
Valley Comfort Systems, Inc.
AKA: Blaze King Industries, Inc.
Project # 25-428 (Supplement to 24-274)
Model: Princess PE32
Type: Catalyst Equivalency
July 11, 2024

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

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Prepared by: Aaron Kravitz,
Testing Supervisor



**11785 SE Highway 212 – Suite 305
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Revision Summary

Date: July 11, 2025– Original Issue:

- Catalyst Equivalency testing supplemental data for Blaze King Princess PE32 Report # 24-274.

Contents

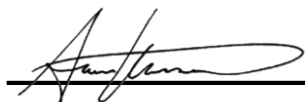
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Affidavit

PFS-TECO was contracted by Valley Comfort Systems, Inc. (Valley Comfort), also known as Blaze King Industries, Inc. (Blaze King) to provide catalyst equivalency testing services for the Princess PE32 Catalytic Wood-Fired Room Heater per EPA Method 28R, *Certification and Auditing of Wood Heaters*. This room heater was originally tested under PFS report 24-273 and provides supplemental catalyst equivalency performance data. All testing and associated procedures were conducted at PFS-TECO's Portland Laboratory beginning on 6/16/2025 and ending on 6/23/2025. 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.

A handwritten signature in blue ink, appearing to read 'Aaron Kravitz', is written over a solid black horizontal line.

Aaron Kravitz, Testing Supervisor

Introduction

Blaze King contracted with PFS-TECO to perform EPA catalyst equivalency certification testing on the Princess PE32 Wood-Fired Room Heater, originally tested under PFS report 24-273. 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 3 test runs were completed in accordance with EPA Method 28R and the Catalyst Equivalency Determination dated 12/16/2016. One test run was performed using a new ceramic substrate catalyst, but performance did not meet requirements. Two test runs (one high burn rate and one low burn rate) were conducted using a new metal substrate catalyst. See Run Narrative section for further detail on each run.
- All filters and O-rings weighed in pairs.

Wood Heater Identification and Testing

- Appliance Tested: **Princess PE32**
- Serial Number: **PFS Tracking Number 183**
- Manufacturer: **Valley Comfort AKA Blaze King**
- Catalyst: **Yes**
- Heat exchange blower: **Optional**
- Type: **Wood Stove**
- Style: **Free Standing Wood Stove**
- Date Received: **Monday, May 19, 2025**
- Testing Period – Start: **Monday, June 16, 2025**
Finish: **Monday, June 23, 2025**
- 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
53	APEX XC-60-ED Digital Emissions Sampling Box A
54	APEX XC-60-ED Digital Emissions Sampling Box B
203	APEX XC-50-DIR Digital Emissions Sampling Box C
55	Apex Ambient Air Sample Box
57	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
115	Delmhorst Wood Moisture Meter
189	Mettler 3'x3' floor scale w/digital weight indicator
209	Dewalt Tape Measure
215	Temperature Logger
DT0042934	Gas Analyzer Calibration Span Gas
CC341544	Gas Analyzer Calibration Mid Gas

Barometric pressure data was taken from a local National Weather Service station, corrected for altitude differences in accordance with ASTM E2515 6.1.2.

Results

A total of 3 test runs were performed on the Princess PE32. The first test, using an Applied Ceramics catalyst, did not meet emissions limits.

The second and third tests used a Performance Industries catalyst. Both tests, when compared to the original tests, met the acceptance criteria defined by the Catalyst Equivalency Determination letter dated 12/15/2016:

Burn Rate Category	Cat. 1 ≤0.80 kg/hr	Cat. 4 Max Burn Rate
Emissions rate g/hr (Original Catalyst)	0.14	1.76
Emissions Limit g/hr (Original rate +0.5 g/hr)	0.64	2.26
Emissions rate g/hr (Performance Industries Catalyst)	0.23	1.25

The Blaze King Princess PE32 Wood-Fired Room Heater meets the 2020 cribwood PM emission standard of ≤ 2.0 g/hr per CFR 40 part 60, §60.532 (b), when equipped with either its original catalyst or the Performance Industries 115-0776 catalyst.

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

Summary Table

Catalyst	Performance Industries 115-0776		Applied Ceramic 115-Z0444
Burn Rate Category	Cat. 1 ≤0.80 kg/hr	Cat. 4 Max Burn Rate	Cat. 4 Max Burn Rate
Date	6/23/2025	6/20/2025	6/16/2025
Run Number	3	2	1
Emission Rate (g/hr)	0.23	1.25	2.47
Burn Rate (kg/hr)	0.76	2.10	2.60
Heat Output (Btu/hr)	12,018	30,435	34,312
Overall Efficiency (% HHV)	85%	77%	71%
CO Emissions (g/MJ Output)	0.17	1.09	2.47
CO Emissions (g/kg Dry Fuel)	2.80	16.72	34.63
CO Emissions (g/min)	0.04	0.58	1.49
Emissions – 1 st hr (g/hr)	1.47	3.24	6.90

Test Run Narrative

Run 1

Run 1 was performed on 6/16/2025 as a category 4 test, per EPA Method 28R. The Applied Ceramic 115-Z0444 catalyst was installed for this test. The total test time was 170 minutes. The particulate emissions rate for the test was 2.47 g/hr, the burn rate was 2.60 kg/hr with an HHV efficiency of 70.9%. All test results were appropriate and valid. There were no anomalies and all test criteria were met. As the emissions rate is greater than 0.5 g/hr plus the original catalyst's emission rate (1.76 g/hr), this catalyst was not be pursued.

Run 2

Run 2 was performed on 6/20/2025 as a category 4 test, per EPA Method 28R. The Performance Industries 115-0776 catalyst was installed for this test. The total test time was 201 minutes. The particulate emissions rate for the test was 1.25 g/hr, the burn rate was 2.01 kg/hr with an HHV efficiency of 77.5%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

Run 3

Run 3 was performed on 6/23/2025 as a category 1 test, per EPA Method 28R. The total test time was 563 minutes. The particulate emissions rate for the test was 0.23 g/hr, the burn rate was 0.76 kg/hr with an HHV efficiency of 84.6%. All test results were appropriate and valid. There were no anomalies and all test criteria were met.

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	75	74	21.8	32.7	29.92	17.9	19.71	22.3	170
2	74	73	26.9	35.7	29.96	26.11	19.12	23.9	201
3	71	74	37.5	29.9	30.05	18.23	19.13	22.3	563

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 knob fully open	Air control knob fully open, fan on high
Run 2	Air control knob fully open	Air control knob fully open, fan on high
Run 3	Air control knob set to 80°	Air control knob set to 80°, fan on low

Appliance Description

Model(s): Princess PE32

Appliance Type: Catalytic Wood-Fired Room Heater

Total/Usable Firebox Volume: Total firebox volume is 3.09 ft³. Usable firebox volume is 2.86 ft³.

Air Introduction System Primary Air enters the firebox from the rear bottom of the appliance and is channeled up the back and to the front of the appliance via tubes located in the firebox. Air then flows into the firebox down through the air wash. No secondary or pilot air ports are utilized in the design. Primary air is controlled via a control knob located on the side of the appliance, towards the back of the unit, which turns clockwise from fully closed to fully open. Dimensions on all these features can be found in Appendix D.

Baffles: A 10.5" wide, 0.135" thick Stainless-Steel smoke baffle hangs behind the combustor.

Catalytic Combustor: Certification testing was performed with an Applied Ceramics ceramic combustor (Manufacturer Part No. 115-Z0444) and a Performance Industries metal combustor (MPN 115-0776). All combustors measure 10.650" by 2.150".

Refractory Insulation: The firebox is lined with 1" thick firebrick.

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

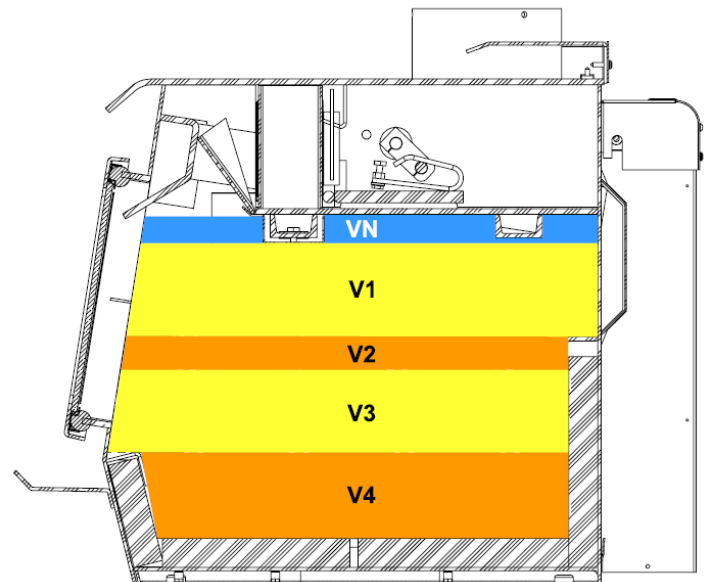
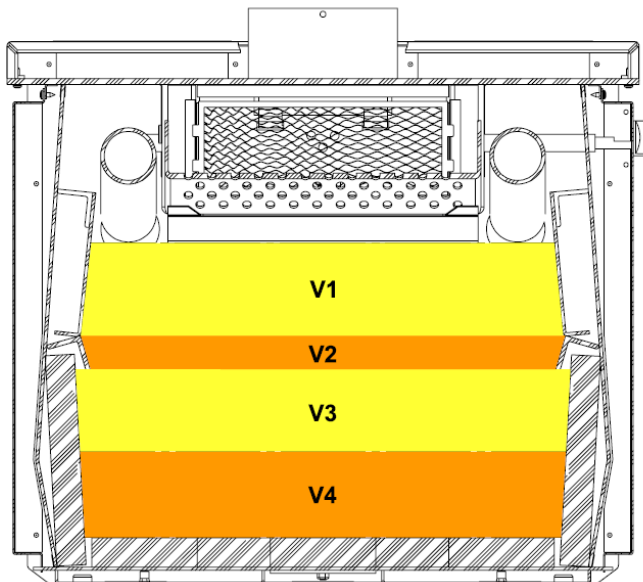
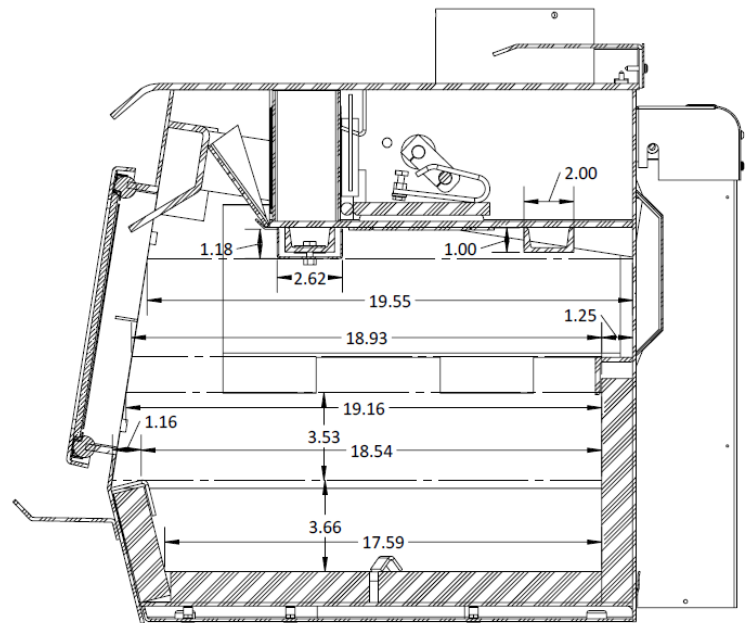
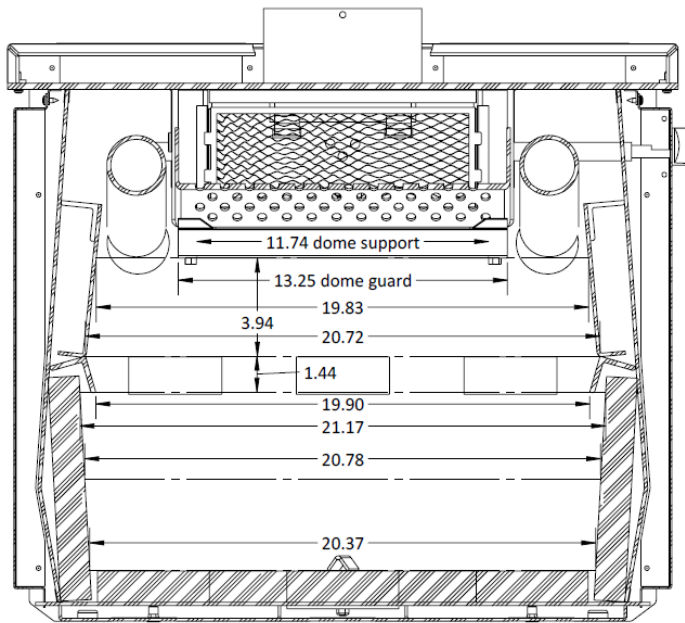
Fan: A variable speed convection fan is mounted to the rear of the appliance.

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

Princess PE32 Unit Dimensions (with pedestal base)

Height	Width	Depth	Firebox Volume
27.375"	27"	29.375"	2.86 ft ³

Firebox Volume Calculation



$$\begin{aligned}
 V1 &= ((20.72 + 19.83) / 2) \times ((18.93 + 1.25 + 19.55) / 2) = 20.275 \times 19.865 = 402.763 \times 3.94 = 1586.886 \\
 V2 &= ((19.90 + 20.72) / 2) \times ((19.16 + 18.93) / 2) = 20.310 \times 19.045 = 386.804 \times 1.44 = 556.998 \\
 V3 &= ((20.78 + 21.17) / 2) \times ((18.54 + 1.16 + 19.16) / 2) = 20.975 \times 19.43 = 407.5443 \times 3.53 = 1438.631 \\
 V4 &= ((20.37 + 20.78) / 2) \times ((17.59 + 18.54) / 2) = 20.575 \times 18.065 = 371.6874 \times 3.66 = 1360.376 \\
 VN &= [19.55 \times 1.18 \times 19.83] - (2.0 \times 1.0 \times 11.74) - (2.62 \times 1.18 \times 13.25) = 457.4583 - 23.48 - 40.9637 = 393.015
 \end{aligned}$$

$$\text{Usable firebox volume} = V1 + V2 + V3 + V4 = 4942.891 \text{ in}^3 = 2.86 \text{ ft}^3$$

$$\text{Non-usable firebox volume: } VN = 393.015 \text{ in}^3 = 0.227 \text{ ft}^3$$

$$\text{Total Firebox Volume (VT)} = \text{Usable firebox volume (VU)} + \text{Non-usable Firebox Volume (VN)}$$

$$\text{Total Firebox Volume: } VT = VU + VN = 2.86 \text{ ft}^3 + 0.227 \text{ ft}^3 = 3.09 \text{ ft}^3$$

Appliance Front



Appliance Rear



Appliance Left



Appliance Right



Test Fuel Properties

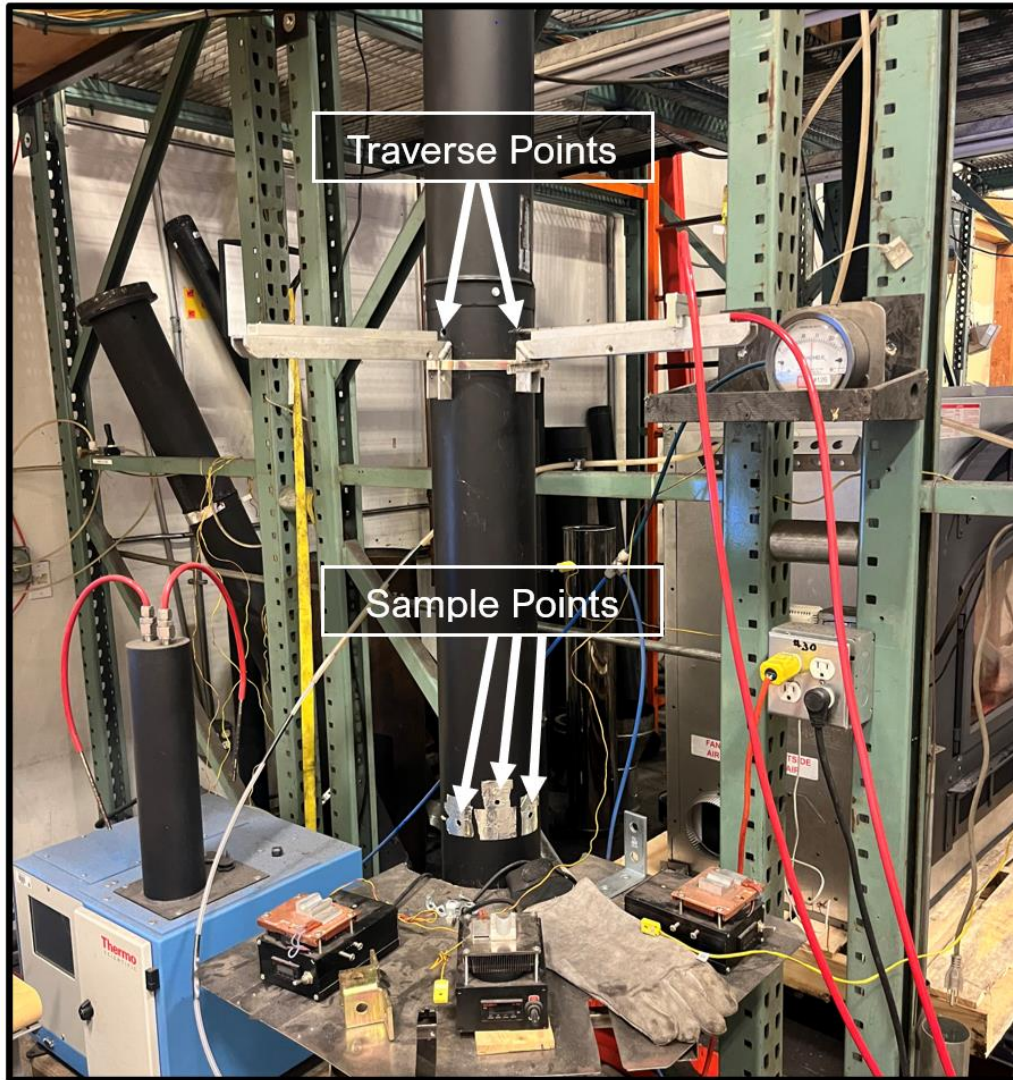
Test fuel used was Douglas Fir dimensional lumber, air-dried to the specified moisture content range. A typical fuel load is pictured below:

Typical Fuel Load



Sampling Locations and Descriptions

Sample ports are located 14 feet downstream from any disturbances and 2 feet upstream from any disturbances. Flow rate traverse data was collected 12 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 is 6 inches in diameter. All sampling conditions per ASTM E2515 were followed. No alternate procedures were used.

Analytical Methods Description

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

Calibration, Quality Control and Assurances

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

Appliance Sealing and Storage

Upon completion of testing, the appliance was secured with metal strapping and the seal below was applied, the appliance was then returned to the manufacturer's location at: 146 A Street, Walla Walla, Washington 99362, for archival.

Sealing Label

ATTENTION:

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

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

REPORT # _____

DATE SEALED _____

MANUFACTURER _____

MODEL # _____

Sealed Unit



List of Appendices

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

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

Appendix B – Labels and Manuals

Appendix C –Equipment Calibration Records

Appendix D – Design Drawings (CBI Report Only)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF
COMPLIANCE

DEC 15 2016

Chris Neufeld
Vice President
Blaze King Industries, Inc.
146 A Street
Walla Walla, Washington 99362

RE: Blaze King Industries, Inc. (Blaze King) Request for Catalyst Suitable Replacement Procedures

Dear Mr. Neufeld:

This letter is in response to the February 3, 2016, Blaze King letter requesting the United States Environmental Protection Agency (EPA) implement a program to allow catalyst equipped wood heater manufacturers and suppliers to seek suitable replacement status during the life cycle of the product. As discussed below, replacement catalysts may be used if equivalency is properly demonstrated.

To have a catalyst deemed suitable for replacement, equivalency testing must be conducted by an EPA-approved test laboratory. Consistent with the 2015 Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces (Subpart AAA) (2015 Standards), the manufacturer must notify the EPA of the date that certification testing (catalyst equivalency testing) is scheduled to begin as stated in Section 60.534(g). This notice must be received by the EPA at least 30 days before the start of testing. EPA will consider the following steps to be adequate to demonstrate replacement catalyst equivalency:

- 1) The manufacturer uses the same test method as the original certification test was conducted. If the original certification test method is no longer valid, the manufacturer requests an alternative test method prior to testing.
- 2) The replacement catalyst is aged 50 hours prior to catalytic equivalency testing. The catalyst is tested in the same model or model line unit in which the original catalyst was tested.
- 3) Both a Category 1 run and Category 4 run are conducted by an EPA-approved test laboratory.

- 4) The new Category 1 run is compared to the original Category 1 run, and the new Category 4 run is compared to the original Category 4 run. The new runs are not more than 0.5 grams/hour greater than the original certification test results for each run. They are compared separately, with no averaging. In equation form:

Replacement catalyst category 1 $\leq$ (original catalyst category 1 + 0.5g/hr)

AND

Replacement catalyst category 4 $\leq$ (original catalyst category 4 + 0.5g/hr)

As noted in Section 60.533(k)(4)¹, the EPA Administrator must approve the change in the catalyst in advance, with proper documentation of the equivalency testing. This documentation consists of the original certification test report category 1 and 4 data and the new category 1 and 4 test data results. All demonstration test data must be sent to WoodHeaterReports@epa.gov within 60 days after the date of completing the test. EPA considers the catalyst equivalency testing to be a form of certification testing governed by the provisions in Section 60.534.

The EPA finds the request outside the scope of an applicability determination. The term "applicability determination" is limited to the Agency's formal decisions, issued in response to a non-hypothetical and site-specific request about the applicability of a specific rule to a specific facility. Therefore, the EPA considers this response to be a regulatory interpretation to a source request for clarification.²

This response has been prepared in consultation with the Office of Air Quality, Planning, and Standards, and the Office of General Counsel. If you have any questions, please contact Rafael Sanchez of my staff at 202-564-7028 or email at sanchez.rafael@epa.gov.

Sincerely,



Edward J. Messina, Director
Monitoring, Assistance, and Media Programs Division
Office of Compliance

¹ A change in the make, model or composition of a catalyst is presumed to affect particulate matter and carbon monoxide emissions and efficiency, unless the change has been requested by the heater manufacturer and has been approved in advance by the Administrator, based on test data that demonstrate that the replacement catalyst is equivalent to or better than the original catalyst in terms of particulate matter emission reduction.

² This regulatory interpretation updates EPA Applicability Determination WDS-138 (July 6, 1990).

cc: Amanda Aldridge, OAQPS
Adam Baumgart-Getz, OAQPS
Mike Toney, OAQPS
Scott Jordan, OGC
Sara Ayres, OC

WOOD STOVE TEST DATA PACKET

ASTM E2780/E2515



Run 1 Data Summary

Client:	Blaze King
Model:	PE32
Job #:	25-428
Tracking #:	183
Test Date:	6/16/2025



Technician Signature

7/11/2025

Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: Blaze KingModel: PE32Run #: 1Job #: 25-428Tracking #: 183Technician: AKDate: 6/16/2025

Burn Rate (kg/hr):	2.60
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	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft ³)	35.899	26.457	26.077	8.509
Average Gas Velocity in Dilution Tunnel (ft/sec)	18.2			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	11576.0			
Average Gas Meter Temperature (°F)	75.4	93.8	93.7	86.4
Total Sample Volume (dscf)	35.807	25.841	25.123	8.434
Average Tunnel Temperature (°F)	116.1			
Total Time of Test (min)	170			
Total Particulate Catch (mg)	0.3	5.6	5.7	5.1
Particulate Concentration, dry-standard (g/dscf)	0.0000084	0.0002167	0.0002269	0.0006047
Total PM Emissions (g)	0.27	6.83	7.17	6.90
Particulate Emission Rate (g/hr)	0.10	2.41	2.53	6.90
Emissions Factor (g/kg)	-	0.93	0.97	-
Difference from Average Total Particulate Emissions (g)	-	0.17	0.17	-
Difference from Average Total Particulate Emissions (%)	-	2.4%	2.4%	-
Difference from Average Emissions Factor (g/kg)	-	0.02	0.02	-

Final Average Results	
Total Particulate Emissions (g)	7.00
Particulate Emission Rate (g/hr)	2.47
Emissions Factor (g/kg)	0.95
HHV Efficiency (%)	70.9%
LHV Efficiency (%)	76.6%
CO Emissions (g/min)	1.49

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	83.7	OK
Face Velocity	< 30 ft/min	9.7	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min:73.9/Max:76.8	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	90% of readings between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Stove Surface ΔT	<126°F	66.3	OK

B415.1 Efficiency Results

Manufacturer: Blaze King
Model: PE32
Date: 06/16/25
Run: 1
Control #: 25-428
Test Duration: 170
Output Category: 4

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	70.9%	76.6%
Combustion Efficiency	97.7%	97.7%
Heat Transfer Efficiency	72.5%	78.4%

Output Rate (kJ/h)	36,171	34,312	(Btu/h)
Burn Rate (kg/h)	2.58	5.68	(lb/h)
Input (kJ/h)	51,029	48,406	(Btu/h)

Test Load Weight (dry kg)	7.30	16.09	dry lb
MC wet (%)	18.26		
MC dry (%)	22.34		
Particulate (g)	7.00		
CO (g)	253		
Test Duration (h)	2.83		

Emissions	Particulate	CO
g/MJ Output	0.07	2.47
g/kg Dry Fuel	0.96	34.63
g/h	2.47	89.21
g/min	0.04	1.49
lb/MM Btu Output	0.16	5.73

Air/Fuel Ratio (A/F)	12.71
-----------------------------	-------

VERSION:

2.4

4/15/2010

WOODSTOVE FUEL DATA - ASTM E2780

Client: Blaze King

Model: PE32

Run #: 1

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/16/2025

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	17.00	24.3		2x4	17.00	20.4
2x4	17.00	24.3		2x4	17.00	22.3
2x4	17.00	21.2		4x4		
2x4	17.00	22.7				
2x4	17.00	24.8				
2x4	17.00	21.9				
2x4	17.00	23.8				
2x4	17.00	24.5				
Total Fuel Weight (lbs):		17.9	Average Moisture (%DB):		23.0	

Firebox Volume (ft³): 2.86

Total 2x4 Crib Weight, with spacers (lbs): 9.85

Total 4x4 Crib Weight, with spacers (lbs): 9.86

Total Wet Fuel Weight, with spacers (lbs): 19.71

Coal Bed Range (20-25%):

Min (lbs): 3.94

Max (lbs): 4.93

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
4x4	16.75	4.61	23.5	19.0	22.0	3.79
4x4	16.75	4.85	21.0	23.7	24.8	3.94
2x4	16.75	2.03	21.3	19.9	20.3	1.68
2x4	16.75	2.05	24.5	24.4	24.3	1.65
2x4	16.75	2.01	20.2	20.8	19.3	1.67
2x4	16.75	2.04	24.8	24.8	23.6	1.64
Total Dry Weight, no spacers (lbs):						14.38
Total Dry Weight, with spacers (lbs):						16.27

Spacer Moisture Readings (%DB)							
14.6	13.3	10.2					
11.4	14.0	10.5					
14.4	9.5	11.7					
9.7	13.1	12.7					
14.4	14.6						
9.0	10.0						
12.0	9.3						
13.4	14.7						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft ³ , DB)	32.6	OK
Loading Density	6.3 - 7.7 (lbs/ft ³ , WB)	6.89	OK
2x4 Fuel Mix	35 - 65 % of total weight	50%	OK

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: Blaze King

Model: PE32

Run #: 1

Test Start Time: 15:29

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/16/2025

Total Sampling Time (min): 170

Recording Interval (min): 1

Meter Box γ Factor: 1.019 (A)Meter Box γ Factor: 1.005 (B)Meter Box γ Factor: 1.024 (C)Meter Box γ Factor: 1.012 (Ambient)Induced Draft Check (in. H₂O): 0

Smoke Capture Check (%): 100%

Date Flue Pipe Last Cleaned: 6/13/2025

Test Fuel Scale Audit (lbs): 10.00

Platform Scale Audit (lbs): 10.0

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.90	29.93	29.92
Relative Humidity (%)	21.8	32.7	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:		35.899	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	0.000	cfm @	-7 in. Hg
(Ambient)	0.000	0.000	cfm @	-12 in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H ₂ O)	Temp (°F)
1	0.054	73
2	0.078	73
3	0.080	73
4	0.056	73
5	0.060	73
6	0.078	73
7	0.074	73
8	0.054	73
Center	0.098	73

Dilution Tunnel H₂O: 2.00 percent

Tunnel Diameter: 6 inches

Pitot Tube Cp: 0.99 [unitless]

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

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

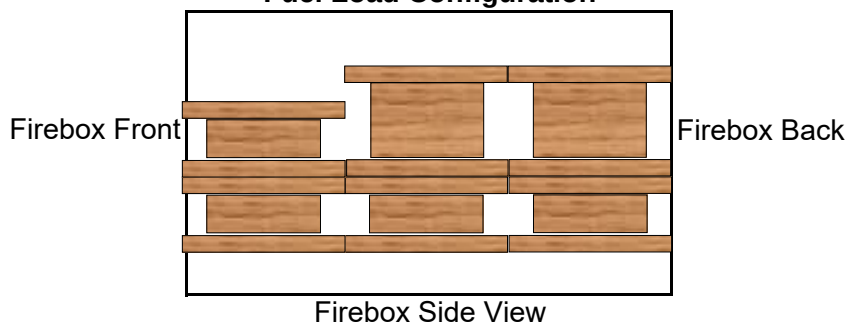
Tunnel Area: 0.1963 ft² V_{strav} : 17.15 ft/sec V_{scent} : 20.86 ft/sec F_p : 0.822 [ratio]

Initial Tunnel Flow: 196.0 scf/min

Static Pressure: -0.120 in. H₂O

TEST FUEL PROPERTIES

Fuel Load Configuration



Actual Fuel Used Properties

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

WOODSTOVE PREBURN DATA - ASTM E2780

Client: Blaze King

Model: PE32

Run #: 1

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/16/2025

 Recording Interval (min): 1
 Run Time (min): 68

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	19.23	-0.062	519	526	340	557	392	467.0	493	74
1	19.12	-0.064	508	515	335	546	395	459.7	448	73
2	18.95	-0.065	497	503	311	522	398	446.1	443	73
3	18.74	-0.070	486	492	288	510	400	435.1	462	73
4	18.50	-0.071	477	482	274	506	402	428.0	480	73
5	18.23	-0.073	469	475	264	510	262	396.0	504	73
6	17.96	-0.075	463	471	258	518	252	392.2	522	73
7	17.68	-0.074	459	468	254	527	247	390.8	531	73
8	17.40	-0.076	455	467	250	535	244	390.2	533	73
9	17.09	-0.075	453	467	248	542	243	390.6	537	73
10	16.76	-0.077	452	469	246	548	241	391.2	538	73
11	16.44	-0.077	453	471	244	552	241	392.1	539	73
12	16.10	-0.077	454	474	244	553	241	393.1	538	73
13	15.75	-0.076	457	478	243	552	240	394.0	537	73
14	15.41	-0.077	460	482	243	552	240	395.4	536	73
15	15.08	-0.077	464	487	244	551	240	397.1	537	73
16	14.73	-0.076	468	492	245	550	241	399.1	537	73
17	14.40	-0.075	473	498	245	549	240	400.8	534	73
18	14.03	-0.077	478	504	247	547	240	402.9	535	74
19	13.68	-0.077	482	510	248	544	241	404.9	532	74
20	13.32	-0.076	488	516	249	542	241	407.1	530	74
21	12.99	-0.076	494	522	251	539	242	409.5	527	74
22	12.66	-0.075	500	528	253	538	242	412.3	525	74
23	12.33	-0.075	506	535	256	538	242	415.2	521	74
24	12.03	-0.074	510	541	258	537	244	418.2	520	74
25	11.73	-0.074	514	548	262	537	249	422.0	516	74
26	11.44	-0.073	519	554	266	537	257	426.6	514	74
27	11.15	-0.073	524	561	269	537	238	425.6	512	74
28	10.86	-0.072	529	568	271	536	295	439.6	510	74
29	10.57	-0.073	534	574	273	535	410	465.1	508	74
30	10.33	-0.071	541	581	275	535	412	468.5	506	74
31	10.06	-0.070	546	588	276	537	413	472.0	503	74
32	9.80	-0.071	553	594	278	539	414	475.5	506	74
33	9.55	-0.071	559	601	281	540	415	478.9	507	75
34	9.29	-0.072	564	608	283	542	416	482.6	506	75
35	9.07	-0.072	570	614	285	544	417	486.0	509	74
36	8.84	-0.073	575	621	288	548	419	489.9	510	74
37	8.62	-0.071	579	627	290	551	421	493.5	510	74
38	8.40	-0.070	583	633	292	555	422	497.0	508	74
39	8.18	-0.071	588	640	293	559	424	500.5	511	74
40	7.97	-0.070	591	647	294	561	426	503.8	509	74
41	7.75	-0.072	594	652	296	566	428	507.0	509	74
42	7.58	-0.071	596	655	298	573	430	510.4	518	74
43	7.42	-0.070	598	658	300	581	433	514.0	524	75
44	7.27	-0.070	601	661	301	588	435	517.1	520	74

