OMNI-Test Laboratories, Inc.

EPA Standard of Performance for New Residential Wood Heaters

Certification Test Report

Non-Confidential Business Information (Non-CBI)

Manufacturer: Hearth & Home Technologies, Inc.
Heater Type: Pellet-Fired, Freestanding
Model: ECO CAB50-C, ECO PS50-C

Prepared for:
Hearth & Home Technologies, Inc.
352 Mountain House Rd.
Halifax, PA 17032
USA

Prepared by:
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Test Period: November 19, 2018

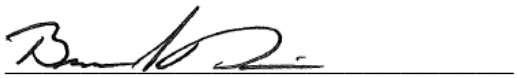
Report Date: January 29, 2019

Report Number: 0061PS085E

AUTHORIZED SIGNATORIES

This report has been reviewed and approved by the following authorized signatories:

Evaluator:



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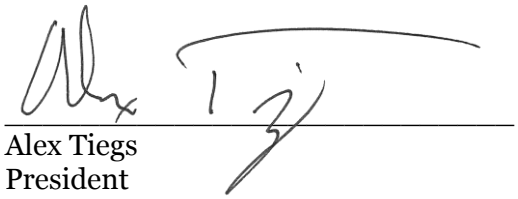

Alex Tiegs
President
OMNI-Test Laboratories, Inc.

01/29/2019

Issue Date

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1.1 - Summary Tables

Table 1 – Particulate Emissions

	One-Hour Filter	Integrated Total
Emission Rate (g/hr)	3.11	**1.001**
Emission Factor (g/dry kg)	0.608	0.909

Table 2 – Efficiency and CO

	Burn Rate Segment			Integrated Total
	Maximum	Medium	Minimum	
Time (minutes)	60	120	180	360
Burn Rate (dry kg/hr)	2.65	1.26	0.70	1.21
Heat Input Rate (BTU/hr, HHV)	49,869	23,728	13,138	22,790
Heat Output Rate (BTU/hr, HHV)	36,591	14,982	7,488	14,825
Efficiency (%, HHV)	73.4%	63.1%	57.0%	65.1%
Efficiency (%, LHV)	78.4%	67.5%	60.9%	69.5%
CO Emission Rate (g/min)	0.086	0.165	0.311	0.23

1.1 - Summary Tables

Table 3 – Test Facility Conditions

	Initial	Middle	Final
Room Temperature (°F)	72	68	70
Barometric Pressure (in Hg)	30.17	30.14	30.12
Air Velocity (ft/min)	<50	<50	<50
Induced Draft (in H2O)	Φ	Φ	Φ

Table 4 – Heater Configuration

	Pretest	Burn Rate Segment		
		Maximum	Medium	Minimum
Heat Output Setting	Heat setting on High, FRAP set to max, Fan automatic to heat setting, control board set to 3. (max)	Heat setting on High, FRAP set to max, Fan automatic to heat setting, control board set to 3. (max)	Heat setting on Medium, FRAP set to fully closed, Fan automatic to heat setting, control board set to 2. (min)	Heat setting on low, FRAP set to full closed, Fan automatic to heat setting, control board set to 2. (min)

1.2 - Procedures and Results Summary

TESTING PROCEDURE

The ECO CAB50-C was tested in accordance with the U.S. EPA 40 CFR Part 60, Subpart AAA – Standards of Performance for New Residential Wood Heaters using ASTM E2515 and ASTM E2779. The model was tested for thermal efficiency and carbon monoxide (CO) emissions in accordance with CSA B415.1-10. The fuel used for certification testing was Sumerset brand densified wood pellet fuel; this fuel was graded as Premium Hardwood by the Pellet Fuels Institute and was produced at registered mill # 16016. Particulate emissions were measured using dual sampling trains consisting of two sets of filters (front and back).

A single test run was performed. The unit was installed and adjusted in accordance with the manufacturer's instructions

The manufacturer's instructions specified operating the preburn and high burn segments at maximum heat setting, the "FRAP" (feed rate adjustment plate), and the control board trim switch set to 3, fan speed is automatic based on the heat control setting, there is no user control. The medium burn segment was operated at heat setting medium, FRAP set to fully closed, and the control board switch set to 2. The low burn segment at minimum heat setting, FRAP set to full closed, and the control board switch set to 2.

RESULTS SUMMARY

Proportionality results of the integrated test run, in addition to all other validity criteria, were within specified limits, and no sampling anomalies occurred. All burn rate categories were achieved. Therefore, this test run is considered valid.

The ECO CAB50-C, and ECO PS50-C results indicate an average particulate emission rate of 1.00 g/hr. The results are within the emission limit of 2.0 g/hr for affected appliances manufactured on or after May 15, 2020.

The heater demonstrated an average thermal efficiency of 65.1%. The calculated CO emission rate was 0.23 g/min.

Upon completion of emissions certification testing, the sample unit was sealed and will be stored by the manufacturer in accordance with the requirements of the CFR.

1.3 - Appliance Description

Appliance Manufacturer: Hearth & Home Technologies

Pellet Stove Model: ECO CAB50-C, and ECO PS50-C

Type: Freestanding, air-circulating type, pellet-fired room heater.

The ECO CAB50-C, and ECO PS50-C's principle elements include a fuel hopper, ductile Iron burn pot, and electrical fuel feed, combustion air, and convection air supply systems. The frame of the unit is constructed of mild steel, as is the outer fascia.

Combustion products are routed out of the firebox chamber via a baffle-type heat exchanger through a 3-inch diameter flue outlet located on the rear of the unit. Three-inch pellet vent pipe was used for testing.

Fuel is supplied from the hopper to the burn pot via a screw-type auger, mounted diagnolly. Fuel supply rate is varied by cycling the auger motor as needed.

Ashes fall through the burn pot into a removable ash drawer located at the bottom of the unit. The drawer is accessed through a mild steel door, distinct from the cast aluminum front firebox door, which also features a 13.6 x 10.6" glass panel.

The electrical systems are regulated by a single user-operated toggle switches, this swith has three settings, high, medium, and low. An adjustable slide plate (FRAP) is located in the hopper, this plate is used to restrict the number of pellets that can enter the auger from the hopper. An additional trim setting is located on the control board, this control is only intended to be manipulated by a dealer representative at the time of initial installation. It was used during testing to obtain data at maximum and minimum settings.

More detailed information is shown in the manufacturer's design drawings, Appendix C of this report. This information is considered confidential business information (CBI) by the manufacturer and is not included in the non-CBI version of this report.

ECO CAB50-C, and ECO PS50-C – Sealed Test Unit

Appliance Photographs
ECO CAB50-C, and ECO PS50-C
Test Date: 8/30/2018

	
ECO CAB50-C Front	**ECO CAB50-C Back**
	
ECO CAB50-C Left	**ECO CAB50-C Control**

Section 2
Test Data

2.1 - Test Data by Run

Run 1 Notes & Results

ASTM E2779 / ASTM E2515 Emissions Results

Manufacturer:	Hearth & Home
Model:	ECO CAB50/PS50
Project No.:	0061PS085E
Tracking No.:	2328
Run:	1
Test Date:	11/19/18

Technician Signature: 

Integrated Test Run	
Particulate Emission Rate	**2.00 g/hr**
Total Particulate Emissions - E_T	11.98 g
Emissisons Factor	1.65 g/kg
CSA B415 Efficiency	**65.1% HHV**

First Hour Emissions	
Particulate Emission Rate	3.11 g/hr
Total Particulate Emissions - E_T	3.11 g
Emissisons Factor	1.17 g/kg

Burn Rate (Composite)	**1.21 kg/hr dry**	
Burn Rate (High)	2.65 kg/hr dry	
Burn Rate (Medium)	1.26 kg/hr dry	47.6% Of High
Burn Rate (Low)	0.70 kg/hr dry	26.3% Of High
Average Tunnel Temperature	98 degrees F	
Avg.Velocity in Dilution Tunnel - v_s	13.42 ft/second	
Avg.Flow Rate in Dilution Tunnel - Q_{sd}	8900.5 dscf/hour	
Average Δp	0.049 inches H20	
Average ΔH	1.35 inches H20	
Total Time of Test	360 minutes	

ASTM E2779 / ASTM E2515 Emissions Results

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Project No.: 0061PS085E
Tracking No.: 2328
Run: 1
Test Date: 11/19/18

Technician Signature: 

	1st Hour	Sample Train 1	Sample Train 2	Sample	Unit
Total Sample Volume - V_m	9.637	58.113	58.226		ft^3
Average Gas Meter Temperature	76.41	79.49	80.69		°F
Sample Volume (Std. Conditions) - V_{mstd}	9.450	56.661	56.549		dsf^3
				N/A	
Total Particulates - m_n	3.3	12.9	12.5		mg
Particulate Concentration - C_r/C_s	3.492E-04	2.28E-04	2.21E-04		g/dsf^3
Total Particulate Emissions - E_T	3.11	12.16	11.80		g
Particulate Emission Rate	3.11	2.03	1.97		g/hr
Emissisons Factor	1.17	1.67	1.62		g/kg
Delta from Avg. Particulate Emissions		0.18	0.18		g

Quality Checks

Filter Temps < 90 °F	OK	Ambient Temp (55-90°F)	OK
Filter Face Velocity	OK	Negative Probe Weight	OK
Leakage Rate	OK	Pro-Rate Variation	OK
Medium Burn Rate < 50%	OK	Dual Train Comparison	OK

CSA B415.1 Results - Overall & By Category

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Date: 11/19/18

Run: 1
Control #: 0061PS085E
Test Duration: 360

Test Results in Accordance with CSA B415.1-09 - **Overall**

	HHV Basis	LHV Basis	
Overall Efficiency	65.1%	69.5%	
Combustion Efficiency	99.5%	99.5%	
Heat Transfer Efficiency	65%	69.9%	
Output Rate (kJ/h)	15,628	14,825	(Btu/h)
Burn Rate (kg/h)	1.21	2.67	(lb/h)
Input (kJ/h)	24,024	22,790	(Btu/h)
Test Load Weight (dry kg)	7.28	16.04	dry lb
MC wet (%)	5.63		
MC dry (%)	5.97		
Particulate (g)	11.98		
CO (g)	82		
Test Duration (h)	6.00		

Emissions	Particulate	CO
g/MJ Output	0.13	0.88
g/kg Dry Fuel	1.65	11.33
g/h	2.00	13.75
lb/MM Btu Output	0.30	2.04

Air/Fuel Ratio (A/F)	32.52

Test Results in Accordance with CSA B415.1-09 - **Maximum**

	HHV Basis	LHV Basis	
Overall Efficiency	73.4%	78.4%	
Combustion Efficiency	99.5%	99.5%	
Heat Transfer Efficiency	74%	78.8%	
Output Rate (kJ/h)	38,574	36,591	(Btu/h)
Burn Rate (kg/h)	2.65	5.85	(lb/h)
Input (kJ/h)	52,571	49,869	(Btu/h)
Test Load Weight (dry kg)	2.65	5.85	dry lb
MC wet (%)	5.63		
MC dry (%)	5.97		
Particulate (g)	3.30		
CO (g)	5		
Test Duration (h)	1.00		

Emissions	Particulate	CO
g/MJ Output	0.09	0.13
g/kg Dry Fuel	1.24	1.94
g/h	3.30	5.16
lb/MM Btu Output	0.20	0.31

Air/Fuel Ratio (A/F)	14.32

Test Results in Accordance with CSA B415.1-09 - **Medium**

	HHV Basis	LHV Basis	
Overall Efficiency	63.1%	99.5%	
Combustion Efficiency	99.5%	67.8%	
Heat Transfer Efficiency	63%	67.8%	
Output Rate (kJ/h)	15,794	14,982	(Btu/h)
Burn Rate (kg/h)	1.26	2.78	(lb/h)
Input (kJ/h)	25,014	23,728	(Btu/h)
Test Load Weight (dry kg)	2.53	5.57	dry lb
MC wet (%)	5.63		
MC dry (%)	5.97		
Particulate (g)	-		
CO (g)	20		
Test Duration (h)	2.00		

Emissions	Particulate	CO
g/MJ Output	-	0.63
g/kg Dry Fuel	-	7.84
g/h	-	9.90
lb/MM Btu Output	-	1.46

Air/Fuel Ratio (A/F)	31.19

Test Results in Accordance with CSA B415.1-09 - **Minimum**

	HHV Basis	LHV Basis	
Overall Efficiency	57.0%	99.5%	
Combustion Efficiency	99.5%	61.2%	
Heat Transfer Efficiency	57%	61.2%	
Output Rate (kJ/h)	7,893	7,488	(Btu/h)
Burn Rate (kg/h)	0.70	1.54	(lb/h)
Input (kJ/h)	13,849	13,138	(Btu/h)
Test Load Weight (dry kg)	2.10	4.62	dry lb
MC wet (%)	5.63		
MC dry (%)	5.97		
Particulate (g)	-		
CO (g)	56		
Test Duration (h)	3.00		

Emissions	Particulate	CO
g/MJ Output	-	2.36
g/kg Dry Fuel	-	26.66
g/h	-	18.65
lb/MM Btu Output	-	5.49

Air/Fuel Ratio (A/F)	59.12

~~**VERSION:**~~ ~~**2.2**~~ ~~**12/14/2009**~~ ***Modified to fit this Format***

Pellet Heater Conditioning Data - ASTM E2779

Manufacturer:	Hearth & Home
Model:	ECO CAB50/PS50
Tracking No.:	2328
Project No.:	0061PS085E
Test Date:	2018
Operation Category:	Medium

Elapsed Time (hours)	Fuel Added (lbs)	Stack (°F)
0	33.11	489
1	30.8	487
2	29.2	358
3	28.2	358
4	27.5	277
5	26.8	276
6	26.03	270
7	44.6	488
8	41.9	486
9	40.2	360
10	39.72	357
11	39.14	279
12	38.47	271
13	27.48	487
14	24.7	490
15	23.2	401
16	21.7	400
17	20.86	302
18	20.0	288
19	19.3	296
20	30.3	444
21	28.0	452
22	26.6	371
23	25.3	362
24	24.5	274
25	23.9	279
26	23.2	278
27	32.7	489
28	29.89	485
29	28.3	381

Pellet Heater Conditioning Data - ASTM E2779

Manufacturer:	Hearth & Home
Model:	ECO CAB50/PS50
Tracking No.:	2328
Project No.:	0061PS085E
Test Date:	2018
Operation Category:	Medium

Elapsed Time (hours)	Fuel Added (lbs)	Stack (°F)
30	26.9	374
31	26.2	258
32	25.4	279
33	24.8	273
34	19.6	487
35	17.2	493
36	15.2	381
37	13.8	381
38	13.0	273
39	12.3	276
40	11.7	281
41	34.2	436
42	31.8	456
43	30.2	387
44	28.6	397
45	27.9	279
46	27.2	273
47	26.5	283
48	29.8	470
49	26.7	489
50	25.2	408

Pellet Heater Preburn Data - ASTM E2779

Manufacturer:	Hearth & Home
Model:	ECO CAB50/PS50
Tracking No.:	2328
Project No.:	0061PS085E
Test Date:	11/19/18

PB Length:	60 min
Recording Interval:	10 min

Averages:	472	68	-0.05		

Elapsed Time (min)	Scale Reading	Weight Change	Stack (F)	Ambient (F)	Draft ("H2O)	CO2 (%)	CO (%)
0	52.5	-	441	66	-0.04		
10	48.5	-4	451	67	-0.04		
20	47.4	-1.1	471	67	-0.05		
30	46.3	-1.1	477	68	-0.05		
40	45.2	-1.1	483	68	-0.05		
50	44.1	-1.1	489	70	-0.05		
60	42.9	-1.2	491	72	-0.05		

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Tracking No.: 2328
Project No.: 0061PS085E
Test Date: 19-Nov-18
Beginning Clock Time: 10:21

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 0.986 (1) 0.985 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.17	30.14	30.12	30.14 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: 2.000 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
Intial Tunnel Flow: 149.8 scfm
Average Tunnel Flow: 148.3 scfm
Post-Test Leak Check (1): 0.000 cfm @ 7 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 9 in. Hg
Fuel Moisture (%): 5.966 Dry Basis 5.630 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.048	0.046	0.034	0.044	0.048	0.042	0.030	0.052	"H2O
Temp:	115	116	115	115	115	115	115	115	115	°F

V_{strav} 13.96 ft/sec V_{scent} 15.67 ft/sec F_p 0.891

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
0	0.000	0.000			1.15	72	1.87	0.64	73	1.10	115	0.050			17.0		485	68	73	70	73	72	-0.048	7.85	0.025
1	0.156	0.158	0.16	0.16	1.37	72	1.97	1.11	73	1.10	115	0.049	100	101	16.9	-0.1	484	69	73	71	72	73	-0.046	7.67	0.027
2	0.317	0.321	0.16	0.16	1.37	72	1.98	1.11	73	1.10	115	0.050	102	103	16.8	-0.1	483	69	72	72	70	72	-0.048	7.77	0.014
3	0.478	0.483	0.16	0.16	1.37	72	1.98	1.11	73	1.10	114	0.048	104	105	16.7	-0.1	486	70	72	72	68	71	-0.048	7.99	0.021
4	0.639	0.647	0.16	0.16	1.37	72	1.98	1.10	74	1.10	115	0.047	105	107	16.6	-0.1	486	70	71	72	67	71	-0.047	8.52	0.014
5	0.800	0.809	0.16	0.16	1.37	72	1.98	1.11	74	1.10	115	0.047	105	106	16.5	-0.1	489	70	71	73	67	71	-0.048	9.86	0.010
6	0.961	0.971	0.16	0.16	1.37	72	1.98	1.10	74	1.10	115	0.049	103	103	16.3	-0.2	490	71	71	73	67	73	-0.049	9.01	0.009
7	1.121	1.134	0.16	0.16	1.37	73	1.97	1.10	74	1.10	115	0.049	102	104	16.2	-0.1	489	71	71	74	67	72	-0.049	8.96	0.008
8	1.283	1.296	0.16	0.16	1.37	73	1.98	1.10	74	1.10	115	0.047	106	106	16.2	0.0	488	72	71	74	67	73	-0.049	9.79	0.012
9	1.443	1.458	0.16	0.16	1.36	73	1.98	1.09	74	1.10	115	0.048	103	104	16.0	-0.2	487	72	71	74	66	72	-0.049	8.15	0.012
10	1.604	1.620	0.16	0.16	1.36	73	1.97	1.09	74	1.10	115	0.049	103	103	15.9	-0.1	487	72	71	74	66	72	-0.049	7.77	0.024
11	1.764	1.782	0.16	0.16	1.36	73	1.96	1.10	75	1.10	115	0.047	104	105	15.8	-0.1	486	73	71	75	67	73	-0.048	7.78	0.013
12	1.925	1.944	0.16	0.16	1.36	73	1.97	1.09	75	1.10	115	0.046	106	107	15.7	-0.1	484	73	71	75	67	73	-0.047	7.98	0.013
13	2.085	2.106	0.16	0.16	1.36	73	1.97	1.09	75	1.10	115	0.048	103	104	15.6	-0.1	484	73	71	75	67	72	-0.048	7.74	0.012
14	2.246	2.267	0.16	0.16	1.36	74	1.96	1.09	75	1.10	115	0.048	104	104	15.5	-0.1	485	74	71	75	67	72	-0.046	8.40	0.014
15	2.406	2.429	0.16	0.16	1.36	74	1.97	1.09	75	1.10	115	0.048	103	104	15.4	-0.1	487	74	71	76	67	73	-0.048	9.77	0.018
16	2.567	2.591	0.16	0.16	1.36	74	1.96	1.09	76	1.10	115	0.048	104	104	15.3	-0.1	488	74	71	76	67	72	-0.050	8.35	0.014
17	2.728	2.752	0.16	0.16	1.35	74	1.97	1.09	76	1.10	115	0.047	105	105	15.2	-0.1	486	74	72	76	67	71	-0.048	8.22	0.012
18	2.889	2.914	0.16	0.16	1.35	74	1.96	1.08	76	1.10	115	0.048	104	104	15.1	-0.1	486	75	72	76	67	72	-0.047	8.59	0.022
19	3.049	3.075	0.16	0.16	1.35	75	1.97	1.09	76	1.10	115	0.048	103	103	15.0	-0.1	487	75	72	76	67	73	-0.050	9.14	0.020
20	3.210	3.238	0.16	0.16	1.35	75	1.96	1.08	77	1.10	115	0.047	105	106	14.9	-0.1	487	75	72	77	67	71	-0.049	7.85	0.016
21	3.370	3.399	0.16	0.16	1.35	75	1.97	1.08	77	1.10	115	0.048	103	103	14.8	-0.1	486	75	72	77	67	73	-0.048	8.35	0.015
22	3.531	3.560	0.16	0.16	1.34	75	1.97	1.08	77	1.10	115	0.047	105	104	14.7	-0.1	485	76	72	77	68	72	-0.048	8.09	0.016
23	3.691	3.722	0.16	0.16	1.34	75	1.97	1.08	77	1.10	115	0.048	103	104	14.5	-0.2	485	76	72	77	68	71	-0.049	7.69	0.014
24	3.852	3.884	0.16	0.16	1.35	76	1.97	1.09	77	1.10	115	0.047	105	105	14.4	-0.1	485	76	72	77	68	72	-0.048	7.33	0.010
25	4.012	4.046	0.16	0.16	1.34	76	1.98	1.08	78	1.10	115	0.047	104	105	14.3	-0.1	485	76	72	77	68	74	-0.048	8.98	0.011
26	4.173	4.207	0.16	0.16	1.35	76	1.98	1.09	78	1.10	115	0.048	103	103	14.3	0.0	485	76	72	77	68	72	-0.049	9.16	0.023
27	4.333	4.369	0.16	0.16	1.35	76	1.97	1.08	78	1.10	115	0.048	103	104	14.2	-0.1	484	76	72	78	68	72	-0.047	9.01	0.011
28	4.494	4.532	0.16	0.16	1.35	76	1.96	1.09	78	1.10	115	0.047	105	105	14.1	-0.1	486	76	73	78	68	72	-0.049	9.82	0.010
29	4.654	4.693	0.16	0.16	1.35	77	1.97	1.08	78	1.10	115	0.048	103	103	13.9	-0.2	488	77	73	78	68	73	-0.049	8.66	0.016
30	4.814	4.854	0.16	0.16	1.35	77	1.97	1.08	79	1.10	115	0.048	103	103	13.8	-0.1	488	77	73	78	68	72	-0.050	8.61	0.008
31	4.974	5.016	0.16	0.16	1.35	77	1.97	1.08	79	1.10	115	0.047	104	105	13.7	-0.1	487	77	73	78	69	71	-0.049	8.76	0.012
32	5.134	5.179	0.16	0.16	1.35	77	1.97	1.08	79	1.10	115	0.048	103	104	13.6	-0.1	488	77	73	78	69	72	-0.048	8.23	0.010
33	5.295	5.340	0.16	0.16	1.35	77	1.97	1.08	79	1.10	115	0.048	103	103	13.5	-0.1	487	77	73	78	69	73	-0.048	7.78	0.009
34	5.455	5.502	0.16	0.16	1.35	77	1.97	1.08	79	1.10	115	0.047	104	105	13.4	-0.1	486	77	73	78	69	74	-0.049	8.16	0.015
35	5.616	5.663	0.16	0.16	1.35	78	1.98	1.08	80	1.10	115	0.047	104	104	13.3	-0.1	486	77	73	78	69	73	-0.048	8.34	0.014
36	5.777	5.826	0.16	0.16	1.35	78	1.98	1.08	80	1.10	116	0.046	105	106	13.2	-0.1	486	77	73	78	69	72	-0.049	9.36	0.017
37	5.937	5.988	0.16	0.16	1.35	78	1.98	1.08	80	1.10	116	0.048	102	103	13.1	-0.1	487	77	73	78	69	71	-0.048	9.29	0.011
38	6.098	6.149	0.16	0.16	1.35	78	1.98	1.08	80	1.10	115	0.049	102	102	13.0	-0.1	487	77	73	78	69	73	-0.049	8.99	0.015
39	6.259	6.311	0.16	0.16	1.35	78	1.98	1.08	80	1.10	115	0.047	104	104	12.9	-0.1	486	77	73	78	69	72	-0.049	8.74	0.009
40	6.420	6.474	0.16	0.16	1.35	78	1.98	1.08	80	1.10	115	0.048	103	104	12.8	-0.1	488	77	73	78	69	73	-0.050	9.71	0.012
41	6.581	6.636	0.16	0.16	1.35	78	1.98	1.08	81	1.10	116	0.048	103	103	12.7	-0.1	486	77	73	78	69	72	-0.047	7.16	0.011
42	6.741	6.797	0.16	0.16	1.35	79	1.97	1.08	81	1.10	116	0.047	103	104	12.6	-0.1	485	77	73	79	69	72	-0.048	8.76	0.011
43	6.902	6.959	0.16	0.16	1.35	79	1.98	1.08	81	1.10	116	0.047	104	104	12.5	-0.1	486	77	73	79	69	74	-0.048	8.79	0.011
44	7.063	7.122	0.16	0.16	1.35	79	1.98	1.08	81	1.10	116	0.046	105	106	12.5	0.0	486	78	73	79	69	72	-0.049	7.85	0.010
45	7.223	7.284	0.16	0.16	1.35	79	1.98	1.08	81	1.10	116	0.048	102	103	12.4	-0.1	486	78	73	79	69	73	-0.048	8.57	0.014
46	7.384	7.446	0.16	0.16	1.34	79	1.98	1.08	81	1.10	116	0.048	103	103	12.2	-0.2	486	78	73	79	69	72	-0.048	8.52	0.018
47	7.545	7.608	0.16	0.16	1.34	79	1.98	1.08	81	1.10	116	0.048	103	103	12.1	-0.1	486	78	73	79	69	74	-0.048	9.12	0.012
48	7.706	7.771	0.16	0.16	1.35	79	1.98	1.08	81	1.10	116	0.049	102	103	12.0	-0.1	485	78	73	79	69	72	-0.048	8.55	0.015

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Tracking No.: 2328
Project No.: 0061PS085E
Test Date: 19-Nov-18
Beginning Clock Time: 10:21

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 0.986 (1) 0.985 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.17	30.14	30.12	30.14 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: 2.000 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
Intial Tunnel Flow: 149.8 scfm
Average Tunnel Flow: 148.3 scfm
Post-Test Leak Check (1): 0.000 cfm @ 7 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 9 in. Hg
Fuel Moisture (%): 5.966 Dry Basis 5.630 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.048	0.046	0.034	0.044	0.048	0.042	0.030	0.052	"H2O
Temp:	115	116	115	115	115	115	115	115	115	°F

V_{strav} 13.96 ft/sec V_{scent} 15.67 ft/sec F_p 0.891

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
49	7.867	7.933	0.16	0.16	1.34	79	1.98	1.08	82	1.10	116	0.048	103	103	11.9	-0.1	483	78	73	79	69	73	-0.049	8.56	0.010
50	8.028	8.095	0.16	0.16	1.35	80	1.98	1.08	82	1.10	116	0.047	104	104	11.8	-0.1	483	78	73	79	70	72	-0.048	8.11	0.025
51	8.188	8.257	0.16	0.16	1.34	80	1.98	1.08	82	1.10	116	0.047	103	104	11.7	-0.1	484	78	73	79	70	73	-0.047	8.85	0.014
52	8.349	8.419	0.16	0.16	1.34	80	1.99	1.08	82	1.10	116	0.047	104	104	11.6	-0.1	484	78	73	79	70	73	-0.048	7.87	0.009
53	8.510	8.582	0.16	0.16	1.34	80	1.98	1.08	82	1.10	116	0.048	103	104	11.5	-0.1	486	78	73	79	70	72	-0.049	9.55	0.014
54	8.671	8.744	0.16	0.16	1.35	80	1.98	1.08	82	1.10	116	0.046	105	105	11.4	-0.1	486	78	73	79	70	72	-0.049	8.19	0.008
55	8.832	8.906	0.16	0.16	1.35	80	1.98	1.08	82	1.10	116	0.046	105	105	11.3	-0.1	486	78	73	79	70	73	-0.049	7.70	0.016
56	8.993	9.068	0.16	0.16	1.35	80	1.99	1.08	82	1.10	116	0.048	103	103	11.2	-0.1	485	78	73	79	70	72	-0.050	8.94	0.009
57	9.154	9.231	0.16	0.16	1.34	80	1.99	1.08	82	1.10	116	0.047	104	105	11.1	-0.1	483	78	73	79	70	72	-0.049	8.11	0.008
58	9.315	9.393	0.16	0.16	1.35	80	1.99	1.08	83	1.10	116	0.047	104	104	11.0	-0.1	485	78	73	79	70	73	-0.049	9.57	0.026
59	9.476	9.555	0.16	0.16	1.35	80	1.99	1.08	83	1.10	116	0.048	103	103	10.9	-0.1	485	78	73	79	70	74	-0.049	9.47	0.017
60	9.637	9.717	0.16	0.16	1.35	81	1.98	1.09	83	1.10	116	0.048	103	103	10.8	-0.1	485	78	73	79	70	74	-0.048	8.74	0.016
61	9.798	9.880	0.16	0.16	1.35	81	1.99	1.08	83	1.10	114	0.048	102	103	10.6	-0.2	478	78	73	79	70	73	-0.046	9.64	0.037
62	9.961	10.043	0.16	0.16	1.36	81	1.93	1.08	83	1.10	116	0.048	104	103	10.5	-0.1	483	78	73	79	70	73	-0.048	6.93	0.030
63	10.123	10.205	0.16	0.16	1.35	81	1.96	1.08	83	1.10	116	0.048	103	103	10.4	-0.1	484	79	73	79	71	74	-0.048	6.93	0.016
64	10.285	10.367	0.16	0.16	1.35	81	1.97	1.08	83	1.10	117	0.048	103	103	10.4	0.0	483	79	73	79	71	72	-0.048	5.98	0.023
65	10.447	10.529	0.16	0.16	1.36	81	1.97	1.08	83	1.10	117	0.048	103	103	10.3	-0.1	482	79	73	79	71	72	-0.047	5.45	0.026
66	10.608	10.693	0.16	0.16	1.35	81	1.97	1.08	83	1.20	117	0.048	103	104	10.2	-0.1	483	79	74	79	71	72	-0.047	6.80	0.024
67	10.770	10.855	0.16	0.16	1.36	81	1.96	1.08	83	1.10	117	0.048	103	103	10.1	-0.1	479	79	73	79	71	72	-0.045	4.51	0.019
68	10.932	11.017	0.16	0.16	1.35	81	1.96	1.08	83	1.20	117	0.047	104	104	10.1	0.0	472	79	74	79	71	72	-0.044	4.71	0.016
69	11.094	11.179	0.16	0.16	1.35	81	1.96	1.08	83	1.10	117	0.049	102	102	10.0	-0.1	470	79	74	79	71	72	-0.044	5.60	0.022
70	11.255	11.342	0.16	0.16	1.35	81	1.97	1.08	84	1.10	116	0.047	104	104	9.9	-0.1	468	79	74	79	71	73	-0.045	5.55	0.014
71	11.417	11.504	0.16	0.16	1.36	82	1.97	1.08	84	1.10	117	0.048	103	103	9.9	0.0	464	79	74	79	71	72	-0.043	5.35	0.014
72	11.579	11.667	0.16	0.16	1.35	82	1.98	1.08	84	1.20	117	0.048	103	103	9.8	-0.1	462	79	74	79	71	72	-0.045	6.29	0.013
73	11.741	11.829	0.16	0.16	1.35	82	1.97	1.08	84	1.10	116	0.047	104	104	9.7	-0.1	463	79	74	79	71	72	-0.044	6.21	0.015
74	11.902	11.991	0.16	0.16	1.35	82	1.97	1.08	84	1.20	116	0.047	103	104	9.7	0.0	459	79	74	79	71	72	-0.043	4.90	0.032
75	12.064	12.154	0.16	0.16	1.35	82	1.97	1.08	84	1.20	116	0.047	104	104	9.6	-0.1	456	79	74	79	71	72	-0.044	5.21	0.018
76	12.226	12.316	0.16	0.16	1.35	82	1.97	1.08	84	1.20	115	0.049	102	102	9.5	-0.1	452	79	74	79	71	72	-0.045	4.51	0.024
77	12.388	12.479	0.16	0.16	1.35	82	1.97	1.08	84	1.10	114	0.047	104	104	9.5	0.0	442	79	74	79	71	72	-0.044	3.83	0.031
78	12.550	12.641	0.16	0.16	1.35	82	1.97	1.08	84	1.10	113	0.049	102	101	9.5	0.0	435	79	74	79	71	72	-0.044	4.33	0.026
79	12.711	12.805	0.16	0.16	1.36	82	1.97	1.08	84	1.10	112	0.049	101	102	9.4	-0.1	427	79	74	79	71	72	-0.042	4.29	0.017
80	12.873	12.967	0.16	0.16	1.35	82	1.97	1.07	84	1.20	112	0.046	105	104	9.4	0.0	422	79	74	79	71	72	-0.041	4.46	0.014
81	13.036	13.129	0.16	0.16	1.35	82	1.97	1.08	84	1.10	111	0.046	105	104	9.3	-0.1	416	79	74	79	71	73	-0.041	3.86	0.020
82	13.197	13.291	0.16	0.16	1.35	82	1.97	1.08	84	1.20	111	0.047	103	103	9.3	0.0	408	79	73	79	71	72	-0.041	3.34	0.040
83	13.359	13.454	0.16	0.16	1.35	82	1.97	1.08	84	1.20	110	0.048	102	103	9.2	-0.1	405	79	73	79	71	72	-0.039	3.68	0.023
84	13.522	13.617	0.16	0.16	1.35	82	1.97	1.08	84	1.20	109	0.048	103	103	9.2	0.0	401	79	73	79	71	72	-0.040	3.56	0.031
85	13.684	13.779	0.16	0.16	1.35	82	1.97	1.07	84	1.20	108	0.048	102	102	9.1	-0.1	396	79	73	79	71	73	-0.038	3.63	0.021
86	13.846	13.942	0.16	0.16	1.35	82	1.97	1.08	84	1.20	108	0.048	102	103	9.1	0.0	391	79	73	78	71	72	-0.038	3.57	0.034
87	14.008	14.104	0.16	0.16	1.35	82	1.97	1.08	84	1.20	107	0.048	102	102	9.0	-0.1	386	78	73	78	71	72	-0.037	3.21	0.018
88	14.170	14.268	0.16	0.16	1.36	82	1.98	1.08	84	1.20	107	0.047	103	104	9.0	0.0	386	78	73	78	71	72	-0.038	3.93	0.019
89	14.332	14.430	0.16	0.16	1.35	82	1.97	1.07	84	1.20	106	0.048	102	102	8.9	-0.1	387	78	73	78	71	72	-0.038	4.22	0.016
90	14.494	14.592	0.16	0.16	1.35	82	1.98	1.08	84	1.20	106	0.048	102	102	8.9	0.0	385	78	73	78	71	73	-0.038	3.67	0.020
91	14.656	14.755	0.16	0.16	1.36	82	1.98	1.08	84	1.20	105	0.048	102	102	8.8	-0.1	380	78	73	78	71	71	-0.038	2.99	0.030
92	14.818	14.918	0.16	0.16	1.36	82	1.97	1.08	84	1.20	105	0.048	102	102	8.8	0.0	377	78	73	78	71	72	-0.038	2.91	0.037
93	14.980	15.081	0.16	0.16	1.36	82	1.98	1.08	84	1.20	105	0.047	103	103	8.7	-0.1	378	78	73	78	71	72	-0.037	4.37	0.018
94	15.142	15.243	0.16	0.16	1.35	83	1.97	1.07	84	1.20	104	0.048	102	102	8.7	0.0	375	78	73	78	71	71	-0.037	3.38	0.024
95	15.305	15.406	0.16	0.16	1.36	82	1.98	1.08	84	1.20	104	0.048	103	102	8.7	0.0	376	78	73	78	71	72	-0.037	4.02	0.014
96	15.467	15.569	0.16	0.16	1.36	82	1.98	1.08	84	1.20	104	0.047	103	103	8.6	-0.1	374	78	73	78	71	71	-0.037	3.67	0.028
97	15.629	15.732	0.16	0.16	1.36	83	1.98	1.08	84	1.20	104	0.047	103	103	8.6	0.0	371	78	73	77	71	71	-0.038	2.57	0.048

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Tracking No.: 2328
Project No.: 0061PS085E
Test Date: 19-Nov-18
Beginning Clock Time: 10:21

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 0.986 (1) 0.985 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.17	30.14	30.12	30.14 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: 2.000 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
Intial Tunnel Flow: 149.8 scfm
Average Tunnel Flow: 148.3 scfm
Post-Test Leak Check (1): 0.000 cfm @ 7 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 9 in. Hg
Fuel Moisture (%): 5.966 Dry Basis 5.630 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.048	0.046	0.034	0.044	0.048	0.042	0.030	0.052	"H2O
Temp:	115	116	115	115	115	115	115	115	115	°F

V_{strav} 13.96 ft/sec V_{scent} 15.67 ft/sec F_p 0.891

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
98	15.791	15.894	0.16	0.16	1.36	83	1.97	1.08	84	1.20	103	0.049	101	100	8.5	-0.1	371	78	73	77	71	71	-0.037	3.52	0.019
99	15.953	16.057	0.16	0.16	1.36	83	1.98	1.08	84	1.20	103	0.048	102	102	8.5	0.0	371	77	73	77	71	70	-0.038	3.96	0.031
100	16.115	16.219	0.16	0.16	1.36	82	1.97	1.08	84	1.20	103	0.048	102	101	8.4	-0.1	368	77	72	77	71	70	-0.036	2.41	0.042
101	16.277	16.382	0.16	0.16	1.36	83	1.98	1.08	84	1.20	102	0.048	102	102	8.4	0.0	366	77	72	77	71	71	-0.036	3.15	0.026
102	16.439	16.546	0.16	0.16	1.36	83	1.97	1.08	84	1.20	102	0.047	103	104	8.4	0.0	368	77	72	77	71	70	-0.037	4.32	0.015
103	16.601	16.708	0.16	0.16	1.36	83	1.97	1.08	84	1.20	102	0.048	102	101	8.3	-0.1	365	77	72	77	71	71	-0.037	2.83	0.028
104	16.764	16.870	0.16	0.16	1.36	82	1.98	1.08	84	1.20	102	0.048	102	101	8.3	0.0	366	77	72	77	71	72	-0.037	3.69	0.018
105	16.926	17.033	0.16	0.16	1.36	82	1.97	1.08	84	1.20	102	0.047	103	103	8.2	-0.1	362	77	72	77	71	70	-0.035	2.93	0.040
106	17.088	17.196	0.16	0.16	1.36	82	1.97	1.08	84	1.20	101	0.048	102	102	8.2	0.0	356	77	72	77	71	70	-0.036	2.66	0.032
107	17.251	17.359	0.16	0.16	1.36	82	1.97	1.08	84	1.20	101	0.048	102	102	8.2	0.0	356	77	72	77	71	70	-0.035	3.76	0.014
108	17.413	17.522	0.16	0.16	1.36	82	1.97	1.07	84	1.20	101	0.047	103	103	8.1	-0.1	354	77	72	76	71	70	-0.034	2.81	0.030
109	17.575	17.684	0.16	0.16	1.36	82	1.98	1.08	84	1.20	100	0.048	102	101	8.1	0.0	354	76	72	76	71	70	-0.034	3.28	0.021
110	17.737	17.847	0.16	0.16	1.36	82	1.98	1.08	84	1.20	100	0.050	100	100	8.0	-0.1	357	76	72	76	71	70	-0.037	4.37	0.012
111	17.899	18.010	0.16	0.16	1.36	82	1.97	1.08	84	1.20	100	0.049	101	101	8.0	0.0	357	76	72	76	70	70	-0.036	3.33	0.026
112	18.062	18.172	0.16	0.16	1.36	82	1.98	1.08	84	1.20	100	0.048	102	101	7.9	-0.1	358	76	72	76	70	70	-0.036	3.43	0.029
113	18.224	18.335	0.16	0.16	1.36	82	1.98	1.08	84	1.20	100	0.045	105	105	7.9	0.0	360	76	72	76	70	71	-0.036	3.77	0.022
114	18.386	18.497	0.16	0.16	1.36	82	1.98	1.08	84	1.20	100	0.048	102	101	7.9	0.0	360	76	72	76	70	70	-0.036	3.24	0.035
115	18.548	18.660	0.16	0.16	1.35	82	1.97	1.08	84	1.20	100	0.049	101	101	7.8	-0.1	361	76	72	76	70	70	-0.037	4.07	0.022
116	18.711	18.823	0.16	0.16	1.36	82	1.98	1.08	84	1.20	100	0.049	101	101	7.8	0.0	362	76	71	76	70	69	-0.037	3.84	0.037
117	18.873	18.986	0.16	0.16	1.36	82	1.98	1.07	84	1.20	100	0.049	101	101	7.7	-0.1	359	76	71	76	70	69	-0.036	3.22	0.032
118	19.035	19.148	0.16	0.16	1.35	82	1.98	1.08	84	1.20	100	0.049	101	100	7.7	0.0	357	76	71	76	70	69	-0.036	3.37	0.027
119	19.198	19.311	0.16	0.16	1.35	82	1.97	1.08	83	1.20	99	0.050	100	100	7.7	0.0	354	75	71	76	70	69	-0.036	3.04	0.034
120	19.360	19.474	0.16	0.16	1.35	82	1.98	1.08	83	1.20	99	0.049	100	101	7.6	-0.1	355	75	71	76	70	70	-0.036	3.57	0.016
121	19.523	19.636	0.16	0.16	1.35	82	1.97	1.08	83	1.20	99	0.048	102	101	7.6	0.0	352	75	71	75	70	70	-0.036	3.18	0.043
122	19.685	19.799	0.16	0.16	1.35	82	1.98	1.08	83	1.20	99	0.047	103	103	7.5	-0.1	352	75	71	75	70	69	-0.036	3.48	0.017
123	19.847	19.961	0.16	0.16	1.35	82	1.98	1.08	83	1.20	99	0.050	99	99	7.5	0.0	353	75	71	75	70	69	-0.036	3.54	0.025
124	20.010	20.124	0.16	0.16	1.36	82	1.98	1.08	83	1.20	99	0.049	101	101	7.4	-0.1	356	75	71	75	70	69	-0.035	4.09	0.017
125	20.172	20.287	0.16	0.16	1.36	82	1.97	1.08	83	1.20	99	0.049	100	101	7.4	0.0	359	75	71	75	70	69	-0.037	4.37	0.021
126	20.334	20.449	0.16	0.16	1.36	82	1.97	1.08	83	1.20	99	0.049	100	100	7.3	-0.1	360	75	71	75	70	69	-0.037	3.39	0.026
127	20.497	20.612	0.16	0.16	1.36	82	1.98	1.08	83	1.20	99	0.049	101	101	7.3	0.0	361	75	71	75	70	69	-0.036	3.88	0.021
128	20.659	20.774	0.16	0.16	1.36	82	1.98	1.08	83	1.20	99	0.048	101	101	7.2	-0.1	362	75	71	75	70	69	-0.036	3.94	0.025
129	20.821	20.937	0.16	0.16	1.36	82	1.97	1.08	83	1.20	99	0.051	98	99	7.2	0.0	359	75	71	75	70	69	-0.034	3.06	0.033
130	20.983	21.100	0.16	0.16	1.36	82	1.97	1.08	83	1.20	99	0.050	99	100	7.2	0.0	355	75	71	75	70	69	-0.036	3.14	0.028
131	21.146	21.263	0.16	0.16	1.36	82	1.98	1.07	83	1.20	99	0.050	100	100	7.1	-0.1	358	75	71	75	70	69	-0.037	3.91	0.017
132	21.308	21.425	0.16	0.16	1.36	82	1.98	1.08	83	1.20	99	0.051	98	98	7.1	0.0	357	75	70	75	70	69	-0.036	3.01	0.032
133	21.470	21.587	0.16	0.16	1.36	82	1.98	1.08	83	1.20	99	0.049	100	100	7.0	-0.1	358	75	70	75	69	69	-0.036	3.47	0.028
134	21.632	21.750	0.16	0.16	1.36	82	1.98	1.08	83	1.20	99	0.050	99	100	7.0	0.0	359	74	70	75	69	69	-0.037	3.93	0.024
135	21.794	21.913	0.16	0.16	1.36	82	1.97	1.08	83	1.20	99	0.050	99	100	6.9	-0.1	360	74	70	75	69	69	-0.035	3.75	0.021
136	21.956	22.075	0.16	0.16	1.36	82	1.98	1.07	83	1.20	99	0.050	99	99	6.9	0.0	363	74	70	75	69	69	-0.036	3.89	0.018
137	22.118	22.237	0.16	0.16	1.36	82	1.98	1.08	83	1.20	99	0.049	100	100	6.9	0.0	362	74	70	75	69	69	-0.036	3.04	0.029
138	22.281	22.400	0.16	0.16	1.36	81	1.98	1.08	83	1.20	99	0.049	101	101	6.8	-0.1	360	74	70	75	69	69	-0.034	3.32	0.020
139	22.443	22.563	0.16	0.16	1.36	81	1.98	1.08	83	1.20	99	0.049	101	101	6.8	0.0	358	74	70	75	69	69	-0.035	3.14	0.037
140	22.605	22.725	0.16	0.16	1.36	81	1.98	1.07	83	1.20	99	0.048	102	101	6.7	-0.1	356	74	70	75	69	69	-0.035	3.06	0.018
141	22.767	22.887	0.16	0.16	1.36	81	1.97	1.08	83	1.20	99	0.048	102	101	6.7	0.0	355	74	70	75	69	69	-0.035	3.52	0.015
142	22.930	23.050	0.16	0.16	1.36	81	1.98	1.08	83	1.20	99	0.050	100	100	6.6	-0.1	356	74	70	75	69	69	-0.036	3.43	0.026
143	23.092	23.213	0.16	0.16	1.36	81	1.98	1.08	83	1.20	98	0.050	100	100	6.6	0.0	353	74	70	75	69	69	-0.036	2.75	0.025
144	23.254	23.375	0.16	0.16	1.35	81	1.97	1.07	83	1.20	98	0.050	100	99	6.6	0.0	355	74	70	75	69	69	-0.034	3.78	0.022
145	23.416	23.537	0.16	0.16	1.36	81	1.98	1.08	83	1.20	98	0.050	100	99	6.5	-0.1	358	74	70	74	69	68	-0.036	4.18	0.019
146	23.579	23.699	0.16	0.16	1.36	81	1.98	1.08	82	1.20	98	0.050	100	99	6.5	0.0	356	74	70	74	69	69	-0.036	2.87	0.041

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Tracking No.: 2328
Project No.: 0061PS085E
Test Date: 19-Nov-18
Beginning Clock Time: 10:21

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 0.986 (1) 0.985 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.17	30.14	30.12	30.14 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: 2.000 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
Intial Tunnel Flow: 149.8 scfm
Average Tunnel Flow: 148.3 scfm
Post-Test Leak Check (1): 0.000 cfm @ 7 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 9 in. Hg
Fuel Moisture (%): 5.966 Dry Basis 5.630 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.048	0.046	0.034	0.044	0.048	0.042	0.030	0.052	"H2O
Temp:	115	116	115	115	115	115	115	115	115	°F

V_{strav} 13.96 ft/sec V_{scent} 15.67 ft/sec F_p 0.891

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
147	23.741	23.862	0.16	0.16	1.36	81	1.99	1.08	82	1.20	98	0.050	100	100	6.4	-0.1	357	74	70	74	69	69	-0.037	4.17	0.016
148	23.903	24.025	0.16	0.16	1.36	81	1.98	1.07	82	1.20	98	0.049	101	101	6.4	0.0	357	74	70	74	69	68	-0.035	3.47	0.025
149	24.065	24.187	0.16	0.16	1.36	81	1.98	1.07	82	1.20	98	0.051	99	98	6.3	-0.1	355	74	70	74	69	69	-0.036	3.20	0.032
150	24.228	24.349	0.16	0.16	1.36	81	1.98	1.08	82	1.20	98	0.047	103	102	6.3	0.0	354	74	70	74	69	68	-0.037	3.33	0.025
151	24.390	24.511	0.16	0.16	1.36	81	1.98	1.08	82	1.20	98	0.051	99	98	6.2	-0.1	357	74	70	74	69	69	-0.036	3.75	0.038
152	24.552	24.675	0.16	0.16	1.36	81	1.98	1.07	82	1.20	98	0.048	102	103	6.2	0.0	360	74	69	74	69	68	-0.036	4.28	0.018
153	24.714	24.836	0.16	0.16	1.36	81	1.99	1.07	82	1.20	98	0.051	99	98	6.1	-0.1	361	74	69	74	69	68	-0.038	3.70	0.017
154	24.877	24.998	0.16	0.16	1.36	81	1.98	1.07	82	1.20	98	0.048	102	101	6.1	0.0	364	74	69	74	68	68	-0.038	3.92	0.030
155	25.039	25.161	0.16	0.16	1.35	81	1.98	1.08	82	1.20	98	0.050	100	100	6.0	-0.1	363	74	69	74	68	69	-0.035	3.61	0.021
156	25.201	25.324	0.16	0.16	1.36	81	1.99	1.07	82	1.20	99	0.050	100	100	6.0	0.0	363	74	69	74	68	68	-0.037	3.15	0.033
157	25.363	25.486	0.16	0.16	1.36	81	1.98	1.07	82	1.20	99	0.049	101	100	6.0	0.0	362	74	69	74	68	68	-0.037	3.52	0.020
158	25.526	25.648	0.16	0.16	1.36	81	1.98	1.07	82	1.20	99	0.051	99	98	5.9	-0.1	360	74	69	74	68	69	-0.036	3.21	0.024
159	25.688	25.810	0.16	0.16	1.35	81	1.99	1.08	82	1.20	99	0.049	101	100	5.9	0.0	361	74	69	74	68	68	-0.036	3.74	0.018
160	25.850	25.972	0.16	0.16	1.36	81	1.98	1.08	82	1.20	98	0.050	100	99	5.8	-0.1	356	74	69	74	68	68	-0.034	2.84	0.030
161	26.012	26.135	0.16	0.16	1.36	81	1.98	1.07	82	1.20	98	0.049	101	101	5.8	0.0	355	74	69	74	68	68	-0.036	3.80	0.022
162	26.174	26.297	0.16	0.16	1.36	81	1.98	1.07	82	1.20	98	0.051	99	98	5.7	-0.1	360	74	69	74	68	68	-0.037	4.77	0.018
163	26.336	26.458	0.16	0.16	1.35	81	1.98	1.07	82	1.20	98	0.050	100	99	5.7	0.0	364	74	69	74	68	69	-0.038	4.12	0.017
164	26.498	26.621	0.16	0.16	1.36	81	1.99	1.07	82	1.20	98	0.050	100	100	5.6	-0.1	368	74	69	74	68	68	-0.038	4.64	0.018
165	26.660	26.784	0.16	0.16	1.36	81	1.98	1.07	82	1.20	99	0.050	100	100	5.6	0.0	370	74	69	74	68	68	-0.038	4.33	0.017
166	26.822	26.945	0.16	0.16	1.36	81	1.99	1.07	82	1.20	99	0.050	100	99	5.5	-0.1	367	74	69	74	68	68	-0.037	3.26	0.031
167	26.984	27.107	0.16	0.16	1.35	81	1.98	1.08	82	1.20	99	0.051	99	98	5.5	0.0	368	74	69	74	68	68	-0.038	3.95	0.032
168	27.146	27.269	0.16	0.16	1.36	81	1.98	1.07	82	1.20	99	0.050	100	99	5.4	-0.1	366	73	69	74	68	68	-0.035	3.51	0.024
169	27.308	27.432	0.16	0.16	1.36	81	1.99	1.07	82	1.20	99	0.049	101	101	5.4	0.0	359	73	69	74	68	68	-0.034	2.66	0.033
170	27.470	27.594	0.16	0.16	1.36	81	1.98	1.07	82	1.20	98	0.051	99	98	5.4	0.0	355	73	69	74	68	68	-0.034	3.28	0.041
171	27.632	27.756	0.16	0.16	1.36	81	1.98	1.07	82	1.20	98	0.047	103	102	5.3	-0.1	356	73	69	74	68	68	-0.036	2.97	0.030
172	27.794	27.918	0.16	0.16	1.36	80	1.99	1.07	82	1.20	98	0.050	100	99	5.3	0.0	357	73	69	74	68	68	-0.036	4.02	0.014
173	27.955	28.081	0.16	0.16	1.36	80	1.98	1.07	82	1.20	98	0.049	100	101	5.2	-0.1	359	73	69	74	68	68	-0.035	4.31	0.013
174	28.117	28.243	0.16	0.16	1.36	80	1.99	1.07	82	1.20	98	0.049	101	100	5.2	0.0	356	73	69	74	68	68	-0.036	2.67	0.069
175	28.279	28.404	0.16	0.16	1.36	80	1.98	1.07	81	1.20	98	0.050	100	99	5.1	-0.1	355	73	69	74	68	68	-0.035	3.50	0.022
176	28.442	28.566	0.16	0.16	1.36	80	1.99	1.07	82	1.20	98	0.049	101	100	5.1	0.0	355	73	69	74	68	68	-0.035	3.16	0.026
177	28.604	28.729	0.16	0.16	1.36	80	1.99	1.07	81	1.20	97	0.048	102	102	5.0	-0.1	349	73	69	74	68	68	-0.035	2.51	0.047
178	28.766	28.891	0.16	0.16	1.36	80	1.98	1.07	81	1.20	97	0.051	99	98	5.0	0.0	351	73	69	74	68	68	-0.034	3.53	0.015
179	28.928	29.053	0.16	0.16	1.36	80	1.99	1.07	81	1.20	97	0.049	101	100	5.0	0.0	352	73	69	74	68	68	-0.036	3.32	0.027
180	29.090	29.215	0.16	0.16	1.36	80	1.98	1.07	81	1.20	97	0.051	99	98	4.9	-0.1	356	73	69	74	68	68	-0.038	3.63	0.017
181	29.252	29.377	0.16	0.16	1.36	80	1.98	1.07	81	1.20	96	0.048	102	101	4.9	0.0	351	73	68	74	68	68	-0.035	4.34	0.020
182	29.414	29.539	0.16	0.16	1.36	80	1.98	1.07	81	1.20	96	0.049	101	100	4.8	-0.1	344	73	68	74	68	68	-0.034	2.61	0.088
183	29.576	29.701	0.16	0.16	1.36	80	1.98	1.07	81	1.20	95	0.051	98	98	4.8	0.0	332	73	68	73	67	68	-0.034	1.37	0.071
184	29.737	29.863	0.16	0.16	1.35	80	1.98	1.07	81	1.20	95	0.051	98	98	4.8	0.0	327	73	68	73	68	68	-0.033	2.29	0.038
185	29.899	30.025	0.16	0.16	1.36	80	1.99	1.07	81	1.20	94	0.051	98	98	4.8	0.0	326	73	68	73	67	68	-0.034	2.47	0.032
186	30.062	30.187	0.16	0.16	1.36	80	1.99	1.07	81	1.20	94	0.049	101	100	4.7	-0.1	321	73	68	73	67	68	-0.032	2.60	0.022
187	30.224	30.349	0.16	0.16	1.36	80	1.99	1.07	81	1.20	93	0.050	99	99	4.7	0.0	313	73	68	73	67	68	-0.031	1.83	0.048
188	30.386	30.511	0.16	0.16	1.36	80	1.99	1.07	81	1.20	93	0.050	99	99	4.7	0.0	314	73	68	73	67	68	-0.032	2.84	0.021
189	30.548	30.673	0.16	0.16	1.36	80	1.98	1.07	81	1.20	92	0.050	99	99	4.7	0.0	312	73	68	73	67	69	-0.031	2.51	0.019
190	30.710	30.835	0.16	0.16	1.36	80	1.98	1.07	81	1.20	92	0.050	99	99	4.6	-0.1	304	73	68	73	67	68	-0.029	1.54	0.066
191	30.872	30.997	0.16	0.16	1.36	80	1.99	1.07	81	1.20	92	0.051	98	98	4.6	0.0	299	73	68	73	67	68	-0.028	2.01	0.040
192	31.034	31.159	0.16	0.16	1.36	80	1.98	1.07	81	1.20	91	0.052	97	97	4.6	0.0	294	73	68	73	67	68	-0.029	1.87	0.070
193	31.196	31.321	0.16	0.16	1.35	80	1.99	1.07	81	1.20	91	0.050	99	99	4.5	-0.1	294	73	68	73	67	68	-0.028	2.26	0.037
194	31.355	31.481	0.16	0.16	1.36	80	1.99	1.06	81	1.20	91	0.051	96	97	4.5	0.0	293	72	68	73	67	68	-0.026	2.40	0.025
195	31.517	31.642	0.16	0.16	1.36	80	1.99	1.07	81	1.20	91	0.052	98	97	4.5	0.0	288	72	68	73	67	68	-0.027	1.64	0.057

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Tracking No.: 2328
Project No.: 0061PS085E
Test Date: 19-Nov-18
Beginning Clock Time: 10:21

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 0.986 (1) 0.985 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.17	30.14	30.12	30.14 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: 2.000 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
Intial Tunnel Flow: 149.8 scfm
Average Tunnel Flow: 148.3 scfm
Post-Test Leak Check (1): 0.000 cfm @ 7 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 9 in. Hg
Fuel Moisture (%): 5.966 Dry Basis 5.630 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.048	0.046	0.034	0.044	0.048	0.042	0.030	0.052	"H2O
Temp:	115	116	115	115	115	115	115	115	115	°F

