
Fireplace Products International, Ltd.

Project # 24-309

Model: F1150-1

AKA: i1150-1, Ci1150-1, Hi1150-1

Type: Wood-Fired Room Heater

December 2, 2024

**ASTM E2780 Standard Test Method for
Determining Particulate Matter Emissions
from Wood Heaters
EPA Test Method 28R for Certification and
Auditing of Wood Heaters**

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Revision Summary

Date: December 2, 2024– Original Issue

Contents

Affidavit.....	3
Introduction.....	4
Notes	4
Wood Heater Identification and Testing.....	5
Test Procedures and Equipment	6
Results.....	7
Summary Table	7
Test Run Narrative.....	8
Run 1	8
Run 2	8
Run 3.....	8
Run 4	8
Run 5	8
Test Conditions Summary	9
Appliance Operation and Test Settings	10
Settings & Run Notes	10
Appliance Description	11
Test Fuel Properties.....	15
Sampling Locations and Descriptions.....	15
Sampling Methods	17
Analytical Methods Description.....	17
Calibration, Quality Control and Assurances	17
Appliance Sealing and Storage.....	17
Sealing Label.....	17
Sealed Unit	18
List of Appendices	19

Affidavit

PFS-TECO was contracted by Fireplace Products International (FPI) to provide testing services for the F1150-1 Wood-Fired Room Heater per EPA Method 28R, *Certification and Auditing of Wood Heaters*. All testing and associated procedures were conducted at PFS-TECO's Portland Laboratory beginning on 11/4/2024 and ending on 11/7/2024. PFS-TECO's Portland Laboratory is located at 11785 SE Highway 212 – Suite 305, Clackamas, Oregon 97015. Testing procedures followed EPA Method 28R and ASTM E2780, *Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters*. Particulate sampling was performed per ASTM E2515, *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel*.

PFS-TECO is accredited by the U.S. Environmental Protection Agency for the certification and auditing of wood heaters pursuant to subpart AAA of 40 CFR Part 60, New Source Performance Standards for Residential Wood Heaters and subpart QQQQ of 40 CFR Part 60, Standards of Performance for New Hydronic Heaters and Forced Air Furnaces, Methods 28R, 28WHH, 28 WHH-PTS, and all methods listed in Sections 60.534 and 60.5476. PFS-TECO holds EPA Accreditation Certificate Numbers 4 and 4M (mobile). PFS-TECO is accredited by IAS to ISO 17020:2012 "Criteria for Bodies Performing Inspections", and ISO 17025:2017 "Requirements for Testing Laboratories." PFS-TECO is also accredited by Standards Council of Canada to ISO 17065:2012 "Requirements for Bodies Operating Product Certification Systems."

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



Aaron Kravitz, Laboratory Manager

Introduction

FPI contracted with PFS-TECO to perform EPA certification testing on the F1150-1 Wood-Fired Room Heater. All testing was performed at PFS-TECO's Portland Laboratory. All testing was performed by Aaron Kravitz.

Notes

- Prior to start of testing, 50 hours of conditioning was performed by the manufacturer at a medium burn setting in accordance with ASTM E2780.
- Prior to start of testing, the dilution tunnel was cleaned with a steel brush.
- A separate, independent, third filter train was utilized to determine 1st hour emissions for all test runs.
- A total of 5 test runs were completed - one test run in each of the 4 specified burn rate categories, and a fan confirmation test performed at a category 2 burn rate. All runs have been found to be appropriate, no anomalies occurred. See the Run Narrative section for further detail on each run.

Wood Heater Identification and Testing

- Appliance Tested: **F1150-1**
- Serial Number: **PFS Tracking Number 214**
- Manufacturer: **FPI**
- Catalyst: **No**
- Heat exchange blower: **Optional**
- Type: **Wood Stove**
- Style: **Free Standing Wood Stove**
- Date Received: **Wednesday, October 23, 2024**
- Testing Period – Start: **Monday, November 04, 2024**
Finish: **Thursday, November 07, 2024**
- Test Location: **PFS TECO**
11785 SE Hwy 212
Clackamas, OR 97015
- Elevation: **~131 Feet above sea level**
- Test Technician(s): **Aaron Kravitz**
- Observers: **None**

Test Procedures and Equipment

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

Equipment List:

Equipment ID#	Equipment Description
50	Digiweigh DWP12i Platform Scale
129	APEX XC-60-ED Digital Emissions Sampling Box A
130	APEX XC-60-ED Digital Emissions Sampling Box B
204	APEX XC-50-DIR Digital Emissions Sampling Box C
55	Apex Ambient Air Sample Box
137	California Analytical ZRE CO2/CO/O2 IR ANALYZER
94	Moisture meter calibration block
95	Anemometer
97	10 lb audit weight
107	Sartorius Analytical Balance
109A/B	Troemner 100mg/200mg Audit Weights
111	Microtector
217	Microtector Micrometer
115	Delmhorst Wood Moisture Meter
190	Mettler 3'x3' floor scale w/digital weight indicator
207	Dewalt Tape Measure
208	Digital Calipers
216	Temperature Logger
CC505834	Gas Analyzer Calibration Span Gas
CC341544	Gas Analyzer Calibration Mid Gas

Barometric pressure data was taken from local National Weather Service station KPDX. As PFS and KPDX are at the same altitude, the correction for altitude per ASTM E2515 6.1.2 is 1:1.

Results

A total of 5 test runs were performed on the F1150-1. The weighted average emissions rate for the 5 run test series was measured to be **1.3 g/hr** with a Higher Heating Value efficiency of **71%**. The average CO emission rate for the 4 tests was **1.1 g/min**. The FPI F1150-1 Wood-Fired Room Heater meets the 2020 cribwood PM emission standard of ≤ 2.0 g/hr per CFR 40 part 60, §60.532 (b).

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

Summary Table

	Cat. 2 ≤1.00 kg/hr	Cat. 2 0.80 - 1.25 kg/hr	Cat. 3 1.25 - 1.90 kg/hr	Cat. 4 Max Burn Rate	Fan Confirmation (Cat. 2)*
Date	11/4/2024	11/5/2024	11/6/2024	11/6/2024	11/7/2024
Run Number	1	2	4	3	5
Emission Rate (g/hr)	0.79	1.02	0.80	2.65	0.60
Burn Rate (kg/hr)	0.94	1.07	1.26	2.12	1.10
Heat Output (Btu/hr)	12,700	13,988	16,827	27,353	14,499
Overall Efficiency (% HHV)	73%	71%	72%	69%	71%
CO Emissions (g/MJ Output)	4.19	5.27	3.32	2.39	3.79
CO Emissions (g/kg Dry Fuel)	60.28	73.70	47.26	32.80	53.29
CO Emissions (g/min)	0.93	1.30	0.98	1.15	0.97
Emissions – 1 st hr (g/hr)	2.06	2.24	1.42	2.70	0.96
Weighted particulate emission average of 4 test runs: 1.3 grams per hour.					
Weighted average HHV efficiency of 4 test runs: 71%.					
Average CO Emissions Rate: 1.1 g/min					

*Fan Confirmation test not included in weighted average calculations.

Test Run Narrative

Run 1

Run 1 was performed on 11/4/24 as an attempted category 1 test, per EPA Method 28R. The total test time was 153 minutes. The particulate emissions rate for the test was 0.79 g/hr, the burn rate was 0.94 kg/hr with an HHV efficiency of 73%. All test results were appropriate and valid. There were no anomalies and all test criteria were met. This test meets the burn rate requirements described in EPA Method 28 Section 8.1.1.3.2 as a category 2 test with a burn rate of 1.00 kg/hr or less for wood stoves that cannot be operated at burn rates less than 0.8 kg/hr. This test was performed with the air control set to its lowest setting, it is not possible to operate the stove at a lower air setting. Therefore, this test will be used in lieu of a category 1 test.

Run 2

Run 2 was performed on 11/5/2024 as a category 2 test, per EPA Method 28R. The total test time was 136 minutes. The particulate emissions rate for the test was 1.02 g/hr, the burn rate was 1.07 kg/hr with an HHV efficiency of 71%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

Run 3

Run 3 was performed on 11/6/2024 as a category 4 test, per EPA Method 28R. The total test time was 73 minutes. The particulate emissions rate for the test was 2.65 g/hr, the burn rate was 2.12 kg/hr with an HHV efficiency of 69%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

Run 4

Run 4 was performed on 11/6/2024 as a category 3 test, per EPA Method 28R. The total test time was 118 minutes. The particulate emissions rate for the test was 0.80 g/hr, the burn rate was 1.26 kg/hr with an HHV efficiency of 72%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

Run 5

Run 5 was performed on 11/7/2024 as a category 2 fan confirmation test, per EPA Method 28R. The total test time was 129 minutes. The particulate emissions rate for the test was 0.60 g/hr with a burn rate of 1.10 kg/hr. All test results were appropriate and valid. There were no other anomalies and all test criteria were met. Since the particulate emissions rate is within 1.0 g/hr of the category 2 test, the blower is determined not to have a significant impact on emissions performance and may therefore be approved as an optional accessory. This test run is not included in the weighted average calculations presented in the results summary.

Test Conditions Summary

Testing conditions for all runs fell within allowable specifications of the ASTM 2780 and ASTM E2515. A summary of facility conditions, fuel burned, and run times are listed below.

Run	Ambient (°F)		Relative Humidity (%)		Average Barometric Pressure (In. Hg.)	Preburn Fuel Weight (lbs)	Test Fuel Weight (lbs)	Test Fuel Moisture (%DB)	Test Run Time (Min)
	Pre	Post	Pre	Post					
1	65	64.7	44.9	41.7	29.98	7.42	6.33	21.2	153
2	64	61.8	38.9	42.6	30.15	7.52	6.42	21.9	136
3	64	64.9	35.8	29.7	30.20	6.15	6.77	20.1	73
4	66	66	29.7	33.6	30.15	6.04	6.53	20.7	118
5	64	65.2	25.4	31.2	30.07	8.44	6.28	21.9	129

Appliance Operation and Test Settings

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

Settings & Run Notes

	Pre-Burn Air Setting	Test Run Air and Fan Settings
Run 1	Air control fully closed (opening 0.338 in ²)	Air control fully closed (opening 0.338 in ²), fan on low
Run 2	Air control open 0.119" (opening 0.439 in ²)	Air control open 0.119" (opening 0.439 in ²), fan on low
Run 3	Air control fully open (opening 1.583 in ²)	Air control fully open (opening 1.583 in ²), fan on high
Run 4	Air control open 0.437" (opening 0.772 in ²)	Air control open 0.437" (opening 0.772 in ²), fan on high
Run 5	Air control open 0.119" (opening 0.439 in ²)	Air control open 0.119" (opening 0.439 in ²) fan off (fan confirmation)

Appliance Description

Model(s): F1150-1

Appliance Type: Wood-Fired Room Heater

Total Firebox Volume: 1.24 ft³

Usable Firebox Volume: 0.89 ft³

Model Variants: The F1150-1 is available in three additional variants, the i1150-1, Ci1150-1, and Hi1150-1. The three additional models are fireplace insert variants that differ only in exterior cladding and are identical in all respects that affect emissions.

Air Introduction System Primary combustion air enters the appliance through the air control opening located on the bottom front of the stove. Air is routed up the sides of the firebox, then down into the combustion chamber in front of the door glass. Secondary air brought in through a fixed opening on the bottom rear of the appliance and is routed up the back of the firebox and feed into a secondary air tube. Dimensions on all these features can be found in Appendix D.

Baffles: Combustion air is routed to the front of the stove with a refractory baffle that sits on top of the secondary air tubes, then back and up, out through the flue collar.

Catalytic Combustor: None

Combustor Temperature Monitoring System: N/A

Refractory Insulation: The firebox is lined with 1.25" thick high-density firebrick.

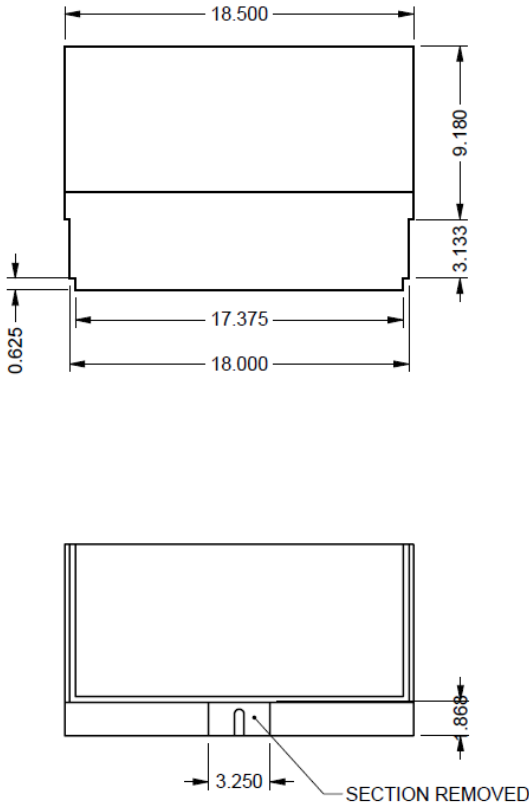
Flue Outlet: 6-inch exhaust outlet located on the top of the appliance.

Fan: A variable speed convection fan is mounted to the rear of the appliance.

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

Firebox Volume Calculation

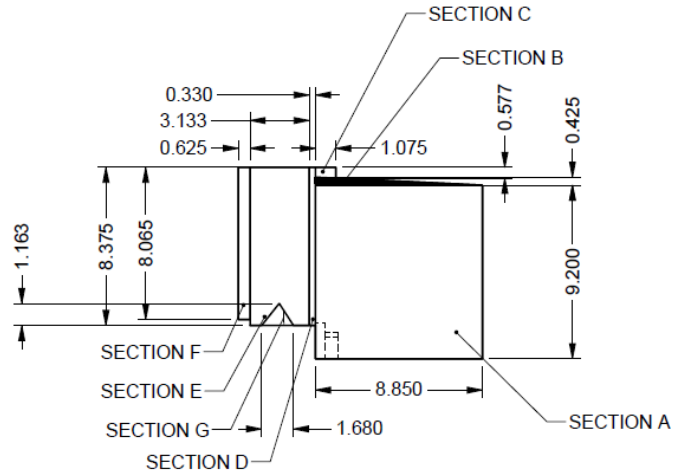
1150-1 FIREBOX VOLUME



SECTION A: $9.20 \times 8.85 \times 18.50 = 1506.27$
 SECTION B: $(0.425/2) \times 8.85 \times 18.50 = 34.79$
 SECTION REMOVED: $1.868 \times 3.25 \times 0.575 = 3.49$
 USABLE VOLUME = A + B - REMOVED
 USABLE VOLUME = $1506.27 + 34.79 - 3.49 = 1537.57\text{in}^3$
 USABLE VOLUME = $1537.57\text{in}^3 = 0.89\text{ft}^3$

SECTION C: $((0.577+0.525)/2) \times 1.075 \times 18.50 = 10.95$
 SECTION D: $8.375 \times 0.330 \times 18.5 = 51.13$
 SECTION E: $8.375 \times 3.133 \times 18.0 = 472.30$
 SECTION F: $8.065 \times 0.625 \times 17.375 = 87.58$
 SECTION G: $((1.163 \times 1.680)/2) \times 18.0 = 17.58$

TOTAL VOLUME = USABLE VOLUME + C + D + E + F - G
 TOTAL VOLUME = $1537.57 + 10.95 + 51.13 + 472.30 + 87.58 - 17.58 = 2141.95\text{in}^3$
 TOTAL VOLUME = $2141.95\text{in}^3 = 1.24\text{ft}^3$



Appliance Front



Appliance Left



Note: The original appliance left photo shown above is corrupt but was not discovered prior to sealing unit. Photo of sealed appliance left side included above for additional detail.

Appliance Right



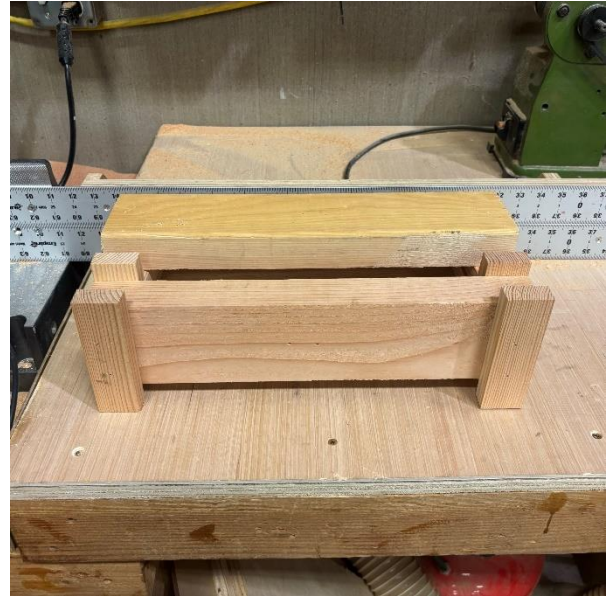
Appliance Rear



Test Fuel Properties

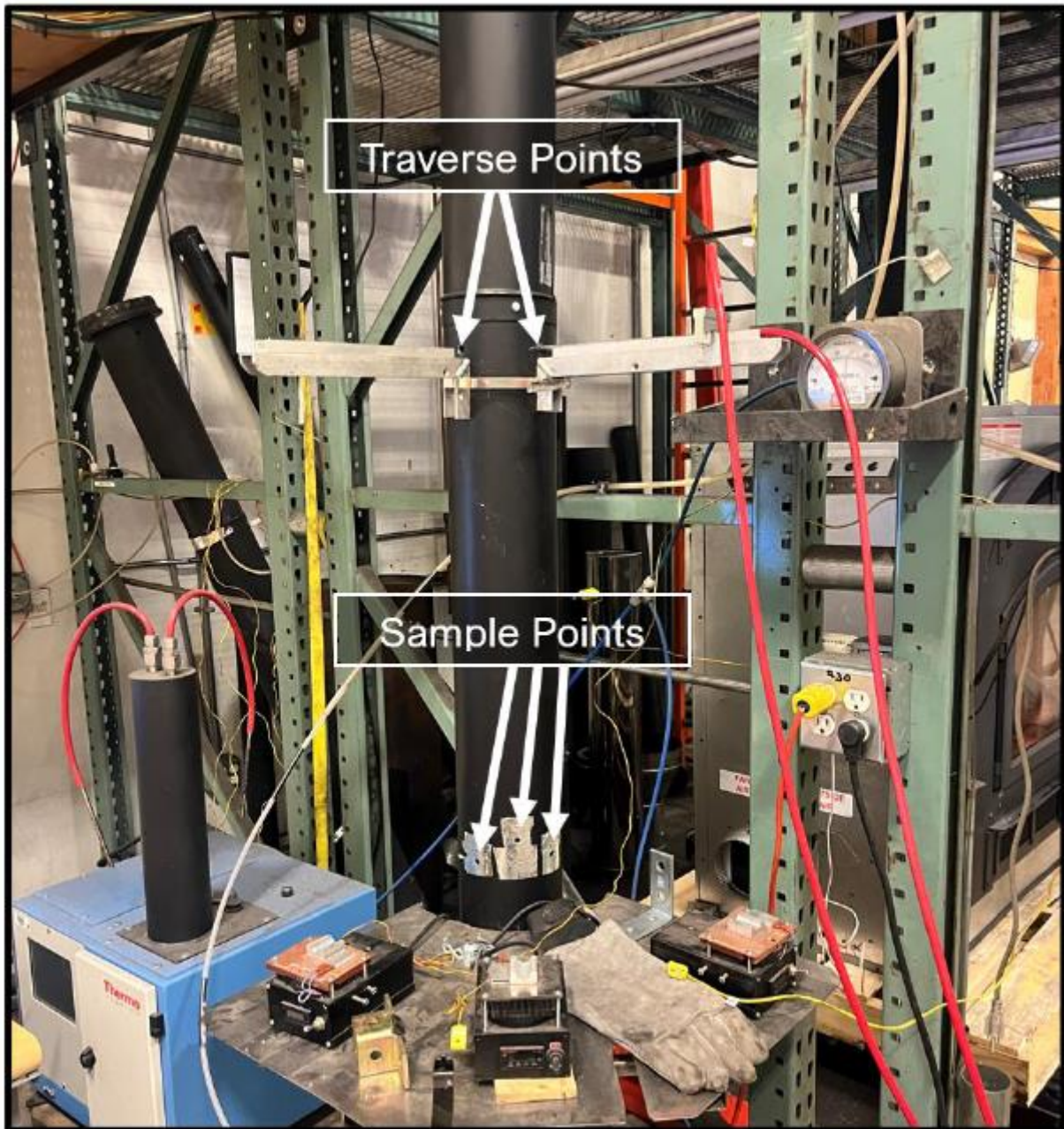
Test fuel used was Douglas Fir dimensional lumber, air-dried to the specified moisture content range. A typical fuel load is pictured below:

Typical Fuel Load



Sampling Locations and Descriptions

Sample ports are located 16.5 feet downstream from any disturbances and 3.5 feet upstream from any disturbances. Flow rate traverse data was collected 8 feet downstream from any disturbances and 4 feet upstream from any disturbances. (See below).



Sampling Methods

ASTM E2515 was used in collecting particulate samples. The dilution tunnel was 6 inches in diameter. All sampling conditions per ASTM E2515 were followed. No alternate procedures were used.

Analytical Methods Description

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

Calibration, Quality Control and Assurances

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

Appliance Sealing and Storage

Upon completion of testing, the appliance was secured with metal strapping and the seal below was applied, the appliance was then returned to the manufacturer's location at: 6988 Venture St, Delta, BC V4G 1H4, Canada, for archival.

Sealing Label

ATTENTION:

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

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

REPORT # _____

DATE SEALED _____

MANUFACTURER _____

MODEL # _____

Sealed Unit



List of Appendices

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

Appendix A – Run Data -page 21, Filter data-page 141, Conditioning -page 145, Sample Calculations-page 146, Tunnel Schematic -Page 167

Appendix B – Labels and Manuals – page 170 Non-CBI PDF

Appendix C –Equipment Calibration Records – Page 339 Non-CBI PDF

Appendix D – Design Drawings (CBI Report Only)

Appendix E – Manufacturer QAP (CBI Report Only)

Appendix A: Test Run Data

EPA Method 28R Weighted Average Emissions

Client: FPI
 Stove Model: F1150-1
 Test Dates: 11/4/24 - 11/7/24
 Job Number: F24-333

Signature/Date: _____

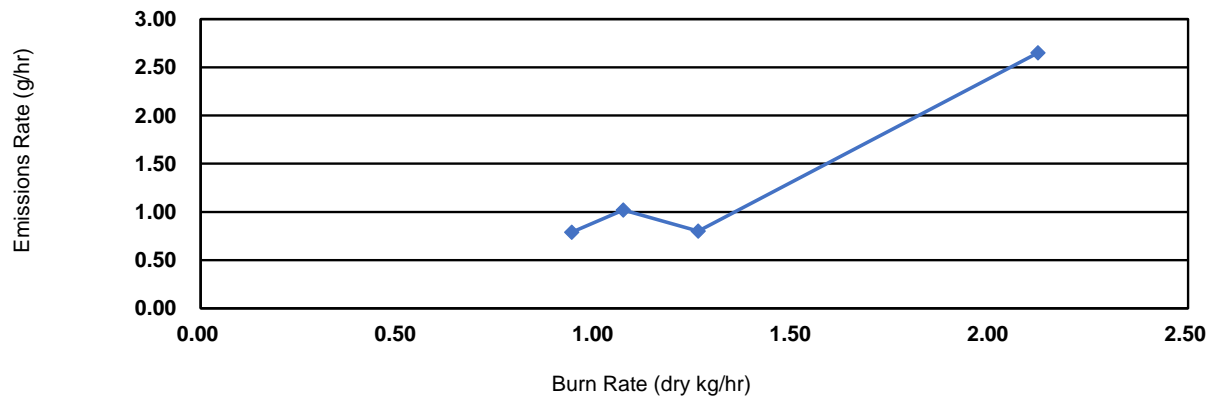


Weighted Average Particulate Emissions (g/hr):	1.3
Weighted Average HHV Efficiency (%):	71.2%
Weighted Average LHV Efficiency (%):	76.9%
Average CO Emissions (g/min):	1.1

Individual Run Summaries

Run Number:	1	Run Number:	2
Burn Rate (dry kg/hr):	0.94	Burn Rate (dry kg/hr):	1.07
Emissions Rate (g/hr):	0.79	Emissions Rate (g/hr):	1.02
HHV Efficiency (%):	72.8%	HHV Efficiency (%):	70.6%
LHV Efficiency (%):	78.7%	LHV Efficiency (%):	76.3%
Weighting Percentage (%):	26.67%	Weighting Percentage (%):	16.15%
Run Number:	4	Run Number:	3
Burn Rate (dry kg/hr):	1.26	Burn Rate (dry kg/hr):	2.12
Emissions Rate (g/hr):	0.80	Emissions Rate (g/hr):	2.65
HHV Efficiency (%):	71.7%	HHV Efficiency (%):	69.3%
LHV Efficiency (%):	77.5%	LHV Efficiency (%):	74.9%
Weighting Percentage (%):	31.12%	Weighting Percentage (%):	26.06%

Emission Rate vs Burn Rate Plot



WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515



Run 1 Data Summary

Client:	FPI
Model:	F1150-1
Job #:	F24-333
Tracking #:	214
Test Date:	11/4/2024



Technician Signature

11/20/2024

Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 1

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/4/2024

Burn Rate (kg/hr):	0.94
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft ³)	35.781	25.109	24.123	9.231
Average Gas Velocity in Dilution Tunnel (ft/sec)	17.0			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11463.9			
Average Gas Meter Temperature (°F)	65.1	83.1	85.4	78.3
Total Sample Volume (dscf)	36.182	24.518	23.818	9.167
Average Tunnel Temperature (°F)	83.6			
Total Time of Test (min)	153			
Total Particulate Catch (mg)	0.2	1.8	1.8	1.7
Particulate Concentration, dry-standard (g/dscf)	0.0000055	0.0000734	0.0000756	0.0001855
Total PM Emissions (g)	0.16	1.98	2.05	2.06
Particulate Emission Rate (g/hr)	0.06	0.78	0.80	2.06
Emissions Factor (g/kg)	-	0.83	0.86	-
Difference from Average Total Particulate Emissions (g)	-	0.03	0.03	-
Difference from Average Total Particulate Emissions (%)	-	1.6%	1.6%	-
Difference from Average Emissions Factor (g/kg)	-	0.01	0.01	-

Final Average Results	
Total Particulate Emissions (g)	2.02
Particulate Emission Rate (g/hr)	0.79
Emissions Factor (g/kg)	0.84
HHV Efficiency (%)	72.7%
LHV Efficiency (%)	78.6%
CO Emissions (g/min)	0.93

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	74.7	OK
Face Velocity	< 30 ft/min	9.7	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min:64.5/Max:65.8	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	71.3	OK

B415.1 Efficiency Results

Manufacturer: FPI
Model: F1150-1
Date: 11/04/24
Run: 1
Control #: F24-333
Test Duration: 153
Output Category: 2

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	72.7%	78.6%
Combustion Efficiency	96.0%	96.0%
Heat Transfer Efficiency	75.7%	81.8%

Output Rate (kJ/h)	13,388	12,700	(Btu/h)
Burn Rate (kg/h)	0.93	2.05	(lb/h)
Input (kJ/h)	18,414	17,468	(Btu/h)

Test Load Weight (dry kg)	2.37	5.22	dry lb
MC wet (%)	17.47		
MC dry (%)	21.17		
Particulate (g)	2.02		
CO (g)	143		
Test Duration (h)	2.55		

Emissions	Particulate	CO
g/MJ Output	0.06	4.19
g/kg Dry Fuel	0.85	60.28
g/h	0.79	56.03
g/min	0.01	0.93
lb/MM Btu Output	0.14	9.73

Air/Fuel Ratio (A/F)	16.86
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VERSION:

2.4

4/15/2010

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F1150-1
Run #: 1

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/4/2024

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	8.00	21.4		2x4	4.50	24.6
2x4	8.00	23.8				
2x4	8.00	24.1				
2x4	8.00	24.4				
2x4	15.25	22.1				
2x4	15.25	20.6				
2x4	4.50	24.0				
2x4	4.50	21.4				
Total Fuel Weight (lbs):		7.42	Average Moisture (%DB):		22.9	

Firebox Volume (ft³): 0.89
Total 2x4 Crib Weight, with spacers (lbs): 6.33
Total 4x4 Crib Weight, with spacers (lbs): 0.00
Total Wet Fuel Weight, with spacers (lbs): 6.33

Coal Bed Range (20-25%):
Min (lbs): 1.27
Max (lbs): 1.58

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.25	1.65	19.3	20.3	20.9	1.37
2x4	15.25	1.92	19.1	19.4	19.6	1.61
2x4	15.25	1.54	24.0	24.1	23.8	1.24
Total Dry Weight, no spacers (lbs):						4.22
Total Dry Weight, with spacers (lbs):						5.26

Spacer Moisture Readings (%DB)							
17.4	17.0						
18.6	17.6						
18.4	18.1						
16.4	17.4						
18.9	15.6						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft ³ , DB)	30.4	OK
Loading Density	6.3 - 7.7 (lbs/ft ³ , WB)	7.11	OK
2x4 Fuel Mix	35 - 65 % of total weight	N/A	N/A

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: FPI
 Model: F1150-1
 Run #: 1
 Test Start Time: 12:22

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/4/2024

Total Sampling Time (min): 153
 Recording Interval (min): 1

Meter Box γ Factor: 0.996 (A)
 Meter Box γ Factor: 1.012 (B)
 Meter Box γ Factor: 1.008 (C)
 Meter Box γ Factor: 1.004 (Ambient)

Induced Draft Check (in. H₂O): 0
 Smoke Capture Check (%): 100%
 Date Flue Pipe Last Cleaned: 11/1/2024
 Test Fuel Scale Audit (lbs): 10.00
 Platform Scale Audit (lbs): 10.0

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.95	30.01	29.98
Relative Humidity (%)	44.9	41.7	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		35.781	ft ³

Sample Train Leak Checks

	Pre-test	Post-test		
(A)	0.000	0.000	cfm @	-6 in. Hg
(B)	0.000	0.000	cfm @	-8 in. Hg
(C)	0.001	0.000	cfm @	-7 in. Hg
(Ambient)	0.000	0.000	cfm @	-12 in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H ₂ O)	Temp (°F)
1	0.048	76
2	0.076	76
3	0.086	76
4	0.060	76
5	0.054	76
6	0.082	76
7	0.086	76
8	0.062	76
Center	0.074	76

Dilution Tunnel H₂O: 2.00 percent

Tunnel Diameter: 6 inches

Pitot Tube Cp: 0.99 [unitless]

Dilution Tunnel MW(dry): 29.00 lb/lb-mole

Dilution Tunnel MW(wet): 28.78 lb/lb-mole

Tunnel Area: 0.1963 ft²

V_{strav}: 17.47 ft/sec

V_{scent}: 18.16 ft/sec

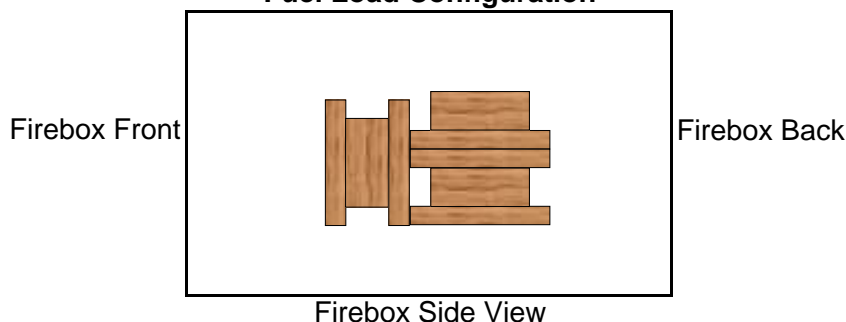
F_p: 0.962 [ratio]

Initial Tunnel Flow: 198.9 scf/min

Static Pressure: -0.130 in. H₂O

TEST FUEL PROPERTIES

Fuel Load Configuration



Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	21.2

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI

Model: F1150-1

Run #: 1

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/4/2024

Recording Interval (min):

1

Run Time (min):

60

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	1.76	-0.071	540	630	574	730	388	572.4	464	66
1	1.73	-0.069	541	626	548	714	387	563.2	402	66
2	1.71	-0.067	543	620	527	695	387	554.2	372	66
3	1.70	-0.064	541	611	511	675	387	545.1	353	66
4	1.68	-0.062	540	602	492	654	387	534.9	339	66
5	1.67	-0.060	536	592	480	634	387	525.6	327	66
6	1.66	-0.058	533	582	466	617	387	516.8	318	66
7	1.63	-0.058	528	572	455	600	387	508.4	308	66
8	1.63	-0.057	522	563	444	586	386	500.2	301	66
9	1.62	-0.056	517	554	433	573	386	492.3	295	65
10	1.60	-0.054	511	545	424	559	385	484.9	288	66
11	2.82	-0.071	506	536	417	547	385	477.9	340	66
12	2.71	-0.077	501	527	412	562	384	477.1	406	66
13	2.60	-0.081	496	521	410	583	383	478.5	450	66
14	2.50	-0.080	494	517	407	602	382	480.4	464	65
15	2.45	-0.066	491	514	409	614	382	481.8	395	66
16	2.39	-0.063	489	512	408	609	381	479.4	358	65
17	2.35	-0.061	485	509	408	602	380	476.6	339	65
18	2.28	-0.059	482	506	408	593	379	473.5	330	65
19	2.24	-0.060	478	503	405	585	379	469.7	322	65
20	2.21	-0.059	473	500	405	577	378	466.5	316	65
21	2.15	-0.059	469	497	401	571	377	462.8	312	65
22	2.11	-0.057	464	494	398	564	376	459.3	308	65
23	2.08	-0.057	460	491	396	560	376	456.4	304	65
24	2.03	-0.055	456	488	393	554	375	453.2	300	65
25	2.00	-0.055	453	485	389	549	374	449.8	297	65
26	1.95	-0.055	450	482	386	546	373	447.2	294	65
27	1.92	-0.055	446	479	383	541	372	444.4	292	65
28	1.89	-0.054	442	476	379	539	372	441.7	289	65
29	1.85	-0.054	440	474	378	535	371	439.3	289	65
30	1.81	-0.055	436	472	374	533	370	436.9	291	65
31	1.77	-0.054	433	469	371	536	370	435.7	291	65
32	1.74	-0.053	430	468	370	539	369	435.3	292	65
33	1.70	-0.052	428	466	367	539	369	433.8	291	65
34	1.68	-0.052	425	465	364	529	368	430.3	285	65
35	1.66	-0.051	423	463	362	520	368	427.0	277	65
36	1.63	-0.050	421	460	359	510	367	423.6	271	65
37	1.63	-0.050	419	458	354	501	367	419.7	264	65
38	1.60	-0.048	416	455	352	493	367	416.3	258	65
39	1.59	-0.048	414	451	349	484	366	412.7	254	65
40	1.57	-0.047	410	447	344	476	365	408.5	251	65
41	1.56	-0.048	409	444	342	467	365	405.3	245	65
42	1.54	-0.045	405	440	338	459	365	401.4	242	65
43	1.53	-0.045	403	435	334	452	365	397.9	238	65
44	1.52	-0.044	401	431	332	444	365	394.4	234	65

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
 Model: F1150-1
 Run #: 1

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/4/2024

Recording Interval (min): 1
 Run Time (min): 60

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	1.51	-0.044	398	427	330	438	364	391.4	232	65
46	1.49	-0.044	396	423	327	432	364	388.4	230	65
47	1.48	-0.043	393	420	323	426	364	385.1	229	65
48	1.47	-0.045	391	416	321	421	364	382.4	225	65
49	1.46	-0.042	389	412	320	417	363	380.2	223	65
50	1.44	-0.041	386	409	317	414	363	377.8	223	65
51	1.43	-0.041	384	406	316	410	363	376.0	222	65
52	1.42	-0.039	383	403	314	409	363	374.2	223	65
53	1.40	-0.043	381	400	313	406	363	372.4	221	65
54	1.39	-0.041	379	398	310	402	362	370.2	221	65
55	1.39	-0.041	377	395	307	400	362	368.3	218	65
56	1.37	-0.041	376	392	305	397	362	366.2	218	65
57	1.35	-0.040	375	390	303	394	361	364.5	216	65
58	1.34	-0.041	373	387	302	391	361	362.7	212	65
59	1.33	-0.040	372	385	300	388	361	360.8	211	65
60	1.32	-0.040	370	382	297	384	360	358.6	209	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 1

Technician: AK

Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.070	0.00	69	0.0		6.33		87	256	67	65
1	0.096	0.096	0.069	2.21	69	0.9	-	6.31	-0.02	92	265	68	65
2	0.242	0.146	0.068	2.26	69	1.0	-	6.17	-0.14	98	377	69	65
3	0.390	0.148	0.068	2.30	69	1.0	-	6.01	-0.16	110	495	70	65
4	0.538	0.148	0.070	2.34	69	1.0	-	5.80	-0.21	119	554	71	65
5	0.688	0.150	0.071	2.36	69	0.9	-	5.69	-0.11	111	482	70	65
6	0.838	0.150	0.069	2.39	69	1.0	-	5.63	-0.06	101	404	70	65
7	0.990	0.152	0.069	2.42	69	0.9	-	5.57	-0.06	95	360	70	65
8	1.142	0.152	0.070	2.44	70	0.9	-	5.50	-0.07	92	341	70	65
9	1.295	0.153	0.069	2.46	70	1.0	-	5.43	-0.07	90	335	70	65
10	1.451	0.156	0.070	2.49	70	0.9	91	5.34	-0.09	89	333	70	65
11	1.603	0.152	0.070	2.50	70	1.0	-	5.26	-0.08	89	334	70	65
12	1.760	0.157	0.069	2.52	70	1.0	-	5.18	-0.08	89	338	70	65
13	1.911	0.151	0.069	2.53	70	0.9	-	5.10	-0.08	89	344	70	65
14	2.070	0.159	0.070	2.54	71	0.9	-	5.00	-0.10	88	352	70	65
15	2.224	0.154	0.068	2.56	71	0.9	-	4.91	-0.09	89	361	70	65
16	2.382	0.158	0.069	2.57	71	1.0	-	4.80	-0.11	89	358	70	65
17	2.537	0.155	0.069	2.58	71	1.0	-	4.70	-0.10	89	354	71	65
18	2.694	0.157	0.070	2.59	72	1.0	-	4.59	-0.11	89	357	71	65
19	2.853	0.159	0.069	2.60	72	0.9	-	4.50	-0.09	89	361	71	65
20	3.008	0.155	0.069	2.60	72	1.0	97	4.39	-0.11	90	363	71	65
21	3.168	0.160	0.069	2.61	73	1.0	-	4.30	-0.09	90	363	71	65
22	3.324	0.156	0.070	2.63	73	1.0	-	4.19	-0.11	90	360	71	65
23	3.484	0.160	0.069	2.63	73	1.0	-	4.09	-0.10	90	365	71	65
24	3.642	0.158	0.068	2.64	73	0.9	-	3.99	-0.10	90	371	71	65
25	3.801	0.159	0.071	2.65	74	1.0	-	3.89	-0.10	90	376	71	65
26	3.962	0.161	0.070	2.65	74	1.0	-	3.79	-0.10	90	375	71	65
27	4.119	0.157	0.069	2.65	74	1.0	-	3.68	-0.11	90	377	71	65
28	4.281	0.162	0.070	2.66	75	1.0	-	3.57	-0.11	91	382	71	65
29	4.438	0.157	0.070	2.66	75	1.0	-	3.47	-0.10	91	384	71	65
30	4.599	0.161	0.070	2.67	75	1.0	99	3.36	-0.11	91	386	71	65
31	4.761	0.162	0.072	2.68	76	1.0	-	3.26	-0.10	91	389	71	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 1

Technician: AK

Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.919	0.158	0.070	2.68	76	1.0	-	3.15	-0.11	92	393	71	65
33	5.082	0.163	0.069	2.70	76	1.0	-	3.04	-0.11	92	396	71	65
34	5.241	0.159	0.069	2.68	76	1.0	-	2.94	-0.10	92	398	71	65
35	5.402	0.161	0.070	2.70	77	1.0	-	2.84	-0.10	92	401	71	65
36	5.565	0.163	0.068	2.70	77	1.0	-	2.73	-0.11	92	399	72	65
37	5.724	0.159	0.070	2.70	77	1.0	-	2.64	-0.09	92	400	72	65
38	5.886	0.162	0.070	2.72	78	1.0	-	2.53	-0.11	92	400	72	65
39	6.049	0.163	0.069	2.72	78	1.0	-	2.45	-0.08	92	398	72	65
40	6.208	0.159	0.068	2.71	78	1.0	100	2.36	-0.09	92	392	72	65
41	6.373	0.165	0.071	2.73	78	1.0	-	2.28	-0.08	92	391	72	66
42	6.533	0.160	0.070	2.72	79	1.0	-	2.19	-0.09	92	388	72	65
43	6.696	0.163	0.069	2.73	79	1.0	-	2.12	-0.07	91	382	72	66
44	6.859	0.163	0.069	2.74	79	1.0	-	2.04	-0.08	91	381	72	66
45	7.020	0.161	0.070	2.73	80	1.0	-	1.97	-0.07	91	381	72	66
46	7.183	0.163	0.070	2.74	80	1.0	-	1.90	-0.07	90	375	72	66
47	7.347	0.164	0.068	2.74	80	1.0	-	1.83	-0.07	90	373	72	66
48	7.507	0.160	0.068	2.75	80	1.0	-	1.76	-0.07	90	371	72	66
49	7.673	0.166	0.069	2.75	81	1.0	-	1.69	-0.07	90	371	72	66
50	7.834	0.161	0.069	2.76	81	1.0	101	1.62	-0.07	90	370	72	66
51	7.997	0.163	0.069	2.75	81	1.0	-	1.56	-0.06	90	369	72	66
52	8.162	0.165	0.070	2.76	81	1.0	-	1.50	-0.06	90	367	72	66
53	8.324	0.162	0.071	2.76	82	1.0	-	1.45	-0.05	89	362	72	66
54	8.487	0.163	0.071	2.75	82	1.0	-	1.40	-0.05	89	356	72	66
55	8.654	0.167	0.070	2.77	82	1.0	-	1.36	-0.04	89	352	72	66
56	8.813	0.159	0.070	2.76	82	1.0	-	1.32	-0.04	88	346	72	66
57	8.980	0.167	0.069	2.77	82	1.0	-	1.28	-0.04	88	340	72	66
58	9.144	0.164	0.069	2.76	83	1.0	-	1.24	-0.04	87	334	72	66
59	9.306	0.162	0.070	2.78	83	1.0	-	1.22	-0.02	87	329	71	66
60	9.473	0.167	0.069	2.78	83	1.0	101	1.18	-0.04	87	322	71	66
61	9.635	0.162	0.071	2.78	83	1.0	-	1.15	-0.03	86	314	71	66
62	9.800	0.165	0.070	2.79	84	1.0	-	1.13	-0.02	86	308	71	66
63	9.966	0.166	0.071	2.78	84	1.0	-	1.11	-0.02	85	299	71	66

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 1

Technician: AK

Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	10.128	0.162	0.068	2.79	84	1.0	-	1.09	-0.02	85	291	71	66
65	10.295	0.167	0.071	2.79	84	1.0	-	1.07	-0.02	84	284	71	66
66	10.461	0.166	0.070	2.80	84	1.0	-	1.05	-0.02	84	280	71	66
67	10.625	0.164	0.070	2.79	84	1.0	-	1.04	-0.01	84	272	71	65
68	10.791	0.166	0.069	2.80	84	1.0	-	1.03	-0.01	83	269	71	65
69	10.958	0.167	0.071	2.80	85	1.0	-	1.02	-0.01	83	265	71	65
70	11.121	0.163	0.070	2.80	85	1.0	100	0.98	-0.04	83	261	71	66
71	11.287	0.166	0.069	2.81	85	1.0	-	0.97	-0.01	83	256	71	65
72	11.454	0.167	0.070	2.80	85	1.0	-	0.96	-0.01	82	253	71	65
73	11.615	0.161	0.069	2.80	85	1.0	-	0.95	-0.01	82	251	71	65
74	11.783	0.168	0.069	2.80	85	1.0	-	0.93	-0.02	82	249	71	65
75	11.949	0.166	0.069	2.81	86	1.0	-	0.91	-0.02	82	247	71	65
76	12.111	0.162	0.068	2.80	86	1.0	-	0.89	-0.02	81	245	71	65
77	12.280	0.169	0.067	2.80	86	1.0	-	0.89	0.00	81	242	71	65
78	12.444	0.164	0.071	2.80	86	1.0	-	0.88	-0.01	81	242	71	66
79	12.607	0.163	0.069	2.81	86	1.0	-	0.85	-0.03	81	239	70	65
80	12.777	0.170	0.069	2.81	86	1.0	100	0.84	-0.01	81	239	70	65
81	12.940	0.163	0.070	2.81	86	1.0	-	0.82	-0.02	80	237	70	65
82	13.105	0.165	0.070	2.82	87	1.0	-	0.81	-0.01	80	235	70	65
83	13.274	0.169	0.069	2.81	87	1.0	-	0.80	-0.01	80	233	70	65
84	13.437	0.163	0.068	2.82	87	1.0	-	0.78	-0.02	80	230	70	65
85	13.603	0.166	0.068	2.82	87	1.0	-	0.77	-0.01	80	230	70	65
86	13.773	0.170	0.069	2.82	87	1.0	-	0.75	-0.02	80	229	70	65
87	13.936	0.163	0.068	2.83	87	1.0	-	0.74	-0.01	79	229	70	65
88	14.103	0.167	0.070	2.83	87	1.0	-	0.73	-0.01	79	229	70	65
89	14.273	0.170	0.068	2.82	87	1.0	-	0.72	-0.01	79	227	70	65
90	14.436	0.163	0.069	2.83	87	1.0	100	0.70	-0.02	79	224	70	65
91	14.605	0.169	0.069	2.82	87	1.0	-	0.69	-0.01	79	225	70	65
92	14.773	0.168	0.070	2.82	88	1.0	-	0.67	-0.02	79	225	70	65
93	14.937	0.164	0.069	2.81	88	1.0	-	0.66	-0.01	79	225	70	65
94	15.105	0.168	0.070	2.81	88	1.0	-	0.64	-0.02	79	224	70	65
95	15.272	0.167	0.068	2.82	88	1.0	-	0.63	-0.01	79	222	70	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: F24-333Model: F1150-1Tracking #: 214Run #: 1Technician: AKDate: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	15.437	0.165	0.069	2.83	88	1.0	-	0.61	-0.02	79	221	70	65
97	15.604	0.167	0.069	2.82	88	1.0	-	0.61	0.00	78	218	70	65
98	15.772	0.168	0.069	2.82	88	1.0	-	0.59	-0.02	78	219	70	65
99	15.937	0.165	0.069	2.82	88	1.0	-	0.57	-0.02	78	217	70	65
100	16.105	0.168	0.068	2.82	88	1.0	101	0.56	-0.01	78	216	70	65
101	16.275	0.170	0.068	2.83	88	1.0	-	0.56	0.00	78	216	70	65
102	16.440	0.165	0.068	2.84	88	1.0	-	0.54	-0.02	78	215	70	65
103	16.610	0.170	0.069	2.83	88	1.0	-	0.53	-0.01	78	214	70	65
104	16.779	0.169	0.070	2.83	89	1.0	-	0.51	-0.02	78	212	70	65
105	16.944	0.165	0.068	2.84	89	1.0	-	0.49	-0.02	78	211	70	65
106	17.125	0.181	0.069	2.83	89	1.0	-	0.49	0.00	78	211	70	65
107	17.296	0.171	0.067	2.82	89	1.0	-	0.47	-0.02	77	211	70	65
108	17.463	0.167	0.068	2.84	89	1.0	-	0.46	-0.01	78	211	70	65
109	17.632	0.169	0.069	2.83	89	1.0	-	0.45	-0.01	78	211	70	65
110	17.801	0.169	0.069	2.84	89	1.0	102	0.43	-0.02	77	208	70	65
111	17.968	0.167	0.068	2.84	89	1.0	-	0.42	-0.01	77	207	70	65
112	18.138	0.170	0.068	2.83	89	1.0	-	0.41	-0.01	77	206	70	65
113	18.310	0.172	0.070	2.83	89	1.0	-	0.40	-0.01	77	206	69	65
114	18.475	0.165	0.068	2.84	89	1.0	-	0.39	-0.01	77	205	69	65
115	18.644	0.169	0.069	2.84	89	1.0	-	0.37	-0.02	77	203	69	65
116	18.814	0.170	0.067	2.83	89	1.0	-	0.36	-0.01	77	201	69	65
117	18.981	0.167	0.067	2.84	89	1.0	-	0.35	-0.01	77	201	69	65
118	19.151	0.170	0.069	2.84	89	1.0	-	0.33	-0.02	77	200	69	65
119	19.323	0.172	0.069	2.84	89	1.0	-	0.33	0.00	77	200	69	65
120	19.493	0.170	0.068	2.85	90	1.0	102	0.32	-0.01	77	198	69	65
121	19.661	0.168	0.069	2.84	90	1.0	-	0.30	-0.02	77	199	69	65
122	19.835	0.174	0.068	2.85	90	1.0	-	0.29	-0.01	77	198	69	65
123	20.000	0.165	0.070	2.84	90	1.0	-	0.29	0.00	76	196	69	65
124	20.167	0.167	0.070	2.84	90	1.0	-	0.27	-0.02	76	196	69	65
125	20.338	0.171	0.069	2.83	90	1.0	-	0.26	-0.01	76	194	69	65
126	20.508	0.170	0.071	2.84	90	1.0	-	0.25	-0.01	76	195	69	65
127	20.681	0.173	0.069	2.85	90	1.0	-	0.24	-0.01	76	194	69	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 1

Technician: AK

Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	20.859	0.178	0.069	2.85	90	1.0	-	0.23	-0.01	76	193	69	65
129	21.027	0.168	0.071	2.85	90	1.0	-	0.22	-0.01	76	192	69	65
130	21.199	0.172	0.069	2.86	90	1.0	103	0.21	-0.01	76	192	69	65
131	21.371	0.172	0.067	2.85	90	1.0	-	0.20	-0.01	76	192	69	65
132	21.541	0.170	0.069	2.85	90	1.0	-	0.19	-0.01	76	191	69	65
133	21.705	0.164	0.068	2.85	90	1.0	-	0.18	-0.01	76	189	69	65
134	21.875	0.170	0.069	2.85	90	1.0	-	0.17	-0.01	76	188	69	65
135	22.044	0.169	0.069	2.84	90	1.0	-	0.16	-0.01	76	188	69	65
136	22.209	0.165	0.070	2.85	90	1.0	-	0.15	-0.01	76	188	69	65
137	22.380	0.171	0.071	2.86	90	1.0	-	0.15	0.00	76	186	69	65
138	22.550	0.170	0.068	2.85	90	1.0	-	0.13	-0.02	76	185	69	65
139	22.721	0.171	0.069	2.86	90	1.0	-	0.12	-0.01	76	183	69	65
140	22.893	0.172	0.069	2.86	90	1.0	101	0.11	-0.01	76	183	69	65
141	23.065	0.172	0.071	2.86	90	1.0	-	0.11	0.00	76	184	69	65
142	23.234	0.169	0.068	2.86	90	1.0	-	0.10	-0.01	75	184	69	65
143	23.405	0.171	0.069	2.85	90	1.0	-	0.09	-0.01	75	183	69	65
144	23.576	0.171	0.069	2.85	90	1.0	-	0.08	-0.01	75	184	69	65
145	23.744	0.168	0.070	2.85	90	1.0	-	0.07	-0.01	75	182	69	65
146	23.912	0.168	0.071	2.85	90	1.0	-	0.07	0.00	75	181	69	65
147	24.082	0.170	0.069	2.86	90	1.0	-	0.05	-0.02	75	180	69	65
148	24.255	0.173	0.069	2.85	90	1.0	-	0.04	-0.01	75	181	69	65
149	24.425	0.170	0.069	2.85	91	1.0	-	0.04	0.00	75	181	69	65
150	24.594	0.169	0.068	2.85	91	1.0	102	0.02	-0.02	75	180	69	65
151	24.759	0.165	0.070	2.86	91	1.0	-	0.01	-0.01	75	179	69	65
152	24.929	0.170	0.068	2.84	91	1.0	-	0.01	0.00	75	178	69	65
153	25.109	0.180	0.070	2.86	91	1.0	101	0.00	-0.01	75	177	69	65
Avg/Tot	25.109	0.164	0.069	2.73	83.1	1.0	100			83.6	278.1	70.2	65.1

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 1

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
0	0.000		0.01	70	0.7		68	-0.049	2.02	0.517
1	0.129	0.129	2.48	70	2.0	-	70	-0.057	0.88	0.272
2	0.279	0.150	2.49	70	1.6	-	71	-0.076	4.46	0.343
3	0.432	0.153	2.48	70	1.6	-	73	-0.086	6.83	0.178
4	0.583	0.151	2.48	70	1.6	-	75	-0.083	7.84	0.155
5	0.736	0.153	2.48	70	1.7	-	75	-0.078	8.52	0.200
6	0.889	0.153	2.49	70	1.6	-	74	-0.064	7.63	0.281
7	1.042	0.153	2.50	70	2.1	-	73	-0.060	5.20	0.493
8	1.196	0.154	2.50	71	1.7	-	73	-0.063	5.80	0.388
9	1.346	0.150	2.50	71	2.0	-	73	-0.063	6.77	0.324
10	1.502	0.156	2.51	71	2.1	98	73	-0.061	7.17	0.211
11	1.652	0.150	2.50	71	1.6	-	73	-0.063	7.13	0.220
12	1.809	0.157	2.51	71	2.0	-	73	-0.063	7.59	0.205
13	1.960	0.151	2.51	71	1.6	-	73	-0.066	8.20	0.166
14	2.115	0.155	2.51	72	1.8	-	73	-0.067	8.82	0.193
15	2.267	0.152	2.51	72	1.7	-	73	-0.067	9.21	0.222
16	2.421	0.154	2.51	72	1.7	-	73	-0.067	9.67	0.244
17	2.576	0.155	2.52	73	1.9	-	73	-0.068	9.56	0.275
18	2.729	0.153	2.52	73	1.8	-	73	-0.067	9.66	0.213
19	2.885	0.156	2.52	73	1.7	-	73	-0.067	9.87	0.173
20	3.036	0.151	2.52	73	1.7	100	73	-0.068	9.99	0.186
21	3.193	0.157	2.53	74	1.8	-	73	-0.068	9.87	0.215
22	3.346	0.153	2.53	74	2.1	-	73	-0.066	9.72	0.208
23	3.503	0.157	2.53	74	1.6	-	73	-0.068	9.91	0.177
24	3.655	0.152	2.53	75	2.0	-	73	-0.070	10.41	0.165
25	3.810	0.155	2.53	75	2.0	-	73	-0.071	10.66	0.194
26	3.966	0.156	2.53	75	2.0	-	73	-0.071	10.60	0.211
27	4.121	0.155	2.53	75	2.1	-	73	-0.070	10.91	0.242
28	4.277	0.156	2.53	76	1.7	-	73	-0.070	11.11	0.264
29	4.429	0.152	2.53	76	1.8	-	73	-0.070	11.28	0.260
30	4.588	0.159	2.54	76	2.0	101	73	-0.071	11.37	0.231
31	4.741	0.153	2.55	77	1.8	-	73	-0.071	11.48	0.330

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 1

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
32	4.897	0.156	2.54	77	2.0	-	73	-0.072	11.70	0.321
33	5.053	0.156	2.54	77	1.8	-	73	-0.073	11.76	0.286
34	5.209	0.156	2.54	78	2.0	-	73	-0.074	11.88	0.333
35	5.365	0.156	2.55	78	1.7	-	73	-0.072	11.93	0.357
36	5.519	0.154	2.54	78	1.6	-	74	-0.073	11.92	0.438
37	5.678	0.159	2.55	79	1.7	-	74	-0.072	12.00	0.390
38	5.832	0.154	2.56	79	1.8	-	74	-0.072	11.85	0.331
39	5.989	0.157	2.54	79	1.6	-	74	-0.071	11.25	0.271
40	6.146	0.157	2.55	80	1.7	101	74	-0.071	11.01	0.140
41	6.302	0.156	2.55	80	1.8	-	74	-0.069	10.48	0.118
42	6.460	0.158	2.55	80	1.7	-	74	-0.071	10.28	0.111
43	6.614	0.154	2.56	81	1.7	-	74	-0.069	10.20	0.111
44	6.774	0.160	2.56	81	1.8	-	74	-0.067	10.04	0.094
45	6.928	0.154	2.55	81	1.7	-	74	-0.069	9.96	0.100
46	7.087	0.159	2.56	82	2.0	-	74	-0.068	9.90	0.126
47	7.245	0.158	2.56	82	1.9	-	74	-0.067	9.91	0.124
48	7.400	0.155	2.56	82	2.0	-	74	-0.068	10.10	0.116
49	7.560	0.160	2.56	82	1.6	-	74	-0.068	10.15	0.098
50	7.715	0.155	2.57	83	1.8	102	74	-0.067	10.03	0.081
51	7.873	0.158	2.56	83	2.0	-	74	-0.066	10.00	0.068
52	8.032	0.159	2.57	83	1.9	-	74	-0.066	9.72	0.069
53	8.188	0.156	2.56	83	1.7	-	74	-0.064	9.26	0.075
54	8.348	0.160	2.57	84	1.6	-	74	-0.062	8.90	0.063
55	8.504	0.156	2.57	84	1.8	-	73	-0.063	8.46	0.063
56	8.663	0.159	2.57	84	1.9	-	73	-0.063	8.08	0.126
57	8.821	0.158	2.57	84	1.7	-	73	-0.059	7.87	0.163
58	8.979	0.158	2.57	85	1.7	-	73	-0.060	7.68	0.182
59	9.138	0.159	2.57	85	2.1	-	73	-0.059	7.53	0.165
60	9.295	0.157	2.57	85	2.1	101	73	-0.059	7.46	0.133
61	9.455	0.160	2.58	86	2.0	-	73	-0.057	7.11	0.182
62	9.613	0.158	2.58	86	1.6	-	73	-0.056	6.69	0.251
63	9.772	0.159	2.58	86	1.9	-	73	-0.057	6.40	0.304

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 1

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
64	9.931	0.159	2.58	86	1.6	-	73	-0.053	6.11	0.340
65	10.088	0.157	2.58	86	1.6	-	73	-0.052	6.13	0.381
66	10.249	0.161	2.58	86	1.9	-	73	-0.052	6.10	0.397
67	10.407	0.158	2.58	87	1.7	-	73	-0.050	5.97	0.430
68	10.566	0.159	2.59	87	2.1	-	73	-0.051	5.86	0.451
69	10.726	0.160	2.58	87	1.6	-	73	-0.050	5.95	0.477
70	10.883	0.157	2.59	87	2.1	100	72	-0.049	5.81	0.477
71	11.044	0.161	2.59	87	2.1	-	72	-0.049	5.89	0.513
72	11.203	0.159	2.59	87	1.7	-	72	-0.048	5.78	0.537
73	11.360	0.157	2.58	88	1.9	-	72	-0.048	5.87	0.574
74	11.522	0.162	2.58	88	1.9	-	72	-0.046	5.70	0.575
75	11.679	0.157	2.58	88	1.7	-	72	-0.047	5.79	0.613
76	11.839	0.160	2.58	88	1.8	-	72	-0.047	5.83	0.634
77	11.999	0.160	2.58	89	1.8	-	72	-0.046	5.74	0.650
78	12.157	0.158	2.59	89	2.0	-	72	-0.047	5.81	0.675
79	12.318	0.161	2.58	89	1.7	-	72	-0.048	5.81	0.722
80	12.475	0.157	2.58	89	2.0	100	72	-0.045	5.65	0.736
81	12.636	0.161	2.58	89	2.0	-	72	-0.045	5.69	0.768
82	12.796	0.160	2.59	89	1.9	-	72	-0.044	5.52	0.775
83	12.953	0.157	2.57	89	1.9	-	72	-0.046	5.56	0.831
84	13.116	0.163	2.58	90	1.9	-	72	-0.045	5.58	0.850
85	13.273	0.157	2.59	90	1.9	-	72	-0.045	5.45	0.882
86	13.434	0.161	2.59	90	1.7	-	72	-0.045	5.46	0.903
87	13.594	0.160	2.59	90	2.0	-	72	-0.046	5.39	0.924
88	13.752	0.158	2.59	90	1.8	-	72	-0.044	5.39	0.941
89	13.914	0.162	2.60	90	2.0	-	71	-0.044	5.34	0.959
90	14.073	0.159	2.59	90	1.8	100	71	-0.045	5.40	0.981
91	14.233	0.160	2.60	90	1.7	-	71	-0.043	5.27	0.971
92	14.394	0.161	2.59	90	1.8	-	71	-0.043	5.27	0.971
93	14.553	0.159	2.60	91	1.8	-	71	-0.042	5.30	0.956
94	14.713	0.160	2.59	91	1.8	-	71	-0.043	5.36	0.914
95	14.874	0.161	2.59	91	1.7	-	71	-0.044	5.38	0.926

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 1

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
96	15.033	0.159	2.59	91	1.9	-	71	-0.043	5.30	0.905
97	15.195	0.162	2.60	91	1.9	-	71	-0.043	5.43	0.955
98	15.353	0.158	2.60	91	1.7	-	71	-0.041	5.21	0.934
99	15.515	0.162	2.60	91	2.0	-	71	-0.042	5.30	0.875
100	15.675	0.160	2.60	91	1.7	101	71	-0.043	5.14	0.880
101	15.834	0.159	2.60	92	1.8	-	71	-0.041	5.08	0.889
102	15.996	0.162	2.60	92	1.9	-	71	-0.042	5.10	0.929
103	16.156	0.160	2.60	92	1.9	-	71	-0.041	5.30	0.721
104	16.316	0.160	2.60	92	1.7	-	71	-0.041	5.33	0.762
105	16.476	0.160	2.55	92	2.0	-	71	-0.042	5.34	0.788
106	16.634	0.158	2.55	92	1.7	-	71	-0.041	5.08	0.831
107	16.794	0.160	2.54	92	1.9	-	71	-0.040	5.10	0.855
108	16.952	0.158	2.54	92	1.8	-	71	-0.039	4.92	0.864
109	17.110	0.158	2.54	92	1.7	-	71	-0.040	4.92	0.900
110	17.271	0.161	2.54	92	1.8	100	71	-0.039	4.93	0.946
111	17.428	0.157	2.55	92	2.0	-	71	-0.040	4.83	0.968
112	17.587	0.159	2.54	92	2.0	-	71	-0.040	4.94	0.989
113	17.747	0.160	2.54	92	1.9	-	71	-0.039	4.93	0.978
114	17.904	0.157	2.54	93	1.8	-	71	-0.040	4.92	0.997
115	18.066	0.162	2.55	93	1.7	-	71	-0.039	4.83	1.018
116	18.223	0.157	2.55	93	2.0	-	71	-0.041	4.65	1.045
117	18.382	0.159	2.54	93	1.7	-	71	-0.039	4.60	1.055
118	18.542	0.160	2.54	93	1.7	-	71	-0.041	4.60	1.027
119	18.700	0.158	2.55	93	2.0	-	71	-0.040	4.56	1.059
120	18.861	0.161	2.54	93	2.0	99	71	-0.039	4.53	1.061
121	19.018	0.157	2.55	93	1.9	-	71	-0.041	4.44	1.094
122	19.178	0.160	2.55	93	1.9	-	71	-0.040	4.35	1.069
123	19.339	0.161	2.55	93	1.8	-	70	-0.038	4.34	1.082
124	19.495	0.156	2.54	93	2.0	-	71	-0.040	4.33	1.102
125	19.657	0.162	2.55	93	1.7	-	70	-0.036	4.28	1.160
126	19.814	0.157	2.55	93	1.8	-	70	-0.040	4.19	1.139
127	19.975	0.161	2.54	93	1.8	-	70	-0.039	4.24	1.169

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 1

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
128	20.134	0.159	2.55	93	1.7	-	70	-0.040	4.21	1.178
129	20.291	0.157	2.55	93	2.0	-	70	-0.037	4.10	1.114
130	20.454	0.163	2.55	93	1.9	100	70	-0.038	4.02	1.100
131	20.610	0.156	2.55	93	2.0	-	70	-0.038	4.03	1.111
132	20.771	0.161	2.55	93	2.0	-	70	-0.038	4.07	1.129
133	20.931	0.160	2.56	93	2.0	-	70	-0.035	4.00	1.161
134	21.089	0.158	2.55	93	1.7	-	70	-0.039	4.11	0.945
135	21.250	0.161	2.56	94	2.0	-	70	-0.036	4.12	0.976
136	21.408	0.158	2.55	94	1.9	-	70	-0.037	3.92	0.987
137	21.568	0.160	2.55	94	2.0	-	70	-0.037	4.03	1.041
138	21.728	0.160	2.55	94	1.8	-	70	-0.036	3.91	1.045
139	21.886	0.158	2.54	94	1.9	-	70	-0.037	3.91	1.100
140	22.047	0.161	2.55	94	1.7	99	70	-0.037	3.81	1.162
141	22.206	0.159	2.55	94	1.7	-	70	-0.037	3.83	1.164
142	22.365	0.159	2.55	94	1.7	-	70	-0.036	3.76	1.183
143	22.526	0.161	2.55	94	1.9	-	70	-0.038	3.77	1.234
144	22.684	0.158	2.55	94	1.8	-	70	-0.036	3.71	1.250
145	22.844	0.160	2.55	94	2.0	-	70	-0.036	3.71	1.248
146	23.004	0.160	2.55	94	2.0	-	70	-0.035	3.58	1.288
147	23.162	0.158	2.56	94	1.7	-	70	-0.036	3.50	1.298
148	23.324	0.162	2.55	94	1.7	-	70	-0.038	3.50	1.269
149	23.481	0.157	2.55	94	1.7	-	70	-0.034	3.48	1.292
150	23.642	0.161	2.55	94	1.8	99	70	-0.035	3.78	1.104
151	23.802	0.160	2.56	94	2.0	-	70	-0.035	3.72	1.092
152	23.959	0.157	2.55	94	2.0	-	70	-0.034	3.88	1.030
153	24.123	0.164	2.56	94	2.1	99	70	-0.035	3.85	1.009
Avg/Tot	24.123	0.158	2.54	85.4	1.8	100	71.9	-0.052	6.61	0.630

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 1

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		-0.01	73	0.1		67
1	0.124	0.124	1.05	72	1.6	-	67
2	0.272	0.148	1.05	72	1.7	-	67
3	0.419	0.147	1.05	72	1.6	-	68
4	0.567	0.148	1.05	72	1.6	-	69
5	0.715	0.148	1.06	72	1.6	-	69
6	0.864	0.149	1.07	73	1.7	-	68
7	1.013	0.149	1.07	73	1.8	-	69
8	1.163	0.150	1.08	73	1.8	-	69
9	1.314	0.151	1.08	73	1.8	-	69
10	1.464	0.150	1.09	73	1.8	96	69
11	1.615	0.151	1.09	74	1.8	-	69
12	1.766	0.151	1.09	74	1.6	-	69
13	1.917	0.151	1.09	74	1.6	-	69
14	2.069	0.152	1.09	74	1.7	-	69
15	2.221	0.152	1.09	75	1.8	-	69
16	2.373	0.152	1.09	75	1.8	-	69
17	2.526	0.153	1.10	75	1.7	-	69
18	2.678	0.152	1.10	76	1.6	-	69
19	2.830	0.152	1.10	76	1.8	-	69
20	2.982	0.152	1.10	76	1.7	100	69
21	3.134	0.152	1.10	76	1.8	-	69
22	3.287	0.153	1.10	76	1.7	-	69
23	3.440	0.153	1.10	76	1.7	-	69
24	3.594	0.154	1.11	77	1.6	-	69
25	3.747	0.153	1.11	77	1.6	-	69
26	3.900	0.153	1.12	77	1.6	-	70
27	4.053	0.153	1.11	78	1.6	-	70
28	4.208	0.155	1.11	78	1.6	-	70
29	4.362	0.154	1.12	78	1.6	-	70
30	4.517	0.155	1.12	78	1.8	100	70
31	4.671	0.154	1.13	79	1.6	-	70

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 1

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/4/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.825	0.154	1.12	79	1.6	-	70
33	4.981	0.156	1.12	79	1.7	-	70
34	5.136	0.155	1.13	80	1.8	-	70
35	5.292	0.156	1.14	80	1.6	-	70
36	5.447	0.155	1.13	80	1.8	-	70
37	5.603	0.156	1.13	81	1.8	-	70
38	5.760	0.157	1.14	81	1.6	-	70
39	5.915	0.155	1.14	81	1.8	-	70
40	6.071	0.156	1.14	81	1.8	102	70
41	6.229	0.158	1.14	81	1.8	-	70
42	6.385	0.156	1.15	81	1.6	-	70
43	6.541	0.156	1.14	82	1.7	-	70
44	6.699	0.158	1.15	82	1.9	-	71
45	6.857	0.158	1.15	82	1.8	-	71
46	7.013	0.156	1.14	82	1.7	-	71
47	7.172	0.159	1.15	82	1.6	-	70
48	7.329	0.157	1.16	82	1.6	-	70
49	7.487	0.158	1.15	83	1.8	-	70
50	7.645	0.158	1.16	83	1.7	103	71
51	7.802	0.157	1.16	83	1.7	-	71
52	7.961	0.159	1.15	83	1.8	-	71
53	8.120	0.159	1.16	84	1.6	-	70
54	8.277	0.157	1.16	84	1.6	-	70
55	8.437	0.160	1.15	84	1.7	-	70
56	8.596	0.159	1.17	84	1.7	-	70
57	8.754	0.158	1.16	84	1.8	-	70
58	8.913	0.159	1.16	84	1.8	-	70
59	9.071	0.158	1.16	84	1.7	-	70
60	9.231	0.160	1.16	85	1.7	103	71
Avg/Tot	9.231	0.154	1.10	78.3	1.7	101	69.5

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 1

Technician: AK

Date: 11/4/2024

Stove ΔT: 71

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	366	377	327	368	359	359.3	65.4
1	364	374	333	359	359	357.7	65.5
2	361	369	335	376	359	359.8	65.5
3	358	365	338	414	358	366.4	65.6
4	356	364	341	467	358	377.2	65.6
5	356	368	347	505	356	386.3	65.5
6	356	370	352	520	357	391.2	65.7
7	357	370	354	519	356	391.3	65.7
8	356	368	355	524	356	391.7	65.7
9	353	365	356	530	356	391.9	65.6
10	351	363	357	535	355	392.3	65.5
11	349	363	357	541	355	392.7	65.4
12	347	364	357	548	354	394.0	65.4
13	346	368	357	556	354	395.9	65.5
14	344	372	358	564	353	397.9	65.6
15	343	376	359	575	352	401.0	65.6
16	343	381	331	586	351	398.5	65.5
17	343	386	323	596	350	399.5	65.5
18	344	392	314	606	349	400.9	65.4
19	345	398	309	616	347	403.0	65.4
20	346	404	306	624	346	405.1	65.4
21	347	410	303	629	345	406.7	65.4
22	348	416	300	632	343	407.9	65.3
23	349	421	299	641	342	410.4	65.4
24	351	426	300	653	340	413.8	65.4
25	352	431	300	666	339	417.3	65.3
26	353	435	301	674	338	420.1	65.3
27	354	439	303	682	336	422.9	65.4
28	356	443	306	692	335	426.5	65.3
29	358	448	310	703	334	430.3	65.3
30	360	453	312	714	333	434.3	65.3
31	362	457	315	725	331	438.1	65.3
32	365	462	318	737	330	442.2	65.4
33	367	467	321	746	329	446.0	65.5
34	369	471	324	752	328	449.1	65.5
35	371	476	326	760	328	452.0	65.6
36	374	480	328	770	327	455.6	65.6
37	376	484	330	779	326	458.9	65.6
38	379	487	331	787	325	461.9	65.5
39	382	490	335	791	325	464.5	65.6
40	385	493	336	789	324	465.2	65.6
41	388	495	338	784	324	465.7	65.5
42	390	498	339	778	323	465.6	65.6
43	394	500	341	774	323	466.3	65.7
44	396	502	343	770	323	466.6	65.6
45	398	504	343	764	322	466.0	65.6
46	399	505	345	759	322	466.2	65.7
47	401	506	346	754	321	465.7	65.7

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 1

Technician: AK

Date: 11/4/2024

Stove ΔT: 71

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	402	507	348	752	321	465.9	65.7
49	403	508	349	753	320	466.5	65.7
50	404	508	352	754	320	467.6	65.7
51	406	508	355	752	320	467.9	65.7
52	406	509	357	735	319	465.2	65.8
53	407	509	359	719	319	462.5	65.8
54	409	509	362	706	319	461.0	65.8
55	410	509	363	694	318	458.9	65.8
56	410	509	363	682	318	456.3	65.7
57	410	508	362	669	318	453.4	65.7
58	410	507	363	658	318	451.0	65.8
59	410	505	362	646	318	448.1	65.8
60	409	504	362	632	318	445.0	65.8
61	408	503	361	620	319	442.1	65.8
62	407	502	360	606	319	438.5	65.8
63	406	500	358	593	319	435.1	65.7
64	406	497	356	578	319	431.3	65.7
65	406	494	354	568	319	428.0	65.7
66	405	490	351	557	319	424.3	65.6
67	404	487	350	547	320	421.3	65.7
68	403	483	346	535	320	417.4	65.6
69	402	479	344	526	320	414.3	65.6
70	401	476	341	517	320	411.1	65.7
71	400	472	339	509	321	408.1	65.7
72	399	468	337	502	321	405.3	65.6
73	398	465	336	495	321	403.2	65.7
74	398	462	333	489	321	400.5	65.6
75	396	459	333	484	321	398.7	65.7
76	396	455	330	480	322	396.5	65.7
77	394	453	329	473	322	394.2	65.7
78	393	450	328	468	322	392.2	65.7
79	392	447	327	465	322	390.5	65.7
80	391	444	325	461	322	388.7	65.7
81	389	442	323	458	322	386.9	65.6
82	388	440	322	453	323	385.0	65.6
83	386	437	321	448	323	383.0	65.7
84	386	435	320	445	323	381.5	65.7
85	384	432	318	442	322	379.6	65.7
86	383	430	316	438	323	377.8	65.7
87	382	428	316	434	323	376.4	65.8
88	380	425	314	432	323	374.7	65.8
89	379	423	312	429	322	373.0	65.7
90	377	421	311	426	322	371.4	65.8
91	376	419	310	422	322	369.6	65.8
92	375	417	309	421	322	368.6	65.9
93	373	414	308	417	322	366.8	65.9
94	372	412	307	415	322	365.5	65.8
95	371	410	305	412	322	364.0	65.7

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 1

Technician: AK

Date: 11/4/2024

Stove ΔT: 71

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	370	408	304	409	321	362.6	65.7
97	368	407	303	407	321	361.4	65.7
98	367	405	303	404	321	360.0	65.7
99	366	404	301	403	321	358.8	65.7
100	365	402	301	401	321	357.9	65.8
101	364	401	299	399	320	356.6	65.7
102	362	400	298	396	320	355.2	65.7
103	362	399	296	394	320	354.0	65.7
104	361	397	294	392	320	352.7	65.7
105	360	396	293	389	320	351.3	65.7
106	359	395	291	387	320	350.2	65.8
107	357	393	288	386	319	348.6	65.7
108	356	392	285	384	319	347.3	65.7
109	356	391	284	381	319	346.0	65.6
110	354	389	281	380	319	344.6	65.6
111	353	388	279	377	319	343.1	65.6
112	351	387	277	375	319	341.7	65.6
113	350	386	275	374	319	340.7	65.6
114	349	384	273	372	319	339.5	65.5
115	347	383	271	370	318	338.1	65.6
116	346	382	270	368	318	336.7	65.7
117	345	381	268	366	318	335.5	65.7
118	343	379	266	364	317	333.9	65.7
119	342	378	265	362	317	332.6	65.6
120	341	376	264	360	317	331.4	65.6
121	340	375	262	358	316	330.0	65.6
122	339	373	260	356	315	328.6	65.6
123	337	372	258	354	315	327.1	65.5
124	335	370	257	352	314	325.7	65.5
125	334	369	255	350	314	324.3	65.5
126	333	367	253	348	313	322.9	65.5
127	331	366	251	347	313	321.4	65.5
128	330	364	250	345	312	320.3	65.5
129	328	363	249	343	311	318.6	65.4
130	326	361	247	341	311	317.3	65.5
131	325	360	246	339	310	316.0	65.5
132	323	358	245	338	310	314.7	65.6
133	322	357	244	336	309	313.4	65.6
134	320	355	242	335	309	312.0	65.7
135	319	354	240	332	308	310.5	65.6
136	318	352	238	330	307	309.1	65.6
137	317	351	237	330	307	308.0	65.6
138	315	349	236	328	306	306.7	65.7
139	314	348	235	326	305	305.3	65.7
140	312	346	233	324	304	303.9	65.6
141	311	345	231	321	304	302.2	65.7
142	310	343	230	319	303	300.9	65.7
143	309	342	229	317	302	299.8	65.8

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F1150-1
Run #: 1

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/4/2024

Stove ΔT: 71

Temperature Data (°F)							
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	308	340	227	317	302	298.7	65.7
145	306	339	226	315	301	297.4	65.7
146	306	337	225	313	301	296.3	65.7
147	304	336	223	311	300	294.9	65.7
148	303	334	223	309	299	293.7	65.7
149	302	333	222	307	299	292.5	65.8
150	301	331	221	306	298	291.5	65.7
151	300	330	220	305	297	290.2	65.6
152	299	329	219	303	297	289.1	65.6
153	298	328	218	301	296	288.0	65.7
Average	362.1	417.5	305.4	501.3	323.6	382.0	65.6

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F1150-1
Run #: 1

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/4/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	A	G1141	244.5	246.1	1.6
	B	G1142	244.4	246.0	1.6
	C - 1st Hour	G1143	245.1	246.8	1.7
	Amb	G1144	237.5	237.7	0.2
Probes	A	2A	116058.9	116059.0	0.1
	B	2B	116175.1	116175.1	0.0
	C - 1st Hour	2C	116430.0	116430.0	0.0
O-rings	A	2A	3554.1	3554.2	0.1
	B	2B	3573.3	3573.5	0.2
	C - 1st Hour	2C	3392.0	3392.0	0.0

Placed in Dessicator on: 11/4/2024

Balance Audit (mg):		200.0		200.0					
		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	A	246.3	11/6 16:00	246.1	11/7 16:30				
	B	246.2	11/6 16:00	246.0	11/7 16:30				
	C - 1st Hour	247.0	11/6 16:00	246.8	11/7 16:30				
	Amb	237.6	11/6 16:00	237.7	11/7 16:30				
Probes	A	116058.9	11/6 16:00	116059.0	11/7 16:30				
	B	116175.2	11/6 16:00	116175.1	11/7 16:30				
	C - 1st Hour	116430.1	11/6 16:00	116430.0	11/7 16:30				
O-Rings	A	3554.4	11/6 16:00	3554.2	11/7 16:30				
	B	3573.5	11/6 16:00	3573.5	11/7 16:30				
	C - 1st Hour	3392.0	11/6 16:00	3392.0	11/7 16:30				

Train A Aggregate, mg:	1.8
Train B Aggregate, mg:	1.8
Train C Aggregate, mg:	1.7
Ambient, mg:	0.2

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: F24-333 Tracking #: 214
Model: F1150-1 Run Number: 1 Test Date: 11/4/2024

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Fully Closed
Targeted Burn Category: I

Preburn Notes

Time	Notes
10:00	+1.30 lb

Test Notes

Test Burn Start Time: 12:22 Test Fuel Loaded by: 35 seconds
Door Closed: 235 seconds Air Control Set at: 300 seconds
Other Loading Notes: Fan on low at 15:00

Time	Notes
	-None-

Test Burn End Time: 14:55


Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO₂ (%): 16.98 CO (%): 4.300
Mid Gas CO₂ (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	10:23	10:24	10:25	15:04	15:06	15:07
CO ₂	0.00	16.98	10.10	-0.05	17.00	10.09
CO	0.000	4.305	2.523	-0.018	4.294	2.502

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

Technician Signature: 

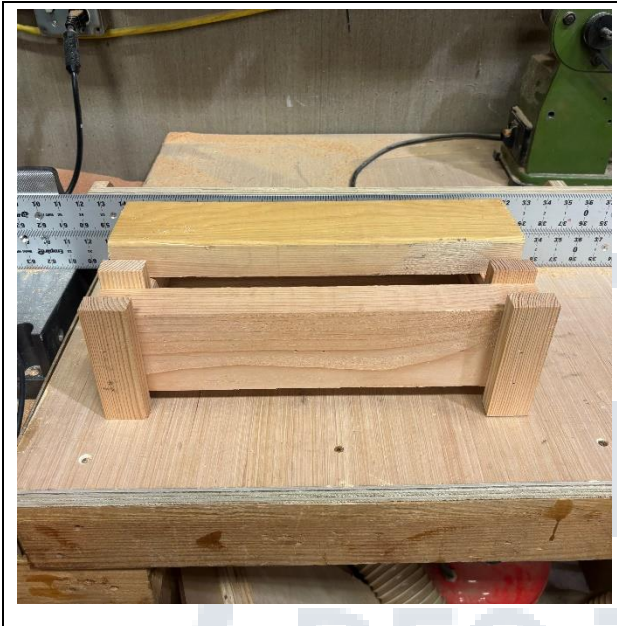
Date: 11/20/24

ASTM E2780 Wood Heater Run Sheets

Client: **FPI**
Model: **F1150-1**

Job Number: **F24-333**
Run Number: **1**

Tracking #: **214**
Test Date: **11/4/2024**



Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____

[Handwritten Signature]

Date: 11/20/24

WOOD STOVE TEST DATA PACKET

ASTM E2780/E2515



Run 2 Data Summary

Client:	FPI
Model:	F1150-1
Job #:	F24-333
Tracking #:	214
Test Date:	11/5/2024



Technician Signature

11/20/2024

Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 2

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/5/2024

Burn Rate (kg/hr):	1.07
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft ³)	31.627	21.982	21.293	9.123
Average Gas Velocity in Dilution Tunnel (ft/sec)	17.2			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11583.9			
Average Gas Meter Temperature (°F)	64.2	80.5	82.4	75.9
Total Sample Volume (dscf)	32.210	21.681	21.257	9.150
Average Tunnel Temperature (°F)	86.9			
Total Time of Test (min)	136			
Total Particulate Catch (mg)	0.1	2.1	1.8	1.8
Particulate Concentration, dry-standard (g/dscf)	0.0000031	0.0000969	0.0000847	0.0001967
Total PM Emissions (g)	0.08	2.46	2.14	2.24
Particulate Emission Rate (g/hr)	0.04	1.09	0.94	2.24
Emissions Factor (g/kg)	-	1.01	0.88	-
Difference from Average Total Particulate Emissions (g)	-	0.16	0.16	-
Difference from Average Total Particulate Emissions (%)	-	6.9%	6.9%	-
Difference from Average Emissions Factor (g/kg)	-	0.07	0.07	-

Final Average Results	
Total Particulate Emissions (g)	2.30
Particulate Emission Rate (g/hr)	1.02
Emissions Factor (g/kg)	0.95
HHV Efficiency (%)	70.6%
LHV Efficiency (%)	76.3%
CO Emissions (g/min)	1.30

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	72.8	OK
Face Velocity	< 30 ft/min	9.2	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:61.8/Max:65.3	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	103.9	OK

B415.1 Efficiency Results

Manufacturer: FPI
Model: F1150-1
Date: 11/05/24
Run: 2
Control #: F24-333
Test Duration: 136
Output Category: 2

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	70.6%	76.3%
Combustion Efficiency	95.0%	95.0%
Heat Transfer Efficiency	74.3%	80.3%

Output Rate (kJ/h)	14,746	13,988	(Btu/h)
Burn Rate (kg/h)	1.05	2.32	(lb/h)
Input (kJ/h)	20,890	19,816	(Btu/h)

Test Load Weight (dry kg)	2.39	5.27	dry lb
MC wet (%)	17.94		
MC dry (%)	21.87		
Particulate (g)	2.30		
CO (g)	176		
Test Duration (h)	2.27		

Emissions	Particulate	CO
g/MJ Output	0.07	5.27
g/kg Dry Fuel	0.96	73.70
g/h	1.02	77.72
g/min	0.02	1.30
lb/MM Btu Output	0.16	12.25

Air/Fuel Ratio (A/F)	16.70
-----------------------------	-------

VERSION:

2.4

4/15/2010

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F1150-1
Run #: 2

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/5/2024

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	8.00	22.5		2x4	4.50	22.7
2x4	8.00	22.2				
2x4	8.00	19.3				
2x4	8.00	24.6				
2x4	15.25	22.5				
2x4	15.25	23.9				
2x4	4.50	22.6				
2x4	4.50	23.6				
Total Fuel Weight (lbs):		7.52	Average Moisture (%DB):		22.7	

Firebox Volume (ft³): 0.89
Total 2x4 Crib Weight, with spacers (lbs): 6.42
Total 4x4 Crib Weight, with spacers (lbs): 0.00
Total Wet Fuel Weight, with spacers (lbs): 6.42

Coal Bed Range (20-25%):
Min (lbs): 1.28
Max (lbs): 1.61

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.25	2.03	22.1	22.2	21.5	1.66
2x4	15.25	1.52	22.6	23.6	23.1	1.23
2x4	15.25	1.54	22.5	19.4	19.8	1.28
Total Dry Weight, no spacers (lbs):						4.18
Total Dry Weight, with spacers (lbs):						5.37

Spacer Moisture Readings (%DB)							
10.7	12.1						
11.2	11.1						
13.3	13.2						
12.7	11.4						
11.0	11.9						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft ³ , DB)	30.1	OK
Loading Density	6.3 - 7.7 (lbs/ft ³ , WB)	7.21	OK
2x4 Fuel Mix	35 - 65 % of total weight	N/A	N/A

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: FPI
 Model: F1150-1
 Run #: 2
 Test Start Time: 11:34

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/5/2024

Total Sampling Time (min): 136
 Recording Interval (min): 1

Meter Box γ Factor: 0.996 (A)
 Meter Box γ Factor: 1.012 (B)
 Meter Box γ Factor: 1.008 (C)
 Meter Box γ Factor: 1.004 (Ambient)

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.10	30.19	30.15
Relative Humidity (%)	38.9	42.6	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		31.627	ft ³

Sample Train Leak Checks

	Pre-test	Post-test		
Induced Draft Check (in. H ₂ O):	0	(A) 0.000	cfm @	-6 in. Hg
Smoke Capture Check (%):	100%	(B) 0.000	cfm @	-6 in. Hg
Date Flue Pipe Last Cleaned:	11/1/2024	(C) 0.000	cfm @	-7 in. Hg
Test Fuel Scale Audit (lbs)	10.00	(Ambient) 0.000	cfm @	-13 in. Hg
Platform Scale Audit (lbs)	10.0			

DILUTION TUNNEL FLOW

Traverse Data

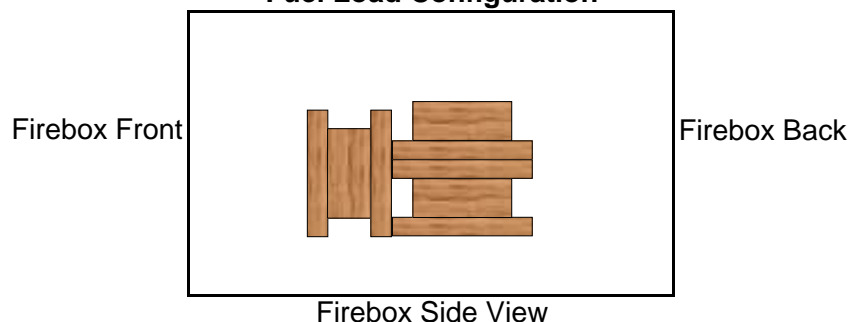
Point	dP (in H ₂ O)	Temp (°F)
1	0.052	78
2	0.078	78
3	0.088	78
4	0.064	78
5	0.050	78
6	0.084	78
7	0.084	78
8	0.062	78
Center	0.074	78

Dilution Tunnel H₂O: 2.00 percent
 Tunnel Diameter: 6 inches
 Pitot Tube Cp: 0.99 [unitless]
 Dilution Tunnel MW(dry): 29.00 lb/lb-mole
 Dilution Tunnel MW(wet): 28.78 lb/lb-mole
 Tunnel Area: 0.1963 ft²
 V_{strav}: 17.59 ft/sec
 V_{scent}: 18.15 ft/sec
 F_p: 0.969 [ratio]
 Initial Tunnel Flow: 200.6 scf/min

Static Pressure: -0.130 in. H₂O

TEST FUEL PROPERTIES

Fuel Load Configuration



Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	21.9

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI

Model: F1150-1

Run #: 2

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/5/2024

Recording Interval (min): 1
Run Time (min): 60

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	1.84	-0.076	553	680	583	806	392	602.7	493	65
1	1.80	-0.074	555	676	552	786	393	592.3	435	65
2	1.77	-0.070	556	671	523	762	395	581.1	405	65
3	1.74	-0.068	555	664	501	740	395	571.0	384	65
4	1.72	-0.067	554	655	482	714	397	560.4	368	65
5	1.70	-0.064	549	646	464	690	398	549.4	354	65
6	1.68	-0.062	546	635	450	667	398	539.2	342	65
7	1.67	-0.062	541	624	437	649	399	530.1	331	65
8	1.65	-0.060	536	614	426	626	399	520.1	322	65
9	1.63	-0.059	532	603	414	609	399	511.3	312	64
10	1.61	-0.059	526	592	411	594	399	504.5	304	65
11	2.98	-0.083	521	582	415	573	400	498.0	373	64
12	2.81	-0.091	514	570	412	588	399	496.7	518	64
13	2.69	-0.083	510	562	410	629	399	501.9	520	65
14	2.60	-0.074	506	556	410	661	397	506.3	453	65
15	2.55	-0.071	502	550	408	676	397	506.5	401	64
16	2.48	-0.070	497	543	405	684	397	505.2	376	64
17	2.43	-0.067	492	537	402	687	396	502.7	362	65
18	2.37	-0.066	487	530	396	684	396	498.6	353	64
19	2.32	-0.065	481	524	392	680	396	494.7	345	65
20	2.26	-0.065	475	518	388	675	395	490.1	339	64
21	2.21	-0.065	470	512	384	667	393	485.0	332	63
22	2.16	-0.063	465	506	380	658	392	480.1	329	63
23	2.11	-0.063	460	500	376	649	391	475.2	324	63
24	2.08	-0.063	454	495	374	641	390	470.8	321	64
25	2.04	-0.060	450	490	371	629	389	465.8	317	64
26	2.00	-0.061	445	485	369	621	389	461.7	315	64
27	1.96	-0.060	442	481	367	615	388	458.5	313	64
28	1.92	-0.060	437	477	366	609	387	455.2	313	64
29	1.88	-0.061	433	474	364	604	386	452.3	310	64
30	1.84	-0.057	429	471	362	600	386	449.7	310	64
31	1.80	-0.060	427	468	359	597	386	447.2	308	64
32	1.77	-0.059	423	466	358	592	385	444.7	307	64
33	1.75	-0.057	421	463	355	583	385	441.3	304	64
34	1.72	-0.056	419	461	354	573	384	438.0	298	64
35	1.70	-0.055	415	458	350	562	384	434.0	295	64
36	1.67	-0.054	413	456	349	553	384	430.8	291	64
37	1.65	-0.054	410	453	346	544	384	427.3	287	64
38	1.63	-0.053	408	450	344	538	384	424.7	285	64
39	1.61	-0.052	406	448	344	531	383	422.1	283	64
40	1.59	-0.054	403	445	342	526	384	419.8	281	64
41	1.57	-0.053	401	443	341	522	383	418.0	280	64
42	1.55	-0.051	398	441	338	512	383	414.4	273	64
43	1.54	-0.049	397	438	337	502	383	411.4	267	64
44	1.53	-0.050	394	436	336	493	383	408.2	264	64

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
 Model: F1150-1
 Run #: 2

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/5/2024

Recording Interval (min): 1
 Run Time (min): 60

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	1.51	-0.049	391	433	335	485	383	405.5	261	64
46	1.49	-0.048	389	431	333	478	383	402.8	259	64
47	1.49	-0.048	388	428	332	471	383	400.3	256	64
48	1.47	-0.048	386	426	330	465	382	397.9	255	64
49	1.44	-0.048	384	424	329	460	382	395.6	252	64
50	1.43	-0.046	381	422	327	454	382	393.2	250	64
51	1.42	-0.047	379	420	327	450	382	391.6	248	64
52	1.41	-0.046	378	418	325	446	382	389.6	247	64
53	1.39	-0.047	376	416	324	442	382	387.9	245	64
54	1.37	-0.047	374	415	323	439	382	386.3	244	64
55	1.36	-0.046	372	414	322	435	381	384.7	241	64
56	1.34	-0.046	370	413	322	431	381	383.2	240	64
57	1.35	-0.043	368	411	321	427	381	381.6	240	64
58	1.32	-0.047	367	410	320	425	381	380.4	240	64
59	1.30	-0.045	366	409	318	422	380	379.1	239	64
60	1.29	-0.045	364	408	318	419	381	377.8	238	64

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 2

Technician: AK

Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.069	0.01	67	0.1		6.42		91	259	65	64
1	0.115	0.115	0.070	2.20	67	0.9	-	6.40	-0.02	96	267	66	64
2	0.260	0.145	0.067	2.24	67	0.9	-	6.25	-0.15	111	435	66	64
3	0.406	0.146	0.068	2.28	67	0.9	-	5.89	-0.36	132	581	67	64
4	0.552	0.146	0.071	2.31	67	1.0	-	5.68	-0.21	133	574	68	64
5	0.701	0.149	0.071	2.33	67	0.9	-	5.54	-0.14	121	532	68	64
6	0.850	0.149	0.070	2.36	67	0.9	-	5.44	-0.10	110	464	68	64
7	1.001	0.151	0.068	2.39	67	0.9	-	5.37	-0.07	102	417	68	64
8	1.151	0.150	0.069	2.41	67	0.9	-	5.30	-0.07	98	392	68	64
9	1.303	0.152	0.070	2.44	68	0.9	-	5.22	-0.08	96	377	68	64
10	1.454	0.151	0.070	2.46	68	0.9	93	5.15	-0.07	95	367	68	64
11	1.607	0.153	0.070	2.48	68	0.9	-	5.07	-0.08	93	362	68	64
12	1.762	0.155	0.070	2.49	68	0.9	-	4.99	-0.08	93	365	68	64
13	1.912	0.150	0.070	2.52	68	0.9	-	4.89	-0.10	93	370	68	64
14	2.068	0.156	0.071	2.52	69	1.0	-	4.80	-0.09	93	375	68	64
15	2.220	0.152	0.069	2.54	69	0.9	-	4.70	-0.10	93	379	68	64
16	2.378	0.158	0.069	2.56	69	1.0	-	4.59	-0.11	93	382	69	64
17	2.529	0.151	0.069	2.54	69	1.0	-	4.48	-0.11	93	388	69	64
18	2.689	0.160	0.071	2.58	70	0.9	-	4.37	-0.11	93	392	69	64
19	2.843	0.154	0.070	2.58	70	0.9	-	4.25	-0.12	93	394	69	64
20	3.002	0.159	0.070	2.60	70	0.9	98	4.14	-0.11	93	398	69	64
21	3.160	0.158	0.068	2.60	71	1.0	-	4.02	-0.12	93	401	69	64
22	3.316	0.156	0.069	2.61	71	1.0	-	3.91	-0.11	94	404	69	64
23	3.475	0.159	0.070	2.63	71	0.9	-	3.80	-0.11	94	397	69	64
24	3.629	0.154	0.070	2.63	72	1.0	-	3.69	-0.11	94	395	69	64
25	3.791	0.162	0.069	2.64	72	1.0	-	3.56	-0.13	94	395	69	65
26	3.947	0.156	0.071	2.64	72	1.0	-	3.45	-0.11	94	398	69	64
27	4.103	0.156	0.070	2.65	73	1.0	-	3.34	-0.11	95	403	69	64
28	4.264	0.161	0.071	2.67	73	1.0	-	3.22	-0.12	95	402	69	64
29	4.420	0.156	0.071	2.66	73	1.0	-	3.12	-0.10	95	406	69	64
30	4.582	0.162	0.071	2.67	73	1.0	99	3.01	-0.11	95	406	70	64
31	4.739	0.157	0.070	2.67	74	1.0	-	2.90	-0.11	95	408	70	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 2

Technician: AK

Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.900	0.161	0.070	2.69	74	1.0	-	2.78	-0.12	95	409	70	65
33	5.063	0.163	0.070	2.69	74	1.0	-	2.68	-0.10	95	410	70	65
34	5.220	0.157	0.071	2.69	75	1.0	-	2.57	-0.11	95	414	70	65
35	5.383	0.163	0.071	2.70	75	1.0	-	2.46	-0.11	96	416	70	65
36	5.542	0.159	0.070	2.71	75	1.0	-	2.35	-0.11	96	417	70	65
37	5.702	0.160	0.069	2.71	76	1.0	-	2.24	-0.11	96	421	70	65
38	5.864	0.162	0.071	2.70	76	1.0	-	2.14	-0.10	96	422	70	65
39	6.019	0.155	0.070	2.71	76	1.0	-	2.05	-0.09	96	418	70	65
40	6.183	0.164	0.068	2.72	77	1.0	101	1.95	-0.10	96	413	70	65
41	6.342	0.159	0.069	2.73	77	1.0	-	1.86	-0.09	95	408	70	65
42	6.503	0.161	0.069	2.72	77	1.0	-	1.77	-0.09	95	404	70	65
43	6.667	0.164	0.070	2.71	78	1.0	-	1.69	-0.08	95	402	70	65
44	6.826	0.159	0.070	2.73	78	1.0	-	1.62	-0.07	94	395	70	65
45	6.992	0.166	0.070	2.74	78	1.0	-	1.55	-0.07	94	388	70	65
46	7.151	0.159	0.071	2.73	78	1.0	-	1.48	-0.07	94	381	70	65
47	7.313	0.162	0.070	2.74	79	1.0	-	1.42	-0.06	93	376	70	65
48	7.476	0.163	0.071	2.74	79	1.0	-	1.38	-0.04	92	368	70	65
49	7.636	0.160	0.070	2.73	79	1.0	-	1.33	-0.05	92	361	70	65
50	7.797	0.161	0.070	2.76	79	1.0	101	1.29	-0.04	91	355	70	65
51	7.960	0.163	0.070	2.75	80	1.0	-	1.24	-0.05	91	352	70	65
52	8.119	0.159	0.069	2.74	80	1.0	-	1.21	-0.03	91	347	70	65
53	8.285	0.166	0.070	2.76	80	1.0	-	1.18	-0.03	90	342	70	65
54	8.444	0.159	0.070	2.76	80	1.0	-	1.13	-0.05	90	336	70	65
55	8.610	0.166	0.071	2.76	80	1.0	-	1.11	-0.02	90	333	70	65
56	8.775	0.165	0.070	2.76	81	1.0	-	1.07	-0.04	89	328	70	65
57	8.935	0.160	0.070	2.76	81	1.0	-	1.05	-0.02	89	322	70	65
58	9.096	0.161	0.070	2.77	81	1.0	-	1.02	-0.03	88	318	70	65
59	9.261	0.165	0.070	2.76	81	1.0	-	1.00	-0.02	88	314	70	65
60	9.420	0.159	0.069	2.76	82	1.0	101	0.97	-0.03	87	310	70	65
61	9.587	0.167	0.070	2.77	82	1.0	-	0.95	-0.02	87	306	70	65
62	9.748	0.161	0.070	2.78	82	1.0	-	0.92	-0.03	87	302	70	65
63	9.912	0.164	0.070	2.77	82	1.0	-	0.91	-0.01	86	298	70	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 2

Technician: AK

Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	10.079	0.167	0.070	2.78	82	1.0	-	0.90	-0.01	86	292	70	65
65	10.241	0.162	0.070	2.79	83	1.0	-	0.87	-0.03	86	288	70	65
66	10.405	0.164	0.070	2.77	83	1.0	-	0.87	0.00	85	284	70	65
67	10.570	0.165	0.070	2.78	83	1.0	-	0.85	-0.02	85	281	70	65
68	10.732	0.162	0.070	2.79	83	1.0	-	0.83	-0.02	85	277	70	65
69	10.897	0.165	0.071	2.79	83	1.0	-	0.82	-0.01	84	274	70	65
70	11.059	0.162	0.071	2.78	83	1.0	101	0.80	-0.02	84	272	70	65
71	11.220	0.161	0.070	2.79	84	1.0	-	0.79	-0.01	84	269	70	65
72	11.388	0.168	0.070	2.79	84	1.0	-	0.77	-0.02	84	266	70	65
73	11.553	0.165	0.071	2.79	84	1.0	-	0.76	-0.01	84	264	70	65
74	11.716	0.163	0.071	2.79	84	1.0	-	0.74	-0.02	83	261	70	65
75	11.883	0.167	0.070	2.79	84	1.0	-	0.73	-0.01	83	259	70	65
76	12.042	0.159	0.070	2.80	84	1.0	-	0.71	-0.02	83	258	70	65
77	12.207	0.165	0.069	2.79	84	1.0	-	0.70	-0.01	83	257	70	65
78	12.373	0.166	0.070	2.80	85	1.0	-	0.69	-0.01	83	255	70	65
79	12.538	0.165	0.071	2.81	85	1.0	-	0.67	-0.02	82	253	70	65
80	12.704	0.166	0.070	2.80	85	1.0	100	0.65	-0.02	82	252	70	65
81	12.870	0.166	0.071	2.81	85	1.0	-	0.65	0.00	82	251	70	65
82	13.032	0.162	0.070	2.80	85	1.0	-	0.63	-0.02	82	249	70	65
83	13.195	0.163	0.071	2.81	85	1.0	-	0.61	-0.02	82	247	70	65
84	13.362	0.167	0.070	2.79	85	1.0	-	0.59	-0.02	81	246	70	65
85	13.523	0.161	0.071	2.81	85	1.0	-	0.58	-0.01	81	245	70	64
86	13.693	0.170	0.069	2.81	86	1.0	-	0.57	-0.01	81	244	69	65
87	13.859	0.166	0.069	2.80	86	1.0	-	0.56	-0.01	81	243	69	65
88	14.020	0.161	0.070	2.81	86	1.0	-	0.55	-0.01	81	242	69	64
89	14.187	0.167	0.070	2.81	86	1.0	-	0.53	-0.02	81	239	69	64
90	14.350	0.163	0.070	2.82	86	1.0	100	0.51	-0.02	81	238	69	64
91	14.514	0.164	0.069	2.82	86	1.0	-	0.51	0.00	80	236	69	65
92	14.685	0.171	0.069	2.80	86	1.0	-	0.50	-0.01	80	236	69	65
93	14.848	0.163	0.072	2.81	86	1.0	-	0.48	-0.02	80	235	69	65
94	15.013	0.165	0.070	2.83	86	1.0	-	0.46	-0.02	80	233	69	65
95	15.178	0.165	0.069	2.81	86	1.0	-	0.45	-0.01	80	233	69	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 2

Technician: AK

Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	15.341	0.163	0.070	2.82	86	1.0	-	0.45	0.00	80	233	69	65
97	15.507	0.166	0.068	2.82	87	1.0	-	0.42	-0.03	80	231	69	65
98	15.677	0.170	0.070	2.81	87	1.0	-	0.42	0.00	80	231	69	65
99	15.840	0.163	0.071	2.83	87	1.0	-	0.40	-0.02	79	230	69	64
100	16.006	0.166	0.069	2.81	87	1.0	101	0.38	-0.02	79	229	69	65
101	16.173	0.167	0.068	2.82	87	1.0	-	0.38	0.00	79	228	69	64
102	16.335	0.162	0.069	2.82	87	1.0	-	0.36	-0.02	79	227	69	64
103	16.501	0.166	0.071	2.82	87	1.0	-	0.35	-0.01	79	226	69	64
104	16.668	0.167	0.070	2.83	87	1.0	-	0.35	0.00	79	224	69	65
105	16.834	0.166	0.070	2.83	87	1.0	-	0.33	-0.02	79	222	69	65
106	17.000	0.166	0.070	2.82	87	1.0	-	0.32	-0.01	79	221	69	64
107	17.168	0.168	0.070	2.83	87	1.0	-	0.30	-0.02	79	221	69	64
108	17.328	0.160	0.070	2.83	87	1.0	-	0.30	0.00	79	219	69	65
109	17.494	0.166	0.071	2.81	87	1.0	-	0.28	-0.02	78	217	69	64
110	17.663	0.169	0.068	2.83	88	1.0	101	0.27	-0.01	78	215	69	64
111	17.829	0.166	0.069	2.83	88	1.0	-	0.26	-0.01	78	212	69	64
112	17.995	0.166	0.069	2.82	88	1.0	-	0.25	-0.01	78	211	69	64
113	18.163	0.168	0.070	2.83	88	1.0	-	0.23	-0.02	78	210	69	64
114	18.326	0.163	0.071	2.83	88	1.0	-	0.23	0.00	78	208	69	63
115	18.491	0.165	0.069	2.84	88	1.0	-	0.21	-0.02	78	207	69	63
116	18.658	0.167	0.070	2.82	88	1.0	-	0.21	0.00	77	205	69	63
117	18.824	0.166	0.070	2.83	88	1.0	-	0.19	-0.02	77	205	69	63
118	18.991	0.167	0.069	2.83	88	1.0	-	0.18	-0.01	77	204	69	63
119	19.160	0.169	0.068	2.84	88	1.0	-	0.16	-0.02	77	202	68	63
120	19.318	0.158	0.069	2.84	88	1.0	101	0.16	0.00	77	201	68	63
121	19.487	0.169	0.071	2.83	88	1.0	-	0.15	-0.01	76	200	68	63
122	19.654	0.167	0.071	2.83	88	1.0	-	0.13	-0.02	76	197	68	63
123	19.820	0.166	0.068	2.83	88	1.0	-	0.12	-0.01	76	196	68	63
124	19.988	0.168	0.069	2.85	88	1.0	-	0.12	0.00	76	195	68	62
125	20.156	0.168	0.068	2.83	88	1.0	-	0.10	-0.02	76	194	68	62
126	20.315	0.159	0.068	2.83	88	1.0	-	0.10	0.00	76	193	68	62
127	20.485	0.170	0.067	2.84	88	1.0	-	0.09	-0.01	76	192	68	62

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: <u>FPI</u>	Job #: <u>F24-333</u>
Model: <u>F1150-1</u>	Tracking #: <u>214</u>
Run #: <u>2</u>	Technician: <u>AK</u>
	Date: <u>11/5/2024</u>

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	20.654	0.169	0.068	2.82	88	1.0	-	0.08	-0.01	76	191	68	62
129	20.816	0.162	0.067	2.83	88	1.0	-	0.07	-0.01	75	188	68	62
130	20.986	0.170	0.069	2.83	88	1.0	101	0.06	-0.01	75	188	68	62
131	21.149	0.163	0.070	2.83	88	1.0	-	0.05	-0.01	75	188	68	62
132	21.315	0.166	0.069	2.83	88	1.0	-	0.04	-0.01	75	186	68	62
133	21.485	0.170	0.070	2.84	88	1.0	-	0.03	-0.01	75	184	68	62
134	21.651	0.166	0.066	2.82	88	1.0	-	0.03	0.00	75	184	68	62
135	21.812	0.161	0.068	2.84	89	1.0	-	0.01	-0.02	75	184	68	62
136	21.982	0.170	0.067	2.83	89	1.0	102	0.00	-0.01	75	182	68	62
Avg/Tot	21.982	0.162	0.070	2.71	80.5	1.0	100			86.9	301.6	69.1	64.2

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 2

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
0	0.000		0.02	67	0.8		67	-0.053	1.00	0.318
1	0.133	0.133	2.48	67	1.9	-	67	-0.059	1.06	0.311
2	0.284	0.151	2.47	67	1.8	-	68	-0.089	4.84	0.352
3	0.437	0.153	2.47	67	1.7	-	69	-0.097	7.85	0.396
4	0.585	0.148	2.46	67	1.7	-	70	-0.087	8.92	0.362
5	0.738	0.153	2.46	67	2.0	-	70	-0.086	10.35	0.096
6	0.889	0.151	2.45	68	1.8	-	70	-0.075	10.48	0.166
7	1.043	0.154	2.46	68	1.7	-	70	-0.072	7.44	0.184
8	1.192	0.149	2.46	68	1.7	-	70	-0.070	7.00	0.191
9	1.346	0.154	2.47	68	1.9	-	70	-0.070	6.65	0.291
10	1.495	0.149	2.48	68	1.8	99	70	-0.067	6.59	0.279
11	1.650	0.155	2.48	68	2.0	-	70	-0.070	6.89	0.259
12	1.799	0.149	2.47	69	1.9	-	70	-0.070	7.32	0.309
13	1.951	0.152	2.48	69	1.8	-	70	-0.070	8.07	0.246
14	2.102	0.151	2.49	69	1.7	-	70	-0.071	8.43	0.201
15	2.255	0.153	2.48	69	1.9	-	71	-0.071	8.92	0.161
16	2.408	0.153	2.49	70	2.0	-	71	-0.072	9.60	0.145
17	2.560	0.152	2.49	70	1.8	-	71	-0.073	10.23	0.131
18	2.714	0.154	2.49	70	1.8	-	71	-0.075	10.61	0.204
19	2.865	0.151	2.50	70	1.8	-	71	-0.073	10.92	0.211
20	3.021	0.156	2.50	71	2.0	100	71	-0.073	11.08	0.229
21	3.172	0.151	2.49	71	1.9	-	71	-0.074	11.24	0.229
22	3.328	0.156	2.50	71	1.9	-	71	-0.074	11.28	0.245
23	3.478	0.150	2.50	72	2.0	-	71	-0.075	11.42	0.273
24	3.634	0.156	2.50	72	1.9	-	71	-0.077	11.61	0.311
25	3.785	0.151	2.50	72	2.0	-	71	-0.076	11.77	0.312
26	3.939	0.154	2.50	73	1.9	-	71	-0.074	11.95	0.308
27	4.089	0.150	2.51	73	1.9	-	72	-0.076	11.96	0.298
28	4.244	0.155	2.51	73	1.9	-	72	-0.076	11.95	0.262
29	4.399	0.155	2.51	74	1.8	-	72	-0.077	11.94	0.251
30	4.551	0.152	2.50	74	1.7	100	72	-0.076	12.01	0.250
31	4.707	0.156	2.51	74	1.7	-	72	-0.075	12.04	0.243

