



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.
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Test Period: November 19, 2018

Report Date: January 29, 2019

Report Number: 0061PS085E

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Section 1

Appliance, Testing, & Results

- 1.1 - Summary Tables
- 1.2 - Procedures and Results Summary
- 1.3 - Appliance Description

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. The ECHO Choice PS50 is the pedestal embodiment of the ECO CAB50-C. Both units share an identical firebox and layout. The electrical components, electronic controls, critical air openings and viewing area are identical between the two units. These units were designed contemporaneously, and with the specific intention of a completely identical, shared firebox design.

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 diagonally. 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 switch 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.

Hearth & Home Technologies, Inc.
Model: ECO CAB50-C, ECO PS050-C
Project: 0061PS085E



**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


2.2 Sample Analysis & Tares

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
Emissions 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
Emissions 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 H2O	
Average ΔH	1.35 inches H2O	
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: 

	1 st Hour	Sample Train 1	Sample Train 2	Sample	Unit
Total Sample Volume - V_m	9.637	58.113	58.226	N/A	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
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
Emissions 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		
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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 High Burn End Time: 60
 Model: ECO CAB50/PS50 Medium Burn End Time: 180
 Tracking No.: 2328 Total Sampling Time: 360 min
 Project No.: 0061PS085E Recording Interval: 1 min
 Test Date: 19-Nov-18
 Beginning Clock Time: 10:21 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 "H₂O
 Tunnel Area: 0.1963 ft²
 Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.42 ft/sec.
 Initial 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
Temp:	115	116	115	115	115	115	115	115	115
	V _{strav} 13.96 ft/sec			V _{scent} 15.67 ft/sec			F _p 0.891		

Elapsed Time (min)	Particulate Sampling Data												Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data				
	Gas Meter 1 (ft ³)	Gas Meter 2 (ft ³)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H ₂ O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H ₂ O)	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 ₂ O)	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
1 st 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.

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: OMNE - PORTLAND Clock Time @ ET=0: 10:21
 Span Gas Concentrations: CO₂(%): 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)	250		250	
Barometric Pressure ("Hg)	30.17		30.12	
Relative Humidity (%)	28.6		24.0	
Tunnel Static ("H ₂ O)	-.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 ₂ O)	.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

Pellet Heater Certification Run Sheets

Client: Hearth & Home Project Number: 0061PS085E Run Number: 1
 Model: ECO CAB50/PSS0 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
0 60	Test Settings for maximum Burn. 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: Bruce Davis

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

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: <u>11/20/18</u>	Date: <u>11/21/18</u>	Date:	Date:
Time: <u>1620</u>	Time: <u>0800</u>	Time:	Time:
R/H %: <u>22.4</u>	R/H %: <u>4.7</u>	R/H %:	R/H %:
Temp (F): <u>68.7</u>	Temp (F): <u>64.2</u>	Temp (F):	Temp (F):
Audit 1: <u>200.1</u>	Audit 1:	Audit 1:	Audit 1:
Audit 2: <u>5000.0</u>	Audit 2:	Audit 2:	Audit 2:
Audit 3: <u>99997.9</u>	Audit 3:	Audit 3:	Audit 3:
Initials: <u>BD</u>	Initials:	Initials:	Initials:

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

Technician Signature: 

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-00283A / 200 mg

Placed in Dessicator:		Date: <u>11/15/18</u>	Date: <u>11/16/18</u>	Date: _____	Date: _____	Date Used	Project Number	Run No.
Date: <u>11/14/18</u>	Time: <u>1410</u>	Time: <u>0923</u>	Time: _____	Time: _____				
Time: <u>0800</u>	RH %: <u>20.6</u>	RH %: <u>19.4</u>	RH %: _____	RH %: _____	T (°F): <u>68.4</u>	T (°F): <u>65.3</u>	T (°F): _____	T (°F): _____
ID #	Audit: <u>200.1</u>	Audit: <u>200.0</u>	Audit: _____	Audit: _____				
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: <u>Ba</u>		Initials: <u>Ba</u>		Initials: _____		Initials: _____		

Final Technician Signature: B Davis

Date: 11/16/18

Evaluator signature: H. J. Morgan

Tare Sheet: (check one)

Probes

47mm Filters _____

100mm Filters _____

O-Ring Pair _____

Prepared By: D. Davis

Balance ID #: Omni-00637

Thermohygrometer ID #: Omni-00592

Audit Weight ID #/Mass: Omni-00283A / 100g

Placed in Dessicator:		Date: <u>11-6-18</u>	Date: <u>11/7/18</u>	Date: <u>11/15/18</u>	Date: _____	Date Used	Project Number	Run No.
Date: _____	Time: <u>1000</u>	Time: <u>0940</u>	Time: <u>0843</u>	Time: _____	RH %: _____			
Time: _____	RH %: <u>17.4</u>	RH %: <u>12.6</u>	RH %: <u>18.9</u>	RH %: _____	T (°F): _____			
ID #	T (°F): <u>71.9</u>	T (°F): <u>71.8</u>	T (°F): <u>66</u>	T (°F): _____	Audit: _____			
		Audit: <u>99997.7</u>	Audit: <u>99997.6</u>	Audit: <u>99997.7</u>	Audit: _____			
<u>21</u>	<u>114392.0</u>	<u>114391.8</u>	-					
<u>22</u>	<u>114343.9</u>	<u>114343.8</u>	-					
<u>23</u>	<u>114076.7</u>	<u>114076.8</u>	-					
<u>24</u>	<u>114127.0</u>	<u>114126.6</u>	<u>114126.5</u>	-				
<u>25</u>	<u>114298.5</u>	<u>114298.3</u>	-					
<u>27</u>	<u>114273.3</u>	<u>114273.3</u>	-					
<u>28</u>	<u>114750.4</u>	<u>114750.2</u>	-					
<u>29</u>	<u>114278.1</u>	<u>114278.0</u>	-					
<u>30</u>	<u>114328.0</u>	<u>114328.2</u>	-		<u>11/19/18</u>	<u>00GIPS085E</u>	<u>1</u>	
<u>31</u>	<u>114367.8</u>	<u>114367.6</u>	-		↓	↓	↓	
Initials: <u>BR</u>	Initials: <u>BR</u>	Initials: <u>BR</u>	Initials: _____					

Final Technician Signature: *[Signature]*
Control No. P-SFDP-0002.xls, Effective date: 2/1/2017

Date: 11/15/18

Evaluator signature: *[Signature]*

Tare Sheet: (check one)

Probes

47mm Filters _____

100mm Filters _____

O-Ring Pair _____

Prepared By: M. Lindenberg

Balance ID #: Omni-00637

Thermohygrometer ID #: Omni-00592

Audit Weight ID #/Mass: Omni-00283A / 5g

Placed in Dessicator: Date: <u>10/11/2018</u> Time: <u>4:30</u>	Date: <u>11/6/18</u> Time: <u>0942</u> RH %: <u>14.4</u> T (°F): <u>71.9</u> Audit: <u>5000.0</u>	Date: <u>11/7/18</u> Time: <u>0933</u> RH %: <u>17.6</u> T (°F): <u>71.8</u> Audit: <u>4999.9</u>	Date: _____ Time: _____ RH %: _____ T (°F): _____ Audit: _____	Date: _____ Time: _____ RH %: _____ T (°F): _____ Audit: _____	Date Used	Project Number	Run No.
	ID #						
R 685	3391.4	3391.6	✓				
R 686	3384.6	3384.8	✓				
R 687	4104.6	4104.7	✓				
R 688	3324.4	3324.6	✓				
R 689	3302.9	3302.7	✓				
R 690	3321.3	3321.4	✓				
R 691	4095.4	4095.3	✓				
R 692	3306.6	3306.7	✓				
R 693	3343.9	3343.8	✓		11/19/18	0061PS085E	1
R 694	3335.2	3335.2	✓		↓	↓	↓
Initials: <u>BL</u>	Initials: <u>DL</u>	Initials: _____	Initials: _____				

Final Technician Signature: [Signature]
Control No. P-SFDP-0002.xls, Effective date: 2/1/2017

Date: 11/15/18

Evaluator signature: [Signature]



PFI GRADED FUEL

PFI Densified Fuel Grade: Premium
Mil. Registration # 16016

Grade Requirements:

Bulk Density:	40-48 lb/cu ft
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

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

Analytical Test Report

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
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

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

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

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		

Comments

Section 3

Laboratory Quality Assurance

- 3.1 - Quality Assurance/Quality Control
- 3.2 - Calibration Data
- 3.3 - Example Calculations

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.

This report shall not be reproduced, except in full, without the written approval of *OMNI-Test Laboratories, Inc.*

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



JJ Calibrations, Inc.

7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

Certificate Number: **685888**

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

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	*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	1.0000880	0.9991088	1.0009088	0.0000000	1.000088 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	✓

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/NCCL 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 10/29/2018 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:

Average Gas Meter y Factor
0.986

Orifice Meter dH@
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: *B. Davis* 7/18/2018

Previous Calibration Comparison

Date	<u>1/17/2018</u>	Acceptable Deviation (5%)	Deviation
y Factor	<u>0.977</u>	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

Reference Standard *

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

Calibration Parameters	Run 1	Run 2	Run 3
Reference Meter Pressure ("H2O), Pr	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
DGM Pressure ("H2O), Pd	<u>2.00</u>	<u>1.38</u>	<u>1.00</u>
Initial Reference Meter	<u>609.1</u>	<u>615.5</u>	<u>620.8</u>
Final Reference Meter	<u>615.4</u>	<u>620.7</u>	<u>626.7</u>
Initial DGM	<u>0</u>	<u>0</u>	<u>0</u>
Final DGM	<u>6.292</u>	<u>5.245</u>	<u>5.995</u>
Temp. Ref. Meter (°F), Tr	<u>92.0</u>	<u>93.0</u>	<u>91.0</u>
Temperature DGM (°F), Td	<u>92.0</u>	<u>93.0</u>	<u>91.0</u>
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. $y = [Vr \times (y \text{ factor (ref)}) \times (Pb + (Pr / 13.6)) \times (Td + 460)] / [Vd \times (Pb + (Pd / 13.6)) \times (Tr + 460)]$
- ** 3. $dH@ = 0.0317 \times Pd / (Pb (Td + 460)) \times [(Tr + 460) \times \text{time}] / Vr]^2$

* 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 $\pm 0.14 \text{ ft}^3/\text{min}$. 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

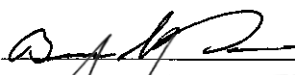

Reviewed by:  Date: 7/20/18

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:

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

Average Gas Meter y Factor 0.985

Orifice Meter dH@ 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: *B. Davis* 1/17/2018

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

Standard	Model	Standard Test Meter
Calibrator	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. $y = [V_r \times (y \text{ factor (ref)}) \times (P_b + (P_r / 13.6)) \times (T_d + 460)] / [V_d \times (P_b + (P_d / 13.6)) \times (T_r + 460)]$
- ** 3. $dH@ = 0.0317 \times P_d / (P_b (T_d + 460)) \times [(T_r + 460) \times \text{time}] / V_r]^2$

* 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 ft³/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

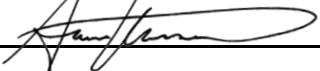
This form is to be used only in conjunction with Standard Procedure C-SPC.

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

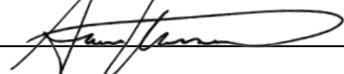
Temperature Calibration EPA Method 28R, ASTM 2515								
BOOTH:		TEMPERATURE MONITOR TYPE:				EQUIPMENT NUMBER:		
Mobile		National Instruments Logger				00335, 00336		
REFERENCE METER EQUIPMENT NUMBER: 00373				Calibration Due Date: 8/02/17				
CALIBRATION PERFORMED BY:			DATE:		AMBIENT TEMPERATURE:		BAROMETRIC PRESSURE:	
B. Davis			7/17/18		76		30.12	
Input Temperature (F)	Ambient	Meter A					Tunnel	FB Interior
			Meter B	Filter A	Filter B			
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



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

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**

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
Before/After Length									Accredited = ✓
		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/NCCL 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/O₂



USER'S

MANUAL



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

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 $\pm 4\%$, 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: 

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

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: **III**

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	Force							Accredited = ✓
		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								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 ✓	

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/NCCL 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 08/09/2018 Rev # 15

Inspector



**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**

Control Company is an ISO/IEC 17025:2005 Calibration Laboratory Accredited by (A2LA) American Association for Laboratory Accreditation, Certificate No. 1750.01.
Control Company is ISO 9001:2008 Quality Certified by DNV GL, Certificate No. CERT-01805-2006-AQ-HOU-RvA.
International Laboratory Accreditation Cooperation (ILAC) - Multilateral Recognition Arrangement (MRA).

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 %

$$M_{Swb} = 17.0 \text{ lbs}$$

$$M_{Ewb} = 0.0 \text{ lbs}$$

0.4536 = Conversion factor from lbs to kg

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

$$M_{Bdb} = 7.3 \text{ kg}$$

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)

$$M_{BSidb} = (M_{Ssiwb} - M_{Esiwb})(100/(100 + FM))$$

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):

$$FM = 5.63 \%$$

$$M_{Ssiwb} = 10.8 \text{ lbs}$$

$$M_{Esiwb} = 4.9 \text{ lbs}$$

0.4536 = Conversion factor from lbs to kg

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

$$M_{BSidb} = 2.5 \text{ kg}$$

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:

$$M_{Bdb} = 7.30 \quad \text{kg}$$

$$\theta = 360 \quad \text{min}$$

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

$$BR = 1.22 \quad \text{kg/hr}$$

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,

$$\theta_{Si} = \text{Total length of test run segment } i, \text{ min}$$

Sample Calculation (from medium burn rate segment):

$$M_{BSidb} = 2.53 \text{ kg}$$

$$\theta = 120 \text{ min}$$

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

$$BR = 1.27 \text{ kg/hr}$$

Equations and Sample Calculations - ASTM E2779 & E2515

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

ASTM E2515 equations (9)

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

Where:

- F_p = djustment factor for center of tunnel pitot tube placement, $F_p = \frac{V_{strav}}{V_{scent}}$, 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 H₂O
- T_s = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
- P_s = Absolute average gas static pressure in diluion tunnel, = $P_{bar} + P_g$, in Hg
- P_{bar} = Barometric pressure at test site, in. Hg
- P_g = Static pressure of tunnel, in. H₂O; (in Hg = in H₂O/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:

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

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

$$V_s = 13.42 \text{ ft/s}$$

*The ASTM test standard mistakenly has the square root of the average delta p instead of the average of the square root of delta p. The current EPA Method 2 is also incorrect. This was verified by Mike Toney at EPA.

**The ASTM test standard mistakenly identifies M_s 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 dilution 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:

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

$$Q_{sd} = 8900.5 \text{ dscf/hr}$$

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. H₂O
- T_m = Absolute average dry gas meter temperature, °R

Sample Calculation:

Using equation for Train 1:

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

$$V_{m(std)} = \mathbf{56.661} \text{ dscf}$$

Using equation for Train 2:

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

$$V_{m(std)} = \mathbf{56.549} \text{ dscf}$$

Using equation for ambient train:

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

$$V_{m(std)} = \mathbf{0.000} \text{ dscf}$$

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):

$$m_n = 0.0 + 3.3 + 0.0$$

$$m_n = 3.3 \text{ mg}$$

Using equation for Train 1 (remainder):

$$m_n = 0.1 + 9.1 + 0.4$$

$$m_n = 9.6 \text{ mg}$$

Train 1 Aggregate = **12.9 mg**

Using equation for Train 2:

$$m_n = 0.1 + 12.2 + 0.2$$

$$m_n = 12.5 \text{ mg}$$

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)

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

Where:

K_2 = Constant, 0.001 g/mg

m_n = Total mass of particulate matter collected in the sampling train, mg

$V_{m(\text{std})}$ = Volume of gas sampled corrected to dry standard conditions, dscf

Sample calculation:

For Train 1:

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

$$C_s = 2.28\text{E-}04 \text{ g/dscf}$$

For Train 2

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

$$C_s = 2.21\text{E-}04 \text{ g/dscf}$$

For Ambient Train

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

$$C_r = 0.000000 \text{ g/dscf}$$

Equations and Sample Calculations - ASTM E2779 & E2515

E_T - Total Particulate Emissions, g

ASTM E2515 equation (15)

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

Where:

C_s	=	Concentration of particulate matter in tunnel gas, g/dscf
C_r	=	Concentration particulate matter room air, g/dscf
Q_{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculation:

For Train 1

$$E_T = (\underline{0.000228} - 0.000000) \times \underline{8900.5} \times \underline{360} / 60$$
$$E_T = \underline{12.16} \text{ g}$$

For Train 2

$$E_T = (\underline{0.000221} - 0.000000) \times \underline{8900.5} \times \underline{360} / 60$$
$$E_T = \underline{11.80} \text{ g}$$

Average

$$E = \underline{11.98} \text{ g}$$

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

$$7.5\% \text{ of the average} = \underline{0.90}$$

$$\text{Train 1 difference} = \underline{0.18}$$

$$\text{Train 2 difference} = \underline{0.18}$$

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, °R
- T_m = Absolute average dry gas meter temperature, °R
- T_{si} = Absolute average gas temperature in the dilution tunnel during the "ith" time interval, °R
- T_s = Absolute average gas temperature in the dilution tunnel, °R

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

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

$$PR = \underline{100} \%$$

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 = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation:

$$E_T \text{ (Dual train average)} = 11.98 \text{ g}$$

$$\theta = 360 \text{ min}$$

$$PM_R = 60 \times (11.98 / 360)$$

$$PM_R = 1.9969 \text{ g/hr}$$

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 = Total particulate emissions, grams

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

Sample Calculation:

$$E_T \text{ (Dual train average)} = 11.98 \text{ g}$$

$$M_{Bdb} = 7.30 \text{ kg}$$

$$PM_F = 11.98 / 7.30)$$

$$PM_F = 1.64 \text{ g/kg}$$

*Hearth & Home Technologies, Inc.
Model: ECO CAB50-C, ECO PS050-C
Project: 0061PS085E*

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.



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 Burning Type, (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

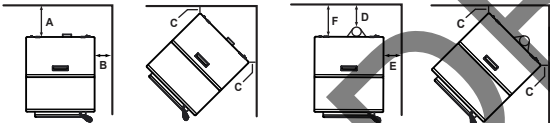
Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruer l'espace en dessous de l'appareil.

AVIS - Pour Les Maisons Mobiles: Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte.

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]

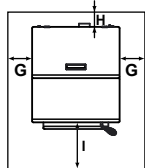
NOTE 1: In residential installations, when using Parts 811-0860, (3" - 3" Top Vent Adapter) and 812-3570 (3" - 6" Offset Adapter), 24 gauge 6" single wall flue connector may be used.

NOTE 1: Dans les installations résidentielles, lorsque les pièces 811-0860, (dessus de l'adaptateur de ventilation 3" - 3") et 812-3570 (le ressaut de l'adaptateur 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'adaptateur de ventilation 3" - 3") et 812-3570 (le ressaut de l'adaptateur 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
G = 2 in
H* = 2 in
I = 6 in

CANADA
G = 203 mm
H* = 51 mm
I = 152 mm

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.

*Non-combustible floor protection must extend 2 inches (51mm) beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation.

RECOMMENDED IN USA; REQUIRED IN CANADA.

Le poêle doit être placé sur une assise non combustible s'étendant tout autour de lui, comme les schémas l'indiquent. Mesurez la distance du devant (I) de la surface de la porte vitrée.

*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 adaptateur de ventilation de dessus pour une installation verticale. **ÉTATS-UNIS - RECOMMANDÉ; CANADA - REQUIRANT.**

Manufactured by: Fabriqué par:



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.



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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CAB50-C

Serial No.
N° de série

HF

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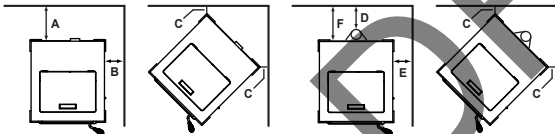
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INSTALLATION DU COIN AVEC UN ASSEMBLAGE D'ADAPTEUR VERTICAL:

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- Max. Alcove Depth: / La profondeur maximum de l'alcôve 48 in [1219mm]
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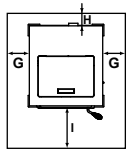
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Note 1: Dans les installations résidentielles, lorsque les pièces TPVNT-5, (dessus de l'adaptateur de ventilation 3" - 3") et 812-3570 (le ressaut de l'adaptateur 3" - 6"), un tuyau connecteur de 6" pour mur simple de calibre 24 peut être utilisé.

Note 2: In manufactured home installation, when using Part TPVNT-5, (3" - 3" Top Vent Adapter) and 812-3570 (3" - 6" Offset Adapter), use listed double wall flue connector. An Outside Air Kit, must be used with manufactured home installation.

Note 2: Pour l'installation dans les maisons préfabriquées, lorsque les pièces TPVNT-5, (dessus de l'adaptateur de ventilation 3" - 3") et 812-3570 (le ressaut de l'adaptateur 3" - 6"), utilisez un tuyau connecteur enregistré pour mur double. Un assemblage d'air extérieur, doit être utilisé pour l'installation dans les maisons préfabriquées.

FLOOR PROTECTION / PROTECTION DU SOL



USA
G = 2 in
H* = 2 in
I = 6 in

CANADA
G = 203 mm
H* = 51 mm
I = 152 mm

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.

*Non-combustible floor protection must extend 2 inches [51mm] beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation. **RECOMMENDED IN USA; REQUIRED IN CANADA.**

Le poêle doit être placé sur une assise non combustible s'étendant tout autour de lui, comme les schémas l'indiquent. Mesurez la distance du devant (I) de la surface de la porte vitrée.

*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 adaptateur de ventilation de dessus pour une installation verticale. **ÉTATS-UNIS - RECOMMANDÉ; CANADA - REQUIERT.**

Manufactured by: Fabriqué par:



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.



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

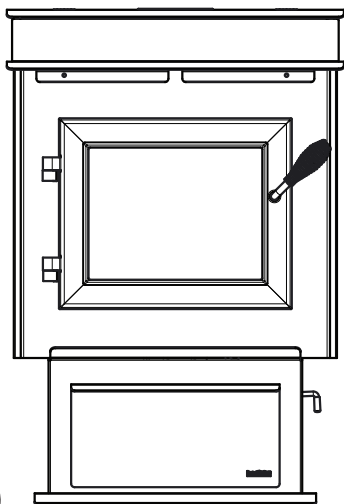
INSTALLER: Leave this manual with party responsible for use and operation.
OWNER: Retain this manual for future reference.

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



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.

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



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 Française 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

Model Name



Intertek
4001503



ECOCHOICE
PS50-C

Serial No.
N° de série

HF

DIAGNOSTIC LABEL

CAUTION: HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CONTACT MAY CAUSE SKIN BURNS. SEE NAMEPLATE AND INSTRUCTIONS.

ATTENTION: CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.

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.

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

A	Back Wall / Mur Arrière	2 in (51mm)
B	Side Wall / Mur De Côté	14 in (356mm)
CORNER INSTALLATION / INSTALLATION 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-in (76.1mm) (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'ALCOVE:		
Min. Alcove Height: / Une hauteur minimum de l'alcove		56.75 in (1441mm)
Min. Alcove Side Wall: / Une hauteur minimum mur de côté de l'alcove		14 in (356mm)
Min. Alcove Width: / Une épaisseur minimum mur de côté de l'alcove		53 in (1346mm)
Max. Alcove Depth: / La profondeur maximum de l'alcove		48 in (1219mm)
Max. Mantle Depth: / Profondeur maximum de la mantelle de cheminée		36 in (914mm)
Top of Unit to Combustibles: / Vue du haut des matériaux combustibles		21 in (533mm)

FLOOR PROTECTION / PROTECTION DU SOL

Floor protector must be non-combustible material, extending tout beneath heater and to the front/sides/rear as indicated. Le poêle doit être placé sur une assise non combustible s'étendant tout Measure front distance (I) from the surface of the glass door. autour de lui, comme les schémas l'indiquent. Mesurez la distance du devant (I) de la surface de la porte vitrée.

USA
G = 2 in
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CANADA
G = 203 mm
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*Non-combustible floor protection must extend 2 inches (51mm) beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation. *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 adaptateur de ventilation de dessus pour une installation verticale.

RECOMMENDED IN USA; REQUIRED IN CANADA. ÉTATS-UNIS - RECOMMANDÉ; CANADA - REQUIERT.

Manufactured by: Fabriqué par: **HEARTH & HOME**
352 Mountain House Road
Halifax, Pa 17032
www.heatilator.com

USA and imported parts. / Fabriqué aux États-Unis d'Amérique par des pièces d'origine américaine et pièces importées.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Certified to comply with 2020 particulate emission standards at 1.0 g/hr EPA method 289 and ASTM 2779 using premium wood pellets. This wood heater needs to be operated 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
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DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE

Test Lab and Report Number

Serial Number

SAMPLE

Manufacturer Date

Safety Alert Key:



- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

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Heatilator Eco Choice is a registered trademark of Hearth & Home Technologies.

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 warrants to the original owner of the HHT appliance at the site of installation, and to any transferee taking ownership of the appliance at the site of installation within two years following the date of original purchase, that the HHT appliance will be free from defects in materials and workmanship at the time of manufacture. After installation, if covered components manufactured by HHT are found to be defective in materials or workmanship during the applicable warranty period, HHT will, at its option, repair or replace the covered components. HHT, at its own discretion, may fully discharge all of its obligations under such warranties by replacing the product itself or refunding the verified purchase price of the product itself. The maximum amount recoverable under this warranty is limited to the 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 incidental or consequential damages caused by defects in the appliance. Some states do not allow exclusions or limitation of incidental or consequential damages, so these limitations may not apply to you. This warranty gives you specific rights; you may also have other rights, which vary from state to state. EXCEPT TO THE EXTENT PROVIDED BY LAW, HHT MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE.

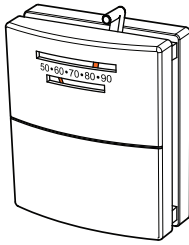
C. Quick Start Guide

ECO CHOICE QUICK START GUIDE

Before you plug in this appliance, follow these instructions

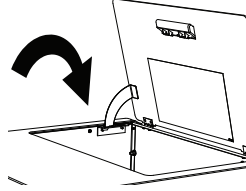
Remove hang tags from the door glass. Clean the glass. Remove the hardware pack and dessicant bag from the firebox area before your first fire.

Turn the thermostat to off.



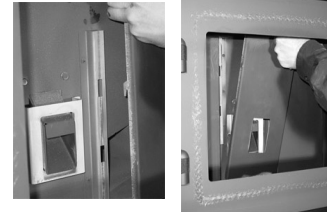
1

Add pellets to the hopper and close the lid.



2

Open the firebox door and make sure the baffles are in place.



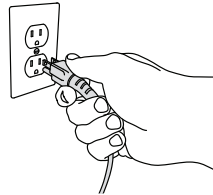
3

If the feed tube is empty or this is the first fire, add a handful of pellets to the firepot.

*Do not add extra fuel to the firepot if the feed tube has already been primed. Overfilling the firepot will cause smoky start-ups.

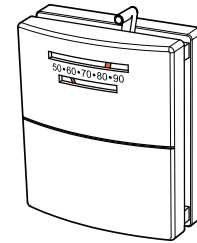
4

Close the firebox door and plug the power cord into the wall receptacle.