V_{strav} 13.96 ft/sec V_{scent} 15.67 ft/sec F_p 0.891

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
196	31.679	31.804	0.16	0.16	1.35	80	1.99	1.07	81	1.20	90	0.051	98	98	4.5	0.0	288	72	68	73	67	68	-0.028	2.38	0.034
197	31.841	31.966	0.16	0.16	1.36	80	1.98	1.07	81	1.20	90	0.051	98	98	4.4	-0.1	287	72	68	72	67	68	-0.028	2.16	0.031
198	32.003	32.128	0.16	0.16	1.36	80	1.99	1.07	81	1.20	90	0.051	98	98	4.4	0.0	283	72	68	72	67	68	-0.028	1.64	0.030
199	32.165	32.290	0.16	0.16	1.35	80	1.99	1.07	81	1.20	90	0.050	99	99	4.4	0.0	283	72	68	72	67	68	-0.027	2.09	0.032
200	32.328	32.452	0.16	0.16	1.36	80	1.99	1.07	81	1.20	89	0.050	100	99	4.4	0.0	277	72	68	72	67	68	-0.025	1.84	0.040
201	32.490	32.614	0.16	0.16	1.36	80	1.99	1.07	81	1.20	89	0.050	99	99	4.3	-0.1	280	72	68	72	67	67	-0.028	2.09	0.051
202	32.652	32.776	0.16	0.16	1.36	80	1.99	1.07	81	1.20	89	0.050	99	99	4.3	0.0	281	72	68	72	67	68	-0.027	2.43	0.024
203	32.814	32.938	0.16	0.16	1.36	80	1.99	1.07	81	1.20	89	0.049	100	100	4.3	0.0	270	72	68	72	67	68	-0.023	1.41	0.051
204	32.976	33.100	0.16	0.16	1.36	80	1.99	1.07	81	1.20	89	0.050	99	99	4.2	-0.1	275	72	67	72	67	68	-0.027	1.58	0.104
205	33.138	33.262	0.16	0.16	1.35	80	1.99	1.07	81	1.20	88	0.052	97	97	4.2	0.0	276	72	67	72	67	68	-0.026	2.33	0.020
206	33.300	33.424	0.16	0.16	1.35	80	1.99	1.07	81	1.20	88	0.050	99	99	4.2	0.0	278	72	67	72	67	68	-0.028	2.69	0.022
207	33.462	33.585	0.16	0.16	1.35	80	1.99	1.07	81	1.20	88	0.051	98	97	4.2	0.0	278	72	67	72	67	67	-0.027	2.23	0.039
208	33.624	33.747	0.16	0.16	1.35	80	1.99	1.07	80	1.20	88	0.051	98	98	4.1	-0.1	277	71	67	72	67	67	-0.028	2.16	0.031
209	33.786	33.909	0.16	0.16	1.35	80	1.99	1.07	80	1.20	89	0.050	99	99	4.1	0.0	280	71	67	72	67	67	-0.028	2.42	0.040
210	33.948	34.071	0.16	0.16	1.35	79	1.99	1.06	80	1.20	88	0.049	100	100	4.1	0.0	276	71	67	72	66	67	-0.026	1.99	0.029
211	34.110	34.233	0.16	0.16	1.35	79	1.99	1.07	80	1.20	88	0.053	96	96	4.0	-0.1	272	71	67	72	66	68	-0.027	1.52	0.054
212	34.272	34.394	0.16	0.16	1.35	79	1.99	1.07	80	1.20	88	0.051	98	97	4.0	0.0	274	71	67	72	66	67	-0.027	2.05	0.039
213	34.434	34.557	0.16	0.16	1.35	79	1.99	1.07	80	1.20	88	0.051	98	98	4.0	0.0	271	71	67	72	66	67	-0.026	1.83	0.037
214	34.596	34.718	0.16	0.16	1.36	79	1.99	1.07	80	1.20	88	0.051	98	97	4.0	0.0	271	71	67	71	66	67	-0.026	2.43	0.040
215	34.758	34.880	0.16	0.16	1.35	79	1.99	1.07	80	1.20	88	0.053	96	96	3.9	-0.1	268	71	67	71	66	67	-0.026	1.50	0.067
216	34.920	35.042	0.16	0.16	1.36	79	1.99	1.07	80	1.20	88	0.051	98	98	3.9	0.0	269	71	67	71	66	67	-0.026	2.31	0.033
217	35.082	35.204	0.16	0.16	1.35	79	1.99	1.07	80	1.20	87	0.052	97	97	3.9	0.0	267	71	67	71	66	67	-0.026	1.72	0.038
218	35.243	35.366	0.16	0.16	1.36	79	1.99	1.07	80	1.20	87	0.052	96	97	3.9	0.0	266	71	67	71	66	67	-0.024	2.11	0.027
219	35.406	35.527	0.16	0.16	1.36	79	1.99	1.07	80	1.20	87	0.051	99	97	3.8	-0.1	264	71	67	71	66	67	-0.026	1.74	0.063
220	35.568	35.689	0.16	0.16	1.36	79	1.99	1.07	80	1.20	87	0.051	98	98	3.8	0.0	266	71	67	71	66	67	-0.026	1.93	0.048
221	35.729	35.851	0.16	0.16	1.36	79	1.99	1.07	80	1.20	87	0.053	95	96	3.8	0.0	266	71	67	71	66	67	-0.024	2.56	0.036
222	35.891	36.013	0.16	0.16	1.36	79	1.99	1.06	80	1.20	87	0.052	97	97	3.8	0.0	263	71	66	71	66	67	-0.026	1.39	0.076
223	36.053	36.174	0.16	0.16	1.36	79	1.98	1.07	80	1.20	87	0.053	96	95	3.7	-0.1	266	71	66	71	66	67	-0.026	2.35	0.020
224	36.215	36.336	0.16	0.16	1.36	79	1.99	1.07	80	1.20	87	0.053	96	96	3.7	0.0	264	71	66	71	66	67	-0.024	1.69	0.042
225	36.377	36.498	0.16	0.16	1.35	79	2.00	1.07	80	1.20	87	0.051	98	98	3.7	0.0	265	71	66	71	66	67	-0.026	1.74	0.050
226	36.539	36.660	0.16	0.16	1.36	79	1.99	1.06	80	1.20	87	0.052	97	97	3.7	0.0	267	71	66	71	66	67	-0.025	2.60	0.028
227	36.701	36.821	0.16	0.16	1.36	79	1.99	1.07	80	1.20	87	0.051	98	97	3.6	-0.1	265	71	66	71	66	67	-0.024	1.92	0.049
228	36.862	36.983	0.16	0.16	1.36	79	1.99	1.07	80	1.20	87	0.053	95	96	3.6	0.0	268	71	66	71	66	67	-0.026	2.09	0.032
229	37.024	37.145	0.16	0.16	1.36	79	1.99	1.06	80	1.20	87	0.052	97	97	3.6	0.0	265	71	66	71	66	67	-0.025	1.71	0.046
230	37.186	37.307	0.16	0.16	1.35	79	1.99	1.06	80	1.20	87	0.052	97	97	3.5	-0.1	267	71	66	71	66	67	-0.025	1.99	0.056
231	37.348	37.468	0.16	0.16	1.36	79	2.00	1.06	80	1.20	87	0.051	98	97	3.5	0.0	268	71	66	71	66	67	-0.025	2.43	0.033
232	37.510	37.630	0.16	0.16	1.36	79	1.99	1.07	80	1.20	87	0.052	97	97	3.5	0.0	262	70	66	71	66	67	-0.022	1.20	0.083
233	37.671	37.792	0.16	0.16	1.36	79	1.99	1.06	80	1.20	87	0.051	97	98	3.5	0.0	263	70	66	71	66	67	-0.026	1.68	0.051
234	37.833	37.954	0.16	0.16	1.36	79	1.99	1.06	80	1.20	87	0.052	97	97	3.5	0.0	263	70	66	71	65	67	-0.023	2.23	0.019
235	37.994	38.115	0.16	0.16	1.36	79	2.00	1.06	80	1.20	86	0.052	96	96	3.4	-0.1	254	70	66	71	65	67	-0.022	1.05	0.089
236	38.156	38.276	0.16	0.16	1.36	79	2.00	1.07	79	1.20	86	0.052	97	96	3.4	0.0	254	70	66	70	65	67	-0.023	1.41	0.079
237	38.318	38.439	0.16	0.16	1.36	79	1.99	1.07	80	1.20	86	0.052	97	97	3.4	0.0	256	70	66	70	65	67	-0.025	2.10	0.031
238	38.479	38.599	0.16	0.16	1.36	79	1.99	1.06	79	1.20	86	0.052	96	96	3.3	-0.1	261	70	66	70	65	67	-0.023	2.73	0.022
239	38.641	38.761	0.16	0.16	1.36	79	2.00	1.07	79	1.20	86	0.053	96	96	3.3	0.0	261	70	66	70	65	67	-0.023	2.03	0.031
240	38.803	38.922	0.16	0.16	1.36	79	1.99	1.07	79	1.20	86	0.050	99	98	3.3	0.0	261	70	66	70	65	67	-0.025	1.81	0.056
241	38.965	39.084	0.16	0.16	1.35	79	2.00	1.07	79	1.20	87	0.049	100	100	3.3	0.0	262	70	66	70	65	67	-0.024	1.90	0.036
242	39.127	39.245	0.16	0.16	1.36	79	1.99	1.06	79	1.20	87	0.052	97	96	3.2	-0.1	264	70	66	70	65	67	-0.025	2.22	0.028
243	39.288	39.407	0.16	0.16	1.36	79	2.00	1.07	79	1.20	86	0.050	98	99	3.2	0.0	260	70	66	70	65	67	-0.024	1.62	0.045
244	39.449	39.569	0.16	0.16	1.36	79	1.99	1.06	79	1.20	86	0.050	98	99	3.2	0.0	258	70	66	70	65	67	-0.024	1.41	0.092

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Tracking No.: 2328
Project No.: 0061PS085E
Test Date: 19-Nov-18
Beginning Clock Time: 10:21

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 0.986 (1) 0.985 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.17	30.14	30.12	30.14 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: 2.000 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
Intial Tunnel Flow: 149.8 scfm
Average Tunnel Flow: 148.3 scfm
Post-Test Leak Check (1): 0.000 cfm @ 7 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 9 in. Hg
Fuel Moisture (%): 5.966 Dry Basis 5.630 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.048	0.046	0.034	0.044	0.048	0.042	0.030	0.052	"H2O
Temp:	115	116	115	115	115	115	115	115	115	°F

V_{strav} 13.96 ft/sec V_{scent} 15.67 ft/sec F_p 0.891

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
245	39.611	39.730	0.16	0.16	1.36	79	1.99	1.06	79	1.20	86	0.051	98	97	3.2	0.0	258	70	66	70	65	67	-0.023	2.28	0.028
246	39.772	39.891	0.16	0.16	1.36	78	2.00	1.06	79	1.20	86	0.051	97	97	3.1	-0.1	259	70	65	70	65	67	-0.024	1.63	0.081
247	39.934	40.053	0.16	0.16	1.36	79	1.99	1.06	79	1.20	86	0.052	97	97	3.1	0.0	265	70	65	70	65	67	-0.027	2.99	0.031
248	40.095	40.215	0.16	0.16	1.36	78	2.00	1.06	79	1.20	86	0.051	97	98	3.1	0.0	262	70	65	70	65	67	-0.025	1.80	0.040
249	40.257	40.376	0.16	0.16	1.36	78	2.00	1.06	79	1.20	86	0.052	97	96	3.1	0.0	261	70	65	70	65	67	-0.026	1.44	0.067
250	40.418	40.537	0.16	0.16	1.36	78	2.00	1.06	79	1.20	86	0.050	98	98	3.0	-0.1	260	70	65	70	65	67	-0.024	2.04	0.030
251	40.580	40.699	0.16	0.16	1.36	78	1.99	1.06	79	1.20	86	0.052	97	97	3.0	0.0	257	70	65	70	65	67	-0.023	1.73	0.047
252	40.741	40.861	0.16	0.16	1.36	78	1.99	1.06	79	1.20	86	0.051	97	98	3.0	0.0	263	70	65	70	65	67	-0.025	1.91	0.058
253	40.903	41.022	0.16	0.16	1.36	78	1.99	1.06	79	1.20	86	0.052	97	96	2.9	-0.1	265	70	65	70	65	67	-0.024	2.93	0.023
254	41.064	41.183	0.16	0.16	1.35	78	2.00	1.06	79	1.20	86	0.052	96	96	2.9	0.0	266	70	65	70	65	67	-0.026	2.13	0.047
255	41.226	41.344	0.16	0.16	1.35	78	2.00	1.07	79	1.20	86	0.052	97	96	2.9	0.0	270	70	65	70	65	67	-0.026	3.14	0.020
256	41.387	41.506	0.16	0.16	1.36	78	1.99	1.06	79	1.20	87	0.051	97	98	2.9	0.0	269	70	65	70	65	66	-0.027	2.04	0.036
257	41.548	41.667	0.16	0.16	1.36	78	2.00	1.06	79	1.20	87	0.053	96	95	2.8	-0.1	268	70	65	70	65	67	-0.026	2.09	0.032
258	41.710	41.829	0.16	0.16	1.36	78	2.00	1.06	79	1.20	87	0.052	97	97	2.8	0.0	267	70	65	70	65	66	-0.025	1.81	0.049
259	41.871	41.990	0.16	0.16	1.36	78	2.00	1.07	79	1.20	86	0.052	96	96	2.8	0.0	264	70	65	70	65	67	-0.024	2.04	0.041
260	42.033	42.152	0.16	0.16	1.35	78	2.00	1.06	79	1.20	86	0.050	99	99	2.8	0.0	264	70	65	70	65	67	-0.023	2.33	0.044
261	42.194	42.313	0.16	0.16	1.35	78	2.00	1.06	79	1.20	86	0.050	98	98	2.7	-0.1	262	70	65	70	65	67	-0.024	1.25	0.104
262	42.356	42.474	0.16	0.16	1.35	78	2.00	1.07	79	1.20	87	0.051	98	97	2.7	0.0	262	70	65	70	65	67	-0.024	1.59	0.037
263	42.517	42.636	0.16	0.16	1.36	78	1.99	1.06	79	1.20	87	0.051	97	98	2.7	0.0	263	70	65	70	65	67	-0.023	2.29	0.025
264	42.678	42.797	0.16	0.16	1.36	78	1.99	1.06	79	1.20	87	0.052	97	96	2.6	-0.1	259	70	65	70	65	67	-0.025	1.68	0.066
265	42.840	42.958	0.16	0.16	1.35	78	2.00	1.06	79	1.20	87	0.048	101	100	2.6	0.0	258	70	65	70	65	67	-0.023	1.79	0.027
266	43.001	43.119	0.16	0.16	1.36	78	1.99	1.06	79	1.20	87	0.050	98	98	2.6	0.0	261	70	65	70	65	67	-0.025	2.65	0.029
267	43.162	43.281	0.16	0.16	1.35	78	1.99	1.06	79	1.20	87	0.050	98	99	2.6	0.0	258	70	65	70	65	67	-0.022	1.61	0.050
268	43.323	43.442	0.16	0.16	1.35	78	2.00	1.06	79	1.20	88	0.050	99	98	2.5	-0.1	260	70	65	70	65	67	-0.023	2.03	0.040
269	43.485	43.603	0.16	0.16	1.35	78	1.99	1.06	79	1.20	87	0.050	99	98	2.5	0.0	256	70	65	70	64	67	-0.021	2.05	0.043
270	43.646	43.765	0.16	0.16	1.35	78	2.00	1.06	79	1.20	88	0.050	99	99	2.5	0.0	254	70	65	70	64	67	-0.022	1.24	0.104
271	43.807	43.926	0.16	0.16	1.35	78	2.00	1.06	79	1.20	88	0.050	99	98	2.5	0.0	256	70	65	70	64	67	-0.023	1.37	0.055
272	43.968	44.086	0.16	0.16	1.35	78	2.01	1.06	79	1.20	88	0.050	99	98	2.4	-0.1	258	70	65	70	64	67	-0.023	2.17	0.024
273	44.129	44.247	0.16	0.16	1.35	78	2.00	1.06	79	1.20	88	0.050	99	98	2.4	0.0	259	70	65	70	64	67	-0.023	2.45	0.038
274	44.290	44.409	0.16	0.16	1.35	78	2.00	1.06	79	1.20	88	0.050	99	99	2.4	0.0	255	70	65	71	64	67	-0.021	1.31	0.097
275	44.451	44.570	0.16	0.16	1.35	78	2.00	1.06	79	1.20	88	0.050	99	98	2.4	0.0	256	70	65	71	64	67	-0.023	2.16	0.034
276	44.612	44.731	0.16	0.16	1.35	78	2.01	1.06	79	1.20	89	0.050	99	98	2.3	-0.1	261	70	65	71	64	67	-0.022	2.30	0.032
277	44.773	44.892	0.16	0.16	1.35	78	2.00	1.06	79	1.20	89	0.050	99	98	2.3	0.0	261	70	65	71	64	67	-0.024	2.10	0.036
278	44.934	45.053	0.16	0.16	1.35	78	2.00	1.06	79	1.20	89	0.050	99	98	2.3	0.0	265	71	65	71	64	68	-0.024	2.53	0.030
279	45.095	45.214	0.16	0.16	1.35	78	2.00	1.06	79	1.20	89	0.050	99	98	2.2	-0.1	264	71	65	71	64	68	-0.023	2.12	0.050
280	45.256	45.375	0.16	0.16	1.34	78	2.00	1.06	79	1.20	89	0.050	99	98	2.2	0.0	260	71	65	71	64	68	-0.021	1.63	0.059
281	45.417	45.537	0.16	0.16	1.34	78	2.01	1.06	79	1.20	89	0.051	98	98	2.2	0.0	261	71	65	71	64	68	-0.023	1.77	0.063
282	45.578	45.697	0.16	0.16	1.34	78	2.00	1.06	79	1.20	89	0.050	99	98	2.2	0.0	261	71	65	71	64	68	-0.023	2.07	0.031
283	45.739	45.858	0.16	0.16	1.35	78	2.00	1.06	79	1.20	89	0.051	98	98	2.1	-0.1	259	71	65	71	64	68	-0.022	1.77	0.034
284	45.900	46.019	0.16	0.16	1.34	78	2.01	1.06	79	1.20	90	0.050	99	99	2.1	0.0	262	71	65	71	64	68	-0.022	1.97	0.051
285	46.061	46.181	0.16	0.16	1.35	78	2.01	1.06	79	1.20	90	0.050	99	99	2.1	0.0	262	71	65	71	64	68	-0.023	2.43	0.024
286	46.222	46.341	0.16	0.16	1.35	78	2.01	1.05	79	1.20	90	0.050	99	98	2.0	-0.1	262	71	65	71	64	68	-0.024	1.87	0.051
287	46.383	46.502	0.16	0.16	1.35	78	2.01	1.06	79	1.20	90	0.051	98	98	2.0	0.0	263	71	65	71	64	68	-0.023	2.13	0.034
288	46.544	46.664	0.16	0.16	1.34	78	2.00	1.05	79	1.20	90	0.050	99	99	2.0	0.0	260	71	65	71	64	68	-0.023	1.43	0.072
289	46.705	46.824	0.16	0.16	1.34	78	2.01	1.06	79	1.20	90	0.049	100	99	2.0	0.0	263	71	65	71	64	68	-0.025	1.81	0.049
290	46.866	46.985	0.16	0.16	1.35	79	2.01	1.06	79	1.20	90	0.050	99	99	1.9	-0.1	262	71	65	72	64	68	-0.022	2.65	0.012
291	47.026	47.146	0.16	0.16	1.34	79	2.01	1.06	79	1.20	90	0.050	98	99	1.9	0.0	260	71	65	72	64	68	-0.024	1.59	0.074
292	47.187	47.307	0.16	0.16	1.35	79	2.01	1.05	79	1.20	90	0.050	99	99	1.9	0.0	262	72	65	72	64	68	-0.024	1.99	0.030
293	47.348	47.468	0.16	0.16	1.35	79	2.01	1.05	79	1.20	90	0.050	99	99	1.9	0.0	260	72	65	72	64	68	-0.023	1.65	0.039

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Tracking No.: 2328
Project No.: 0061PS085E
Test Date: 19-Nov-18
Beginning Clock Time: 10:21

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 0.986 (1) 0.985 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.17	30.14	30.12	30.14 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: 2.000 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
Intial Tunnel Flow: 149.8 scfm
Average Tunnel Flow: 148.3 scfm
Post-Test Leak Check (1): 0.000 cfm @ 7 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 9 in. Hg
Fuel Moisture (%): 5.966 Dry Basis 5.630 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.048	0.046	0.034	0.044	0.048	0.042	0.030	0.052	"H2O
Temp:	115	116	115	115	115	115	115	115	115	°F

V_{strav} 13.96 ft/sec V_{scent} 15.67 ft/sec F_p 0.891

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
294	47.509	47.629	0.16	0.16	1.35	79	2.02	1.06	79	1.20	90	0.050	99	99	1.8	-0.1	260	72	65	72	64	68	-0.023	1.82	0.036
295	47.670	47.790	0.16	0.16	1.35	79	2.01	1.06	79	1.20	90	0.050	99	99	1.8	0.0	259	72	65	72	64	68	-0.024	1.77	0.036
296	47.831	47.950	0.16	0.16	1.35	79	2.00	1.05	79	1.20	90	0.051	98	97	1.8	0.0	260	72	65	72	64	68	-0.023	1.89	0.031
297	47.992	48.111	0.16	0.16	1.35	79	2.01	1.06	79	1.20	90	0.052	97	97	1.8	0.0	260	72	65	72	64	68	-0.024	1.63	0.047
298	48.153	48.272	0.16	0.16	1.35	79	2.01	1.05	79	1.20	90	0.050	99	99	1.7	-0.1	258	72	65	72	65	68	-0.021	2.36	0.035
299	48.313	48.433	0.16	0.16	1.34	79	2.02	1.05	79	1.20	90	0.050	98	99	1.7	0.0	252	72	65	72	65	68	-0.022	0.71	0.104
300	48.474	48.593	0.16	0.16	1.34	79	2.02	1.06	79	1.20	90	0.051	98	97	1.7	0.0	256	72	65	72	65	68	-0.022	2.20	0.020
301	48.635	48.754	0.16	0.16	1.35	79	2.02	1.06	79	1.20	90	0.050	99	99	1.6	-0.1	256	72	65	72	65	68	-0.023	1.79	0.036
302	48.796	48.915	0.16	0.16	1.35	79	2.02	1.05	79	1.20	90	0.051	98	98	1.6	0.0	258	72	65	72	65	69	-0.023	2.27	0.035
303	48.957	49.076	0.16	0.16	1.34	79	2.01	1.05	80	1.20	90	0.049	100	99	1.6	0.0	258	72	65	72	65	69	-0.021	2.13	0.041
304	49.118	49.237	0.16	0.16	1.34	79	2.02	1.06	80	1.30	90	0.050	99	98	1.6	0.0	252	72	65	72	65	69	-0.022	1.26	0.052
305	49.279	49.398	0.16	0.16	1.34	79	2.01	1.06	80	1.30	90	0.051	98	97	1.6	0.0	257	72	65	72	65	68	-0.022	2.53	0.023
306	49.440	49.559	0.16	0.16	1.34	79	2.01	1.06	80	1.30	90	0.050	99	98	1.5	-0.1	254	72	65	72	65	68	-0.022	1.52	0.052
307	49.601	49.719	0.16	0.16	1.34	79	2.02	1.06	80	1.30	90	0.050	99	98	1.5	0.0	262	72	65	72	65	69	-0.024	2.59	0.031
308	49.761	49.880	0.16	0.16	1.34	79	2.01	1.06	80	1.20	90	0.051	97	97	1.5	0.0	263	72	65	72	65	69	-0.022	2.78	0.024
309	49.922	50.041	0.16	0.16	1.34	79	2.01	1.05	80	1.20	90	0.051	98	97	1.4	-0.1	260	72	65	72	65	69	-0.022	1.28	0.092
310	50.083	50.201	0.16	0.16	1.33	79	2.01	1.05	80	1.30	91	0.049	100	99	1.4	0.0	262	72	65	72	65	69	-0.023	2.05	0.040
311	50.243	50.361	0.16	0.16	1.34	79	2.02	1.05	80	1.30	91	0.049	99	99	1.4	0.0	264	72	65	72	65	68	-0.023	2.29	0.025
312	50.404	50.523	0.16	0.16	1.33	79	2.02	1.05	80	1.30	91	0.050	99	99	1.3	-0.1	258	72	65	72	65	68	-0.023	1.46	0.044
313	50.565	50.683	0.16	0.16	1.34	79	2.02	1.05	80	1.30	91	0.050	99	98	1.3	0.0	262	72	65	72	65	68	-0.024	2.01	0.039
314	50.726	50.844	0.16	0.16	1.34	79	2.02	1.06	80	1.20	91	0.050	99	98	1.3	0.0	262	72	65	72	65	69	-0.023	2.23	0.029
315	50.886	51.005	0.16	0.16	1.34	79	2.02	1.05	80	1.30	91	0.051	97	98	1.3	0.0	262	72	65	72	65	69	-0.022	1.92	0.043
316	51.047	51.165	0.16	0.16	1.34	79	2.01	1.05	80	1.30	91	0.050	99	98	1.2	-0.1	261	73	65	72	65	69	-0.021	2.07	0.033
317	51.208	51.326	0.16	0.16	1.34	79	2.02	1.05	80	1.30	91	0.050	99	98	1.2	0.0	256	73	65	72	65	68	-0.022	1.22	0.063
318	51.368	51.487	0.16	0.16	1.34	79	2.02	1.05	80	1.30	91	0.050	98	98	1.2	0.0	254	73	65	73	65	69	-0.022	1.20	0.068
319	51.529	51.647	0.16	0.16	1.33	79	2.02	1.05	80	1.30	91	0.050	99	98	1.2	0.0	253	73	65	73	65	69	-0.022	1.99	0.028
320	51.689	51.808	0.16	0.16	1.34	79	2.02	1.05	80	1.30	91	0.051	97	98	1.2	0.0	251	73	65	73	65	69	-0.020	1.86	0.045
321	51.850	51.968	0.16	0.16	1.33	79	2.02	1.05	80	1.30	91	0.050	99	98	1.1	-0.1	252	73	65	73	65	69	-0.022	1.70	0.062
322	52.010	52.129	0.16	0.16	1.34	79	2.02	1.05	80	1.30	91	0.050	98	98	1.1	0.0	250	73	65	73	65	69	-0.021	2.12	0.017
323	52.171	52.289	0.16	0.16	1.34	80	2.02	1.05	80	1.30	91	0.050	98	98	1.1	0.0	251	73	65	73	65	69	-0.021	1.48	0.055
324	52.332	52.450	0.16	0.16	1.34	80	2.02	1.05	80	1.30	91	0.050	98	98	1.0	-0.1	253	73	65	73	65	69	-0.021	2.16	0.020
325	52.493	52.611	0.16	0.16	1.34	80	2.03	1.05	80	1.30	91	0.051	97	98	1.0	0.0	249	73	65	73	65	69	-0.020	1.88	0.046
326	52.653	52.771	0.16	0.16	1.34	80	2.02	1.05	80	1.30	91	0.050	98	98	1.0	0.0	250	73	65	73	65	69	-0.021	1.84	0.048
327	52.814	52.931	0.16	0.16	1.34	80	2.02	1.05	80	1.30	91	0.051	97	97	1.0	0.0	248	73	65	73	65	69	-0.021	1.59	0.052
328	52.974	53.093	0.16	0.16	1.33	80	2.02	1.05	80	1.30	91	0.051	97	98	0.9	-0.1	251	73	65	73	65	69	-0.021	1.93	0.047
329	53.135	53.253	0.16	0.16	1.33	80	2.02	1.04	80	1.30	91	0.051	97	97	0.9	0.0	253	73	65	73	65	69	-0.022	2.27	0.024
330	53.296	53.412	0.16	0.16	1.34	80	2.02	1.05	80	1.30	91	0.050	98	97	0.9	0.0	251	73	65	73	65	69	-0.022	1.66	0.056
331	53.457	53.573	0.16	0.16	1.33	80	2.02	1.05	80	1.30	91	0.051	97	98	0.9	0.0	256	73	65	73	65	69	-0.024	2.33	0.042
332	53.617	53.734	0.16	0.16	1.33	80	2.03	1.05	80	1.30	91	0.051	97	98	0.8	-0.1	256	73	65	73	65	69	-0.022	1.92	0.048
333	53.778	53.894	0.16	0.16	1.34	80	2.02	1.05	81	1.30	91	0.050	98	98	0.8	0.0	248	73	65	73	65	69	-0.020	1.35	0.063
334	53.938	54.054	0.16	0.16	1.34	80	2.03	1.05	80	1.30	91	0.051	97	97	0.8	0.0	255	73	65	73	65	69	-0.023	2.07	0.060
335	54.099	54.215	0.16	0.16	1.33	80	2.03	1.05	80	1.30	91	0.049	99	99	0.7	-0.1	254	73	65	73	65	69	-0.022	1.97	0.026
336	54.259	54.375	0.16	0.16	1.33	80	2.03	1.05	81	1.30	91	0.051	97	97	0.7	0.0	259	73	65	73	65	69	-0.023	2.74	0.032
337	54.420	54.535	0.16	0.16	1.33	80	2.04	1.05	81	1.30	92	0.051	98	97	0.7	0.0	263	73	65	73	65	69	-0.025	1.85	0.075
338	54.580	54.696	0.16	0.16	1.33	80	2.03	1.05	81	1.30	92	0.050	98	98	0.7	0.0	263	73	65	73	65	69	-0.023	2.72	0.016
339	54.740	54.856	0.16	0.16	1.33	80	2.04	1.05	81	1.30	92	0.049	99	99	0.6	-0.1	269	73	65	73	65	69	-0.026	2.04	0.047
340	54.901	55.016	0.16	0.16	1.33	80	2.03	1.05	81	1.30	92	0.050	99	98	0.6	0.0	272	73	65	73	65	69	-0.024	3.26	0.018
341	55.062	55.177	0.16	0.16	1.33	80	2.03	1.05	81	1.30	93	0.051	98	98	0.5	-0.1	273	73	65	73	65	69	-0.027	2.07	0.052
342	55.222	55.337	0.16	0.16	1.33	80	2.03	1.05	81	1.30	93	0.051	97	97	0.5	0.0	280	73	65	73	65	69	-0.025	3.36	0.017

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: ECO CAB50/PS50
Tracking No.: 2328
Project No.: 0061PS085E
Test Date: 19-Nov-18
Beginning Clock Time: 10:21

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 0.986 (1) 0.985 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.17	30.14	30.12	30.14 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: 2.000 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
Intial Tunnel Flow: 149.8 scfm
Average Tunnel Flow: 148.3 scfm
Post-Test Leak Check (1): 0.000 cfm @ 7 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 9 in. Hg
Fuel Moisture (%): 5.966 Dry Basis 5.630 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.048	0.046	0.034	0.044	0.048	0.042	0.030	0.052	"H2O
Temp:	115	116	115	115	115	115	115	115	115	°F

V_{strav} 13.96 ft/sec V_{scent} 15.67 ft/sec F_p 0.891

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
343	55.382	55.497	0.16	0.16	1.33	80	2.03	1.05	81	1.30	93	0.051	97	97	0.5	0.0	275	73	65	73	65	70	-0.025	1.86	0.059
344	55.542	55.658	0.16	0.16	1.33	80	2.03	1.04	81	1.30	93	0.050	98	98	0.5	0.0	279	73	65	73	65	69	-0.026	2.95	0.030
345	55.703	55.818	0.16	0.16	1.33	80	2.03	1.05	81	1.30	93	0.051	98	97	0.4	-0.1	276	73	65	73	65	70	-0.025	1.59	0.069
346	55.863	55.978	0.16	0.16	1.34	80	2.04	1.05	81	1.30	94	0.051	97	97	0.4	0.0	276	73	65	73	65	70	-0.025	2.62	0.028
347	56.024	56.139	0.16	0.16	1.33	80	2.03	1.05	81	1.30	94	0.049	100	100	0.4	0.0	277	74	65	73	65	70	-0.025	2.26	0.026
348	56.184	56.300	0.16	0.16	1.33	80	2.03	1.05	81	1.30	94	0.050	98	99	0.3	-0.1	274	74	66	73	65	70	-0.024	1.81	0.047
349	56.345	56.460	0.16	0.16	1.34	80	2.04	1.05	81	1.30	94	0.049	100	99	0.3	0.0	270	74	66	74	65	70	-0.025	1.53	0.077
350	56.505	56.620	0.16	0.16	1.34	80	2.04	1.05	81	1.30	94	0.051	97	97	0.3	0.0	272	74	66	74	65	70	-0.025	2.48	0.027
351	56.666	56.781	0.16	0.16	1.34	80	2.04	1.05	81	1.30	94	0.050	99	99	0.2	-0.1	274	74	66	74	65	69	-0.025	2.42	0.022
352	56.827	56.941	0.16	0.16	1.33	80	2.03	1.05	81	1.30	94	0.050	99	98	0.2	0.0	271	74	66	74	65	70	-0.025	1.57	0.050
353	56.988	57.101	0.16	0.16	1.33	80	2.04	1.05	81	1.30	94	0.049	100	99	0.2	0.0	268	74	66	74	66	70	-0.024	2.25	0.025
354	57.150	57.265	0.16	0.16	1.33	80	2.04	1.05	81	1.30	94	0.050	99	100	0.2	0.0	269	74	66	74	65	70	-0.024	1.90	0.074
355	57.311	57.425	0.16	0.16	1.33	81	2.04	1.04	81	1.30	93	0.050	98	98	0.1	-0.1	268	74	66	74	66	70	-0.025	1.72	0.038
356	57.472	57.585	0.16	0.16	1.33	81	2.04	1.05	81	1.30	93	0.051	97	97	0.1	0.0	267	74	66	74	66	69	-0.023	2.29	0.027
357	57.632	57.746	0.16	0.16	1.33	81	2.03	1.05	81	1.30	93	0.051	97	98	0.1	0.0	265	74	66	74	66	70	-0.023	1.62	0.050
358	57.792	57.906	0.16	0.16	1.33	81	2.04	1.04	81	1.30	93	0.050	98	98	0.1	0.0	267	74	66	74	66	70	-0.023	2.07	0.037
359	57.952	58.066	0.16	0.16	1.33	81	2.04	1.05	81	1.30	93	0.051	97	97	0.0	-0.1	268	74	66	74	66	70	-0.024	2.58	0.018
360	58.113	58.226	0.16	0.16	1.32	81	2.04	1.05	81	1.30	93	0.050	98	98	0.0	0.0	271	74	66	74	66	70	-0.024	2.14	0.043
Avg/Tot	58.113	58.226	0.16	0.16	1.35	79	1.99	1.07	81	1.19	98	0.05	100	100			342	74	69	74	67	69	-0.033	3.74	0.032

Pellet Heater Lab Data - ASTM E2779 / ASTM E2515

Manufacturer:	Hearth & Home	Equipment Numbers:	
Model:	ECO CAB50/PS50		
Tracking No.:	2328		
Project No.:	0061PS085E		
Run #:	1	Technician Signature:	
Date:	11/19/18		

TRAIN 1 (First Hour emissions)

Sample Component	Reagent	Filter, Probe or Seal #	Mass Readings Tare, mg	Final, mg	Particulate, mg
A. Front filter catch	Filter	D616	121.0	124.3	3.3
B. Rear filter catch	Filter				0.0
C. Probe catch*	Probe				0.0
D. Filter seals catch*	Seals				0.0
				1st hour Sub-Total, mg:	3.3

TRAIN 1 (Remainder of Test)

Sample Component	Reagent	Filter, Probe or Seal #	Mass Readings Tare, mg	Final, mg	Particulate, mg
A. Front filter catch	Filter	D614	121.3	130.4	9.1
B. Rear filter catch	Filter	D617	120.9	120.9	0.0
C. Probe catch*	Probe	31	114367.6	114367.7	0.1
D. Filter seals catch*	Seals	R694	3335.2	3335.6	0.4
				Remainder Sub-Total, mg:	9.6
				Train 1 Aggregate, mg:	12.9

TRAIN 2

Sample Component	Reagent	Filter, Probe or Seal #	Mass Readings Tare, mg	Final, mg	Particulate, mg
A. Front filter catch	Filter	D613	121.2	133.4	12.2
B. Rear filter catch	Filter	D615	120.8	120.8	0.0
C. Probe catch*	Probe	30.0	114328.2	114328.3	0.1
D. Filter seals catch*	Seals	R693	3343.8	3344.0	0.2
				Train 2 Aggregate, mg:	12.5

AMBIENT

Sample Component	Reagent	Filter, Probe or Seal #	Mass Readings Tare, mg	Final, mg	Particulate, mg
A. Front filter catch*	Filter				0.0
				Ambient Aggregate, mg:	0.0

*Particulate catch that results in a negative number, is assumed to be zero for probes and seals, negative numbers for filters are assumed to be included in O-ring seal weights.

OMNI-Test Laboratories, Inc.

Pellet Heater Certification Run Sheets

Client: Hearth & Home Project Number: 0061PS085E Run Number: 1

Model: ECO CAB50/PS50 Tracking Number: 2328 Date: 11/19/18

Test Crew: Bruce Davis

OMNI Equipment ID numbers:

ASTM E2515 Sampling Information

Test Location: OMNI - Portland Clock Time @ ET=0: 10:21

Span Gas Concentrations: **CO_2(%):** 17.06 **CO(%):** 4.29 **CO(ppm):** 901

Test Run Validation Checks	Pre Test	Post Test
Zero Stack Gas Leakage	good	good
Zero Pitot Line Leakage	good	good
Zero Induced Draft	0.0"	
100% Smoke Capture	100%	

Test Run Validation Measurements	Pre Test		Post Test	
Scale Audit (lbs)	10.0			
CO_2 % (Zero/Span)	-0.01	17.06	-0.00	16.84
CO % (Zero/Span)	0.000	4.288	-0.051	4.195
CO ppm (Zero/Span)	0	900	-17	870
Sample A Leakage (cfm @"Hg)			0.0 @ 7	
Sample B Leakage (cfm @"Hg)			0.0 @ 9	
Room Air Velocity (ft/min)	<50		<50	
Barometric Pressure ("Hg)	30.17		30.12	
Relative Humidity (%)	28.6		24.0	
Tunnel Static ("H_2O)	-.21		-.21	

Last Cleaning Dates

Flue Pipe	11/19/18
Dilution Tunnel	11/16/18
Sample Dryers	11/16/18

Dilution Tunnel Traverse

Traverse Point	1	2	**Center**	3	4	5	6	7	8
Δp ("H_2O)	.040	.048	.052	.046	.034	.044	.048	.042	.030
T (°F)	115	116	115	115	115	115	115	115	115

Technician Signature: Date: 12/17/18

OMNI-Test Laboratories, Inc.

Pellet Heater Certification Run Sheets

Client: Hearth & Home Project Number: 0061PS085E Run Number: 1

Model: ECO CAB50/PS50 Tracking Number: 2328 Date: 11/19/18

Test Crew: Bruce Davis

OMNI Equipment ID numbers: 335, 336, 410, 592, 637, 132, 283A, 594, 559

ASTM E2779 Run Notes

Air Control Settings

High Burn Rate Target: 100%

Settings: Heat setting on High, "FRAP" (Feed Rate adjustment Plate) fully open. Control board trim setting 3

Medium Burn Rate Target: <50%

Settings: Heat setting at medium, FRAP fully closed. control board set to setting 2.

Low Burn Rate Target: Minimum

Settings:

Additional Settings Notes:

Pellet Moisture Content: 5.60

Pellet Specifications: Heat setting on Low, FRAP fully closed, control board on setting 2.

Pellet Analysis Notes:

Preburn Notes

Time	Notes
Ø	Test settings for maximum Burn.
60	Turned off logger and set up for Test

Test Notes

Time	Notes
60	Changed Front filter in train A, Adjusted Heat setting, FRAP, and control board setting for medium Burn.

Technician Signature: Date: 12/17/18

2.2 - Sample Analysis & Tares

Analysis Worksheets
Tared Filter, Probe, and O-Ring Data
Pellet Fuel Label
Pellet Fuel Analysis Report

OMNI-Test Laboratories, Inc.

Pellet Heater Certification Run Sheets

Client: Hearth & Home Project Number: 0061PS085E Run Number: 1

Model: ECO CAB50/PS50 Tracking Number: 2328 Date: 11/19/18

Test Crew: Bruce Davis

OMNI Equipment ID numbers: 637, 283A, 592

ASTM E2515 Lab Sheet

Assembled By:

B Davis

Date/Time in Desiccator:

11/19/18 1700

	Weighing #1	Weighing #2	Weighing #3	Weighing #4
	Date: 11/20/18	Date: 11/21/18	Date:	Date:
	Time: 1620	Time: 0800	Time:	Time:
	R/H %: 22.4	R/H %: 4.7	R/H %:	R/H %:
	Temp (F): 68.7	Temp (F): 64.2	Temp (F):	Temp (F):
	Audit 1: 200.1	Audit 1:	Audit 1:	Audit 1:
	Audit 2: 5000.0	Audit 2:	Audit 2:	Audit 2:
	Audit 3: 99997.9	Audit 3:	Audit 3:	Audit 3:
	Initials: BM	Initials:	Initials:	Initials:

Train	Item	ID #	Tare (mg)	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)
A	Front Filter (60 min)	D616	121.0	124.4	124.3	✓	
A	Front Filter (Remainder)	D614	121.3	130.4	130.4	✓	
A	Rear Filter	D617	120.9	121.0	120.9	✓	
A	Probe	31	114367.6	114367.9	114367.7	✓	
A	O-Ring Set	R694	3335.2	~~3335.7~~ 3344.1	3335.6	✓	
B	Front Filter	D613	121.2	133.5 ✓	133.4	✓	
B	Rear Filter	D615	120.8	120.8	120.8	✓	
B	Probe	30	114328.2	114328.5 ✓	114328.3	✓	
B	O-Ring Set	R693	3343.8	3344.1 ~~3335.7~~	3344.0	✓	
BG	Filter	N/A					

Technician Signature: B D

Date: 11/21/18

Tare Sheet: (check one) **Probes**_____ **47mm Filters** ✓ **100mm Filters**_____ **O-Ring Pair**_____

Prepared By: B Davis Balance ID #: Omni-00637 Thermohygrometer ID #: Omni-00592 Audit Weight ID #/Mass: Omni-00283 A / 200 mg

Placed in Dessicator: Date: 11/14/18 Time: 0800 ID #	Date: 11/15/18 Time: 1410 RH %: 20.6 T (°F): 68.4 Audit: 200.1	Date: 11/16/18 Time: 0923 RH %: 19.4 T (°F): 65.3 Audit: 200.0	Date: Time: RH %: T (°F): Audit:	Date: Time: RH %: T (°F): Audit:	Date Used	Project Number	Run No.
D613	121.1	121.2			11/19/18	0061PS085E	1
D614	121.1	121.3					
D615	120.8	120.8					
D616	120.9	121.0					
D617	120.9	120.9					
D618	120.5	120.5					
D619	121.4	121.6					
D620	121.3	121.5					
D621	122.2	122.4					
D622	121.5	121.6					
D623	121.4	121.4					
D624	121.2	121.3					
D625	121.3	121.5					
D626	121.4	121.3					
D627	122.2	122.2					
D628	121.5	121.5					
D629	120.4	120.4					
D630	121.1	121.1					
D631	121.4	121.3					
D632	120.7	120.5					
	Initials: BA	Initials: BA	Initials:	Initials:			

Final Technician Signature: _____ Date: 11/16/18 Evaluator signature: _____

Tare Sheet: (check one) **Probes** ✓ **47mm Filters**_____ **100mm Filters**_____ **O-Ring Pair**_____

Prepared By: BDavis Balance ID #: Omni-00637 Thermohygrometer ID #: Omni-00592 Audit Weight ID #/Mass: Omni-00283A / 100g

Placed in Dessicator: Date: _____ Time: _____ ID #	Date: 11-6-18 Time: 1000 RH %: 17.4 T (°F): 71.9 Audit: 99997.7	Date: 11/7/18 Time: 0940 RH %: 17.6 T (°F): 71.8 Audit: 99997.6	Date: 11/15/18 Time: 0843 RH %: 18.9 T (°F): 66 Audit: 99997.7	Date: _____ Time: _____ RH %: _____ T (°F): _____ Audit: _____	Date Used	Project Number	Run No.
21	114392.0	114391.8	✓				
22	114343.9	114343.8	✓				
23	114076.7	114076.8	✓				
24	114127.0	114126.6	114126.5	✓			
25	114298.5	114298.3	✓				
27	114273.3	114273.3	✓				
28	114750.4	114750.2	✓				
29	114278.1	114278.0	✓				
30	114328.0	114328.2	✓		11/19/18	0061PS085E	1
31	114367.8	114367.6	✓		↓	↓	↓
	Initials: BR	Initials: BL	Initials: BR	Initials:			

Final Technician Signature: _____ Date: 11/15/18

Evaluator signature: _____

Tare Sheet: (check one) **Probes** ✓ **47mm Filters**_____ **100mm Filters**_____ **O-Ring Pair**_____

Prepared By: MLindenburger Balance ID #: Omni-00637 Thermohygrometer ID #: Omni-00592 Audit Weight ID #/Mass: Omni-00283A / 5g

Placed in Dessicator: Date: 10/11/2018 Time: 4:30

ID #	Date: 11/6/18 Time: 0942 RH %: 14.4 T (°F): 71.9 Audit: 5000.0	Date: 11/7/18 Time: 0933 RH %: 17.6 T (°F): 71.8 Audit: 4999.9	Date: Time: RH %: T (°F): Audit:	Date: Time: RH %: T (°F): Audit:	Date Used	Project Number	Run No.
R685	3391.4	3391.6	✓				
R686	3384.6	3384.8	✓				
R687	4104.6	4104.7	✓				
R688	3324.4	3324.6	✓				
R689	3302.9	3302.7	✓				
R690	3321.3	3321.4	✓				
R691	4095.4	4095.3	✓				
R692	3306.6	3306.7	✓				
R693	3343.9	3343.8	✓		11/19/18	0061PS085E	1
R694	3335.2	3335.2	✓		↓	↓	↓
	Initials: BR	Initials: BR	Initials:	Initials:			

Final Technician Signature: _____ Date: 11/15/18

Evaluator signature: _____

Pellet Fuels Institute

PFI GRADED FUEL

PFI Densified Fuel Grade: Premium
Mill Registration # 16016

Grade Requirements:

Bulk Density:	40–48 lb/ft³
Diameter:	.230–.285 in/5.84–7.25 mm
Durability:	≥96.5
Fines:	≤0.50%
Ash Content (as received):	≤1%
Length:	≤1% >1.5 in.
Moisture:	≤8.0%
Chlorides:	≤300 ppm

Manufacturers Guaranteed Analysis:

Type of Material:	Hardwood
Additives:	<2% Vegetable Based Oil
Minimum Higher Heating Value (as received):	7900

Other Manufacturers Guarantees:

AUDITED BY

Twin Ports Testing, Inc.
1301 North 3rd Street
Superior, WI 54880
p: 715-392-7114
p: 800-373-2562
f: 715-392-7163
www.twinportstesting.com

Analytical Test Report

Report No: USR:W218-1106-01
Issue No: 1

Client: OMNI-TEST LABORATORIES INC.
13327 NE Airport Way
Portland, OR 97230
Attention: Finance Department

PO No: 180202

Signed: Katy Jahr
Katy Jahr
Chemistry Lab Supervisor
Date of Issue: 11/30/2018

Sample Details

Sample Log No:	W218-1106-01	**Sample Date:**	11/20/2018
Sample Designation:	Somerset Hardwood Pellets	**Sample Time:**	
Sample Recognized As:	Wood Pellets	**Arrival Date:**	11/26/2018

Test Results

	METHOD	UNITS	MOISTURE FREE	AS RECEIVED
Moisture Total	ASTM E871	wt. %		5.63
Ash	ASTM D1102	wt. %	0.35	0.33
Volatile Matter	ASTM D3175	wt. %		
Fixed Carbon by Difference	ASTM D3172	wt. %		
Sulfur	ASTM D4239	wt. %	0.041	0.039
SO_2	Calculated	lb/mmbtu		0.097
Net Cal. Value at Const. Pressure	ISO 1928	GJ/tonne	18.51	17.33
Net Cal. Value at Const. Pressure	ISO 1928	J/g	18509	17330
Gross Cal. Value at Const. Vol.	ASTM E711	J/g	19803	18689
Gross Cal. Value at Const. Vol.	ASTM E711	Btu/lb	8514	8035
Carbon	ASTM D5373	wt. %	49.53	46.74
Hydrogen*	ASTM D5373	wt. %	5.94	5.60
Nitrogen	ASTM D5373	wt. %	< 0.20	< 0.19
Oxygen*	ASTM D3176	wt. %	> 43.94	> 41.47
Chlorine	ASTM D6721	mg/kg		
Fluorine	ASTM D3761	mg/kg		
Mercury	ASTM D6722	mg/kg		
Bulk Density	ASTM E873	lbs/ft^3		
Fines (Less than 1/8")	TPT CH-P-06	wt.%		
Durability Index	Kansas State	PDI		
Sample Above 1.50"	TPT CH-P-06	wt.%		
Maximum Length (Single Pellet)	TPT CH-P-06	inch		
Diameter, Range	TPT CH-P-05	inch		to
Diameter, Average	TPT CH-P-05	inch		
Stated Bag Weight	TPT CH-P-01	lbs		
Actual Bag Weight	TPT CH-P-01	lbs		

*Note: As received values do not include hydrogen and oxygen in the total moisture.

Comments

Section 3
Laboratory Quality Assurance

3.1 - Quality Assurance/Quality Control

OMNI follows the guidelines of ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories," and the quality assurance/quality control (QA/QC) procedures found in *OMNI*'s Quality Assurance Manual.

OMNI's scope of accreditation includes, but is not limited to, the following:

- ANSI (American National Standards Institute) for certification of product to safety standards.
- To perform product safety testing by the International Accreditation Service, Inc. (formerly ICBO ES) under accreditation as a testing laboratory designated TL-130.
- To perform product safety testing as a "Certification Organization" by the Standards Council of Canada (SCC).
- Serving as a testing laboratory for the certification of wood heaters by the U.S. Environmental Protection Agency.

This report is issued within the scope of *OMNI*'s accreditation. Accreditation certificates are available upon request.

The manufacturing facilities and quality control system for the production of the ECO CAB50-C at Hearth & Home Technologies, LLC was evaluated to determine if sufficient to maintain conformance with OMNI's requirements for product certification. OMNI has concluded that the manufacturing facilities, processes, and quality control system are adequate to produce the appliance congruous with the standards and model codes to which it was evaluated.

3.2 - Calibration Data

Equipment for ASTM E2515, ASTM E2779, & EPA Method 28R

ID #	Lab Name/Purpose	Log Name	Attachment Type
132	10 lb Weight	Weight Standard, 10 lb.	Calibration Certificate
283A	Audit Weights	Troemner 21pc Msas Set	Calibration Certificate
335	Sample Box / Dry Gas Meter	Apex Automated Emissions Sampling Box	Calibration Log
336	Sample Box / Dry Gas Meter	Apex Automated Emissions Sampling Box	Calibration Log
410	Microtector	Dwyer Microtector	Calibration Certificate
594	Combustion Gas Analyzer	CAI Gas Analyzer	See Run Sheet
559	Vaneometer	Dwyer Vaneometer	Equipment Record
592	Thermohygrometer	Omega Digital Thermohygrometer	Calibration Log
637	Milligram Balance	Analytical Balance - Mettler - Toledo	Calibration Certificate
650	Barometer/Hygrometer	Digital Barometer	Calibration Certificate

SCALE WEIGHT CALIBRATION DATA SHEET

Weight to be calibrated: 10 pounds

ID Number: OMNI-00132

Standard Calibration Weight: 10 pounds

ID Number: OMNI-00255

Scale Used: MTW-150K

ID Number: OMNI-00353

Date: 2/23/2018 By: B. Davis

Standard Weight (A) (Lb.)	Weight Verified (B) (Lb.)	Difference (A - B)	% Error
10.0	10.0	0.0	0

*Acceptable tolerance is 1%.

This calibration is traceable to NIST using calibrated standard weights.

Technician signature: _____ Date: 2/23/18

Certificate of Calibration

Certificate Number: **685888**

JJ Calibrations, Inc.
7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

0723.01
Calibration

PO: **180188**
Order Date: 10/09/2018
Authorized By: **N/A**

Property #: OMNI-00283A
User: N/A
Department: N/A
Make: Troemner Inc
Model: 1mg-100g (Class F)
Serial #: 47883
Description: Mass Set, 21pc
Procedure: DCN 500901
Accuracy: Class F

Calibrated on: 10/26/2018
*Recommended Due: 10/26/2023
Environment: **20** °C **57** % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: **139**

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.

This set meets Class F specifications.
Received and returned eight (8) masses in a black case secured by a rubber band.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
723A	Rice Lake	1mg-200g (Class 0)	Mass Set,	03/23/2019	668240
800A	Sartorius	MSA225W100DI	Analytical Balance	12/11/2018	663857

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	[k]Error	UUT	Uncertainty
Before/After							Accredited = ✓
Mass							
Dot	200 mg	200.00030	199.4603	200.5403	0.0500	200.0503 mg	6.2E-01 ✓
	1 g	1.00000880	0.9991088	1.0009088	0.0000000	1.0000088 g	1E-03 ✓
	2 g	2.00001470	1.9989147	2.0011147	0.0003250	2.0003397 g	1.3E-03 ✓
	5 g	5.00000840	4.9985084	5.0015084	0.0000400	4.9999684 g	1.7E-03 ✓
	10 g	10.0000100	9.998010	10.002010	0.000245	9.999765 g	2.3E-03 ✓
Dot	20 g	20.0000140	19.996014	20.004014	0.000990	20.001004 g	4.6E-03 ✓
	50 g	49.9999660	49.989966	50.009966	0.000595	49.999371 g	1.1E-02 ✓
	100 g	100.000000	99.98000	100.02000	0.00194	99.99806 g	2.3E-02 ✓

Reviewer

3 Issued 10/29/2018 Rev # 15

Inspector

Thermal Metering System Calibration
Y Factor

Manufacturer:	APEX
Model:	XC-60-EP
Serial Number:	606001
OMNI Tracking No.:	OMNI-00335
Calibrated Orifice:	[redacted]

Previous Calibration Comparision

Date	1/17/2018	Acceptable Deviation (5%)	Deviation
y Factor	0.977	0.04885	0.009
Acceptance	Acceptable		

Current Calibration

Acceptable y Deviation	0.020
Maximum y Deviation	0.008
Acceptable dH@ Deviation	N/A
Maximum dH@ Deviation	N/A
Acceptance	Acceptable

Average Gas Meter y Factor	Orifice Meter dH@
0.986	N/A

Calibration Date:	07/17/18	
Calibrated by:	B. Davis	
Calibration Frequency:	Six months	
Next Calibration Due:	1/17/2019	
Instrument Range:	1.000	cfm
Standard Temp.:	68	oF
Standard Press.:	29.92	"Hg
Barometric Press., Pb:	30.12	"Hg
Signature/Date:	[signature]	7/18/2018

Reference Standard *			
Standard Calibrator	Model	Standard Test Meter	
	S/N	OMNI-00001	
	Calib. Date	30-Oct-17	
	Calib. Value	0.9977	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Reference Meter Pressure ("H2O), Pr	0.00	0.00	0.00
DGM Pressure ("H2O), Pd	2.00	1.38	1.00
Initial Reference Meter	609.1	615.5	620.8
Final Reference Meter	615.4	620.7	626.7
Initial DGM	0	0	0
Final DGM	6.292	5.245	5.995
Temp. Ref. Meter (°F), Tr	92.0	93.0	91.0
Temperature DGM (°F), Td	92.0	93.0	91.0
Time (min)			
Net Volume Ref. Meter, Vr	6.300	5.200	5.900
Net Volume DGM, Vd	6.292	5.245	5.995
Gas Meter y Factor =	**0.994**	**0.986**	**0.979**
Gas Meter y Factor Deviation (from avg.)	0.008	0.001	0.007
Orifice dH@	**N/A**	**N/A**	**N/A**
Orifice dH@ Deviation (from avg.)	N/A	N/A	N/A

where:

1. Deviation = |Average value for all runs - current run value|

** 2. y = [Vr x (y factor (ref)) x (Pb + (Pr/ 13.6)) x (Td + 460)]/ [Vd x (Pb + (Pd / 13.6)) x (Tr + 460)]

** 3. dH@ = 0.0317 x Pd / (Pb (Td + 460)) x [(Tr + 460) x time) / Vr]^2

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272, or NIST traceable laboratory

** Equations come from EPA Method 5

The uncertainty of measurement is ±0.14 ft^3/min. This is based on the reference standard having a TAR (Test Accuracy Ratio) of at least 4:1.

DIFFERENTIAL PRESSURE GAUGE CALIBRATION DATA SHEET

Instrument to be calibrated: Pressure Transducer

Maximum Range: 0-2" WC ID Number: OMNI-00335

Calibration Instrument: Digital Manometer ID Number: OMNI-00395

Date: 7/18/2018 By: B. Davis

This form is to be used only in conjunction with Standard Procedure C-SPC.

Range of Calibration Point ("WC)	Digital Manometer Input ("WC)	Pressure Gauge Response ("WC)	Difference (Input - Response)	% Error of Full Span*
0-20% Max. Range 0 - 0.4	0.183	0.183	0.0	0.0
20-40% Max. Range 0.4 - 0.8	0.705	0.704	0.001	0.05
40-60% Max. Range 0.8 – 1.2	1.019	1.016	0.003	0.15
60-80% Max. Range 1.2 – 1.6	1.394	1.391	0.003	0.15
80-100% Max. Range 1.6 – 2.0	1.980	1.978	0.002	0.10

*Acceptable tolerance is 4%.

The uncertainty of measurement is ±0.4" WC. This is based on the reference standard having a TAR (Test Accuracy Ratio) of at least 4:1.

Technician signature: _____ Date: 7/18/18

Reviewed by: _____ Date: 7/20/18

Temperature Calibration
EPA Method 28R, ASTM 2515

Booth:	Temperature Monitor Type:	Equipment Number:
Mobile	National Instruments Logger	00335, 00336

Reference Meter Equipment Number: 00373	Calibration Due Date: 8/02/17

Calibration Performed By:	Date:	Ambient Temperature:	Barometric Pressure:
B. Davis	7/17/18	76	30.12

Input Temperature (F)	Ambient	Meter A	Meter B	Filter A	Filter B	Tunnel	FB Interior
0	0	1	1	1	1	0	0
100	100	101	101	100	100	100	100
300	300	300	300	300	300	300	300
500	500	501	500	500	500	500	500
700	700	700	700	700	700	700	700
1000	1000	1001	1000	1000	1000	1000	1000

Input (F)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Imp A	Imp B	Cat	Stack
0	0	0	0	0	0	1	1	1	0
100	100	100	100	100	100	101	101	101	100
300	300	300	300	300	300	300	300	300	300
500	500	500	500	500	500	500	500	500	500
700	700	700	700	700	700	700	700	700	700
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

1500
2000

1500
2000

Technician signature: _____ Date: 7/17/18

Reviewed By: _____ Date: 7/20/18

Thermal Metering System Calibration
Y Factor

Manufacturer:	APEX
Model:	XC-60-EP
Serial Number:	606002
OMNI Tracking No.:	OMNI-00336
Calibrated Orifice:	[redacted]

Previous Calibration Comparision

Date	1/17/2018	Acceptable Deviation (5%)	Deviation
y Factor	0.979	0.04895	0.006
Acceptance	Acceptable		

Current Calibration

Acceptable y Deviation	0.020
Maximum y Deviation	0.003
Acceptable dH@ Deviation	N/A
Maximum dH@ Deviation	N/A
Acceptance	Acceptable

Average Gas Meter y Factor	Orifice Meter dH@
0.985	N/A

Calibration Date:	07/17/18	
Calibrated by:	B. Davis	
Calibration Frequency:	Six months	
Next Calibration Due:	1/17/2019	
Instrument Range:	1.000	cfm
Standard Temp.:	68	oF
Standard Press.:	29.92	"Hg
Barometric Press., Pb:	30.12	"Hg
Signature/Date:		1/17/2018

Reference Standard *			
Standard Calibrator	Model	Standard Test Meter	
	S/N	OMNI-00001	
	Calib. Date	30-Oct-17	
	Calib. Value	0.9977	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Reference Meter Pressure ("H2O), Pr	0.00	0.00	0.00
DGM Pressure ("H2O), Pd	1.91	1.20	0.80
Initial Reference Meter	572.4	577.5	582.9
Final Reference Meter	577.4	582.604	588.1
Initial DGM	0	0	0
Final DGM	5.061	5.245	5.34
Temp. Ref. Meter (°F), Tr	86.0	86.0	78.0
Temperature DGM (°F), Td	90.0	95.0	86.0
Time (min)	23.5	30.0	37.8
Net Volume Ref. Meter, Vr	5.000	5.104	5.200
Net Volume DGM, Vd	5.061	5.245	5.34
Gas Meter y Factor =	**0.988**	**0.984**	**0.984**
Gas Meter y Factor Deviation (from avg.)	0.003	0.001	0.001
Orifice dH@	**N/A**	**N/A**	**N/A**
Orifice dH@ Deviation (from avg.)	N/A	N/A	N/A

where:

1. Deviation = |Average value for all runs - current run value|
** 2. y = [Vr x (y factor (ref)) x (Pb + (Pr/ 13.6)) x (Td + 460)]/ [Vd x (Pb + (Pd / 13.6)) x (Tr + 460)]
** 3. dH@ = 0.0317 x Pd / (Pb (Td + 460)) x [(Tr + 460) x time) / Vr]^2

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272, or NIST traceable laboratory

** Equations come from EPA Method 5

The uncertainty of measurement is ±0.14 ft^3/min. This is based on the reference standard having a TAR (Test Accuracy Ratio) of at least 4:1.

DIFFERENTIAL PRESSURE GAUGE CALIBRATION DATA SHEET

Instrument to be calibrated: Pressure Transducer

Maximum Range: 0-2" WC ID Number: OMNI-00336

Calibration Instrument: Digital Manometer ID Number: OMNI-00395

Date: 7/18/18 By: B. Davis

This form is to be used only in conjunction with Standard Procedure C-SPC.

Range of Calibration Point ("WC)	Digital Manometer Input ("WC)	Pressure Gauge Response ("WC)	Difference (Input - Response)	% Error of Full Span*
0-20% Max. Range 0 - 0.4	0.045	0.041	0.003	0.20
20-40% Max. Range 0.4 - 0.8	0.446	0.447	0.001	0.05
40-60% Max. Range 0.8 – 1.2	0.900	0.901	0.001	0.05
60-80% Max. Range 1.2 – 1.6	1.589	1.592	0.003	0.20
80-100% Max. Range 1.6 – 2.0	1.902	1.908	0.006	0.30

*Acceptable tolerance is 4%.

The uncertainty of measurement is ±0.4" WC. This is based on the reference standard having a TAR (Test Accuracy Ratio) of at least 4:1.

Technician signature: _____ Date: 7/18/18

Reviewed by: _____ Date: 7/20/18

Temperature Calibration
EPA Method 28R, ASTM 2515

Booth:	Temperature Monitor Type:	Equipment Number:
Mobile	National Instruments Logger	00335, 00336

Reference Meter Equipment Number: 00373	Calibration Due Date: 8/02/17

Calibration Performed By:	Date:	Ambient Temperature:	Barometric Pressure:
B. Davis	7/17/18	76	30.12

Input Temperature (F)	Ambient	Meter A	Meter B	Filter A	Filter B	Tunnel	FB Interior
0	0	1	1	1	1	0	0
100	100	101	101	100	100	100	100
300	300	300	300	300	300	300	300
500	500	501	500	500	500	500	500
700	700	700	700	700	700	700	700
1000	1000	1001	1000	1000	1000	1000	1000

Input (F)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Imp A	Imp B	Cat	Stack
0	0	0	0	0	0	1	1	1	0
100	100	100	100	100	100	101	101	101	100
300	300	300	300	300	300	300	300	300	300
500	500	500	500	500	500	500	500	500	500
700	700	700	700	700	700	700	700	700	700
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

1500
2000

1500
2000

Technician signature: _____ Date: 7/17/18

Reviewed By: _____ Date: 7/20/18

Certificate of Calibration

Certificate Number: **686722**

JJ Calibrations, Inc.
7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

ACCREDITED
0723.01
Calibration

PO: **180192**
Order Date: 10/22/2018
Authorized By: **N/A**

Property #: OMNI-00410
User: N/A
Department: N/A
Make: Dwyer
Model: 1430
Serial #: OMNI-00410
Description: Microtector
Procedure: DCN 500908
Accuracy: ±0.00025" WC

Calibrated on: 10/30/2018
*Recommended Due: 10/30/2019
Environment: 22 °C 44 % RH
* As Received: Limited
* As Returned: Limited
Action Taken: Calibrated
Technician: **111**

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.

Previous limitation of micrometer head calibrated only continued. .001" reading micrometer head ±.001" (LSD) tolerance applied.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
541A	Select	E8FED2	Gage Block Set, 8pc	12/18/2018	663864

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	*Error	UUT	Uncertainty Accredited = ✓
Before/After							
Length							
	Inch	0.1300	0.129	0.131	0.001	0.129 Inch	1.1E-03 ✓
	Inch	0.3850	0.384	0.386	0.001	0.384 Inch	1.1E-03 ✓
	Inch	0.6150	0.614	0.616	0.001	0.614 Inch	1.1E-03 ✓
	Inch	0.8700	0.869	0.871	0.001	0.869 Inch	1.1E-03 ✓
	Inch	1.0000	0.999	1.001	0.001	0.999 Inch	1.1E-03 ✓

JJ Calibrations, Inc. certifies that this instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual with the stated procedure using standards that are traceable to the National Institute of Standards and Technology (NIST), or other National Measurement Institutes (NMI's), or by using natural physical constants, intrinsic standards or ratio calibration techniques. The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2005, 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 otherwise stated, a test accuracy ratio (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 prior written consent of JJ Calibrations, Inc.
JJ Calibrations, Inc. quality system has been assessed and accredited to ISO/IEC 17025:2005.

Reviewer

3 Issued 10/31/2018 Rev # 15

Inspector

ZRE

NDIR/O_2

USER'S MANUAL

1312 West Grove Avenue
Orange, CA 92865-4134
Phone: 714-974-5560 Fax: 714-921-2531
www.gasanalyzers.com

Calibration Service Record			
Date	**By**	**Results**	**Date of next Calibration**
7/12/2018	B. Davis	Installed a new Vane as per manufacturer's instructions.	1/12/2019

VWR Temperature Hygrometer Calibration Procedure and Data Sheet

Frequency: Every Two Years

Step 1: Locate NIST traceable standard.