WOODSTOVE PREBURN DATA - ASTM E2780

Client: Blaze King
 Model: PE32
 Run #: 1

Job #: 25-428
 Tracking #: 183
 Technician: AK
 Date: 6/16/2025

Recording Interval (min): 1
 Run Time (min): 68

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	7.12	-0.071	603	663	303	595	437	520.2	520	74
46	6.96	-0.070	606	666	305	600	439	523.1	521	74
47	6.82	-0.070	609	670	306	605	442	526.2	519	74
48	6.68	-0.070	615	673	307	606	444	529.2	519	74
49	6.54	-0.069	623	677	311	605	446	532.3	517	75
50	6.42	-0.068	631	680	314	603	448	535.2	514	75
51	6.27	-0.069	637	683	316	600	450	537.4	510	74
52	6.14	-0.067	643	686	319	596	452	539.3	504	74
53	6.01	-0.067	648	689	321	593	454	541.2	502	74
54	5.85	-0.069	653	692	325	591	456	543.5	503	74
55	5.76	-0.067	658	695	329	588	458	545.5	500	74
56	5.66	-0.068	661	698	331	584	459	546.4	498	74
57	5.52	-0.067	663	699	333	579	461	546.9	496	74
58	5.44	-0.066	664	701	334	574	462	547.0	490	74
59	5.35	-0.065	664	702	334	570	463	546.7	486	74
60	5.26	-0.065	663	703	335	566	464	546.4	484	74
61	5.17	-0.066	663	703	335	562	465	545.5	482	74
62	5.08	-0.064	661	702	335	558	466	544.5	479	74
63	4.99	-0.064	660	702	334	554	467	543.5	478	74
64	4.92	-0.062	658	702	333	550	468	542.1	473	75
65	4.82	-0.064	655	701	333	547	469	541.0	474	75
66	4.72	-0.064	654	700	332	544	470	539.8	471	75
67	4.64	-0.064	652	698	331	541	471	538.4	469	74
68	4.58	-0.063	649	697	330	538	472	537.1	465	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.099	0.00	77	0.1		19.68		124	516	75	75
1	0.128	0.128	0.090	2.02	76	1.0	-	19.53	-0.15	133	529	77	75
2	0.271	0.143	0.089	2.07	76	0.9	-	19.33	-0.20	127	503	78	75
3	0.409	0.138	0.088	2.10	76	1.0	-	19.14	-0.19	123	503	78	75
4	0.556	0.147	0.088	2.13	77	1.0	-	18.93	-0.21	121	510	79	75
5	0.698	0.142	0.086	2.16	77	0.9	-	18.76	-0.17	120	509	79	75
6	0.843	0.145	0.089	2.17	77	1.0	-	18.60	-0.16	119	511	79	75
7	0.987	0.144	0.088	2.19	77	1.0	-	18.42	-0.18	119	510	79	75
8	1.131	0.144	0.090	2.20	77	1.0	-	18.25	-0.17	118	511	79	75
9	1.281	0.150	0.090	2.23	77	1.0	-	18.07	-0.18	119	514	79	75
10	1.426	0.145	0.090	2.25	77	1.0	99	17.89	-0.18	119	513	80	75
11	1.576	0.150	0.089	2.27	78	1.0	-	17.73	-0.16	119	511	79	75
12	1.721	0.145	0.092	2.29	78	1.0	-	17.55	-0.18	119	513	80	75
13	1.873	0.152	0.090	2.31	78	1.0	-	17.40	-0.15	120	512	80	75
14	2.019	0.146	0.093	2.31	78	1.0	-	17.23	-0.17	120	514	80	75
15	2.171	0.152	0.092	2.32	79	1.0	-	17.04	-0.19	120	517	80	75
16	2.317	0.146	0.094	2.32	79	1.0	-	16.84	-0.20	119	518	80	75
17	2.471	0.154	0.094	2.32	79	1.0	-	16.66	-0.18	120	519	80	75
18	2.618	0.147	0.095	2.33	79	1.0	-	16.50	-0.16	120	522	80	75
19	2.772	0.154	0.094	2.35	80	1.0	-	16.27	-0.23	121	524	81	75
20	2.919	0.147	0.095	2.35	80	1.0	104	16.08	-0.19	122	524	81	75
21	3.073	0.154	0.096	2.36	80	1.0	-	15.88	-0.20	122	527	81	75
22	3.221	0.148	0.095	2.36	81	1.0	-	15.69	-0.19	122	528	81	76
23	3.376	0.155	0.098	2.37	81	1.1	-	15.47	-0.22	123	532	81	75
24	3.525	0.149	0.097	2.37	81	1.1	-	15.27	-0.20	123	532	81	75
25	3.678	0.153	0.096	2.38	82	1.0	-	15.07	-0.20	123	532	81	75
26	3.828	0.150	0.097	2.38	82	1.1	-	14.87	-0.20	123	531	81	75
27	3.981	0.153	0.098	2.38	82	1.1	-	14.68	-0.19	124	533	81	75
28	4.132	0.151	0.098	2.39	83	1.1	-	14.48	-0.20	124	536	81	75
29	4.285	0.153	0.098	2.37	83	1.1	-	14.29	-0.19	124	539	81	75
30	4.438	0.153	0.100	2.38	83	1.1	103	14.09	-0.20	125	539	81	75
31	4.591	0.153	0.098	2.39	84	1.1	-	13.88	-0.21	124	540	81	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.745	0.154	0.099	2.40	84	1.1	-	13.68	-0.20	124	539	81	75
33	4.897	0.152	0.101	2.39	85	1.1	-	13.44	-0.24	124	544	81	76
34	5.052	0.155	0.100	2.40	85	1.1	-	13.25	-0.19	124	540	81	75
35	5.202	0.150	0.102	2.40	85	1.1	-	13.04	-0.21	124	537	81	76
36	5.357	0.155	0.101	2.41	86	1.1	-	12.83	-0.21	124	539	81	76
37	5.508	0.151	0.102	2.40	86	1.1	-	12.63	-0.20	124	536	82	75
38	5.665	0.157	0.100	2.40	86	1.1	-	12.39	-0.24	125	534	82	76
39	5.816	0.151	0.100	2.40	87	1.1	-	12.18	-0.21	125	530	82	76
40	5.972	0.156	0.102	2.38	87	1.1	102	11.95	-0.23	125	527	82	76
41	6.123	0.151	0.102	2.39	87	1.1	-	11.73	-0.22	124	525	82	76
42	6.277	0.154	0.102	2.39	88	1.1	-	11.55	-0.18	123	527	82	76
43	6.428	0.151	0.103	2.39	88	1.2	-	11.39	-0.16	123	530	82	76
44	6.583	0.155	0.105	2.40	88	1.1	-	11.23	-0.16	122	530	82	76
45	6.736	0.153	0.102	2.40	89	1.2	-	11.07	-0.16	121	527	81	76
46	6.891	0.155	0.104	2.40	89	1.1	-	10.94	-0.13	121	527	81	76
47	7.046	0.155	0.104	2.41	89	1.2	-	10.79	-0.15	121	521	81	76
48	7.199	0.153	0.104	2.42	90	1.2	-	10.65	-0.14	121	518	81	76
49	7.354	0.155	0.106	2.42	90	1.1	-	10.52	-0.13	121	520	81	75
50	7.506	0.152	0.105	2.43	90	1.1	100	10.37	-0.15	121	521	81	76
51	7.664	0.158	0.104	2.42	90	1.1	-	10.20	-0.17	121	519	81	76
52	7.817	0.153	0.105	2.44	91	1.2	-	10.04	-0.16	121	522	81	76
53	7.975	0.158	0.103	2.44	91	1.1	-	9.91	-0.13	120	524	81	76
54	8.126	0.151	0.106	2.43	91	1.1	-	9.74	-0.17	120	523	81	76
55	8.283	0.157	0.105	2.43	91	1.2	-	9.59	-0.15	121	528	81	75
56	8.439	0.156	0.106	2.43	92	1.1	-	9.44	-0.15	121	529	81	76
57	8.593	0.154	0.106	2.44	92	1.1	-	9.27	-0.17	121	530	81	76
58	8.751	0.158	0.104	2.45	92	1.1	-	9.12	-0.15	121	529	81	76
59	8.903	0.152	0.106	2.45	92	1.2	-	8.99	-0.13	121	531	81	76
60	9.061	0.158	0.106	2.45	93	1.2	99	8.84	-0.15	121	529	81	76
61	9.215	0.154	0.106	2.45	93	1.2	-	8.67	-0.17	121	527	82	76
62	9.374	0.159	0.107	2.45	93	1.2	-	8.53	-0.14	120	527	81	76
63	9.525	0.151	0.107	2.44	93	1.2	-	8.36	-0.17	121	524	82	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.683	0.158	0.105	2.45	94	1.2	-	8.22	-0.14	121	523	82	77
65	9.864	0.181	0.107	2.46	94	1.2	-	8.06	-0.16	121	523	82	76
66	10.020	0.156	0.104	2.46	94	1.2	-	7.90	-0.16	121	522	82	77
67	10.176	0.156	0.092	2.44	94	1.2	-	7.76	-0.14	121	520	82	77
68	10.329	0.153	0.108	2.45	94	1.2	-	7.61	-0.15	121	519	82	77
69	10.490	0.161	0.107	2.46	95	1.2	-	7.47	-0.14	121	515	82	76
70	10.644	0.154	0.106	2.46	95	1.2	100	7.33	-0.14	120	512	82	77
71	10.800	0.156	0.108	2.45	95	1.1	-	7.18	-0.15	120	512	82	76
72	10.956	0.156	0.109	2.46	95	1.2	-	7.07	-0.11	120	510	82	76
73	11.114	0.158	0.107	2.47	95	1.2	-	6.93	-0.14	120	508	82	76
74	11.272	0.158	0.107	2.46	96	1.2	-	6.79	-0.14	119	505	81	76
75	11.425	0.153	0.106	2.46	96	1.2	-	6.68	-0.11	118	503	81	77
76	11.585	0.160	0.108	2.47	96	1.2	-	6.56	-0.12	118	500	81	77
77	11.740	0.155	0.106	2.46	96	1.2	-	6.42	-0.14	118	502	81	76
78	11.898	0.158	0.106	2.48	96	1.2	-	6.29	-0.13	118	500	81	76
79	12.053	0.155	0.106	2.47	96	1.2	-	6.17	-0.12	118	498	81	76
80	12.212	0.159	0.105	2.47	97	1.2	99	6.05	-0.12	117	498	81	76
81	12.371	0.159	0.107	2.47	97	1.2	-	5.93	-0.12	116	502	81	76
82	12.524	0.153	0.109	2.46	97	1.2	-	5.80	-0.13	116	501	81	76
83	12.684	0.160	0.105	2.47	97	1.2	-	5.64	-0.16	116	501	81	77
84	12.839	0.155	0.105	2.46	97	1.2	-	5.52	-0.12	116	503	81	77
85	12.997	0.158	0.107	2.46	97	1.2	-	5.37	-0.15	117	502	81	77
86	13.153	0.156	0.107	2.46	98	1.2	-	5.24	-0.13	118	502	81	76
87	13.312	0.159	0.108	2.47	98	1.2	-	5.10	-0.14	118	503	81	75
88	13.471	0.159	0.107	2.47	98	1.2	-	4.96	-0.14	118	500	81	76
89	13.625	0.154	0.107	2.47	98	1.2	-	4.84	-0.12	118	499	81	76
90	13.786	0.161	0.107	2.47	98	1.2	99	4.71	-0.13	117	499	81	76
91	13.941	0.155	0.108	2.47	98	1.2	-	4.57	-0.14	117	499	81	76
92	14.099	0.158	0.106	2.47	98	1.2	-	4.47	-0.10	117	497	81	77
93	14.256	0.157	0.106	2.47	98	1.2	-	4.36	-0.11	117	495	81	77
94	14.414	0.158	0.106	2.47	99	1.2	-	4.25	-0.11	117	495	81	76
95	14.573	0.159	0.106	2.47	99	1.2	-	4.13	-0.12	117	493	81	77

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	14.727	0.154	0.106	2.47	99	1.2	-	4.03	-0.10	117	492	81	76
97	14.889	0.162	0.106	2.47	99	1.2	-	3.92	-0.11	117	491	81	76
98	15.044	0.155	0.105	2.46	99	1.2	-	3.84	-0.08	117	490	81	76
99	15.202	0.158	0.105	2.47	99	1.2	-	3.74	-0.10	116	488	81	76
100	15.362	0.160	0.106	2.49	99	1.2	99	3.65	-0.09	116	485	81	76
101	15.518	0.156	0.106	2.48	99	1.2	-	3.56	-0.09	115	480	81	76
102	15.678	0.160	0.106	2.48	99	1.2	-	3.50	-0.06	115	477	81	76
103	15.834	0.156	0.105	2.48	100	1.2	-	3.42	-0.08	114	472	81	76
104	15.994	0.160	0.106	2.49	100	1.2	-	3.35	-0.07	114	469	81	76
105	16.150	0.156	0.106	2.47	100	1.2	-	3.29	-0.06	114	466	81	76
106	16.309	0.159	0.106	2.48	100	1.2	-	3.20	-0.09	113	462	80	76
107	16.469	0.160	0.106	2.49	100	1.2	-	3.14	-0.06	113	457	80	76
108	16.623	0.154	0.105	2.49	100	1.2	-	3.07	-0.07	113	456	80	76
109	16.785	0.162	0.105	2.48	100	1.2	-	3.01	-0.06	113	453	80	75
110	16.940	0.155	0.106	2.47	100	1.2	99	2.93	-0.08	112	453	80	75
111	17.100	0.160	0.106	2.48	100	1.2	-	2.87	-0.06	112	451	80	75
112	17.259	0.159	0.106	2.48	100	1.2	-	2.79	-0.08	112	452	80	76
113	17.416	0.157	0.106	2.48	100	1.2	-	2.72	-0.07	112	452	80	75
114	17.575	0.159	0.106	2.48	100	1.2	-	2.65	-0.07	112	450	80	75
115	17.731	0.156	0.106	2.48	100	1.2	-	2.59	-0.06	112	450	80	75
116	17.892	0.161	0.105	2.48	101	1.2	-	2.51	-0.08	112	449	80	75
117	18.048	0.156	0.106	2.48	101	1.2	-	2.43	-0.08	112	450	80	75
118	18.207	0.159	0.106	2.49	101	1.2	-	2.37	-0.06	112	451	80	75
119	18.367	0.160	0.105	2.47	101	1.2	-	2.30	-0.07	112	451	80	75
120	18.521	0.154	0.105	2.48	101	1.2	99	2.22	-0.08	112	452	80	75
121	18.684	0.163	0.106	2.48	101	1.2	-	2.15	-0.07	112	455	80	75
122	18.839	0.155	0.105	2.49	101	1.2	-	2.07	-0.08	112	457	80	75
123	18.999	0.160	0.106	2.49	101	1.2	-	1.98	-0.09	112	459	80	75
124	19.158	0.159	0.104	2.49	101	1.2	-	1.92	-0.06	112	460	80	75
125	19.315	0.157	0.104	2.49	101	1.2	-	1.86	-0.06	112	460	80	75
126	19.475	0.160	0.106	2.47	101	1.2	-	1.79	-0.07	112	458	80	75
127	19.631	0.156	0.105	2.48	101	1.2	-	1.74	-0.05	112	454	80	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	19.792	0.161	0.105	2.49	101	1.2	-	1.68	-0.06	111	448	80	75
129	19.948	0.156	0.105	2.48	101	1.2	-	1.64	-0.04	111	443	80	75
130	20.108	0.160	0.104	2.49	101	1.2	99	1.60	-0.04	111	439	80	75
131	20.267	0.159	0.104	2.48	101	1.2	-	1.55	-0.05	110	435	80	75
132	20.422	0.155	0.105	2.48	101	1.2	-	1.50	-0.05	110	433	80	75
133	20.585	0.163	0.105	2.48	101	1.2	-	1.46	-0.04	110	430	80	75
134	20.740	0.155	0.104	2.47	101	1.2	-	1.39	-0.07	110	428	80	75
135	20.900	0.160	0.104	2.48	101	1.2	-	1.35	-0.04	109	426	80	75
136	21.060	0.160	0.102	2.48	101	1.2	-	1.30	-0.05	109	425	80	75
137	21.215	0.155	0.104	2.48	101	1.2	-	1.26	-0.04	109	424	80	75
138	21.377	0.162	0.104	2.48	102	1.2	-	1.21	-0.05	109	423	80	75
139	21.533	0.156	0.103	2.48	102	1.2	-	1.15	-0.06	109	422	79	75
140	21.693	0.160	0.105	2.49	102	1.2	99	1.11	-0.04	109	420	79	75
141	21.851	0.158	0.104	2.49	102	1.2	-	1.07	-0.04	108	420	79	75
142	22.010	0.159	0.105	2.48	102	1.2	-	1.02	-0.05	108	419	79	75
143	22.169	0.159	0.104	2.49	102	1.2	-	0.98	-0.04	108	418	79	74
144	22.326	0.157	0.105	2.48	102	1.2	-	0.93	-0.05	108	416	79	74
145	22.488	0.162	0.105	2.49	102	1.2	-	0.89	-0.04	108	416	79	75
146	22.643	0.155	0.105	2.49	102	1.2	-	0.86	-0.03	108	415	79	75
147	22.803	0.160	0.103	2.48	102	1.2	-	0.82	-0.04	108	414	79	75
148	22.964	0.161	0.104	2.49	102	1.2	-	0.78	-0.04	108	414	79	75
149	23.118	0.154	0.105	2.49	102	1.2	-	0.74	-0.04	108	413	79	75
150	23.281	0.163	0.105	2.48	102	1.2	99	0.69	-0.05	108	411	79	75
151	23.437	0.156	0.104	2.48	102	1.2	-	0.66	-0.03	107	410	79	75
152	23.596	0.159	0.103	2.48	102	1.2	-	0.63	-0.03	107	409	79	75
153	23.757	0.161	0.104	2.48	102	1.2	-	0.59	-0.04	107	408	79	75
154	23.913	0.156	0.103	2.48	102	1.2	-	0.57	-0.02	107	407	79	75
155	24.074	0.161	0.102	2.49	102	1.2	-	0.52	-0.05	107	406	79	74
156	24.231	0.157	0.104	2.48	102	1.2	-	0.47	-0.05	107	405	79	75
157	24.390	0.159	0.104	2.48	102	1.2	-	0.44	-0.03	107	404	79	74
158	24.549	0.159	0.104	2.48	102	1.2	-	0.41	-0.03	107	405	79	74
159	24.708	0.159	0.105	2.49	102	1.2	-	0.36	-0.05	107	403	79	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	24.868	0.160	0.104	2.50	102	1.2	99	0.33	-0.03	107	403	79	74
161	25.024	0.156	0.105	2.48	102	1.2	-	0.30	-0.03	107	403	79	74
162	25.186	0.162	0.106	2.50	102	1.2	-	0.25	-0.05	107	403	79	74
163	25.342	0.156	0.104	2.50	102	1.2	-	0.22	-0.03	107	402	79	74
164	25.502	0.160	0.103	2.49	102	1.2	-	0.18	-0.04	107	401	79	74
165	25.662	0.160	0.104	2.48	102	1.2	-	0.14	-0.04	107	401	79	74
166	25.817	0.155	0.105	2.48	102	1.2	-	0.11	-0.03	106	401	79	74
167	25.981	0.164	0.103	2.49	102	1.2	-	0.08	-0.03	107	400	79	74
168	26.136	0.155	0.104	2.48	102	1.2	-	0.05	-0.03	107	401	79	74
169	26.296	0.160	0.104	2.48	102	1.2	-	0.02	-0.03	107	401	79	74
170	26.457	0.161	0.104	2.48	102	1.2	99	0.00	-0.02	106	401	79	74
Avg/Tot	26.457	0.156	0.103	2.42	93.8	1.1	100			116.1	481.6	80.3	75.4

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
0	0.000		0.01	76	0.7		77	-0.067	8.97	0.051
1	0.102	0.102	2.40	76	1.9	-	80	-0.070	11.74	0.366
2	0.256	0.154	2.41	76	2.0	-	81	-0.071	8.27	0.059
3	0.405	0.149	2.40	76	1.6	-	82	-0.072	13.09	0.196
4	0.559	0.154	2.41	76	1.6	-	82	-0.072	12.55	0.215
5	0.709	0.150	2.41	76	2.0	-	82	-0.072	12.24	0.247
6	0.862	0.153	2.42	76	1.9	-	82	-0.072	11.86	0.209
7	1.015	0.153	2.41	77	1.6	-	82	-0.071	11.47	0.167
8	1.166	0.151	2.41	77	2.1	-	82	-0.071	11.08	0.117
9	1.320	0.154	2.41	77	1.6	-	82	-0.073	11.35	0.183
10	1.470	0.150	2.41	77	1.6	104	82	-0.072	10.88	0.102
11	1.623	0.153	2.41	77	1.6	-	82	-0.070	10.95	0.151
12	1.773	0.150	2.40	78	2.1	-	83	-0.072	10.91	0.125
13	1.927	0.154	2.40	78	1.8	-	82	-0.073	10.96	0.155
14	2.078	0.151	2.40	78	2.0	-	83	-0.071	11.09	0.212
15	2.232	0.154	2.41	78	1.9	-	83	-0.072	11.29	0.230
16	2.382	0.150	2.41	79	1.6	-	83	-0.072	11.34	0.287
17	2.537	0.155	2.40	79	1.6	-	83	-0.074	11.49	0.330
18	2.686	0.149	2.40	79	1.9	-	83	-0.073	11.75	0.361
19	2.840	0.154	2.40	79	2.1	-	83	-0.074	12.02	0.434
20	2.990	0.150	2.39	80	2.1	108	83	-0.074	11.98	0.468
21	3.144	0.154	2.39	80	1.9	-	83	-0.071	11.99	0.557
22	3.297	0.153	2.40	80	1.9	-	83	-0.073	12.10	0.677
23	3.448	0.151	2.39	81	2.2	-	83	-0.073	11.78	0.723
24	3.602	0.154	2.39	81	1.6	-	83	-0.072	11.06	0.687
25	3.751	0.149	2.38	81	1.9	-	83	-0.072	10.87	0.715
26	3.906	0.155	2.38	82	1.8	-	84	-0.072	10.94	0.679
27	4.055	0.149	2.37	82	1.7	-	84	-0.072	11.01	0.682
28	4.210	0.155	2.38	82	2.0	-	84	-0.074	11.04	0.657
29	4.360	0.150	2.38	83	1.9	-	84	-0.074	11.02	0.623
30	4.515	0.155	2.38	83	1.7	105	84	-0.074	11.03	0.589
31	4.665	0.150	2.38	83	1.6	-	84	-0.073	11.13	0.610

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
32	4.819	0.154	2.38	84	2.0	-	84	-0.074	11.17	0.716
33	4.969	0.150	2.37	84	1.8	-	84	-0.074	11.34	0.969
34	5.122	0.153	2.36	84	1.9	-	84	-0.071	11.09	1.156
35	5.275	0.153	2.37	85	1.7	-	84	-0.074	10.98	1.179
36	5.428	0.153	2.38	85	1.8	-	84	-0.073	10.81	1.153
37	5.581	0.153	2.37	85	2.1	-	84	-0.073	10.66	1.091
38	5.732	0.151	2.37	86	1.7	-	84	-0.073	10.49	1.054
39	5.885	0.153	2.35	86	1.7	-	84	-0.073	10.65	1.397
40	6.036	0.151	2.34	86	1.7	102	83	-0.071	10.39	1.640
41	6.189	0.153	2.33	87	2.2	-	83	-0.072	10.52	1.618
42	6.339	0.150	2.34	87	1.7	-	83	-0.070	10.97	1.454
43	6.494	0.155	2.35	87	1.7	-	83	-0.071	12.69	1.152
44	6.643	0.149	2.34	88	1.7	-	83	-0.071	12.83	0.574
45	6.798	0.155	2.35	88	1.7	-	83	-0.070	12.62	0.283
46	6.948	0.150	2.34	88	1.6	-	83	-0.071	12.47	0.196
47	7.102	0.154	2.35	89	2.0	-	83	-0.071	12.53	0.139
48	7.252	0.150	2.33	89	1.7	-	83	-0.068	12.56	0.101
49	7.406	0.154	2.34	89	2.0	-	83	-0.070	12.73	0.131
50	7.559	0.153	2.35	89	2.0	100	83	-0.069	12.58	0.120
51	7.711	0.152	2.35	90	2.0	-	83	-0.072	12.73	0.227
52	7.865	0.154	2.35	90	1.6	-	83	-0.070	12.19	0.311
53	8.015	0.150	2.35	90	1.9	-	83	-0.069	11.63	0.337
54	8.170	0.155	2.35	91	2.1	-	83	-0.070	11.15	0.386
55	8.320	0.150	2.35	91	1.8	-	83	-0.072	10.98	0.409
56	8.476	0.156	2.35	91	2.0	-	83	-0.071	10.88	0.335
57	8.626	0.150	2.34	91	1.7	-	83	-0.071	10.39	0.328
58	8.782	0.156	2.35	92	1.9	-	83	-0.072	10.09	0.332
59	8.931	0.149	2.35	92	2.0	-	83	-0.070	9.75	0.295
60	9.086	0.155	2.34	92	2.2	99	83	-0.069	9.77	0.265
61	9.238	0.152	2.34	92	1.9	-	83	-0.070	9.44	0.247
62	9.392	0.154	2.35	93	1.8	-	83	-0.068	9.76	0.245
63	9.545	0.153	2.34	93	1.8	-	83	-0.072	9.52	0.281

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
64	9.697	0.152	2.35	93	1.7	-	83	-0.070	9.47	0.351
65	9.851	0.154	2.35	93	1.9	-	83	-0.067	9.43	0.434
66	10.002	0.151	2.35	93	2.0	-	83	-0.071	9.44	0.458
67	10.157	0.155	2.35	94	2.1	-	83	-0.070	9.06	0.456
68	10.308	0.151	2.35	94	2.0	-	83	-0.072	8.96	0.435
69	10.464	0.156	2.35	94	1.7	-	83	-0.071	8.86	0.364
70	10.615	0.151	2.35	94	1.8	99	83	-0.071	9.01	0.348
71	10.770	0.155	2.35	95	1.7	-	83	-0.069	9.81	0.373
72	10.921	0.151	2.35	95	1.8	-	83	-0.070	10.84	0.353
73	11.076	0.155	2.35	95	1.7	-	83	-0.068	11.39	0.277
74	11.230	0.154	2.35	95	2.2	-	83	-0.068	11.51	0.084
75	11.383	0.153	2.36	95	1.8	-	83	-0.071	11.56	0.059
76	11.538	0.155	2.36	96	1.7	-	83	-0.069	11.54	0.090
77	11.689	0.151	2.35	96	1.7	-	83	-0.069	11.52	0.107
78	11.846	0.157	2.35	96	1.7	-	83	-0.066	11.73	0.078
79	11.997	0.151	2.35	96	1.7	-	83	-0.069	11.73	0.109
80	12.153	0.156	2.37	96	2.0	99	83	-0.068	11.59	0.110
81	12.305	0.152	2.36	96	2.1	-	83	-0.069	11.39	0.150
82	12.460	0.155	2.35	97	2.0	-	83	-0.070	10.95	0.212
83	12.614	0.154	2.36	97	1.8	-	83	-0.070	11.15	0.282
84	12.768	0.154	2.36	97	1.7	-	83	-0.068	10.88	0.353
85	12.922	0.154	2.35	97	1.7	-	83	-0.069	10.75	0.487
86	13.074	0.152	2.35	97	2.2	-	83	-0.069	10.67	0.636
87	13.231	0.157	2.35	97	2.2	-	83	-0.068	10.39	0.676
88	13.383	0.152	2.35	98	2.0	-	83	-0.068	10.67	0.745
89	13.539	0.156	2.35	98	2.0	-	83	-0.069	10.75	0.642
90	13.690	0.151	2.35	98	2.0	98	83	-0.067	10.71	0.478
91	13.845	0.155	2.35	98	2.2	-	83	-0.068	10.78	0.355
92	14.000	0.155	2.35	98	2.0	-	83	-0.068	10.91	0.259
93	14.154	0.154	2.35	98	2.1	-	83	-0.067	11.26	0.236
94	14.309	0.155	2.36	98	2.2	-	82	-0.066	11.22	0.226
95	14.462	0.153	2.36	99	1.9	-	82	-0.067	11.13	0.161

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
96	14.618	0.156	2.36	99	1.7	-	82	-0.068	10.90	0.131
97	14.770	0.152	2.35	99	1.9	-	82	-0.067	10.48	0.107
98	14.927	0.157	2.35	99	1.8	-	82	-0.067	10.12	0.099
99	15.079	0.152	2.36	99	2.2	-	82	-0.068	10.01	0.053
100	15.234	0.155	2.35	99	2.1	98	82	-0.068	9.79	0.039
101	15.389	0.155	2.36	99	1.7	-	82	-0.065	9.56	0.011
102	15.543	0.154	2.36	99	2.1	-	82	-0.067	9.08	0.004
103	15.698	0.155	2.36	100	2.2	-	82	-0.065	8.76	0.006
104	15.851	0.153	2.35	100	2.2	-	82	-0.065	8.52	0.008
105	16.008	0.157	2.35	100	2.1	-	82	-0.064	8.39	0.009
106	16.161	0.153	2.36	100	2.2	-	82	-0.063	8.22	0.007
107	16.317	0.156	2.36	100	1.8	-	82	-0.064	8.20	0.008
108	16.470	0.153	2.36	100	2.1	-	82	-0.065	8.08	0.011
109	16.626	0.156	2.35	100	2.1	-	82	-0.063	7.98	0.007
110	16.781	0.155	2.35	100	1.7	98	81	-0.064	8.03	0.009
111	16.935	0.154	2.36	100	1.7	-	81	-0.066	7.94	0.007
112	17.091	0.156	2.36	100	2.1	-	81	-0.064	7.73	0.006
113	17.243	0.152	2.36	100	2.1	-	81	-0.064	7.61	0.007
114	17.400	0.157	2.35	100	1.7	-	81	-0.063	7.53	0.007
115	17.553	0.153	2.36	101	2.0	-	81	-0.064	7.52	0.003
116	17.709	0.156	2.36	101	1.8	-	81	-0.065	7.56	0.006
117	17.862	0.153	2.35	101	2.1	-	81	-0.064	7.56	0.005
118	18.018	0.156	2.35	101	1.7	-	81	-0.064	7.53	0.012
119	18.174	0.156	2.35	101	1.9	-	81	-0.066	7.56	0.006
120	18.326	0.152	2.36	101	2.0	98	81	-0.064	7.80	0.010
121	18.482	0.156	2.35	101	1.7	-	81	-0.064	7.95	0.009
122	18.635	0.153	2.35	101	1.9	-	81	-0.068	8.02	0.007
123	18.793	0.158	2.36	101	1.8	-	81	-0.064	7.98	0.009
124	18.944	0.151	2.35	101	2.2	-	81	-0.065	7.87	0.007
125	19.100	0.156	2.35	101	1.8	-	81	-0.064	7.64	0.005
126	19.255	0.155	2.35	101	1.8	-	81	-0.065	7.30	0.007
127	19.410	0.155	2.36	101	1.8	-	81	-0.064	6.97	0.008

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
128	19.565	0.155	2.35	101	1.7	-	81	-0.064	6.70	0.008
129	19.718	0.153	2.35	101	2.2	-	81	-0.066	6.51	0.004
130	19.876	0.158	2.35	101	2.0	98	81	-0.062	6.41	0.007
131	20.029	0.153	2.36	101	2.0	-	81	-0.062	6.54	0.007
132	20.185	0.156	2.35	102	1.9	-	81	-0.061	6.67	0.007
133	20.338	0.153	2.35	102	2.0	-	81	-0.063	6.78	0.009
134	20.495	0.157	2.35	102	2.1	-	81	-0.061	6.82	0.006
135	20.650	0.155	2.36	102	1.7	-	81	-0.060	6.85	0.006
136	20.803	0.153	2.35	102	1.7	-	80	-0.060	6.98	0.005
137	20.959	0.156	2.35	102	1.7	-	80	-0.063	7.13	0.005
138	21.113	0.154	2.36	102	2.2	-	80	-0.060	7.47	0.006
139	21.271	0.158	2.36	102	2.1	-	80	-0.061	7.04	0.008
140	21.422	0.151	2.36	102	2.2	98	80	-0.062	6.17	0.004
141	21.578	0.156	2.35	102	2.2	-	80	-0.062	6.32	0.005
142	21.734	0.156	2.36	102	1.9	-	80	-0.060	6.28	0.006
143	21.889	0.155	2.36	102	2.0	-	80	-0.061	6.24	0.003
144	22.044	0.155	2.35	102	1.7	-	80	-0.061	6.21	0.010
145	22.197	0.153	2.35	102	1.7	-	80	-0.060	6.14	0.006
146	22.355	0.158	2.36	102	1.8	-	80	-0.059	6.01	0.008
147	22.508	0.153	2.36	102	2.2	-	80	-0.059	5.93	0.004
148	22.664	0.156	2.36	102	2.2	-	80	-0.061	5.99	0.005
149	22.818	0.154	2.35	102	2.2	-	80	-0.060	6.00	0.007
150	22.974	0.156	2.36	102	1.7	98	80	-0.059	6.04	0.005
151	23.130	0.156	2.36	102	2.1	-	80	-0.062	6.03	0.006
152	23.283	0.153	2.37	102	1.7	-	80	-0.059	6.05	0.005
153	23.440	0.157	2.36	102	2.2	-	80	-0.062	6.09	0.008
154	23.594	0.154	2.36	102	2.1	-	80	-0.058	6.19	0.006
155	23.751	0.157	2.36	102	2.0	-	80	-0.057	6.20	0.008
156	23.904	0.153	2.36	102	2.1	-	80	-0.059	6.24	0.005
157	24.060	0.156	2.36	102	2.2	-	80	-0.059	6.32	0.006
158	24.216	0.156	2.36	102	2.2	-	80	-0.058	6.33	0.005
159	24.370	0.154	2.37	102	2.1	-	80	-0.059	6.42	0.007

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
160	24.526	0.156	2.36	102	1.8	98	80	-0.059	6.43	0.006
161	24.680	0.154	2.36	102	2.2	-	80	-0.057	6.44	0.009
162	24.837	0.157	2.36	102	1.7	-	80	-0.060	6.48	0.007
163	24.990	0.153	2.36	102	1.8	-	80	-0.059	6.56	0.007
164	25.146	0.156	2.36	102	2.0	-	80	-0.057	6.59	0.008
165	25.301	0.155	2.35	102	2.2	-	80	-0.056	6.63	0.006
166	25.457	0.156	2.36	102	1.7	-	80	-0.058	6.36	0.008
167	25.612	0.155	2.36	102	1.8	-	80	-0.060	6.08	0.003
168	25.765	0.153	2.36	102	2.2	-	80	-0.057	6.04	0.008
169	25.924	0.159	2.36	102	1.9	-	80	-0.058	6.09	0.008
170	26.077	0.153	2.37	102	2.0	98	80	-0.059	6.08	0.006
Avg/Tot	26.077	0.153	2.35	93.7	1.9	100	81.9	-0.067	9.37	0.253

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze King

Model: PE32

Run #: 1

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		0.00	80	0.0		75
1	0.153	0.153	1.43	80	1.1	-	75
2	0.310	0.157	0.96	80	1.6	-	76
3	0.449	0.139	0.94	80	1.5	-	76
4	0.586	0.137	0.95	80	1.5	-	76
5	0.726	0.140	0.96	80	1.5	-	77
6	0.865	0.139	0.95	80	1.4	-	77
7	1.005	0.140	0.97	81	1.5	-	77
8	1.145	0.140	0.96	81	1.6	-	77
9	1.284	0.139	0.96	81	1.5	-	77
10	1.426	0.142	0.98	81	1.5	106	78
11	1.566	0.140	0.96	81	1.6	-	78
12	1.706	0.140	0.97	81	1.6	-	78
13	1.847	0.141	0.98	81	1.6	-	78
14	1.987	0.140	0.96	82	1.6	-	78
15	2.127	0.140	0.97	82	1.4	-	78
16	2.269	0.142	0.98	82	1.6	-	78
17	2.409	0.140	0.97	82	1.5	-	78
18	2.549	0.140	0.97	82	1.6	-	78
19	2.691	0.142	0.98	82	1.5	-	78
20	2.832	0.141	0.97	83	1.6	106	79
21	2.971	0.139	0.97	83	1.5	-	79
22	3.114	0.143	0.98	83	1.5	-	79
23	3.255	0.141	0.97	84	1.6	-	79
24	3.395	0.140	0.98	84	1.6	-	79
25	3.537	0.142	0.98	84	1.6	-	79
26	3.678	0.141	0.97	85	1.5	-	79
27	3.819	0.141	0.97	85	1.5	-	79
28	3.962	0.143	0.99	85	1.5	-	79
29	4.103	0.141	0.98	86	1.6	-	79
30	4.244	0.141	0.97	86	1.7	103	79
31	4.386	0.142	0.99	86	1.7	-	79

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze King

Model: PE32

Run #: 1

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/16/2025

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.528	0.142	0.98	86	1.5	-	79
33	4.670	0.142	0.98	87	1.6	-	79
34	4.811	0.141	0.98	87	1.6	-	79
35	4.955	0.144	0.99	88	1.6	-	79
36	5.097	0.142	0.98	88	1.5	-	79
37	5.238	0.141	0.97	88	1.5	-	79
38	5.380	0.142	0.99	89	1.6	-	79
39	5.523	0.143	0.98	89	1.6	-	79
40	5.664	0.141	0.97	89	1.7	101	79
41	5.805	0.141	0.97	90	1.6	-	79
42	5.947	0.142	0.98	90	1.5	-	79
43	6.088	0.141	0.96	90	1.6	-	79
44	6.229	0.141	0.97	90	1.6	-	79
45	6.372	0.143	0.98	91	1.5	-	79
46	6.514	0.142	0.98	91	1.7	-	79
47	6.655	0.141	0.97	91	1.7	-	79
48	6.797	0.142	0.98	92	1.6	-	79
49	6.940	0.143	0.98	92	1.7	-	79
50	7.082	0.142	0.97	92	1.7	99	79
51	7.224	0.142	0.97	93	1.5	-	79
52	7.367	0.143	0.99	93	1.5	-	79
53	7.510	0.143	0.98	93	1.7	-	79
54	7.652	0.142	0.97	94	1.6	-	79
55	7.794	0.142	0.98	94	1.7	-	79
56	7.938	0.144	0.99	94	1.7	-	79
57	8.080	0.142	0.98	95	1.5	-	79
58	8.223	0.143	0.97	95	1.7	-	79
59	8.365	0.142	0.98	95	1.7	-	79
60	8.509	0.144	0.99	96	1.6	98	79
Avg/Tot	8.509	0.142	0.97	86.4	1.5	102	78.3

