Fireplace Products International, Ltd.

Project # 24-309
Model: F2450-2
AKA: i2450-2, Hi2450-2
Type: Wood-Fired Room Heater
July 17, 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

Contact: Mr. David Lal
6988 Venture St.
Delta, BC V4G 1H4, Canada
DLal@regency-fire.com
604-946-5155

Prepared by: Aaron Kravitz,
Laboratory Manager

11785 SE Highway 212 – Suite 305
Clackamas, OR 97015-9050
(503) 650-0088
WWW.PFSTECO.COM

Revision Summary

Date: July 17, 2024– Original Issue

Contents

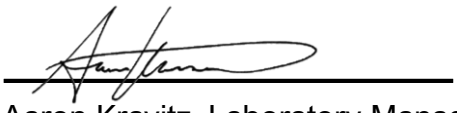
Affidavit 3
Introduction 4
Notes 4
Wood Heater Identification and Testing 5
Test Procedures and Equipment 6
Results 7
Summary Table 7
Test Run Narrative 8
Run 1 8
Run 2 8
Run 3 8
Run 4 8
Run 5 8
Test Conditions Summary 9
Appliance Operation and Test Settings 10
Settings & Run Notes 10
Appliance Description 11
Test Fuel Properties 15
Sampling Locations and Descriptions 16
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 F2450-2 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 6/25/2024 and ending on 7/1/2024. 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 F2450-2 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: ***F2450-2***
- Serial Number: ***PFS Tracking Number 201***
- *Manufacturer:* ***FPI***
- Catalyst: ***No***
- Heat exchange blower: ***Optional***
- Type: ***Wood Stove***
- Style: ***Free Standing Wood Stove***
- Date Received: ***Monday, June 10, 2024***
- Testing Period – Start: ***Tuesday, June 25, 2024***
  Finish: ***Monday, July 01, 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 F2450-2. The weighted average emissions rate for the 5 run test series was measured to be **1.6 g/hr** with a Higher Heating Value efficiency of **70%.** The average CO emission rate for the 4 tests was **2.1 g/min.** The FPI F2450-2 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	6/25/2024	6/26/2024	6/28/2024	6/27/2024	7/1/2024
Run Number	1	2	4	3	5
Emission Rate (g/hr)	1.94	0.86	1.74	2.76	1.76
Burn Rate (kg/hr)	0.97	1.06	1.82	2.27	1.19
Heat Output (Btu/hr)	12,903	14,068	23,968	29,986	14,737
Overall Efficiency (% HHV)	70%	70%	70%	71%	66%
CO Emissions (g/MJ Output)	10.03	8.23	5.13	4.05	8.24
CO Emissions (g/kg Dry Fuel)	139.85	114.59	71.45	56.55	106.94
CO Emissions (g/min)	2.27	2.03	2.16	2.13	2.13
Emissions – 1st hr (g/hr)	10.87	2.52	3.71	5.49	8.28
Weighted particulate emission average of 4 test runs: 1.6 grams per hour.					
Weighted average HHV efficiency of 4 test runs: 70%.					
Average CO Emissions Rate: 2.1 g/min					

*Fan Confirmation test not included in weighted average calculations.

Test Run Narrative

Run 1

Run 1 was performed on 6/25/24 as an attempted category 1 test, per EPA Method 28R. The total test time was 388 minutes. The particulate emissions rate for the test was 1.94 g/hr, the burn rate was 0.97 kg/hr with an HHV efficiency of 70.4%. 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 6/26/2024 as a category 2 test, per EPA Method 28R. The total test time was 346 minutes. The particulate emissions rate for the test was 0.86 g/hr, the burn rate was 1.06 kg/hr with an HHV efficiency of 70.3%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

Run 3

Run 3 was performed on 6/27/2024 as a category 4 test, per EPA Method 28R. The total test time was 159 minutes. The particulate emissions rate for the test was 2.76 g/hr, the burn rate was 2.27 kg/hr with an HHV efficiency of 70.5%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

Run 4

Run 4 was performed on 6/28/2024 as a category 3 test, per EPA Method 28R. The total test time was 194 minutes. The particulate emissions rate for the test was 1.74 g/hr, the burn rate was 1.82 kg/hr with an HHV efficiency of 70.3%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

Run 5

Run 5 was performed on 7/1/2024 as a category 2 fan confirmation test, per EPA Method 28R. The total test time was 311 minutes. The particulate emissions rate for the test was 1.76 g/hr with a burn rate of 1.19 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	77	79.2	37.9	31.9	29.90	15.29	16.80	20.8	388
2	71	75.5	32.1	41.6	30.00	15.21	16.36	20.9	346
3	76	77.5	34.3	34.2	30.06	14.97	16.20	22.6	159
4	75	77.2	39.5	32.8	29.96	17.25	15.82	22.3	194
5	76	78.9	48.6	40.0	30.20	14.7	16.61	21.5	311

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	Air control fully closed, fan on low
Run 2	Air control open 0.023”	Air control open 0.023”, fan on low
Run 3	Air control fully open	Air control fully open, fan on high
Run 4	Air control open 0.181”	Air control open 0.181”, fan on high
Run 5	Air control open 0.023”	Air control open 0.023”, fan off (fan confirmation)

Appliance Description

Model(s): F2450-2

Appliance Type: Wood-Fired Room Heater

Tota Firebox Volume: 2.24 ft^3

Usable Firebox Volume: 2.24 ft^3

Model Variants: The F2450-2 is available in two additional variants, the i2450-2 and the Hi2450-2. The i2450-2 and Hi-2450-2 are both fireplace insert models 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.

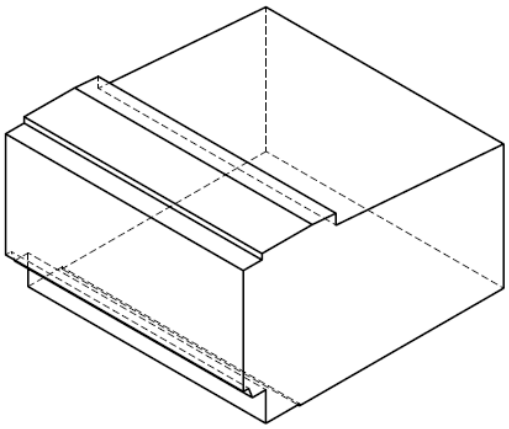
Flue Outlet: 6-inch exhaust outlet located on the top of the appliance.

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

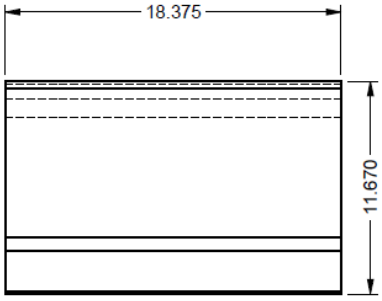
Appliance design drawings can be found in Appendix D submitted with the CBI copy of this report.

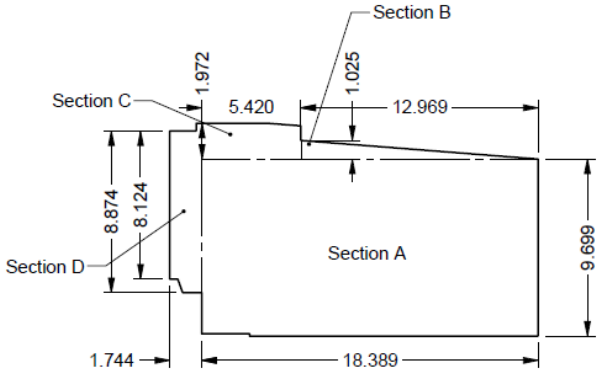
Firebox Volume Calculation

F2450-2 Firebox Volume



Section A: 9.699 x 18.389 x 18.375 = 3277.27
Section B: (1.025 x 12.969)/2) x 18.375 = 122.13
Section C: 1.972 x 5.420 x 18.375 = 196.4
Section D: 8.874 x 1.744 x 18.375 - 12.13 = 272.25
Total Volume = A + B + C + D
Total Volume = 3277.27 + 122.13 + 196.4 + 272.25 = 3868.05in^3
Total Volume = 3868.05 in^3 = 2.24 ft^3
Total Volume is also the usable volume





Appliance Front



Appliance Left



Appliance Right



Appliance Rear



Test Fuel Properties

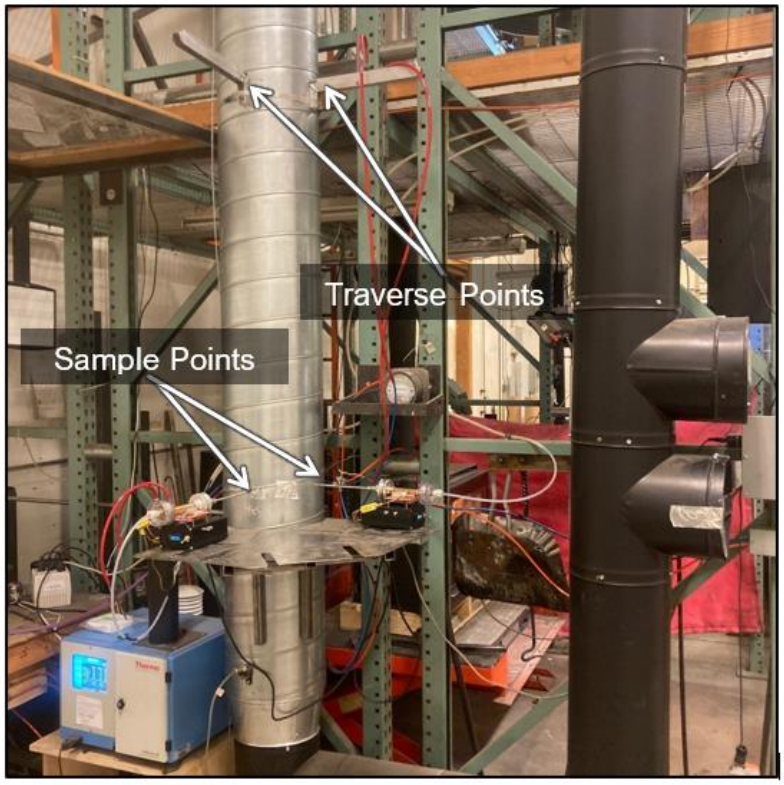
Test fuel used was Douglas Fir dimensional lumber, air-dried to the specified moisture content range. A typical fuel load is pictured below:

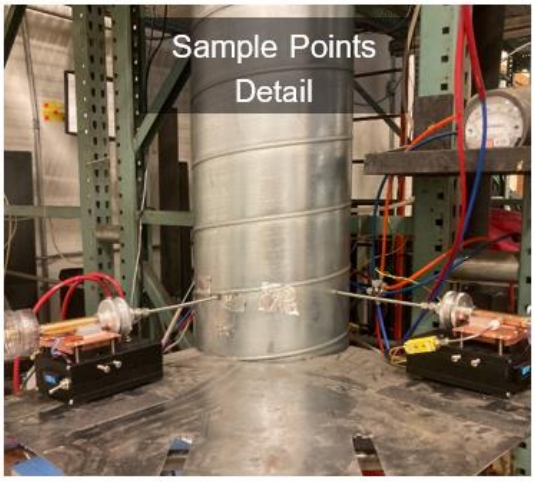
Typical Fuel Load



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 12 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 REQUIREMNTS OF 40CFR PART 60 SUBPART AAA §60.535 (a)(2)(vii)

REPORT #_____ DATE SEALED_____

MANUFACTURER_____ MODEL #_____

Sealed Unit



List of Appendices

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

Appendix A – Run Data -page 21, Filter data-page 211, Conditioning -page 217, Sample Calculations-page 218, Tunnel Schematic -Page 239

Appendix B – Labels and Manuals – page 241 Non-CBI PDF

Appendix C –Equipment Calibration Records – Page 360 Non-CBI PDF

Appendix D – Design Drawings (CBI Report Only)

Appendix E – Manufacturer QAP (CBI Report Only)

EPA Method 28R Weighted Average Emissions

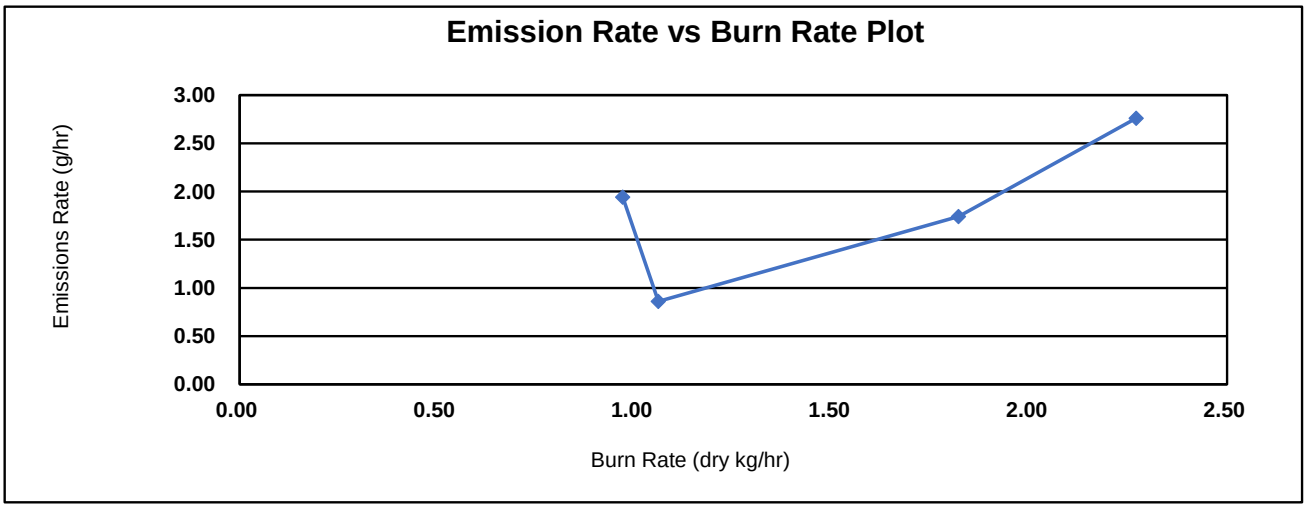
Client: FPI
Stove Model: F2450-2
Test Dates: 6/25/24 - 6/28/24
Job Number: 24-309

Signature/Date:

Weighted Average Particulate Emissions (g/hr):	**1.58**
Weighted Average HHV Efficiency (%):	**70.3%**
Weighted Average LHV Efficiency (%):	**76.0%**
Average CO Emissions (g/min):	**2.1**

Individual Run Summaries

Run Number:	1	Run Number:	2
Burn Rate (dry kg/hr):	0.97	Burn Rate (dry kg/hr):	1.06
Emissions Rate (g/hr):	1.94	Emissions Rate (g/hr):	0.86
HHV Efficiency (%):	70.4%	HHV Efficiency (%):	70.3%
LHV Efficiency (%):	76.1%	LHV Efficiency (%):	76.0%
Weighting Percentage (%):	26.21%	Weighting Percentage (%):	33.20%
Run Number:	4	Run Number:	3
Burn Rate (dry kg/hr):	1.82	Burn Rate (dry kg/hr):	2.27
Emissions Rate (g/hr):	1.74	Emissions Rate (g/hr):	2.76
HHV Efficiency (%):	70.3%	HHV Efficiency (%):	70.5%
LHV Efficiency (%):	76.0%	LHV Efficiency (%):	76.2%
Weighting Percentage (%):	32.91%	Weighting Percentage (%):	7.67%



WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515

Run 1 Data Summary

Client:	FPI
Model:	F2450-2
Job #:	24-309
Tracking #:	201
Test Date:	6/25/2024

Techician Signature

7/17/2024
Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Burn Rate (kg/hr):	**0.97**

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	49.034	67.489	64.077	10.651
Average Gas Velocity in Dilution Tunnel (ft/sec)	13.9			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	37119.8			
Average Gas Meter Temperature (°F)	79.0	99.8	100.2	84.6
Total Sample Volume (dscf)	48.599	63.769	60.978	10.368
Average Tunnel Temperature (°F)	88.0			
Total Time of Test (min)	388			
Total Particulate Catch (mg)	0.3	3.7	3.6	3.1
Particulate Concentration, dry-standard (g/dscf)	0.0000062	0.0000580	0.0000590	0.0002990
Total PM Emissions (g)	1.48	12.45	12.69	10.87
Particulate Emission Rate (g/hr)	0.23	1.92	1.96	10.87
Emissions Factor (g/kg)	-	1.98	2.02	-
Difference from Average Total Particulate Emissions (g)	-	0.12	0.12	-
Difference from Average Total Particulate Emissions (%)	-	1.0%	1.0%	
Difference from Average Emissions Factor (g/kg)	-	0.02	0.02	-

Final Average Results	
Total Particulate Emissions (g)	12.57
Particulate Emission Rate (g/hr)	1.94
Emissions Factor (g/kg)	2.00
HHV Efficiency (%)	70.4%
LHV Efficiency (%)	76.1%
CO Emissions (g/min)	2.27

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	86.5	OK
Face Velocity	< 30 ft/min	9.5	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:77/Max:79.7	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	118.6	OK

B415.1 Efficiency Results

Manufacturer:	FPI
Model:	F2450-2
Date:	06/25/24
Run:	1
Control #:	24-309
Test Duration:	388
Output Category:	2

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	70.4%	76.1%
Combustion Efficiency	90.1%	90.1%
Heat Transfer Efficiency	78.2%	84.5%

Output Rate (kJ/h)	13,602	12,903	**(Btu/h)**
Burn Rate (kg/h)	0.98	2.15	**(lb/h)**
Input (kJ/h)	19,323	18,330	**(Btu/h)**

Test Load Weight (dry kg)	6.31	13.90	**dry lb**
MC wet (%)	17.25		
MC dry (%)	20.84		
Particulate (g)	12.57		
CO (g)	882		
Test Duration (h)	6.47		

Emissions	**Particulate**	**CO**
g/MJ Output	0.14	10.03
g/kg Dry Fuel	1.99	139.85
g/h	1.94	136.42
g/min	0.03	2.27
lb/MM Btu Output	0.33	23.31

Air/Fuel Ratio (A/F)	18.74

VERSION: **2.4** **4/15/2010**

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Preburn Fuel Information

Size	Length (in)	Moisture Content (% DB)	Size	Length (in)	Moisture Content (% DB)
2x4	12.00	20.5	2x4	16.00	22.3
2x4	12.00	22.8	2x4	16.00	22.5
2x4	12.00	24.8	2x4	16.00	21.7
2x4	12.00	22.8	2x4	8.00	19.6
2x4	12.00	19.2	2x4	8.00	22.1
2x4	12.00	19.5	2x4	8.00	23.7
2x4	12.00	20.5			
2x4	16.00	22.0			

Total Fuel Weight (lbs): 15.29
Average Moisture (%DB): 21.7

Firebox Volume (ft^3): 2.24
Total 2x4 Crib Weight, with spacers (lbs): 8.31
Total 4x4 Crib Weight, with spacers (lbs): 8.49
Total Wet Fuel Weight, with spacers (lbs): 16.80

Coal Bed Range (20-25%):
Min (lbs): 3.36
Max (lbs): 4.20

Test Fuel Information

Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	16.75	1.83	19.7	19.4	21.3	1.52
2x4	16.75	1.79	19.9	19.6	20.4	1.49
2x4	16.75	1.59	21.4	20.6	22.0	1.31
2x4	16.75	1.76	22.0	20.3	20.7	1.45
4x4	16.75	3.92	20.4	21.7	22.8	3.22
4x4	16.75	4.17	22.8	20.9	19.3	3.45

Total Dry Weight, no spacers (lbs): 12.45
Total Dry Weight, with spacers (lbs): 13.87

Spacer Moisture Readings (%DB)

22.9	21.6	19.8					
20.5	22.3	22.4					
19.9	22.5						
22.4	24.5						
19.8	24.4						
24.2	20.8						
24.8	23.3						
20.2	24.1						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft^3, DB)	28.2	OK
Loading Density	6.3 - 7.7 (lbs/ft^3, WB)	7.50	OK
2x4 Fuel Mix	35 - 65 % of total weight	49%	OK

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client:	FPI	Job #:	24-309
Model:	F2450-2	Tracking #:	201
Run #:	1	Technician:	AK
Test Start Time:	13:20	Date:	6/25/2024

Total Sampling Time (min):	388
Recording Interval (min):	1

Meter Box γ Factor:	1.000	(A)
Meter Box γ Factor:	1.008	(B)
Meter Box γ Factor:	1.002	(C)
Meter Box γ Factor:	1.013	(Ambient)

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100%
Date Flue Pipe Last Cleaned:	6/21/2024
Test Fuel Scale Audit (lbs)	10.00
Platform Scale Audit (lbs)	10.0

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.97	29.82	29.90
Relative Humidity (%)	37.9	31.9	
Room Air Velocity (ft/min)	0	0	
Pitot Tube Leak Check	10	10	
Ambient Sample Volume:		49.034	ft^3

Sample Train Leak Checks

	Pre-test	Post-test		
(A)	0.000	0.000	cfm @	-7 in. Hg
(B)	0.000	0.000	cfm @	-7 in. Hg
(C)	0.001	0.001	cfm @	-6 in. Hg
(Ambient)	0.000	0.000	cfm @	-13 in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.036	82
2	0.042	82
3	0.046	82
4	0.048	82
5	0.042	82
6	0.034	82
7	0.032	82
8	0.044	82
9	0.048	82
10	0.048	82
11	0.044	82
12	0.036	82
Center	0.049	82

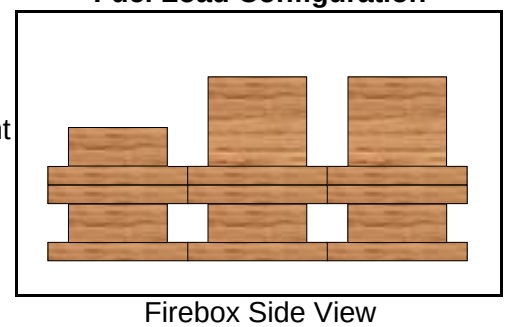
Static Pressure: -0.160 in. H_2O

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	12	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:	0.7854	ft^2
V_{strav}:	13.67	ft/sec
V_{scent}:	14.85	ft/sec
F_p:	0.920	[ratio]
Initial Tunnel Flow:	614.8	scf/min

TEST FUEL PROPERTIES

Fuel Load Configuration

Firebox Front



Firebox Back

Firebox Side View

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)	20.8

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

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

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	4.28	0.069	538	455	235	752	385	472.9	386	76
1	4.25	0.063	540	455	222	739	387	468.5	344	77
2	4.22	0.063	541	452	219	722	388	464.6	319	76
3	4.21	0.064	543	449	219	701	390	460.4	300	76
4	4.20	0.062	543	446	219	681	391	455.9	286	76
5	4.19	0.061	545	441	219	664	392	452.4	275	76
6	4.17	0.058	540	439	220	646	393	447.6	266	76
7	4.16	0.054	539	435	220	628	394	443.2	259	76
8	4.14	0.054	539	430	219	614	395	439.3	252	76
9	4.12	0.053	536	426	224	600	396	436.2	245	76
10	4.11	0.047	533	422	220	586	396	431.3	239	76
11	6.54	0.079	534	418	219	569	397	427.1	346	76
12	6.32	0.096	529	415	218	574	397	426.6	493	76
13	6.22	0.078	524	415	218	582	398	427.4	515	76
14	6.13	0.072	526	413	219	594	398	429.9	408	77
15	6.05	0.066	524	412	218	602	399	431.0	356	76
16	5.96	0.071	524	411	218	605	398	431.1	330	76
17	5.89	0.068	522	408	216	612	398	431.4	317	77
18	5.81	0.061	522	406	217	616	398	431.6	306	77
19	5.73	0.066	519	404	216	618	397	430.8	299	76
20	5.65	0.068	516	401	215	620	397	429.9	293	76
21	5.58	0.063	516	399	215	619	396	429.1	289	76
22	5.51	0.061	514	396	215	622	395	428.3	286	76
23	5.45	0.063	512	395	214	619	395	427.0	283	76
24	5.38	0.063	509	394	215	619	394	426.1	281	76
25	5.32	0.065	505	390	214	616	393	423.6	279	76
26	5.25	0.062	506	387	213	615	392	422.5	277	76
27	5.19	0.063	502	387	214	615	392	421.8	275	77
28	5.12	0.056	499	384	213	610	391	419.3	274	77
29	5.06	0.060	495	383	212	609	390	418.0	274	77
30	5.00	0.060	492	380	211	609	389	416.3	275	77
31	4.93	0.060	492	379	211	608	388	415.7	274	77
32	4.87	0.057	493	376	209	609	388	414.9	273	77
33	4.81	0.062	490	374	208	609	387	413.7	275	77
34	4.73	0.056	488	374	209	616	386	414.4	275	77
35	4.67	0.056	487	372	209	619	386	414.5	277	77
36	4.61	0.059	484	371	207	622	385	413.8	278	77
37	4.54	0.061	484	369	207	625	384	413.7	281	77
38	4.47	0.055	482	368	206	633	384	414.5	282	77
39	4.40	0.063	481	367	205	638	384	414.9	283	77
40	4.35	0.063	477	366	205	639	384	414.0	284	77
41	4.19	0.092	477	364	204	627	384	410.9	438	77
42	4.05	0.088	475	365	205	624	383	410.3	537	77
43	3.92	0.086	472	366	204	622	383	409.5	544	77
44	3.92	0.072	470	365	203	611	384	406.5	496	77

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

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

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	3.92	0.057	468	365	203	599	383	403.6	390	77
46	3.93	0.060	468	364	203	586	383	400.7	334	77
47	3.92	0.063	472	364	204	574	383	399.2	299	77
48	3.90	0.054	472	362	202	561	383	395.8	275	77
49	3.90	0.052	475	360	203	547	383	393.4	259	77
50	3.89	0.052	477	357	201	533	383	390.2	247	77
51	3.88		475	356	202	519	383	386.6	236	77
52	3.87	0.047	474	353	202	511	383	384.4	228	77
53	3.86	0.049	471	352	203	498	383	381.2	222	77
54	3.84	0.043	467	350	202	488	383	377.9	216	77
55	3.84	0.048	463	347	202	479	383	374.8	212	77
56	3.82	0.044	461	346	202	469	384	372.3	208	77
57	3.81	0.045	460	343	200	460	384	369.5	205	77
58	3.80	0.048	459	340	201	453	385	367.6	202	77
59	3.78	0.045	455	339	201	445	385	364.9	200	77
60	3.77	0.044	451	336	200	440	385	362.6	197	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	-0.003		0.049	0.00	77	-0.4		16.80		93	249	76	77
1	0.151	0.154	0.049	1.31	77	-1.5	-	16.67	-0.13	97	243	78	77
2	0.328	0.177	0.048	1.30	77	-1.5	-	16.63	-0.04	101	315	79	77
3	0.504	0.176	0.048	1.29	77	-1.4	-	16.45	-0.18	108	451	80	77
4	0.678	0.174	0.048	1.29	77	-1.5	-	16.21	-0.24	119	645	81	77
5	0.852	0.174	0.048	1.27	77	-1.5	-	16.00	-0.21	120	624	82	77
6	1.027	0.175	0.047	1.27	77	-1.5	-	15.80	-0.20	109	483	81	77
7	1.201	0.174	0.048	1.27	78	-1.5	-	15.67	-0.13	103	403	81	77
8	1.376	0.175	0.048	1.26	78	-1.4	-	15.56	-0.11	99	353	81	77
9	1.550	0.174	0.048	1.26	78	-1.4	-	15.47	-0.09	96	323	81	78
10	1.727	0.177	0.048	1.27	78	-1.5	106	15.36	-0.11	95	302	81	77
11	1.898	0.171	0.051	1.27	78	-1.4	-	15.25	-0.11	94	288	81	77
12	2.072	0.174	0.050	1.27	78	-1.4	-	15.15	-0.10	94	278	81	77
13	2.245	0.173	0.049	1.27	79	-1.4	-	15.05	-0.10	93	274	81	78
14	2.418	0.173	0.050	1.26	79	-1.4	-	14.94	-0.11	93	275	81	78
15	2.591	0.173	0.051	1.25	79	-1.5	-	14.82	-0.12	93	279	81	78
16	2.764	0.173	0.050	1.24	79	-1.4	-	14.70	-0.12	92	279	81	78
17	2.937	0.173	0.050	1.26	79	-1.5	-	14.59	-0.11	92	282	81	78
18	3.107	0.170	0.049	1.25	80	-1.4	-	14.46	-0.13	92	282	81	77
19	3.279	0.172	0.050	1.25	80	-1.4	-	14.33	-0.13	92	287	81	77
20	3.452	0.173	0.050	1.25	80	-1.5	105	14.23	-0.10	92	292	81	77
21	3.624	0.172	0.048	1.25	80	-1.4	-	14.10	-0.13	92	302	81	77
22	3.797	0.173	0.050	1.24	81	-1.5	-	13.98	-0.12	93	310	81	77
23	3.969	0.172	0.049	1.25	81	-1.5	-	13.84	-0.14	93	317	81	77
24	4.141	0.172	0.048	1.25	81	-1.4	-	13.71	-0.13	93	323	81	77
25	4.314	0.173	0.048	1.26	81	-1.5	-	13.58	-0.13	93	330	81	77
26	4.486	0.172	0.049	1.24	82	-1.4	-	13.42	-0.16	93	341	82	78
27	4.658	0.172	0.050	1.24	82	-1.4	-	13.27	-0.15	93	349	82	78
28	4.830	0.172	0.049	1.24	82	-1.4	-	13.10	-0.17	93	355	82	78
29	5.002	0.172	0.050	1.24	82	-1.4	-	12.93	-0.17	94	359	82	78
30	5.174	0.172	0.052	1.23	83	-1.4	102	12.78	-0.15	94	361	82	78
31	5.346	0.172	0.047	1.24	83	-1.5	-	12.61	-0.17	93	364	82	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	5.518	0.172	0.050	1.24	83	-1.5	-	12.44	-0.17	92	365	82	78
33	5.690	0.172	0.051	1.23	84	-1.4	-	12.29	-0.15	92	363	82	78
34	5.862	0.172	0.048	1.24	84	-1.5	-	12.12	-0.17	92	362	82	78
35	6.034	0.172	0.049	1.22	84	-1.5	-	11.96	-0.16	92	362	82	78
36	6.206	0.172	0.051	1.23	84	-1.4	-	11.79	-0.17	92	364	82	78
37	6.378	0.172	0.052	1.25	85	-1.5	-	11.62	-0.17	92	365	82	78
38	6.550	0.172	0.051	1.25	85	-1.5	-	11.46	-0.16	92	366	82	78
39	6.722	0.172	0.050	1.24	85	-1.5	-	11.30	-0.16	92	366	82	78
40	6.894	0.172	0.051	1.24	86	-1.4	101	11.15	-0.15	92	362	82	78
41	7.066	0.172	0.053	1.23	86	-1.5	-	11.00	-0.15	92	360	82	78
42	7.238	0.172	0.051	1.23	86	-1.5	-	10.84	-0.16	92	364	82	78
43	7.410	0.172	0.050	1.22	86	-1.4	-	10.67	-0.17	92	367	82	78
44	7.582	0.172	0.049	1.24	87	-1.5	-	10.51	-0.16	92	369	82	79
45	7.754	0.172	0.053	1.24	87	-1.5	-	10.35	-0.16	92	371	82	78
46	7.926	0.172	0.051	1.24	87	-1.6	-	10.19	-0.16	92	371	82	78
47	8.098	0.172	0.051	1.24	88	-1.5	-	10.03	-0.16	92	371	82	78
48	8.271	0.173	0.050	1.23	88	-1.5	-	9.87	-0.16	92	371	82	78
49	8.443	0.172	0.051	1.22	88	-1.6	-	9.72	-0.15	92	370	82	78
50	8.615	0.172	0.051	1.24	88	-1.5	101	9.56	-0.16	92	368	82	78
51	8.787	0.172	0.051	1.24	89	-1.5	-	9.41	-0.15	92	366	82	78
52	8.959	0.172	0.051	1.24	89	-1.5	-	9.26	-0.15	92	363	82	78
53	9.131	0.172	0.053	1.23	89	-1.5	-	9.10	-0.16	92	363	82	78
54	9.304	0.173	0.050	1.25	89	-1.5	-	8.95	-0.15	92	362	82	78
55	9.476	0.172	0.052	1.25	90	-1.6	-	8.81	-0.14	92	362	82	79
56	9.648	0.172	0.048	1.23	90	-1.5	-	8.67	-0.14	92	361	82	79
57	9.820	0.172	0.052	1.24	90	-1.5	-	8.52	-0.15	92	361	82	78
58	9.993	0.173	0.052	1.24	90	-1.6	-	8.39	-0.13	92	360	82	79
59	10.165	0.172	0.051	1.22	91	-1.5	-	8.25	-0.14	92	358	82	79
60	10.337	0.172	0.051	1.23	91	-1.6	100	8.11	-0.14	92	358	82	79
61	10.510	0.173	0.053	1.24	91	-1.6	-	7.98	-0.13	92	356	82	79
62	10.682	0.172	0.051	1.24	91	-1.5	-	7.84	-0.14	92	355	82	79
63	10.855	0.173	0.051	1.23	91	-1.5	-	7.71	-0.13	92	354	82	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	11.027	0.172	0.050	1.23	92	-1.6	-	7.58	-0.13	92	353	82	79
65	11.200	0.173	0.051	1.23	92	-1.6	-	7.45	-0.13	92	354	82	79
66	11.372	0.172	0.051	1.23	92	-1.6	-	7.32	-0.13	92	357	82	79
67	11.545	0.173	0.051	1.23	92	-1.6	-	7.19	-0.13	92	356	82	79
68	11.718	0.173	0.051	1.25	93	-1.6	-	7.06	-0.13	92	354	82	79
69	11.890	0.172	0.052	1.24	93	-1.6	-	6.94	-0.12	92	352	82	79
70	12.063	0.173	0.050	1.24	93	-1.7	101	6.81	-0.13	93	351	82	79
71	12.235	0.172	0.048	1.24	93	-1.6	-	6.70	-0.11	93	347	82	79
72	12.408	0.173	0.049	1.23	93	-1.6	-	6.60	-0.10	93	342	82	79
73	12.581	0.173	0.049	1.22	94	-1.6	-	6.49	-0.11	93	339	82	79
74	12.754	0.173	0.049	1.23	94	-1.6	-	6.40	-0.09	93	335	82	79
75	12.926	0.172	0.049	1.23	94	-1.6	-	6.32	-0.08	92	330	82	79
76	13.099	0.173	0.049	1.23	94	-1.6	-	6.24	-0.08	92	326	82	79
77	13.271	0.172	0.049	1.22	94	-1.6	-	6.16	-0.08	92	322	82	79
78	13.444	0.173	0.050	1.23	94	-1.7	-	6.09	-0.07	92	318	82	79
79	13.617	0.173	0.050	1.24	95	-1.6	-	6.01	-0.08	92	315	82	79
80	13.789	0.172	0.051	1.25	95	-1.6	100	5.95	-0.06	92	312	82	79
81	13.962	0.173	0.053	1.23	95	-1.6	-	5.88	-0.07	91	309	82	79
82	14.135	0.173	0.050	1.24	95	-1.6	-	5.81	-0.07	91	305	82	79
83	14.308	0.173	0.050	1.22	95	-1.6	-	5.76	-0.05	91	303	82	79
84	14.481	0.173	0.049	1.23	95	-1.7	-	5.70	-0.06	91	301	82	79
85	14.655	0.174	0.050	1.24	96	-1.7	-	5.62	-0.08	91	301	82	79
86	14.828	0.173	0.051	1.24	96	-1.6	-	5.55	-0.07	91	297	82	79
87	15.001	0.173	0.051	1.24	96	-1.7	-	5.48	-0.07	91	298	82	79
88	15.174	0.173	0.047	1.24	96	-1.7	-	5.41	-0.07	91	300	82	79
89	15.347	0.173	0.049	1.22	96	-1.8	-	5.34	-0.07	91	299	82	79
90	15.521	0.174	0.051	1.24	96	-1.7	100	5.28	-0.06	91	298	82	79
91	15.694	0.173	0.051	1.25	97	-1.7	-	5.21	-0.07	91	297	82	79
92	15.867	0.173	0.050	1.24	97	-1.7	-	5.15	-0.06	91	296	82	79
93	16.041	0.174	0.050	1.24	97	-1.7	-	5.08	-0.07	91	296	82	79
94	16.214	0.173	0.051	1.24	97	-1.8	-	5.01	-0.07	91	297	82	79
95	16.388	0.174	0.051	1.23	97	-1.7	-	4.94	-0.07	91	297	82	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	16.561	0.173	0.052	1.24	97	-1.8	-	4.87	-0.07	91	299	82	79
97	16.735	0.174	0.051	1.23	97	-1.7	-	4.81	-0.06	91	300	82	79
98	16.908	0.173	0.051	1.24	98	-1.7	-	4.73	-0.08	91	302	82	79
99	17.081	0.173	0.050	1.25	98	-1.7	-	4.66	-0.07	91	303	82	79
100	17.255	0.174	0.050	1.24	98	-1.7	100	4.60	-0.06	91	302	82	79
101	17.428	0.173	0.050	1.25	98	-1.7	-	4.53	-0.07	91	304	82	79
102	17.601	0.173	0.049	1.22	98	-1.7	-	4.47	-0.06	91	304	82	79
103	17.774	0.173	0.048	1.23	98	-1.7	-	4.40	-0.07	91	303	82	79
104	17.947	0.173	0.049	1.23	98	-1.7	-	4.34	-0.06	91	299	82	79
105	18.121	0.174	0.049	1.23	98	-1.8	-	4.29	-0.05	91	296	82	79
106	18.295	0.174	0.048	1.23	98	-1.8	-	4.24	-0.05	91	294	82	79
107	18.468	0.173	0.049	1.25	99	-1.8	-	4.19	-0.05	91	290	82	79
108	18.642	0.174	0.051	1.23	99	-1.7	-	4.14	-0.05	91	287	82	79
109	18.815	0.173	0.051	1.24	99	-1.7	-	4.10	-0.04	91	284	82	79
110	18.989	0.174	0.048	1.23	99	-1.7	101	4.05	-0.05	91	283	82	79
111	19.163	0.174	0.048	1.22	99	-1.8	-	4.01	-0.04	91	279	82	79
112	19.336	0.173	0.049	1.24	99	-1.8	-	3.96	-0.05	90	274	82	79
113	19.511	0.175	0.051	1.24	99	-1.8	-	3.92	-0.04	90	271	82	79
114	19.684	0.173	0.051	1.25	99	-1.8	-	3.88	-0.04	90	268	82	79
115	19.858	0.174	0.051	1.24	99	-1.8	-	3.84	-0.04	90	265	82	79
116	20.032	0.174	0.049	1.25	99	-1.9	-	3.80	-0.04	90	263	82	79
117	20.206	0.174	0.052	1.23	100	-1.9	-	3.76	-0.04	90	261	82	79
118	20.380	0.174	0.052	1.24	100	-1.8	-	3.70	-0.06	90	258	82	79
119	20.553	0.173	0.050	1.24	100	-1.9	-	3.67	-0.03	90	257	82	79
120	20.726	0.173	0.053	1.24	100	-1.9	100	3.62	-0.05	90	251	82	79
121	20.899	0.173	0.050	1.25	100	-1.8	-	3.58	-0.04	90	247	82	79
122	21.073	0.174	0.052	1.23	100	-1.9	-	3.54	-0.04	90	243	82	79
123	21.247	0.174	0.050	1.23	100	-1.9	-	3.51	-0.03	90	241	82	79
124	21.421	0.174	0.049	1.23	100	-1.8	-	3.48	-0.03	89	237	82	79
125	21.595	0.174	0.051	1.25	100	-1.9	-	3.45	-0.03	89	234	82	79
126	21.769	0.174	0.049	1.23	100	-1.9	-	3.44	-0.01	89	230	82	79
127	21.943	0.174	0.051	1.23	100	-1.9	-	3.41	-0.03	89	225	82	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	22.117	0.174	0.050	1.24	101	-1.8	-	3.38	-0.03	89	222	82	79
129	22.291	0.174	0.052	1.26	101	-1.8	-	3.35	-0.03	89	218	82	79
130	22.465	0.174	0.050	1.22	101	-1.9	99	3.32	-0.03	89	214	82	79
131	22.639	0.174	0.050	1.25	101	-1.8	-	3.31	-0.01	89	212	82	79
132	22.813	0.174	0.050	1.24	101	-1.9	-	3.28	-0.03	89	211	82	79
133	22.987	0.174	0.051	1.24	101	-1.9	-	3.26	-0.02	89	208	82	79
134	23.160	0.173	0.052	1.25	101	-1.9	-	3.23	-0.03	89	206	82	79
135	23.334	0.174	0.051	1.23	101	-1.9	-	3.22	-0.01	88	204	82	79
136	23.507	0.173	0.051	1.25	101	-2.0	-	3.19	-0.03	88	200	82	79
137	23.682	0.175	0.050	1.24	101	-2.0	-	3.18	-0.01	88	198	82	79
138	23.855	0.173	0.049	1.22	101	-1.9	-	3.15	-0.03	88	196	82	79
139	24.029	0.174	0.051	1.24	101	-1.9	-	3.14	-0.01	88	194	82	79
140	24.204	0.175	0.052	1.25	101	-1.9	99	3.12	-0.02	88	191	82	79
141	24.378	0.174	0.052	1.24	101	-1.9	-	3.11	-0.01	88	190	82	79
142	24.552	0.174	0.050	1.24	102	-1.9	-	3.09	-0.02	88	188	82	79
143	24.726	0.174	0.052	1.27	102	-1.9	-	3.07	-0.02	88	186	82	79
144	24.900	0.174	0.050	1.24	102	-2.0	-	3.06	-0.01	88	184	82	79
145	25.075	0.175	0.051	1.23	102	-1.9	-	3.04	-0.02	88	183	82	79
146	25.249	0.174	0.053	1.24	102	-1.9	-	3.03	-0.01	88	181	82	79
147	25.423	0.174	0.049	1.24	102	-2.0	-	3.02	-0.01	88	180	82	79
148	25.596	0.173	0.052	1.22	102	-2.0	-	3.00	-0.02	88	179	82	79
149	25.769	0.173	0.049	1.23	102	-1.9	-	2.99	-0.01	88	178	82	79
150	25.944	0.175	0.051	1.23	102	-2.0	98	2.98	-0.01	88	177	82	79
151	26.118	0.174	0.049	1.23	102	-2.0	-	2.97	-0.01	88	175	82	79
152	26.292	0.174	0.050	1.25	102	-1.9	-	2.95	-0.02	87	175	81	79
153	26.466	0.174	0.052	1.24	102	-2.0	-	2.94	-0.01	87	173	81	79
154	26.641	0.175	0.049	1.23	102	-1.9	-	2.92	-0.02	87	172	81	79
155	26.815	0.174	0.052	1.24	102	-2.0	-	2.91	-0.01	87	171	81	79
156	26.989	0.174	0.049	1.25	102	-1.9	-	2.90	-0.01	87	170	81	79
157	27.163	0.174	0.052	1.24	102	-2.0	-	2.88	-0.02	87	169	81	79
158	27.338	0.175	0.048	1.23	102	-2.0	-	2.87	-0.01	87	170	81	79
159	27.512	0.174	0.052	1.24	102	-2.0	-	2.86	-0.01	87	168	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	27.686	0.174	0.049	1.25	102	-2.0	100	2.84	-0.02	87	167	81	79
161	27.859	0.173	0.051	1.24	103	-2.0	-	2.82	-0.02	87	167	81	79
162	28.033	0.174	0.051	1.24	103	-2.0	-	2.81	-0.01	87	166	81	79
163	28.207	0.174	0.050	1.24	103	-2.0	-	2.80	-0.01	87	166	81	79
164	28.381	0.174	0.051	1.24	103	-2.0	-	2.79	-0.01	87	166	81	79
165	28.556	0.175	0.052	1.24	103	-2.0	-	2.78	-0.01	87	165	81	79
166	28.730	0.174	0.052	1.24	103	-2.0	-	2.77	-0.01	87	165	81	79
167	28.905	0.175	0.052	1.24	103	-2.0	-	2.75	-0.02	87	164	81	79
168	29.079	0.174	0.051	1.25	103	-2.0	-	2.74	-0.01	87	165	81	79
169	29.254	0.175	0.051	1.23	103	-2.1	-	2.73	-0.01	87	164	81	79
170	29.428	0.174	0.051	1.23	103	-2.1	100	2.71	-0.02	87	164	81	79
171	29.602	0.174	0.052	1.25	103	-2.0	-	2.70	-0.01	87	164	81	79
172	29.777	0.175	0.052	1.23	103	-2.0	-	2.69	-0.01	87	163	81	79
173	29.950	0.173	0.049	1.24	103	-2.0	-	2.67	-0.02	87	163	81	79
174	30.124	0.174	0.051	1.23	103	-2.0	-	2.66	-0.01	87	162	81	79
175	30.299	0.175	0.050	1.23	103	-2.1	-	2.65	-0.01	87	161	81	79
176	30.473	0.174	0.051	1.23	103	-2.0	-	2.64	-0.01	87	161	81	79
177	30.647	0.174	0.051	1.25	103	-2.1	-	2.62	-0.02	87	161	81	79
178	30.822	0.175	0.050	1.25	103	-2.0	-	2.61	-0.01	87	160	81	79
179	30.996	0.174	0.050	1.24	103	-2.0	-	2.59	-0.02	87	160	81	79
180	31.171	0.175	0.050	1.23	103	-2.0	99	2.59	0.00	87	160	81	79
181	31.346	0.175	0.050	1.23	103	-2.1	-	2.58	-0.01	87	159	81	79
182	31.520	0.174	0.050	1.25	103	-2.0	-	2.56	-0.02	87	159	81	79
183	31.695	0.175	0.050	1.23	103	-2.0	-	2.55	-0.01	87	158	81	79
184	31.868	0.173	0.051	1.24	104	-2.0	-	2.53	-0.02	87	158	81	79
185	32.042	0.174	0.051	1.24	104	-2.0	-	2.52	-0.01	87	158	81	79
186	32.216	0.174	0.050	1.23	104	-2.1	-	2.51	-0.01	87	157	81	79
187	32.391	0.175	0.050	1.24	104	-2.1	-	2.50	-0.01	87	157	81	79
188	32.565	0.174	0.051	1.24	104	-2.0	-	2.48	-0.02	87	157	81	79
189	32.740	0.175	0.051	1.24	104	-2.0	-	2.47	-0.01	86	158	81	79
190	32.914	0.174	0.050	1.24	104	-2.0	100	2.46	-0.01	86	157	81	79
191	33.089	0.175	0.051	1.24	104	-2.1	-	2.45	-0.01	86	156	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	33.263	0.174	0.051	1.24	104	-2.0	-	2.44	-0.01	86	156	81	79
193	33.438	0.175	0.052	1.22	104	-2.0	-	2.43	-0.01	86	156	81	79
194	33.613	0.175	0.052	1.24	104	-2.1	-	2.41	-0.02	86	156	81	79
195	33.787	0.174	0.052	1.24	104	-2.1	-	2.39	-0.02	86	156	81	80
196	33.960	0.173	0.050	1.24	104	-2.1	-	2.38	-0.01	86	155	81	80
197	34.134	0.174	0.050	1.24	104	-2.1	-	2.37	-0.01	86	155	81	80
198	34.309	0.175	0.051	1.24	104	-2.1	-	2.36	-0.01	86	154	81	80
199	34.483	0.174	0.052	1.24	104	-2.1	-	2.35	-0.01	86	154	81	80
200	34.658	0.175	0.051	1.26	104	-2.0	99	2.34	-0.01	86	154	81	80
201	34.832	0.174	0.051	1.24	104	-2.0	-	2.32	-0.02	86	153	81	80
202	35.007	0.175	0.051	1.24	104	-2.0	-	2.31	-0.01	86	153	81	80
203	35.182	0.175	0.051	1.24	104	-2.0	-	2.30	-0.01	86	153	81	80
204	35.356	0.174	0.050	1.25	104	-2.1	-	2.29	-0.01	86	153	81	80
205	35.531	0.175	0.051	1.25	104	-2.0	-	2.28	-0.01	86	152	81	79
206	35.705	0.174	0.049	1.24	104	-2.1	-	2.27	-0.01	86	152	81	79
207	35.879	0.174	0.051	1.25	104	-2.0	-	2.26	-0.01	86	153	81	79
208	36.053	0.174	0.050	1.25	104	-2.0	-	2.24	-0.02	86	152	81	79
209	36.227	0.174	0.049	1.24	104	-2.0	-	2.22	-0.02	86	152	81	79
210	36.402	0.175	0.050	1.23	104	-2.0	99	2.21	-0.01	86	152	81	79
211	36.576	0.174	0.050	1.24	104	-2.0	-	2.20	-0.01	86	152	81	79
212	36.751	0.175	0.051	1.23	104	-2.1	-	2.19	-0.01	86	151	81	79
213	36.926	0.175	0.051	1.25	104	-2.0	-	2.18	-0.01	86	151	81	79
214	37.101	0.175	0.050	1.24	104	-2.1	-	2.17	-0.01	86	151	81	79
215	37.275	0.174	0.050	1.24	104	-2.0	-	2.15	-0.02	86	151	81	79
216	37.450	0.175	0.049	1.23	104	-2.1	-	2.14	-0.01	86	150	81	79
217	37.624	0.174	0.050	1.24	104	-2.1	-	2.13	-0.01	86	151	81	79
218	37.798	0.174	0.049	1.26	104	-2.1	-	2.12	-0.01	86	151	81	79
219	37.972	0.174	0.051	1.24	104	-2.1	-	2.10	-0.02	86	150	81	79
220	38.146	0.174	0.050	1.23	104	-2.0	99	2.09	-0.01	86	151	81	79
221	38.321	0.175	0.051	1.25	104	-2.1	-	2.08	-0.01	86	150	81	79
222	38.496	0.175	0.050	1.25	105	-2.1	-	2.06	-0.02	86	150	81	79
223	38.670	0.174	0.050	1.26	105	-2.1	-	2.05	-0.01	86	150	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
224	38.845	0.175	0.050	1.24	105	-2.2	-	2.04	-0.01	86	150	81	79
225	39.020	0.175	0.049	1.23	105	-2.0	-	2.03	-0.01	86	150	81	79
226	39.194	0.174	0.050	1.24	105	-2.0	-	2.02	-0.01	86	150	81	79
227	39.369	0.175	0.050	1.24	105	-2.0	-	2.00	-0.02	86	150	81	79
228	39.543	0.174	0.050	1.25	105	-2.1	-	1.99	-0.01	86	150	81	79
229	39.717	0.174	0.050	1.27	105	-2.1	-	1.97	-0.02	86	150	81	79
230	39.891	0.174	0.051	1.24	105	-2.1	99	1.96	-0.01	86	150	81	79
231	40.066	0.175	0.051	1.24	105	-2.1	-	1.95	-0.01	86	150	81	79
232	40.240	0.174	0.051	1.23	105	-2.1	-	1.94	-0.01	86	150	81	79
233	40.415	0.175	0.051	1.24	105	-2.0	-	1.93	-0.01	86	149	81	79
234	40.590	0.175	0.050	1.24	105	-2.2	-	1.91	-0.02	86	149	81	79
235	40.765	0.175	0.051	1.24	105	-2.2	-	1.90	-0.01	86	149	81	79
236	40.940	0.175	0.050	1.24	105	-2.1	-	1.89	-0.01	86	150	81	79
237	41.114	0.174	0.050	1.25	105	-2.1	-	1.88	-0.01	86	149	81	79
238	41.289	0.175	0.051	1.24	105	-2.1	-	1.86	-0.02	86	149	81	79
239	41.463	0.174	0.050	1.24	105	-2.1	-	1.85	-0.01	86	149	81	79
240	41.637	0.174	0.050	1.25	105	-2.1	99	1.84	-0.01	86	149	81	79
241	41.812	0.175	0.051	1.25	105	-2.1	-	1.82	-0.02	86	149	81	79
242	41.986	0.174	0.049	1.24	105	-2.1	-	1.81	-0.01	86	148	81	79
243	42.161	0.175	0.051	1.25	105	-2.1	-	1.80	-0.01	86	148	81	79
244	42.335	0.174	0.049	1.23	105	-2.1	-	1.79	-0.01	86	149	81	79
245	42.511	0.176	0.050	1.24	105	-2.1	-	1.77	-0.02	86	149	81	79
246	42.685	0.174	0.051	1.24	105	-2.1	-	1.76	-0.01	86	149	81	79
247	42.860	0.175	0.050	1.24	105	-2.1	-	1.75	-0.01	86	149	81	79
248	43.035	0.175	0.051	1.23	105	-2.1	-	1.73	-0.02	86	149	81	79
249	43.209	0.174	0.051	1.24	105	-2.1	-	1.72	-0.01	86	149	81	79
250	43.382	0.173	0.051	1.26	105	-2.2	99	1.70	-0.02	85	149	81	79
251	43.557	0.175	0.050	1.24	105	-2.1	-	1.70	0.00	86	149	81	79
252	43.732	0.175	0.051	1.24	105	-2.2	-	1.68	-0.02	85	149	81	79
253	43.907	0.175	0.049	1.23	105	-2.2	-	1.67	-0.01	86	150	81	79
254	44.082	0.175	0.050	1.24	105	-2.1	-	1.66	-0.01	85	150	81	79
255	44.257	0.175	0.050	1.25	105	-2.1	-	1.64	-0.02	85	149	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
256	44.431	0.174	0.050	1.25	105	-2.1	-	1.63	-0.01	85	149	81	79
257	44.606	0.175	0.051	1.23	105	-2.1	-	1.62	-0.01	85	149	81	79
258	44.781	0.175	0.051	1.23	105	-2.2	-	1.61	-0.01	85	149	81	79
259	44.955	0.174	0.051	1.24	105	-2.1	-	1.60	-0.01	85	149	81	79
260	45.129	0.174	0.050	1.24	105	-2.1	99	1.58	-0.02	85	149	81	79
261	45.304	0.175	0.050	1.25	105	-2.1	-	1.57	-0.01	85	148	81	79
262	45.478	0.174	0.050	1.25	105	-2.1	-	1.56	-0.01	85	148	81	79
263	45.653	0.175	0.048	1.24	105	-2.2	-	1.55	-0.01	85	148	81	79
264	45.828	0.175	0.049	1.24	105	-2.1	-	1.53	-0.02	85	149	81	79
265	46.003	0.175	0.050	1.24	105	-2.2	-	1.52	-0.01	85	148	81	79
266	46.178	0.175	0.051	1.25	105	-2.2	-	1.51	-0.01	85	148	81	79
267	46.353	0.175	0.050	1.25	105	-2.1	-	1.50	-0.01	85	148	81	79
268	46.528	0.175	0.050	1.24	105	-2.1	-	1.49	-0.01	85	148	81	79
269	46.701	0.173	0.051	1.24	105	-2.2	-	1.48	-0.01	85	148	81	79
270	46.875	0.174	0.048	1.25	105	-2.2	100	1.47	-0.01	85	148	81	79
271	47.050	0.175	0.049	1.24	105	-2.2	-	1.45	-0.02	85	148	81	79
272	47.225	0.175	0.051	1.23	105	-2.1	-	1.44	-0.01	85	147	81	79
273	47.399	0.174	0.048	1.24	105	-2.1	-	1.43	-0.01	85	146	81	79
274	47.574	0.175	0.050	1.25	105	-2.2	-	1.42	-0.01	85	147	81	79
275	47.749	0.175	0.050	1.26	105	-2.1	-	1.41	-0.01	85	147	81	79
276	47.924	0.175	0.050	1.24	105	-2.2	-	1.40	-0.01	85	146	81	79
277	48.099	0.175	0.052	1.25	105	-2.2	-	1.39	-0.01	85	147	81	79
278	48.274	0.175	0.051	1.25	105	-2.1	-	1.37	-0.02	85	146	81	79
279	48.448	0.174	0.049	1.23	106	-2.1	-	1.36	-0.01	85	146	81	79
280	48.621	0.173	0.051	1.24	106	-2.1	100	1.35	-0.01	85	147	81	79
281	48.796	0.175	0.050	1.25	106	-2.1	-	1.34	-0.01	85	146	81	79
282	48.971	0.175	0.050	1.25	106	-2.1	-	1.33	-0.01	85	146	81	79
283	49.145	0.174	0.050	1.25	106	-2.2	-	1.32	-0.01	85	146	81	79
284	49.320	0.175	0.051	1.25	106	-2.2	-	1.30	-0.02	85	146	81	79
285	49.495	0.175	0.049	1.24	106	-2.1	-	1.29	-0.01	85	146	81	79
286	49.670	0.175	0.051	1.24	106	-2.2	-	1.28	-0.01	85	146	81	79
287	49.845	0.175	0.050	1.25	106	-2.2	-	1.27	-0.01	85	146	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
288	50.020	0.175	0.050	1.24	106	-2.1	-	1.25	-0.02	85	146	81	79
289	50.194	0.174	0.049	1.25	106	-2.1	-	1.24	-0.01	85	146	81	79
290	50.368	0.174	0.051	1.24	106	-2.1	98	1.23	-0.01	85	146	81	79
291	50.542	0.174	0.048	1.25	106	-2.2	-	1.22	-0.01	85	146	81	79
292	50.717	0.175	0.049	1.24	106	-2.2	-	1.21	-0.01	85	146	81	79
293	50.892	0.175	0.052	1.24	106	-2.1	-	1.19	-0.02	85	147	81	79
294	51.067	0.175	0.049	1.25	106	-2.1	-	1.18	-0.01	85	147	81	79
295	51.241	0.174	0.052	1.24	106	-2.2	-	1.17	-0.01	85	147	81	79
296	51.416	0.175	0.049	1.24	106	-2.2	-	1.16	-0.01	85	147	81	79
297	51.591	0.175	0.050	1.23	106	-2.1	-	1.14	-0.02	85	146	81	79
298	51.766	0.175	0.051	1.24	106	-2.2	-	1.13	-0.01	85	146	81	79
299	51.940	0.174	0.050	1.25	106	-2.2	-	1.12	-0.01	85	146	81	79
300	52.114	0.174	0.050	1.24	106	-2.1	99	1.10	-0.02	85	146	81	79
301	52.289	0.175	0.051	1.25	106	-2.1	-	1.09	-0.01	85	146	81	79
302	52.464	0.175	0.049	1.23	106	-2.2	-	1.08	-0.01	85	147	81	79
303	52.638	0.174	0.052	1.25	106	-2.1	-	1.06	-0.02	85	146	81	79
304	52.813	0.175	0.049	1.22	106	-2.2	-	1.05	-0.01	85	146	81	79
305	52.988	0.175	0.050	1.24	106	-2.1	-	1.04	-0.01	85	146	81	79
306	53.163	0.175	0.050	1.24	106	-2.1	-	1.02	-0.02	85	146	81	79
307	53.338	0.175	0.049	1.24	106	-2.2	-	1.01	-0.01	85	146	81	79
308	53.513	0.175	0.049	1.23	106	-2.1	-	1.00	-0.01	85	146	81	79
309	53.687	0.174	0.050	1.25	106	-2.1	-	0.99	-0.01	85	146	81	79
310	53.861	0.174	0.050	1.23	106	-2.2	99	0.97	-0.02	85	145	81	79
311	54.036	0.175	0.049	1.24	106	-2.1	-	0.96	-0.01	85	146	81	79
312	54.210	0.174	0.050	1.25	106	-2.2	-	0.95	-0.01	85	146	81	79
313	54.385	0.175	0.050	1.22	106	-2.1	-	0.93	-0.02	85	146	81	79
314	54.560	0.175	0.050	1.24	106	-2.2	-	0.91	-0.02	85	146	81	79
315	54.735	0.175	0.049	1.24	106	-2.2	-	0.90	-0.01	85	146	81	79
316	54.910	0.175	0.050	1.23	106	-2.2	-	0.89	-0.01	85	146	81	79
317	55.085	0.175	0.051	1.23	106	-2.2	-	0.88	-0.01	85	145	81	79
318	55.260	0.175	0.051	1.25	106	-2.1	-	0.86	-0.02	85	145	81	79
319	55.434	0.174	0.050	1.25	106	-2.1	-	0.85	-0.01	85	145	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
320	55.607	0.173	0.050	1.24	106	-2.1	99	0.84	-0.01	85	146	81	79
321	55.782	0.175	0.049	1.25	106	-2.2	-	0.82	-0.02	85	146	81	79
322	55.957	0.175	0.051	1.24	106	-2.1	-	0.81	-0.01	85	146	81	79
323	56.132	0.175	0.048	1.24	106	-2.1	-	0.79	-0.02	85	146	81	79
324	56.307	0.175	0.049	1.23	106	-2.2	-	0.79	0.00	85	146	81	79
325	56.481	0.174	0.049	1.23	106	-2.1	-	0.77	-0.02	85	146	81	79
326	56.656	0.175	0.051	1.27	106	-2.1	-	0.76	-0.01	85	145	81	79
327	56.831	0.175	0.050	1.24	106	-2.1	-	0.74	-0.02	85	145	81	79
328	57.006	0.175	0.051	1.24	106	-2.2	-	0.74	0.00	85	144	81	79
329	57.180	0.174	0.051	1.23	106	-2.1	-	0.72	-0.02	85	145	81	79
330	57.354	0.174	0.049	1.23	106	-2.2	100	0.71	-0.01	85	145	81	79
331	57.529	0.175	0.050	1.23	106	-2.1	-	0.70	-0.01	85	145	81	79
332	57.703	0.174	0.049	1.25	106	-2.1	-	0.69	-0.01	85	144	81	79
333	57.878	0.175	0.049	1.26	106	-2.2	-	0.68	-0.01	85	144	81	79
334	58.053	0.175	0.050	1.24	106	-2.1	-	0.66	-0.02	85	144	81	79
335	58.228	0.175	0.051	1.24	106	-2.1	-	0.65	-0.01	85	143	81	79
336	58.403	0.175	0.050	1.24	106	-2.1	-	0.64	-0.01	85	144	81	79
337	58.578	0.175	0.051	1.25	106	-2.1	-	0.62	-0.02	85	145	81	79
338	58.753	0.175	0.052	1.24	106	-2.1	-	0.61	-0.01	85	145	81	79
339	58.927	0.174	0.052	1.24	106	-2.1	-	0.60	-0.01	85	145	81	79
340	59.101	0.174	0.051	1.25	106	-2.1	99	0.59	-0.01	85	145	81	79
341	59.276	0.175	0.049	1.24	106	-2.1	-	0.58	-0.01	85	145	81	79
342	59.450	0.174	0.050	1.24	106	-2.1	-	0.56	-0.02	85	145	81	79
343	59.625	0.175	0.050	1.25	106	-2.2	-	0.55	-0.01	85	145	81	79
344	59.800	0.175	0.049	1.24	106	-2.1	-	0.53	-0.02	85	145	81	79
345	59.975	0.175	0.051	1.25	106	-2.1	-	0.52	-0.01	85	145	81	79
346	60.150	0.175	0.051	1.23	106	-2.1	-	0.51	-0.01	85	145	81	79
347	60.325	0.175	0.051	1.26	106	-2.2	-	0.50	-0.01	85	145	81	79
348	60.500	0.175	0.050	1.23	106	-2.2	-	0.49	-0.01	85	145	81	79
349	60.674	0.174	0.048	1.23	106	-2.2	-	0.48	-0.01	85	145	81	79
350	60.848	0.174	0.049	1.24	106	-2.2	99	0.46	-0.02	85	145	81	79
351	61.023	0.175	0.050	1.25	106	-2.1	-	0.45	-0.01	85	145	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
352	61.197	0.174	0.050	1.25	106	-2.2	-	0.44	-0.01	85	145	81	79
353	61.372	0.175	0.049	1.24	106	-2.1	-	0.43	-0.01	85	144	81	79
354	61.547	0.175	0.050	1.25	106	-2.1	-	0.42	-0.01	85	144	81	79
355	61.722	0.175	0.048	1.23	106	-2.1	-	0.41	-0.01	85	145	81	79
356	61.897	0.175	0.049	1.24	106	-2.2	-	0.39	-0.02	85	146	81	79
357	62.072	0.175	0.052	1.23	106	-2.1	-	0.38	-0.01	85	146	81	79
358	62.247	0.175	0.050	1.25	106	-2.2	-	0.36	-0.02	85	145	81	79
359	62.420	0.173	0.049	1.22	106	-2.2	-	0.35	-0.01	85	145	81	79
360	62.594	0.174	0.050	1.24	106	-2.2	100	0.35	0.00	85	145	81	79
361	62.769	0.175	0.051	1.25	106	-2.1	-	0.33	-0.02	85	145	81	79
362	62.944	0.175	0.051	1.24	106	-2.1	-	0.32	-0.01	85	145	81	79
363	63.119	0.175	0.051	1.24	106	-2.1	-	0.30	-0.02	85	145	81	79
364	63.294	0.175	0.050	1.24	106	-2.2	-	0.29	-0.01	85	145	81	79
365	63.469	0.175	0.050	1.24	106	-2.2	-	0.28	-0.01	85	145	81	79
366	63.643	0.174	0.050	1.23	106	-2.1	-	0.27	-0.01	85	145	81	79
367	63.818	0.175	0.051	1.23	106	-2.2	-	0.26	-0.01	85	145	81	79
368	63.993	0.175	0.050	1.25	106	-2.2	-	0.25	-0.01	85	145	81	79
369	64.167	0.174	0.049	1.23	106	-2.2	-	0.24	-0.01	85	145	81	79
370	64.341	0.174	0.051	1.23	106	-2.1	99	0.22	-0.02	85	145	81	79
371	64.516	0.175	0.050	1.24	106	-2.2	-	0.21	-0.01	85	144	81	79
372	64.690	0.174	0.050	1.24	106	-2.1	-	0.20	-0.01	85	144	81	79
373	64.865	0.175	0.050	1.22	106	-2.1	-	0.19	-0.01	85	144	81	80
374	65.040	0.175	0.048	1.24	106	-2.2	-	0.18	-0.01	85	144	81	80
375	65.215	0.175	0.048	1.25	106	-2.1	-	0.16	-0.02	85	144	81	80
376	65.390	0.175	0.050	1.25	106	-2.1	-	0.15	-0.01	85	144	81	79
377	65.565	0.175	0.049	1.25	106	-2.1	-	0.14	-0.01	85	144	81	79
378	65.739	0.174	0.049	1.25	106	-2.1	-	0.12	-0.02	85	143	81	79
379	65.913	0.174	0.048	1.25	106	-2.2	-	0.11	-0.01	85	143	81	79
380	66.087	0.174	0.049	1.23	106	-2.1	99	0.10	-0.01	85	144	81	79
381	66.262	0.175	0.049	1.24	106	-2.1	-	0.09	-0.01	85	144	81	79
382	66.437	0.175	0.052	1.25	106	-2.1	-	0.07	-0.02	85	144	81	79
383	66.612	0.175	0.050	1.24	106	-2.1	-	0.06	-0.01	85	144	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
384	66.787	0.175	0.049	1.25	106	-2.1	-	0.05	-0.01	85	144	81	79
385	66.962	0.175	0.051	1.25	106	-2.2	-	0.04	-0.01	85	145	81	79
386	67.137	0.175	0.049	1.24	106	-2.2	-	0.02	-0.02	85	145	81	79
387	67.311	0.174	0.051	1.24	106	-2.1	-	0.01	-0.01	85	144	81	79
388	67.486	0.175	0.049	1.24	106	-2.1	100	0.00	-0.01	85	144	81	79
Avg/Tot	67.489	0.174	0.050	1.24	99.8	-1.9	100			88.0	210.3	81.3	79.0

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	-0.003		0.02	77	-0.5		79	0.046	1.17	0.340
1	0.143	0.146	1.28	77	-1.5	-	81	0.043	1.47	0.407
2	0.310	0.167	1.25	77	-1.5	-	82	0.073	1.58	0.266
3	0.476	0.166	1.23	77	-1.5	-	83	0.093	3.38	0.236
4	0.640	0.164	1.23	77	-1.5	-	85	0.105	7.10	0.167
5	0.806	0.166	1.24	77	-1.5	-	87	0.096	9.31	0.096
6	0.971	0.165	1.25	77	-1.5	-	85	0.074	10.89	0.863
7	1.135	0.164	1.24	77	-1.4	-	84	0.073	6.63	0.877
8	1.299	0.164	1.23	78	-1.4	-	84	0.059	6.31	1.094
9	1.465	0.166	1.21	78	-1.6	-	84	0.068	6.54	1.068
10	1.632	0.167	1.20	78	-1.5	106	84	0.071	6.40	1.120
11	1.792	0.160	1.21	78	-1.4	-	84	0.063	5.58	1.187
12	1.958	0.166	1.21	78	-1.5	-	84	0.061	5.69	1.185
13	2.121	0.163	1.21	79	-1.5	-	84	0.059	6.14	1.192
14	2.284	0.163	1.21	79	-1.5	-	84	0.063	6.91	1.133
15	2.449	0.165	1.24	79	-1.3	-	84	0.068	7.56	1.101
16	2.612	0.163	1.22	79	-1.4	-	84	0.070	7.65	1.006
17	2.775	0.163	1.22	80	-1.5	-	84	0.061	7.77	1.015
18	2.937	0.162	1.21	80	-1.3	-	84	0.069	7.84	1.044
19	3.099	0.162	1.21	80	-1.5	-	84	0.066	8.34	0.859
20	3.262	0.163	1.18	80	-1.5	104	84	0.066	8.58	0.869
21	3.426	0.164	1.22	81	-1.5	-	84	0.071	9.30	0.767
22	3.588	0.162	1.19	81	-1.5	-	84	0.073	9.87	0.774
23	3.752	0.164	1.17	81	-1.3	-	84	0.073	10.20	0.861
24	3.914	0.162	1.21	82	-1.5	-	84	0.072	10.48	0.986
25	4.076	0.162	1.17	82	-1.5	-	84	0.069	10.66	1.170
26	4.241	0.165	1.22	82	-1.3	-	84	0.073	11.11	1.275
27	4.402	0.161	1.21	82	-1.4	-	84	0.078	11.41	1.473
28	4.565	0.163	1.19	83	-1.4	-	84	0.072	11.67	1.684
29	4.728	0.163	1.20	83	-1.4	-	84	0.072	11.74	1.857
30	4.890	0.162	1.21	83	-1.5	102	84	0.079	11.96	1.782
31	5.054	0.164	1.20	84	-1.5	-	84	0.080	11.81	1.449

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
32	5.216	0.162	1.18	84	-1.4	-	84	0.074	11.71	1.194
33	5.378	0.162	1.20	84	-1.5	-	84	0.075	11.68	1.296
34	5.542	0.164	1.17	85	-1.5	-	84	0.076	11.59	1.554
35	5.704	0.162	1.19	85	-1.4	-	84	0.081	11.65	1.457
36	5.866	0.162	1.20	85	-1.5	-	84	0.078	11.69	1.614
37	6.030	0.164	1.20	85	-1.4	-	84	0.079	11.57	1.606
38	6.192	0.162	1.20	86	-1.4	-	84	0.082	11.59	1.436
39	6.356	0.164	1.18	86	-1.5	-	84	0.078	11.46	1.432
40	6.519	0.163	1.19	86	-1.5	101	84	0.076	11.39	1.308
41	6.681	0.162	1.19	87	-1.5	-	84	0.078	11.10	1.920
42	6.846	0.165	1.20	87	-1.5	-	84	0.077	11.23	2.043
43	7.008	0.162	1.21	87	-1.4	-	84	0.076	11.28	2.077
44	7.170	0.162	1.21	88	-1.4	-	84	0.076	11.18	2.241
45	7.334	0.164	1.18	88	-1.5	-	84	0.079	11.15	2.284
46	7.497	0.163	1.19	88	-1.5	-	84	0.077	11.03	2.314
47	7.659	0.162	1.21	88	-1.5	-	84	0.073	10.99	2.240
48	7.823	0.164	1.20	89	-1.5	-	84	0.075	10.79	2.149
49	7.985	0.162	1.20	89	-1.4	-	84	0.085	10.88	2.094
50	8.149	0.164	1.23	89	-1.4	100	84	0.072	10.71	2.059
51	8.313	0.164	1.20	89	-1.3	-	84	0.077	10.68	1.934
52	8.475	0.162	1.20	90	-1.5	-	84	0.076	10.71	2.038
53	8.639	0.164	1.18	90	-1.3	-	84	0.077	10.67	2.046
54	8.802	0.163	1.22	90	-1.4	-	84	0.079	10.67	1.846
55	8.964	0.162	1.20	91	-1.4	-	84	0.072	10.70	1.726
56	9.129	0.165	1.20	91	-1.4	-	84	0.075	10.64	1.796
57	9.292	0.163	1.19	91	-1.5	-	84	0.072	10.68	1.703
58	9.454	0.162	1.20	91	-1.5	-	84	0.073	10.65	1.645
59	9.619	0.165	1.19	92	-1.4	-	84	0.076	10.63	1.608
60	9.782	0.163	1.20	92	-1.5	100	84	0.078	10.59	1.660
61	9.944	0.162	1.18	92	-1.5	-	84	0.070	10.51	1.614
62	10.109	0.165	1.17	92	-1.3	-	84	0.076	10.43	1.620
63	10.272	0.163	1.21	93	-1.5	-	84	0.074	10.36	1.670

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
64	10.435	0.163	1.18	93	-1.5	-	85	0.071	10.26	1.671
65	10.600	0.165	1.21	93	-1.4	-	84	0.073	10.24	1.721
66	10.763	0.163	1.18	93	-1.4	-	84	0.076	10.05	1.699
67	10.926	0.163	1.21	93	-1.4	-	85	0.075	9.98	1.681
68	11.091	0.165	1.19	94	-1.4	-	85	0.085	9.68	1.587
69	11.254	0.163	1.26	94	-1.5	-	85	0.074	9.60	1.523
70	11.417	0.163	1.22	94	-1.5	100	85	0.073	9.44	1.442
71	11.582	0.165	1.19	94	-1.5	-	85	0.078	9.04	1.312
72	11.745	0.163	1.20	95	-1.5	-	85	0.077	8.68	1.215
73	11.908	0.163	1.19	95	-1.5	-	85	0.074	8.37	1.084
74	12.073	0.165	1.23	95	-1.5	-	85	0.076	8.55	0.705
75	12.237	0.164	1.20	95	-1.4	-	85	0.071	8.35	0.558
76	12.400	0.163	1.19	95	-1.4	-	85	0.067	8.21	0.498
77	12.565	0.165	1.23	96	-1.5	-	85	0.070	8.06	0.459
78	12.729	0.164	1.19	96	-1.5	-	85	0.065	7.98	0.353
79	12.892	0.163	1.20	96	-1.5	-	85	0.065	7.82	0.343
80	13.058	0.166	1.20	96	-1.4	100	85	0.061	7.81	0.304
81	13.221	0.163	1.16	96	-1.4	-	85	0.067	7.70	0.315
82	13.384	0.163	1.22	96	-1.4	-	85	0.064	7.70	0.317
83	13.550	0.166	1.20	97	-1.5	-	85	0.073	7.70	0.294
84	13.714	0.164	1.19	97	-1.5	-	85	0.062	7.55	0.361
85	13.877	0.163	1.20	97	-1.4	-	85	0.066	7.67	0.344
86	14.042	0.165	1.23	97	-1.5	-	85	0.064	7.65	0.378
87	14.207	0.165	1.20	97	-1.3	-	84	0.062	7.94	0.301
88	14.370	0.163	1.18	97	-1.4	-	84	0.068	8.08	0.329
89	14.535	0.165	1.20	97	-1.5	-	84	0.062	8.03	0.339
90	14.700	0.165	1.24	98	-1.4	100	84	0.064	8.07	0.342
91	14.864	0.164	1.20	98	-1.4	-	84	0.069	8.04	0.377
92	15.028	0.164	1.21	98	-1.4	-	84	0.069	7.84	0.448
93	15.194	0.166	1.19	98	-1.4	-	85	0.068	7.97	0.468
94	15.358	0.164	1.22	98	-1.4	-	85	0.066	8.06	0.457
95	15.521	0.163	1.19	98	-1.3	-	85	0.065	8.14	0.452

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
96	15.687	0.166	1.18	99	-1.4	-	85	0.071	8.17	0.466
97	15.852	0.165	1.18	99	-1.5	-	84	0.063	8.21	0.455
98	16.015	0.163	1.20	99	-1.3	-	84	0.069	8.30	0.367
99	16.180	0.165	1.18	99	-1.3	-	84	0.072	8.34	0.325
100	16.346	0.166	1.20	99	-1.3	100	84	0.068	8.26	0.357
101	16.510	0.164	1.19	99	-1.4	-	85	0.063	8.24	0.357
102	16.673	0.163	1.18	99	-1.4	-	85	0.066	8.22	0.366
103	16.840	0.167	1.18	99	-1.3	-	85	0.062	7.90	0.361
104	17.004	0.164	1.20	99	-1.5	-	85	0.064	7.83	0.338
105	17.168	0.164	1.21	100	-1.4	-	85	0.055	7.72	0.322
106	17.333	0.165	1.21	100	-1.4	-	85	0.061	7.46	0.262
107	17.499	0.166	1.20	100	-1.5	-	85	0.067	7.33	0.275
108	17.663	0.164	1.21	100	-1.4	-	85	0.058	7.21	0.341
109	17.827	0.164	1.19	100	-1.4	-	85	0.057	7.11	0.383
110	17.993	0.166	1.19	100	-1.4	101	85	0.058	7.01	0.416
111	18.157	0.164	1.21	100	-1.4	-	85	0.066	6.97	0.409
112	18.321	0.164	1.18	100	-1.3	-	85	0.060	6.88	0.426
113	18.487	0.166	1.20	100	-1.4	-	85	0.055	6.83	0.431
114	18.653	0.166	1.19	101	-1.5	-	85	0.057	6.78	0.460
115	18.817	0.164	1.20	101	-1.5	-	84	0.057	6.74	0.470
116	18.981	0.164	1.20	101	-1.5	-	84	0.064	6.70	0.473
117	19.148	0.167	1.19	101	-1.4	-	84	0.059	6.68	0.465
118	19.312	0.164	1.19	101	-1.5	-	84	0.053	6.69	0.462
119	19.476	0.164	1.22	101	-1.4	-	84	0.059	6.62	0.480
120	19.641	0.165	1.22	101	-1.5	100	84	0.053	6.55	0.523
121	19.807	0.166	1.20	101	-1.4	-	84	0.051	6.59	0.512
122	19.972	0.165	1.21	101	-1.5	-	84	0.052	6.60	0.509
123	20.136	0.164	1.20	101	-1.4	-	84	0.061	6.44	0.548
124	20.302	0.166	1.21	101	-1.5	-	84	0.052	6.27	0.590
125	20.468	0.166	1.18	101	-1.5	-	84	0.053	6.05	0.598
126	20.632	0.164	1.19	101	-1.4	-	84	0.051	5.72	0.646
127	20.796	0.164	1.20	102	-1.4	-	84	0.048	5.48	0.710

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
128	20.963	0.167	1.19	102	-1.4	-	84	0.049	5.44	0.661
129	21.128	0.165	1.19	102	-1.3	-	84	0.047	5.26	0.685
130	21.292	0.164	1.19	102	-1.3	99	84	0.051	5.05	0.748
131	21.458	0.166	1.18	102	-1.4	-	84	0.045	5.00	0.735
132	21.624	0.166	1.23	102	-1.4	-	84	0.051	4.87	0.810
133	21.788	0.164	1.21	102	-1.3	-	84	0.050	4.88	0.812
134	21.953	0.165	1.22	102	-1.3	-	84	0.047	4.90	0.812
135	22.120	0.167	1.21	102	-1.5	-	84	0.042	4.75	0.847
136	22.285	0.165	1.20	102	-1.4	-	84	0.045	4.59	0.838
137	22.449	0.164	1.19	102	-1.4	-	84	0.047	4.43	0.910
138	22.614	0.165	1.20	102	-1.5	-	84	0.045	4.34	0.939
139	22.780	0.166	1.20	102	-1.5	-	84	0.050	4.31	0.929
140	22.945	0.165	1.20	102	-1.5	99	84	0.045	4.29	0.926
141	23.110	0.165	1.21	102	-1.5	-	84	0.045	4.26	0.928
142	23.275	0.165	1.21	102	-1.4	-	84	0.041	4.19	0.920
143	23.442	0.167	1.23	102	-1.3	-	84	0.036	4.20	0.935
144	23.606	0.164	1.20	103	-1.3	-	84	0.040	4.16	0.943
145	23.771	0.165	1.19	103	-1.4	-	84	0.042	4.14	0.960
146	23.937	0.166	1.21	103	-1.5	-	84	0.036	4.11	0.967
147	24.103	0.166	1.20	103	-1.4	-	84	0.042	4.10	0.976
148	24.267	0.164	1.19	103	-1.5	-	84	0.037	4.09	0.960
149	24.432	0.165	1.17	103	-1.3	-	84	0.040	4.08	0.975
150	24.599	0.167	1.19	103	-1.5	98	84	0.041	4.01	0.969
151	24.764	0.165	1.21	103	-1.5	-	84	0.037	4.03	0.976
152	24.928	0.164	1.20	103	-1.4	-	84	0.038	4.02	0.980
153	25.094	0.166	1.21	103	-1.4	-	84	0.039	3.97	1.020
154	25.261	0.167	1.18	103	-1.4	-	84	0.040	3.97	1.031
155	25.425	0.164	1.21	103	-1.5	-	84	0.035	3.97	1.041
156	25.590	0.165	1.19	103	-1.5	-	84	0.041	3.98	1.049
157	25.756	0.166	1.19	103	-1.4	-	84	0.036	3.92	1.063
158	25.922	0.166	1.22	103	-1.5	-	84	0.038	3.88	1.072
159	26.087	0.165	1.19	103	-1.4	-	84	0.032	3.87	1.079

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
160	26.252	0.165	1.21	103	-1.4	100	84	0.035	3.88	1.084
161	26.418	0.166	1.21	103	-1.3	-	84	0.041	3.89	1.075
162	26.584	0.166	1.19	103	-1.5	-	84	0.034	3.91	1.081
163	26.749	0.165	1.22	103	-1.5	-	84	0.034	3.92	1.092
164	26.914	0.165	1.20	103	-1.4	-	84	0.036	3.92	1.092
165	27.080	0.166	1.21	103	-1.5	-	84	0.032	4.02	1.054
166	27.246	0.166	1.21	103	-1.4	-	83	0.033	4.01	1.041
167	27.411	0.165	1.18	104	-1.4	-	83	0.032	4.02	1.020
168	27.576	0.165	1.19	103	-1.4	-	83	0.040	3.97	1.020
169	27.743	0.167	1.20	103	-1.3	-	83	0.035	3.90	1.036
170	27.908	0.165	1.24	104	-1.5	100	83	0.034	3.90	1.035
171	28.073	0.165	1.21	104	-1.4	-	83	0.031	3.91	0.996
172	28.238	0.165	1.20	104	-1.5	-	83	0.036	3.90	1.018
173	28.405	0.167	1.18	104	-1.3	-	83	0.035	3.91	1.010
174	28.571	0.166	1.22	104	-1.4	-	83	0.034	3.74	1.008
175	28.735	0.164	1.21	104	-1.3	-	83	0.039	3.70	1.014
176	28.900	0.165	1.25	104	-1.4	-	83	0.028	3.71	1.014
177	29.068	0.168	1.19	104	-1.5	-	83	0.038	3.69	1.009
178	29.233	0.165	1.21	104	-1.4	-	83	0.034	3.94	0.936
179	29.398	0.165	1.20	104	-1.5	-	83	0.037	3.95	0.983
180	29.563	0.165	1.23	104	-1.4	99	83	0.032	3.98	0.986
181	29.730	0.167	1.21	104	-1.4	-	83	0.028	4.00	0.981
182	29.896	0.166	1.20	104	-1.3	-	83	0.032	4.00	0.979
183	30.060	0.164	1.18	104	-1.4	-	83	0.031	3.99	0.991
184	30.226	0.166	1.19	104	-1.5	-	83	0.036	4.02	1.008
185	30.393	0.167	1.18	104	-1.5	-	83	0.035	4.03	0.973
186	30.558	0.165	1.22	104	-1.4	-	83	0.028	4.04	0.976
187	30.723	0.165	1.21	104	-1.4	-	83	0.033	4.06	0.975
188	30.888	0.165	1.17	104	-1.3	-	83	0.030	4.07	0.973
189	31.055	0.167	1.20	104	-1.3	-	83	0.034	4.02	0.980
190	31.221	0.166	1.21	104	-1.3	100	83	0.029	4.05	0.965
191	31.386	0.165	1.21	104	-1.3	-	83	0.019	4.05	0.921

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
192	31.551	0.165	1.22	104	-1.5	-	83	0.033	4.06	0.931
193	31.718	0.167	1.21	104	-1.4	-	83	0.033	4.05	0.959
194	31.883	0.165	1.19	104	-1.3	-	83	0.034	4.06	0.989
195	32.048	0.165	1.21	104	-1.4	-	83	0.038	4.05	0.989
196	32.214	0.166	1.20	104	-1.4	-	83	0.028	4.06	0.968
197	32.381	0.167	1.22	104	-1.3	-	83	0.020	3.93	1.019
198	32.546	0.165	1.21	104	-1.5	-	83	0.039	3.93	1.043
199	32.711	0.165	1.20	104	-1.5	-	83	0.030	3.91	1.045
200	32.877	0.166	1.16	104	-1.4	99	83	0.028	3.90	1.073
201	33.044	0.167	1.19	104	-1.5	-	83	0.028	3.86	1.104
202	33.209	0.165	1.20	104	-1.3	-	83	0.036	3.88	1.130
203	33.374	0.165	1.21	104	-1.3	-	83	0.027	3.86	1.126
204	33.540	0.166	1.21	104	-1.3	-	83	0.031	3.84	1.158
205	33.706	0.166	1.22	105	-1.5	-	83	0.033	3.86	1.134
206	33.871	0.165	1.20	104	-1.4	-	83	0.029	3.90	1.092
207	34.036	0.165	1.21	104	-1.3	-	83	0.035	3.88	1.101
208	34.203	0.167	1.20	104	-1.4	-	83	0.034	3.90	1.101
209	34.369	0.166	1.18	104	-1.4	-	83	0.035	3.93	1.069
210	34.534	0.165	1.20	105	-1.5	99	83	0.038	3.94	1.081
211	34.699	0.165	1.21	104	-1.5	-	83	0.029	3.98	1.059
212	34.866	0.167	1.20	105	-1.3	-	83	0.032	3.97	1.096
213	35.032	0.166	1.19	105	-1.3	-	83	0.029	4.00	1.031
214	35.198	0.166	1.21	105	-1.3	-	83	0.035	3.98	1.054
215	35.362	0.164	1.22	105	-1.3	-	83	0.033	4.02	1.088
216	35.529	0.167	1.21	105	-1.5	-	83	0.032	3.96	1.099
217	35.696	0.167	1.23	105	-1.5	-	83	0.030	4.02	1.073
218	35.861	0.165	1.17	105	-1.4	-	83	0.029	4.10	1.029
219	36.026	0.165	1.19	105	-1.3	-	83	0.030	4.08	1.033
220	36.192	0.166	1.24	105	-1.5	100	83	0.029	4.07	1.029
221	36.359	0.167	1.18	105	-1.4	-	83	0.039	4.10	1.034
222	36.524	0.165	1.20	105	-1.4	-	83	0.031	4.18	0.949
223	36.689	0.165	1.16	105	-1.5	-	83	0.031	4.24	0.919

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
224	36.855	0.166	1.20	105	-1.4	-	83	0.033	4.20	0.927
225	37.022	0.167	1.20	105	-1.5	-	83	0.028	4.25	0.912
226	37.187	0.165	1.20	105	-1.4	-	83	0.038	4.25	0.904
227	37.352	0.165	1.20	105	-1.5	-	83	0.039	4.27	0.923
228	37.518	0.166	1.19	105	-1.4	-	83	0.030	4.24	0.920
229	37.685	0.167	1.18	105	-1.4	-	83	0.032	4.28	0.918
230	37.850	0.165	1.19	105	-1.3	99	83	0.032	4.30	0.921
231	38.016	0.166	1.22	105	-1.4	-	83	0.028	4.32	0.900
232	38.181	0.165	1.22	105	-1.4	-	83	0.031	4.35	0.886
233	38.349	0.168	1.22	105	-1.5	-	83	0.031	4.27	0.907
234	38.514	0.165	1.20	105	-1.5	-	83	0.028	4.17	0.970
235	38.679	0.165	1.21	105	-1.4	-	83	0.030	4.16	0.945
236	38.845	0.166	1.19	105	-1.5	-	83	0.035	4.12	0.976
237	39.012	0.167	1.20	105	-1.3	-	83	0.027	4.14	0.970
238	39.178	0.166	1.22	105	-1.3	-	83	0.033	4.15	1.000
239	39.342	0.164	1.21	105	-1.3	-	83	0.034	4.18	0.991
240	39.508	0.166	1.23	105	-1.4	99	83	0.032	4.21	0.976
241	39.676	0.168	1.18	105	-1.4	-	83	0.030	4.23	0.974
242	39.841	0.165	1.22	105	-1.3	-	83	0.030	4.15	1.007
243	40.006	0.165	1.20	105	-1.4	-	83	0.029	4.15	1.004
244	40.171	0.165	1.17	105	-1.4	-	83	0.036	4.18	1.039
245	40.339	0.168	1.22	105	-1.4	-	83	0.035	4.15	1.020
246	40.505	0.166	1.21	105	-1.5	-	83	0.028	4.10	1.010
247	40.670	0.165	1.22	105	-1.5	-	83	0.020	4.13	1.014
248	40.835	0.165	1.23	105	-1.4	-	83	0.035	4.16	1.020
249	41.002	0.167	1.22	105	-1.4	-	83	0.031	4.49	0.867
250	41.168	0.166	1.19	105	-1.3	99	83	0.028	4.51	0.851
251	41.334	0.166	1.21	105	-1.4	-	83	0.031	4.52	0.851
252	41.499	0.165	1.22	105	-1.3	-	83	0.025	4.20	0.906
253	41.666	0.167	1.20	105	-1.3	-	83	0.028	4.12	0.946
254	41.832	0.166	1.20	105	-1.5	-	83	0.038	3.94	0.923
255	41.997	0.165	1.20	105	-1.4	-	83	0.034	3.93	0.943

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
256	42.163	0.166	1.20	105	-1.3	-	83	0.033	3.93	0.954
257	42.329	0.166	1.22	105	-1.3	-	83	0.033	3.97	0.967
258	42.496	0.167	1.20	105	-1.3	-	83	0.027	3.97	0.970
259	42.661	0.165	1.18	105	-1.3	-	83	0.035	3.92	1.009
260	42.826	0.165	1.20	105	-1.4	99	83	0.031	3.92	1.054
261	42.993	0.167	1.20	105	-1.4	-	83	0.026	3.91	1.056
262	43.160	0.167	1.20	105	-1.3	-	83	0.032	4.04	0.944
263	43.325	0.165	1.20	105	-1.3	-	83	0.032	4.00	0.955
264	43.490	0.165	1.20	105	-1.4	-	83	0.038	3.98	0.958
265	43.657	0.167	1.20	105	-1.3	-	83	0.033	3.94	0.977
266	43.823	0.166	1.21	105	-1.5	-	83	0.032	3.94	0.969
267	43.989	0.166	1.19	105	-1.3	-	83	0.027	3.90	0.984
268	44.154	0.165	1.20	105	-1.5	-	83	0.024	3.90	1.018
269	44.320	0.166	1.23	105	-1.4	-	83	0.029	3.92	1.008
270	44.487	0.167	1.19	105	-1.5	101	83	0.036	3.70	0.989
271	44.653	0.166	1.17	105	-1.5	-	83	0.027	3.60	1.026
272	44.818	0.165	1.20	105	-1.3	-	83	0.029	3.60	1.009
273	44.983	0.165	1.20	105	-1.3	-	83	0.032	3.64	0.998
274	45.151	0.168	1.22	105	-1.5	-	83	0.028	3.66	1.028
275	45.316	0.165	1.21	106	-1.5	-	83	0.030	3.73	0.999
276	45.481	0.165	1.21	105	-1.3	-	83	0.029	3.72	1.005
277	45.647	0.166	1.20	105	-1.5	-	83	0.025	3.69	0.999
278	45.814	0.167	1.22	105	-1.3	-	83	0.028	3.66	0.969
279	45.980	0.166	1.16	105	-1.5	-	83	0.026	3.68	0.978
280	46.145	0.165	1.22	105	-1.5	100	83	0.033	3.72	0.960
281	46.311	0.166	1.17	106	-1.5	-	83	0.026	3.75	0.957
282	46.478	0.167	1.23	105	-1.4	-	83	0.026	3.82	0.949
283	46.644	0.166	1.19	106	-1.3	-	83	0.038	3.79	0.954
284	46.809	0.165	1.20	106	-1.3	-	83	0.027	3.79	0.959
285	46.974	0.165	1.22	106	-1.5	-	83	0.033	3.84	0.968
286	47.141	0.167	1.22	106	-1.5	-	83	0.022	3.87	0.976
287	47.307	0.166	1.22	106	-1.5	-	83	0.027	3.89	0.968

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
288	47.473	0.166	1.19	106	-1.5	-	83	0.031	3.92	0.974
289	47.638	0.165	1.23	106	-1.3	-	83	0.025	3.93	0.993
290	47.805	0.167	1.22	106	-1.4	99	83	0.031	3.95	0.998
291	47.971	0.166	1.20	106	-1.3	-	83	0.038	3.96	1.009
292	48.137	0.166	1.18	106	-1.3	-	83	0.025	3.95	1.017
293	48.302	0.165	1.21	106	-1.4	-	83	0.029	4.00	1.025
294	48.469	0.167	1.19	106	-1.3	-	83	0.023	3.89	1.052
295	48.635	0.166	1.21	106	-1.3	-	83	0.027	3.93	1.052
296	48.801	0.166	1.20	106	-1.5	-	83	0.027	3.99	1.045
297	48.966	0.165	1.17	106	-1.5	-	83	0.025	4.00	1.027
298	49.132	0.166	1.19	106	-1.4	-	83	0.029	3.99	1.061
299	49.299	0.167	1.20	106	-1.4	-	83	0.031	3.97	1.078
300	49.465	0.166	1.18	106	-1.4	99	83	0.032	3.98	1.113
301	49.630	0.165	1.23	106	-1.3	-	83	0.032	3.98	1.094
302	49.796	0.166	1.23	106	-1.3	-	83	0.032	3.98	1.116
303	49.963	0.167	1.22	106	-1.3	-	83	0.030	3.98	1.119
304	50.129	0.166	1.20	106	-1.5	-	83	0.028	3.95	1.093
305	50.294	0.165	1.21	106	-1.3	-	83	0.029	3.88	1.087
306	50.459	0.165	1.19	106	-1.3	-	83	0.028	3.97	1.101
307	50.627	0.168	1.20	106	-1.4	-	83	0.029	3.95	1.101
308	50.793	0.166	1.20	106	-1.3	-	83	0.029	3.99	1.102
309	50.958	0.165	1.17	106	-1.5	-	83	0.031	4.02	1.100
310	51.124	0.166	1.17	106	-1.5	99	83	0.024	4.07	1.108
311	51.291	0.167	1.21	106	-1.4	-	83	0.027	4.04	1.082
312	51.457	0.166	1.19	106	-1.3	-	83	0.024	4.14	1.087
313	51.623	0.166	1.21	106	-1.5	-	83	0.023	4.20	1.059
314	51.788	0.165	1.21	106	-1.4	-	83	0.028	4.19	1.049
315	51.955	0.167	1.21	106	-1.5	-	83	0.024	3.96	0.978
316	52.121	0.166	1.21	106	-1.3	-	83	0.031	3.96	0.982
317	52.286	0.165	1.22	106	-1.4	-	83	0.027	3.92	0.984
318	52.452	0.166	1.19	106	-1.3	-	83	0.031	3.90	0.989
319	52.618	0.166	1.20	106	-1.4	-	83	0.030	3.97	0.992

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
320	52.785	0.167	1.21	106	-1.5	100	83	0.028	3.98	0.973
321	52.950	0.165	1.20	106	-1.4	-	83	0.027	4.00	0.977
322	53.116	0.166	1.19	106	-1.5	-	83	0.024	3.95	0.968
323	53.282	0.166	1.22	106	-1.3	-	83	0.034	3.96	0.991
324	53.449	0.167	1.21	106	-1.3	-	83	0.024	3.99	0.914
325	53.614	0.165	1.21	106	-1.5	-	83	0.026	4.08	0.876
326	53.780	0.166	1.19	106	-1.3	-	83	0.033	4.01	0.832
327	53.946	0.166	1.18	106	-1.5	-	83	0.030	3.93	0.867
328	54.113	0.167	1.21	106	-1.3	-	83	0.024	3.86	0.843
329	54.279	0.166	1.22	106	-1.3	-	83	0.026	3.83	0.839
330	54.444	0.165	1.21	106	-1.5	100	83	0.034	3.84	0.836
331	54.609	0.165	1.22	106	-1.4	-	83	0.030	3.86	0.860
332	54.777	0.168	1.19	106	-1.5	-	83	0.031	3.86	0.859
333	54.943	0.166	1.20	106	-1.3	-	83	0.031	3.87	0.870
334	55.108	0.165	1.23	106	-1.5	-	83	0.028	3.89	0.873
335	55.274	0.166	1.17	106	-1.3	-	83	0.030	3.88	0.860
336	55.441	0.167	1.21	106	-1.4	-	83	0.035	3.91	0.846
337	55.607	0.166	1.21	106	-1.5	-	83	0.030	3.94	0.848
338	55.773	0.166	1.21	106	-1.5	-	83	0.029	3.91	0.834
339	55.938	0.165	1.21	106	-1.4	-	83	0.023	3.93	0.844
340	56.105	0.167	1.19	106	-1.5	100	83	0.028	3.98	0.838
341	56.271	0.166	1.21	106	-1.4	-	83	0.028	3.94	0.844
342	56.437	0.166	1.20	106	-1.3	-	83	0.040	3.98	0.851
343	56.602	0.165	1.20	106	-1.4	-	83	0.023	3.97	0.840
344	56.769	0.167	1.22	106	-1.4	-	83	0.033	4.00	0.850
345	56.936	0.167	1.20	106	-1.5	-	83	0.032	4.02	0.855
346	57.101	0.165	1.21	106	-1.4	-	83	0.025	4.00	0.859
347	57.266	0.165	1.21	106	-1.5	-	83	0.033	4.07	0.856
348	57.432	0.166	1.21	106	-1.3	-	83	0.036	4.02	0.866
349	57.600	0.168	1.23	106	-1.4	-	83	0.027	4.01	0.800
350	57.766	0.166	1.19	106	-1.5	99	83	0.028	4.02	0.772
351	57.931	0.165	1.21	106	-1.4	-	83	0.025	4.02	0.763