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 2

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
32	4.859	0.152	2.51	75	1.8	-	72	-0.078	12.14	0.280
33	5.019	0.160	2.52	75	1.9	-	72	-0.077	12.30	0.295
34	5.170	0.151	2.52	75	1.8	-	72	-0.078	12.49	0.361
35	5.326	0.156	2.52	76	1.9	-	72	-0.076	12.76	0.379
36	5.481	0.155	2.52	76	1.7	-	72	-0.077	12.90	0.467
37	5.635	0.154	2.52	76	1.9	-	72	-0.077	12.94	0.522
38	5.791	0.156	2.52	77	1.7	-	72	-0.079	12.78	0.399
39	5.941	0.150	2.52	77	2.0	-	72	-0.077	12.42	0.333
40	6.098	0.157	2.52	77	2.0	101	72	-0.075	12.18	0.337
41	6.251	0.153	2.53	78	1.9	-	73	-0.075	11.82	0.241
42	6.409	0.158	2.53	78	1.7	-	73	-0.075	11.45	0.168
43	6.562	0.153	2.53	78	1.7	-	73	-0.073	11.18	0.111
44	6.721	0.159	2.53	79	1.8	-	73	-0.074	11.11	0.122
45	6.878	0.157	2.53	79	1.9	-	73	-0.072	10.88	0.081
46	7.031	0.153	2.53	79	1.7	-	73	-0.072	10.21	0.049
47	7.188	0.157	2.53	80	1.8	-	73	-0.070	9.52	0.053
48	7.343	0.155	2.53	80	1.8	-	73	-0.069	8.90	0.061
49	7.501	0.158	2.54	80	1.8	-	73	-0.067	8.44	0.087
50	7.652	0.151	2.54	80	1.8	101	73	-0.066	8.10	0.111
51	7.809	0.157	2.54	81	1.7	-	73	-0.064	7.86	0.135
52	7.966	0.157	2.54	81	1.7	-	73	-0.065	7.66	0.154
53	8.120	0.154	2.53	81	1.9	-	73	-0.063	7.53	0.175
54	8.279	0.159	2.53	82	1.7	-	73	-0.063	7.36	0.190
55	8.436	0.157	2.54	82	1.9	-	73	-0.063	7.27	0.208
56	8.594	0.158	2.54	82	2.0	-	73	-0.062	7.26	0.221
57	8.749	0.155	2.55	82	1.7	-	73	-0.060	7.08	0.245
58	8.905	0.156	2.55	83	1.7	-	73	-0.061	6.84	0.299
59	9.062	0.157	2.56	83	1.9	-	73	-0.058	6.64	0.359
60	9.217	0.155	2.54	83	1.8	100	73	-0.058	6.49	0.375
61	9.377	0.160	2.55	83	2.0	-	73	-0.057	6.35	0.423
62	9.531	0.154	2.56	84	1.7	-	73	-0.056	6.07	0.455
63	9.689	0.158	2.55	84	1.7	-	73	-0.054	5.96	0.537

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 2

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
64	9.850	0.161	2.55	84	1.9	-	73	-0.055	5.68	0.626
65	10.006	0.156	2.56	84	1.9	-	73	-0.054	5.42	0.696
66	10.166	0.160	2.56	85	1.7	-	72	-0.054	5.35	0.745
67	10.321	0.155	2.56	85	1.7	-	72	-0.052	5.26	0.799
68	10.480	0.159	2.56	85	1.7	-	72	-0.053	5.21	0.826
69	10.637	0.157	2.56	85	1.8	-	72	-0.053	5.06	0.870
70	10.792	0.155	2.56	85	1.9	100	72	-0.051	5.05	0.882
71	10.951	0.159	2.56	86	2.0	-	72	-0.051	5.11	0.937
72	11.106	0.155	2.56	86	2.0	-	72	-0.051	4.94	0.964
73	11.269	0.163	2.56	86	1.7	-	72	-0.050	4.98	1.010
74	11.425	0.156	2.56	86	1.7	-	72	-0.050	4.91	1.035
75	11.584	0.159	2.56	86	1.9	-	72	-0.050	4.85	1.066
76	11.740	0.156	2.57	87	1.9	-	72	-0.050	4.94	1.027
77	11.896	0.156	2.57	87	1.7	-	72	-0.050	5.02	1.034
78	12.057	0.161	2.56	87	1.7	-	72	-0.049	5.01	0.879
79	12.215	0.158	2.56	87	1.7	-	72	-0.049	4.84	0.920
80	12.375	0.160	2.57	87	1.7	99	72	-0.048	4.91	0.979
81	12.534	0.159	2.57	87	1.9	-	72	-0.049	4.91	1.023
82	12.690	0.156	2.57	88	1.8	-	72	-0.047	4.79	1.040
83	12.849	0.159	2.57	88	2.0	-	72	-0.047	4.89	0.998
84	13.004	0.155	2.57	88	1.7	-	72	-0.047	4.86	0.993
85	13.164	0.160	2.57	88	2.0	-	71	-0.048	4.89	1.034
86	13.326	0.162	2.57	88	1.7	-	71	-0.046	4.78	1.019
87	13.482	0.156	2.57	88	1.7	-	71	-0.049	4.80	1.074
88	13.644	0.162	2.57	88	1.8	-	71	-0.046	4.68	1.099
89	13.797	0.153	2.58	88	2.0	-	71	-0.048	4.71	1.137
90	13.957	0.160	2.57	89	1.9	99	71	-0.045	4.51	1.135
91	14.117	0.160	2.58	89	1.7	-	71	-0.047	4.53	1.206
92	14.276	0.159	2.57	89	1.7	-	71	-0.046	4.50	1.236
93	14.438	0.162	2.58	89	1.7	-	71	-0.045	4.44	1.252
94	14.594	0.156	2.57	89	1.9	-	71	-0.044	4.35	1.267
95	14.752	0.158	2.57	89	1.8	-	71	-0.044	4.39	1.337

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 2

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
96	14.911	0.159	2.58	89	2.0	-	71	-0.046	4.33	1.342
97	15.068	0.157	2.57	89	2.0	-	71	-0.046	4.39	1.307
98	15.233	0.165	2.58	90	1.8	-	71	-0.045	4.35	1.341
99	15.389	0.156	2.57	90	1.7	-	71	-0.045	4.23	1.360
100	15.550	0.161	2.58	90	2.0	100	71	-0.043	4.09	1.375
101	15.710	0.160	2.58	90	1.9	-	71	-0.044	4.06	1.477
102	15.864	0.154	2.58	90	2.0	-	71	-0.043	3.95	1.478
103	16.026	0.162	2.58	90	1.7	-	71	-0.045	3.88	1.495
104	16.182	0.156	2.57	90	1.8	-	71	-0.042	3.95	1.459
105	16.346	0.164	2.58	90	1.8	-	71	-0.042	3.92	1.435
106	16.505	0.159	2.57	90	1.9	-	71	-0.043	3.79	1.464
107	16.663	0.158	2.57	90	1.9	-	71	-0.042	3.69	1.455
108	16.821	0.158	2.58	90	1.9	-	71	-0.044	3.58	1.642
109	16.980	0.159	2.58	90	1.8	-	70	-0.041	3.51	1.637
110	17.140	0.160	2.58	91	1.7	100	71	-0.042	3.35	1.690
111	17.303	0.163	2.58	91	1.8	-	70	-0.041	3.31	1.678
112	17.461	0.158	2.59	91	1.8	-	70	-0.043	3.28	1.587
113	17.621	0.160	2.58	91	2.0	-	70	-0.041	3.26	1.634
114	17.781	0.160	2.58	91	1.7	-	70	-0.040	3.27	1.643
115	17.936	0.155	2.58	91	1.8	-	70	-0.042	3.23	1.663
116	18.098	0.162	2.58	91	1.9	-	70	-0.040	3.13	1.574
117	18.258	0.160	2.59	91	1.7	-	70	-0.040	3.03	1.657
118	18.419	0.161	2.58	91	1.8	-	70	-0.039	3.19	1.648
119	18.580	0.161	2.59	91	1.7	-	70	-0.041	2.96	1.606
120	18.734	0.154	2.58	91	1.7	100	70	-0.040	2.89	1.564
121	18.897	0.163	2.58	91	1.7	-	70	-0.040	2.94	1.594
122	19.054	0.157	2.59	91	2.0	-	70	-0.040	2.92	1.584
123	19.218	0.164	2.58	91	1.9	-	70	-0.040	2.80	1.540
124	19.378	0.160	2.59	91	1.9	-	70	-0.039	2.88	1.557
125	19.536	0.158	2.59	91	1.8	-	70	-0.039	2.79	1.544
126	19.695	0.159	2.59	91	2.0	-	70	-0.038	2.77	1.550
127	19.853	0.158	2.59	92	1.7	-	70	-0.038	2.76	1.549

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 2

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
128	20.016	0.163	2.59	92	1.7	-	69	-0.038	2.79	1.566
129	20.177	0.161	2.59	92	1.7	-	69	-0.038	2.73	1.512
130	20.336	0.159	2.58	92	1.7	100	69	-0.037	2.71	1.509
131	20.494	0.158	2.59	92	2.0	-	69	-0.037	2.75	1.523
132	20.657	0.163	2.59	92	1.8	-	69	-0.038	2.74	1.496
133	20.815	0.158	2.58	92	1.8	-	69	-0.038	2.74	1.497
134	20.977	0.162	2.59	92	1.7	-	69	-0.036	2.73	1.496
135	21.132	0.155	2.59	92	1.7	-	69	-0.037	2.66	1.452
136	21.293	0.161	2.59	92	2.0	101	69	-0.038	2.70	1.480
Avg/Tot	21.293	0.157	2.53	82.4	1.8	100	71.1	-0.057	6.50	0.811

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 2

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	-0.003		0.00	70	0.2		66
1	0.118	0.121	1.04	69	1.7	-	66
2	0.264	0.146	1.03	69	1.8	-	67
3	0.411	0.147	1.03	69	1.6	-	68
4	0.557	0.146	1.04	69	1.7	-	68
5	0.703	0.146	1.04	70	1.8	-	68
6	0.852	0.149	1.05	70	1.7	-	68
7	0.999	0.147	1.05	70	1.7	-	68
8	1.146	0.147	1.06	70	1.6	-	68
9	1.294	0.148	1.06	70	1.6	-	68
10	1.442	0.148	1.06	70	1.6	97	68
11	1.591	0.149	1.07	71	1.6	-	68
12	1.741	0.150	1.07	71	1.7	-	68
13	1.888	0.147	1.08	71	1.6	-	69
14	2.038	0.150	1.08	71	1.8	-	69
15	2.188	0.150	1.08	72	1.8	-	69
16	2.339	0.151	1.09	72	1.8	-	69
17	2.489	0.150	1.09	72	1.9	-	69
18	2.640	0.151	1.09	72	1.7	-	69
19	2.791	0.151	1.10	73	1.6	-	69
20	2.944	0.153	1.10	73	1.8	100	69
21	3.095	0.151	1.10	73	1.6	-	69
22	3.245	0.150	1.09	74	1.6	-	69
23	3.397	0.152	1.09	74	1.9	-	69
24	3.548	0.151	1.09	74	1.8	-	70
25	3.700	0.152	1.10	75	1.8	-	70
26	3.852	0.152	1.10	75	1.7	-	70
27	4.002	0.150	1.10	75	1.8	-	70
28	4.154	0.152	1.11	75	1.9	-	70
29	4.307	0.153	1.11	76	1.8	-	70
30	4.459	0.152	1.11	76	1.7	100	70
31	4.611	0.152	1.11	76	1.7	-	70

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 2

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/5/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.764	0.153	1.11	77	1.6	-	70
33	4.920	0.156	1.11	77	1.7	-	70
34	5.074	0.154	1.12	77	1.7	-	70
35	5.228	0.154	1.12	77	1.6	-	70
36	5.381	0.153	1.12	78	1.7	-	70
37	5.535	0.154	1.12	78	1.7	-	70
38	5.689	0.154	1.12	78	1.9	-	70
39	5.841	0.152	1.12	79	1.8	-	71
40	5.996	0.155	1.13	79	1.9	102	71
41	6.150	0.154	1.13	79	1.7	-	71
42	6.304	0.154	1.13	80	1.9	-	71
43	6.460	0.156	1.13	80	1.8	-	71
44	6.618	0.158	1.14	80	1.7	-	71
45	6.772	0.154	1.14	80	1.8	-	71
46	6.928	0.156	1.13	80	1.7	-	71
47	7.084	0.156	1.14	81	1.7	-	71
48	7.241	0.157	1.15	81	1.8	-	71
49	7.395	0.154	1.14	81	1.9	-	71
50	7.549	0.154	1.14	81	1.8	102	71
51	7.707	0.158	1.15	81	1.8	-	71
52	7.863	0.156	1.15	81	1.7	-	71
53	8.019	0.156	1.14	82	1.8	-	71
54	8.176	0.157	1.14	82	1.8	-	71
55	8.336	0.160	1.15	82	1.7	-	71
56	8.492	0.156	1.14	82	1.8	-	71
57	8.650	0.158	1.15	82	1.7	-	71
58	8.805	0.155	1.16	82	1.7	-	71
59	8.961	0.156	1.15	83	1.8	-	71
60	9.120	0.159	1.15	82	1.9	103	71
Avg/Tot	9.123	0.152	1.09	75.9	1.7	101	69.6

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 2

Technician: AK

Date: 11/5/2024

Stove ΔT: 104

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	362	405	354	402	381	380.8	63.9
1	361	402	361	386	382	378.3	64.0
2	359	396	364	392	382	378.6	64.0
3	356	397	369	421	382	384.9	64.0
4	357	406	377	490	382	402.4	64.2
5	360	417	385	545	381	417.5	64.2
6	363	426	392	577	380	427.3	64.2
7	365	431	397	581	379	430.5	64.3
8	365	434	399	582	378	431.7	64.2
9	365		399	580	377	430.1	64.2
10	363	438	398	576	375	430.1	64.1
11	361	440	396	572	374	428.6	64.2
12	360	442	393	575	373	428.4	64.3
13	357	444	391	582	372	429.2	64.2
14	356	447	389	591	370	430.5	64.2
15	354	449	358	598	368	425.5	64.2
16	354	451	340	603	367	422.8	64.3
17	353	454	326	608	365	421.1	64.2
18	353	457	316	616	363	420.9	64.1
19	353	461	308	626	361	421.6	64.1
20	354	465	302	635	359	422.9	64.1
21	355	469	298	646	357	424.8	64.2
22	356	474	294	658	355	427.2	64.1
23	357	478	299	676	354	432.6	64.2
24	359	482	304	688	352	437.0	64.3
25	362	487	307	702	349	441.4	64.3
26	364	492	311	713	347	445.4	64.3
27	366	497	314	723	345	449.0	64.3
28	369	502	318	730	344	452.5	64.3
29	372	507	322	737	342	455.8	64.4
30	374	513	325	744	341	459.1	64.3
31	378	518	330	751	339	463.0	64.4
32	380	523	334	759	338	466.8	64.4
33	383	528	339	771	336	471.4	64.4
34	386	533	342	782	336	475.6	64.5
35	388	538	346	794	335	480.2	64.5
36	392	542	351	806	334	484.9	64.5
37	394	547	354	817	333	489.0	64.5
38	398	551	358	821	332	492.1	64.6
39	400	555	363	815	331	492.9	64.6
40	403	560	367	802	331	492.7	64.5
41	407	564	372	790	330	492.8	64.6
42	410	568	378	781	330	493.4	64.5
43	413	571	382	776	329	494.2	64.6
44	416	572	385	771	329	494.5	64.7
45	420	573	389	766	328	495.1	64.7
46	423	573	393	760	328	495.3	64.7
47	425	573	394	749	328	493.8	64.8

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 2

Technician: AK

Date: 11/5/2024

Stove ΔT: 104

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	427	571	394	735	328	491.1	64.7
49	428	568	395	722	328	488.2	64.7
50	429	565	394	708	327	484.7	64.7
51	430	561	393	695	327	481.1	64.7
52	430	558	392	680	326	477.2	64.8
53	430	554	389	667	327	473.2	64.8
54	429	550	386	656	326	469.4	64.7
55	429	546	384	644	326	466.0	64.8
56	428	542	382	633	326	462.2	64.7
57	426	539	378	622	326	458.0	64.7
58	426	535	375	611	326	454.4	64.7
59	424	530	372	600	325	450.3	64.7
60	424	526	369	589	325	446.5	64.8
61	423	520	365	579	325	442.3	64.8
62	422	515	362	569	325	438.6	64.8
63	421	510	359	559	324	434.6	64.8
64	420	504	356	550	324	430.7	64.7
65	419	499	353	540	324	427.0	64.8
66	417	493	349	531	323	423.0	64.7
67	416	488	347	523	323	419.2	64.8
68	414	483	344	516	323	415.7	64.7
69	411	478	341	507	322	411.9	64.7
70	409	474	338	501	322	408.7	64.7
71	407	469	336	494	321	405.3	64.7
72	404	465	333	488	321	402.3	64.6
73	402	460	331	482	321	399.2	64.7
74	400	456	328	476	320	395.8	64.8
75	398	452	326	470	320	393.0	64.8
76	395	448	323	466	319	390.3	65.0
77	393	445	321	462	319	387.8	64.9
78	391	441	319	458	318	385.3	64.9
79	388	438	317	454	317	383.0	65.0
80	386	435	315	450	317	380.4	65.0
81	384	432	313	446	316	378.2	65.0
82	381	429	310	441	316	375.5	64.9
83	380	426	309	439	315	373.9	65.0
84	378	423	307	437	315	372.0	65.0
85	375	420	305	435	315	370.0	64.9
86	374	418	304	431	314	368.1	65.0
87	372	415	302	429	314	366.3	64.8
88	370	412	301	425	314	364.3	64.8
89	368	410	299	424	313	362.5	64.8
90	366	407	297	420	313	360.6	64.8
91	364	405	296	418	313	359.1	64.9
92	363	403	294	415	312	357.3	64.9
93	361	400	292	413	312	355.7	64.9
94	359	398	290	411	311	353.9	64.7
95	357	396	289	409	311	352.3	64.8

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 2

Technician: AK

Date: 11/5/2024

Stove ΔT: 104

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	356	394	287	406	311	350.7	64.9
97	354	392	285	404	310	349.1	64.9
98	352	389	284	403	309	347.6	64.9
99	351	387	283	400	309	345.9	65.0
100	349	385	281	397	308	344.1	65.0
101	348	383	279	396	308	342.6	65.0
102	346	381	278	393	307	341.0	64.9
103	344	378	276	391	307	339.2	64.9
104	343	376	274	389	306	337.7	65.0
105	341	374	273	386	306	336.0	64.9
106	340	372	271	384	305	334.2	64.9
107	338	370	270	381	304	332.6	64.8
108	337	368	268	377	303	330.5	64.8
109	334	365	267	373	303	328.4	64.8
110	333	363	265	369	302	326.2	64.9
111	331	361	263	365	301	324.0	64.7
112	329	359	261	361	300	321.9	64.6
113	328	356	259	358	299	320.1	64.5
114	325	354	257	353	298	317.5	64.3
115	324	352	256	348	298	315.3	64.2
116	322	349	254	345	296	313.4	64.1
117	320	347	252	342	296	311.5	64.0
118	318	345	250	340	294	309.3	64.0
119	317	342	249	336	294	307.4	63.9
120	315	340	247	333	292	305.6	63.8
121	313	338	246	330	292	303.5	63.8
122	312	335	244	326	291	301.4	63.8
123	310	333	242	323	290	299.4	63.8
124	308	330	241	320	288	297.4	63.7
125	306	328	239	317	287	295.5	63.6
126	305	326	237	315	286	293.9	63.6
127	303	324	236	313	285	292.1	63.7
128	302	321	234	310	284	290.3	63.6
129	300	319	233	307	283	288.4	63.6
130	298	317	231	305	282	286.7	63.6
131	297	315	230	302	281	285.0	63.5
132	295	313	229	300	280	283.1	63.4
133	294	311	227	297	279	281.6	63.5
134	292	309	226	297	278	280.2	63.5
135	291	307	225	294	277	278.5	63.5
136	289	305	224	292	276	276.9	63.4
Average	368.1	441.7	318.8	519.5	324.5	394.5	64.5

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F1150-1
Run #: 2

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/5/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	A	G1145	237.8	238.9	1.1
	B	G1146	237.9	238.9	1.0
	C - 1st Hour	G1147	238.0	238.9	0.9
	Amb	G1148	237.9	238.0	0.1
Probes	A	3A	115881.9	115881.9	0.0
	B	3B	116122.0	116122.2	0.2
	C - 1st Hour	3C	116619.2	116619.2	0.0
O-rings	A	3A	3580.3	3581.3	1.0
	B	3B	3568.9	3569.5	0.6
	C - 1st Hour	3C	3623.3	3624.2	0.9

Placed in Dessicator on: 11/5/2024, 14:00

Balance Audit (mg):		200.0		200.0					
		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	A	239.0	11/6 16:00	238.9	11/7 16:30				
	B	238.9	11/6 16:00	238.9	11/7 16:30				
	C - 1st Hour	239.0	11/6 16:00	238.9	11/7 16:30				
	Amb	238.0	11/6 16:00	238.0	11/7 16:30				
Probes	A	115881.9	11/6 16:00	115881.9	11/7 16:30				
	B	116122.1	11/6 16:00	116122.2	11/7 16:30				
	C - 1st Hour	116619.2	11/6 16:00	116619.2	11/7 16:30				
O-Rings	A	3581.3	11/6 16:00	3581.3	11/7 16:30				
	B	3569.7	11/6 16:00	3569.5	11/7 16:30				
	C - 1st Hour	3624.4	11/6 16:00	3624.2	11/7 16:30				

Train A Aggregate, mg:	2.1
Train B Aggregate, mg:	1.8
Train C Aggregate, mg:	1.8
Ambient, mg:	0.1

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: F24-333 Tracking #: 214
Model: F1150-1 Run Number: 2 Test Date: 11/5/2024

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Open 0.119"
Targeted Burn Category: II

Preburn Notes

Time	Notes
10:00	+1.41 lb

Test Notes

Test Burn Start Time: 11:34 Test Fuel Loaded by: 30 seconds
Door Closed: 215 seconds Air Control Set at: 300 seconds
Other Loading Notes: Fan on low at 15:00

Time	Notes
	-None-

Test Burn End Time: 13:50


Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO₂ (%): 16.98 CO (%): 4.300
Mid Gas CO₂ (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	11/4 15:04	11/4 15:06	11/4 15:07	14:20	14:21	14:23
CO ₂	-0.05	17.00	10.09	0.06	17.04	10.18
CO	-0.018	4.294	2.502	0.004	4.319	2.514

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

Technician Signature: 

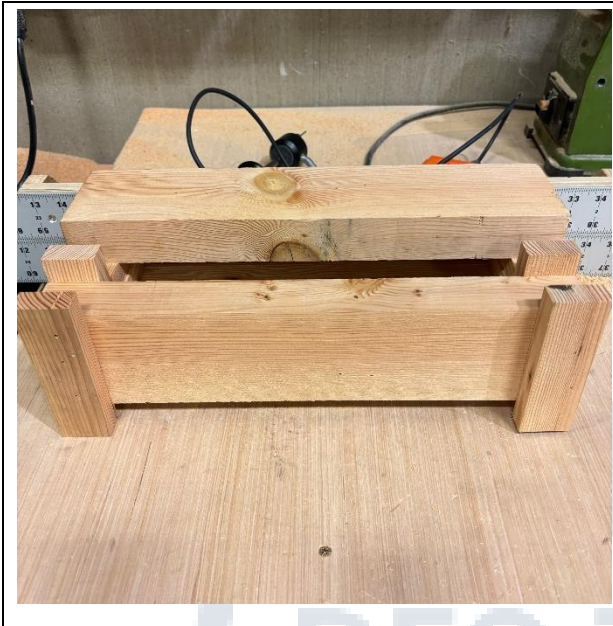
Date: 11/20/24

ASTM E2780 Wood Heater Run Sheets

Client: **FPI**
Model: **F1150-1**

Job Number: **F24-333**
Run Number: **2**

Tracking #: **214**
Test Date: **11/5/2024**



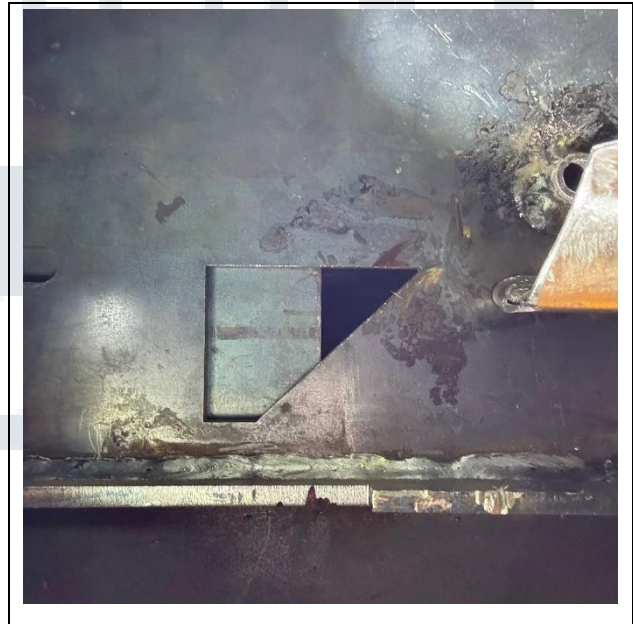
Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____

Date: 11/20/24

WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515



Run 3 Data Summary

Client:	FPI
Model:	F1150-1
Job #:	F24-333
Tracking #:	214
Test Date:	11/6/2024


Technician Signature

11/20/2024
Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 3

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Burn Rate (kg/hr):	2.12
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft ³)	17.028	11.027	10.816	8.676
Average Gas Velocity in Dilution Tunnel (ft/sec)	17.4			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11187.4			
Average Gas Meter Temperature (°F)	65.9	74.8	75.8	75.9
Total Sample Volume (dscf)	17.314	11.001	10.942	8.713
Average Tunnel Temperature (°F)	112.9			
Total Time of Test (min)	73			
Total Particulate Catch (mg)	0.0	2.5	2.7	2.1
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0002272	0.0002468	0.0002410
Total PM Emissions (g)	0.00	3.09	3.36	2.70
Particulate Emission Rate (g/hr)	0.00	2.54	2.76	2.70
Emissions Factor (g/kg)	-	1.20	1.30	-
Difference from Average Total Particulate Emissions (g)	-	0.13	0.13	-
Difference from Average Total Particulate Emissions (%)	-	4.1%	4.1%	-
Difference from Average Emissions Factor (g/kg)	-	0.05	0.05	-

Final Average Results	
Total Particulate Emissions (g)	3.23
Particulate Emission Rate (g/hr)	2.65
Emissions Factor (g/kg)	1.25
HHV Efficiency (%)	69.2%
LHV Efficiency (%)	74.8%
CO Emissions (g/min)	1.15

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	79.2	OK
Face Velocity	< 30 ft/min	8.5	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:64.4/Max:67.3	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	41.3	OK

B415.1 Efficiency Results

Manufacturer: FPI
Model: F1150-1
Date: 11/06/24
Run: 3
Control #: F24-333
Test Duration: 73
Output Category: 4

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	69.2%	74.8%
Combustion Efficiency	97.9%	97.9%
Heat Transfer Efficiency	70.8%	76.5%

Output Rate (kJ/h)	28,835	27,353	(Btu/h)
Burn Rate (kg/h)	2.10	4.63	(lb/h)
Input (kJ/h)	41,643	39,503	(Btu/h)

Test Load Weight (dry kg)	2.56	5.64	dry lb
MC wet (%)	16.74		
MC dry (%)	20.10		
Particulate (g)	3.23		
CO (g)	84		
Test Duration (h)	1.22		

Emissions	Particulate	CO
g/MJ Output	0.09	2.39
g/kg Dry Fuel	1.26	32.80
g/h	2.65	68.94
g/min	0.04	1.15
lb/MM Btu Output	0.21	5.56

Air/Fuel Ratio (A/F)	13.26
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VERSION:

2.4

4/15/2010

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F1150-1
Run #: 3

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/6/2024

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	8.00	19.9				
2x4	8.00	20.5				
2x4	8.00	19.3				
2x4	8.00	21.9				
2x4	15.25	19.8				
2x4	15.25	19.2				
Total Fuel Weight (lbs):		6.15	Average Moisture (%DB):		20.1	

Firebox Volume (ft³): 0.89
Total 2x4 Crib Weight, with spacers (lbs): 6.77
Total 4x4 Crib Weight, with spacers (lbs): 0.00
Total Wet Fuel Weight, with spacers (lbs): 6.77

Coal Bed Range (20-25%):
Min (lbs): 1.35
Max (lbs): 1.69

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.25	1.98	20.0	19.7	21.5	1.64
2x4	15.25	1.98	21.4	20.0	19.8	1.64
2x4	15.25	1.57	20.2	19.3	19.0	1.31
Total Dry Weight, no spacers (lbs):						4.60
Total Dry Weight, with spacers (lbs):						5.68

Spacer Moisture Readings (%DB)							
18.1	16.1						
14.8	16.4						
11.3	17.3						
16.0	15.5						
12.2	15.9						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft ³ , DB)	33.1	OK
Loading Density	6.3 - 7.7 (lbs/ft ³ , WB)	7.61	OK
2x4 Fuel Mix	35 - 65 % of total weight	N/A	N/A

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: FPI
 Model: F1150-1
 Run #: 3
 Test Start Time: 10:55

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Total Sampling Time (min): 73
 Recording Interval (min): 1

Meter Box γ Factor: 0.996 (A)
 Meter Box γ Factor: 1.012 (B)
 Meter Box γ Factor: 1.008 (C)
 Meter Box γ Factor: 1.004 (Ambient)

Induced Draft Check (in. H₂O): 0
 Smoke Capture Check (%): 100%
 Date Flue Pipe Last Cleaned: 11/1/2024
 Test Fuel Scale Audit (lbs): 10.00
 Platform Scale Audit (lbs): 10.0

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.21	30.18	30.20
Relative Humidity (%)	35.8	29.7	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		17.028	ft ³

Sample Train Leak Checks

	Pre-test	Post-test		
(A)	0.000	0.001	cfm @	-6 in. Hg
(B)	0.001	0.000	cfm @	-6 in. Hg
(C)	0.001	0.001	cfm @	-7 in. Hg
(Ambient)	0.000	0.000	cfm @	-12 in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H ₂ O)	Temp (°F)
1	0.052	69
2	0.074	69
3	0.084	69
4	0.062	69
5	0.054	69
6	0.084	69
7	0.084	69
8	0.056	69
Center	0.073	69

Dilution Tunnel H₂O: 2.00 percent

Tunnel Diameter: 6 inches

Pitot Tube Cp: 0.99 [unitless]

Dilution Tunnel MW(dry): 29.00 lb/lb-mole

Dilution Tunnel MW(wet): 28.78 lb/lb-mole

Tunnel Area: 0.1963 ft²

V_{strav}: 17.23 ft/sec

V_{scent}: 17.84 ft/sec

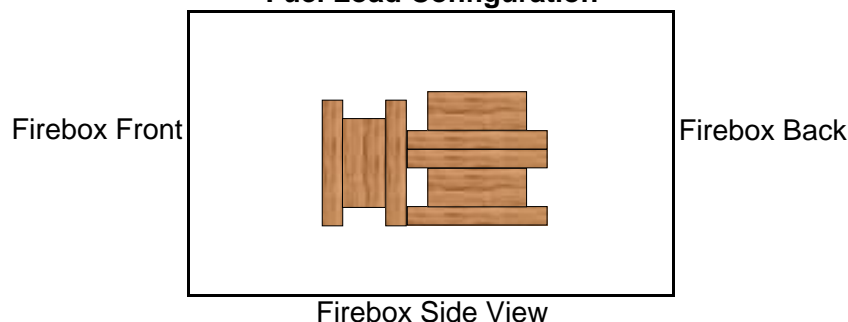
F_p: 0.966 [ratio]

Initial Tunnel Flow: 200.4 scf/min

Static Pressure: -0.130 in. H₂O

TEST FUEL PROPERTIES

Fuel Load Configuration



Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	20.1

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI

Model: F1150-1

Run #: 3

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Recording Interval (min): 1
Run Time (min): 65

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	7.29	-0.076	496	601	551	666	294	521.8	390	63
1	7.16	-0.082	495	586	488	666	300	507.2	405	63
2	7.04	-0.084	491	574	453	684	305	501.3	429	63
3	6.88	-0.089	484	565	429	698	310	497.2	463	63
4	6.73	-0.088	475	560	409	717	314	494.7	486	63
5	6.57	-0.088	468	557	393	733	317	493.5	499	63
6	6.42	-0.088	462	556	382	749	320	493.5	502	63
7	6.28	-0.087	457	555	373	760	322	493.4	503	63
8	6.13	-0.089	452	556	366	770	324	493.7	499	63
9	6.00	-0.087	448	557	361	778	326	494.0	499	63
10	5.86	-0.088	444	558	357	785	328	494.5	497	63
11	5.72	-0.087	442	560	352	790	330	494.6	498	63
12	5.57	-0.089	440	561	349	796	331	495.3	501	63
13	5.43	-0.089	438	561	348	799	332	495.6	501	63
14	5.30	-0.089	437	562	346	802	333	495.8	502	63
15	5.15	-0.087	436	562	345	805	334	496.2	503	63
16	5.01	-0.089	435	562	344	812	334	497.4	504	63
17	4.87	-0.089	435	562	344	810	335	497.0	503	63
18	4.74	-0.088	435	562	344	812	336	497.8	502	63
19	4.60	-0.088	436	562	344	812	336	498.0	502	63
20	4.47	-0.088	436	562	344	812	336	498.2	501	63
21	4.33	-0.088	437	562	344	810	337	498.0	499	63
22	4.21	-0.087	438	563	344	810	337	498.5	499	63
23	4.10	-0.089	439	564	345	811	337	499.3	498	63
24	3.97	-0.089	438	565	347	811	338	499.6	496	63
25	3.85	-0.088	440	566	347	811	338	500.3	491	63
26	3.74	-0.087	440	566	348	809	338	500.2	485	64
27	3.62	-0.087	441	566	350	806	339	500.3	485	64
28	3.52	-0.086	442	566	350	806	339	500.4	485	64
29	3.41	-0.085	442	566	352	804	339	500.5	484	63
30	3.31	-0.085	444	565	353	801	339	500.4	483	64
31	3.21	-0.086	445	564	354	802	340	501.0	479	63
32	3.11	-0.086	445	564	355	798	340	500.3	478	64
33	3.01	-0.083	447	563	356	794	340	500.0	472	64
34	2.92	-0.085	449	562	357	788	340	499.2	468	64
35	2.83	-0.085	449	560	357	783	341	498.1	465	64
36	2.75	-0.084	452	559	358	779	341	497.7	464	64
37	2.66	-0.085	453	558	358	775	341	497.2	459	64
38	2.59	-0.082	455	556	358	769	342	496.0	456	64
39	2.50	-0.081	455	555	358	759	342	493.7	450	64
40	2.45	-0.081	456	554	359	746	343	491.4	442	64
41	2.39	-0.080	457	552	357	734	343	488.5	438	64
42	2.32	-0.080	457	551	357	723	343	486.1	434	64
43	2.26	-0.080	457	549	356	714	344	483.8	431	64
44	2.21	-0.077	456	547	355	702	344	481.0	425	64

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI

Model: F1150-1

Run #: 3

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Recording Interval (min): 1

Run Time (min): 65

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	2.15	-0.078	456	546	354	696	345	479.3	421	64
46	2.10	-0.076	456	544	355	684	345	476.7	417	64
47	2.05	-0.075	456	542	354	677	346	474.9	413	64
48	2.00	-0.073	455	540	353	666	346	472.1	404	64
49	1.96	-0.074	455	538	353	656	347	469.7	399	65
50	1.92	-0.073	453	536	351	647	347	466.8	392	65
51	1.89	-0.073	453	534	349	635	348	463.8	386	64
52	1.87	-0.070	452	532	348	619	348	459.9	381	64
53	1.84	-0.072	451	530	346	608	349	456.7	374	64
54	1.81	-0.070	450	527	343	594	350	452.7	368	64
55	1.77	-0.069	448	525	341	583	350	449.4	363	64
56	1.76	-0.068	447	522	338	571	351	445.7	358	64
57	1.73	-0.067	446	519	337	558	351	442.1	353	64
58	1.71	-0.066	444	516	335	545	352	438.4	347	65
59	1.68	-0.066	443	513	332	536	352	435.0	345	64
60	1.66	-0.065	441	509	329	527	353	431.9	343	64
61	1.64	-0.065	439	506	326	516	353	428.2	339	64
62	1.61	-0.065	438	503	324	506	354	425.0	337	64
63	1.60	-0.065	436	500	322	501	355	422.6	335	64
64	1.56	-0.064	436	496	319	494	355	420.1	334	64
65	1.54	-0.064	433	493	316	490	356	417.5	330	64

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 3

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.068	0.00	66	0.0		6.77		105	317	66	64
1	0.098	0.098	0.069	2.16	66	0.9	-	6.70	-0.07	109	348	68	65
2	0.236	0.138	0.067	2.19	66	0.9	-	6.49	-0.21	123	540	70	65
3	0.385	0.149	0.067	2.23	66	1.0	-	6.23	-0.26	141	682	72	65
4	0.528	0.143	0.067	2.26	66	0.9	-	5.96	-0.27	156	760	74	65
5	0.676	0.148	0.069	2.27	67	0.9	-	5.74	-0.22	145	668	73	65
6	0.820	0.144	0.070	2.30	67	1.0	-	5.54	-0.20	135	628	73	65
7	0.968	0.148	0.069	2.31	67	1.0	-	5.35	-0.19	131	622	74	65
8	1.114	0.146	0.068	2.34	67	1.0	-	5.16	-0.19	129	626	74	65
9	1.262	0.148	0.069	2.33	67	1.0	-	4.96	-0.20	128	635	74	65
10	1.411	0.149	0.069	2.34	67	1.0	95	4.74	-0.22	128	645	75	65
11	1.559	0.148	0.069	2.36	67	1.0	-	4.54	-0.20	128	649	75	65
12	1.709	0.150	0.069	2.36	68	1.1	-	4.33	-0.21	129	654	76	65
13	1.856	0.147	0.069	2.37	68	1.1	-	4.14	-0.19	129	654	76	66
14	2.007	0.151	0.069	2.37	68	1.1	-	3.94	-0.20	129	652	76	66
15	2.155	0.148	0.070	2.38	68	1.1	-	3.74	-0.20	129	636	76	66
16	2.306	0.151	0.069	2.37	69	1.1	-	3.55	-0.19	128	624	76	66
17	2.455	0.149	0.069	2.38	69	1.1	-	3.36	-0.19	128	617	76	66
18	2.606	0.151	0.069	2.39	69	1.1	-	3.18	-0.18	129	609	76	66
19	2.756	0.150	0.069	2.41	70	1.2	-	3.01	-0.17	128	602	76	66
20	2.908	0.152	0.068	2.41	70	1.1	102	2.84	-0.17	128	597	76	66
21	3.058	0.150	0.069	2.42	70	1.1	-	2.68	-0.16	128	590	76	66
22	3.209	0.151	0.068	2.41	70	1.2	-	2.51	-0.17	127	585	76	66
23	3.359	0.150	0.068	2.41	71	1.2	-	2.35	-0.16	127	581	76	67
24	3.511	0.152	0.069	2.41	71	1.2	-	2.20	-0.15	127	576	76	66
25	3.662	0.151	0.069	2.41	71	1.2	-	2.05	-0.15	126	576	76	67
26	3.813	0.151	0.070	2.41	72	1.2	-	1.90	-0.15	125	575	76	67
27	3.966	0.153	0.068	2.40	72	1.3	-	1.74	-0.16	125	577	76	67
28	4.116	0.150	0.069	2.40	72	1.2	-	1.59	-0.15	125	576	77	67
29	4.268	0.152	0.070	2.39	73	1.3	-	1.44	-0.15	125	576	77	67
30	4.417	0.149	0.070	2.39	73	1.3	101	1.32	-0.12	124	566	77	67
31	4.569	0.152	0.069	2.39	73	1.3	-	1.21	-0.11	122	547	77	67

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 3

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.718	0.149	0.069	2.40	74	1.3	-	1.12	-0.09	121	528	77	67
33	4.871	0.153	0.069	2.40	74	1.3	-	1.04	-0.08	119	513	77	67
34	5.020	0.149	0.069	2.40	74	1.3	-	0.97	-0.07	118	498	77	67
35	5.174	0.154	0.068	2.40	75	1.3	-	0.91	-0.06	116	483	77	67
36	5.323	0.149	0.069	2.41	75	1.3	-	0.86	-0.05	114	471	77	67
37	5.477	0.154	0.069	2.43	75	1.3	-	0.81	-0.05	113	457	76	67
38	5.626	0.149	0.069	2.42	76	1.3	-	0.76	-0.05	112	442	76	67
39	5.781	0.155	0.069	2.43	76	1.3	-	0.73	-0.03	110	430	76	67
40	5.930	0.149	0.069	2.44	76	1.3	100	0.70	-0.03	109	419	76	67
41	6.086	0.156	0.069	2.43	77	1.3	-	0.67	-0.03	108	412	76	67
42	6.236	0.150	0.067	2.44	77	1.3	-	0.64	-0.03	107	400	76	67
43	6.392	0.156	0.069	2.45	77	1.3	-	0.63	-0.01	106	391	76	67
44	6.543	0.151	0.069	2.45	77	1.3	-	0.60	-0.03	105	385	76	67
45	6.698	0.155	0.068	2.45	78	1.3	-	0.58	-0.02	104	377	76	67
46	6.849	0.151	0.069	2.45	78	1.3	-	0.56	-0.02	103	371	76	67
47	7.003	0.154	0.068	2.46	78	1.3	-	0.52	-0.04	102	366	76	66
48	7.155	0.152	0.068	2.46	79	1.3	-	0.51	-0.01	102	362	75	67
49	7.309	0.154	0.068	2.46	79	1.3	-	0.49	-0.02	101	360	75	67
50	7.464	0.155	0.068	2.46	79	1.3	100	0.47	-0.02	100	358	75	66
51	7.617	0.153	0.068	2.48	79	1.3	-	0.45	-0.02	100	355	75	66
52	7.773	0.156	0.067	2.48	80	1.3	-	0.42	-0.03	99	354	75	66
53	7.924	0.151	0.068	2.47	80	1.3	-	0.40	-0.02	99	351	75	66
54	8.081	0.157	0.068	2.48	80	1.3	-	0.38	-0.02	99	346	75	66
55	8.231	0.150	0.067	2.46	80	1.3	-	0.36	-0.02	98	345	75	66
56	8.390	0.159	0.068	2.48	81	1.3	-	0.34	-0.02	98	341	75	66
57	8.542	0.152	0.068	2.48	81	1.3	-	0.31	-0.03	97	339	74	66
58	8.699	0.157	0.067	2.49	81	1.3	-	0.30	-0.01	97	336	74	66
59	8.851	0.152	0.069	2.49	81	1.3	-	0.28	-0.02	96	334	74	66
60	9.006	0.155	0.068	2.48	81	1.3	100	0.25	-0.03	96	329	74	66
61	9.163	0.157	0.067	2.49	82	1.3	-	0.23	-0.02	95	326	74	66
62	9.317	0.154	0.069	2.49	82	1.3	-	0.21	-0.02	95	325	74	66
63	9.474	0.157	0.068	2.50	82	1.3	-	0.18	-0.03	95	321	74	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI Job #: F24-333
 Model: F1150-1 Tracking #: 214
 Run #: 3 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.626	0.152	0.069	2.49	82	1.3	-	0.17	-0.01	94	319	74	65
65	9.784	0.158	0.068	2.50	82	1.3	-	0.14	-0.03	94	319	74	65
66	9.937	0.153	0.067	2.50	83	1.3	-	0.13	-0.01	94	317	73	65
67	10.095	0.158	0.069	2.50	83	1.3	-	0.11	-0.02	93	315	73	65
68	10.248	0.153	0.068	2.51	83	1.3	-	0.09	-0.02	93	312	73	65
69	10.405	0.157	0.067	2.51	83	1.3	-	0.06	-0.03	93	311	73	65
70	10.562	0.157	0.068	2.50	83	1.3	100	0.05	-0.01	93	309	73	65
71	10.716	0.154	0.069	2.51	83	1.3	-	0.03	-0.02	92	308	73	65
72	10.874	0.158	0.068	2.52	84	1.3	-	0.01	-0.02	92	306	73	65
73	11.027	0.153	0.068	2.51	84	1.3	100	0.00	-0.01	92	304	73	65
Avg/Tot	11.027	0.151	0.068	2.39	74.8	1.2	100			112.9	468.0	74.7	65.9

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 3

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
0	0.000		0.01	67	0.7		68	-0.059	1.50	0.248
1	0.119	0.119	2.44	67	1.7	-	70	-0.076	1.39	0.279
2	0.273	0.154	2.43	67	1.7	-	73	-0.097	6.96	0.337
3	0.421	0.148	2.43	67	1.7	-	76	-0.104	9.56	0.218
4	0.573	0.152	2.42	67	2.1	-	78	-0.107	10.82	0.206
5	0.721	0.148	2.42	67	2.0	-	78	-0.097	14.08	0.861
6	0.872	0.151	2.42	67	1.7	-	77	-0.094	13.33	0.184
7	1.020	0.148	2.40	67	2.0	-	77	-0.097	13.71	0.215
8	1.171	0.151	2.40	67	2.0	-	78	-0.096	14.15	0.216
9	1.320	0.149	2.40	67	2.0	-	78	-0.094	14.43	0.231
10	1.471	0.151	2.40	67	2.1	101	78	-0.099	14.85	0.311
11	1.619	0.148	2.39	68	1.8	-	78	-0.099	14.74	0.252
12	1.769	0.150	2.38	68	1.8	-	78	-0.099	14.77	0.223
13	1.917	0.148	2.38	68	1.9	-	78	-0.097	14.63	0.160
14	2.067	0.150	2.36	68	2.0	-	78	-0.098	14.54	0.123
15	2.215	0.148	2.36	69	2.1	-	78	-0.100	14.29	0.118
16	2.365	0.150	2.35	69	2.1	-	78	-0.097	14.54	0.127
17	2.512	0.147	2.35	69	1.8	-	78	-0.098	14.51	0.127
18	2.662	0.150	2.34	70	1.9	-	79	-0.094	14.29	0.105
19	2.809	0.147	2.34	70	2.2	-	79	-0.096	14.11	0.100
20	2.958	0.149	2.33	70	2.1	103	79	-0.096	14.02	0.107
21	3.105	0.147	2.33	71	1.8	-	79	-0.095	13.95	0.112
22	3.255	0.150	2.32	71	1.8	-	79	-0.096	13.82	0.100
23	3.401	0.146	2.32	71	1.8	-	79	-0.095	13.71	0.102
24	3.550	0.149	2.31	72	2.2	-	79	-0.095	13.61	0.120
25	3.696	0.146	2.31	72	2.2	-	79	-0.095	13.69	0.139
26	3.846	0.150	2.31	72	2.1	-	79	-0.094	13.78	0.154
27	3.992	0.146	2.29	73	2.2	-	79	-0.092	13.99	0.191
28	4.141	0.149	2.28	73	2.2	-	79	-0.093	14.11	0.240
29	4.286	0.145	2.27	73	1.9	-	79	-0.093	14.24	0.271
30	4.434	0.148	2.26	74	2.3	101	79	-0.090	13.63	0.127
31	4.578	0.144	2.26	74	1.9	-	79	-0.091	11.85	0.038

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 3

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
32	4.727	0.149	2.25	75	2.3	-	79	-0.089	10.74	0.016
33	4.871	0.144	2.25	75	2.2	-	79	-0.086	10.04	0.016
34	5.019	0.148	2.24	75	1.9	-	79	-0.085	9.49	0.014
35	5.164	0.145	2.25	75	1.9	-	79	-0.084	8.99	0.014
36	5.313	0.149	2.25	76	2.1	-	79	-0.083	8.37	0.015
37	5.458	0.145	2.26	76	2.2	-	79	-0.081	7.81	0.022
38	5.607	0.149	2.25	76	1.9	-	79	-0.080	7.39	0.053
39	5.753	0.146	2.26	77	2.1	-	79	-0.077	6.99	0.085
40	5.902	0.149	2.26	77	1.9	99	78	-0.076	6.75	0.137
41	6.048	0.146	2.26	77	2.2	-	78	-0.076	6.53	0.159
42	6.197	0.149	2.27	78	2.2	-	78	-0.073	6.36	0.190
43	6.343	0.146	2.26	78	2.0	-	78	-0.073	6.07	0.250
44	6.492	0.149	2.26	78	2.0	-	78	-0.071	5.65	0.316
45	6.639	0.147	2.27	79	2.1	-	78	-0.070	5.24	0.350
46	6.788	0.149	2.27	79	1.9	-	78	-0.069	5.16	0.403
47	6.935	0.147	2.28	79	2.0	-	77	-0.070	5.22	0.433
48	7.084	0.149	2.28	80	2.3	-	77	-0.068	5.48	0.441
49	7.232	0.148	2.28	80	1.9	-	77	-0.068	5.49	0.462
50	7.381	0.149	2.28	80	1.9	99	77	-0.065	5.50	0.455
51	7.529	0.148	2.29	81	2.0	-	77	-0.067	5.46	0.484
52	7.679	0.150	2.29	81	2.2	-	77	-0.065	5.45	0.510
53	7.827	0.148	2.29	81	1.8	-	77	-0.064	5.47	0.516
54	7.976	0.149	2.29	81	2.3	-	77	-0.063	5.45	0.536
55	8.125	0.149	2.29	82	2.0	-	76	-0.066	5.40	0.568
56	8.274	0.149	2.29	82	2.1	-	76	-0.064	5.37	0.594
57	8.423	0.149	2.29	82	1.8	-	76	-0.065	5.04	0.646
58	8.573	0.150	2.29	83	2.0	-	76	-0.064	5.01	0.665
59	8.722	0.149	2.29	83	2.2	-	76	-0.063	4.95	0.682
60	8.872	0.150	2.29	83	1.9	99	76	-0.064	4.82	0.714
61	9.020	0.148	2.30	83	1.9	-	76	-0.061	4.79	0.749
62	9.171	0.151	2.30	84	2.2	-	76	-0.061	4.75	0.766
63	9.319	0.148	2.30	84	2.3	-	75	-0.061	4.75	0.786

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 3

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
64	9.470	0.151	2.30	84	2.0	-	75	-0.062	4.71	0.810
65	9.618	0.148	2.30	84	2.2	-	75	-0.061	4.66	0.827
66	9.769	0.151	2.30	85	1.9	-	75	-0.062	4.62	0.844
67	9.917	0.148	2.30	85	2.2	-	75	-0.062	4.57	0.866
68	10.068	0.151	2.30	85	2.3	-	75	-0.061	4.53	0.886
69	10.216	0.148	2.30	85	1.9	-	75	-0.060	4.50	0.901
70	10.368	0.152	2.30	86	1.9	98	75	-0.061	4.53	0.912
71	10.516	0.148	2.31	86	2.3	-	75	-0.060	4.47	0.926
72	10.668	0.152	2.31	86	1.9	-	75	-0.059	4.44	0.944
73	10.816	0.148	2.29	86	1.9	98	75	-0.060	4.34	0.966
Avg/Tot	10.816	0.148	2.28	75.8	2.0	100	77.1	-0.080	8.85	0.369

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 3

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	-0.001		-0.01	70	0.1		66
1	0.123	0.124	1.06	69	1.7	-	67
2	0.270	0.147	1.05	69	1.8	-	67
3	0.417	0.147	1.05	69	1.6	-	68
4	0.562	0.145	1.04	69	1.6	-	69
5	0.709	0.147	1.04	69	1.7	-	70
6	0.855	0.146	1.04	69	1.8	-	70
7	1.001	0.146	1.04	70	1.8	-	71
8	1.148	0.147	1.04	70	1.8	-	71
9	1.295	0.147	1.05	70	1.9	-	72
10	1.443	0.148	1.05	70	1.7	101	72
11	1.589	0.146	1.05	71	1.8	-	72
12	1.736	0.147	1.05	71	1.7	-	72
13	1.882	0.146	1.05	71	1.8	-	73
14	2.029	0.147	1.04	72	1.8	-	73
15	2.175	0.146	1.04	72	1.9	-	73
16	2.320	0.145	1.03	72	1.8	-	73
17	2.466	0.146	1.03	72	1.8	-	73
18	2.612	0.146	1.03	72	1.7	-	73
19	2.758	0.146	1.03	73	1.8	-	73
20	2.902	0.144	1.02	73	1.8	103	73
21	3.047	0.145	1.01	73	1.9	-	73
22	3.191	0.144	1.01	73	1.9	-	73
23	3.334	0.143	1.01	74	1.8	-	73
24	3.480	0.146	1.01	74	2.0	-	74
25	3.623	0.143	1.01	74	1.8	-	74
26	3.766	0.143	1.00	74	1.7	-	74
27	3.908	0.142	0.99	75	1.8	-	74
28	4.052	0.144	0.99	76	2.0	-	75
29	4.193	0.141	0.99	75	1.8	-	75
30	4.334	0.141	0.97	75	2.0	100	75
31	4.476	0.142	0.98	76	1.9	-	75

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 3

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.618	0.142	0.98	76	1.8	-	75
33	4.759	0.141	0.98	77	1.8	-	75
34	4.900	0.141	0.98	77	1.9	-	75
35	5.044	0.144	0.99	77	1.8	-	75
36	5.186	0.142	0.99	78	1.9	-	75
37	5.328	0.142	0.99	78	1.9	-	75
38	5.471	0.143	0.99	78	2.0	-	75
39	5.616	0.145	1.01	79	1.9	-	75
40	5.759	0.143	1.00	79	1.9	98	75
41	5.903	0.144	1.00	79	1.8	-	75
42	6.047	0.144	1.00	79	2.0	-	75
43	6.191	0.144	1.01	80	1.8	-	74
44	6.337	0.146	1.02	80	1.8	-	74
45	6.482	0.145	1.02	81	1.9	-	74
46	6.627	0.145	1.01	81	1.9	-	74
47	6.772	0.145	1.01	81	2.0	-	74
48	6.917	0.145	1.01	82	1.9	-	74
49	7.063	0.146	1.02	81	1.8	-	74
50	7.209	0.146	1.02	82	1.9	99	74
51	7.356	0.147	1.03	82	1.9	-	74
52	7.502	0.146	1.03	82	2.0	-	74
53	7.648	0.146	1.02	82	2.0	-	74
54	7.794	0.146	1.02	82	1.9	-	73
55	7.940	0.146	1.02	82	2.0	-	73
56	8.087	0.147	1.02	83	2.0	-	73
57	8.233	0.146	1.02	83	1.8	-	73
58	8.380	0.147	1.03	83	1.8	-	73
59	8.527	0.147	1.03	83	1.8	-	73
60	8.675	0.148	1.03	83	1.8	99	73
Avg/Tot	8.676	0.145	1.00	75.9	1.8	100	73.0

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 3

Technician: AK

Date: 11/6/2024

Stove ΔT: 41

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	432	489	359	472	357	421.7	64.2
1	431	482	371	460	359	420.7	64.4
2	429	471	379	504	359	428.4	64.4
3	424	463	386	570	360	440.7	64.5
4	422	461	396	639	361	455.7	64.6
5	421	465	407	708	361	472.5	64.8
6	423	471	418	759	362	486.5	65.0
7	424	479	428	798	362	498.0	65.0
8	426	489	437	831	362	508.8	65.1
9	428	500	445	856	362	518.1	65.1
10	431	513	453	884	361	528.6	65.1
11	434	527	461	907	361	538.0	64.9
12	438	540	469	928	361	547.2	65.1
13	442	553	477	943	361	555.1	65.1
14	446	565	485	949	361	561.0	65.1
15	450	577	448	964	361	560.0	65.2
16	454	588	433	973	361	561.6	65.2
17	458	598	419	981	361	563.3	65.1
18	463	608	411	983	361	565.1	65.1
19	467	616	405	985	361	566.8	65.2
20	472	624	401	983	361	568.1	65.0
21	475	631	398	975	362	568.0	65.1
22	479	636	396	974	362	569.3	65.0
23	483	642	393	973	362	570.6	65.1
24	487	646	394	959	362	569.4	65.2
25	490	650	394	955	363	570.1	65.1
26	493	654	395	955	363	572.1	65.1
27	498	659	396	957	363	574.6	65.1
28	501	663	398	959	364	577.0	65.2
29	505	667	402	965	364	580.6	65.2
30	508	671	404	956	365	580.8	65.4
31	512	674	407	936	365	578.8	65.4
32	515	674	409	916	366	575.8	65.4
33	519	672	410	892	367	571.9	65.4
34	522	670	411	875	367	568.9	65.5
35	524	667	412	851	368	564.3	65.6
36	526	663	412	826	368	559.1	65.6
37	527	659	410	800	369	552.9	65.7
38	527	654	408	770	369	545.6	65.6
39	527	649	405	741	369	538.5	65.5
40	525	643	401	717	370	531.2	65.5
41	523	636	398	698	370	524.9	65.6
42	521	628	394	674	370	517.4	65.6
43	518	620	390	653	370	510.0	65.6
44	513	611	385	636	370	503.0	65.6
45	510	602	380	614	370	495.1	65.6
46	506	592	375	595	370	487.7	65.5
47	501	583	370	579	370	480.6	65.5

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 3

Technician: AK

Date: 11/6/2024

Stove ΔT: 41

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	496	573	365	567	370	474.2	65.6
49	492	565	361	555	370	468.4	65.5
50	487	556	356	543	370	462.4	65.6
51	483	548	352	535	369	457.5	65.6
52	478	541	348	525	369	452.1	65.5
53	473	533	345	516	369	447.1	65.5
54	469	527	341	508	368	442.7	65.5
55	465	521	338	502	367	438.6	65.2
56	460	515	335	490	366	433.3	65.2
57	456	510	333	484	366	429.7	65.0
58	452	504	329	480	365	425.9	64.4
59	448	499	327	477	364	423.1	64.4
60	444	495	324	465	363	418.1	64.7
61	440	490	322	461	362	414.9	65.0
62	436	486	320	458	361	412.3	65.2
63	431	481	317	452	360	408.3	65.3
64	428	477	315	449	359	405.5	65.3
65	424	473	313	442	358	401.8	65.4
66	421	469	311	440	356	399.2	65.3
67	417	465	308	438	355	396.5	65.2
68	414	461	307	431	354	393.2	65.2
69	411	458	304	427	353	390.4	65.1
70	407	454	302	425	351	387.9	65.2
71	404	451	300	424	350	385.9	65.1
72	401	448	298	419	349	382.9	65.1
73	399	445	296	414	348	380.4	65.1
Average	466.0	560.0	379.7	700.0	363.0	493.7	65.2

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F1150-1
Run #: 3

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/6/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	A	G1149	238.2	240.7	2.5
	B	G1150	237.5	240.1	2.6
	C - 1st Hour	G1151	237.5	239.5	2.0
	Amb	G1152	238.3	238.3	0.0
Probes	A	4A	116024.8	116024.8	0.0
	B	4B	116183.5	116183.6	0.1
	C - 1st Hour	4C	116999.1	116999.1	0.0
O-rings	A	4A	3377.6	3377.6	0.0
	B	4B	3580.1	3580.1	0.0
	C - 1st Hour	4C	3373.4	3373.5	0.1

Placed in Dessicator on: 11/6/24, 12:30

Balance Audit (mg):		200.0		200.0					
		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	A	240.7	11/7 16:30	240.7	11/18 9:45				
	B	240.0	11/7 16:30	240.1	11/18 9:45				
	C - 1st Hour	239.5	11/7 16:30	239.5	11/18 9:45				
	Amb	238.3	11/7 16:30	238.3	11/18 9:45				
Probes	A	116024.9	11/7 16:30	116024.8	11/18 9:45				
	B	116183.6	11/7 16:30	116183.6	11/18 9:45				
	C - 1st Hour	116999.1	11/7 16:30	116999.1	11/18 9:45				
O-Rings	A	3377.4	11/7 16:30	3377.6	11/18 9:45				
	B	3579.9	11/7 16:30	3580.1	11/18 9:45				
	C - 1st Hour	3373.5	11/7 16:30	3373.5	11/18 9:45				

Train A Aggregate, mg:	2.5
Train B Aggregate, mg:	2.7
Train C Aggregate, mg:	2.1
Ambient, mg:	0.0

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: F24-333 Tracking #: 214
Model: F1150-1 Run Number: 3 Test Date: 11/6/2024

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Fully Open
Targeted Burn Category: IV

Preburn Notes

Time	Notes
	-None-

Test Notes

Test Burn Start Time: 10:55 Test Fuel Loaded by: 35 seconds
Door Closed: 185 seconds Air Control Set at: 0 seconds
Other Loading Notes: Fan on high at 15:00

Time	Notes
	-None-

Test Burn End Time: 12:08

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO₂ (%): 16.98 CO (%): 4.300
Mid Gas CO₂ (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	9:28	9:30	9:31	12:32	12:33	12:34
CO ₂	0.00	16.98	10.12	0.03	16.94	10.20
CO	0.000	4.300	2.525	-0.029	4.269	2.503

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

Technician Signature: 

Date: 11/20/24

ASTM E2780 Wood Heater Run Sheets

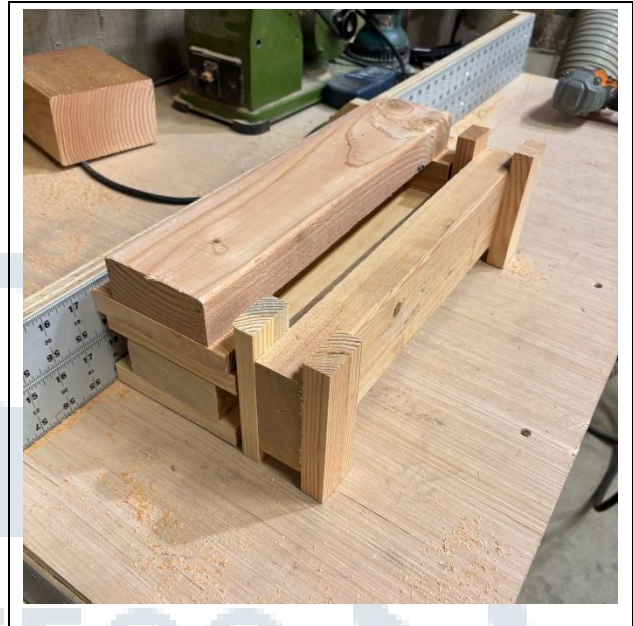
Client: **FPI**
Model: **F1150-1**

Job Number: **F24-333**
Run Number: **3**

Tracking #: **214**
Test Date: **11/6/2024**



Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____

[Signature]

Date: 11/20/24

WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515



Run 4 Data Summary

Client:	FPI
Model:	F1150-1
Job #:	F24-333
Tracking #:	214
Test Date:	11/6/2024



Technician Signature

11/20/2024

Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 4

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Burn Rate (kg/hr):	1.26
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft ³)	27.536	19.126	18.637	9.295
Average Gas Velocity in Dilution Tunnel (ft/sec)	16.9			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11258.5			
Average Gas Meter Temperature (°F)	66.9	82.7	85.2	80.2
Total Sample Volume (dscf)	27.900	18.787	18.508	9.248
Average Tunnel Temperature (°F)	93.8			
Total Time of Test (min)	118			
Total Particulate Catch (mg)	0.1	1.4	1.4	1.2
Particulate Concentration, dry-standard (g/dscf)	0.0000036	0.0000745	0.0000756	0.0001298
Total PM Emissions (g)	0.08	1.57	1.60	1.42
Particulate Emission Rate (g/hr)	0.04	0.80	0.81	1.42
Emissions Factor (g/kg)	-	0.63	0.64	-
Difference from Average Total Particulate Emissions (g)	-	0.01	0.01	-
Difference from Average Total Particulate Emissions (%)	-	0.8%	0.8%	
Difference from Average Emissions Factor (g/kg)	-	0.01	0.01	-

Final Average Results	
Total Particulate Emissions (g)	1.58
Particulate Emission Rate (g/hr)	0.80
Emissions Factor (g/kg)	0.64
HHV Efficiency (%)	71.7%
LHV Efficiency (%)	77.5%
CO Emissions (g/min)	0.98

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	78.0	OK
Face Velocity	< 30 ft/min	9.1	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:65.6/Max:68.2	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	99.6	OK

B415.1 Efficiency Results

Manufacturer: FPI
Model: F1150-1
Date: 11/06/24
Run: 4
Control #: F24-333
Test Duration: 118
Output Category: 3

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	71.7%	77.5%
Combustion Efficiency	96.9%	96.9%
Heat Transfer Efficiency	74.0%	80.0%

Output Rate (kJ/h)	17,739	16,827	(Btu/h)
Burn Rate (kg/h)	1.25	2.75	(lb/h)
Input (kJ/h)	24,723	23,453	(Btu/h)

Test Load Weight (dry kg)	2.45	5.41	dry lb
MC wet (%)	17.16		
MC dry (%)	20.71		
Particulate (g)	1.58		
CO (g)	116		
Test Duration (h)	1.97		

Emissions	Particulate	CO
g/MJ Output	0.05	3.32
g/kg Dry Fuel	0.64	47.26
g/h	0.80	58.98
g/min	0.01	0.98
lb/MM Btu Output	0.11	7.73

Air/Fuel Ratio (A/F)	15.39
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VERSION:

2.4

4/15/2010

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F1150-1
Run #: 4

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/6/2024

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	8.00	19.7				
2x4	8.00	21.0				
2x4	8.00	24.6				
2x4	8.00	23.7				
2x4	8.00	19.3				
2x4	15.25	20.9				
2x4	15.25	19.1				
Total Fuel Weight (lbs):		6.04	Average Moisture (%DB):		21.2	

Firebox Volume (ft³): 0.89
Total 2x4 Crib Weight, with spacers (lbs): 6.53
Total 4x4 Crib Weight, with spacers (lbs): 0.00
Total Wet Fuel Weight, with spacers (lbs): 6.53

Coal Bed Range (20-25%):
Min (lbs): 1.31
Max (lbs): 1.63

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.25	2.01	22.4	21.3	21.7	1.65
2x4	15.25	1.85	19.8	19.5	19.1	1.55
2x4	15.25	1.57	21.7	20.4	20.5	1.30
Total Dry Weight, no spacers (lbs):						4.50
Total Dry Weight, with spacers (lbs):						5.47

Spacer Moisture Readings (%DB)							
11.3	15.2						
12.0	9.4						
11.4	14.0						
13.5	13.4						
16.5	13.0						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft ³ , DB)	32.4	OK
Loading Density	6.3 - 7.7 (lbs/ft ³ , WB)	7.34	OK
2x4 Fuel Mix	35 - 65 % of total weight	N/A	N/A

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: FPI
 Model: F1150-1
 Run #: 4
 Test Start Time: 14:58

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Total Sampling Time (min): 118
 Recording Interval (min): 1

Meter Box γ Factor: 0.996 (A)
 Meter Box γ Factor: 1.012 (B)
 Meter Box γ Factor: 1.008 (C)
 Meter Box γ Factor: 1.004 (Ambient)

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.18	30.11	30.15
Relative Humidity (%)	29.7	33.6	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:	27.536		ft ³

Sample Train Leak Checks

	Pre-test	Post-test		
Induced Draft Check (in. H ₂ O):	0		(A)	0.000 0.000 cfm @ -5 in. Hg
Smoke Capture Check (%):	100%		(B)	0.000 0.000 cfm @ -5 in. Hg
Date Flue Pipe Last Cleaned:	11/1/2024		(C)	0.001 0.001 cfm @ -6 in. Hg
Test Fuel Scale Audit (lbs)	10.00		(Ambient)	0.000 0.000 cfm @ -12 in. Hg
Platform Scale Audit (lbs)	10.0			

DILUTION TUNNEL FLOW

Traverse Data

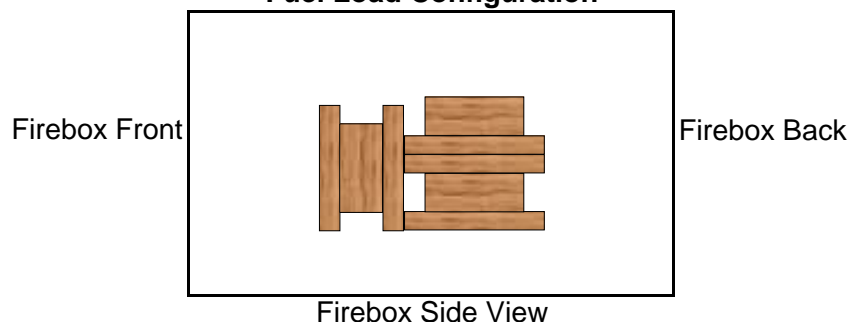
Point	dP (in H ₂ O)	Temp (°F)
1	0.052	74
2	0.076	74
3	0.084	74
4	0.058	74
5	0.052	74
6	0.082	74
7	0.084	74
8	0.056	74
Center	0.072	74

Dilution Tunnel H₂O: 2.00 percent
 Tunnel Diameter: 6 inches
 Pitot Tube Cp: 0.99 [unitless]
 Dilution Tunnel MW(dry): 29.00 lb/lb-mole
 Dilution Tunnel MW(wet): 28.78 lb/lb-mole
 Tunnel Area: 0.1963 ft²
 V_{strav}: 17.22 ft/sec
 V_{scent}: 17.81 ft/sec
 F_p: 0.967 [ratio]
 Initial Tunnel Flow: 198.1 scf/min

Static Pressure: -0.130 in. H₂O

TEST FUEL PROPERTIES

Fuel Load Configuration



Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	20.7

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI

Model: F1150-1

Run #: 4

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

 Recording Interval (min): 1
 Run Time (min): 74

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	5.30	-0.097	457	553	496	795	423	544.9	607	68
1	5.12	-0.092	457	563	501	811	421	550.6	573	68
2	4.95	-0.089	459	571	506	813	420	553.6	545	67
3	4.80	-0.087	460	576	511	809	418	554.8	530	67
4	4.64	-0.087	462	580	514	810	417	556.4	521	68
5	4.48	-0.087	463	584	518	806	415	557.1	519	68
6	4.34	-0.088	464	587	521	809	413	558.9	520	68
7	4.19	-0.087	468	590	524	813	411	561.2	520	68
8	4.03	-0.087	470	594	528	817	410	563.5	520	68
9	3.88	-0.088	472	597	531	822	408	565.9	520	68
10	3.75	-0.088	474	601	534	825	407	567.9	521	68
11	3.59	-0.089	477	606	537	826	405	569.9	523	68
12	3.44	-0.088	479	610	540	831	403	572.6	525	68
13	3.29	-0.088	482	615	544	842	401	576.7	529	68
14	3.15	-0.088	485	621	548	849	400	580.6	533	68
15	2.99	-0.089	488	628	553	855	399	584.4	539	68
16	2.84	-0.088	492	635	557	862	397	588.8	542	68
17	2.71	-0.089	496	644	563	863	396	592.3	546	68
18	2.56	-0.090	498	652	568	864	395	595.4	548	68
19	2.42	-0.087	501	660	574	871	395	600.1	547	68
20	2.30	-0.086	506	665	579	869	394	602.5	537	68
21	2.20	-0.084	509	668	585	859	393	602.8	525	68
22	2.11	-0.084	513	668	590	851	392	602.8	517	68
23	2.03	-0.084	517	666	594	849	392	603.5	509	68
24	1.96	-0.080	521	661	598	832	392	600.5	494	68
25	1.93	-0.078	525	655	600	813	392	597.2	474	68
26	1.87	-0.077	530	649	602	791	391	592.6	458	68
27	1.85	-0.076	533	644	602	775	391	588.9	443	68
28	1.82	-0.074	537	638	601	750	392	583.3	430	68
29	1.81	-0.071	537	631	599	728	392	577.4	418	68
30	1.79	-0.070	537	625	596	706	392	571.4	407	68
31	1.76	-0.069	538	619	593	687	392	565.8	399	68
32	1.75	-0.068	537	613	589	670	393	560.2	392	68
33	3.21	-0.080	534	609	588	645	393	553.9	419	67
34	3.04	-0.083	533	606	587	691	394	562.1	451	68
35	2.91	-0.081	531	605	585	720	396	567.5	463	68
36	2.77	-0.083	528	606	584	739	396	570.7	467	68
37	2.64	-0.082	525	609	583	760	397	574.8	475	68
38	2.50	-0.081	523	614	581	782	397	579.2	482	68
39	2.36	-0.082	519	618	580	803	397	583.3	485	67
40	2.26	-0.081	517	623	580	817	397	586.9	481	67
41	2.18	-0.077	515	629	581	794	396	583.0	466	67
42	2.12	-0.076	514	633	580	763	395	577.0	449	67
43	2.07	-0.075	512	633	577	736	394	570.5	433	67
44	2.02	-0.072	512	628	575	711	394	563.8	421	66

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI

Model: F1150-1

Run #: 4

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Recording Interval (min): 1
Run Time (min): 74

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	1.98	-0.071	513	621	571	690	393	557.5	411	66
46	1.94	-0.071	513	613	566	671	392	551.2	404	66
47	1.91	-0.069	513	606	563	658	392	546.2	398	66
48	1.88	-0.067	513	599	559	643	392	541.2	388	66
49	1.87	-0.067	512	593	556	629	392	536.2	378	66
50	1.84	-0.067	511	587	553	618	392	532.1	370	66
51	1.81	-0.067	511	581	550	608	392	528.5	366	66
52	1.78	-0.063	509	577	498	597	392	514.4	359	66
53	1.75	-0.062	507	572	471	580	392	504.4	353	66
54	1.75	-0.062	504	568	449	570	392	496.6	346	66
55	1.71	-0.061	501	563	430	559	393	489.1	341	66
56	1.69	-0.061	498	558	415	548	392	482.3	335	65
57	1.67	-0.061	496	553	403	538	392	476.4	332	65
58	1.64	-0.059	493	548	392	528	392	470.6	328	66
59	1.63	-0.061	489	543	384	519	392	465.1	323	65
60	1.60	-0.058	486	537	375	511	392	460.3	320	65
61	1.58	-0.059	483	533	369	504	392	456.1	316	65
62	1.56	-0.058	481	528	363	497	392	452.0	313	65
63	1.53	-0.057	477	523	357	489	392	447.5	310	65
64	1.52	-0.057	474	519	352	484	391	444.1	307	65
65	1.50	-0.055	472	514	347	478	391	440.5	304	65
66	1.48	-0.053	470	510	342	472	391	437.0	301	65
67	1.46	-0.055	466	506	337	466	391	433.1	297	65
68	1.45	-0.055	464	500	333	459	391	429.5	294	65
69	1.43	-0.055	461	495	329	454	391	426.0	293	65
70	1.40	-0.053	458	490	325	450	391	422.9	290	65
71	1.39	-0.054	455	485	322	446	391	419.8	288	66
72	1.37	-0.053	454	480	319	441	391	416.8	285	66
73	1.36	-0.054	451	475	316	436	391	413.7	283	66
74	1.34	-0.053	449	470	313	431	390	410.6	281	66

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 4

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.068	0.00	72	0.0		6.53		98	279	69	66
1	0.110	0.110	0.067	2.28	72	0.9	-	6.43	-0.10	106	330	71	67
2	0.261	0.151	0.069	2.32	72	0.9	-	6.25	-0.18	112	438	72	66
3	0.408	0.147	0.068	2.35	72	0.9	-	6.09	-0.16	113	489	72	66
4	0.560	0.152	0.069	2.38	72	1.0	-	5.91	-0.18	114	517	73	67
5	0.709	0.149	0.068	2.40	72	1.0	-	5.76	-0.15	114	525	73	67
6	0.862	0.153	0.069	2.42	72	1.0	-	5.64	-0.12	111	495	73	67
7	1.011	0.149	0.068	2.43	72	0.9	-	5.51	-0.13	108	476	73	67
8	1.165	0.154	0.068	2.45	72	0.9	-	5.38	-0.13	107	468	74	67
9	1.317	0.152	0.067	2.47	72	0.9	-	5.26	-0.12	107	471	74	67
10	1.471	0.154	0.068	2.49	72	1.0	93	5.11	-0.15	106	474	74	67
11	1.628	0.157	0.066	2.51	72	0.9	-	4.98	-0.13	106	476	74	67
12	1.781	0.153	0.069	2.52	72	1.0	-	4.85	-0.13	106	478	74	67
13	1.938	0.157	0.069	2.53	73	0.9	-	4.72	-0.13	106	481	75	67
14	2.090	0.152	0.068	2.55	73	0.9	-	4.58	-0.14	106	486	75	67
15	2.250	0.160	0.068	2.57	73	1.0	-	4.43	-0.15	107	484	75	68
16	2.405	0.155	0.068	2.58	73	1.0	-	4.28	-0.15	108	468	75	67
17	2.563	0.158	0.069	2.59	73	0.9	-	4.16	-0.12	107	461	75	68
18	2.720	0.157	0.067	2.61	74	0.9	-	4.02	-0.14	107	458	75	67
19	2.878	0.158	0.067	2.63	74	1.0	-	3.89	-0.13	107	458	76	68
20	3.038	0.160	0.067	2.63	74	1.0	99	3.75	-0.14	107	456	76	68
21	3.193	0.155	0.067	2.65	75	1.0	-	3.62	-0.13	108	457	76	67
22	3.356	0.163	0.069	2.65	75	1.0	-	3.49	-0.13	108	456	76	67
23	3.513	0.157	0.067	2.67	75	1.0	-	3.37	-0.12	108	458	76	67
24	3.673	0.160	0.068	2.67	75	1.0	-	3.23	-0.14	108	459	76	67
25	3.835	0.162	0.066	2.68	76	1.0	-	3.10	-0.13	108	462	76	67
26	3.991	0.156	0.067	2.66	76	1.0	-	2.98	-0.12	107	462	76	67
27	4.155	0.164	0.067	2.69	76	1.0	-	2.85	-0.13	108	462	76	67
28	4.313	0.158	0.068	2.69	77	1.0	-	2.72	-0.13	108	467	76	68
29	4.474	0.161	0.068	2.69	77	1.0	-	2.60	-0.12	109	472	77	68
30	4.636	0.162	0.069	2.70	77	1.0	100	2.47	-0.13	108	469	76	67
31	4.794	0.158	0.066	2.69	77	1.0	-	2.35	-0.12	107	462	77	68

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 4

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.958	0.164	0.068	2.71	78	1.0	-	2.24	-0.11	107	456	77	68
33	5.116	0.158	0.067	2.70	78	1.0	-	2.13	-0.11	106	453	77	68
34	5.278	0.162	0.067	2.71	78	1.0	-	2.02	-0.11	106	452	77	68
35	5.441	0.163	0.067	2.71	79	1.0	-	1.92	-0.10	105	455	77	67
36	5.600	0.159	0.066	2.71	79	1.0	-	1.82	-0.10	105	453	77	67
37	5.762	0.162	0.067	2.71	79	1.0	-	1.71	-0.11	105	450	77	68
38	5.925	0.163	0.066	2.72	80	1.0	-	1.62	-0.09	105	448	77	67
39	6.083	0.158	0.068	2.72	80	1.0	-	1.54	-0.08	104	443	77	67
40	6.248	0.165	0.066	2.72	80	1.0	101	1.46	-0.08	103	436	77	67
41	6.407	0.159	0.067	2.73	80	1.0	-	1.40	-0.06	102	429	77	67
42	6.570	0.163	0.068	2.73	81	1.1	-	1.32	-0.08	102	421	77	67
43	6.734	0.164	0.066	2.74	81	1.0	-	1.28	-0.04	101	411	77	68
44	6.893	0.159	0.069	2.73	81	1.0	-	1.23	-0.05	100	402	76	68
45	7.058	0.165	0.067	2.75	81	1.0	-	1.18	-0.05	99	392	76	68
46	7.220	0.162	0.067	2.74	82	1.0	-	1.15	-0.03	98	382	76	67
47	7.381	0.161	0.067	2.75	82	1.0	-	1.12	-0.03	97	374	76	68
48	7.546	0.165	0.068	2.75	82	1.0	-	1.07	-0.05	96	367	76	68
49	7.706	0.160	0.067	2.75	82	1.1	-	1.04	-0.03	96	359	76	68
50	7.870	0.164	0.065	2.76	83	1.0	102	1.01	-0.03	95	352	76	68
51	8.035	0.165	0.067	2.76	83	1.0	-	0.99	-0.02	95	345	76	68
52	8.196	0.161	0.066	2.75	83	1.1	-	0.96	-0.03	94	338	76	68
53	8.360	0.164	0.066	2.77	83	1.0	-	0.94	-0.02	93	331	76	67
54	8.525	0.165	0.066	2.76	84	1.0	-	0.91	-0.03	93	325	76	67
55	8.685	0.160	0.066	2.77	84	1.0	-	0.89	-0.02	93	318	75	68
56	8.852	0.167	0.066	2.76	84	1.0	-	0.87	-0.02	92	311	75	67
57	9.013	0.161	0.067	2.76	84	1.1	-	0.85	-0.02	91	305	75	67
58	9.178	0.165	0.067	2.76	84	1.0	-	0.84	-0.01	91	300	75	67
59	9.343	0.165	0.068	2.77	85	1.0	-	0.81	-0.03	91	294	75	67
60	9.505	0.162	0.065	2.78	85	1.0	102	0.80	-0.01	90	290	75	67
61	9.670	0.165	0.067	2.78	85	1.0	-	0.78	-0.02	90	286	75	67
62	9.836	0.166	0.066	2.79	85	1.0	-	0.77	-0.01	89	282	75	67
63	9.998	0.162	0.067	2.79	85	1.0	-	0.76	-0.01	89	279	75	67

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 4

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	10.163	0.165	0.068	2.79	85	1.1	-	0.74	-0.02	88	277	75	67
65	10.330	0.167	0.066	2.80	86	1.0	-	0.72	-0.02	88	273	75	67
66	10.491	0.161	0.066	2.79	86	1.0	-	0.71	-0.01	88	270	74	67
67	10.657	0.166	0.067	2.79	86	1.0	-	0.69	-0.02	88	268	74	67
68	10.823	0.166	0.067	2.79	86	1.1	-	0.68	-0.01	87	264	74	67
69	10.984	0.161	0.066	2.79	86	1.0	-	0.66	-0.02	87	262	74	67
70	11.153	0.169	0.066	2.80	86	1.0	102	0.65	-0.01	87	260	74	67
71	11.317	0.164	0.068	2.79	87	1.0	-	0.63	-0.02	87	258	74	67
72	11.480	0.163	0.066	2.79	87	1.1	-	0.61	-0.02	86	256	74	67
73	11.648	0.168	0.067	2.79	87	1.0	-	0.60	-0.01	86	254	74	67
74	11.811	0.163	0.067	2.80	87	1.0	-	0.59	-0.01	86	253	74	66
75	11.976	0.165	0.066	2.80	87	1.0	-	0.57	-0.02	86	250	74	66
76	12.144	0.168	0.065	2.79	87	1.0	-	0.56	-0.01	85	249	74	67
77	12.307	0.163	0.067	2.81	87	1.0	-	0.54	-0.02	85	247	73	67
78	12.473	0.166	0.066	2.81	88	1.1	-	0.53	-0.01	85	247	73	67
79	12.640	0.167	0.068	2.81	88	1.0	-	0.51	-0.02	85	244	73	67
80	12.803	0.163	0.068	2.81	88	1.0	100	0.50	-0.01	85	243	73	67
81	12.970	0.167	0.067	2.81	88	1.0	-	0.48	-0.02	84	241	73	67
82	13.136	0.166	0.065	2.81	88	1.0	-	0.48	0.00	84	238	73	66
83	13.300	0.164	0.065	2.82	88	1.0	-	0.46	-0.02	84	237	73	67
84	13.467	0.167	0.066	2.81	88	1.0	-	0.45	-0.01	84	236	73	67
85	13.634	0.167	0.066	2.81	88	1.0	-	0.43	-0.02	84	235	73	66
86	13.798	0.164	0.067	2.81	88	1.1	-	0.42	-0.01	84	234	73	67
87	13.964	0.166	0.066	2.80	89	1.0	-	0.41	-0.01	83	232	73	67
88	14.131	0.167	0.066	2.82	89	1.0	-	0.40	-0.01	83	230	73	66
89	14.295	0.164	0.067	2.81	89	1.0	-	0.38	-0.02	83	229	73	66
90	14.462	0.167	0.068	2.81	89	1.0	100	0.37	-0.01	83	227	73	66
91	14.629	0.167	0.068	2.81	89	1.0	-	0.35	-0.02	83	226	73	66
92	14.793	0.164	0.068	2.82	89	1.0	-	0.34	-0.01	83	226	73	67
93	14.960	0.167	0.066	2.81	89	1.0	-	0.32	-0.02	83	225	73	67
94	15.128	0.168	0.068	2.83	89	1.0	-	0.31	-0.01	83	223	73	67
95	15.292	0.164	0.066	2.82	89	1.0	-	0.30	-0.01	82	223	73	66

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI Job #: F24-333
 Model: F1150-1 Tracking #: 214
 Run #: 4 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	15.459	0.167	0.066	2.83	89	1.0	-	0.28	-0.02	82	222	72	66
97	15.627	0.168	0.066	2.84	89	1.0	-	0.27	-0.01	82	224	72	66
98	15.791	0.164	0.068	2.82	90	1.0	-	0.25	-0.02	82	225	72	66
99	15.958	0.167	0.068	2.82	90	1.0	-	0.24	-0.01	82	225	72	66
100	16.126	0.168	0.066	2.84	90	1.0	100	0.22	-0.02	82	224	72	66
101	16.290	0.164	0.066	2.82	90	1.1	-	0.21	-0.01	82	223	72	66
102	16.457	0.167	0.067	2.83	90	1.0	-	0.20	-0.01	82	223	72	67
103	16.626	0.169	0.067	2.83	90	1.1	-	0.18	-0.02	82	223	72	66
104	16.789	0.163	0.069	2.82	90	1.0	-	0.17	-0.01	82	223	72	66
105	16.957	0.168	0.066	2.84	90	1.0	-	0.16	-0.01	82	224	72	67
106	17.125	0.168	0.067	2.83	90	1.0	-	0.14	-0.02	82	222	72	66
107	17.289	0.164	0.065	2.82	90	1.0	-	0.13	-0.01	81	221	72	66
108	17.456	0.167	0.068	2.83	90	1.0	-	0.11	-0.02	81	221	72	66
109	17.625	0.169	0.067	2.83	90	1.0	-	0.11	0.00	81	221	72	66
110	17.789	0.164	0.068	2.84	90	1.0	100	0.09	-0.02	81	220	72	66
111	17.957	0.168	0.066	2.84	90	1.0	-	0.07	-0.02	81	219	72	66
112	18.125	0.168	0.066	2.84	90	1.0	-	0.06	-0.01	81	218	72	66
113	18.289	0.164	0.067	2.83	90	1.1	-	0.06	0.00	81	216	72	66
114	18.457	0.168	0.065	2.84	90	1.0	-	0.04	-0.02	81	216	72	66
115	18.626	0.169	0.066	2.84	91	1.0	-	0.03	-0.01	81	216	72	66
116	18.790	0.164	0.067	2.84	91	1.1	-	0.02	-0.01	81	215	72	66
117	18.957	0.167	0.067	2.82	91	1.0	-	0.01	-0.01	81	214	72	66
118	19.126	0.169	0.067	2.84	91	1.0	100	0.00	-0.01	80	214	72	66
Avg/Tot	19.126	0.162	0.067	2.70	82.7	1.0	100			93.8	332.7	74.1	66.9

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 4

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
0	0.000		0.01	74	0.7		71	-0.055	1.34	0.257
1	0.133	0.133	2.52	74	1.6	-	73	-0.079	1.07	0.227
2	0.285	0.152	2.52	73	1.6	-	74	-0.084	8.74	0.211
3	0.441	0.156	2.52	73	1.8	-	75	-0.086	10.70	0.092
4	0.593	0.152	2.52	73	1.9	-	75	-0.087	11.84	0.098
5	0.750	0.157	2.51	73	1.6	-	76	-0.089	11.19	0.086
6	0.902	0.152	2.52	73	2.1	-	76	-0.080	11.09	0.185
7	1.058	0.156	2.52	73	1.6	-	76	-0.080	10.20	0.107
8	1.212	0.154	2.53	74	1.7	-	76	-0.080	10.31	0.099
9	1.367	0.155	2.52	74	2.1	-	76	-0.083	10.16	0.130
10	1.523	0.156	2.53	74	1.7	98	76	-0.082	10.95	0.100
11	1.675	0.152	2.53	74	1.9	-	76	-0.083	10.78	0.109
12	1.833	0.158	2.53	74	1.8	-	76	-0.081	10.81	0.125
13	1.986	0.153	2.53	74	1.7	-	77	-0.082	11.13	0.117
14	2.142	0.156	2.53	74	2.1	-	77	-0.084	11.50	0.179
15	2.296	0.154	2.53	75	2.0	-	77	-0.084	11.48	0.172
16	2.452	0.156	2.54	75	2.0	-	77	-0.082	11.60	0.146
17	2.608	0.156	2.53	75	1.8	-	77	-0.084	11.61	0.133
18	2.761	0.153	2.53	75	2.1	-	77	-0.083	11.67	0.098
19	2.919	0.158	2.53	76	1.6	-	77	-0.082	11.73	0.107
20	3.073	0.154	2.54	76	1.7	101	77	-0.082	11.90	0.108
21	3.231	0.158	2.55	76	1.9	-	77	-0.082	11.98	0.133
22	3.384	0.153	2.54	76	1.9	-	78	-0.082	12.15	0.140
23	3.541	0.157	2.55	77	1.7	-	78	-0.082	12.27	0.133
24	3.698	0.157	2.55	77	2.0	-	78	-0.083	12.38	0.137
25	3.852	0.154	2.55	77	1.9	-	78	-0.083	12.48	0.155
26	4.010	0.158	2.54	77	1.8	-	78	-0.082	12.58	0.183
27	4.165	0.155	2.55	78	2.0	-	78	-0.084	12.49	0.126
28	4.323	0.158	2.56	78	1.9	-	78	-0.084	12.87	0.137
29	4.477	0.154	2.54	78	1.9	-	78	-0.085	13.43	0.204
30	4.635	0.158	2.55	79	1.7	101	78	-0.082	13.46	0.356
31	4.792	0.157	2.55	79	1.9	-	78	-0.082	13.22	0.466

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 4

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
32	4.946	0.154	2.55	79	1.9	-	78	-0.082	13.06	0.360
33	5.105	0.159	2.54	80	2.0	-	78	-0.081	12.73	0.253
34	5.260	0.155	2.55	80	1.8	-	78	-0.080	12.52	0.219
35	5.418	0.158	2.54	80	1.6	-	78	-0.079	12.53	0.180
36	5.574	0.156	2.55	81	1.7	-	78	-0.080	12.69	0.200
37	5.731	0.157	2.55	81	1.9	-	78	-0.079	12.64	0.238
38	5.888	0.157	2.55	81	2.0	-	78	-0.078	12.49	0.208
39	6.043	0.155	2.54	82	1.6	-	78	-0.077	11.86	0.109
40	6.203	0.160	2.55	82	2.0	101	78	-0.075	10.89	0.039
41	6.357	0.154	2.54	82	2.1	-	78	-0.075	10.47	0.019
42	6.516	0.159	2.55	82	2.1	-	78	-0.071	9.82	0.009
43	6.674	0.158	2.55	83	2.0	-	78	-0.070	9.25	0.006
44	6.829	0.155	2.55	83	1.9	-	78	-0.070	8.72	0.006
45	6.989	0.160	2.55	83	1.9	-	78	-0.069	8.55	0.012
46	7.145	0.156	2.55	84	1.6	-	77	-0.067	8.05	0.042
47	7.303	0.158	2.55	84	1.7	-	77	-0.065	7.80	0.063
48	7.461	0.158	2.55	84	1.9	-	77	-0.066	7.60	0.101
49	7.618	0.157	2.56	84	1.9	-	77	-0.062	7.48	0.113
50	7.776	0.158	2.55	85	1.9	102	77	-0.062	7.19	0.138
51	7.933	0.157	2.55	85	1.7	-	77	-0.062	6.89	0.159
52	8.092	0.159	2.56	85	2.0	-	77	-0.059	6.74	0.184
53	8.250	0.158	2.56	85	1.7	-	77	-0.060	6.46	0.214
54	8.409	0.159	2.56	86	1.6	-	77	-0.060	6.32	0.247
55	8.567	0.158	2.56	86	2.1	-	77	-0.058	6.16	0.302
56	8.724	0.157	2.56	86	1.9	-	76	-0.055	5.87	0.393
57	8.884	0.160	2.56	86	1.9	-	76	-0.055	5.74	0.464
58	9.041	0.157	2.56	87	1.7	-	76	-0.053	5.69	0.465
59	9.201	0.160	2.56	87	2.0	-	76	-0.054	5.61	0.474
60	9.360	0.159	2.57	87	1.8	102	76	-0.053	5.55	0.518
61	9.517	0.157	2.57	87	2.1	-	76	-0.053	5.43	0.579
62	9.677	0.160	2.57	88	1.7	-	76	-0.053	5.40	0.621
63	9.835	0.158	2.58	88	1.8	-	76	-0.052	5.33	0.659

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 4

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
64	9.995	0.160	2.58	88	2.0	-	76	-0.051	5.33	0.709
65	10.154	0.159	2.58	88	1.7	-	76	-0.054	5.23	0.745
66	10.311	0.157	2.58	88	2.0	-	75	-0.052	5.18	0.820
67	10.472	0.161	2.58	89	1.9	-	75	-0.051	5.14	0.851
68	10.630	0.158	2.57	89	1.7	-	75	-0.051	5.12	0.828
69	10.790	0.160	2.58	89	1.7	-	75	-0.051	5.14	0.859
70	10.949	0.159	2.57	89	1.8	101	75	-0.050	5.10	0.879
71	11.107	0.158	2.57	89	2.1	-	75	-0.049	4.99	0.899
72	11.268	0.161	2.57	90	2.0	-	75	-0.050	4.87	0.909
73	11.427	0.159	2.58	90	1.7	-	75	-0.050	4.84	0.978
74	11.585	0.158	2.58	90	1.7	-	75	-0.049	4.82	1.004
75	11.747	0.162	2.58	90	1.7	-	75	-0.047	4.75	1.022
76	11.905	0.158	2.58	90	1.8	-	75	-0.048	4.74	1.034
77	12.065	0.160	2.58	91	2.0	-	75	-0.046	4.74	1.060
78	12.226	0.161	2.58	91	2.0	-	75	-0.048	4.69	1.076
79	12.383	0.157	2.58	91	1.6	-	74	-0.047	4.64	1.081
80	12.545	0.162	2.58	91	1.7	99	74	-0.047	4.62	1.091
81	12.703	0.158	2.58	91	1.6	-	74	-0.048	4.55	1.122
82	12.864	0.161	2.58	91	2.0	-	74	-0.046	4.50	1.164
83	13.024	0.160	2.59	91	1.7	-	74	-0.047	4.52	1.188
84	13.182	0.158	2.59	91	1.6	-	74	-0.045	4.51	1.183
85	13.344	0.162	2.59	92	2.1	-	74	-0.045	4.53	1.179
86	13.502	0.158	2.59	92	1.6	-	74	-0.047	4.46	1.194
87	13.664	0.162	2.59	92	1.7	-	74	-0.045	4.49	1.075
88	13.824	0.160	2.58	92	1.9	-	74	-0.044	4.46	1.093
89	13.983	0.159	2.59	92	1.7	-	74	-0.043	4.41	1.073
90	14.144	0.161	2.59	92	1.8	98	74	-0.044	4.42	1.100
91	14.304	0.160	2.59	92	1.6	-	74	-0.043	4.37	1.107
92	14.463	0.159	2.59	92	1.6	-	74	-0.046	4.38	1.122
93	14.626	0.163	2.59	92	2.1	-	74	-0.045	4.42	1.115
94	14.783	0.157	2.59	93	1.8	-	74	-0.046	4.41	1.114
95	14.945	0.162	2.59	93	1.6	-	74	-0.044	4.34	1.131

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 4

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
96	15.106	0.161	2.59	93	1.8	-	73	-0.044	4.39	1.155
97	15.264	0.158	2.59	93	1.9	-	73	-0.044	4.76	0.861
98	15.427	0.163	2.60	93	1.8	-	73	-0.043	4.75	0.849
99	15.585	0.158	2.60	93	2.0	-	73	-0.044	4.74	0.851
100	15.746	0.161	2.60	93	2.1	99	73	-0.045	4.75	0.872
101	15.907	0.161	2.59	93	2.0	-	73	-0.045	4.65	0.876
102	16.067	0.160	2.59	93	2.1	-	73	-0.043	4.68	0.908
103	16.227	0.160	2.59	93	1.6	-	73	-0.043	4.66	0.907
104	16.389	0.162	2.59	94	1.9	-	73	-0.045	4.62	0.946
105	16.547	0.158	2.59	94	1.7	-	73	-0.045	4.62	0.980
106	16.711	0.164	2.59	94	2.0	-	73	-0.043	4.56	0.995
107	16.869	0.158	2.60	94	2.1	-	73	-0.043	4.52	1.044
108	17.031	0.162	2.59	94	2.1	-	73	-0.044	4.19	0.987
109	17.192	0.161	2.60	94	2.1	-	73	-0.042	4.10	1.040
110	17.351	0.159	2.59	94	1.6	99	73	-0.043	4.11	1.114
111	17.513	0.162	2.60	94	2.1	-	73	-0.043	4.13	1.080
112	17.674	0.161	2.60	94	1.6	-	73	-0.042	4.13	1.077
113	17.833	0.159	2.60	94	2.0	-	73	-0.043	4.07	1.092
114	17.996	0.163	2.60	94	1.8	-	73	-0.043	4.01	1.144
115	18.154	0.158	2.60	94	1.6	-	73	-0.044	4.01	1.128
116	18.317	0.163	2.60	94	1.6	-	73	-0.043	4.03	1.100
117	18.477	0.160	2.60	94	1.7	-	73	-0.041	4.05	1.066
118	18.637	0.160	2.59	94	1.7	99	73	-0.044	3.75	1.049
Avg/Tot	18.637	0.158	2.54	85.2	1.8	100	75.4	-0.061	7.36	0.576

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 4

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	-0.002		-0.01	75	0.1		70
1	0.125	0.127	1.06	74	1.6	-	70
2	0.275	0.150	1.06	74	1.6	-	70
3	0.425	0.150	1.07	74	1.6	-	70
4	0.575	0.150	1.08	74	1.6	-	71
5	0.726	0.151	1.08	74	1.8	-	71
6	0.877	0.151	1.08	74	1.8	-	71
7	1.029	0.152	1.09	75	1.6	-	71
8	1.180	0.151	1.10	75	1.8	-	72
9	1.333	0.153	1.11	75	1.6	-	72
10	1.485	0.152	1.11	75	1.8	97	72
11	1.637	0.152	1.10	76	1.8	-	72
12	1.790	0.153	1.10	76	1.7	-	73
13	1.944	0.154	1.11	76	1.6	-	73
14	2.097	0.153	1.11	76	1.8	-	73
15	2.251	0.154	1.12	77	1.8	-	73
16	2.404	0.153	1.12	77	1.7	-	73
17	2.556	0.152	1.11	77	1.9	-	73
18	2.710	0.154	1.11	77	1.9	-	73
19	2.864	0.154	1.11	78	1.9	-	74
20	3.018	0.154	1.12	78	1.8	100	74
21	3.173	0.155	1.12	78	1.7	-	74
22	3.325	0.152	1.12	78	1.8	-	74
23	3.480	0.155	1.12	79	1.7	-	74
24	3.635	0.155	1.12	79	1.7	-	74
25	3.791	0.156	1.13	79	1.7	-	74
26	3.945	0.154	1.13	80	1.7	-	74
27	4.100	0.155	1.13	80	1.7	-	74
28	4.256	0.156	1.13	80	1.8	-	75
29	4.412	0.156	1.14	80	1.9	-	75
30	4.567	0.155	1.14	80	1.8	101	75
31	4.722	0.155	1.13	81	1.8	-	75

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 4

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/6/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.879	0.157	1.14	81	1.7	-	75
33	5.035	0.156	1.14	81	1.9	-	75
34	5.190	0.155	1.14	82	1.7	-	75
35	5.347	0.157	1.14	82	1.8	-	75
36	5.503	0.156	1.14	82	1.9	-	75
37	5.659	0.156	1.14	82	1.7	-	75
38	5.815	0.156	1.13	82	1.7	-	75
39	5.973	0.158	1.14	83	1.7	-	75
40	6.130	0.157	1.15	83	1.7	101	75
41	6.286	0.156	1.14	83	1.8	-	75
42	6.443	0.157	1.14	83	1.7	-	75
43	6.601	0.158	1.15	83	1.9	-	75
44	6.757	0.156	1.14	84	1.7	-	75
45	6.915	0.158	1.14	84	1.7	-	75
46	7.073	0.158	1.16	84	1.7	-	75
47	7.230	0.157	1.15	85	1.8	-	75
48	7.388	0.158	1.15	85	1.8	-	75
49	7.547	0.159	1.16	85	1.7	-	75
50	7.704	0.157	1.15	85	1.9	103	75
51	7.863	0.159	1.16	85	1.7	-	75
52	8.021	0.158	1.16	85	1.9	-	75
53	8.180	0.159	1.16	86	1.7	-	74
54	8.339	0.159	1.16	85	1.7	-	74
55	8.497	0.158	1.16	86	1.8	-	74
56	8.657	0.160	1.16	86	1.8	-	74
57	8.815	0.158	1.17	86	1.9	-	74
58	8.974	0.159	1.16	86	1.7	-	74
59	9.134	0.160	1.17	86	1.9	-	74
60	9.293	0.159	1.16	87	1.9	103	74
Avg/Tot	9.295	0.155	1.11	80.2	1.7	101	73.7

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 4

Technician: AK

Date: 11/6/2024

Stove ΔT: 100

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	447	464	311	414	389	405.1	66.2
1	445	458	338	409	390	408.0	66.4
2	440	449	349	473	390	420.4	66.3
3	435	446	359	532	390	432.3	66.3
4	430	446	370	597	389	446.4	66.4
5	427	449	379	641	386	456.5	66.5
6	424	455	389	661	385	462.7	66.5
7	422	461	397	668	383	466.1	66.6
8	422	466	404	673	382	469.3	66.8
9	420	473	410	678	380	472.2	66.8
10	419	480	416	689	379	476.4	66.8
11	419	486	421	698	377	480.1	66.7
12	419	492	426	706	376	483.7	66.8
13	418	498	430	714	375	487.1	66.8
14	418	504	434	722	374	490.5	66.9
15	419	510	407	730	373	487.7	67.0
16	419	516	388	735	371	485.9	67.0
17	421	522	374	737	370	484.7	67.0
18	422	528	363	735	369	483.2	66.9
19	424	534	355	733	367	482.7	66.9
20	425	539	348	741	367	483.8	66.8
21	426	544	343	744	365	484.4	66.9
22	428	549	341	748	364	485.8	66.8
23	431	553	338	755	363	487.7	66.8
24	432	557	335	758	361	488.6	66.8
25	435	561	334	765	361	491.0	66.9
26	436	565	333	774	360	493.5	67.0
27	438	569	333	779	358	495.3	67.1
28	440	573	334	788	357	498.1	67.0
29	443	577	335	798	356	501.5	66.9
30	444	583	336	810	355	505.6	66.9
31	447	588	338	812	354	508.0	66.9
32	449	593	341	815	354	510.4	67.0
33	451	597	342	816	353	511.8	67.0
34	454	599	344	812	353	512.4	67.1
35	455	601	346	808	352	512.5	67.0
36	457	603	346	812	352	514.0	67.1
37	459	604	349	811	352	514.8	67.2
38	461	604	350	812	351	515.5	67.1
39	463	603	351	805	352	514.6	67.0
40	465	602	353	796	352	513.2	67.1
41	467	600	354	775	351	509.4	67.2
42	469	599	354	758	352	506.3	67.2
43	471	597	354	743	352	503.1	67.1
44	473	593	353	723	352	498.9	67.1
45	474	590	352	704	351	494.3	67.0
46	476	585	349	684	352	489.1	66.9
47	477	580	348	666	352	484.7	67.0

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 4

Technician: AK

Date: 11/6/2024

Stove ΔT: 100

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	477	575	346	649	352	479.7	67.1
49	477	569	344	632	352	474.8	67.0
50	477	563	341	616	352	469.8	67.0
51	477	557	338	600	352	464.6	67.0
52	475	550	336	586	352	459.6	67.0
53	474	542	334	574	352	455.2	67.0
54	472	535	332	560	352	450.1	66.9
55	470	528	329	550	352	445.7	67.0
56	468	520	327	539	351	440.9	67.1
57	465	513	323	525	351	435.6	67.0
58	463	507	320	517	351	431.4	67.1
59	459	500	318	506	351	426.7	67.2
60	456	494	315	495	351	421.9	67.0
61	452	488	311	489	350	418.2	67.1
62	448	483	309	481	350	414.0	67.1
63	444	477	305	470	350	409.2	67.0
64	441	472	303	461	349	405.2	66.9
65	438	467	300	455	348	401.6	66.9
66	434	462	298	450	348	398.3	66.9
67	430	458	295	442	348	394.6	66.9
68	426	453	293	437	346	391.2	67.0
69	423	449	290	432	346	388.0	67.1
70	419	445	289	425	345	384.7	66.9
71	416	441	287	421	344	381.9	66.9
72	413	437	285	416	344	379.1	66.9
73	409	434	283	411	343	376.1	66.9
74	406	430	281	408	343	373.4	66.8
75	403	427	280	404	342	371.0	66.8
76	400	423	278	399	341	368.1	66.7
77	397	420	275	395	340	365.4	66.7
78	394	417	275	392	339	363.0	66.7
79	391	414	273	387	338	360.7	66.7
80	388	411	271	384	337	358.1	66.8
81	385	408	270	380	336	355.7	66.9
82	383	405	267	376	335	353.1	66.9
83	380	402	266	374	334	351.1	66.9
84	378	399	264	370	333	348.9	66.9
85	375	397	263	367	332	346.6	67.0
86	372	394	262	365	330	344.6	67.0
87	370	392	260	362	329	342.6	67.0
88	368	390	259	359	329	340.7	66.8
89	365	388	258	357	328	339.0	66.7
90	363	385	257	355	326	337.2	66.7
91	362	383	256	353	325	335.7	66.8
92	359	381	253	350	324	333.3	66.8
93	356	379	253	348	323	331.8	66.9
94	355	377	251	346	321	330.2	66.9
95	353	376	251	345	320	328.8	66.8

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 4

Technician: AK

Date: 11/6/2024

Stove ΔT : 100

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	352	374	249	343	319	327.4	66.8
97	349	373	250	340	318	325.8	66.8
98	348	372	250	338	317	325.0	66.8
99	346	372	251	337	316	324.3	66.7
100	344	373	251	336	315	323.8	66.7
101	342	373	251	335	314	322.9	66.7
102	341	373	251	335	313	322.5	66.7
103	340	373	251	334	313	322.1	66.7
104	339	373	251	333	312	321.4	66.6
105	337	373	250	332	311	320.6	66.7
106	336	373	250	330	311	319.8	66.6
107	335	372	249	329	311	319.0	66.6
108	333	372	247	328	310	318.0	66.6
109	332	371	244	326	310	316.5	66.5
110	330	370	242	324	309	315.1	66.6
111	329	369	240	323	309	314.0	66.5
112	328	368	239	322	309	313.1	66.6
113	327	366	237	320	308	311.6	66.6
114	325	365	236	318	308	310.3	66.5
115	324	363	234	318	308	309.2	66.5
116	323	362	232	316	307	307.8	66.5
117	321	360	231	314	308	306.6	66.5
118	320	358	229	313	307	305.4	66.4
Average	410.5	471.9	310.4	532.9	345.3	414.2	66.8

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F1150-1
Run #: 4

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/6/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	A	G1153	237.4	238.5	1.1
	B	G1154	237.5	238.5	1.0
	C - 1st Hour	G1155	236.2	237.2	1.0
	Amb	G1156	237.3	237.4	0.1
Probes	A	5A	116758.8	116758.9	0.1
	B	5B	116877.1	116877.1	0.0
	C - 1st Hour	5C	115856.5	115856.6	0.1
O-rings	A	5A	3536.6	3536.8	0.2
	B	5B	3531.8	3532.2	0.4
	C - 1st Hour	5C	3377.0	3377.1	0.1

Placed in Dessicator on: 11/6/24, 17:30

Balance Audit (mg):		200.0		200.0					
		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	A	238.6	11/8 15:00	238.5	11/18 9:45				
	B	238.4	11/8 15:00	238.5	11/18 9:45				
	C - 1st Hour	237.3	11/8 15:00	237.2	11/18 9:45				
	Amb	237.4	11/8 15:00	237.4	11/18 9:45				
Probes	A	116758.8	11/8 15:00	116758.9	11/18 9:45				
	B	116877.1	11/8 15:00	116877.1	11/18 9:45				
	C - 1st Hour	115856.5	11/8 15:00	115856.6	11/18 9:45				
O-Rings	A	3536.9	11/8 15:00	3536.8	11/18 9:45				
	B	3532.2	11/8 15:00	3532.2	11/18 9:45				
	C - 1st Hour	3377.2	11/8 15:00	3377.1	11/18 9:45				

Train A Aggregate, mg:	1.4
Train B Aggregate, mg:	1.4
Train C Aggregate, mg:	1.2
Ambient, mg:	0.1

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: F24-333 Tracking #: 214
Model: F1150-1 Run Number: 4 Test Date: 11/6/2024

