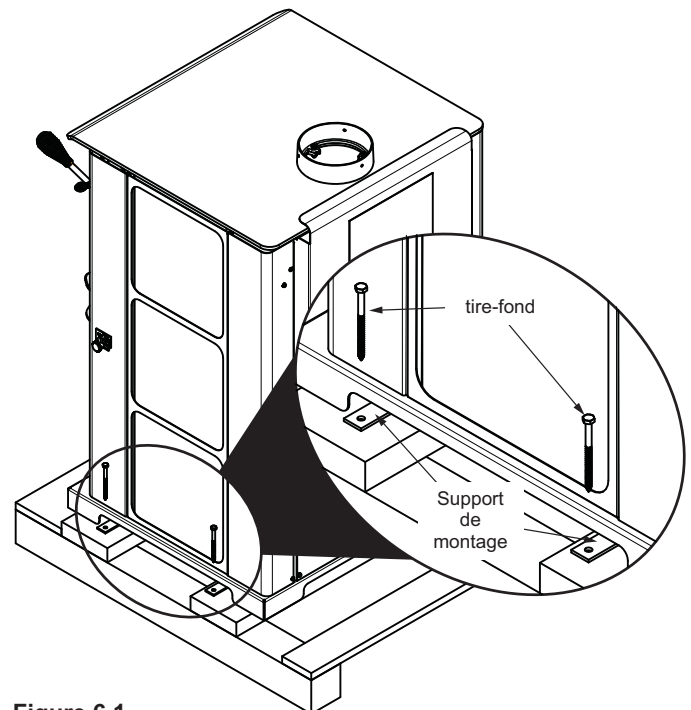


Figure 6.1

**AVERTISSEMENT****Risque d'incendie.**

Inspecter l'appareil et ses composants pour s'assurer qu'ils ne sont pas endommagés. Les pièces endommagées risquent de compromettre le fonctionnement du poêle.

- Ne PAS installer des composants endommagés.
- Ne PAS installer des composants incomplets.
- Ne PAS substituer des composants.

Informez le détaillant si des pièces sont endommagées.

## G. Liste de vérification de l'installation

### ATTENTION INSTALLATEUR :

#### Suivez cette liste de vérification d'une installation régulière

Cette liste de vérification d'une installation régulière doit être utilisée par l'installateur avec, et non au lieu, des instructions contenues dans ce manuel d'installation.

Client : \_\_\_\_\_

Date d'installation : \_\_\_\_\_

Lot/Adresse : \_\_\_\_\_

Emplacement du foyer : \_\_\_\_\_

Installateur : \_\_\_\_\_

N° téléphone du détaillant/fournisseur : \_\_\_\_\_

N° de série : \_\_\_\_\_

Modèle (encercler un) :

**AVERTISSEMENT! Risque d'incendie ou d'explosion !** Ne pas installer le foyer selon ces instructions peut mener à un incendie ou une explosion.

#### Installation de l'appareil

Dégagements par rapport aux matériaux inflammables vérifiés.

Le foyer est de niveau et le connecteur est bien fixé à l'appareil.

Décision prise quant à la taille/hauteur du prolongement de l'âtre.

Ensemble de prise d'air extérieur installé.

Les exigences de protection du sol ont été respectées.

Si l'appareil est branché à une cheminée en maçonnerie, elle doit être nettoyée et inspectée par un professionnel. Si la cheminée en maçonnerie est installée à une cheminée métallique fabriquée en usine, la cheminée doit être installée selon les instructions du fabricant et les dégagements.

OUI SI NON, POURQUOI?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### Cheminée Section 4

La configuration de la cheminée respecte les schémas.

La cheminée est installée, verrouillée et bien fixée en place avec le dégagement adéquat.

La cheminée satisfait aux exigences relatives à la hauteur (14 à 16 pieds).

Le solin du toit est installé et scellé.

Les extrémités sont installées et scellées.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### Dégagements Section 3

Absence de matériaux inflammables dans les zones exigeant des matériaux incombustibles.

La conformité avec toutes les exigences de dégagement du manuel d'installation a été vérifiée.

Le manteau de foyer et la saillie du mur sont conformes aux exigences du manuel d'installation.

Les bandes de protection et le prolongement de l'âtre sont installés selon les exigences du manuel.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### Mise au point de l'appareil Section 5

Tout le matériel d'emballage et de protection a été retiré.

La brique réfractaire, le déflecteur et la laine céramique isolante ont été correctement installés.

Toutes les étiquettes ont été enlevées de la porte vitrée.

Tout le matériel d'emballage a été retiré de l'intérieur/extérieur/dessus du foyer.

Le sac du manuel et son contenu ont été retirés de l'intérieur/dessous du foyer.

et est confié à la personne responsable de l'utilisation et du fonctionnement du foyer.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### Hearth & Home Technologies recommande :

- Que vous photographiez l'installation et copiez cette liste de vérification pour vos dossiers.
- Que cette liste de vérification demeure visible en tout temps sur le foyer, jusqu'à ce que l'installation soit terminée.

**Commentaire :** De plus amples descriptions des problèmes, de la personne qui en est responsable (installateur/constructeur/autres gens du métier, etc.) et les actions correctives requises :

Commentaires communiqués à la partie responsable \_\_\_\_\_ par \_\_\_\_\_ le \_\_\_\_\_  
(Constructeur/entrepreneur général) (Installateur) (Date)



# 3 Dimensions et dégagements

## A. Dimensions de l'appareil

**REMARQUE :** Buse d'un diamètre intérieur de 152 mm (6 po)

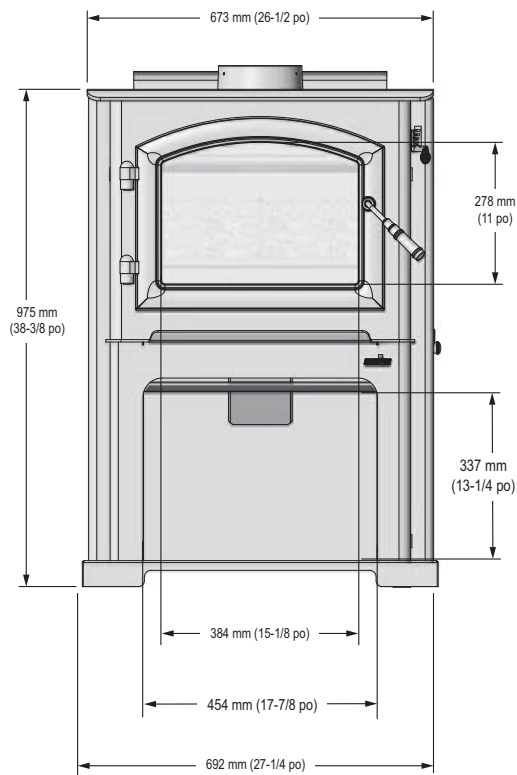


Figure 8.1 - Vue frontale

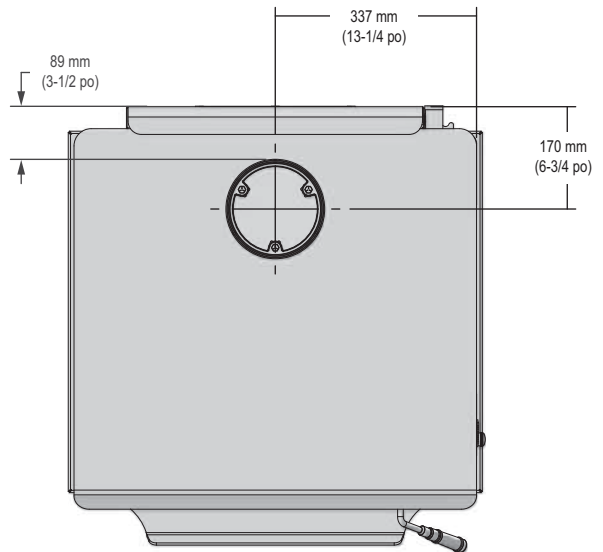


Figure 8.2 - Vue de dessus

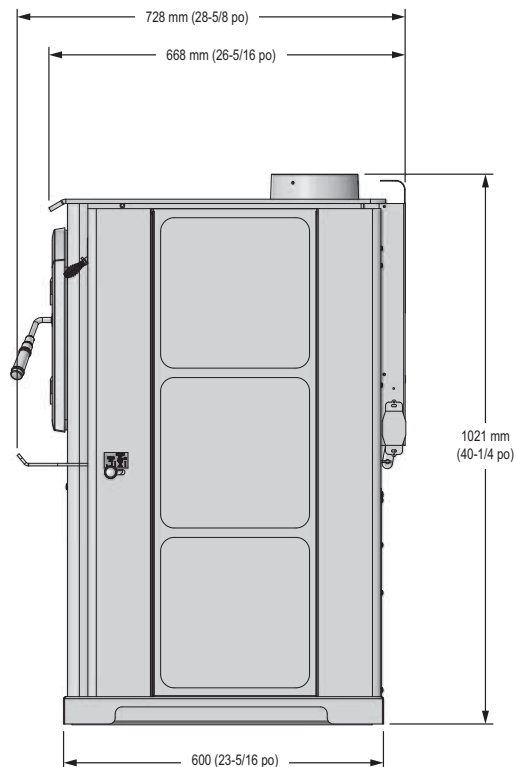


Figure 8.3 - Vue latérale

## B. Exigences de protection de l'âtre

**PROTECTION CONTRE LES BRAISES :** Il est nécessaire d'installer une protection de sol de type I.

Le protecteur de sol doit être d'un matériau incombustible, se prolongeant sous l'appareil avec au moins 406 mm (16 po) devant la vitre et 203 mm (8 po) de chaque côté de la porte de chargement du combustible. Ouvrez la porte et mesurez une distance de 203 mm (8 po) depuis le bord latéral de l'ouverture sur la face du poêle.

**Au Canada,** une protection de sol similaire doit être fournie à 457 mm (18 pouces) à l'avant et à 203 mm (8 pouces) des côtés et de l'arrière de l'appareil, à moins que le foyer ne soit contre le mur (**Figure 9.2**). Ensuite, le dégagement peut être réduit à l'aide d'un tuyau à double paroi et du tableau Dégagement par rapport aux matériaux inflammables indiqué à la page 10.

**\*Exception :** Les protections incombustibles pour le sol doivent s'étendre sous le conduit lorsque l'évacuation est horizontale et se prolonger de 51 mm (2 po) de chaque côté du conduit (**Voir Figure 9.2**).

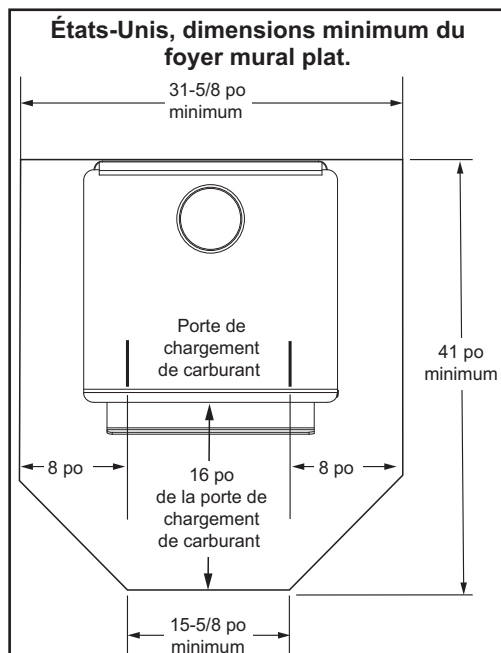


Figure 9.1

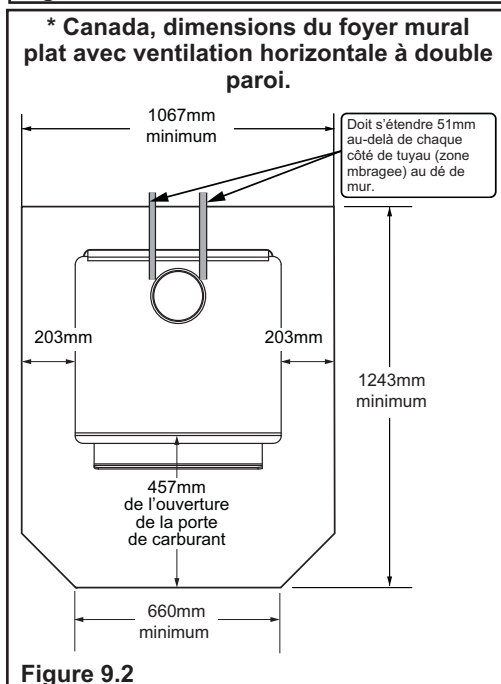
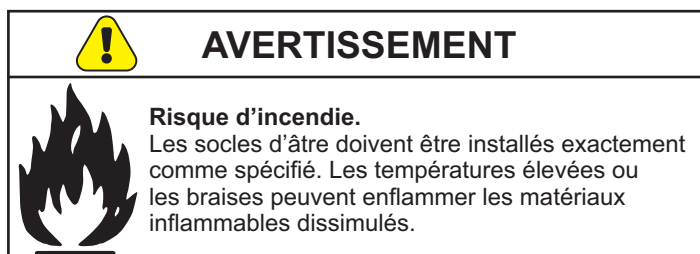


Figure 9.2

\*\* Cette dimension varie en fonction de l'installation.



### Dimensions du coussinet du coin avec un seul tuyau mural:

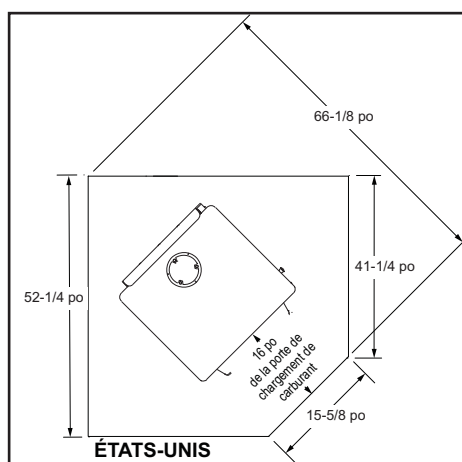


Figure 9.3

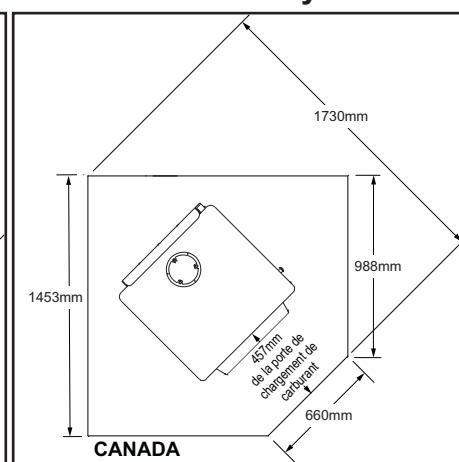


Figure 9.5

### Dimensions du coussinet du coin avec tuyau double paroi:

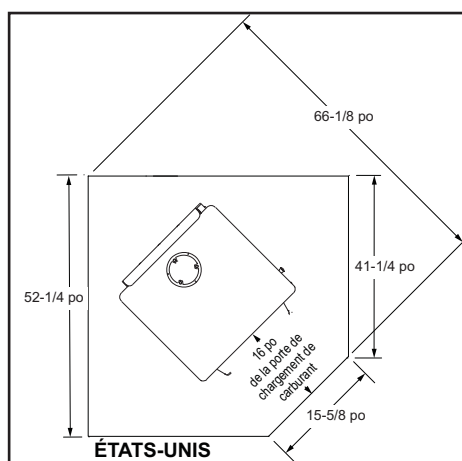


Figure 9.4

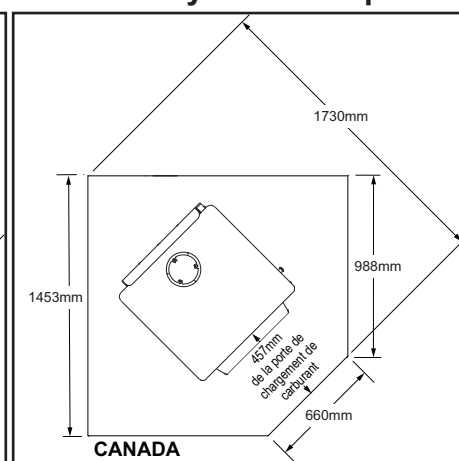
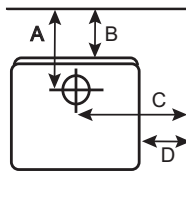


Figure 9.6

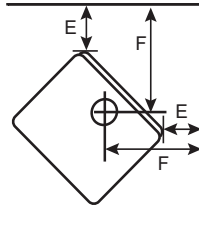
## C. Dégagement par rapport aux matériaux inflammables

DÉGAGEMENTS MINIMUMS PAR RAPPORT AUX MATÉRIAUX INFLAMMABLES en millimètre (pouces)								
Remarque : Les dimensions « A », « C » et « F » sont mesurées par rapport au centre de la buse.								
DISCOVERY III WOOD APPLIANCE (2020)								
	A	B	C	D	E	F	G	H
<b>INSTALLATION : ENTIÈREMENT VERTICAL</b>								
<b>CONDUIT À SIMPLE PAROI</b>								
DISCOVERY III	470 (18-1/2)	298 (11-3/4)	699 (27-1/2)	368 (14-1/2)	254 (8)	521 (20-1/2)	1359 (53-1/2)	305 (12)
<b>CONDUIT À DOUBLE PAROI</b>								
DISCOVERY III	305 (12)	133 (5-1/4)	699 (27-1/2)	368 (14-1/2)	254 (8)	521 (20-1/2)	1359 (53-1/2)	305 (12)
<b>INSTALLATION : COUDE DE 90° EN HAUT DU POÊLE ET À TRAVERS LE MUR ARRIÈRE</b>								
<b>CONDUIT À DOUBLE PAROI</b>								
DISCOVERY III	292 (11-1/2)	121 (4-3/4)	699 (27-1/2)	368 (14-1/2)	254 (8)	521 (20-1/2)	1359 (53-1/2)	S.O.
<b>INSTALLATION: ALCOVE</b>								
<b>CONDUIT À DOUBLE PAROI</b>								
DISCOVERY III	406 (16)	238 (9-3/8)	686 (27)	352 (13-7/8)	S.O.	S.O.	1359 (53-1/2)	305 (12)
<b>En alcôve seulement :</b> Connecteur de conduit homologué de six pouces à double paroi isolé à l'air avec une cheminée préfabriquée homologuée <b>UL103 HT</b> de Classe A ou une cheminée de maçonnerie. L'alcôve ne doit pas avoir une profondeur supérieure à 1219 mm (48 po) et dépasser les dégagements de référence. Au Canada, les cheminées préfabriquées de 650 °C doivent être en conformité avec <b>CAN/ULC-S269 M87</b> .								
* RESPECTEZ LES DÉGAGEMENTS DU CONDUIT ÉTABLIS PAR LE FABRICANT								

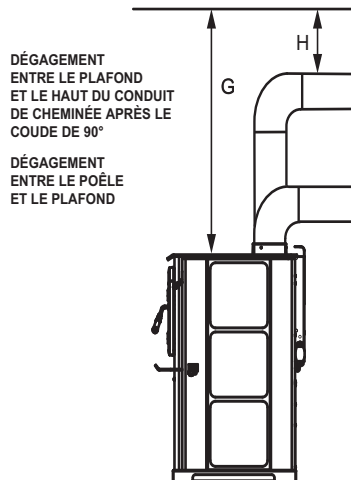
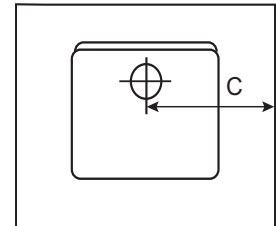
MUR ARRIÈRE / MUR LATÉRAL



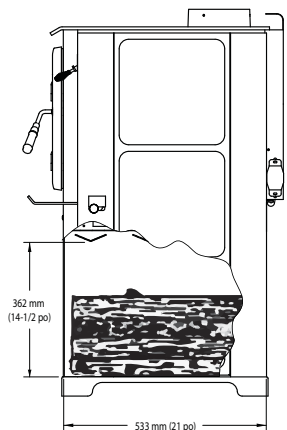
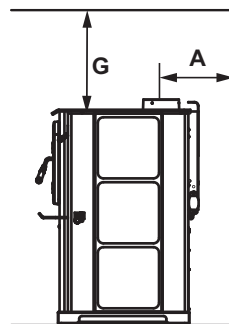
INSTALLATION DANS UN COIN



VUE DE DESSUS DE L'ALCÔVE



VUE LATÉRALE DE L'ALCÔVE



**REMARQUE :** Les dégagements ne peuvent être diminués que si cela est autorisé par les autorités compétentes.



### AVERTISSEMENT



#### Risque d'incendie.

- Respectez les dégagements spécifiés pour les matériaux combustibles.
- Le non-respect de ces consignes peut causer un incendie.

#### REMARQUE : Dégagement pour l'entretien

- Afin de remplacer l'ensemble de tubes, un dégagement de 433 mm (19 po) est nécessaire sur le côté droit de l'appareil pour pouvoir enlever les tubes sans déplacer l'appareil.
- Si un tel espace n'est pas disponible, l'appareil devra être déconnecté de la cheminée pour pouvoir procéder au remplacement des tubes.

# 4 Systèmes de cheminée

## A. Déterminer l'emplacement de votre appareil et cheminée

L'emplacement choisi pour l'appareil et la cheminée aura une influence sur leurs performances. Comme illustré sur la Figure 11.1, le conduit d'évacuation :

- Doit traverser l'espace d'air chaud à l'intérieur du bâtiment. Cela permet d'améliorer le tirage, surtout pendant l'allumage et l'extinction du feu.
- Traversez le toit dans sa partie la plus haute. Cela minimise l'impact de l'action des vents.

- Quand vous choisissez l'emplacement de l'appareil, évitez les solins du plafond et du grenier ainsi que les chevrons.
  - Placez le chapeau de l'extrémité loin des arbres, structures adjacentes, lignes de toit irrégulières et autres obstacles.
- Votre concessionnaire connaît bien votre région et peut généralement faire des suggestions ou proposer des solutions efficaces à vos problèmes de cheminée.

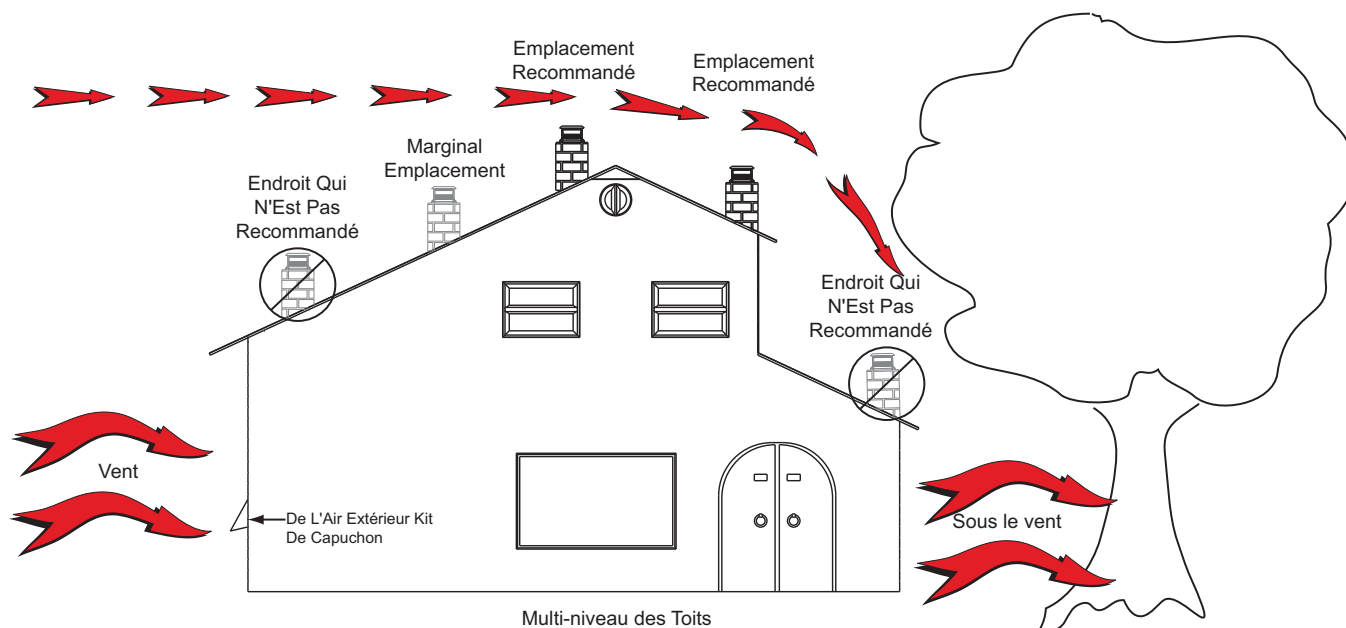


Figure 11.1

## B. Exigences relatives à l'extrémité de la cheminée

Suivez les instructions du fabricant en ce qui concerne les dégagements, les attaches, les solins à tôle galvanisée et du chapeau de l'extrémité de la cheminée (**Figures 12.1 et 12.2**).

- La cheminée doit être dotée d'un chapeau homologué et approuvé.
- Elle ne doit pas se trouver à un endroit où la neige ou d'autres matériaux risquent de la boucher.
- Son extrémité doit se trouver à au moins 91 cm (3 pi) au-dessus du toit et à au moins 61 cm (2 pi) au-dessus de toute partie du toit se trouvant à moins 305 cm (10 pi).
- Elle doit être loin des arbres et autres structures

### AVIS :

- La performance d'une cheminée peut être variable.
- Les arbres, les bâtiments, l'inclinaison du toit et les conditions de vent peuvent affecter les performances de la cheminée.
- La hauteur de la cheminée devra éventuellement être ajustée si le poêle fume ou le tirage est trop fort.

**AVIS :** Placer l'appareil dans un sous-sol ou un endroit où peuvent survenir de considérables mouvements d'air peut provoquer une propagation intermittente de fumée de l'appareil. Ne pas situer l'appareil près de:

- Portes fréquemment ouvertes
- Sorties ou retours de chauffage central

## C. Règle du 2-10-3

**Il s'agit d'exigences de sécurité uniquement. Elles n'ont pas pour but de garantir un bon tirage.**

Cet appareil a un carneau de 152 mm (6 po) de diamètre à titre de buse sur l'appareil.

- La modification du diamètre de la cheminée peut altérer la tire et causer une faible performance.
- Il n'est pas recommandé d'utiliser des dévoiements et des coudes aux altitudes supérieures à 1219 m (4000 pi) au-dessus du niveau de la mer, ou lorsque d'autres facteurs peuvent influencer le tirage de la cheminée.

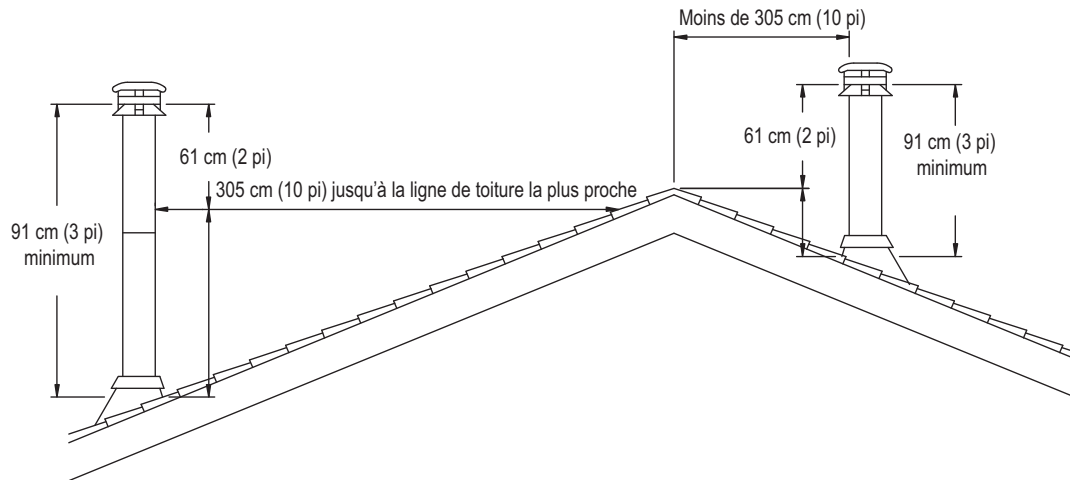


Figure 12.1

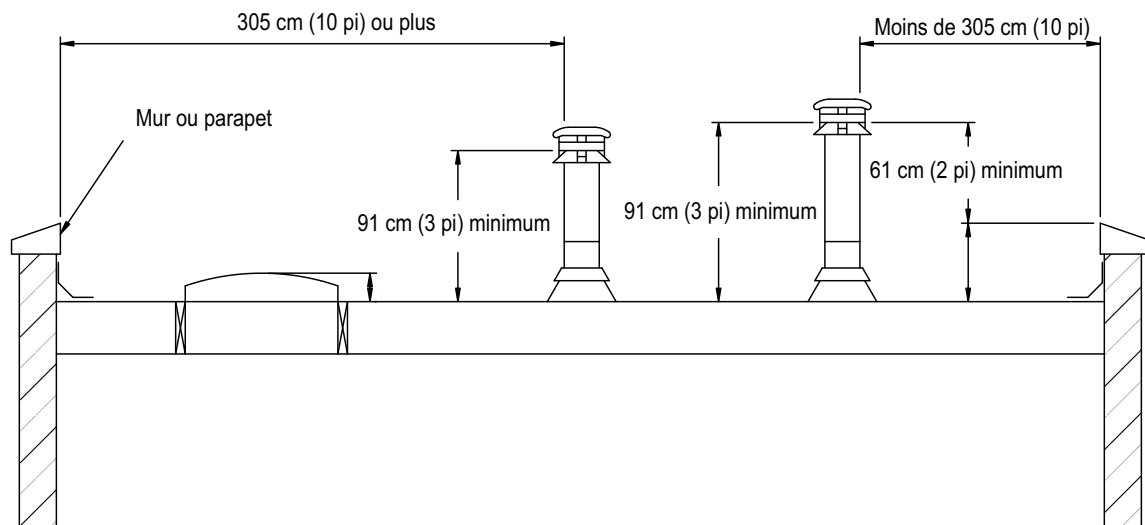






Figure 12.2

## D. Hauteur/élévation et course de la cheminée

Ce produit a été conçu et testé pour une cheminée de 152 mm (6 po) de diamètre et 420 à 480 cm (14 à 16 pi) de hauteur (hauteur de l'appareil inclus) mesurée depuis la base de l'appareil. Plus vous vous éloignez de ces dimensions, plus vous risquez de compromettre les performances.

La hauteur de la cheminée devra éventuellement être augmentée de 2 à 3 % pour chaque tranche de 300 m (1000 pi) au-dessus du niveau de la mer. Il n'est pas recommandé d'utiliser des dévoiements ou des coudes aux altitudes supérieures à 1219 m (4000 pi) au-dessus du niveau de la mer lorsque d'autres facteurs peuvent influencer le tirage de la cheminée.