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
352	58.096	0.165	1.21	106	-1.5	-	83	0.028	4.03	0.770
353	58.264	0.168	1.21	106	-1.4	-	83	0.031	3.99	0.782
354	58.430	0.166	1.20	106	-1.3	-	83	0.029	4.02	0.784
355	58.595	0.165	1.20	106	-1.3	-	83	0.031	4.00	0.835
356	58.761	0.166	1.24	106	-1.4	-	83	0.028	3.97	0.838
357	58.928	0.167	1.20	106	-1.5	-	83	0.032	3.98	0.833
358	59.094	0.166	1.19	106	-1.5	-	83	0.026	3.83	0.896
359	59.260	0.166	1.22	106	-1.3	-	83	0.022	3.84	0.895
360	59.425	0.165	1.22	106	-1.3	100	83	0.033	3.86	0.897
361	59.592	0.167	1.22	106	-1.3	-	83	0.025	3.85	0.928
362	59.758	0.166	1.22	106	-1.3	-	83	0.030	3.79	0.928
363	59.924	0.166	1.21	106	-1.4	-	83	0.030	3.81	0.903
364	60.089	0.165	1.21	106	-1.5	-	83	0.027	3.78	0.930
365	60.255	0.166	1.24	106	-1.5	-	83	0.028	3.73	0.939
366	60.422	0.167	1.22	106	-1.5	-	83	0.027	3.76	0.932
367	60.588	0.166	1.20	106	-1.5	-	83	0.031	3.77	0.876
368	60.753	0.165	1.22	106	-1.5	-	83	0.030	3.78	0.879
369	60.919	0.166	1.20	106	-1.3	-	83	0.026	3.75	0.901
370	61.086	0.167	1.21	106	-1.5	99	83	0.031	3.69	1.004
371	61.252	0.166	1.22	106	-1.5	-	83	0.018	3.78	0.931
372	61.417	0.165	1.22	106	-1.4	-	83	0.027	3.81	0.940
373	61.582	0.165	1.21	106	-1.4	-	82	0.028	3.86	0.890
374	61.750	0.168	1.21	106	-1.5	-	82	0.018	3.90	0.903
375	61.916	0.166	1.19	106	-1.3	-	82	0.032	3.90	0.928
376	62.081	0.165	1.19	106	-1.3	-	83	0.027	4.00	0.875
377	62.246	0.165	1.19	106	-1.4	-	83	0.026	4.08	0.868
378	62.414	0.168	1.21	106	-1.4	-	83	0.029	4.07	0.872
379	62.580	0.166	1.20	106	-1.5	-	82	0.029	4.05	0.864
380	62.745	0.165	1.19	106	-1.4	99	83	0.026	4.06	0.870
381	62.911	0.166	1.20	106	-1.4	-	83	0.028	4.08	0.866
382	63.078	0.167	1.21	106	-1.3	-	82	0.031	4.07	0.863
383	63.244	0.166	1.20	106	-1.5	-	82	0.028	4.08	0.883

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
384	63.409	0.165	1.21	106	-1.3	-	83	0.028	4.08	0.886
385	63.575	0.166	1.24	106	-1.5	-	82	0.028	4.06	0.892
386	63.742	0.167	1.20	106	-1.4	-	83	0.024	4.05	0.885
387	63.908	0.166	1.22	106	-1.5	-	83	0.032	4.04	0.891
388	64.074	0.166	1.19	106	-1.4	100	82	0.028	4.03	0.892
Avg/Tot	64.077	0.165	1.20	100.2	-1.4	100	83.3	0.044	5.53	0.970

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	-0.002		0.03	78	-0.5		76
1	0.143	0.145	1.28	78	-2.0	-	77
2	0.311	0.168	1.29	78	-2.1	-	77
3	0.480	0.169	1.29	78	-2.1	-	77
4	0.650	0.170	1.28	78	-2.1	-	78
5	0.820	0.170	1.29	78	-2.2	-	78
6	0.990	0.170	1.30	78	-2.1	-	79
7	1.162	0.172	1.30	78	-2.1	-	79
8	1.335	0.173	1.31	78	-2.1	-	79
9	1.508	0.173	1.32	78	-2.1	-	79
10	1.685	0.177	1.34	79	-2.2	99	80
11	1.856	0.171	1.35	79	-2.2	-	80
12	2.031	0.175	1.35	79	-2.3	-	80
13	2.207	0.176	1.36	79	-2.1	-	80
14	2.382	0.175	1.38	79	-2.2	-	80
15	2.557	0.175	1.36	79	-2.3	-	80
16	2.733	0.176	1.37	80	-2.2	-	80
17	2.908	0.175	1.37	80	-2.1	-	80
18	3.083	0.175	1.37	80	-2.3	-	81
19	3.261	0.178	1.38	80	-2.2	-	80
20	3.440	0.179	1.40	81	-2.3	101	80
21	3.617	0.177	1.40	81	-2.3	-	81
22	3.794	0.177	1.38	81	-2.1	-	81
23	3.973	0.179	1.41	82	-2.3	-	81
24	4.153	0.180	1.40	82	-2.3	-	81
25	4.331	0.178	1.40	82	-2.1	-	81
26	4.510	0.179	1.39	83	-2.3	-	81
27	4.690	0.180	1.41	83	-2.2	-	81
28	4.869	0.179	1.39	83	-2.3	-	81
29	5.047	0.178	1.39	84	-2.2	-	81
30	5.228	0.181	1.40	84	-2.1	101	81
31	5.408	0.180	1.40	84	-2.2	-	81

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.586	0.178	1.40	85	-2.1	-	81
33	5.768	0.182	1.41	85	-2.3	-	81
34	5.949	0.181	1.41	85	-2.2	-	81
35	6.127	0.178	1.40	86	-2.2	-	81
36	6.308	0.181	1.41	86	-2.3	-	81
37	6.489	0.181	1.39	87	-2.2	-	81
38	6.668	0.179	1.40	87	-2.2	-	81
39	6.849	0.181	1.41	87	-2.2	-	81
40	7.031	0.182	1.42	88	-2.1	100	81
41	7.209	0.178	1.41	88	-2.1	-	81
42	7.391	0.182	1.41	88	-2.2	-	81
43	7.572	0.181	1.41	89	-2.3	-	81
44	7.751	0.179	1.40	89	-2.1	-	81
45	7.933	0.182	1.42	89	-2.3	-	81
46	8.115	0.182	1.41	90	-2.3	-	81
47	8.294	0.179	1.41	90	-2.2	-	81
48	8.476	0.182	1.40	90	-2.2	-	81
49	8.657	0.181	1.42	91	-2.3	-	81
50	8.837	0.180	1.41	91	-2.3	100	81
51	9.019	0.182	1.41	91	-2.2	-	81
52	9.199	0.180	1.41	92	-2.3	-	81
53	9.380	0.181	1.42	92	-2.2	-	81
54	9.563	0.183	1.41	92	-2.1	-	81
55	9.742	0.179	1.40	93	-2.3	-	81
56	9.924	0.182	1.42	93	-2.3	-	81
57	10.105	0.181	1.43	93	-2.3	-	81
58	10.285	0.180	1.41	94	-2.2	-	81
59	10.468	0.183	1.42	94	-2.2	-	81
60	10.649	0.181	1.42	94	-2.2	100	81
Avg/Tot	10.651	0.178	1.36	84.6	-2.2	100	80.4

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	447	329	205	423	386	358.3	N/A
1	446	327	195	413	388	353.7	N/A
2	440	323	202	400	388	350.8	N/A
3	440	320	194	403	389	349.1	N/A
4	432	321	192	445	389	355.9	N/A
5	432	323	200	505	389	369.8	N/A
6	426	324	202	539	390	376.1	N/A
7	420	324	208	550	391	378.6	N/A
8	419	324	197	551	390	376.2	N/A
9	415	323	196	550	390	374.8	N/A
10	410	321	195	549	389	372.9	N/A
11	406	319	214	547	388	374.7	N/A
12	398	317	215	544	387	372.2	N/A
13	399	315	200	543	386	368.4	N/A
14	388	315	207	551	385	368.9	N/A
15	390	311	191	560	383	366.7	N/A
16	382	310	188	569	381	366.1	N/A
17	380	308	191	577	379	367.1	N/A
18	374	308	189	585	378	366.6	N/A
19	367	308	212	595	376	371.6	N/A
20	363	307	211	608	374	372.7	N/A
21	360	306	210	620	372	373.5	N/A
22	356	307	205	632	370	374.0	N/A
23	353	308	200	641	368	374.0	N/A
24	353	309	200	653	366	376.2	N/A
25	350	311	195	661	364	376.2	N/A
26	347	312	192	671	362	376.9	N/A
27	347	314	192	676	360	377.8	N/A
28	344	316	191	683	359	378.4	N/A
29	340	318	198	689	357	380.4	N/A
30	338	322	180	694	355	377.6	N/A
31	339	324	174	700	353	378.0	N/A
32	339	328	168	703	351	377.6	N/A
33	339	329	165	709	349	378.2	N/A
34	339	332	164	714	348	379.2	N/A
35	337	335	162	716	345	379.0	N/A
36	344	336	162	717	344	380.5	N/A
37	347	339	161	721	342	381.7	N/A
38	346	341	161	721	340	381.6	N/A
39	346	343	157	725	338	382.0	N/A
40	350	345	156	726	336	382.5	N/A
41	351	347	167	729	334	385.5	N/A
42	352	348	165	732	332	385.6	N/A
43	353	350	163	730	330	385.2	N/A
44	356	352	162	736	328	386.8	N/A
45	356	354	158	737	327	386.4	N/A
46	357	355	156	734	325	385.1	N/A
47	358	357	155	735	323	385.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	361	359	155	735	321	386.0	N/A
49	361	360	154	737	319	386.2	N/A
50	363	362	154	734	318	386.1	N/A
51	365	363	153	732	316	385.9	N/A
52	365	365	154	731	315	385.9	N/A
53	366	365	154	730	313	385.6	N/A
54	367	366	154	729	312	385.6	N/A
55	367	367	152	730	311	385.4	N/A
56	368	368	151	729	310	384.9	N/A
57	371	368	151	729	308	385.3	N/A
58	373	368	150	728	307	385.2	N/A
59	374	368	151	728	306	385.4	N/A
60	374	370	152	728	305	385.7	N/A
61	376	369	151	724	305	384.8	N/A
62	378	370	151	723	304	385.1	N/A
63	381	370	150	720	303	384.6	N/A
64	382	371	150	717	302	384.4	N/A
65	384	372	150	718	302	384.9	N/A
66	384	373	150	717	301	384.9	N/A
67	384	373	150	718	300	385.1	N/A
68	380	375	149	716	300	384.1	N/A
69	384	375	150	720	300	385.5	N/A
70	385	375	149	723	299	386.3	N/A
71	389	374	149	720	299	386.1	N/A
72	390	375	150	718	299	386.3	N/A
73	391	374	150	713	299	385.4	N/A
74	393	373	151	708	299	384.5	N/A
75	394	371	150	702	298	383.1	N/A
76	395	369	149	696	298	381.4	N/A
77	397	369	150	688	298	380.5	N/A
78	398	368	151	681	298	379.0	N/A
79	400	366	151	675	298	378.0	N/A
80	401	365	151	668	298	376.5	N/A
81	403	364	152	662	298	375.7	N/A
82	403	361	152	656	297	373.9	N/A
83	404	360	151	649	297	372.1	N/A
84	405	359	150	642	297	370.6	N/A
85	406	356	152	637	297	369.4	N/A
86	406	355	151	632	297	368.2	N/A
87	408	354	151	629	296	367.6	N/A
88	410	352	151	628	296	367.3	N/A
89	411	351	151	628	296	367.0	N/A
90	410	350	151	622	295	365.6	N/A
91	413	349	151	620	295	365.4	N/A
92	413	347	152	617	295	364.6	N/A
93	412	346	151	612	294	363.1	N/A
94	413	345	151	608	294	361.9	N/A
95	412	344	151	606	294	361.3	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	414	343	150	606	293	361.1	N/A
97	416	343	151	606	293	361.6	N/A
98	416	342	151	605	293	361.4	N/A
99	418	340	151	606	293	361.6	N/A
100	420	340	151	608	292	362.3	N/A
101	421	340	150	608	292	362.2	N/A
102	422	339	151	610	292	362.8	N/A
103	424	338	151	610	292	362.8	N/A
104	424	338	151	610	292	362.8	N/A
105	426	336	151	607	292	362.4	N/A
106	427	335	151	604	292	361.8	N/A
107	427	334	151	600	292	360.9	N/A
108	428	334	152	595	292	360.2	N/A
109	429	333	151	591	292	359.3	N/A
110	429	331	151	586	292	357.7	N/A
111	429	330	150	580	292	356.3	N/A
112	430	330	150	577	292	355.7	N/A
113	430	329	150	572	292	354.4	N/A
114	429	327	151	568	292	353.4	N/A
115	431	326	150	563	292	352.1	N/A
116	429	325	149	558	292	350.7	N/A
117	428	323	150	555	293	349.6	N/A
118	428	322	150	552	293	349.0	N/A
119	427	323	150	547	293	347.9	N/A
120	426	322	146	542	293	345.7	N/A
121	427	320	147	538	293	344.9	N/A
122	429	318	147	535	293	344.4	N/A
123	427	318	146	531	293	343.2	N/A
124	429	317	147	526	294	342.4	N/A
125	430	317	146	520	294	341.1	N/A
126	430	314	146	513	294	339.3	N/A
127	429	314	147	506	294	337.8	N/A
128	428	312	146	500	294	336.2	N/A
129	426	312	144	491	294	333.2	N/A
130	424	309	144	484	294	331.2	N/A
131	425	309	145	477	295	329.9	N/A
132	424	308	145	471	295	328.3	N/A
133	423	306	144	465	295	326.6	N/A
134	424	306	144	459	295	325.5	N/A
135	424	302	146	452	295	323.8	N/A
136	420	302	145	447	295	322.0	N/A
137	420	301	143	440	295	320.0	N/A
138	418	300	143	434	295	318.0	N/A
139	417	299	143	428	295	316.3	N/A
140	413	298	143	422	295	313.9	N/A
141	413	296	143	416	295	312.6	N/A
142	412	294	142	410	295	310.7	N/A
143	409	293	143	406	295	309.0	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	407	293	165	402	295	312.6	N/A
145	403	292	163	395	295	309.6	N/A
146	400	290	162	391	295	307.4	N/A
147	399	289	161	386	295	306.0	N/A
148	397	288	162	382	295	304.5	N/A
149	394	287	161	378	294	302.8	N/A
150	394	285	161	375	294	301.8	N/A
151	393	284	162	370	294	300.6	N/A
152	391	283	163	365	294	299.3	N/A
153	388	282	161	363	293	297.4	N/A
154	385	282	161	359	293	296.1	N/A
155	386	281	162	357	293	295.9	N/A
156	383	279	160	353	293	293.7	N/A
157	380	278	162	351	293	292.8	N/A
158	378	278	162	348	293	291.5	N/A
159	378	277	161	344	293	290.2	N/A
160	376	276	160	341	292	289.1	N/A
161	373	274	160	341	292	287.9	N/A
162	372	274	160	338	292	287.0	N/A
163	367	273	158	337	292	285.4	N/A
164	366	273	158	334	292	284.6	N/A
165	364	271	158	332	292	283.4	N/A
166	364	271	158	330	292	282.7	N/A
167	361	270	157	329	292	281.8	N/A
168	360	269	158	327	291	280.9	N/A
169	358	268	157	327	291	280.4	N/A
170	358	267	157	326	291	279.7	N/A
171	356	266	156	324	291	278.6	N/A
172	356	266	156	322	291	278.2	N/A
173	354	265	157	322	291	277.6	N/A
174	353	264	156	320	291	276.9	N/A
175	351	263	156	318	291	275.7	N/A
176	350	263	157	317	290	275.4	N/A
177	350	261	158	315	290	274.9	N/A
178	349	261	157	314	290	274.1	N/A
179	348	260	157	313	290	273.6	N/A
180	347	259	157	312	290	272.9	N/A
181	345	259	156	312	290	272.4	N/A
182	345	258	155	311	290	271.8	N/A
183	343	258	155	311	289	271.3	N/A
184	342	257	154	311	289	270.8	N/A
185	344	255	154	310	289	270.4	N/A
186	340	255	155	310	289	269.8	N/A
187	340	256	156	309	289	269.8	N/A
188	339	254	155	308	289	269.0	N/A
189	338	254	154	308	289	268.4	N/A
190	337	254	153	306	288	267.7	N/A
191	338	253	153	306	288	267.4	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	336	252	153	305	288	266.8	N/A
193	335	252	153	304	288	266.5	N/A
194	334	251	153	304	288	266.1	N/A
195	334	250	153	303	288	265.6	N/A
196	333	251	153	302	288	265.0	N/A
197	333	251	152	301	287	265.0	N/A
198	332	250	153	300	288	264.4	N/A
199	330	249	153	300	287	263.8	N/A
200	330	249	152	300	287	263.5	N/A
201	329	249	152	299	287	263.2	N/A
202	330	248	152	298	287	262.9	N/A
203	328	248	152	298	287	262.4	N/A
204	327	247	152	297	287	261.8	N/A
205	326	247	151	297	287	261.5	N/A
206	326	246	151	296	286	261.2	N/A
207	325	246	151	295	286	260.5	N/A
208	324	245	151	294	286	259.9	N/A
209	326	245	152	293	286	260.4	N/A
210	323	245	153	293	286	259.9	N/A
211	324	244	153	293	286	260.0	N/A
212	324	244	145	291	286	258.0	N/A
213	322	244	141	291	286	256.8	N/A
214	322	243	143	290	285	256.7	N/A
215	320	242	140	289	285	255.3	N/A
216	321	243	139	289	285	255.5	N/A
217	320	243	140	288	285	255.2	N/A
218	321	242	140	288	285	255.2	N/A
219	320	241	142	288	285	255.0	N/A
220	319	241	142	287	285	254.7	N/A
221	319	242	140	287	285	254.5	N/A
222	319	241	141	286	285	254.2	N/A
223	316	241	141	287	284	253.9	N/A
224	317	241	140	286	284	253.8	N/A
225	316	241	142	286	284	253.6	N/A
226	317	240	141	286	284	253.5	N/A
227	317	240	141	286	284	253.4	N/A
228	317	240	142	286	284	253.7	N/A
229	315	240	141	286	284	252.9	N/A
230	316	240	140	286	284	253.1	N/A
231	315	240	140	286	283	252.9	N/A
232	314	240	141	286	283	252.7	N/A
233	314	240	141	285	283	252.5	N/A
234	314	239	139	284	283	252.0	N/A
235	314	240	140	285	283	252.3	N/A
236	313	239	139	284	283	251.6	N/A
237	312	240	140	284	283	251.7	N/A
238	314	239	140	284	282	251.7	N/A
239	314	239	140	284	282	251.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
240	314	239	140	284	282	251.8	N/A
241	314	239	141	283	282	251.7	N/A
242	314	239	138	283	282	251.1	N/A
243	313	240	142	284	282	252.0	N/A
244	311	239	141	285	282	251.6	N/A
245	311	239	140	284	282	251.1	N/A
246	311	239	139	285	282	251.1	N/A
247	313	239	141	285	282	251.8	N/A
248	311	239	141	284	281	251.2	N/A
249	311	239	141	285	281	251.3	N/A
250	310	239	139	284	281	250.6	N/A
251	311	239	139	284	281	250.8	N/A
252	309	239	140	283	281	250.4	N/A
253	308	238	141	284	281	250.2	N/A
254	309	239	140	282	281	250.1	N/A
255	309	239	139	282	281	249.9	N/A
256	310	238	140	282	281	250.1	N/A
257	308	238	139	281	281	249.5	N/A
258	308	238	137	279	281	248.6	N/A
259	308	238	138	279	281	248.8	N/A
260	309	238	137	278	280	248.5	N/A
261	308	237	140	278	280	248.6	N/A
262	309	237	140	277	280	248.5	N/A
263	308	237	140	278	280	248.6	N/A
264	308	237	141	277	280	248.4	N/A
265	307	237	141	277	280	248.3	N/A
266	308	237	140	277	280	248.4	N/A
267	306	236	140	277	280	247.9	N/A
268	306	237	139	278	280	247.7	N/A
269	306	236	139	278	280	247.4	N/A
270	305	236	138	278	279	247.3	N/A
271	306	235	140	278	279	247.6	N/A
272	306	235	140	277	279	247.5	N/A
273	305	234	140	278	279	247.4	N/A
274	304	235	141	278	279	247.2	N/A
275	305	235	141	278	279	247.6	N/A
276	303	234	139	279	279	246.6	N/A
277	303	234	142	279	279	247.1	N/A
278	303	233	138	280	278	246.3	N/A
279	303	234	137	279	278	246.1	N/A
280	302	233	138	278	278	245.9	N/A
281	302	233	140	278	278	246.3	N/A
282	300	232	139	279	278	245.6	N/A
283	301	233	138	279	277	245.7	N/A
284	299	232	137	279	277	244.8	N/A
285	299	232	138	279	277	244.8	N/A
286	298	232	137	280	277	244.5	N/A
287	300	232	139	279	276	245.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
288	298	232	137	279	276	244.4	N/A
289	298	231	137	279	276	244.2	N/A
290	298	231	137	278	276	243.9	N/A
291	298	231	138	278	276	244.1	N/A
292	297	230	138	278	275	243.6	N/A
293	297	230	140	277	275	243.7	N/A
294	298	230	138	278	275	243.7	N/A
295	297	230	138	278	275	243.4	N/A
296	297	230	137	278	275	243.3	N/A
297	296	230	140	277	275	243.5	N/A
298	297	229	141	277	274	243.6	N/A
299	295	229	140	277	274	243.2	N/A
300	296	228	138	277	274	242.5	N/A
301	297	229	140	277	274	243.3	N/A
302	297	228	137	276	274	242.4	N/A
303	296	229	136	277	274	242.2	N/A
304	296	228	139	276	274	242.6	N/A
305	296	228	141	276	274	243.1	N/A
306	296	228	141	276	274	242.9	N/A
307	296	228	139	277	274	242.6	N/A
308	296	227	136	277	274	242.0	N/A
309	296	227	136	277	274	241.8	N/A
310	297	226	139	277	274	242.5	N/A
311	298	227	139	278	274	242.9	N/A
312	298	227	139	277	274	243.0	N/A
313	297	226	137	278	274	242.3	N/A
314	298	226	136	278	274	242.2	N/A
315	298	225	137	278	273	242.3	N/A
316	299	226	137	278	273	242.5	N/A
317	298	225	137	278	273	242.4	N/A
318	298	225	138	279	273	242.7	N/A
319	299	225	137	279	273	242.5	N/A
320	299	225	138	279	273	242.7	N/A
321	299	224	138	280	273	242.9	N/A
322	299	224	141	278	273	243.0	N/A
323	299	224	139	277	273	242.5	N/A
324	299	224	138	277	273	242.1	N/A
325	300	224	137	277	273	241.9	N/A
326	300	224	136	276	273	241.8	N/A
327	301	223	137	276	273	241.8	N/A
328	301	223	137	275	273	241.6	N/A
329	300	223	137	274	273	241.2	N/A
330	300	222	136	274	272	241.0	N/A
331	301	222	137	273	272	241.1	N/A
332	301	222	137	273	272	241.1	N/A
333	301	222	138	273	272	241.0	N/A
334	301	222	138	273	272	241.1	N/A
335	301	221	138	273	272	241.2	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
336	302	222	137	273	272	241.2	N/A
337	301	222	138	273	272	241.1	N/A
338	301	221	139	272	272	241.1	N/A
339	302	221	141	273	272	241.6	N/A
340	302	221	138	272	272	241.0	N/A
341	301	221	138	273	272	240.8	N/A
342	301	221	138	272	272	240.7	N/A
343	301	221	138	273	272	240.9	N/A
344	301	221	138	273	272	240.7	N/A
345	301	220	137	273	272	240.6	N/A
346	301	221	138	273	272	240.9	N/A
347	301	221	136	273	271	240.6	N/A
348	302	220	138	273	272	241.0	N/A
349	301	221	137	273	271	240.7	N/A
350	302	221	138	274	271	241.2	N/A
351	301	220	136	273	271	240.4	N/A
352	301	220	138	273	271	240.8	N/A
353	301	220	139	273	271	240.8	N/A
354	301	220	137	274	271	240.7	N/A
355	301	220	138	274	271	240.8	N/A
356	301	220	137	274	271	240.7	N/A
357	301	220	137	274	271	240.4	N/A
358	301	219	138	275	271	240.7	N/A
359	301	220	137	274	271	240.6	N/A
360	300	219	138	275	271	240.5	N/A
361	300	220	138	274	271	240.6	N/A
362	301	220	137	274	271	240.5	N/A
363	300	219	137	274	271	240.1	N/A
364	301	219	136	274	271	240.2	N/A
365	300	218	137	274	271	240.1	N/A
366	300	219	138	274	271	240.4	N/A
367	300	219	136	274	271	239.9	N/A
368	300	219	138	272	272	240.1	N/A
369	300	218	138	273	271	240.2	N/A
370	300	218	138	272	272	239.8	N/A
371	300	218	137	273	271	240.0	N/A
372	300	217	141	272	272	240.3	N/A
373	298	217	141	272	272	239.9	N/A
374	299	218	140	272	272	240.0	N/A
375	299	218	139	272	272	239.8	N/A
376	299	217	137	271	272	239.3	N/A
377	299	217	137	271	272	239.1	N/A
378	299	217	136	271	272	238.9	N/A
379	299	217	139	271	272	239.7	N/A
380	299	217	138	270	272	239.3	N/A
381	299	217	138	270	272	239.3	N/A
382	299	217	140	271	272	239.6	N/A
383	299	216	138	271	272	239.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

Stove ΔT: **119**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
384	299	217	136	271	272	238.9	N/A
385	299	217	137	270	272	238.9	N/A
386	299	216	137	270	272	239.0	N/A
387	300	217	140	271	272	239.8	N/A
388	300	216	139	271	272	239.7	N/A
Average	346.9	275.0	150.3	411.0	294.8	295.6	N/A

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F2450-2
Run #: 1

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/25/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	G01087	237.0	240.3	3.3
	B	G01088	239.1	242.7	3.6
	C - 1st Hour	G01089	238.6	241.5	2.9
	Amb	G01090	237.9	238.2	0.3
Probes	**A**	9A	116531.8	116531.8	0.0
	B	9B	117739.2	117739.2	0.0
	C - 1st Hour	9C	116603.9	116603.9	0.0
O-rings	**A**	9A	3580.5	3580.9	0.4
	B	9B	3525.4	3525.4	0.0
	C - 1st Hour	9C	3431.2	3431.4	0.2

Placed in Dessicator on:	6/25/2024

		200.0		200.0		200.0			
Balance Audit (mg):		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	**A**	240.5	7/1 13:12	240.3	7/3 12:29				
	B	242.7	7/1 13:12	242.7	7/3 12:29				
	C - 1st Hour	241.4	7/1 13:20	241.5	7/3 12:30				
	Amb	238.3	7/1 13:25	238.2	7/3 12:30				
Probes	**A**	116531.8	7/1 13:01	116531.8	7/3 12:30				
	B	117739.3	7/1 13:01	117739.2	7/3 12:30				
	C - 1st Hour	116603.9	7/1 13:01	116603.9	7/3 12:30				
O-Rings	**A**	3580.9	7/1 13:02	3580.9	7/3 12:30				
	B	3525.5	7/1 13:12	3525.4	7/3 12:31				
	C - 1st Hour	3431.6	7/1 13:02	3431.3	7/3 12:31	3431.4	7/8 9:45		

Train A Aggregate, mg:	**3.7**
Train B Aggregate, mg:	**3.6**
Train C Aggregate, mg:	**3.1**
Ambient, mg:	**0.3**

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 1 Test Date: 6/25/24

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Fully Closed (fixed stop @ 0.547")
Targeted Burn Category: I

Preburn Notes

Time	Notes
10:00 40:00	+2.43 lb Stirred coals

Test Notes

Test Burn Start Time: 13:20 Test Fuel Loaded by: 35 seconds
Door Closed: 270 seconds Air Control Set at: 300 seconds
Other Loading Notes: Fan on low @ 1:00

Time	Notes
	-None-

Test Burn End Time: 19:48

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO_2 (%): 16.98 CO (%): 4.300
Mid Gas CO_2 (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	12:22	12:23	12:24	6/26 08:51	6/26 08:52	6/26 08:54
CO_2	0.00	17.02	10.07	0.03	17.01	10.03
CO	0.000	4.304	2.533	0.023	4.316	2.525

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

Technician Signature:  Date: 6/27/2024

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 1 Test Date: 6/25/24



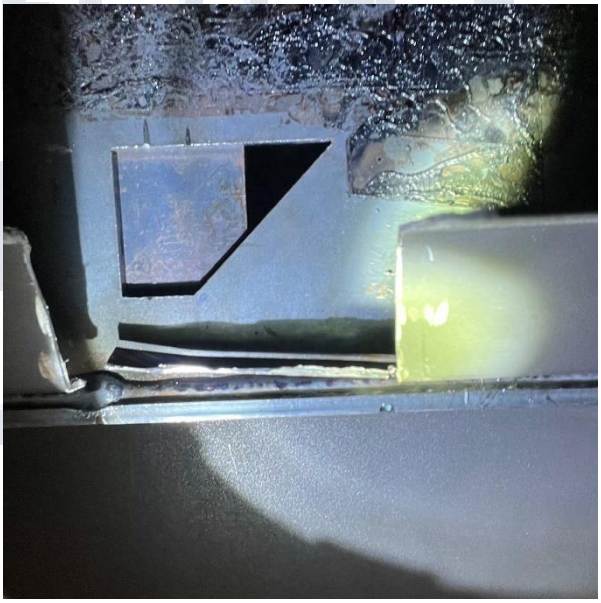
Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: Date: 6/27/2024

WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515

Run 2 Data Summary

Client:	FPI
Model:	F2450-2
Job #:	24-309
Tracking #:	201
Test Date:	6/26/2024

Technician Signature

7/17/2024
Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Burn Rate (kg/hr):	1.06

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	44.542	61.000	57.497	10.657
Average Gas Velocity in Dilution Tunnel (ft/sec)	14.0			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	37698.9			
Average Gas Meter Temperature (°F)	73.9	95.4	95.7	82.0
Total Sample Volume (dscf)	44.724	58.305	55.363	10.461
Average Tunnel Temperature (°F)	83.5			
Total Time of Test (min)	346			
Total Particulate Catch (mg)	0.0	1.4	1.2	0.7
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000240	0.0000217	0.0000669
Total PM Emissions (g)	0.00	5.22	4.71	2.52
Particulate Emission Rate (g/hr)	0.00	0.91	0.82	2.52
Emissions Factor (g/kg)	-	0.85	0.77	-
Difference from Average Total Particulate Emissions (g)	-	0.25	0.25	-
Difference from Average Total Particulate Emissions (%)	-	5.1%	5.1%	
Difference from Average Emissions Factor (g/kg)	-	0.04	0.04	-

Final Average Results	
Total Particulate Emissions (g)	4.97
Particulate Emission Rate (g/hr)	0.86
Emissions Factor (g/kg)	0.81
HHV Efficiency (%)	70.3%
LHV Efficiency (%)	76.0%
CO Emissions (g/min)	2.03

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	77.9	OK
Face Velocity	< 30 ft/min	9.5	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:71.4/Max:75.6	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	130.1	Check 10.3 Compliance

B415.1 Efficiency Results

Manufacturer:	FPI
Model:	F2450-2
Date:	06/26/24
Run:	2
Control #:	24-309
Test Duration:	346
Output Category:	2

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	70.3%	76.0%
Combustion Efficiency	92.0%	92.0%
Heat Transfer Efficiency	76.4%	82.6%

Output Rate (kJ/h)	14,830	14,068	**(Btu/h)**
Burn Rate (kg/h)	1.06	2.35	**(lb/h)**
Input (kJ/h)	21,089	20,006	**(Btu/h)**

Test Load Weight (dry kg)	6.14	13.53	**dry lb**
MC wet (%)	17.29		
MC dry (%)	20.91		
Particulate (g)	4.97		
CO (g)	703		
Test Duration (h)	5.77		

Emissions	Particulate	CO
g/MJ Output	0.06	8.23
g/kg Dry Fuel	0.81	114.59
g/h	0.86	121.99
g/min	0.01	2.03
lb/MM Btu Output	0.13	19.12

Air/Fuel Ratio (A/F)	18.94

VERSION: **2.4** **4/15/2010**

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Preburn Fuel Information

Size	Length (in)	Moisture Content (% DB)	Size	Length (in)	Moisture Content (% DB)
2x4	12.00	21.2	2x4	16.00	19.8
2x4	12.00	22.6	2x4	16.00	20.7
2x4	12.00	19.9	2x4	16.00	22.6
2x4	12.00	19.7	2x4	8.00	21.3
2x4	12.00	23.6	2x4	8.00	21.7
2x4	12.00	20.2	2x4	8.00	19.8
2x4	12.00	21.5			
2x4	16.00	21.4			

Total Fuel Weight (lbs): 15.21
Average Moisture (%DB): 21.1

Firebox Volume (ft^3): 2.24
Total 2x4 Crib Weight, with spacers (lbs): 8.36
Total 4x4 Crib Weight, with spacers (lbs): 8.00
Total Wet Fuel Weight, with spacers (lbs): 16.36

Coal Bed Range (20-25%):
Min (lbs): 3.27
Max (lbs): 4.09

Test Fuel Information

Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	16.75	1.83	20.6	22.0	23.1	1.50
2x4	16.75	1.85	21.0	20.6	19.3	1.54
2x4	16.75	1.54	19.9	19.4	22.3	1.28
2x4	16.75	1.72	20.7	20.6	21.0	1.42
4x4	16.75	3.51	21.4	21.0	20.3	2.90
4x4	16.75	4.12	21.1	22.0	20.1	3.40

Total Dry Weight, no spacers (lbs): 12.05
Total Dry Weight, with spacers (lbs): 13.53

Spacer Moisture Readings (%DB)

20.6	20.0	19.8					
22.0	22.9	18.3					
21.1	18.5						
22.7	23.2						
18.2	19.7						
22.2	20.2						
23.1	19.5						
23.5	20.4						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft^3, DB)	27.3	OK
Loading Density	6.3 - 7.7 (lbs/ft^3, WB)	7.30	OK
2x4 Fuel Mix	35 - 65 % of total weight	51%	OK

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client:	FPI	Job #:	24-309
Model:	F2450-2	Tracking #:	201
Run #:	2	Technician:	AK
Test Start Time:	12:42	Date:	6/26/2024

Total Sampling Time (min):	346
Recording Interval (min):	1

Meter Box γ Factor:	1.000	(A)
Meter Box γ Factor:	1.008	(B)
Meter Box γ Factor:	1.002	(C)
Meter Box γ Factor:	1.013	(Ambient)

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.99	30.01	30.00
Relative Humidity (%)	32.1	41.6	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		44.542	ft^3

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100%
Date Flue Pipe Last Cleaned:	6/21/2024
Test Fuel Scale Audit (lbs)	10.00
Platform Scale Audit (lbs)	10.0

Sample Train Leak Checks

	Pre-test	Post-test			
(A)	0.000	0.000	cfm @	-7	in. Hg
(B)	0.000	0.000	cfm @	-7	in. Hg
(C)	0.000	0.001	cfm @	-7	in. Hg
(Ambient)	0.000	0.000	cfm @	-13	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.034	77
2	0.044	77
3	0.046	77
4	0.046	77
5	0.042	77
6	0.032	77
7	0.032	77
8	0.046	77
9	0.048	77
10	0.048	77
11	0.046	77
12	0.038	77
Center	0.050	77

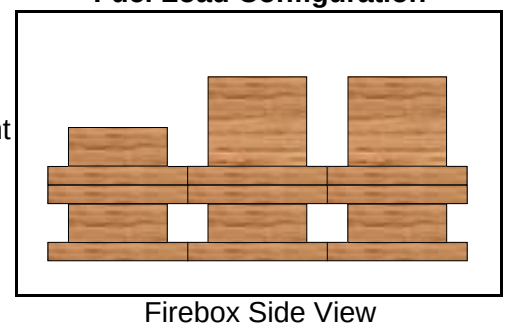
Static Pressure: -0.160 in. H_2O

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	12	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:	0.7854	ft^2
V_{strav}:	13.62	ft/sec
V_{scent}:	14.93	ft/sec
F_p:	0.912	[ratio]
Initial Tunnel Flow:	619.8	scf/min

TEST FUEL PROPERTIES

Fuel Load Configuration

Firebox Front



Firebox Back

Firebox Side View

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)	20.9

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

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

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	4.22	0.066	512	432	176	656	369	429.1	341	73
1	4.18	0.066	509	431	178	646	370	426.7	307	73
2	4.14	0.058	510	429	173	634	372	423.4	286	73
3	4.13	0.055	513	426	167	619	373	419.5	271	73
4	4.12	0.057	505	423	173	609	374	416.9	261	72
5	4.10	0.057	505	418	172	598	375	413.7	253	72
6	4.09	0.054	504	415	171	586	376	410.4	247	72
7	4.08	0.052	502	412	170	574	377	407.1	242	72
8	4.07	0.048	500	407	171	564	378	403.9	237	72
9	4.06	0.051	498	404	160	552	379	398.8	234	72
10	4.03	0.046	498	400	163	545	380	397.2	229	72
11	6.35	0.091	498	398	158	530	381	392.8	358	72
12	6.09	0.101	492	395	169	539	382	395.3	538	72
13	5.84	0.106	490	396	168	564	383	400.3	615	73
14	5.77	0.076	487	395	165	586	384	403.3	481	72
15	5.68	0.071	487	396	168	598	385	406.6	399	72
16	5.59	0.071	486	395	166	609	386	408.2	356	73
17	5.51	0.069	486	393	164	617	386	409.4	330	72
18	5.42	0.075	484	393	166	625	387	410.8	316	72
19	5.35	0.064	486	391	161	631	387	411.3	307	72
20	5.27	0.065	486	390	166	634	388	412.7	299	72
21	5.20	0.069	483	388	162	637	388	411.6	294	72
22	5.13	0.069	480	387	167	641	388	412.4	291	72
23	5.06	0.065	479	386	164	643	388	412.0	289	72
24	4.98	0.065	478	384	162	640	388	410.5	285	72
25	4.92	0.062	476	382	167	644	388	411.5	285	72
26	4.84	0.062	475	380	162	645	388	410.0	285	72
27	4.78	0.063	474	379	154	644	388	407.7	283	72
28	4.70	0.065	472	377	161	647	387	408.8	284	72
29	4.63	0.060	472	376	161	648	387	408.8	284	72
30	4.56	0.061	472	374	157	652	387	408.2	286	72
31	4.48	0.066	469	373	157	658	386	408.6	288	72
32	4.42	0.062	469	372	154	662	386	408.6	287	72
33	4.36	0.061	467	371	159	667	385	409.7	287	72
34	4.31	0.063	462	371	155	664	384	407.0	286	72
35	4.25	0.063	462	368	156	661	383	405.9	284	71
36	4.21	0.066	461	367	158	655	383	404.8	280	72
37	4.18	0.062	459	365	162	652	382	404.0	276	72
38	4.16	0.056	456	363	156	643	381	399.7	268	72
39	4.14	0.052	458	360	153	626	380	395.4	260	72
40	4.15	0.053	454	359	155	609	379	391.0	251	72
41	4.04	0.083	454	355	151	592	379	386.2	406	72
42	3.91	0.094	451	355	157	590	378	386.3	508	72
43	3.80	0.096	452	356	156	586	378	385.5	555	72
44	7.30	0.101	449	358	152	586	378	384.7	553	72

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

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

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	3.68	0.071	450	359	149	586	377	384.2	425	72
46	3.67	0.062	452	362	158	577	377	385.2	360	72
47	3.67	0.059	452	362	154	566	378	382.2	321	72
48	3.65	0.061	453	362	157	557	378	381.4	296	72
49	3.65	0.056	453	363	154	547	379	379.1	278	72
50	3.63	0.054	451	363	152	539	381	377.2	265	72
51	3.62	0.057	454	362	152	530	382	375.8	255	72
52	3.60	0.052	454	359	151	520	384	373.4	247	72
53	3.59	0.055	454	358	157	511	385	373.1	241	72
54	3.56	0.050	453	355	150	504	387	369.7	235	72
55	3.55	0.045	452	354	158	496	388	369.5	230	72
56	3.53	0.047	451	353	151	490	389	366.7	227	72
57	3.52	0.049	449	352	151	484	390	365.3	223	72
58	3.50	0.053	449	349	153	478	391	363.8	219	72
59	3.49	0.043	448	348	154	472	392	362.6	216	71
60	3.47	0.050	449	344	151	465	393	360.3	213	71

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	-0.003		0.051	0.00	76	-0.4		16.36		90	256	70	71
1	0.154	0.157	0.051	1.36	76	-1.4	-	16.11	-0.25	95	257	71	72
2	0.332	0.178	0.048	1.33	76	-1.5	-	15.92	-0.19	100	396	71	72
3	0.509	0.177	0.050	1.30	76	-1.4	-	15.53	-0.39	114	647	72	72
4	0.685	0.176	0.050	1.29	76	-1.5	-	15.05	-0.48	128	806	73	72
5	0.862	0.177	0.049	1.29	76	-1.4	-	14.63	-0.42	123	698	73	72
6	1.038	0.176	0.049	1.31	76	-1.4	-	14.41	-0.22	110	541	73	72
7	1.215	0.177	0.050	1.30	76	-1.4	-	14.30	-0.11	103	453	73	72
8	1.390	0.175	0.050	1.29	76	-1.4	-	14.18	-0.12	98	404	73	72
9	1.566	0.176	0.051	1.30	76	-1.3	-	14.04	-0.14	96	374	73	72
10	1.741	0.175	0.051	1.28	76	-1.4	104	13.94	-0.10	95	356	73	72
11	1.918	0.177	0.051	1.30	77	-1.4	-	13.82	-0.12	94	345	73	72
12	2.093	0.175	0.051	1.29	77	-1.4	-	13.70	-0.12	93	336	74	72
13	2.269	0.176	0.050	1.30	77	-1.4	-	13.59	-0.11	93	329	74	72
14	2.445	0.176	0.051	1.29	77	-1.4	-	13.48	-0.11	92	326	74	72
15	2.620	0.175	0.051	1.28	77	-1.4	-	13.34	-0.14	92	327	74	72
16	2.794	0.174	0.051	1.28	77	-1.4	-	13.20	-0.14	92	335	74	72
17	2.969	0.175	0.050	1.27	78	-1.4	-	13.06	-0.14	91	338	74	72
18	3.143	0.174	0.051	1.28	78	-1.5	-	12.90	-0.16	91	344	74	72
19	3.318	0.175	0.051	1.27	78	-1.4	-	12.75	-0.15	91	348	74	72
20	3.493	0.175	0.050	1.29	78	-1.4	105	12.61	-0.14	92	348	74	72
21	3.669	0.176	0.050	1.28	78	-1.4	-	12.47	-0.14	92	344	74	72
22	3.843	0.174	0.049	1.27	79	-1.5	-	12.35	-0.12	92	340	74	72
23	4.018	0.175	0.051	1.29	79	-1.3	-	12.23	-0.12	92	342	74	72
24	4.193	0.175	0.051	1.28	79	-1.5	-	12.08	-0.15	91	344	74	72
25	4.367	0.174	0.050	1.28	80	-1.4	-	11.94	-0.14	91	348	74	72
26	4.540	0.173	0.052	1.28	80	-1.5	-	11.79	-0.15	91	353	74	72
27	4.715	0.175	0.050	1.27	80	-1.4	-	11.64	-0.15	91	354	74	72
28	4.889	0.174	0.052	1.28	80	-1.4	-	11.49	-0.15	91	356	74	72
29	5.064	0.175	0.052	1.27	81	-1.5	-	11.34	-0.15	91	358	74	72
30	5.239	0.175	0.051	1.27	81	-1.5	104	11.19	-0.15	91	361	74	72
31	5.413	0.174	0.052	1.28	81	-1.4	-	11.02	-0.17	90	361	74	72

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	5.588	0.175	0.052	1.29	81	-1.5	-	10.87	-0.15	90	363	74	72
33	5.762	0.174	0.052	1.28	82	-1.4	-	10.72	-0.15	90	361	74	72
34	5.937	0.175	0.051	1.27	82	-1.4	-	10.56	-0.16	90	362	74	72
35	6.112	0.175	0.052	1.27	82	-1.5	-	10.42	-0.14	89	362	74	72
36	6.285	0.173	0.051	1.25	82	-1.4	-	10.26	-0.16	89	360	74	72
37	6.459	0.174	0.052	1.28	83	-1.4	-	10.11	-0.15	89	360	74	72
38	6.634	0.175	0.051	1.27	83	-1.4	-	9.96	-0.15	89	359	74	72
39	6.808	0.174	0.052	1.28	83	-1.5	-	9.80	-0.16	89	358	74	72
40	6.982	0.174	0.050	1.27	83	-1.4	103	9.66	-0.14	89	356	74	72
41	7.157	0.175	0.052	1.27	84	-1.5	-	9.49	-0.17	89	355	74	72
42	7.332	0.175	0.052	1.27	84	-1.4	-	9.35	-0.14	89	353	74	72
43	7.507	0.175	0.053	1.27	84	-1.5	-	9.21	-0.14	89	352	74	73
44	7.681	0.174	0.052	1.27	85	-1.5	-	9.06	-0.15	89	349	74	72
45	7.856	0.175	0.052	1.28	85	-1.4	-	8.93	-0.13	89	348	74	72
46	8.031	0.175	0.053	1.27	85	-1.5	-	8.79	-0.14	89	345	74	72
47	8.205	0.174	0.051	1.28	85	-1.5	-	8.67	-0.12	89	344	74	72
48	8.378	0.173	0.052	1.27	86	-1.5	-	8.53	-0.14	89	343	74	73
49	8.554	0.176	0.052	1.28	86	-1.5	-	8.42	-0.11	89	339	74	73
50	8.728	0.174	0.052	1.25	86	-1.5	102	8.29	-0.13	88	335	74	73
51	8.903	0.175	0.052	1.27	86	-1.5	-	8.18	-0.11	88	333	74	73
52	9.078	0.175	0.053	1.27	87	-1.5	-	8.06	-0.12	88	332	75	73
53	9.253	0.175	0.052	1.28	87	-1.6	-	7.95	-0.11	88	332	75	73
54	9.428	0.175	0.053	1.28	87	-1.5	-	7.83	-0.12	88	332	75	73
55	9.600	0.172	0.051	1.27	87	-1.6	-	7.71	-0.12	88	333	75	73
56	9.775	0.175	0.052	1.28	87	-1.5	-	7.58	-0.13	88	331	75	73
57	9.950	0.175	0.053	1.27	88	-1.6	-	7.46	-0.12	88	331	75	73
58	10.124	0.174	0.052	1.27	88	-1.5	-	7.34	-0.12	88	330	75	73
59	10.299	0.175	0.053	1.27	88	-1.5	-	7.23	-0.11	88	330	75	73
60	10.474	0.175	0.053	1.27	88	-1.5	101	7.10	-0.13	88	328	75	73
61	10.649	0.175	0.053	1.26	89	-1.5	-	6.98	-0.12	88	329	75	73
62	10.824	0.175	0.053	1.29	89	-1.5	-	6.87	-0.11	88	328	74	73
63	11.000	0.176	0.053	1.28	89	-1.6	-	6.76	-0.11	88	326	75	73

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	11.175	0.175	0.052	1.28	89	-1.5	-	6.65	-0.11	88	326	75	73
65	11.352	0.177	0.052	1.28	89	-1.5	-	6.54	-0.11	88	327	75	73
66	11.526	0.174	0.052	1.28	90	-1.6	-	6.43	-0.11	88	324	74	73
67	11.701	0.175	0.053	1.26	90	-1.6	-	6.34	-0.09	88	325	74	73
68	11.876	0.175	0.053	1.29	90	-1.6	-	6.22	-0.12	88	323	74	73
69	12.052	0.176	0.052	1.27	90	-1.6	-	6.12	-0.10	88	322	74	73
70	12.227	0.175	0.052	1.27	90	-1.6	100	6.03	-0.09	88	321	74	73
71	12.403	0.176	0.053	1.30	91	-1.6	-	5.94	-0.09	88	318	74	73
72	12.579	0.176	0.052	1.28	91	-1.6	-	5.84	-0.10	88	316	74	73
73	12.755	0.176	0.053	1.27	91	-1.6	-	5.74	-0.10	87	313	74	73
74	12.929	0.174	0.052	1.28	91	-1.6	-	5.66	-0.08	87	311	74	73
75	13.104	0.175	0.053	1.28	91	-1.6	-	5.56	-0.10	87	310	74	73
76	13.280	0.176	0.053	1.29	91	-1.7	-	5.48	-0.08	87	309	74	73
77	13.456	0.176	0.053	1.29	91	-1.6	-	5.39	-0.09	87	308	74	73
78	13.632	0.176	0.053	1.28	92	-1.6	-	5.30	-0.09	87	307	74	73
79	13.808	0.176	0.052	1.27	92	-1.6	-	5.21	-0.09	87	305	74	73
80	13.984	0.176	0.054	1.29	92	-1.6	100	5.12	-0.09	87	303	74	73
81	14.158	0.174	0.053	1.28	92	-1.7	-	5.04	-0.08	87	302	75	73
82	14.333	0.175	0.051	1.28	92	-1.7	-	4.96	-0.08	87	302	75	73
83	14.509	0.176	0.054	1.28	92	-1.7	-	4.88	-0.08	87	297	75	73
84	14.685	0.176	0.053	1.27	93	-1.7	-	4.83	-0.05	87	293	75	73
85	14.861	0.176	0.051	1.28	93	-1.6	-	4.77	-0.06	87	287	75	73
86	15.038	0.177	0.054	1.28	93	-1.7	-	4.71	-0.06	87	281	75	73
87	15.214	0.176	0.054	1.27	93	-1.6	-	4.66	-0.05	86	276	74	73
88	15.389	0.175	0.053	1.28	93	-1.6	-	4.60	-0.06	86	271	75	73
89	15.564	0.175	0.053	1.28	93	-1.7	-	4.54	-0.06	86	269	75	73
90	15.740	0.176	0.052	1.29	93	-1.7	99	4.48	-0.06	86	266	75	73
91	15.916	0.176	0.053	1.27	94	-1.6	-	4.43	-0.05	86	263	74	73
92	16.093	0.177	0.053	1.27	94	-1.6	-	4.38	-0.05	86	261	75	73
93	16.269	0.176	0.053	1.30	94	-1.7	-	4.33	-0.05	86	258	75	74
94	16.445	0.176	0.053	1.28	94	-1.7	-	4.27	-0.06	86	257	75	74
95	16.620	0.175	0.052	1.28	94	-1.7	-	4.22	-0.05	86	256	75	73

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	16.796	0.176	0.052	1.28	94	-1.8	-	4.16	-0.06	85	258	75	74
97	16.972	0.176	0.052	1.28	94	-1.8	-	4.09	-0.07	86	262	75	74
98	17.148	0.176	0.053	1.28	94	-1.7	-	4.02	-0.07	86	266	75	74
99	17.325	0.177	0.053	1.27	95	-1.8	-	3.96	-0.06	86	267	75	74
100	17.501	0.176	0.051	1.27	95	-1.8	101	3.89	-0.07	86	268	75	74
101	17.676	0.175	0.052	1.27	95	-1.7	-	3.84	-0.05	85	269	75	74
102	17.852	0.176	0.052	1.28	95	-1.8	-	3.78	-0.06	85	269	75	74
103	18.028	0.176	0.052	1.28	95	-1.8	-	3.75	-0.03	86	269	75	74
104	18.205	0.177	0.052	1.28	95	-1.7	-	3.70	-0.05	85	266	75	74
105	18.381	0.176	0.051	1.29	95	-1.8	-	3.67	-0.03	85	261	75	74
106	18.558	0.177	0.052	1.28	95	-1.8	-	3.63	-0.04	85	258	75	74
107	18.733	0.175	0.052	1.28	95	-1.8	-	3.59	-0.04	85	254	75	74
108	18.909	0.176	0.053	1.28	95	-1.7	-	3.56	-0.03	85	251	75	74
109	19.085	0.176	0.053	1.27	96	-1.7	-	3.52	-0.04	85	247	75	74
110	19.262	0.177	0.053	1.28	96	-1.8	100	3.50	-0.02	85	244	75	74
111	19.438	0.176	0.053	1.28	96	-1.8	-	3.47	-0.03	85	240	75	74
112	19.615	0.177	0.052	1.30	96	-1.8	-	3.44	-0.03	85	236	75	74
113	19.791	0.176	0.051	1.28	96	-1.8	-	3.41	-0.03	85	233	75	74
114	19.966	0.175	0.052	1.27	96	-1.8	-	3.37	-0.04	85	228	75	74
115	20.142	0.176	0.053	1.28	96	-1.9	-	3.35	-0.02	84	226	75	74
116	20.319	0.177	0.052	1.28	96	-1.9	-	3.33	-0.02	84	222	75	74
117	20.496	0.177	0.053	1.28	96	-1.8	-	3.28	-0.05	84	220	75	74
118	20.672	0.176	0.053	1.28	96	-1.8	-	3.27	-0.01	84	217	75	74
119	20.848	0.176	0.052	1.27	97	-1.8	-	3.23	-0.04	84	215	75	74
120	21.023	0.175	0.052	1.28	97	-1.7	99	3.20	-0.03	84	212	75	74
121	21.200	0.177	0.054	1.28	97	-1.8	-	3.19	-0.01	84	210	75	74
122	21.377	0.177	0.053	1.28	97	-1.8	-	3.16	-0.03	83	207	75	74
123	21.553	0.176	0.053	1.28	97	-1.8	-	3.12	-0.04	83	206	75	74
124	21.730	0.177	0.052	1.28	97	-1.8	-	3.11	-0.01	83	204	75	74
125	21.907	0.177	0.053	1.28	97	-1.9	-	3.09	-0.02	83	201	75	74
126	22.082	0.175	0.053	1.29	97	-1.8	-	3.05	-0.04	83	200	75	74
127	22.259	0.177	0.052	1.30	97	-1.9	-	3.06	0.01	83	198	75	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	22.435	0.176	0.052	1.27	97	-1.9	-	3.03	-0.03	83	195	75	73
129	22.613	0.178	0.053	1.28	97	-1.9	-	3.02	-0.01	83	194	75	74
130	22.789	0.176	0.053	1.28	97	-1.8	99	2.99	-0.03	83	192	75	73
131	22.965	0.176	0.052	1.27	97	-1.9	-	2.96	-0.03	83	192	75	73
132	23.141	0.176	0.053	1.27	98	-1.9	-	2.96	0.00	83	190	75	74
133	23.318	0.177	0.052	1.27	98	-1.9	-	2.94	-0.02	82	190	75	74
134	23.495	0.177	0.052	1.27	98	-1.9	-	2.94	0.00	82	189	75	74
135	23.672	0.177	0.052	1.27	98	-1.9	-	2.91	-0.03	82	188	75	74
136	23.849	0.177	0.053	1.28	98	-1.9	-	2.90	-0.01	82	186	75	74
137	24.024	0.175	0.051	1.27	98	-1.9	-	2.88	-0.02	82	185	75	73
138	24.201	0.177	0.051	1.27	98	-1.9	-	2.87	-0.01	82	185	75	74
139	24.377	0.176	0.054	1.29	98	-1.9	-	2.85	-0.02	82	184	75	74
140	24.555	0.178	0.053	1.27	98	-1.9	99	2.84	-0.01	82	183	75	73
141	24.731	0.176	0.053	1.28	98	-1.9	-	2.82	-0.02	82	183	75	74
142	24.908	0.177	0.053	1.28	98	-1.9	-	2.81	-0.01	82	182	75	74
143	25.083	0.175	0.052	1.29	98	-2.0	-	2.79	-0.02	82	181	75	74
144	25.260	0.177	0.053	1.26	98	-2.0	-	2.77	-0.02	82	180	75	74
145	25.437	0.177	0.051	1.27	98	-2.0	-	2.75	-0.02	82	179	75	74
146	25.614	0.177	0.052	1.27	98	-2.0	-	2.73	-0.02	82	178	75	74
147	25.792	0.178	0.052	1.28	98	-2.0	-	2.70	-0.03	82	178	75	74
148	25.967	0.175	0.052	1.29	98	-1.9	-	2.70	0.00	82	177	75	74
149	26.144	0.177	0.054	1.27	98	-2.0	-	2.68	-0.02	82	177	75	74
150	26.321	0.177	0.052	1.28	98	-2.0	99	2.66	-0.02	82	176	75	74
151	26.498	0.177	0.054	1.27	98	-2.0	-	2.65	-0.01	82	175	75	74
152	26.675	0.177	0.050	1.29	99	-2.0	-	2.64	-0.01	82	175	75	74
153	26.851	0.176	0.055	1.28	99	-1.9	-	2.62	-0.02	81	174	75	74
154	27.027	0.176	0.051	1.28	99	-2.0	-	2.60	-0.02	81	174	75	74
155	27.204	0.177	0.054	1.28	99	-1.9	-	2.59	-0.01	81	174	75	74
156	27.381	0.177	0.054	1.27	99	-1.9	-	2.58	-0.01	82	174	75	74
157	27.559	0.178	0.052	1.28	99	-2.0	-	2.56	-0.02	82	173	75	74
158	27.736	0.177	0.053	1.28	99	-2.0	-	2.55	-0.01	82	172	75	74
159	27.911	0.175	0.052	1.29	99	-1.9	-	2.52	-0.03	82	172	75	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	28.088	0.177	0.055	1.28	99	-2.0	98	2.51	-0.01	81	172	75	74
161	28.265	0.177	0.053	1.28	99	-2.0	-	2.49	-0.02	81	173	75	74
162	28.443	0.178	0.051	1.29	99	-2.0	-	2.48	-0.01	81	173	75	74
163	28.620	0.177	0.053	1.28	99	-2.0	-	2.46	-0.02	81	173	75	74
164	28.795	0.175	0.051	1.29	99	-2.0	-	2.44	-0.02	81	173	75	74
165	28.972	0.177	0.050	1.28	99	-2.0	-	2.42	-0.02	81	173	75	74
166	29.149	0.177	0.051	1.29	99	-2.0	-	2.42	0.00	81	173	75	74
167	29.326	0.177	0.053	1.29	99	-2.1	-	2.40	-0.02	81	172	75	74
168	29.503	0.177	0.051	1.28	99	-2.0	-	2.38	-0.02	81	172	75	74
169	29.680	0.177	0.052	1.29	99	-2.0	-	2.37	-0.01	81	171	75	74
170	29.856	0.176	0.052	1.28	99	-2.0	98	2.35	-0.02	81	172	75	74
171	30.033	0.177	0.052	1.28	99	-2.1	-	2.34	-0.01	81	172	75	74
172	30.210	0.177	0.054	1.25	99	-2.0	-	2.31	-0.03	81	172	75	74
173	30.387	0.177	0.054	1.28	99	-2.0	-	2.30	-0.01	81	172	75	74
174	30.564	0.177	0.053	1.27	99	-2.1	-	2.29	-0.01	81	172	75	74
175	30.739	0.175	0.051	1.29	99	-2.0	-	2.28	-0.01	81	172	75	74
176	30.916	0.177	0.054	1.28	99	-2.0	-	2.26	-0.02	81	171	75	74
177	31.094	0.178	0.054	1.29	99	-2.1	-	2.23	-0.03	81	172	75	74
178	31.271	0.177	0.052	1.29	99	-2.0	-	2.21	-0.02	81	172	75	74
179	31.448	0.177	0.051	1.27	99	-2.1	-	2.20	-0.01	81	171	75	74
180	31.624	0.176	0.053	1.27	99	-2.0	99	2.18	-0.02	81	171	75	74
181	31.801	0.177	0.053	1.27	99	-2.1	-	2.17	-0.01	81	172	75	74
182	31.977	0.176	0.054	1.28	99	-2.1	-	2.15	-0.02	81	171	75	74
183	32.155	0.178	0.052	1.29	99	-2.1	-	2.14	-0.01	81	171	75	74
184	32.332	0.177	0.052	1.28	99	-2.1	-	2.13	-0.01	81	171	75	74
185	32.509	0.177	0.054	1.28	99	-2.1	-	2.12	-0.01	81	171	75	75
186	32.685	0.176	0.053	1.27	99	-2.1	-	2.08	-0.04	81	170	75	74
187	32.861	0.176	0.052	1.29	100	-2.1	-	2.08	0.00	81	169	75	74
188	33.039	0.178	0.052	1.29	100	-2.0	-	2.06	-0.02	81	169	75	74
189	33.216	0.177	0.052	1.29	100	-2.1	-	2.04	-0.02	81	168	75	74
190	33.393	0.177	0.052	1.27	100	-2.0	99	2.02	-0.02	81	168	75	74
191	33.569	0.176	0.054	1.27	100	-2.0	-	2.01	-0.01	81	167	75	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	33.746	0.177	0.052	1.31	100	-2.0	-	1.99	-0.02	80	167	75	74
193	33.923	0.177	0.052	1.28	100	-2.1	-	1.99	0.00	80	167	75	74
194	34.100	0.177	0.053	1.29	100	-2.1	-	1.96	-0.03	80	167	75	74
195	34.278	0.178	0.051	1.28	100	-2.0	-	1.95	-0.01	80	167	75	74
196	34.453	0.175	0.054	1.28	100	-2.1	-	1.93	-0.02	80	166	75	74
197	34.630	0.177	0.053	1.27	100	-2.1	-	1.91	-0.02	80	167	75	74
198	34.808	0.178	0.051	1.29	100	-2.1	-	1.90	-0.01	80	167	75	74
199	34.985	0.177	0.052	1.29	100	-2.0	-	1.88	-0.02	80	166	75	74
200	35.162	0.177	0.053	1.27	100	-2.0	99	1.86	-0.02	81	166	75	74
201	35.338	0.176	0.054	1.28	100	-2.0	-	1.85	-0.01	81	165	75	74
202	35.515	0.177	0.054	1.28	100	-2.1	-	1.84	-0.01	81	166	75	74
203	35.692	0.177	0.053	1.28	100	-2.0	-	1.81	-0.03	81	165	75	74
204	35.870	0.178	0.051	1.27	100	-2.1	-	1.80	-0.01	81	165	75	74
205	36.047	0.177	0.052	1.30	100	-2.0	-	1.77	-0.03	81	165	75	74
206	36.224	0.177	0.052	1.29	100	-2.0	-	1.78	0.01	81	164	75	74
207	36.400	0.176	0.052	1.28	100	-2.1	-	1.74	-0.04	81	164	75	74
208	36.577	0.177	0.052	1.30	100	-2.0	-	1.73	-0.01	80	163	75	74
209	36.754	0.177	0.050	1.28	100	-2.0	-	1.72	-0.01	81	162	75	74
210	36.932	0.178	0.050	1.28	100	-2.0	100	1.71	-0.01	80	162	75	74
211	37.109	0.177	0.051	1.27	100	-2.1	-	1.69	-0.02	80	161	75	74
212	37.285	0.176	0.051	1.28	100	-2.1	-	1.68	-0.01	80	161	75	74
213	37.462	0.177	0.051	1.28	100	-2.1	-	1.67	-0.01	80	160	75	74
214	37.639	0.177	0.051	1.28	100	-2.0	-	1.65	-0.02	80	160	75	74
215	37.817	0.178	0.050	1.28	100	-2.0	-	1.64	-0.01	80	160	75	74
216	37.994	0.177	0.051	1.28	100	-2.1	-	1.63	-0.01	80	160	75	74
217	38.169	0.175	0.054	1.28	100	-2.1	-	1.62	-0.01	80	159	75	74
218	38.347	0.178	0.052	1.27	100	-2.0	-	1.59	-0.03	80	159	75	74
219	38.524	0.177	0.053	1.28	100	-2.1	-	1.58	-0.01	80	159	75	74
220	38.702	0.178	0.054	1.30	100	-2.1	99	1.58	0.00	80	158	75	73
221	38.879	0.177	0.053	1.28	100	-2.1	-	1.56	-0.02	80	158	75	73
222	39.054	0.175	0.054	1.29	100	-2.0	-	1.54	-0.02	80	158	75	73
223	39.231	0.177	0.051	1.28	100	-2.1	-	1.54	0.00	80	157	75	73

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
224	39.409	0.178	0.053	1.30	100	-2.2	-	1.52	-0.02	80	157	75	73
225	39.587	0.178	0.051	1.29	100	-2.2	-	1.50	-0.02	80	157	75	73
226	39.764	0.177	0.052	1.29	100	-2.1	-	1.50	0.00	80	156	75	73
227	39.940	0.176	0.052	1.30	100	-2.0	-	1.48	-0.02	80	156	75	73
228	40.117	0.177	0.054	1.28	100	-2.2	-	1.46	-0.02	80	156	75	73
229	40.294	0.177	0.051	1.28	100	-2.0	-	1.46	0.00	80	155	75	73
230	40.472	0.178	0.054	1.29	100	-2.1	97	1.45	-0.01	80	155	75	74
231	40.649	0.177	0.051	1.29	100	-2.0	-	1.44	-0.01	80	154	75	74
232	40.825	0.176	0.050	1.27	100	-2.1	-	1.43	-0.01	80	154	75	74
233	41.002	0.177	0.052	1.27	100	-2.1	-	1.42	-0.01	80	153	75	74
234	41.179	0.177	0.053	1.29	100	-2.1	-	1.41	-0.01	80	153	75	74
235	41.357	0.178	0.053	1.28	100	-2.1	-	1.40	-0.01	80	153	75	74
236	41.534	0.177	0.052	1.29	100	-2.1	-	1.39	-0.01	80	153	75	74
237	41.710	0.176	0.051	1.28	100	-2.1	-	1.38	-0.01	80	153	75	74
238	41.887	0.177	0.050	1.30	100	-2.1	-	1.37	-0.01	80	152	75	74
239	42.064	0.177	0.053	1.29	100	-2.2	-	1.36	-0.01	80	152	75	74
240	42.242	0.178	0.050	1.29	100	-2.1	99	1.35	-0.01	80	152	75	74
241	42.419	0.177	0.051	1.27	100	-2.1	-	1.34	-0.01	80	152	75	74
242	42.595	0.176	0.052	1.28	100	-2.1	-	1.33	-0.01	80	152	75	74
243	42.772	0.177	0.053	1.29	100	-2.1	-	1.31	-0.02	80	151	75	75
244	42.949	0.177	0.052	1.27	100	-2.2	-	1.31	0.00	80	151	75	75
245	43.127	0.178	0.052	1.28	100	-2.1	-	1.29	-0.02	80	151	75	75
246	43.304	0.177	0.052	1.28	100	-2.1	-	1.28	-0.01	80	151	75	75
247	43.480	0.176	0.051	1.28	100	-2.2	-	1.27	-0.01	80	152	75	75
248	43.656	0.176	0.050	1.28	100	-2.1	-	1.26	-0.01	80	151	76	75
249	43.834	0.178	0.051	1.29	100	-2.1	-	1.24	-0.02	80	151	76	75
250	44.011	0.177	0.051	1.29	100	-2.2	101	1.23	-0.01	80	150	76	75
251	44.188	0.177	0.053	1.28	100	-2.1	-	1.22	-0.01	80	150	76	75
252	44.365	0.177	0.053	1.26	100	-2.2	-	1.20	-0.02	80	150	76	75
253	44.541	0.176	0.052	1.27	100	-2.1	-	1.19	-0.01	80	150	76	75
254	44.718	0.177	0.050	1.27	100	-2.2	-	1.18	-0.01	80	150	76	75
255	44.895	0.177	0.053	1.27	100	-2.1	-	1.16	-0.02	80	150	76	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
256	45.073	0.178	0.051	1.28	100	-2.1	-	1.15	-0.01	80	150	76	75
257	45.250	0.177	0.053	1.29	100	-2.1	-	1.14	-0.01	80	151	76	75
258	45.425	0.175	0.052	1.28	100	-2.2	-	1.13	-0.01	80	150	76	75
259	45.602	0.177	0.052	1.30	100	-2.2	-	1.11	-0.02	80	150	76	75
260	45.780	0.178	0.052	1.28	100	-2.1	100	1.10	-0.01	80	150	76	75
261	45.957	0.177	0.053	1.30	100	-2.1	-	1.09	-0.01	80	149	76	75
262	46.135	0.178	0.054	1.28	100	-2.1	-	1.08	-0.01	80	149	76	75
263	46.310	0.175	0.051	1.27	100	-2.1	-	1.06	-0.02	80	149	76	75
264	46.487	0.177	0.052	1.29	100	-2.1	-	1.05	-0.01	80	150	76	75
265	46.664	0.177	0.052	1.29	101	-2.1	-	1.03	-0.02	80	150	76	75
266	46.842	0.178	0.053	1.29	101	-2.2	-	1.02	-0.01	80	150	76	75
267	47.019	0.177	0.052	1.28	101	-2.1	-	1.00	-0.02	80	150	76	75
268	47.195	0.176	0.052	1.31	101	-2.2	-	0.99	-0.01	80	149	76	75
269	47.371	0.176	0.053	1.28	101	-2.1	-	0.98	-0.01	80	150	76	75
270	47.548	0.177	0.053	1.28	101	-2.1	99	0.97	-0.01	80	151	76	75
271	47.726	0.178	0.053	1.28	101	-2.2	-	0.95	-0.02	80	150	76	75
272	47.903	0.177	0.051	1.29	101	-2.1	-	0.94	-0.01	80	151	76	75
273	48.080	0.177	0.052	1.27	101	-2.1	-	0.92	-0.02	80	151	76	75
274	48.256	0.176	0.052	1.28	101	-2.2	-	0.91	-0.01	80	150	76	75
275	48.433	0.177	0.052	1.28	101	-2.0	-	0.89	-0.02	80	150	76	75
276	48.610	0.177	0.053	1.28	101	-2.1	-	0.88	-0.01	80	150	76	75
277	48.788	0.178	0.051	1.28	101	-2.1	-	0.87	-0.01	80	150	76	75
278	48.965	0.177	0.052	1.29	101	-2.0	-	0.85	-0.02	80	150	76	75
279	49.140	0.175	0.053	1.28	101	-2.1	-	0.84	-0.01	80	151	76	75
280	49.318	0.178	0.053	1.27	101	-2.1	98	0.83	-0.01	80	150	76	75
281	49.495	0.177	0.052	1.28	101	-2.1	-	0.81	-0.02	80	150	76	75
282	49.672	0.177	0.052	1.28	101	-2.0	-	0.80	-0.01	80	151	76	75
283	49.850	0.178	0.052	1.28	101	-2.1	-	0.79	-0.01	80	151	76	75
284	50.025	0.175	0.051	1.29	101	-2.2	-	0.77	-0.02	80	151	76	75
285	50.202	0.177	0.051	1.28	101	-2.1	-	0.75	-0.02	80	150	76	75
286	50.379	0.177	0.051	1.28	101	-2.1	-	0.74	-0.01	80	150	76	75
287	50.557	0.178	0.052	1.28	101	-2.2	-	0.73	-0.01	80	150	76	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
288	50.734	0.177	0.052	1.29	101	-2.1	-	0.71	-0.02	80	150	76	75
289	50.910	0.176	0.052	1.29	101	-2.1	-	0.70	-0.01	80	150	76	75
290	51.087	0.177	0.052	1.29	101	-2.0	99	0.69	-0.01	80	150	76	75
291	51.264	0.177	0.053	1.26	101	-2.1	-	0.68	-0.01	80	150	76	75
292	51.442	0.178	0.052	1.27	101	-2.1	-	0.66	-0.02	80	150	76	75
293	51.619	0.177	0.052	1.28	101	-2.2	-	0.65	-0.01	80	150	76	76
294	51.795	0.176	0.053	1.28	101	-2.0	-	0.63	-0.02	80	150	76	76
295	51.972	0.177	0.052	1.26	101	-2.0	-	0.62	-0.01	80	150	76	76
296	52.149	0.177	0.054	1.27	101	-2.0	-	0.61	-0.01	80	149	76	76
297	52.326	0.177	0.052	1.28	101	-2.0	-	0.60	-0.01	80	149	76	76
298	52.503	0.177	0.051	1.28	101	-2.1	-	0.58	-0.02	80	149	76	76
299	52.680	0.177	0.052	1.28	101	-2.0	-	0.57	-0.01	80	148	76	76
300	52.856	0.176	0.052	1.28	101	-2.1	99	0.56	-0.01	80	149	76	75
301	53.033	0.177	0.052	1.28	101	-2.1	-	0.55	-0.01	80	149	76	76
302	53.210	0.177	0.052	1.28	101	-2.2	-	0.53	-0.02	80	149	76	76
303	53.388	0.178	0.053	1.27	101	-2.0	-	0.52	-0.01	80	148	76	76
304	53.565	0.177	0.052	1.28	101	-2.1	-	0.51	-0.01	80	148	76	76
305	53.741	0.176	0.052	1.29	101	-2.1	-	0.50	-0.01	80	149	76	76
306	53.918	0.177	0.052	1.28	101	-2.1	-	0.48	-0.02	80	148	76	76
307	54.095	0.177	0.053	1.28	101	-2.0	-	0.46	-0.02	80	148	76	76
308	54.273	0.178	0.052	1.27	101	-2.0	-	0.46	0.00	80	147	76	75
309	54.450	0.177	0.053	1.28	101	-2.0	-	0.44	-0.02	80	148	76	76
310	54.626	0.176	0.051	1.28	101	-2.1	100	0.43	-0.01	80	147	76	76
311	54.803	0.177	0.052	1.27	101	-2.2	-	0.42	-0.01	80	147	76	76
312	54.980	0.177	0.052	1.28	101	-2.0	-	0.41	-0.01	80	147	76	75
313	55.158	0.178	0.052	1.29	101	-2.1	-	0.40	-0.01	80	146	76	76
314	55.335	0.177	0.050	1.28	101	-2.1	-	0.38	-0.02	80	146	76	75
315	55.510	0.175	0.051	1.28	101	-2.1	-	0.38	0.00	80	146	76	76
316	55.687	0.177	0.051	1.27	101	-2.2	-	0.36	-0.02	80	146	76	76
317	55.865	0.178	0.050	1.27	101	-2.1	-	0.35	-0.01	80	146	76	76
318	56.042	0.177	0.053	1.29	101	-2.2	-	0.34	-0.01	80	146	76	75
319	56.220	0.178	0.053	1.28	101	-2.1	-	0.33	-0.01	80	146	76	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
320	56.395	0.175	0.051	1.28	101	-2.0	100	0.31	-0.02	80	146	76	75
321	56.572	0.177	0.051	1.29	101	-2.1	-	0.30	-0.01	80	146	76	76
322	56.750	0.178	0.051	1.30	101	-2.2	-	0.29	-0.01	80	146	76	76
323	56.927	0.177	0.051	1.27	101	-2.0	-	0.27	-0.02	79	145	76	76
324	57.104	0.177	0.052	1.29	101	-2.1	-	0.27	0.00	80	145	76	76
325	57.281	0.177	0.053	1.28	101	-2.2	-	0.25	-0.02	79	145	76	76
326	57.457	0.176	0.052	1.29	101	-2.0	-	0.24	-0.01	80	145	76	76
327	57.634	0.177	0.051	1.27	101	-2.1	-	0.23	-0.01	79	145	76	76
328	57.812	0.178	0.052	1.28	101	-2.1	-	0.21	-0.02	79	145	76	75
329	57.989	0.177	0.052	1.29	101	-2.1	-	0.20	-0.01	79	145	76	75
330	58.166	0.177	0.051	1.27	101	-2.0	100	0.19	-0.01	79	144	76	76
331	58.342	0.176	0.051	1.27	101	-2.2	-	0.18	-0.01	79	144	76	76
332	58.519	0.177	0.051	1.28	101	-2.1	-	0.17	-0.01	79	144	76	75
333	58.697	0.178	0.052	1.27	101	-2.0	-	0.16	-0.01	79	144	76	75
334	58.874	0.177	0.052	1.28	101	-2.0	-	0.15	-0.01	79	144	76	75
335	59.051	0.177	0.051	1.28	101	-2.1	-	0.14	-0.01	79	144	76	75
336	59.227	0.176	0.050	1.28	101	-2.1	-	0.12	-0.02	79	144	76	75
337	59.404	0.177	0.051	1.28	101	-2.1	-	0.11	-0.01	79	144	76	75
338	59.581	0.177	0.052	1.28	101	-2.0	-	0.10	-0.01	79	144	76	75
339	59.759	0.178	0.052	1.28	101	-2.2	-	0.08	-0.02	79	144	76	75
340	59.936	0.177	0.051	1.28	101	-2.0	100	0.07	-0.01	79	144	76	75
341	60.112	0.176	0.050	1.28	101	-2.0	-	0.06	-0.01	79	144	76	75
342	60.289	0.177	0.052	1.28	101	-2.2	-	0.04	-0.02	79	144	76	75
343	60.466	0.177	0.050	1.29	101	-2.2	-	0.03	-0.01	79	144	76	75
344	60.644	0.178	0.050	1.29	102	-2.1	-	0.02	-0.01	79	144	76	76
345	60.821	0.177	0.052	1.28	101	-2.1	-	0.01	-0.01	79	144	76	76
346	60.997	0.176	0.052	1.28	102	-2.2	100	0.00	-0.01	79	143	76	76
Avg/Tot	61.000	0.176	0.052	1.28	95.4	-1.9	100			83.5	217.1	75.1	73.9

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	-0.003		-0.02	75	-0.6		74	0.057	1.20	0.333
1	0.144	0.147	1.32	75	-1.5	-	74	0.053	1.50	0.422
2	0.311	0.167	1.26	75	-1.5	-	74	0.091	2.71	0.279
3	0.477	0.166	1.25	75	-1.4	-	74	0.113	6.40	0.262
4	0.642	0.165	1.25	75	-1.5	-	75	0.116	9.27	0.207
5	0.808	0.166	1.25	76	-1.4	-	75	0.102	10.77	0.104
6	0.973	0.165	1.25	76	-1.5	-	76	0.085	11.07	1.176
7	1.138	0.165	1.25	76	-1.5	-	76	0.082	8.05	0.535
8	1.303	0.165	1.23	76	-1.4	-	76	0.080	7.10	0.535
9	1.470	0.167	1.26	76	-1.5	-	76	0.079	7.19	0.465
10	1.634	0.164	1.24	76	-1.5	104	76	0.078	7.18	0.417
11	1.797	0.163	1.20	76	-1.4	-	77	0.076	7.22	0.359
12	1.963	0.166	1.25	76	-1.5	-	77	0.080	7.11	0.385
13	2.128	0.165	1.24	77	-1.4	-	77	0.077	6.89	0.449
14	2.291	0.163	1.24	77	-1.5	-	77	0.078	7.22	0.338
15	2.455	0.164	1.23	77	-1.5	-	77	0.075	7.80	0.304
16	2.621	0.166	1.24	77	-1.5	-	77	0.076	8.73	0.466
17	2.784	0.163	1.24	77	-1.4	-	77	0.078	9.11	0.798
18	2.947	0.163	1.21	78	-1.4	-	77	0.076	9.11	0.774
19	3.113	0.166	1.23	78	-1.4	-	77	0.079	9.52	0.525
20	3.276	0.163	1.22	78	-1.4	105	77	0.075	9.52	0.344
21	3.439	0.163	1.23	78	-1.5	-	77	0.080	9.10	0.366
22	3.604	0.165	1.24	79	-1.5	-	77	0.079	8.81	0.410
23	3.767	0.163	1.22	79	-1.5	-	77	0.075	8.97	0.413
24	3.930	0.163	1.23	79	-1.5	-	78	0.081	9.58	0.375
25	4.095	0.165	1.21	80	-1.5	-	77	0.078	9.89	0.686
26	4.258	0.163	1.22	80	-1.5	-	77	0.082	10.10	0.776
27	4.421	0.163	1.22	80	-1.5	-	78	0.079	10.28	0.727
28	4.586	0.165	1.23	80	-1.4	-	78	0.076	10.40	0.774
29	4.749	0.163	1.23	81	-1.5	-	78	0.077	10.47	0.752
30	4.912	0.163	1.23	81	-1.5	104	78	0.077	10.52	0.742
31	5.077	0.165	1.23	81	-1.4	-	78	0.075	10.42	0.680

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
32	5.240	0.163	1.20	82	-1.3	-	78	0.076	10.36	0.612
33	5.403	0.163	1.22	82	-1.5	-	78	0.079	10.34	0.625
34	5.568	0.165	1.22	82	-1.4	-	78	0.081	10.34	0.626
35	5.731	0.163	1.21	82	-1.5	-	78	0.072	10.49	0.656
36	5.894	0.163	1.23	83	-1.5	-	78	0.073	10.46	0.738
37	6.059	0.165	1.22	83	-1.3	-	78	0.074	10.29	1.198
38	6.222	0.163	1.22	83	-1.3	-	78	0.075	10.36	1.182
39	6.385	0.163	1.21	84	-1.5	-	78	0.083	10.28	1.276
40	6.550	0.165	1.22	84	-1.5	103	78	0.073	10.31	1.134
41	6.713	0.163	1.19	84	-1.5	-	77	0.078	10.23	1.601
42	6.876	0.163	1.22	84	-1.3	-	77	0.072	10.13	1.493
43	7.042	0.166	1.21	85	-1.4	-	77	0.078	10.11	1.338
44	7.205	0.163	1.22	85	-1.4	-	77	0.072	10.19	1.098
45	7.368	0.163	1.22	85	-1.4	-	77	0.076	10.12	1.060
46	7.534	0.166	1.22	85	-1.5	-	77	0.068	10.11	0.973
47	7.697	0.163	1.23	86	-1.3	-	78	0.073	10.05	0.863
48	7.860	0.163	1.21	86	-1.4	-	78	0.079	10.03	0.863
49	8.026	0.166	1.21	86	-1.5	-	78	0.076	9.75	0.975
50	8.190	0.164	1.23	87	-1.4	102	78	0.065	9.66	0.937
51	8.353	0.163	1.21	87	-1.4	-	78	0.071	9.63	0.947
52	8.518	0.165	1.23	87	-1.3	-	78	0.076	9.78	0.846
53	8.683	0.165	1.22	87	-1.4	-	78	0.079	9.92	0.823
54	8.846	0.163	1.23	87	-1.3	-	78	0.072	10.03	0.803
55	9.009	0.163	1.22	88	-1.4	-	78	0.076	9.92	0.924
56	9.173	0.164	1.20	88	-1.5	-	78	0.069	9.98	0.954
57	9.336	0.163	1.20	88	-1.5	-	78	0.073	10.03	0.928
58	9.501	0.165	1.22	88	-1.4	-	78	0.071	9.96	0.974
59	9.666	0.165	1.21	89	-1.3	-	78	0.076	9.78	1.076
60	9.830	0.164	1.22	89	-1.4	100	78	0.073	9.82	1.090
61	9.994	0.164	1.22	89	-1.3	-	78	0.068	9.94	0.942
62	10.160	0.166	1.20	89	-1.3	-	78	0.080	10.00	0.863
63	10.324	0.164	1.21	90	-1.4	-	78	0.071	9.97	0.851

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
64	10.488	0.164	1.23	90	-1.4	-	78	0.071	9.95	0.940
65	10.654	0.166	1.22	90	-1.4	-	78	0.074	9.69	0.921
66	10.820	0.166	1.23	90	-1.3	-	78	0.065	9.45	0.978
67	10.984	0.164	1.23	90	-1.3	-	77	0.070	9.65	0.780
68	11.148	0.164	1.23	91	-1.3	-	77	0.073	9.64	0.650
69	11.315	0.167	1.20	91	-1.3	-	77	0.072	9.68	0.543
70	11.479	0.164	1.22	91	-1.5	100	77	0.066	9.84	0.446
71	11.643	0.164	1.19	91	-1.5	-	77	0.072	9.69	0.392
72	11.809	0.166	1.22	91	-1.4	-	77	0.073	9.50	0.468
73	11.975	0.166	1.23	92	-1.3	-	77	0.069	9.47	0.435
74	12.140	0.165	1.21	92	-1.4	-	77	0.068	9.52	0.388
75	12.304	0.164	1.24	92	-1.4	-	77	0.069	9.46	0.406
76	12.471	0.167	1.22	92	-1.3	-	77	0.075	9.42	0.390
77	12.636	0.165	1.24	92	-1.4	-	77	0.070	9.43	0.362
78	12.800	0.164	1.22	93	-1.5	-	77	0.070	9.45	0.397
79	12.965	0.165	1.25	93	-1.4	-	77	0.075	9.48	0.385
80	13.132	0.167	1.24	93	-1.4	100	77	0.068	9.45	0.360
81	13.297	0.165	1.22	93	-1.4	-	77	0.068	9.48	0.338
82	13.462	0.165	1.22	93	-1.4	-	77	0.068	9.30	0.286
83	13.627	0.165	1.22	93	-1.3	-	77	0.068	9.02	0.288
84	13.794	0.167	1.24	93	-1.4	-	77	0.065	8.68	0.338
85	13.959	0.165	1.23	94	-1.4	-	77	0.069	8.26	0.458
86	14.124	0.165	1.21	94	-1.5	-	77	0.065	7.62	0.698
87	14.290	0.166	1.20	94	-1.5	-	77	0.067	7.47	0.698
88	14.456	0.166	1.23	94	-1.5	-	77	0.063	7.37	0.701
89	14.621	0.165	1.22	94	-1.4	-	77	0.056	7.30	0.678
90	14.786	0.165	1.22	94	-1.5	99	77	0.069	7.24	0.679
91	14.952	0.166	1.24	94	-1.4	-	77	0.061	7.10	0.686
92	15.119	0.167	1.22	94	-1.5	-	77	0.064	7.03	0.716
93	15.284	0.165	1.24	95	-1.5	-	77	0.065	6.94	0.726
94	15.449	0.165	1.22	95	-1.4	-	77	0.064	6.96	0.708
95	15.615	0.166	1.22	95	-1.4	-	77	0.064	7.02	0.701

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
96	15.782	0.167	1.22	95	-1.5	-	77	0.062	7.22	0.714
97	15.947	0.165	1.23	95	-1.5	-	77	0.063	7.64	0.685
98	16.112	0.165	1.23	95	-1.5	-	77	0.064	7.72	0.665
99	16.278	0.166	1.21	95	-1.5	-	77	0.064	7.68	0.719
100	16.445	0.167	1.22	95	-1.5	101	77	0.064	7.50	0.686
101	16.610	0.165	1.24	95	-1.4	-	78	0.065	7.45	0.521
102	16.775	0.165	1.21	95	-1.5	-	78	0.063	7.36	0.419
103	16.942	0.167	1.23	96	-1.3	-	78	0.061	7.41	0.297
104	17.109	0.167	1.20	96	-1.5	-	78	0.065	7.02	0.263
105	17.274	0.165	1.22	96	-1.5	-	78	0.059	6.86	0.315
106	17.439	0.165	1.22	96	-1.3	-	78	0.056	6.74	0.319
107	17.605	0.166	1.23	96	-1.3	-	78	0.056	6.73	0.329
108	17.773	0.168	1.23	96	-1.4	-	78	0.054	6.60	0.372
109	17.938	0.165	1.24	96	-1.3	-	78	0.047	6.34	0.443
110	18.103	0.165	1.22	96	-1.5	100	78	0.054	6.32	0.446
111	18.269	0.166	1.21	96	-1.3	-	78	0.058	6.09	0.511
112	18.437	0.168	1.20	96	-1.4	-	78	0.058	5.96	0.598
113	18.603	0.166	1.23	96	-1.5	-	78	0.050	5.82	0.675
114	18.768	0.165	1.25	97	-1.4	-	78	0.055	5.58	0.740
115	18.933	0.165	1.22	97	-1.5	-	78	0.054	5.53	0.741
116	19.101	0.168	1.22	97	-1.5	-	78	0.049	5.38	0.824
117	19.267	0.166	1.22	97	-1.3	-	78	0.046	5.32	0.870
118	19.432	0.165	1.21	97	-1.4	-	78	0.050	5.26	0.887
119	19.597	0.165	1.21	97	-1.4	-	78	0.049	5.29	0.904
120	19.764	0.167	1.23	97	-1.5	99	78	0.043	5.25	0.917
121	19.931	0.167	1.24	97	-1.4	-	78	0.050	5.22	0.964
122	20.097	0.166	1.23	97	-1.5	-	78	0.054	5.31	0.915
123	20.262	0.165	1.26	97	-1.5	-	78	0.044	5.38	0.804
124	20.429	0.167	1.25	97	-1.5	-	78	0.048	5.10	0.884
125	20.596	0.167	1.23	97	-1.4	-	78	0.048	4.89	0.888
126	20.762	0.166	1.23	98	-1.4	-	78	0.046	4.84	0.904
127	20.928	0.166	1.21	97	-1.5	-	77	0.042	4.81	0.890

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
128	21.094	0.166	1.24	98	-1.3	-	77	0.053	4.84	0.899
129	21.262	0.168	1.21	98	-1.5	-	77	0.051	4.84	0.891
130	21.428	0.166	1.23	98	-1.5	99	77	0.050	4.82	0.884
131	21.594	0.166	1.23	98	-1.4	-	77	0.045	4.75	0.883
132	21.760	0.166	1.23	98	-1.3	-	77	0.041	4.68	0.877
133	21.927	0.167	1.23	98	-1.4	-	77	0.039	4.62	0.893
134	22.094	0.167	1.23	98	-1.5	-	77	0.040	4.63	0.893
135	22.260	0.166	1.22	98	-1.5	-	77	0.044	4.63	0.880
136	22.426	0.166	1.22	98	-1.3	-	77	0.051	4.61	0.896
137	22.592	0.166	1.22	98	-1.3	-	77	0.042	4.56	0.897
138	22.760	0.168	1.22	98	-1.5	-	77	0.043	4.54	0.890
139	22.927	0.167	1.23	98	-1.5	-	77	0.045	4.52	0.881
140	23.093	0.166	1.24	98	-1.5	99	77	0.041	4.50	0.880
141	23.258	0.165	1.23	98	-1.3	-	77	0.037	4.49	0.889
142	23.425	0.167	1.20	98	-1.5	-	77	0.045	4.46	0.891
143	23.593	0.168	1.22	98	-1.3	-	77	0.042	4.48	0.895
144	23.759	0.166	1.26	99	-1.3	-	77	0.038	4.47	0.903
145	23.925	0.166	1.24	98	-1.5	-	77	0.046	4.47	0.899
146	24.091	0.166	1.27	98	-1.5	-	77	0.048	4.48	0.897
147	24.259	0.168	1.23	99	-1.5	-	77	0.035	4.48	0.890
148	24.426	0.167	1.23	99	-1.5	-	77	0.042	4.47	0.895
149	24.592	0.166	1.23	99	-1.5	-	77	0.041	4.50	0.886
150	24.758	0.166	1.21	99	-1.4	99	77	0.041	4.47	0.870
151	24.925	0.167	1.23	99	-1.5	-	77	0.043	4.49	0.881
152	25.092	0.167	1.23	99	-1.4	-	77	0.042	4.44	0.879
153	25.259	0.167	1.23	99	-1.5	-	77	0.037	4.38	0.876
154	25.425	0.166	1.21	99	-1.4	-	77	0.038	4.37	0.884
155	25.591	0.166	1.21	99	-1.4	-	77	0.039	4.39	0.902
156	25.758	0.167	1.24	99	-1.5	-	77	0.042	4.49	0.872
157	25.927	0.169	1.23	99	-1.5	-	77	0.044	4.39	0.903
158	26.093	0.166	1.24	99	-1.5	-	77	0.035	4.33	0.951
159	26.259	0.166	1.22	99	-1.5	-	77	0.041	4.22	1.017

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
160	26.425	0.166	1.22	99	-1.3	98	77	0.037	4.56	0.807
161	26.592	0.167	1.23	99	-1.4	-	77	0.037	4.74	0.724
162	26.760	0.168	1.24	99	-1.4	-	77	0.039	4.72	0.728
163	26.927	0.167	1.26	99	-1.3	-	77	0.043	4.63	0.742
164	27.093	0.166	1.22	99	-1.4	-	77	0.039	4.61	0.778
165	27.259	0.166	1.24	99	-1.5	-	77	0.040	4.56	0.790
166	27.426	0.167	1.25	99	-1.4	-	77	0.034	4.55	0.803
167	27.594	0.168	1.23	99	-1.4	-	77	0.038	4.54	0.812
168	27.760	0.166	1.24	99	-1.5	-	77	0.047	4.54	0.813
169	27.926	0.166	1.23	99	-1.5	-	77	0.037	4.57	0.775
170	28.093	0.167	1.21	99	-1.4	98	77	0.039	4.63	0.765
171	28.261	0.168	1.22	99	-1.5	-	77	0.040	4.66	0.773
172	28.428	0.167	1.20	99	-1.3	-	77	0.037	4.57	0.785
173	28.594	0.166	1.23	99	-1.4	-	77	0.039	4.60	0.795
174	28.760	0.166	1.24	99	-1.4	-	77	0.042	4.57	0.799
175	28.927	0.167	1.24	99	-1.5	-	77	0.040	4.58	0.825
176	29.095	0.168	1.22	99	-1.3	-	77	0.042	4.56	0.818
177	29.262	0.167	1.25	100	-1.4	-	77	0.040	4.56	0.849
178	29.428	0.166	1.22	100	-1.3	-	77	0.045	4.54	0.848
179	29.594	0.166	1.22	100	-1.5	-	77	0.039	4.53	0.862
180	29.761	0.167	1.22	100	-1.3	99	77	0.040	4.49	0.893
181	29.929	0.168	1.19	100	-1.3	-	77	0.044	4.41	0.914
182	30.096	0.167	1.23	100	-1.5	-	77	0.041	4.41	0.933
183	30.262	0.166	1.22	100	-1.3	-	77	0.041	4.43	0.920
184	30.428	0.166	1.23	100	-1.5	-	77	0.038	4.41	0.926
185	30.595	0.167	1.24	100	-1.5	-	77	0.036	4.41	0.932
186	30.764	0.169	1.22	100	-1.4	-	77	0.044	4.37	0.936
187	30.930	0.166	1.23	100	-1.5	-	77	0.037	4.38	0.948
188	31.097	0.167	1.24	100	-1.4	-	77	0.034	4.39	0.949
189	31.263	0.166	1.23	100	-1.5	-	77	0.041	4.37	0.959
190	31.430	0.167	1.24	100	-1.3	99	77	0.034	4.40	0.958
191	31.598	0.168	1.23	100	-1.5	-	77	0.042	4.35	0.952

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
192	31.765	0.167	1.21	100	-1.5	-	77	0.035	4.35	0.974
193	31.931	0.166	1.25	100	-1.4	-	77	0.035	4.28	0.988
194	32.097	0.166	1.22	100	-1.5	-	77	0.040	4.30	0.990
195	32.264	0.167	1.23	100	-1.4	-	77	0.036	4.35	0.977
196	32.432	0.168	1.24	100	-1.4	-	77	0.047	4.34	0.977
197	32.599	0.167	1.25	100	-1.3	-	77	0.033	4.29	0.993
198	32.766	0.167	1.26	100	-1.4	-	77	0.038	4.23	0.995
199	32.932	0.166	1.23	100	-1.5	-	77	0.035	4.29	0.987
200	33.099	0.167	1.23	100	-1.4	99	77	0.038	4.25	1.013
201	33.267	0.168	1.25	100	-1.3	-	77	0.031	4.20	1.044
202	33.434	0.167	1.23	100	-1.3	-	77	0.031	4.18	1.068
203	33.601	0.167	1.23	100	-1.5	-	77	0.037	4.17	1.075
204	33.767	0.166	1.24	100	-1.4	-	77	0.035	4.14	1.081
205	33.934	0.167	1.21	100	-1.4	-	77	0.033	4.17	1.078
206	34.102	0.168	1.21	100	-1.5	-	77	0.034	4.14	1.093
207	34.269	0.167	1.24	100	-1.5	-	77	0.036	4.19	0.945
208	34.436	0.167	1.24	100	-1.5	-	77	0.035	4.01	1.031
209	34.602	0.166	1.22	100	-1.3	-	77	0.035	3.91	1.094
210	34.769	0.167	1.23	100	-1.4	100	77	0.036	3.83	1.124
211	34.938	0.169	1.24	100	-1.4	-	77	0.040	3.84	1.118
212	35.104	0.166	1.23	100	-1.4	-	77	0.039	3.80	1.159
213	35.271	0.167	1.24	100	-1.4	-	77	0.031	3.90	1.048
214	35.437	0.166	1.23	100	-1.5	-	77	0.037	3.95	1.027
215	35.604	0.167	1.22	100	-1.5	-	77	0.044	3.95	1.017
216	35.773	0.169	1.22	100	-1.5	-	77	0.039	3.97	0.978
217	35.939	0.166	1.22	100	-1.5	-	77	0.035	3.86	0.945
218	36.106	0.167	1.22	100	-1.3	-	76	0.040	3.80	0.927
219	36.272	0.166	1.23	100	-1.3	-	76	0.037	3.77	0.951
220	36.439	0.167	1.23	100	-1.3	99	77	0.037	3.76	0.958
221	36.608	0.169	1.24	100	-1.4	-	76	0.040	3.74	0.969
222	36.775	0.167	1.23	100	-1.5	-	76	0.032	3.71	1.003
223	36.941	0.166	1.25	100	-1.3	-	76	0.038	3.69	1.029

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
224	37.108	0.167	1.26	100	-1.5	-	76	0.032	3.49	1.042
225	37.275	0.167	1.26	100	-1.4	-	76	0.037	3.47	1.053
226	37.443	0.168	1.22	100	-1.3	-	76	0.034	3.38	1.134
227	37.610	0.167	1.21	100	-1.5	-	76	0.048	3.38	1.170
228	37.777	0.167	1.23	100	-1.3	-	76	0.036	3.37	1.176
229	37.944	0.167	1.22	100	-1.5	-	76	0.038	3.32	1.195
230	38.111	0.167	1.23	100	-1.5	98	76	0.033	3.29	1.170
231	38.279	0.168	1.23	100	-1.4	-	76	0.038	3.29	1.149
232	38.446	0.167	1.26	100	-1.3	-	76	0.034	3.33	1.125
233	38.613	0.167	1.23	100	-1.5	-	76	0.031	3.34	1.106
234	38.779	0.166	1.23	100	-1.4	-	76	0.028	3.31	1.092
235	38.946	0.167	1.25	100	-1.3	-	77	0.030	3.29	1.081
236	39.114	0.168	1.22	100	-1.3	-	77	0.033	3.33	1.096
237	39.282	0.168	1.23	100	-1.4	-	77	0.033	3.34	1.089
238	39.449	0.167	1.20	100	-1.3	-	77	0.037	3.35	1.092
239	39.615	0.166	1.23	100	-1.4	-	77	0.037	3.35	1.082
240	39.782	0.167	1.24	100	-1.3	99	77	0.030	3.38	1.104
241	39.950	0.168	1.25	100	-1.5	-	77	0.040	3.44	1.063
242	40.118	0.168	1.24	100	-1.4	-	77	0.031	3.47	1.067
243	40.284	0.166	1.22	100	-1.3	-	77	0.036	3.48	1.057
244	40.451	0.167	1.25	100	-1.3	-	77	0.033	3.55	1.060
245	40.617	0.166	1.24	100	-1.5	-	77	0.034	3.57	1.075
246	40.785	0.168	1.25	100	-1.5	-	77	0.033	3.58	1.068
247	40.953	0.168	1.23	100	-1.5	-	77	0.032	3.64	1.067
248	41.120	0.167	1.24	100	-1.4	-	77	0.031	3.67	1.072
249	41.286	0.166	1.24	100	-1.4	-	77	0.036	3.68	1.081
250	41.453	0.167	1.22	100	-1.3	101	77	0.036	3.70	1.076
251	41.620	0.167	1.24	100	-1.3	-	77	0.024	3.66	1.080
252	41.788	0.168	1.23	100	-1.3	-	77	0.032	3.68	1.071
253	41.955	0.167	1.23	100	-1.5	-	77	0.030	3.72	1.086
254	42.122	0.167	1.25	100	-1.4	-	77	0.040	3.71	1.110
255	42.288	0.166	1.19	100	-1.5	-	77	0.033	3.68	1.117