Step 2: Place unit to be calibrated, tracking No. OMNI- 00592 , inside OMNI desiccate box on the same shelf with the NIST traceable standard.

Step 3: After a period of not less than four hours record the temperature and humidity of both units in the spaces provide below.

Step 4: If the unit to be calibrated matches the NIST standard within ± 4%, it is acceptable. If not, the unit needs to be sent to a repair company or replaced.

Verification Data:

Date: 1/8/2018 Technician: B Davis

Time in desiccate: 0910 Recording time: 1335

NIST Standard Temperature: 28.3 °F NIST Standard Humidity: 74.5

Test Unit Temperature Reading: 25.4 °F Test Unit Humidity Reading: 74.3

Test unit OMNI- 00592 is X or was not ___ within acceptable limits.

Technician Signature: [signature]

Comments: Full scale of OMNI-00592 is 90% RH, with a difference of 2.9 this gives a error percentage of 3.22 %. This value is within the allowable 4%.

Certificate of Calibration

Certificate Number: **681844**

JJ Calibrations, Inc.
7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

OnSite

0723.01
Calibration

PO: **180176**
Order Date: **08/07/2018**
Authorized By: **N/A**

Property #: **OMNI-00637**
User: **N/A**
Department: **N/A**
Make: **Mettler Toledo**
Model: **MS104TS/00**
Serial #: **B729400181**
Description: **Analytical Scale, 120g**
Procedure: **DCN 500887**
Accuracy: **±0.0005g**

Calibrated on: **08/07/2018**
*Recommended Due: **02/07/2019**
Environment: **22** °C **38** % RH
* As Received: **Out of Tolerance**
* As Returned: **Within Tolerance**
Action Taken: **Adjusted**
Technician: **111**

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.

Balance went into over range at max capacity. Adjusted balance to bring all points back into tolerance.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
256A	Rice Lake	W0133K	Mass Set,	05/30/2019	660578

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	%Error	UUT	Uncertainty
Before							Accredited = ✓
Force							
	g	10.00000	9.9995	10.0005	0.0004	10.0004 g	5.7E-04 ✓
	g	30.00000	29.9995	30.0005	0.0004	30.0004 g	5.7E-04 ✓
	g	60.00000	59.9995	60.0005	0.0004	60.0004 g	5.7E-04 ✓
	g	90.00000	89.9995	90.0005	0.0005	90.0005 g	5.7E-04 ✓
	g	120.00000	119.9995	120.0005	120.0000	0.0000 g	5.7E-04 ✓
After		Reference	Min	Max	%Error		Accredited = ✓
	g	10.00000	9.9995	10.0005	0.0000	10.0000 g	5.7E-04 ✓
	g	30.00000	29.9995	30.0005	0.0001	29.9999 g	5.7E-04 ✓
	g	60.00000	59.9995	60.0005	0.0001	60.0001 g	5.7E-04 ✓
	g	90.00000	89.9995	90.0005	0.0002	89.9998 g	5.7E-04 ✓
	g	120.00000	119.9995	120.0005	0.0002	119.9998 g	5.7E-04 ✓

Reviewer

3 Issued 08/09/2018 Rev # 15

Inspector

ACCREDITED
A2LA Certificate No. 1750.01
Calibration

Calibration complies with ISO/IEC 17025, ANSI/NCSL Z540-1, and 9001

Cert. No.: 6530-9263396

Traceable® Certificate of Calibration for Digital Barometer

Manufactured for and distributed by : Control Company "Drawer 58307,Houston,TX,77258,USA"

Instrument Identification:

Model: 6530, S/N: 181062211 Manufacturer: Control Company

Standards/Equipment:

Description	Serial Number	Due Date	NIST Traceable Reference
Digital Barometer	D4540001	09 Oct 2018	1000415948
Digital Thermometer	130070752	02 Mar 2018	4000-8360837
Chilled Mirror Hygrometer	44654/2H3737	02 Nov 2019	15478
Climate Chamber	W613.0046		

Certificate Information:

Technician: 57 Procedure: CAL-31 Cal Date: 26 Feb 2018 Cal Due Date: 26 Feb 2020

Test Conditions: 54.9%RH 22.83°C 1023mBar

Calibration Data: (New Instrument)

Unit(s)	Nominal	As Found	In Tol	Nominal	As Left	In Tol	Min	Max	±U	TUR
%RH	N.A.	N.A.		51.21	52	Y	49	55	0.74	>4:1
°C	N.A.	N.A.		24.55	24.3	Y	24.15	24.96	0.051	>4:1
mb/hPa	N.A.	N.A.		1010.30	1010	Y	1007	1015	0.62	>4:1
mb/hPa	N.A.	N.A.		806.75	806	Y	803	811	0.62	>4:1
mb/hPa	N.A.	N.A.		908.50	908	Y	905	913	0.62	>4:1

This certificate indicates Traceability to standards provided by (NIST) National Institute of Standards and Technology and/or a National Standards Laboratory.

A Test Uncertainty Ratio of at least 4:1 is maintained unless otherwise stated and is calculated using the expanded measurement uncertainty. Uncertainty evaluation includes the instrument under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement : (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level. In tolerance conditions are based on test results falling within specified limits with no reduction by the uncertainty of the measurement. The results contained herein relate only to the item calibrated. This certificate shall not be reproduced except in full, without written approval of Control Company.

Nominal=Standard's Reading; As Left=Instrument's Reading; In Tol=In Tolerance; Min/Max=Acceptance Range; ± U=Expanded Measurement Uncertainty; TUR=Test Uncertainty Ratio; Accuracy=±(Max-Min)/2; Min=As Left Nominal(Rounded) – Tolerance; Max= As Left Nominal(Rounded) + Tolerance;

Nicol Rodriguez, Quality Manager

Aaron Judice, Technical Manager

Maintaining Accuracy:

In our opinion once calibrated your Digital Barometer should maintain its accuracy. There is no exact way to determine how long calibration will be maintained. Digital Barometer change little, if any at all, but can be affected by aging, temperature, shock, and contamination.

Recalibration:

For factory calibration and re-certification traceable to National Institute of Standards and Technology contact Control Company.

CONTROL COMPANY 12554 Galveston RD Suite B230 Webster TX USA 77598
Phone 281 482-1714 Fax 281 482-9448 sales@control3.com www.control3.com

3.3 - Example Calculations

Equations and Sample Calculations – ASTM E2779 & E2515

Manufacturer:	Hearth & Home
Model:	ECO CAB50/PS50
Run:	1
Category:	Integrated

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_{Bdb} – Weight of test fuel burned during test run, dry basis, kg

M_{BSidb} – Weight of test fuel burned during test run segment *i* , dry basis, kg

BR – Average dry burn rate over full integrated test run, kg/hr

BR_{Si} – Average dry burn rate over test run segment *i* , 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 standard conditions, g/dscf

E_T – Total Particulate Emissions, g

PR - Proportional Rate Variation

PM_R – Average particulate emissions for full integrated test run, g/hr

PM_F – Average particulate emission factor for full integrated test run, g/dry kg of fuel burned

Equations and Sample Calculations – ASTM E2779 & E2515

M_{Bdb} – Weight of test fuel burned during test run, dry basis, kg

ASTM E2779 equation (1)

$$M_{Bdb} = (M_{Swb} - M_{Ewb})(100/(100 + FM))$$

Where,

FM	=	average fuel moisture of test fuel, % dry basis
M_{Swb}	=	weight of test fuel in hopper at start of test run, wet basis, kg
M_{Ewb}	=	weight of test fuel in hopper at end of test run, wet basis, kg

Sample Calculation:

	5.63	%
M_{Swb} =	17.0	lbs
M_{Ewb} =	0.0	lbs
0.4536 =	Converstion factor from lbs to kg	

M_{Bdb} = [(17.0 x 0.4536) - (0.0 x 0.4536)] (100/(100 + 5.63)

M_{Bdb} = **7.3** kg

Equations and Sample Calculations – ASTM E2779 & E2515

M_{BSidb} – Weight of test fuel burned during test run segment *i* , dry basis, kg

ASTM E2779 equation (2)

$$M_{BSidb} = (MS_{Siwb} - M_{ESiwb})(100/(100 + FM))$$

Where,

M_{SSiwb} = weight of test fuel in hopper at start of test run segment *i* , wet basis, kg

M_{ESiwb} = weight of test fuel in hopper at end of test run segment *i* , wet basis, kg

Sample Calculation (from medium burn rate segment):

FM = 5.63 %

M_{SSiwb} = 10.8 lbs

M_{ESiwb} = 4.9 lbs

0.4536 = Converstion factor from lbs to kg

M_{BSidb} = [(10.8 x 0.4536) - (4.9 x 0.4536)] (100/(100 + 6)

M_{BSidb} = **2.5** kg

Equations and Sample Calculations – ASTM E2779 & E2515

BR - Average dry burn rate over full integrated test run, kg/hr

ASTM E2779 equation (3)

$$BR = \frac{60\ M_{Bdb}}{\theta}$$

Where,

θ = Total length of full intergrated test run, min

Sample Calculation:

M_{Bdb} = 7.30 kg

θ = 360 min

$$BR = \frac{60 \times 7.3}{360}$$

BR = **1.22** kg/hr

Equations and Sample Calculations – ASTM E2779 & E2515

BR_{Si} – Average dry burn rate over test run segment *i* , kg/hr

ASTM E2779 equation (4)

$$BR_{Si} = \frac{60\ M_{BSidb}}{\theta_{Si}}$$

Where,

θ_{Si} = Total length of test run segment *i* , min

Sample Calculation (from medium burn rate segment):

M_{BSidb} = 2.53 kg

θ = 120 min

$$BR = \frac{60 \times 2.53}{120}$$

BR = **1.27** kg/hr

Equations and Sample Calculations – ASTM E2779 & E2515

V_s - Average gas velocity in the dilution tunnel, ft/sec

ASTM E2515 equations (9)

$$V_s = F_p \times K_p \times C_P \times \left(\sqrt{\Delta P}\right)_{avg} \times \sqrt{\frac{T_s}{P_s \times M_s}}$$

Where:

F_p = djustment factor for center of tunnel pitot tube placement, Fp $= \frac{V_{strav}}{V_{scent}}$, ASTM E2515 Equation (1)

V_{scent} = Dilution tunnel velocity calculated after the multi-point pitot traverse at the center, ft/sec

V_{strav} = Dilution tunnel velocity calculated after the multi-point pitot traverse, ft/sec

k_p = Pitot tube constant, 85.49

C_p = Pitot tube coefficient: 0.99, unitless

ΔP* = Velocity pressure in the dilution tunnel, in H_2O

T_s = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)

P_s = Absolute average gas static pressure in diltuion tunnel, = P_{bar} + P_g , in Hg

P_{bar} = Barometric pressure at test site, in. Hg

P_g = Static pressure of tunnel, in. H_20; (in Hg = in H_20/13.6)

M_s = **The dilution tunnel wet molecular weight; M_s = 28.78 assuming a dry weight of 29 lb/lb-mole

Sample calculation:

$$Fp = \frac{13.96}{15.67} = 0.891$$

$$V_s = 0.891 \times 85.49 \times 0.99 \times 0.222 \times \left(\frac{98.4 + 460}{\left(30.14 + \frac{2.00}{13.6} \right) \times 28.78} \right)^{1/2}$$

V_s = **13.42** 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 Ms as the dry molecular weight. It should be the wet molecular weight as indicated in EPA Method 2.

Equations and Sample Calculations – ASTM E2779 & E2515

Q_{sd} - Average gas flow rate in dilution tunnel, dscf/hr

ASTM E2515 equation (3)

$$Q_{sd} = 3600 \times (1 - B_{ws}) \times v_s \times A \times \frac{T_{std}}{T_s} \times \frac{P_s}{P_{std}}$$

Where:

3600	=	Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
B_{ws}	=	Water vapor in gas stream, proportion by volume; assume 2%
A	=	Cross sectional area of dilution tunnel, ft^2
T_{std}	=	Standard absolute temperature, 528 °R
P_s	=	Absolute average gas static pressure in diltuion tunnel, = P_{bar} + P_g , in Hg
T_s	=	Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std}	=	Standard absolute pressure, 29.92 in Hg

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.02) \times 13.42 \times 0.1963 \times \frac{528}{98.4 + 460} \times \frac{30.14 + \frac{2.00}{13.6}}{29.92}$$

Q_{sd} = **8900.5** dscf/hr

Equations and Sample Calculations – ASTM E2779 & E2515

$V_{m(std)}$ – Volume of Gas Sampled Corrected to Dry Standard Conditions, dscf

ASTM E2515 equation (6)

$$V_{m(std)} = K_1 \times V_m \times Y \times \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

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
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Using equation for Train 1:

$$V_{m(std)} = 17.64 \times 58.113 \times 0.986 \times \frac{\left(30.14 + \frac{1.35}{13.6}\right)}{(79.5 + 460)}$$

$V_{m(std)}$ = **56.661** dscf

Using equation for Train 2:

$$V_{m(std)} = 17.64 \times 58.226 \times 0.985 \times \frac{\left(30.14 + \frac{1.07}{13.6}\right)}{(80.7 + 460)}$$

$V_{m(std)}$ = **56.549** dscf

Using equation for ambient train:

$$V_{m(std)} = 17.64 \times 0.00 \times 0 \times \frac{\left(\underline{30.14} + \frac{0.00}{13.6}\right)}{(69.4 + 460)}$$

$V_{m(std)}$ = **0.000** dscf

Equations and Sample Calculations – ASTM E2779 & E2515

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 1 (first hour):

m_n = 0.0 + 3.3 + 0.0

m_n = 3.3 mg

Using equation for Train 1 (remainder):

m_n = 0.1 + 9.1 + 0.4

m_n = 9.6 mg

Train 1 Aggregate = **12.9** mg

Using equation for Train 2:

m_n = 0.1 + 12.2 + 0.2

m_n = **12.5** mg

Equations and Sample Calculations – ASTM E2779 & E2515

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions, g/dscf

ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(std)}}$$

Where:

K_2	=	Constant, 0.001 g/mg
m_n	=	Total mass of particulate matter collected in the sampling train, mg
$V_{m(std)}$	=	Volume of gas sampled corrected to dry standard conditions, dscf

Sample calculation:

For Train 1:

$$C_s = 0.001 \times \frac{12.9}{56.66}$$

$C_s =$ **2.28E-04** g/dscf

For Train 2

$$C_s = 0.001 \times \frac{12.5}{56.55}$$

$C_s =$ **2.21E-04** g/dscf

For Ambient Train

$$C_r = 0.001 \times \frac{0.0}{0.00}$$

$C_r =$ **0.000000** g/dscf

Equations and Sample Calculations – ASTM E2779 & E2515

E_T – Total Particulate Emissions, g

ASTM E2515 equation (15)

$$E_T = \left(c_s - c_r\right) \times Q_{std} \times \theta$$

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
θ	=	Total time of test run, minutes

Sample calculation:

For Train 1

E_T = (0.000228 - 0.000000) x 8900.5 x 360 /60

E_T = 12.16 g

For Train 2

E_T = (0.000221 - 0.000000) x 8900.5 x 360 /60

E_T = 11.80 g

Average

E = 11.98 g

Total emission values shall not differ by more than 7.5% from the total average emissions

7.5% of the average =	0.90
Train 1 difference =	0.18
Train 2 difference =	0.18

Equations and Sample Calculations – ASTM E2779 & E2515

PR - Proportional Rate Variation

ASTM E2515 equation (16)

$$PR = \left[\frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s} \right] \times 100$$

Where:

θ = Total sampling time, min

θ_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, ^oR

T_m = Absolute average dry gas meter temperature, ^oR

T_{si} = Absolute average gas temperature in the dilution tunnel during the "ith" time interval, ^oR

T_s = Absolute average gas temperature in the dilution tunnel, ^oR

Sample calculation (for the first 1 minute interval of Train 1):

$$PR = \left(\frac{360 \times 0.156 \times 13.42 \times (115.0 + 460) \times (79.5 + 460)}{1 \times 58.113 \times 13.55 \times (98.4 + 460) \times (72.0 + 460)} \right) \times 100$$

PR = 100 %

Equations and Sample Calculations – ASTM E2779 & E2515

PM_R – Average particulate emissions for full integrated test run, g/hr

ASTM E2779 equation (5)

$$PM_R = 60 (E_T/\theta)$$

Where,

E_T = Tota particulate emissions, grams

θ = Total length of full intergrated test run, min

Sample Calculation:

E_T (Dual train average) = 11.98 g

θ = 360 min

$PM_R = 60$ x (11.98 / 360)

PM_R = **1.9969** g/hr

Equations and Sample Calculations – ASTM E2779 & E2515

PM_F – Average particulate emission factor for full integrated test run, g/dry kg of fuel burned

ASTM E2779 equation (6)

$$PM_F = E_T / M_{Bdb}$$

Where,

E_T = Tota particulate emissions, grams

M_{Bdb} = Weight of test fuel burned during test run, dry basis, kg

Sample Calculation:

E_T (Dual train average) = 11.98 g

M_{Bdb} = 7.30 kg

PM_F = 11.98 / 7.30)

PM_F = **1.64** g/kg

Appendix A – Labeling & Owner's Manual

CAUTION: HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. 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. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.

Intertek 4001508

0061PS013E

heatilator ECOCHOICE

PS50-C

Serial No. / N° de série **HF**

BARCODE LABEL

Listed Solid Fuel Room Heater/Pellet Type. Also suitable for Mobile Home Installation. This appliance has been tested and listed for use in Manufactured Homes in accordance with OAR 814-23-9000 through 814-23-909.

Conforms to ASTM STD E1509, Certified to ULC STD S627, ULC/ORD-C1482-M1990 Room Heating Pellet BurningType, (UM) 84-HUD FOR USE ONLY WITH PELLETIZED WOOD. Do not use any other type of fuel. Intertek-Test Laboratories has determined that this appliance complies with Canadian Standards Association (CSA) B415.1 and Title 40 of the U.S. Code of Federal Regulations, Part 60, SubPart AAA.

Input Rating: 49,869 Btu's/hr. Electrical Rating:115 VAC, 60 Hz, Start 5.1 Amps, Run 3.0 AMPS. Route power cord away from unit. Do not route cord under or in front of appliance. Do not obstruct the space beneath the heater.

DANGER: Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic available from your dealer. To start, set thermostat above room temperature, the stove will light automatically. To shutdown, set thermostat to below room temperature. For further instruction refer to owner's manual.

Keep viewing and ash removal doors tightly closed during operation.

PREVENT HOUSE FIRES

Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and inspection in our area.

WARNING - FOR MOBILE HOMES: Do not install appliance in a sleeping room. An outside combustion air inlet must be provided. The structural integrity of the mobile home floor, ceiling and walls must be maintained.

Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling. Inspect and clean vent system frequently in accordance with manufacturer's instructions.

DO NOT CONNECT THIS UNIT TO A CHIMNEY SERVING ANOTHER APPLIANCE.

Use a 3" or 4" diameter type "L" or "PL" venting system.

Appareil de chauffage de combustible solide/de type de boulettes.
Accepté dans l'installation dans les maisons mobiles. Cet appareil a été testé et enregistré pour l'usage dans les Maisons Mobiles en accord avec OAR 814-23-9000 jusqu'à 814-23-909.

Testé à: ASTM E1509-04, ULC S627-00, ULC/ORD-C1482-M1990 Room Heating. Pellet Burning Type, (UM) 84-HUD POUR USAGE AVEC LES BOULETTES DE BOIS. N'utiliser aucun autre genre de combustible. Intertek Test Laboratories a déterminé que cet appareil se conforme avec la norme de l'Association Canadienne de normalisation (CSA) B415.1 ainsi que le Titre 40 du Code Fédéral de Régulations des États-Unis, partie 60, sous-partie AAA.

Puissance de Rendement: 49,869 Btu's/hr. Puissance Électrique: 115 VAC, 60 Hz, Début 5.1 Amps, Courir 3.0 Amps, Éloignez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. Ne pas bloquer l'espace au 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.

Pour allumer, monter la température du thermostat au dessus de la température de la pièce, le poêle s'allumera automatiquement. Pour éteindre, descendre la température du thermostat en dessous de la température de la pièce. Pour des instructions supplémentaires, référez vous au manuel du propriétaire. Gardez la porte d'ouverture et la porte des cendres fermées hermétiquement durant l'opération.

PRÉVENTION DES FEUX DE MAISON

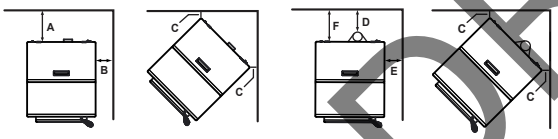
Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruez l'espace en dessous de l'appareil.

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.

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. Ne pas connecter cet appareil à une cheminée servant un autre appareil. Utilisez système de ventilation "L" ou "P" diamètre 76mm ou 102mm

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS / ESPACES LIBRES MINIMUM DES MATÉRIAUX COMBUSTIBLES:



A	Back Wall / Mur Arrière	2 in [51mm]
B	Side Wall / Mur De Côté	14 in [356mm]
CORNER INSTALLATION / NSTALLATION DU COIN :		
C	Side Wall / Mur De Côté	2 in [51mm]
VERTICAL 3 in. - 3 in. ADAPTER KIT (PART 811-0860) INSTALLATION:		
UN ASSEMBLAGE POUR ADAPTEUR 3- 3 in (76-76mm) (PIÈCE 811-0860) POUR INSTALLATION VERTICALE:		
D	Pipe to Back Wall / Un Tuyau Mur Arrière	1 in [25mm]
E	Side Wall / Mur De Côté	14 in [356mm]
F	Back Wall / Mur Arrière	6.25 in [159mm]
CORNER INSTALLATION WITH VERTICAL ADAPTER KIT:		
INSTALLATION DU COIN AVEC UN ASSEMBLAGE D'ADAPTEUR VERTICAL:		
G	Side Wall / Mur De Côté	2 in [51mm]
ALCOVE INSTALLATION / INSTALLATION DE L' ALCÔVE:		
Min. Alcove Height: / Une hauteur minimum de l'alcôve		56.75 in [1441mm]
Min. Alcove Side Wall: / Une hauteur minimum mur de côté de l'alcôve		14 in [356mm]
Min. Alcove Width / Une épaisseur minimum mur de côté de l'alcôve		53 in [1346mm]
Max. Alcove Depth: / La profondeur maximum de l'alcôve		48 in [1219mm]
Max. Mantle Depth: / Profondeur maximum de la manteau de cheminée		36 in [914mm]
Top of Unit to Combustibles: / Vue du haut des matériaux combustibles		21 in [533mm]

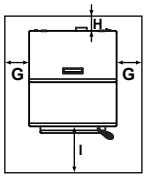
NOTE 1: In residential installations, when using Parts 811-0860, (3" - 3" Top Vent Adapter) and 812-3570 (3" - 6" Offset Adapter), 24 gauge 6" single wall flue connector may be used.

NOTE 1: Dans les installations résidentielles, lorsque les pièces 811-0860, (dessus de l'adapteur de ventilation 3" - 3") et 812-3570 (le ressaut de l'adapteur 3" - 6"), un tuyau connecteur de 6" pour mur simple de calibre 24 peut être utilisé.

NOTE 2: In manufactured home installation, when using Part 811-0860, (3" - 3" Top Vent Adapter) and 812-3570 (3" - 6" Offset Adapter), use listed double wall flue connector. An Outside Air Kit (Part 811-0872), must be used with manufactured home installation.

NOTE 2: Pour l'installation dans les maisons préfabriquées, lorsque les pièces 811-0860, (dessus de l'adapteur de ventilation 3" - 3") et 812-3570 (le ressaut de l'adapteur 3" - 6"), utilisez un tuyau connecteur enregistré pour mur double. Un assemblage d'air extérieur (Part 811-0872), doit être utilisé pour l'installation dans les maisons préfabriquées.

FLOOR PROTECTION / PROTECTION DU SOL



USA
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I = 6 in

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G = 203 mm
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Floor protector must be non-combustible material, extending beneath heater and to the front/sides/rear as indicated. Measure front distance (I) from the surface of the glass door.

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*Un protecteur incombustible de plancher doit s'étendre 2 inches (51mm) sous le conduit de cheminée pour une installation de ventilation horizontale ou sous un adapteur de ventilation de dessus pour une installation verticale. **ÉTATS-UNIS - RECOMMANDÉ; CANADA - REQUIRENT.**

Manufactured by: Fabriqué par:

HEARTH & HOME technologies

352 Mountain House Road
Halifax, Pa 17032
www.heatilator.com

U.S. ENVIRONMENTAL PROTECTION AGENCY

Certified to comply with 2020 particulate emission standards at 1.997 g/hr EPA method 28R and ASTM 2779 using premium wood pellets. 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.

2019	2020	2021	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE

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.

7059-802A

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Intertek
4001508

0061PS013E

heatilator ECOCHOICE

CAB50-C

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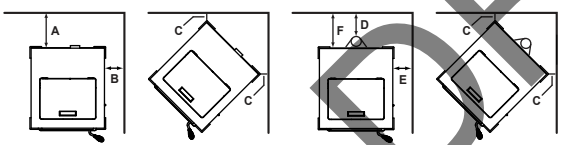

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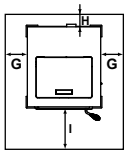

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www.heatilatorchoice.com

U.S. ENVIRONMENTAL PROTECTION AGENCY

Certified to comply with 2020 particulate emission standards at 1.997 g/hr EPA method 28R and ASTM 2779 using premium wood pellets.
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.

2019	2020	2021	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE

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.

7074-802A

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.

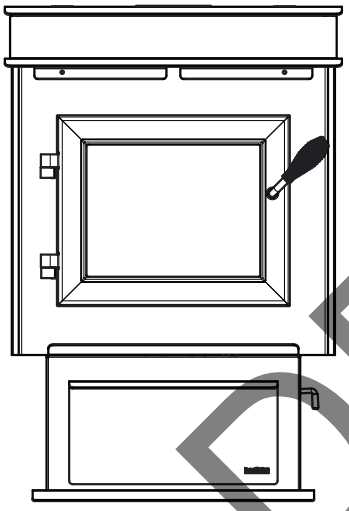
NOTICE: DO NOT DISCARD THIS MANUAL

heatilator® ECOCHOICE™

PELLET BURNING STOVES

MODEL(S):

PS50-C



EM 0-TL 0061PS085E

Pellet Fuels Institute

C ETL LISTED US Intertek 4001508

⚠ CAUTION

Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.

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 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 will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- 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.

⚠ CAUTION

Tested and approved for wood pellets, Burning of any other type of fuel voids your warranty.

NOTE

To obtain a French translation of this manual, please contact your dealer or visit www.heatilatorecochoice.com.

Pour obtenir une traduction Francaise de ce manuel, s'il vous plait contacter votre revendeur ou visitez www.heatilatorecochoice.com.

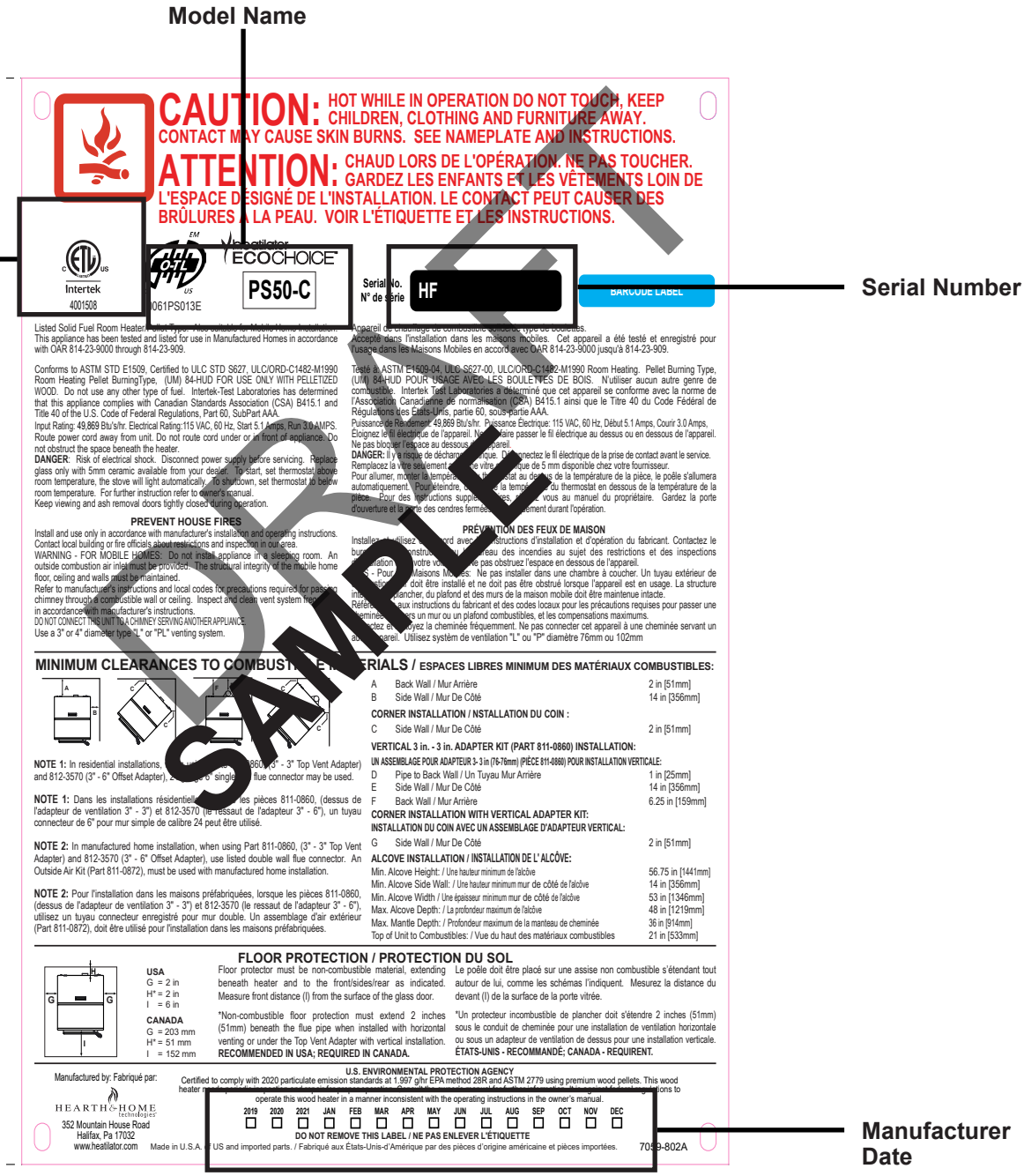
Congratulations

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: On chain behind right access panel & Behind left access panel



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.

TABLE OF CONTENTS

B. Warranty Policy

Hearth & Home Technologies Inc.

HEATILATOR ECO-CHOICE WARRANTY

Hearth & Home Technologies Inc., on behalf of its hearth brands ("HHT"), extends the following warranty for ECO-CHOICE by heatilator wood and pellet hearth appliances that are purchased from an HHT authorized dealer.

WARRANTY COVERAGE:

HHT warrantes to the original owner of the HHT appliance at the site of installation, and to any transferree 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 purchaser price of the product. This warranty is subject to conditions, exclusions and limitations as described below.

WARRANTY PERIOD:

Warranty coverage begins on the date of original purchase. 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. 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.

Warranty Period		Heatilator ECO-CHOICE Appliances		Components Covered
Parts	Labor	Pellet	EPA Wood	
1 year		X	X	All parts and material except as covered by Conditions, Exclusions, and Limitations listed
3 years		X		Firepots and burnpots
3 years	1 year	X	X	Castings
5 years	3 years		X	Manifold tubes
5 years	3 years	X	X	Firebox and heat exchanger
90 days		X	X	All replacement parts beyond warranty period

See conditions, exclusions,and limitations on next page

WARRANTY COVERAGE:

- 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 th HHT branded websites.
- This warranty is only valid while the HHT appliance remains at the site of original installation.
- Contact your installing dealer for warranty service. If the installing dealer 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.

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 replacment of parts that are subject to normal wear and tear during the warranty period. These parts include: paint, wood, pellet and coal gaskets; firebricks; grates; flame guides; light bulbs; 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 operating 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 components 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 appliances' 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 appliance location and configuration, environmental conditions, insulation and air tightness of the structure.

This warranty is void if:

- The appliance has been over-fired or operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals. Overfiring can be identified by, but not limited to, warped plates or tubes, 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.

WARRANTY EXCLUSIONS:

- 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 incidiental 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 specifice 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.

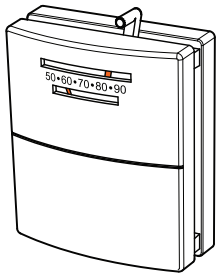
C. Quick Start Guide

GUIDE DE DÉMARRAGE RAPIDE ECO CHOICE

Avant de brancher cet appareil, suivre ces instructions

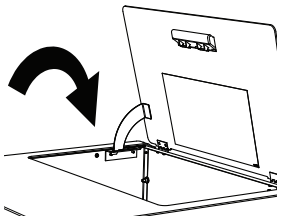
Retirez les étiquettes volantes de la vitre de la porte. Nettoyez la vitre. Retirez le matériel d'emballage et le sachet absorbeur d'humidité de la zone de la boîte à feu avant votre premier feu.

Éteignez le thermostat.



1

Ajoutez des granulés dans la trémie et fermez le couvercle.



2

Ouvrez la porte de la boîte à feu et assurez-vous que les déflecteurs sont en place.

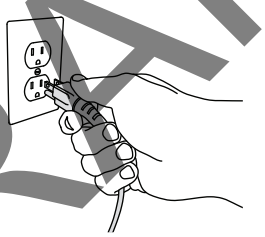
3

<u>Si le tube d'alimentation est vide</u> ou s'il s'agit du premier feu, ajoutez une poignée de granulés dans le creuset de combustion.

*N'ajoutez pas de combustible supplémentaire au creuset de combustion si le tube d'alimentation a déjà été amorcé. Le remplissage excessif du creuset de combustion causera un allumage émettant de la fumée.

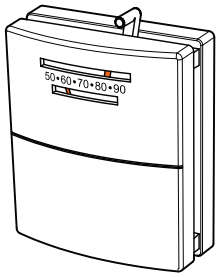
4

Fermez la porte de la boîte à feu et branchez le cordon d'alimentation à une prise murale.



5

Allumez le thermostat.



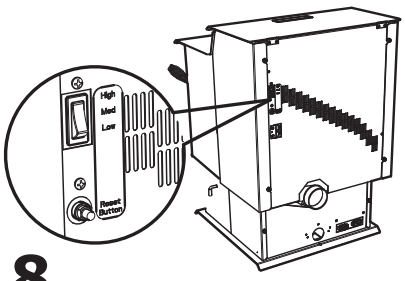
6

Le poêle sera alimenté en granulés pendant une minute et s'arrêtera. Une fois le feu allumé, le cycle d'alimentation reprendra.

<u>Remarque :</u> Laissez 5 minutes pour que s'effectue l'allumage.

7

Si le feu s'éteint après quelques minutes de fonctionnement, il sera nécessaire de pousser le bouton de réinitialisation afin d'ajouter plus de combustible.



8

Une fois le feu bien allumé dans l'unité, laissez-le brûler à « high » pendant 30 minutes, ce qui fera durcir la peinture.

<u>Remarque :</u> Il se produira un dégagement d'odeurs et de vapeurs pendant ce processus.

Ouvrez les fenêtres de la pièce pour une ventilation

9

Après 30 minutes, éteignez le thermostat et laissez l'unité se refroidir complètement. Ouvrez la porte et nettoyez le creuset de combustion selon les directives de nettoyage trouvées à l'intérieur du couvercle de la trémie ou dans le manuel du propriétaire. Fermez la porte et réglez le thermostat à la température désirée. L'unité est maintenant prête à reprendre une utilisation normale.

10

1 Listing and Code Approvals

A. Appliance Certification

Model	PS50-C
Laboratory	Intertek
Safety Report No.	4001508
Type	Solid Fuel Room Heater/Pellet Fuel Burning Type
Standard	ASTM E1509-04 and ULC S627-00, ULC/ORD-C1482-M1990 Room Heater Pellet Fuel Burning type and (UM) 84-HUD, Mobile Home Approved.

B. BTU & Efficiency Specifications

Laboratory:	OMNI Test Laboratories, Inc.
Emissions Report #:	0061PS085E
EPA Certification #:	XXX-XX
EPA Certified Emissions:	1.997 grams/hour
***LHV Tested Efficiency:**	69.5%
****HHV Tested Efficiency:**	65.1%
*****EPA BTU Output:**	7,488 to 36,591 per hr.
******BTU Input:**	13,138 to 49,869 per hr.
Vent Size:	3 or 4 inches, “L” or “PL”
Hopper Capacity:	83 bs.
Fuel	Premium Wood Pellets
* Weighted average LHV efficiency using data collected during EPA emissions test.	
**Weighted average HHV efficiency using data collected during EPA emissions test.	
***A range of BTU outputs based on HHV and the burn rates from the low and high EPA tests.	
****Maximum BTU input based on the high burn section of the EPA emissions test.	

NOTICE: This installation must conform with local codes. In the absence of local codes you must comply with the **ASTM E1509-04, ULC S627-00, (UM) 84-HUD and ULC/ORD-C-1482**.

This manual describes the owner instructions of the Heatilator Eco Choice, PS50 pellet appliance. This appliance meets the 2020 U.S. Environmental Protection Agency’s pellet appliance emission limits for wood heaters sold after May 15, 2020. Under specific test conditions this appliance has been shown to deliver heat at rates ranging from 7,488 to 36,591 Btu/hr.

This pellet heater needs periodic inspection and repair for proper operation. It is against federal regulations to operate this pellet heater in a manner inconsistent with operating instructions in this manual.

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. Electrical Rating (on high)

115 VAC, 60 Hz, Start 5.1 Amps, Run 3.0 Amps

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 use only listed double-wall connector pipe.
- Outside Air Kit, part 811-0872 or OAK-3 must be installed in a mobile home installation.
- Appliance must be secured to mobile home structure.

F. Sleeping Room

When installed in a sleeping room it is recommended that 3ft of vertical be installed prior to horizontally exiting the room and a smoke/CO alarm be installed in the bedroom; The size of the room must be at least 50ft³ per 1,000 Btu/hr stove input, if the stove exceeds the room size, out 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

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 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

User Guide

2 Operating Instructions

WARNING

Fire Risk.
- Do not operate appliance before reading and understanding operating instructions.
- Failure to operate appliance properly may cause a house fire.

Visit http://www.heatilatorecochoice.com/Customer-Care/Videos to view product and use & care videos.

A. Fire Safety

To provide reasonable fire safety, the following should be given serious consideration:
- Install at least one smoke detector and CO monitor on each floor of your home.
- Locate detectors away from the heating appliance and close to the sleeping areas.
- Follow the detector's manufacturer's placement and installation instructions and maintain regularly.
- A CO detector should be installed in the room with the appliance.
- Conveniently locate a Class A fire extinguisher to contend with small fires.
- In the event of a hopper fire:
  - Evacuate the house immediately.
  - Notify fire department.

B. Non-Combustible Materials

Material which will not ignite and burn, composed of any combination of the following:

- Steel	- Brick	- Concrete	- Glass
- Plaster	- Iron	- Tile	- Slate

Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace of 750° C.**

C. Combustible Materials

Material made of/or surfaced with any of the following materials:

- Wood	- Plastic
- Compressed Paper	- Plywood/OSB
- Plant Fibers	- Sheet Rock (drywall)

Any material that can ignite and burn: flame proofed or not, plastered or non-plastered.

D. Fuel Material and Fuel Storage

Pellet fuel quality can greatly fluctuate. This appliance has been designed to burn a wide variety of fuels, giving you the choice to use the fuel that is most economical in your region.

Hearth & Home Technologies strongly recommends only using Pellet Fuel Institute (PFI) certified fuel.

Fuel Material
- Made from sawdust or wood by-products
- Depending on the source material it may have a high or low ash content.

Higher Ash Content Material
- Hardwoods with a high mineral content
- Fuel that contains bark
- Standard grade pellets, high ash pellets,

Lower Ash Content Material
- Softwoods
- Fuels with low mineral content
- Premium grade pellets

CAUTION

Do not burn fuel that contains an additive; (such as soybean oil).
- May cause hopper fires
- Damage to product may result

Read the ingredients list on the package. If you are buying corn the only ingredient that should be listed is corn.

Clinkers

Minerals and other non-combustible materials such as sand will turn into a hard, glass-like substance called a clinker when heated in the firepot.

Trees from different areas will vary in mineral content. That is why some fuels produce more clinkers than others.

Moisture

Always burn dry fuel. Burning fuel with high moisture content takes heat from the fuel and tends to cool the appliance, robbing heat from your home. Damp pellet fuel can clog the feed system.

Size
- Pellets are either 1/4 inch or 5/16 inch (6-8mm) in diameter
- Length should be no more that 1-1/2 inches (38mm)
- Pellet lengths can vary from lot to lot from the same manufacturer
- Due to length variations, the flame height (feed rate) may need adjusting occasionally (See page 10 for instructions).

Performance

- Higher ash content requires the ash drawer to be emptied more frequently
- Hardwoods require more air to burn properly
- Set wall control to “Utility Pellet” if the firepot and ash pan are filling quickly. This will cause the auto-clean system to empty the firepot more often.
- Premium wood pellets produce the highest heat output.
- Burning pellets longer than 1-1/2 inches (38mm) can cause an inconsistent fuel feed rate and/or missed ignitions.

We recommend that you buy fuel in multi-ton lots whenever possible. However, we do recommend trying various brands before purchasing multi-ton lots to ensure your satisfaction.

Changing to Different Fuel Type

- Empty the hopper of the previous fuel
- Thoroughly vacuum hopper before filling with the new fuel
- Select the appropriate setting on the FUEL SELECTION screen on the thermostat wall control

The burn rate, BTU content and heat output will all vary depending on the fuel selected.

CAUTION

Tested and approved for wood pellets. Burning of any other type of fuel voids your warranty.

Storage

- Wood pellets should be left in their original sealed bag until using to prevent moisture absorption.
- This will also prevent rodents from becoming a problem.
- Do not store any pellet fuel within the clearance requirements or in an area that would hinder routine cleaning and maintenance.

E. General Operating Information

1. Thermostat Calls For Heat

The appliance is like most modern furnaces; when the thermostat calls for heat, your appliance will automatically light and deliver heat. When the room is up to temperature and the thermostat is satisfied, the red call light will shut off and the appliance will shut down. The red call light is located behind the left access panel.

2. Heat Output Controls

This appliance is equipped with a heat output control switch that has three settings or burn rates; low, medium and high **(Figure 10.1)**. The appliance will turn on and off as the thermostat demands. When the thermostat calls for heat, the appliance will always start up on High. After burning approximately 4 minutes, the appliance will then burn at the rate at which it was originally set. If the appliance is set at one of the lower settings, it will run quieter but takes longer to heat up an area than if it were set at a higher burn rate. Regardless of the burn rate, when the area is warm enough to satisfy the thermostat, the appliance will shut off.

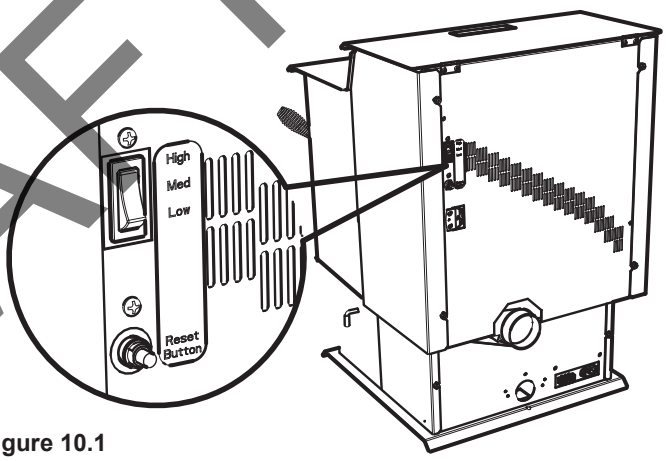


Figure 10.1

F. Before Your First Fire

1. First, make sure your appliance has been properly installed and that all safety requirements have been met. Pay particular attention to the fire protection, venting and thermostat installation instructions.
2. Double check that the ash drawer and firebox are empty!
3. Check that cleaning rod is in the fully closed position.
4. Close and latch the door.

CAUTION

Tip of thermocouple must be in contact with the inside end of the thermocouple cover.
Missed ignitions can occur.

CAUTION

HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS.

G. Hopper Lid Latch and Hopper Switch

1. Lift up the hopper lid and lock into open position. Now you can fill the hopper with fuel.
2. The hopper switch is designed to shut down the feed motor when the hopper lid is open. Leaving the lid open too long can cause the fire to go out **(Figure 11.1)**.
3. To close the hopper lid, while holding lid open with one hand, push the bottom of the latch inwards to release from locked position and then slowly close the hopper lid **(Figure 11.2)**.

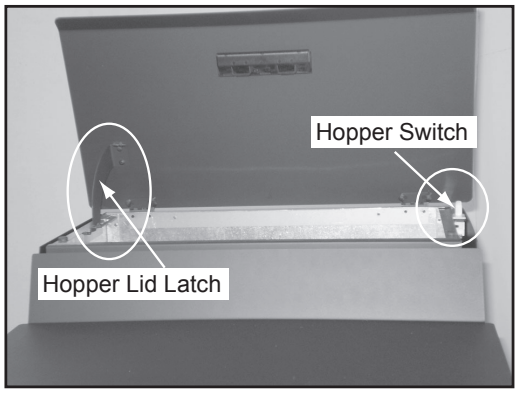


Figure 9.1

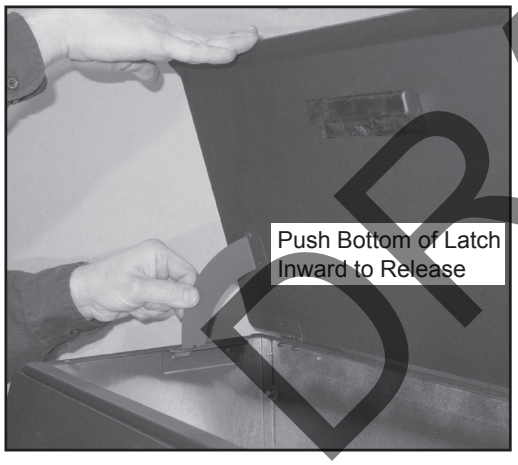


Figure 9.2

H. Starting Your First Fire

1. A thermostat is required for proper operation of this appliance. If you have to adjust the feed rate after you have started the fire, most of the pellets in the hopper will need to be removed so start out with filling the hopper approximately 1/4 full at this time. Set the thermostat to its lowest setting and plug the power cord into nearby outlet.
2. The exhaust blower will stay on for approximately 18 minutes even though the thermostat is not calling for heat. This is normal.
3. Locate the heat output control switch mounted on the back of the appliance in the upper left corner **(Figure 8.1 on page 8)**.
4. Turn it to the “high” setting by pushing the top of the control switch in and then adjust the thermostat to its highest setting.
5. Look through the hole in the left lower side panel and you will see the red call light on the control box will be on **(Figure 11.3)**. This indicates the thermostat is calling for heat.
6. The fuel feed system and the igniter should now be on.
7. For your first fire it will be necessary to press the reset button once approximately 2 minutes after start up and again in 5 minutes. Reset as needed or every 60 seconds until pellets begin to drop into firepot. This will fill the feed system and allow the appliance to begin dropping pellets. Or you can put a handful of pellets in the firepot to speed up the process. The appliance will continue to run as long as the thermostat is calling for heat.
8. Once the appliance has ignited, let it burn for approximately 15 minutes, then set the thermostat to the desired room temperature. Adjust the heat output control switch to the desired setting.

CAUTION

Odors and vapors released during initial operation.
- Curing of high temperature paint.
- Open windows for air circulation.

Odors may be irritating to sensitive individuals.

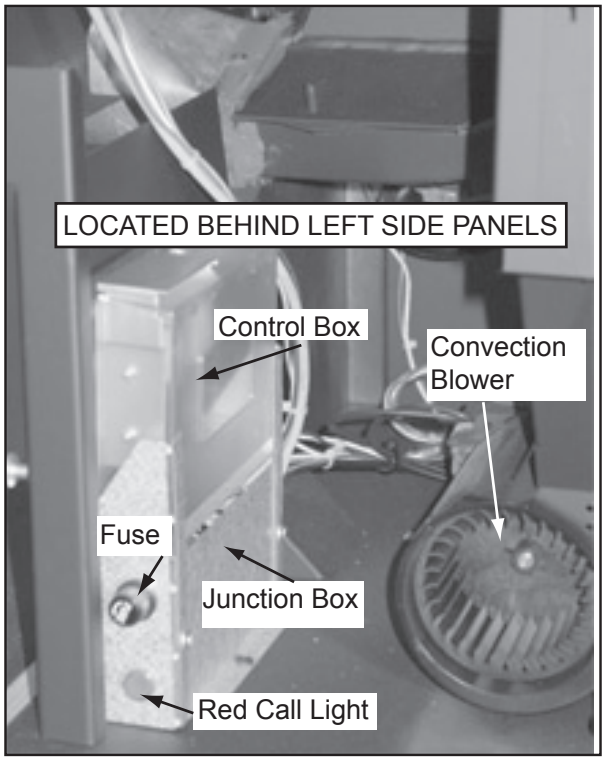


Figure 11.3

I. Fire Characteristics

A properly adjusted fire with the heat output control switch set on “high” has a short active flame pattern that extends out of the fire pot approximately 4 to 8 inches (102 to 203mm).

If the fire has tall flames with black tails and seems somewhat lazy, the feed rate will need to be reduced. This is done by sliding the fuel adjustment control rod down, which will reduce the feed **(Figure 12.1)**.

If the fire is not 4 to 8 inches (102 to 203mm) tall, slide the fuel adjustment control rod up to increase the feed. A medium and low setting will give a shorter flame. The flame will rise and fall somewhat. This is normal.

J. Feed Rate Adjustment Instructions

1. Loosen the thumb screw.
2. Pull the feed adjustment control rod up to increase the feed rate and flame height or push down to decrease the feed rate and flame height.
3. Re-tighten the thumb screw. A new stove has a break in period. The fire characteristics should be checked again after 5 bags of pellets and adjustments made if necessary.

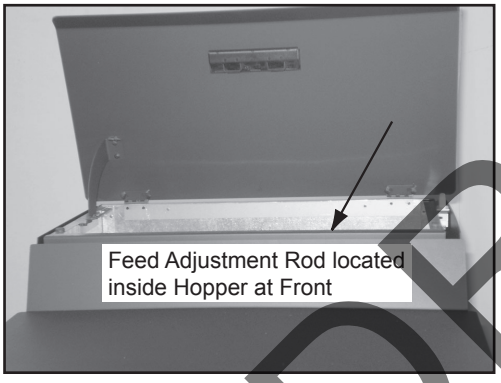


Figure 12.1

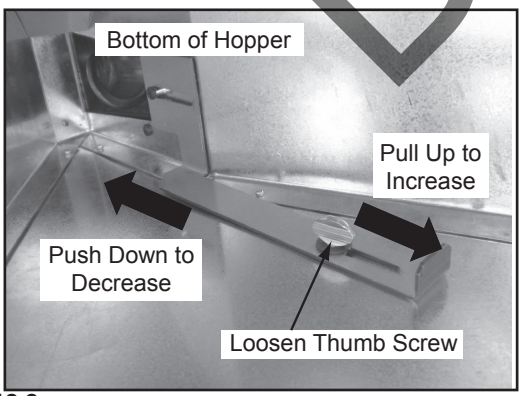


Figure 12.2

K. Ignition Cycles

1. At the beginning of each ignition cycle, it is normal to see some smoke in the firebox. The smoke will stop once the fire starts.
2. The convection blower will automatically turn on after your appliance has been burning for approximately 10 minutes.
   This blower transfers heat from your appliance into the room, and will continue to run after the thermostat has stopped calling for heat until the appliance has cooled down.
3. Occasionally the appliance may run out of fuel and shut itself down. When this happens, the red call light will be on **(See Figure 9.3, page 9)**.
   - To restart it, fill the hopper and press the reset button. When you press the reset button the red call light will go out. Release the button and the light will come back on. Continue pushing the button once a minute until pellets begin to fall into the fire pot.
   - You should see a fire shortly. If not, follow the instructions on page 9, for “Starting Your First Fire”.

L. Clear Space

Mantel: Avoid placing candles and other heat-sensitive objects on mantel or hearth. Heat may damage these objects.

NOTICE: Clearances may only be reduced by means approved by the regulatory authority having jurisdiction.

WARNING

Fire Risk.
Do NOT place combustible objects in front of the appliance. High temperatures may ignite clothing, furniture or draperies. Maintain a minimum clearance of 3 feet (914mm) in front of appliance.

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.**
- **DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.**
- **DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE.**
- Keep all such liquids well away from the appliance while it is in use.
- Combustible materials may ignite.

M. Thermostat Operation

There is a 4 screw terminal block located on the back lower left corner of the stove directly above the power cord inlet. The center 2 screws are for the thermostat wires **(see Figure 11.1 on page 11)**.

The appliance comes standard with a wall thermostat and 25’ of wire. If you need to run more than 25’ make sure you use a continuous strand of 18 to 22 gauge thermostat wire. For optimum performance your thermostat should be located on an inside wall approximately 5’ up from the floor.

How to Install Your Wall Thermostat

1. Separate the body of the thermostat from the mounting plate by gently pulling the two pieces apart
2. Connect your thermostat wire to the W and R terminals **(see Figure 11.2 on page 11)**
3. Screw the backer plate to the wall using the hardware included.
4. Snap the thermostat to the backer plate
5. Connect the wires to the 2 center screws on the terminal block on the back of the product

NOTE: 2 AA batteries are included with the thermostat and must be installed before the appliance can be operated **(see Figure 11.3 on page 11)**.

Battery Installation and Replacement

Install fresh batteries immediately when the REPLACE BATTERY warning begins flashing. The warning flashes about two months before the batteries are depleted. Even if the warning does not appear, you should replace batteries once a year.

If batteries are inserted within two minutes, the time and day will not have to be reset. All other settings are permanently stored in memory.

CAUTION

Shock hazard.

- Do NOT remove grounding prong from plug.
- Plug directly into properly grounded 3 prong receptacle.
- Route cord away from appliance.
- Do NOT route cord under or in front of appliance.

N. Frequently Asked Questions

What causes my glass to become dirty?
If the glass has white ash build up it is normal and the glass should be cleaned. If it is a black soot build up airflow through the unit may be restricted. The most often cause is overdue maintenance and cleaning. See “Maintaining and Servicing Appliance” in the owner’s manual.

How can I get more heat out of the appliance?
The most often cause of diminished heat output is overdue maintenance and cleaning. See “Maintaining and Servicing Appliance” in the owner’s manual. If this still does not help, verify the correct settings for maximum heat output. See “Feed Rate Adjustment” under “Operating Instructions” in the owner’s manual.

What should I do if I smell smoke or there is ash/soot coming from the appliance?
While there will always be some smoke smell from wood burning appliances (including pellet) you should investigate all venting to make sure it is sealed properly. Most venting requires silicone to seal the seams. In addition most homes are built very tight today and with exhaust systems can create negative pressure in the home. See “Negative Pressure” under “Getting Started” in the owner’s manual if you have checked the venting but still have smoke coming from the appliance. For ash or soot check the above and the exhaust blower housing and seals.

Why would my appliance run fine last winter but not start this fall?
It is possible that the stove was not properly prepared for the Non-burn season. See “Trouble shooting” in the owner’s manual.

Why would the metal on the inside of the appliance begin to flake?
There are some pellet mills that get their raw materials from lumber mills that purchase logs that are transported in sea water. These pellets can have a higher salt content and cause the metals in the unit to corrode prematurely and deteriorate. If you are seeing any components inside the firebox deteriorate it is recommended to change pellet brands immediately.

Why does only the exhaust blower run when I unplug and plug back in my appliance?
This is a Safety feature to prevent the unit from operating in an unsafe condition. Allow the unit to run and it will return to normal operation.

Is there a place to lubricate the blowers to quiet them down?
The most often cause of noisy blowers is from the impellers becoming dirty over time. See “General Maintenance & Cleaning” under “Maintaining & Servicing Appliance” in the owner’s manual. No form of lubrication should ever need applied to the blowers.

Why are different components cycling on and off in my appliance at random?
The selector switch on control box may be on the wrong setting. Refer to the Reference Materials section of our owner’s manual for details.

What is the metal object with the bend in it for that came inside the plastic bag?
It is a clean-out tool used to help clean the fire pot and remove any jams in the rare event they occur in the feed tube.

Why is there a black residue building up on the outside of my home?
Wind can cause this to happen. If the appliance is operating correctly very little soot should ever exit the termination cap. Also check to be sure the venting is installed per the owner’s manual and local codes.

Do I need an outside air kit?
Outside air is required for mobile home installs and in some jurisdictions. Refer to “Listing & Code Approvals”,“ Mobile Home Installation” and “ Appliance Set-up” owner’s manual. Also refer to local building codes.

I am seeing sparks coming out of my pipe (termination cap) outside is this safe?
This is normal. As long as clearances to combustibles were followed this is safe.

My unit sounds like a freight train at times what can be done to eliminate this?
This is referred to as Rumbling. Maintenance may be needed see “Maintaining and Servicing appliance” in the owner’s manual. Decrease fuel flow see “Feed rate adjustment” under Operating Instructions”.

Why does my unit run fine on high, but shuts down on low and medium?
Maintenance may be needed see “Maintaining and Servicing Appliance” See also “Trouble Shooting”.

Can I use another brand of wall thermostat or remote system?
Yes, any remote/wall thermostat system that does not require power from the appliance should work.

I have no power to anything. Does this unit have a circuit breaker or fuse or a reset button?
This unit has one serviceable fuse in the junction box and a reset button for the thermostat circuit.

Can I burn corn in my unit?
Corn is not an approved fuel for the ECO units.

I’m thinking about going green (solar power) and need to know what the power consumption is on my Unit.
PS50 115 VAC, 60 Hz, Start 5.1 Amps, Run 3.0 Amps.

Where is the serial # of my unit is located?
The serial # is located on the back of the stove.

CONTACT YOUR DEALER for additional information regarding operation and troubleshooting.
Visit www.heatilatorecochoice.com to find a dealer.

3 Maintenance and Service

When properly maintained, your fireplace will give you many years of trouble-free service. Contact your dealer to answer question regarding proper operation, troubleshooting and service for your appliance. Visit www.heatilatorecochoice.com/Customer-Care to view basic troubleshooting, FAQs, use & care videos. We recommend annual service by a qualified service technician.

CAUTION

Shock and Smoke Hazard

- Turn down thermostat, let appliance completely cool and exhaust blower must be off. Now you can unplug appliance before servicing.
- Smoke spillage into room can occur if appliance is not cool before unplugging.
- Risk of shock if appliance not unplugged before servicing appliance.

A. Proper Shutdown Procedure

Turn off the thermostat.

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

Follow the detailed instructions found in this section for each step listed as referenced in the chart below.

B. Quick Reference Maintenance Chart

Cleaning or Inspection	Frequency		Daily	Weekly	Every 2 Weeks	Monthly	Yearly
Ash Pan - Burning Wood Pellets	Every 5 bags of fuel	OR		X			
Ash Pan - Burning Alternate Fuels	Every 1 bag of fuel	OR	X				
Ash Removal from Firebox	More frequently depending on the fuel type or ash build-up	OR		X			
Blower, Combustion (Exhaust)	More frequently depending on the fuel type	OR					X
Blower, Convection	More frequently depending on the operating environment	OR					X
Door Latch Inspection	Prior to heating season	OR				X	
Firebox - Prepare for Non-Burn Season	At end of heating season	OR					X
Fire pot - Burning Softwood Pellets	Every 5 bags	OR		X			
Fire pot - Burning Hardwood Pellets	Every 3 bags	OR		X			
Glass	When clear view of fire pot becomes obscured	OR		X			
Heat Exchanger & Drop Tube	Every 1 ton of fuel	OR			X		
Hopper	Every 1 ton of fuel or when changing fuel types	OR				X	
Top Vent Adapter	More frequently depending on ash build-up	OR					X
Venting System	More frequently depending on the fuel type	OR					X

NOTICE: These are recommendations. Clean more frequently if you encounter heavy build-up of ash at the recommended interval or you see soot coming from the vent. ***Not properly cleaning your appliance on a regular basis will void your warranty.***

C. General Maintenance

1. Types of Fuel

Depending on the type of fuel you are burning will dictate how often you have to clean your fire pot.

If the fuel you are burning has a high dirt or ash content, it may be necessary to clean the fire pot more than once a day.

Dirty fuel will cause clinkers to form in the fire pot. A clinker is formed when dirt, ash or a non-burnable substance is heated to 2000°F (1093°C) and becomes glass-like. See "D" page 17 in this section for more details on fuels with high ash content.

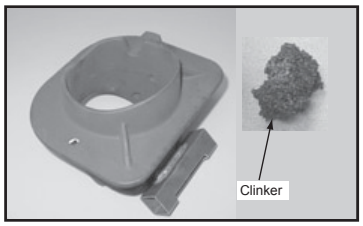


Figure 16.1 - Clinker

2. Cleaning Fire pot with Cleaning Rod & Firepot Clean-Out Tool:

- **Frequency:** Daily or more often as needed
- **By:** Homeowner

a. The appliance must be in complete shutdown and cool and the exhaust blower off. If you are just cleaning the fire pot, there is no need to unplug the appliance.

b. Locate the fire pot cleaning rod on the right side of the appliance **(Figure 16.2)**. When you pull the cleaning rod straight out it will slide open the firepot floor to allow the ashes to be deposited in the ash drawer. You will see the light color painted area on the cleaning rod to let you know the rod is in OPEN position **(Figure 16.3)**.

c. Pull the firepot cleaning rod OUT and IN a couple of times to help shake debris loose. If the rod is hard to pull, it may be necessary to use your firepot clean-out tool to chip away material that has built up on the bottom plate of the firepot and to push out any clinkers while in the open position.

d. To close the firepot floor: slightly raise the cleaning rod and then push it back into place. If you have closed the cleaning rod properly (pushed all the way in) you will not see any of the light color painted area **(Figure 16.3)**.

e. Always have the ash drawer in place before pulling the firepot cleaning rod, otherwise the ashes will fall down and fill the outside air opening and the appliance will produce soot out of the exhaust and will affect efficiency.