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Open 0.437"
Targeted Burn Category: III

Preburn Notes

Time	Notes
32:00	+1.49 lb

Test Notes

Test Burn Start Time: 14:58 Test Fuel Loaded by: 25 seconds
Door Closed: 255 seconds Air Control Set at: 300 seconds
Other Loading Notes: Fan on high at 15:00

Time	Notes
	-None-

Test Burn End Time: 16:56

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO₂ (%): 16.98 CO (%): 4.300
Mid Gas CO₂ (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	12:32	12:33	12:34	17:18	17:19	17:20
CO ₂	0.03	16.94	10.20	0.00	16.94	10.12
CO	-0.029	4.269	2.503	-0.051	4.250	2.460

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

Technician Signature: 

Date: 11/20/24

ASTM E2780 Wood Heater Run Sheets

Client: **FPI**
Model: **F1150-1**

Job Number: **F24-333**
Run Number: **4**

Tracking #: **214**
Test Date: **11/6/2024**



Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____

[Signature]

Date: 11/20/24

WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515



Run 5 Data Summary

Client:	FPI
Model:	F1150-1
Job #:	F24-333
Tracking #:	214
Test Date:	11/7/2024



Technician Signature

11/20/2024

Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 5

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/7/2024

Burn Rate (kg/hr):	1.10
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft ³)	30.173	20.953	20.366	9.335
Average Gas Velocity in Dilution Tunnel (ft/sec)	16.8			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11233.0			
Average Gas Meter Temperature (°F)	65.1	80.5	82.4	76.1
Total Sample Volume (dscf)	30.595	20.613	20.278	9.334
Average Tunnel Temperature (°F)	89.6			
Total Time of Test (min)	129			
Total Particulate Catch (mg)	0.0	1.0	1.2	0.8
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000485	0.0000592	0.0000857
Total PM Emissions (g)	0.00	1.17	1.43	0.96
Particulate Emission Rate (g/hr)	0.00	0.54	0.66	0.96
Emissions Factor (g/kg)	-	0.49	0.60	-
Difference from Average Total Particulate Emissions (g)	-	0.13	0.13	-
Difference from Average Total Particulate Emissions (%)	-	9.9%	9.9%	-
Difference from Average Emissions Factor (g/kg)	-	0.05	0.05	-

Final Average Results	
Total Particulate Emissions (g)	1.30
Particulate Emission Rate (g/hr)	0.60
Emissions Factor (g/kg)	0.55
HHV Efficiency (%)	71.0%
LHV Efficiency (%)	76.7%
CO Emissions (g/min)	0.97

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	75.2	OK
Face Velocity	< 30 ft/min	9.3	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:64/Max:65.9	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	50.5	OK

B415.1 Efficiency Results

Manufacturer: FPI
Model: F1150-1
Date: 11/07/24
Run: 5
Control #: F24-333
Test Duration: 129
Output Category: 2

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	71.0%	76.7%
Combustion Efficiency	96.6%	96.6%
Heat Transfer Efficiency	73.5%	79.4%

Output Rate (kJ/h)	15,285	14,499	(Btu/h)
Burn Rate (kg/h)	1.09	2.40	(lb/h)
Input (kJ/h)	21,535	20,429	(Btu/h)

Test Load Weight (dry kg)	2.34	5.15	dry lb
MC wet (%)	17.97		
MC dry (%)	21.91		
Particulate (g)	1.30		
CO (g)	125		
Test Duration (h)	2.15		

Emissions	Particulate	CO
g/MJ Output	0.04	3.79
g/kg Dry Fuel	0.56	53.29
g/h	0.60	57.94
g/min	0.01	0.97
lb/MM Btu Output	0.09	8.81

Air/Fuel Ratio (A/F)	16.48
-----------------------------	-------

VERSION:

2.4

4/15/2010

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F1150-1
Run #: 5

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/7/2024

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	8.00	19.5		2x4	4.50	19.9
2x4	8.00	19.7				
2x4	8.00	23.3				
2x4	8.00	21.6				
2x4	15.25	19.5				
2x4	15.25	24.3				
2x4	4.50	23.3				
2x4	4.50	22.2				
Total Fuel Weight (lbs):		8.44	Average Moisture (%DB):		21.5	

Firebox Volume (ft³): 0.89
Total 2x4 Crib Weight, with spacers (lbs): 6.28
Total 4x4 Crib Weight, with spacers (lbs): 0.00
Total Wet Fuel Weight, with spacers (lbs): 6.28

Coal Bed Range (20-25%):
Min (lbs): 1.26
Max (lbs): 1.57

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	15.25	1.72	19.8	21.7	22.7	1.42
2x4	15.25	1.65	23.3	23.3	22.0	1.34
2x4	15.25	1.83	21.6	19.5	23.3	1.51
Total Dry Weight, no spacers (lbs):						4.27
Total Dry Weight, with spacers (lbs):						5.23

Spacer Moisture Readings (%DB)							
12.8	11.2						
10.9	11.6						
11.9	12.4						
11.6	13.4						
11.2	11.4						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft ³ , DB)	30.7	OK
Loading Density	6.3 - 7.7 (lbs/ft ³ , WB)	7.06	OK
2x4 Fuel Mix	35 - 65 % of total weight	N/A	N/A

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: FPI
 Model: F1150-1
 Run #: 5
 Test Start Time: 10:53

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/7/2024

Total Sampling Time (min): 129
 Recording Interval (min): 1

Meter Box γ Factor: 0.996 (A)
 Meter Box γ Factor: 1.012 (B)
 Meter Box γ Factor: 1.008 (C)
 Meter Box γ Factor: 1.004 (Ambient)

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.08	30.05	30.07
Relative Humidity (%)	25.4	31.2	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		30.173	ft ³

Sample Train Leak Checks

	Pre-test	Post-test		
Induced Draft Check (in. H ₂ O):	0	(A) 0.001	0.000	cfm @ -7 in. Hg
Smoke Capture Check (%):	100%	(B) 0.000	0.000	cfm @ -7 in. Hg
Date Flue Pipe Last Cleaned:	11/1/2024	(C) 0.001	0.001	cfm @ -7 in. Hg
Test Fuel Scale Audit (lbs)	10.00	(Ambient) 0.000	0.000	cfm @ -13 in. Hg
Platform Scale Audit (lbs)	10.0			

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H ₂ O)	Temp (°F)
1	0.050	72
2	0.076	72
3	0.086	72
4	0.060	72
5	0.052	72
6	0.080	72
7	0.084	72
8	0.054	72
Center	0.072	72

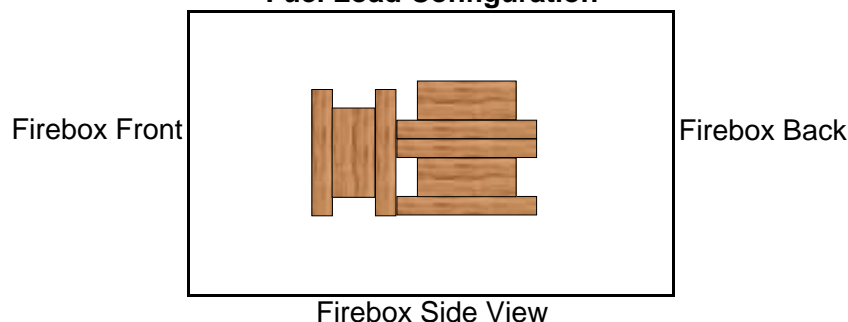
Dilution Tunnel H₂O: 2.00 percent
 Tunnel Diameter: 6 inches
 Pitot Tube Cp: 0.99 [unitless]
 Dilution Tunnel MW(dry): 29.00 lb/lb-mole
 Dilution Tunnel MW(wet): 28.78 lb/lb-mole
 Tunnel Area: 0.1963 ft²

 V_{strav} : 17.17 ft/sec
 V_{scent} : 17.81 ft/sec
 F_p : 0.965 [ratio]
 Initial Tunnel Flow: 197.7 scf/min

Static Pressure: -0.130 in. H₂O

TEST FUEL PROPERTIES

Fuel Load Configuration



Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	21.9

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI

Model: F1150-1

Run #: 5

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/7/2024

Recording Interval (min): 1
Run Time (min): 60

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	1.86	-0.069	517	582	560	618	393	533.9	451	65
1	1.85	-0.067	515	576	556	610	394	530.3	393	65
2	1.83	-0.063	513	571	553	600	395	526.3	362	65
3	1.80	-0.064	509	565	547	589	396	521.2	345	63
4	1.80	-0.062	506	558	543	579	397	516.6	332	63
5	1.77	-0.062	502	552	537	568	398	511.3	323	63
6	1.77	-0.059	498	545	532	558	399	506.3	317	62
7	1.75	-0.059	494	539	527	550	400	502.0	311	63
8	1.74	-0.060	490	533	521	541	400	496.7	306	63
9	1.72	-0.059	487	527	516	532	400	492.3	302	63
10	1.71	-0.057	483	521	510	524	400	487.6	298	63
11	2.87	-0.068	478	516	507	510	400	482.1	321	64
12	2.77	-0.072	476	509	504	528	401	483.6	365	64
13	2.67	-0.074	472	504	503	558	401	487.4	399	64
14	2.59	-0.076	469	501	503	585	400	491.5	417	64
15	2.50	-0.069	466	498	503	609	400	495.3	403	64
16	2.45	-0.068	465	497	505	620	399	497.0	377	64
17	2.41	-0.065	463	495	506	622	398	496.9	364	64
18	2.35	-0.065	460	493	506	623	397	496.1	357	64
19	2.29	-0.064	457	492	506	624	397	495.0	350	64
20	2.24	-0.064	454	490	505	622	396	493.3	345	64
21	2.20	-0.063	452	488	504	621	395	492.0	342	64
22	2.15	-0.062	449	487	503	616	395	490.0	339	64
23	2.11	-0.065	447	485	502	609	393	487.1	337	64
24	2.07	-0.063	444	484	501	605	393	485.3	333	64
25	2.03	-0.063	442	482	500	604	392	484.1	332	64
26	1.99	-0.063	439	481	498	603	392	482.7	332	64
27	1.95	-0.059	437	480	498	602	391	481.4	332	64
28	1.91	-0.062	435	478	496	601	391	480.3	331	64
29	1.87	-0.062	433	477	495	603	390	479.8	330	64
30	1.83	-0.061	431	476	495	607	390	479.7	331	64
31	1.79	-0.061	429	476	494	609	390	479.3	330	64
32	1.76	-0.060	428	475	492	608	389	478.4	329	64
33	1.73	-0.060	426	474	490	600	389	475.8	325	64
34	1.72	-0.059	424	473	487	586	388	471.6	320	64
35	1.69	-0.055	423	472	484	571	389	467.7	314	64
36	1.67	-0.057	421	470	482	555	389	463.3	308	64
37	1.65	-0.056	419	469	479	540	389	459.1	301	64
38	1.64	-0.056	418	466	476	525	389	454.7	294	64
39	1.63	-0.054	415	464	472	512	389	450.4	287	64
40	1.60	-0.054	414	462	469	499	389	446.4	283	64
41	1.60	-0.053	411	459	466	488	388	442.3	278	64
42	1.58	-0.053	410	457	463	479	388	439.3	275	64
43	1.57	-0.052	408	454	459	471	388	436.1	271	64
44	1.55	-0.049	406	452	457	464	388	433.2	269	64

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
 Model: F1150-1
 Run #: 5

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/7/2024

Recording Interval (min): 1
 Run Time (min): 60

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	1.54	-0.051	404	449	454	457	387	430.3	266	64
46	1.52	-0.049	402	447	451	452	387	427.8	264	64
47	1.51	-0.050	401	444	448	447	386	425.4	263	64
48	1.49	-0.047	400	442	445	442	386	422.9	261	64
49	1.48	-0.049	398	440	444	438	386	420.8	259	64
50	1.47	-0.050	396	437	441	433	385	418.5	257	64
51	1.45	-0.047	395	435	440	429	385	416.6	255	64
52	1.43	-0.048	394	433	438	425	384	414.5	254	64
53	1.42	-0.048	392	431	436	422	384	412.9	253	64
54	1.41	-0.049	392	428	434	420	383	411.4	252	64
55	1.41	-0.046	390	426	432	416	382	409.2	250	64
56	1.38	-0.048	389	424	429	412	382	407.3	249	64
57	1.36	-0.047	388	422	427	411	381	406.0	248	64
58	1.35	-0.046	387	420	425	408	381	404.2	247	64
59	1.34	-0.048	386	419	423	406	380	402.9	246	64
60	1.33	-0.046	385	417	422	404	380	401.7	246	64

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 5

Technician: AK

Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.067	0.00	67	0.0		6.28		91	259	66	64
1	0.098	0.098	0.069	2.22	67	0.9	-	6.18	-0.10	96	279	67	64
2	0.244	0.146	0.067	2.26	67	0.9	-	6.05	-0.13	98	349	68	64
3	0.391	0.147	0.068	2.29	67	0.9	-	5.90	-0.15	100	405	68	64
4	0.538	0.147	0.067	2.32	67	0.9	-	5.71	-0.19	109	499	69	64
5	0.686	0.148	0.067	2.35	67	0.9	-	5.55	-0.16	109	505	69	65
6	0.836	0.150	0.067	2.37	67	0.9	-	5.46	-0.09	103	454	69	65
7	0.986	0.150	0.068	2.40	68	0.9	-	5.37	-0.09	99	414	69	64
8	1.138	0.152	0.067	2.43	68	0.9	-	5.29	-0.08	96	394	69	64
9	1.291	0.153	0.067	2.45	68	0.9	-	5.20	-0.09	94	385	69	64
10	1.443	0.152	0.067	2.46	68	0.9	91	5.10	-0.10	94	385	70	64
11	1.598	0.155	0.068	2.49	68	0.9	-	4.99	-0.11	94	389	70	64
12	1.750	0.152	0.067	2.50	68	0.9	-	4.88	-0.11	94	394	70	64
13	1.906	0.156	0.068	2.51	69	0.9	-	4.78	-0.10	94	396	70	64
14	2.057	0.151	0.067	2.53	69	0.9	-	4.67	-0.11	94	400	70	64
15	2.216	0.159	0.067	2.55	69	0.9	-	4.56	-0.11	94	405	70	64
16	2.369	0.153	0.067	2.56	69	0.9	-	4.44	-0.12	94	414	70	64
17	2.528	0.159	0.067	2.58	70	0.9	-	4.32	-0.12	95	421	71	64
18	2.682	0.154	0.067	2.58	70	0.9	-	4.21	-0.11	95	420	71	64
19	2.839	0.157	0.068	2.61	70	1.0	-	4.08	-0.13	95	420	71	64
20	2.999	0.160	0.067	2.61	70	0.9	98	3.97	-0.11	95	423	71	65
21	3.153	0.154	0.067	2.63	71	0.9	-	3.87	-0.10	95	426	71	64
22	3.314	0.161	0.067	2.64	71	1.0	-	3.74	-0.13	96	430	71	64
23	3.470	0.156	0.067	2.64	71	0.9	-	3.63	-0.11	96	434	71	65
24	3.630	0.160	0.067	2.65	72	0.9	-	3.51	-0.12	96	438	71	65
25	3.790	0.160	0.066	2.65	72	1.0	-	3.40	-0.11	96	441	71	65
26	3.948	0.158	0.066	2.67	72	0.9	-	3.29	-0.11	97	443	71	65
27	4.109	0.161	0.066	2.67	73	0.9	-	3.17	-0.12	97	444	71	65
28	4.267	0.158	0.066	2.69	73	0.9	-	3.06	-0.11	97	447	72	65
29	4.428	0.161	0.067	2.68	73	0.9	-	2.96	-0.10	97	448	72	65
30	4.588	0.160	0.067	2.69	74	0.9	100	2.85	-0.11	97	447	72	65
31	4.748	0.160	0.067	2.71	74	1.0	-	2.75	-0.10	97	445	72	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 5

Technician: AK

Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.910	0.162	0.067	2.70	74	0.9	-	2.64	-0.11	97	445	72	65
33	5.068	0.158	0.066	2.71	75	0.9	-	2.54	-0.10	98	447	72	65
34	5.230	0.162	0.067	2.72	75	1.0	-	2.43	-0.11	97	448	72	65
35	5.393	0.163	0.068	2.73	75	0.9	-	2.34	-0.09	98	450	72	65
36	5.551	0.158	0.067	2.73	76	0.9	-	2.23	-0.11	98	452	72	65
37	5.716	0.165	0.067	2.72	76	1.0	-	2.12	-0.11	98	455	72	65
38	5.875	0.159	0.066	2.74	76	0.9	-	2.02	-0.10	98	457	72	65
39	6.037	0.162	0.067	2.74	77	0.9	-	1.92	-0.10	98	453	72	65
40	6.199	0.162	0.068	2.75	77	1.0	100	1.85	-0.07	98	448	72	65
41	6.359	0.160	0.068	2.74	77	1.0	-	1.76	-0.09	97	440	72	65
42	6.525	0.166	0.067	2.75	77	1.0	-	1.69	-0.07	98	434	72	65
43	6.685	0.160	0.067	2.75	78	0.9	-	1.60	-0.09	97	426	72	65
44	6.847	0.162	0.068	2.76	78	1.0	-	1.54	-0.06	96	420	72	65
45	7.011	0.164	0.067	2.75	78	1.0	-	1.48	-0.06	96	414	72	65
46	7.172	0.161	0.067	2.78	78	1.0	-	1.43	-0.05	95	405	72	65
47	7.335	0.163	0.067	2.77	79	1.0	-	1.37	-0.06	95	398	72	66
48	7.500	0.165	0.068	2.78	79	0.9	-	1.33	-0.04	94	390	72	66
49	7.660	0.160	0.068	2.77	79	0.9	-	1.29	-0.04	94	383	72	66
50	7.825	0.165	0.067	2.77	79	1.0	100	1.25	-0.04	93	374	72	66
51	7.989	0.164	0.067	2.77	80	1.0	-	1.21	-0.04	93	368	72	66
52	8.148	0.159	0.065	2.79	80	1.0	-	1.18	-0.03	93	361	72	66
53	8.317	0.169	0.066	2.78	80	0.9	-	1.15	-0.03	92	355	72	66
54	8.478	0.161	0.067	2.79	80	1.0	-	1.12	-0.03	92	350	72	66
55	8.642	0.164	0.068	2.78	81	1.0	-	1.09	-0.03	91	344	72	66
56	8.807	0.165	0.067	2.78	81	0.9	-	1.06	-0.03	91	339	72	66
57	8.970	0.163	0.067	2.79	81	0.9	-	1.04	-0.02	91	335	72	66
58	9.134	0.164	0.066	2.79	81	0.9	-	1.02	-0.02	90	331	72	65
59	9.300	0.166	0.065	2.80	82	0.9	-	0.98	-0.04	90	328	72	65
60	9.461	0.161	0.067	2.80	82	1.0	101	0.97	-0.01	90	324	72	65
61	9.627	0.166	0.066	2.80	82	1.0	-	0.93	-0.04	89	321	72	65
62	9.793	0.166	0.066	2.80	82	1.0	-	0.93	0.00	89	318	72	65
63	9.954	0.161	0.065	2.80	82	1.0	-	0.90	-0.03	89	315	72	66

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 5

Technician: AK

Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	10.122	0.168	0.067	2.81	83	1.0	-	0.89	-0.01	89	309	72	65
65	10.286	0.164	0.067	2.80	83	1.0	-	0.86	-0.03	88	306	72	65
66	10.448	0.162	0.066	2.82	83	1.0	-	0.85	-0.01	88	304	72	65
67	10.617	0.169	0.066	2.81	83	1.0	-	0.83	-0.02	88	300	72	65
68	10.779	0.162	0.066	2.81	83	1.0	-	0.81	-0.02	87	297	72	66
69	10.945	0.166	0.067	2.82	83	1.0	-	0.81	0.00	87	295	72	65
70	11.109	0.164	0.067	2.82	84	1.0	101	0.79	-0.02	87	292	72	65
71	11.275	0.166	0.067	2.82	84	1.0	-	0.77	-0.02	87	290	72	65
72	11.441	0.166	0.069	2.82	84	1.0	-	0.76	-0.01	87	288	72	65
73	11.608	0.167	0.068	2.82	84	1.0	-	0.73	-0.03	86	286	72	65
74	11.771	0.163	0.067	2.83	84	0.9	-	0.73	0.00	86	284	72	65
75	11.938	0.167	0.066	2.83	84	1.0	-	0.72	-0.01	86	282	72	65
76	12.105	0.167	0.068	2.83	85	1.0	-	0.69	-0.03	86	279	72	65
77	12.269	0.164	0.068	2.83	85	1.0	-	0.68	-0.01	86	278	72	65
78	12.435	0.166	0.068	2.83	85	1.0	-	0.66	-0.02	86	276	72	65
79	12.602	0.167	0.067	2.84	85	0.9	-	0.65	-0.01	85	274	71	65
80	12.767	0.165	0.068	2.84	85	1.0	100	0.63	-0.02	85	273	71	65
81	12.933	0.166	0.065	2.83	85	1.0	-	0.62	-0.01	85	271	71	65
82	13.100	0.167	0.067	2.85	85	1.0	-	0.61	-0.01	85	269	71	65
83	13.267	0.167	0.067	2.84	86	1.0	-	0.60	-0.01	85	268	71	65
84	13.431	0.164	0.068	2.84	86	1.0	-	0.57	-0.03	85	266	71	65
85	13.599	0.168	0.065	2.83	86	1.0	-	0.55	-0.02	85	264	71	65
86	13.760	0.161	0.065	2.86	86	1.0	-	0.55	0.00	84	263	71	65
87	13.930	0.170	0.065	2.84	86	1.0	-	0.53	-0.02	84	262	71	65
88	14.098	0.168	0.067	2.85	86	1.0	-	0.52	-0.01	84	260	71	65
89	14.262	0.164	0.066	2.84	86	0.9	-	0.50	-0.02	84	259	71	65
90	14.429	0.167	0.066	2.84	86	1.0	101	0.48	-0.02	84	258	71	65
91	14.597	0.168	0.067	2.86	87	1.0	-	0.48	0.00	84	258	71	65
92	14.762	0.165	0.065	2.84	87	1.0	-	0.46	-0.02	84	257	71	65
93	14.929	0.167	0.067	2.84	87	1.0	-	0.44	-0.02	84	254	71	65
94	15.097	0.168	0.066	2.85	87	1.0	-	0.43	-0.01	84	253	71	65
95	15.262	0.165	0.066	2.85	87	1.0	-	0.42	-0.01	84	253	71	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 5

Technician: AK

Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	15.429	0.167	0.066	2.86	87	1.0	-	0.41	-0.01	84	252	71	65
97	15.598	0.169	0.067	2.86	87	1.0	-	0.40	-0.01	83	251	71	65
98	15.763	0.165	0.066	2.84	87	1.0	-	0.38	-0.02	83	251	71	65
99	15.930	0.167	0.064	2.85	87	1.0	-	0.37	-0.01	83	250	71	65
100	16.099	0.169	0.064	2.86	87	1.0	102	0.36	-0.01	83	250	71	65
101	16.264	0.165	0.066	2.85	88	1.0	-	0.34	-0.02	83	249	71	65
102	16.431	0.167	0.066	2.85	88	1.0	-	0.33	-0.01	83	249	71	65
103	16.600	0.169	0.065	2.86	88	1.0	-	0.31	-0.02	83	248	71	65
104	16.765	0.165	0.068	2.86	88	1.0	-	0.31	0.00	83	248	71	65
105	16.933	0.168	0.066	2.86	88	1.0	-	0.29	-0.02	83	246	71	65
106	17.101	0.168	0.064	2.86	88	1.0	-	0.27	-0.02	83	245	71	65
107	17.266	0.165	0.068	2.87	88	1.0	-	0.26	-0.01	83	244	71	65
108	17.434	0.168	0.066	2.85	88	1.0	-	0.24	-0.02	83	243	71	65
109	17.603	0.169	0.064	2.86	88	1.0	-	0.24	0.00	83	242	71	65
110	17.768	0.165	0.066	2.86	88	1.0	102	0.22	-0.02	83	242	71	66
111	17.936	0.168	0.067	2.85	88	1.0	-	0.20	-0.02	83	241	71	66
112	18.105	0.169	0.067	2.86	88	1.0	-	0.19	-0.01	83	241	71	66
113	18.270	0.165	0.065	2.87	89	1.0	-	0.18	-0.01	83	240	71	66
114	18.439	0.169	0.066	2.86	89	1.0	-	0.18	0.00	82	238	71	66
115	18.608	0.169	0.066	2.87	89	1.0	-	0.16	-0.02	82	237	71	66
116	18.773	0.165	0.067	2.86	89	1.0	-	0.14	-0.02	82	237	71	65
117	18.940	0.167	0.066	2.88	89	1.0	-	0.13	-0.01	82	237	71	65
118	19.111	0.171	0.067	2.86	89	1.0	-	0.12	-0.01	82	236	71	66
119	19.273	0.162	0.065	2.86	89	1.0	-	0.11	-0.01	82	234	71	66
120	19.442	0.169	0.067	2.88	89	1.0	101	0.10	-0.01	82	234	71	66
121	19.614	0.172	0.067	2.87	89	1.0	-	0.09	-0.01	82	233	71	66
122	19.780	0.166	0.067	2.87	89	1.0	-	0.07	-0.02	81	232	71	65
123	19.943	0.163	0.067	2.87	89	1.0	-	0.07	0.00	82	230	71	66
124	20.116	0.173	0.067	2.88	89	1.0	-	0.05	-0.02	82	230	71	66
125	20.284	0.168	0.065	2.87	89	1.0	-	0.05	0.00	82	229	71	66
126	20.449	0.165	0.067	2.87	89	1.0	-	0.03	-0.02	81	228	71	65
127	20.619	0.170	0.067	2.88	89	1.0	-	0.02	-0.01	81	227	71	65

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: <u>FPI</u>	Job #: <u>F24-333</u>
Model: <u>F1150-1</u>	Tracking #: <u>214</u>
Run #: <u>5</u>	Technician: <u>AK</u>
	Date: <u>11/7/2024</u>

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft ³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	20.789	0.170	0.066	2.88	89	1.0	-	0.01	-0.01	81	225	71	65
129	20.953	0.164	0.066	2.88	89	1.0	102	0.00	-0.01	81	224	71	65
Avg/Tot	20.953	0.162	0.067	2.73	80.5	0.9	100			89.6	328.8	71.0	65.1

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 5

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
0	0.000		0.01	68	0.7		68	-0.053	2.69	0.586
1	0.101	0.101	2.51	68	1.5	-	70	-0.062	0.82	0.232
2	0.258	0.157	2.50	68	2.0	-	70	-0.075	5.61	0.181
3	0.409	0.151	2.50	68	1.9	-	71	-0.079	8.59	0.086
4	0.563	0.154	2.49	68	1.8	-	73	-0.085	9.39	0.129
5	0.715	0.152	2.49	68	1.9	-	73	-0.085	10.80	0.053
6	0.868	0.153	2.50	68	2.0	-	73	-0.073	10.57	0.253
7	1.023	0.155	2.50	68	1.9	-	72	-0.071	7.83	0.062
8	1.173	0.150	2.51	68	1.8	-	72	-0.070	7.82	0.063
9	1.328	0.155	2.52	68	2.0	-	72	-0.072	8.07	0.047
10	1.479	0.151	2.52	68	1.8	96	72	-0.069	8.49	0.039
11	1.636	0.157	2.53	69	1.5	-	73	-0.072	8.88	0.052
12	1.787	0.151	2.53	69	2.1	-	73	-0.072	9.14	0.070
13	1.943	0.156	2.53	69	1.8	-	73	-0.073	9.19	0.056
14	2.095	0.152	2.53	69	2.1	-	73	-0.074	9.41	0.065
15	2.249	0.154	2.53	70	1.7	-	73	-0.075	9.91	0.090
16	2.404	0.155	2.54	70	1.9	-	73	-0.075	10.32	0.106
17	2.558	0.154	2.54	70	2.1	-	73	-0.076	10.79	0.202
18	2.713	0.155	2.53	70	1.9	-	73	-0.075	10.03	0.158
19	2.864	0.151	2.53	71	1.9	-	73	-0.076	10.04	0.160
20	3.022	0.158	2.54	71	1.9	100	74	-0.075	10.36	0.168
21	3.174	0.152	2.54	71	1.8	-	74	-0.076	10.65	0.172
22	3.331	0.157	2.55	72	2.0	-	74	-0.076	10.83	0.161
23	3.483	0.152	2.55	72	2.1	-	74	-0.076	11.10	0.165
24	3.640	0.157	2.55	72	1.5	-	74	-0.076	11.27	0.163
25	3.795	0.155	2.55	73	2.1	-	74	-0.077	11.38	0.155
26	3.949	0.154	2.56	73	2.0	-	74	-0.075	11.40	0.159
27	4.106	0.157	2.55	73	2.1	-	74	-0.075	11.40	0.181
28	4.259	0.153	2.56	74	1.7	-	74	-0.078	11.50	0.163
29	4.418	0.159	2.56	74	2.0	-	75	-0.075	11.54	0.138
30	4.570	0.152	2.55	74	1.7	100	75	-0.076	11.34	0.128
31	4.727	0.157	2.55	75	2.1	-	75	-0.078	11.28	0.120

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 5

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
32	4.884	0.157	2.57	75	1.8	-	75	-0.075	11.35	0.099
33	5.039	0.155	2.57	75	2.1	-	75	-0.078	11.43	0.121
34	5.196	0.157	2.56	76	1.6	-	75	-0.075	11.59	0.131
35	5.350	0.154	2.57	76	1.7	-	75	-0.078	11.76	0.144
36	5.510	0.160	2.57	76	2.0	-	75	-0.079	11.95	0.179
37	5.663	0.153	2.57	77	1.6	-	75	-0.076	12.05	0.311
38	5.821	0.158	2.57	77	2.1	-	75	-0.077	12.03	0.271
39	5.978	0.157	2.58	77	1.9	-	75	-0.077	11.52	0.097
40	6.130	0.152	2.57	78	1.9	100	75	-0.077	11.20	0.074
41	6.292	0.162	2.58	78	1.6	-	75	-0.074	10.93	0.048
42	6.447	0.155	2.58	78	1.6	-	75	-0.077	10.56	0.029
43	6.605	0.158	2.58	79	2.0	-	75	-0.072	10.12	0.018
44	6.762	0.157	2.58	79	1.7	-	75	-0.072	9.87	0.010
45	6.919	0.157	2.58	79	2.0	-	75	-0.074	9.59	0.008
46	7.078	0.159	2.58	80	2.1	-	75	-0.070	9.29	0.007
47	7.233	0.155	2.58	80	2.1	-	75	-0.069	8.66	0.011
48	7.394	0.161	2.59	80	2.0	-	75	-0.068	8.31	0.025
49	7.548	0.154	2.58	81	1.6	-	75	-0.069	7.90	0.046
50	7.708	0.160	2.59	81	1.7	100	75	-0.065	7.64	0.078
51	7.866	0.158	2.59	81	2.1	-	75	-0.064	7.33	0.103
52	8.019	0.153	2.58	81	2.0	-	75	-0.064	7.20	0.118
53	8.183	0.164	2.59	82	1.6	-	75	-0.064	7.08	0.136
54	8.339	0.156	2.59	82	1.6	-	75	-0.064	6.89	0.171
55	8.498	0.159	2.59	82	1.7	-	75	-0.063	6.71	0.193
56	8.658	0.160	2.60	83	2.0	-	75	-0.062	6.62	0.215
57	8.813	0.155	2.59	83	1.7	-	75	-0.059	6.59	0.250
58	8.975	0.162	2.60	83	1.9	-	75	-0.060	6.51	0.266
59	9.130	0.155	2.59	83	1.8	-	75	-0.060	6.49	0.275
60	9.291	0.161	2.60	84	1.9	100	75	-0.059	6.41	0.278
61	9.451	0.160	2.60	84	1.9	-	74	-0.058	6.30	0.306
62	9.606	0.155	2.60	84	1.6	-	74	-0.058	6.21	0.340
63	9.768	0.162	2.60	84	2.0	-	74	-0.059	6.15	0.379

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 5

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
64	9.924	0.156	2.61	85	2.0	-	74	-0.058	5.93	0.440
65	10.085	0.161	2.60	85	1.7	-	74	-0.055	5.77	0.502
66	10.245	0.160	2.61	85	1.8	-	74	-0.056	5.70	0.527
67	10.401	0.156	2.60	85	1.8	-	74	-0.054	5.66	0.563
68	10.564	0.163	2.61	85	1.6	-	74	-0.055	5.59	0.575
69	10.720	0.156	2.61	86	1.6	-	74	-0.053	5.61	0.610
70	10.878	0.158	2.61	86	1.8	100	74	-0.054	5.46	0.681
71	11.041	0.163	2.61	86	1.9	-	74	-0.054	5.39	0.713
72	11.199	0.158	2.60	86	1.9	-	74	-0.054	5.40	0.747
73	11.361	0.162	2.62	87	1.6	-	74	-0.052	5.38	0.785
74	11.518	0.157	2.61	87	1.7	-	74	-0.051	5.28	0.822
75	11.679	0.161	2.61	87	1.6	-	74	-0.053	5.22	0.861
76	11.839	0.160	2.61	87	1.8	-	74	-0.053	5.20	0.894
77	11.997	0.158	2.61	87	1.6	-	74	-0.051	5.16	0.905
78	12.159	0.162	2.62	87	1.6	-	74	-0.052	5.10	0.754
79	12.319	0.160	2.62	88	1.6	-	74	-0.053	5.07	0.780
80	12.477	0.158	2.62	88	1.6	100	74	-0.052	5.01	0.819
81	12.640	0.163	2.62	88	2.1	-	74	-0.050	4.99	0.841
82	12.797	0.157	2.62	88	1.7	-	74	-0.049	4.98	0.858
83	12.962	0.165	2.62	88	1.6	-	73	-0.050	4.88	0.885
84	13.120	0.158	2.63	88	1.6	-	73	-0.051	4.85	0.909
85	13.278	0.158	2.62	89	2.0	-	73	-0.049	4.84	0.940
86	13.439	0.161	2.62	89	1.6	-	73	-0.049	4.83	0.964
87	13.599	0.160	2.61	89	1.6	-	73	-0.051	4.76	0.984
88	13.761	0.162	2.62	89	2.1	-	73	-0.050	4.64	1.024
89	13.922	0.161	2.62	89	1.7	-	73	-0.049	4.66	1.055
90	14.081	0.159	2.63	89	1.7	100	73	-0.049	4.58	1.082
91	14.242	0.161	2.63	89	1.9	-	73	-0.048	4.52	1.093
92	14.404	0.162	2.62	90	1.7	-	73	-0.049	4.48	1.112
93	14.562	0.158	2.63	90	2.0	-	73	-0.049	4.44	1.146
94	14.726	0.164	2.62	90	2.1	-	73	-0.050	4.44	1.133
95	14.884	0.158	2.63	90	1.7	-	73	-0.048	4.43	1.155

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
 Model: F1150-1
 Run #: 5

Job #: F24-333
 Tracking #: 214
 Technician: AK
 Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
96	15.046	0.162	2.63	90	1.6	-	73	-0.047	4.46	1.161
97	15.208	0.162	2.63	90	1.6	-	73	-0.049	4.64	1.063
98	15.367	0.159	2.62	90	2.0	-	73	-0.049	4.58	1.084
99	15.529	0.162	2.63	90	2.1	-	73	-0.050	4.54	1.099
100	15.690	0.161	2.63	91	1.7	101	73	-0.048	4.54	1.111
101	15.849	0.159	2.63	91	1.6	-	73	-0.049	4.47	1.129
102	16.013	0.164	2.63	91	1.7	-	73	-0.050	4.36	1.132
103	16.171	0.158	2.63	91	2.0	-	73	-0.048	4.37	1.151
104	16.333	0.162	2.63	91	1.6	-	73	-0.047	4.32	1.192
105	16.495	0.162	2.63	91	2.0	-	73	-0.047	4.26	1.213
106	16.654	0.159	2.63	91	1.6	-	73	-0.049	4.20	1.254
107	16.816	0.162	2.63	91	2.0	-	73	-0.047	4.17	1.259
108	16.977	0.161	2.63	91	1.6	-	73	-0.048	4.12	1.302
109	17.137	0.160	2.63	91	2.0	-	73	-0.045	4.06	1.299
110	17.301	0.164	2.63	92	1.9	101	73	-0.046	4.12	1.217
111	17.459	0.158	2.63	92	1.9	-	73	-0.047	4.13	1.229
112	17.622	0.163	2.63	92	1.6	-	73	-0.047	3.93	1.227
113	17.784	0.162	2.63	92	1.6	-	73	-0.045	3.94	1.274
114	17.943	0.159	2.63	92	1.9	-	73	-0.048	3.96	1.286
115	18.106	0.163	2.64	92	2.0	-	73	-0.046	3.93	1.301
116	18.267	0.161	2.63	92	2.0	-	73	-0.044	3.88	1.284
117	18.427	0.160	2.63	92	1.8	-	73	-0.046	3.92	1.201
118	18.591	0.164	2.63	92	1.8	-	73	-0.045	3.90	1.212
119	18.746	0.155	2.63	92	1.6	-	73	-0.046	3.76	1.267
120	18.912	0.166	2.63	92	1.7	100	73	-0.045	3.57	1.355
121	19.074	0.162	2.63	92	1.9	-	73	-0.045	3.53	1.376
122	19.234	0.160	2.63	92	1.7	-	72	-0.046	3.50	1.349
123	19.394	0.160	2.64	93	2.0	-	72	-0.045	3.52	1.354
124	19.558	0.164	2.63	93	2.0	-	72	-0.045	3.57	1.341
125	19.718	0.160	2.63	93	2.0	-	72	-0.044	3.53	1.319
126	19.883	0.165	2.63	93	1.6	-	72	-0.045	3.38	1.379
127	20.041	0.158	2.63	93	1.6	-	72	-0.045	3.37	1.396

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPIJob #: F24-333Model: F1150-1Tracking #: 214Run #: 5Technician: AKDate: 11/7/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
128	20.205	0.164	2.64	93	2.1	-	72	-0.045	3.45	1.217
129	20.366	0.161	2.64	93	2.0	101	72	-0.042	3.63	1.113
Avg/Tot	20.366	0.158	2.57	82.4	1.8	100	73.5	-0.060	6.80	0.605

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 5

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	-0.002		-0.01	70	0.1		66
1	0.121	0.123	1.07	69	1.7	-	67
2	0.274	0.153	1.06	69	1.6	-	67
3	0.423	0.149	1.06	69	1.6	-	67
4	0.572	0.149	1.06	70	1.7	-	68
5	0.722	0.150	1.06	70	1.6	-	68
6	0.871	0.149	1.07	70	1.7	-	68
7	1.022	0.151	1.08	70	1.7	-	68
8	1.173	0.151	1.09	70	1.8	-	68
9	1.325	0.152	1.09	70	1.6	-	68
10	1.477	0.152	1.10	71	1.6	96	69
11	1.630	0.153	1.11	71	1.6	-	69
12	1.782	0.152	1.11	71	1.6	-	69
13	1.934	0.152	1.11	72	1.6	-	69
14	2.087	0.153	1.11	72	1.8	-	69
15	2.241	0.154	1.12	72	1.8	-	69
16	2.395	0.154	1.12	72	1.7	-	69
17	2.549	0.154	1.12	72	1.6	-	69
18	2.702	0.153	1.13	73	1.8	-	70
19	2.856	0.154	1.12	73	1.8	-	70
20	3.010	0.154	1.12	73	1.7	99	70
21	3.165	0.155	1.13	74	1.8	-	70
22	3.319	0.154	1.13	74	1.8	-	70
23	3.473	0.154	1.13	74	1.8	-	70
24	3.628	0.155	1.12	75	1.6	-	70
25	3.783	0.155	1.13	75	1.7	-	70
26	3.938	0.155	1.14	75	1.7	-	70
27	4.094	0.156	1.14	76	1.6	-	70
28	4.248	0.154	1.13	76	1.7	-	70
29	4.404	0.156	1.14	76	1.7	-	70
30	4.561	0.157	1.15	76	1.8	100	71
31	4.716	0.155	1.15	77	1.8	-	71

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI

Model: F1150-1

Run #: 5

Job #: F24-333

Tracking #: 214

Technician: AK

Date: 11/7/2024

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.872	0.156	1.14	77	1.7	-	71
33	5.030	0.158	1.15	77	1.7	-	71
34	5.187	0.157	1.16	78	1.7	-	71
35	5.343	0.156	1.15	78	1.7	-	71
36	5.501	0.158	1.16	78	1.8	-	71
37	5.659	0.158	1.16	78	1.6	-	71
38	5.815	0.156	1.15	78	1.9	-	71
39	5.974	0.159	1.16	79	1.7	-	71
40	6.130	0.156	1.17	79	1.6	101	71
41	6.290	0.160	1.16	79	1.8	-	71
42	6.449	0.159	1.17	79	1.9	-	71
43	6.606	0.157	1.17	80	1.8	-	71
44	6.766	0.160	1.17	80	1.8	-	71
45	6.926	0.160	1.18	80	1.6	-	71
46	7.084	0.158	1.17	81	1.6	-	71
47	7.245	0.161	1.18	81	1.7	-	71
48	7.403	0.158	1.18	81	1.7	-	71
49	7.564	0.161	1.18	81	1.8	-	71
50	7.723	0.159	1.18	81	1.8	102	71
51	7.884	0.161	1.18	81	1.9	-	71
52	8.042	0.158	1.19	82	1.9	-	71
53	8.205	0.163	1.18	82	1.9	-	71
54	8.366	0.161	1.19	82	1.8	-	71
55	8.526	0.160	1.18	82	1.7	-	71
56	8.688	0.162	1.19	82	1.6	-	71
57	8.848	0.160	1.18	83	1.7	-	71
58	9.010	0.162	1.20	83	1.8	-	71
59	9.170	0.160	1.19	83	1.7	-	71
60	9.333	0.163	1.20	84	1.6	102	71
Avg/Tot	9.335	0.156	1.12	76.1	1.7	100	70.0

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 5

Technician: AK

Date: 11/7/2024

Stove ΔT: 50

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	384	415	420	393	379	398.5	65.1
1	383	412	418	386	379	395.5	65.1
2	380	405	414	431	378	401.8	65.1
3	377	402	413	483	378	410.5	65.1
4	374	402	413	543	377	422.1	65.2
5	373	407	415	589	376	432.0	65.2
6	374	413	417	609	375	437.6	65.3
7	375	417	419	606	373	437.9	65.3
8	376	418	420	603	373	437.9	65.3
9	377	419	420	602	371	437.7	65.2
10	377	419	420	605	370	438.5	65.2
11	377	421	420	608	369	438.8	65.2
12	377	424	420	613	368	440.3	65.1
13	376	427	419	620	367	441.7	65.2
14	377	429	419	629	366	444.0	65.2
15	378	433	419	642	364	447.0	65.2
16	378	437	419	654	363	450.3	65.2
17	379	442	420	672	361	454.8	65.2
18	380	447	420	680	360	457.4	65.3
19	382	451	421	686	359	459.6	65.3
20	383	454	422	693	357	461.9	65.3
21	386	459	424	700	356	464.8	65.4
22	387	464	426	708	354	467.9	65.4
23	389	469	429	718	352	471.3	65.4
24	391	475	431	727	352	475.2	65.4
25	394	480	434	734	350	478.5	65.4
26	396	485	438	740	349	481.5	65.4
27	399	490	442	746	348	485.0	65.4
28	401	495	446	755	347	488.9	65.6
29	403	500	450	762	346	492.4	65.6
30	406	504	454	768	346	495.7	65.6
31	409	508	459	772	344	498.6	65.6
32	411	512	465	777	344	501.7	65.5
33	413	515	470	782	343	504.6	65.6
34	416	519	475	789	342	508.2	65.7
35	419	522	480	796	342	511.7	65.7
36	422	526	484	803	341	515.2	65.7
37	424	530	489	809	341	518.2	65.7
38	426	533	493	814	340	521.4	65.8
39	429	537	496	818	340	524.0	65.8
40	431	541	499	814	340	525.1	65.8
41	433	544	503	807	339	525.2	65.8
42	435	546	506	797	339	524.6	65.8
43	438	548	510	781	339	523.0	65.8
44	440	549	513	768	339	521.8	65.9
45	442	551	516	757	339	520.8	65.9
46	445	552	518	743	339	519.3	65.9
47	447	553	520	729	339	517.5	65.9

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 5

Technician: AK

Date: 11/7/2024

Stove ΔT: 50

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	448	554	521	711	339	514.6	65.8
49	449	553	521	695	339	511.5	65.9
50	450	553	520	680	339	508.4	65.8
51	450	551	519	666	339	505.3	65.8
52	450	550	517	652	340	501.6	65.8
53	450	547	515	641	340	498.5	65.9
54	449	545	512	629	340	495.0	66.0
55	448	543	509	619	340	491.8	65.9
56	447	540	506	607	340	488.1	65.9
57	446	538	503	597	340	484.9	66.0
58	444	536	500	588	340	481.6	66.1
59	443	534	497	580	340	478.5	66.1
60	441	532	494	572	340	475.7	66.1
61	440	530	491	565	340	473.0	66.0
62	438	528	488	557	340	470.3	66.1
63	436	525	485	552	340	467.6	66.1
64	435	523	482	544	340	464.7	66.1
65	433	519	479	537	340	461.8	66.1
66	432	515	476	532	340	458.9	66.0
67	430	511	473	525	340	455.9	66.1
68	429	507	471	518	340	452.9	66.1
69	427	503	468	513	340	450.1	66.1
70	426	499	465	508	340	447.6	66.1
71	424	495	463	502	340	444.6	66.1
72	423	491	460	496	340	442.2	66.1
73	422	488	458	492	340	439.8	66.2
74	420	484	455	488	340	437.4	66.1
75	418	481	453	483	340	434.9	66.1
76	418	478	450	479	340	432.8	66.0
77	415	475	448	475	340	430.3	66.0
78	414	472	446	470	339	428.1	66.0
79	412	468	444	466	339	425.8	66.1
80	411	465	442	462	339	423.7	66.0
81	409	462	440	457	339	421.3	66.0
82	407	459	437	454	338	419.1	66.1
83	405	456	436	451	338	417.1	66.1
84	404	453	434	448	338	415.3	66.0
85	402	450	432	445	337	413.2	66.1
86	401	447	431	441	337	411.4	66.1
87	400	445	429	439	336	409.7	66.1
88	398	442	428	436	336	407.9	66.2
89	397	439	426	434	335	406.2	66.2
90	394	437	424	432	335	404.5	66.1
91	393	434	422	429	334	402.6	66.1
92	392	432	421	427	334	401.1	66.1
93	391	429	420	424	334	399.5	66.1
94	389	427	418	422	333	397.8	66.2
95	388	425	416	420	333	396.3	66.1

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI

Job #: F24-333

Model: F1150-1

Tracking #: 214

Run #: 5

Technician: AK

Date: 11/7/2024

Stove ΔT: 50

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	386	423	415	417	332	394.4	66.1
97	385	420	413	416	332	393.2	66.2
98	383	419	411	415	331	391.7	66.2
99	381	417	409	413	330	390.2	66.2
100	380	415	407	411	330	388.8	66.2
101	379	413	406	410	329	387.5	66.2
102	377	412	404	409	329	386.1	66.2
103	376	410	403	407	328	384.8	66.2
104	374	409	402	406	328	383.5	66.2
105	372	407	400	403	327	381.9	66.2
106	371	405	399	402	327	380.6	66.2
107	370	404	397	400	326	379.2	66.2
108	369	402	395	398	326	378.0	66.2
109	367	400	394	397	325	376.6	66.2
110	365	399	392	395	325	375.2	66.2
111	364	397	391	392	324	373.7	66.3
112	363	395	390	391	323	372.6	66.2
113	361	393	389	389	323	371.1	66.2
114	359	392	387	387	322	369.5	66.2
115	358	390	386	386	322	368.1	66.2
116	357	388	384	383	321	366.7	66.2
117	356	386	383	383	321	365.7	66.2
118	354	385	381	381	320	364.0	66.2
119	353	383	380	380	319	363.1	66.2
120	352	381	378	378	318	361.3	66.1
121	351	379	376	375	318	359.9	66.2
122	349	377	375	373	318	358.2	66.1
123	347	375	373	372	317	356.8	66.1
124	346	373	372	369	316	355.2	66.2
125	345	371	370	367	316	353.8	66.2
126	343	369	369	365	315	352.0	66.2
127	342	367	367	364	314	350.9	66.3
128	341	365	366	362	314	349.4	66.2
129	340	364	364	359	313	348.0	66.2
Average	398.2	460.4	439.5	548.2	340.6	437.4	65.9

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F1150-1
Run #: 5

Job #: F24-333
Tracking #: 214
Technician: AK
Date: 11/7/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	A	G1157	229.1	229.6	0.5
	B	G1158	228.7	229.4	0.7
	C - 1st Hour	G1159	228.2	228.8	0.6
	Amb	G1160	228.8	228.8	0.0
Probes	A	6A	116384.0	116384.1	0.1
	B	6B	115955.5	115955.5	0.0
	C - 1st Hour	6C	115129.2	115129.2	0.0
O-rings	A	6A	3396.7	3397.1	0.4
	B	6B	3613.6	3614.1	0.5
	C - 1st Hour	6C	3401.8	3402.0	0.2

Placed in Dessicator on: 11/7/24, 14:00

Balance Audit (mg):		200.0		200.0					
		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	A	229.4	11/8 15:00	229.6	11/18 9:45				
	B	229.2	11/8 15:00	229.4	11/18 9:45				
	C - 1st Hour	228.6	11/8 15:00	228.8	11/18 9:45				
	Amb	228.8	11/8 15:00	228.8	11/18 9:45				
Probes	A	116384.2	11/8 15:00	116384.1	11/18 9:45				
	B	115955.5	11/8 15:00	115955.5	11/18 9:45				
	C - 1st Hour	115129.3	11/8 15:00	115129.2	11/18 9:45				
O-Rings	A	3397.2	11/8 15:00	3397.1	11/18 9:45				
	B	3614.3	11/8 15:00	3614.1	11/18 9:45				
	C - 1st Hour	3402.0	11/8 15:00	3402.0	11/18 9:45				

Train A Aggregate, mg:	1.0
Train B Aggregate, mg:	1.2
Train C Aggregate, mg:	0.8
Ambient, mg:	0.0

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: F24-333 Tracking #: 214
Model: F1150-1 Run Number: 5 Test Date: 11/7/2024

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Open 0.119"
Targeted Burn Category: II

Preburn Notes

Time	Notes
10:00	+1.26 lb

Test Notes

Test Burn Start Time: 10:53 Test Fuel Loaded by: 40 seconds
Door Closed: 240 seconds Air Control Set at: 300 seconds
Other Loading Notes: Fan off (fan confirmation)

Time	Notes
	-None-

Test Burn End Time: 13:02


Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO₂ (%): 16.98 CO (%): 4.300
Mid Gas CO₂ (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	10:13	10:14	10:15	13:09	13:11	13:12
CO ₂	0.00	16.98	10.09	0.03	17.11	10.16
CO	-0.001	4.303	2.481	-0.045	4.319	2.491

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

Technician Signature: 

Date: 11/20/24

ASTM E2780 Wood Heater Run Sheets

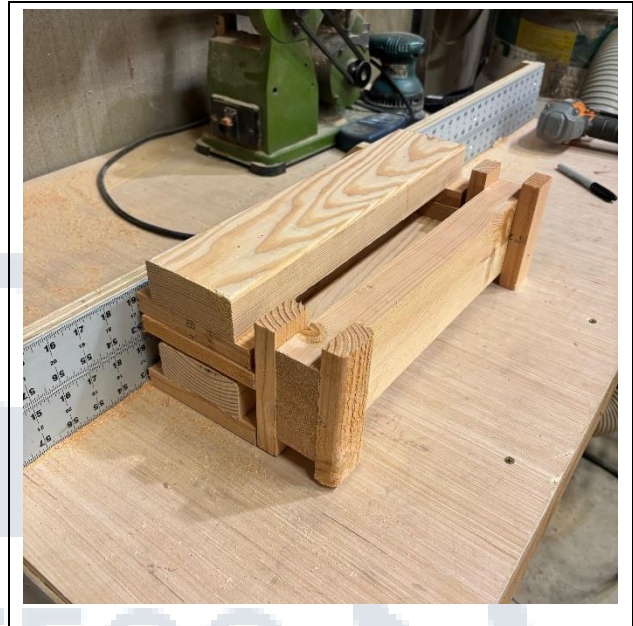
Client: **FPI**
Model: **F1150-1**

Job Number: **F24-333**
Run Number: **5**

Tracking #: **214**
Test Date: **11/7/2024**



Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____

Date: 11/20/24

ASTM E2515 - Glass Fiber Filters

Date:	7/30/24	7/31/24					
Time:	3:00 p	4:30					
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G01125	245.4	245.5	-	-	A	24-265	#1
G01126	245.6	245.5	-	-	A	↓	↓
G01127	244.2	244.1	-	-	A	↓	↓
G01128	245.6	245.6	-	-	A	↓	↓
G01129	244.4	244.4	-	-	A	↓	#2
G01130	244.9	244.8	-	-	A	↓	↓
G01131	244.8	244.6	-	-	A	↓	↓
G01132	243.7	243.7	-	-	A	↓	↓
G01133	245.4	245.3	-	-	A	24-321	#1
G01134	245.1	245.2	-	-	A	↓	↓
G01135	244.3	244.2	-	-	A	↓	↓
G01136	244.2	244.0	-	-	A	↓	↓
G01137	244.0	243.8	-	-	A	↓	#2
G01138	244.9	244.7	-	-	A	↓	↓
G01139	244.7	244.7	-	-	A	↓	↓
G01140	244.1	243.6	243.6	-	A	↓	↓

Date:	10/30/24	11/1/24					
Time:	2:42 pm	10:15					
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G01141	244.5	244.5	-	-	A	24-333	#1
G01142	244.3	244.4	-	-	A	↓	↓
G01143	244.9	245.1	-	-	A	↓	↓
G01144	237.5	237.5	-	-	A	↓	↓
G01145	238.0	237.8	-	-	A	↓	#2
G01146	237.9	237.9	-	-	A	↓	↓
G01147	238.0	238.0	-	-	A	↓	↓
G01148	238.0	237.9	-	-	A	↓	↓
G01149	238.1	238.2	-	-	A	↓	#3
G01150	237.4	237.5	-	-	A	↓	↓
G01151	237.4	237.5	-	-	A	↓	↓
G01152	238.3	238.3	-	-	A	↓	↓
G01153	237.4	237.4	-	-	A	↓	#4
G01154	237.4	237.5	-	-	A	↓	↓
G01155	236.2	236.2	-	-	A	↓	↓
G01156	237.4	237.3	-	-	A	↓	↓

ASTM E2515 - Glass Fiber Filters

Date:	11/6/24	11/7/24	-				
Time:	9:20	0745	-				
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G01157	229.0	229.1	-	-	A	24-333	#5
G01158	228.9	228.7	-	-	A		
G01159	228.3	228.2	-	-	A		
G01160	228.7	228.8	-	-	A		
G01161	227.7	227.6	-	-	A		
G01162	228.0	227.8	-	-	A		
G01163	227.7	227.6	-	-	A		
G01164	228.6	228.6	-	-	A		
G01165	228.2	228.1	-	-	A		
G01166	227.6	227.7	-	-	A		
G01167	228.6	228.4	-	-	A		
G01168	227.9	228.0	-	-	A		
G01169	228.1	228.0	-	-	A		
G01170	228.5	228.4	-	-	A		
G01171	228.4	228.6	-	-	A		
G01172	227.8	227.9	-	-	A		

Date:	11/15/24						
Time:	2:00 pm						
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G01173	227.4						
G01174	228.9						
G01175	226.6						
G01176	228.5						
G01177	229.5						
G01178	229.0						
G01179	227.7						
G01180	228.4						
G01181	227.9						
G01182	228.1						
G01183	228.5						
G01184	228.5						
G01185	228.8						
G01186	228.6						
G01187	228.3						
G01188	228.2						

ASTM E2515 - Probe Samples 1-10

Date:	8/19/24	8/20/24	8/21/24				
Time:	13:30	10:15	09:00				
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
1A	115628.3	115628.5	-	-	A	24-321	#2
1B	115903.4	115903.6	-	-	A		
1C	116433.9	116434.4	116434.3	-	A		
2A	116058.9	116058.9	-	-	A	24-333	#1
2B	116175.2	116175.1	-	-	A		
2C	116429.9	116430.0	-	-	A		
3A	115881.7	115882.0	115881.9	-	A	24-333	#2
3B	116121.8	116122.0	-	-	A		
3C	116619.4	116619.2	-	-	A		
4A	116024.7	116024.8	-	-	A	24-333	#3
4B	116183.6	116183.5	-	-	A		
4C	116999.0	116999.1	-	-	A		
5A	116758.7	116758.8	-	-	A	24-333	#4
5B	116876.9	116877.1	-	-	A		
5C	115856.4	115856.5	-	-	A		

Date:	10/30/24	11/1/24	11/5/24	11/6/24			
Time:	3:00 pm	11:20 am	4:30 pm	0800			
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
6A	116383.8	116384.0	-	-	A	24-333	#5
6B	115955.6	115955.5	-	-	A		
6C	115129.1	11129.2	-	-	A		
7A	116559.5	116559.6	-	-	A		
7B	117129.7	117129.8	-	-	A		
7C	116551.8	116552.0	-	-	A		
8A	116666.9	116634.9	116634.2	116634.4	A		
8B	116634.3	116666.7	-	-	A		
8C	116663.6	116663.6	-	-	A		
9A	116531.5	116532.0	116531.0	116531.1	A		
9B	117738.7	117738.7	-	-	A		
9C	116603.7	116603.7	-	-	A		
10A	116647.2	116647.4	-	-	A		
10B	117754.6	117754.8	-	-	A		
10C	116729.4	116729.3	-	-	A		

ASTM E2515 - O-Ring Samples 1-10

Date:	8/19/24	8/20/24					
Time:	11:30	10:30					
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
1A	3568.5	3568.7	-	-	A	24-321	#2
1B	3557.0	3556.9	-	-	A		
1C	4167.9	4167.9	-	-	A		
2A	3554.2	3554.1	-	-	A	24-333	#1
2B	3573.4	3573.3	-	-	A		
2C	3392.0	3392.0	-	-	A		
3A	3580.4	3580.3	-	-	A	24-333	#2
3B	3569.1	3568.9	-	-	A		
3C	3623.2	3623.3	-	-	A		
4A	3377.8	3377.6	-	-	A	24-333	#3
4B	3579.9	3578.0.1	-	-	A		
4C	3373.5	3373.4	-	-	A		
5A	3536.4	3536.6	-	-	A	24-333	#4
5B	3531.9	3531.8	-	-	1		
5C	3377.2	3377.0	-	-	1		

Date:	10/30/24	11/1/24					
Time:	3:00	10:40 pm					
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
6A	3396.5	3396.7	-	-	A	24-333	#5
6B	3613.5	3613.6	-	-	1		
6C	3401.6	3401.8	-	-	1		
7A	3571.2	3571.3	-	-	1		
7B	3522.4	3522.6	-	-	1		
7C	3406.8	3407.0	-	-	1		
8A	3551.9	3552.1	-	-	1		
8B	3358.1	3358.3	-	-	1		
8C	3586.1	3586.3	-	-	A		
9A	3580.0	3580.2	-	-	1		
9B	3523.3	3523.2	-	-	1		
9C	3430.8	3430.6	-	-	1		
10A	3361.4	3361.5	-	-	1		
10B	3570.4	3570.6	-	-	1		
10C	3366.6	3366.8	-	-	1		

Pre-Conditioning Data

Client: FPI
 Model: F1150-1
 Date(s): 07/2024 - 10/2024

Job #: 24-333
 Tracking #: 214
 Technician: Radu Costei

Elapsed Time (hrs)	Flue (°F)	Catalyst Exit (°F)	Notes: Indicate initial air setting and any changes in in setting during conditioning, as well as weight and average moisture content of all fuel additions.
0	262	N/A	+7.71 lb., doug fir, 21% DB, air medium
1	317	N/A	
2	229	N/A	
3	238	N/A	+7.6 lb., doug fir, 21.4% DB, air medium
4	408	N/A	
5	228	N/A	
6	251	N/A	+7.73 lb., doug fir, 21.6% DB, air medium
7	343	N/A	
8	220	N/A	
9	260	N/A	+7.97 lb., doug fir, 21.5% DB, air medium
10	362	N/A	
11	211	N/A	
12	245	N/A	+7.08 lb., doug fir, 21.5% DB, air medium
13	313	N/A	
14	227	N/A	
15	238	N/A	+7.09 lb., doug fir, 21.3% DB, air medium
16	352	N/A	
17	234	N/A	
18	255	N/A	+7.11 lb., doug fir, 21.5% DB, air medium
19	348	N/A	
20	221	N/A	
21	221	N/A	+6.98 lb., doug fir, 21.5% DB, air medium
22	260	N/A	
23	181	N/A	
24	233	N/A	+7.35 lb., doug fir, 21.4% DB, air medium
25	246	N/A	
26	183	N/A	
27	288	N/A	+7.62 lb., doug fir, 21.5% DB, air medium
28	266	N/A	
29	200	N/A	
30	264	N/A	+7.29 lb., doug fir, 21.5% DB, air medium
31	258	N/A	
32	199	N/A	
33	182	N/A	
34	267	N/A	+7.54 lb., doug fir, 21.4% DB, air medium
35	290	N/A	
36	200	N/A	
37	181	N/A	
38	253	N/A	+8.05 lb., doug fir, 21.4% DB, air medium
39	312	N/A	
40	218	N/A	
41	281	N/A	+7.47 lb., doug fir, 21.7% DB, air medium
42	343	N/A	
43	247	N/A	
44	260	N/A	+7.55 lb., doug fir, 21.4% DB, air medium
45	259	N/A	
46	191	N/A	
47	250	N/A	+7.42 lb., doug fir, 21.4% DB, air medium
48	271	N/A	
49	196	N/A	
50	180	N/A	

Sample Calculations – ASTM E2780 & E2515

Client: FPI
 Model: F1150-1
 Run: 1

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

M_{Sdb} – Weight of test fuel spacers, dry basis, kg
 M_{Cdb} – Weight of test fuel crib, excluding nails and spacers, dry basis, kg
 D_{Cdb} - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft³
 M_{FTAdb} - Total weight of fuel crib excluding nails, dry basis, kg
 BR – Dry burn rate, kg/hr
 V_s – Average gas velocity in the dilution tunnel, ft/sec
 Q_{sd} – Average gas flow rate in dilution tunnel, dscf/hr
 $V_{m(std)}$ – Volume of gas sampled, corrected to dry standard conditions, dscf
 m_n – Total particulate matter collected, mg
 C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to STP, g/dscf
 E_T – Total particulate emissions, g
 PR - Proportional rate variation
 PM_R – Particulate emissions for test run, g/hr
 PM_F – Particulate emission factor for test run, g/dry kg of fuel burned

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

ASTM E2780 equation (1)

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

Where,

FM_S = average fuel moisture of test fuel spacers, % dry basis

M_{Swb} = weight of test fuel spacers, wet basis, kg

Sample Calculation:

$$FM_S = 17.5 \%$$

$$M_{Swb} = 1.2 \text{ lbs}$$

0.4536 = Conversion factor from lbs to kg

$$M_{Sdb} = [(1.2 \times 0.4536) (100/(100 + 17.5))]$$

$$M_{Sdb} = 0.47 \text{ kg}$$

M_{Cdb}— Weight of test fuel crib, excluding nails and spacers, dry basis, kg

ASTM E2780 equation (2)

$$M_{Cdb} = \Sigma[(M_{CPnwb})(100/(100 + FM_{CPn}))]$$

Where,

M_{CPnwb} = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg

FM_{CPn} = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation (test fuel piece 1):

$$M_{CPnwb} = 1.65$$

$$FM_{CPn} = 20.2$$

$$= 1.7 \quad (100/(100+ 20.2))$$

$$= 1.4 \text{ lbs}$$

Total dry crib weight, excluding spacers = 4.22 lbs

$$M_{Cdb} = 1.92 \text{ kg}$$

D_{Cdb} - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft³
ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb} / V_C$$

Where,

$$V_C = \text{Volume of fuel crib, ft}^3$$

Sample calculation:

$$V_C = 240.2 \text{ in}^3$$

$$1728 = \text{conversion from in}^3 \text{ to ft}^3$$

$$D_{Cdb} = 4.22 / 240.2 * 1728$$

$$= \mathbf{30.39 \text{ lbs/ft}^3}$$

M_{FTAdb} - Total weight of fuel crib excluding nails, dry basis, kg
ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample calculation:

$$M_{FTAdb} = 0.47 + 1.92$$

$$= 2.39 \text{ kg}$$

BR – dry burn rate, kg/hr

ASTM E2780 equation (5)

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

Where,

θ = Total length of test run, min

Sample Calculation:

$$M_{Bdb} = 2.39 \quad \text{kg}$$

$$\theta = 153 \quad \text{min}$$

$$BR = \frac{60 \times 2.39}{153}$$

$$BR = \mathbf{0.94} \quad \text{kg/hr}$$

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

ASTM E2515 equations (9)

$$V_s = F_p \times k_p \times C_p \times (\sqrt{\Delta P})_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where:

- F_p = Adjustment factor for pitot tube center point reading = $\frac{V_{strav}}{V_{scent}}$, 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 dilution 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:

$$F_p = \frac{17.47}{18.16} = 0.962$$

$$V_s = 0.962 \times 85.49 \times 0.99 \times 0.263 \times \left(\left(\frac{83.6}{29.98} + \frac{460}{-0.13} \right) \times \frac{28.78}{13.6} \right)^{1/2}$$

$$V_s = 17.01 \text{ ft/s}$$

*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.

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

ASTM E2515 equation (3)

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

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, ft²
- 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(avg)} = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
- P_{std} = Standard absolute pressure, 29.92 in Hg

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.02) \times 17.01 \times 0.1963 \times \frac{528}{83.6 + 460} \times \frac{29.98 + \frac{-0.13}{13.6}}{29.92}$$

$$Q_{sd} = 11463.9 \text{ dscf/hr}$$

$V_{m(std)}$ – Volume of Gas Sampled Corrected to Dry Standard Conditions, dscf
 ASTM E2515 equation (6)

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

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H ₂ O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Using equation for Train A:

$$V_{m(std)} = 17.64 \times 25.109 \times 0.996 \times \frac{\left(29.98 + \frac{2.73}{13.6} \right)}{\left(83.1 + 460 \right)}$$

$$V_{m(std)} = \mathbf{24.518} \text{ dscf}$$

Using equation for Train B:

$$V_{m(std)} = 17.64 \times 24.123 \times 1.012 \times \frac{\left(29.98 + \frac{2.54}{13.6} \right)}{\left(85.4 + 460 \right)}$$

$$V_{m(std)} = \mathbf{23.818} \text{ dscf}$$

Using equation for ambient train:

$$V_{m(std)} = 17.64 \times 35.78 \times 1.004 \times \frac{\left(\underline{29.98} + \frac{0.00}{13.6} \right)}{\left(65.1 + 460 \right)}$$

$$V_{m(std)} = \mathbf{36.182} \text{ dscf}$$

m_n – Total Particulate Matter Collected, mg

ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

- m_p = mass of particulate matter from probe, mg
 m_f = mass of particulate matter from filters, mg
 m_g = mass of particulate matter from filter seals, mg

Sample Calculation:

Using equation for Train A:

$$m_n = 0.1 + 1.6 + 0.1$$

$$m_n = 1.8 \text{ mg}$$

Using equation for Train B:

$$m_n = 0 + 1.6 + 0.2$$

$$m_n = 1.8 \text{ mg}$$

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

ASTM E2515 equation (13)

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

Where:

K₂ = Constant, 0.001 g/mgm_n = Total mass of particulate matter collected in the sampling train, mgV_{m(std)} = Volume of gas sampled corrected to dry standard conditions, dscf

Sample calculation:

For Train A:

$$C_s = 0.001 \times \frac{1.8}{24.52}$$

$$C_s = \mathbf{0.00007} \text{ g/dscf}$$

For Train B

$$C_s = 0.001 \times \frac{1.8}{23.82}$$

$$C_s = \mathbf{0.00008} \text{ g/dscf}$$

For Ambient Train

$$C_r = 0.001 \times \frac{0.2}{36.18}$$

$$C_r = \mathbf{0.000006} \text{ g/dscf}$$

E_T – Total Particulate Emissions, g

ASTM E2515 equation (15)

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

Where:

C _s	=	Concentration of particulate matter in tunnel gas, g/dscf
C _r	=	Concentration particulate matter room air, g/dscf
Q _{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculation:

For Train A

$$E_T = (0.000073 - 0.000006) \times 11463.9 \times 153 / 60$$

$$E_T = \mathbf{1.98} \text{ g}$$

For Train B

$$E_T = (0.000076 - 0.000006) \times 11463.9 \times 153 / 60$$

$$E_T = \mathbf{2.05} \text{ g}$$

Average

$$E = \mathbf{2.02} \text{ g}$$

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 10-min interval of Train 1):

$$PR = \left(\frac{153 \times 1.451 \times 17.01 \times (89.2 + 460) \times (83.1 + 460)}{10 \times 25.109 \times 17.19 \times (83.6 + 460) \times (69.8 + 460)} \right) \times 100$$

$$PR = 91 \%$$

PM_R – Particulate emissions for test run, g/hr

ASTM E2780 equation (6)

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

Where,

E_T = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation:

$$E_T \text{ (Dual train average)} = 2.02 \text{ g}$$

$$\theta = 153 \text{ min}$$

$$PM_R = 60 \times (2.02 / 153)$$

$$PM_R = 0.79 \text{ g/hr}$$

PM_F – Particulate emission factor for test run, g/dry kg of fuel burned
ASTM E2780 equation (7)

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

Sample Calculation:

$$\begin{aligned} E_T (\text{Dual train average}) &= 2.02 \text{ g} \\ M_{Bdb} &= 2.39 \text{ kg} \\ PM_F &= 2.02 / 2.39 \\ PM_F &= \mathbf{0.84} \text{ g/kg} \end{aligned}$$

Stack Loss Efficiency and CO emissions calculations are done in accordance with CSA B415.1, using the password protected excel spreadsheet provided with the test standard. No alterations or alternative calculations are used for determining efficiency or CO emissions. The following pages are a sample of the calculations page from the B415.1 Spreadsheet (V2_4 - Dated April 15, 2010).

Manufacturer: FPI
Model: F1150-1
Date: 11/04/24
Run: 1
Control #: F24-333
Test Duration: 153 min

	HHV	LHV
Eff	72.70%	78.58%
Comb Eff	96.01%	96.01%
HT Eff	75.72%	81.84%
Output	13,388	kJ/h
Burn Rate	0.93	kg/h
Grams CO	143	g
Input	18,414	kJ/h
MC wet	17.47	
Averages	0.63	6.61

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

Overall Heating Efficiency: 72.70%
Combustion Efficiency: 96.01%
Heat Transfer Efficiency: 75.72%

Heat Output: 12,700 Btu/h 13,388 kJ/h
Heat Input: 17,468 Btu/h 18,414 kJ/h

Burn Duration: 2.55 h
Burn Rate: 2.05 lb/h 0.930 kg/h
Stack Temp: 278.2 Deg. F 136.8 Deg. C

Ultimate CO₂
CO_{2-ult} 19.64
F₀
1.061

INPUT DATA				Oxygen Calculation			Input Data		Combust Eff	Heat Transfer	Net Eff	Air Fuel	Wet Wt
Elapsed Time	Weight Remaining (kg)	% CO [e]	% CO ₂ [d]	Excess Air EA	Total O ₂	Calc. % O ₂ [g]	Flue Gas (°C)	Room Temp (°C)	%	%	%	Ratio	Now Wt
0	2.87	0.52	2.02	673.3%	20.77	18.49	124.4	18.2	85.1%	58.3%	49.6%	45.5	2.87
1	2.86	0.27	0.88	1605.1%	20.86	19.85	129.6	18.2	85.1%	19.4%	16.5%	101.4	2.86
2	2.80	0.34	4.46	308.8%	20.62	15.99	191.8	18.1	94.9%	64.6%	61.3%	24.4	2.80
3	2.73	0.18	6.83	180.3%	20.48	13.56	257.2	18.1	98.4%	66.0%	65.0%	16.9	2.73
4	2.63	0.16	7.84	145.7%	20.41	12.50	290.2	18.2	98.8%	65.8%	65.0%	14.8	2.63
5	2.58	0.20	8.52	125.2%	20.36	11.74	250.1	18.2	98.4%	70.8%	69.7%	13.6	2.58
6	2.55	0.28	7.63	148.2%	20.42	12.64	206.6	18.4	97.5%	72.9%	71.0%	14.9	2.55
7	2.53	0.49	5.20	245.3%	20.56	15.12	182.0	18.3	93.5%	69.1%	64.5%	20.6	2.53
8	2.50	0.39	5.80	217.3%	20.53	14.53	171.6	18.2	95.4%	72.2%	68.9%	19.0	2.50
9	2.46	0.32	6.77	177.0%	20.47	13.54	168.4	18.2	96.7%	74.8%	72.3%	16.6	2.46
10	2.42	0.21	7.17	166.2%	20.45	13.18	167.3	18.1	98.1%	75.7%	74.2%	16.0	2.42
11	2.39	0.22	7.13	167.4%	20.45	13.22	167.6	18.2	98.0%	75.6%	74.0%	16.1	2.39
12	2.35	0.21	7.59	152.0%	20.43	12.73	170.1	18.3	98.2%	76.1%	74.8%	15.2	2.35
13	2.31	0.17	8.20	134.8%	20.39	12.10	173.1	18.3	98.7%	76.8%	75.8%	14.1	2.31
14	2.27	0.19	8.82	117.8%	20.34	11.42	177.6	18.3	98.6%	77.2%	76.1%	13.1	2.27
15	2.23	0.22	9.21	108.3%	20.32	11.00	182.6	18.2	98.3%	77.2%	76.0%	12.5	2.23
16	2.18	0.24	9.67	98.2%	20.29	10.50	181.1	18.2	98.2%	77.8%	76.5%	11.9	2.18
17	2.13	0.28	9.56	99.7%	20.29	10.59	179.1	18.3	97.9%	77.9%	76.3%	12.0	2.13
18	2.08	0.21	9.66	98.9%	20.29	10.52	180.3	18.2	98.5%	77.9%	76.7%	12.0	2.08
19	2.04	0.17	9.87	95.6%	20.28	10.32	182.6	18.2	98.8%	78.0%	77.1%	11.8	2.04
20	1.99	0.19	9.99	93.0%	20.27	10.19	183.8	18.2	98.7%	78.0%	77.0%	11.6	1.99
21	1.95	0.22	9.87	94.8%	20.27	10.30	183.7	18.3	98.5%	77.9%	76.7%	11.7	1.95
22	1.90	0.21	9.72	97.9%	20.28	10.46	182.1	18.3	98.5%	77.8%	76.7%	11.9	1.90
23	1.86	0.18	9.91	94.8%	20.27	10.28	184.8	18.2	98.8%	77.8%	76.9%	11.7	1.86
24	1.81	0.17	10.41	85.7%	20.24	9.75	188.2	18.3	98.9%	78.1%	77.3%	11.2	1.81
25	1.76	0.19	10.66	80.9%	20.22	9.46	190.9	18.3	98.7%	78.2%	77.2%	10.9	1.76
26	1.72	0.21	10.60	81.7%	20.23	9.52	190.3	18.3	98.6%	78.1%	77.0%	11.0	1.72
27	1.67	0.24	10.91	76.2%	20.20	9.18	191.9	18.2	98.4%	78.3%	77.0%	10.6	1.67
28	1.62	0.26	11.11	72.8%	20.19	8.95	194.6	18.2	98.3%	78.3%	76.9%	10.4	1.62
29	1.57	0.26	11.28	70.3%	20.18	8.77	195.3	18.3	98.3%	78.4%	77.0%	10.3	1.57
30	1.52	0.23	11.37	69.3%	20.17	8.69	196.4	18.4	98.5%	78.4%	77.2%	10.2	1.52
31	1.48	0.33	11.48	66.3%	20.16	8.52	198.6	18.4	97.8%	78.3%	76.6%	10.0	1.48
32	1.43	0.32	11.70	63.4%	20.15	8.29	200.3	18.3	97.9%	78.4%	76.8%	9.8	1.43
33	1.38	0.29	11.76	63.1%	20.14	8.24	202.2	18.3	98.2%	78.3%	76.9%	9.8	1.38
34	1.33	0.33	11.88	60.8%	20.13	8.09	203.4	18.3	97.9%	78.3%	76.7%	9.7	1.33
35	1.29	0.36	11.93	59.9%	20.13	8.02	204.7	18.3	97.7%	78.3%	76.5%	9.6	1.29
36	1.24	0.44	11.92	58.9%	20.12	7.98	204.1	18.4	97.2%	78.3%	76.1%	9.6	1.24
37	1.20	0.39	12.00	58.5%	20.12	7.92	204.4	18.3	97.5%	78.3%	76.4%	9.5	1.20

Ratio (A/F)	
Weight (M _g)	29.60
st Gas (N _g)	586.90
o (A/F)	16.86

%HC
0.88

Combustion Efficiency: 96.01%
 Total Input (kJ): 46,956
 Total Output (kJ): 34,138
 Efficiency: 72.70%
 Total CO (g): 142.88

Moisture of Wood (wet basis): 17.4691
 Initial Dry Weight W_{t,do} (kg): 2.37
 Moisture Content Dry 21.17

Load Weight (kg): **2.87**
 Fuel Heating HHV LHV
 Value in kJ/kg - CV: **19,810 18,329** Btu/lb **8522.5**

73.49	0.65	72.44	46999	4.06	6.87	2.74	19810.00	17.47	79.22	21.01	1.80	6.04	0.07	0.18	35.97
% Wet Consumed	Dry Wt. Now	% Dry Consumed	Total Input	Fuel Properties				Mw Moisture Fuel Burnt	Mass Balance (moles/100 mole dry flue gas)					kg Wood per 100 mole dfp	
x	W _{t,dn}	y		Carbon /12= [a]	Hydrogen /1= [b]	Oxygen /16= [c]	Calorific Value		[h]	[u]	[w]	[j]	[k]	Nk	CO ₂
0.00	2.37	0.00	0	4.06	6.87	2.74	19810.00	17.47	78.97	20.95	0.64	2.10	0.05	0.06	31.93
0.32	2.36	0.32	668	4.06	6.87	2.74	19810.00	17.47	79.00	20.95	0.29	0.97	0.01	0.03	30.97
2.53	2.31	2.53	1113	4.06	6.87	2.74	19810.00	17.47	79.21	21.01	1.19	4.04	0.02	0.12	37.71
5.06	2.25	5.06	1372	4.06	6.87	2.74	19810.00	17.47	79.43	21.07	1.73	5.92	0.00	0.17	39.75
8.37	2.17	8.37	1187	4.06	6.87	2.74	19810.00	17.47	79.51	21.09	1.97	6.76	0.00	0.20	40.01
10.11	2.13	10.11	631	4.06	6.87	2.74	19810.00	17.47	79.54	21.10	2.15	7.37	0.01	0.21	39.83
11.06	2.11	11.06	445	4.06	6.87	2.74	19810.00	17.47	79.44	21.07	1.95	6.67	0.02	0.19	39.26
12.01	2.09	12.01	482	4.06	6.87	2.74	19810.00	17.47	79.19	21.01	1.41	4.76	0.05	0.14	36.97
13.11	2.06	13.11	519	4.06	6.87	2.74	19810.00	17.47	79.27	21.03	1.53	5.20	0.03	0.15	38.05
14.22	2.03	14.22	593	4.06	6.87	2.74	19810.00	17.47	79.37	21.05	1.75	5.97	0.03	0.17	38.81
15.64	2.00	15.64	631	4.06	6.87	2.74	19810.00	17.47	79.44	21.07	1.82	6.23	0.01	0.18	39.59
16.90	1.97	16.90	593	4.06	6.87	2.74	19810.00	17.47	79.44	21.07	1.81	6.20	0.01	0.18	39.53
18.17	1.94	18.17	593	4.06	6.87	2.74	19810.00	17.47	79.47	21.08	1.92	6.58	0.01	0.19	39.69
19.43	1.91	19.43	668	4.06	6.87	2.74	19810.00	17.47	79.53	21.10	2.06	7.07	0.00	0.21	39.98
21.01	1.87	21.01	705	4.06	6.87	2.74	19810.00	17.47	79.56	21.10	2.22	7.62	0.01	0.22	39.90
22.43	1.84	22.43	742	4.06	6.87	2.74	19810.00	17.47	79.57	21.11	2.33	7.96	0.01	0.23	39.79
24.17	1.80	24.17	779	4.06	6.87	2.74	19810.00	17.47	79.59	21.11	2.45	8.36	0.02	0.24	39.73
25.75	1.76	25.75	779	4.06	6.87	2.74	19810.00	17.47	79.57	21.11	2.43	8.29	0.02	0.24	39.58
27.49	1.72	27.49	742	4.06	6.87	2.74	19810.00	17.47	79.61	21.12	2.44	8.34	0.01	0.24	39.88
28.91	1.69	28.91	742	4.06	6.87	2.74	19810.00	17.47	79.64	21.12	2.48	8.48	0.01	0.25	40.07
30.65	1.64	30.65	742	4.06	6.87	2.74	19810.00	17.47	79.64	21.12	2.51	8.60	0.01	0.25	40.02
32.07	1.61	32.07	742	4.06	6.87	2.74	19810.00	17.47	79.62	21.12	2.49	8.51	0.01	0.25	39.88
33.81	1.57	33.81	779	4.06	6.87	2.74	19810.00	17.47	79.61	21.12	2.45	8.38	0.01	0.24	39.90
35.39	1.53	35.39	742	4.06	6.87	2.74	19810.00	17.47	79.64	21.12	2.49	8.52	0.01	0.25	40.06
36.97	1.49	36.97	742	4.06	6.87	2.74	19810.00	17.47	79.68	21.13	2.61	8.94	0.01	0.26	40.14
38.55	1.46	38.55	742	4.06	6.87	2.74	19810.00	17.47	79.68	21.14	2.68	9.17	0.01	0.27	40.04
40.13	1.42	40.13	779	4.06	6.87	2.74	19810.00	17.47	79.67	21.13	2.67	9.13	0.02	0.27	39.96
41.86	1.38	41.86	816	4.06	6.87	2.74	19810.00	17.47	79.68	21.13	2.75	9.41	0.02	0.27	39.85
43.60	1.34	43.60	779	4.06	6.87	2.74	19810.00	17.47	79.68	21.13	2.81	9.59	0.02	0.28	39.78
45.18	1.30	45.18	779	4.06	6.87	2.74	19810.00	17.47	79.69	21.14	2.85	9.73	0.02	0.28	39.81
46.92	1.26	46.92	779	4.06	6.87	2.74	19810.00	17.47	79.71	21.14	2.86	9.79	0.02	0.28	39.93
48.50	1.22	48.50	779	4.06	6.87	2.74	19810.00	17.47	79.67	21.13	2.92	9.95	0.03	0.29	39.56
50.24	1.18	50.24	816	4.06	6.87	2.74	19810.00	17.47	79.69	21.14	2.97	10.13	0.03	0.30	39.61
51.97	1.14	51.97	779	4.06	6.87	2.74	19810.00	17.47	79.71	21.14	2.97	10.15	0.03	0.30	39.75
53.55	1.10	53.55	742	4.06	6.87	2.74	19810.00	17.47	79.70	21.14	3.02	10.29	0.04	0.30	39.58
55.13	1.06	55.13	779	4.06	6.87	2.74	19810.00	17.47	79.69	21.14	3.03	10.35	0.04	0.30	39.50
56.87	1.02	56.87	742	4.06	6.87	2.74	19810.00	17.47	79.66	21.13	3.06	10.40	0.05	0.30	39.20
58.29	0.99	58.29	742	4.06	6.87	2.74	19810.00	17.47	79.68	21.14	3.06	10.43	0.04	0.30	39.39

Moisture Content M_{Cwb} : 17.46905

Dry kg : 2.37

CA: 49

HY: 7

OX: 43.9

LHV
7885.2

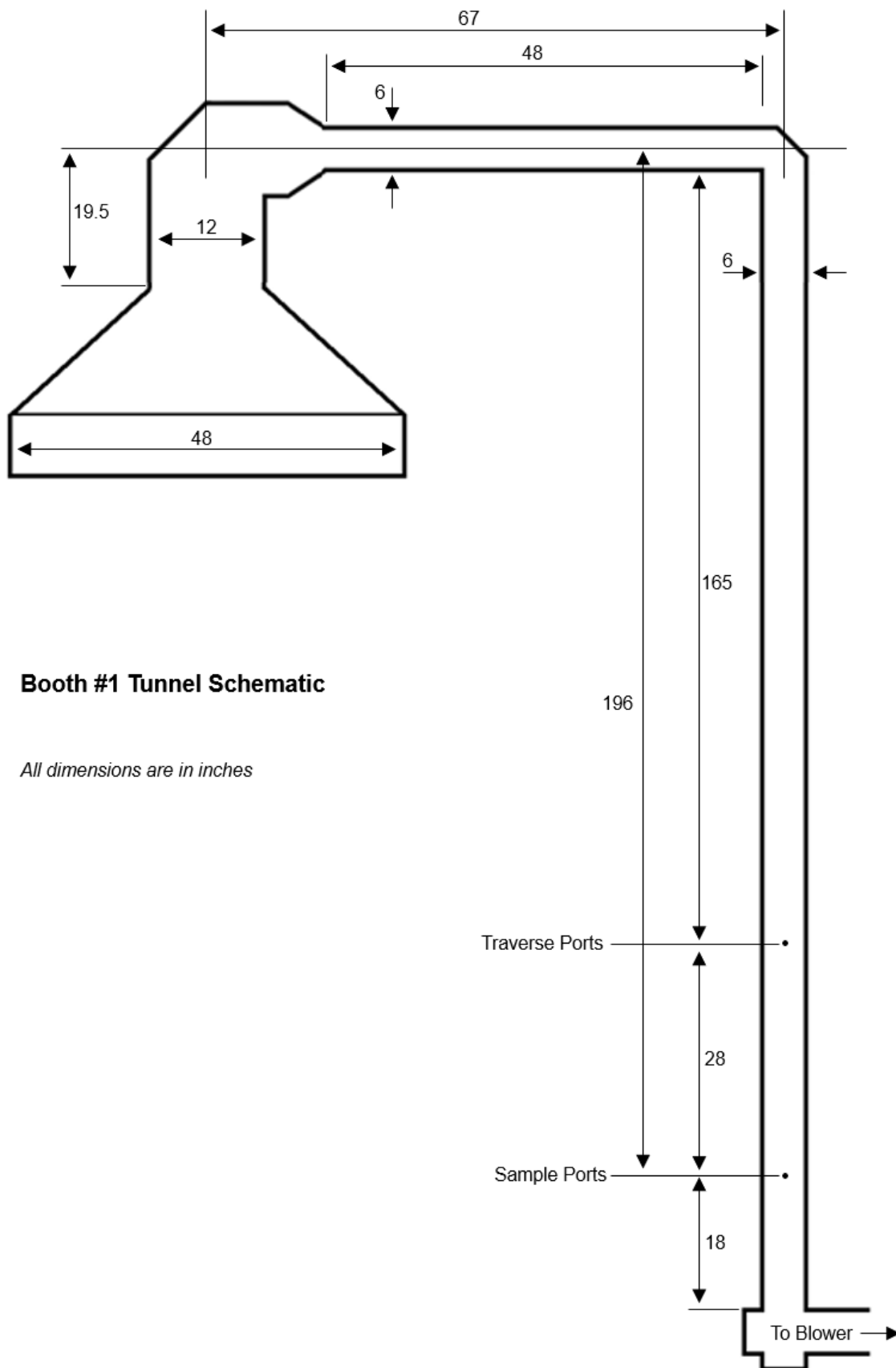
89.34	4.35	0.49	491.88	33.54	11.76	409.86	4730.86	3552.60	3452.75	3414.88	4571.06	4131.16	291.53	27200.97	42253.89
Moles per kg of Dry Wood					Moisture Present	Stack Temp K	Heat Content Change - Ambient to Stack Temperature Flue Gas Constituent						Room Temp K		
O ₂	CO	HC	N ₂	H ₂ O			CO ₂	O ₂	CO	N ₂	CH ₄	H ₂ O		CO ₂	O ₂
291.87	8.16	0.72	1246.48	33.08	11.76	397.54	4198.80	3174.12	3090.09	3055.11	4010.84	3698.90	291.32	134.08	926.42
698.48	9.57	0.27	2780.15	33.98	11.76	402.71	4411.37	3331.10	3242.00	3205.49	4222.04	3880.45	291.32	136.61	2326.71
135.13	2.90	0.21	669.37	34.11	11.76	464.93	7036.43	5243.74	5086.44	5032.74	6886.82	6082.71	291.21	265.33	708.56
78.93	1.04	0.02	462.39	34.47	11.76	530.32	9909.54	7286.20	7043.15	6973.94	9914.87	8414.87	291.26	393.93	575.10
63.78	0.79	0.01	405.80	34.50	11.76	563.32	11405.55	8330.78	8038.95	7962.90	11533.00	9600.16	291.32	456.32	531.30
54.88	0.93	0.05	371.73	34.43	11.76	523.21	9586.63	7058.77	6825.83	6758.22	9569.89	8156.02	291.37	381.83	387.38
65.04	1.45	0.11	408.62	34.31	11.76	479.71	7662.72	5692.53	5517.33	5460.01	7539.06	6596.57	291.54	300.85	370.22
107.61	3.51	0.34	563.49	33.85	11.76	455.15	6606.60	4933.22	4787.67	4736.61	6444.66	5726.19	291.48	244.22	530.87
95.30	2.54	0.22	519.81	34.09	11.76	444.71	6166.01	4614.47	4480.86	4432.54	5992.45	5360.05	291.37	234.62	439.77
77.65	1.86	0.15	455.10	34.23	11.76	441.59	6034.13	4518.74	4388.64	4341.15	5857.78	5249.96	291.37	234.18	350.88
72.80	1.17	0.05	438.81	34.42	11.76	440.43	5988.97	4486.13	4357.27	4310.06	5811.28	5212.53	291.26	237.13	326.58
73.32	1.22	0.06	440.61	34.40	11.76	440.71	5996.50	4491.40	4362.30	4315.05	5819.40	5218.52	291.37	237.05	329.30
66.59	1.07	0.05	415.59	34.42	11.76	443.26	6102.64	4568.38	4436.44	4388.52	5927.92	5307.01	291.43	242.22	304.19
59.02	0.81	0.02	387.75	34.48	11.76	446.26	6229.95	4660.73	4525.40	4476.67	6058.05	5413.19	291.43	249.07	275.06
51.65	0.87	0.04	359.71	34.43	11.76	450.76	6419.30	4797.78	4657.33	4607.42	6252.27	5570.64	291.48	256.10	247.81
47.52	0.96	0.06	343.81	34.40	11.76	455.76	6636.94	4955.36	4809.03	4757.76	6475.40	5751.69	291.37	264.08	235.46
43.13	1.00	0.08	327.10	34.37	11.76	454.21	6570.47	4907.32	4762.81	4711.96	6407.03	5696.54	291.37	261.06	211.67
43.86	1.14	0.10	329.46	34.33	11.76	452.26	6483.25	4844.05	4701.86	4651.56	6317.90	5623.79	291.48	256.60	212.48
43.40	0.88	0.06	328.47	34.41	11.76	453.43	6537.26	4883.32	4739.71	4689.06	6372.90	5668.98	291.37	260.67	211.92
41.91	0.70	0.03	323.38	34.45	11.76	455.71	6634.57	4953.64	4807.38	4756.13	6472.95	5749.72	291.37	265.88	207.62
40.81	0.75	0.04	319.07	34.44	11.76	456.93	6686.85	4991.39	4843.70	4792.13	6526.76	5793.06	291.37	267.64	203.68
41.60	0.87	0.06	321.70	34.40	11.76	456.87	6682.36	4988.04	4840.45	4788.91	6522.38	5789.17	291.43	266.52	207.50
42.94	0.85	0.06	326.83	34.41	11.76	455.26	6613.46	4938.28	4792.57	4741.46	6451.48	5732.05	291.43	263.90	212.06
41.56	0.72	0.04	322.02	34.45	11.76	457.98	6734.14	5025.64	4876.67	4824.81	6575.23	5832.42	291.32	269.76	208.88
37.57	0.64	0.03	307.17	34.46	11.76	461.37	6873.09	5125.52	4972.65	4919.96	6719.27	5946.90	291.48	275.91	192.58
35.52	0.73	0.05	299.14	34.42	11.76	464.04	6987.65	5208.05	5051.99	4998.61	6837.62	6041.56	291.48	279.75	185.00
35.88	0.80	0.06	300.30	34.41	11.76	463.48	6965.88	5192.48	5037.06	4983.80	6814.86	6023.75	291.43	278.35	186.32
33.53	0.88	0.07	291.15	34.37	11.76	465.04	7034.88	5242.28	5084.95	5031.28	6885.97	6080.90	291.37	280.36	175.80
32.07	0.95	0.09	285.43	34.35	11.76	467.76	7152.12	5326.61	5166.00	5111.63	7007.35	6177.59	291.37	284.51	170.82
30.96	0.92	0.08	281.33	34.35	11.76	468.43	7176.64	5344.01	5182.66	5128.16	7033.28	6197.43	291.48	285.71	165.47
30.51	0.81	0.07	279.95	34.38	11.76	469.54	7220.35	5375.19	5212.56	5157.81	7079.12	6233.08	291.59	288.32	164.02
29.34	1.14	0.12	274.54	34.29	11.76	471.71	7316.04	5444.02	5278.72	5223.40	7178.17	6312.00	291.54	289.40	159.73
28.05	1.09	0.11	269.81	34.30	11.76	473.43	7392.62	5499.11	5331.65	5275.88	7257.49	6375.15	291.48	292.84	154.27
27.87	0.97	0.10	269.50	34.33	11.76	475.32	7476.52	5559.39	5389.58	5333.31	7344.49	6444.24	291.43	297.19	154.97
26.95	1.11	0.12	265.58	34.29	11.76	476.59	7531.90	5599.09	5427.69	5371.11	7402.15	6489.70	291.43	298.15	150.91
26.57	1.18	0.13	263.93	34.26	11.76	477.87	7585.22	5637.16	5464.21	5407.33	7457.97	6533.24	291.48	299.62	149.79
26.25	1.44	0.17	261.92	34.19	11.76	477.26	7554.48	5614.90	5442.78	5386.09	7426.47	6507.66	291.59	296.17	147.37
26.00	1.28	0.14	261.48	34.23	11.76	477.59	7573.16	5628.53	5455.92	5399.11	7445.41	6523.36	291.48	298.29	146.35

SUMS					AVERAGE	SUMS						
191320.04	236554.45	67475.59	248649.40	87106.53	5847.80	12815.18	1870.40	10944.79	34183.84	1873.24	142.88	7.66
Energy Losses (kJ/kg of Dry Fuel)					Total Loss Rate							
Flue Gas Constituent						Total Loss	Chemical Loss 1	Sensible and Latent Loss	Total Output	Chem Loss 2	Grams Produced	
CO	N ₂	CH ₄	H ₂ O Comb	H ₂ O Fuel MC							CO	HC
2334.31	3808.14	643.78	1576.98	560.54	9984.24	0.00	0	0.00	0	0	0.00	0.00
2739.88	8911.73	242.87	1625.90	562.68	16546.39	557.64	99	458.20	110	99	9.03	0.15
835.06	3368.77	184.02	1707.38	588.58	7657.70	430.13	56	373.79	683	56	4.56	0.18
300.52	3224.68	21.65	1805.91	616.00	6937.79	480.62	22	458.82	892	22	2.01	0.03
230.23	3231.38	11.46	1847.99	629.94	6938.61	415.72	14	401.63	771	14	1.33	0.01
270.91	2512.24	43.15	1794.49	612.96	6002.96	191.07	10	181.29	439	10	0.83	0.02
417.00	2231.05	95.20	1734.93	594.62	5743.86	129.05	11	117.74	316	11	0.91	0.04
1009.55	2669.01	303.26	1681.99	584.38	7023.28	170.95	31	139.45	311	31	2.39	0.13
731.38	2304.08	194.94	1681.51	580.08	6166.37	161.63	24	137.69	358	24	1.87	0.09
533.92	1975.65	130.72	1684.81	578.78	5488.93	164.43	20	144.79	429	20	1.56	0.07
334.91	1891.32	47.28	1692.68	578.34	5108.25	162.59	12	150.60	468	12	1.04	0.03
350.66	1901.26	53.69	1692.19	578.41	5142.57	154.05	12	142.11	439	12	1.02	0.03
308.13	1823.84	44.04	1696.29	579.45	4998.16	149.73	10	139.33	444	10	0.90	0.02
232.70	1735.85	20.64	1702.53	580.70	4796.56	161.65	8	153.24	506	8	0.76	0.01
251.01	1657.32	39.53	1705.87	582.55	4740.20	168.63	10	158.45	536	10	0.87	0.03
276.06	1635.76	56.82	1710.19	584.68	4763.06	178.36	12	166.08	563	12	1.01	0.04
288.55	1541.30	68.83	1706.96	584.03	4662.41	183.32	14	169.47	596	14	1.10	0.05
327.57	1532.51	85.53	1702.61	583.18	4700.48	184.81	16	168.81	594	16	1.25	0.06
252.88	1540.20	52.26	1707.85	583.71	4609.49	172.61	11	161.35	569	11	0.92	0.03
202.18	1538.03	31.36	1712.94	584.66	4542.67	170.10	9	161.49	572	9	0.74	0.02
214.49	1529.01	38.53	1713.64	585.17	4552.16	170.46	9	161.13	571	9	0.78	0.03
250.04	1540.59	53.53	1711.84	585.12	4615.15	172.82	11	161.62	569	11	0.91	0.04
245.74	1549.63	49.66	1710.30	584.45	4615.74	181.48	11	170.04	597	11	0.94	0.03
206.03	1553.66	33.59	1715.54	585.63	4573.10	171.24	9	162.41	571	9	0.75	0.02
183.18	1511.24	28.95	1720.01	586.98	4498.84	168.46	8	160.65	573	8	0.67	0.02
209.79	1495.27	43.97	1721.59	588.09	4523.46	169.39	9	160.03	572	9	0.76	0.03
229.08	1496.62	52.21	1720.06	587.88	4550.52	178.92	11	168.03	600	11	0.88	0.04
254.75	1464.86	67.24	1720.35	588.55	4551.92	187.50	13	174.44	628	13	1.02	0.05
272.51	1458.99	77.39	1722.54	589.69	4576.46	179.94	14	166.40	599	14	1.04	0.05
264.51	1442.71	75.34	1723.45	589.92	4547.12	178.78	13	165.63	600	13	1.01	0.05
233.82	1443.91	62.06	1726.16	590.34	4508.64	177.27	11	165.82	602	11	0.89	0.04
327.79	1434.01	106.38	1723.91	591.27	4632.49	182.14	17	165.34	597	17	1.25	0.07
313.35	1423.51	101.67	1726.60	592.01	4604.25	189.65	17	172.83	626	17	1.25	0.07
278.85	1437.33	86.25	1730.71	592.83	4578.12	180.00	14	165.88	599	14	1.06	0.06
320.05	1426.48	106.26	1730.02	593.36	4625.22	173.20	16	157.49	569	16	1.16	0.07
341.05	1427.16	116.33	1730.38	593.87	4658.20	183.15	18	165.46	596	18	1.30	0.08
415.41	1410.75	150.53	1725.66	593.57	4739.45	177.47	21	156.62	564	21	1.51	0.10
369.15	1411.76	129.90	1728.51	593.76	4677.73	175.16	18	156.78	567	18	1.34	0.09

Dilution Tunnel Information Sheet

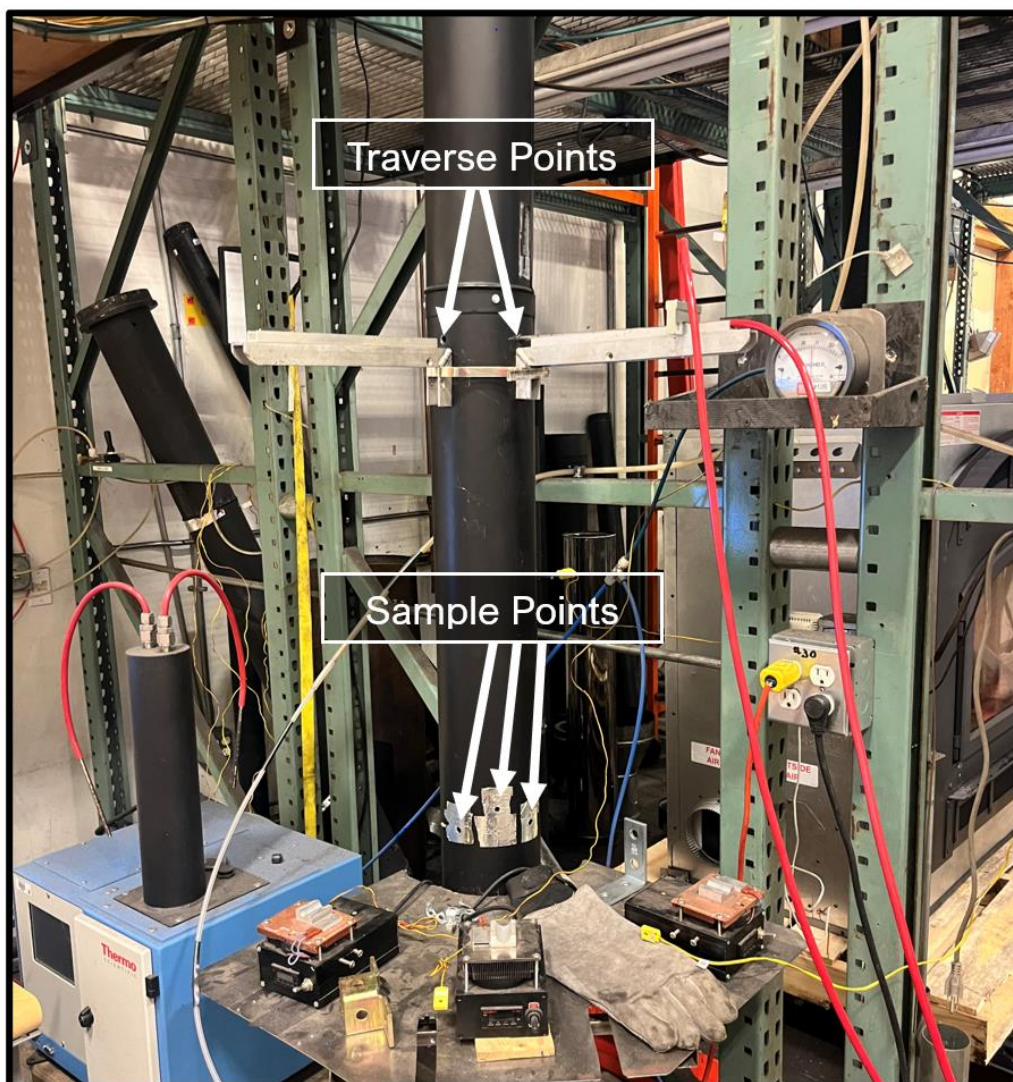
As of January 2024

1. Equipment ID number/name of the tunnel:
Emissions Booth #1
2. Physical location of the tunnel (facility address and test bay number):
Booth #1
11785 SE HWY 212, Ste 305
Clackamas, OR 97015
3. Presence (or not) of mixing baffles (EPA 5G):
Not Present
4. Presence (or not) of mixing section (ASTM E2515):
Present
5. A description of the tunnel turns (elbows or tees):
Elbow from hood into mixing section, elbow from mixing section to sampling section, cleanout tee from sampling section to blower and damper section.
6. Physical diameter of the horizontal flue section:
6"
7. Physical diameter of the tunnel at the sampling location:
6"
8. Photograph showing the tunnel apparatus: **See photo and schematic**


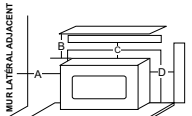



Booth #1 Tunnel Schematic

All dimensions are in inches



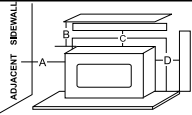
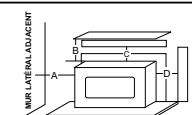



Appendix B: Labels & Manuals

(Duplicate Serial #)		617
 <div>LISTED MASONRY FIREPLACE INSERT CERTIFIED FOR USE IN CANADA AND U.S.A. MODEL: I1150-1 CERTIFIED TO / CERTIFIÉ : CAN/ULC 628-2022 / UL-1482-2022</div>		617
<p>U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD.” TESTED TO METHOD 28R, E2780-10, E2515-11. MODEL REGENCY I1150-1 –1.3 G /HR. 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.</p> <p>INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER’S INSTALLATION AND OPERATING INSTRUCTIONS. INSTALL AND USE ONLY IN MASONRY FIREPLACE ONLY. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA.</p> <p>MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM INSERT BODY)</p> <div><div>ADJACENT SIDEWALL MANTEL TOP FACING SIDE FACING (to side surround)</div><div>A) 15in / 380mm B) 20n / 510mm C) 14in / 355mm D) 0.5in / 13mm</div></div>		
<p>COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING (E) 16 IN / 405MM TO FRONT AND (G) 8IN / 205MM TO SIDES FROM FUEL DOOR. IN CANADA MUST EXTEND 18” TO FRONT. THERMAL INSULATION WITH A R VALUE = 1.4 AT A DISTANCE OF 18” FROM FRONT OF DOOR OPENING FOR CANADA AND 16” FOR USA. IF UNIT RAISED 4.5” FROM FLOOR, NO THERMAL INSULATION IS REQUIRED.</p> <p>COMPONENTS REQUIRED FOR INSTALLATION: 5.5" (140mm) or 6" (152mm) STAINLESS STEEL LINER LISTED CHIMNEY LINER. OPTIONAL COMPONENT: FAN PART#172-917, ELECTRICAL RATING: VOLTS 115, 60 HZ, 0.6 AMPS DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. BUILD WOOD FIRE DIRECTLY ON HEARTH. OPERATE WITH FEED DOOR CLOSED, OPEN TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILD-UP MAY OCCUR RAPIDLY. DO NOT OVERFIRE, IF INSERT GLOWS YOU ARE OVER-FIRING. CAUTION: MOVING PARTS MAY CAUSE INJURY. DO NOT OPERATE UNIT WITH A REMOVED PART OR PARTS.</p> <p>CERTIFIÉ CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D’ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS D’ESSAI NORMALISÉ (CRIB WOOD). HOMOLOGUÉ SELON LA MÉTHODE 28R, E2780-10, E2515-11, MODÈLE REGENCY I1150-1 –1,3 G / H. CET APPAREIL DE CHAUFFAGE AU BOIS DOIT ÊTRE INSPECTÉ PÉRIODIQUEMENT ET RÉPARÉ POUR FONCTIONNER CORRECTEMENT. CONSULTER LE MANUEL D’INSTALLATION POUR PLUS D’INFORMATION. LA RÉGLEMENTATION FÉDÉRALE INTERDIT DE FAIRE FONCTIONNER UN TEL APPAREIL SI LES CONSIGNES D’UTILISATION CONTENUES DANS LE PRÉSENT MANUEL NE SONT PAS RESPECTÉES.</p> <p>INSTALLER ET UTILISER SELON LES CONSIGNES D’INSTALLATION ET D’UTILISATION DU FABRICANT. À INSTALLER ET À UTILISER UNIQUEMENT DANS UN FOYER EN MAÇONNERIE SEULEMENT. NE PEUT ÊTRE INSTALLÉ DANS UN FOYER PRÉFABRIQUÉ. CONTACTEZ LES AUTORITÉS LOCALES EN BÂTIMENT OU INCENDIE POUR CONNAÎTRE LES RESTRICTIONS D’INSTALLATION ET LES RÈGLES D’INSPECTION DANS VOTRE RÉGION.</p> <p>DÉGAGEMENTS MINIMAUX AUX MATÉRIAUX COMBUSTIBLES (MESURES PRISES DEPUIS LE CAISSON DE L’ENCASTRABLE)</p> <div><div>MUR LATÉRAL ADJACENT MANTEAU PAREMENT SUPÉRIEUR PAREMENT LATÉRAL</div><div>A) 15 po / 380 mm B) 20 po / 510 mm C) 14 po / 355 mm D) 0,5 po / 13 mm</div></div>		
<p>LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR UN MATÉRIAU NON COMBUSTIBLE S’ÉTENDANT SUR (E) 16 PO / 405MM À L’AVANT ET SUR (G) 8 PO / 205MM ENTRE LES CÔTÉS ET LA PORTE DE CHARGEMENT DU COMBUSTIBLE. PROLONGEMENT SUR 18 PO À L’AVANT AU CANADA. ISOLATION THERMIQUE AVEC UNE VALEUR R = 1,4 À UNE DISTANCE DE 18 PO DEPUIS L’AVANT DE L’OUVERTURE DE LA PORTE AU CANADA ET 16 PO AUX ÉTATS-UNIS. SI L’APPAREIL EST SURÉLEVÉ À 4,5 PO DU SOL, AUCUNE ISOLATION THERMIQUE N’EST REQUISE.</p> <p>PIÈCES OBLIGATOIRES POUR L’INSTALLATION : GAINÉ DE CHEMINÉE HOMOLOGUÉE EN ACIER INOXYDABLE DE 5,5 PO (140mm) ou 6 PO (152mm). PIÈCE EN OPTION : VENTILATEUR PIÈCE N°172-917 CARACTÉRISTIQUES ÉLECTRIQUES : 115 VOLTS, 60 HZ, 0,6 AMPS. DANGER : RISQUE D’ÉLECTROCUTION. DÉBRANCHER LE COURANT AVANT DE PROCÉDER À L’ENTRETIEN DE L’APPAREIL. NE PAS RETIRER LES BRIQUES OU LE MORTIER DU FOYER EN MAÇONNERIE. À UTILISER AVEC UN COMBUSTIBLE SOLIDE EN BOIS SEULEMENT. NE PAS UTILISER DE GRILLE NI SURÉLEVER LE FEU. NE PAS CONNECTER CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL. FAIRE UN FEU DE BOIS DIRECTEMENT SUR L’ÂTRE. FAIRE FONCTIONNER L’APPAREIL AVEC LA PORTE DE CHARGEMENT FERMÉE, L’OUVRIR SEULEMENT POUR ALIMENTER LE FEU. REMPLACER LA VITRE SEULEMENT AVEC UNE VITRE EN CÉRAMIQUE (5MM). FAIRE INSPECTER ET RAMONER LA CHEMINÉE À INTERVALLES RÉGULIERS. ACCUMULATION RAPIDE DE CRÉOSOTE DANS CERTAINES CONDITIONS. NE PAS SURCHAUFFER : SI L’ENCASTRABLE EST ROUGEYANT, L’APPAREIL SURCHAUFFE. ATTENTION : LES PIÈCES AMOVIBLES PEUVENT ENTRAÎNER DES BLESSURES. NE PAS FAIRE FONCTIONNER L’APPAREIL SI UNE OU PLUSIEURS PIÈCES ONT ÉTÉ ENLEVÉES.</p>		
<div>ATTENTION / DANGER</div> <div></div> <div><p>HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ ABOVE INSTRUCTIONS.</p><p>APPAREIL CHAUD LORSQU’IL FONCTIONNE. NE PAS TOUCHER. GARDER À DISTANCE DES ENFANTS, DES VÊTEMENTS ET DU MOBILIER. TOUT CONTACT PEUT CAUSER DES BRÛLURES. LIRE LES INSTRUCTIONS CI-DESSUS.</p></div>	<div>MANUFACTURED BY/ FABRIQUÉ PAR : FPI FIREPLACE PRODUCTS INTERNATIONAL LTD. 6988 VENTURE ST. DELTA, BC V4G 1H4</div> <div>920-837</div>	
DATE OF MANUFACTURE / DATE DE FABRICATION MADE IN CANADA / FAIT AU CANADA		2025 2026 2027 2028 2029 JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC

Part #: 920-837
Colour: Black on grey, except for selected items which are printed red.
Size: File is at 100%. 4" W x 10.7" H (excluding tear off

Sept 18/24: Created decal

(Duplicate Serial #)		618
<div><div><div>LISTED MASONRY FIREPLACE INSERT CERTIFIED FOR USE IN CANADA AND U.S.A. MODEL: CI1150-1 CERTIFIED TO/CERTIFIÉ : CAN/ULC 628-2022 / UL-1482-2022</div></div><div><div><div>DO NOT REMOVE THIS LABEL / NE PAS ENLEVER CETTE ÉTIQUETTE</div></div><div>618</div></div></div>		
<p>U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD." TESTED TO METHOD 28R, E2780-10, E2515-11. MODEL REGENCY CI1150-1 – 1.3 G /HR. 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.</p> <p>INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS. INSTALL AND USE ONLY IN MASONRY FIREPLACE. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE.</p> <p>CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA.</p>		
<p>MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM SIDE/TOP OF DOOR)</p>		
<p>ADJACENT SIDEWALL A) 15 in / 380 mm MANTEL B) 20 in / 510 mm TOP FACING C) 14 in / 355 mm SIDE FACING D) 7 3/8 in / 187 mm</p>		
<p>COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING (E) 16 IN / 405MM TO FRONT AND (G) 8 IN / 205MM TO SIDES FROM FUEL DOOR. IN CANADA MUST EXTEND 18" TO FRONT.</p> <p>THERMAL INSULATION WITH A R VALUE = 1.4 AT A DISTANCE OF 18" FROM FRONT OF DOOR OPENING FOR CANADA AND 16" FOR USA. IF UNIT RAISED 4.5" FROM FLOOR, NO THERMAL INSULATION IS REQUIRED.</p>		
<p>COMPONENTS REQUIRED FOR INSTALLATION: 5.5" (140mm) or 6" (152mm) STAINLESS STEEL LINER LISTED CHIMNEY LINER.</p> <p>OPTIONAL COMPONENT: FAN PART#172-917, ELECTRICAL RATING: VOLTS 115, 60 HZ, 0.6 AMPS</p> <p>DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT.</p> <p>DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. BUILD WOOD FIRE DIRECTLY ON HEARTH. OPERATE WITH FEED DOOR CLOSED, OPEN TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILD-UP MAY OCCUR RAPIDLY. DO NOT OVERFIRE, IF INSERT GLOWS YOU ARE OVER-FIRING.</p> <p>CAUTION: MOVING PARTS MAY CAUSE INJURY. DO NOT OPERATE UNIT WITH A REMOVED PART OR PARTS. 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.</p> <p>INSTALL AND USE IN MASONRY FIREPLACE ONLY. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE.</p>		
<p>CERTIFIÉ CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS D'ESSAI NORMALISÉ (CRIB WOOD). HOMOLOGUÉ SELON LA MÉTHODE 28R, E2780-10, E2515-11. MODÈLE REGENCY CI1150-1 – 1.3 G /H. CET APPAREIL DE CHAUFFAGE AU BOIS DOIT ÊTRE INSPECTÉ PÉRIODIQUEMENT ET RÉPARÉ POUR FONCTIONNER CORRECTEMENT. CONSULTER LE MANUEL D'INSTALLATION POUR PLUS D'INFORMATION. LA RÉGLEMENTATION FÉDÉRALE INTERDIT DE FAIRE FONCTIONNER UN TEL APPAREIL SI LES CONSIGNES D'UTILISATION CONTENUES DANS LE PRÉSENT MANUEL NE SONT PAS RESPECTÉES.</p>		
<p>INSTALLER ET UTILISER SEULEMENT SELON LES CONSIGNES D'INSTALLATION ET D'UTILISATION DU FABRICANT. À INSTALLER ET À UTILISER UNIQUEMENT DANS UN FOYER EN MAÇONNERIE. NE PAS INSTALLER DANS UN FOYER PRÉFABRIQUÉ.</p> <p>CONTACTEZ LES AUTORITÉS LOCALES EN BÂTIMENT OU INCENDIE POUR CONNAÎTRE LES RESTRICTIONS D'INSTALLATION ET LES RÈGLES D'INSPECTION DANS VOTRE RÉGION.</p>		
<p>DÉGAGEMENTS MINIMAUX AUX MATÉRIAUX COMBUSTIBLES (MESURES PRISES DEPUIS LE CÔTÉ / HAUT DE LA PORTE)</p>		
<p>MUR LATÉRAL ADJACENT A) 15 po / 380 mm MANTEAU B) 20 po / 510 mm PAREMENT SUPÉRIEUR C) 14 po / 355 mm PAREMENT LATÉRAL D) 7 3/8 po / 187 mm</p>		
<p>LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR UN MATÉRIAU NON COMBUSTIBLE S'ÉTENDANT SUR (E) 16 PO / 405MM À L'AVANT ET SUR (G) 8 PO / 205MM ENTRE LES CÔTÉS ET LA PORTE DE CHARGEMENT DU COMBUSTIBLE. PROLONGEMENT SUR 18 PO À L'AVANT AU CANADA. ISOLATION THERMIQUE AVEC UNE VALEUR R = 1,4 À UNE DISTANCE DE 18 PO DEPUIS L'AVANT DE L'OUVERTURE DE LA PORTE AU CANADA ET 16 PO AUX ÉTATS-UNIS. SI L'APPAREIL EST SURÉLEVÉ À 4,5 PO DU SOL, AUCUNE ISOLATION THERMIQUE N'EST REQUISE.</p>		
<p>PIÈCES OBLIGATOIRES POUR L'INSTALLATION : GAINÉ DE CHEMINÉE HOMOLOGUÉE EN ACIER INOXYDABLE DE 5,5 PO (140mm) ou 6 PO (152mm). PIÈCE EN OPTION : VENTILATEUR PIÈCE N°172-917</p> <p>CARACTÉRISTIQUES ÉLECTRIQUES : 115 VOLTS, 60 HZ, 0,6 AMPS.</p> <p>DANGER : RISQUE D'ÉLECTROCUTION. DÉBRANCHER LE COURANT AVANT DE PROCÉDER À L'ENTRETIEN DE L'APPAREIL.</p> <p>NE PAS RETIRER LES BRIQUES OU LE MORTIER DU FOYER EN MAÇONNERIE. À UTILISER AVEC UN COMBUSTIBLE SOLIDE EN BOIS SEULEMENT. NE PAS UTILISER DE GRILLE NI SURÉLEVER LE FEU. NE PAS CONNECTER CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL.</p> <p>FAIRE UN FEU DE BOIS DIRECTEMENT SUR L'ÂTRE. FAIRE FONCTIONNER L'APPAREIL AVEC LA PORTE DE CHARGEMENT FERMÉE, L'OUVRIR SEULEMENT POUR ALIMENTER LE FEU. REMPLACER LA VITRE SEULEMENT AVEC UNE VITRE EN CÉRAMIQUE (5MM). FAIRE INSPECTER ET RAMONER LA CHEMINÉE À INTERVALLES RÉGULIERS. ACCUMULATION RAPIDE DE CRÉOSOTE DANS CERTAINES CONDITIONS.</p> <p>NE PAS SURCHAUFFER : SI L'ENCASTRABLE EST ROUGEoyANT, L'APPAREIL SURCHAUFFE.</p> <p>ATTENTION : LES PIÈCES AMOVIBLES PEUVENT ENTRAÎNER DES BLESSURES. NE PAS FAIRE FONCTIONNER L'APPAREIL SI UNE OU PLUSIEURS PIÈCES ONT ÉTÉ ENLEVÉES.</p> <p>CE POËLE À BOIS DOIT ÊTRE INSPECTÉ ET RÉPARÉ PÉRIODIQUEMENT POUR FONCTIONNER CORRECTEMENT. CONSULTEZ LE MANUEL DU PROPRIÉTAIRE POUR PLUS D'INFORMATIONS.</p> <p>L'UTILISATION DE CE POËLE À BOIS D'UNE MANIÈRE INCOMPATIBLE AVEC LES INSTRUCTIONS D'UTILISATION DU MANUEL DU PROPRIÉTAIRE EST CONTRAIRE À LA RÉGLEMENTATION FÉDÉRALE.</p> <p>INSTALLER ET UTILISER DANS UN FOYER DE MAÇONNERIE UNIQUEMENT. NE PAS INSTALLER DANS UN FOYER PRÉFABRIQUÉ.</p>		
<p>ATTENTION / DANGER</p> <div></div> <p>HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ ABOVE INSTRUCTIONS.</p> <p>APPAREIL CHAUD LORSQU'IL FONCTIONNE. NE PAS TOUCHER. GARDER À DISTANCE DES ENFANTS, DES VÊTEMENTS ET DU MOBILIER. TOUT CONTACT PEUT CAUSER DES BRÛLURES. LIRE LES INSTRUCTIONS CI-DESSUS.</p>		<p>MANUFACTURED BY/ FABRIQUÉ PAR : FPI FIREPLACE PRODUCTS INTERNATIONAL LTD. 6988 VENTURE ST. DELTA, BC V4G 1H4</p> <p>920-843</p>
DATE OF MANUFACTURE / DATE DE FABRICATION		2025 2026 2027 2028 2029
MADE IN CANADA / FAIT AU CANADA		JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC

Part #: 920-843

Colour: Black on grey, except for selected items which are printed red.