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
256	42.455	0.167	1.21	100	-1.3	-	77	0.029	3.69	1.120
257	42.623	0.168	1.24	100	-1.3	-	77	0.029	3.70	1.121
258	42.790	0.167	1.23	100	-1.4	-	77	0.038	3.71	1.151
259	42.957	0.167	1.23	100	-1.5	-	77	0.040	3.69	1.174
260	43.123	0.166	1.25	100	-1.3	100	77	0.031	3.68	1.175
261	43.290	0.167	1.23	101	-1.4	-	77	0.029	3.71	1.170
262	43.459	0.169	1.22	101	-1.3	-	77	0.032	3.74	1.190
263	43.625	0.166	1.27	100	-1.5	-	77	0.039	3.78	1.181
264	43.792	0.167	1.25	101	-1.4	-	77	0.029	3.77	1.175
265	43.958	0.166	1.22	101	-1.5	-	78	0.036	3.83	1.167
266	44.125	0.167	1.21	101	-1.3	-	78	0.036	3.84	1.170
267	44.294	0.169	1.25	101	-1.4	-	78	0.034	3.85	1.172
268	44.460	0.166	1.22	101	-1.3	-	78	0.039	3.87	1.185
269	44.627	0.167	1.22	101	-1.3	-	78	0.040	3.91	1.124
270	44.793	0.166	1.23	101	-1.4	99	78	0.042	3.89	1.118
271	44.960	0.167	1.22	101	-1.5	-	78	0.034	3.91	1.116
272	45.129	0.169	1.21	101	-1.4	-	78	0.034	3.89	1.122
273	45.296	0.167	1.24	101	-1.5	-	78	0.034	3.87	1.115
274	45.462	0.166	1.23	101	-1.4	-	78	0.038	3.87	1.142
275	45.629	0.167	1.23	101	-1.5	-	78	0.036	3.90	1.151
276	45.795	0.166	1.21	101	-1.3	-	78	0.025	3.89	1.144
277	45.964	0.169	1.21	101	-1.3	-	78	0.031	3.90	1.156
278	46.131	0.167	1.25	101	-1.4	-	78	0.038	3.93	1.154
279	46.297	0.166	1.22	101	-1.5	-	78	0.030	3.88	1.131
280	46.464	0.167	1.24	101	-1.5	98	78	0.028	3.87	1.163
281	46.631	0.167	1.22	101	-1.3	-	78	0.032	3.88	1.178
282	46.799	0.168	1.23	101	-1.4	-	78	0.036	3.86	1.193
283	46.966	0.167	1.25	101	-1.5	-	78	0.038	3.86	1.175
284	47.133	0.167	1.21	101	-1.4	-	78	0.039	3.93	1.097
285	47.299	0.166	1.21	101	-1.4	-	78	0.037	3.96	1.036
286	47.466	0.167	1.23	101	-1.4	-	78	0.030	3.86	1.070
287	47.634	0.168	1.24	101	-1.3	-	78	0.026	3.84	1.055

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
288	47.802	0.168	1.24	101	-1.5	-	78	0.028	3.73	1.071
289	47.968	0.166	1.23	101	-1.4	-	78	0.032	3.63	1.090
290	48.135	0.167	1.25	101	-1.4	99	78	0.033	3.64	1.124
291	48.302	0.167	1.26	101	-1.5	-	78	0.033	3.62	1.143
292	48.470	0.168	1.23	101	-1.4	-	78	0.038	3.67	1.087
293	48.637	0.167	1.20	101	-1.4	-	78	0.033	3.79	0.956
294	48.804	0.167	1.23	101	-1.4	-	78	0.030	3.72	0.982
295	48.970	0.166	1.24	101	-1.4	-	78	0.032	3.65	1.033
296	49.137	0.167	1.23	101	-1.5	-	78	0.038	3.59	1.078
297	49.305	0.168	1.24	101	-1.3	-	78	0.035	3.59	1.096
298	49.472	0.167	1.22	101	-1.5	-	78	0.031	3.55	1.132
299	49.639	0.167	1.22	101	-1.4	-	78	0.032	3.39	1.249
300	49.806	0.167	1.22	101	-1.5	99	78	0.039	3.51	1.216
301	49.972	0.166	1.25	101	-1.4	-	78	0.028	3.56	1.199
302	50.140	0.168	1.25	101	-1.3	-	78	0.033	3.57	1.212
303	50.308	0.168	1.23	101	-1.3	-	78	0.032	3.59	1.182
304	50.475	0.167	1.23	101	-1.5	-	78	0.033	3.41	1.269
305	50.641	0.166	1.23	101	-1.5	-	78	0.034	3.34	1.334
306	50.808	0.167	1.24	101	-1.5	-	78	0.033	3.36	1.265
307	50.975	0.167	1.25	101	-1.4	-	78	0.030	3.27	1.361
308	51.143	0.168	1.27	101	-1.3	-	78	0.032	3.18	1.400
309	51.310	0.167	1.25	101	-1.3	-	78	0.031	3.15	1.431
310	51.477	0.167	1.22	101	-1.4	100	78	0.031	3.17	1.427
311	51.643	0.166	1.22	101	-1.4	-	78	0.033	3.12	1.446
312	51.811	0.168	1.23	101	-1.4	-	78	0.030	3.14	1.432
313	51.979	0.168	1.24	101	-1.4	-	78	0.036	3.13	1.450
314	52.146	0.167	1.24	101	-1.3	-	78	0.032	3.15	1.413
315	52.312	0.166	1.24	101	-1.5	-	78	0.033	3.15	1.419
316	52.479	0.167	1.24	101	-1.3	-	78	0.036	3.09	1.449
317	52.646	0.167	1.23	101	-1.5	-	78	0.029	3.14	1.419
318	52.815	0.169	1.22	101	-1.4	-	78	0.031	3.20	1.367
319	52.981	0.166	1.22	101	-1.3	-	78	0.026	3.19	1.369

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
320	53.148	0.167	1.21	101	-1.3	100	78	0.035	3.16	1.380
321	53.315	0.167	1.23	101	-1.5	-	78	0.029	3.15	1.404
322	53.481	0.166	1.23	101	-1.3	-	78	0.034	3.18	1.421
323	53.650	0.169	1.25	101	-1.5	-	78	0.032	3.12	1.428
324	53.817	0.167	1.26	101	-1.3	-	78	0.032	3.09	1.421
325	53.984	0.167	1.21	101	-1.3	-	78	0.033	3.03	1.450
326	54.150	0.166	1.22	101	-1.5	-	78	0.025	3.06	1.435
327	54.317	0.167	1.22	101	-1.4	-	78	0.030	3.03	1.426
328	54.485	0.168	1.23	101	-1.5	-	78	0.035	3.05	1.483
329	54.653	0.168	1.23	101	-1.5	-	78	0.032	3.03	1.462
330	54.819	0.166	1.23	101	-1.4	100	78	0.027	3.07	1.470
331	54.986	0.167	1.24	101	-1.5	-	78	0.031	3.06	1.458
332	55.153	0.167	1.23	101	-1.5	-	78	0.025	3.10	1.423
333	55.321	0.168	1.23	101	-1.4	-	78	0.034	3.04	1.457
334	55.488	0.167	1.24	101	-1.3	-	78	0.035	3.02	1.491
335	55.655	0.167	1.25	101	-1.5	-	78	0.036	3.00	1.509
336	55.822	0.167	1.23	101	-1.4	-	78	0.030	2.98	1.502
337	55.989	0.167	1.25	101	-1.5	-	78	0.031	3.03	1.559
338	56.156	0.167	1.24	101	-1.3	-	78	0.023	3.08	1.579
339	56.324	0.168	1.24	101	-1.3	-	78	0.019	3.07	1.577
340	56.491	0.167	1.23	101	-1.3	100	78	0.024	3.09	1.574
341	56.658	0.167	1.23	101	-1.5	-	78	0.035	3.12	1.625
342	56.825	0.167	1.21	101	-1.3	-	78	0.031	3.19	1.588
343	56.992	0.167	1.24	101	-1.5	-	78	0.029	3.21	1.573
344	57.160	0.168	1.23	102	-1.3	-	78	0.034	3.19	1.607
345	57.327	0.167	1.24	101	-1.5	-	78	0.031	3.33	1.095
346	57.494	0.167	1.25	101	-1.3	100	78	0.032	3.31	1.066
Avg/Tot	57.497	0.166	1.23	95.7	-1.4	100	77.2	0.048	5.50	0.940

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	-0.003		0.03	76	-0.5		71
1	0.141	0.144	1.30	76	-2.1	-	71
2	0.311	0.170	1.29	76	-2.1	-	72
3	0.480	0.169	1.30	76	-2.1	-	72
4	0.650	0.170	1.30	76	-2.1	-	73
5	0.820	0.170	1.30	76	-2.1	-	74
6	0.990	0.170	1.31	76	-2.2	-	74
7	1.161	0.171	1.32	76	-2.1	-	74
8	1.333	0.172	1.33	76	-2.3	-	75
9	1.505	0.172	1.33	76	-2.1	-	75
10	1.679	0.174	1.35	76	-2.2	97	75
11	1.853	0.174	1.36	77	-2.2	-	75
12	2.027	0.174	1.35	77	-2.2	-	75
13	2.201	0.174	1.36	77	-2.3	-	76
14	2.375	0.174	1.37	77	-2.2	-	76
15	2.550	0.175	1.36	77	-2.1	-	76
16	2.724	0.174	1.36	77	-2.3	-	76
17	2.901	0.177	1.36	78	-2.2	-	76
18	3.079	0.178	1.37	78	-2.3	-	76
19	3.257	0.178	1.39	78	-2.1	-	76
20	3.434	0.177	1.38	78	-2.1	102	76
21	3.610	0.176	1.37	79	-2.2	-	76
22	3.789	0.179	1.39	79	-2.1	-	76
23	3.969	0.180	1.41	79	-2.1	-	76
24	4.147	0.178	1.40	79	-2.2	-	76
25	4.325	0.178	1.40	80	-2.2	-	76
26	4.505	0.180	1.41	80	-2.2	-	76
27	4.685	0.180	1.41	80	-2.1	-	76
28	4.863	0.178	1.41	81	-2.3	-	76
29	5.043	0.180	1.41	81	-2.3	-	76
30	5.225	0.182	1.41	81	-2.2	104	76
31	5.403	0.178	1.41	82	-2.3	-	76

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.583	0.180	1.41	82	-2.1	-	76
33	5.765	0.182	1.43	82	-2.3	-	76
34	5.944	0.179	1.42	83	-2.1	-	76
35	6.124	0.180	1.41	83	-2.1	-	76
36	6.306	0.182	1.43	83	-2.2	-	76
37	6.485	0.179	1.43	84	-2.1	-	76
38	6.665	0.180	1.41	84	-2.3	-	76
39	6.848	0.183	1.44	84	-2.1	-	76
40	7.026	0.178	1.43	85	-2.1	103	76
41	7.208	0.182	1.42	85	-2.3	-	76
42	7.390	0.182	1.42	85	-2.1	-	76
43	7.569	0.179	1.41	86	-2.2	-	76
44	7.751	0.182	1.42	86	-2.3	-	76
45	7.932	0.181	1.42	86	-2.3	-	76
46	8.112	0.180	1.41	87	-2.3	-	76
47	8.295	0.183	1.43	87	-2.2	-	76
48	8.476	0.181	1.43	87	-2.1	-	76
49	8.657	0.181	1.42	88	-2.1	-	76
50	8.840	0.183	1.42	88	-2.2	103	76
51	9.019	0.179	1.42	88	-2.2	-	76
52	9.202	0.183	1.43	89	-2.1	-	76
53	9.384	0.182	1.42	89	-2.1	-	76
54	9.565	0.181	1.42	89	-2.3	-	76
55	9.744	0.179	1.43	90	-2.3	-	76
56	9.926	0.182	1.42	90	-2.3	-	76
57	10.107	0.181	1.43	90	-2.1	-	76
58	10.291	0.184	1.44	90	-2.3	-	76
59	10.470	0.179	1.42	91	-2.1	-	76
60	10.654	0.184	1.44	91	-2.2	101	76
Avg/Tot	10.657	0.178	1.37	82.0	-2.2	102	75.5

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Stove ΔT: 130

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	438	338	195	447	394	362.2	N/A
1	436	336	196	434	395	359.2	N/A
2	432	334	189	429	395	355.5	N/A
3	431	336	200	470	396	366.5	N/A
4	428	338	197	544	396	380.6	N/A
5	424	342	183	609	396	390.9	N/A
6	425	347	191	638	397	399.5	N/A
7	423	349	195	648	397	402.2	N/A
8	423	346	190	655	396	402.0	N/A
9	418	348	195	661	395	403.3	N/A
10	415	348	188	664	394	401.6	N/A
11	411	347	186	667	392	400.5	N/A
12	408	346	192	669	391	401.2	N/A
13	404	345	192	670	389	399.9	N/A
14	402	341	193	671	388	398.9	N/A
15	397	340	188	670	386	396.1	N/A
16	393	339	190	678	384	396.6	N/A
17	390	337	195	685	382	397.9	N/A
18	386	336	195	695	380	398.2	N/A
19	382	335	188	703	378	397.0	N/A
20	378	334	191	707	376	397.1	N/A
21	377	335	187	709	374	396.3	N/A
22	376	334	188	711	372	396.3	N/A
23	376	332	188	713	370	395.8	N/A
24	369	333	194	717	368	396.4	N/A
25	372	333	195	722	366	397.6	N/A
26	369	333	185	727	364	395.8	N/A
27	364	333	186	729	362	394.8	N/A
28	364	334	190	732	360	396.0	N/A
29	362	336	190	737	358	396.4	N/A
30	363	338	160	740	356	391.4	N/A
31	364	340	156	743	354	391.1	N/A
32	363	342	156	744	352	391.3	N/A
33	363	343	155	744	350	390.8	N/A
34	361	345	155	742	348	390.0	N/A
35	363	345	155	738	345	389.3	N/A
36	363	349	153	739	344	389.5	N/A
37	363	350	154	739	342	389.4	N/A
38	362	349	150	738	340	387.9	N/A
39	364	352	150	739	338	388.3	N/A
40	364	354	151	737	336	388.3	N/A
41	364	357	146	737	334	387.4	N/A
42	367	357	147	732	332	386.9	N/A
43	364	359	147	733	330	386.6	N/A
44	366	363	147	728	328	386.5	N/A
45	365	364	146	731	327	386.5	N/A
46	365	363	144	731	325	385.6	N/A
47	366	365	142	727	323	384.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Stove ΔT: 130

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	366	366	142	728	321	384.7	N/A
49	366	367	142	723	320	383.5	N/A
50	366	367	142	722	318	383.1	N/A
51	367	366	142	718	317	381.7	N/A
52	369	368	148	718	315	383.5	N/A
53	369	368	142	713	313	381.1	N/A
54	368	369	144	714	312	381.5	N/A
55	372	372	144	711	311	381.8	N/A
56	370	372	147	707	310	381.0	N/A
57	371	372	144	706	308	380.2	N/A
58	372	373	146	706	307	380.7	N/A
59	372	374	143	698	306	378.6	N/A
60	375	375	146	696	305	379.4	N/A
61	374	377	142	694	304	378.2	N/A
62	377	378	145	698	303	380.1	N/A
63	377	380	144	697	302	380.1	N/A
64	375	379	143	695	301	378.7	N/A
65	378	383	144	690	300	378.9	N/A
66	378	383	142	694	300	379.4	N/A
67	381	383	140	692	299	379.1	N/A
68	383	385	143	695	299	380.7	N/A
69	379	383	142	693	298	379.2	N/A
70	380	384	143	689	297	378.5	N/A
71	383	385	143	686	297	378.6	N/A
72	385	386	141	682	296	378.0	N/A
73	386	385	142	680	296	377.8	N/A
74	384	385	142	676	295	376.1	N/A
75	389	385	144	673	294	376.9	N/A
76	388	386	143	666	294	375.1	N/A
77	390	385	145	663	293	375.0	N/A
78	391	386	140	661	293	374.0	N/A
79	391	384	143	659	292	373.7	N/A
80	392	384	142	657	292	373.4	N/A
81	394	384	142	655	291	373.3	N/A
82	398	384	143	652	291	373.4	N/A
83	397	385	142	652	291	373.5	N/A
84	400	385	141	646	290	372.3	N/A
85	399	383	143	640	290	371.1	N/A
86	402	382	139	633	290	368.9	N/A
87	402	381	142	622	289	367.2	N/A
88	401	381	143	614	289	365.6	N/A
89	404	379	144	606	289	364.1	N/A
90	406	378	143	597	289	362.2	N/A
91	407	376	142	589	288	360.4	N/A
92	408	374	140	581	288	358.4	N/A
93	404	374	141	576	288	356.6	N/A
94	408	372	141	571	288	355.7	N/A
95	408	369	141	567	288	354.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Stove ΔT: 130

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	406	367	143	569	288	354.3	N/A
97	405	364	140	575	288	354.0	N/A
98	406	362	141	577	288	354.6	N/A
99	408	359	141	581	288	355.3	N/A
100	407	356	139	586	287	355.0	N/A
101	409	353	139	589	287	355.6	N/A
102	411	350	135	586	287	354.0	N/A
103	415	348	136	589	288	355.1	N/A
104	410	345	135	586	288	352.7	N/A
105	414	344	139	582	288	353.3	N/A
106	413	341	138	580	288	351.8	N/A
107	416	339	138	573	288	350.7	N/A
108	413	336	136	566	288	347.8	N/A
109	413	334	136	562	288	346.4	N/A
110	412	332	139	553	288	344.7	N/A
111	413	330	141	547	288	343.7	N/A
112	412	329	139	538	288	341.3	N/A
113	414	327	137	528	288	338.8	N/A
114	412	325	137	523	289	337.1	N/A
115	416	324	136	515	289	335.9	N/A
116	414	321	131	507	289	332.0	N/A
117	415	320	140	499	289	332.4	N/A
118	415	316	137	493	289	329.9	N/A
119	417	317	140	488	289	330.3	N/A
120	411	314	141	479	290	327.1	N/A
121	412	311	134	475	290	324.5	N/A
122	410	310	138	469	290	323.3	N/A
123	409	307	137	465	290	321.4	N/A
124	407	307	140	457	290	320.1	N/A
125	406	306	140	453	290	318.8	N/A
126	406	305	141	448	291	318.0	N/A
127	402	305	139	441	291	315.4	N/A
128	404	304	142	437	291	315.3	N/A
129	404	302	137	431	291	313.1	N/A
130	399	301	140	430	291	312.2	N/A
131	401	299	141	425	291	311.5	N/A
132	398	298	136	421	292	308.9	N/A
133	393	297	139	415	292	307.1	N/A
134	392	294	135	412	292	304.9	N/A
135	389	294	137	409	292	304.2	N/A
136	389	294	134	404	292	302.5	N/A
137	387	292	136	403	292	301.9	N/A
138	385	291	135	398	292	300.0	N/A
139	384	291	134	396	292	299.3	N/A
140	382	289	129	394	292	297.1	N/A
141	382	287	127	391	292	295.8	N/A
142	379	287	127	388	292	294.6	N/A
143	381	285	122	386	292	293.2	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Stove ΔT: 130

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	381	283	121	382	292	291.7	N/A
145	374	285	134	382	292	293.4	N/A
146	373	284	135	379	292	292.7	N/A
147	373	284	132	376	292	291.5	N/A
148	374	281	133	376	292	291.3	N/A
149	374	280	131	371	292	289.5	N/A
150	373	280	129	374	292	289.4	N/A
151	371	280	134	369	292	289.3	N/A
152	369	278	131	369	292	287.8	N/A
153	367	278	128	365	292	285.8	N/A
154	365	277	132	364	292	285.9	N/A
155	363	277	128	361	292	284.1	N/A
156	367	276	131	359	292	284.8	N/A
157	364	274	124	358	292	282.2	N/A
158	360	274	132	356	292	282.8	N/A
159	361	273	131	355	292	282.3	N/A
160	364	272	128	353	292	281.7	N/A
161	360	272	130	352	291	281.0	N/A
162	361	269	120	353	291	278.9	N/A
163	360	270	129	352	291	280.5	N/A
164	359	269	128	353	291	280.0	N/A
165	360	269	130	354	291	280.9	N/A
166	356	268	127	351	291	278.5	N/A
167	356	267	128	352	291	278.7	N/A
168	355	268	131	352	291	279.1	N/A
169	354	265	125	353	291	277.5	N/A
170	352	265	130	352	290	278.0	N/A
171	353	265	128	351	290	277.6	N/A
172	355	262	121	351	290	275.8	N/A
173	355	263	123	352	290	276.6	N/A
174	353	259	119	350	290	274.2	N/A
175	350	262	129	348	290	275.8	N/A
176	349	262	128	349	290	275.7	N/A
177	352	260	132	350	290	276.7	N/A
178	351	260	128	348	290	275.4	N/A
179	351	260	127	349	290	275.4	N/A
180	350	259	129	349	290	275.2	N/A
181	349	258	127	349	290	274.3	N/A
182	348	257	127	349	289	274.0	N/A
183	348	257	121	346	289	272.2	N/A
184	349	257	130	345	289	274.2	N/A
185	350	254	116	345	289	270.8	N/A
186	348	256	129	346	289	273.4	N/A
187	349	256	126	341	289	272.1	N/A
188	349	250	115	341	289	268.8	N/A
189	348	253	130	343	289	272.9	N/A
190	346	253	131	342	289	272.1	N/A
191	348	252	123	340	289	270.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Stove ΔT: 130

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	347	248	114	339	289	267.4	N/A
193	347	251	118	338	289	268.4	N/A
194	347	250	120	337	289	268.7	N/A
195	346	251	127	337	288	269.8	N/A
196	346	251	123	335	288	268.8	N/A
197	347	250	123	334	288	268.3	N/A
198	348	250	128	332	288	269.1	N/A
199	344	248	124	332	288	267.2	N/A
200	346	249	126	330	288	267.6	N/A
201	347	249	128	329	288	268.0	N/A
202	346	249	123	328	288	266.6	N/A
203	346	248	127	325	288	267.0	N/A
204	346	248	119	326	288	265.4	N/A
205	346	249	128	325	288	266.9	N/A
206	347	245	114	324	288	263.4	N/A
207	343	247	126	323	288	265.3	N/A
208	344	247	125	323	288	265.2	N/A
209	346	246	122	324	288	265.1	N/A
210	344	247	121	322	288	264.3	N/A
211	345	246	124	322	288	265.1	N/A
212	344	244	115	321	288	262.4	N/A
213	344	243	115	319	288	261.4	N/A
214	343	244	126	320	287	263.9	N/A
215	343	243	118	318	287	261.7	N/A
216	341	244	126	316	287	263.1	N/A
217	340	243	122	315	287	261.5	N/A
218	342	244	127	315	287	263.0	N/A
219	340	243	125	312	287	261.4	N/A
220	340	242	116	311	287	259.3	N/A
221	339	243	125	309	287	260.7	N/A
222	338	242	128	308	288	260.7	N/A
223	338	241	121	307	288	258.8	N/A
224	338	241	117	306	287	257.9	N/A
225	336	241	123	305	288	258.7	N/A
226	336	240	118	306	287	257.4	N/A
227	335	240	123	302	287	257.6	N/A
228	333	238	126	305	287	257.7	N/A
229	334	238	112	302	287	254.6	N/A
230	334	238	117	301	287	255.7	N/A
231	333	238	116	300	287	254.6	N/A
232	331	238	116	299	287	254.4	N/A
233	332	237	117	298	287	254.3	N/A
234	330	238	118	298	287	253.9	N/A
235	328	237	115	297	287	252.7	N/A
236	329	237	120	295	287	253.4	N/A
237	327	236	118	294	287	252.4	N/A
238	326	236	117	293	286	251.6	N/A
239	326	235	115	293	286	251.0	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Stove ΔT: 130

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
240	325	235	116	292	286	250.8	N/A
241	324	234	115	292	286	250.2	N/A
242	323	234	120	290	286	250.7	N/A
243	323	233	118	290	286	249.8	N/A
244	322	233	117	290	286	249.3	N/A
245	321	232	116	290	285	248.9	N/A
246	322	232	116	289	285	248.7	N/A
247	320	232	117	289	285	248.4	N/A
248	320	231	115	288	285	247.9	N/A
249	320	230	118	289	284	248.3	N/A
250	319	230	115	289	284	247.4	N/A
251	319	229	118	289	284	247.7	N/A
252	319	229	115	288	284	247.0	N/A
253	318	228	116	288	284	246.6	N/A
254	318	229	116	288	283	247.0	N/A
255	317	227	119	288	283	246.8	N/A
256	315	228	116	287	283	245.9	N/A
257	316	228	117	288	283	246.0	N/A
258	317	226	118	289	282	246.3	N/A
259	316	227	119	288	282	246.4	N/A
260	315	226	117	288	282	245.5	N/A
261	316	226	119	288	282	246.0	N/A
262	315	225	117	287	282	245.2	N/A
263	315	225	117	287	281	245.1	N/A
264	315	225	117	287	281	244.7	N/A
265	314	225	116	287	281	244.5	N/A
266	313	225	114	287	281	244.0	N/A
267	314	224	115	286	280	244.0	N/A
268	314	224	119	287	280	244.7	N/A
269	314	224	119	287	280	244.6	N/A
270	314	224	116	287	280	244.1	N/A
271	313	224	118	286	280	244.0	N/A
272	313	224	115	287	279	243.7	N/A
273	313	223	114	286	279	243.0	N/A
274	312	223	117	286	279	243.5	N/A
275	313	224	115	287	279	243.5	N/A
276	312	224	115	288	279	243.5	N/A
277	312	223	114	287	279	243.1	N/A
278	312	223	117	288	278	243.5	N/A
279	312	223	116	288	278	243.4	N/A
280	311	223	115	288	278	243.0	N/A
281	312	222	116	288	278	243.3	N/A
282	313	223	115	288	278	243.3	N/A
283	311	223	117	288	277	243.2	N/A
284	313	223	117	288	277	243.4	N/A
285	313	222	115	288	277	242.9	N/A
286	312	223	115	287	277	242.7	N/A
287	312	222	117	287	277	242.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Stove ΔT: 130

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
288	313	222	115	287	276	242.6	N/A
289	312	222	116	287	276	242.7	N/A
290	311	222	115	287	276	242.2	N/A
291	311	222	115	286	276	242.2	N/A
292	312	222	115	287	276	242.4	N/A
293	311	222	115	285	276	241.9	N/A
294	311	222	118	285	276	242.2	N/A
295	312	222	120	284	276	242.5	N/A
296	311	221	116	283	275	241.2	N/A
297	311	221	117	283	275	241.4	N/A
298	311	221	118	282	275	241.4	N/A
299	311	222	117	283	275	241.3	N/A
300	311	221	121	282	275	241.9	N/A
301	311	221	117	282	275	241.0	N/A
302	311	222	116	281	275	240.8	N/A
303	310	221	116	281	275	240.4	N/A
304	310	221	122	281	275	241.6	N/A
305	308	220	121	282	275	241.1	N/A
306	309	220	118	281	275	240.6	N/A
307	309	220	118	281	275	240.5	N/A
308	308	219	118	279	275	239.7	N/A
309	307	219	116	279	275	239.2	N/A
310	307	220	116	278	275	239.3	N/A
311	307	219	116	277	275	238.7	N/A
312	306	218	119	276	275	238.9	N/A
313	306	219	118	276	275	238.7	N/A
314	306	219	116	275	275	238.1	N/A
315	306	218	116	275	275	237.9	N/A
316	306	218	118	275	275	238.3	N/A
317	305	217	119	275	275	238.1	N/A
318	304	217	116	274	275	237.3	N/A
319	305	218	117	274	275	237.6	N/A
320	304	217	118	274	275	237.6	N/A
321	304	217	119	274	275	237.7	N/A
322	303	216	117	274	275	236.9	N/A
323	304	216	117	273	275	236.7	N/A
324	304	216	117	273	275	236.8	N/A
325	303	215	119	273	275	236.9	N/A
326	302	215	122	272	275	237.3	N/A
327	302	214	119	272	275	236.3	N/A
328	303	214	123	272	275	237.2	N/A
329	303	214	118	272	275	236.3	N/A
330	301	214	116	271	275	235.4	N/A
331	301	213	118	272	275	235.6	N/A
332	301	213	117	270	275	235.2	N/A
333	302	213	118	271	274	235.5	N/A
334	301	212	117	270	274	235.1	N/A
335	301	213	116	270	274	234.7	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

Stove ΔT: **130**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
336	300	212	118	269	274	234.8	N/A
337	299	212	115	270	274	233.9	N/A
338	300	211	116	270	274	234.2	N/A
339	299	211	121	269	274	234.6	N/A
340	299	210	116	269	273	233.5	N/A
341	299	212	116	269	273	233.8	N/A
342	299	210	117	269	273	233.7	N/A
343	299	210	118	268	273	233.4	N/A
344	298	210	115	269	272	232.8	N/A
345	298	210	115	266	272	232.2	N/A
346	298	210	116	265	272	232.1	N/A
Average	354.7	282.9	133.5	434.3	297.7	300.6	N/A

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F2450-2
Run #: 2

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/26/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	G01091	238.8	240.1	1.3
	B	G01092	239.4	240.2	0.8
	C - 1st Hour	G01093	244.6	245.2	0.6
	Amb	G01094	247.3	247.3	0.0
Probes	**A**	10A	116647.2	116647.2	0.0
	B	10B	117755.1	117755.2	0.1
	C - 1st Hour	10C	116729.4	116729.4	0.0
O-rings	**A**	10A	3361.7	3361.8	0.1
	B	10B	3571.2	3571.5	0.3
	C - 1st Hour	10C	3367.1	3367.2	0.1

Placed in Dessicator on:	6/26/2024

Balance Audit (mg):		200.0		200.0		200.0			
		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	**A**	240.0	7/1 13:02	240.1	7/3 12:32				
	B	240.2	7/1 13:08	240.2	7/3 12:34				
	C - 1st Hour	245.5	7/1 13:02	245.1	7/3 12:34	245.2	7/8 9:45		
	Amb	247.3	7/1 13:02	247.3	7/3 12:32				
Probes	**A**	116647.2	7/1 13:07	116647.2	7/3 12:32				
	B	117755.3	7/1 13:07	117755.2	7/3 12:32				
	C - 1st Hour	116729.4	7/1 13:08	116729.4	7/3 12:33				
O-Rings	**A**	3362.0	7/1 13:02	3361.8	7/3 12:33				
	B	3571.6	7/1 13:02	3571.5	7/3 12:33				
	C - 1st Hour	3367.4	7/1 13:03	3367.2	7/3 12:34				

Train A Aggregate, mg:	**1.4**
Train B Aggregate, mg:	**1.2**
Train C Aggregate, mg:	**0.7**
Ambient, mg:	**0.0**

ASTM E2780 s10.3 Alternate dT Evaluation

Client	FPI	
Model	F2450-2	
Run #	2	
Metal Mass	371.5	lb
Refractory Mass	33.8	lb
dT	130.1	F
Dry mass	13.51	dry lb
QFC	115132.2	
0.085(QFC)	**9786.2**	
DQH	**5712.7**	VALID

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 2 Test Date: 6/26/24

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Open 0.023”
Targeted Burn Category: II

Preburn Notes

Time	Notes
10:00 40:00	+2.32 lb Stirred coals

Test Notes

Test Burn Start Time: 12:42 Test Fuel Loaded by: 40 seconds
Door Closed: 265 seconds Air Control Set at: 300 seconds
Other Loading Notes: Fan on low @ 18:00

Time	Notes
	-None-

Test Burn End Time: 18:28

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO_2 (%): 16.98 CO (%): 4.300
Mid Gas CO_2 (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	08:51	08:52	08:54	6/27 11:34	6/27 11:35	6/27 11:36
CO_2	0.03	17.01	10.03	0.00	16.99	10.16
CO	0.023	4.316	2.525	-0.003	4.297	2.543

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

Technician Signature:  Date: 6/27/2024

ASTM E2780 Wood Heater Run Sheets

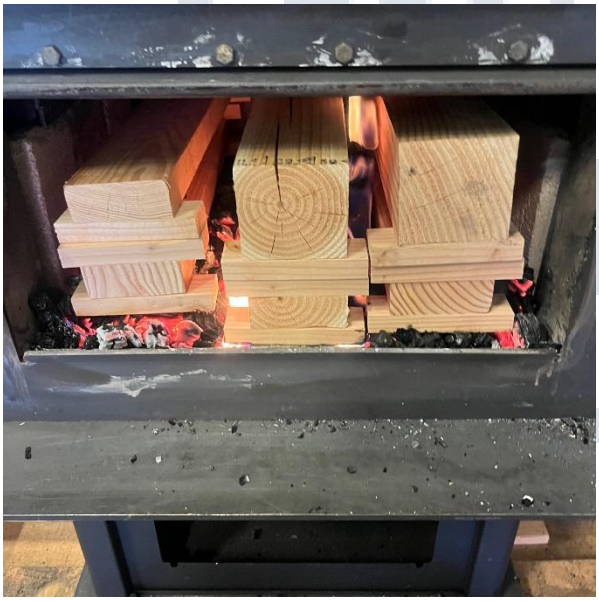
Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 2 Test Date: 6/26/24



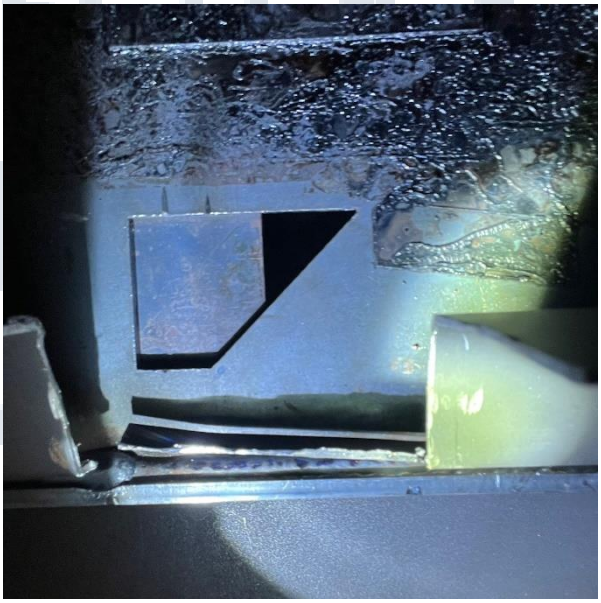
Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____ Date: 6/27/2024

WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515



Run 3 Data Summary

Client:	FPI
Model:	F2450-2
Job #:	24-309
Tracking #:	201
Test Date:	6/27/2024

Technician Signature

7/17/2024
Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Burn Rate (kg/hr):	2.27

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	16.231	26.914	25.260	10.480
Average Gas Velocity in Dilution Tunnel (ft/sec)	13.9			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	36729.4			
Average Gas Meter Temperature (°F)	76.6	91.1	91.9	83.5
Total Sample Volume (dscf)	16.244	25.969	24.530	10.278
Average Tunnel Temperature (°F)	95.9			
Total Time of Test (min)	159			
Total Particulate Catch (mg)	0.1	2.1	2.0	1.6
Particulate Concentration, dry-standard (g/dscf)	0.0000062	0.0000809	0.0000815	0.0001557
Total PM Emissions (g)	0.60	7.27	7.34	5.49
Particulate Emission Rate (g/hr)	0.23	2.74	2.77	5.49
Emissions Factor (g/kg)	-	1.21	1.22	-
Difference from Average Total Particulate Emissions (g)	-	0.03	0.03	-
Difference from Average Total Particulate Emissions (%)	-	0.4%	0.4%	
Difference from Average Emissions Factor (g/kg)	-	0.01	0.01	-

Final Average Results	
Total Particulate Emissions (g)	7.30
Particulate Emission Rate (g/hr)	2.76
Emissions Factor (g/kg)	1.21
HHV Efficiency (%)	70.5%
LHV Efficiency (%)	76.2%
CO Emissions (g/min)	2.13

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	87.1	OK
Face Velocity	< 30 ft/min	9.5	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min:74.9/Max:77.6	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	57.4	OK

B415.1 Efficiency Results

Manufacturer:	FPI
Model:	F2450-2
Date:	06/27/24
Run:	3
Control #:	24-309
Test Duration:	159
Output Category:	4

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	70.5%	76.2%
Combustion Efficiency	96.1%	96.1%
Heat Transfer Efficiency	73.4%	79.3%

Output Rate (kJ/h)	31,610	29,986	**(Btu/h)**
Burn Rate (kg/h)	2.26	4.99	**(lb/h)**
Input (kJ/h)	44,824	42,520	**(Btu/h)**

Test Load Weight (dry kg)	6.00	13.22	**dry lb**
MC wet (%)	18.42		
MC dry (%)	22.58		
Particulate (g)	7.30		
CO (g)	339		
Test Duration (h)	2.65		

Emissions	**Particulate**	**CO**
g/MJ Output	0.09	4.05
g/kg Dry Fuel	1.22	56.55
g/h	2.76	127.95
g/min	0.05	2.13
lb/MM Btu Output	0.20	9.41

Air/Fuel Ratio (A/F)	14.16

VERSION: **2.4** **4/15/2010**

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Preburn Fuel Information

Size	Length (in)	Moisture Content (% DB)	Size	Length (in)	Moisture Content (% DB)
2x4	12.00	24.3	2x4	16.00	23.5
2x4	12.00	24.3	2x4	16.00	20.2
2x4	12.00	23.1			
2x4	12.00	21.6			
2x4	12.00	19.7			
2x4	12.00	22.1			
2x4	16.00	24.1			
2x4	16.00	24.3			

Total Fuel Weight (lbs): 14.97
Average Moisture (%DB): 22.7

Firebox Volume (ft^3): 2.24
Total 2x4 Crib Weight, with spacers (lbs): 8.88
Total 4x4 Crib Weight, with spacers (lbs): 7.32
Total Wet Fuel Weight, with spacers (lbs): 16.20

Coal Bed Range (20-25%):
Min (lbs): 3.24
Max (lbs): 4.05

Test Fuel Information

Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	16.75	1.90	23.2	22.0	23.4	1.55
2x4	16.75	1.57	22.0	20.4	20.2	1.30
2x4	16.75	2.03	24.3	24.6	24.1	1.63
2x4	16.75	2.12	23.1	23.6	23.2	1.72
4x4	16.75	3.75	23.6	21.6	24.0	3.05
4x4	16.75	3.15	21.6	22.4	19.2	2.60

Total Dry Weight, no spacers (lbs): 11.85
Total Dry Weight, with spacers (lbs): 13.26

Spacer Moisture Readings (%DB)

17.6	21.8	18.6					
18.7	19.5	19.8					
18.9	18.3						
17.4	17.9						
16.9	22.4						
21.4	15.9						
18.0	15.6						
15.7	17.4						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft^3, DB)	26.9	OK
Loading Density	6.3 - 7.7 (lbs/ft^3, WB)	7.23	OK
2x4 Fuel Mix	35 - 65 % of total weight	55%	OK

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client:	FPI	Job #:	24-309
Model:	F2450-2	Tracking #:	201
Run #:	3	Technician:	AK
Test Start Time:	12:55	Date:	6/27/2024

Total Sampling Time (min):	159
Recording Interval (min):	1

Meter Box γ Factor:	1.000	(A)
Meter Box γ Factor:	1.008	(B)
Meter Box γ Factor:	1.002	(C)
Meter Box γ Factor:	1.013	(Ambient)

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100%
Date Flue Pipe Last Cleaned:	6/21/2024
Test Fuel Scale Audit (lbs)	10.00
Platform Scale Audit (lbs)	10.0

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.08	30.03	30.06
Relative Humidity (%)	34.3	34.2	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		16.231	ft^3

Sample Train Leak Checks

	Pre-test	Post-test			
(A)	0.000	0.000	cfm @	-7	in. Hg
(B)	0.000	0.000	cfm @	-6	in. Hg
(C)	0.000	0.000	cfm @	-7	in. Hg
(Ambient)	0.000	0.000	cfm @	-13	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.034	77
2	0.044	77
3	0.046	77
4	0.046	77
5	0.042	77
6	0.032	77
7	0.032	77
8	0.046	77
9	0.048	77
10	0.048	77
11	0.046	77
12	0.038	77
Center	0.050	77

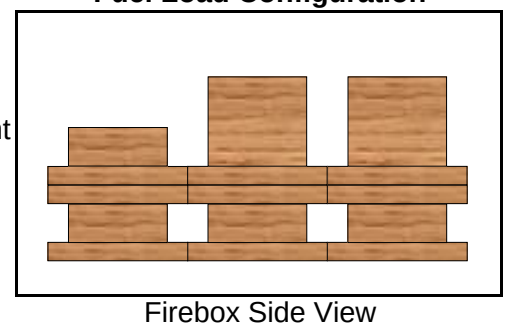
Static Pressure: -0.160 in. H_2O

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	12	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:	0.7854	ft^2
V_{strav}:	13.60	ft/sec
V_{scent}:	14.91	ft/sec
F_p:	0.912	[ratio]
Initial Tunnel Flow:	620.4	scf/min

TEST FUEL PROPERTIES

Fuel Load Configuration

Firebox Front



Firebox Back

Firebox Side View

Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	22.6

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Recording Interval (min): 1
Run Time (min): 95

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	17.85	0.093	380	400	144	803	225	390.3	479	74
1	17.61	0.100	386	401	152	790	233	392.4	491	74
2	17.34	0.091	392	400	148	782	242	392.8	503	75
3	17.08	0.092	397	399	144	774	251	393.0	505	75
4	16.81	0.096	399	400	145	771	259	394.9	509	75
5	16.53	0.100	403	402	152	764	266	397.4	516	75
6	16.26	0.100	404	403	140	766	273	397.1	518	75
7	16.01	0.095	406	402	140	765	279	398.4	519	75
8	15.77	0.099	406	402	141	769	284	400.4	520	75
9	15.52	0.091	404	402	145	771	289	402.3	524	75
10	15.25	0.102	404	404	136	772	293	401.8	527	75
11	14.98	0.097	404	402	140	774	297	403.5	529	75
12	14.70	0.108	402	402	139	773	300	403.1	530	75
13	14.42	0.102	404	401	135	774	302	403.1	531	75
14	14.13	0.095	402	401	135	772	304	402.9	534	75
15	13.85	0.103	402	401	136	774	306	403.9	536	75
16	13.57	0.098	401	401	131	773	308	402.5	539	75
17	13.29	0.101	401	402	129	777	309	403.4	539	75
18	13.00	0.098	404	403	144	775	310	407.2	537	75
19	12.71	0.095	403	403	138	775	311	406.0	535	75
20	12.42	0.098	404	404	129	776	312	404.6	533	75
21	12.14	0.096	409	404	133	775	312	406.7	532	75
22	11.85	0.097	406	405	141	777	313	408.4	529	75
23	11.56	0.097	409	408	132	782	313	408.7	528	75
24	11.29	0.095	411	408	129	778	313	407.8	528	75
25	11.01	0.093	414	409	128	781	313	409.1	526	75
26	10.73	0.097	413	411	129	783	313	409.8	523	76
27	10.45	0.096	416	413	130	783	313	411.1	520	76
28	10.19	0.096	420	414	125	784	314	411.4	519	76
29	9.91	0.094	421	417	130	784	314	413.3	517	76
30	9.63	0.093	423	417	124	784	314	412.4	515	75
31	9.36	0.095	429	419	129	785	314	415.4	514	76
32	9.09	0.096	432	422	126	785	314	415.8	512	76
33	8.84	0.098	434	423	125	787	315	416.6	513	76
34	8.57	0.090	439	425	123	785	315	417.4	511	76
35	8.31	0.093	442	429	125	786	315	419.4	511	76
36	8.06	0.093	445	431	129	786	316	421.3	509	76
37	7.80	0.099	450	434	124	786	317	422.0	508	76
38	7.56	0.092	453	435	123	790	318	423.6	506	76
39	7.32	0.090	457	439	124	793	318	426.1	505	76
40	7.12	0.090	459	441	125	794	319	427.7	506	76
41	6.92	0.090	463	443	123	802	320	430.2	504	76
42	6.75	0.091	469	445	125	802	322	432.5	500	76
43	6.60	0.088	471	447	124	805	323	433.8	494	76
44	6.46	0.083	475	451	123	807	324	436.1	486	76

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Recording Interval (min): 1
Run Time (min): 95

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	6.32	0.090	476	452	124	804	326	436.4	482	76
46	6.18	0.084	481	455	123	804	327	438.1	483	76
47	6.05	0.089	482	456	124	804	329	438.9	479	76
48	5.92	0.086	485	458	123	801	330	439.4	471	76
49	5.80	0.082	488	460	124	793	331	439.3	463	76
50	5.68	0.086	490	464	125	786	333	439.5	459	76
51	5.58	0.082	491	464	124	778	335	438.2	456	77
52	5.46	0.088	494	465	125	772	336	438.5	454	76
53	5.36	0.086	496	465	125	765	337	437.6	449	76
54	5.27	0.084	498	467	125	757	338	437.0	442	76
55	5.19	0.083	498	468	127	749	340	436.3	430	77
56	5.13	0.075	503	463	128	739	341	434.8	418	76
57	5.07	0.078	502	460	126	729	342	431.6	407	77
58	5.02	0.083	506	459	126	718	343	430.4	397	77
59	4.99	0.073	504	454	126	703	344	426.4	387	76
60	4.95	0.068	504	450	126	692	345	423.4	378	76
61	4.91	0.074	506	449	127	680	346	421.6	370	77
62	4.87	0.073	507	443	128	666	347	418.4	364	77
63	4.83	0.074	506	440	130	655	348	415.7	358	77
64	4.79	0.075	507	436	127	642	349	412.3	354	77
65	4.75	0.070	506	433	128	631	351	409.9	349	77
66	4.71	0.072	507	430	129	622	352	408.0	344	77
67	4.68	0.065	505	427	130	611	353	405.0	339	77
68	4.64	0.063	506	423	129	602	354	402.8	334	77
69	4.61	0.069	504	422	130	594	356	401.0	331	76
70	4.57	0.062	505	418	130	584	357	398.8	327	76
71	4.54	0.061	503	415	130	576	358	396.6	323	76
72	4.50	0.061	506	413	131	568	359	395.3	321	77
73	4.47	0.060	504	410	131	561	361	393.3	319	76
74	4.44	0.060	505	408	132	556	362	392.4	317	77
75	4.40	0.064	504	407	132	547	363	390.5	315	77
76	4.37	0.065	500	403	131	542	364	388.0	312	76
77	4.34	0.068	499	403	133	537	366	387.3	310	76
78	4.31	0.061	498	400	134	532	367	386.1	309	76
79	4.28	0.062	499	398	133	526	368	384.8	307	77
80	4.25	0.070	498	396	134	523	370	384.1	306	76
81	4.22	0.067	495	394	135	519	371	382.8	303	76
82	4.18	0.057	495	390	134	515	372	381.2	301	76
83	4.15	0.058	493	389	133	510	374	379.8	300	76
84	4.12	0.059	491	389	134	508	375	379.3	299	76
85	4.09	0.063	490	387	134	502	376	377.8	298	76
86	4.05	0.062	490	386	135	501	378	377.9	297	76
87	4.02	0.056	490	384	135	497	379	376.7	297	76
88	3.98	0.064	489	382	135	493	380	375.9	296	76
89	3.95	0.063	486	382	137	489	382	375.2	295	76

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Recording Interval (min): 1
Run Time (min): 95

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
90	3.92	0.057	486	380	136	487	383	374.2	293	76
91	3.89	0.058	488	379	136	482	385	373.8	288	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.051	0.01	76	-0.4		16.20		93	290	76	76
1	0.154	0.154	0.048	1.32	76	-1.4	-	16.10	-0.10	98	285	77	76
2	0.331	0.177	0.048	1.31	76	-1.5	-	15.94	-0.16	100	346	78	76
3	0.505	0.174	0.049	1.29	76	-1.4	-	15.60	-0.34	111	503	79	76
4	0.679	0.174	0.049	1.28	76	-1.4	-	15.39	-0.21	104	464	78	77
5	0.854	0.175	0.049	1.28	76	-1.5	-	15.20	-0.19	101	458	79	76
6	1.028	0.174	0.049	1.27	76	-1.4	-	14.95	-0.25	101	472	79	76
7	1.202	0.174	0.049	1.26	76	-1.4	-	14.72	-0.23	101	487	79	76
8	1.376	0.174	0.047	1.26	77	-1.5	-	14.47	-0.25	101	503	79	76
9	1.550	0.174	0.050	1.25	77	-1.4	-	14.20	-0.27	102	514	80	76
10	1.723	0.173	0.049	1.25	77	-1.5	105	13.94	-0.26	103	524	80	76
11	1.896	0.173	0.048	1.26	77	-1.5	-	13.68	-0.26	103	533	80	76
12	2.069	0.173	0.050	1.26	77	-1.5	-	13.42	-0.26	104	542	80	76
13	2.242	0.173	0.051	1.25	77	-1.5	-	13.14	-0.28	104	550	81	76
14	2.415	0.173	0.050	1.25	78	-1.4	-	12.89	-0.25	105	558	81	76
15	2.587	0.172	0.049	1.24	78	-1.4	-	12.62	-0.27	105	567	81	77
16	2.760	0.173	0.047	1.24	78	-1.4	-	12.35	-0.27	105	569	81	76
17	2.932	0.172	0.048	1.24	78	-1.5	-	12.09	-0.26	104	572	81	77
18	3.104	0.172	0.051	1.26	78	-1.5	-	11.84	-0.25	104	573	82	77
19	3.275	0.171	0.047	1.25	79	-1.4	-	11.57	-0.27	105	573	82	77
20	3.447	0.172	0.050	1.25	79	-1.5	106	11.31	-0.26	105	577	82	77
21	3.618	0.171	0.051	1.24	79	-1.4	-	11.02	-0.29	105	580	82	77
22	3.790	0.172	0.051	1.23	79	-1.4	-	10.75	-0.27	106	581	82	77
23	3.961	0.171	0.049	1.24	80	-1.4	-	10.48	-0.27	106	582	82	77
24	4.132	0.171	0.050	1.23	80	-1.5	-	10.21	-0.27	106	584	83	77
25	4.302	0.170	0.051	1.24	80	-1.5	-	9.95	-0.26	107	584	83	77
26	4.473	0.171	0.051	1.23	81	-1.5	-	9.66	-0.29	107	585	83	77
27	4.643	0.170	0.048	1.23	81	-1.5	-	9.38	-0.28	107	586	83	77
28	4.813	0.170	0.050	1.22	81	-1.5	-	9.12	-0.26	107	586	83	77
29	4.983	0.170	0.050	1.21	81	-1.4	-	8.87	-0.25	107	587	83	77
30	5.153	0.170	0.051	1.21	82	-1.4	104	8.61	-0.26	107	586	83	77
31	5.322	0.169	0.048	1.21	82	-1.4	-	8.37	-0.24	108	587	83	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	5.491	0.169	0.050	1.21	82	-1.6	-	8.14	-0.23	108	587	83	77
33	5.660	0.169	0.049	1.20	83	-1.5	-	7.91	-0.23	107	586	84	77
34	5.828	0.168	0.048	1.20	83	-1.5	-	7.68	-0.23	108	584	84	77
35	5.996	0.168	0.050	1.20	83	-1.6	-	7.46	-0.22	108	584	84	77
36	6.164	0.168	0.049	1.19	83	-1.6	-	7.23	-0.23	108	581	84	77
37	6.334	0.170	0.049	1.20	84	-1.6	-	7.03	-0.20	108	578	84	77
38	6.501	0.167	0.051	1.19	84	-1.5	-	6.81	-0.22	107	575	84	77
39	6.668	0.167	0.049	1.19	84	-1.5	-	6.60	-0.21	107	573	84	77
40	6.836	0.168	0.050	1.19	84	-1.5	102	6.40	-0.20	107	567	84	77
41	7.003	0.167	0.050	1.18	85	-1.5	-	6.21	-0.19	106	563	83	77
42	7.169	0.166	0.052	1.17	85	-1.6	-	6.04	-0.17	106	557	83	76
43	7.336	0.167	0.051	1.19	85	-1.5	-	5.86	-0.18	106	550	83	76
44	7.503	0.167	0.049	1.19	86	-1.6	-	5.69	-0.17	105	540	83	76
45	7.669	0.166	0.052	1.19	86	-1.5	-	5.53	-0.16	105	534	83	76
46	7.837	0.168	0.050	1.18	86	-1.5	-	5.38	-0.15	105	526	83	75
47	8.005	0.168	0.050	1.19	87	-1.5	-	5.24	-0.14	104	518	83	75
48	8.172	0.167	0.050	1.18	87	-1.6	-	5.09	-0.15	103	510	83	76
49	8.339	0.167	0.049	1.19	87	-1.5	-	4.95	-0.14	103	502	83	76
50	8.506	0.167	0.050	1.19	87	-1.6	101	4.81	-0.14	102	494	82	76
51	8.673	0.167	0.051	1.18	88	-1.6	-	4.68	-0.13	102	487	82	76
52	8.842	0.169	0.051	1.19	88	-1.6	-	4.55	-0.13	101	481	82	76
53	9.005	0.163	0.050	1.19	88	-1.6	-	4.42	-0.13	101	475	82	76
54	9.176	0.171	0.051	1.19	88	-1.6	-	4.30	-0.12	101	473	81	76
55	9.343	0.167	0.051	1.21	89	-1.6	-	4.18	-0.12	100	470	81	76
56	9.510	0.167	0.051	1.18	89	-1.6	-	4.06	-0.12	100	465	81	75
57	9.680	0.170	0.051	1.18	89	-1.6	-	3.96	-0.10	100	460	81	76
58	9.847	0.167	0.051	1.18	89	-1.6	-	3.86	-0.10	99	455	81	75
59	10.014	0.167	0.052	1.19	90	-1.6	-	3.75	-0.11	99	450	81	75
60	10.182	0.168	0.052	1.20	90	-1.7	99	3.66	-0.09	98	446	81	75
61	10.350	0.168	0.050	1.19	90	-1.6	-	3.58	-0.08	98	441	80	75
62	10.518	0.168	0.052	1.20	90	-1.6	-	3.48	-0.10	98	438	80	75
63	10.687	0.169	0.051	1.19	90	-1.7	-	3.40	-0.08	98	433	80	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	10.855	0.168	0.051	1.18	91	-1.6	-	3.30	-0.10	97	429	80	75
65	11.022	0.167	0.050	1.20	91	-1.7	-	3.20	-0.10	97	425	80	75
66	11.190	0.168	0.053	1.19	91	-1.7	-	3.14	-0.06	96	421	80	75
67	11.358	0.168	0.050	1.19	91	-1.6	-	3.07	-0.07	96	417	80	75
68	11.525	0.167	0.052	1.19	92	-1.6	-	3.00	-0.07	96	412	80	76
69	11.696	0.171	0.053	1.20	92	-1.6	-	2.92	-0.08	95	409	80	76
70	11.864	0.168	0.051	1.20	92	-1.6	98	2.86	-0.06	95	407	79	75
71	12.031	0.167	0.051	1.18	92	-1.7	-	2.79	-0.07	95	406	79	75
72	12.199	0.168	0.049	1.20	92	-1.7	-	2.74	-0.05	95	404	79	75
73	12.368	0.169	0.050	1.18	93	-1.7	-	2.68	-0.06	94	401	79	75
74	12.536	0.168	0.051	1.20	93	-1.6	-	2.58	-0.10	94	399	79	75
75	12.706	0.170	0.050	1.20	93	-1.6	-	2.55	-0.03	94	395	79	75
76	12.874	0.168	0.051	1.18	93	-1.7	-	2.49	-0.06	94	391	79	76
77	13.043	0.169	0.050	1.19	93	-1.8	-	2.44	-0.05	94	388	79	76
78	13.211	0.168	0.049	1.20	93	-1.8	-	2.38	-0.06	94	386	79	76
79	13.379	0.168	0.048	1.20	93	-1.7	-	2.32	-0.06	94	386	79	76
80	13.547	0.168	0.050	1.19	94	-1.8	99	2.26	-0.06	94	385	80	76
81	13.716	0.169	0.052	1.18	94	-1.7	-	2.20	-0.06	94	383	80	76
82	13.886	0.170	0.051	1.20	94	-1.7	-	2.15	-0.05	94	379	80	76
83	14.054	0.168	0.051	1.20	94	-1.8	-	2.11	-0.04	94	376	80	77
84	14.219	0.165	0.051	1.20	94	-1.7	-	2.06	-0.05	94	371	80	77
85	14.391	0.172	0.050	1.18	94	-1.8	-	2.02	-0.04	93	366	80	77
86	14.559	0.168	0.050	1.20	94	-1.7	-	1.99	-0.03	93	362	80	77
87	14.727	0.168	0.050	1.18	95	-1.7	-	1.94	-0.05	93	358	80	77
88	14.897	0.170	0.051	1.20	95	-1.9	-	1.91	-0.03	93	355	80	77
89	15.066	0.169	0.051	1.20	95	-1.8	-	1.88	-0.03	93	351	80	77
90	15.234	0.168	0.051	1.20	95	-1.9	99	1.84	-0.04	93	347	80	77
91	15.403	0.169	0.049	1.18	95	-1.8	-	1.80	-0.04	93	344	80	77
92	15.571	0.168	0.051	1.20	95	-1.8	-	1.77	-0.03	92	340	81	77
93	15.740	0.169	0.050	1.20	95	-1.9	-	1.72	-0.05	92	337	81	77
94	15.908	0.168	0.048	1.19	96	-1.9	-	1.70	-0.02	92	333	81	77
95	16.077	0.169	0.049	1.19	96	-1.8	-	1.66	-0.04	92	329	81	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	16.247	0.170	0.049	1.21	96	-1.9	-	1.63	-0.03	92	325	81	77
97	16.416	0.169	0.050	1.19	96	-1.9	-	1.59	-0.04	92	322	81	77
98	16.585	0.169	0.051	1.19	96	-1.8	-	1.56	-0.03	92	319	81	77
99	16.753	0.168	0.050	1.19	96	-1.9	-	1.53	-0.03	91	317	81	77
100	16.921	0.168	0.050	1.19	96	-1.8	98	1.50	-0.03	91	314	81	77
101	17.090	0.169	0.051	1.19	96	-1.8	-	1.47	-0.03	91	311	81	77
102	17.259	0.169	0.049	1.19	97	-1.8	-	1.45	-0.02	91	309	81	77
103	17.429	0.170	0.051	1.19	97	-1.8	-	1.41	-0.04	91	307	81	77
104	17.598	0.169	0.051	1.20	97	-1.9	-	1.39	-0.02	91	304	81	77
105	17.767	0.169	0.050	1.19	97	-1.9	-	1.35	-0.04	91	302	81	77
106	17.936	0.169	0.050	1.19	97	-1.8	-	1.33	-0.02	91	301	81	77
107	18.105	0.169	0.053	1.18	97	-1.9	-	1.30	-0.03	91	298	81	77
108	18.273	0.168	0.052	1.18	97	-2.0	-	1.28	-0.02	90	296	81	77
109	18.442	0.169	0.051	1.20	97	-1.9	-	1.26	-0.02	90	293	81	77
110	18.611	0.169	0.052	1.19	97	-1.9	98	1.23	-0.03	90	290	81	77
111	18.782	0.171	0.052	1.19	97	-1.9	-	1.20	-0.03	90	288	81	77
112	18.951	0.169	0.052	1.20	98	-1.9	-	1.18	-0.02	90	286	81	77
113	19.120	0.169	0.053	1.18	98	-1.8	-	1.15	-0.03	90	284	81	77
114	19.288	0.168	0.051	1.19	98	-1.9	-	1.12	-0.03	90	282	81	77
115	19.457	0.169	0.049	1.18	98	-1.9	-	1.10	-0.02	90	281	81	77
116	19.626	0.169	0.052	1.20	98	-2.0	-	1.07	-0.03	90	279	81	77
117	19.795	0.169	0.053	1.20	98	-1.9	-	1.05	-0.02	90	278	81	77
118	19.964	0.169	0.050	1.20	98	-2.0	-	1.02	-0.03	89	277	81	77
119	20.135	0.171	0.051	1.19	98	-1.9	-	1.00	-0.02	89	276	81	77
120	20.304	0.169	0.049	1.19	98	-2.0	98	0.97	-0.03	89	274	81	77
121	20.473	0.169	0.053	1.22	98	-2.0	-	0.94	-0.03	89	272	81	77
122	20.642	0.169	0.050	1.19	98	-1.9	-	0.92	-0.02	89	271	81	77
123	20.811	0.169	0.051	1.21	99	-1.9	-	0.89	-0.03	89	270	81	77
124	20.980	0.169	0.050	1.19	99	-1.9	-	0.87	-0.02	89	268	81	77
125	21.149	0.169	0.052	1.20	99	-1.9	-	0.84	-0.03	89	266	81	77
126	21.319	0.170	0.049	1.20	99	-1.9	-	0.82	-0.02	89	264	81	77
127	21.489	0.170	0.051	1.19	99	-1.9	-	0.80	-0.02	89	263	81	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	21.659	0.170	0.052	1.19	99	-2.0	-	0.77	-0.03	89	263	81	77
129	21.828	0.169	0.051	1.19	99	-2.0	-	0.76	-0.01	89	262	81	77
130	21.997	0.169	0.050	1.19	99	-2.0	99	0.73	-0.03	89	263	81	77
131	22.166	0.169	0.053	1.19	99	-2.0	-	0.70	-0.03	89	262	80	77
132	22.335	0.169	0.052	1.19	99	-2.0	-	0.68	-0.02	88	262	80	77
133	22.505	0.170	0.051	1.19	99	-1.9	-	0.65	-0.03	88	262	80	77
134	22.674	0.169	0.052	1.19	99	-2.0	-	0.63	-0.02	88	261	80	77
135	22.843	0.169	0.051	1.19	99	-2.1	-	0.60	-0.03	88	260	80	77
136	23.013	0.170	0.051	1.20	100	-2.0	-	0.58	-0.02	88	260	80	77
137	23.184	0.171	0.052	1.19	100	-2.0	-	0.56	-0.02	88	260	80	77
138	23.353	0.169	0.051	1.19	100	-2.0	-	0.53	-0.03	88	260	80	77
139	23.522	0.169	0.049	1.19	100	-2.0	-	0.50	-0.03	88	261	80	77
140	23.691	0.169	0.051	1.19	100	-2.0	98	0.47	-0.03	88	261	80	77
141	23.861	0.170	0.050	1.18	100	-2.0	-	0.45	-0.02	88	262	80	77
142	24.030	0.169	0.052	1.17	100	-2.0	-	0.42	-0.03	88	261	80	77
143	24.199	0.169	0.049	1.18	100	-2.0	-	0.40	-0.02	88	261	80	77
144	24.369	0.170	0.052	1.18	100	-2.0	-	0.37	-0.03	88	260	80	77
145	24.539	0.170	0.051	1.19	100	-2.0	-	0.34	-0.03	88	260	80	77
146	24.709	0.170	0.050	1.20	100	-2.0	-	0.32	-0.02	88	259	80	78
147	24.879	0.170	0.052	1.19	100	-2.0	-	0.30	-0.02	88	259	80	78
148	25.048	0.169	0.050	1.19	100	-2.0	-	0.27	-0.03	88	260	80	77
149	25.218	0.170	0.051	1.19	100	-2.0	-	0.25	-0.02	88	259	80	77
150	25.387	0.169	0.052	1.20	100	-2.1	97	0.22	-0.03	88	259	80	78
151	25.556	0.169	0.051	1.20	100	-2.0	-	0.20	-0.02	88	259	80	77
152	25.726	0.170	0.051	1.20	100	-2.0	-	0.17	-0.03	88	257	80	77
153	25.895	0.169	0.051	1.21	101	-2.1	-	0.14	-0.03	88	257	80	77
154	26.065	0.170	0.050	1.20	101	-2.1	-	0.12	-0.02	88	257	80	78
155	26.235	0.170	0.051	1.20	101	-2.1	-	0.09	-0.03	88	257	80	77
156	26.406	0.171	0.052	1.19	101	-2.0	-	0.07	-0.02	88	256	80	77
157	26.575	0.169	0.052	1.19	101	-2.1	-	0.05	-0.02	88	255	80	78
158	26.745	0.170	0.050	1.20	101	-2.0	-	0.02	-0.03	88	255	80	78
159	26.914	0.169	0.050	1.21	101	-2.1	98	0.00	-0.02	88	254	80	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
Avg/Tot	26.914	0.169	0.050	1.20	91.1	-1.7	100			95.9	394.6	80.8	76.6

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	0.000		0.00	76	-0.5		78	0.061	2.63	0.476
1	0.144	0.144	1.28	76	-1.5	-	80	0.061	1.60	0.399
2	0.310	0.166	1.22	76	-1.5	-	81	0.083	2.41	0.371
3	0.473	0.163	1.24	76	-1.5	-	83	0.088	5.27	0.231
4	0.636	0.163	1.20	76	-1.4	-	83	0.084	9.65	0.437
5	0.802	0.166	1.22	76	-1.6	-	82	0.092	9.57	0.270
6	0.964	0.162	1.20	76	-1.5	-	83	0.092	11.46	0.570
7	1.127	0.163	1.24	76	-1.6	-	83	0.092	11.81	0.462
8	1.291	0.164	1.21	76	-1.6	-	83	0.095	12.21	0.489
9	1.453	0.162	1.24	76	-1.6	-	83	0.096	12.32	0.528
10	1.616	0.163	1.19	77	-1.6	105	83	0.093	12.75	0.699
11	1.778	0.162	1.23	77	-1.6	-	84	0.097	13.02	0.645
12	1.940	0.162	1.20	77	-1.5	-	84	0.099	13.24	0.654
13	2.103	0.163	1.21	77	-1.6	-	84	0.088	13.33	0.634
14	2.264	0.161	1.20	78	-1.6	-	84	0.098	13.48	0.623
15	2.427	0.163	1.19	78	-1.5	-	85	0.102	13.63	0.599
16	2.588	0.161	1.21	78	-1.4	-	85	0.102	13.69	0.644
17	2.748	0.160	1.19	78	-1.4	-	85	0.101	13.58	0.635
18	2.911	0.163	1.19	79	-1.4	-	85	0.102	13.51	0.658
19	3.071	0.160	1.19	79	-1.4	-	85	0.100	13.65	0.685
20	3.233	0.162	1.20	79	-1.5	106	85	0.097	13.75	0.660
21	3.393	0.160	1.18	79	-1.6	-	85	0.104	13.82	0.680
22	3.555	0.162	1.18	80	-1.5	-	86	0.103	13.90	0.733
23	3.714	0.159	1.20	80	-1.4	-	86	0.103	14.02	0.812
24	3.875	0.161	1.18	80	-1.4	-	86	0.100	14.11	0.830
25	4.034	0.159	1.17	80	-1.6	-	86	0.102	14.30	0.981
26	4.195	0.161	1.17	81	-1.6	-	86	0.099	14.17	1.081
27	4.353	0.158	1.16	81	-1.6	-	86	0.098	14.21	1.104
28	4.513	0.160	1.17	81	-1.6	-	86	0.103	14.06	1.068
29	4.671	0.158	1.14	82	-1.4	-	86	0.107	14.09	0.956
30	4.831	0.160	1.15	82	-1.6	104	87	0.103	13.98	0.906
31	4.988	0.157	1.16	82	-1.6	-	87	0.099	13.88	0.759

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
32	5.148	0.160	1.16	83	-1.6	-	87	0.105	13.88	0.587
33	5.304	0.156	1.12	83	-1.5	-	87	0.103	13.92	0.577
34	5.463	0.159	1.15	83	-1.6	-	87	0.093	13.89	0.549
35	5.620	0.157	1.15	84	-1.5	-	87	0.097	13.92	0.513
36	5.778	0.158	1.15	84	-1.6	-	87	0.105	13.87	0.514
37	5.936	0.158	1.14	84	-1.5	-	87	0.102	13.71	0.537
38	6.091	0.155	1.14	85	-1.5	-	87	0.098	13.55	0.462
39	6.250	0.159	1.13	85	-1.5	-	87	0.102	13.35	0.401
40	6.406	0.156	1.13	85	-1.6	102	87	0.099	13.20	0.338
41	6.562	0.156	1.12	85	-1.6	-	87	0.100	13.03	0.344
42	6.717	0.155	1.14	86	-1.6	-	87	0.101	12.74	0.367
43	6.873	0.156	1.11	86	-1.4	-	86	0.096	12.26	0.421
44	7.030	0.157	1.13	86	-1.5	-	86	0.098	11.97	0.250
45	7.187	0.157	1.11	87	-1.6	-	86	0.094	11.76	0.170
46	7.342	0.155	1.11	87	-1.6	-	86	0.098	11.69	0.127
47	7.500	0.158	1.13	87	-1.6	-	86	0.097	11.51	0.072
48	7.657	0.157	1.15	88	-1.5	-	86	0.096	11.34	0.055
49	7.812	0.155	1.13	88	-1.5	-	86	0.097	11.12	0.048
50	7.970	0.158	1.12	88	-1.6	101	86	0.092	10.82	0.047
51	8.125	0.155	1.12	88	-1.5	-	85	0.085	10.42	0.041
52	8.283	0.158	1.13	89	-1.6	-	85	0.086	10.29	0.040
53	8.438	0.155	1.12	89	-1.6	-	85	0.091	10.23	0.048
54	8.596	0.158	1.15	89	-1.6	-	85	0.094	10.16	0.048
55	8.754	0.158	1.11	90	-1.6	-	84	0.089	10.06	0.052
56	8.910	0.156	1.13	90	-1.4	-	84	0.089	9.99	0.054
57	9.067	0.157	1.14	90	-1.5	-	84	0.086	9.81	0.059
58	9.225	0.158	1.16	90	-1.6	-	84	0.080	9.65	0.061
59	9.381	0.156	1.13	90	-1.6	-	84	0.082	9.30	0.069
60	9.540	0.159	1.12	91	-1.4	99	84	0.079	9.18	0.071
61	9.696	0.156	1.12	91	-1.6	-	83	0.083	9.13	0.069
62	9.854	0.158	1.10	91	-1.5	-	83	0.087	9.11	0.068
63	10.012	0.158	1.13	91	-1.6	-	83	0.085	8.89	0.076

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
64	10.168	0.156	1.13	92	-1.4	-	83	0.085	8.72	0.076
65	10.327	0.159	1.13	92	-1.5	-	83	0.080	8.55	0.081
66	10.484	0.157	1.14	92	-1.4	-	83	0.081	8.49	0.087
67	10.642	0.158	1.13	92	-1.4	-	83	0.082	8.40	0.089
68	10.798	0.156	1.16	93	-1.4	-	83	0.080	8.30	0.098
69	10.957	0.159	1.14	93	-1.5	-	82	0.086	8.17	0.102
70	11.116	0.159	1.16	93	-1.4	98	82	0.082	8.09	0.125
71	11.273	0.157	1.14	93	-1.4	-	82	0.088	8.13	0.128
72	11.432	0.159	1.13	93	-1.4	-	82	0.074	8.15	0.121
73	11.589	0.157	1.13	94	-1.4	-	82	0.086	8.12	0.128
74	11.748	0.159	1.14	94	-1.4	-	82	0.079	8.06	0.120
75	11.906	0.158	1.14	94	-1.5	-	82	0.077	8.01	0.144
76	12.064	0.158	1.13	94	-1.6	-	82	0.082	7.94	0.143
77	12.223	0.159	1.15	94	-1.4	-	82	0.079	7.96	0.143
78	12.380	0.157	1.13	94	-1.5	-	82	0.078	7.87	0.141
79	12.539	0.159	1.14	95	-1.4	-	82	0.077	7.88	0.152
80	12.696	0.157	1.16	95	-1.6	99	82	0.078	7.87	0.153
81	12.856	0.160	1.15	95	-1.6	-	82	0.076	7.76	0.131
82	13.013	0.157	1.12	95	-1.5	-	83	0.071	7.63	0.141
83	13.172	0.159	1.14	95	-1.5	-	83	0.072	7.41	0.155
84	13.328	0.156	1.13	95	-1.4	-	83	0.070	7.34	0.169
85	13.488	0.160	1.11	95	-1.6	-	83	0.077	6.98	0.205
86	13.647	0.159	1.14	96	-1.5	-	83	0.073	6.81	0.239
87	13.804	0.157	1.12	96	-1.6	-	83	0.075	6.76	0.293
88	13.964	0.160	1.13	96	-1.6	-	83	0.071	6.68	0.309
89	14.121	0.157	1.15	96	-1.5	-	83	0.072	6.69	0.323
90	14.280	0.159	1.15	96	-1.6	99	83	0.062	6.64	0.335
91	14.438	0.158	1.14	96	-1.4	-	83	0.070	6.59	0.338
92	14.597	0.159	1.13	96	-1.5	-	83	0.069	6.57	0.344
93	14.755	0.158	1.15	97	-1.4	-	83	0.075	6.52	0.365
94	14.914	0.159	1.16	97	-1.6	-	83	0.068	6.34	0.408
95	15.073	0.159	1.14	97	-1.4	-	83	0.067	6.22	0.478

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
96	15.231	0.158	1.09	97	-1.5	-	83	0.064	6.07	0.522
97	15.391	0.160	1.14	97	-1.4	-	83	0.056	5.90	0.508
98	15.548	0.157	1.13	97	-1.4	-	83	0.073	5.89	0.509
99	15.708	0.160	1.15	97	-1.5	-	83	0.065	5.97	0.495
100	15.865	0.157	1.14	97	-1.5	98	83	0.072	5.83	0.498
101	16.025	0.160	1.14	98	-1.6	-	83	0.065	5.70	0.519
102	16.183	0.158	1.15	98	-1.5	-	83	0.069	5.68	0.520
103	16.343	0.160	1.14	98	-1.4	-	83	0.067	5.63	0.529
104	16.500	0.157	1.14	98	-1.4	-	83	0.067	5.64	0.527
105	16.660	0.160	1.13	98	-1.5	-	83	0.065	5.58	0.535
106	16.818	0.158	1.15	98	-1.6	-	83	0.065	5.53	0.544
107	16.978	0.160	1.16	98	-1.5	-	83	0.066	5.51	0.555
108	17.136	0.158	1.12	98	-1.5	-	83	0.064	5.29	0.573
109	17.295	0.159	1.19	98	-1.6	-	83	0.062	5.18	0.553
110	17.455	0.160	1.15	99	-1.6	98	83	0.062	5.13	0.515
111	17.613	0.158	1.13	99	-1.5	-	83	0.067	5.15	0.549
112	17.773	0.160	1.11	99	-1.4	-	83	0.063	5.05	0.581
113	17.931	0.158	1.13	99	-1.6	-	83	0.061	5.05	0.607
114	18.091	0.160	1.13	99	-1.4	-	83	0.063	5.03	0.615
115	18.248	0.157	1.12	99	-1.4	-	83	0.064	5.08	0.627
116	18.409	0.161	1.14	99	-1.5	-	83	0.062	5.04	0.629
117	18.566	0.157	1.14	99	-1.5	-	83	0.070	4.98	0.658
118	18.727	0.161	1.15	99	-1.5	-	83	0.064	4.96	0.660
119	18.885	0.158	1.15	99	-1.6	-	83	0.059	4.96	0.681
120	19.045	0.160	1.15	99	-1.5	98	83	0.059	4.86	0.728
121	19.203	0.158	1.10	99	-1.5	-	83	0.066	4.78	0.835
122	19.363	0.160	1.14	100	-1.6	-	83	0.058	4.77	0.813
123	19.521	0.158	1.15	100	-1.5	-	83	0.061	4.77	0.815
124	19.681	0.160	1.13	100	-1.5	-	83	0.061	4.46	0.875
125	19.839	0.158	1.13	100	-1.5	-	83	0.062	4.37	0.848
126	20.000	0.161	1.16	100	-1.4	-	83	0.058	4.44	0.838
127	20.158	0.158	1.14	100	-1.4	-	83	0.057	4.44	0.815

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
128	20.318	0.160	1.14	100	-1.5	-	83	0.061	4.46	0.794
129	20.477	0.159	1.13	100	-1.4	-	83	0.061	4.52	0.785
130	20.636	0.159	1.15	100	-1.6	99	83	0.063	4.54	0.794
131	20.795	0.159	1.13	100	-1.4	-	82	0.058	4.53	0.798
132	20.955	0.160	1.14	100	-1.5	-	82	0.050	4.53	0.790
133	21.114	0.159	1.15	100	-1.6	-	83	0.057	4.60	0.773
134	21.273	0.159	1.13	100	-1.4	-	82	0.057	4.65	0.767
135	21.433	0.160	1.12	100	-1.4	-	82	0.056	4.64	0.754
136	21.592	0.159	1.15	100	-1.4	-	82	0.049	4.62	0.753
137	21.752	0.160	1.15	101	-1.4	-	82	0.049	4.64	0.739
138	21.911	0.159	1.16	101	-1.6	-	82	0.059	4.62	0.733
139	22.071	0.160	1.13	101	-1.5	-	82	0.058	4.66	0.723
140	22.229	0.158	1.16	101	-1.6	98	82	0.061	4.68	0.698
141	22.390	0.161	1.13	101	-1.6	-	82	0.057	4.73	0.682
142	22.548	0.158	1.11	101	-1.6	-	82	0.054	4.74	0.669
143	22.709	0.161	1.13	101	-1.6	-	82	0.056	4.59	0.715
144	22.867	0.158	1.15	101	-1.4	-	82	0.059	4.55	0.728
145	23.027	0.160	1.12	101	-1.6	-	82	0.059	4.53	0.728
146	23.185	0.158	1.13	101	-1.6	-	82	0.057	4.60	0.723
147	23.346	0.161	1.14	101	-1.5	-	82	0.060	4.56	0.714
148	23.504	0.158	1.14	101	-1.6	-	82	0.059	4.55	0.708
149	23.665	0.161	1.17	101	-1.5	-	82	0.060	4.58	0.738
150	23.823	0.158	1.12	101	-1.6	97	82	0.062	4.48	0.741
151	23.984	0.161	1.13	101	-1.5	-	82	0.055	4.47	0.733
152	24.142	0.158	1.16	101	-1.4	-	82	0.051	4.43	0.752
153	24.303	0.161	1.12	101	-1.6	-	82	0.062	4.42	0.749
154	24.461	0.158	1.15	101	-1.4	-	82	0.053	4.40	0.760
155	24.622	0.161	1.14	101	-1.4	-	82	0.052	4.41	0.739
156	24.780	0.158	1.15	101	-1.4	-	82	0.061	4.41	0.705
157	24.941	0.161	1.17	102	-1.6	-	82	0.051	4.41	0.702
158	25.099	0.158	1.14	102	-1.5	-	82	0.055	4.22	0.719
159	25.260	0.161	1.14	102	-1.4	98	82	0.058	4.20	0.725

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
Avg/Tot	25.260	0.159	1.14	91.9	-1.5	100	83.5	0.077	8.14	0.490

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Stove ΔT: 57

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	478	366	171	462	392	373.8	N/A
1	479	364	175	451	394	372.6	N/A
2	476	362	169	445	395	369.4	N/A
3	475	359	177	464	396	374.2	N/A
4	471	358	182	505	397	382.3	N/A
5	468	357	178	544	397	388.5	N/A
6	464	356	186	581	398	396.8	N/A
7	455	355	196	621	398	404.7	N/A
8	455	358	183	657	397	409.9	N/A
9	450	358	189	690	397	416.6	N/A
10	446	360	191	715	397	421.6	N/A
11	443	361	195	738	395	426.4	N/A
12	439	363	190	760	395	429.4	N/A
13	439	368	187	781	394	433.7	N/A
14	436	371	192	798	392	437.6	N/A
15	435	374	233	816	390	449.6	N/A
16	433	379	214	819	389	446.8	N/A
17	431	386	211	827	387	448.2	N/A
18	431	389	208	835	385	449.6	N/A
19	432	392	206	843	383	451.2	N/A
20	432	396	203	851	381	452.6	N/A
21	431	400	202	857	379	453.5	N/A
22	431	404	199	861	376	454.4	N/A
23	431	410	199	864	374	455.7	N/A
24	432	413	196	871	372	457.0	N/A
25	435	418	195	872	370	457.6	N/A
26	434	422	193	875	367	458.0	N/A
27	433	427	192	877	365	458.7	N/A
28	437	431	191	877	362	459.6	N/A
29	438	433	189	880	360	460.3	N/A
30	440	439	189	883	358	461.7	N/A
31	441	443	188	887	356	462.9	N/A
32	444	446	187	890	354	464.0	N/A
33	444	449	186	887	352	463.6	N/A
34	447	453	185	888	350	464.4	N/A
35	450	454	184	891	348	465.5	N/A
36	450	457	183	894	346	466.1	N/A
37	453	459	183	889	344	465.7	N/A
38	456	462	183	891	343	466.8	N/A
39	459	469	190	885	341	468.7	N/A
40	459	469	184	880	340	466.5	N/A
41	462	471	186	881	339	467.8	N/A
42	466	472	187	884	337	469.3	N/A
43	468	471	185	880	336	468.0	N/A
44	469	471	184	874	335	466.5	N/A
45	471	471	185	869	334	465.9	N/A
46	473	470	184	864	333	464.6	N/A
47	476	470	184	858	332	464.0	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Stove ΔT: 57

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	476	468	183	851	331	462.0	N/A
49	479	468	185	843	330	460.9	N/A
50	479	466	185	828	329	457.5	N/A
51	481	464	187	816	329	455.5	N/A
52	486	462	189	808	328	454.6	N/A
53	487	462	187	794	328	451.7	N/A
54	489	459	188	791	328	450.9	N/A
55	488	456	189	780	327	447.9	N/A
56	488	453	187	767	326	444.3	N/A
57	486	450	185	759	326	441.2	N/A
58	492	449	189	755	326	442.1	N/A
59	491	445	187	745	326	438.8	N/A
60	488	443	187	739	326	436.6	N/A
61	485	439	182	730	326	432.3	N/A
62	491	438	188	723	326	433.2	N/A
63	486	436	187	716	326	430.3	N/A
64	491	434	188	707	326	429.2	N/A
65	490	431	188	708	327	428.8	N/A
66	489	426	187	697	327	425.3	N/A
67	487	423	186	692	326	423.0	N/A
68	491	422	188	680	327	421.5	N/A
69	489	420	188	680	327	420.7	N/A
70	488	418	189	669	327	418.1	N/A
71	484	413	187	673	327	416.8	N/A
72	485	412	187	671	327	416.4	N/A
73	486	411	189	663	327	414.9	N/A
74	485	409	189	660	327	414.0	N/A
75	479	404	186	658	327	410.8	N/A
76	480	402	187	653	327	409.8	N/A
77	480	399	182	650	327	407.5	N/A
78	479	397	182	644	327	405.8	N/A
79	478	395	183	640	327	404.7	N/A
80	476	393	183	637	328	403.5	N/A
81	475	392	183	632	328	401.8	N/A
82	475	390	183	628	328	400.7	N/A
83	474	389	183	625	328	399.7	N/A
84	473	388	183	620	329	398.4	N/A
85	471	387	184	611	329	396.3	N/A
86	472	385	184	604	329	394.9	N/A
87	470	383	184	597	330	393.0	N/A
88	470	383	185	592	330	391.9	N/A
89	467	379	184	580	330	388.2	N/A
90	467	378	185	575	330	387.0	N/A
91	465	377	184	567	331	384.8	N/A
92	464	374	185	559	331	382.6	N/A
93	465	372	185	551	331	380.7	N/A
94	463	371	185	546	331	379.1	N/A
95	461	370	185	538	331	377.0	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Stove ΔT: 57

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	460	369	186	531	331	375.2	N/A
97	459	367	186	523	331	373.1	N/A
98	457	365	186	518	331	371.3	N/A
99	456	362	186	513	331	369.6	N/A
100	455	362	186	508	331	368.3	N/A
101	455	360	186	502	331	366.5	N/A
102	452	357	185	498	331	364.6	N/A
103	451	357	185	493	331	363.5	N/A
104	450	354	185	489	331	362.0	N/A
105	449	353	185	483	331	360.1	N/A
106	446	352	185	478	331	358.4	N/A
107	446	349	185	474	331	357.0	N/A
108	443	347	185	469	331	355.2	N/A
109	444	348	185	465	332	354.5	N/A
110	442	345	185	459	332	352.4	N/A
111	442	344	185	454	332	351.1	N/A
112	439	342	185	448	332	349.3	N/A
113	437	341	185	444	332	347.9	N/A
114	437	339	184	439	332	346.3	N/A
115	436	337	185	436	333	345.3	N/A
116	434	337	185	432	332	344.1	N/A
117	433	334	185	428	333	342.5	N/A
118	432	334	185	425	333	341.8	N/A
119	431	331	185	421	333	340.1	N/A
120	431	331	185	418	333	339.6	N/A
121	428	330	185	415	333	338.2	N/A
122	427	328	184	411	333	336.5	N/A
123	427	325	184	409	333	335.7	N/A
124	424	325	184	405	333	334.2	N/A
125	424	323	184	402	333	333.1	N/A
126	424	321	185	400	333	332.5	N/A
127	420	322	184	397	333	331.2	N/A
128	420	320	184	393	333	330.1	N/A
129	418	319	184	393	333	329.4	N/A
130	417	317	184	389	333	328.0	N/A
131	416	317	184	388	333	327.8	N/A
132	415	314	184	387	334	326.7	N/A
133	413	315	183	385	334	325.9	N/A
134	412	314	183	382	334	324.9	N/A
135	410	312	183	382	334	324.3	N/A
136	409	312	183	380	334	323.7	N/A
137	410	312	183	380	334	323.5	N/A
138	409	310	184	378	334	323.0	N/A
139	408	310	186	378	335	323.3	N/A
140	406	309	183	377	335	321.9	N/A
141	405	308	183	376	335	321.5	N/A
142	404	307	183	375	335	320.8	N/A
143	404	308	184	373	335	320.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

Stove ΔT: 57

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	404	306	183	372	335	320.2	N/A
145	404	306	183	371	336	319.9	N/A
146	405	305	182	369	336	319.3	N/A
147	403	305	183	369	336	319.2	N/A
148	403	303	182	368	336	318.5	N/A
149	402	303	183	368	337	318.7	N/A
150	404	304	182	369	337	319.1	N/A
151	402	303	182	369	337	318.5	N/A
152	403	303	182	367	337	318.3	N/A
153	403	302	182	367	337	318.5	N/A
154	403	301	182	366	338	317.9	N/A
155	402	300	182	364	338	317.2	N/A
156	403	301	182	365	338	317.4	N/A
157	403	300	181	364	338	317.3	N/A
158	403	299	182	364	338	317.1	N/A
159	403	297	182	362	338	316.4	N/A
Average	448.5	378.7	186.3	607.1	342.8	392.7	N/A

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		0.02	77	-0.5		75
1	0.146	0.146	1.29	77	-2.1	-	76
2	0.316	0.170	1.31	77	-2.2	-	76
3	0.485	0.169	1.29	77	-2.1	-	77
4	0.655	0.170	1.31	77	-2.2	-	77
5	0.825	0.170	1.32	77	-2.1	-	77
6	0.996	0.171	1.31	77	-2.2	-	78
7	1.168	0.172	1.32	77	-2.1	-	78
8	1.340	0.172	1.33	77	-2.1	-	78
9	1.513	0.173	1.32	77	-2.1	-	78
10	1.687	0.174	1.34	77	-2.3	98	79
11	1.861	0.174	1.34	77	-2.1	-	79
12	2.036	0.175	1.36	78	-2.2	-	79
13	2.211	0.175	1.35	78	-2.2	-	79
14	2.386	0.175	1.37	78	-2.1	-	80
15	2.560	0.174	1.37	78	-2.2	-	80
16	2.735	0.175	1.37	78	-2.2	-	80
17	2.913	0.178	1.37	79	-2.3	-	80
18	3.091	0.178	1.39	79	-2.1	-	81
19	3.268	0.177	1.41	79	-2.3	-	81
20	3.445	0.177	1.39	79	-2.3	103	81
21	3.621	0.176	1.38	80	-2.3	-	81
22	3.799	0.178	1.39	80	-2.2	-	81
23	3.978	0.179	1.40	80	-2.2	-	81
24	4.156	0.178	1.39	81	-2.3	-	82
25	4.332	0.176	1.39	81	-2.1	-	82
26	4.510	0.178	1.39	81	-2.2	-	82
27	4.688	0.178	1.39	82	-2.3	-	82
28	4.866	0.178	1.39	82	-2.2	-	82
29	5.043	0.177	1.39	82	-2.3	-	82
30	5.218	0.175	1.38	83	-2.4	103	83
31	5.395	0.177	1.37	83	-2.2	-	83

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.573	0.178	1.37	83	-2.2	-	83
33	5.750	0.177	1.40	84	-2.2	-	83
34	5.926	0.176	1.36	84	-2.2	-	83
35	6.101	0.175	1.36	85	-2.2	-	83
36	6.276	0.175	1.35	85	-2.3	-	83
37	6.453	0.177	1.36	85	-2.2	-	83
38	6.628	0.175	1.35	86	-2.2	-	83
39	6.805	0.177	1.36	86	-2.2	-	83
40	6.980	0.175	1.35	86	-2.3	102	83
41	7.155	0.175	1.35	87	-2.3	-	83
42	7.327	0.172	1.34	87	-2.2	-	83
43	7.502	0.175	1.34	88	-2.2	-	83
44	7.676	0.174	1.35	88	-2.2	-	83
45	7.850	0.174	1.33	88	-2.4	-	83
46	8.026	0.176	1.34	89	-2.3	-	82
47	8.201	0.175	1.35	89	-2.4	-	82
48	8.377	0.176	1.34	89	-2.2	-	82
49	8.553	0.176	1.35	90	-2.3	-	82
50	8.727	0.174	1.35	90	-2.2	100	82
51	8.903	0.176	1.34	90	-2.2	-	82
52	9.077	0.174	1.35	91	-2.3	-	82
53	9.249	0.172	1.34	91	-2.4	-	82
54	9.427	0.178	1.34	92	-2.2	-	81
55	9.603	0.176	1.35	92	-2.2	-	81
56	9.779	0.176	1.35	92	-2.2	-	81
57	9.955	0.176	1.36	92	-2.4	-	81
58	10.130	0.175	1.35	93	-2.4	-	81
59	10.305	0.175	1.34	93	-2.3	-	81
60	10.480	0.175	1.34	93	-2.3	99	81
Avg/Tot	10.480	0.175	1.33	83.5	-2.2	101	80.9

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F2450-2
Run #: 3

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/27/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	G01095	240.3	242.3	2.0
	B	G01096	244.7	246.1	1.4
	C - 1st Hour	G01097	244.0	245.5	1.5
	Amb	G01098	238.0	238.1	0.1
Probes	**A**	12A	116708.9	116708.9	0.0
	B	12B	117775.2	117775.3	0.1
	C - 1st Hour	12C	117174.1	117174.2	0.1
O-rings	**A**	11A	3423.5	3423.6	0.1
	B	11B	4233.9	4234.4	0.5
	C - 1st Hour	11C	3588.3	3588.3	0.0

Placed in Dessicator on:	6/27/2024

Balance Audit (mg):		200.0		200.0		200.0			
		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	**A**	242.6	7/1 13:15	242.3	7/3 12:45	242.3	7/8 9:45		
	B	245.7	7/1 13:15	246.2	7/3 12:45	246.1	7/8 9:45		
	C - 1st Hour	245.8	7/1 13:15	245.5	7/3 12:45	245.5	7/8 9:45		
	Amb	238.1	7/1 13:15	238.1	7/3 12:45				
Probes	**A**	116709.0	7/1 13:15	116708.9	7/3 12:45				
	B	117775.3	7/1 13:15	117775.3	7/3 12:45				
	C - 1st Hour	117174.1	7/1 13:15	117174.2	7/3 12:45				
O-Rings	**A**	3424.0	7/1 13:15	3423.6	7/3 12:45	3423.6	7/8 9:45		
	B	4234.6	7/1 13:15	4234.4	7/3 12:45				
	C - 1st Hour	3588.3	7/1 13:15	3588.3	7/3 12:45				

Train A Aggregate, mg:	**2.1**
Train B Aggregate, mg:	**2.0**
Train C Aggregate, mg:	**1.6**
Ambient, mg:	**0.1**

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 3 Test Date: 6/27/24

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: 12:55 Test Fuel Loaded by: 55 seconds
Door Closed: 185 seconds Air Control Set at: 0 seconds
Other Loading Notes: Fan on High @ 15:00

Time	Notes
	-None-

Test Burn End Time: 15:34

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO_2 (%): 16.98 CO (%): 4.300
Mid Gas CO_2 (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	11:34	11:35	11:36	6/28 12:44	6/28 12:45	6/28 12:47
CO_2	0.00	16.99	10.16	0.03	17.10	10.09
CO	-0.003	4.297	2.543	-0.002	4.323	2.547

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

Technician Signature:  Date: 7/1/2024

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 3 Test Date: 6/27/24



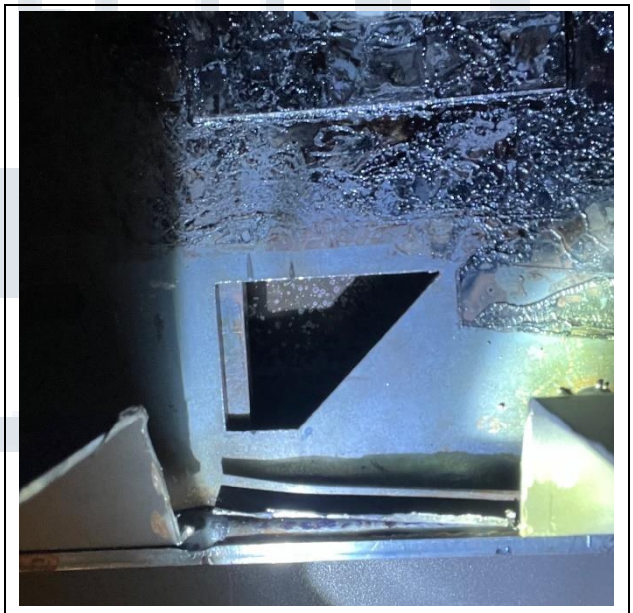
Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____ Date: 7/1/2024

WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515



Run 4 Data Summary

Client:	FPI
Model:	F2450-2
Job #:	24-309
Tracking #:	201
Test Date:	6/28/2024

Technician Signature — 7/17/2024 Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

Burn Rate (kg/hr):	1.82

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	20.089	33.634	31.666	10.539
Average Gas Velocity in Dilution Tunnel (ft/sec)	13.8			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	36565.1			
Average Gas Meter Temperature (°F)	76.9	92.1	92.9	81.6
Total Sample Volume (dscf)	20.029	32.289	30.595	10.338
Average Tunnel Temperature (°F)	92.3			
Total Time of Test (min)	194			
Total Particulate Catch (mg)	0.1	1.7	1.6	1.1
Particulate Concentration, dry-standard (g/dscf)	0.0000050	0.0000526	0.0000523	0.0001064
Total PM Emissions (g)	0.59	5.63	5.59	3.71
Particulate Emission Rate (g/hr)	0.18	1.74	1.73	3.71
Emissions Factor (g/kg)	-	0.96	0.95	-
Difference from Average Total Particulate Emissions (g)	-	0.02	0.02	-
Difference from Average Total Particulate Emissions (%)	-	0.4%	0.4%	
Difference from Average Emissions Factor (g/kg)	-	0.00	0.00	-

Final Average Results	
Total Particulate Emissions (g)	5.61
Particulate Emission Rate (g/hr)	1.74
Emissions Factor (g/kg)	0.95
HHV Efficiency (%)	70.3%
LHV Efficiency (%)	76.0%
CO Emissions (g/min)	2.16

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	85.1	OK
Face Velocity	< 30 ft/min	9.4	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:74.7/Max:77.9	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	83.8	OK

B415.1 Efficiency Results

Manufacturer:	FPI
Model:	F2450-2
Date:	06/28/24
Run:	4
Control #:	24-309
Test Duration:	194
Output Category:	3

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	70.3%	76.0%
Combustion Efficiency	95.1%	95.1%
Heat Transfer Efficiency	73.9%	79.9%

Output Rate (kJ/h)	25,266	23,968	**(Btu/h)**
Burn Rate (kg/h)	1.81	4.00	**(lb/h)**
Input (kJ/h)	35,946	34,098	**(Btu/h)**

Test Load Weight (dry kg)	5.87	12.93	**dry lb**
MC wet (%)	18.26		
MC dry (%)	22.34		
Particulate (g)	5.61		
CO (g)	419		
Test Duration (h)	3.23		

Emissions	Particulate	CO
g/MJ Output	0.07	5.13
g/kg Dry Fuel	0.96	71.45
g/h	1.74	129.65
g/min	0.03	2.16
lb/MM Btu Output	0.16	11.93

Air/Fuel Ratio (A/F)	15.83

VERSION: **2.4** **4/15/2010**

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

Preburn Fuel Information

Size	Length (in)	Moisture Content (% DB)	Size	Length (in)	Moisture Content (% DB)
2x4	12.00	22.1	2x4	16.00	22.5
2x4	12.00	19.8	2x4	16.00	23.5
2x4	12.00	20.4	2x4	8.00	21.7
2x4	12.00	23.3	2x4	8.00	22.9
2x4	12.00	23.3	2x4	8.00	20.1
2x4	12.00	23.6			
2x4	16.00	23.1			
2x4	16.00	24.9			
Total Fuel Weight (lbs):		17.25	Average Moisture (%DB):		22.4

Firebox Volume (ft^3):	2.24
Total 2x4 Crib Weight, with spacers (lbs):	7.98
Total 4x4 Crib Weight, with spacers (lbs):	7.84
Total Wet Fuel Weight, with spacers (lbs):	15.82

Coal Bed Range (20-25%):
Min (lbs): 3.16
Max (lbs): 3.96

Test Fuel Information

Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	16.75	2.12	20.3	20.5	23.9	1.74
2x4	16.75	1.52	23.6	22.8	22.8	1.24
2x4	16.75	1.57	21.0	20.2	23.5	1.29
2x4	16.75	1.59	24.0	22.5	23.0	1.29
4x4	16.75	3.90	22.4	22.3	24.0	3.17
4x4	16.75	3.73	20.7	20.6	24.1	3.06
					Total Dry Weight, no spacers (lbs):	11.80
					Total Dry Weight, with spacers (lbs):	13.00

Spacer Moisture Readings (%DB)

13.9	17.0	15.8					
17.5	13.2	14.6					
13.4	13.5						
15.1	17.4						
13.2	17.8						
14.9	15.7						
18.9	18.5						
14.1	18.5						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft^3, DB)	26.7	OK
Loading Density	6.3 - 7.7 (lbs/ft^3, WB)	7.06	OK
2x4 Fuel Mix	35 - 65 % of total weight	50%	OK

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client:	FPI	Job #:	24-309
Model:	F2450-2	Tracking #:	201
Run #:	4	Technician:	AK
Test Start Time:	12:53	Date:	6/28/2024

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

Meter Box γ Factor:	1.000	(A)
Meter Box γ Factor:	1.008	(B)
Meter Box γ Factor:	1.002	(C)
Meter Box γ Factor:	1.013	(Ambient)

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.99	29.92	29.96
Relative Humidity (%)	39.5	32.8	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		20.089	ft^3