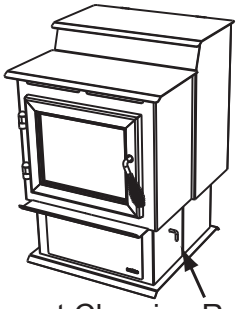


Figure 16.2

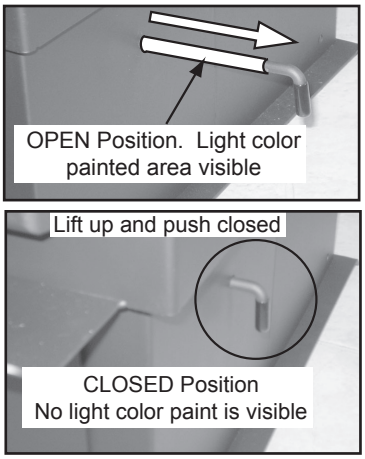


Figure 16.3

WARNING

Fire Risk

- NEVER pull firepot cleaning rod out when appliance is operating.
- Cleaning Rod MUST be completely pushed in before operating appliance.
- Hot pellets may fall into ash pan and start a fire or mis-starts due to lack of vacuum.

3. Ash Removal from Firebox

- **Frequency:** Weekly or more frequently depending on ash build-up.
- **By:** Homeowner

a. There must not be any hot ashes in the firebox during cleaning so allow the appliance to completely cool. The firebox ash should be removed every time the exhaust path is cleaned. Frequent cleaning of the ash in the firebox will help slow down the build-up of ash in the exhaust blower and vent system.

b. Vacuum out the firebox thoroughly on both sides of the firebox and the floor and ceiling. The ash drawer should be emptied every time you clean the firebox. Remember to place the ash and debris into a metal or non-combustible container. See Disposal of Ashes (Pg 15).

c. Always have the ash drawer in place before pulling the firepot cleaning rod, otherwise the ashes will fall down and fill the outside air opening and the appliance will produce soot out of the exhaust and will affect efficiency.

WARNING

Burn Risk

- NEVER remove ash drawer while appliance is operating.

4. Cleaning Ash Drawer

- **Frequency:** Weekly or every 5 bags of fuel
- **By:** Homeowner
  a. There must not be any hot ashes in the ash drawer when you empty it, so allow the appliance to completely cool.
  b. Locate the ash drawer underneath the firepot. Slide the ash drawer straight out. Empty into a non-combustible container and re-install the ash drawer. See Disposal of Ashes (Pg 15).
  c. Always have the ash drawer in place before pulling the firepot cleaning rod, otherwise the ashes will fall down and fill the outside air opening and the appliance will produce soot out of the exhaust and will affect efficiency.

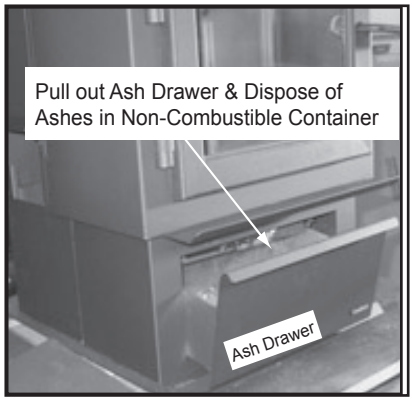


Figure 17.1

5. Disposal of Ashes

- **Frequency:** As needed
- **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 been thoroughly cooled.

WARNING

Disposal of Ashes

- Ashes should be placed in metal container with tight fitting lid.
- Ashes should be retained in closed container until all cinders have thoroughly cooled.

6. Cleaning the Exhaust Path, Baffles & Drop Tube

- **Frequency:** Monthly or every 25 bags or more frequently depending on ash build-up.
- **By:** Homeowner
  a. Appliance must be completely cool.
  b. Open the door and remove the center baffle first and then the right and left baffles. See Baffle Removal Instructions on page 23. Thoroughly vacuum the exhaust path and drop tube and continue throughout the rest of the firebox. Also vacuum the front and back of the baffles.
  c. Also vacuum the combustion blower impellers or use a soft brush to remove any ash build-up.

Replace the right and left baffles and then the center baffle and close and latch the door.

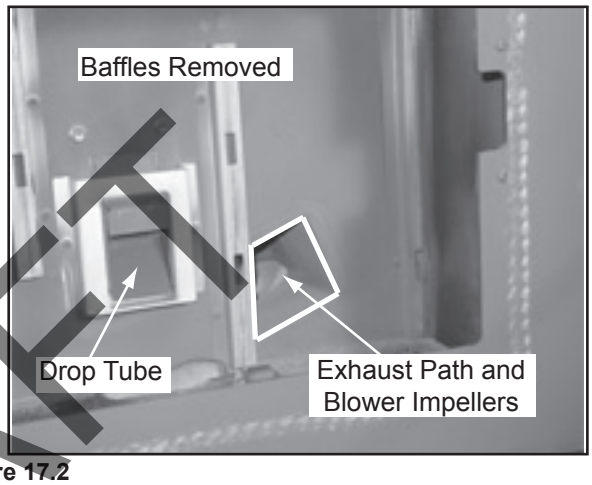


Figure 17.2

7. Cleaning the Hopper

- **Frequency:** Monthly or after burning 50 bags of fuel
- **By:** Homeowner

After burning approximately 50 bags of fuel you will need to clean the hopper to prevent sawdust build-up.

A combination of sawdust and pellets on the bottom end of the auger reduces the amount of fuel supply to the firepot. This can result in nuisance shutdowns and mis-starts.

  a. The appliance must be in complete shutdown. Allow the appliance to completely run out of pellets and cool down.
  b. Empty the hopper of any remaining pellets.
  c. Vacuum the hopper and feed tube.

NOTE: Hearth & Home Technologies recommends to use a heavy duty vacuum cleaners specifically designed for solid fuel appliance cleaning.

8. Soot and Fly Ash: Formation & Need for Removal in Exhaust Venting System.

- **Frequency:** Yearly or more frequently depending on ash build-up.
- **By:** Qualified Service Technician/Homeowner

Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.

The products of combustion will contain small particles of fly ash. The fly ash will collect in the exhaust venting system and restrict the flow of the flue gases.

At start-up if there is incomplete combustion, or if there is a shutdown or incorrect operation of the appliance it will lead to some soot formation. This will collect in the exhaust venting system.

The venting (chimney) system may need to be cleaned at least once a year or more often depending upon the quality of your fuel or if there are any horizontal pipe sections. Ash will build up more quickly in the horizontal sections and elbows.

9. Door Handle Inspection

- **Frequency:** Monthly or prior to heating season
- **By:** Homeowner

The gasket between the glass and firebox should be inspected periodically to make sure there is a good seal. Check door handle for smooth cam operation.

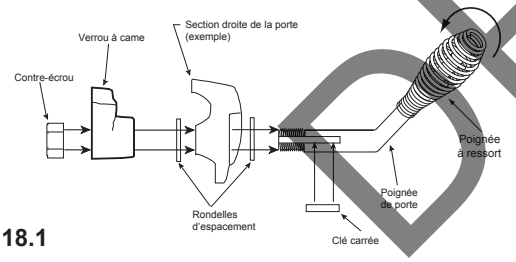
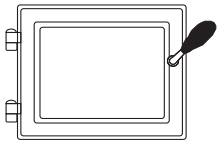


Figure 18.1

10. Cleaning the Glass

- **Frequency:** When clear view of the fire pot becomes obscure
- **By:** Homeowner
  a. Appliance must be completely cool before cleaning glass.
  b. Vacuum fly ash from glass and door rope.
  c. Use a damp paper towel or any non-abrasive glass cleaner. Wipe off with dry towel.

CAUTION

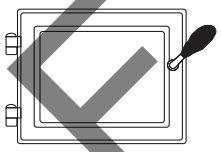


Handle glass assembly with care.

When cleaning glass:

- Avoid striking, scratching or slamming glass.
- Do NOT clean glass when hot.
- Do NOT use abrasive cleaners.
- Refer to maintenance instructions.

WARNING



Handle glass with care.

- Inspect the gasket to ensure it is undamaged.
- Do NOT strike, slam or scratch glass.
- Do NOT operate appliance with glass assembly removed.

11. Cleaning Exhaust Blower - Requires No Lubrication

- **Frequency:** Yearly or more frequently depending on ash build-up
- **By:** Homeowner or Qualified Service Technician
  a. Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.
  b. Follow the directions for cleaning the exhaust path found on page 15.
  c. If unable to thoroughly clean the blower through this access, then follow the directions on page 22 for direct access to the exhaust blower.
  d. Vacuum the blower's impellers. Use care not to bend or damage the blower fins.

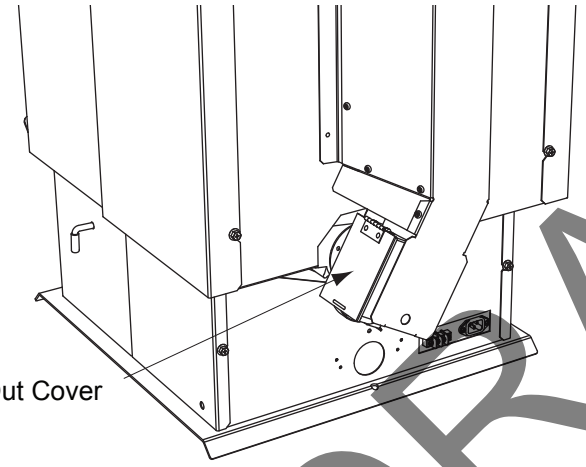
NOTE: Hearth & Home Technologies recommends to use a heavy duty vacuum cleaners specifically designed for solid fuel appliance cleaning.

12. Cleaning Convection Blower - Requires No Lubrication

- **Frequency:** Yearly or more frequently depending on Dust/Dirt build-up
- **By:** Homeowner or Qualified Service Technician
  a. Be sure the appliance is allowed to cool and has been unplugged.
  b. Follow the directions on page 21 for direct access to the convection blower.
  c. Sweep or vacuum out any build-up. Use a brush or compressed air to loosen dirt if needed.

13. Cleaning the Top Vent Adapter

- **Frequency:** Yearly or more frequently depending on ash build-up
- **By:** Homeowner
  a. The appliance must be in complete shutdown and the exhaust blower should be off. Allow the appliance to completely cool down.
  b. Open the clean-out cover **(Figure 19.1)**.
  c. Sweep or vacuum out any ash build-up.



Clean-Out Cover

Figure 19.1

14. Preparing Firebox for Non-Burn Season

- **Frequency:** Yearly
- **By:** Homeowner
  a. Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.
  b. Remove all ash from the firebox and vacuum thoroughly.
  c. Paint all exposed steel, including cast-iron.
     — Purchase paint from your local dealer.
     — Must use a high-temperature paint made specifically for heating appliances.

D. High Ash Fuel Content Maintenance

- **Frequency:** As needed
- **By:** Homeowner

Poor quality pellet fuel, or lack of maintenance, can create conditions that make the fire pot fill quickly with ashes and clinkers.

This condition makes the appliance susceptible to overfilling the fire pot with pellets which may result in smoking, sooting and possible hopper fires **Figure 20.1** shows an example where the firepot overfills, pellets back up into the feed tube and ash has accumulated in the firebox.

An inefficient and non-economical method of burning of fuel caused by poor quality pellet fuel is shown in **Figure 20.2**.

The correct flame size when good quality, premium pellet fuel is burned is shown in **Figure 20.3**.

If the ash buildup exceeds the half way point in the firepot IMMEDIATE ATTENTION AND CLEANING IS REQUIRED.

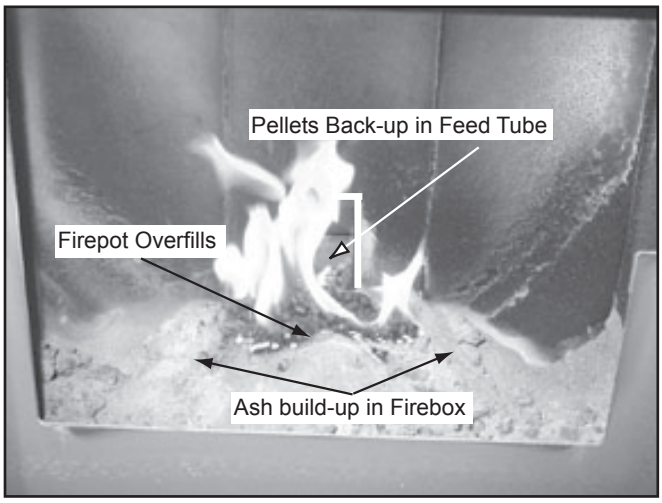


Figure 20.1

WARNING

Fire Risk

- High ash fuels, or lack of maintenance, can cause the firepot to overfill. Follow proper shutdown procedure if ash buildup exceeds halfway point in firepot.
- Failure to do could result in smoking, sooting and possible hopper fires.

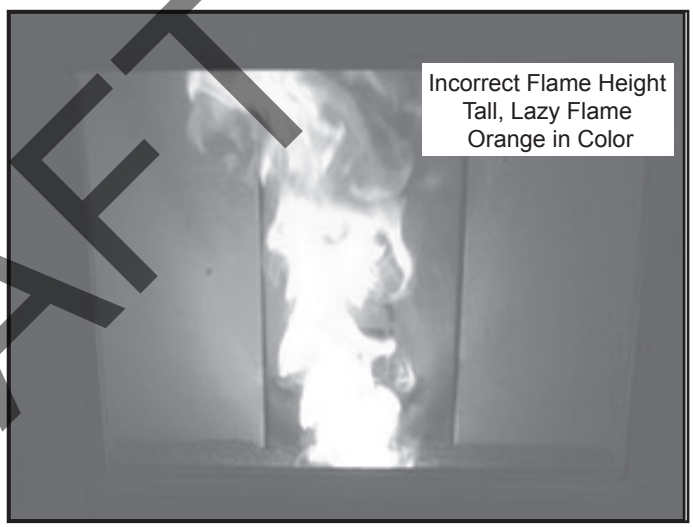


Figure 20.2

E. Soot or Creosote Fire

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

In the event of a soot or creosote fire, close the firebox door, exit the building immediately and contact the proper fire authorities.

DO NOT under any circumstances re-enter the building.

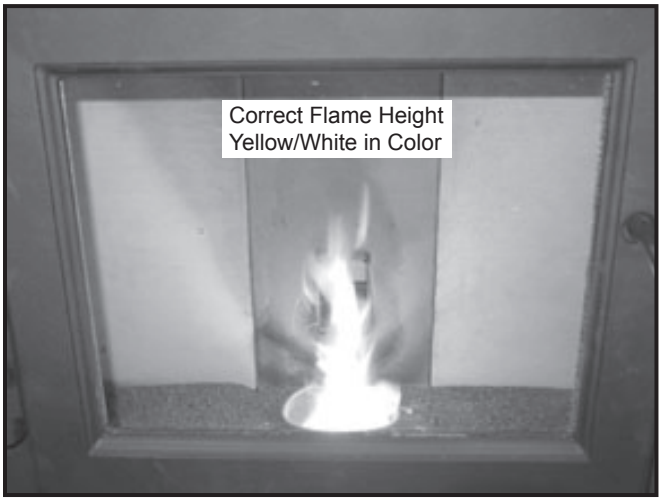


Figure 20.3

4 Troubleshooting Guide

With proper installation, operation, and maintenance your appliance will provide years of trouble-free service. If you do experience a problem, this troubleshooting guide will assist a qualified service person in the diagnosis of a problem and the corrective action to be taken. This troubleshooting guide can only be used by a qualified service technician.

Symptom	Possible Cause	Corrective Action
Plug in appliance - No response.	No current to outlet. 7 amp fuse defective. #3 snap disc tripped or defective. Control box defective.	Check circuit breaker at service panel. Replace fuse. Reset or replace snap disc. Replace control box.
Call light on. No fire. No fuel in fire pot.	Out of fuel. #2 snap disc may be defective. Vacuum switch not closing, no vacuum. Control box defective.	Check hopper. Fill with fuel. Replace snap disc. Check exhaust blower is plugged in and operating. Check vacuum switch is plugged in. Check vacuum hose is in good condition, clear and connected at both ends. Check thermocouple is in good condition and plugged in properly. Make sure venting system is clean. Make sure front door is closed. Replace control box.
Call light on. No fire. Partially burned fuel in fire pot.	Fire pot clean-out plate not closed. Fire pot is dirty (missed ignition).	Check that fire pot clean-out plate is fully closed. Clean fire pot. Make sure there is no clinker in the fire pot. Clinkers may have to be broken up with fire pot scraper tool or other means.
Call light on. No fire. Unburned pellets in fire pot.	Fire pot clean-out plate not closed. Fire pot is dirty. Ignition hole blocked. Igniter not working. Control box defective.	Check that fire pot clean-out plate is fully closed. Clean fire pot. Make sure there is not a clinker in the fire pot. Clinkers may have to be pushed out of fire pot with fire pot scraper tool or other means. Scrape with solid piece of wire. Remove ash pan to see if igniter is glowing red on start-up. Check igniter wires for good connection. Replace igniter using 1/4 inch male /female spade connectors. Replace control box.
Slow or smoky start-up.	Fire pot clean-out plate not closed. Fire pot is dirty. Excessive amount of fuel at start-up.	Check that fire pot clean-out is fully closed. Clean fire pot. Make sure there is not a clinker in the fire pot. Clinkers may have to pushed out of fire pot with fire pot scraper tool or other means. Reduce feed rate using feed rate adjustment control rod located inside hopper.

Symptom	Possible Cause	Corrective Action
Slow or smoky start-up (Cont'd)	Dirty exhaust and/or venting system.	Check for ash build up in appliance, including behind rear panels, firebox, heat exchanger, exhaust blower and venting.
Feed system fails to start.	Out of fuel. #2 snap disc may be defective. Vacuum switch not closing. No vacuum. Feed system jammed or blocked. Feed spring not turning with feed motor. Feed motor defective or not plugged in.	Check hopper, fill with fuel. Replace snap disc. Firebox door must be closed securely. Check exhaust blower is plugged in and operating. Check vacuum switch is plugged in. Check vacuum hose is in good condition, clear and connected at both ends. Check thermocouple is in good condition and plugged in properly. Make sure venting system is clean. **NOTE:** High winds blowing into the venting system can pressurize the firebox causing loss of vacuum. Empty hopper of fuel. Use a wet/dry vacuum cleaner to remove remaining fuel, from hopper, including feed tube. Check feed chute for obstructions. Loosen 2 screws and jiggle feed assembly. Check that set screw is tight on feed spring shaft at end of feed motor. Check connections on feed motor, replace if defective.
No call light. Appliance does not begin start sequence.	Thermostat not set to a high enough temperature. Snap Disc #3 tripped. No power. Fuse blown. Connections at thermostat and/or appliance not making proper contact. Defective thermostat or thermostat wiring. Control box defective.	Adjust thermostat above room temperature. Reset snap disc. Connect to power. Replace fuse. Check connections at thermostat and appliance. Replace thermostat or wiring. **NOTE:** To test thermostat and wiring, use a jumper wire at the thermostat block on the appliance to by-pass thermostat and wiring. Replace control box.
Appliance fails to shut off.	Call light on.	Turn thermostat off. If call light does not go out, disconnect thermostat wires from appliance. If call light does go out, thermostat or wires are defective.

Symptom	Possible Cause	Corrective Action
Convection blower fails to start.	No call light.	Defective control box.
	#1 snap disc defective.	Replace snap disc.
	Blower not plugged in.	Check that blower is plugged into wire harness.
	Blower is defective.	Replace blower.
	Control box is defective.	Replace control box.
Exhaust blower fails to start or does not shut off.	Blower not plugged in.	Check that blower is plugged into wire harness.
	Blower is clogged with ash.	Clean exhaust system.
	Blower is defective.	Replace blower.
	Control box is defective.	Replace control box.
Large, lazy flame, orange color. Black ash on glass.	Dirty appliance. Poor fuel quality, high ash content.	Clean appliance, including fire pot, heat exchangers and venting system. Remove stainless steel baffle from firebox to clean ash from on top of baffle. Clean behind rear brick panels. Change fuel brand to premium.
	Fire pot clean-out plate not completely closed.	Check that fire pot clean-out plate is fully closed.
	Excessive amount of fuel.	Reduce feed rate using feed rate adjustment control rod located inside hopper.
Nuisance shutdowns.	Low flame.	Increase feed by opening feed rate adjustment control rod located inside hopper.
	Sawdust buildup in hopper.	Clean hopper, see **page 35**.
	Feed motor is reversing.	Check for good connections between feed motor and wire harness.
	Defective thermocouple.	Replace thermocouple.
	Defective control box. Fire pot more than 1/2 full	Replace control box. See **page 38** for detailed instructions for “High Ash Fuel Content Maintenance”.
Appliance calls for heat. Call light illuminates. Exhaust blower starts. No feed or igniter.	Thermocouple is defective or not properly plugged in.	Check connections on thermocouple or replace if defective. A flashing yellow light on the control box indicates a problem with the thermocouple.
	Defective control box	Replace control box.

5 Service Parts Replacement

A. Convection Blower Replacement

1. Turn down the thermostat, let appliance completely cool and then unplug appliance before servicing.
2. The convection blower is located on the floor at the rear of the appliance.
3. Lift the hopper lid up until it locks into place.
4. Loosen the 4 screws on the upper back panel and the 2 screws on the lower back panel, using a #2 Phillip Head screwdriver, a 3/8 inch wrench or a 3/8 Inch socket. You do not need to remove them **(Figure 24.1)**.
5. Remove the left upper and lower side panels by lifting up and out. The hooks on the panels will slide out of the slots on the appliance **(Figure 24.2)**.
6. Release blower wires from the nylon wire retainer if applicable. This appliance has 1 black and 1 white wire coming from the blower.
7. Remove the wing bolt and move the blower and hold-down bracket toward the back of the appliance to release the locating tab **(Figure 24.3)**. Pull the blower out from under the convection plenum. Slide the blower out of the appliance. Disconnect the wires from the spade connectors at this time **(Figure 24.4)**.
8. Return wires to nylon wire retainer. Make sure wires do not contact any moving parts or touch any surfaces that may become hot **(Figure 24.4)**.

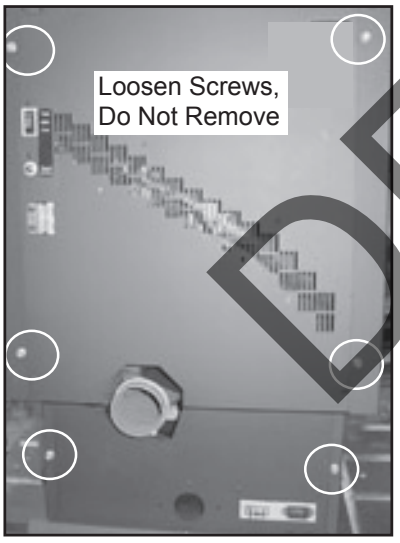


Figure 24.1

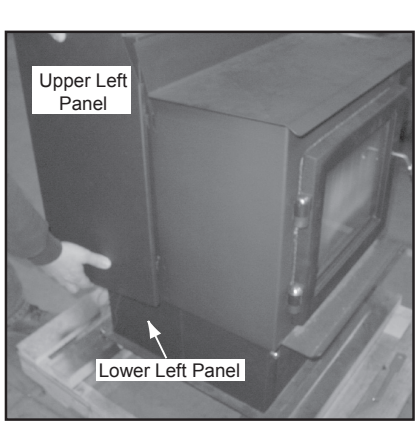


Figure 24.2

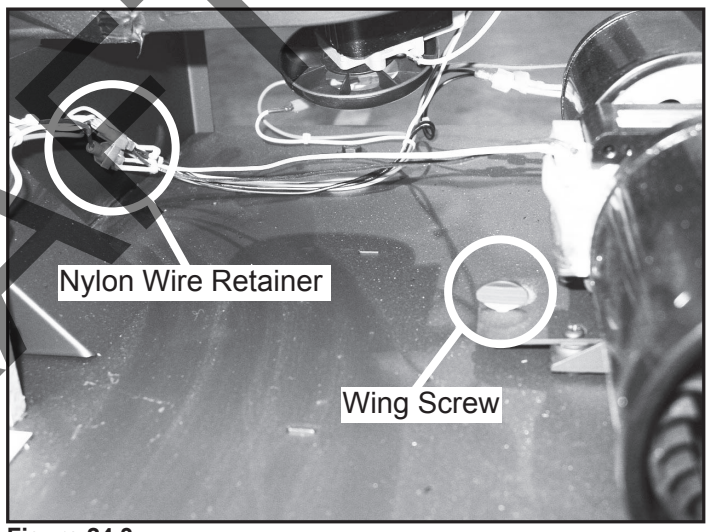


Figure 24.3

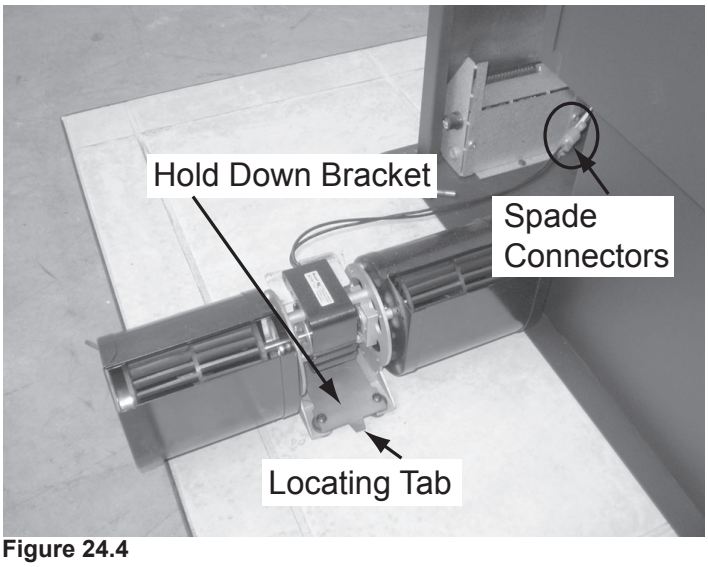


Figure 24.4

B. Exhaust Blower Replacement

1. Turn down the thermostat, let appliance completely cool and then unplug appliance before servicing.
2. Remove both upper and lower right side curtains **(Figure 25.2)**.
3. Disconnect 2 white wires from the white and blue wires of the exhaust blower.
4. There is a removable plate on the exhaust blower. Depending on the model, use a 1/4 inch socket, or 1/4 inch Nut Driver or #2 Phillips Head screw driver to loosen the 6 screws in the keyhole shaped holes and rotate the plate. It is only necessary to loosen screws **(Figure 25.1)**.
5. Remove the exhaust blower and gasket.
6. Check for degradation on the gasket and replace if necessary using the gasket included in the kit.
7. Re-install in reverse order.

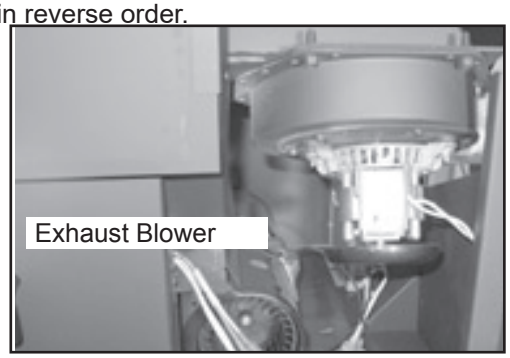


Figure 25.1

C. Snap Disc Replacements

Snap Disc #1 - Convection Blower

1. Turn down thermostat, let appliance cool completely if running. Then unplug appliance before servicing.
2. Using #2 Phillips screwdriver, 3/8” wrench, or 3/8” socket loosen the three screws that hold the right upper and lower side panels in place. You do not need to remove the screws. Remove side panels by lifting up and out.
3. Snap disc #1 is located on the convection plenum below the feed motor **(Figure 251)**.
4. It has two purple wires attached to it with 1/4 inch female spade terminals.
5. Disconnect the two wires from the snap disc. Using a #2 Phillips screwdriver, remove the two screws securing the snap disc to the appliance.
6. Re-install in reverse.

Snap Disc #2 - Fuel Delivery Interrupt

1. Turn down thermostat, let appliance cool completely if running. Then unplug appliance before servicing.
2. Using #2 Phillips screwdriver, 3/8” wrench, or 3/8” socket loosen the three screws that hold the right upper and lower side panels in place. You do not need to remove the screws. Remove side panels by lifting up and out.
3. Snap disc #2 is located on the convection plenum in the center of the appliance above the convection blower **(Figure 25.2)**.
4. It has a black wire and an orange wire attached to it with 1/4 inch female spade terminals.
5. Disconnect the two wires from the snap disc. Using a #2 Phillips screwdriver, remove the two screws securing the snap disc to the appliance.
6. Re-install in reverse.

Snap Disc #3 - Feed Motor - Manual Reset

1. Turn down thermostat, let appliance cool completely if running. Then unplug appliance before servicing.
2. Using #2 Phillips screwdriver, 3/8” wrench, or 3/8” socket loosen the three screws that hold the right upper and lower side panels in place. You do not need to remove the screws. Remove side panels by lifting up and out.
3. Snap disc #3 is located on the bracket on the feed tube near the feed motor **(Figure 25.1)**.
4. It has a two gray wires attached to it with 1/4 inch female spade terminals.
5. The locating bracket is attached to the feed tube with an 8 X 32 wing nut. Remove the wing nut to detach the bracket from the feed tube.
6. Disconnect the two wires from the snap disc.
7. Using a #2 Phillips screwdriver, remove the screw securing the snap disc to the bracket **(Figure 25.3)**.
8. Re-install in reverse.

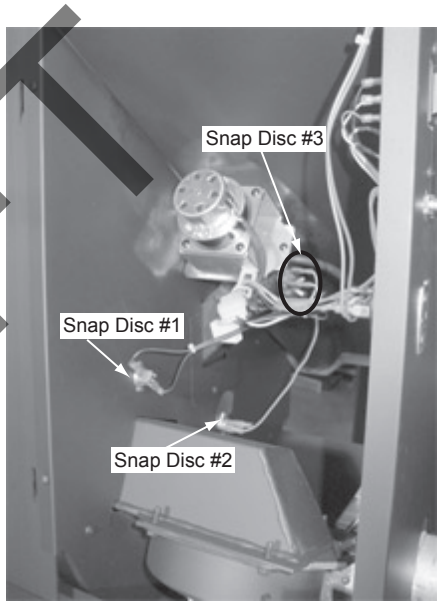


Figure 25.2

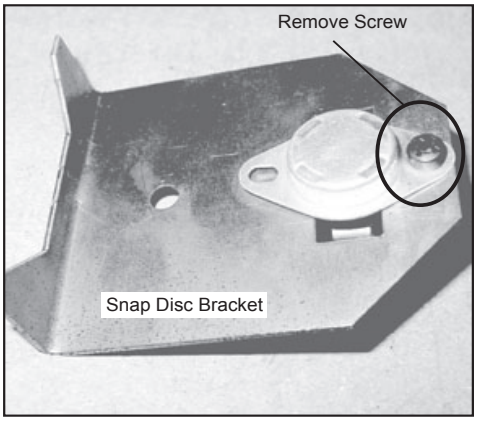


Figure 25.3

D. Igniter Replacement

1. Shut down the appliance by turning down the thermostat and let the appliance completely cool down. After the appliance has cooled down, unplug it and remove the ash drawer.
2. The wire leads to the igniter are connected to the wire harness with 1/4 inch male / female spade connectors.
3. Follow the directions on page 21 to remove the upper and lower right side panels to expose the spade connectors.
4. Disconnect the spade connectors and remove the igniter from the chamber. Loosen thumb screw and slide igniter out.
5. Install new igniter into the chamber and tighten thumb screw. The wires MUST route through the wire retainer hook and then re-connect the wires to the 2 leads with the spade connectors **(Figure 26.1)**.
6. Double check that the igniter wires are clear of any movement, i.e. ash drawer, firepot cleaning rod, etc.
7. Re-install the ash drawer and side panel and re-connect the power.

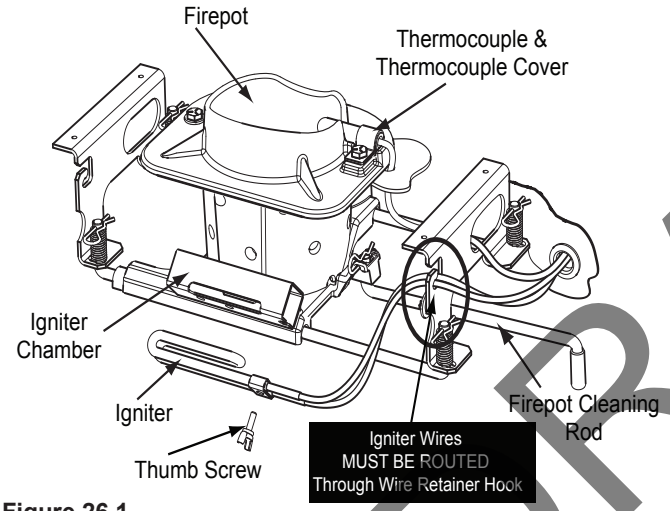


Figure 26.1

E. Baffle Removal & Replace

1. Shut down the appliance by turning down the thermostat and let the appliance completely cool down.
2. Remove the center baffle first by using the handle at the top of the baffle and pull up and then towards you. The hooks on the baffle will slide out of the slots in the bracket **(Figure 26.2)**.
3. Remove the left baffle and then the right baffle by pulling up and then towards you. The left and right baffles have similar hooks and slots **(Figures 26.3 and 26.4)**.
4. Re-install the baffles in reverse order. Be careful to insert the hooks in their respective slots. Be sure the baffles are completely secure/seated (close, if not touching, the firebox floor).

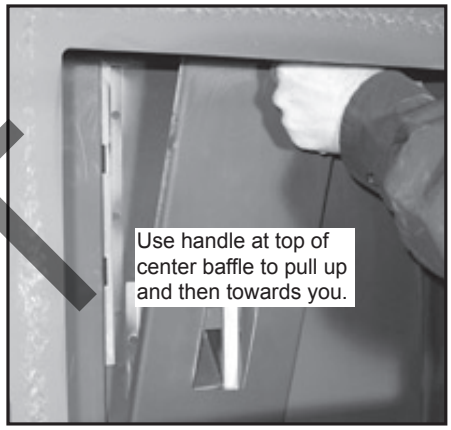


Figure 26.2

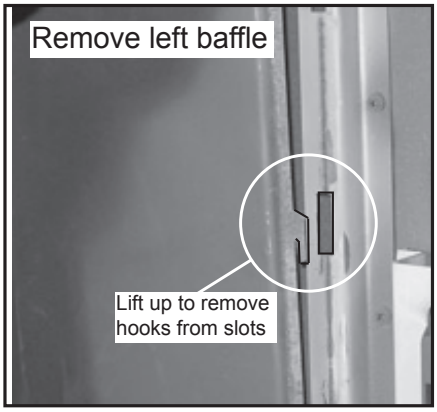


Figure 26.3

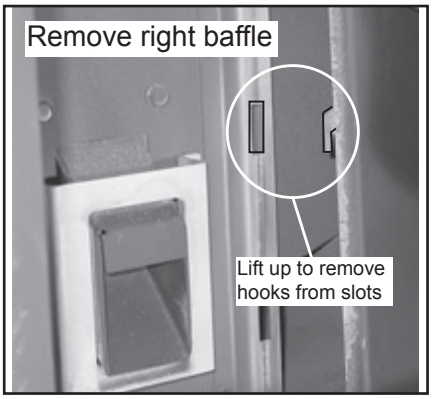


Figure 26.4

F. Glass Replacement

1. Open the door from the appliance by lifting door off of hinge pins and lay on a flat surface face down.
2. Using a Phillips Head screw driver, remove the 4 brackets and set aside **(Figure 27.1)**.
3. Remove old glass and replace with the new glass.
4. Re-install the brackets using the same screws.

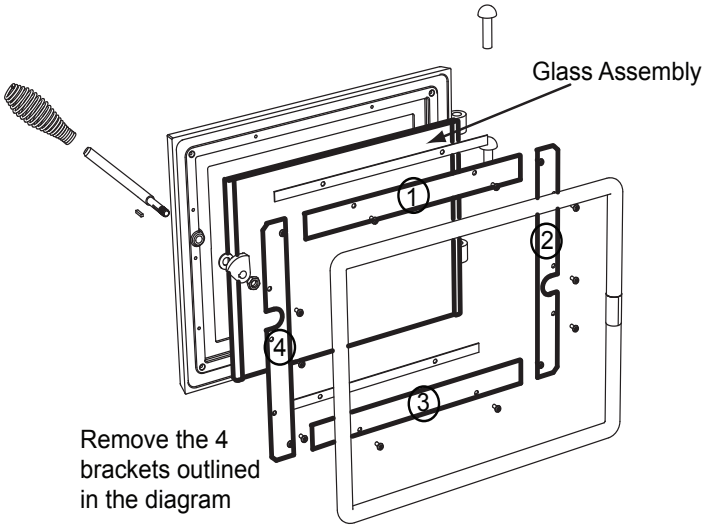


Figure 27.1

WARNING

- Glass is 5mm thick high temperature heat-resistant ceramic glass.
- DO NOT REPLACE with any other material.
- Alternate material may shatter and cause injury.

6 Reference Materials

A. Component Functions

1. Control Box

a. The control box is located on the lower left side of the appliance, behind the lower left side panel and above the junction box.

b. There is a light located inside of the control box. The internal light will turn green when the appliance has reached a temperature of 200°F (93°C) in the fire pot. and will turn red when it reaches 600°F (315°C).

c. There is also an internal blue light located in the control box. When you plug in the appliance the blue light will automatically start blinking. This model it should blink 2 times.

To set your control board on the correct number:

- Unplug the appliance.
- Using #2 Phillips screw driver, 3/8" wrench, or 3/8" socket loosen the three screws that hold the right upper and lower side panels in place. You do not need to remove the screws. Remove side panels by lifting up and out.
- Use a #2 Phillips screw driver to remove the control box retainer bracket and lift control box out of the junction box.
- Using a ¼ inch flat head screw driver turn the rotary switch until the desired number is showing on the dial.
- Re install control box and plug in appliance.
- To confirm your selection is correct count the number of times the blue light flashes.

Example: If you are on setting 2 the control box will flash 2 times every 10 seconds for 1 minute.

See chart below for correct control box setting for your model **(Figure 28.1)**.

2. Convection Blower

The convection blower is mounted at the bottom rear of the appliance. There are 2 impellers, one on each side of the motor. The convection blower pushes heated air through the heat exchange system into the room.

Model	Factory Control Board Setting
PS50-C	#2 (2 Flashes)

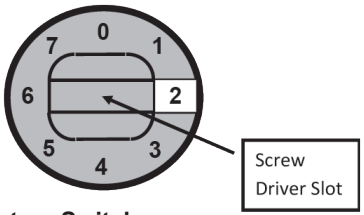


Figure 28.1 - Rotary Switch

NOTE: Do NOT open the control box. This will void the warranty. If you need to plug in or remove the control box you must first unplug the appliance.

When describing the location of a component, it is always AS YOU FACE THE FRONT OF THE APPLIANCE.

3. Exhaust Blower

The exhaust blower is mounted on the right side of the appliance. The exhaust blower is designed to pull the exhaust from the appliance and push it out through the venting system.

4. Feed System

The feed system is located on the right side of the appliance and can be removed as an entire assembly. The assembly includes the feed motor, mounting bracket, bearing and feed spring (auger). The hollow feed spring (auger) pulls pellets up the feed tube from the hopper area and drops them down the feed chute into the fire pot.

5. Fire pot

The fire pot is made of high quality ductile iron and has a cleaning pull-out rod. The floor of the fire pot opens for cleaning when you pull out the rod. Be sure that the floor returns to a completely closed position or your appliance will not operate properly.

6. Fuse

The fuse is located on the side of the junction box above to the red call light. The fuse will blow should a short occur and shut off power to the appliance.

7. Heat Output Switch

The heat output switch is located on the upper right back panel. The function of the heat output switch is to regulate the burn rates; low, medium and high settings.

8. Hopper Switch

The hopper switch is located in the upper right hand corner of the hopper. This switch is designed to shut down the feed motor whenever the hopper lid is opened.

9. Igniter

The igniter is mounted on the base of the fire pot. Combustion air travels over the red hot igniter creating super heated air that ignites the pellets.

10. Junction Box And Wiring Harness

The junction box is located on the lower left side of the appliance, behind the left side panel. The junction box and wiring harness are replaced as one component.

11. Power Supply

The power outlet is located behind the control box on the back of the appliance, lower left corner. Check the wall receptacle for 120 volt, 60 Hz (standard current). Make sure the outlet is grounded and has the correct polarity. A good surge protector is recommended.

12. Red Call Light
The red call light is on the side of the junction box, below the fuse. The function of the red call light is to indicate that the thermostat is calling for heat.

13. Reset Button
The reset button is located on the back of the appliance in the upper right corner below the heat output control switch. The function of the button is to momentarily open the thermostat circuit, which restarts the system.

14. Thermocouple
The thermocouple is located on top of the firepot inside the thermocouple cover (ceramic protection tube). The thermocouple sends a millivolt signal to the control box indicating the preset temperatures of the green and red lights have been obtained.

15. Thermostat
The appliance is designed to run on a 12 volt AC thermostat. The heat anticipator should be set on the lowest setting available.

16. Snap Disc #1 (Convection Blower) 110°F
Snap disc #1 is located on the right side of the appliance behind the right side panel. There are 2 purple wires connected to it. This snap disc turns the convection blower on and off as needed. Power is always present at snap disc #1.

17. Snap Disc #2 (Fuel Delivery Interrupt) 175°F
Snap disc #2 is located on the center of the convection plenum above the convection blower. There is an orange and a black wire connected to it. This snap disc will turn off the feed system which will turn off the appliance if an over fire condition should occur or if the convection blower should fail to operate. If this occurs you will have to manually reset the snap disc.

18. Snap Disc #3 (Back Burn Protector) 250°F
Snap disc #3 is mounted on the back of the auger tube in the center of the appliance and has a reset button. There are two gray wires connected to it. To access it remove the right side panel. If the fire tries to burn back into the feed system or push exhaust up the feed tube, this snap disc will shut the entire system off. This disc must be manually reset.

19. Vacuum Switch
The vacuum switch is located on the lower right side of the appliance behind right side panel. There are two red wires attached to it. This switch turns the feed system on when vacuum is present in the firebox. The vacuum switch is a safety device to shut off the feed motor if the exhaust or the heat exchanger system is dirty or plugged or if the firebox door is open.

20. Wiring Harness
See **Figure 29.1** below.

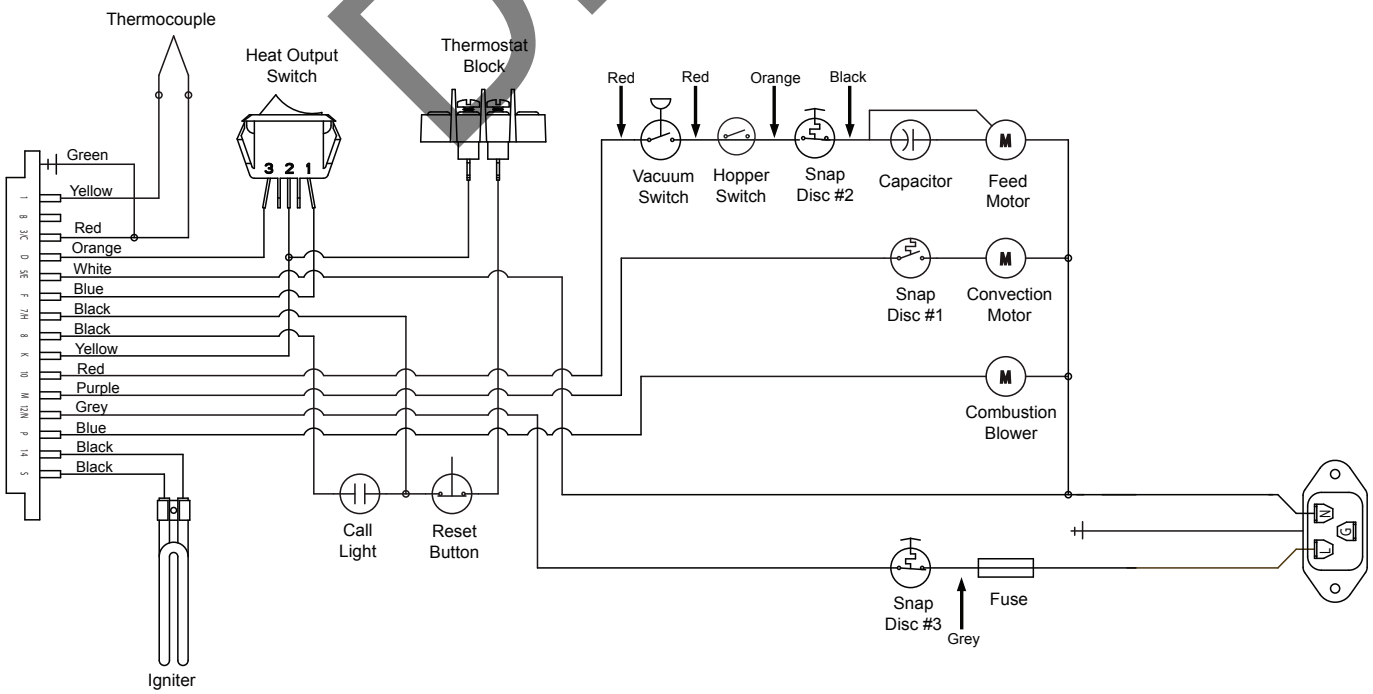


Figure 29.1

B. Component Locations

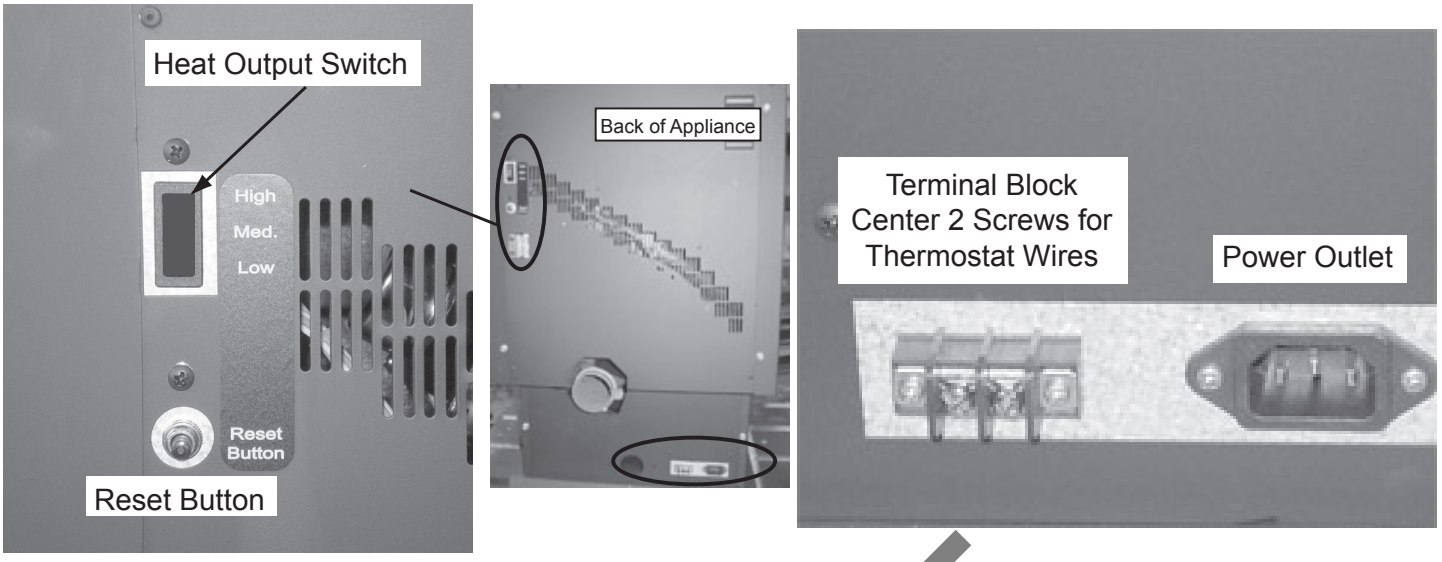


Figure 30.1

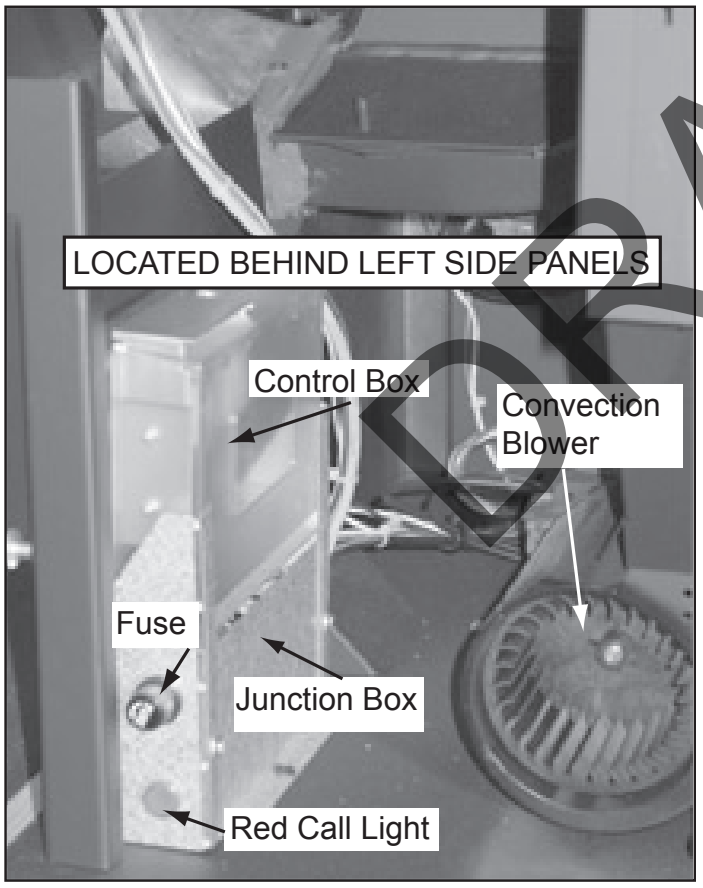


Figure 30.2

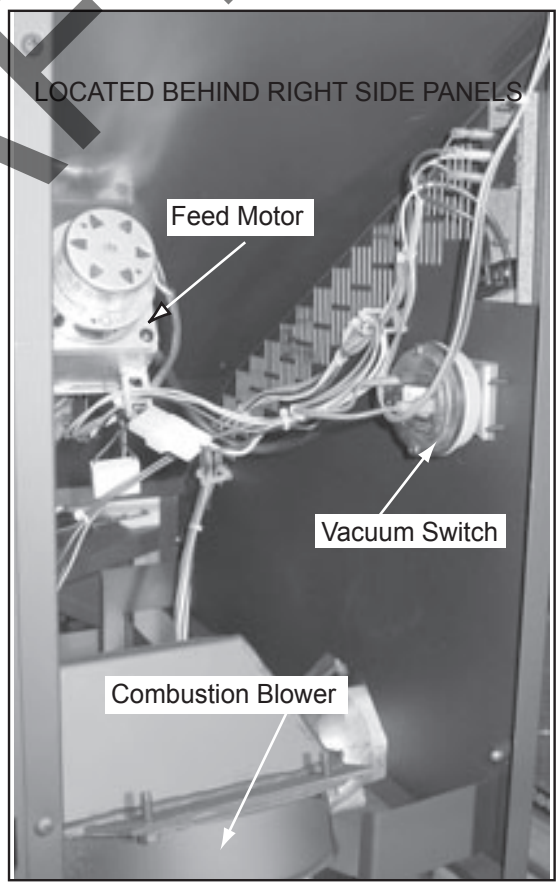


Figure 30.3

C. Maintenance and Service Log

Date of Service	Performed By	Description of Service

D. Exploded Drawing

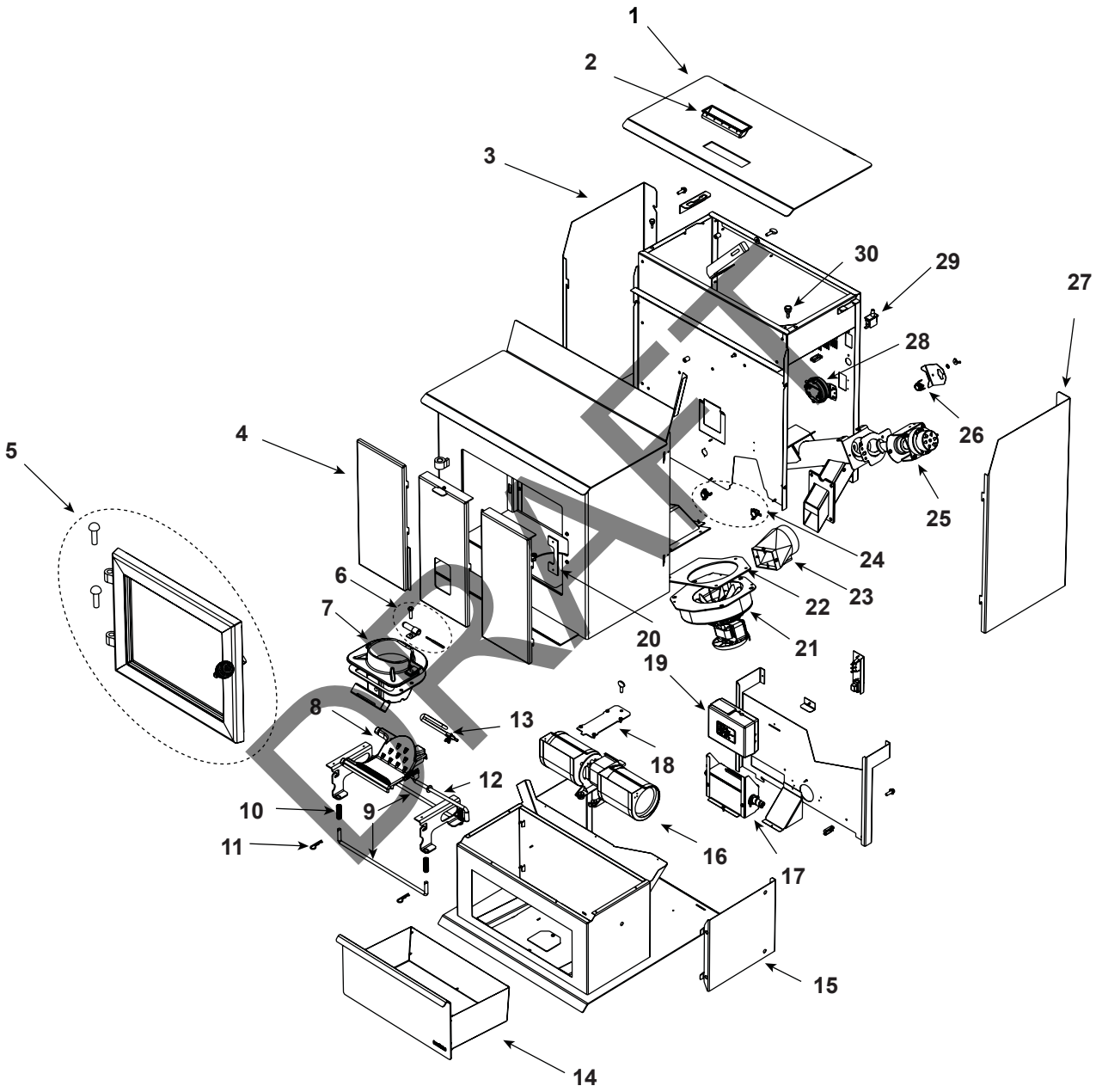
heatilator ECOCHOICE™

Service Parts

ECO-ADV-PS50

Free Standing Pellet Stove

Beginning Manufacturing Date: Apr 2010
Ending Manufacturing Date: Active



Part number list on following page.

08/18

E. Service Parts

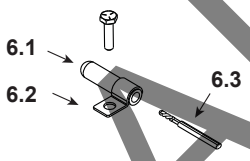
heatilator ECOCHOICE™

Service Parts

ECO-ADV-PS50

Beginning Manufacturing Date: Apr 2010
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.

Item	Description	Comments	Part Number	Stocked at Depot
1	Hopper Lid Assembly		SRV7059-009	
2	Handle, Hopper Lid		SRV200-0110	
3	Side Curtain, Left		SRV7059-125	
4	Baffle Assembly		SRV7059-026	**Y**
5	Door Assembly		SRV7058-014	
	Door Handle Assembly		SRV7058-030	**Y**
	Gasket, Glass Tape, 3/4” X 1/8”	5 Ft	832-0460	**Y**
	Glass Assembly		SRV7058-015	**Y**
	Key Latch, Cam		SRV430-1151	
	Hinge Pin, 1/2”	Nickel	SRV430-5320	
	Rope, Door, 3/4” X 84”		832-1680	**Y**
Thermocouple Assembly 				
6.1	Thermocouple Protection Tube		SRV7034-186	**Y**
		Pkg of 10	SRV7034-186/10	
6.2	Half Clip		7000-321	
6.3	Thermocouple		812-4470	**Y**
7	Firepot Assembly		SRV7034-072B	**Y**
	Gasket, Firepot		SRV7034-190	**Y**
8	Firepot Bottom		SRV7034-153	**Y**
9	Rail, Auto-Clean		SRV7034-152	**Y**
10	Spring	Pkg of 4	7000-513/4	**Y**
11	Hitch Pin Clip 3/32	Pkg of 10	7000-374/10	**Y**
12	Pull Rod		SRV7058-141	
13	Heating Element Assembly 18” (Loop Igniter)	Pkg of 1	SRV7000-462	**Y**
		Pkg of 10	SRV7000-462/10	**Y**
14	Ash Pan Assembly		SRV7058-013	
	Heatilator Logo		4021-049	
15	Pedestal Side	Qty 2 req	SRV7059-153	
16	Blower, Convection		SRV7000-108	**Y**
17	Wire Harness		SRV7058-150	**Y**
18	Blower Retainer		SRV7058-148	
19	Control Board 3 Speed Eco-Choice		SRV7058-188	**Y**
20	Latch Backing Plate		SRV7058-155	
21	Blower, Exhaust Combustion		SRV7000-602	**Y**

Additional service parts on following page

Service Parts

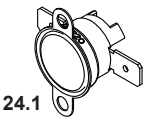
ECO-ADV-PS50

Beginning Manufacturing Date: Apr 2010
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.

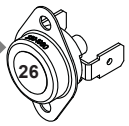
Item	Description	Comments	Part Number	Stocked at Depot
22	Gasket, Exhaust Combustion Blower		SRV240-0812	Y
	Gasket, Combustion Blower, Round		812-4710	Y
23	Casting, Exhaust Transition		180-0190	

Snap Disc's



24.1
F110F-20

24.2
L250F Manual Reset



L175F Manual Reset

24	Snap discs			
24.1	Snap Disc, 110-20 **(#1)**	Right	SRV230-1220	Y
24.2	Snap Disc Manual Reset **(#2)**	Left	SRV230-1960	Y
25	Feed Assembly		SRV7058-007	Y
	Feed Bearing		SRV7000-598	Y
	Feed Motor		812-4421	Y
	Feed Spring Assembly (Only)		SRV7001-046	Y
	Gasket, Feed Motor		SRV7034-144	
26	Snap Disc **(#3)**		SRV230-1290	Y
27	Side Curtain, Right		SRV7059-124	
28	Vacuum Switch		SRV7000-531	Y
29	Hopper Switch		SRV7000-612	Y
30	Bumper, Rubber	Pkg of 12	SRV224-0340/12	Y
	Fuse, 7 Amp, Junction Box	Pkg of 10	812-0380/10	Y
	Component Pack		SRV7058-019	
	Cleanout Tool		414-1140	Y
	DVD	**No longer available**	7058-187	
	Harness, Thermostat Wire		230-0810	
	Power Cord		812-1180	Y
	Thermostat Mechanical		812-3760	Y
	Touch-Up Paint	Pre #HF1830001	812-0910	
		Post #HF1830001	3-42-19905	
	Hose, Vacuum, 5/32 Id	3 Ft	SRV240-0450	Y
	Reset Button Assembly		SRV7000-040	
	Baffle Center Back		SRV7058-166	

Additional service parts on following page.

F. Accessories

Heatilator ECOCHOICE™

Service Parts

ECO-ADV-PS50

Beginning Manufacturing Date: Apr 2010
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.

Item	Description	Comments	Part Number	Stocked at Depot
	ACCESSORIES			
	Collar, Offset, Top Vent		812-3570	
	Damper ,3"	For Tall Vertical Runs Only	PEL-DAMP3	**Y**
	Damper, 4"		PEL-DAMP4	
	Outside Air Kit, 3"		OAK-3	
	Outside Air Kit, 2"		811-0872	
	Hose, Alum Flex, 2 Inch X 3 Ft	3 Ft	SRV200-0860	
	Outside Air Cap Assembly		7001-044	
	Outside Air Collar Assembly		SRV7001-045	
	Trim Plate, Outside Air Kit		412-7100	
	Pull Rod Handle		PULLROD-HNDL	
	Smart-Batt II		841-0970	
	Smart-Stat II		841-0960	
	Thermostat, Programmable		811-0520	
	Top Vent Adapter		TPVNT-5	
	Vent Adapter, 3-4"		811-0720	
	Vent Adapter, 90, Cleanout		TPVNT-6	
	Fastener Packs			
	Rivnut Repair Kit 1/4 -20 & 3/8-16 Rivnut Tools		RIVNUT-REPAIR	**Y**
	Bolt, Hex Head	Pkg of 10	25221A/10	**Y**
	Guide Pin Sleeve	Pkg of 25	31120/25	**Y**
	Hurricane Screw	Pkg of 40	SRV2005-861/40	
	Nut SER FL SMALL 1/4-20	Pkg of 24	226-0130/24	**Y**
	Nut, 2-WY SIDE-LOCK JAM 3	Pkg of 24	226-0100/24	**Y**
	Nut, Lock 1/4-20	Pkg of 25	226-0090/25	**Y**
	Screw 8 - 32x3/8 HWH BK	Pkg of 40	SRV060-883/40	
	Screw HWH MS 1/4-20 X3/4 NS	Pkg of 25	220-0080/25	**Y**
	Screw PH PHL TC 8-32X1/2	Pkg of 25	220-0030/25	**Y**
	Screw, Wing Thumb, 8-32X1/2	Pkg of 24	7000-223/24	**Y**
	SMS #8 X 1/2 S-GRIP BO	Pkg of 40	12460/40	**Y**
	Thumb Screw 1/4-20 x 3/4	Pkg of 10	844-5070	
	Washer, 1/4 SAE	Pkg of 24	28758/24	**Y**
	Washer, SAE	Pkg of 25	227-0080/25	**Y**

CONTACT INFORMATION

Hearth & Home Technologies
352 Mountain House Road
Halifax, PA 17032
Division of HNI INDUSTRIES

Please contact your Heatilator dealer with any questions or concerns.
For the number of your nearest Heatilator dealer
log onto www.heatilator.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.