Size: File is at 100%. 4" W x 10.7" H (excluding tear off)

Start serial sequence at 534000001

Oct. 23/24: Created decal

(Duplicate Serial #)		620																
 0219WN036S	LISTED MASONRY FIREPLACE INSERT CERTIFIED FOR USE IN CANADA AND U.S.A. MODEL: H1150-1 CERTIFIED TO: CAN/ULC 628-2022 / UL-1482-2022	DO NOT REMOVE THIS LABEL / NE PAS ENLEVER CETTE ÉTIQUETTE  620																
<p>U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD." TESTED TO METHOD 28R, E2780-10, E2515-11. MODEL REGENCY H1150-1 – 1.3 G / HR. 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.</p> <p>INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS. INSTALL AND USE ONLY IN MASONRY FIREPLACE ONLY. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA.</p> <p>MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM SIDE/TOP OF DOOR)</p> <table><tr><td>ADJACENT SIDEWALL</td><td>A) 15 in / 380 mm</td></tr><tr><td>MANTEL</td><td>B) 20 in / 510 mm</td></tr><tr><td>TOP FACING</td><td>C) 14 in / 355 mm</td></tr><tr><td>SIDE FACING</td><td>D) 7-7/8 in / 200 mm</td></tr></table>  <p>COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING (E) 16 IN / 405MM TO FRONT AND (G) 8 IN / 205MM TO SIDES FROM FUEL DOOR. IN CANADA MUST EXTEND 18" TO FRONT. THERMAL INSULATION WITH A R VALUE = 1.4 AT A DISTANCE OF 18" FROM FRONT OF DOOR OPENING FOR CANADA AND 16" FOR USA. IF UNIT RAISED 4.5" FROM FLOOR, NO THERMAL INSULATION IS REQUIRED.</p> <p>COMPONENTS REQUIRED FOR INSTALLATION: 5.5" (140mm) or 6" (152mm) STAINLESS STEEL LINER LISTED CHIMNEY LINER. OPTIONAL COMPONENT: FAN PART #210-911/210-915, ELECTRICAL RATING: VOLTS 115, 60 HZ, 0.6 AMPS DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. BUILD WOOD FIRE DIRECTLY ON HEARTH. OPERATE WITH FEED DOOR CLOSED, OPEN TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILD-UP MAY OCCUR RAPIDLY. DO NOT OVERFIRE, IF INSERT GLOWS YOU ARE OVER-FIRING. CAUTION: MOVING PARTS MAY CAUSE INJURY. DO NOT OPERATE UNIT WITH A REMOVED PART OR PARTS. 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.</p> <p>INSTALL AND USE IN MASONRY FIREPLACE ONLY. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE. CERTIFIÉ CONFORMÉ AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS D'ESSAI NORMALISÉ. HOMOLOGUÉ SELON LA MÉTHODE 28R, E2780-10, E2515-11. MODÈLE REGENCY H1150-1 – 1.3 G / H. CET APPAREIL DE CHAUFFAGE AU BOIS DOIT ÊTRE INSPECTÉ PÉRIODIQUEMENT ET RÉPARÉ POUR FONCTIONNER CORRECTEMENT. CONSULTER LE MANUEL D'INSTALLATION POUR PLUS D'INFORMATION. LA RÉGLEMENTATION FÉDÉRALE INTERDIT DE FAIRE FONCTIONNER UN TEL APPAREIL SI LES CONSIGNES D'UTILISATION CONTENUES DANS LE PRÉSENT MANUEL NE SONT PAS RESPECTÉES.</p> <p>D'INSTALLATION ET D'UTILISATION DU FABRICANT. À INSTALLER ET À UTILISER UNIQUEMENT DANS UN FOYER EN MAÇONNERIE OU UN FOYER PRÉFABRIQUÉ. CONTACTEZ LES AUTORITÉS LOCALES EN BÂTIMENT OU INCENDIE POUR CONNAÎTRE LES RESTRICTIONS D'INSTALLATION ET LES RÈGLES D'INSPECTION DANS VOTRE RÉGION.</p> <p>DÉGAGEMENTS MINIMAUX AUX MATÉRIAUX COMBUSTIBLES (MESURES PRISES DEPUIS LE CÔTÉ / HAUT DE LA PORTE)</p> <table><tr><td>MUR LATÉRAL ADJACENT</td><td>A) 15 po / 380 mm</td></tr><tr><td>MANTEAU</td><td>B) 20 po / 510 mm</td></tr><tr><td>PAREMENT SUPÉRIEUR</td><td>C) 14 po / 355 mm</td></tr><tr><td>PAREMENT LATÉRAL</td><td>D) 7 7/8 po / 200 mm</td></tr></table>  <p>LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR UN MATÉRIAU NON COMBUSTIBLE S'ÉTENDANT SUR (E) 16 PO / 405MM À L'AVANT ET SUR (G) 8 PO / 205MM ENTRE LES CÔTÉS ET LA PORTE DE CHARGEMENT DU COMBUSTIBLE. PROLONGEMENT SUR 18 PO À L'AVANT AU CANADA. ISOLATION THERMIQUE AVEC UNE VALEUR R = 1.4 À UNE DISTANCE DE 18 PO DEPUIS L'AVANT DE L'OUVERTURE DE LA PORTE AU CANADA ET 16 PO AUX ÉTATS-UNIS. SI L'APPAREIL EST SURÉLEVÉ À 4,5 PO DU SOL, AUCUNE ISOLATION THERMIQUE N'EST REQUISE.</p> <p>PIÈCES OBLIGATOIRES POUR L'INSTALLATION : GAINÉ DE CHEMINÉE HOMOLOGUÉE EN ACIER INOXYDABLE DE 5,5 PO (140mm) ou 6 PO (152mm). PIÈCE EN OPTION : VENTILATEUR PIÈCES N° 210-911 / 210-915. CARACTÉRISTIQUES ÉLECTRIQUES : 115 VOLTS, 60 HZ, 0,6 AMPS. DANGER : RISQUE D'ÉLECTROCUTION. DÉBRANCHER LE COURANT AVANT DE PROCÉDER À L'ENTRETIEN DE L'APPAREIL. NE PAS RETIRER LES BRIQUES OU LE MORTIER DU FOYER EN MAÇONNERIE. À UTILISER AVEC UN COMBUSTIBLE SOLIDE EN BOIS SEULEMENT. NE PAS UTILISER DE GRILLE NI SURÉLEVER LE FEU. NE PAS CONNECTER CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL. FAIRE UN FEU DE BOIS DIRECTEMENT SUR L'ÂTRE. FAIRE FONCTIONNER L'APPAREIL AVEC LA PORTE DE CHARGEMENT FERMÉE, L'OUVRIR SEULEMENT POUR ALIMENTER LE FEU. REMPLACER LA VITRE SEULEMENT AVEC UNE VITRE EN CÉRAMIQUE (5MM). FAIRE INSPECTER ET RAMONER LA CHEMINÉE À INTERVALLES RÉGULIERS. ACCUMULATION RAPIDE DE CRÉOSOTE DANS CERTAINES CONDITIONS. NE PAS SURCHAUFFER : SI L'ENCASTRABLE EST ROUGE OYANT, L'APPAREIL SURCHAUFFE. ATTENTION : LES PIÈCES AMOVIBLES PEUVENT ENTRAÎNER DES BLESSURES. NE PAS FAIRE FONCTIONNER L'APPAREIL SI UNE OU PLUSIEURS PIÈCES ONT ÉTÉ ENLEVÉES. CE POËLE À BOIS DOIT ÊTRE INSPECTÉ ET RÉPARÉ PÉRIODIQUEMENT POUR FONCTIONNER CORRECTEMENT. CONSULTEZ LE MANUEL DU PROPRIÉTAIRE POUR PLUS D'INFORMATIONS. L'UTILISATION DE CE POËLE À BOIS D'UNE MANIÈRE INCOMPATIBLE AVEC LES INSTRUCTIONS D'UTILISATION DU MANUEL DU PROPRIÉTAIRE EST CONTRAIRE À LA RÉGLEMENTATION FÉDÉRALE. INSTALLER ET UTILISER DANS UN FOYER DE MAÇONNERIE UNIQUEMENT. NE PAS INSTALLER DANS UN FOYER PRÉFABRIQUÉ.</p>			ADJACENT SIDEWALL	A) 15 in / 380 mm	MANTEL	B) 20 in / 510 mm	TOP FACING	C) 14 in / 355 mm	SIDE FACING	D) 7-7/8 in / 200 mm	MUR LATÉRAL ADJACENT	A) 15 po / 380 mm	MANTEAU	B) 20 po / 510 mm	PAREMENT SUPÉRIEUR	C) 14 po / 355 mm	PAREMENT LATÉRAL	D) 7 7/8 po / 200 mm
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<div>ATTENTION / DANGER</div> <div></div> <div>HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ ABOVE INSTRUCTIONS.</div> <div>APPAREIL CHAUD LORSQU'IL FONCTIONNE. NE PAS TOUCHER. GARDER À DISTANCE DES ENFANTS, DES VÊTEMENTS ET DU MOBILIER. TOUT CONTACT PEUT CAUSER DES BRÛLURES. LIRE LES INSTRUCTIONS CI-DESSUS.</div>		<div>MANUFACTURED BY/ FABRIQUÉ PAR : FPI FIREPLACE PRODUCTS INTERNATIONAL LTD. 6988 VENTURE ST. DELTA, BC V4G 1H4</div> <div>920-847</div>																
DATE OF MANUFACTURE / DATE DE FABRICATION MADE IN CANADA / FAIT AU CANADA		DEC NOV OCT SEPT AUG JUL JUN MAY APR MAR FEB JAN 2029 2028 2027 2026 2025																

Part #: 920-847
Colour: Black on grey, except for selected items which are printed red.
Size: File is at 100%. 4" W x 10.7" H (excluding tear off)
Start serial sequence at 546000001

Oct. 23/24: Created decal



Ci1150-1 Alterra® Wood Insert

Owner's & Installation Manual



Tested by:



Installer: Please complete the details on the back cover
and leave this manual with the homeowner.
Homeowner: Please keep these instructions for future reference.

Thank you for purchasing a
REGENCY FIREPLACE PRODUCT.

The pride of workmanship that goes into each of our products will give you years of trouble-free enjoyment. Should you have any questions about your product that are not covered in this manual, please contact the **REGENCY DEALER** in your area.

"This wood heater has a manufacturer set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual." Failure to follow the manual details can lead to smoke and CO emissions spilling into the home. It is recommended to have monitors in areas that are expected to generate CO such as heater fueling areas.

"U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using crib wood." Tested to Method 28R, E2780-10, E2515-11. Model Regency Ci1150-1 – 1.3 g /hr.

"This manual describes the installation and operation of the Regency Ci1150-1 wood heater. This heater meets the 2020 U.S. Environmental Protection Agency's crib wood emission limits for wood heaters. Under specific test conditions this heater has been shown to deliver heat at rates ranging from 12,700 BTU/hr to 27,300 BTU/hr. Efficiency is determined using the B415 method resulting in lower and higher heat values. This heater generates the best efficiency when operated using well-seasoned wood and installed in the main living areas where the majority of the chimney is within the building envelope. This wood heater needs periodic inspection and repair for proper operation."

It is against federal regulation to operate this wood heater in a manner inconsistent with operating instructions in this manual."

"This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods."

DO NOT BURN:

- | | | |
|-------------------------------|--|---|
| • Treated wood | • Lawn clippings or yard waste | • Manure or animal remains |
| • Coal | • Materials containing rubber including tires | • Saltwater driftwood or other previously salt water saturated materials |
| • Garbage | • Materials containing plastic | • Unseasoned wood |
| • Cardboard | • Waste petroleum products , paints or paint thinners or asphalt products | • Paper products, cardboard, plywood or particle board. The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in a wood heater. |
| • Solvents | • Materials containing asbestos | |
| • Colored Paper
Bio Bricks | • Construction or demolition debris | |
| • Trash | • Railroad ties | |

Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke.

The authority having jurisdiction (such as Municipal Building Department, Fire Department, Fire Prevention Bureau, etc.) should be consulted before installation to determine the need to obtain a permit.

ULC628-2022 - Canada

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney. The chimney liner must conform to the class 3 requirements of CAN/ULS-S635 Standard for lining systems for existing Masonry or factory built chimneys and vents or to the requirements of CAN/ULC-S640, Standard for lining systems for new masonry chimneys

UL1482-2022 - U.S.A

A chimney complying with the requirement for type HT chimneys in the standard for chimneys, factory built residential and building heating appliance UL103 or a code approved masonry chimney liner with a flue liner.

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

When this room heater is not properly installed, a house fire may result. To reduce the risk of fire follow the installation instructions. Contact local building or fire official as about restrictions and installation requirements in your area.

Ci1150-1 is certified to CAN/ULC 628-2022 and UL 1482-2022.

SAVE THESE INSTRUCTIONS

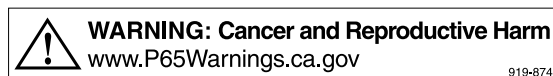
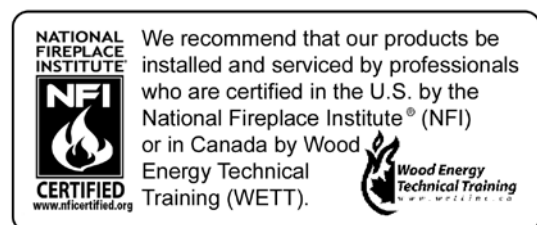


table of contents

Safety Decal

Copy of the Safety Decal.....	4
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Dimensions

Unit Dimensions	5
Optional Backing Plate Dimensions	6

Installation

Masonry Fireplace Clearances	7
Fireplace Specifications	7
How to Determine if Alternate Floor Protection Materials are Acceptable	8
Installation Into a Masonry Fireplace	9
Before Installing Your Insert.....	9
Chimney Specifications	9
Draft	9
Installing Your Insert	10
Optional Flue Connector Kit.....	10
Cast Faceplate Installation	11
3-Piece Backing Plate Installation	14
Brick Installation	15
Baffle Installation	16
Stainless Steel Smoke Deflector Installation.....	17

Operating Instructions

Seasoned Wood	18
Operating Instructions	19
Draft Control.....	19
First Fire.....	19
Fan Operation	20
Cord Reversal	20

Maintenance

Ash Disposal	21
Safety Guidelines and Warnings.....	21
Maintenance	22
Creosote.....	22
Wood Storage	22
Door Gasket.....	23
Glass Cleaning	23
Door Removal	23
Glass Replacement	23
Handle Replacement.....	24
Door Catch Adjustment.....	24
Fan Maintenance	24
Fan Removal	25
Secondary Air Tube Removal/Installation.....	26
Vertical Stainless Deflector Replacement	27
Annual Maintenance	28

Parts

Main Assembly Ci1150-1	29
Brick Panels	30
Cast Faceplate	31

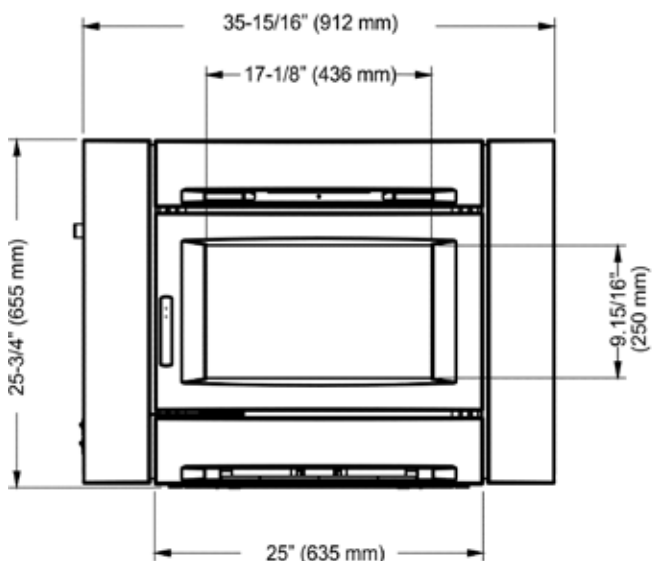
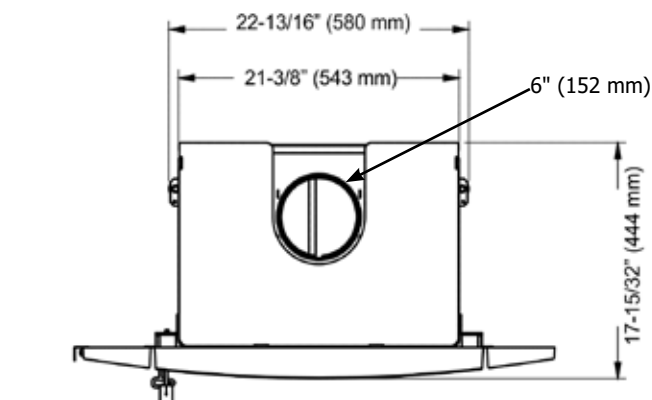
Warranty

Warranty	32
Recycling	37

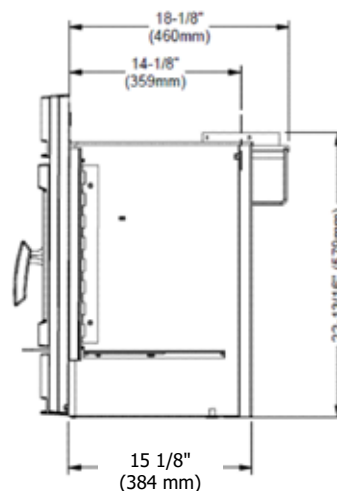
CAUTION: To avoid burns or wood splinters, when opening/closing the fuel door or adding wood to the fire, You should always wear appropriate protective gloves to protect your hands from the heat being emitted from this fireplace.

ALL PICTURES / DIAGRAMS SHOWN THROUGHOUT THIS MANUAL ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL PRODUCT MAY VARY DUE TO PRODUCT ENHANCEMENTS.

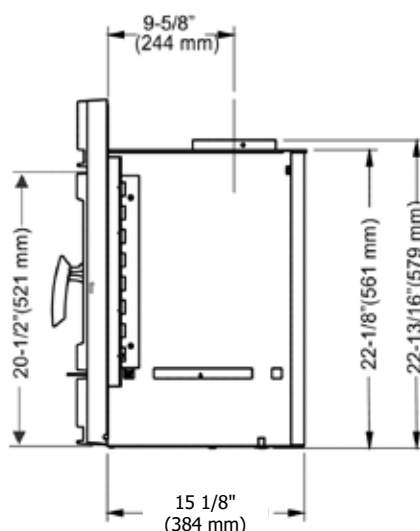
Unit Dimensions



Offset Flue Adapter

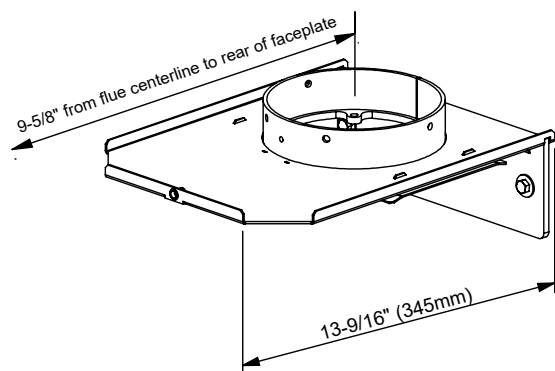


NOTE: Before assembling your Insert, use these dimensions to ensure appropriate clearances will be met (refer to **Masonry Fireplace Clearances** section).

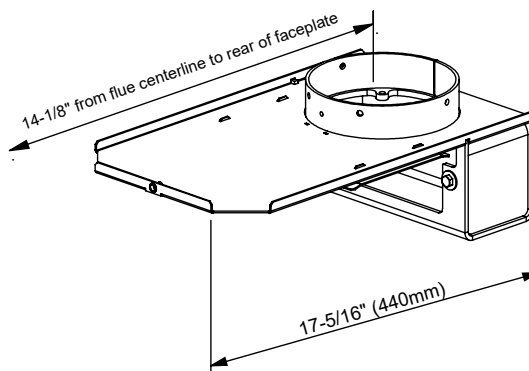


Standard Flue Adapter

6" (152mm) Diameter
STANDARD FLUE ADAPTOR (172-942)

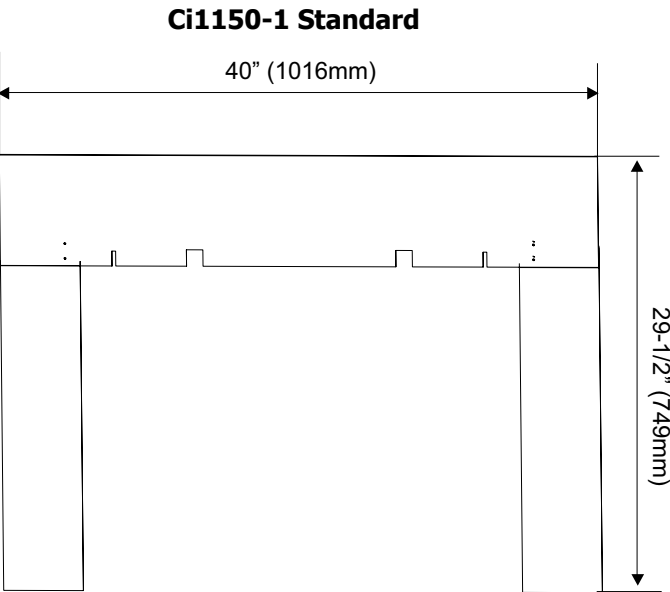


6" (152mm) Diameter
OFFSET FLUE ADAPTOR (172-946)

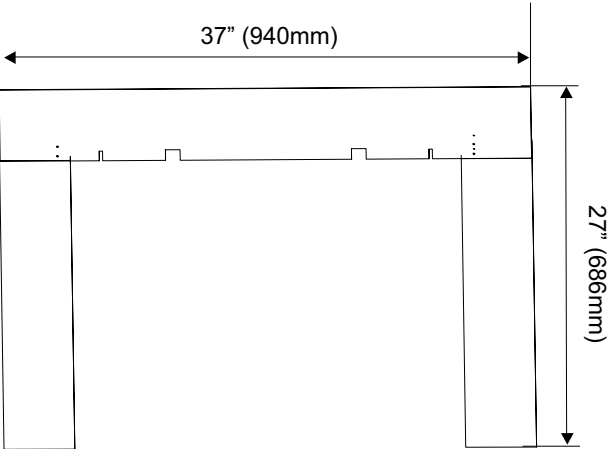


dimensions

Optional Backing Plate Dimensions



Ci1150-1 Custom - Minimum Dimensions



Masonry Fireplace Clearances

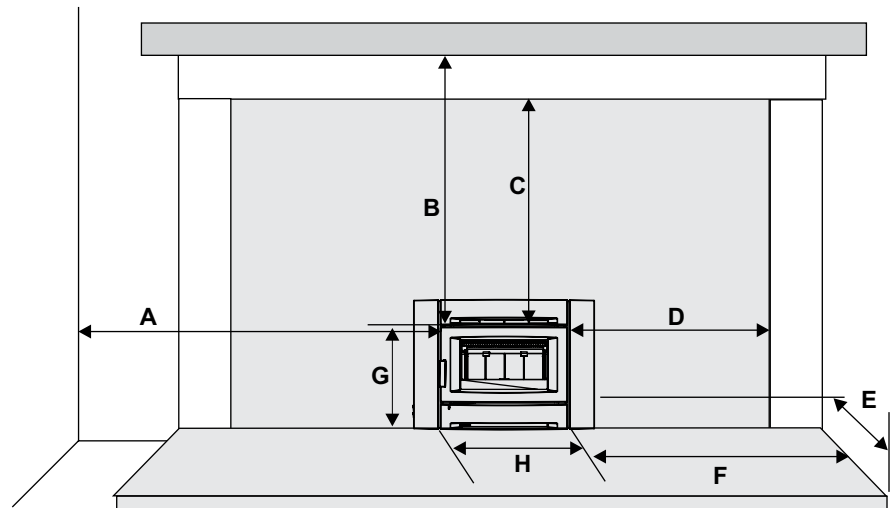
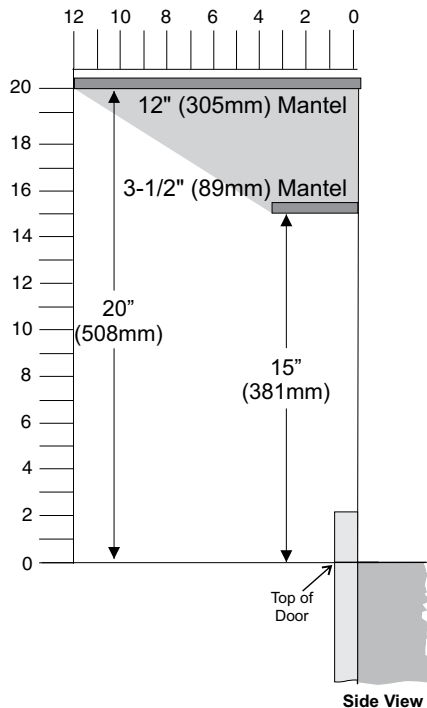
The minimum required clearances to combustible materials when installed into a masonry fireplace are listed below.

Unit Ci1150-1	Adjacent Side Wall (to side) A**	Mantel*** (to top) B**	Top Facing (to top) C**	Side Facing (to side) D**	Minimum Hearth Extension*	Minimum Hearth Side Extension*	From Top of Door (Reference Dimension Only) G	From Side of Door (Reference Dimension Only) H
	15" (381 mm)	15" (381 mm) for 3-1/2" (89 mm) mantel	14" (355 mm)	7 3/8" (187 mm)	16" (406 mm) USA 18"(457 mm) Canada	8" (203 mm)	20-1/2" (521 mm)	25" (635 mm)
		20" (508 mm) for 12"(305 mm) mantel						

Note: Side and Top facing is a maximum of 1.5" thick.

**Measured from side/top of door.

Note : If top/side facing trim protrudes more than 1-1/2" (38 mm) follow mantle (B)** & adjacent side wall (A) for proper clearances



Clearance Diagram for installations

*Floor Protection

Thermal insulation/protection with a R value of 1.4 at a distance of 18" from door opening is required for Canada and 16" for USA.

Thermal floor protection (Type 1) is not required when unit is raiser greater than 4-1/2" (114 mm) (measured from the bottom of the appliance).

Please check to ensure that your floor protection and hearth will meet the standards for clearance to combustibles. Your hearth extension must be made from a non-combustible material extending 16" (406 mm) for US and 18" (457 mm) for Canada—measured from the fuel loading door.

F measurement (minimum hearth extension) is taken from the side of the door for both U.S.A/Canada.

Clearances are critical.

***Mantel can be installed anywhere in shaded area or higher using the above scale.

Fireplace Specifications

Your fireplace opening requires the following minimum sizes:

Height:	23" (584 mm)
Width:	25" (635 mm)
Depth:	
(w/ standard flue adaptor)	15-1/8" (384 mm)
(w/ offset flue adaptor)	18-1/8" (460 mm)

installation

How to Determine if Alternate Floor Protection Materials are Acceptable

All floor protection must be noncombustible (i.e. metals, brick, stone, mineral fiber boards, concrete board etc.). The noncombustible floor protection specified includes some form of thermal designation such as R-value (thermal resistance) or k-factor (thermal conductivity).

Thermal Resistance: R Value

The R value is a measure of a material's resistance to heat transfer. R value is convenient when more than one material is used since you can add the R values together, whereas you cannot do this for k value. The HIGHER the R factor means less heat is being conducted through the non-combustible material to the combustible material beneath it. The R value of a material must be equal or larger than the required R value to be acceptable.

Example : The specified floor protector should be 3/8" (18mm) thick material with a K - factor of 0.84. The proposed alternative is 4" (100mm) brick with a C-factor of 1.25 over 1/8" (3mm) mineral board with a K-factor of 0.29.

Step (a):

Use formula above to convert specification to R-value.

$$R = 1/k \times T = 1/0.84 \times .75 = 0.893.$$

Step (b):

Calculate R of proposed system.

4" brick of C = 1.25, therefore

$$R_{\text{brick}} = 1/C = 1/1.25 = 0.80$$

1/8" mineral board of k = 0.29, therefore

$$R_{\text{min.bd.}} = 1/0.29 \times 0.125 = 0.431$$

$$\text{Total R} = R_{\text{brick}} + R_{\text{mineral board}} = 0.8 + 0.431 = 1.231.$$

Step (c):

Compare proposed system R of 1.231 to specified R of 0.893. Since proposed system R is greater than required, the system is acceptable.

DEFINITIONS

Thermal Conductance:

$$C = Btu = W$$

$$(hr)(ft^2)(oF)(m^2)(K)$$

Thermal Conductivity:

$$k = (Btu)(inch) = W = Btu$$

$$(hr)(ft^3)(oF)(m)(K)(hr)(ft)(oF)$$

Thermal Resistance:

$$R = (ft^2)(hr)(oF) = (m^2)(K)Btu$$

Installation Into a Masonry Fireplace

Regency inserts are constructed with the highest quality materials and assembled under strict quality control procedures that ensure years of trouble free and reliable performance.

It is important that you read this manual thoroughly and fully understand the installation and operating procedures. Failure to follow instructions may result in property damage, bodily injury or even death. The more you understand the way your Regency Insert operates, the more enjoyment you will experience from knowing that your unit is operating at peak performance.

WARNING: The room heater shall not be installed in a factory-built fireplace.

Before Installing Your Insert

1. Read all instructions before installing and using your fireplace insert. Install and use only in accordance with manufacturer's installation and operating instructions.
2. Check your local building codes - Building Inspection Department. You may require a **permit before installing your insert. Be aware that local codes and regulations may override some items in the manual.**

WARNING: Careless installation is the major cause of safety hazard. Check all local building and safety codes before installation of unit.

3. Notify your home insurance company that you plan to install a fireplace insert.
4. Your fireplace insert is heavy and requires two or more people to move it safely. The insert and surrounding structure can be badly damaged by mishandling.
5. If your existing fireplace damper control will become inaccessible once you have installed your Regency Insert, you should either remove or secure it in the open position.
6. Inspect your fireplace and chimney prior to installing your insert to determine that it is free from cracks, loose mortar or other signs of damage. If repairs are required, they should be completed before installing your insert. Do not remove bricks or mortar from your masonry fireplace.
7. Do not connect the insert to a chimney flue serving another appliance or an air distribution duct.

When referencing installation or connection to masonry fireplaces or chimneys, the masonry construction must or shall be code complying.

Chimney Specifications

Before installing, check and clean your chimney system thoroughly. If in doubt about its condition, seek professional advice. Your Regency Insert is designed for installation into a masonry fireplace that is constructed in accordance with the requirements of "The Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliance", N.F.P.A. 211, the National Building Code of Canada, or the applicable local code requirements.

The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70, or the Canadian Electrical code, CSA C22.1.

Regency Inserts are designed to use either a 5.5" (140mm) or 6" (152mm) flue.

ULC628-2022 - Canada

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

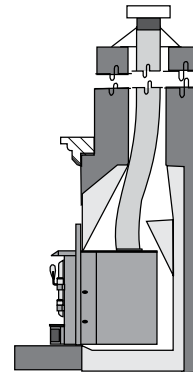
The chimney liner must conform to the class 3 requirements of CAN/ULS-S635 Standard for lining systems for existing Masonry or factory built chimneys and vents or to the requirements of CAN/ULC-S640, Standard for lining systems for new masonry chimneys.

UL1482-2022 - U.S.A

A chimney complying with the requirement for type HT chimneys in the standard for chimneys, factory built residential and building heating appliance UL103 or a code approved masonry chimney liner with a flue liner. This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney. When this room heater is not properly installed, a house fire may result. To reduce the risk of fire follow the installation instructions. Contact local building or fire official as about restrictions and installation requirements in your area.

Draft

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance and may cause damage. An uncontrollable burn or excessive temperature indicates excessive draft. Inadequate draft may cause back puffing into the room and plugging of the chimney. Inadequate draft will cause the appliance to leak smoke into the room through appliance and chimney connector joints. Ensure the heater is installed in areas that are not too close to neighbors or in valleys that would cause unhealthy air quality or nuisance conditions.



Recommended chimney height
from top of flue collar:
Minimum 15 feet (4.6 meters)

NOTE

If the fireplace has been modified to accommodate a fireplace liner, the installer is to attach the metal tag to the fireplace using screws or nails, in a location readily visible should the fireplace insert be removed. A metal tag is supplied with this wood insert.

IMPORTANT:

Smoke and CO Detectors:

Make sure your home has a working smoke and CO detector, especially near any bedrooms. We recommend having a smoke and CO detector in the same room as the wood appliance for additional safety. Location of both detectors should be chosen wisely to avoid false alarms when reloading the appliance.

Fire Extinguisher:

A fire extinguisher should be installed in the home. The location of the fire extinguisher should be known by all family members.

installation

Installing Your Insert

SAFETY NOTE: The insert is very heavy and will require two or three people to move it into position. The insert can be made a little lighter by removing the cast iron door by opening it and lifting it off its hinges. Be sure to protect your hearth extension with a heavy blanket or carpet scrap during the installation.

NOTE: You will be required to purchase either the standard or offset 6" diameter (152mm) flue adaptor that is best suited for the specific installation.

List of Tools needed;

- Pull Rod (included with insert)
- 1/2" socket / ratchet
- 3/8 open face wrench

1. Install flex liner into existing chimney as per liner manufacturer's specifications. See Diagram 1.



Diagram 1 Flex Liner

2. Install the required flue adaptor onto the end of the flex liner. Secure the adaptor using 3 screws - 1 on the front (not shown in image), left, and right side. See Diagram 2.

Alignment of the flue adaptor can be critical during the install, it is recommended that the flex liner be left as compressed as possible. Before inserting the unit the adaptor should hang, when level, slightly above the required height.



Diagram 2 Flue Adaptor

3. Install the unit by first setting the rear of the unit into the fireplace. See Diagram 3. Ensure that the unit is centered in the existing fireplace and lined up with the flue adaptor.



Diagram 3

4. Slide the unit back until the flue adaptor is slightly engaged.
5. At this point it is recommended to level the unit and ensure that the leveling bolts rest on the surface of the fireplace. This will keep the adaptor from binding as the unit is slid into position.
6. Insert the provided pull rod through the hole in the top center of the unit. Secure the threaded end into the flue adaptor as shown in Diagram 4. While sliding the unit into place pull on the rod to ensure that the flue adaptor is properly engaged. See Diagram 5.

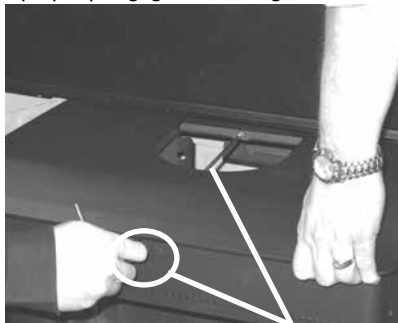


Diagram 4 Pull Rod



Diagram 5 Pull Rod In Place

7. Ensure that the unit is still level.
8. To complete the installation and to ensure a secure fit and connection of the flue adaptor to the insert, it is essential that the two bolts, flat washers and lock washers (supplied with packaged manual) be installed and tightened using a 1/2" socket as shown in Diagram 6. This prevents the possibility of creosote drip and exhaust gas leakage.

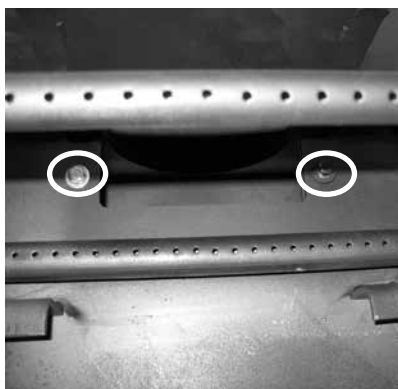


Diagram 6

9. Remove the pull rod from the top center of the fireplace. See Diagram 7.



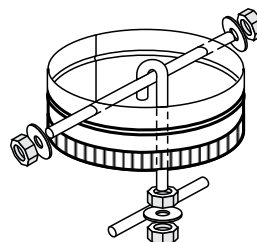
Diagram 7 Pull Rod

NOTE: The pull rod should not be thrown away. It should be kept if the stove is ever needed to be removed from the fireplace.

10. Re-install the door if removed prior to installation.

Optional Flue Connector Kit

The Straight Flue Adaptor (Part #846-504) shown here, may be used to produce a secure connection between your flue connector and the insert collar. Detailed installation instructions are included with the kit.



The following may also be purchased separately if required to complete the install:

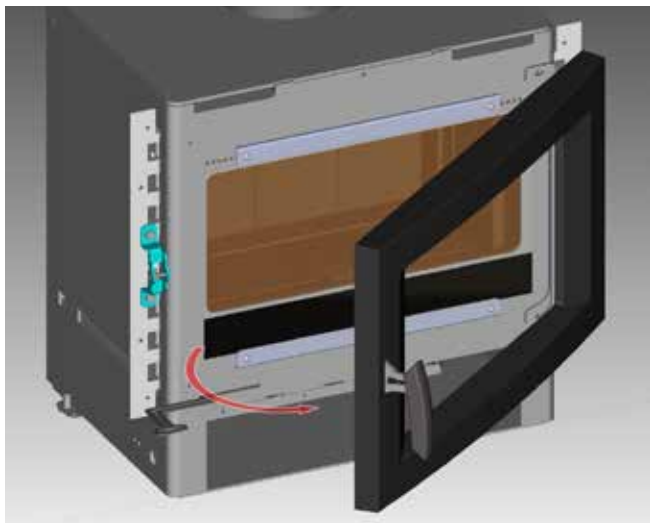
- 846-506 6" Flue Adaptor-30 degree
- 846-508 6" Flue Adaptor-45 degree
- 948-412/P 6" Flue Offset Adaptor (offsets back 4")
- 846-527 Flue Connector Kit

Cast Faceplate Installation

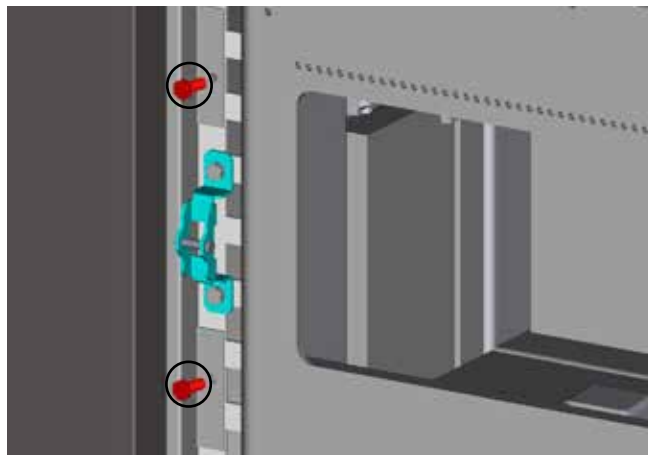
Stop! Read Carefully.
Cast components are very fragile. Use extreme care when handling.

- 1) Open the door to about 45° - then remove it from the hinge by lifting up and out. Put door to the side on a soft surface.

Note: Door is heavy.

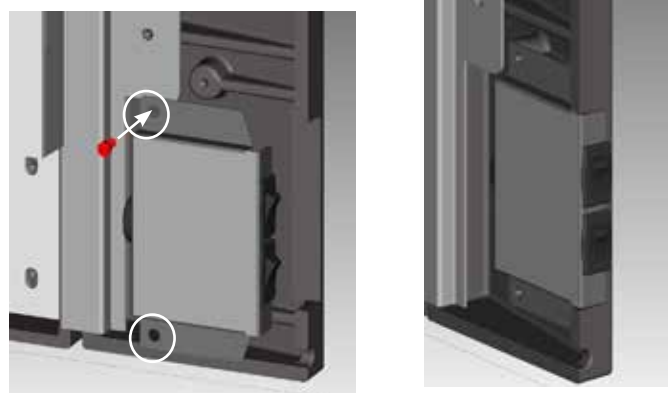


- 3) Remove two bolts from the bracket on the unit as shown below. Line up the left side casting bracket with the left side bracket on the unit.

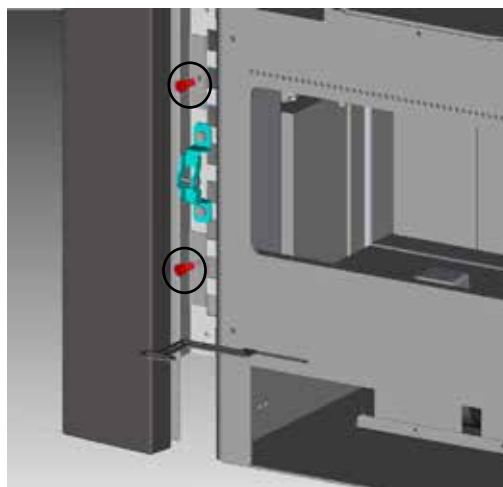


- 4) Install fan controls into left surround with 2 screws as shown below.

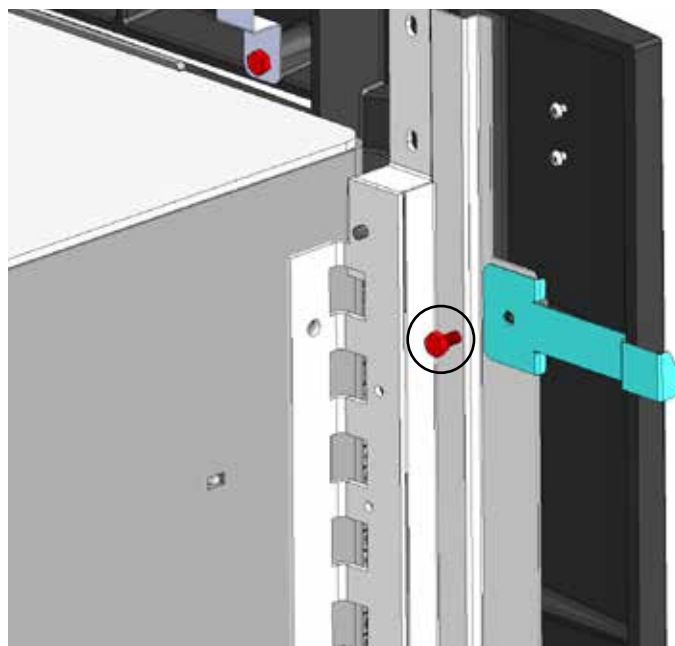
Note: Left side faceplate (when facing unit) will have a notch on the side as shown below. The extension cord should also be brought out to the side prior to installation.



- 5) Secure the left cast surround with the two bolts removed in Step 3.

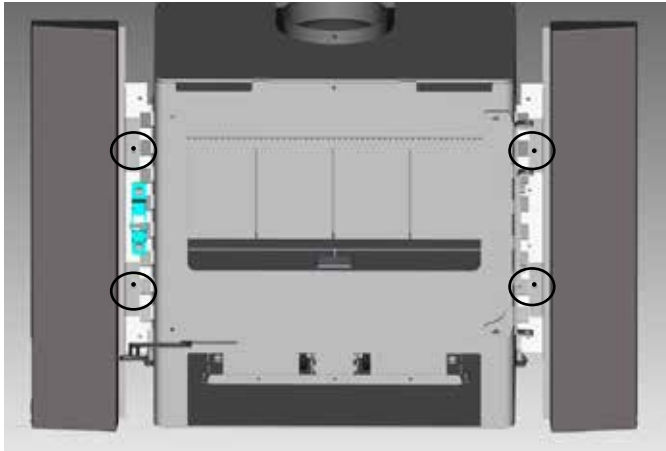


- 2) Install the operating handle storage/draft control bracket on the top left side of the faceplate (facing the back of the unit) using one screw, as shown below.

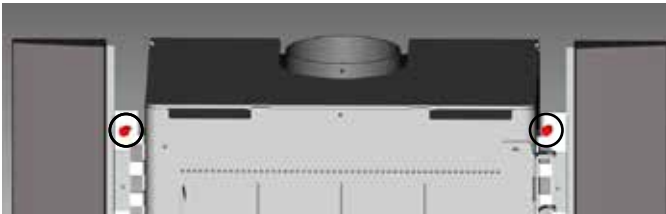


installation

- 6) Repeat Steps 3 and 5 to install right cast surround.



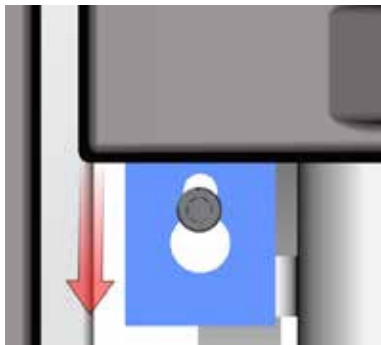
- 7) Loosen the two (2) top screws (with 3/16" allen key) on the left and right brackets on the unit as shown below.



- 8) Slide the upper cast surround keyhole brackets over the loosened screws from Step 7.



- 9) Slide the upper cast surround down over the screws until it is level and in line with the side cast pieces.



- 10) Tighten both screws once all three cast pieces are level.



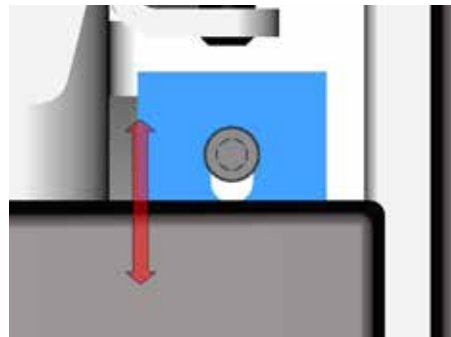
- 11) Remove the two (2) bolts from the lower part of the brackets on the unit - see diagram below.

- 12) Move the damper control lever to the right so it is out of the way.

Note: If the fan power cord needs to be re-routed to the right side of the unit - go to step 16, before installing the lower cast surround piece.

- 13) Line up the brackets on the lower cast surround piece with the lower holes in the bracket on the unit. Replace the two (2) bolts - removed in step 11.

- 14) Before tightening the bolts, adjust the position of the lower cast surround until it is level by sliding the brackets up or down. When in final and level position, tighten both bolts.



15) Reinstall door.



16) The fan cord can be re-routed to the right side of the unit if necessary. Before installing the lower cast surround - run the cord between the left cast surround and the unit. Then run the cord along the lower part of the lower cast surround and out in between the right cast and the unit.



17) With the cord re-routed, follow steps 13-15 to complete the installation.

installation

3-Piece Backing Plate Installation

An optional backing plate is available in either a standard or custom size.

- 1) The backing plate is packaged in three pieces and requires assembly. The legs of the backing plate are attached to the top plate with 2 screws on each side. See diagram 1 below.

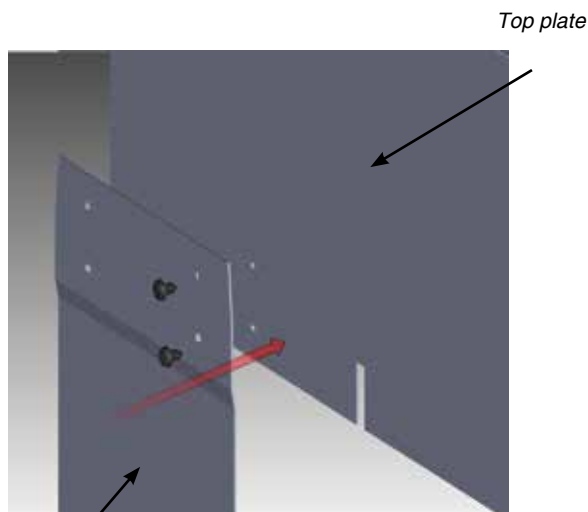


Diagram 1

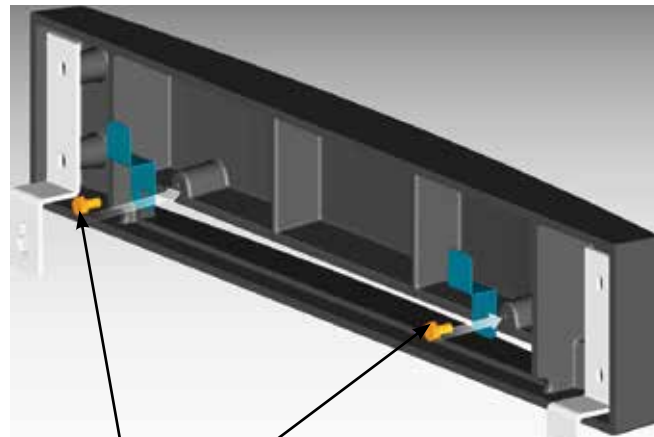
- 2) The pointed end of the screws should be facing the front of the backing plate.



Diagram 2

Flush front face of backing plate

- 3) Install 2 clips to the back of the top cast faceplate with hex bolts. If the unit is already installed - remove the top cast faceplate from the unit if access is too difficult - see 'Cast Faceplate Installation' in the owners manual for instructions.



Hex bolts

Diagram 3

- 4) Slide the backing plate over the clips on the back of the cast top. There are notches in the backing plate where it sits on the clips. If the stove is installed - slide it out at least 6" to install the backing plate.

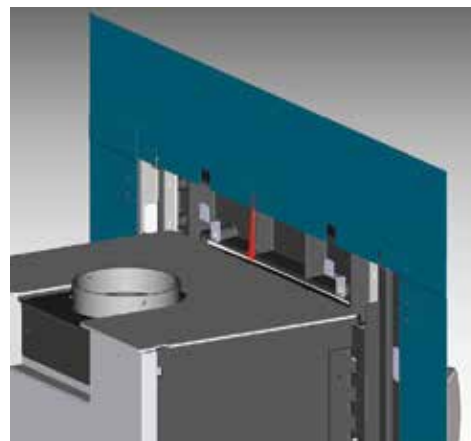


Diagram 4

- 5) Slide stove back into position after backing plate is installed.

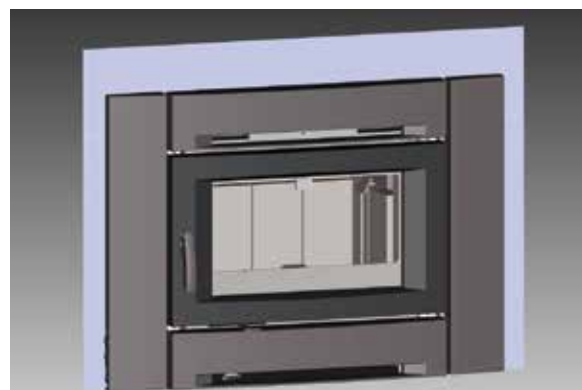
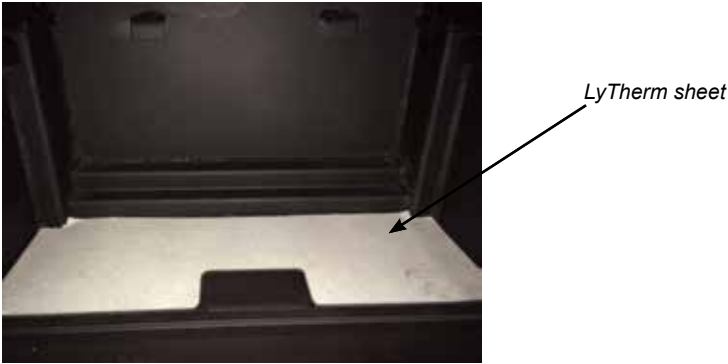


Diagram 5

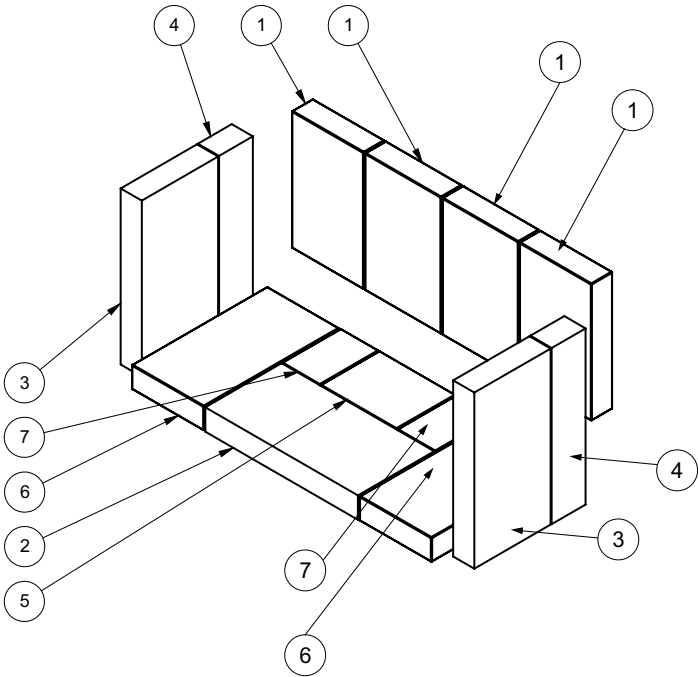
Standard backing plate shown on the CI1150

Brick Installation

Firebrick is included to extend the life of your stove and radiate heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping. Install all firebricks (if bricks were removed at install) per the Diagram below and place in their correct positions. Do not use a grate.



- Order of firebrick install:
- a) Rear Firebrick
 - b) Firebox floor - install brick over LyTherm Sheet
 - c) Right and left side Firebricks



Fire bricks	
#	Size
1	8-3/8" x 4-3/8"
2	9" x 4-1/4"
3	9" x 4-1/2"
4	9" x 2-3/8"
5	3-1/2" x 4-1/2"
6	7-3/4" x 4-1/4"
7	3-1/2" x 2-1/4"

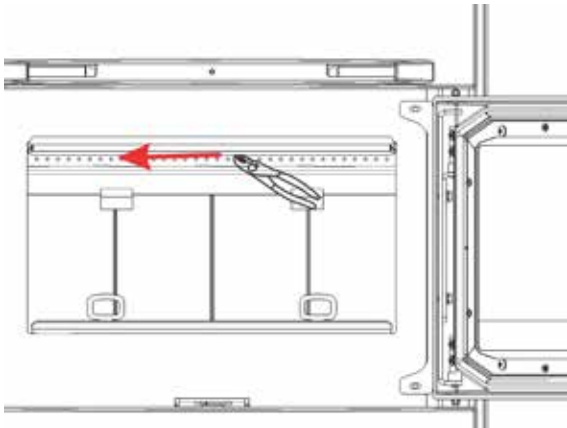
installation

Baffle Installation

Note: unit in images may not be identical to the Ci1150-1 — they depict the process.

1. Open the door.
2. Remove the front secondary air tube with pliers as shown below.

Note: It will be easier to remove the air tubes by removing both the bottom right base brick and right side wall brick.

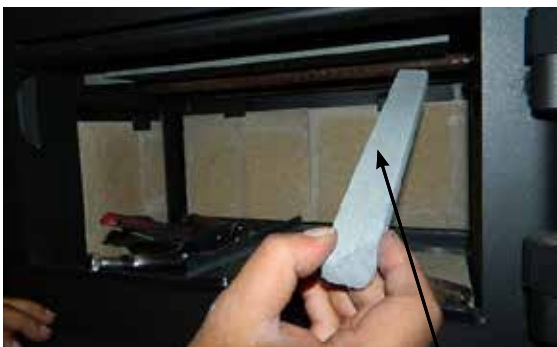


3. Install the center baffle.



Centre baffle

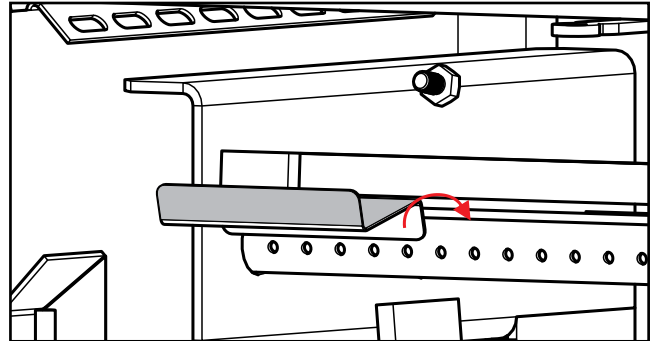
4. Install the right and left side baffles (right side baffle shown below).



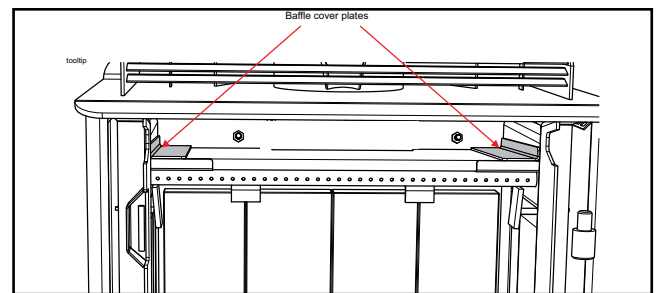
Baffle Side Piece

5. Install the front air tube removed in step 2.

6. Install baffle brackets on either side by slightly lifting baffles up and placing brackets in between baffles and the front air tube. The brackets will hold the baffles in position.



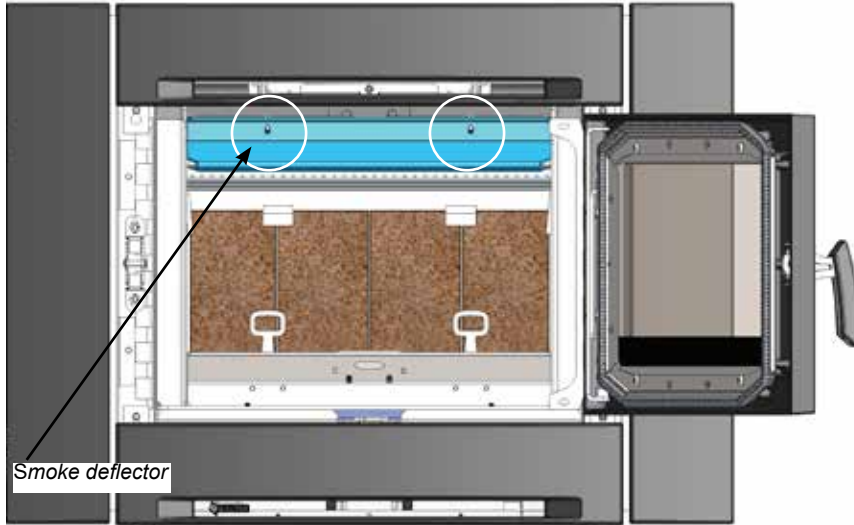
7. Slide left and right baffle cover plates on either side of baffles as shown.



8. Reverse steps to uninstall the baffles.

Stainless Steel Smoke Deflector Installation

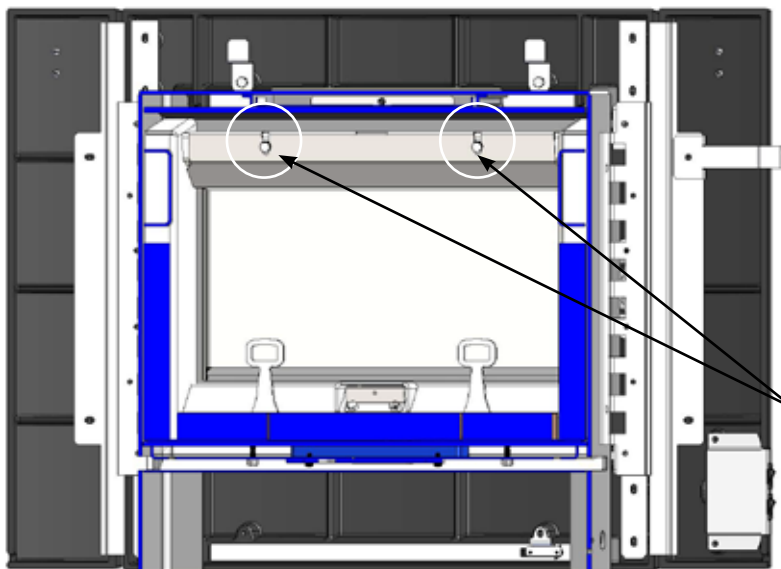
The stainless smoke deflector is located in the upper front area of the firebox. The deflector is held in place with 2 bolts. Prior to the first fire, ensure deflector is seated properly and secured with 2 hand tightened bolts which are accessible from behind the smoke deflector.



Smoke deflector is installed through the door opening in location shown in Diagram

To replace the deflector, loosen off both bolts and slide deflector downward, push deflector to the back wall of the unit and maneuver out. Install new deflector and hand tighten bolts. Ensure positive location of the deflector prior to hand tightening.

WARNING: Operation of the unit with out proper installation of smoke deflector will void warranty.



Smoke deflector installed with 2 bolts.

Note: This is a cutaway view from the back of the unit

operating instructions

Seasoned Wood

Whether you burn wood in a fireplace, stove or insert, good quality firewood is the key to convenience, efficiency and safety. Wet wood and pieces that are not the right size and shape for your wood burner can be frustrating, burn inefficiently and deposit creosote that can fuel a dangerous chimney fire. Good planning, seasoning and storage of the firewood supply are essential to successful wood burning.

- Stack the wood in separate rows in an open location where the summer sun can warm it and breezes can carry away the moisture. Do not stack unseasoned wood tightly in an unvented storage area.
- Do not allow firewood to lie on the ground for more than a couple of days before stacking. Mould and rot can set in quickly.
- Stack the wood up off the ground on poles, lumber rails or pallets.
- The top of the pile can be covered to keep off rain, but do not cover the sides.

Softer woods like pine, spruce and poplar/aspen that is cut, split and stacked properly in the early spring maybe be ready for burning in the fall. Extremely hard woods like oak and maple, and large pieces of firewood, may take a minimum of a full year to dry enough. Drying may also take longer in damp climates

There are a few ways to tell if wood is dry enough to burn efficiently. Use as many indicators as possible to judge the dryness of the firewood your are considering. Here are ways to judge firewood moisture.

- Using a moisture meter, select the species of fuel and then penetrate the pins into a split piece. Ideal moisture and seasoned firewood should be less than 20% moisture content.
- Checks or cracks in the end grain can be an indication of dryness, but may not be a reliable indicator. Some wet wood has checks and some dry wood has no checks.
- The wood tends to darken from white or cream colour to grey or yellow as it dries.
- Two dry pieces banged together sound hollow; wet pieces sound solid and dull.
- Dry wood weighs much less than wet wood.
- Split a piece of wood. If the exposed surface feels damp, the wood is too wet to burn.

operating instructions

Operating Instructions

With your unit now correctly installed and safety inspected by your local authority, you are now ready to start a fire. Before establishing your first fire, it is important that you fully understand the operation of your draft control.

WARNING

Fireplace Stoves equipped with doors should be operated only with doors fully closed. If doors are left partly open, gas and flame may be drawn out of the fireplace stove opening, creating risks from both fire and smoke.

Draft Control

Both the primary and air wash drafts are controlled by the control slide located on the front left side of the unit (when facing the unit). To increase your draft—slide to the left to open, and to decrease—slide to the right to close. The CI1150 unit has a secondary draft system that continually allows combustion air to the induction ports at the top of the firebox.

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance. Inadequate draft may cause back puffing into the room and plugging of the chimney.



Primary Air Damper
Left - Open Right - Closed

WARNING: To build a fire in ignorance or to disregard the information contained in this section can cause serious permanent damage to the unit and void your warranty!

First Fire

When your installation is completed and inspected you are ready for your first fire.

THIS UNIT IS DESIGNED TO BURN SEASONED CORDWOOD ONLY. COAL, BRIQUETTES AND ALL OTHERS LISTED ON PAGE 2 ARE NOT APPROVED. SEASONED CORDWOOD SHOULD BE LESS THAN 20% MOISTURE CONTENT.

START UP AND OPERATING PROCEDURES:

1. For the first few days, the wood insert will give off an odour from the paint. This is to be expected as the high temperature paint becomes seasoned. Windows and/or doors should be left open to provide adequate ventilation while this temporary condition exists. Burning the wood insert at a very high temperature the first few times may damage the paint. During the first few fires, keep the combustion rate at a moderate level and avoid a large fire. Only after 5 or 6 such fires can you operate the wood insert at its maximum setting, and only after the metal has been warmed.
2. Do not place anything on the wood insert top during the curing process. This may result in damage to your paint finish.
3. When starting the fire, ensure air control is in the fully open position (far left). Crumble 2-5 pieces of newspaper and add approx. 1lb of kindling stacked in a manner that allows air flow on the firebrick hearth (Tee-pee style or other). **DO NOT USE A GRATE TO ELEVATE THE FIRE.**
Light the newspaper and adjust the door if it is slightly ajar for less smoke roll out. Keep the door in that position for 2-3 minutes to establish a good fire.
4. When the fire is well established add another 0.5 - 1 lb kindling along with few pieces of start up cord wood (startup cord wood is slightly larger than kindling but not full pieces of cord wood). Keep the door open for 1.5 - 2 min until the fire started well enough then close the door.

CAUTION: Never leave unit unattended if door is left open. This procedure is for fire start-up only, as unit may overheat if door is left open for too long.

5. Once flame has been established, open the door and add another 6 or 7 pieces (2 lbs) of start up cord wood more to the back. Hold door slightly ajar for 30-60 sec to establish flame, and then close the door.

NOTE: These steps are crucial to ensure proper charcoaling and coal bed prior to loading High, Med and Low fire loads.

6. Once this has burned down, open the door, and rake the coals to create a uniform charcoal bed. Load 5 pieces of 17" long cord wood, East-West orientation, with the heaviest pieces at the back of the firebox, and ensure all pieces are behind the log retainers. Do not block the pilot with wood. Once loaded, close the door right away. Burn on high setting (air control to the far left when facing the unit) for 6-10 minutes. Now you can adjust the air control to your desired position. After 15 minutes, the fan can be turned on.
High Fire: Air control to far left.
Low Fire: Air control to far right.

WARNING: Never build a roaring fire in a cold wood insert. Always warm your wood stove up slowly!

7. When re-fueling, always open the primary air damper, load fuel, then wait for at least 10 minutes before adjusting the air to the desired position. This will also minimize any smoking (spilling) back into the room.
8. During the first few days it may be more difficult to start the fire. As you dry out your firebrick and your masonry flue, your draft will increase.
9. For those units installed at higher elevations onto sub-standard masonry fireplaces, drafting problems may occur. Consult an experienced dealer or mason on methods of increasing your draft.
10. Some cracking and popping noises may be experienced during the heating up process. These noises will be minimal when your unit reaches temperature.
11. All fuel burning appliances consume oxygen during operation. It is important that you supply a source of fresh air to your unit while burning. A slightly opened window is sufficient for the purpose. If you also have another fireplace in your home, a downdraft may be created by your Regency wood insert causing a draft down your chimney. If this occurs, slightly open a window near your unit.

WARNING: If the body of your unit, or any part of the chimney connector starts to glow, you are over firing. Stop loading fuel immediately and close the draft control until the glow has completely subsided.

12. Green or wet wood is not recommended for your unit. If you must add wet or green fuel, open the draft control fully until all moisture has been dispersed by the intense fire. Once all moisture has been removed, the draft control may be adjusted to maintain the fire.
13. The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
14. If you burn the unit too slowly or at too low a setting your unit will not be operating as efficiently as it can. An easy rule of thumb says that if your glass is clean, then your flue is clean and your exhaust is clean. Burn the insert hot enough to keep the glass clean, and you won't need to clean your flue as often.



How to Light & Maintain
a Wood Stove Fire

maintenance

Fan Operation

The fan is to be operated only with the draft control rod pulled out at least 1/2" from the fully closed position. The fan is not to be operated when the draft control rod is in the closed position (pushed in). The fully closed position is the low burn setting.

The fan must not be turned on until a fire has been burning for at least 30 minutes. Also note it is recommended that the fan be turned off before each fuel loading and again wait for 30 minutes before the fan is turned on again. This is to allow the stove to reach its optimum temperature.

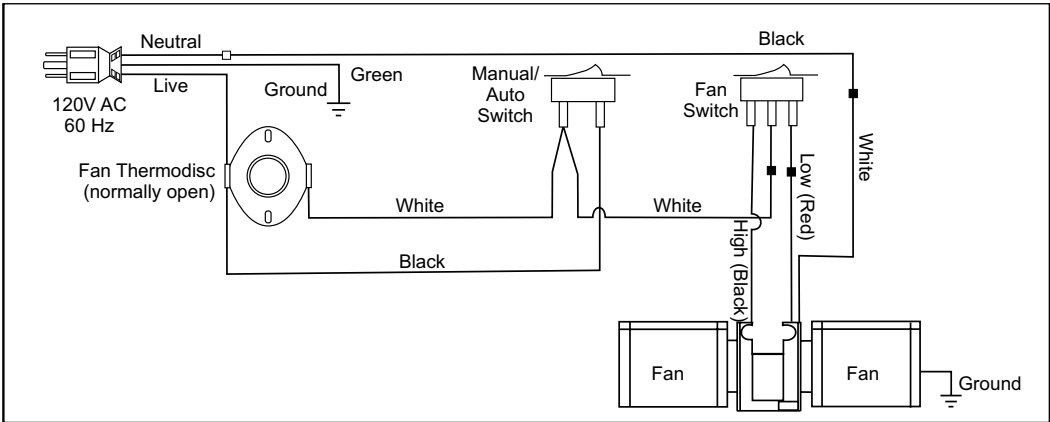
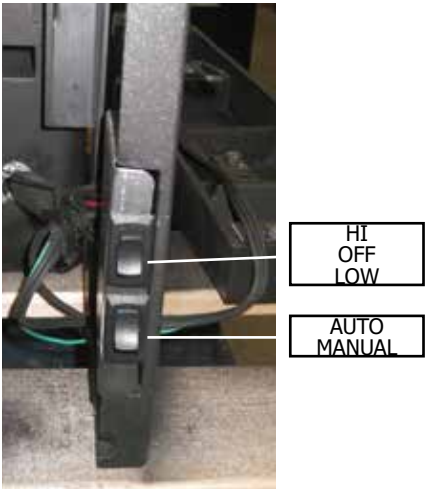
To operate fan automatically, push switch on the right side of fan housing to "Auto" and second switch, on the left to either "High" or "Low" for fan speed. The automatic temperature sensor will engage the blower when the unit is at temperature and will shut off the blower once the fire has gone out and the unit has cooled to below a useful heat output range.

To manually operate the fan system, push the first switch to "Man" and second switch to either "high" or "Low". This will bypass the sensing device and allow full control of the fan. Switching from "Auto" to "Manual" or "High" to "Low" may be done at any time.

Cord Reversal

The fan cord comes out from the left hand side of the unit. if it is necessary to have the cord coming from the right side - follow these steps:

- 1) Remove the lower surround faceplate section by removing 2 bolts.
- 2) Feed the cord along the bottom of the inside of the casting as shown below.



Fan Wiring Diagram

Ash Disposal

During constant use, ashes should be removed every few days.

Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

Safety Precautions

1. Do not allow ashes to build up to the loading doors! Only remove ashes when the fire has died down. Even then, expect to find a few hot embers.
2. Please take care to prevent the build-up of ash around the start-up air housing located inside the stove box, under the loading door lip.
3. Never start a fire if the ash plug and ash drawer are not in place. This will cause over firing which can cause excessive warping of the stove. Evidence of over firing can void the warranty on your stove.
4. The firebricks are brittle and can be damaged if the plug is replaced carelessly or pieces that are too large are forced through the hole.

Safety Guidelines and Warnings

CAUTION: do not use chemicals as fluids to start fire.

1. **CAUTION:** Never use gasoline, gasoline type lantern fuels, kerosene, charcoal lighter fuel, or similar liquids to start or 'freshen up' a fire in your heater. Keep all such liquids well away from the heater while it is in use.
2. Keep the door closed during operation and maintain all seals in good condition.
3. Do not burn any quantities of paper, garbage, and never burn flammable fluids such as gasoline, naptha or engine oil in your stove.
4. If you have smoke detectors, prevent smoke spillage as this may set off a false alarm.
5. Do not overfire heater. If the chimney connector, flue baffle or the stove top begin to glow, you are over firing. Stop adding fuel and close the draft control. Over firing can cause extensive damage to your stove including warping and premature steel corrosion. Over firing will void your warranty.
6. Do not permit creosote or soot build-up in the chimney system. Check and clean chimney at regular intervals. Failure to do so can result in a serious chimney fire.
7. Your Regency stove can be very hot. You may be seriously burned if you touch the stove while it is operating, keep children, clothing and furniture away. Warn children of the burn hazard.
8. The stove consumes air while operating, provide adequate ventilation with an air duct or open a window while the stove is in use.
9. Do not connect this unit to a chimney flue serving another appliance.
10. Do not use grates or andirons or other methods for supporting fuel. Burn directly on the bricks.
11. Open the draft control fully for 10 to 15 seconds prior to slowly opening the door when refuelling the fire.
12. Do not connect your unit to any air distribution duct.
13. This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods.
14. In the event of component failure, replace parts with only Regency listed parts.
15. Warning: do not abuse glass door such as striking or slamming shut.

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

DO NOT BURN:

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper
- Trash
- Salt drift wood
- Cut lumber, plywood, mill ends.

Burning treated wood, garbage, solvents, colored paper or trash may result in release of toxic fumes. Burning coal, cardboard, or loose paper can produce soot, or large flakes of char or fly ash, causing smoke spillage into the room.

CAUTION: DO NOT BURN GARBAGE OR FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPTHA OR ENGINE OIL. SOME FUELS COULD GENERATE CARBON MONOXIDE AND ARE VERY DANGEROUS.

CAUTION: DO NOT CONNECT TO, OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCT WORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATION.



Cleaning & Maintaining Your Wood Stove

maintenance

Maintenance

It is very important to carefully maintain your fireplace stove, including burning seasoned wood and maintaining a clean stove and chimney system. Have the chimney cleaned before the burning season and as necessary during the season, as creosote deposits may build up rapidly. Moving parts of your stove require no lubrication.

Creosote

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

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if creosote build up has occurred. If creosote has accumulated it should be removed to reduce the risk of chimney fire.

CAUTION: Things to remember in case of a chimney fire:

1. Close all draft controls.
2. CALL THE FIRE DEPARTMENT.

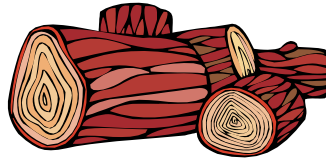
Ways to Prevent and Keep Unit Free of Creosote

1. Burn stove with the draft control wide open for about 10-15 minutes every morning during burning season.
2. Burn stove with draft control wide open for about 10 - 15 minutes every time you apply fresh wood. This allows the wood to achieve the charcoal stage faster and burns up any unburned gas vapours which might otherwise be deposited within the system.
3. Only burn seasoned wood! Avoid burning kiln dried, wet or green wood. Seasoned wood has been dried at least one year.

4. A small hot fire is preferable to a large smouldering one that can deposit creosote within the system.
5. The chimney and chimney connector should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred.
6. **Have chimney system and unit cleaned by competent chimney sweeps twice a year during the first year of use and at least once a year thereafter or when a significant layer of creosote has accumulated (3 mm / 1/8" or more) it should be removed to reduce the risk of a chimney fire.**

Wood Storage

Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood, etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.



Door Gasket

If the door gasket requires replacement, 7/8" diameter material must be used. A proper high temperature gasket adhesive is required. A gasket repair kit, Part # 846-570 is available from your local Regency dealer.

Glass Cleaning

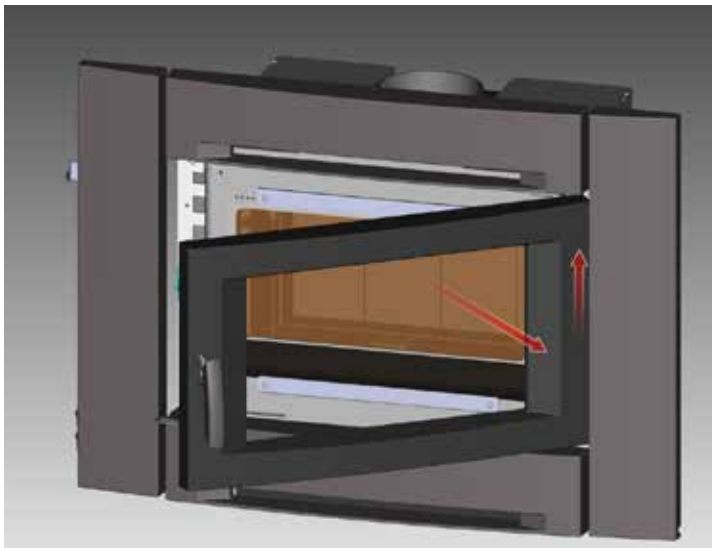
Only clean your glass window when it is cool. Your local retailer can supply you with special glass cleaner if plain water and a soft cloth does not remove all deposits.

Door Removal

When handling cast parts, please handle with care as they can be damaged.

- 1) Open door to a 45° angle
- 2) Holding door firmly from top and bottom - lift door up and off to remove.

Note: Door is heavy.



DOOR INSTALLATION NOTE

After re-installing the door, carefully swing open and check the clearance to the Right Hand Cast Side. If tight or rubbing, loosen the 7/16 nuts and adjust the clearance and then re-tighten.

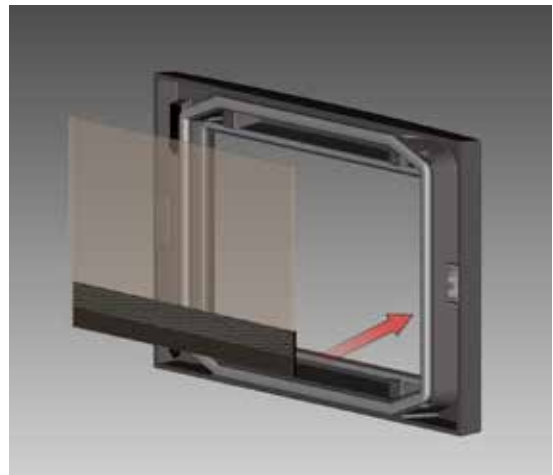


Cleaning & Maintaining a Wood Stove
Video

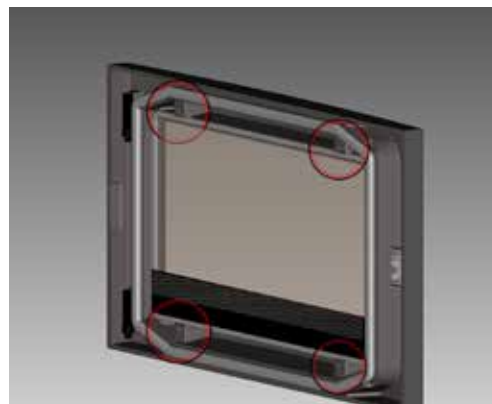
Glass Replacement

Allow the stove to cool before removing or replacing glass. Remove the door from the stove and remove the glass retainer. Use caution when removing broken glass to avoid injury. When placing the replacement glass in the door, make sure that the glass gasketing will properly seal your unit. Replace the retainer, it should rest on the gasket not the glass, and tighten securely with a glass clips and screws. Do not wrench down on the glass as this may cause breakage.

Your Regency Insert is supplied with 5mm Neoceram ceramic glass that will withstand the highest heat that your unit will produce. In the event that you break your glass by impact- purchase replacement glass (940-366/P) (includes the glass gasket) from an authorized Regency dealer only. Follow the instructions to replace.



Lower Glass Clip



Glass Clip Screw Locations

Avoid impact on glass doors such as striking or slamming shut.

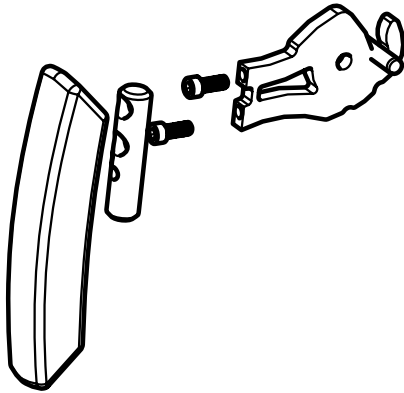
maintenance

Handle Replacement

- 1) Remove handle by undoing the hex head bolt using a 7/16" socket wrench.
- 2) Fit new door handle over door latch and secure.

Assemble handle by:

- a) Placing lock washer and split lock washer over hex head bolt.
- b) Place hex head bolt into handle.
- c) Place spacer over hex head bolt threads.
- d) Screw handle into door latch.



Fan Maintenance

TO REMOVE THE FAN

- 1) See next page.

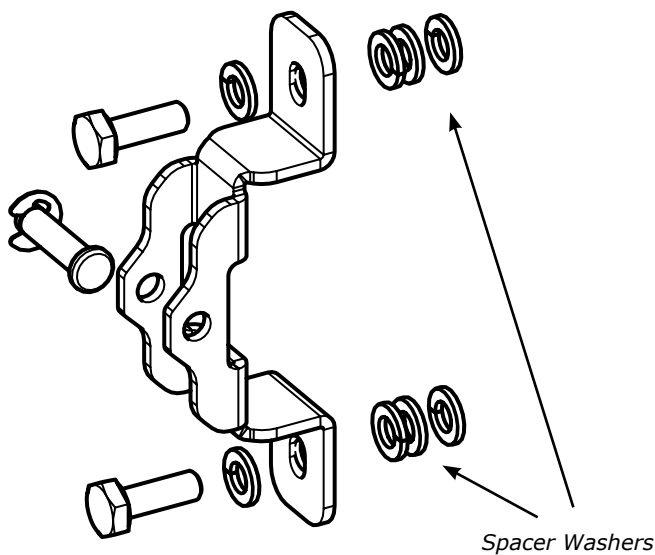
Maintenance: The sealed bearings are lubricated, there is no need to lubricate them further. (Extra lubricant will cause more lint and dust buildup - causing the bearings to prematurely fail). Regular cleaning and vacuuming of the fan area will add to the life of the motor.

IMPORTANT:

These fans collect a lot of dust from within your home. Ensure you maintain these fan motors on a regular basis by vacuuming the fan blades and housing using a soft brush nozzle.

Door Catch Adjustment

The door catch may require adjustment as the door gasket material compresses after a few fires. Removal of the spacer washer, shown in the diagram below, will allow the catch to be moved closer to the door frame, causing a tighter seal. Remove and replace the nuts, washer and spacer as shown.



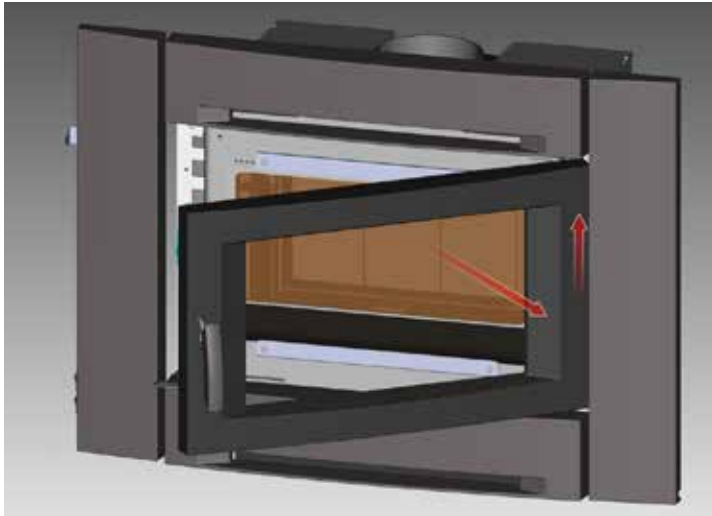
*Cleaning & Maintaining a Wood Stove
Video*

Fan Removal

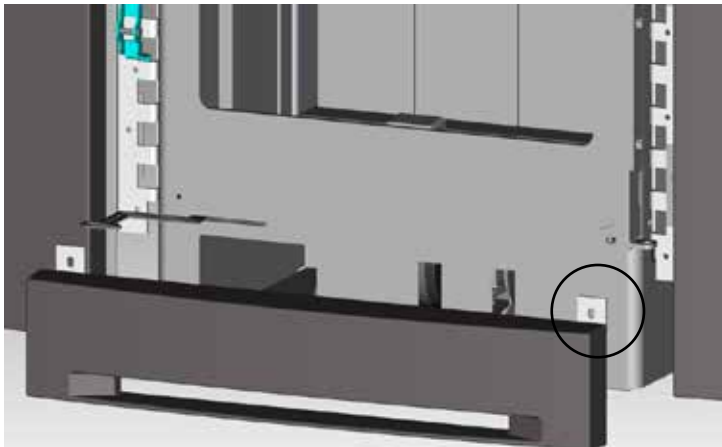
Prior to removing fan, disconnect / unplug power source to fan

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

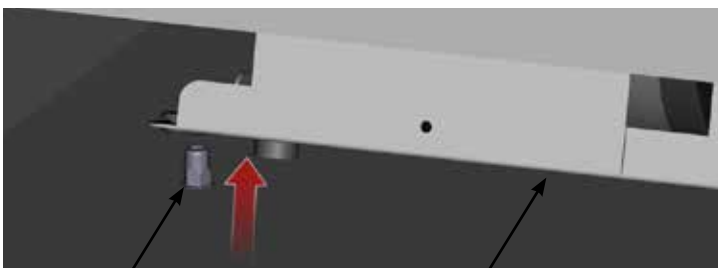
- 1) Open door to a 45° angle
- 2) Holding door firmly from top and bottom - lift door up and off to remove.
Note: Door is heavy.



- 3) Remove two (2) screws (with 3/16" Allen Key) to remove lower cast surround - set aside on a soft surface.



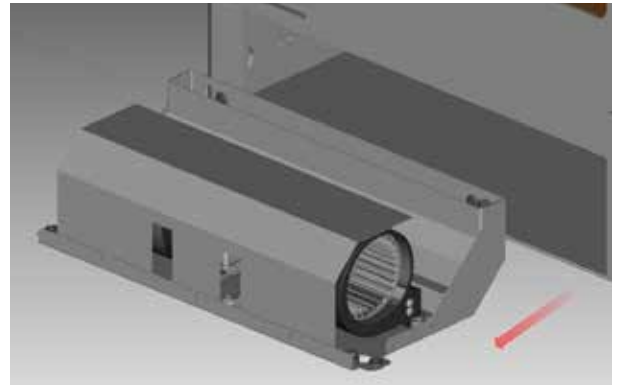
- 4) Lift fan housing up off pins on floor of unit.



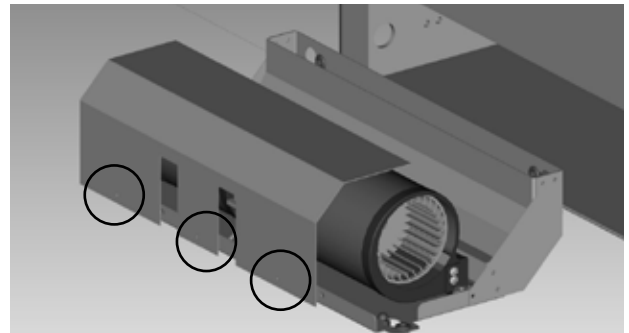
Pins on Unit Floor

Fan Housing

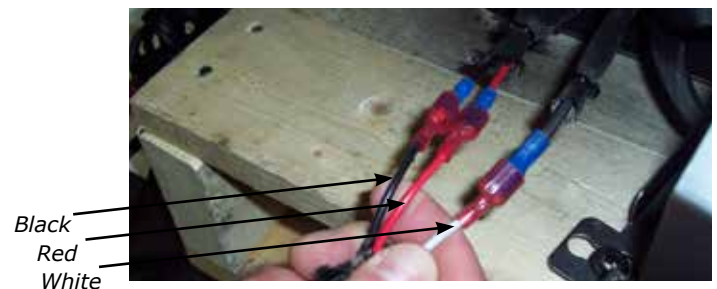
- 5) Remove fan from unit.



- 6) Remove 3 screws to remove fan heat shield.



- 7) Slide back the protect sheath on the wiring - disconnect the black, red and white wires.



- 8) Disconnect the ground wire located on the left side of the fan housing.



- 9) To install fan - reverse Steps 8-1.

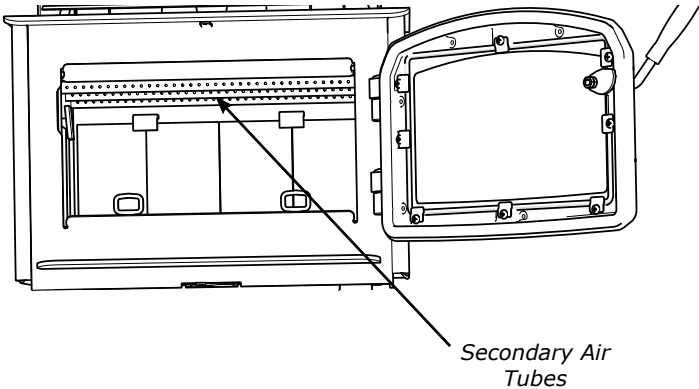
maintenance

Secondary Air Tube Removal/Installation

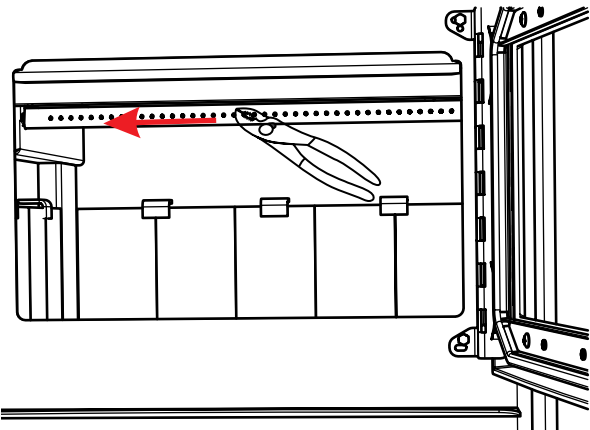
- 1. Allow the stove to burn out and cool down, until cool to touch.
- 2. Open stove door to access secondary air tubes.

Note: to make it easier to remove the air tubes, first remove both the bottom right base brick and right side wall brick.

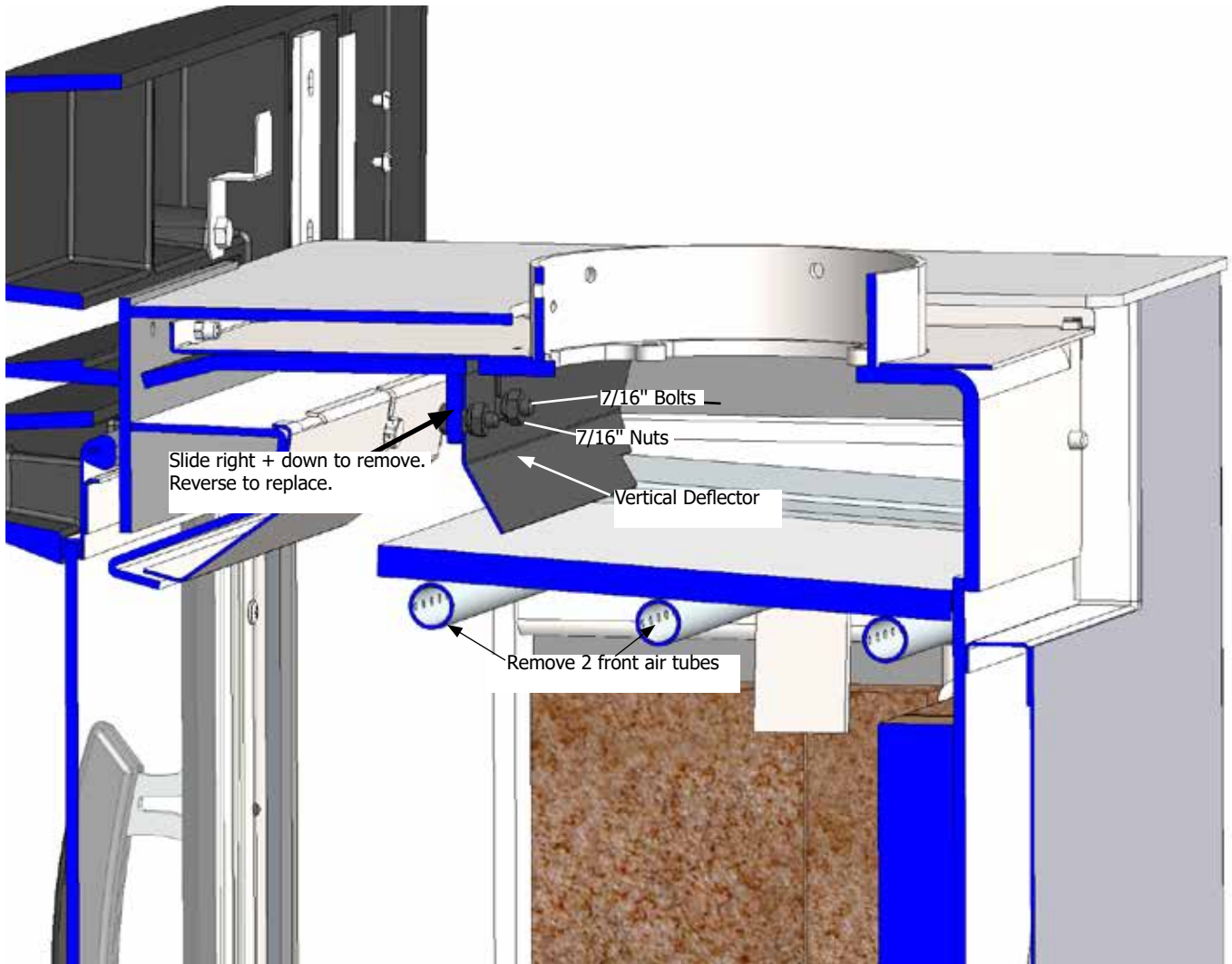
- 5. To reinstall or replace, first slide left side of tube into hole on left side air channel. Align tab on right side air channel with notch on right hand end of air tube. Firmly grip center of air tube with vise grips, use hammer to tap vise grips from left to right until the tube bottoms out into the air channel on right.
NOTE: If airtube is locked into place correctly there should be slight movement when moving the airtube back and forth.



- 3. Grasp secondary air tube firmly with vise grips, using a hammer tap vise grips from right to left until air tube is released from grip. Remove.
- 4. Remove top left and right metal retainers, followed by the fragile three piece C-Cast Baffles, then remove the remaining 2 tubes.



Vertical Stainless Deflector Replacement



1. Remove 2 front secondary air tubes / baffles (see manual for details).
2. Loosen the two 7/16" bolts + nuts to remove / replace vertical baffle.
3. Repeat steps to install new vertical deflector.

NOTE: ENSURE BAFFLE IS PUSHED UP AS FAR AS POSSIBLE. TIGHT TO TOP OF FIREBOX.

maintenance

Annual Maintenance	
Completely clean out entire unit	Annually
Inspect air tube and bricks	Replace any damaged parts.
Adjust door catch assembly	If unable to obtain a tight seal on the door - replace door gasket seal. Readjust door catch after new gasket installed.
Inspect condition and seal of: Glass Gasket Door Gasket	Perform paper test - replace gasket if required
Paper Test	Test the seal on the loading door with a paper bill. Place a paper bill in the gasket area of the door on a cold stove. Close the door. Try to remove the paper by pulling. The paper should not pull out easily, if it does, try adjusting the door latch, if that doesn't solve the problem replace the door gasket.
Check and lubricate door hinge + latch	Use only high temperature anti seize lube. (ie. never seize)
Check glass for cracks	Replace if required.
Clean blower motor	Disconnect power supply. Remove and clean blower. *DO NOT LUBRICATE*
Inspect and clean chimney	Annual professional chimney cleaning recommended.

NOTE:

Chimney Cleaning

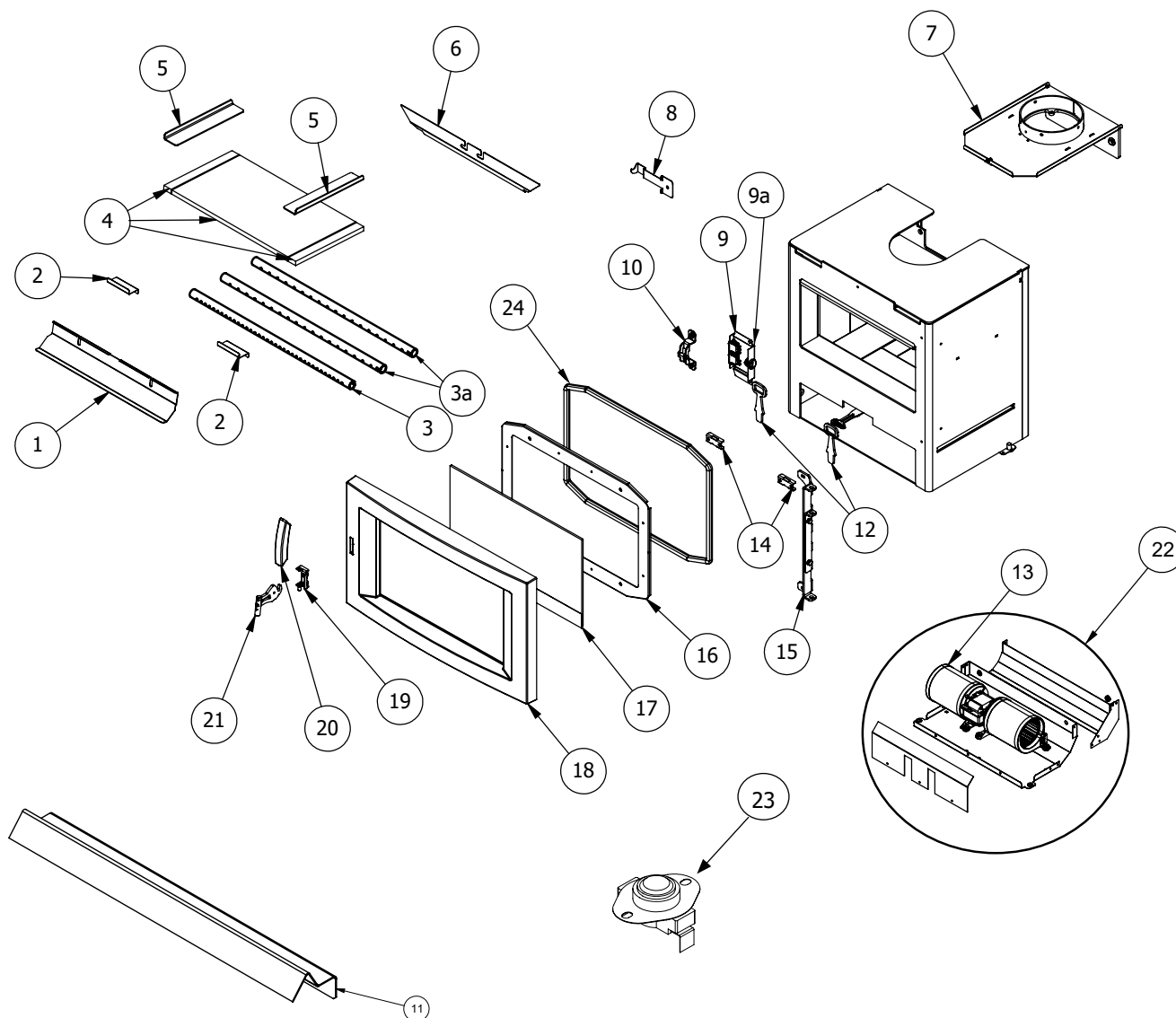
When cleaning the chimney system the air tubes, baffles should be removed for ease of cleaning. See manual for details on removal. We highly recommend that the chimney cleaning be done by a professional as they will have the necessary tools such as a proper sized brush and special vacuum cleaner designed to deal with fine particles.