5

Turn the thermostat on.



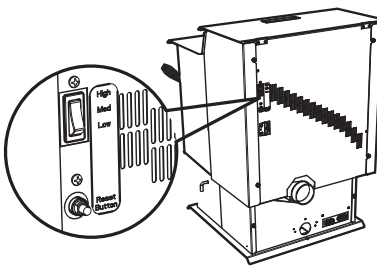
6

The stove will feed pellets for a minute and stop. Once a fire starts, the feed cycle will resume.

Note: Allow 5 minutes for ignition to take place.

7

If the fire dies out after a few minutes of operation it will be necessary to push the reset button to add more fuel.



8

Once a fire has been established in the unit, leave the unit burning on the "high" setting for 30 minutes to allow the paint to cure.

Note: Odors and vapors will be released during this process.

Open windows in the room for ventilation

9

After 30 minutes have passed, turn the thermostat off and allow the unit to cool completely. Open the door and clean the firepot according to the cleaning instructions found inside the hopper lid or owners manual. Close the door and set the thermostat to a desired temperature. Unit is now ready to resume normal operation.

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 Certified Emissions:	1.0 grams/hour
*LHV Tested Efficiency:	69.5%
**HHV Tested Efficiency:	65.1%
***EPA BTU Output:	7,500 to 36,600 per hr.
****BTU Input:	13,100 to 49,900 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.	

The PS50 is Certified to comply with 2020 particulate emission standards.



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.

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.**

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 than 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.

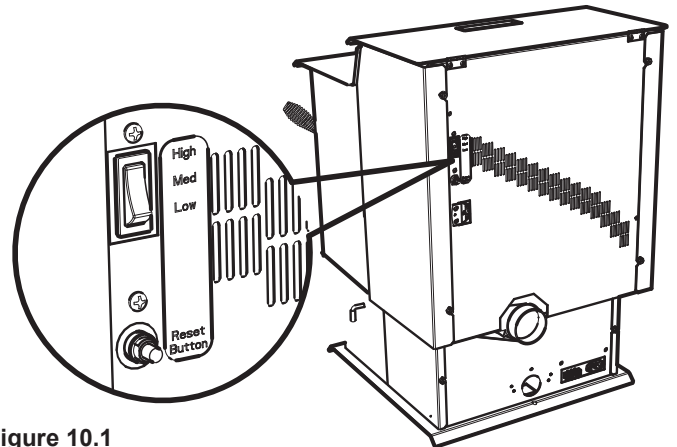


Figure 10.1

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**).

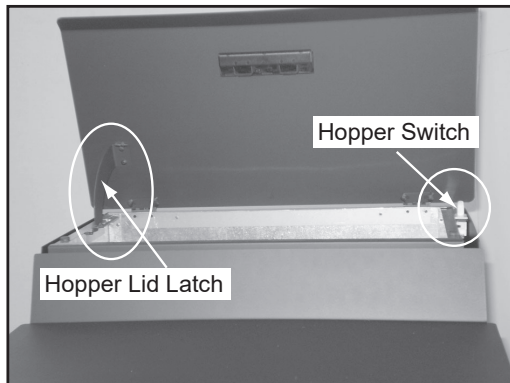


Figure 11.1

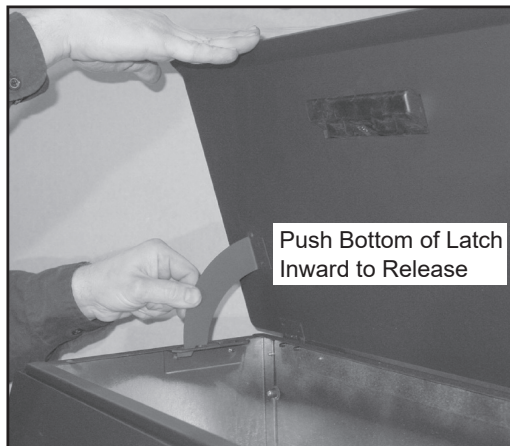


Figure 11.2

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.

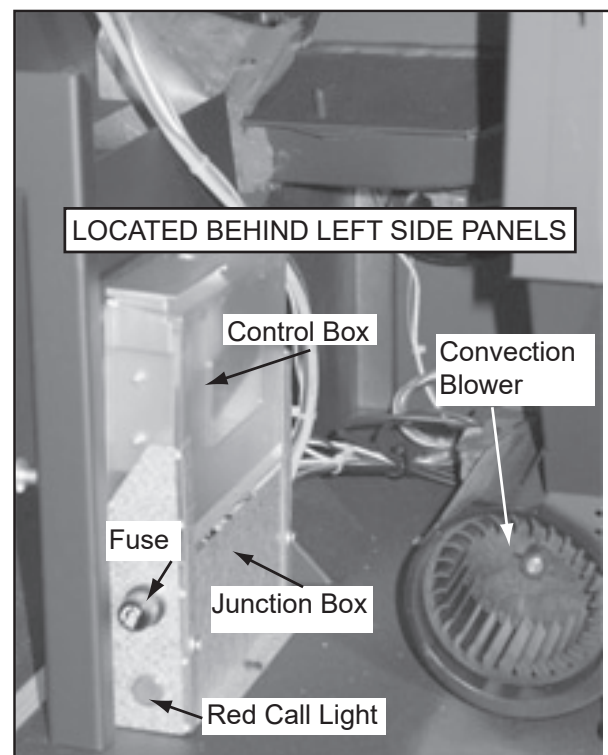


Figure 11.3

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.

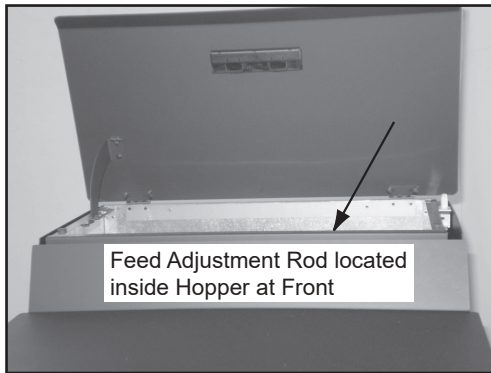


Figure 12.1

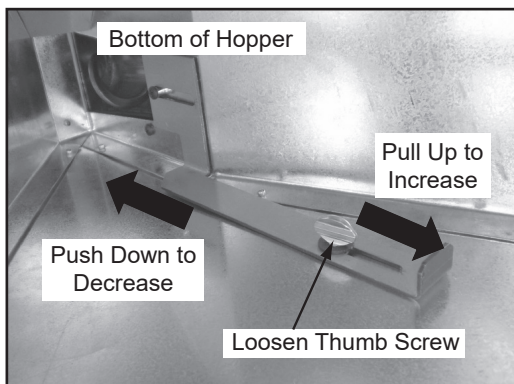


Figure 12.2

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/Custom-Care to view basic troubleshooting, FAQs, use & care videos. We recommend annual service by a qualified service technician.

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.



⚠ 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.

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.

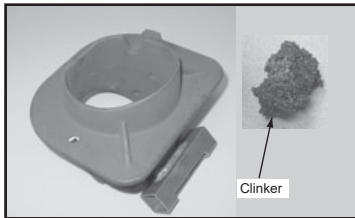
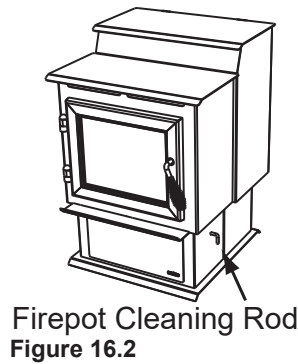


Figure 16.1 - Clinker

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.



Firepot Cleaning Rod
Figure 16.2

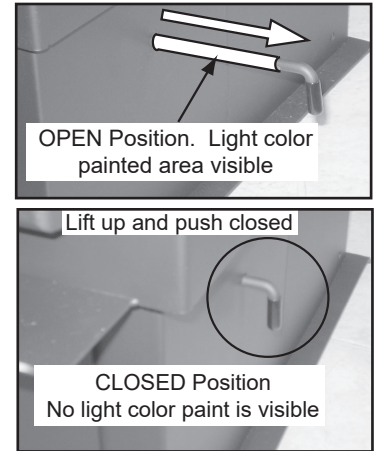


Figure 16.3

WARNING	
	<p>Fire Risk</p> <ul style="list-style-type: none"> • 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	
	<p>Burn Risk</p> <ul style="list-style-type: none"> • 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.

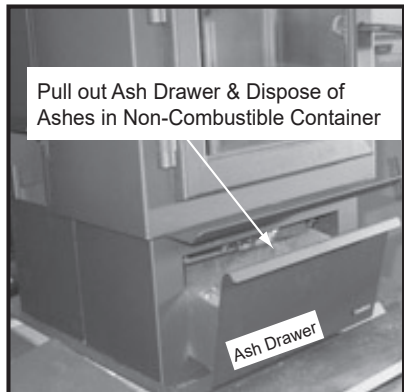


Figure 17.1

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.

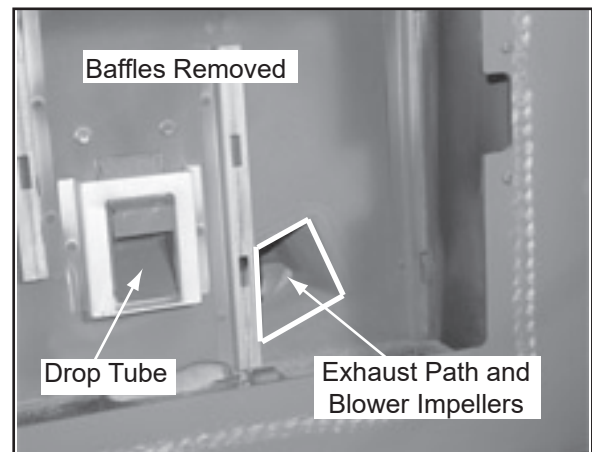


Figure 17.2

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.

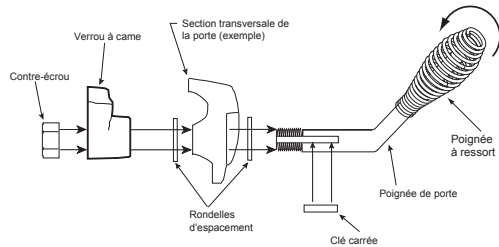


Figure 18.1

10. Cleaning the Glass

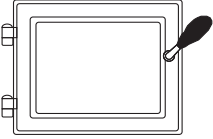
- **Frequency:** When clear view of the fire pot becomes obscure
- **By:** Homeowner
 - a. Appliance must be completely cool before cleaning glass.
 - b. Vacuum fly ash from glass and door rope.
 - c. Use a damp paper towel or any non-abrasive glass cleaner. Wipe off with dry towel.

CAUTION

Handle glass assembly with care.

When cleaning glass:

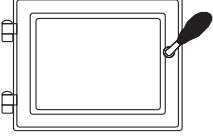
- Avoid striking, scratching or slamming glass.
- Do NOT clean glass when hot.
- Do NOT use abrasive cleaners.
- Refer to maintenance instructions.



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.

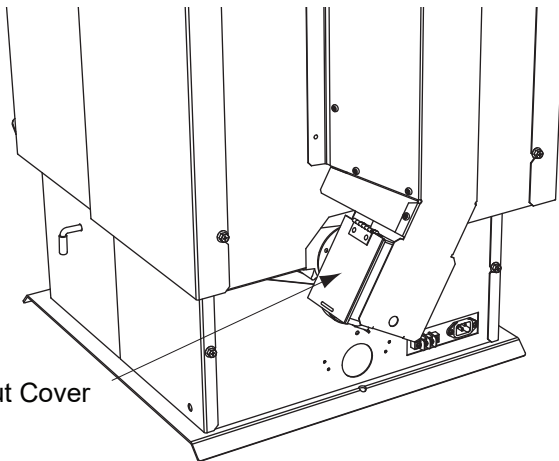
NOTE: Hearth & Home Technologies recommends to use a heavy duty vacuum cleaners specifically designed for solid fuel appliance cleaning.

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.

 WARNING	
	<p>Fire Risk</p> <ul style="list-style-type: none"> • 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.

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.

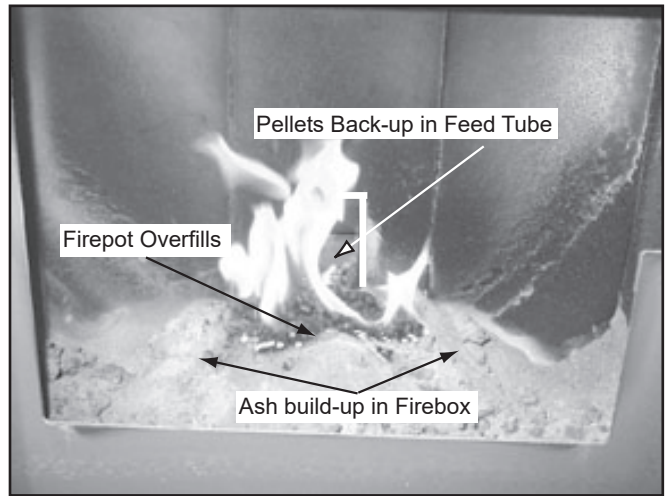


Figure 20.1

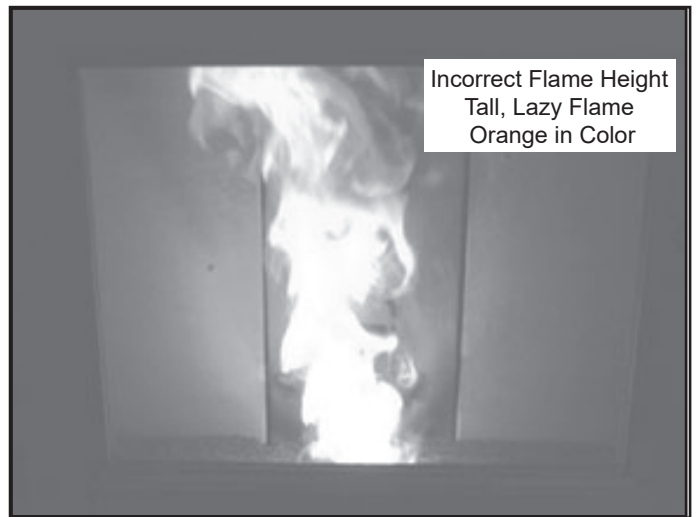


Figure 20.2

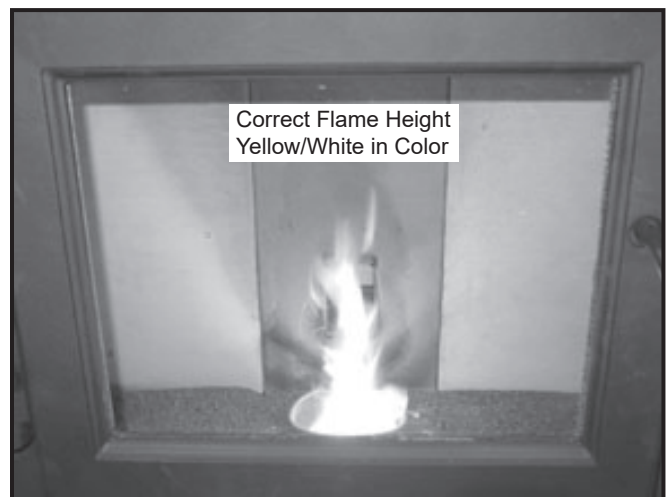


Figure 20.3

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 be 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. #1 snap disc defective. Blower not plugged in. Blower is defective. Control box is defective.	Defective control box. Replace snap disc. Check that blower is plugged into wire harness. Replace blower. Replace control box.
Exhaust blower fails to start or does not shut off.	Blower not plugged in. Blower is clogged with ash. Blower is defective. Control box is defective.	Check that blower is plugged into wire harness. Clean exhaust system. Replace blower. Replace control box.
Large, lazy flame, orange color. Black ash on glass.	Dirty appliance. Poor fuel quality, high ash content. Fire pot clean-out plate not completely closed. Excessive amount of fuel.	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. Check that fire pot clean-out plate is fully closed. Reduce feed rate using feed rate adjustment control rod located inside hopper.
Nuisance shutdowns.	Low flame. Sawdust buildup in hopper. Feed motor is reversing. Defective thermocouple. Defective control box. Fire pot more than 1/2 full	Increase feed by opening feed rate adjustment control rod located inside hopper. Clean hopper, see page 35 . Check for good connections between feed motor and wire harness. Replace thermocouple. 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. Defective control box	Check connections on thermocouple or replace if defective. A flashing yellow light on the control box indicates a problem with the thermocouple. 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**).

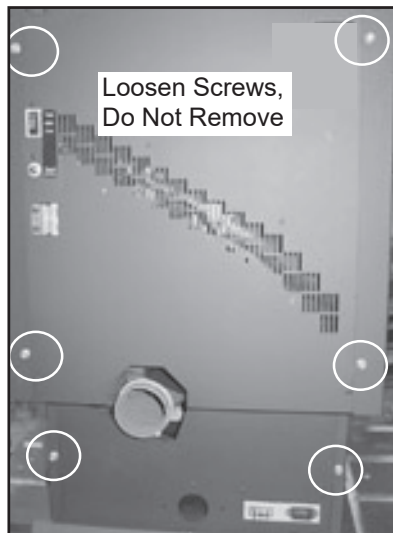


Figure 24.1

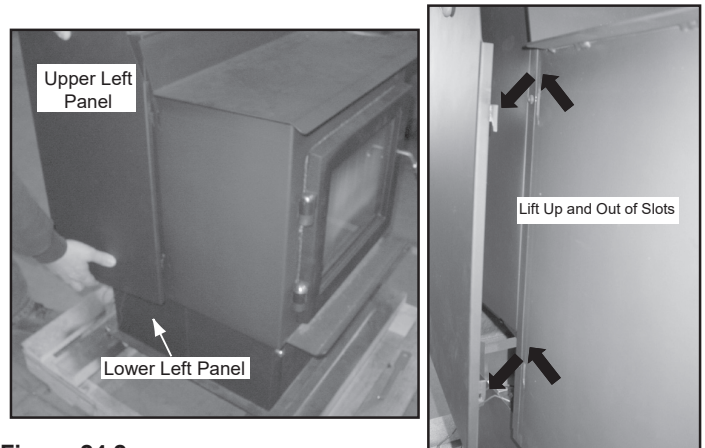


Figure 24.2

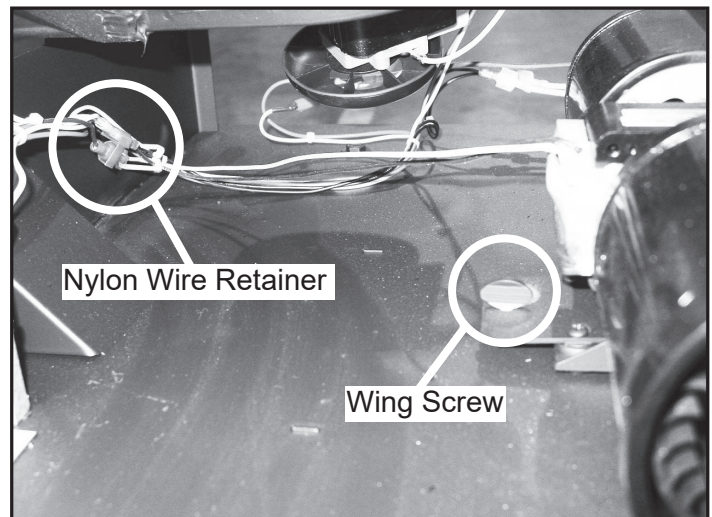


Figure 24.3

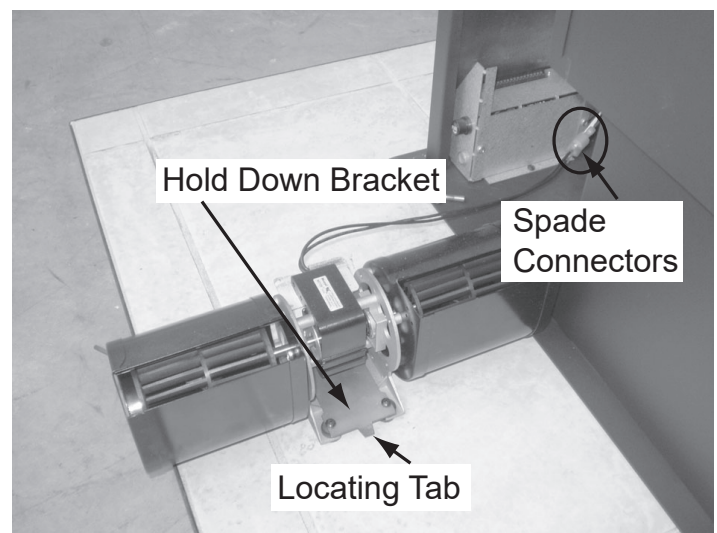


Figure 24.4

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.

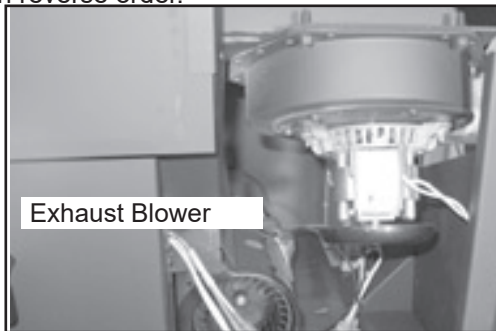


Figure 25.1

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 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.

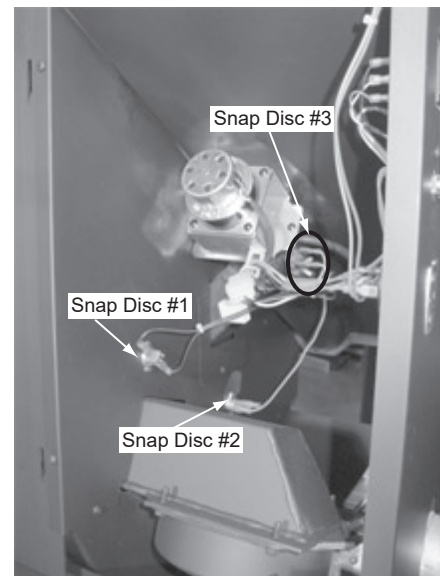


Figure 25.2

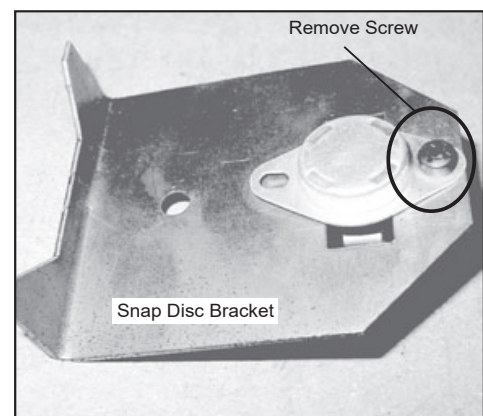


Figure 25.3

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.

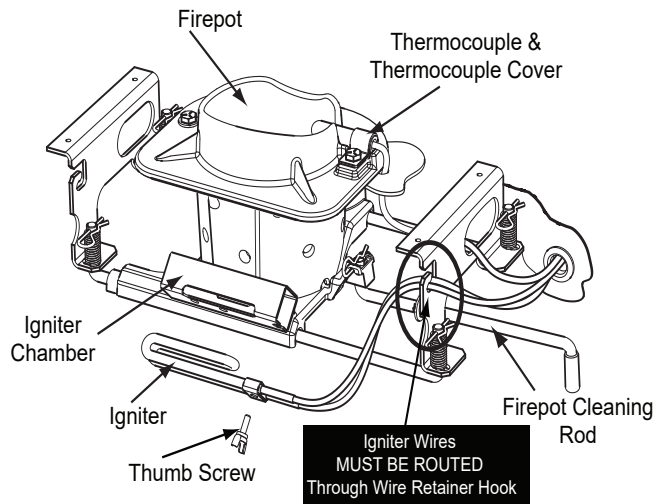


Figure 26.1

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).

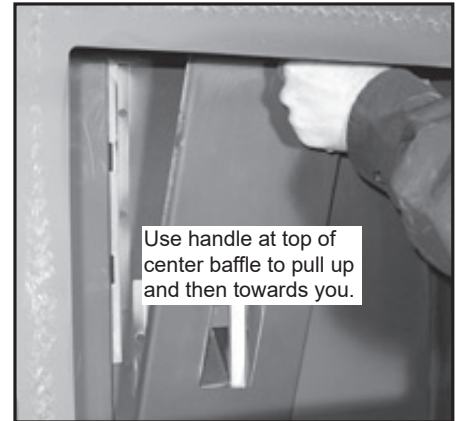


Figure 26.2

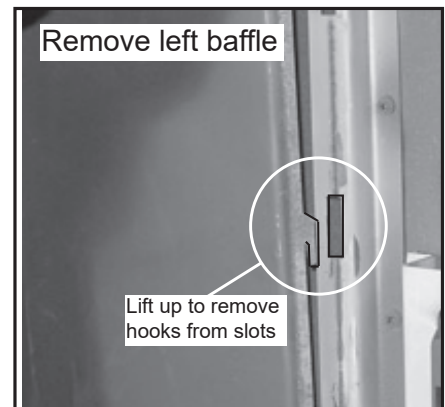


Figure 26.3

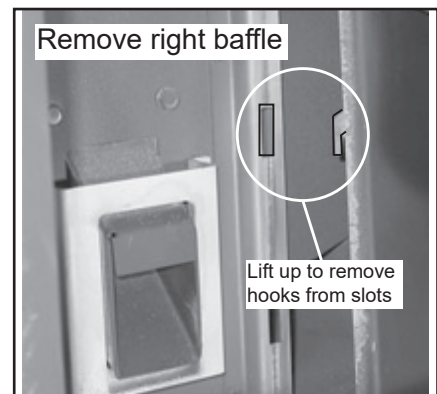


Figure 26.4

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.

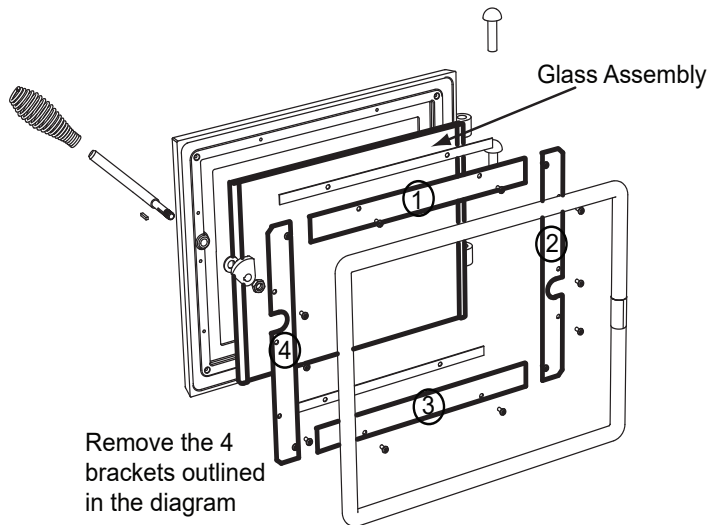


Figure 27.1



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

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



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

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 1/4 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.

Your PS50 is set to #2 (2 flashes) (**Figure 28.1**).