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.

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.

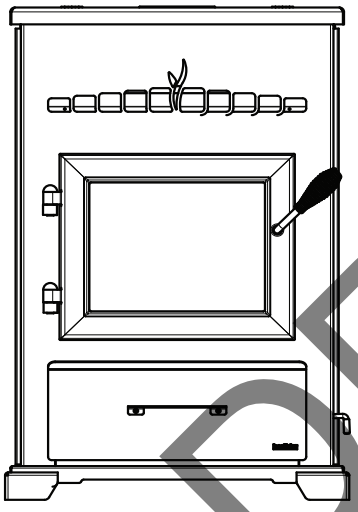
NOTICE: DO NOT DISCARD THIS MANUAL

heatilator® ECOCHOICE™

PELLET BURNING STOVES

MODEL(S):

CAB50-C



EM O-TL 0061PS085E

Pellet Fuels Institute

C ETL LISTED US Intertek 4001508

⚠ CAUTION

Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.

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 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 will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- 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.

⚠ CAUTION

Tested and approved for wood pellets, Burning of any other type of fuel voids your warranty.

NOTE

To obtain a French translation of this manual, please contact your dealer or visit www.heatilatorecochoice.com.

Pour obtenir une traduction Francaise de ce manuel, s'il vous plait contacter votre revendeur ou visitez www.heatilatorecochoice.com.

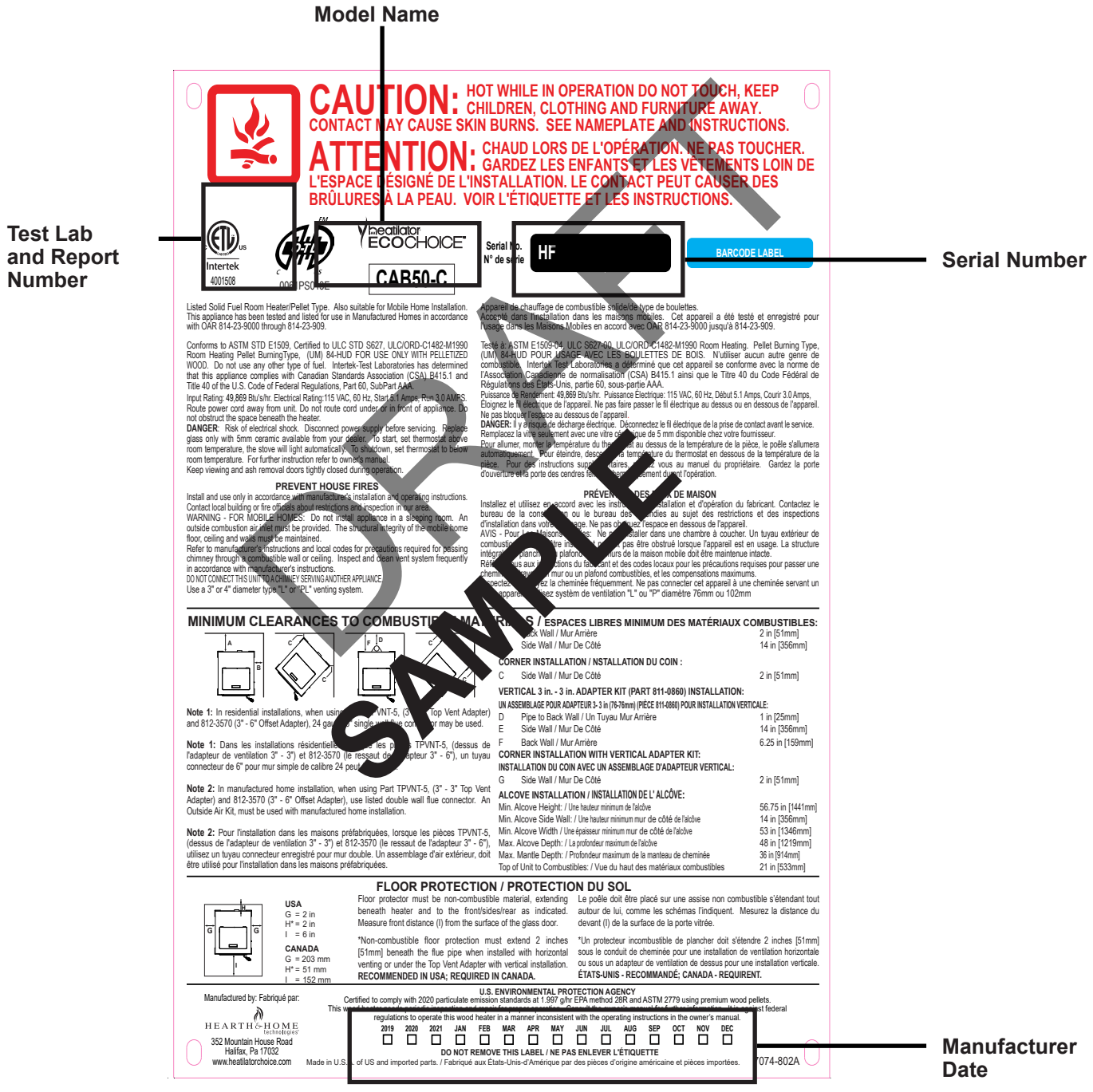
Congratulations

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: On chain behind right access panel & Behind left access panel



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.

TABLE OF CONTENTS

B. Warranty Policy

Hearth & Home Technologies Inc.

HEATILATOR ECO-CHOICE WARRANTY

Hearth & Home Technologies Inc., on behalf of its hearth brands ("HHT"), extends the following warranty for ECO-CHOICE by heatilator wood and pellet hearth appliances that are purchased from an HHT authorized dealer.

WARRANTY COVERAGE:

HHT warrantes to the original owner of the HHT appliance at the site of installation, and to any transferree 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 purchaser price of the product. This warranty is subject to conditions, exclusions and limitations as described below.

WARRANTY PERIOD:

Warranty coverage begins on the date of original purchase. 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. 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.

Warranty Period		Heatilator ECO-CHOICE Appliances		Components Covered
Parts	Labor	Pellet	EPA Wood	
1 year		X	X	All parts and material except as covered by Conditions, Exclusions, and Limitations listed
3 years		X		Firepots and burnpots
3 years	1 year	X	X	Castings
5 years	3 years		X	Manifold tubes
5 years	3 years	X	X	Firebox and heat exchanger
90 days		X	X	All replacement parts beyond warranty period

See conditions, exclusions,and limitations on next page

WARRANTY COVERAGE:

- 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 th HHT branded websites.
- This warranty is only valid while the HHT appliance remains at the site of original installation.
- Contact your installing dealer for warranty service. If the installing dealer 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.

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 replacment of parts that are subject to normal wear and tear during the warranty period. These parts include: paint, wood, pellet and coal gaskets; firebricks; grates; flame guides; light bulbs; 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 operating 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 components 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 appliances' 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 appliance location and configuration, environmental conditions, insulation and air tightness of the structure.

This warranty is void if:

- The appliance has been over-fired or operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals. Overfiring can be identified by, but not limited to, warped plates or tubes, 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.

WARRANTY EXCLUSIONS:

- 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 incidiental 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 specifice 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.

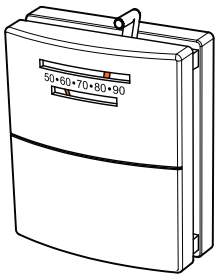
C. Quick Start Guide

GUIDE DE DÉMARRAGE RAPIDE ECO CHOICE

Avant de brancher cet appareil, suivre ces instructions

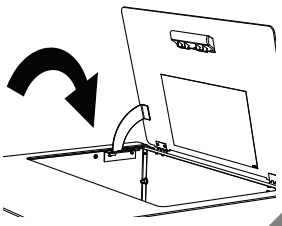
Retirez les étiquettes volantes de la vitre de la porte. Nettoyez la vitre. Retirez le matériel d'emballage et le sachet absorbeur d'humidité de la zone de la boîte à feu avant votre premier feu.

Éteignez le thermostat.



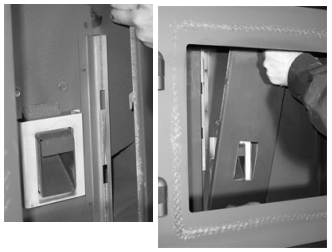
1

Ajoutez des granulés dans la trémie et fermez le couvercle.



2

Ouvrez la porte de la boîte à feu et assurez-vous que les déflecteurs sont en place.



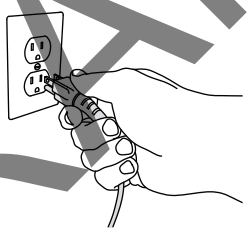
3

<u>Si le tube d'alimentation est vide</u> ou s'il s'agit du premier feu, ajoutez une poignée de granulés dans le creuset de combustion.

*N'ajoutez pas de combustible supplémentaire au creuset de combustion si le tube d'alimentation a déjà été amorcé. Le remplissage excessif du creuset de combustion causera un allumage émettant de la fumée.

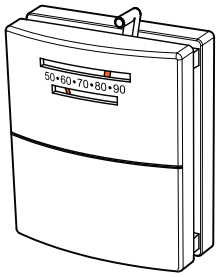
4

Fermez la porte de la boîte à feu et branchez le cordon d'alimentation à une prise murale.



5

Allumez le thermostat.



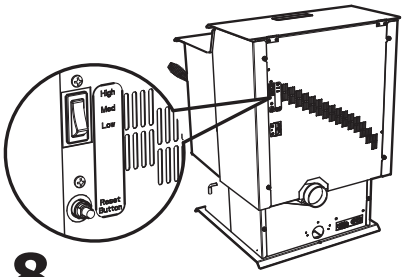
6

Le poêle sera alimenté en granulés pendant une minute et s'arrêtera. Une fois le feu allumé, le cycle d'alimentation reprendra.

<u>Remarque :</u> Laissez 5 minutes pour que s'effectue l'allumage.

7

Si le feu s'éteint après quelques minutes de fonctionnement, il sera nécessaire de pousser le bouton de réinitialisation afin d'ajouter plus de combustible.



8

Une fois le feu bien allumé dans l'unité, laissez-le brûler à « high » pendant 30 minutes, ce qui fera durcir la peinture.

<u>Remarque :</u> Il se produira un dégagement d'odeurs et de vapeurs pendant ce processus.

Ouvrez les fenêtres de la pièce pour une ventilation

9

Après 30 minutes, éteignez le thermostat et laissez l'unité se refroidir complètement. Ouvrez la porte et nettoyez le creuset de combustion selon les directives de nettoyage trouvées à l'intérieur du couvercle de la trémie ou dans le manuel du propriétaire. Fermez la porte et réglez le thermostat à la température désirée. L'unité est maintenant prête à reprendre une utilisation normale.

10

1 Listing and Code Approvals

A. Appliance Certification

Model	CAB50-C
Laboratory	Intertek
Safety Report No.	4001508
Type	Solid Fuel Room Heater/Pellet Fuel Burning Type
Standard	ASTM E1509-04 and ULC S627-00, ULC/ORD-C1482-M1990 Room Heater Pellet Fuel Burning type and (UM) 84-HUD, Mobile Home Approved.

B. BTU & Efficiency Specifications

Laboratory:	OMNI Test Laboratories, Inc.
Emissions Report #:	0061PS085E
EPA Certification #:	XXX-XX
EPA Certified Emissions:	1.997 grams/hour
***LHV Tested Efficiency:**	69.5%
****HHV Tested Efficiency:**	65.1%
*****EPA BTU Output:**	7,488 to 36,591 per hr.
******BTU Input:**	13,138 to 49,869 per hr.
Vent Size:	3 or 4 inches, “L” or “PL”
Hopper Capacity:	83 bs.
Fuel	Premium Wood Pellets
* Weighted average LHV efficiency using data collected during EPA emissions test.	
**Weighted average HHV efficiency using data collected during EPA emissions test.	
***A range of BTU outputs based on HHV and the burn rates from the low and high EPA tests.	
****Maximum BTU input based on the high burn section of the EPA emissions test.	

NOTICE: This installation must conform with local codes. In the absence of local codes you must comply with the **ASTM E1509-04, ULC S627-00, (UM) 84-HUD and ULC/ORD-C-1482**.

This manual describes the owner instructions of the Heatilator Eco Choice, CAB50 pellet appliance. This appliance meets the 2020 U.S. Environmental Protection Agency’s pellet appliance emission limits for wood heaters sold after May 15, 2020. Under specific test conditions this appliance has been shown to deliver heat at rates ranging from 7,488 to 36,591 Btu/hr.

This pellet heater needs periodic inspection and repair for proper operation. It is against federal regulations to operate this pellet heater in a manner inconsistent with operating instructions in this manual.

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. Electrical Rating (on high)

115 VAC, 60 Hz, Start 5.1 Amps, Run 3.0 Amps

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 use only listed double-wall connector pipe.
- Outside Air Kit, part 811-0872 must be installed in a mobile home installation.
- Appliance must be secured to mobile home structure.

F. Sleeping Room

When installed in a sleeping room it is recommended that 3ft of vertical be installed prior to horizontally exiting the room and a smoke/CO alarm be installed in the bedroom; The size of the room must be at least 50ft³ per 1,000 Btu/hr stove input, if the stove exceeds the room size, out 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

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 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

User Guide

2 Operating Instructions

WARNING

Fire Risk.
- Do not operate appliance before reading and understanding operating instructions.
- Failure to operate appliance properly may cause a house fire.

Visit http://www.heatilatorecochoice.com/Customer-Care/Videos to view product and use & care videos.

A. Fire Safety

To provide reasonable fire safety, the following should be given serious consideration:
- Install at least one smoke detector and CO monitor on each floor of your home.
- Locate detectors away from the heating appliance and close to the sleeping areas.
- Follow the detector's manufacturer's placement and installation instructions and maintain regularly.
- A CO detector should be installed in the room with the appliance.
- Conveniently locate a Class A fire extinguisher to contend with small fires.
- In the event of a hopper fire:
  - Evacuate the house immediately.
  - Notify fire department.

B. Non-Combustible Materials

Material which will not ignite and burn, composed of any combination of the following:

- Steel	- Brick	- Concrete	- Glass
- Plaster	- Iron	- Tile	- Slate

Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace of 750° C.**

C. Combustible Materials

Material made of/or surfaced with any of the following materials:

- Wood	- Plastic
- Compressed Paper	- Plywood/OSB
- Plant Fibers	- Sheet Rock (drywall)

Any material that can ignite and burn: flame proofed or not, plastered or non-plastered.

D. Fuel Material and Fuel Storage

Pellet fuel quality can greatly fluctuate. This appliance has been designed to burn a wide variety of fuels, giving you the choice to use the fuel that is most economical in your region.

Hearth & Home Technologies strongly recommends only using Pellet Fuel Institute (PFI) certified fuel.

Fuel Material
- Made from sawdust or wood by-products
- Depending on the source material it may have a high or low ash content.

Higher Ash Content Material
- Hardwoods with a high mineral content
- Fuel that contains bark
- Standard grade pellets, high ash pellets,

Lower Ash Content Material
- Softwoods
- Fuels with low mineral content
- Premium grade pellets

CAUTION

Do not burn fuel that contains an additive; (such as soybean oil).
- May cause hopper fires
- Damage to product may result

Read the ingredients list on the package. If you are buying corn the only ingredient that should be listed is corn.

Clinkers

Minerals and other non-combustible materials such as sand will turn into a hard, glass-like substance called a clinker when heated in the firepot.

Trees from different areas will vary in mineral content. That is why some fuels produce more clinkers than others.

Moisture

Always burn dry fuel. Burning fuel with high moisture content takes heat from the fuel and tends to cool the appliance, robbing heat from your home. Damp pellet fuel can clog the feed system.

Size
- Pellets are either 1/4 inch or 5/16 inch (6-8mm) in diameter
- Length should be no more that 1-1/2 inches (38mm)
- Pellet lengths can vary from lot to lot from the same manufacturer
- Due to length variations, the flame height (feed rate) may need adjusting occasionally. See page 10 for instructions.

Performance

- Higher ash content requires the ash drawer to be emptied more frequently
- Hardwoods require more air to burn properly
- Set wall control to “Utility Pellet” if the fire pot and ash pan are filling quickly. This will cause the auto-clean system to empty the fire pot more often.
- Premium wood pellets produce the highest heat output.
- Burning pellets longer than 1-1/2 inches (38mm) can cause an inconsistent fuel feed rate and/or missed ignitions.

We recommend that you buy fuel in multi-ton lots whenever possible. However, we do recommend trying various brands before purchasing multi-ton lots to ensure your satisfaction.

Changing to Different Fuel Type

- Empty the hopper of the previous fuel
- Thoroughly vacuum hopper before filling with the new fuel
- Select the appropriate setting on the FUEL SELECTION screen on the thermostat wall control

The burn rate, BTU content and heat output will all vary depending on the fuel selected.

CAUTION

Tested and approved for wood pellets. Burning of any other type of fuel voids your warranty.

Storage

- Wood pellets should be left in their original sealed bag until using to prevent moisture absorption.
- This will also prevent rodents from becoming a problem.
- Do not store any pellet fuel within the clearance requirements or in an area that would hinder routine cleaning and maintenance.

E. General Operating Information

1. Thermostat Calls For Heat

The appliance is like most modern furnaces; when the thermostat calls for heat, your appliance will automatically light and deliver heat. When the room is up to temperature and the thermostat is satisfied, the red call light will shut off and the appliance will shut down. The red call light is located behind the left access panel.

2. Heat Output Controls

This appliance is equipped with a heat output control switch that has three settings or burn rates; low, medium and high **(Figure 10.1)**. The appliance will turn on and off as the thermostat demands. When the thermostat calls for heat, the appliance will always start up on High. After burning approximately 4 minutes, the appliance will then burn at the rate at which it was originally set. If the appliance is set at one of the lower settings, it will run quieter but takes longer to heat up an area than if it were set at a higher burn rate. Regardless of the burn rate, when the area is warm enough to satisfy the thermostat, the appliance will shut off.

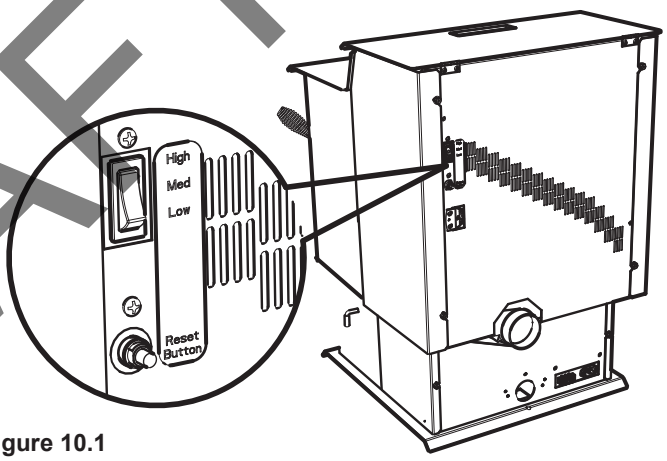


Figure 10.1

F. Before Your First Fire

1. First, make sure your appliance has been properly installed and that all safety requirements have been met. Pay particular attention to the fire protection, venting and thermostat installation instructions.
2. Double check that the ash drawer and firebox are empty!
3. Check that cleaning rod is in the fully closed position.
4. Close and latch the door.

CAUTION

Tip of thermocouple must be in contact with the inside end of the thermocouple cover.
Missed ignitions can occur.

CAUTION

HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS.

G. Hopper Lid Latch and Hopper Switch

1. Lift up the hopper lid; now you can fill the hopper with fuel.
2. The hopper switch is designed to shut down the feed motor when the hopper lid is open. Leaving the lid open too long can cause the fire to go out **(Figure 11.1)**.
3. To close the hopper lid, while holding lid open with one hand, push the bottom of the latch inwards to release from locked position and then slowly close the hopper lid **(Figure 11.2)**.

NOTE: The hopper switch is activated by a magnet attached to the Hopper Lid.

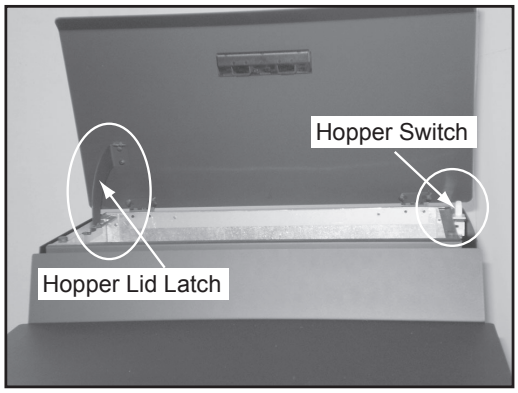


Figure 9.1

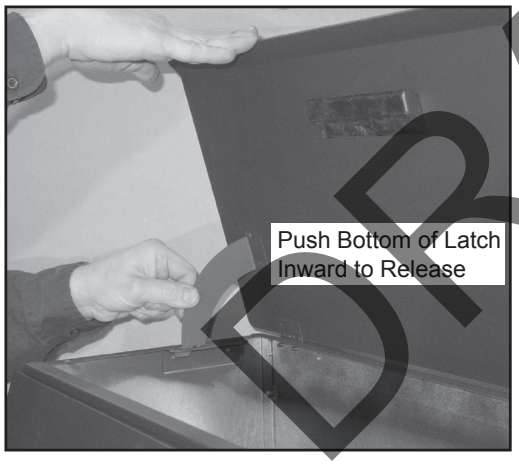


Figure 9.2

H. Starting Your First Fire

1. A thermostat is required for proper operation of this appliance. If you have to adjust the feed rate after you have started the fire, most of the pellets in the hopper will need to be removed so start out with filling the hopper approximately 1/4 full at this time. Set the thermostat to its lowest setting and plug the power cord into nearby outlet.
2. The exhaust blower will stay on for approximately 18 minutes even though the thermostat is not calling for heat. This is normal.
3. Locate the heat output control switch mounted on the back of the appliance in the upper left corner **(Figure 8.1 on page 8)**.
4. Turn it to the “high” setting by pushing the top of the control switch in and then adjust the thermostat to its highest setting.
5. Look through the hole in the left lower side panel and you will see the red call light on the control box will be on **(Figure 11.3)**. This indicates the thermostat is calling for heat.
6. The fuel feed system and the igniter should now be on.
7. For your first fire it will be necessary to press the reset button once approximately 2 minutes after start up and again in 5 minutes. Reset as needed or every 60 seconds until pellets begin to drop into fire pot. This will fill the feed system and allow the appliance to begin dropping pellets. Or you can put a handful of pellets in the fire pot to speed up the process. The appliance will continue to run as long as the thermostat is calling for heat.
8. Once the appliance has ignited, let it burn for approximately 15 minutes, then set the thermostat to the desired room temperature. Adjust the heat output control switch to the desired setting.

CAUTION

Odors and vapors released during initial operation.
- Curing of high temperature paint.
- Open windows for air circulation.

Odors may be irritating to sensitive individuals.

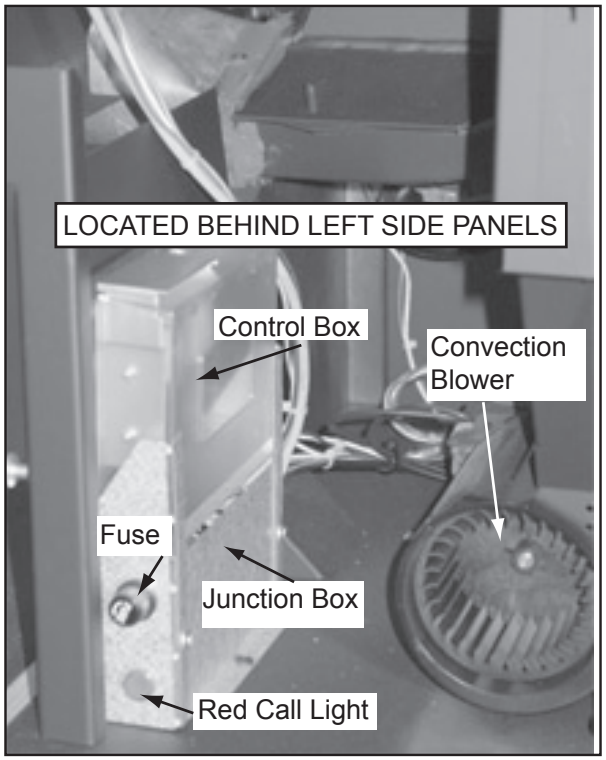


Figure 11.3

I. Fire Characteristics

A properly adjusted fire with the heat output control switch set on “high” has a short active flame pattern that extends out of the firepot approximately 4 to 8 inches (102 to 203mm).

If the fire has tall flames with black tails and seems somewhat lazy, the feed rate will need to be reduced. This is done by sliding the fuel adjustment control rod down, which will reduce the feed **(Figure 12.1)**.

If the fire is not 4 to 8 inches (102 to 203mm) tall, slide the fuel adjustment control rod up to increase the feed. A medium and low setting will give a shorter flame. The flame will rise and fall somewhat. This is normal.

J. Feed Rate Adjustment Instructions

1. Loosen the thumb screw.
2. Pull the feed adjustment control rod up to increase the feed rate and flame height or push down to decrease the feed rate and flame height.
3. Re-tighten the thumb screw. A new stove has a break in period. The fire characteristics should be checked again after 5 bags of pellets and adjustments made if necessary.

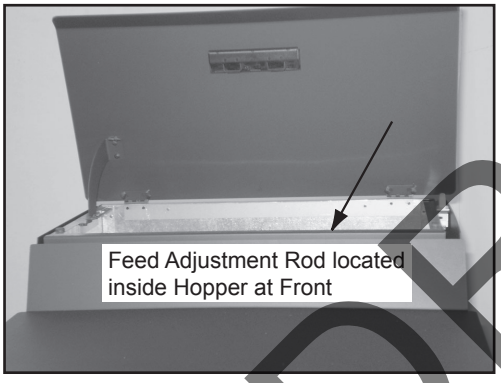


Figure 12.1

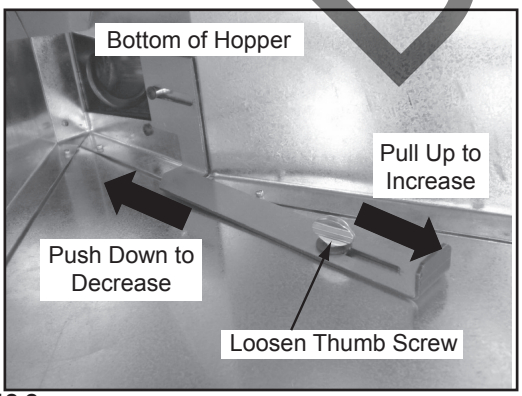


Figure 12.2

K. Ignition Cycles

1. At the beginning of each ignition cycle, it is normal to see some smoke in the firebox. The smoke will stop once the fire starts.
2. The convection blower will automatically turn on after your appliance has been burning for approximately 10 minutes.
   This blower transfers heat from your appliance into the room, and will continue to run after the thermostat has stopped calling for heat until the appliance has cooled down.
3. Occasionally the appliance may run out of fuel and shut itself down. When this happens, the red call light will be on **(See Figure 9.3, page 9)**.
   - To restart it, fill the hopper and press the reset button. When you press the reset button the red call light will go out. Release the button and the light will come back on. Continue pushing the button once a minute until pellets begin to fall into the firepot.
   - You should see a fire shortly. If not, follow the instructions on page 9, for “Starting Your First Fire”.

L. Clear Space

Mantel: Avoid placing candles and other heat-sensitive objects on mantel or hearth. Heat may damage these objects.

NOTICE: Clearances may only be reduced by means approved by the regulatory authority having jurisdiction.

WARNING

Fire Risk.
Do NOT place combustible objects in front of the appliance. High temperatures may ignite clothing, furniture or draperies. Maintain a minimum clearance of 3 feet (914mm) in front of appliance.

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.**
- **DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.**
- **DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE.**
- Keep all such liquids well away from the appliance while it is in use.
- Combustible materials may ignite.

M. Thermostat Operation

There is a 4 screw terminal block located on the back lower left corner of the stove directly above the power cord inlet. The center 2 screws are for the thermostat wires **(see Figure 11.1 on page 11)**.

The appliance comes standard with a wall thermostat and 25’ of wire. If you need to run more than 25’ make sure you use a continuous strand of 18 to 22 gauge thermostat wire. For optimum performance your thermostat should be located on an inside wall approximately 5’ up from the floor.

How to Install Your Wall Thermostat

1. Separate the body of the thermostat from the mounting plate by gently pulling the two pieces apart
2. Connect your thermostat wire to the W and R terminals **(see Figure 11.2 on page 11).**
3. Screw the backer plate to the wall using the hardware included.
4. Snap the thermostat to the backer plate
5. Connect the wires to the 2 center screws on the terminal block on the back of the product

Battery Installation and Replacement

Install fresh batteries immediately when the REPLACE

NOTE: 2 AA batteries are included with the thermostat and must be installed before the appliance can be operated **(see Figure 11.3 on page 11)**.

BATTERY warning begins flashing. The warning flashes about two months before the batteries are depleted. Even if the warning does not appear, you should replace batteries once a year.

If batteries are inserted within two minutes, the time and day will not have to be reset. All other settings are permanently stored in memory.

CAUTION

Shock hazard.

- Do NOT remove grounding prong from plug.
- Plug directly into properly grounded 3 prong receptacle.
- Route cord away from appliance.
- Do NOT route cord under or in front of appliance.

N. Frequently Asked Questions

What causes my glass to become dirty?
If the glass has white ash build up it is normal and the glass should be cleaned. If it is a black soot build up airflow through the unit may be restricted. The most often cause is overdue maintenance and cleaning. See “Maintaining and Servicing Appliance” in the owner’s manual.

How can I get more heat out of the appliance?
The most often cause of diminished heat output is overdue maintenance and cleaning. See “Maintaining and Servicing Appliance” in the owner’s manual. If this still does not help, verify the correct settings for maximum heat output. See “Feed Rate Adjustment” under “Operating Instructions” in the owner’s manual.

What should I do if I smell smoke or there is ash/soot coming from the appliance?
While there will always be some smoke smell from wood burning appliances (including pellet) you should investigate all venting to make sure it is sealed properly. Most venting requires silicone to seal the seams. In addition most homes are built very tight today and with exhaust systems can create negative pressure in the home. See “Negative Pressure” under “Getting Started” in the owner’s manual if you have checked the venting but still have smoke coming from the appliance. For ash or soot check the above and the exhaust blower housing and seals.

Why would my appliance run fine last winter but not start this fall?
It is possible that the stove was not properly prepared for the Non-burn season. See “Trouble shooting” in the owner’s manual.

Why would the metal on the inside of the appliance begin to flake?
There are some pellet mills that get their raw materials from lumber mills that purchase logs that are transported in sea water. These pellets can have a higher salt content and cause the metals in the unit to corrode prematurely and deteriorate. If you are seeing any components inside the firebox deteriorate it is recommended to change pellet brands immediately.

Why does only the exhaust blower run when I unplug and plug back in my appliance?
This is a Safety feature to prevent the unit from operating in an unsafe condition. Allow the unit to run and it will return to normal operation.

Is there a place to lubricate the blowers to quiet them down?
The most often cause of noisy blowers is from the impellers becoming dirty over time. See “General Maintenance & Cleaning” under “Maintaining & Servicing Appliance” in the owner’s manual. No form of lubrication should ever need applied to the blowers.

Why are different components cycling on and off in my appliance at random?
The selector switch on control box may be on the wrong setting. Refer to the Reference Materials section of our owner’s manual for details.

What is the metal object with the bend in it for that came inside the plastic bag?
It is a clean-out tool used to help clean the fire pot and remove any jams in the rare event they occur in the feed tube.

Why is there a black residue building up on the outside of my home?
Wind can cause this to happen. If the appliance is operating correctly very little soot should ever exit the termination cap. Also check to be sure the venting is installed per the owner’s manual and local codes.

Do I need an outside air kit?
Outside air is required for mobile home installs and in some jurisdictions. Refer to “Listing & Code Approvals”,“ Mobile Home Installation” and “ Appliance Set-up” owner’s manual. Also refer to local building codes.

I am seeing sparks coming out of my pipe (termination cap) outside is this safe?
This is normal. As long as clearances to combustibles were followed this is safe.

My unit sounds like a freight train at times what can be done to eliminate this?
This is referred to as Rumbling. Maintenance may be needed see “Maintaining and Servicing appliance” in the owner’s manual. Decrease fuel flow see “Feed rate adjustment” under Operating Instructions”.

Why does my unit run fine on high, but shuts down on low and medium?
Maintenance may be needed see “Maintaining and Servicing Appliance” See also “Trouble Shooting”.

Can I use another brand of wall thermostat or remote system?
Yes, any remote/wall thermostat system that does not require power from the appliance should work.

I have no power to anything. Does this unit have a circuit breaker or fuse or a reset button?
This unit has one serviceable fuse in the junction box and a reset button for the thermostat circuit.

Can I burn corn in my unit?
Corn is not an approved fuel for the ECO units.

I’m thinking about going green (solar power) and need to know what the power consumption is on my Unit.
CAB50 115 VAC, 60 Hz, Start 5.1 Amps, Run 3.0 Amps

Where is the serial # of my unit is located?
The serial # is located on the back of the stove.

CONTACT YOUR DEALER for additional information regarding operation and troubleshooting.
Visit www.heatilatorecochoice.com to find a dealer.

3 Maintenance and Service

When properly maintained, your fireplace will give you many years of trouble-free service. Contact your dealer to answer question regarding proper operation, troubleshooting and service for your appliance. Visit www.heatilatorecochoice.com/Customer-Care to view basic troubleshooting, FAQs, use & care videos. We recommend annual service by a qualified service technician.

CAUTION

Shock and Smoke Hazard

- Turn down thermostat, let appliance completely cool and exhaust blower must be off. Now you can unplug appliance before servicing.
- Smoke spillage into room can occur if appliance is not cool before unplugging.
- Risk of shock if appliance not unplugged before servicing appliance.

A. Proper Shutdown Procedure

Turn off the thermostat.

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

Follow the detailed instructions found in this section for each step listed as referenced in the chart below.

B. Quick Reference Maintenance Chart

Cleaning or Inspection	Frequency		Daily	Weekly	Every 2 Weeks	Monthly	Yearly
Ash Pan - Burning Wood Pellets	Every 5 bags of fuel	OR		X			
Ash Pan - Burning Alternate Fuels	Every 1 bag of fuel	OR	X				
Ash Removal from Firebox	More frequently depending on the fuel type or ash build-up	OR		X			
Blower, Combustion (Exhaust)	More frequently depending on the fuel type	OR					X
Blower, Convection	More frequently depending on the operating environment	OR					X
Door Latch Inspection	Prior to heating season	OR				X	
Firebox - Prepare for Non-Burn Season	At end of heating season	OR					X
Fire pot - Burning Softwood Pellets	Every 5 bags	OR		X			
Fire pot - Burning Hardwood Pellets	Every 3 bags	OR		X			
Glass	When clear view of fire pot becomes obscured	OR		X			
Heat Exchanger & Drop Tube	Every 1 ton of fuel	OR			X		
Hopper	Every 1 ton of fuel or when changing fuel types	OR				X	
Top Vent Adapter	More frequently depending on ash build-up	OR					X
Venting System	More frequently depending on the fuel type	OR					X

NOTICE: These are recommendations. Clean more frequently if you encounter heavy build-up of ash at the recommended interval or you see soot coming from the vent. ***Not properly cleaning your appliance on a regular basis will void your warranty.***

C. General Maintenance

1. Types of Fuel

Depending on the type of fuel you are burning will dictate how often you have to clean your fire pot.

If the fuel you are burning has a high dirt or ash content, it may be necessary to clean the fire pot more than once a day.

Dirty fuel will cause clinkers to form in the fire pot. A clinker is formed when dirt, ash or a non-burnable substance is heated to 2000°F (1093°C) and becomes glass-like. See “D” page 17 in this section for more details on fuels with high ash content.

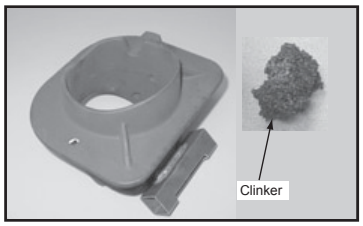


Figure 16.1 - Clinker

2. Cleaning Fire pot with Cleaning Rod & Fire pot Clean-Out Tool:

- **Frequency:** Daily or more often as needed
- **By:** Homeowner

a. The appliance must be in complete shutdown and cool and the exhaust blower off. If you are just cleaning the fire pot, there is no need to unplug the appliance.

b. Locate the fire pot cleaning rod on the right side of the appliance **(Figure 16.2)**. When you pull the cleaning rod straight out it will slide open the firepot floor to allow the ashes to be deposited in the ash drawer. You will see the light color painted area on the cleaning rod to let you know the rod is in OPEN position **(Figure 16.3)**.

c. Pull the firepot cleaning rod OUT and IN a couple of times to help shake debris loose. If the rod is hard to pull, it may be necessary to use your firepot clean-out tool to chip away material that has built up on the bottom plate of the firepot and to push out any clinkers while in the open position.

d. To close the firepot floor: slightly raise the cleaning rod and then push it back into place. If you have closed the cleaning rod properly (pushed all the way in) you will not see any of the light color painted area **(Figure 16.3)**.

e. Always have the ash drawer in place before pulling the firepot cleaning rod, otherwise the ashes will fall down and fill the outside air opening and the appliance will produce soot out of the exhaust and will affect efficiency.

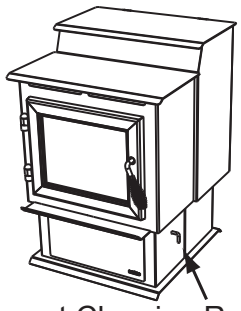


Figure 16.2

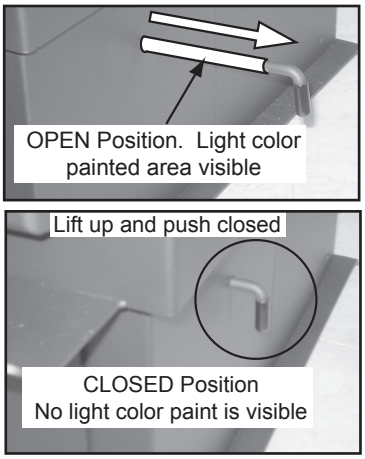


Figure 16.3

WARNING

Fire Risk

- NEVER pull firepot cleaning rod out when appliance is operating.
- Cleaning Rod MUST be completely pushed in before operating appliance.
- Hot pellets may fall into ash pan and start a fire or mis-starts due to lack of vacuum.

3. Ash Removal from Firebox

- **Frequency:** Weekly or more frequently depending on ash build-up.
- **By:** Homeowner

a. There must not be any hot ashes in the firebox during cleaning so allow the appliance to completely cool. The firebox ash should be removed every time the exhaust path is cleaned. Frequent cleaning of the ash in the firebox will help slow down the build-up of ash in the exhaust blower and vent system.

b. Vacuum out the firebox thoroughly on both sides of the firebox and the floor and ceiling. The ash drawer should be emptied every time you clean the firebox. Remember to place the ash and debris into a metal or non-combustible container. See Disposal of Ashes (Pg 15).

c. Always have the ash drawer in place before pulling the firepot cleaning rod, otherwise the ashes will fall down and fill the outside air opening and the appliance will produce soot out of the exhaust and will affect efficiency.

WARNING

Burn Risk

- NEVER remove ash drawer while appliance is operating.

4. Cleaning Ash Drawer

- **Frequency:** Weekly or every 5 bags of fuel
- **By:** Homeowner
  a. There must not be any hot ashes in the ash drawer when you empty it, so allow the appliance to completely cool.
  b. Locate the ash drawer underneath the firepot. Slide the ash drawer straight out. Empty into a non-combustible container and re-install the ash drawer. See Disposal of Ashes (Pg 15).
  c. Always have the ash drawer in place before pulling the firepot cleaning rod, otherwise the ashes will fall down and fill the outside air opening and the appliance will produce soot out of the exhaust and will affect efficiency.

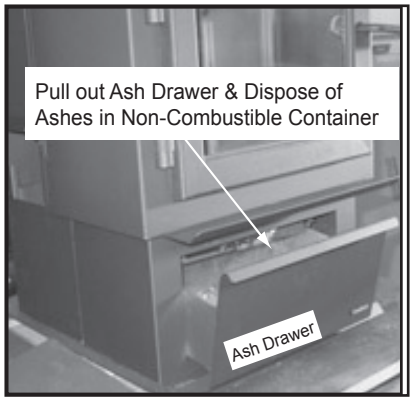


Figure 17.1

5. Disposal of Ashes

- **Frequency:** As needed
- **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 been thoroughly cooled.

WARNING

Disposal of Ashes

- Ashes should be placed in metal container with tight fitting lid.
- Ashes should be retained in closed container until all cinders have thoroughly cooled.

6. Cleaning the Exhaust Path, Baffles & Drop Tube

- **Frequency:** Monthly or every 25 bags or more frequently depending on ash build-up.
- **By:** Homeowner
  a. Appliance must be completely cool.
  b. Open the door and remove the center baffle first and then the right and left baffles. See Baffle Removal Instructions on page 23. Thoroughly vacuum the exhaust path and drop tube and continue throughout the rest of the firebox. Also vacuum the front and back of the baffles.
  c. Also vacuum the combustion blower impellers or use a soft brush to remove any ash build-up.

Replace the right and left baffles and then the center baffle and close and latch the door.

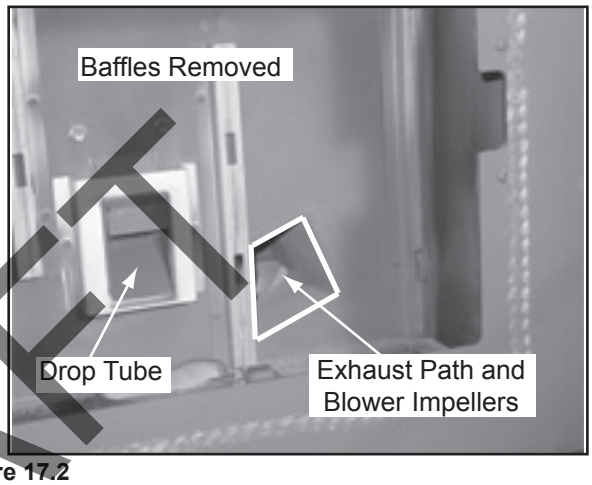


Figure 17.2

7. Cleaning the Hopper

- **Frequency:** Monthly or after burning 50 bags of fuel
- **By:** Homeowner

After burning approximately 50 bags of fuel you will need to clean the hopper to prevent sawdust build-up.

A combination of sawdust and pellets on the bottom end of the auger reduces the amount of fuel supply to the firepot. This can result in nuisance shutdowns and mis-starts.

  a. The appliance must be in complete shutdown. Allow the appliance to completely run out of pellets and cool down.
  b. Empty the hopper of any remaining pellets.
  c. Vacuum the hopper and feed tube.

NOTE: Hearth & Home Technologies recommends to use a heavy duty vacuum cleaners specifically designed for solid fuel appliance cleaning.

8. <u>Soot and Fly Ash: Formation & Need for Removal in Exhaust Venting System.</u>

- **Frequency:** Yearly or more frequently depending on ash build-up.
- **By:** Qualified Service Technician/Homeowner

Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.

The products of combustion will contain small particles of fly ash. The fly ash will collect in the exhaust venting system and restrict the flow of the flue gases.

At start-up if there is incomplete combustion, or if there is a shutdown or incorrect operation of the appliance it will lead to some soot formation. This will collect in the exhaust venting system.

The venting (chimney) system may need to be cleaned at least once a year or more often depending upon the quality of your fuel or if there are any horizontal pipe sections. Ash will build up more quickly in the horizontal sections and elbows.

9. <u>Door Handle Inspection</u>

- **Frequency:** Monthly or prior to heating season
- **By:** Homeowner

The gasket between the glass and firebox should be inspected periodically to make sure there is a good seal. Check door handle for smooth cam operation.

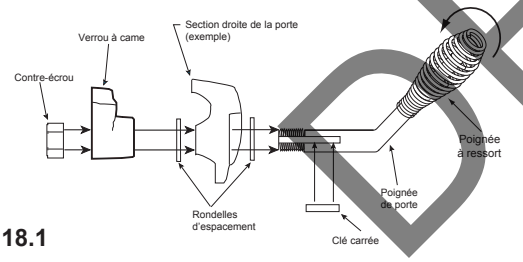
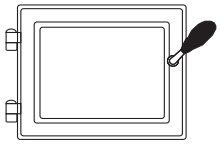


Figure 18.1

10. <u>Cleaning the Glass</u>

- **Frequency:** When clear view of the fire pot becomes obscure
- **By:** Homeowner
  a. Appliance must be completely cool before cleaning glass.
  b. Vacuum fly ash from glass and door rope.
  c. Use a damp paper towel or any non-abrasive glass cleaner. Wipe off with dry towel.

CAUTION

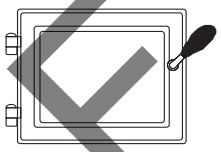


Handle glass assembly with care.

When cleaning glass:

- Avoid striking, scratching or slamming glass.
- Do NOT clean glass when hot.
- Do NOT use abrasive cleaners.
- Refer to maintenance instructions.

WARNING



Handle glass with care.

- Inspect the gasket to ensure it is undamaged.
- Do NOT strike, slam or scratch glass.
- Do NOT operate appliance with glass assembly removed.

11. <u>Cleaning Exhaust Blower - Requires No Lubrication</u>

- **Frequency:** Yearly or more frequently depending on ash build-up
- **By:** Homeowner or Qualified Service Technician
  a. Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.
  b. Follow the directions for cleaning the exhaust path found on page 15.
  c. If unable to thoroughly clean the blower through this access, then follow the directions on page 22 for direct access to the exhaust blower.
  d. Vacuum the blower's impellers. Use care not to bend or damage the blower fins.

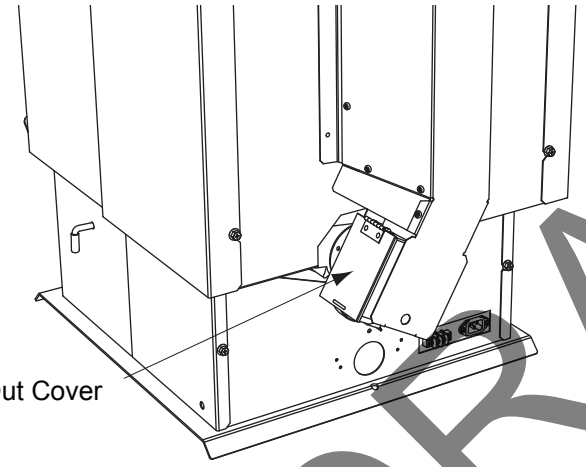
NOTE: Hearth & Home Technologies recommends to use a heavy duty vacuum cleaners specifically designed for solid fuel appliance cleaning.

12. Cleaning Convection Blower - Requires No Lubrication

- **Frequency:** Yearly or more frequently depending on Dust/Dirt build-up
- **By:** Homeowner or Qualified Service Technician
  a. Be sure the appliance is allowed to cool and has been unplugged.
  b. Follow the directions on page 21 for direct access to the convection blower.
  c. Sweep or vacuum out any build-up. Use a brush or compressed air to loosen dirt if needed.

13. Cleaning the Top Vent Adapter

- **Frequency:** Yearly or more frequently depending on ash build-up
- **By:** Homeowner
  a. The appliance must be in complete shutdown and the exhaust blower should be off. Allow the appliance to completely cool down.
  b. Open the clean-out cover **(Figure 19.1)**.
  c. Sweep or vacuum out any ash build-up.



Clean-Out Cover

Figure 19.1

14. Preparing Firebox for Non-Burn Season

- **Frequency:** Yearly
- **By:** Homeowner
  a. Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.
  b. Remove all ash from the firebox and vacuum thoroughly.
  c. Paint all exposed steel, including cast-iron.
     — Purchase paint from your local dealer.
     — Must use a high-temperature paint made specifically for heating appliances.

D. High Ash Fuel Content Maintenance

- **Frequency:** As needed
- **By:** Homeowner

Poor quality pellet fuel, or lack of maintenance, can create conditions that make the fire pot fill quickly with ashes and clinkers.

This condition makes the appliance susceptible to overfilling the fire pot with pellets which may result in smoking, sooting and possible hopper fires. **Figure 20.1** shows an example where the fire pot overfills, pellets back up into the feed tube and ash has accumulated in the firebox.

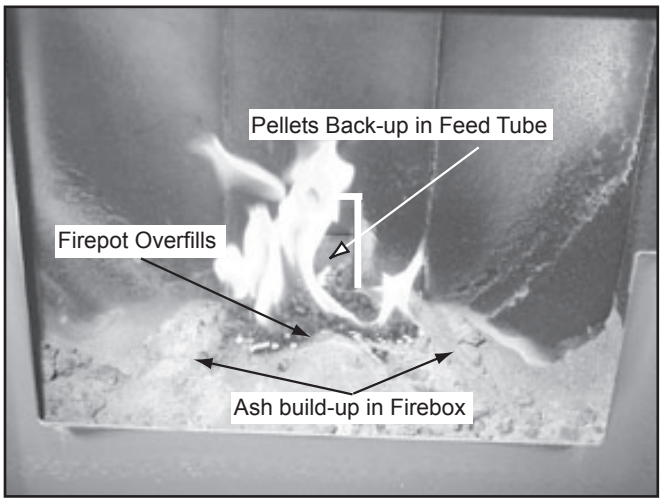


Figure 20.1

An inefficient and non-economical method of burning of fuel caused by poor quality pellet fuel is shown in **Figure 20.2**.

The correct flame size when good quality, premium pellet fuel is burned is shown in **Figure 20.3**.

If the ash buildup exceeds the half way point in the firepot IMMEDIATE ATTENTION AND CLEANING IS REQUIRED.

WARNING

Fire Risk

- High ash fuels, or lack of maintenance, can cause the firepot to overfill. Follow proper shutdown procedure if ash buildup exceeds halfway point in firepot.
- Failure to do could result in smoking, sooting and possible hopper fires.

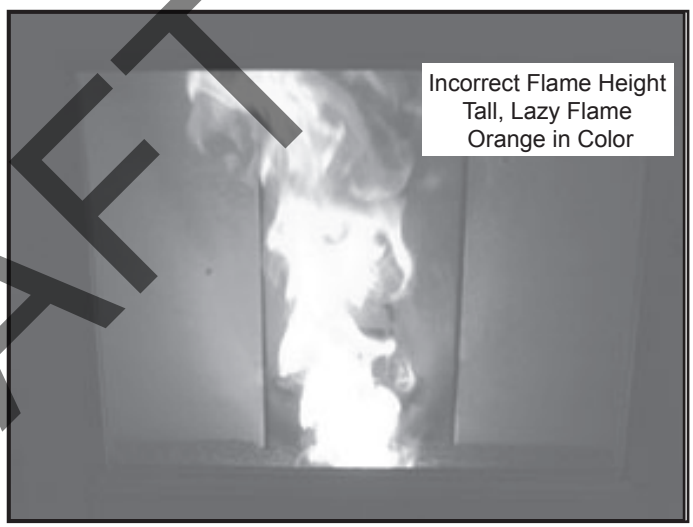


Figure 20.2

E. Soot or Creosote Fire

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

In the event of a soot or creosote fire, close the firebox door, exit the building immediately and contact the proper fire authorities.

DO NOT under any circumstances re-enter the building.

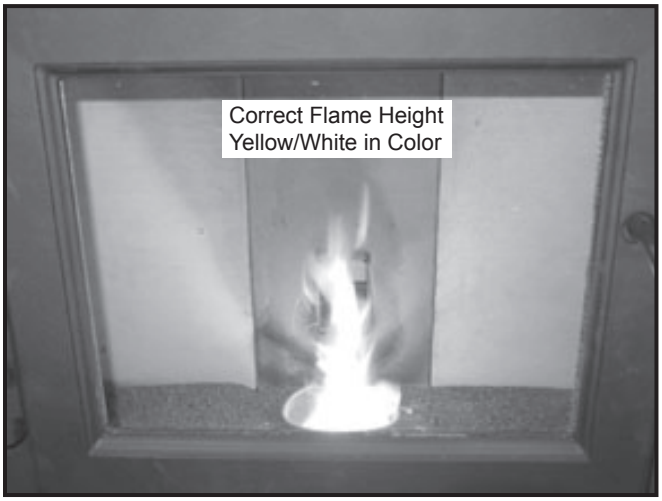


Figure 20.3

4 Troubleshooting Guide

With proper installation, operation, and maintenance your appliance will provide years of trouble-free service. If you do experience a problem, this troubleshooting guide will assist a qualified service person in the diagnosis of a problem and the corrective action to be taken. This troubleshooting guide can only be used by a qualified service technician.

Symptom	Possible Cause	Corrective Action
Plug in appliance - No response.	No current to outlet. 7 amp fuse defective. #3 snap disc tripped or defective. Control box defective.	Check circuit breaker at service panel. Replace fuse. Reset or replace snap disc. Replace control box.
Call light on. No fire. No fuel in fire pot.	Out of fuel. #2 snap disc may be defective. Vacuum switch not closing, no vacuum. Control box defective.	Check hopper. Fill with fuel. Replace snap disc. Check exhaust blower is plugged in and operating. Check vacuum switch is plugged in. Check vacuum hose is in good condition, clear and connected at both ends. Check thermocouple is in good condition and plugged in properly. Make sure venting system is clean. Make sure front door is closed. Replace control box.
Call light on. No fire. Partially burned fuel in fire pot.	Fire pot clean-out plate not closed. Fire pot is dirty (missed ignition).	Check that fire pot clean-out plate is fully closed. Clean fire pot. Make sure there is no clinker in the fire pot. Clinkers may have to be broken up with fire pot scraper tool or other means.
Call light on. No fire. Unburned pellets in fire pot.	Fire pot clean-out plate not closed. Fire pot is dirty. Ignition hole blocked. Igniter not working. Control box defective.	Check that fire pot clean-out plate is fully closed. Clean fire pot. Make sure there is not a clinker in the fire pot. Clinkers may have to be pushed out of fire pot with fire pot scraper tool or other means. Scrape with solid piece of wire. Remove ash pan to see if igniter is glowing red on start-up. Check igniter wires for good connection. Replace igniter using 1/4 inch male /female spade connectors. Replace control box.
Slow or smoky start-up.	Fire pot clean-out plate not closed. Fire pot is dirty. Excessive amount of fuel at start-up.	Check that fire pot clean-out is fully closed. Clean fire pot. Make sure there is not a clinker in the fire pot. Clinkers may have to pushed out of fire pot with fire pot scraper tool or other means. Reduce feed rate using feed rate adjustment control rod located inside hopper.

Symptom	Possible Cause	Corrective Action
Slow or smoky start-up (Cont'd)	Dirty exhaust and/or venting system.	Check for ash build up in appliance, including behind rear panels, firebox, heat exchanger, exhaust blower and venting.
Feed system fails to start.	Out of fuel. #2 snap disc may be defective. Vacuum switch not closing. No vacuum. Feed system jammed or blocked. Feed spring not turning with feed motor. Feed motor defective or not plugged in.	Check hopper, fill with fuel. Replace snap disc. Firebox door must be closed securely. Check exhaust blower is plugged in and operating. Check vacuum switch is plugged in. Check vacuum hose is in good condition, clear and connected at both ends. Check thermocouple is in good condition and plugged in properly. Make sure venting system is clean. **NOTE:** High winds blowing into the venting system can pressurize the firebox causing loss of vacuum. Empty hopper of fuel. Use a wet/dry vacuum cleaner to remove remaining fuel, from hopper, including feed tube. Check feed chute for obstructions. Loosen 2 screws and jiggle feed assembly. Check that set screw is tight on feed spring shaft at end of feed motor. Check connections on feed motor, replace if defective.
No call light. Appliance does not begin start sequence.	Thermostat not set to a high enough temperature. Snap Disc #3 tripped. No power. Fuse blown. Connections at thermostat and/or appliance not making proper contact. Defective thermostat or thermostat wiring. Control box defective.	Adjust thermostat above room temperature. Reset snap disc. Connect to power. Replace fuse. Check connections at thermostat and appliance. Replace thermostat or wiring. **NOTE:** To test thermostat and wiring, use a jumper wire at the thermostat block on the appliance to by-pass thermostat and wiring. Replace control box.
Appliance fails to shut off.	Call light on.	Turn thermostat off. If call light does not go out, disconnect thermostat wires from appliance. If call light does go out, thermostat or wires are defective.

Symptom	Possible Cause	Corrective Action
Convection blower fails to start.	No call light.	Defective control box.
	#1 snap disc defective.	Replace snap disc.
	Blower not plugged in.	Check that blower is plugged into wire harness.
	Blower is defective.	Replace blower.
	Control box is defective.	Replace control box.
Exhaust blower fails to start or does not shut off.	Blower not plugged in.	Check that blower is plugged into wire harness.
	Blower is clogged with ash.	Clean exhaust system.
	Blower is defective.	Replace blower.
	Control box is defective.	Replace control box.
Large, lazy flame, orange color. Black ash on glass.	Dirty appliance. Poor fuel quality, high ash content.	Clean appliance, including fire pot, heat exchangers and venting system. Remove stainless steel baffle from firebox to clean ash from on top of baffle. Clean behind rear brick panels. Change fuel brand to premium.
	Fire pot clean-out plate not completely closed.	Check that fire pot clean-out plate is fully closed.
	Excessive amount of fuel.	Reduce feed rate using feed rate adjustment control rod located inside hopper.
Nuisance shutdowns.	Low flame.	Increase feed by opening feed rate adjustment control rod located inside hopper.
	Sawdust buildup in hopper.	Clean hopper, see **page 35**.
	Feed motor is reversing.	Check for good connections between feed motor and wire harness.
	Defective thermocouple.	Replace thermocouple.
	Defective control box. Fire pot more than 1/2 full	Replace control box. See **page 38** for detailed instructions for “High Ash Fuel Content Maintenance”.
Appliance calls for heat. Call light illuminates. Exhaust blower starts. No feed or igniter.	Thermocouple is defective or not properly plugged in.	Check connections on thermocouple or replace if defective. A flashing yellow light on the control box indicates a problem with the thermocouple.
	Defective control box	Replace control box.

5 Service Parts Replacement

A. Convection Blower Replacement

1. Turn down the thermostat, let appliance completely cool and then unplug appliance before servicing.
2. The convection blower is located on the floor at the rear of the appliance.
3. Lift the hopper lid up until it locks into place.
4. Loosen the 4 screws on the upper back panel and the 2 screws on the lower back panel, using a #2 Phillip Head screwdriver, a 3/8 inch wrench or a 3/8 Inch socket. You do not need to remove them **(Figure 24.1)**.
5. Remove the left upper and lower side panels by lifting up and out. The hooks on the panels will slide out of the slots on the appliance **(Figure 24.2)**.
6. Release blower wires from the nylon wire retainer if applicable. This appliance has 1 black and 1 white wire coming from the blower.
7. Remove the wing bolt and move the blower and hold-down bracket toward the back of the appliance to release the locating tab **(Figure 24.3)**. Pull the blower out from under the convection plenum. Slide the blower out of the appliance. Disconnect the wires from the spade connectors at this time **(Figure 24.4)**.
8. Return wires to nylon wire retainer. Make sure wires do not contact any moving parts or touch any surfaces that may become hot **(Figure 24.4)**.