	<b>AVERTISSEMENT</b>
	<p><b>Risque d'incendie.</b> Inspection de la cheminée :</p> <ul style="list-style-type: none"> <li>• La cheminée doit être en bon état.</li> <li>• Elle doit être en conformité avec la norme NFPA 211.</li> <li>• La cheminée préfabriquée doit être de 152 mm (6 po) selon UL103 HT.</li> </ul>

	<b>AVERTISSEMENT</b>
	<p><b>Danger d'asphyxie.</b></p> <ul style="list-style-type: none"> <li>• NE BRANCHEZ PAS CET APPAREIL À UN CONDUIT DE CHEMINÉE UTILISÉ PAR UN AUTRE APPAREIL.</li> <li>• NE BRANCHEZ À AUCUN CONDUIT OU SYSTÈME DE DISTRIBUTION D'AIR.</li> </ul> <p>Les gaz de combustion risquent d'envahir la maison.</p>

	<b>AVERTISSEMENT</b>
<p>Les installations, réglages, modifications, entretiens ou maintenances inappropriés peuvent provoquer des blessures et des dommages matériels. Consultez les informations du manuel fourni avec ce poêle. Pour obtenir une assistance ou des renseignements supplémentaires, consultez un installateur, un réparateur qualifié ou votre détaillant.</p>	

## E. Composants d'évacuation des gaz

### Carneau :

On l'appelle également conduit de fumée ou tuyau de l'appareil. Le carneau connecte l'appareil à la cheminée. Il doit être en acier doux noir de calibre 24 ou en acier cuivré de calibre 26 et avoir un diamètre minimum de 152 mm (6 po). On peut également utiliser un conduit à double paroi approuvé avec lame d'air.

### Gaine de conduit :

Dispositif préfabriqué ou fabriqué sur place et installé dans des murs inflammables par lequel passe le carneau vers la cheminée. Elle évite aux murs de s'enflammer. Les gaines de conduit fabriquées sur place doivent être en conformité avec les normes NFPA 211. Les gaines préfabriquées doivent être adaptées à la cheminée sélectionnée et être conformes aux normes UL 103 Type HT. Suivez les instructions des fabricants de gaines préfabriquées pour cheminées en maçonnerie et cheminées préfabriquées.

### Cheminée :

Peu importe que la cheminée soit neuve ou existante, en maçonnerie ou préfabriquée, elle doit satisfaire aux exigences minimales et comme il est spécifié à la section 4F.

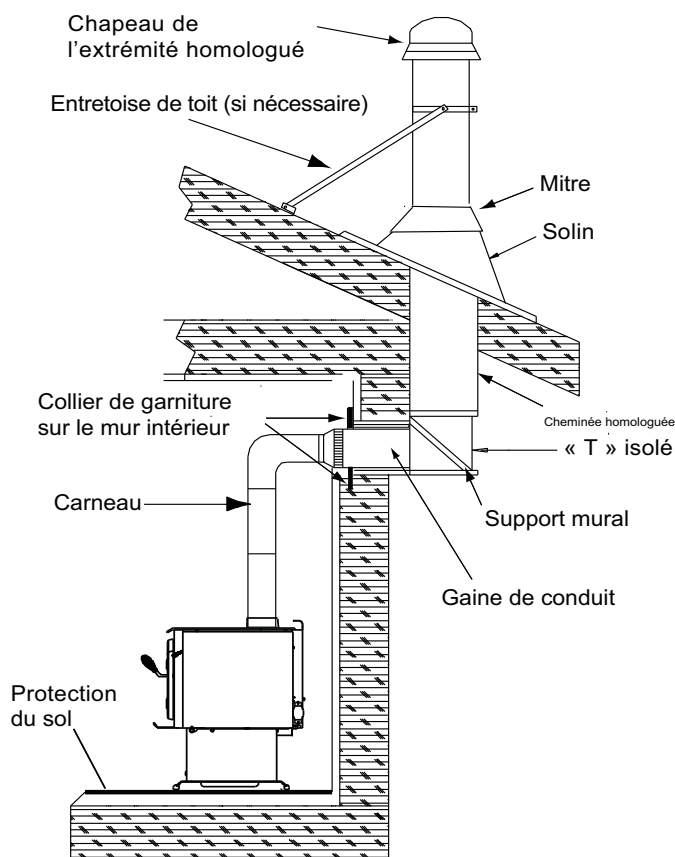


Figure 13.1 - Cheminée préfabriquée pour l'extérieur

## F. Systèmes de cheminée

### Cheminée préfabriquée en métal

- Elle doit avoir un diamètre intérieur de 152 mm (6 po), être conçue pour des températures élevées et être homologuée UL 103 HT (2100 °F) ou ULC S629M.
- Vous devez utiliser les composants requis par le fabricant pour l'installation.
- Vous devez respecter les dégagements requis par le fabricant pour l'installation.
- Reportez-vous aux instructions d'installation des fabricants.

**REMARQUE :** Au Canada, une cheminée préfabriquée doit être conforme aux normes de sécurité, être homologuée UL103HT (2100 °F) classe « A » ou être en conformité avec la NORME CAN/ULC-S629M APPLICABLE AUX CHEMINÉES PRÉFABRIQUÉES de 650 °C.

**Gaine de conduit**

Construite sur place pour une cheminée en maçonnerie :

**Composants**

- Une cheminée préfabriquée isolée (isolant plein) doit avoir une longueur minimum de 305 mm (12 po) (plus longue si les murs sont plus épais), un diamètre intérieur de 152 mm (6 po) et être en conformité avec UL 103 type HT. La cheminée doit dépasser du mur intérieur de 51 mm (2 po) minimum et du mur extérieur de 25 mm (1 po) minimum.
- L'entretoise, le collier de garniture et la bride murale doivent être adaptés à la cheminée pleine choisie.
- Boisseau d'argile d'un diamètre minimum de 203 mm (8 po) (si elle n'est pas déjà installée dans la cheminée) et mortier réfractaire.
- Lorsque la juridiction nécessite l'installation d'un doublage de cheminée approuvée dans la cheminée de maçonnerie.

**Dégagements**

- Les dégagements d'une cheminée en maçonnerie doivent être en conformité avec NFPA 211, à savoir 51 mm (2 po) minimum par rapport aux supports métalliques et matériaux inflammables.
- Le dégagement autour du carneau doit être de 25 mm (1 po) minimum.
- L'ouverture en haut du mur doit être à au moins 343 mm (13 1/2 po) du plafond ou à 114 mm (4 1/2 po) au-dessus du dégagement minimum spécifié par le fabricant du carneau. Le dégagement vertical minimum selon NFPA 211 est de 457 mm (18 po) depuis le carneau et le plafond ou égal à la valeur minimale recommandée par le fabricant du carneau (**Figure 14.2**).

**Instructions :**

1. Pratiquez une ouverture dans le mur intérieur à la hauteur prévue pour l'entrée du carneau dans la cheminée en maçonnerie (**Figure 14.2**).
2. Cette ouverture doit comporter un revêtement en argile ou équivalent d'un diamètre minimum de 203 mm (8 po), retenu par du mortier réfractaire.
3. Construisez un cadre de 432 mm x 432 mm (17 x 17 po) (dimensions extérieures) pour l'ouverture du mur en utilisant du bois de charpente de 5 x 5 cm (2 x 2 po). L'intérieur de ce cadre doit avoir une ouverture de 356 x 356 mm (14 x 14 po) minimum (**Figure 14.2**).
4. Installez l'entretoise du mur sur le côté cheminée du cadre.
5. Clouez le cadre à l'ouverture du mur. L'entretoise doit être placée du côté cheminée.
6. Insérez le tronçon de cheminée avec isolation dans la paroi extérieure de la cheminée en maçonnerie.
7. Utilisez une bride murale pour attacher solidement la cheminée avec isolation pleine à la cheminée en maçonnerie.
8. Insérez un tronçon de carneau dans la cheminée. Contrôlez qu'il ne dépasse pas le bord du revêtement de boisseau d'argile de la cheminée à l'intérieur de la cheminée.
9. Scellez l'extrémité du carneau au boisseau d'argile au moyen de mortier réfractaire.
10. Installez le collier de garniture sur le tronçon de cheminée à isolation pleine.

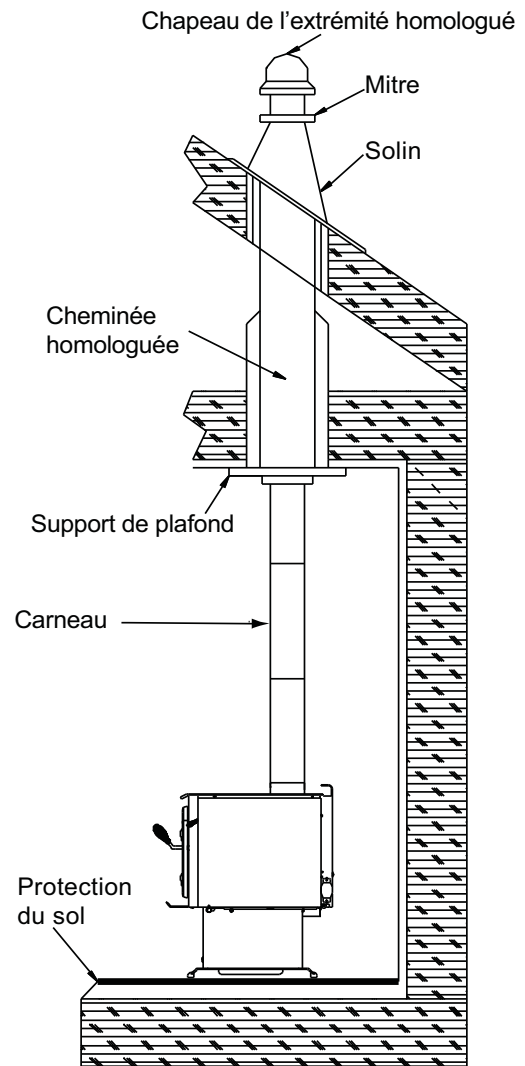


Figure 14.1 - Cheminée préfabriquée pour l'intérieur

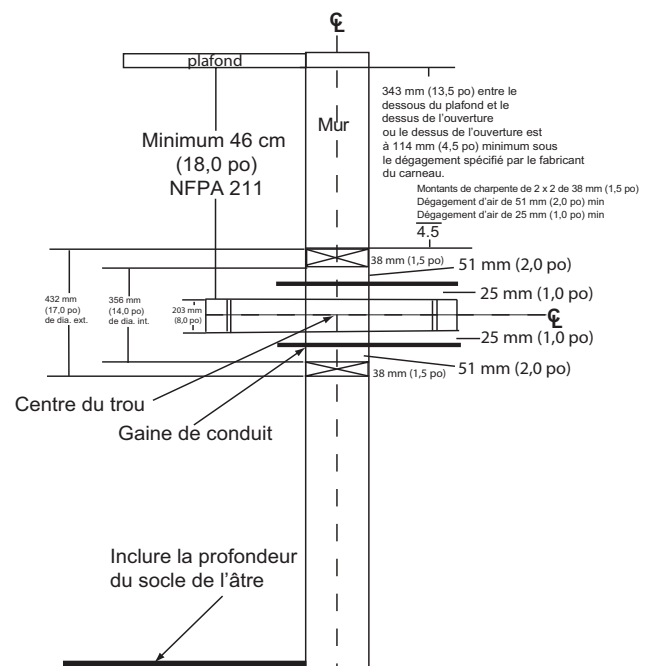


Figure 14.2

## Cheminée pleine et supports métalliques constituant la gaine du conduit.

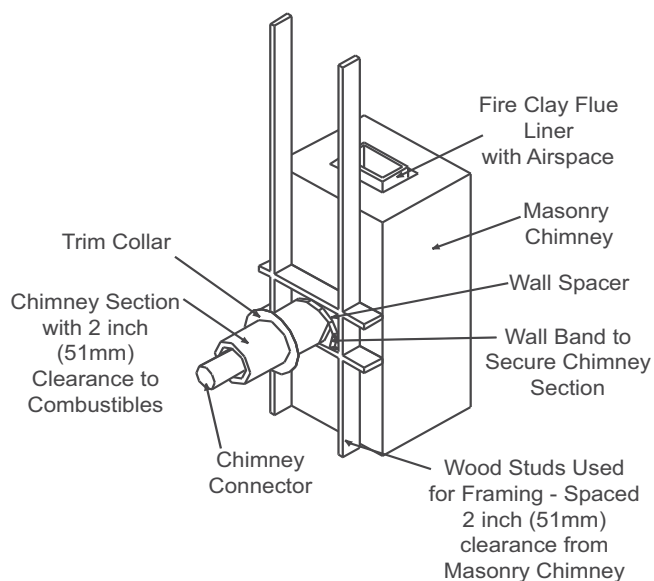


Figure 15.1

### AVERTISSEMENT

**Risque d'incendie.**  
Ne PAS utiliser de matériau isolant ou d'autres matériaux inflammables entre les entretoises.

- TOUJOURS respecter les dégagements spécifiés autour des conduits d'évacuation et des entretoises.
- Installer les entretoises comme spécifié.

Ne pas maintenir l'isolation ou d'autres matériaux à distance du conduit d'évacuation peut provoquer un incendie.

## G. Installation des composants de la cheminée

### Carneau

#### Carneau à une seule paroi ou tuyau d'appareil.

Il doit être en acier doux de calibre 24 ou en acier cuivré de calibre 26. Ces sections doivent être fixées entre elles et à l'appareil en orientant l'extrémité ondulée (mâle) en direction de la buse, utilisez 3 vis autotaraudeuses. Vous devez observer les dégagements minimum par rapport aux matériaux inflammables. Au Canada, si on souhaite traverser une paroi ou une cloison en matériau inflammable, l'installation doit être en conformité avec **CAN/CSA-B365**.

#### Carneaux préfabriqués (ventilés) homologués.

Un carneau (ventilé) homologué doit être utilisé si l'appareil est installé dans une maison mobile. Les carneaux homologués doivent être adaptés les uns aux autres pour obtenir un bon ajustement et une bonne étanchéité.

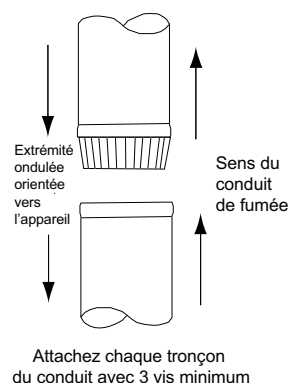


Figure 15.3 - Carneau (tuyau d'appareil)

Min. de dégagement entre la cheminée et l'entretoise murale et les matériaux inflammables - 51 mm (2 po)

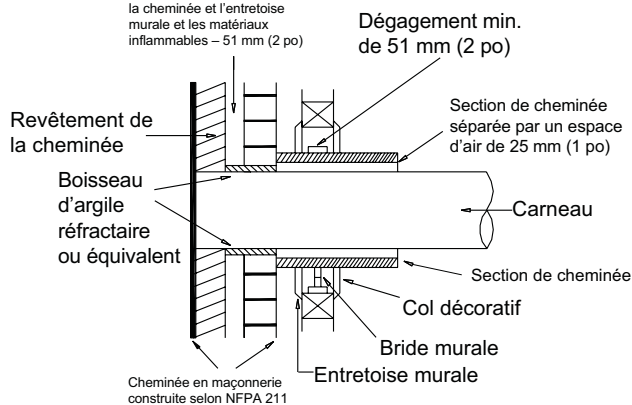


Figure 15.2

### AVERTISSEMENT

**Risque d'incendie.**  
Suivez les instructions d'installation du fabricant du carneau.

**Utilisez UNIQUEMENT des connecteurs :**

- Dans la pièce, entre l'appareil et le plafond ou le mur.

**Le connecteur ne doit PAS traverser :**

- Un grenier ou des combles
- Un placard ou tout autre espace clos similaire
- Le plancher ou le plafond

Respectez tous les dégagements minimums définis par rapport aux matériaux inflammables.

## H. Tirage approprié

Pour garantir le bon fonctionnement de votre foyer encastré Quadra-Fire, le tirage de votre cheminée (pression statique) doit être d'environ -0,10 po (CE) sur la position de combustion élevée et de -0,04 po (CE) sur la position basse; la pression est mesurée à 152 mm (6 po) au-dessus du foyer, après une heure de fonctionnement sur chaque position.



# 5 Installation de l'appareil

## A. Installation de l'ensemble de prise d'air extérieur




Une source d'air (oxygène) est nécessaire à la combustion. L'air de combustion consommé par le feu doit être remplacé. Il est remplacé par l'air frais qui s'infiltré à travers les fenêtres et les portes. Dans les maisons équipées de portes et de fenêtres étanches, une prise d'air extérieur est nécessaire. Un ensemble de prise d'air extérieur en option est disponible.



### Éléments nécessaires à l'installation (non fournis)



- Tuyau flexible en aluminium de 102 mm (4 po). Si vous utilisez un autre matériau, il doit être durable, incombustible et résistant à une température de 177 °C (350 °F). Coupez le tuyau à la longueur requise pour votre installation.
- Tournevis à tête cruciforme
- Silicone pour joints
- Mèches et scies pour percer des trous dans le mur ou le sol de votre maison.

### Instructions d'installation

1. Déballez toutes les pièces.
2. **Installation au sol et à l'arrière :**  
Percez un trou de 102 mm (4 po) dans le mur extérieur ou dans le sol pour le tuyau d'entrée de l'air extérieur. Utilisez un tuyau en aluminium flexible ou rigide de 102 mm (4 po) pour la connexion directe de l'appareil à la prise d'air extérieur. Utilisez le chapeau de l'extrémité fourni, incluant une grille anti-rongeurs. Utilisez de la silicone pour créer un joint étanche entre le mur (ou le sol) et le tuyau et empêcher l'infiltration d'humidité.

	<b>AVERTISSEMENT</b>
	<p><b>Risque d'incendie. Danger d'asphyxie.</b></p> <p><u>Ne laissez pas entrer l'air de combustion extérieur :</u></p> <ul style="list-style-type: none"> <li>• D'une cavité du mur, du sol ou du plafond.</li> <li>• D'un espace fermé, par exemple dans un grenier ou garage.</li> <li>• Près de conduits d'évacuation ou de cheminées.</li> </ul> <p>Cela risque de provoquer de la fumée ou des odeurs.</p>
	

	<b>AVERTISSEMENT</b>
	<p><b>Danger d'asphyxie.</b></p> <p>L'entrée d'air extérieur doit être située de façon à ce qu'elle ne puisse pas être bouchée par :</p> <ul style="list-style-type: none"> <li>• Des feuilles</li> <li>• De la neige ou de la glace</li> <li>• D'autres débris</li> </ul> <p>Si elle est obstruée, le débit d'air de combustion risque d'être insuffisant. Une propagation de fumée dans la maison peut déclencher les alarmes ou gêner les personnes sensibles.</p>

	<b>AVERTISSEMENT</b>
	<p><b>Danger d'asphyxie.</b></p> <p>La longueur du tuyau connecté à la prise d'air extérieur ne doit PAS dépasser la hauteur verticale du conduit de fumée.</p> <ul style="list-style-type: none"> <li>• Sinon, le feu ne brûlera pas correctement.</li> <li>• La fumée se propage dans la pièce quand la porte est ouverte, en raison du manque d'air.</li> </ul>

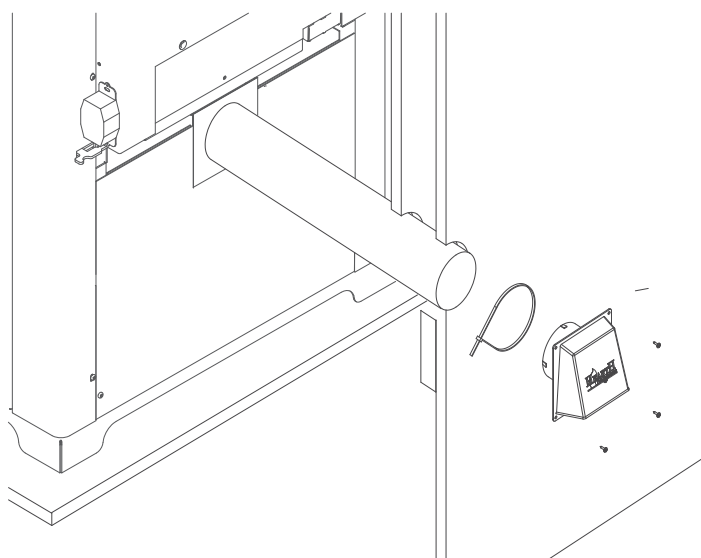


Figure 16.1 - Installation arrière

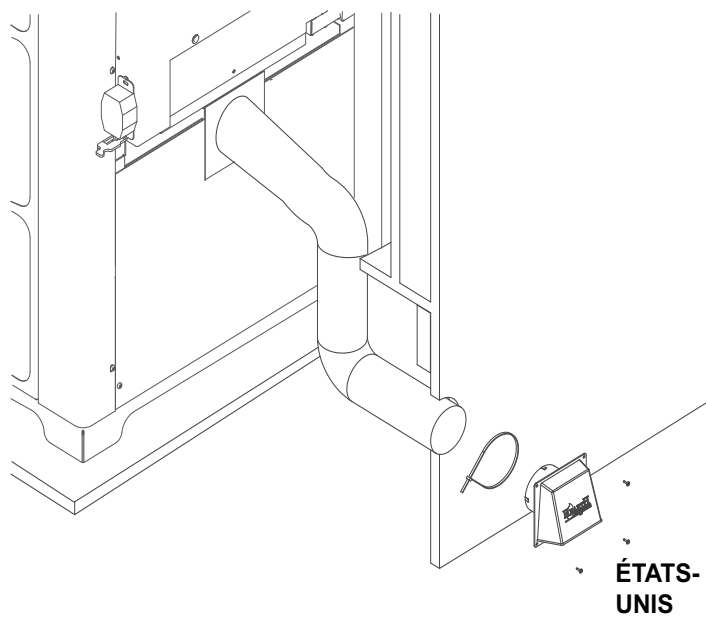


Figure 16.2 - Installation au sol

ÉTATS-UNIS

## B. Retrait et installation du panneau décoratif

Votre appareil est expédié avec deux options de côtés, l'une est un panneau latéral complet (**Figure 17.1**) et un panneau latéral à tuiles (**Figure 17.2**). Il y en a deux chacun et il n'y a aucun côté droit ou gauche, ceux-ci pouvant donc être changés à tout moment.

Les appareils sont expédiés avec une pince pour le panneau latéral complet, de chaque côté. Retirez et jetez les goupilles avant l'utilisation (**Figures 17.3**).

### Retrait du panneau latéral complet

- 1. Retirez le panneau complet du côté en le soulevant et en le retirant de l'appareil (utilisez un outil plat afin de forcer le bas au besoin) (**Figure 17.4**).

**REMARQUE :** Utilisez uniquement une peinture haute température de 149 °C (300 °F) peut être utilisée pour repeindre le panneau latéral complet! **NE PAS** utiliser sur le reste de l'appareil qui nécessite une peinture haute température de 649 °C (1200 °F).

### Installation du panneau latéral à tuiles

1. Retirez le cadre des tuiles du côté de l'appareil en le soulevant et le retirant de l'appareil (**La figure 17.4 présente le retrait du panneau latéral complet**).
2. Empilez les tuiles incombustibles dans le cadre, comme il est indiqué à la **Figure 17.2**.
3. Fixez à nouveau le cadre des tuiles (**Figure 17.5**).

### Exigences concernant la dimension des carreaux :

Épaisseur maximale : 8 mm (5/16 po)

Longueur et largeur maximale : Carré de 302 mm (11-7/8 po)

Longueur et largeur minimale : Carré de 297 mm (11-11/16 po)

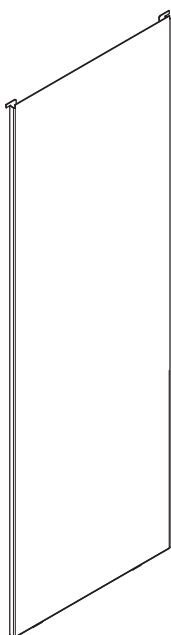


Figure 17.1

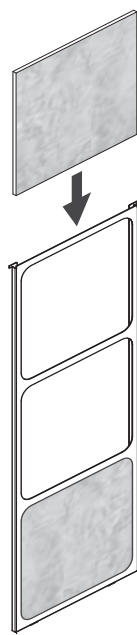


Figure 17.2

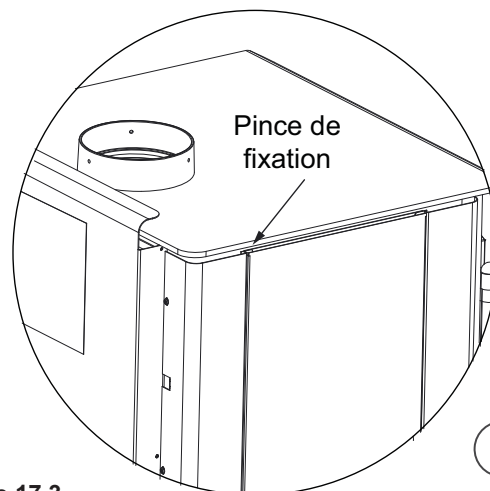


Figure 17.3

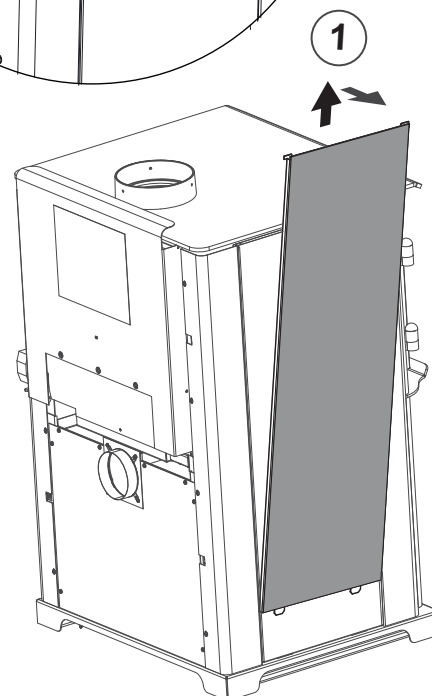


Figure 17.4

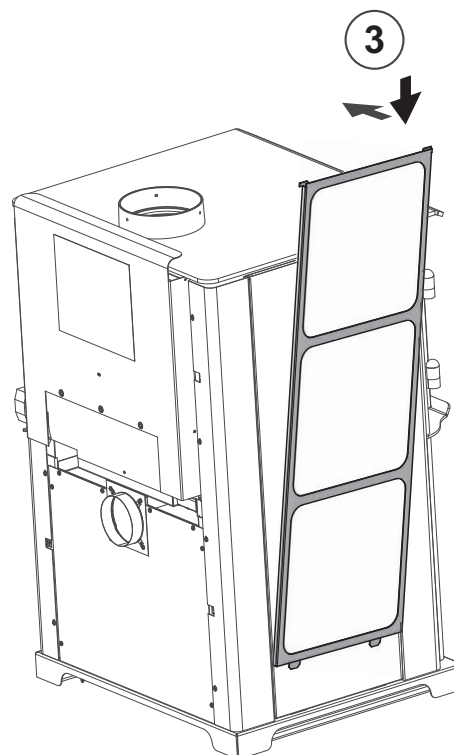


Figure 17.5



## AVERTISSEMENT



**Risque d'incendie.**  
N'utilisez que des tuiles de matériaux incombustibles.

### C. Assemblage de la poignée de porte

1. Installez la poignée en fibre à tige de la poignée de la porte.

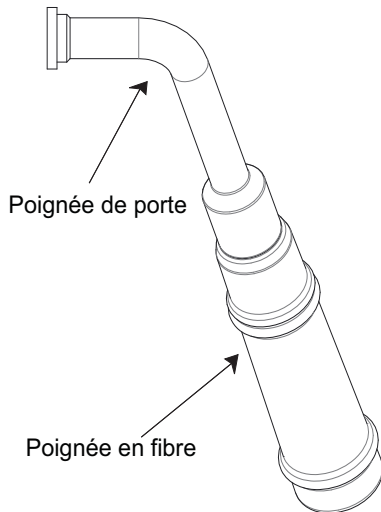


Figure 18.1

### D. Ventilateur en option

1. Localisez les boulons fournis avec le ventilateur.
2. Alignez les trous de la bride de montage du ventilateur avec les trous sur l'appareil. Le ventilateur doit être placé sur le côté inférieur arrière du revêtement extérieur, comme illustré à la **Figure 18.2**.
3. Remettez et serrez les boulons pour installer le ventilateur sur la paroi extérieure de l'appareil.
4. Placez le support doté du disque d'arrêt et de l'aimant sous l'angle inférieur gauche.

Voir le **Manuel du propriétaire** pour obtenir des instructions d'utilisation détaillées du ventilateur refoulant et du disque d'arrêt.



### ATTENTION



#### Danger de décharge électrique.

- N'enlevez PAS la broche de mise à terre de la fiche.
- Éloignez le cordon de l'appareil.
- Ne placez PAS le cordon sous ou devant l'appareil.
- Introduisez-le directement dans une prise à 3 broches correctement mise à terre.

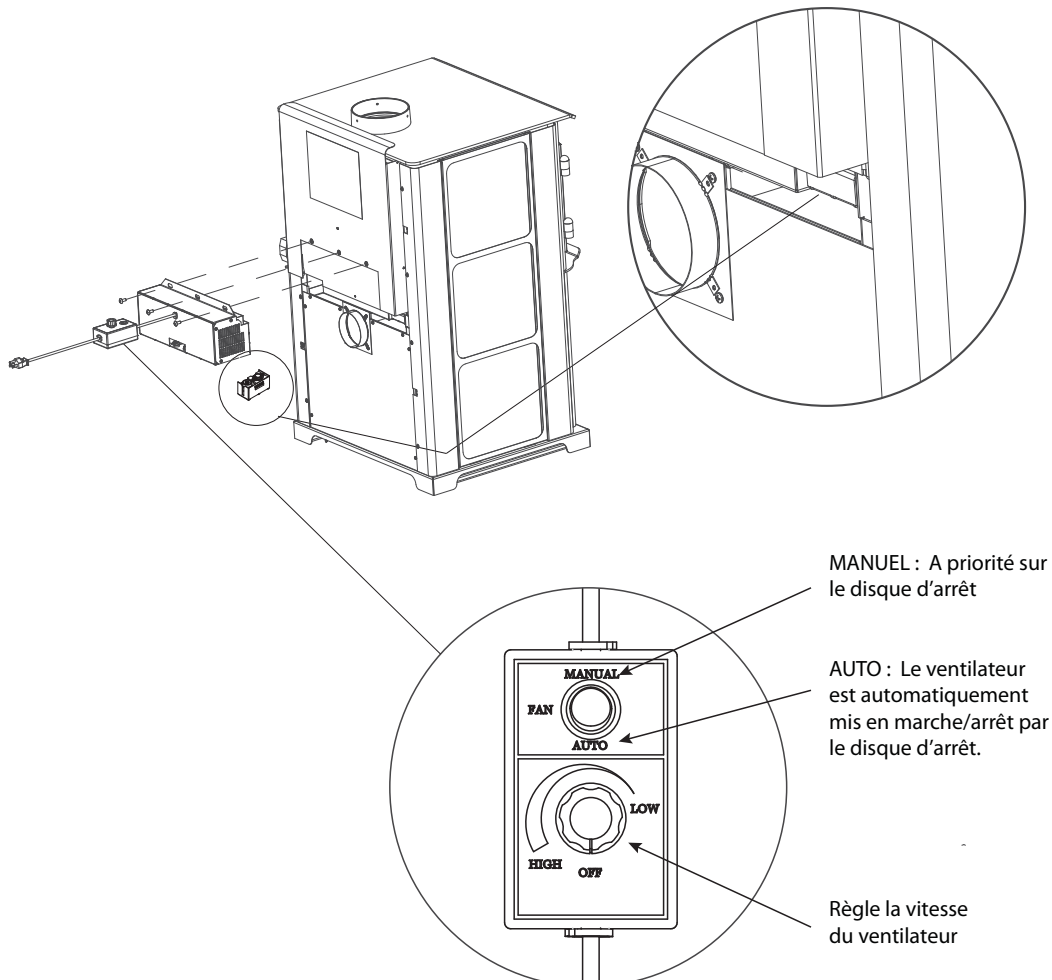


Figure 18.2

# 6 Installation dans une maison mobile

**Vous devez utiliser l'ensemble de prise d'air extérieur OAK-ACC, disponible chez votre détaillant, pour une installation dans une maison mobile.**

1. Vous devez installer une prise d'air extérieur.
2. L'appareil doit être arrimé à la structure de la maison mobile au moyen de boulons.
3. L'appareil doit être mis à la terre au moyen d'un fil de cuivre plein de no 8 ou équivalent dont les extrémités sont pourvues de connexions de mise à terre NEC approuvées.
4. L'appareil doit être raccordé à un carneau ventilé UL103 HT et une cheminée UL103 HT approuvés; le chapeau de l'extrémité de cheminée doit être doté d'un pare-étincelles. N'utilisez jamais un carneau (tuyau de l'appareil) à paroi simple dans une maison mobile. N'utilisez que des conduits à double paroi type Dura-Vent DVL, Selkirk metalbestos DS, Security DL, ou tout autre carneau à double paroi homologué.
5. Au Canada, l'appareil doit être connecté à une cheminée préfabriquée de 152 mm (6 po) conforme à la NORME CAN/ULC-629M POUR CHEMINÉES PRÉFABRIQUÉES.
6. Suivez les instructions du fabricant de la cheminée et du carneau quand vous installez des conduits de fumée dans une maison mobile.
7. Respectez les dégagements définis pour les matériaux inflammables.
8. Respectez rigoureusement les exigences de protection du sol.
9. Utilisez du silicone pour créer une barrière pare-vapeur efficace aux endroits où la cheminée ou les autres composants pénètrent l'extérieur de la structure.