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100%
Date Flue Pipe Last Cleaned:	6/21/2024
Test Fuel Scale Audit (lbs)	10.00
Platform Scale Audit (lbs)	10.0

Sample Train Leak Checks

	Pre-test	Post-test			
(A)	0.000	0.000	cfm @	-7	in. Hg
(B)	0.000	0.001	cfm @	-7	in. Hg
(C)	0.001	0.000	cfm @	-7	in. Hg
(Ambient)	0.000	0.000	cfm @	-13	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.032	74
2	0.042	74
3	0.044	74
4	0.046	74
5	0.040	74
6	0.030	74
7	0.036	74
8	0.048	74
9	0.046	74
10	0.048	74
11	0.044	74
12	0.036	74
Center	0.050	74

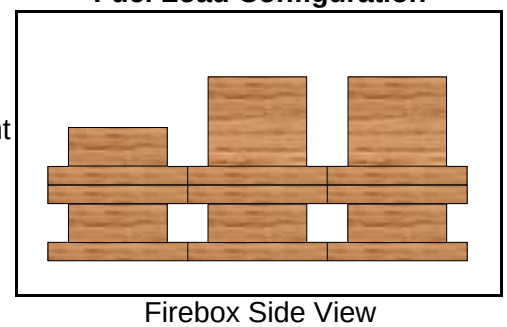
Static Pressure: -0.160 in. H_2O

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	12	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:	0.7854	ft^2
V_{strav}:	13.45	ft/sec
V_{scent}:	14.89	ft/sec
F_p:	0.903	[ratio]
Initial Tunnel Flow:	614.8	scf/min

TEST FUEL PROPERTIES

Fuel Load Configuration

Firebox Front



Firebox Back

Firebox Side View

Actual Fuel Used Properties

Fuel Type:	D. Fir
HHV (kJ/kg)	19,810
%C	48.73
%H	6.87
%O	43.9
%Ash	0.5
MC (%DB)	22.3

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

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

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	6.00	0.092	482	455	194	841	372	468.7	497	72
1	5.76	0.092	486	459	192	828	372	467.4	461	72
2	5.61	0.085	485	461	186	813	372	463.4	439	72
3	5.47	0.086	486	462	181	807	373	461.7	423	72
4	5.33	0.079	494	462	188	799	373	463.3	415	72
5	5.23	0.079	496	462	184	795	374	462.2	403	72
6	5.15	0.079	498	461	182	792	375	461.6	388	72
7	5.08	0.076	501	458	186	779	375	459.8	377	72
8	5.00	0.066	503	457	186	772	375	458.4	368	72
9	4.92	0.075	505	453	181	759	376	454.8	360	72
10	4.85	0.077	506	452	181	748	376	452.5	351	73
11	4.80	0.072	502	449	180	734	376	448.1	347	72
12	4.72	0.074	502	447	178	721	376	444.7	342	72
13	6.85	0.108	507	441	180	709	376	442.6	507	72
14	6.51	0.107	507	439	179	731	376	446.2	689	72
15	6.35	0.087	504	439	173	745	376	447.3	550	73
16	6.20	0.084	511	438	178	742	376	449.0	476	73
17	6.08	0.083	510	436	182	739	376	448.6	434	73
18	5.97	0.080	512	434	178	743	376	448.4	408	73
19	5.88	0.077	512	432	183	735	376	447.3	389	73
20	5.77	0.076	512	430	177	730	375	444.6	375	73
21	5.71	0.074	512	424	175	728	375	442.9	363	73
22	5.63	0.074	509	424	178	716	374	440.0	355	72
23	5.56	0.075	505	421	172	712	373	436.7	348	73
24	5.47	0.071	510	416	177	702	372	435.4	341	73
25	5.41	0.074	508	417	179	694	371	433.8	337	73
26	5.36	0.069	506	414	176	687	371	430.5	331	72
27	5.28	0.069	505	410	177	679	371	428.1	326	73
28	5.22	0.070	498	407	172	672	369	423.6	323	73
29	5.16	0.068	497	404	172	663	368	420.8	319	72
30	5.09	0.068	497	402	172	658	367	419.3	314	72
31	5.02	0.067	498	399	173	648	368	417.0	312	73
32	4.96	0.065	492	397	176	643	367	414.9	310	73
33	4.90	0.064	494	395	177	639	366	414.1	308	73
34	4.85	0.068	490	393	172	634	365	410.7	309	73
35	4.78	0.068	488	390	173	630	365	409.0	308	73
36	4.73	0.070	486	389	172	628	364	407.7	307	73
37	4.67	0.066	481	387	172	625	363	405.4	307	73
38	4.59	0.067	484	385	172	625	363	405.8	306	73
39	4.54	0.065	481	385	172	622	362	404.5	303	73
40	4.49	0.059	478	382	174	622	362	403.6	300	73
41	4.38	0.089	477	382	172	612	362	400.8	434	73
42	4.38	0.093	477	381	174	603	362	399.4	515	72
43	4.12	0.097	477	383	173	598	362	398.4	562	73
44	4.16	0.073	471	383	167	600	361	396.3	459	73

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

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

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	4.13	0.065	472	383	156	594	361	393.5	397	73
46	4.11	0.067	473	384	156	586	361	392.0	361	73
47	4.08	0.070	474	383	157	575	361	390.0	338	73
48	4.07	0.063	473	384	157	565	361	388.2	321	74
49	4.05	0.062	476	382	157	553	362	386.0	309	74
50	4.03	0.062	475	382	156	543	362	383.8	300	74
51	4.01	0.058	475	381	158	532	364	381.8	293	74
52	3.98	0.056	472	380	157	522	364	379.1	287	74
53	3.97	0.060	474	379	157	513	365	377.6	282	74
54	3.95	0.055	472	376	159	503	366	375.2	278	74
55	3.92	0.055	470	376	157	496	367	373.1	273	74
56	3.90	0.059	468	372	160	487	368	371.2	269	74
57	3.88	0.053	466	371	162	480	369	369.5	266	74
58	3.86	0.053	466	370	157	472	370	366.9	263	74
59	3.83	0.058	462	368	158	467	371	365.0	261	74
60	3.81	0.056	463	366	158	461	371	363.8	258	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	-0.003		0.049	0.00	74	-0.4		15.82		94	275	74	75
1	0.150	0.153	0.048	1.32	74	-1.4	-	15.75	-0.07	98	266	75	75
2	0.326	0.176	0.049	1.30	74	-1.4	-	15.70	-0.05	103	343	76	75
3	0.502	0.176	0.047	1.29	74	-1.4	-	15.37	-0.33	118	540	78	75
4	0.677	0.175	0.047	1.29	74	-1.4	-	14.95	-0.42	133	676	79	75
5	0.851	0.174	0.048	1.29	74	-1.4	-	14.62	-0.33	119	578	79	75
6	1.026	0.175	0.048	1.27	75	-1.4	-	14.38	-0.24	110	518	79	75
7	1.200	0.174	0.048	1.29	75	-1.4	-	14.17	-0.21	105	477	79	75
8	1.374	0.174	0.049	1.29	75	-1.5	-	13.98	-0.19	103	458	79	75
9	1.547	0.173	0.049	1.27	75	-1.4	-	13.79	-0.19	101	451	79	75
10	1.721	0.174	0.049	1.27	75	-1.5	105	13.57	-0.22	101	457	80	75
11	1.894	0.173	0.049	1.26	75	-1.4	-	13.34	-0.23	101	467	80	76
12	2.067	0.173	0.050	1.27	75	-1.5	-	13.10	-0.24	101	475	80	76
13	2.240	0.173	0.049	1.26	76	-1.4	-	12.87	-0.23	102	483	80	76
14	2.413	0.173	0.049	1.26	76	-1.5	-	12.62	-0.25	102	488	80	76
15	2.586	0.173	0.049	1.26	76	-1.5	-	12.38	-0.24	102	492	81	76
16	2.759	0.173	0.049	1.26	76	-1.5	-	12.10	-0.28	101	493	81	76
17	2.931	0.172	0.048	1.25	77	-1.5	-	11.88	-0.22	99	489	81	76
18	3.104	0.173	0.050	1.25	77	-1.5	-	11.65	-0.23	99	486	81	76
19	3.276	0.172	0.050	1.24	77	-1.4	-	11.42	-0.23	99	487	81	76
20	3.449	0.173	0.049	1.25	77	-1.5	105	11.18	-0.24	99	490	81	76
21	3.621	0.172	0.050	1.25	78	-1.4	-	10.93	-0.25	99	494	81	76
22	3.793	0.172	0.049	1.26	78	-1.5	-	10.69	-0.24	99	498	81	76
23	3.965	0.172	0.049	1.24	78	-1.4	-	10.45	-0.24	99	499	81	76
24	4.137	0.172	0.049	1.25	78	-1.4	-	10.22	-0.23	100	499	81	76
25	4.309	0.172	0.050	1.25	79	-1.4	-	9.99	-0.23	100	501	81	76
26	4.482	0.173	0.050	1.24	79	-1.5	-	9.76	-0.23	100	500	81	76
27	4.654	0.172	0.049	1.23	79	-1.5	-	9.53	-0.23	100	502	82	76
28	4.825	0.171	0.050	1.23	80	-1.4	-	9.31	-0.22	100	500	82	76
29	4.997	0.172	0.050	1.24	80	-1.4	-	9.08	-0.23	100	500	82	76
30	5.169	0.172	0.051	1.25	80	-1.4	103	8.86	-0.22	100	502	82	76
31	5.341	0.172	0.050	1.24	81	-1.4	-	8.65	-0.21	100	501	82	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	5.512	0.171	0.051	1.24	81	-1.5	-	8.44	-0.21	100	501	82	76
33	5.684	0.172	0.051	1.25	81	-1.4	-	8.24	-0.20	100	500	82	76
34	5.856	0.172	0.049	1.24	81	-1.4	-	8.06	-0.18	100	495	82	76
35	6.027	0.171	0.050	1.23	82	-1.5	-	7.87	-0.19	100	491	82	76
36	6.199	0.172	0.051	1.23	82	-1.4	-	7.71	-0.16	100	485	82	77
37	6.371	0.172	0.050	1.23	82	-1.5	-	7.53	-0.18	99	482	82	77
38	6.542	0.171	0.049	1.25	83	-1.4	-	7.36	-0.17	99	478	82	76
39	6.714	0.172	0.049	1.22	83	-1.5	-	7.21	-0.15	99	472	82	76
40	6.886	0.172	0.050	1.24	83	-1.5	102	7.05	-0.16	99	467	82	76
41	7.058	0.172	0.051	1.23	83	-1.4	-	6.89	-0.16	99	464	82	76
42	7.230	0.172	0.050	1.24	84	-1.5	-	6.74	-0.15	98	461	82	77
43	7.402	0.172	0.050	1.24	84	-1.5	-	6.60	-0.14	98	457	82	76
44	7.571	0.169	0.051	1.25	84	-1.4	-	6.46	-0.14	98	453	82	77
45	7.743	0.172	0.050	1.24	85	-1.5	-	6.32	-0.14	98	448	82	77
46	7.915	0.172	0.050	1.24	85	-1.4	-	6.19	-0.13	97	445	82	77
47	8.087	0.172	0.052	1.24	85	-1.5	-	6.05	-0.14	97	443	82	77
48	8.259	0.172	0.051	1.24	85	-1.5	-	5.92	-0.13	97	441	82	77
49	8.431	0.172	0.051	1.25	86	-1.5	-	5.80	-0.12	97	438	82	77
50	8.603	0.172	0.051	1.25	86	-1.4	101	5.67	-0.13	97	435	82	77
51	8.775	0.172	0.050	1.24	86	-1.5	-	5.54	-0.13	97	432	82	77
52	8.947	0.172	0.052	1.26	86	-1.4	-	5.42	-0.12	97	431	82	77
53	9.119	0.172	0.050	1.23	87	-1.4	-	5.29	-0.13	97	429	82	77
54	9.291	0.172	0.052	1.23	87	-1.4	-	5.17	-0.12	97	428	82	77
55	9.463	0.172	0.052	1.24	87	-1.5	-	5.05	-0.12	97	426	82	77
56	9.635	0.172	0.052	1.23	88	-1.5	-	4.92	-0.13	97	426	82	77
57	9.807	0.172	0.050	1.23	88	-1.5	-	4.81	-0.11	96	425	82	77
58	9.980	0.173	0.050	1.25	88	-1.5	-	4.69	-0.12	96	420	82	77
59	10.152	0.172	0.051	1.23	88	-1.5	-	4.60	-0.09	96	414	82	77
60	10.324	0.172	0.051	1.25	88	-1.5	100	4.51	-0.09	96	406	82	77
61	10.497	0.173	0.050	1.24	89	-1.4	-	4.42	-0.09	95	401	82	77
62	10.669	0.172	0.051	1.25	89	-1.5	-	4.33	-0.09	95	396	82	77
63	10.842	0.173	0.050	1.25	89	-1.6	-	4.24	-0.09	95	392	82	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	11.014	0.172	0.051	1.24	89	-1.5	-	4.16	-0.08	95	389	82	77
65	11.187	0.173	0.051	1.24	90	-1.5	-	4.08	-0.08	95	385	82	77
66	11.360	0.173	0.052	1.25	90	-1.5	-	3.99	-0.09	94	382	82	77
67	11.532	0.172	0.051	1.25	90	-1.6	-	3.91	-0.08	94	379	82	77
68	11.705	0.173	0.051	1.24	90	-1.6	-	3.82	-0.09	94	376	82	77
69	11.878	0.173	0.051	1.25	90	-1.5	-	3.75	-0.07	94	373	82	77
70	12.051	0.173	0.051	1.25	91	-1.6	100	3.68	-0.07	94	368	82	77
71	12.223	0.172	0.052	1.25	91	-1.5	-	3.61	-0.07	94	364	82	77
72	12.396	0.173	0.052	1.24	91	-1.6	-	3.55	-0.06	93	360	82	77
73	12.568	0.172	0.052	1.23	91	-1.6	-	3.48	-0.07	93	355	82	77
74	12.741	0.173	0.051	1.24	92	-1.6	-	3.41	-0.07	93	352	82	77
75	12.914	0.173	0.051	1.24	92	-1.6	-	3.35	-0.06	93	350	82	77
76	13.086	0.172	0.051	1.24	92	-1.5	-	3.28	-0.07	93	348	82	77
77	13.259	0.173	0.051	1.25	92	-1.6	-	3.17	-0.11	93	344	82	77
78	13.433	0.174	0.051	1.24	92	-1.7	-	3.11	-0.06	92	342	81	77
79	13.606	0.173	0.051	1.25	92	-1.6	-	3.03	-0.08	92	341	81	77
80	13.779	0.173	0.051	1.24	93	-1.6	100	2.97	-0.06	92	339	81	77
81	13.952	0.173	0.051	1.24	93	-1.6	-	2.90	-0.07	92	338	81	77
82	14.125	0.173	0.051	1.27	93	-1.6	-	2.84	-0.06	92	337	81	77
83	14.298	0.173	0.050	1.25	93	-1.5	-	2.77	-0.07	92	335	81	77
84	14.472	0.174	0.051	1.24	93	-1.6	-	2.71	-0.06	92	332	81	77
85	14.645	0.173	0.051	1.24	93	-1.6	-	2.65	-0.06	92	328	81	77
86	14.819	0.174	0.051	1.25	94	-1.6	-	2.60	-0.05	91	325	81	77
87	14.992	0.173	0.051	1.24	94	-1.7	-	2.55	-0.05	91	321	81	77
88	15.165	0.173	0.051	1.25	94	-1.7	-	2.50	-0.05	91	319	81	77
89	15.339	0.174	0.049	1.24	94	-1.7	-	2.46	-0.04	91	316	81	77
90	15.513	0.174	0.052	1.25	94	-1.6	99	2.40	-0.06	91	313	81	77
91	15.686	0.173	0.051	1.25	94	-1.6	-	2.37	-0.03	91	311	81	77
92	15.860	0.174	0.050	1.24	95	-1.7	-	2.32	-0.05	91	307	81	77
93	16.033	0.173	0.052	1.24	95	-1.6	-	2.28	-0.04	91	304	81	77
94	16.207	0.174	0.051	1.26	95	-1.7	-	2.25	-0.03	90	302	81	77
95	16.380	0.173	0.050	1.24	95	-1.7	-	2.20	-0.05	90	299	81	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	16.553	0.173	0.050	1.25	95	-1.6	-	2.17	-0.03	90	296	81	77
97	16.726	0.173	0.053	1.24	95	-1.6	-	2.13	-0.04	90	293	81	77
98	16.900	0.174	0.051	1.25	95	-1.7	-	2.09	-0.04	90	291	81	77
99	17.074	0.174	0.051	1.25	96	-1.7	-	2.06	-0.03	90	289	81	77
100	17.247	0.173	0.051	1.23	96	-1.7	99	2.03	-0.03	90	286	81	77
101	17.421	0.174	0.052	1.25	96	-1.7	-	2.00	-0.03	90	284	81	77
102	17.595	0.174	0.051	1.23	96	-1.7	-	1.97	-0.03	90	281	81	77
103	17.768	0.173	0.051	1.23	96	-1.8	-	1.94	-0.03	90	278	81	77
104	17.942	0.174	0.051	1.25	96	-1.8	-	1.91	-0.03	89	275	81	77
105	18.116	0.174	0.051	1.25	96	-1.8	-	1.88	-0.03	89	272	81	77
106	18.290	0.174	0.051	1.25	96	-1.7	-	1.85	-0.03	89	270	81	77
107	18.464	0.174	0.048	1.24	97	-1.7	-	1.82	-0.03	89	268	81	77
108	18.638	0.174	0.052	1.25	97	-1.8	-	1.80	-0.02	89	266	81	77
109	18.812	0.174	0.050	1.25	97	-1.8	-	1.78	-0.02	89	264	81	77
110	18.986	0.174	0.050	1.23	97	-1.7	100	1.76	-0.02	89	261	81	77
111	19.160	0.174	0.052	1.25	97	-1.7	-	1.74	-0.02	89	258	81	77
112	19.333	0.173	0.050	1.25	97	-1.8	-	1.71	-0.03	89	256	81	77
113	19.506	0.173	0.051	1.25	97	-1.8	-	1.69	-0.02	89	254	81	77
114	19.680	0.174	0.049	1.23	97	-1.8	-	1.67	-0.02	88	253	81	77
115	19.854	0.174	0.050	1.24	97	-1.8	-	1.65	-0.02	88	251	81	77
116	20.028	0.174	0.052	1.24	98	-1.8	-	1.63	-0.02	88	249	81	77
117	20.202	0.174	0.051	1.24	98	-1.8	-	1.60	-0.03	88	248	81	77
118	20.377	0.175	0.051	1.24	98	-1.8	-	1.58	-0.02	88	247	80	77
119	20.550	0.173	0.053	1.27	98	-1.8	-	1.55	-0.03	88	245	81	77
120	20.725	0.175	0.053	1.25	98	-1.8	98	1.52	-0.03	88	244	80	77
121	20.899	0.174	0.054	1.26	98	-1.8	-	1.51	-0.01	88	244	80	77
122	21.073	0.174	0.053	1.26	98	-1.8	-	1.48	-0.03	88	242	80	77
123	21.247	0.174	0.052	1.25	98	-1.8	-	1.46	-0.02	88	241	80	77
124	21.422	0.175	0.053	1.25	98	-1.9	-	1.44	-0.02	88	241	80	77
125	21.595	0.173	0.052	1.24	98	-1.9	-	1.42	-0.02	88	239	80	77
126	21.769	0.174	0.050	1.23	98	-1.9	-	1.39	-0.03	88	238	80	77
127	21.942	0.173	0.050	1.25	98	-1.9	-	1.37	-0.02	88	237	80	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	22.117	0.175	0.050	1.23	99	-1.8	-	1.35	-0.02	88	236	80	77
129	22.291	0.174	0.052	1.24	99	-1.9	-	1.33	-0.02	88	235	80	77
130	22.465	0.174	0.051	1.25	99	-1.9	98	1.31	-0.02	88	233	80	77
131	22.640	0.175	0.047	1.23	99	-1.9	-	1.29	-0.02	88	233	80	77
132	22.814	0.174	0.050	1.25	99	-1.9	-	1.27	-0.02	87	232	80	77
133	22.989	0.175	0.050	1.25	99	-1.9	-	1.24	-0.03	87	231	80	77
134	23.163	0.174	0.053	1.24	99	-1.8	-	1.22	-0.02	87	231	80	77
135	23.337	0.174	0.049	1.25	99	-1.8	-	1.20	-0.02	87	231	80	77
136	23.512	0.175	0.052	1.25	99	-1.8	-	1.18	-0.02	87	229	80	78
137	23.686	0.174	0.051	1.24	99	-1.8	-	1.15	-0.03	87	230	80	78
138	23.859	0.173	0.052	1.23	99	-1.8	-	1.13	-0.02	87	229	80	78
139	24.033	0.174	0.052	1.25	99	-1.9	-	1.10	-0.03	87	228	80	78
140	24.207	0.174	0.052	1.24	100	-1.9	98	1.07	-0.03	87	225	80	78
141	24.382	0.175	0.051	1.25	100	-1.9	-	1.05	-0.02	87	221	80	78
142	24.556	0.174	0.051	1.23	100	-1.9	-	1.03	-0.02	87	218	80	78
143	24.731	0.175	0.051	1.25	100	-1.9	-	1.01	-0.02	87	217	80	77
144	24.905	0.174	0.051	1.25	100	-1.9	-	0.99	-0.02	87	216	80	77
145	25.080	0.175	0.053	1.24	100	-1.9	-	0.96	-0.03	87	214	80	77
146	25.254	0.174	0.052	1.25	100	-1.9	-	0.95	-0.01	87	213	80	78
147	25.429	0.175	0.052	1.24	100	-1.9	-	0.93	-0.02	87	212	80	78
148	25.604	0.175	0.052	1.24	100	-2.0	-	0.91	-0.02	87	211	80	77
149	25.777	0.173	0.052	1.25	100	-2.0	-	0.89	-0.02	87	210	80	78
150	25.951	0.174	0.052	1.27	100	-2.0	98	0.87	-0.02	87	210	80	78
151	26.125	0.174	0.053	1.25	100	-1.9	-	0.85	-0.02	87	210	80	78
152	26.300	0.175	0.052	1.23	100	-1.9	-	0.82	-0.03	87	210	80	78
153	26.474	0.174	0.052	1.25	100	-1.9	-	0.81	-0.01	86	210	80	78
154	26.649	0.175	0.051	1.26	100	-1.9	-	0.79	-0.02	86	209	80	78
155	26.823	0.174	0.054	1.25	100	-1.9	-	0.77	-0.02	86	209	80	78
156	26.998	0.175	0.052	1.26	100	-2.0	-	0.75	-0.02	86	209	80	78
157	27.173	0.175	0.052	1.25	100	-2.0	-	0.73	-0.02	86	208	80	78
158	27.347	0.174	0.051	1.25	101	-1.9	-	0.70	-0.03	86	208	80	77
159	27.522	0.175	0.052	1.25	101	-2.0	-	0.68	-0.02	86	208	80	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	27.696	0.174	0.052	1.25	101	-2.0	98	0.66	-0.02	86	208	80	78
161	27.870	0.174	0.052	1.24	101	-1.9	-	0.63	-0.03	86	207	80	78
162	28.044	0.174	0.053	1.25	101	-2.0	-	0.61	-0.02	86	207	80	78
163	28.219	0.175	0.052	1.24	101	-1.9	-	0.59	-0.02	86	207	80	78
164	28.393	0.174	0.052	1.25	101	-2.0	-	0.57	-0.02	86	206	80	77
165	28.568	0.175	0.053	1.25	101	-2.0	-	0.55	-0.02	86	205	80	78
166	28.742	0.174	0.052	1.25	101	-1.9	-	0.53	-0.02	86	205	80	78
167	28.918	0.176	0.052	1.25	101	-1.9	-	0.51	-0.02	86	205	80	78
168	29.092	0.174	0.052	1.25	101	-1.9	-	0.49	-0.02	86	205	80	77
169	29.267	0.175	0.051	1.25	101	-2.0	-	0.48	-0.01	86	205	80	77
170	29.442	0.175	0.051	1.26	101	-2.0	98	0.45	-0.03	86	206	80	77
171	29.616	0.174	0.050	1.25	101	-2.0	-	0.43	-0.02	86	204	80	77
172	29.789	0.173	0.052	1.25	101	-2.0	-	0.42	-0.01	86	203	80	77
173	29.964	0.175	0.051	1.25	101	-2.0	-	0.40	-0.02	86	203	80	77
174	30.139	0.175	0.051	1.24	101	-2.0	-	0.37	-0.03	86	203	80	77
175	30.314	0.175	0.051	1.24	101	-2.1	-	0.35	-0.02	86	203	80	77
176	30.488	0.174	0.052	1.24	101	-2.0	-	0.34	-0.01	86	203	80	77
177	30.663	0.175	0.052	1.25	101	-2.1	-	0.32	-0.02	86	203	80	77
178	30.838	0.175	0.052	1.24	101	-2.0	-	0.29	-0.03	86	202	80	77
179	31.013	0.175	0.052	1.25	101	-2.0	-	0.28	-0.01	86	203	80	77
180	31.188	0.175	0.051	1.25	101	-2.0	98	0.26	-0.02	86	203	80	78
181	31.362	0.174	0.051	1.24	101	-2.1	-	0.23	-0.03	86	203	80	78
182	31.536	0.174	0.051	1.26	101	-2.0	-	0.21	-0.02	86	203	80	78
183	31.710	0.174	0.051	1.25	101	-2.0	-	0.20	-0.01	86	202	80	78
184	31.885	0.175	0.051	1.25	101	-2.1	-	0.18	-0.02	86	201	80	78
185	32.060	0.175	0.050	1.25	101	-2.1	-	0.16	-0.02	86	200	80	77
186	32.235	0.175	0.053	1.25	101	-2.1	-	0.14	-0.02	86	201	80	77
187	32.410	0.175	0.051	1.25	101	-2.1	-	0.12	-0.02	86	201	80	77
188	32.585	0.175	0.051	1.26	101	-2.2	-	0.10	-0.02	86	200	80	78
189	32.759	0.174	0.052	1.26	102	-2.1	-	0.08	-0.02	86	201	80	77
190	32.934	0.175	0.052	1.24	102	-2.1	98	0.07	-0.01	86	199	80	78
191	33.108	0.174	0.051	1.23	102	-2.1	-	0.05	-0.02	86	198	80	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	33.282	0.174	0.050	1.25	102	-2.1	-	0.03	-0.02	86	198	80	78
193	33.457	0.175	0.051	1.24	102	-2.1	-	0.02	-0.01	86	197	80	78
194	33.631	0.174	0.052	1.27	102	-2.2	98	0.00	-0.02	86	197	80	77
Avg/Tot	33.634	0.173	0.051	1.24	92.1	-1.7	100			92.3	323.5	80.7	76.9

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	-0.003		0.00	74	-0.5		76	0.057	1.05	0.307
1	0.142	0.145	1.27	74	-1.5	-	79	0.051	1.55	0.343
2	0.308	0.166	1.24	74	-1.5	-	80	0.079	1.74	0.259
3	0.472	0.164	1.23	74	-1.5	-	82	0.110	3.76	0.076
4	0.635	0.163	1.21	74	-1.5	-	85	0.109	5.74	0.086
5	0.800	0.165	1.22	74	-1.5	-	85	0.090	9.38	1.080
6	0.963	0.163	1.24	74	-1.5	-	83	0.086	9.25	0.458
7	1.126	0.163	1.21	74	-1.5	-	83	0.084	9.43	0.662
8	1.290	0.164	1.24	75	-1.5	-	83	0.089	8.84	0.463
9	1.452	0.162	1.22	75	-1.6	-	83	0.091	9.10	0.449
10	1.615	0.163	1.19	75	-1.6	105	83	0.090	9.63	0.580
11	1.779	0.164	1.19	75	-1.6	-	83	0.092	10.31	0.734
12	1.940	0.161	1.20	75	-1.4	-	83	0.093	10.54	0.766
13	2.104	0.164	1.20	76	-1.4	-	84	0.098	11.06	0.852
14	2.265	0.161	1.21	76	-1.4	-	84	0.090	11.40	0.928
15	2.427	0.162	1.21	76	-1.4	-	84	0.089	12.29	1.109
16	2.590	0.163	1.19	76	-1.5	-	84	0.091	13.06	1.310
17	2.750	0.160	1.20	77	-1.4	-	84	0.098	13.32	1.159
18	2.914	0.164	1.21	77	-1.5	-	84	0.089	13.08	1.109
19	3.075	0.161	1.19	77	-1.4	-	84	0.094	13.21	1.188
20	3.237	0.162	1.20	77	-1.5	105	84	0.089	13.46	1.278
21	3.399	0.162	1.20	78	-1.4	-	84	0.094	13.72	1.270
22	3.559	0.160	1.18	78	-1.5	-	84	0.090	13.90	1.286
23	3.722	0.163	1.21	78	-1.4	-	84	0.088	13.97	1.373
24	3.883	0.161	1.18	79	-1.4	-	84	0.089	13.94	1.288
25	4.045	0.162	1.22	79	-1.6	-	85	0.090	14.07	1.127
26	4.206	0.161	1.21	79	-1.5	-	85	0.093	14.09	1.080
27	4.367	0.161	1.19	80	-1.5	-	85	0.095	14.13	1.042
28	4.529	0.162	1.19	80	-1.4	-	85	0.091	14.16	1.038
29	4.689	0.160	1.21	80	-1.4	-	85	0.093	14.07	1.057
30	4.852	0.163	1.19	80	-1.4	103	85	0.094	14.03	0.991
31	5.011	0.159	1.19	81	-1.6	-	85	0.093	13.92	0.882

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
32	5.174	0.163	1.21	81	-1.4	-	85	0.097	13.69	0.764
33	5.334	0.160	1.17	81	-1.4	-	85	0.092	13.31	0.650
34	5.495	0.161	1.17	82	-1.4	-	85	0.092	13.01	0.521
35	5.657	0.162	1.20	82	-1.5	-	85	0.092	12.68	0.425
36	5.817	0.160	1.19	82	-1.4	-	85	0.092	12.42	0.388
37	5.979	0.162	1.18	83	-1.4	-	85	0.089	12.27	0.482
38	6.139	0.160	1.17	83	-1.4	-	85	0.090	12.08	0.511
39	6.302	0.163	1.18	83	-1.5	-	85	0.089	11.71	0.430
40	6.462	0.160	1.17	84	-1.6	102	85	0.090	11.63	0.230
41	6.624	0.162	1.19	84	-1.4	-	85	0.087	11.60	0.181
42	6.785	0.161	1.19	84	-1.4	-	85	0.090	11.53	0.154
43	6.945	0.160	1.20	85	-1.5	-	85	0.090	11.38	0.142
44	7.105	0.160	1.17	85	-1.5	-	85	0.086	11.29	0.115
45	7.266	0.161	1.22	85	-1.4	-	85	0.087	11.15	0.104
46	7.429	0.163	1.19	86	-1.5	-	85	0.083	11.10	0.098
47	7.589	0.160	1.20	86	-1.4	-	85	0.082	11.02	0.095
48	7.752	0.163	1.20	86	-1.4	-	85	0.085	11.00	0.098
49	7.913	0.161	1.18	86	-1.5	-	85	0.079	10.86	0.096
50	8.074	0.161	1.17	87	-1.5	101	85	0.093	10.84	0.090
51	8.236	0.162	1.19	87	-1.4	-	85	0.083	10.77	0.092
52	8.397	0.161	1.19	87	-1.4	-	85	0.085	10.79	0.100
53	8.560	0.163	1.21	88	-1.4	-	85	0.083	10.82	0.110
54	8.720	0.160	1.17	88	-1.5	-	85	0.080	10.78	0.121
55	8.883	0.163	1.20	88	-1.4	-	85	0.087	10.82	0.144
56	9.045	0.162	1.19	88	-1.4	-	85	0.085	10.75	0.145
57	9.205	0.160	1.19	89	-1.5	-	85	0.084	10.56	0.121
58	9.369	0.164	1.18	89	-1.5	-	85	0.078	9.91	0.121
59	9.530	0.161	1.20	89	-1.3	-	85	0.082	9.62	0.132
60	9.693	0.163	1.18	89	-1.4	100	85	0.079	9.24	0.144
61	9.854	0.161	1.18	90	-1.4	-	85	0.079	9.09	0.161
62	10.016	0.162	1.18	90	-1.5	-	85	0.076	8.96	0.175
63	10.179	0.163	1.17	90	-1.5	-	85	0.078	8.91	0.184

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
64	10.340	0.161	1.19	90	-1.4	-	85	0.079	8.83	0.185
65	10.504	0.164	1.19	91	-1.4	-	85	0.087	8.83	0.200
66	10.666	0.162	1.17	91	-1.5	-	85	0.079	8.75	0.220
67	10.828	0.162	1.17	91	-1.4	-	85	0.079	8.67	0.217
68	10.991	0.163	1.19	91	-1.5	-	85	0.075	8.53	0.215
69	11.153	0.162	1.19	92	-1.5	-	85	0.071	8.37	0.229
70	11.316	0.163	1.20	92	-1.5	100	85	0.074	8.23	0.248
71	11.479	0.163	1.19	92	-1.4	-	85	0.074	8.00	0.272
72	11.640	0.161	1.19	92	-1.4	-	84	0.074	7.97	0.301
73	11.805	0.165	1.20	92	-1.5	-	84	0.076	7.82	0.340
74	11.967	0.162	1.19	93	-1.4	-	84	0.069	7.76	0.337
75	12.129	0.162	1.19	93	-1.4	-	84	0.073	7.74	0.328
76	12.293	0.164	1.20	93	-1.3	-	84	0.074	7.61	0.318
77	12.455	0.162	1.20	93	-1.4	-	84	0.074	7.71	0.318
78	12.617	0.162	1.19	93	-1.4	-	84	0.071	7.78	0.317
79	12.782	0.165	1.17	94	-1.5	-	84	0.075	7.80	0.314
80	12.944	0.162	1.19	94	-1.3	100	84	0.077	7.85	0.305
81	13.107	0.163	1.20	94	-1.4	-	84	0.070	7.75	0.292
82	13.271	0.164	1.18	94	-1.4	-	84	0.073	7.69	0.298
83	13.433	0.162	1.20	94	-1.4	-	84	0.072	7.59	0.292
84	13.597	0.164	1.19	94	-1.3	-	84	0.068	7.34	0.308
85	13.760	0.163	1.20	95	-1.4	-	84	0.075	7.14	0.296
86	13.922	0.162	1.17	95	-1.4	-	84	0.067	7.07	0.293
87	14.087	0.165	1.20	95	-1.4	-	84	0.073	6.97	0.282
88	14.250	0.163	1.19	95	-1.4	-	84	0.068	6.90	0.282
89	14.412	0.162	1.19	95	-1.4	-	84	0.064	6.80	0.270
90	14.577	0.165	1.19	95	-1.5	99	84	0.065	6.66	0.266
91	14.740	0.163	1.18	96	-1.4	-	84	0.065	6.58	0.270
92	14.902	0.162	1.20	96	-1.5	-	84	0.071	6.46	0.278
93	15.067	0.165	1.21	96	-1.3	-	84	0.067	6.31	0.302
94	15.230	0.163	1.18	96	-1.5	-	84	0.064	6.21	0.311
95	15.392	0.162	1.23	96	-1.4	-	84	0.062	6.11	0.312

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
96	15.558	0.166	1.20	96	-1.5	-	84	0.069	6.04	0.322
97	15.720	0.162	1.19	97	-1.3	-	83	0.060	6.05	0.323
98	15.883	0.163	1.22	97	-1.5	-	83	0.063	5.99	0.322
99	16.048	0.165	1.18	97	-1.4	-	83	0.062	5.92	0.332
100	16.211	0.163	1.22	97	-1.4	99	83	0.067	5.85	0.336
101	16.374	0.163	1.20	97	-1.4	-	83	0.062	5.69	0.341
102	16.539	0.165	1.19	97	-1.4	-	83	0.062	5.50	0.378
103	16.702	0.163	1.20	97	-1.4	-	83	0.059	5.32	0.409
104	16.865	0.163	1.21	97	-1.5	-	83	0.061	5.26	0.410
105	17.030	0.165	1.19	98	-1.3	-	83	0.063	5.21	0.415
106	17.193	0.163	1.20	98	-1.4	-	83	0.056	5.23	0.415
107	17.356	0.163	1.19	98	-1.5	-	83	0.064	5.17	0.408
108	17.522	0.166	1.19	98	-1.4	-	83	0.060	4.83	0.446
109	17.685	0.163	1.20	98	-1.5	-	83	0.056	4.74	0.498
110	17.848	0.163	1.21	98	-1.5	100	83	0.059	4.64	0.539
111	18.013	0.165	1.22	98	-1.4	-	83	0.058	4.61	0.563
112	18.176	0.163	1.20	98	-1.3	-	83	0.061	4.59	0.598
113	18.339	0.163	1.20	98	-1.4	-	83	0.057	4.61	0.608
114	18.505	0.166	1.18	99	-1.4	-	83	0.060	4.63	0.622
115	18.668	0.163	1.20	99	-1.5	-	83	0.057	4.62	0.622
116	18.831	0.163	1.20	99	-1.4	-	83	0.054	4.64	0.626
117	18.997	0.166	1.22	99	-1.5	-	83	0.057	4.64	0.625
118	19.160	0.163	1.21	99	-1.3	-	83	0.058	4.63	0.655
119	19.324	0.164	1.21	99	-1.5	-	83	0.055	4.64	0.662
120	19.489	0.165	1.19	99	-1.5	99	83	0.060	4.63	0.667
121	19.653	0.164	1.19	99	-1.4	-	83	0.051	4.54	0.658
122	19.816	0.163	1.20	99	-1.4	-	83	0.058	4.53	0.658
123	19.981	0.165	1.14	99	-1.5	-	83	0.052	4.54	0.667
124	20.145	0.164	1.18	99	-1.3	-	83	0.054	4.55	0.670
125	20.308	0.163	1.22	99	-1.4	-	83	0.052	4.51	0.677
126	20.473	0.165	1.24	99	-1.4	-	83	0.060	4.46	0.684
127	20.638	0.165	1.18	100	-1.5	-	83	0.058	4.46	0.691

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
128	20.801	0.163	1.19	100	-1.3	-	83	0.052	4.45	0.714
129	20.965	0.164	1.19	100	-1.5	-	83	0.052	4.44	0.720
130	21.130	0.165	1.19	100	-1.3	98	83	0.054	4.43	0.757
131	21.294	0.164	1.19	100	-1.5	-	83	0.059	4.43	0.755
132	21.458	0.164	1.19	100	-1.5	-	83	0.049	4.41	0.756
133	21.623	0.165	1.22	100	-1.5	-	83	0.056	4.39	0.762
134	21.787	0.164	1.21	100	-1.5	-	83	0.054	4.43	0.732
135	21.950	0.163	1.21	100	-1.4	-	83	0.053	4.54	0.737
136	22.116	0.166	1.16	100	-1.4	-	83	0.053	4.57	0.725
137	22.280	0.164	1.21	100	-1.5	-	83	0.057	4.53	0.736
138	22.443	0.163	1.23	100	-1.4	-	82	0.050	4.56	0.734
139	22.609	0.166	1.19	100	-1.3	-	82	0.049	4.56	0.748
140	22.773	0.164	1.18	101	-1.4	98	82	0.045	4.59	0.738
141	22.936	0.163	1.21	101	-1.4	-	82	0.052	4.57	0.758
142	23.101	0.165	1.25	101	-1.4	-	82	0.053	4.58	0.780
143	23.266	0.165	1.19	101	-1.5	-	82	0.052	4.58	0.787
144	23.430	0.164	1.16	101	-1.5	-	82	0.050	4.49	0.773
145	23.594	0.164	1.20	101	-1.4	-	82	0.051	4.52	0.776
146	23.760	0.166	1.20	101	-1.5	-	82	0.044	4.51	0.804
147	23.924	0.164	1.20	101	-1.4	-	82	0.048	4.48	0.786
148	24.087	0.163	1.21	101	-1.5	-	82	0.055	4.43	0.775
149	24.253	0.166	1.22	101	-1.5	-	82	0.052	4.38	0.782
150	24.417	0.164	1.19	101	-1.5	98	82	0.047	4.39	0.804
151	24.581	0.164	1.19	101	-1.5	-	82	0.044	4.41	0.796
152	24.746	0.165	1.25	101	-1.5	-	82	0.054	4.40	0.818
153	24.911	0.165	1.20	101	-1.4	-	82	0.049	4.40	0.816
154	25.074	0.163	1.24	101	-1.4	-	82	0.045	4.41	0.830
155	25.239	0.165	1.20	101	-1.4	-	82	0.046	4.42	0.832
156	25.405	0.166	1.17	101	-1.5	-	82	0.048	4.43	0.826
157	25.568	0.163	1.20	101	-1.5	-	82	0.053	4.42	0.816
158	25.732	0.164	1.18	101	-1.5	-	82	0.051	4.43	0.828
159	25.898	0.166	1.18	102	-1.4	-	82	0.054	4.41	0.829

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
160	26.062	0.164	1.21	101	-1.3	98	82	0.053	4.42	0.821
161	26.226	0.164	1.22	102	-1.4	-	82	0.051	4.44	0.787
162	26.391	0.165	1.19	102	-1.5	-	82	0.052	4.41	0.780
163	26.556	0.165	1.22	102	-1.5	-	82	0.043	4.48	0.758
164	26.720	0.164	1.19	102	-1.4	-	82	0.049	4.46	0.736
165	26.884	0.164	1.20	102	-1.4	-	82	0.048	4.32	0.782
166	27.050	0.166	1.20	102	-1.5	-	82	0.052	4.34	0.762
167	27.214	0.164	1.19	102	-1.3	-	82	0.044	4.32	0.763
168	27.378	0.164	1.19	102	-1.5	-	82	0.049	4.33	0.767
169	27.544	0.166	1.20	102	-1.3	-	82	0.051	4.35	0.762
170	27.709	0.165	1.21	102	-1.5	98	82	0.048	4.42	0.726
171	27.873	0.164	1.20	102	-1.5	-	82	0.048	4.44	0.726
172	28.037	0.164	1.23	102	-1.4	-	82	0.044	4.36	0.713
173	28.203	0.166	1.22	102	-1.5	-	82	0.050	4.38	0.720
174	28.367	0.164	1.21	102	-1.4	-	82	0.045	4.38	0.722
175	28.531	0.164	1.20	102	-1.5	-	82	0.046	4.41	0.716
176	28.697	0.166	1.23	102	-1.5	-	82	0.050	4.43	0.716
177	28.862	0.165	1.20	102	-1.5	-	82	0.044	4.48	0.709
178	29.025	0.163	1.18	102	-1.4	-	82	0.042	4.37	0.653
179	29.191	0.166	1.20	102	-1.3	-	82	0.042	4.32	0.656
180	29.356	0.165	1.19	102	-1.5	99	82	0.047	4.36	0.647
181	29.520	0.164	1.20	102	-1.5	-	82	0.046	4.38	0.644
182	29.684	0.164	1.20	102	-1.4	-	82	0.048	4.42	0.644
183	29.850	0.166	1.22	102	-1.5	-	82	0.045	4.53	0.619
184	30.014	0.164	1.22	102	-1.4	-	82	0.040	4.46	0.616
185	30.178	0.164	1.20	102	-1.5	-	82	0.041	4.47	0.619
186	30.344	0.166	1.19	102	-1.4	-	82	0.042	4.51	0.610
187	30.509	0.165	1.23	102	-1.5	-	82	0.040	4.56	0.598
188	30.673	0.164	1.19	102	-1.5	-	82	0.042	4.57	0.581
189	30.837	0.164	1.19	102	-1.5	-	82	0.049	3.96	0.664
190	31.004	0.167	1.22	103	-1.3	98	82	0.051	3.57	0.763
191	31.168	0.164	1.21	102	-1.4	-	82	0.046	3.50	0.749

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
192	31.332	0.164	1.20	102	-1.5	-	82	0.051	3.48	0.746
193	31.498	0.166	1.21	102	-1.5	-	82	0.049	3.44	0.775
194	31.663	0.165	1.20	102	-1.4	98	82	0.046	3.46	0.782
Avg/Tot	31.666	0.163	1.19	92.9	-1.4	100	83.3	0.067	7.15	0.567

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

Stove ΔT: 84

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	464	356	187	452	373	366.4	N/A
1	460	353	189	441	375	363.6	N/A
2	459	353	200	431	376	363.6	N/A
3	454	353	200	444	377	365.7	N/A
4	450	355	202	485	379	374.4	N/A
5	449	360	197	530	379	383.0	N/A
6	446	361	199	570	379	390.9	N/A
7	445	364	197	604	380	397.8	N/A
8	439	363	201	633	380	403.0	N/A
9	436	363	204	655	379	407.5	N/A
10	430	365	204	678	378	411.0	N/A
11	424	367	204	698	378	414.1	N/A
12	421	367	205	717	377	417.3	N/A
13	419	368	198	735	375	419.2	N/A
14	415	369	203	748	374	421.8	N/A
15	412	371	198	759	373	422.6	N/A
16	410	373	165	752	372	414.4	N/A
17	409	374	165	753	370	414.3	N/A
18	406	375	159	752	369	412.1	N/A
19	405	377	158	755	367	412.4	N/A
20	403	378	157	759	365	412.2	N/A
21	402	378	155	760	364	411.8	N/A
22	402	380	155	764	362	412.6	N/A
23	400	382	152	769	360	412.7	N/A
24	402	385	151	773	358	413.6	N/A
25	403	388	159	777	356	416.6	N/A
26	404	389	150	779	354	415.0	N/A
27	404	393	149	781	352	415.9	N/A
28	406	395	147	784	350	416.5	N/A
29	406	398	147	786	348	417.0	N/A
30	409	400	146	787	346	417.7	N/A
31	410	404	148	790	344	419.4	N/A
32	412	407	145	796	343	420.4	N/A
33	415	408	145	794	341	420.4	N/A
34	416	411	144	794	339	420.7	N/A
35	419	413	143	793	338	420.9	N/A
36	422	413	143	789	336	420.5	N/A
37	423	414	142	788	335	420.3	N/A
38	425	417	143	791	333	421.8	N/A
39	429	415	141	788	332	420.8	N/A
40	433	416	142	785	331	421.0	N/A
41	434	417	141	778	329	419.8	N/A
42	435	418	140	775	328	419.4	N/A
43	437	420	140	769	327	418.6	N/A
44	439	420	140	766	326	418.1	N/A
45	443	420	141	760	325	417.6	N/A
46	443	421	140	757	323	416.8	N/A
47	444	419	140	751	323	415.2	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

Stove ΔT: 84

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	447	420	140	747	322	415.1	N/A
49	448	420	140	744	321	414.4	N/A
50	449	420	139	743	320	414.2	N/A
51	451	418	140	737	319	413.0	N/A
52	453	417	140	734	318	412.4	N/A
53	453	418	139	730	317	411.4	N/A
54	454	419	139	731	317	411.8	N/A
55	455	417	139	728	316	410.9	N/A
56	455	416	140	725	315	410.3	N/A
57	458	414	139	722	315	409.6	N/A
58	458	414	139	716	314	408.2	N/A
59	461	412	138	711	314	407.1	N/A
60	461	411	139	705	313	405.9	N/A
61	460	411	138	698	313	404.0	N/A
62	461	409	138	691	312	402.3	N/A
63	462	406	139	684	311	400.7	N/A
64	462	404	138	678	311	398.7	N/A
65	464	402	139	671	311	397.2	N/A
66	464	398	139	666	310	395.3	N/A
67	465	397	138	661	310	394.2	N/A
68	465	396	139	658	309	393.4	N/A
69	466	392	139	647	309	390.6	N/A
70	465	391	138	641	309	388.6	N/A
71	467	391	140	636	308	388.6	N/A
72	467	385	139	629	308	385.5	N/A
73	467	385	138	622	308	383.9	N/A
74	468	384	137	613	307	381.7	N/A
75	466	380	139	605	307	379.4	N/A
76	468	379	138	600	307	378.3	N/A
77	468	378	138	597	306	377.4	N/A
78	468	376	137	595	306	376.4	N/A
79	469	374	137	595	306	376.2	N/A
80	468	371	138	591	306	374.7	N/A
81	470	370	138	589	305	374.6	N/A
82	472	369	139	590	305	374.8	N/A
83	471	366	138	587	305	373.6	N/A
84	472	364	137	584	305	372.4	N/A
85	473	363	138	581	304	372.0	N/A
86	473	360	137	576	304	370.2	N/A
87	476	360	137	573	304	369.9	N/A
88	478	360	139	569	304	370.0	N/A
89	477	357	137	562	304	367.4	N/A
90	477	355	137	559	304	366.3	N/A
91	477	354	137	555	304	365.4	N/A
92	478	353	137	549	304	364.1	N/A
93	478	351	137	543	304	362.5	N/A
94	479	352	137	537	304	361.6	N/A
95	478	350	136	533	304	360.2	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

Stove ΔT: 84

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	479	349	137	525	304	358.7	N/A
97	478	347	137	521	304	357.2	N/A
98	477	346	136	518	304	356.1	N/A
99	478	344	137	512	304	354.9	N/A
100	477	343	137	508	304	353.8	N/A
101	477	344	136	504	304	352.9	N/A
102	478	344	138	499	304	352.7	N/A
103	478	342	136	492	305	350.4	N/A
104	475	340	137	487	304	348.5	N/A
105	476	341	137	483	305	348.2	N/A
106	475	339	137	477	305	346.4	N/A
107	474	338	136	473	305	345.1	N/A
108	474	336	137	469	305	344.2	N/A
109	471	335	137	465	305	342.7	N/A
110	472	333	136	460	306	341.3	N/A
111	469	333	137	455	306	339.8	N/A
112	468	332	136	450	306	338.3	N/A
113	468	331	136	445	306	337.1	N/A
114	466	330	143	440	306	337.0	N/A
115	464	327	135	436	306	333.9	N/A
116	462	326	136	434	307	332.8	N/A
117	460	325	136	428	307	331.2	N/A
118	458	324	136	425	307	329.8	N/A
119	456	322	136	422	307	328.6	N/A
120	456	323	138	419	307	328.4	N/A
121	453	320	136	415	307	326.3	N/A
122	452	319	136	413	307	325.3	N/A
123	451	319	136	410	307	324.4	N/A
124	449	317	135	407	308	322.9	N/A
125	448	316	135	405	308	322.3	N/A
126	445	315	136	401	308	320.6	N/A
127	443	314	137	397	308	319.8	N/A
128	446	314	143	392	308	320.7	N/A
129	442	312	138	391	308	318.3	N/A
130	441	311	137	389	308	317.2	N/A
131	438	310	137	386	308	315.8	N/A
132	439	309	138	382	308	315.4	N/A
133	434	308	136	382	308	313.5	N/A
134	434	307	136	379	308	312.8	N/A
135	432	307	136	377	308	311.9	N/A
136	431	306	136	376	308	311.3	N/A
137	428	305	136	375	308	310.5	N/A
138	427	304	136	373	307	309.5	N/A
139	425	305	138	372	308	309.5	N/A
140	424	305	145	371	308	310.4	N/A
141	422	303	136	370	307	307.6	N/A
142	421	303	136	368	307	306.9	N/A
143	420	301	137	366	307	306.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

Stove ΔT: 84

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	418	301	143	363	307	306.6	N/A
145	419	301	144	362	307	306.5	N/A
146	417	300	144	361	307	305.8	N/A
147	416	300	139	359	307	304.0	N/A
148	417	298	137	358	307	303.2	N/A
149	417	296	137	356	306	302.5	N/A
150	416	294	137	354	306	301.5	N/A
151	415	294	137	353	306	301.2	N/A
152	413	293	137	351	306	300.0	N/A
153	413	291	137	349	306	299.1	N/A
154	413	291	138	349	306	299.1	N/A
155	411	291	137	348	305	298.4	N/A
156	411	290	137	346	305	297.9	N/A
157	409	290	137	345	305	297.2	N/A
158	408	289	137	345	305	296.7	N/A
159	408	287	137	344	304	295.9	N/A
160	408	286	137	342	304	295.4	N/A
161	407	287	138	342	304	295.5	N/A
162	406	285	136	342	303	294.4	N/A
163	406	285	137	341	303	294.3	N/A
164	406	286	137	341	303	294.5	N/A
165	404	285	136	340	303	293.2	N/A
166	404	284	136	339	303	293.1	N/A
167	404	283	136	338	302	292.8	N/A
168	404	283	136	335	302	292.0	N/A
169	401	283	137	336	302	291.7	N/A
170	400	283	135	336	302	291.3	N/A
171	401	283	140	334	302	292.0	N/A
172	400	282	137	333	302	290.5	N/A
173	399	281	135	335	301	290.3	N/A
174	398	282	136	333	301	290.2	N/A
175	398	281	137	333	301	290.1	N/A
176	397	282	137	332	301	289.8	N/A
177	395	280	135	332	301	288.4	N/A
178	395	281	136	331	301	288.7	N/A
179	394	279	135	329	301	287.6	N/A
180	393	279	135	328	301	287.2	N/A
181	390	278	136	327	301	286.3	N/A
182	390	277	138	328	301	286.8	N/A
183	390	277	135	326	301	285.8	N/A
184	388	277	136	326	301	285.5	N/A
185	388	277	135	326	300	285.4	N/A
186	386	277	135	325	300	284.8	N/A
187	385	276	137	326	301	284.9	N/A
188	384	276	136	325	301	284.4	N/A
189	385	275	137	326	301	284.6	N/A
190	383	276	140	326	301	285.2	N/A
191	384	275	141	327	301	285.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

Stove ΔT: **84**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	383	275	136	326	301	284.1	N/A
193	383	274	137	325	301	284.0	N/A
194	381	273	135	323	301	282.6	N/A
Average	435.7	344.8	144.2	528.2	318.4	354.3	N/A

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.004		0.04	74	-0.5		74
1	0.137	0.133	1.27	74	-2.2	-	74
2	0.307	0.170	1.27	74	-2.0	-	74
3	0.475	0.168	1.28	74	-2.2	-	75
4	0.643	0.168	1.28	74	-2.0	-	76
5	0.810	0.167	1.28	75	-2.1	-	76
6	0.979	0.169	1.28	75	-2.2	-	77
7	1.148	0.169	1.29	75	-2.2	-	77
8	1.318	0.170	1.30	75	-2.1	-	78
9	1.489	0.171	1.31	75	-2.2	-	78
10	1.661	0.172	1.32	75	-2.1	97	78
11	1.833	0.172	1.33	75	-2.1	-	79
12	2.005	0.172	1.32	75	-2.2	-	79
13	2.177	0.172	1.33	76	-2.1	-	79
14	2.350	0.173	1.33	76	-2.1	-	79
15	2.524	0.174	1.34	76	-2.1	-	80
16	2.699	0.175	1.35	76	-2.2	-	80
17	2.874	0.175	1.34	77	-2.3	-	80
18	3.049	0.175	1.36	77	-2.1	-	80
19	3.226	0.177	1.36	77	-2.3	-	80
20	3.401	0.175	1.38	78	-2.2	103	80
21	3.577	0.176	1.37	78	-2.1	-	80
22	3.752	0.175	1.37	78	-2.3	-	80
23	3.929	0.177	1.38	78	-2.3	-	80
24	4.107	0.178	1.38	79	-2.1	-	81
25	4.285	0.178	1.38	79	-2.3	-	81
26	4.462	0.177	1.38	79	-2.1	-	81
27	4.637	0.175	1.39	80	-2.3	-	81
28	4.816	0.179	1.38	80	-2.3	-	81
29	4.995	0.179	1.39	81	-2.3	-	81
30	5.172	0.177	1.40	81	-2.2	103	81
31	5.349	0.177	1.40	81	-2.3	-	81

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.527	0.178	1.38	82	-2.2	-	81
33	5.706	0.179	1.40	82	-2.3	-	81
34	5.885	0.179	1.40	82	-2.2	-	81
35	6.062	0.177	1.39	83	-2.1	-	81
36	6.240	0.178	1.39	83	-2.1	-	81
37	6.420	0.180	1.41	84	-2.1	-	81
38	6.599	0.179	1.40	84	-2.3	-	81
39	6.776	0.177	1.40	84	-2.3	-	81
40	6.955	0.179	1.39	85	-2.1	102	81
41	7.136	0.181	1.40	85	-2.3	-	81
42	7.314	0.178	1.39	86	-2.2	-	82
43	7.491	0.177	1.39	86	-2.3	-	81
44	7.668	0.177	1.39	86	-2.1	-	82
45	7.849	0.181	1.41	87	-2.2	-	82
46	8.028	0.179	1.39	87	-2.2	-	81
47	8.205	0.177	1.39	87	-2.3	-	81
48	8.386	0.181	1.40	88	-2.3	-	81
49	8.566	0.180	1.41	88	-2.3	-	81
50	8.744	0.178	1.40	88	-2.3	102	81
51	8.924	0.180	1.40	89	-2.3	-	81
52	9.105	0.181	1.40	89	-2.3	-	81
53	9.283	0.178	1.40	89	-2.2	-	81
54	9.463	0.180	1.39	90	-2.2	-	81
55	9.645	0.182	1.40	90	-2.2	-	81
56	9.823	0.178	1.41	90	-2.2	-	81
57	10.003	0.180	1.40	91	-2.2	-	81
58	10.185	0.182	1.41	91	-2.3	-	81
59	10.364	0.179	1.41	91	-2.3	-	81
60	10.543	0.179	1.39	92	-2.1	101	81
Avg/Tot	10.539	0.176	1.35	81.6	-2.2	101	80.0

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F2450-2
Run #: 4

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 6/28/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	G01099	244.2	245.2	1.0
	B	G01101	245.7	247.0	1.3
	C - 1st Hour	G01100	246.1	246.5	0.4
	Amb	G01102	244.6	244.7	0.1
Probes	**A**	11A	116868.6	116868.6	0.0
	B	11C	116188.2	116188.4	0.2
	C - 1st Hour	11B	117342.4	117342.5	0.1
O-rings	**A**	12A	3585.9	3586.6	0.7
	B	12C	3615.9	3616.0	0.1
	C - 1st Hour	12B	3550.8	3551.4	0.6

Placed in Dessicator on:	6/28/2024

		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**		245.2	7/1 13:15	245.2	7/3 12:45				
	B		246.8	7/1 13:15	247.0	7/3 12:45				
	C - 1st Hour		246.3	7/1 13:15	246.5	7/3 12:45				
	Amb		244.7	7/1 13:15	244.7	7/3 12:45				
Probes	**A**		116868.7	7/1 13:15	116868.6	7/3 12:45				
	B		116188.2	7/1 13:15	116188.4	7/3 12:45				
	C - 1st Hour		117342.5	7/1 13:15	117342.5	7/3 12:45				
O-Rings	**A**		3586.6	7/1 13:15	3586.6	7/3 12:45				
	B		3615.9	7/1 13:15	3616.0	7/3 12:45				
	C - 1st Hour		3551.2	7/1 13:15	3551.4	7/3 12:45				

Train A Aggregate, mg:	**1.7**
Train B Aggregate, mg:	**1.6**
Train C Aggregate, mg:	**1.1**
Ambient, mg:	**0.1**

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 4 Test Date: 6/28/24

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Open 0.181”
Targeted Burn Category: III

Preburn Notes

Time	Notes
12:00 40:00	+2.13 lb Stirred Coals

Test Notes

Test Burn Start Time: 12:53 Test Fuel Loaded by: 55 seconds
Door Closed: 255 seconds Air Control Set at: 300 seconds
Other Loading Notes: Fan on high @ 15:00

Time	Notes
	-None-

Test Burn End Time: 16:07

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO_2 (%): 16.98 CO (%): 4.300
Mid Gas CO_2 (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	12:44	12:45	12:47	16:32	16:34	16:35
CO_2	0.03	17.10	10.09	0.00	17.07	10.01
CO	-0.002	4.323	2.547	-0.006	4.281	2.539

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

Technician Signature:  Date: 7/1/2024

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 4 Test Date: 6/28/24



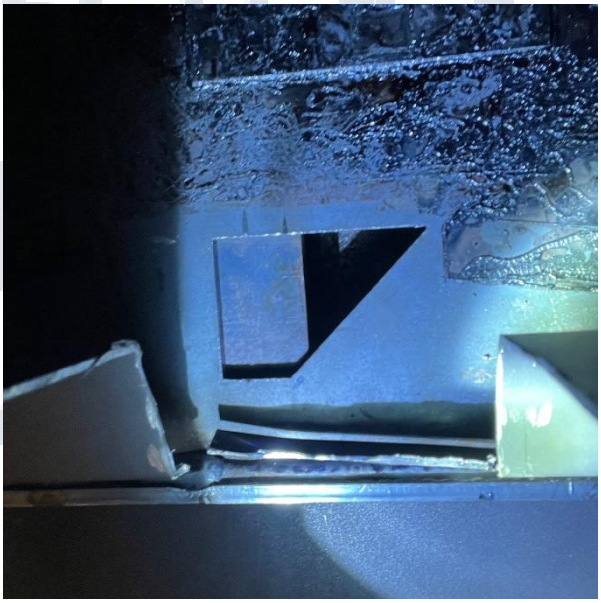
Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: Date: 7/1/2024

WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515

Run 5 Data Summary

Client:	FPI
Model:	F2450-2
Job #:	24-309
Tracking #:	201
Test Date:	7/1/2024

Techician Signature

7/17/2024
Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Burn Rate (kg/hr):	1.19

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	39.212	54.422	51.209	10.784
Average Gas Velocity in Dilution Tunnel (ft/sec)	14.0			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	37422.9			
Average Gas Meter Temperature (°F)	78.2	98.0	98.6	84.7
Total Sample Volume (dscf)	39.314	52.104	49.365	10.601
Average Tunnel Temperature (°F)	91.0			
Total Time of Test (min)	311			
Total Particulate Catch (mg)	0.2	2.7	2.6	2.4
Particulate Concentration, dry-standard (g/dscf)	0.0000051	0.0000518	0.0000527	0.0002264
Total PM Emissions (g)	0.99	9.06	9.23	8.28
Particulate Emission Rate (g/hr)	0.19	1.75	1.78	8.28
Emissions Factor (g/kg)	-	1.47	1.49	-
Difference from Average Total Particulate Emissions (g)	-	0.08	0.08	-
Difference from Average Total Particulate Emissions (%)	-	0.9%	0.9%	
Difference from Average Emissions Factor (g/kg)	-	0.01	0.01	-

Final Average Results	
Total Particulate Emissions (g)	9.15
Particulate Emission Rate (g/hr)	1.76
Emissions Factor (g/kg)	1.48
HHV Efficiency (%)	65.5%
LHV Efficiency (%)	70.8%
CO Emissions (g/min)	2.13

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	85.4	OK
Face Velocity	< 30 ft/min	9.6	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:76/Max:79.1	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	85.4	OK

B415.1 Efficiency Results

Manufacturer:	FPI
Model:	F2450-2
Date:	07/01/24
Run:	5
Control #:	24-309
Test Duration:	311
Output Category:	2

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	65.5%	70.8%
Combustion Efficiency	93.1%	93.1%
Heat Transfer Efficiency	70.4%	76.1%

Output Rate (kJ/h)	15,535	14,737	**(Btu/h)**
Burn Rate (kg/h)	1.20	2.64	**(lb/h)**
Input (kJ/h)	23,715	22,496	**(Btu/h)**

Test Load Weight (dry kg)	6.20	13.68	**dry lb**
MC wet (%)	17.67		
MC dry (%)	21.46		
Particulate (g)	9.15		
CO (g)	664		
Test Duration (h)	5.18		

Emissions	**Particulate**	**CO**
g/MJ Output	0.11	8.24
g/kg Dry Fuel	1.47	106.94
g/h	1.76	128.02
g/min	0.03	2.13
lb/MM Btu Output	0.26	19.15

Air/Fuel Ratio (A/F)	26.47

VERSION: **2.4** **4/15/2010**

WOODSTOVE FUEL DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Preburn Fuel Information

Size	Length (in)	Moisture Content (% DB)	Size	Length (in)	Moisture Content (% DB)
2x4	12.00	23.0	2x4	16.00	20.8
2x4	12.00	20.9	2x4	16.00	22.8
2x4	12.00	19.2	2x4	16.00	21.7
2x4	12.00	19.7	2x4	16.00	19.3
2x4	12.00	23.6	2x4	8.00	22.4
2x4	12.00	22.0	2x4	8.00	21.9
2x4	12.00	19.4	2x4	8.00	20.2
2x4	12.00	22.9			
Total Fuel Weight (lbs):		14.7	Average Moisture (%DB):		21.3

Firebox Volume (ft^3):	2.24
Total 2x4 Crib Weight, with spacers (lbs):	8.25
Total 4x4 Crib Weight, with spacers (lbs):	8.36
Total Wet Fuel Weight, with spacers (lbs):	16.61

Coal Bed Range (20-25%):
Min (lbs): 3.32
Max (lbs): 4.15

Test Fuel Information

Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
2x4	16.75	1.87	20.9	19.2	20.5	1.56
2x4	16.75	1.50	21.4	20.7	20.9	1.24
2x4	16.75	1.54	20.1	20.8	20.7	1.28
2x4	16.75	1.72	19.3	19.8	20.4	1.44
4x4	16.75	3.97	23.4	23.8	23.4	3.21
4x4	16.75	3.97	22.0	24.6	24.3	3.21
					Total Dry Weight, no spacers (lbs):	11.93
					Total Dry Weight, with spacers (lbs):	13.62

Spacer Moisture Readings (%DB)

21.3	19.8	22.8					
19.1	20.2	19.9					
20.6	20.0						
20.6	20.5						
22.1	19.4						
20.9	22.6						
23.0	21.3						
19.3	21.6						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft^3, DB)	27.1	OK
Loading Density	6.3 - 7.7 (lbs/ft^3, WB)	7.42	OK
2x4 Fuel Mix	35 - 65 % of total weight	50%	OK

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client:	FPI	Job #:	24-309
Model:	F2450-2	Tracking #:	201
Run #:	5	Technician:	AK
Test Start Time:	12:41	Date:	7/1/2024

Total Sampling Time (min):	311	
Recording Interval (min):	1	
Meter Box γ Factor:	1.000	(A)
Meter Box γ Factor:	1.008	(B)
Meter Box γ Factor:	1.002	(C)
Meter Box γ Factor:	1.013	(Ambient)
Induced Draft Check (in. H_2O):	0	
Smoke Capture Check (%):	100%	
Date Flue Pipe Last Cleaned:	6/21/2024	
Test Fuel Scale Audit (lbs)	10.00	
Platform Scale Audit (lbs)	10.0	

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.17	30.22	30.20
Relative Humidity (%)	48.6	40.0	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		39.212	ft^3

Sample Train Leak Checks

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

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.034	77
2	0.044	77
3	0.046	77
4	0.046	77
5	0.042	77
6	0.032	77
7	0.032	77
8	0.046	77
9	0.048	77
10	0.048	77
11	0.046	77
12	0.038	77
Center	0.050	77

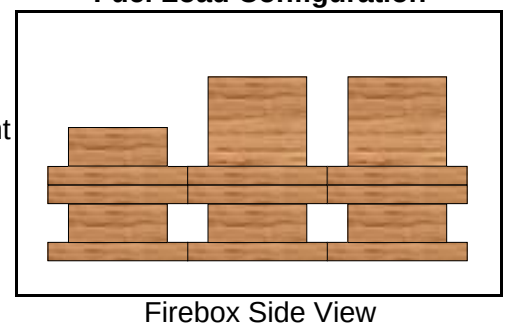
Static Pressure: -0.160 in. H_2O

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	12	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:	0.7854	ft^2
V_{strav}:	13.58	ft/sec
V_{scent}:	14.89	ft/sec
F_p:	0.912	[ratio]
Initial Tunnel Flow:	621.8	scf/min

TEST FUEL PROPERTIES

Fuel Load Configuration

Firebox Front



Firebox Back

Firebox Side View

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)	21.5

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

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

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	4.24	0.081	487	466	224	847	346	474.1	456	76
1	4.18	0.075	487	466	225	837	348	472.4	407	76
2	4.11	0.069	491	467	227	817	349	470.0	376	76
3	4.08	0.071	493	464	228	801	350	467.2	354	76
4	4.06	0.062	495	463	229	785	351	464.6	336	76
5	4.02	0.067	496	459	229	765	353	460.4	323	76
6	3.99	0.063	496	454	232	749	353	457.0	312	76
7	3.97	0.061	500	448	231	730	354	452.8	302	76
8	3.94	0.059	498	445	232	715	355	449.1	293	76
9	3.91	0.062	497	444	236	698	356	445.9	284	76
10	3.89	0.061	496	438	235	682	357	441.6	276	76
11	5.71	0.099	494	434	236	666	358	437.7	414	76
12	5.48	0.096	495	430	236	677	359	439.4	555	76
13	5.41	0.078	492	431	238	684	360	441.2	456	76
14	5.32	0.068	491	430	240	688	361	442.2	394	76
15	5.23	0.069	495	427	241	692	362	443.4	359	76
16	5.15	0.074	495	425	241	694	362	443.5	338	76
17	5.08	0.064	495	422	242	692	363	442.8	323	77
18	5.01	0.072	497	420	242	693	364	443.1	313	77
19	4.94	0.073	496	416	243	687	364	441.3	304	77
20	4.88	0.069	494	414	243	682	364	439.3	296	77
21	4.83	0.063	492	413	242	678	365	438.0	291	77
22	4.76	0.060	489	411	246	676	365	437.2	285	77
23	4.71	0.057	488	408	244	669	365	434.6	281	77
24	4.66	0.067	488	406	246	663	365	433.4	278	77
25	4.60	0.058	486	402	247	657	365	431.5	274	77
26	4.55	0.064	485	402	245	650	364	429.1	272	76
27	4.49	0.062	483	401	247	647	364	428.4	270	76
28	4.44	0.061	481	398	248	642	364	426.5	268	76
29	4.39	0.063	476	396	249	641	364	425.0	267	76
30	4.34	0.063	474	395	249	635	363	423.3	266	76
31	4.27	0.065	475	392	248	635	363	422.4	267	76
32	4.20	0.061	474	390	249	634	363	421.9	267	76
33	4.17	0.061	471	389	248	633	362	420.6	267	76
34	4.12	0.060	466	386	249	632	362	419.0	267	76
35	4.08	0.059	470	384	248	632	362	419.0	266	76
36	4.03	0.054	464	385	248	631	361	417.7	264	76
37	3.99	0.060	465	382	248	627	361	416.7	264	76
38	3.96	0.060	462	380	247	624	360	414.6	261	76
39	3.93	0.057	460	380	246	620	360	413.2	257	76
40	3.89	0.055	458	378	248	614	359	411.4	253	76
41	3.76	0.090	460	376	247	605	359	409.4	387	76
42	3.64	0.096	455	376	246	610	359	409.0	484	76
43	3.56	0.070	456	378	245	613	359	410.1	456	77
44	3.55	0.072	455	379	247	609	358	409.6	377	76

WOODSTOVE PREBURN DATA - ASTM E2780

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

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

			Temperatures (°F)							
Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H_2O)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	3.53	0.055	454	379	248	601	358	407.9	329	76
46	3.52	0.058	455	377	247	591	358	405.7	298	76
47	3.51	0.058	459	376	245	580	358	403.7	276	76
48	3.49	0.049	459	375	248	573	359	402.6	261	77
49	3.48	0.058	457	373	246	561	359	399.2	251	77
50	3.46	0.059	458	371	246	551	360	397.1	242	77
51	3.43	0.051	453	371	249	541	361	394.9	236	77
52	3.41	0.059	452	368	247	533	361	392.2	229	77
53	3.40	0.049	451	366	249	523	361	390.1	225	77
54	3.38	0.053	449	363	249	516	362	387.7	221	76
55	3.37	0.051	447	361	249	507	362	385.1	217	77
56	3.37	0.047	448	358	248	499	362	383.0	214	77
57	3.34	0.049	443	357	247	493	362	380.3	211	77
58	3.31	0.056	442	354	249	484	362	378.0	209	76
59	3.31	0.052	440	350	249	478	362	376.0	206	76
60	3.28	0.049	437	349	249	473	362	374.1	204	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	-0.003		0.050	0.00	78	-0.4		16.61		93	246	76	76
1	0.150	0.153	0.050	1.32	78	-1.5	-	16.55	-0.06	97	243	78	76
2	0.328	0.178	0.050	1.31	78	-1.4	-	16.36	-0.19	105	342	79	76
3	0.505	0.177	0.050	1.31	78	-1.5	-	16.23	-0.13	114	493	80	76
4	0.681	0.176	0.046	1.29	78	-1.4	-	15.82	-0.41	122	644	81	76
5	0.857	0.176	0.048	1.28	78	-1.5	-	15.62	-0.20	113	553	80	77
6	1.031	0.174	0.049	1.29	78	-1.4	-	15.42	-0.20	106	476	80	77
7	1.206	0.175	0.049	1.28	78	-1.4	-	15.32	-0.10	101	404	80	77
8	1.384	0.178	0.050	1.29	78	-1.4	-	15.23	-0.09	98	356	80	77
9	1.559	0.175	0.050	1.28	78	-1.4	-	15.14	-0.09	96	326	80	77
10	1.735	0.176	0.049	1.29	78	-1.4	106	15.00	-0.14	95	305	80	76
11	1.910	0.175	0.050	1.28	79	-1.4	-	14.92	-0.08	93	291	80	77
12	2.085	0.175	0.051	1.28	79	-1.4	-	14.81	-0.11	93	281	80	77
13	2.259	0.174	0.051	1.27	79	-1.4	-	14.70	-0.11	93	282	80	77
14	2.433	0.174	0.050	1.26	79	-1.4	-	14.55	-0.15	93	298	80	77
15	2.604	0.171	0.050	1.28	79	-1.4	-	14.38	-0.17	94	314	80	77
16	2.777	0.173	0.050	1.26	80	-1.4	-	14.25	-0.13	94	320	80	77
17	2.951	0.174	0.050	1.26	80	-1.5	-	14.10	-0.15	94	324	81	77
18	3.125	0.174	0.050	1.27	80	-1.4	-	13.96	-0.14	94	325	80	77
19	3.299	0.174	0.050	1.27	80	-1.5	-	13.84	-0.12	94	325	80	77
20	3.472	0.173	0.049	1.26	80	-1.5	106	13.72	-0.12	93	326	80	77
21	3.646	0.174	0.051	1.28	81	-1.5	-	13.58	-0.14	93	329	80	77
22	3.820	0.174	0.050	1.27	81	-1.4	-	13.44	-0.14	93	333	80	77
23	3.997	0.177	0.051	1.27	81	-1.5	-	13.31	-0.13	94	339	80	77
24	4.171	0.174	0.050	1.28	81	-1.4	-	13.16	-0.15	94	346	81	77
25	4.344	0.173	0.051	1.26	82	-1.4	-	13.02	-0.14	94	353	81	77
26	4.517	0.173	0.051	1.27	82	-1.5	-	12.87	-0.15	95	358	81	77
27	4.691	0.174	0.050	1.26	82	-1.5	-	12.71	-0.16	95	364	81	77
28	4.864	0.173	0.051	1.26	83	-1.4	-	12.55	-0.16	95	371	81	77
29	5.038	0.174	0.050	1.27	83	-1.5	-	12.37	-0.18	95	375	81	77
30	5.208	0.170	0.052	1.27	83	-1.5	104	12.23	-0.14	96	377	81	77
31	5.381	0.173	0.051	1.27	83	-1.5	-	12.06	-0.17	95	379	81	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	5.554	0.173	0.051	1.25	84	-1.4	-	11.90	-0.16	95	380	81	77
33	5.727	0.173	0.052	1.25	84	-1.5	-	11.73	-0.17	96	381	81	77
34	5.900	0.173	0.053	1.26	84	-1.4	-	11.56	-0.17	96	381	81	77
35	6.073	0.173	0.050	1.26	85	-1.4	-	11.40	-0.16	96	381	81	77
36	6.249	0.176	0.051	1.26	85	-1.5	-	11.23	-0.17	96	381	81	77
37	6.422	0.173	0.051	1.26	85	-1.5	-	11.06	-0.17	95	381	81	77
38	6.595	0.173	0.054	1.25	85	-1.4	-	10.93	-0.13	95	381	81	77
39	6.769	0.174	0.051	1.27	86	-1.5	-	10.78	-0.15	95	382	81	78
40	6.942	0.173	0.051	1.27	86	-1.4	102	10.62	-0.16	96	380	81	77
41	7.115	0.173	0.050	1.25	86	-1.4	-	10.48	-0.14	96	380	81	77
42	7.289	0.174	0.052	1.26	86	-1.4	-	10.34	-0.14	95	380	81	77
43	7.462	0.173	0.051	1.24	87	-1.4	-	10.21	-0.13	96	378	81	77
44	7.632	0.170	0.052	1.26	87	-1.5	-	10.08	-0.13	96	377	81	77
45	7.806	0.174	0.051	1.26	87	-1.4	-	9.94	-0.14	96	375	81	77
46	7.979	0.173	0.050	1.27	88	-1.4	-	9.81	-0.13	96	374	81	77
47	8.153	0.174	0.051	1.26	88	-1.4	-	9.66	-0.15	96	374	81	77
48	8.327	0.174	0.052	1.25	88	-1.5	-	9.54	-0.12	96	374	81	78
49	8.500	0.173	0.051	1.27	88	-1.5	-	9.40	-0.14	97	376	82	78
50	8.677	0.177	0.052	1.26	89	-1.5	102	9.27	-0.13	96	377	82	78
51	8.850	0.173	0.052	1.25	89	-1.5	-	9.13	-0.14	97	377	82	78
52	9.023	0.173	0.052	1.25	89	-1.5	-	9.00	-0.13	97	377	82	78
53	9.196	0.173	0.052	1.25	89	-1.5	-	8.86	-0.14	96	378	82	78
54	9.370	0.174	0.050	1.26	90	-1.5	-	8.73	-0.13	97	378	82	78
55	9.542	0.172	0.052	1.26	90	-1.5	-	8.58	-0.15	97	379	82	78
56	9.716	0.174	0.053	1.26	90	-1.5	-	8.45	-0.13	97	380	82	78
57	9.890	0.174	0.053	1.27	90	-1.5	-	8.32	-0.13	97	378	82	78
58	10.063	0.173	0.052	1.25	91	-1.5	-	8.20	-0.12	97	376	82	78
59	10.234	0.171	0.052	1.26	91	-1.5	-	8.07	-0.13	97	374	82	78
60	10.408	0.174	0.053	1.27	91	-1.5	100	7.96	-0.11	97	371	82	78
61	10.581	0.173	0.053	1.25	91	-1.5	-	7.83	-0.13	97	369	82	78
62	10.755	0.174	0.052	1.24	92	-1.5	-	7.72	-0.11	97	367	82	78
63	10.929	0.174	0.053	1.26	92	-1.5	-	7.61	-0.11	97	363	82	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	11.103	0.174	0.050	1.26	92	-1.5	-	7.50	-0.11	97	361	82	78
65	11.280	0.177	0.052	1.27	92	-1.5	-	7.38	-0.12	97	359	82	78
66	11.454	0.174	0.051	1.26	92	-1.6	-	7.27	-0.11	97	358	82	78
67	11.628	0.174	0.051	1.27	93	-1.5	-	7.16	-0.11	97	357	82	78
68	11.802	0.174	0.051	1.26	93	-1.5	-	7.05	-0.11	96	354	82	78
69	11.976	0.174	0.053	1.26	93	-1.5	-	6.93	-0.12	97	356	82	78
70	12.149	0.173	0.052	1.26	93	-1.6	100	6.82	-0.11	97	356	82	78
71	12.322	0.173	0.051	1.27	93	-1.5	-	6.71	-0.11	96	357	82	79
72	12.492	0.170	0.052	1.27	94	-1.6	-	6.61	-0.10	96	355	82	78
73	12.665	0.173	0.051	1.26	94	-1.5	-	6.49	-0.12	96	354	82	78
74	12.839	0.174	0.051	1.27	94	-1.5	-	6.40	-0.09	95	353	82	78
75	13.013	0.174	0.052	1.26	94	-1.5	-	6.30	-0.10	96	351	82	78
76	13.187	0.174	0.051	1.26	94	-1.5	-	6.20	-0.10	96	350	82	78
77	13.362	0.175	0.052	1.24	94	-1.6	-	6.10	-0.10	96	349	82	78
78	13.536	0.174	0.050	1.26	95	-1.6	-	6.01	-0.09	96	346	82	78
79	13.710	0.174	0.051	1.27	95	-1.6	-	5.90	-0.11	96	343	82	79
80	13.885	0.175	0.052	1.25	95	-1.5	100	5.82	-0.08	96	341	82	78
81	14.060	0.175	0.051	1.26	95	-1.6	-	5.72	-0.10	96	338	82	78
82	14.234	0.174	0.053	1.26	95	-1.5	-	5.62	-0.10	96	334	82	78
83	14.409	0.175	0.052	1.24	96	-1.6	-	5.54	-0.08	96	331	82	78
84	14.583	0.174	0.052	1.26	96	-1.5	-	5.46	-0.08	95	329	82	78
85	14.757	0.174	0.050	1.26	96	-1.5	-	5.37	-0.09	95	327	82	78
86	14.931	0.174	0.052	1.26	96	-1.5	-	5.29	-0.08	95	326	82	78
87	15.105	0.174	0.053	1.26	96	-1.5	-	5.20	-0.09	95	324	82	78
88	15.280	0.175	0.053	1.25	96	-1.6	-	5.12	-0.08	95	323	82	78
89	15.454	0.174	0.053	1.26	96	-1.7	-	5.03	-0.09	95	323	82	78
90	15.629	0.175	0.051	1.26	97	-1.6	101	4.94	-0.09	94	322	82	78
91	15.804	0.175	0.051	1.25	97	-1.6	-	4.86	-0.08	94	321	82	78
92	15.979	0.175	0.050	1.26	97	-1.6	-	4.77	-0.09	95	321	82	78
93	16.154	0.175	0.053	1.28	97	-1.6	-	4.69	-0.08	95	320	82	78
94	16.329	0.175	0.053	1.26	97	-1.6	-	4.62	-0.07	95	318	82	78
95	16.503	0.174	0.052	1.25	97	-1.7	-	4.50	-0.12	95	315	82	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	16.676	0.173	0.053	1.26	97	-1.7	-	4.47	-0.03	94	314	82	78
97	16.851	0.175	0.052	1.25	98	-1.6	-	4.40	-0.07	94	312	82	78
98	17.026	0.175	0.052	1.25	98	-1.6	-	4.33	-0.07	94	309	82	78
99	17.201	0.175	0.052	1.26	98	-1.6	-	4.27	-0.06	94	307	82	78
100	17.376	0.175	0.053	1.26	98	-1.6	100	4.20	-0.07	94	306	82	78
101	17.551	0.175	0.052	1.26	98	-1.7	-	4.13	-0.07	94	306	82	78
102	17.726	0.175	0.052	1.26	98	-1.6	-	4.06	-0.07	94	304	82	78
103	17.901	0.175	0.053	1.27	98	-1.6	-	4.00	-0.06	94	305	82	78
104	18.076	0.175	0.052	1.25	98	-1.7	-	3.93	-0.07	94	303	82	79
105	18.250	0.174	0.051	1.27	98	-1.6	-	3.87	-0.06	94	303	82	79
106	18.424	0.174	0.051	1.27	99	-1.6	-	3.80	-0.07	94	302	82	79
107	18.599	0.175	0.053	1.27	99	-1.7	-	3.75	-0.05	93	300	82	78
108	18.774	0.175	0.053	1.26	99	-1.6	-	3.69	-0.06	94	301	82	78
109	18.950	0.176	0.052	1.27	99	-1.7	-	3.64	-0.05	93	299	82	78
110	19.125	0.175	0.051	1.25	99	-1.7	100	3.58	-0.06	93	296	82	78
111	19.300	0.175	0.051	1.26	99	-1.7	-	3.54	-0.04	93	294	82	78
112	19.475	0.175	0.052	1.27	99	-1.7	-	3.49	-0.05	93	290	82	78
113	19.650	0.175	0.052	1.26	99	-1.7	-	3.44	-0.05	93	286	82	78
114	19.824	0.174	0.052	1.27	99	-1.7	-	3.40	-0.04	92	282	81	78
115	19.999	0.175	0.051	1.26	99	-1.7	-	3.37	-0.03	93	278	82	78
116	20.174	0.175	0.052	1.26	99	-1.7	-	3.32	-0.05	93	275	82	78
117	20.349	0.175	0.052	1.26	100	-1.7	-	3.28	-0.04	93	271	82	78
118	20.525	0.176	0.052	1.26	100	-1.7	-	3.24	-0.04	93	267	82	78
119	20.700	0.175	0.052	1.26	100	-1.7	-	3.20	-0.04	93	262	81	78
120	20.875	0.175	0.051	1.27	100	-1.7	101	3.17	-0.03	93	258	81	78
121	21.051	0.176	0.051	1.27	100	-1.7	-	3.13	-0.04	93	256	82	78
122	21.225	0.174	0.051	1.25	100	-1.7	-	3.10	-0.03	92	254	82	78
123	21.399	0.174	0.052	1.25	100	-1.7	-	3.07	-0.03	92	252	82	78
124	21.575	0.176	0.052	1.25	100	-1.7	-	3.04	-0.03	92	249	82	78
125	21.750	0.175	0.052	1.27	100	-1.7	-	3.01	-0.03	93	247	82	78
126	21.925	0.175	0.053	1.26	100	-1.8	-	2.97	-0.04	92	243	82	78
127	22.101	0.176	0.052	1.27	100	-1.8	-	2.95	-0.02	91	241	81	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	22.276	0.175	0.052	1.27	100	-1.8	-	2.92	-0.03	91	239	81	78
129	22.452	0.176	0.053	1.27	101	-1.7	-	2.87	-0.05	91	235	81	78
130	22.627	0.175	0.052	1.26	101	-1.8	100	2.86	-0.01	91	233	81	78
131	22.801	0.174	0.052	1.25	101	-1.8	-	2.83	-0.03	91	231	81	78
132	22.976	0.175	0.053	1.26	101	-1.7	-	2.81	-0.02	91	229	81	78
133	23.152	0.176	0.053	1.26	101	-1.7	-	2.80	-0.01	91	227	81	78
134	23.327	0.175	0.054	1.27	101	-1.8	-	2.77	-0.03	91	224	81	78
135	23.503	0.176	0.051	1.26	101	-1.8	-	2.75	-0.02	91	221	81	78
136	23.679	0.176	0.051	1.24	101	-1.8	-	2.74	-0.01	91	218	81	78
137	23.854	0.175	0.052	1.29	101	-1.8	-	2.71	-0.03	91	216	81	78
138	24.029	0.175	0.049	1.27	101	-1.9	-	2.69	-0.02	91	215	81	78
139	24.204	0.175	0.053	1.26	101	-1.9	-	2.67	-0.02	90	212	81	78
140	24.379	0.175	0.052	1.27	101	-1.8	99	2.65	-0.02	90	210	81	78
141	24.555	0.176	0.049	1.27	101	-1.8	-	2.64	-0.01	90	209	81	78
142	24.731	0.176	0.053	1.27	101	-1.8	-	2.62	-0.02	91	207	81	79
143	24.906	0.175	0.052	1.27	101	-1.9	-	2.59	-0.03	91	206	81	78
144	25.082	0.176	0.053	1.26	101	-1.9	-	2.58	-0.01	90	205	81	78
145	25.258	0.176	0.053	1.26	101	-1.8	-	2.57	-0.01	89	204	81	78
146	25.432	0.174	0.053	1.27	102	-1.9	-	2.55	-0.02	90	202	81	79
147	25.607	0.175	0.051	1.26	102	-1.9	-	2.54	-0.01	89	201	81	79
148	25.783	0.176	0.053	1.26	102	-1.9	-	2.51	-0.03	89	200	81	78
149	25.959	0.176	0.052	1.27	102	-1.8	-	2.50	-0.01	89	198	81	79
150	26.134	0.175	0.051	1.27	102	-1.8	100	2.48	-0.02	88	197	81	78
151	26.310	0.176	0.053	1.26	102	-1.9	-	2.47	-0.01	88	196	81	78
152	26.486	0.176	0.053	1.26	102	-1.9	-	2.47	0.00	88	195	81	78
153	26.661	0.175	0.052	1.27	102	-1.9	-	2.44	-0.03	88	195	81	78
154	26.836	0.175	0.052	1.28	102	-1.9	-	2.43	-0.01	88	194	81	78
155	27.012	0.176	0.053	1.26	102	-1.9	-	2.41	-0.02	88	193	81	78
156	27.187	0.175	0.051	1.27	102	-2.0	-	2.40	-0.01	88	193	81	78
157	27.363	0.176	0.054	1.25	102	-1.9	-	2.38	-0.02	89	192	81	78
158	27.540	0.177	0.051	1.27	102	-2.0	-	2.36	-0.02	89	192	81	78
159	27.715	0.175	0.053	1.27	102	-1.9	-	2.35	-0.01	88	192	81	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	27.891	0.176	0.052	1.25	102	-1.9	100	2.34	-0.01	88	191	80	78
161	28.065	0.174	0.052	1.27	102	-1.9	-	2.32	-0.02	88	190	80	78
162	28.241	0.176	0.054	1.27	102	-1.9	-	2.31	-0.01	88	191	80	78
163	28.417	0.176	0.054	1.27	102	-2.0	-	2.29	-0.02	88	190	80	78
164	28.593	0.176	0.055	1.28	102	-1.9	-	2.28	-0.01	88	190	80	78
165	28.769	0.176	0.054	1.27	102	-1.9	-	2.26	-0.02	88	190	80	78
166	28.945	0.176	0.052	1.26	102	-1.9	-	2.25	-0.01	88	189	80	78
167	29.121	0.176	0.051	1.27	102	-1.9	-	2.24	-0.01	89	188	80	78
168	29.295	0.174	0.052	1.26	102	-1.9	-	2.22	-0.02	88	188	80	78
169	29.471	0.176	0.052	1.26	102	-2.0	-	2.20	-0.02	88	188	80	78
170	29.646	0.175	0.051	1.28	103	-2.0	99	2.19	-0.01	88	187	80	78
171	29.822	0.176	0.052	1.26	103	-2.0	-	2.17	-0.02	88	186	80	78
172	29.998	0.176	0.052	1.27	103	-1.9	-	2.16	-0.01	88	186	80	78
173	30.174	0.176	0.052	1.28	103	-1.9	-	2.15	-0.01	88	185	80	78
174	30.350	0.176	0.053	1.25	103	-2.0	-	2.13	-0.02	88	185	80	78
175	30.525	0.175	0.054	1.27	103	-1.9	-	2.12	-0.01	88	185	80	78
176	30.700	0.175	0.053	1.27	103	-2.0	-	2.11	-0.01	88	184	80	78
177	30.876	0.176	0.053	1.28	103	-2.0	-	2.09	-0.02	88	183	80	78
178	31.052	0.176	0.053	1.27	103	-1.9	-	2.07	-0.02	88	183	80	78
179	31.227	0.175	0.053	1.27	103	-2.0	-	2.06	-0.01	88	183	80	78
180	31.403	0.176	0.052	1.25	103	-2.0	99	2.04	-0.02	88	183	80	78
181	31.579	0.176	0.051	1.28	103	-2.0	-	2.04	0.00	88	182	80	78
182	31.754	0.175	0.052	1.27	103	-2.0	-	2.01	-0.03	88	182	80	78
183	31.929	0.175	0.052	1.28	103	-2.0	-	2.01	0.00	88	183	81	78
184	32.105	0.176	0.053	1.27	103	-1.9	-	1.99	-0.02	88	183	80	78
185	32.281	0.176	0.054	1.27	103	-2.0	-	1.97	-0.02	88	182	80	78
186	32.456	0.175	0.051	1.27	103	-1.9	-	1.95	-0.02	88	181	80	78
187	32.632	0.176	0.052	1.26	103	-2.0	-	1.95	0.00	87	181	81	78
188	32.808	0.176	0.054	1.27	103	-2.0	-	1.93	-0.02	87	180	80	78
189	32.984	0.176	0.054	1.27	103	-2.0	-	1.91	-0.02	87	180	81	78
190	33.158	0.174	0.051	1.26	103	-2.0	99	1.89	-0.02	88	181	81	78
191	33.334	0.176	0.053	1.28	103	-2.0	-	1.87	-0.02	87	180	80	78

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	33.510	0.176	0.054	1.27	103	-2.0	-	1.86	-0.01	87	181	81	78
193	33.686	0.176	0.053	1.27	103	-2.0	-	1.85	-0.01	87	180	81	78
194	33.862	0.176	0.053	1.26	103	-2.0	-	1.84	-0.01	87	180	81	78
195	34.038	0.176	0.054	1.26	103	-1.9	-	1.83	-0.01	87	179	81	78
196	34.213	0.175	0.053	1.26	103	-2.0	-	1.80	-0.03	87	179	81	78
197	34.388	0.175	0.054	1.27	103	-2.0	-	1.79	-0.01	87	178	80	78
198	34.564	0.176	0.054	1.26	103	-1.9	-	1.78	-0.01	86	178	80	78
199	34.740	0.176	0.052	1.27	103	-2.0	-	1.75	-0.03	86	179	80	79
200	34.916	0.176	0.053	1.26	103	-2.0	99	1.74	-0.01	87	179	81	79
201	35.092	0.176	0.053	1.28	103	-2.0	-	1.73	-0.01	87	178	80	78
202	35.268	0.176	0.054	1.27	103	-1.9	-	1.71	-0.02	86	178	80	78
203	35.443	0.175	0.053	1.28	103	-1.9	-	1.70	-0.01	87	179	80	79
204	35.618	0.175	0.053	1.27	103	-1.9	-	1.69	-0.01	87	179	80	79
205	35.794	0.176	0.052	1.25	103	-1.9	-	1.67	-0.02	86	179	80	79
206	35.970	0.176	0.054	1.26	103	-2.0	-	1.65	-0.02	87	179	80	79
207	36.146	0.176	0.053	1.27	103	-2.0	-	1.62	-0.03	87	178	81	79
208	36.322	0.176	0.052	1.27	103	-2.0	-	1.63	0.01	87	178	81	79
209	36.498	0.176	0.052	1.27	104	-2.0	-	1.59	-0.04	87	178	81	79
210	36.673	0.175	0.053	1.26	104	-2.0	98	1.59	0.00	86	178	80	78
211	36.848	0.175	0.053	1.27	104	-1.9	-	1.58	-0.01	86	178	80	79
212	37.024	0.176	0.052	1.26	104	-2.0	-	1.56	-0.02	86	178	80	79
213	37.200	0.176	0.053	1.26	104	-2.0	-	1.54	-0.02	86	179	80	79
214	37.376	0.176	0.052	1.27	104	-2.0	-	1.53	-0.01	86	179	80	79
215	37.552	0.176	0.050	1.27	104	-2.0	-	1.50	-0.03	86	178	80	79
216	37.728	0.176	0.053	1.26	104	-2.0	-	1.50	0.00	86	178	80	79
217	37.903	0.175	0.051	1.27	104	-2.0	-	1.48	-0.02	86	178	80	79
218	38.078	0.175	0.053	1.27	104	-2.0	-	1.47	-0.01	86	178	80	79
219	38.254	0.176	0.051	1.26	104	-2.1	-	1.45	-0.02	86	179	80	79
220	38.430	0.176	0.053	1.27	104	-2.0	98	1.43	-0.02	86	179	80	79
221	38.606	0.176	0.051	1.27	104	-2.1	-	1.41	-0.02	86	179	80	79
222	38.782	0.176	0.053	1.26	104	-2.1	-	1.40	-0.01	86	179	80	78
223	38.958	0.176	0.051	1.27	104	-2.0	-	1.39	-0.01	86	179	80	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
224	39.133	0.175	0.051	1.26	104	-2.0	-	1.36	-0.03	86	179	80	79
225	39.308	0.175	0.052	1.27	104	-2.1	-	1.35	-0.01	86	180	80	79
226	39.484	0.176	0.053	1.27	104	-2.0	-	1.32	-0.03	87	180	80	78
227	39.660	0.176	0.050	1.26	104	-2.0	-	1.31	-0.01	86	180	80	78
228	39.836	0.176	0.051	1.26	104	-2.0	-	1.30	-0.01	87	180	80	78
229	40.012	0.176	0.052	1.27	104	-1.9	-	1.28	-0.02	87	181	80	78
230	40.188	0.176	0.053	1.27	104	-2.0	98	1.27	-0.01	87	180	80	78
231	40.363	0.175	0.052	1.27	104	-2.0	-	1.25	-0.02	87	181	80	78
232	40.538	0.175	0.052	1.27	104	-1.9	-	1.23	-0.02	87	180	80	78
233	40.717	0.179	0.052	1.27	104	-2.0	-	1.20	-0.03	87	181	80	78
234	40.890	0.173	0.051	1.25	104	-2.0	-	1.20	0.00	87	182	80	78
235	41.066	0.176	0.052	1.27	104	-2.0	-	1.19	-0.01	87	182	80	79
236	41.243	0.177	0.050	1.27	104	-2.0	-	1.16	-0.03	87	182	80	79
237	41.419	0.176	0.053	1.26	104	-2.0	-	1.15	-0.01	88	182	81	79
238	41.593	0.174	0.052	1.26	104	-2.0	-	1.13	-0.02	88	182	81	79
239	41.768	0.175	0.053	1.28	104	-2.0	-	1.12	-0.01	88	182	81	79
240	41.944	0.176	0.052	1.27	104	-2.0	98	1.10	-0.02	87	183	81	79
241	42.120	0.176	0.051	1.26	104	-2.0	-	1.08	-0.02	88	182	81	79
242	42.296	0.176	0.050	1.26	104	-2.0	-	1.07	-0.01	88	182	81	79
243	42.472	0.176	0.053	1.27	104	-2.0	-	1.05	-0.02	88	182	81	79
244	42.648	0.176	0.053	1.26	104	-2.0	-	1.04	-0.01	87	182	81	79
245	42.823	0.175	0.052	1.28	104	-2.0	-	1.02	-0.02	87	183	81	79
246	42.998	0.175	0.051	1.28	104	-2.0	-	1.01	-0.01	87	182	81	79
247	43.174	0.176	0.052	1.27	104	-2.0	-	0.99	-0.02	87	183	81	79
248	43.350	0.176	0.049	1.25	104	-1.9	-	0.97	-0.02	88	182	81	79
249	43.526	0.176	0.051	1.27	104	-2.0	-	0.95	-0.02	88	183	81	79
250	43.705	0.179	0.052	1.29	104	-2.0	99	0.94	-0.01	88	182	81	79
251	43.878	0.173	0.052	1.25	104	-1.9	-	0.93	-0.01	88	183	81	79
252	44.053	0.175	0.053	1.26	104	-2.0	-	0.91	-0.02	88	182	81	79
253	44.228	0.175	0.052	1.26	104	-2.0	-	0.89	-0.02	88	183	81	79
254	44.407	0.179	0.051	1.28	104	-2.0	-	0.87	-0.02	88	183	81	79
255	44.580	0.173	0.052	1.26	104	-2.0	-	0.86	-0.01	88	183	81	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
256	44.756	0.176	0.051	1.27	104	-1.9	-	0.85	-0.01	88	182	81	79
257	44.932	0.176	0.051	1.26	104	-2.0	-	0.83	-0.02	88	183	81	79
258	45.108	0.176	0.051	1.28	104	-1.9	-	0.81	-0.02	88	183	81	79
259	45.283	0.175	0.052	1.27	104	-1.9	-	0.80	-0.01	88	184	81	79
260	45.458	0.175	0.050	1.26	104	-2.0	99	0.79	-0.01	88	184	81	79
261	45.633	0.175	0.050	1.26	104	-2.0	-	0.77	-0.02	88	184	81	79
262	45.809	0.176	0.051	1.26	104	-2.0	-	0.76	-0.01	88	183	81	79
263	45.985	0.176	0.051	1.26	104	-2.0	-	0.74	-0.02	89	184	81	79
264	46.161	0.176	0.049	1.26	104	-2.0	-	0.72	-0.02	89	184	81	79
265	46.337	0.176	0.050	1.27	105	-2.0	-	0.70	-0.02	88	185	81	79
266	46.513	0.176	0.051	1.28	105	-2.0	-	0.69	-0.01	89	184	82	79
267	46.687	0.174	0.051	1.26	105	-2.0	-	0.66	-0.03	89	184	82	79
268	46.863	0.176	0.052	1.28	105	-1.9	-	0.65	-0.01	89	184	81	79
269	47.039	0.176	0.052	1.25	105	-2.0	-	0.63	-0.02	88	184	81	79
270	47.215	0.176	0.050	1.27	105	-2.0	101	0.62	-0.01	88	184	82	79
271	47.394	0.179	0.050	1.26	105	-1.9	-	0.60	-0.02	89	184	82	79
272	47.567	0.173	0.052	1.26	105	-2.0	-	0.58	-0.02	89	184	82	79
273	47.742	0.175	0.051	1.26	105	-1.9	-	0.56	-0.02	89	184	82	79
274	47.917	0.175	0.051	1.25	105	-1.9	-	0.55	-0.01	89	184	82	79
275	48.096	0.179	0.051	1.27	105	-2.0	-	0.54	-0.01	89	184	82	79
276	48.269	0.173	0.050	1.26	105	-2.0	-	0.52	-0.02	89	183	82	79
277	48.444	0.175	0.050	1.26	105	-2.0	-	0.50	-0.02	89	184	82	79
278	48.621	0.177	0.052	1.27	105	-2.0	-	0.49	-0.01	88	184	82	79
279	48.796	0.175	0.051	1.27	105	-1.9	-	0.47	-0.02	88	184	82	79
280	48.972	0.176	0.050	1.25	105	-1.9	101	0.45	-0.02	88	184	82	79
281	49.146	0.174	0.051	1.27	105	-1.9	-	0.43	-0.02	88	185	82	79
282	49.322	0.176	0.050	1.26	105	-1.9	-	0.42	-0.01	88	185	82	79
283	49.498	0.176	0.050	1.24	105	-1.9	-	0.41	-0.01	88	184	82	79
284	49.674	0.176	0.051	1.26	105	-2.0	-	0.39	-0.02	88	184	82	79
285	49.850	0.176	0.051	1.27	105	-2.0	-	0.37	-0.02	88	184	82	79
286	50.029	0.179	0.050	1.27	105	-2.0	-	0.36	-0.01	88	184	82	79
287	50.202	0.173	0.050	1.26	105	-1.9	-	0.34	-0.02	88	183	82	79