IMPORTANT

Before attempting to loosen or remove any screw, bolt from the interior of a wood stove, insert or factory built fireplace that has had a fire burned in it, we highly recommend to liberally spray the screw/bolt with a good-quality penetrating oil, one that does not have flammable properties contained within the penetrating oil being used. Allow it to set, then tap or vibrate the screw or bolt to help loosen it before attempting to remove it. For best results, follow the instructions that are provided with the penetrating oil.

Main Assembly Ci1150-1

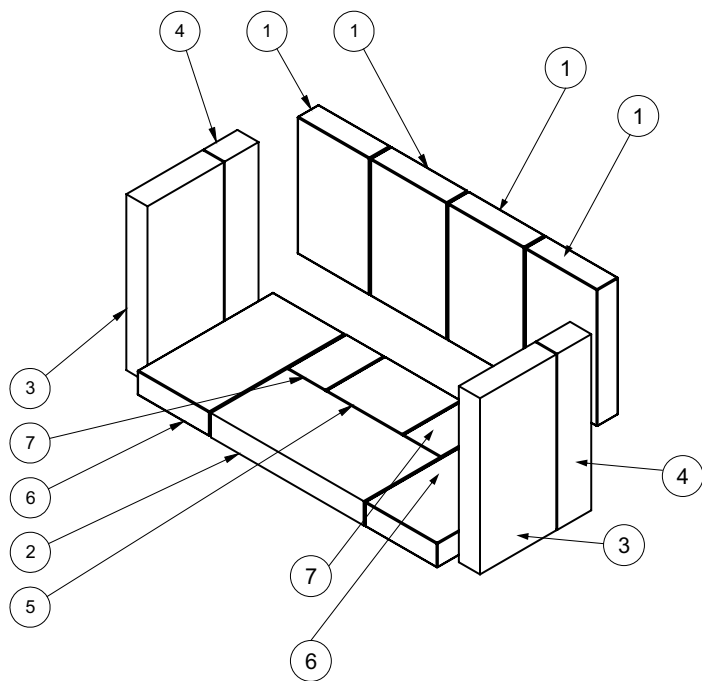
Part #	Description	Part #	Description
1) 075-037	Smoke Deflector	14) 075-064	Andiron Bracket (Each)
2) 075-041	Baffle Holder	15) 156-004	Door Hinge
3) 033-953	Air Tubes (each)	16) 156-035	Glass Gasket Frame
3a) 033-954	3/4" OD Air Tube (Qty 2) (Each)	17) 940-366/P	Neoceram Glass (includes Glass Gasket)
4) 075-955	Baffle Set Complete	18) 156-513	Door Assembly Metallic Black (no glass)
5) 075-040	Side Baffle Cover (Each)	846-570	Med. Density Door Gasket Kit
6) 173-030/P	Vertical Deflector	19) 156-515/P	Door Aligner Assembly
7) 172-942	Flue Adapter Standard	20) 156-241	Cast Handle
172-946	Flue Adapter Offset	21) 156-514	Door Latch Assembly
8) 156-056	Handle Hook	22) 157-510/P	Fan Assembly-Complete
9) 156-533	Switch Assembly Complete (Includes All Switches, Power Cord, Wire Harness)	23) 910-142	Fan Thermodisc
9a) 156-011	Fan Switch Bracket Only	24) 846-682 ENC	7/8 Window Adhesive Gasket Tape (12') (936-243)
10) 156-519	Door Catch	N/S 911-048-ASM	120 Volt Power Cord
11) 173-031	Primary Air Deflector	N/S 948-444	Regency Flame Logo Silver
12) 075-063F	Andiron (each)	N/S 075-021	Firebox Floor Gasket
13) 910-157/P	Fan Motor	N/S 910-138	Switch 2 Way Carling
		N/S 910-140	Switch 3 Way Carling
		N/S 911-049	Wire Harness Fan to Switch



parts list

Brick Panels

173-960 Ci1150-1 Brick Kit Complete



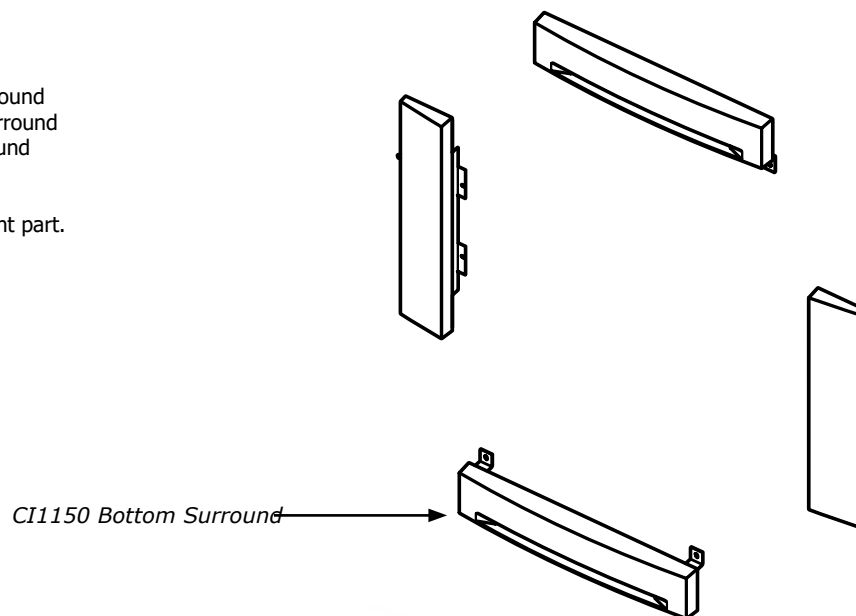
Fire bricks	
#	Size
1	8-3/8" x 4-3/8"
2	9" x 4-1/4"
3	9" x 4-1/2"
4	9" x 2-3/8"
5	3-1/2" x 4-1/2"
6	7-3/4" x 4-1/4"
7	3-1/2" x 2-1/4"

Cast Faceplate

Part #	Description
156-951	Metallic Black Faceplate CI1150

- 1) * Top Surround
- 2) * Left Side Surround
- 3) * Right Side Surround
- 4) * Bottom Surround

* Not available as a replacement part.



Indoor Wood Product Warranty

Limited Lifetime Warranty

FPI Fireplace Products International Ltd. (for Canadian customers) and Fireplace Products U S, Inc. (for US customers) (collectively referred to herein as “FPI”) extends this Limited Lifetime Warranty to the original purchaser of this Appliance provided the product remains in the original place of installation. The items covered by this Limited Lifetime Warranty and the period of such coverage are set forth in the table below.

An Appliance in this policy is defined as an Indoor wood insert or Indoor wood freestanding stove.

This Appliance has only been certified and listed for use indoors.

Note: This Wood Product Warranty does not apply to the Ri50 & CF780 models. See Ri50/CF780 policy for specific warranty details.

This Limited Lifetime Warranty starts on the day the Appliance was purchased.

The Limited Lifetime Warranty is not transferable, amendable or negotiable under any circumstances.

Indoor Wood Products	Component Coverage					Subsidized Labor Coverage***
	Limited Lifetime	5 years	2 years	1 year	Warranty	(Years)
Welded Firebox Steel	✓					5
All Stainless Steel Components, Smoke Deflectors, Heat Shields etc.	✓					3
Air Tubes	✓					3
Airmate	✓					3
Door handle and latch assembly, all hardware	✓					3
Glass Thermal Breakage Only	✓					3
Steel Faceplates, Accessory Housings	✓					3
All Plating	✓					3
Ash Drawer, Heatshields, Pedestal	✓					0
All Baffles, Steel, Ceramic, Vermiculite C-Baffles	✓					0
All castings, firebox, surrounds, doors, panels etc.		✓				3
All Electrical, Blower, wiring, switches, Catalytic Monitors, Probes, etc.			✓			2
Glass - Crazeing				✓		1
Catalyst Combustor					**10 Years Prorated	0
Venting/Chimney				✓		1
Screens				✓		1

**See specific warranty details regarding the catalyst combustor in this manual.

Note: Warranty coverage noted above may not be applicable as components/options vary based on appliance purchased.

Conditions:

Warranty protects against defect in manufacture or FPI factory-assembled components only, unless herein specified otherwise.

*****This warranty does not cover dealer travel costs, mileage, fuel, tolls for diagnostic or service work. All labor rates paid to authorized dealers are subsidized, pre-determined rates. Dealers may charge you for travel and additional time beyond their subsidy.**

Any part(s) found to be defective during the warranty period as outlined above will be repaired or replaced at FPI's option through an accredited distributor, dealer or pre-approved and assigned agent provided that the defective part is returned to the distributor, dealer or agent for inspection if requested by FPI. Alternatively, FPI may, at its own discretion, fully discharge all of its obligations under warranty by refunding the verified purchase price of the product to the original purchaser. The purchase price must be confirmed by the original Bill of Sale.

The authorized selling dealer, or an alternative authorized FPI dealer if pre-approved by FPI, is responsible for all in-field diagnosis and service work related to all warranty claims. FPI is not responsible for results or costs of workmanship of unauthorized FPI dealers or agents in the negligence of their service work.

At all times, FPI reserves the right to inspect reported in the field/on location complaints of products claimed to be defective before processing or authorizing any claim. Failure to allow this upon request will void the warranty.

All warranty claims must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase by you). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. **Incomplete claims may be rejected.**

Replacement Appliances to the original purchaser are limited to one per warranty term. Air tube and baffle replacements are limited to one replacement per warranty term.

The Appliance must be installed according to all manufacturers' instructions as per the manual. All Local and National required codes must be met.

The installer is responsible for ensuring the Appliance is operating as designed at the time of installation.

The original purchaser is responsible for the annual maintenance of the Appliance, as outlined in the owner's manual. As outlined below, the warranty may be voided due to problems caused by a lack of maintenance.

Purchased parts: Repair/replacement parts purchased by the consumer from FPI after the original coverage has expired on the Appliance will carry a **90-day** warranty from the purchase date, valid with a receipt only. Any item shown to be defective will be repaired or replaced at our discretion. No labor coverage is included with these parts.

If freight damage has been found either externally or internally, the dealer must be informed within 3 days. All claims as a result of damage must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. **Incomplete claims may be rejected.**

As this is a Limited Lifetime Warranty, if the Appliance needs to be replaced, the Appliance that was purchased at the time of sale might not be replaced with exactly the same model Appliance. In that case, FPI will replace your Appliance with one that is similar at the time of replacement under the terms of this Limited Lifetime Warranty, but **ONLY** in the event that an item covered by the Limited Lifetime Warranty is found to be defective. Please refer to the table on first page of this warranty for items covered by the Limited Lifetime Warranty. Product changes might be the result of the original Appliance being discontinued, changes in regulatory requirements, product advancements, etc., which are beyond the control of FPI. **This Limited Lifetime Warranty does not cover any installation costs, or costs associated with changes of required clearances for the replacement Appliance, hearth pads, mantles, facing and/or facing materials such as framing, completed walls made of drywall, wood, non-combustible board, tile, brick, stone, marble etc., venting/chimney systems, or components of the chimney system.**

If a suitable replacement is not available, FPI will refund **50%** of the purchase price of the Appliance and any applicable FPI accessories (faceplates, brick panels, media, etc.) purchased at the time of sale. **In no event will FPI refund any portion of the purchase price of, or reimburse costs associated with, any other items, including without limitation, installation of a new unit, changes of required clearances for a new unit, hearth pads, mantles, facing and/or facing materials such as framing, completed walls made of drywall, wood, non-combustible board, tile, brick, stone, marble etc., venting/chimney systems, or components of the chimney system. A copy of the receipt or bill of sale will be necessary to validate the purchase price.**

Exclusions:

This Limited Lifetime Warranty does not extend to paint, rust or corrosion of any kind due to a lack of maintenance or improper venting, combustion air provision, corrosive chemicals (i.e. chlorine, salt, air, etc.), firebrick (rear, sides or bottom), door or glass gasketing, vermiculite floor bricks, and iron assemblies/flue damper rod or any other additional factory fitted gasketing, batteries.

Malfunction, damage or performance-based issues as a result of environmental conditions, location, chemical damages, downdrafts, installation error, an installation by an unqualified installer, incorrect chimney components (including but not limited to cap size or type), operator error, abuse, misuse, use of improper fuels (such as unseasoned cordwood, mill-ends, construction lumber or debris, off-cuts, treated or painted lumber, metal or foil, plastics, garbage, solvents, cardboard, coal or coal products, oil-based products, waxed cartons, compressed pre-manufactured logs, kiln dried wood), lack of regular maintenance and upkeep, acts of God, weather-related problems from hurricanes, tornados, earthquakes, floods, lightning strikes/bolts or acts of terrorism or war, which result in a malfunction of the Appliance are not covered under the terms of this Limited Lifetime Warranty.

warranty

FPI has no obligation to enhance or modify any Appliance once manufactured (i.e. as products evolve, field modifications or upgrades will not be performed on existing Appliances).

Any Appliance showing signs of neglect or misuse will not be covered under the terms of this warranty policy and may void this warranty, including Appliances with rusted or corroded fireboxes that have not been reported as rusted or corroded within **three (3)** months of installation/purchase.

Appliances which show evidence of being operated while damaged, or with problems known to the purchaser and causing further damages will void this warranty.

Appliances where the serial no. has been altered, deleted, removed or made illegible will void this warranty.

Minor movement, expansion and contraction of the steel is normal and is not covered under the terms of this warranty.

Freight damages for products or parts are not covered under the terms of the warranty.

Products made or provided by other manufacturers and used in conjunction with the FPI Appliance without prior authorization from FPI may void this warranty.

Limitations of Liability:

The original purchaser's exclusive remedy under this warranty, and FPI's sole obligation under this Limited Lifetime Warranty, express or implied, in contract or in tort, shall be limited to replacement, repair, or refund, as outlined above. IN NO EVENT WILL FPI BE LIABLE UNDER THIS WARRANTY FOR ANY INCIDENTAL OR CONSEQUENTIAL COMMERCIAL DAMAGES OR DAMAGES TO PROPERTY. TO THE EXTENT PERMITTED BY APPLICABLE LAW, FPI 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. IF IMPLIED WARRANTIES CANNOT BE DISCLAIMED, THEN SUCH WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some US states do not allow limitations on how long an implied warranty lasts, or allow exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Customers located outside the US should consult their local, provincial or national legal codes for additional terms, which may be applicable to this warranty.

How to Obtain Warranty Service:

Customers should contact the authorized selling dealer to obtain warranty service. In the event the authorized selling dealer is unable to provide warranty service, please contact FPI by mail at the address listed below. Please include a brief description of the problem and your address, email and telephone contact information. A representative will contact you to make arrangements for an inspection and/or warranty service.

Canadian Warrantor:

FPI Fireplace Products International Ltd.
6988 Venture St.
Delta, British
Columbia Canada,
V4G 1H4

US Warrantor:

Fireplace Products U.S., Inc.
PO Box 2189 PMB 125
Blaine, WA
United States, 98231

Or contact the Regency Customer Care Centre at 1-800-442-7432 (phone) /604-946-4349 (fax) /customerservice@regency-fire.com (e-mail)

Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form at <http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx> within **ninety (90)** days of purchase.

Warranty Registration Card



Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form found on our Web Site under Customer Care within ninety (90) days of purchase.

For purchases made in **CANADA or the UNITED STATES:**

<http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx>

For purchases made in **AUSTRALIA:**

<http://www.regency-fire.com.au/Customer-Care/Warranty-Registration.aspx>

You may also complete the warranty registration form below to register your Regency Fireplace Product and mail and/or fax it back to us, and we will register the warranty for you. It is important you provide us with all the information below in order for us to serve you better.

Warranty Registration Form (or Register online immediately at the above Web Site):

Warranty Details	
Serial Number (required):	
Purchase Date (required) (mm/dd/yyyy):	
Product Details	
Product Model (required):	
Dealer Details	
Dealer Name (required):	
Dealer Address:	
Dealer Phone #:	
Installer:	
Date Installed (mm/dd/yyyy):	
Your Contact Details (required)	
Name:	
Address:	
Phone:	
Email:	

For purchases made in **CANADA:**

**FPI Fireplace Products
International Ltd.**
6988 Venture St.
Delta, British Columbia
Canada, V4G 1H4

Phone: 604-946-5155
Fax: 1-866-393-2806

For purchases made in **the UNITED STATES:**

Fireplace Products US, Inc.
PO Box 2189 PMB 125
Blaine, WA
United States, 98231

Phone: 604-946-5155
Fax: 1-866-393-2806

For purchases made in **AUSTRALIA:**

**Fireplace Products Australia Pty
Ltd**
99 Colemans Road
Dandenong South, Vic.
Australia, 3175

Phone: +61 3 9799 7277
Fax: +61 3 9799 7822

For fireplace care and tips and answers to most common questions please visit our Customer Care section on our Web Site. Please feel free to contact your selling dealer if you have any questions about your Regency product.

PRODUCT LIFE CYCLE:

By recycling your used appliances, you divert waste from your local landfills and help the environment. You also reduce the need for raw materials to manufacture new products. Contact your local municipality for appliance recycling services, local recycling programs, or appliance removal services to ensure your Regency appliance components, and packaging are properly recycled.

notes

[illegible]

Installer: Please complete the following information

Dealer Name & Address: _____

Installer: _____

Phone #: _____

Date Installed: _____

Serial #: _____



Cascades™ Series Freestanding Woodstove

Owners & Installation Manual



MODEL: F1150-1

Tested by:



Installer: Please complete the details on the back cover
and leave this manual with the homeowner.

Homeowner: Please keep these instructions for future reference.

Thank you for purchasing a
REGENCY FIREPLACE PRODUCT.

The pride of workmanship that goes into each of our products will give you years of trouble-free enjoyment. Should you have any questions about your product that are not covered in this manual, please contact the **REGENCY DEALER** in your area.

"This wood heater has a manufacturer set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual." Failure to follow the manual details can lead to smoke and CO emissions spilling into the home. It is recommended to have monitors in areas that are expected to generate CO such as heater fueling areas.

"U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using crib wood." Tested to Method 28R, E2780-10, E2515 - 11. Model Regency F1150-1 - 1.3 g/hr.

"This manual describes the installation and operation of the Regency F1150-1 wood heater. This heater meets the 2020 U.S. Environmental Protection Agency's crib wood emission limits for wood heaters. Under specific test conditions this heater has been shown to deliver heat at rates ranging from 12,700 BTU/hr. to 27,300 BTU/hr." Efficiency is determined using the B415 method resulting in lower and higher heat values. This heater generates the best efficiency when operated using well-seasoned wood and installed in the main living areas where the majority of the chimney is within the building envelope. This wood heater needs periodic inspection and repair for proper operation."

It is against federal regulation to operate this wood heater in a manner inconsistent with operating instructions in this manual.

CAUTION: BURN UNTREATED WOOD ONLY. OTHER MATERIALS SUCH AS WOOD PRESERVATIVES, METAL FOILS, COAL, PLASTIC, GARBAGE, SULPHUR OR OIL MAY DAMAGE THE STOVE.

"This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods."

DO NOT BURN:

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper Bio Bricks
- Trash
- Lawn clippings or yard waste
- Materials containing rubber including tires
- Materials containing plastic
- Waste petroleum products, paints or paint thinners or asphalt products
- Materials containing asbestos
- Construction or demolition debris
- Railroad ties
- Manure or animal remains
- Saltwater driftwood or other previously salt water saturated materials
- Unseasoned wood
- Paper products, cardboard, plywood or particle board. The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in a wood heater.

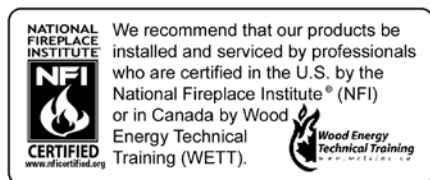
Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke.

The authority having jurisdiction (such as Municipal Building Department, Fire Department, Fire Prevention Bureau, etc.) should be consulted before installation to determine the need to obtain a permit.

This unit must be connected to either a listed factory built chimney suitable for use with solid fuels and conforming to, ULC629 in Canada or UL-103HT in the United States of America. or code approved masonry chimney with flue liner.

F1150-1 is certified to ULC-S627-2023 and UL1482-2022.

SAVE THESE INSTRUCTIONS



919-874

SAFETY DECAL

Safety Label for F1150-1.....	4
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DIMENSIONS

Unit Dimensions.....	5
Outside Air Dimensions.....	5

INSTALLATION

Room Air - Important	6
Modular Installation Options.....	7
Stove Assembly Prior to Installation.....	8
Airmate Assembly for F1150-1.....	8
Rear Heat Deflector Assembly for F1150-1	8
Side Shield Adjustment.....	8
Pedestal Assembly Installation.....	9
Logo Installation	9
Wood Stacker Assembly Installation	9
Bottom Heat Shield and Legs Installation	9
Room Air - Important	10
Minimum Clearance to Combustible Materials	11
Minimum Alcove Clearance and Clearance to Combustible Materials.....	12
Floor Protection.....	12
Floor Protection (Corner Installation)	13
Step-by-Step Chimney and Connector Installation.....	14
Masonry Chimney.....	15
Masonry Fireplace	15
Factory Built Chimney.....	15
Combustible Wall Chimney Connector Pass-throughs..	16
Mobile Home Installation (USA Only)	17
Minimum Recommended Flue Heights.....	18
Optional Outside Air Kit	19
Brick Installation	20
Baffle Installation	21
Removing Wooden Handle	22
Glass Installation.....	22
Wood Door & Handle Assembly (Arched Door)	23
Square Door Installation (Part #850-161)	24
Fan Installation	25
Stainless Steel Smoke Deflector Installation.....	26

OPERATION

Seasoned Firewood	27
Operating Instructions	27
Draft Control.....	27
Air Operating Handle	27
First Fire.....	28
Fan Operation	29
Ash Disposal	29
Safety Precautions.....	29
Ash Drawer Operating Guidelines	29
Safety Guidelines and Warnings.....	29

MAINTENANCE

Maintenance	31
Creosote.....	31
Ways to Prevent and Keep Unit Free of Creosote	31
Door Gasket.....	31
Glass Maintenance	31
Wood Storage	31
Secondary Air Tube Removal/Installation.....	32
Latch Adjustment	32
Vertical Stainless Deflector Replacement	33
Annual Maintenance	34

PARTS

Main Assembly	35
Bottom Shield and Legs	37
Pedestal Assembly.....	37
Wood Stacker	38
Complete Brick Kit.....	38

WARRANTY

Warranty	40
Recycling.....	44

CAUTION: To avoid burns or wood splinters, when opening/closing the fuel door or adding wood to the fire, You should always wear appropriate protective gloves to protect your hands from the heat being emitted from this fireplace.

This is a copy of the label that accompanies each Regency Freestanding Woodstove (F1150-1). We have printed a copy of the contents here for your review.

NOTE: Regency units are constantly being improved. Check the label on the unit and if there is a difference, the label on the unit is the correct one.

Safety Label for F1150-1

duplicate serial number
619

0219WS03S5

LISTED SPACE HEATER, SOLID FUEL TYPE, ALSO SUITABLE FOR MOBILE HOME INSTALLATION / APPAREIL DE CHAUFFAGE À COMBUSTIBLE SOLIDE, CONVENANT AUSSI POUR INSTALLATION DANS UNE MAISON MOBILE

MODEL: **REGENCY SMALL FREESTANDING STOVE - F1150-1**
CERTIFIED / CERTIFIÉ : UL627-2023 / UL 1482-2022

APPROVED FOR MOBILE HOMES IN THE US AND FOR TRANSPORTABLE BUILDINGS IN CANADA / CET APPAREIL EST HOMOLOGUÉ POUR ÊTRE INSTALLÉ DANS UNE MAISON MOBILE AUX ÉTATS-UNIS ET POUR LES BÂTIMENTS TRANSPORTABLES AU CANADA.

619

DO NOT REMOVE THIS LABEL / NE RETIREZ PAS CETTE ÉTIQUETTE

U.S. ENVIRONMENTAL PROTECTION AGENCY MODEL REQUIRED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD.* TESTED AND LISTED TO METHOD 28R, E2780-10, E2515-11, MODEL REGENCY F1150-1 - 1.3 G/Hr. 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.

CERTIFIÉ CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS D'ESSAI NORMALISÉ (CRIB WOOD), APPROUVÉ ET TESTÉ SELON LA MÉTHODE 28R, E2780-10, E2515-11, MODÈLE REGENCY F1150-1 - 1.3 G/Hr. CET APPAREIL DOIT ÊTRE INSPECTÉ PÉRIODIQUEMENT ET RÉPARÉ POUR FONCTIIONNER CORRECTEMENT. CONSULTEZ LE MANUEL D'INSTALLATION POUR PLUS D'INFORMATION. LA RÉGLEMENTATION FÉDÉRALE INTERDIT DE FAIRE FONCTIONNER UN TEL APPAREIL SI LES CONSIGNES D'UTILISATION CONTENUES DANS LE PRÉSENT MANUEL NE SONT PAS RESPECTÉES.

INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA. USE 150 MM (6 IN.) DIAMETER MINIMUM 24 MSG BLACK OR 26 MSG BLUED STEEL CONNECTOR WITH LISTED UL103 HT FACTORY-BUILT CHIMNEY SUITABLE FOR USE WITH SOLID FUELS OR MASONRY CHIMNEY.

USE LOCAL BUILDING CODE AND MANUFACTURER'S INSTRUCTIONS FOR PRECAUTIONS REGARDING PASSING A CHIMNEY THROUGH A COMBUSTIBLE WALL OR CEILING. DO NOT PASS CHIMNEY CONNECTOR THROUGH COMBUSTIBLE WALL OR CEILING. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.

INSTALLER ET UTILISER SEULEMENT SELON LES INSTRUCTIONS D'INSTALLATION ET D'UTILISATION DU FABRICANT. CONTACTER LES RESPONSABLES DU BÂTIMENT OU DU SERVICE INCENDIE DE VOTRE RÉGION POUR CONNAÎTRE LES RESTRICTIONS ET EXIGENCES D'INSPECTION DANS VOTRE RÉGION. UTILISER UN CONNECTEUR D'UN DIAMÈTRE MINIMAL DE 150 MM (6 PO) 24 MSG EN ACIER NOIR OU 26 MSG EN ACIER BRONZÉE AVEC CHEMINÉE PREFABRIQUÉE HOMOLOGUÉE UL103 HT CONÇUE POUR UTILISATION AVEC COMBUSTIBLES SOLIDES OU UNE CHEMINÉE DE MACONNERIE.

VOIR LE CODE DU BÂTIMENT LOCAL ET LES INSTRUCTIONS DU FABRICANT CONCERNANT LES PRÉCAUTIONS EXIGÉES POUR INSTALLER UNE CHEMINÉE TRAVERSANT UN MUR OU PLAFOND EN MATÉRIELS COMBUSTIBLES. NE FAITES PAS TRAVERSER LE CONNECTEUR DE CHEMINÉE DANS UN MUR OU PLAFOND EN MATÉRIELS COMBUSTIBLES. NE PAS RACCORDER PAS CE POÊLE À UN CONDUIT DE CHEMINÉE DESERVANT UN AUTRE APPAREIL.

MINIMUM ALLOWABLE CEILING HEIGHT: 2108 MM / 83". MAXIMUM ALLOWABLE CEILING HEIGHT: 2108 MM / 83". MAXIMUM ALLOWABLE CEILING HEIGHT: 2108 MM / 83".

MINIMUM CLEARANCES FOR HORIZONTAL CONNECTOR TO CEILING: 455 MM / 18".

THE SPACE BENEATH THE HEATER MUST NOT BE OBSTRUCTED. OPERATE ONLY WITH FIREBRICKS IN PLACE.

FOR USE WITH SOLID WOOD FUEL ONLY. USE OF OTHER FUELS MAY DAMAGE HEATER AND CREATE A HAZARDOUS CONDITION. DO NOT OBSTRUCT COMBUSTION AIR OPENINGS. OPERATE ONLY WITH FIREBRICKS IN PLACE. RISK OF SMOKE AND FLAME SPILLAGE, OPERATE ONLY WITH DOORS FULLY CLOSED. IF INSTALLED IN A MOBILE HOME OPERATE ONLY WITH DOORS FULLY CLOSED - OPEN FEED DOOR TO FEED FUEL ONLY. DO NOT USE GRATE OR ELEVATOR FIRE. BURNED WOOD FIRE DIRECTLY ON GRATE, DO NOT OVERFIRE - IF HEATER OR CHIMNEY CONNECTOR GLOWS YOU ARE OVERFIRING. INSPECT AND CLEAN CHIMNEY AND CONNECTOR FREQUENTLY UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILDUP MAY OCCUR RAPIDLY. KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIAL AWAY FROM HEATER. REPLACE GLASS ONLY WITH NECOGRAM GLASS. COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING BENEATH THE HEATER AND TO THE FRONT AND SIDES AS INDICATED OR TO THE NEAREST PERMITTED COMBUSTIBLE MATERIAL.

OPTIONAL COMPONENT: FAN PART #07517, ELECTRICAL RATING: VOLTS 115, 60 HZ, 2 AMPS
DANGER, RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT ROUTE POWER CORD UNDER OR IN FRONT OF APPLIANCE.
COMPONENTS REQUIRED FOR MOBILE HOME INSTALLATION: OUTSIDE AIR KIT

IN CANADA: LISTED ULCS 629 CHIMNEY. USE CHIMNEY COMPONENTS AS SPECIFIED IN INSTALLATION INSTRUCTIONS
WARNING: ONLY USE LISTED REGENCY OPTIONS SUCH AS LEGS, ARMATURE, FAN AS SHOWN IN THE INSTALLATION MANUAL.
CAUTION: BURNING OF MATERIALS OTHER THAN SPECIFIED MAY CAUSE DAMAGE TO THE UNIT.
CAUTION: MOVING PARTS MAY CAUSE INJURY.

IN USA: LISTED UL 103 HT CHIMNEY
TO BE INSTALLED AS A FREESTANDING ROOM HEATER WITH THE CLEARANCES IN THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. NOT TO BE INSTALLED IN ANY FIREPLACE.

HAUTEUR MINIMALE DU PLAFOND DE L'ALCÔVE : 2108 MM / 83 PO PROFONDEUR MAXIMALE DE L'ALCÔVE : 915 MM / 36 PO
DÉGAGEMENT MINIMAL DU PLAFOND POUR UN CONNECTEUR HORIZONTAL : 455 MM / 18 PO.

L'ESPACE AU-DESSOUS DU POÊLE NE DOIT PAS ÊTRE OBSTRUÉ. UTILISER SEULEMENT AVEC LES BRIQUES RÉFRACTAIRES EN PLACE.

POUR UTILISATION AVEC BOIS SOLIDE SEULEMENT. L'UTILISATION D'AUTRES COMBUSTIBLES PEUT ENDOMMAGER LE POÊLE ET CRÉER UNE CONDITION DANGEREUSE. NE PAS ALLUMER D'AUTRE TYPE DE COMBUSTIBLE QUE LE BOIS. NE PAS SURCHAUFFER. OUVRIER LA PORTE DE CHARGEMENT POUR ALIMENTER LE FEU SEULEMENT. NE PAS UTILISER DE GRILLE À BûCHES NI SURÉLÉVER LE FEU. MONTER LE FEU DE BOIS DIRECTEMENT SUR L'ÂTRE. NE PAS SURCHAUFFER - SI LE POÊLE OU LE CONNECTEUR DE CHEMINÉE SE MET À ROUGIR, VOUS SURCHAUFFEZ. INSPECTEZ ET NETTOYEZ FRÉQUEMMENT LA CHEMINÉE ET LE CONNECTEUR EN CERTAINES CONDITIONS D'UTILISATION, UN DÉPÔT DE CRÉOSOTE PEUT SE FORMER RAPIDEMENT. GARDEZ LES MEUBLES ET AUTRES MATÉRIELS COMBUSTIBLES ÉLOIGNÉS DU POÊLE. REMPLACEZ LA VITRE SEULEMENT PAR DU VERRE EN NECOGRAM. LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR DES MATÉRIELS NON COMBUSTIBLES DÉPASSANT DU ESPACE, DU DEVANT ET DES CÔTÉS DU POÊLE. TOUT, QU'IL SOIT LIQUIDE, OU JUSQU'AU MATÉRIEL COMBUSTIBLE LE PLUS PRÈS PERMIS. COMPOSANTS EN OPTION : VENTILATEUR, ALIMENTATION ÉLECTRIQUE : 115 VOLTS, 60 Hz, 2 AMP.

DANGER : RISQUE D'ELECTROCUTION. DÉCONNECTER L'ALIMENTATION ÉLECTRIQUE AVANT DE FAIRE L'ENTRETIEN DU POÊLE. NE PAS INSTALLER LE CORDON ÉLECTRIQUE SOUS OU DEVANT L'APPAREIL.

COMPOSANTS EXIGÉS POUR INSTALLATION DANS UNE MAISON MOBILE : KIT DE PRISE D'AIR EXTÉRIEUR.

AU CANADA : CHEMINÉE HOMOLOGUÉE ULCS 629. UTILISER LES PIÈCES DE LA CHEMINÉE TELLE QUE SPÉCIFIÉ DANS LES CONSIGNES D'INSTALLATION.

ÉTATS-UNIS : CHEMINÉE HOMOLOGUÉE UL103 HT.

À L'INSTALLER COMME CHAUFFAGE AUTOPORTANT SELON LES DÉGAGEMENTS INDIOUÉS DANS LE MANUEL D'INSTALLATION DU FABRICANT. NE PAS INSTALLER DANS UN FOYER.

AVERTISSEMENT : UTILISER SEULEMENT LES OPTIONS HOMOLOGUÉES PAR REGENCY COMME LES PATTES, LE DIFFUSEUR AIRMAITE. LE VENTILATEUR COMME ILLUSTRÉ DANS LE MANUEL D'INSTALLATION.

ATTENTION : COMBUSTION DE TOUT MATÉRIEL NON SPÉCIFIÉ PEUT ENDOMMAGER L'APPAREIL.

ATTENTION : LE DÉPLACEMENT DES PIÈCES PEUT ENTRAÎNER DES BLESSURES.

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS
DÉGAGEMENTS MINIMUMS AUX MATÉRIELS COMBUSTIBLES

F1150-1 WITH REAR DEFLECTOR OR AIRMAITE

MEASURE FROM	HEATER	FLUE CENTER-LINE
RESIDENTIAL INSTALLATION USING SINGLE WALL CONNECTOR		
SIDEWALL	A 330 mm / 13 in	D 585 mm / 25 in
BACKWALL	B 267 mm / 10.5 in	E 433 mm / 17-1/16 in
CORNER	C 229 mm / 9 in	F 532 mm / 21 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - MOBILE HOME		
SIDEWALL	A 279 mm / 11 in	D 584 mm / 23 in
BACKWALL	B 178 mm / 7 in	E 345 mm / 13-9/16 in
CORNER	C 127 mm / 5 in	F 432 mm / 17 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - RESIDENTIAL CLOSE CLEARANCE		
SIDEWALL	A 279 mm / 11 in	D 584 mm / 23 in
BACKWALL	B 178 mm / 7 in	E 345 mm / 13-9/16 in
CORNER	C 127 mm / 5 in	F 432 mm / 17 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - ALCOVE		
SIDEWALL	G 279 mm / 11 in	I 584 mm / 23 in
BACKWALL	H 178 mm / 7 in	J 345 mm / 13-9/16 in

FLOOR PROTECTION*
PROTECTION DE PLANCHER*

K 405 mm / 16 in (USA)
K 447 mm / 18 in (CANADA)

L 200 mm / 8 in
M 200 mm / 8 in

* In Canada, floor protection must extend 18" (450mm) to the front and 8" (200mm) to each side and back of the stove.

* Au Canada, la protection de plancher doit dépasser de 18 po (457 mm) à l'avant et de 8 po (200 mm) de chaque côté du poêle et derrière le poêle.

CAUTION

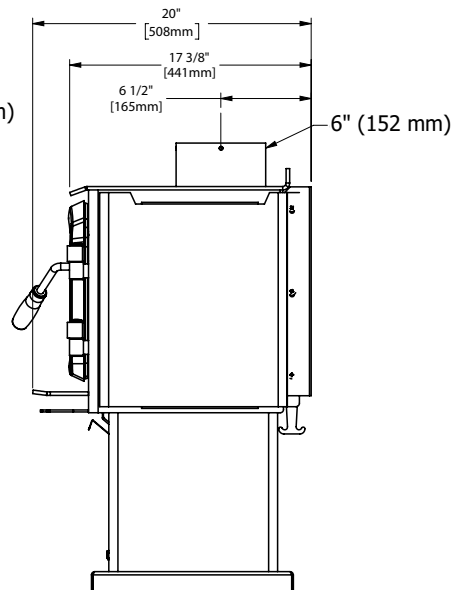
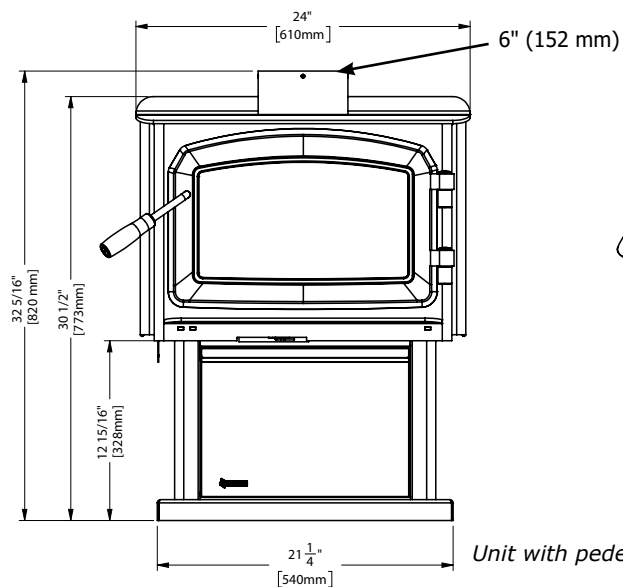
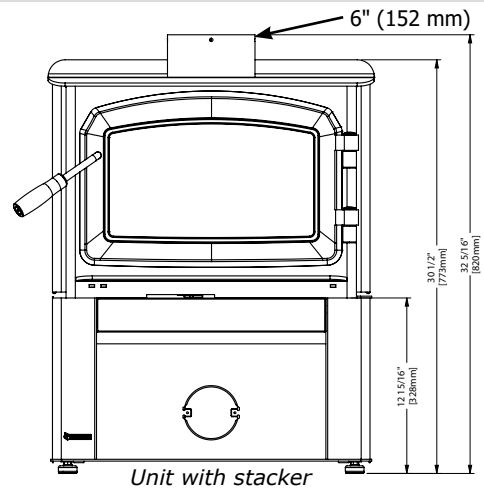
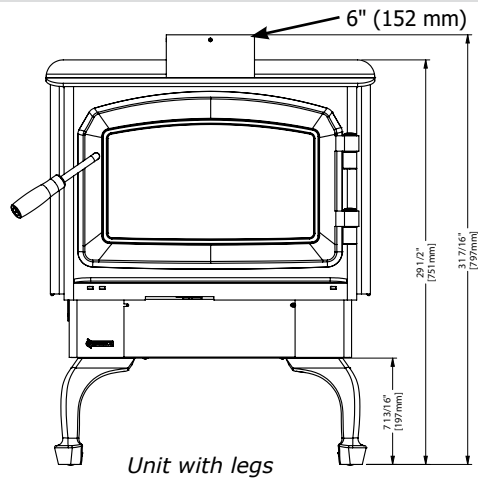
HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ NAMEPLATE AND INSTRUCTIONS.

ATTENTION

CHAUD EN COURS DE FONCTIONNEMENT. NE PAS TOUCHER. ÉLOIGNER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES DE L'APPAREIL. LE CONTACT AVEC L'APPAREIL PEUT CAUSER DES BRÛLURES. LIRE CETTE ÉTIQUETTE ET LES CONSIGNES.

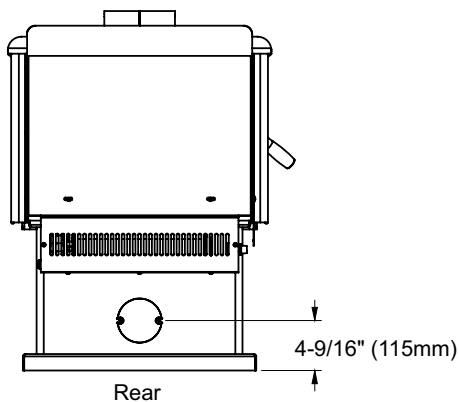
MANUFACTURED BY/FABRIQUÉ PAR :

Unit Dimensions

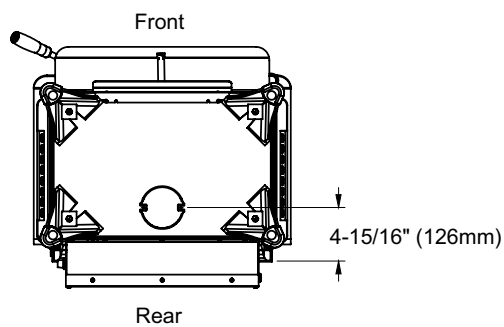


Outside Air Dimensions

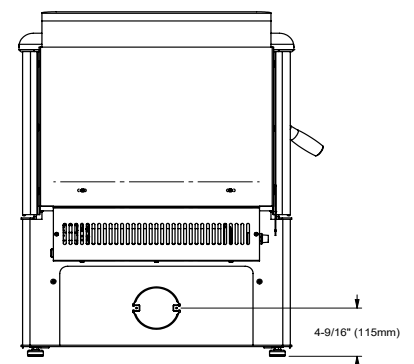
With Pedestal



With Bottom Heat Shield + Legs



With Wood Stacker



installation

1. Please read this entire manual before you install and use your new woodstove. Failure to follow instructions may result in property damage, bodily injury or even death. Be aware that local Codes and Regulations may override some items in this manual. Check with your local inspector.

WARNING: DO NOT INSTALL THE FREESTANDING WOODSTOVE IN ANY FIREPLACE.

2. Select a position for your Regency Stove. Consult the minimum clearance chart for your model and set the stove in place. For installation use listed double wall connector systems only.
3. To insure vertical alignment, suspend a plumb bob from the ceiling over the exact center of your stove flue and mark a spot on the ceiling to indicate the center of the chimney.
4. Check that the area above the ceiling is clear for cutting. Re-confirm the clearance from the stove to combustibles to insure that they are within the prescribed limits.
5. This woodstove must be connected to a UL 103 HT (ULC S629) listed chimney or a code approved masonry chimney with a flue liner.
Space heater is to be connected to a factory built chimney conforming to CAN/ULC-5629 standard for 650C factory built chimneys. The chimney requirement is 6", refer to appropriate sections in this manual for specifics.
6. Install chimney according to chimney manufacturers instructions. The performance of your woodstove is governed to a very large part by the chimney system. Too short a chimney can cause difficult start-up, dirty glass, back smoking when door is open, and even reduced heat output.

WHEN THIS ROOM HEATER IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THE INSTALLATION INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

CAUTION:

Do not alter or makeshift chimney or install. Install as per Manual.

Too tall a chimney may prompt excessive draft which can result in very short burn times and excessive heat output. The use of an inexpensive flue pipe damper may be helpful in reducing excessive draft.

CAUTION: The chimney should be the same size as the 6" flue outlet on the stove. The chimney must be listed as suitable for use with solid fuels. For other types of chimneys check with your local building code officials. Do not confuse a chimney with a type "B" Venting System used for gas appliances as suitable for a wood burning appliance. For Mobile Home installations refer to that section within this manual.

7. Mark the location of the pedestal base or legs on the floor, then move the stove aside and mark the position of the floor protector.
8. The floor protector must be of non-combustible material and must extend 16" (406mm) (USA) in front of the door opening and 8" (203mm) to the sides and rear of the unit. Some areas may require a larger size floor protector. See your local inspector. For outside air installation refer to Mobile Home installation instructions within this manual.

NOTE: In Canada, floor protection must extend 18" (450mm) to the front and 8" (203mm) to each side and back of the stove.

9. When the floor protection is complete, position the stove with the flue collar centered under the installed chimney.

Room Air - Important

For installation using room air for combustion, remove knockout from the pedestal. Mobile home installations require the use of outside air.

Fresh air is important - if heater is starved for air caused by exhaust fans or icing, the unit will not operate properly. Adequate air is required.

On pedestal units there are two locations where outside air may be adapted to the unit. If using the bottom of the pedestal, do not remove knockout from the rear of the pedestal. Only remove rear knockout if outside air will be brought in from the rear.

Note: Once the knockout is removed there are two tabs remaining. Bend both tabs out for ease of installation of outside air kit.

10. In areas with frequent seismic activity, Regency recommends that your unit is secured to the floor by using the bolt down holes inside the pedestal (the same ones used in Mobile Home installations).

NOTES

- **Do not install the chimney directly at the outlet of the appliance. A chimney connector (flue pipe) is required unless the appliance is specifically approved for that type of installation.**
- **In Canada installation shall be in accordance with CSAB365, Installation Code for Solid-Fuel-Burning Appliances and Equipment, building codes, and standards that apply to the structure where the space heater is installed.**

11. For residential installations 6" (152 mm) (single wall OK) double wall chimney, the chimney connector must be at least 24 gauge steel. Do not use galvanized pipe. For Mobile Home installation refer to the Mobile Home installation instructions within this manual.

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

13. A chimney connector cannot pass through an attic or roof space, closet or similar concealed space, or a floor, ceiling, wall or partition of combustible construction. In Canada, if passage through a wall, or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365, Installation Code for Solid-Fuel-Burning Appliances and Equipment.
14. Your Regency Woodstove is not to be connected to any air distribution duct.
15. To be installed as a freestanding space heater with the clearances in the manufacturer's installation instructions. "Not to be installed in any fireplace."
16. Room heaters intended for use in mobile homes are to be installed in accordance with the Mobile Home Construction and Safety Standards published by the Department of Housing and Urban development (HUB).

IMPORTANT:

During the first few fires, a white film may develop on the glass front as part of the curing process. **The glass should be cleaned** or the film will bake on and become very difficult to remove. Use a non-abrasive cleaner and **NEVER** clean the glass while it is hot.

NOTE: In Canada, chimney must be removed for transportation of a transportable building.

CAUTION: Do not alter or makeshift chimney or install. Install as per Manual.

IMPORTANT:

Smoke and CO Detectors:

Make sure your home has a working smoke and CO detector, especially near any bedrooms. We recommend having a smoke and CO detector in the same room as the wood appliance for additional safety. Location of both detectors should be chosen wisely to avoid false alarms when reloading the appliance.

Fire Extinguisher:

A fire extinguisher should be installed in the home. The location of the fire extinguisher should be known by all family members.

Modular Installation Options - **WARNING: ONLY USE SPECIFIED COMPONENTS.**

The following items are required when assembling your Regency Stove. F1150-1 unit - the Rear Heat Deflector is supplied with the stove, but if you choose not to use it you must use the Airmate instead.

Modular Part	See the Minimum Clearance to Combustible Materials chart in the Installation section of this manual.
F1150-1 Airmate OR Rear Heat Deflector	Convection heat with Airmate vs. Radiant Heat with Rear Heat Deflector. The Airmate pushes heat forward out into the room, the Rear Heat Deflector deflects the heat upward. Refer to the Installation sections within this manual.
OPTIONS:	
Blower/Fan	Adding the blower will increase the area heated by the stove, it can move warm air beyond the room where the stove.
Ash Drawer Kit	Adding the Ash Drawer Kit makes cleaning ashes out of the stove easier and cleaner (refer to Bottom Shield Ash Drawer Kit, Installation section).
Airmate	The Airmate pushes heat forward out into the room.
Outside Air Kit	Draw combustion air from the outside of dwelling.
Bottom heat shield + legs	Used instead of pedestal or wood stacker.
Pedestal	Used instead of heat shield and legs or wood stacker.
Wood Stacker	Used instead of pedestal or heat shield and legs.

installation

Stove Assembly Prior to Installation

The F1150-1 unit requires the pedestal/wood stacker or heat shield and legs to be attached to the base. The F1150-1 stove requires either the Airmate or Rear Heat Deflector on top of the stove. Clearances to combustible materials vary depending on whether the airmate or rear heat deflector is installed, so be sure to check the Minimum Clearances, Installation section.

Airmate Assembly for F1150-1

1. The airmate sits on top of the stove with the slots in the sides fitting over the curved deflector on the rear stove top. See diagram 1. Discard the Rear Heat Deflector that is supplied with the unit, it is not required if the airmate is installed.
2. Center the airmate and push it forward to the front of the stove. The back of the airmate should be level with the back and sides of the rear heat shield. See Diagrams 2 & 3.

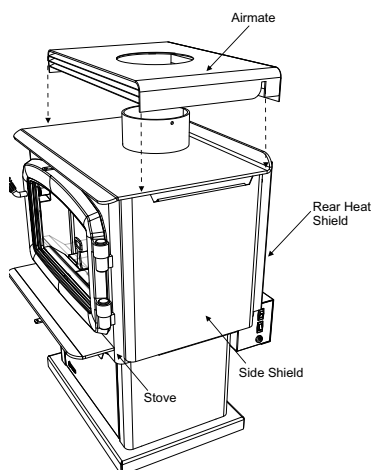


Diagram 1

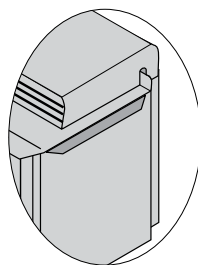


Diagram 2

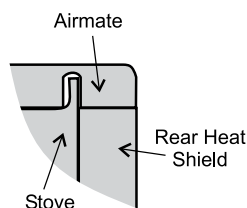


Diagram 3

Rear Heat Deflector Assembly for F1150-1

The rear heat deflector is supplied with the stove and must be installed unless the optional airmate has been selected. It stops the heat radiated from the flue collar from overheating the rear wall. The rear heat deflector is installed on top of the rear heat shield, as shown in Diagram 4.

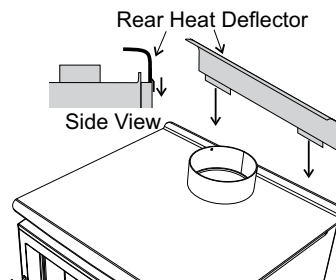
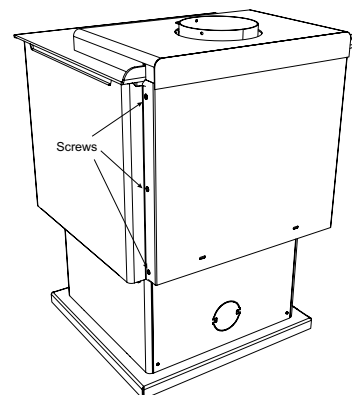


Diagram 4

Side Shield Adjustment

The left and right side shields are lowered for shipping and handling. It allows for a handhold on the top of the stove. Before placing the stove in its final position, the side shields must be raised.

Loosen the screws on the rear on the stove (3 per side), slide the side panel up as far as possible and then secure by tightening the screws.

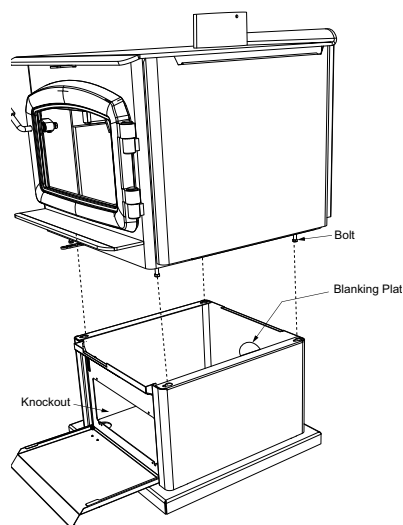


Pedestal Assembly Installation

1. For easier assembly, tip the stove on its back (onto a soft surface to prevent scratching) and remove the front cover.

Hint: If you have chosen the Ash Drawer option, remove the ash dump cover plates before attaching the pedestal (refer to the Ashdrawer Kit Installation section).

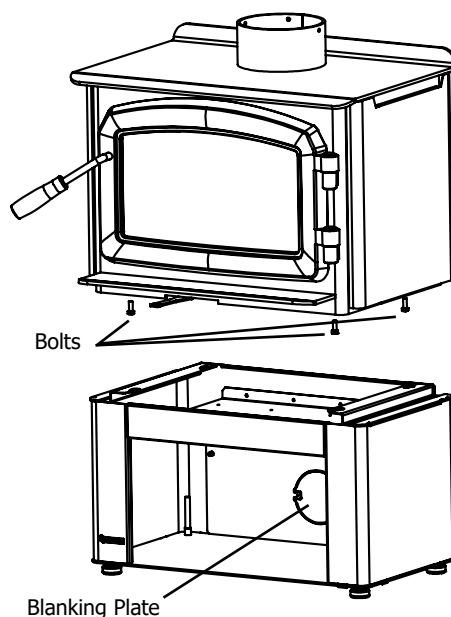
2. Important: Remove the blanking plate if:
 - a) you are not installing outside combustion air or
 - b) outside air is to be brought in from the rear of the stove (see below).
3. Using the 4 supplied 5/16" bolts in the underside of the stove, insert the bolts loosely onto the threads located at all 4 corners of the base of the unit. Align the holes in the corners of the pedestal top with the corresponding bolts in the base of the stove. Tighten each bolt from inside the pedestal.



Shown with Classic door

Wood Stacker Assembly Installation

1. For easier assembly, tip the stove on its back (onto a soft surface to prevent scratching).
2. **Important: Prior to installing the wood stacker assembly remove the 4 inch blanking plate. See below. This must be removed for combustion air to enter the appliance.**
3. Using the 4 supplied 5/16" bolts in the underside of the stove, insert the bolts loosely onto the threads located at all 4 corners of the base of the unit. Align the holes in the corners of the Wood Stacker top with the corresponding bolts in the base of the stove. Tighten each bolt from inside the Wood Stacker.

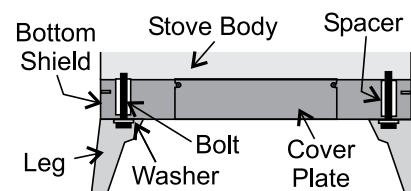
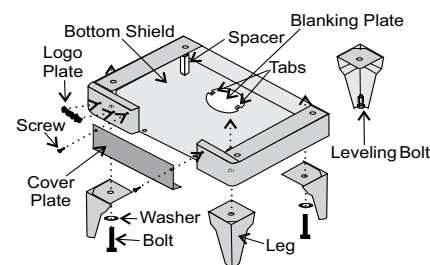


Bottom Heat Shield and Legs Installation

The instructions below apply to the painted cast leg. It will be easier to attach the legs to the stove if the stove is tipped on its back (preferably on a soft surface to prevent scratching). Ensure to be extremely careful when tipping stove.

Important: Prior to installing the bottom heat shield, remove the 4 inch blanking plate. See below. This must be removed for combustion air to enter the appliance.

1. Remove the bolts from underside of the base of the pedestal (if installed) and discard. Also remove cover plate and put to the side.
2. Line up the heat shield with the bottom of the unit.
3. Start threading the bolt and washer (washers may be square/round) (supplied with the bottom shield) for about 1/4 of the way through the leg with the washers being underneath the legs. Ensure that the legs are properly aligned with heat shield and tighten the bolts.
4. Level the stove by adjusting the levelling bolts in the bottom of each leg.
5. Reinstall cover plate if not using ash drawer option.

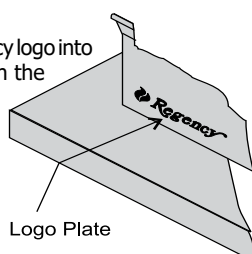


6. Install logo plate onto heat shield by placing in 2 holes as shown in diagram.

If you are installing outside combustion air, bend the tabs out 90 degrees. Pipe fresh air into the bottom shield by using a minimum 4" duct pipe with a mesh grill at the outside termination. Attach the pipe to the 2 tabs with screws.

Logo Installation

1. Push the Regency logo into the two holes in the front bottom left corner of the pedestal cover plate.



Note: Any paint touch up should be done prior to placing logo on pedestal.

2. If not using ash drawer, then the front cover must remain in place. If using ash drawer, then remove the front cover.

installation

Room Air - Important

For installation using room air for combustion, remove knockout from the pedestal or wood stacker, and/or from the bottom if using a heat shield. Mobile home installations require the use of outside air.

On pedestal units there are two locations where outside air may be adapted to the unit. If using the bottom of the pedestal, do not remove knockout from the rear of the pedestal. Only remove rear knockout if outside air will be brought in from the rear.

On wood stacker units, outside air can only be brought in from the rear of the wood stacker. If using the bottom heat shield & legs, can only be installed from below.

Note: Once the knockout is removed from the blanking plate, there are two tabs remaining. Bend both tabs out for ease of installation when attaching outside air.

See previous page for location of the 4" (102 mm) blanking plate.

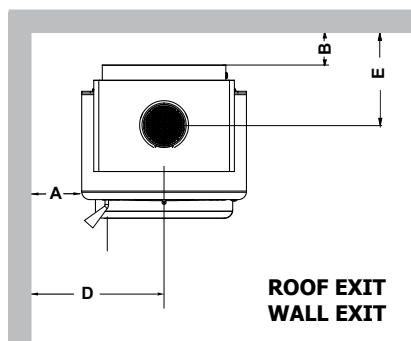
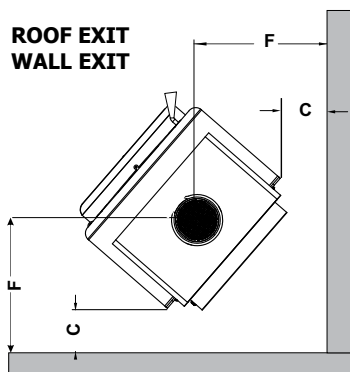
Minimum Clearance to Combustible Materials

Please read the section below carefully as clearances depend on whether single wall or double wall pipe is installed on the stove. Measurements "From Unit" are from the side heat shields of the stove to a side wall or to a corner, and from the rear heat shield to a back wall.

Clearances may only be reduced by means approved by the regulatory authority.

Note: Minimum ceiling height - 83" (2108mm) (Measured from base of appliance)

Note: This clearance is also required for air space between the appliance and wall/ceiling.



NOTE: Be aware that local Codes and Regulations may override some clearances listed in this manual. Check with your local inspector.

NOTE: Clearances to combustibles are for the safety of the property. To avoid overheating and damaging the appliance these clearances should be maintained for non-combustibles also.

Residential Installation "C" Vent (Single Wall Pipe)

F1150-1	with Airmate or Rear Deflector	A	B	C	D	E	F
		13" 330mm	10-1/2" 267mm	9" 229mm	25" 635mm	17-1/16" 433mm	21" 532mm

Residential Close Clearance (To be installed with required pipe components) Listed Double Wall Pipe

When the stove is installed as a close clearance residential unit, a listed double wall connector is required from the stove collar to the ceiling level.

F1150-1	with Airmate or Rear Deflector	A	B	C	D	E	F
		11" 279mm	7" 178mm	5" 127mm	23" 584mm	13-9/16" 345mm	17" 432mm

Mobile Home Close Clearance (To be installed with required pipe components) Listed Double Wall Pipe

When the stove is installed as a close clearance residential unit, a listed double wall connector is required from the stove collar to the ceiling level. Refer to Mobile Home Installation in this manual.

F1150-1	with Airmate or Rear Deflector	A	B	C	D	E	F
		11" 279mm	7" 178mm	5" 127mm	23" 584mm	13-9/16" 345mm	17" 432mm

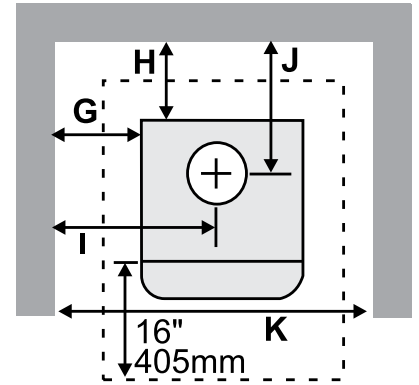
installation

Minimum Alcove Clearance and Clearance to Combustible Materials

The Regency Freestanding models have been alcove approved and must be installed with a listed double wall connector to the ceiling level. Single wall pipe (C Vent) is not approved for alcoves.

Note: Minimum alcove ceiling height - 83" (2108mm)
Maximum depth of alcove - 36" (914mm)

NOTE: This clearance is also required for air space between the appliance and wall/ceiling.



Unit	From Unit		From Flue Center-Line		From Wall
	G	H	I	J	K
F1150-1 with Airmate or Rear Deflector	11" (279mm)	7" (178mm)	23" (584mm)	13-9/16" (345mm)	46" (1168mm)

Floor Protection

(Ember Protection Only Required)

A combustible floor must be protected by a non-combustible material (like tile, concrete board, or certified to UL-1618 Type 1 (or as defined by local codes).

Canada: Beneath the heater and extending to at least 18" (457 mm) on the fuel loading side and at least 8" (203 mm) on the sides and back.

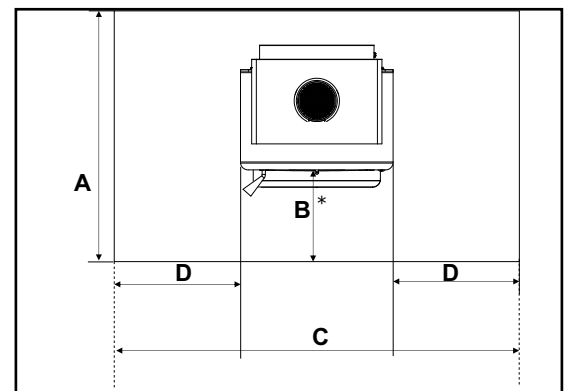
USA: Beneath the heater and extending to at least 16" (405 mm) beyond the fuel loading side and ash removal opening and at least 8" (203mm) on the sides and back and under the chimney connector extending 2" (51mm) beyond each side for horizontal applications.

Note: The measurements for floor protection for front are taken from fuel door opening & sides are taken from the unit heat shield. Where the appliance is installed less than 8" (203 mm) from a rear wall, the ember pad only needs to extend to the base of the wall based on the clearances noted in this manual.

Where the appliance is installed less than 8" from a rear wall, the ember pad only needs to extend to the base of the wall based on the clearances noted in this manual.

Note: Side & Rear measurements are taken from unit heat shield.

*Front measurement (B) is taken from fuel door opening.



Minimum Overall Depth of Floor Protector					
Unit		Hearth Depth	Edge of Fuel door opening to edge of hearth	Hearth Width	From Unit Side Heat Shield
		A	B	C	D
F1150-1	Canada	42" (1067mm)	18" (457mm)	39-3/8" (1000mm)	8" (203mm)
	USA	40" (1016mm)	16" (406mm)	39-3/8" (1000mm)	8" (203mm)

Floor Protection (Corner Installation) (Ember Protection Only Required)

A combustible floor must be protected by non-combustible material (like tile, concrete board, or certified to UL-1618 Type 1 (or as defined by local codes) extending beneath the heater and a minimum of 8" (203mm) from each side and minimum 16" (406mm)** from the front face of the stove and minimum 8" (203mm) (or the rear clearance to combustibles whichever is smaller) from the rear of the stove.

When installed with horizontal venting, non-combustible floor protection must beneath the flue pipe and extend 2" (51mm) beyond each side.

Minimum Overall Width (X) of Floor Protector for all installations:

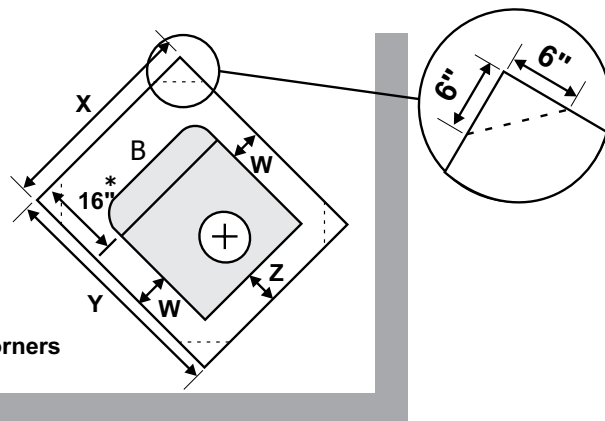
Stove F1150-1 39-3/8" (1000mm)

Note: The measurements for floor protection for front are taken from fuel door opening & sides are taken from the unit heat shield. Where the appliance is installed less than 8" (203 mm) from a rear wall, the ember pad only needs to extend to the base of the wall based on the clearances noted in this manual.

Note: Side & Rear measurements are taken from unit heat shield.

*Front measurement (B) is taken from fuel door opening.

for angled corners



****NOTE:** In Canada, floor protection must extend 18" (457mm) to the front and 8" (203mm) to back of the stove.

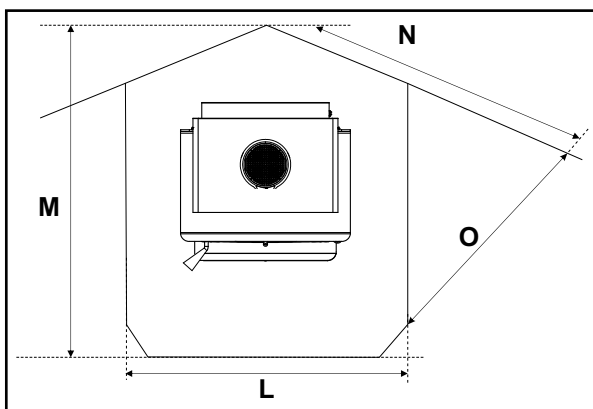
Minimum Overall Depth (Y) of Floor Protector

Unit	Residential "C" Vent		From Unit Side Heat Shield
	Y	Z	W
F1150-1	Canada - 42" (1067mm) USA - 40" (1016mm)	8" (2032mm)	8" (203mm)

Minimum Overall Depth (Y) of Floor Protector - Corner Hearth

Reference only when hearth pad is installed to rear wall at minimum pipe clearances.

	Hearth Depth			
F1150-1	L	M	N	O
Residential Installation "C" Vent (Single Wall)				
Canada	39-3/8" (1000mm)	57-3/16" (1453mm)	50-1/8" (1273mm)	22-1/4" (565mm)
USA	39-3/8" (1000mm)	55-3/16" (1402mm)	48-11/16" (1237mm)	20-7/8" (530mm)
Residential Close Clearance (To be installed with required pipe components)				
Canada	39-3/8" (1000mm)	51-1/2" (1308mm)	46-1/8" (1172mm)	18-1/4" (464mm)
USA	39-3/8" (1000mm)	49-1/2" (1257mm)	44-11/16" (1135mm)	16-7/8" (429mm)



installation

This stove may be connected to a lined masonry chimney or a listed factory built chimney suitable for use with solid fuels and conforming to ULC629 in Canada or UL-103HT in the USA. Do not connect it to a chimney serving another appliance. To do so will affect the safe operation of both appliances, and will void the stove warranty. You must comply with the local authority having jurisdiction and/or in Canada, CSA installation standard B365-M87.

The chimney connector must be 6" diameter, 24 MSG Black/Blue steel. Do not use aluminum or galvanized steel, they cannot properly withstand the extreme temperatures of a wood fire. The chimney connector between the stove and the chimney should be as short and direct as possible.

The chimney connector must be attached to either an approved masonry chimney or one of the listed factory built chimneys suitable for use with solid wood fuel. All joints must be tight and fastened with sheet metal screws.

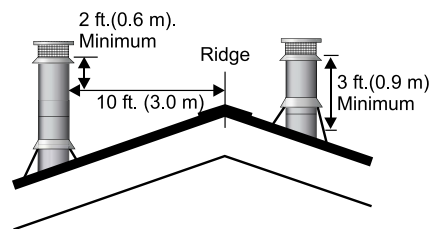
⚠ WARNING

THE CHIMNEY CONNECTOR IS TO BE USED ONLY WITHIN THE ROOM, BETWEEN THE STOVE AND CEILING/WALL. NEVER USE A CHIMNEY CONNECTOR TO PASS THROUGH AN ATTIC OR ROOF SPACE, CLOSET OR SIMILAR CONCEALED SPACE, OR A FLOOR, OR CEILING. AN EFFECTIVE VAPOR BARRIER MUST BE MAINTAINED AT THE LOCATION WHERE THE CHIMNEY OR COMPONENT PENETRATES TO THE EXTERIOR OF THE STRUCTURE. ALWAYS MAINTAIN THE MINIMUM CLEARANCES TO COMBUSTIBLES AS REQUIRED BY THE APPLICABLE BUILDING CODES.

Step-by-Step Chimney and Connector Installation

Note: These are a generic set of chimney installation instructions. Always follow the manufacturers own instructions explicitly. Check the Minimum Recommended Flue Heights section (Table 1).

1. With your location already established, cut and frame the roof hole. It is recommended that no ceiling support member be cut for chimney and support box installation. If it is necessary to cut them, the members must be made structurally sound.
2. Install radiant shield and support from above.
3. Stack the insulated pipe onto your finish support to a minimum height of 3 feet above the roof penetration, or 2 feet above any point within 10 feet measured horizontally. There must be at least 3 feet of chimney above the roof level.



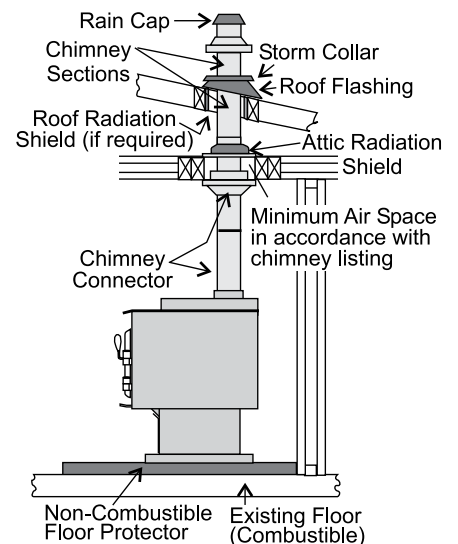
Note: Increasing the chimney height above this minimum level will sometimes help your unit to "breathe" better by allowing a greater draft to be created. This greater draft can decrease problems such as, difficult start-ups, back-smoking when door is open, and dirty glass. It might be sufficient to initially try with the minimum required height, and then if problems do arise add additional height at a later date.

4. Slide the roof flashing over your chimney and seal the flashing to the roof with roofing compound. Secure the flashing to your roof with nails or screws.
5. Place the storm collar over the flashing, sealing the joints with a silicone caulking.
6. Fasten the raincap with spark screens (if required) to the top of your chimney.
7. To complete your chimney installation, install the double wall connector pipe from the stove's flue collar to the chimney support device.

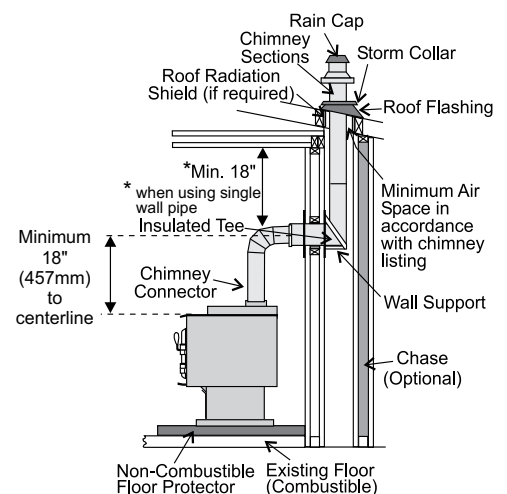
8. If you are using a horizontal connector, the chimney connector should be as high as possible while still maintaining the 18" (457mm) minimum distance from the horizontal connector to the ceiling.

9. NOTE: Residential Close Clearance and Alcove installations require a listed double wall connector from the stove collar to the ceiling level.

The diagrams below illustrate one way to install your unit into a standard ceiling or with a horizontal connector. Check with your dealer or installer for information on other options available to you.



Standard Ceiling Installation



Horizontal Installation

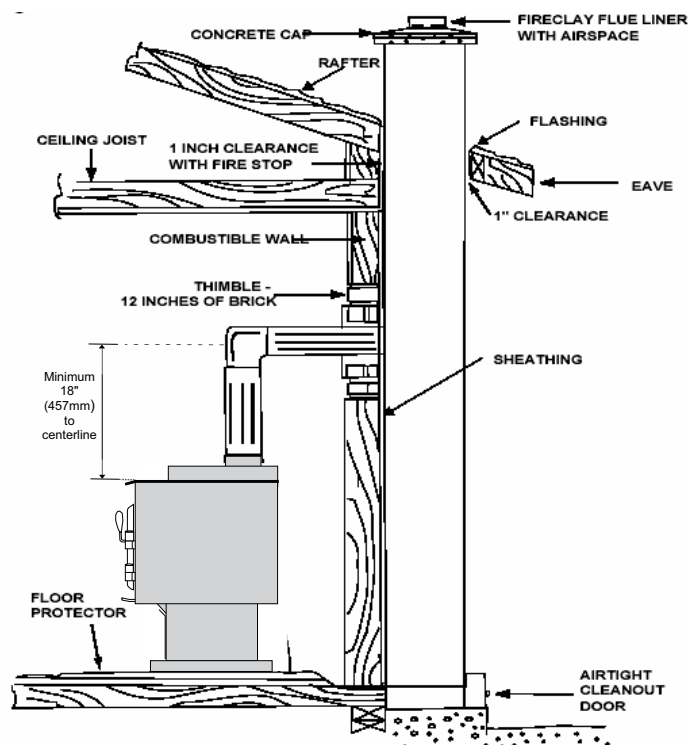
Masonry Chimney

Ensure that a masonry chimney meets the minimum standards of the National Fire Protection Association (NFPA) by having it inspected by a professional. Make sure there are no cracks, loose mortar or other signs of deterioration and blockage. Have the chimney cleaned before the stove is installed and operated. When connecting the stove through a combustible wall to a masonry chimney, special methods are needed.

Ensure that an effective vapour barrier at the location where the chimney or other component penetrates to the exterior of the structure.

When referencing installation or connection to masonry fireplaces or chimneys, the masonry construction must or shall be code complying.

This unit is designed to use either a 5.5" (140mm) or 6" (152mm) flue liner only in the confines of the masonry chimney.



Masonry Fireplace

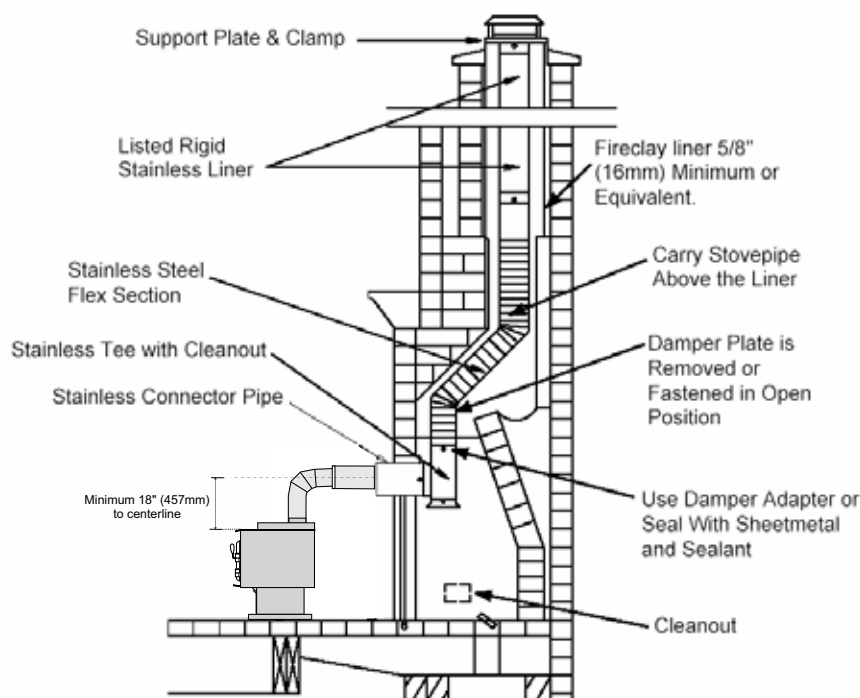
There are listed kits available to connect a stove to a masonry fireplace. The kit is an adaptor that is installed at the location of the fireplace damper. The existing damper may have to be removed to allow installation.

Ensure that an effective vapour barrier at the location where the chimney or other component penetrates to the exterior of the structure.

This unit is designed to use either a 5.5" (140mm) or 6" (152mm) flue liner only in the confines of the masonry chimney as shown.

When referencing installation or connection to masonry fireplaces or chimneys, the masonry construction must or shall be code complying.

This unit is designed to use either a 5.5" (140mm) or 6" (152mm) flue liner only in the confines of the masonry chimney.



Factory Built Chimney

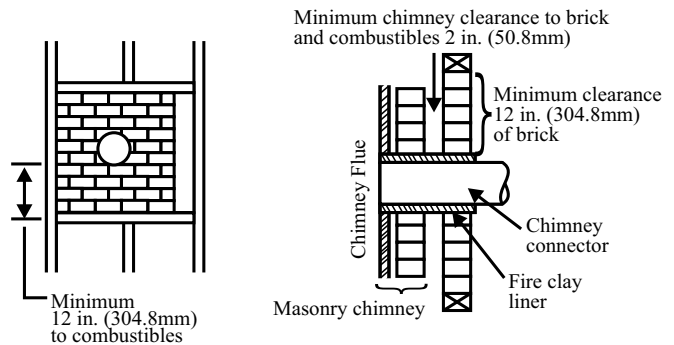
When a metal prefabricated chimney is used, the manufacturer's installation instructions must be followed. You must also purchase and install the ceiling support package or wall pass-through and "T" section package, firestops (where needed), insulation shield, roof flashing, chimney cap, etc. Maintain proper clearance to the structure as recommended by the manufacturer. The chimney must be the required height above the roof or other obstructions for safety and proper draft operation. The space heater is to be connected to a factory-built chimney conforming to CAN/ULC-S629, Standard for 650°C Factory-Built Chimneys.

installation

Combustible Wall Chimney Connector Pass-throughs

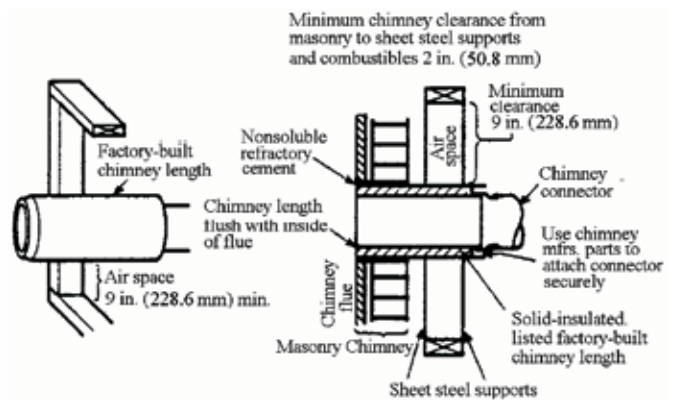
Method A: 12" (304.8 mm) Clearance to Combustible Wall Member:

Using a minimum thickness 3.5" (89 mm) brick and a 5/8" (15.9 mm) minimum wall thickness clay liner, construct a wall pass-through. The clay liner must conform to ASTM C315 (Standard Specification for Clay Fire Linings) or its equivalent. Keep a minimum of 12" (304.8 mm) of brick masonry between the clay liner and wall combustibles. The clay liner shall run from the brick masonry outer surface to the inner surface of the chimney flue liner but not past the inner surface. Firmly grout or cement the clay liner in place to the chimney flue liner.



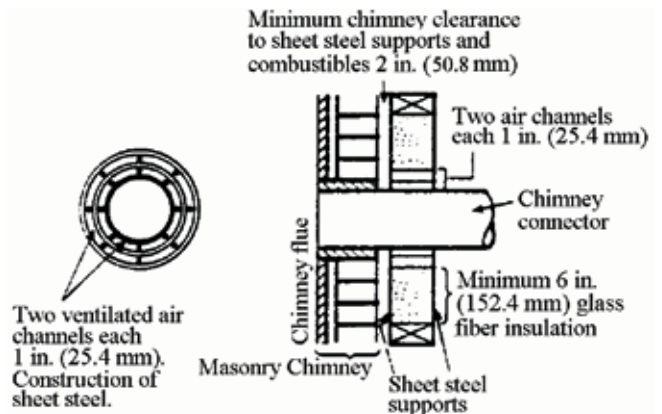
Method B: 9" (228.6 mm) Clearance to Combustible Wall Member:

Using a 6" (152.4 mm) inside diameter, listed, factory-built Solid-Pak chimney section with insulation of 1" (25.4 mm) or more, build a wall pass-through with a minimum 9" (228.6 mm) air space between the outer wall of the chimney length and wall combustibles. Use sheet metal supports fastened securely to wall surfaces on all sides, to maintain the 9" (228.6 mm) air space. When fastening supports to chimney length, do not penetrate the chimney liner (the inside wall of the Solid-Pak chimney). The inner end of the Solid-Pak chimney section shall be flush with the inside of the masonry chimney flue, and sealed with a non-water soluble refractory cement. Use this cement to also seal to the brick masonry penetration.



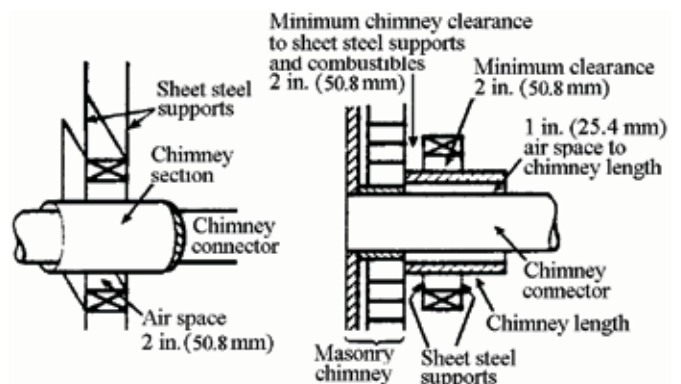
Method C: 6" (152.4 mm) Clearance to Combustible Wall Member:

Starting with a minimum 24 gage (.024" [.61 mm]) 6" (152.4 mm) metal chimney connector, and a minimum 24 gage ventilated wall thimble which has two air channels of 1" (25.4 mm) each, construct a wall pass-through. There shall be a minimum 6" (152.4 mm) separation area containing fiberglass insulation, from the outer surface of the wall thimble to wall combustibles. Support the wall thimble, and cover its opening with a 24-gage minimum sheet metal support. Maintain the 6" (152.4 mm) space. There should also be a support sized to fit and hold the metal chimney connector. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure the metal chimney connector do not penetrate chimney flue liner.



Method D: 2" (50.8 mm) Clearance to Combustible Wall Member:

Start with a solid-pak listed factory built chimney section at least 12" (304 mm) long, with insulation of 1" (25.4 mm) or more, and an inside diameter of 6" (2 inches [51 mm] larger than the 6" [152.4 mm] chimney connector). Use this as a pass-through for a minimum 24-gage single wall steel chimney connector. Keep solid-pak section concentric with and spaced 1" (25.4 mm) off the chimney connector by way of sheet metal support plates at both ends of chimney section. Cover opening with and support chimney section on both sides with 24 gage minimum sheet metal supports. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure the metal chimney connector do not penetrate chimney flue liner.



Mobile Home Installation (USA Only)

For USA Installations: see Outside Air Kit - Part # 846-502.

Once you have properly marked the position of your unit and the floor protection as outlined in the Residential Installation items #1 through #8, a supply of fresh air has to be supplied to your unit.

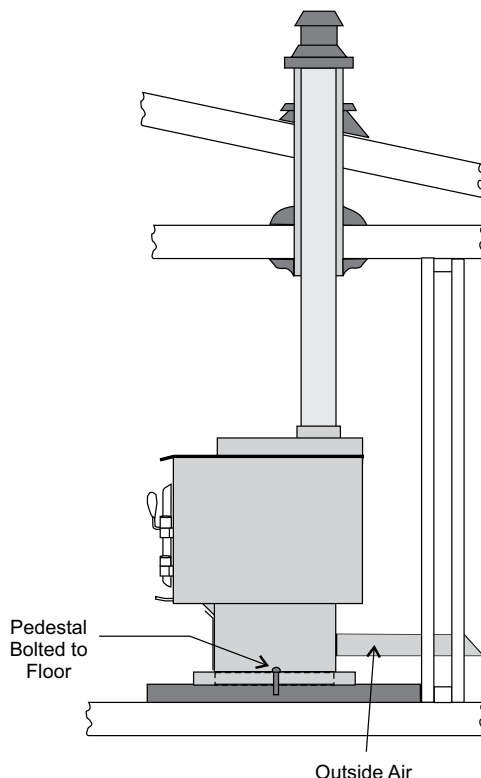
See Optional Outside Air Kit instructions in this manual.

Place your unit in position and secure it to the floor using two lag bolts 3/8" (10mm) x 3-1/2" (89mm) through the two holes inside the pedestal base. It is important to maintain the structural integrity of the Mobile Home floor, walls and roof when installing your unit.

For Mobile Home units installed in the U.S. the unit must be grounded using a #8 ground wire with approved termination and star washer.

CAUTION: At no time use unlabelled parts, or substitute parts made for another chimney system.

Install as per chimney manufacturer's installation instructions.



WARNING: Operate only with door fully closed - open feed door to feed fire only.

1. Identify the position of the outside air damper by the orientation of the metal handle that rests outside the galvanized pipe. The metal handle and the damper disc are in line with each other. This means that if the metal handle is in a horizontal position, the damper is flat and fully open.
2. Open the damper fully whenever you start a fire. This will allow the outside air to be drawn in the pedestal base eliminating any potential smoke escaping the stove and entering the room (Negative air pressure).

In addition to standard installation instructions the following requirements are mandatory for installation in a mobile home.

1. The stove must be permanently bolted to the floor of the Mobile Home using the floor screws provided.
2. The stove must have a permanent outside air source for combustion.
3. The stove must be electrically grounded to the steel chassis of the Mobile Home.
4. A listed double-wall connector chimney system, roof thimble, spark arrestor and roof flashing kit suitable for use in Mobile Homes must be used.
5. If the chimney exits the Mobile Home at a location other than through the roof, and exits at a point 7ft. (2130mm) or less above the ground level on which the Mobile Home is positioned a guard or method of enclosing the chimney shall be fitted at the point of exit for a height up to 7ft. (2130mm).
6. The chimney shall be attached directly to the room heater and shall extend at least 3 ft. (914mm) above the part of the roof through which it passes. The top of the chimney should project at least 2ft. (610mm) above the highest elevation of any part of the Mobile Home within 10 ft. (3048mm) of the chimney.
7. The chimney system shall comply with Local Requirements.
8. Any openings in a chimney guard where required must not permit the entrance of 3/4" (19mm) diameter rod.
9. **CAUTION: THE STRUCTURAL INTEGRITY OF THE MOBILE HOME ROOF, FLOOR, WALLS AND CEILING MUST BE MAINTAINED.**
10. Check any other local building code as other local codes may apply.
11. **WARNING: DO NOT INSTALL IN A SLEEPING ROOM OF A MOBILE HOME.**
12. Use silicone to create an effective vapour barrier at the location where the chimney or other component penetrates to the exterior of the structure.

TABLE 1

MINIMUM RECOMMENDED FLUE HEIGHTS IN FEET (Measured from the top of the unit)							
ELEVATION (FT) ABOVE SEA LEVEL	# OF ELBOWS						
	0	2 x 15°	4 x 15°	2 x 30°	4 x 30°	2 x 45°	4 x 45°
0-1000	12.0	13.0	14.0	15.0	18.0	16.0	20.0
1000-2000	12.5	13.5	14.5	15.5	19.0	16.5	21.0
2000-3000	13.0	14.0	15.0	16.0	19.5	17.0	21.5
3000-4000	13.5	14.5	15.5	17.0	20.0	18.0	22.5
4000-5000	14.0	15.0	16.0	17.5	21.0	18.5	23.0
5000-6000	14.5	15.5	17.0	18.0	21.5	19.0	24.0
6000-7000	15.0	16.0	17.5	18.5	22.5	20.0	25.0
7000-8000	15.5	16.5	18.0	19.0	23.0	20.5	25.5
8000-9000	16.0	17.0	18.5	20.0	24.0	21.0	26.5
9000-10000	16.5	17.5	19.0	20.5	24.5	22.0	27.0

NOTE: No more than two offsets (four elbows) allowed. Two 45° elbows equal one 90° elbow.

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance and may cause damage. An uncontrollable burn or excessive temperature indicates excessive draft. Inadequate draft may cause back puffing into the room and plugging of the chimney. Inadequate draft will cause the appliance to leak smoke into the room through appliance and chimney connector joints. Ensure the heater is installed in areas that are not too close to neighbors or in valleys that would cause unhealthy air quality or nuisance conditions.

Recommended Heights For Woodstove Flue

Simple rules on draft. See Table 1.

- 1) At sea level minimum height is 12' straight.
- 2) Add the following vertical height to compensate for:
 45 deg. elbow = 1 ft.
 90 deg. elbow = 2 ft.
 "T" = 3 ft.
 Each foot of horizontal run = 2 ft.
- 3) Add 4% overall for each 1000' above sea level.

Example: a)

1-1/2 ft. of horizontal run = 3 ft.
 one "T" = 3 ft.
 Total Addition (at sea level) = 6 ft.

Example: b)

One 90 deg. elbow = 2 ft.
 2 ft. of horizontal run = 4 ft.
 one "T" = 3 ft.
 Total Addition (at sea level) = 9 ft.

Elevation	Example a)	Recommended Flue Height Example b)
0'	18'	21'
1000'	18.72'	21.84'
2000'	19.44'	22.68'
5000'	21.60'	25.20'
8000'	23.76'	27.72'

WARNING:
DO NOT INSTALL IN SLEEPING ROOM

CAUTION: The structural integrity of the mobile home floor, wall and ceiling/roof must be maintained.

Optional Outside Air Kit

The Outside Air Kit is an option for Freestanding Stoves. Outside air for combustion can be brought in either through the bottom of the pedestal or through the rear plate of the pedestal. If using the wood stacker, outside air may be installed from the rear only. When using the bottom heat shield & legs may only be installed from the bottom.

For both bottom and rear outside air the Pedestal Cover Plate must be installed. When using the wood stacker, the pedestal cover plate must also be installed. Loosen the 4 screws on the rear of the pedestal and slide the cover plate over them. Slide the plate to the left to center it and tighten down the 4 screws.

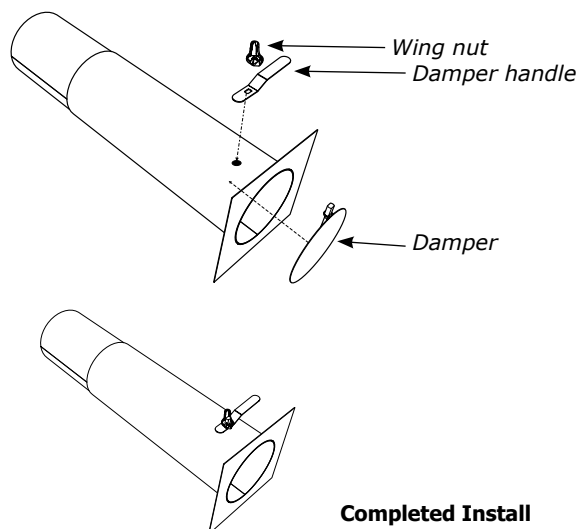
Damper Installation

NOTE: The damper cannot be installed if attaching outside air to the bottom of the appliance.

Supplied damper allows the combustion air to be closed off when unit is not in operation.

Install the damper within the round pipe in an easily accessible location.

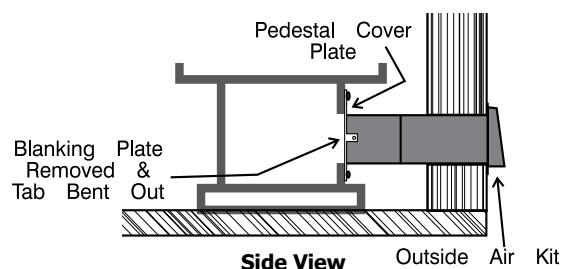
1. Drill a 5/16" hole in the desired location.
2. Insert damper with threaded section out.
3. Install damper handle and secure with wing nut.



Outside Air Through Pedestal Rear/Wood Stacker Rear

Remove the blanking plate from the rear of the pedestal and bend the two tabs out 90 degrees. Pipe fresh air into the pedestal area by using a minimum 4" metallic duct pipe with a mesh grill at the outside termination.

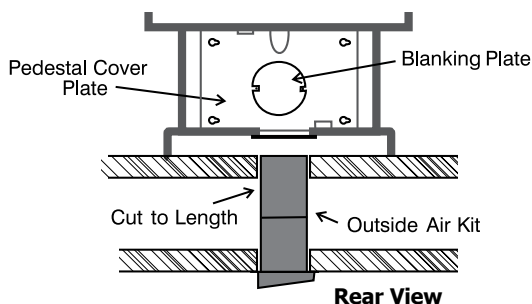
Fasten the pipe to the cover plate using the tabs and 2 screws.



Outside Air Through Pedestal Bottom

Mark the position of your unit as outlined in the "General Information" and "Clearances to Combustibles" section of the manual. Pipe fresh air into the pedestal area by using a minimum 4" duct pipe with a mesh grill at the outside termination.

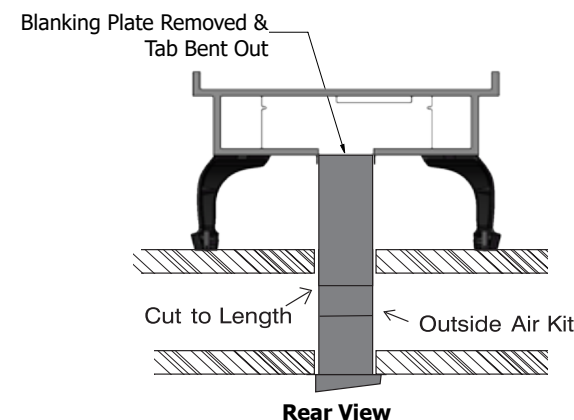
Remove the blanking plate from the bottom of the bottom heat shield and bend the two remaining tabs out 90 degrees.



Outside Air Through Heat Shield With Legs Bottom

Mark the position of your unit as outlined in the "General Information" and "Clearances to Combustibles" section of the manual. Pipe fresh air into the bottom heat shield by using a minimum 4" duct pipe with a mesh grill at the outside termination.

Fasten the pipe to the bottom heat shield by using the tabs and 2 screws.

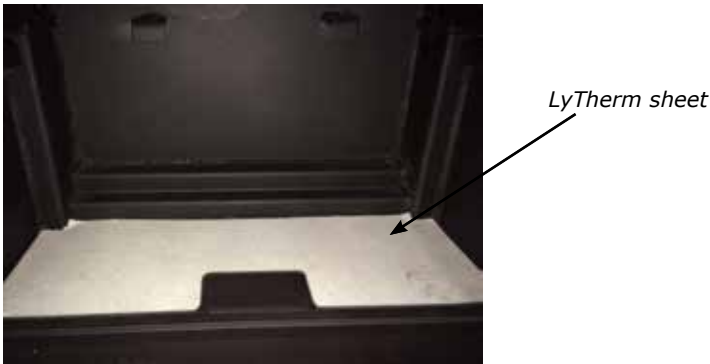


installation

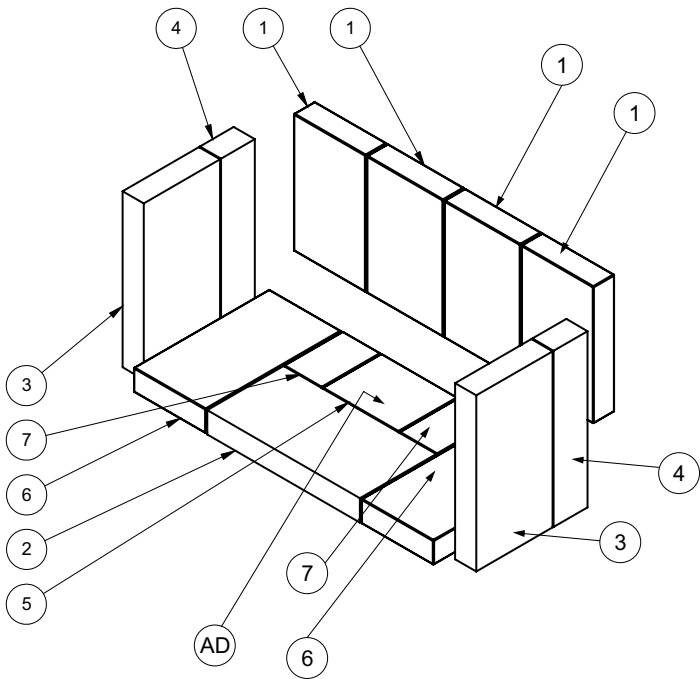
Brick Installation

Firebrick is included to extend the life of your stove and radiate heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping. Install all firebricks (if bricks were removed at install) per the diagram below and place in their correct positions.

Do not use a grate.



- Order of firebrick install:
- a) Rear Firebrick
 - b) Firebox floor - install brick over LyTherm Sheet
 - c) Right and left side Firebricks



Fire bricks	
#	Size
1	8-3/8" x 4-3/8"
2	9" x 4-1/4"
3	9" x 4-1/2"
4	9" x 2-3/8"
5	3-1/2" x 4-1/2" (AD)
6	7-3/4" x 4-1/4"
7	3-1/2" x 2-1/4"
AD	Ashdump brick

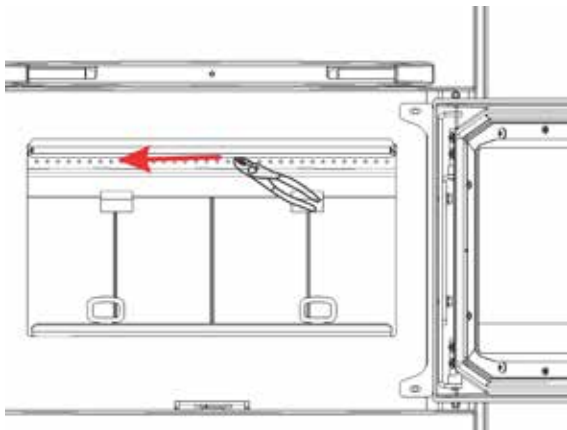
NOTE: The "AD" brick covers the Ash Dump hole that is used if an Ash Drawer Kit is not installed.

Baffle Installation

Note: unit in images may not be identical to the F1150-1 — they depict the process.

1. Open the door.
2. Remove the front secondary air tube with pliers as shown below.

Note: It will be easier to remove the air tube by removing both the bottom right base brick and right side wall brick.

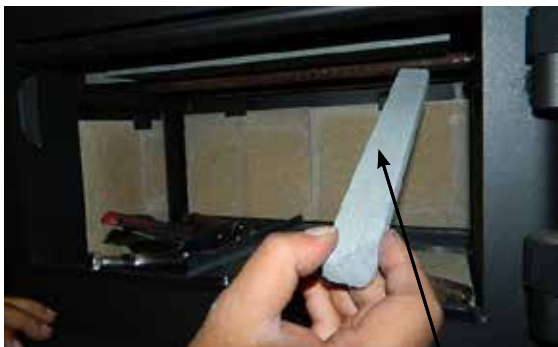


3. Install the center baffle.



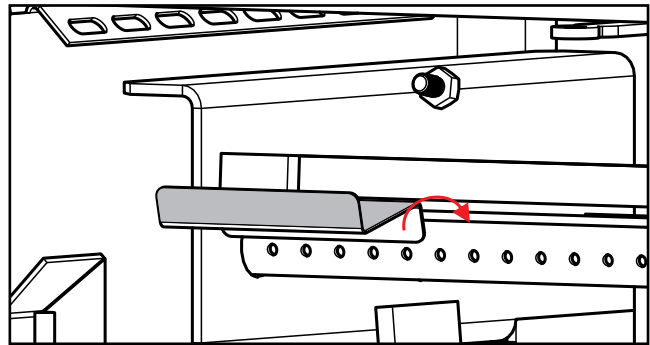
Centre baffle

4. Install the right and left side baffles (right side baffle shown below).

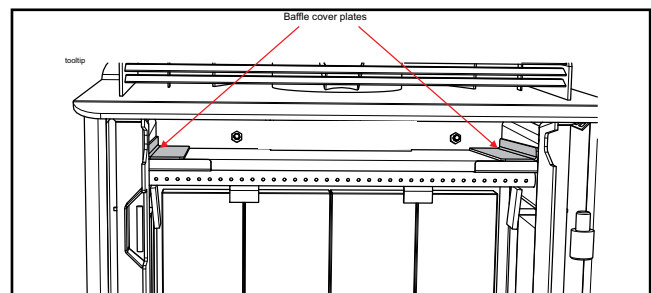


Baffle Side Piece

5. Install the front air tube removed in step 2.
6. Install baffle brackets on either side by slightly lifting baffles up and placing brackets in between baffles and the front air tube. The brackets will hold the baffles in position.



7. Slide left and right baffle cover plates on either side of baffles as shown.



8. Reverse steps to uninstall the baffles.

installation

Removing Wooden Handle

1. To remove the wooden door handle from unit, firstly locate 7/64" Allen key hole at the bottom of wooden handle.



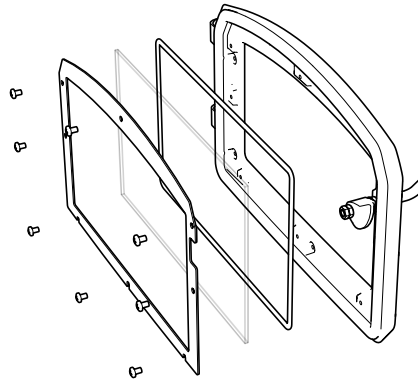
2. Unscrew 7/64" Allen Key screw counterclockwise. Once the screw is completely loose, remove and drop the handle down off the door handle shaft and replace with new handle.



Glass Installation

Your Regency stove is supplied with 5 mm Neoceram ceramic glass that will withstand the highest heat that your unit will produce. In the event that you break your glass by impact, purchase your replacement from an authorized Regency dealer only. Part # of the replacement glass is 846-306 and includes the glass gasket.

Remove the door from the stove and remove the screws securing the glass retainer. Position the glass in the door, make sure that the glass gasketing will properly seal your unit, and replace the retainer, it should rest on the gasket not the glass. Tighten securely, but do not wrench down on the glass as this may cause the glass to break.



Shown with classic door

Wood Door & Handle Assembly (Arched Door)

1. In preparation of installing the door handle, the nuts, cam, washers and spacer must be removed as shown in Diagram 1.

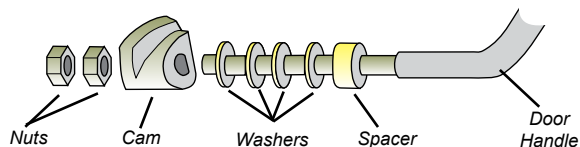


Diagram 1

LATCH ADJUSTMENT

The door latch may require adjustment as the door gasket material compresses over time. Removal of 1 or 2 washers will allow the latch to move closer to the door frame, causing a tighter seal. (Refer to Diagram 1)

2. Place the door onto the hinges and then place the door handle through the opening on the door, as shown in Diagram 2.

Re-assemble and secure the door handle components in reverse order as removed in step 1, refer to Diagram 1.

3. Put the hinge cover caps on top of hinges to complete the door installation.

Note: The bottom of the door may scrape the ashlip. In this case place the spacers provided on the door hinges of the unit before placing the door.

4. Close door and ensure there is a tight seal. If door is too tight, a washer can be added. If the door is not creating a tight seal, a washer can be removed. Recheck door to ensure there is still a tight seal. Repeat steps if door seal is still not tight until a tight seal has been achieved. The handle should be approximately in the 8 o'clock position when door is fully closed. (Diagram 3)

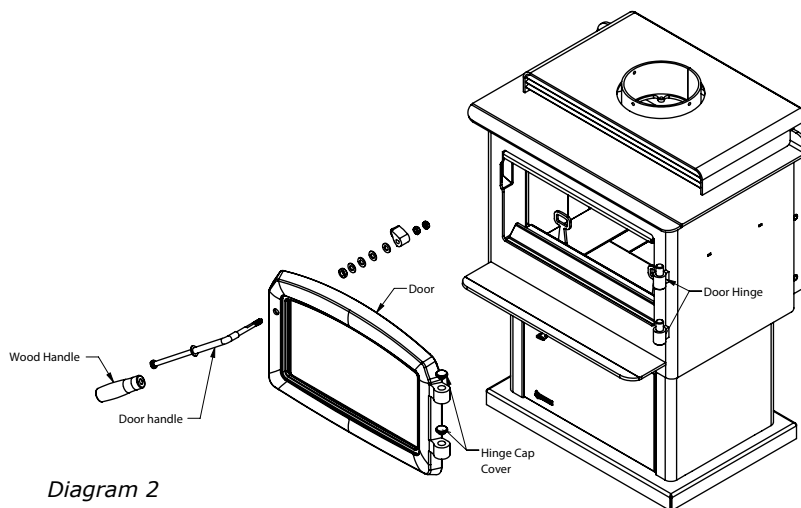


Diagram 2

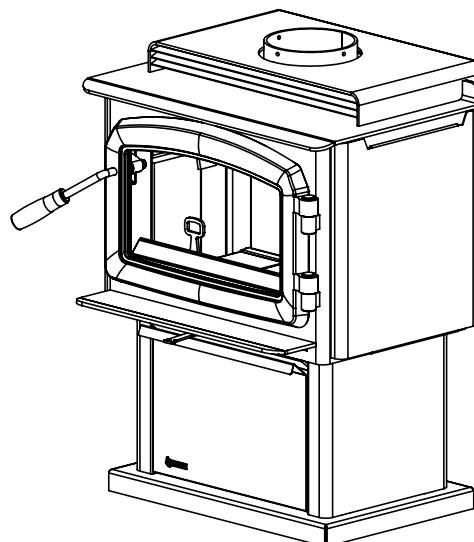


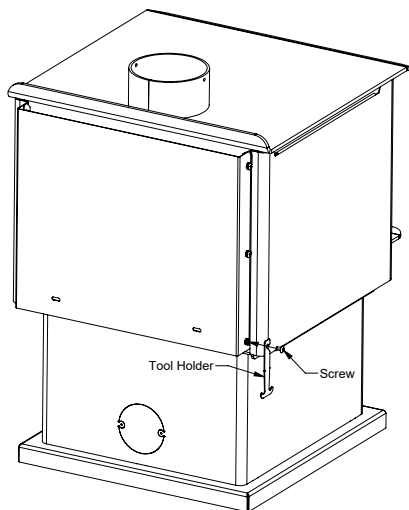
Diagram 3

installation

Square Door Installation (Part #850-161)

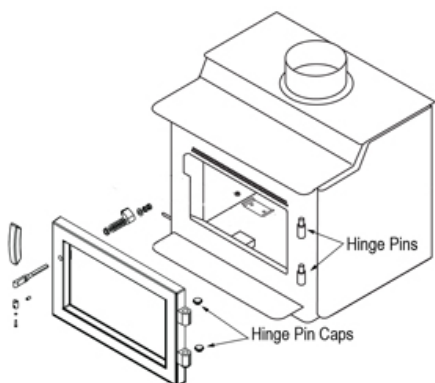
Note: Unit may not be exactly as shown but depicts the process.

When assembling the stove with pedestal, stacker or legs - install the tool holder for the door handle storage. Unfasten the bottom screw on the back left side of the unit and attach the tool holder as shown below.

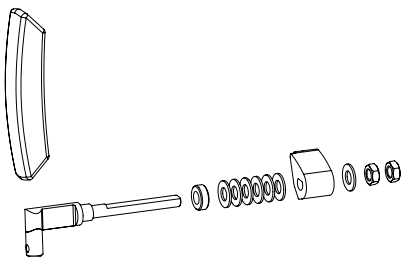


DOOR INSTALL

1. Place door onto the two hinge pins on the body of the stove.
2. Place hinge pin caps to the top of both door hinges.



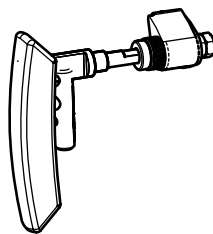
3. Remove the nuts, washers, cam and spacer from the handle assembly
4. Slide the handle shaft into the hole in the door with the end of the handle facing down.
5. Slide the spacer, washers, cam, then another washer, the 2 nuts onto the handle shaft as shown. Tighten the nuts but do not overtighten so the handle can move freely.



LATCH ADJUSTMENT

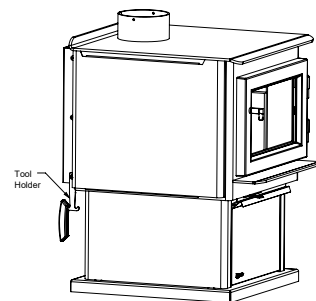
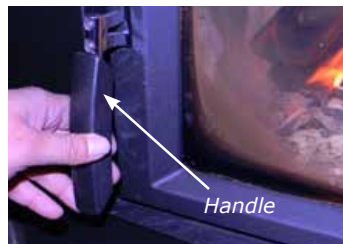
Each door handle may require 4 washers between the cam and door spacer. (2 washers are included as spares if required)
The door latch may require adjustment as the door gasket material compresses over time. Removal of 1 or 2 washers will allow the latch to move closer to the door frame, creating a tighter seal.

Remove washer(s) from the door handle assembly as required.



The cool to touch door handle is designed to be inserted from the bottom up and slide off when not held in place. Once in position, the door can be opened.

After use, store the door handle on the storage hook located on the left side of the appliance.



**WARNING: FAILURE TO USE
REMOVABLE HANDLE AS PER INSTRUCTIONS MAY
CAUSE SERIOUS BURNS.**

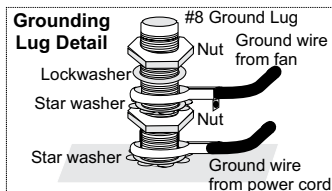
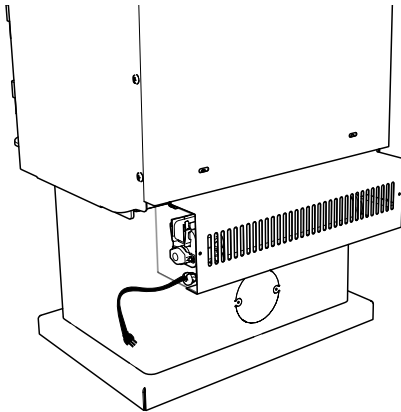
Fan Installation

FAN INSTALLATION (120V FAN)

1. Remove the two screws from the top of the fan housing.
2. Slide the fan up into the rear heat shield.
3. After aligning holes, secure the fan to the rear heat shield using the two screws removed earlier.