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025Stove ΔT : 66

Elapsed Time (min)	Temperature Data (*F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	650	696	336	537	475	538.7	997.4
1	648	688	335	535	477	536.4	961.4
2	634	671	323	534	478	527.8	1024.9
3	618	652	309	537	479	519.1	1115.5
4	603	635	297	543	480	511.5	1155.8
5	589	619	287	549	480	504.6	1168.6
6	576	606	278	553	461	494.6	1166.4
7	565	593	270	555	320	460.6	1161.1
8	554	581	264	557	295	450.4	1161.0
9	545	570	258	559	326	451.7	1163.9
10	537	560	253	560	412	464.6	1161.3
11	530	552	248	561	469	472.1	1160.7
12	524	544	244	562	464	467.5	1158.0
13	518	536	241	562	462	463.9	1159.6
14	514	529	239	562	461	461.0	1166.0
15	510	524	237	564	460	458.8	1175.8
16	507	518	236	565	459	456.9	1189.6
17	504	514	235	568	457	455.3	1202.2
18	502	510	234	571	456	454.5	1215.1
19	501	507	233	574	454	453.7	1226.4
20	500	504	233	578	452	453.5	1233.9
21	500	503	234	582	451	453.9	1248.5
22	500	501	235	586	449	454.2	1264.6
23	501	501	235	590	448	454.7	1279.6
24	501	500	236	596	446	455.6	1287.2
25	501	500	236	600	444	456.2	1290.4
26	501	500	237	604	442	456.9	1293.2
27	502	501	238	607	441	457.8	1295.3
28	503	502	240	610	439	458.7	1301.8
29	504	503	241	615	438	460.2	1308.3
30	506	505	243	619	436	461.6	1309.3
31	508	507	245	622	434	463.2	1306.3
32	511	509	248	625	432	464.9	1301.4
33	514	512	251	627	429	466.7	1293.5
34	517	516	254	628	428	468.4	1291.0
35	521	520	256	630	426	470.6	1290.8
36	524	525	257	634	424	472.8	1293.8
37	528	530	259	636	422	474.8	1282.7
38	532	535	261	634	421	476.4	1242.3
39	537	540	263	629	419	477.7	1211.8
40	543	546	265	624	418	479.2	1197.2
41	548	551	267	622	413	480.1	1201.2
42	553	558	267	621	403	480.2	1243.5
43	556	564	265	624	357	473.4	1269.1
44	559	570	263	625	350	473.4	1253.2
45	561	575	262	625	353	475.3	1225.4
46	563	579	261	624	355	476.4	1202.2
47	565	582	261	621	354	476.5	1187.6

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025Stove ΔT: 66

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	565	585	261	619	355	477.0	1183.6
49	566	588	262	618	354	477.7	1187.3
50	567	591	263	618	354	478.5	1195.3
51	568	595	264	619	353	479.7	1209.1
52	569	598	265	621	353	481.1	1225.3
53	570	602	266	622	357	483.5	1239.0
54	572	606	267	625	357	485.3	1254.3
55	573	610	268	628	317	479.2	1269.5
56	575	613	269	631	284	474.4	1279.3
57	577	618	270	633	265	472.7	1281.7
58	580	621	272	636	243	470.3	1282.6
59	583	625	273	639	233	470.7	1280.8
60	586	629	276	640	230	472.3	1277.9
61	591	632	278	642	226	473.6	1276.7
62	597	635	281	641	224	475.5	1275.9
63	602	637	283	642	224	477.7	1275.3
64	608	640	286	642	224	480.0	1272.0
65	612	643	288	641	227	482.4	1262.7
66	617	647	289	641	228	484.5	1250.8
67	622	652	290	637	234	486.8	1236.2
68	627	656	290	633	248	490.9	1225.1
69	632	661	291	630	254	493.5	1217.8
70	636	665	293	627	286	501.4	1210.8
71	642	669	296	624	351	516.3	1201.8
72	647	674	298	621	365	521.0	1190.5
73	651	680	299	619	400	529.6	1175.9
74	655	686	300	616	400	531.3	1164.8
75	659	691	301	613	400	532.6	1158.4
76	662	694	303	611	400	533.7	1162.1
77	664	696	305	609	400	534.7	1165.5
78	667	698	306	607	400	535.4	1167.8
79	669	699	306	607	400	536.2	1171.6
80	672	700	307	606	400	537.1	1178.6
81	675	701	308	606	400	537.9	1187.7
82	677	701	309	606	401	538.7	1192.8
83	680	702	310	605	401	539.6	1192.3
84	685	703	311	604	401	540.5	1189.4
85	689	703	312	602	401	541.6	1192.0
86	693	704	314	603	402	543.0	1190.5
87	697	707	316	602	402	544.5	1183.3
88	702	711	317	602	402	546.7	1173.7
89	706	715	319	601	402	548.5	1174.3
90	710	718	321	600	403	550.2	1174.2
91	713	720	322	599	403	551.4	1173.7
92	716	721	323	598	403	552.3	1173.3
93	719	722	324	596	403	552.9	1174.3
94	720	722	325	595	404	553.2	1175.4
95	722	721	325	594	404	553.3	1176.1

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 1Technician: AKDate: 6/16/2025Stove ΔT : 66

Elapsed Time (min)	Temperature Data (*F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	723	720	325	594	404	553.2	1176.0
97	724	719	325	593	405	552.9	1176.6
98	725	717	325	593	405	552.9	1177.7
99	727	715	325	592	405	553.0	1167.5
100	728	714	326	590	406	552.8	1143.0
101	729	713	327	586	406	552.1	1115.0
102	727	711	328	581	406	550.5	1089.0
103	724	708	328	575	407	548.4	1070.1
104	719	705	329	569	407	545.9	1056.4
105	714	702	330	564	408	543.3	1044.0
106	709	698	331	558	408	540.8	1030.2
107	704	696	331	553	408	538.2	1019.9
108	699	693	331	548	409	535.8	1016.2
109	694	690	330	544	409	533.5	1017.6
110	689	688	329	541	409	531.2	1021.5
111	685	685	329	538	410	529.2	1024.4
112	680	683	328	535	410	527.2	1025.4
113	676	681	327	533	410	525.3	1025.5
114	673	678	326	531	410	523.6	1025.8
115	669	676	326	528	411	522.1	1023.6
116	666	674	326	526	411	520.7	1020.5
117	663	672	326	525	411	519.3	1019.4
118	661	669	326	523	412	518.1	1022.3
119	659	667	327	521	412	517.1	1026.8
120	658	664	329	520	413	516.5	1035.0
121	657	662	330	520	413	516.3	1048.1
122	657	660	332	520	413	516.5	1059.9
123	657	659	334	521	414	516.8	1065.1
124	657	659	336	521	414	517.4	1066.2
125	656	659	339	521	414	517.9	1060.1
126	656	659	340	520	415	517.9	1040.3
127	655	659	341	518	415	517.5	1008.6
128	654	658	341	514	416	516.5	977.2
129	652	657	342	509	416	515.3	955.5
130	650	657	343	504	417	514.0	939.6
131	649	656	343	499	417	512.9	927.3
132	646	656	343	495	418	511.7	917.7
133	644	656	343	489	418	510.2	909.9
134	642	656	343	485	419	508.9	903.2
135	640	656	342	481	419	507.5	899.0
136	637	657	341	477	420	506.3	896.6
137	635	657	340	474	420	505.1	894.6
138	633	656	339	471	421	504.1	892.0
139	632	656	339	468	421	503.1	888.9
140	631	656	339	465	422	502.2	885.5
141	630	655	339	462	422	501.4	881.0
142	629	654	339	459	422	500.5	876.1
143	628	653	338	456	423	499.7	871.0

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze King
 Model: PE32
 Run #: 1

Job #: 25-428
 Tracking #: 183
 Technician: AK
 Date: 6/16/2025

Stove ΔT : 66

Elapsed Time (min)	Temperature Data (*F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	627	652	338	454	423	498.9	866.6
145	626	651	338	451	424	497.9	864.0
146	625	649	338	449	424	496.8	861.8
147	623	647	337	446	425	495.6	859.0
148	621	645	337	444	425	494.4	855.6
149	619	642	336	443	426	493.1	851.8
150	617	640	335	441	426	491.8	848.3
151	615	638	335	438	427	490.4	844.8
152	612	635	335	436	427	489.2	841.5
153	610	633	334	434	428	487.8	837.9
154	608	631	334	432	429	486.6	834.3
155	606	629	333	430	429	485.3	830.7
156	604	626	333	428	430	484.0	827.3
157	602	624	332	426	430	482.8	824.8
158	600	622	332	423	431	481.8	823.1
159	599	620	332	421	432	480.7	821.7
160	598	618	332	419	432	479.8	820.0
161	597	617	331	418	433	479.1	818.2
162	596	615	332	416	433	478.3	816.0
163	595	613	332	415	434	477.7	814.2
164	595	611	332	413	435	477.1	812.9
165	594	609	332	412	436	476.5	812.7
166	594	608	331	410	436	475.8	814.7
167	592	606	330	410	437	475.0	816.8
168	591	605	329	409	438	474.3	818.0
169	589	603	328	408	438	473.4	818.2
170	587	602	327	408	439	472.4	817.3
Average	614.4	629.2	301.0	554.1	399.8	499.7	1095.5

LAB SAMPLE DATA - ASTM E2515

Client: Blaze KingModel: PE32Run #: 1Job #: 25-428Tracking #: 183Technician: AKDate: 6/16/2025

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	A	G01301	243.9	249.5	5.6
	B	G01302	242.5	248.1	5.6
	C - 1st Hour	G01303	243.4	248.3	4.9
	Amb	G01304	245.0	245.3	0.3
Probes	A	2A	116059.0	116059.0	0.0
	B	2B	116175.0	116175.0	0.0
	C - 1st Hour	2C	116429.9	116430.0	0.1
O-rings	A	2A	3551.1	3351.1	0.0
	B	2B	3570.6	3570.7	0.1
	C - 1st Hour	2C	3388.1	3388.2	0.1

*Negative value corrected to zero

Placed in Dessicator on:

6/16/2025

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	249.6	6/17 15:00	249.5	6/20 14:30				
	B	248.0	6/17 15:00	248.1	6/20 14:30				
	C - 1st Hour	248.2	6/17 15:00	248.3	6/20 14:30				
	Amb	245.3	6/17 15:00	245.3	6/20 14:30				
Probes	A	116059.1	6/17 15:00	116059.0	6/20 14:30				
	B	116175.0	6/17 15:00	116175.0	6/20 14:30				
	C - 1st Hour	116430.0	6/17 15:00	116430.0	6/20 14:30				
O-Rings	A	3551.3	6/17 15:00	3351.1	6/20 14:30				
	B	3570.7	6/17 15:00	3570.7	6/20 14:30				
	C - 1st Hour	3388.1	6/17 15:00	3388.2	6/20 14:30				

Train A Aggregate, mg: 5.6

Train B Aggregate, mg: 5.7

Train C Aggregate, mg: 5.1

Ambient, mg: 0.3

ASTM E2780 Wood Heater Run Sheets

Client: Blaze King Job Number: 25-428 Tracking #: 183
Model: PE32 Run Number: 1 Test Date: 6/16/2025

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Knob fully open
Targeted Burn Category: IV

Preburn Notes

Time	Notes
	-None-

Test Notes

Test Burn Start Time: 15:29 Test Fuel Loaded by: 35 seconds
Door Closed: 40 seconds Air Control Set at: 0 seconds
Other Loading Notes: Bypass open @ 0 sec, closed @ 45 sec, fan on high @ 0 sec

Time	Notes
	-None-

Test Burn End Time: 18:19

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO₂ (%): 17.35 CO (%): 4.350
Mid Gas CO₂ (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	14:17	14:18	14:19	6/17 10:02	6/17 10:03	6/17 10:04
CO ₂	0.00	17.33	10.28	0.09	17.48	10.49
CO	0.000	4.353	2.493	0.021	4.386	2.569

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

Technician Signature: 

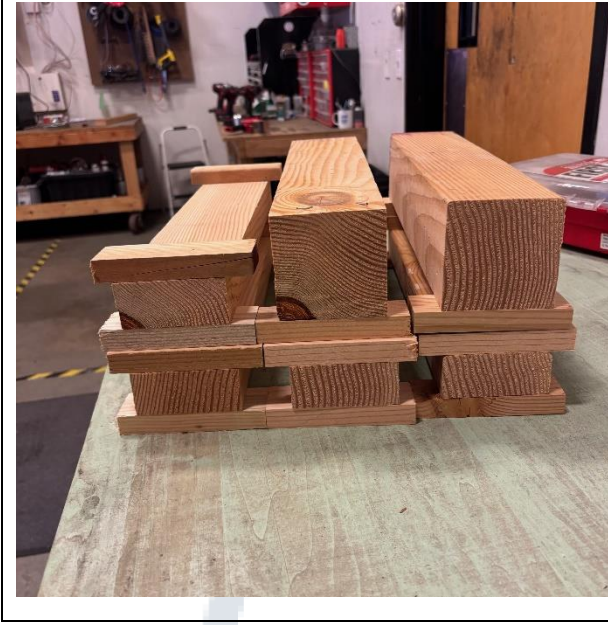
Date: 6/17/25

ASTM E2780 Wood Heater Run Sheets

Client: Blaze King
Model: PE32

Job Number: 25-428
Run Number: 1

Tracking #: 183
Test Date: 6/16/2025



Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____

A handwritten signature in black ink, written over a horizontal line. The signature is stylized and appears to be "A. K. King".

Date: 6/17/25

WOOD STOVE TEST DATA PACKET
ASTM E2780/E2515



Run 2 Data Summary

Client:	Blaze King
Model:	PE32
Job #:	25-428
Tracking #:	183
Test Date:	6/20/2025

Technician Signature

7/11/2025

Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: Blaze KingModel: PE32Run #: 2Job #: 25-428Tracking #: 183Technician: AKDate: 6/20/2025

Burn Rate (kg/hr):	2.10
---------------------------	-------------

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft ³)	46.248	31.788	31.536	8.468
Average Gas Velocity in Dilution Tunnel (ft/sec)	20.5			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	13189.2			
Average Gas Meter Temperature (°F)	73.5	95.3	95.4	87.4
Total Sample Volume (dscf)	46.365	31.016	30.339	8.391
Average Tunnel Temperature (°F)	109.7			
Total Time of Test (min)	201			
Total Particulate Catch (mg)	0.2	3.2	2.9	2.1
Particulate Concentration, dry-standard (g/dscf)	0.0000043	0.0001032	0.0000956	0.0002503
Total PM Emissions (g)	0.19	4.37	4.03	3.24
Particulate Emission Rate (g/hr)	0.06	1.30	1.20	3.24
Emissions Factor (g/kg)	-	0.62	0.57	-
Difference from Average Total Particulate Emissions (g)	-	0.17	0.17	-
Difference from Average Total Particulate Emissions (%)	-	4.0%	4.0%	-
Difference from Average Emissions Factor (g/kg)	-	0.02	0.02	-

Final Average Results	
Total Particulate Emissions (g)	4.20
Particulate Emission Rate (g/hr)	1.25
Emissions Factor (g/kg)	0.60
HHV Efficiency (%)	77.5%
LHV Efficiency (%)	83.8%
CO Emissions (g/min)	0.58

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	83.9	OK
Face Velocity	< 30 ft/min	9.2	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:71.2/Max:74.7	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	0.2	OK

B415.1 Efficiency Results

Manufacturer: Blaze King
Model: PE32
Date: 06/20/25
Run: 2
Control #: 25-428
Test Duration: 201
Output Category: 4

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	77.5%	83.8%
Combustion Efficiency	98.9%	98.9%
Heat Transfer Efficiency	78.4%	84.7%

Output Rate (kJ/h)	32,084	30,435	(Btu/h)
Burn Rate (kg/h)	2.09	4.61	(lb/h)
Input (kJ/h)	41,402	39,275	(Btu/h)

Test Load Weight (dry kg)	7.00	15.43	dry lb
MC wet (%)	19.29		
MC dry (%)	23.91		
Particulate (g)	4.20		
CO (g)	117		
Test Duration (h)	3.35		

Emissions	Particulate	CO
g/MJ Output	0.04	1.09
g/kg Dry Fuel	0.60	16.72
g/h	1.25	34.95
g/min	0.02	0.58
lb/MM Btu Output	0.09	2.53

Air/Fuel Ratio (A/F)	8.78
-----------------------------	------

VERSION:

2.4

4/15/2010

WOODSTOVE FUEL DATA - ASTM E2780

Client: Blaze King
Model: PE32
Run #: 2

Job #: 25-428
Tracking #: 183
Technician: AK
Date: 6/20/2025

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	17.00	23.7		2x4	17.00	23.7
2x4	17.00	24.7		2x4	17.00	24.2
2x4	17.00	24.6		2x4	17.00	23.5
2x4	17.00	21.0		2x4	17.00	23.4
2x4	17.00	21.1		2x4	17.00	24.5
2x4	17.00	21.0		2x4	17.00	19.9
2x4	17.00	24.8				
2x4	17.00	23.0				
Total Fuel Weight (lbs):		26.11	Average Moisture (%DB):		23.1	

Firebox Volume (ft³): 2.86
Total 2x4 Crib Weight, with spacers (lbs): 9.33
Total 4x4 Crib Weight, with spacers (lbs): 9.79
Total Wet Fuel Weight, with spacers (lbs): 19.12

Coal Bed Range (20-25%):
Min (lbs): 3.82
Max (lbs): 4.78

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
4x4	16.75	4.52	20.9	21.7	25.0	3.69
4x4	16.75	4.34	24.6	24.3	24.9	3.48
2x4	16.75	1.85	24.5	24.6	23.4	1.49
2x4	16.75	1.83	23.8	24.6	25.0	1.47
2x4	16.75	1.96	24.5	24.9	24.2	1.57
2x4	16.75	1.94	23.0	23.1	23.3	1.58
Total Dry Weight, no spacers (lbs):						13.28
Total Dry Weight, with spacers (lbs):						15.50

Spacer Moisture Readings (%DB)							
22.6	22.3	21.4					
23.6	19.0	20.0					
19.4	19.1	22.3					
22.6	20.6	21.7					
23.1	23.5	20.3					
19.7	18.9	20.2					
24.0	19.3	18.0					
21.9	18.1	21.2					

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft ³ , DB)	30.1	OK
Loading Density	6.3 - 7.7 (lbs/ft ³ , WB)	6.69	OK
2x4 Fuel Mix	35 - 65 % of total weight	49%	OK

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: **Blaze King**
 Model: **PE32**
 Run #: **2**
 Test Start Time: **13:11**

Job #: **25-428**
 Tracking #: **183**
 Technician: **AK**
 Date: **6/20/2025**

Total Sampling Time (min): **201**
 Recording Interval (min): **1**

Meter Box γ Factor: **1.019 (A)**
 Meter Box γ Factor: **1.005 (B)**
 Meter Box γ Factor: **1.024 (C)**
 Meter Box γ Factor: **1.012 (Ambient)**

Induced Draft Check (in. H₂O): **0**
 Smoke Capture Check (%): **100%**
 Date Flue Pipe Last Cleaned: **6/13/2025**
 Test Fuel Scale Audit (lbs): **10.00**
 Platform Scale Audit (lbs): **10.0**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.95	29.97	29.96
Relative Humidity (%)	26.9	35.7	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:	46.248 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 @	-7 in. Hg
(Ambient)	0.000	0.000	cfm @	-13 in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H ₂ O)	Temp (°F)
1	0.058	74
2	0.076	74
3	0.078	74
4	0.060	74
5	0.062	74
6	0.080	74
7	0.080	74
8	0.058	74
Center	0.083	74

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

V_{strav}: **17.46** ft/sec

V_{scent}: **19.19** ft/sec

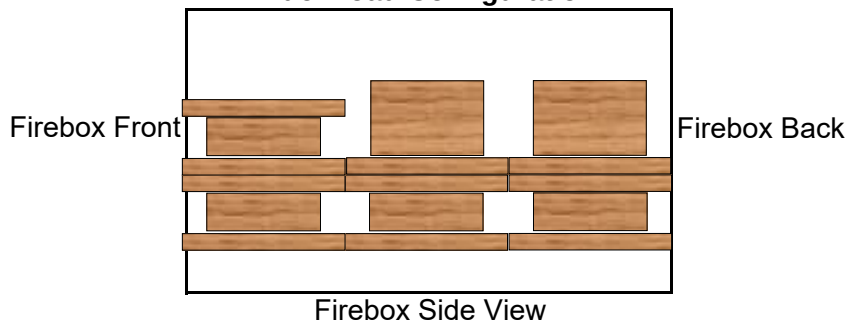
F_p: **0.910** [ratio]

Initial Tunnel Flow: **199.5** scf/min

Static Pressure: **-0.120** in. H₂O

TEST FUEL PROPERTIES

Fuel Load Configuration



Actual Fuel Used Properties

Fuel Type: **D. Fir**
 HHV (kJ/kg): **19,810**
 %C: **48.73**
 %H: **6.87**
 %O: **43.9**
 %Ash: **0.5**
 MC (%DB): **23.9**

WOODSTOVE PREBURN DATA - ASTM E2780

Client: Blaze King

Model: PE32

Run #: 2

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/20/2025

Recording Interval (min): 1
Run Time (min): 171

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	27.31	-0.069	536	631	303	607	527	520.7	468	72
1	27.15	-0.070	524	613	289	598	527	510.0	462	73
2	27.01	-0.069	513	594	277	589	526	500.0	459	72
3	26.86	-0.068	502	578	268	580	525	490.4	458	72
4	26.74	-0.069	491	563	260	572	522	481.6	455	73
5	26.14	-0.067	482	548	252	565	519	473.2	456	73
6	26.00	-0.068	473	535	245	559	515	465.3	459	73
7	25.87	-0.070	465	522	239	553	511	457.9	459	73
8	25.72	-0.068	457	511	234	548	433	436.3	460	73
9	25.57	-0.069	449	500	229	543	493	442.7	462	73
10	25.41	-0.068	443	490	224	539	479	434.7	465	73
11	25.23	-0.069	437	480	219	536	460	426.5	468	73
12	25.09	-0.069	431	472	215	533	465	423.4	470	73
13	24.90	-0.069	425	465	212	532	472	421.2	473	73
14	24.71	-0.070	420	458	209	531	462	416.1	475	73
15	25.13	-0.070	416	452	206	531	463	413.5	476	73
16	24.94	-0.070	412	446	203	532	465	411.5	477	73
17	24.66	-0.071	409	441	201	533	464	409.6	482	74
18	24.46	-0.072	405	437	199	535	469	409.1	488	73
19	24.42	-0.071	403	434	197	539	449	404.4	494	73
20	24.22	-0.073	401	431	196	543	422	398.3	498	73
21	24.01	-0.072	399	428	194	548	389	391.6	503	74
22	23.81	-0.070	397	426	193	554	374	388.8	506	74
23	23.60	-0.072	396	424	192	559	353	384.7	507	74
24	23.38	-0.071	395	423	191	564	350	384.8	509	74
25	23.17	-0.074	395	422	190	570	343	383.9	513	74
26	22.96	-0.074	395	421	190	576	343	385.0	515	74
27	22.75	-0.073	395	421	189	582	329	383.1	516	74
28	22.52	-0.074	395	421	189	588	323	383.0	516	74
29	22.31	-0.072	395	422	189	593	323	384.3	518	73
30	22.08	-0.073	395	422	189	599	319	384.6	517	72
31	21.87	-0.072	396	422	189	604	325	387.1	518	72
32	21.65	-0.074	397	423	189	610	324	388.4	517	72
33	21.44	-0.074	398	424	189	616	310	387.3	519	72
34	21.20	-0.074	400	425	189	621	293	385.6	519	72
35	20.97	-0.073	401	427	190	626	289	386.5	519	72
36	20.77	-0.072	404	429	190	630	285	387.4	516	72
37	20.55	-0.073	406	431	190	635	299	392.1	518	72
38	20.33	-0.073	408	433	191	639	322	398.6	516	72
39	20.11	-0.073	411	436	191	643	327	401.7	518	72
40	19.89	-0.074	414	440	192	648	312	401.0	519	73
41	19.67	-0.074	416	443	193	653	314	403.8	521	73
42	19.46	-0.073	419	447	194	654	335	409.8	525	73
43	19.25	-0.074	423	451	195	656	380	420.8	525	73
44	19.03	-0.072	426	455	196	657	399	426.6	525	74

WOODSTOVE PREBURN DATA - ASTM E2780

Client: Blaze King

Model: PE32

Run #: 2

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/20/2025

Recording Interval (min): 1
Run Time (min): 171

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	18.81	-0.074	429	459	198	657	417	431.9	523	74
46	18.61	-0.073	433	464	199	657	416	433.7	522	74
47	18.38	-0.071	436	468	201	656	416	435.2	519	74
48	18.17	-0.073	440	472	202	654	409	435.3	517	74
49	17.97	-0.073	443	476	203	653	404	435.8	519	74
50	17.76	-0.072	447	480	204	652	372	430.8	519	74
51	17.55	-0.073	451	484	205	650	388	435.4	517	74
52	17.34	-0.072	454	488	206	648	386	436.4	517	74
53	17.14	-0.073	459	491	207	646	344	429.2	513	74
54	16.95	-0.073	463	495	207	644	404	442.6	513	74
55	16.74	-0.075	467	499	208	643	388	440.9	512	74
56	16.52	-0.072	472	502	209	641	370	438.9	512	74
57	16.33	-0.072	476	506	210	637	295	424.9	511	74
58	16.14	-0.071	481	509	212	635	281	423.5	510	74
59	15.96	-0.073	486	513	213	634	268	422.6	509	74
60	15.76	-0.071	490	516	214	633	271	424.7	508	74
61	15.58	-0.071	494	519	215	631	264	424.7	506	74
62	15.40	-0.071	499	522	217	630	256	424.6	506	74
63	15.22	-0.071	503	525	218	630	263	427.8	505	74
64	15.03	-0.071	508	528	219	629	265	429.7	506	74
65	14.86	-0.071	512	531	220	628	263	430.6	505	74
66	14.67	-0.071	515	534	221	627	273	434.1	504	74
67	14.49	-0.071	520	536	222	626	281	437.1	504	74
68	14.31	-0.071	523	539	224	625	291	440.4	505	74
69	14.13	-0.071	527	541	225	624	262	435.9	503	74
70	13.97	-0.071	531	545	226	623	253	435.5	502	74
71	13.78	-0.070	534	547	228	622	251	436.3	501	75
72	13.61	-0.069	537	551	229	622	251	437.9	500	74
73	13.44	-0.071	539	553	231	621	249	438.5	499	74
74	13.25	-0.070	541	556	232	621	249	439.8	501	74
75	13.07	-0.070	544	558	233	620	252	441.4	501	74
76	12.88	-0.070	546	561	235	619	253	442.7	501	74
77	12.69	-0.069	549	565	236	618	253	444.1	501	75
78	12.51	-0.069	552	568	236	618	247	444.2	502	75
79	12.31	-0.070	555	572	238	617	248	445.7	500	75
80	12.15	-0.069	558	575	239	616	247	447.1	500	75
81	11.96	-0.070	561	578	240	616	250	449.2	502	75
82	11.79	-0.069	563	583	242	616	264	453.5	500	75
83	11.63	-0.070	565	588	243	618	296	462.0	497	74
84	11.47	-0.069	566	593	245	619	397	484.1	496	74
85	11.33	-0.069	567	598	246	622	470	500.7	495	74
86	11.18	-0.069	567	603	247	624	470	502.4	495	74
87	11.06	-0.069	568	606	248	626	471	503.6	492	74
88	10.93	-0.069	568	608	248	628	471	504.6	492	75
89	10.80	-0.068	568	609	249	630	471	505.5	490	75

WOODSTOVE PREBURN DATA - ASTM E2780

Client: Blaze King

Model: PE32

Run #: 2

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/20/2025

Recording Interval (min): 1

Run Time (min): 171

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
90	10.69	-0.067	569	610	249	631	470	505.8	488	75
91	10.54	-0.067	569	610	250	631	469	506.0	487	75
92	10.42	-0.067	569	611	250	631	469	505.9	486	75
93	10.30	-0.068	570	610	251	630	468	505.7	486	75
94	10.17	-0.068	570	610	251	629	467	505.6	485	74
95	10.04	-0.067	571	610	252	627	467	505.3	485	74
96	9.91	-0.068	572	610	252	626	466	505.4	485	75
97	9.78	-0.068	573	611	253	625	466	505.5	486	74
98	9.66	-0.068	573	612	254	624	465	505.7	485	75
99	9.53	-0.069	574	614	254	623	465	506.1	485	75
100	9.41	-0.069	575	615	255	622	465	506.4	485	75
101	9.27	-0.068	576	617	256	621	464	506.7	484	75
102	9.13	-0.067	577	618	257	621	464	507.2	482	75
103	9.01	-0.069	579	619	258	620	464	507.7	480	75
104	8.89	-0.067	580	620	258	618	464	508.0	480	75
105	8.78	-0.066	581	622	259	616	464	508.3	478	74
106	8.67	-0.068	582	623	259	615	464	508.6	477	74
107	8.56	-0.065	583	624	260	614	464	509.0	475	74
108	8.46	-0.066	583	625	260	615	465	509.7	475	74
109	8.37	-0.065	583	626	261	616	466	510.2	473	74
110	8.27	-0.066	584	626	261	616	467	510.7	471	75
111	8.18	-0.064	584	626	261	615	468	510.7	469	74
112	8.09	-0.066	583	626	261	612	470	510.3	466	75
113	8.01	-0.065	583	626	260	609	472	509.9	466	75
114	7.93	-0.063	582	625	260	607	474	509.7	466	75
115	7.83	-0.066	581	626	260	606	476	509.8	467	75
116	7.73	-0.066	581	626	260	604	478	509.9	465	75
117	7.63	-0.064	581	627	261	603	481	510.4	465	74
118	7.55	-0.064	581	628	262	602	484	511.2	464	75
119	7.47	-0.066	582	630	263	600	486	512.2	465	75
120	7.40	-0.065	583	632	264	598	488	513.0	464	75
121	7.31	-0.065	584	635	265	595	490	513.9	465	75
122	7.23	-0.064	585	638	266	593	491	514.6	463	75
123	7.15	-0.066	586	642	267	591	493	515.5	463	75
124	7.08	-0.065	587	644	268	588	494	516.1	462	75
125	7.00	-0.063	589	646	269	586	495	516.7	462	75
126	6.93	-0.065	590	647	270	584	496	517.4	460	75
127	6.85	-0.064	592	648	270	582	497	517.9	460	74
128	6.78	-0.063	593	649	271	580	499	518.4	460	74
129	6.70	-0.064	594	650	272	578	500	518.7	459	74
130	6.63	-0.063	595	651	272	576	501	519.0	457	74
131	6.57	-0.063	595	652	273	574	503	519.3	456	74
132	6.51	-0.063	596	652	274	571	504	519.3	456	74
133	6.45	-0.063	596	651	275	568	506	519.2	453	74
134	6.41	-0.061	597	650	275	564	507	518.5	450	74

WOODSTOVE PREBURN DATA - ASTM E2780

Client: Blaze KingModel: PE32Run #: 2Job #: 25-428Tracking #: 183Technician: AKDate: 6/20/2025Recording Interval (min): 1Run Time (min): 171

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
135	6.27	-0.065	597	649	282	560	509	519.3	492	75
136	6.20	-0.064	601	645	288	554	510	519.5	462	75
137	6.13	-0.064	603	640	292	551	511	519.2	450	75
138	6.09	-0.063	605	635	293	546	511	518.1	443	75
139	6.02	-0.061	605	630	294	541	511	516.3	438	75
140	6.00	-0.063	604	625	294	536	511	514.0	433	74
141	5.96	-0.059	602	621	294	530	511	511.4	429	75
142	5.92	-0.060	600	616	293	523	510	508.4	425	74
143	5.90	-0.060	598	611	292	518	509	505.4	421	74
144	5.85	-0.059	595	606	291	511	508	502.3	418	74
145	5.82	-0.059	592	601	290	505	508	499.3	414	74
146	5.79	-0.058	590	597	289	500	507	496.5	412	74
147	5.75	-0.058	587	592	288	494	506	493.5	411	74
148	5.72	-0.058	585	588	287	489	505	490.9	410	74
149	5.69	-0.058	583	584	287	485	505	488.4	408	74
150	6.65	-0.072	580	581	286	482	504	486.6	473	75
151	4.75	-0.059	581	579	288	474	505	485.5	432	74
152	4.74	-0.057	581	579	290	468	506	484.5	413	74
153	4.71	-0.058	579	578	289	463	507	483.1	405	74
154	4.68	-0.057	576	575	288	459	508	481.1	401	74
155	4.66	-0.057	573	571	287	455	508	478.7	400	74
156	4.64	-0.057	568	567	285	452	509	476.1	400	74
157	4.63	-0.057	563	562	283	450	509	473.2	400	74
158	4.60	-0.057	557	557	281	448	509	470.3	400	74
159	4.58	-0.057	552	553	279	445	509	467.4	400	74
160	4.54	-0.056	547	548	277	443	508	464.5	399	74
161	4.52	-0.056	542	544	275	440	508	461.7	398	74
162	4.50	-0.057	537	540	273	438	507	458.8	397	74
163	4.48	-0.057	532	536	271	435	506	456.1	396	74
164	4.45	-0.057	528	532	269	433	505	453.4	396	74
165	4.42	-0.057	524	529	268	430	504	450.8	395	74
166	4.41	-0.056	520	525	266	428	503	448.3	395	74
167	4.37	-0.056	516	522	265	425	501	445.9	394	74
168	4.35	-0.056	513	519	263	423	500	443.7	392	74
169	4.32	-0.056	510	516	262	420	499	441.4	392	74
170	4.30	-0.056	507	514	261	418	497	439.4	391	74
171	4.27	-0.057	505	512	260	415	496	437.4	390	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.103	0.01	79	0.1		19.12		105	389	76	74
1	0.171	0.171	0.097	2.12	78	0.9	-	19.02	-0.10	120	431	78	74
2	0.316	0.145	0.094	2.16	78	0.9	-	18.90	-0.12	116	401	78	74
3	0.461	0.145	0.094	2.07	78	0.9	-	18.75	-0.15	113	407	78	74
4	0.602	0.141	0.094	2.09	78	0.9	-	18.62	-0.13	112	419	78	74
5	0.748	0.146	0.095	2.11	78	0.9	-	18.46	-0.16	112	431	79	74
6	0.889	0.141	0.095	2.14	79	0.9	-	18.30	-0.16	113	442	79	74
7	1.037	0.148	0.094	2.14	79	0.9	-	18.14	-0.16	113	452	79	74
8	1.181	0.144	0.096	2.20	79	0.9	-	17.99	-0.15	114	460	79	74
9	1.330	0.149	0.097	2.21	79	0.9	-	17.81	-0.18	115	466	79	74
10	1.476	0.146	0.097	2.25	79	0.9	100	17.65	-0.16	115	470	80	74
11	1.625	0.149	0.098	2.26	79	0.9	-	17.50	-0.15	115	471	80	74
12	1.773	0.148	0.097	2.29	79	0.9	-	17.31	-0.19	116	474	80	74
13	1.924	0.151	0.098	2.30	80	0.9	-	17.15	-0.16	116	475	80	74
14	2.073	0.149	0.099	2.30	80	0.9	-	16.98	-0.17	117	476	80	74
15	2.224	0.151	0.099	2.31	80	0.9	-	16.80	-0.18	117	479	81	74
16	2.373	0.149	0.099	2.31	80	0.9	-	16.62	-0.18	117	480	81	74
17	2.525	0.152	0.100	2.32	81	1.0	-	16.43	-0.19	118	482	81	74
18	2.675	0.150	0.100	2.33	81	0.9	-	16.24	-0.19	118	482	81	74
19	2.827	0.152	0.100	2.34	81	0.9	-	16.05	-0.19	118	486	81	74
20	2.977	0.150	0.102	2.35	81	0.9	102	15.85	-0.20	118	488	81	74
21	3.131	0.154	0.101	2.35	82	0.9	-	15.65	-0.20	119	493	81	74
22	3.281	0.150	0.103	2.36	82	0.9	-	15.44	-0.21	119	495	81	74
23	3.435	0.154	0.102	2.37	82	1.0	-	15.25	-0.19	119	498	81	74
24	3.584	0.149	0.102	2.37	83	1.0	-	15.05	-0.20	120	497	81	74
25	3.739	0.155	0.103	2.36	83	1.0	-	14.84	-0.21	120	498	81	74
26	3.889	0.150	0.103	2.38	83	1.0	-	14.66	-0.18	120	499	81	74
27	4.045	0.156	0.104	2.38	84	1.0	-	14.45	-0.21	119	498	81	74
28	4.195	0.150	0.104	2.38	84	1.0	-	14.25	-0.20	120	497	81	74
29	4.352	0.157	0.104	2.39	84	1.0	-	14.05	-0.20	119	496	81	74
30	4.502	0.150	0.105	2.38	85	1.0	101	13.84	-0.21	120	494	81	74
31	4.658	0.156	0.105	2.38	85	1.0	-	13.64	-0.20	120	493	82	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.808	0.150	0.106	2.39	85	1.0	-	13.44	-0.20	120	492	81	74
33	4.964	0.156	0.105	2.40	86	1.0	-	13.25	-0.19	119	490	81	74
34	5.116	0.152	0.106	2.39	86	1.0	-	13.07	-0.18	119	489	81	74
35	5.271	0.155	0.105	2.40	86	1.0	-	12.87	-0.20	119	490	81	74
36	5.427	0.156	0.106	2.41	87	1.0	-	12.69	-0.18	119	489	81	74
37	5.580	0.153	0.108	2.41	87	1.0	-	12.51	-0.18	119	487	81	74
38	5.735	0.155	0.106	2.41	87	1.0	-	12.32	-0.19	118	486	81	74
39	5.887	0.152	0.109	2.41	88	1.0	-	12.13	-0.19	118	483	81	74
40	6.045	0.158	0.107	2.42	88	1.0	101	11.95	-0.18	118	481	81	74
41	6.198	0.153	0.109	2.43	88	1.0	-	11.76	-0.19	118	480	81	75
42	6.356	0.158	0.108	2.43	89	1.0	-	11.59	-0.17	117	478	81	75
43	6.507	0.151	0.110	2.41	89	1.0	-	11.42	-0.17	117	477	81	75
44	6.664	0.157	0.109	2.43	89	1.0	-	11.25	-0.17	117	477	81	75
45	6.821	0.157	0.109	2.43	90	1.0	-	11.11	-0.14	116	477	81	75
46	6.975	0.154	0.108	2.44	90	1.0	-	11.00	-0.11	115	475	81	75
47	7.133	0.158	0.108	2.44	90	1.0	-	10.87	-0.13	115	474	80	75
48	7.286	0.153	0.108	2.45	90	1.0	-	10.74	-0.13	114	470	80	75
49	7.446	0.160	0.107	2.45	91	1.0	-	10.61	-0.13	114	468	80	74
50	7.600	0.154	0.109	2.46	91	1.0	100	10.49	-0.12	114	466	80	74
51	7.758	0.158	0.110	2.45	91	1.0	-	10.35	-0.14	114	465	81	74
52	7.913	0.155	0.111	2.46	91	1.0	-	10.23	-0.12	114	464	80	74
53	8.072	0.159	0.111	2.48	92	1.0	-	10.10	-0.13	114	465	81	74
54	8.231	0.159	0.111	2.47	92	1.0	-	9.97	-0.13	113	464	80	74
55	8.384	0.153	0.111	2.49	92	1.0	-	9.83	-0.14	113	465	81	74
56	8.546	0.162	0.110	2.49	92	1.0	-	9.73	-0.10	113	466	81	74
57	8.701	0.155	0.109	2.49	93	1.0	-	9.59	-0.14	113	466	81	74
58	8.859	0.158	0.110	2.49	93	1.0	-	9.45	-0.14	114	468	81	74
59	9.017	0.158	0.112	2.50	93	1.0	-	9.31	-0.14	114	468	81	74
60	9.175	0.158	0.110	2.49	93	1.0	100	9.18	-0.13	113	468	81	73
61	9.334	0.159	0.110	2.50	94	1.0	-	9.05	-0.13	113	469	81	73
62	9.490	0.156	0.111	2.50	94	1.0	-	8.93	-0.12	113	469	81	73
63	9.652	0.162	0.112	2.51	94	1.0	-	8.80	-0.13	113	468	81	73