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
288	50.376	0.174	0.051	1.26	105	-1.9	-	0.32	-0.02	88	183	82	79
289	50.552	0.176	0.051	1.26	105	-1.9	-	0.31	-0.01	88	182	82	79
290	50.731	0.179	0.052	1.26	105	-2.0	100	0.29	-0.02	88	182	82	79
291	50.903	0.172	0.052	1.26	105	-2.0	-	0.28	-0.01	88	182	82	79
292	51.079	0.176	0.052	1.27	105	-1.9	-	0.26	-0.02	88	181	82	79
293	51.255	0.176	0.050	1.26	105	-2.0	-	0.24	-0.02	88	181	82	79
294	51.431	0.176	0.051	1.26	105	-1.9	-	0.23	-0.01	88	181	82	79
295	51.606	0.175	0.050	1.26	105	-2.0	-	0.22	-0.01	88	180	82	79
296	51.781	0.175	0.051	1.24	105	-2.0	-	0.21	-0.01	88	180	82	79
297	51.957	0.176	0.052	1.27	105	-2.0	-	0.19	-0.02	88	179	81	79
298	52.133	0.176	0.051	1.27	105	-1.9	-	0.17	-0.02	88	180	82	79
299	52.312	0.179	0.051	1.25	105	-2.0	-	0.17	0.00	88	179	82	79
300	52.485	0.173	0.051	1.27	105	-2.0	99	0.15	-0.02	88	179	82	79
301	52.661	0.176	0.050	1.26	105	-1.9	-	0.14	-0.01	88	178	82	79
302	52.835	0.174	0.052	1.26	105	-1.9	-	0.12	-0.02	88	178	82	79
303	53.014	0.179	0.052	1.27	105	-1.9	-	0.11	-0.01	88	177	82	79
304	53.187	0.173	0.051	1.26	105	-2.0	-	0.10	-0.01	88	177	82	79
305	53.363	0.176	0.051	1.27	105	-1.9	-	0.09	-0.01	88	177	82	79
306	53.539	0.176	0.051	1.26	105	-2.0	-	0.07	-0.02	88	177	82	79
307	53.718	0.179	0.052	1.26	105	-1.9	-	0.05	-0.02	88	176	82	79
308	53.891	0.173	0.051	1.26	105	-1.9	-	0.04	-0.01	88	176	82	79
309	54.065	0.174	0.050	1.26	105	-2.0	-	0.02	-0.02	88	176	82	79
310	54.241	0.176	0.049	1.25	105	-1.9	100	0.01	-0.01	88	176	82	79
311	54.419	0.178	0.051	1.26	105	-1.9	100	0.00	-0.01	88	176	82	79
Avg/Tot	54.422	0.175	0.052	1.26	98.0	-1.8	100			91.0	249.0	81.0	78.2

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	-0.003		-0.01	78	-0.5		79	0.063	0.81	0.277
1	0.142	0.145	1.23	78	-1.5	-	81	0.048	1.31	0.387
2	0.308	0.166	1.27	78	-1.5	-	82	0.082	1.16	0.170
3	0.473	0.165	1.24	77	-1.5	-	84	0.104	2.82	0.084
4	0.637	0.164	1.24	78	-1.5	-	85	0.112	5.93	0.044
5	0.803	0.166	1.26	78	-1.4	-	85	0.084	7.63	0.733
6	0.967	0.164	1.22	78	-1.5	-	84	0.088	6.13	0.423
7	1.131	0.164	1.23	78	-1.5	-	84	0.075	5.11	0.758
8	1.298	0.167	1.21	78	-1.4	-	84	0.070	3.89	0.758
9	1.463	0.165	1.23	78	-1.5	-	83	0.064	4.04	0.737
10	1.626	0.163	1.22	78	-1.6	106	83	0.065	4.02	0.728
11	1.790	0.164	1.22	79	-1.4	-	83	0.069	3.95	0.689
12	1.955	0.165	1.24	79	-1.4	-	83	0.072	0.24	0.028
13	2.118	0.163	1.21	79	-1.4	-	83	0.076	2.27	0.431
14	2.281	0.163	1.20	79	-1.6	-	83	0.076	4.33	0.637
15	2.442	0.161	1.22	79	-1.4	-	83	0.076	5.57	0.509
16	2.604	0.162	1.21	80	-1.6	-	83	0.076	5.69	0.503
17	2.769	0.165	1.22	80	-1.5	-	83	0.078	6.26	0.442
18	2.931	0.162	1.21	80	-1.4	-	83	0.072	6.18	0.338
19	3.093	0.162	1.20	80	-1.6	-	83	0.079	5.93	0.302
20	3.257	0.164	1.21	81	-1.6	106	83	0.080	5.87	0.307
21	3.419	0.162	1.22	81	-1.5	-	83	0.075	5.97	0.302
22	3.582	0.163	1.23	81	-1.4	-	83	0.077	6.30	0.268
23	3.748	0.166	1.23	81	-1.6	-	83	0.077	6.67	0.236
24	3.910	0.162	1.19	82	-1.5	-	83	0.079	7.12	0.348
25	4.073	0.163	1.19	82	-1.4	-	84	0.080	7.41	0.396
26	4.236	0.163	1.20	82	-1.4	-	84	0.083	7.88	0.443
27	4.397	0.161	1.21	83	-1.4	-	84	0.083	8.22	0.645
28	4.561	0.164	1.19	83	-1.5	-	84	0.080	8.32	0.879
29	4.723	0.162	1.19	83	-1.4	-	84	0.082	8.51	0.927
30	4.883	0.160	1.20	84	-1.5	103	84	0.084	8.69	0.911
31	5.046	0.163	1.16	84	-1.5	-	84	0.081	8.70	0.874

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
32	5.207	0.161	1.23	84	-1.5	-	84	0.076	8.67	0.883
33	5.371	0.164	1.19	84	-1.4	-	84	0.080	8.64	0.943
34	5.533	0.162	1.19	85	-1.4	-	84	0.081	8.61	1.179
35	5.695	0.162	1.19	85	-1.4	-	84	0.078	8.50	1.308
36	5.861	0.166	1.19	85	-1.5	-	84	0.084	8.28	1.349
37	6.023	0.162	1.20	86	-1.5	-	84	0.078	8.13	1.200
38	6.185	0.162	1.15	86	-1.4	-	84	0.085	7.94	1.040
39	6.349	0.164	1.20	86	-1.4	-	84	0.087	7.90	0.915
40	6.510	0.161	1.20	87	-1.5	102	84	0.084	7.88	0.770
41	6.674	0.164	1.19	87	-1.4	-	84	0.085	7.78	0.667
42	6.836	0.162	1.22	87	-1.4	-	84	0.078	7.72	0.617
43	6.998	0.162	1.21	87	-1.4	-	84	0.084	7.59	0.590
44	7.159	0.161	1.19	88	-1.4	-	84	0.079	7.53	0.522
45	7.320	0.161	1.19	88	-1.4	-	84	0.082	7.52	0.535
46	7.485	0.165	1.23	88	-1.5	-	84	0.074	7.57	0.543
47	7.647	0.162	1.19	89	-1.5	-	84	0.079	7.59	0.547
48	7.809	0.162	1.20	89	-1.4	-	84	0.079	7.65	0.559
49	7.973	0.164	1.18	89	-1.4	-	85	0.078	7.71	0.549
50	8.138	0.165	1.19	89	-1.4	101	85	0.080	7.72	0.549
51	8.300	0.162	1.21	90	-1.5	-	85	0.081	7.70	0.583
52	8.464	0.164	1.20	90	-1.4	-	85	0.078	7.67	0.623
53	8.626	0.162	1.22	90	-1.5	-	85	0.082	7.82	0.575
54	8.788	0.162	1.20	91	-1.4	-	85	0.085	7.79	0.593
55	8.952	0.164	1.20	91	-1.4	-	85	0.078	7.80	0.590
56	9.114	0.162	1.23	91	-1.4	-	85	0.083	7.69	0.629
57	9.278	0.164	1.23	91	-1.4	-	85	0.081	7.63	0.637
58	9.441	0.163	1.20	92	-1.4	-	85	0.085	7.66	0.599
59	9.600	0.159	1.18	92	-1.4	-	85	0.081	7.48	0.485
60	9.765	0.165	1.19	92	-1.4	100	85	0.078	7.49	0.396
61	9.927	0.162	1.20	92	-1.4	-	85	0.082	7.46	0.370
62	10.090	0.163	1.19	93	-1.4	-	85	0.077	7.46	0.393
63	10.254	0.164	1.23	93	-1.5	-	85	0.077	7.36	0.389

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
64	10.416	0.162	1.22	93	-1.4	-	85	0.081	7.40	0.391
65	10.582	0.166	1.18	93	-1.4	-	85	0.080	7.29	0.384
66	10.747	0.165	1.22	93	-1.5	-	85	0.080	7.27	0.398
67	10.909	0.162	1.20	94	-1.4	-	85	0.078	7.22	0.405
68	11.072	0.163	1.20	94	-1.4	-	85	0.075	7.29	0.382
69	11.237	0.165	1.22	94	-1.5	-	85	0.078	7.30	0.374
70	11.400	0.163	1.22	94	-1.4	100	85	0.079	7.33	0.376
71	11.563	0.163	1.20	95	-1.5	-	85	0.075	7.26	0.388
72	11.722	0.159	1.19	95	-1.3	-	85	0.080	7.05	0.364
73	11.885	0.163	1.21	95	-1.4	-	85	0.075	7.03	0.304
74	12.050	0.165	1.19	95	-1.4	-	85	0.077	6.92	0.268
75	12.213	0.163	1.21	95	-1.5	-	85	0.077	6.83	0.266
76	12.376	0.163	1.19	96	-1.5	-	85	0.073	6.83	0.261
77	12.542	0.166	1.21	96	-1.5	-	85	0.076	6.74	0.254
78	12.705	0.163	1.21	96	-1.4	-	85	0.080	6.54	0.275
79	12.868	0.163	1.20	96	-1.4	-	85	0.078	6.36	0.264
80	13.034	0.166	1.22	96	-1.5	100	85	0.065	6.30	0.317
81	13.197	0.163	1.19	96	-1.4	-	85	0.072	6.18	0.332
82	13.360	0.163	1.20	97	-1.3	-	85	0.071	6.02	0.321
83	13.525	0.165	1.22	97	-1.5	-	85	0.067	5.84	0.316
84	13.689	0.164	1.19	97	-1.5	-	85	0.077	5.82	0.240
85	13.852	0.163	1.21	97	-1.5	-	85	0.070	5.64	0.222
86	14.017	0.165	1.21	97	-1.4	-	85	0.075	5.71	0.202
87	14.182	0.165	1.21	97	-1.3	-	85	0.066	5.68	0.179
88	14.345	0.163	1.21	98	-1.4	-	85	0.070	5.66	0.177
89	14.510	0.165	1.22	98	-1.3	-	85	0.068	5.69	0.158
90	14.675	0.165	1.20	98	-1.4	100	85	0.073	5.73	0.152
91	14.838	0.163	1.20	98	-1.5	-	85	0.069	5.74	0.222
92	15.002	0.164	1.20	98	-1.4	-	85	0.075	5.61	0.207
93	15.168	0.166	1.22	98	-1.4	-	85	0.073	5.58	0.202
94	15.331	0.163	1.20	98	-1.4	-	85	0.074	5.48	0.194
95	15.495	0.164	1.20	98	-1.5	-	85	0.066	5.41	0.188

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
96	15.661	0.166	1.20	99	-1.5	-	85	0.069	5.32	0.177
97	15.825	0.164	1.22	99	-1.5	-	84	0.066	5.23	0.190
98	15.988	0.163	1.22	99	-1.4	-	84	0.076	5.22	0.180
99	16.153	0.165	1.20	99	-1.3	-	84	0.072	5.23	0.182
100	16.318	0.165	1.19	99	-1.5	100	84	0.064	5.28	0.189
101	16.482	0.164	1.20	99	-1.3	-	84	0.063	5.28	0.188
102	16.646	0.164	1.21	99	-1.4	-	84	0.069	5.25	0.173
103	16.812	0.166	1.21	99	-1.5	-	84	0.069	5.27	0.178
104	16.976	0.164	1.21	100	-1.4	-	84	0.071	5.22	0.174
105	17.139	0.163	1.19	100	-1.5	-	84	0.073	5.20	0.191
106	17.305	0.166	1.19	100	-1.4	-	85	0.069	5.15	0.181
107	17.469	0.164	1.20	100	-1.5	-	84	0.069	5.09	0.191
108	17.633	0.164	1.20	100	-1.5	-	85	0.068	4.95	0.225
109	17.798	0.165	1.20	100	-1.4	-	84	0.067	4.88	0.217
110	17.963	0.165	1.22	100	-1.3	100	84	0.062	4.76	0.245
111	18.127	0.164	1.20	100	-1.5	-	84	0.070	4.81	0.192
112	18.291	0.164	1.21	100	-1.4	-	84	0.065	4.66	0.170
113	18.458	0.167	1.24	100	-1.3	-	84	0.064	4.49	0.219
114	18.622	0.164	1.19	100	-1.5	-	84	0.069	4.35	0.222
115	18.785	0.163	1.22	101	-1.4	-	84	0.073	4.23	0.219
116	18.952	0.167	1.21	101	-1.5	-	84	0.064	4.18	0.239
117	19.116	0.164	1.22	101	-1.5	-	84	0.068	4.11	0.254
118	19.280	0.164	1.20	101	-1.4	-	84	0.059	3.99	0.287
119	19.445	0.165	1.19	101	-1.4	-	84	0.060	3.88	0.297
120	19.611	0.166	1.19	101	-1.4	101	84	0.061	3.67	0.292
121	19.775	0.164	1.20	101	-1.4	-	84	0.059	3.70	0.290
122	19.939	0.164	1.21	101	-1.4	-	84	0.060	3.69	0.286
123	20.105	0.166	1.20	101	-1.5	-	84	0.060	3.65	0.320
124	20.269	0.164	1.20	101	-1.5	-	84	0.063	3.63	0.335
125	20.433	0.164	1.20	101	-1.4	-	84	0.061	3.58	0.351
126	20.598	0.165	1.20	101	-1.4	-	84	0.057	3.53	0.365
127	20.764	0.166	1.22	101	-1.4	-	84	0.051	3.29	0.396

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
128	20.928	0.164	1.23	101	-1.5	-	84	0.053	3.22	0.441
129	21.092	0.164	1.22	102	-1.4	-	84	0.056	3.22	0.467
130	21.259	0.167	1.22	102	-1.5	100	84	0.053	3.24	0.462
131	21.423	0.164	1.22	102	-1.4	-	84	0.057	3.24	0.465
132	21.587	0.164	1.21	102	-1.5	-	84	0.053	3.27	0.485
133	21.753	0.166	1.21	102	-1.5	-	84	0.059	3.27	0.487
134	21.918	0.165	1.21	102	-1.5	-	84	0.064	3.18	0.509
135	22.083	0.165	1.22	102	-1.4	-	84	0.056	3.11	0.538
136	22.247	0.164	1.21	102	-1.4	-	84	0.051	2.95	0.543
137	22.414	0.167	1.19	102	-1.5	-	84	0.058	2.94	0.517
138	22.578	0.164	1.22	102	-1.3	-	84	0.049	2.91	0.506
139	22.742	0.164	1.20	102	-1.4	-	84	0.053	2.89	0.493
140	22.907	0.165	1.21	102	-1.5	99	84	0.044	2.89	0.484
141	23.074	0.167	1.21	102	-1.5	-	84	0.056	2.88	0.490
142	23.238	0.164	1.22	102	-1.4	-	84	0.051	2.87	0.489
143	23.403	0.165	1.22	102	-1.5	-	84	0.045	2.86	0.494
144	23.569	0.166	1.23	102	-1.5	-	84	0.050	2.87	0.488
145	23.734	0.165	1.19	102	-1.5	-	84	0.052	2.89	0.480
146	23.898	0.164	1.22	102	-1.5	-	84	0.050	2.73	0.515
147	24.063	0.165	1.22	102	-1.3	-	84	0.047	2.70	0.533
148	24.230	0.167	1.21	102	-1.4	-	84	0.053	2.69	0.527
149	24.394	0.164	1.22	102	-1.5	-	83	0.049	2.71	0.523
150	24.559	0.165	1.22	103	-1.4	100	83	0.042	2.72	0.536
151	24.724	0.165	1.20	102	-1.4	-	83	0.042	2.74	0.545
152	24.891	0.167	1.22	103	-1.3	-	83	0.048	2.75	0.536
153	25.055	0.164	1.19	103	-1.4	-	83	0.053	2.76	0.541
154	25.220	0.165	1.21	103	-1.5	-	83	0.043	2.74	0.543
155	25.386	0.166	1.22	103	-1.5	-	83	0.052	2.74	0.548
156	25.552	0.166	1.22	103	-1.5	-	83	0.040	2.72	0.562
157	25.716	0.164	1.21	103	-1.3	-	83	0.036	2.71	0.570
158	25.881	0.165	1.21	103	-1.5	-	83	0.047	2.71	0.564
159	26.048	0.167	1.18	103	-1.4	-	83	0.042	2.70	0.572

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
160	26.213	0.165	1.21	103	-1.5	100	83	0.044	2.73	0.573
161	26.377	0.164	1.25	103	-1.3	-	83	0.046	2.71	0.566
162	26.542	0.165	1.22	103	-1.5	-	83	0.039	2.75	0.578
163	26.709	0.167	1.20	103	-1.5	-	83	0.050	2.77	0.588
164	26.874	0.165	1.18	103	-1.5	-	83	0.041	2.74	0.588
165	27.039	0.165	1.23	103	-1.4	-	83	0.046	2.76	0.606
166	27.204	0.165	1.21	103	-1.4	-	83	0.045	2.71	0.601
167	27.371	0.167	1.22	103	-1.4	-	83	0.044	2.73	0.605
168	27.535	0.164	1.20	103	-1.5	-	83	0.045	2.74	0.626
169	27.700	0.165	1.23	103	-1.4	-	83	0.049	2.74	0.589
170	27.866	0.166	1.23	103	-1.3	99	83	0.043	2.71	0.561
171	28.032	0.166	1.20	103	-1.5	-	83	0.048	2.68	0.563
172	28.197	0.165	1.23	103	-1.5	-	83	0.046	2.65	0.582
173	28.361	0.164	1.18	103	-1.3	-	83	0.037	2.58	0.616
174	28.528	0.167	1.25	103	-1.4	-	83	0.037	2.60	0.618
175	28.693	0.165	1.21	103	-1.4	-	83	0.039	2.58	0.606
176	28.858	0.165	1.23	103	-1.5	-	83	0.041	2.59	0.609
177	29.022	0.164	1.24	103	-1.5	-	83	0.046	2.66	0.610
178	29.189	0.167	1.20	103	-1.4	-	83	0.036	2.64	0.613
179	29.354	0.165	1.21	103	-1.4	-	82	0.040	2.64	0.608
180	29.519	0.165	1.22	103	-1.4	99	83	0.043	2.65	0.619
181	29.684	0.165	1.21	103	-1.4	-	83	0.043	2.66	0.626
182	29.851	0.167	1.22	103	-1.4	-	83	0.037	2.62	0.662
183	30.016	0.165	1.20	103	-1.5	-	83	0.047	2.60	0.664
184	30.180	0.164	1.19	104	-1.5	-	83	0.038	2.57	0.663
185	30.346	0.166	1.21	104	-1.4	-	83	0.040	2.58	0.658
186	30.512	0.166	1.22	104	-1.4	-	83	0.037	2.57	0.674
187	30.677	0.165	1.24	104	-1.5	-	83	0.042	2.55	0.672
188	30.842	0.165	1.20	104	-1.4	-	83	0.039	2.56	0.669
189	31.008	0.166	1.22	104	-1.5	-	83	0.055	2.59	0.670
190	31.174	0.166	1.22	104	-1.3	99	83	0.046	2.57	0.678
191	31.338	0.164	1.16	104	-1.3	-	83	0.037	2.56	0.677

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
192	31.503	0.165	1.23	104	-1.5	-	83	0.044	2.58	0.676
193	31.670	0.167	1.21	104	-1.5	-	83	0.044	2.59	0.680
194	31.835	0.165	1.22	104	-1.3	-	83	0.045	2.53	0.674
195	32.000	0.165	1.23	104	-1.4	-	83	0.043	2.61	0.655
196	32.165	0.165	1.22	104	-1.4	-	83	0.046	2.58	0.658
197	32.332	0.167	1.19	104	-1.4	-	82	0.041	2.58	0.667
198	32.497	0.165	1.21	104	-1.5	-	82	0.043	2.56	0.662
199	32.661	0.164	1.21	104	-1.5	-	82	0.034	2.60	0.665
200	32.827	0.166	1.22	104	-1.5	99	83	0.044	2.63	0.669
201	32.994	0.167	1.17	104	-1.3	-	83	0.042	2.64	0.681
202	33.159	0.165	1.21	104	-1.4	-	82	0.045	2.59	0.674
203	33.323	0.164	1.22	104	-1.3	-	82	0.039	2.63	0.681
204	33.490	0.167	1.22	104	-1.4	-	82	0.040	2.66	0.678
205	33.656	0.166	1.23	104	-1.4	-	82	0.040	2.67	0.685
206	33.821	0.165	1.22	104	-1.4	-	82	0.044	2.64	0.676
207	33.985	0.164	1.20	104	-1.4	-	83	0.045	2.63	0.674
208	34.152	0.167	1.25	104	-1.5	-	82	0.044	2.54	0.720
209	34.318	0.166	1.20	104	-1.4	-	83	0.044	2.57	0.726
210	34.483	0.165	1.20	104	-1.5	98	82	0.042	2.58	0.730
211	34.647	0.164	1.22	104	-1.4	-	82	0.039	2.60	0.701
212	34.814	0.167	1.21	104	-1.3	-	82	0.036	2.62	0.700
213	34.980	0.166	1.22	104	-1.4	-	82	0.040	2.64	0.697
214	35.144	0.164	1.22	104	-1.4	-	82	0.040	2.64	0.694
215	35.309	0.165	1.20	104	-1.4	-	82	0.047	2.65	0.686
216	35.477	0.168	1.22	104	-1.5	-	82	0.041	2.67	0.681
217	35.642	0.165	1.21	104	-1.5	-	82	0.036	2.66	0.680
218	35.806	0.164	1.21	104	-1.5	-	82	0.041	2.70	0.671
219	35.971	0.165	1.21	104	-1.4	-	82	0.033	2.70	0.663
220	36.139	0.168	1.20	104	-1.5	98	82	0.035	2.72	0.709
221	36.304	0.165	1.21	104	-1.4	-	82	0.044	2.72	0.734
222	36.468	0.164	1.20	104	-1.3	-	82	0.041	2.69	0.706
223	36.634	0.166	1.22	104	-1.5	-	82	0.040	2.74	0.719

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
224	36.801	0.167	1.21	104	-1.5	-	82	0.041	2.75	0.720
225	36.966	0.165	1.22	104	-1.4	-	82	0.040	2.77	0.709
226	37.130	0.164	1.21	104	-1.4	-	82	0.037	2.77	0.704
227	37.296	0.166	1.22	104	-1.3	-	82	0.048	2.77	0.704
228	37.463	0.167	1.23	104	-1.5	-	82	0.043	2.76	0.699
229	37.628	0.165	1.24	104	-1.3	-	82	0.040	2.75	0.704
230	37.793	0.165	1.21	104	-1.3	98	82	0.044	2.74	0.710
231	37.959	0.166	1.21	104	-1.5	-	82	0.041	2.76	0.710
232	38.125	0.166	1.21	104	-1.3	-	82	0.040	2.79	0.703
233	38.293	0.168	1.21	104	-1.4	-	82	0.045	2.78	0.697
234	38.455	0.162	1.20	104	-1.5	-	82	0.039	2.77	0.699
235	38.622	0.167	1.21	104	-1.4	-	82	0.043	2.76	0.694
236	38.788	0.166	1.20	104	-1.5	-	82	0.047	2.78	0.686
237	38.953	0.165	1.23	104	-1.4	-	83	0.045	2.77	0.686
238	39.117	0.164	1.22	104	-1.4	-	83	0.043	2.71	0.693
239	39.284	0.167	1.19	104	-1.5	-	83	0.039	2.68	0.671
240	39.450	0.166	1.23	104	-1.4	98	83	0.039	2.67	0.677
241	39.615	0.165	1.21	104	-1.4	-	83	0.037	2.67	0.665
242	39.779	0.164	1.19	104	-1.3	-	83	0.047	2.68	0.664
243	39.946	0.167	1.22	104	-1.5	-	83	0.046	2.65	0.669
244	40.112	0.166	1.23	104	-1.4	-	83	0.046	2.65	0.672
245	40.276	0.164	1.22	104	-1.4	-	83	0.039	2.67	0.669
246	40.441	0.165	1.17	104	-1.4	-	83	0.043	2.67	0.660
247	40.609	0.168	1.22	104	-1.4	-	83	0.047	2.69	0.676
248	40.774	0.165	1.21	104	-1.3	-	83	0.043	2.67	0.687
249	40.938	0.164	1.22	104	-1.5	-	83	0.054	2.67	0.690
250	41.106	0.168	1.20	104	-1.5	99	83	0.037	2.66	0.713
251	41.271	0.165	1.22	104	-1.3	-	83	0.039	2.69	0.704
252	41.436	0.165	1.23	104	-1.3	-	83	0.036	2.69	0.698
253	41.600	0.164	1.21	104	-1.4	-	83	0.045	2.69	0.701
254	41.768	0.168	1.23	104	-1.4	-	83	0.043	2.72	0.696
255	41.933	0.165	1.23	104	-1.5	-	83	0.040	2.72	0.703

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
256	42.098	0.165	1.21	104	-1.5	-	83	0.045	2.76	0.710
257	42.262	0.164	1.21	104	-1.3	-	83	0.042	2.76	0.701
258	42.428	0.166	1.21	104	-1.5	-	83	0.048	2.75	0.701
259	42.595	0.167	1.25	104	-1.5	-	83	0.040	2.73	0.697
260	42.760	0.165	1.22	104	-1.4	100	83	0.048	2.70	0.709
261	42.924	0.164	1.24	105	-1.5	-	83	0.043	2.75	0.705
262	43.091	0.167	1.21	104	-1.5	-	83	0.041	2.71	0.704
263	43.257	0.166	1.23	105	-1.5	-	83	0.042	2.72	0.713
264	43.422	0.165	1.20	104	-1.5	-	84	0.044	2.73	0.728
265	43.587	0.165	1.22	104	-1.5	-	83	0.045	2.73	0.717
266	43.753	0.166	1.20	105	-1.4	-	84	0.041	2.79	0.717
267	43.919	0.166	1.23	105	-1.5	-	84	0.038	2.79	0.709
268	44.084	0.165	1.19	104	-1.3	-	84	0.041	2.80	0.687
269	44.249	0.165	1.23	105	-1.3	-	83	0.044	2.81	0.685
270	44.416	0.167	1.20	105	-1.3	101	84	0.040	2.83	0.677
271	44.584	0.168	1.21	105	-1.5	-	84	0.043	2.80	0.673
272	44.746	0.162	1.23	105	-1.5	-	84	0.044	2.80	0.677
273	44.911	0.165	1.21	105	-1.5	-	84	0.042	2.77	0.672
274	45.078	0.167	1.22	105	-1.4	-	84	0.048	2.79	0.681
275	45.246	0.168	1.19	105	-1.5	-	84	0.037	2.75	0.688
276	45.408	0.162	1.21	105	-1.5	-	84	0.040	2.76	0.683
277	45.573	0.165	1.21	105	-1.3	-	84	0.043	2.77	0.666
278	45.740	0.167	1.20	105	-1.4	-	84	0.039	2.79	0.667
279	45.905	0.165	1.21	105	-1.3	-	84	0.041	2.79	0.666
280	46.070	0.165	1.22	105	-1.4	101	84	0.043	2.80	0.672
281	46.235	0.165	1.18	105	-1.5	-	84	0.040	2.79	0.681
282	46.402	0.167	1.22	105	-1.3	-	84	0.043	2.75	0.686
283	46.567	0.165	1.18	105	-1.4	-	84	0.041	2.70	0.715
284	46.732	0.165	1.19	105	-1.3	-	84	0.045	2.62	0.741
285	46.898	0.166	1.21	105	-1.4	-	84	0.044	2.61	0.759
286	47.067	0.169	1.18	105	-1.4	-	84	0.041	2.60	0.773
287	47.229	0.162	1.19	105	-1.3	-	84	0.037	2.58	0.780

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
288	47.394	0.165	1.21	105	-1.5	-	84	0.040	2.56	0.784
289	47.560	0.166	1.21	105	-1.4	-	84	0.046	2.58	0.778
290	47.729	0.169	1.20	105	-1.3	100	84	0.039	2.50	0.770
291	47.891	0.162	1.20	105	-1.4	-	84	0.042	2.42	0.769
292	48.056	0.165	1.22	105	-1.5	-	84	0.038	2.39	0.775
293	48.223	0.167	1.21	105	-1.5	-	84	0.044	2.35	0.775
294	48.389	0.166	1.24	105	-1.5	-	84	0.044	2.35	0.779
295	48.554	0.165	1.22	105	-1.3	-	84	0.049	2.34	0.785
296	48.718	0.164	1.21	105	-1.3	-	84	0.037	2.31	0.790
297	48.885	0.167	1.21	105	-1.5	-	84	0.038	2.28	0.788
298	49.051	0.166	1.23	105	-1.3	-	84	0.039	2.27	0.781
299	49.219	0.168	1.20	105	-1.3	-	84	0.041	2.25	0.778
300	49.381	0.162	1.19	105	-1.3	99	83	0.043	2.24	0.777
301	49.548	0.167	1.25	105	-1.4	-	83	0.040	2.21	0.788
302	49.713	0.165	1.21	105	-1.5	-	83	0.036	2.23	0.810
303	49.881	0.168	1.22	105	-1.3	-	84	0.039	2.21	0.825
304	50.043	0.162	1.23	105	-1.3	-	84	0.040	2.21	0.823
305	50.210	0.167	1.21	105	-1.3	-	84	0.041	2.18	0.814
306	50.376	0.166	1.22	105	-1.5	-	84	0.039	2.19	0.811
307	50.543	0.167	1.22	105	-1.3	-	84	0.044	2.19	0.810
308	50.705	0.162	1.21	105	-1.3	-	84	0.047	2.20	0.800
309	50.873	0.168	1.23	105	-1.5	-	84	0.037	2.19	0.789
310	51.038	0.165	1.20	105	-1.3	101	84	0.036	2.19	0.789
311	51.206	0.168	1.23	105	-1.3	100	84	0.043	2.20	0.784
Avg/Tot	51.209	0.165	1.21	98.6	-1.4	100	83.5	0.056	4.05	0.564

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Stove ΔT: 85

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	432	344	249	454	361	368.0	N/A
1	429	339	248	442	362	364.0	N/A
2	426	336	249	432	361	360.6	N/A
3	424	335	248	451	361	363.5	N/A
4	421	336	249	529	361	379.2	N/A
5	420	338	246	583	360	389.5	N/A
6	420	338	244	609	360	394.1	N/A
7	415	336	244	620	359	394.8	N/A
8	411	334	242	611	359	391.2	N/A
9	414	332	241	603	358	389.5	N/A
10	410	330	243	593	357	386.4	N/A
11	404	326	239	586	356	382.0	N/A
12	401	324	239	579	355	379.4	N/A
13	397	322	238	572	353	376.4	N/A
14	395	319	237	578	352	376.0	N/A
15	390	317	235	590	351	376.5	N/A
16	391	317	234	605	349	379.1	N/A
17	382	316	232	615	348	378.5	N/A
18	379	315	231	627	347	379.7	N/A
19	378	316	230	633	345	380.3	N/A
20	373	316	230	639	344	380.2	N/A
21	371	315	228	647	342	380.4	N/A
22	368	314	228	659	340	381.9	N/A
23	364	316	225	672	339	383.0	N/A
24	365	316	224	686	337	385.3	N/A
25	360	317	224	696	335	386.3	N/A
26	360	318	221	709	334	388.4	N/A
27	359	319	219	721	332	390.0	N/A
28	358	321	219	727	330	391.1	N/A
29	352	323	218	732	329	390.5	N/A
30	354	326	218	738	328	392.6	N/A
31	354	329	216	739	326	392.9	N/A
32	354	331	218	741	325	393.5	N/A
33	352	333	216	748	323	394.6	N/A
34	350	338	215	748	322	394.7	N/A
35	350	340	214	750	321	394.7	N/A
36	349	343	213	750	319	394.7	N/A
37	351	345	213	754	318	396.2	N/A
38	353	347	213	754	317	396.5	N/A
39	355	349	211	755	315	396.8	N/A
40	354	351	209	756	314	396.6	N/A
41	351	352	210	757	313	396.5	N/A
42	353	354	208	759	312	397.1	N/A
43	354	356	209	756	310	397.0	N/A
44	358	356	207	758	309	397.6	N/A
45	356	359	208	754	308	397.0	N/A
46	357	359	206	754	307	396.7	N/A
47	358	362	207	755	306	397.3	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Stove ΔT: 85

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	360	361	206	755	305	397.3	N/A
49	364	365	205	755	304	398.4	N/A
50	366	365	204	753	303	398.1	N/A
51	364	367	206	754	302	398.4	N/A
52	367	368	204	754	301	398.7	N/A
53	368	371	204	754	301	399.7	N/A
54	370	372	204	755	300	400.2	N/A
55	373	374	203	756	299	401.0	N/A
56	372	376	204	759	299	402.0	N/A
57	373	378	204	758	298	402.1	N/A
58	376	378	204	756	297	402.5	N/A
59	376	380	204	756	297	402.5	N/A
60	380	382	204	754	296	403.2	N/A
61	379	383	205	749	296	402.4	N/A
62	381	384	203	748	296	402.4	N/A
63	382	387	204	747	295	402.9	N/A
64	385	387	202	742	295	402.2	N/A
65	388	388	203	739	294	402.2	N/A
66	390	390	201	734	294	401.8	N/A
67	391	392	202	733	294	402.0	N/A
68	391	391	203	728	293	401.3	N/A
69	393	393	202	729	293	401.8	N/A
70	395	393	202	727	292	401.9	N/A
71	395	394	203	725	292	401.9	N/A
72	395	394	202	725	292	401.8	N/A
73	396	396	203	724	292	402.1	N/A
74	397	397	204	721	292	401.9	N/A
75	399	396	202	721	291	401.8	N/A
76	401	399	205	717	291	402.6	N/A
77	402	398	204	717	291	402.1	N/A
78	404	398	203	714	290	401.8	N/A
79	406	398	203	707	290	400.7	N/A
80	405	398	204	709	290	401.1	N/A
81	405	399	203	703	290	399.9	N/A
82	407	399	203	701	290	399.8	N/A
83	405	397	204	698	290	398.8	N/A
84	409	398	203	695	290	398.9	N/A
85	409	396	203	691	290	397.5	N/A
86	412	396	203	690	290	398.2	N/A
87	410	396	204	683	290	396.4	N/A
88	414	394	203	679	290	395.9	N/A
89	412	396	204	677	290	395.9	N/A
90	412	395	204	674	290	395.1	N/A
91	415	394	204	674	290	395.2	N/A
92	415	393	204	675	290	395.4	N/A
93	418	390	204	672	291	394.9	N/A
94	415	390	204	674	291	394.8	N/A
95	418	390	206	668	291	394.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Stove ΔT: 85

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	418	386	206	666	291	393.3	N/A
97	418	385	204	665	291	392.5	N/A
98	417	382	204	662	291	391.0	N/A
99	419	381	205	659	291	391.1	N/A
100	418	379	204	659	291	390.3	N/A
101	418	378	205	656	291	389.4	N/A
102	418	377	206	655	292	389.5	N/A
103	422	373	205	654	292	389.1	N/A
104	421	369	203	655	292	388.1	N/A
105	422	369	204	651	292	387.5	N/A
106	422	367	205	649	292	386.8	N/A
107	422	368	205	649	292	387.0	N/A
108	422	368	207	643	292	386.2	N/A
109	422	363	206	642	292	384.8	N/A
110	420	363	205	634	292	382.9	N/A
111	421	362	205	629	293	381.8	N/A
112	424	359	205	624	293	381.0	N/A
113	422	359	206	618	293	379.4	N/A
114	420	357	207	611	293	377.6	N/A
115	424	354	205	606	293	376.4	N/A
116	417	354	207	599	293	374.1	N/A
117	420	353	207	594	293	373.3	N/A
118	420	353	208	585	294	371.8	N/A
119	423	350	206	578	294	370.1	N/A
120	417	349	207	568	294	367.1	N/A
121	422	348	207	562	294	366.6	N/A
122	418	347	208	553	295	364.1	N/A
123	419	345	206	548	295	362.7	N/A
124	422	343	205	541	295	361.3	N/A
125	417	343	207	535	296	359.5	N/A
126	420	341	207	531	296	359.0	N/A
127	418	341	209	523	296	357.3	N/A
128	420	339	208	519	297	356.6	N/A
129	417	338	209	510	297	354.2	N/A
130	417	335	206	505	297	352.1	N/A
131	416	334	208	500	297	351.2	N/A
132	418	332	207	495	297	349.8	N/A
133	415	330	208	491	298	348.4	N/A
134	413	329	208	485	298	346.4	N/A
135	415	327	208	481	298	345.7	N/A
136	410	326	208	477	298	344.0	N/A
137	413	324	208	472	298	342.9	N/A
138	407	323	208	467	298	340.5	N/A
139	409	322	208	463	298	340.0	N/A
140	404	320	208	458	299	337.8	N/A
141	404	319	208	454	299	336.7	N/A
142	405	317	209	449	299	335.5	N/A
143	400	317	209	445	299	333.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Stove ΔT: 85

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	397	315	209	442	299	332.4	N/A
145	395	313	209	438	299	330.8	N/A
146	395	312	208	435	299	329.8	N/A
147	394	310	208	431	299	328.3	N/A
148	390	309	210	428	299	326.9	N/A
149	390	308	209	425	299	326.1	N/A
150	389	306	209	420	299	324.7	N/A
151	388	305	208	417	299	323.3	N/A
152	383	304	209	415	299	321.8	N/A
153	383	302	209	412	299	320.9	N/A
154	380	300	207	409	299	319.1	N/A
155	381	299	209	406	299	318.7	N/A
156	377	297	206	405	299	316.8	N/A
157	376	296	207	404	298	316.1	N/A
158	376	294	208	401	298	315.5	N/A
159	373	294	208	399	298	314.4	N/A
160	374	292	207	397	298	313.8	N/A
161	369	292	207	396	298	312.3	N/A
162	369	290	206	395	297	311.5	N/A
163	368	290	205	393	297	310.7	N/A
164	367	290	206	394	297	310.6	N/A
165	366	288	205	391	297	309.3	N/A
166	363	286	205	391	296	308.4	N/A
167	362	285	205	390	296	307.6	N/A
168	362	286	205	387	296	307.1	N/A
169	363	284	205	385	295	306.4	N/A
170	360	282	204	384	295	304.9	N/A
171	359	282	205	381	295	304.5	N/A
172	360	281	204	380	295	304.0	N/A
173	356	281	204	378	295	302.9	N/A
174	357	279	204	377	294	302.2	N/A
175	357	279	205	374	294	301.8	N/A
176	354	278	204	372	294	300.5	N/A
177	356	277	204	372	294	300.5	N/A
178	354	278	203	370	293	299.7	N/A
179	355	276	203	368	293	298.9	N/A
180	351	277	204	367	293	298.1	N/A
181	351	276	203	367	292	297.7	N/A
182	352	275	203	366	292	297.4	N/A
183	349	274	204	364	292	296.7	N/A
184	347	274	202	363	292	295.6	N/A
185	349	273	203	361	292	295.7	N/A
186	348	273	204	361	291	295.3	N/A
187	346	272	203	359	291	294.1	N/A
188	345	272	203	358	291	293.6	N/A
189	345	272	203	357	290	293.4	N/A
190	343	271	202	356	290	292.6	N/A
191	344	271	202	355	290	292.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Stove ΔT: 85

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	343	271	203	355	290	292.3	N/A
193	344	270	201	354	290	291.6	N/A
194	339	270	203	353	289	290.8	N/A
195	342	269	203	352	289	291.2	N/A
196	343	269	202	351	289	290.8	N/A
197	342	268	200	350	289	289.9	N/A
198	337	268	203	349	289	289.2	N/A
199	340	267	203	349	288	289.2	N/A
200	337	267	202	349	288	288.5	N/A
201	340	267	201	348	288	288.7	N/A
202	338	267	202	347	288	288.4	N/A
203	337	267	200	347	288	287.8	N/A
204	335	266	201	347	287	287.3	N/A
205	336	266	202	346	287	287.5	N/A
206	337	266	202	346	287	287.6	N/A
207	334	266	202	347	287	287.0	N/A
208	336	266	201	346	287	287.2	N/A
209	332	264	202	345	287	286.1	N/A
210	334	264	202	346	287	286.4	N/A
211	332	264	202	345	286	285.9	N/A
212	332	264	203	345	286	285.9	N/A
213	330	263	202	344	286	285.1	N/A
214	332	263	203	345	286	285.7	N/A
215	330	264	203	344	286	285.2	N/A
216	331	263	202	344	286	285.3	N/A
217	330	263	203	345	286	285.3	N/A
218	328	262	203	345	286	284.8	N/A
219	330	262	201	346	285	285.0	N/A
220	327	263	202	346	285	284.4	N/A
221	328	263	202	345	285	284.8	N/A
222	328	263	203	347	285	285.2	N/A
223	328	262	202	348	285	284.8	N/A
224	328	263	202	347	285	285.1	N/A
225	325	262	201	349	285	284.4	N/A
226	327	263	202	348	285	284.9	N/A
227	326	261	202	349	285	284.7	N/A
228	324	261	202	350	285	284.2	N/A
229	326	261	202	351	285	284.8	N/A
230	325	262	202	350	285	284.7	N/A
231	328	262	202	351	285	285.6	N/A
232	324	262	203	352	285	285.1	N/A
233	325	262	205	352	285	285.5	N/A
234	326	262	204	351	285	285.7	N/A
235	326	262	204	352	285	285.6	N/A
236	324	262	203	353	285	285.5	N/A
237	326	262	204	353	285	285.8	N/A
238	325	262	205	353	284	285.8	N/A
239	326	262	204	353	284	285.9	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Stove ΔT: 85

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
240	325	262	205	354	284	286.0	N/A
241	326	263	204	354	284	286.1	N/A
242	326	262	205	353	284	286.2	N/A
243	326	262	205	354	285	286.3	N/A
244	324	262	205	354	285	285.8	N/A
245	325	263	205	353	284	286.1	N/A
246	325	262	205	354	285	286.2	N/A
247	326	263	205	353	285	286.1	N/A
248	325	263	204	353	285	285.9	N/A
249	325	262	206	354	285	286.4	N/A
250	325	263	206	354	285	286.4	N/A
251	326	261	206	353	285	286.3	N/A
252	325	262	206	353	285	286.2	N/A
253	326	263	205	353	285	286.4	N/A
254	325	262	206	354	285	286.3	N/A
255	323	262	208	353	286	286.1	N/A
256	325	262	206	353	286	286.2	N/A
257	323	262	206	353	286	286.1	N/A
258	324	262	207	353	286	286.3	N/A
259	324	262	207	353	286	286.2	N/A
260	323	262	207	352	286	286.0	N/A
261	324	263	208	352	286	286.4	N/A
262	325	262	207	352	286	286.4	N/A
263	323	262	207	352	286	286.1	N/A
264	323	262	208	351	286	286.1	N/A
265	325	261	208	351	287	286.3	N/A
266	324	261	207	352	287	286.2	N/A
267	324	262	207	351	287	286.1	N/A
268	325	261	207	353	287	286.5	N/A
269	325	261	208	352	287	286.4	N/A
270	326	261	208	351	287	286.4	N/A
271	327	261	208	352	287	286.9	N/A
272	325	261	209	352	287	286.6	N/A
273	326	261	208	352	287	286.9	N/A
274	327	261	208	352	287	287.1	N/A
275	327	261	208	352	287	287.0	N/A
276	327	261	208	352	287	287.1	N/A
277	327	260	208	351	287	286.8	N/A
278	327	261	209	352	287	287.2	N/A
279	327	260	209	353	287	287.3	N/A
280	328	259	209	352	287	287.2	N/A
281	328	261	209	352	287	287.4	N/A
282	328	260	209	352	287	287.4	N/A
283	328	260	209	351	287	287.1	N/A
284	330	261	209	352	287	287.6	N/A
285	330	261	209	352	287	287.7	N/A
286	330	261	208	352	288	287.7	N/A
287	329	261	209	352	288	287.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

Stove ΔT: **85**

	Temperature Data (°F)						
Elapsed Time (min)	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
288	331	260	209	352	288	287.7	N/A
289	330	259	210	351	288	287.5	N/A
290	331	259	210	351	288	287.9	N/A
291	331	259	210	352	288	288.0	N/A
292	331	259	209	351	288	287.7	N/A
293	331	258	209	351	288	287.4	N/A
294	331	258	210	351	288	287.7	N/A
295	331	257	210	350	288	287.4	N/A
296	331	258	209	349	288	287.3	N/A
297	330	258	210	349	288	287.0	N/A
298	331	257	209	347	288	286.6	N/A
299	330	257	210	347	288	286.5	N/A
300	330	256	209	346	288	285.9	N/A
301	330	255	209	346	288	285.6	N/A
302	331	256	210	344	288	285.7	N/A
303	330	255	210	345	288	285.4	N/A
304	329	255	210	344	288	285.0	N/A
305	330	254	210	343	287	284.9	N/A
306	329	254	210	343	287	284.5	N/A
307	329	254	210	342	287	284.2	N/A
308	328	253	209	342	287	283.7	N/A
309	329	253	210	342	287	283.8	N/A
310	328	251	210	341	287	283.2	N/A
311	327	251	209	339	287	282.6	N/A
Average	365.5	309.6	208.6	494.5	298.0	335.2	N/A

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	-0.003		0.03	78	-0.5		76
1	0.141	0.144	1.31	78	-2.1	-	77
2	0.313	0.172	1.31	78	-2.2	-	77
3	0.485	0.172	1.31	78	-2.2	-	77
4	0.657	0.172	1.32	78	-2.1	-	78
5	0.830	0.173	1.33	78	-2.2	-	78
6	1.004	0.174	1.35	78	-2.0	-	79
7	1.178	0.174	1.35	78	-2.2	-	79
8	1.357	0.179	1.35	79	-2.1	-	79
9	1.532	0.175	1.36	79	-2.1	-	80
10	1.707	0.175	1.36	79	-2.2	99	80
11	1.882	0.175	1.38	79	-2.1	-	80
12	2.059	0.177	1.38	79	-2.2	-	80
13	2.237	0.178	1.39	79	-2.3	-	80
14	2.415	0.178	1.41	79	-2.1	-	80
15	2.590	0.175	1.41	80	-2.1	-	80
16	2.767	0.177	1.40	80	-2.1	-	80
17	2.947	0.180	1.41	80	-2.2	-	80
18	3.127	0.180	1.41	80	-2.1	-	80
19	3.305	0.178	1.42	81	-2.2	-	80
20	3.485	0.180	1.43	81	-2.3	103	80
21	3.667	0.182	1.43	81	-2.1	-	80
22	3.846	0.179	1.43	82	-2.2	-	80
23	4.030	0.184	1.44	82	-2.2	-	80
24	4.211	0.181	1.43	82	-2.3	-	80
25	4.390	0.179	1.44	82	-2.1	-	80
26	4.573	0.183	1.43	83	-2.1	-	80
27	4.755	0.182	1.43	83	-2.2	-	81
28	4.936	0.181	1.44	83	-2.3	-	81
29	5.119	0.183	1.44	84	-2.2	-	81
30	5.297	0.178	1.45	84	-2.2	103	81
31	5.478	0.181	1.43	84	-2.2	-	81

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

	Particulate Sampling Data						
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	5.661	0.183	1.44	85	-2.2	-	81
33	5.841	0.180	1.44	85	-2.3	-	81
34	6.026	0.185	1.45	86	-2.2	-	81
35	6.207	0.181	1.44	86	-2.3	-	81
36	6.393	0.186	1.44	86	-2.1	-	81
37	6.575	0.182	1.44	87	-2.1	-	81
38	6.757	0.182	1.46	87	-2.1	-	81
39	6.941	0.184	1.45	87	-2.2	-	81
40	7.122	0.181	1.44	88	-2.2	102	81
41	7.306	0.184	1.45	88	-2.1	-	81
42	7.487	0.181	1.45	88	-2.2	-	81
43	7.671	0.184	1.44	89	-2.3	-	81
44	7.851	0.180	1.44	89	-2.1	-	81
45	8.033	0.182	1.44	89	-2.3	-	81
46	8.218	0.185	1.43	90	-2.2	-	81
47	8.398	0.180	1.45	90	-2.2	-	81
48	8.583	0.185	1.45	90	-2.2	-	81
49	8.765	0.182	1.45	91	-2.2	-	81
50	8.953	0.188	1.46	91	-2.2	102	81
51	9.134	0.181	1.45	91	-2.1	-	82
52	9.318	0.184	1.44	92	-2.2	-	82
53	9.501	0.183	1.45	92	-2.1	-	82
54	9.684	0.183	1.45	92	-2.2	-	82
55	9.868	0.184	1.45	93	-2.2	-	82
56	10.050	0.182	1.44	93	-2.1	-	82
57	10.235	0.185	1.46	93	-2.2	-	82
58	10.416	0.181	1.45	94	-2.2	-	82
59	10.598	0.182	1.45	94	-2.3	-	82
60	10.781	0.183	1.45	94	-2.1	100	82
Avg/Tot	10.784	0.180	1.40	84.7	-2.1	101	80.3

LAB SAMPLE DATA - ASTM E2515

Client: FPI
Model: F2450-2
Run #: 5

Job #: 24-309
Tracking #: 201
Technician: AK
Date: 7/1/2024

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	G01103	244.9	247.3	2.4
	B	G01104	243.9	246.1	2.2
	C - 1st Hour	G01105	244.5	246.3	1.8
	Amb	G01106	245.0	245.2	0.2
Probes	**A**	13A	117316.8	117316.8	0.0
	B	13B	116943.1	116943.1	0.0
	C - 1st Hour	13C	115651.4	115651.6	0.2
O-rings	**A**	13A	3596.5	3596.8	0.3
	B	13B	3642.3	3642.7	0.4
	C - 1st Hour	13C	4409.7	4410.1	0.4

Placed in Dessicator on:	7/1/2024

		200.0		200.0					
Balance Audit (mg):		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	**A**	247.2	7/3 12:45	247.3	7/8 10:00				
	B	246.2	7/3 12:45	246.1	7/8 10:00				
	C - 1st Hour	246.4	7/3 12:45	246.3	7/8 10:00				
	Amb	245.2	7/3 12:45	245.2	7/8 10:00				
Probes	**A**	117316.8	7/3 12:45	117316.8	7/8 10:00				
	B	116943.2	7/3 12:45	116943.1	7/8 10:00				
	C - 1st Hour	115651.4	7/3 12:45	115651.6	7/8 10:00				
O-Rings	**A**	3596.7	7/3 12:45	3596.8	7/8 10:00				
	B	3642.6	7/3 12:45	3642.7	7/8 10:00				
	C - 1st Hour	4410.3	7/3 12:45	4410.1	7/8 10:00				

Train A Aggregate, mg:	**2.7**
Train B Aggregate, mg:	**2.6**
Train C Aggregate, mg:	**2.4**
Ambient, mg:	**0.2**

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 5 Test Date: 7/1/24

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Open 0.023”
Targeted Burn Category: II – Fan Conf.

Preburn Notes

Time	Notes
10:00 40:00	+1.82 lb Stirred Coals

Test Notes

Test Burn Start Time: 12:41 Test Fuel Loaded by: 35 seconds
Door Closed: 270 seconds Air Control Set at: 300 seconds
Other Loading Notes: Fan off- fan confirmation

Time	Notes
	-None-

Test Burn End Time: 17:52

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO_2 (%): 16.98 CO (%): 4.300
Mid Gas CO_2 (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	11:41	11:42	11:43	18:08	18:09	18:10
CO_2	0.00	17.13	10.14	-0.04	17.05	10.08
CO	-0.012	4.352	2.572	-0.009	4.328	2.555

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

Technician Signature:  Date: 7/1/2024

ASTM E2780 Wood Heater Run Sheets

Client: FPI Job Number: 24-309 Tracking #: 201
Model: F2450-2 Run Number: 5 Test Date: 7/1/24



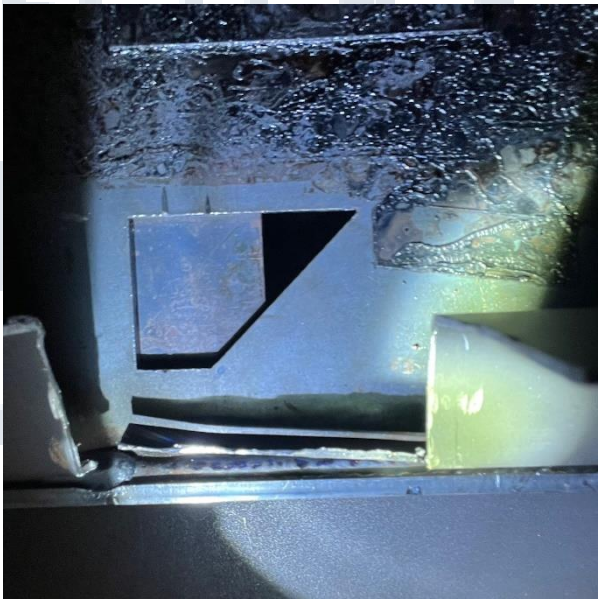
Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____ Date: 7/1/2024

ASTM E2515 - Glass Fiber Filters

Date:	5/31/24	6/3/24					
Time:	1:25	0830					
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
G01061	237.5	237.6	-	-	A	23-248	#4
G01062	238.9	238.9	-	-	A	↓	↓
G01063	238.8	238.9	-	-	A	24-317	#1
G01064	237.7	237.8	-	-	A	↓	↓
G01065	238.2	238.4	-	-	A		
G01066	237.3	237.5	-	-	A		
G01067	237.5	237.6	-	-	A		#2
G01068	238.8	238.7	-	-	A		↓
G01069	238.6	238.5	-	-	A		
G01070	239.2	239.2	-	-	A		
G01071	238.3	238.5	-	-	A		#3
G01072	238.1	238.3	-	-	A		↓
G01073	237.8	238.0	-	-	A		
G01074	239.0	239.0	-	-	A		↓
G01075	238.7	238.8	-	-	A		#4
G01076	238.4	238.5	-	-	A	↓	↓

Date:	6/17/24	6/18/24					
Time:	15:00	0800					
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
G01077	238.0	238.2	-	-	A	24-317	#4
G01078	239.1	239.0	-	-	A	↓	↓
G01079	238.7	238.9	-	-	A		#5
G01080	239.7	239.6	-	-	A		↓
G01081	238.1	238.0	-	-	A		
G01082	238.5	238.5	-	-	A		
G01083	238.2	238.2	-	-	A		#6
G01084	238.8	238.7	-	-	A		↓
G01085	239.2	239.0	-	-	A		
G01086	238.7	238.7	-	-	A	↓	↓
G01087	237.1	237.0	-	-	A	24-309	#1
G01088	239.0	239.1	-	-	A	↓	↓
G01089	238.4	238.6	-	-	A		
G01090	237.7	237.9	-	-	A		
G01091	238.8	238.8	-	-	A		#2
G01092	239.3	239.4	-	-	A	↓	↓

ASTM E2515 - Glass Fiber Filters

Date:	6/25/24	6/26/24					
Time:	0845	0830					
	Weight 1	Weight 2	Weigth 3	Weight 4	Initial	Project	Run
G01093	244.7	244.6	-	-	A	24-304	#2
G01094	247.5	247.3	-	-	A		↓
G01095	240.4	240.3	-	-	A		#3
G01096	244.6	244.7	-	-	A		↓
G01097	243.9	244.0	-	-	A		↓
G01098	237.8	238.0	-	-	A		↓
G01099	244.3	244.2	-	-	A		#4
G01100	246.1	246.1	-	-	A		↓
G01101	245.8	245.7	-	-	A		↓
G01102	244.4	244.6	-	-	A		↓
G01103	245.1	244.9	-	-	A		#5
G01104	244.0	243.9	-	-	A		↓
G01105	244.6	244.5	-	-	A		↓
G01106	244.9	245.0	-	-	A		↓
G01107	244.2	244.4	-	-	A		
G01108	243.8	243.7	-	-	A		

Date:	6/26/24	7/1/24					
Time:	0820	1130					
	Weight 1	Weight 2	Weigth 3	Weight 4	Initial	Project	Run
G01109	244.7	244.6	-	-	A		
G01110	244.4	244.6	-	-	A		
G01111	244.47	244.8	-	-	A		
G01112	243.9	244.1	-	-	A		
G01113	244.2	244.4	-	-	A		
G01114	243.4	243.6	-	-	A		
G01115	244.6	244.8	-	-	A		
G01116	244.7	244.8	-	-	A		
G01117	245.0	245.0	-	-	A		
G01118	243.0	242.8	-	-	A		
G01119	244.3	244.5	-	-	A		
G01120	244.9	245.1	-	-	A		
G01121	244.8	245.0	-	-	A		
G01122	244.4	244.6	-	-	A		
G01123	245.7	245.7	-	-	A		
G01124	244.0	244.2	-	-	A		

ASTM E2515 - Probe Samples 1-10

Date:	5/28/24	5/31/24	6/3/24	6/17			
Time:	3:30	1400	0845	0815			
	Weight 1	Weight 2	Weigth 3	Weight 4	Initial	Project	Run
1A	115626.8	115627.0	—	—	A		
1B	115901.6	115901.8	—	—	A		
1C	116432.9	116433.0	—	—	A		
2A	116057.4	116057.4	—	—	LP	23-248	#4
2B	116173.5	116173.3	—	—	LP		
2C	116428.2	116428.3	—	—	LP		
3A	115880.4	115880.5	—	—	A	24-317	#1
3B	116120.1	116120.2	—	—	A		
3C	116617.6	116617.7	—	—	A		
4A	116022.9	116022.9	—	—	A	24-317	#2
4B	116181.7	116181.7	—	—	A		
4C	116997.3	116997.0	—	—	A		
5A	116757.8	116757.1	116758.0	116757.9	A	24-317	#3
5B	116875.6	116875.1	116876.2	116876.2	A		
5C	115855.2	115855.0	—	—	A		

Date:	6/7/24	6/12	6/18/24	-			
Time:	2:30	0800	0800	-			
	Weight 1	Weight 2	Weigth 3	Weight 4	Initial	Project	Run
6A	116382.6	116383.7	116383.8	-	A	24-317	#4
6B	115954.0	115955.1	115955.4	-	A		
6C	115127.8	115129.3	115129.1	-	A		
7A	116557.8	~~116557~~ 116559.1	116559.0	-	A	24-317	#5
7B	117128.0	117129.2	117129.1	-	A		
7C	116550.5	116551.9	116551.8	-	A		
8A	116633.6	116634.7	116634.7	-	A	24-317	#6
8B	116665.6	116666.9	116667.0	-	A		
8C	116662.7	116663.~~7~~	116663.8	-	A		
9A	116530.6	116531.7	116531.8	-	A	24-309	#1
9B	117737.8	117739.2	117739.2	-	A		
9C	116602.6	116603.9	116603.9	-	A		
10A	116646.1	116647.1	116647.2	-	A	24-309	#2
10B	117753.7	117755.1	117755.1	-	A		
10C	116729.2	116729.4	116729.4	-	A		

ASTM E2515 - Probe Samples 11-20

Date:	6/25/24	6/26/24					
Time:	0900	0900					
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
11A	116868.4	116868.6	-	-	A	24-309	#3 4
11B	117342.3	117342.4	-	-	A		
11C	116188.1	116188.2	-	-	A		
12A	116708.9	116708.9	-	-	A	24-309	#3
12B	117775.1	117775.2	-	-	A		
12C	117174.0	117174.1	-	-	A		
13A	117316.6	117316.8	-	-	A	24-309	#5
13B	116943.0	116943.1	-	-	A		
13C	115651.6	115651.4	-	-	A		
14A	116634.9	116635.1	-	-	A		
14B	116620.9	116621.1	-	-	A		
14C	116531.6	116531.6	-	-	A		
15A	117241.5	117241.5	-	-	A		
15B	116754.3	116754.2	-	-	A		
15C	116848.3	116848.3	-	-	A		

Date:							
Time:							
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
16A							
16B							
16C							
17A							
17B							
17C							
18A							
18B							
18C							
19A							
19B							
19C							
20A							
20B							
20C							

ASTM E2515 - O-Ring Samples 1-10

Date:	5/28/24	5/31/24	6/3/24				
Time:	3:00	3:35	0830				
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
1A	3568.9	3568	–	–	A	24-203	#8
1B	3557.0	3556.9	–	–	A		
1C	4167.8	4167.9	–	–	A		
2A	3554.3	3554.2	–	–	A	23-248	#4
2B	3573.6	3573.5	–	–	A		
2C	3392.2	3392.0	–	–	A		
3A	3580.7	3580.6	–	–	A	24-317	#1
3B	3569.4	3569.3	–	–	A		
3C	3623.6	3623.4	–	–	A		
4A	3377.5	3377.3	–	–	A	24-317	#2
4B	3580.3	3580.1	–	–	A		
4C	3373.3	3373.1	–	–	A		
5A	3536.5	3536.1	3536.3	–	A	24-317	#3
5B	3532.2	3532.0	–	–	A		
5C	3377.0	3376.7	3376.8	–	A		

Date:	6/7	6/17	6/19				
Time:	2:30	0800	0800				
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
6A	3396.8	3397.0	–	–	A	24-317	#4
6B	3613.5	3613.7	–	–	A		
6C	3402.2	3402.3	–	–	A		
7A	3571.6	3571.8	–	–	A	24-317	#5
7B	3522.8	3522.8	–	–	A		
7C	3407.2	3407.4	–	–	A		
8A	3552.2	3552.3	–	–	A	24-317	#6
8B	3558.2	3558.2	–	–	A		
8C	3586.7	3586.7	–	–	A		
9A	3580.3	3580.5	–	–	A	24-309	#1
9B	3523.5	3523.4	–	–	A		
9C	3430.7	3431.3	3431.2	–	A		
10A	3361.8	3361.7	–	–	A	24-309	#2
10B	3570.7	3571.3	3571.2	–	A		
10C	3366.9	3367.1	–	–	A		

ASTM E2515 - O-Ring Samples 11-20

Date:	6/25/24	6/26/24					
Time:	09:00	10:00					
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
11A	3423.6	3423.5	-	-	A	24-309	#3
11B	4233.9	4233.9	-	-	A		
11C	3588.2	3588.3	-	-	A		
12A	3586.0	3585.9	-	-	A	24-309	#4
12B	3550.7	3550.8	-	-	A		
12C	3615.9	3615.9	-	-	A		
13A	3596.4	3596.5	-	-	A	24-309	#5
13B	3642.3	3642.3	-	-	A		
13C	4409.7	4409.7	-	-	A		
14A	3342.7	3342.7	-	-	A		
14B	3367.4	3367.4	-	-	A		
14C	3444.7	3444.7	-	-	A		
15A	3570.0	3570.0	-	-	A		
15B	3571.0	3571.1	-	-	A		
15C	3397.5	3397.5	-	-	N		

Date:							
Time:							
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
16A							
16B							
16C							
17A							
17B							
17C							
18A							
18B							
18C							
19A							
19B							
19C							
20A							
20B							
20C							

Pre-Conditioning Data

Client:	FPI	Job #:	24-309
Model:	F2450-2	Tracking #:	201
Date(s):	3/3/24 - 4/17/24	Technician:	AK

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	278	N/A	Test was done at a medium low setting/Weight=16.48 lb/Average Moisture Content=21.2%
1	454	N/A	
2	350	N/A	
3	230	N/A	
4	221	N/A	
5	201	N/A	
6	294	N/A	Test was done at a medium low setting/Weight=16.71 lb/Average Moisture Content=21.4%
7	437	N/A	
8	323	N/A	
9	211	N/A	
10	198	N/A	
11	189	N/A	
12	291	N/A	Test was done at a medium low setting/Weight=16.89 lb/Average Moisture Content=21.6%
13	434	N/A	
14	392	N/A	
15	239	N/A	
16	198	N/A	
17	181	N/A	
18	296	N/A	Test was done at a medium low setting/Weight=16.83 lb/Average Moisture Content=21.5%
19	453	N/A	
20	331	N/A	
21	225	N/A	
22	202	N/A	
23	191	N/A	
24	285	N/A	Test was done at a medium low setting/Weight=16.5 lb/Average Moisture Content=21.5%
25	487	N/A	
26	330	N/A	
27	216	N/A	
28	201	N/A	
29	192	N/A	
30	297	N/A	Test was done at a medium low setting/Weight=17.17 lb/Average Moisture Content=21.3%
31	453	N/A	
32	365	N/A	
33	232	N/A	
34	186	N/A	
35	188	N/A	
36	187	N/A	
37	249	N/A	Test was done at a medium low setting/Weight=16.48 lb/Average Moisture Content=21.5%
38	401	N/A	
39	300	N/A	
40	183	N/A	
41	163	N/A	
42	165	N/A	
43	165	N/A	
44	267	N/A	Test was done at a medium low setting/Weight=16.8 lb/Average Moisture Content=21.5%
45	395	N/A	
46	286	N/A	
47	188	N/A	
48	183	N/A	
49	183	N/A	
50	182	N/A	

Signature/Date: 7/17/2024

Sample Calculations – ASTM E2780 & E2515

Client:	FPI
Model:	F2450-2
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/ft^3

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 = 22.2 %

M_{Swb} = 1.7 lbs

0.4536 = Conversion factor from lbs to kg

M_{Sdb} = [(1.7 x 0.4536) (100/(100 + 22.2)

M_{Sdb} = **0.65** 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):

MC_{Pnwb} = 1.83

FM_{CPn} = 20.1

= 1.8 (100/(100+ 20.1)

= 1.5 lbs

Total dry crib weight, excluding spacers = 12.45 lbs

M_{Cdb} = **5.65** kg

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

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

Where,

V_C = Volume of fuel crib, ft^3

Sample calculation:

V_C = 762.1 in^3

1728 = conversion from in^3 to ft^3

D_{Cdb} = 12.45 / 762.1 * 1728

= **28.23** 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:

$$M_{FTAdb} = 0.65 + 5.65$$

$$= \mathbf{6.29} \text{ kg}$$

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} = 6.29 kg
θ = 388 min

$$BR = \frac{60 \times 6.29}{388}$$

BR = **0.97** 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 H_2O
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. H_20; (in Hg = in H_20/13.6)
M_s	=	
		**The dilution tunnel wet molecular weight; M_s = 28.78 assuming a dry weight of 29 lb/lb-mole

Sample calculation:

$$Fp = \frac{13.67}{14.85} = 0.920$$

$$V_s = 0.920 \times 85.49 \times 0.99 \times 0.224 \times \left(\frac{88.0 + 460}{\left(29.90 + \frac{-0.16}{13.6}\right) \times 28.78} \right)^{1/2}$$

V_s = **13.92** ft/s

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

**The ASTM test standard mistakenly identifies Ms as the dry molecular weight. It should be the wet molecular weight as indicated in EPA Method 2.

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, ft^2
T_{std}	=	Standard absolute temperature, 528 °R
P_s	=	Absolute average gas static pressure in dilution tunnel, = P_{bar} + P_g , in Hg
$T_{s(avg)}$	=	Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std}	=	Standard absolute pressure, 29.92 in Hg

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.02) \times 13.92 \times 0.7854 \times \frac{528}{88.0 + 460} \times \frac{29.90 + \frac{-0.16}{13.6}}{29.92}$$

Q_{sd} = **37119.8** 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_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Using equation for Train A:

$$V_{m(std)} = 17.64 \times 67.489 \times 1 \times \frac{\left(29.90 + \frac{1.24}{13.6}\right)}{(99.8 + 460)}$$

$V_{m(std)}$ = **63.769** dscf

Using equation for Train B:

$$V_{m(std)} = 17.64 \times 64.077 \times 1.008 \times \frac{\left(29.90 + \frac{1.20}{13.6}\right)}{(100.2 + 460)}$$

$V_{m(std)}$ = **60.978** dscf

Using equation for ambient train:

$$V_{m(std)} = 17.64 \times 49.03 \times 1.013 \times \frac{\left(\underline{29.895} + \frac{0.00}{13.6}\right)}{(79.0 + 460)}$$

$V_{m(std)}$ = **48.599** 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 = 0.0 + 3.3 + 0.4

m_n = **3.7** mg

Using equation for Train B:

m_n = 0 + 3.6 + 0

m_n = **3.6** mg

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to STP, g/dscf
ASTM E2515 equation (13)

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

Where:

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

Sample calculation:

For Train A:

$$C_s = 0.001 \times \frac{3.7}{63.77}$$

C_s = **0.00006** g/dscf

For Train B

$$C_s = 0.001 \times \frac{3.6}{60.98}$$

C_s = **0.00006** g/dscf

For Ambient Train

$$C_r = 0.001 \times \frac{0.3}{48.60}$$

C_r = **0.000006** 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 = (0.000058 - 0.000006) x 37119.8 x 388 /60

E_T = **12.45** g

For Train B

E_T = (0.000059 - 0.000006) x 37119.8 x 388 /60

E_T = **12.69** g

Average

E = **12.57** 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, ^oR
T_m	=	Absolute average dry gas meter temperature, ^oR
T_{si}	=	Absolute average gas temperature in the dilution tunnel during the "ith" time interval, ^oR
T_s	=	Absolute average gas temperature in the dilution tunnel, ^oR

Sample calculation (for the first 10-min interval of Train 1):

$$PR = \left(\frac{388 \times 1.73 \times 13.92 \times (95.2 + 460) \times (99.8 + 460)}{10 \times 67.489 \times 13.71 \times (88.0 + 460) \times (77.9 + 460)} \right) \times 100$$

PR = **107** %

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 (Dual train average) = 12.57 g

θ = 388 min

$PM_R = 60 \times (12.57 / 388)$

PM_R = **1.94** 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:

E_T (Dual train average) = 12.57 g

M_{Bdb} = 6.29 kg

PM_F = 12.57 / 6.29

PM_F = **2.00** g/kg

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:	F2450-2
Date:	06/25/24
Run:	1
Control #:	24-309
Test Duration:	**388** **min**

	HHV	LHV
Eff	**70.39%**	**76.08%**
Comb Eff	**90.07%**	**90.07%**
HT Eff	**78.15%**	**84.47%**
Output	**13,602**	**kJ/h**
Burn Rate	**0.98**	**kg/h**
Grams CO	**882**	**g**
Input	**19,323**	**kJ/h**
MC wet	**17.25**	

Note: In the “Input data”, "Calc. % O_2", "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.

	Ultimate CO_2
$CO_{2\text{-ult}}$	19.64
	F_0
	1.060

Overall Heating Efficiency:	70.39%	Air Fue		
Combustion Efficiency:	90.07%	Dry Molecular W		
Heat Transfer Efficiency:	78.15%	Dry Moles Exhaus		
		Air Fuel Ratio		
Heat Output:	12,903	Btu/h	13,602	kJ/h
Heat Input:	18,330	Btu/h	19,323	kJ/h
Burn Duration:	6.47	h		
Burn Rate:	2.15	lb/h	0.975	kg/h
Stack Temp:	210.2	Deg. F	99.0	Deg. C

Averages	**0.97**	**5.53**	**2.42**	**20.51**	**14.49**	**99.03**	**26.10**	**87.3%**	**80.7%**	**70.4%**	**20.10**	**1.79**
INPUT DATA			**Oxygen Calculation**			**Input Data**		**Combust Eff**	**Heat Transfer**	**Net Eff**	**Air Fuel**	**Wet Wt Now**
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**	**Wt**
0	7.62	0.34	1.17	1200.0%	20.84	19.50	120.4	25.0	84.9%	43.2%	36.6%	76.9	7.62
1	7.56	0.41	1.47	945.4%	20.82	19.14	117.3	25.0	84.8%	53.1%	45.1%	61.7	7.56
2	7.55	0.27	1.58	964.7%	20.82	19.11	157.3	25.0	90.8%	40.2%	36.5%	63.5	7.55
3	7.46	0.24	3.38	443.5%	20.70	17.21	232.6	25.1	95.9%	50.9%	48.8%	32.6	7.46
4	7.35	0.17	7.10	170.2%	20.46	13.27	340.8	25.1	98.6%	59.2%	58.4%	16.3	7.35
5	7.26	0.10	9.31	108.7%	20.32	10.96	328.9	25.1	99.5%	66.6%	66.2%	12.6	7.26
6	7.17	0.86	10.89	67.1%	20.16	8.84	250.3	25.1	94.0%	74.6%	70.2%	10.0	7.17
7	7.11	0.88	6.63	161.8%	20.44	13.38	205.9	25.1	90.7%	71.2%	64.6%	15.5	7.11
8	7.06	1.09	6.31	165.4%	20.45	13.60	178.1	25.1	88.2%	73.2%	64.6%	15.6	7.06
9	7.02	1.07	6.54	158.1%	20.44	13.36	161.4	25.2	88.8%	75.4%	67.0%	15.2	7.02
10	6.97	1.12	6.40	161.1%	20.44	13.48	150.2	25.3	88.1%	76.3%	67.2%	15.3	6.97
11	6.92	1.19	5.58	190.3%	20.49	14.32	142.1	25.2	86.0%	75.5%	64.9%	17.0	6.92
12	6.87	1.19	5.69	185.7%	20.49	14.20	136.7	25.2	86.3%	76.3%	65.8%	16.7	6.87
13	6.83	1.19	6.14	168.0%	20.46	13.72	134.4	25.2	87.0%	77.4%	67.3%	15.7	6.83
14	6.78	1.13	6.91	144.2%	20.41	12.93	134.9	25.3	88.7%	78.6%	69.7%	14.4	6.78
15	6.72	1.10	7.56	126.7%	20.37	12.25	137.0	25.4	89.8%	79.3%	71.2%	13.4	6.72
16	6.67	1.01	7.65	127.1%	20.37	12.22	137.2	25.3	90.7%	79.4%	72.0%	13.4	6.67
17	6.62	1.02	7.77	123.5%	20.36	12.08	138.8	25.3	90.7%	79.4%	72.0%	13.2	6.62
18	6.56	1.04	7.84	121.2%	20.35	11.99	139.1	25.3	90.5%	79.4%	71.9%	13.1	6.56
19	6.50	0.86	8.34	113.6%	20.33	11.57	141.5	25.2	92.5%	79.8%	73.9%	12.7	6.50
20	6.46	0.87	8.58	107.9%	20.32	11.30	144.7	25.2	92.6%	79.8%	73.9%	12.3	6.46
21	6.40	0.77	9.30	95.1%	20.28	10.59	150.1	25.2	93.9%	80.1%	75.2%	11.6	6.40
22	6.34	0.77	9.87	84.6%	20.24	9.98	154.5	25.2	94.1%	80.3%	75.6%	11.0	6.34
23	6.28	0.86	10.20	77.6%	20.21	9.58	158.6	25.2	93.7%	80.2%	75.2%	10.6	6.28
24	6.22	0.99	10.48	71.4%	20.18	9.21	161.6	25.2	93.0%	80.2%	74.6%	10.2	6.22
25	6.16	1.17	10.66	66.1%	20.16	8.92	165.7	25.2	91.9%	80.0%	73.5%	9.8	6.16
26	6.09	1.28	11.11	58.6%	20.12	8.37	171.4	25.2	91.6%	79.9%	73.1%	9.4	6.09
27	6.02	1.47	11.41	52.4%	20.09	7.94	175.8	25.3	90.6%	79.7%	72.3%	9.0	6.02
28	5.94	1.68	11.67	47.1%	20.06	7.55	179.2	25.3	89.6%	79.6%	71.4%	8.7	5.94
29	5.87	1.86	11.74	44.4%	20.04	7.37	181.6	25.3	88.8%	79.5%	70.5%	8.5	5.87
30	5.80	1.78	11.96	43.0%	20.03	7.18	183.0	25.3	89.3%	79.6%	71.1%	8.4	5.80
31	5.72	1.45	11.81	48.1%	20.06	7.53	184.2	25.4	91.0%	79.5%	72.4%	8.8	5.72
32	5.64	1.19	11.71	52.2%	20.09	7.78	184.9	25.5	92.4%	79.5%	73.5%	9.0	5.64
33	5.58	1.30	11.68	51.4%	20.08	7.75	183.9	25.4	91.8%	79.5%	73.0%	9.0	5.58
34	5.50	1.55	11.59	49.4%	20.07	7.71	183.2	25.4	90.3%	79.4%	71.7%	8.8	5.50
35	5.43	1.46	11.65	49.8%	20.07	7.69	183.4	25.4	90.9%	79.5%	72.2%	8.9	5.43
36	5.35	1.61	11.69	47.7%	20.06	7.57	184.6	25.5	90.0%	79.4%	71.4%	8.7	5.35
37	5.27	1.61	11.57	49.1%	20.07	7.70	185.2	25.6	90.0%	79.2%	71.3%	8.8	5.27

el Ratio (A/F)	
Weight (M_d)	29.47
st Gas (N_r):	653.38
o (A/F)	18.74

%HC 1.32

Combustion Efficiency: 90.07%
Total Input (kJ): 124,956 118,514 (Btu)
Total Output (kJ): 87,959 83,425 (Btu)
Efficiency: 70.39%
Total CO (g): 882.15

Moisture of Wood (wet basis): 17.249
Initial Dry Weight Wt_{do} (kg): 6.31
Moisture Content Dry 20.84

Load Weight (kg): **7.62**

Fuel Heating	**HHV**	**LHV**		**HHV**
Value in kj/kg - CV:	**19,810**	**18,329**	Btu/lb	**8522.5**

76.47	**1.60**	**74.70**	**124998**	**4.06**	**6.87**	**2.74**	**19810.00**	**17.25**	**79.00**	**20.96**	**1.63**	**5.37**	**0.12**	**0.16**	**33.56**
% Wet	**Dry Wt.**	**% Dry**		**Fuel Properties**				**Mw**	**Mass Balance**					**kg Wood per**	
Consumed	**Now**	**Comsumed**	**Total**	**Carbon**	**Hydrogen**	**Oxygen**	**Calorific**	**Moisture**	**(moles/100 mole dry flue gas)**					**100 mole dfp**	
x	**Wt_{dn}**	**y**	**Input**	**/12= [a]**	**/1= [b]**	**/16= [c]**	**Value**	**Fuel Burnt**	**[h]**	**[u]**	**[w]**	**[j]**	**[k]**	**Nk**	**CO_2**
0.00	6.31	0.00	0	4.06	6.87	2.74	19810.00	17.25	78.99	20.95	0.38	1.26	0.02	0.04	31.25
0.77	6.26	0.77	1116	4.06	6.87	2.74	19810.00	17.25	78.98	20.95	0.47	1.56	0.03	0.05	31.49
1.01	6.24	1.01	818	4.06	6.87	2.74	19810.00	17.25	79.05	20.97	0.46	1.55	0.01	0.05	34.78
2.08	6.18	2.08	1562	4.06	6.87	2.74	19810.00	17.25	79.18	21.00	0.89	3.05	0.01	0.09	38.08
3.51	6.09	3.51	1674	4.06	6.87	2.74	19810.00	17.25	79.46	21.08	1.79	6.15	0.00	0.18	39.86
4.76	6.01	4.76	1525	4.06	6.87	2.74	19810.00	17.25	79.63	21.12	2.32	7.96	0.00	0.23	40.41
5.95	5.93	5.95	1227	4.06	6.87	2.74	19810.00	17.25	79.40	21.06	2.92	9.81	0.11	0.29	37.46
6.73	5.88	6.73	893	4.06	6.87	2.74	19810.00	17.25	79.12	20.99	1.87	6.22	0.11	0.19	35.54
7.38	5.84	7.38	744	4.06	6.87	2.74	19810.00	17.25	79.00	20.96	1.86	6.10	0.14	0.18	34.15
7.92	5.81	7.92	744	4.06	6.87	2.74	19810.00	17.25	79.03	20.96	1.91	6.28	0.13	0.19	34.48
8.57	5.77	8.57	818	4.06	6.87	2.74	19810.00	17.25	79.00	20.95	1.89	6.20	0.14	0.19	34.09
9.23	5.73	9.23	781	4.06	6.87	2.74	19810.00	17.25	78.91	20.93	1.70	5.55	0.15	0.17	32.92
9.82	5.69	9.82	744	4.06	6.87	2.74	19810.00	17.25	78.92	20.93	1.73	5.64	0.15	0.17	33.06
10.42	5.65	10.42	781	4.06	6.87	2.74	19810.00	17.25	78.95	20.94	1.84	6.02	0.15	0.18	33.48
11.07	5.61	11.07	855	4.06	6.87	2.74	19810.00	17.25	79.02	20.96	2.02	6.64	0.14	0.20	34.45
11.79	5.56	11.79	893	4.06	6.87	2.74	19810.00	17.25	79.08	20.98	2.17	7.17	0.14	0.22	35.06
12.50	5.52	12.50	855	4.06	6.87	2.74	19810.00	17.25	79.13	20.99	2.16	7.17	0.13	0.22	35.54
13.15	5.48	13.15	893	4.06	6.87	2.74	19810.00	17.25	79.13	20.99	2.20	7.29	0.13	0.22	35.58
13.93	5.43	13.93	967	4.06	6.87	2.74	19810.00	17.25	79.12	20.99	2.22	7.36	0.13	0.22	35.48
14.70	5.38	14.70	855	4.06	6.87	2.74	19810.00	17.25	79.24	21.02	2.29	7.66	0.11	0.23	36.58
15.30	5.34	15.30	855	4.06	6.87	2.74	19810.00	17.25	79.25	21.02	2.35	7.87	0.11	0.23	36.64
16.07	5.29	16.07	930	4.06	6.87	2.74	19810.00	17.25	79.34	21.05	2.50	8.41	0.09	0.25	37.35
16.79	5.25	16.79	967	4.06	6.87	2.74	19810.00	17.25	79.38	21.05	2.64	8.89	0.10	0.26	37.50
17.62	5.20	17.62	1004	4.06	6.87	2.74	19810.00	17.25	79.36	21.05	2.75	9.23	0.11	0.27	37.26
18.39	5.15	18.39	967	4.06	6.87	2.74	19810.00	17.25	79.32	21.04	2.85	9.55	0.13	0.28	36.89
19.17	5.10	19.17	1078	4.06	6.87	2.74	19810.00	17.25	79.26	21.02	2.95	9.82	0.16	0.29	36.30
20.12	5.04	20.12	1153	4.06	6.87	2.74	19810.00	17.25	79.24	21.02	3.09	10.28	0.17	0.31	36.11
21.01	4.98	21.01	1190	4.06	6.87	2.74	19810.00	17.25	79.17	21.00	3.22	10.67	0.20	0.32	35.59
22.02	4.92	22.02	1264	4.06	6.87	2.74	19810.00	17.25	79.10	20.98	3.35	11.03	0.23	0.33	35.05
23.04	4.85	23.04	1190	4.06	6.87	2.74	19810.00	17.25	79.03	20.96	3.41	11.21	0.26	0.34	34.58
23.93	4.80	23.93	1190	4.06	6.87	2.74	19810.00	17.25	79.08	20.98	3.44	11.34	0.25	0.34	34.89
24.94	4.73	24.94	1264	4.06	6.87	2.74	19810.00	17.25	79.21	21.01	3.31	10.99	0.20	0.33	35.82
25.95	4.67	25.95	1190	4.06	6.87	2.74	19810.00	17.25	79.32	21.04	3.22	10.73	0.16	0.32	36.58
26.85	4.61	26.85	1190	4.06	6.87	2.74	19810.00	17.25	79.27	21.03	3.24	10.77	0.18	0.32	36.24
27.86	4.55	27.86	1227	4.06	6.87	2.74	19810.00	17.25	79.15	20.99	3.29	10.87	0.21	0.33	35.41
28.81	4.49	28.81	1227	4.06	6.87	2.74	19810.00	17.25	79.20	21.01	3.28	10.86	0.20	0.33	35.73
29.82	4.43	29.82	1264	4.06	6.87	2.74	19810.00	17.25	79.13	20.99	3.33	11.00	0.22	0.33	35.27
30.83	4.36	30.83	1227	4.06	6.87	2.74	19810.00	17.25	79.13	20.99	3.30	10.89	0.22	0.33	35.24

Moisture Content M_{Cwb}: 17.24899

Dry kg : 6.31
CA: 49
HY: 7
OX: 43.9

LHV
7885.2

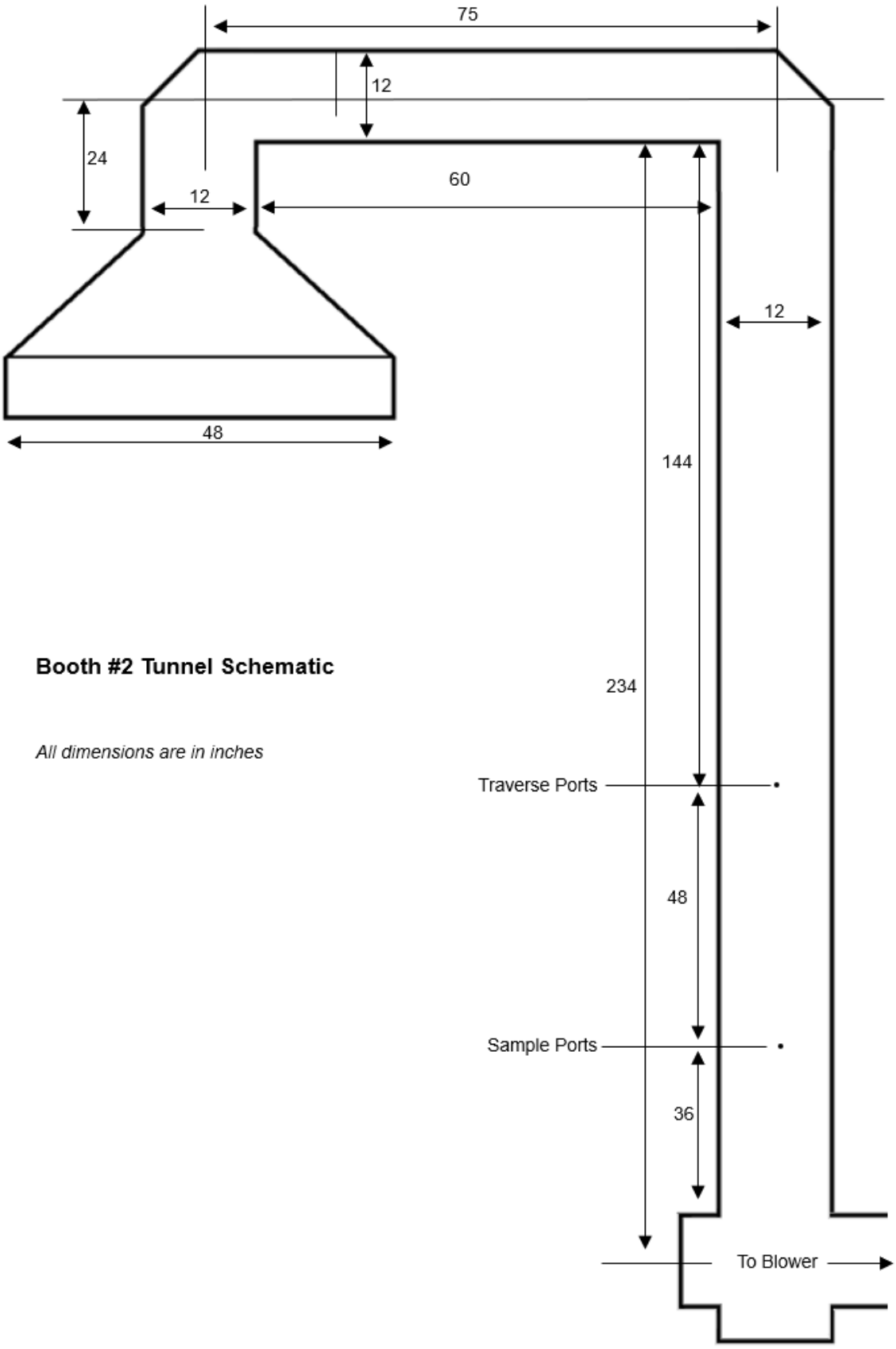
106.58	**6.48**	**0.77**	**550.75**	**32.98**	**11.58**	**372.18**	**2899.04**	**2184.36**	**2124.77**	**2101.08**	**2785.04**	**2542.83**	**299.25**	**39243.73**	**70845.57**
Moles per kg of Dry Wood					**Moisture**	**Stack Temp**	**Heat Content Change - Ambient to Stack Temperature Flue Gas Constituent**						**Room Temp**		
O_2	**CO**	**HC**	**N_2**	**H_2O**	**Present**	**K**	**CO_2**	**O_2**	**CO**	**N_2**	**CH_4**	**H_2O**	**K**	**CO_2**	**O_2**
520.41	9.07	0.49	2108.15	33.55	11.58	393.59	3776.76	2853.30	2777.33	2745.98	3611.60	3324.38	298.15	118.03	1484.89
409.52	8.71	0.61	1689.82	33.30	11.58	390.43	3647.22	2757.32	2684.36	2653.96	3483.59	3213.25	298.15	114.87	1129.17
420.81	5.86	0.18	1741.02	34.17	11.58	430.43	5304.92	3976.35	3862.78	3820.79	5141.79	4621.18	298.15	184.49	1673.27
193.94	2.66	0.08	892.52	34.37	11.58	505.76	8550.77	6309.66	6104.85	6043.66	8506.06	7295.64	298.21	325.58	1223.68
74.47	0.94	0.02	445.81	34.49	11.58	613.93	13502.16	9751.59	9381.99	9299.16	13895.17	11195.06	298.21	538.18	726.18
47.54	0.42	-0.02	345.51	34.55	11.58	602.09	12943.95	9369.91	9020.29	8939.48	13273.68	10765.22	298.21	523.09	445.44
30.42	2.97	0.38	273.16	33.75	11.58	523.48	9336.65	6864.74	6635.70	6570.50	9342.18	7928.04	298.26	349.75	208.85
71.75	4.70	0.57	424.29	33.38	11.58	479.04	7377.69	5473.92	5303.74	5249.00	7273.67	6340.65	298.26	262.20	392.75
73.60	5.92	0.74	427.64	33.03	11.58	451.21	6180.07	4611.98	4475.23	4427.64	6034.59	5352.29	298.26	211.02	339.43
70.40	5.63	0.71	416.43	33.11	11.58	434.54	5469.44	4095.91	3977.99	3934.95	5309.48	4758.72	298.37	188.57	288.36
71.78	5.96	0.75	420.64	33.01	11.58	423.37	4996.42	3750.46	3644.66	3604.76	4831.07	4360.66	298.48	170.35	269.21
84.51	7.00	0.89	465.68	32.75	11.58	415.21	4662.24	3505.83	3408.46	3370.83	4494.33	4078.55	298.32	153.49	296.27
82.50	6.88	0.87	458.44	32.78	11.58	409.82	4438.58	3341.50	3249.64	3213.57	4270.31	3888.81	298.32	146.73	275.67
74.87	6.50	0.83	430.72	32.87	11.58	407.59	4346.60	3273.81	3184.20	3148.77	4178.40	3810.61	298.32	145.53	245.11
64.47	5.65	0.72	393.92	33.08	11.58	408.09	4363.04	3285.76	3195.72	3160.18	4195.15	3824.36	298.43	150.29	211.82
56.80	5.10	0.65	366.56	33.22	11.58	410.15	4443.91	3345.11	3253.05	3216.96	4276.30	3892.86	298.54	155.79	190.01
56.82	4.68	0.59	367.90	33.34	11.58	410.32	4452.93	3351.82	3259.57	3223.40	4285.16	3900.64	298.48	158.28	190.45
55.28	4.65	0.59	362.16	33.35	11.58	411.93	4519.74	3400.93	3307.04	3270.41	4352.01	3957.36	298.48	160.81	188.00
54.31	4.73	0.60	358.25	33.32	11.58	412.26	4535.69	3412.73	3318.46	3281.72	4367.82	3971.01	298.43	160.94	185.34
50.73	3.77	0.47	347.59	33.59	11.58	414.65	4637.02	3487.24	3390.48	3353.03	4469.21	4057.06	298.37	169.61	176.92
48.27	3.71	0.46	338.45	33.60	11.58	417.82	4770.91	3585.55	3485.48	3447.10	4603.47	4170.55	298.32	174.80	173.07
42.53	3.08	0.38	318.62	33.76	11.58	423.21	4995.81	3750.27	3644.54	3604.63	4829.91	4360.54	298.32	186.60	159.50
37.95	2.94	0.37	301.72	33.79	11.58	427.65	5181.94	3886.32	3775.85	3734.69	5017.88	4517.36	298.32	194.34	147.50
35.00	3.15	0.40	289.93	33.72	11.58	431.71	5352.27	4010.62	3895.76	3853.48	5190.38	4660.55	298.32	199.45	140.36
32.44	3.47	0.45	279.30	33.61	11.58	434.71	5476.46	4101.02	3982.93	3939.83	5316.62	4764.61	298.37	202.01	133.05
30.36	3.98	0.53	269.91	33.46	11.58	438.82	5649.97	4227.29	4104.65	4060.43	5493.10	4909.94	298.37	205.07	128.36
27.20	4.14	0.56	257.46	33.40	11.58	444.59	5894.66	4405.00	4275.88	4230.09	5742.74	5114.33	298.37	212.85	119.80
24.76	4.59	0.63	246.91	33.26	11.58	448.98	6079.05	4538.55	4404.47	4357.53	5931.66	5267.81	298.43	216.35	112.39
22.67	5.06	0.70	237.59	33.12	11.58	452.37	6223.45	4643.06	4505.07	4457.23	6079.79	5387.87	298.43	218.15	105.24
21.71	5.47	0.76	232.73	33.00	11.58	454.71	6323.07	4715.07	4574.37	4525.92	6182.15	5470.57	298.43	218.66	102.34
20.95	5.20	0.72	230.70	33.07	11.58	456.15	6382.69	4758.04	4615.69	4566.87	6243.72	5519.86	298.48	222.69	99.70
22.82	4.39	0.60	240.16	33.32	11.58	457.32	6430.49	4792.45	4648.76	4599.66	6293.15	5559.32	298.54	230.31	109.37
24.31	3.73	0.50	247.75	33.51	11.58	458.09	6459.54	4813.21	4668.67	4619.41	6323.54	5583.06	298.65	236.28	116.99
24.05	4.02	0.55	245.94	33.43	11.58	457.09	6418.85	4783.94	4640.55	4591.53	6281.40	5549.52	298.59	232.65	115.07
23.54	4.75	0.65	241.83	33.21	11.58	456.32	6385.58	4759.91	4617.44	4568.62	6247.14	5521.93	298.59	226.12	112.05
23.58	4.47	0.61	242.82	33.30	11.58	456.54	6395.08	4766.78	4624.04	4575.16	6256.93	5529.81	298.59	228.51	112.42
22.83	4.87	0.67	238.76	33.18	11.58	457.76	6445.27	4802.90	4658.77	4609.59	6308.84	5571.24	298.65	227.32	109.64
23.47	4.89	0.68	241.11	33.17	11.58	458.37	6469.31	4820.15	4675.33	4626.01	6333.85	5591.00	298.71	228.00	113.11

SUMS					AVERAGE	SUMS						
717273.09	381314.90	268159.65	596910.10	209524.25	5869.59	36953.68	12365.05	24588.63	88044.65	12407.78	882.15	62.00
Energy Losses (kJ/kg of Dry Fuel)					Total							
Flue Gas Constituent					Loss	Total	Chemical	Sensible and	Total	Chem	Grams Produced	
CO	N_2	CH_4	H_2O Comb	H_2O Fuel MC	Rate	Loss	Loss 1	Latent Loss	Output	Loss 2	CO	HC
2592.86	5788.93	433.89	1586.77	547.67	12553.05	0.00	0	0.00	0	0	0.00	0.00
2487.66	4484.72	545.55	1571.25	546.39	10879.59	612.72	169	443.33	503	169	13.73	0.55
1680.56	6652.07	158.44	1660.26	562.69	12571.79	519.22	75	444.24	299	75	6.77	0.12
769.05	5394.07	68.07	1762.02	593.66	10136.14	799.20	65	734.52	763	65	5.87	0.10
273.95	4145.65	15.17	1902.56	638.82	8240.51	696.14	24	672.48	977	24	2.22	0.02
121.63	3088.71	-14.24	1891.29	633.84	6689.75	514.90	8	506.91	1010	8	0.90	-0.02
859.86	1794.82	345.24	1751.78	600.99	5911.29	366.21	73	292.99	861	73	5.15	0.38
1355.90	2227.08	511.66	1679.45	582.60	7011.64	315.91	83	233.08	577	83	5.93	0.41
1702.36	1893.45	667.50	1629.23	571.16	7014.14	263.35	88	175.54	480	88	6.23	0.45
1614.99	1638.64	633.16	1613.30	564.28	6541.30	245.60	83	162.17	498	83	5.92	0.42
1709.45	1516.32	674.68	1595.60	559.67	6495.28	268.26	97	170.84	550	97	6.90	0.50
2006.15	1569.73	791.85	1573.67	556.41	6947.58	273.90	109	164.69	507	109	7.73	0.56
1970.35	1473.24	778.75	1568.84	554.21	6767.79	254.10	102	151.86	490	102	7.24	0.52
1861.07	1356.23	740.07	1570.40	553.30	6471.71	255.13	102	153.54	526	102	7.18	0.52
1616.33	1244.87	643.53	1581.17	553.46	6001.47	259.13	97	162.46	596	97	6.83	0.50
1460.83	1179.22	583.64	1589.85	554.26	5713.61	257.43	91	166.19	635	91	6.44	0.47
1338.89	1185.89	528.07	1596.06	554.35	5551.98	239.72	80	159.88	616	80	5.65	0.41
1329.95	1184.42	526.15	1598.16	555.00	5542.49	249.72	83	166.90	643	83	5.86	0.42
1353.38	1175.69	538.20	1597.33	555.16	5566.04	271.68	91	180.24	695	91	6.46	0.47
1079.15	1165.49	418.38	1613.07	556.16	5178.78	223.61	64	159.59	632	64	4.56	0.32
1063.18	1166.66	414.56	1617.30	557.47	5167.03	223.10	63	159.95	632	63	4.49	0.32
882.89	1148.52	340.60	1631.68	559.67	4909.47	230.41	57	173.60	699	57	4.05	0.29
843.71	1126.84	329.25	1638.21	561.49	4841.32	236.30	57	179.68	731	57	4.02	0.29
902.43	1117.25	360.13	1639.70	563.15	4922.46	249.50	63	186.24	755	63	4.46	0.33
996.32	1100.41	406.44	1638.17	564.35	5040.75	246.04	68	178.36	721	68	4.74	0.35
1143.93	1095.94	476.45	1635.43	566.03	5251.20	285.88	87	198.72	793	87	6.07	0.46
1190.02	1089.06	501.79	1639.50	568.40	5321.42	309.69	97	212.45	843	97	6.75	0.52
1320.20	1075.92	564.33	1637.77	570.18	5497.13	330.23	112	218.46	860	112	7.73	0.61
1454.24	1059.00	628.14	1634.74	571.57	5671.09	361.97	131	230.79	902	131	9.04	0.72
1572.60	1053.32	683.22	1631.41	572.53	5834.08	350.47	134	216.74	840	134	9.20	0.73
1495.23	1053.57	649.10	1636.81	573.10	5730.21	344.23	127	217.13	846	127	8.74	0.70
1263.66	1104.65	541.16	1650.05	573.55	5472.75	349.31	114	235.66	915	114	7.85	0.62
1072.88	1144.48	452.33	1660.66	573.83	5257.44	315.83	90	225.45	874	90	6.27	0.48
1156.55	1129.22	490.73	1655.29	573.44	5352.96	321.57	98	223.94	868	98	6.76	0.53
1365.53	1104.81	586.44	1643.80	573.12	5611.87	347.66	119	228.34	880	119	8.24	0.65
1284.86	1110.96	549.72	1648.12	573.21	5507.79	341.21	112	229.08	886	112	7.75	0.61
1400.85	1100.60	603.46	1643.56	573.69	5659.12	361.21	126	235.00	903	126	8.70	0.69
1407.76	1115.38	605.66	1643.98	573.92	5687.81	352.36	123	229.31	875	123	8.49	0.67

Dilution Tunnel Information Sheet

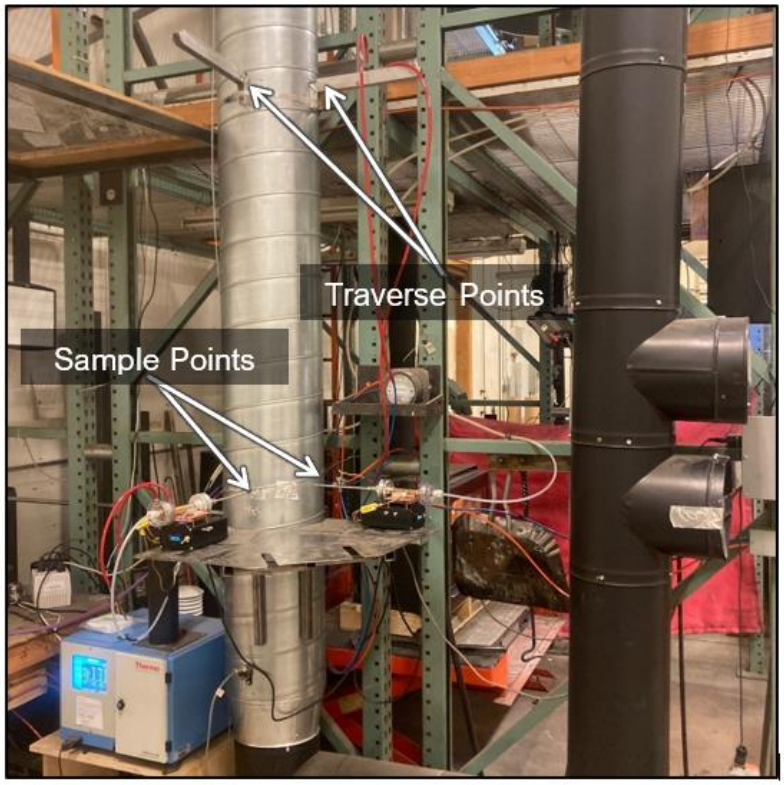
As of January 2024

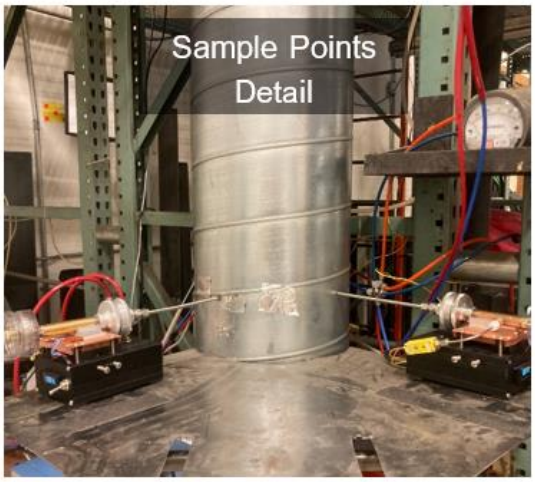
1. Equipment ID number/name of the tunnel:
   Emissions Booth #2
2. Physical location of the tunnel (facility address and test bay number):
   Booth #2
   11785 SE HWY 212, Ste 305
   Clackamas, OR 97015
3. Presence (or not) of mixing baffles (EPA 5G):
   Not Present
4. Presence (or not) of mixing section (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:
   12”
7. Physical diameter of the tunnel at the sampling location:
   12”
8. Photograph showing the tunnel apparatus: **See photo and schematic**



Booth #2 Tunnel Schematic

All dimensions are in inches


Traverse Points
Sample Points


Sample Points
Detail


Traverse Points
Detail

Duplicate Serial Number **602**

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

DO NOT REMOVE THIS LABEL/
NE RETIREZ PAS CETTE ÉTIQUETTE

602

MODEL: REGENCY MEDIUM FREESTANDING STOVE - F2450-2

TESTED TO: ULC S627-2023 / 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.