Note: The connection cord should not be in contact with any hot surfaces.

WARNING: FAN ASSEMBLY MUST BE DISCONNECTED FROM THE SOURCE OF ELECTRICAL SUPPLY BEFORE ATTEMPTING THE INSTALLATION.



FAN OPERATION

The fan is controlled by a rheostat which allows control of the heat output.

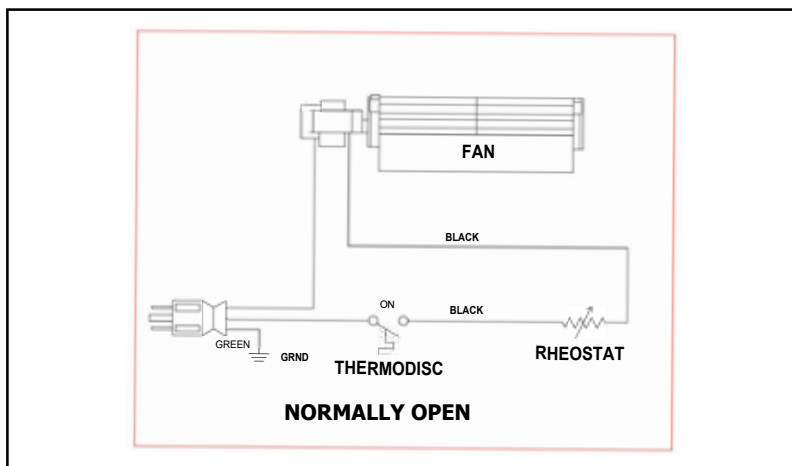
The fan will turn on as the stove has come up to operating temperature. It will also shut the fan system off after the fire has gone out and the unit cooled to below a useful heat output range.

If the fan cycles on and off continuously the thermo switch sensor is not making contact with the stove body. Remove the fan, bend the bracket closer to the stove and re-install the fan.

The fan is to be operated in the <LOW> position when burning in the LOW - MED LOW heat output setting and on <HIGH> when burning in the MED-HIGH settings.

WARNING: Electrical Grounding Instructions
This appliance is equipped with a three pronged (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

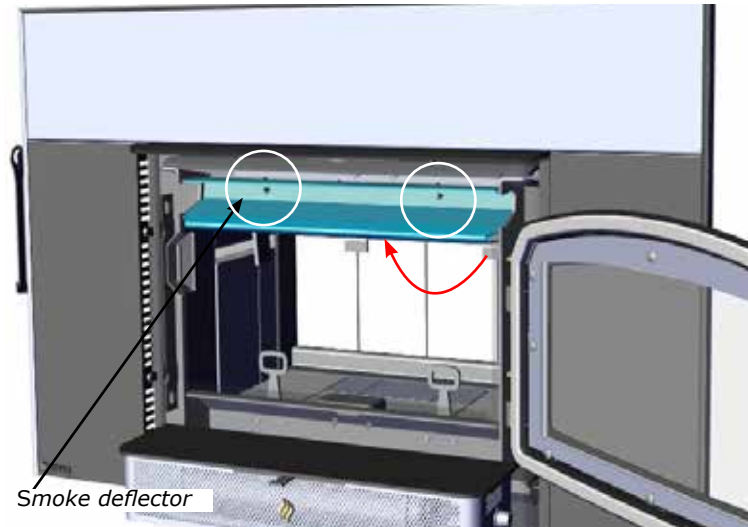


Wiring Diagram

installation

Stainless Steel Smoke Deflector Installation

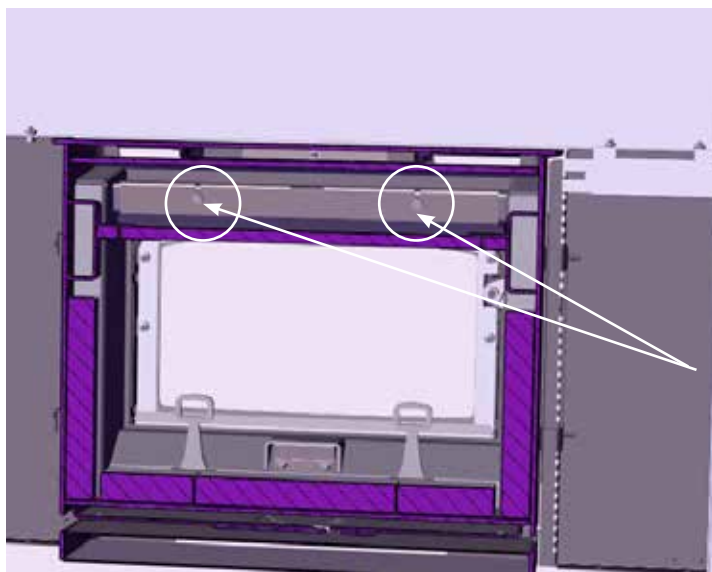
The stainless smoke deflector is located in the upper front area of the firebox. The deflector is held in place with 2 bolts. Prior to the first fire, ensure deflector is seated properly and secured with 2 hand tightened bolts which are accessible from behind the smoke deflector.



Smoke deflector is installed through the door opening in location shown in Diagram

To replace the deflector, loosen off both bolts and slide deflector downward, push deflector to the back wall of the unit and manoeuver out. Install new deflector and hand tighten bolts. Ensure positive location of the deflector prior to hand tightening.

WARNING: Operation of the unit with out proper installation of smoke deflector will void warranty.



Ensure deflector is seated so bolts are seated at the bottom of the slot before tightening.

Smoke deflector installed with 2 bolts.

Note: *This is a cutaway view from the back of the unit*

Seasoned Firewood

Whether you burn wood in a fireplace, stove or insert, good quality firewood is the key to convenience, efficiency and safety. Wet wood and pieces that are not the right size and shape for your wood burner can be frustrating, burn inefficiently and deposit creosote that can fuel a dangerous chimney fire. Good planning, seasoning and storage of the firewood supply are essential to successful wood burning.

- Stack the wood in separate rows in an open location where the summer sun can warm it and breezes can carry away the moisture. Do not stack unseasoned wood tightly in an unvented storage area.
- Do not allow firewood to lie on the ground for more than a couple of days before stacking. Mould and rot can set in quickly.
- Stack the wood up off the ground on poles, lumber rails or pallets.
- The top of the pile can be covered to keep off rain, but do not cover the sides.

Softer woods like pine, spruce and poplar/aspen that is cut, split and stacked properly in the early spring maybe be ready for burning in the fall. Extremely hard woods like oak and maple, and large pieces of firewood, may take a minimum of a full year to dry enough. Drying may also take longer in damp climates

There are a few ways to tell if wood is dry enough to burn efficiently. Use as many indicators as possible to judge the dryness of the firewood your are considering. Here are ways to judge firewood moisture.

- Using a moisture meter, select the species of fuel and then penetrate the pins into a split piece. Ideal moisture and seasoned firewood should be less than 20% moisture content.
- Checks or cracks in the end grain can be an indication of dryness, but may not be a reliable indicator. Some wet wood has checks and some dry wood has no checks.
- The wood tends to darken from white or cream colour to grey or yellow as it dries.
- Two dry pieces banged together sound hollow; wet pieces sound solid and dull.
- Dry wood weighs much less than wet wood.
- Split a piece of wood. If the exposed surface feels damp, the wood is too wet to burn.

Operating Instructions

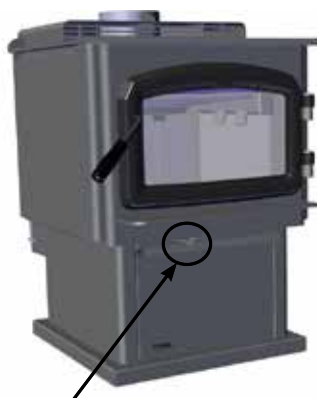
With your unit now correctly installed and safety inspected by your local authority, you are now ready to start a fire. Before establishing your first fire, it is important that you fully understand the operation of your draft control.

WARNING
Fireplace Stoves equipped with doors should be operated only with doors fully closed. If doors are left partly open, gas and flame may be drawn out of the fireplace stove opening, creating risks from both fire and smoke.

Draft Control

Both the primary and air wash drafts are controlled by the control slide located on the front left side of the unit, below the ashlip (when facing the unit). To increase your draft - slide to the left to open, and to decrease - slide to the right to close. The F1150-1 unit has a secondary draft system that continually allows combustion air to the induction ports at the top of the firebox.

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance. Inadequate draft may cause back puffing into the room and plugging of the chimney.



Primary Air Damper
Left - Open Right - Closed

WARNING: To build a fire in ignorance or to disregard the information contained in this section can cause serious permanent damage to the unit and void your warranty!!

Air Operating Handle

The F1150-1 is supplied with an air operating handle. The handle is used to adjust the air control for the desired heat output.

Install the operating handle storage bracket on the bottom right or left side screw that secures the side shield.



Loosen screw and insert storage bracket.



Hang operating handle after use

Using the operating handle:



Air control for heat output

operating instructions

First Fire

When your installation is completed and inspected you are ready for your first fire.

THIS UNIT IS DESIGNED TO BURN SEASONED CORDWOOD ONLY. COAL, BRIQUETTES AND ALL OTHERS LISTED ON PAGE 2 ARE NOT APPROVED. SEASONED CORDWOOD SHOULD BE LESS THAN 20% MOISTURE CONTENT. START UP AND OPERATING PROCEDURES:

1. For the first few days, the wood insert will give off an odour from the paint. This is to be expected as the high temperature paint becomes seasoned. Windows and/or doors should be left open to provide adequate ventilation while this temporary condition exists. Burning the wood insert at a very high temperature the first few times may damage the paint. During the first few fires, keep the combustion rate at a moderate level and avoid a large fire. Only after 5 or 6 such fires can you operate the wood insert at its maximum setting, and only after the metal has been warmed.
2. Do not place anything on the wood insert top during the curing process. This may result in damage to your paint finish.
3. When starting the fire, ensure air control is in the fully open position (far left). Crumble 2-5 pieces of newspaper and add approx. 1lb of kindling stacked in a manner that allows air flow on the firebrick hearth (Tee-pee style or other). **DO NOT USE A GRATE TO ELEVATE THE FIRE.**
Light the newspaper and adjust the door if it is slightly ajar for less smoke roll out. Keep the door in that position for 2-3 minutes to establish a good fire.
4. When the fire is well established add another 0.5 - 1 lb kindling along with few pieces of start up cord wood (startup cord wood is slightly larger than kindling but not full pieces of cord wood). keep the door open for 1.5 - 2 min until the fire started well enough then close the door.

CAUTION: Never leave unit unattended if door is left open. This procedure is for fire start-up only, as unit may overheat if door is left open for too long.

5. Once flame has been established, open the door and add another 6 or 7 pieces (2 lbs) of start up cord wood more to the back. Hold door slightly ajar for 30-60 sec to establish flame, and then close the door.

NOTE: These steps are crucial to ensure proper charcoaling and coal bed prior to loading High, Med and Low fire loads.

6. Once this has burned down, open the door, and rake the coals to create a uniform charcoal bed. Load 5 pieces of 17" long cord wood, East-West orientation, with the heaviest pieces at the back of the firebox, and ensure all pieces are behind the log retainers. Do not block the pilot with wood. Once loaded, close the door right away. Burn on high setting (air control to the far left when facing the unit) for 6-10 minutes. Now you can adjust the air control to your desired position. After 15 minutes, the fan can be turned on.
High Fire: Air control to far left.
Low Fire: Air control to far right.

WARNING: Never build a roaring fire in a cold wood insert. Always warm your wood stove up slowly!

7. When re-fueling, always open the primary air damper, load fuel, then wait for at least 10 minutes before adjusting the air to the desired position. This will also minimize any smoking (spilling) back into the room.
8. During the first few days it may be more difficult to start the fire. As you dry out your firebrick and your masonry flue, your draft will increase.
9. For those units installed at higher elevations onto sub-standard masonry fireplaces, drafting problems may occur. Consult an experienced dealer or mason on methods of increasing your draft.
10. Some cracking and popping noises may be experienced during the heating up process. These noises will be minimal when your unit reaches temperature.
11. All fuel burning appliances consume oxygen during operation. It is important that you supply a source of fresh air to your unit while burning. A slightly opened window is sufficient for the purpose. If you also have another fireplace in your home, a downdraft may be created by your Regency wood insert causing a draft down your chimney. If this occurs, slightly open a window near your unit.

WARNING: If the body of your unit, or any part of the chimney connector starts to glow, you are over firing. Stop loading fuel immediately and close the draft control until the glow has completely subsided.

12. Green or wet wood is not recommended for your unit. If you must add wet or green fuel, open the draft control fully until all moisture has been dispersed by the intense fire. Once all moisture has been removed, the draft control may be adjusted to maintain the fire.
13. The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
14. If you burn the unit too slowly or at too low a setting your unit will not be operating as efficiently as it can. An easy rule of thumb says that if your glass is clean, then your flue is clean and your exhaust is clean. Burn the insert hot enough to keep the glass clean, and you won't need to clean your flue as often.



Fan Operation

Automatic

To operate the fan - turn on the rheostat.

This will allow the fan to turn on as the stove has come up to operating temperature. It will also shut the fan system off after the fire has gone out and the unit cooled to below a useful heat output range.

Operate the fan in the low speed position when burning in the LOW-MED LOW heat output ranges and operate in the high setting for MED-HIGH to HIGH heat outputs.

Route power cord to either left or right behind unit.

Ash Disposal

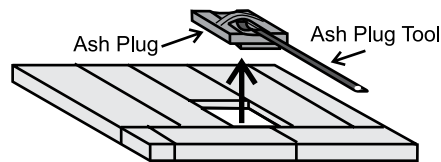
During constant use, ashes should be removed every few days. The Ash Drawer option features a convenient ash dump for easy removal of ash, refer to Modular Installation Options section.

Safety Precautions

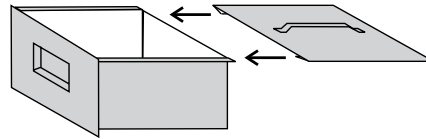
1. Do not allow ashes to build up to the loading doors! Only remove ashes when the fire has died down. Even then, expect to find a few hot embers.
2. Please take care to prevent the build-up of ash around the start-up air housing located inside the stove box, under the loading door lip.
3. Never start a fire if the ash plug and ash drawer are not in place. This will cause over firing which can cause excessive warping of the stove. Evidence of over firing can void the warranty on your stove.
4. The firebricks are brittle and can be damaged if the plug is replaced carelessly or pieces that are too large are forced through the hole.

Ash Drawer Operating Guidelines

1. Only clean ashes out of the stove when the unit has cooled down. Remove the plug by lifting on the handle using the tool provided. The plug may still be warm, use caution. Push the ashes down the hole into the ash drawer, the large pieces can be left in the firebox and burned during the next fire or removed through the door opening.
2. Always leave 1/2 to 1 inch of ash in the bottom of the firebox. This helps in easier starting and a more uniform burn of your fire. Replace ash plug when ashes have been removed.
3. **Pedestal Units:**



To remove the drawer, lift slightly and slide it out. When the drawer is completely out, slide the cover plate over the ash drawer and carry away.



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

4. When emptying the ash drawer, make sure the ashes are cold. Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled. Other waste should not be placed in the ash container.
5. Before putting the ash drawer back into place, make sure the ash plug is back in place.

Pedestal Units: make sure the cover lid is off.

Safety Guidelines and Warnings

CAUTION: Do not use chemicals for fluids to start fire.

1. **CAUTION:** Never use gasoline, gasoline type lantern fuels, kerosene, charcoal lighter fuel, or similar liquids to start or 'freshen up' a fire in your heater. Keep all such liquids well away from the heater while it is in use.
2. Keep the door closed during operation and maintain all seals in good condition.
3. Do not burn any quantities of paper, garbage, and never burn flammable fluids such as gasoline, naphtha or engine oil in your stove.
4. If you have smoke detectors, prevent smoke spillage as this may set off a false alarm.
5. Do not overfire heater. If the chimney connector, flue baffle or the stove top begin to glow, you are over firing. Stop adding fuel and close the draft control. Over firing can cause extensive damage to your stove including warping and premature steel corrosion. Over firing will void your warranty.
6. Do not permit creosote or soot build-up in the chimney system. Check and clean chimney at regular intervals. Failure to do so can result in a serious chimney fire.
7. Your Regency stove can be very hot. You may be seriously burned if you touch the stove while it is operating, keep children, clothing and furniture away. Warn children of the burn hazard.
8. The stove consumes air while operating, provide adequate ventilation with an air duct or open a window while the stove is in use.
9. Do not connect this unit to a chimney flue serving another appliance.
10. Do not use grates or andirons or other methods for supporting fuel. Burn directly on the bricks.
11. Open the draft control fully for 10 to 15 seconds prior to slowly opening the door when refuelling the fire.
12. Do not connect your unit to any air distribution duct.
13. This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods.

maintenance

14. **WARNING: Do not operate without either the Ash Plug properly seated or the Ash Dump Plates screwed in place, excessive temperatures will result.**
15. **CAUTION: Do not operate with broken glazing.**
16. **WARNING: Do not use abrasive cleaners to clean the glass window.**
17. **WARNING: Avoid impact on glass doors such as striking or slamming shut.**

DO NOT BURN:

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper
- Trash
- Salt drift wood
- Cut lumber, plywood, mill ends
- Kiln dried wood

CAUTION: DO NOT BURN GARBAGE OR FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPTHA, OR ENGINE OIL. SOME FUELS COULD GENERATE CARBON MONOXIDE AND ARE VERY DANGEROUS.

CAUTION: DO NOT CONNECT TO, OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCT WORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATION.

Maintenance

It is very important to carefully maintain your fireplace stove, including burning seasoned wood and maintaining a clean stove and chimney system. Have the chimney cleaned before the burning season and as necessary during the season, as creosote deposits may build up rapidly. Moving parts of your stove require no lubrication.

Creosote

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

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if creosote build up has occurred. If creosote has accumulated it should be removed to reduce the risk of chimney fire.

CAUTION: Things to remember in case of a chimney fire:

- 1. Close all draft and damper controls.**
- 2. CALL THE FIRE DEPARTMENT.**

Ways to Prevent and Keep Unit Free of Creosote

1. Burn stove with the draft control wide open for about 10-15 minutes every morning during burning season.
2. Burn stove with draft control wide open for about 10 - 15 minutes every time you apply fresh wood. This allows the wood to achieve the charcoal stage faster and burns up any unburned gas vapours which might otherwise be deposited within the system.
3. Only burn seasoned wood! Avoid burning wet or green wood. Seasoned wood has been dried at least one year.
4. A small hot fire is preferable to a large smouldering one that can deposit creosote within the system.
5. The chimney and chimney connector should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred.
6. **Have chimney system and unit cleaned by competent chimney sweeps twice a year during the first year of use and at least once a year thereafter or when a significant layer of creosote has accumulated (3 mm/1/8" or more) it should be removed to reduce the risk of a chimney fire.**

Door Gasket

If the door gasket requires replacement 7/8" diameter material must be used. Regency uses a gasket rope 7/8" (Part #846-570). A proper high temperature gasket adhesive is required. See your Regency Dealer. The door catch may require adjustment as the door gasket compresses after a few fires. The door latch compression may require adjustment to renew seal. Removal of a shim, (see section in this manual), will allow the latch to be moved closer to the door frame, causing a tighter seal.

Glass Maintenance

Your Regency stove is supplied with 5mm Neoceram ceramic glass (Part #846-306) that will withstand the highest heat that your unit will produce. In the event that you break your glass by impact, purchase your replacement from an authorized Regency dealer only, and follow our step-by-step instructions for replacement (refer to Glass Replacement section).

Allow the stove to cool down before cleaning the glass. Cleaning the glass will prevent build up of carbon and allow full view of the fire.

WARNING: Do not clean the glass when it is hot.

WARNING: Do not use abrasive cleaners, a damp cloth and glass cleaner is effective.

WARNING: Do not use substitute materials.

WARNING: Do not abuse the glass door, such as striking or slamming shut.

WARNING: Do not operate with broken glass.

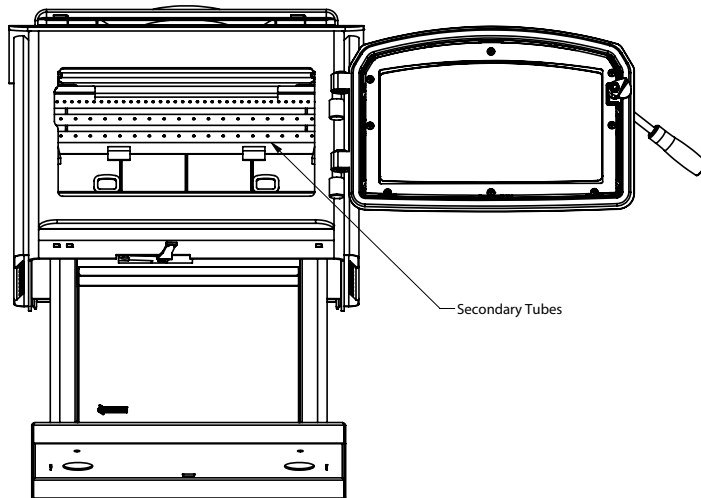
Wood Storage

Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood, etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.

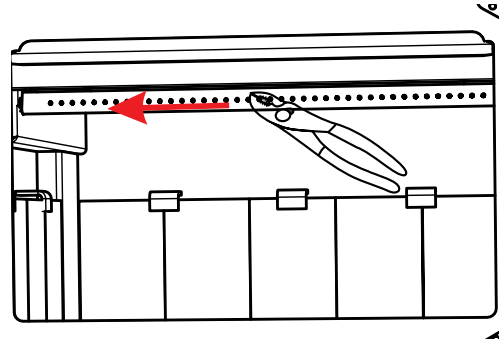
maintenance

Secondary Air Tube Removal/Installation

1. Allow the stove to burn out and cool down, until cool to touch.
2. Open stove door to access secondary air tubes.



3. Grasp secondary air tube firmly with vise grips, using a hammer tap vise grips from right to left until air tube is released from grip. Remove.
4. Remove top left and right metal retainers, followed by the fragile three piece C-Cast Baffles, then remove the remaining 2 tubes.

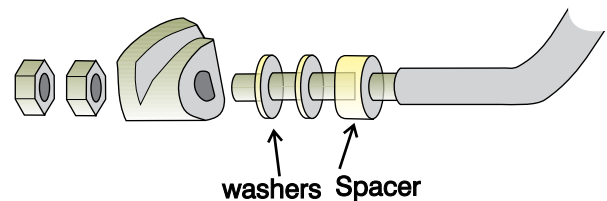


5. To reinstall or replace, first slide left side of tube into hole on left side air channel. Align tab on right side air channel with notch on right hand end of air tube. Firmly grip center of air tube with vise grips, use hammer to tap vise grips from left to right until the tube bottoms out into the air channel on right.

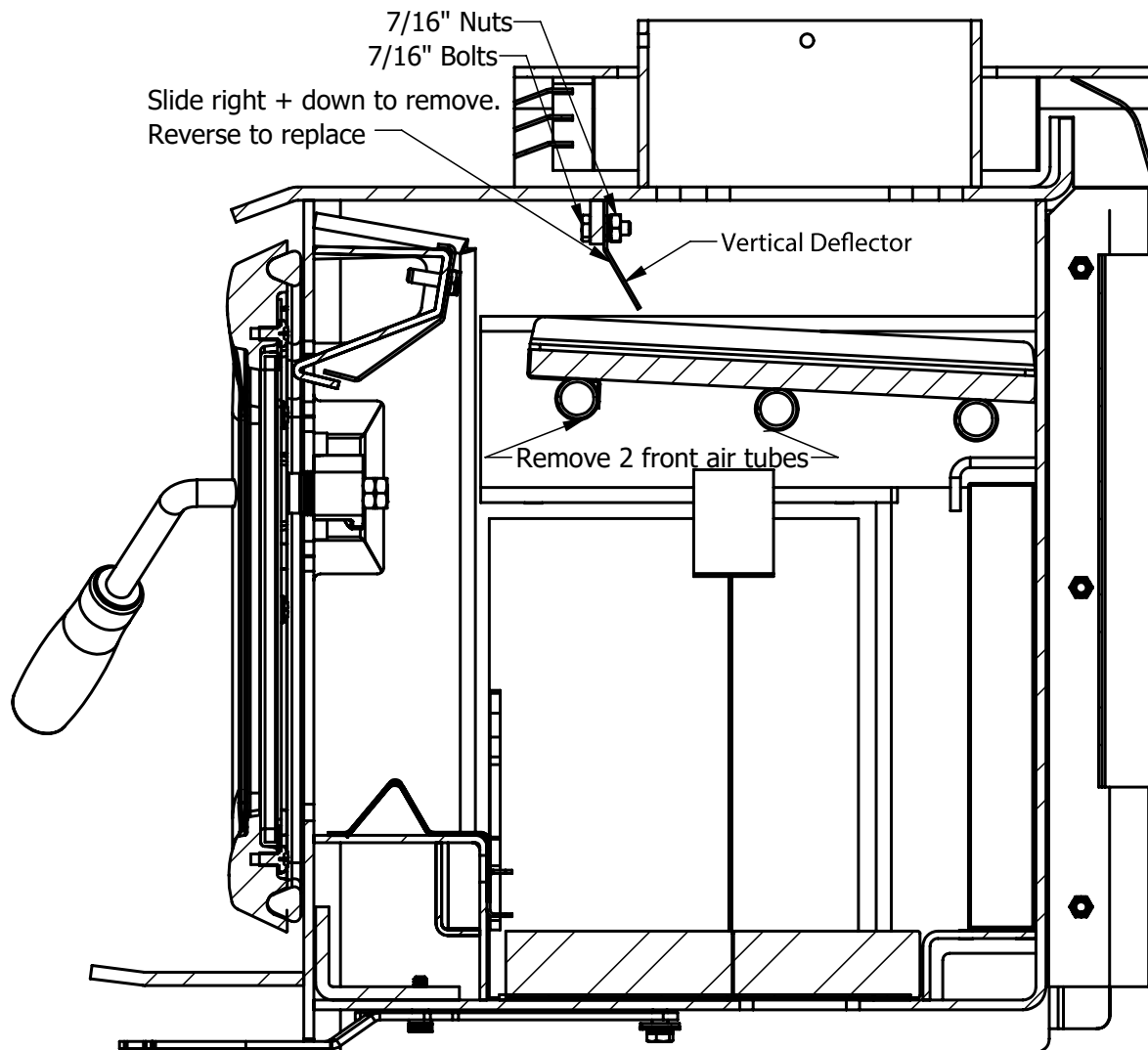
Note : If air tube is locked into place correctly there should be slight movement when moving the air tube back and forth.

Latch Adjustment

The door latch may require adjustment as the door gasket material compresses after a few fires. Removal of the spacer washer, shown in the diagram below, will allow the latch to be moved closer to the door frame, causing a tighter seal. Remove and replace the nuts, washer and spacer as shown.



Vertical Stainless Deflector Replacement



1. Remove 2 front secondary air tubes (page 31) / baffles (page 21).
2. Loosen the two 7/16" bolts + nuts to remove / replace vertical baffle.
3. Repeat steps to install new vertical deflector.

NOTE: ENSURE BAFFLE IS PUSHED UP AS FAR AS POSSIBLE. TIGHT TO TOP OF FIREBOX.

maintenance

Annual Maintenance	
Completely clean out entire unit	Annually
Inspect air tube and bricks	Replace any damaged parts.
Adjust door catch assembly	If unable to obtain a tight seal on the door - replace door gasket seal. Readjust door catch after new gasket installed.
Inspect condition and seal of: Glass Gasket Door Gasket	Perform paper test - replace gasket if required
Paper Test	Test the seal on the loading door with a paper bill. Place a paper bill in the gasket area of the door on a cold stove. Close the door. Try to remove the paper by pulling. The paper should not pull out easily, if it does, try adjusting the door latch, if that doesn't solve the problem replace the door gasket.
Check and lubricate door hinge + latch	Use only high temperature anti seize lube. (ie. never seize)
Check glass for cracks	Replace if required.
Clean blower motor	Disconnect power supply. Remove and clean blower. *DO NOT LUBRICATE*
Inspect and clean chimney	Annual professional chimney cleaning recommended.

NOTE:

Chimney Cleaning

We highly recommend that the chimney cleaning be done by a professional as they will have the necessary tools such as a proper sized brush and special vacuum cleaner designed to deal with fine particles.

IMPORTANT:

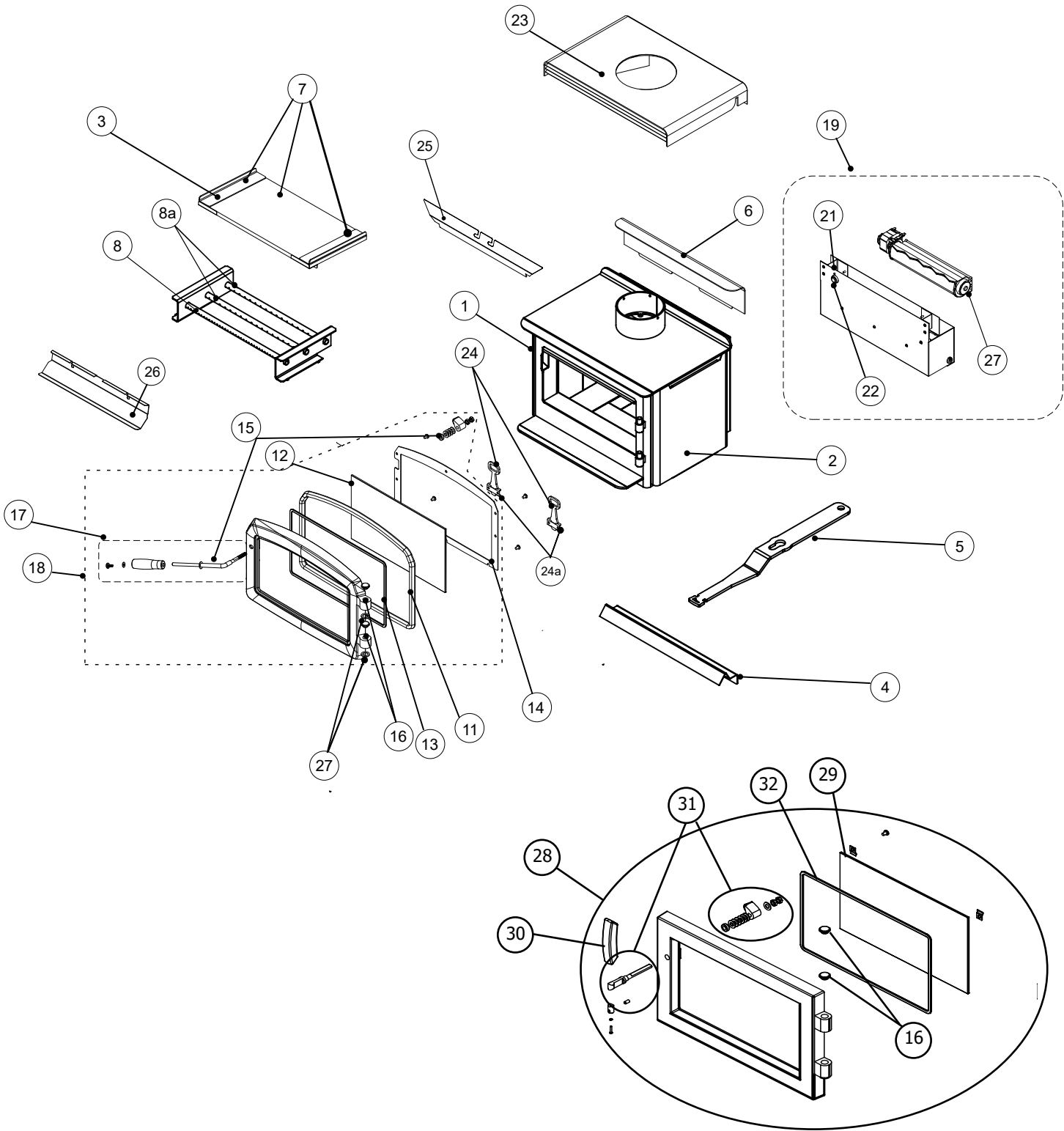
Before attempting to loosen or remove any screw, bolt from the interior of a wood stove, insert or factory built fireplace that has had a fire burned in it, we highly recommend to liberally spray the screw/bolt with a good-quality penetrating oil, one that does not have flammable properties contained within the penetrating oil being used. Allow it to set, then tap or vibrate the screw or bolt to help loosen it before attempting to remove it. For best results, follow the instructions that are provided with the penetrating oil.

Main Assembly

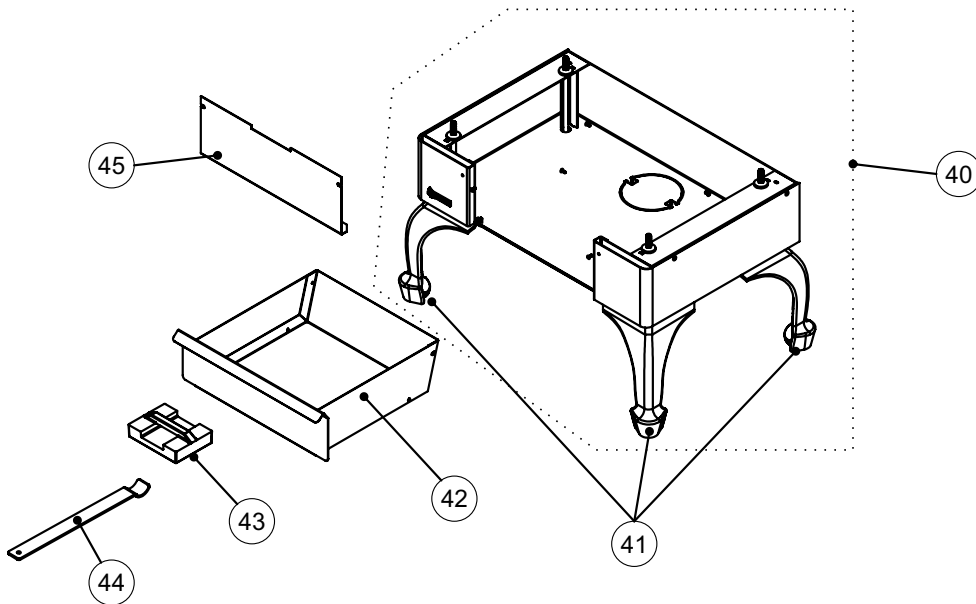
	Part #	Description
1	075-070	Left Side Heat Shield
2	075-071	Right Side Heat Shield
3	075-040	Side Baffle Cover (Each)
4	173-031	Primary Air Deflector
5	173-023	Draft Control Rod
6	815-557	Rear Air Deflector
7	075-955	Baffle Complete Set (Center + Sides)
8	033-953	3/4 OD x 19-1/4 Airtube
8a	033-954	3/4" OD Air Tube (Qty 2) (Each)
11	846-570	7/8" Door Gasket Repair Kit
12	846-306	Replacement Glass - Small (Size: 9 1/8" X 15 5/8") (Includes Glass Gasket) (Arched Door)
13	846-692	1/8" x 3/4" Wide Graphite Gasket Tape (6') (936-241) (Arched Door)
14	075-077F	Glass Retainer (Arched Door)
15	021-973	Door Handle Assembly Complete (Arched Door)
16	948-079BN	Hinge Cap Brush Nickel (Each)
16	846-918	Hinge Caps Black Oxide (Set of 2)
17	948-146	Long Black Handle
18	850-241	Black Door - Complete (Arched Door)
18	850-243	Black with Nickel Accent Door - Complete (Arched Door)
19	075-917	Fan Assembly Complete
21	910-330	Fan Speed Controller
21	904-586	Fan Speed Controller Knob
22	910-142	Fan Thermodisc
23	850-105	Airmate
24	075-063F	Andiron (Each)
24a	075-064	Andiron Bracket (Each)
25	173-030/P	Vertical Stainless Deflector
26	075-037	SS Smoke Deflector
27	650-084	Door Spacer (Each)
28	850-161	Small Square Black Door Complete
29	846-302	Replacement Glass Includes Glass Gasket (Square Door)
30	156-241	Cast Handle (Square Door)
31	846-975	Door Handle Assembly (does not include cast handle) (Square Door)
32	846-682	22 mm Window Adhesive Gasket Tape (305 mm) (936-243) (Square Door)
N/S	075-041	Baffle Holder (Each)
N/S	911-096	120 Volt Extension Cord
N/S	075-073F	Tool Hanger
N/S	948-223	Regency Logo Plate
N/S	911-418/P	Fan Motor Only With Squirrel cage
N/S	075-064	Andiron Bracket (Each)
N/S	181-040	Control Tool
N/S	173-028	Firebox Floor White Gasket
N/S	021-055F	Glass Retainer (Square Door)

parts list

Main Assembly

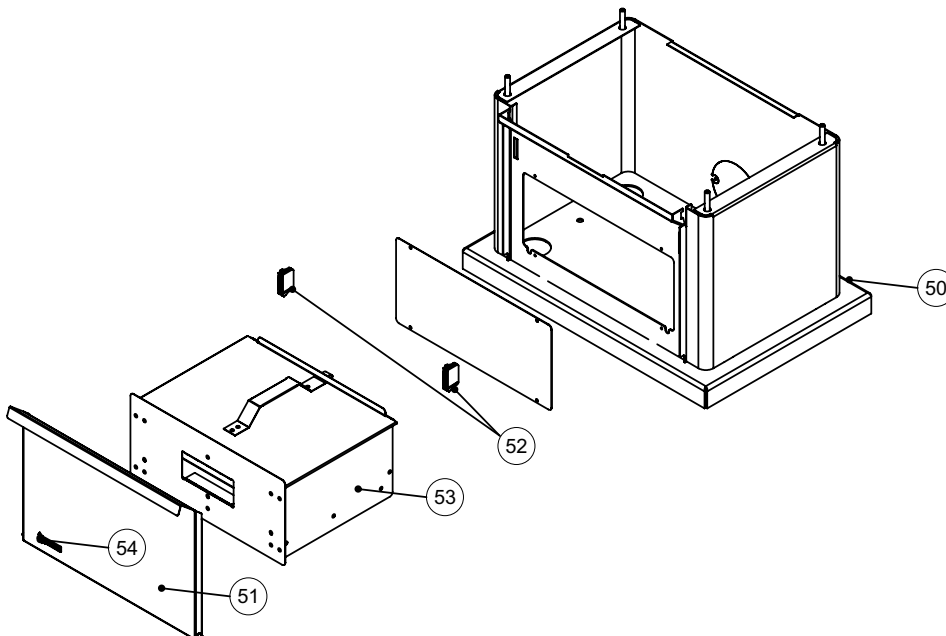


Bottom Shield and Legs



	Part #	Description
40	075-941	Bottom heat Shield
41	850-126	Black Cast legs (Set Of 4)
41	850-128	Nickel Cast legs (Set Of 4)
42	075-914	Ashdrawer Bottom Heat Shield
43	942-110	Ashplug
44	820-249	Ashplug Tool
45	075-326	Blanking Plate
N/S	905-008	5/16" x 6" Long Hex Head Bolt (Each)
N/S	820-468F	Metal Washer
N/S	820-456	Metal Spacer/Support Bracket (Each)

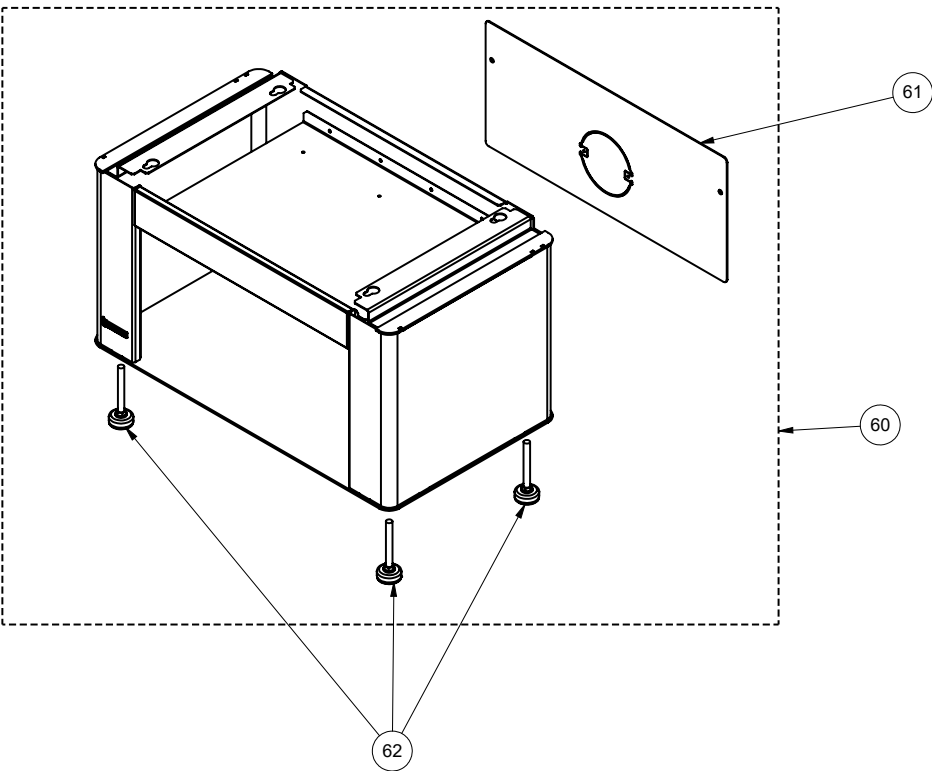
Pedestal Assembly



	Part #	Description
50	075-945	Pedestal Complete
51	075-069	Pedestal Door
52	904-257	Magnetic Catch (Each)
53	075-910	Ashdrawer
54	948-223	Regency Logo Plate
N/S	904-023	5/16 x 1-1/2 Hex Head Bolt (Each)

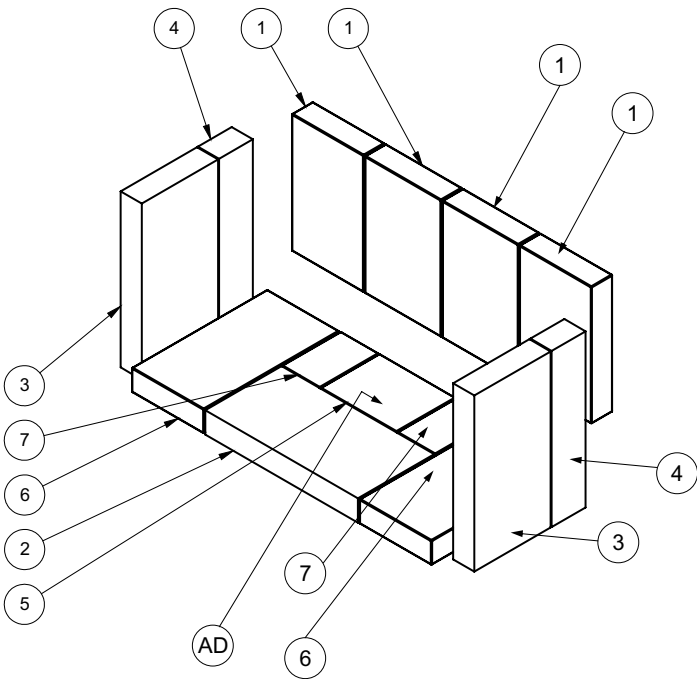
parts list

F1150-1 Wood Stacker



	Part #	Description
60	075-946	Wood StackerComplete
61	075-312	Backing Plate
62	948-055	Levelling Legs

173-960 F1150-1 Complete Brick Kit



Fire bricks	
#	Size
1	8-3/8" x 4-3/8"
2	9" x 4-1/4"
3	9" x 4-1/2"
4	9" x 2-3/8"
5	3-1/2" x 4-1/2" (AD)
6	7-3/4" x 4-1/4"
7	3-1/2" x 2-1/4"
AD	Ashdump brick

[illegible]

Indoor Wood Product Warranty

Limited Lifetime Warranty

FPI Fireplace Products International Ltd. (for Canadian customers) and Fireplace Products U S, Inc. (for US customers) (collectively referred to herein as "FPI") extends this Limited Lifetime Warranty to the original purchaser of this Appliance provided the product remains in the original place of installation. The items covered by this Limited Lifetime Warranty and the period of such coverage are set forth in the table below.

An Appliance in this policy is defined as an Indoor wood insert or Indoor wood freestanding stove.

This Appliance has only been certified and listed for use indoors.

Note: This Wood Product Warranty does not apply to the Ri50 & CF780 models. See Ri50/CF780 policy for specific warranty details.

This Limited Lifetime Warranty starts on the day the Appliance was purchased.

The Limited Lifetime Warranty is not transferable, amendable or negotiable under any circumstances.

Indoor Wood Products	Component Coverage					Subsidized Labor Coverage***
	Limited Lifetime	5 years	2 years	1 year	Warranty	(Years)
Welded Firebox Steel	✓					5
All Stainless Steel Components, Smoke Deflectors, Heat Shields etc.	✓					3
Air Tubes	✓					3
Airmate	✓					3
Door handle and latch assembly, all hardware	✓					3
Glass Thermal Breakage Only	✓					3
Steel Faceplates, Accessory Housings	✓					3
All Plating	✓					3
Ash Drawer, Heatshields, Pedestal	✓					0
All Baffles, Steel, Ceramic, Vermiculite C-Baffles	✓					0
All castings, firebox, surrounds, doors, panels etc.		✓				3
All Electrical, Blower, wiring, switches, Catalytic Monitors, Probes, etc.			✓			2
Glass - Crazing				✓		1
Catalyst Combustor					**10 Years Prorated	0
Venting/Chimney				✓		1
Screens				✓		1

**See specific warranty details regarding the catalyst combustor in this manual.

Note: Warranty coverage noted above may not be applicable as components/options vary based on appliance purchased.

Conditions:

Warranty protects against defect in manufacture or FPI factory-assembled components only, unless herein specified otherwise.

*****This warranty does not cover dealer travel costs, mileage, fuel, tolls for diagnostic or service work. All labor rates paid to authorized dealers are subsidized, pre-determined rates. Dealers may charge you for travel and additional time beyond their subsidy.**

Any part(s) found to be defective during the warranty period as outlined above will be repaired or replaced at FPI's option through an accredited distributor, dealer or pre-approved and assigned agent provided that the defective part is returned to the distributor, dealer or agent for inspection if requested by FPI. Alternatively, FPI may, at its own discretion, fully discharge all of its obligations under warranty by refunding the verified purchase price of the product to the original purchaser. The purchase price must be confirmed by the original Bill of Sale.

The authorized selling dealer, or an alternative authorized FPI dealer if pre-approved by FPI, is responsible for all in-field diagnosis and service work related to all warranty claims. FPI is not responsible for results or costs of workmanship of unauthorized FPI dealers or agents in the negligence of their service work.

At all times, FPI reserves the right to inspect reported in the field/on location complaints of products claimed to be defective before processing or authorizing any claim. Failure to allow this upon request will void the warranty.

All warranty claims must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase by you). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. **Incomplete claims may be rejected.**

Replacement Appliances to the original purchaser are limited to one per warranty term. Air tube and baffle replacements are limited to one replacement per warranty term.

The Appliance must be installed according to all manufacturers' instructions as per the manual. All Local and National required codes must be met.

The installer is responsible for ensuring the Appliance is operating as designed at the time of installation.

The original purchaser is responsible for the annual maintenance of the Appliance, as outlined in the owner's manual. As outlined below, the warranty may be voided due to problems caused by a lack of maintenance.

Purchased parts: Repair/replacement parts purchased by the consumer from FPI after the original coverage has expired on the Appliance will carry a **90-day** warranty from the purchase date, valid with a receipt only. Any item shown to be defective will be repaired or replaced at our discretion. No labor coverage is included with these parts.

If freight damage has been found either externally or internally, the dealer must be informed within 3 days. All claims as a result of damage must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. **Incomplete claims may be rejected.**

As this is a Limited Lifetime Warranty, if the Appliance needs to be replaced, the Appliance that was purchased at the time of sale might not be replaced with exactly the same model Appliance. In that case, FPI will replace your Appliance with one that is similar at the time of replacement under the terms of this Limited Lifetime Warranty, but **ONLY** in the event that an item covered by the Limited Lifetime Warranty is found to be defective. Please refer to the table on first page of this warranty for items covered by the Limited Lifetime Warranty. Product changes might be the result of the original Appliance being discontinued, changes in regulatory requirements, product advancements, etc., which are beyond the control of FPI. **This Limited Lifetime Warranty does not cover any installation costs, or costs associated with changes of required clearances for the replacement Appliance, hearth pads, mantles, facing and/or facing materials such as framing, completed walls made of drywall, wood, non-combustible board, tile, brick, stone, marble etc., venting/chimney systems, or components of the chimney system.**

If a suitable replacement is not available, FPI will refund **50%** of the purchase price of the Appliance and any applicable FPI accessories (faceplates, brick panels, media, etc.) purchased at the time of sale. **In no event will FPI refund any portion of the purchase price of, or reimburse costs associated with, any other items, including without limitation, installation of a new unit, changes of required clearances for a new unit, hearth pads, mantles, facing and/or facing materials such as framing, completed walls made of drywall, wood, non-combustible board, tile, brick, stone, marble etc., venting/chimney systems, or components of the chimney system. A copy of the receipt or bill of sale will be necessary to validate the purchase price.**

Exclusions:

This Limited Lifetime Warranty does not extend to paint, rust or corrosion of any kind due to a lack of maintenance or improper venting, combustion air provision, corrosive chemicals (i.e. chlorine, salt, air, etc.), firebrick (rear, sides or bottom), door or glass gasketing, vermiculite floor bricks, and iron assemblies/flue damper rod or any other additional factory fitted gasketing, batteries.

Malfunction, damage or performance-based issues as a result of environmental conditions, location, chemical damages, downdrafts, installation error, an installation by an unqualified installer, incorrect chimney components (including but not limited to cap size or type), operator error, abuse, misuse, use of improper fuels (such as unseasoned cordwood, mill-ends, construction lumber or debris, off-cuts, treated or painted lumber, metal or foil, plastics, garbage, solvents, cardboard, coal or coal products, oil-based products, waxed cartons, compressed pre-manufactured logs, kiln dried wood), lack of regular maintenance and upkeep, acts of God, weather-related problems from hurricanes, tornados, earthquakes, floods, lightning strikes/bolts or acts of terrorism or war, which result in a malfunction of the Appliance are not covered under the terms of this Limited Lifetime Warranty.

warranty

FPI has no obligation to enhance or modify any Appliance once manufactured (i.e. as products evolve, field modifications or upgrades will not be performed on existing Appliances).

Any Appliance showing signs of neglect or misuse will not be covered under the terms of this warranty policy and may void this warranty, including Appliances with rusted or corroded fireboxes that have not been reported as rusted or corroded within **three (3)** months of installation/purchase.

Appliances which show evidence of being operated while damaged, or with problems known to the purchaser and causing further damages will void this warranty.

Appliances where the serial no. has been altered, deleted, removed or made illegible will void this warranty.

Minor movement, expansion and contraction of the steel is normal and is not covered under the terms of this warranty.

Freight damages for products or parts are not covered under the terms of the warranty.

Products made or provided by other manufacturers and used in conjunction with the FPI Appliance without prior authorization from FPI may void this warranty.

Limitations of Liability:

The original purchaser's exclusive remedy under this warranty, and FPI's sole obligation under this Limited Lifetime Warranty, express or implied, in contract or in tort, shall be limited to replacement, repair, or refund, as outlined above. IN NO EVENT WILL FPI BE LIABLE UNDER THIS WARRANTY FOR ANY INCIDENTAL OR CONSEQUENTIAL COMMERCIAL DAMAGES OR DAMAGES TO PROPERTY. TO THE EXTENT PERMITTED BY APPLICABLE LAW, FPI 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. IF IMPLIED WARRANTIES CANNOT BE DISCLAIMED, THEN SUCH WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some US states do not allow limitations on how long an implied warranty lasts, or allow exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Customers located outside the US should consult their local, provincial or national legal codes for additional terms, which may be applicable to this warranty.

How to Obtain Warranty Service:

Customers should contact the authorized selling dealer to obtain warranty service. In the event the authorized selling dealer is unable to provide warranty service, please contact FPI by mail at the address listed below. Please include a brief description of the problem and your address, email and telephone contact information. A representative will contact you to make arrangements for an inspection and/or warranty service.

Canadian Warrantor:

FPI Fireplace Products International Ltd.
6988 Venture St.
Delta, British
Columbia Canada,
V4G 1H4

US Warrantor:

Fireplace Products U.S., Inc.
PO Box 2189 PMB 125
Blaine, WA
United States, 98231

Or contact the Regency Customer Care Centre at 1-800-442-7432 (phone) /604-946-4349 (fax) /customerservice@regency-fire.com (e-mail)

Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form at <http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx> within **ninety (90)** days of purchase.

Warranty Registration Card



Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form found on our Web Site under Customer Care within ninety (90) days of purchase.

For purchases made in **CANADA or the UNITED STATES:**

<http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx>

For purchases made in **AUSTRALIA:**

<http://www.regency-fire.com.au/Customer-Care/Warranty-Registration.aspx>

You may also complete the warranty registration form below to register your Regency Fireplace Product and mail and/or fax it back to us, and we will register the warranty for you. It is important you provide us with all the information below in order for us to serve you better.

Warranty Registration Form (or Register online immediately at the above Web Site):

Warranty Details	
Serial Number (required):	
Purchase Date (required) (mm/dd/yyyy):	
Product Details	
Product Model (required):	
Dealer Details	
Dealer Name (required):	
Dealer Address:	
Dealer Phone #:	
Installer:	
Date Installed (mm/dd/yyyy):	
Your Contact Details (required)	
Name:	
Address:	
Phone:	
Email:	

For purchases made in **CANADA:**

FPI Fireplace Products International Ltd.
6988 Venture St.
Delta, British Columbia
Canada, V4G 1H4

Phone: 604-946-5155
Fax: 1-866-393-2806

For purchases made in **the UNITED STATES:**

Fireplace Products US, Inc.
PO Box 2189 PMB 125
Blaine, WA
United States, 98231

Phone: 604-946-5155
Fax: 1-866-393-2806

For purchases made in **AUSTRALIA:**

Fireplace Products Australia Pty Ltd
99 Colemans Road
Dandenong South, Vic.
Australia, 3175

Phone: +61 3 9799 7277
Fax: +61 3 9799 7822

For fireplace care and tips and answers to most common questions please visit our Customer Care section on our Web Site. Please feel free to contact your selling dealer if you have any questions about your Regency product.

PRODUCT LIFE CYCLE:

By recycling your used appliances, you divert waste from your local landfills and help the environment. You also reduce the need for raw materials to manufacture new products. Contact your local municipality for appliance recycling services, local recycling programs, or appliance removal services to ensure your Regency appliance components, and packaging are properly recycled.

[illegible]

notes

[illegible]

Installer: Please complete the following information

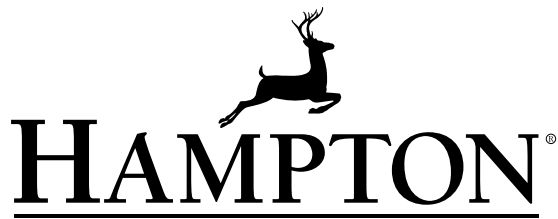
Dealer Name & Address: _____

Installer: _____

Phone #: _____

Date Installed: _____

Serial #: _____



Owner's & Installation Manual

Hi1150-1 Wood Cast Insert



www.hampton-fire.com

Tested by:



0219WN036S

Installer: Please complete the details on the back cover
and leave this manual with the homeowner.

Homeowner: Please keep these instructions for future reference.

Thank you for purchasing a
Hampton FIREPLACE PRODUCT.

The pride of workmanship that goes into each of our products will give you years of trouble-free enjoyment. Should you have any questions about your product that are not covered in this manual, please contact the **HAMPTON DEALER** in your area.

"This wood heater has a manufacturer set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual." Failure to follow the manual details can lead to smoke and CO emissions spilling into the home. It is recommended to have monitors in areas that are expected to generate CO such as heater fueling areas.

"U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using crib wood." Tested to Method 28R, E2780-10, E2515-11. Model Hampton Hi1150-1 – 1.3 g/hr.

"This manual describes the installation and operation of the Hampton Hi1150-1 wood heater. This heater meets the 2020 U.S. Environmental Protection Agency's cord wood emission limits for wood heaters. Under specific test conditions this heater has been shown to deliver heat at rates ranging from 12,700 BTU/hr to 27,300 BTU/hr. Efficiency is determined using the B415 method resulting in lower and higher heat values. This heater generates the best efficiency when operated using well-seasoned wood and installed in the main living areas where the majority of the chimney is within the building envelope. This wood heater needs periodic inspection and repair for proper operation."

It is against federal regulation to operate this wood heater in a manner inconsistent with operating instructions in this manual."

"This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods."

DO NOT BURN:

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper
- Bio Bricks
- Trash
- Lawn clippings or yard waste
- Materials containing rubber including tires
- Materials containing plastic
- Waste petroleum products , paints or paint thinners or asphalt products
- Materials containing asbestos
- Construction or demolition debris
- Railroad ties
- Manure or animal remains
- Saltwater driftwood or other previously salt water saturated materials
- Unseasoned wood
- Paper products, cardboard, plywood or particle board. The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in a wood heater.

Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke.

The authority having jurisdiction (such as Municipal Building Department, Fire Department, Fire Prevention Bureau, etc.) should be consulted before installation to determine the need to obtain a permit.

ULC628-2022 - Canada

This fireplace insert must be installed with a continuous chimney liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney. The chimney liner must conform to the class 3 requirements of CAN/ULS-S635 Standard for lining systems for existing Masonry or factory built chimneys and vents or to the requirements of CAN/ULC-S640, Standard for lining systems for new masonry chimneys.

UL1482-2022 - U.S.A

A chimney complying with the requirement for type HT chimneys in the standard for chimneys, factory built residential and building heating appliance UL103 or a code approved masonry chimney liner with a flue liner.

This fireplace insert must be installed with a continuous chimney liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

When this room heater is not properly installed, a house fire may result. To reduce the risk of fire follow the installation instructions. Contact local building or fire official as about restrictions and installation requirements in your area.

Hi1150-1 is certified to CAN/ULC 628-2022 and UL 1482-2022.

SAVE THESE INSTRUCTIONS

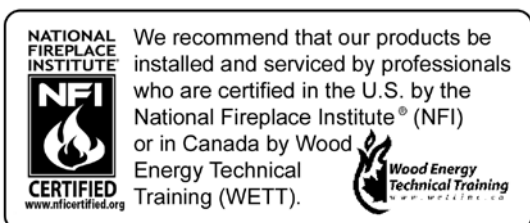


table of contents

Safety

Copy of the Safety Decal (Hi1150-1).....	4
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Dimensions

Unit Dimensions with Standard Flue Adaptor	5
Unit Dimensions with Offset Flue Adaptor	6

Installation

Masonry Fireplace Clearances.....	7
Fireplace Specifications.....	7
How to Determine if Alternate Floor Protection Materials are Acceptable.....	8
Installing Into a Masonry Fireplace	9
Before Installing Your Insert.....	9
Chimney Specifications	9
Draft	9
Installing Your Insert	10
Fan & Cast Faceplate Installation.....	11
Brick Installation	13
Baffle Installation	14
Stainless Steel Smoke Deflector Installation.....	15

Operating Instructions

Seasoned Wood	16
Operating Instructions	17
Draft Control.....	17
First Fire.....	17
Fan Operation	18
Ash Disposal	19
Safety Precautions.....	19
Safety Guidelines and Warnings.....	19

Maintenance

Maintenance	20
Creosote.....	20
Ways to Prevent and Keep Unit Free of Creosote	20
Wood Storage	20
Fan Maintenance	20
Door Gasket.....	21
Glass Cleaning	21
Door Removal	21
Glass Replacement	21
Handle Replacement.....	21
Latch Adjustment	22
Secondary Air Tube Removal/Installation.....	23
Vertical Stainless Deflector Replacement	24
Annual Maintenance	25

Parts List

Main Assembly	26
Cast Faceplate	27
Brick Panels	27

Warranty

Warranty	28
Recycling	33

ALL PICTURES / DIAGRAMS SHOWN THROUGHOUT THIS MANUAL ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL PRODUCT MAY VARY DUE TO PRODUCT ENHANCEMENTS.

CAUTION: To avoid burns or wood splinters, when opening/closing the fuel door or adding wood to the fire, You should always wear appropriate protective gloves to protect your hands from the heat being emitted from this fireplace.


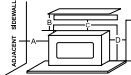
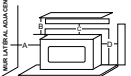

safety decal

Copy of the Hi1150-1 Safety Decal

This is a copy of the label that accompanies each **HI1150 Wood Insert**. We have printed a copy of the contents here for your review.

NOTE: Regency units are constantly being improved. Check the label on the unit and if there is a difference, the label on the unit is the correct one.

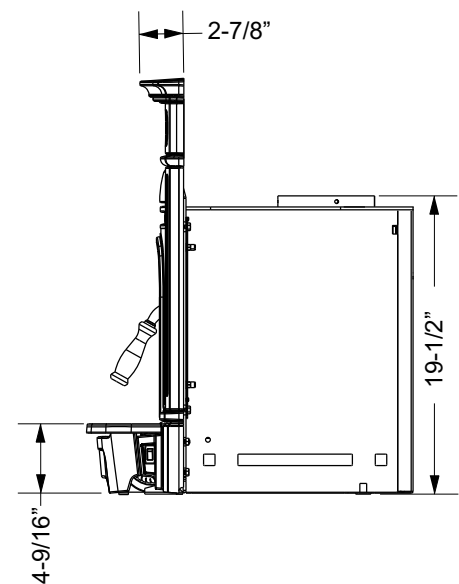
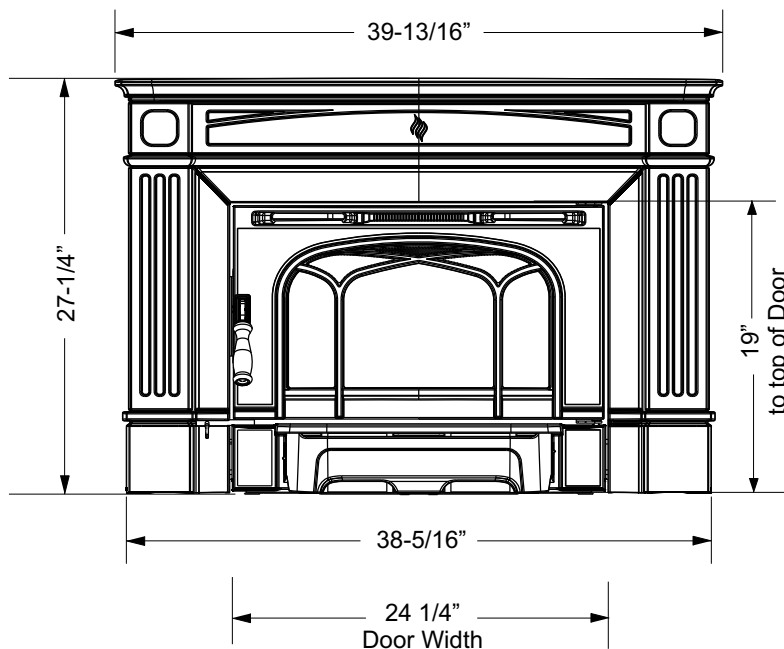
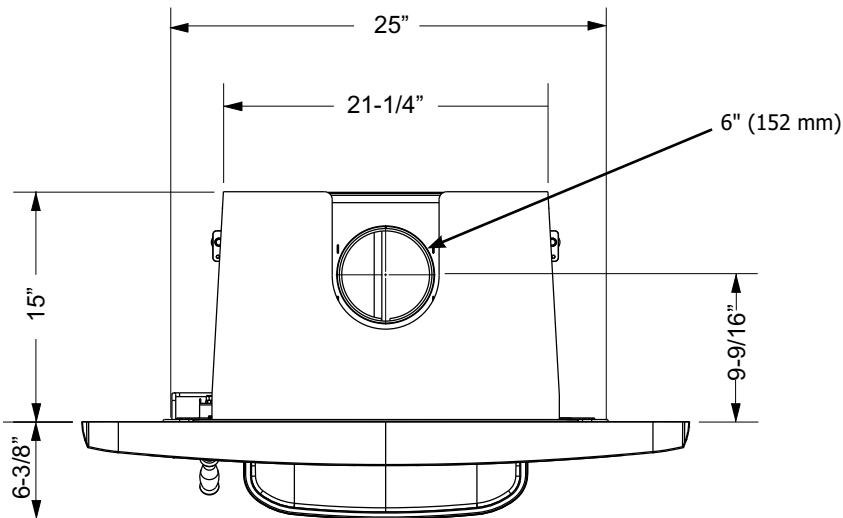
The serial # label will be affixed to a metal plate along with a black chain underneath the firebox. The fan assembly (if installed) would need to be removed which would expose the serial # decal.

(Duplicate Serial #) 620									
 <div>DO NOT REMOVE THIS LABEL / NE PAS ENLEVER CETTE ÉTIQUETTE</div> <div>620</div>									
<p>U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD.™ TESTED TO METHOD 28R, E2780-10, E2515-11. MODEL REGENCY HI1150-1 – 1.3 G / HR. 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.</p>									
<p>INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS. INSTALL AND USE ONLY IN MASONRY FIREPLACE ONLY. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA.</p>									
<p>MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM SIDE/TOP OF DOOR)</p>									
<table border="0"><tr><td>ADJACENT SIDEWALL</td><td>A) 15 in / 380 mm</td></tr><tr><td>MANTEL</td><td>B) 20 in / 510 mm</td></tr><tr><td>TOP FACING</td><td>C) 14 in / 355 mm</td></tr><tr><td>SIDE FACING</td><td>D) 7-7/8 in / 200 mm</td></tr></table> 		ADJACENT SIDEWALL	A) 15 in / 380 mm	MANTEL	B) 20 in / 510 mm	TOP FACING	C) 14 in / 355 mm	SIDE FACING	D) 7-7/8 in / 200 mm
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MANTEL	B) 20 in / 510 mm								
TOP FACING	C) 14 in / 355 mm								
SIDE FACING	D) 7-7/8 in / 200 mm								
<p>COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING (E) 16 in / 405mm TO FRONT AND (G) 8 in / 205mm TO SIDES FROM FUEL DOOR. IN CANADA MUST EXTEND 18" TO FRONT. THERMAL INSULATION WITH A R VALUE = 1.4 AT A DISTANCE OF 18" FROM FRONT OF DOOR OPENING FOR CANADA AND 16" FOR USA. IF UNIT RAISED 4.5" FROM FLOOR, NO THERMAL INSULATION IS REQUIRED.</p>									
<p>COMPONENTS REQUIRED FOR INSTALLATION: 5.5" (140mm) or 6" (152mm) STAINLESS STEEL LINER LISTED CHIMNEY LINER. OPTIONAL COMPONENT: FAN PART #210-911/210-915, ELECTRICAL RATING: VOLTS 115, 60 HZ, 0.6 AMPS. DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. BUILD WOOD FIRE DIRECTLY ON HEARTH. OPERATE WITH FEED DOOR CLOSED, OPEN TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILD-UP MAY OCCUR RAPIDLY. DO NOT OVERFIRE, IF INSERT GLOWS YOU ARE OVER-FIRING. CAUTION: MOVING PARTS MAY CAUSE INJURY. DO NOT OPERATE UNIT WITH A REMOVED PART OR PARTS. 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.</p>									
<p>INSTALL AND USE IN MASONRY FIREPLACE ONLY. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE. CERTIFIÉ CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS D'ESSAI NORMALISÉ. HOMOLOGUÉ SELON LA MÉTHODE 28R, E2780-10, E2515-11. MODÈLE REGENCY HI1150-1 – 1,3 G / H. CET APPAREIL DE CHAUFFAGE AU BOIS DOIT ÊTRE INSPECTÉ PÉRIODIQUEMENT ET RÉPARÉ POUR FONCTIONNER CORRECTEMENT. CONSULTER LE MANUEL D'INSTALLATION POUR PLUS D'INFORMATION. LA RÉGLEMENTATION FÉDÉRALE INTERDIT DE FAIRE FONCTIONNER UN TEL APPAREIL SI LES CONSIGNES D'UTILISATION CONTENUES DANS LE PRÉSENT MANUEL NE SONT PAS RESPECTÉES.</p>									
<p>D'INSTALLATION ET D'UTILISATION DU FABRICANT. À INSTALLER ET À UTILISER UNIQUEMENT DANS UN FOYER EN MAÇONNERIE OU UN FOYER PRÉFABRIQUÉ. CONTACTEZ LES AUTORITÉS LOCALES EN BÂTIMENT OU INCENDIE POUR CONNAÎTRE LES RESTRICTIONS D'INSTALLATION ET LES RÈGLES D'INSPECTION DANS VOTRE RÉGION.</p>									
<p>DÉGAGEMENTS MINIMAUX AUX MATÉRIEAUX COMBUSTIBLES (MESURES PRISES DEPUIS LE CÔTÉ / HAUT DE LA PORTE)</p>									
<table border="0"><tr><td>MUR LATÉRAL ADJACENT</td><td>A) 15 po / 380 mm</td></tr><tr><td>MANTEAU</td><td>B) 20 po / 510 mm</td></tr><tr><td>PAREMENT SUPÉRIEUR</td><td>C) 14 po / 355 mm</td></tr><tr><td>PAREMENT LATÉRAL</td><td>D) 7 7/8 po / 200 mm</td></tr></table> 		MUR LATÉRAL ADJACENT	A) 15 po / 380 mm	MANTEAU	B) 20 po / 510 mm	PAREMENT SUPÉRIEUR	C) 14 po / 355 mm	PAREMENT LATÉRAL	D) 7 7/8 po / 200 mm
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<p>LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR UN MATÉRIAU NON COMBUSTIBLE S'ÉTENDANT SUR (E) 16 PO / 405MM À L'AVANT ET SUR (G) 8 PO / 205MM ENTRE LES CÔTÉS ET LA PORTE DE CHARGEMENT DU COMBUSTIBLE. PROLONGEMENT SUR 18 PO À L'AVANT AU CANADA. ISOLATION THERMIQUE AVEC UNE VALEUR R = 1,4 À UNE DISTANCE DE 18 PO DEPUIS L'AVANT DE L'OUVREURE DE LA PORTE AU CANADA ET 16 PO AUX ÉTATS-UNIS. SI L'APPAREIL EST SURÉLEVÉ À 4,5 PO DU SOL, AUCUNE ISOLATION THERMIQUE N'EST REQUISE.</p>									
<p>PIÈCES OBLIGATOIRES POUR L'INSTALLATION : GAINÉ DE CHEMINÉE HOMOLOGUÉE EN ACIER INOXYDABLE DE 5,5 PO (140mm) ou 6 PO (152mm). PIÈCE EN OPTION : VENTILATEUR PIÈCES N°210-911 / 210-915. CARACTÉRISTIQUES ÉLECTRIQUES : 115 VOLTS, 60 HZ, 0,6 AMPS. DANGER : RISQUE D'ÉLECTROCUTION. DÉBRANCHER LE COURANT AVANT DE PROCÉDER À L'ENTRETIEN DE L'APPAREIL. NE PAS RETIRER LES BRIQUES OU LE MORTIER DU FOYER EN MAÇONNERIE. À UTILISER AVEC UN COMBUSTIBLE SOLIDE EN BOIS SEULEMENT. NE PAS UTILISER DE GRILLE NI SURÉLEVER LE FEU. NE PAS CONNECTER CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL. FAIRE UN FEU DE BOIS DIRECTEMENT SUR L'ÂTRE. FAIRE FONCTIONNER L'APPAREIL AVEC LA PORTE DE CHARGEMENT FERMÉE, L'OUVRIR SEULEMENT POUR ALIMENTER LE FEU. REMPLACER LA VITRE SEULEMENT AVEC UNE VITRE EN CÉRAMIQUE (5MM). FAIRE INSPECTER ET RAMONER LA CHEMINÉE À INTERVALLES RÉGULIERS. ACCUMULATION RAPIDE DE CRÉOSOTE DANS CERTAINES CONDITIONS. NE PAS SURCHAUFFER : SI L'ENCASTRABLE EST ROUGE OYANT, L'APPAREIL SURCHAUFFE. ATTENTION : LES PIÈCES AMOVIBLES PEUVENT ENTRAÎNER DES BLESSURES. NE PAS FAIRE FONCTIONNER L'APPAREIL SI UNE OU PLUSIEURS PIÈCES ONT ÉTÉ ENLEVÉES. CE POÊLE À BOIS DOIT ÊTRE INSPECTÉ ET RÉPARÉ PÉRIODIQUEMENT POUR FONCTIONNER CORRECTEMENT. CONSULTEZ LE MANUEL DU PROPRIÉTAIRE POUR PLUS D'INFORMATIONS. L'UTILISATION DE CE POÊLE À BOIS D'UNE MANIÈRE INCOMPATIBLE AVEC LES INSTRUCTIONS D'UTILISATION DU MANUEL DU PROPRIÉTAIRE EST CONTRAIRE À LA RÉGLEMENTATION FÉDÉRALE. INSTALLER ET UTILISER DANS UN FOYER DE MAÇONNERIE UNIQUEMENT. NE PAS INSTALLER DANS UN FOYER PRÉFABRIQUÉ.</p>									
<p>ATTENTION / DANGER</p>  <p>HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ ABOVE INSTRUCTIONS.</p> <p>APPAREIL CHAUD LORSQU'IL FONCTIONNE. NE PAS TOUCHER. GARDER À DISTANCE DES ENFANTS, DES VÊTEMENTS ET DU MOBILIER. TOUT CONTACT PEUT CAUSER DES BRÛLURES. LIRE LES INSTRUCTIONS CI-DESSUS.</p> <p>MANUFACTURED BY / FABRIQUÉ PAR : FPI FIREPLACE PRODUCTS INTERNATIONAL LTD. 6988 VENTURE ST. DELTA, BC V4G 1H4</p>									
920-847									

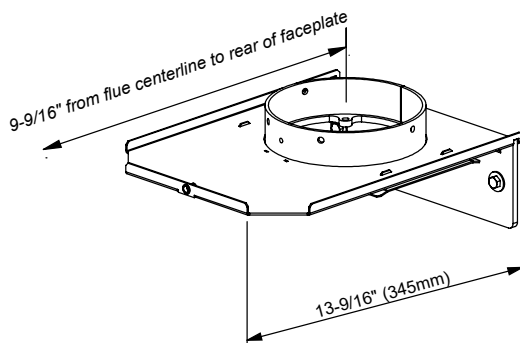
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DATE OF MANUFACTURE / DATE DE FABRICATION
MADE IN CANADA / FAIT AU CANADA

Unit Dimensions with Standard Flue Adaptor



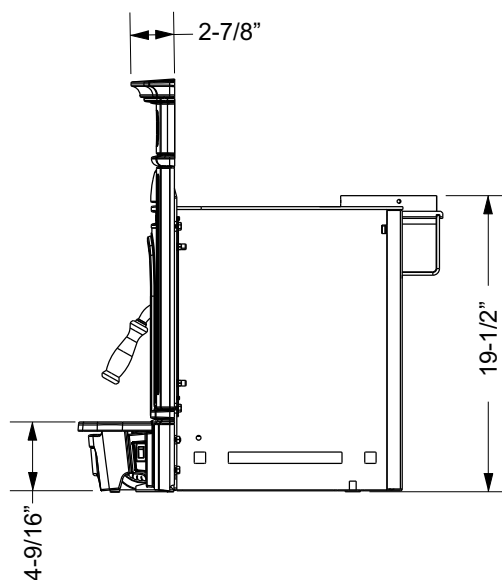
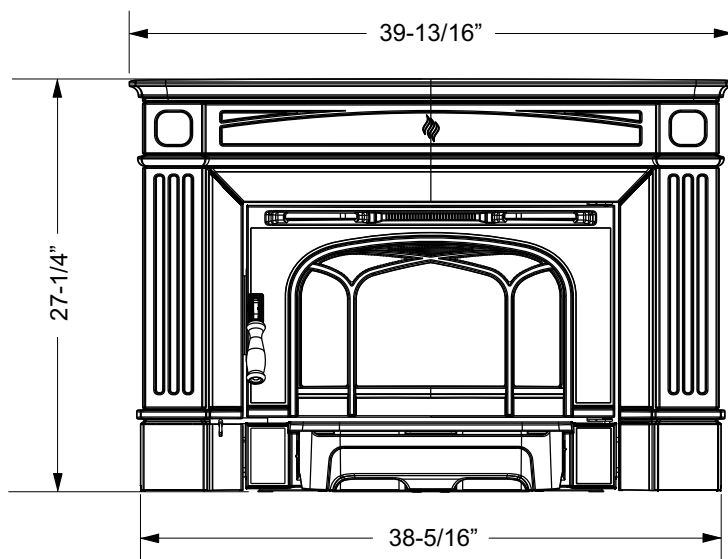
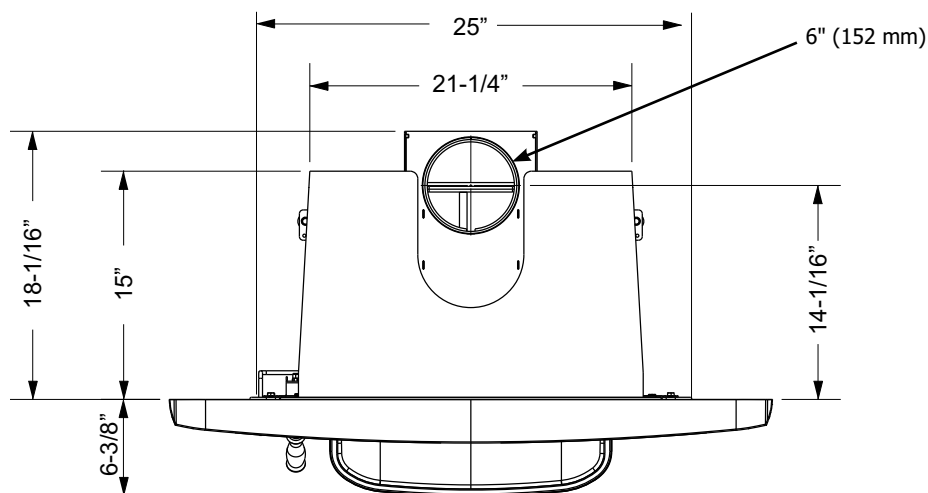
6" (152mm) Diameter
STANDARD FLUE ADAPTOR (172-942)



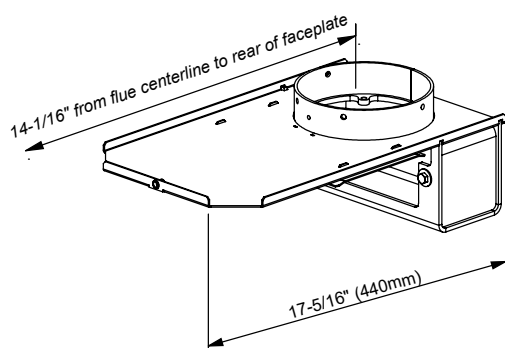
NOTE:
Before assembling your Insert, use these dimensions to ensure appropriate clearances will be met (refer to Masonry and Factory Built Fireplace Clearances section).

dimensions

Unit Dimensions with Offset Flue Adaptor



6" (152mm) Diameter
STANDARD FLUE ADAPTOR (172-946)



NOTE:
Before assembling your Insert, use these dimensions to ensure appropriate clearances will be met (refer to Masonry and Factory Built Fireplace Clearances section).

Masonry Fireplace Clearances

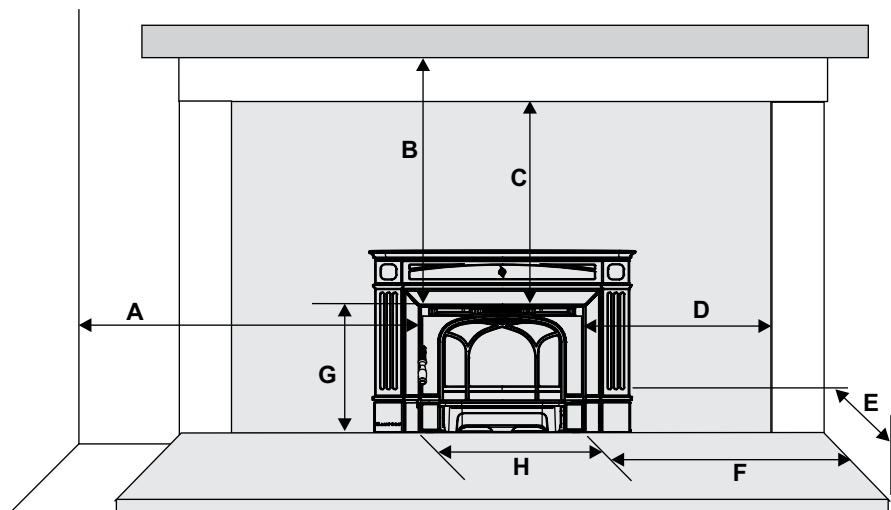
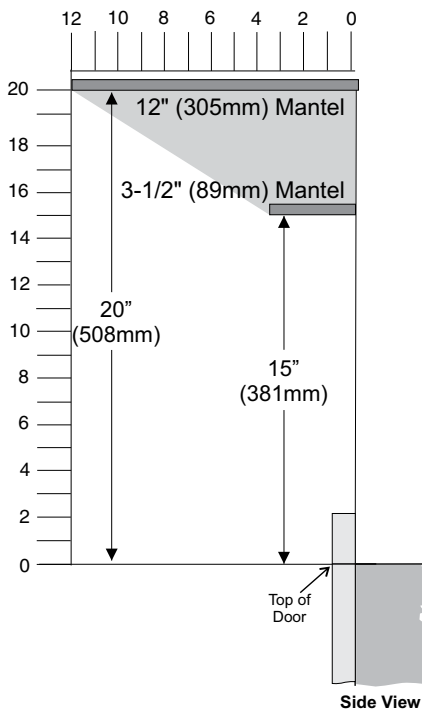
The minimum required clearances to combustible materials when installed into a masonry fireplace are listed below.

Unit Hi1150-1	Adjacent Side Wall (to side) A**	Mantel*** (to top) B**	Top Facing (to top) C**	Side Facing (to side) D**	Minimum Hearth Extension* E	Minimum Hearth Side Extension* F	From Top of Door (Reference Dimension Only) G	From Side of Door (Reference Dimension Only) H
	15" (381 mm)	15" (381 mm) for 3-1/2" (89 mm) mantel	14" (355 mm)	7 7/8"(200 mm)	16" (406 mm) USA 18"(457 mm) Canada	8" (203 mm)	19" (483 mm)	14 - 1/4" (362mm)
		20" (508 mm) for 12"(305 mm) mantel						

Note: Side and Top facing is a maximum of 1.5" thick.

**Measured from side/top of door.

Note : If top/side facing trim protrudes more than 1-1/2" (38 mm) follow mantle (B)** & adjacent side wall (A) for proper clearances.



Clearance Diagram for installations

*Floor Protection

Thermal insulation/protection with a R value of 1.4 at a distance of 18" from door opening is required for Canada and 16" for USA.

Thermal floor protection (Type 1) is not required when unit is raiser greater than 4-1/2" (114 mm) measured from the bottom of the appliance.

Please check to ensure that your floor protection and hearth will meet the standards for clearance to combustibles. Your hearth extension must be made from a non-combustible material extending 16" (406 mm) for US and 18" (457 mm) for Canada—measured from the fuel loading door opening.

F measurement (minimum hearth extension) is taken from the side of the door for both U.S.A/Canada.

Fireplace Specifications

Your fireplace opening requires the following minimum sizes:

Height:	19-5/8" (499 mm)
Width:	25" (635 mm)
Depth:	
(w/ standard flue adaptor)	15" (381 mm)
(w/ offset flue adaptor)	18-1/16" (459 mm)

Faceplate Dimensions:

Height	27-1/4" (692 mm)
Width	38-5/16" (973 mm)

Clearances are critical.

***Mantel can be installed anywhere in shaded area or higher using the above scale.

installation

How to Determine if Alternate Floor Protection Materials are Acceptable

All floor protection must be noncombustible (i.e. metals, brick, stone, mineral fiber boards, concrete board etc.). The noncombustible floor protection specified includes some form of thermal designation such as R-value (thermal resistance) or k-factor (thermal conductivity).

Thermal Resistance: R Value

The R value is a measure of a material's resistance to heat transfer. R value is convenient when more than one material is used since you can add the R values together, whereas you cannot do this for k value. The HIGHER the R factor means less heat is being conducted through the non-combustible material to the combustible material beneath it. The R value of a material must be equal or larger than the required R value to be acceptable.

Example : The specified floor protector should be 3/8" (18mm) thick material with a K - factor of 0.84. The proposed alternative is 4" (100mm) brick with a C-factor of 1.25 over 1/8" (3mm) mineral board with a K-factor of 0.29.

Step (a):

Use formula above to convert specification to R-value.

$$R = 1/k \times T = 1/0.84 \times .75 = 0.893.$$

Step (b):

Calculate R of proposed system.

4" brick of C = 1.25, therefore

$$R_{\text{brick}} = 1/C = 1/1.25 = 0.80$$

1/8" mineral board of k = 0.29, therefore

$$R_{\text{min.bd.}} = 1/0.29 \times 0.125 = 0.431$$

$$\text{Total R} = R_{\text{brick}} + R_{\text{mineral board}} = 0.8 + 0.431 = 1.231.$$

Step (c):

Compare proposed system R of 1.231 to specified R of 0.893. Since proposed system R is greater than required, the system is acceptable.

DEFINITIONS

Thermal Conductance:

$$C = \text{Btu} = \text{W}$$

$$(\text{hr})(\text{ft}^2)(\text{oF})(\text{m}^2)(\text{K})$$

Thermal Conductivity:

$$k = (\text{Btu})(\text{inch}) = \text{W} = \text{Btu}$$

$$(\text{hr})(\text{ft}^3)(\text{oF})(\text{m})(\text{K})(\text{hr})(\text{ft})(\text{oF})$$

Thermal Resistance:

$$R = (\text{ft}^2)(\text{hr})(\text{oF}) = (\text{m}^2)(\text{K})\text{Btu}$$

Installation into a Masonry Fireplace

Regency Inserts are constructed with the highest quality materials and assembled under strict quality control procedures that insure years of trouble free and reliable performance.

It is important that you read this manual thoroughly and fully understand the safe installation and operating procedures. The more you understand the way your Regency Insert operates, the more enjoyment you will experience from knowing that your unit is operating at peak performance.

WARNING: The room heater shall not be installed in a factory-built fireplace.

Before Installing Your Insert

1. Please read this entire manual before you install and use your new wood insert. Failure to follow instructions may result in property damage, bodily injury or even death. Install and use only in accordance with manufacturer's installation and operating instructions.
2. Check your local building codes - Building Inspection Department. You may require a permit before installing your insert. **Be aware that local codes and regulations may override some items in the manual.**

WARNING: Careless installation is the major cause of safety hazard. Check all local building and safety codes before installation of unit.

3. Notify your home insurance company that you plan to install a fireplace insert or hearth heater.
4. Your fireplace insert is heavy and requires two or more people to move it safely. The insert can be badly damaged by mishandling.
5. If your existing fireplace damper control will become inaccessible once you have installed your Regency Insert, you should either remove or secure it in the open position.
6. Inspect your fireplace and chimney prior to installing your insert to determine that it is free from cracks, loose mortar or other signs of damage. If repairs are required, they should be completed before installing your insert. Do not remove bricks or mortar from your masonry fireplace.
7. **Do not connect the insert to a chimney system servicing another appliance or an air distribution duct.**

Chimney Specifications

Before installing, check and clean your chimney system thoroughly. If in doubt about its condition, seek professional advice. Your Regency Insert is designed for installation into a masonry fireplace that is constructed in accordance with the requirements of "The Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliance", N.F.P.A. 211, the National Building Code of Canada, or the applicable local code requirements.

The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70, or the Canadian Electrical code, CSA C22.1.

Regency Inserts are designed to use either a 5.5" (140mm) or 6" (152mm) flue.

ULC628-2022 - Canada

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

The chimney liner must conform to the class 3 requirements of CAN/ULS-S635 Standard for lining systems for existing Masonry or factory built chimneys and vents or to the requirements of CAN/ULC-S640, Standard for lining systems for new masonry chimneys.

UL1482-2022 - U.S.A

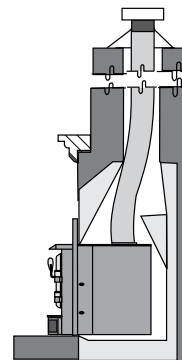
A chimney complying with the requirement for type HT chimneys in the standard for chimneys, factory built residential and building heating appliance UL103 or a code approved masonry chimney liner with a flue liner.

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

When this room heater is not properly installed, a house fire may result. To reduce the risk of fire follow the installation instructions. Contact local building or fire official as about restrictions and installation requirements in your area.

Draft

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance and may cause damage. An uncontrollable burn or excessive temperature indicates excessive draft. Inadequate draft may cause back puffing into the room and plugging of the chimney. Inadequate draft will cause the appliance to leak smoke into the room through appliance and chimney connector joints. Ensure the heater is installed in areas that are not too close to neighbors or in valleys that would cause unhealthy air quality or nuisance conditions.



Recommended chimney height from top of flue collar:
Minimum 15 feet (4.6 meters)

NOTE

If the fireplace has been modified to accommodate a fireplace liner, the installer is to attach the metal tag to the fireplace using screws or nails, in a location readily visible should the fireplace insert be removed. A metal tag is supplied with this wood insert.

When referencing installation or connection to masonry fireplaces or chimneys, the masonry construction must or shall be code complying.

IMPORTANT:

Smoke and CO Detectors:

Make sure your home has a working smoke and CO detector, especially near any bedrooms. We recommend having a smoke and CO detector in the same room as the wood appliance for additional safety. Location of both detectors should be chosen wisely to avoid false alarms when reloading the appliance.

Fire Extinguisher:

A fire extinguisher should be installed in the home. The location of the fire extinguisher should be known by all family members.

installation

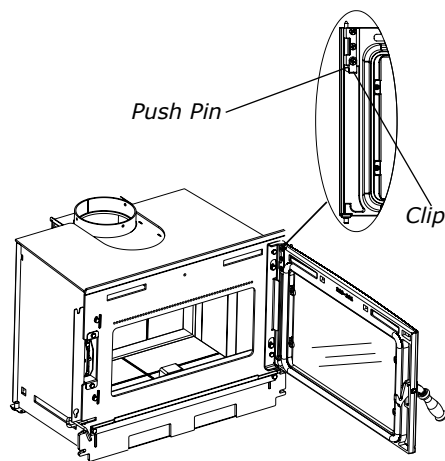
Installing Your Insert

SAFETY NOTE: The insert is very heavy and will require two or three people to move it into position. The insert can be made a little lighter by removing the cast iron door by opening it and lifting it off its hinges. Be sure to protect your hearth extension with a heavy blanket or carpet scrap during the installation.

NOTE: You will be required to purchase either the standard or offset 6" diameter (152mm) flue adaptor that is best suited for the specific installation.

List of Tools needed:

- Pull Rod (included with insert)
- 1/2" socket / ratchet
- 3/8 open face wrench

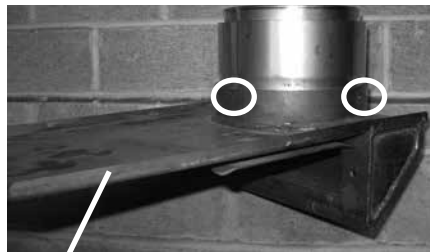


1. Remove the Door to make the insert easier to handle. To remove the door, open fully, remove clip by removing 1 Philips head screw, release the push pin at the top of the door, and lift out from the bottom. See above diagram.
2. Install the required flue adaptor onto the end of the flex liner as shown in diagram 1. Secure the adaptor using 3 screws - 1 on the front, left and right side as shown in Diagram 2.

Alignment of the flue adaptor can be critical during the install, it is recommended that the flex liner be left as compressed as possible. Before inserting the unit the adaptor should hang, when level, slightly above the required height.



Diagram 1 Flex Liner



Flue Adaptor Diagram 2

Secure adaptor using 3 screws - 1 in the front and 1 each on the left and right side.

3. Install the unit by first setting the rear of the unit into the fireplace. See Diagram 3. Ensure that the unit is centered in the existing fireplace and lined up with the flue adaptor.
4. Slide the unit back until the flue adaptor is slightly engaged.



Diagram 3

5. At this point it is recommended to level the unit and ensure that the leveling bolts rest on the surface of the fireplace. This will keep the adaptor from binding as the unit is slid into position.
6. Insert the provided pull rod through the hole in the top center of the unit. Secure the threaded end into the flue adaptor as shown in Diagram 4. While sliding the unit into place pull on the rod to ensure that the flue adaptor is properly engaged. See Diagram 5.
7. Ensure that the unit is still level.

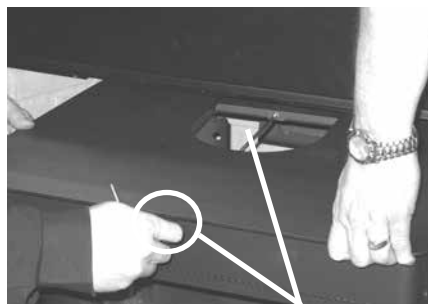


Diagram 4 Pull Rod

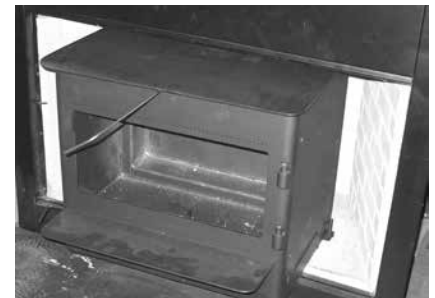


Diagram 5 Pull Rod In Place

8. To complete the installation and to ensure a secure fit and connection of the flue adaptor to the insert, it is essential that the two bolts, flat washers and lock washers (supplied with packaged manual) be installed and tightened using a 1/2" socket as shown in Diagram 6. This prevents the possibility of creosote drip and exhaust gas leakage.

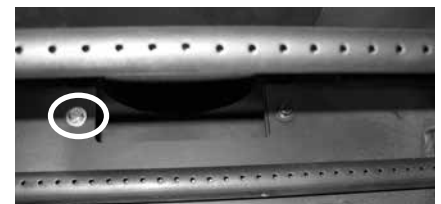


Diagram 6

9. Remove the pull rod from the top center of the fireplace. See Diagram 7.



Diagram 7 Pull Rod

NOTE: The pull rod should not be thrown away. It should be kept if the stove is ever needed to be removed from the fireplace.

10. Re-install the door removed in step 1.

Fan & Cast Faceplate Installation

Stop! Read Carefully.
Enamel & Cast components are very fragile. Use extreme care when handling.

Note: The liner and flue adaptor should be installed prior to reading these instructions.

- 1) With door already removed - place fan in front of unit as shown below, Loosen 2 flange bolts - adjust flange to rest on fan assembly, once height has been determined . Leave 2" between fan and unit, tighten 2 flange bolts using 7/16" open end wrench. Fan assembly can now be secured to the unit using 2 bolts on both left and right side - see Diagrams 1 & 2.

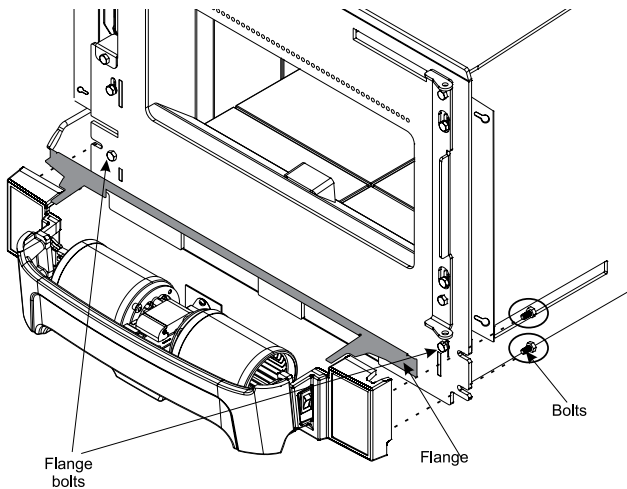
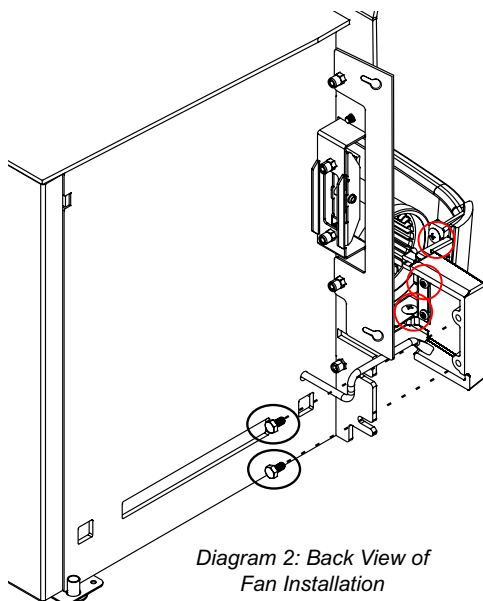


Diagram 1



Note: If screws do not lineup, loosen the 2 screws per side as shown in Diagram 2 and adjust left side and right side facia. Tighten the 2 screws per side and install the fan on the unit.

- 2) Slide the unit into position leaving partially out to allow for installation of the left and right side surrounds.
- 3) Install the left and right side surround to the mounting brackets on the unit using 2 bolts per side. See Diagram 3.

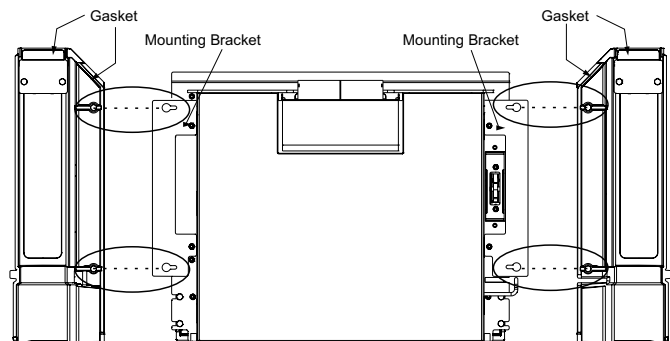


Diagram 3

- 4) Place a strip of gasket on top of the left and right side surround on the front lip of the side castings. See Diagram 3.
- 5) Carefully slide the top surround in place by aligning the mounting plates with the two retainers in the left and right side surrounds. See Diagram 4.

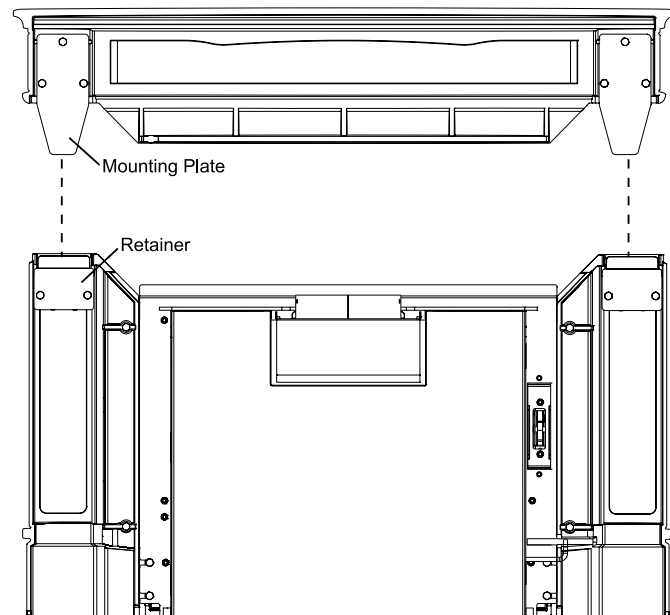
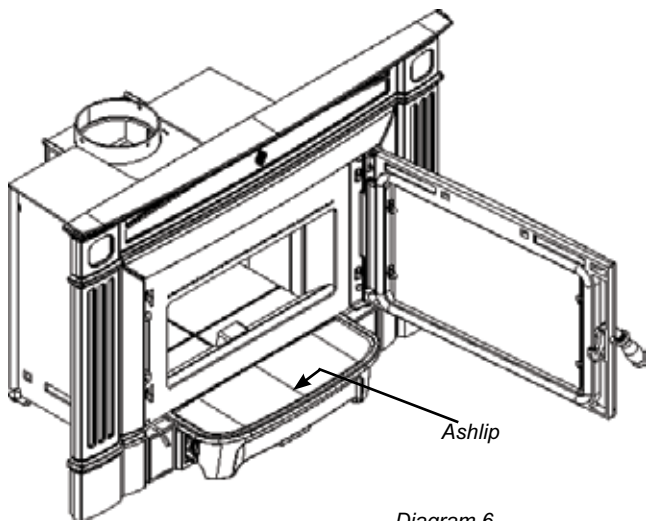
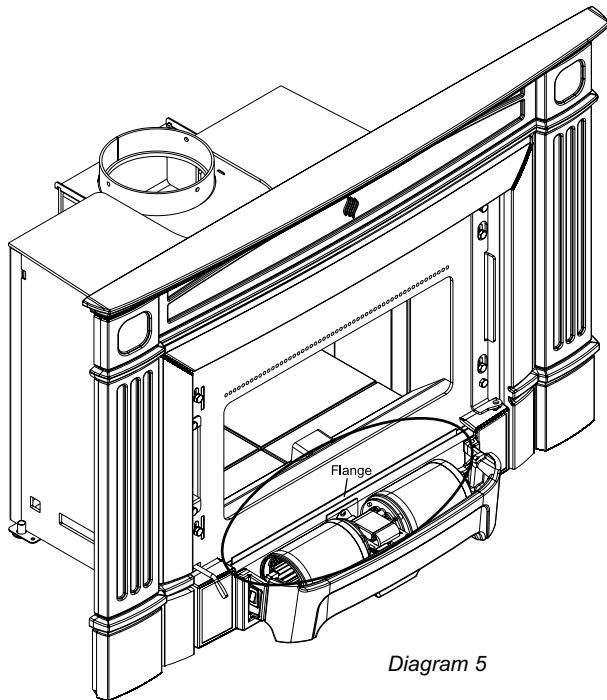


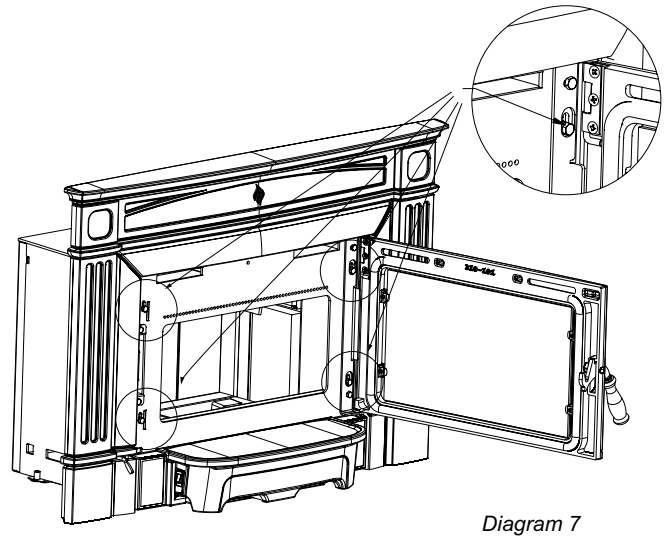
Diagram 4

installation

- 6) Place ashlip over fan by fitting it onto the flange on the firebox. See Diagram 5 and 6.



- 7) Install door and close with caution - adjustments may be necessary.



- 8) Surround adjustments can be made up or down, loosen 4 bolts shown on face of unit (Diagram 7) and adjust. Surround can also be adjusted left or right, loosen 4 bolts shown in Diagram 3 - adjust surround left or right and retighten bolts. Check that gaps around door are even and door closes properly.
- 9) Completely slide unit into place - after all adjustments have been made.

DO NOT ROUTE THE FAN POWER CORD UNDER OR IN FRONT OF THE UNIT.

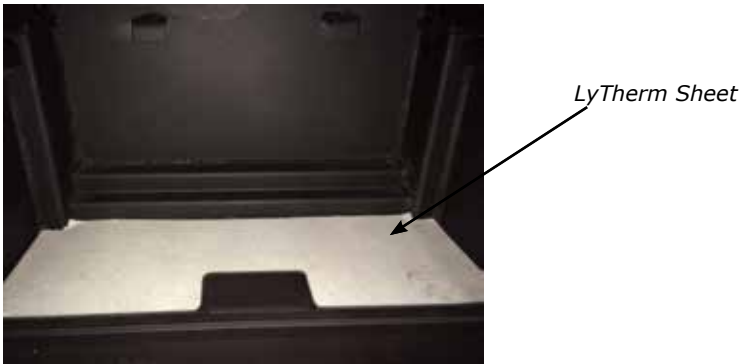
Do not turn the fan ON until your insert has reached operating temperature or at least 30 minutes after starting fire.

Installer: Please record unit serial number here before installing blower.

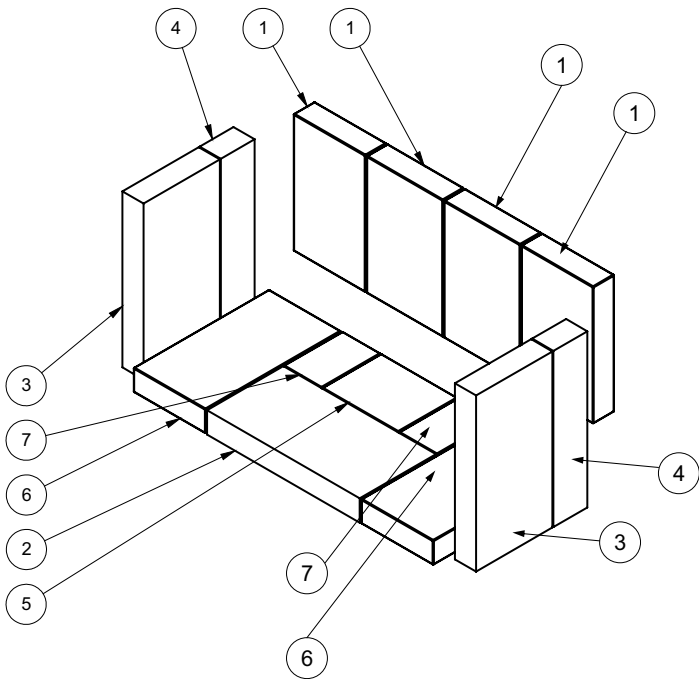
Serial No. _____

Brick Installation

Firebrick is included to extend the life of your stove and radiate heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping. Install all firebricks (if bricks were removed at install) per the Diagram below and place in their correct positions. Do not use a grate.



- Order of firebrick install:
- a) Rear Firebrick
 - b) Firebox floor - install brick over LyTherm Sheet
 - c) Right and left side Firebricks



Fire bricks	
#	Size
1	8-3/8" x 4-3/8"
2	9" x 4-1/4"
3	9" x 4-1/2"
4	9" x 2-3/8"
5	3-1/2" x 4-1/2"
6	7-3/4" x 4-1/4"
7	3-1/2" x 2-1/4"

installation

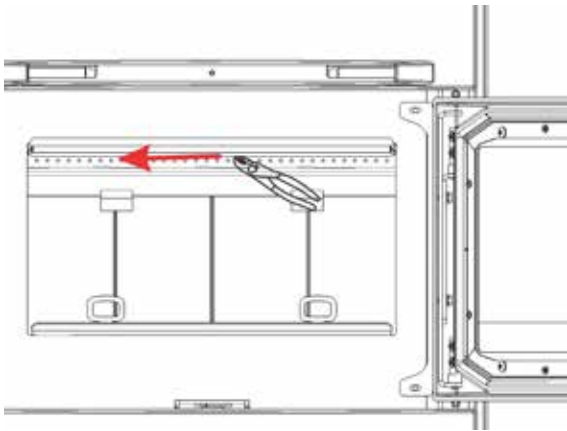
Baffle Installation

Note: unit in images may not be identical to the Hi1150-1 — they depict the process.

1. Open the door.

2. Remove the front secondary air tube with pliers as shown below.

Note: It will be easier to remove the air tubes by removing both the bottom right base brick and right side wall brick.

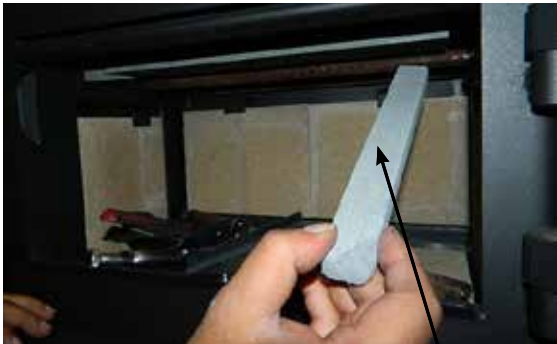


3. Install the center baffle.



Centre baffle

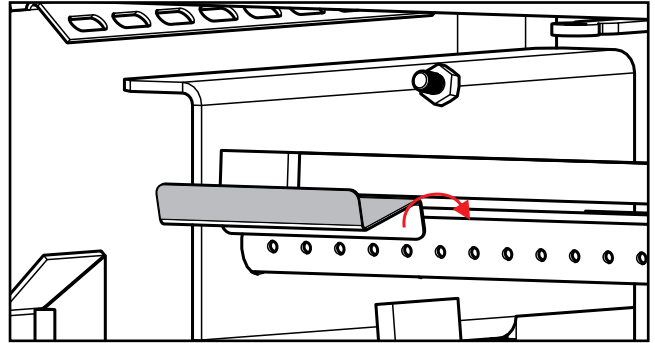
4. Install the right and left side baffles (right side baffle shown below).