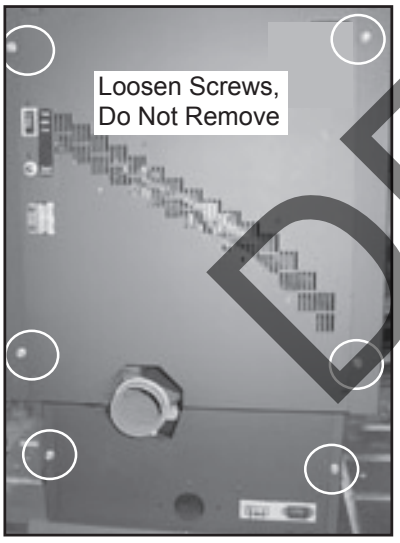


Figure 24.1

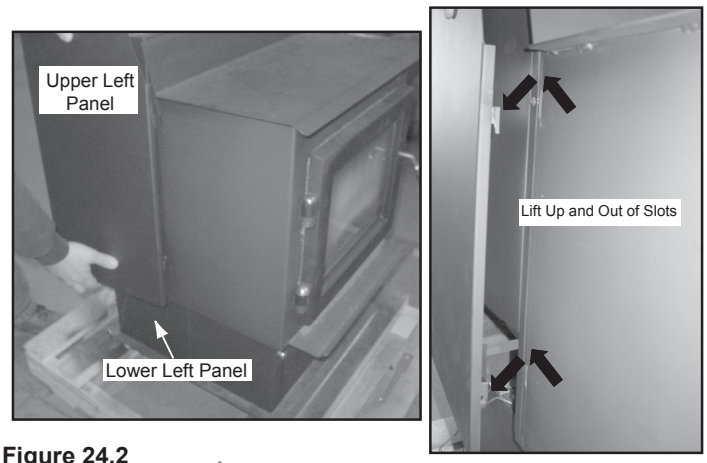


Figure 24.2

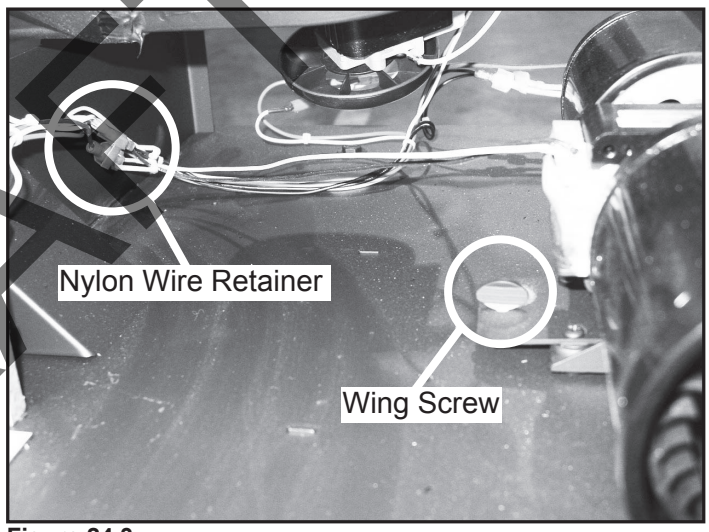


Figure 24.3

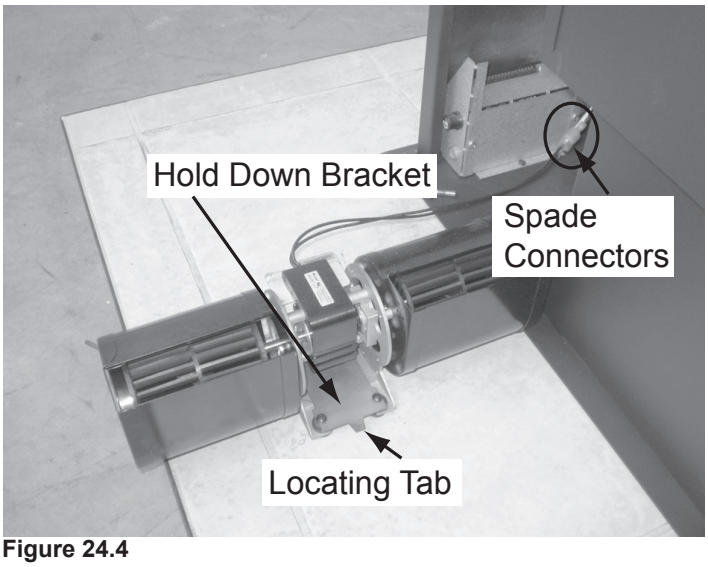


Figure 24.4

B. Exhaust Blower Replacement

1. Turn down the thermostat, let appliance completely cool and then unplug appliance before servicing.
2. Remove both upper and lower right side curtains **(Figure 25.2)**.
3. Disconnect 2 white wires from the white and blue wires of the exhaust blower.
4. There is a removable plate on the exhaust blower. Depending on the model, use a 1/4 inch socket, or 1/4 inch Nut Driver or #2 Phillips Head screw driver to loosen the 6 screws in the keyhole shaped holes and rotate the plate. It is only necessary to loosen screws **(Figure 25.1)**.
5. Remove the exhaust blower and gasket.
6. Check for degradation on the gasket and replace if necessary using the gasket included in the kit.
7. Re-install in reverse order.

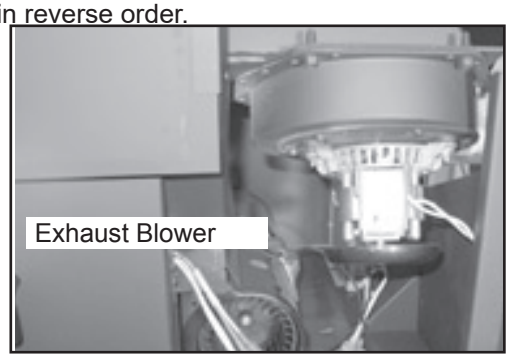


Figure 25.1

C. Snap Disc Replacements

Snap Disc #1 - Convection Blower

1. Turn down thermostat, let appliance cool completely if running. Then unplug appliance before servicing.
2. Using #2 Phillips screwdriver, 3/8” wrench, or 3/8” socket loosen the three screws that hold the right upper and lower side panels in place. You do not need to remove the screws. Remove side panels by lifting up and out.
3. Snap disc #1 is located on the convection plenum below the feed motor **(Figure 25.1)**.
4. It has two purple wires attached to it with 1/4 inch female spade terminals.
5. Disconnect the two wires from the snap disc. Using a #2 Phillips screwdriver, remove the two screws securing the snap disc to the appliance.
6. Re-install in reverse.

Snap Disc #2 - Fuel Delivery Interrupt

1. Turn down thermostat, let appliance cool completely if running. Then unplug appliance before servicing.
2. Using #2 Phillips screwdriver, 3/8” wrench, or 3/8” socket loosen the three screws that hold the right upper and lower side panels in place. You do not need to remove the screws. Remove side panels by lifting up and out.
3. Snap disc #2 is located on the convection plenum in the center of the appliance above the convection blower **(Figure 25.2)**.
4. It has a black wire and an orange wire attached to it with 1/4 inch female spade terminals.
5. Disconnect the two wires from the snap disc. Using a #2 Phillips screwdriver, remove the two screws securing the snap disc to the appliance.
6. Re-install in reverse.

Snap Disc #3 - Feed Motor - Manual Reset

1. Turn down thermostat, let appliance cool completely if running. Then unplug appliance before servicing.
2. Using #2 Phillips screwdriver, 3/8” wrench, or 3/8” socket loosen the three screws that hold the right upper and lower side panels in place. You do not need to remove the screws. Remove side panels by lifting up and out.
3. Snap disc #3 is located on the bracket on the feed tube near the feed motor **(Figure 25.1)**.
4. It has a two gray wires attached to it with 1/4 inch female spade terminals.
5. The locating bracket is attached to the feed tube with an 8 X 32 wing nut. Remove the wing nut to detach the bracket from the feed tube.
6. Disconnect the two wires from the snap disc.
7. Using a #2 Phillips screwdriver, remove the screw securing the snap disc to the bracket **(Figure 25.3)**.
8. Re-install in reverse.

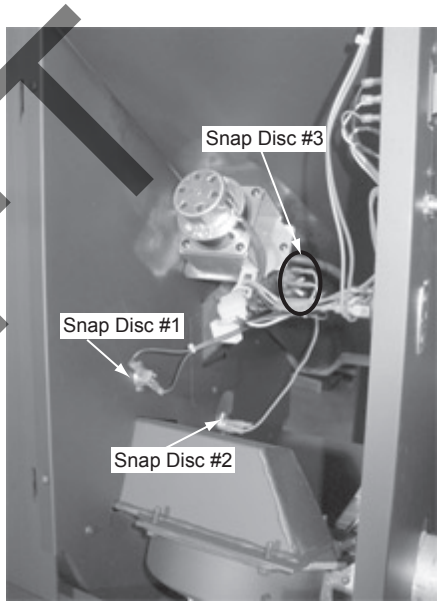


Figure 25.2

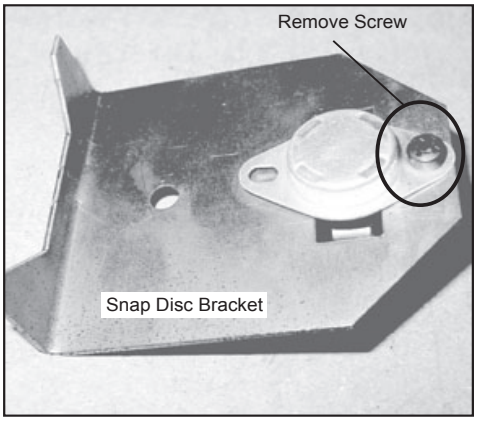


Figure 25.3

D. Igniter Replacement

1. Shut down the appliance by turning down the thermostat and let the appliance completely cool down. After the appliance has cooled down, unplug it and remove the ash drawer.
2. The wire leads to the igniter are connected to the wire harness with 1/4 inch male / female spade connectors.
3. Follow the directions on page 21 to remove the upper and lower right side panels to expose the spade connectors.
4. Disconnect the spade connectors and remove the igniter from the chamber. Loosen thumb screw and slide igniter out.
5. Install new igniter into the chamber and tighten thumb screw. The wires MUST route through the wire retainer hook and then re-connect the wires to the 2 leads with the spade connectors **(Figure 26.1)**.
6. Double check that the igniter wires are clear of any movement, i.e. ash drawer, firepot cleaning rod, etc.
7. Re-install the ash drawer and side panel and re-connect the power.

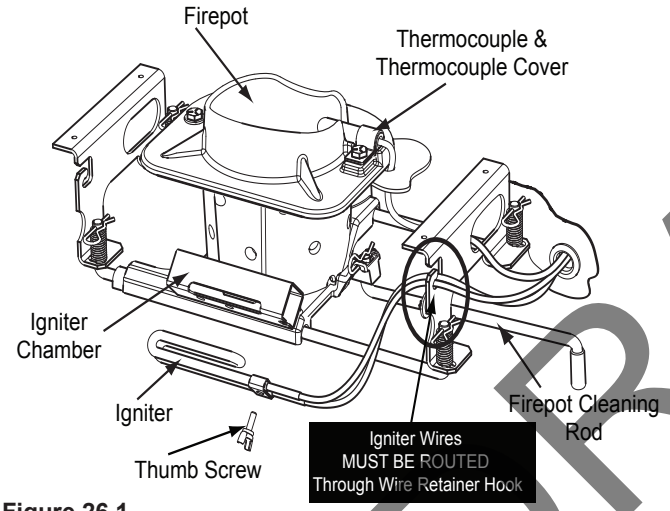


Figure 26.1

E. Baffle Removal & Replace

1. Shut down the appliance by turning down the thermostat and let the appliance completely cool down.
2. Remove the center baffle first by using the handle at the top of the baffle and pull up and then towards you. The hooks on the baffle will slide out of the slots in the bracket **(Figure 26.2)**.
3. Remove the left baffle and then the right baffle by pulling up and then towards you. The left and right baffles have similar hooks and slots **(Figures 26.3 and 26.4)**.
4. Re-install the baffles in reverse order. Be careful to insert the hooks in their respective slots. Be sure the baffles are completely secure/seated (close, if not touching, the firebox floor).

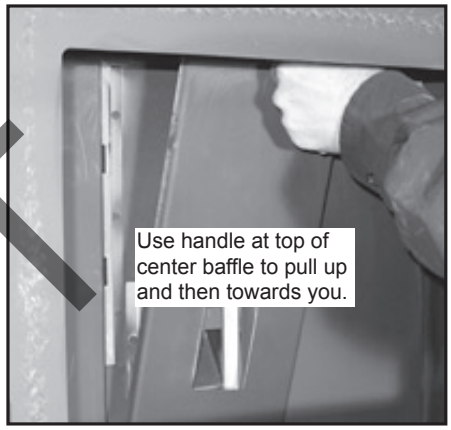


Figure 26.2

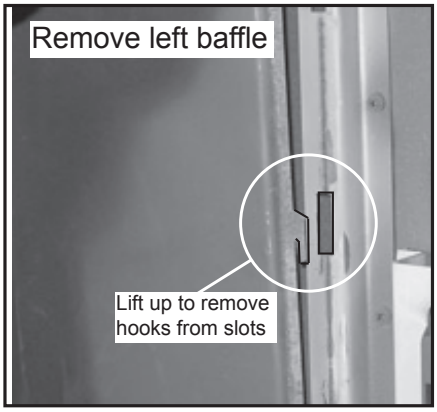


Figure 26.3

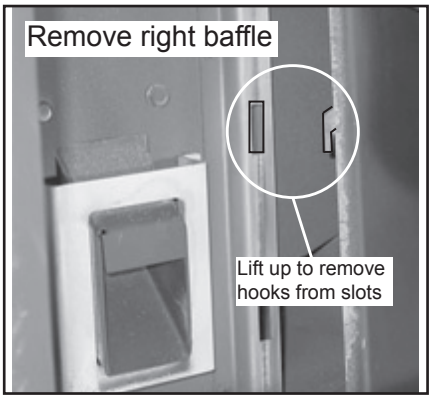


Figure 26.4

F. Glass Replacement

1. Open the door from the appliance by lifting door off of hinge pins and lay on a flat surface face down.
2. Using a Phillips Head screw driver, remove the 4 brackets and set aside **(Figure 27.1)**.
3. Remove old glass and replace with the new glass.
4. Re-install the brackets using the same screws.

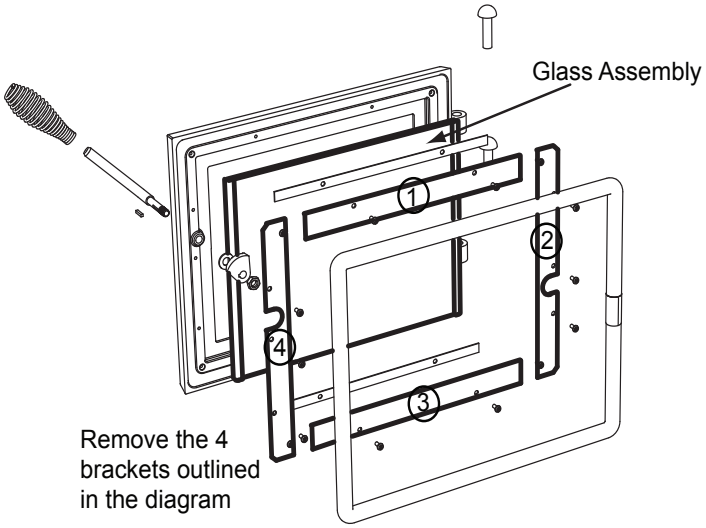


Figure 27.1

WARNING

- Glass is 5mm thick high temperature heat-resistant ceramic glass.
- DO NOT REPLACE with any other material.
- Alternate material may shatter and cause injury.

6 Reference Materials

A. Component Functions

1. Control Box

a. The control box is located on the lower left side of the appliance, behind the lower left side panel and above the junction box.

b. There is a light located inside of the control box. The internal light will turn green when the appliance has reached a temperature of 200°F (93°C) in the fire pot. and will turn red when it reaches 600°F (315°C).

c. There is also an internal blue light located in the control box. When you plug in the appliance the blue light will automatically start blinking. This model it should blink 2 times.

To set your control board on the correct number:

- Unplug the appliance.
- Using #2 Phillips screw driver, 3/8" wrench, or 3/8" socket loosen the three screws that hold the right upper and lower side panels in place. You do not need to remove the screws. Remove side panels by lifting up and out.
- Use a #2 Phillips screw driver to remove the control box retainer bracket and lift control box out of the junction box.
- Using a ¼ inch flat head screw driver turn the rotary switch until the desired number is showing on the dial.
- Re install control box and plug in appliance.
- To confirm your selection is correct count the number of times the blue light flashes.

Example: If you are on setting 2 the control box will flash 2 times every 10 seconds for 1 minute.

See chart below for correct control box setting for your model **(Figure 28.1)**.

2. Convection Blower

The convection blower is mounted at the bottom rear of the appliance. There are 2 impellers, one on each side of the motor. The convection blower pushes heated air through the heat exchange system into the room.

Model	Factory Control Board Setting
CAB50-C	#2 (2 Flashes)

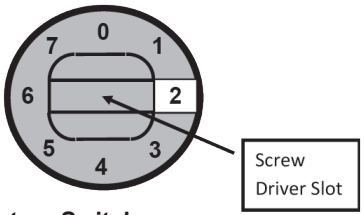


Figure 28.1 - Rotary Switch

NOTE: Do NOT open the control box. This will void the warranty. If you need to plug in or remove the control box you must first unplug the appliance.

When describing the location of a component, it is always AS YOU FACE THE FRONT OF THE APPLIANCE.

3. Exhaust Blower

The exhaust blower is mounted on the right side of the appliance. The exhaust blower is designed to pull the exhaust from the appliance and push it out through the venting system.

4. Feed System

The feed system is located on the right side of the appliance and can be removed as an entire assembly. The assembly includes the feed motor, mounting bracket, bearing and feed spring (auger). The hollow feed spring (auger) pulls pellets up the feed tube from the hopper area and drops them down the feed chute into the fire pot.

5. Fire pot

The fire pot is made of high quality ductile iron and has a cleaning pull-out rod. The floor of the fire pot opens for cleaning when you pull out the rod. Be sure that the floor returns to a completely closed position or your appliance will not operate properly.

6. Fuse

The fuse is located on the side of the junction box above to the red call light. The fuse will blow should a short occur and shut off power to the appliance.

7. Heat Output Switch

The heat output switch is located on the upper right back panel. The function of the heat output switch is to regulate the burn rates; low, medium and high settings.

8. Hopper Switch

The hopper switch is located in the upper right hand corner of the hopper. This switch is designed to shut down the feed motor whenever the hopper lid is opened.

9. Igniter

The igniter is mounted on the base of the fire pot. Combustion air travels over the red hot igniter creating super heated air that ignites the pellets.

10. Junction Box And Wiring Harness

The junction box is located on the lower left side of the appliance, behind the left side panel. The junction box and wiring harness are replaced as one component.

11. Power Supply

The power outlet is located behind the control box on the back of the appliance, lower left corner. Check the wall receptacle for 120 volt, 60 Hz (standard current). Make sure the outlet is grounded and has the correct polarity. A good surge protector is recommended.

12. Red Call Light
The red call light is on the side of the junction box, below the fuse. The function of the red call light is to indicate that the thermostat is calling for heat.

13. Reset Button
The reset button is located on the back of the appliance in the upper right corner below the heat output control switch. The function of the button is to momentarily open the thermostat circuit, which restarts the system.

14. Thermocouple
The thermocouple is located on top of the firepot inside the thermocouple cover (ceramic protection tube). The thermocouple sends a millivolt signal to the control box indicating the preset temperatures of the green and red lights have been obtained.

15. Thermostat
The appliance is designed to run on a 12 volt AC thermostat. The heat anticipator should be set on the lowest setting available.

16. Snap Disc #1 (Convection Blower) 110°F
Snap disc #1 is located on the right side of the appliance behind the right side panel. There are 2 purple wires connected to it. This snap disc turns the convection blower on and off as needed. Power is always present at snap disc #1.

17. Snap Disc #2 (Fuel Delivery Interrupt) 175°F
Snap disc #2 is located on the center of the convection plenum above the convection blower. There is an orange and a black wire connected to it. This snap disc will turn off the feed system which will turn off the appliance if an over fire condition should occur or if the convection blower should fail to operate. If this occurs you will have to manually reset the snap disc.

18. Snap Disc #3 (Back Burn Protector) 250°F
Snap disc #3 is mounted on the back of the auger tube in the center of the appliance and has a reset button. There are two gray wires connected to it. To access it remove the right side panel. If the fire tries to burn back into the feed system or push exhaust up the feed tube, this snap disc will shut the entire system off. This disc must be manually reset.

19. Vacuum Switch
The vacuum switch is located on the lower right side of the appliance behind right side panel. There are two red wires attached to it. This switch turns the feed system on when vacuum is present in the firebox. The vacuum switch is a safety device to shut off the feed motor if the exhaust or the heat exchanger system is dirty or plugged or if the firebox door is open.

20. Wiring Harness
See **Figure 29.1** below.

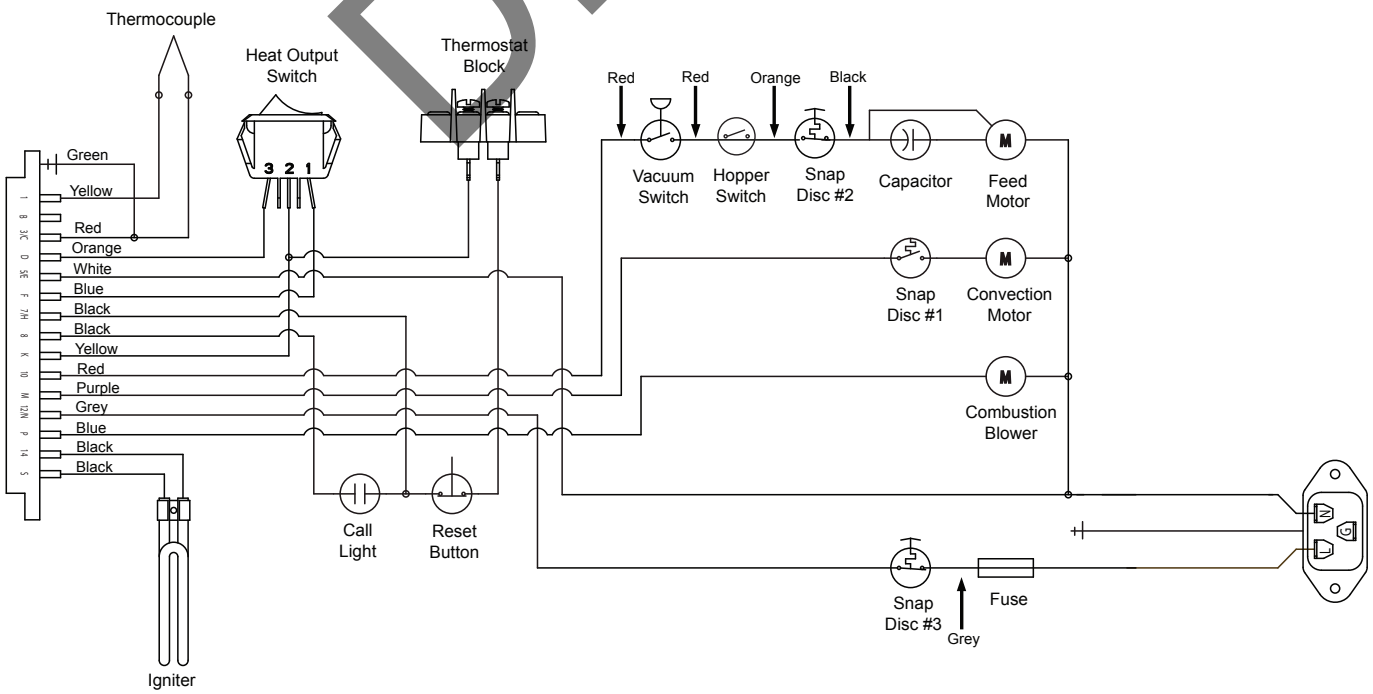


Figure 29.1

B. Component Locations

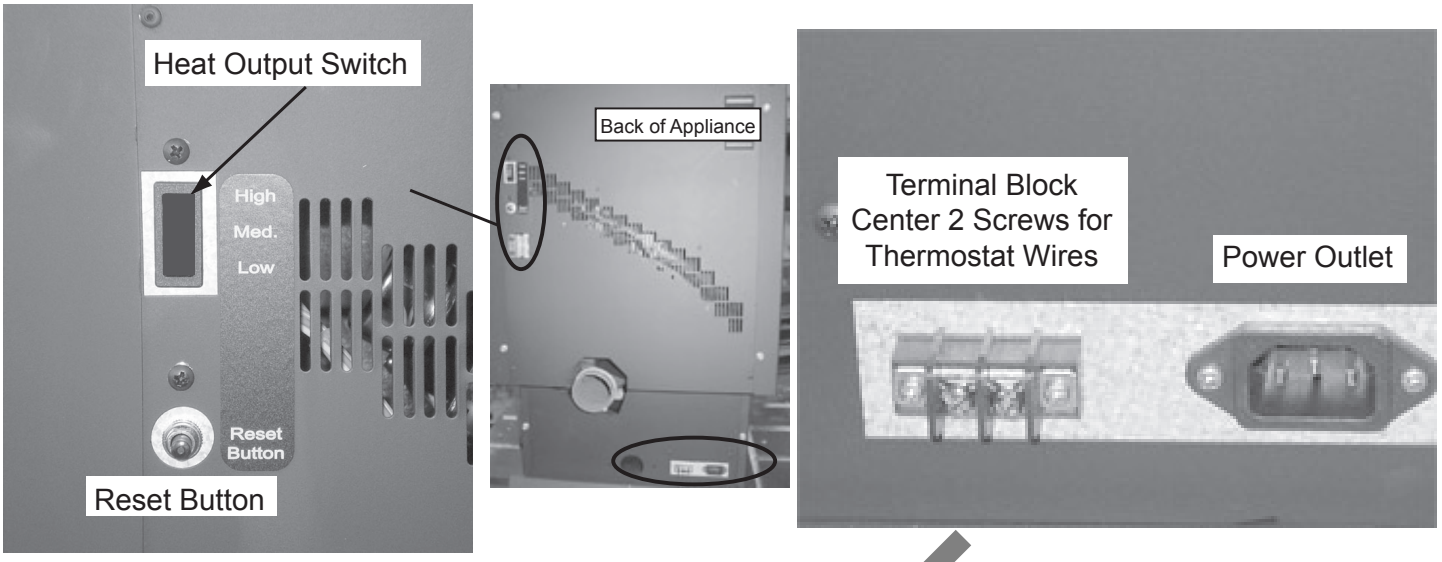


Figure 30.1

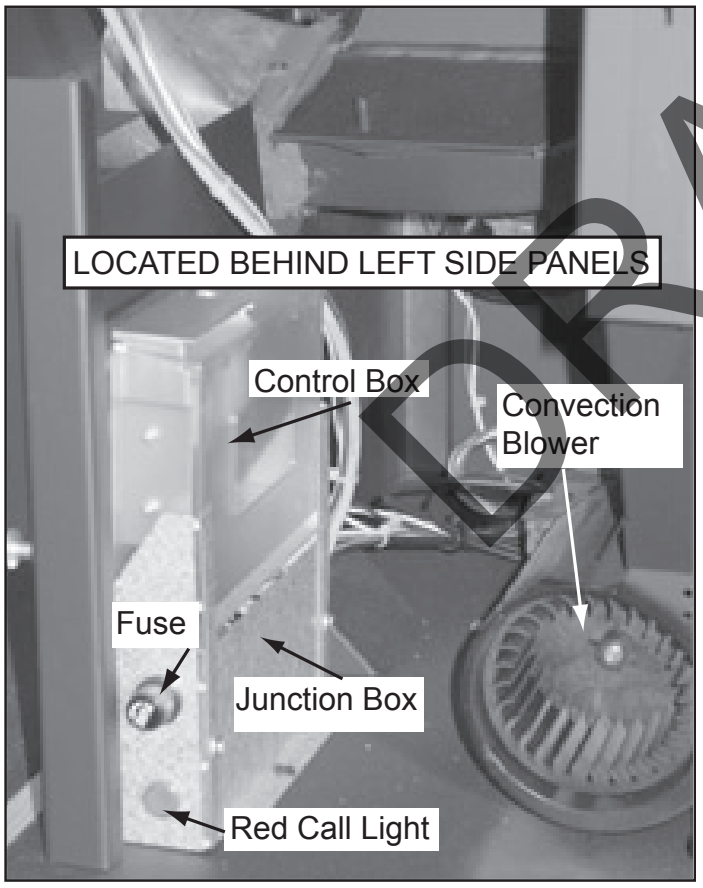


Figure 30.2

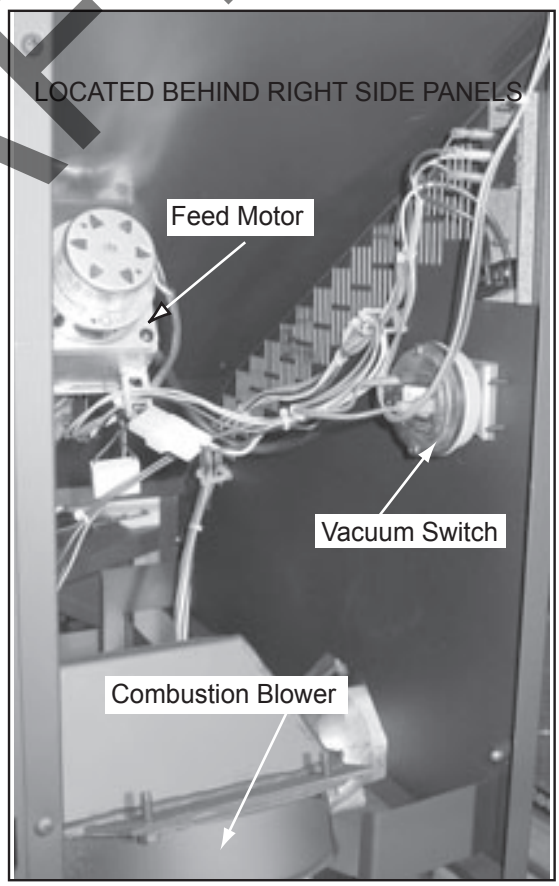
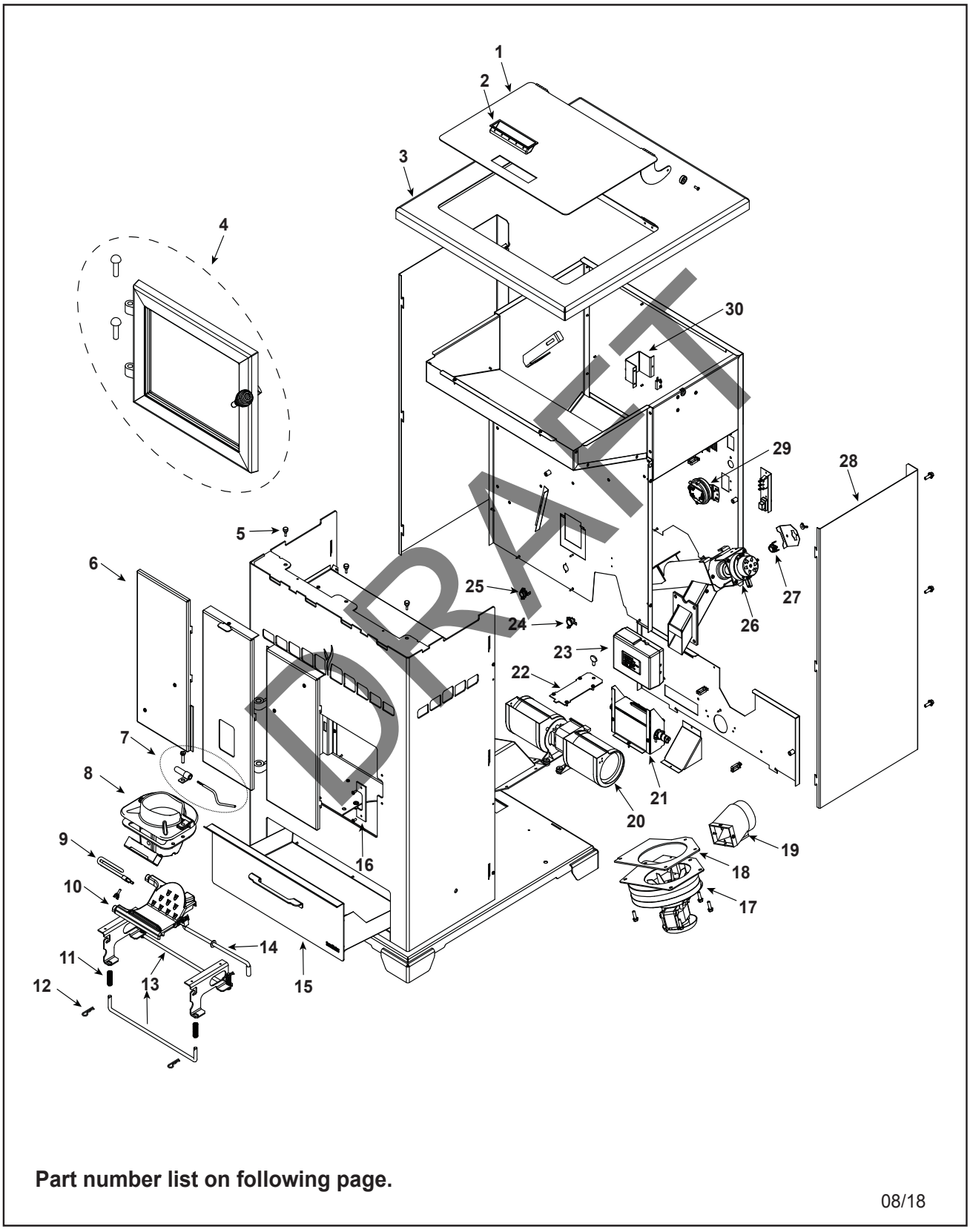


Figure 30.3

C. Maintenance and Service Log

Date of Service	Performed By	Description of Service

D. Exploded Drawings



Part number list on following page.

08/18

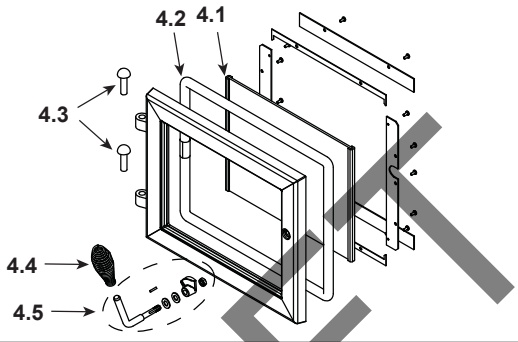
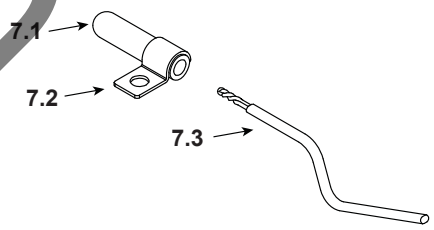
E. Service Parts

Heatilator ECOCHOICE™

Service Parts **ECO-CAB50**

Beginning Manufacturing Date: May 2011
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.

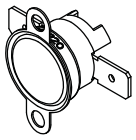
ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
1	Hopper Lid Assembly		SRV7074-009	Y
2	Handle, Hopper Lid		SRV200-0110	
3	Top Assembly		SRV7074-032	
	#4 Door Assembly 			
4	Door Assembly		SRV7058-014	
4.1	Glass Assembly		SRV7058-015	Y
4.2	Rope, Door, 3/4” X 84”		832-1680	Y
4.3	Hinge Pin, 1/2”	Nickel	SRV430-5320	
4.4	Spring Handle, 1/2”	Nickel	250-8330	Y
4.5	Door Handle Assembly		SRV7058-030	Y
	Gasket, Glass Tape, 3/4” X 1/8”	5 Ft	832-0460	Y
	Key Latch, Cam		SRV430-1151	
5	Bumper, Rubber		SRV224-0340/12	Y
6	Baffle Assembly		SRV7059-026	
	#7 Thermocouple Assembly 			
7.1	Thermocouple Protection Tube		SRV7034-186	Y
		Pkg of 10	SRV7034-186/10	
7.2	Half Clip		7000-321	
7.3	Thermocouple		812-4470	Y
8	Firepot Assembly		SRV7034-072B	Y
	Gasket, Firepot		SRV7034-190	Y
9	Heating Element Assembly 18” (Loop Igniter)	Pkg of 1	SRV7000-462	Y
		Pkg of 10	SRV7000-462/10	Y
10	Firepot Bottom		SRV7034-153	Y
11	Spring	Pkg of 4	7000-513/4	Y

Additional Service Parts on following page.

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.

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
12	Hitch Pin Clip 3/32	Pkg of 10	7000-374/10	Y
13	Rail, Auto-Clean		SRV7034-152	Y
14	Pull Rod		SRV7074-141	Y
15	Ash Pan Assembly		SRV7074-013	
	Heatilator Logo	Pkg of 10	4021-049/10	
16	Latch Backing Plate		SRV7058-155	
17	Exhasut Combustion Blower, 70 CFM		SRV7000-602	Y
18	Gasket, Exhaust Combustion Blower		SRV240-0812	Y
	Gasket, Combustion Blower, Round		812-4710	Y
19	Casting, Exhaust Transition		180-0190	
20	Convection Blower, 220 CFM		SRV7000-108	Y
21	Wire Harness		SRV7058-150	Y
22	Blower Retainer		SRV7058-148	
23	Control Board 3 Speed Eco-Choice		SRV7058-188	Y

Snap discs



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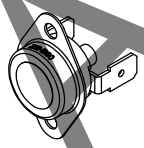


L175F Manual Reset

L250F Manual Reset

24	Snap Disc F110F-20 **(#1)**		SRV230-1220	Y
25	Snap Disc L175F Manual Reset **(#2)**		SRV230-1960	Y
26	Feed Assembly		SRV7058-007	Y
	Feed Bearing		SRV7000-598	Y
	Feed Motor		812-4421	Y
	Feed Spring Assembly (Only)		SRV7001-046	Y
	Gasket, Feed Motor		SRV7034-144	
27	Snap Disc L250F Manual Reset **(#3)**		SRV230-1290	Y
28	Side Curtain	Qty 2 req	SRV7074-124	
29	Vacuum Switch		SRV7000-531	Y
30	Hopper Lid Magnetic Switch		SRV7000-375	Y
	Jumper Hopper Switch		SRV7074-175	Y
	Component Pack		SRV7058-019	
	Cleanout Tool		414-1140	Y
	DVD	**No longer available**	7058-157	
	Harness, Thermostat Wire		230-0810	
	Power Cord		812-1180	Y
	Thermostat Mechanical		812-3760	Y
	Touch-Up Paint	Pre #HF1850001	812-0910	
		Post #HF1850001	3-42-19905	

Additional Service Parts on following page.

F. Accessories

Heatilator ECOCHOICE™

Service Parts **ECO-CAB50**

Beginning Manufacturing Date: May 2011
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.

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
	Accessories			
	Fuse, 7 Amp, Junction Box	Pkg of 10	812-0380/10	**Y**
	Hose, Vacuum, 5/32 Id	3 Ft	SRV240-0450	**Y**
	Damper, 4 Inch		PEL-DAMP4	
	Outside Air Kit, 2"		811-0872	
	Hose, Alum Flex, 2 Inch X 3 Ft	3 Ft	SRV200-0860	
	Outside Air Cap Assembly		7001-044	
	Outside Air Collar Assembly		SRV7001-045	
	Trim Plate, Outside Air Kit		412-7100	
	Pull Rod Handle		PULLROD-HNDL	
	Outside Air Kit, 3"		OAK-3	
	Reset Button Assembly		SRV7000-040	
	Smart-Batt II		841-0970	
	Smart-Stat II		841-0960	
	Thermostat, Programmable		811-0520	
	Top Vent Adapter		TPVNT-5	
	Touch Up Paint		812-0910	
	Vent Adapter, 3-4"		811-0720	
	Vent Adapter, 90, Cleanout		TPVNT-6	
	Baffle Center Back		SRV7058-166	
	Fastener Packs			
	Rivnut Repair Kit		RIVNUT-REPAIR	**Y**
	Bolt, Hex Head, 1/4-20 X 1	Pkg of 10	25221A/10	**Y**
	Guide Pin Sleeve	Pkg of 25	31120/25	**Y**
	Hurricane Screw	Pkg of 40	SRV2005-861/40	
	Nut, 2-Wy Side-Lock Jam 3	Pkg of 24	226-0100/24	**Y**
	Nut, Lock 1/4-20	Pkg of 25	226-0090/25	**Y**
	Nut, Ser Flange Small 1/4-20	Pkg of 24	226-0130/24	**Y**
	Screw 8 - 32x3/8 HWH BK	Pkg of 40	SRV060-883/40	
	Screw Hwh Ms 1/4-20 X 3/4 Ns	Pkg of 25	220-0080/25	**Y**
	Screw, Sheet Metal #8 X 1/2 S-Grip	Pkg of 40	12460/40	**Y**
	Thumbscrew, 1/4-20 X 3/4	Pkg of 10	844-5070	
	Washer, 1/4 Sae	Pkg of 24	28758/24	**Y**
	Washer, Sae	Pkg of 25	227-0080/25	**Y**
	Wing Thumb Screw 8-32X1/2	Pkg of 24	7000-223/24	**Y**

CONTACT INFORMATION

Hearth & Home Technologies
352 Mountain House Road
Halifax, PA 17032
Division of HNI INDUSTRIES

Please contact your Heatilator dealer with any questions or concerns.
For the number of your nearest Heatilator dealer
log onto www.heatilator.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.

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

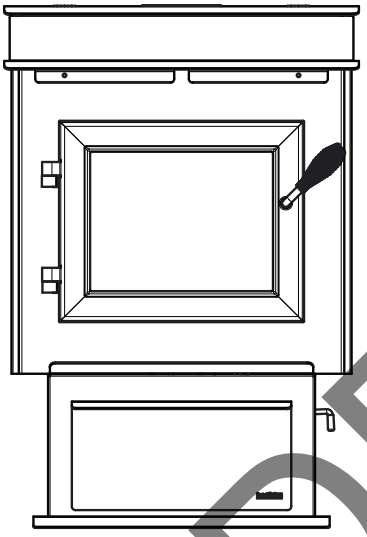
INSTALLER: Leave this manual with party responsible for use and operation.
OWNER: Retain this manual for future reference.

NOTICE: DO NOT DISCARD THIS MANUAL

heatilator® ECOCHOICE™

PELLET BURNING APPLIANCE

MODEL(S):
PS50-C



EM
0-TL
0061PS085E

Pellet Fuels Institute

C ETL LISTED US
Intertek
4001508

⚠ 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 will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- 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.

⚠ CAUTION

Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.

⚠ CAUTION

Tested and approved for wood pellets, Burning of any other type of fuel voids your warranty.

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

NOTE

To obtain a French translation of this manual, please contact your dealer or visit www.heatilatorecochoice.com.

Pour obtenir une traduction francaise de ce manuel, s'il vous plait contacter votre revendeur ou visitez www.heatilatorecochoice.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.

TABLE OF CONTENTS

1 Important Safety Information

A. Appliance Certification

Model	PS50-C
Laboratory	Intertek
Safety Report No.	4001508
Type	Solid Fuel Room Appliance/Pellet Fuel BurningType
Standard	ASTM E1509-04 and ULC S627-00, ULC/ ORD-C1482-M1990 Room Appliance Pellet Fuel Burning type and (UM) 84-HUD, Mobile Home Approved.

B. BTU & Efficiency Specifications

Laboratory:	OMNI Test Laboratories, Inc.
Emissions Report #:	0061PS085E
EPA Certification #:	XXX-XX
EPA Certified Emissions:	1.997 grams/hour
***LHV Tested Efficiency:**	69.5%
****HHV Tested Efficiency:**	65.1%
*****EPA BTU Output:**	7,488 to 36,591 per hr
******BTU Input:**	13,138 to 49,869 per hr
Vent Size:	3 or 4 inches, “L” or “PL”
Hopper Capacity:	83 lbs.
Fuel	Premium Wood Pellets
* Weighted average LHV efficiency using data collected during EPA emissions test.	
**Weighted average HHV efficiency using data collected during EPA emissions test.	
***A range of BTU outputs based on HHV and the burn rates from the low and high EPA tests.	
****Maximum BTU input based on the high burn section of the EPA emissions test.	

NOTICE: This installation must conform with local codes. In the absence of local codes you must comply with the **ASTM E1509-04, ULC S627-00, (UM) 84-HUD and ULC/ORD-C-1482**.

This manual describes the installation of the Heatilator Eco Choice, PS50 pellet appliance. This appliance meets the 2020 U.S. Environmental Protection Agency’s pellet appliance emission limits for wood heaters sold after May 15, 2020. Under specific test conditions this appliance has been shown to deliver heat at rates ranging from 7,488 to 36,591 Btu/hr.

This pellet appliance needs periodic inspection and repair for proper operation. It is against federal regulations to operate this pellet appliance in a manner inconsistent with operating instructions in this manual.

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. Electrical Rating (on high)

115 VAC, 60 Hz, Start 5.1 Amps, Run 3.0 Amps

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 use only listed double-wall connector pipe.
- Outside Air Kit, part 811-0872 or OAK-3 must be installed in a mobile home installation.
- Appliance must be secured to mobile home structure.

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/OSB
- 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 3ft of vertical be installed prior to horizontally exiting the room and a smoke/CO alarm be installed in the bedroom. The size of the room must be at least 50ft³ per 1,000 Btu/hr stove input, if the stove exceeds the room size, out air must be installed.

I. Stove Composition

These pellet burning stoves are made of steel, cast iron or a combination of both with a ceramic viewing glass. These stoves incorporate a self-feeding system including a fuel storage hopper and a mechanical feed system which is controlled by a micro-processing control board. Each model contains a variable speed distribution blower to circulate room air through the heat exchanger and out to the room and a combustion blower which forces the exhaust out of the stove.

J. 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

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.

Install Guide

2 Getting Started

A. Design, Installation & Location Considerations

1. Appliance Location

NOTICE: Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building inspector, fire officials or authorities having jurisdiction over restrictions, installation inspection and permits.

It is a good idea to plan your installation on paper, using exact measurements for clearances and floor protection, before actually beginning the installation. Location of the appliance and chimney will affect performance.

Consideration must be given to:

- Safety, convenience, traffic flow
- Placement of the chimney and chimney connector and to minimize the use of chimney offsets.
- Place the appliance where there will be a clear passage for a Listed chimney through the ceiling and roof (vertical) or through exterior wall (horizontal).
- Installing the required outside air kit will affect the location of the vent termination.

When locating vent and venting termination, the ideal location is to vent above roof line when possible. This minimizes the affects of wind loading.

Since pellet exhaust can contain ash, soot or sparks, you must consider the location of:

- Windows
- Air Intakes
- Air Conditioner
- Overhang, soffits, porch roofs, adjacent walls
- Landscaping, vegetation
- Horizontal or vertical vent termination

2. Floor Support

The supporting floor under the appliance must be able to handle the weight of the appliance, fuel load and the weight of the chimney.

Ensure that your floor will support these weights prior to installation. Add sufficient additional support to meet this weight requirement prior to installation. The weight of the appliance is 240 lbs.

WARNING

Risk of Fire.
Damaged parts could impair safe operation. Do NOT install damaged, incomplete or substitute components.

CAUTION

If burning shelled field corn, you must use approved venting specifically designed for corn to prevent corrosion or degradation. Follow the instructions from the venting manufacturer.

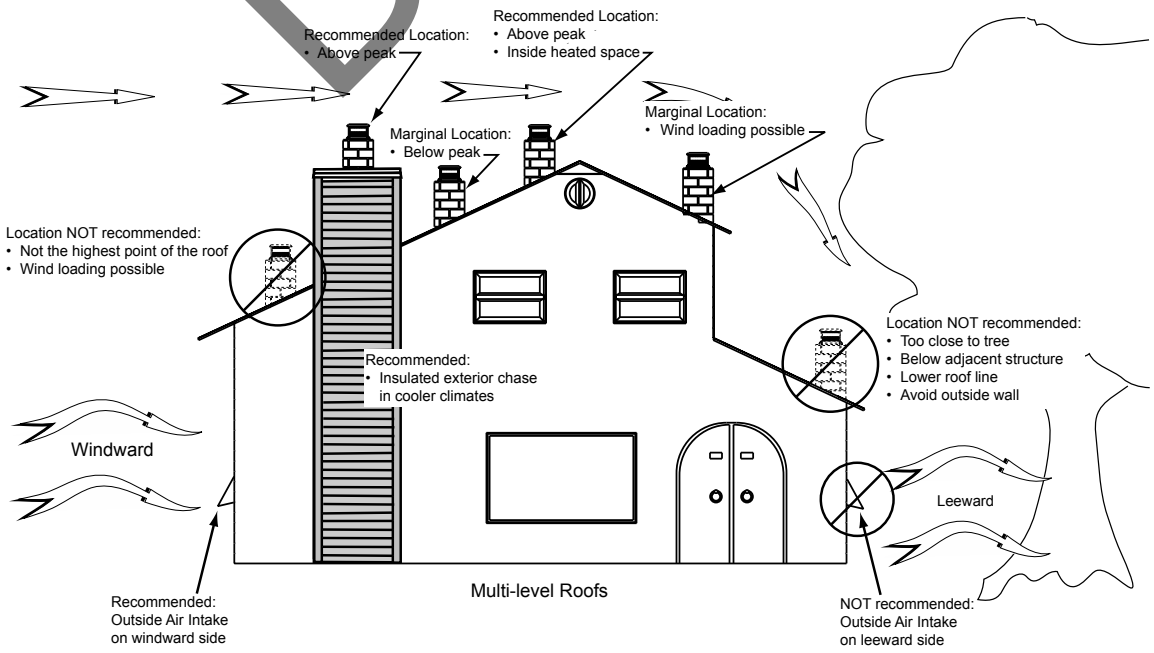


Figure 5.1

B. Thermostat Wall Control Location

The thermostat wall control's location will have some affect on the appliance's operation.

- Maximum wire length from appliance is 100 feet (30.48m) continuous non-spliced wire. Recommended 20 gauge wire, solid copper.
- When located close to the appliance, it may require a slightly higher temperature setting to keep the rest of the house comfortable.
- When located in an adjacent room or on a different floor level, you will notice higher temperatures near the appliance.

C. Tools And Supplies Needed

Tools and building supplies normally required for installation, unless installing into an existing masonry fireplace:

Reciprocating Saw	Framing Material
Channel Locks	Hi-temp Caulking Material
Hammer	Gloves
Phillips Screwdriver	Safety Glasses
Tape Measure	Framing Square
Plumb Line	Electric Drill & Bits (1/4")
1/4" Self-Tapping Screws	Level
May also need:	
Vent Support Straps	Venting Paint

D. Inspect Appliance and Components

- Open the appliance and remove all the parts and articles packed inside the Component Pack. Inspect all the parts and glass for shipping damage.
- Report to your dealer any parts damaged in shipment.
- All labels have been removed from the glass door.
- Plated surfaces have been wiped clean with a soft cloth, if applicable.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**
- **Follow pipe manufacturer instructions for installation and air clearance requirements.**

WARNING

Risk of Fire!

- Damaged parts could impair safe operation.
- Do NOT install damaged, incomplete or substitute components.

WARNING

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!

Or any such action that may cause a fire hazard.

E. Install Checklist

ATTENTION INSTALLER:

Follow this Standard Work Checklist

This standard work checklist is to be used by the installer in conjuction with, not istead of, the instructions contained in this installation manual.

Customer: _____
Date Installe: _____
Lot / Address: _____
Location of Appliance: _____
Installer: _____
Dealer / Distributor Phone #: _____
Serial #: _____
Model: _____

WARNING! Risk of Fire or Exposion! Failure to install appliance according to these instruction can lead to a fire or explosion.

Appliance Install	YES	IF NO, WHY?
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.	☐	

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 installtion 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

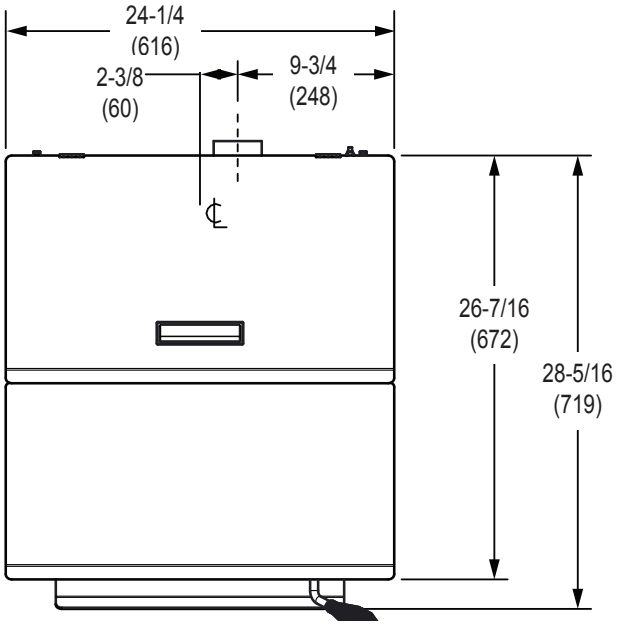


Figure 8.1 - Top View

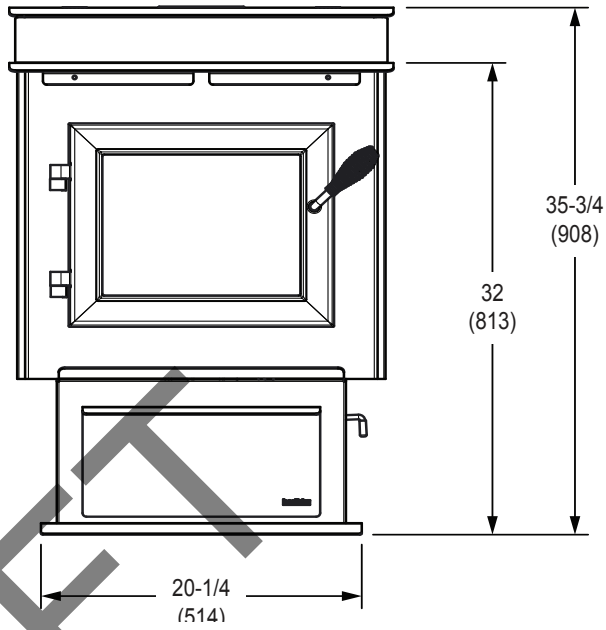


Figure 8.2- Front View

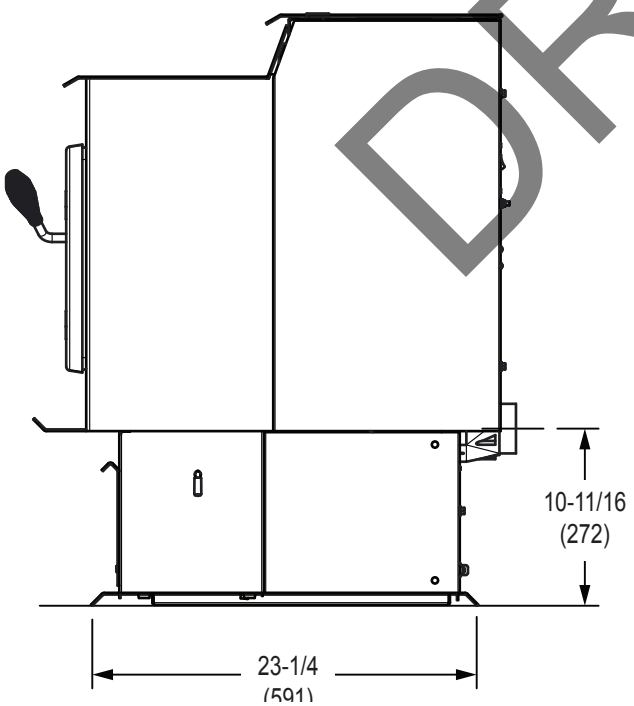


Figure 8.3 -Side View

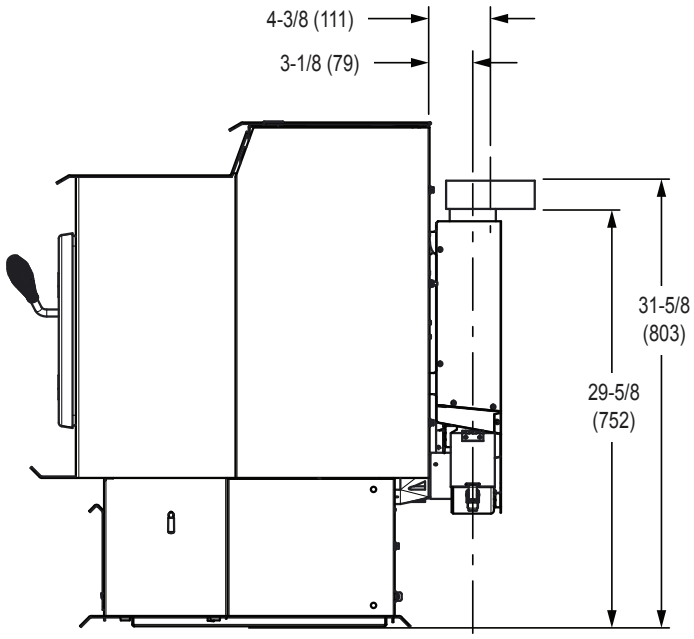
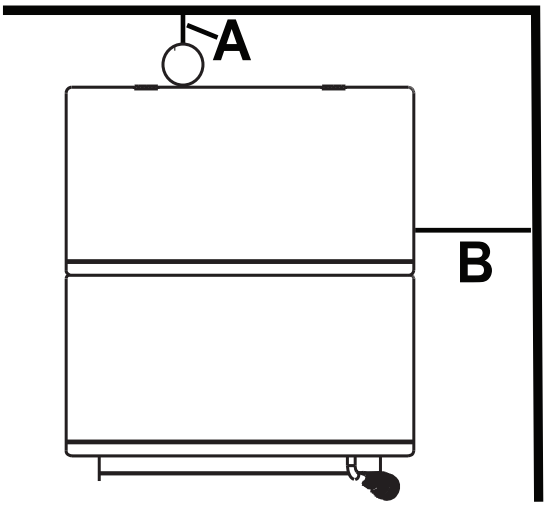
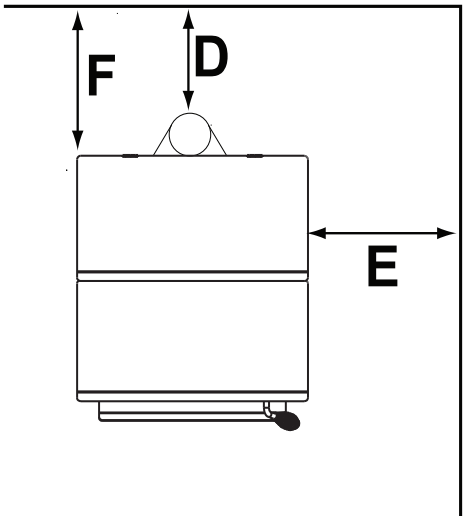
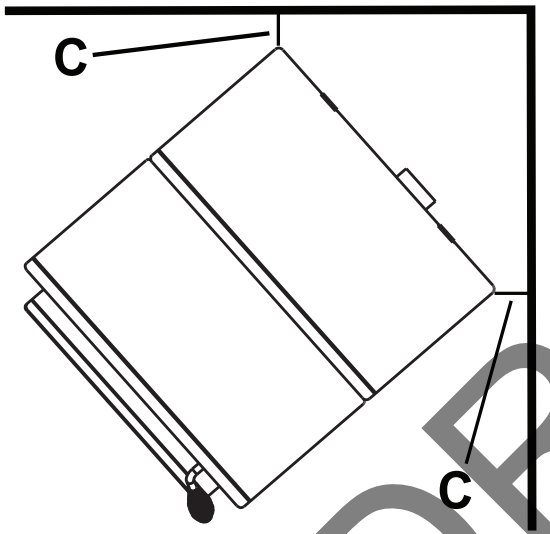


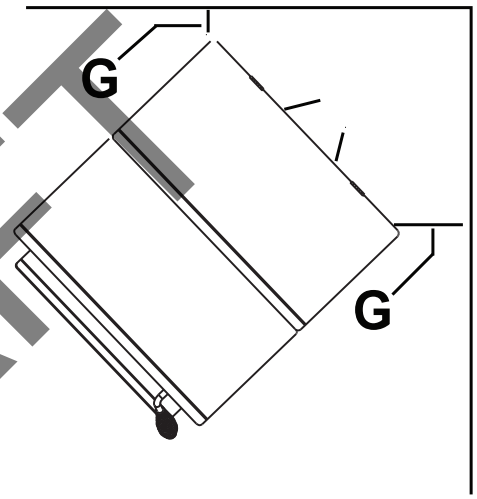
Figure 8.4 - Side View with Top Vent Adapter

B. Clearances to Combustibles (UL and ULC)









Straight Back Against Wall		Inches	Millimeters
A	Back Wall to Appliance	2	51
B	Side Wall to Appliance	14	356
Corner Installation		**Inches**	**Millimeters**
C	Walls to Appliance	2	51

NOTE:
- Illustrations reflect typical installations and are FOR DESIGN PURPOSES ONLY.
- Illustrations/diagrams are not drawn to scale.
- Actual installation may vary due to individual design preference.

Installations with 3 to 3 inch Top Vent Adapter

Vertical Installation		Inches	Millimeters
D	Back Wall to Adapter	1	25
E	Side Wall to Appliance	14	356
F	Back Wall to Appliance	6-1/4	159
Corner Installation		**Inches**	**Millimeters**
G	Walls to Appliance	2	51

Installations with 3 to 6 inch Offset Adapter

Vertical Installation		Inches	Millimeters
D	Back Wall to Adapter	3	76
E	Side Wall to Appliance	14	356
F	Back Wall to Appliance	10-3/4	274
Corner Installation		**Inches**	**Millimeters**
G	Walls to Appliance	2	51

C. Hearth Pad Requirements (UL and ULC)

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 6 inches (152mm) in front of glass and 6 inches (152mm) to both sides of the fuel loading door. Open the door and measure 6 inches (152mm) from the side edge of the opening in the face of the appliance.***See exception.**

USA INSTALLATIONS: A non-combustible floor protection is recommended extending beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation.

CANADA INSTALLATIONS: A non-combustible floor protection extending beneath the flue pipe is **required** with horizontal venting or under the Top Vent Adapter with vertical installation.

WARNING

Fire Risk
Comply with all minimum clearances to combustibles as specified.
Failure to comply may cause house fire.