0219WS026S

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using crib wood." Tested and listed to Method 28R, E2780-10, E2515-11. Model Regency F2450-2 – 1.6 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 en utilisant le bois de corde. Testé et approuvé par la Méthode 28R, E2780-10, E2515-11. Modèle Regency F2450-2 – 1,6 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.

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.

SEE LOCAL BUILDING CODE AND MANUFACTURER'S INSTRUCTIONS FOR PRECAUTIONS REQUIRED FOR 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 CONSIGNES 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 BRONZÉ AVEC CHEMINÉE PRÉFABRIQUÉE HOMOLOGUÉE UL103 HT CONÇUE POUR ÊTRE UTILISÉE AVEC DES COMBUSTIBLES SOLIDES OU UNE CHEMINÉE EN MAÇONNERIE.

VOIR LE CODE DU BÂTIMENT LOCAL ET LES INSTRUCTIONS DU FABRICANT CONCERNANT LES PRÉCAUTIONS D'INSTALLATION D'UNE CHEMINÉE TRAVERSANT UN MUR OU UN PLAFOND EN MATÉRIAUX COMBUSTIBLES. NE PAS FAIRE TRAVERSER LE CONNECTEUR DE CHEMINÉE DANS UN MUR OU PLAFOND EN MATÉRIAUX COMBUSTIBLES. NE PAS RACCORDER CE POÊLE À BOIS À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL.

MINIMUM ALCOVE CEILING HEIGHT: 2109 MM / 83" MAXIMUM ALCOVE DEPTH 1219 MM / 48".
MINIMUM CLEARANCES FOR HORIZONTAL CONNECTOR TO CEILING: 405 MM / 16"
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 FIRE ONLY. DO NOT USE GRATE OR ELEVATE FIRE. BUILD WOOD FIRE DIRECTLY ON HEARTH. DO NOT OVERFIRE - IF HEATER OR CHIMNEY CONNECTOR GLOWS YOU ARE OVERFIRING. 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 NEOCERAM 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 #075-917, 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
IN USA: LISTED UL 103 HT CHIMNEY

WARNING: ONLY USE LISTED REGENCY OPTIONS SUCH AS LEGS, AIRMATE, 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.

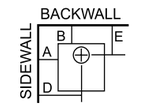
HAUTEUR MINIMALE DU PLAFOND DE L'ALCÔVE : 2109 MM / 83 PO PROFONDEUR MAXIMALE DE L'ALCÔVE : 1219 MM / 48 PO
DÉGAGEMENT MINIMAL DU PLAFOND POUR UN CONNECTEUR HORIZONTAL : 405 MM / 16 PO
L'ESPACE SOUS LE POÊLE NE DOIT PAS ÊTRE OBSTRUÉ. UTILISER SEULEMENT AVEC LES BRIQUES RÉFRACTAIRES EN PLACE.
À UTILISER AVEC DU BOIS SOLIDE SEULEMENT. L'UTILISATION D'AUTRES COMBUSTIBLES PEUT ENDOMMAGER LE POÊLE ET CRÉER UNE CONDITION DANGEREUSE. NE PAS OBSTRUER LES OUVERTURES D'AIR DE COMBUSTION. UTILISER SEULEMENT AVEC LA PORTE FERMÉE – OUVRIR SEULEMENT LA PORTE DE CHARGEMENT POUR ALIMENTER LE FEU. NE PAS UTILISER DE GRILLE À BÛCHES NI SURÉLEVER 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, RISQUE DE SURCHAUFFAGE. INSPECTER ET NETTOYER FRÉQUEMMENT LA CHEMINÉE ET LE CONNECTEUR. DANS CERTAINES CONDITIONS D'UTILISATION, UN DÉPÔT DE CRÉOSOTE PEUT SE FORMER RAPIDEMENT. GARDER LES MEUBLES ET AUTRES MATÉRIAUX COMBUSTIBLES ÉLOIGNÉS DU POÊLE. REMPLACER LA VITRE SEULEMENT PAR DU VERRE EN NEOCERAM. LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR DES MATÉRIAUX NON COMBUSTIBLES DÉPASSANT SUR LE DESSOUS, LE DEVANT ET LES CÔTÉS DU POÊLE, TEL QU'INDIQUÉ, OU JUSQU'AU MATÉRIAU COMBUSTIBLE LE PLUS PRÈS PERMIS. COMPOSANTS EN OPTION : VENTILATEUR PIÈCE N·075-917, ALIMENTATION ÉLECTRIQUE : 115 VOLTS, 60 HZ, 2 AMP
DANGER : RISQUE D'ÉLECTROCUTION. DÉCONNECTER L'ALIMENTATION ÉLECTRIQUE AVANT D'EFFECTUER 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 TEL QUE SPÉCIFIÉ DANS LES CONSIGNES D'INSTALLATION.
AUX ÉTATS-UNIS : CHEMINÉE HOMOLOGUÉE UL103HT.
AVERTISSEMENT : UTILISER SEULEMENT LES OPTIONS HOMOLOGUÉES PAR REGENCY COMME LES PATTES, LE DIFFUSEUR AIRMATE, LE VENTILATEUR COMME ILLUTRÉ DANE LE MANUEL D'INSTALLATION. ATTENTION : COMBUSTION DE TOUT MATÉRIAU NON SPÉCIFIÉ PEUT ENDOMMAGER L'APPAREIL.
ATTENTION : LE DÉPLACEMENT DES PIÈCES PEUT ENTRAÎNER DES BLESSURES.

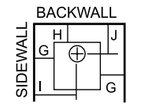
MANUFACTURED BY/ FABRIQUÉ PAR :
FPI FIREPLACE PRODUCTS INTERNATIONAL LTD.
6988 VENTURE ST.
DELTA, BC V4G 1H4

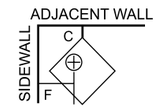
REGENCY FIREPLACE PRODUCTS

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS
DÉGAGEMENTS MINIMAUX PAR RAPPORT AUX MATÉRIAUX COMBUSTIBLES

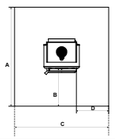
F2450-2 WITH AIRMATE SHIELD			F2450-2 WITH REAR DEFLECTOR		
MEASURE FROM	HEATER	FLUE CENTER-LINE	MEASURE FROM	HEATER	FLUE CENTER-LINE
RESIDENTIAL INSTALLATION USING SINGLE WALL CONNECTOR			**RESIDENTIAL INSTALLATION USING SINGLE WALL CONNECTOR**		
SIDEWALL	A 406 mm / 16 in	D 711 mm / 28 in	SIDEWALL	A 406 mm / 16 in	D 711 mm / 28 in
BACKWALL	B 241 mm / 9.5 in	E 406 mm / 16 in	BACKWALL	B 292 mm / 11.5 in	E 457 mm / 18 in
CORNER	C 203 mm / 8 in	F 508 mm / 20 in	CORNER	C 203 mm / 8 in	F 508 mm / 20 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - MOBILE HOME			**INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - MOBILE HOME**		
SIDEWALL	A 381 mm / 15 in	D 686 mm / 27 in	SIDEWALL	A 381 mm / 15 in	D 686 mm / 27 in
BACKWALL	B 203 mm / 8 in	E 368 mm / 14.5 in	BACKWALL	B 254 mm / 10 in	E 419 mm / 16.5 in
CORNER	C 152 mm / 6 in	F 457 mm / 18 in	CORNER	C 152 mm / 6 in	F 457 mm / 18 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - RESIDENTIAL CLOSE CLEARANCE			**INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - RESIDENTIAL CLOSE CLEARANCE**		
SIDEWALL	A 381 mm / 15 in	D 686 mm / 27 in	SIDEWALL	A 381 mm / 15 in	D 686 mm / 27 in
BACKWALL	B 203 mm / 8 in	E 368 mm / 14.5 in	BACKWALL	B 254 mm / 10 in	E 419 mm / 16.5 in
CORNER	C 152 mm / 6 in	F 457 mm / 18 in	CORNER	C 152 mm / 6 in	F 457 mm / 18 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - ALCOVE			**INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - ALCOVE**		
SIDEWALL	G 380 mm / 15 in	I 686 mm / 27 in	SIDEWALL	G 380 mm / 15 in	I 686 mm / 27 in
BACKWALL	H 203 mm / 8 in	J 368 mm / 14.5 in	BACKWALL	H 254 mm / 10 in	J 419 mm / 16.5 in







FLOOR PROTECTION*
PROTECTION DE PLANCHER*



A 1245 mm / 49 in (Canada)
A 1194mm / 47 in (USA)
B 457 mm / 18 in
B 406 mm / 16 in
C 1026 mm / 40-3/8 in
D 203 mm / 8 in

To be installed as a freestanding room heater with the clearances in the manufacturer's installation instructions. Not to be installed in any fireplace.
À installer en tant que chauffage autoportant avec les dégagements indiqués dans les directives d'installation du fabricant. Ne pas installer dans un foyer.

* In Canada, floor protection must extend 18" (457mm) to the front (16"/406mm for USA) and 8" (203mm) to each side and back of the stove. (For Canada and USA)
* Au Canada, la protection de plancher doit dépasser de 18 po (457 mm) à l'avant (16 po/406 mm aux États-Unis) et de 8 po (203 mm) de chaque côté du poêle et derrière le poêle (pour le Canada et les États-Unis).

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 DURANT LE FONCTIONNEMENT. NE TOUCHEZ PAS. ÉLOIGNEZ LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES. LE CONTACT PEUT CAUSER DES BRÛLURES. LISEZ LA PLAQUE SIGNALÉTIQUE ET LES INSTRUCTIONS

MADE IN CANADA / FABRIQUÉ AU CANADA

920-743

DATE OF MANUFACTURE

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	
2024	2025	2026	2027	2028								

Part #: 920-743

Size: 6.53" H x 10.8" W (File at 100%)
Color: black on grey except for the items indicated as being printed in red.

Oct. 16/23: Created decal

Tested and listed to:

0219WN026S

LISTED MASONRY FIREPLACE INSERT
CERTIFIED FOR USE IN CANADA AND U.S.A.
MODEL/MODÈLE : Hi2450-2
CERTIFIED TO/CERTIFIÉ :
CAN/ULC 628:2022 / UL-1482-2022

Serial No./ No de série

604

DO NOT REMOVE THIS LABEL/NE PAS RETIRER CETTE ÉTIQUETTE

REGENCY FIREPLACE PRODUCTS

U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CORD WOOD." TESTED & LISTED TO ASTM E3053. MODEL REGENCY HI2450-2 1.6 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. **COMPONENTS REQUIRED FOR INSTALLATION: 5-1/2" (140 mm) or 6" (152 mm) STAINLESS STEEL LINER.**

CERTIFIÉ CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS AVEC DU BOIS DE CORDE". TESTÉ ET APPROUVÉ ASTM E3053. MODÈLE REGENCY HI2450-2 1,6 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.

PIÈCES REQUISES POUR L'INSTALLATION : DOUBLURE EN ACIER INOXYDABLE DE 5-1/2 PO (140 mm) OU 6 PO (152 mm)

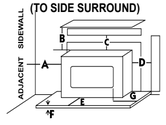
INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS. INSTALL AND USE ONLY IN MASONRY FIREPLACE ONLY. NOT TO BE INSTALLED IN ANY FACTORY-BUILT FIREPLACE. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA.
INSTALLER ET UTILISER SELON LES INSTRUCTIONS DU FABRICANT. INSTALLER ET UTILISER DANS UN FOYER DE MAÇONNERIE SEULEMENT. NE JAMAIS INSTALLER DANS UN FOYER PRÉFABRIQUÉ.
APPELER UN INSPECTEUR EN BÂTIMENT OU LE DÉPARTEMENT INCENDIE LOCAL POUR CONNAÎTRE LES RESTRICTIONS ET LESCONDITIONS D'INSPECTION À L'INSTALLATION DANS VOTRE SECTEUR.

FLOOR THERMAL INSULATION/PROTECTION WITH A R VALUE OF 1.4 IS REQUIRED IF THE UNIT IS RAISED 0 - 2-1/2" (64MM) (MEASURED FROM THE BOTTOM OF THE APPLIANCE).
THERMAL FLOOR PROTECTION IS NOT REQUIRED WHEN UNIT IS RAISER GREATER THAN 2-1/2" (64MM) (MEASURED FROM THE BOTTOM OF THE APPLIANCE).
INSTALLER OBLIGATOIREMENT UNE ISOLATION/PROTECTION THERMIQUE D'UNE VALEUR R DE 2,8 SI L'APPAREIL EST INSTALLÉ À UNE DISTANCE INFÉRIEURE À 2-1/2 PO (64 MM) DU SOCLE (MESURE PRISE À PARTIR DU BAS DE L'APPAREIL).
LA PROTECTION THERMIQUE N'EST PAS REQUISE SI L'APPAREIL SE TROUVE À PLUS DE 2-1/2 PO (64 MM) DU SOCLE (MESURE PRISE À PARTIR DU BAS DE L'APPAREIL).

920-764

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM INSERT BODY)

ADJACENT SIDEWALL	A)	12 in / 305 mm
MANTEL	B)	14 in / 356 mm (3-1/2" MANTEL)
	B)	17 in / 432 mm (12" MANTEL)
TOP FACING	C)	14 in / 356 mm
SIDE FACING	D)	0.5 in / 13 mm (TO SIDE SURROUND)



OPTIONAL COMPONENT: FAN (300-911/915), ELECTRICAL RATING: VOLTS 115, 60 HZ, 0.6 AMPS
DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT ROUTE POWER CORD UNDER OR IN FRONT OF APPLIANCE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE. DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. BUILD WOOD FIRE DIRECTLY ON HEARTH. RISK OF SMOKE AND FLAME SPILLAGE, OPERATE ONLY WITH DOORS FULLY OPEN OR FULLY CLOSED. OPEN FEED DOOR TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILDUP MAY OCCUR RAPIDLY. DO NOT OVERFIRE, IF INSERT GLOWS YOU ARE OVER-FIRING.
PIÈCE FACULTATIVE : VENTILATEUR (300-911/915); PUISSANCE ÉLECTRIQUE : 115 VOLTS, 60 HZ, 0,6 A
DANGER : RISQUE D'ÉLECTROCUTION. DÉBRANCHER L'APPAREIL AVANT TOUTE RÉPARATION. NE PAS FAIRE PASSER LE FIL ÉLECTRIQUE DEVANT L'APPAREIL NI EN DESSOUS. NE PAS RELIER CET APPAREIL À UNE CHEMINÉE DESTINÉE À L'ÉVACUATION D'UN AUTRE APPAREIL. NE PAS ENLEVER LES BRIQUES NI DE MORTIER D'UNE CHEMINÉE DE MAÇONNERIE. N'UTILISER QUE DU COMBUSTIBLE DE BOIS SOLIDE. NE PAS SURÉLEVER LES BÛCHES NI LES PLACER SUR DES GRILLES, MAIS LES DÉPOSER DIRECTEMENT SUR L'ÂTRE. RISQUE DE DÉGAGEMENT DE FUMÉE OU DE FLAMMES : TOUJOURS GARDER LES PORTES COMPLÈTEMENT OUVERTES OU FERMÉES LORSQUE L'APPAREIL FONCTIONNE. DANS UNE MAISON MOBILE, TOUJOURS GARDER LES PORTES BIEN FERMÉES LORSQUE L'APPAREIL FONCTIONNE. OUVRIR LA PORTE UNIQUEMENT POUR ALIMENTER LE FEU. SI LES PORTES DU POÊLE RESTENT OUVERTES, TOUJOURS UTILISER LE PARE-ÉTINCELLES FOURNI PAR LE FABRICANT. REMPLACER LA VITRE UNIQUEMENT PAR UNE VITRE EN VITROCÉRAMIQUE (5 MM). INSPECTER ET NETTOYER FRÉQUEMMENT LA CHEMINÉE. SELON LE TYPE D'USAGE, DE LA CRÉOSOTE PEUT S'ACCUMULER RAPIDEMENT. NE PAS SURCHAUFFER; SI L'ENCASTRABLE SE MET À ROUGIR, IL SURCHAUFFE.

CAUTION / ATTENTION

HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ ABOVE INSTRUCTIONS.

SURFACES CHAUDES LORS DE FONCTIONNEMENT.
NE PAS TOUCHER. ÉLOIGNER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES. TOUT CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. LIRE LES CONSIGNES DE CET APPAREIL.

Manufactured By:
FIREPLACE PRODUCTS INTERNATIONAL LTD.
6988 VENTURE ST., DELTA, BC V4G 1H4
MADE IN CANADA

DATE OF MANUFACTURE

Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ June ☐
2024 ☐
2025 ☐
2026 ☐
2027 ☐
2028 ☐
July ☐ Aug ☐ Sept ☐ Oct ☐ Nov ☐ Dec ☐

(Duplicate Serial #) **604**

Part #: **920-764**

Size: **2-5/8" H x 21-1/4" W (file at 100%)**

Colour: **Black on grey, except for what is indicated as being printed red on grey.**

Feb 08/24: Created decal

Tested and listed to:

0219WN026S

LISTED MASONRY FIREPLACE INSERT
CERTIFIED FOR USE IN CANADA AND U.S.A.
MODEL/MODÈLE : I2450-2
CERTIFIED TO/CERTIFIÉ :
CAN/ULC 628:2022 / UL-1482-2022

DO NOT REMOVE THIS LABEL/NE PAS RETIRER CETTE ÉTIQUETTE

REGENCY FIREPLACE PRODUCTS

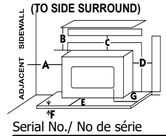
U.S. ENVIRONMENTAL PROTECTION AGENCY CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CORD WOOD." TESTED & LISTED TO ASTM E3053. MODEL REGENCY I2450-2 1.6 G /HR. THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIR FOR PROPER OPERATION. CONSULT THE OWNER'S MANUAL FOR FURTHER INFORMATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH THE OPERATING INSTRUCTIONS IN THE OWNER'S MANUAL. **COMPONENTS REQUIRED FOR INSTALLATION: 5-1/2" (140 mm) or 6" (152 mm) STAINLESS STEEL LINER.**

CERTIFIÉ CONFORME AUX NORMES 2020 DU U.S. ENVIRONMENTAL PROTECTION AGENCY EN MATIÈRE D'ÉMISSION DE PARTICULES DE BOIS EN UTILISANT LE BOIS DE CORDE. TESTÉ ET APPROUVÉ ASTM E3053. MODÈLE REGENCY I2450-2 1,6 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.
PIÈCES REQUISES POUR L'INSTALLATION : DOUBLURE EN ACIER INOXYDABLE DE 5-1/2 PO (140 mm) OU 6 PO (152 mm)

INSTALL AND USE ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS. INSTALL AND USE 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.
INSTALLER ET UTILISER SELON LES INSTRUCTIONS DU FABRICANT. INSTALLER ET UTILISER DANS UN FOYER DE MAÇONNERIE SEULEMENT. NE JAMAIS INSTALLER DANS UN FOYER PRÉFABRIQUÉ. APPELER UN INSPECTEUR EN BÂTIMENT OU LE DÉPARTEMENT INCENDIE LOCAL POUR CONNAÎTRE LES RESTRICTIONS ET LESCONDITIONS D'INSPECTION À L'INSTALLATION DANS VOTRE SECTEUR.
FLOOR THERMAL INSULATION/PROTECTION WITH A R VALUE OF 1.4 IS REQUIRED IF THE UNIT IS RAISED 0 - 2-1/2" (64 MM) (MEASURED FROM THE BOTTOM OF THE APPLIANCE). THERMAL FLOOR PROTECTION IS NOT REQUIRED WHEN UNIT IS RAISER GREATER THAN 2-1/2" (64 MM) (MEASURED FROM THE BOTTOM OF THE APPLIANCE).
INSTALLER OBLIGATOIREMENT UNE ISOLATION/PROTECTION THERMIQUE D'UNE VALEUR R DE 1,4 SI L'APPAREIL EST INSTALLÉ À UNE DISTANCE INFÉRIEURE À 2-1/2 PO (64 MM) DU SOCLE (MESURE PRISE À PARTIR DU BAS DE L'APPAREIL).
LA PROTECTION THERMIQUE N'EST PAS REQUISE SI L'APPAREIL SE TROUVE À PLUS DE 2-1/2 PO (64MM) DU SOCLE (MESURE PRISE À PARTIR DU BAS DE L'APPAREIL). 920-766

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (MEASURED FROM INSERT BODY)

ADJACENT SIDEWALL	A)12 in / 305 mm
MANTEL	B)14 in / 356 mm (3-1/2" MANTEL)
	B)17 in / 432 mm (12" MANTEL)
TOP FACING	C)14 in / 356 mm
SIDE FACING	D)0.5 in / 13 mm (TO SIDE SURROUND)



Serial No./ No de série

605

OPTIONAL COMPONENT: FAN (142-917), ELECTRICAL RATING: VOLTS 115, 60 HZ, 0.6 AMPS
DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING UNIT. DO NOT ROUTE POWER CORD UNDER OR IN FRONT OF APPLIANCE. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE. DO NOT REMOVE BRICKS OR MORTAR IN MASONRY FIREPLACE. FOR USE WITH SOLID WOOD FUEL ONLY. DO NOT USE GRATE OR ELEVATE FIRE. BUILD WOOD FIRE DIRECTLY ON HEARTH. RISK OF SMOKE AND FLAME SPILLAGE, OPERATE ONLY WITH DOORS FULLY OPEN OR FULLY CLOSED. OPEN FEED DOOR TO FEED FIRE ONLY. REPLACE GLASS ONLY WITH CERAMIC GLASS (5MM). INSPECT AND CLEAN CHIMNEY FREQUENTLY. UNDER CERTAIN CONDITIONS OF USE CREOSOTE BUILDUP MAY OCCUR RAPIDLY. DO NOT OVERFIRE, IF INSERT GLOWS YOU ARE OVER-FIRING. CATALYTIC COMBUSTOR PART#021-531

PIÈCE FACULTATIVE : VENTILATEUR (142-917); PUISSANCE ÉLECTRIQUE : 115 VOLTS, 60 HZ, 0,6 A
DANGER : RISQUE D'ÉLECTROCUTION. DÉBRANCHER L'APPAREIL AVANT TOUTE RÉPARATION. NE PAS FAIRE PASSER LE FIL ÉLECTRIQUE DEVANT L'APPAREIL NI EN DESSOUS. NE PAS RELIER CET APPAREIL À UNE CHEMINÉE DESTINÉE À L'ÉVACUATION D'UN AUTRE APPAREIL. NE PAS ENLEVER DE BRIQUES NI DE MORTIER D'UNE CHEMINÉE DE MAÇONNERIE. N'UTILISER QUE DU COMBUSTIBLE DE BOIS SOLIDE. NE PAS SURÉLEVER LES BÛCHES NI LES PLACER SUR DES GRILLES, MAIS LES DÉPOSER DIRECTEMENT SUR L'ÂTRE. RISQUE DE DÉGAGEMENT DE FUMÉE OU DE FLAMMES : TOUJOURS GARDER LES PORTES COMPLÈTEMENT OUVERTES OU FERMÉES LORSQUE L'APPAREIL FONCTIONNE. DANS UNE MAISON MOBILE, TOUJOURS GARDER LES PORTES BIEN FERMÉES LORSQUE L'APPAREIL FONCTIONNE. OUVRIR LA PORTE UNIQUEMENT POUR ALIMENTER LE FEU. SI LES PORTES DU POÊLE RESTENT OUVERTES, TOUJOURS UTILISER LE PARE-ÉTINCELLES FOURNI PAR LE FABRICANT. REMPLACER LA VITRE UNIQUEMENT PAR UNE VITRE EN VITROCÉRAMIQUE (5 MM). INSPECTER ET NETTOYER FRÉQUEMMENT LA CHEMINÉE. SELON LE TYPE D'USAGE, DE LA CRÉOSOTE PEUT S'ACCUMULER RAPIDEMENT. NE PAS SURCHAUFFER; SI L'ENCASTRABLE SE MET À ROUGIR, IL SURCHAUFFE. CATALYSEUR DE POSTCOMBUSTION PIÈCE N°021-531

CAUTION / ATTENTION

HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ ABOVE INSTRUCTIONS.

SURFACES CHAUDES LORS DE FONCTIONNEMENT. NE PAS TOUCHER. ÉLOIGNER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES. TOUT CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. LIRE LES CONSIGNES DE CET APPAREIL.

Manufactured By:
FIREPLACE PRODUCTS INTERNATIONAL LTD.
6988 VENTURE ST. DELTA, BC V4G 1H4
920-766
MADE IN CANADA

DATE OF MANUFACTURE/ DATE DE FABRICATION

Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ June ☐
2024 ☐
2025 ☐
2026 ☐
2027 ☐
2028 ☐
July ☐ Aug ☐ Sept ☐ Oct ☐ Nov ☐ Dec ☐

(Duplicate Serial #) **605**

Part #: **920-766**

Size: **3" H x 20-1/2" W (file at 100%)**

Colour: **Black on grey, except for what is indicated as being printed red on grey.**

Feb 08/24: Created decal

REGENCY
FIREPLACE PRODUCTS

Classic™ Freestanding Woodstove F2450-2

Owners & Installation Manual



French Manual Download:
Manuel en Français :

www.regency-fire.com

MODEL: F2450-2

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 F2450-2 – 1.6 g/hr.**

"This manual describes the installation and operation of the Regency F2450-2 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 12,900 BTU/hr to 30,000 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.

F2450-2 is tested and certified to ULC-S627-2023 and UL1482-2022.

SAVE THESE INSTRUCTIONS

NATIONAL FIREPLACE INSTITUTE NFI CERTIFIED www.nficertified.org

We recommend that our products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) or in Canada by Wood Energy Technical Training (WETT).

Wood Energy Technical Training

WARNING: Cancer and Reproductive Harm
www.P65Warnings.ca.gov
919-874

table of contents

Safety Decal for F2450-2 4

Dimensions

Unit Dimensions 5
Outside Air Dimensions 5

Installation

Modular Installation Options 6
Stove Assembly Prior To Installation 7
Airmate Assembly 7
Rear Heat Deflector Assembly 7
Side Shield Adjustment 7
Pedestal Assembly Installation 8
Logo Installation 8
Bottom Heat Shield and Legs Installation 8
Room Air - Important 9
Minimum Clearance To Combustible Materials 9
Minimum Alcove Clearance and Clearance to Combustible Materials 10
Floor Protection 10
Floor Protection (Corner Installation) 11
Step-By-Step Chimney And Connector Installation 12
Masonry Chimney 13
Masonry Fireplace 13
Factory Built Chimney 13
Combustible Wall Chimney Connector Pass-throughs 14
Recommended Heights For Woodstove Flue 15
Mobile Home Installation (USA Only) 16
Optional Outside Air Kit 17
Brick Installation 18
Wood Handle & Door Assembly 19
Flue Baffle & Secondary Air Tube Installation 20
Fan Installation 21
Stainless Steel Smoke Deflector Installation 22

Operation

Seasoned Firewood 23
Operating Instructions 23
Draft Control 23
First Fire 24
Fan Operation 25
Ash Disposal 25
Ash Drawer Operating Guidelines 25
Safety Guidelines and Warnings 25

Maintenance

Classic Door Handle Replacement 26
Glass Replacement 26
Maintenance 27
Creosote 27
Ways to Prevent and Keep Unit Free of Creosote 27
Door Gasket 27
Glass Maintenance 27
Wood Storage 27
Secondary Air Tube Removal/Installation 28
Annual Maintenance 28

Parts

Main Assembly 29
Bases 31
Brick Kit 32

Warranty

Warranty 34

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

This is a copy of the label that accompanies each Regency Freestanding Woodstove (F2450-2). 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 the rear heat-shield and will be located on the right hand side if facing the unit from the front.

Duplicate Serial Number **602**

0219WS026S

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

DO NOT REMOVE THIS LABEL/
NE RETIREZ PAS CETTE ÉTIQUETTE

602

MODEL: REGENCY MEDIUM FREESTANDING STOVE - F2450-2

TESTED TO: ULC S627-2023 / 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.

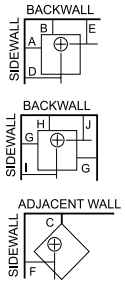
U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using crib wood." Tested and listed to Method 28R, E2780-10, E2515-11. Model Regency F2450-2 – 1.6 g /hr. This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual 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 en utilisant le bois de corde. Testé et approuvé par la Méthode 28R, E2780-10, E2515-11. Modèle Regency F2450-2 – 1,6 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.
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.
SEE LOCAL BUILDING CODE AND MANUFACTURER'S INSTRUCTIONS FOR PRECAUTIONS REQUIRED FOR 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 CONSIGNES 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 BRONZÉ AVEC CHEMINÉE PRÉFABRIQUÉE HOMOLOGUÉE UL103 HT CONÇUE POUR ÊTRE UTILISÉE AVEC DES COMBUSTIBLES SOLIDES OU UNE CHEMINÉE EN MAÇONNERIE.
VOIR LE CODE DU BÂTIMENT LOCAL ET LES INSTRUCTIONS DU FABRICANT CONCERNANT LES PRÉCAUTIONS D'INSTALLATION D'UNE CHEMINÉE TRAVERSANT UN MUR OU UN PLAFOND EN MATÉRIAUX COMBUSTIBLES. NE PAS FAIRE TRAVERSER LE CONNECTEUR DE CHEMINÉE DANS UN MUR OU PLAFOND EN MATÉRIAUX COMBUSTIBLES. NE PAS RACCORDER CE POÊLE À BOIS À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL.
MINIMUM ALCOVE CEILING HEIGHT: 2109 MM / 83" MAXIMUM ALCOVE DEPTH 1219 MM / 48".
MINIMUM CLEARANCES FOR HORIZONTAL CONNECTOR TO CEILING: 405 MM / 16".
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 FIRE ONLY. DO NOT USE GRATE OR ELEVATE FIRE. BUILD WOOD FIRE DIRECTLY ON HEARTH. DO NOT OVERFIRE - IF HEATER OR CHIMNEY CONNECTOR GLOWS YOU ARE OVERFIRING. 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 NEOCERAM 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 #075-917, 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
IN USA: LISTED UL 103 HT CHIMNEY
WARNING: ONLY USE LISTED REGENCY OPTIONS SUCH AS LEGS, AIRMATE, 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.
HAUTEUR MINIMALE DU PLAFOND DE L'ALCÔVE : 2109 MM / 83 PO PROFONDEUR MAXIMALE DE L'ALCÔVE : 1219 MM / 48 PO
DÉGAGEMENT MINIMAL DU PLAFOND POUR UN CONNECTEUR HORIZONTAL : 405 MM / 16 PO.
L'ESPACE SOUS LE POÊLE NE DOIT PAS ÊTRE OBSTRUÉ. UTILISER SEULEMENT AVEC LES BRIQUES RÉFRACTAIRES EN PLACE.
À UTILISER AVEC DU BOIS SOLIDE SEULEMENT. L'UTILISATION D'AUTRES COMBUSTIBLES PEUT ENDOMMAGER LE POÊLE ET CRÉER UNE CONDITION DANGEREUSE. NE PAS OBSTRUER LES OUVERTURES D'AIR DE COMBUSTION. UTILISER SEULEMENT AVEC LA PORTE FERMÉE – OUVRIR SEULEMENT LA PORTE DE CHARGEMENT POUR ALIMENTER LE FEU. NE PAS UTILISER DE GRILLE À BÛCHES NI SURÉLEVER 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, RISQUE DE SURCHAUFFAGE. INSPECTER ET NETTOYER FRÉQUEMMENT LA CHEMINÉE ET LE CONNECTEUR. DANS CERTAINES CONDITIONS D'UTILISATION, UN DÉPÔT DE CRÉOSOTE PEUT SE FORMER RAPIDEMENT. GARDER LES MEUBLES ET AUTRES MATÉRIAUX COMBUSTIBLES ÉLOIGNÉS DU POÊLE. REMPLACER LA VITRE SEULEMENT PAR DU VERRE EN NEOCERAM. LE PLANCHER COMBUSTIBLE DOIT ÊTRE PROTÉGÉ PAR DES MATÉRIAUX NON COMBUSTIBLES DÉPASSANT SUR LE DESSOUS, LE DEVANT ET LES CÔTÉS DU POÊLE, TEL QU'INDIQUÉ, OU JUSQU'AU MATÉRIAU COMBUSTIBLE LE PLUS PRÈS PERMIS.
COMPOSANTS EN OPTION : VENTILATEUR PIÈCE N°075-917, ALIMENTATION ÉLECTRIQUE : 115 VOLTS, 60 HZ, 2 AMP.
DANGER : RISQUE D'ÉLECTROCUTION. DÉCONNECTER L'ALIMENTATION ÉLECTRIQUE AVANT D'EFFECTUER 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 TEL QUE SPÉCIFIÉ DANS LES CONSIGNES D'INSTALLATION.
AUX ÉTATS-UNIS : CHEMINÉE HOMOLOGUÉE UL103HT.
AVERTISSEMENT : UTILISER SEULEMENT LES OPTIONS HOMOLOGUÉES PAR REGENCY COMME LES PATTES, LE DIFFUSEUR AIRMATE, LE VENTILATEUR COMME ILLUTRÉ DANE LE MANUEL D'INSTALLATION. ATTENTION : COMBUSTION DE TOUT MATÉRIAU NON SPÉCIFIÉ PEUT ENDOMMAGER L'APPAREIL.
ATTENTION : LE DÉPLACEMENT DES PIÈCES PEUT ENTRAÎNER DES BLESSURES.

MANUFACTURED BY/ FABRIQUÉ PAR :
FPI FIREPLACE PRODUCTS INTERNATIONAL LTD.
6988 VENTURE ST.
DELTA, BC V4G 1H4

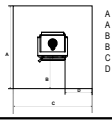
REGENCY FIREPLACE PRODUCTS

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS
DÉGAGEMENTS MINIMAUX PAR RAPPORT AUX MATÉRIAUX COMBUSTIBLES

F2450-2 WITH AIRMATE SHIELD			F2450-2 WITH REAR DEFLECTOR		
MEASURE FROM	HEATER	FLUE CENTER-LINE	MEASURE FROM	HEATER	FLUE CENTER-LINE
RESIDENTIAL INSTALLATION USING SINGLE WALL CONNECTOR			RESIDENTIAL INSTALLATION USING SINGLE WALL CONNECTOR		
SIDEWALL	A 406 mm / 16 in	D 711 mm / 28 in	SIDEWALL	A 406 mm / 16 in	D 711 mm / 28 in
BACKWALL	B 241 mm / 9.5 in	E 406 mm / 16 in	BACKWALL	B 292 mm / 11.5 in	E 457 mm / 18 in
CORNER	C 203 mm / 8 in	F 508 mm / 20 in	CORNER	C 203 mm / 8 in	F 508 mm / 20 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - MOBILE HOME			INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - MOBILE HOME		
SIDEWALL	A 381 mm / 15 in	D 686 mm / 27 in	SIDEWALL	A 381 mm / 15 in	D 686 mm / 27 in
BACKWALL	B 203 mm / 8 in	E 368 mm / 14.5 in	BACKWALL	B 254 mm / 10 in	E 419 mm / 16.5 in
CORNER	C 152 mm / 6 in	F 457 mm / 18 in	CORNER	C 152 mm / 6 in	F 457 mm / 18 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - RESIDENTIAL CLOSE CLEARANCE			INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - RESIDENTIAL CLOSE CLEARANCE		
SIDEWALL	A 381 mm / 15 in	D 686 mm / 27 in	SIDEWALL	A 381 mm / 15 in	D 686 mm / 27 in
BACKWALL	B 203 mm / 8 in	E 368 mm / 14.5 in	BACKWALL	B 254 mm / 10 in	E 419 mm / 16.5 in
CORNER	C 152 mm / 6 in	F 457 mm / 18 in	CORNER	C 152 mm / 6 in	F 457 mm / 18 in
INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - ALCOVE			INSTALLATION USING LISTED DOUBLE WALL CONNECTOR - ALCOVE		
SIDEWALL	G 380 mm / 15 in	I 686 mm / 27 in	SIDEWALL	G 380 mm / 15 in	I 686 mm / 27 in
BACKWALL	H 203 mm / 8 in	J 368 mm / 14.5 in	BACKWALL	H 254 mm / 10 in	J 419 mm / 16.5 in



FLOOR PROTECTION*
PROTECTION DE PLANCHER*



A 1245 mm / 49 in (Canada)
A 1194mm / 47 in (USA)
B 457 mm / 18 in
B 406 mm / 16 in
C 1026 mm / 40-3/8 in
D 203 mm / 8 in

To be installed as a freestanding room heater with the clearances in the manufacturer's installation instructions. Not to be installed in any fireplace. À installer en tant que chauffage autoportant avec les dégagements indiqués dans les directives d'installation du fabricant. Ne pas installer dans un foyer.

* In Canada, floor protection must extend 18" (457mm) to the front (16"/406mm for USA) and 8" (203mm) to each side and back of the stove. (For Canada and USA)
* Au Canada, la protection de plancher doit dépasser de 18 po (457 mm) à l'avant (16 po/406 mm aux États-Unis) et de 8 po (203 mm) de chaque côté du poêle et derrière le poêle (pour le Canada et les États-Unis).

CAUTION

HOT WHILE IN OPERATION DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. READ NAMEPLATE AND INSTRUCTIONS.

ATTENTION

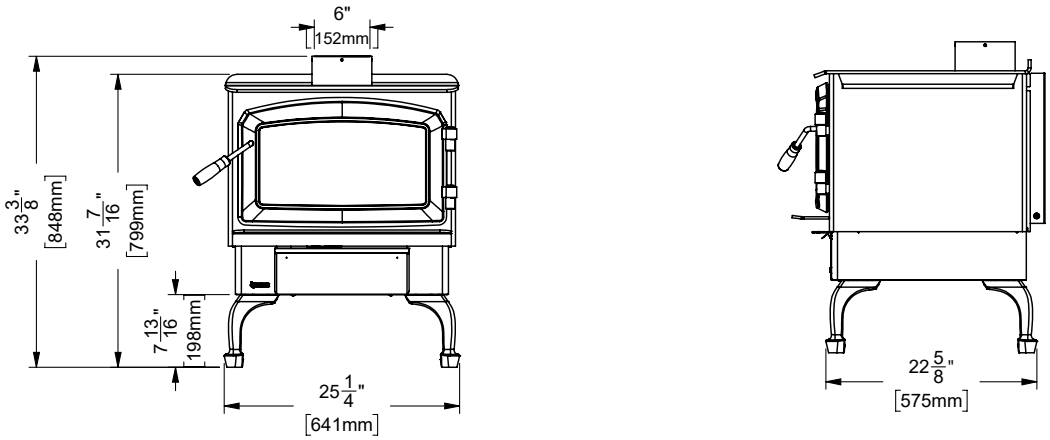
CHAUD DURANT LE FONCTIONNEMENT. NE TOUCHEZ PAS. ÉLOIGNEZ LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES. LE CONTACT PEUT CAUSER DES BRÛLURES. LISEZ LA PLAQUE SIGNALÉTIQUE ET LES INSTRUCTIONS

MADE IN CANADA / FABRIQUÉ AU CANADA

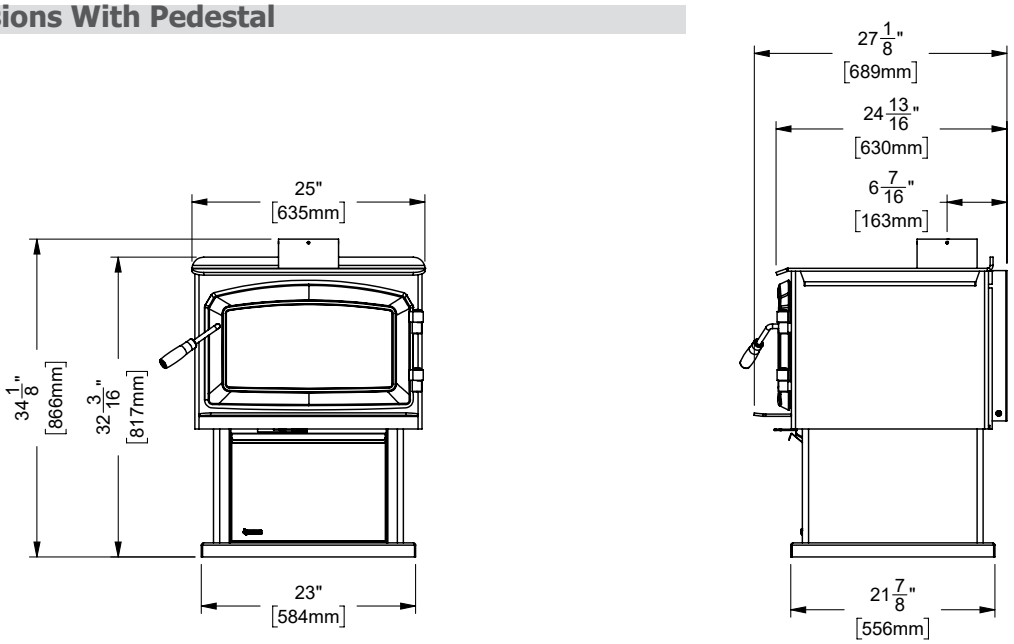
920-743

DATE OF MANUFACTURE
2024 2025 2026 2027 2028
JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC

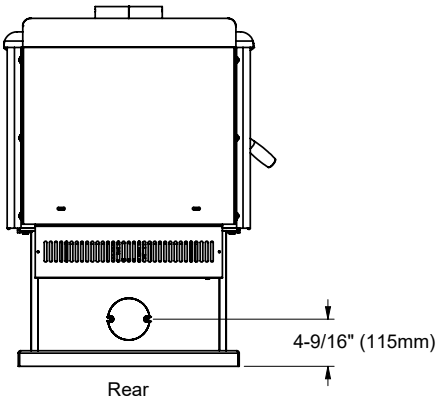
Unit Dimensions With Bottom Heat Shield & Cast Legs



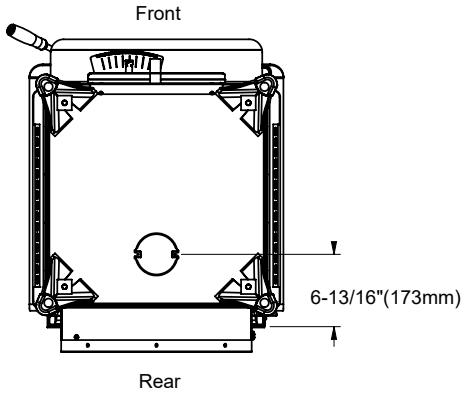
Unit Dimensions With Pedestal



Outside Air Dimensions



With Pedestal



With Bottom Heat Shield & Legs

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 ensure 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.
   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.

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: 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.
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).

NOTE: In Canada installation shall be in accordance with CSA B365, 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" (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 (HUD).

CAUTION:
Do not alter or makeshift chimney or install. Install as per Manual.

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.

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. F2450-2 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
F2450-2 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)
Outside Air Kit	Allows outside combustion air to enter firebox
Bottom heat shield + legs	Used instead of pedestal
Pedestal	Used instead of heat shield and legs

Stove Assembly Prior to Installation

The F2450-2 unit requires the pedestal (or heat shield and legs) to be attached to the base. The F2450-2 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

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.

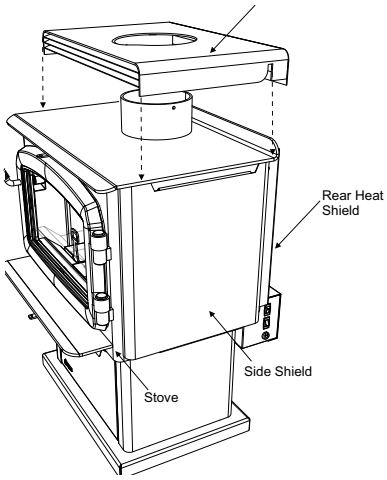


Diagram 1

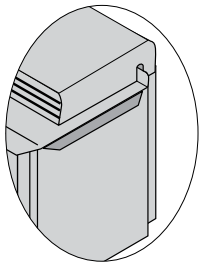


Diagram 2

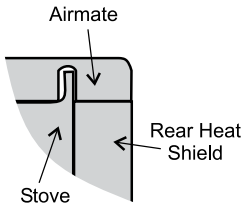


Diagram 3

Rear Heat Deflector Assembly

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.

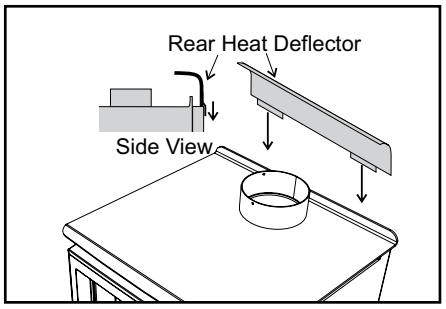


Diagram 4

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.

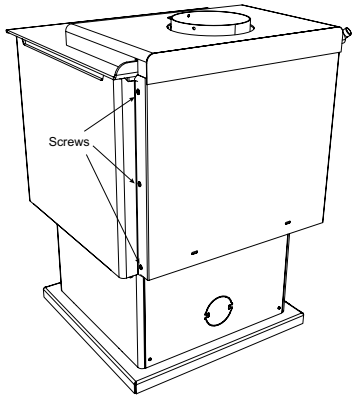


Diagram 5

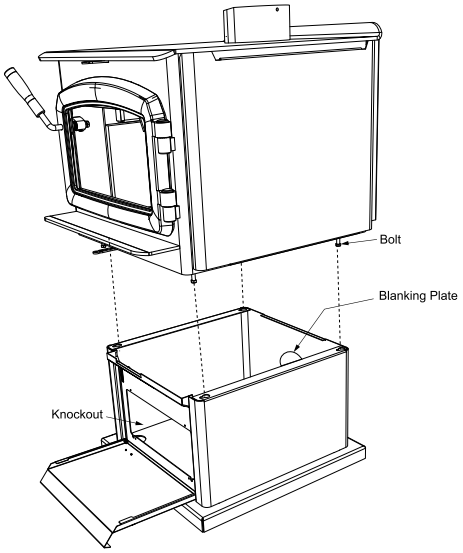
Pedestal Assembly Installation

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 Ash drawer 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).

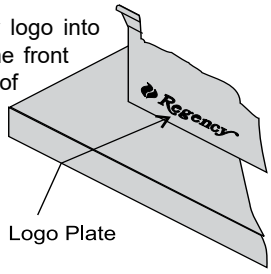
3. Using the 4 supplied 5/16" bolts in the under-side of the stove, insert the bolts loosely onto the threads located at all 4 corners at the base of the unit. Align the holes in the corners of the pedestal top with the corresponding bolts in the base of the stove. Tighten each bolt from inside the pedestal.



Shown with Classic door

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.

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.

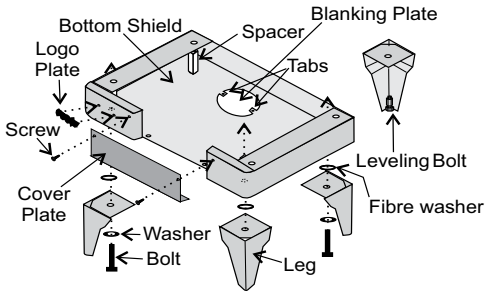
1. Remove the 4 bolts from underside of the base of the pedestal and discard. Also remove cover plate and put to the side.

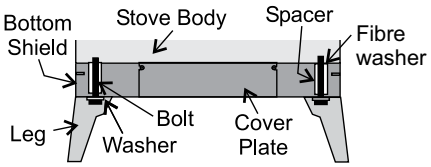
2. Line up the heat shield with the bottom of the unit.

3. Add fibre washers and washers.

4. Start threading the bolt and washer (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.

5. Level the stove by adjusting the levelling bolts in the bottom of each leg.





6. Reinstall cover plate if not using ash drawer option.

7. 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.

Room Air - Important

For installation using room air for combustion, remove knockout from the pedestal, 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 leg units outside air can only be brought in from the bottom of the heat shield.

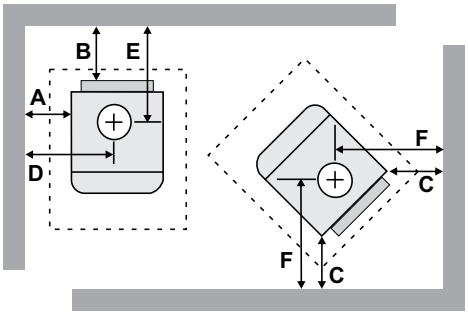
Note: Once the knockout is removed there are two tabs remaining. Bend both tabs out for ease of installation when attaching outside air.

Minimum Clearance To Combustible Materials

Please read the section below carefully as clearances depend on whether the airmate or the rear heat deflector 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.
Minimum ceiling height - 83" (2108 mm) (Measured from base of appliance)

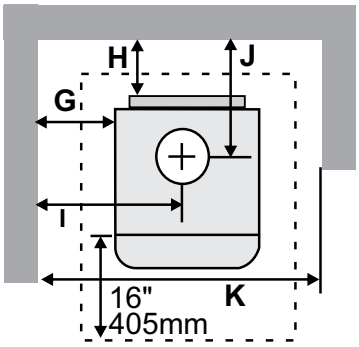


NOTE: This clearance is also required for air space between the appliance and wall/ceiling.

NOTE: Be aware that local Codes and Regulations may override some clearances listed in this manual. Check with your local inspector.

Residential Installation "C" Vent (Single Wall)						
Unit	**From Unit**		**From Corner**		**From Flue Center-Line**	
	A	**B**	**C**	**D**	**E**	**F**
Medium F2450-2 with Airmate	16" (406mm)	9-1/2" (241mm)	8" (203mm)	28" (711mm)	16" (406mm)	20" (508mm)
with Rear Deflector	16" (406mm)	11-1/2" (292mm)	8" (203mm)	28" (711mm)	18" (457mm)	20" (508mm)
Residential Close Clearance (To be installed with required pipe components) 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.						
Unit	**From Unit**		**From Corner**		**From Flue Center-Line**	
	A	**B**	**C**	**D**	**E**	**F**
Medium F2450-2 with Airmate	15" (381mm)	8" (203mm)	6" (152mm)	27" (686mm)	14-1/2"(368mm)	18" (457mm)
with Rear Deflector	15" (381mm)	10" (254mm)	6" (152mm)	27" (686mm)	16-1/2"(419mm)	18" (457mm)
Mobile Home Close Clearance (To be installed with required pipe components) "C" Vent single wall pipe is not approved for Mobile Home installations. (Refer to Mobile Home Instructions.)						
Unit	**From Unit**		**From Corner**		**From Flue Center-Line**	
	A	B	C	D	E	F
Medium F2450-2 with Airmate	15" (381mm)	8" (203mm)	6" (152mm)	27" (686mm)	14-1/2"(368mm)	18" (457mm)
with Rear Deflector	15" (381mm)	10" (254mm)	6" (152mm)	27" (686mm)	16-1/2"(419mm)	18" (457mm)

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.

Note: Minimum alcove ceiling height - 83" (Measured from base of appliance)
Maximum depth of alcove - 48"

NOTE: This clearance is also required for air space between the appliance and wall/ceiling. 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: The measurements for floor protection for front are taken from the fuel door opening and from the side of the stove for side clearances.

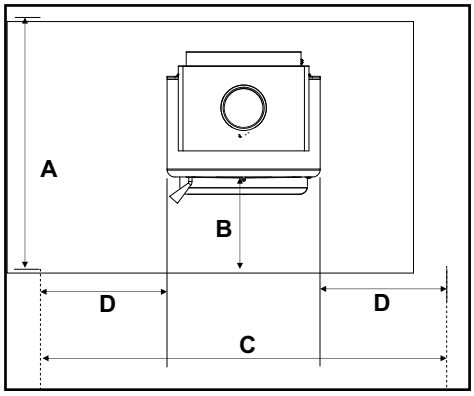
Unit	From Unit		From Flue Center-Line		From Wall
	G	H	I	J	K
F2450-2 with Airmate	15" (381mm)	8" (203mm)	27" (686mm)	14-1/2" (368mm)	54" (1372mm)
with Rear Deflector	15" (381mm)	10" (254mm)	27" (686mm)	16-1/2" (419mm)	54" (1372mm)

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). Type 1 Hearth Pads typically provide protection from embers only, but won't provide thermal protection from the heat of the appliance.

Canada: Beneath the heater and extending to at least 18" on the fuel loading side and at least 8" on the sides and back.

USA: Beneath the heater and extending to at least 16" beyond the fuel loading side and ash removal opening and at least 8" on the sides and back and under the chimney connector extending 2" beyond each side for horizontal applications.



Note: The measurements for floor protection for front are taken from fuel door opening & sides/back are taken from the unit heat shield.When 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.

Minimum Overall Depth (Y) of Floor Protector					
		Hearth Depth	Edge of Fuel Door Opening to Edge of Hearth	Hearth Width	Side of the Stove (Both Sides)
Unit		A	B	C	D
F2450-2	Canada	49" (1245mm)	18" (457mm)	40-3/8" (1026 mm)	8" (203mm)
	USA	47" (1194mm)	16" (406mm)	40-3/8" (1026 mm)	8" (203mm)

Minimum Overall Depth (Y) of Floor Protector					
Reference only when hearth pad is installed to rear wall at minimum pipe clearances.		**Hearth Depth**	**Edge of Fuel Door Opening to Edge of Hearth**	**Hearth Width**	**Side of the Stove (Both Sides)**
Residential Installation "C" Vent (Single Wall)					
Unit		**A**	**B**	**C**	**D**
F2450-2 with Airmate	Canada	50-1/2" (1283mm)	18" (457mm)	40-3/8" (1026 mm)	8" (203mm)
	USA	48-1/2" (1232mm)	16" (406mm)	40-3/8" (1026 mm)	8" (203mm)
F2450-2 with Rear Deflector	Canada	52-1/2" (1334mm)	18" (457mm)	40-3/8" (1026 mm)	8" (203mm)
	USA	50-1/2" (1283mm)	16" (406mm)	40-3/8" (1026 mm)	8" (203mm)
Residential Close Clearance (To be installed with required pipe components)					
Unit		**A**	**B**	**C**	**D**
F2450-2 with Airmate	Canada	48" (1219mm)	18" (457mm)	40-3/8" (1026 mm)	8" (203mm)
	USA	46" (1168mm)	16" (406mm)	40-3/8" (1026 mm)	8" (203mm)
F2450-2 with Rear Deflector	Canada	50" (1270mm)	18" (457mm)	40-3/8" (1026 mm)	8" (203mm)
	USA	48" (1219mm)	16" (406mm)	40-3/8" (1026 mm)	8" (203mm)

Floor Protection (Corner Installation)

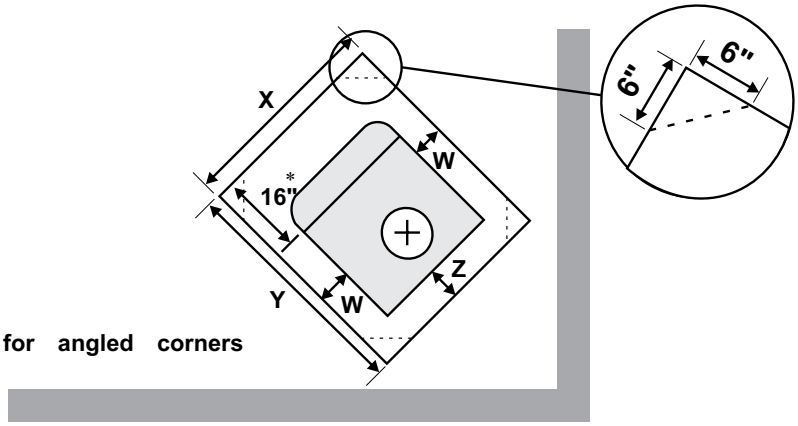
A combustible floor must be protected by non-combustible material (like tile, concrete board, or certified to UL-1618 or as defined by local codes) extending beneath the heater and a minimum of 8" (203 mm) from each side and minimum 16" (406 mm) from the front face of the stove and minimum 8" (203 mm) (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 F2450-2 40-3/8" (1026 mm)

Note: Side & Rear measurements are taken from unit heat shield.
*Front measurement is taken from fuel door opening.

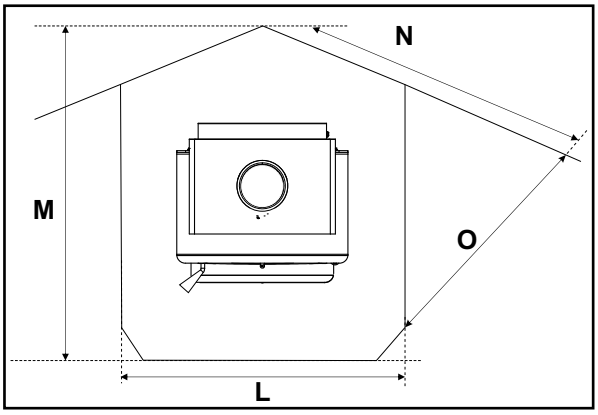


for angled corners

NOTE: In Canada, floor protection must extend 18" (450mm) to the front and 8" (203mm) to back of the stove.

Minimum Overall Depth (Y) of Floor Protector			
Unit	**Hearth Depth**	**Rear of Stove**	**Side of the Stove (Both Sides)**
	Y	**Z**	**W**
F2450-2	Canada - 49" (1245 mm) USA - 47" (1194 mm)	**8" (203 mm)	8" (203 mm)

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			
F2450-2	**L**	**M**	**N**	**O**
Residential Installation "C" Vent (Single Wall)				
Canada	40-3/8" (1026 mm)	63-7/16" (1611 mm)	54-7/8" (1394 mm)	26-5/16" (669 mm)
USA	40-3/8" (1026 mm)	61-7/16" (1560 mm)	53-7/16" (1358 mm)	24-15/16" (633 mm)
Residential Close Clearance (To be installed with required pipe components)				
Canada	40-3/8" (1026 mm)	60-9/16" (1539 mm)	52-7/8" (1343 mm)	24-5/16" (618 mm)
USA	40-3/8" (1026 mm)	58-9/16" (1488 mm)	51-7/16" (1307 mm)	22-15/16" (582 mm)



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

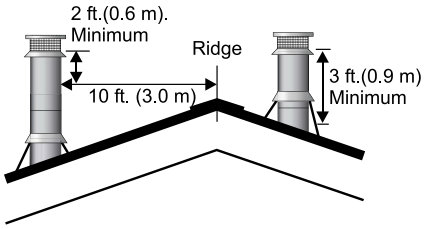
THE CHIMNEY CONNECTOR IS TO BE USED ONLY WITHIN THE ROOM, BETWEEN THE STOVE AND CEILING/ WALL. NEVER USE A CHIMNEY CONNECTOR TO PASS THROUGH AN ATTIC OR ROOF SPACE, CLOSET OR SIMILAR CONCEALED SPACE, OR A FLOOR, OR CEILING. AN EFFECTIVE VAPOR BARRIER MUST BE MAINTAINED AT THE LOCATION WHERE THE CHIMNEY 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

Notes: 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).

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.

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.

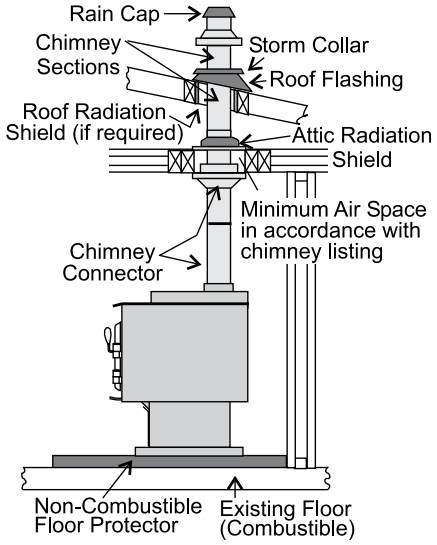


Note: Increasing the chimney height above this minimum level will sometimes help your unit to "breathe" better by allowing a greater draft to be created. This greater draft can decrease problems such as, difficult start-ups, back-smoking when door is open, and dirty glass. It might be sufficient to initially try with the minimum required height, and then if problems do arise add additional height at a later date.

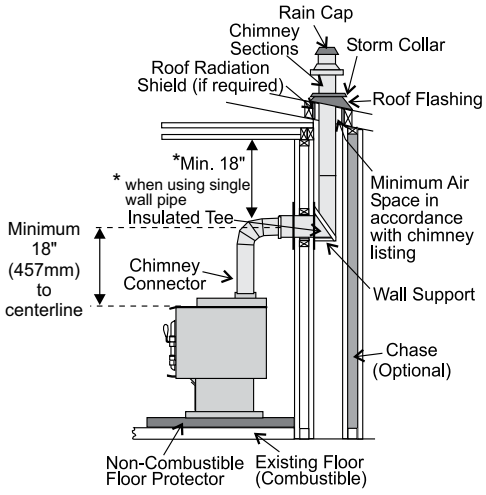
4. Slide the roof flashing over your chimney and seal the flashing to the roof with roofing compound. Secure the flashing to your roof with nails or screws.
5. Place the storm collar over the flashing, sealing the joints with a silicone caulking.
6. Fasten the raincap with spark screens (if required) 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.

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

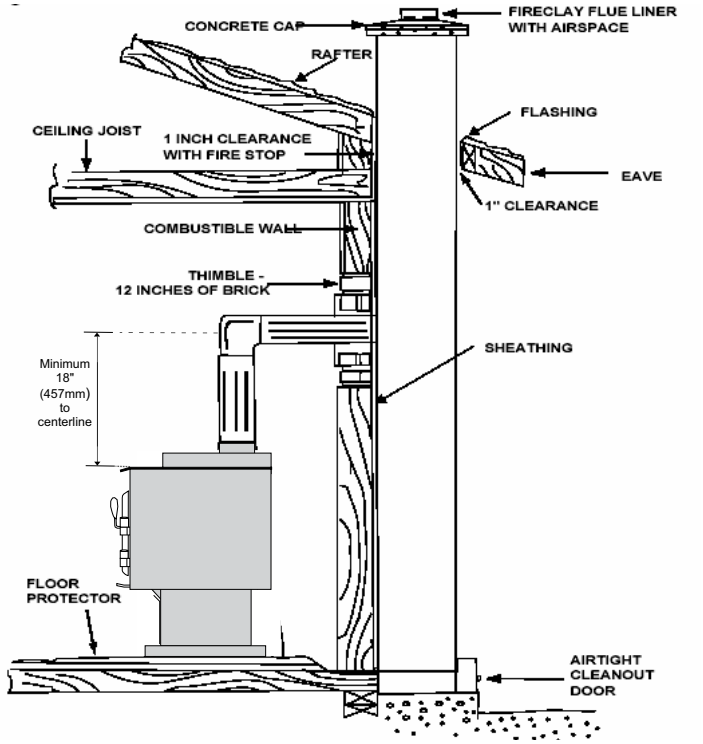
Masonry Chimney

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.



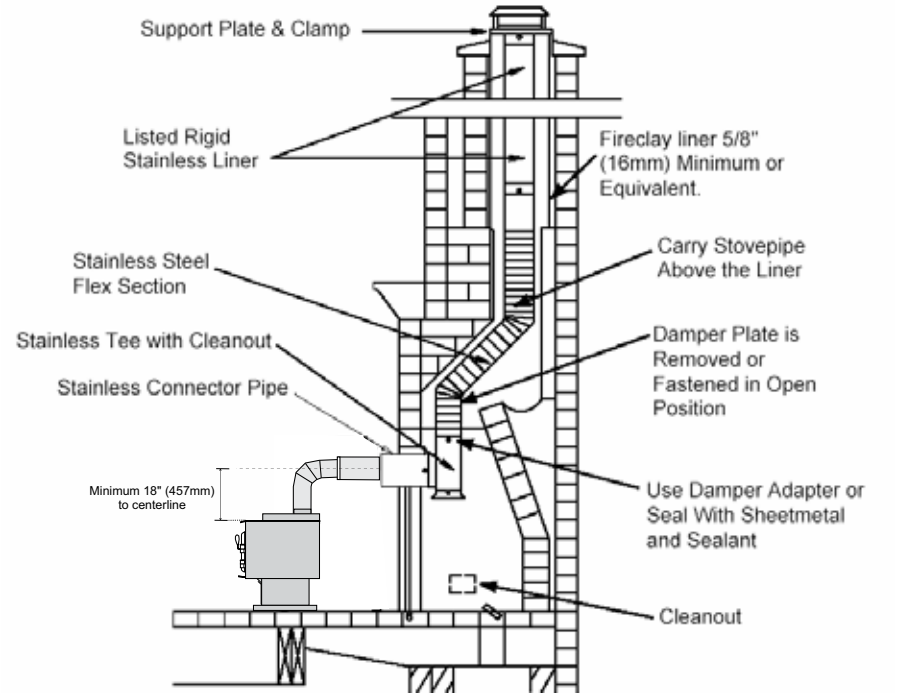
Masonry Fireplace

There are listed kits available to connect a stove to a masonry fireplace. The kit is an adapter 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.



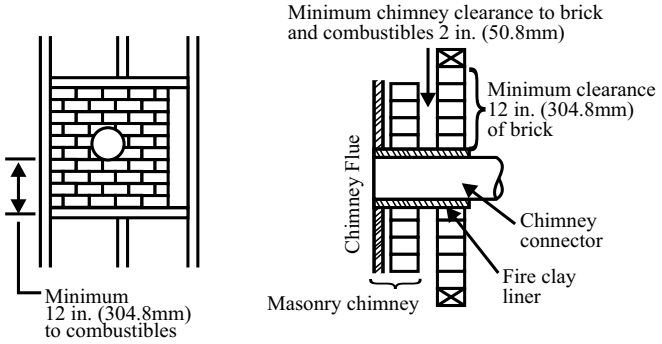
Factory Built Chimney

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^{0}C Factory-Built Chimneys.

Combustible Wall Chimney Connector Pass-throughs

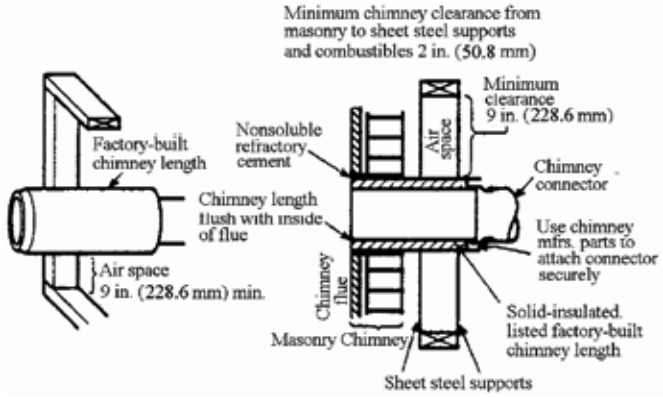
Method A: 12" (304.8 mm) Clearance to Combustible Wall Member:

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.



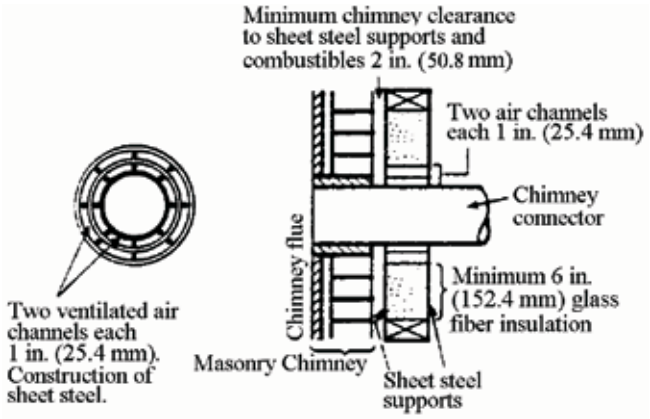
Method B: 9" (228.6 mm) Clearance to Combustible Wall Member:

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.

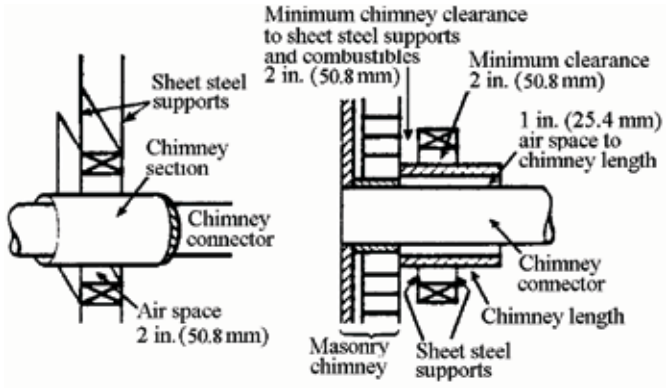


TABLE 1

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.

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.

		Recommended Flue Height
Elevation	**Example a)**	**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'

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.

WARNING:
DO NOT INSTALL IN SLEEPING ROOM

CAUTION: The structural integrity of the mobile home floor, wall and ceiling/roof must be maintained.

Mobile Home Installation (USA Only)

For USA Installations : see Outside Air Kit - Part # 846-502.

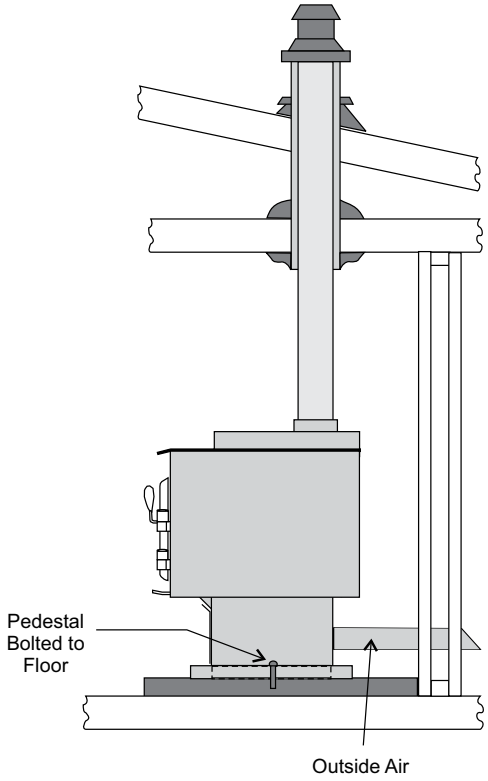
There are further requirements when installing this unit into a mobile home in Canada only.

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.

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.

For both bottom and rear outside air the Pedestal Cover Plate must 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.

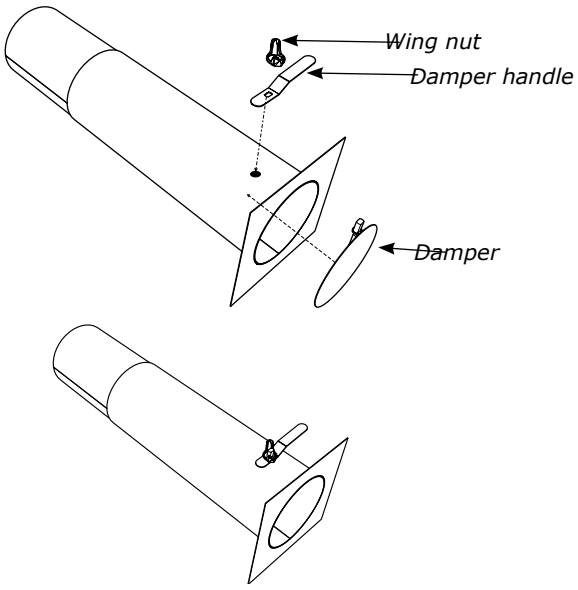
Damper Installation

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.

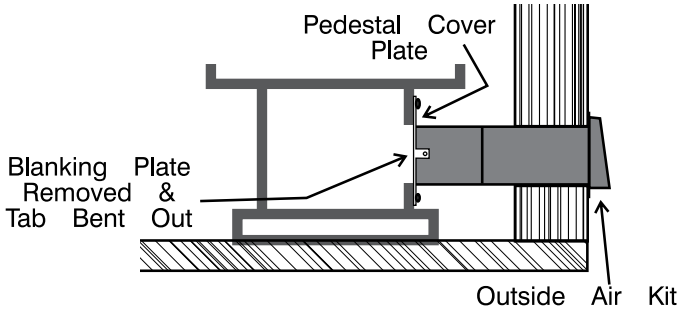


Completed Install

Outside Air Through Pedestal 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.

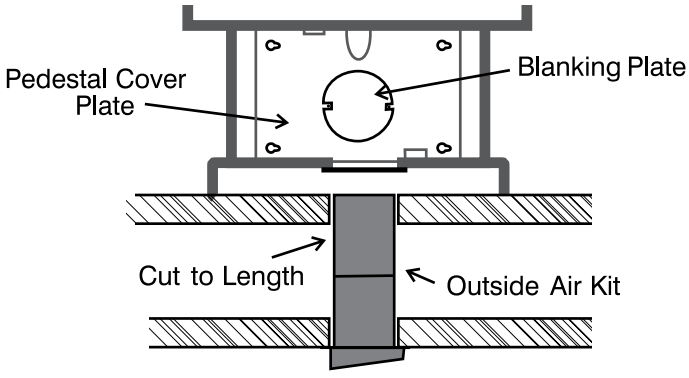
Fasten the pipe to the cover plate using the tabs and 2 screws.



Side View

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.

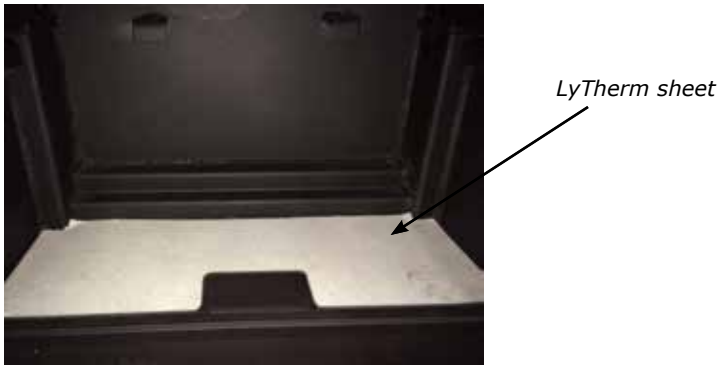


Rear View

Brick Installation

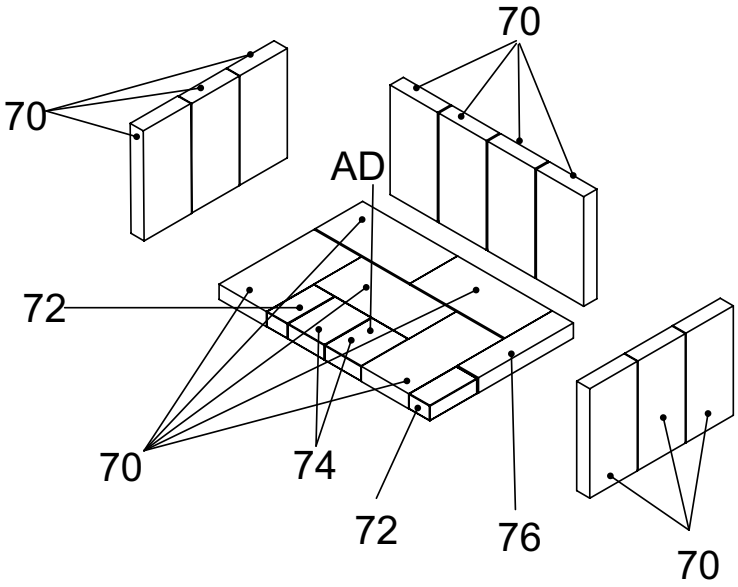
Firebrick is included to extend the life of your stove and radiate heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping. Install all firebricks (if bricks were removed at install) per the diagram below and place in their correct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



70)	Brick - Regular Full Size: 1-1/4" x 4-1/2" x 9"
72)	Brick Partial: 1-1/4" x 2" x 4-1/2"
74)	Brick Partial: 1-1/4" x 4-1/2" x 3-1/2"
76)	Brick Partial: 1-1/4" x 2" x 9"

NOTE: The "AD" brick in the drawings above is the brick covering the Ash Dump hole that is used when the Ash Drawer Kit is installed (refer to the Listed Components for Mobile Home Installation section).

Wood Handle & Door Assembly

1. In preparation of installing the door handle, the nuts, cam, washers and spacer must be removed as shown in Diagram 1.

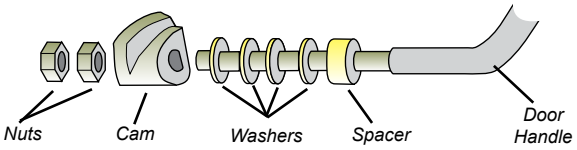


Diagram 1

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)

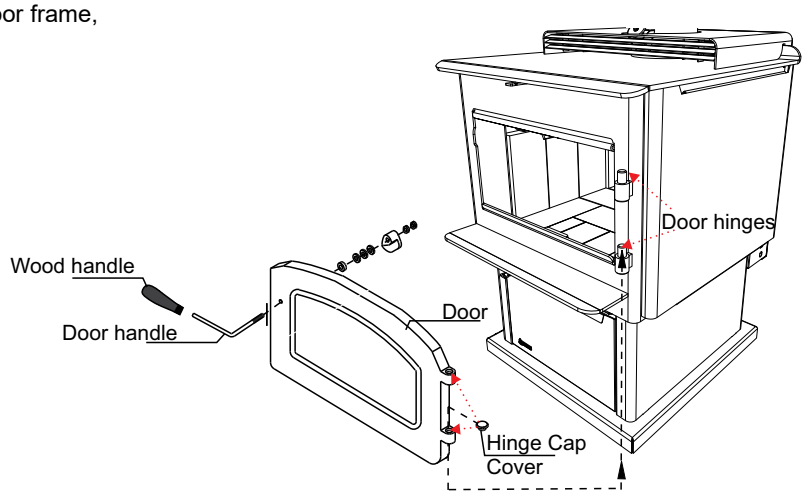


Diagram 2

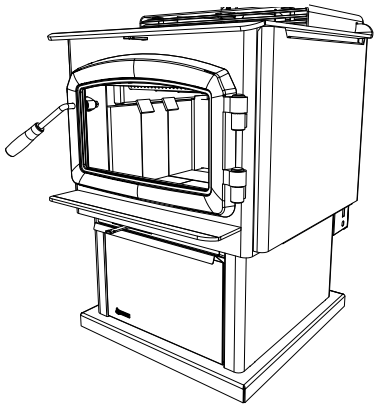


Diagram 3

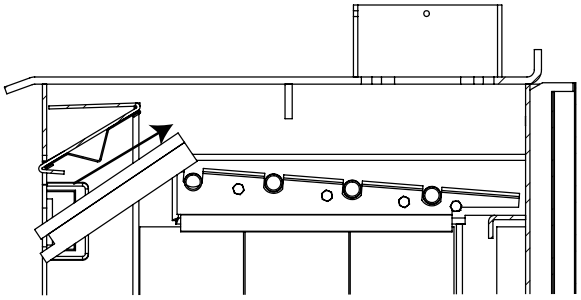
Flue Baffle & Secondary Air Tube Installation

The flue baffle system located in the upper area of the firebox is removable to make cleaning your chimney system easier. The baffles must be installed prior to your first fire. **Smoke spillage and draft problems may occur if the baffles are improperly positioned.** Check the position of the baffles on a regular basis as they can be dislodged if too much fuel is forced into the firebox.

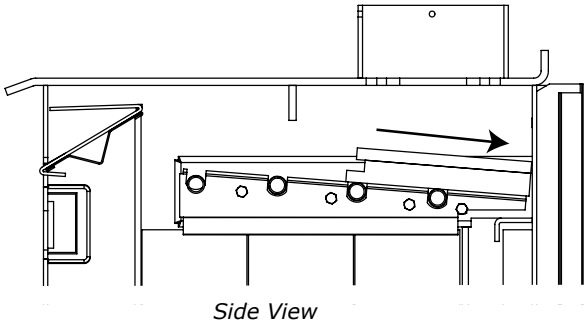
Freestanding Stove F2450-2

The unit arrives with the 2 baffles on the floor of the firebox.

1. Open the door and slide the baffle over the 4 air tubes towards the back of the unit with the baffle lip facing upward as shown below which will allow second baffle to lock into place for step 2.

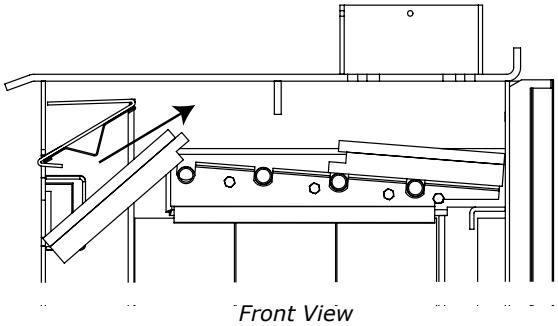


Side View

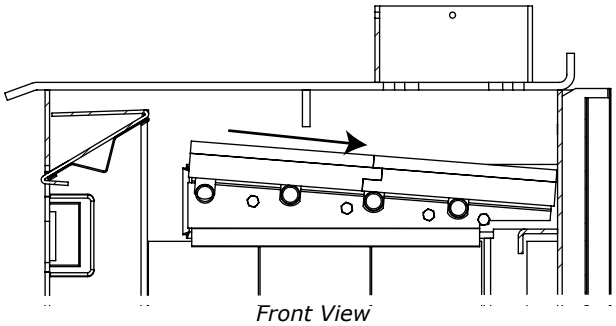


Side View

2. Tilt the second baffle on top of the 2 air tubes and lock it in place with the already placed baffle.

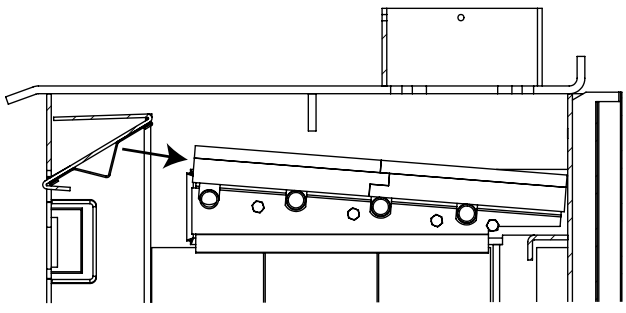


Front View



Front View

Important: Push both baffles so they are tight against the back wall.



Front View

Important: Push both baffles so they are tight against the side walls.

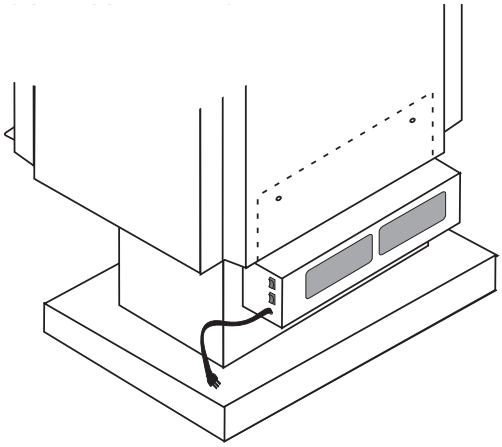
5. Reverse Step 1.

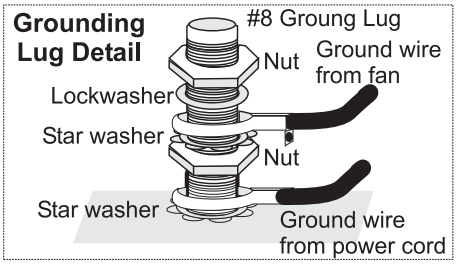
Fan Installation

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.





AUTOMATIC

To operate the fan automatically, push the bottom switch on the side of the fan housing to "AUTO" and the top switch to either "HIGH" or "LOW" for fan speed.

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.

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.

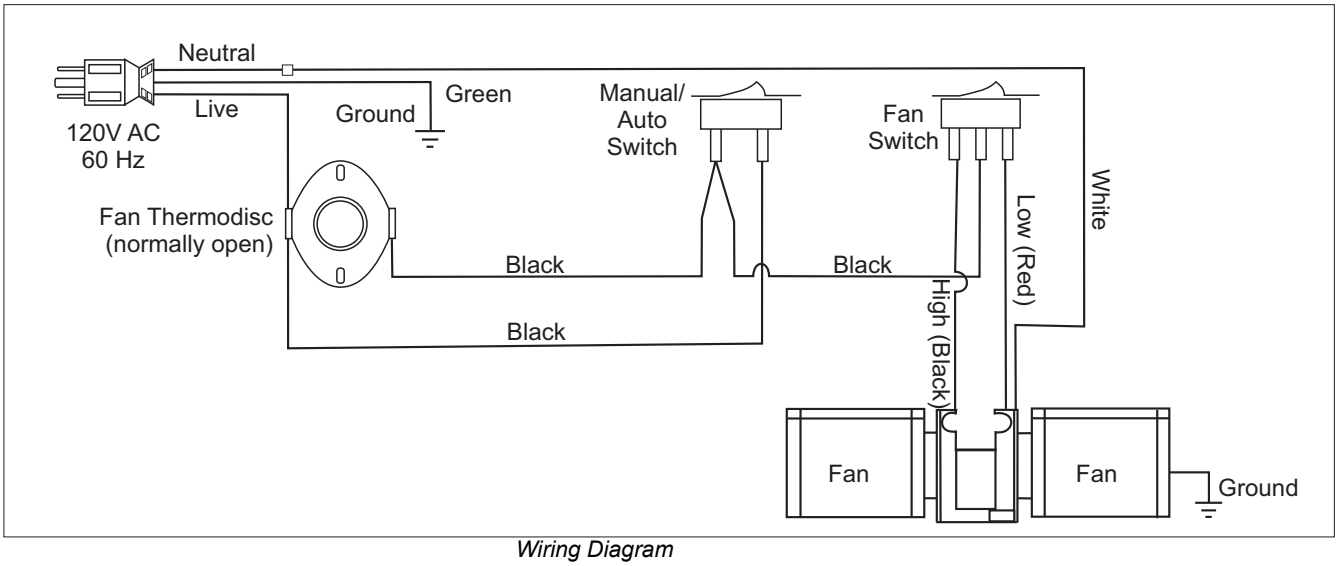
MANUAL

To manually operate the fan system push the bottom switch to "MAN" and the top switch to either "HIGH" or "LOW". This will bypass the sensing device and allow full control of the fan.

Switching from "AUTO" to "MAN" or "HIGH" to "LOW" may be done anytime.

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.

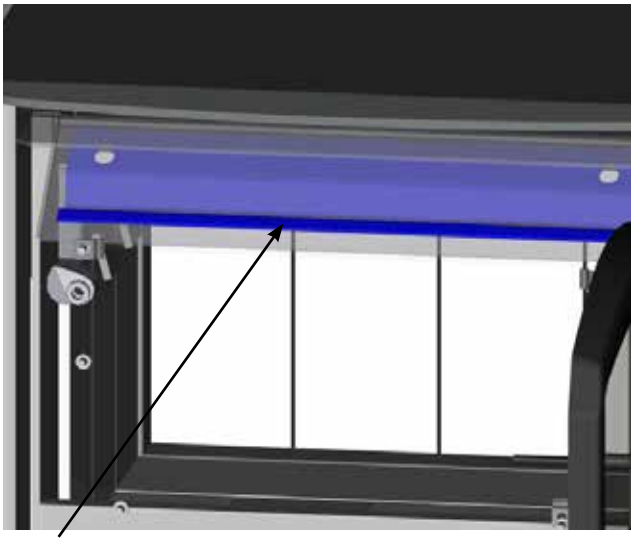
CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.



Wiring Diagram

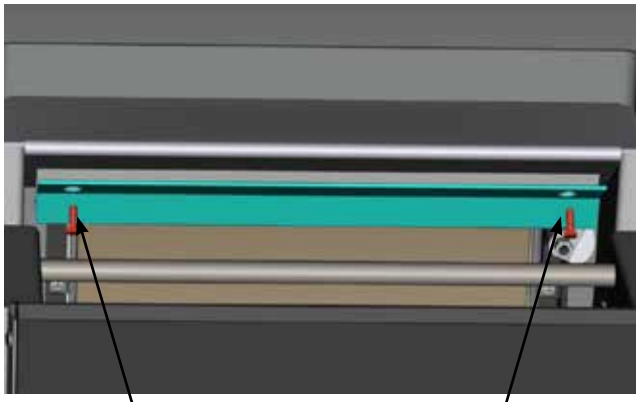
Stainless Steel Smoke Deflector Installation

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.



Smoke deflector

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



Smoke deflector installed with 2 bolts.

Note: *This is a view from the back of the unit through the top.*

To replace the deflector, loosen off both bolts and slide defector upward and out. Install new deflector and hand tighten bolts. Ensure positive location of the defector 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 situated at the top of the keyhole before tightening.

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 F2450-2 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 BETWEEN 19% AND 25% MOISTURE CONTENT.

START UP AND OPERATING PROCEDURES:

1. For the first few days, the wood stove 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 stove 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 stove at its maximum setting, and only after the metal has been warmed.
2. Do not place anything on the wood stove top during the curing process. This may result in damage to your paint finish.
3. When starting the fire, ensure the air control is in the fully open position (far left). To start a good and clean fire you will need to prepare one load of start-up fuel weighing approximately 15 – 16 lb. in total using only dry seasoned cord wood with less than 20% moisture content. The load consists of 2 – 2.5 lb. kindling ½" to 1" diameter, 4 pieces 16" long 2.5" – 3" diameter and and 5 – 7 pieces 2.5" – 3" diameter 12" long.
4. Load 2 pieces 16" long on the bottom centre of the firebox, spaced 8" – 10" in a North South (front to back) orientation. Add few pieces of crumpled paper and the kindling in between these 2 pieces. On top, load the 12" long pieces east west (side to side) orientation from the back of the firebox to the front, spaced 1" – 2". Load the 2 remaining 16" long pieces on top in a North South (front to back) orientation spaced 8" – 10".
5. Ensure primary air control is fully open to the left facing the unit and then light the paper and the kindling. Adjust the door opening to establish fire and for less smoke roll out. Keep the door in this position for 5 – 6 minutes until the secondary tubes start flashing and then close the door. (Leaving the door slightly open will help your fire start more rapidly.)
6. Burn on high setting (primary air control fully open to the left) for approx. 1h. Once most of the wood has burned down but there are still good flames, level evenly the coals. Now you can reload the stove.

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

7. The next step is to create a pre-burn load. This step is necessary to bring the stove temperature to an equilibrium and to create a hot coal bed for the main load of wood. The size and the loading pattern is the same as for the startup load above.
   After loading keep the door slightly open for 3 – 4 minutes, until the fire is well established, then close the door.
   Burn on high air setting (primary air control fully open to the left) for approximately 30 minutes then reduce the primary air setting to your desired burn category. Now turn the fan on low for low and medium low setting and on high for medium high and high air settings.
   For a high burn leave the air fully open and turn the fan on high.
   Once a nice coal bed is established and there are still good-sized flames, the main load of larger logs can be loaded into the firebox. Rake and level the coals to create a uniform charcoal bed.
   Open the primary air fully and turn off the fan. Now the main load of larger logs can be loaded. Load 6 pieces (maximum) of 16.75 - 17" long logs, 3"-4" diameter front to back in a North South orientation. Once loaded, keep the door open for 3 to 4 minutes, until strong flames are established. Turn on high setting (primary air control fully open to the left) for 5 to 10 minutes then adjust the air control to your desired setting. For a high /medium high air setting the fan can be turned on high at 15 minutes. For a low/medium low air setting the fan can be turned on low at 30 minutes.
   High Fire: Air control to far left.
   Low Fire: Air control to far right.
   Med Low Fire: Air control slightly left of low fire setting.
   Med High Fire: Approx. 1" from low air setting.
   For low and medium fire, adjust the air gradually from high to the desired position.