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.808	0.156	0.111	2.51	94	1.0	-	8.67	-0.13	113	467	81	72
65	9.968	0.160	0.111	2.51	94	1.0	-	8.52	-0.15	113	468	80	72
66	10.128	0.160	0.111	2.52	95	1.0	-	8.37	-0.15	113	469	80	72
67	10.283	0.155	0.111	2.52	95	1.0	-	8.23	-0.14	113	470	80	71
68	10.446	0.163	0.110	2.52	95	1.0	-	8.07	-0.16	113	469	80	72
69	10.602	0.156	0.110	2.52	95	1.0	-	7.92	-0.15	112	469	80	72
70	10.761	0.159	0.110	2.51	95	1.0	100	7.77	-0.15	113	470	80	71
71	10.922	0.161	0.111	2.52	96	1.0	-	7.63	-0.14	113	468	80	72
72	11.078	0.156	0.112	2.51	96	1.0	-	7.49	-0.14	112	468	80	72
73	11.240	0.162	0.113	2.52	96	1.0	-	7.36	-0.13	112	467	80	72
74	11.397	0.157	0.111	2.51	96	1.0	-	7.23	-0.13	112	467	80	72
75	11.557	0.160	0.110	2.52	96	1.0	-	7.09	-0.14	112	467	80	72
76	11.716	0.159	0.112	2.52	96	1.0	-	6.97	-0.12	112	466	80	72
77	11.875	0.159	0.111	2.52	96	1.0	-	6.86	-0.11	112	466	80	72
78	12.036	0.161	0.112	2.53	96	1.0	-	6.74	-0.12	112	466	79	73
79	12.193	0.157	0.111	2.53	96	1.0	-	6.63	-0.11	111	465	79	73
80	12.354	0.161	0.111	2.53	96	1.0	99	6.52	-0.11	111	462	79	73
81	12.513	0.159	0.112	2.52	97	1.0	-	6.41	-0.11	111	461	79	73
82	12.673	0.160	0.112	2.53	97	1.0	-	6.29	-0.12	111	460	79	73
83	12.834	0.161	0.111	2.53	97	1.0	-	6.20	-0.09	111	459	79	73
84	12.991	0.157	0.111	2.54	97	1.0	-	6.08	-0.12	111	458	80	73
85	13.153	0.162	0.111	2.54	97	1.0	-	5.99	-0.09	111	456	79	73
86	13.311	0.158	0.110	2.52	97	1.0	-	5.88	-0.11	111	454	79	73
87	13.472	0.161	0.110	2.52	97	1.0	-	5.78	-0.10	111	452	80	74
88	13.633	0.161	0.109	2.54	97	1.0	-	5.68	-0.10	111	451	79	74
89	13.790	0.157	0.110	2.52	97	1.0	-	5.57	-0.11	111	450	79	74
90	13.952	0.162	0.111	2.53	98	1.0	99	5.48	-0.09	111	449	79	74
91	14.110	0.158	0.110	2.53	98	1.0	-	5.39	-0.09	110	447	79	74
92	14.271	0.161	0.111	2.53	98	1.0	-	5.29	-0.10	110	447	79	74
93	14.433	0.162	0.110	2.54	98	1.0	-	5.21	-0.08	110	446	79	74
94	14.590	0.157	0.109	2.53	98	1.0	-	5.11	-0.10	110	444	80	74
95	14.752	0.162	0.111	2.53	98	1.0	-	5.02	-0.09	110	443	80	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	14.910	0.158	0.109	2.52	98	1.0	-	4.93	-0.09	110	442	80	74
97	15.071	0.161	0.110	2.52	98	1.0	-	4.86	-0.07	110	440	80	74
98	15.232	0.161	0.111	2.54	98	1.0	-	4.77	-0.09	109	438	80	74
99	15.390	0.158	0.111	2.52	98	1.0	-	4.68	-0.09	109	438	80	74
100	15.552	0.162	0.110	2.53	98	1.0	99	4.59	-0.09	109	437	80	74
101	15.710	0.158	0.110	2.53	99	1.0	-	4.51	-0.08	109	437	80	74
102	15.871	0.161	0.110	2.53	99	1.0	-	4.42	-0.09	109	436	80	74
103	16.032	0.161	0.109	2.53	99	1.0	-	4.33	-0.09	109	436	80	74
104	16.190	0.158	0.111	2.52	99	1.0	-	4.25	-0.08	109	436	80	74
105	16.352	0.162	0.110	2.53	99	1.0	-	4.16	-0.09	109	437	80	74
106	16.511	0.159	0.109	2.54	99	1.0	-	4.07	-0.09	109	436	80	74
107	16.671	0.160	0.110	2.53	99	1.0	-	3.98	-0.09	109	436	80	74
108	16.833	0.162	0.110	2.53	99	1.0	-	3.90	-0.08	109	437	80	74
109	16.991	0.158	0.110	2.53	99	1.0	-	3.82	-0.08	109	436	80	74
110	17.152	0.161	0.110	2.52	99	1.0	99	3.74	-0.08	109	435	80	74
111	17.313	0.161	0.110	2.53	99	1.0	-	3.67	-0.07	108	434	80	74
112	17.472	0.159	0.109	2.53	100	1.0	-	3.61	-0.06	108	432	80	74
113	17.634	0.162	0.109	2.52	100	1.0	-	3.54	-0.07	108	430	80	74
114	17.792	0.158	0.110	2.53	100	1.0	-	3.46	-0.08	108	428	80	74
115	17.954	0.162	0.110	2.54	100	1.0	-	3.41	-0.05	108	426	80	74
116	18.115	0.161	0.110	2.53	100	1.0	-	3.35	-0.06	107	424	80	74
117	18.273	0.158	0.110	2.53	100	1.0	-	3.28	-0.07	108	422	80	74
118	18.436	0.163	0.110	2.53	100	1.0	-	3.21	-0.07	107	420	80	74
119	18.595	0.159	0.109	2.54	100	1.0	-	3.16	-0.05	107	418	80	74
120	18.755	0.160	0.108	2.53	100	1.0	100	3.10	-0.06	107	417	80	74
121	18.917	0.162	0.109	2.54	100	1.0	-	3.04	-0.06	107	417	80	74
122	19.074	0.157	0.109	2.53	100	1.0	-	2.99	-0.05	107	414	80	73
123	19.239	0.165	0.110	2.53	100	1.0	-	2.92	-0.07	107	414	79	73
124	19.396	0.157	0.108	2.53	100	1.0	-	2.86	-0.06	106	413	79	73
125	19.558	0.162	0.110	2.53	100	1.0	-	2.80	-0.06	106	412	79	73
126	19.720	0.162	0.108	2.54	100	1.0	-	2.75	-0.05	106	411	79	74
127	19.877	0.157	0.110	2.54	100	1.0	-	2.69	-0.06	106	411	79	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	20.042	0.165	0.108	2.53	101	1.0	-	2.64	-0.05	106	409	80	74
129	20.198	0.156	0.109	2.53	101	1.0	-	2.61	-0.03	106	407	80	74
130	20.361	0.163	0.109	2.53	101	1.0	100	2.54	-0.07	106	407	80	74
131	20.523	0.162	0.109	2.53	101	1.0	-	2.52	-0.02	106	406	80	74
132	20.680	0.157	0.108	2.53	101	1.0	-	2.46	-0.06	106	405	80	74
133	20.845	0.165	0.108	2.53	101	1.0	-	2.41	-0.05	105	403	80	74
134	21.002	0.157	0.110	2.53	101	1.0	-	2.37	-0.04	105	402	80	74
135	21.164	0.162	0.109	2.54	101	1.0	-	2.33	-0.04	105	401	79	74
136	21.325	0.161	0.109	2.53	101	1.0	-	2.28	-0.05	105	401	79	73
137	21.484	0.159	0.108	2.53	101	1.0	-	2.23	-0.05	105	401	79	74
138	21.647	0.163	0.109	2.54	101	1.0	-	2.18	-0.05	105	401	79	74
139	21.806	0.159	0.108	2.53	101	1.0	-	2.15	-0.03	105	400	79	74
140	21.968	0.162	0.108	2.54	101	1.0	100	2.09	-0.06	105	398	79	73
141	22.129	0.161	0.108	2.54	101	1.0	-	2.04	-0.05	105	397	79	73
142	22.288	0.159	0.109	2.53	101	1.0	-	1.99	-0.05	105	396	79	73
143	22.450	0.162	0.109	2.54	101	1.0	-	1.95	-0.04	105	395	79	73
144	22.612	0.162	0.108	2.54	101	1.0	-	1.90	-0.05	105	394	79	73
145	22.770	0.158	0.109	2.54	101	1.0	-	1.87	-0.03	105	394	79	74
146	22.934	0.164	0.108	2.54	101	1.0	-	1.81	-0.06	105	396	79	74
147	23.093	0.159	0.109	2.53	101	1.0	-	1.76	-0.05	105	397	79	74
148	23.253	0.160	0.108	2.53	101	1.0	-	1.71	-0.05	105	396	79	74
149	23.416	0.163	0.109	2.54	101	1.0	-	1.67	-0.04	105	396	79	73
150	23.574	0.158	0.108	2.54	101	1.0	100	1.61	-0.06	105	395	79	73
151	23.738	0.164	0.110	2.53	102	1.0	-	1.57	-0.04	105	395	79	73
152	23.895	0.157	0.107	2.53	102	1.0	-	1.53	-0.04	105	394	79	73
153	24.058	0.163	0.108	2.54	102	1.0	-	1.48	-0.05	105	393	79	73
154	24.220	0.162	0.109	2.54	102	1.0	-	1.46	-0.02	104	393	79	73
155	24.377	0.157	0.107	2.53	102	1.0	-	1.40	-0.06	104	393	79	73
156	24.542	0.165	0.107	2.54	102	1.0	-	1.37	-0.03	104	393	79	73
157	24.700	0.158	0.107	2.54	102	1.0	-	1.33	-0.04	104	393	79	73
158	24.862	0.162	0.107	2.54	102	1.0	-	1.28	-0.05	104	391	79	73
159	25.024	0.162	0.108	2.54	102	1.0	-	1.25	-0.03	104	389	79	73

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	25.183	0.159	0.109	2.55	102	1.0	100	1.23	-0.02	104	389	79	74
161	25.346	0.163	0.107	2.54	102	1.0	-	1.18	-0.05	104	388	79	74
162	25.507	0.161	0.109	2.54	102	1.0	-	1.15	-0.03	104	386	79	74
163	25.667	0.160	0.108	2.55	102	1.0	-	1.11	-0.04	104	386	79	74
164	25.829	0.162	0.109	2.54	102	1.0	-	1.08	-0.03	104	387	79	74
165	25.989	0.160	0.109	2.55	102	1.0	-	1.05	-0.03	104	386	79	74
166	26.150	0.161	0.109	2.54	102	1.0	-	1.02	-0.03	104	387	79	73
167	26.313	0.163	0.109	2.55	102	1.0	-	1.00	-0.02	104	388	79	73
168	26.471	0.158	0.109	2.55	102	1.0	-	0.96	-0.04	104	388	79	73
169	26.636	0.165	0.109	2.54	102	1.0	-	0.93	-0.03	104	388	79	73
170	26.793	0.157	0.108	2.54	102	1.0	100	0.90	-0.03	104	388	79	73
171	26.956	0.163	0.109	2.54	102	1.0	-	0.87	-0.03	104	388	79	73
172	27.118	0.162	0.109	2.54	102	1.0	-	0.83	-0.04	103	387	79	73
173	27.276	0.158	0.108	2.53	102	1.0	-	0.81	-0.02	103	387	79	73
174	27.441	0.165	0.108	2.54	102	1.0	-	0.78	-0.03	104	386	79	73
175	27.599	0.158	0.108	2.55	102	1.0	-	0.74	-0.04	104	386	79	73
176	27.761	0.162	0.107	2.54	102	1.0	-	0.72	-0.02	104	386	79	73
177	27.924	0.163	0.109	2.55	102	1.0	-	0.70	-0.02	104	386	79	74
178	28.082	0.158	0.108	2.54	102	1.0	-	0.66	-0.04	104	386	79	74
179	28.244	0.162	0.108	2.53	102	1.0	-	0.63	-0.03	104	386	79	74
180	28.406	0.162	0.107	2.53	102	1.0	100	0.60	-0.03	104	386	79	73
181	28.565	0.159	0.107	2.54	102	1.0	-	0.58	-0.02	104	385	79	73
182	28.729	0.164	0.108	2.55	102	1.0	-	0.55	-0.03	104	384	79	73
183	28.888	0.159	0.107	2.54	102	1.0	-	0.52	-0.03	104	384	79	73
184	29.049	0.161	0.107	2.54	102	1.0	-	0.49	-0.03	104	383	79	73
185	29.212	0.163	0.109	2.54	102	1.0	-	0.46	-0.03	104	382	79	73
186	29.370	0.158	0.108	2.55	102	1.0	-	0.43	-0.03	104	382	79	73
187	29.535	0.165	0.108	2.54	102	1.0	-	0.39	-0.04	104	382	79	73
188	29.692	0.157	0.109	2.54	102	1.0	-	0.36	-0.03	104	381	79	73
189	29.855	0.163	0.107	2.55	102	1.0	-	0.33	-0.03	104	382	79	73
190	30.017	0.162	0.109	2.54	102	1.0	100	0.31	-0.02	104	381	79	73
191	30.175	0.158	0.108	2.55	102	1.0	-	0.27	-0.04	104	381	79	73

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	30.340	0.165	0.107	2.55	102	1.0	-	0.24	-0.03	104	381	79	73
193	30.498	0.158	0.109	2.54	102	1.0	-	0.21	-0.03	104	380	79	73
194	30.661	0.163	0.107	2.53	102	1.0	-	0.18	-0.03	104	380	79	73
195	30.823	0.162	0.108	2.54	102	1.0	-	0.15	-0.03	104	379	79	73
196	30.982	0.159	0.108	2.55	102	1.0	-	0.13	-0.02	104	380	79	73
197	31.145	0.163	0.109	2.55	102	1.0	-	0.10	-0.03	104	379	79	73
198	31.307	0.162	0.108	2.54	102	1.0	-	0.06	-0.04	104	379	79	73
199	31.465	0.158	0.109	2.55	102	1.0	-	0.04	-0.02	103	378	79	73
200	31.630	0.165	0.108	2.53	102	1.0	100	0.01	-0.03	104	378	79	73
201	31.788	0.158	0.108	2.54	102	1.0	100	0.00	-0.01	104	378	79	73
Avg/Tot	31.788	0.158	0.108	2.47	95.3	1.0	100			109.7	433.1	79.7	73.5

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
0	0.000		0.01	78	0.7		77	-0.056	8.29	0.003
1	0.144	0.144	2.42	78	1.7	-	79	-0.057	4.77	0.006
2	0.294	0.150	2.42	78	1.6	-	80	-0.058	9.08	0.003
3	0.450	0.156	2.42	78	1.5	-	80	-0.062	12.30	0.002
4	0.602	0.152	2.42	78	1.8	-	80	-0.062	12.02	0.006
5	0.757	0.155	2.43	78	1.9	-	81	-0.064	12.61	0.009
6	0.911	0.154	2.42	78	2.0	-	81	-0.066	14.96	0.075
7	1.063	0.152	2.42	79	1.6	-	81	-0.065	15.34	0.125
8	1.217	0.154	2.42	79	2.1	-	82	-0.068	14.80	0.073
9	1.368	0.151	2.41	79	2.1	-	82	-0.067	14.62	0.074
10	1.524	0.156	2.42	79	1.6	104	82	-0.067	14.25	0.045
11	1.675	0.151	2.41	79	2.1	-	82	-0.069	14.39	0.050
12	1.831	0.156	2.41	79	2.1	-	82	-0.068	14.48	0.034
13	1.981	0.150	2.41	80	2.1	-	82	-0.068	14.51	0.020
14	2.136	0.155	2.41	80	1.8	-	83	-0.068	14.76	0.035
15	2.289	0.153	2.42	80	2.1	-	83	-0.068	15.08	0.046
16	2.443	0.154	2.42	80	1.8	-	83	-0.068	15.30	0.051
17	2.598	0.155	2.42	81	1.6	-	83	-0.069	15.59	0.048
18	2.749	0.151	2.41	81	2.2	-	83	-0.070	16.01	0.083
19	2.904	0.155	2.41	81	2.0	-	83	-0.070	16.48	0.112
20	3.056	0.152	2.42	81	1.7	105	83	-0.070	17.06	0.124
21	3.212	0.156	2.42	82	1.7	-	84	-0.070	17.54	0.221
22	3.364	0.152	2.42	82	1.8	-	84	-0.070	17.83	0.357
23	3.519	0.155	2.41	82	1.6	-	84	-0.071	18.00	0.417
24	3.671	0.152	2.41	83	1.6	-	84	-0.070	18.06	0.487
25	3.826	0.155	2.42	83	2.1	-	84	-0.071	18.07	0.548
26	3.981	0.155	2.41	83	1.6	-	84	-0.070	18.15	0.537
27	4.134	0.153	2.41	84	1.7	-	84	-0.068	18.21	0.606
28	4.289	0.155	2.41	84	1.8	-	84	-0.071	18.39	0.755
29	4.440	0.151	2.40	84	2.1	-	84	-0.070	18.49	0.958
30	4.598	0.158	2.41	84	1.7	103	84	-0.071	18.44	1.227
31	4.749	0.151	2.41	85	1.6	-	84	-0.070	18.47	1.364

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
32	4.906	0.157	2.41	85	2.1	-	84	-0.070	18.46	1.377
33	5.058	0.152	2.40	85	1.6	-	84	-0.070	18.54	1.282
34	5.213	0.155	2.41	86	1.7	-	84	-0.070	18.21	1.236
35	5.368	0.155	2.42	86	2.0	-	84	-0.069	18.53	1.074
36	5.522	0.154	2.41	86	1.8	-	84	-0.070	18.55	1.268
37	5.677	0.155	2.41	87	1.6	-	84	-0.069	18.63	1.435
38	5.829	0.152	2.41	87	1.6	-	84	-0.069	18.63	1.649
39	5.987	0.158	2.42	87	1.7	-	84	-0.069	18.61	1.747
40	6.140	0.153	2.42	88	1.6	101	84	-0.070	18.63	1.809
41	6.296	0.156	2.41	88	1.7	-	83	-0.070	18.57	1.866
42	6.449	0.153	2.41	88	1.6	-	83	-0.068	18.44	1.730
43	6.606	0.157	2.42	89	1.8	-	83	-0.069	18.26	1.627
44	6.763	0.157	2.43	89	1.9	-	83	-0.069	18.37	1.174
45	6.916	0.153	2.43	89	2.0	-	83	-0.069	18.21	0.388
46	7.073	0.157	2.43	89	1.9	-	83	-0.069	17.18	0.065
47	7.227	0.154	2.43	90	2.1	-	83	-0.068	16.42	0.008
48	7.384	0.157	2.44	90	2.2	-	83	-0.067	16.08	0.002
49	7.538	0.154	2.43	90	1.7	-	83	-0.066	16.10	0.002
50	7.695	0.157	2.43	91	1.8	101	83	-0.066	16.31	0.003
51	7.853	0.158	2.44	91	2.2	-	83	-0.066	16.64	0.007
52	8.006	0.153	2.44	91	1.9	-	83	-0.065	16.98	0.047
53	8.164	0.158	2.43	91	1.9	-	83	-0.067	16.87	0.061
54	8.318	0.154	2.43	92	1.9	-	83	-0.066	16.89	0.111
55	8.476	0.158	2.43	92	2.1	-	83	-0.068	17.13	0.148
56	8.630	0.154	2.43	92	1.9	-	83	-0.067	17.21	0.149
57	8.788	0.158	2.44	92	1.6	-	83	-0.066	17.26	0.177
58	8.945	0.157	2.44	92	1.8	-	83	-0.068	17.46	0.380
59	9.099	0.154	2.43	93	2.1	-	83	-0.067	17.23	0.107
60	9.259	0.160	2.44	93	2.0	100	83	-0.067	17.44	0.214
61	9.413	0.154	2.45	93	1.8	-	83	-0.067	17.41	0.231
62	9.571	0.158	2.44	93	1.7	-	83	-0.065	17.44	0.224
63	9.727	0.156	2.44	94	1.8	-	83	-0.066	17.37	0.225

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze King
 Model: PE32
 Run #: 2

Job #: 25-428
 Tracking #: 183
 Technician: AK
 Date: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
64	9.884	0.157	2.45	94	2.0	-	83	-0.065	17.43	0.196
65	10.041	0.157	2.45	94	1.7	-	83	-0.068	17.92	0.308
66	10.196	0.155	2.44	94	2.2	-	82	-0.069	18.18	0.944
67	10.356	0.160	2.45	95	1.7	-	82	-0.071	18.28	1.170
68	10.510	0.154	2.45	95	1.6	-	82	-0.067	18.29	1.243
69	10.668	0.158	2.44	95	2.0	-	82	-0.066	18.28	1.121
70	10.826	0.158	2.45	95	1.7	99	82	-0.067	18.18	1.101
71	10.981	0.155	2.45	95	1.8	-	82	-0.068	18.14	0.916
72	11.140	0.159	2.44	96	2.1	-	82	-0.066	18.21	0.883
73	11.296	0.156	2.45	96	2.1	-	81	-0.070	18.39	0.550
74	11.454	0.158	2.45	96	2.1	-	81	-0.067	18.31	0.372
75	11.610	0.156	2.45	96	1.7	-	81	-0.067	18.17	0.248
76	11.768	0.158	2.45	96	2.2	-	81	-0.068	17.95	0.139
77	11.925	0.157	2.45	96	2.1	-	82	-0.066	17.74	0.061
78	12.081	0.156	2.44	96	1.9	-	82	-0.067	17.43	0.018
79	12.241	0.160	2.45	96	1.6	-	82	-0.066	17.18	0.016
80	12.395	0.154	2.45	97	1.6	99	82	-0.066	17.06	0.007
81	12.554	0.159	2.44	97	2.0	-	82	-0.065	16.74	0.004
82	12.712	0.158	2.46	97	2.2	-	82	-0.066	16.69	0.004
83	12.867	0.155	2.44	97	2.1	-	82	-0.067	16.65	0.003
84	13.028	0.161	2.45	97	1.8	-	82	-0.065	16.57	0.002
85	13.182	0.154	2.45	97	2.0	-	82	-0.065	16.49	0.004
86	13.341	0.159	2.44	97	1.6	-	82	-0.064	15.77	0.005
87	13.499	0.158	2.44	97	1.6	-	82	-0.064	15.75	0.003
88	13.655	0.156	2.44	98	1.7	-	82	-0.066	15.75	0.003
89	13.814	0.159	2.45	98	2.0	-	82	-0.063	15.71	0.002
90	13.970	0.156	2.45	98	1.6	99	82	-0.063	15.57	0.002
91	14.129	0.159	2.45	98	2.1	-	82	-0.066	15.47	0.003
92	14.286	0.157	2.44	98	2.2	-	82	-0.063	15.23	0.001
93	14.444	0.158	2.45	98	1.6	-	82	-0.062	15.23	0.003
94	14.602	0.158	2.45	98	1.7	-	82	-0.063	15.29	0.002
95	14.758	0.156	2.45	98	1.6	-	82	-0.065	15.21	0.004

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
96	14.918	0.160	2.45	98	1.6	-	82	-0.064	15.14	0.003
97	15.073	0.155	2.44	99	2.1	-	82	-0.061	14.87	0.003
98	15.233	0.160	2.44	99	1.7	-	82	-0.062	14.89	0.004
99	15.390	0.157	2.45	99	1.9	-	82	-0.062	14.78	0.003
100	15.546	0.156	2.44	99	1.8	99	82	-0.062	14.87	0.004
101	15.707	0.161	2.44	99	1.7	-	82	-0.064	14.96	0.003
102	15.861	0.154	2.45	99	1.6	-	82	-0.064	15.12	0.002
103	16.021	0.160	2.45	99	2.0	-	82	-0.062	15.17	0.002
104	16.180	0.159	2.44	99	2.1	-	82	-0.064	15.19	0.002
105	16.335	0.155	2.45	99	2.1	-	82	-0.063	15.32	0.002
106	16.495	0.160	2.44	99	1.7	-	82	-0.064	15.24	0.004
107	16.651	0.156	2.44	99	2.0	-	82	-0.063	15.11	0.003
108	16.809	0.158	2.44	100	1.8	-	82	-0.063	14.86	0.004
109	16.967	0.158	2.45	100	2.2	-	82	-0.064	14.67	0.003
110	17.124	0.157	2.44	100	2.0	99	82	-0.063	14.14	0.002
111	17.283	0.159	2.44	100	2.0	-	82	-0.065	13.72	0.004
112	17.439	0.156	2.43	100	1.8	-	82	-0.062	13.44	0.003
113	17.599	0.160	2.45	100	1.6	-	82	-0.063	13.28	0.003
114	17.756	0.157	2.44	100	2.1	-	82	-0.062	13.00	0.002
115	17.914	0.158	2.45	100	1.8	-	82	-0.063	12.85	0.002
116	18.072	0.158	2.44	100	1.6	-	82	-0.062	12.79	0.002
117	18.229	0.157	2.44	100	2.0	-	82	-0.063	12.60	0.004
118	18.389	0.160	2.45	100	2.0	-	82	-0.062	12.39	0.005
119	18.544	0.155	2.44	100	1.8	-	82	-0.063	12.38	0.003
120	18.704	0.160	2.44	100	1.6	99	82	-0.061	12.40	0.002
121	18.862	0.158	2.45	100	1.9	-	82	-0.061	12.51	0.002
122	19.019	0.157	2.45	100	1.7	-	82	-0.061	12.58	0.003
123	19.180	0.161	2.45	101	2.1	-	82	-0.059	12.50	0.003
124	19.335	0.155	2.45	101	1.9	-	82	-0.061	12.45	0.004
125	19.494	0.159	2.45	101	1.7	-	82	-0.060	12.53	0.003
126	19.653	0.159	2.45	101	1.8	-	82	-0.059	12.36	0.001
127	19.809	0.156	2.44	101	1.6	-	82	-0.060	12.11	0.002

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
128	19.970	0.161	2.44	101	2.2	-	82	-0.059	12.01	0.001
129	20.125	0.155	2.45	101	1.7	-	82	-0.059	11.77	0.002
130	20.285	0.160	2.45	101	2.2	99	82	-0.061	11.56	0.002
131	20.444	0.159	2.45	101	2.1	-	82	-0.060	11.33	0.002
132	20.600	0.156	2.45	101	2.0	-	82	-0.060	11.14	0.001
133	20.761	0.161	2.45	101	1.6	-	82	-0.060	11.04	0.002
134	20.916	0.155	2.44	101	1.9	-	82	-0.058	10.97	0.001
135	21.076	0.160	2.45	101	2.1	-	82	-0.059	10.97	0.003
136	21.235	0.159	2.45	101	2.1	-	81	-0.059	11.29	0.003
137	21.391	0.156	2.45	101	1.6	-	81	-0.059	11.32	0.001
138	21.552	0.161	2.45	101	1.7	-	81	-0.059	11.36	0.002
139	21.708	0.156	2.45	101	1.6	-	81	-0.059	11.11	0.003
140	21.867	0.159	2.44	101	1.9	99	81	-0.059	11.08	0.002
141	22.026	0.159	2.45	102	1.7	-	81	-0.059	11.11	0.003
142	22.183	0.157	2.45	102	1.6	-	81	-0.059	11.06	0.003
143	22.343	0.160	2.45	102	1.7	-	81	-0.058	11.02	0.001
144	22.500	0.157	2.45	102	1.8	-	81	-0.060	11.09	0.003
145	22.659	0.159	2.44	102	1.6	-	81	-0.059	11.12	0.002
146	22.817	0.158	2.45	102	1.6	-	81	-0.057	11.22	0.001
147	22.974	0.157	2.45	102	2.1	-	81	-0.058	11.31	0.001
148	23.135	0.161	2.45	102	1.8	-	81	-0.061	11.34	0.003
149	23.291	0.156	2.45	102	1.6	-	81	-0.058	11.32	0.003
150	23.450	0.159	2.45	102	1.7	99	81	-0.061	11.21	0.002
151	23.609	0.159	2.45	102	1.8	-	81	-0.058	11.04	0.003
152	23.766	0.157	2.45	102	1.6	-	81	-0.058	10.85	0.003
153	23.926	0.160	2.45	102	2.0	-	81	-0.058	10.63	0.002
154	24.083	0.157	2.45	102	1.8	-	81	-0.058	10.51	0.003
155	24.243	0.160	2.45	102	1.6	-	81	-0.057	10.38	0.003
156	24.401	0.158	2.45	102	1.8	-	81	-0.061	10.26	0.003
157	24.559	0.158	2.45	102	2.0	-	81	-0.057	10.20	0.002
158	24.718	0.159	2.44	102	1.6	-	81	-0.059	10.01	0.003
159	24.875	0.157	2.44	102	1.7	-	81	-0.059	9.87	0.001

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
160	25.035	0.160	2.45	102	1.9	99	81	-0.056	9.79	0.003
161	25.193	0.158	2.45	102	1.9	-	81	-0.058	9.79	0.002
162	25.351	0.158	2.46	102	2.1	-	81	-0.055	9.79	0.004
163	25.510	0.159	2.45	102	2.0	-	81	-0.057	9.80	0.003
164	25.667	0.157	2.45	102	1.6	-	81	-0.056	9.87	0.002
165	25.828	0.161	2.46	102	2.2	-	81	-0.057	9.69	0.004
166	25.985	0.157	2.45	102	1.6	-	81	-0.057	9.55	0.003
167	26.144	0.159	2.45	102	1.6	-	81	-0.058	9.45	0.002
168	26.303	0.159	2.45	102	1.6	-	81	-0.057	9.36	0.003
169	26.460	0.157	2.45	102	1.8	-	81	-0.059	9.31	0.003
170	26.620	0.160	2.46	102	1.7	99	81	-0.058	9.27	0.001
Avg/Tot	31.536	0.157	2.43	95.4	1.8	100	81.9	-0.063	13.73	0.198

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze King

Model: PE32

Run #: 2

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		0.00	82	0.0		74
1	0.133	0.133	0.93	82	1.4	-	74
2	0.270	0.137	0.93	82	1.5	-	75
3	0.409	0.139	0.94	82	1.5	-	75
4	0.546	0.137	0.94	82	1.5	-	75
5	0.686	0.140	0.95	82	1.6	-	75
6	0.824	0.138	0.94	82	1.6	-	75
7	0.964	0.140	0.95	82	1.5	-	75
8	1.103	0.139	0.94	83	1.6	-	75
9	1.241	0.138	0.95	82	1.6	-	75
10	1.381	0.140	0.96	83	1.5	102	75
11	1.520	0.139	0.94	83	1.5	-	75
12	1.660	0.140	0.96	83	1.5	-	76
13	1.799	0.139	0.95	83	1.7	-	76
14	1.938	0.139	0.95	83	1.6	-	76
15	2.079	0.141	0.96	83	1.6	-	76
16	2.218	0.139	0.95	83	1.6	-	76
17	2.357	0.139	0.96	83	1.6	-	76
18	2.498	0.141	0.96	83	1.6	-	76
19	2.637	0.139	0.95	84	1.6	-	76
20	2.778	0.141	0.97	84	1.7	104	76
21	2.918	0.140	0.96	84	1.5	-	77
22	3.057	0.139	0.95	85	1.6	-	77
23	3.199	0.142	0.97	85	1.6	-	77
24	3.339	0.140	0.95	85	1.7	-	77
25	3.479	0.140	0.96	85	1.5	-	77
26	3.621	0.142	0.97	86	1.5	-	77
27	3.761	0.140	0.96	86	1.5	-	77
28	3.901	0.140	0.96	86	1.6	-	77
29	4.044	0.143	0.97	87	1.7	-	77
30	4.184	0.140	0.96	87	1.6	103	77
31	4.325	0.141	0.96	87	1.6	-	77