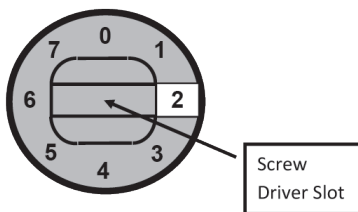


Figure 28.1 - Rotary Switch

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.

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.

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.

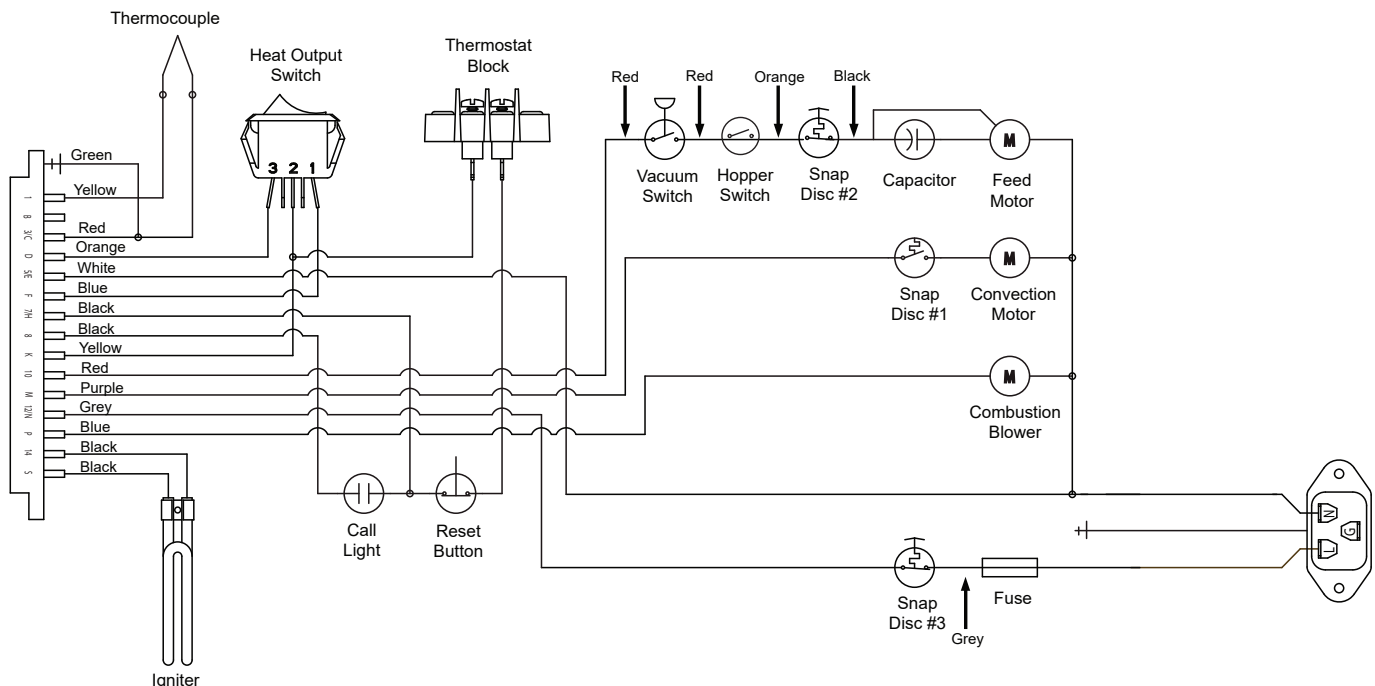


Figure 29.1

B. Component Locations

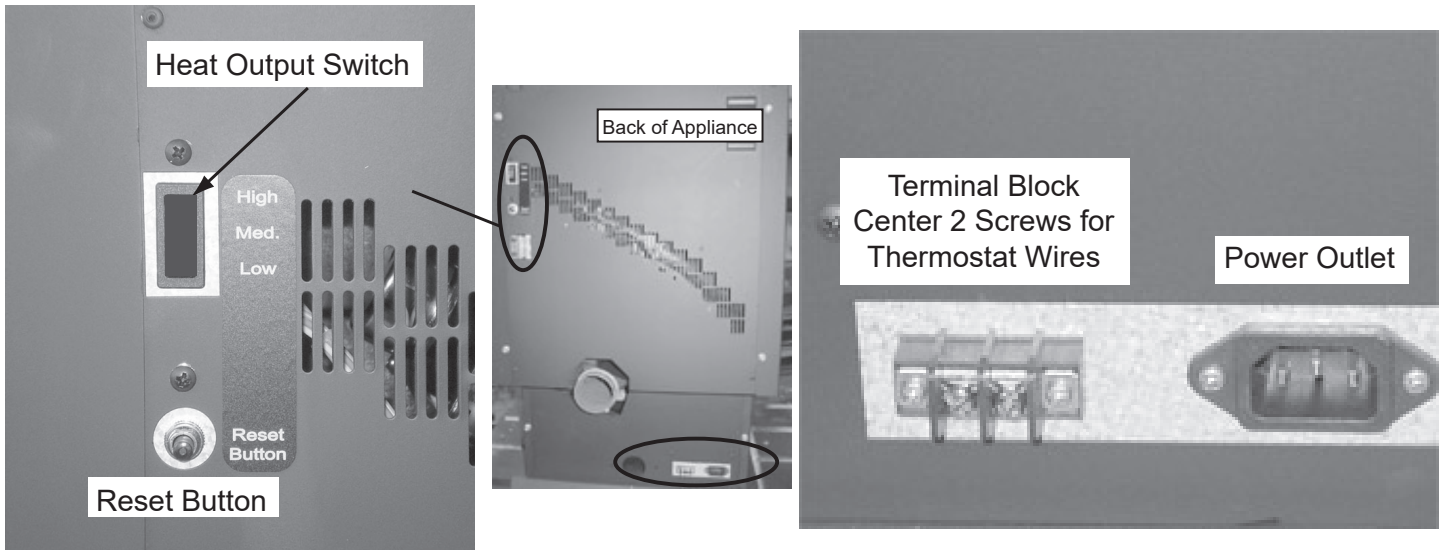


Figure 30.1

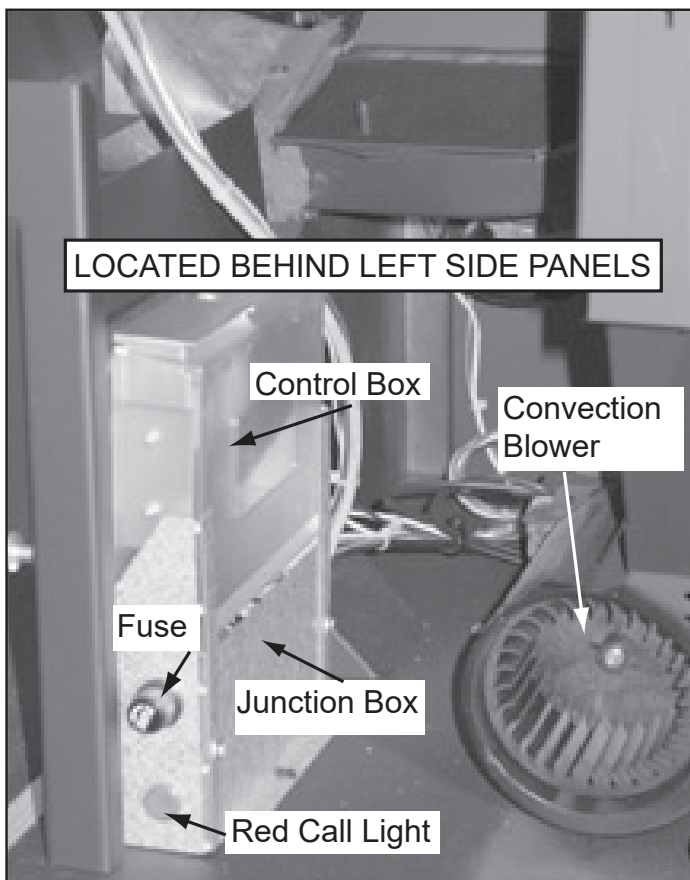


Figure 30.2

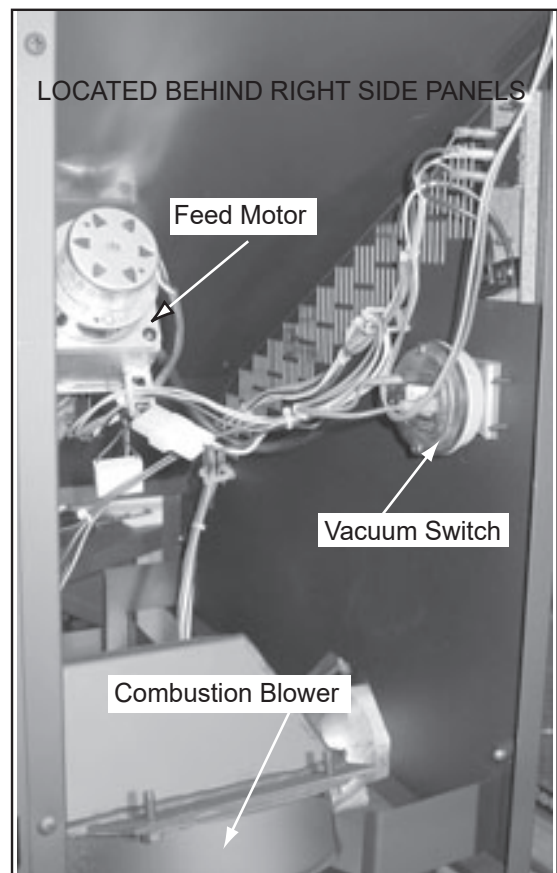


Figure 30.3

C. Maintenance and Service Log

Date of Service	Performed By	Description of Service

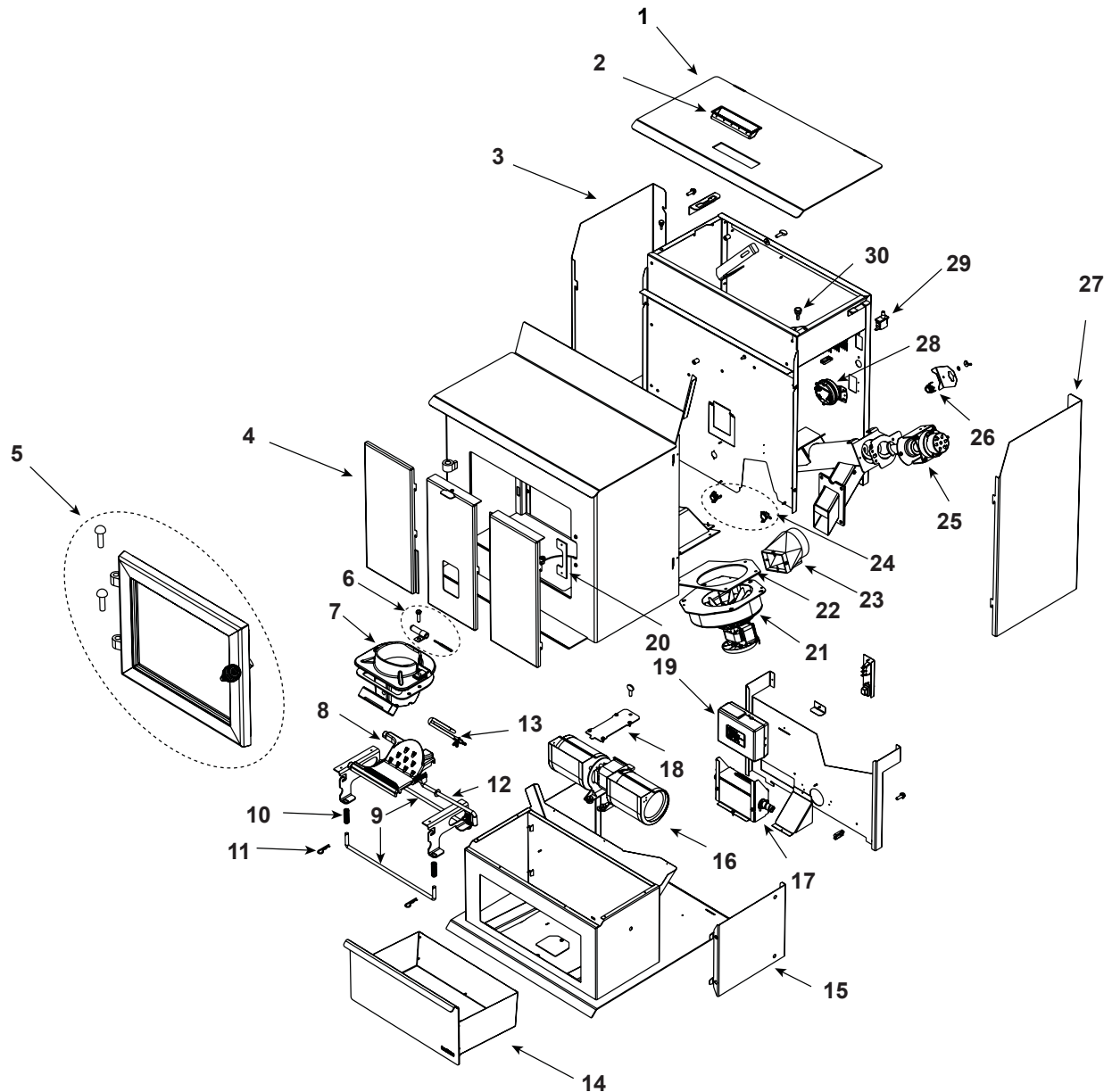
D. Exploded Drawing



Service Parts
Free Standing Pellet Stove

PS50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active



Part number list on following page.

12/18

E. Service Parts



Service Parts

PS50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active

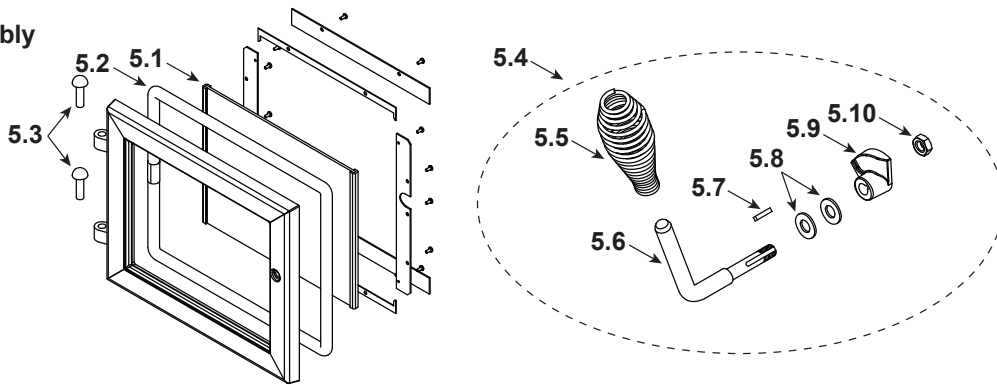
IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked at Depot

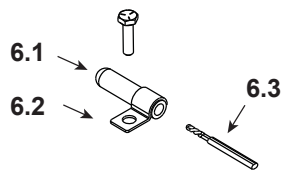
Item	Description	Comments	Part Number	Stocked at Depot
1	Hopper Lid Assembly		SRV7059-009	
2	Handle, Hopper Lid		SRV200-0110	
3	Side Curtain, Left		SRV7059-125	
4	Baffle Assembly		SRV7059-026	Y

Door Assembly



5	Door Assembly		SRV7058-014	
5.1	Glass Assembly		SRV7058-015	Y
5.2	Rope, Door, 3/4" X 84"		832-1680	Y
	Gasket, Glass Tape, 3/4" X 1/8"	5 Ft	832-0460	Y
5.3	Hinge Pin, 1/2"	Nickel	SRV430-5320	
5.4	Door Handle Assembly		SRV7058-030	Y
5.5	Spring Handle, 1/2"	Black	SRV7000-613	Y
5.6	Handle, Formed Door		SRV7058-182	
5.7	Key Latch, Cam		SRV430-1151	
5.8	Washer, SAE, 3/8 (Qty 2 req)	Pkg of 3	832-0990	Y
5.9	Cam Latch		SRV430-1141	
5.10	Nut, 2-Way Side-Lock Jam	Pkg of 24	226-0100/24	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

Additional service parts on following page



Service Parts

PS50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active

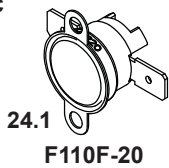
IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked at Depot

Item	Description	Comments	Part Number	Stocked at Depot
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	Pkg of 10	4021-049/10	
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
22	Gasket, Exhaust Combustion Blower		SRV240-0812	Y
	Gasket, Combustion Blower, Round		812-4710	Y
23	Casting, Exhaust Transition		180-0190	

Snap Disc



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

Additional service parts on following page.

F. Accessories



Service Parts

PS50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked
at Depot

Item	Description	Comments	Part Number	Stocked at Depot
	Component Pack		SRV7059-019	
	Cleanout Tool		414-1140	Y
	Harness, Thermostat Wire		230-0810	
	Power Cord		812-1180	Y
	Thermostat Mechanical		812-3760	Y
	Paint Touch Up		3-42-19905	
	Hose, Vacuum, 5/32 Id	3 Ft	SRV240-0450	Y
	Reset Button Assembly		SRV7000-040	
	Baffle Center Back		SRV7058-166	
	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	

Additional service parts on following page.



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

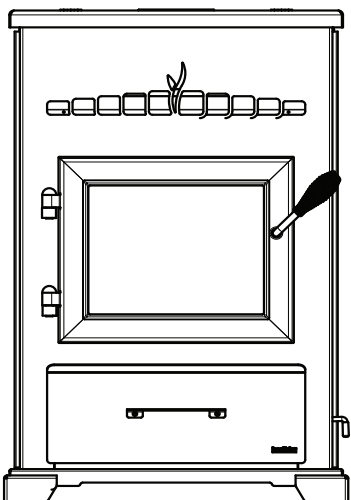
INSTALLER: Leave this manual with party responsible for use and operation.
OWNER: Retain this manual for future reference.

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



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.

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



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 Française 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

Model Name



Test Lab and Report Number


CAUTION: HOT WHILE IN OPERATION DO NOT TOUCH, KEEP 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.


Serial No. / N° de série

HF

Serial Number







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.

Appareil de chauffage de combustible solide/de type de bouillettes. 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.

Conforms to ASTM STD E1509, Certified to ULC STD S627, ULC/ORD-C1482-M1990 Room Heating Pellet Burning Type, (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.

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 Electrique: 115 VAC, 60 Hz, Début 5.1 Amps, Courir 3.0 Amps. Eloignez 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: 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.

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, consultez le manuel du propriétaire. Gardez la porte d'ouverture et la porte des cendres fermées pendant l'opération.

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.

PRÉVENIR LES INCENDIES 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 région. **AVIS - Pour les Maisons Mobiles:** Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion doit être installé. Le plancher, le plafond et les murs de la maison mobile doivent être maintenus intacts. 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 un système de ventilation "L" ou "P" diamètre 76mm ou 102mm.

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS / ESPACES LIBRES MINIMUM DES MATÉRIEAUX COMBUSTIBLES:	
A Back Wall / Mur Arrière	2 in [51mm]
B Side Wall / Mur De Côté	14 in [366mm]
CORNER INSTALLATION / INSTALLATION 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 3-1 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'ALCOÛVE:	
Min. Alcove Height: / Une hauteur minimum de l'alcove	56.75 in [1441mm]
Min. Alcove Side Wall: / Une hauteur minimum mur de côté de l'alcove	14 in [356mm]
Min. Alcove Width: / Une épaisseur minimum mur de côté de l'alcove	53 in [1346mm]
Max. Alcove Depth: / La profondeur maximum de l'alcove	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]

FLOOR PROTECTION / PROTECTION DU SOL
 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. Le poêle doit être placé sur une assise non combustible s'étendant tout autour de lui, comme les schémas l'indiquent. Mesurez la distance du devant (I) de la surface de la porte vitrée.

*Non-combustible floor protection must extend 2 inches [51mm] beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation. *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 adaptateur de ventilation de dessus pour une installation verticale.

RECOMMENDED IN USA; REQUIRED IN CANADA. ÉTATS-UNIS - RECOMMANDÉ; CANADA - REQUIERT.

Manufactured by: Fabriquée par: HEARTH-HOME inc. 352 Mountain House Road Halifax, Pa 17032 www.heatilatorchoice.com

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards at 1.0 g/h EPA method 28R and ASTM 2779 using premium wood pellets. This heater is designed to be operated in accordance with the operating instructions in the owner's manual.

2019	2020	2021	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

074-802A

Manufacturer Date

Safety Alert Key:



- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

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Heatilator Eco Choice is a registered trademark of Hearth & Home Technologies.

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 warrants to the original owner of the HHT appliance at the site of installation, and to any transferee taking ownership of the appliance at the site of installation within two years following the date of original purchase, that the HHT appliance will be free from defects in materials and workmanship at the time of manufacture. After installation, if covered components manufactured by HHT are found to be defective in materials or workmanship during the applicable warranty period, HHT will, at its option, repair or replace the covered components. HHT, at its own discretion, may fully discharge all of its obligations under such warranties by replacing the product itself or refunding the verified purchase price of the product itself. The maximum amount recoverable under this warranty is limited to the 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 the 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 replacement 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 incidental or consequential damages caused by defects in the appliance. Some states do not allow exclusions or limitation of incidental or consequential damages, so these limitations may not apply to you. This warranty gives you specific rights; you may also have other rights, which vary from state to state. EXCEPT TO THE EXTENT PROVIDED BY LAW, HHT MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE.

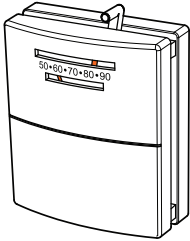
C. Quick Start Guide

ECO CHOICE QUICK START GUIDE

Before you plug in this appliance, follow these instructions

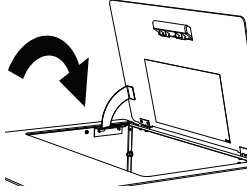
Remove hang tags from the door glass. Clean the glass. Remove the hardware pack and dessicant bag from the firebox area before your first fire.

Turn the thermostat to off.




1

Add pellets to the hopper and close the lid.



2

Open the firebox door and make sure the baffles are in place.



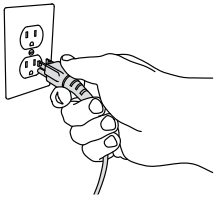
3

If the feed tube is empty or this is the first fire, add a handful of pellets to the firepot.

*Do not add extra fuel to the firepot if the feed tube has already been primed. Overfilling the firepot will cause smoky start-ups.

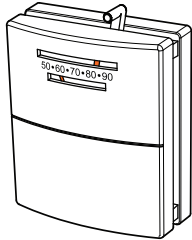
4

Close the firebox door and plug the power cord into the wall receptacle.



5

Turn the thermostat on.



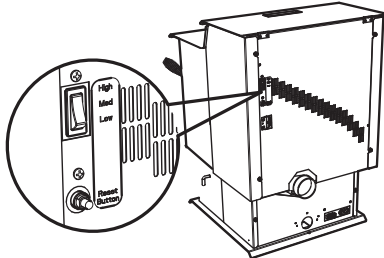
6

The stove will feed pellets for a minute and stop. Once a fire starts, the feed cycle will resume.

Note: Allow 5 minutes for ignition to take place.

7

If the fire dies out after a few minutes of operation it will be necessary to push the reset button to add more fuel.



8

Once a fire has been established in the unit, leave the unit burning on the "high" setting for 30 minutes to allow the paint to cure.

Note: Odors and vapors will be released during this process.

Open windows in the room for ventilation

9

After 30 minutes have passed, turn the thermostat off and allow the unit to cool completely. Open the door and clean the firepot according to the cleaning instructions found inside the hopper lid or owners manual. Close the door and set the thermostat to a desired temperature. Unit is now ready to resume normal operation.

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 Certified Emissions:	1.0 grams/hour
*LHV Tested Efficiency:	69.5%
**HHV Tested Efficiency:	65.1%
***EPA BTU Output:	7,500 to 36,600 per hr.
****BTU Input:	13,100 to 49,900 per hr.
Vent Size:	3 or 4 inches, "L" or "PL"
Hopper Capacity:	120 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.	

The CAB50 is Certified to comply with 2020 particulate emission standards.



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.

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.**

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 than 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.

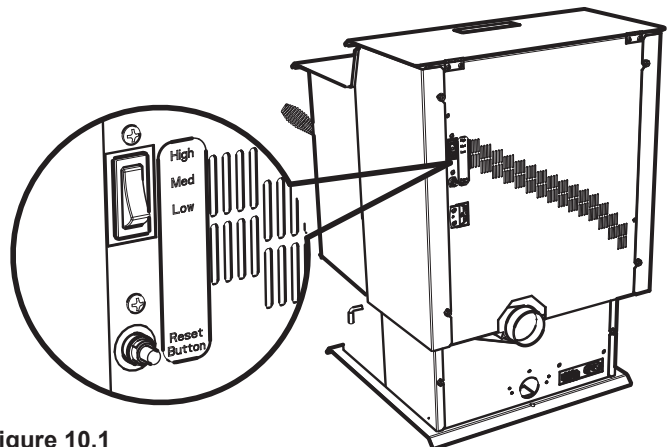


Figure 10.1

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.

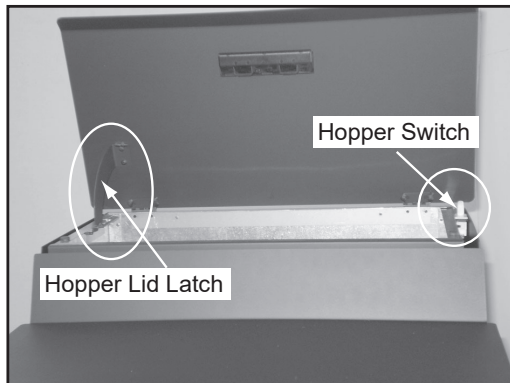


Figure 9.1

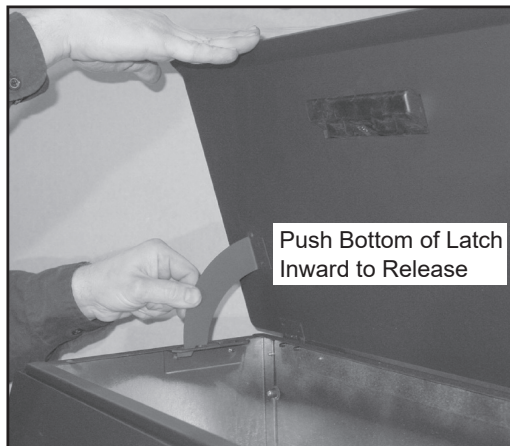


Figure 9.2

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.

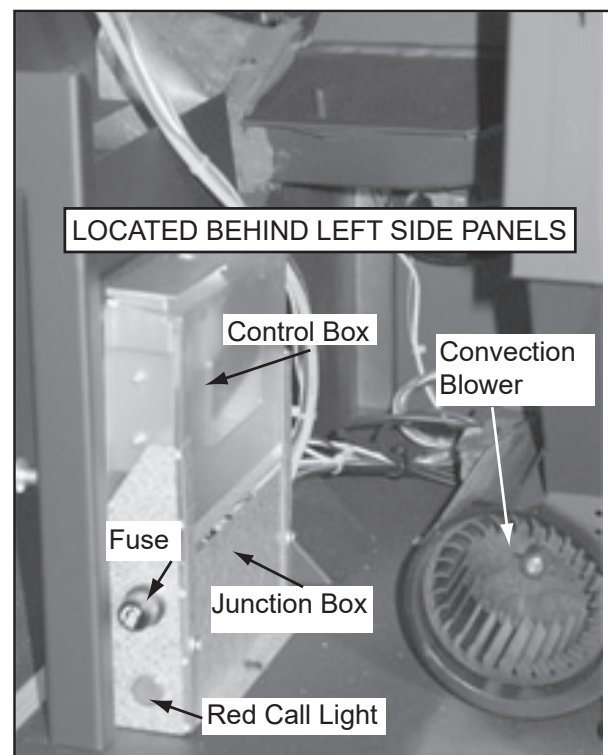


Figure 11.3

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.