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

   From the start up of a cold stove, a medium to high firing rate must be maintained for 30 min. This ensures that the stove, and fuel are all stabilized at proper operating temperatures. Even though it is possible to have high temperatures within minutes after a fire has been started, if the fire is allowed to die down immediately it may go out. During re-fueling and rekindling of the cool fire, or a fire that has burned down to the charcoal phase, operate the stove at a medium to high firing rate for about 15 - 30 minutes to ensure to reach operating temperatures.
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 or into 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 Stove 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. If you have been burning your stove on a low draft, use caution when opening the door. Open the door a crack, and allow the fire to adjust before fully opening the door.
14. The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
15. 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 stove hot enough to keep your glass clean and you won't need to clean your flue as often.

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

    NOTE: Always stir the coal approximately half way through a burn cycle to ensure proper charcoaling.

    CAUTION: Do not build the fire too close to the glass, unless/otherwise specified.

How to Light and Maintain a Wood Stove Fire

Fan Operation

The fan unit must not be turned on until a fire has been burning for at least 20 minutes and the unit is hot enough. As well, after each fuel loading the fan must be shut off until 20 minutes has elapsed. To operate fan automatically, push switch on side of fan housing to "Auto" and second switch 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.
For low and medium low burn operate the fan on low speed and for medium high and high burn operate the fan on high speed.

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.

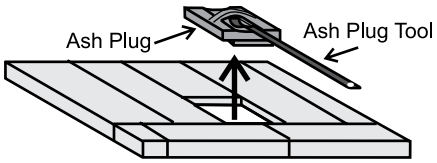
3. Never start a fire if the ash plug and ash drawer are not in place. This will cause over firing which can cause excessive warping of the stove. Evidence of over firing can void the warranty on your stove.

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.

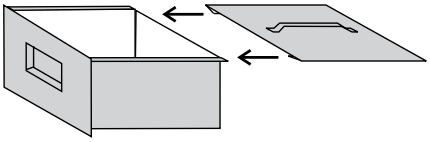
Ash Drawer Operating Guidelines

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 or 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. Do not store solid fuels by the appliance.

5. If you have smoke detectors, prevent smoke spillage as this may set off a false alarm.

6. 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.

7. 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.

8. 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.

9. The stove consumes air while operating, provide adequate ventilation with an air duct or open a window while the stove is in use.

10. Do not connect this unit to a chimney flue serving another appliance.

11. Do not use grates or andirons or other methods for supporting fuel. Burn directly on the bricks.

12. Open the draft control fully for 10 to 15 seconds prior to slowly opening the door when refuelling the fire.

13. Do not connect your unit to any air distribution duct.

14. 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.

15. Do not store any fuel closer than 2 feet from your unit. Do not place wood, paper, furniture, drapes or other combustibles near the appliance.

16. **WARNING: Do not operate without either the Ash Plug properly seated or the Ash Dump Plates screwed in place, excessive temperatures will result.**

17. **CAUTION: Do not operate with broken glazing.**

18. **WARNING: Do not use abrasive cleaners to clean the glass window.**

19. **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
- Bio bricks

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.

Classic Door Handle Replacement

1. To remove the wooden door handle from unit—locate the 7/64" Allen key hole at the bottom of wooden handle.



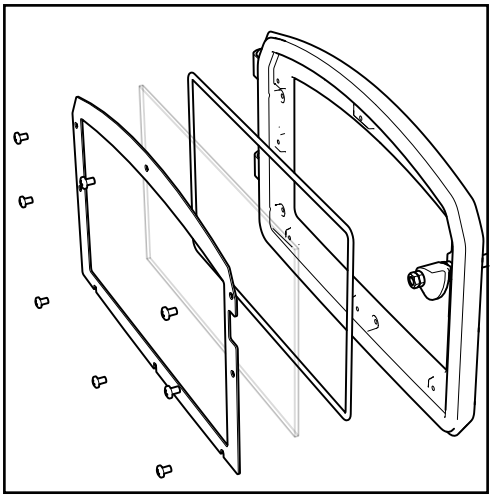
2. Turn the 7/64" Allen key counter-clockwise to loosen the screw. When screw is completely loosened, drop handle down off door shaft and replace with new handle.



Glass Replacement

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.

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.



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. Establish a routine for the fuel, wood burner and firing technique. Check daily for creosote buildup.

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

7. **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 7/8" gasket rope (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 of slamming shut.
WARNING: Do not operate with broken glass.

Wood Storage

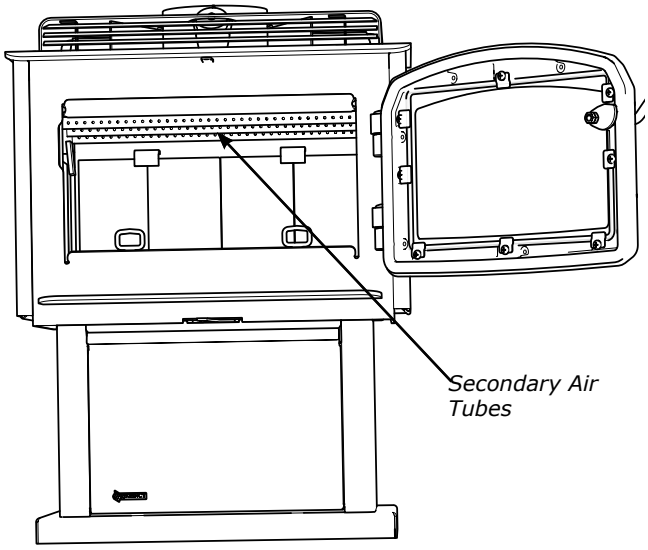
Store wood under cover, such as in a shed, or covered with a tarp, plastic, tar paper, sheets of scrap plywood, etc., as uncovered wood can absorb water from rain or snow, delaying the seasoning process.



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 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. Repeat step to remove second airtube from front.

4. Remove the fragile two piece Baffles, then remove the remaining 2 tubes.

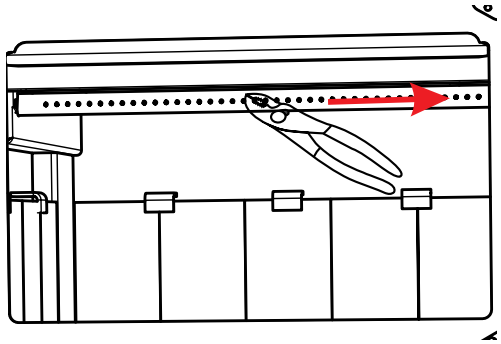


Diagram 1

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.

Note : If air tube is locked into place correctly there should be slight movement when moving the air tube back and forth.

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.	

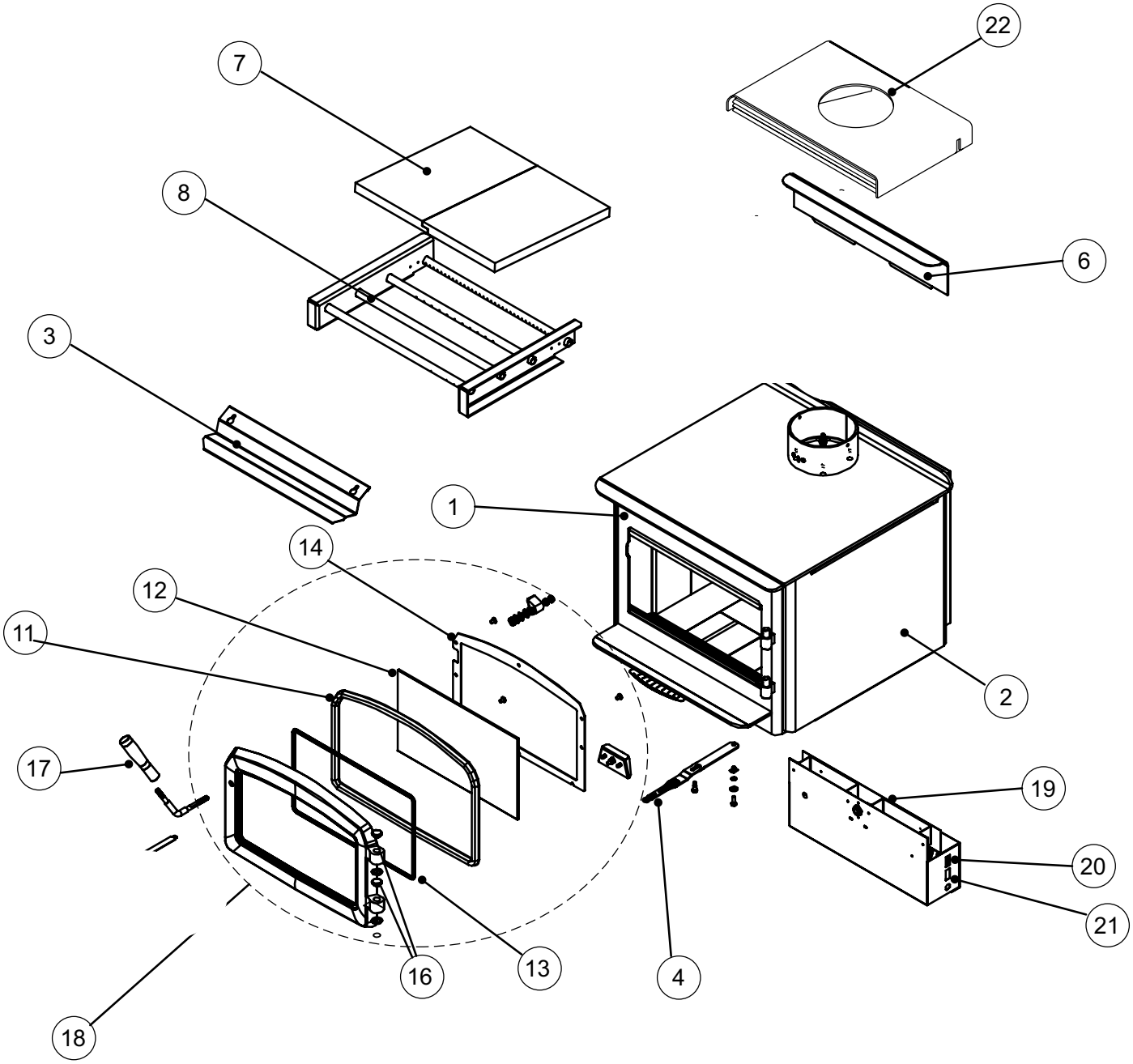
IMPORTANT
Before attempting to loosen or remove any screw/bolt from the interior of a wood stove, insert or factory built fireplace, we highly recommend to liberally spray the screw/bolt with a good-quality penetrating oil, one that does not have flammable properties contained within the penetrating oil being used. Allow it to set, then tap or vibrate the screw/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	021-006	Left Side Heat Shield
2	021-007	Right Side Heat Shield
3	021-018	SS Smoke Deflector
4	021-020	Draft Control Lever
6	815-557	Rear Air Deflector
7	020-957	Baffle Bricks Complete (Set Of 2)
8	033-953	3/4 OD x 19-1/4 Air tube 4 Per Unit (Each)
11	846-570	7/8" Door Gasket Repair Kit
12	846-308	Replacement Glass - Large (Includes Glass Gasket)
13	846-692	1/8" x 3/4" Wide Graphite Glass Gasket Tape (6') (936-241)
14	181-034F	Glass Retainer
15	021-973	Door Handle Assembly Complete
16	948-079BN	Hinge Cap Brush Nickel (Each)
17	948-146	Long Black Handle
18	850-251	Black Door - Complete
18	850-253	Black with Nickel Accent Door - Complete
19	846-515	Fan Assembly Complete
20	910-138	2 Way Switch
21	910-140	3 way Switch
22	850-105	Airmate
23	075-051	SS Slide Holder
8	075-073F	Tool Hanger
N/S	948-223	Regency Logo Plate
N/S	910-157/P	Fan Motor Only With Squirrel cage
N/S	910-142	Fan Thermodisc
N/S	021-032/P	Vertical Stainless Deflector
N/S	021-022	Firebox Floor Gasket

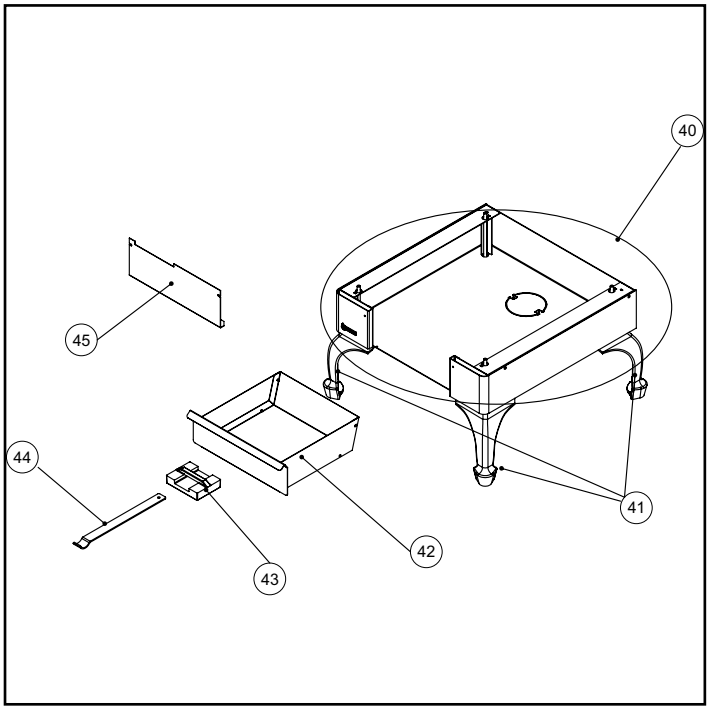
N/S = Not Shown

parts list

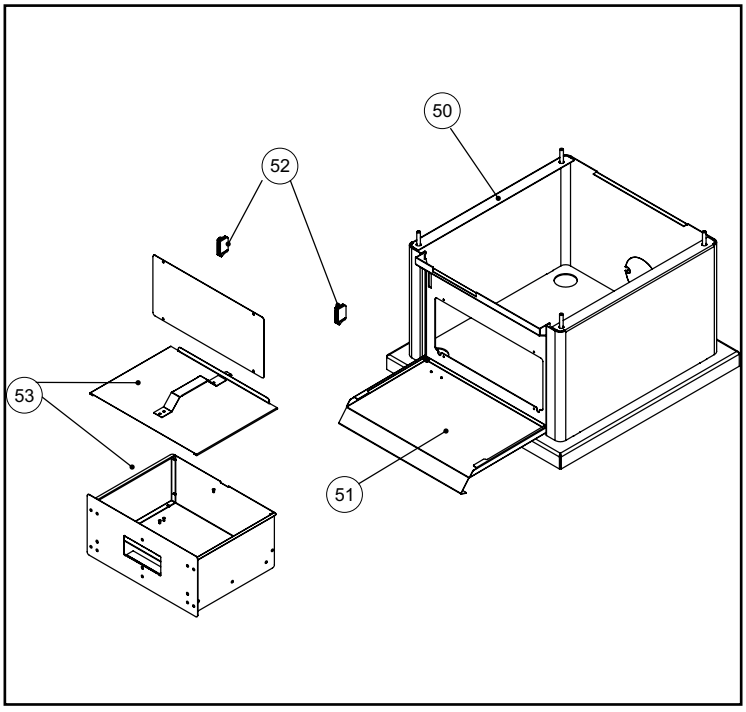


Bases

	Part #	Description
40	022-911	Bottom heat Shield
41	850-126	Black Cast legs (Set Of 4)
41	850-128	Nickel Cast legs (Set Of 4)
42	022-914	Ashdrawer Bottom Heat Shield
43	942-110	Ashplug
44	820-249	Ashplug Tool
45	022-023	Blanking Plate
N/S	904-100	5/16" x 6 1/2 " Long Hex Head Bolt (Each)
N/S	022-025	Metal Washer
N/S	820-456	Metal Spacer/Support Bracket (Each)

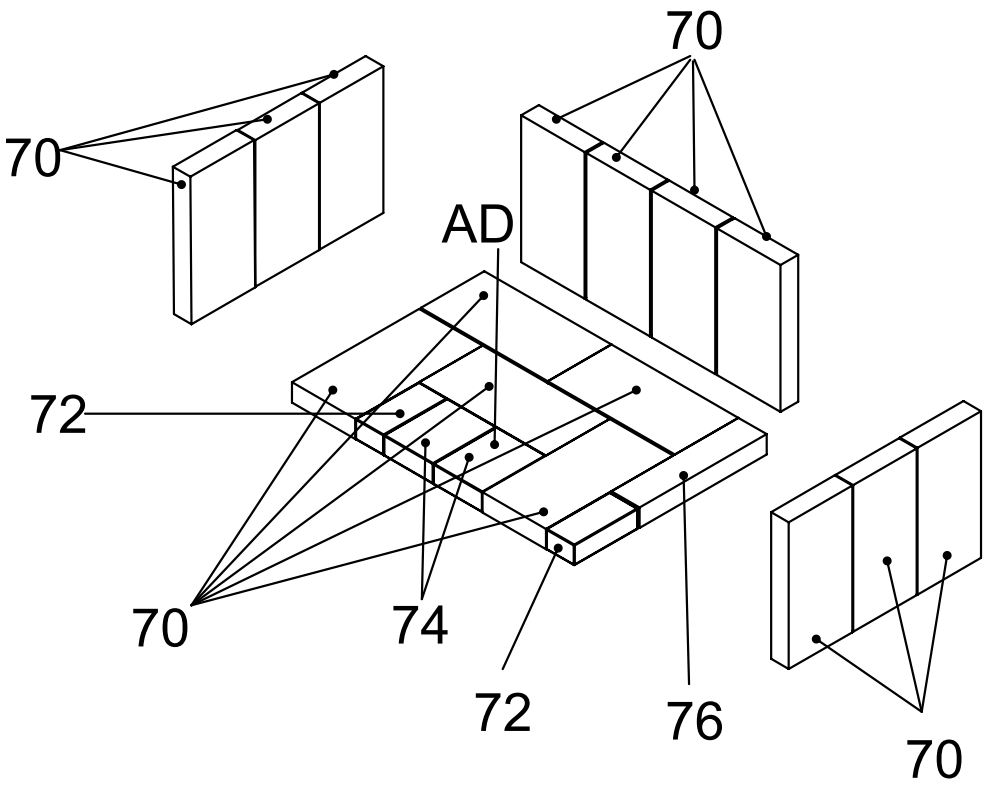


	Part #	Description
50	022-915	Pedestal Complete
51	022-011	Pedestal Door
52	904-257	Magnetic Catch (Each)
53	075-910	Ashdrawer Pedestal
N/S	904-023	5/16 x 1-1/2 Hex Head Bolt (Each)



parts list

020-960 Brick Kit Complete	
70)	Brick - Regular Full Size: 1-1/4" x 4-1/2" x 9"
72)	Brick Partial: 1-1/4" x 2" x 4-1/2"
74)	Brick Partial: 1-1/4" x 4-1/2" x 3-1/2"
76)	Brick Partial: 1-1/4" x 2" x 9"
NOTE: This kit contains one spare brick in case of breakage.	



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 - 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, andiron 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.

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

REGENCY
FIREPLACE PRODUCTS

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.

recycling

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 #:_____

Regency is a trademark of FPI Fireplace Products International Ltd.
© Copyright 2024, FPI Fireplace Products International Ltd. All rights reserved.

Printed in Canada

REGENCY
FIREPLACE PRODUCTS

Hampton™ Hi2450-2 Wood Fireplace Insert

Owners & Installation Manual



www.regency-fire.com
French Manual: https://bit.ly/3t7JcJu
Manuel en Français : https://bit.ly/3t7JcJu

MODEL: Hi2450-2

Tested & listed by:
0219WN026S

***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 cord wood." Tested & listed to ASTM E3053. Model Regency Hi2450-2 1.6 g/hr.

"This manual describes the installation and operation of the Regency Hi2450-2 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 12,900 Btu/hr to 30,000 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. "

It is against federal regulation to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if elements are deactivated or removed."

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

"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 ling 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.

Hi2450-2 is certified to CAN/ULC 628:2022 and UL 1482-2022.
SAVE THESE INSTRUCTIONS

NATIONAL FIREPLACE INSTITUTE NFI CERTIFIED www.nficertified.org
We recommend that our products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) or in Canada by Wood Energy Technical Training (WETT).
Wood Energy Technical Training

WARNING: Cancer and Reproductive Harm
www.P65Warnings.ca.gov
919-874

Safety label

Safety Label for Hi2450-2 4

Dimensions

Dimensions with Regular Faceplate....5
Dimensions with Oversize Faceplate....6

Installation

Masonry Fireplace Clearances 7
Wood Insert Specifications....7
Installation Into A Masonry Fireplace 8
Before Installing Your Insert....8
Chimney Specifications 8
Optional Flue Connector Kit....8
Installing Your Insert 10
Stainless Steel Smoke Deflector Installation....11
Standard Cast Faceplate Installation 12
Oversize Cast Faceplate Installation 15
Cast Grill Installation 18
Fan Installation 19
Power Outlet Conversion....20
Flue Collar Removal and Installation 22
Floor Protection....24
Flue Baffle & Secondary Air Tube Installation....24
Brick Installation 25
Seasoned Wood 26

Operation

Operating Instructions 27
Draft Control....27
First Fire....27
Fan Operation 28
Ash Disposal 28
Safety Guidelines and Warnings....28

Maintenance

Maintenance 29
Creosote....29
Door Gasket....29
Glass Maintenance 29
Wood Storage 29
Do Not Burn 30
Door Gasket....31
Glass Cleaning 31
Door Removal 31
Glass Replacement 31
Handle Replacement....31
Latch Adjustment 32
Annual Maintenance 33
Vertical Stainless Deflector Replacement 34

Parts

Main Assembly 35
Standard Cast Faceplate 36
Oversize Cast Faceplate 37
Brick Panels - Hi2450-2....38

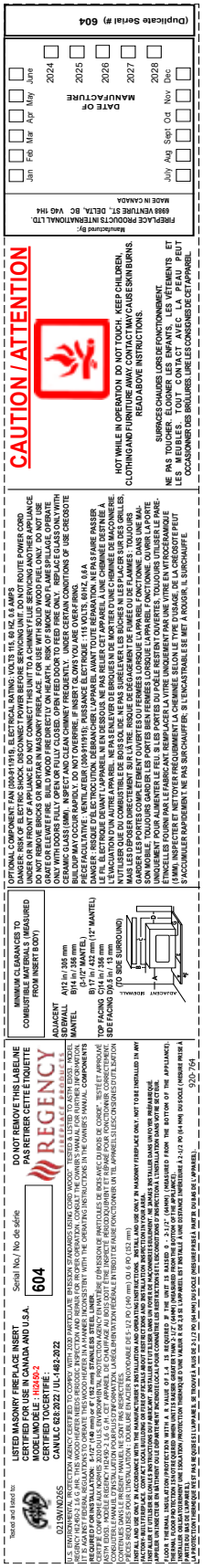
Warranty 40

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.

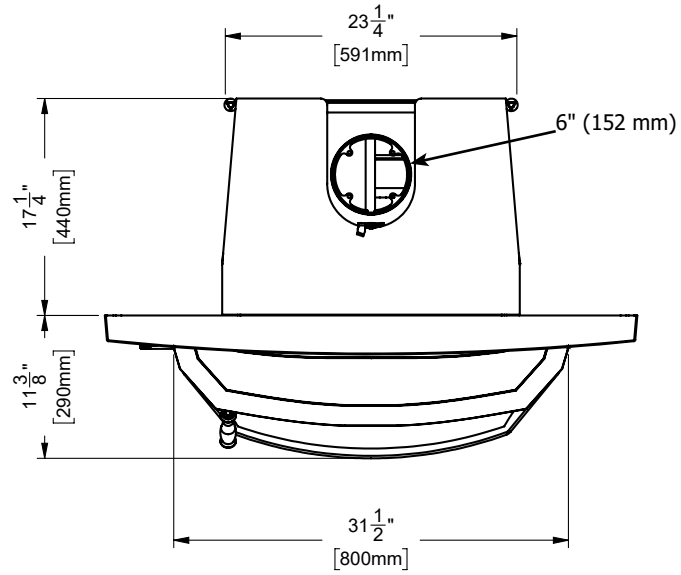
Safety Label for Hi2450-2

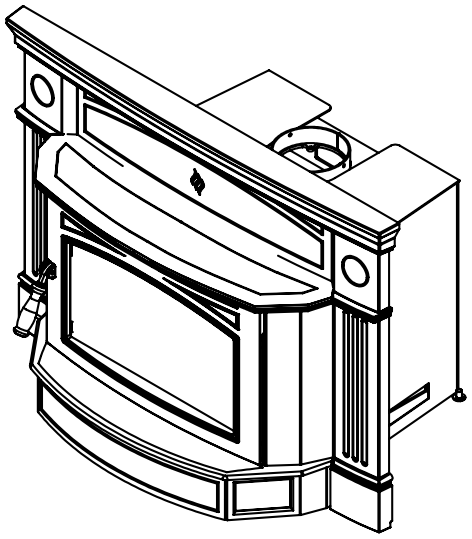
This is a copy of the label that accompanies your **Regency Insert**. We have printed a copy of the contents here for your review.

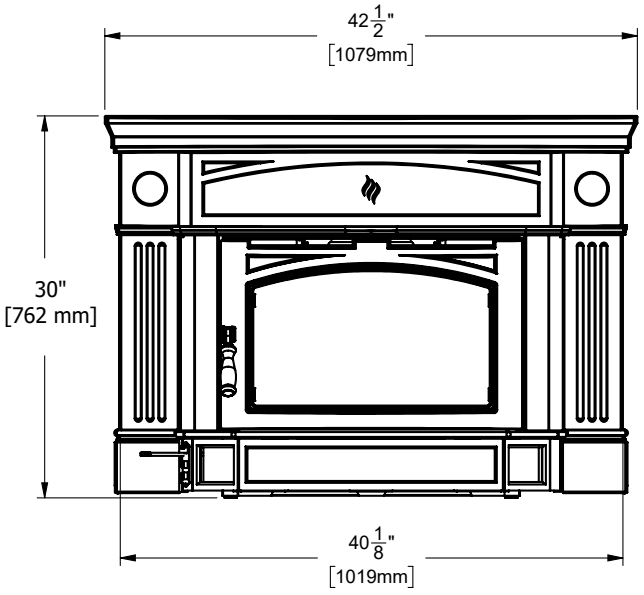
NOTE: Regency units are constantly being improved. Check the label on the unit and if there is a difference, the label on the unit is the correct one.

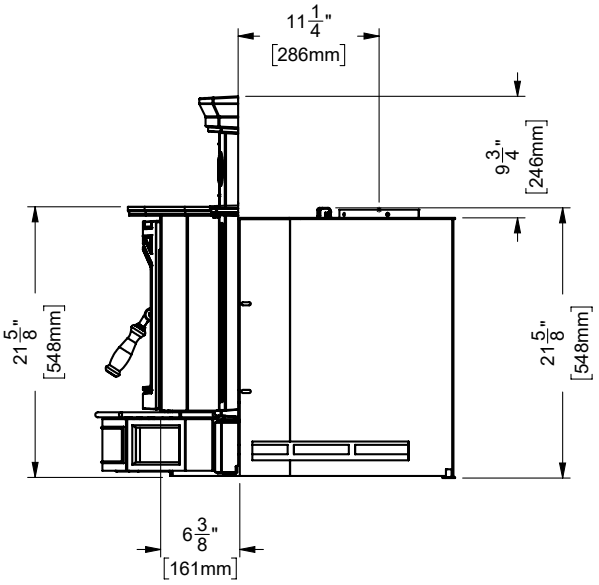


Dimensions with Regular Faceplate



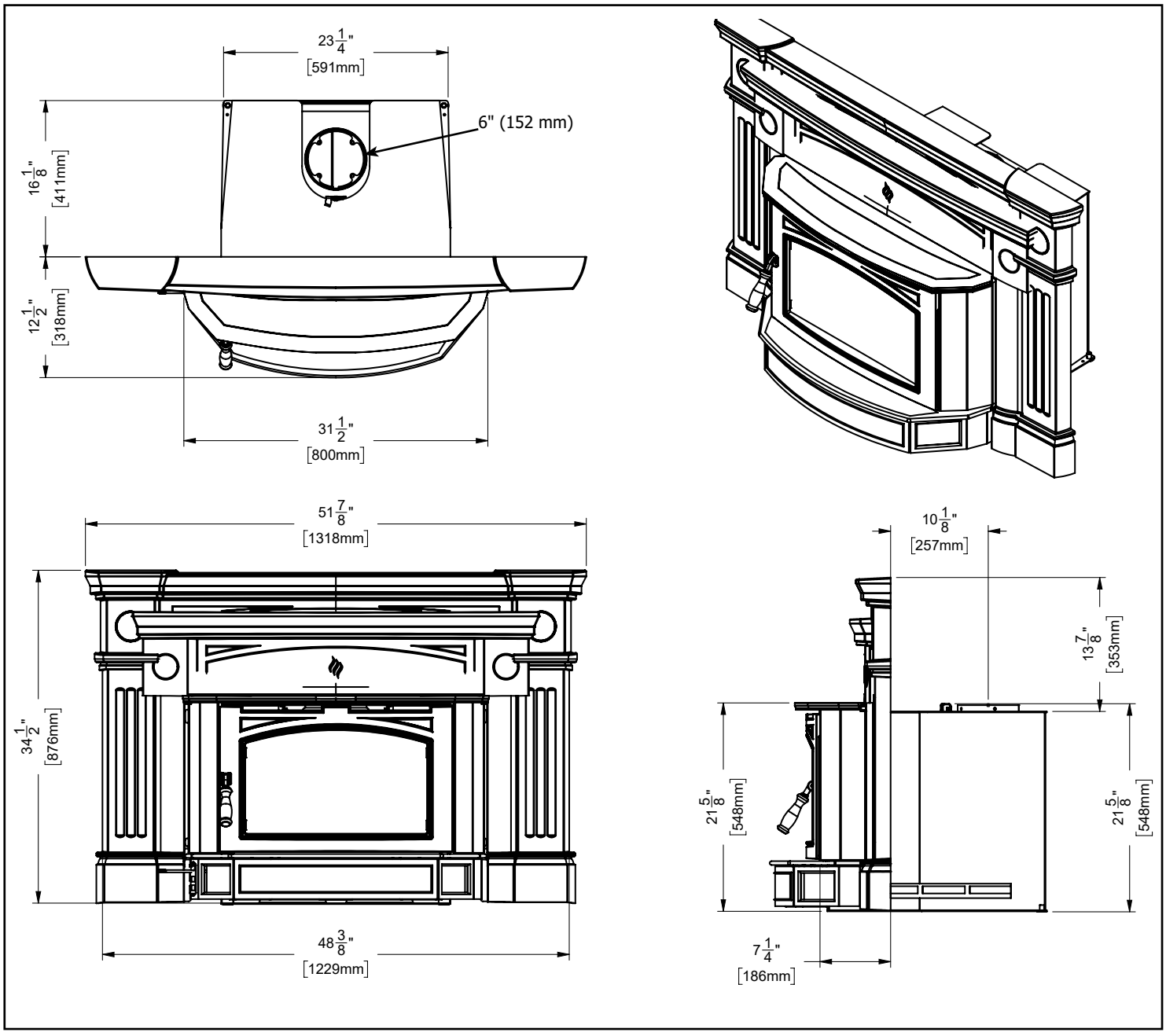






ALL PICTURES / DIAGRAMS SHOWN THROUGHOUT THIS MANUAL ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL PRODUCT MAY VARY DUE TO PRODUCT ENHANCEMENTS.

Dimensions with Oversize Faceplate

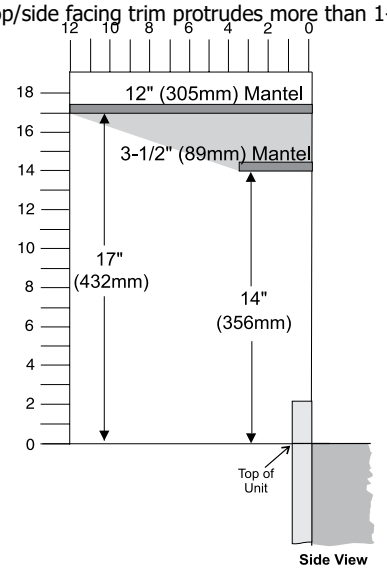


Masonry Fireplace Clearances

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

Unit Hi2450-2	Adjacent Side Wall (to Side) A	Mantle ** (to Top of Unit) B	Top Facing (to Top of Unit) C	Side Facing D	Minimum Hearth Extension* E	Minimum Hearth Thickness F	Minimum Hearth Side Extension* G	To Top of Unit (Reference Dimension Only) H	From Side of Unit (Reference Dimension Only) I	Faceplate Width (Reference Only) J
	12" (305 mm)	14" (356 mm) for 3-1/2" (89 mm) mantel 17" (432 mm) for 12" (305 mm) mantel	14" (356 mm)	1/2" (13 mm) to side surround	16" (406 mm) USA 18"(457 mm) Canada	1/2" (13 mm)	8" (203 mm)	21-5/8" (548 mm)	31-1/2" (800 mm)	Regular Faceplate 42-1/2" (1079 mm) Oversize Faceplate 51-7/8" (1318 mm)

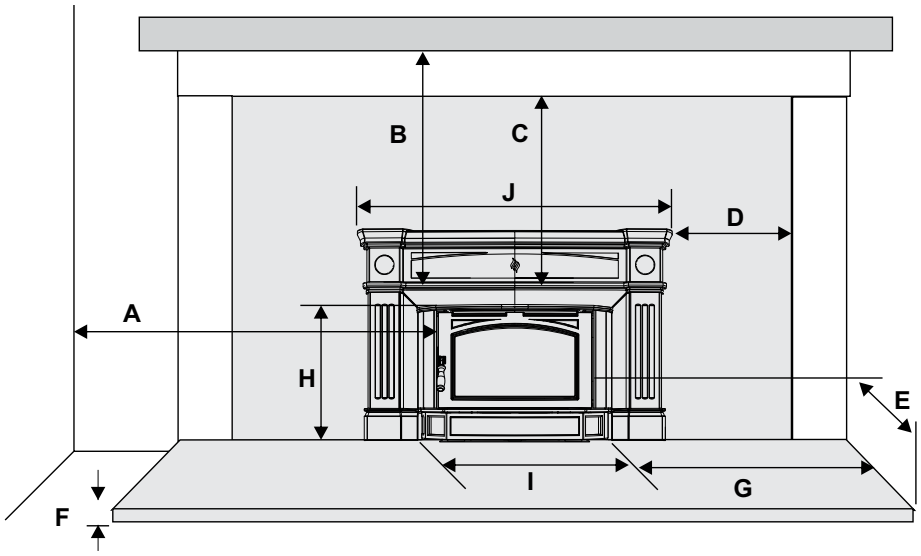
Side and Top facing is a maximum of 1-1/2" (38mm) thick.
If top/side facing trim protrudes more than 1-1/2"(38 mm) follow mantle (B)** & adjacent side wall (A) for proper clearances.



Clearances are critical.

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

Note: Ensure the paint that is used on the mantel and the facing is "heat resistant" or the paint may discolour.



Clearance Diagram for Installations

Wood Insert Specifications

Your fireplace opening requires the following minimum sizes:

Height: 21-1/2" (546 mm)
Width: 25" (635 mm)
Depth: 17" (432 mm)

Two faceplates are available to seal the fireplace opening:

Standard	**Oversize**
40" W x 30" H (1016 mm W x 762 mm H)	48" W x 34-9/16" H (1219 mm W x 878 mm H)
42-1/2" W x 30" H (1080 mm W x 762 mm H)	51-7/8" W x 34-9/16" H (1318 mm W x 878 mm H)

*Floor Protection

Floor thermal insulation/protection Type 2 with a R value of 1.4 is required if the unit is raised 0 - 2-1/2" (0-64 mm) (measured from the bottom of the appliance).

Thermal floor protection (Type 1) is not required when unit is raiser greater than 2-1/2" (64 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" for US and 18" for Canada—measured from the fuel loading door opening.

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

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.**

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.

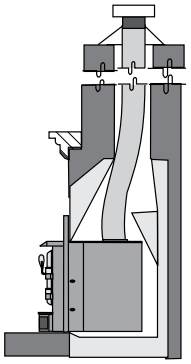
Regency Inserts are designed to use either a 5-1/2" (140 mm) or 6" (152 mm) flue.

ULC628-2022 - Canada
This fireplace insert must be installed with a continuous chimney liner liner of 5-1/2 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 ling 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)

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

948-412/P 6" Flue Offset Adapter (Offsets back 4")

NOTE

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.

STOP! PLEASE READ CAREFULLY.

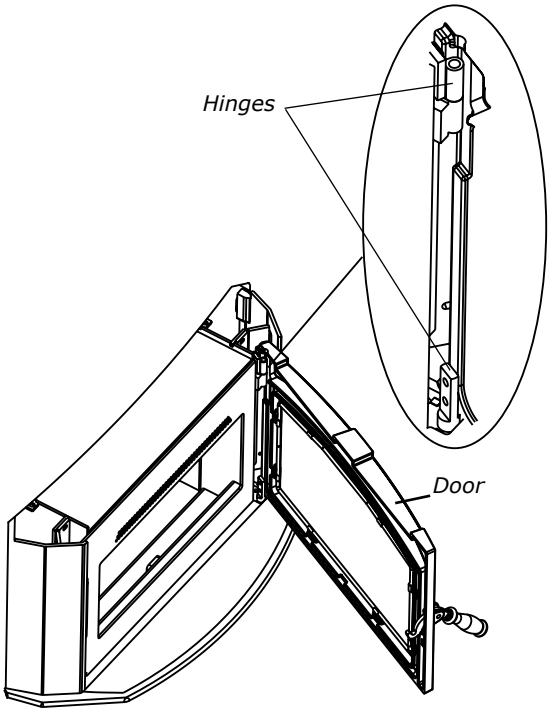
CAST COMPONENTS ARE VERY FRAGILE. USE EXTREME CARE WHEN HANDLING.

Installing Your Insert

Your insert is very heavy and will require two or three people to move it into position.

1. Remove the door to make the insert easier to handle. To remove the Door, open fully and lift it up off its hinges.

   Refer to the Door Removal section for an important note on installation.

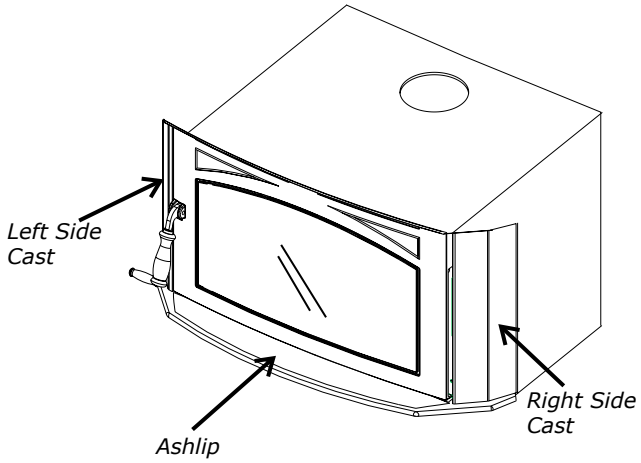


2. **NOTE:** For Masonry installation make sure that the firebox is level with the hearth using non-combustible materials and no more than 1/2 to 1 inch of the levelling bolt.

3. Lift the unit up onto the Hearth and slide into the fireplace opening. Be sure to leave the unit out at least 3 to 4 inches in order to make the necessary flue connections and to install the faceplate.

   Be sure to protect your hearth extension during the installation, ie. with a heavy blanket.

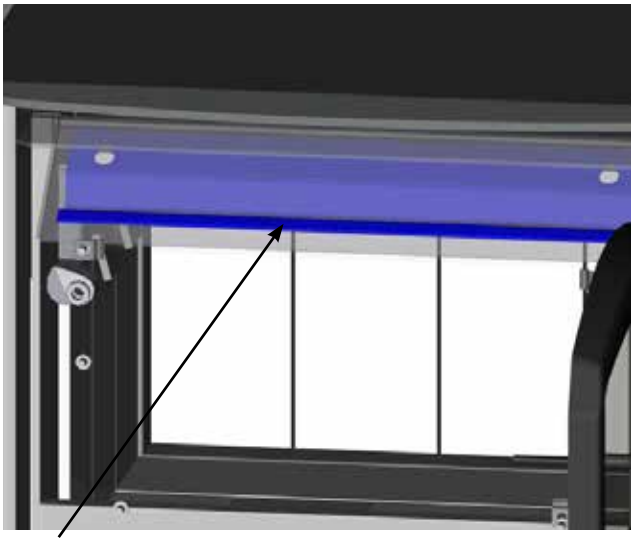
WARNING
DO NOT LIFT OR PUSH THE UNIT FROM THE ASHLIP, LEFT SIDE CAST or RIGHT SIDE CAST. THE CASTING WILL CHIP OR BREAK.



DO NOT LIFT UNIT FROM THESE PARTS.

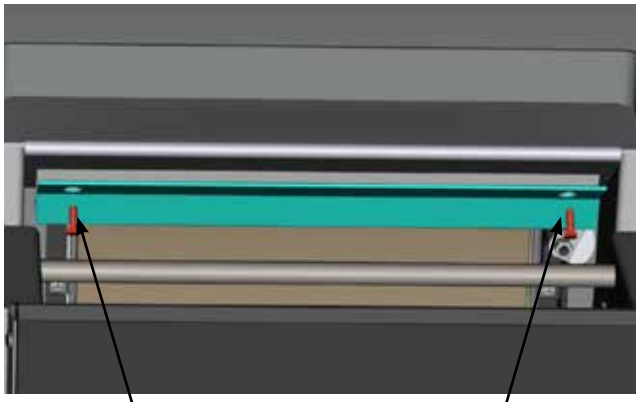
Stainless Steel Smoke Deflector Installation

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.



Smoke Deflector

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



Smoke deflector installed with 2 bolts.

Note: *This is a view from the back of the unit through the top.*

To replace the deflector, loosen off both bolts and slide deflector upward and 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.

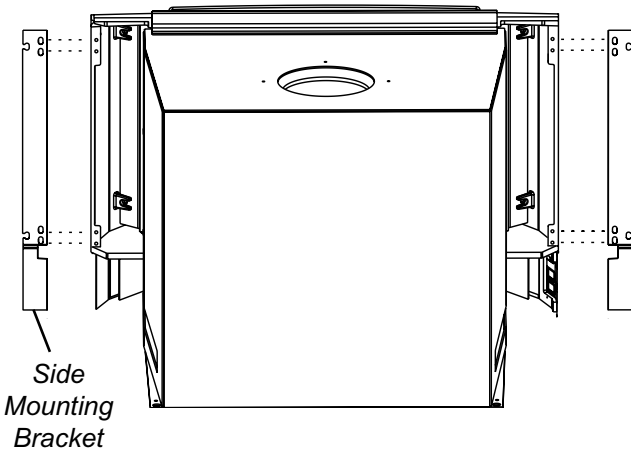


Ensure deflector is seated so bolts are situated at the top of the keyhole before tightening.

Standard Cast Faceplate Installation

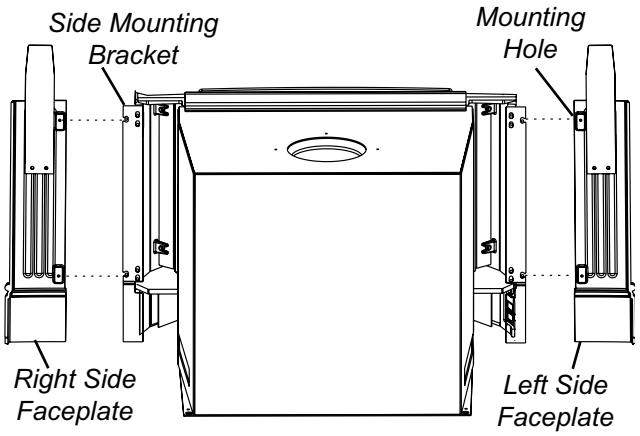
FACEPLATE CONTENTS LIST	
Qty	**Description**
1	Left Side Faceplate
1	Right Side Faceplate
1	Top Faceplate
2	Side Mounting Brackets
4	1/4" - 20 x 1/2" Hex Head Bolts
4	1/4" Lock Washers
4	1/4" Flat Washers
2	47" Insulations

1) Secure the Side Mounting Brackets (packaged with Faceplate) to the left and right side of the firebox using 4 bolts per mounting bracket as shown in the diagram below.



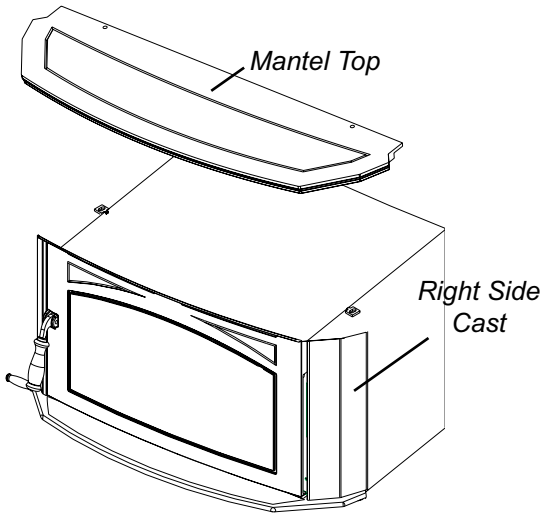
Backside of Unit Shown.

2) Secure the Left and Right Side Faceplate to the firebox by aligning the Mounting Holes with the Side Mounting Brackets taking care to align vertically while each side rests on the hearth. Secure using 1 bolt per bracket.



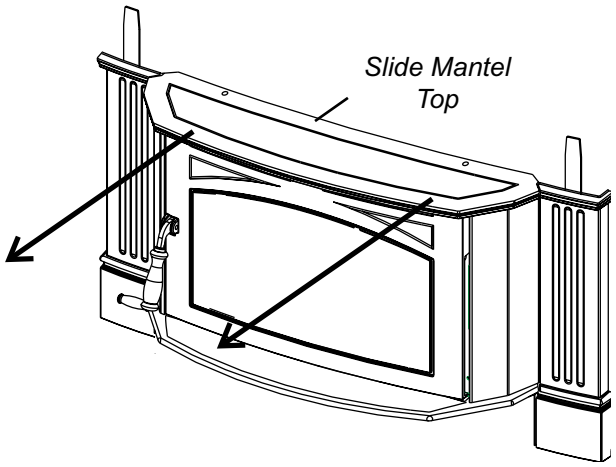
Backside of Unit & Faceplate Shown.

3) Place Mantel Top onto the top of the firebox.



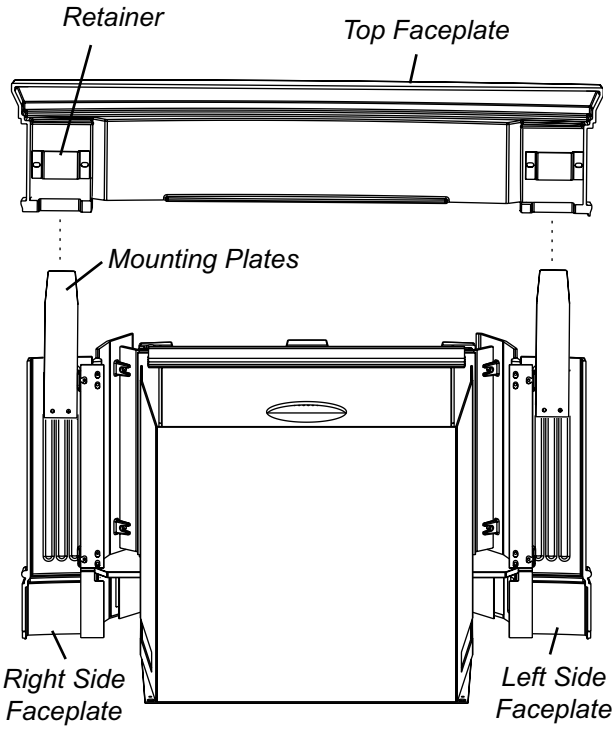
With the Mantel Top in place check to make sure there is no gap between the nut retainer and the underside cast of the Mantel Top. If there is a gap present you will need to lower that side cast by loosening 2 bolts, see step 6 for bolt location (check to see if level).

4) Slowly slide the Mantel Top forward until it stops.



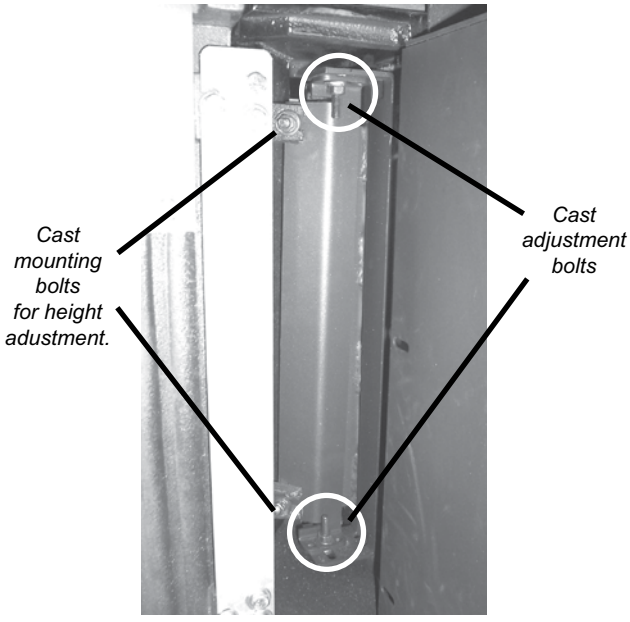
5) Mount the Top Faceplate by carefully sliding the Mounting Plates on the Left and Right Side Faceplate thru the Retainers in the Top Faceplate.

NOTE: Slowly lower the Top Faceplate into position; being careful not to damage the Mantel Top.



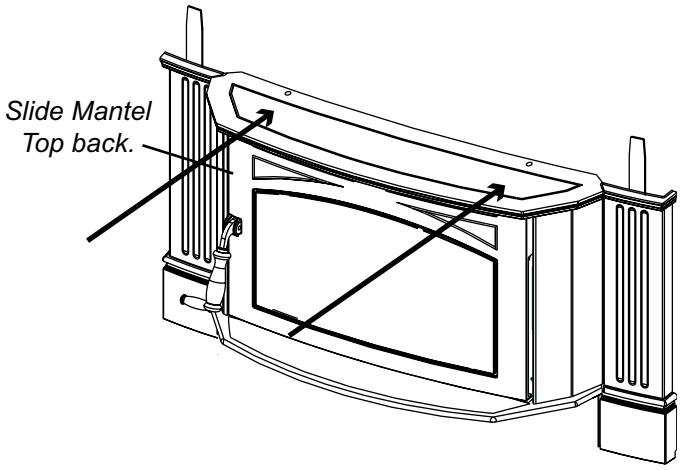
Backside of Unit & Faceplate Shown.

6) If unable to align side faceplate to unit and top faceplate further adjustments need to be made, **complete one side at a time**. Loosen all bolts on brackets (6 per side). Loosen top and bottom bolts (Shown below). Adjust left or right side cast plates to allow further adjustment on faceplate. Once aligned, hold side surround in place and tighten all bolts. If side cast height needs adjusting, loosen 2 bolts holding cast bracket and adjust up or down.



See Step 3 to identify side casts.
See next page for recommended measurements.

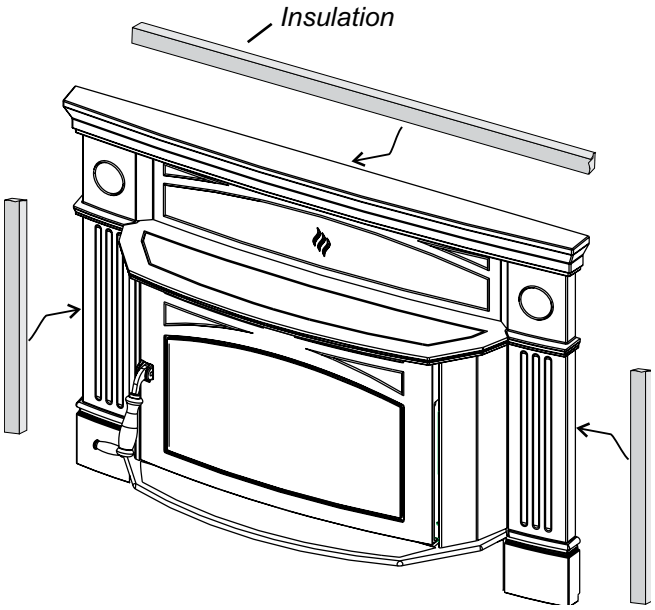
7) Carefully slide the Mantel Top back into position.



8) Location of Insulation:

a) Place 1 piece of Insulation behind the Mantel Top.

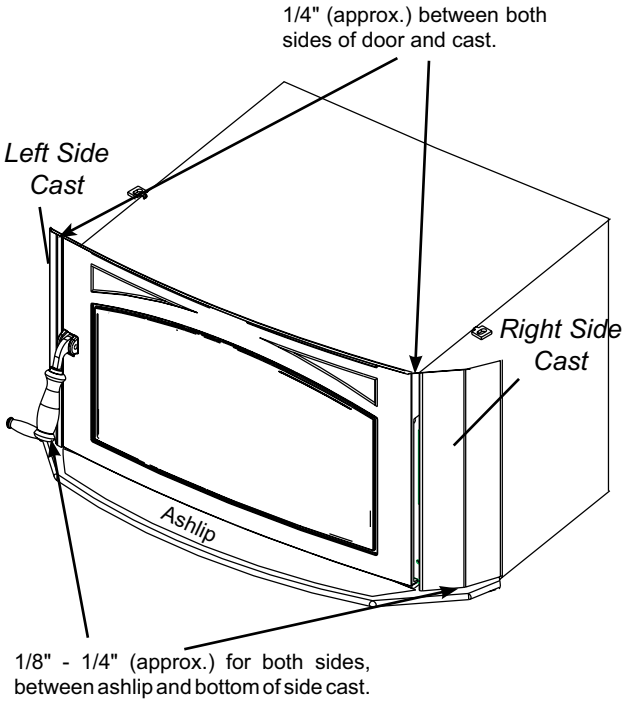
b) Cut the second piece of Insulation in half, then install behind both the Left and Right Sides as shown.

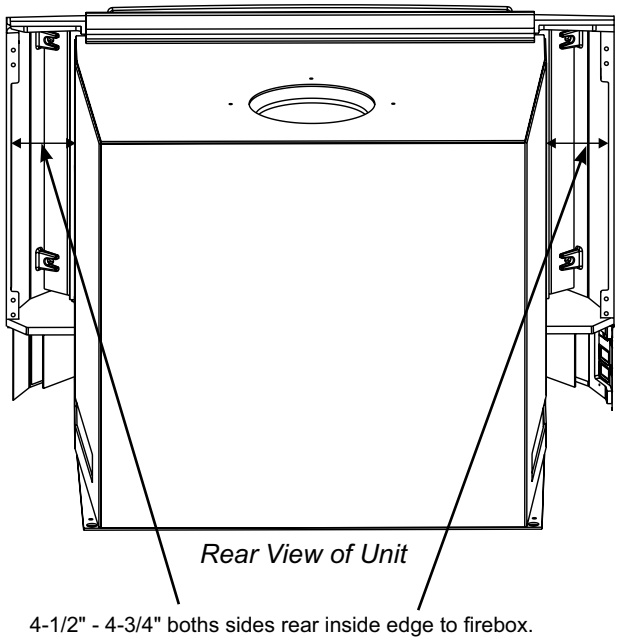


9) The unit may now carefully be slid into final position.

RECOMMENDED MEASUREMENTS FOR SETTING SIDE CASTS

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





Important: Verify gap between cast and door did not change when rear adjustments have been made. Carefully open door slowly, to ensure that the door does not rub against cast sides.

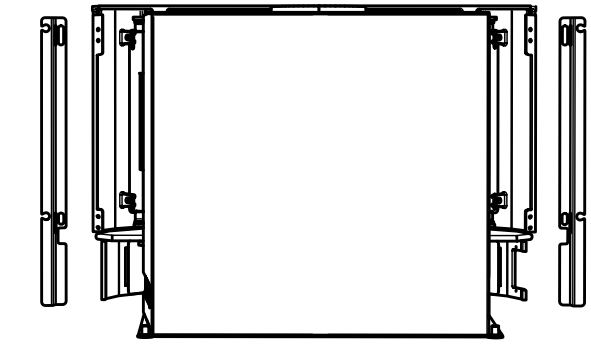
* **These are just recommended measurements.**

Oversize Cast Faceplate Installation

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

FACEPLATE CONTENTS LIST	
Qty	**Description**
1	Left Side Faceplate
1	Right Side Faceplate
1	Top Faceplate
2	Side Mounting Brackets
2	1/4" - 20 x Hex Nuts
2	1/4" - 20 x 1" Hex Head Bolts
2	1/4" Flat Washers
2	47" Insulations
1	8mm gasket

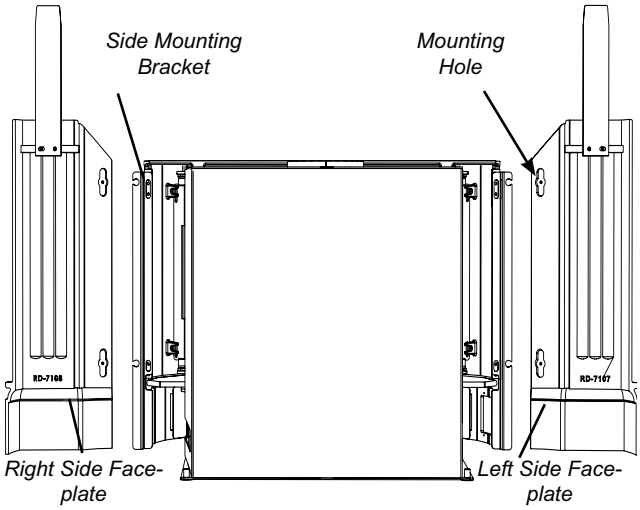
1) Secure the Side Mounting Brackets (packaged with Faceplate) to the left and right side of the firebox using 2 bolts per mounting bracket as shown in the diagram below. Bolts are pre-installed on unit. Leave bolts loose until final adjustment is made.



Side Mounting Bracket

Backside of Unit Shown.

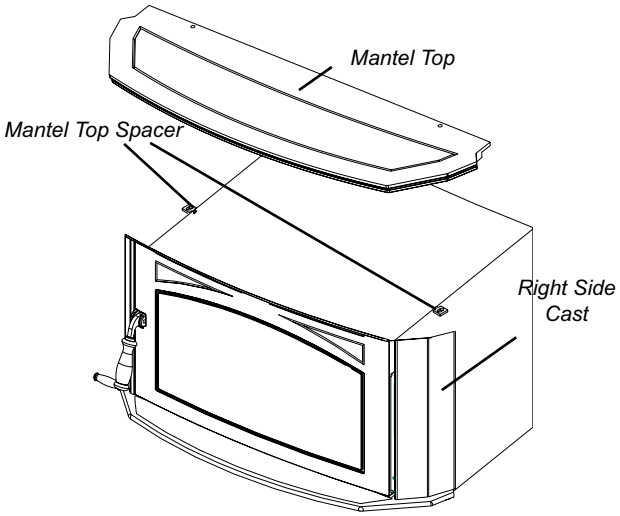
2) Secure the Left and Right Side Faceplate to the firebox by aligning the Mounting Holes with the Side Mounting Brackets taking care to align vertically while each side rests on the hearth. Secure using 2 bolts per bracket.



Backside of Unit & Faceplate Shown.

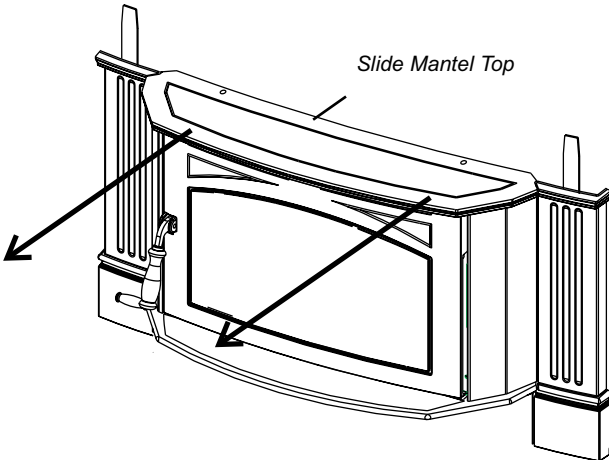
3) Place 1/4" x 1" Hex head bolt with 2 washers in Mantel Top Spacer locations shown below.

4) Place Mantel Top onto the top of the firebox.



With the Mantel Top in place check to make sure there is no gap between the Mantel Top Spacer and the underside cast of the Mantel Top. If there is a gap present you will need to lower that side cast by loosening 2 bolts, see side cast adjustment section for bolt location (check to see if level).

5) Slowly slide the Mantel Top forward until it stops.

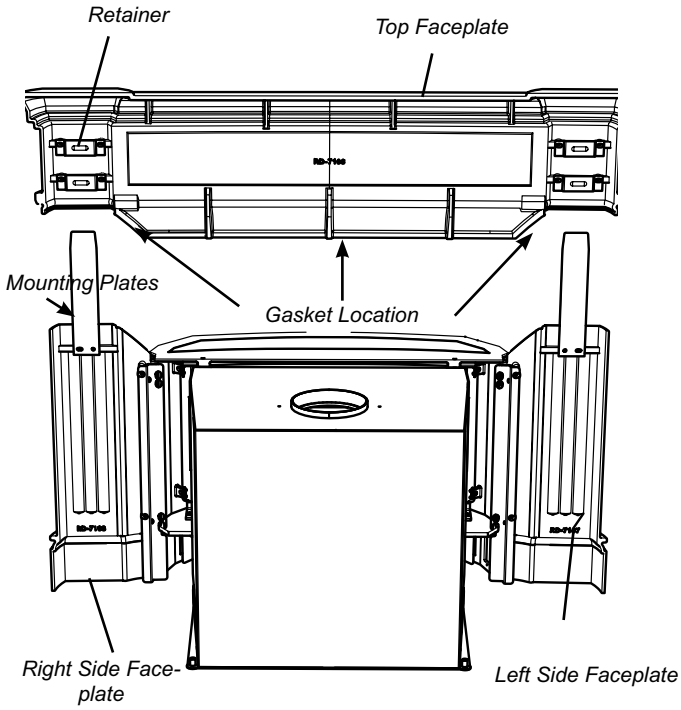


6) Place supplied gasket to bottom edge of top faceplate - continue gasket up each side at a 45° angle.

7) Mount the Top Faceplate by carefully sliding the Mounting Plates on the Left and Right Side Faceplate through the Retainers in the Top Faceplate.

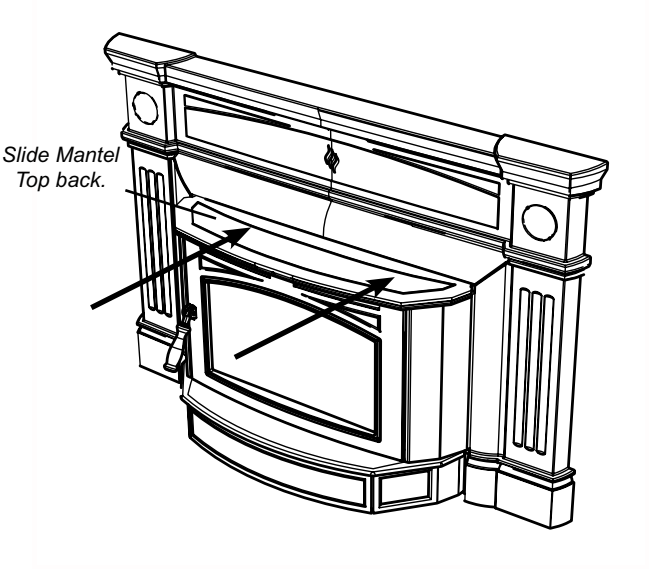
NOTE: Slowly lower the Top Faceplate into position; being careful not to damage the Mantel Top.

NOTE: Installing the top faceplate will require 2 people - it is heavy and awkward to handle.



Backside of Unit & Faceplate Shown.

8) Carefully slide the Mantel Top back into position.

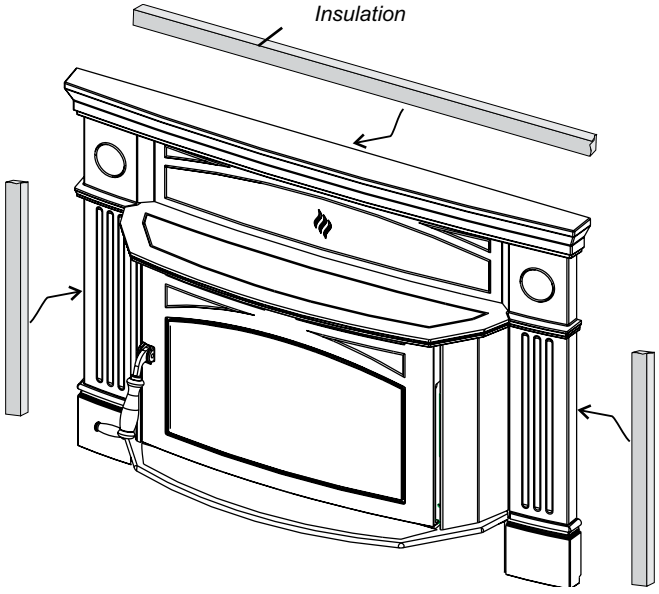


9) Adjust Left Side Faceplate and tighten bolts. Repeat step for Right Side Faceplate.

10) Location of Insulation:

a) Place 1 piece of Insulation behind the Mantel Top.

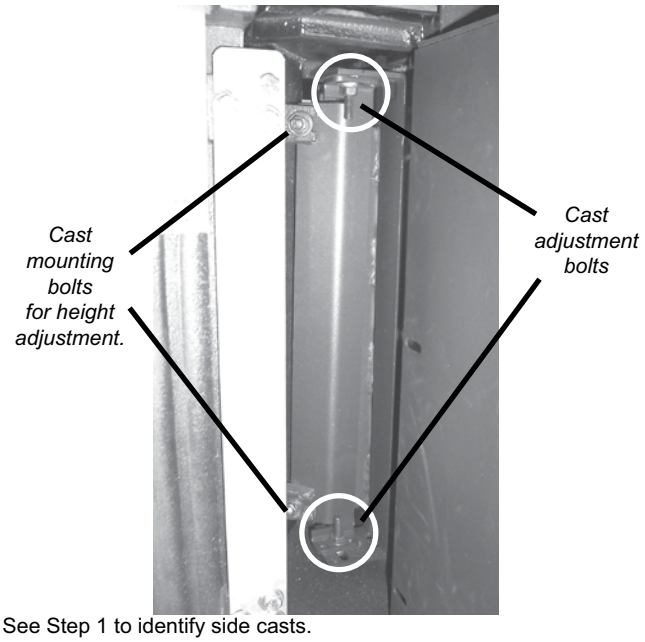
b) Cut the second piece of Insulation in half, then install behind both the Left and Right Sides as shown.



11) The unit may now carefully be slid into final position. See side cast adjustments if faceplate needs aligning.

SIDE CAST ADJUSTMENTS

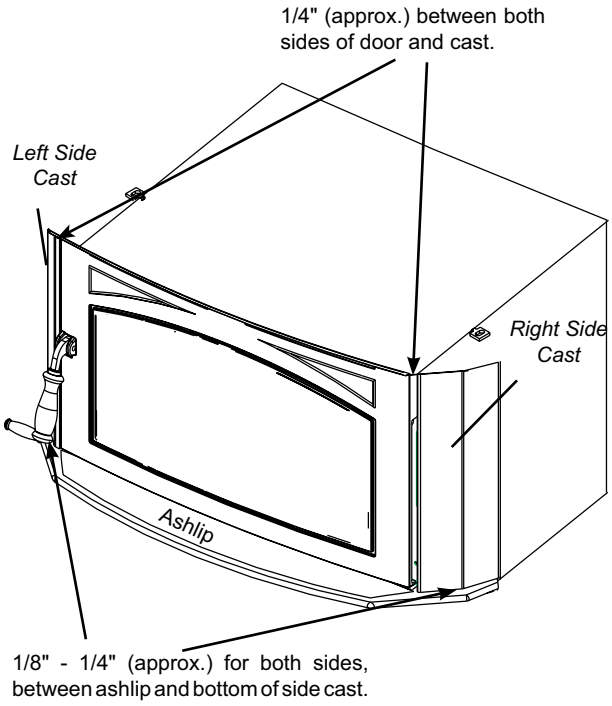
If unable to align side faceplate to unit and top faceplate further adjustments need to be made, **complete one side at a time**. Loosen all bolts on brackets (6 per side). Loosen top and bottom bolts (Shown below).
Adjust left or right side cast plates to allow further adjustment on faceplate. Once aligned, hold side surround in place and tighten all bolts. If side cast height needs adjusting, loosen 2 bolts holding cast bracket and adjust up or down.

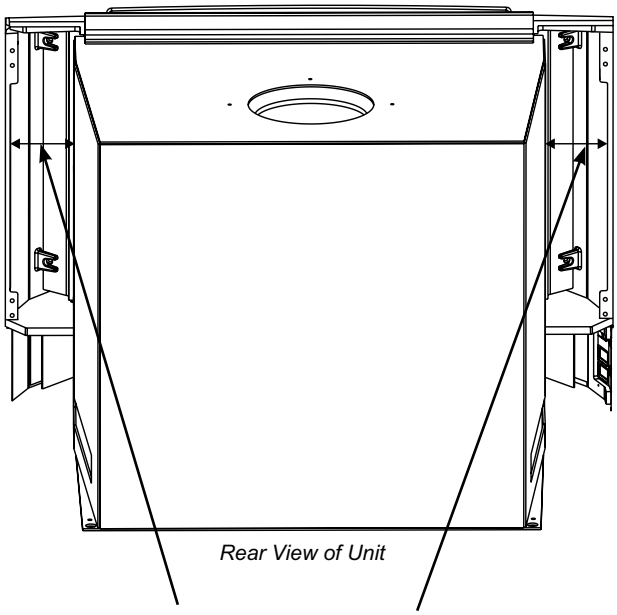


See Step 1 to identify side casts.
See next section for recommended measurements.

RECOMMENDED MEASUREMENTS FOR SETTING SIDE CASTS

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





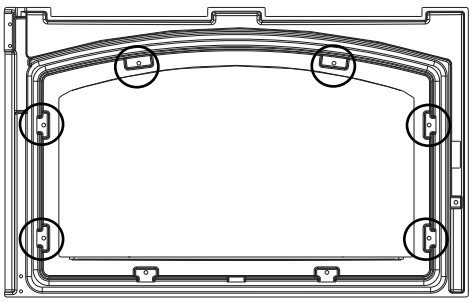
Important: Verify gap between cast and door did not change when rear adjustments have been made.
Carefully open door slowly, to ensure that the door does not rub against cast sides.

* **These are just recommended measurements.**

Cast Grill Installation

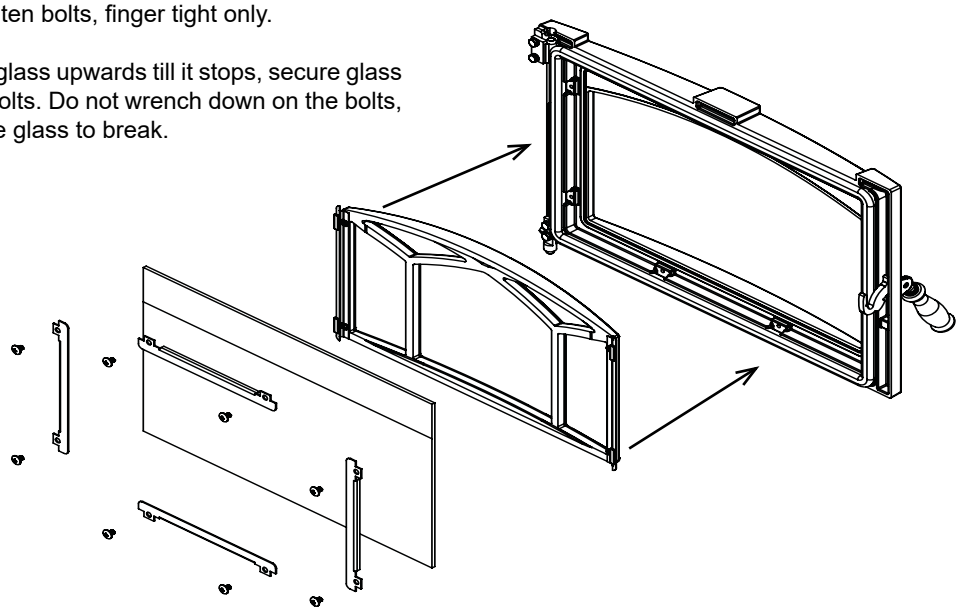
GLASS REMOVAL TO INSTALL OPTIONAL DOOR CAST GRILL

1. To remove the glass, loosen the two 7/16" bottom retainer bolts but do not remove.
2. Remove the sides and top retainer and bolts highlighted in the diagram and carefully remove glass, it will fall towards you at the top.
3. Place the grill in the door, make sure that the glass gasketing on the left and right bracket is facing you.
4. Carefully place the glass (black strip up) into the bottom retainer. Keeping it in place, re-install the sides and top retainer and bolts. Do not tighten bolts, finger tight only.
5. Lift the bottom of the glass upwards till it stops, secure glass retainer using the 8 bolts. Do not wrench down on the bolts, as this may cause the glass to break.



Remove 6 - 7/16" Bolts

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



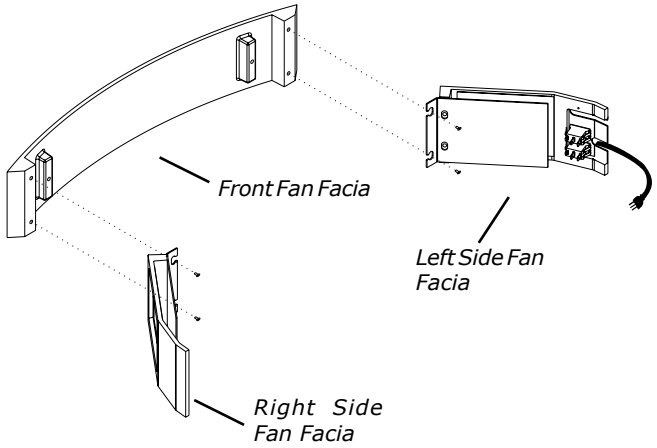
Fan Installation

Installer: Please record unit serial number here before installing blower.

Serial No._____

Your fan should only be installed once the unit is in place in order to prevent any damage to the fan.

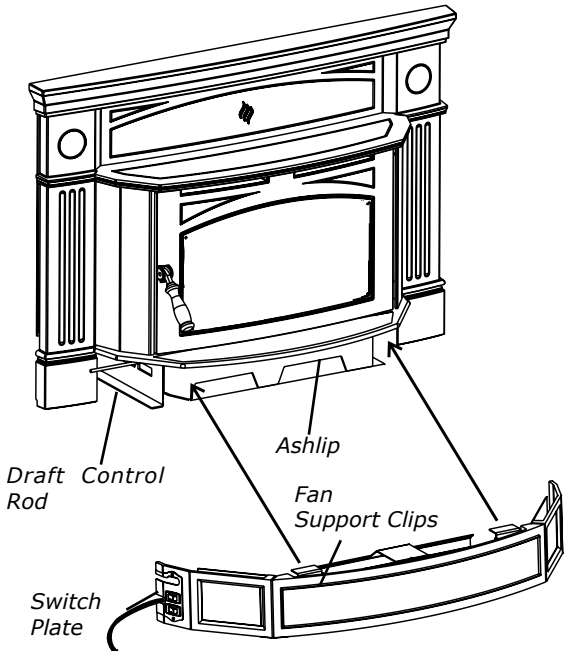
1. Attach the Left and Right Side Fan Facia to the Front Fan Facia by aligning the Side Facia screw slots with the hole locations in the Front Fan Facia and secure using 2 screws per side.



Backside of Fan Facia shown

2. Once the Fan Facia has been assembled carefully slide the Fan into position by centering the Fan below the Ashlip and align the Fan Support Clips with the Offset Clips under the Ashlip.

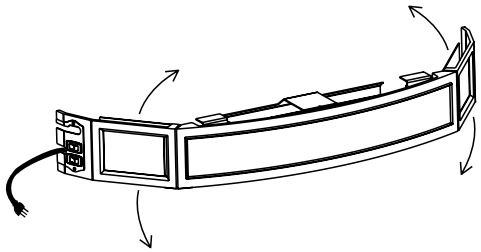
Note: The Draft Control Rod is to fit through the top opening in the Switch Plate.



IMPORTANT

Ensure that the Left and Right Side Fan Facia do not hit the sides of the Faceplate when sliding the Fan into position as the casting may chip.

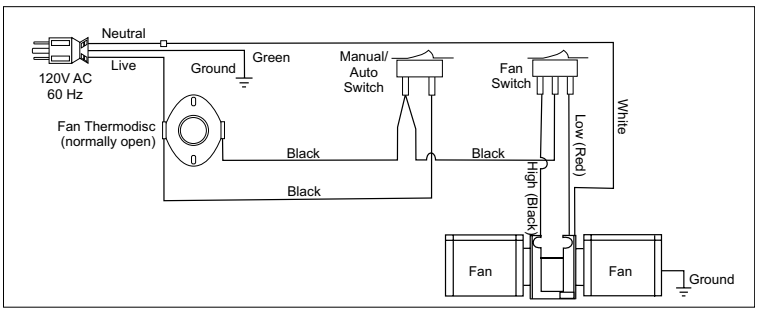
If the spacing between the Side Fan Facia and the Faceplate requires adjustment, the Side Fan Facia's can be slightly pushed in or pulled out to fit accordingly.



3. Ensure the power cord and all other wires will not come into contact with any hot stove surfaces.

DO NOT ROUTE POWER CORD UNDER OR IN FRONT OF UNIT.

Do not turn the fan ON until your insert has reached operating temperature or at least 30 minutes after starting fire.



Blower/Fan Wiring Diagram

Power Outlet Conversion

1) Remove the Phillips screw, located on the top of the fan housing, which attaches the fan deflector to the main fan body.



Fan Housing

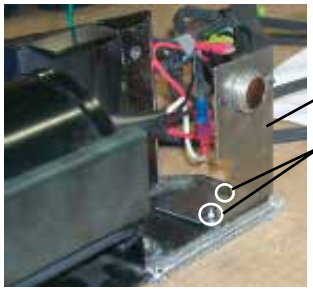
2) Take off the 2 screws from the fan switch plate assembly, and remove it from the left casting face.



Fan Switch Plate Assembly

3) Take off the 2 bolts, nuts, and washers from the thermodisc assembly, and remove it from the main fan body. Retain the screws for reattachment on the other side.

4) Remove the green ground wire from the left side of



Thermodisc Assembly

bolts

the fan motor, by detaching the phillips screw. Keep the screw to reattach the green ground wire on the other side.



5) Raising the fan deflector, pull the wire harness, switch plate, ground wire and thermodisc assembly from the left side and relocate to the right side of the main fan housing. See step 10 for Thermodisc Assembly installation.

Important Note:
The wire harness may be tight between the fan motor and main body but will move over and down to the base with a little flexing of the fan motor. Ensure the wire harness rests on the base when pulled over.

6) Remove the 2x 7/16" bolts from the right casting. Discard the existing casting plate and attach the new casting plate with the switch plate assembly.

7) Remove the top black screw from the leg on the right side of the fan motor, and attach the screw to the leg on the left side.



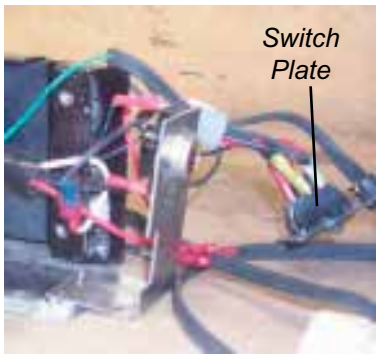
Existing Casting Plate

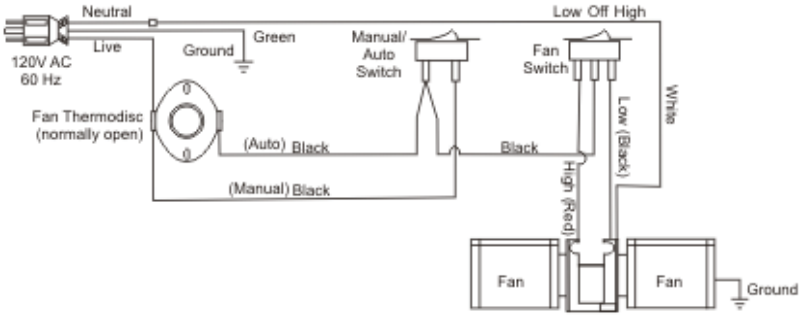


Right Side Leg

8) Attach the green ground wire with the #8 x 3/8" Pan Head Phillips steel self tapping screw, previously removed from the left side.

9) Remove the wires ***one at a time*** from the existing switch plate, and attach each wire to the new switch plate, each wire in the same position as it was on the old switch plate (see wiring diagram). Discard the old switch plate.





10) Attach the thermodisc assembly to the mounting holes located on the right side of the base of the main fan body using the existing hardware - 2 bolts, nuts and washers.

Important Note:
On older fan units these holes may require drilling. Use template provided to drill holes. Place template by aligning to the right corner of the thermodisc assembly base. See Diagram 1.



Thermodisc Assembly

Template (If required)

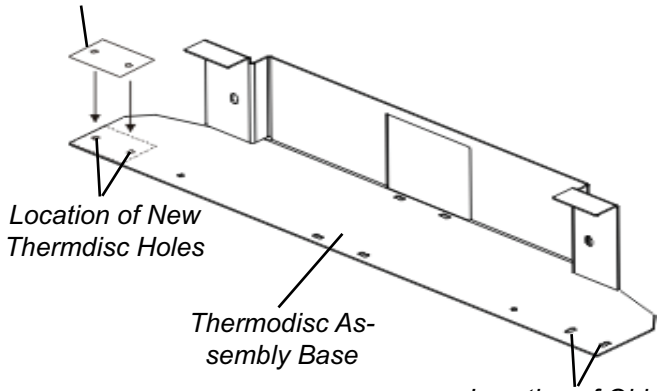
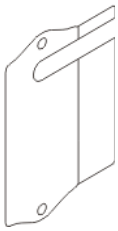


Diagram 1

11) Attach the new cover plate to the left side casting using 2x #6 32x3/8" Pan Head Phillips black screws.





Left Cover Plate

12) Attach the fan deflector to the main fan body by replacing the Phillips screw on the top of the fan housing.

Flue Collar Removal and Installation

List of Tools required:
- Pull rod (supplied with unit)
- 1/2" socket / ratchet
- 3/8" open face wrench
- 7/16" socket / ratchet

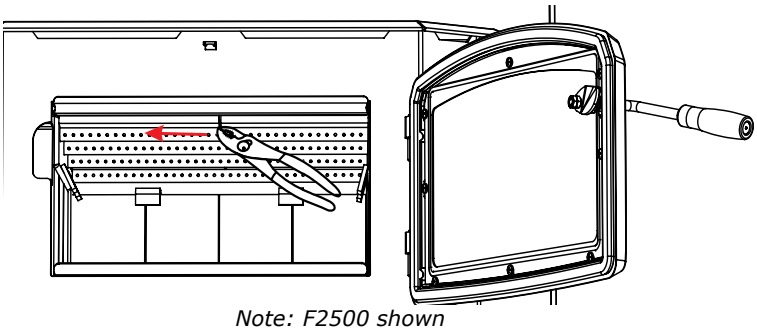
NOTE: The removable flue collar is attached to the unit. If you need to remove the collar for ease of installation, please follow the below steps.

Note: unit in images may not be identical to the Hi2450-2, but they depict the process.

SAFETY NOTE: The insert is very heavy and will require two people to move it into position. The door and bricks can be removed to help. Be sure to protect your hearth extension with a heavy blanket or cardboard during the installation.

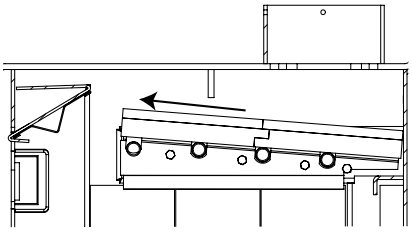
1. Allow the stove to burn out and cool down.

2. Remove stainless steel smoke deflector - See instructions in this manual.



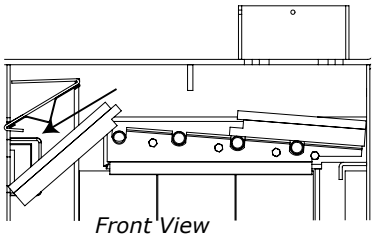
Note: F2500 shown

3. Remove baffles - push the baffles together and away from the side walls.



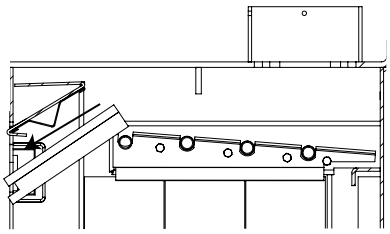
Front View

4. Lift the left baffle out from underneath the right baffle - then lift out. Remove the right baffle.



Front View

5. Manoeuver the baffle above the air tube and slide out.



Side View

6. Take a ½" ratchet and remove the two bolts at back inside of the firebox. These bolts are used to secure the flue collar. Keep these and washers for reinstall.



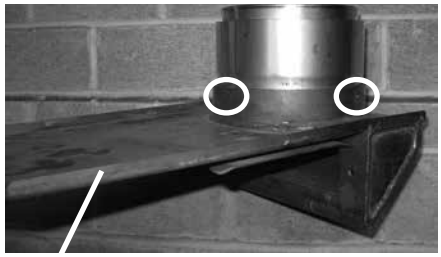
7. Slide collar off the unit.

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



Diagram 1 *Flex Liner*

9. Secure the adaptor to the flex liner with three screws. Ensure the adapter is level and aligned correctly. See Diagram 2.



Flue Adaptor *Diagram 2*

10. 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

11. Slide the unit back until the flue adaptor is slightly engaged. At this point it is recommended to level the unit. This will keep the adaptor from binding.
12. 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. Double check the adaptor is seated properly and the pull rod in the firebox, locate the two holes lined up to the two holes on the adaptor.

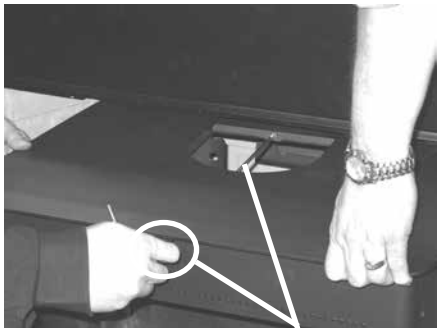
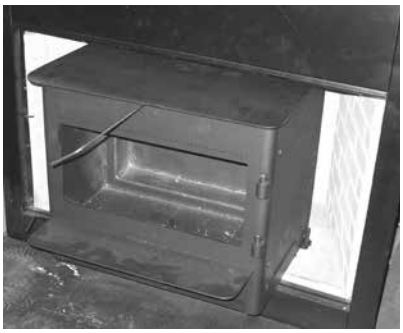


Diagram 4



Pull Rod in place

Diagram 5

13. Use the two bolts, washers and lock washers (supplied in manual pack) and install them, tighten down using the 1/2" socket to ensure the adapter is positively secured to the unit. Once completed remove pull rod and place away for future reinstall.

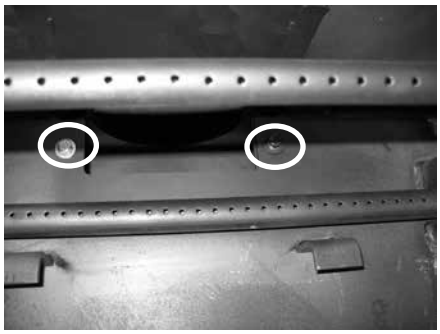


Diagram 6

14. Reverse steps 6-3 to complete the installation.

Floor Protection

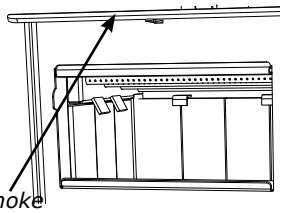
Please check to ensure that your floor protection and hearth will meet the standards for clearance to combustibles. Your hearth extension must be made from a non-combustible material.

Flue Baffle & Secondary Air Tube Installation

The flue baffle system located in the upper area of the firebox is removable to make cleaning your chimney system easier. The baffles must be installed prior to your first fire. **Smoke spillage and draft problems may occur if the baffles are improperly positioned.** Check the position of the baffles on a regular basis as they can be dislodged if too much fuel is forced into the firebox.

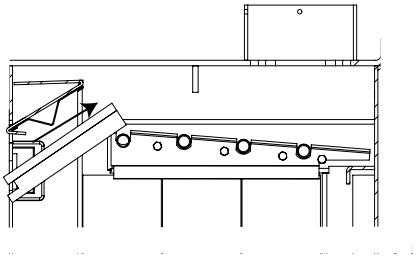
The unit arrives with the 2 baffles and 2 air tubes on the floor of the firebox.

1. Open the door and remove stainless steel smoke deflector - See smoke deflector instructions in this manual.



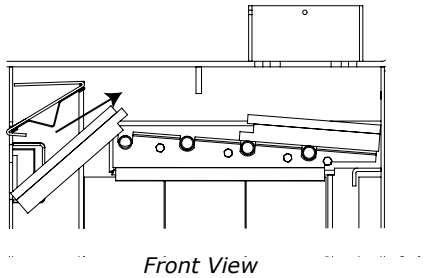
Smoke Deflector

2. Slide the left baffle over the 2 remaining air tubes from the front and then push it to the back.



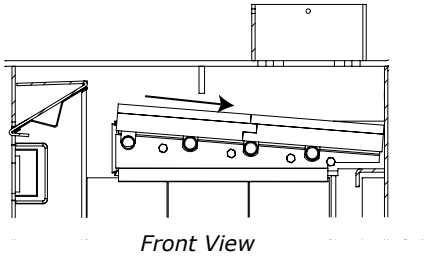
Side View

3. Tilt the left baffle up on top of the side channel and it will leave enough room to position the right baffle in the same manner as Step 1) above. Then reposition the left baffle flat on the air tubes.



Front View

Important: push both baffles so they are tight against the side walls.

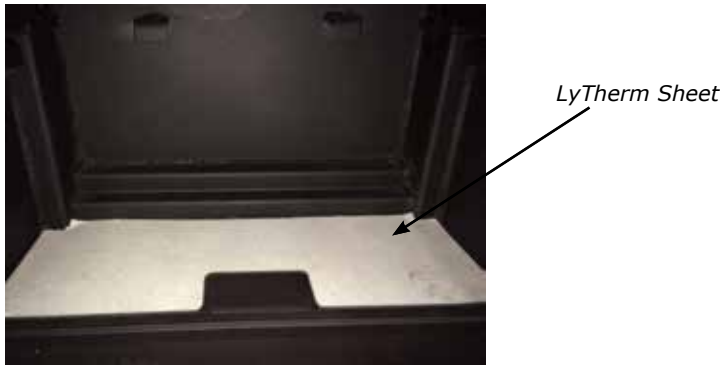


Front View

4. Reverse Step 1.

Brick Installation

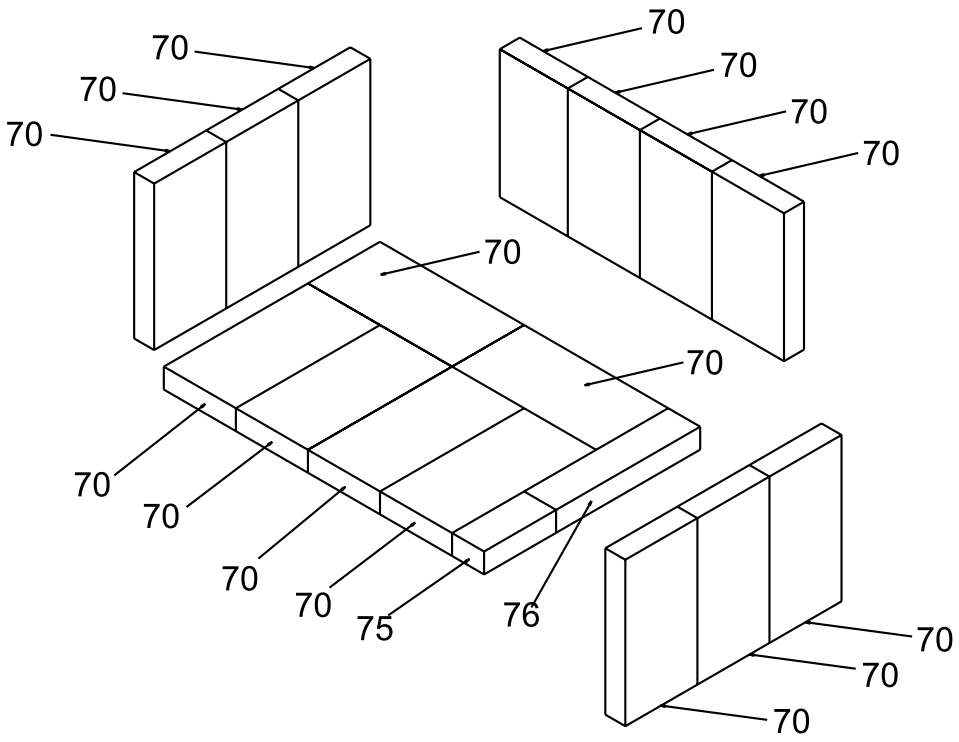
Firebrick is included to extend the life of your stove and radiate heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping. Install all firebricks (if bricks were removed at install) per the diagram below and place in their correct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

	180-960	Firebrick - Complete Set
70)	902-111	Brick Regular Full Size: 1-1/4" x 4-1/2" x 9"
75)	*	Brick Partial: 1-1/4 x 4-1/2" x 2"
76)	*	Brick Partial: 1-1/4" x 2" x 9"



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

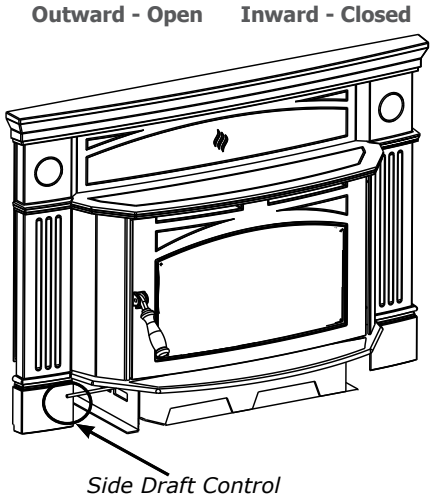
With your unit now correctly installed and safety inspected by your local authority, you are now ready to start a fire. Before establishing your first fire, it is important that you fully understand the operation of your draft control.

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

Both the primary and air wash drafts are controlled by the control slide located on the front left side of the unit. To increase your draft - slide to the left to open, and to decrease - slide to the right to close. The Hi2450-2 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 and may damage the unit. Inadequate draft may cause back puffing into the room and plugging of the chimney.



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 BETWEEN 19% AND 25% MOISTURE CONTENT.

START UP AND OPERATING PROCEDURES:

1. For the first few days, the wood stove 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 stove 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 stove at its maximum setting, and only after the metal has been warmed.
2. Do not place anything on the wood stove top during the curing process. This may result in damage to your paint finish.
3. When starting the fire, ensure the air control is in the fully open position (far left). To start a good and clean fire you will need to prepare one load of start-up fuel weighing approximately 15 – 16 lb. in total using only dry seasoned cord wood with less than 20% moisture content. The load consists of 2 – 2.5 lb. kindling ½" to 1" diameter, 4 pieces 16" long 2.5" – 3" diameter and and 5 – 7 pieces 2.5" – 3" diameter 12" long.
4. Load 2 pieces 16" long on the bottom centre of the firebox, spaced 8" – 10" in a North South (front to back) orientation. Add few pieces of crumpled paper and the kindling in between these 2 pieces. On top, load the 12" long pieces east west (side to side) orientation from the back of the firebox to the front, spaced 1" – 2". Load the 2 remaining 16" long pieces on top in a North South (front to back) orientation spaced 8" – 10".
5. Ensure primary air control is fully open to the left facing the unit and then light the paper and the kindling. Adjust the door opening to establish fire and for less smoke roll out. Keep the door in this position for 5 – 6 minutes until the secondary tubes start flashing and then close the door. (Leaving the door slightly open will help your fire start more rapidly.)
6. Burn on high setting (primary air control fully open to the left) for approx. 1h. Once most of the wood has burned down but there are still good flames, level evenly the coals. Now you can reload the stove.

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

7. The next step is to create a pre-burn load. This step is necessary to bring the stove temperature to an equilibrium and to create a hot coal bed for the main load of wood. The size and the loading pattern is the same as for the startup load above.
   After loading keep the door slightly open for 3 – 4 minutes, until the fire is well established, then close the door.
   Burn on high air setting (primary air control fully open to the left) for approximately 30 minutes then reduce the primary air setting to your desired burn category. Now turn the fan on low for low and medium low setting and on high for medium high and high air settings.
   For a high burn leave the air fully open and turn the fan on high.
   Once a nice coal bed is established and there are still good-sized flames, the main load of larger logs can be loaded into the firebox. Rake and level the coals to create a uniform charcoal bed.
   Open the primary air fully and turn off the fan. Now the main load of larger logs can be loaded. Load 6 pieces (maximum) of 16.75 - 17" long logs, 3"-4" diameter front to back in a North South orientation. Once loaded, keep the door open for 3 to 4 minutes, until strong flames are established. Turn on high setting (primary air control fully open to the left) for 5 to 10 minutes then adjust the air control to your desired setting. For a high /medium high air setting the fan can be turned on high at 15 minutes. For a low/medium low air setting the fan can be turned on low at 30 minutes.
   High Fire: Air control to far left.
   Low Fire: Air control to far right.
   Med Low Fire: Air control slightly left of low fire setting.
   Med High Fire: Approx. 1" from low air setting.
   For low and medium fire, adjust the air gradually from high to the desired position.

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

   From the start up of a cold stove, a medium to high firing rate must be maintained for 30 min. This ensures that the stove, and fuel are all stabilized at proper operating temperatures. Even though it is possible to have high temperatures within minutes after a fire has been started, if the fire is allowed to die down immediately it may go out. During re-fueling and rekindling of the cool fire, or a fire that has burned down to the charcoal phase, operate the stove at a medium to high firing rate for about 15 - 30 minutes to ensure to reach operating temperatures.
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 or into 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 Stove 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. If you have been burning your stove on a low draft, use caution when opening the door. Open the door a crack, and allow the fire to adjust before fully opening the door.
14. The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
15. 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 stove hot enough to keep your glass clean and you won't need to clean your flue as often.

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

    NOTE: Always stir the coal approximately half way through a burn cycle to ensure proper charcoaling.

    CAUTION: Do not build the fire too close to the glass, unless/otherwise specified.

How to Light and Maintain a Wood Stove Fire

Fan Operation

Automatic
To operate the fan - ensure switch is in AUTO mode.

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 and plug into suitable 3 prong grounded plug.