**REMARQUE :** Des dévoiements dont l'angle avec la verticale ne dépasse pas 45° sont autorisés en vertu de la **section 905(a) de la norme UMC (Uniform Mechanical Code)**. Les dévoiements supérieurs à 45° sont considérés comme horizontaux et sont permis tant que la longueur horizontale ne dépasse pas 75 % de la longueur verticale du conduit. La construction, les dégagements et le chapeau de l'extrémité doivent être en conformité avec le **tableau 9C de la norme UMC**. Cette installation doit également être en conformité avec **NFPA 211**.

**REMARQUE :** Les sections supérieures de la cheminée doivent être démontables pour que la hauteur depuis le sol ne dépasse pas 411 cm (13,5 pi) lors du transport.

10. Ne brûlez que des cordes de bois séché. Les autres combustibles risquent de provoquer l'émission de gaz toxiques (par exemple du gaz carbonique).
11. Si l'appareil brûle mal quand un ventilateur de tirage fonctionne dans la maison (par exemple, celui d'une hotte), augmentez l'air de combustion.
12. L'installation doit être en conformité avec les Normes de construction et de sécurité pour maisons mobiles (HUD) CRF 3280, partie 24.



## ATTENTION

L'INTÉGRITÉ DE LA STRUCTURE DU PLANCHER, DES MURS ET DU PLAFOND/TOITURE DE LA MAISON MOBILE DOIT ÊTRE MAINTENUE.

**Ne coupez PAS à travers :**

- Les solives du sol, les montants des murs ou les entretoises du plafond.
- Les matériaux de soutien susceptibles d'affaiblir l'intégrité structurelle.



## AVERTISSEMENT



**Danger d'asphyxie.**

**NE JAMAIS INSTALLER DANS UNE CHAMBRE À COUCHER.**

Consommation de l'oxygène présent dans la pièce.



## WARNING



**Fire Risk.**

Do Not use single wall connector pipe anywhere in a mobile home installation.





# QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

## COORDONNÉES

Hearth & Home Technologies  
352 Mountain House Road  
Halifax, PA 17032  
Division of HNI INDUSTRIES

**Veillez contacter votre fournisseur Quadra-Fire pour toute question.  
Pour obtenir le numéro de téléphone du distributeur Quadra-Fire le plus proche,  
connectez-vous à [www.quadrafire.com](http://www.quadrafire.com)**



## ATTENTION



### NE PAS JETER CE MANUEL

- Il contient d'importantes instructions d'utilisation et de maintenance.
- Assurez-vous de lire, comprendre et respecter ces instructions pour garantir une installation et un fonctionnement sûrs.
- Ce manuel doit être confié aux personnes responsables de l'utilisation et du fonctionnement.



### Nous vous recommandons de noter les informations pertinentes suivantes concernant votre appareil.

Date d'achat/installation : \_\_\_\_\_

Numéro de série : \_\_\_\_\_

Emplacement sur l'appareil : \_\_\_\_\_

Fournisseur du produit : \_\_\_\_\_

Numéro de téléphone du fournisseur : 1( ) - \_\_\_\_\_

Remarques : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ce produit peut être couvert par l'un ou l'autre des brevets suivants : (États-Unis) 5341794, 5263471, 6688302, 7216645, 7047962 ou autres brevets américains et étrangers en attente.

  
**HEARTH & HOME**  
technologies™

# Manuel du propriétaire

## Entretien et utilisation

**INSTALLATEUR :** Ce manuel doit être confié aux personnes responsables de l'utilisation et du fonctionnement.  
**PROPRIÉTAIRE :** Conservez ce manuel à titre de référence.

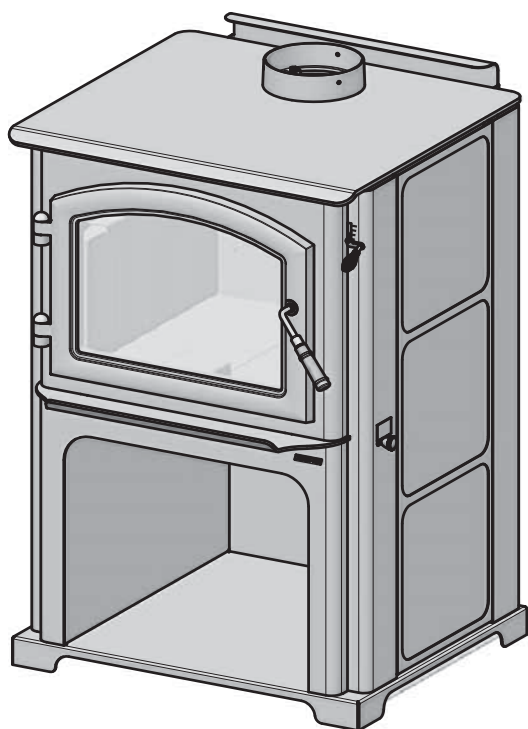
Communiquez avec votre détaillant pour les questions concernant l'installation, l'utilisation, ou l'entretien.

AVIS : NE PAS JETER CE MANUEL

# QUADRA-FIRE®

APPAREIL AU BOIS DISCOVERY III  
CONTRÔLE AUTOMATIQUE DE LA  
COMBUSTION (ACC)

MODÈLE :  
DISCOVERY-III-C



L'installation et l'entretien de cet appareil doivent être effectués par des techniciens autorisés. Hearth & Home Technologies recommande des professionnels formés dans les usines de HTT ou certifiés NFI.



### AVERTISSEMENT



**Le non-respect de ces instructions peut entraîner des dommages matériels, des blessures, voire la mort.**

- Ne pas entreposer ni utiliser de l'essence ou d'autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil électrique.
- Ne chauffez pas excessivement – Si l'appareil de chauffage ou le carneau devient rouge, le feu est trop intense. Un chauffage excessif annulera votre garantie.
- Respectez les dégagements spécifiés pour les matériaux inflammables. Le non-respect de ces consignes peut déclencher un incendie.



### AVERTISSEMENT



#### **SURFACES CHAUDES !**

La vitre et les autres surfaces sont chaudes pendant l'utilisation ET le refroidissement.

**La vitre chaude peut provoquer des brûlures.**

- Ne pas toucher la vitre avant qu'elle ne soit refroidie.
- Ne laissez JAMAIS les enfants toucher la vitre.
- Éloignez les enfants.
- **SURVEILLEZ ATTENTIVEMENT** les enfants présents dans la pièce où le foyer est installé.
- Avertir les enfants et les adultes des dangers associés aux températures élevées.
- **La température élevée peut enflammer les vêtements ou d'autres matériaux inflammables.**
- Éloignez les vêtements, meubles, rideaux ou autres matières inflammables.



### AVERTISSEMENT



#### **Risque d'incendie.**

À n'utiliser qu'avec des combustibles solides à base de bois.

Les autres combustibles risquent de provoquer des feux incontrôlables et d'émettre des gaz toxiques (par exemple, du monoxyde de carbone).

**NOTE :** To obtain a English translation of this manual, please contact your dealer or visit [www.quadrafire.com](http://www.quadrafire.com)

**REMARQUE :** Pour obtenir une traduction anglaise de ce manuel, veuillez contacter votre revendeur ou visitez [www.quadrafire.com](http://www.quadrafire.com)



**REMARQUE : Les dégagements ne peuvent être diminués que si cela est autorisé par les autorités compétentes.**

**A. Exemple d'étiquette de numéro de série/de sécurité**  
EMPLACEMENT : Arrière de l'appareil

**CAUTION:**  
**ATTENTION:**

**HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN AND CLOTHING AWAY. CONTACT MAY CAUSE SKIN BURNS. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIAL FAR AWAY FROM THE APPLIANCE. SEE NAMEPLATE AND INSTRUCTIONS.**  
**CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. GARDEZ LES MEUBLES ET LES MATÉRIAUX COMBUSTIBLES LOIN DE L'ESPACE DÉSIGNÉ DE L'APPAREIL. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.**

Serial No. / N° de série  
**HF**

**N° de série**

Report / Rapport  
0061WS067S

Report / Rapport  
19-538

**4300 ACC SERIES-C**

TESTED TO / TESTÉ À:  
UL 1462-H (R2015), ULG S627-00.

BACKWALL / MUR

**VENT SPECIFICATIONS / SPÉCIFICATIONS DE LA VENTILATION :**  
**SINGLE WALL / MUR SIMPLE:** Six inch (6 inches) (152mm) diameter, minimum 24 MSG black or blued steel connector pipe, with a listed factory-built UL103HT™ Class "A" chimney, suitable for use with solid fuels, or a masonry chimney, and the referenced clearances. / **MUR SIMPLE:** De six (6 inches) (152mm) de diamètre le connecteur de conduit de conduit de minimum de 24MSG, avec une cheminée bâtit en usine UL103HT™ de Classe "A", adéquate pour usage avec les combustions solides, ou une cheminée de maçonnerie et les références.  
**DOUBLE WALL / MUR DOUBLE:** Six inch (6 inches) (152mm) diameter, listed double wall air insulated connector pipe with listed factory-built UL103HT™ Class "A" chimney, or a masonry chimney and the referenced clearances. / **MUR DOUBLE:** De six (6 inches) (152mm) de diamètre, le connecteur de conduit d'air isolé pour mur double avec une cheminée bâtit en usine UL103HT™ de Classe "A", ou une cheminée de maçonnerie, avec les références.

**MOBILE HOME:** Use double wall pipe by Dura-Vent DVL, Selkirk Metalbestos DS or security UL double wall connector pipe with a spark arrester. Apply double wall clearances below when installing unit. / **MAISON MOBILE:** Utiliser un conduit de mur double par Dura-Vent DVL, Selkirk Metalbestos DS ou sécurité UL double wall connector pipe avec un arrêt d'étincelle. Appliquez les espaces libres pour mur double comme mentionné ci-dessus.

**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS: In Inches & (Millimeters) / ESPACES LIBRES MINIMUMS À DES MATÉRIAUX COMBUSTIBLES: En Pouce(s) & (millimètres)**  
**NOTE:** All "A", "C" and "D" Dimensions are to inside diameter of the flue collar. / **NOTE:** Toutes les dimensions "A", "C" et "D" sont à partir du diamètre intérieur de l'entrée du conduit.

**INSTALLATION: FULL VERTICAL OR HORIZONTAL WITH MINIMUM 2 FT VERTICAL OFF STOVE TOP / INSTALLATION: ENTièrement VERTICALE OU HORIZONTALE AVEC 609mm VERTICAL MINIMUM DU HAUT DU POÊLE**

Model	18.5 (470)	11.75 (296)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)	CONDUIT DU MUR DOUBLE
Discovery III Model	18.5 (470)	11.75 (296)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Millennium Model	18.5 (470)	11.75 (296)	27.5 (699)	14.5 (368)	8 (203)	20.5 (521)	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Step Top Model	18.5 (470)	11.75 (296)	27.5 (699)	14.5 (368)	2.5 (64)	15 (381)	49.5 (1263)	5 (127)	Modèle au dessus en escalier

**DOUBLE WALL PIPE**  
**Discovery III Model** 12 (305) 5.25 (133) 27.5 (699) 14.5 (368) 8 (203) 20.5 (521) 53.5 (1359) 12 (305) CONDUIT DU MUR DOUBLE  
**4300 Millennium Model** 12 (305) 5.25 (133) 27.5 (699) 14.5 (368) 8 (203) 20.5 (521) 53.5 (1359) 12 (305) Modèle au dessus en appartement  
**4300 Step Top Model** 10.5 (267) 3.75 (95) 25 (635) 12 (305) 2.5 (64) 15 (381) 49.5 (1263) 5 (127) Modèle au dessus en escalier

**INSTALLATION: 90° ELBOW OFF TOP OF STOVE THROUGH BACKWALL / INSTALLATION: 90° COUDE AU DESSUS DE HAUT DU POÊLE À TRAVERS LE MUR ARRIÈRE**  
**DOUBLE WALL PIPE**  
**Discovery III Model** 11.5 (292) 4.75 (121) 27.5 (699) 14.5 (368) 20.5 (521) 53.5 (1359) N/A CONDUIT DU MUR DOUBLE  
**4300 Millennium Model** 11.5 (292) 4.75 (121) 27.5 (699) 14.5 (368) 20.5 (521) 53.5 (1359) N/A Modèle au dessus en appartement  
**4300 Step Top Model** 10.5 (267) 3.75 (95) 22 (559) 12 (305) 9 (229) 15 (381) 49.5 (1263) 5 (127) Modèle au dessus en escalier

**INSTALLATION: ALCOVE - Six inch (6 inches) (152mm) diameter listed DOUBLE WALL air insulated connector pipe with UL103HT™ listed factory-built Class "A" chimney, or a masonry chimney. Mobile Home must be equipped with a spark arrester. Maximum depth of Alcove shall be no more than 1419mm (46 1/2"). Referenced alcove clearances.**  
**INSTALLATION: ALCOVE - Six pouces (6 pouces) (152mm) de diamètre de conduit double paroi avec UL103HT™ coté Classe usine construite "A" cheminée ou une cheminée de maçonnerie. (Mobile Home doit être équipé d'un arrêt-étincelles). Profondeur maximale de l'alcôve ne doit pas être plus de 1419mm (46 1/2"). Les dégagements en alcôve référencés.**

Model	11.5 (292)	4.75 (121)	27.5 (699)	14.5 (368)	20.5 (521)	53.5 (1359)	12 (305)	CONDUIT DU MUR DOUBLE
Discovery III Model	11.5 (292)	4.75 (121)	27.5 (699)	14.5 (368)	20.5 (521)	53.5 (1359)	12 (305)	Modèle au dessus en appartement
4300 Step Top Model	10.5 (267)	3.75 (95)	22 (559)	12 (305)	9 (229)	15 (381)	49.5 (1263)	5 (127)

**DOUBLE WALL PIPE**  
**Discovery III Model** 10.5 (267) 3.75 (95) 22 (559) 12 (305) 9 (229) 15 (381) 49.5 (1263) 5 (127) CONDUIT DU MUR DOUBLE  
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**4300 Step Top Model** 10.5 (267) 3.75 (95) 22 (559) 12 (305) 9 (229) 15 (381) 49.5 (1263) 5 (127) Modèle au dessus en escalier

**\*In Canada must comply with standard CAN/ULC-S627 for the 650°C Factory-built chimney. / \*Au Canada doit conformer à la norme C-5627 pour 650°C cheminée bâtit en usine.**

**EMBER PROTECTION:** It is necessary to install a Type I floor protector. Floor protector must be non-combustible material, extending beneath appliance and to front/rear/sides as indicated on the diagram below. Exception: Non-combustible floor protectors must extend beneath the flue pipe when installed with horizontal venting and extend 2 inches (51mm) beyond each side.

**PROTECTION DU PLANCHER:** Le protecteur de plancher doit être d'un minimum de 3/8 inch (10mm) d'épaisseur de matériel incombustible ou équivalent, s'étendant du dessous de l'appareil de chauffage à travers, aux côtés et à l'arrière comme indiqué sur le diagramme ci-dessous. Exception: Les protections incombustibles de plancher doivent s'étendre en dessous du conduit de cheminée lorsqu'installées avec une ventilation à horizontale et s'étendre de 2 inches (51mm) de chaque côté.

**90° OFF TOP UP & OUT THROUGH BACKWALL / 90° AU PLAFOND AVEC DE COURBURE**

**ALCOVE SIDE VIEW / VUE DE CÔTÉ DE L'ALCOVE**

2020	JAN	FEB	MAR	APR
2021	MAY	JUN	JUL	AUG
2022	SEP	OCT	NOV	DEC

4300 MILLENNIUM-C Manufactured by: / Fabriqué par:  
 4300 STEP TOP-C  
 DISCOVERY III-C

352 Mountain House Road, Halifax, PA 17032  
www.quadrafire.com

Made in U.S.A. of US and imported parts.

Fabrique aux États-Unis d'Amérique par des pièces d'origine américaine et pièces importées.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
 Certified to comply with: 2020 particulate emission standards at 1.6 g/hr EPA Method 28 and 5G.  
 This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

**DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE**

N° de série

Nom du modèle

N° du test de laboratoire et du rapport

Date de fab.      Modèle

2      FC7037-804A      19 Decembre, 2019

## Définition des avertissements de sécurité :



- **DANGER !** Indique une situation dangereuse qui entraînera la mort ou des blessures graves si elle n'est pas évitée.
- **AVERTISSEMENT !** Indique une situation dangereuse pouvant entraîner la mort ou des blessures graves si elle n'est pas évitée.
- **ATTENTION !** Indique une situation dangereuse pouvant provoquer des blessures mineures ou modérées si elle n'est pas évitée.
- **AVIS :** Désigne des pratiques pouvant endommager l'appareil ou d'autres biens matériels.

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## B. Politique de garantie

### Hearth & Home Technologies GARANTIE À VIE LIMITÉE

Hearth & Home Technologies, au nom de ses marques (« HHT »), étend la garantie suivante aux appareils HHT au gaz, bois, granulés, et électrique achetés d'un détaillant HHT autorisé.

#### **COUVERTURE DE LA GARANTIE :**

HHT garantit au propriétaire d'origine de l'appareil, sur le site d'installation d'origine, ainsi qu'à tout cessionnaire devenant le propriétaire de l'appareil sur le site d'installation d'origine dans les deux ans suivant la date originale d'achat, que l'appareil HHT est sans défauts de matériau et de fabrication au moment de sa confection. Si après son installation, des composants fabriqués par HHT et couverts par la garantie présentent des défauts de matériau ou de fabrication avant l'échéance de la garantie, HHT réparera ou remplacera, à son gré, les composants couverts. HHT peut, à son gré, se libérer de toute obligation découlant de la garantie en remplaçant le produit lui-même ou en remboursant le prix d'achat vérifié du produit. Le montant maximum remboursé en vertu de cette garantie est le prix d'achat du produit. Cette garantie est soumise aux conditions, exclusions et restrictions décrites ci-dessous.

#### **PÉRIODE DE GARANTIE :**

La période de garantie du consommateur entre en vigueur à la date d'installation. Dans le cas d'une maison neuve, la garantie entre en vigueur à la date de la première occupation de la maison ou six mois après la vente du produit par un détaillant/distributeur HHT indépendant autorisé, selon ce qui survient en premier. Cependant, la garantie entre en vigueur au plus tard 24 mois après la date d'expédition du produit de chez HHT, quelle que soit la date d'installation ou d'occupation. La période de garantie couvrant les pièces et la main-d'œuvre pour les composants concernés figure dans le tableau suivant.

Le terme « durée de vie limitée » dans le tableau ci-dessous est défini comme suit : 20 ans à compter de l'entrée en vigueur de la couverture de la garantie pour les appareils au gaz et 10 ans pour les appareils au bois et à granulés. Ces périodes reflètent les durées de vie utile minimum attendues des composants concernés, dans des conditions de fonctionnement normales.

Période de garantie	Appareils et conduits d'évacuation fabriqués par HHT							
	Pièces	Main-d'œuvre	Gaz	Granulés	Bois	Électrique	Évacuation des gaz	Composants couverts
1 an			X	X	X	X	X	Toutes les pièces et le matériel, à l'exclusion de ceux figurant dans les conditions, exclusions et limitations.
2 ans				X	X			Allumeurs, moteurs de vis sans fin, composants électroniques et vitre
			X	X	X			Ventilateurs soufflant installés en usine
					X			Panneaux réfractaires moulés
		X						Module d'allumage
3 ans				X				Assemblages du creuset de combustion, pots de combustion, dispositif d'alimentation mécanique/vis sans fin
5 ans	1 an		X					Brûleurs non raccordés, bûches en fibre de céramique non raccordées, brûleurs aluminés
				X	X			Pièces moulées et déflecteurs
6 ans	3 ans				X			Catalyseur - restrictions indiquées
7 ans	3 ans			X	X			Tubes collecteurs, cheminée et extrémité HHT
10 ans	1 an	X						Brûleurs, bûches et briques réfractaires
À vie limitée	3 ans	X	X	X				Boîte à feu et échangeur de chaleur, grille et brûleurs en acier inoxydable, système FlexBurn® (moteur, couvercle intérieur, couvercle d'accès et contre-feu)

**CONDITIONS DE LA GARANTIE :**

- La garantie ne couvre que les appareils HHT achetés chez un détaillant ou distributeur HHT autorisé. Une liste des détaillants HHT approuvés est disponible sur les sites Web des produits HHT.
- Cette garantie n'est valable que si l'appareil HHT demeure sur le site d'installation d'origine.
- Cette garantie n'est valide que dans le pays où réside le détaillant ou distributeur autorisé HHT qui a vendu l'appareil.
- Contactez le détaillant qui a effectué l'installation pour les réparations sous garantie. Si le détaillant ou le distributeur qui a effectué l'installation est incapable de fournir les pièces nécessaires, contactez le détaillant ou fournisseur HHT autorisé le plus près. Des frais de réparation supplémentaires peuvent être applicables si la réparation sous garantie est effectuée par un autre détaillant que celui qui vous a fourni le produit à l'origine.
- Contactez à l'avance votre détaillant pour savoir si la réparation sous garantie entraînera des coûts. Les frais de déplacement et les frais d'expédition des pièces ne sont pas couverts par cette garantie.
- Garantie limitée du catalyseur
  - o o pour les produits de brûlage au bois comportant un catalyseur, le catalyseur sera garanti comme suit, pendant une période de 6 ans : si le catalyseur original ou un catalyseur de remplacement s'avérait défectueux ou cessait de maintenir 70 % de son activité de réduction de particules (tel que mesuré par une procédure d'essai approuvé) au cours des 36 mois qui suivent la date d'achat, le catalyseur sera remplacé gratuitement.
  - o o entre 37 et 72 mois, un crédit au prorata sera remis pour le remplacement d'un catalyseur et un crédit pour la main-d'œuvre nécessaire à installer le catalyseur de remplacement. Le taux de proportion est calculé ainsi :

Temps total écoulé depuis l'achat	Crédit remis pour le coût de remplacement
0 à 36 mois	100 %
37 à 48 mois	30 %
49 à 60 mois	20 %
61 à 72 mois	10 %

- o o tout remplacement du catalyseur sera garanti sous les modalités de la garantie du catalyseur, pour le reste de la période de la garantie originale. L'acheteur doit fournir le nom, l'adresse et le numéro de téléphone du lieu où le produit est installé, la preuve de la date originale d'achat, la date du bris, et toute information pertinente au défaut du catalyseur.

**EXCLUSIONS DE LA GARANTIE :**

Cette garantie ne couvre pas ce qui suit :

- Modification au fini de la surface résultant d'une utilisation normale. Comme il s'agit d'un appareil de chauffage, une légère modification de la couleur et de l'état des surfaces intérieures et extérieures est possible. Il ne s'agit pas d'un défaut et cela n'est pas couvert par la garantie.
- La détérioration des surfaces imprimées, plaquées ou émaillées en raison des marques de doigts, accidents, abus, égratignures, pièces qui ont fondu ou autres causes externes, ainsi que les résidus laissés sur les surfaces en raison de l'utilisation de nettoyeurs ou produits à polir abrasifs.
- La réparation ou le remplacement des pièces soumises à une usure normale pendant la période de garantie ne sont pas couverts. Ces pièces comprennent : peinture, joints d'étanchéité bois et granulés, briques réfractaires, grilles, guide de flammes, piles et décoloration de la vitre.
- Expansion, contraction ou déplacements mineurs de certaines pièces qui provoquent du bruit. Ces conditions sont normales et les réclamations liées à ce bruit ne sont pas couvertes.
- Dommages causés par : (1) l'installation, l'utilisation ou la maintenance de l'appareil sans tenir compte des instructions d'installation et d'utilisation, et sans consultation de l'étiquette d'identification de l'agent homologué; (2) le non-respect des codes du bâtiment locaux pendant l'installation de l'appareil; (3) l'expédition ou la mauvaise manutention; (4) la mauvaise utilisation, l'abus, l'utilisation continue avec des composants endommagés, corrodés ou défectueux, l'utilisation après un accident, les réparations négligentes/incorrectes; (5) les conditions liées à l'environnement, une mauvaise ventilation, une pression négative ou un mauvais tirage en raison de l'étanchéité de la construction, l'admission insuffisante d'air d'appoint ou d'autres dispositifs tels que des ventilateurs de tirage, des générateurs d'air chaud à air pulsé ou toute autre cause; (6) l'utilisation de combustibles autres que ceux mentionnés dans les instructions d'utilisation; (7) l'installation ou l'utilisation de composants qui n'ont pas été fournis avec l'appareil ou de tout autres composants qui n'ont pas été expressément autorisés et approuvés par HHT; (8) les modifications de l'appareil qui n'ont pas été expressément autorisées et approuvées par écrit par HHT; et/ou (9) les interruptions ou fluctuations de l'alimentation électrique de l'appareil.
- Composants d'évacuation des gaz, connecteurs d'âtre ou accessoires utilisés avec l'appareil qui n'ont pas été fournis par HHT.
- Toute partie d'un système de foyer préexistant où un foyer encastré ou un appareil décoratif au gaz a été installé.
- Les obligations de HHT, en vertu de cette garantie, ne couvrent pas la capacité de l'appareil à chauffer l'espace souhaité. Des informations sont fournies pour aider le consommateur et le détaillant lors de la sélection de l'appareil adéquat pour l'application envisagée. On doit tenir compte de l'emplacement et de la configuration de l'appareil, des conditions liées à l'environnement, de l'isolation et de l'étanchéité de la structure.

**Cette garantie est nulle si:**

- L'appareil a été tiré, exploités en atmosphères contaminées par le chlore, le fluor ou d'autres produits chimiques nocifs. La surcuisson peut être identifiée par, mais non limité à, déformé de plaques ou de tubes, déformation déformation de l'intérieur de la structure de fonte ou de composants, de couleur rouille en fonte, des bulles, la fissuration et à la décoloration de l'acier ou de l'émail de finition.
- L'appareil est soumis à de longues périodes de l'humidité ou de la condensation.
- Il y a des dommages à l'appareil ou d'autres composants à cause de l'eau ou de dommages causés par des intempéries qui est le résultat d', mais non limité à, une mauvaise de la cheminée ou de ventilation de l'installation.

**LES LIMITATIONS DE RESPONSABILITÉ**

- Le propriétaire exclusif de recours et de VRD de la seule obligation en vertu de cette garantie, en vertu de toute autre garantie, expresse ou implicite, ou d'un contrat, d'un délit ou autre, doit être limitée au remplacement, à la réparation ou au remboursement, comme spécifique ci-dessus. En aucun cas, VRD être tenu pour responsable des dommages directs ou indirects causés par des défauts de l'appareil. Certains états n'autorisent pas l'exclusion ou la limitation des dommages accessoires ou consécutifs, de sorte que ces limitations peuvent ne pas s'appliquer à vous. Cette garantie vous donne des droits spécifiques; vous pouvez également avoir d'autres droits qui varient d'état à état. SAUF DANS LA MESURE PRÉVUE PAR LA LOI, VRD NE FAIT AUCUNE GARANTIE EXPRESSE AUTRE QUE LA GARANTIE SPÉCIFIÉE CI-APRÈS. LA DURÉE DE TOUTE GARANTIE IMPLICITE EST LIMITÉE À LA DURÉE DE LA GARANTIE EXPRESSE INDIQUÉE CI-DESSUS.

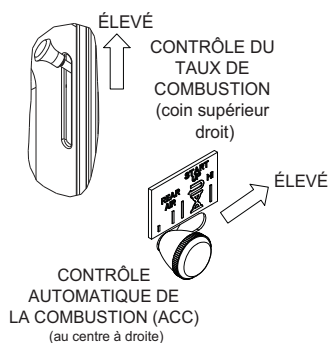
## C. Guide de démarrage rapide

**REMARQUE :** Ce sont des dessins génériques et peuvent ne pas représenter votre modèle spécifique.

**ÉLÉMENTS NÉCESSAIRES  
POUR LE PREMIER FEU :**

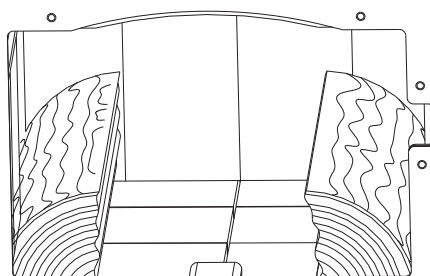
10 morceaux de journal, 10 à 20 morceaux de petit bois sec d'allumage et quelques morceaux de bois bien séchés.