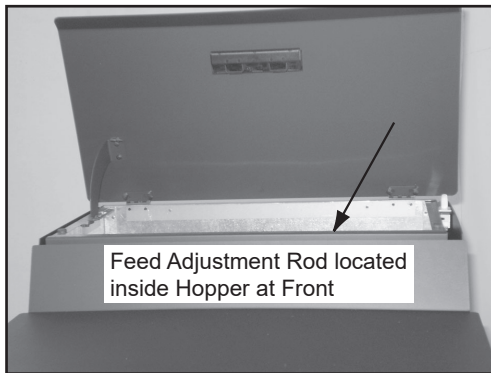


Figure 12.1

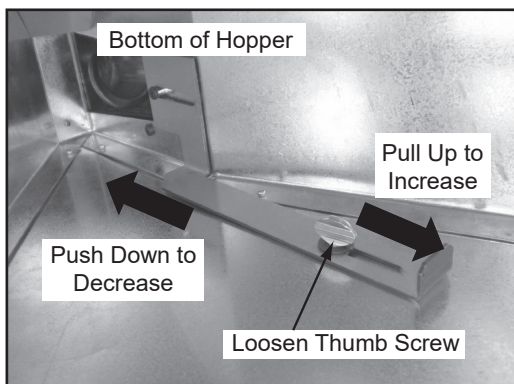


Figure 12.2

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

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.

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.

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.



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.

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.

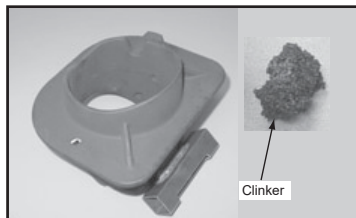
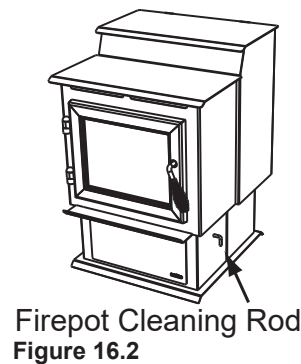


Figure 16.1 - Clinker

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.



Firepot Cleaning Rod
Figure 16.2

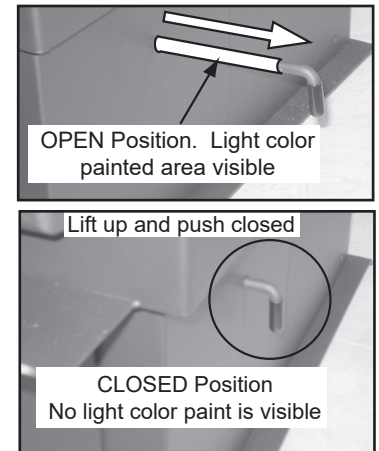


Figure 16.3



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.

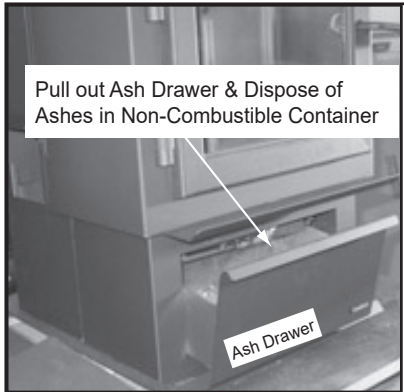



Figure 17.1

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
<p>Disposal of Ashes</p> <ul style="list-style-type: none"> • 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.

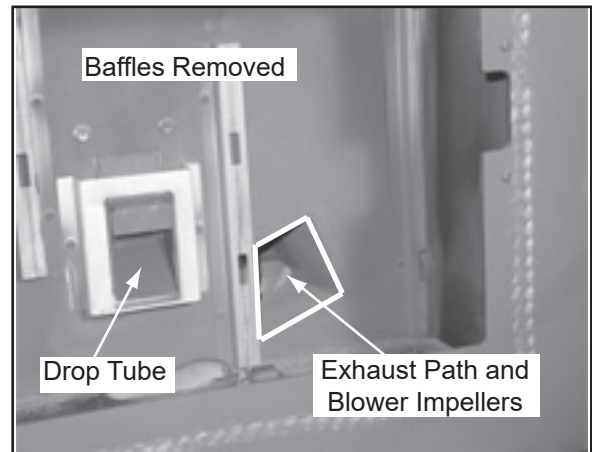


Figure 17.2

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.

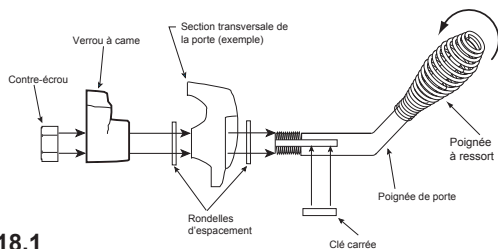

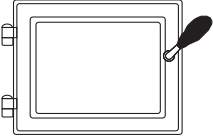

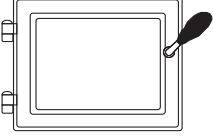


Figure 18.1

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: <ul style="list-style-type: none"> • 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.
	<ul style="list-style-type: none"> • 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.

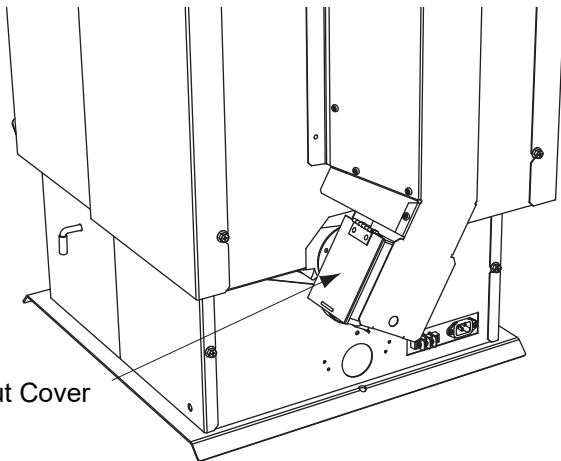
NOTE: Hearth & Home Technologies recommends to use a heavy duty vacuum cleaners specifically designed for solid fuel appliance cleaning.

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 fire pot 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.

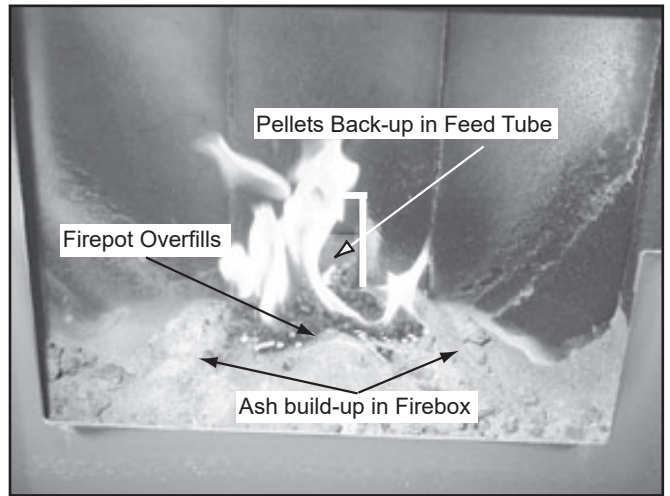




Figure 20.1

 WARNING	
	Fire Risk
	<ul style="list-style-type: none"> • High ash fuels, or lack of maintenance, can cause the firepot to overflow. Follow proper shutdown procedure if ash buildup exceeds halfway point in firepot. • Failure to do could result in smoking, sooting and possible hopper fires.

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 20.2

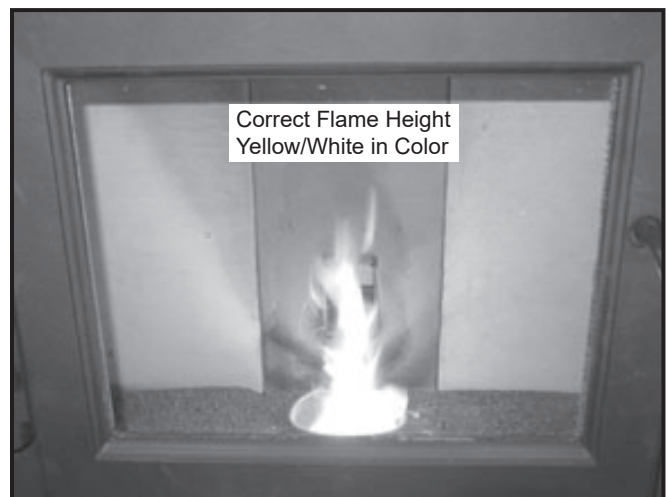


Figure 20.3

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 be 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. #1 snap disc defective. Blower not plugged in. Blower is defective. Control box is defective.	Defective control box. Replace snap disc. Check that blower is plugged into wire harness. Replace blower. Replace control box.
Exhaust blower fails to start or does not shut off.	Blower not plugged in. Blower is clogged with ash. Blower is defective. Control box is defective.	Check that blower is plugged into wire harness. Clean exhaust system. Replace blower. Replace control box.
Large, lazy flame, orange color. Black ash on glass.	Dirty appliance. Poor fuel quality, high ash content. Fire pot clean-out plate not completely closed. Excessive amount of fuel.	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. Check that fire pot clean-out plate is fully closed. Reduce feed rate using feed rate adjustment control rod located inside hopper.
Nuisance shutdowns.	Low flame. Sawdust buildup in hopper. Feed motor is reversing. Defective thermocouple. Defective control box. Fire pot more than 1/2 full	Increase feed by opening feed rate adjustment control rod located inside hopper. Clean hopper, see page 35 . Check for good connections between feed motor and wire harness. Replace thermocouple. 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. Defective control box	Check connections on thermocouple or replace if defective. A flashing yellow light on the control box indicates a problem with the thermocouple. 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**).

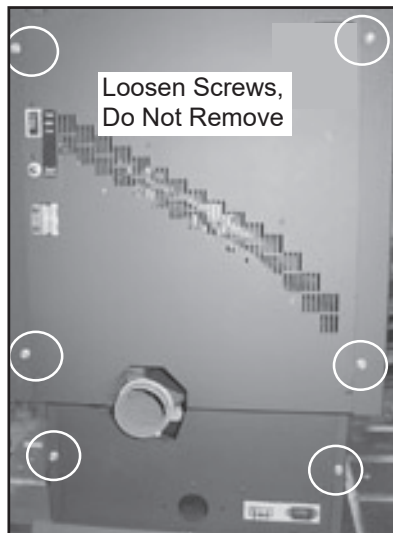


Figure 24.1

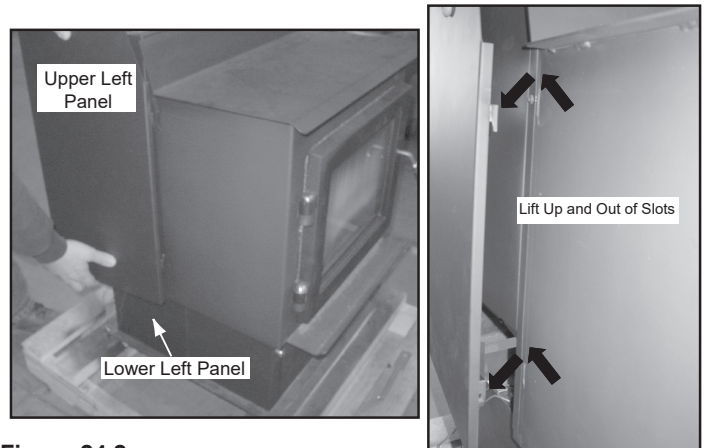


Figure 24.2

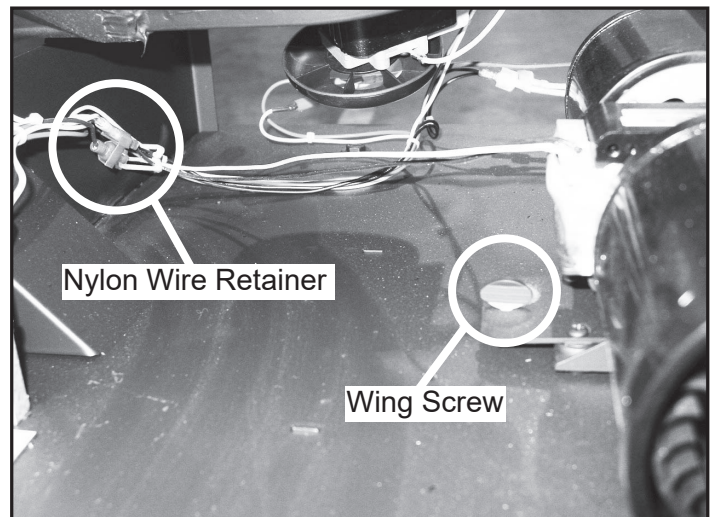


Figure 24.3

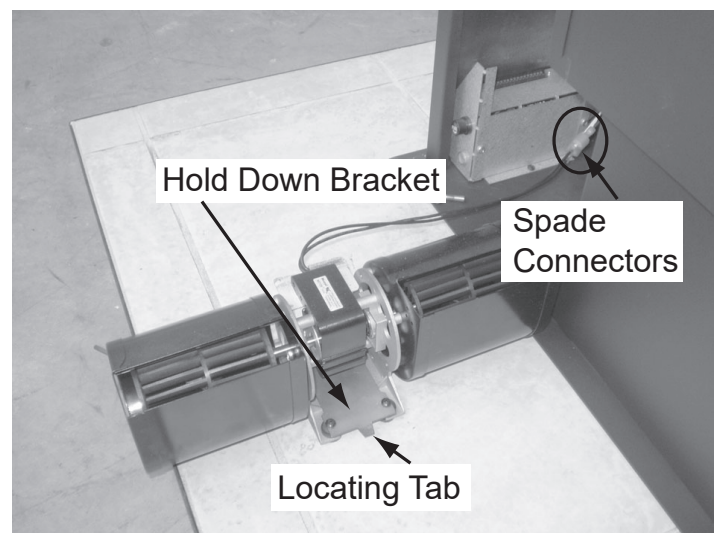


Figure 24.4

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.

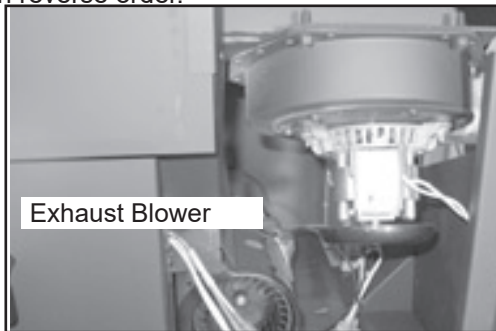


Figure 25.1

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 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.

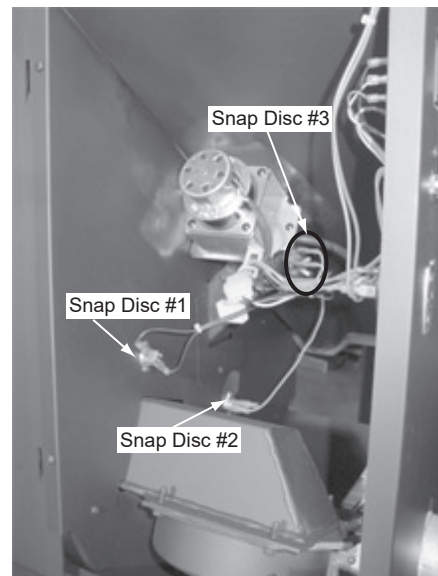


Figure 25.2

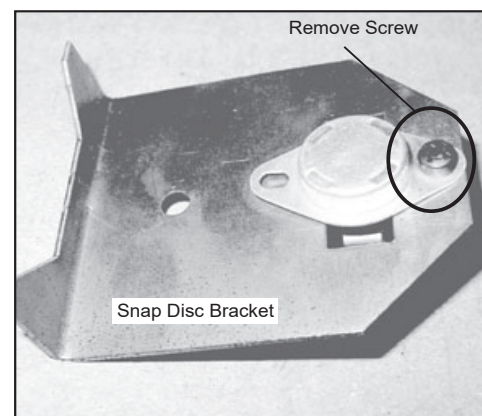


Figure 25.3

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.

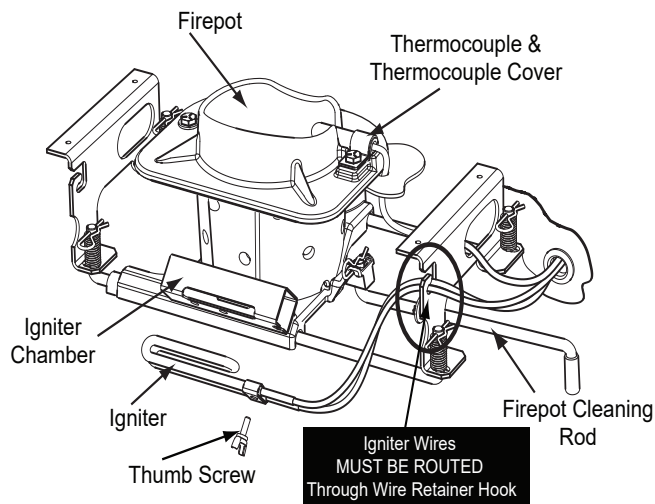


Figure 26.1

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).

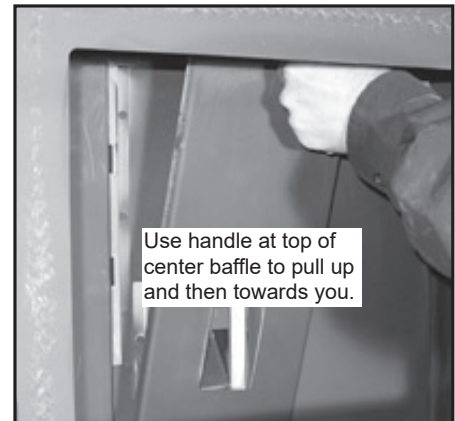


Figure 26.2

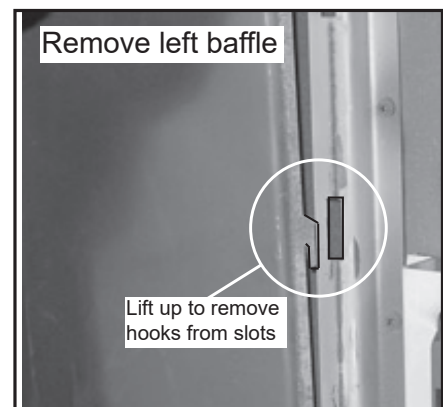


Figure 26.3

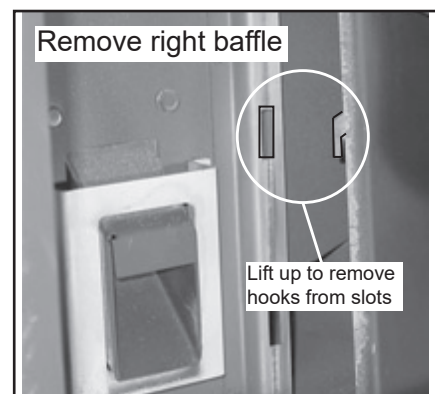


Figure 26.4

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.

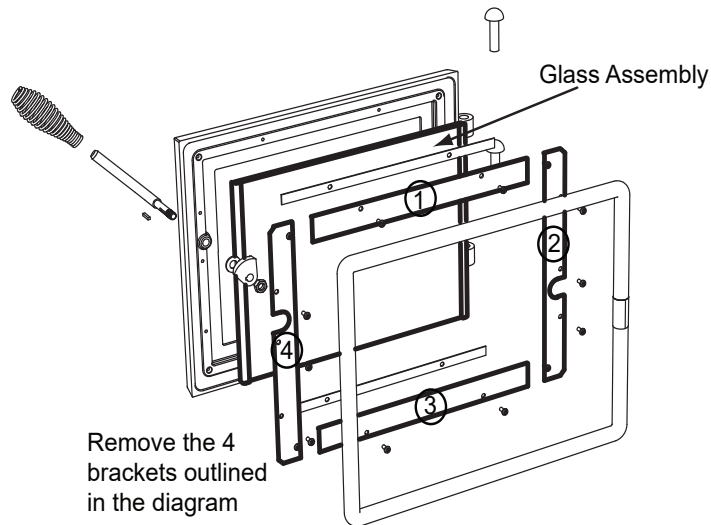


Figure 27.1



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

- The control box is located on the lower left side of the appliance, behind the lower left side panel and above the junction box.
- 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).
- 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 1/4 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.

Your CSB50 is set to #2 (2 flashes) (**Figure 28.1**).

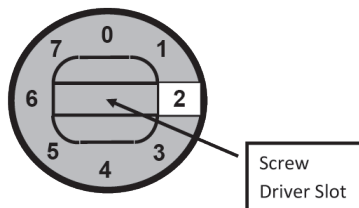


Figure 28.1 - Rotary Switch

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.

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.

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.