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze King

Model: PE32

Run #: 2

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/20/2025

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.467	0.142	0.97	87	1.6	-	77
33	4.608	0.141	0.96	88	1.7	-	77
34	4.748	0.140	0.96	88	1.7	-	77
35	4.891	0.143	0.98	88	1.7	-	77
36	5.032	0.141	0.97	88	1.6	-	77
37	5.173	0.141	0.96	89	1.7	-	77
38	5.315	0.142	0.98	89	1.5	-	77
39	5.457	0.142	0.98	90	1.7	-	77
40	5.599	0.142	0.97	90	1.5	102	77
41	5.740	0.141	0.97	90	1.7	-	76
42	5.883	0.143	0.98	90	1.6	-	76
43	6.025	0.142	0.98	91	1.7	-	76
44	6.167	0.142	0.97	91	1.6	-	76
45	6.309	0.142	0.99	92	1.7	-	76
46	6.454	0.145	0.99	92	1.7	-	76
47	6.597	0.143	0.98	92	1.7	-	76
48	6.740	0.143	0.98	93	1.5	-	75
49	6.883	0.143	0.99	93	1.7	-	75
50	7.027	0.144	1.00	93	1.6	101	75
51	7.171	0.144	0.99	93	1.6	-	75
52	7.315	0.144	0.98	93	1.6	-	75
53	7.458	0.143	0.98	93	1.7	-	75
54	7.602	0.144	1.00	94	1.7	-	75
55	7.747	0.145	1.00	94	1.6	-	75
56	7.891	0.144	0.99	94	1.7	-	75
57	8.035	0.144	0.98	95	1.5	-	75
58	8.179	0.144	0.99	95	1.5	-	75
59	8.323	0.144	1.00	95	1.5	-	76
60	8.468	0.145	1.00	96	1.7	100	76
Avg/Tot	8.468	0.141	0.95	87.4	1.6	102	75.8

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025Stove ΔT: 0

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	503	510	259	414	495	436.4	851.9
1	497	504	254	411	494	432.1	766.9
2	487	495	247	406	493	425.6	761.0
3	478	485	241	408	492	420.7	903.5
4	468	477	235	413	491	416.6	995.8
5	459	468	230	422	490	413.6	1062.9
6	451	461	226	432	489	411.7	1118.9
7	444	455	223	445	488	410.9	1164.9
8	438	449	221	457	487	410.3	1184.7
9	432	445	219	467	486	409.9	1183.5
10	428	441	218	475	485	409.4	1176.4
11	424	438	217	483	484	409.2	1177.4
12	420	436	217	489	484	409.0	1175.0
13	418	434	216	495	483	408.9	1166.5
14	415	432	216	500	482	409.1	1165.1
15	414	432	217	504	481	409.5	1174.6
16	413	431	218	509	480	410.2	1181.5
17	413	431	219	514	480	411.2	1187.8
18	413	432	222	519	479	412.8	1202.7
19	413	433	225	525	478	414.7	1221.3
20	415	434	227	532	477	417.0	1233.6
21	417	435	230	539	477	419.7	1244.7
22	420	437	233	546	476	422.5	1250.7
23	424	440	236	553	468	424.1	1251.1
24	428	443	238	559	268	387.3	1248.8
25	433	447	241	564	265	390.0	1247.8
26	437	451	245	569	263	392.9	1246.3
27	443	456	247	573	262	396.0	1244.7
28	448	461	250	577	260	398.9	1242.4
29	453	466	252	579	261	402.3	1240.7
30	459	471	255	582	264	406.1	1232.8
31	465	477	257	585	268	410.1	1225.9
32	471	482	259	588	286	417.0	1223.2
33	477	488	261	590	312	425.5	1220.6
34	484	493	262	591	332	432.5	1217.3
35	491	498	263	592	362	441.2	1218.6
36	500	503	264	593	466	465.1	1211.3
37	509	508	266	593	468	468.5	1198.6
38	518	513	267	591	468	471.3	1183.0
39	527	517	269	590	468	474.1	1169.1
40	536	522	271	588	468	476.8	1158.1
41	544	528	272	586	468	479.5	1150.2
42	553	533	273	584	468	482.2	1146.0
43	560	539	276	583	468	485.1	1141.3
44	567	545	278	581	468	487.7	1148.3
45	573	550	278	582	468	490.0	1183.3
46	577	553	278	584	437	486.0	1183.0
47	581	556	278	585	460	491.8	1157.4

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025Stove ΔT: 0

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	584	559	278	584	447	490.3	1137.1
49	586	562	279	581	437	488.8	1126.2
50	588	565	279	580	452	492.6	1123.4
51	590	568	280	578	467	496.6	1128.7
52	592	570	281	577	467	497.6	1137.0
53	595	573	282	577	466	498.6	1145.2
54	597	575	283	578	466	499.8	1154.8
55	600	576	283	580	466	501.1	1167.2
56	603	578	284	581	466	502.3	1175.8
57	606	580	285	582	466	503.6	1182.8
58	609	583	285	583	465	505.2	1185.4
59	612	587	286	583	465	506.9	1168.8
60	615	593	287	583	465	508.6	1163.5
61	618	598	288	582	465	510.4	1164.8
62	621	604	289	581	465	512.0	1161.0
63	623	610	289	580	465	513.6	1155.4
64	626	616	290	580	465	515.2	1151.9
65	628	622	290	579	464	516.6	1148.6
66	630	628	291	577	464	518.0	1148.9
67	633	634	293	575	464	519.6	1145.2
68	635	641	294	574	463	521.5	1143.8
69	638	647	295	573	463	523.2	1142.1
70	641	653	296	573	463	524.9	1144.9
71	643	658	296	573	462	526.4	1150.1
72	645	663	296	573	462	527.9	1151.9
73	646	668	297	574	461	529.2	1150.2
74	648	671	297	574	461	530.3	1150.7
75	649	675	296	575	461	531.3	1155.5
76	651	679	296	576	461	532.4	1162.8
77	652	682	296	577	461	533.4	1168.0
78	652	685	296	579	460	534.1	1162.7
79	652	687	295	579	460	534.5	1156.6
80	651	688	294	580	460	534.7	1148.7
81	650	691	294	579	460	534.6	1140.9
82	649	693	293	578	460	534.5	1136.6
83	648	694	293	577	460	534.3	1132.0
84	647	696	293	575	460	534.1	1125.2
85	645	697	292	574	460	533.7	1117.9
86	644	698	292	573	460	533.1	1113.2
87	641	698	291	571	460	532.3	1110.1
88	639	698	291	570	460	531.5	1109.0
89	638	698	290	568	460	530.7	1106.8
90	636	698	290	566	460	529.9	1098.5
91	634	699	290	564	460	529.1	1085.6
92	632	698	289	561	460	528.1	1081.3
93	630	698	289	559	460	527.2	1083.0
94	628	697	289	557	460	526.3	1079.3
95	626	697	289	555	460	525.4	1072.6

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025Stove ΔT: 0

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	625	697	289	553	460	524.6	1061.9
97	623	697	289	550	460	523.6	1054.3
98	621	696	289	547	460	522.6	1051.9
99	620	694	289	544	460	521.4	1049.2
100	619	692	290	541	460	520.4	1046.4
101	619	690	290	538	460	519.4	1044.4
102	619	688	291	535	460	518.6	1043.2
103	619	687	292	533	460	518.2	1048.2
104	619	687	293	531	460	517.9	1052.0
105	619	686	293	530	461	517.6	1051.2
106	619	685	294	529	461	517.3	1051.1
107	620	684	295	527	461	517.1	1049.9
108	620	682	295	526	461	516.8	1050.0
109	622	679	298	525	462	516.9	1052.0
110	623	675	301	525	462	517.0	1050.4
111	624	670	303	524	462	516.8	1042.6
112	625	666	306	522	463	516.4	1032.2
113	626	661	308	520	463	515.5	1021.6
114	626	656	309	518	464	514.4	1011.3
115	626	651	310	515	464	513.1	1002.6
116	626	647	310	512	464	511.7	993.9
117	625	643	310	509	464	510.2	984.6
118	624	639	310	506	465	508.7	977.2
119	624	635	310	503	465	507.2	972.0
120	623	632	311	500	465	505.8	969.2
121	622	628	311	497	465	504.6	967.2
122	621	625	311	494	466	503.4	966.0
123	620	622	311	492	466	502.4	963.4
124	620	620	311	490	466	501.3	961.2
125	619	617	311	488	466	500.3	961.1
126	619	614	312	486	467	499.2	957.4
127	618	611	312	483	467	498.2	949.9
128	616	609	313	481	467	497.2	941.6
129	614	607	314	478	468	496.2	934.6
130	612	606	314	476	468	495.0	928.9
131	609	604	314	473	468	493.6	926.2
132	606	602	314	471	469	492.1	925.9
133	602	600	313	468	469	490.4	922.9
134	599	598	312	466	469	488.7	918.9
135	595	597	311	463	469	487.0	917.3
136	592	595	310	462	470	485.5	924.4
137	590	593	308	460	470	484.1	931.7
138	588	592	307	459	470	483.2	932.8
139	587	591	307	457	470	482.3	913.0
140	586	589	308	453	470	481.2	891.0
141	585	588	308	450	470	480.3	880.7
142	585	586	308	448	471	479.4	875.0
143	584	585	308	446	471	478.7	872.8

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 2Technician: AKDate: 6/20/2025Stove ΔT: 0

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	584	583	309	443	471	478.1	875.2
145	585	582	311	442	471	478.0	879.6
146	585	580	311	441	471	477.8	884.8
147	586	579	310	440	472	477.4	892.2
148	587	577	309	440	472	477.1	899.4
149	589	575	309	440	472	476.9	900.7
150	591	574	308	439	472	476.8	897.0
151	594	572	307	438	472	476.6	892.1
152	595	571	306	437	472	476.3	888.6
153	596	570	305	436	472	475.8	889.9
154	597	569	303	435	472	475.1	892.2
155	596	568	301	434	473	474.2	892.3
156	595	567	300	433	473	473.2	889.7
157	594	566	298	432	473	472.4	883.2
158	593	564	298	430	473	471.4	869.4
159	592	563	297	428	473	470.6	855.2
160	592	561	297	426	473	469.7	847.7
161	591	560	296	424	473	468.8	844.1
162	590	558	295	422	473	467.8	841.7
163	589	557	295	420	473	466.8	840.7
164	588	557	293	419	474	466.1	844.9
165	586	557	292	417	474	465.3	850.2
166	585	556	291	416	475	464.5	855.3
167	583	555	289	416	475	463.7	860.7
168	581	554	288	416	476	462.8	865.5
169	578	553	286	415	477	461.7	868.0
170	576	551	285	414	477	460.8	868.3
Average	570.0	573.7	280.9	500.2	459.8	476.9	1025.1

LAB SAMPLE DATA - ASTM E2515

Client: Blaze KingModel: PE32Run #: 2Job #: 25-428Tracking #: 183Technician: AKDate: 6/20/2025

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	A	G01305	241.1	243.1	2.0
	B	G01306	241.9	244.2	2.3
	C - 1st Hour	G01307	243.3	245.1	1.8
	Amb	G01308	243.7	243.9	0.2
Probes	A	3A	115881.9	115882.2	0.3
	B	3B	116122.1	116122.4	0.3
	C - 1st Hour	3C	116619.5	116619.6	0.1
O-rings	A	3A	3577.6	3578.5	0.9
	B	3B	3565.9	3566.2	0.3
	C - 1st Hour	3C	3620.4	3620.6	0.2

Placed in Dessicator on:

6/20/2025

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	243.1	6/26 9:30	243.1	6/27 13:00				
	B	244.3	6/26 9:30	244.2	6/27 13:00				
	C - 1st Hour	245.0	6/26 9:30	245.1	6/27 13:00				
	Amb	244.0	6/26 9:30	243.9	6/27 13:00				
Probes	A	115882.1	6/26 9:30	115882.2	6/27 13:00				
	B	116122.2	6/26 9:30	116122.4	6/27 13:00				
	C - 1st Hour	116619.7	6/26 9:30	116619.6	6/27 13:00				
O-Rings	A	3578.4	6/26 9:30	3578.5	6/27 13:00				
	B	3566.3	6/26 9:30	3566.2	6/27 13:00				
	C - 1st Hour	3620.5	6/26 9:30	3620.6	6/27 13:00				

Train A Aggregate, mg: 3.2

Train B Aggregate, mg: 2.9

Train C Aggregate, mg: 2.1

Ambient, mg: 0.2

ASTM E2780 Wood Heater Run Sheets

Client: Blaze King Job Number: 25-428 Tracking #: 183
Model: PE32 Run Number: 2 Test Date: 6/20/2025

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Knob fully open
Targeted Burn Category: IV

Preburn Notes

Time	Notes
	-None-

Test Notes

Test Burn Start Time: 13:11 Test Fuel Loaded by: 30 seconds
Door Closed: 35 seconds Air Control Set at: 0 seconds
Other Loading Notes: Bypass open @ 0 sec, closed @ 40 sec, fan on high @ 0 sec

Time	Notes
	-None-

Test Burn End Time: 16:32

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO₂ (%): 17.35 CO (%): 4.350
Mid Gas CO₂ (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	12:00	12:01	12:03	16:41	16:42	16:43
CO ₂	0.00	17.35	10.22	0.00	17.26	10.18
CO	0.000	4.351	2.508	0.006	4.291	2.469

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

Technician Signature: 

Date: 6/23/25

ASTM E2780 Wood Heater Run Sheets

Client: Blaze King
Model: PE32

Job Number: 25-428
Run Number: 2

Tracking #: 183
Test Date: 6/20/2025



Test Fuel Front/Side View



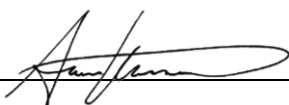
Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: 

Date: 6/23/25

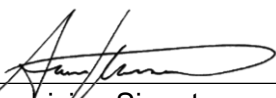
WOOD STOVE TEST DATA PACKET

ASTM E2780/E2515



Run 3 Data Summary

Client:	Blaze King
Model:	PE32
Job #:	25-428
Tracking #:	183
Test Date:	6/23/2025



Technician Signature

7/11/2025

Date

TEST RESULTS - ASTM E2780 / ASTM E2515

Client: Blaze KingModel: PE32Run #: 3Job #: 25-428Tracking #: 183Technician: AKDate: 6/23/2025

Burn Rate (kg/hr):	0.76
---------------------------	-------------

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft ³)	129.219	91.350	89.856	8.840
Average Gas Velocity in Dilution Tunnel (ft/sec)	19.4			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	13058.6			
Average Gas Meter Temperature (°F)	74.5	101.0	100.9	85.7
Total Sample Volume (dscf)	129.694	88.510	85.869	8.816
Average Tunnel Temperature (°F)	86.0			
Total Time of Test (min)	563			
Total Particulate Catch (mg)	0.1	1.6	1.6	1.0
Particulate Concentration, dry-standard (g/dscf)	0.0000008	0.0000181	0.0000186	0.0001134
Total PM Emissions (g)	0.09	2.12	2.19	1.47
Particulate Emission Rate (g/hr)	0.01	0.23	0.23	1.47
Emissions Factor (g/kg)	-	0.30	0.31	-
Difference from Average Total Particulate Emissions (g)	-	0.03	0.03	-
Difference from Average Total Particulate Emissions (%)	-	1.6%	1.6%	-
Difference from Average Emissions Factor (g/kg)	-	0.00	0.00	-

Final Average Results	
Total Particulate Emissions (g)	2.15
Particulate Emission Rate (g/hr)	0.23
Emissions Factor (g/kg)	0.30
HHV Efficiency (%)	84.6%
LHV Efficiency (%)	91.5%
CO Emissions (g/min)	0.04

Quality Checks	Requirement	Observed	Result
Dual Train Precision	Each train within 7.5% of average emissions (in grams), or emission factors within 0.5 g/kg	See Above	OK
Filter Temps	<90 °F	81.0	OK
Face Velocity	< 30 ft/min	9.2	OK
Leakage Rate	Less than 4% of average sample rate	0 cfm	OK
Ambient Temp	55-90 °F	Min:71.3/Max:76.1	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	18.9	OK

B415.1 Efficiency Results

Manufacturer: Blaze King
Model: PE32
Date: 06/23/25
Run: 3
Control #: 25-428
Test Duration: 563
Output Category: 1

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	84.6%	91.5%
Combustion Efficiency	99.5%	99.5%
Heat Transfer Efficiency	85.1%	91.9%

Output Rate (kJ/h)	12,669	12,018	(Btu/h)
Burn Rate (kg/h)	0.76	1.67	(lb/h)
Input (kJ/h)	14,971	14,201	(Btu/h)

Test Load Weight (dry kg)	7.09	15.63	dry lb
MC wet (%)	18.26		
MC dry (%)	22.34		
Particulate (g)	2.15		
CO (g)	20		
Test Duration (h)	9.38		

Emissions	Particulate	CO
g/MJ Output	0.02	0.17
g/kg Dry Fuel	0.30	2.80
g/h	0.23	2.12
g/min	0.00	0.04
lb/MM Btu Output	0.04	0.39

Air/Fuel Ratio (A/F)	9.50
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VERSION:

2.4

4/15/2010

WOODSTOVE FUEL DATA - ASTM E2780

Client: Blaze King
Model: PE32
Run #: 3

Job #: 25-428
Tracking #: 183
Technician: AK
Date: 6/23/2025

Preburn Fuel Information						
Size	Length (in)	Moisture Content (% DB)		Size	Length (in)	Moisture Content (% DB)
2x4	17.00	24.1		2x4	17.00	24.3
2x4	17.00	23.6		2x4	17.00	24.6
2x4	17.00	19.9				
2x4	17.00	21.6				
2x4	17.00	20.3				
2x4	17.00	19.3				
2x4	17.00	24.5				
2x4	17.00	23.7				
Total Fuel Weight (lbs):		18.23	Average Moisture (%DB):		22.6	

Firebox Volume (ft³): 2.86
Total 2x4 Crib Weight, with spacers (lbs): 9.63
Total 4x4 Crib Weight, with spacers (lbs): 9.50
Total Wet Fuel Weight, with spacers (lbs): 19.13

Coal Bed Range (20-25%):
Min (lbs): 3.83
Max (lbs): 4.78

Test Fuel Information						
Size	Length (in)	Weight (lbs)	Moisture Content (%DB)			Dry Weight (lbs)
4x4	16.75	4.43	19.8	21.0	22.5	3.66
4x4	16.75	4.50	24.8	22.5	24.5	3.63
2x4	16.75	1.90	23.8	22.6	22.8	1.54
2x4	16.75	1.76	24.5	23.4	19.2	1.44
2x4	16.75	2.09	20.5	22.8	23.5	1.71
2x4	16.75	1.85	21.2	20.2	22.5	1.53
Total Dry Weight, no spacers (lbs):						13.51
Total Dry Weight, with spacers (lbs):						15.62

Spacer Moisture Readings (%DB)							
22.1	22.0	20.5					
21.1	24.2	24.3					
22.0	24.6	23.7					
23.7	22.0	21.9					
21.8	23.3						
22.6	25.5						
21.1	22.5						
24.9	20.8						

Quality Checks	Requirement	Observed	Result
Fuel Density	25 - 36 (lbs/ft ³ , DB)	30.6	OK
Loading Density	6.3 - 7.7 (lbs/ft ³ , WB)	6.69	OK
2x4 Fuel Mix	35 - 65 % of total weight	50%	OK

DILUTION TUNNEL & MISC. DATA - ASTM E2780 / E2515

Client: Blaze King	Job #: 25-428
Model: PE32	Tracking #: 183
Run #: 3	Technician: AK
Test Start Time: 12:44	Date: 6/23/2025

Total Sampling Time (min): **563**
 Recording Interval (min): **1**

Meter Box γ Factor: **1.019 (A)**
 Meter Box γ Factor: **1.005 (B)**
 Meter Box γ Factor: **1.024 (C)**
 Meter Box γ Factor: **1.012 (Ambient)**

Induced Draft Check (in. H₂O): **0**
 Smoke Capture Check (%): **100%**
 Date Flue Pipe Last Cleaned: **613/25**
 Test Fuel Scale Audit (lbs): **10.00**
 Platform Scale Audit (lbs): **10.0**

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.07	30.03	30.05
Relative Humidity (%)	37.5	29.9	
Room Air Velocity (ft/min)	<50	<50	
Pitot Tube Leak Check	0	0	
Ambient Sample Volume:	129.219 ft³		

Sample Train Leak Checks

	Pre-test	Post-test		
(A)	0.000	0.000	cfm @	-6 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 ₂ O)	Temp (°F)
1	0.056	72
2	0.078	72
3	0.078	72
4	0.058	72
5	0.064	72
6	0.078	72
7	0.080	72
8	0.060	72
Center	0.084	72

Dilution Tunnel H₂O: **2.00** percent

Tunnel Diameter: **6** inches

Pitot Tube Cp: **0.99** [unitless]

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

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

Tunnel Area: **0.1963** ft²

V_{strav}: **17.39** ft/sec

V_{scent}: **19.24** ft/sec

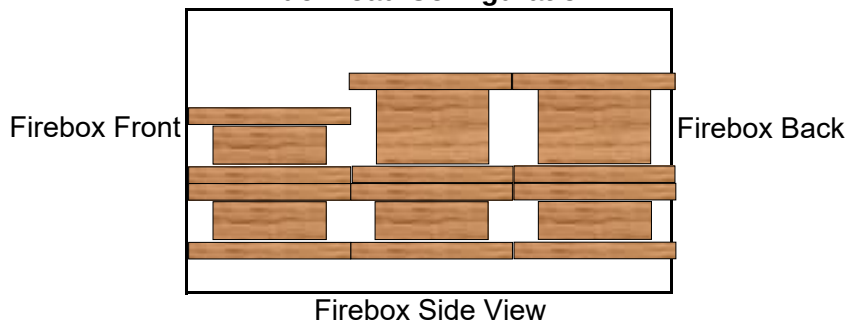
F_p: **0.904** [ratio]

Initial Tunnel Flow: **200.1** scf/min

Static Pressure: **-0.120** in. H₂O

TEST FUEL PROPERTIES

Fuel Load Configuration



Actual Fuel Used Properties

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

WOODSTOVE PREBURN DATA - ASTM E2780

Client: Blaze King

Model: PE32

Run #: 3

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/23/2025

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

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
0	4.76	-0.047	662	662	419	644	549	587.3	387	72
1	4.75	-0.043	659	657	403	632	554	580.8	317	72
2	4.75	-0.040	652	650	392	620	557	574.1	275	72
3	4.74	-0.040	644	642	383	609	560	567.6	248	72
4	4.74	-0.037	635	632	376	599	561	560.7	229	72
5	4.73	-0.035	625	623	370	589	562	553.7	215	72
6	4.74	-0.035	615	613	365	579	562	546.8	205	72
7	4.73	-0.035	605	603	359	569	562	539.7	198	72
8	4.72	-0.034	595	594	354	560	561	532.7	192	72
9	4.73	-0.033	585	584	350	552	560	526.0	186	72
10	4.72	-0.033	575	574	345	543	558	519.2	182	72
11	4.72	-0.032	566	565	341	535	556	512.5	179	72
12	4.72	-0.030	557	556	337	527	553	505.8	175	72
13	4.73	-0.031	548	547	332	519	550	499.2	172	72
14	4.71	-0.030	539	538	328	510	547	492.6	170	72
15	4.73	-0.029	530	530	324	503	544	486.3	167	72
16	4.72	-0.027	522	521	320	495	541	480.0	164	72
17	4.73	-0.026	514	514	316	488	538	473.8	162	72
18	4.72	-0.027	506	505	312	480	534	467.6	159	72
19	4.73	-0.027	498	498	309	473	531	461.8	158	72
20	4.73	-0.026	491	491	305	466	528	456.0	155	72
21	4.72	-0.024	484	483	302	459	524	450.3	154	72
22	4.73	-0.025	477	476	298	453	520	444.9	151	72
23	4.72	-0.026	469	469	295	446	517	439.4	150	72
24	4.73	-0.025	463	463	292	440	513	434.0	149	72
25	4.73	-0.025	456	456	288	433	510	428.7	148	72
26	4.73	-0.022	450	450	285	427	506	423.6	146	72
27	4.75	-0.023	443	444	282	421	503	418.6	145	72
28	4.73	-0.023	437	438	279	416	499	413.8	144	72
29	4.74	-0.023	431	432	276	410	496	408.9	142	72
30	4.73	-0.022	425	426	273	404	493	404.1	141	72
31	4.74	-0.023	419	420	271	398	489	399.6	140	72
32	4.73	-0.024	414	415	267	394	486	395.1	164	72
33	4.73	-0.022	408	410	265	389	483	391.0	154	72
34	4.73	-0.022	403	406	263	384	479	386.9	148	72
35	4.73	-0.021	398	402	260	379	476	382.9	143	72
36	4.73	-0.020	393	397	258	374	473	379.1	140	72
37	4.73	-0.019	388	393	255	370	470	375.2	138	72
38	4.74	-0.020	383	389	253	365	467	371.5	136	72
39	4.73	-0.018	379	385	250	361	464	367.8	134	72
40	4.73	-0.019	374	381	248	357	462	364.3	132	72
41	4.74	-0.018	370	377	245	353	425	354.1	131	72
42	4.73	-0.018	366	373	243	349	361	338.5	130	72
43	4.73	-0.018	361	370	241	346	337	330.9	129	72
44	4.74	-0.018	357	366	238	342	332	327.2	128	72

WOODSTOVE PREBURN DATA - ASTM E2780

Client: Blaze King
 Model: PE32
 Run #: 3

Job #: 25-428
 Tracking #: 183
 Technician: AK
 Date: 6/23/2025

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

Elapsed Time (min)	Scale Reading (lbs)	Flue Draft (in H ₂ O)	Temperatures (°F)							
			FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Flue	Ambient
45	4.74	-0.017	353	363	236	339	326	323.3	127	72
46	4.73	-0.017	350	359	234	336	323	320.3	126	72
47	4.74	-0.016	346	356	232	333	321	317.5	125	71
48	4.74	-0.017	343	352	230	330	326	316.1	124	71
49	4.74	-0.016	339	349	228	327	337	315.9	123	72
50	4.74	-0.017	335	346	226	324	335	313.2	123	72
51	4.73	-0.015	332	342	224	321	336	310.9	123	71
52	4.73	-0.015	329	339	221	319	338	309.1	124	72
53	4.72	-0.017	326	336	219	316	335	306.3	126	72
54	4.72	-0.017	323	333	217	314	329	303.1	127	72
55	4.72	-0.016	320	330	215	312	330	301.4	130	71
56	4.72	-0.017	317	327	213	311	332	300.0	132	72
57	4.72	-0.019	314	325	211	309	331	298.0	135	72
58	4.70	-0.016	312	322	210	308	323	294.9	138	72
59	4.71	-0.018	309	320	208	308	321	293.1	141	72
60	4.69	-0.019	307	318	206	306	318	291.0	144	72

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
0	0.000		0.097	0.01	75	0.1		19.12		84	194	74	71
1	0.130	0.130	0.090	1.99	75	0.9	-	19.14	0.02	90	238	74	72
2	0.267	0.137	0.087	2.03	75	0.9	-	19.14	0.00	86	207	74	71
3	0.413	0.146	0.088	2.08	75	0.9	-	19.12	-0.02	84	190	74	72
4	0.553	0.140	0.088	2.11	75	0.9	-	19.11	-0.01	83	180	74	72
5	0.696	0.143	0.089	2.13	75	0.9	-	19.09	-0.02	83	176	74	72
6	0.842	0.146	0.087	2.15	75	0.9	-	19.08	-0.01	83	174	74	72
7	0.985	0.143	0.087	2.17	75	0.9	-	19.06	-0.02	83	173	75	72
8	1.133	0.148	0.089	2.19	76	0.9	-	19.04	-0.02	82	175	75	71
9	1.278	0.145	0.089	2.20	76	0.9	-	19.02	-0.02	82	176	75	71
10	1.428	0.150	0.088	2.22	76	0.9	97	18.99	-0.03	82	178	75	71
11	1.571	0.143	0.089	2.24	76	0.9	-	18.97	-0.02	82	180	75	72
12	1.723	0.152	0.087	2.27	76	0.9	-	18.93	-0.04	82	182	75	72
13	1.868	0.145	0.090	2.28	77	0.9	-	18.91	-0.02	82	185	75	72
14	2.020	0.152	0.091	2.29	77	0.9	-	18.87	-0.04	83	188	75	72
15	2.166	0.146	0.089	2.30	77	0.9	-	18.84	-0.03	83	191	75	72
16	2.319	0.153	0.089	2.31	77	0.9	-	18.80	-0.04	83	194	75	71
17	2.466	0.147	0.090	2.32	78	0.9	-	18.74	-0.06	83	200	75	72
18	2.620	0.154	0.091	2.32	78	0.9	-	18.68	-0.06	84	206	75	72
19	2.765	0.145	0.091	2.33	78	0.9	-	18.62	-0.06	84	214	75	72
20	2.919	0.154	0.091	2.35	79	0.9	102	18.56	-0.06	84	218	75	72
21	3.068	0.149	0.091	2.35	79	0.9	-	18.52	-0.04	84	222	75	72
22	3.223	0.155	0.091	2.36	79	0.9	-	18.45	-0.07	84	224	75	72
23	3.371	0.148	0.092	2.37	79	0.9	-	18.39	-0.06	85	226	75	72
24	3.527	0.156	0.092	2.38	80	0.9	-	18.34	-0.05	85	227	75	72
25	3.677	0.150	0.094	2.38	80	0.9	-	18.28	-0.06	85	228	75	72
26	3.833	0.156	0.095	2.39	81	0.9	-	18.24	-0.04	85	229	75	72
27	3.986	0.153	0.095	2.40	81	0.9	-	18.19	-0.05	85	231	75	72
28	4.141	0.155	0.095	2.41	81	0.9	-	18.10	-0.09	85	231	75	72
29	4.292	0.151	0.095	2.41	82	0.9	-	18.05	-0.05	85	233	75	72
30	4.447	0.155	0.095	2.41	82	0.9	102	17.99	-0.06	85	235	75	72
31	4.602	0.155	0.095	2.42	82	0.9	-	17.94	-0.05	85	237	75	72

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
32	4.756	0.154	0.095	2.44	83	0.9	-	17.86	-0.08	85	237	75	72
33	4.912	0.156	0.094	2.44	83	0.9	-	17.80	-0.06	85	240	75	72
34	5.063	0.151	0.096	2.43	83	0.9	-	17.74	-0.06	85	242	75	72
35	5.221	0.158	0.097	2.44	84	0.9	-	17.68	-0.06	85	243	75	72
36	5.372	0.151	0.096	2.45	84	0.9	-	17.62	-0.06	86	245	76	72
37	5.532	0.160	0.096	2.45	84	0.9	-	17.54	-0.08	86	250	76	71
38	5.682	0.150	0.096	2.45	85	0.9	-	17.44	-0.10	87	256	76	72
39	5.839	0.157	0.096	2.46	85	0.9	-	17.32	-0.12	87	265	76	72
40	5.993	0.154	0.098	2.46	85	1.0	101	17.23	-0.09	88	270	76	72
41	6.149	0.156	0.097	2.46	86	1.0	-	17.16	-0.07	88	275	76	72
42	6.307	0.158	0.098	2.47	86	0.9	-	17.09	-0.07	88	277	76	72
43	6.461	0.154	0.099	2.47	86	0.9	-	16.99	-0.10	88	280	76	72
44	6.620	0.159	0.099	2.47	87	0.9	-	16.91	-0.08	88	282	76	72
45	6.773	0.153	0.100	2.47	87	0.9	-	16.82	-0.09	88	283	76	72
46	6.933	0.160	0.101	2.47	87	0.9	-	16.76	-0.06	88	283	76	72
47	7.089	0.156	0.100	2.47	88	0.9	-	16.67	-0.09	88	283	76	72
48	7.247	0.158	0.100	2.49	88	0.9	-	16.59	-0.08	88	283	76	72
49	7.406	0.159	0.101	2.49	88	0.9	-	16.51	-0.08	88	284	76	72
50	7.561	0.155	0.101	2.48	88	0.9	101	16.41	-0.10	88	285	76	72
51	7.721	0.160	0.101	2.49	89	1.0	-	16.34	-0.07	88	285	76	72
52	7.876	0.155	0.103	2.49	89	1.0	-	16.25	-0.09	88	286	76	72
53	8.036	0.160	0.101	2.49	89	0.9	-	16.17	-0.08	88	286	76	72
54	8.187	0.151	0.101	2.49	89	1.0	-	16.09	-0.08	88	285	76	72
55	8.347	0.160	0.103	2.50	90	1.0	-	16.00	-0.09	89	286	76	72
56	8.506	0.159	0.103	2.50	90	1.0	-	15.92	-0.08	89	285	76	72
57	8.661	0.155	0.103	2.49	90	1.0	-	15.84	-0.08	89	286	76	72
58	8.822	0.161	0.101	2.50	91	0.9	-	15.74	-0.10	89	286	76	72
59	8.978	0.156	0.103	2.51	91	1.0	-	15.67	-0.07	89	287	76	72
60	9.138	0.160	0.103	2.50	91	0.9	99	15.58	-0.09	89	288	76	72
61	9.295	0.157	0.101	2.50	91	0.9	-	15.50	-0.08	89	288	76	72
62	9.457	0.162	0.103	2.52	91	1.0	-	15.41	-0.09	89	287	76	72
63	9.616	0.159	0.103	2.52	92	0.9	-	15.34	-0.07	89	285	76	72

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
64	9.772	0.156	0.103	2.52	92	1.0	-	15.27	-0.07	88	284	76	72
65	9.934	0.162	0.102	2.52	92	0.9	-	15.19	-0.08	88	282	76	72
66	10.090	0.156	0.103	2.53	92	1.0	-	15.12	-0.07	88	280	76	72
67	10.250	0.160	0.102	2.53	92	0.9	-	15.05	-0.07	88	279	76	72
68	10.411	0.161	0.102	2.53	93	1.0	-	14.98	-0.07	88	277	76	72
69	10.564	0.153	0.103	2.53	93	1.0	-	14.89	-0.09	88	276	76	72
70	10.726	0.162	0.102	2.53	93	1.0	99	14.81	-0.08	88	276	76	72
71	10.883	0.157	0.102	2.53	93	0.9	-	14.74	-0.07	88	276	76	72
72	11.043	0.160	0.103	2.52	93	1.0	-	14.65	-0.09	88	277	76	72
73	11.204	0.161	0.102	2.54	94	0.9	-	14.57	-0.08	88	277	76	72
74	11.360	0.156	0.102	2.53	94	1.0	-	14.49	-0.08	88	276	76	72
75	11.523	0.163	0.102	2.54	94	1.0	-	14.42	-0.07	88	275	76	72
76	11.681	0.158	0.104	2.54	94	0.9	-	14.34	-0.08	87	273	76	72
77	11.843	0.162	0.103	2.54	94	1.0	-	14.27	-0.07	87	273	76	73
78	12.004	0.161	0.103	2.53	94	1.0	-	14.20	-0.07	87	271	76	73
79	12.161	0.157	0.104	2.54	95	1.0	-	14.13	-0.07	87	269	77	73
80	12.324	0.163	0.103	2.54	95	1.0	100	14.04	-0.09	87	265	76	73
81	12.481	0.157	0.102	2.54	95	1.0	-	13.99	-0.05	87	264	76	73
82	12.642	0.161	0.103	2.54	95	0.9	-	13.91	-0.08	86	263	76	73
83	12.804	0.162	0.103	2.54	95	0.9	-	13.82	-0.09	87	263	77	73
84	12.961	0.157	0.102	2.56	95	0.9	-	13.76	-0.06	87	261	77	73
85	13.125	0.164	0.103	2.55	95	1.0	-	13.68	-0.08	87	260	77	73
86	13.282	0.157	0.103	2.55	96	1.0	-	13.61	-0.07	87	258	77	73
87	13.440	0.158	0.102	2.54	96	1.0	-	13.57	-0.04	87	257	77	73
88	13.602	0.162	0.104	2.55	96	0.9	-	13.48	-0.09	87	255	77	73
89	13.759	0.157	0.102	2.56	96	0.9	-	13.40	-0.08	87	253	77	73
90	13.924	0.165	0.101	2.54	96	1.0	100	13.35	-0.05	86	251	77	73
91	14.081	0.157	0.102	2.55	96	1.0	-	13.30	-0.05	86	248	77	73
92	14.243	0.162	0.102	2.55	96	0.9	-	13.23	-0.07	86	246	77	73
93	14.406	0.163	0.102	2.55	96	1.0	-	13.18	-0.05	85	244	76	73
94	14.565	0.159	0.104	2.55	97	1.0	-	13.12	-0.06	85	241	76	73
95	14.730	0.165	0.102	2.56	97	1.0	-	13.06	-0.06	85	240	76	73