**OUVREZ LES  
ENTRÉES D'AIR**



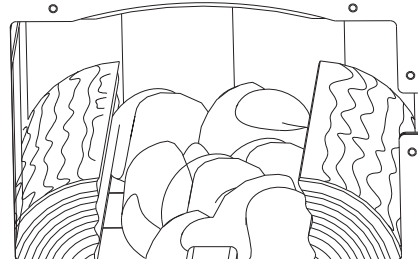
**1**

**AJOUTEZ DU BOIS**



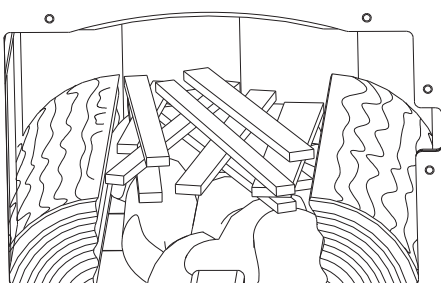
**2**

**AJOUTEZ DU JOURNAL**



**3**

**AJOUTEZ DU PETIT BOIS**



**ALLUME LE PAPIER**

**4**

**AVERTISSEMENT!  
Risque d'incendie**

Fermez et verrouillez la porte de manière sécuritaire une fois le feu allumé, et après le remplissage, pour éviter :

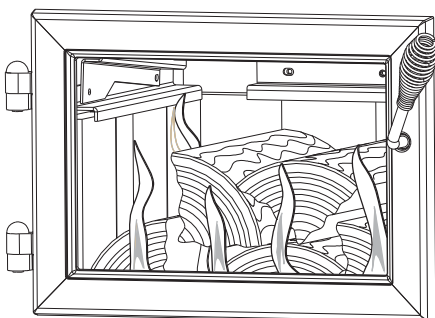
- La propagation de fumée, de flammes et de monoxyde de carbone
- La propagation d'étincelles, de charbons et de bûches
- Les feux incontrôlés

NE PAS laisser le poêle sans surveillance avec la porte ouverte.

Allumer un feu peut ne pas nécessiter de laisser la porte ouverte pour assurer un tirage. L'entrée d'air doit approvisionner un tirage suffisant.

**5**

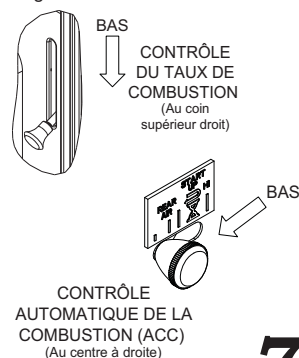
**AJOUTEZ PLUS DE BOIS**



**6**

**RÉDUISEZ LE CONTRÔLE  
D'AIR**

Réglez à la sortie de chaleur désirée



**7**

**Le poêle est  
prêt à fonctionner  
normalement.**

# 1 Homologations et codes approuvés

## A. Certification de l'appareil

<b>Modèle :</b>	Appareil au bois Discovery III
<b>Laboratoire De La Sécurité :</b>	OMNI Test Laboratories, Inc.
<b>N° et date du rapport :</b>	061-S-67-6
<b>Type :</b>	CHAUFFAGE D'AMBIANCE HOMOLOGUÉ À COMBUSTIBLE SOLIDE.
<b>Norme :</b>	UL1482, ULC S627-00 et (UM) 84-HUD, approuvé pour les maisons mobiles.

## B. Puissance calorifique et rendement

<b>N° de certification EPA :</b>	Numéro: N/A
<b>EPA, Émissions certifiées :</b>	1,6 gramme par heure
<b>*PCI, Efficacité testée :</b>	80,2 %
<b>**PCS, Efficacité testée :</b>	74,2 %
<b>***EPA, Sortie en BTU :</b>	de 12 200 à 36 800 BTU/h
<b>****Pointe d'émission de BTU/heure :</b>	61 700
<b>Taille du conduit :</b>	152 mm (6 po)
<b>Taille de la boîte à feu :</b>	0,06 m <sup>3</sup> (2,26 pi <sup>3</sup> )
<b>Recommandé Longueur De Bûches :</b>	457 mm (18 po)
<b>Combustible :</b>	Avec Bois de corde sec (20% d'humidité)
*Moyenne pondérée du PCI (Faible Valeur calorifique) l'efficacité de l'aide de Sapin de Douglas de bois de dimensions et données collectées au cours de l'EPA test d'émission. PCI suppose que l'humidité est déjà dans un état de vapeur, donc il n'y a pas de perte d'énergie pour vaporiser.	
**Moyenne pondérée HHV (Haut pouvoir calorifique) l'efficacité de l'aide de Sapin de Douglas de bois de dimensions et données collectées au cours de l'EPA test d'émission. HHV comprend la quantité d'énergie nécessaire pour vaporiser l'eau dans le carburant.	
***Une gamme de BTU sorties calculée à l'aide de l'HHV l'Efficacité et le taux de brûlures de l'APE tests à l'aide de Sapin de Douglas de bois de dimensions.	
****Un pic BTU hors de l'appareil calculé en utilisant le maximum de la première heure du taux de combustion du Haut de Test EPA et de BTU contenu de assaisonnée bois (8600) fois l'efficacité.	

Cette Discovery III est Certifié  
conforme à 2020 crèche en bois  
d'émissions de particules des normes.



Cet appareil à bois doit être inspecté et réparé périodiquement pour un bon fonctionnement. Consultez le manuel du propriétaire pour de plus amples informations. Il est contraire aux règlements fédéraux d'utiliser ce chauffe-bois d'une manière incompatible avec les instructions d'utilisation du manuel du propriétaire.

**REMARQUE :** Cette installation doit être conforme aux codes locaux. En l'absence de codes locaux, vous devez être en conformité avec les codes d'installation **UL1482-07, (UM) 84-HUD et NFPA211 aux États-Unis et les codes ULC S627-00 et CAN/CSA-B365 au Canada.**

### C. Spécifications de la porte vitrée

Cet appareil comporte une porte vitrée en vitrocéramique de 5 mm d'épaisseur. N'utilisez que des vitres en vitrocéramique de 5 mm pour remplacer une vitre endommagée. Veuillez contacter votre détaillant si vous devez remplacer la vitre.

### D. Approuvé pour les maisons mobiles

- Cet appareil peut être installé dans les maisons mobiles, à l'exclusion de la chambre à coucher, à condition qu'une prise d'air extérieure de combustion ait été installée.
- L'intégrité de la structure du sol, des murs et du plafond de la maison mobile doit être maintenue.
- L'appareil doit être correctement fixé à la charpente de la maison mobile avec un fil de mise à terre en cuivre n° 8, et la cheminée doit être homologuée UL103 HT ou un conduit homologué UL-1777 de 15 cm (6 po) de diamètre doit être utilisé sur toute la longueur.
- L'ensemble de prise d'air extérieur, n° de pièce OAK-ACC, doit être installé en cas d'utilisation dans une maison mobile.

### E. Chambre à coucher

Lorsqu'il est installé dans une chambre à coucher, il est recommandé d'installer un avertisseur de fumée et / ou de monoxyde de carbone dans la chambre à coucher. La taille de la pièce doit être d'au moins 50 pi<sup>3</sup> par 1 000 Btu / heure d'entrée du poêle, si le poêle dépasse la taille de la pièce, l'air doit être installé.

### F. Californie - Prop65



#### ATTENTION

Ce produit et les carburants utilisés pour faire fonctionner ce produit (bois), ainsi que les produits de combustion de ces carburants, peuvent vous exposer à des produits chimiques tels que le noir de carbone, connu par l'État de Californie pour causer le cancer, et le monoxyde de carbone connu de l'État de Californie pour provoquer des malformations congénitales ou d'autres problèmes de reproduction. Pour plus d'informations, visitez: [WWW.P65Warnings.ca.gov](http://WWW.P65Warnings.ca.gov)



#### AVERTISSEMENT



#### Risque d'incendie.

Hearth & Home Technologies décline toute responsabilité et annulera la garantie dans les cas suivants :

- Installation et utilisation d'un appareil endommagé.
- Modification de l'appareil.
- Non-respect des instructions d'installation de Hearth & Home Technologies.
- Installation ou utilisation de composants non autorisés par Hearth & Home Technologies.
- Utilisation de l'appareil sans tous les composants installés.
- Utilisation de l'appareil sans les pieds (si fournis avec l'appareil).
- Ne surchauffez PAS – si l'appareil ou le carneau devient rouge, le feu est trop intense.

N'importe quelle de ces actions peut créer un danger d'incendie.

Les installations, réglages, modifications, entretiens ou maintenances inadéquats peuvent provoquer des blessures et des dommages matériels.

Pour obtenir une assistance ou des renseignements supplémentaires, consultez un installateur, un réparateur qualifié ou votre fournisseur.


**REMARQUE :** Le fabricant de cet appareil, Hearth & Home Technologies, se réserve le droit de modifier sans préavis ses produits, leurs spécifications ou leurs prix.



# Guide de l'utilisateur

## 2 Instructions d'utilisation

### A. Surchauffe de votre appareil



### AVERTISSEMENT

**Risque d'incendie**  
Ne surchauffez pas. La surchauffe peut enflammer la créosote ou peut endommager l'APPAREIL et la cheminée.

Pour éviter de surchauffer votre appareil, **NE PAS** :

- Utiliser de liquides inflammables
- Trop remplir de bois
- Brûler des déchets ou de grandes quantités de bois de rebut
- Laisser trop d'air pénétrer dans le feu

Visitez [www.quadrafire.com/shopping-tools/videos](http://www.quadrafire.com/shopping-tools/videos) pour voir les vidéos sur les produits et l'utilisation et les soins.

#### 1. Symptôme de la surchauffe

Un ou plusieurs des symptômes suivants peuvent indiquer une surchauffe du foyer :

- Le carneau ou l'appareil sont incandescents
- Des bruits de rugissement ou de grondement
- Des forts bruits de craquelure ou de claquement
- Le gauchissement du métal
- feu de cheminée

#### 2. Que faire si votre appareil surchauffe

- Fermez immédiatement la porte et les entrées d'air pour réduire l'alimentation en air du feu.
- Si vous soupçonnez un feu dans la cheminée, appelez les pompiers et évacuez votre maison.
- Contactez votre professionnel local d'entretien de la cheminée et faites inspecter votre appareil et votre cheminée pour tout dommage.
- N'utilisez pas votre appareil tant qu'il n'a pas été inspecté par un professionnel de l'entretien de cheminée.

Hearth & Home Technologies NE GARANTIRA PAS les appareils qui présentent des preuves de surchauffe. La preuve d'une surchauffe du foyer peut en outre comprendre :

- Gauchissement du conduit d'air
- Attaches de brique réfractaire détériorés
- Déflecteur et autres composants intérieurs détériorés

### B. Sélection et entreposage du bois

Ne brûlez que du bois sec. Stockez le bois à l'abri de la pluie et de la neige. Le bois sec réduit non seulement la formation de créosote, mais il brûle aussi plus efficacement que le bois vert. Même le bois sec contient au minimum 15 % d'humidité. Il faut donc qu'il puisse brûler à une température suffisamment élevée pour que la cheminée reste chaude jusqu'à l'évaporation complète de l'humidité, à savoir environ une heure. Brûler du bois vert est un gaspillage d'énergie.

Le bois mort tombé des arbres doit être considéré comme étant mouillé et doit donc être séché. On peut considérer le bois mort encore sur les arbres comme sec à 66 %. Pour savoir si le bois est assez sec pour être brûlé, contrôlez les extrémités des bûches. Si elles sont fendues de toutes parts, elles sont sèches. Si votre bois grésille quand il brûle, il pourrait ne pas être entièrement sec, même si sa surface est sèche.

Fendre le bois avant de l'entreposer accélère son séchage. Le bois doit être empilé de façon à ce que les deux extrémités de chaque bûche soient exposées à l'air. Le séchage est alors plus rapide. Cela est vrai même si le bois a été fendu. Entreposez le bois de façon à ce qu'il soit couvert, par exemple dans une remise ou sous une bâche, un plastic, du papier goudronné, des panneaux de contreplaqué usés, etc., car le bois peut autrement absorber l'eau de pluie ou la neige fondue, ce qui retarde son séchage.

### C. Processus de combustion

Depuis quelques années, les gens s'intéressent de plus en plus à la qualité de l'air. L'une des principales causes de la mauvaise qualité de l'air est attribuée au chauffage au bois. Pour améliorer la situation, nous avons développé chez Quadra-Fire des poêles à bois plus propres, dépassant même les exigences établies par nos agences gouvernementales sur les émissions polluantes. Ces appareils au bois, tout comme les autres appareils, doivent être utilisés correctement pour procurer des performances optimales. L'utilisation inadéquate peut transformer n'importe quel appareil au bois en une menace pour l'environnement.

#### 1. Embrassement ou première étape

Il est bon de connaître un peu le processus de combustion pour comprendre ce qui se passe à l'intérieur d'un appareil. La première étape de la combustion est l'embrassement. Pendant cette étape, le bois est chauffé à une température suffisante pour que l'humidité s'en évapore. Le bois atteint la température d'ébullition de l'eau de 100 °C (212 °F) et reste à cette température jusqu'à ce que toute l'eau se soit évaporée. Ce processus capte la chaleur des briquettes et a tendance à refroidir l'appareil.

Le feu a besoin de trois ingrédients – du combustible, de l'air et de la chaleur. Par conséquent, si l'appareil est privé de chaleur pendant le séchage, il a moins de chances de produire une combustion propre et efficace. Pour cette raison, il est toujours préférable de brûler du bois sec. Si le bois n'est pas sec, vous devez ouvrir l'arrivée d'air et régler le poêle sur une position de combustion plus rapide pendant plus longtemps pour démarrer la combustion. La chaleur produite par le feu doit chauffer votre maison et créer un bon triage, au lieu d'être gaspillée pour le séchage du bois vert.

## 2. Deuxième étape

Pendant l'étape suivante de la combustion, le bois émet des gaz inflammables qui brûlent au-dessus du combustible en produisant des flammes intenses. Il est très important que les flammes ne s'éteignent pas pendant cette étape.

Ceci garantira un feu aussi propre que possible. Si les flammes s'éteignent, le taux de combustion est réglé à un niveau trop bas pour entretenir la combustion. Le réglage d'air situé dans l'angle supérieur droit sert à régler le taux de combustion. Il est appelé réglage de l'air de combustion (**Figure 11.1**).

## 3. Étape finale

L'étape finale est la combustion du charbon. Cela se produit quand pratiquement tous les gaz ont été brûlés et que seul le charbon reste. Il s'agit de la phase de combustion la plus propre. Le charbon brûle en produisant des flammes chaudes de couleur bleue.

Il est très important de recharger l'appareil alors qu'il contient encore assez de charbon chaud pour fournir la chaleur nécessaire au séchage et rallumage de la nouvelle charge de bois. Il est préférable d'ouvrir l'air de combustion et l'air à l'allumage avant de remettre du bois dans l'appareil. Cela ravive le lit de charbon et diminue les émissions excessives (opacité/fumée). Ouvrez lentement la porte de l'appareil pour que les cendres et la fumée ne s'échappent pas. Cassez les grands morceaux et répartissez le charbon pour que le nouveau bois repose sur du charbon chaud.

Nous sommes tous soucieux de la qualité de l'air et, si nous voulons chauffer nos maisons au bois, nous devons le faire de façon responsable. Ainsi, vous devez apprendre comment utiliser votre appareil de la manière la plus propre et efficace possible. Ceci vous permettra de profiter de votre appareil au bois pendant de nombreuses années.

## D. Contrôles de l'air

Les utilisateurs devront découvrir leurs réglages préférés (entre élevé et bas) en fonction de la chaleur souhaitée, de la configuration de l'installation et du genre de combustible.

### 1. Réglage de l'air de combustion

Cette admission d'air est située en haut sur l'avant de la boîte à feu, près du bord supérieur de la porte vitrée. Cet air préchauffé fournit l'oxygène nécessaire au mélange des gaz non brûlés pour créer une deuxième, troisième et quatrième combustion. Cet air est régulé par le réglage de l'air de combustion. Lorsque la commande est déplacée vers le haut, elle est sur le réglage maximum. Si elle est déplacée vers le bas, elle est sur le réglage minimum (**Figure 11.1**).

### 2. Système de contrôle automatique de la combustion (ACC)

Pour engager le système de minuterie du contrôle automatique de la combustion (ACC), poussez le levier vers l'arrière de l'appareil à la position élevée, puis tirez vers l'avant de l'appareil, jusqu'à ce que le bouton s'arrête. La minuterie fermera lentement l'arrivée d'air en 25 minutes. Utilisez cette fonction lors du rechargement de combustible ou si vous désirez augmenter l'arrivée d'air (**Figure 11.2**).

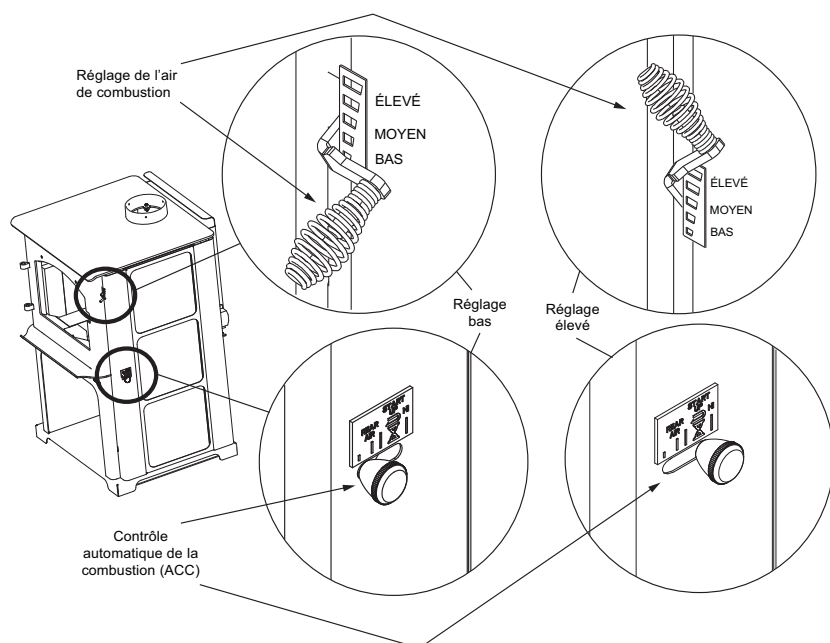


Figure 11.1

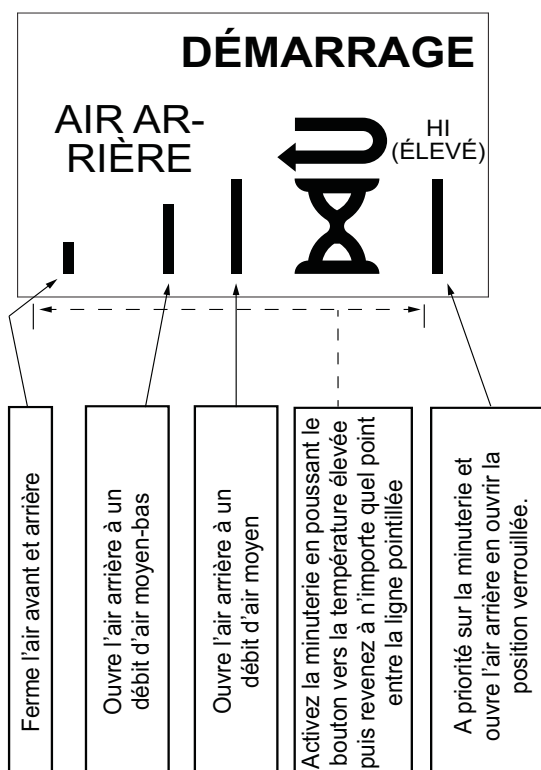


Figure 11.2

## E. Utiliser le réglage de l'air de combustion et le système ACC



### 1. Allumage et recharge de combustible

Ouvrez entièrement les systèmes de réglage de l'air de combustion et de l'ACC. Pour le réglage de l'air de combustion, poussez la poignée à ressort vers le haut. Pour le système de minuterie de l'ACC, poussez le bouton vers l'arrière de l'appareil jusqu'à ce qu'il soit situé sous la position élevée (Figure 12.1).

### 2. Maximiser la chaleur par le système ACC

Afin de maximiser la sortie de chaleur par le système de minuterie ACC, aussi connu comme brûlage élevé, poussez le levier de commande de réglages de l'air de l'ACC vers l'arrière de l'appareil et laissez-le ainsi. Ceci, combiné avec le levier principal du taux de combustion poussé vers le haut, vous obtiendrez la plus grande quantité d'air nécessaire à obtenir la plus grande quantité de chaleur (Figure 12.1).

### 3. Commande manuelle de la minuterie

Si vous avez besoin de fermer le système ACC avant qu'il n'entre lui-même dans son cycle de fermeture, soit 25 minutes, recherchez le levier à l'arrière droit de l'appareil et tirez-le vers l'avant de l'appareil (Figure 12.2).

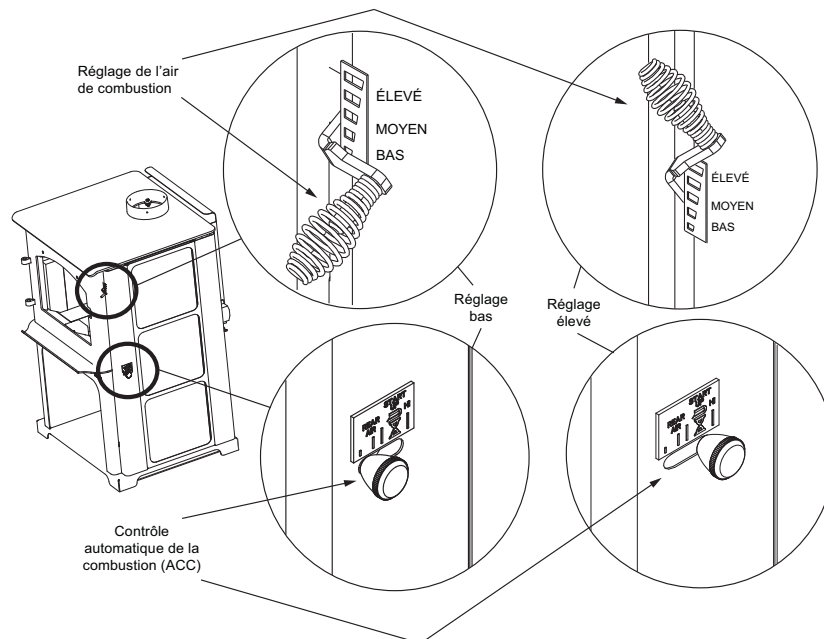


Figure 12.1

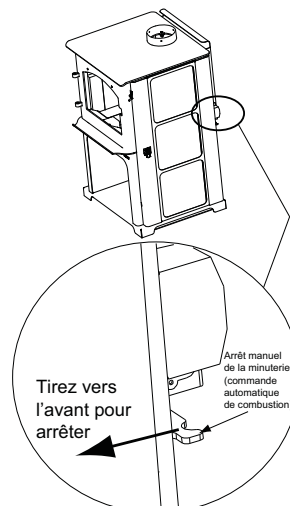


Figure 12.2

## F. Taux de combustion et rendement

### Pour obtenir un rendement maximum

Cet appareil au bois possède un taux de combustion réduit minimum prédéfini par le fabricant qui ne doit pas être altéré. Altérer ce paramètre ou autrement utiliser cet appareil au bois sans suivre les directives du présent manuel, contrevient aux réglementations fédérales.

- Ne brûlez que du bois sec.

### Taux de combustion

#### 1. Réglage de combustion faible :

- Placez la poignée à ressort du réglage de l'air de combustion en position élevée pendant 5 minutes.
- Activez ensuite le système de minuterie ACC en poussant le bouton en position élevée, complètement vers l'arrière de l'appareil, puis ramenez-le vers l'avant de l'appareil jusqu'à ce que le bouton s'arrête (**Figure 12.1 à la page 12**).
- À ce point, fermez le réglage de l'air de combustion en déplaçant la poignée à ressort au réglage bas.

#### 2. Réglage de combustion moyen-bas :

- Placez la poignée à ressort du réglage de l'air de combustion en position élevée pendant 5 minutes.
- Activez ensuite le système de minuterie ACC en poussant le bouton en position élevée, complètement vers l'arrière de l'appareil, puis ramenez-le vers l'avant de l'appareil jusqu'à ce que le bouton s'arrête.
- À ce point, déplacez la poignée à ressort de réglage de l'air de combustion 3 - 13 mm (1/8 - 1/2 po) du réglage bas.

#### 3. Réglage de combustion moyennement élevé :

- Placez la poignée à ressort du réglage de l'air de combustion en position élevée.
- Activez ensuite le système de minuterie ACC en poussant le bouton en position élevée, complètement vers l'arrière de l'appareil, puis ramenez-le vers l'avant de l'appareil jusqu'à ce que le bouton s'arrête.
- À ce point, déplacez la poignée à ressort de réglage de l'air de combustion 13 mm (1/2 po) du réglage élevé.

#### 4. Réglage de combustion élevé :

- Placez la poignée à ressort du réglage de l'air de combustion en position élevée.
- Activez également le bouton du système de minuterie de l'ACC en le poussant vers l'arrière à la position élevée.

**REMARQUE :** Si vous utilisez le ventilateur refoulant optionnel fonctionne aux réglages de combustion 1 à 3, il doit être arrêté pendant les 30 premières minutes, puis fonctionner à position élevée pendant 30 minutes. Pour un réglage de brûlage élevé, le ventilateur refoulant peut continuer à fonctionner pleinement après avoir remis du combustible.

**REMARQUE :** L'information précédente est fournie uniquement à titre indicatif. L'altitude et d'autres circonstances, peuvent exiger des réglages des commandes afin d'atteindre les taux de combustion désirés.

**REMARQUE :** Utilisez l'appareil à la position élevée de brûlage pendant 45 minutes chaque jour pour que le conduit de fumée/la cheminée reste propre.



## AVERTISSEMENT



### Risque d'incendie.

Quand vous utilisez un taux de combustion élevé, vous annulez l'action du contrôle automatique de la combustion. Le feu peut devenir incontrôlable et se transmettre à la cheminée. La surchauffe annulera votre garantie.

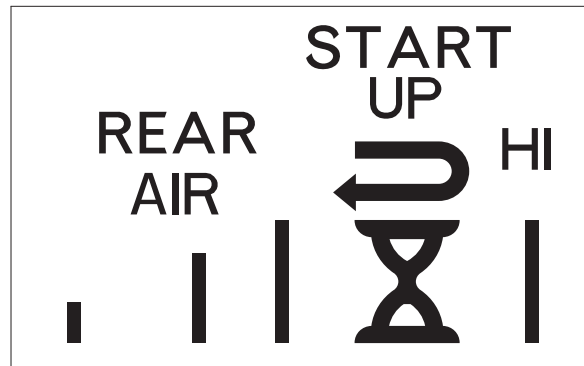


Figure 13.1

Si vous activez la minuterie de l'ACC et que la commande est réglée sur l'admission d'air arrière, l'air entre dans la boîte à feu par l'arrière. Cela n'empêche pas la minuterie de fermer graduellement (en 25 minutes) l'admission d'air avant. Si la commande est placée à « HI », elle a priorité sur la minuterie (ACC).

## G. Préparation d'un feu

Avant d'allumer votre premier feu dans l'appareil :

**REMARQUE :** La peinture spéciale à haute température constituant la finition de votre appareil doit durcir pendant que l'appareil chauffe. Vous remarquerez une odeur et peut-être quelques vapeurs s'échapper de la surface de l'appareil, ce qui est normal. Nous recommandons d'ouvrir une fenêtre jusqu'à ce que l'odeur se dissipe et que la peinture soit durcie.

1. Confirmez que la position du déflecteur est correcte. Il doit affleurer le tube avant et reposer sur tous les tubes (**Figures 14.1 et 14.2**).
2. Enlevez toutes les étiquettes de la porte vitrée de l'appareil.

Un feu peut être allumé de plusieurs façons. Le principe de base consiste à allumer d'abord du petit bois ou du papier qui brûle rapidement. Après avoir obtenu des braises, chargez quelques grosses bûches qui brûleront plus lentement. Voici quelques méthodes qui fonctionnent bien :

1. Ouvrez entièrement l'air de combustion et les contrôles de l'ACC (se référer à la page 7 du guide de démarrage).
2. Placez quelques feuilles de papier chiffonné dans la boîte à feu. Chauffez le conduit de fumée avec quelques feuilles de papier journal chiffonné pour réduire au minimum le dégagement de fumée.
3. Placez ensuite du petit bois sur le papier.
4. Assurez-vous qu'aucune allumette ou aucun autre matériau inflammable ne se trouvent à proximité de l'appareil. Assurez-vous que la pièce est adéquatement ventilée et que le conduit de fumée n'est pas obstrué.
5. Allumez le papier dans l'appareil. N'allumez ou ne rallumez JAMAIS un feu avec du kérosène, de l'essence ou un liquide d'allumage pour charbon de bois; cela est très dangereux.
6. Quand le petit bois brûle rapidement, ajoutez des bûches entières d'un diamètre de 76 à 102 mm (3 à 4 po). Faites attention de ne pas étouffer le feu. Empilez soigneusement les bûches en les plaçant assez près les unes des autres pour qu'elles se chauffent mutuellement, mais gardez de l'espace entre elles pour permettre à l'air de circuler.
7. Ajustez le réglage de l'air de combustion et activez le système de minuterie de l'ACC.
8. Au moment de rajouter du bois, il est conseillé d'ouvrir à la fois les contrôles de l'air de combustion et de l'allumage avant d'ajouter du bois. Cela ravive le lit de charbon et diminue les émissions excessives (opacité/fumée). Ouvrez lentement la porte de l'appareil pour que les cendres et la fumée ne s'échappent pas. Les bûches de grande taille brûlent lentement et pendant plus longtemps. Les bûches de petite taille brûlent rapidement en produisant beaucoup de chaleur.
9. Tant qu'il reste des braises, répétez les étapes 6 à 8 pour maintenir le feu.

### REMARQUE :

- Préparez le feu sur le fond en briques de la boîte à feu.
- N'utilisez AUCUNE grille, chenet ou autre méthode pour soutenir le combustible. Cela aurait un effet néfaste sur les émissions.



## AVERTISSEMENT



### Risque d'incendie

N'entrez PAS de bois :

- À des distances inférieures aux dégagements requis aux combustibles à l'appareil.
- Dans l'espace de chargement des granulés ou de vidage des cendres.

Ne PAS utiliser l'appareil :

- Si la porte de l'appareil est ouverte.
- Quand la porte du système d'élimination des cendres est ouverte.

Le panneau du déflecteur doit être à niveau avec le tube avant et reposer sur tous les tubes.

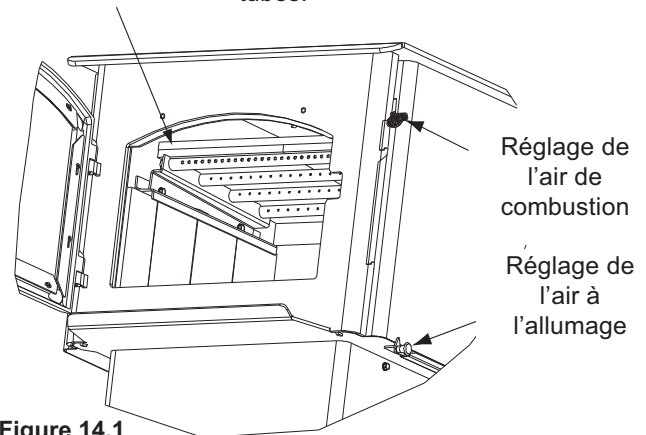


Figure 14.1

Laine céramique au-dessus

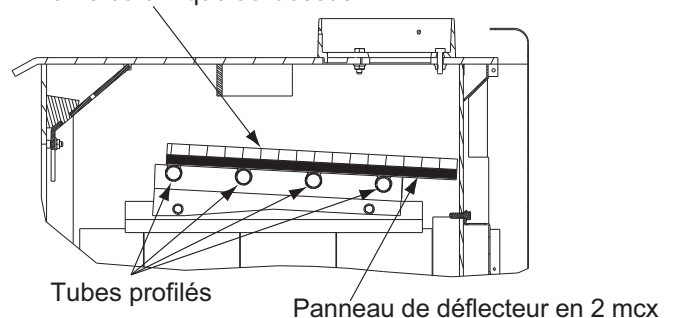


Figure 14.2



## AVERTISSEMENT



### Risque d'incendie.

- Ne PAS utiliser de bois mouillé ou de bois vert.
  - Entrez le bois dans un endroit sec.
  - Empilez le bois de façon à ce que les deux extrémités des bûches soient exposées à l'air.
- Le bois mouillé ou vert peut augmenter les dépôts de créosote.