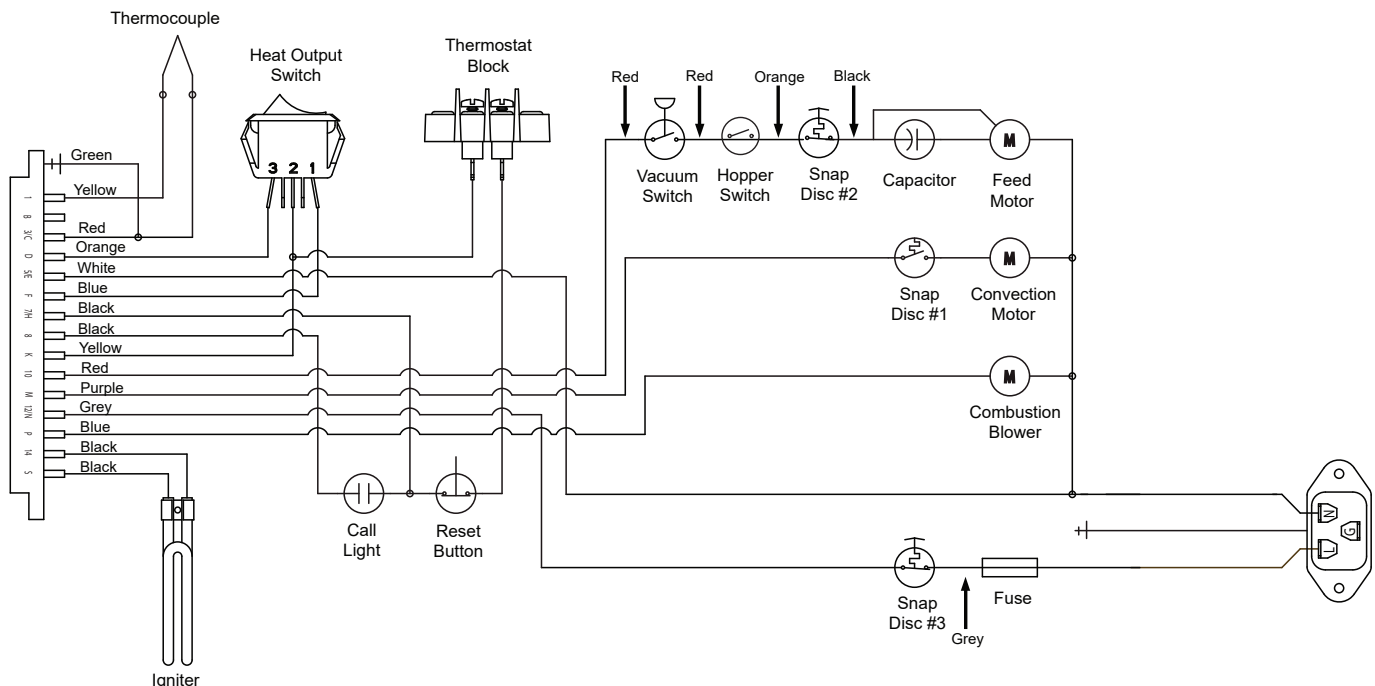


Figure 29.1

B. Component Locations

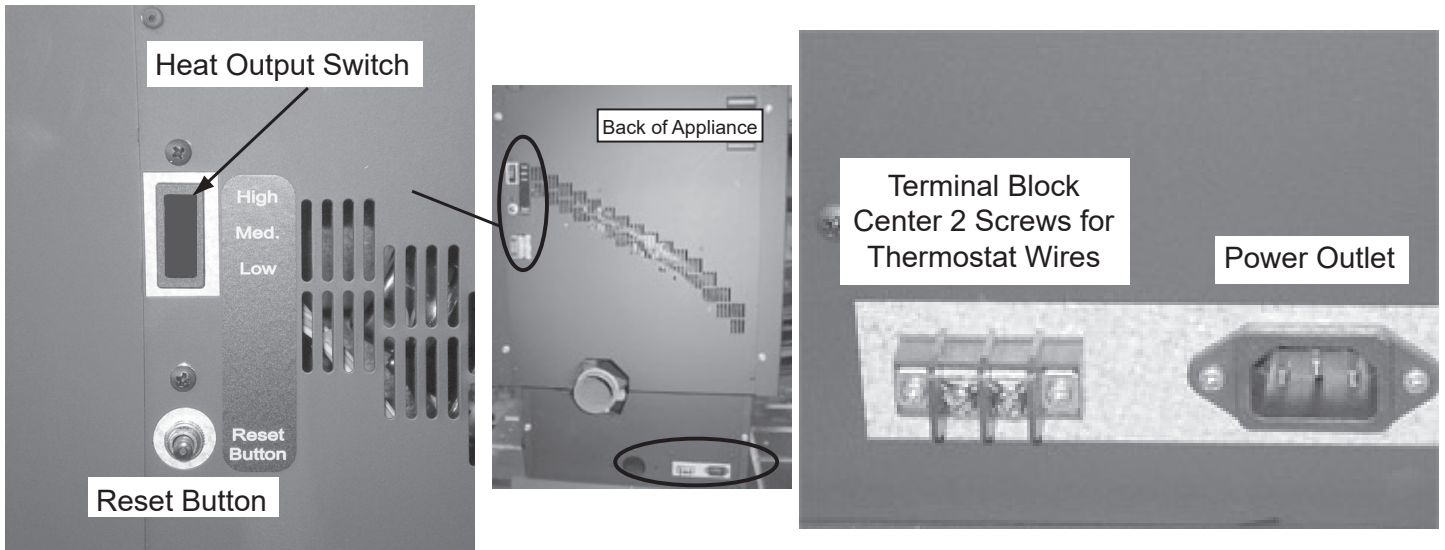


Figure 30.1

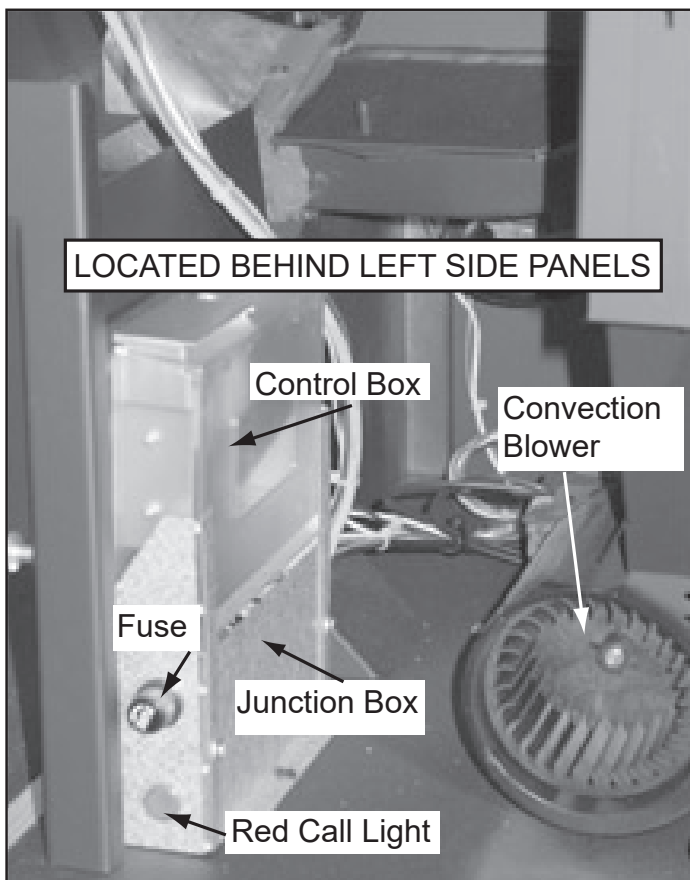


Figure 30.2

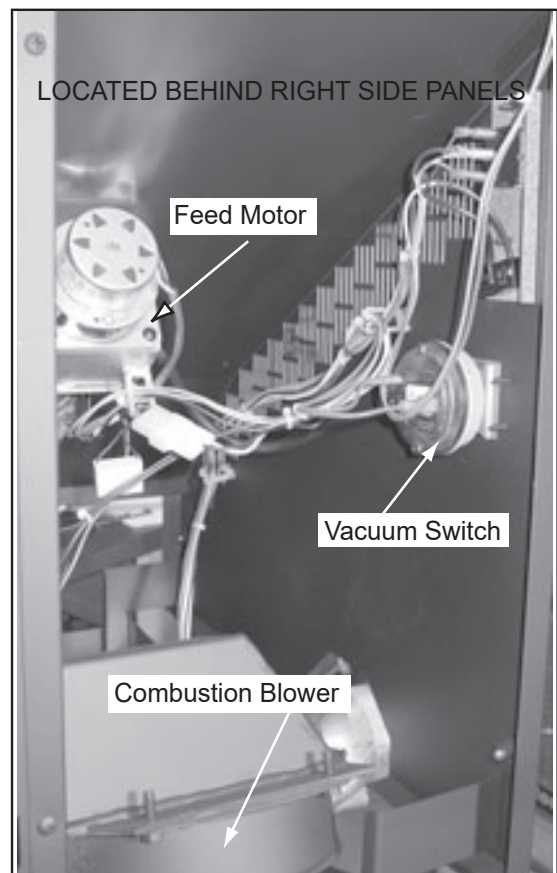


Figure 30.3

Date of Service	Performed By	Description of Service

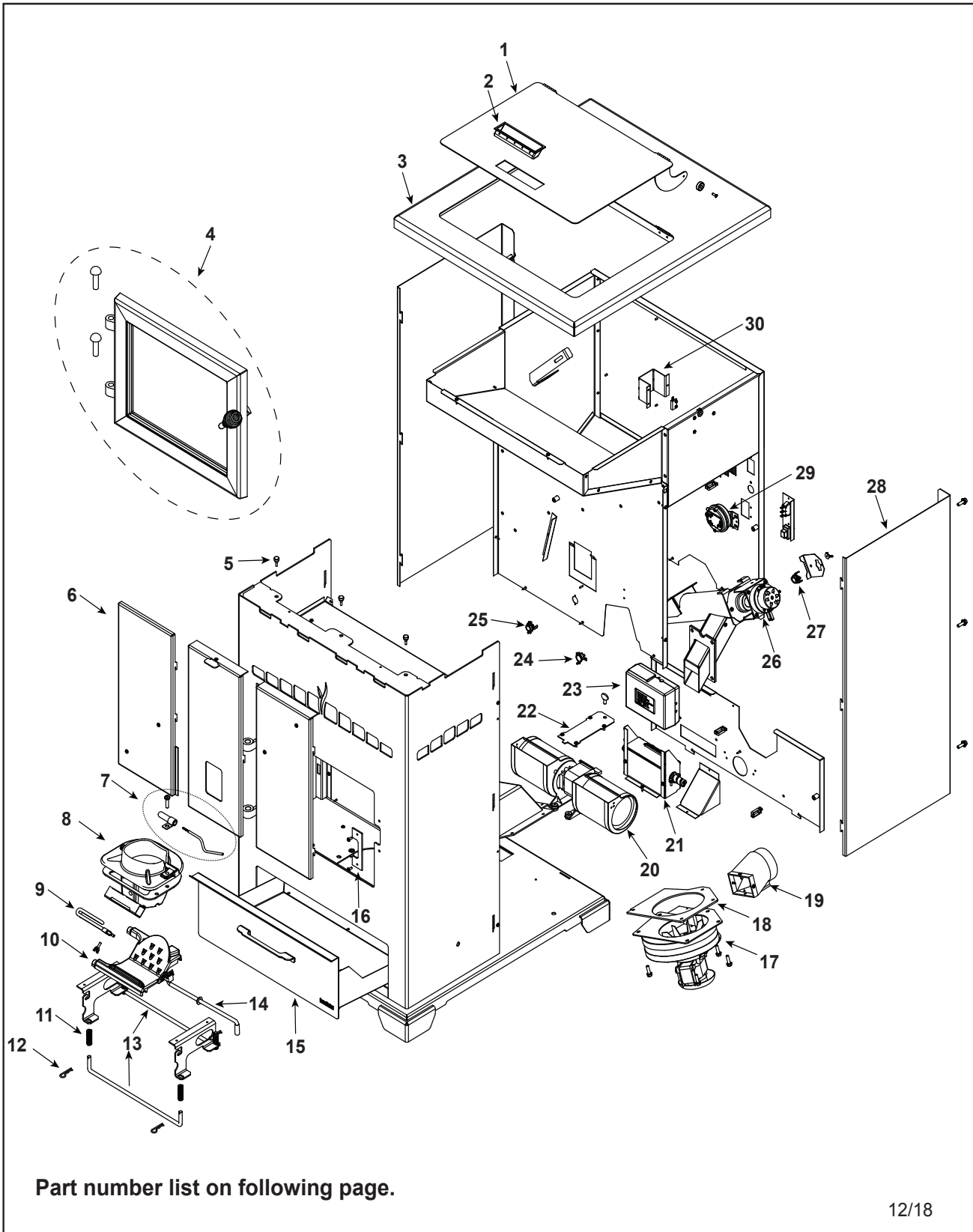
D. Exploded Drawings



Service Parts
Pellet Cabinet Style Stove

CAB50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active



E. Service Parts



Service Parts

CAB50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active

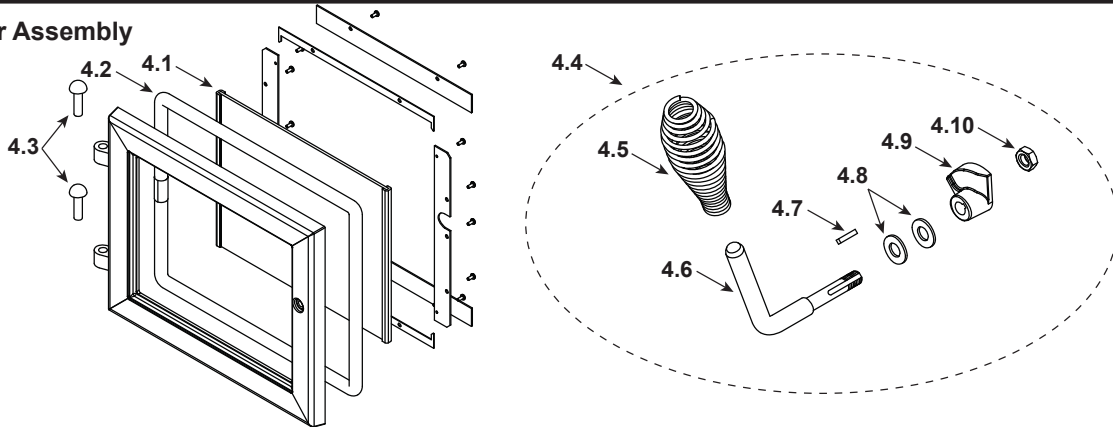
IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked at Depot

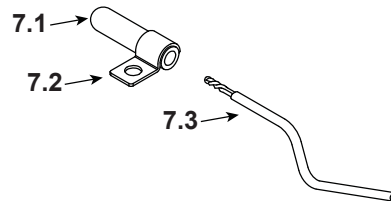
ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
1	Hopper Lid Assembly		SRV7074-009	Y
2	Handle, Hopper Lid		SRV200-0110	
3	Top Assembly		SRV7074-032	

#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
	Gasket, Glass Tape, 3/4" X 1/8"	5 Ft	832-0460	Y
4.3	Hinge Pin, 1/2"	Nickel	SRV430-5320	
4.4	Door Handle Assembly		SRV7058-030	Y
4.5	Spring Handle, 1/2"	Black	SRV7000-613	Y
4.6	Handle, Formed Door		SRV7058-182	
4.7	Key Latch, Cam		SRV430-1151	
4.8	Washer, SAE, 3/8 (Qty 2 req)	Pkg of 3	832-0990	Y
4.9	Cam Latch		SRV430-1141	
4.10	Nut, 2-Way Side-Lock Jam	Pkg of 24	226-0100/24	Y
5	Bumper, Rubber	Pkg of 12	SRV224-0340/12	Y
6	Baffle Assembly		SRV7059-026	Y

#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

Additional Service Parts on following page.

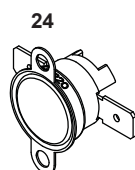
IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked at Depot

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
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
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		SRV7058-013	
	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



F110F-20



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

Additional Service Parts on following page.

F. Accessories



Service Parts

CAB50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked
at Depot

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
30	Hopper Lid Magnetic Switch		SRV7000-375	Y
	Jumper Hopper Switch		SRV7074-175	Y
	Component Pack		SRV7074-019	
	Cleanout Tool		414-1140	Y
	Harness, Thermostat Wire		230-0810	
	Power Cord		812-1180	Y
	Thermostat Mechanical		812-3760	Y
	Touch Up Paint		3-42-19905	
	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, 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	
	Reset Button Assembly		SRV7000-040	
	Smart-Batt II		841-0970	
	Smart-Stat II		841-0960	
	Thermostat, Programmable		811-0520	
	Top Vent Adapter		TPVNT-5	
	Component Pack, TPNVT		SRV7058-054	
	Vent Adapter, 3-4"		811-0720	
	Vent Adapter, 90, Cleanout		TPVNT-6	
	Baffle Center Back		SRV7058-166	



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.



Installation Manual

Installation & Appliance Set-Up

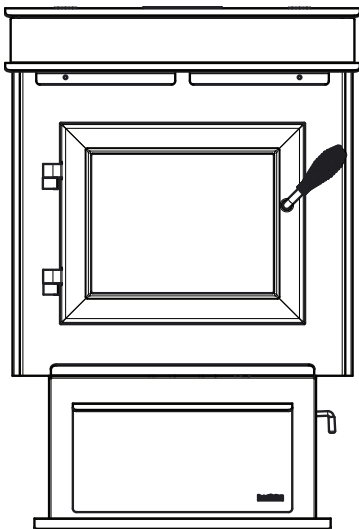
INSTALLER: Leave this manual with party responsible for use and operation.

OWNER: Retain this manual for future reference.

NOTICE: DO NOT DISCARD THIS MANUAL

 **heatilator**
ECOCHOICE™
PELLET BURNING APPLIANCE

MODEL(S):
PS50-C



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.

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



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 française 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.

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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 Certified Emissions:	1.0 grams/hour
*LHV Tested Efficiency:	69.5%
**HHV Tested Efficiency:	65.1%
***EPA BTU Output:	7,500 to 36,600 per hr
****BTU Input:	13,100 to 49,900 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.	

The PS50 is Certified to comply with 2020 particulate emission standards.



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.

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.**

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
- Concrete
- Plaster
- Tile
- Brick
- Glass
- Iron
- 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
- 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.

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.

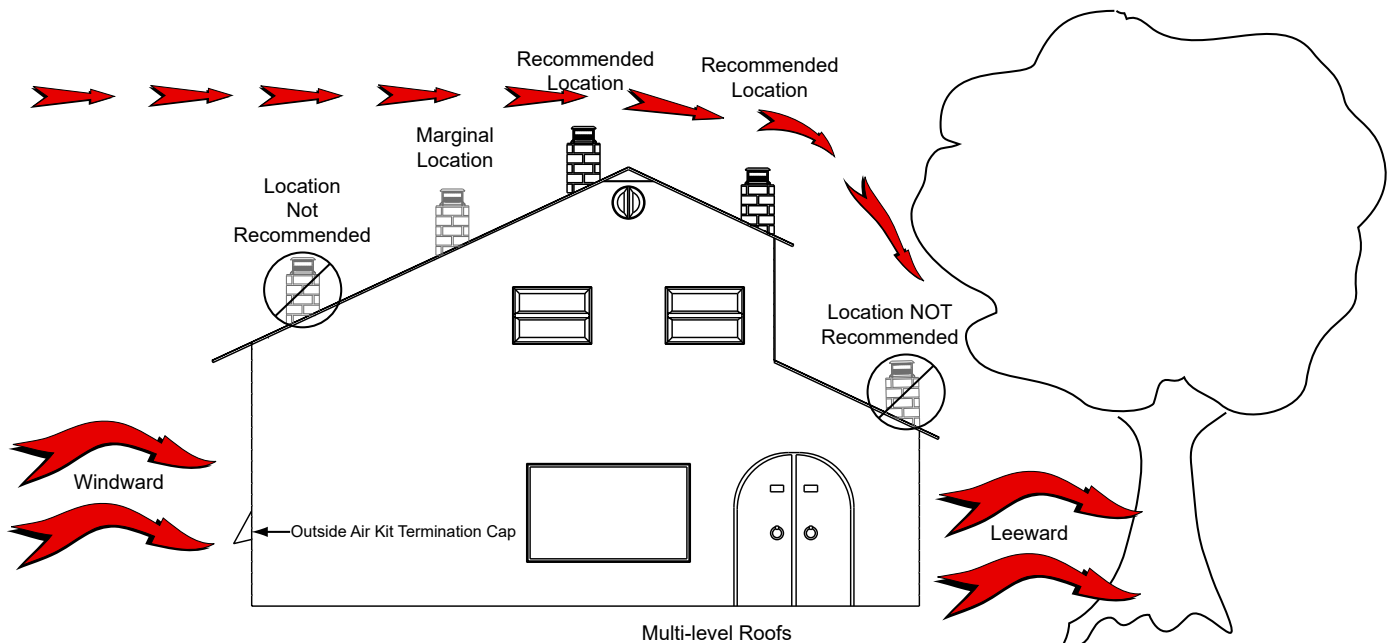


Figure 5.1

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
<u>May also need:</u>	
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 conjunction with, not instead of, the instructions contained in this installation manual.

Customer: _____
 Date Installed: _____
 Lot/Address: _____
 Location of Appliance: _____
 Installer: _____
 Dealer/Distributor Phone Number: _____
 Serial Number: _____
 Model Name: _____



WARNING! Risk of Fire or Explosion! Failure to install appliance to these instructions can lead to a fire or explosion.

Appliance Install

Verified clearance to combustibles.
 Appliance is leveled and connector is secured to appliance.
 Hearth extension size/height decided.
 Outside air kit installed.
 Floor protection requirements have been met.
 If appliance is connected to a masonry chimney, it should be cleaned and inspected by a professional. If installed to a factory built metal chimney, the chimney must be installed according to the manufacturer's instructions and clearances.

YES

IF NO, WHY?

Venting/Chimney

Chimney configuration complies with diagrams.
 Chimney installed, locked and secured in place with proper clearance.
 Chimney meets recommended height requirements (5 feet minimum vertical).
 Roof flashing installed and sealed.
 Terminations installed and sealed.

Electrical

120 VAC unswitched power provided to the appliance.
 Check outlet with multi-meter for proper polarity and voltage (115-120 VAC).
 Record voltage reading: _____

Clearances

Verified all clearances meet installation manual requirements.
 Mantels and wall projections comply with installation manual requirements.
 Floor protection and heart extensions installed per manual requirements.

Appliance Setup

All protective materials removed.
 All labels have been removed from the door.
 All packaging materials are removed from inside/under 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.
 Started appliance and verified that all motors and blowers operate as they should.
 Checked draft using a Manometer. Record readings: _____
 Checked vacuum using a Manometer. Record readings: _____

Hearth & Home Technologies recommends the following:

Photographing the installation and copying this checklist for your file.
 That this checklist remain visible at all times on the appliance until the installation is complete.

Comments: Further description of the issues, who is responsible (Installer/Builder/Other Trades, etc.) and corrective action needed:
 Comments communicated to party responsible _____ by _____ on _____
 (Builder/Gen. Contractor) (Installer) (Date)

3 Dimensions and Clearances

A. Appliance Dimensions

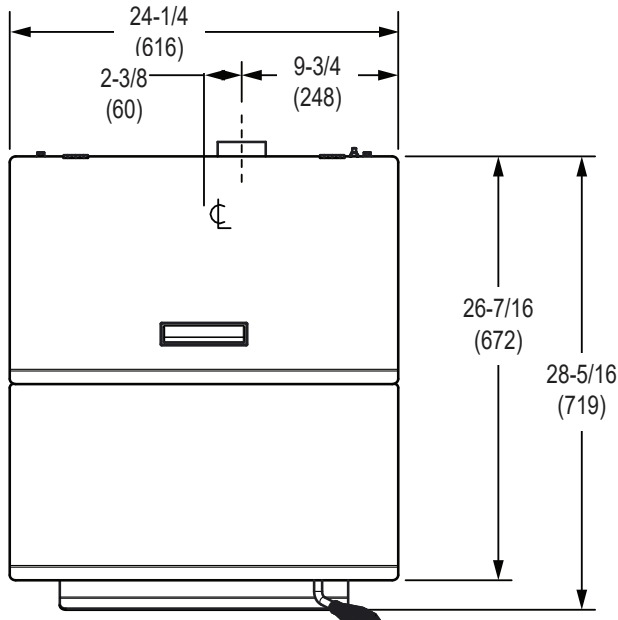


Figure 8.1 - Top View

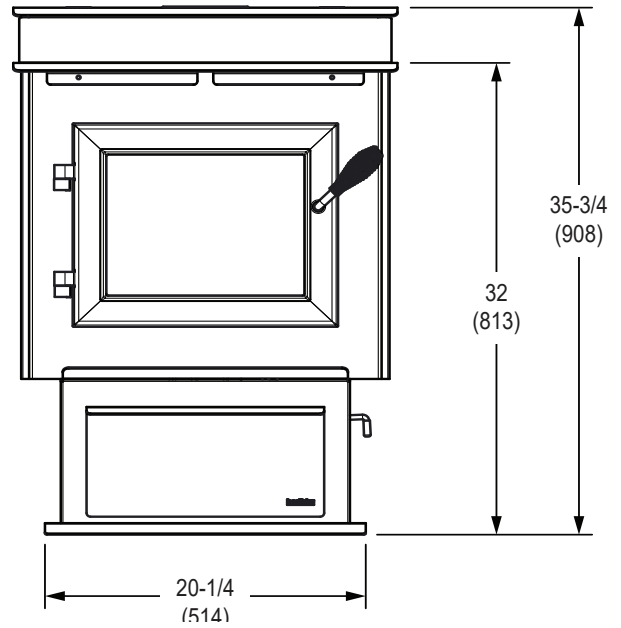


Figure 8.2- Front View

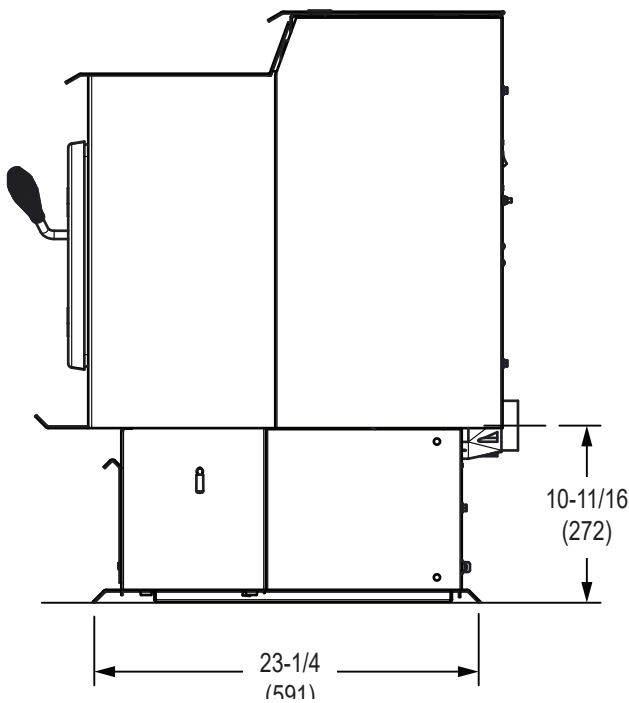


Figure 8.3 -Side View

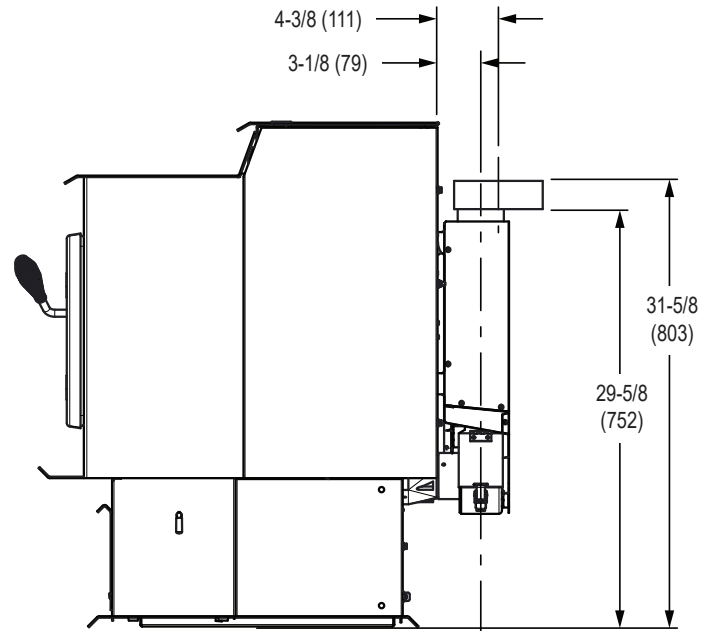
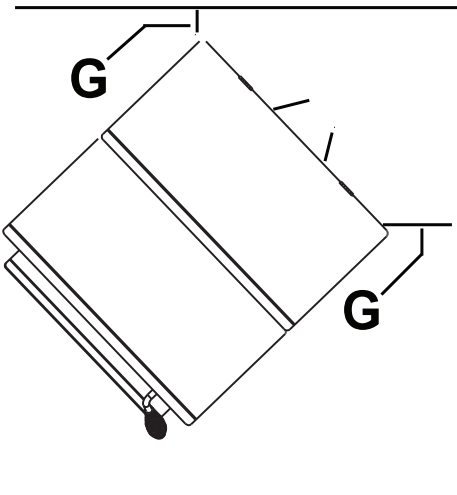
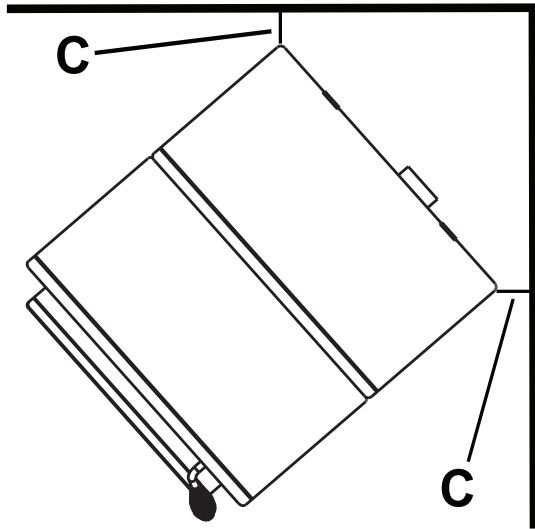
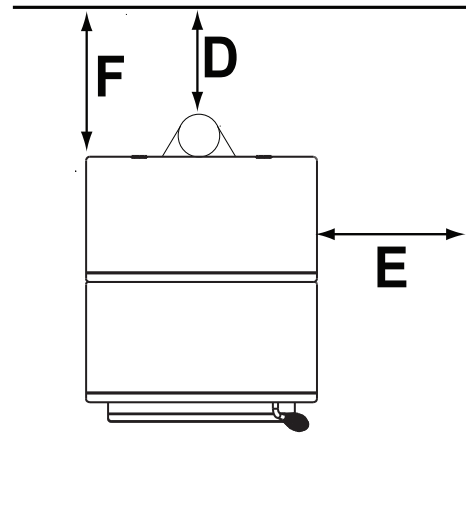
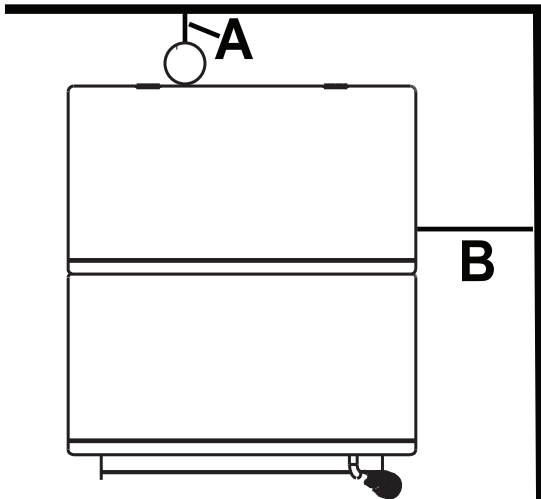


Figure 8.4 - Side View with Top Vent Adapter

B. Clearances to Combustibles (UL and ULC)



**Installations with
3 to 3 inch Top Vent Adapter**

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

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

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 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.