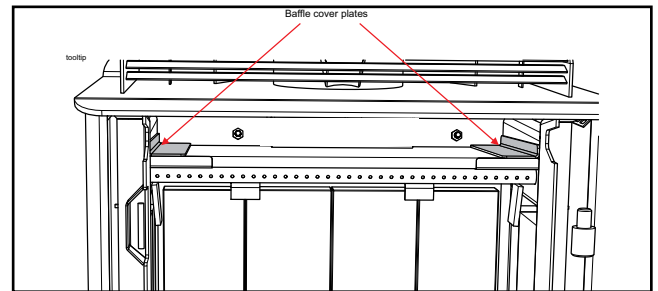
Baffle Side Piece

5. Install the front air tube removed in step 2.

6. Install baffle brackets on either side by slightly lifting baffles up and placing brackets in between baffles and the front air tube. The brackets will hold the baffles in position.



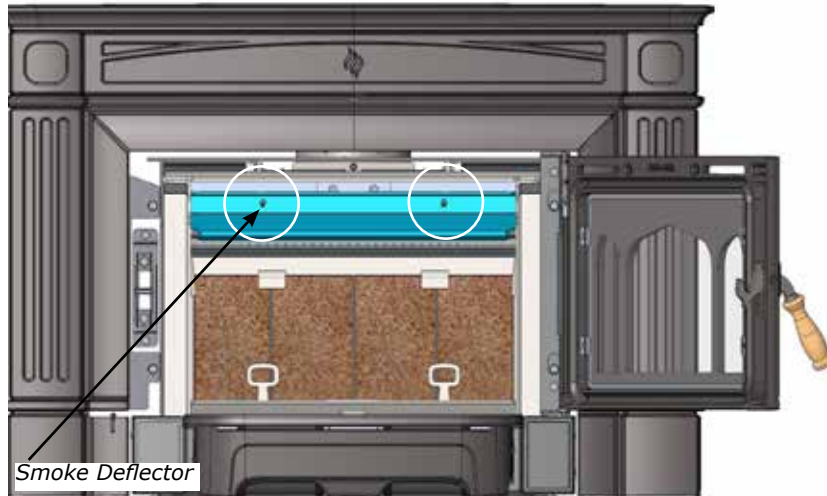
7. Slide left and right baffle cover plates on either side of baffles as shown.



8. Reverse steps to uninstall the baffles.

Stainless Steel Smoke Deflector Installation

The stainless smoke deflector is located in the upper front area of the firebox. The deflector is held in place with 2 bolts. Prior to the first fire, ensure deflector is seated properly and secured with 2 hand tightened bolts which are accessible from behind the smoke deflector.

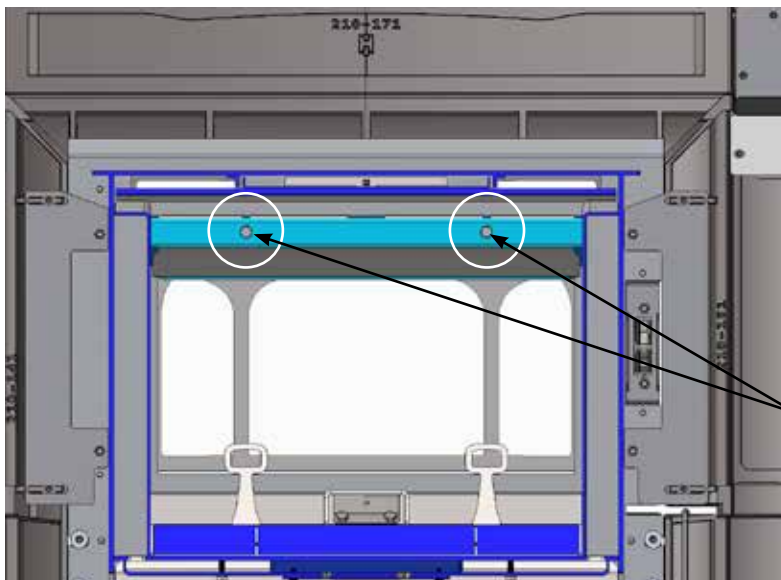


Smoke deflector is installed through the door opening in location shown in Diagram

To replace the deflector, loosen both bolts and slide deflector downward; push deflector to the back wall of the unit and manoeuvre out. Install new deflector and hand tighten bolts.

Ensure positive location of the deflector prior to hand tightening.

WARNING: Operation of the unit without proper installation of smoke deflector will void warranty.



Smoke deflector installed with 2 bolts.

Note: This is a cutaway view from the back of the unit

operating instructions

Seasoned Wood

Whether you burn wood in a fireplace, stove or insert, good quality firewood is the key to convenience, efficiency and safety. Wet wood and pieces that are not the right size and shape for your wood burner can be frustrating, burn inefficiently and deposit creosote that can fuel a dangerous chimney fire. Good planning, seasoning and storage of the firewood supply are essential to successful wood burning.

- Stack the wood in separate rows in an open location where the summer sun can warm it and breezes can carry away the moisture. Do not stack unseasoned wood tightly in an unvented storage area.
- Do not allow firewood to lie on the ground for more than a couple of days before stacking. Mould and rot can set in quickly.
- Stack the wood up off the ground on poles, lumber rails or pallets.
- The top of the pile can be covered to keep off rain, but do not cover the sides.

Softer woods like pine, spruce and poplar/aspen that is cut, split and stacked properly in the early spring maybe be ready for burning in the fall. Extremely hard woods like oak and maple, and large pieces of firewood, may take a minimum of a full year to dry enough. Drying may also take longer in damp climates

There are a few ways to tell if wood is dry enough to burn efficiently. Use as many indicators as possible to judge the dryness of the firewood your are considering. Here are ways to judge firewood moisture.

- Using a moisture meter, select the species of fuel and then penetrate the pins into a split piece. Ideal moisture and seasoned firewood should be less than 20% moisture content.
- Checks or cracks in the end grain can be an indication of dryness, but may not be a reliable indicator. Some wet wood has checks and some dry wood has no checks.
- The wood tends to darken from white or cream colour to grey or yellow as it dries.
- Two dry pieces banged together sound hollow; wet pieces sound solid and dull.
- Dry wood weighs much less than wet wood.
- Split a piece of wood. If the exposed surface feels damp, the wood is too wet to burn.

Operating Instructions

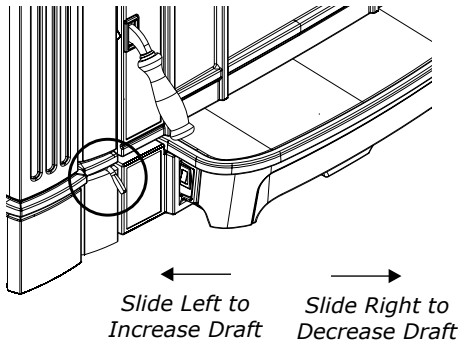
With your unit now correctly installed and safety inspected by your local authority, you are now ready to start a fire. Before establishing your first fire, it is important that you fully understand the operation of your draft control.

WARNING

Fireplace Stoves equipped with doors should be operated only with doors fully closed. If doors are left partly open, gas and flame may be drawn out of the fireplace stove opening, creating risks from both fire and smoke.

Draft Control

Before establishing your first fire, it is important that you fully understand the operation of draft control. The draft control rod is on the left side of the Insert and it controls the intensity of the fire by increasing or decreasing the amount of air allowed into the firebox. To increase the draft, slide the rod to the left and to decrease the draft, slide the rod to the right.



As well as a primary and glass wash air system, the unit has a full secondary draft system that allows air to the induction ports at the top of the firebox, just below the flue baffle.

WARNING: To build a fire in ignorance or to disregard the information contained in this section can cause serious permanent damage to the unit and void your warranty.

First Fire

When your installation is completed and inspected you are ready for your first fire.

THIS UNIT IS DESIGNED TO BURN SEASONED CORDWOOD ONLY. COAL, BRIQUETTES AND ALL OTHERS LISTED ON PAGE 2 ARE NOT APPROVED. SEASONED CORDWOOD SHOULD BE LESS THAN 20% MOISTURE CONTENT.

START UP AND OPERATING PROCEDURES:

1. For the first few days, the wood insert will give off an odour from the paint. This is to be expected as the high temperature paint becomes seasoned. Windows and/or doors should be left open to provide adequate ventilation while this temporary condition exists. Burning the wood insert at a very high temperature the first few times may damage the paint. During the first few fires, keep the combustion rate at a moderate level and avoid a large fire. Only after 5 or 6 such fires can you operate the wood insert at its maximum setting, and only after the metal has been warmed.
2. Do not place anything on the wood insert top during the curing process. This may result in damage to your paint finish.
3. When starting the fire, ensure air control is in the fully open position (far left). Crumble 2-5 pieces of newspaper and add approx. 1lb of kindling stacked in a manner that allows air flow on the firebrick hearth (Tee-pee style or other). **DO NOT USE A GRATE TO ELEVATE THE FIRE.** Light the newspaper and adjust the door if it is slightly ajar for less smoke roll out. Keep the door in that position for 2-3 minutes to establish a good fire.
4. When the fire is well established add another 0.5 - 1 lb kindling along with few pieces of start up cord wood (startup cord wood is slightly larger than kindling but not full pieces of cord wood). keep the door open for 1.5 - 2 min until the fire started well enough then close the door.

CAUTION: Never leave unit unattended if door is left open. This procedure is for fire start-up only, as unit may overheat if door is left open for too long.

5. Once flame has been established, open the door and add another 6 or 7 pieces (2 lbs) of start up cord wood more to the back. Hold door slightly ajar for 30-60 sec to establish flame, and then close the door.

NOTE: These steps are crucial to ensure proper charcoaling and coal bed prior to loading High, Med and Low fire loads.

6. Once this has burned down, open the door, and rake the coals to create a uniform charcoal bed. Load 5 pieces of 17" long cord wood, East-West orientation, with the heaviest pieces at the back of the firebox, and ensure all pieces are behind the log retainers. Do not block the pilot with wood. Once loaded, close the door right away. Burn on high setting (air control to the far left when facing the unit) for 6-10 minutes. Now you can adjust the air control to your desired position. After 15 minutes, the fan can be turned on.
High Fire: Air control to far left.
Low Fire: Air control to far right.

WARNING: Never build a roaring fire in a cold wood insert. Always warm your wood stove up slowly!

7. When re-fueling, always open the primary air damper, load fuel, then wait for at least 10 minutes before adjusting the air to the desired position. This will also minimize any smoking (spilling) back into the room.
8. During the first few days it may be more difficult to start the fire. As you dry out your firebrick and your masonry flue, your draft will increase.
9. For those units installed at higher elevations onto sub-standard masonry fireplaces, drafting problems may occur. Consult an experienced dealer or mason on methods of increasing your draft.
10. Some cracking and popping noises may be experienced during the heating up process. These noises will be minimal when your unit reaches temperature.
11. All fuel burning appliances consume oxygen during operation. It is important that you supply a source of fresh air to your unit while burning. A slightly opened window is sufficient for the purpose. If you also have another fireplace in your home, a downdraft may be created by your Regency wood insert causing a draft down your chimney. If this occurs, slightly open a window near your unit.

WARNING: If the body of your unit, or any part of the chimney connector starts to glow, you are over firing. Stop loading fuel immediately and close the draft control until the glow has completely subsided.

12. Green or wet wood is not recommended for your unit. If you must add wet or green fuel, open the draft control fully until all moisture has been dispersed by the intense fire. Once all moisture has been removed, the draft control may be adjusted to maintain the fire.
13. The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
14. If you burn the unit too slowly or at too low a setting your unit will not be operating as efficiently as it can. An easy rule of thumb says that if your glass is clean, then your flue is clean and your exhaust is clean. Burn the insert hot enough to keep the glass clean, and you won't need to clean your flue as often.

How to Light & Maintain a Wood Stove Fire



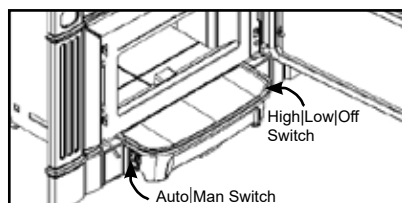
operating instructions

Fan Operation

The fan is to be operated only with the draft control rod **pulled out at least 1/2" from the fully closed position**. The fan is not to be operated when the draft control rod is in the closed position (pushed in). The fully closed position is the low burn setting.

The fan must not be turned on until a fire has been burning for at least 30 minutes. Also note it is recommended that the fan be turned off before each fuel loading and again wait for 30 minutes before the fan is turned on again. This is to allow the stove to reach it's optimum temperature.

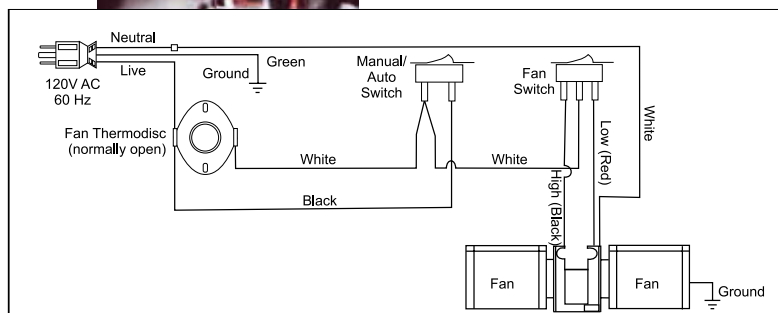
To operate fan automatically, push switch on the right side of fan housing to "Auto" and second switch, on the left to either "High" or "Low" for fan speed. The automatic temperature sensor will engage the blower when the unit is at temperature and will shut off the blower once the fire has gone out and the unit has cooled to below a useful heat output range.



Fan Control Location



To manually operate the fan system, push the switch on the left to "Man" and switch on the right to either "high" or "Low". This will bypass the sensing device and allow full control of the fan. Switching from "Auto" to "Manual" or "High" to "Low" may be done at any time.



Fan Wiring Diagram

Ash Disposal

During constant use, ashes should be removed every few days.

Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

Safety Precautions

1. Do not allow ashes to build up to the loading doors! Only remove ashes when the fire has died down. Even then, expect to find a few hot embers.
2. Please take care to prevent the build-up of ash around the start-up air housing located inside the stove box, under the loading door lip.
3. Never start a fire if the ash plug and ash drawer are not in place. This will cause over firing which can cause excessive warping of the stove. Evidence of over firing can void the warranty on your stove.
4. The firebricks are brittle and can be damaged if the plug is replaced carelessly or pieces that are too large are forced through the hole.

Safety Guidelines and Warnings

CAUTION: do not use chemicals as fluids to start fire.

1. **CAUTION:** Never use gasoline, gasoline type lantern fuels, kerosene, charcoal lighter fuel, or similar liquids to start or 'freshen up' a fire in your heater. Keep all such liquids well away from the heater while it is in use.
2. Keep the door closed during operation and maintain all seals in good condition.
3. Do not burn any quantities of paper, garbage, and never burn flammable fluids such as gasoline, naptha or engine oil in your stove.
4. If you have smoke detectors, prevent smoke spillage as this may set off a false alarm.
5. Do not overfire heater. If the chimney connector, flue baffle or the stove top begin to glow, you are over firing. Stop adding fuel and close the draft control. Over firing can cause extensive damage to your stove including warping and premature steel corrosion. Over firing will void your warranty.

6. Do not permit creosote or soot build-up in the chimney system. Check and clean chimney at regular intervals. Failure to do so can result in a serious chimney fire.
7. Your Regency stove can be very hot. You may be seriously burned if you touch the stove while it is operating, keep children, clothing and furniture away. Warn children of the burn hazard.
8. The stove consumes air while operating, provide adequate ventilation with an air duct or open a window while the stove is in use.
9. Do not connect this unit to a chimney flue serving another appliance.
10. Do not use grates or andirons or other methods for supporting fuel. Burn directly on the bricks.
11. Open the draft control fully for 10 to 15 seconds prior to slowly opening the door when refuelling the fire.
12. Do not connect your unit to any air distribution duct.
13. This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods.
14. In the event of component failure, replace parts with only Regency listed parts.
15. Warning: do not abuse glass door such as striking or slamming shut.

CAUTION: DO NOT BURN GARBAGE OR FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL. SOME FUELS COULD GENERATE CARBON MONOXIDE AND ARE VERY DANGEROUS.

CAUTION: DO NOT CONNECT TO, OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCT WORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATION.

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

DO NOT BURN:

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper
- Trash
- Salt drift wood
- Cut lumber, plywood, mill ends.

Burning treated wood, garbage, solvents, colored paper or trash may result in release of toxic fumes. Burning coal, cardboard, or loose paper can produce soot, or large flakes of char or fly ash, causing smoke spillage into the room.



maintenance

Maintenance

It is very important to carefully maintain your fireplace stove, including burning seasoned wood and maintaining a clean stove and chimney system. Have the chimney cleaned before the burning season and as necessary during the season, as creosote deposits may build up rapidly. Moving parts of your stove require no lubrication.

Creosote

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

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if creosote build up has occurred. If creosote has accumulated it should be removed to reduce the risk of chimney fire.

CAUTION: Things to remember in case of a chimney fire:

1. Close all draft controls.
2. CALL THE FIRE DEPARTMENT.

Ways to Prevent and Keep Unit Free of Creosote

1. Burn stove with the draft control wide open for about 10-15 minutes every morning during burning season.
2. Burn stove with draft control wide open for about 10 - 15 minutes every time you apply fresh wood. This allows the wood to achieve the charcoal stage faster and burns up any unburned gas vapours which might otherwise be deposited within the system.
3. Only burn seasoned wood! Avoid burning kiln dried, wet or green wood. Seasoned wood has been dried at least one year.
4. A small hot fire is preferable to a large smouldering one that can deposit creosote within the system.
5. The chimney and chimney connector should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred.
6. Have chimney system and unit cleaned by competent chimney sweeps twice a year during the first year of use and at least once a year thereafter or when a significant layer of creosote has accumulated (3 mm / 1/8" or more) it should be removed to reduce the risk of a chimney fire.

Wood Storage

Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood, etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.



Fan Maintenance

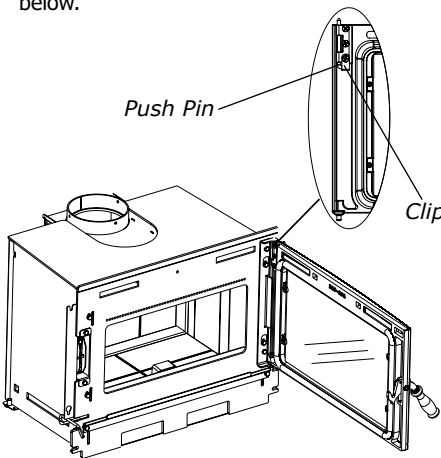
Note: Ensure the 3-prong plug is disconnected prior to servicing the fan.

As the sealed bearings are lubricated, there is no need to lubricate them further. Extra lubricant will cause more lint and dust buildup, causing the bearings to fail prematurely.

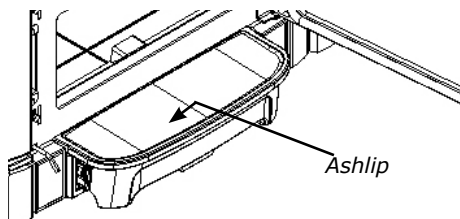
Regular cleaning and vacuuming of the fan area will prolong the life of the motor.

TO REMOVE THE FAN, FOLLOW THE STEPS BELOW.

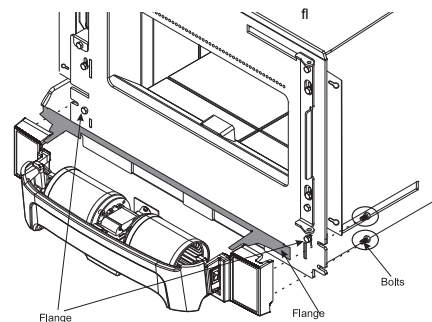
1. Remove the door. To remove the door, open fully, remove clip by removing 1 Philips head screw, release the push pin at the top of the door and lift out from the bottom. See diagram below.



2. Remove the ashlip by lifting it up and out, and put it aside.



3. Remove bolts as indicated in diagram #3.



4. Remove fan and clean as required.
5. If the fan motor needs to be replaced ensure to label wires.

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

Door Gasket

If the door gasket requires replacement, 7/8" diameter material must be used. A proper high temperature gasket adhesive is required. A gasket repair kit, Part # 846-570 is available from your local Hampton dealer.

Glass Cleaning

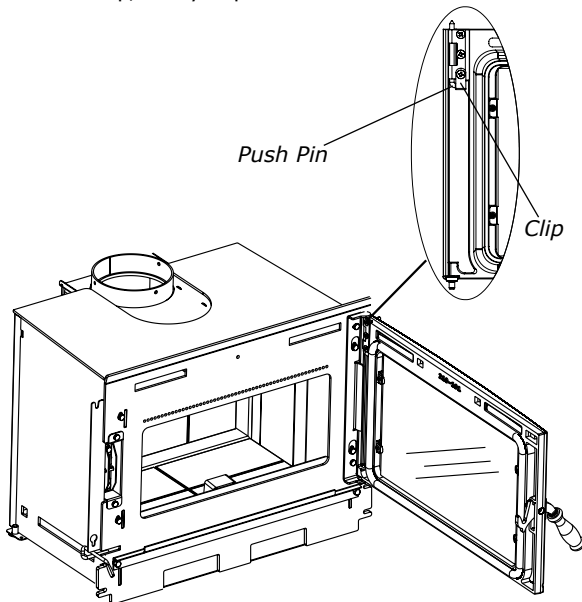
Only clean your glass window when it is cool. Your local retailer can supply you with special glass cleaner if plain water and a soft cloth does not remove all deposits.

Door Removal

When handling enamel parts, please handle with care as they can be damaged.

- 1) Open door fully.
- 2) Remove clip by removing one Philips head screw.
- 3) Release the push pin at the top of the door and slide out while lifting up and out from the bottom.

Please be careful when removing the Door and do not drop onto the Ashlip, it may chip.

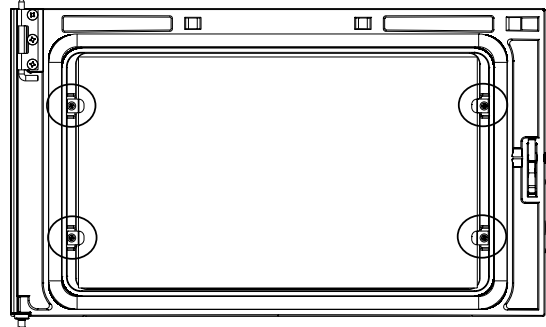


DOOR INSTALLATION NOTE

After re-installing the door, carefully swing open and check the clearance to the Right Hand Cast Side. If tight or rubbing, loosen the 7/16 nuts and adjust the clearance and then re-tighten.

Glass Replacement

- 1) Remove door from unit.
- 2) To replace the glass remove the 4 screws highlighted in the diagram below.
- 3) Lift off the glass retainer and carefully remove the glass.
- 4) Place new glass in the door, make sure that the glass gasketing will properly seal your unit.
- 5) Re-install the glass retainer. Ensure that it rests on the gasket and not the glass.
- 6) Secure glass retainer using the 4 screws. Do not wrench down on the glass as this may cause the glass to break.
- 7) Place door back on unit.

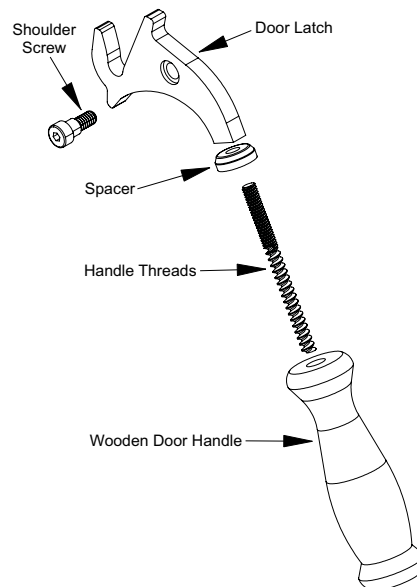


Remove 4 screws

Avoid impact on glass doors such as striking or slamming shut.

Handle Replacement

- 1) Remove handle by turning it counter clockwise.
- 2) Fit new door handle over door latch and secure.
To assemble handle:
a) Place spacer over handle threads.
b) Screw handle into door latch.

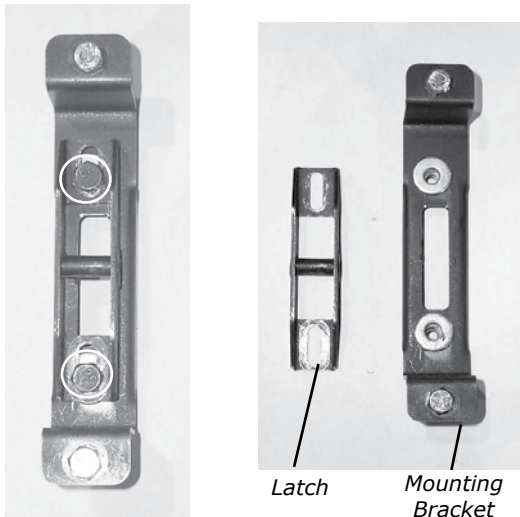


maintenance

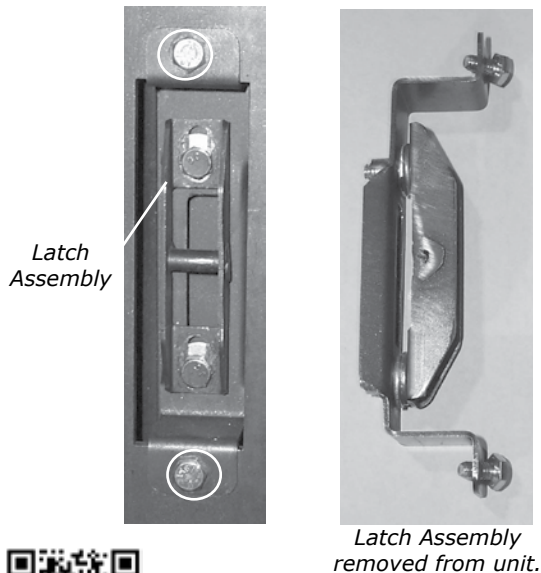
Latch Adjustment

The door latch or door alignment may require adjustment as the door gasket material compresses after a few fires. Removal of spacers will allow the latch to be moved closer to the door frame, causing a tighter seal and the ability to raise or lower the latch assembly.

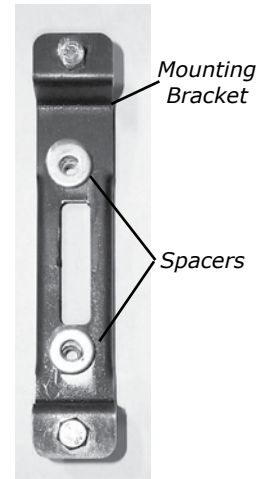
- 1) Raise or lower the latch by undoing the inner 2 bolts. Adjust to desired location and retighten the 2 bolts, make sure the door catch closes freely and makes a good seal. Do a paper test to confirm seal.



- 2) For door gasket seal, remove the latch assembly from the unit by undoing the outer 2 bolts.



- 3) Remove necessary amount of spacers sitting on the mounting bracket. Ensure an equal amount of spacers are removed from both top and bottom.



- 4) Re-secure latch to mounting bracket using 2 bolts.



- 5) Re-secure the latch assembly to the unit using 2 bolts. Confirm proper location of the door catch so that it closes tight, freely.



Secondary Air Tube Removal / Installation

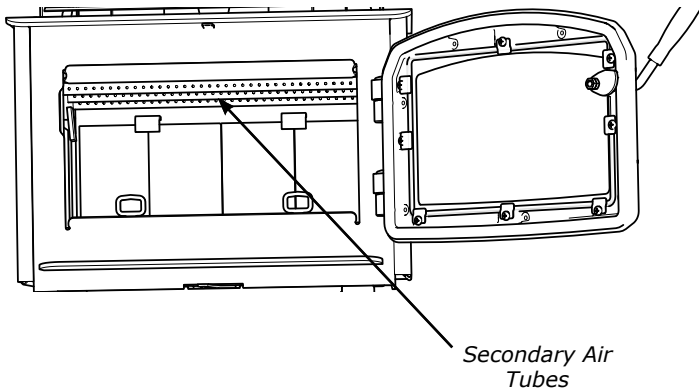
Note: unit in images may not be identical to the Hi1150-1 — they depict the process.

1. Allow the stove to burn out and cool down, until cool to touch.
2. Open stove door to access secondary air tubes.

Note: to make it easier to remove the air tubes, first remove both the bottom right base brick and right side wall brick.

5. To reinstall or replace, first slide left side of tube into hole on left side air channel. Align tab on right side air channel with notch on right hand end of air tube. Firmly grip center of air tube with vise grips, use hammer to tap vise grips from left to right until the tube bottoms out into the air channel on right.

Note : If air tube is locked into place correctly there should be slight movement when moving the air tube back and forth.



3. Grasp front secondary air tube firmly with vise grips, using a hammer tap vise grips from right to left until air tube is released from grip. Remove. See Diagram 1.
4. Remove top left and right metal retainers, followed by the fragile three piece C-Cast Baffles, then remove the remaining 2 tubes.

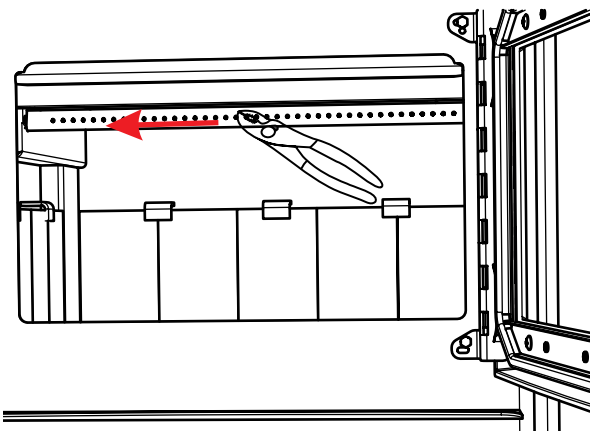
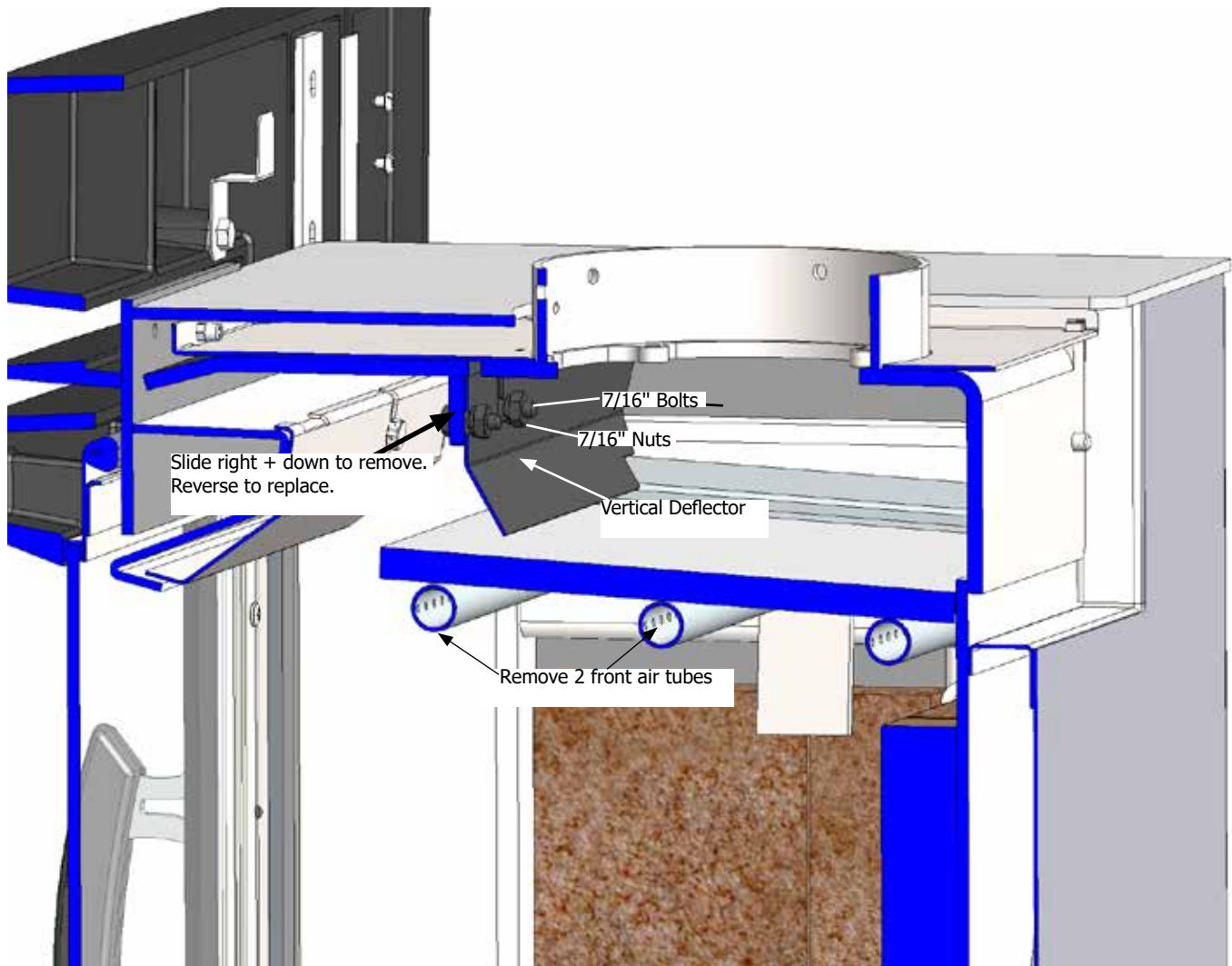


Diagram 1

maintenance

Vertical Stainless Deflector Replacement



1. Remove 2 front secondary air tubes / baffles (see manual for details).
2. Loosen the two 7/16" bolts + nuts to remove / replace vertical baffle.
3. Repeat steps to install new vertical deflector.

NOTE: ENSURE BAFFLE IS PUSHED UP AS FAR AS POSSIBLE. TIGHT TO TOP OF FIREBOX.

Annual Maintenance	
Completely clean out entire unit	Annually
Inspect air tube and bricks	Replace any damaged parts.
Adjust door catch assembly	If unable to obtain a tight seal on the door - replace door gasket seal. Readjust door catch after new gasket installed.
Inspect condition and seal of: Glass Gasket Door Gasket	Perform paper test - replace gasket if required
Paper Test	Test the seal on the loading door with a paper bill. Place a paper bill in the gasket area of the door on a cold stove. Close the door. Try to remove the paper by pulling. The paper should not pull out easily, if it does, try adjusting the door latch, if that doesn't solve the problem replace the door gasket.
Check and lubricate door hinge + latch	Use only high temperature anti seize lube. (ie. never seize)
Check glass for cracks	Replace if required.
Clean blower motor	Disconnect power supply. Remove and clean blower. *DO NOT LUBRICATE*
Inspect and clean chimney	Annual professional chimney cleaning recommended.

NOTE:

Chimney Cleaning

When cleaning the chimney system the air tubes, baffles should be removed for ease of cleaning. See manual for details on removal. We highly recommend that the chimney cleaning be done by a professional as they will have the necessary tools such as a proper sized brush and special vacuum cleaner designed to deal with fine particles.

IMPORTANT:

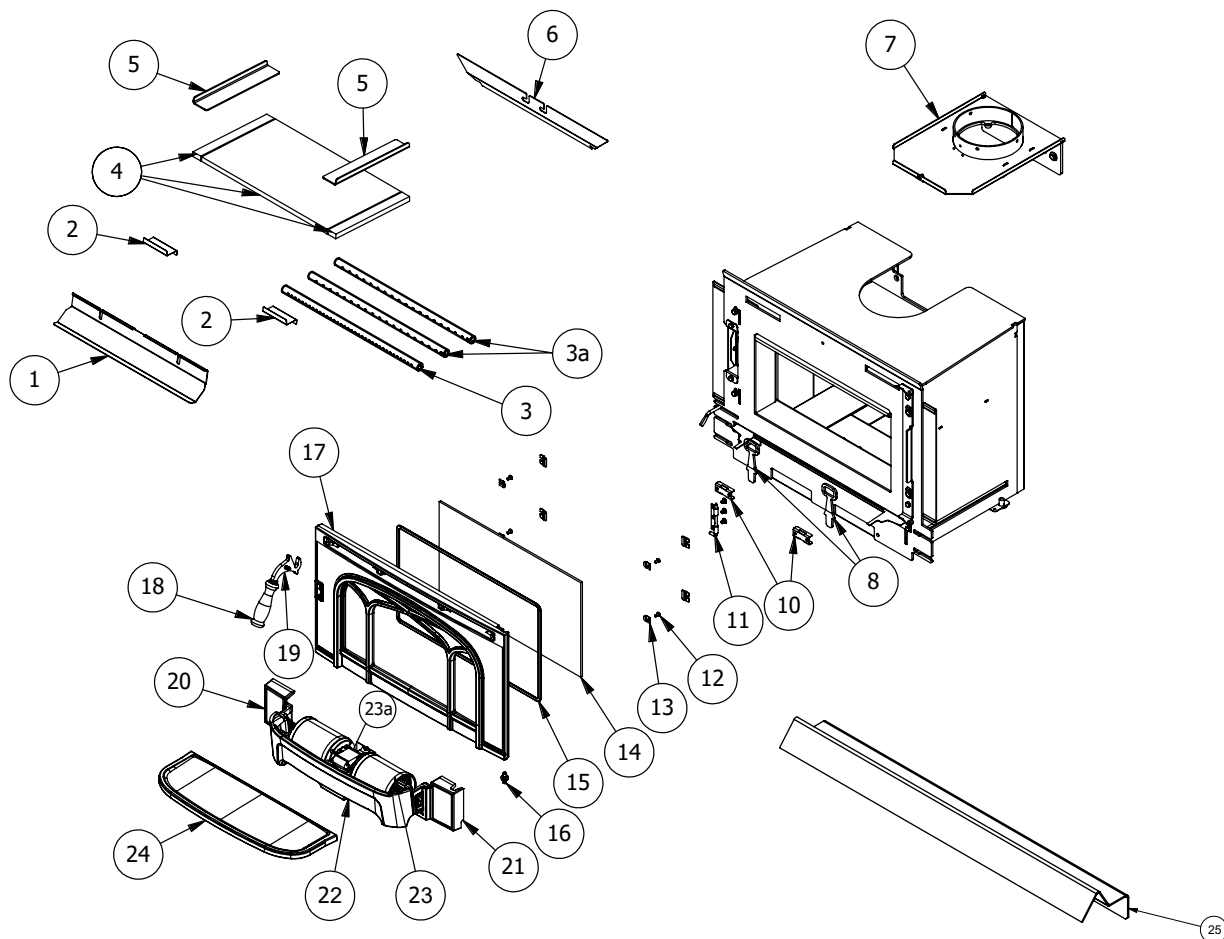
Before attempting to loosen or remove any screw, bolt from the interior of a wood stove, insert or factory built fireplace that has had a fire burned in it, we highly recommend to liberally spray the screw/bolt with a good-quality penetrating oil, one that does not have flammable properties contained within the penetrating oil being used. Allow it to set, then tap or vibrate the screw or bolt to help loosen it before attempting to remove it. For best results, follow the instructions that are provided with the penetrating oil.



parts list

	Part	Description
1	075-037	SS Smoke Deflector
2	075-041	Baffle Holder (Each)
3	033-953	Air Tubes (Each)
3a	033-954	3/4" OD Air tube (Qty 2) (Each)
4	075-955	Baffle Set Complete
5	075-040	Side Baffle Cover (Each)
6	173-030/P	Vertical Stainless Deflector
7	172-942	Flue Adapter Standard
7	172-946	Flue Adapter Offset
8	075-063F	Andiron (Each)
10	075-064	Andiron Bracket (Each)
11	948-163	Cane Bolt Latch
12	*	Screws - 10-24 x 3/8"
13	210-554	Glass Retainer Clips / Screws (set of 4)
14	940-356/P	Glass - Replacement (Includes Glass Gasket)
15	846-686	8 mm Soft Fibre Black Gasket Tape (8') (936-238)
16	948-467	Hinge Pin Lower
17	210-561	Door Assembly Metallic Black (no glass)

	Part	Description
17	210-565	Door Assembly Timberline Brown (no glass)
	846-570	Med. Density Door Gasket Kit
18	948-179/P	Black Varnish Wooden Handle
19	210-550	Door Handle Assembly
20	*	Left Side Fan Fascia
21	*	Right Side Fan Fascia
22	*	Front Fan Fascia
23	210-911	Fan / Blower Assembly (Metallic Black)
	210-915	Fan / Blower Assembly (Timberline Brown)
23a	910-157/P	Blower/Fan Motor
	910-684	Power Cord (120 Volts)
	910-142	Fan Thermodisc
	910-140	Fan Speed Switch - HI/OFF/LOW (3-way)
	910-138	Switch - Auto/Manual (2-way)
24	210-111	Ashlip Metallic Black
	210-115	Ashlip Timberline Brown
25	173-031	Primary Air Deflector

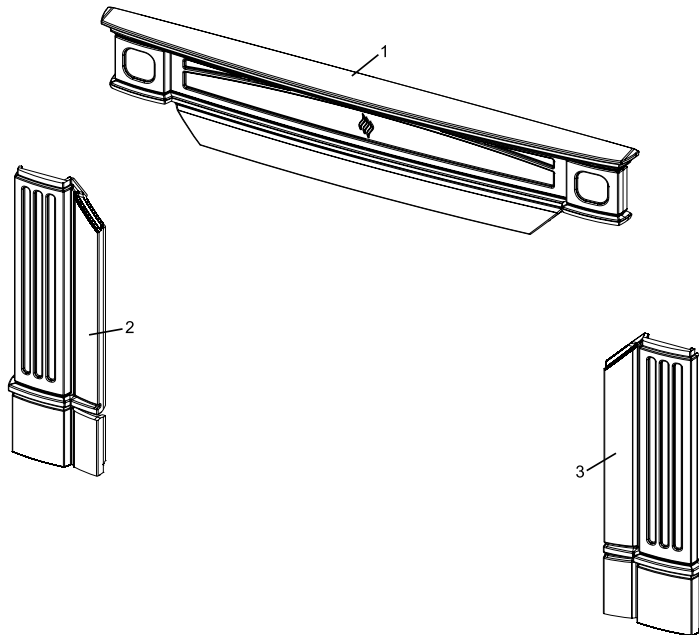


Cast Faceplate

Part #	Description
210-921	Metallic Black Faceplate
210-925	Timberline Brown Faceplate

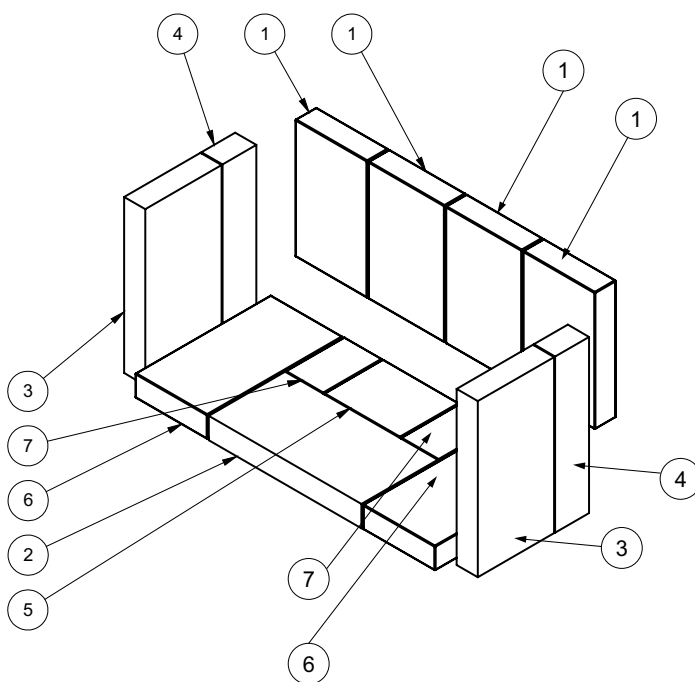
- 1) * Top Surround
- 2) * Left Side Surround
- 3) * Right Side Faceplate

* Not available as a replacement part.



Brick Panels

173-960 Hi1150-1 Brick Kit Complete



Fire bricks	
#	Size
1	8-3/8" x 4-3/8"
2	9" x 4-1/4"
3	9" x 4-1/2"
4	9" x 2-3/8"
5	3-1/2" x 4-1/2"
6	7-3/4" x 4-1/4"
7	3-1/2" x 2-1/4"

Indoor Wood Product Warranty

Limited Lifetime Warranty

FPI Fireplace Products International Ltd. (for Canadian customers) and Fireplace Products U S, Inc. (for US customers) (collectively referred to herein as “FPI”) extends this Limited Lifetime Warranty to the original purchaser of this Appliance provided the product remains in the original place of installation. The items covered by this Limited Lifetime Warranty and the period of such coverage are set forth in the table below.

An Appliance in this policy is defined as an Indoor wood insert or Indoor wood freestanding stove.

This Appliance has only been certified and listed for use indoors.

Note: This Wood Product Warranty does not apply to the Ri50 & CF780 models. See Ri50/CF780 policy for specific warranty details.

This Limited Lifetime Warranty starts on the day the Appliance was purchased.

The Limited Lifetime Warranty is not transferable, amendable or negotiable under any circumstances.

Indoor Wood Products	Component Coverage					Subsidized Labor Coverage*** (Years)
	Limited Lifetime	5 years	2 years	1 year	Warranty	
Components Covered						
Welded Firebox Steel	✓					5
All Stainless Steel Components, Smoke Deflectors, Heat Shields etc.	✓					3
Air Tubes	✓					3
Airmate	✓					3
Door handle and latch assembly, all hardware	✓					3
Glass Thermal Breakage Only	✓					3
Steel Faceplates, Accessory Housings	✓					3
All Plating	✓					3
Ash Drawer, Heatshields, Pedestal	✓					0
All Baffles, Steel, Ceramic, Vermiculite C-Baffles	✓					0
All castings, firebox, surrounds, doors, panels etc.		✓				3
All Electrical, Blower, wiring, switches, Catalytic Monitors, Probes, etc.			✓			2
Glass - Crazing				✓		1
Catalyst Combustor					**10 Years Prorated	0
Venting/Chimney				✓		1
Screens				✓		1

**See specific warranty details regarding the catalyst combustor in this manual.

Note: Warranty coverage noted above may not be applicable as components/options vary based on appliance purchased.

Conditions:

Warranty protects against defect in manufacture or FPI factory-assembled components only, unless herein specified otherwise.

*****This warranty does not cover dealer travel costs, mileage, fuel, tolls for diagnostic or service work. All labor rates paid to authorized dealers are subsidized, pre-determined rates. Dealers may charge you for travel and additional time beyond their subsidy.**

Any part(s) found to be defective during the warranty period as outlined above will be repaired or replaced at FPI’s option through an accredited distributor, dealer or pre-approved and assigned agent provided that the defective part is returned to the distributor, dealer or agent for inspection if requested by FPI. Alternatively, FPI may, at its own discretion, fully discharge all of its obligations under warranty by refunding the verified purchase price of the product to the original purchaser. The purchase price must be confirmed by the original Bill of Sale.

The authorized selling dealer, or an alternative authorized FPI dealer if pre-approved by FPI, is responsible for all in-field diagnosis and service work related to all warranty claims. FPI is not responsible for results or costs of workmanship of unauthorized FPI dealers or agents in the negligence of their service work.

At all times, FPI reserves the right to inspect reported in the field/on location complaints of products claimed to be defective before processing or authorizing any claim. Failure to allow this upon request will void the warranty.

All warranty claims must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase by you). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. **Incomplete claims may be rejected.**

Replacement Appliances to the original purchaser are limited to one per warranty term. Air tube and baffle replacements are limited to one replacement per warranty term.

The Appliance must be installed according to all manufacturers' instructions as per the manual. All Local and National required codes must be met.

The installer is responsible for ensuring the Appliance is operating as designed at the time of installation.

The original purchaser is responsible for the annual maintenance of the Appliance, as outlined in the owner's manual. As outlined below, the warranty may be voided due to problems caused by a lack of maintenance.

Purchased parts: Repair/replacement parts purchased by the consumer from FPI after the original coverage has expired on the Appliance will carry a **90-day** warranty from the purchase date, valid with a receipt only. Any item shown to be defective will be repaired or replaced at our discretion. No labor coverage is included with these parts.

If freight damage has been found either externally or internally, the dealer must be informed within 3 days. All claims as a result of damage must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. **Incomplete claims may be rejected.**

As this is a Limited Lifetime Warranty, if the Appliance needs to be replaced, the Appliance that was purchased at the time of sale might not be replaced with exactly the same model Appliance. In that case, FPI will replace your Appliance with one that is similar at the time of replacement under the terms of this Limited Lifetime Warranty, but **ONLY** in the event that an item covered by the Limited Lifetime Warranty is found to be defective. Please refer to the table on first page of this warranty for items covered by the Limited Lifetime Warranty. Product changes might be the result of the original Appliance being discontinued, changes in regulatory requirements, product advancements, etc., which are beyond the control of FPI. **This Limited Lifetime Warranty does not cover any installation costs, or costs associated with changes of required clearances for the replacement Appliance, hearth pads, mantles, facing and/or facing materials such as framing, completed walls made of drywall, wood, non-combustible board, tile, brick, stone, marble etc., venting/chimney systems, or components of the chimney system.**

If a suitable replacement is not available, FPI will refund **50%** of the purchase price of the Appliance and any applicable FPI accessories (faceplates, brick panels, media, etc.) purchased at the time of sale. **In no event will FPI refund any portion of the purchase price of, or reimburse costs associated with, any other items, including without limitation, installation of a new unit, changes of required clearances for a new unit, hearth pads, mantles, facing and/or facing materials such as framing, completed walls made of drywall, wood, non-combustible board, tile, brick, stone, marble etc., venting/chimney systems, or components of the chimney system. A copy of the receipt or bill of sale will be necessary to validate the purchase price.**

Exclusions:

This Limited Lifetime Warranty does not extend to paint, rust or corrosion of any kind due to a lack of maintenance or improper venting, combustion air provision, corrosive chemicals (i.e. chlorine, salt, air, etc.), firebrick (rear, sides or bottom), door or glass gasketing, vermiculite floor bricks, and iron assemblies/flue damper rod or any other additional factory fitted gasketing, batteries.

Malfunction, damage or performance-based issues as a result of environmental conditions, location, chemical damages, downdrafts, installation error, an installation by an unqualified installer, incorrect chimney components (including but not limited to cap size or type), operator error, abuse, misuse, use of improper fuels (such as unseasoned cordwood, mill-ends, construction lumber or debris, off-cuts, treated or painted lumber, metal or foil, plastics, garbage, solvents, cardboard, coal or coal products, oil-based products, waxed cartons, compressed pre-manufactured logs, kiln dried wood), lack of regular maintenance and upkeep, acts of God, weather-related problems from hurricanes, tornados, earthquakes, floods, lightning strikes/bolts or acts of terrorism or war, which result in a malfunction of the Appliance are not covered under the terms of this Limited Lifetime Warranty.

warranty

FPI has no obligation to enhance or modify any Appliance once manufactured (i.e. as products evolve, field modifications or upgrades will not be performed on existing Appliances).

Any Appliance showing signs of neglect or misuse will not be covered under the terms of this warranty policy and may void this warranty, including Appliances with rusted or corroded fireboxes that have not been reported as rusted or corroded within **three (3)** months of installation/purchase.

Appliances which show evidence of being operated while damaged, or with problems known to the purchaser and causing further damages will void this warranty.

Appliances where the serial no. has been altered, deleted, removed or made illegible will void this warranty.

Minor movement, expansion and contraction of the steel is normal and is not covered under the terms of this warranty.

Freight damages for products or parts are not covered under the terms of the warranty.

Products made or provided by other manufacturers and used in conjunction with the FPI Appliance without prior authorization from FPI may void this warranty.

Limitations of Liability:

The original purchaser's exclusive remedy under this warranty, and FPI's sole obligation under this Limited Lifetime Warranty, express or implied, in contract or in tort, shall be limited to replacement, repair, or refund, as outlined above. IN NO EVENT WILL FPI BE LIABLE UNDER THIS WARRANTY FOR ANY INCIDENTAL OR CONSEQUENTIAL COMMERCIAL DAMAGES OR DAMAGES TO PROPERTY. TO THE EXTENT PERMITTED BY APPLICABLE LAW, FPI 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. IF IMPLIED WARRANTIES CANNOT BE DISCLAIMED, THEN SUCH WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some US states do not allow limitations on how long an implied warranty lasts, or allow exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Customers located outside the US should consult their local, provincial or national legal codes for additional terms, which may be applicable to this warranty.

How to Obtain Warranty Service:

Customers should contact the authorized selling dealer to obtain warranty service. In the event the authorized selling dealer is unable to provide warranty service, please contact FPI by mail at the address listed below. Please include a brief description of the problem and your address, email and telephone contact information. A representative will contact you to make arrangements for an inspection and/or warranty service.

Canadian Warrantor:

FPI Fireplace Products International Ltd.
6988 Venture St.
Delta, British
Columbia Canada,
V4G 1H4

US Warrantor:

Fireplace Products U.S., Inc.
PO Box 2189 PMB 125
Blaine, WA
United States, 98231

Or contact the Regency Customer Care Centre at 1-800-442-7432 (phone) /604-946-4349 (fax) /customerservice@regency-fire.com (e-mail)

Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form at <http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx> within **ninety (90)** days of purchase.

Warranty Registration Card



Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form found on our Web Site under Customer Care within ninety (90) days of purchase.

For purchases made in **CANADA or the UNITED STATES:**

<http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx>

For purchases made in **AUSTRALIA:**

<http://www.regency-fire.com.au/Customer-Care/Warranty-Registration.aspx>

You may also complete the warranty registration form below to register your Regency Fireplace Product and mail and/or fax it back to us, and we will register the warranty for you. It is important you provide us with all the information below in order for us to serve you better.

Warranty Registration Form (or Register online immediately at the above Web Site):

Warranty Details	
Serial Number (required):	
Purchase Date (required) (mm/dd/yyyy):	
Product Details	
Product Model (required):	
Dealer Details	
Dealer Name (required):	
Dealer Address:	
Dealer Phone #:	
Installer:	
Date Installed (mm/dd/yyyy):	
Your Contact Details (required)	
Name:	
Address:	
Phone:	
Email:	

For purchases made in **CANADA:**

FPI Fireplace Products International Ltd.

6988 Venture St.
Delta, British Columbia
Canada, V4G 1H4

Phone: 604-946-5155
Fax: 1-866-393-2806

For purchases made in **the UNITED STATES:**

Fireplace Products US, Inc.

PO Box 2189 PMB 125
Blaine, WA
United States, 98231

Phone: 604-946-5155
Fax: 1-866-393-2806

For purchases made in **AUSTRALIA:**

Fireplace Products Australia Pty Ltd

99 Colemans Road
Dandenong South, Vic.
Australia, 3175

Phone: +61 3 9799 7277
Fax: +61 3 9799 7822

For fireplace care and tips and answers to most common questions please visit our Customer Care section on our Web Site. Please feel free to contact your selling dealer if you have any questions about your Regency product.

warranty

PRODUCT LIFE CYCLE:

By recycling your used appliances, you divert waste from your local landfills and help the environment. You also reduce the need for raw materials to manufacture new products. Contact your local municipality for appliance recycling services, local recycling programs, or appliance removal services to ensure your Regency appliance components, and packaging are properly recycled.

Installer: Please complete the following information

Dealer Name & Address: _____

Installer: _____

Phone #: _____

Date Installed: _____

Serial #: _____



Classic™ i1150-1 Wood Insert

Owners & Installation Manual



MODEL: i1150-1

www.regency-fire.com

Tested by:



Installer: Please complete the details on the back cover
and leave this manual with the homeowner.
Homeowner: Please keep these instructions for future reference.

Thank you for purchasing a
REGENCY FIREPLACE PRODUCT.

The pride of workmanship that goes into each of our products will give you years of trouble-free enjoyment. Should you have any questions about your product that are not covered in this manual, please contact the **REGENCY DEALER** in your area.

"This wood heater has a manufacturer set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual." Failure to follow the manual details can lead to smoke and CO emissions spilling into the home. It is recommended to have monitors in areas that are expected to generate CO such as heater fueling areas.

"U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using crib wood." Tested to Method 28R, E2780-10, E2515-11. Model Regency i1150-1 – 1.3 g/hr.

"This manual describes the installation and operation of the Regency i1150-1 wood heater. This heater meets the 2020 U.S. Environmental Protection Agency's crib wood emission limits for wood heaters. Under specific test conditions this heater has been shown to deliver heat at rates ranging from 12,700 BTU/hr to 27,300 BTU/hr." Efficiency is determined using the B415 method resulting in lower and higher heat values. This heater generates the best efficiency when operated using well-seasoned wood and installed in the main living areas where the majority of the chimney is within the building envelope. This wood heater needs periodic inspection and repair for proper operation."

It is against federal regulation to operate this wood heater in a manner inconsistent with operating instructions in this manual."

"This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods."

DO NOT BURN:

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper
- Bio Bricks
- Trash
- Lawn clippings or yard waste
- Materials containing rubber including tires
- Materials containing plastic
- Waste petroleum products , paints or paint thinners or asphalt products
- Materials containing asbestos
- Construction or demolition debris
- Railroad ties
- Manure or animal remains
- Saltwater driftwood or other previously salt water saturated materials
- Unseasoned wood
- Paper products, cardboard, plywood or particle board. The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in a wood heater.

Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke.

The authority having jurisdiction (such as Municipal Building Department, Fire Department, Fire Prevention Bureau, etc.) should be consulted before installation to determine the need to obtain a permit.

ULC628-2022 - Canada

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney. The chimney liner must conform to the class 3 requirements of CAN/ULS-S635 Standard for lining systems for existing Masonry or factory built chimneys and vents or to the requirements of CAN/ULC-S640, Standard for lining systems for new masonry chimneys

UL1482-2022 - U.S.A

A chimney complying with the requirement for type HT chimneys in the standard for chimneys, factory built residential and building heating appliance UL103 or a code approved masonry chimney liner with a flue liner.

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

When this room heater is not properly installed, a house fire may result. To reduce the risk of fire follow the installation instructions. Contact local building or fire official as about restrictions and installation requirements in your area.

I1150-1 is certified to CAN/ULC 628-2022 and UL 1482-2022.

SAVE THESE INSTRUCTIONS

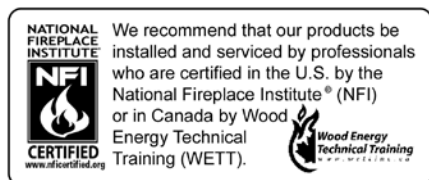


table of contents

Copy of the Safety Label for I1150-1	4
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Dimensions

With Standard Flue Adaptor	5
With Offset Flue Adaptor.....	6

Installation

Masonry Fireplace Clearances	7
Fireplace Specifications.....	7
How to Determine if Alternate Floor Protection Materials are Acceptable	8
Installation Into a Masonry Fireplace	9
Before Installing Your Insert.....	9
Chimney Specifications	9
Draft	9
Optional Flue Connector Kit.....	9
Installing Your Insert	10
Faceplate, Trim & Optional Bottom Faceplate & Fan Support Installation.....	11
Fan/Blower	15
Brick Installation	16
Baffle Installation	17
Wood Door & Handle Assembly (Arched Door)	18
Square Door Installation (Part #850-161)	19
Stainless Steel Smoke Deflector Installation.....	20
Seasoned Wood	21
Primary Air Operating Handle	21

Operation

Operating Instructions	22
Draft Control.....	22
First Fire.....	22
Fan Operation	23
Ash Disposal	23
Safety Guidelines and Warnings.....	23

Maintenance

Maintenance	24
Creosote.....	24
Door Gasket.....	24
Glass Maintenance	24
Wood Storage	24
Secondary Air Tube Removal/Installation.....	25
Latch Adjustment	25
Removing Wooden Handle	25
Vertical Stainless Deflector Replacement	26
Annual Maintenance	27

Parts

Main Assembly	28
Brick Panels	30
Faceplates	31

Warranty

Warranty	32
Recycling	37

ALL PICTURES / DIAGRAMS SHOWN THROUGHOUT THIS MANUAL ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL PRODUCT MAY VARY DUE TO PRODUCT ENHANCEMENTS.

CAUTION: To avoid burns or wood splinters, when opening/closing the fuel door or adding wood to the fire, You should always wear appropriate protective gloves to protect your hands from the heat being emitted from this fireplace.



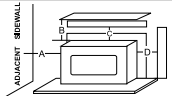
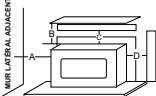

safety decal

Copy of the i1150-1 Safety Decal

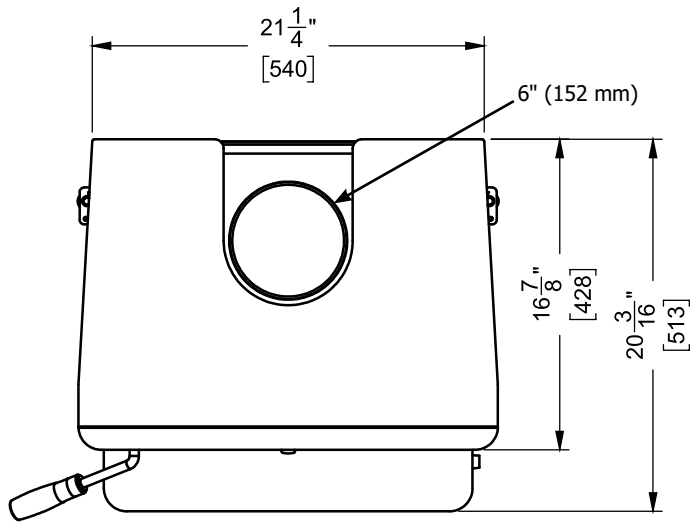
This is a copy of the label that accompanies each **i1150-1 Wood Insert**. We have printed a copy of the contents here for your review.

NOTE: Regency units are constantly being improved. Check the label on the unit and if there is a difference, the label on the unit is the correct one.

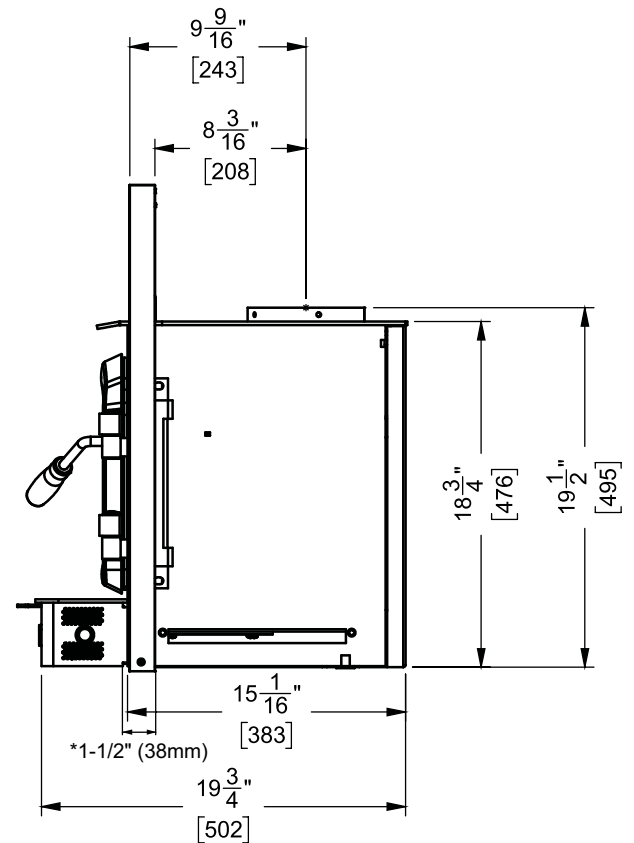
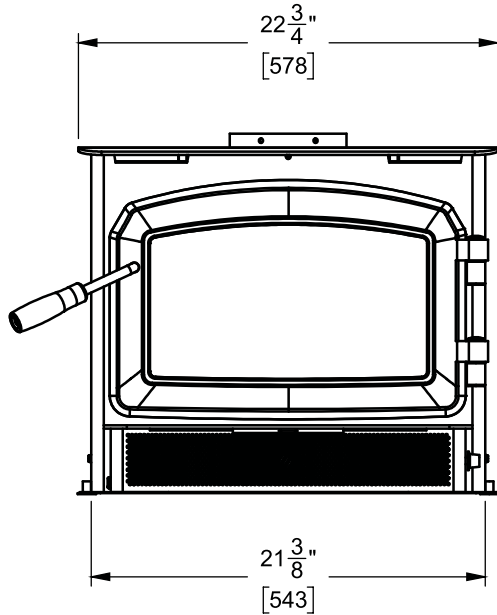
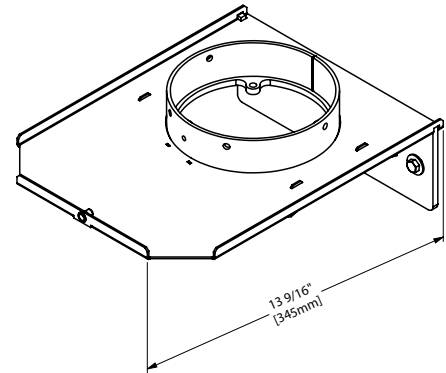
The serial # label will be affixed to a metal plate along with a black chain underneath the firebox. The fan assembly (if installed) would need to be removed which would expose the serial # decal.

(Duplicate Serial #)		617
<div><div><div>LISTED MASONRY FIREPLACE INSERT CERTIFIED FOR USE IN CANADA AND U.S.A. MODEL: i1150-1 CERTIFIED TO / CERTIFIÉ : CAN/ULC 628-2022 / UL-1482-2022</div></div><div><div>DO NOT REMOVE THIS LABEL / NE PAS ENLEVER CETTE ÉTIQUETTE</div></div></div>		617
U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD. TESTED TO METHOD 28R, E2780-10, E2515-11. MODEL REGENCY I1150-1 -1.3 G / HR. 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.		
INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS. INSTALL AND USE ONLY IN MASONRY FIREPLACE ONLY. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA.		
MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM INSERT BODY)		
ADJACENT SIDEWALL. A) 15in / 380mm MANTEL. B) 20in / 510mm TOP FACING. C) 14in / 355mm SIDE FACING. D) 0.5in / 13mm (to side surround)		
COMBUSTIBLE FLOOR MUST BE PROTECTED BY NON-COMBUSTIBLE MATERIAL EXTENDING (E) 16 IN / 405MM TO FRONT AND (G) 8IN / 205MM TO SIDES FROM FUEL DOOR. IN CANADA MUST EXTEND 18" TO FRONT. THERMAL INSULATION WITH A R VALUE = 1.4 AT A DISTANCE OF 18" FROM FRONT OF DOOR OPENING FOR CANADA AND 16" FOR USA. IF UNIT RAISED 4.5" FROM FLOOR, NO THERMAL INSULATION IS REQUIRED.		
COMPONENTS REQUIRED FOR INSTALLATION: 5.5" (140mm) or 6" (152mm) STAINLESS STEEL LINER LISTED CHIMNEY LINER. OPTIONAL COMPONENT: FAN PART#172-917, ELECTRICAL RATING: VOLTS 115, 60 HZ, 0.6 AMPS DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. BUILD WOOD FIRE DIRECTLY ON HEARTH. OPERATE WITH FEED DOOR CLOSED, OPEN TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILD-UP MAY OCCUR RAPIDLY. DO NOT OVERFIRE, IF INSERT GLOWS YOU ARE OVER-FIRING. CAUTION: MOVING PARTS MAY CAUSE INJURY. DO NOT OPERATE UNIT WITH A REMOVED PART OR PARTS.		
CERTIFIÉ CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS D'ESSAI NORMALISÉ (CRIB WOOD). HOMOLOGUÉ SELON LA MÉTHODE 28R, E2780-10, E2515-11. MODÈLE REGENCY I1150-1 -1,3 G / H. CET APPAREIL DE CHAUFFAGE AU BOIS DOIT ÊTRE INSPECTÉ PÉRIODIQUEMENT ET RÉPARÉ POUR FONCTIONNER CORRECTEMENT. CONSULTER LE MANUEL D'INSTALLATION POUR PLUS D'INFORMATION. LA RÉGLEMENTATION FÉDÉRALE INTERDIT DE FAIRE FONCTIONNER UN TEL APPAREIL SI LES CONSIGNES D'UTILISATION CONTENUES DANS LE PRÉSENT MANUEL NE SONT PAS RESPECTÉES.		
INSTALLER ET UTILISER SELON LES CONSIGNES D'INSTALLATION ET D'UTILISATION DU FABRICANT. À INSTALLER ET À UTILISER UNIQUEMENT DANS UN FOYER EN MAÇONNERIE SEULEMENT. NE PEUT ÊTRE INSTALLÉ DANS UN FOYER PRÉFABRIQUÉ. CONTACTEZ LES AUTORITÉS LOCALES EN BÂTIMENT OU INCENDIE POUR CONNAÎTRE LES RESTRICTIONS D'INSTALLATION ET LES RÉGLES D'INSPECTION DANS VOTRE RÉGION.		
DÉGAGEMENTS MINIMAUX AUX MATÉRIEAUX COMBUSTIBLES (MESURES PRISES DEPUIS LE CAISSON DE L'ENCASTRABLE)		
MUR LATÉRAL ADJACENT. A) 15 po / 380 mm MANTEAU. B) 20 po / 510 mm PAREMENT SUPÉRIEUR. C) 14 po / 355 mm PAREMENT LATÉRAL. D) 0,5 po / 13 mm		
LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR UN MATÉRIAU NON COMBUSTIBLE S'ÉTENDANT SUR (E) 16 PO / 405MM À L'AVANT ET SUR (G) 8 PO / 205MM ENTRE LES CÔTÉS ET LA PORTE DE CHARGEMENT DU COMBUSTIBLE. PROLONGEMENT SUR 18 PO À L'AVANT AU CANADA. ISOLATION THERMIQUE AVEC UNE VALEUR R = 1,4 À UNE DISTANCE DE 18 PO DEPUIS L'AVANT DE L'OUVRETTURE DE LA PORTE AU CANADA ET 16 PO AUX ÉTATS-UNIS. SI L'APPAREIL EST SURÉLEVÉ À 4,5 PO DU SOL, AUCUNE ISOLATION THERMIQUE N'EST REQUISE.		
PIÈCES OBLIGATOIRES POUR L'INSTALLATION : GAINÉ DE CHEMINÉE HOMOLOGUÉE EN ACIER INOXYDABLE DE 5,5 PO (140mm) ou 6 PO (152mm). PIÈCE EN OPTION : VENTILATEUR PIÈCE N°172-917 CARACTÉRISTIQUES ÉLECTRIQUES : 115 VOLTS, 60 HZ, 0,6 AMPS. DANGER : RISQUE D'ÉLECTROCUTION. DÉBRANCHER LE COURANT AVANT DE PROCÉDER À L'ENTRETIEN DE L'APPAREIL. NE PAS RETIRER LES BRIQUES OU LE MORTIER DU FOYER EN MAÇONNERIE. À UTILISER AVEC UN COMBUSTIBLE SOLIDE EN BOIS SEULEMENT. NE PAS UTILISER DE GRILLE NI SURÉLEVER LE FEU. NE PAS CONNECTER CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL. FAIRE UN FEU DE BOIS DIRECTEMENT SUR L'ÂTRE. FAIRE FONCTIONNER L'APPAREIL AVEC LA PORTE DE CHARGEMENT FERMÉE, L'OUVRIRE SEULEMENT POUR ALIMENTER LE FEU. REMPLACER LA VITRE SEULEMENT AVEC UNE VITRE EN CÉRAMIQUE (5MM). FAIRE INSPECTER ET RAMONER LA CHEMINÉE À INTERVALLES RÉGULIERS. ACCUMULATION RAPIDE DE CRÉOSOTE DANS CERTAINES CONDITIONS. NE PAS SURCHAUFFER : SI L'ENCASTRABLE EST ROUGEoyANT, L'APPAREIL SURCHAUFFE. ATTENTION : LES PIÈCES AMOVIBLES PEUVENT ENTRAÎNER DES BLESSURES. NE PAS FAIRE FONCTIONNER L'APPAREIL SI UNE OU PLUSIEURS PIÈCES ONT ÉTÉ ENLEVÉES.		
<div>ATTENTION / DANGER</div> <div></div> <div>HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ ABOVE INSTRUCTIONS. APPAREIL CHAUD LORSQU'IL FONCTIONNE. NE PAS TOUCHER. GARDER À DISTANCE DES ENFANTS, DES VÊTEMENTS ET DU MOBILIER. TOUT CONTACT PEUT CAUSER DES BRÛLURES. LIRE LES INSTRUCTIONS CI-DESSUS.</div>		<div>MANUFACTURED BY / FABRIQUÉ PAR : FPI FIREPLACE PRODUCTS INTERNATIONAL LTD. 6988 VENTURE ST. DELTA, BC V4G 1H4</div>
920-837		DATE OF MANUFACTURE / DATE DE FABRICATION MADE IN CANADA / FAIT AU CANADA

With Standard Flue Adaptor



6" (152mm) Diameter
STANDARD FLUE ADAPTOR

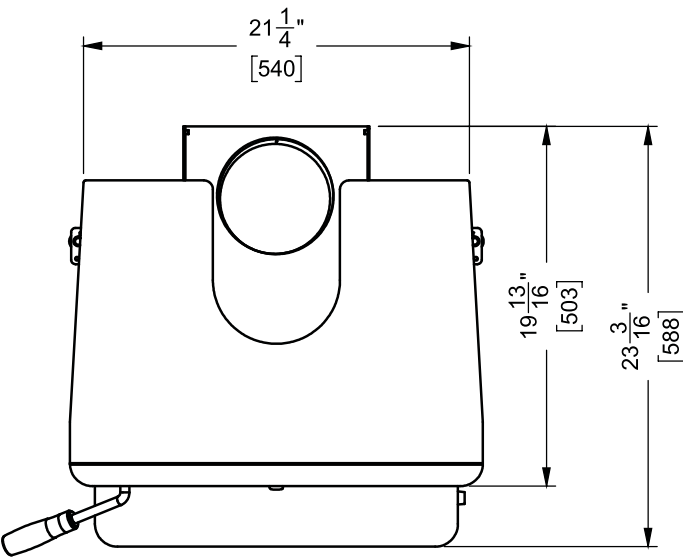


*Measurement from back of faceplate to fuel door opening

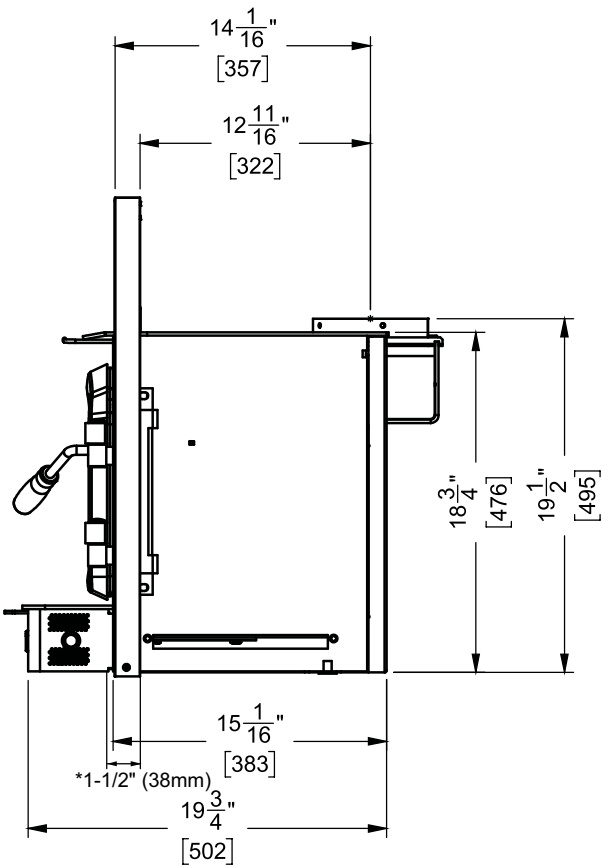
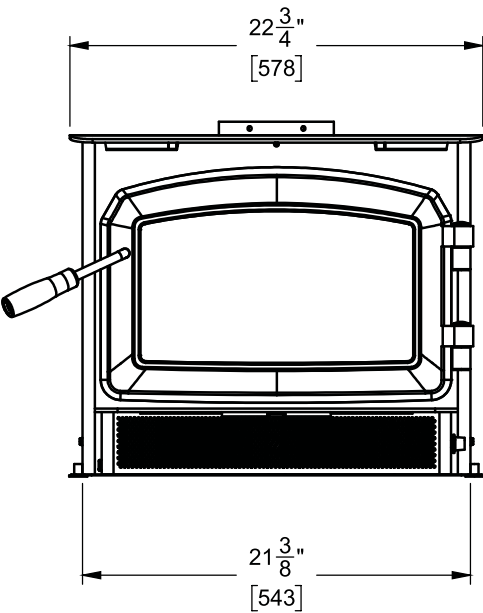
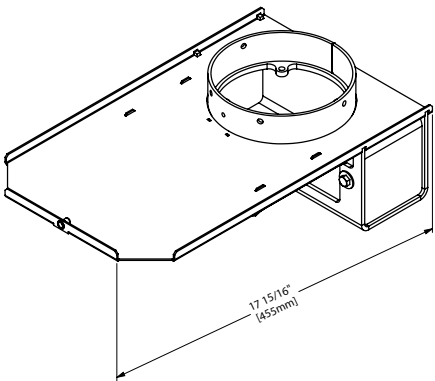
Regency Inserts are designed to use either a 5.5" (140mm) or 6" (152mm) flue.

dimensions

With Offset Flue Adaptor



6" (152mm) Diameter
OFFSET FLUE ADAPTOR



*Measurement from back of faceplate to fuel door opening

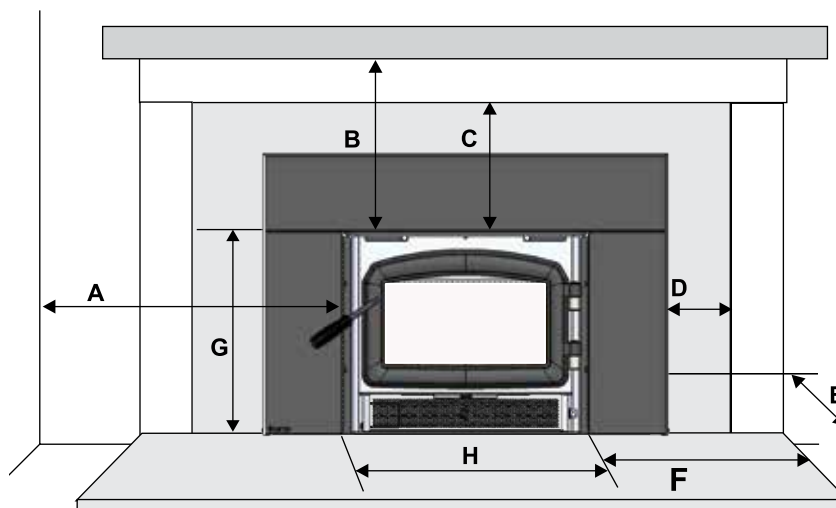
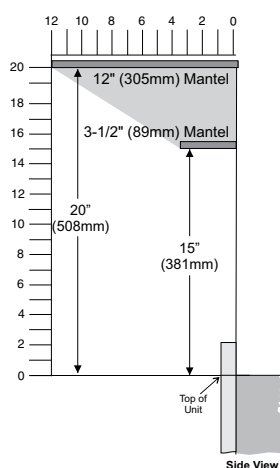
Regency Inserts are designed to use either a 5.5" (140mm) or 6" (152mm) flue.

Masonry Fireplace Clearances

The minimum required clearances to combustible materials when installed into a masonry fireplace are listed below.

Unit I1150-1	Adjacent Side Wall (to Side) A	Mantel ** (to Top of Unit) B	Top Facing (to Top of Unit) C	Side Facing D	Minimum Hearth Extension* E	Minimum Hearth Side Extension* F	To Top of Unit (Reference Dimension only) G	To Side of Unit (Reference Dimension only) H
	15" (381mm)	15" (381mm) for 3-1/2" (89mm) mantel	14" (355mm)	1/2" (13mm) to side surround	16" (406mm) USA 18" (457mm) Canada	8" (203mm)	18-3/4" (476mm)	21-3/8" (543 mm)
		20" (508mm) for 12"(305mm) mantel						

Note: Side and Top facing is a maximum of 1.5" thick.



Clearance Diagram for installations

Clearances are critical.

**Mantel can be installed anywhere in shaded area or higher using the above scale.

*Floor Protection

Thermal insulation/protection with a R value of 1.4 at a distance of 18" from door opening is required for Canada and 16" for USA.

Thermal floor protection (Type 1) is not required when unit is raiser greater than 4-1/2" (114 mm) (measured from the bottom of the appliance).

Please check to ensure that your floor protection and hearth will meet the standards for clearance to combustibles. Your hearth extension must be made from a non-combustible material extending 16" (406 mm) for US and 18" (457 mm) for Canada—measured from the fuel loading door opening.

F measurement (minimum hearth extension) is taken from the side of the appliance for both U.S.A/Canada.

Fireplace Specifications

Your fireplace opening requires the following minimum sizes:

Height: 19" (483mm)
 Width: 23" (584mm)
 Depth:
 (w/ standard flue adaptor) 13-3/4" (349mm)
 (w/ offset flue adaptor) 16-1/2" (419mm)

Two faceplates are available to seal the fireplace opening:

Standard 38" (965mm)W x 26-3/8" (670 mm) H

Oversize 44" (1118mm) W x 30-3/8" (771mm) H

installation

How to Determine if Alternate Floor Protection Materials are Acceptable

All floor protection must be noncombustible (i.e. metals, brick, stone, mineral fiber boards, concrete board etc.). The noncombustible floor protection specified includes some form of thermal designation such as R-value (thermal resistance) or k-factor (thermal conductivity).

Thermal Resistance: R Value

The R value is a measure of a material's resistance to heat transfer. R value is convenient when more than one material is used since you can add the R values together, whereas you cannot do this for k value. The HIGHER the R factor means less heat is being conducted through the non-combustible material to the combustible material beneath it. The R value of a material must be equal or larger than the required R value to be acceptable.

Example : The specified floor protector should be 3/8" (18mm) thick material with a K - factor of 0.84. The proposed alternative is 4" (100mm) brick with a C-factor of 1.25 over 1/8" (3mm) mineral board with a K-factor of 0.29.

Step (a):

Use formula above to convert specification to R-value.

$$R = 1/k \times T = 1/0.84 \times .75 = 0.893.$$

Step (b):

Calculate R of proposed system.

4" brick of C = 1.25, therefore

$$R_{\text{brick}} = 1/C = 1/1.25 = 0.80$$

1/8" mineral board of k = 0.29, therefore

$$R_{\text{min.bd.}} = 1/0.29 \times 0.125 = 0.431$$

$$\text{Total R} = R_{\text{brick}} + R_{\text{mineral board}} = 0.8 + 0.431 = 1.231.$$

Step (c):

Compare proposed system R of 1.231 to specified R of 0.893. Since proposed system R is greater than required, the system is acceptable.

DEFINITIONS

Thermal Conductance:

$$C = \text{Btu} = \text{W}$$

$$(\text{hr})(\text{ft}^2)(\text{oF})(\text{m}^2)(\text{K})$$

Thermal Conductivity:

$$k = (\text{Btu})(\text{inch}) = \text{W} = \text{Btu}$$

$$(\text{hr})(\text{ft}^3)(\text{oF})(\text{m})(\text{K})(\text{hr})(\text{ft})(\text{oF})$$

Thermal Resistance:

$$R = (\text{ft}^2)(\text{hr})(\text{oF}) = (\text{m}^2)(\text{K})\text{Btu}$$

Installation Into a Masonry Fireplace

Regency inserts are constructed with the highest quality materials and assembled under strict quality control procedures that ensure years of trouble free and reliable performance.

It is important that you read this manual thoroughly and fully understand the installation and operating procedures. Failure to follow instructions may result in property damage, bodily injury or even death. The more you understand the way your Regency Insert operates, the more enjoyment you will experience from knowing that your unit is operating at peak performance.

WARNING: The room heater shall not be installed in a factory-built fireplace.

Before Installing Your Insert

1. Read all instructions before installing and using your fireplace insert. Install and use only in accordance with manufacturer's installation and operating instructions.

2. Check your local building codes - Building Inspection Department. You may require a **permit before installing your insert. Be aware that local codes and regulations may override some items in the manual.**

WARNING: Careless installation is the major cause of safety hazard. Check all local building and safety codes before installation of unit.

3. Notify your home insurance company that you plan to install a fireplace insert.

4. Your fireplace insert is heavy and requires two or more people to move it safely. The insert and surrounding structure can be badly damaged by mishandling.

5. If your existing fireplace damper control will become inaccessible once you have installed your Regency Insert, you should either remove or secure it in the open position.

6. Inspect your fireplace and chimney prior to installing your insert to determine that it is free from cracks, loose mortar or other signs of damage. If repairs are required, they should be completed before installing your insert. Do not remove bricks or mortar from your masonry fireplace.

7. Do not connect the insert to a chimney flue servicing another appliance or an air distribution duct.

When referencing installation or connection to masonry fireplaces or chimneys, the masonry construction must or shall be code complying.

Chimney Specifications

Before installing, check and clean your chimney system thoroughly. If in doubt about its condition, seek professional advice. Your Regency Insert is designed for installation into a masonry fireplace that is constructed in accordance with the requirements of "The Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliance", N.F.P.A. 211, the National Building Code of Canada, or the applicable local code requirements.

The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70, or the Canadian Electrical code, CSA C22.1.

Regency Inserts are designed to use either a 5.5" (140mm) or 6" (152mm) flue.

ULC628-2022 - Canada

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

The chimney liner must conform to the class 3 requirements of CAN/ULS-S635 Standard for lining systems for existing Masonry or factory built chimneys and vents or to the requirements of CAN/ULC-S640, Standard for lining systems for new masonry chimneys.

UL1482-2022 - U.S.A

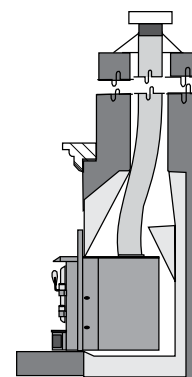
A chimney complying with the requirement for type HT chimneys in the standard for chimneys, factory built residential and building heating appliance UL103 or a code approved masonry chimney liner with a flue liner.

This fireplace insert must be installed with a continuous chimney liner liner of 5.5 or 6 inch diameter extending from the fireplace insert to the top of the chimney.

When this room heater is not properly installed, a house fire may result. To reduce the risk of fire follow the installation instructions. Contact local building or fire official as about restrictions and installation requirements in your area.

Draft

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance and may cause damage. An uncontrollable burn or excessive temperature indicates excessive draft. Inadequate draft may cause back puffing into the room and plugging of the chimney. Inadequate draft will cause the appliance to leak smoke into the room through appliance and chimney connector joints. Ensure the heater is installed in areas that are not too close to neighbors or in valleys that would cause unhealthy air quality or nuisance conditions.



Recommended chimney height from top of flue collar:
Minimum 15 feet (4.6 meters)

NOTE

If the fireplace has been modified to accommodate a fireplace liner, the installer is to attach the metal tag to the fireplace using screws or nails, in a location readily visible should the fireplace insert be removed. A metal tag is supplied with this wood insert.

IMPORTANT:

Smoke and CO Detectors:

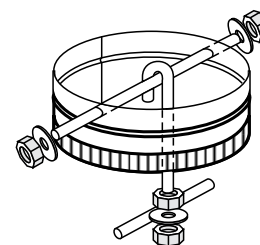
Make sure your home has a working smoke and CO detector, especially near any bedrooms. We recommend having a smoke and CO detector in the same room as the wood appliance for additional safety. Location of both detectors should be chosen wisely to avoid false alarms when reloading the appliance.

Fire Extinguisher:

A fire extinguisher should be installed in the home. The location of the fire extinguisher should be known by all family members.

Optional Flue Connector Kit

The Straight Flue Adaptor (Part #846-504) shown here, may be used to produce a secure connection between your flue connector and the insert collar. Detailed installation instructions are included with the kit.



The following may also be purchased separately if required to complete the install:

846-506	6" Flue Adaptor-30 degree
846-508	6" Flue Adaptor-45 degree
948-412/P	6" Flue Offset Adaptor (offsets back 4")
846-527	Flue Connector Kit

installation

Installing Your Insert

SAFETY NOTE: The insert is very heavy and will require two or three people to move it into position. The insert can be made a little lighter by removing the cast iron door by opening it and lifting it off its hinges. Be sure to protect your hearth extension with a heavy blanket or carpet scrap during the installation.

NOTE: You will be required to purchase either the standard or offset 6" diameter (152mm) flue adaptor that is best suited for the specific installation.

List of Tools needed;

- Pull Rod (included with insert)
- 1/2" socket / ratchet
- 3/8 open face wrench

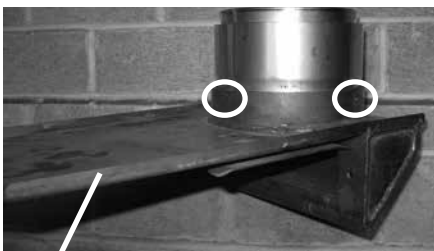
1. Install flex liner into existing chimney as per liner manufacturer's specifications. See Diagram 1.
2. Install the required flue adaptor onto the end of the flex liner. Secure the adaptor using 3 screws - 1 on the front, left and right side as shown in Diagram 2.

Alignment of the flue adaptor can be critical during the install, it is recommended that the flex liner be left as compressed as possible. Before inserting the unit the adaptor should hang, when level, slightly above the required height.



Diagram 1

Flex Liner



Flue Adaptor

Diagram 2

Secure adaptor using 3 screws - 1 in the front and 1 each on the left and right side.

3. Install the unit by first setting the rear of the unit into the fireplace. See Diagram 3. Ensure that the unit is centered in the existing fireplace and lined up with the flue adaptor.



Diagram 3

4. Slide the unit back until the flue adaptor is slightly engaged.
5. At this point it is recommended to level the unit and ensure that the leveling bolts rest on the surface of the fireplace. This will keep the adaptor from binding as the unit is slid into position.
6. Insert the provided pull rod through the hole in the top center of the unit. Secure the threaded end into the flue adaptor as shown in Diagram 4. While sliding the unit into place pull on the rod to ensure that the flue adaptor is properly engaged. See Diagram 5.

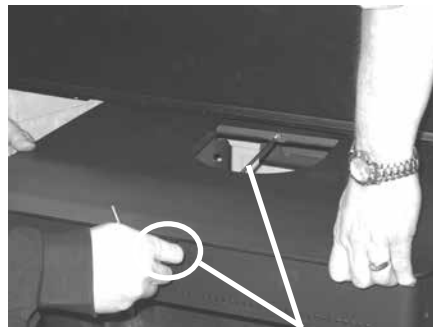
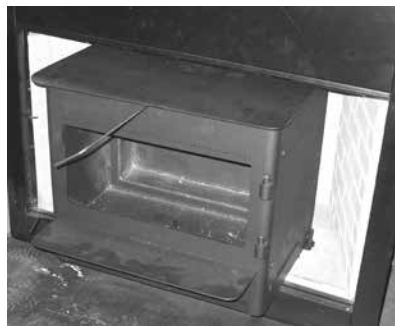


Diagram 4

Pull Rod



Pull Rod In Place

Diagram 5

7. Ensure that the unit is still level.
8. To complete the installation and to ensure a secure fit and connection of the flue adaptor to the insert, it is essential that the two bolts, flat washers and lock washers (supplied with packaged manual) be installed and tightened using a 1/2" socket as shown in Diagram 6. This prevents the possibility of creosote drip and exhaust gas leakage.

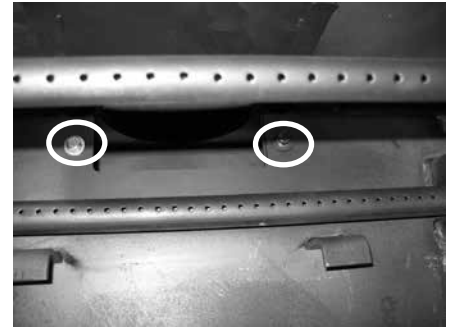
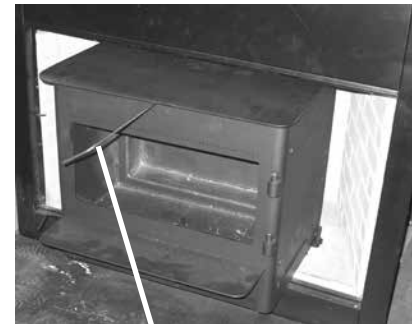


Diagram 6

9. Remove the pull rod from the top center of the fireplace. See Diagram 7.



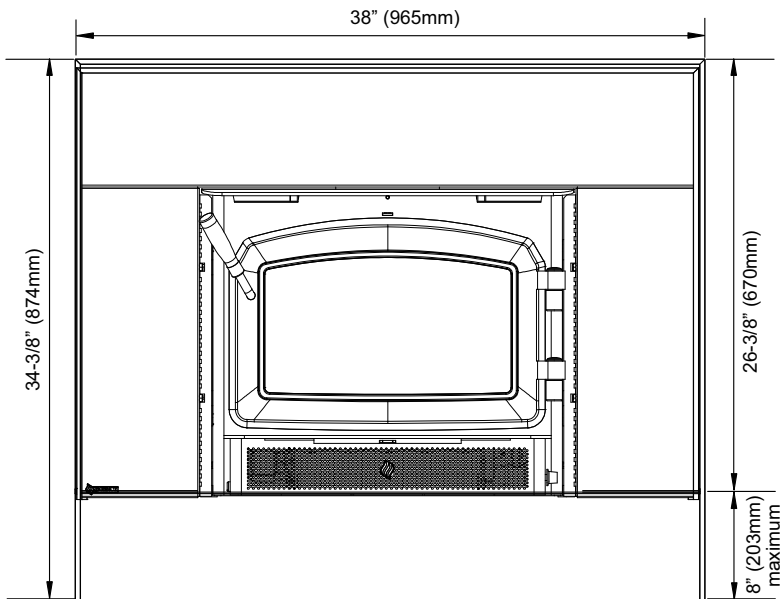
Pull Rod Diagram 7

NOTE: The pull rod should not be thrown away. It should be kept if the stove is ever needed to be removed from the fireplace.

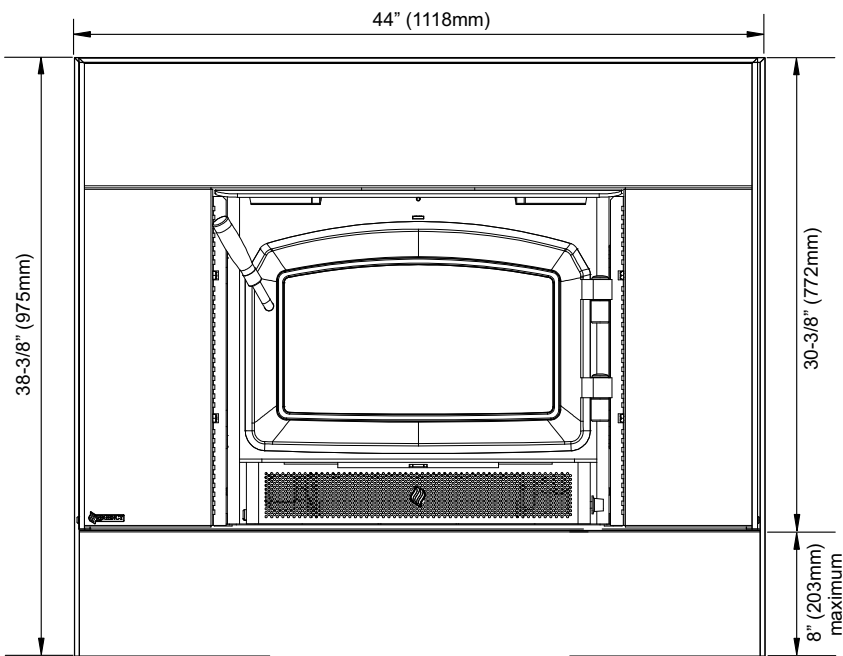
10. Re-install the door if removed prior to installation.

Faceplate, Trim & Optional
Bottom Faceplate & Fan Support Installation

Regular Faceplate Dimensions (shown with bottom faceplate/fan support attached):



Oversize Faceplate Dimensions (shown with bottom faceplate/fan support attached):

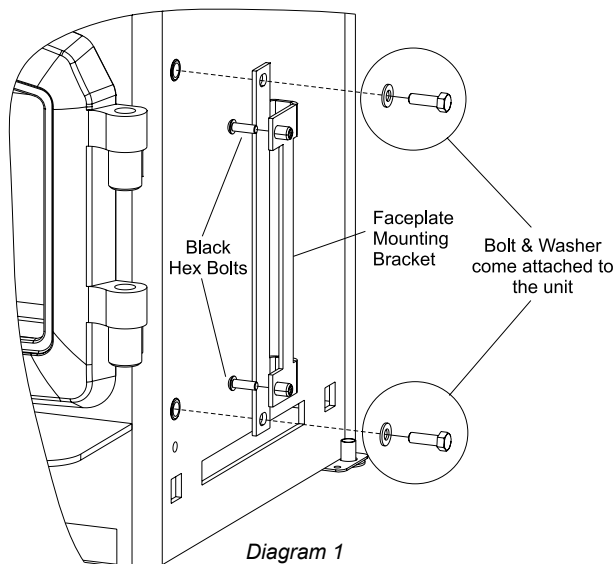


installation

Regular/Oversize Faceplate Installation:

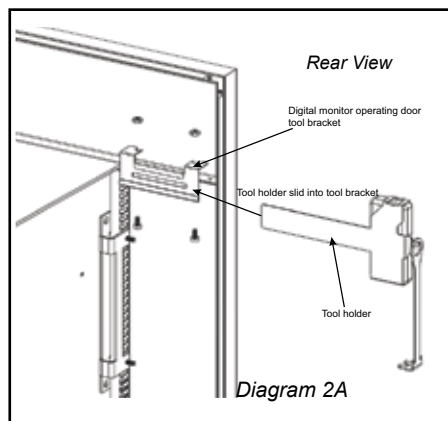
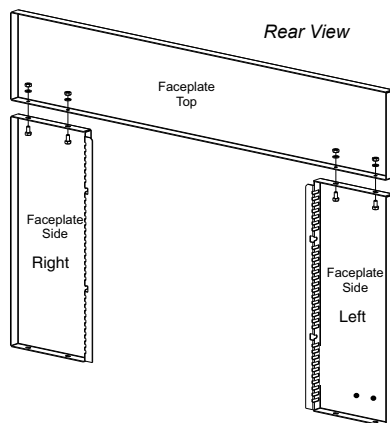
- 1) Thread the black 1/4" x 3/4" long hex bolts into the faceplate mounting bracket as shown in Diagram 1, leaving them approximately 1/4" out.
- 2) Fasten the faceplate mounting bracket to the side of the insert using 2 bolts for the top and bottom, see Diagram 1. Repeat for other side.

NOTE: The bolt and washer come attached to the side of the insert and need to be removed and reused for fastening.



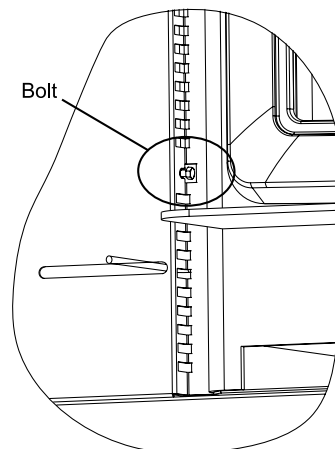
- 3) Assemble the faceplate sides and top using the 1/4" x 1/2" long hex bolts, lock washers, and nuts provided. Do not tighten. See Diagram 2.

I1500s only: Install Digital Monitor Operating Tool Bracket as shown. See diagram 2A. Tighten all of the bolts. The tool holder can then be slid into the tool bracket as shown.

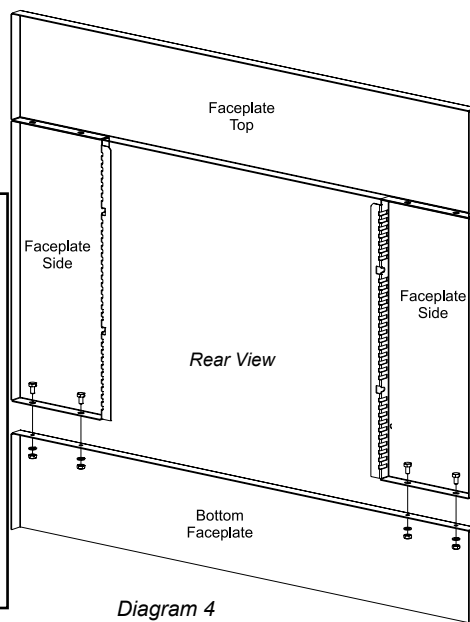


Optional Regular/Oversize Bottom Faceplate Installation:

- 4) Position the assembled faceplate side and top to the insert. Ensure to align the draft rod into the opening of the faceplate as well as the side faceplate slots with the bolts in the mounting brackets as shown in Diagram 3.



- 5) Measure the height between the hearth and the bottom of the side faceplate.
- 6) Cut the bottom faceplate to the measured height using a metal cutting blade.
- 7) Remove the faceplate assembly from the insert and attach the cut bottom faceplate to the faceplate sides using the 1/4" x 1/2" long hex bolts, lock washers and nuts provided as shown in Diagram 4.



If the insert is going to sit on the hearth proceed to "Faceplate Trim Installation" (step 8) otherwise continue on to "Bottom Faceplate Installation" (step 4).

Regular/Oversize Faceplate Trim Installation:

(Black Trim included with Regular/Oversize Faceplate or Bottom Faceplate)

- 8) Assemble the left and right side trim to the top trim using the trim clips provided as shown in Diagram 5.

NOTE: When using the optional bottom faceplate kit (part #171-928 for Regular or 171-930 for Oversize), the kit contains 2 long right/left black trims. These will need to be cut to size depending on the overall height of the faceplate prior to assembling the trims. Use a hack saw with a fine blade or cut off saw to cut the ends of the black trim. The right/left black trim that were supplied with the regular/oversize faceplate can be recycled as it is not required.

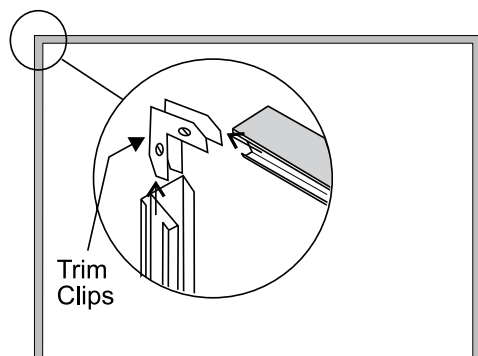


Diagram 5

- 9) Fit the trim assembly over the faceplate assembly. See Diagram 6.

- 10) Drill two 5/32" diameter holes through the trim and side panels and screw the trim to the panels using the self tapping screws provided as shown in Diagram 6.

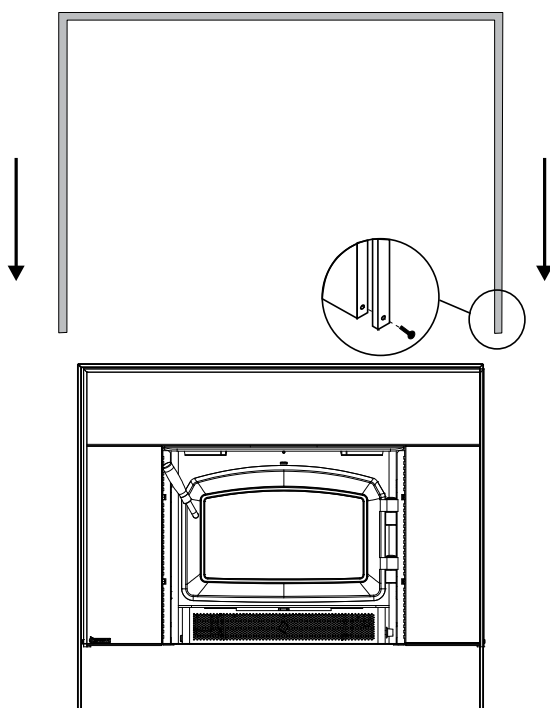


Diagram 6:
Shown with Optional Bottom Faceplate

- 11) Mount the completed faceplate / trim assembly to the insert. Ensure to align the side faceplate slots with the hex bolts in the mounting brackets and tighten to secure in place. Secure the Regency logo plate to the bottom of the faceplate.

Fan Installation:

- 12) Install the fan assembly to the ash lip of the insert as shown in Diagram 7.

- Align the fan with the offset clips on the bottom of the ash-lip.
- Slide the supports into the clips. The tension holding the clips in place may be adjusted by increasing or decreasing the offset spacing of the clips.
- Ensure that the power cord is not in contact with any hot stove surfaces.

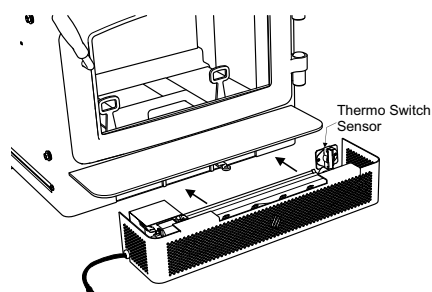


Diagram 7

Optional Fan Support / Bottom Faceplate Installation:

- 13) To install the optional fan support, measure the distance between the hearth and the bottom surface of the fan housing as shown in Diagram 8.

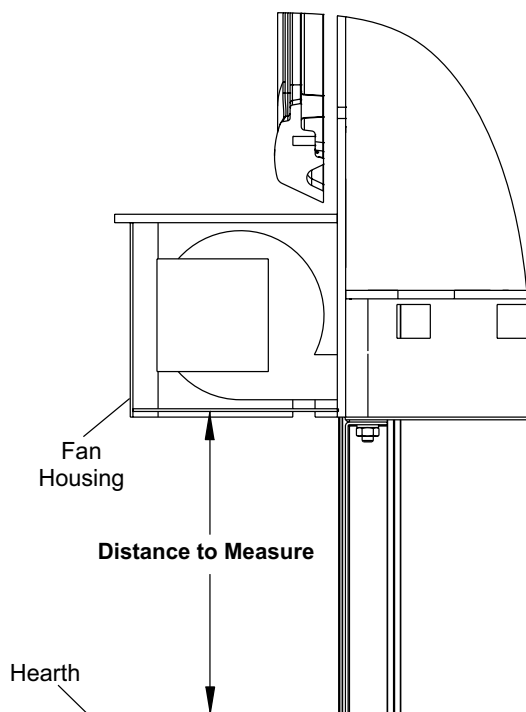


Diagram 8: Side View

installation

- 14) Cut the bottom edge of the fan support and bottom faceplate (using a metal cutting blade) to the length measured in step 13.
- 15) Remove the fan assembly from the ash lip of the insert and position the fan support to the bottom of the fan assembly.
- 16) Drill 4 x 5/32" holes to the underside of the fan assembly using the holes in the fan support as a guide. See Diagram 9.
- 17) Secure the fan support to the fan assembly using 4 self tapping screws. See Diagram 9.
- 18) Secure the bottom faceplate to the 3-sided faceplate using the 4 supplied bolts/washers.
- 19) Discard both side trims that were included with the regular/oversize faceplate and replace with the new extended trims supplied with the fan support/bottom faceplate. Cut to desired length.
- 20) Fit the trim assembly over the faceplate assembly. See Diagram 6.
- 21) Drill two 5/32" diameter holes through the trim and side panels and screw the trim to the panels using the self tapping screws provided as shown in Diagram 6.
- 22) Re-attach the fan/fan support assembly to the ash lip of the insert.

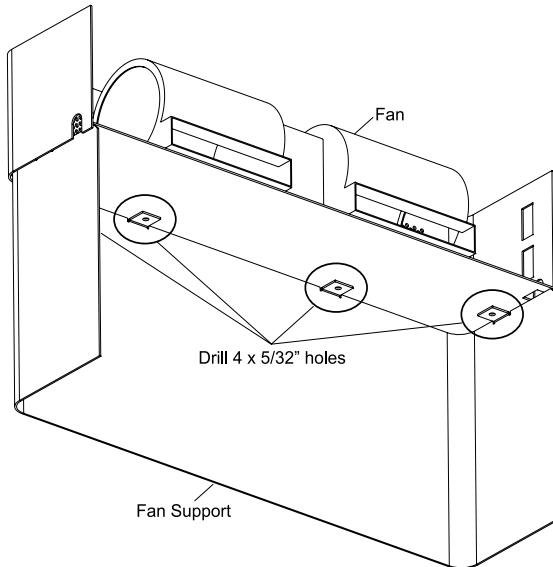
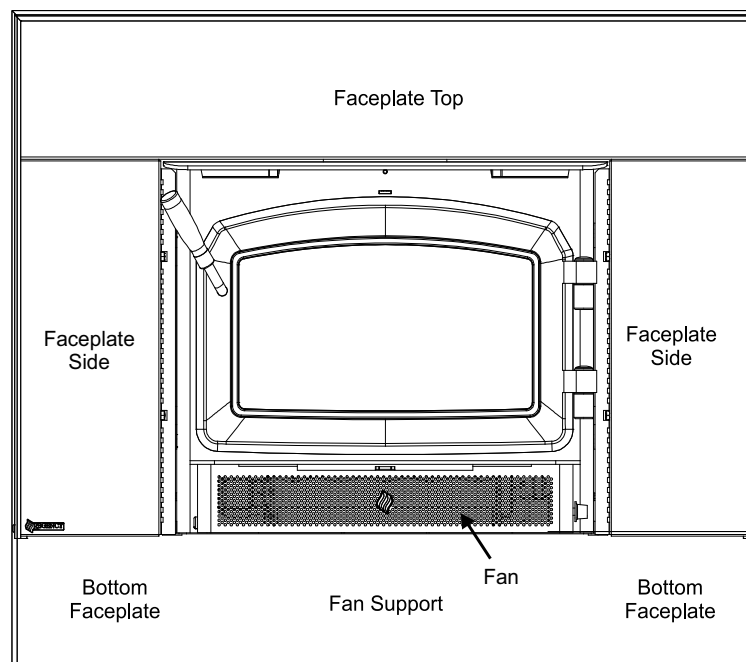


Diagram 9: Rear / Bottom View
Note: Fan not exactly as shown

Completed Faceplate Assembly



Fan/Blower

The fan should only be installed once the unit is in place in order to prevent any damage to the fan.