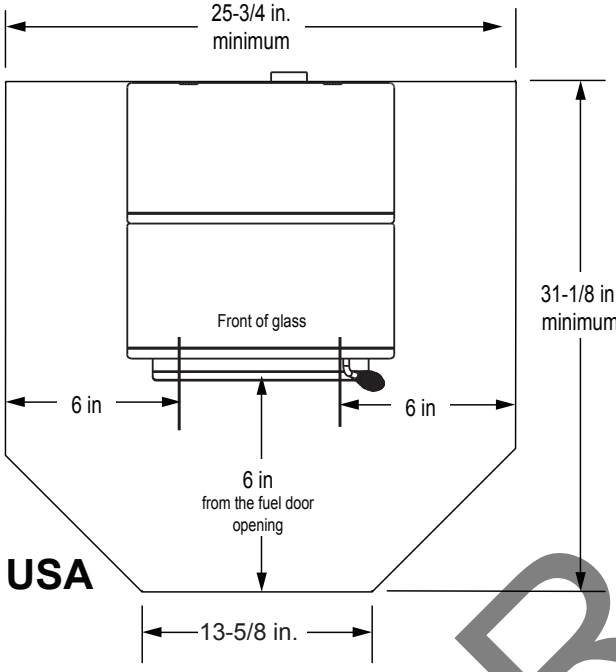


Figure 10.1

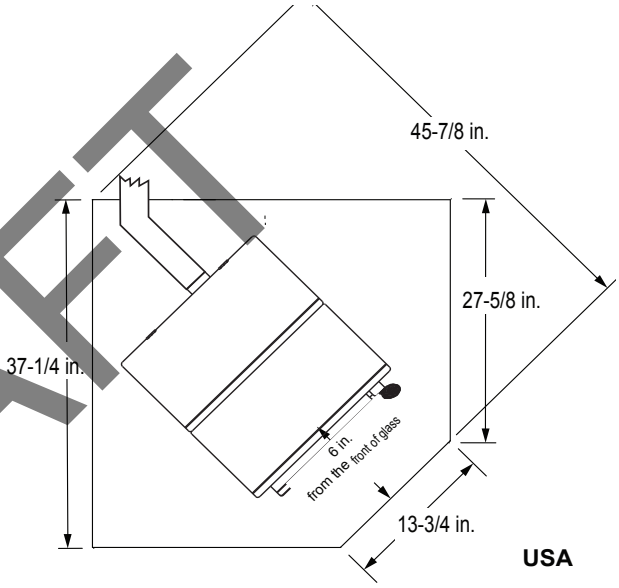


Figure 10.3

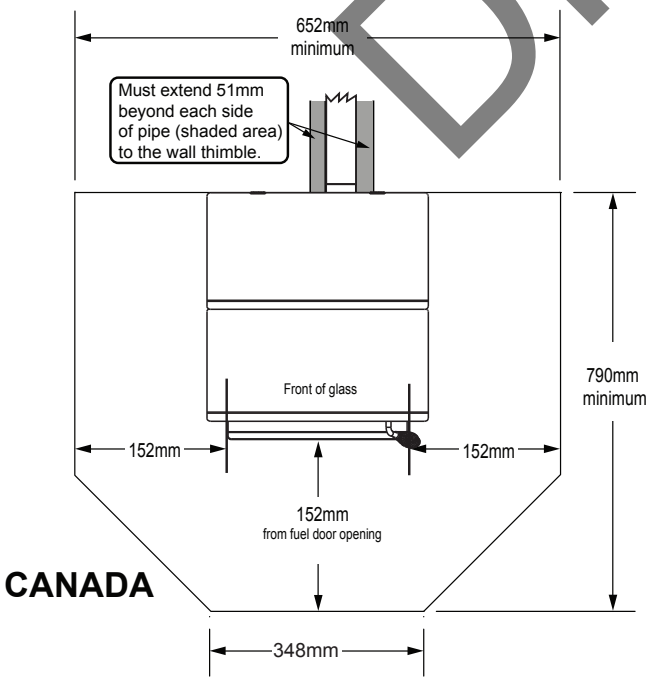


Figure 10.2

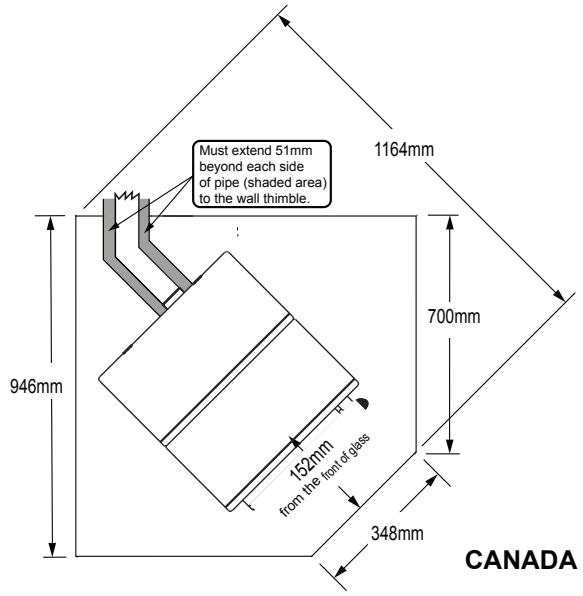


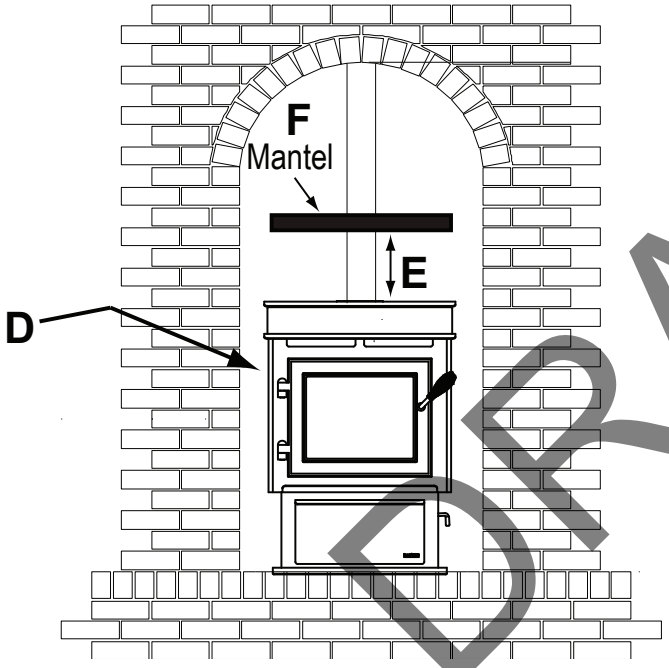
Figure 10.4

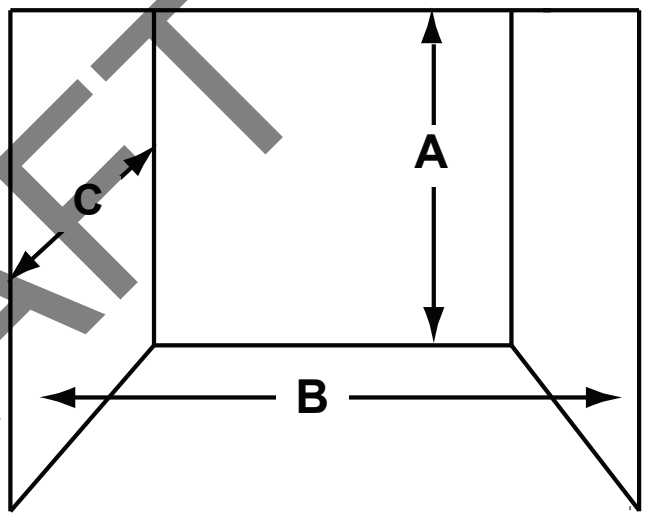
D. Alcove

Installations Into Alcove

All minimums listed are to a combustible surface.

Model: PS50-C		Minimum		Maximum	
		Inches	Millimeters	Inches	Millimeters
A	Height	56-3/4	1441	n/a	n/a
B	Width	53	1346	n/a	n/a
C	Depth	n/a	n/a	48	1219
D	Side Wall	14	356	n/a	n/a
E	Top	16	533	n/a	n/a
F	Mantel Depth	n/a	n/a	36	914





NOTE:

- Illustrations reflect typical installations and are FOR DESIGN PURPOSES ONLY.
- Illustrations/diagrams are not drawn to scale.
- Actual installation may vary due to individual design preference.

4 Vent Information

A. Venting Termination Minimum Requirements

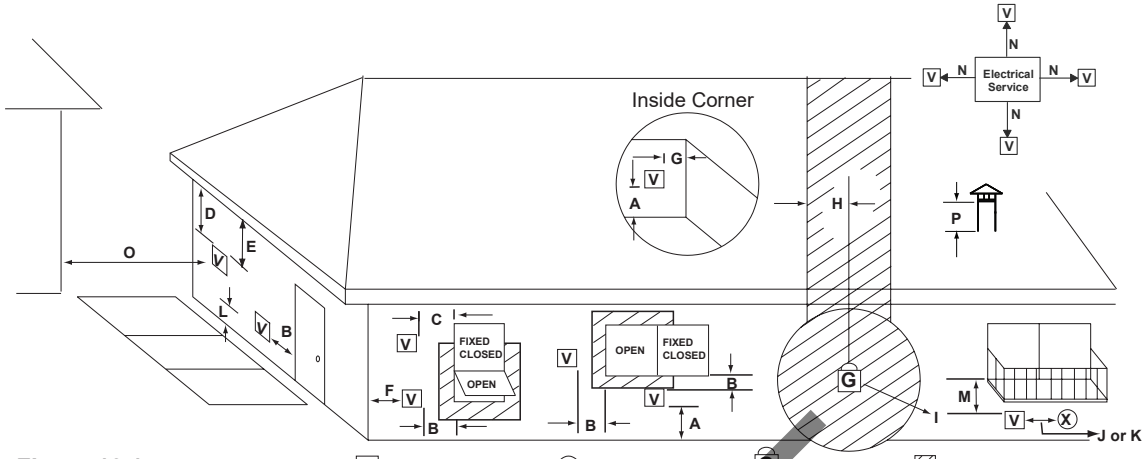


Figure 12.1

V Termination Cap X Air Supply Inlet G Gas Meter Restricted Area

All minimum clearances are listed with an Outside Air Kit (OAK) installed, unless otherwise noted in table below.

A	12 in.	Above Finish Grade (the grade surface must be a non-combustible material
B	12 in. 48 in. no OAK	Open door or window: below or to the side
B	12 in.	Open door or window: above
C	6 in.	Permanently closed window: above, below or to the side
D	18 in. 36 in. no OAK	Vertical clearance to a ventilated soffit located above the terminal within a horizontal distance of 2 ft from the center-line of the terminal
E	12 in.	Clearance to unventilated soffit
F	12 in.	Clearance to outside corner
G	12 in.	Clearance to inside corner
H	36 in.	Above gas meter/regulator measured from horizontal center-line of regulator
I	36 in. USA 72 in. Canada	Clearance to service regulator vent outlet
J	12 in. 48 in. no OAK	Clearance to non-mechanical air supply inlet to the building or the combustions air inlet to any other appliance
K	10 ft horizontal 3 ft vertical	Clearance to mechanical air supply
L	7 ft.	Above paved sidewalk, paved driveway located on **public** property
M	12 in.	Under an open veranda, porch, deck or balcony
N	See Note below*	Electric service: above, below or to the side (location must not obstruct or interfere with access)
O	24 in.	Adjacent building, fences and protruding parts of the structure
P	12 in.	Clearance above roof line for vertical terminations

24 in.	Above grass, top of plants, wood or any other combustible
12 in. 36 in. no OAK	Clearance from any forced air intake of other appliance
12 in.	Clearance horizontally from combustible wall
15 in.	Vented directly through a wall, minimum length of horizontal pipe
6 in. horizontal 12 in. vertical	Minimum horizontal or vertical terminations must protrude from wall

***NOTE:** Consult local building, fire officials or authorities having jurisdiction. Local codes or regulations may require different clearances.

NOTICE

Do NOT Terminate Vent:

- In any location that will allow flue gases or soot from entering or staining the building
- In any location which could create a nuisance or hazard
- In any enclosed or semi-enclosed area such as a carport, garage, attic, crawl space, under a sun deck or porch, narrow walkway
- Closely fenced area, or any location that can build up a concentration of fumes such as a stairwell, covered breezeway, etc.

NOTICE

Termination must exhaust above air inlet elevation.

- It is recommended that at least 60 inches (1.52m) of vertical pipe be installed when appliance is vented directly through a wall. This will create a natural draft, which will help prevent the possibility of smoke or odor venting into the home during a power outage.
- It will also keep exhaust from causing a nuisance or hazard by exposing people or shrubs to high temperatures.
- The safest and preferred venting method is to extend the vent vertically through the roof or above the roof.

B. Avoiding Smoke and Odors

Negative Pressure, Shut-Down and Electrical Power Failure

To reduce the probability of back-drafting or burn-back in the pellet appliance during power failure or shut down conditions, it must be able to draft naturally without exhaust blower operation.

Negative pressure in the house will resist this natural draft if not accounted for in the pellet appliance installation.

Heat rises in the house and leaks out at upper levels. This air must be replaced with cold air from outdoors which flows into lower levels of the house.

Vents and chimneys into basements and lower levels of the house can become the conduit for air supply and reverse under these conditions.

Outside Air

An outside air kit is recommended in all installations. The Outside Air Kit must be ordered separately.

Per national building codes, consideration must be given to combustion air supply to all combustion appliances. Failure to supply adequate combustion air for all appliance demands may lead to back-drafting of those and other appliances.

When the appliance is roof vented (strongly recommended):

The air intake is best located on the exterior wall oriented towards the prevailing wind direction during the heating season.

When the appliance is side-wall vented:

The air intake is best located on the same exterior wall as the exhaust vent outlet and located lower on the wall than the exhaust vent outlet.

The outside air supply kit can supply most of the demands of the pellet appliance, but consideration must be given to the total house demand.

House demand may consume the air needed for the appliance. It may be necessary to add additional ventilation to the space in which the pellet appliance is located.

Consult with your local HVAC professional to determine the ventilation demands for your house.

Vent Configurations

When installing a pellet appliance with a horizontal vent configuration the frequency of power outages should be considered:

- Power outages during operation will cause the appliance to immediately turn off and may create conditions where smoke will back draft into the house. In order to reduce the likelihood of smoke back drafting into the house during a power outage, Hearth and Home Technologies strongly suggests:
  - Installing the pellet venting with a minimum vertical run of 5 feet (1.52m).
  - Installing the outside air kit at least 4 feet (1.22m) below the vent termination.

To prevent soot damage to exterior walls of the house and to prevent re-entry of soot or ash into the house:

- Maintain specified clearances to windows, doors and air inlets, including air conditioners.
- Vents should not be placed below ventilated soffits. Run the vent above the roof.
- Avoid venting into alcove locations.
- Vents should not terminate under overhangs, decks or onto covered porches.
- Maintain minimum clearance of 12 inches (305mm) from the vent termination to the exterior wall. If you see deposits developing on the wall, you may need to extend this distance to accommodate your installation conditions.

CAUTION

- DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE.
- DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

Hearth & Home Technologies assumes no responsibility for, not does the warranty extend to, smoke damage caused by reverse drafting of pellet appliances under shut down or power failure conditions.

C. Negative Pressure

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

WARNING

Risk of Asphyxiation!
Negative pressure can cause spillage of combustion fumes and soot.

D. Draft

Draft is the pressure difference needed to vent an appliance successfully. When an appliance is drafting successfully, all combustion byproducts are exiting the home through the chimney.

Install through the warm airspace enclosed by the building envelope. This helps to produce more draft, especially during lighting and die-down of the fire.

Considerations for successful draft include:

- Preventing negative pressure
- Location of appliance and chimney

NOTICE

Hearth & Home Technologies assumes no responsibility for the improper performance of the chimney system caused by:

- Inadequate draft due to environmental conditions
- Down drafts
- Tight sealing construction of the structure
- Mechanical exhausting devices

Minimum Vacuum Requirements per Appliance

Model	Minimum Vacuum Requirements
PS50-C	.075 inches W.C.

E. Chimney and Exhaust Connection

1. **Chimney & Connector**: Use 3 or 4 inch (76-102mm) diameter type “L” or “PL” venting system. It can be vented vertically or horizontally.
2. **Mobile Home:** Approved for all Listed pellet vent. If using the 3 inch (76mm) vertical Top Vent Adapter Kit or the 3 to 6 inch (76-152mm) Top Vent Offset Adapter, use Listed double wall flue connector. A Quadra-Fire Outside Air Kit must be used with manufactured home installations.
3. **Residential:** The 3 inch (76mm) vertical Top Vent Adapter Kit and the 3 to 6 inch (76-152mm) Top Vent Offset Adapter are tested to use 24 gauge single wall flue connector or Listed double wall flue connector to Class A Listed metal chimneys, or masonry chimneys meeting International Residential Code standards for solid fuel appliances.
4. **INSTALL VENT AT CLEARANCES SPECIFIED BY THE VENT MANUFACTURER.**
5. Secure exhaust venting system to the appliance with at least 3 screws. Also secure all connector pipe joints with at least 3 screws through each joint.
6. DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS Appliance.
7. DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.

NOTE: All pipe must be welded seam pipe whenever possible. Seal pipe joints with high temperature silicone (500°F [260°C] minimum rated only).

NOTE: If burning shelled field corn, you must use approved venting specifically designed for corn. Follow the instructions from the venting manufacturer.

F. Venting Termination Requirements

1. Termination must exhaust above air inlet elevation.
2. Distance from doors and opening windows, or gravity or ventilation air inlets into building:
   a. Not less than 48 inches (1.2m) below;
   b. Not less than 48 inches (1.2m) horizontally from;
   c. Not less than 12 inches (305mm) above.
3. Distance from permanently closed windows;
   a. Not less than 12 inches (305mm) below; horizontally from or above.
4. Distance between bottom of termination and grade should be 12 inches (305mm) minimum. This is conditional upon plants in the area, and nature of grade surface. The grade surface must be a non-combustible material (i.e., rock, dirt). The grade surface must not be lawn. Distance between bottom of termination and public walkway should be 7 feet (2.13m) minimum.
5. Distance to combustible materials must be 24 inches (610mm) minimum. This includes adjacent buildings, fences, protruding parts of the structure, roof overhang, plants and shrubs, etc.
6. Termination Cap Location (Home Electrical Service)
   - Side-to-side clearance is to be the same as minimum clearance to vinyl inside corners.
   - Clearance of a termination cap below electrical service shall be the same as minimum clearance to vinyl soffits.
   - Clearance of a termination cap above electrical service will be 12 inches (305mm) minimum.
   - Location of the vent termination must not obstruct or interfere with access to the electrical service.

CAUTION

DO NOT terminate vent in any enclosed or semi-enclosed area such as a carport, garage, attic, crawl space, under a sun deck or porch, narrow walkway or closely fenced area, or any location that can build up a concentration of fumes such as a stairwell, covered breezeway, etc.

G. Equivalent Feet of Pipe

The table below can help you calculate the equivalent feet of pipe which is a method used to determine pellet vent size **(Figure 16.1)**.

WARNING

Vent surfaces get HOT, can cause burns if touched. Non-combustible shielding or guards may be required.

Example of 3 Elbow-Rear Vent Termination Calculation

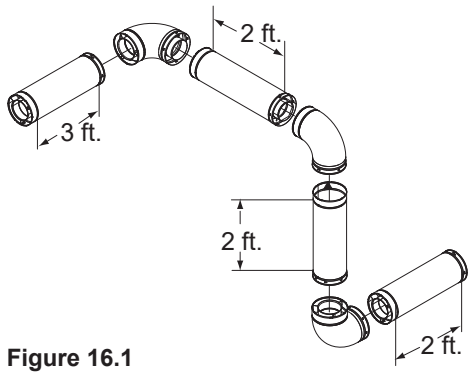


Figure 16.1

Pellet Venting Component	# of Elbows	Feet of Pipe	Multiplied By	Equivalent Feet	Components Equivalent Feet
90° Elbow or Tee	3		X	5	15
45° Elbow			X	3	
Horizontal Pipe		7	X	1	7
Vertical Pipe		2	X	0.5	1
				Total Equivalent Feet	23

NOTE: This is a generic example and is not intended to represent any specific fuel type.

H. Pipe Selection Chart

The chart will help you in determining proper venting size according to the equivalent feet of pipe calculated previously and the altitude above sea level of this installation **(Figure 16.2)**.

1. Locate the calculated equivalent feet of pipe on the vertical left side of the chart.
2. Move to the right horizontally on the chart until you reach your altitude above sea level.
3. If you fall below the diagonal line, 3 or 4 inch (76 to 102mm) pipe may be used.
4. If it is anywhere above the diagonal line, a 4 inch (102mm) diameter pipe is required.

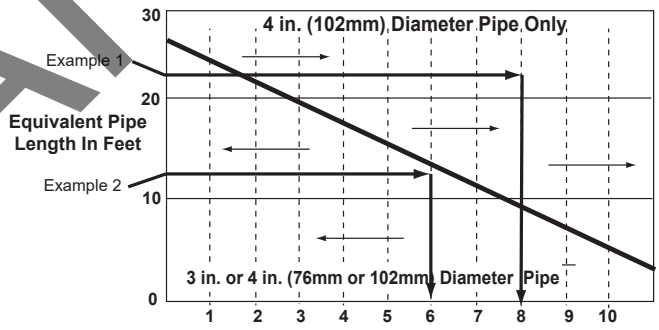


Figure 17.2

- **Example 1**: If the equivalent length of pipe is 23 feet (7m) with altitude of 8,000 feet (2438m) you must use 4 inch (102mm) diameter type “L” or “PL” vent.
- **Example 2**: If the equivalent length of pipe is 12 feet (3.7m) with altitude of 6,000 feet (1829m) you may use 3 or 4 inch (76 to 102mm) diameter type “L” or “PL” vent.

NOTICE!

- A 90° elbow is 5 times as restrictive to the flow of exhaust gases under positive pressure as 1 foot (305mm) of horizontal pipe.
- A foot of horizontal pipe is twice as restrictive as a foot of vertical pipe.

WARNING

Risk of Fire!

- Only LISTED venting components may be used.
- NO OTHER vent components may be used.
- Substitute or damaged vent components may impair safe operation.

WARNING

Risk of Injury or Property Damage.

- 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.

5 Venting Systems

A. Through The Wall

Horizontal termination cap must be a minimum of 6 inches. (152mm) from the wall. Approved for mobile home installations. Must use 3 or 4 inch (76-102mm) “L” or “PL” listed pellet venting or Listed double wall pipe and an authorized Outside Air Kit in mobile homes.

NOTE: In Canada, where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365

NOTICE:

Please note that while the minimum clearance for the termination cap is 6 inches (152mm) there is the possibility of soot build-up around the termination area. If this occurs we suggest to move the termination further away from the house to prevent it.

CAUTION

We strongly recommend that you DO NOT DOWNWARD VENT.

The following may occur:

- The appliance will not vent properly
- Smoke spillage in the house
- Excessive sooting

Straight Out

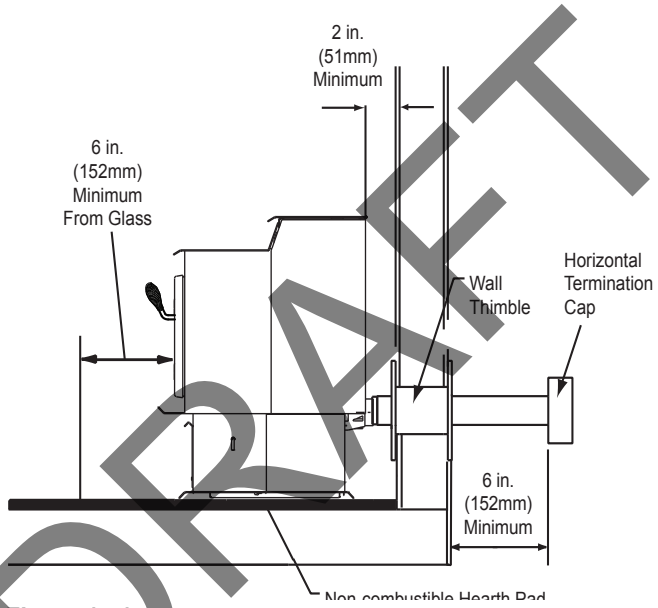


Figure 17.1

45 Degree

Illustration shows venting going in both directions. Choose which one is best for your installation.

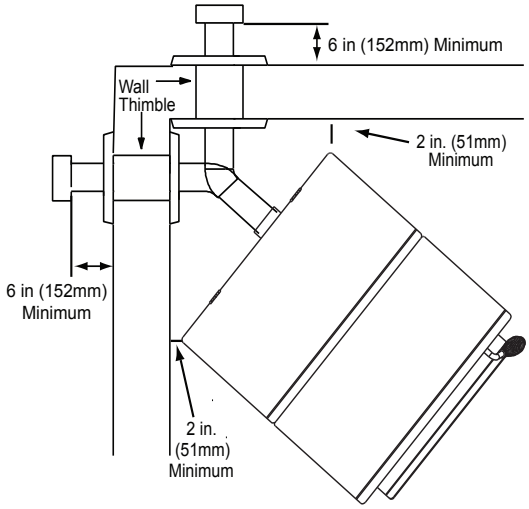


Figure 17.2

B. Vertical into Existing Class A Chimney

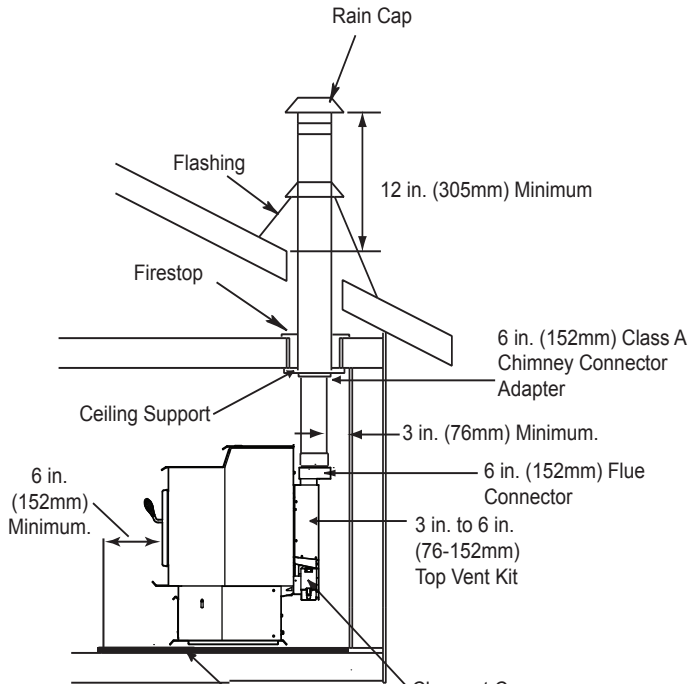


Figure 18.3

We strongly recommend a minimum of 60 inches (1.5m) vertical, however above the eve is preferred.

Both installations are approved for mobile home installations. Must use 3 or 4 inch (76 to 102mm) “L” or “PL” Listed pellet venting or Listed double wall pipe and authorized Outside Air Kit in mobile homes. Single wall pipe is approved for residential installations only.

Air Clearance to Pipe:
This appliance was tested with standard 3 inch (76mm) Listed pellet vent.

Pellet pipe manufactures Listed reduce clearance pipe may be use for reduce clearance from 3 inch (76mm) air clearance to no less than 1 inch (25mm) air clearance to combustibles for approved Listed pellet pipe.

Follow pipe manufactures listed air clearances to combustibles and installation instructions for all reduced air clearances installations.

NOTE: In Canada, where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365

C. Through The Wall & Vertical - External

PREFERRED METHOD #2

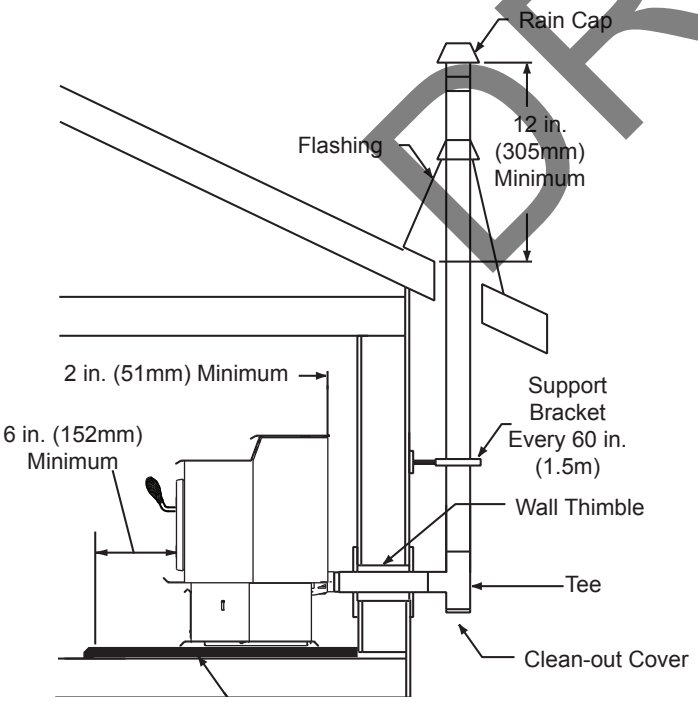


Figure 18.2

D. Vertical - Interior - Typical Installation

PREFERRED METHOD #1

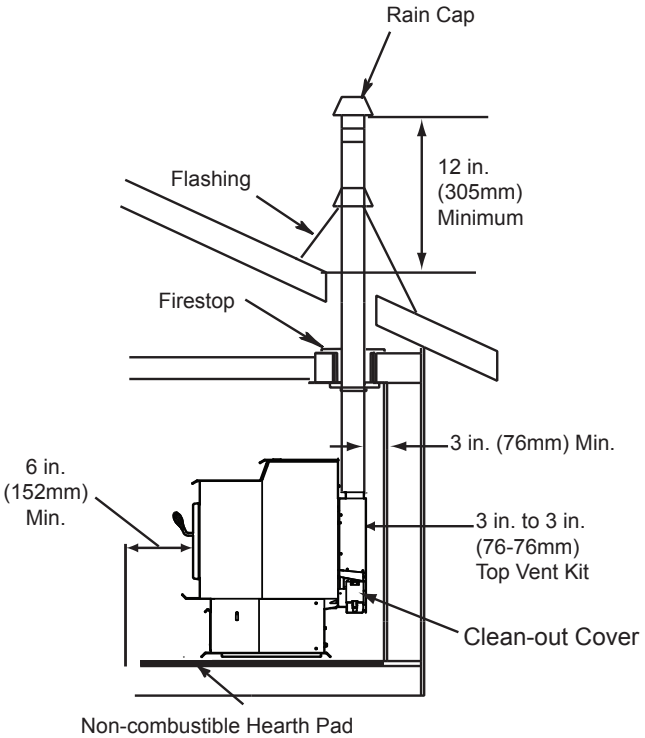


Figure 18.1

WARNING

Fire Risk

Inspection of Chimney:

- Masonry chimney must be in good condition.
- Meets minimum standard of NFPA 211
- Factory-built chimney must be a minimum 6 inch (152mm) UL103 HT.

E. Masonry

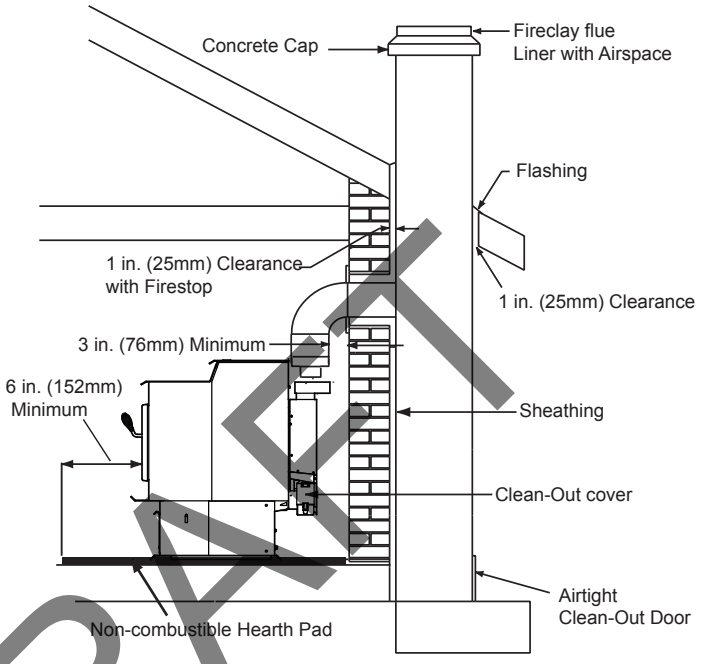


Figure 19.1

F. Alternate Masonry

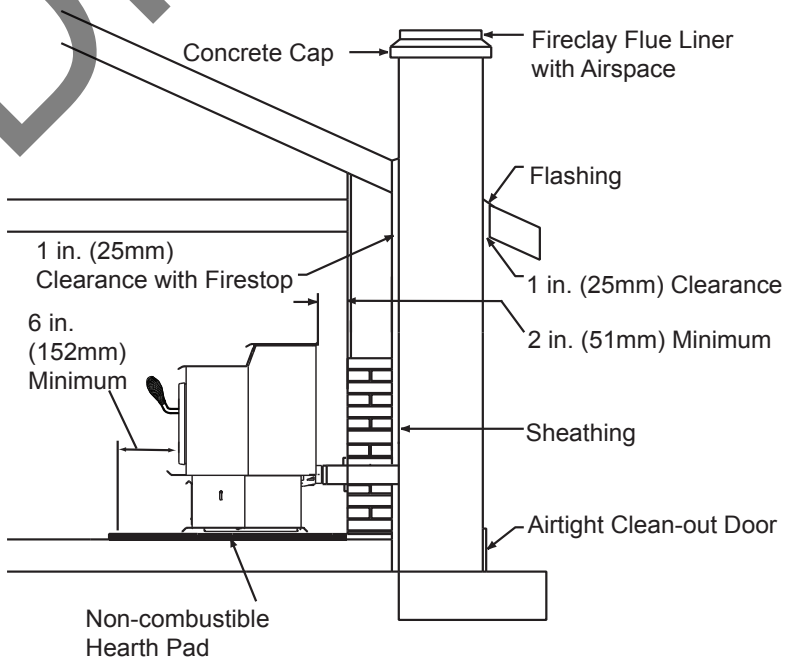


Figure 19.2

6 Appliance Set-Up

A. Outside Air Kit

There are two Outside Air Kits available for purchase with this appliance. Kit 811-0872 uses a 2 inch flex hose (which is included in the kit) and uses hose clamps to secure the hose. The OAK-3 uses 3 inch flex hose (which is not included in the kit) and uses wire ties to secure the hose.

Parts Included in 2 inch Kit 811-0872:
1 piece of 2 inch x 3 ft. flex hose, 2 hose clamps, 1 collar assembly, 1 termination cap assembly, trim ring, 1 intake air channel, fasteners (Discard the air intake channel, it is not needed for this appliance.

Parts Included in 3 inch Kit OAK-3:
2 wire ties, 1 collar assembly, 1 termination cap assembly, 1 trim ring, fasteners.

Tools Needed:
Phillips Head screw driver; wire cutters; hole saw or jig saw, and the length of flex hose needed for your installation if using the 3 inch kit.

1. Measure distance from floor to air vent opening in appliance and mark location on wall.
2. Use a saw to cut opening in wall:
   - **2 inch kit:** Cut a 2-1/2 to 3 inch opening on inside wall and a 3 to 3-1/2 inch opening on outside of house.
   - **3 inch kit:** Cut a 3-1/2 to 4 inch opening on inside wall and a 4 to 4-1/2 inch opening on outside of house.
3. Use wire tie or hose clamp depending on the Outside Air Kit to secure flex pipe to collar assembly.
4. Slide trim ring over flex pipe and run pipe through wall.
5. Attach flex pipe to outside termination cap with second wire tie or hose clamp.
6. Secure termination cap to outside surface.
7. Secure trim ring to interior wall.

CAUTION

Never draw outside combustion air from:
- Wall, floor or ceiling cavity
- Enclosed space such as an attic or garage

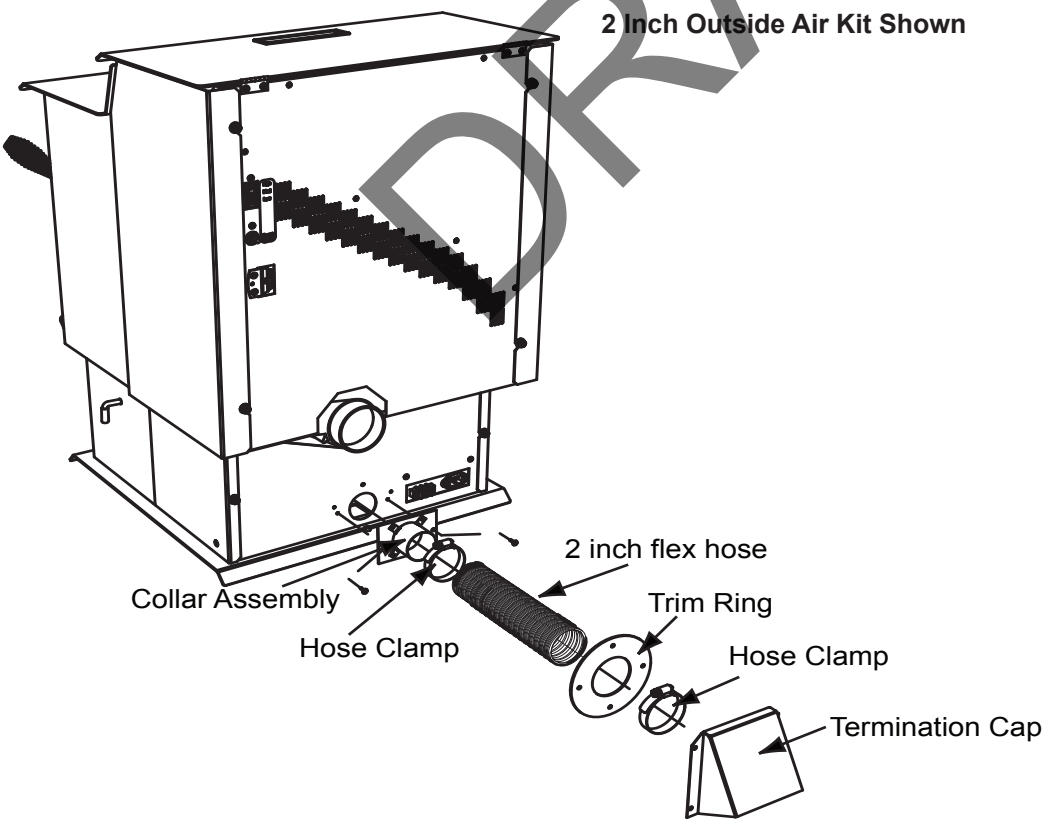


Figure 20.1 - 2 Inch Outside Air Kit

Air Intake Channel (Discard)

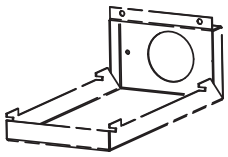


Figure 21.2

B. Top Vent Adapter Installation

3 to 3 inch Top Vent Adapter
3 to 6 inch Top Vent Offset Adapter

Installing the Top Vent Adapter

1. Put a layer of high temperature silicone on the 3 inch (76mm) exhaust outlet. Do not put silicone inside of pipe **(Figure 21.1)**.
2. Slide the top vent adapter onto the rear exhaust outlet and adjust the assembly to a vertical position **(Figure 21.1)**.
3. Drill 4 holes with #26 drill bit (provided) into the back of the appliance using the outer shield as a pattern (make sure the assembly is vertical) **(Figure 21.1)**.
4. Install the 4 mounting screws.
5. Drill 2 holes with #26 drill bit through the rear exhaust outlet using the 2 holes already in the short horizontal pipe in the top vent adapter as a guide. Install the 2 screws **(Figure 21.1)**.
6. Install the vent pipe into the top vent adapter (be sure to silicone all joints).
7. To clean the top vent adapter open the clean-out cover **(Figure 21.1)**.

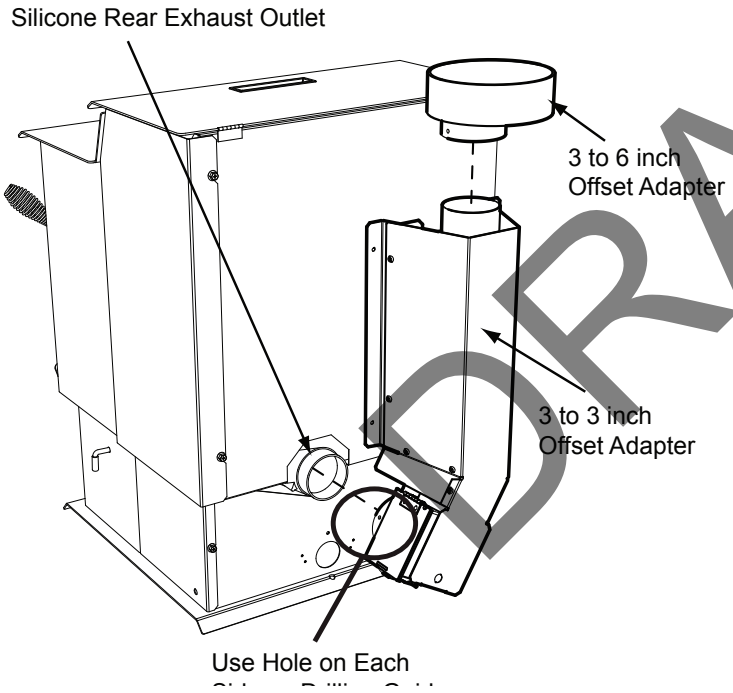


Figure 21.1

C. Rear Vent Adapter Installations

1. Put a layer of high temperature silicone on the 3 inch (76mm) exhaust outlet. Do not put silicone inside of pipe **(Figure 21.1)**.
2. Slide the adapter onto the rear exhaust outlet and adjust the assembly to the appropriate position.
3. Install the vent pipe into the adapter (be sure to silicone all joints)

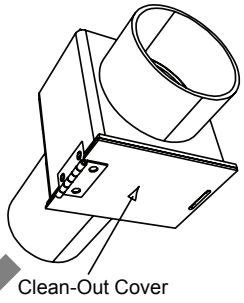


Figure 21.2 - Rear Vent Adapter

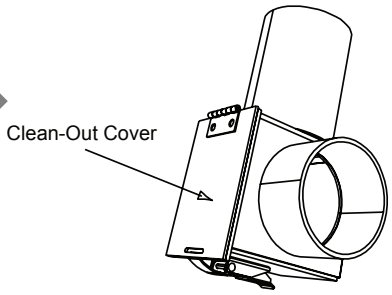


Figure 21.3 - Rear to Top Vent Adapter - 90o

D. Thermostat Installation

1. A low voltage thermostat is required to operate this pellet appliance. You may use the included wall mount thermostat **(Figure 22.2)** or purchase an optional programmable thermostat or remote control. It is equipped with an adjustable heat anticipator. The current rating is .05 amps. The anticipator needs to be adjusted to the lowest setting available.
2. When mounting a thermostat on a wall, be sure to follow your thermostat installation instructions carefully.

NOTE: Thermostat must be mounted level for accurate readings. The thermostat should be mounted on an inside wall and not in direct line with the appliance convection air.

NOTE: If the thermostat is located too close to the appliance, you may need to set the temperature setting slightly higher to maintain the desired temperature in your home.

3. There is a 4 screw terminal block located on the back lower left corner of the appliance directly above the power cord inlet. The center 2 screws are for the thermostat wires **(Figure 22.1)**.

CAUTION

Shock hazard.

- Do NOT remove grounding prong from plug.
- Plug directly into properly grounded 3 prong receptacle.
- Route cord away from appliance.
- Do NOT route cord under or in front of appliance.

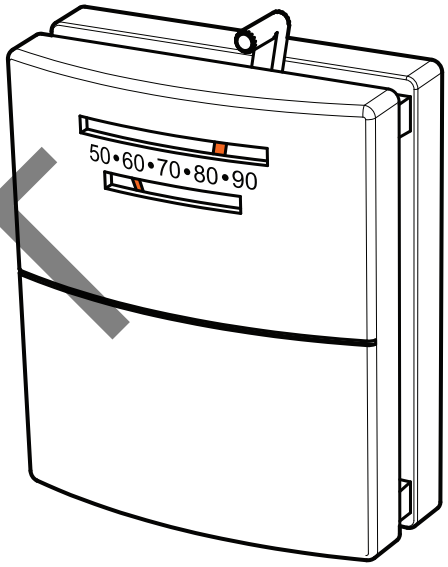


Figure 22.2

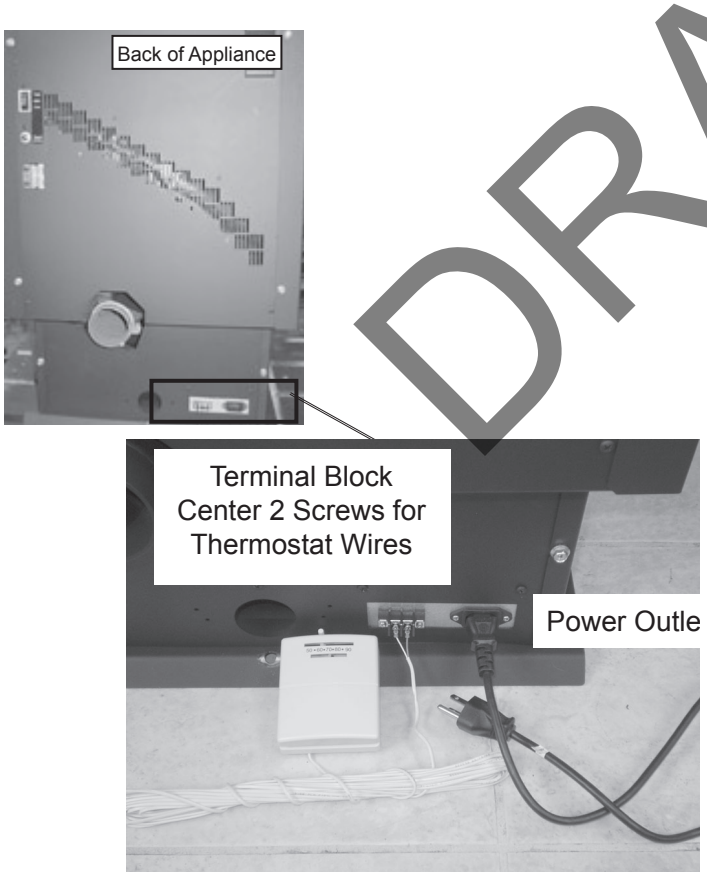


Figure 22.1

7 Mobile Home Installation

You must use a Quadra-Fire Outside Air Kit for installation in a mobile home.

1. An outside air inlet must be provided for the combustion air and must remain clear of leaves, debris, ice and/or snow. It must be unrestricted while the appliance is in use to prevent room air starvation which causes smoke spillage. Smoke spillage can also set off smoke alarms.
2. The combustion air duct system must be made of metal. It must permit zero clearance to combustible construction and prevent material from dropping into the inlet or into the area beneath the dwelling and contain a rodent screen.
3. The appliance must be secured to the mobile home structure by bolting it to the floor (using lag bolts). Use the same holes that secured the appliance to the shipping pallet.
4. The appliance must be grounded with #8 solid copper grounding wire or equivalent, terminated at each end with an NEC approved grounding device.
5. Refer to Clearances to Combustibles and floor protection requirements on page 10 for listings to combustibles and appropriate chimney systems.
6. Use silicone to create an effective vapor barrier at the location where the chimney or other component penetrates to the exterior of the structure.
7. Follow the chimney manufacturer's instructions when installing the vent system for use in a mobile home.
8. Installation shall be in accordance with the Manufacturers Home & Safety Standard (HUD) CFR 3280, Part 24.

Model	Outside Air Kit
PS50-C	OAK-3
	811-0872

CAUTION

Never draw outside combustion air from:
- Wall, floor or ceiling cavity
- Enclosed space such as an attic or garage

WARNING

It is critical to have a working smoke detector installed in the home of appliance operation.
- Smoke alarms that are properly installed and maintained play a vital role in reducing fire deaths and injuries. Having a working smoke alarm reduces the chance of fire related injuries.

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.

This appliance is to be connected to a factory-built chimney conforming to **CAN/ULC-S629**, Standard for 650°C Factory-Built Chimneys.

For removal of the chimney for mobile home transportation, contact the proper transportation officials.

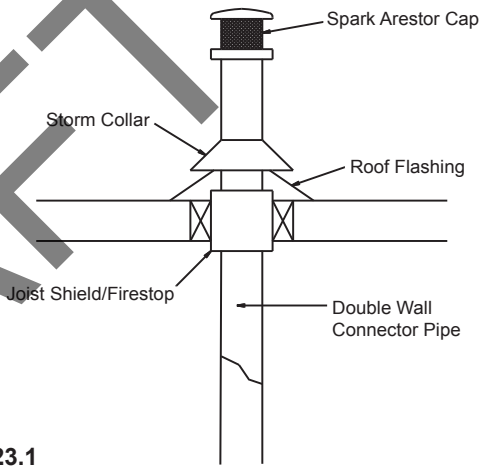


Figure 23.1

WARNING

Products of combustion generate carbon monoxide and different fuels generate different levels. Carbon monoxide:
- Only use approved fuels in this appliance.
- Always keep door shut during operation. Operating this appliance with doors open can allow CO to leak into the home.

CO can kill you before you are aware it is in your home. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure.

WARNING

NEVER INSTALL IN A SLEEPING ROOM.

8 Reference Materials

A. Service & Maintenance Log

Date of Service	Performed By	Description of Service

B. Accessory List

heatilator ECOCHOICE™

Service Parts

ECO-ADV-PS50

Beginning Manufacturing Date: Apr 2010
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.

Item	Description	Comments	Part Number	Stocked at Depot
	ACCESSORIES			
	Collar, Offset, Top Vent		812-3570	
	Damper ,3"	For Tall Vertical Runs Only	PEL-DAMP3	**Y**
	Damper, 4"		PEL-DAMP4	
	Outside Air Kit, 3"		OAK-3	
	Outside Air Kit, 2"		811-0872	
	Hose, Alum Flex, 2 Inch X 3 Ft	3 Ft	SRV200-0860	
	Outside Air Cap Assembly		7001-044	
	Outside Air Collar Assembly		SRV7001-045	
	Trim Plate, Outside Air Kit		412-7100	
	Pull Rod Handle		PULLROD-HNDL	
	Smart-Batt II		841-0970	
	Smart-Stat II		841-0960	
	Thermostat, Programmable		811-0520	
	Top Vent Adapter		TPVNT-5	
	Vent Adapter, 3-4"		811-0720	
	Vent Adapter, 90, Cleanout		TPVNT-6	
	Fastener Packs			
	Rivnut Repair Kit 1/4 -20 & 3/8-16 Rivnut Tools		RIVNUT-REPAIR	**Y**
	Bolt, Hex Head	Pkg of 10	25221A/10	**Y**
	Guide Pin Sleeve	Pkg of 25	31120/25	**Y**
	Hurricane Screw	Pkg of 40	SRV2005-861/40	
	Nut SER FL SMALL 1/4-20	Pkg of 24	226-0130/24	**Y**
	Nut, 2-WY SIDE-LOCK JAM 3	Pkg of 24	226-0100/24	**Y**
	Nut, Lock 1/4-20	Pkg of 25	226-0090/25	**Y**
	Screw 8 - 32x3/8 HWH BK	Pkg of 40	SRV060-883/40	
	Screw HWH MS 1/4-20 X3/4 NS	Pkg of 25	220-0080/25	**Y**
	Screw PH PHL TC 8-32X1/2	Pkg of 25	220-0030/25	**Y**
	Screw, Wing Thumb, 8-32X1/2	Pkg of 24	7000-223/24	**Y**
	SMS #8 X 1/2 S-GRIP BO	Pkg of 40	12460/40	**Y**
	Thumb Screw 1/4-20 x 3/4	Pkg of 10	844-5070	
	Washer, 1/4 SAE	Pkg of 24	28758/24	**Y**
	Washer, SAE	Pkg of 25	227-0080/25	**Y**

Heatilator ECOCHOICE™

CONTACT INFORMATION

Hearth & Home Technologies
352 Mountain House Road
Halifax, PA 17032
Division of HNI INDUSTRIES

Please contact your Heatilator dealer with any questions or concerns.
For the number of your nearest Heatilator dealer
log onto www.heatilator.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.

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

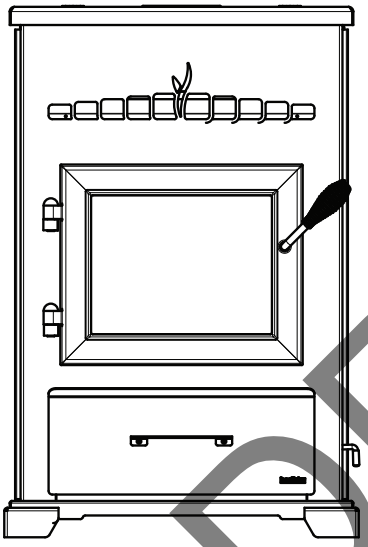
INSTALLER: Leave this manual with party responsible for use and operation.
OWNER: Retain this manual for future reference.

NOTICE: DO NOT DISCARD THIS MANUAL

Heatilator® ECOCHOICE™

PELLET BURNING APPLIANCE

MODEL(S):
CAB50-C



0061PS085E

Pellet Fuels Institute

Intertek 4001508

⚠ CAUTION

Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.

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 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 will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- 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.

⚠ CAUTION

Tested and approved for wood pellets, Burning of any other type of fuel voids your warranty.

NOTE

To obtain a French translation of this manual, please contact your dealer or visit www.heatilatorecochoice.com.

Pour obtenir une traduction francaise de ce manuel, s'il vous plait contacter votre revendeur ou visitez www.heatilatorecochoice.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.

TABLE OF CONTENTS

1 Important Safety Information

A. Appliance Certification

Model	CAB50-C
Laboratory	Intertek
Safety Report No.	4001508
Type	Solid Fuel Room Appliance/Pellet Fuel BurningType
Standard	ASTM E1509-04 and ULC S627-00, ULC/ ORD-C1482-M1990 Room Appliance Pellet Fuel Burning type and (UM) 84-HUD, Mobile Home Approved.

B. BTU & Efficiency Specifications

Laboratory:	OMNI Test Laboratories, Inc.
Emissions Report #:	0061PS085E
EPA Certification #:	XXX-XX
EPA Certified Emissions:	1.997 grams/hour
***LHV Tested Efficiency:**	69.5%
****HHV Tested Efficiency:**	65.1%
*****EPA BTU Output:**	7,488 to 36,591 per hr
******BTU Input:**	13,138 to 49,869 per hr
Vent Size:	3 or 4 inches, “L” or “PL”
Hopper Capacity:	83 lbs.
Fuel	Premium Wood Pellets
* Weighted average LHV efficiency using data collected during EPA emissions test.	
**Weighted average HHV efficiency using data collected during EPA emissions test.	
***A range of BTU outputs based on HHV and the burn rates from the low and high EPA tests.	
****Maximum BTU input based on the high burn section of the EPA emissions test.	

NOTICE: This installation must conform with local codes. In the absence of local codes you must comply with the **ASTM E1509-04, ULC S627-00, (UM) 84-HUD and ULC/ORD-C-1482**.

This manual describes the installation of the Heatilator Eco Choice, CAB50 pellet appliance. This appliance meets the 2020 U.S. Environmental Protection Agency’s pellet appliance emission limits for wood heaters sold after May 15, 2020. Under specific test conditions this appliance has been shown to deliver heat at rates ranging from 7,488 to 36,591 Btu/hr.

This pellet appliance needs periodic inspection and repair for proper operation. It is against federal regulations to operate this pellet appliance in a manner inconsistent with operating instructions in this manual.

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. Electrical Rating (on high)

115 VAC, 60 Hz, Start 5.1 Amps, Run 3.0 Amps

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 use only listed double-wall connector pipe.
- Outside Air Kit, part 811-0872 must be installed in a mobile home installation.
- Appliance must be secured to mobile home structure.

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/OSB
- 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 3ft of vertical be installed prior to horizontally exiting the room and a smoke/CO alarm be installed in the bedroom. The size of the room must be at least 50ft³ per 1,000 Btu/hr stove input, if the stove exceeds the room size, out air must be installed.

I. Stove Composition

These pellet burning stoves are made of steel, cast iron or a combination of both with a ceramic viewing glass. These stoves incorporate a self-feeding system including a fuel storage hopper and a mechanical feed system which is controlled by a micro-processing control board. Each model contains a variable speed distribution blower to circulate room air through the heat exchanger and out to the room and a combustion blower which forces the exhaust out of the stove.

J. 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

⚠ 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.

Install Guide

2 Getting Started

A. Design, Installation & Location Considerations

1. Appliance Location

NOTICE: Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building inspector, fire officials or authorities having jurisdiction over restrictions, installation inspection and permits.

It is a good idea to plan your installation on paper, using exact measurements for clearances and floor protection, before actually beginning the installation. Location of the appliance and chimney will affect performance.

Consideration must be given to:

- Safety, convenience, traffic flow
- Placement of the chimney and chimney connector and to minimize the use of chimney offsets.
- Place the appliance where there will be a clear passage for a Listed chimney through the ceiling and roof (vertical) or through exterior wall (horizontal).
- Installing the required outside air kit will affect the location of the vent termination.

When locating vent and venting termination, the ideal location is to vent above roof line when possible. This minimizes the affects of wind loading.

Since pellet exhaust can contain ash, soot or sparks, you must consider the location of:

- Windows
- Air Intakes
- Air Conditioner
- Overhang, soffits, porch roofs, adjacent walls
- Landscaping, vegetation
- Horizontal or vertical vent termination

2. Floor Support

The supporting floor under the appliance must be able to handle the weight of the appliance, fuel load and the weight of the chimney.

Ensure that your floor will support these weights prior to installation. Add sufficient additional support to meet this weight requirement prior to installation. The weight of the appliance is 240 lbs.

WARNING

Risk of Fire.
Damaged parts could impair safe operation. Do NOT install damaged, incomplete or substitute components.

CAUTION

If burning shelled field corn, you must use approved venting specifically designed for corn to prevent corrosion or degradation. Follow the instructions from the venting manufacturer.

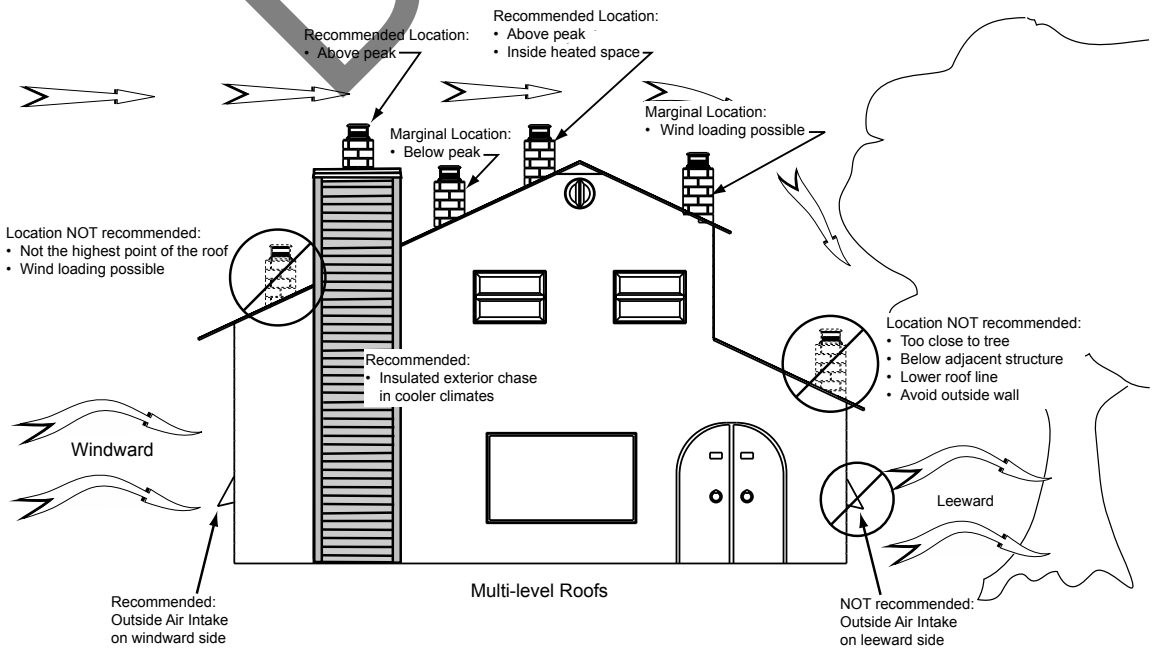


Figure 4.1

B. Thermostat Wall Control Location

The thermostat wall control's location will have some affect on the appliance's operation.

- Maximum wire length from appliance is 100 feet (30.48m) continuous non-spliced wire. Recommended 20 gauge wire, solid copper.
- When located close to the appliance, it may require a slightly higher temperature setting to keep the rest of the house comfortable.
- When located in an adjacent room or on a different floor level, you will notice higher temperatures near the appliance.

C. Tools And Supplies Needed

Tools and building supplies normally required for installation, unless installing into an existing masonry fireplace:

Reciprocating Saw	Framing Material
Channel Locks	Hi-temp Caulking Material
Hammer	Gloves
Phillips Screwdriver	Safety Glasses
Tape Measure	Framing Square
Plumb Line	Electric Drill & Bits (1/4")
1/4" Self-Tapping Screws	Level
May also need:	
Vent Support Straps	Venting Paint

D. Inspect Appliance and Components

- Open the appliance and remove all the parts and articles packed inside the Component Pack. Inspect all the parts and glass for shipping damage.
- Report to your dealer any parts damaged in shipment.
- All labels have been removed from the glass door.
- Plated surfaces have been wiped clean with a soft cloth, if applicable.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**
- **Follow pipe manufacturer instructions for installation and air clearance requirements.**

WARNING

Risk of Fire!

- Damaged parts could impair safe operation.
- Do NOT install damaged, incomplete or substitute components.

WARNING

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!

Or any such action that may cause a fire hazard.

E. Install Checklist

ATTENTION INSTALLER:

Follow this Standard Work Checklist

This standard work checklist is to be used by the installer in conjuction with, not istead of, the instructions contained in this installation manual.

Customer: _____
Date Installe: _____
Lot / Address: _____
Location of Appliance: _____
Installer: _____
Dealer / Distributor Phone #: _____
Serial #: _____
Model: _____

WARNING! Risk of Fire or Exposion! Failure to install appliance according to these instruction can lead to a fire or explosion.