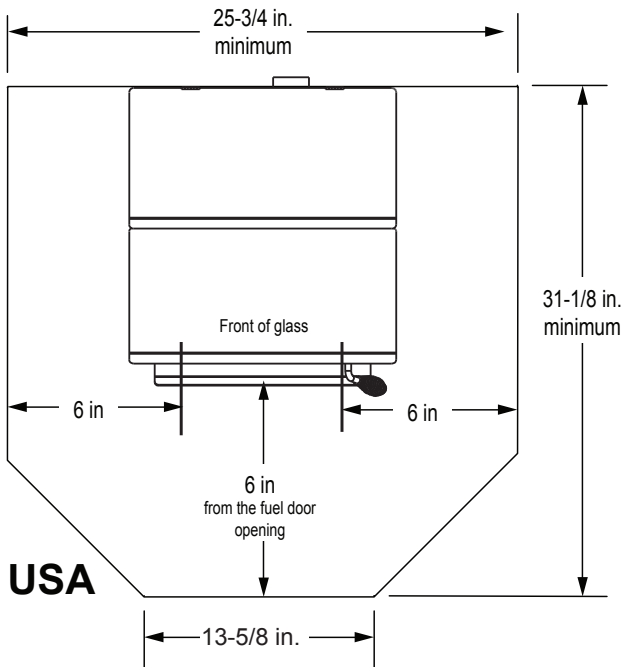


Figure 10.1

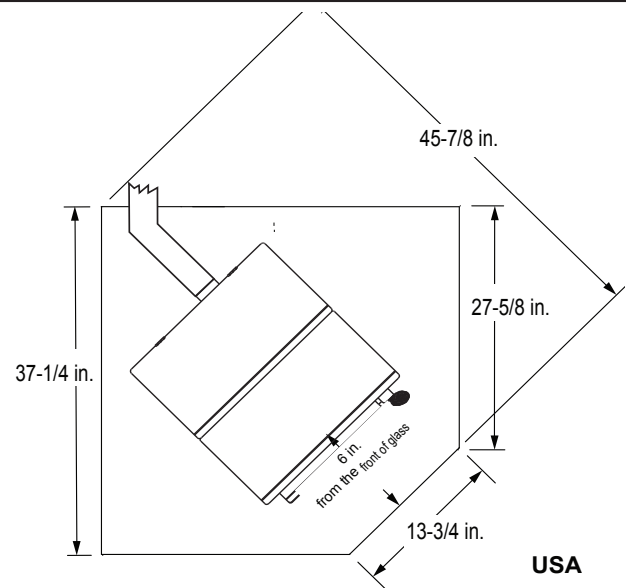


Figure 10.3

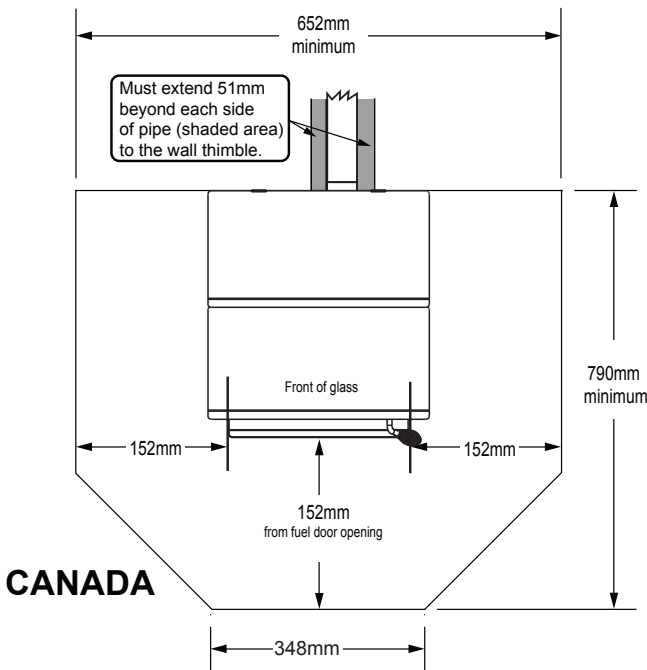


Figure 10.2

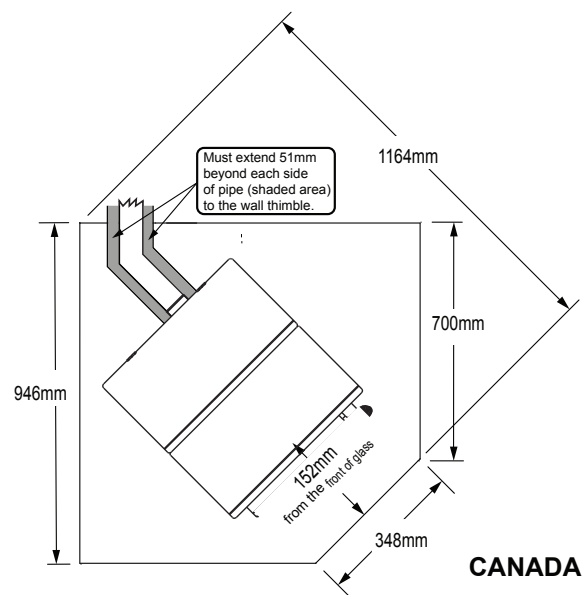


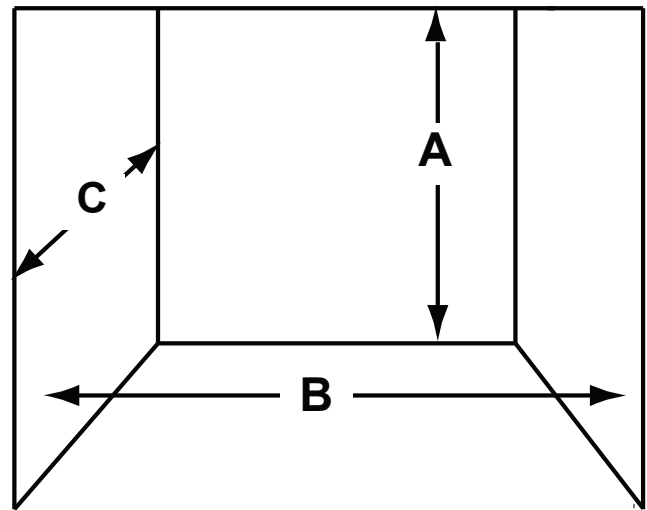
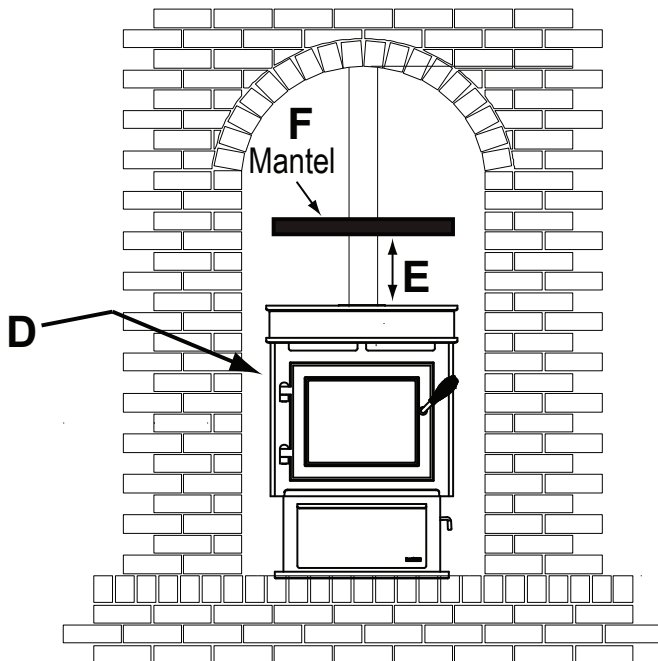
Figure 10.4

D. Alcove

Installations Into Alcove

All minimums listed are to a combustible surface.

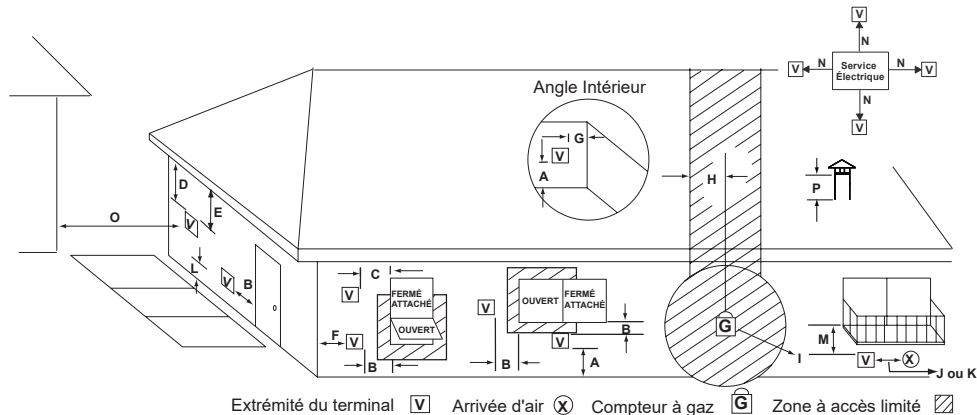
Model: PS50-C		Minimum		Maximum	
		Inches	Millimeters	Inches	Millimeters
A	Height	56-3/4	1441	n/a	n/a
B	Width	53	1346	n/a	n/a
C	Depth	n/a	n/a	48	1219
D	Side Wall	14	356	n/a	n/a
E	Top	16	n/a	n/a	
F	Mantel Depth	n/a	n/a	36	914

**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



Tous les dégagements minimum correspondent à une installation avec un ensemble de prise d'air extérieur (OAK), sauf indication contraire figurant au tableau ci-dessous.

A	305 mm (12 po)	Au-dessus du niveau définitif du sol (la surface du sol doit être en matériau incombustible)
B	305 mm (12 po) 1,22 m (48 po) sans OAK	Ouvrir la porte ou la fenêtre : en dessous ou sur le côté
B	305 mm (12 po)	Ouvrir la porte ou la fenêtre : au-dessus
C	152 mm (6 po)	Fenêtre fermée en permanence : au-dessus, dessous ou sur le côté
D	457 mm (18 po) 914 mm (36 po) sans prise d'air extérieur	Dégagement vertical par rapport au soffite ventilé situé au-dessus du terminal à une distance horizontale maximum de 610 mm (2 pi) de la ligne médiane du terminal.
E	305 mm (12 po)	Dégagement par rapport au soffite non ventilé
F	305 mm (12 po)	Dégagement par rapport à l'angle extérieur
G	305 mm (12 po)	Dégagement par rapport à l'angle intérieur
H	914 mm (36 po)	Mesuré au-dessus du compteur à gaz/régulateur, depuis l'axe horizontal du régulateur
I	914 mm (36 po) États-Unis 1,83 m (72 po) Canada	Dégagement par rapport à la sortie d'air du régulateur
J	305 mm (12 po) 1,22 m (48 po) sans OAK	Dégagement par rapport à l'entrée d'air non mécanique du bâtiment ou l'entrée d'air de combustion d'un autre appareil
K	3 m (10 pi) horizontalement 914 mm (3 pi) verticalement	Dégagement par rapport à une source d'air mécanique
L	2,1 m (7 pi)	Au-dessus d'un trottoir ou d'une allée goudronnée située sur un terrain public
M	305 mm (12 po)	Sous une véranda, un porche, une terrasse ou un balcon ouvert
N	Voir la remarque voir ci-dessous*	Service électrique : au-dessus, au-dessous ou sur les côtés (sans obstruer ou gêner l'accès)
O	610 mm (24 po)	Bâtiment adjacent, clôtures et pièces dépassant de la structure
P	305 mm (12 po)	Dégagements au-dessus du toit pour les abat-vents verticaux.

***REMARQUE :** Pour les restrictions, reportez-vous au code local de construction des bâtiments, aux pompiers ou autres autorités compétentes. Les dégagements exigés peuvent varier en fonction des codes et règlements locaux.

610 mm (24 po)	Au-dessus de l'herbe, des plantes, du bois ou de tout autre matériau inflammable
305 mm (12 po) 914 mm (36 po) sans prise d'air extérieur	Dégagement depuis n'importe quelle prise d'air forcé d'un autre appareil
305 mm (12 po)	Dégagement horizontal par rapport au mur inflammable
381 mm (15 po)	Évacuation traversant directement un mur, longueur minimum du conduit horizontal
152 mm (6 po) horizontalement 305 mm (12 po) verticalement	Les extrémités horizontales et verticales de terminal doivent au moins sortir du mur.

AVIS : Ne placez PAS l'extrémité du conduit d'évacuation :

- À un endroit où les gaz ou la suie évacués du conduit peuvent pénétrer dans le bâtiment ou le souiller.
- À un endroit où il peut gêner ou présenter un danger.
- Dans un endroit clos ou partiellement clos, tels qu'un abri auto, un garage, un grenier, un plafond bas, sous une véranda ou près d'un chemin.
- Dans un espace contenu ou tout autre endroit où les gaz peuvent s'accumuler, tels qu'une cage d'escalier, un passage couvert entre les bâtiments, etc.

AVIS : L'extrémité du conduit doit être située au-dessus de la prise d'air.

- Il est recommandé d'installer au minimum 1,52 m (60 po) de conduit vertical si l'appareil est évacué directement à travers un mur. Cela permet d'obtenir un tirage naturel qui empêche à la fumée ou aux odeurs d'évacuation de pénétrer dans la maison en cas de panne de courant.
- Cela évite également que des personnes ou des buissons soient exposés à des températures élevées.
- La méthode d'évacuation des gaz la plus sûre et la meilleure est un conduit vertical traversant le toit ou au-dessus du toit.

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, nor 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

 <b style="font-size: 1.2em;">WARNING
<p>Risk of Asphyxiation! Negative pressure can cause spillage of combustion fumes and soot.</p>

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

.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. 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 15.1).

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

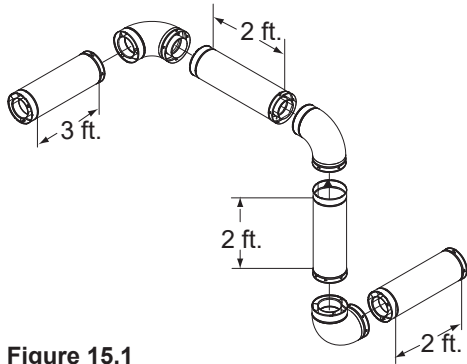


Figure 15.1

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.

G. 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 15.2).

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.

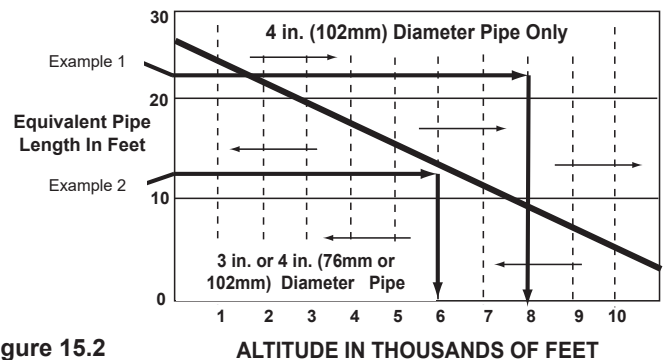


Figure 15.2

- **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

! 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

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.

Straight Out

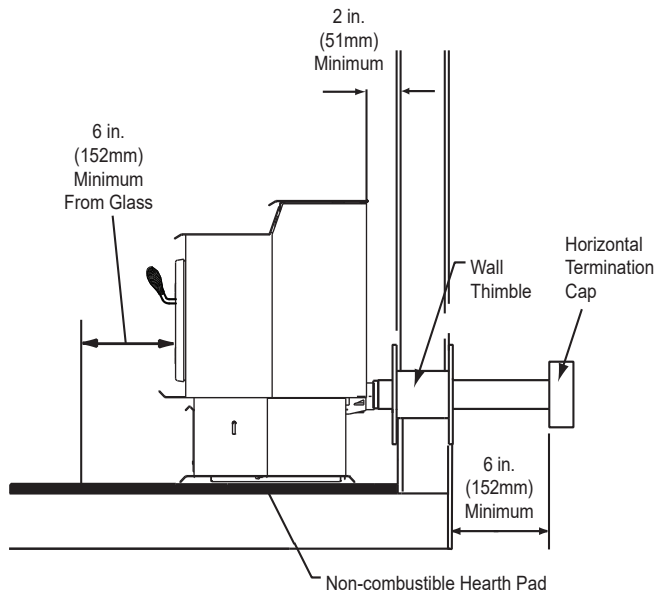


Figure 16.1

45 Degree

Illustration shows venting going in both directions. Choose which one is best for your installation.

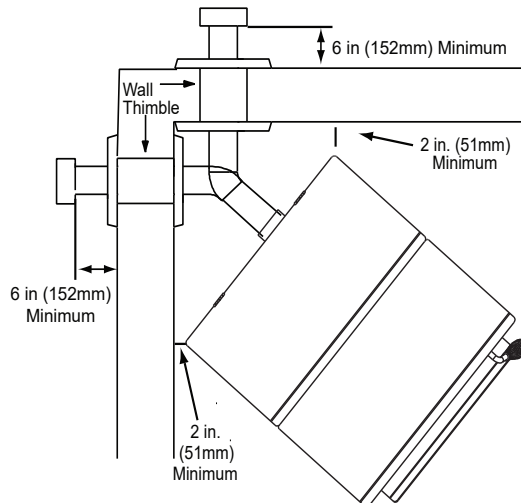


Figure 16.2

B. Vertical into Existing Class A Chimney

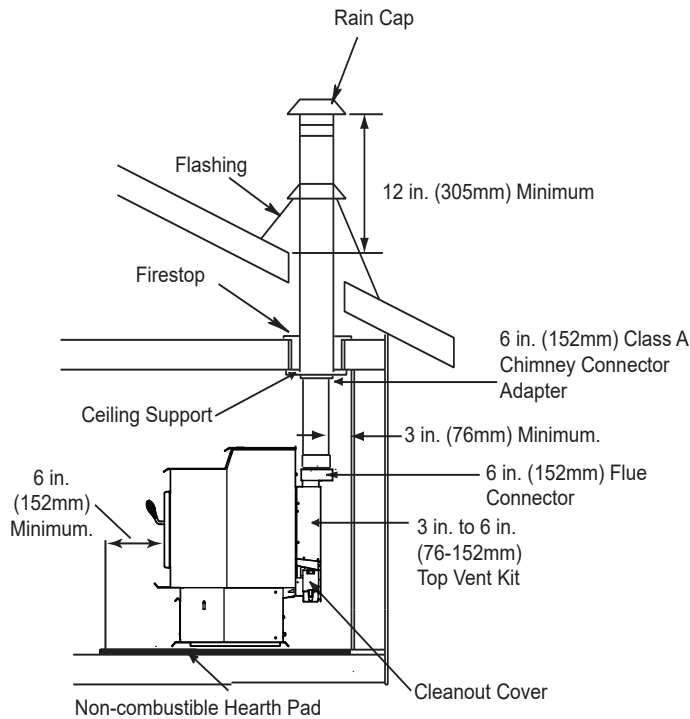


Figure 17.1

We strongly recommend a minimum of 60 inches (1.5m) vertical, however above the eave 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. Vertical - Interior - Typical Installation

PREFERRED METHOD #1

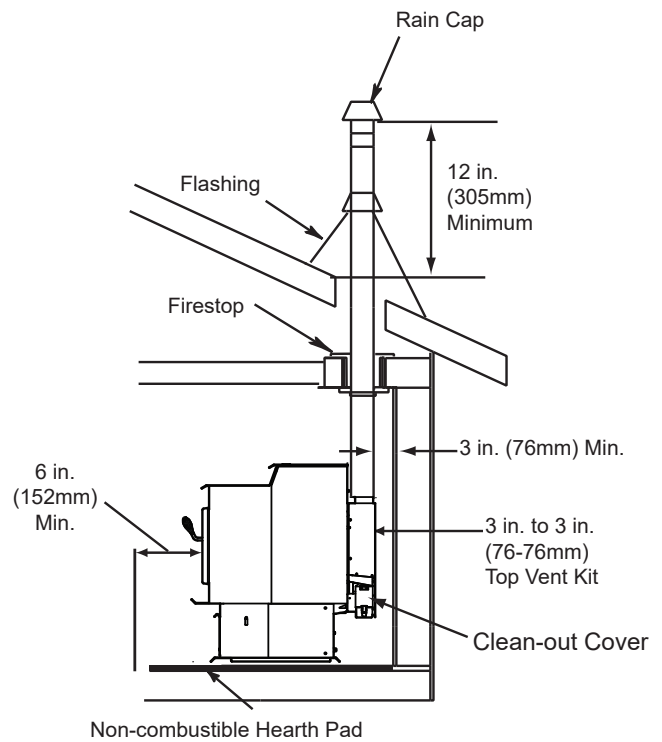


Figure 17.2

D. Through The Wall & Vertical - External

PREFERRED METHOD #2

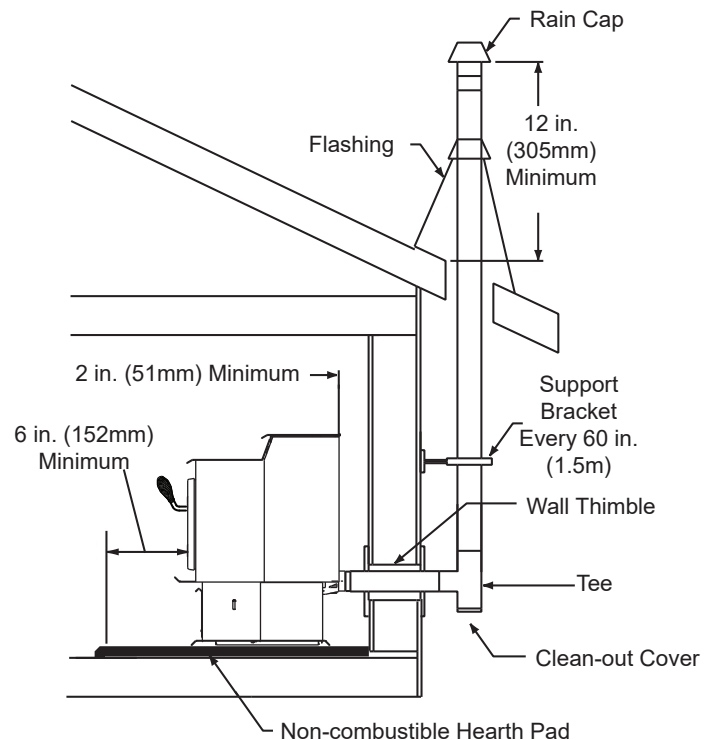




Figure 17.3

 WARNING	
	<p>Fire Risk Inspection of Chimney:</p> <ul style="list-style-type: none"> • 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

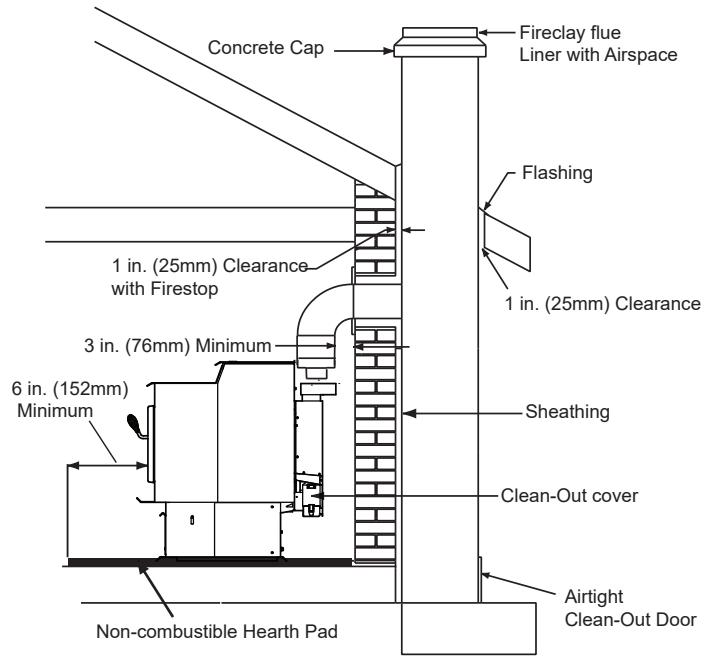


Figure 18.1

F. Alternate Masonry

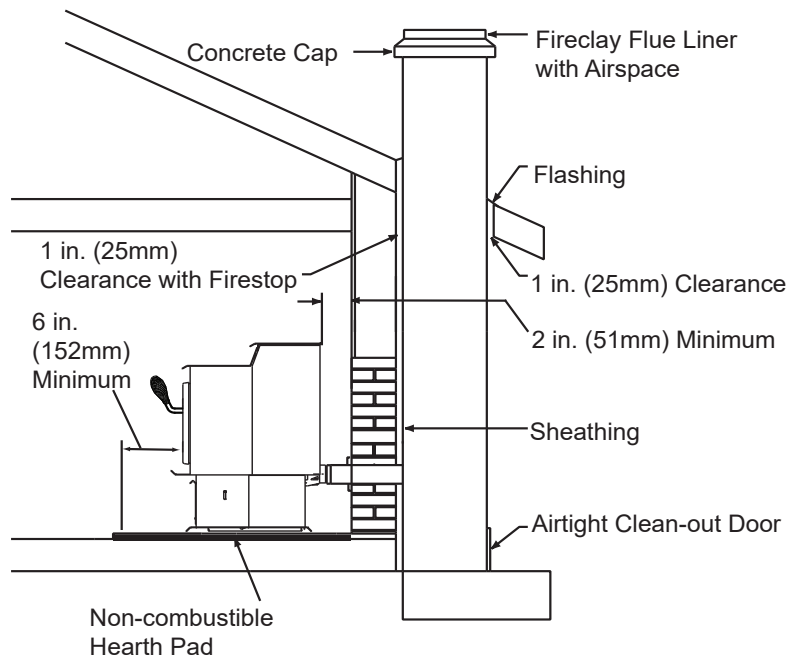


Figure 18.2

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

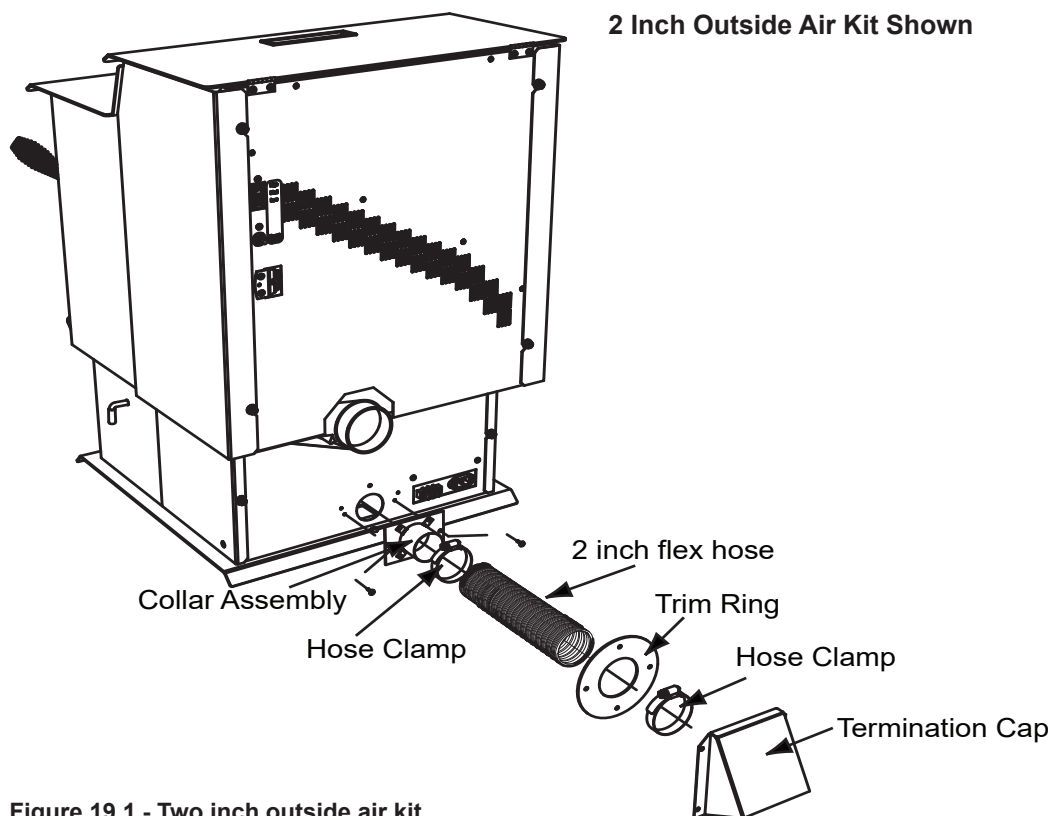


Figure 19.1 - Two inch outside air kit

Air Intake Channel (Discard)

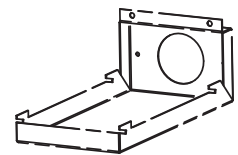


Figure 19.2

B. Top Vent Adapter Installation

3 to 3 inch Top Vent Adapter 3 to 6 inch Top Vent Offset Adapter

1. Put a layer of high temperature silicone on the 3 inch (76mm) exhaust outlet. Do not put silicone inside of pipe (**Figure 20.1**).
2. Slide the top vent adapter onto the rear exhaust outlet and adjust the assembly to a vertical position (**Figure 20.1**).
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 20.1**).
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 20.1**).
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 20.1**).