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
96	14.888	0.158	0.102	2.57	97	1.0	-	13.01	-0.05	85	240	76	73
97	15.049	0.161	0.102	2.57	97	1.0	-	12.95	-0.06	86	239	76	73
98	15.211	0.162	0.102	2.56	97	0.9	-	12.90	-0.05	86	239	76	73
99	15.370	0.159	0.103	2.56	97	1.0	-	12.83	-0.07	85	238	76	73
100	15.533	0.163	0.103	2.56	97	1.0	100	12.77	-0.06	85	238	76	73
101	15.693	0.160	0.102	2.56	97	1.0	-	12.71	-0.06	85	238	76	73
102	15.854	0.161	0.103	2.56	97	1.0	-	12.68	-0.03	85	237	76	73
103	16.016	0.162	0.104	2.56	98	1.0	-	12.62	-0.06	85	237	77	73
104	16.173	0.157	0.104	2.57	98	1.0	-	12.57	-0.05	85	235	76	73
105	16.336	0.163	0.101	2.57	98	1.0	-	12.51	-0.06	85	232	76	73
106	16.498	0.162	0.103	2.57	98	1.0	-	12.44	-0.07	85	233	76	73
107	16.656	0.158	0.103	2.57	98	1.0	-	12.40	-0.04	85	234	77	73
108	16.821	0.165	0.102	2.56	98	1.0	-	12.34	-0.06	85	233	77	73
109	16.981	0.160	0.102	2.57	98	1.0	-	12.27	-0.07	85	234	77	73
110	17.144	0.163	0.102	2.56	98	1.0	100	12.22	-0.05	85	234	77	73
111	17.305	0.161	0.104	2.57	98	0.9	-	12.17	-0.05	86	233	77	73
112	17.462	0.157	0.101	2.56	98	1.0	-	12.10	-0.07	85	234	77	73
113	17.628	0.166	0.102	2.57	98	1.0	-	12.05	-0.05	85	232	77	73
114	17.789	0.161	0.101	2.56	99	1.0	-	12.01	-0.04	85	233	77	73
115	17.951	0.162	0.101	2.57	99	1.0	-	11.94	-0.07	85	232	77	73
116	18.114	0.163	0.101	2.56	99	1.0	-	11.89	-0.05	85	231	77	73
117	18.273	0.159	0.102	2.56	99	1.0	-	11.83	-0.06	85	230	77	73
118	18.433	0.160	0.103	2.57	99	0.9	-	11.79	-0.04	85	230	77	73
119	18.596	0.163	0.101	2.57	99	1.0	-	11.72	-0.07	85	230	77	73
120	18.755	0.159	0.101	2.57	99	1.0	100	11.68	-0.04	85	230	77	73
121	18.920	0.165	0.101	2.57	99	1.0	-	11.62	-0.06	85	230	77	74
122	19.078	0.158	0.102	2.57	99	1.0	-	11.58	-0.04	85	229	77	73
123	19.242	0.164	0.101	2.57	99	1.0	-	11.52	-0.06	85	228	77	73
124	19.405	0.163	0.100	2.57	99	0.9	-	11.47	-0.05	85	228	77	73
125	19.563	0.158	0.100	2.57	99	1.0	-	11.42	-0.05	85	227	77	73
126	19.728	0.165	0.101	2.58	99	0.9	-	11.40	-0.02	85	226	77	74
127	19.888	0.160	0.102	2.58	99	1.0	-	11.34	-0.06	85	225	77	73

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
128	20.052	0.164	0.101	2.58	100	1.0	-	11.31	-0.03	85	225	77	74
129	20.217	0.165	0.103	2.57	100	1.0	-	11.26	-0.05	85	225	77	74
130	20.376	0.159	0.101	2.58	100	1.0	101	11.23	-0.03	85	225	77	74
131	20.539	0.163	0.102	2.58	100	0.9	-	11.16	-0.07	85	224	77	73
132	20.703	0.164	0.100	2.57	100	1.0	-	11.13	-0.03	85	225	77	74
133	20.861	0.158	0.102	2.57	100	1.0	-	11.09	-0.04	85	224	77	74
134	21.027	0.166	0.100	2.58	100	1.0	-	11.05	-0.04	85	223	77	74
135	21.186	0.159	0.102	2.57	100	0.9	-	11.00	-0.05	85	222	77	73
136	21.349	0.163	0.102	2.58	100	1.0	-	10.96	-0.04	85	222	77	74
137	21.510	0.161	0.101	2.58	100	1.0	-	10.91	-0.05	85	221	77	74
138	21.669	0.159	0.101	2.57	100	1.0	-	10.88	-0.03	85	220	77	74
139	21.833	0.164	0.103	2.58	100	1.0	-	10.83	-0.05	85	221	77	74
140	21.996	0.163	0.100	2.57	100	1.0	101	10.77	-0.06	85	219	77	74
141	22.155	0.159	0.100	2.58	100	1.0	-	10.74	-0.03	85	220	77	73
142	22.321	0.166	0.101	2.58	100	1.0	-	10.68	-0.06	85	220	77	73
143	22.479	0.158	0.101	2.58	101	1.0	-	10.65	-0.03	85	221	77	74
144	22.643	0.164	0.102	2.58	101	1.0	-	10.60	-0.05	85	221	77	73
145	22.809	0.166	0.102	2.59	101	1.0	-	10.56	-0.04	85	221	77	74
146	22.969	0.160	0.102	2.58	101	1.0	-	10.51	-0.05	85	220	77	73
147	23.132	0.163	0.102	2.58	101	1.0	-	10.47	-0.04	85	220	77	73
148	23.295	0.163	0.101	2.58	101	1.0	-	10.43	-0.04	85	221	77	73
149	23.455	0.160	0.102	2.58	101	1.0	-	10.39	-0.04	85	220	77	74
150	23.620	0.165	0.101	2.59	101	1.0	101	10.34	-0.05	85	219	77	74
151	23.780	0.160	0.101	2.59	101	0.9	-	10.32	-0.02	85	219	77	74
152	23.943	0.163	0.102	2.58	101	0.9	-	10.27	-0.05	85	219	77	74
153	24.106	0.163	0.101	2.58	101	1.0	-	10.23	-0.04	85	218	77	74
154	24.266	0.160	0.101	2.58	101	1.0	-	10.19	-0.04	85	219	77	74
155	24.427	0.161	0.100	2.58	101	0.9	-	10.15	-0.04	85	219	77	74
156	24.589	0.162	0.101	2.58	101	1.0	-	10.11	-0.04	85	219	77	74
157	24.749	0.160	0.101	2.59	101	0.9	-	10.06	-0.05	85	217	77	74
158	24.915	0.166	0.101	2.58	101	1.0	-	10.03	-0.03	85	215	77	74
159	25.074	0.159	0.103	2.58	101	1.0	-	9.99	-0.04	85	215	78	74

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
160	25.238	0.164	0.102	2.58	101	1.0	100	9.95	-0.04	85	215	78	74
161	25.401	0.163	0.100	2.58	101	1.0	-	9.88	-0.07	85	214	78	74
162	25.564	0.163	0.102	2.59	101	0.9	-	9.86	-0.02	85	213	78	74
163	25.727	0.163	0.101	2.59	101	1.0	-	9.83	-0.03	85	212	78	74
164	25.891	0.164	0.102	2.59	101	1.0	-	9.79	-0.04	85	211	78	74
165	26.050	0.159	0.101	2.58	101	1.0	-	9.76	-0.03	85	210	78	74
166	26.216	0.166	0.102	2.59	101	1.0	-	9.72	-0.04	85	211	78	74
167	26.375	0.159	0.101	2.59	101	1.0	-	9.68	-0.04	85	210	78	74
168	26.539	0.164	0.102	2.58	101	1.0	-	9.64	-0.04	85	208	78	74
169	26.702	0.163	0.102	2.58	101	1.0	-	9.60	-0.04	85	209	78	74
170	26.863	0.161	0.101	2.59	101	1.0	100	9.57	-0.03	85	209	78	74
171	27.026	0.163	0.102	2.59	102	1.0	-	9.52	-0.05	85	210	78	74
172	27.187	0.161	0.102	2.58	102	1.0	-	9.49	-0.03	85	210	78	74
173	27.347	0.160	0.101	2.59	102	1.0	-	9.45	-0.04	85	210	78	74
174	27.513	0.166	0.103	2.58	102	1.0	-	9.42	-0.03	85	211	78	75
175	27.672	0.159	0.101	2.58	102	0.9	-	9.37	-0.05	85	210	78	75
176	27.837	0.165	0.102	2.58	102	1.0	-	9.32	-0.05	85	210	78	75
177	28.000	0.163	0.101	2.59	102	1.0	-	9.29	-0.03	85	209	78	74
178	28.160	0.160	0.102	2.57	102	1.0	-	9.25	-0.04	85	208	78	74
179	28.327	0.167	0.100	2.59	102	1.0	-	9.21	-0.04	85	209	78	74
180	28.491	0.164	0.101	2.59	102	1.0	101	9.16	-0.05	85	211	78	75
181	28.647	0.156	0.101	2.58	102	1.0	-	9.11	-0.05	85	212	78	75
182	28.814	0.167	0.102	2.59	102	1.0	-	9.07	-0.04	85	212	78	75
183	28.973	0.159	0.101	2.58	102	1.0	-	9.02	-0.05	85	212	78	75
184	29.138	0.165	0.103	2.59	102	1.0	-	8.99	-0.03	86	212	78	75
185	29.301	0.163	0.102	2.59	102	1.0	-	8.94	-0.05	86	213	78	75
186	29.462	0.161	0.100	2.59	102	1.0	-	8.88	-0.06	86	213	78	75
187	29.626	0.164	0.103	2.60	102	0.9	-	8.86	-0.02	86	213	78	75
188	29.792	0.166	0.104	2.58	102	1.0	-	8.82	-0.04	85	212	78	75
189	29.952	0.160	0.101	2.58	102	1.0	-	8.77	-0.05	85	213	78	75
190	30.118	0.166	0.103	2.59	102	1.0	100	8.72	-0.05	85	213	78	75
191	30.278	0.160	0.101	2.59	102	1.0	-	8.68	-0.04	85	214	78	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
192	30.442	0.164	0.103	2.59	102	1.0	-	8.63	-0.05	85	216	78	75
193	30.606	0.164	0.102	2.59	102	1.0	-	8.58	-0.05	86	217	78	75
194	30.768	0.162	0.101	2.60	102	1.0	-	8.53	-0.05	86	218	78	75
195	30.931	0.163	0.101	2.59	102	1.0	-	8.48	-0.05	86	218	78	75
196	31.093	0.162	0.101	2.60	102	1.0	-	8.41	-0.07	86	217	78	75
197	31.252	0.159	0.102	2.59	102	1.0	-	8.40	-0.01	86	216	78	75
198	31.421	0.169	0.101	2.60	102	1.0	-	8.35	-0.05	85	215	78	75
199	31.583	0.162	0.102	2.59	102	1.0	-	8.31	-0.04	86	215	78	75
200	31.744	0.161	0.104	2.58	103	1.0	99	8.28	-0.03	86	213	79	75
201	31.911	0.167	0.103	2.58	103	1.0	-	8.23	-0.05	86	213	79	75
202	32.068	0.157	0.103	2.59	103	1.0	-	8.20	-0.03	85	212	79	75
203	32.232	0.164	0.102	2.59	103	1.0	-	8.15	-0.05	85	212	79	75
204	32.398	0.166	0.100	2.59	103	1.0	-	8.12	-0.03	86	212	79	75
205	32.560	0.162	0.100	2.60	103	1.0	-	8.08	-0.04	86	210	79	75
206	32.724	0.164	0.100	2.60	103	1.0	-	8.06	-0.02	86	208	79	75
207	32.888	0.164	0.101	2.60	103	1.0	-	8.03	-0.03	86	206	79	75
208	33.048	0.160	0.102	2.59	103	1.0	-	8.00	-0.03	86	206	79	75
209	33.215	0.167	0.102	2.59	103	1.0	-	7.96	-0.04	86	206	79	75
210	33.375	0.160	0.103	2.59	103	1.0	99	7.94	-0.02	86	205	79	75
211	33.539	0.164	0.102	2.59	103	1.0	-	7.91	-0.03	86	204	79	75
212	33.703	0.164	0.104	2.59	103	1.0	-	7.87	-0.04	86	202	79	75
213	33.865	0.162	0.102	2.59	103	1.0	-	7.86	-0.01	86	201	79	75
214	34.028	0.163	0.102	2.60	103	1.0	-	7.82	-0.04	86	200	79	75
215	34.194	0.166	0.103	2.60	103	1.0	-	7.80	-0.02	86	198	79	75
216	34.353	0.159	0.103	2.59	103	1.0	-	7.77	-0.03	86	197	79	75
217	34.517	0.164	0.102	2.60	103	1.0	-	7.76	-0.01	86	196	79	75
218	34.678	0.161	0.103	2.60	103	1.0	-	7.74	-0.02	86	195	79	75
219	34.841	0.163	0.101	2.59	103	1.0	-	7.72	-0.02	86	194	79	75
220	35.007	0.166	0.104	2.60	103	1.0	99	7.68	-0.04	86	193	79	75
221	35.167	0.160	0.103	2.60	103	1.0	-	7.66	-0.02	86	193	79	75
222	35.334	0.167	0.101	2.60	103	1.0	-	7.65	-0.01	86	191	79	75
223	35.498	0.164	0.103	2.61	103	1.0	-	7.62	-0.03	86	191	79	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
224	35.659	0.161	0.102	2.60	103	1.0	-	7.60	-0.02	86	190	79	75
225	35.821	0.162	0.102	2.60	103	1.0	-	7.59	-0.01	86	191	79	75
226	35.985	0.164	0.102	2.61	103	1.0	-	7.56	-0.03	86	191	79	75
227	36.146	0.161	0.103	2.60	103	1.0	-	7.53	-0.03	86	192	79	75
228	36.315	0.169	0.102	2.60	104	1.0	-	7.52	-0.01	86	192	79	75
229	36.476	0.161	0.102	2.59	104	1.0	-	7.49	-0.03	86	192	79	75
230	36.640	0.164	0.102	2.59	104	1.0	100	7.46	-0.03	86	192	79	75
231	36.802	0.162	0.103	2.60	104	1.0	-	7.44	-0.02	86	193	79	75
232	36.964	0.162	0.102	2.60	104	1.0	-	7.41	-0.03	86	193	79	75
233	37.130	0.166	0.102	2.59	104	1.0	-	7.40	-0.01	86	194	79	75
234	37.294	0.164	0.102	2.60	104	1.0	-	7.37	-0.03	86	194	79	75
235	37.453	0.159	0.102	2.60	104	1.0	-	7.36	-0.01	86	193	79	75
236	37.620	0.167	0.101	2.61	104	1.0	-	7.34	-0.02	86	193	79	75
237	37.785	0.165	0.103	2.59	104	1.0	-	7.31	-0.03	86	193	79	75
238	37.945	0.160	0.103	2.61	104	1.0	-	7.30	-0.01	86	193	79	75
239	38.110	0.165	0.102	2.60	104	1.0	-	7.26	-0.04	86	194	79	75
240	38.270	0.160	0.102	2.61	104	1.0	100	7.24	-0.02	86	194	79	75
241	38.437	0.167	0.103	2.61	104	1.0	-	7.22	-0.02	86	194	79	75
242	38.602	0.165	0.103	2.61	104	1.0	-	7.20	-0.02	86	194	79	75
243	38.761	0.159	0.104	2.62	104	1.0	-	7.18	-0.02	86	194	79	75
244	38.928	0.167	0.102	2.59	104	1.0	-	7.16	-0.02	86	195	79	75
245	39.092	0.164	0.104	2.60	104	0.9	-	7.13	-0.03	86	194	79	75
246	39.250	0.158	0.100	2.59	104	1.0	-	7.12	-0.01	86	195	79	75
247	39.416	0.166	0.101	2.61	104	1.0	-	7.09	-0.03	86	195	79	75
248	39.583	0.167	0.100	2.61	104	1.0	-	7.07	-0.02	86	197	79	75
249	39.743	0.160	0.101	2.60	104	0.9	-	7.05	-0.02	86	195	79	75
250	39.908	0.165	0.101	2.60	104	1.0	101	7.03	-0.02	86	196	79	75
251	40.069	0.161	0.101	2.61	104	1.0	-	7.02	-0.01	86	196	79	75
252	40.236	0.167	0.102	2.59	104	1.0	-	6.97	-0.05	86	196	79	75
253	40.398	0.162	0.102	2.59	104	1.0	-	6.97	0.00	86	197	79	75
254	40.560	0.162	0.101	2.59	104	1.0	-	6.95	-0.02	86	198	79	75
255	40.727	0.167	0.103	2.58	104	1.0	-	6.92	-0.03	86	198	79	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
256	40.892	0.165	0.101	2.60	104	1.0	-	6.89	-0.03	86	199	79	75
257	41.054	0.162	0.101	2.59	104	1.0	-	6.86	-0.03	86	199	79	75
258	41.219	0.165	0.101	2.61	104	1.0	-	6.84	-0.02	86	200	79	75
259	41.381	0.162	0.101	2.60	104	1.0	-	6.82	-0.02	86	202	79	75
260	41.544	0.163	0.102	2.60	104	1.0	101	6.79	-0.03	87	203	79	75
261	41.712	0.168	0.101	2.60	104	1.0	-	6.76	-0.03	87	202	79	75
262	41.870	0.158	0.101	2.59	104	1.0	-	6.74	-0.02	87	204	79	75
263	42.035	0.165	0.102	2.61	104	1.0	-	6.72	-0.02	87	204	79	75
264	42.203	0.168	0.102	2.60	104	1.0	-	6.70	-0.02	87	204	79	75
265	42.363	0.160	0.102	2.60	104	1.0	-	6.67	-0.03	87	204	79	75
266	42.526	0.163	0.102	2.60	104	1.0	-	6.65	-0.02	87	204	79	75
267	42.694	0.168	0.101	2.61	104	1.0	-	6.63	-0.02	87	205	79	75
268	42.856	0.162	0.101	2.60	104	1.0	-	6.59	-0.04	87	205	79	75
269	43.018	0.162	0.101	2.61	104	1.0	-	6.56	-0.03	87	206	79	75
270	43.183	0.165	0.101	2.60	104	1.0	101	6.55	-0.01	87	206	79	75
271	43.346	0.163	0.103	2.61	104	1.0	-	6.52	-0.03	87	207	79	75
272	43.513	0.167	0.102	2.60	104	1.0	-	6.50	-0.02	87	207	79	75
273	43.672	0.159	0.102	2.60	104	1.0	-	6.47	-0.03	87	207	79	75
274	43.837	0.165	0.101	2.60	104	1.0	-	6.44	-0.03	87	207	79	75
275	44.005	0.168	0.101	2.60	104	1.0	-	6.42	-0.02	87	207	79	75
276	44.162	0.157	0.101	2.61	104	1.0	-	6.40	-0.02	87	208	79	75
277	44.328	0.166	0.103	2.61	104	1.0	-	6.36	-0.04	87	208	79	75
278	44.495	0.167	0.101	2.62	104	1.0	-	6.33	-0.03	87	208	79	75
279	44.658	0.163	0.100	2.60	104	1.0	-	6.31	-0.02	87	209	79	75
280	44.819	0.161	0.102	2.61	104	1.0	101	6.29	-0.02	87	210	79	75
281	44.985	0.166	0.102	2.61	104	1.0	-	6.28	-0.01	87	210	79	75
282	45.149	0.164	0.101	2.61	104	1.0	-	6.25	-0.03	87	211	79	75
283	45.312	0.163	0.102	2.60	104	1.0	-	6.21	-0.04	87	211	79	75
284	45.476	0.164	0.102	2.60	104	1.0	-	6.19	-0.02	87	211	79	75
285	45.640	0.164	0.101	2.60	105	1.0	-	6.16	-0.03	87	211	79	75
286	45.808	0.168	0.101	2.61	105	1.0	-	6.14	-0.02	87	211	79	75
287	45.966	0.158	0.103	2.60	104	1.0	-	6.11	-0.03	87	210	79	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
288	46.133	0.167	0.101	2.60	105	1.0	-	6.09	-0.02	87	211	79	75
289	46.300	0.167	0.102	2.59	104	1.0	-	6.08	-0.01	87	211	79	75
290	46.458	0.158	0.103	2.59	105	1.0	100	6.05	-0.03	87	210	79	75
291	46.623	0.165	0.103	2.59	105	1.0	-	6.03	-0.02	87	211	79	75
292	46.791	0.168	0.102	2.60	105	1.0	-	6.01	-0.02	87	209	79	75
293	46.953	0.162	0.103	2.59	105	1.0	-	5.99	-0.02	87	209	79	75
294	47.115	0.162	0.102	2.60	105	1.0	-	5.96	-0.03	87	209	79	75
295	47.281	0.166	0.102	2.58	105	1.0	-	5.93	-0.03	87	208	79	75
296	47.444	0.163	0.103	2.59	105	1.0	-	5.91	-0.02	87	208	79	75
297	47.609	0.165	0.102	2.58	105	1.0	-	5.90	-0.01	87	209	79	75
298	47.771	0.162	0.102	2.58	105	1.0	-	5.87	-0.03	87	208	79	75
299	47.935	0.164	0.102	2.59	105	1.0	-	5.84	-0.03	87	208	79	75
300	48.104	0.169	0.103	2.59	105	1.0	100	5.83	-0.01	87	207	79	75
301	48.262	0.158	0.102	2.60	105	1.0	-	5.81	-0.02	87	207	79	75
302	48.430	0.168	0.101	2.60	105	1.0	-	5.78	-0.03	87	206	79	75
303	48.595	0.165	0.102	2.60	105	1.0	-	5.76	-0.02	87	205	79	75
304	48.755	0.160	0.102	2.59	105	1.0	-	5.72	-0.04	87	205	79	75
305	48.919	0.164	0.103	2.60	105	1.0	-	5.71	-0.01	87	204	79	75
306	49.086	0.167	0.101	2.60	105	1.0	-	5.68	-0.03	87	205	79	75
307	49.249	0.163	0.102	2.59	105	1.0	-	5.66	-0.02	87	205	79	75
308	49.411	0.162	0.102	2.59	105	1.0	-	5.63	-0.03	87	205	79	75
309	49.579	0.168	0.101	2.59	105	1.0	-	5.61	-0.02	87	205	79	75
310	49.739	0.160	0.102	2.57	105	1.0	100	5.58	-0.03	87	206	79	75
311	49.905	0.166	0.101	2.57	105	1.0	-	5.55	-0.03	87	206	79	75
312	50.066	0.161	0.102	2.58	105	1.0	-	5.52	-0.03	87	206	79	75
313	50.231	0.165	0.102	2.59	105	1.0	-	5.50	-0.02	87	207	79	75
314	50.397	0.166	0.102	2.58	105	1.0	-	5.48	-0.02	87	207	79	75
315	50.561	0.164	0.102	2.57	105	1.0	-	5.43	-0.05	87	208	79	75
316	50.723	0.162	0.101	2.57	105	1.0	-	5.40	-0.03	87	209	79	75
317	50.889	0.166	0.102	2.56	105	1.0	-	5.37	-0.03	87	210	79	75
318	51.051	0.162	0.101	2.58	105	1.0	-	5.33	-0.04	87	211	79	75
319	51.218	0.167	0.102	2.58	105	1.0	-	5.31	-0.02	87	212	79	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
320	51.383	0.165	0.101	2.56	105	1.0	101	5.27	-0.04	87	213	79	75
321	51.542	0.159	0.101	2.56	105	1.0	-	5.24	-0.03	87	214	79	75
322	51.708	0.166	0.102	2.56	105	1.0	-	5.20	-0.04	87	213	79	75
323	51.876	0.168	0.103	2.56	105	1.0	-	5.15	-0.05	87	214	79	75
324	52.034	0.158	0.102	2.57	105	1.0	-	5.13	-0.02	87	216	79	75
325	52.202	0.168	0.101	2.55	105	1.0	-	5.09	-0.04	87	215	79	75
326	52.366	0.164	0.102	2.57	105	1.0	-	5.05	-0.04	87	216	79	75
327	52.530	0.164	0.101	2.58	105	1.0	-	5.01	-0.04	87	216	79	75
328	52.694	0.164	0.101	2.57	105	1.0	-	4.98	-0.03	88	217	79	75
329	52.857	0.163	0.103	2.57	105	1.0	-	4.94	-0.04	88	217	79	75
330	53.023	0.166	0.102	2.57	105	1.0	101	4.91	-0.03	88	218	79	75
331	53.186	0.163	0.103	2.57	105	1.0	-	4.88	-0.03	87	218	79	75
332	53.348	0.162	0.103	2.56	105	1.0	-	4.84	-0.04	87	217	79	75
333	53.516	0.168	0.103	2.58	105	1.0	-	4.80	-0.04	88	216	79	75
334	53.679	0.163	0.101	2.57	105	1.0	-	4.78	-0.02	87	216	79	75
335	53.843	0.164	0.103	2.59	105	1.0	-	4.73	-0.05	87	216	79	75
336	54.006	0.163	0.102	2.58	105	1.0	-	4.72	-0.01	87	214	79	75
337	54.174	0.168	0.102	2.58	105	1.0	-	4.69	-0.03	87	213	79	75
338	54.335	0.161	0.101	2.59	105	1.0	-	4.65	-0.04	87	213	79	75
339	54.500	0.165	0.102	2.58	105	1.0	-	4.62	-0.03	87	213	79	75
340	54.661	0.161	0.101	2.59	105	1.0	101	4.58	-0.04	87	212	79	75
341	54.828	0.167	0.103	2.59	105	1.0	-	4.54	-0.04	87	211	79	75
342	54.996	0.168	0.103	2.58	105	1.0	-	4.52	-0.02	87	210	79	75
343	55.153	0.157	0.102	2.58	105	1.0	-	4.49	-0.03	87	209	79	75
344	55.322	0.169	0.103	2.59	105	1.0	-	4.46	-0.03	87	208	79	75
345	55.487	0.165	0.103	2.60	105	1.0	-	4.43	-0.03	87	208	79	75
346	55.646	0.159	0.103	2.58	105	1.0	-	4.40	-0.03	87	208	79	75
347	55.811	0.165	0.101	2.59	105	1.0	-	4.37	-0.03	87	208	79	75
348	55.978	0.167	0.103	2.59	105	1.0	-	4.35	-0.02	87	207	79	75
349	56.138	0.160	0.102	2.59	105	1.0	-	4.32	-0.03	87	207	79	75
350	56.307	0.169	0.102	2.60	105	1.0	101	4.28	-0.04	87	207	79	75
351	56.472	0.165	0.103	2.59	105	1.0	-	4.24	-0.04	87	206	79	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
352	56.631	0.159	0.103	2.60	105	1.0	-	4.22	-0.02	87	207	79	75
353	56.799	0.168	0.102	2.59	105	1.0	-	4.19	-0.03	87	207	79	75
354	56.964	0.165	0.102	2.60	105	1.0	-	4.15	-0.04	87	207	79	75
355	57.127	0.163	0.103	2.60	105	1.0	-	4.13	-0.02	87	207	79	75
356	57.292	0.165	0.103	2.60	105	1.0	-	4.09	-0.04	87	207	79	75
357	57.456	0.164	0.103	2.60	105	1.0	-	4.07	-0.02	87	207	79	75
358	57.618	0.162	0.103	2.60	105	1.0	-	4.03	-0.04	87	206	79	75
359	57.783	0.165	0.102	2.61	105	1.0	-	4.01	-0.02	87	207	79	75
360	57.949	0.166	0.102	2.60	105	1.0	101	3.97	-0.04	87	208	79	75
361	58.110	0.161	0.103	2.60	105	1.0	-	3.94	-0.03	87	206	79	75
362	58.277	0.167	0.104	2.59	105	1.0	-	3.90	-0.04	87	208	79	75
363	58.441	0.164	0.103	2.61	105	1.0	-	3.88	-0.02	87	208	79	75
364	58.603	0.162	0.104	2.61	105	1.0	-	3.84	-0.04	87	207	79	75
365	58.769	0.166	0.104	2.60	105	1.0	-	3.81	-0.03	87	208	79	75
366	58.932	0.163	0.104	2.59	105	1.0	-	3.79	-0.02	87	208	79	75
367	59.098	0.166	0.104	2.59	105	1.0	-	3.75	-0.04	87	207	79	75
368	59.259	0.161	0.103	2.59	105	1.0	-	3.72	-0.03	87	208	79	75
369	59.425	0.166	0.103	2.59	105	1.0	-	3.69	-0.03	87	207	79	75
370	59.590	0.165	0.103	2.59	105	1.0	100	3.66	-0.03	87	207	79	75
371	59.754	0.164	0.103	2.61	105	1.0	-	3.62	-0.04	87	208	79	76
372	59.917	0.163	0.104	2.60	105	1.0	-	3.59	-0.03	87	209	79	76
373	60.082	0.165	0.102	2.61	105	1.0	-	3.56	-0.03	87	209	79	76
374	60.247	0.165	0.104	2.59	105	1.0	-	3.52	-0.04	88	209	79	75
375	60.409	0.162	0.104	2.61	105	1.0	-	3.49	-0.03	87	207	79	76
376	60.575	0.166	0.104	2.60	105	1.0	-	3.46	-0.03	87	207	79	76
377	60.740	0.165	0.102	2.60	105	1.0	-	3.43	-0.03	88	207	79	75
378	60.905	0.165	0.102	2.61	105	1.0	-	3.39	-0.04	88	207	79	76
379	61.068	0.163	0.103	2.60	105	1.0	-	3.37	-0.02	88	207	79	76
380	61.231	0.163	0.103	2.59	105	1.0	100	3.35	-0.02	88	206	79	76
381	61.399	0.168	0.102	2.60	105	1.0	-	3.31	-0.04	88	206	79	76
382	61.559	0.160	0.104	2.60	105	1.0	-	3.27	-0.04	88	205	79	76
383	61.724	0.165	0.104	2.60	105	1.0	-	3.25	-0.02	88	204	79	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
384	61.893	0.169	0.103	2.61	105	1.0	-	3.22	-0.03	88	204	79	76
385	62.050	0.157	0.103	2.60	105	1.0	-	3.19	-0.03	88	203	79	76
386	62.219	0.169	0.104	2.60	105	1.0	-	3.16	-0.03	88	202	79	76
387	62.384	0.165	0.103	2.60	105	1.0	-	3.13	-0.03	88	202	79	76
388	62.545	0.161	0.104	2.60	105	1.0	-	3.12	-0.01	88	200	79	76
389	62.709	0.164	0.102	2.60	105	1.0	-	3.08	-0.04	88	200	79	76
390	62.877	0.168	0.104	2.60	105	1.0	100	3.05	-0.03	88	199	79	76
391	63.040	0.163	0.103	2.60	105	1.0	-	3.02	-0.03	88	199	79	76
392	63.202	0.162	0.102	2.61	105	1.0	-	2.98	-0.04	87	198	79	76
393	63.371	0.169	0.104	2.61	105	1.0	-	2.98	0.00	87	197	80	76
394	63.531	0.160	0.103	2.60	105	1.0	-	2.95	-0.03	87	196	80	76
395	63.699	0.168	0.103	2.60	105	1.0	-	2.91	-0.04	87	195	79	76
396	63.859	0.160	0.103	2.60	105	1.0	-	2.90	-0.01	87	195	79	76
397	64.022	0.163	0.103	2.59	105	1.0	-	2.86	-0.04	87	195	80	76
398	64.192	0.170	0.104	2.59	105	1.0	-	2.84	-0.02	87	193	79	76
399	64.351	0.159	0.103	2.61	105	1.0	-	2.82	-0.02	87	193	79	76
400	64.516	0.165	0.104	2.60	105	1.0	99	2.79	-0.03	87	193	79	76
401	64.682	0.166	0.104	2.61	105	1.0	-	2.77	-0.02	87	192	80	76
402	64.844	0.162	0.104	2.60	105	1.0	-	2.74	-0.03	87	191	80	76
403	65.010	0.166	0.103	2.60	105	1.0	-	2.71	-0.03	87	197	80	76
404	65.174	0.164	0.103	2.60	105	1.0	-	2.70	-0.01	87	192	80	76
405	65.340	0.166	0.104	2.59	105	1.0	-	2.66	-0.04	87	190	80	76
406	65.503	0.163	0.105	2.60	105	1.0	-	2.64	-0.02	87	189	80	76
407	65.668	0.165	0.104	2.58	105	1.0	-	2.62	-0.02	87	187	79	76
408	65.832	0.164	0.104	2.59	105	1.0	-	2.60	-0.02	87	186	80	76
409	65.998	0.166	0.103	2.59	105	1.0	-	2.56	-0.04	87	186	80	76
410	66.164	0.166	0.104	2.60	105	1.0	100	2.53	-0.03	87	185	80	76
411	66.322	0.158	0.103	2.59	105	1.0	-	2.51	-0.02	87	185	80	76
412	66.490	0.168	0.103	2.60	105	1.0	-	2.50	-0.01	87	185	80	76
413	66.655	0.165	0.104	2.59	105	1.0	-	2.46	-0.04	87	185	80	76
414	66.819	0.164	0.105	2.59	105	1.0	-	2.45	-0.01	87	185	80	76
415	66.986	0.167	0.104	2.60	105	1.0	-	2.41	-0.04	87	183	80	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
416	67.144	0.158	0.105	2.59	105	1.0	-	2.38	-0.03	87	184	80	76
417	67.310	0.166	0.104	2.61	105	1.0	-	2.36	-0.02	87	184	80	76
418	67.478	0.168	0.104	2.60	105	1.0	-	2.33	-0.03	87	184	80	76
419	67.638	0.160	0.104	2.59	105	1.0	-	2.31	-0.02	87	183	80	76
420	67.803	0.165	0.105	2.60	105	1.0	99	2.28	-0.03	87	183	80	76
421	67.970	0.167	0.104	2.60	105	1.0	-	2.26	-0.02	87	182	80	76
422	68.134	0.164	0.103	2.59	106	1.0	-	2.23	-0.03	87	182	80	76
423	68.300	0.166	0.104	2.59	106	1.0	-	2.19	-0.04	87	181	80	76
424	68.462	0.162	0.103	2.59	106	1.0	-	2.17	-0.02	87	182	80	76
425	68.626	0.164	0.104	2.59	106	1.0	-	2.15	-0.02	87	183	80	76
426	68.794	0.168	0.103	2.59	106	1.0	-	2.12	-0.03	87	182	80	76
427	68.954	0.160	0.102	2.59	106	1.0	-	2.10	-0.02	87	181	80	76
428	69.118	0.164	0.103	2.60	106	1.0	-	2.06	-0.04	87	181	80	76
429	69.288	0.170	0.103	2.60	106	1.0	-	2.04	-0.02	87	181	80	76
430	69.450	0.162	0.104	2.60	106	1.0	100	2.01	-0.03	87	180	80	76
431	69.613	0.163	0.104	2.60	106	1.0	-	1.99	-0.02	87	180	80	76
432	69.778	0.165	0.102	2.61	106	1.0	-	1.97	-0.02	87	179	80	76
433	69.943	0.165	0.104	2.60	106	1.0	-	1.95	-0.02	87	179	80	76
434	70.106	0.163	0.104	2.60	106	1.0	-	1.92	-0.03	87	178	80	76
435	70.275	0.169	0.104	2.61	106	1.0	-	1.89	-0.03	87	177	80	76
436	70.437	0.162	0.104	2.60	106	1.0	-	1.87	-0.02	87	177	80	76
437	70.599	0.162	0.104	2.61	106	1.0	-	1.85	-0.02	87	177	80	76
438	70.766	0.167	0.104	2.61	106	1.0	-	1.84	-0.01	87	177	80	76
439	70.930	0.164	0.104	2.60	106	1.0	-	1.83	-0.01	87	176	80	76
440	71.094	0.164	0.104	2.61	106	1.0	100	1.81	-0.02	87	174	80	76
441	71.259	0.165	0.104	2.60	106	1.0	-	1.78	-0.03	87	174	80	76
442	71.423	0.164	0.104	2.61	106	1.0	-	1.77	-0.01	87	173	80	76
443	71.591	0.168	0.104	2.60	106	1.0	-	1.75	-0.02	87	172	80	76
444	71.750	0.159	0.104	2.60	106	1.0	-	1.75	0.00	86	172	80	76
445	71.915	0.165	0.103	2.60	106	1.0	-	1.71	-0.04	86	171	80	76
446	72.085	0.170	0.105	2.60	106	1.0	-	1.70	-0.01	86	170	80	76
447	72.243	0.158	0.103	2.59	106	1.0	-	1.68	-0.02	86	169	80	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
448	72.410	0.167	0.103	2.61	106	1.0	-	1.67	-0.01	86	168	80	76
449	72.575	0.165	0.104	2.60	106	1.0	-	1.66	-0.01	86	167	80	76
450	72.740	0.165	0.104	2.59	106	1.0	100	1.63	-0.03	86	166	80	76
451	72.906	0.166	0.104	2.60	106	1.0	-	1.62	-0.01	86	166	80	76
452	73.069	0.163	0.105	2.60	106	1.0	-	1.62	0.00	86	164	80	76
453	73.235	0.166	0.105	2.59	106	1.0	-	1.60	-0.02	86	164	80	76
454	73.400	0.165	0.104	2.60	106	1.0	-	1.59	-0.01	86	163	80	76
455	73.564	0.164	0.103	2.60	106	1.0	-	1.58	-0.01	86	162	80	76
456	73.724	0.160	0.104	2.60	106	1.0	-	1.55	-0.03	86	161	80	76
457	73.894	0.170	0.105	2.60	106	1.0	-	1.55	0.00	86	161	80	76
458	74.057	0.163	0.104	2.60	106	1.0	-	1.53	-0.02	86	161	80	76
459	74.219	0.162	0.105	2.60	106	1.0	-	1.51	-0.02	86	160	80	76
460	74.390	0.171	0.105	2.59	106	1.0	100	1.52	0.01	86	159	80	76
461	74.553	0.163	0.105	2.59	106	1.0	-	1.48	-0.04	86	159	80	76
462	74.715	0.162	0.104	2.58	106	1.0	-	1.48	0.00	86	158	80	76
463	74.881	0.166	0.105	2.59	106	1.0	-	1.47	-0.01	85	157	80	76
464	75.042	0.161	0.104	2.59	106	1.0	-	1.45	-0.02	85	157	80	76
465	75.211	0.169	0.103	2.57	106	1.0	-	1.45	0.00	85	158	80	76
466	75.374	0.163	0.104	2.57	106	1.0	-	1.44	-0.01	85	157	80	76
467	75.537	0.163	0.103	2.57	106	1.0	-	1.43	-0.01	85	155	80	76
468	75.702	0.165	0.105	2.57	106	1.0	-	1.42	-0.01	85	155	80	76
469	75.871	0.169	0.106	2.57	106	1.0	-	1.41	-0.01	85	155	79	76
470	76.030	0.159	0.104	2.56	106	1.0	99	1.39	-0.02	85	155	79	76
471	76.196	0.166	0.104	2.57	106	1.0	-	1.39	0.00	85	155	79	76
472	76.365	0.169	0.105	2.57	106	1.0	-	1.38	-0.01	85	155	79	76
473	76.526	0.161	0.104	2.57	106	1.0	-	1.36	-0.02	85	155	79	76
474	76.690	0.164	0.104	2.57	106	1.0	-	1.34	-0.02	85	155	79	76
475	76.859	0.169	0.105	2.56	106	1.0	-	1.34	0.00	85	155	79	76
476	77.019	0.160	0.104	2.57	106	1.0	-	1.32	-0.02	85	155	79	76
477	77.188	0.169	0.104	2.56	106	1.0	-	1.31	-0.01	85	154	79	76
478	77.348	0.160	0.103	2.56	106	1.0	-	1.31	0.00	85	155	79	76
479	77.512	0.164	0.103	2.57	106	1.0	-	1.28	-0.03	85	155	79	76