Appliance Install	YES	IF NO, WHY?
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.	☐	

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 installtion 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

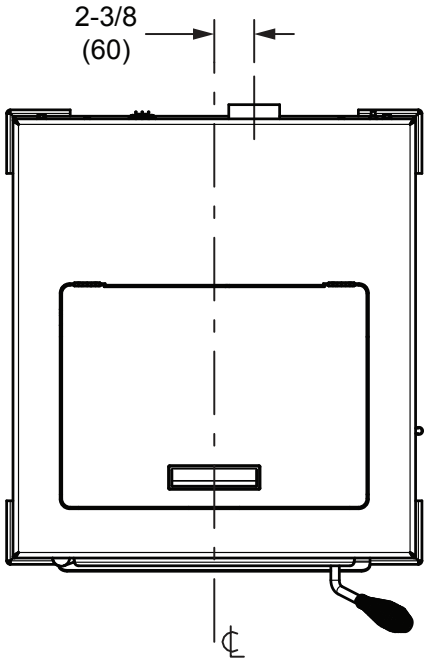


Figure 8.1 - Top View

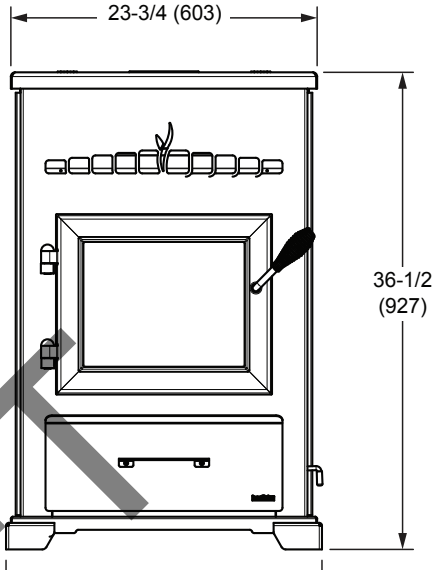


Figure 8.2- Front View

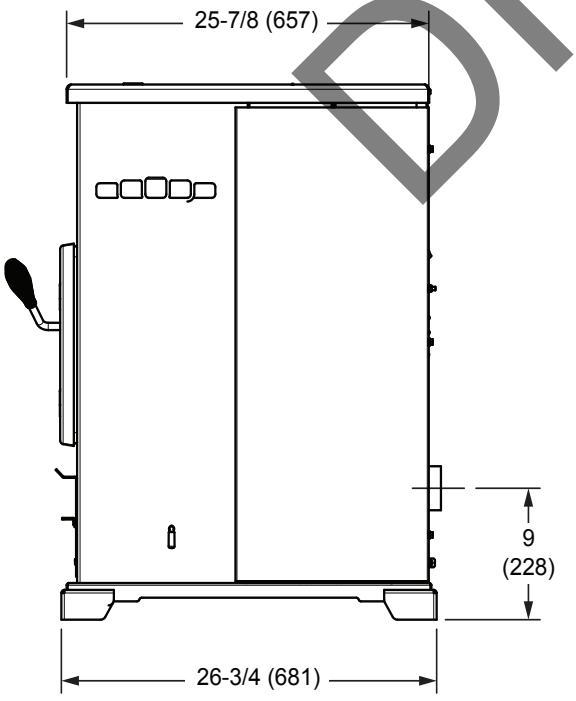


Figure 8.3 -Side View

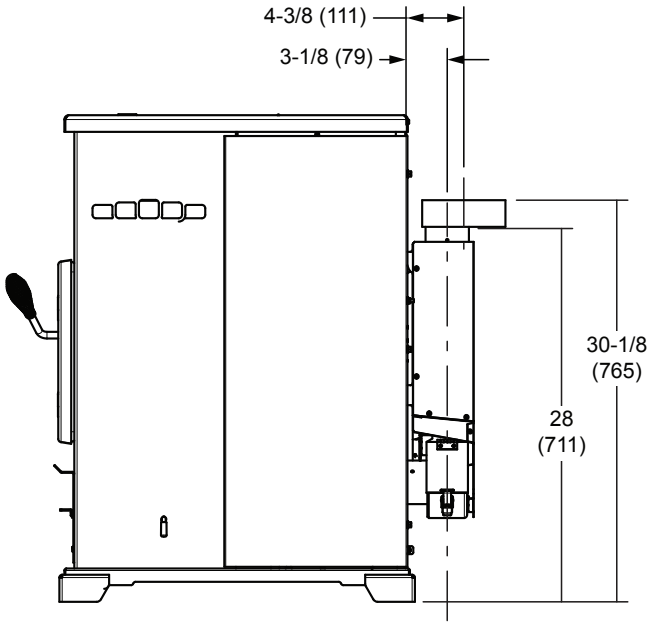
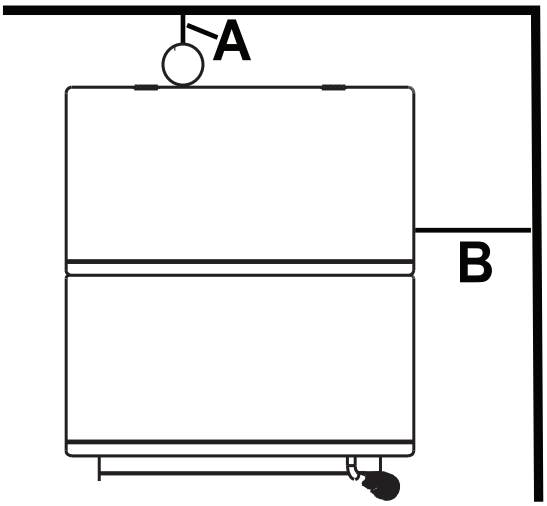
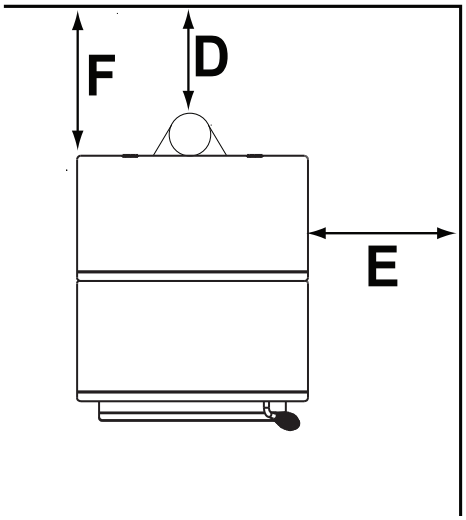
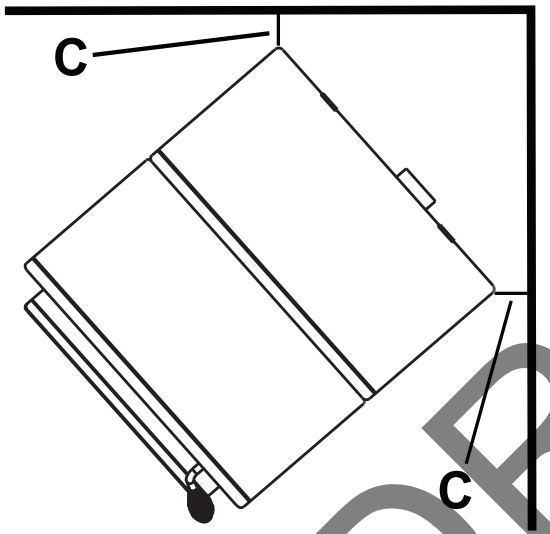


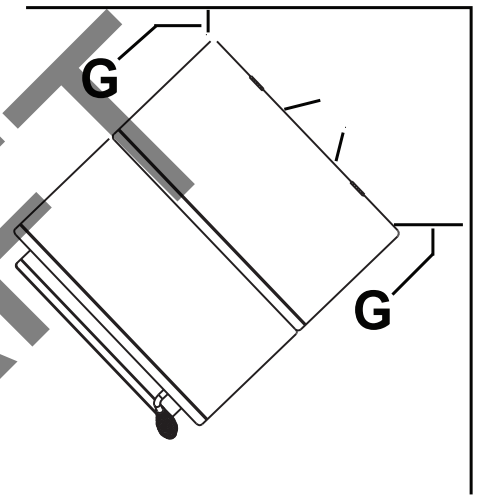
Figure 8.4 - Side View with Top Vent Adapter

B. Clearances to Combustibles (UL and ULC)









Straight Back Against Wall		Inches	Millimeters
A	Back Wall to Appliance	2	51
B	Side Wall to Appliance	14	356
Corner Installation		**Inches**	**Millimeters**
C	Walls to Appliance	2	51

NOTE:
- Illustrations reflect typical installations and are FOR DESIGN PURPOSES ONLY.
- Illustrations/diagrams are not drawn to scale.
- Actual installation may vary due to individual design preference.

Installations with 3 to 3 inch Top Vent Adapter

Vertical Installation		Inches	Millimeters
D	Back Wall to Adapter	1	25
E	Side Wall to Appliance	14	356
F	Back Wall to Appliance	6-1/4	159
Corner Installation		**Inches**	**Millimeters**
G	Walls to Appliance	2	51

Installations with 3 to 6 inch Offset Adapter

Vertical Installation		Inches	Millimeters
D	Back Wall to Adapter	3	76
E	Side Wall to Appliance	14	356
F	Back Wall to Appliance	10-3/4	274
Corner Installation		**Inches**	**Millimeters**
G	Walls to Appliance	2	51

C. Hearth Pad Requirements (UL and ULC)

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 6 inches (152mm) in front of glass and 6 inches (152mm) to both sides of the fuel loading door. Open the door and measure 6 inches (152mm) from the side edge of the opening in the face of the appliance.***See exception.**

USA INSTALLATIONS: A non-combustible floor protection is recommended extending beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation.
CANADA INSTALLATIONS: A non-combustible floor protection extending beneath the flue pipe is **required** with horizontal venting or under the Top Vent Adapter with vertical installation.

WARNING

Fire Risk
Comply with all minimum clearances to combustibles as specified.
Failure to comply may cause house fire.

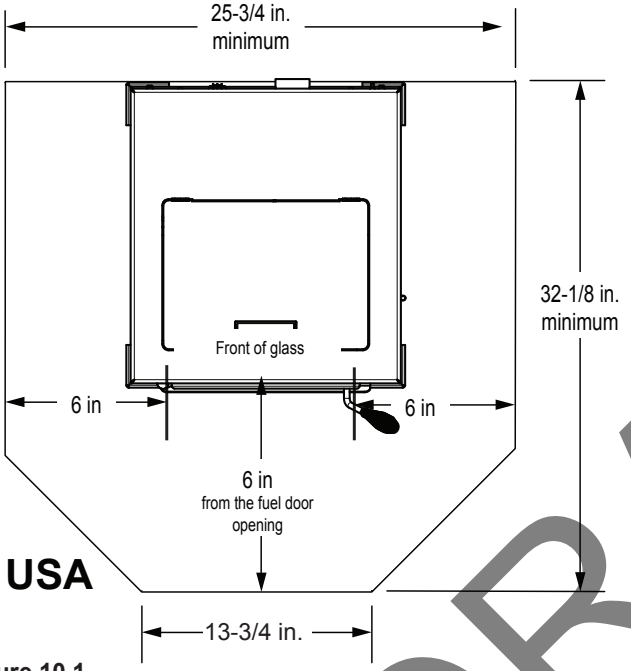


Figure 10.1

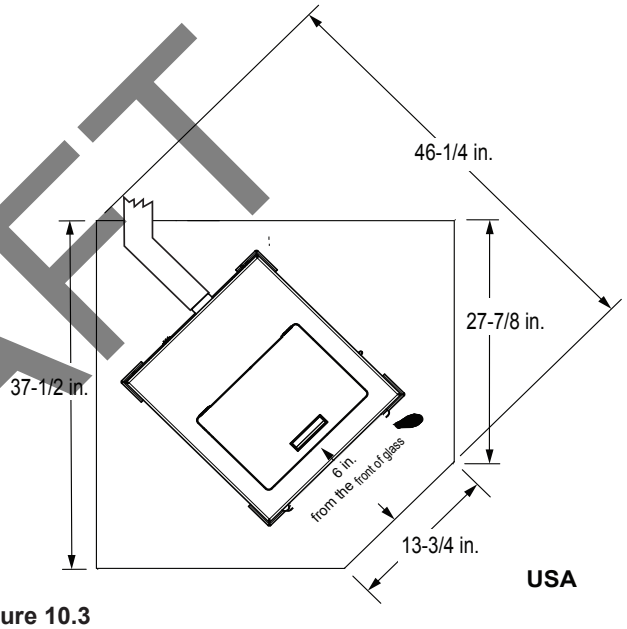


Figure 10.3

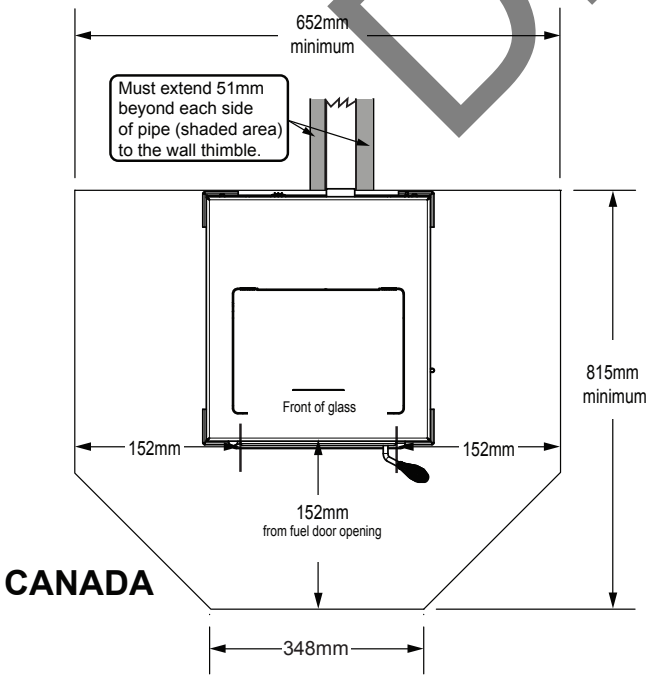


Figure 10.2

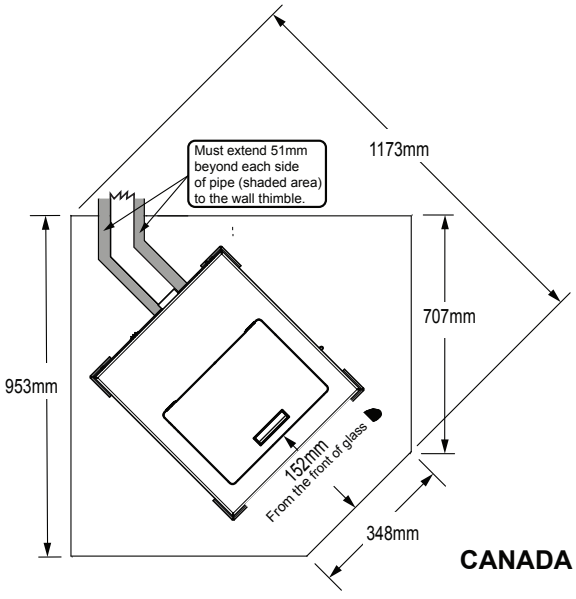


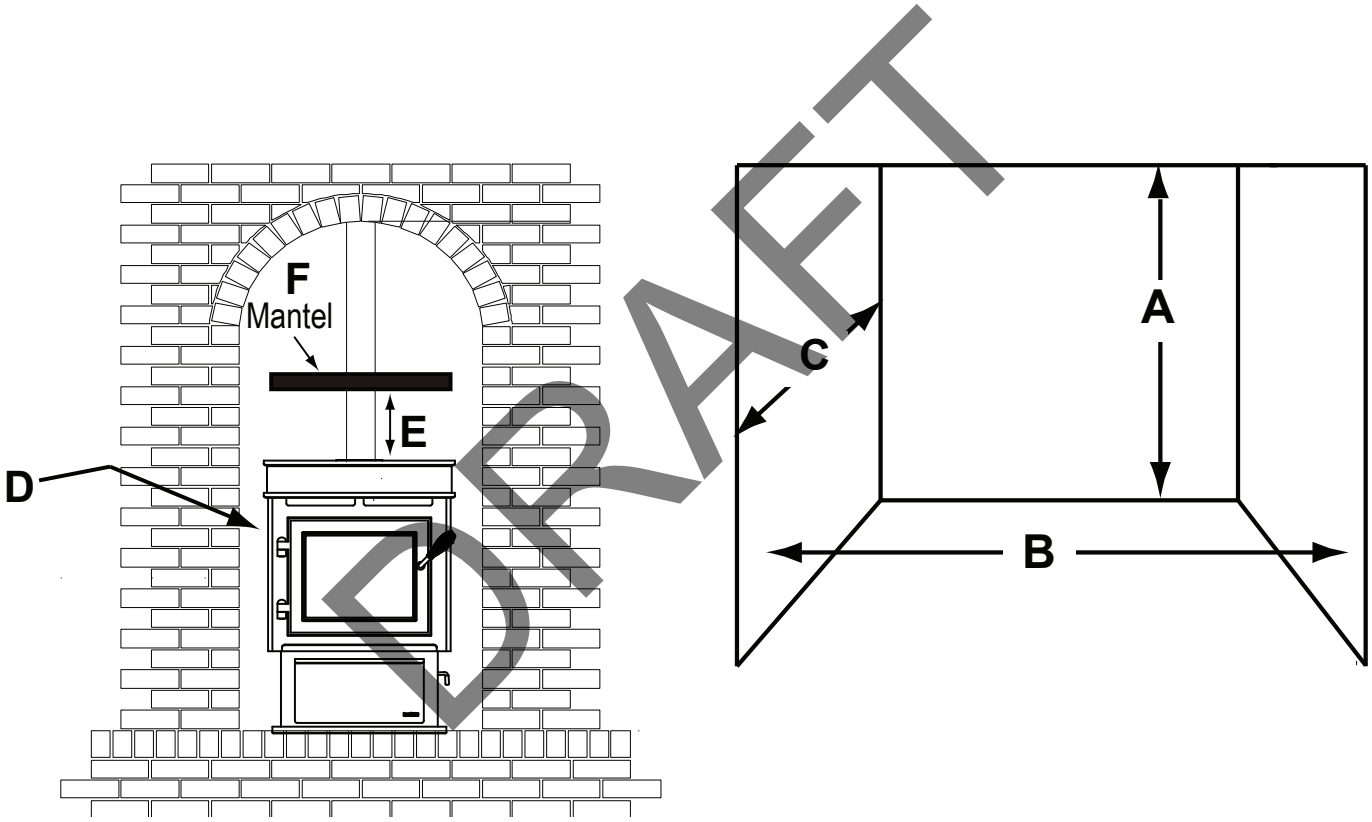
Figure 10.4

D. Alcove

Installations Into Alcove

All minimums listed are to a combustible surface.

Model: CAB50-C		Minimum		Maximum	
		Inches	Millimeters	Inches	Millimeters
A	Height	56-3/4	1441	n/a	n/a
B	Width	53	1346	n/a	n/a
C	Depth	n/a	n/a	48	1219
D	Side Wall	14	356	n/a	n/a
E	Top	16	533	n/a	n/a
F	Mantel Depth	n/a	n/a	36	914



NOTE:

- Illustrations reflect typical installations and are FOR DESIGN PURPOSES ONLY.
- Illustrations/diagrams are not drawn to scale.
- Actual installation may vary due to individual design preference.

4 Vent Information

A. Venting Termination Minimum Requirements

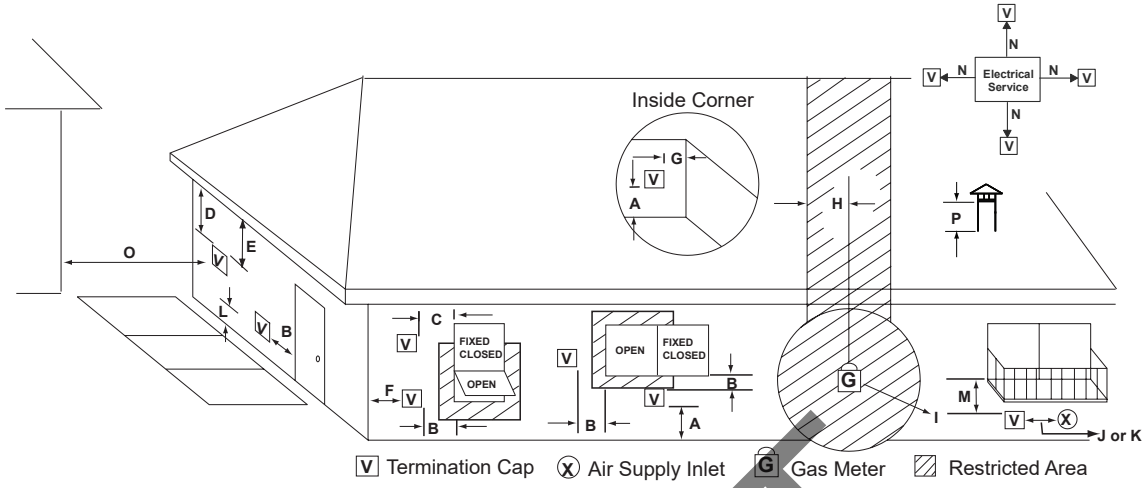


Figure 12.1

All minimum clearances are listed with an Outside Air Kit (OAK) installed, unless otherwise noted in table below.

A	12 in.	Above Finish Grade (the grade surface must be a non-combustible material
B	12 in. 48 in. no OAK	Open door or window: below or to the side
B	12 in.	Open door or window: above
C	6 in.	Permanently closed window: above, below or to the side
D	18 in. 36 in. no OAK	Vertical clearance to a ventilated soffit located above the terminal within a horizontal distance of 2 ft from the center-line of the terminal
E	12 in.	Clearance to unventilated soffit
F	12 in.	Clearance to outside corner
G	12 in.	Clearance to inside corner
H	36 in.	Above gas meter/regulator measured from horizontal center-line of regulator
I	36 in. USA 72 in. Canada	Clearance to service regulator vent outlet
J	12 in. 48 in. no OAK	Clearance to non-mechanical air supply inlet to the building or the combustions air inlet to any other appliance
K	10 ft horizontal 3 ft vertical	Clearance to mechanical air supply
L	7 ft.	Above paved sidewalk, paved driveway located on **public** property
M	12 in.	Under an open veranda, porch, deck or balcony
N	See Note below*	Electric service: above, below or to the side (location must not obstruct or interfere with access)
O	24 in.	Adjacent building, fences and protruding parts of the structure
P	12 in.	Clearance above roof line for vertical terminations

***NOTE:** Consult local building, fire officials or authorities having jurisdiction. Local codes or regulations may require different clearances.

24 in.	Above grass, top of plants, wood or any other combustible
12 in. 36 in. no OAK	Clearance from any forced air intake of other appliance
12 in.	Clearance horizontally from combustible wall
15 in.	Vented directly through a wall, minimum length of horizontal pipe
6 in. horizontal 12 in. vertical	Minimum horizontal or vertical terminations must protrude from wall

NOTICE

Do NOT Terminate Vent:

- In any location that will allow flue gases or soot from entering or staining the building
- In any location which could create a nuisance or hazard
- In any enclosed or semi-enclosed area such as a carport, garage, attic, crawl space, under a sun deck or porch, narrow walkway
- Closely fenced area, or any location that can build up a concentration of fumes such as a stairwell, covered breezeway, etc.

NOTICE

Termination must exhaust above air inlet elevation.

- It is recommended that at least 60 inches (1.52m) of vertical pipe be installed when appliance is vented directly through a wall. This will create a natural draft, which will help prevent the possibility of smoke or odor venting into the home during a power outage.
- It will also keep exhaust from causing a nuisance or hazard by exposing people or shrubs to high temperatures.
- The safest and preferred venting method is to extend the vent vertically through the roof or above the roof.

B. Avoiding Smoke and Odors

Negative Pressure, Shut-Down and Electrical Power Failure

To reduce the probability of back-drafting or burn-back in the pellet appliance during power failure or shut down conditions, it must be able to draft naturally without exhaust blower operation.

Negative pressure in the house will resist this natural draft if not accounted for in the pellet appliance installation.

Heat rises in the house and leaks out at upper levels. This air must be replaced with cold air from outdoors which flows into lower levels of the house.

Vents and chimneys into basements and lower levels of the house can become the conduit for air supply and reverse under these conditions.

Outside Air

An outside air kit is recommended in all installations. The Outside Air Kit must be ordered separately.

Per national building codes, consideration must be given to combustion air supply to all combustion appliances. Failure to supply adequate combustion air for all appliance demands may lead to back-drafting of those and other appliances.

When the appliance is roof vented (strongly recommended):

The air intake is best located on the exterior wall oriented towards the prevailing wind direction during the heating season.

When the appliance is side-wall vented:

The air intake is best located on the same exterior wall as the exhaust vent outlet and located lower on the wall than the exhaust vent outlet.

The outside air supply kit can supply most of the demands of the pellet appliance, but consideration must be given to the total house demand.

House demand may consume the air needed for the appliance. It may be necessary to add additional ventilation to the space in which the pellet appliance is located.

Consult with your local HVAC professional to determine the ventilation demands for your house.

Vent Configurations

When installing a pellet appliance with a horizontal vent configuration the frequency of power outages should be considered:

- Power outages during operation will cause the appliance to immediately turn off and may create conditions where smoke will back draft into the house. In order to reduce the likelihood of smoke back drafting into the house during a power outage, Hearth and Home Technologies strongly suggests:
  - Installing the pellet venting with a minimum vertical run of 5 feet (1.52m).
  - Installing the outside air kit at least 4 feet (1.22m) below the vent termination.

To prevent soot damage to exterior walls of the house and to prevent re-entry of soot or ash into the house:

- Maintain specified clearances to windows, doors and air inlets, including air conditioners.
- Vents should not be placed below ventilated soffits. Run the vent above the roof.
- Avoid venting into alcove locations.
- Vents should not terminate under overhangs, decks or onto covered porches.
- Maintain minimum clearance of 12 inches (305mm) from the vent termination to the exterior wall. If you see deposits developing on the wall, you may need to extend this distance to accommodate your installation conditions.

CAUTION

- DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE.
- DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

Hearth & Home Technologies assumes no responsibility for, not does the warranty extend to, smoke damage caused by reverse drafting of pellet appliances under shut down or power failure conditions.

C. Negative Pressure

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

WARNING

Risk of Asphyxiation!
Negative pressure can cause spillage of combustion fumes and soot.

D. Draft

Draft is the pressure difference needed to vent an appliance successfully. When an appliance is drafting successfully, all combustion byproducts are exiting the home through the chimney.

Install through the warm airspace enclosed by the building envelope. This helps to produce more draft, especially during lighting and die-down of the fire.

Considerations for successful draft include:

- Preventing negative pressure
- Location of appliance and chimney

NOTICE

Hearth & Home Technologies assumes no responsibility for the improper performance of the chimney system caused by:

- Inadequate draft due to environmental conditions
- Down drafts
- Tight sealing construction of the structure
- Mechanical exhausting devices

Minimum Vacuum Requirements per Appliance

Model	Minimum Vacuum Requirements
CAB50-C	.075 inches W.C.

E. Chimney and Exhaust Connection

1. **Chimney & Connector**: Use 3 or 4 inch (76-102mm) diameter type “L” or “PL” venting system. It can be vented vertically or horizontally.
2. **Mobile Home:** Approved for all Listed pellet vent. If using the 3 inch (76mm) vertical Top Vent Adapter Kit or the 3 to 6 inch (76-152mm) Top Vent Offset Adapter, use Listed double wall flue connector. A Quadra-Fire Outside Air Kit must be used with manufactured home installations.
3. **Residential:** The 3 inch (76mm) vertical Top Vent Adapter Kit and the 3 to 6 inch (76-152mm) Top Vent Offset Adapter are tested to use 24 gauge single wall flue connector or Listed double wall flue connector to Class A Listed metal chimneys, or masonry chimneys meeting International Residential Code standards for solid fuel appliances.
4. **INSTALL VENT AT CLEARANCES SPECIFIED BY THE VENT MANUFACTURER.**
5. Secure exhaust venting system to the appliance with at least 3 screws. Also secure all connector pipe joints with at least 3 screws through each joint.
6. DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS Appliance.
7. DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.

NOTE: All pipe must be welded seam pipe whenever possible. Seal pipe joints with high temperature silicone (500°F [260°C] minimum rated only).

NOTE: If burning shelled field corn, you must use approved venting specifically designed for corn. Follow the instructions from the venting manufacturer.

F. Venting Termination Requirements

1. Termination must exhaust above air inlet elevation.
2. Distance from doors and opening windows, or gravity or ventilation air inlets into building:
   a. Not less than 48 inches (1.2m) below;
   b. Not less than 48 inches (1.2m) horizontally from;
   c. Not less than 12 inches (305mm) above.
3. Distance from permanently closed windows;
   a. Not less than 12 inches (305mm) below; horizontally from or above.
4. Distance between bottom of termination and grade should be 12 inches (305mm) minimum. This is conditional upon plants in the area, and nature of grade surface. The grade surface must be a non-combustible material (i.e., rock, dirt). The grade surface must not be lawn. Distance between bottom of termination and public walkway should be 7 feet (2.13m) minimum.
5. Distance to combustible materials must be 24 inches (610mm) minimum. This includes adjacent buildings, fences, protruding parts of the structure, roof overhang, plants and shrubs, etc.
6. Termination Cap Location (Home Electrical Service)
   - Side-to-side clearance is to be the same as minimum clearance to vinyl inside corners.
   - Clearance of a termination cap below electrical service shall be the same as minimum clearance to vinyl soffits.
   - Clearance of a termination cap above electrical service will be 12 inches (305mm) minimum.
   - Location of the vent termination must not obstruct or interfere with access to the electrical service.

CAUTION

DO NOT terminate vent in any enclosed or semi-enclosed area such as a carport, garage, attic, crawl space, under a sun deck or porch, narrow walkway or closely fenced area, or any location that can build up a concentration of fumes such as a stairwell, covered breezeway, etc.

G. Equivalent Feet of Pipe

The table below can help you calculate the equivalent feet of pipe which is a method used to determine pellet vent size **(Figure 16.1)**.

WARNING

Vent surfaces get HOT, can cause burns if touched. Non-combustible shielding or guards may be required.

Example of 3 Elbow-Rear Vent Termination Calculation

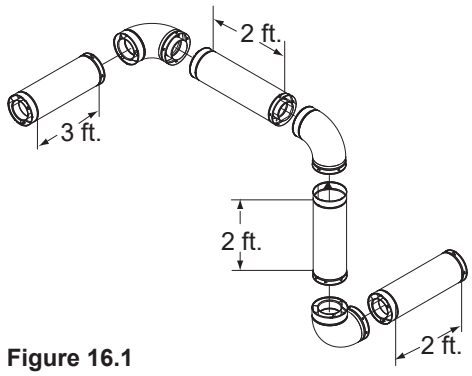


Figure 16.1

Pellet Venting Component	# of Elbows	Feet of Pipe	Multiplied By	Equivalent Feet	Components Equivalent Feet
90° Elbow or Tee	3		X	5	15
45° Elbow			X	3	
Horizontal Pipe		7	X	1	7
Vertical Pipe		2	X	0.5	1
				Total Equivalent Feet	23

NOTE: This is a generic example and is not intended to represent any specific fuel type.

H. Pipe Selection Chart

The chart will help you in determining proper venting size according to the equivalent feet of pipe calculated previously and the altitude above sea level of this installation **(Figure 16.2)**.

1. Locate the calculated equivalent feet of pipe on the vertical left side of the chart.
2. Move to the right horizontally on the chart until you reach your altitude above sea level.
3. If you fall below the diagonal line, 3 or 4 inch (76 to 102mm) pipe may be used.
4. If it is anywhere above the diagonal line, a 4 inch (102mm) diameter pipe is required.

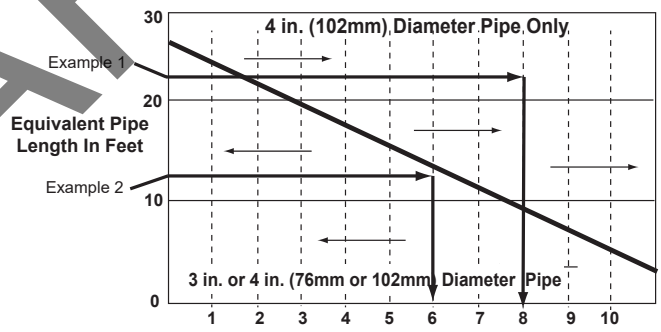


Figure 16.2

- **Example 1**: If the equivalent length of pipe is 23 feet (7m) with altitude of 8,000 feet (2438m) you must use 4 inch (102mm) diameter type “L” or “PL” vent.
- **Example 2**: If the equivalent length of pipe is 12 feet (3.7m) with altitude of 6,000 feet (1829m) you may use 3 or 4 inch (76 to 102mm) diameter type “L” or “PL” vent.

NOTICE!

- A 90° elbow is 5 times as restrictive to the flow of exhaust gases under positive pressure as 1 foot (305mm) of horizontal pipe.
- A foot of horizontal pipe is twice as restrictive as a foot of vertical pipe.

WARNING

Risk of Fire!

- Only LISTED venting components may be used.
- NO OTHER vent components may be used.
- Substitute or damaged vent components may impair safe operation.

WARNING

Risk of Injury or Property Damage.

- 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.

5 Venting Systems

A. Through The Wall

Horizontal termination cap must be a minimum of 6 inches. (152mm) from the wall. Approved for mobile home installations. Must use 3 or 4 inch (76-102mm) “L” or “PL” listed pellet venting or Listed double wall pipe and an authorized Outside Air Kit in mobile homes.

NOTE: In Canada, where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365

NOTICE:

Please note that while the minimum clearance for the termination cap is 6 inches (152mm) there is the possibility of soot build-up around the termination area. If this occurs we suggest to move the termination further away from the house to prevent it.

CAUTION

We strongly recommend that you DO NOT DOWNWARD VENT.

The following may occur:

- The appliance will not vent properly
- Smoke spillage in the house
- Excessive sooting

Straight Out

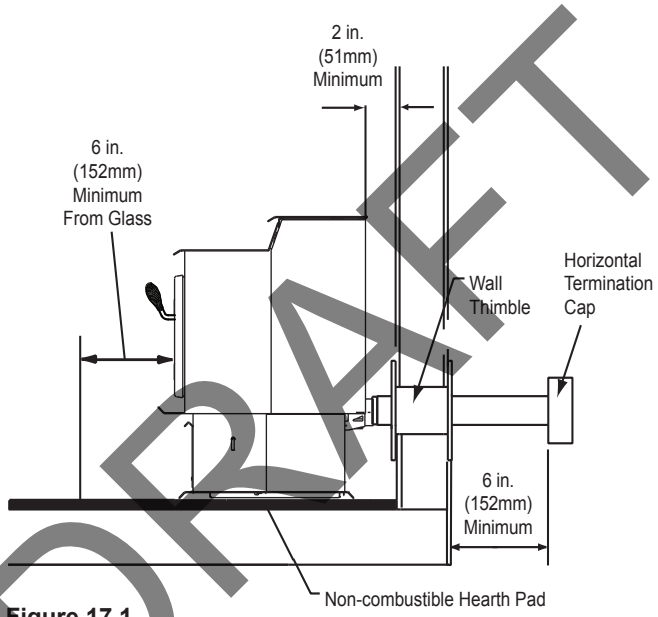


Figure 17.1

45 Degree

Illustration shows venting going in both directions. Choose which one is best for your installation.

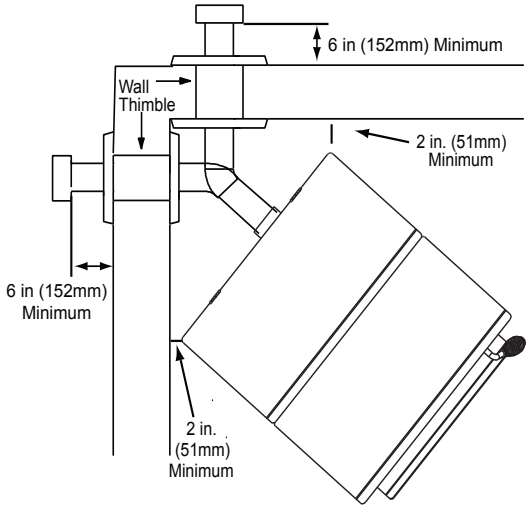


Figure 17.2

B. Vertical into Existing Class A Chimney

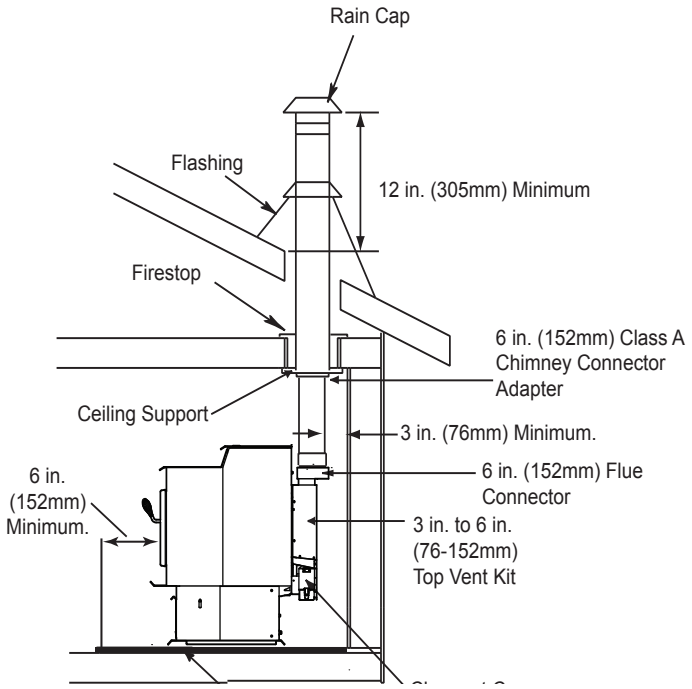


Figure 18.3

We strongly recommend a minimum of 60 inches (1.5m) vertical, however above the eve is preferred.

Both installations are approved for mobile home installations. Must use 3 or 4 inch (76 to 102mm) “L” or “PL” Listed pellet venting or Listed double wall pipe and authorized Outside Air Kit in mobile homes. Single wall pipe is approved for residential installations only.

Air Clearance to Pipe:
This appliance was tested with standard 3 inch (76mm) Listed pellet vent.

Pellet pipe manufactures Listed reduce clearance pipe may be use for reduce clearance from 3 inch (76mm) air clearance to no less than 1 inch (25mm) air clearance to combustibles for approved Listed pellet pipe.

Follow pipe manufactures listed air clearances to combustibles and installation instructions for all reduced air clearances installations.

NOTE: In Canada, where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365

C. Through The Wall & Vertical - External

PREFERRED METHOD #2

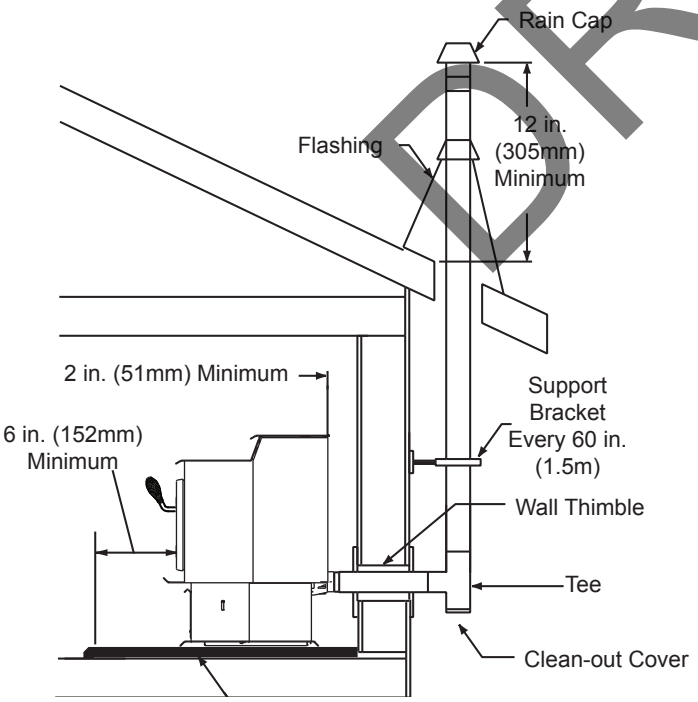


Figure 18.2

D. Vertical - Interior - Typical Installation

PREFERRED METHOD #1

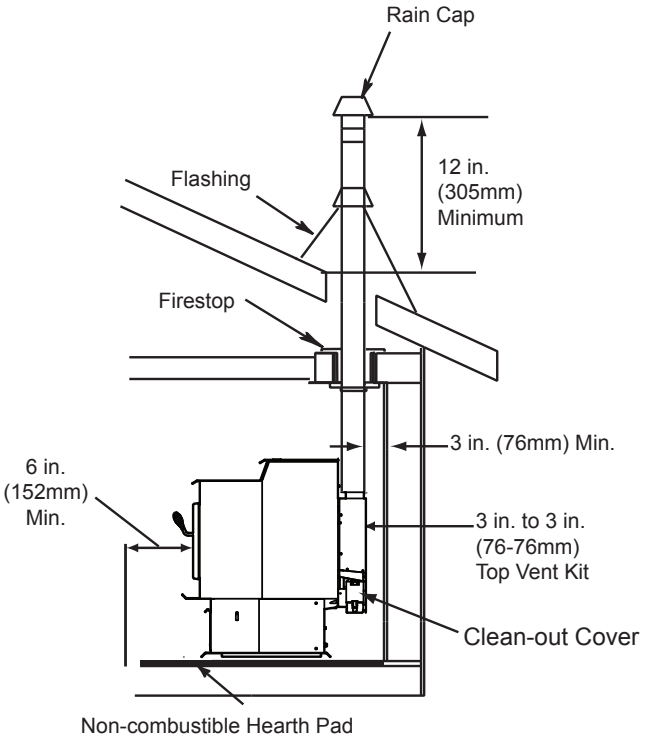


Figure 18.1

WARNING

Fire Risk

Inspection of Chimney:

- Masonry chimney must be in good condition.
- Meets minimum standard of NFPA 211
- Factory-built chimney must be a minimum 6 inch (152mm) UL103 HT.

E. Masonry

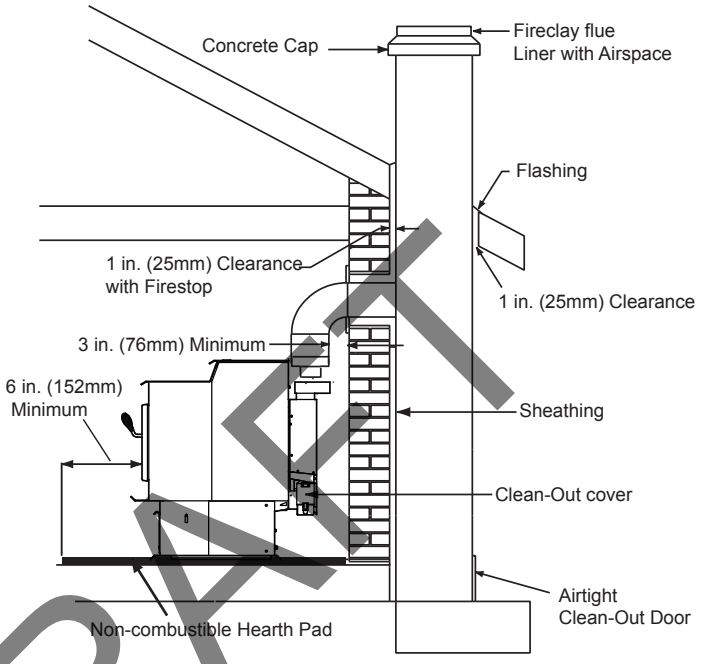


Figure 19.1

F. Alternate Masonry

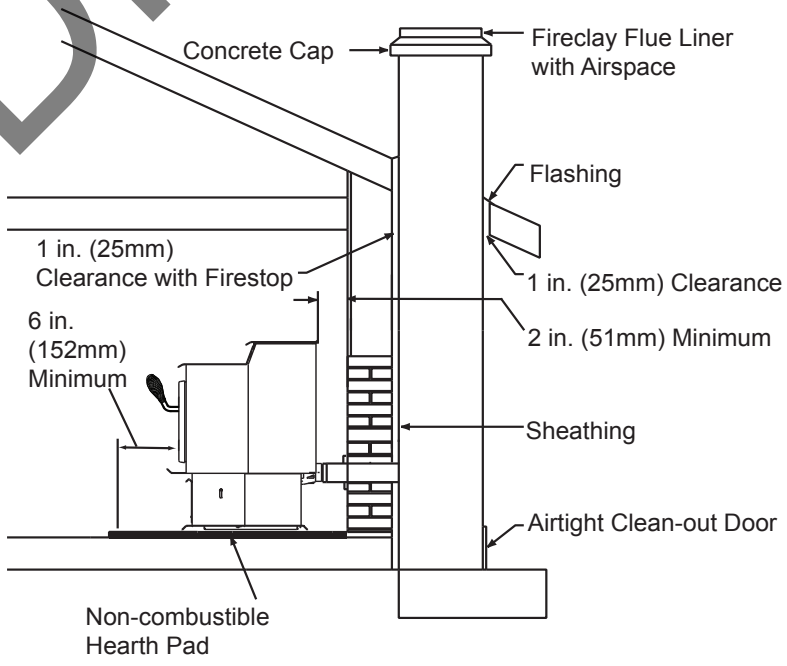


Figure 19.2

6 Appliance Set-Up

A. Outside Air Kit

There are two Outside Air Kits available for purchase with this appliance. Kit 811-0872 uses a 2 inch flex hose (which is included in the kit) and uses hose clamps to secure the hose.

Parts Included in 2 inch Kit 811-0872:

1 piece of 2 inch x 3 ft. flex hose, 2 hose clamps, 1 collar assembly, 1 termination cap assembly, trim ring, 1 intake air channel, fasteners (Discard the air intake channel, it is not needed for this appliance.

Tools Needed:

Phillips Head screw driver; wire cutters; and hole saw or jig saw.

1. Measure distance from floor to air vent opening in appliance and mark location on wall.
2. Use a saw to cut opening in wall:
   - **2 inch kit:** Cut a 2-1/2 to 3 inch opening on inside wall and a 3 to 3-1/2 inch opening on outside of house.
3. Use wire tie or hose clamp depending on the Outside Air Kit to secure flex pipe to collar assembly.
4. Slide trim ring over flex pipe and run pipe through wall.
5. Attach flex pipe to outside termination cap with second wire tie or hose clamp.
6. Secure termination cap to outside surface.
7. Secure trim ring to interior wall.

CAUTION

Never draw outside combustion air from:
- Wall, floor or ceiling cavity
- Enclosed space such as an attic or garage

2 Inch Outside Air Kit Shown

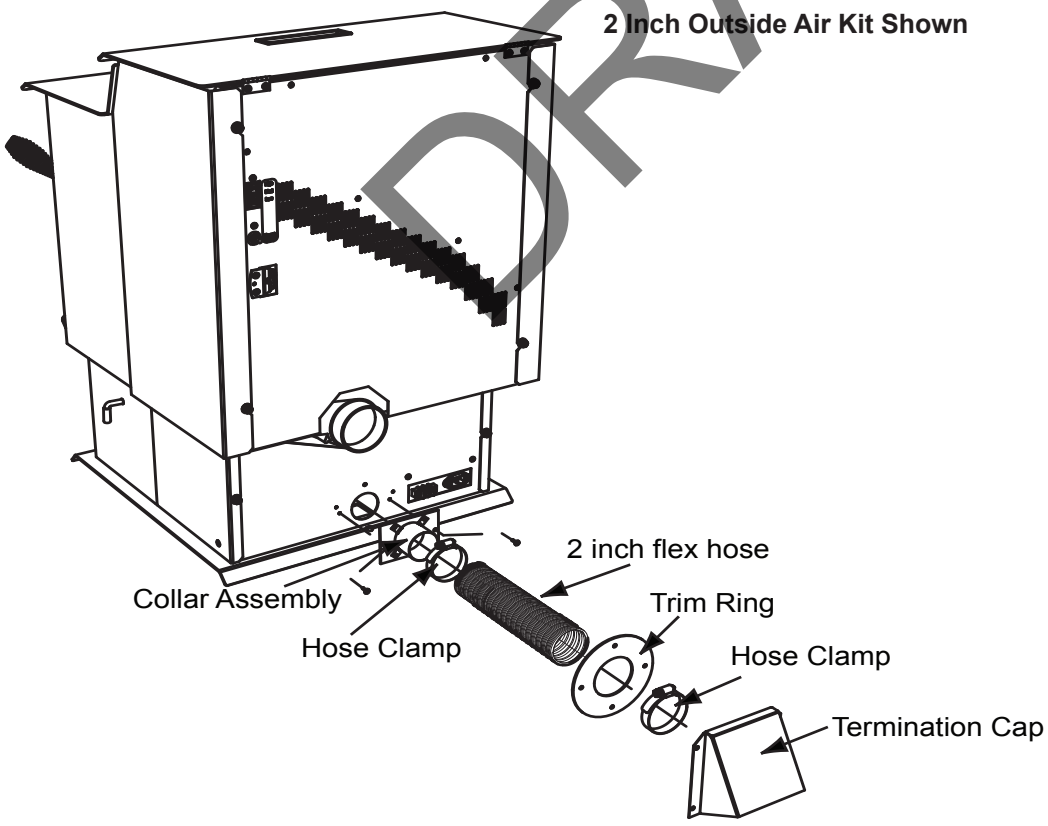


Figure 20.1 - 2 Inch Outside Air Kit

Air Intake Channel (Discard)

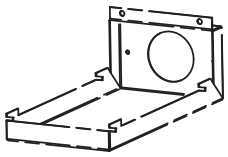


Figure 20.2

B. Top Vent Adapter Installation

3 to 3 inch Top Vent Adapter
3 to 6 inch Top Vent Offset Adapter

Installing the Top Vent Adapter

1. Put a layer of high temperature silicone on the 3 inch (76mm) exhaust outlet. Do not put silicone inside of pipe **(Figure 21.1)**.
2. Slide the top vent adapter onto the rear exhaust outlet and adjust the assembly to a vertical position **(Figure 21.1)**.
3. Drill 4 holes with #26 drill bit (provided) into the back of the appliance using the outer shield as a pattern (make sure the assembly is vertical) **(Figure 21.1)**.
4. Install the 4 mounting screws.
5. Drill 2 holes with #26 drill bit through the rear exhaust outlet using the 2 holes already in the short horizontal pipe in the top vent adapter as a guide. Install the 2 screws **(Figure 21.1)**.
6. Install the vent pipe into the top vent adapter (be sure to silicone all joints).
7. To clean the top vent adapter open the clean-out cover **(Figure 21.1)**.

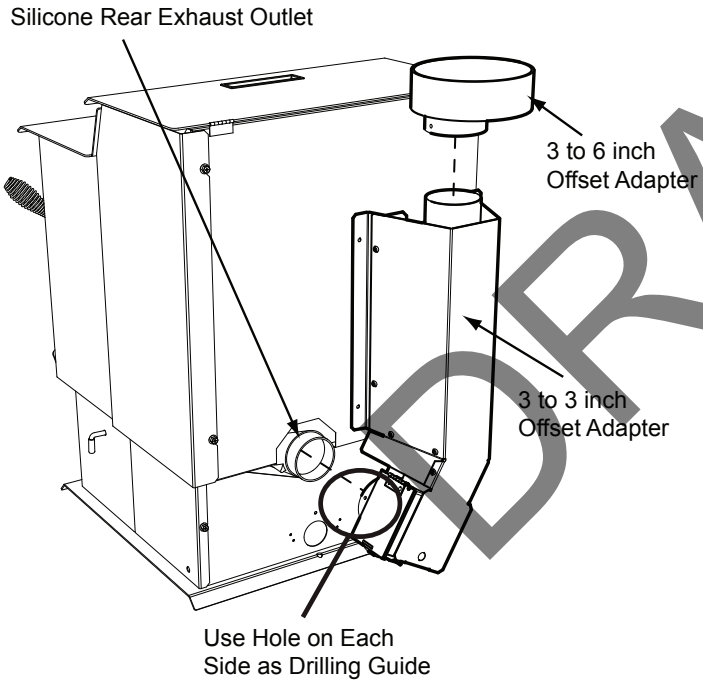


Figure 21.1

C. Rear Vent Adapter Installations

1. Put a layer of high temperature silicone on the 3 inch (76mm) exhaust outlet. Do not put silicone inside of pipe **(Figure 21.1)**.
2. Slide the adapter onto the rear exhaust outlet and adjust the assembly to the appropriate position.
3. Install the vent pipe into the adapter (be sure to silicone all joints)

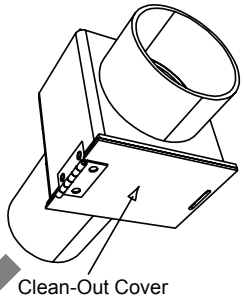


Figure 21.2 - Rear Vent Adapter

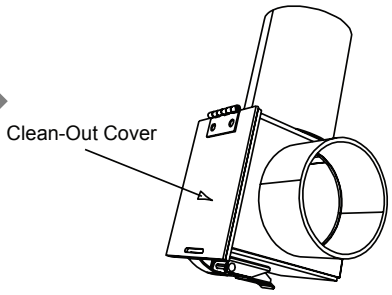


Figure 21.3 - Rear to Top Vent Adapter - 90o

D. Thermostat Installation

1. A low voltage thermostat is required to operate this pellet appliance. You may use the included wall mount thermostat **(Figure 22.2)** or purchase an optional programmable thermostat or remote control. It is equipped with an adjustable heat anticipator. The current rating is .05 amps. The anticipator needs to be adjusted to the lowest setting available.
2. When mounting a thermostat on a wall, be sure to follow your thermostat installation instructions carefully.

NOTE: Thermostat must be mounted level for accurate readings. The thermostat should be mounted on an inside wall and not in direct line with the appliance convection air.

NOTE: If the thermostat is located too close to the appliance, you may need to set the temperature setting slightly higher to maintain the desired temperature in your home.

3. There is a 4 screw terminal block located on the back lower left corner of the appliance directly above the power cord inlet. The center 2 screws are for the thermostat wires **(Figure 22.1)**.

CAUTION

Shock hazard.

- Do NOT remove grounding prong from plug.
- Plug directly into properly grounded 3 prong receptacle.
- Route cord away from appliance.
- Do NOT route cord under or in front of appliance.

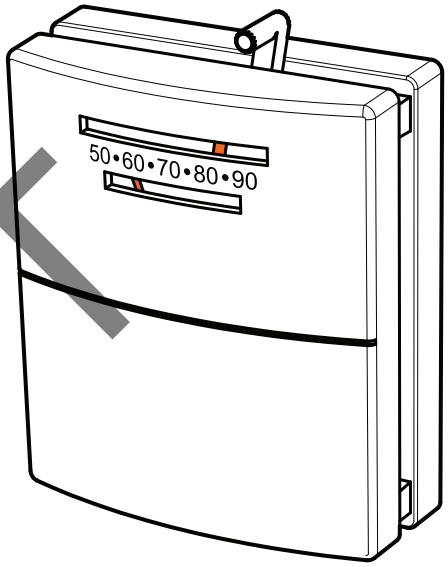


Figure 22.2

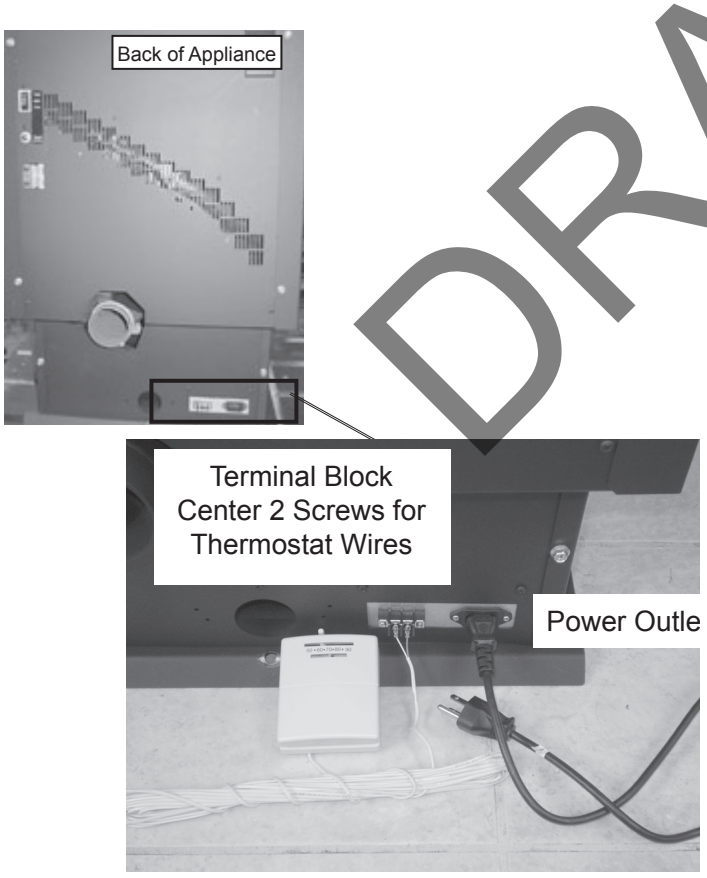


Figure 22.1

7 Mobile Home Installation

You must use a Quadra-Fire Outside Air Kit for installation in a mobile home.

1. An outside air inlet must be provided for the combustion air and must remain clear of leaves, debris, ice and/or snow. It must be unrestricted while the appliance is in use to prevent room air starvation which causes smoke spillage. Smoke spillage can also set off smoke alarms.
2. The combustion air duct system must be made of metal. It must permit zero clearance to combustible construction and prevent material from dropping into the inlet or into the area beneath the dwelling and contain a rodent screen.
3. The appliance must be secured to the mobile home structure by bolting it to the floor (using lag bolts). Use the same holes that secured the appliance to the shipping pallet.
4. The appliance must be grounded with #8 solid copper grounding wire or equivalent, terminated at each end with an NEC approved grounding device.
5. Refer to Clearances to Combustibles and floor protection requirements on page 10 for listings to combustibles and appropriate chimney systems.
6. Use silicone to create an effective vapor barrier at the location where the chimney or other component penetrates to the exterior of the structure.
7. Follow the chimney manufacturer's instructions when installing the vent system for use in a mobile home.
8. Installation shall be in accordance with the Manufacturers Home & Safety Standard (HUD) CFR 3280, Part 24.

Model	Outside Air Kit
ECO-CAB	811-0872

CAUTION

Never draw outside combustion air from:
- Wall, floor or ceiling cavity
- Enclosed space such as an attic or garage

WARNING

It is critical to have a working smoke detector installed in the home of appliance operation.
- Smoke alarms that are properly installed and maintained play a vital role in reducing fire deaths and injuries. Having a working smoke alarm reduces the chance of fire related injuries.

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.

This appliance is to be connected to a factory-built chimney conforming to **CAN/ULC-S629**, Standard for 650°C Factory-Built Chimneys.

For removal of the chimney for mobile home transportation, contact the proper transportation officials.

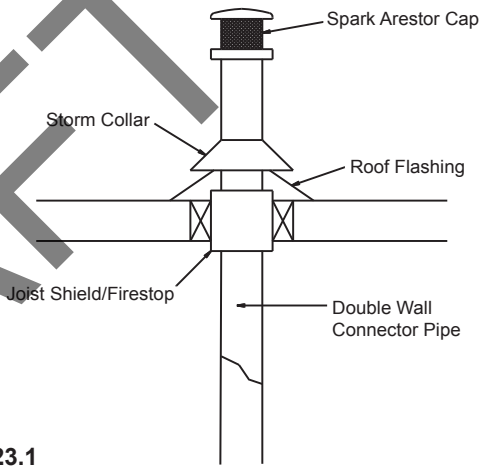


Figure 23.1

WARNING

Products of combustion generate carbon monoxide and different fuels generate different levels. Carbon monoxide:
- Only use approved fuels in this appliance.
- Always keep door shut during operation. Operating this appliance with doors open can allow CO to leak into the home.

CO can kill you before you are aware it is in your home. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure.

WARNING

NEVER INSTALL IN A SLEEPING ROOM.

8 Reference Materials

A. Service & Maintenance Log

Date of Service	Performed By	Description of Service

B. Accessory List

heatilator ECOCHOICE™

Service Parts **ECO-CAB50**

Beginning Manufacturing Date: May 2011
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.

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
	Accessories			
	Fuse, 7 Amp, Junction Box	Pkg of 10	812-0380/10	**Y**
	Hose, Vacuum, 5/32 Id	3 Ft	SRV240-0450	**Y**
	Damper, 4 Inch		PEL-DAMP4	
	Outside Air Kit, 2"		811-0872	
	Hose, Alum Flex, 2 Inch X 3 Ft	3 Ft	SRV200-0860	
	Outside Air Cap Assembly		7001-044	
	Outside Air Collar Assembly		SRV7001-045	
	Trim Plate, Outside Air Kit		412-7100	
	Pull Rod Handle		PULLROD-HNDL	
	Outside Air Kit, 3"		OAK-3	
	Reset Button Assembly		SRV7000-040	
	Smart-Batt II		841-0970	
	Smart-Stat II		841-0960	
	Thermostat, Programmable		811-0520	
	Top Vent Adapter		TPVNT-5	
	Touch Up Paint		812-0910	
	Vent Adapter, 3-4"		811-0720	
	Vent Adapter, 90, Cleanout		TPVNT-6	
	Baffle Center Back		SRV7058-166	
	Fastener Packs			
	Rivnut Repair Kit		RIVNUT-REPAIR	**Y**
	Bolt, Hex Head, 1/4-20 X 1	Pkg of 10	25221A/10	**Y**
	Guide Pin Sleeve	Pkg of 25	31120/25	**Y**
	Hurricane Screw	Pkg of 40	SRV2005-861/40	
	Nut, 2-Wy Side-Lock Jam 3	Pkg of 24	226-0100/24	**Y**
	Nut, Lock 1/4-20	Pkg of 25	226-0090/25	**Y**
	Nut, Ser Flange Small 1/4-20	Pkg of 24	226-0130/24	**Y**
	Screw 8 - 32x3/8 HWH BK	Pkg of 40	SRV060-883/40	
	Screw Hwh Ms 1/4-20 X 3/4 Ns	Pkg of 25	220-0080/25	**Y**
	Screw, Sheet Metal #8 X 1/2 S-Grip	Pkg of 40	12460/40	**Y**
	Thumbscrew, 1/4-20 X 3/4	Pkg of 10	844-5070	
	Washer, 1/4 Sae	Pkg of 24	28758/24	**Y**
	Washer, Sae	Pkg of 25	227-0080/25	**Y**
	Wing Thumb Screw 8-32X1/2	Pkg of 24	7000-223/24	**Y**

CONTACT INFORMATION

Hearth & Home Technologies
352 Mountain House Road
Halifax, PA 17032
Division of HNI INDUSTRIES

Please contact your Heatilator dealer with any questions or concerns.
For the number of your nearest Heatilator dealer
log onto www.heatilator.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.

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:_____

_____

_____

_____