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.

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.
16. Do not store any fuel closer than 2 feet from your unit. Do not place wood, paper, furniture, drapes or other combustibles near the appliance.
17. **CAUTION**: Do not operate with broken glazing.

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

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 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 is 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, use a 7/8" gasket rope (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 #940-370/P) 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.



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

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

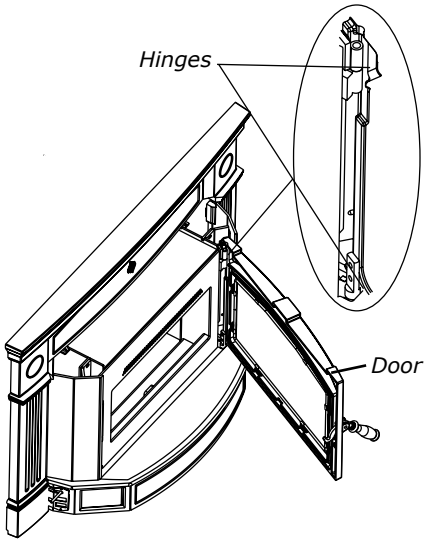
When handling enamel parts, please handle with care as they can be damaged.

1) Remove the Top Faceplate by lifting straight up from the sides.

2) Lift off Mantel Top.

3) Open the Door and lift up off its hinges.

Please be careful when removing the Door and not to 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) Open door.

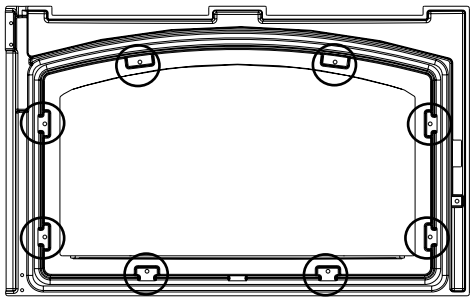
2) To replace the glass remove the 8 screws highlighted in the diagram below.

3) Lift off the 4 glass retainers and carefully remove glass.

4) Place new glass in the door, make sure that the glass gasketing will properly seal your unit.

5) Position the glass retainer back on. Ensure that it rests on the gasket and not the glass.

6) Secure glass retainer using the 8 screws. Do not wrench down on the glass as this may cause the glass to break.



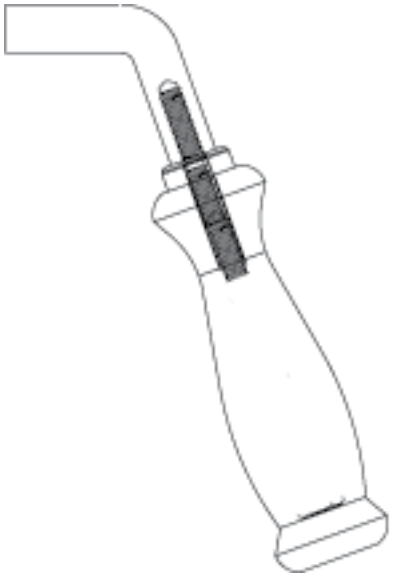
Remove 8 screws

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

Handle Replacement

1) Remove handle by unscrewing it from the latch.

2) Fit new door handle over latch and screw it in to place.



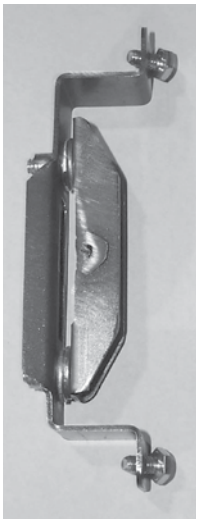
Cleaning & Maintaining Your Wood Stove

Latch Adjustment

The door latch 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.

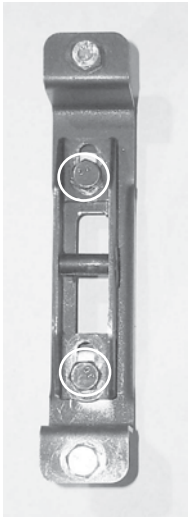
1) Remove the Latch Assembly from the unit by undoing the outer 2 bolts.

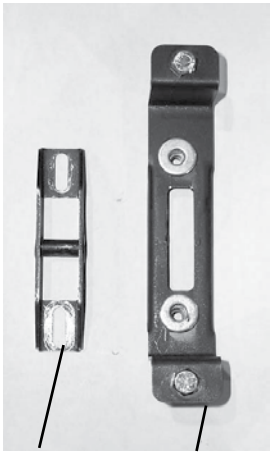




Latch Assembly removed from unit.

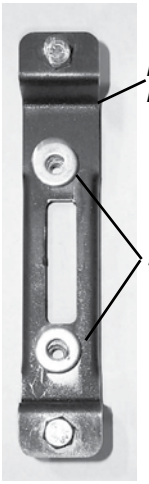
2) Remove the Latch from the Mounting Bracket by undoing the inner 2 bolts.





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.



Latch Assembly reassembled with spacers removed.

5) Re-secure the Latch Assembly to the unit using 2 bolts.

Cleaning & Maintaining Your Wood Stove

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:

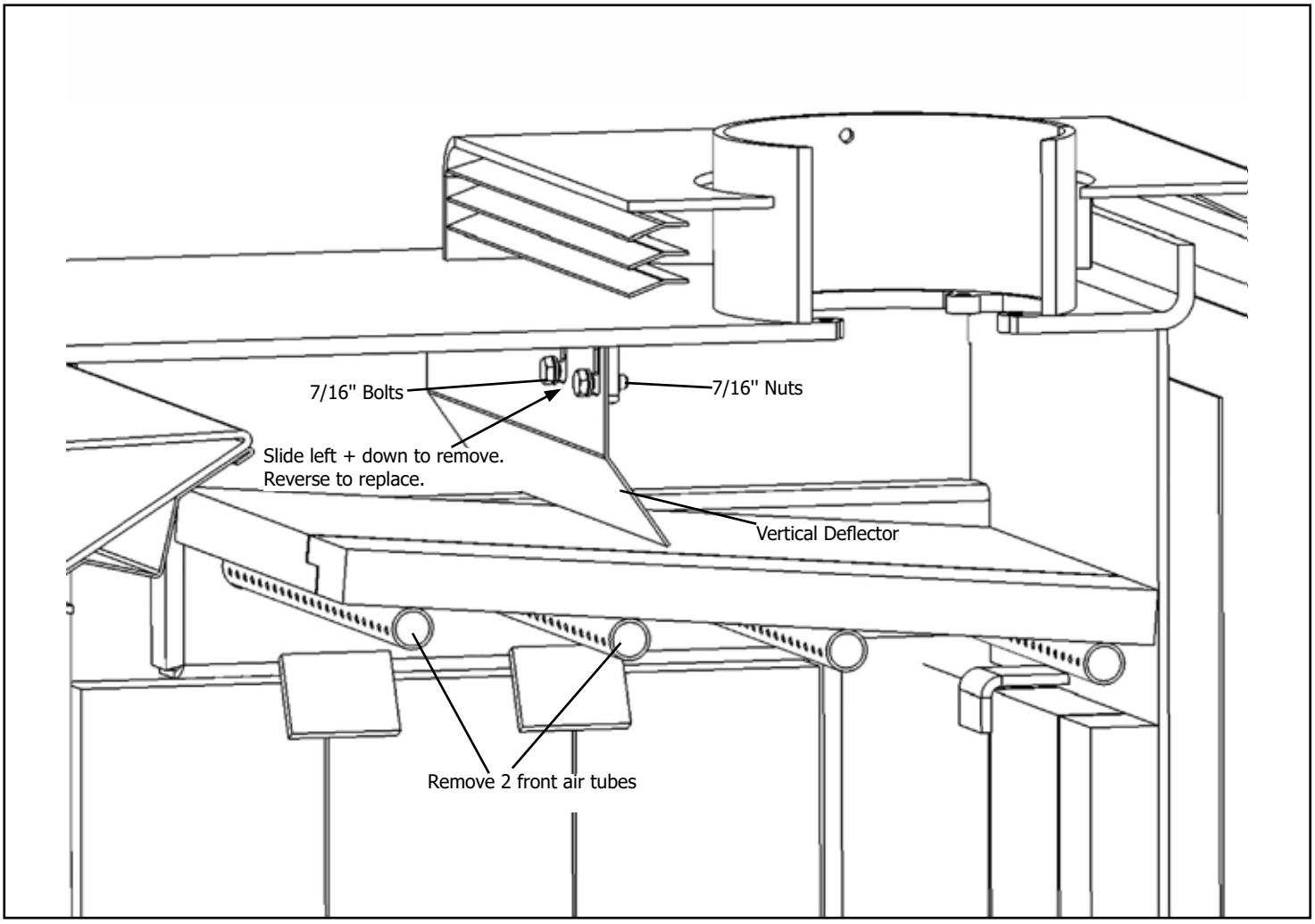
Chimney Cleaning

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.

Vertical Stainless Deflector Replacement



1. Remove 2 front secondary air tubes / vermiculite baffles as per page 24.
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.

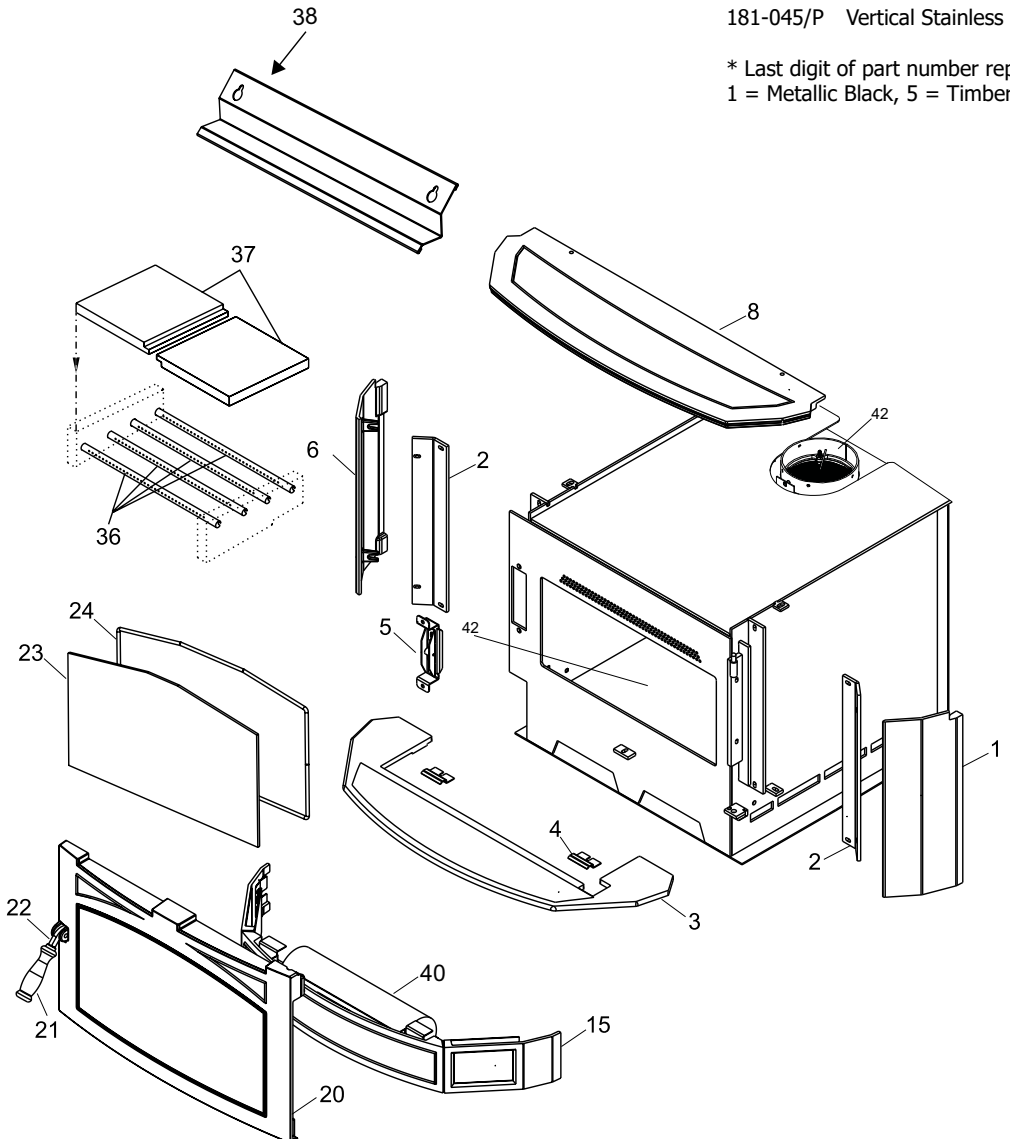
Main Assembly

	Part #	Description
1)	942-681*	Right Side Cast
	846-686	8 mm Soft Fibre Black Gasket Tape (8') (936-238)
2)	300-021	Flange Adaptor
3)	942-691*	Ashlip
4)	300-006	Fan Clip
6)	942-671*	Left Side Cast
	846-686	8 mm Soft Fibre Black Gasket Tape (8') (936-238)
8)	942-661*	Mantel Top
15)	300-911*	Fan Assembly
20)	300-571*	Door Assembly
21)	948-179	Wooden Handle Black
22)	300-551	Door Latch
23)	940-370/P	Door Glass
	846-570	Door Gasket Kit
24)		Glass Retainer
	846-686	8 mm Soft Fibre Black Gasket Tape (8') (936-238)
36)	033-953	Air Tube 3/4" (Qty:4)
37)	020-957	Baffle (2/set)
38)	181-019	Smoke Deflector
40)	910-157/P	Fan Motor Only
41)	021-022	Firebox Floor Gasket
42)	181-632/P	Flue Adaptor

Not Shown in the drawing:

300-981*	Cast Grill
181-039	Wood Damper Handle
910-142	Fan Thermodisc
910-138	2 Way Switch
910-140	3 Way Switch
948-220	Hampton Logo Plate
910-678	120 Volt Power Cord
300-513	Upper Door Hinge Assembly
948-155	Bottom Door Hinge Pin
181-045/P	Vertical Stainless Deflector

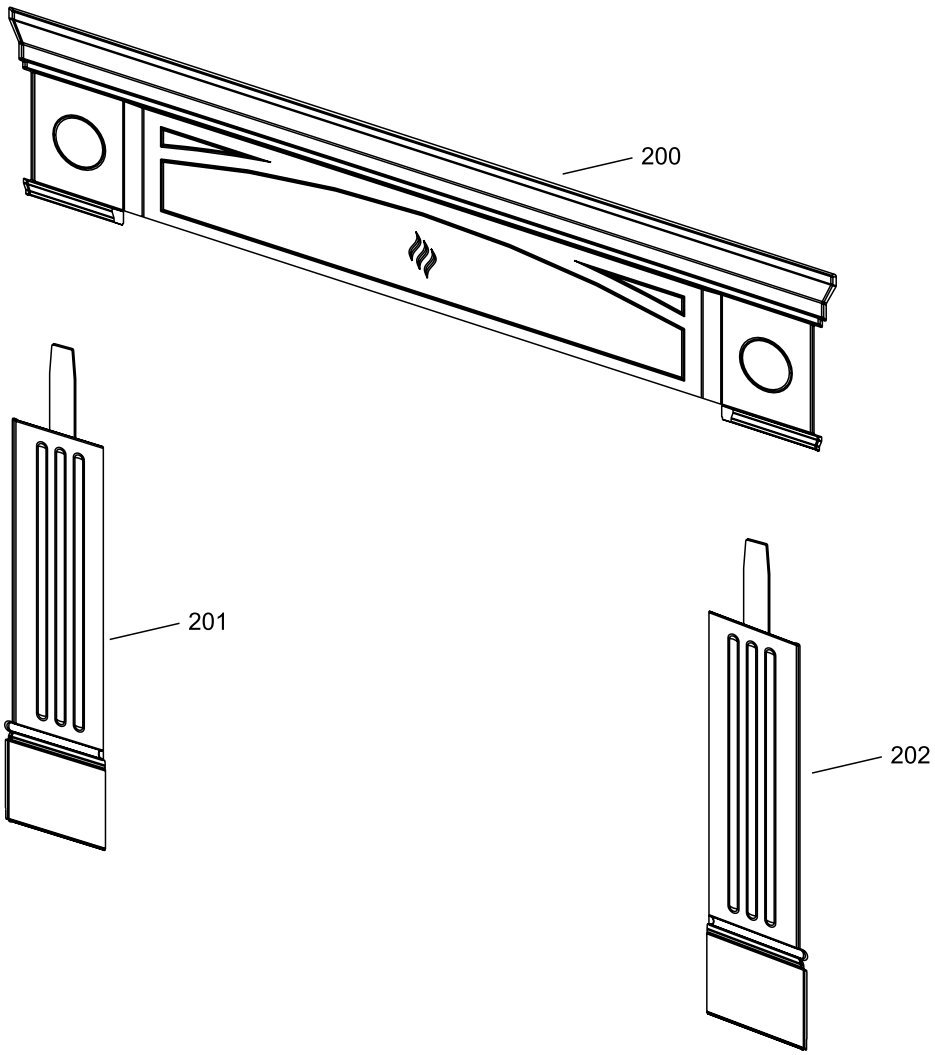
* Last digit of part number represents color:
1 = Metallic Black, 5 = Timberline Brown,



Standard Cast Faceplate

Part #	Description
300-921	Cast Faceplate - Metallic Black
300-925	Cast Faceplate - Timberline Brown
200) *	Top Faceplate
201) *	Left Side Faceplate
202) *	Right Side Faceplate

* Not available as a replacement part.



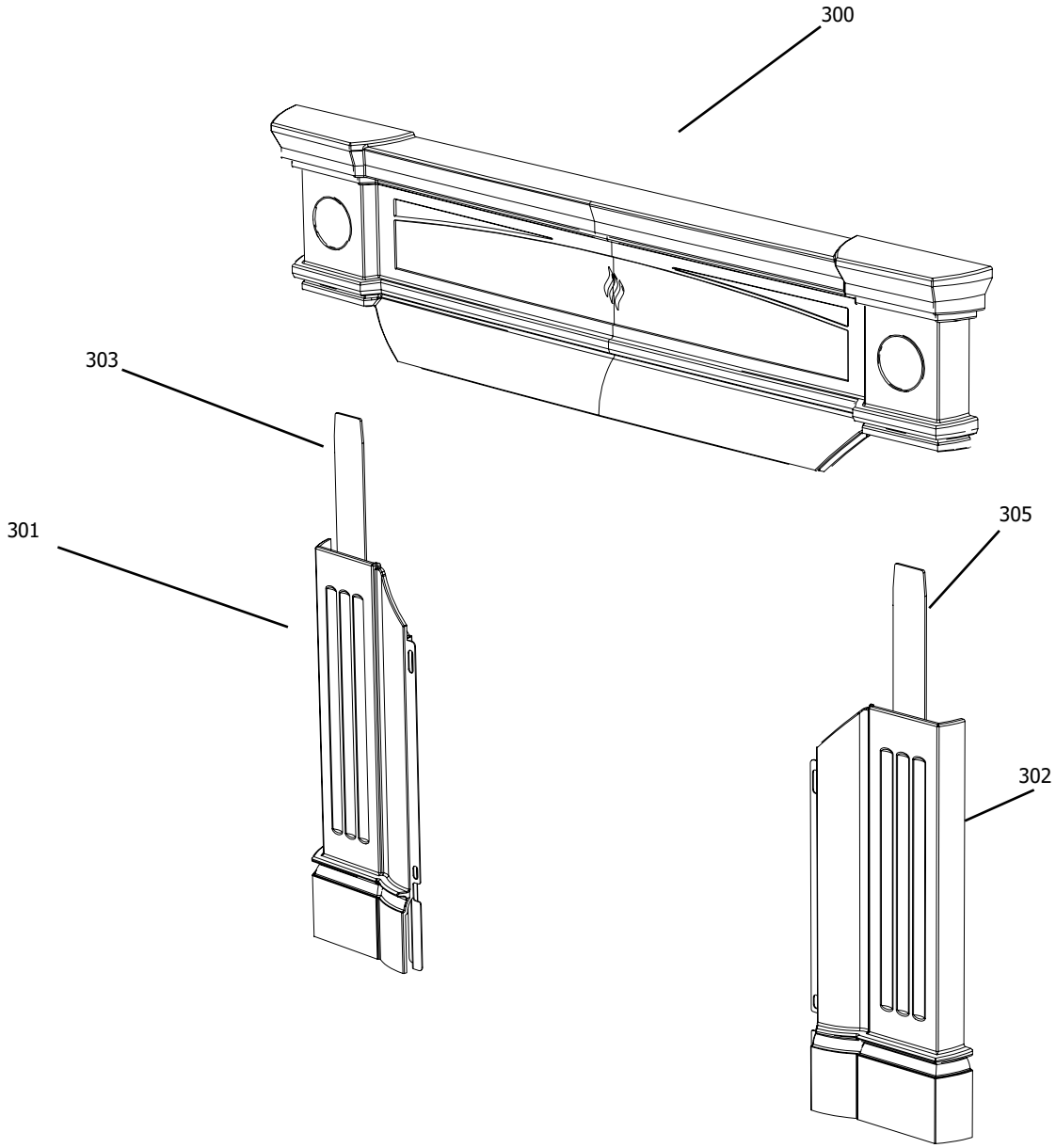
Oversize Cast Faceplate

	Part #	Description
	300-971	Oversize Cast Faceplate - Metallic Black
	300-975	Cast Faceplate - Timberline Brown
300)	*	Top Faceplate
301)	*	Left Side Faceplate
302)	*	Right Side Faceplate
303)	300-060	Mounting Plate LH
305)	300-061	Mounting Plate RH

Not Shown in the Drawing

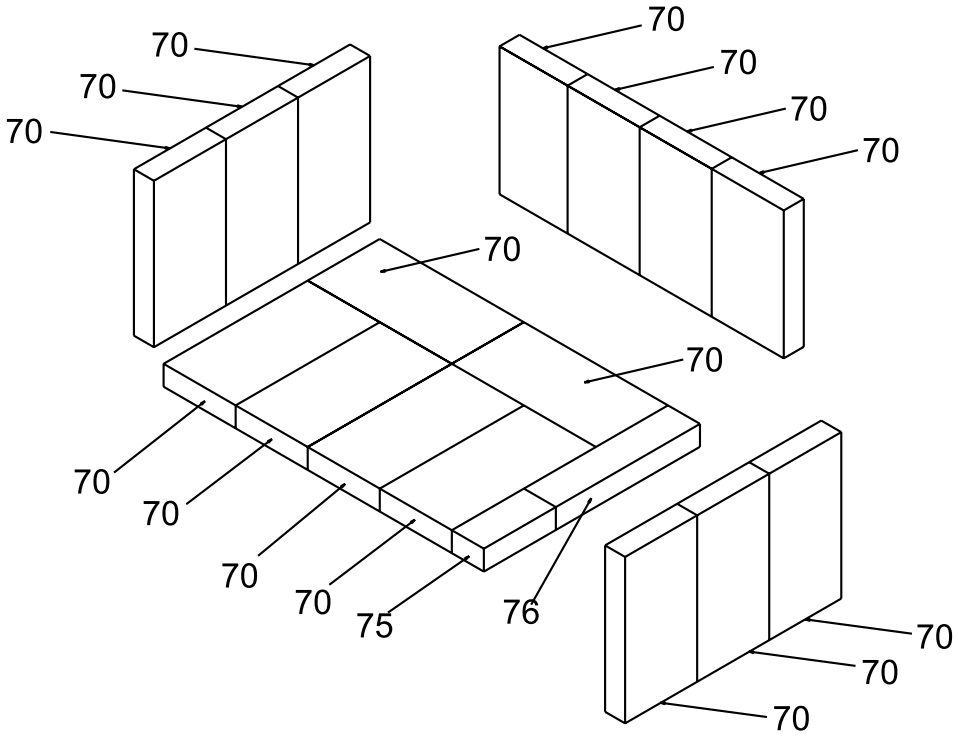
300-005	Top Retainer

* Not available as a replacement part.



Brick Panels - Hi2450-2

	Part #	Description
	180-960	Firebrick - Complete Set
70)	902-111	Brick Regular Full Size: 1-1/4" x 4-1/2" x 9"
75)	*	Brick Partial: 1-1/4 x 4-1/2" x 2"
76)	*	Brick Partial: 1-1/4" x 2" x 9"



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 - 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, andiron 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.

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

REGENCY FIREPLACE PRODUCTS

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.

recycling

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 #: _____

Regency and Classic are trademarks of FPI Fireplace Products International Ltd.
© Copyright 2024, FPI Fireplace Products International Ltd. All rights reserved.

Printed in Canada

REGENCY
FIREPLACE PRODUCTS

Classic™ i2450-2 Wood Fireplace Insert

Owners & Installation Manual



MODEL: i2450-2

Tested & listed by:
0219WN026S

***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 cord wood." Tested & listed to ASTM E3053. Model Regency i2450-2 1.6 g /hr.

"This manual describes the installation and operation of the Regency i2450-2 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 12,900 Btu/hr to 30,000 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. "

It is against federal regulation to operate this wood heater in a manner inconsistent with operating instructions in this manual, or if elements are deactivated or removed."

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

"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 ling 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.his 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 buildingr fire official as about restrictions and installation requirements in your area.

i2450-2 is certified to CAN/ULC 628:2022 and UL 1482-2022.

SAVE THESE INSTRUCTIONS

NATIONAL FIREPLACE INSTITUTE NFI CERTIFIED www.nficertified.org
We recommend that our products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) or in Canada by Wood Energy Technical Training (WETT).
Wood Energy Technical Training

WARNING: Cancer and Reproductive Harm
www.P65Warnings.ca.gov
919-874

safety label

Safety Label For i2450-2 4

unit dimensions

Unit Dimensions 5

installation

Masonry Fireplace Clearances 6
Installation into a Masonry Fireplace 7
Before Installing Your Insert 7
Chimney Specifications 7
Optional Flue Connector Kit 7
Installing Your Insert 9
Stainless Steel Smoke Deflector Installation 10
Faceplate and Trim Installation 11
Flue Collar Removal and Installation 12
Fan Installation 14
Floor Protection 15
Flue Baffle &Secondary Air Tube Installation 15
Glass Replacement 15
Wood Door & Handle Assembly 16
Brick Installation 17
Seasoned Wood 18

operating instructions

Operating Instructions 19
Draft Control 19
First Fire 19
Fan Operation 20
Ash Disposal 20
Safety Guidelines and Warnings 20

maintenance

Maintenance 21
Creosote 21
Door Gasket 21
Glass Maintenance 21
Wood Storage 21
Latch Adjustment 21
Removing Wooden Handle 21
Do Not Burn 22
Vertical Stainless Deflector Replacement 23
Annual Maintenance 24

parts list

Main Assembly & Options - i2450-2 25
Faceplates - i2450-2 26
Brick Panels - i2450-2 27

warranty

Warranty 28

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.

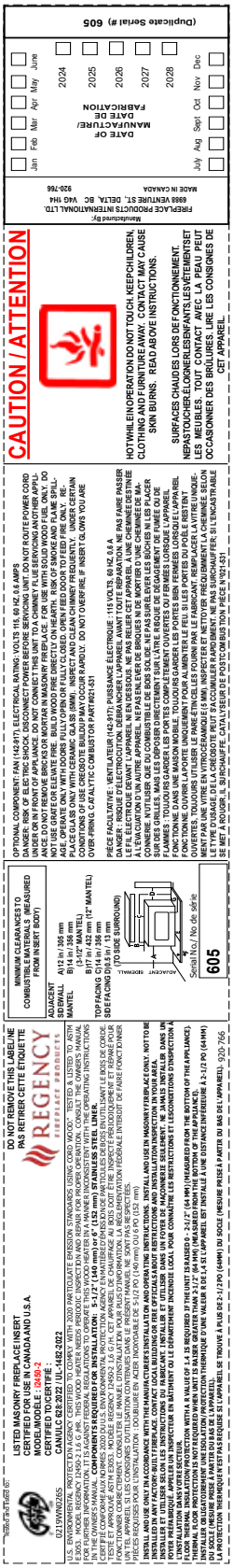
ALL PICTURES / DIAGRAMS SHOWN THROUGHOUT THIS MANUAL ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL PRODUCT MAY VARY DUE TO PRODUCT ENHANCEMENTS.

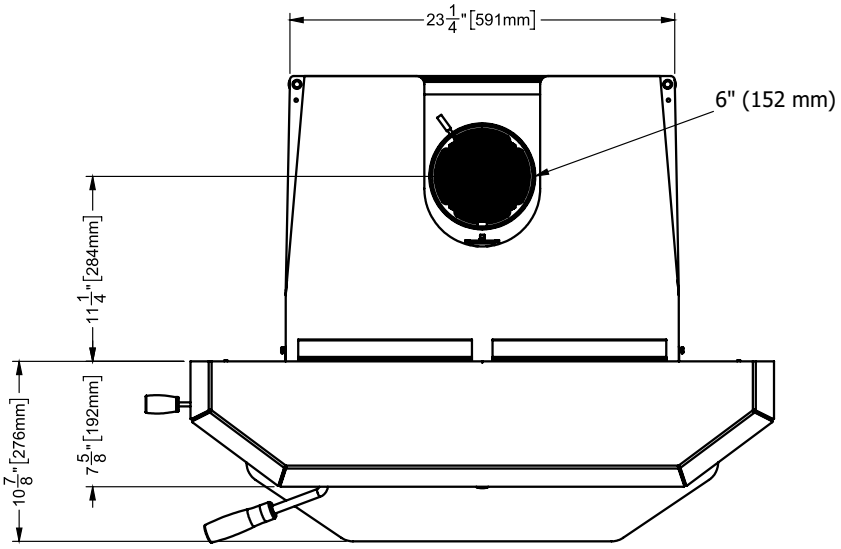
Safety Label for i2450-2

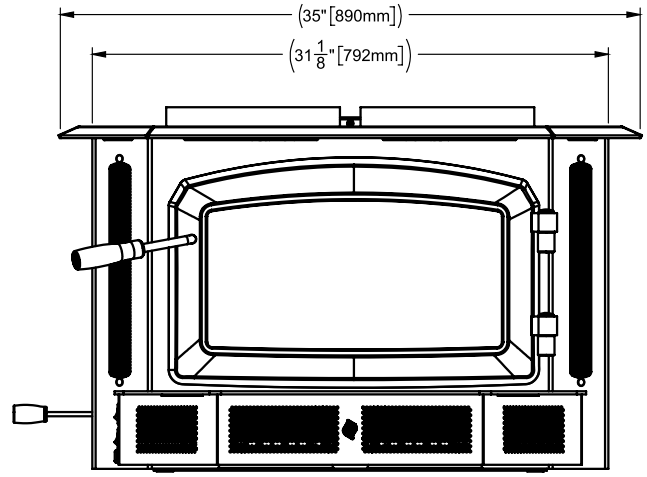
This is a copy of the label that accompanies your **Regency Insert**. We have printed a copy of the contents here for your review.

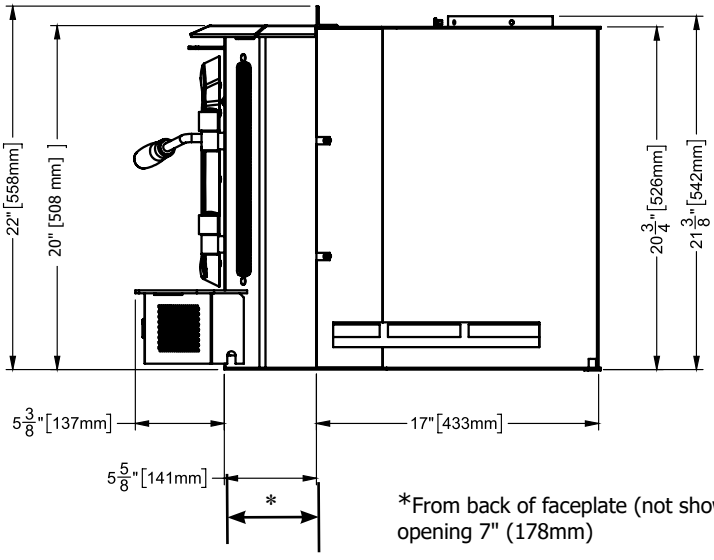
NOTE: Regency units are constantly being improved. Check the label on the unit and if there is a difference, the label on the unit is the correct one.

NOTE: The serial # label will be affixed to the front face underneath the ash-lip. The fan assembly (if installed) would need to be removed which would expose the serial # decal.









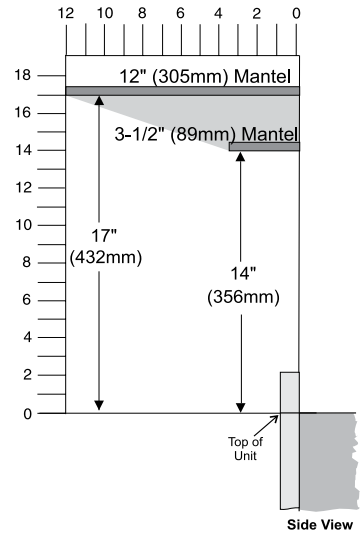
*From back of faceplate (not shown) to fuel door opening 7" (178mm)

Masonry Fireplace Clearances

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

Unit i2450-2	Adjacent Side Wall (to Side) A	Mantle ** (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	From Side of Unit (Reference Dimension only) H	Faceplate Width (Reference Dimension only) I
	12" (305mm)	14" (356 mm) for 3-1/2" (89mm) mantel	14" (356mm)	1/2"(13mm) to side surround	16" (406mm) USA	8" (203mm)	20" (508mm)	31-1/8" (791 mm)	Regular Faceplate 40" (1016 mm) Oversize Faceplate 48" (1219 mm)
		17" (432 mm) for 12" (305mm) mantel			18"(457mm) Canada				

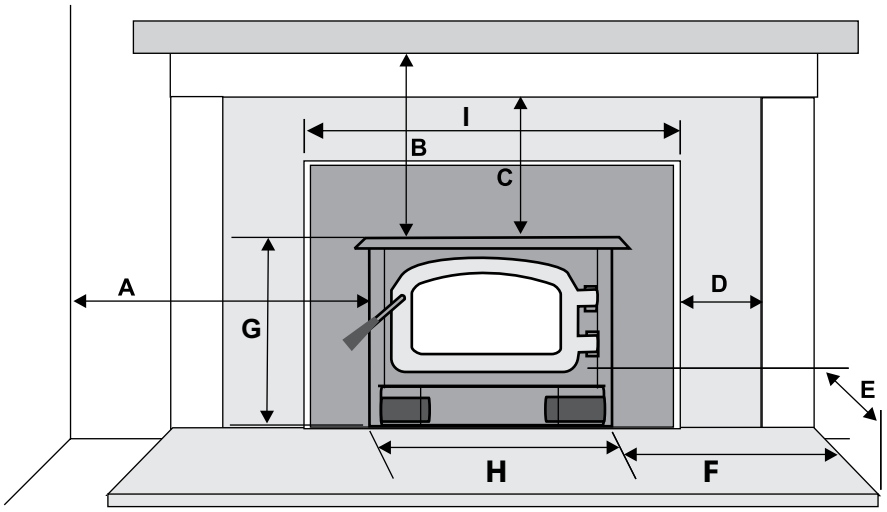
Side and Top facing is a maximum of 1-1/2" (38mm) thick.
Note : If top/side facing trim protrudes more than 1-1/2"(38 mm) follow mantle (B)** & adjacent side wall (A) for proper clearances.



CLEARANCES ARE CRITICAL

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

Note: Ensure the paint that is used on the mantel and the facing is "heat resistant" or the paint may discolour.



Clearance diagram for installations

*Floor Protection

Floor thermal insulation/protection (Type 2) with a R value of 1.4 is required if the unit is raised 0 - 2-1/2" (0-64 mm) (measured from the bottom of the appliance).

Thermal floor protection (Type 1) is not required when unit is raiser greater than 2-1/2" (64 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.

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

Extending 16" for US and 18" for Canada—measured from the fuel loading door opening.

WOOD INSERT SPECIFICATIONS

Your fireplace opening requires the following minimum sizes:
Height: 21-1/2" (546 mm)
Width: 25" (635 mm)
Depth: 17" (432 mm)

Two faceplates are available to seal the fireplace opening:
Regular
W 40" (1 016 mm) x H 30" (762 mm)
Oversize
W 48" (1 219 mm) x H 33" (838 mm)

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.

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.**

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.

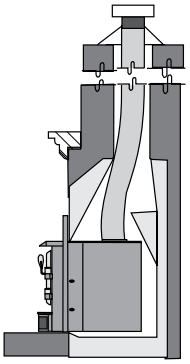
Regency Inserts are designed to use either a 5-1/2" (140 mm) or 6" (152 mm) flue.

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 ling 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 5-1/2 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

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.

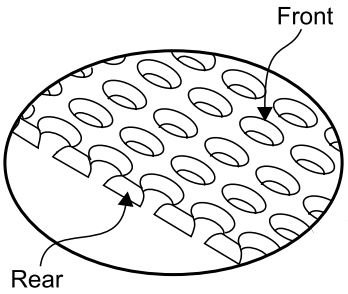
Installing Your Insert

Your 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.

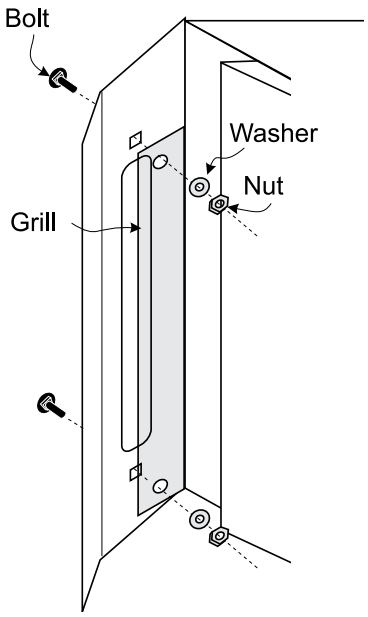
Convection Grills

The black convection grills are pre-installed on this appliance.

If the optional nickel grills are being used, remove the black grills and position the nickel grill on the inside body face side and fasten using the bolts, washers and nuts provided (2 per side) as shown in the diagrams.



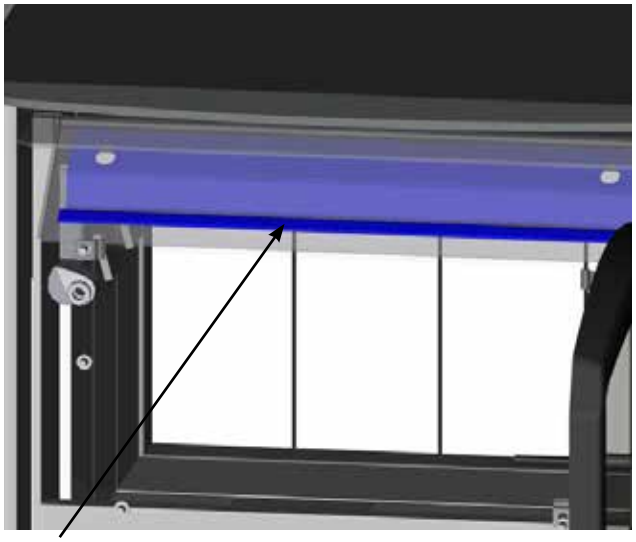
Note: The grill has a front and rear, the holes on the front side have rounded edges and the rear holes have flat edges.



View from Rear of Insert

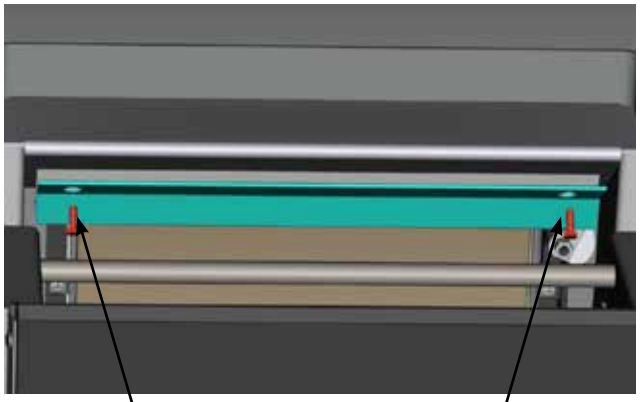
Stainless Steel Smoke Deflector Installation

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.



Smoke deflector

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



Smoke deflector installed with 2 bolts.

Note: *This is a view from the back of the unit through the top.*

To replace the deflector, loosen off both bolts and slide deflector upward and 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 situated at the top of the keyhole before tightening.

Faceplate and Trim Installation

Your Faceplate kit contains:

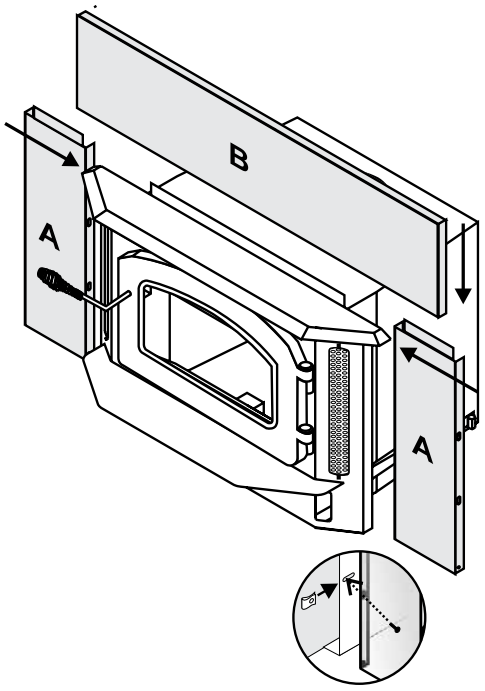
1 Set Faceplate panel (top, left & right)
1 Set Trim (top, left, right)
2 pcs. insulation
4 spring nuts
4 1" screws
8 washers
2 screws - black
2 corner trim clips

Note: The Digital Monitor Operating Door tool Bracket and tool holder are supplied with the insert.

Prior to sliding your insert into its final position and attaching the connector or liner pipe, the faceplate must be installed as follows:

1) Slide the spring nuts (supplied) over the slots in the insert's side convection panels (the spring nuts may need to be squeezed with a pair of pliers first, to help them stay in position).

2) Screw the side faceplate panels, (item A in the diagram) one to each side. See diagram 1.



3) Using the top panel (item B - see diagram 1) as a gauge, check that the side panels are within approximately 1/4" of the overall width. If the difference is greater than this, use the supplied washers to attain the required width.

4) The unit may now be slid into final position and attached to the connection system.

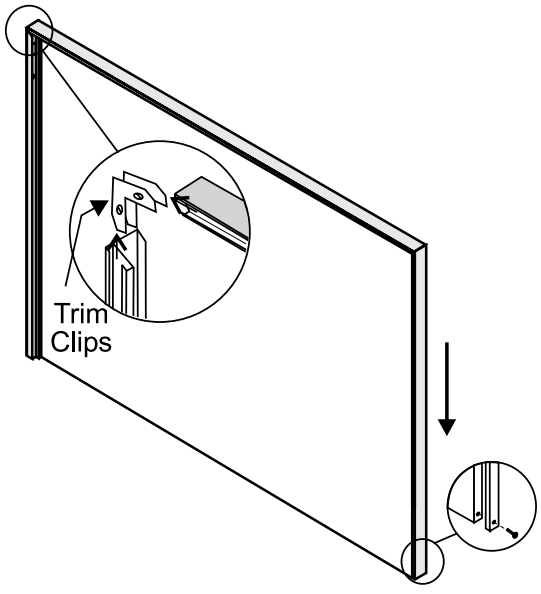
5) Once connection is made, the insulation strips should be installed between the insert faceplates and the fireplace face.

6) The faceplate top may now be installed (with insulation strip behind) by aligning its brackets with the top flange on the side shields and the angle iron bar on the insert top.

7) The faceplate trim may be installed to the edge of the faceplate at this time. To permanently mount the trim, drill two 5/32" diameter holes through the trim and side panels and screw the trim to the panels using the gold plated screws provided.

Note: It may be easier to install the insulation, faceplate top and faceplate trim with the unit pulled slightly away from the fireplace face. If this is done, be very careful not to disturb the connector when shifting the unit to its final position.

8) Now that your insert is installed, check once more that all the clearances from the unit to any combustible materials are correct as listed earlier.



Flue Collar Removal and Installation

List of Tools required:
- Pull rod (supplied with unit)
- 1/2" socket / ratchet
- 3/8" open face wrench
- 7/16" socket / ratchet

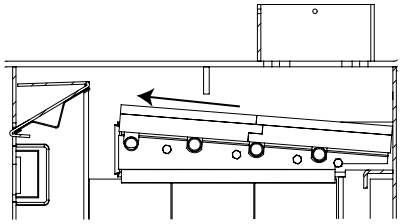
NOTE: The removable flue collar is attached to the unit. If you need to remove the collar for ease of installation, please follow the below steps.

Note: unit in images may not be identical to the I2450-2, but they depict the process.
SAFETY NOTE: The insert is very heavy and will require two people to move it into position. The door and bricks can be removed to help. Be sure to protect your hearth extension with a heavy blanket or cardboard during the installation.

1. Allow the stove to burn out and cool down.

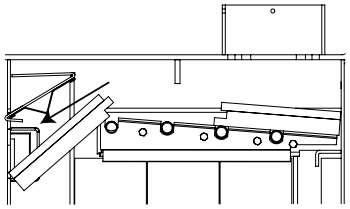
2. Remove stainless steel smoke deflector - See instructions in this manual.

3. Remove baffles - push the baffles together and away from the side walls.



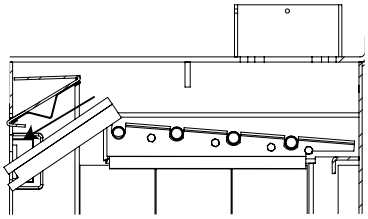
Front View

4. Lift the left baffle out from underneath the right baffle - then lift out. Remove the right baffle.



Front View

5. Manoeuver the baffle above the air tube and slide out.



Side View

6. Take a ½" ratchet and remove the two bolts at back inside of the firebox. These bolts are used to secure the flue collar. Keep these and washers for re-install.



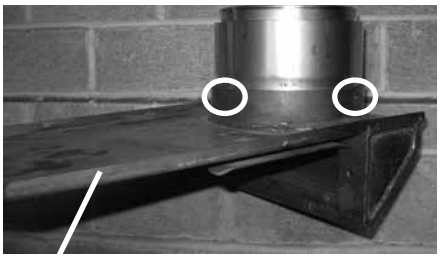
7. Slide collar off the unit.

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



Diagram 1 *Flex Liner*

9. Secure the adaptor to the flex liner with three screws. Ensure the adapter is level and aligned correctly. See Diagram 2.



Flue Adaptor *Diagram 2*

10. 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.

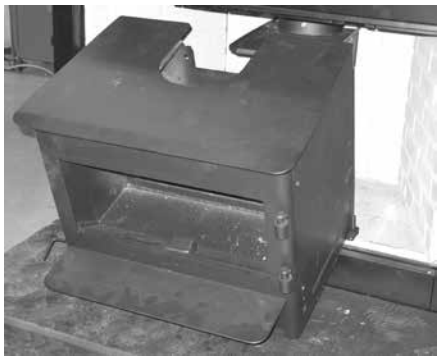


Diagram 3

11. Slide the unit back until the flue adaptor is slightly engaged. At this point it is recommended to level the unit. This will keep the adaptor from binding.
12. 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. Double check the adaptor is seated properly and the pull rod in the firebox, locate the two holes lined up to the two holes on the adaptor.

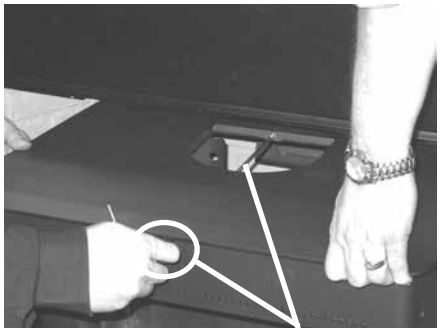
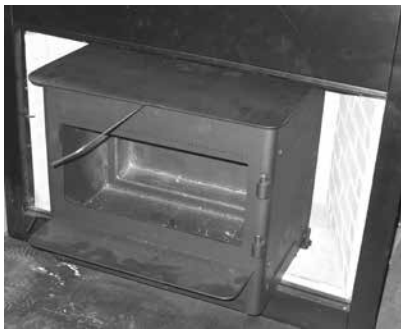


Diagram 4 *Pull Rod*



Pull Rod in place

Diagram 5

13. Use the two bolts, washers and lock washers removed in step 7 and install them, tighten down using the 1/2" socket to ensure the adapter is installed.

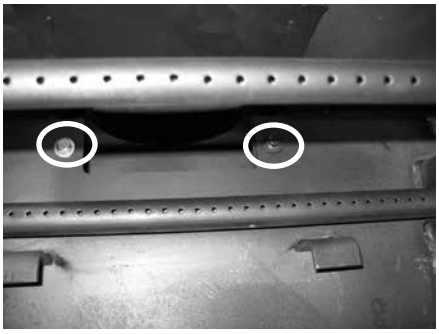


Diagram 6

14. Reverse steps 6-3 to complete the installation.

Fan Installation

Installer: Please record unit serial number here before installing blower.

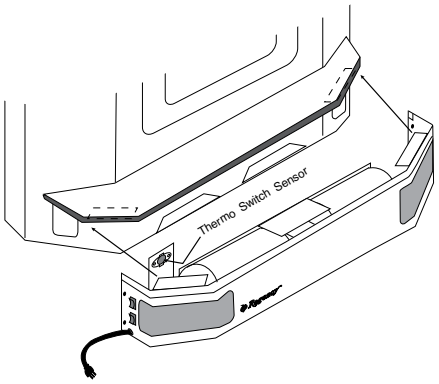
Serial No._____

Your fan should only be installed once the unit is in place in order to prevent any damage to the fan. To attach, follow the instructions provided with 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.**

   NOTE: DO NOT ROUTE POWER CORD UNDER OR IN FRONT OF UNIT.
4. Push the Regency logo plate into the two holes in the front bottom left corner of the fan.

Do not turn fan <ON> until your insert has reached operating temperature or at least 30 minutes after starting fire.

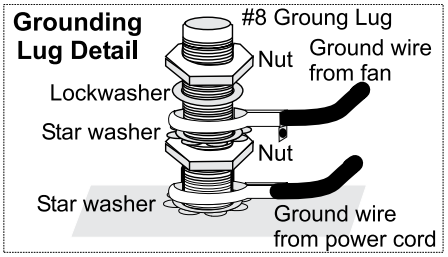


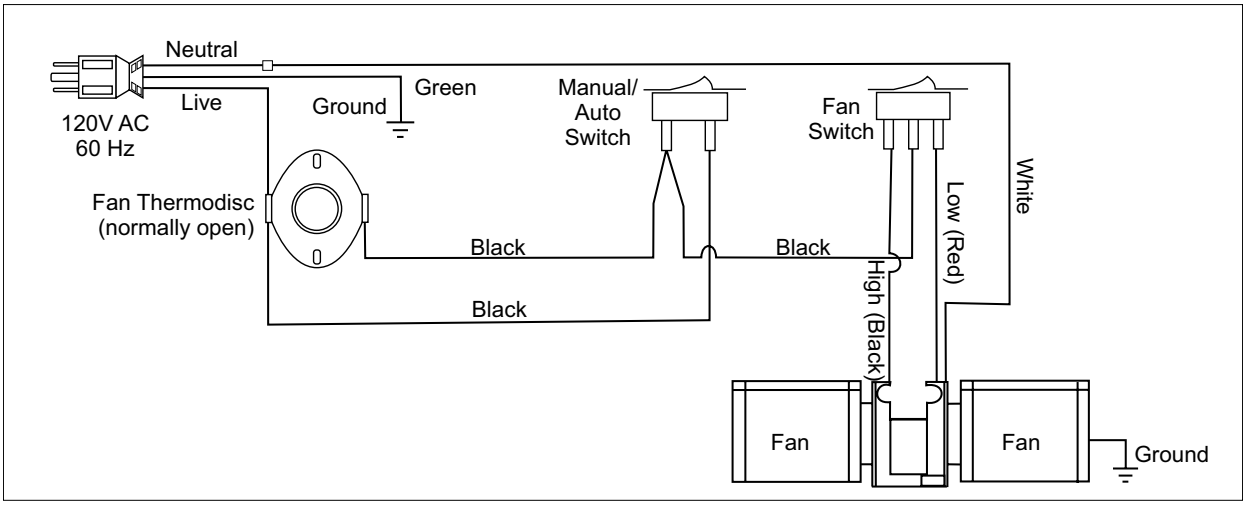
Important:

The blower to this appliance must be turned off anytime the fuel door is opened. Prior to turning the blower back on, ensure there are no embers near the blower which may have fallen onto the hearth when the fuel door was opened. Once the fuel door is closed, the blower may be turned back on.

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

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.





Blower/Fan Wiring Diagram

Floor Protection

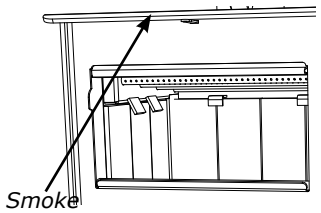
Please check to ensure that your floor protection and hearth will meet the standards for clearance to combustibles. Your hearth extension must be made from a non-combustible material.

Flue Baffle & Secondary Air Tube Installation

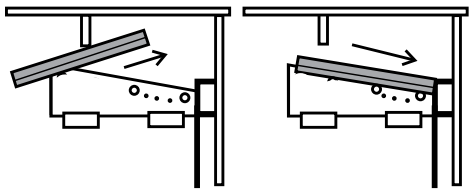
The flue baffle system located in the upper area of the firebox is removable to make cleaning your chimney system easier. The baffles must be installed prior to your first fire. **Smoke spillage and draft problems may occur if the baffles are improperly positioned.** Check the position of the baffles on a regular basis as they can be dislodged if too much fuel is forced into the firebox.

The unit arrives with the 2 baffles on the floor of the firebox.

1. Open the door and remove stainless steel smoke deflector - See smoke deflector instructions in this manual.

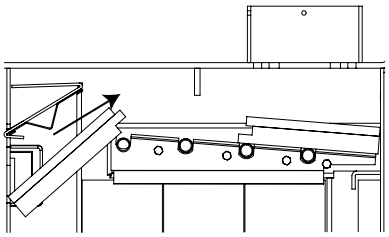


2. Slide the left baffle over the 4 air tubes from the front and then push it to the back.



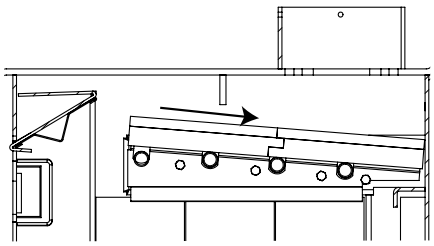
Side View

3. Tilt the left baffle up on top of the side channel and it will leave enough room to position the right baffle in the same manner as Step 1) above. Then reposition the left baffle flat on the air tubes.



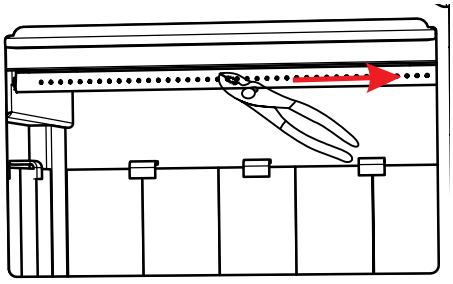
Front View

Important: Push both baffles so they are tight against the side walls.



Front View

Note : If air tube is locked into place correctly there should be slight movement when moving the air tube back and forth.

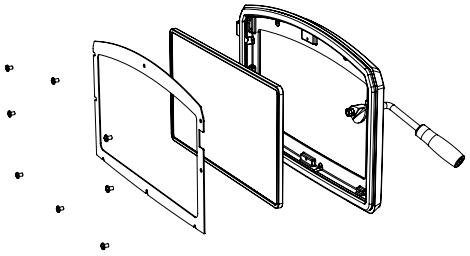


4. Reverse Step 1.

Glass Replacement

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.

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

1. In preparation of installing the door handle, the nuts, cam, washers and spacer must be removed as shown in Diagram 1.

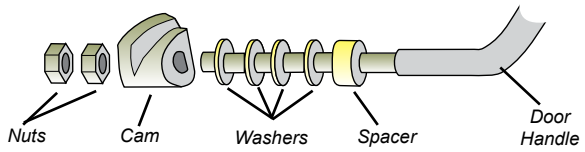


Diagram 1

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)

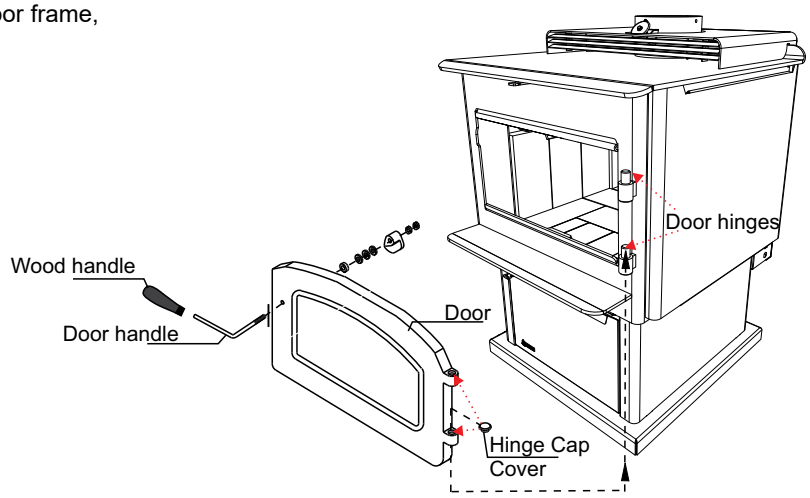


Diagram 2

Note: Freestanding stove shown. Door assembly instructions are no different for the insert models.

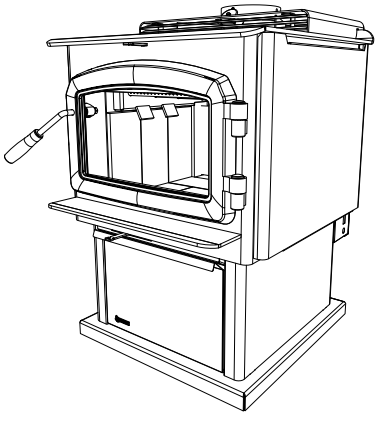
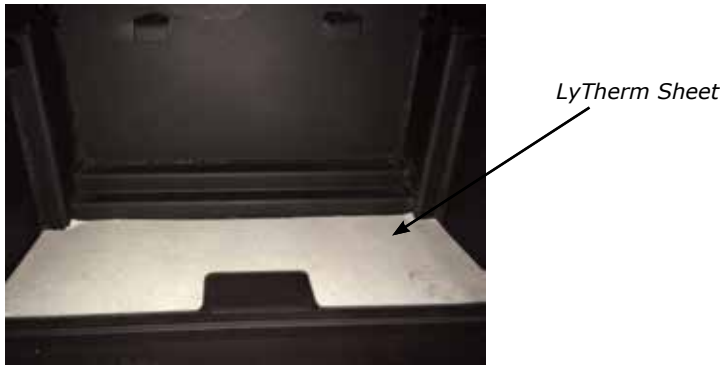


Diagram 3

Brick Installation

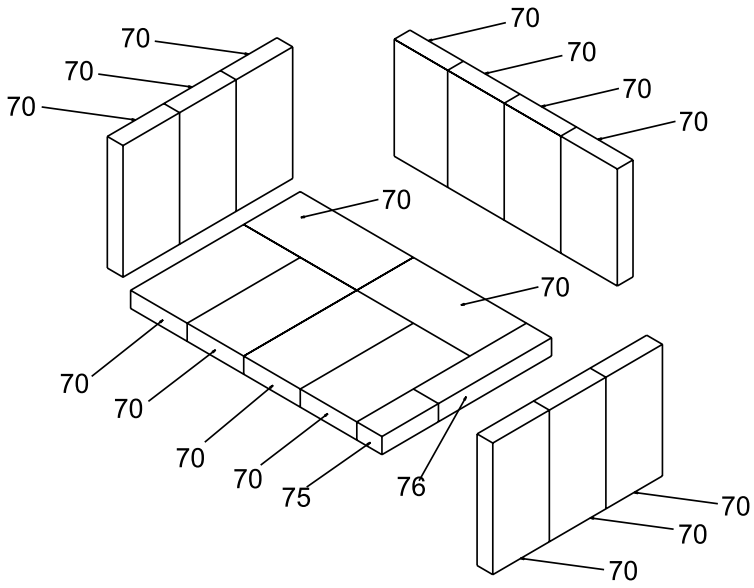
Firebrick is included to extend the life of your stove and radiate heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping. Install all firebricks (if bricks were removed at install) per the diagram below and place in their correct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

	180-960	Firebrick - Complete Set
70)	902-111	Brick Regular Full Size: 1-1/4" x 4-1/2" x 9"
75)	*	Brick Partial: 1-1/4 x 4-1/2" x 2"
76)	*	Brick Partial: 1-1/4" x 2" x 9"



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.

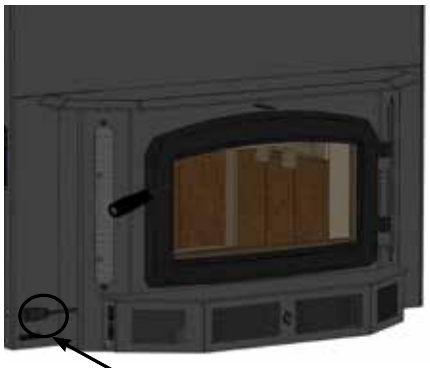
WARNING
Fireplace Stoves equipped with doors should be operated only with doors fully closed. If doors are left partly open, gas and flame may be drawn out of the fireplace stove opening, creating risks from both fire and smoke.

Draft Control

Both the primary and air wash drafts are controlled by the control slide located on the front left side of the unit. To increase your draft - slide to the left to open, and to decrease - slide to the right to close. The i2450-2 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 and may damage the unit. Inadequate draft may cause back puffing into the room and plugging of the chimney.

Outward - Open **Inward - Closed**



Side Draft Control

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 BETWEEN 19% AND 25% MOISTURE CONTENT.

START UP AND OPERATING PROCEDURES:

1. For the first few days, the wood stove 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 stove 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 stove at its maximum setting, and only after the metal has been warmed.
2. Do not place anything on the wood stove top during the curing process. This may result in damage to your paint finish.
3. When starting the fire, ensure the air control is in the fully open position (far left). To start a good and clean fire you will need to prepare one load of start-up fuel weighing approximately 15 – 16 lb. in total using only dry seasoned cord wood with less than 20% moisture content. The load consists of 2 – 2.5 lb. kindling ½" to 1" diameter, 4 pieces 16" long 2.5" – 3" diameter and and 5 – 7 pieces 2.5" – 3" diameter 12" long.
4. Load 2 pieces 16" long on the bottom centre of the firebox, spaced 8" – 10" in a North South (front to back) orientation. Add few pieces of crumpled paper and the kindling in between these 2 pieces. On top, load the 12" long pieces east west (side to side) orientation from the back of the firebox to the front, spaced 1" – 2". Load the 2 remaining 16" long pieces on top in a North South (front to back) orientation spaced 8" – 10".
5. Ensure primary air control is fully open to the left facing the unit and then light the paper and the kindling. Adjust the door opening to establish fire and for less smoke roll out. Keep the door in this position for 5 – 6 minutes until the secondary tubes start flashing and then close the door. (Leaving the door slightly open will help your fire start more rapidly.)
6. Burn on high setting (primary air control fully open to the left) for approx. 1h. Once most of the wood has burned down but there are still good flames, level evenly the coals. Now you can reload the stove.

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

7. The next step is to create a pre-burn load. This step is necessary to bring the stove temperature to an equilibrium and to create a hot coal bed for the main load of wood. The size and the loading pattern is the same as for the startup load above.
   After loading keep the door slightly open for 3 – 4 minutes, until the fire is well established, then close the door.
   Burn on high air setting (primary air control fully open to the left) for approximately 30 minutes then reduce the primary air setting to your desired burn category. Now turn the fan on low for low and medium low setting and on high for medium high and high air settings.
   For a high burn leave the air fully open and turn the fan on high.
   Once a nice coal bed is established and there are still good-sized flames, the main load of larger logs can be loaded into the firebox. Rake and level the coals to create a uniform charcoal bed.
   Open the primary air fully and turn off the fan. Now the main load of larger logs can be loaded. Load 6 pieces (maximum) of 16.75 - 17" long logs, 3"-4" diameter front to back in a North South orientation. Once loaded, keep the door open for 3 to 4 minutes, until strong flames are established. Turn on high setting (primary air control fully open to the left) for 5 to 10 minutes then adjust the air control to your desired setting. For a high /medium high air setting the fan can be turned on high at 15 minutes. For a low/medium low air setting the fan can be turned on low at 30 minutes.
   High Fire: Air control to far left.
   Low Fire: Air control to far right.
   Med Low Fire: Air control slightly left of low fire setting.
   Med High Fire: Approx. 1" from low air setting.
   For low and medium fire, adjust the air gradually from high to the desired position.

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

   From the start up of a cold stove, a medium to high firing rate must be maintained for 30 min. This ensures that the stove, and fuel are all stabilized at proper operating temperatures. Even though it is possible to have high temperatures within minutes after a fire has been started, if the fire is allowed to die down immediately it may go out. During re-fueling and rekindling of the cool fire, or a fire that has burned down to the charcoal phase, operate the stove at a medium to high firing rate for about 15 - 30 minutes to ensure to reach operating temperatures.
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 or into 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 Stove 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. If you have been burning your stove on a low draft, use caution when opening the door. Open the door a crack, and allow the fire to adjust before fully opening the door.
14. The controls of your unit or the air supply passages should not be altered to increase firing for any reason.
15. 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 stove hot enough to keep your glass clean and you won't need to clean your flue as often.

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

    NOTE: Always stir the coal approximately half way through a burn cycle to ensure proper charcoaling.

    CAUTION: Do not build the fire too close to the glass, unless/otherwise specified.

How to Light & Maintain a Wood Stove Fire

Fan Operation

Automatic
To operate the fan - ensure switch is in AUTO mode.

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 and plug into suitable 3 prong grounded plug.

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.

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.
16. Do not store any fuel closer than 2 feet from your unit. Do not place wood, paper, furniture, drapes or other combustibles near the appliance.
17. **CAUTION**: Do not operate with broken glazing.

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

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 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 is 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, use a 7/8" gasket rope (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 #846-308) 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.

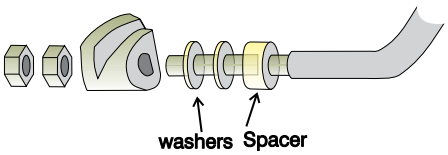
Wood Storage

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.



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.



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.



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

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.

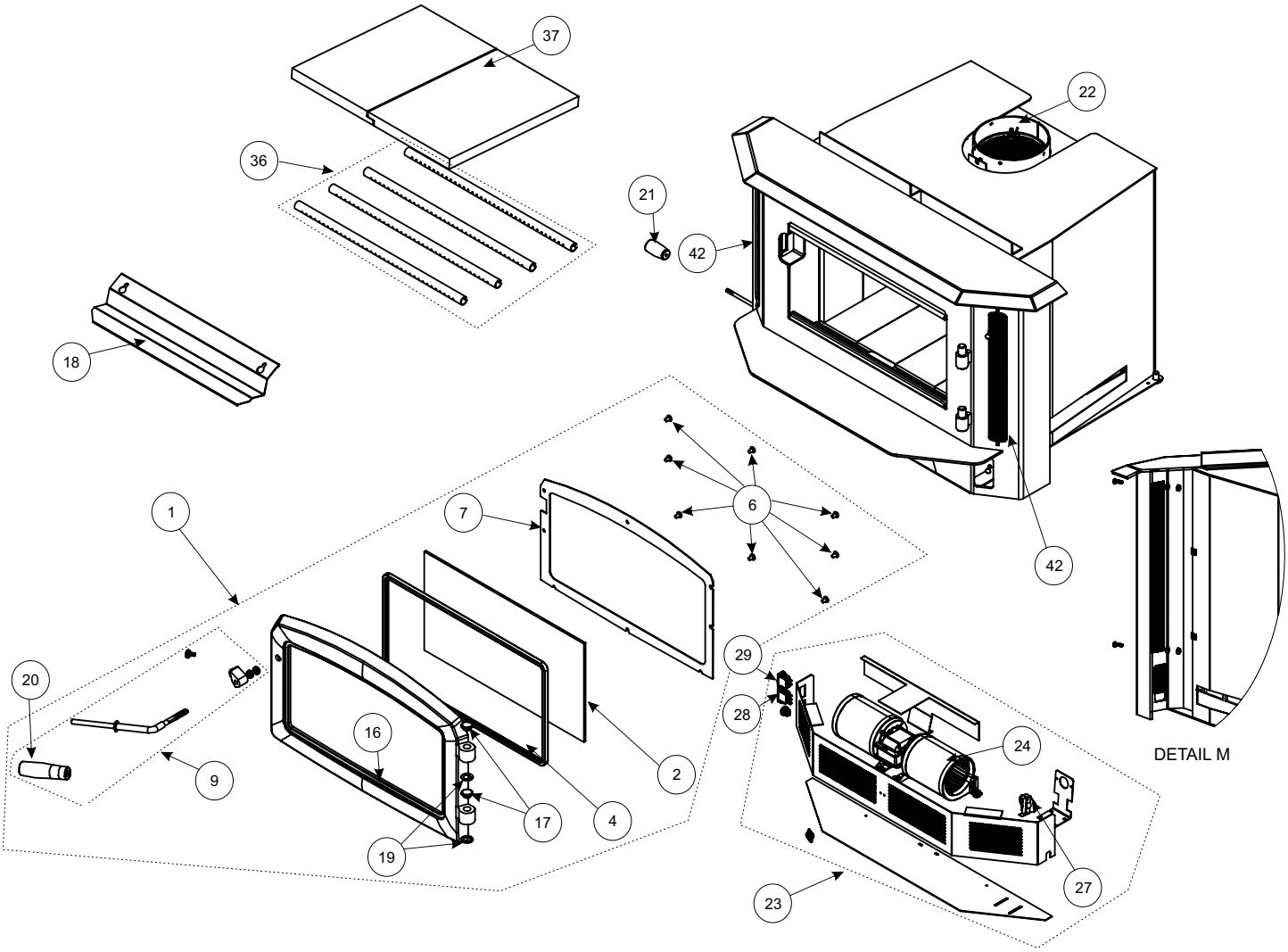
Main Assembly & Options - i2450-2

	Part #	Description
1)	850-251	Door Assy - Large Black
	850-253	Door Assy - Large Nickel Accent
2)	846-308	Glass - Replacement (Includes Glass Gasket)
4)	846-692	1/8" x 3/4" Wide Graphite Gasket Tape (6') (936-241)
6)	904-115*	Screw 1/4-20 x 3/8"
7)	181-034F	Glass Retainer - Large
9)	021-973	Door Handle Assembly
16)	846-570	Door Gasket Kit
17)	948-079BN	Hinge Caps - Nickel (each)
17)	846-918	Hinge Caps Black Oxide (Set of 2)
18)	021-018	Smoke Detector
19)	650-084	Door Spacer
20)	948-146	Wood Handle
21)	181-039	Draft Control Handle
22)	181-632/P	Flue Adaptor

	Part #	Description
23)	142-917	Fan Assembly
24)	910-157/P	Fan Motor 120 Volts
*	910-678	Power Cord 120 Volts
27)	910-142	Fan Thermodisc
28)	910-140	Fan Speed Hi / OFF / Low Switch (3-way)
29)	910-138	Auto / Manual On / OFF Switch
30)	*	Grommet Strain Relief
36)	033-953	Air Tube 3/4" (Qty:4) (each)
37)	020-957	Baffle (2/set)

	Part #	Description
42)	163-931	Convection Grill - Nickel (Opt)
	163-930	Convection Grill - Blk
43)	*	Hex Nut 10-24 Zinc Coated
44)	*	Washer #10 Flat
45)	*	Bolt, 10-24 x 3/4" Blk Carriage
N/S	181-085/P	Vertical Stainless Deflector
N/S	021-022	Firebox Floor Gasket
	948-223	Regency Logo - Nickel
	920-765	Manual

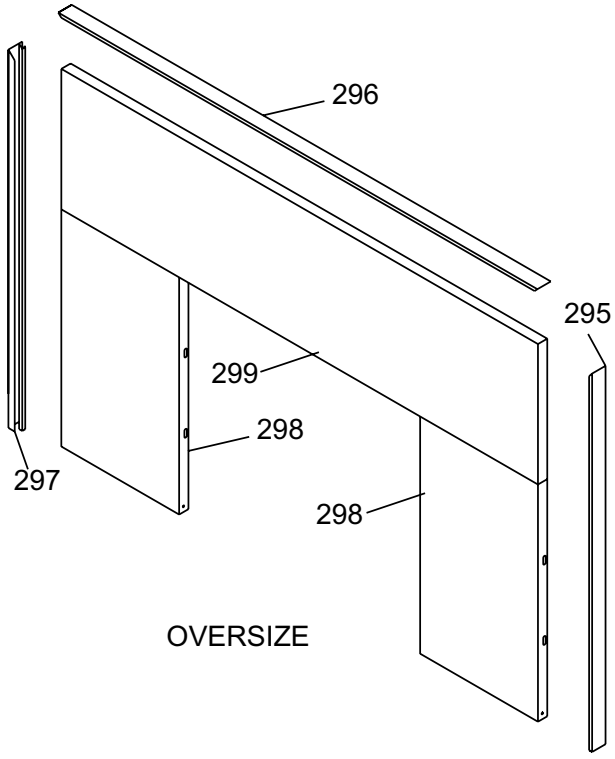
*Not available as a replacement part.

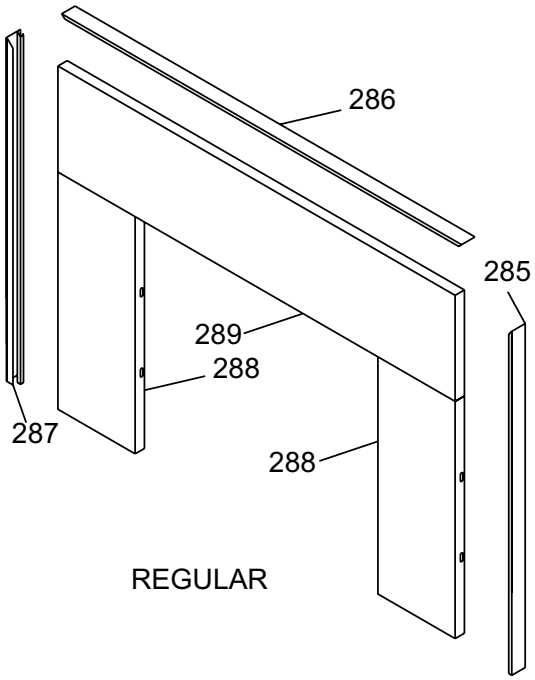


Faceplates - i2450-2

	Part #	Description
	140-911	Faceplate & Trim Set - Regular
	180-570	Black Trim Regular (set of 3)
285)	*	Trim Right Regular
286)	*	Trim Top Regular
287)	*	Trim Left Regular
288)	*	Faceplate Side Regular
289)	*	Faceplate Top Regular
	140-913	Faceplate & Trim Set - Oversize
	180-572	Black Trim Oversize (set of 3)
295)	*	Trim Right Oversize
296)	*	Trim Top Oversize
297)	*	Trim Left Oversize
298)	*	Faceplate Side Oversize
299)	*	Faceplate Top Oversize

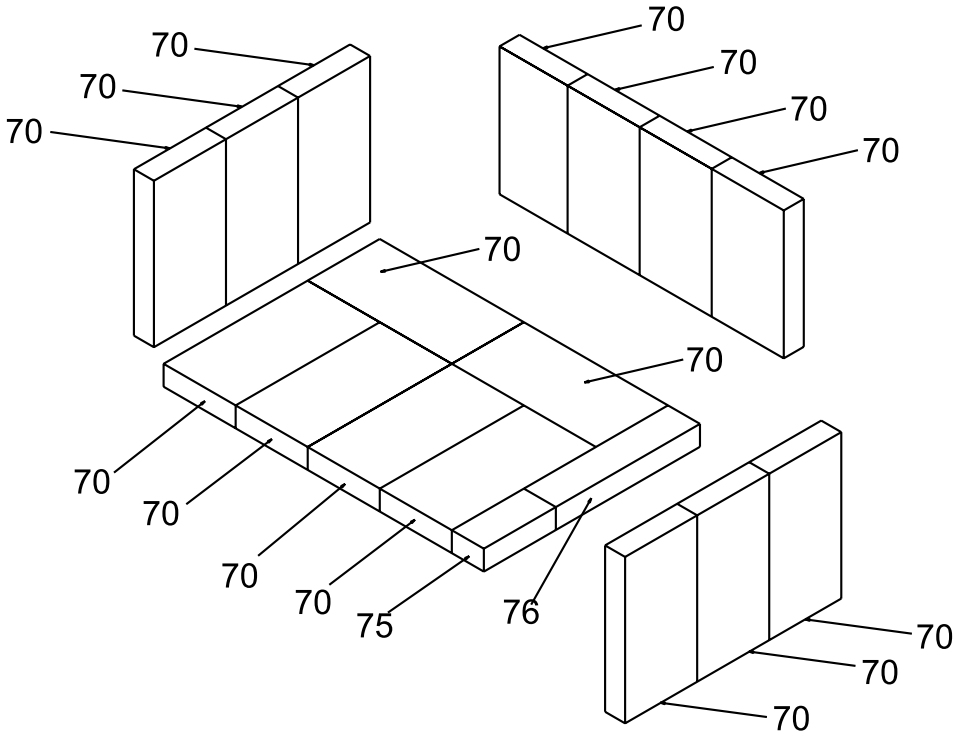
*Not available as a replacement part.





Brick Panels - i2450-2

	Part #	Description
	180-960	Firebrick - Complete Set
70)	902-111	Brick Regular Full Size: 1-1/4" x 4-1/2" x 9"
75)	*	Brick Partial: 1-1/4 x 4-1/2" x 2"
76)	*	Brick Partial: 1-1/4" x 2" x 9"



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 - 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, andiron 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.

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

REGENCY FIREPLACE PRODUCTS

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.

recycling

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 #: _____

Regency and Classic are trademarks of FPI Fireplace Products International Ltd.
© Copyright 2024, FPI Fireplace Products International Ltd. All rights reserved.

Printed in Canada

Established 1974

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

A2LA ACCREDITED
CERTIFICATE #1550.01

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	Test Wt: HB44 Tol: HB44	Test Wt: 100 Tol: 0.01	☐ Good ☑ Fair ☐ Poor
As-Found: Pass:☑ Fail:☐	As-Found: Pass:☑ Fail:☐	As-Found: Pass:☑ Fail:☐	Temperature: 19.3°C
As-Left: Pass:☑ Fail:☐	As-Left: Pass:☑ Fail:☐	As-Left: Pass:☑ Fail:☐	

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.B. **Date:** 12-28-23 **Technician:** C.Call

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.

Dry Gas Meter Calibration

DUT	
Manufacturer:	APEX
Model:	XC-60
Lab ID #:	55
Serial #:	1902130
Calibration Date:	2/5/2024
Calibration Expiration:	8/5/2024
Barometric Pressure:	29.39 in. Hg

Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer:	Apex	NI	Aquatech	Dwyer
Model:	SK25DA	NI-9213	DBX2	475
Lab ID#:	47	215	202	174
Calibration Expiration Date:	4/17/2024	2/28/2024	5/23/2024	4/21/2024
Calibration γ Factor:	0.9988			

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Caibrate 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)	202.311	156.489	164.235
Standard DGM Temperature (°F)	72.0	72.0	74.0
Standard DGM Pressure (in H_2O)	0.00	0.00	0.0
DGM Initial Volume (ft^3)	0.000	0.000	0.000
DGM Final Volume (ft^3)	7.085	5.526	5.749
DGM Temperature (°F)	77.0	77.0	78.0
DGM Pressure (in H_2O)	0.00	0.00	0.0
Net Volume for Standard DGM (ft^3)	7.145	5.526	5.800
Net Volume for DGM (ft^3)	7.085	5.526	5.749

Dry Gas Meter γ Factor	1.017	1.008	1.015
γ Factor Deviation From Average	1.017	1.008	1.015

Average Gas Meter γ Factor: 1.013

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

1. Deviation = |Average value for all runs - current run value|
2. $\gamma = [V_{std} \times (\gamma_{Std}) \times (P_{bar}+P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/ 13.6)]$

Technician:

Dry Gas Meter Calibration

Meter Manufacturer:	EKM Metering
Model:	PGM-075
Lab ID #:	129
Serial #:	N/A
Calibration Date:	6/11/2024
Calibration Expiration:	12/11/2024
Barometric Pressure:	29.98 in. Hg

Reference Standard DGM	
Manufacturer:	Apex
Model:	SK25DA
Lab ID#:	47
Serial #:	1101001
Calibration Expiration Date:	6/4/2025
Calibration γ Factor:	0.998

Unit Under Test Previous Calibration	
Date	12/12/2023
γ Factor:	1.000
Allowable Deviation (±5%):	0.05
Actual Deviation:	0.00
Result:	PASS

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	138.248	154.682	140.873
Standard DGM Temperature (°F)	74.0	74.7	74.0
Standard DGM Pressure (in H_2O)	0.00	0.00	0.0
DGM Initial Volume (ft^3)	0.000	0.000	0.000
DGM Final Volume (ft^3)	4.875	5.472	5.025
DGM Temperature (°F)	73.0	79.3	79.0
DGM Pressure (in H_2O)	0.00	0.00	0.0
Time (min)	20.0	23.0	22.0
Net Volume for Standard DGM (ft^3)	4.882	5.463	4.975
Net Volume for DGM (ft^3)	4.875	5.472	5.025

Dry Gas Meter γ Factor	0.998	1.005	0.997
γ Factor Deviation From Average	0.998	1.005	0.997

Average Gas Meter γ Factor: 1.000

Calculations:

1. Deviation = |Average value for all runs - current run value|
2. $\gamma = [V_{std} \times (\gamma_{Std}) \times (P_{bar}+P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/ 13.6)]$

Standard Reference Meter is calibrated to NIST traceable standards. Uncertainty of measurement is ±0.5%.

Report and Certificate of Calibration

CAL-CERT CALIBRATION CERTIFICATION

www.Cal-Cert.com

Toll Free 800-356-4662

Address 5777 SE International Way Milwaukie, OR 97222

Local 503-654-9620

A2LA ACCREDITED CERT #4986.01

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: 1.00 **Range Resolution:** 0.001 **Mode Verified:** Pressure

UUT Reading In H2O	Standard As Found In H2O	Standard Verification Reading #1 In H2O	Error In H2O	Standard Verification Reading #2 In H2O	Error In H2O	Tolerance In H2O	Expanded Uncertainty ± 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

Copyright 2013 Cal-Cert. All rights reserved.

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 #: 33086-203315-4525

Copyright 2013 Cal-Cert. All rights reserved.

Report and Certificate of Calibration

CAL-CERT CALIBRATION CERTIFICATION

www.Cal-Cert.com

Toll Free 800-356-4662

Address 5777 SE International Way Milwaukie, OR 97222

Local 503-654-9620

A2LA ACCREDITED CERT #4986.01

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
Recommended Due Date: February 28, 2025
Calibration Frequency: 12 Months
Manufacturer: Red Lion
Type: Pressure Transducer
Model Number: Unknown
Serial #: Unknown
Capacity: 5 In H2O
Tolerance: ± 1.00% of Span
Gauge Class: A

Reference: ASME B40.100
Cal-Cert Procedure: CP-003
Indicating System: Digital
Temperature: 70 °F
Humidity: 40% RH
Cal Factor: None
Asset #: 129C
Service Location: Service Address
As Found: Pass
As Left: Pass

Instrument Range: 5.00 **Range Resolution:** 0.01 **Mode Verified:** Pressure

UUT Reading In H2O	Standard As Found In H2O	Standard Verification Reading #1 In H2O	Error In H2O	Standard Verification Reading #2 In H2O	Error In H2O	Tolerance In H2O	Expanded Uncertainty ± 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

Copyright 2013 Cal-Cert. All rights reserved.

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 #: 33086-203316-4525

Copyright 2013 Cal-Cert. All rights reserved.

Dry Gas Meter Calibration

Meter Manufacturer:	EKM Metering
Model:	PGM-075
Lab ID #:	130
Serial #:	N/A
Calibration Date:	6/11/2024
Calibration Expiration:	12/11/2024
Barometric Pressure:	29.98 in. Hg

Reference Standard DGM	
Manufacturer:	Apex
Model:	SK25DA
Lab ID#:	47
Serial #:	1101001
Calibration Expiration Date:	6/4/2025
Calibration γ Factor:	0.998

Unit Under Test Previous Calibration	
Date	12/12/2023
γ Factor:	1.003
Allowable Deviation (±5%):	0.05015
Actual Deviation:	0.01
Result:	PASS

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	147.914	146.299	142.515
Standard DGM Temperature (°F)	77.0	77.0	76.7
Standard DGM Pressure (in H_2O)	0.00	0.00	0.0
DGM Initial Volume (ft^3)	0.000	0.000	0.000
DGM Final Volume (ft^3)	5.170	5.172	5.090
DGM Temperature (°F)	80.0	80.0	88.0
DGM Pressure (in H_2O)	0.00	0.00	0.0
Time (min)	23.0	22.5	22.5
Net Volume for Standard DGM (ft^3)	5.224	5.166	5.033
Net Volume for DGM (ft^3)	5.170	5.172	5.090

Dry Gas Meter γ Factor	1.014	1.003	1.008
γ Factor Deviation From Average	1.014	1.003	1.008

Average Gas Meter γ Factor: 1.008

Calculations:

1. Deviation = |Average value for all runs - current run value|
2. $\gamma = [V_{std} \times (\gamma_{Std}) \times (P_{bar}+P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/ 13.6)]$

Standard Reference Meter is calibrated to NIST traceable standards. Uncertainty of measurement is ±0.5%.

Report and Certificate of Calibration

CAL-CERT CALIBRATION CERTIFICATION

www.Cal-Cert.com

Toll Free 800-356-4662

Address 5777 SE International Way Milwaukie, OR 97222

Local 503-654-9620

A2LA ACCREDITED CERT #4986.01

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: 1.00 **Range Resolution:** 0.001 **Mode Verified:** Pressure

UUT Reading In H2O	Standard As Found In H2O	Standard Verification Reading #1 In H2O	Error In H2O	Standard Verification Reading #2 In H2O	Error In H2O	Tolerance In H2O	Expanded Uncertainty ± 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

Copyright 2013 Cal-Cert. All rights reserved.

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 #: 33086-203317-4525

Copyright 2013 Cal-Cert. All rights reserved.

Report and Certificate of Calibration

CAL-CERT CALIBRATION CERTIFICATION

www.Cal-Cert.com

Toll Free 800-356-4662

Address 5777 SE International Way Milwaukie, OR 97222

Local 503-654-9620

A2LA ACCREDITED CERT #4986.01

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: 5.00 **Range Resolution:** 0.01 **Mode Verified:** Pressure

UUT Reading In H2O	Standard As Found In H2O	Standard Verification Reading #1 In H2O	Error In H2O	Standard Verification Reading #2 In H2O	Error In H2O	Tolerance In H2O	Expanded Uncertainty ± 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

Copyright 2013 Cal-Cert. All rights reserved.

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 #: 33086-203318-4525

Copyright 2013 Cal-Cert. All rights reserved.

Report and Certificate of Calibration

CAL-CERT
CALIBRATION CERTIFICATION

Portland Laboratory
5777 SE International Way
Milwaukie, OR 97222
800-356-4662
503-654-9620

Anaheim Laboratory
120 S. Chaparral Ct Suite 110
Anaheim Hills, CA 92808
888-700-4100
714-696-5300

www.Cal-Cert.com

Report #: 30452-28785-3646 **Customer PO#:** 1100
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-00051 | Electrical Meter | Fluke | SN: 9663004 | Cal: 01/10/2023 | Due: 01/10/2024 | Vendor: Fluke | Report #: EVL861119
LP-01333 | Electrical Meter | IET Labs, Inc. | SN: E3-1842499 | Cal: 01/19/2023 | Due: 01/31/2024 | Vendor: Transcat Calibration Lab | Report #: 5-G584Z-20-1
LP-01347 | Thermo-Hygrometer | Comark | SN: 06210350163 | Cal: 04/18/2023 | Due: 04/30/2024 | Vendor: Cal-Cert | Range: 122 °F 95 %RH | Report #: 28945-67214-3646

Instrument Data

Calibration Date: August 9, 2023
Recommended Due Date: August 9, 2024
Calibration Frequency: 12 Months
Manufacturer: Delmhorst
Type: Resistivity Meter
Model Number: MCS-1
Serial #: #094
Capacity: 120 Megaohms
Tolerance: 3.00 % of indication

Reference: Manufactures Tolerances
Cal-Cert Procedure: CP-080
Indicating System: Digital
Temperature: 74 °F
Humidity: 36% RH
Asset #: #094
Service Location: Cal-Cert Lab
As Found: Pass
As Left: Pass

Instrument Range: 120 Megaohms **Resolution:** 0.001 **Mode Verified:** Resistance

Standard Reading	UUT As Found	UUT Reading #1	Error	UUT Reading #2	Error
0.000	0.000	0.000	0.000	0.000	0.000
1.100	1.095	1.095	-0.005	1.095	-0.005
54.545	54.719	54.719	0.173	54.719	0.173
0.000	0.000	0.000	0.000	0.000	0.000

Expanded Uncertainty± **2.50 Megaohms**

Remarks:
100Mohm std Parallel with 120Mohm UUT= 54.545Mohms

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.

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 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: Brent Enbysk **Date:** August 9, 2023

Technical Manager: Marshall Doyle **Signature:** 

Copyright 2013 Cal-Cert. All rights reserved.

CERTIFICATE OF CALIBRATION

CUSTOMER:	**PFS-TECO :** CLACKAMAS, OR	**CALIBRATION DATE:**	***06/17/2024***
PO NUMBER:	1120	**CALIBRATION DUE:**	*06/17/2025*
INST. MANUFACTURER:	DWYER	**PROCEDURE:**	T.O.33K6-4-1769-1
INST. DESCRIPTION:	VELOMETER	**CALIBRATION FLUID:**	AIR @ 14.7 PSIA 70°F
MODEL NUMBER:	471	**RECEIVED CONDITION:**	WITHIN MFG. SPECS.
SERIAL NUMBER:	**CP288559 ID# 095**	**LEFT CONDITION:**	WITHIN MFG. SPECS.
RATED ACCURACY:	SEE NOTES BELOW.	**AMBIENT CONDITIONS:**	763mm HGA 53% RH 70°F
UNCERTAINTY GIVEN:	± 0.43% RD ; k=2	**CERTIFICATE FILE #:**	**490265.2024**

NOTES: ± 3.0% FS (0-500 / 0-1500) ** ± 4.0% F.S. (0-5000) **± 5.0% F.S. (0-15000) ** ± 2 °F

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 INDICATED FT/MIN	DM.STD. ACTUAL FT/MIN	UUT INDICATED DEG. F	DM STD. ACTUAL 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 ± .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: 06/17/2024

Approved By:

Cal. Technician: A.N.

Calibrated at: ✓ Lab
___ On-Site (Customer's)

Established 1974

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

ACCREDITED
CERTIFICATE #1550.01

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
Test Wt: 100 Tol: 0.0003
As-Found: Pass: ☑ Fail: ☐
As-Left: Pass: ☑ Fail: ☐

LINEARITY
Test Wt: 50 x 4 Tol: 0.0002
As-Found: Pass: ☑ Fail: ☐
As-Left: Pass: ☑ Fail: ☐

STANDARD DEVIATION
Test Wt: 100 Tol: 0.0001

1. 99.9999	5. 99.9999	9. 100.0000
2. 99.9999	6. 100.0000	10. 100.0001
3. 100.0000	7. 100.0000	Result
4. 100.0000	8. 100.0000	0.00006

ENVIRONMENTAL CONDITIONS
☐ Good ☑ Fair ☐ Poor
Temperature: 23.1°C

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:

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

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

ACCREDITED
0723.01
Calibration

PO: 1033
Order Date: 03/08/2021
Authorized By: N/A

Property #: 097
User: N/A
Department: N/A
Make: Unknown
Model: 10 Lbs.
Serial #: 097
Description: Mass
Procedure: DCN 500901
Accuracy: Raw Data

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

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

Measurement Data

Parameter / Measurement Description	Range	Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After								Accredited = ü
Mass								
Raw Data		g	4535.92370000	0.0000000	0.0000000	0.1785299	4536.1022299 g	3.5E-01 ü

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

Established 1974

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

ACCREDITED
CERTIFICATE #1550.01

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

Material	Assumed Density	Range	Tolerance Class
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/cm^3).**

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.

Quality Control Services, Inc.
Metrology Laboratory Manager
E-mail dthompson@qc-services.com

Date: 05/09/22

Signature David S. Thompson

This document shall not be reproduced, except in full, without the written approval of Quality Control Services Mass Laboratory.

Member: National Conference of Standards Laboratories and Weights & Measures

Established 1974

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

ACCREDITED
CERTIFICATE #1550.01

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.

Quality Control Services, Inc.
Metrology Laboratory Manager
E-mail dthompson@qc-services.com

Date: 05/09/22

Signature David S. Thompson

This document shall not be reproduced, except in full, without the written approval of Quality Control Services Mass Laboratory.

Member: National Conference of Standards Laboratories and Weights & Measures

Report and Certificate of Calibration

CAL-CERT CALIBRATION CERTIFICATION

www.Cal-Cert.com

Toll Free 800-356-4662

Address 5777 SE International Way Milwaukie, OR 97222

Local 503-654-9620

A2LA ACCREDITED CERT #4986.01

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 Inches	As Found Inches	As Left Reading 1 Inches	As Left Reading 2 Inches	Tolerance ± Inches	Expanded Uncertainty 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.

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:** January 31, 2024

Technical Manager: Marshall Doyle **Signature:**

Copyright 2013 Cal-Cert. All rights reserved.

Established 1974

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

A2LA ACCREDITED
CERTIFICATE #1550.01

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 - 1000lbx0.	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	Test Wt: HB44 Tol: HB44	Test Wt: 200 Tol: 0.04	☐ Good ☑ Fair ☐ Poor
As-Found: Pass:☑ Fail:☐	As-Found: Pass:☑ Fail:☐	As-Found: Pass:☑ Fail:☐	Temperature: 15.8°C
As-Left: Pass:☑ Fail:☐	As-Left: Pass:☑ Fail:☐	As-Left: Pass:☑ Fail:☐	

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. Hysterisis 0.10lb. RH: 45.4%

Report prepared/reviewed by: R. B **Date:** 12-28-23 **Technician:** C.Call

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.

Report and Certificate of Calibration

CAL-CERT
CALIBRATION CERTIFICATION

www.Cal-Cert.com

Toll Free
800-356-4662

Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620

A2LA ACCREDITED
CERT #4986.01

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
Calibration Due Date: December 6, 2024
Calibration Frequency: 12 Months
Manufacturer: Starrett
Type: Tape Measure
Model Number: Exact
Serial #: 138054-2203-00002249
Capacity: 192.00 Inches

Reference: Manufacturer's Spec
Cal-Cert Procedure: CP-115
Indicating System: Stamped
Temperature: 69 °F
Humidity: 51% RH
Asset #: 207
Service Location: Cal-Cert Lab
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	0.2500
1.0000	1.0000	1.0000	1.0000
6.0000	6.0000	6.0000	6.0000
12.0000	12.0000	12.0000	12.0000
64.0000	64.0000	64.0000	64.0000
128.0000	128.0000	128.0000	128.0000
192.0000	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:**

Copyright 2013 Cal-Cert. All rights reserved.

Report and Certificate of Calibration

CAL-CERT CALIBRATION CERTIFICATION

www.Cal-Cert.com

Toll Free 800-356-4662

Address 5777 SE International Way Milwaukie, OR 97222

Local 503-654-9620

A2LA ACCREDITED CERT #4986.01

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

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:**

Copyright 2013 Cal-Cert. All rights reserved.

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 calcuated with RSS method with k=2 for a 95% confidence interval.

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.1	0.1	
	500	499.7	0.3	
Tunnel	1000	999.6	0.4	0.906
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	
	500	499.6	0.4	
Flue	1000	999.5	0.5	0.906
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	
	500	499.4	0.6	
Filter A	1000	999.3	0.7	0.906
Type K	1500	1499.1	0.9	
	2000	1998.8	1.2	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	0	0	
	500	500.4	0.4	
Filter B	1000	1000	0	0.906
Type K	1500	1499.1	0.9	
	2000	1998.8	1.2	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-1	1	
	500	498.9	1.1	
Filter C	1000	998.9	1.1	0.906
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 calcuated with RSS method with k=2 for a 95% confidence interval.

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.7	0.7	
	500	499.2	0.8	
Meter A	1000	999.1	0.9	0.906
Type K	1500	1498.9	1.1	
	2000	1998.7	1.3	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-1	1	
	500	499	1	
Meter B	1000	998.9	1.1	0.906
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	
	500	498.8	1.2	
Meter C	1000	998.7	1.3	0.906
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	
	500	499	1	
FB Top	1000	998.9	1.1	0.906
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	
	500	4998.9	4498.9	
FB Bottom	1000	998.8	1.2	0.906
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 calcuated with RSS method with k=2 for a 95% confidence interval.

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.5	0.5	
	500	499.5	0.5	
FB Back	1000	999.4	0.6	0.906
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	
	500	499.3	0.7	
FB Left	1000	999.2	0.8	0.906
Type K	1500	1499	1	
	2000	1998.7	1.3	

Channel	Std. TC Signal	DUT	Error	Expanded Uncertainty
	0	-0.8	0.8	
	500	499.1	0.9	
FB Right	1000	999.1	0.9	0.906
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	
	500	499.3	0.7	
Catalyst	1000	999.2	0.8	0.906
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	
	50	49.1	0.9	
Ambient	100	99.1	0.9	0.906
Type T	150	149	1	
	200	199.1	0.9	

Making our world more productive

DocNumber: 539508

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

ProSpec EZ Cert

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	

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	Conc:	16.97
R:	19.36	Z:	0	C:	16.99	Conc:	16.98
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	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			

2. **Component:** Carbon monoxide

Requested Concentration: 4.3 %



Compressed gas, n.o.s.
(Carbon Monoxide, Carbon Dioxide, Oxygen, Nitrogen)
UN1956

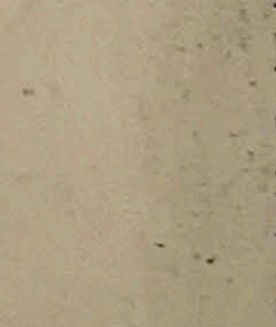
SPG 5P10162.5VM2
Part Number

Primary Standard, +/- 0.02% Absolute

2.500 % Carbon Monoxide	CAS:	630-08-0
10.00 % Carbon Dioxide	CAS:	124-38-9
10.00 % Oxygen	CAS:	7782-44-7
Balance Nitrogen	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 throroughly 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 # 206493
Expires: 2-2024

NorLAB

To Order Call: 800-657-6672

In Emergency Call: 1-800-424-9300

NorLAB, Inc.
698 W Gowen Road
Boise, Idaho, 83705