## H. Instructions d'utilisation du ventilateur soufflant

**REMARQUE :** Si votre appareil à bois Quadra-Fire est équipé d'un ventilateur soufflant en option, suivez les directives suivantes :

- 1. Allumage initial (à froid) et tous les réglages de la combustion**  
 Le ventilateur soufflant peut être installé et mis en marche immédiatement. Le ventilateur soufflant est allumé et arrêté par un disque d'arrêt. Quand votre appareil atteint une température donnée, le ventilateur soufflant se met en marche. Il s'arrête quand l'appareil redescend à une certaine température. L'interrupteur sur le ventilateur soufflant doit être réglé à automatique pour utiliser cette caractéristique.
- 2. Le ventilateur soufflant est équipé d'un réglage de la vitesse.**  
 Pour changer la vitesse du ventilateur, tournez le réglage en sens horaire à « Low » (bas) ou en sens antihoraire à « High » (haut).
- 3. Emplacement du disque d'arrêt**  
 Si le ventilateur soufflant se met en marche et s'arrête à des températures indésirables, placez le disque d'arrêt à un autre endroit de la zone désignée à l'arrière de l'appareil (**Figure 15.1**). Un interrupteur ayant priorité sur le disque d'arrêt peut être utilisé pour désactiver ce dernier si nécessaire.

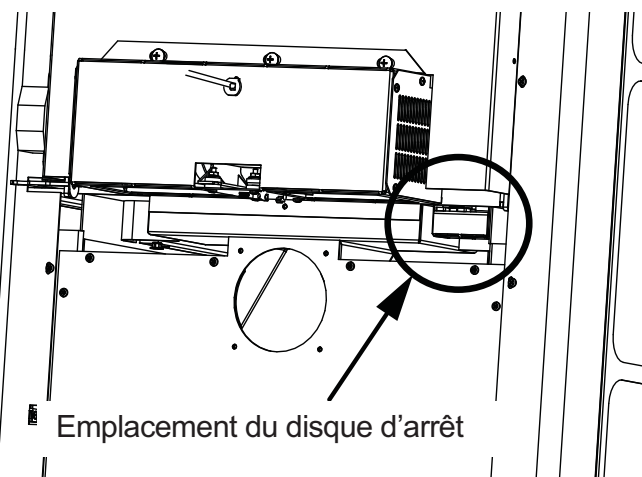


Figure 15.1

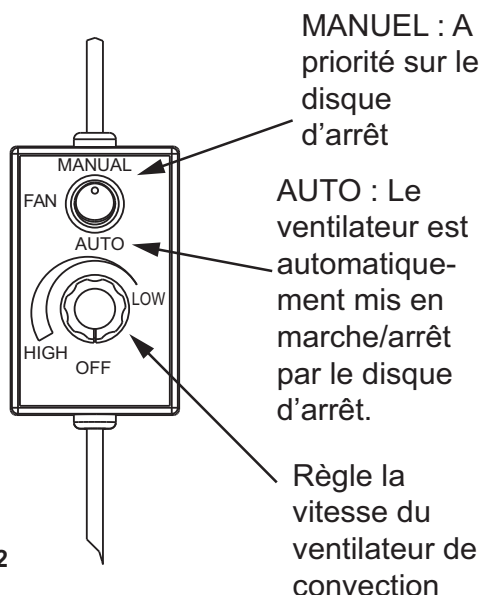


Figure 15.2

## I. Opacité (fumée)

Cela est une indication de l'efficacité et de la propreté de votre appareil. L'opacité est exprimée en valeur relative : un taux de 100 % correspond à une situation dans laquelle un objet est entièrement caché par la colonne de fumée sortant de la cheminée et un taux de 0 % correspond à l'absence de fumée visible. Au fur et à mesure que vous devenez familier avec votre appareil, vous devriez vérifier périodiquement le niveau d'opacité. Cela vous apprendra à maîtriser la combustion de votre poêle (0 % d'opacité étant le but).



### AVERTISSEMENT



#### Risque d'incendie.

- NE BRÛLEZ AUCUN DÉCHET OU LIQUIDE INFLAMMABLE TEL QUE DE L'ESSENCE, DU NAPHTHÉ OU DE L'HUILE DE MOTEUR.
  - Ne brûlez PAS de bois traité ou de bois contenant du sel (bois flotté).
  - Brûler un autre matériau que du bois peut dégager du monoxyde de carbone.
- Cela peut provoquer des malaises, voire la mort.



### AVERTISSEMENT



#### Risque d'incendie.

Éloignez les matériaux inflammables, l'essence et les autres vapeurs et liquides inflammables de l'appareil.

- Ne PAS entreposer de matériaux inflammables à proximité de l'appareil.
- N'UTILISEZ PAS D'ESSENCE, D'HUILE DE LAMPE, DE KÉROSÈNE, DE LIQUIDE D'ALLUMAGE DE CHARBON DE BOIS OU DE LIQUIDES SIMILAIRES POUR DÉMARRER CET appareil OU LE RALLUMER.
- Éloignez tous ces liquides de l'appareil quand il est en marche.
- Les matériaux inflammables peuvent s'enflammer.



### ATTENTION

Lors de votre premier feu, il y aura de la fumée et une odeur provenant de l'appareil, entraînant une cuisson de la peinture et de la combustion des huiles utilisées pendant la fabrication.

**ouvrez les fenêtres pendant la combustion initiale pour dissiper la fumée et les odeurs !**

- Les odeurs peuvent gêner les personnes sensibles.
- Les détecteurs de fumée pourraient s'activer.

## J. Espace libre

**REMARQUE :** Ne placez AUCUN objet inflammable à moins de 1,2 m (4 pi) devant l'appareil (**Figure 16.1**).

- **Manteau de foyer:**  
Ne placez aucune bougie ou aucun autre objet sensible à la chaleur sur le manteau du foyer ou l'âtre. La chaleur peut endommager ces objets.



### AVERTISSEMENT

Ne placez AUCUN objet inflammable devant l'appareil. Les températures élevées peuvent enflammer les vêtements, les meubles ou les rideaux.

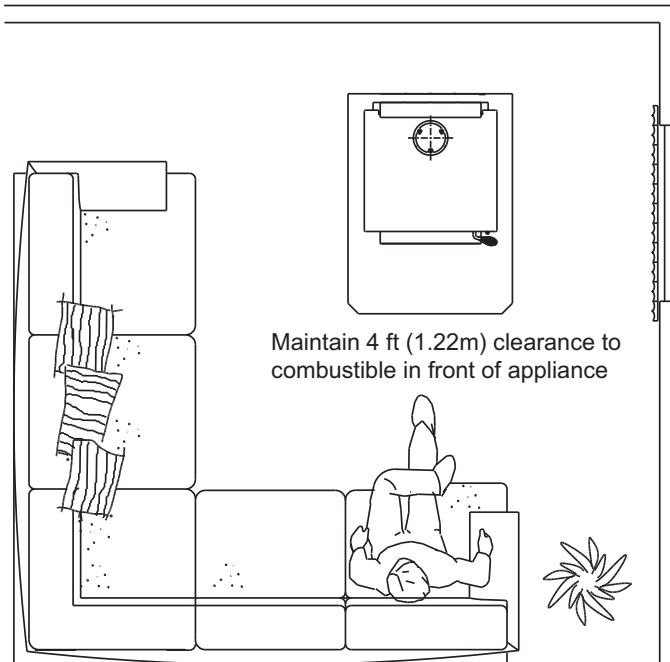


Figure 16.1

## K. Pression négative



### AVERTISSEMENT



#### Danger d'asphyxie.

- En cas de pression négative, il pourrait y avoir propagation de fumée, de suie et de monoxyde de carbone.
- Pour qu'il brûle correctement, l'appareil a besoin d'un bon tirage.

Si le volume d'arrivée d'air est insuffisant pour permettre le bon fonctionnement de l'appareil, la pression devient négative. La fumée peut être plus épaisse aux étages inférieurs de la maison.

#### Les causes incluent :

- Ventilateurs d'évacuation (cuisine, salle de bain, etc.)
- Hottes d'aspiration pour cuisinières
- Exigences en air de combustion pour les fournaies, chauffe-eau et autres appareils de chauffage
- Sèche-linge
- Emplacement des conduits de retour d'air à la chaudière ou au système de climatisation
- Mauvais fonctionnement du système de traitement d'air CVC
  - Éclairage encastré
  - Trappe d'accès au grenier
  - Fuites du conduit

#### Pour minimiser les effets d'une pression d'air négative :

- Installez la prise d'air extérieur en l'orientant face au vent dominant soufflant pendant la saison de chauffage.
- Assurez un débit d'air extérieur suffisant pour satisfaire les besoins de tous les appareils de combustion et de l'équipement d'évacuation des gaz.
- Assurez-vous que la chaudière et les conduits de retour d'air ne sont pas situés à proximité immédiate de l'appareil.
- Évitez d'installer l'appareil près des portes, couloirs ou petits espaces isolés.
- L'éclairage encastré doit être de conception étanche.
- Les trappes d'accès au grenier doivent être protégées contre les intempéries ou scellées.
- Les systèmes de conduits et les joints du traitement de l'air installés dans le grenier doivent être scellés au ruban.

## L. Questions souvent posées

PROBLÈMES	SOLUTIONS
Odeur provenant de l'appareil	Quand l'appareil est utilisé pour la première fois, il peut dégager une odeur pendant quelques heures. Cela provient de la cuisson de la peinture et de la combustion des huiles utilisées et laissées à la fabrication.
Bruit métallique	Le bruit est dû à l'expansion et à la contraction du métal pendant le chauffage et le refroidissement. Il ressemble au bruit provoqué par une chaudière ou un conduit de chauffage. Ce bruit n'a aucun effet sur le fonctionnement et la longévité de l'appareil.
Bruit du ventilateur de convection	Si le ventilateur refoulant est installé, son bruit augmente en intensité à mesure que sa vitesse augmente.

**CONTACTEZ VOTRE DÉTAILLANT** pour plus d'informations concernant l'utilisation et le dépannage.  
Visitez [www.quadrafire.com](http://www.quadrafire.com) pour trouver un détaillant.

**AVERTISSEMENT****Risque d'incendie.**

- NE BRÛLEZ AUCUN DÉCHET OU LIQUIDE INFLAMMABLE TEL QUE DE L'ESSENCE, DU NAPHTÉ OU DE L'HUILE DE MOTEUR.
- Ne brûlez PAS de bois traité ou de bois contenant du sel (bois flotté).
- Brûler un autre matériau que du bois peut dégager du monoxyde de carbone.

Cela peut provoquer des malaises, voire la mort.

**AVERTISSEMENT****Risque d'incendie.**

Éloignez les matériaux inflammables, l'essence et les autres vapeurs et liquides inflammables de l'appareil.

- Ne PAS entreposer de matériaux inflammables à proximité de l'appareil.
- N'UTILISEZ PAS D'ESSENCE, D'HUILE DE LAMPE, DE KÉROSÈNE, DE LIQUIDE D'ALLUMAGE DE CHARBON DE BOIS OU DE LIQUIDES SIMILAIRES POUR DÉMARRER CET APPAREIL OU LE RALLUMER.
- Éloignez tous ces liquides de l'appareil quand il est en marche.
- Les matériaux inflammables peuvent s'enflammer.



# 3 Maintenance et entretien

## A. Guide de référence rapide pour maintenance

Avec un entretien adéquat, votre foyer vous procurera plusieurs années de service sans problèmes. Communiquez avec votre détaillant pour vos questions concernant la bonne utilisation, le dépannage et l'entretien de votre appareil. Visitez [www.quadrafire.com/owner-resources](http://www.quadrafire.com/owner-resources) pour consulter les dépannages de base, les FAQ, les vidéos d'utilisation et d'entretien.



### ATTENTION

#### Risque de blessure.

- Attendez que l'appareil soit froid avant de procéder au nettoyage ou d'effectuer l'entretien.
- Commencez la première inspection après 2 mois d'utilisation. Si le rendement change, ajustez votre horaire en conséquence.
- Un entretien est requis pour une opération sécuritaire et doit être effectué pour assurer votre garantie.

	FRÉQUENCE	TÂCHE
<b>Déflexeur et laine céramique isolante</b> 	MENSUELLE ou Après chaque corde de bois	L'emplacement du déflexeur et de la laine céramique isolante est essentiel à la sortie de chaleur, l'efficacité et la durée de vie générale de l'appareil. Assurez-vous que le déflexeur est entièrement poussé à l'arrière de la boîte à feu et que la laine céramique est à plat. Vérifiez le déflexeur pour déceler les fissures.
<b>Ventilateur de convection en option</b> 	UNE FOIS PAR AN ou Après toutes les quatre cordes de bois	Passez l'aspirateur sur la roue à ailettes du ventilateur.
<b>Système de cheminée</b> 	TOUS LES 2 MOIS ou Après toutes les quatre cordes de bois	La cheminée et le chapeau de l'extrémité doivent être inspectés pour déceler la suie et le crésote tous les deux mois pendant l'hiver ou plus souvent si la cheminée excède ou est inférieure à 4,3 à 4,8 m (14 à 16 pi), mesurée depuis la base de l'appareil.  Ceci empêchera l'obstruction des tuyaux, un faible tirage et les feux de cheminée. Toujours brûler du bois sec pour aider à prévenir l'obstruction du capuchon et l'accumulation de crésote.
<b>Piédestal et élimination des cendres</b> 	HEBDOMADAIRE ou Après chaque 25 chargements de bois	Les cendres doivent être refroidies avant de les mettre au rebut dans un contenant incombustible.  La brique réfractaire est conçue pour protéger votre boîte à feu. Une fois les cendres retirées, inspectez la brique et remplacez les briques détériorées, craquées ou brisées.
<b>Porte et panneau de verre fixe</b> 	HEBDOMADAIRE ou Après chaque 25 chargements de bois	Gardez la porte et le cordon d'étanchéité en bon état pour conserver de bonnes durées de combustion sur un réglage à combustion faible. <u>Pour effectuer un test</u> : placez un billet de un dollar entre le poêle et la porte, puis fermez la porte. Si vous pouvez enlever le billet, retirez une rondelle de la poignée de la porte derrière la came du loquet et réessayez. Si vous pouvez toujours le retirer, remplacez le joint d'étanchéité.  Vérifiez le cadre du panneau de verre pour déceler les vis lâches afin de prévenir les fuites d'air.  Vérifiez le panneau de verre pour déceler les fissures.
<b>Poignée de porte</b> 	HEBDOMADAIRE ou Après chaque 25 chargements de bois	Vérifiez le verrou de porte pour un ajustement approprié. Il est très important, particulièrement lorsqu'un cordon de porte s'est formé sur la face du poêle.  Vérifiez la poignée de la porte pour un bon fonctionnement de la came.

*These are generic drawings and may not represent your model.*

## B. Maintenance générale

### 1. Élimination de la créosote présente dans la cheminée

- **Fréquence** : Tous les 2 mois pendant la saison de chauffage ou selon la recommandation d'une entreprise de ramonage certifiée. De manière plus fréquente si une cheminée excède ou est inférieure à 4,3 à 4,9 m (14 à 16 pi) (mesurée à partir du bas de l'appareil)
  - **Par** : Entreprise de ramonage de cheminées certifiée
- Videz les cendres de la boîte à feu, en éteignant toutes les braises chaudes avant leur mise au rebut. Attendez que l'appareil soit complètement refroidi. Déconnectez le conduit de fumée ou enlevez le déflecteur et la laine céramique isolante de l'appareil avant de nettoyer la cheminée. Sinon, des résidus peuvent se déposer sur le déflecteur et la laine céramique isolante, causant un mauvais fonctionnement de l'appareil. (Voir l'enlèvement du déflecteur à la page 24). Fermez bien la porte. La créosote ou la suie doit être enlevée avec une brosse spéciale adaptée au type de cheminée utilisée. Enlevez les cendres tombées dans la boîte à feu.

Il est également recommandé de faire inspecter tout le système par un spécialiste avant la saison de chauffage et de le nettoyer et le réparer si nécessaire.

#### Inspection :



Inspectez le raccordement de l'appareil et le chapeau de l'extrémité de la cheminée. La créosote a tendance à s'accumuler plus rapidement sur les surfaces froides. Il est donc important de contrôler la cheminée depuis le haut et le bas.

#### Formation de dépôt et nettoyage :

Quand le bois brûle lentement, il crée du goudron et des vapeurs organiques qui se combinent avec l'humidité expulsée et forment de la créosote.

Les vapeurs de créosote se condensent dans le conduit de fumée lorsqu'il est relativement froid, par exemple lorsque le feu vient d'être allumé ou qu'il brûle lentement. Par conséquent, les résidus de créosote s'accumulent sur le revêtement du conduit de fumée. Si la créosote prend feu, elle crée un feu extrêmement chaud qui peut endommager la cheminée, voir détruire la maison.

Le carneau et la cheminée doivent être inspectés tous les 2 mois pendant la saison de chauffage pour déterminer si des dépôts de créosote ou de suie se sont formés. Si un dépôt de créosote ou de suie s'est formé, il doit être enlevé pour diminuer le risque de feu de cheminée.

	<b>AVERTISSEMENT</b>
	<p><b>Risque d'incendie.</b> Empêchez l'accumulation de créosote.</p> <ul style="list-style-type: none"> <li>• Inspectez le carneau et la cheminée une fois tous les deux mois pendant la saison de chauffage.</li> <li>• Enlevez la créosote pour diminuer les risques de feu de cheminée.</li> <li>• La créosote brûle à très HAUTE température.</li> </ul>

	<b>AVERTISSEMENT</b>
	<p><b>Risque d'incendie.</b></p> <ul style="list-style-type: none"> <li>• N'utilisez aucun nettoyant de cheminée ou colorant de flamme dans votre poêle. Ceci causerait la corrosion du conduit de cheminée.</li> </ul>

### 2. Nettoyage des surfaces plaquées

- **Fréquence** : Avant le premier emploi et puis ensuite selon les besoins
  - **Par** : Le propriétaire de l'habitation
- Nettoyez les empreintes de doigts et les taches d'huile présentes sur les surfaces plaquées **AVANT** d'allumer l'appareil pour la première fois. Si les taches d'huile ne sont pas entièrement éliminées avant votre premier feu, elles risquent de laisser des empreintes permanentes sur le placage.



Une fois le placage cuit, les taches d'huile n'affecteront plus l'état de la surface et une maintenance minimale suffira. Essayez si nécessaire.

	<b>ATTENTION</b>
<ul style="list-style-type: none"> <li>• N'utilisez aucun produit à polir contenant des substances abrasives. Il égratignerait les surfaces plaquées.</li> </ul>	

### 3. Jeter les cendres

- **Fréquence** : Lorsque les cendres sont à moins de 44 mm (1 3/4 po) de la boîte à feu
- **Par** : Le propriétaire de l'habitation

Les cendres doivent être placées dans un récipient en métal recouvert d'un couvercle bien ajusté. Le récipient de cendres fermé doit être placé sur un plancher incombustible ou sur le sol, loin des matériaux inflammables, en attendant sa mise au rebut finale. Si les cendres sont enterrées ou dispersées sur place, elles doivent rester dans le récipient fermé, jusqu'à ce qu'elles soient complètement refroidies.

	<b>AVERTISSEMENT</b>
	<p><b>Risque d'incendie. Jeter les cendres</b></p> <ul style="list-style-type: none"> <li>• Les cendres doivent être placées dans un récipient en métal avec un couvercle bien ajusté.</li> <li>• Ne placez pas le récipient en métal sur une surface inflammable.</li> <li>• Elles doivent être conservées dans un récipient fermé jusqu'à ce qu'elles aient pu complètement refroidir.</li> </ul>

### 4. Nettoyage de la vitre

- **Fréquence** : Au besoin
- **Par** : Le propriétaire de l'habitation

	<b>ATTENTION</b>
<ul style="list-style-type: none"> <li>• N'utilisez aucun produit à polir contenant des substances abrasives. Il égratignerait les surfaces plaquées.</li> </ul>	

Nettoyez la vitre au moyen d'un nettoyant non abrasif. Les nettoyants abrasifs peuvent égratigner la vitre et la fragiliser. Si les dépôts sur la vitre ne sont pas épais, vous pouvez utiliser un nettoyant pour vitres normal. Si les dépôts sont plus épais, vous pouvez les enlever au moyen d'un chiffon humide trempé dans des cendres ou imbibé d'un produit à nettoyer les fours disponible sur le marché.

Après avoir utilisé un produit à nettoyer les fours, il est recommandé d'essuyer les résidus avec un nettoyant pour verre ou de l'eau savonneuse. Si du produit à nettoyer les fours reste sur la vitre pendant le feu suivant, il risque de tacher en permanence la vitre et d'endommager les surfaces métalliques plaquées.

## Discovery III

Une partie de l'air de combustion entrant dans la boîte à feu est déviée vers le bas et balaie la surface intérieure de la porte vitrée. Ce courant d'air « nettoie » le verre et empêche la fumée d'y créer des dépôts.

Lorsque le taux de combustion est bas, moins d'air passe sur la vitre et la fumée et les températures relativement basses créent des dépôts sur la vitre.

Pour éliminer ces dépôts, faites fonctionner l'appareil pendant 30 à 45 minutes en ouvrant entièrement le réglage de l'air de combustion et de l'allumage.

### C. Emplacement adéquat du déflecteur et de la laine céramique isolante



#### AVERTISSEMENT

##### Risque d'incendie

Un dégât à la boîte à feu provoqué par une disposition incorrecte du déflecteur n'est pas couvert par la garantie. Utilisez l'appareil au bois uniquement avec un déflecteur correctement en place.



##### Une utilisation inadéquate du déflecteur entraînera :

- un rendement réduit
- une surchauffe de la cheminée
- une surchauffe de l'arrière de la boîte à feu
- un mauvais rendement

Assurez-vous de la disposition adéquate du déflecteur et remplacez les composants du déflecteur, s'ils sont endommagés ou manquants.



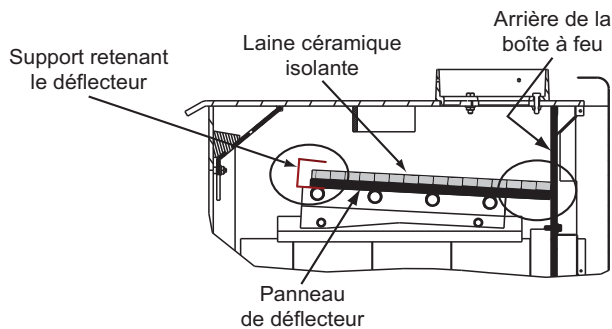
#### ATTENTION

Les plaques du déflecteur sont FRAGILES. Faites preuve de prudence au moment de remettre du bois dans le poêle pour éviter :

- De fissurer, casser ou endommager les plaques du déflecteur

Ne PAS utiliser l'appareil sans les plaques du déflecteur

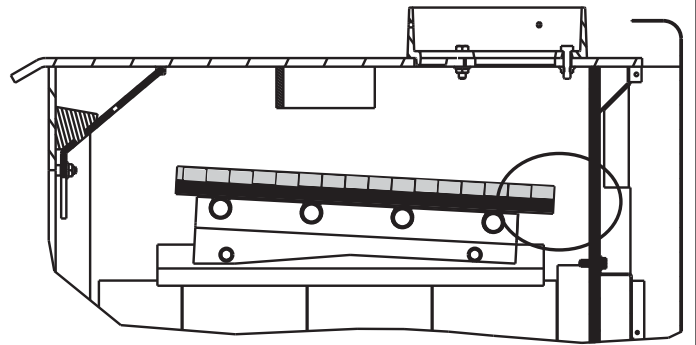
### POSITIONS CORRECTES



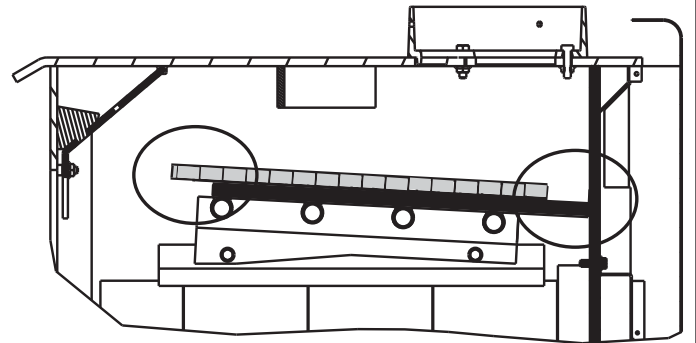
La laine céramique isolante et le panneau du déflecteur DOIVENT être en contact avec l'arrière de la boîte à feu et même à l'avant.

Figure 20.1

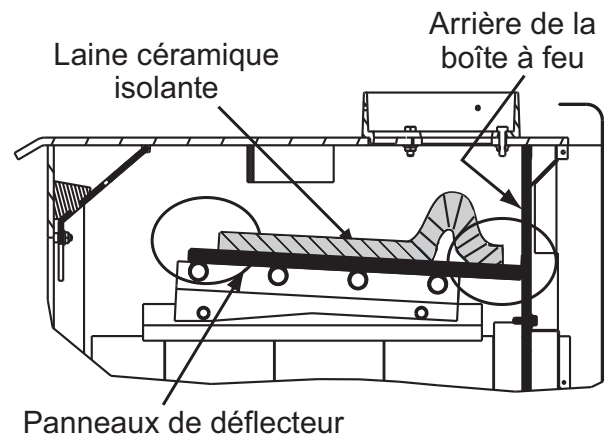
### POSITIONS INCORRECTES



La laine céramique isolante et le panneau du déflecteur ne sont PAS en contact avec l'arrière de la boîte à feu.



La laine céramique isolante n'est PAS en contact avec l'arrière de la boîte à feu, NI avec le déflecteur à l'avant.



La laine céramique isolante est retroussée à l'arrière de la boîte à feu et ne touche PAS le déflecteur à l'avant.

Figure 20.2

# 4 Guide de dépannage

Avec une installation, utilisation et maintenance appropriées, votre appareil au bois fonctionnera sans problème pendant de nombreuses années. Si vous rencontrez des problèmes de fonctionnement, ces directives de dépannage permettront au technicien de localiser et d'éliminer la panne.

Problèmes pour démarrer un feu	Cause possible	Solution	
Impossible de démarrer un feu Fumée excessive ou propagation Brûle trop lentement Sortie de chaleur insuffisante	Pas suffisamment de petit bois/papier ou aucun petit bois/papier	Utilisez du petit bois sec, plus de papier. Disposez le petit bois et les bûches de façon à faciliter la circulation de l'air.	
	Air insuffisant pour que le feu s'alimente	Vérifiez toute restriction au chapeau de l'extrémité	Vérifiez l'obstruction de l'ensemble de prise d'air extérieur (si installé).
		Vérifiez l'obstruction du conduit de fumée.	Préchauffez le conduit de fumée avant de faire le feu (reportez-vous à la section Préparation d'un feu).
		Vérifiez pour une hauteur adéquate du conduit d'évacuation (reportez-vous à la section de la hauteur de la cheminée).	Ouvrez une fenêtre sous l'appareil en direction du vent.
		Le bois est trop mouillé, trop gros	Utilisez du bois sec (reportez-vous à la section Bois sec).
		Un lit de charbon est non établi avant d'ajouter du bois	Commencez avec du papier et du petit bois pour faire un lit de charbon (reportez-vous à la section Préparation d'un feu).
	Obstruction du conduit de fumée, comme des nids-d'oiseau ou des feuilles dans le chapeau de l'extrémité.	Inspectez la cheminée pour déceler toutes traces de créosote et faites-la nettoyer par une entreprise de ramonage de cheminées certifiée.	
	Contre-tirage ou pression négative Les ventilateurs de tirage créent une dépression	N'utilisez pas les ventilateurs d'évacuation pendant l'allumage (reportez-vous à la section Pression négative).	Ouvrez une fenêtre sous l'appareil en direction du vent.
		Le bois brûle trop rapidement	Bois extrêmement sec ou tendre
Surtirage	Vérifiez que la hauteur du conduit d'évacuation est appropriée; une hauteur verticale excessive crée un surtirage.		Vérifiez l'emplacement de l'extrémité du conduit (référez-vous à la section Exigences relatives à l'extrémité de la cheminée).

# 5 Pièces de rechange

## A. Remplacement de la vitre

**REMARQUE: Remplacer avec 5 mm verre céramique.**

Service : 7000-012

1. Contrôlez que le feu est éteint et que l'appareil est froid au toucher.
2. Protégez une table ou surface de travail avec un tissu matelassé ou des serviettes. Mettez des gants pour protéger vos mains.
3. Enlevez la porte avec la vitre cassée en la soulevant et en la décrochant des charnières.
4. Posez la porte face vers le bas sur une table ou surface de travail de façon à ce que la poignée dépasse du bord et que la porte repose à plat sur la protection.
5. Enlevez les vis des arrêteurs de la vitre et enlevez la vitre. (Si les vis sont difficiles à enlever, recouvrez-les d'abord d'une huile pénétrante.)
6. Placez la vitre au centre de l'ouverture de la porte (les bords de la vitre étant à la même distance en haut, en bas et sur les côtés).
7. Remettez les arrêteurs de vitre. Faites attention de ne pas endommager le filetage des vis.
8. Serrez de quelques tours les vis jusqu'à ce qu'elles soient bien serrées. Contrôlez encore une fois le centrage de la vitre dans le cadre de porte. Continuez à serrer alternativement de quelques tours les vis jusqu'à ce que la vitre soit bien fixée.

**REMARQUE : NE SERREZ PAS les dispositifs de retenue - peut provoquer la rupture de la vitre.**

9. Remplacez la porte sur l'appareil.  
Les appareils Quadra-Fire sont équipés d'une porte en vitrocéramique capable de résister à des températures très élevées. Elle ne doit pas subir de chocs violents ou d'usages abusifs sous peine de se fêler. Ne claquez pas la porte de l'appareil et ne frappez pas la vitre. Quand vous fermez la porte, vérifiez qu'aucune bûche ne touche la vitre. Inspectez régulièrement la porte vitrée. Si vous trouvez une fissure ou si la vitre est brisée, éteignez immédiatement le feu et retournez la porte à votre concessionnaire pour faire remplacer la vitre.



### AVERTISSEMENT

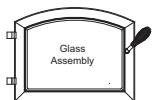


#### Risque de blessures.

- N'utilisez que le verre spécifié dans le manuel.
- N'UTILISEZ AUCUN AUTRE type de matériau.



### ATTENTION



Manipuler le panneau de verre fixe avec prudence.

#### Pendant le nettoyage de la vitre :

- Évitez de cogner, de rayer ou de claquer la porte vitrée.
- Ne PAS nettoyer la vitre quand elle est chaude.
- Ne PAS utiliser de nettoyeurs abrasifs.
- Utilisez un nettoyeur à vitre pour dépôts calcaires sur le film blanc.
- Utilisez un nettoyeur à four vendu dans le commerce si les dépôts sont plus épais.
- Enlevez tous les résidus de nettoyeur à four, sinon la vitre sera tachée de façon permanente lors du prochain chauffage.