Installer: Please record unit serial number here before installing blower.

Serial No. _____

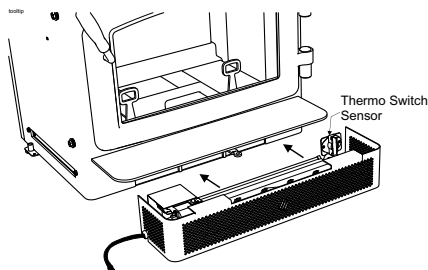
Fan assembly for use only with the room heater marked to indicate such use.

FAN INSTALLATION (120V FAN)

Your fan should only be installed once the unit is in place in order to prevent any damage to the fan.

- 1) Align the fan support with the offset clip on the bottom of the ashlip.
- 2) Slide the supports into the clips. The tension holding the clips in place may be adjusted by increasing or decreasing the offset spacing of the clips.
- 3) Ensure that the power cord is not in contact with any hot stove surfaces.

WARNING: FAN ASSEMBLY MUST BE DISCONNECTED FROM THE SOURCE OF ELECTRICAL SUPPLY BEFORE ATTEMPTING THE INSTALLATION.



FAN OPERATION

The fan is controlled by a rheostat which allows control of the heat output.

The fan will turn on as the stove has come up to operating temperature. It will also shut the fan system off after the fire has gone out and the unit cooled to below a useful heat output range.

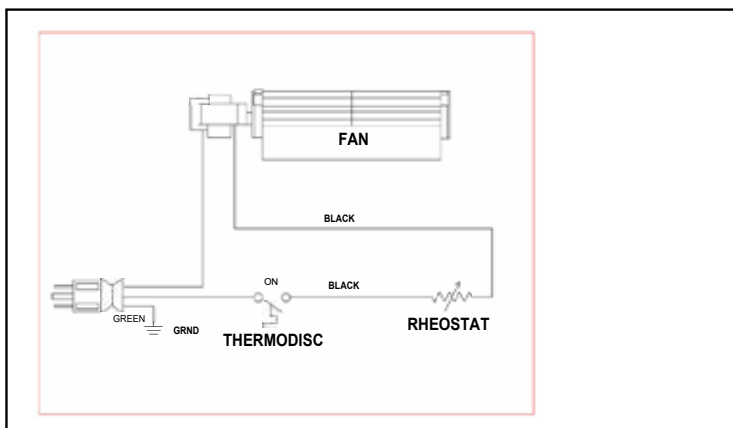
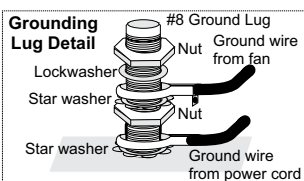
If the fan cycles on and off continuously the thermo switch sensor is not making contact with the stove body. Remove the fan, bend the bracket closer to the stove and re-install the fan.

The fan is to be operated in the <LOW> position when burning in the LOW - MED LOW heat output setting and on <HIGH> when burning in the MED-HIGH settings.

WARNING: Electrical Grounding Instructions

This appliance is equipped with a three pronged (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

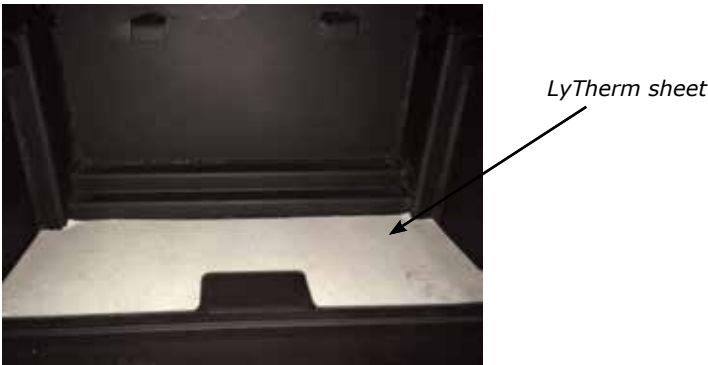


Wiring Diagram

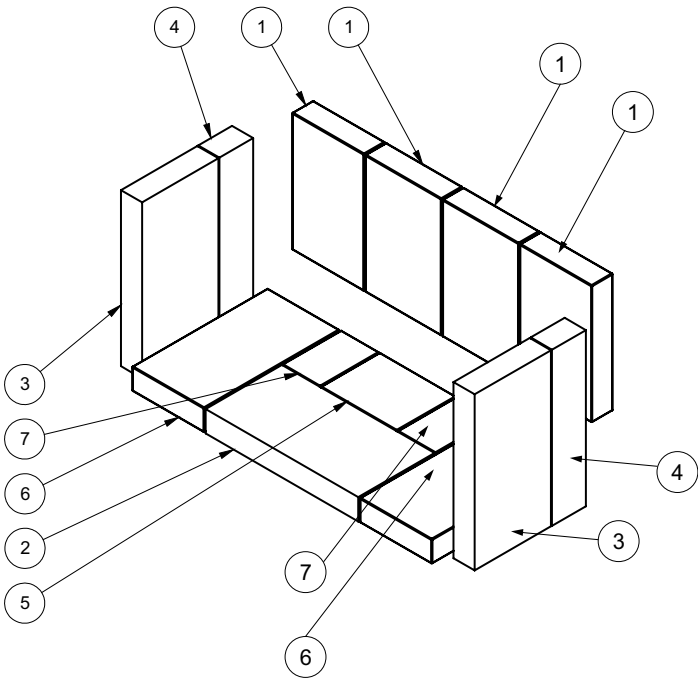
installation

Brick Installation

Firebrick is included to extend the life of your stove and radiate heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping. Install all firebricks (if bricks were removed at install) per the Diagram below and place in their correct positions. Do not use a grate.



- Order of firebrick install:
- a) Rear Firebrick
 - b) Firebox floor - install brick over LyTherm Sheet
 - c) Right and left side Firebricks



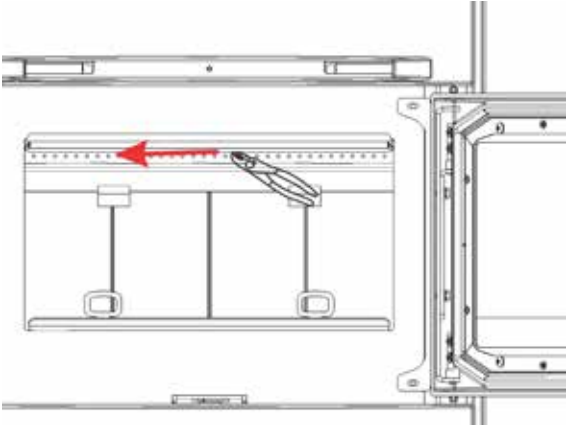
Fire bricks	
#	Size
1	8-3/8" x 4-3/8"
2	9" x 4-1/4"
3	9" x 4-1/2"
4	9" x 2-3/8"
5	3-1/2" x 4-1/2"
6	7-3/4" x 4-1/4"
7	3-1/2" x 2-1/4"

Baffle Installation

Note: unit in images may not be identical to the i1150-1 — they depict the process.

1. Open the door.
2. Remove the front secondary air tube with pliers as shown below.

Note: It will be easier to remove the air tubes by removing both the bottom right base brick and right side wall brick.



3. Install the center baffle.



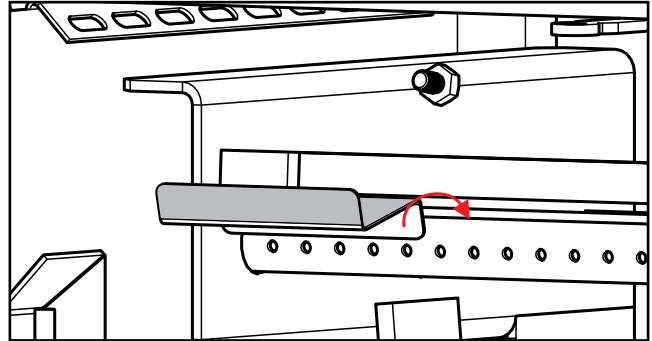
Centre baffle

4. Install the right and left side baffles (right side baffle shown below).

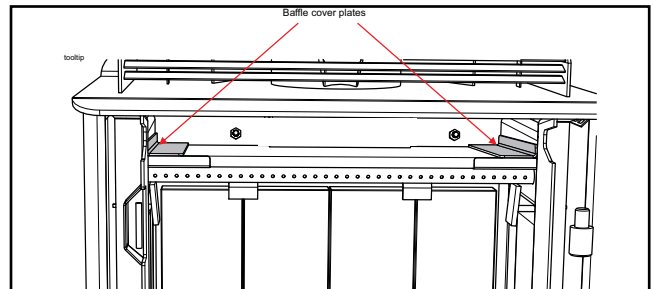


Baffle Side Piece

5. Install the front air tube removed in step 2.
6. Install baffle brackets on either side by slightly lifting baffles up and placing brackets in between baffles and the front air tube. The brackets will hold the baffles in position.



7. Slide left and right baffle cover plates on either side of baffles as shown.



8. Reverse steps to uninstall the baffles.

installation

Wood Door & Handle Assembly (Arched Door)

1. In preparation of installing the door handle, the nuts, cam, washers and spacer must be removed as shown in Diagram 1.

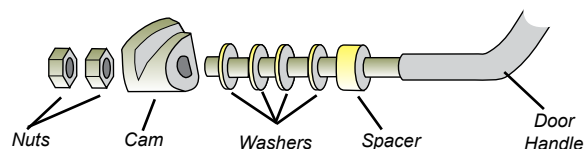


Diagram 1

LATCH ADJUSTMENT

The door latch may require adjustment as the door gasket material compresses over time. Removal of 1 or 2 washers will allow the latch to move closer to the door frame, causing a tighter seal. (Refer to Diagram 1)

2. Place the door onto the hinges and then place the door handle through the opening on the door, as shown in Diagram 2.

Re-assemble and secure the door handle components in reverse order as removed in step 1, refer to Diagram 1.

3. Put the hinge cover caps on top of hinges to complete the door installation.

Note: The bottom of the door may scrape the ashlip. In this case place the spacers provided on the door hinges of the unit before placing the door.

4. Close door and ensure there is a tight seal. If door is too tight a washer can be removed. Recheck door to ensure there is still a tight seal. The handle should be approximately in the 8 o'clock position when door is fully closed. (Diagram 3)

Note: unit in images may not be identical to the i1150-1 — they depict the process.

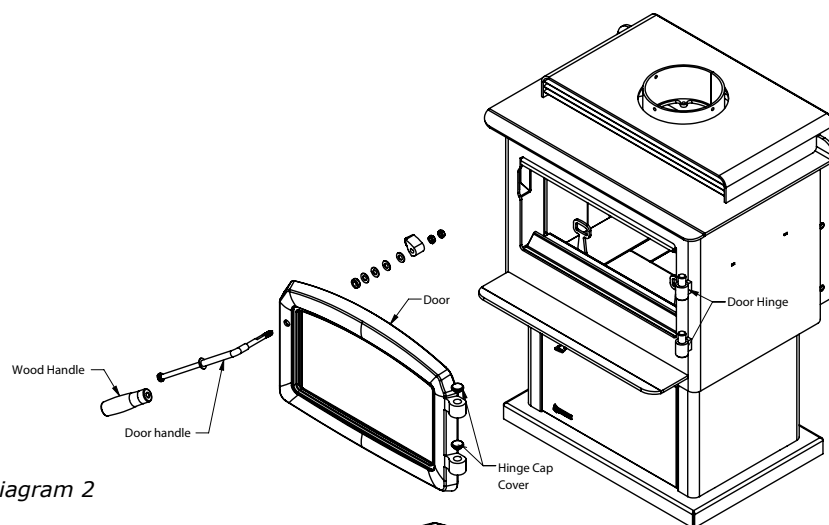


Diagram 2

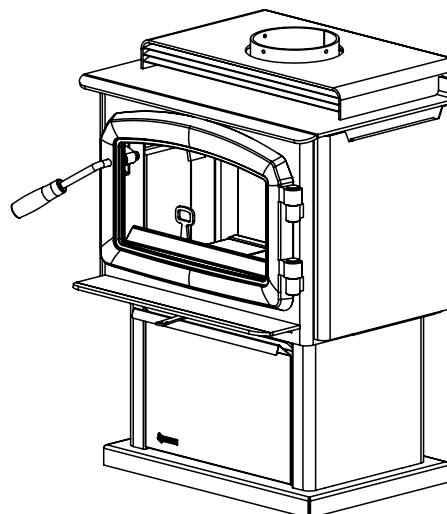


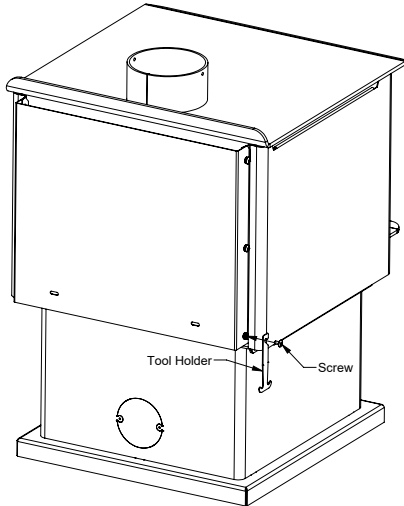
Diagram 3

Square Door Installation (Part #850-161)

Note: Unit may not be exactly as shown but depicts the process.

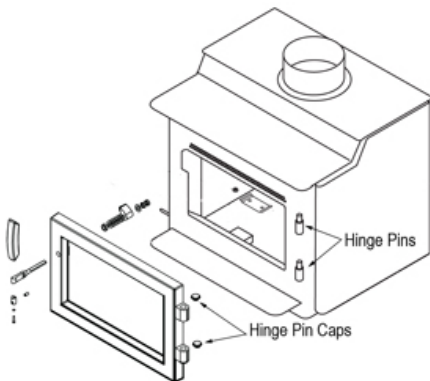
When assembling the stove with pedestal, stacker or legs - install the tool holder for the door handle storage.

Unfasten the bottom screw on the back left side of the unit and attach the tool holder as shown below.

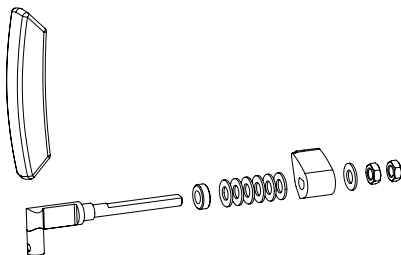


DOOR INSTALL

1. Place door onto the two hinge pins on the body of the stove.
2. Place hinge pin caps to the top of both door hinges.



3. Remove the nuts, washers, cam and spacer from the handle assembly
4. Slide the handle shaft into the hole in the door with the end of the handle facing down.
5. Slide the spacer, washers, cam, then another washer, the 2 nuts onto the handle shaft as shown. Tighten the nuts but do not overtighten so the handle can move freely.

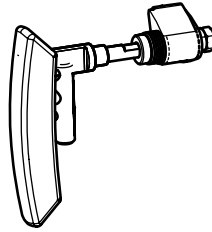


LATCH ADJUSTMENT

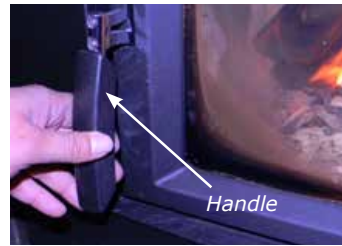
Each door handle may require 4 washers between the cam and door spacer. (2 washers are included as spares if required)

The door latch may require adjustment as the door gasket material compresses over time. Removal of 1 or 2 washers will allow the latch to move closer to the door frame, creating a tighter seal.

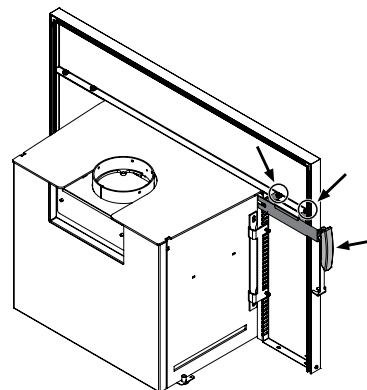
Remove washer(s) from the door handle assembly as required.



The cool to touch door handle is designed to be inserted from the bottom up and slide off when not held in place. Once in position, the door can be opened.



After use, store the door handle on the storage hook located on the left side of the Faceplate/Backing Plate.

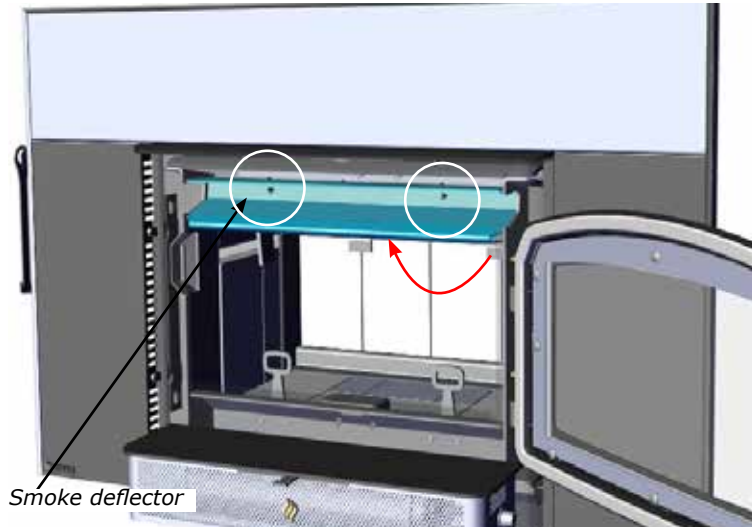


WARNING: FAILURE TO USE REMOVABLE HANDLE AS PER INSTRUCTIONS MAY CAUSE SERIOUS BURNS.

installation

Stainless Steel Smoke Deflector Installation

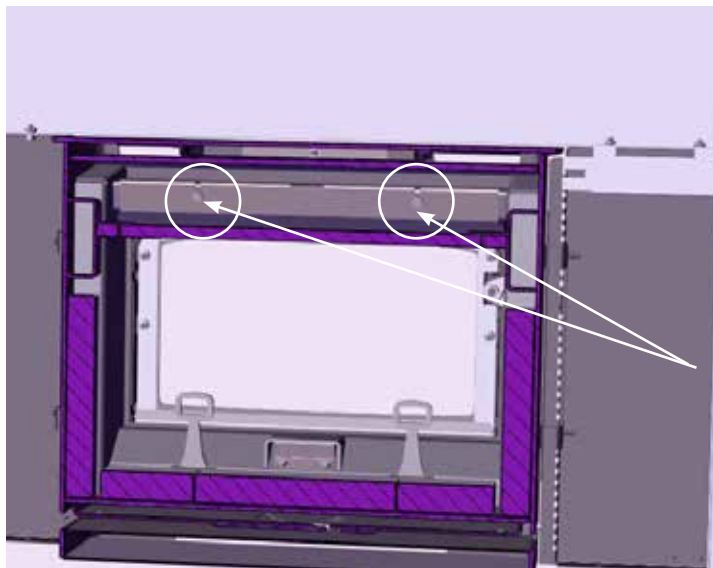
The stainless smoke deflector is located in the upper front area of the firebox. The deflector is held in place with 2 bolts. Prior to the first fire, ensure deflector is seated properly and secured with 2 hand tightened bolts which are accessible from behind the smoke deflector.



Smoke deflector is installed through the door opening in location shown in Diagram

To replace the deflector, loosen off both bolts and slide deflector downward, push deflector to the back wall of the unit and manoeuver out. Install new deflector and hand tighten bolts. Ensure positive location of the deflector prior to hand tightening.

WARNING: Operation of the unit with out proper installation of smoke deflector will void warranty.



Ensure deflector is seated so bolts are seated at the bottom of the slot before tightening.

Smoke deflector installed with 2 bolts.

Note: *This is a cutaway view from the back of the unit*

Seasoned Wood

Whether you burn wood in a fireplace, stove or insert, good quality firewood is the key to convenience, efficiency and safety. Wet wood and pieces that are not the right size and shape for your wood burner can be frustrating, burn inefficiently and deposit creosote that can fuel a dangerous chimney fire. Good planning, seasoning and storage of the firewood supply are essential to successful wood burning.

- Stack the wood in separate rows in an open location where the summer sun can warm it and breezes can carry away the moisture. Do not stack unseasoned wood tightly in an unvented storage area.
- Do not allow firewood to lie on the ground for more than a couple of days before stacking. Mould and rot can set in quickly.
- Stack the wood up off the ground on poles, lumber rails or pallets.
- The top of the pile can be covered to keep off rain, but do not cover the sides.

Softer woods like pine, spruce and poplar/aspen that is cut, split and stacked properly in the early spring maybe be ready for burning in the fall. Extremely hard woods like oak and maple, and large pieces of firewood, may take a minimum of a full year to dry enough. Drying may also take longer in damp climates

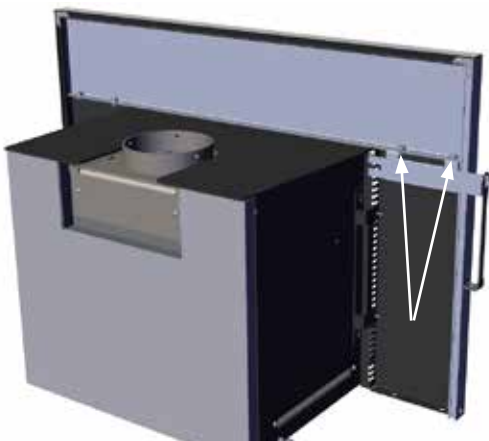
There are a few ways to tell if wood is dry enough to burn efficiently. Use as many indicators as possible to judge the dryness of the firewood your are considering. Here are ways to judge firewood moisture.

- Using a moisture meter, select the species of fuel and then penetrate the pins into a split piece. Ideal moisture and seasoned firewood should be less than 20% moisture content.
- Checks or cracks in the end grain can be an indication of dryness, but may not be a reliable indicator. Some wet wood has checks and some dry wood has no checks.
- The wood tends to darken from white or cream colour to grey or yellow as it dries.
- Two dry pieces banged together sound hollow; wet pieces sound solid and dull.
- Dry wood weighs much less than wet wood.
- Split a piece of wood. If the exposed surface feels damp, the wood is too wet to burn.

Primary Air Operating Handle

The I1150 is supplied with a primary air operating handle. The handle is used to adjust the air control for the desired heat output.

Install the operating handle storage bracket on the top left side (facing back of unit) of the faceplate. Loosen the two 7/16" bolts and slide bracket in and retighten bolts. Diagrams below show bracket already installed.



Loosen these two bolts and slide in the bracket.

operating instructions

Operating Instructions

With your unit now correctly installed and safety inspected by your local authority, you are now ready to start a fire. Before establishing your first fire, it is important that you fully understand the operation of your draft control.

WARNING

Fireplace Inserts equipped with doors should be operated only with doors fully closed. If doors are left partly open, gas and flame may be drawn out of the fireplace stove opening, creating risks from both fire and smoke.

Draft Control

Both the primary and air wash drafts are controlled by the control slide located on the front left side of the unit (when facing the unit). To increase your draft—slide to the left to open, and to decrease—slide to the right to close. The I1150 unit has a secondary draft system that continually allows combustion air to the induction ports at the top of the firebox.

Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Too much draft may cause excessive temperatures in the appliance. Inadequate draft may cause back puffing into the room and plugging of the chimney.



Primary Air Damper
Left - Open Right - Closed

WARNING: To build a fire in ignorance or to disregard the information contained in this section can cause serious permanent damage to the unit and void your warranty!

First Fire

When your installation is completed and inspected you are ready for your first fire.

THIS UNIT IS DESIGNED TO BURN SEASONED CORDWOOD ONLY. COAL, BRIQUETTES AND ALL OTHERS LISTED ON PAGE 2 ARE NOT APPROVED. SEASONED CORDWOOD SHOULD BE LESS THAN 20% MOISTURE CONTENT. START UP AND OPERATING PROCEDURES:

1. For the first few days, the wood insert will give off an odour from the paint. This is to be expected as the high temperature paint becomes seasoned. Windows and/or doors should be left open to provide adequate ventilation while this temporary condition exists. Burning the wood insert at a very high temperature the first few times may damage the paint. During the first few fires, keep the combustion rate at a moderate level and avoid a large fire. Only after 5 or 6 such fires can you operate the wood insert at its maximum setting, and only after the metal has been warmed.
2. Do not place anything on the wood insert top during the curing process. This may result in damage to your paint finish.
3. When starting the fire, ensure air control is in the fully open position (far left). Crumble 2-5 pieces of newspaper and add approx. 1lb of kindling stacked in a manner that allows air flow on the firebrick hearth (Tee-pee style or other). **DO NOT USE A GRATE TO ELEVATE THE FIRE.** Light the newspaper and adjust the door if it is slightly ajar for less smoke roll out. Keep the door in that position for 2-3 minutes to establish a good fire.
4. When the fire is well established add another 0.5 - 1 lb kindling along with few pieces of start up cord wood (startup cord wood is slightly larger than kindling but not full pieces of cord wood). keep the door open for 1.5 - 2 min until the fire started well enough then close the door.

CAUTION: Never leave unit unattended if door is left open. This procedure is for fire start-up only, as unit may overheat if door is left open for too long.

5. Once flame has been established, open the door and add another 6 or 7 pieces (2 lbs) of start up cord wood more to the back. Hold door slightly ajar for 30-60 sec to establish flame, and then close the door.

NOTE: These steps are crucial to ensure proper charcoaling and coal bed prior to loading High, Med and Low fire loads.

6. Once this has burned down, open the door, and rake the coals to create a uniform charcoal bed. Load 5 pieces of 17" long cord wood, East-West orientation, with the heaviest pieces at the back of the firebox, and ensure all pieces are behind the log retainers. Do not block the pilot with wood. Once loaded, close the door right away. Burn on high setting (air control to the far left when facing the unit) for 6 -10 minutes. Now you can adjust the air control to

your desired position. After 15 minutes, the fan can be turned on.

High Fire: Air control to far left.

Low Fire: Air control to far right.

WARNING: Never build a roaring fire in a cold wood insert. Always warm your wood insert up slowly!

7. When re-fueling, always open the primary air damper, load fuel, then wait for at least 10 minutes before adjusting the air to the desired position. This will also minimize any smoking (spilling) back into the room.
 8. During the first few days it may be more difficult to start the fire. As you dry out your firebrick and your masonry flue, your draft will increase.
 9. For those units installed at higher elevations onto sub-standard masonry fireplaces, drafting problems may occur. Consult an experienced dealer or mason on methods of increasing your draft.
 10. Some cracking and popping noises may be experienced during the heating up process. These noises will be minimal when your unit reaches temperature.
 11. All fuel burning appliances consume oxygen during operation. It is important that you supply a source of fresh air to your unit while burning. A slightly opened window is sufficient for the purpose. If you also have another fireplace in your home, a downdraft may be created by your Regency wood insert causing a draft down your chimney. If this occurs, slightly open a window near your unit.
- WARNING: If the body of your unit, or any part of the chimney connector starts to glow, you are over firing. Stop loading fuel immediately and close the draft control until the glow has completely subsided.**
12. Green or wet wood is not recommended for your unit. If you must add wet or green fuel, open the draft control fully until all moisture has been dispersed by the intense fire. Once all moisture has been removed, the draft control may be adjusted to maintain the fire.

13. The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
14. If you burn the unit too slowly or at too low a setting your unit will not be operating as efficiently as it can. An easy rule of thumb says that if your glass is clean, then your flue is clean and your exhaust is clean. Burn the insert hot enough to keep the glass clean, and you won't need to clean your flue as often.

How to Light & Maintain a Wood Stove Fire



Fan Operation

Automatic

To operate the fan - turn on the rheostat.

This will allow the fan to turn on as the stove has come up to operating temperature. It will also shut the fan system off after the fire has gone out and the unit cooled to below a useful heat output range.

Operate the fan in the low speed position when burning in the LOW-MED LOW heat output ranges and operate in the high setting for MED-HIGH to HIGH heat outputs.

Ash Disposal

During constant use, ashes should be removed every few days.

Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

Safety Precautions

1. Do not allow ashes to build up to the loading doors! Only remove ashes when the fire has died down. Even then, expect to find a few hot embers.
2. Please take care to prevent the build-up of ash around the start-up air housing located inside the stove box, under the loading door lip.
3. Never start a fire if the ash plug and ash drawer are not in place. This will cause over firing which can cause excessive warping of the stove. Evidence of over firing can void the warranty on your stove.
4. The firebricks are brittle and can be damaged if the plug is replaced carelessly or pieces that are too large are forced through the hole.

Safety Guidelines and Warnings

CAUTION: do not use chemicals as fluids to start fire.

1. **CAUTION:** Never use gasoline, gasoline type lantern fuels, kerosene, charcoal lighter fuel, or similar liquids to start or 'freshen up' a fire in your heater. Keep all such liquids well away from the heater while it is in use.
2. Keep the door closed during operation and maintain all seals in good condition.
3. Do not burn any quantities of paper, garbage, and never burn flammable fluids such as gasoline, naptha or engine oil in your stove.
4. If you have smoke detectors, prevent smoke spillage as this may set off a false alarm.
5. Do not overfire heater. If the chimney connector, flue baffle or the stove top begin to glow, you are over firing. Stop adding fuel and close the draft control. Over firing can cause extensive damage to your stove including warping and premature steel corrosion. Over firing will void your warranty.
6. Do not permit creosote or soot build-up in the chimney system. Check and clean chimney at regular intervals. Failure to do so can result in a serious chimney fire.
7. Your Regency stove can be very hot. You may be seriously burned if you touch the stove while it is operating, keep children, clothing and furniture away. Warn children of the burn hazard.
8. The stove consumes air while operating, provide adequate ventilation with an air duct or open a window while the stove is in use.
9. Do not connect this unit to a chimney flue serving another appliance.
10. Do not use grates or andirons or other methods for supporting fuel. Burn directly on the bricks.
11. Open the draft control fully for 10 to 15 seconds prior to slowly opening the door when refuelling the fire.
12. Do not connect your unit to any air distribution duct.
13. This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods.
14. In the event of component failure, replace parts with only Regency listed parts.
15. Warning: do not abuse glass door such as striking or slamming shut.

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

DO NOT BURN:

- Treated wood
- Coal
- Garbage
- Cardboard
- Solvents
- Colored Paper
- Trash
- Salt drift wood
- Cut lumber, plywood, mill ends.

Burning treated wood, garbage, solvents, colored paper or trash may result in release of toxic fumes. Burning coal, cardboard, or loose paper can produce soot, or large flakes of char or fly ash, causing smoke spillage into the room.

CAUTION: DO NOT BURN GARBAGE OR FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPTHA OR ENGINE OIL. SOME FUELS COULD GENERATE CARBON MONOXIDE AND ARE VERY DANGEROUS.

CAUTION: DO NOT CONNECT TO, OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCT WORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATION.



Cleaning & Maintaining Your Wood Stove

maintenance

Maintenance

It is very important to carefully maintain your fireplace stove, including burning seasoned wood and maintaining a clean stove and chimney system. Have the chimney cleaned before the burning season and as necessary during the season, as creosote deposits may build up rapidly. Moving parts of your stove require no lubrication.

Creosote

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

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if creosote build up has occurred. If creosote has accumulated it should be removed to reduce the risk of chimney fire.

CAUTION: Things to remember in case of a chimney fire:

1. Close all draft controls.
2. CALL THE FIRE DEPARTMENT.

Ways to Prevent and Keep Unit Free of Creosote

1. Burn stove with the draft control wide open for about 10-15 minutes every morning during burning season.
2. Burn stove with draft control wide open for about 10 - 15 minutes every time you apply fresh wood. This allows the wood to achieve the charcoal stage faster and burns up any unburned gas vapours which might otherwise be deposited within the system.
3. Only burn seasoned wood! Avoid burning kiln dried, wet or green wood. Seasoned wood has been dried at least one year.
4. A small hot fire is preferable to a large smoul-

dering one that can deposit creosote within the system.

5. The chimney and chimney connector should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred.
6. **Have chimney system and unit cleaned by competent chimney sweeps twice a year during the first year of use and at least once a year thereafter or when a significant layer of creosote has accumulated (3 mm / 1/8" or more) it should be removed to reduce the risk of a chimney fire.**

Door Gasket

If the door gasket requires replacement 5/8" diameter material must be used. Regency uses a gasket rope 7/8" (Part #846-570). A proper high temperature gasket adhesive is required. See your Regency Dealer. The door catch may require adjustment as the door gasket compresses after a few fires. The door latch compression may require adjustment to renew seal. Removal of a shim, (see section in this manual), will allow the latch to be moved closer to the door frame, causing a tighter seal.

Glass Maintenance

Your Regency stove is supplied with 5mm Neoceram ceramic glass (Part #846-306) that will withstand the highest heat that your unit will produce. In the event that you break your glass by impact, purchase your replacement from an authorized Regency dealer only, and follow our step-by-step instructions for replacement (refer to Glass Replacement section).

Allow the stove to cool down before cleaning the glass. Cleaning the glass will prevent build up of carbon and allow full view of the fire. **WARNING:** Do not clean the glass when it is hot. **WARNING:** Do not use abrasive cleaners, a damp cloth and glass cleaner is effective.

Wood Storage

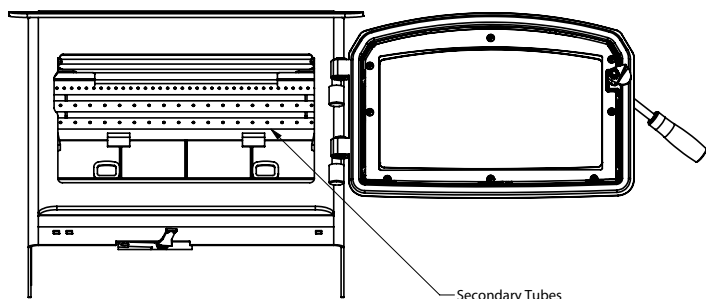
Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood, etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.



Secondary Air Tube Removal/Installation

1. Allow the stove to burn out and cool down, until cool to touch.
2. Open stove door to access secondary air tubes.

Note: to make it easier to remove the air tubes, first remove both the bottom right base brick and right side wall brick.



3. Grasp front secondary air tube firmly with vise grips, using a hammer tap vise grips from right to left until air tube is released from grip. Remove. See diagram 1.
4. Remove top left and right metal retainers, followed by the fragile three piece C-Cast Baffles, then remove the remaining 2 tubes.

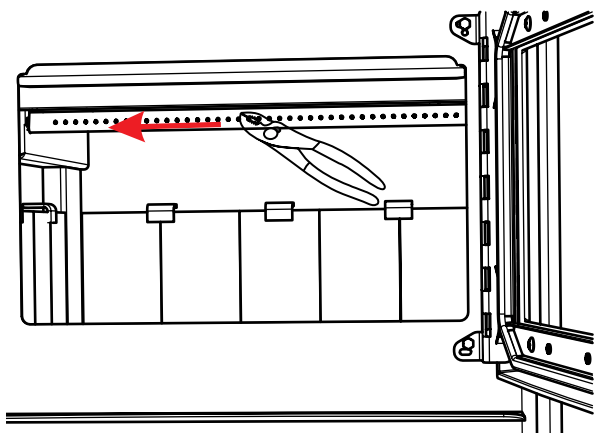


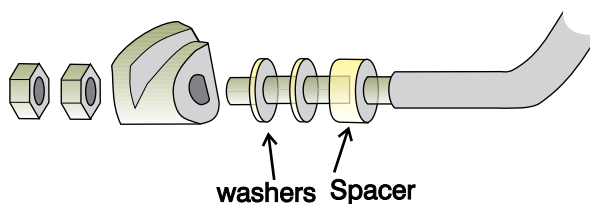
Diagram 1

5. To reinstall or replace, first slide left side of tube into hole on left side air channel. Align tab on right side air channel with notch on right hand end of air tube. Firmly grip center of air tube with vise grips, use hammer to tap vise grips from left to right until the tube bottoms out into the air channel on right.

Latch Adjustment

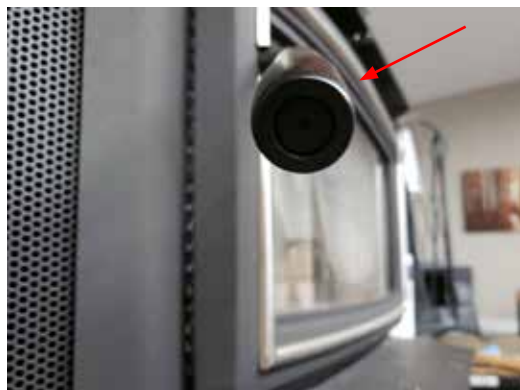
The door latch may require adjustment as the door gasket material compresses after a few fires. Removal of the spacer washer, shown in the Diagram below, will allow the latch to be moved closer to the door frame, causing a tighter seal. Remove and replace the nuts, washer and spacer as shown.

Note : If air tube is locked into place correctly there should be slight movement when moving the air tube back and forth.



Removing Wooden Handle

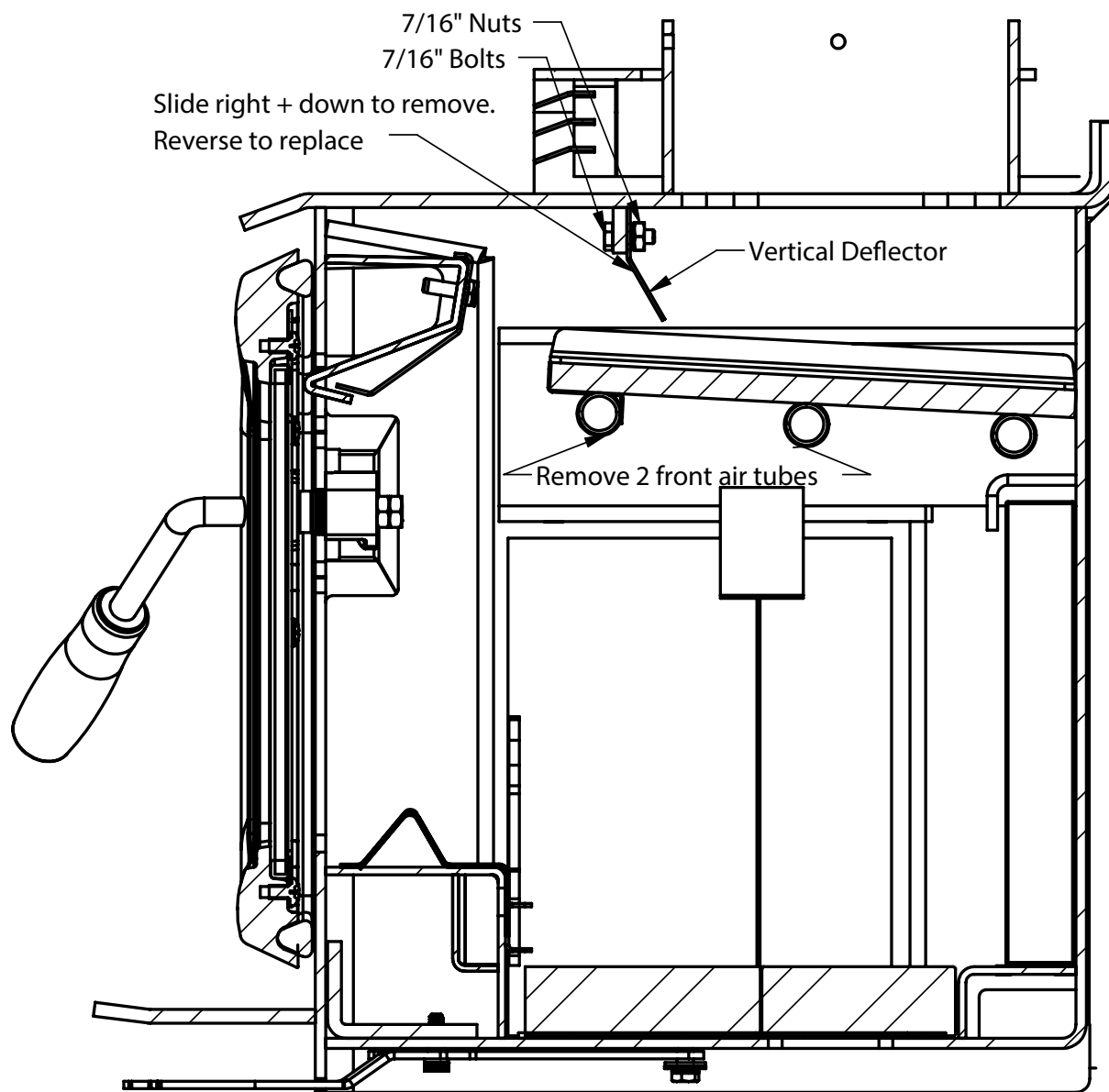
1. To remove the wooden door handle from unit, firstly locate 7/64" Allen key hole at the bottom of wooden handle.



2. Unscrew 7/64" Allen key screw counterclockwise. Once the screw is completely loose, remove and drop the handle down off the door handle shaft and replace with new handle.



Vertical Stainless Deflector Replacement



1. Remove 2 front secondary air tubes / baffles (see manual for details).
2. Loosen the two 7/16" bolts + nuts to remove / replace vertical baffle.
3. Repeat steps to install new vertical deflector.

NOTE: ENSURE BAFFLE IS PUSHED UP AS FAR AS POSSIBLE. TIGHT TO TOP OF FIREBOX.

Annual Maintenance	
Completely clean out entire unit	Annually
Inspect air tube and bricks	Replace any damaged parts.
Adjust door catch assembly	If unable to obtain a tight seal on the door - replace door gasket seal. Readjust door catch after new gasket installed.
Inspect condition and seal of: Glass Gasket Door Gasket	Perform paper test - replace gasket if required
Paper Test	Test the seal on the loading door with a paper bill. Place a paper bill in the gasket area of the door on a cold stove. Close the door. Try to remove the paper by pulling. The paper should not pull out easily, if it does, try adjusting the door latch, if that doesn't solve the problem replace the door gasket.
Check and lubricate door hinge + latch	Use only high temperature anti seize lube. (ie. never seize)
Check glass for cracks	Replace if required.
Clean blower motor	Disconnect power supply. Remove and clean blower. *DO NOT LUBRICATE*
Inspect and clean chimney	Annual professional chimney cleaning recommended.

NOTE:

Chimney Cleaning

When cleaning the chimney system the air tubes, baffles should be removed for ease of cleaning. See manual for details on removal. We highly recommend that the chimney cleaning be done by a professional as they will have the necessary tools such as a proper sized brush and special vacuum cleaner designed to deal with fine particles.

IMPORTANT:

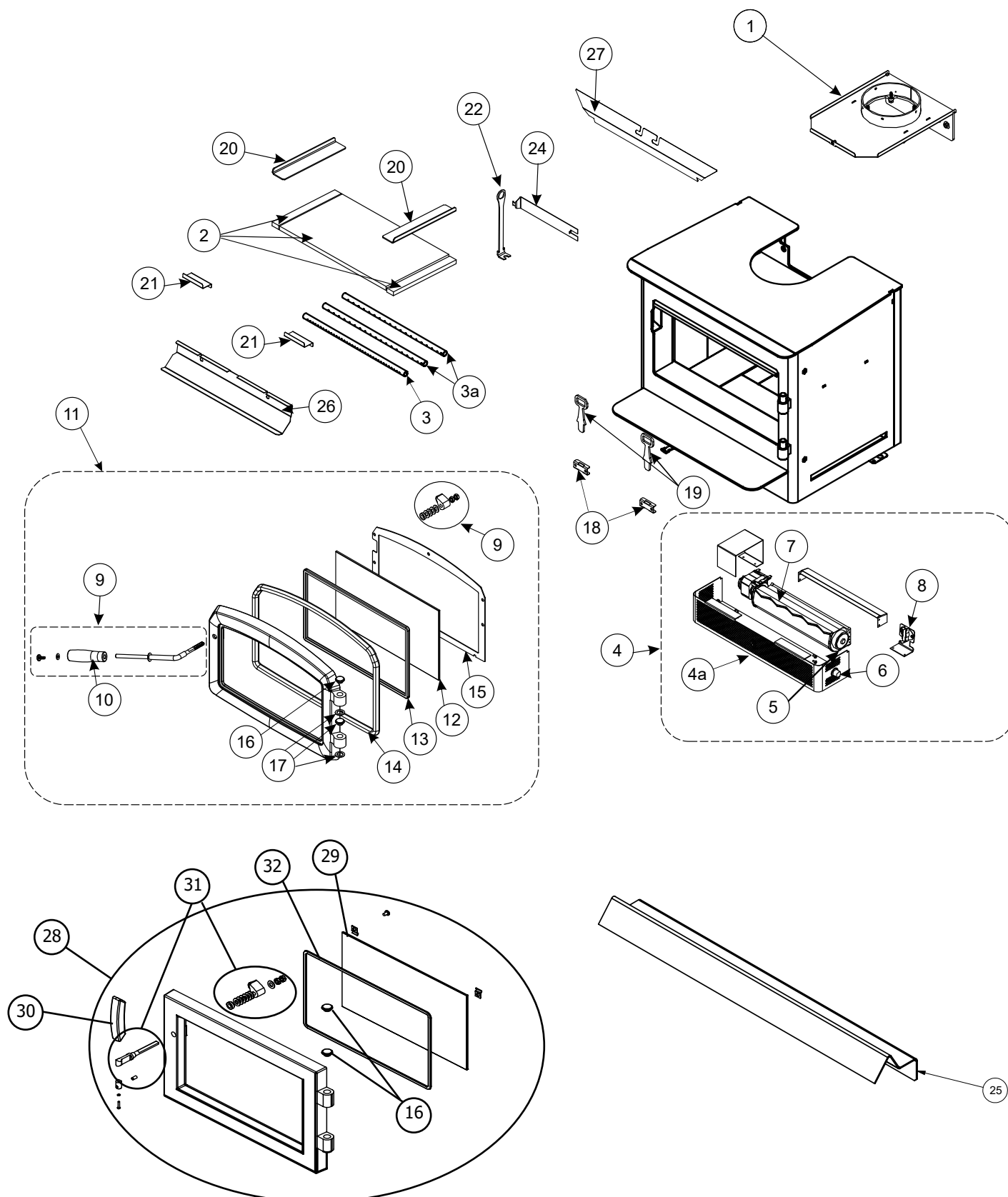
Before attempting to loosen or remove any screw, bolt from the interior of a wood stove, insert or factory built fireplace that has had a fire burned in it, we highly recommend to liberally spray the screw/bolt with a good-quality penetrating oil, one that does not have flammable properties contained within the penetrating oil being used. Allow it to set, then tap or vibrate the screw or bolt to help loosen it before attempting to remove it. For best results, follow the instructions that are provided with the penetrating oil.

parts list

Main Assembly

	Part #	Description
1	172-942	Flue Adapter Standard
1	172-946	Flue Adapter Offset
2	075-955	Baffle Set Complete
3	033-953	Air Tubes (Each)
3a	033-954	3/4" OD Air tube (Qty 2) (Each)
4	172-917	Fan Kit Complete
4a	172-927	Fan Housng Only (Painted Black)
5	910-330	Fan Speed Controller
6	910-586	Fan Control Knob
7	911-418/P	Replacement Fan Motor
8	910-142	Fan Thermodisc
9	021-973	Handle Assembly Complete
10	948-146	Wooden Door Handle
11	850-241	Complete Door - Black
11	850-243	Complete Door - Black with Nickel Accent
12	846-306	Replacement Glass - Includes Gasket (Size: 9-1/8" X 15-5/8")
13	846-692	1/8" x 3/4" Wide Graphite Gasket Tape (6') (936-241)
14	846-570	Door Gasket Repair Kit
15	075-077F	Glass Retainer
16	846-918	Black Hinge Caps (Set of 2)
16	948-079BN	Nickel Hinge Cap (Each)
17	650-084	Door Spacer (Each)
18	075-064	Andiron Bracket (Each)
19	075-063F	Andiron (Each)
20	075-040	Side Baffle Cover (Each)
21	075-041	Baffle Holder (Each)
22	181-040	Control Tool
24	172-016	Control Tool Slide
25	173-031	Primary Air Deflector
26	075-037	SS Smoke Deflector
27	173-030/P	Vertical Stainless Deflector
28	850-161	Small Squire Black Door Complete
29	846-302	Replacement Glass Includes Glass Gasket (Square Door)
30	156-241	Cast Handle (Square Door)
31	846-975	Door Handle Assembly (does not include cast handle) (Square Door)
32	846-682	22 mm Window Adhesive Gasket Tape (305 mm) (936-243) (Square Door)
N/S	911-096	120 Volt Power Cord
N/S	948-444	Regency Flame Logo Silver
N/S	173-028	Firebox Floor Gasket
N/S	021-055F	Glass Retainer (Square Door)

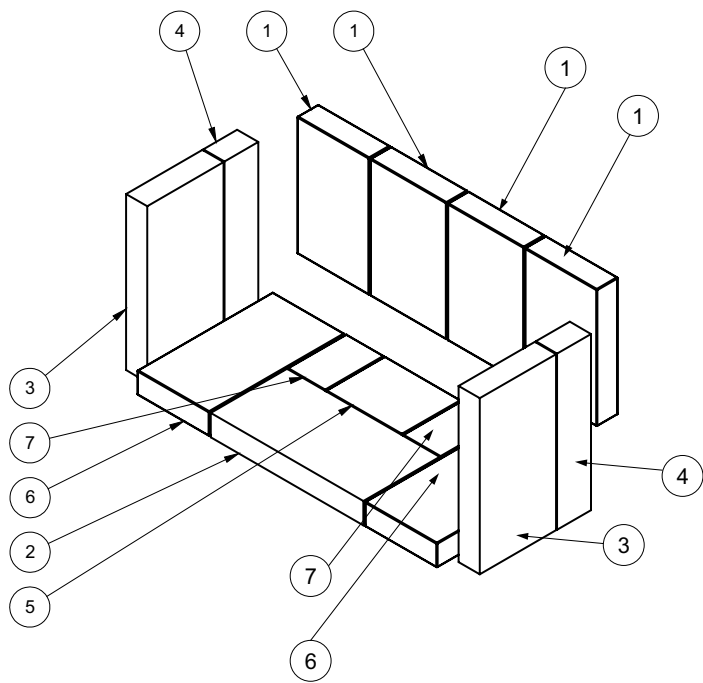
Main Assembly



parts list

Brick Panels

173-960 I1150-1 Brick Kit Complete

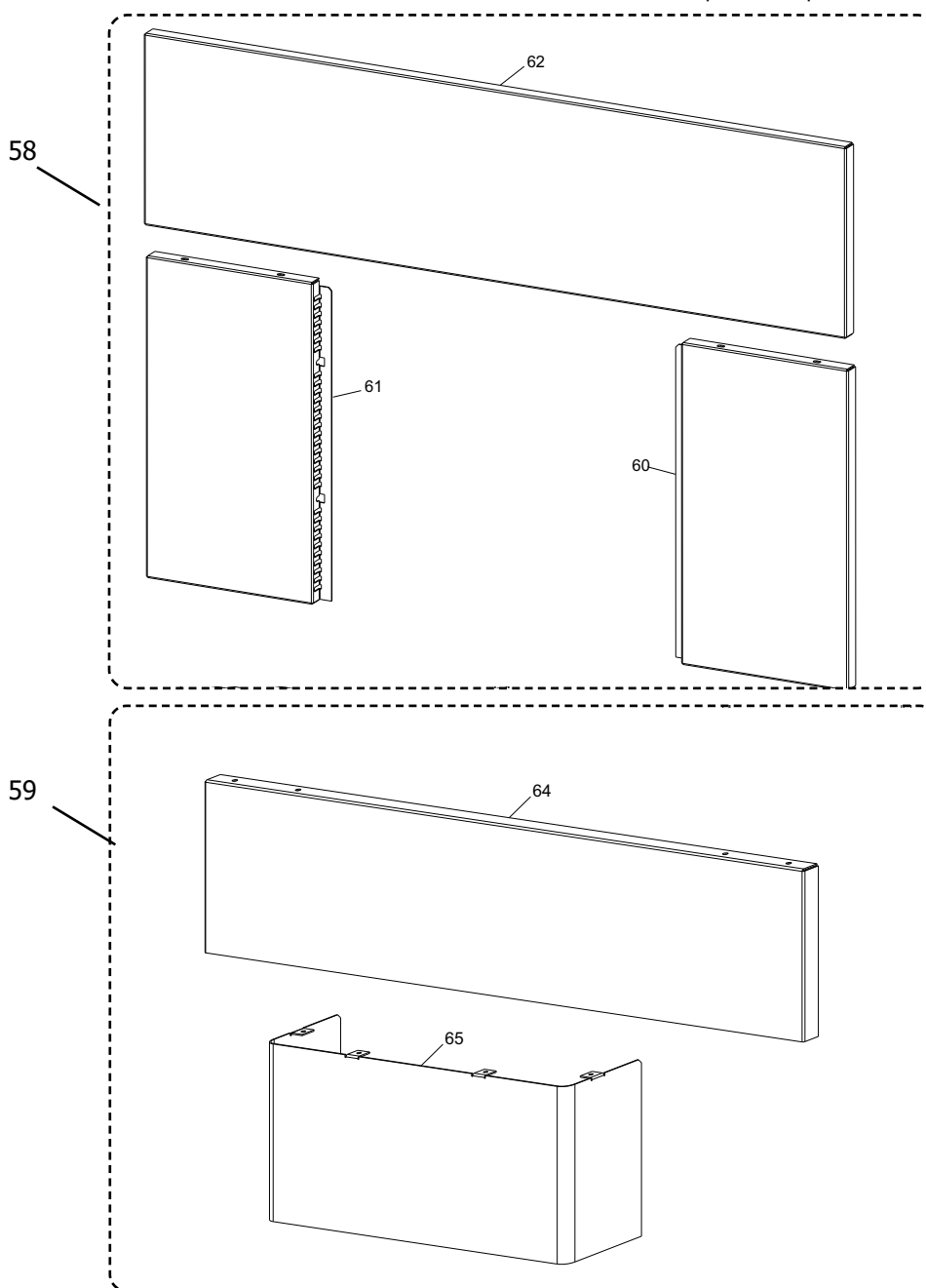


Fire bricks	
#	Size
1	8-3/8" x 4-3/8"
2	9" x 4-1/4"
3	9" x 4-1/2"
4	9" x 2-3/8"
5	3-1/2" x 4-1/2"
6	7-3/4" x 4-1/4"
7	3-1/2" x 2-1/4"

Faceplates

Part #	Description		
58) 172-920	Faceplate & Trim Set - Regular - Black	60) *	Faceplate Right Side Regular / Oversize
58) 172-922	Faceplate & Trim Set - Oversize - Black	61) *	Faceplate Left Side Regular / Oversize
		62) *	Faceplate Top Regular / Oversize
59) 171-928	Bottom Piece and Fan Support - Regular	64) *	Bottom 1 Piece Faceplate
59) 171-930	Bottom Piece and Fan Support - Oversize	65) *	Fan Support
		N/S 171-570	Black Perimeter Trim Black Regular Faceplate
		N/S 171-572	Black Perimeter Trim Black Oversize Faceplate
		N/S 948-223	Regency Logo Plate
		N/S 171-526	Faceplate Mounting Brackets (Each)
		N/S 171-546	Faceplate Hardware Package

*Not available as a replacement part.



Indoor Wood Product Warranty

Limited Lifetime Warranty

FPI Fireplace Products International Ltd. (for Canadian customers) and Fireplace Products U S, Inc. (for US customers) (collectively referred to herein as "FPI") extends this Limited Lifetime Warranty to the original purchaser of this Appliance provided the product remains in the original place of installation. The items covered by this Limited Lifetime Warranty and the period of such coverage are set forth in the table below.

An Appliance in this policy is defined as an Indoor wood insert or Indoor wood freestanding stove.

This Appliance has only been certified and listed for use indoors.

Note: This Wood Product Warranty does not apply to the Ri50 & CF780 models. See Ri50/CF780 policy for specific warranty details.

This Limited Lifetime Warranty starts on the day the Appliance was purchased.

The Limited Lifetime Warranty is not transferable, amendable or negotiable under any circumstances.

Indoor Wood Products	Component Coverage					Subsidized Labor Coverage***
Components Covered	Limited Lifetime	5 years	2 years	1 year	Warranty	(Years)
Welded Firebox Steel	✓					5
All Stainless Steel Components, Smoke Deflectors, Heat Shields etc.	✓					3
Air Tubes	✓					3
Airmate	✓					3
Door handle and latch assembly, all hardware	✓					3
Glass Thermal Breakage Only	✓					3
Steel Faceplates, Accessory Housings	✓					3
All Plating	✓					3
Ash Drawer, Heatshields, Pedestal	✓					0
All Baffles, Steel, Ceramic, Vermiculite C-Baffles	✓					0
All castings, firebox, surrounds, doors, panels etc.		✓				3
All Electrical, Blower, wiring, switches, Catalytic Monitors, Probes, etc.			✓			2
Glass - Cracking				✓		1
Catalyst Combustor					**10 Years Prorated	0
Venting/Chimney				✓		1
Screens				✓		1

**See specific warranty details regarding the catalyst combustor in this manual.

Note: Warranty coverage noted above may not be applicable as components/options vary based on appliance purchased.

Conditions:

Warranty protects against defect in manufacture or FPI factory-assembled components only, unless herein specified otherwise.

*****This warranty does not cover dealer travel costs, mileage, fuel, tolls for diagnostic or service work. All labor rates paid to authorized dealers are subsidized, pre-determined rates. Dealers may charge you for travel and additional time beyond their subsidy.**

Any part(s) found to be defective during the warranty period as outlined above will be repaired or replaced at FPI's option through an accredited distributor, dealer or pre-approved and assigned agent provided that the defective part is returned to the distributor, dealer or agent for inspection if requested by FPI. Alternatively, FPI may, at its own discretion, fully discharge all of its obligations under warranty by refunding the verified purchase price of the product to the original purchaser. The purchase price must be confirmed by the original Bill of Sale.

The authorized selling dealer, or an alternative authorized FPI dealer if pre-approved by FPI, is responsible for all in-field diagnosis and service work related to all warranty claims. FPI is not responsible for results or costs of workmanship of unauthorized FPI dealers or agents in the negligence of their service work.

At all times, FPI reserves the right to inspect reported in the field/on location complaints of products claimed to be defective before processing or authorizing any claim. Failure to allow this upon request will void the warranty.

All warranty claims must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase by you). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. **Incomplete claims may be rejected.**

Replacement Appliances to the original purchaser are limited to one per warranty term. Air tube and baffle replacements are limited to one replacement per warranty term.

The Appliance must be installed according to all manufacturers' instructions as per the manual. All Local and National required codes must be met.

The installer is responsible for ensuring the Appliance is operating as designed at the time of installation.

The original purchaser is responsible for the annual maintenance of the Appliance, as outlined in the owner's manual. As outlined below, the warranty may be voided due to problems caused by a lack of maintenance.

Purchased parts: Repair/replacement parts purchased by the consumer from FPI after the original coverage has expired on the Appliance will carry a **90-day** warranty from the purchase date, valid with a receipt only. Any item shown to be defective will be repaired or replaced at our discretion. No labor coverage is included with these parts.

If freight damage has been found either externally or internally, the dealer must be informed within 3 days. All claims as a result of damage must be submitted by the dealer servicing the claim, including a copy of the Bill of Sale (proof of purchase). All claims must be complete and provide full details as requested by FPI to receive consideration for evaluation. **Incomplete claims may be rejected.**

As this is a Limited Lifetime Warranty, if the Appliance needs to be replaced, the Appliance that was purchased at the time of sale might not be replaced with exactly the same model Appliance. In that case, FPI will replace your Appliance with one that is similar at the time of replacement under the terms of this Limited Lifetime Warranty, but **ONLY** in the event that an item covered by the Limited Lifetime Warranty is found to be defective. Please refer to the table on first page of this warranty for items covered by the Limited Lifetime Warranty. Product changes might be the result of the original Appliance being discontinued, changes in regulatory requirements, product advancements, etc., which are beyond the control of FPI. **This Limited Lifetime Warranty does not cover any installation costs, or costs associated with changes of required clearances for the replacement Appliance, hearth pads, mantles, facing and/or facing materials such as framing, completed walls made of drywall, wood, non-combustible board, tile, brick, stone, marble etc., venting/chimney systems, or components of the chimney system.**

If a suitable replacement is not available, FPI will refund **50%** of the purchase price of the Appliance and any applicable FPI accessories (faceplates, brick panels, media, etc.) purchased at the time of sale. **In no event will FPI refund any portion of the purchase price of, or reimburse costs associated with, any other items, including without limitation, installation of a new unit, changes of required clearances for a new unit, hearth pads, mantles, facing and/or facing materials such as framing, completed walls made of drywall, wood, non-combustible board, tile, brick, stone, marble etc., venting/chimney systems, or components of the chimney system. A copy of the receipt or bill of sale will be necessary to validate the purchase price.**

Exclusions:

This Limited Lifetime Warranty does not extend to paint, rust or corrosion of any kind due to a lack of maintenance or improper venting, combustion air provision, corrosive chemicals (i.e. chlorine, salt, air, etc.), firebrick (rear, sides or bottom), door or glass gasketing, vermiculite floor bricks, and iron assemblies/flue damper rod or any other additional factory fitted gasketing, batteries.

Malfunction, damage or performance-based issues as a result of environmental conditions, location, chemical damages, downdrafts, installation error, an installation by an unqualified installer, incorrect chimney components (including but not limited to cap size or type), operator error, abuse, misuse, use of improper fuels (such as unseasoned cordwood, mill-ends, construction lumber or debris, off-cuts, treated or painted lumber, metal or foil, plastics, garbage, solvents, cardboard, coal or coal products, oil-based products, waxed cartons, compressed pre-manufactured logs, kiln dried wood), lack of regular maintenance and upkeep, acts of God, weather-related problems from hurricanes, tornados, earthquakes, floods, lightning strikes/bolts or acts of terrorism or war, which result in a malfunction of the Appliance are not covered under the terms of this Limited Lifetime Warranty.

warranty

FPI has no obligation to enhance or modify any Appliance once manufactured (i.e. as products evolve, field modifications or upgrades will not be performed on existing Appliances).

Any Appliance showing signs of neglect or misuse will not be covered under the terms of this warranty policy and may void this warranty, including Appliances with rusted or corroded fireboxes that have not been reported as rusted or corroded within **three (3)** months of installation/purchase.

Appliances which show evidence of being operated while damaged, or with problems known to the purchaser and causing further damages will void this warranty.

Appliances where the serial no. has been altered, deleted, removed or made illegible will void this warranty.

Minor movement, expansion and contraction of the steel is normal and is not covered under the terms of this warranty.

Freight damages for products or parts are not covered under the terms of the warranty.

Products made or provided by other manufacturers and used in conjunction with the FPI Appliance without prior authorization from FPI may void this warranty.

Limitations of Liability:

The original purchaser's exclusive remedy under this warranty, and FPI's sole obligation under this Limited Lifetime Warranty, express or implied, in contract or in tort, shall be limited to replacement, repair, or refund, as outlined above. IN NO EVENT WILL FPI BE LIABLE UNDER THIS WARRANTY FOR ANY INCIDENTAL OR CONSEQUENTIAL COMMERCIAL DAMAGES OR DAMAGES TO PROPERTY. TO THE EXTENT PERMITTED BY APPLICABLE LAW, FPI 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. IF IMPLIED WARRANTIES CANNOT BE DISCLAIMED, THEN SUCH WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some US states do not allow limitations on how long an implied warranty lasts, or allow exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Customers located outside the US should consult their local, provincial or national legal codes for additional terms, which may be applicable to this warranty.

How to Obtain Warranty Service:

Customers should contact the authorized selling dealer to obtain warranty service. In the event the authorized selling dealer is unable to provide warranty service, please contact FPI by mail at the address listed below. Please include a brief description of the problem and your address, email and telephone contact information. A representative will contact you to make arrangements for an inspection and/or warranty service.

Canadian Warrantor:

FPI Fireplace Products International Ltd.
6988 Venture St.
Delta, British
Columbia Canada,
V4G 1H4

US Warrantor:

Fireplace Products U.S., Inc.
PO Box 2189 PMB 125
Blaine, WA
United States, 98231

Or contact the Regency Customer Care Centre at 1-800-442-7432 (phone) /604-946-4349 (fax) /customerservice@regency-fire.com (e-mail)

Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form at <http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx> within **ninety (90)** days of purchase.

Warranty Registration Card



Product Registration and Customer Support:

Thank you for choosing a Regency Fireplace. Regency strives to be a world leader in the design, manufacture, and marketing of hearth products. To provide the best support for your product, we request that you complete a product registration form found on our Web Site under Customer Care within ninety (90) days of purchase.

For purchases made in **CANADA or the UNITED STATES:**

<http://www.regency-fire.com/Customer-Care/Warranty-Registration.aspx>

For purchases made in **AUSTRALIA:**

<http://www.regency-fire.com.au/Customer-Care/Warranty-Registration.aspx>

You may also complete the warranty registration form below to register your Regency Fireplace Product and mail and/or fax it back to us, and we will register the warranty for you. It is important you provide us with all the information below in order for us to serve you better.

Warranty Registration Form (or Register online immediately at the above Web Site):

Warranty Details	
Serial Number (required):	
Purchase Date (required) (mm/dd/yyyy):	
Product Details	
Product Model (required):	
Dealer Details	
Dealer Name (required):	
Dealer Address:	
Dealer Phone #:	
Installer:	
Date Installed (mm/dd/yyyy):	
Your Contact Details (required)	
Name:	
Address:	
Phone:	
Email:	

For purchases made in **CANADA:**

**FPI Fireplace Products
International Ltd.**
6988 Venture St.
Delta, British Columbia
Canada, V4G 1H4

Phone: 604-946-5155
Fax: 1-866-393-2806

For purchases made in **the UNITED STATES:**

Fireplace Products US, Inc.
PO Box 2189 PMB 125
Blaine, WA
United States, 98231

Phone: 604-946-5155
Fax: 1-866-393-2806

For purchases made in **AUSTRALIA:**

**Fireplace Products Australia Pty
Ltd**
99 Colemans Road
Dandenong South, Vic.
Australia, 3175

Phone: +61 3 9799 7277
Fax: +61 3 9799 7822

For fireplace care and tips and answers to most common questions please visit our Customer Care section on our Web Site. Please feel free to contact your selling dealer if you have any questions about your Regency product.

PRODUCT LIFE CYCLE:

By recycling your used appliances, you divert waste from your local landfills and help the environment. You also reduce the need for raw materials to manufacture new products. Contact your local municipality for appliance recycling services, local recycling programs, or appliance removal services to ensure your Regency appliance components, and packaging are properly recycled.

notes

[illegible]

Installer: Please complete the following information

Dealer Name & Address: _____

Installer: _____

Phone #: _____

Date Installed: _____

Serial #: _____

Appendix C: Calibrations



QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS
2340 SE 11TH Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293
(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



PFS Teco
11785 SE Hwy 212 STE#305
Clackamas, OR 97015

Report Number: DIRI0182484A0912013i231228

A2LA ACCREDITED **CERTIFICATE OF CALIBRATION WITH DATA**

INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Scale	Digiweigh	DWP12i 300kg x 0.	82484A0912013i	#050	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
lbs	0.01	QC033	12/28/23	12/14/22	12/2024

FUNCTIONAL CHECKS

SHIFT TEST	LINEARITY	REPEATABILITY	ENVIRONMENTAL CONDITIONS
Test Wt: 100 Tol: 0.05 As-Found: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/> As-Left: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/>	Test Wt: HB44 Tol: HB44 As-Found: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/> As-Left: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/>	Test Wt: 100 Tol: 0.01 As-Found: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/> As-Left: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Good Fair Poor Temperature: 19.3°C

CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
400	399.87	400.01	0.006
200	200.00	200.00	0.005
100	100.02	100.02	0.005
75	75.02	75.02	0.005
50	50.02	50.02	0.005
25	25.00	25.00	0.005

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Avoirdupois Cast W	Rice Lake	25 and 50lb	PWO990-CA	7/18/22	7/2024	20221688

Permanent Information Concerning this Equipment:

Comments/Information Concerning this Calibration

12/28/23: RH-42.5%

Report prepared/reviewed by: R.A. Date: 12-28-23

Technician: C.Call

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

Member: National Conference of Standards Laboratories and Weights & Measures

Dry Gas Meter Calibration

DUT

Manufacturer: Apex
 Model: XC-60
 Lab ID #: 53
 Serial #: 1902130
 Calibration Date: 8/1/2024
 Calibration Expiration: 2/1/2025
 Barometric Pressure: 29.93 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		Fuke	Aquatech	Dwyer
Model: SK25DA		52 II	DBX2	W17AE
Lab ID#: 47		196	202	124
Calibration Expiration Date: 5/1/2025		1/3/2025	6/17/2025	6/16/2025
Calibration γ Factor: 0.998				

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	196.683	150.909	260.397
Standard DGM Temperature (°F)	76.0	77.0	77.0
Standard DGM Pressure (in H ₂ O)	0.00	0.00	0.0
DGM Initial Volume (ft ³)	0.000	0.000	0.000
DGM Final Volume (ft ³)	7.090	5.446	9.498
DGM Temperature (°F)	90.0	92.0	95.0
DGM Pressure (in H ₂ O)	3.34	1.59	2.35
Net Volume for Standard DGM (ft ³)	6.946	5.329	9.196
Net Volume for DGM (ft ³)	7.090	5.446	9.498
Dry Gas Meter γ Factor	0.995	1.000	0.993
γ Factor Deviation From Average	0.995	1.000	0.993

Average Gas Meter γ Factor

0.996

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Dry Gas Meter Calibration

DUT

Manufacturer: Apex
 Model: XC-60
 Lab ID #: 54
 Serial #: 1902133
 Calibration Date: 8/1/2024
 Calibration Expiration: 2/1/2025
 Barometric Pressure: 29.93 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		Fuke	Aquatech	Dwyer
Model: SK25DA		52 II	DBX2	W17AE
Lab ID#: 47		196	202	124
Calibration Expiration Date: 5/1/2025		1/3/2025	6/17/2025	6/16/2025
Calibration γ Factor: 0.998				

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	156.724	182.210	191.576
Standard DGM Temperature (°F)	73.0	74.0	75.0
Standard DGM Pressure (in H ₂ O)	0.00	0.00	0.0
DGM Initial Volume (ft ³)	0.000	0.000	0.000
DGM Final Volume (ft ³)	5.412	6.423	6.840
DGM Temperature (°F)	77.0	82.0	88.0
DGM Pressure (in H ₂ O)	2.83	3.29	1.54
Net Volume for Standard DGM (ft ³)	5.535	6.435	6.765
Net Volume for DGM (ft ³)	5.412	6.423	6.840
Dry Gas Meter γ Factor	1.021	1.007	1.007
γ Factor Deviation From Average	1.021	1.007	1.007

Average Gas Meter γ Factor

1.012

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

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

2. $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Dry Gas Meter Calibration

DUT

Manufacturer: Apex
 Model: XC-60
 Lab ID #: 55
 Serial #: 810016
 Calibration Date: 8/3/2024
 Calibration Expiration: 2/3/2025
 Barometric Pressure: 29.98 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		Fuke	Aquatech	Dwyer
Model: SK25DA		52 II	DBX2	W17AE
Lab ID#: 47		196	202	124
Calibration Expiration Date: 5/1/2025		1/3/2025	6/17/2025	6/16/2025
Calibration γ Factor: 0.998				

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	226.392	146.151	296.953
Standard DGM Temperature (°F)	81.0	82.0	82.0
Standard DGM Pressure (in H ₂ O)	0.00	0.00	0.0
DGM Initial Volume (ft ³)	0.000	0.000	0.000
DGM Final Volume (ft ³)	8.064	5.174	10.408
DGM Temperature (°F)	85.0	86.0	86.0
DGM Pressure (in H ₂ O)	0.00	0.00	0.00
Net Volume for Standard DGM (ft ³)	7.995	5.161	10.487
Net Volume for DGM (ft ³)	8.064	5.174	10.408
Dry Gas Meter γ Factor	0.997	1.003	1.013
γ Factor Deviation From Average	0.997	1.003	1.013

Average Gas Meter γ Factor

1.004

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

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

2. $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Dry Gas Meter Calibration

DUT

Manufacturer: Apex
 Model: XC-50-DIR
 Lab ID #: 203
 Serial #: A2204292
 Calibration Date: 8/2/2024
 Calibration Expiration: 2/2/2025
 Barometric Pressure: 29.96 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		Fuke	Aquatech	Dwyer
Model: SK25DA		52 II	DBX2	W17AE
Lab ID#: 47		196	202	124
Calibration Expiration Date: 5/1/2025		1/3/2025	6/17/2025	6/16/2025
Calibration γ Factor: 0.998				

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	176.263	245.171	145.418
Standard DGM Temperature (°F)	79.0	80.0	81.0
Standard DGM Pressure (in H ₂ O)	0.00	0.00	0.0
DGM Initial Volume (ft ³)	0.000	0.000	0.000
DGM Final Volume (ft ³)	6.331	8.851	5.233
DGM Temperature (°F)	96.0	98.0	98.0
DGM Pressure (in H ₂ O)	1.10	0.81	1.41
Net Volume for Standard DGM (ft ³)	6.225	8.658	5.135
Net Volume for DGM (ft ³)	6.331	8.851	5.233
Dry Gas Meter γ Factor	1.009	1.007	1.007
γ Factor Deviation From Average	1.009	1.007	1.007

Average Gas Meter γ Factor

1.008

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-4662

Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 33086-203315-4525 **Customer PO#:** 1109
Customer Name: PFS TECO
Customer Address: 1507 Matt Pass
City: Cottage Grove **State:** WI **Zip:** 53527
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

10-01442 Compound Gauge Fluke SN: 4582643 Cal: 01/26/2024 Due: 01/31/2025 Vendor: Fluke Report #: EVL943251
LP-01782 Thermo-Hygrometer Comark SN: 06247790052 Cal: 01/24/2024 Due: 01/31/2025 Range: 122 °F 95 %RH Report #: 32568-205513-3646

Instrument Data

Calibration Date:	February 28, 2024	Reference:	ASME B40.100
Recommended Due Date:	February 28, 2025	Cal-Cert Procedure:	CP-003
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Red Lion	Temperature:	70 °F
Type:	Pressure Transducer	Humidity:	40% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	Unknown	Asset #:	129B
Capacity:	1 In H2O	Service Location:	Service Address
Tolerance:	± 1.00% of Span	As Found:	Pass
Gauge Class:	A	As Left:	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure		
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±	
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	
0.000	0.000	0.000	0.00	0.000	0.00	0.01	0.0005	
0.100	0.100	0.100	0.00	0.097	0.00	0.01	0.0067	
0.250	0.247	0.247	0.00	0.247	0.00	0.01	0.0006	
0.500	0.496	0.496	0.00	0.495	0.00	0.01	0.0011	
0.750	0.743	0.743	-0.01	0.743	-0.01	0.01	0.001	
1.000	0.992	0.992	-0.01	0.992	-0.01	0.01	0.0022	
0.750	0.745	0.745	-0.01	0.743	-0.01	0.01	0.006	
0.500	0.496	0.496	0.00	0.496	0.00	0.01	0.0009	
0.250	0.248	0.248	0.00	0.249	0.00	0.01	0.0031	
0.100	0.101	0.101	0.00	0.099	0.00	0.01	0.0049	
0.000	0.009	0.009	0.01	-0.004	0.00	0.01	0.0005	

Manufacturer: Red Lion

Type: Pressure Transducer

Serial #: Unknown

Remarks:

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.**

**Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).**

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Steven White

Date: February 28, 2024

Technical Manager: Marshall Doyle

Signature:



Report and Certificate of Calibration



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Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 33086-203316-4525 **Customer PO#:** 1109
Customer Name: PFS TECO
Customer Address: 1507 Matt Pass
City: Cottage Grove **State:** WI **Zip:** 53527
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

10-01442 Compound Gauge Fluke SN: 4582643 Cal: 01/26/2024 Due: 01/31/2025 Vendor: Fluke Report #: EVL943251
LP-01782 Thermo-Hygrometer Comark SN: 06247790052 Cal: 01/24/2024 Due: 01/31/2025 Range: 122 °F 95 %RH Report #: 32568-205513-3646

Instrument Data

Calibration Date:	February 28, 2024	Reference:	ASME B40.100
Recommended Due Date:	February 28, 2025	Cal-Cert Procedure:	CP-003
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Red Lion	Temperature:	70 °F
Type:	Pressure Transducer	Humidity:	40% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	Unknown	Asset #:	129C
Capacity:	5 In H2O	Service Location:	Service Address
Tolerance:	± 1.00% of Span	As Found:	Pass
Gauge Class:	A	As Left:	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure		
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±	
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005	
0.50	0.50	0.50	0.00	0.49	-0.01	0.05	0.024	
1.25	1.23	1.23	-0.02	1.24	-0.01	0.05	0.014	
2.50	2.47	2.47	-0.03	2.47	-0.03	0.05	0.017	
3.75	3.71	3.71	-0.04	3.71	-0.04	0.05	0.007	
5.00	4.96	4.96	-0.04	4.95	-0.05	0.05	0.023	
3.75	3.71	3.71	-0.04	3.72	-0.03	0.05	0.041	
2.50	2.47	2.47	-0.03	2.47	-0.03	0.05	0.006	
1.25	1.24	1.24	-0.01	1.24	-0.01	0.05	0.01	
0.50	0.51	0.51	0.01	0.50	0.00	0.05	0.027	
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005	

Manufacturer: Red Lion

Type: Pressure Transducer

Serial #: Unknown

Remarks:

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
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Service Engineer:

Steven White

Date:

February 28, 2024

Technical Manager:

Marshall Doyle

Signature:

MD

Report and Certificate of Calibration



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Address
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Milwaukie, OR 97222

Local
503-654-9620



Report #: 33086-203317-4525 **Customer PO#:** 1109
Customer Name: PFS TECO
Customer Address: 1507 Matt Pass
City: Cottage Grove **State:** WI **Zip:** 53527
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

10-01442 Compound Gauge Fluke SN: 4582643 Cal: 01/26/2024 Due: 01/31/2025 Vendor: Fluke Report #: EVL943251
LP-01782 Thermo-Hygrometer Comark SN: 06247790052 Cal: 01/24/2024 Due: 01/31/2025 Range: 122 °F 95 %RH Report #: 32568-205513-3646

Instrument Data

Calibration Date:	February 28, 2024	Reference:	ASME B40.100
Recommended Due Date:	February 28, 2025	Cal-Cert Procedure:	CP-003
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Red Lion	Temperature:	70 °F
Type:	Pressure Transducer	Humidity:	39% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	Unknown	Asset #:	130B
Capacity:	1 In H2O	Service Location:	Service Address
Tolerance:	± 1.00% of Span	As Found:	Pass
Gauge Class:	A	As Left:	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure		
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±	
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	
0.000	0.000	0.000	0.00	0.000	0.00	0.01	0.0005	
0.100	0.099	0.099	0.00	0.098	0.00	0.01	0.0021	
0.250	0.246	0.246	0.00	0.246	0.00	0.01	0.001	
0.500	0.493	0.493	-0.01	0.493	-0.01	0.01	0.0009	
0.750	0.748	0.748	0.00	0.741	-0.01	0.01	0.0185	
1.000	0.991	0.991	-0.01	0.991	-0.01	0.01	0.0026	
0.750	0.743	0.743	-0.01	0.742	-0.01	0.01	0.0025	
0.500	0.494	0.494	-0.01	0.494	-0.01	0.01	0.0009	
0.250	0.247	0.247	0.00	0.248	0.00	0.01	0.0026	
0.100	0.098	0.098	0.00	0.100	0.00	0.01	0.0052	
0.000	0.000	0.000	0.00	0.000	0.00	0.01	0.0005	

Manufacturer: Red Lion

Type: Pressure Transducer

Serial #: Unknown

Remarks:

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
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Service Engineer: Steven White

Date: February 28, 2024

Technical Manager: Marshall Doyle

Signature:

McDoyle

Report and Certificate of Calibration



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800-356-4662

Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 33086-203318-4525 **Customer PO#:** 1109
Customer Name: PFS TECO
Customer Address: 1507 Matt Pass
City: Cottage Grove **State:** WI **Zip:** 53527
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

10-01442 Compound Gauge Fluke SN: 4582643 Cal: 01/26/2024 Due: 01/31/2025 Vendor: Fluke Report #: EVL943251
LP-01782 Thermo-Hygrometer Comark SN: 06247790052 Cal: 01/24/2024 Due: 01/31/2025 Range: 122 °F 95 %RH Report #: 32568-205513-3646

Instrument Data

Calibration Date:	February 28, 2024	Reference:	ASME B40.100
Recommended Due Date:	February 28, 2025	Cal-Cert Procedure:	CP-003
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Red Lion	Temperature:	70 °F
Type:	Pressure Transducer	Humidity:	39% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	Unknown	Asset #:	130C
Capacity:	5 In H2O	Service Location:	Service Address
Tolerance:	± 1.00% of Span	As Found:	Pass
Gauge Class:	A	As Left:	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure		
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±	
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005	
0.50	0.51	0.51	0.01	0.49	-0.01	0.05	0.034	
1.25	1.20	1.20	-0.05	1.24	-0.01	0.05	0.083	
2.50	2.53	2.53	0.03	2.48	-0.02	0.05	0.127	
3.75	3.70	3.70	-0.05	3.73	-0.02	0.05	0.056	
5.00	4.97	4.97	-0.03	4.98	-0.02	0.05	0.049	
3.75	3.71	3.71	-0.04	3.73	-0.02	0.05	0.061	
2.50	2.46	2.46	-0.04	2.49	-0.01	0.05	0.06	
1.25	1.21	1.21	-0.04	1.24	-0.01	0.05	0.062	
0.50	0.50	0.50	0.00	0.50	0.00	0.05	0.005	
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005	

Manufacturer: Red Lion

Type: Pressure Transducer

Serial #: Unknown

Remarks:

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.**

**Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).**

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above. Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Steven White

Date: February 28, 2024

Technical Manager: Marshall Doyle

Signature:





CERTIFICATE OF CALIBRATION

CUSTOMER: PFS-TECO : CLACKAMAS, OR
PO NUMBER: 1120
INST. MANUFACTURER: DWYER
INST. DESCRIPTION: VELOMETER
MODEL NUMBER: 471
SERIAL NUMBER: CP288559 ID# 095
RATED ACCURACY: SEE NOTES BELOW.
UNCERTAINTY GIVEN: $\pm 0.43\%$ RD ; k=2
NOTES: $\pm 3.0\%$ FS (0-500 / 0-1500) ** $\pm 4.0\%$ F.S. (0-5000) ** $\pm 5.0\%$ F.S. (0-15000) ** $\pm 2^\circ\text{F}$

CALIBRATION DATE: 06/17/2024
CALIBRATION DUE: 06/17/2025
PROCEDURE: T.O.33K6-4-1769-1
CALIBRATION FLUID: AIR @ 14.7 PSIA 70°F
RECEIVED CONDITION: WITHIN MFG. SPECS.
LEFT CONDITION: WITHIN MFG. SPECS.
AMBIENT CONDITIONS: 763mm HGA 53% RH 70°F
CERTIFICATE FILE #: 490265.2024

Q.MANUAL IM 2.0 REV 2020.2 DATED 7-27-2020

DECISION RULE: SIMPLE ACCEPTANCE. MEASUREMENT UNCERTAINTIES NOT TAKEN INTO CONSIDERATION WHEN DETERMINING PASS/FAIL

UUT	DM.STD.	UUT	DM STD.
INDICATED	ACTUAL	INDICATED	ACTUAL
FT/MIN	FT/MIN	DEG. F	DEG. F
70	73	0 TO 200°F	0 TO 200°F
126	130	44.7	44.1
242	249	71.8	71.0
495	508	99.9	99.3
521	533		
1039	1066		
1490	1530		
507	522		
3214	3311		
4998	5156		
6975	7182		
14853	15322		

STANDARDS USED:

A312 $\pm .02\%$ RD -140 TO 1372 DEG °C TRACE# 2023004415	DUE	11/13/24
A800 flow nozzles +/- .2% RD (.2-5, 5-100, 100-1650 SCFM)TRACE# 144613547,1424683640,1583314714	DUE	02/14/25

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) and the Unit Under Test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed according to the shown procedure. The use of IAS/ILAC logo indicates calibrations are in accordance to ISO/IEC 17025:2017.

Dick Munns Company - 11133 Winners Circle, Los Alamitos, CA 90720
Phone: 714-827-1215 - www.dickmunns.com

This Calibration Certificate shall not be reproduced except, in full, without approval by Dick Munns Company. The data shown applies only to the instrument being calibrated and under the stated conditions of calibration.

Issuing Date:

Approved By:

Cal. Technician:

Calibrated at: ☒ Lab

☐ On-Site (Customer's)

Page 1 of 1

06/17/2024

[Signature]

[Signature]



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PFS Teco
11785 SE Hwy 212 STE#305
Clackamas, OR 97015

Report Number: DIRI0134307497240612

A2LA ACCREDITED CERTIFICATE OF CALIBRATION WITH DATA

INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Balance	Sartorius	ENTRIS224-1S	34307497	#107	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
g	0.0001	QC012	6/12/24	12/28/23	12/2024

FUNCTIONAL CHECKS

ECCENTRICITY		LINEARITY		STANDARD DEVIATION			ENVIRONMENTAL CONDITIONS		
Test Wt:	Tol:	Test Wt:	Tol:	Test Wt:	Tol:		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
100	0.0003	50 x 4	0.0002	100	0.0001		Good	Fair	Poor
As-Found:		As-Found:		1. 99.9999	5. 99.9999	9. 100.0000	Temperature: 23.1°C		
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	2. 99.9999	6. 100.0000	10. 100.0001			
As-Left:		As-Left:		3. 100.0000	7. 100.0000	<u>Result</u>			
Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	Pass: <input checked="" type="checkbox"/>	Fail: <input type="checkbox"/>	4. 100.0000	8. 100.0000	0.00006			

A2LA ACCREDITED SECTION OF REPORT

Standard	As-Found	As-Left	Expanded Uncertainty
200	199.9984	200.0000	0.00018
100	99.9991	99.9999	0.00018
50	49.9996	50.0001	0.00017
20	19.9998	20.0000	0.00017
0.1	0.1000	0.1000	0.00017
0.05	0.0499	0.0500	0.00017

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	R.L./Troemner	10kg to 1mg	G782	4/27/24	4/2025	20240900

Permanent Information Concerning this Equipment:

6 month calibration cycle

Comments/Info Concerning this Calibration:

06/12/2024: Cleaned, leveled, and adjusted span. RH=37.8%

Report prepared/reviewed by: TLP

Date: 06-12-2024

Technician: T. Peterson

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation and readability of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards. Results relate only to the item(s) tested. Unless otherwise noted, statements of conformity do not include measurement

Member: National Conference of Standards Laboratories and Weights & Measures

PT ID: DIRI01

Certificate of Calibration

Certificate Number: 743892



JJ Calibrations, Inc.

7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

PFS TECO

11785 SE Hwy 212

Suite 305

Clackamas, OR 97015

PO: 1033

Order Date: 03/08/2021

Authorized By: N/A

Calibrated on: 03/18/2021

*Recommended Due: 03/18/2026

Environment: 19 °C 41 % RH

* As Received: Other - See Remarks

* As Returned: Other - See Remarks

Action Taken: Calibrated

Technician: 126



0723.01

Calibration

Property #: 097

User: N/A

Department: N/A

Make: Unknown

Model: 10 Lbs.

Serial #: 097

Description: Mass

Procedure: DCN 500901

Accuracy: Raw Data

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.

Data is provided for your determination of acceptability. Received/returned without accessories.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
484A	Rice Lake	1kg- 10kg (Class ASTM 1)	Mass Set,	05/28/2021	699197
503A	Rice Lake	1mg- 200g (Class 0)	Mass Set,	09/11/2021	729241
550A	And (A&D) Co.	HP- 30K	Balance 30 Kg	12/31/2021	739307
723A	Rice Lake	1mg- 200g (Class 0)	Mass Set,	06/09/2021	723431

Parameter

Measurement Data

Measurement Description	Range	Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After								Accredited = \bar{U}
Mass								
Raw Data		g	4535.92370000	0.0000000	0.0000000	0.1785299	4536.1022299 g	3.5E-01 \bar{U}

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to either the SI or to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by JCGM 106:2012. Unless otherwise stated, a test accuracy 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 written approval of JJ Calibrations.

Reviewer

3 Issued 03/25/2021

Rev # 15

Inspector



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Report of Calibration

Firm: PFS-TECO
Address: 11785 SE Hwy 212, Ste 305
City/State/Zip: Clackamas, OR 97015

Test Completed: 05/09/22
Purchase Order: 1067
Traceable Number: 20220682

Test Item: 200 mg and 100 mg Individual Weights
Serial No.: Listed in Table

Manufacturer: Troemner
Customer ID: Listed in Table

<u>Material</u>	<u>Assumed Density</u>	<u>Range</u>	<u>Tolerance Class</u>
Stainless Steel	7.95 g/cm ³	200 mg & 100 mg	ASTM Class 1

Method and Traceability

The procedure used for this calibration is NIST IR 6969 SOP 4 Double Substitution Weighing Design. Standards used for comparison are traceable to the National Institute of Standards and Technology (reports on file) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and traceability within the level of uncertainty reported. The Traceable Number listed above is Traceable to National Standards through an unbroken chain of comparison each having stated uncertainties.

Standards Used:

100 g to 1 mg Working Standards Were Calibrated: 07/02/21 Due: 07/31/22 Standards ID: 723318
Mass Comparators Used: MET-05 Tested by: D. Thompson

Conventional Mass: “The conventional value of the result of weighing a body in air is equal to the mass of a standard, of conventionally chosen density, at a conventionally chosen temperature, which balances this body at this reference temperature in air of conventionally chosen density. International Recommendation 33 (OIML IR 33 1973, 1979). “Conventional Value of the Result of Weighing in Air” (Previously known as “Apparent Mass vs. 8.0 g/cm³).


Uncertainty Statement: The uncertainty conforms to the ISO Guide to the Expressions of Uncertainty in Measurement. Uncertainty as reported is based on a coverage factor $k=2$ for an approximate 95 percent level of uncertainty. Uncertainty components include the standard deviation of the process, the uncertainty of the standard used, an uncertainty component associated with the potential drift of the standard used, and the estimated uncertainty related to measuring and determining the air buoyancy effect.

Conventional Mass Values are listed on page 2 of this report.

page 1 of 2

Quality Control Services, Inc.
Metrology Laboratory Manager
E-mail dthompson@qc-services.com

Date: 05/09/22


Signature David S. Thompson

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Report of Calibration

Firm: PFS-TECO
Address: 11785 SE Hwy 212, Ste 305
City/State/Zip: Clackamas, OR 97015

Test Completed: 05/09/22
Purchase Order: 1067
Traceable Number: 20220682

Test Item: 200 mg and 100 mg Individual Weights
Serial No.: Listed in Table

Manufacturer: Troemner
Customer ID: Listed in Table

Laboratory Environment at time of test

Temperature °C	Pressure mmHg	Humidity %RH
21.93 to 21.94	760.7 to 760.8	47.8 to 47.9

Conventional Mass Value

Nominal Value	As Found Value (g)	As Found Correction* (mg)	As Left Value (g)	As Left Correction* (mg)	Uncertainty (mg)	Tolerance (mg)
200 mg, 1000101395, #109-B	0.2000082	0.0082	0.2000082	0.0082	0.0014	0.010
100 mg, 1000126267, #109-A	0.1000065	0.0065	0.1000065	0.0065	0.0014	0.010

*Correction is the difference between the conventional mass value of a weight and its nominal value.

Comments: These weights were received in good condition and were within ASTM Class 1 tolerances As Found.


Recalibration Due: The customer has requested a 5-year calibration cycle. The calibration due date for these weights is 05/09/27. The values listed above were found at the time of calibration. Any number of factors may cause these items to drift out of calibration before the calibration interval has expired.

Accredited by the American Association for Laboratory Accreditation (A2LA) under Calibration Laboratory Code 115953 and Certificate Number 1550.01. This laboratory meets the requirements of ISO/IEC 17025:2017 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration.

page 2 to 2

Quality Control Services, Inc.
Metrology Laboratory Manager
E-mail dthompson@qc-services.com

Date: 05/09/22


Signature David S. Thompson

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Report and Certificate of Calibration



www.Cal-Cert.com



Toll Free
800-356-4662

Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620

Report #: 32664-227238-5 **Customer PO#:** 1107
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: John Steinert
Service Address: 5777 SE International Way Milwaukie, OR 97222

Calibration Standards

LP-00397 Gage Block Set Mitutoyo SN: 509020 Cal: 12/28/2022 Due: 12/28/2024 Vendor: BHD Test and Measurement Report #: 99826
LP-01346 Thermo-Hygrometer Comark SN: 06210350198 Cal: 02/17/2023 Due: 02/28/2024 Vendor: Cal-Cert Range: 122 °F 95 %RH Report #: 28026-67215-4239

Instrument Data

Calibration Date:	January 31, 2024	Reference:	ASME B89.1.13-2013
Calibration Due Date:	January 31, 2025	Cal-Cert Procedure:	CP-010
Calibration Frequency:	12 Months	Indicating System:	Vernier
Manufacturer:	Dwyer	Temperature:	67 °F
Type:	Micrometer	Humidity:	39% RH
Model Number:	Unknown	Asset #:	#217
Serial #:	Unknown	Service Location:	Cal-Cert Lab
Capacity:	1 Inches	As Found:	PASS
Resolution:	0.001 Inches	As Left:	PASS

Instrument Range:		1.000 Inches		Range Resolution:		0.001 Inches	
	Calibration Standard	As Found	As Left Reading 1	As Left Reading 2	Tolerance ±	Expanded Uncertainty	
	Inches	Inches	Inches	Inches	Inches	Inches	
	0.000	0.000	0.000	0.000	0.001	0.0006	
	0.200	0.200	0.200	0.200	0.001	0.0006	
	0.400	0.400	0.400	0.400	0.001	0.0006	
	0.600	0.600	0.600	0.600	0.001	0.0006	
	0.800	0.800	0.800	0.800	0.001	0.0006	
	1.000	1.000	1.000	1.000	0.001	0.0006	

Remarks:

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

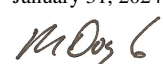
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A2LA is recognized under the ILAC mutual recognition agreement (MRA).

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Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Cameron Walling **Date:** January 31, 2024
Technical Manager: Marshall Doyle **Signature:** 



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PFS Teco
11785 SE Hwy 212 STE#305
Clackamas, OR 97015

Report Number: DIRI01C101887029231228

A2LA ACCREDITED CERTIFICATE OF CALIBRATION WITH DATA

INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Scale	Mettler	IND570 - 1000lhx0.	C101887029	#190	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
lbs	0.02	QC033	12/28/23	12/14/22	12/2024

FUNCTIONAL CHECKS

SHIFT TEST	LINEARITY	REPEATABILITY	ENVIRONMENTAL CONDITIONS
Test Wt: 400 Tol: 0.10 As-Found: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/> As-Left: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/>	Test Wt: HB44 Tol: HB44 As-Found: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/> As-Left: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/>	Test Wt: 200 Tol: 0.04 As-Found: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/> As-Left: Pass: <input checked="" type="checkbox"/> Fail: <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Good Fair Poor Temperature: 15.8°C

CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
1000	N/A	1000.02	0.012
600	600.66	599.98	0.011
400	400.46	399.90	0.011
200	200.16	200.00	0.011
100	100.10	99.96	0.011
50	50.04	49.98	0.011

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Avoirdupois Cast W	Rice Lake	25 and 50lb	PWO990-CA	7/18/22	7/2024	20221688

Permanent Information Concerning this Equipment:

Comments/Information Concerning this Calibration

12/28/23 - Overload at 1000lb AF. 1000lb, 600lb AL readings show overload on node 3. Hysteresis 0.10lb. RH: 45.4%

Report prepared/reviewed by: R. B. Date: 12-28-23

Technician: C. Call

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

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Report and Certificate of Calibration



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Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 32102-201251-4686 **Customer PO#:** 1102
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: Ethan Frederick
Service Address: 5777 SE International Way Milwaukie, OR 97222

Calibration Standards

10-00954 Gage Block Set Shars SN: 120018 Cal: 05/26/2023 Due: 05/26/2025 Vendor: American Gage Report #: 109141
LP-00397 Gage Block Set Mitutoyo SN: 509020 Cal: 12/28/2022 Due: 12/28/2024 Vendor: BHD Test and Measurement Report #: 99826
LP-01757 Thermo-Hygrometer Comark SN: 06257740560 Cal: 04/28/2023 Due: 04/28/2024 Report #: 29096-209333-4201

Instrument Data

Calibration Date:	December 6, 2023	Reference:	Manufacturer's Spec
Calibration Due Date:	December 6, 2024	Cal-Cert Procedure:	CP-115
Calibration Frequency:	12 Months	Indicating System:	Stamped
Manufacturer:	Starrett	Temperature:	69 °F
Type:	Tape Measure	Humidity:	51% RH
Model Number:	Exact	Asset #:	207
Serial #:	138054-2203-00002249	Service Location:	Cal-Cert Lab
Capacity:	192.00 Inches	As Found:	Pass
		As Left:	Pass

Instrument Range:	192.000 Inches	Range Resolution:	0.06250 Inches
	Calibration Standard	As Found Reading	Verification Reading #1
			Verification Reading #2
	0.2500	0.2500	0.2500
	1.0000	1.0000	1.0000
	6.0000	6.0000	6.0000
	12.0000	12.0000	12.0000
	64.0000	64.0000	64.0000
	128.0000	128.0000	128.0000
	192.0000	192.0000	192.0000

Expanded Uncertainty ± 0.07217 Inches

Remarks:

Metric scale not calibrated.

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.

Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Scott McGuire **Date:** December 6, 2023

Technical Manager: Marshall Doyle

Signature:

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-4662

Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 31621-201253-5 **Customer PO#:** 1102
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: Ethan Frederick
Service Address: 5777 SE International Way Milwaukie, OR 97222

Calibration Standards

LP-00397 Gage Block Set Mitutoyo SN: 509020 Cal: 12/28/2022 Due: 12/28/2024 Vendor: BHD Test and Measurement Report #: 99826
LP-01782 Thermo-Hygrometer Comark SN: 06247790052 Cal: 01/30/2023 Due: 01/31/2024 Range: 122 °F 95 %RH Report #: 27747-205513-4239

Instrument Data

Calibration Date:	October 23, 2023	Reference:	ASME B89.1.14 2018
Calibration Due Date:	October 23, 2024	Cal-Cert Procedure:	CP-008
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Mitutoyo	Temperature:	66 °F
Type:	Digital Caliper	Humidity:	51% RH
Model Number:	CD-P6"S	Asset #:	208
Serial #:	B22159310	Service Location:	Cal-Cert Lab
Capacity:	6 Inches	As Found:	PASS
Resolution:	0.0005 Inches	As Left:	PASS

Instrument Range:	6.0000 Inches	Range Resolution:	0.0005 Inches
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Outside Jaws / Linearity				
Calibration Standard Inches	As Found Inches	As Left Reading 1 Inches	As Left Reading 2 Inches	Tolerance ± Inches
0.0000	0.0000	0.0000	0.0000	0.0000
0.0500	0.0495	0.0495	0.0495	0.0010
0.3000	0.3000	0.3000	0.3000	0.0010
0.6000	0.6000	0.6000	0.6000	0.0010
1.2000	1.1995	1.1995	1.1995	0.0010
2.4000	2.4000	2.4000	2.4000	0.0010
3.5000	3.5000	3.5000	3.5000	0.0010
5.0000	5.0000	5.0000	5.0000	0.0010
6.0000	5.9995	5.9995	5.9995	0.0010

Expanded Uncertainty ± 0.00036 Inches

Scale Shift Verification			
	Target	Measured	Tolerance ±
Resolution Check	0.1005	0.10050	N/A
Depth	1.000	1.00000	0.001
Step	1.000	1.00000	0.001
Inside Jaws	1.000	0.99950	0.001
Inspections			
Jaws Parallel		Acceptable	

Remarks:

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
A2LA is recognized under the ILAC mutual recognition agreement (MRA).

This certificate is hereby issued that the above instrument was tested for accuracy with calibrated standards traceable to the National Institute of Standards and Technology (NIST). The information provided on this form complies with the data gathering and reporting requirements of ISO/IEC 17025 and ANSI/NCSL Z540.1, and meets the requirements of all applicable references and Cal-Cert procedures listed above.
Any stated measurement uncertainty includes the uncertainty of the Calibration standards used, combined with the uncertainty of the measurement process using the RSS method with a k=2 for an approximate 95% level of confidence. The calibration process meets or exceeds a ratio of 4:1 unless otherwise stated.

All tolerances were derived from the applicable standards and pass/fail determination is based on those tolerances. The customer determined any recommended due dates indicated on the certificate.

This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Cameron Walling

Date: October 23, 2023

Technical Manager: Marshall Doyle

Signature:

Mr Doyle

Caliper CF-008-01

Revision 17 6/30/2023

Thermocouple Readout Calibration

DUT

Manufacturer:	National Instruments
Model:	NI 9213
Lab ID #:	216
Serial #:	1E286FA
Calibration Date:	6/12/2024
Calibration Expiration:	12/12/2024
Barometric Pressure:	29.62 in. Hg



Equipment Used:	Ref. Std. TC Signal Generator
Manufacturer:	Omega
Model:	CL23A
Lab ID#:	165
Cal. Expiration Date:	1/3/2025

Calibrate in accordance with EA-10/11 • EA Guidelines on the Calibration of Temperature Indicators and Simulators by Electrical Simulation and Measurement. Use procedure specified for thermocouple indicators without cold junction compensation.

Use only calibrated, NIST traceable reference standard signal generator.

Stated uncertainty calculated with RSS method with k=2 for a 95% confidence interval.

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.1	0.1	0.906
	500	499.7	0.3	
Tunnel	1000	999.6	0.4	
Type K	1500	1499.4	0.6	
	2000	1999.2	0.8	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.3	0.3	0.906
	500	499.6	0.4	
Flue	1000	999.5	0.5	
Type K	1500	1499.3	0.7	
	2000	1999.1	0.9	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.5	0.5	0.906
	500	499.4	0.6	
Filter A	1000	999.3	0.7	
Type K	1500	1499.1	0.9	
	2000	1998.8	1.2	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	0	0	0.906
	500	500.4	0.4	
Filter B	1000	1000	0	
Type K	1500	1499.1	0.9	
	2000	1998.8	1.2	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-1	1	0.906
	500	498.9	1.1	
Filter C	1000	998.9	1.1	
Type K	1500	1498.7	1.3	
	2000	1998.3	1.7	

Thermocouple Readout Calibration

DUT

Manufacturer:	National Instruments
Model:	NI 9213
Lab ID #:	216
Serial #:	1E286FA
Calibration Date:	6/12/2024
Calibration Expiration:	12/12/2024
Barometric Pressure:	29.62 in. Hg



Equipment Used:	Ref. Std. TC Signal Generator
Manufacturer:	Omega
Model:	CL23A
Lab ID#:	165
Cal. Expiration Date:	1/3/2025

Calibrate in accordance with EA-10/11 • EA Guidelines on the Calibration of Temperature Indicators and Simulators by Electrical Simulation and Measurement. Use procedure specified for thermocouple indicators without cold junction compensation.

Use only calibrated, NIST traceable reference standard signal generator.

Stated uncertainty calculated with RSS method with k=2 for a 95% confidence interval.

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.7	0.7	0.906
	500	499.2	0.8	
Meter A	1000	999.1	0.9	
Type K	1500	1498.9	1.1	
	2000	1998.7	1.3	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-1	1	0.906
	500	499	1	
Meter B	1000	998.9	1.1	
Type K	1500	1498.6	1.4	
	2000	1998.3	1.7	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-1.3	1.3	0.906
	500	498.8	1.2	
Meter C	1000	998.7	1.3	
Type K	1500	1498.5	1.5	
	2000	1998.1	1.9	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-1.1	1.1	0.906
	500	499	1	
FB Top	1000	998.9	1.1	
Type K	1500	1498.6	1.4	
	2000	1998.3	1.7	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-1.2	1.2	0.906
	500	499.9	1.2	
FB Bottom	1000	998.8	1.2	
Type K	1500	1498.6	1.4	
	2000	1998.3	1.7	

Thermocouple Readout Calibration

DUT

Manufacturer:	National Instruments
Model:	NI 9213
Lab ID #:	216
Serial #:	1E286FA
Calibration Date:	6/12/2024
Calibration Expiration:	12/12/2024
Barometric Pressure:	29.62 in. Hg



Equipment Used:	Ref. Std. TC Signal Generator
Manufacturer:	Omega
Model:	CL23A
Lab ID#:	165
Cal. Expiration Date:	1/3/2025

Calibrate in accordance with EA-10/11 • EA Guidelines on the Calibration of Temperature Indicators and Simulators by Electrical Simulation and Measurement. Use procedure specified for thermocouple indicators without cold junction compensation.

Use only calibrated, NIST traceable reference standard signal generator.

Stated uncertainty calculated with RSS method with k=2 for a 95% confidence interval.

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.5	0.5	0.906
	500	499.5	0.5	
FB Back	1000	999.4	0.6	
Type K	1500	1499.1	0.9	
	2000	1998.7	1.3	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.6	0.6	0.906
	500	499.3	0.7	
FB Left	1000	999.2	0.8	
Type K	1500	1499	1	
	2000	1998.7	1.3	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.8	0.8	0.906
	500	499.1	0.9	
FB Right	1000	999.1	0.9	
Type K	1500	1498.9	1.1	
	2000	1998.6	1.4	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.6	0.6	0.906
	500	499.3	0.7	
Catalyst	1000	999.2	0.8	
Type K	1500	1499.1	0.9	
	2000	1998.8	1.2	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-1.1	1.1	0.906
	50	49.1	0.9	
Ambient	100	99.1	0.9	
Type T	150	149	1	
	200	199.1	0.9	



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Linde Gas & Equipment Inc.
5700 S. Alameda Street
Los Angeles CA 90058
Tel: 323-585-2154
Fax: 714-542-6689
PGVP ID: F22023

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information

LGEPKG TUALATIN OR H
10450 SW TUALATIN SHERWOOD ROAD
TUALATIN OR 97062-9547

Certificate Issuance Date: 05/08/2023

Linde Order Number: 72422600

Part Number: NI CD17CO8E-AS

Customer PO Number: 80430965

Fill Date: 05/02/2023

Lot Number: 70086312207

Cylinder Style & Outlet: AS

CGA 590

Cylinder Pressure and Volume: 1290 psig 99 ft3

Certified Concentration

Expiration Date:	05/08/2031	NIST Traceable
Cylinder Number:	CC505834	Expanded Uncertainty
16.98 %	Carbon dioxide	± 0.13 %
4.30 %	Carbon monoxide	± 0.03 %
17.16 %	Oxygen	± 0.05 %
Balance	Nitrogen	

ProSpec EZ Cert



Certification Information:

Certification Date: 05/08/2023

Term: 96 Months

Expiration Date: 05/08/2031

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Uncertainty above is expressed as absolute expanded uncertainty at a level of confidence of approximately 95% with a coverage factor k = 2. Do Not Use this Standard if Pressure is less than 100 PSIG.

CO2 responses have been corrected for Oxygen IR Broadening effect. O2 responses have been corrected for CO2 interference.

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: Carbon dioxide

Requested Concentration: 17 %

Certified Concentration: 16.98 %

Instrument Used: Horiba VIA-510 S/N 20C194WK

Analytical Method: NDIR

Last Multipoint Calibration: 04/25/2023

Reference Standard:

Type / Cylinder #: NTRM / CC725981

Concentration / Uncertainty: 19.34 % ± 0.03 %

Expiration Date: 01/12/2027

Traceable to: SRM # / Sample # / Cylinder #: NTRM / 190701 / CC725973

SRM Concentration / Uncertainty: 19.34 % ± 0.031 %

SRM Expiration Date: 01/12/2027

First Analysis Data:				Date	05/08/2023
Z:	0	R:	19.34	C:	16.98
R:	19.36	Z:	0	C:	16.99
Z:	0	C:	17	R:	19.35
				Conc:	16.99
UOM:	%	Mean Test Assay:		16.98 %	

Second Analysis Data:				Date	
Z:	0	R:	0	C:	0
R:	0	Z:	0	C:	0
Z:	0	C:	0	R:	0
				Conc:	0

2. Component:

Carbon monoxide



Compressed gas, n.o.s.
(Carbon Monoxide, Carbon Dioxide, Oxygen,
Nitrogen)

UN1956

SPG 5P10162.5VM2
Part Number

Primary Standard, +/- 0.02% Absolute

2.500 % Carbon Monoxide
10.00 % Carbon Dioxide
10.00 % Oxygen
Balance Nitrogen

CAS:	630-08-0
CAS:	124-38-9
CAS:	7782-44-7
CAS:	7727-37-9

DANGER: CAUSES DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE WHEN HEATED. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. MAY INCREASE RESPIRATION AND HEARTRATE. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Protect from sunlight when ambient temperature exceeds 52C (125F). Use a back flow preventive device in the piping. Close valve after each use and when empty. Do not open valve until connected to equipment prepared for use. Obtain special instructions before use. Protect from sunlight. Store in a well-ventilated place. IF exposed or concerned: Get medical advice. Store locked up. Dispose of contents/container in accordance with container/supplier owner instructions. Do not handle until all safety precautions have been read and understood. Do not breathe gas. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Wear protective gloves, protective clothing, eye protection, and/or face protection. Read and follow the Safety Data Sheet (SDS) before use.

FIRST AID: IF ON SKIN: wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. IF exposed or concerned: Get medical advice.



WARNING: This product can expose you to 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.

Lot No: 1-053-122
Serial Number: CC341544
SPG 5P10162.5VM2
Part Number
PO #: 206483
Expires: 2-2024

NorLAB

To Order Call: 800-657-6672

In Emergency Call: 1-800-424-6300
Norco, Inc.
808 W. Cowen Road
Boise, Idaho 83705