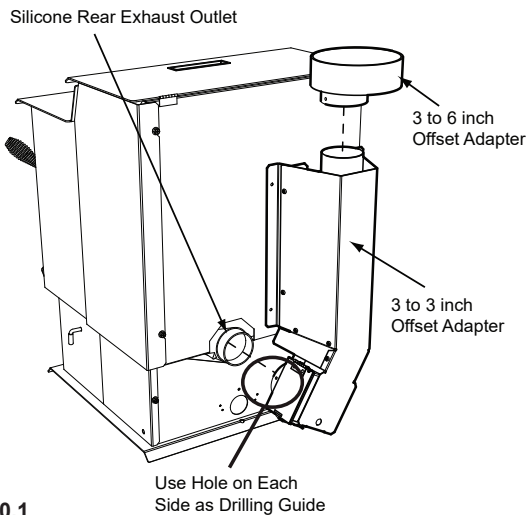


Figure 20.1

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 20.1**).
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)

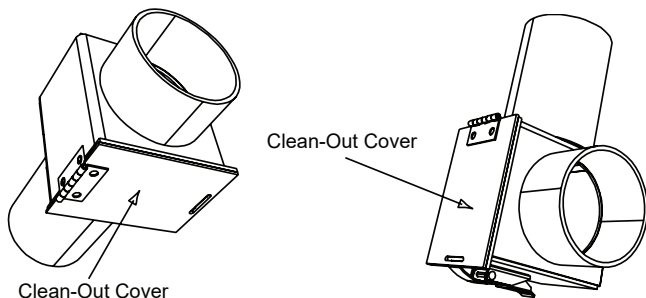


Figure 20.2 - Rear Vent Adapter

Figure 20.3 - Rear to Top Vent Adapter - 90°

D. Thermostat Installation

1. A low voltage thermostat is required to operate this pellet appliance. You may use the included wall mount thermostat (**Figure 20.4**) 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 20.5**).

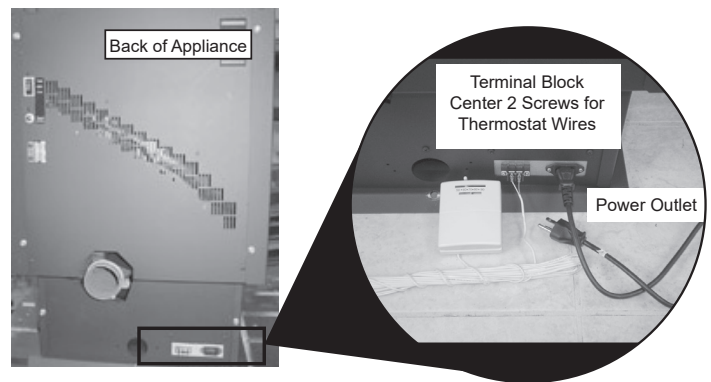


Figure 20.4

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.

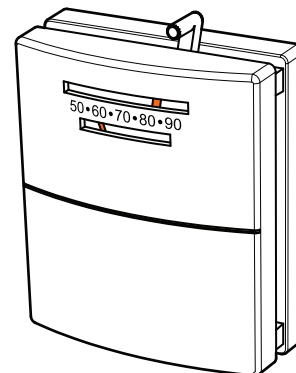


Figure 20.5

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.

Part Numbers: 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.

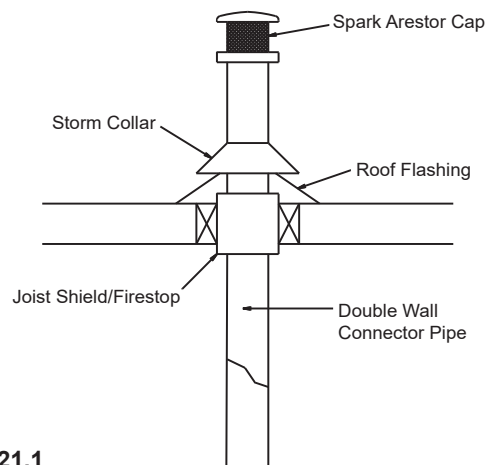


Figure 21.1



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.

B. Accessory List



Service Parts

PS50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked
at Depot

Item	Description	Comments	Part Number	Stocked at Depot
	Component Pack		SRV7059-019	
	Cleanout Tool		414-1140	Y
	Harness, Thermostat Wire		230-0810	
	Power Cord		812-1180	Y
	Thermostat Mechanical		812-3760	Y
	Paint Touch Up		3-42-19905	
	Hose, Vacuum, 5/32 Id	3 Ft	SRV240-0450	Y
	Reset Button Assembly		SRV7000-040	
	Baffle Center Back		SRV7058-166	
	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	

Additional service parts on following page.



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.



Installation Manual

Installation & Appliance Set-Up

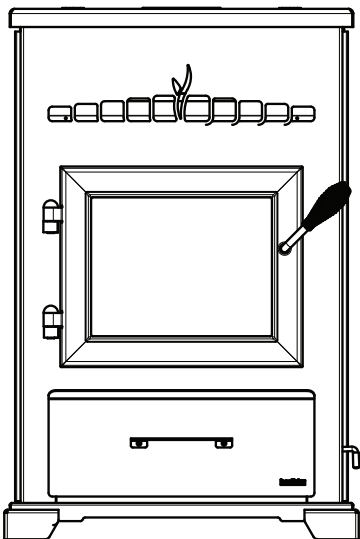
INSTALLER: Leave this manual with party responsible for use and operation.

OWNER: Retain this manual for future reference.

NOTICE: DO NOT DISCARD THIS MANUAL

 **heatilator**
ECOCHOICE™
PELLET BURNING APPLIANCE

MODEL(S):
CAB50-C



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.

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.



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 française 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.

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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 Certified Emissions:	1.0 grams/hour
*LHV Tested Efficiency:	69.5%
**HHV Tested Efficiency:	65.1%
***EPA BTU Output:	7,500 to 36,600 per hr
****BTU Input:	13,100 to 49,900 per hr
Vent Size:	3 or 4 inches, "L" or "PL"
Hopper Capacity:	120 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.	

The CAB50 is Certified to comply with 2020 particulate emission standards.



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.

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.**

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 | - Concrete |
| - Plaster | - Tile |
| - Brick | - Glass |
| - Iron | - 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 | - 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.


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.

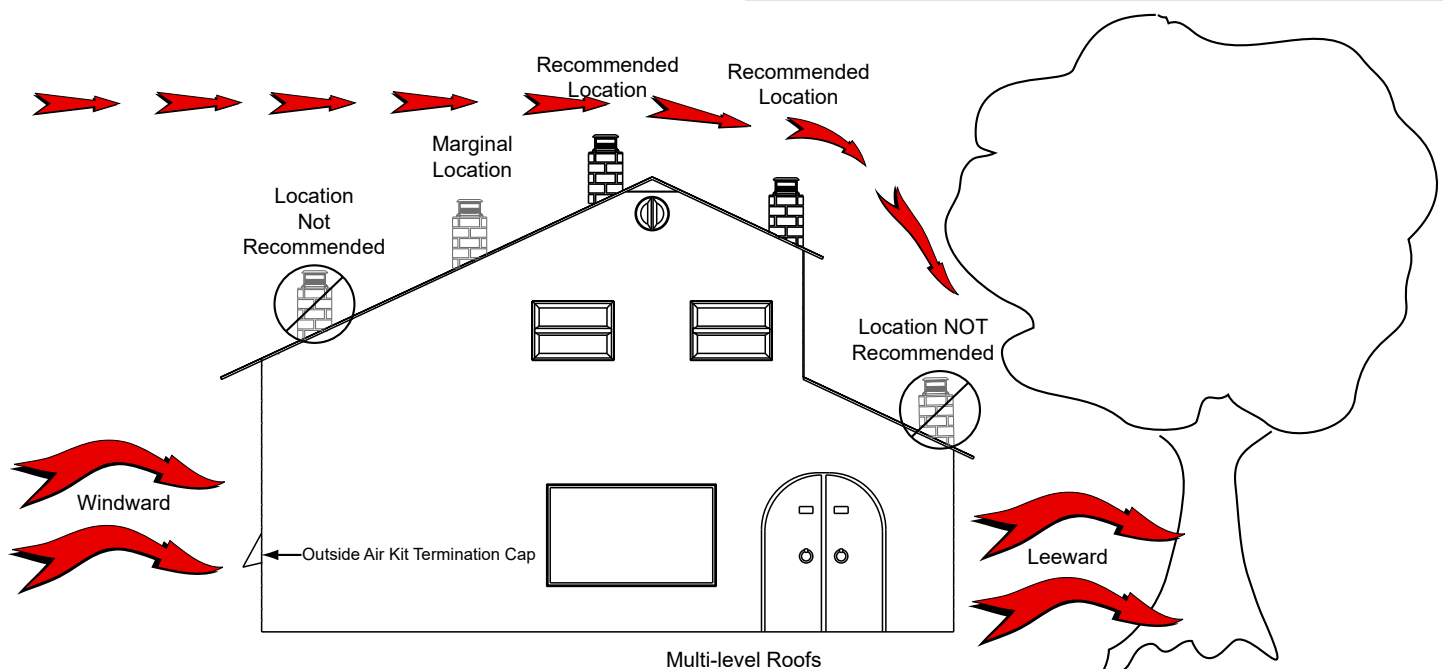


Figure 5.1

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.

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
<u>May also need:</u>	
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 conjunction with, not instead of, the instructions contained in this installation manual.

Customer: _____
 Date Installed: _____
 Lot/Address: _____
 Location of Appliance: _____
 Installer: _____
 Dealer/Distributor Phone Number: _____
 Serial Number: _____
 Model Name: _____



WARNING! Risk of Fire or Explosion! Failure to install appliance to these instructions can lead to a fire or explosion.

Appliance Install

Verified clearance to combustibles.
 Appliance is leveled and connector is secured to appliance.
 Hearth extension size/height decided.
 Outside air kit installed.
 Floor protection requirements have been met.
 If appliance is connected to a masonry chimney, it should be cleaned and inspected by a professional. If installed to a factory built metal chimney, the chimney must be installed according to the manufacturer's instructions and clearances.

YES

IF NO, WHY?

Venting/Chimney

Chimney configuration complies with diagrams.
 Chimney installed, locked and secured in place with proper clearance.
 Chimney meets recommended height requirements (5 feet minimum vertical).
 Roof flashing installed and sealed.
 Terminations installed and sealed.

Electrical

120 VAC unswitched power provided to the appliance.
 Check outlet with multi-meter for proper polarity and voltage (115-120 VAC).
 Record voltage reading: _____

Clearances

Verified all clearances meet installation manual requirements.
 Mantels and wall projections comply with installation manual requirements.
 Floor protection and heart extensions installed per manual requirements.

Appliance Setup

All protective materials removed.
 All labels have been removed from the door.
 All packaging materials are removed from inside/under 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.
 Started appliance and verified that all motors and blowers operate as they should.
 Checked draft using a Manometer. Record readings: _____
 Checked vacuum using a Manometer. Record readings: _____

Hearth & Home Technologies recommends the following:

Photographing the installation and copying this checklist for your file.
 That this checklist remain visible at all times on the appliance until the installation is complete.

Comments: Further description of the issues, who is responsible (Installer/Builder/Other Trades, ets.) and corrective action needed:
 Comments communicated to party responsible _____ by _____ on _____
 (Builder/Gen. Contractor) (Installer) (Date)

3 Dimensions and Clearances

A. Appliance Dimensions

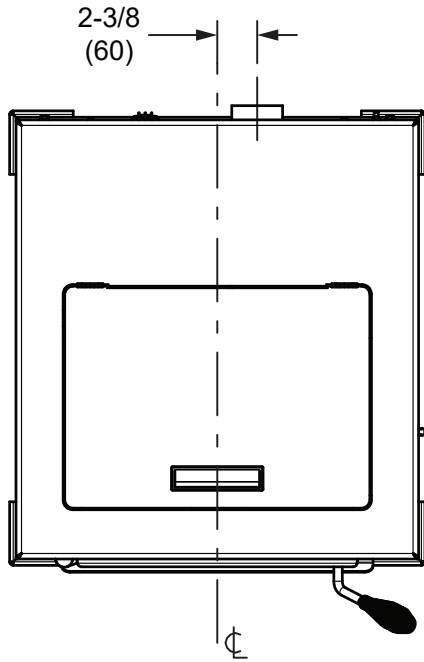


Figure 8.1 - Top View

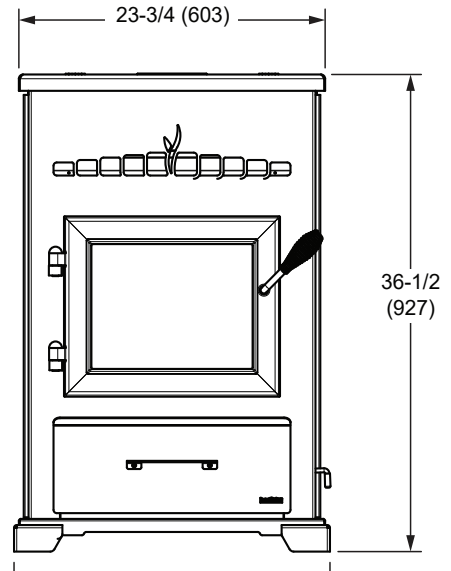


Figure 8.2- Front View

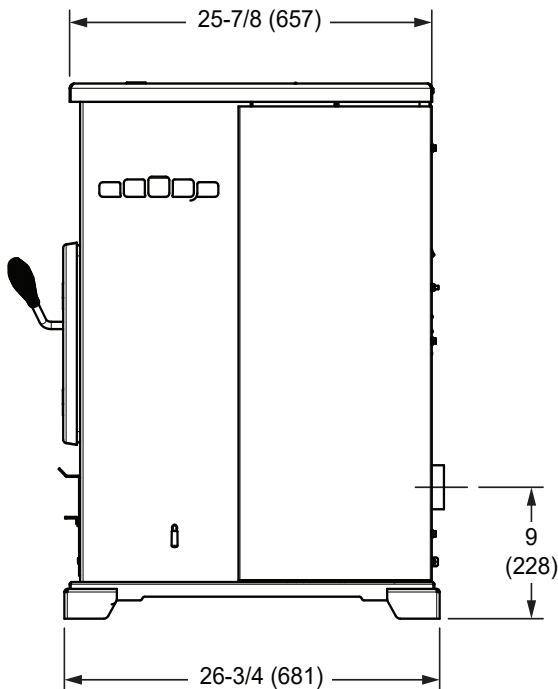


Figure 8.3 -Side View

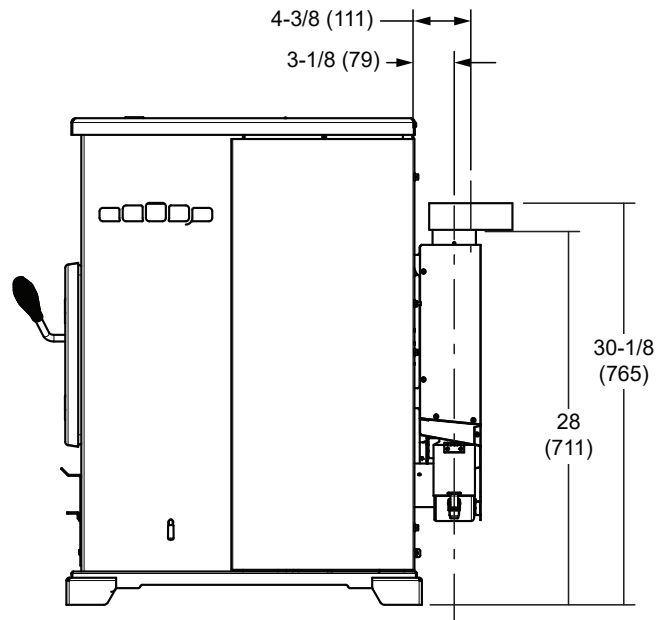
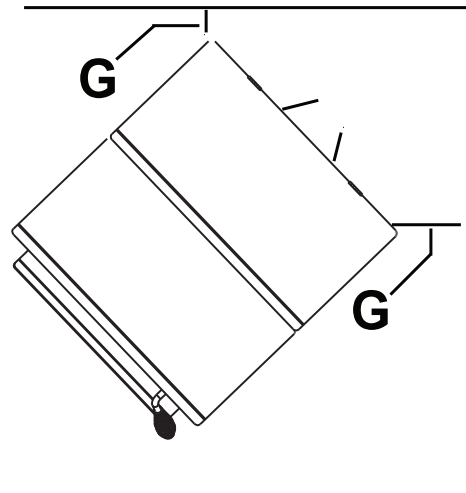
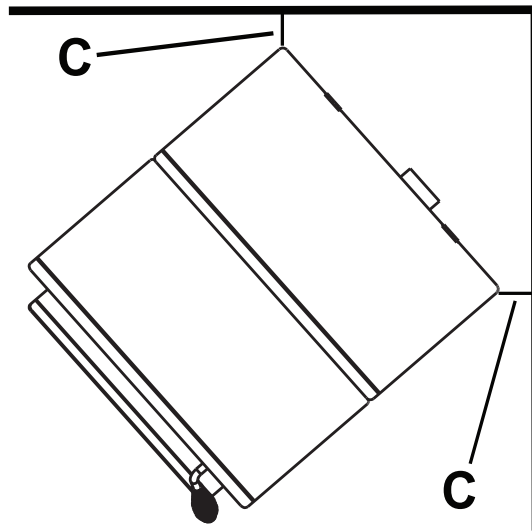
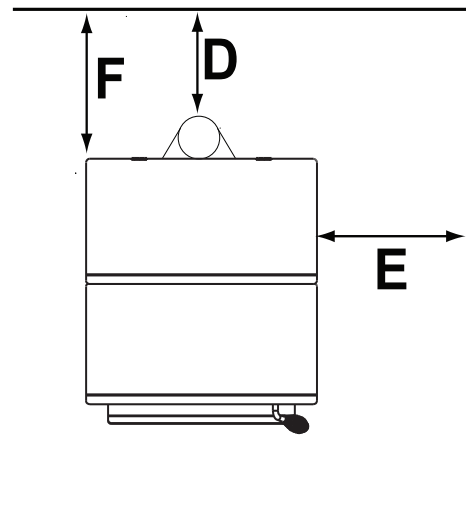
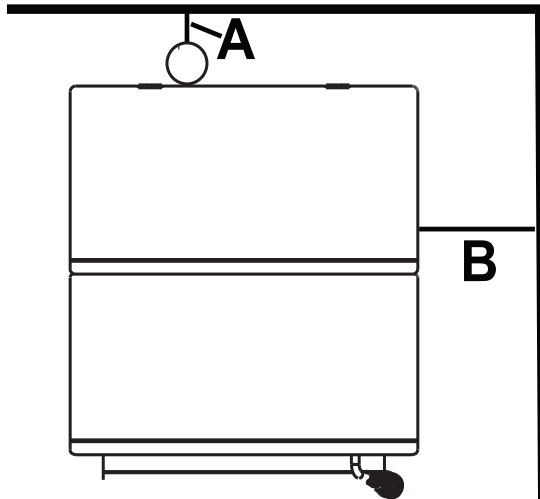


Figure 8.4 - Side View with Top Vent Adapter

B. Clearances to Combustibles (UL and ULC)



**Installations with
3 to 3 inch Top Vent Adapter**

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

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

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 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.

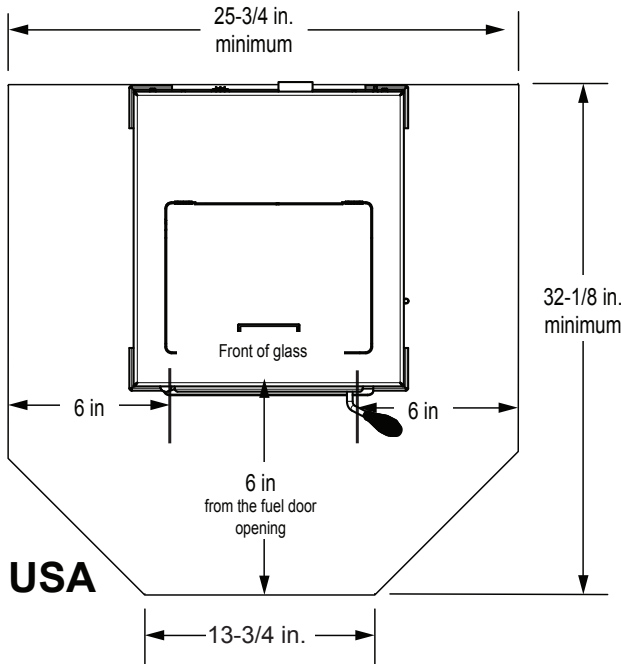


Figure 10.1

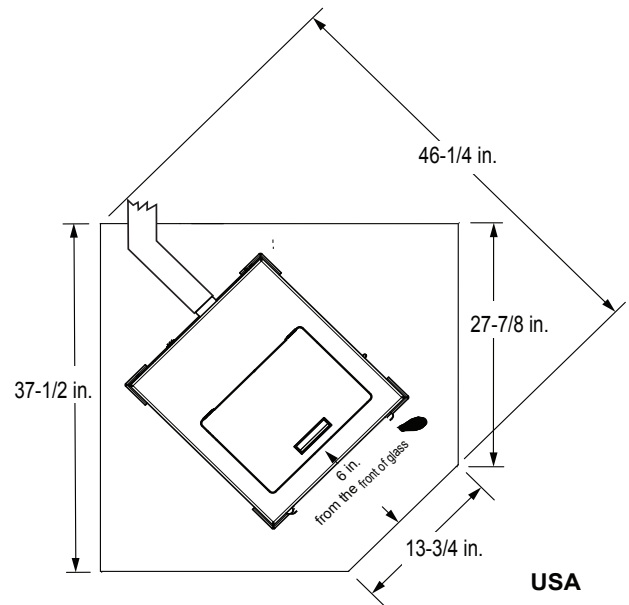


Figure 10.3

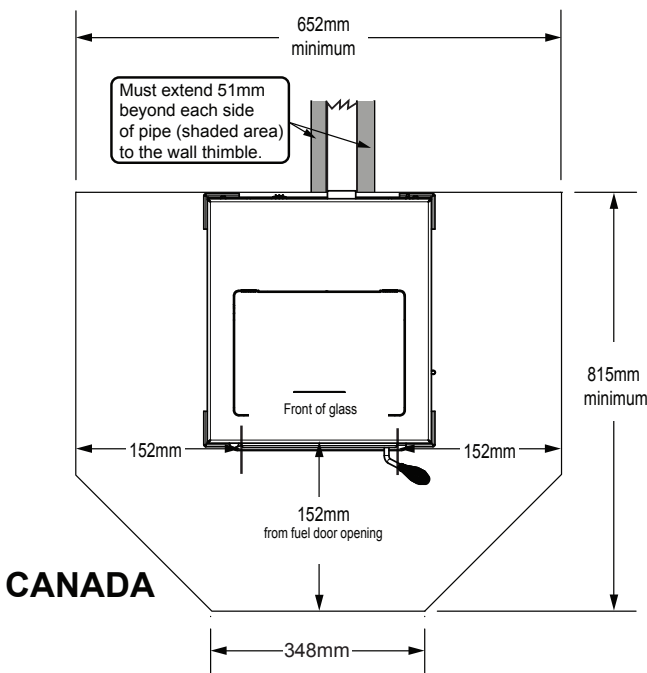


Figure 10.2

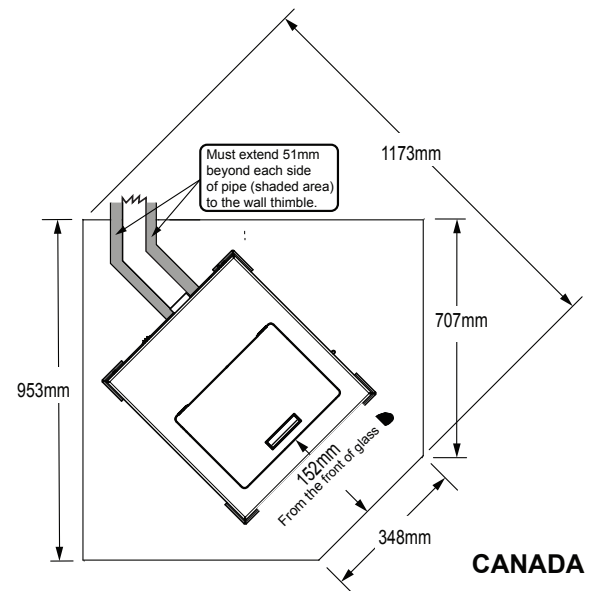


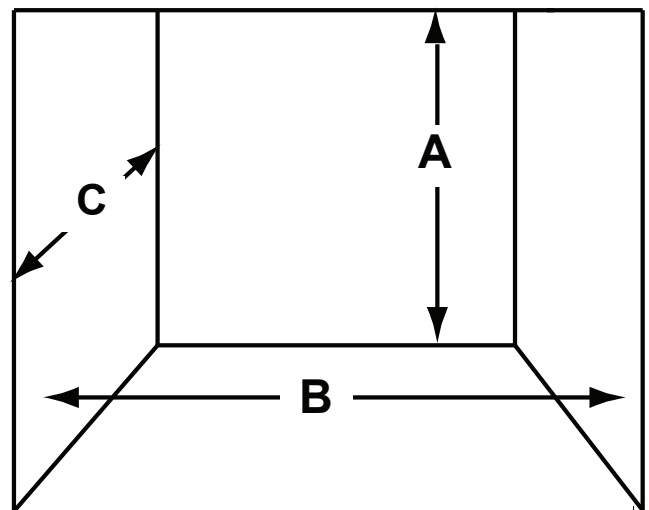
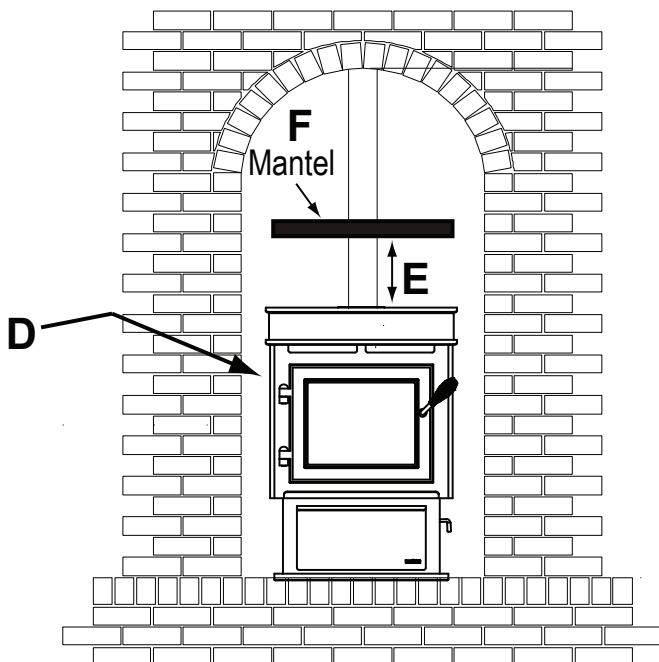
Figure 10.4

D. Alcove

Installations Into Alcove

All minimums listed are to a combustible surface.