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
480	77.683	0.171	0.105	2.57	106	1.0	100	1.28	0.00	85	155	79	76
481	77.842	0.159	0.104	2.57	106	1.0	-	1.26	-0.02	85	155	79	76
482	78.007	0.165	0.104	2.57	106	1.0	-	1.25	-0.01	85	156	79	76
483	78.177	0.170	0.105	2.57	106	1.0	-	1.24	-0.01	85	156	79	76
484	78.338	0.161	0.104	2.57	106	1.0	-	1.23	-0.01	85	156	79	76
485	78.502	0.164	0.105	2.57	106	1.0	-	1.21	-0.02	85	156	79	76
486	78.667	0.165	0.105	2.57	106	1.0	-	1.20	-0.01	85	157	79	76
487	78.834	0.167	0.105	2.57	106	1.0	-	1.18	-0.02	85	158	79	76
488	78.995	0.161	0.104	2.57	106	1.0	-	1.17	-0.01	85	159	79	76
489	79.162	0.167	0.104	2.57	106	1.0	-	1.15	-0.02	85	160	79	76
490	79.327	0.165	0.105	2.57	106	1.0	99	1.13	-0.02	85	160	79	76
491	79.490	0.163	0.106	2.57	106	1.0	-	1.11	-0.02	85	161	79	76
492	79.656	0.166	0.105	2.57	106	1.0	-	1.10	-0.01	85	162	79	76
493	79.820	0.164	0.105	2.56	106	1.0	-	1.09	-0.01	85	163	79	76
494	79.988	0.168	0.105	2.57	106	1.0	-	1.07	-0.02	85	163	79	76
495	80.150	0.162	0.105	2.56	106	1.0	-	1.05	-0.02	85	163	79	76
496	80.315	0.165	0.105	2.57	106	1.0	-	1.04	-0.01	85	164	79	76
497	80.483	0.168	0.105	2.56	106	1.0	-	1.01	-0.03	85	165	79	76
498	80.642	0.159	0.105	2.58	106	1.0	-	1.01	0.00	85	166	79	76
499	80.808	0.166	0.103	2.58	106	1.0	-	0.98	-0.03	85	166	79	76
500	80.978	0.170	0.105	2.58	106	1.0	99	0.96	-0.02	85	166	79	76
501	81.136	0.158	0.104	2.58	106	1.0	-	0.95	-0.01	85	166	79	75
502	81.302	0.166	0.104	2.57	106	1.0	-	0.94	-0.01	85	166	79	76
503	81.471	0.169	0.105	2.58	106	1.0	-	0.92	-0.02	85	166	79	75
504	81.633	0.162	0.106	2.59	106	1.0	-	0.90	-0.02	85	167	79	75
505	81.796	0.163	0.106	2.59	106	1.0	-	0.90	0.00	85	166	79	75
506	81.965	0.169	0.105	2.58	106	1.0	-	0.87	-0.03	85	166	79	76
507	82.128	0.163	0.104	2.58	106	1.0	-	0.87	0.00	85	167	79	76
508	82.291	0.163	0.106	2.59	106	1.0	-	0.84	-0.03	85	166	79	75
509	82.460	0.169	0.105	2.59	106	1.0	-	0.82	-0.02	85	166	79	75
510	82.622	0.162	0.104	2.59	106	1.0	99	0.81	-0.01	85	166	79	75
511	82.786	0.164	0.105	2.59	106	1.0	-	0.81	0.00	84	166	79	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
512	82.951	0.165	0.106	2.58	106	1.0	-	0.78	-0.03	84	166	79	75
513	83.115	0.164	0.105	2.58	106	1.0	-	0.77	-0.01	85	167	79	75
514	83.282	0.167	0.105	2.58	106	1.0	-	0.75	-0.02	84	166	79	75
515	83.444	0.162	0.106	2.58	106	1.0	-	0.74	-0.01	85	167	79	75
516	83.610	0.166	0.104	2.58	106	1.0	-	0.72	-0.02	85	167	79	75
517	83.776	0.166	0.105	2.57	106	1.0	-	0.70	-0.02	85	167	79	75
518	83.938	0.162	0.104	2.58	106	1.0	-	0.67	-0.03	85	167	79	75
519	84.106	0.168	0.105	2.58	106	1.0	-	0.67	0.00	85	168	79	75
520	84.270	0.164	0.104	2.57	106	1.0	100	0.65	-0.02	85	167	79	75
521	84.432	0.162	0.105	2.58	106	1.0	-	0.65	0.00	85	168	79	75
522	84.601	0.169	0.105	2.57	106	1.0	-	0.62	-0.03	85	169	79	75
523	84.767	0.166	0.103	2.57	106	1.0	-	0.60	-0.02	85	170	79	75
524	84.927	0.160	0.106	2.57	106	1.0	-	0.59	-0.01	85	170	79	75
525	85.096	0.169	0.104	2.57	106	1.0	-	0.57	-0.02	85	171	79	75
526	85.259	0.163	0.105	2.57	106	1.0	-	0.55	-0.02	85	171	79	75
527	85.421	0.162	0.105	2.57	106	1.0	-	0.53	-0.02	85	172	79	75
528	85.589	0.168	0.104	2.57	106	1.0	-	0.52	-0.01	85	171	79	75
529	85.753	0.164	0.104	2.56	106	1.0	-	0.51	-0.01	85	172	79	75
530	85.914	0.161	0.105	2.56	106	1.0	99	0.49	-0.02	84	172	79	75
531	86.084	0.170	0.105	2.56	106	1.0	-	0.46	-0.03	85	172	79	75
532	86.250	0.166	0.104	2.56	106	1.0	-	0.45	-0.01	85	173	79	75
533	86.408	0.158	0.105	2.58	106	1.0	-	0.44	-0.01	85	174	79	75
534	86.580	0.172	0.104	2.57	106	1.0	-	0.43	-0.01	85	174	79	75
535	86.742	0.162	0.105	2.56	106	1.0	-	0.40	-0.03	85	174	79	75
536	86.904	0.162	0.104	2.56	106	1.0	-	0.39	-0.01	85	175	79	75
537	87.071	0.167	0.104	2.57	106	1.0	-	0.37	-0.02	85	175	79	75
538	87.235	0.164	0.105	2.56	106	1.0	-	0.37	0.00	85	175	79	75
539	87.398	0.163	0.106	2.57	106	1.0	-	0.35	-0.02	85	176	79	75
540	87.564	0.166	0.105	2.58	106	1.0	99	0.32	-0.03	85	176	79	75
541	87.729	0.165	0.106	2.57	106	1.0	-	0.31	-0.01	85	176	79	75
542	87.895	0.166	0.105	2.57	106	1.0	-	0.30	-0.01	85	176	79	75
543	88.058	0.163	0.104	2.58	106	1.0	-	0.29	-0.01	85	176	79	75

BOX A TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)			
	Gas Meter (ft³)	Sample Rate (cfm)	Dilution Tunnel dP (in H ₂ O)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel	Flue	Filter	Ambient
544	88.220	0.162	0.105	2.58	106	1.0	-	0.27	-0.02	85	176	79	75
545	88.386	0.166	0.104	2.59	106	1.0	-	0.24	-0.03	85	176	79	75
546	88.555	0.169	0.106	2.59	106	1.0	-	0.25	0.01	85	176	79	75
547	88.716	0.161	0.105	2.59	106	1.0	-	0.21	-0.04	85	177	79	75
548	88.881	0.165	0.105	2.58	106	1.0	-	0.20	-0.01	84	176	79	75
549	89.048	0.167	0.105	2.59	106	1.0	-	0.18	-0.02	84	176	79	75
550	89.210	0.162	0.104	2.59	106	1.0	99	0.18	0.00	85	177	79	75
551	89.375	0.165	0.104	2.59	106	1.0	-	0.17	-0.01	84	178	79	75
552	89.540	0.165	0.106	2.60	106	1.0	-	0.14	-0.03	84	177	79	75
553	89.702	0.162	0.105	2.59	106	1.0	-	0.14	0.00	85	177	79	75
554	89.869	0.167	0.105	2.60	106	1.0	-	0.12	-0.02	84	175	79	75
555	90.033	0.164	0.105	2.60	106	1.0	-	0.11	-0.01	85	176	79	75
556	90.199	0.166	0.106	2.59	106	1.0	-	0.09	-0.02	84	176	79	75
557	90.362	0.163	0.106	2.60	106	1.0	-	0.08	-0.01	84	176	79	75
558	90.527	0.165	0.105	2.60	106	1.0	-	0.06	-0.02	84	176	79	75
559	90.690	0.163	0.106	2.60	106	1.0	-	0.05	-0.01	84	175	79	75
560	90.856	0.166	0.104	2.60	106	1.0	99	0.04	-0.01	84	175	79	75
561	91.021	0.165	0.105	2.60	106	1.0	-	0.02	-0.02	84	175	79	75
562	91.184	0.163	0.106	2.62	106	1.0	-	0.02	0.00	84	174	79	75
563	91.350	0.166	0.105	2.60	106	1.0	99	0.00	-0.02	84	173	79	75
Avg/Tot	91.350	0.162	0.102	2.56	101.0	1.0	100			86.0	205.1	78.2	74.5

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
0	0.000		0.02	75	0.8		75	-0.027	9.23	0.005
1	0.144	0.144	2.39	75	2.1	-	76	-0.031	1.72	0.021
2	0.297	0.153	2.41	75	2.0	-	76	-0.027	2.69	0.005
3	0.447	0.150	2.41	75	2.0	-	76	-0.028	4.14	0.004
4	0.602	0.155	2.42	75	2.1	-	76	-0.026	4.47	0.005
5	0.751	0.149	2.41	75	1.9	-	76	-0.028	4.64	0.004
6	0.908	0.157	2.42	75	2.1	-	76	-0.026	4.83	0.005
7	1.058	0.150	2.42	75	1.6	-	76	-0.028	5.01	0.004
8	1.213	0.155	2.43	75	1.7	-	76	-0.028	5.26	0.005
9	1.365	0.152	2.42	76	2.1	-	76	-0.029	5.52	0.004
10	1.520	0.155	2.43	76	1.7	104	76	-0.028	5.75	0.003
11	1.672	0.152	2.43	76	1.6	-	76	-0.028	6.01	0.003
12	1.826	0.154	2.43	76	1.7	-	76	-0.030	6.29	0.002
13	1.980	0.154	2.42	76	2.1	-	76	-0.030	6.56	0.003
14	2.132	0.152	2.44	77	2.0	-	76	-0.030	6.81	0.003
15	2.287	0.155	2.44	77	2.1	-	76	-0.031	7.11	0.004
16	2.437	0.150	2.43	77	1.9	-	76	-0.030	7.51	0.003
17	2.594	0.157	2.44	78	1.7	-	76	-0.031	8.20	0.003
18	2.745	0.151	2.43	78	1.9	-	76	-0.034	12.14	0.002
19	2.899	0.154	2.44	78	2.1	-	76	-0.036	10.82	0.004
20	3.050	0.151	2.44	78	2.1	107	76	-0.036	9.55	0.005
21	3.205	0.155	2.44	79	1.6	-	77	-0.037	9.34	0.004
22	3.358	0.153	2.45	79	1.6	-	77	-0.036	9.22	0.002
23	3.513	0.155	2.44	79	1.9	-	77	-0.036	9.15	0.003
24	3.669	0.156	2.44	80	1.6	-	77	-0.036	8.83	0.002
25	3.820	0.151	2.44	80	2.0	-	77	-0.036	8.72	0.003
26	3.976	0.156	2.43	80	1.6	-	77	-0.037	8.71	0.005
27	4.131	0.155	2.45	81	1.8	-	77	-0.037	8.77	0.004
28	4.289	0.158	2.45	81	1.8	-	77	-0.038	8.52	0.003
29	4.440	0.151	2.45	81	2.1	-	77	-0.037	8.95	0.002
30	4.596	0.156	2.44	82	1.6	105	77	-0.038	9.09	0.003
31	4.752	0.156	2.45	82	1.7	-	77	-0.040	9.27	0.004

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
32	4.906	0.154	2.46	82	2.0	-	77	-0.037	9.41	0.003
33	5.062	0.156	2.46	83	2.1	-	77	-0.040	9.55	0.004
34	5.214	0.152	2.45	83	1.6	-	77	-0.038	9.53	0.005
35	5.373	0.159	2.45	83	1.6	-	77	-0.039	9.55	0.003
36	5.526	0.153	2.46	84	2.1	-	77	-0.041	9.64	0.003
37	5.682	0.156	2.45	84	2.1	-	77	-0.042	10.17	0.003
38	5.833	0.151	2.45	84	1.7	-	77	-0.043	12.54	0.002
39	5.990	0.157	2.46	85	1.7	-	77	-0.045	15.36	0.004
40	6.147	0.157	2.46	85	1.7	103	77	-0.045	15.06	0.004
41	6.300	0.153	2.46	85	1.7	-	77	-0.045	12.38	0.003
42	6.458	0.158	2.46	86	1.8	-	77	-0.046	11.49	0.003
43	6.612	0.154	2.46	86	2.1	-	78	-0.045	11.30	0.003
44	6.769	0.157	2.47	86	2.1	-	78	-0.047	11.16	0.003
45	6.923	0.154	2.46	86	1.8	-	78	-0.046	12.18	0.003
46	7.081	0.158	2.46	87	2.0	-	78	-0.047	11.78	0.001
47	7.240	0.159	2.46	87	2.0	-	78	-0.046	11.11	0.003
48	7.394	0.154	2.45	87	1.7	-	78	-0.047	11.20	0.000
49	7.553	0.159	2.47	88	1.8	-	78	-0.047	11.57	0.003
50	7.707	0.154	2.47	88	2.1	102	78	-0.046	11.87	0.002
51	7.865	0.158	2.46	88	1.7	-	78	-0.047	12.12	0.003
52	8.021	0.156	2.47	88	1.7	-	78	-0.046	12.58	0.003
53	8.178	0.157	2.47	89	1.7	-	78	-0.046	12.92	0.001
54	8.332	0.154	2.47	89	1.7	-	78	-0.047	12.94	0.003
55	8.486	0.154	2.47	89	1.8	-	78	-0.047	13.09	0.001
56	8.646	0.160	2.46	89	1.7	-	78	-0.045	13.01	0.002
57	8.800	0.154	2.46	90	2.1	-	78	-0.050	13.18	0.001
58	8.958	0.158	2.47	90	1.9	-	78	-0.047	13.19	0.003
59	9.116	0.158	2.47	90	1.6	-	78	-0.046	13.75	0.002
60	9.271	0.155	2.47	90	1.9	100	78	-0.046	14.22	0.002
61	9.429	0.158	2.46	91	1.6	-	78	-0.046	14.32	0.002
62	9.588	0.159	2.47	91	1.7	-	78	-0.046	14.01	0.002
63	9.746	0.158	2.47	91	1.9	-	78	-0.045	13.69	0.001

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
64	9.902	0.156	2.47	91	1.6	-	78	-0.046	13.28	0.002
65	10.060	0.158	2.47	91	1.7	-	78	-0.047	13.25	0.003
66	10.218	0.158	2.47	92	1.8	-	78	-0.045	13.01	0.002
67	10.373	0.155	2.47	92	1.6	-	78	-0.045	13.01	0.001
68	10.533	0.160	2.48	92	1.7	-	78	-0.044	13.11	0.001
69	10.685	0.152	2.48	92	1.7	-	78	-0.044	13.26	0.003
70	10.844	0.159	2.48	93	2.1	100	78	-0.046	14.63	0.022
71	11.002	0.158	2.48	93	1.8	-	78	-0.046	14.90	0.118
72	11.158	0.156	2.48	93	1.6	-	78	-0.046	15.17	0.274
73	11.318	0.160	2.48	93	1.6	-	78	-0.046	15.15	0.260
74	11.474	0.156	2.48	93	2.0	-	78	-0.045	14.96	0.268
75	11.632	0.158	2.48	93	1.7	-	78	-0.045	14.76	0.047
76	11.790	0.158	2.48	94	2.1	-	78	-0.044	14.63	0.083
77	11.949	0.159	2.48	94	1.7	-	78	-0.044	15.10	0.112
78	12.109	0.160	2.48	94	1.8	-	78	-0.046	14.99	0.057
79	12.265	0.156	2.48	94	1.9	-	78	-0.047	14.57	0.009
80	12.424	0.159	2.48	94	1.9	100	78	-0.043	14.82	0.059
81	12.582	0.158	2.48	95	1.8	-	78	-0.043	15.00	0.042
82	12.740	0.158	2.48	95	1.7	-	78	-0.046	14.97	0.062
83	12.898	0.158	2.48	95	2.0	-	78	-0.045	15.34	0.115
84	13.055	0.157	2.48	95	2.0	-	78	-0.045	15.16	0.091
85	13.214	0.159	2.48	95	2.0	-	78	-0.046	15.23	0.104
86	13.372	0.158	2.48	95	1.7	-	78	-0.043	15.21	0.104
87	13.528	0.156	2.48	95	1.7	-	78	-0.043	15.31	0.133
88	13.687	0.159	2.49	96	2.1	-	78	-0.042	15.10	0.100
89	13.843	0.156	2.48	96	1.9	-	78	-0.041	14.91	0.030
90	14.004	0.161	2.49	96	1.9	100	78	-0.042	14.58	0.010
91	14.160	0.156	2.48	96	2.1	-	78	-0.043	14.35	0.004
92	14.320	0.160	2.48	96	1.9	-	78	-0.040	14.38	0.005
93	14.479	0.159	2.48	96	2.0	-	78	-0.041	14.45	0.009
94	14.639	0.160	2.48	96	1.6	-	78	-0.041	14.62	0.020
95	14.799	0.160	2.49	96	1.7	-	78	-0.042	14.40	0.011

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
96	14.955	0.156	2.49	97	1.8	-	78	-0.041	14.72	0.012
97	15.115	0.160	2.49	97	1.7	-	78	-0.040	14.53	0.013
98	15.275	0.160	2.49	97	2.0	-	78	-0.040	14.45	0.018
99	15.432	0.157	2.49	97	2.0	-	78	-0.041	14.69	0.020
100	15.592	0.160	2.49	97	1.6	100	78	-0.040	14.67	0.024
101	15.749	0.157	2.49	97	1.8	-	78	-0.041	14.91	0.031
102	15.909	0.160	2.49	97	1.6	-	78	-0.041	14.78	0.042
103	16.068	0.159	2.49	97	1.7	-	78	-0.041	14.88	0.059
104	16.223	0.155	2.49	97	2.1	-	78	-0.040	14.81	0.056
105	16.384	0.161	2.50	97	2.0	-	78	-0.041	14.73	0.062
106	16.540	0.156	2.48	98	1.7	-	78	-0.040	14.86	0.071
107	16.701	0.161	2.49	98	1.6	-	78	-0.038	15.06	0.085
108	16.860	0.159	2.50	98	2.1	-	78	-0.038	15.03	0.078
109	17.020	0.160	2.49	98	1.6	-	78	-0.040	15.03	0.080
110	17.180	0.160	2.49	98	1.7	100	78	-0.040	15.17	0.085
111	17.335	0.155	2.49	98	1.7	-	78	-0.038	15.34	0.109
112	17.496	0.161	2.49	98	1.7	-	78	-0.039	15.17	0.097
113	17.655	0.159	2.49	98	1.8	-	78	-0.040	15.12	0.090
114	17.815	0.160	2.48	98	1.7	-	79	-0.041	15.34	0.114
115	17.975	0.160	2.49	98	1.9	-	79	-0.040	15.24	0.129
116	18.134	0.159	2.49	99	1.7	-	79	-0.040	15.39	0.145
117	18.292	0.158	2.49	99	2.0	-	79	-0.038	15.37	0.135
118	18.450	0.158	2.49	99	2.0	-	79	-0.038	15.34	0.128
119	18.608	0.158	2.49	99	2.0	-	79	-0.037	15.20	0.092
120	18.768	0.160	2.50	99	1.6	100	79	-0.036	15.16	0.056
121	18.927	0.159	2.49	99	2.1	-	79	-0.038	14.93	0.011
122	19.085	0.158	2.50	99	2.0	-	79	-0.036	14.80	0.008
123	19.246	0.161	2.49	99	2.1	-	79	-0.038	14.61	0.003
124	19.404	0.158	2.49	99	1.9	-	79	-0.038	14.46	0.001
125	19.564	0.160	2.49	99	1.9	-	79	-0.036	14.16	0.002
126	19.724	0.160	2.49	99	1.8	-	79	-0.038	14.18	0.002
127	19.882	0.158	2.50	99	2.1	-	79	-0.038	14.12	0.002

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
128	20.046	0.164	2.49	99	2.1	-	79	-0.038	14.00	0.001
129	20.202	0.156	2.50	99	1.6	-	79	-0.036	13.96	0.001
130	20.363	0.161	2.49	100	2.0	101	79	-0.036	14.03	0.002
131	20.523	0.160	2.50	100	1.7	-	79	-0.039	13.85	0.003
132	20.680	0.157	2.49	100	2.0	-	79	-0.036	13.93	0.001
133	20.843	0.163	2.49	100	2.1	-	79	-0.037	13.96	0.001
134	20.999	0.156	2.49	100	1.6	-	79	-0.036	13.95	0.002
135	21.160	0.161	2.49	100	1.6	-	79	-0.036	13.93	0.001
136	21.320	0.160	2.49	100	1.7	-	79	-0.037	13.93	0.002
137	21.475	0.155	2.49	100	1.6	-	79	-0.035	14.01	0.002
138	21.637	0.162	2.49	100	2.0	-	79	-0.036	14.01	0.002
139	21.794	0.157	2.49	100	1.8	-	79	-0.036	14.18	0.001
140	21.954	0.160	2.49	100	1.7	100	79	-0.037	14.03	0.002
141	22.115	0.161	2.49	100	1.7	-	79	-0.036	14.14	0.002
142	22.272	0.157	2.49	100	1.6	-	79	-0.036	14.22	0.004
143	22.433	0.161	2.49	100	1.8	-	79	-0.036	14.41	0.000
144	22.592	0.159	2.50	100	1.8	-	79	-0.035	14.31	0.002
145	22.754	0.162	2.50	100	1.8	-	79	-0.037	14.37	0.001
146	22.915	0.161	2.49	100	1.8	-	79	-0.034	14.20	0.003
147	23.073	0.158	2.49	101	1.6	-	79	-0.035	14.28	0.001
148	23.233	0.160	2.49	101	2.0	-	79	-0.035	14.43	0.002
149	23.393	0.160	2.49	101	1.6	-	79	-0.034	14.24	0.002
150	23.551	0.158	2.49	101	1.7	101	79	-0.034	14.07	0.003
151	23.713	0.162	2.49	101	1.7	-	79	-0.036	14.19	0.003
152	23.869	0.156	2.49	101	1.9	-	79	-0.034	14.21	0.002
153	24.031	0.162	2.49	101	1.8	-	79	-0.035	14.17	0.003
154	24.191	0.160	2.50	101	1.8	-	79	-0.038	14.24	0.002
155	24.345	0.154	2.49	101	1.7	-	79	-0.036	14.33	0.000
156	24.508	0.163	2.49	101	2.0	-	79	-0.035	14.39	0.004
157	24.665	0.157	2.50	101	1.6	-	79	-0.036	14.08	0.001
158	24.826	0.161	2.49	101	2.0	-	79	-0.034	14.30	0.001
159	24.986	0.160	2.50	101	1.8	-	79	-0.034	14.20	0.002

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
160	25.144	0.158	2.49	101	1.6	100	79	-0.034	14.22	0.002
161	25.306	0.162	2.49	101	1.8	-	79	-0.036	13.94	0.000
162	25.466	0.160	2.50	101	1.8	-	79	-0.036	14.11	0.000
163	25.627	0.161	2.50	101	1.8	-	79	-0.033	14.03	0.002
164	25.787	0.160	2.49	101	1.8	-	79	-0.032	14.00	0.002
165	25.945	0.158	2.49	101	1.7	-	79	-0.036	13.89	0.001
166	26.106	0.161	2.50	101	1.7	-	79	-0.033	13.97	0.002
167	26.266	0.160	2.49	101	2.1	-	79	-0.035	14.13	0.001
168	26.424	0.158	2.50	101	1.8	-	79	-0.032	13.95	0.001
169	26.586	0.162	2.49	101	1.6	-	79	-0.035	13.85	0.000
170	26.744	0.158	2.49	101	1.6	100	79	-0.033	14.11	0.003
171	26.905	0.161	2.49	102	1.8	-	79	-0.033	14.09	0.001
172	27.063	0.158	2.49	102	2.1	-	80	-0.033	14.05	0.000
173	27.220	0.157	2.49	102	1.9	-	79	-0.034	14.20	0.002
174	27.383	0.163	2.49	102	1.8	-	80	-0.034	14.27	0.000
175	27.540	0.157	2.50	102	1.6	-	80	-0.034	14.39	0.002
176	27.701	0.161	2.50	102	1.7	-	80	-0.034	15.67	0.003
177	27.861	0.160	2.49	102	1.9	-	80	-0.034	15.82	0.007
178	28.020	0.159	2.49	102	1.7	-	80	-0.034	15.41	0.012
179	28.184	0.164	2.49	102	1.7	-	80	-0.035	15.52	0.019
180	28.343	0.159	2.49	102	2.0	100	80	-0.034	15.69	0.023
181	28.501	0.158	2.50	102	1.9	-	80	-0.033	15.44	0.037
182	28.660	0.159	2.49	102	1.8	-	80	-0.034	15.40	0.038
183	28.819	0.159	2.48	102	1.8	-	80	-0.033	15.41	0.054
184	28.980	0.161	2.49	102	2.0	-	80	-0.034	15.28	0.093
185	29.140	0.160	2.50	102	2.1	-	80	-0.034	15.53	0.116
186	29.298	0.158	2.50	102	1.6	-	80	-0.034	15.67	0.141
187	29.461	0.163	2.49	102	1.7	-	80	-0.033	15.71	0.187
188	29.620	0.159	2.50	102	2.1	-	80	-0.035	15.65	0.233
189	29.782	0.162	2.49	102	1.8	-	80	-0.035	15.80	0.288
190	29.942	0.160	2.50	102	1.6	100	80	-0.036	15.80	0.432
191	30.101	0.159	2.50	102	1.8	-	80	-0.035	15.61	0.581

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
192	30.263	0.162	2.50	102	2.1	-	80	-0.037	15.70	0.787
193	30.421	0.158	2.50	102	1.6	-	80	-0.036	15.68	1.002
194	30.583	0.162	2.50	102	1.6	-	80	-0.037	15.77	1.021
195	30.743	0.160	2.49	102	1.7	-	80	-0.035	15.51	0.813
196	30.899	0.156	2.50	102	1.6	-	80	-0.034	15.56	0.762
197	31.060	0.161	2.50	102	1.6	-	80	-0.034	15.49	0.776
198	31.223	0.163	2.50	102	1.7	-	80	-0.034	15.29	0.765
199	31.382	0.159	2.50	102	1.7	-	80	-0.035	15.45	0.705
200	31.544	0.162	2.49	102	2.0	99	80	-0.036	15.24	0.606
201	31.701	0.157	2.49	102	1.6	-	80	-0.034	14.84	0.574
202	31.860	0.159	2.50	103	1.8	-	80	-0.033	15.05	0.137
203	32.021	0.161	2.49	103	1.6	-	80	-0.036	14.91	0.075
204	32.181	0.160	2.49	103	2.0	-	80	-0.033	14.77	0.040
205	32.345	0.164	2.50	103	2.0	-	80	-0.033	14.43	0.011
206	32.501	0.156	2.49	103	2.0	-	80	-0.033	14.36	0.003
207	32.663	0.162	2.49	103	2.0	-	80	-0.032	14.21	0.002
208	32.824	0.161	2.49	103	1.6	-	80	-0.033	13.86	0.001
209	32.982	0.158	2.49	103	1.6	-	80	-0.033	13.65	0.001
210	33.144	0.162	2.49	103	1.6	99	80	-0.033	13.23	0.000
211	33.304	0.160	2.49	103	1.9	-	80	-0.033	13.27	0.001
212	33.462	0.158	2.49	103	2.0	-	80	-0.031	12.84	0.000
213	33.625	0.163	2.49	103	1.8	-	80	-0.031	12.74	0.001
214	33.783	0.158	2.50	103	2.1	-	80	-0.031	12.66	0.001
215	33.944	0.161	2.49	103	1.7	-	80	-0.031	12.41	0.000
216	34.105	0.161	2.50	103	1.9	-	80	-0.031	12.26	0.000
217	34.260	0.155	2.49	103	2.0	-	80	-0.031	12.24	0.001
218	34.423	0.163	2.49	103	1.7	-	80	-0.028	12.18	0.001
219	34.581	0.158	2.50	103	2.0	-	80	-0.030	12.01	0.000
220	34.742	0.161	2.49	103	2.0	99	80	-0.031	12.25	0.000
221	34.903	0.161	2.50	103	1.7	-	80	-0.030	12.09	0.000
222	35.064	0.161	2.49	103	1.6	-	80	-0.029	11.89	0.001
223	35.226	0.162	2.50	103	1.7	-	80	-0.030	11.88	0.000

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
224	35.386	0.160	2.49	103	2.0	-	80	-0.032	11.88	0.000
225	35.543	0.157	2.49	103	1.6	-	80	-0.032	11.82	0.001
226	35.705	0.162	2.50	103	1.9	-	80	-0.029	11.85	0.001
227	35.863	0.158	2.50	103	2.1	-	80	-0.031	11.76	0.000
228	36.027	0.164	2.50	103	1.7	-	80	-0.028	11.78	0.000
229	36.188	0.161	2.51	103	1.9	-	80	-0.028	11.65	0.000
230	36.346	0.158	2.50	103	1.9	100	80	-0.031	11.34	0.001
231	36.507	0.161	2.49	103	2.0	-	80	-0.029	11.37	0.000
232	36.664	0.157	2.50	103	2.0	-	80	-0.030	11.18	0.000
233	36.829	0.165	2.50	103	1.7	-	80	-0.029	11.26	0.000
234	36.989	0.160	2.49	103	2.0	-	80	-0.030	11.21	0.001
235	37.145	0.156	2.49	103	1.7	-	80	-0.031	11.32	0.000
236	37.309	0.164	2.50	103	1.8	-	80	-0.030	11.27	0.000
237	37.470	0.161	2.49	103	1.6	-	80	-0.029	11.29	0.001
238	37.629	0.159	2.50	104	2.1	-	80	-0.029	11.42	0.000
239	37.789	0.160	2.50	104	1.7	-	80	-0.030	11.13	0.001
240	37.946	0.157	2.50	104	2.0	100	80	-0.029	10.99	0.001
241	38.111	0.165	2.50	104	2.1	-	80	-0.030	11.12	0.000
242	38.271	0.160	2.49	104	1.6	-	80	-0.029	11.10	0.001
243	38.427	0.156	2.49	104	1.8	-	80	-0.030	11.27	0.000
244	38.593	0.166	2.50	104	2.0	-	80	-0.032	11.28	0.000
245	38.752	0.159	2.49	104	1.7	-	80	-0.030	11.31	0.000
246	38.910	0.158	2.50	104	1.6	-	80	-0.030	11.38	0.000
247	39.071	0.161	2.49	104	1.7	-	80	-0.031	11.33	0.001
248	39.233	0.162	2.49	104	2.1	-	80	-0.029	11.45	0.001
249	39.393	0.160	2.49	104	1.9	-	80	-0.027	11.40	0.001
250	39.552	0.159	2.49	104	1.6	100	80	-0.028	11.50	0.000
251	39.711	0.159	2.50	104	1.8	-	80	-0.029	11.58	0.002
252	39.876	0.165	2.50	104	1.6	-	80	-0.030	11.48	0.000
253	40.032	0.156	2.50	104	1.7	-	80	-0.030	11.51	0.000
254	40.194	0.162	2.50	104	1.7	-	80	-0.030	11.69	0.001
255	40.357	0.163	2.51	104	1.9	-	80	-0.031	11.59	0.001