**Se reporter aux instructions de maintenance.**

## B. Remplacement des briques réfractaires

Service : SRV7037-003

Remplacez les briques réfractaires si elles deviennent friables ou si la fente entre les briques dépasse 6 mm (1/4 po).

Inspectez la brique réfractaire après chaque nettoyage des cendres.

La boîte à feu est recouverte de briques réfractaires de haute qualité aux propriétés isolantes exceptionnelles. Il n'est pas nécessaire d'utiliser une grille, il suffit de préparer un feu sur le fond de la boîte à feu. N'utilisez pas l'appareil sans briques réfractaires.

1. Quand les cendres sont froides, enlevez les anciennes briques et les cendres de l'appareil et nettoyez la boîte à feu avec un aspirateur.
2. Sortez les nouvelles briques de la boîte et placez-les comme illustré.
3. Placez les briques du fond de l'appareil.
4. Installez les briques arrière sur les briques du fond. Faites glisser le haut des briques sous le clip à l'arrière de la boîte à feu et repoussez le bas des briques vers l'arrière.
5. Installez les briques latérales. Glissez le haut de la brique sous les clips latéraux de la boîte à feu et poussez le bas de la brique jusqu'à ce qu'elle soit à égalité avec le côté de l'appareil.

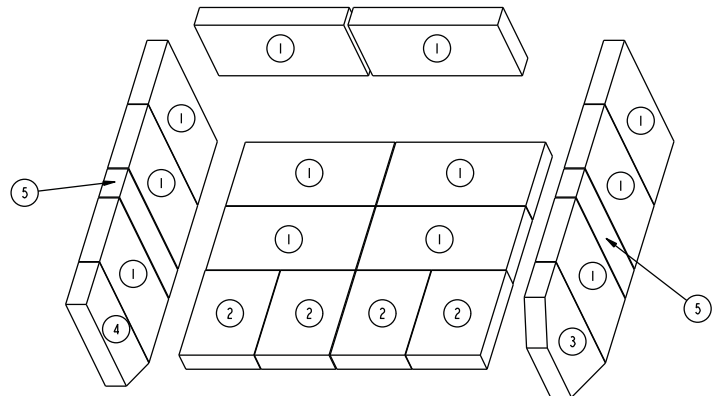


Figure 22.1

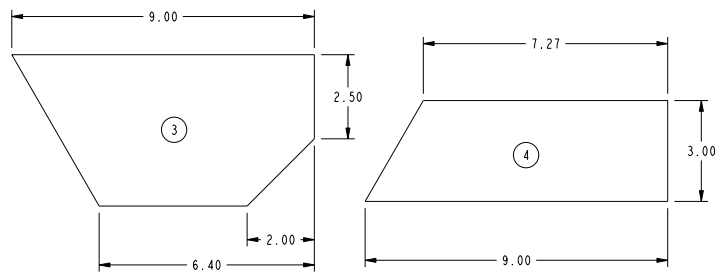


Figure 22.2

Figure 22.3

Placement	Dimensions	Qté Requis
1	9" x 4.5" x 1.25"	12
2	6" x 4.5" x 1.25"	4
3	9" x 4.5" x 1.25" w/Angles	1
4	9" x 3" x 1.25" w/Angle	1
5	9" x 2" x 1.25"	2

## C. Remplacement du disque d'arrêt

Service : SRV230-0470

1. Débranchez l'appareil.
2. Localisez le support du disque d'arrêt dans l'angle inférieur gauche à l'arrière de l'appareil.
3. Le support est fixé à l'appareil par un aimant. Tirez le support vers le bas en l'éloignant de l'appareil pour exposer le disque d'arrêt.
4. Tirez le disque d'arrêt et les connexions à cosses rectangulaires vers le haut pour les sortir du support comme illustré à la **Figure 23.1**.
5. Enlevez les 2 vis du disque d'arrêt au moyen d'un tournevis à tête cruciforme, puis déconnectez le disque d'arrêt des connecteurs à cosses rectangulaires. Remplacez-le par un nouveau disque d'arrêt et connectez-le.
6. Repoussez le disque d'arrêt et les cosses rectangulaires dans le support et remontez le support sur le poêle. Réinstallez-le en procédant dans l'ordre inverse.

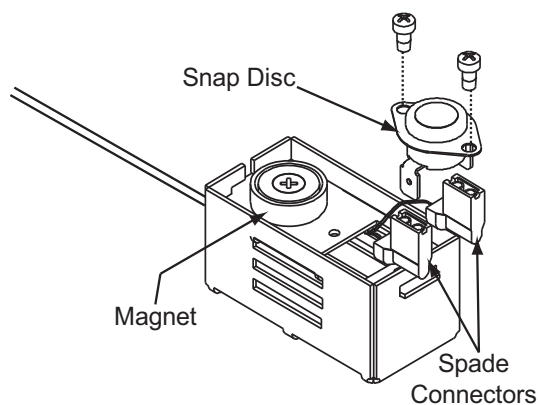


Figure 23.1

## D. Ensemble de poignée de porte

Service : SRV7033-071

1. Introduisez la poignée de porte dans la porte.
2. Placez une deuxième ou plusieurs rondelles comme il est indiqué à la **Figure 23.2**.
3. Placez la clé dans la rainure.
4. Alignez la rainure dans la came de verrouillage avec la clé. Glissez la came de verrouillage sur l'axe.
5. Installez le contre-écrou sans trop le serrer, car la poignée doit pouvoir bouger librement.
6. Installez la poignée en fibre (**Figure 23.2**).



### ATTENTION

Ne pas trop serrer le contre-écrou. La poignée de porte doit pouvoir bouger librement.

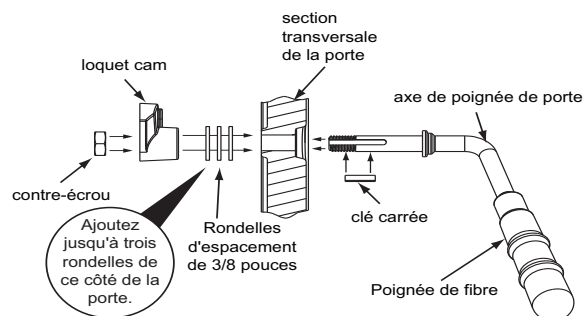


Figure 23.2

## E. Démontage du déflecteur

Service : SRV7037-112

1. Enlevez les cendres de la boîte à feu, en éteignant toutes les braises chaudes avant leur mise au rebut dans un récipient métallique.
2. La plaque-défecteur est en deux parties. Quand la laine céramique isolante est en place, glissez une des parties du déflecteur par-dessus l'autre et sortez-la par l'ouverture de la porte, puis enlevez la partie du bas (**Figure 24.1**).
3. Enlevez la laine céramique isolante (**Figure 24.2**).
4. Réinstallez les deux parties du déflecteur l'une après l'autre. Assurez-vous que les deux parties du déflecteur soient à égalité avec le collecteur à tubes avant et qu'elles reposent sur tous les tubes (**Figure 24.3 et Figure 24.4**).
5. Pour réinstaller la laine céramique, il est plus facile de la plier d'abord en deux (**Figure 24.2 et Figure 24.4**). Placez-la sur la plaque du déflecteur, dépliez et lissez la laine céramique isolante. Révérifiez l'emplacement de la plaque-défecteur (**Figure 24.3 et Figure 24.4**).

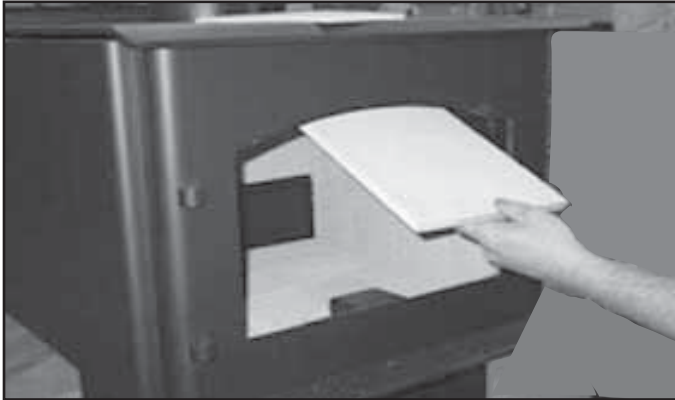


Figure 24.1 - Déflecteur Conseil



Figure 24.2 - Laine céramique isolante

Le panneau du déflecteur doit être à niveau avec le tube avant et reposer sur tous les tubes.

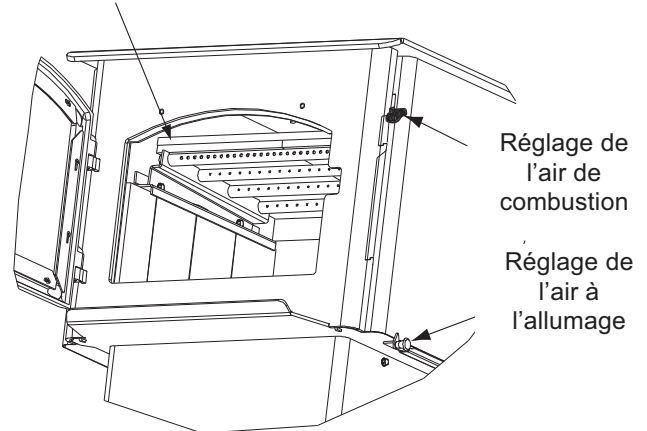


Figure 24.3

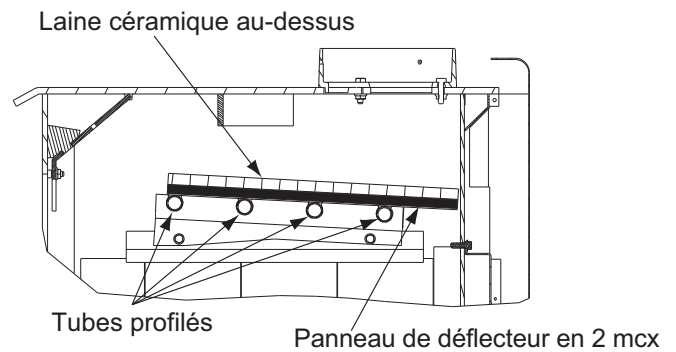


Figure 24.4

## F. Retrait et installation du panneau décoratif

Panneau Latéral Service De La Partie : SRV7037-027

Tuile Cadre De Services De La Partie : SRV7033-324

Cadre Vierge De Service : SRV7033-346

Votre appareil est expédié avec deux options de côtés, l'une est un panneau latéral complet (Figure 25.1) et un panneau latéral à tuiles (Figure 25.2). Il y en a deux chacun et il n'y a aucun côté droit ou gauche, ceux-ci pouvant donc être changés à tout moment.

### Retrait du panneau latéral complet

1. Retirez le panneau complet du côté de l'appareil en le soulevant et en le retirant de l'appareil (utilisez un outil plat afin de forcer le bas au besoin) (Figure 25.3).

	<b>ATTENTION</b>
	Utilisez uniquement une peinture haute température de 149 °C (300 °F) peut être utilisée pour repeindre le panneau latéral complet! <b>NE PAS</b> utiliser sur le reste de l'appareil qui nécessite une peinture haute température de 649 °C (1200 °F).

### Installation du panneau latéral à tuiles

2. Retirez le cadre des tuiles du côté de l'appareil en le soulevant et le retirant de l'appareil (La figure 25.3 présente le retrait du panneau latéral complet).
3. Empilez les tuiles incombustibles dans le cadre, comme il est indiqué à la Figure 25.2.
4. Fixez à nouveau le cadre des tuiles (Figure 25.4).

### Exigences concernant la dimension des carreaux :

Épaisseur maximale : 8 mm (5/16 po)

Longueur et largeur maximale : Carré de 302 mm (11-7/8 po)

Longueur et largeur minimale : Carré de 297 mm (11-11/16 po)

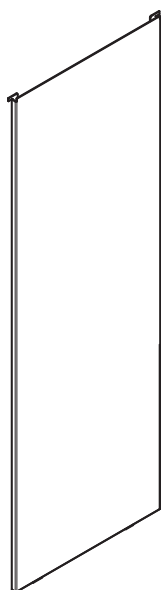


Figure 25.1

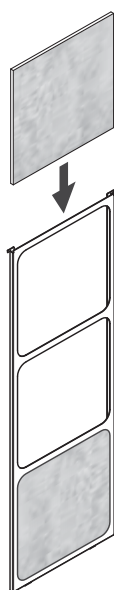


Figure 25.2

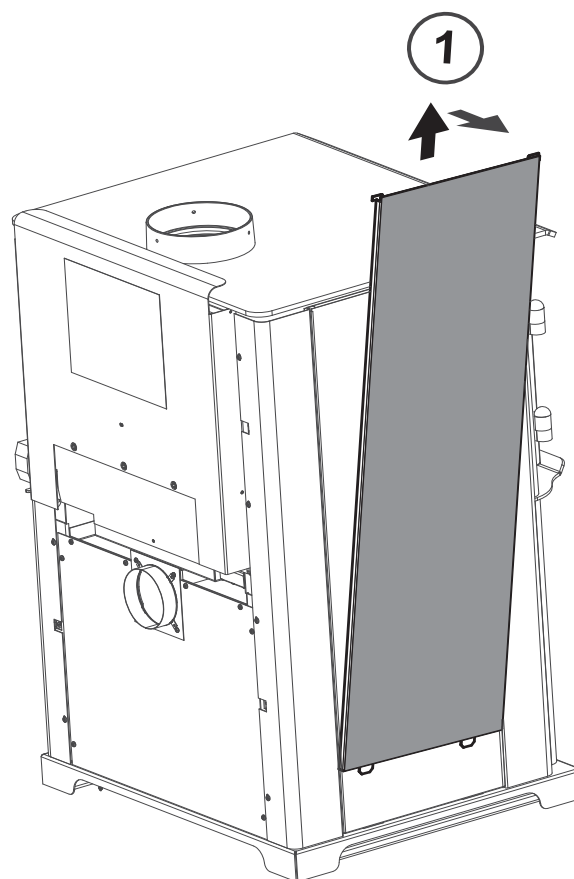


Figure 25.3

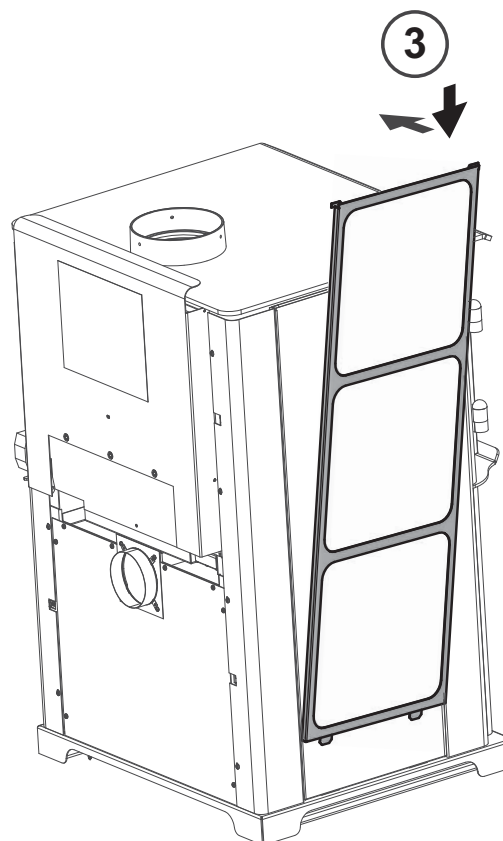




Figure 25.4

	<b>AVERTISSEMENT</b>
	<b>Risque d'incendie</b> N'utilisez que des tuiles de matériaux incombustibles.



## G. Remplacement de l'ensemble de tubes profilés

Service : SRV7033-023

### Démontage de l'ensemble des tubes

1. Enlevez le blindage droit en dévissant les 2 vis arrière au moyen d'un tournevis à tête cruciforme.
2. Enlevez les 4 vis du couvercle d'accès au canal et enlevez le couvercle.
3. Enlevez les 2 écrous du canal situés dans la chambre au moyen d'une clé à douilles de 7/16 po. Sortez l'ensemble de tubes.

**REMARQUE :** Recouvrez les boulons d'huile pénétrante pendant 15 minutes minimum avant d'essayer de les enlever.

### REMARQUE : Dégagement pour l'entretien

Afin de remplacer l'ensemble de tubes, un dégagement de 433 mm (19 po) est nécessaire sur le côté droit de l'appareil pour pouvoir enlever les tubes sans déplacer l'appareil.

Si un tel espace n'est pas disponible, l'appareil devra être débranché de la cheminée pour pouvoir procéder au remplacement des tubes.

### Remplacement de l'ensemble de tubes

4. Glissez un joint sur chaque tube.
5. Glissez l'ensemble de tubes dans la face latérale de la boîte à feu et insérez chaque tube dans le trou correspondant du support de l'ensemble, en commençant par le trou arrière.
6. Assurez-vous que l'ensemble de tubes est à égalité avec le côté de l'appareil et fixé avec les écrous.
7. Réinstallez le couvercle du canal et le protecteur latéral.

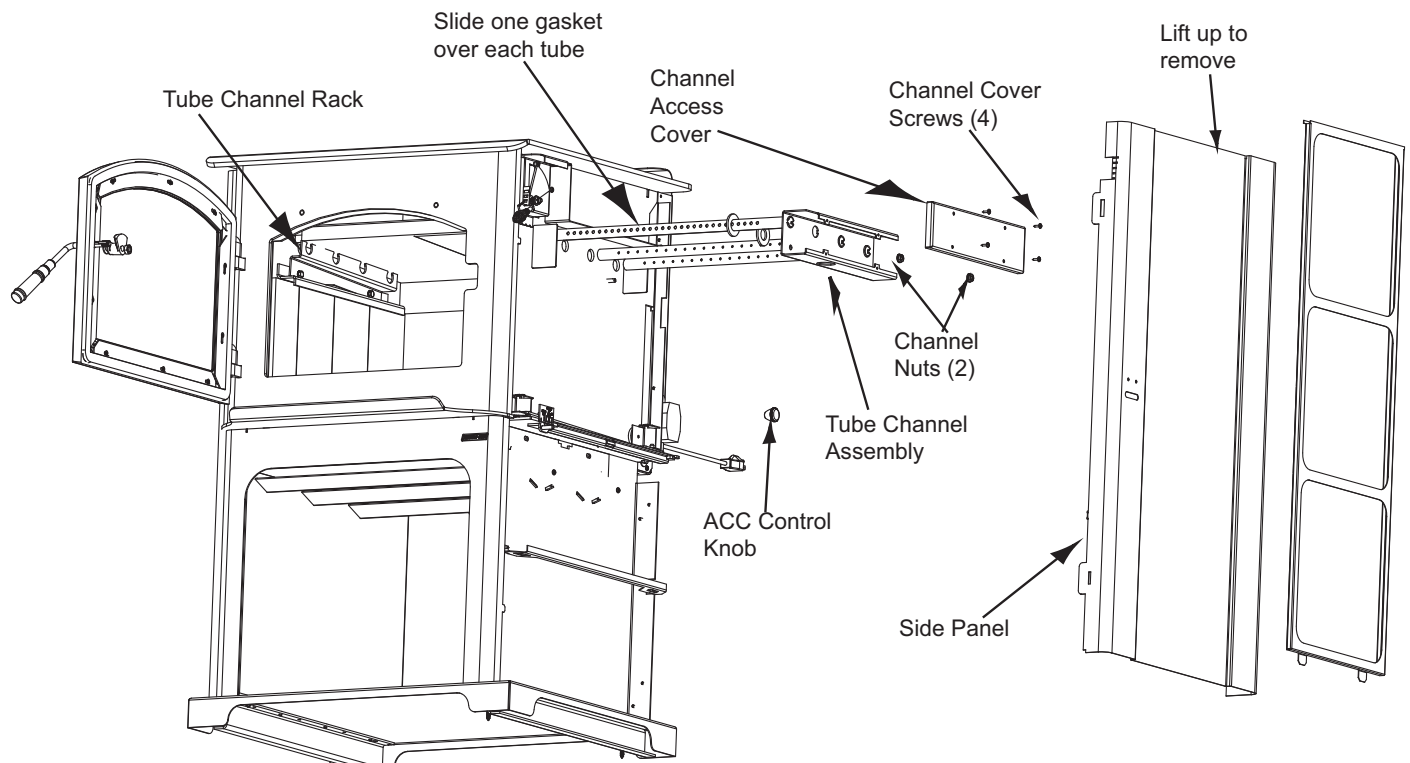


Figure 26.1









## B. Vue Éclatée

**QUADRA-FIRE**

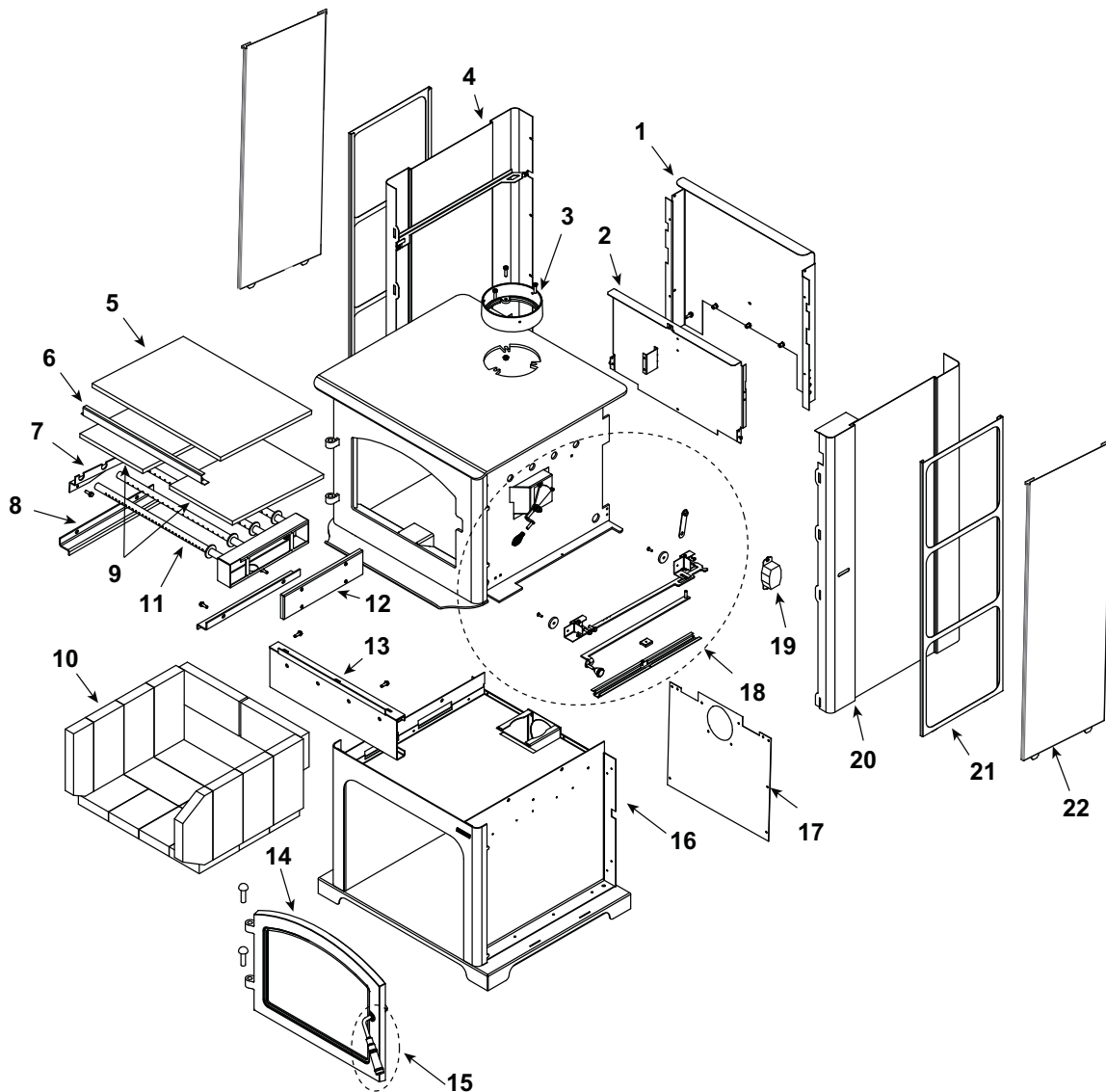
Pièces de rechange

**DISCOVERY-III-C**

Poêle à Bois

Date de début de la fabrication : Jan 2020

Date de fin de la fabrication : Actif



La liste des pièces de rechange se trouve à la page suivante.

12/19

## C. Pièces De Service

**QUADRA-FIRE**<sup>®</sup>

Pièces de rechange

**DISCOVERY-III-C**

Date de début de la fabrication : Jan 2020

Date de fin de la fabrication : Actif

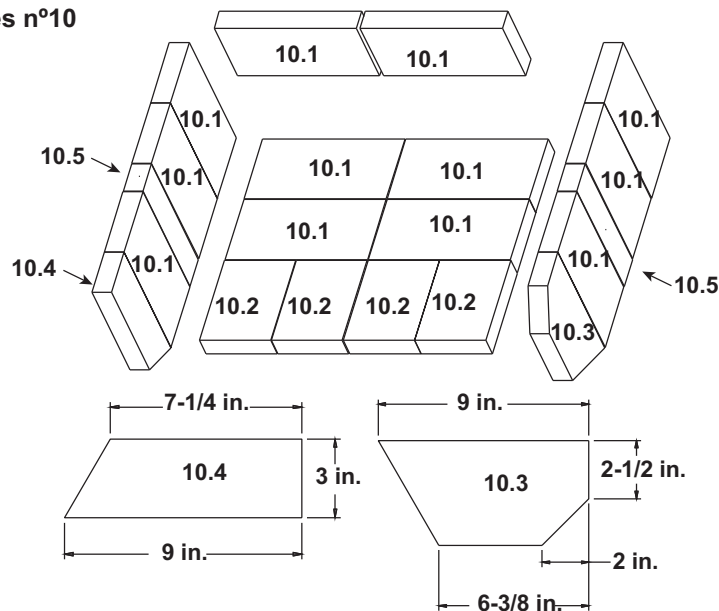
IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR. Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.



Entreposé  
au dépôt

ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE	
1	Canal d'air, convection avec joint d'étanchéité (étiquette SN de retenue originale)		SRV7033-144	
2	Entrée d'air arrière		SRV7033-134	
3	Buse du conduit		SRV7000-302	
4	Assemblage de panneaux, latéral, gauche		SRV7037-026	Oui
5	Couverture à base de fibres de céramique, 1/2 po d'épaisseur		832-3390	
6	Canal de protection pour chicane		SRV7033-298	
7	Grille d'appui pour tubes		7033-148	
8	Retenues de briques		7033-149	
9	Panneau de chicane	paquet de 2	SRV7033-209	

## Assemblage de briques n°10



10	Assemblage de briques, jeu complet	Pqt de 20	SRV7037-003	
10.1	Brique, 229 x 114 x 32 mm (9 x 4.5 x 1.25 po)	Qté 12 rég.	832-0550	Oui
10.2	Brique, 152 x 114 mm (6 x 4.5 x 1.25 po)	Qté 4 rég.	SRV7128-002	
10.3	Brique, 229 x 114 mm (9 x 4.5 x 1.25 po) avec angle	Qté 1 rég.	SRV7128-806	
10.4	Brique, 229 x 76 mm (9 x 3 x 1.25 po) avec angle	Qté 1 rég.	SRV7128-618	
10.5	Brique, petite 229 x 51 mm (9 x 3 x 1.25 po)	Qté 2 rég.	SRV7128-018	
	Brique, non coupée	Pqt de 6	832-3040	Oui
11	Assemblage de canal pour tube		SRV7033-023	
12	Dessus de canal pour tube		SRV7033-237	Oui
13	Assemblage de canal arrière		7033-002	Oui

Numéro de pièces d'entretien supplémentaires disponibles à la page suivante.

Date de début de la fabrication : Jan 2020

Date de fin de la fabrication : Actif

**IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR.** Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.



Entreposé  
au dépôt

ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>Assemblage pour porte n°14</b></p> </div> <div style="width: 45%;"> <p><b>Ensemble de poignée de porte n°15</b></p> </div> </div>				
14	Assemblage de porte	Noir	DR-31/43BK-FH	Oui
		Nickel	DR-31/43NL-FH	Oui
14.1	Tiges de charnière, 13 mm (1/2 po)	Noir	7000-606/2	Oui
		Nickel	SRV430-5320	
14.2	Cordon, porte, 19 mm x 2,13 m (3/4 x 84 po), coupé sur place	2,13 m (7 pi) long	832-1680	Oui
14.3	Ensemble de porte vitrée - (lar. x haut) 394 x 340 mm (15-1/2 x 13-3/8 po)		7000-012	Oui
	Joint d'étanchéité, ruban de la vitre - coupé sur place à la bonne longueur, 1,52 m (5 pi) long		832-0460	Oui
14.4	Ensemble du cadre de vitre	Qté : 4 mcx	832-0350	
14.5	Vis, à tête plate cruciforme, 8-32 X 1/2	Pqt de 12	220-0490/12	Oui
15	Ensemble de poignée de porte	Fibre	SRV7033-071	Oui
15.1	Poignée de porte, Fibre		SRV7060-212	
15.2	Poignée de porte, formé		SRV7044-188	Oui
15.3	Rondelle, Sae, 3/8	Pqt de 3 chac.	832-0990	Oui
15.4	Verrou à came		SRV430-1141	
15.5	Clé, verrou à came		SRV430-1151	
15.6	Écrou, poignée de porte à verrouillage	Pqt de 24	226-0100/24	Oui
16	Assemblage du piédestal		SRV7037-025	
	Logo, quadra-fire	paquet de 10	7000-649/10	
	Base du piédestal		SRV7037-029	
17	Couverture arrière, piédestal		SRV7037-152	

Numéro de pièces d'entretien supplémentaires disponibles à la page suivante.



**IMPORTANT : CETTE INFORMATION N'EST PLUS À JOUR.** Les pièces doivent être commandées d'un détaillant ou d'un fournisseur. **Hearth and Home Technologies ne vend pas directement aux consommateurs.** Veuillez indiquer le numéro de modèle et le numéro de série lorsque vous demandez des pièces de service à votre détaillant ou distributeur.



Entreposé  
au dépôt

ARTICLE	DESCRIPTION	COMMENTAIRES	NUMÉRO DE PIÈCE	
<b>Assemblage pour taux de combustion n°18</b>				
18.1	Assemblage du contrôle du taux de combustion		7037-004	Oui
18.2	Poignée à ressort, 6 mm (1/4 po)	Nickel	250-8340	Oui
18.3	Joint d'étanchéité de la porte - portes d'aération à minuterie avant et arrière		7033-282	Oui
18.4	Assemblage du contrôle d'air par minuterie		SRV7037-018	Oui
	Assemblage de la porte d'aération arrière		7037-013	Oui
18.5	Assemblage de la manette du contrôle d'air arrière		7037-005	Oui
18.6	Bouton - Bouton de contrôle de la mise en marche		SRV7000-343	
18.7	Guide de la tige du contrôle de l'air		7033-210	
18.8	Verrou, aimant - pour le contrôle de l'air		229-0631	
18.9	Assemblage de la manette de la minuterie		7033-034	Oui
19	Assemblage de remplacement de minuterie (seulement)		SRV480-1940	Oui
20	Assemblage de panneaux, latéral, droit		SRV7037-027	
21	Châssis de tuiles		SRV7033-324	
22	Châssis vierge		SRV7033-346	
	Ensemble des composants		SRV7037-048	
	Peinture de retouche	Noir	3-42-19905	

Numéro de pièces d'entretien supplémentaires disponibles à la page suivante.



# QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

## COORDONNÉES

Hearth & Home Technologies  
352 Mountain House Road  
Halifax, PA 17032  
Division of HNI INDUSTRIES

**Veillez contacter votre fournisseur Quadra-Fire pour toute question.  
Pour obtenir le numéro de téléphone du distributeur Quadra-Fire le plus proche,  
connectez-vous à [www.quadrafire.com](http://www.quadrafire.com)**



## ATTENTION



### NE PAS JETER CE MANUEL

- Il contient d'importantes instructions d'utilisation et de maintenance.
- Assurez-vous de lire, comprendre et respecter ces instructions pour garantir une installation et un fonctionnement sûrs.
- Ce manuel doit être confié aux personnes responsables de l'utilisation et du fonctionnement.



### Nous vous recommandons de noter les informations pertinentes suivantes concernant votre appareil.

Date d'achat/installation : \_\_\_\_\_

Numéro de série : \_\_\_\_\_

Emplacement sur l'appareil : \_\_\_\_\_

Fournisseur du produit : \_\_\_\_\_

Numéro de téléphone du fournisseur : 1( ) - \_\_\_\_\_

Remarques : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ce produit peut être couvert par l'un ou l'autre des brevets suivants : (États-Unis) 5341794, 5263471, 6688302, 7216645, 7047962 ou autres brevets américains et étrangers en attente.

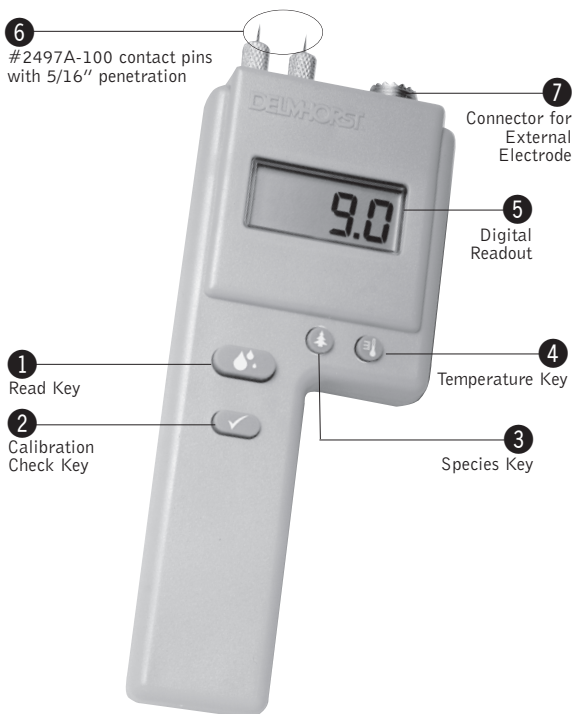
  
**HEARTH & HOME**  
technologies™

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- 8 Information About Your Readings
  - 8 To Check Accumulated Readings
  - 8 To Reset Meter
- 9 Care of Your Meter
- 10 Service For Your Meter
- 11 Warranty

# DELMHORST J-2000



## J-2000 FEATURES

- ▶ Resistance technology recognized worldwide as the most accurate method for measuring wood MC
- ▶ 6% to 40% MC wood (Douglas Fir ref)
- ▶ 6% to 60% MC wood (J-2000/X)
- ▶ Averages up to 100 accumulated readings
- ▶ User-selectable corrections for 48 species
- ▶ Built-in temperature compensation (F/C)
- ▶ Proven microcontroller circuit
- ▶ Easy one-hand operation
- ▶ Includes (1) 9-Volt Battery
- ▶ Includes sturdy carrying case
- ▶ One-year warranty

# BEFORE YOU BEGIN

---

## Key Functions

- 1 READ KEY - Press to read the %MC.
- 2 CALIBRATION CHECK KEY - This key, (when pressed with the read key) checks the meter calibration. It also displays the number of readings in memory (up to 100), the average, and the highest stored reading. It also clears the memory.
- 3 SPECIES KEY - Press to select the species code for the wood you are testing. Species are numbered from 1 to 48 and are listed on the Species Code Chart on page 5. To scroll forward through the species codes keep the species key pressed. To scroll backward press the species key, release it and immediately press the temperature key.
- 4 TEMPERATURE KEY - Press to set the wood temperature. Press and immediately press the Calibration Check the temperature key 2 to toggle between (F and C). To increase the temperature setting keep the temperature key pressed. To decrease the temperature, press the temperature key, release it and immediately press the species key.

## CHECK CALIBRATION

---

Press the calibration check key 2 and read key 1 simultaneously. Meter is in calibration if it displays 12% (+ or - 0.2).

If you check the calibration and the meter does not display 12% it is likely an indication of a low battery. If this occurs, replace the battery immediately with a new EverReady or Duracell brand 9V. Continued use with a low battery may cause the meter to go out of calibration. If you have a fresh battery and the instrument still does not indicate a proper calibration, return it to DELMHORST for service. See **Service for your Meter** section.

When the battery is removed and then reconnected, the meter displays its software version for one second and then turns itself off. After replacing the battery, you must reset the meter as described in **Resetting the Meter** section.

A hard Reset is required if, after changing the battery, the display is frozen. This is sometimes caused by the interruption of contact between the battery and battery lead wire. Resolve this as follows: Disconnect the battery. Press and hold the Read key for 15 seconds. Release the Read key. Press and hold the Check key for 15 seconds. Release the Check key. Connect a fresh battery to the lead wire in a single action, making sure to align the poles properly and without interrupting contact. If the display remains frozen, repeat the procedure. If this procedure does not solve the problem, refer to the Service for Your Meter section.

## Meter Default Settings

---

Species - Douglas Fir

Temperature - 70°F

Pin/Electrode - 4-pin (non-insulated)

Each of these parameters is programmed into the meter and is user-selectable. Proper setting of each will insure the most accurate readings.

## SET SPECIES

---

The J-2000 defaults to Species Code #1 - Douglas Fir - the USDA standard and basis for all Delmhorst calibrations. Because the electrical characteristics of different species vary, all species read differently at the same moisture content. For this reason you need to adjust for species. If you are working with a species other than Douglas Fir, set the species code using the species key **3**, and the meter will make the necessary corrections.

► **To change species** press the species key **3**. The meter will display the current species code for one second. Refer to the Species Code Chart on page 5. Call our customer service team at 877-DELMHORST (335-6467) or e-mail [info@delmhorst.com](mailto:info@delmhorst.com) for assistance with any species or wood-based material that is not included in the chart. It is always helpful if you have the scientific name as well as any common names for the species.

- ▶ **To scroll forward** through the species list hold the species key **3** while the current species code is displayed and scroll to the species number desired.
- ▶ **To scroll backward** through the species list, press and release the species key **3**. Within one second, press and hold the temperature key **4**. Continue to hold the temperature button **4** and the species number will decrease.
- ▶ **When scrolling in either direction**, release the key to stop at your desired species.

## Species Code Chart

CODE / SPECIES	CODE / SPECIES
1 Fir, Douglas	25 Magnolia
2 Pine, Southern	26 Mahogany, African (also Khaya)
3 SPF	27 Mahogany, Honduras
4 Alder	28 Mahogany, Philippine
5 Apitong	29 Maple, Hard/Soft
6 Aspen	30 Meranti, Dark Red
7 Ash, White	31 Oak, Red
8 Basswood	32 Oak, White
9 Birch	33 Pecan
10 Cedar, Eastern Red	34 Pine, Longleaf
11 Cedar, Incense	35 Pine, Ponderosa
12 Cherry	36 Pine, Shortleaf
13 Cottonwood	37 Pine, Sugar
14 Cypress	38 Pine, White
15 Elm, American	39 Poplar, Yellow
16 Fir, Red	40 Ramin
17 Fir, White	41 Radiata Pine
18 Gum, Black	42 Redwood
19 Gum, Red	43 Spruce, Sitka
20 Hemlock, Western	44 SPF, COFI*
21 Hackberry	45 Teak
22 Hickory	46 Virola
23 Keruing	47 Walnut, Black
24 Larch	48 Western Hemlock - COFI*

\*Species and temperature correction data for both Western Hemlock-COFI (code #48) and SPF-COFI (code #44) were developed by COFI. When comparing readings between the model RDM-2/COFI or the RDM-2S/COFI, used with type 26-E electrode with insulated pins, and the J-2000, be sure both meters are set to 2-pin electrode (insulated pins).



# SET TEMPERATURE



The J-2000 defaults to a temperature of 70°F. As wood temperature increases, its electrical resistance decreases and indicated moisture content rises. Lower wood temperatures result in lower indicated moisture content. A correction is necessary if the wood temperature is outside the range of 50°F (10°C) to 90°F (32°C). Set the temperature accordingly and the meter will make the correction.

- ▶ **To change temperature** press and release the temperature key **4**. The meter will display the current temperature for one second.
- ▶ **To scroll forward** through the temperature settings, press and hold the temperature key **4** while the current temperature is displayed.
- ▶ **To scroll backward** press and release the temperature key **4**. Within one second, press and hold the species key **3**. Continue to hold the species key **3** and the temperature will decrease.
- ▶ **When scrolling in either direction**, release the button to stop at the desired temperature.

## Set Temperature Mode

- ▶ **To change between Fahrenheit and Celsius modes** press the temperature key **4**.
- ▶ **Press the calibration check key 2** within one second and release when you are in the desired mode.
- ▶ **The meter will display the current temperature setting** in the new mode and will wait one more second until shutting off so that you may change the temperature value as described above.

If the meter is in Fahrenheit mode, the letter "F" will display in the left-hand corner. If it is in Celsius mode, no letter will appear in the display.

In the Fahrenheit mode, the temperature will change in increments of 5°F. In Celsius, the temperature will change in increments of either 2°C or 3°C depending on its conversion from Fahrenheit.

In the Fahrenheit mode, the temperature value will display in whole numbers. In the Celsius mode, positive values will display in whole numbers; negative values will display with a decimal point and a "minus" sign in the left-hand corner. (i.e.: -17.0)

# SET PIN CALIBRATION

---

The basic factory calibration of the J-2000 is for use with non-insulated pins. Insulated pins read lower than non-insulated ones. The difference is small below 10% MC but increases as the moisture content increases above 10%. When using an electrode with insulated pins, such as the 26-ES hammer electrode, you can change the calibration to compensate for this difference.

- ▶ **To change the pin setting**, press and release the species key **3**, then press the calibration check key **2** within one second.
- ▶ **The meter will display** the current pin calibration as either 222 for insulated or 444 for non-insulated pins.
- ▶ **If you continue to hold the calibration check key **2****, the meter will toggle between 222 and 444.

## TAKING A READING

---

- ▶ **Remove the protective cover** to expose the pins. Check that the contact pins **6** are firmly hand tightened.
- ▶ **To take a reading**, align the contact pins **6** parallel to the grain and push them to their full penetration into the wood, if possible. Insulated pins read only at the tip and can be driven to the desired depth.
- ▶ **Press the read key **1**** and read the moisture content on the meter scale. The meter displays the %MC for two seconds.
- ▶ **To add a reading** to the sum of all the previously stored readings, release the read key **1** within 2 seconds.

The non-insulated contact pins on the top of the meter penetrate max 5/16in. and may be used on wood up to 1-1/2 to 2in. thick. Push the pins into the wood to their full penetration for best accuracy. For thicker wood and hardwoods over 4/4, use the 26-ES hammer electrode with insulated pins. These pins (no. 496), may be used on wood up to 5-6in. thick.

Connect the electrode to the input connector on the top of the meter **7**. Contact our customer service team for more information on other available pins for your application.

Insulated pins offer the advantage of taking measurements at various depths since the reading is made at the point in the wood where only the non-insulated tips of the pins make contact. This is especially useful when drying lumber since reliable shell and core readings are essential to producing high quality lumber.

See the FAQ section of our website for helpful application info. [www.delmhorst.com](http://www.delmhorst.com)

# INFORMATION ABOUT YOUR READINGS

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Readings below 6% will be displayed as a numeric value, (-##.#), but will not be added to the accumulated readings in memory. Readings below 6% due to temperature and species adjustments will be shown as a numeric value with no minus sign. These readings will be added to the accumulated total in memory and included in the statistical calculations.

Readings above 40% are always displayed as 999 and are not added to the memory.

The meter will accumulate up to 100 readings. After all 100 readings are stored it will not add new readings until the memory has been cleared. It will also continue to display the average of all 100 readings as a reminder that the memory is full.

When taking and storing readings for a specific wood species, be sure to clear the meter's memory before moving on to the next species if you do not want to group all of the readings together.

## TO CHECK ACCUMULATED READINGS

---

This feature allows you to view the total number of all accumulated readings, the average of those readings, and the highest stored reading.

- ▶ **To view the readings** press and release the calibration check key **2**. The meter displays the number of accumulated readings for one second, then the average of those readings for two seconds. Then it displays the highest stored reading for two seconds. The total cycle time is five seconds.
- ▶ **To clear the memory** press and hold the calibration check key **2** down for 5 seconds. All accumulated readings will be erased and the meter will display "0".

## TO RESET METER

---

- ▶ **Press and release the calibration check key **2**.**
- ▶ **Within one second press the species key **3**.**
- ▶ **The meter will reset itself and display "170"** to indicate the meter is reset to default: Species #1 (Douglas Fir) at 70°F, followed by 444 (pin setting). All of the readings in memory will be cleared.

# CARE OF YOUR METER

---

To keep your meter in good working order:

- ▶ Store your meter in a clean, dry place. The protective carrying case provided is an ideal storage place when the meter is not in use.
- ▶ Change the 9-Volt battery as needed. Use only EverReady or Duracell brand batteries. Continued use with a low battery may cause the meter to go out of calibration.
- ▶ Change contact pins as needed. Keep contact pins hand tightened.
- ▶ Clean the meter and contact pins with any biodegradable cleaner. Use the cleaner sparingly and on external parts only. Keep cleaner out of the external connector **7**.
- ▶ Remove the battery if the meter will not be used for one month or longer.

## SERVICE FOR YOUR METER

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If your meter is not working properly, replace the battery with a new one and check the calibration. If this does not resolve the problem please send your meter back to Delmhorst for repair.

Go to HYPERLINK "<http://www.delmhorst.com>"  
[www.delmhorst.com](http://www.delmhorst.com) and click on Support and then download the Return Form.

If you require further assistance please call  
877-DELMHORST (335-6467) or 973-334-2557.

E-mail HYPERLINK "<mailto:info@delmhorst.com>"  
[info@delmhorst.com](mailto:info@delmhorst.com)

# WARRANTY

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Delmhorst Instrument Co., referred to hereafter as Delmhorst, guarantees its J-2000 meter for one year from date of purchase and any optional electrodes against defects in material or workmanship for 90 days. If, within the warranty period, you find any defect in material or workmanship return the meter following the instructions in the **Service for Your Meter** section. This limited warranty does not cover abuse, alteration, misuse, damage during shipment, improper service, unauthorized or unreasonable use of the meter or electrodes. This warranty does not cover batteries or contact pins. If the meter or any optional electrodes have been tampered with, the warranty shall be void. At our option we may replace or repair the meter.

Delmhorst shall not be liable for incidental or consequential damages for the breach of any express or implied warranty with respect to this product or its calibration. With proper care and maintenance the meter should stay in calibration; follow the instructions in the **Care of Your Meter** section.

UNDER NO CIRCUMSTANCES SHALL DELMHORST BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES OF ANY TYPE WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS OR DOWNTIME ARISING OUT OF OR RELATED IN ANY RESPECT TO ITS METERS OR ELECTRODES AND NO OTHER WARRANTY, WRITTEN, ORAL OR IMPLIED APPLIES. DELMHORST SHALL IN NO EVENT BE LIABLE FOR ANY BREACH OF WARRANTY OR DEFECT IN THIS PRODUCT THAT EXCEEDS THE AMOUNT OF PURCHASE OF THIS PRODUCT.

The express warranty set forth above constitutes the entire warranty with respect to Delmhorst meters and electrodes and no other warranty, written, oral, or implied applies. This warranty is personal to the customer purchasing the product and is not transferable.

# NOTES

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**F**or more than 65 years Delmhorst Instrument has been the leading manufacturer of high quality, US-made moisture meters and thermo-hygrometers.

Today we offer a wide range of meters for applications including water damage restoration, construction, flooring, lumber/woodworking, paper, and agriculture.

**DELMHORST**  
INSTRUMENT CO.

WHEN ACCURACY IS THE POINT.™

51 Indian Lane East  
Towaco, NJ 07082

(877)-DELMHORST  
[www.delmhorst.com](http://www.delmhorst.com)  
[info@delmhorst.com](mailto:info@delmhorst.com)

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510INS-0003

REV. 01/15



# QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS  
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PFS Teco  
11785 SE Hwy 212 STE#305  
Clackamas, OR 97015

Report Number: DIRI0182484A0912013i190610

## A2LA ACCREDITED CERTIFICATE OF CALIBRATION WITH DATA

### INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Scale	Digiweigh	DWP12i 400x.01	82484A0912013i	#050	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
lbs	0.01	QC033	6/10/19	12/18/18	6/2020

### FUNCTIONAL CHECKS

SHIFT TEST		LINEARITY		REPEATABILITY		ENVIRONMENTAL CONDITIONS		
Test Wt:	Tol:	Test Wt:	Tol:	Test Wt:	Tol:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
50	0.05	HB44	HB44	50	0.01	Good	Fair	Poor
As-Found:		As-Found:		As-Found:		Temperature: 20.7°C		
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>			
As-Left:		As-Left:		As-Left:				
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>			

### CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
400	399.96	399.96	0.058
300	299.98	299.98	0.058
200	199.98	199.98	0.058
100	99.98	99.98	0.012
50	50.00	50.00	0.012
20	20.00	20.00	0.012

### CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Avoirdupois Cast W	Rice Lake	25 and 50lb	PWO990-CA	11/24/17	11/2019	20172265

#### Permanent Information Concerning this Equipment:

12 month calibration cycle

#### Comments/Information Concerning this Calibration

6/19 RH = 47%.

Report prepared/reviewed by: ServiceTechDC Date: 6/11/19

Technician: J. Colacchio

Signature: 

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy.

# Dry Gas Meter Calibration

Meter Manufacturer: Apex  
 Model: XC-50-DIR  
 Lab ID #: 129  
 Serial #: 1906005  
 Calibration Date: 11/7/2019  
 Calibration Expiration: 5/7/2020  
 Barometric Pressure: 30.05 in. Hg



Reference Standard DGM	
Manufacturer:	Apex
Model:	SK25DA
Lab ID#:	47
Serial #:	1101001
Calibration Expiration Date:	3/13/2020
Calibration $\gamma$ Factor:	0.998

Unit Under Test Previous Calibration	
Date	N/A
$\gamma$ Factor:	0.998
Allowable Deviation ( $\pm 5\%$ ):	0.0499
Actual Deviation:	0.01
Result:	PASS

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	147.116	145.062	172.045
Standard DGM Temperature ( $^{\circ}$ F)	73.0	74.0	78.0
Standard DGM Pressure (in H <sub>2</sub> O)	0.00	0.00	0.0
DGM Initial Volume (ft <sup>3</sup> )	0.000	0.000	0.000
DGM Final Volume (ft <sup>3</sup> )	5.226	5.281	6.334
DGM Temperature ( $^{\circ}$ F)	78.0	88.0	96.0
DGM Pressure (in H <sub>2</sub> O)	2.00	1.00	0.5
Time (min)	22.0	34.0	66.0
Net Volume for Standard DGM (ft <sup>3</sup> )	5.195	5.123	6.076
Net Volume for DGM (ft <sup>3</sup> )	5.226	5.281	6.334

Dry Gas Meter $\gamma$ Factor	0.997	0.991	0.988
$\gamma$ Factor Deviation From Average	0.997	0.991	0.988

Average Gas Meter  $\gamma$  Factor

0.992

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Standard Reference Meter is calibrated to NIST traceable standards. Uncertainty of measurement is  $\pm 0.5\%$ .

# Pressure Gauge Calibration Work Sheet

Gauge Manufacturer: Apex  
 Maximum Range (inH<sub>2</sub>O): 3  
 Instrument ID #: 129 (dH)  
 Calibration Date: 11/12/2019  
 Calibration Expiration: 11/12/2020  
 Barometric Pressure: 30.16 in. Hg



Reference Standard Gauge	
Manufacturer:	Dwyer
Model:	477AV-1
Instrument ID#:	136
Calibration Expiration Date:	9/27/2020

Calibration Point (inH <sub>2</sub> O)	Reference Gauge Reading (inH <sub>2</sub> O)	Pressure Gauge Reading (inH <sub>2</sub> O)	Difference (Reference - UUT)	% Error of Full Range
0.0 - 0.6	0.51	0.57	0.06	2.0%
0.6 - 1.2	0.97	1.03	0.06	2.0%
1.2 - 1.8	1.41	1.46	0.05	1.7%
1.8 - 2.4	1.87	1.94	0.07	2.3%
2.4 - 3.0	2.75	2.80	0.05	1.7%

Acceptable tolerance is 4%

Technican Signature: \_\_\_\_\_

Date: \_\_\_\_\_ 11/12/2019

Uncertainty is 0.4 inH<sub>2</sub>O, based on miniumum uncertainty ration of 4:1 between standard reference meter and unit under test.  
 PFS-TECO

# Pressure Gauge Calibration Work Sheet

Gauge Manufacturer: Apex  
 Maximum Range (inH<sub>2</sub>O): 0.5  
 Instrument ID #: 129 (dP)  
 Calibration Date: 11/12/2019  
 Calibration Expiration: 11/12/2020  
 Barometric Pressure: 30.16 in. Hg



Reference Standard Gauge	
Manufacturer:	Dwyer
Model:	475
Instrument ID#:	76
Calibration Expiration Date:	3/14/2020

Calibration Point (inH <sub>2</sub> O)	Reference Gauge Reading (inH <sub>2</sub> O)	Pressure Gauge Reading (inH <sub>2</sub> O)	Difference (Reference - UUT)	% Error of Full Range
0.0 - 0.1	0.032	0.033	0.001	0.2%
0.1 - 0.2	0.163	0.161	0.002	0.4%
0.2 - 0.3	0.210	0.206	0.004	0.8%
0.3 - 0.4	0.324	0.316	0.008	1.6%
0.4 - 0.5	0.456	0.439	0.017	3.4%

Acceptable tolerance is 4%

Technican Signature: \_\_\_\_\_ 

Date: 11/12/2019

Uncertainty is 0.4 inH<sub>2</sub>O, based on mininum uncertainty ration of 4:1 between standard reference meter and unit under test.

# Emissions Sampling System Thermocouple Calibration Check

*Calibration based on NIST Monograph 175 per ASTM E2515-11  
All thermocouples are type "K"*

Date: 7/26/2019

Sampling System ID Numbers: 129/130

Performed By: S. Button

Calibration Instrument ID Number: 039

Reference Temperature (F)	Acceptable Error (F)	Thermocouple Location						
		FB Left	FB Right	FB Back	FB Top	FB Bottom	Catalyst Exit	Flue
0	± 4.0	0	0	0	0	0	0	0
200	± 4.0	199	199	199	199	199	199	199
400	± 4.0	398	398	398	398	398	398	398
600	± 4.5	599	599	600	599	599	599	600
800	± 6.0	800	800	800	800	800	800	800

Reference Temperature (F)	Acceptable Error (F)	Thermocouple Location					
		Ambient	Filter A	Filter B	Meter A	Meter B	Dilution Tunnel
0	± 4.0	0	0	0	0	-1	0
200	± 4.0	198	199	198	199	198	199
400	± 4.0	398	398	398	398	398	398
600	± 4.5	599	599	599	600	599	600
800	± 6.0	800	800	800	800	800	800

Technician Signature: 

Date: 12/17/2018

# Dry Gas Meter Calibration

Meter Manufacturer: Apex  
 Model: XC-50-DIR  
 Lab ID #: 130  
 Serial #: 1906006  
 Calibration Date: 11/7/2019  
 Calibration Expiration: 5/7/2020  
 Barometric Pressure: 30.05 in. Hg



Reference Standard DGM	
Manufacturer:	Apex
Model:	SK25DA
Lab ID#:	47
Serial #:	1101001
Calibration Expiration Date:	3/13/2020
Calibration $\gamma$ Factor:	0.998

Unit Under Test Previous Calibration	
Date	N/A
$\gamma$ Factor:	1.000
Allowable Deviation ( $\pm 5\%$ ):	0.05
Actual Deviation:	0.00
Result:	PASS

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	350.400	174.679	145.366
Standard DGM Temperature ( $^{\circ}$ F)	78.0	78.0	75.0
Standard DGM Pressure (in H <sub>2</sub> O)	0.00	0.00	0.0
DGM Initial Volume (ft <sup>3</sup> )	0.000	0.000	0.000
DGM Final Volume (ft <sup>3</sup> )	12.680	6.344	5.174
DGM Temperature ( $^{\circ}$ F)	98.0	98.0	80.0
DGM Pressure (in H <sub>2</sub> O)	2.00	1.10	0.5
Time (min)	55.0	40.0	78.0
Net Volume for Standard DGM (ft <sup>3</sup> )	12.374	6.169	5.134
Net Volume for DGM (ft <sup>3</sup> )	12.680	6.344	5.174

Dry Gas Meter $\gamma$ Factor	1.005	1.004	0.998
$\gamma$ Factor Deviation From Average	1.005	1.004	0.998

Average Gas Meter  $\gamma$  Factor

1.002

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Standard Reference Meter is calibrated to NIST traceable standards. Uncertainty of measurement is  $\pm 0.5\%$ .

# Pressure Gauge Calibration Work Sheet

Gauge Manufacturer: Apex  
 Maximum Range (inH<sub>2</sub>O): 3  
 Instrument ID #: 130 (dH)  
 Calibration Date: 11/12/2019  
 Calibration Expiration: 11/12/2020  
 Barometric Pressure: 30.16 in. Hg



Reference Standard Gauge	
Manufacturer:	Dwyer
Model:	477AV-1
Instrument ID#:	136
Calibration Expiration Date:	9/27/2020

Calibration Point (inH <sub>2</sub> O)	Reference Gauge Reading (inH <sub>2</sub> O)	Pressure Gauge Reading (inH <sub>2</sub> O)	Difference (Reference - UUT)	% Error of Full Range
0.0 - 0.6	0.49	0.48	0.01	0.3%
0.6 - 1.2	1.07	1.03	0.04	1.3%
1.2 - 1.8	1.35	1.31	0.04	1.3%
1.8 - 2.4	2.32	2.26	0.06	2.0%
2.4 - 3.0	2.69	2.76	0.07	2.3%

**Acceptable tolerance is 4%**

Technican Signature: \_\_\_\_\_ \_\_\_\_\_

Date: \_\_\_\_\_ 11/12/2019 \_\_\_\_\_



# Pressure Gauge Calibration Work Sheet

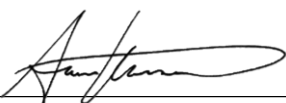
Gauge Manufacturer: Apex  
 Maximum Range (inH<sub>2</sub>O): -1  
 Instrument ID #: 130 (dP)  
 Calibration Date: 11/12/2019  
 Calibration Expiration: 11/12/2020  
 Barometric Pressure: 30.16 in. Hg



Reference Standard Gauge	
Manufacturer:	Dwyer
Model:	475-000
Instrument ID#:	76
Calibration Expiration Date:	3/14/2020

Calibration Point (inH <sub>2</sub> O)	Reference Gauge Reading (inH <sub>2</sub> O)	Pressure Gauge Reading (inH <sub>2</sub> O)	Difference (Reference - UUT)	% Error of Full Range
0.0 - -0.2	-0.15	-0.18	0.03	-3.0%
-0.2 - -0.4	-0.32	-0.34	0.02	-2.0%
-0.4 - -0.6	-0.56	-0.58	0.02	-2.0%
-0.6 - -0.8	-0.61	-0.64	0.03	-3.0%
-0.8 - -1.0	-0.90	-0.93	0.03	-3.0%

Acceptable tolerance is 4%

Technican Signature: 

Date: 11/12/2019

Uncertainty is 0.4 inH<sub>2</sub>O, based on mininum uncertainty ration of 4:1 between standard reference meter and unit under test.



## Model 1430 Microtector® Electronic Point Gage

### Installation and Operating Instructions



**Model 1430 Microtector® Portable Electronic Point Gage** combines modern, solid-state integrated circuit electronics with a time-proven point gage manometer to provide fast, accurate pressure measurements.

#### SPECIFICATIONS AND FEATURES

- Accurate and repeatable to  $\pm .00025$  inches water column
- Pressure range: 0 - 2" w.c., positive, negative, or differential pressures
- Non-toxic and inexpensive gage fluid consists of distilled water mixed with a small amount of fluorescein green color concentrate
- Convenient, portable, lightweight and self-contained, the unit requires no external power connections and is operated by a 1.5 volt penlight cell
- A.C. detector current eliminates point plating, fouling and erosion
- Micrometers are manufactured in accordance with ASME B89.1.13-2001, and are traceable to a standard at the National Institute of Standards and Technology
- Three-point mounting, dual leveling adjustment, and circular level vial assure rapid setup
- Durablock® precision-machined acrylic gage body
- Sensitive 0 - 50 microamp D.C. meter acts as a detector and also indicates battery and probe condition
- Heavy 2" thick steel base plate provides steady mounting
- Top-quality glass epoxy circuit board and solid-state, integrated circuit electronics
- Electronic enclosure of tough, molded styrene acrylonitrile provides maximum protection to components yet allows easy access to battery compartment
- Rugged sheet steel cover and carrying case protects the entire unit when not in use
- Accessories included are (2) 3-foot lengths Tygon® tubing, (2) 1/8" pipe thread adapters and 3/4 oz. bottle of fluorescein green color concentrate with wetting agent

**Maximum pressure: 100 psig with optional pipe thread connections.**

Tygon® is a registered trademark of Saint-Gobain Corporation

**DWYER INSTRUMENTS, INC.**

P.O. BOX 373

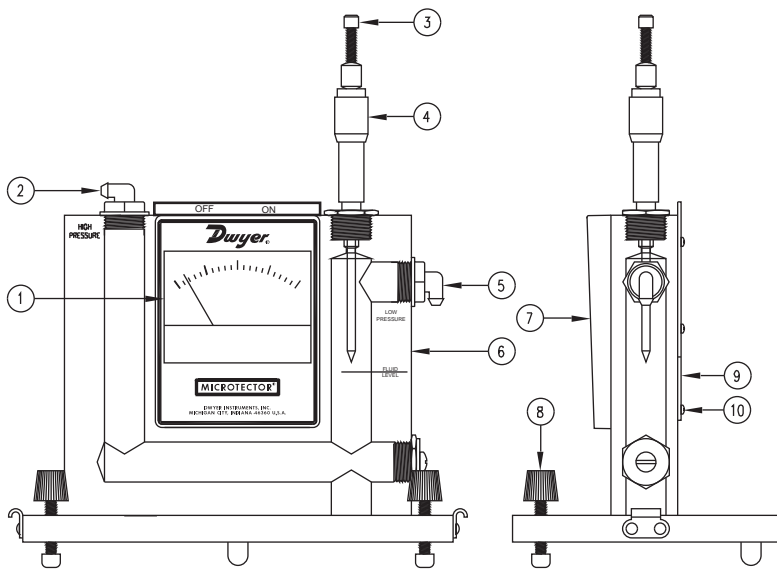
MICHIGAN CITY, INDIANA 46361, U.S.A.