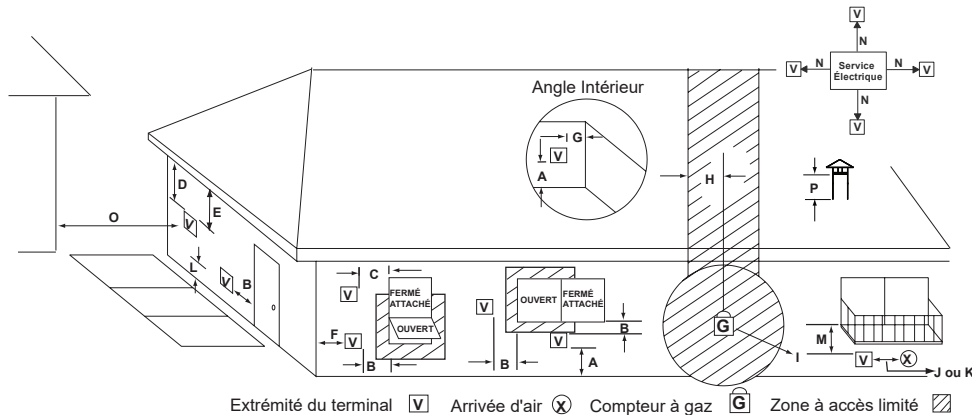
Model: CAB50-C		Minimum		Maximum	
		Inches	Millimeters	Inches	Millimeters
A	Height	56-3/4	1441	n/a	n/a
B	Width	53	1346	n/a	n/a
C	Depth	n/a	n/a	48	1219
D	Side Wall	14	356	n/a	n/a
E	Top	16	n/a	n/a	
F	Mantel Depth	n/a	n/a	36	914

**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



Tous les dégagements minimum correspondent à une installation avec un ensemble de prise d'air extérieur (OAK), sauf indication contraire figurant au tableau ci-dessous.

A	305 mm (12 po)	Au-dessus du niveau définitif du sol (la surface du sol doit être en matériau incombustible)	610 mm (24 po)	Au-dessus de l'herbe, des plantes, du bois ou de tout autre matériau inflammable
B	305 mm (12 po) 1,22 m (48 po) sans OAK	Ouvrir la porte ou la fenêtre : en dessous ou sur le côté	305 mm (12 po) 914 mm (36 po) sans prise d'air extérieur	Dégagement depuis n'importe quelle prise d'air forcé d'un autre appareil
B	305 mm (12 po)	Ouvrir la porte ou la fenêtre : au-dessus	305 mm (12 po)	Dégagement horizontal par rapport au mur inflammable
C	152 mm (6 po)	Fenêtre fermée en permanence : au-dessus, dessous ou sur le côté	381 mm (15 po)	Évacuation traversant directement un mur, longueur minimum du conduit horizontal
D	457 mm (18 po) 914 mm (36 po) sans prise d'air extérieur	Dégagement vertical par rapport au soffite ventilé situé au-dessus du terminal à une distance horizontale maximum de 610 mm (2 pi) de la ligne médiane du terminal.	152 mm (6 po) horizontalement 305 mm (12 po) verticalement	Les extrémités horizontales et verticales de terminal doivent au moins sortir du mur.
E	305 mm (12 po)	Dégagement par rapport au soffite non ventilé	AVIS : Ne placez PAS l'extrémité du conduit d'évacuation : <ul style="list-style-type: none"> À un endroit où les gaz ou la suie évacués du conduit peuvent pénétrer dans le bâtiment ou le souiller. À un endroit où il peut gêner ou présenter un danger. Dans un endroit clos ou partiellement clos, tels qu'un abri auto, un garage, un grenier, un plafond bas, sous une véranda ou près d'un chemin. Dans un espace contenu ou tout autre endroit où les gaz peuvent s'accumuler, tels qu'une cage d'escalier, un passage couvert entre les bâtiments, etc. 	
F	305 mm (12 po)	Dégagement par rapport à l'angle extérieur		
G	305 mm (12 po)	Dégagement par rapport à l'angle intérieur		
H	914 mm (36 po)	Mesuré au-dessus du compteur à gaz/régulateur, depuis l'axe horizontal du régulateur		
I	914 mm (36 po) États-Unis 1,83 m (72 po) Canada	Dégagement par rapport à la sortie d'air du régulateur		
J	305 mm (12 po) 1,22 m (48 po) sans OAK	Dégagement par rapport à l'entrée d'air non mécanique du bâtiment ou l'entrée d'air de combustion d'un autre appareil		
K	3 m (10 pi) horizontalement 914 mm (3 pi) verticalement	Dégagement par rapport à une source d'air mécanique		
L	2,1 m (7 pi)	Au-dessus d'un trottoir ou d'une allée goudronnée située sur un terrain public		
M	305 mm (12 po)	Sous une véranda, un porche, une terrasse ou un balcon ouvert		
N	Voir la remarque voir ci-dessous*	Service électrique : au-dessus, au-dessous ou sur les côtés (sans obstruer ou gêner l'accès)		
O	610 mm (24 po)	Bâtiment adjacent, clôtures et pièces dépassant de la structure		
P	305 mm (12 po)	Dégagements au-dessus du toit pour les abat-vents verticaux.		

***REMARQUE :** Pour les restrictions, reportez-vous au code local de construction des bâtiments, aux pompiers ou autres autorités compétentes. Les dégagements exigés peuvent varier en fonction des codes et règlements locaux.

AVIS : L'extrémité du conduit doit être située au-dessus de la prise d'air.

- Il est recommandé d'installer au minimum 1,52 m (60 po) de conduit vertical si l'appareil est évacué directement à travers un mur. Cela permet d'obtenir un tirage naturel qui empêche à la fumée ou aux odeurs d'évacuation de pénétrer dans la maison en cas de panne de courant.
- Cela évite également que des personnes ou des buissons soient exposés à des températures élevées.
- La méthode d'évacuation des gaz la plus sûre et la meilleure est un conduit vertical traversant le toit ou au-dessus du toit.

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, nor 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

.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. 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

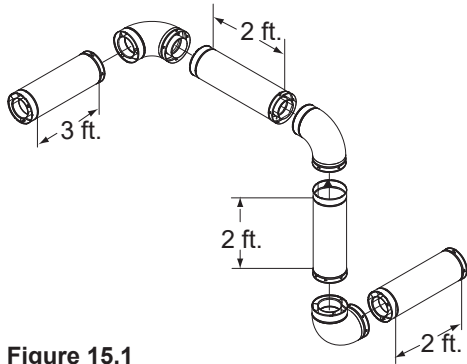


Figure 15.1

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.

G. 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.

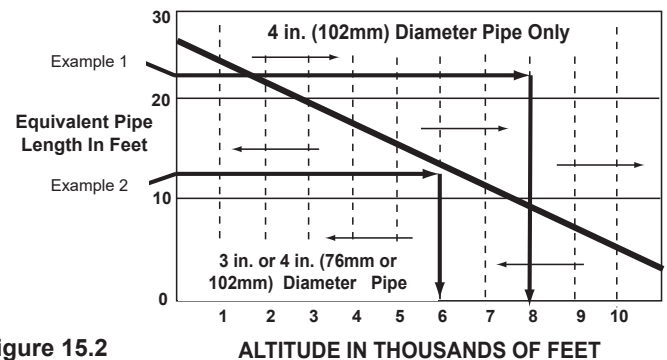





Figure 15.2

- **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

! 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

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.

Straight Out

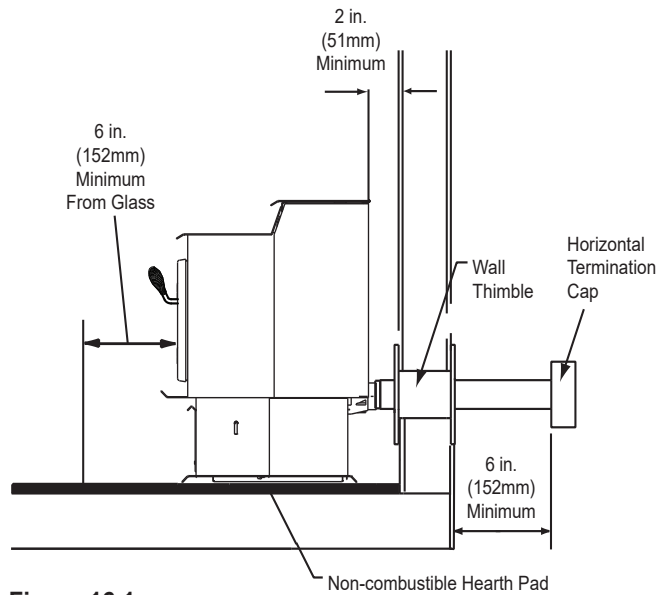


Figure 16.1

45 Degree

Illustration shows venting going in both directions. Choose which one is best for your installation.

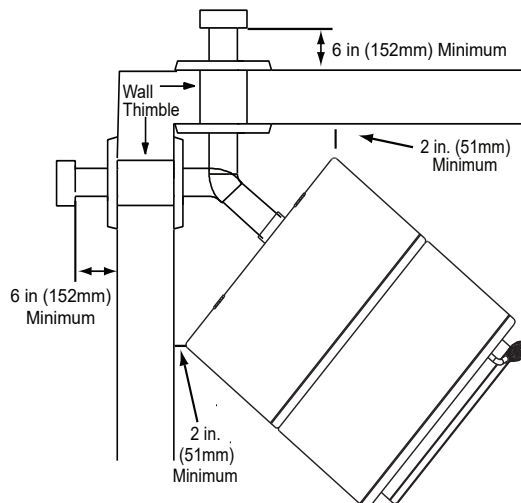


Figure 16.2

B. Vertical into Existing Class A Chimney

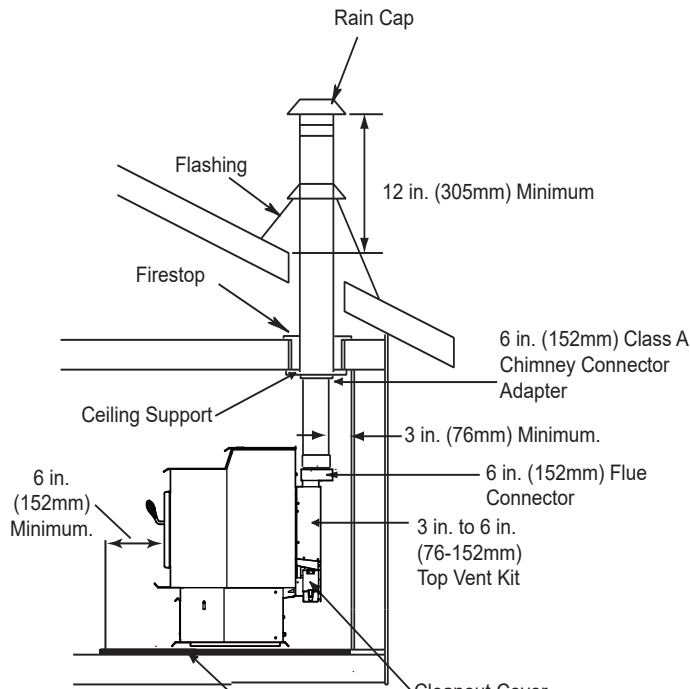


Figure 17.3

**C. Vertical - Interior - Typical Installation
PREFERRED METHOD #1**

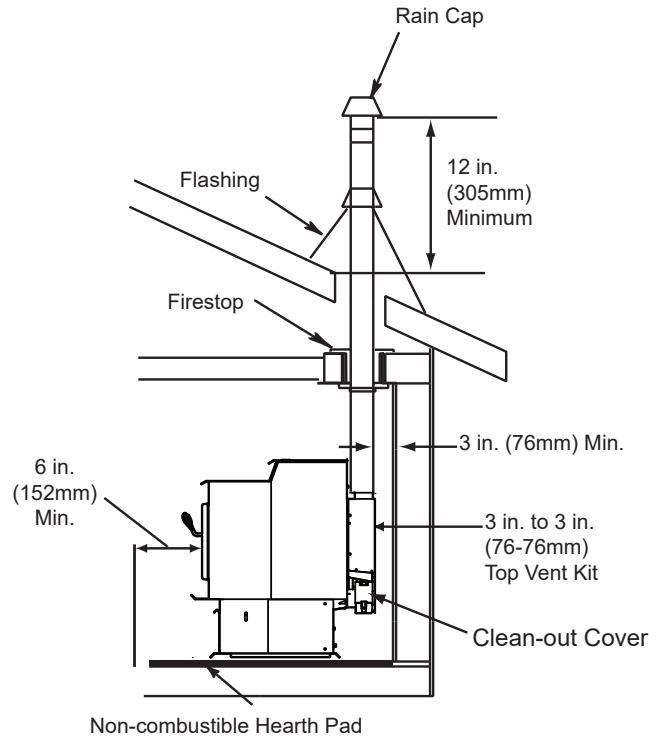


Figure 17.2

We strongly recommend a minimum of 60 inches (1.5m) vertical, however above the eave 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

**D. Through The Wall & Vertical - External
PREFERRED METHOD #2**

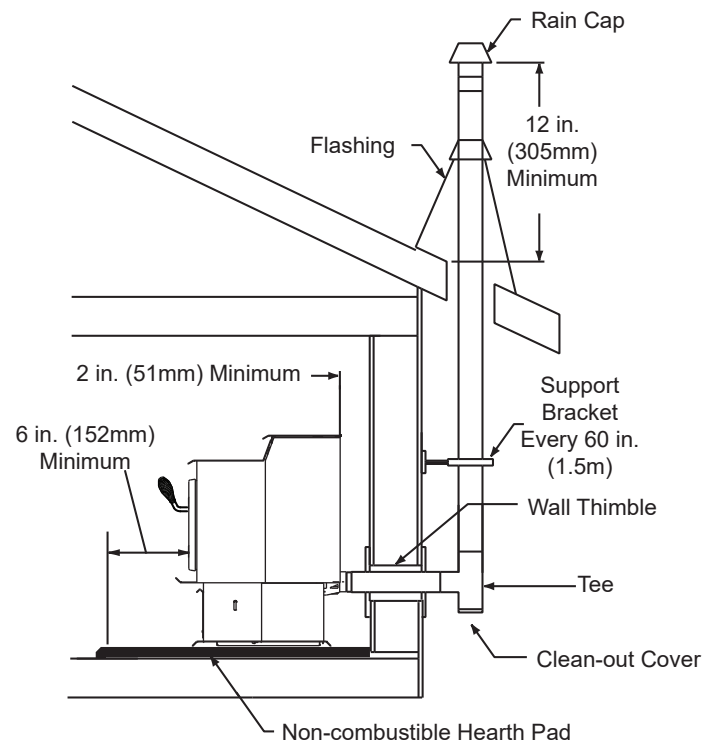




Figure 17.3

 WARNING	
	Fire Risk Inspection of Chimney:
	<ul style="list-style-type: none"> • 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

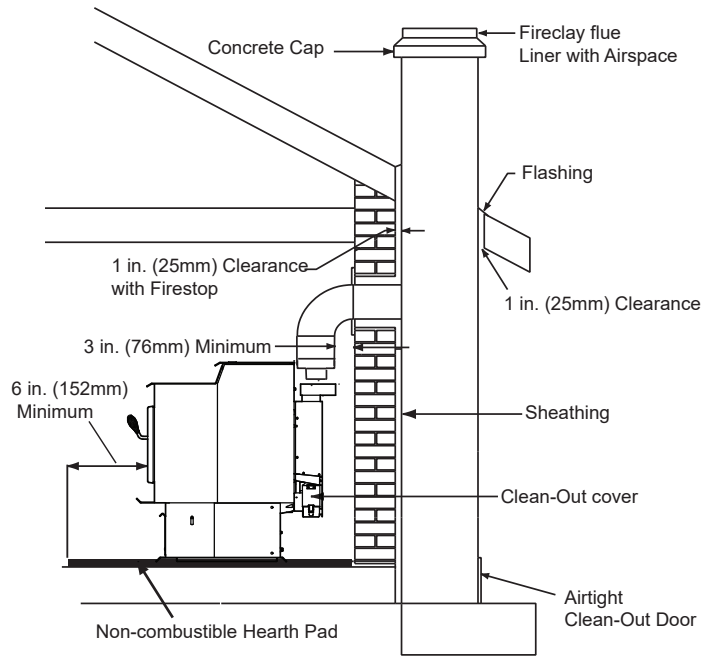


Figure 18.1

F. Alternate Masonry

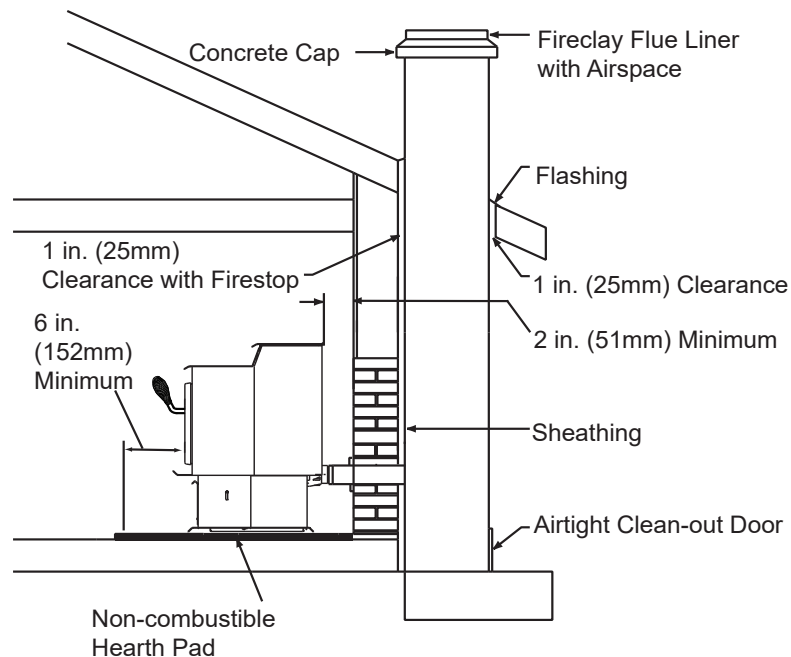


Figure 18.2

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

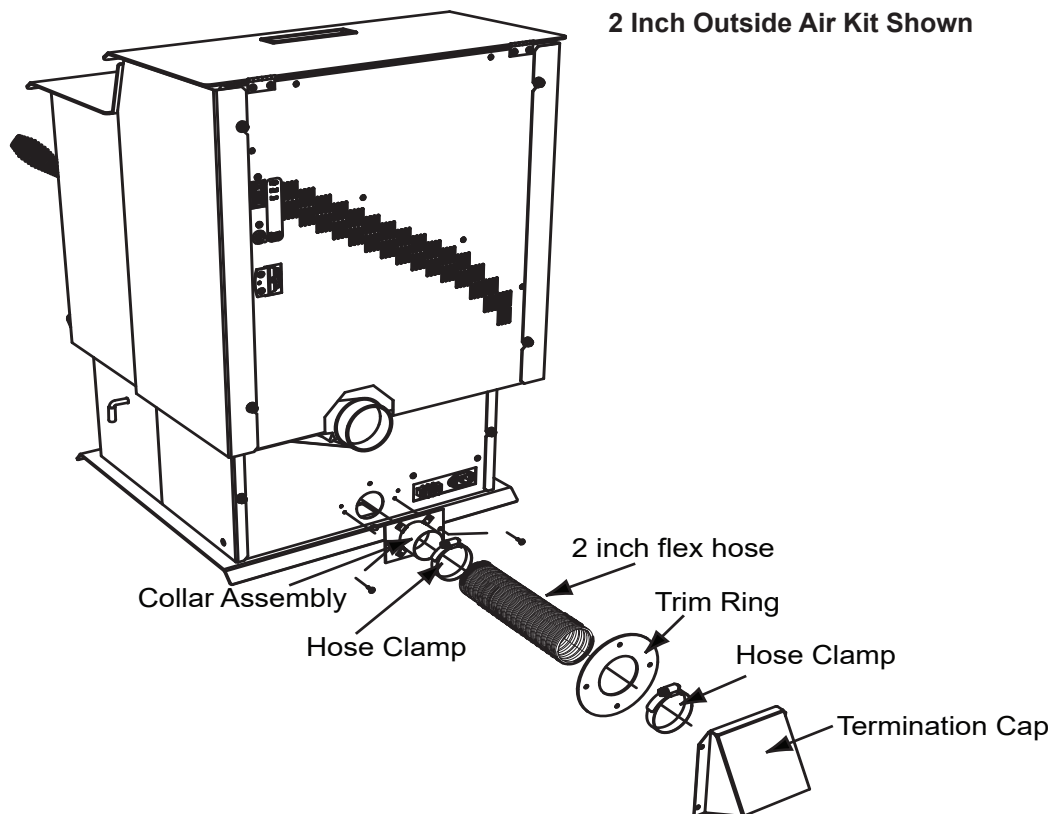


Figure 19.1 - 2 Inch Outside Air Kit

Air Intake Channel (Discard)

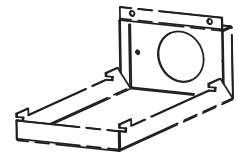


Figure 19.2

B. Top Vent Adapter Installation

**3 to 3 inch Top Vent Adapter
3 to 6 inch Top Vent Offset Adapter**

1. Put a layer of high temperature silicone on the 3 inch (76mm) exhaust outlet. Do not put silicone inside of pipe (**Figure 20.1**).
2. Slide the top vent adapter onto the rear exhaust outlet and adjust the assembly to a vertical position (**Figure 20.1**).
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 20.1**).
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 20.1**).
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 20.1**).

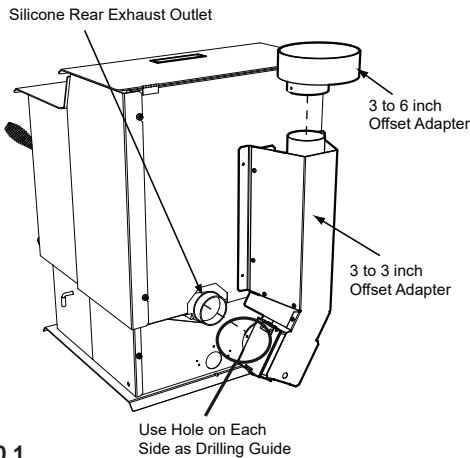


Figure 20.1

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 20.1**).
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)

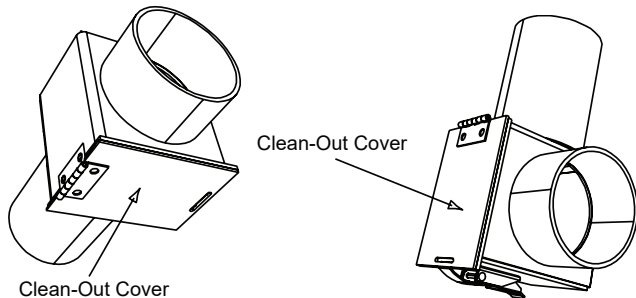


Figure 20.2 - Rear Vent Adapter

Figure 20.3 - 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 20.2**) 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 20.4**).

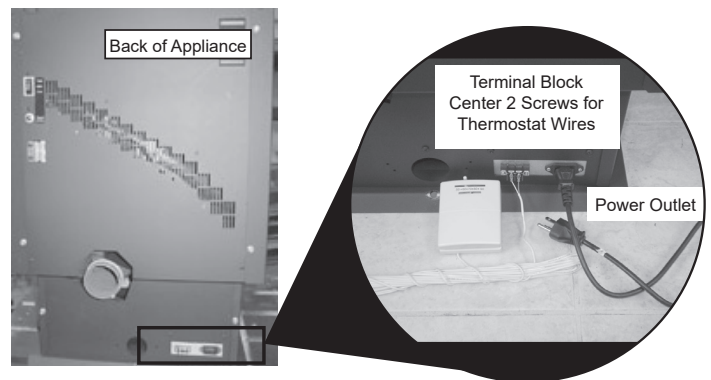


Figure 20.4

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.

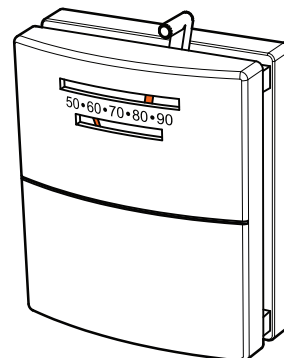


Figure 20.5

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.

Part Number: 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.

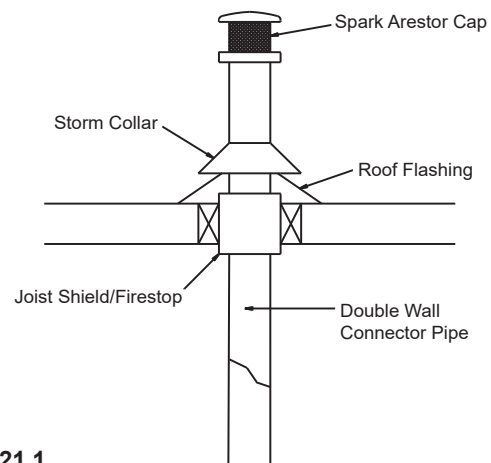


Figure 21.1



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

Date of Service	Performed By	Description of Service

Date of Service	Performed By	Description of Service

B. Accessory List



Service Parts

CAB50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked at Depot

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
	Damper, 4 Inch		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	
	Reset Button Assembly		SRV7000-040	
	Smart-Batt II		841-0970	
	Smart-Stat II		841-0960	
	Thermostat, Programmable		811-0520	
	Top Vent Adapter		TPVNT-5	
	Component Pack, TPNVT		SRV7058-054	
	Vent Adapter, 3-4"		811-0720	
	Vent Adapter, 90, Cleanout		TPVNT-6	
	Baffle Center Back		SRV7058-166	

Additional Service Parts on following page.



Service Parts

CAB50-C

Beginning Manufacturing Date: Aug 2019
Ending Manufacturing Date: Active

IMPORTANT: THIS IS DATED INFORMATION. Parts must be ordered from a dealer or distributor. **Hearth and Home Technologies does not sell directly to consumers.** Provide model number and serial number when requesting service parts from your dealer or distributor.



Stocked at Depot

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	
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.