Phone: 219/879-8000

Fax: 219/872-9057

www.dwyer-inst.com

e-mail: info@dwyer-inst.com



**Microtector® Gage**

### Precision Pressure Measurement

The Microtector® Gage combines the time-proven principles of the Hook Gage type manometer and modern solid-state integrated circuit electronics. It provides an inexpensive means of achieving accuracy and repeatability within  $\pm .00025$  inches water column throughout its 0 to 2 inches w.c. range. It is truly a new standard in precision measuring devices.

### Principles of Operation

A pressure to be measured is applied to the manometer fluid which is displaced in each leg of the manometer by an amount equal to  $1/2$  the applied pressure. A micrometer mounted point is then lowered until it contacts the manometer gage fluid. The instant of contact is detected by completion of a low-power A.C. circuit. Current for this circuit is supplied by a 1.5 volt penlight cell feeding two semiconductor amplifiers which act as a free-running multivibrator operating at a frequency of approximately two kilohertz. Completion of the A.C. circuit activates a bridge rectifier which provides the signal for indication on a sensitive (0 to 50 microamps) D.C. microammeter.

On indication of contact, the operator stops lowering the point and reads the micrometer which indicates one half the applied pressure. By interpolating eight divisions (each being  $.000125$  w.c.) between  $.001$  micrometer graduations, a total accuracy of  $.00025$  can easily be achieved. The micrometer complies with Federal Specification GGG-C-105A and is traceable to a master at the NIST.

### Locating and Opening

Stand the Microtector® Gage and case on a firm flat level surface. Remove cover by releasing the latches and lifting it straight up. If it is necessary to move the gage without case, handle only the base plate or clear acrylic block. **(CAUTION: Do not handle gage by grasping meter-electronic package housing Item 7 on drawing.)**

## Fluid Level

Level the gage by adjusting the two front leveling screws (Item 8 on drawing) until the bubble in the spirit level is centered in the small circle. After leveling the gage, open both rapid shut-off valve tube connectors (Items 2 and 5). Back off the micrometer (Item 4), if necessary, to make sure that the point is not immersed in the gage fluid. The fluid level in the gage should now coincide with the mark on the right hand bore (Item 6) plus or minus approximately 1/32 inch. If the level of fluid is too high, fluid can be removed with an eye dropper pipette or carefully poured out of the right connection (Item 5).

If the level is too low, remove the top left rapid shut-off valve tube connector (Item 2) and add distilled water pre-mixed with the proper amount of green concentrate. (See maintenance instructions for proportions. After correcting the fluid level, re-install the rapid shut-off connectors and, with these in the open position, re-level the Microtector® Gage. The gage is now ready to be zeroed.

## Zeroing

Turn the Micrometer barrel (Item 4) until its lower end just coincides with the zero mark on the scale and the zero on the barrel scale coincides with the vertical line on the internal scale. Note that the internal scale is graduated every .025" from 0 to 1.00 inch and the barrel scale is graduated in one thousandths from 0 to .025". Turn the meter circuit switch at the top of gage to the "on" position. While holding the barrel at the zero position (and with gage level), raise or lower the point by turning the knurled knob (Item 3) until the point is above, but near, the fluid.

Check to be sure that the meter registers zero. Watch the meter, hold the barrel, and lower the point slowly by turning the top knurled knob. As the knob is turned, the point will contact the fluid and the meter pointer will move from zero to some upscale position.

After making contact, turn the point out of the fluid by turning the micrometer barrel counter-clockwise to a reading of .010 or more. Again, watch the meter and, this time, lower the point by turning the micrometer barrel. The point position where the meter pointer begins to move up scale is the zero position. This position should correspond to the zero reading on the micrometer. Adjust the point in relation to the micrometer barrel by turning the top knob while holding the barrel steady. Repeat lowering the point, watching the meter for contact, and adjusting the point until the zero position and zero reading exactly coincide. The gage is now zeroed and should not be moved.

An alternative method of zeroing and reading can be used wherein, instead of zeroing the gage completely, a zero correction reading is taken and recorded, then subtracted from the final reading. Comparable results can be obtained with either method.

## Positive Pressure Measurement

With the fluid at its proper level, a pressure of 2.0" water column maximum can be measured. Positive pressure should be applied to the top left connection (Item 2) with the micrometer zeroed as described above. This will permit a simple direct reading to be taken.

After an unknown pressure has been applied at the top left connection, the fluid level will drop in the left bore and rise over the point in the right bore. Note that the indicating meter point has moved upscale because the point is immersed in the fluid. Turn the micrometer counter-clockwise until the point leaves the fluid as indicated by the meter pointer dropping to zero on its scale. Then slowly turn the micrometer down until its point just touches the fluid surface, causing movement of the meter pointer. Withdraw the point and repeat several times, noting each time the micrometer reading where the meter pointer begins. The average of these readings multiplied by two is the pressure applied to the gage. (Avg. reading x 2 = pressure applied in inches w.c. The degree of uncertainty for the operator is indicated by the difference in these readings.

When the readings are complete, the pressure should be removed and the zero setting of Microtector® Gage rechecked. Any change in the zero position will indicate inaccurate readings. Should this happen, the zero-set and pressure measurement procedure should be repeated.

### **Negative Pressure or Vacuum Measurement**

Zero the gage. Connect the source of vacuum or negative pressure to the right-side gage connection (Item 5) and proceed as described under Positive Pressure Measurement section. Remember that the pressure measured in this way is negative.

### **Differential Pressure Measurement**

Differential pressures may be measured by connecting the higher (more positive) pressure to the left connection (Item 2) and the lower pressure to the right connection (Item 5).

### **Storage**

Turn meter circuit switch to "off" position and withdraw the point well clear of fluid (by turning micrometer clockwise) when gage is not in use. This will conserve the batteries and minimize build-up of oxides, etc., on the point. Keep the unit covered and in an area free of strong solvent fumes.

### **Maintenance**

When the meter reading becomes reduced or the pointer movement gets sluggish (with the circuit on and the point in fluid), the following should be done:

(1) Remove the point (by unscrewing) and clean the tip lightly using fine crocus cloth. Wipe off all grit and dirt with a clean rag; reassemble and recheck meter operation.

(2) If the meter operation continues to be sluggish, replace the size AA, 1.5 volt battery. (Replace the battery at least once a year to avoid deterioration of battery and damage to gage. Leakproof alkaline battery is recommended.)

To replace the battery, remove center screw (Item 10) located in the back of the electronic enclosure. Cover (Item 9) will come off, exposing the battery. Pull the old battery out and push a new battery into the battery holder with the positive (center) terminal to the right (to the end marked with + on the holder).

If the fluid becomes contaminated and requires replacement: empty old fluid from gage; flush out with clear water and replace with distilled water and A-126 fluorescein green color concentrate mixed with 3/4 oz. concentrate to each quart of water.

### **CAUTION:**

1. Do not substitute other gage fluids, as proper gage operation depends on use of the specified gage fluid to provide proper surface tension, wetting ability and electrolyte capability with unity specific gravity.

If the gage bore is very dirty, a mild soap solution may be used to aid in cleaning prior to flushing with clear water.

2. Do not clean with liquid soaps, special solvent, de-greasers, aromatic hydrocarbons, etc. Such cleaners and solvents may contain chlorine, fluorine, acetone and related compounds that will permanently damage the gage and prevent proper operation.



# QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS  
2340 SE 11<sup>TH</sup> Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293  
(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



## Report of Calibration

Firm: Dirigo Laboratories  
Address: 11785 SE Hwy 212, Ste 305  
City/State/Zip: Clackamas, OR 97015

Test Completed: 03/21/17  
Submitted By: John Steiner  
Traceable Number: 20170468

Test Item: 200mg and 100mg Individual Weights  
Serial No.: Listed in Table

Manufacturer: Troemner

### Laboratory Environment at time of test

Temperature °C	Pressure mmHg	Humidity %RH
21.967	753.44	49.44

### Conventional Mass Value

Nominal Value	As Found grams	As Found Correction* (mg)	Uncertainty (mg)	Tolerance (mg)
200mg SN 1000101395	0.2000061	0.0061	0.0026	0.01
100mg SN 1000126267	0.1000046	0.0046	0.0028	0.01

\*Correction is the difference between the conventional mass value of a weight and its nominal value.

**Comments:** These weights were new from the manufacturer and were within ASTM Class 1 tolerances As Found. No adjustments or changes were made so As Found values should be considered to be As Left values.

Accredited by the American Association for Laboratory Accreditation (A2LA) under Calibration Laboratory Code 115953 and Certificate Number 1550.01. This laboratory meets the requirements of ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration.

page 2 of 2

Quality Control Services, Inc.  
Metrology Laboratory Manager  
E-mail [dthompson@qc-services.com](mailto:dthompson@qc-services.com)

Date: 03/21/17

Signature David S. Thompson



# QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS  
2340 SE 11<sup>TH</sup> Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293  
(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



PFS Teco  
11785 SE Hwy 212 STE#305  
Clackamas, OR 97015

Report Number: DIRI0134307497190610

## A2LA ACCREDITED CERTIFICATE OF CALIBRATION WITH DATA

### INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Balance	Sartorius	ENTRIS224-1S	34307497	#107	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
g	0.0001	QC012	6/10/19	12/18/18	12/2019

### FUNCTIONAL CHECKS

ECCENTRICITY		LINEARITY		STANDARD DEVIATION			ENVIRONMENTAL CONDITIONS
Test Wt:	Tol:	Test Wt:	Tol:	Test Wt:	Tol:		
100	0.0003	50 x 4	0.0002	100	0.0001		<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor Temperature: 20.4°C
<b>As-Found:</b>		<b>As-Found:</b>		1.99.9999	5.100.0000	9.100.0000	
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	2.99.9999	6.100.0000	10.100.0000	
<b>As-Left:</b>		<b>As-Left:</b>		3.99.9999	7.99.9999	<u>Result</u>	
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	4.99.9999	8.100.0000	0.00005	

### A2LA ACCREDITED SECTION OF REPORT

Standard	As-Found	As-Left	Expanded Uncertainty
200	199.9986	200.0000	0.00015
100	99.9996	99.9999	0.00015
50	49.9998	50.0000	0.00015
20	19.9999	20.0000	0.00015
1	1.0000	1.0000	0.00015
0.1	0.1000	0.1000	0.00015

### CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	R.L./Troemner	10kg to 1mg	G782	1/25/19	1/2020	20190189

#### Permanent Information Concerning this Equipment:

6 month calibration cycle.

#### Comments/Info Concerning this Calibration:

6/19 RH= 55%. Adjusted span.

Report prepared/reviewed by: ServiceTechJC Date: 6/11/19

Signed Jake Colacchio  
Technician: R. Kauble

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation and readability of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.



# QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS  
2340 SE 11<sup>TH</sup> Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293  
(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



## Report of Calibration

Firm: Dirigo Laboratories  
Address: 11785 SE Hwy 212, Ste 305  
City/State/Zip: Clackamas, OR 97015

Test Completed: 01/15/16  
Purchase Order: 1001  
Traceable Number: 20152489

Test Item: 20lb and 10lb Individual Grip Handle Weights  
Serial No.: Listed in Table

Manufacturer: Unknown

### Laboratory Environment at time of test

Temperature °C	Pressure mmHg	Humidity %RH
21.448	760.64	44.58

### Conventional Mass Value

Nominal Value	As Found pounds	As Found Correction* (mg)	Uncertainty (mg)	Tolerance (mg)
20lb #098	19.9995450	-206.4	6.4	910
10lb #097	10.0006510	295.3	5.1	450
10lb #051	10.0003421	155.2	5.1	450

\*Correction is the difference between the conventional mass value of a weight and its nominal value.


**Comments:** These weights were received in good condition and were within NIST Handbook 105-1 Class F tolerances As Found. No adjustments or changes were made so As Found values should be considered to be As Left values.

Accredited by the American Association for Laboratory Accreditation (A2LA) under Calibration Laboratory Code 115953 and Certificate Number 1550.01. This laboratory meets the requirements of ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration.

page 2 of 2

Quality Control Services, Inc.  
Metrology Laboratory Manager  
E-mail [dthompson@qc-services.com](mailto:dthompson@qc-services.com)

Date: 01/15/16

  
Signature David S. Thompson



# Certificate of Calibration

Certificate Number: 712600



**JJ Calibrations, Inc.**

7724 SE Aspen Summit Drive

Portland, OR 97266-9217

Phone 503.786.3005

FAX 503.786.2994

**PFS TECO**

11785 SE Hwy 212

Suite 305

Clackamas, OR 97015

PO: john.steinst.PFSTECO.co

Order Date: 11/06/2019

Authorized By: N/A



0723.01

Calibration

Property #: 064

User: N/A

Department: N/A

Make: Control Company

Model: 4198

Serial #: 80531676

Description: Digital Temp. / Barometer

Procedure: 404323

Accuracy:  $\pm 1^{\circ}\text{C} \pm 0.2362\text{Hg}(\pm 8\text{mb})$

Calibrated on: 11/15/2019

\*Recommended Due: 11/15/2020

Environment: 21 °C 48 % RH

\* As Received: Within Tolerance

\* As Returned: Within Tolerance

Action Taken: Calibrated

Technician: 146

Remarks: \* Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

## Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
644A	Thunder Scientific	1200	Two Pressure Humidity Generator	10/14/2020	710583
847A	Fluke	RPM4	Reference Pressure Monitor	11/21/2019	688957

Parameter

## Measurement Data

Measurement Description	Range	Unit	Reference	Min	Max	<sup>k</sup> Error	UUT	Uncertainty
<b>Before/After Temperature</b>								Accredited = ✓
		°C	20.00	19.0	21.0	0.1	20.1 °C	8.1E-02 ✓
		°C	30.00	29.0	31.0	0.8	29.2 °C	8.1E-02 ✓
	°C	40.00	39.0	41.0	0.2	39.8 °C	8.1E-02 ✓	
<b>Barometer</b>		mbar	1010.70	1002.7	1018.7	0.7	1010.0 mbar	

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to either the SI or to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by JCGM 106:2012. Unless otherwise stated, a test accuracy ration (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without written approval of JJ Calibrations.

Reviewer

3 Issued 11/16/2019

Rev # 15

Inspector

# Verification of Standardization

of

## Tape Measure

by

Advanced Calibration Technologies  
28111 S.E. Wally Road  
Boring, OR 97009  
1-800-259-5058



Customer: PFS Teco, Inc	Street: 11785 Southeast Highway 212 Suite 305
City: Clackamas State: OR	Zip: 97015 Location: In House
Machine Manufacturer: Stanley	Model: 26' Tape Measure
Capacity: 0.000 - 312.000 inches 0.125 Divisions	Serial #: 101
Calibration Cycle: 12 Months	Lab ID#: #101
Previous Calibration Date: January 2019	Calibration Procedure: Ad-Tek SR
Equipment Used: Gauge Blocks S/N: ADGB002	Action Recommended:
If Other, Explain:	

### Verification Data

<b>Purpose:</b> This method provides instructions for checking the critical dimensions of the equipment.			
<b>Tolerance:</b> Equipment shall meet the dimensional tolerances specified in the applicable test method.			
<b>Procedure:</b> Verified using manufacturer's procedures.			
Actual Dimensions (inches)	Unit Under Test As Found (inches)	Unit Under Test As Left (inches)	Difference (inches)
0.0000	0.000	0.000	0.000
0.1250	0.050	0.050	-0.075
0.2500	0.250	0.250	0.000
0.5000	0.500	0.500	0.000
0.7500	0.750	0.750	0.000
1.0000	1.000	1.000	0.000
3.0000	3.000	3.000	0.000
5.0000	5.000	5.000	0.000
7.0000	7.000	7.000	0.000
9.0000	9.000	9.000	0.000
12.0000	12.000	12.000	0.000
The overall condition of the device as found:		Within Specification	
The overall condition of the device as left:		Within Specification	
The measurement of uncertainty (MU) was calculated to be:		0.00060	

File No: PFS-101666-0119D0120-AH-SR-101

Temperature: 72.1°F Humidity: 41.1%

The equipment used in the verification of this instrument has been calibrated and is NIST traceable.  
The uncertainty of calibration was estimated at the 95% confidence level, coverage factor (k=2).

Remarks: \_\_\_\_\_

This certificate of verification is issued as a statement of fact that on the date of verification the above instrument had an accuracy as indicated and was calibrated to meet the requirements of the manufacturer's specifications. This certificate should not be construed or regarded as a guarantee or warranty of any kind that the instrument will retain the same percentage of accuracy as determined on the date when the verification was performed and reported. Ad-Tek, Inc. hereby expressly disclaims any and all liability for damage or loss by all parties arising or resulting from deterioration, obsolescence, malfunction, subsequent calibration performed by another agency or substandard performance of said instrument.

This report and certificate of verification shall not be reproduced except in full, without the written approval of Ad-Tek, Inc.

Service Technician: Alisa Houser Date of Service: January 16, 2019

Technical Manager: Nicole Ostrowski Date Next Due: January 2020

We sincerely appreciate your business and thank you for selecting Advanced Calibration Technologies, Inc. for servicing your equipment.  
To reschedule, please call (800) 259-5058. Thank You.

# Report and Certificate of Calibration



6709 SE Lake Road  
Milwaukie, OR 97222  
1-800-356-4662  
CL-108

www.Cal-Cert.com

14 Inverness Drive East, Ste B-128  
Englewood, CO 80112  
1-800-983-7832  
CL-157

"Measure The Difference"



**Report #:** 2260-28782-66 **Customer PO#:**  
**Customer Name:** PFS TECO  
**Customer Address:** 11785 Southeast Highway 212  
**City:** Clackamas **State:** OR **Zip:** 97015  
**Contact:** John Steinert  
**Service Address:** 6709 Southeast Lake Road Milwaukie, OR 97222

### Calibration Standards

10-RH/00192 Comark Thermohygrometer S/N: 6217150049 Cal Date: 11/17/17 Due Date: 11/30/18 Vendor: CC REPORT #: 1573-C-01
L-GB-0/00397 Mitutoyo 83 Piece Gage Block Set S/N: 0509020 Cal Date: 9/8/16 Due Date: 9/30/18 Vendor: American Gage REPORT#: 83181-2-354224

### Instrument Data

<b>Calibration Date:</b>	January 23, 2018	<b>Reference:</b>	NAVAIR 17-20MD-07
<b>Calibration Due Date:</b>	January 23, 2019	<b>Cal-Cert Procedure:</b>	CP-008
<b>Calibration Frequency:</b>	12 Months	<b>Indicating System:</b>	Digital
<b>Manufacturer:</b>	Husky	<b>Temperature:</b>	71 °F
<b>Type:</b>	Digital Caliper	<b>Humidity:</b>	32% RH
<b>Model Number:</b>	Unknown	<b>Asset #:</b>	#102
<b>Serial #:</b>	#102	<b>Service Location:</b>	Cal-Cert Lab
<b>Capacity:</b>	6 Inches	<b>As Found:</b>	PASS
<b>Resolution:</b>	0.0005 Inches	<b>As Left:</b>	PASS

<b>Instrument Range:</b>	6 Inches	<b>Range Resolution:</b>	0.0005 Inches
--------------------------	----------	--------------------------	---------------

Outside Jaws / Linearity				
Calibration Standard Inches	As Found Inches	As Left Reading 1 Inches	As Left Reading 2 Inches	Tolerance ± Inches
0.0000	0.0000	0.0000	0.0000	0.0000
0.0500	0.0500	0.0500	0.0500	0.0010
0.3000	0.3000	0.3000	0.3000	0.0010
0.6000	0.6000	0.6000	0.6000	0.0010
1.2000	1.2000	1.2000	1.2000	0.0010
2.4000	2.4000	2.4000	2.4000	0.0010
3.5000	3.5000	3.5000	3.5000	0.0010
5.0000	5.0000	5.0000	5.0000	0.0010
6.0000	6.0000	6.0000	6.0000	0.0010

**Expanded Uncertainty ± 0.00058 Inches**

Verifications (for information only)			
	Target	Measured	Tolerance ±
Resolution Check	0.10050	0.10050	N/A
Depth	1.000	1.00000	N/A
Step	1.000	1.00000	N/A
Inside Jaws	1.000	1.00000	N/A
Inspections			
Jaws Parallel			Acceptable

**Remarks:**

We sincerely thank you for your business. Please call us at 1-800-356-4662 for all your sales and calibration needs. Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by the International Accreditation Service, Inc. (IAS) under Calibration Laboratory Code CL-108 & CL-157. IAS is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.3, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

**Service Engineer:** NICOLAS ILLA **Date:** January 23, 2018

**Technical Manager:** MARSHALL DOYLE **Signature:** *M Doyle*



# CERTIFICATE OF CALIBRATION

<b>CUSTOMER:</b>	<b>PFS-TECO :</b> CLACKAMAS, OR	<b>CALIBRATION DATE:</b>	03/14/2019
<b>PO NUMBER:</b>	N/A	<b>CALIBRATION DUE:</b>	03/14/2020
<b>INST. MANUFACTURER:</b>	DWYER	<b>PROCEDURE:</b>	T.O.33K6-4-1769-1
<b>INST. DESCRIPTION:</b>	VELOMETER	<b>CALIBRATION FLUID:</b>	AIR @ 14.7 PSIA 70°F
<b>MODEL NUMBER:</b>	471	<b>RECEIVED CONDITION:</b>	WITHIN MFG. SPECS.
<b>SERIAL NUMBER:</b>	CP288559 (ID# 095)	<b>LEFT CONDITION:</b>	WITHIN MFG. SPECS.
<b>RATED UNCERTAINTY:</b>	SEE NOTES BELOW.	<b>AMBIENT CONDITIONS:</b>	762 mm HGA 43% RH 69°F
<b>UNCERTAINTY GIVEN:</b>	± .20% RD ; k=2	<b>CERTIFICATE FILE #:</b>	490265.2019
<b>NOTES:</b>	± 3% FS (0-500 / 0-1500) *** ± 4% F.S. (0-5000) *** ± 5% F.S. (0-15000) *** ± 2 °F		
<b>NOTES CONT. :</b>	<b>Q.MANUAL IM 1.5 REV 2017.1 DATED 7-18-2017</b>		

UUT INDICATED FT/MIN	DM.STD. ACTUAL FT/MIN	UUT INDICATED DEG. F	DM STD. ACTUAL DEG. F
64	65	0 TO 200°F	0 TO 200°F
110	112	43.4	43.5
206	210	69.0	68.9
498	509	99.4	99.2
503	505		
1049	1058		
1497	1514		
509	513		
3419	3460		
4992	5068		
5136	5235		
13928	14232		

**STANDARDS USED:**

A220: 12" WIND TUNNEL 0 - 8000 FPM   CMC ± .203% RD   TRACE# 1520423238	DUE	05/23/2019
A24: HART SCIENTIFIC TEMP. STANDARD   ±.024 F   TRACE# 1520423238	DUE	03/07/2020

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) used and the unit under test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed per the shown procedure number, in accordance with ISO 10012:2003, ISO 17025:2005, ANSI/NCSSL-Z-540.3, and/or MIL-STD-45662A. Test methods: API2530-92 & ASME MFC-3M-1989.

**Dick Munns Company** • 11133 Winners Circle • Los Alamitos, CA 90720  
Phone (714) 827-1215 • Fax (714) 827-0823

This Calibration Certificate shall not be reproduced, except in full, without approval by DICK MUNNS COMPANY. The data shown applies only to the instrument being calibrated and under the stated conditions of calibration.

Date:

3/14/2019

*[Handwritten Signature]*

Calibration Technician:

*[Handwritten Signature]*

# HORIBA

Model

MEXA-554JU

MFG No.

JU50173

Power AC

100 ~ 240V 50/60Hz 60VA

Date

May. 2001

HORIBA.Ltd. KYOTO JAPAN Made in Korea

## CO/HC ANALYZER

### 1 WARM-UP

1. Turn on the power switch.
2. Wait until the warm-up mark on the display appears. (Approx. 3 min.) and allow the analyzer to reach the **STAND-BY** mode.

### 2 CALIBRATION

ETC6-1

METTLER TOLEDO

6

PANTHER®

5.0

→0← G NET PT T lb kg



STAND 6

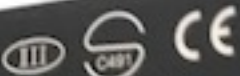
Scale:	M:	100.42
	B:	-5.7558



Calibrated	Due	Tech
4/30/19	4/20	8864-1

317 EAST SPRAGUE  
SPokane, WA 99202  
(509) 747-0181

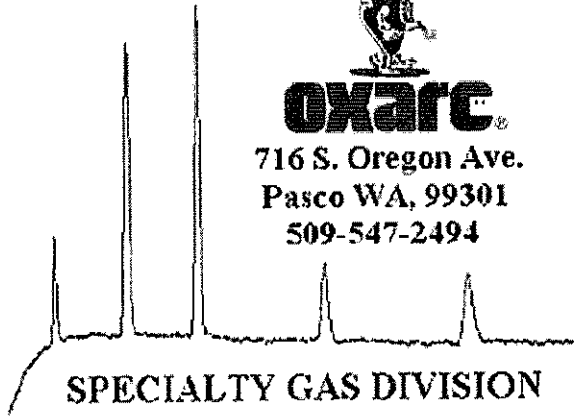
n max = 10,000 Max Capacity: 1000 lb X 0.1 lb g



# Certificate of Analysis



716 S. Oregon Ave.  
Pasco WA, 99301  
509-547-2494



**Customer:** Hearth & Home  
**Product:** Spec Gas  
**Grade:** Primary Standard  
+/- 1%  
**Lot Number:** 2170374  
**Serial #(s):** EB0088221\*

\* Indicates Cylinder Analyzed For Batch

<u>Component</u>	<u>Specification</u>	<u>Actual</u>	<u>Method</u>
Carbon Monoxide	1%	1.00%	GOW MAC 580 TCD GC
Carbon Dioxide	10%	9.99%	GOW MAC 580 TCD GC
Nitrogen	Balance	Balance	GOW MAC 580 TCD GC

LDL - Lower Detection Limit

**Authorized Signature:**  **Date:** 2/8/2017

**Analyst:** Tim Agostinacci

This is to certify the equipment/cylinders referenced have been calibrated/tested, and verified to meet the defined specifications. This analysis was performed using gases and equipment that is traceable through National Institute of Standards and Technology (NIST) to the International System of Units (SI). The basis of compliance stated is a comparison of the measurement parameters to the specified or required calibration process. The expanded uncertainties use a coverage factor of k=2 to approximate the 95% confidence level of the measurement, unless otherwise noted. This certificate of analysis applies only to the item described and shall not be reproduced other than in full, without written approval from the calibration facility. If not included, the uncertainty of calibrations is available upon request and was taken into account when determining pass or fail as defined in our work instructions. Unless stated above the certification of gases expires 5 years from date of analysis. By request, OXARC, Inc. Specialty Gas Laboratory can provide ISO/IEC 17025:2005 accredited products.

# Certificate of Calibration

Certificate Number: 712600



**JJ Calibrations, Inc.**

7724 SE Aspen Summit Drive

Portland, OR 97266-9217

Phone 503.786.3005

FAX 503.786.2994

**PFS TECO**

11785 SE Hwy 212

Suite 305

Clackamas, OR 97015

PO: john.steinst.PFSTECO.co

Order Date: 11/06/2019

Authorized By: N/A



0723.01

Calibration

Property #: 064

User: N/A

Department: N/A

Make: Control Company

Model: 4198

Serial #: 80531676

Description: Digital Temp. / Barometer

Procedure: 404323

Accuracy:  $\pm 1^{\circ}\text{C} \pm 0.2362\text{Hg}(\pm 8\text{mb})$

Calibrated on: 11/15/2019

\*Recommended Due: 11/15/2020

Environment: 21 °C 48 % RH

\* As Received: Within Tolerance

\* As Returned: Within Tolerance

Action Taken: Calibrated

Technician: 146

Remarks: \* Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

## Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
644A	Thunder Scientific	1200	Two Pressure Humidity Generator	10/14/2020	710583
847A	Fluke	RPM4	Reference Pressure Monitor	11/21/2019	688957

Parameter

## Measurement Data

Measurement Description	Range	Unit	Reference	Min	Max	<sup>k</sup> Error	UUT	Uncertainty
<b>Before/After Temperature</b>								Accredited = ✓
		°C	20.00	19.0	21.0	0.1	20.1 °C	8.1E-02 ✓
		°C	30.00	29.0	31.0	0.8	29.2 °C	8.1E-02 ✓
	°C	40.00	39.0	41.0	0.2	39.8 °C	8.1E-02 ✓	
<b>Barometer</b>		mbar	1010.70	1002.7	1018.7	0.7	1010.0 mbar	

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to either the SI or to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCCL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by JCGM 106:2012. Unless otherwise stated, a test accuracy ration (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without written approval of JJ Calibrations.

Reviewer

3 Issued 11/16/2019

Rev # 15

Inspector





# QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS  
2340 SE 11<sup>TH</sup> Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293  
(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



PFS Teco  
11785 SE Hwy 212 STE#305  
Clackamas, OR 97015

Report Number: DIR10134307497200110

## A2LA ACCREDITED CERTIFICATE OF CALIBRATION WITH DATA

### INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Balance	Sartorius	ENTRIS224-1S	34307497	#107	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
g	0.0001	QC012	1/10/20	6/10/19	6/2020

### FUNCTIONAL CHECKS

ECCENTRICITY		LINEARITY		STANDARD DEVIATION			ENVIRONMENTAL CONDITIONS
Test Wt:	Tol:	Test Wt:	Tol:	Test Wt:	Tol:		
100	0.0003	50 x 4	0.0002	100	0.0001		<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
<b>As-Found:</b>		<b>As-Found:</b>		1. 100.0001	5. 99.9999	9. 100.0000	Good Fair Poor
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	2. 100.0000	6. 100.0000	10. 99.9999	
<b>As-Left:</b>		<b>As-Left:</b>		3. 100.0000	7. 100.0001	<b>Result</b>	Temperature: 19.3°C
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	4. 100.0000	8. 100.0000	0.00006	

### A2LA ACCREDITED SECTION OF REPORT

Standard	As-Found	As-Left	Expanded Uncertainty
200	199.9997	200.0000	0.00019
100	100.0000	100.0001	0.00018
50	49.9999	50.0001	0.00018
20	20.0001	20.0000	0.00017
1	0.9998	0.9999	0.00017
0.1	0.0999	0.1000	0.00017

### CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	Rice Lake	20kg to 1mg	7133	4/19/19	4/2020	20190811

Permanent Information Concerning this Equipment:

Comments/Info Concerning this Calibration:

01/20 RH= 49% Adjusted span.

Report prepared/reviewed by: R.B. Date: 1-10-20

Technician: R. Butcher

Signature: R. Butcher

THIS CERTIFICATE SHALL NOT BE REPRODUCED WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation and readability of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

Member: National Conference of Standards Laboratories and Weights & Measures

PT ID: DIR101