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
256	40.516	0.159	2.50	104	2.0	-	80	-0.030	11.73	0.000
257	40.678	0.162	2.50	104	1.8	-	80	-0.030	11.70	0.000
258	40.838	0.160	2.50	104	1.8	-	80	-0.030	11.87	0.000
259	40.995	0.157	2.50	104	2.1	-	80	-0.031	11.89	0.000
260	41.161	0.166	2.50	104	2.1	101	80	-0.030	11.90	0.000
261	41.318	0.157	2.50	104	1.7	-	80	-0.030	11.96	0.001
262	41.477	0.159	2.50	104	1.6	-	80	-0.033	12.08	0.001
263	41.639	0.162	2.50	104	2.1	-	80	-0.031	11.96	0.000
264	41.800	0.161	2.50	104	1.8	-	80	-0.032	11.93	0.000
265	41.963	0.163	2.50	104	1.9	-	80	-0.031	11.96	0.001
266	42.118	0.155	2.49	104	1.6	-	80	-0.032	12.05	0.002
267	42.283	0.165	2.50	104	1.9	-	80	-0.032	11.93	0.001
268	42.444	0.161	2.50	104	1.7	-	80	-0.030	11.93	0.001
269	42.600	0.156	2.49	104	2.0	-	80	-0.031	11.94	0.001
270	42.761	0.161	2.50	104	1.7	100	80	-0.031	11.87	0.000
271	42.926	0.165	2.50	104	1.6	-	80	-0.031	12.06	0.000
272	43.083	0.157	2.49	104	1.7	-	80	-0.031	12.10	0.000
273	43.244	0.161	2.50	104	1.8	-	80	-0.031	12.03	0.001
274	43.405	0.161	2.50	104	1.6	-	80	-0.032	12.08	0.001
275	43.567	0.162	2.49	104	1.7	-	80	-0.031	12.05	0.000
276	43.725	0.158	2.50	104	1.6	-	80	-0.032	12.03	0.000
277	43.884	0.159	2.50	104	2.0	-	80	-0.032	12.03	0.000
278	44.049	0.165	2.50	104	2.0	-	80	-0.032	11.90	0.000
279	44.209	0.160	2.50	104	2.0	-	80	-0.033	12.04	0.001
280	44.366	0.157	2.50	104	1.6	100	80	-0.032	11.84	0.000
281	44.529	0.163	2.49	104	1.6	-	80	-0.032	11.82	0.000
282	44.689	0.160	2.50	104	1.7	-	80	-0.032	11.85	0.000
283	44.849	0.160	2.50	104	2.1	-	80	-0.030	11.78	0.000
284	45.010	0.161	2.50	104	1.7	-	80	-0.032	11.74	0.000
285	45.171	0.161	2.49	104	1.6	-	80	-0.030	11.73	0.000
286	45.334	0.163	2.50	104	1.9	-	80	-0.031	11.66	0.001
287	45.489	0.155	2.50	104	2.1	-	80	-0.029	11.68	0.000

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
288	45.654	0.165	2.50	104	2.0	-	80	-0.031	11.77	0.000
289	45.816	0.162	2.50	104	1.8	-	80	-0.031	11.52	0.000
290	45.972	0.156	2.50	104	1.6	100	80	-0.030	11.58	0.000
291	46.133	0.161	2.50	104	1.6	-	80	-0.031	11.63	0.001
292	46.298	0.165	2.50	104	1.6	-	80	-0.031	11.43	0.000
293	46.456	0.158	2.49	105	2.0	-	80	-0.031	11.53	0.001
294	46.617	0.161	2.49	105	2.0	-	80	-0.031	11.52	0.001
295	46.775	0.158	2.50	105	1.6	-	80	-0.033	11.32	0.001
296	46.939	0.164	2.50	105	2.0	-	80	-0.031	11.44	0.000
297	47.098	0.159	2.50	105	2.1	-	80	-0.032	11.25	0.000
298	47.256	0.158	2.49	105	1.6	-	80	-0.034	11.24	0.001
299	47.421	0.165	2.50	105	1.8	-	80	-0.031	11.45	0.000
300	47.582	0.161	2.50	105	1.6	100	80	-0.031	11.53	0.000
301	47.738	0.156	2.50	105	1.7	-	80	-0.029	11.71	0.000
302	47.904	0.166	2.50	105	2.0	-	80	-0.031	11.57	0.000
303	48.062	0.158	2.50	105	2.1	-	80	-0.029	11.60	0.000
304	48.221	0.159	2.50	105	2.1	-	80	-0.030	11.71	0.000
305	48.382	0.161	2.50	105	1.8	-	80	-0.031	11.63	0.000
306	48.544	0.162	2.50	105	1.9	-	80	-0.031	11.89	0.000
307	48.706	0.162	2.50	105	2.0	-	80	-0.032	11.90	0.000
308	48.863	0.157	2.50	105	1.8	-	80	-0.032	11.81	0.000
309	49.026	0.163	2.49	105	2.1	-	80	-0.030	11.91	0.000
310	49.189	0.163	2.50	105	1.6	100	80	-0.027	12.12	0.000
311	49.345	0.156	2.50	105	1.6	-	80	-0.032	12.22	0.000
312	49.506	0.161	2.50	105	1.6	-	80	-0.031	12.35	0.000
313	49.668	0.162	2.50	105	2.1	-	80	-0.032	12.38	0.000
314	49.826	0.158	2.49	105	1.7	-	80	-0.030	12.50	0.000
315	49.992	0.166	2.50	105	1.6	-	80	-0.033	12.74	0.000
316	50.147	0.155	2.50	105	1.8	-	80	-0.034	12.88	0.000
317	50.309	0.162	2.49	105	1.8	-	80	-0.035	12.99	0.000
318	50.470	0.161	2.49	105	1.8	-	80	-0.034	13.30	0.000
319	50.633	0.163	2.50	105	1.9	-	80	-0.032	13.35	0.001

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
320	50.793	0.160	2.49	105	1.6	100	80	-0.032	13.46	0.000
321	50.952	0.159	2.49	105	1.7	-	80	-0.033	13.56	0.000
322	51.111	0.159	2.50	105	2.1	-	80	-0.033	13.58	0.000
323	51.277	0.166	2.49	105	1.7	-	80	-0.034	13.94	0.001
324	51.432	0.155	2.50	105	1.6	-	80	-0.033	13.92	0.000
325	51.594	0.162	2.49	105	2.1	-	80	-0.033	13.72	0.000
326	51.758	0.164	2.49	105	1.7	-	80	-0.036	13.90	0.000
327	51.917	0.159	2.49	105	2.0	-	80	-0.033	14.90	0.001
328	52.076	0.159	2.50	105	1.9	-	80	-0.032	14.94	0.000
329	52.239	0.163	2.50	105	2.0	-	80	-0.033	14.82	0.000
330	52.398	0.159	2.50	105	2.1	100	80	-0.034	14.65	0.000
331	52.559	0.161	2.49	105	1.6	-	80	-0.036	14.65	0.000
332	52.717	0.158	2.50	105	2.0	-	80	-0.034	14.48	0.000
333	52.882	0.165	2.50	105	2.1	-	80	-0.033	14.15	0.000
334	53.040	0.158	2.50	105	1.6	-	80	-0.034	14.22	0.000
335	53.202	0.162	2.49	105	2.1	-	80	-0.032	14.39	0.000
336	53.362	0.160	2.50	105	1.6	-	80	-0.032	13.93	0.001
337	53.524	0.162	2.49	105	1.8	-	80	-0.033	13.92	0.000
338	53.684	0.160	2.50	105	1.9	-	80	-0.032	13.90	0.000
339	53.843	0.159	2.49	105	1.6	-	80	-0.034	14.08	0.000
340	54.002	0.159	2.49	105	1.9	100	80	-0.033	13.94	0.001
341	54.166	0.164	2.50	105	2.1	-	80	-0.031	13.94	0.000
342	54.328	0.162	2.49	105	1.7	-	80	-0.031	13.72	0.000
343	54.484	0.156	2.50	105	1.9	-	80	-0.033	13.65	0.000
344	54.650	0.166	2.50	105	1.7	-	80	-0.033	13.70	0.000
345	54.807	0.157	2.49	105	2.0	-	80	-0.034	13.67	0.000
346	54.967	0.160	2.49	105	1.6	-	80	-0.033	13.65	0.000
347	55.128	0.161	2.50	105	2.0	-	80	-0.032	13.81	0.000
348	55.287	0.159	2.49	105	2.0	-	80	-0.031	13.59	0.000
349	55.449	0.162	2.50	105	2.1	-	80	-0.032	13.57	0.000
350	55.613	0.164	2.49	105	1.6	101	80	-0.033	13.71	0.000
351	55.772	0.159	2.50	105	2.0	-	80	-0.034	13.66	0.001

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
352	55.932	0.160	2.50	105	1.7	-	80	-0.034	13.70	0.000
353	56.090	0.158	2.49	105	1.9	-	80	-0.033	13.83	0.000
354	56.255	0.165	2.49	105	1.7	-	80	-0.032	13.95	0.000
355	56.416	0.161	2.50	105	2.1	-	80	-0.032	13.78	0.000
356	56.572	0.156	2.49	105	1.8	-	80	-0.030	13.88	0.000
357	56.737	0.165	2.50	105	2.1	-	80	-0.032	14.25	0.000
358	56.894	0.157	2.49	105	1.9	-	80	-0.033	14.06	0.000
359	57.055	0.161	2.49	105	1.6	-	80	-0.033	14.06	0.000
360	57.219	0.164	2.49	105	2.0	100	80	-0.033	14.41	0.000
361	57.375	0.156	2.49	105	1.9	-	80	-0.033	14.26	0.000
362	57.536	0.161	2.49	105	1.9	-	80	-0.031	14.66	0.000
363	57.701	0.165	2.50	105	1.8	-	80	-0.032	14.34	0.000
364	57.856	0.155	2.49	105	2.1	-	80	-0.035	14.60	0.000
365	58.020	0.164	2.49	105	1.9	-	80	-0.033	14.47	0.000
366	58.180	0.160	2.49	105	1.8	-	80	-0.033	14.63	0.000
367	58.340	0.160	2.49	105	1.6	-	80	-0.031	14.52	0.000
368	58.501	0.161	2.49	105	2.0	-	80	-0.033	14.65	0.000
369	58.663	0.162	2.49	105	2.0	-	80	-0.030	14.59	0.001
370	58.822	0.159	2.49	105	1.6	100	80	-0.033	14.71	0.000
371	58.985	0.163	2.49	105	1.6	-	81	-0.032	14.56	0.000
372	59.142	0.157	2.50	105	2.1	-	81	-0.032	14.98	0.001
373	59.304	0.162	2.49	105	1.6	-	81	-0.032	14.89	0.000
374	59.465	0.161	2.49	105	1.9	-	81	-0.032	14.89	0.001
375	59.625	0.160	2.50	105	2.0	-	81	-0.034	14.79	0.000
376	59.785	0.160	2.49	105	2.0	-	81	-0.033	14.49	0.000
377	59.947	0.162	2.49	105	1.6	-	81	-0.034	14.50	0.000
378	60.109	0.162	2.49	105	1.6	-	81	-0.033	14.69	0.000
379	60.267	0.158	2.49	105	1.7	-	81	-0.031	14.91	0.000
380	60.429	0.162	2.50	105	1.6	100	81	-0.031	15.08	0.000
381	60.592	0.163	2.49	105	2.0	-	81	-0.032	15.06	0.000
382	60.748	0.156	2.50	105	2.0	-	81	-0.032	14.99	0.000
383	60.912	0.164	2.49	105	1.8	-	81	-0.032	14.82	0.000

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
384	61.073	0.161	2.49	105	2.1	-	81	-0.028	14.76	0.000
385	61.229	0.156	2.49	105	2.0	-	81	-0.032	14.80	0.000
386	61.395	0.166	2.49	105	2.0	-	81	-0.031	14.85	0.000
387	61.554	0.159	2.49	105	2.0	-	81	-0.032	14.89	0.000
388	61.713	0.159	2.49	105	1.8	-	81	-0.029	14.86	0.001
389	61.873	0.160	2.49	105	2.0	-	81	-0.030	14.83	0.000
390	62.036	0.163	2.50	105	2.1	99	81	-0.029	14.87	0.000
391	62.197	0.161	2.49	105	1.7	-	81	-0.031	14.81	0.000
392	62.356	0.159	2.49	105	1.7	-	81	-0.031	14.62	0.000
393	62.517	0.161	2.49	105	2.1	-	81	-0.031	14.43	0.000
394	62.681	0.164	2.49	105	1.8	-	81	-0.028	14.72	0.000
395	62.838	0.157	2.49	105	2.1	-	81	-0.031	14.54	0.000
396	62.998	0.160	2.48	105	1.6	-	81	-0.030	14.67	0.000
397	63.159	0.161	2.49	105	2.1	-	81	-0.031	14.67	0.000
398	63.321	0.162	2.48	105	1.6	-	81	-0.029	14.47	0.001
399	63.480	0.159	2.50	105	1.7	-	81	-0.029	14.43	0.000
400	63.640	0.160	2.49	105	1.6	99	81	-0.028	14.40	0.000
401	63.800	0.160	2.50	105	1.9	-	81	-0.028	14.38	0.000
402	63.963	0.163	2.49	105	2.1	-	81	-0.030	14.36	0.000
403	64.121	0.158	2.49	105	1.6	-	81	-0.028	14.46	0.000
404	64.283	0.162	2.49	105	1.6	-	81	-0.027	13.62	0.001
405	64.447	0.164	2.49	105	1.6	-	81	-0.028	13.16	0.000
406	64.603	0.156	2.49	105	1.7	-	81	-0.031	13.03	0.001
407	64.766	0.163	2.50	105	1.9	-	81	-0.026	13.40	0.001
408	64.929	0.163	2.50	105	2.1	-	81	-0.028	13.32	0.000
409	65.088	0.159	2.49	105	1.7	-	81	-0.031	13.69	0.000
410	65.251	0.163	2.49	105	2.0	99	81	-0.028	13.59	0.000
411	65.407	0.156	2.50	105	2.0	-	81	-0.030	13.63	0.000
412	65.569	0.162	2.49	105	2.1	-	81	-0.027	13.45	0.000
413	65.732	0.163	2.49	105	2.1	-	81	-0.030	13.38	0.000
414	65.892	0.160	2.49	105	1.6	-	81	-0.029	13.63	0.000
415	66.054	0.162	2.50	105	1.6	-	81	-0.027	13.28	0.000

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
416	66.210	0.156	2.49	105	1.6	-	81	-0.028	13.51	0.000
417	66.373	0.163	2.49	105	1.6	-	81	-0.027	13.51	0.000
418	66.537	0.164	2.49	105	2.1	-	81	-0.026	13.39	0.000
419	66.693	0.156	2.49	105	1.6	-	81	-0.027	13.57	0.000
420	66.854	0.161	2.49	105	1.9	99	81	-0.030	13.83	0.000
421	67.016	0.162	2.49	106	1.7	-	81	-0.026	13.62	0.000
422	67.177	0.161	2.49	106	1.6	-	81	-0.028	13.73	0.000
423	67.341	0.164	2.50	106	2.1	-	81	-0.029	13.70	0.000
424	67.496	0.155	2.49	106	1.6	-	81	-0.028	13.81	0.001
425	67.661	0.165	2.49	105	1.6	-	81	-0.027	13.93	0.000
426	67.822	0.161	2.49	106	1.8	-	81	-0.028	13.68	0.000
427	67.979	0.157	2.49	106	1.7	-	81	-0.029	13.55	0.000
428	68.141	0.162	2.50	106	1.6	-	81	-0.027	13.51	0.000
429	68.305	0.164	2.49	106	1.7	-	81	-0.028	13.40	0.000
430	68.463	0.158	2.49	106	1.7	99	81	-0.026	13.53	0.000
431	68.624	0.161	2.49	106	1.6	-	81	-0.026	13.40	0.000
432	68.782	0.158	2.50	106	1.7	-	81	-0.027	13.38	0.001
433	68.947	0.165	2.49	106	1.6	-	81	-0.027	13.28	0.000
434	69.106	0.159	2.50	106	1.6	-	81	-0.025	13.21	0.000
435	69.267	0.161	2.48	106	1.6	-	81	-0.027	13.19	0.000
436	69.429	0.162	2.49	106	2.1	-	81	-0.026	12.98	0.000
437	69.587	0.158	2.49	106	1.6	-	81	-0.028	13.08	0.000
438	69.747	0.160	2.49	106	1.6	-	81	-0.028	13.07	0.000
439	69.913	0.166	2.50	106	1.9	-	81	-0.025	13.05	0.000
440	70.068	0.155	2.50	106	1.8	99	81	-0.025	12.77	0.000
441	70.230	0.162	2.49	106	2.0	-	81	-0.025	12.64	0.000
442	70.395	0.165	2.50	106	1.7	-	81	-0.024	12.69	0.000
443	70.554	0.159	2.49	106	1.8	-	81	-0.025	12.49	0.000
444	70.713	0.159	2.50	106	1.7	-	81	-0.024	12.62	0.000
445	70.873	0.160	2.49	106	1.7	-	81	-0.024	12.37	0.000
446	71.036	0.163	2.50	106	1.9	-	81	-0.025	12.45	0.000
447	71.197	0.161	2.50	106	1.6	-	81	-0.023	12.22	0.000

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
448	71.355	0.158	2.50	106	1.7	-	81	-0.025	12.13	0.000
449	71.517	0.162	2.50	106	1.8	-	81	-0.023	12.17	0.000
450	71.681	0.164	2.50	106	2.1	99	81	-0.024	12.21	0.000
451	71.840	0.159	2.49	106	2.1	-	81	-0.023	12.27	0.000
452	72.001	0.161	2.49	106	2.0	-	81	-0.024	12.23	0.000
453	72.163	0.162	2.49	106	1.8	-	81	-0.025	12.41	0.000
454	72.323	0.160	2.50	106	2.1	-	81	-0.023	12.20	0.000
455	72.482	0.159	2.49	106	2.1	-	81	-0.021	12.26	0.000
456	72.642	0.160	2.50	106	1.6	-	81	-0.023	12.22	0.000
457	72.807	0.165	2.49	106	1.6	-	81	-0.024	12.17	0.000
458	72.966	0.159	2.50	106	2.1	-	81	-0.022	11.93	0.000
459	73.124	0.158	2.49	106	1.8	-	81	-0.021	12.15	0.000
460	73.290	0.166	2.50	106	1.6	99	81	-0.023	12.01	0.000
461	73.449	0.159	2.50	106	2.1	-	81	-0.022	12.09	0.000
462	73.611	0.162	2.50	106	1.9	-	81	-0.020	11.97	0.001
463	73.769	0.158	2.49	106	2.1	-	81	-0.022	11.81	0.000
464	73.929	0.160	2.49	106	1.9	-	81	-0.022	11.95	0.000
465	74.093	0.164	2.50	106	1.9	-	81	-0.019	11.81	0.000
466	74.252	0.159	2.49	106	2.1	-	81	-0.019	11.76	0.000
467	74.411	0.159	2.49	106	1.6	-	81	-0.023	11.71	0.000
468	74.574	0.163	2.49	106	1.9	-	81	-0.020	11.78	0.000
469	74.735	0.161	2.48	106	1.9	-	81	-0.019	11.76	0.000
470	74.895	0.160	2.49	106	2.1	98	81	-0.020	11.66	0.000
471	75.056	0.161	2.50	106	2.1	-	81	-0.020	11.67	0.000
472	75.219	0.163	2.50	106	2.0	-	81	-0.021	11.68	0.000
473	75.380	0.161	2.49	106	1.6	-	81	-0.020	11.84	0.000
474	75.539	0.159	2.49	106	2.1	-	81	-0.021	11.79	0.000
475	75.700	0.161	2.49	106	1.9	-	81	-0.020	11.82	0.000
476	75.864	0.164	2.49	106	1.7	-	81	-0.020	11.79	0.000
477	76.022	0.158	2.50	106	1.6	-	81	-0.022	11.98	0.000
478	76.182	0.160	2.49	106	2.0	-	81	-0.019	11.96	0.000
479	76.343	0.161	2.50	106	1.6	-	81	-0.020	11.85	0.000

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
480	76.505	0.162	2.49	106	1.7	99	80	-0.020	11.96	0.000
481	76.665	0.160	2.50	106	2.0	-	80	-0.022	12.08	0.000
482	76.826	0.161	2.50	106	2.0	-	80	-0.020	12.07	0.000
483	76.988	0.162	2.50	106	2.1	-	80	-0.022	12.03	0.000
484	77.151	0.163	2.49	106	2.1	-	80	-0.021	11.78	0.000
485	77.307	0.156	2.50	106	1.6	-	80	-0.022	11.90	0.000
486	77.470	0.163	2.49	106	2.1	-	80	-0.022	12.14	0.000
487	77.633	0.163	2.50	106	2.0	-	80	-0.021	12.18	0.000
488	77.790	0.157	2.50	106	1.9	-	80	-0.022	12.11	0.000
489	77.952	0.162	2.50	106	2.1	-	80	-0.021	12.13	0.000
490	78.116	0.164	2.50	106	1.9	98	80	-0.021	12.05	0.000
491	78.273	0.157	2.50	106	1.9	-	80	-0.022	12.14	0.000
492	78.436	0.163	2.50	106	2.1	-	80	-0.022	12.37	0.000
493	78.597	0.161	2.50	106	1.9	-	80	-0.023	12.42	0.000
494	78.759	0.162	2.50	106	2.1	-	80	-0.021	12.43	0.000
495	78.918	0.159	2.50	106	1.6	-	80	-0.021	12.25	0.000
496	79.080	0.162	2.49	106	1.8	-	80	-0.024	12.31	0.000
497	79.243	0.163	2.50	106	2.1	-	80	-0.024	12.14	0.000
498	79.400	0.157	2.49	106	1.7	-	80	-0.023	11.98	0.000
499	79.560	0.160	2.49	106	1.6	-	80	-0.024	11.99	0.000
500	79.726	0.166	2.49	106	1.7	98	80	-0.023	12.04	0.000
501	79.882	0.156	2.50	106	2.1	-	80	-0.022	11.99	0.001
502	80.044	0.162	2.49	106	1.9	-	80	-0.022	11.99	0.000
503	80.208	0.164	2.49	106	1.9	-	80	-0.022	12.13	0.000
504	80.367	0.159	2.50	106	2.1	-	80	-0.023	12.10	0.000
505	80.527	0.160	2.50	106	1.8	-	80	-0.023	11.99	0.000
506	80.690	0.163	2.49	106	1.7	-	80	-0.023	12.03	0.000
507	80.850	0.160	2.50	106	1.6	-	80	-0.020	12.17	0.000
508	81.010	0.160	2.49	106	1.5	-	80	-0.023	12.09	0.000
509	81.171	0.161	2.49	106	1.6	-	80	-0.024	12.20	0.000
510	81.334	0.163	2.50	106	1.9	99	80	-0.023	12.05	0.000
511	81.493	0.159	2.50	106	1.7	-	80	-0.023	11.86	0.000

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
512	81.651	0.158	2.50	106	1.6	-	80	-0.022	11.65	0.001
513	81.817	0.166	2.50	106	1.9	-	80	-0.023	11.61	0.000
514	81.974	0.157	2.50	106	2.1	-	80	-0.022	11.70	0.000
515	82.136	0.162	2.50	106	1.8	-	80	-0.022	12.16	0.000
516	82.301	0.165	2.50	106	2.0	-	80	-0.023	12.60	0.000
517	82.457	0.156	2.50	106	2.1	-	80	-0.021	12.65	0.000
518	82.618	0.161	2.49	106	2.0	-	80	-0.022	12.63	0.000
519	82.783	0.165	2.51	106	1.9	-	80	-0.023	12.69	0.000
520	82.939	0.156	2.50	106	1.5	99	80	-0.021	12.63	0.000
521	83.103	0.164	2.50	106	2.1	-	80	-0.022	12.66	0.000
522	83.265	0.162	2.50	106	1.6	-	80	-0.022	12.63	0.000
523	83.426	0.161	2.50	106	2.1	-	80	-0.023	12.64	0.000
524	83.585	0.159	2.49	106	1.6	-	80	-0.022	12.65	0.000
525	83.747	0.162	2.50	106	2.1	-	80	-0.024	12.77	0.000
526	83.906	0.159	2.49	106	1.9	-	80	-0.023	12.91	0.000
527	84.068	0.162	2.50	106	1.6	-	80	-0.023	12.89	0.000
528	84.229	0.161	2.50	106	2.1	-	80	-0.024	12.77	0.000
529	84.390	0.161	2.50	106	1.9	-	80	-0.023	12.66	0.000
530	84.548	0.158	2.50	106	1.7	99	80	-0.025	12.68	0.000
531	84.713	0.165	2.50	106	1.8	-	80	-0.026	12.57	0.000
532	84.874	0.161	2.49	106	1.7	-	80	-0.024	12.70	0.000
533	85.031	0.157	2.49	106	2.1	-	80	-0.024	12.74	0.000
534	85.195	0.164	2.49	106	1.7	-	80	-0.023	12.60	0.000
535	85.358	0.163	2.50	106	1.8	-	80	-0.025	12.62	0.000
536	85.514	0.156	2.50	106	2.1	-	80	-0.026	12.59	0.000
537	85.677	0.163	2.49	106	2.1	-	80	-0.025	12.58	0.000
538	85.838	0.161	2.49	106	1.6	-	80	-0.022	12.41	0.000
539	85.997	0.159	2.49	106	1.9	-	80	-0.027	12.38	0.000
540	86.159	0.162	2.50	106	1.6	98	80	-0.024	12.43	0.000
541	86.321	0.162	2.49	106	1.8	-	80	-0.025	12.33	0.000
542	86.482	0.161	2.50	106	2.0	-	80	-0.023	12.33	0.000
543	86.641	0.159	2.50	106	2.1	-	80	-0.025	12.23	0.000

BOX B TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data							Flue Gas Data		
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H ₂ O)	CO ₂ (%)	CO (%)
544	86.800	0.159	2.50	106	2.0	-	80	-0.026	11.98	0.000
545	86.964	0.164	2.49	106	1.8	-	80	-0.025	12.00	0.000
546	87.124	0.160	2.50	106	2.1	-	80	-0.025	11.99	0.000
547	87.287	0.163	2.49	106	1.8	-	80	-0.025	11.96	0.000
548	87.445	0.158	2.50	106	1.7	-	80	-0.023	11.89	0.000
549	87.607	0.162	2.49	106	1.6	-	80	-0.026	11.92	0.000
550	87.769	0.162	2.50	106	2.0	99	80	-0.024	11.70	0.000
551	87.927	0.158	2.49	106	1.6	-	80	-0.025	11.94	0.000
552	88.090	0.163	2.50	106	1.6	-	80	-0.025	11.88	0.000
553	88.250	0.160	2.50	106	1.9	-	80	-0.026	11.74	0.000
554	88.408	0.158	2.50	106	1.7	-	80	-0.024	11.64	0.000
555	88.573	0.165	2.49	106	1.6	-	80	-0.026	11.60	0.000
556	88.734	0.161	2.50	106	2.0	-	80	-0.025	11.28	0.000
557	88.891	0.157	2.49	106	1.7	-	80	-0.026	11.02	0.000
558	89.056	0.165	2.50	106	1.7	-	80	-0.025	10.94	0.000
559	89.213	0.157	2.49	106	2.1	-	80	-0.025	10.80	0.000
560	89.374	0.161	2.50	106	1.7	99	80	-0.025	10.80	0.000
561	89.539	0.165	2.49	106	1.7	-	80	-0.025	10.69	0.000
562	89.695	0.156	2.50	106	1.6	-	80	-0.028	10.57	0.000
563	89.856	0.161	2.50	106	1.8	98	80	-0.024	10.53	0.000
Avg/Tot	89.856	0.160	2.48	100.9	1.8	100	79.5	-0.032	12.86	0.026

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze King

Model: PE32

Run #: 3

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
0	0.000		0.01	80	0.1		73
1	0.132	0.132	0.96	80	1.5	-	73
2	0.272	0.140	0.96	80	1.4	-	73
3	0.413	0.141	0.98	80	1.5	-	73
4	0.554	0.141	0.98	80	1.4	-	73
5	0.695	0.141	0.98	80	1.5	-	73
6	0.839	0.144	1.00	80	1.4	-	73
7	0.982	0.143	0.99	80	1.6	-	73
8	1.125	0.143	1.00	80	1.6	-	73
9	1.270	0.145	1.00	80	1.4	-	73
10	1.414	0.144	1.01	80	1.4	102	73
11	1.560	0.146	1.01	81	1.4	-	73
12	1.704	0.144	1.02	81	1.6	-	73
13	1.848	0.144	1.01	81	1.4	-	73
14	1.993	0.145	1.01	81	1.4	-	73
15	2.138	0.145	1.01	81	1.5	-	73
16	2.283	0.145	1.02	81	1.5	-	73
17	2.429	0.146	1.03	82	1.4	-	73
18	2.575	0.146	1.03	82	1.5	-	73
19	2.717	0.142	1.02	82	1.5	-	73
20	2.863	0.146	1.02	82	1.5	106	73
21	3.008	0.145	1.02	83	1.6	-	73
22	3.154	0.146	1.03	83	1.4	-	73
23	3.301	0.147	1.03	83	1.6	-	73
24	3.448	0.147	1.04	83	1.5	-	73
25	3.596	0.148	1.04	84	1.4	-	73
26	3.742	0.146	1.04	84	1.5	-	73
27	3.892	0.150	1.05	84	1.6	-	74
28	4.040	0.148	1.05	84	1.5	-	74
29	4.187	0.147	1.05	85	1.4	-	74
30	4.336	0.149	1.05	85	1.6	105	74
31	4.484	0.148	1.05	86	1.4	-	74

BOX C TEST DATA - ASTM E2780 / ASTM E2515

Client: Blaze King

Model: PE32

Run #: 3

Job #: 25-428

Tracking #: 183

Technician: AK

Date: 6/23/2025

Elapsed Time (min)	Particulate Sampling Data						
	Gas Meter (ft ³)	Sample Rate (cfm)	Orifice dH (in H ₂ O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)
32	4.632	0.148	1.05	86	1.6	-	74
33	4.781	0.149	1.05	86	1.5	-	74
34	4.929	0.148	1.05	87	1.5	-	74
35	5.078	0.149	1.05	87	1.4	-	74
36	5.228	0.150	1.05	87	1.4	-	74
37	5.377	0.149	1.06	87	1.4	-	74
38	5.524	0.147	1.05	88	1.6	-	74
39	5.673	0.149	1.05	88	1.4	-	74
40	5.823	0.150	1.05	88	1.5	104	74
41	5.973	0.150	1.06	89	1.6	-	74
42	6.123	0.150	1.06	89	1.4	-	74
43	6.273	0.150	1.07	89	1.4	-	74
44	6.423	0.150	1.07	89	1.5	-	74
45	6.574	0.151	1.07	90	1.6	-	74
46	6.724	0.150	1.07	90	1.5	-	74
47	6.877	0.153	1.08	90	1.6	-	74
48	7.027	0.150	1.08	91	1.6	-	74
49	7.178	0.151	1.08	91	1.6	-	74
50	7.329	0.151	1.07	91	1.4	103	74
51	7.480	0.151	1.07	92	1.6	-	74
52	7.631	0.151	1.07	92	1.5	-	74
53	7.782	0.151	1.07	92	1.4	-	74
54	7.931	0.149	1.07	93	1.4	-	74
55	8.083	0.152	1.07	93	1.5	-	74
56	8.234	0.151	1.07	93	1.5	-	74
57	8.386	0.152	1.08	93	1.6	-	74
58	8.537	0.151	1.08	94	1.5	-	74
59	8.689	0.152	1.08	94	1.5	-	74
60	8.840	0.151	1.08	94	1.5	101	74
Avg/Tot	8.840	0.147	1.02	85.7	1.5	103	73.5

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
0	305	316	205	307	420	310.5	647.2
1	301	312	201	306	419	307.9	568.2
2	297	308	197	301	418	304.3	520.9
3	293	304	193	298	417	300.8	500.8
4	288	299	190	294	416	297.3	502.8
5	284	294	186	291	414	293.9	517.8
6	279	290	183	289	413	290.7	534.9
7	275	285	180	287	412	287.6	549.9
8	271	280	177	286	411	284.8	562.9
9	266	276	174	284	409	282.0	575.0
10	262	272	172	283	408	279.4	584.3
11	258	268	170	283	406	276.9	591.5
12	255	264	167	282	404	274.5	599.1
13	251	261	165	282	403	272.4	608.9
14	248	258	164	282	401	270.3	621.4
15	245	255	162	282	399	268.5	636.0
16	243	252	160	283	398	266.9	653.5
17	241	250	159	284	396	265.8	678.0
18	239	248	158	287	394	265.2	712.6
19	238	247	157	291	392	265.0	747.6
20	237	246	156	294	391	264.9	755.6
21	236	246	156	297	389	264.7	741.5
22	235	246	155	299	387	264.3	722.9
23	234	245	155	299	386	264.0	708.0
24	234	245	155	300	384	263.5	699.3
25	233	245	155	301	383	263.2	695.0
26	233	244	155	301	381	262.7	694.3
27	233	244	154	301	380	262.4	699.5
28	232	244	154	302	378	262.0	704.8
29	232	244	154	303	377	261.9	708.9
30	232	244	154	303	376	261.8	714.2
31	232	244	155	304	374	261.8	723.6
32	232	244	155	306	373	262.0	738.0
33	232	244	155	309	372	262.3	755.3
34	233	244	155	311	371	262.7	766.5
35	233	245	156	314	369	263.2	775.6
36	233	245	156	316	368	263.7	787.4
37	234	246	156	319	367	264.4	801.9
38	235	247	157	323	366	265.8	827.5
39	237	250	159	330	365	268.3	874.2
40	239	251	161	339	364	270.8	917.7
41	240	253	161	348	364	273.0	939.9
42	240	254	162	357	363	275.0	947.1
43	241	255	162	363	362	276.7	945.7
44	242	256	163	369	361	278.3	940.4
45	243	258	163	374	360	279.7	936.9
46	244	259	164	379	360	281.1	938.7
47	245	260	165	383	359	282.4	937.0

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
48	246	261	166	386	358	283.5	930.6
49	247	262	167	390	358	284.5	928.8
50	248	263	168	393	357	285.7	933.2
51	249	265	169	396	357	287.0	940.2
52	250	266	170	400	356	288.4	948.0
53	251	268	170	405	356	289.9	957.8
54	252	269	171	409	355	291.3	968.7
55	253	271	172	414	354	292.9	978.2
56	255	273	172	419	354	294.5	986.6
57	256	275	173	424	353	296.2	994.5
58	257	277	173	430	353	297.8	1003.9
59	258	279	173	435	352	299.6	1013.9
60	259	281	174	441	352	301.4	1025.8
61	260	283	175	446	352	303.3	1037.1
62	261	286	176	452	351	305.2	1044.7
63	262	288	176	457	351	306.9	1047.7
64	263	290	177	462	350	308.5	1047.7
65	265	292	177	466	350	309.8	1045.4
66	266	294	177	469	349	311.0	1043.7
67	266	296	177	472	349	311.9	1046.5
68	267	297	177	475	348	313.0	1051.8
69	268	299	177	476	348	313.8	1056.0
70	269	301	178	480	347	315.0	1063.3
71	270	303	178	484	347	316.2	1074.7
72	271	305	178	488	347	317.6	1085.4
73	272	307	179	492	346	319.1	1093.1
74	273	309	180	496	346	320.6	1097.1
75	274	311	180	499	346	321.8	1102.9
76	275	313	181	503	345	323.3	1103.6
77	277	315	181	506	345	324.5	1106.0
78	278	316	182	509	344	325.8	1110.9
79	279	318	182	513	344	327.0	1111.6
80	280	319	183	515	343	328.0	1110.6
81	281	321	183	517	343	328.8	1109.8
82	282	322	183	518	342	329.5	1108.8
83	283	324	183	519	342	330.4	1108.5
84	284	326	184	520	342	331.1	1107.0
85	285	328	184	521	341	331.9	1105.5
86	287	330	184	522	341	332.6	1103.8
87	288	332	184	522	340	333.1	1101.6
88	288	333	185	523	340	333.7	1100.2
89	289	334	185	524	339	334.2	1102.5
90	290	335	185	526	339	334.7	1106.3
91	291	335	185	527	338	334.9	1101.5
92	291	335	184	530	338	335.6	1100.4
93	292	335	184	530	337	335.5	1098.0
94	292	335	184	529	337	335.2	1095.4
95	292	335	183	529	336	335.1	1093.1

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
96	293	335	183	528	336	334.8	1090.1
97	293	335	183	528	335	334.7	1086.7
98	293	334	183	527	335	334.3	1084.0
99	293	334	183	527	334	334.1	1081.9
100	294	334	182	526	334	333.8	1080.2
101	294	334	182	525	333	333.7	1078.7
102	294	334	182	524	333	333.4	1077.4
103	295	334	182	524	332	333.3	1076.4
104	295	334	182	523	332	333.1	1075.7
105	295	335	182	522	332	332.9	1075.2
106	296	335	182	521	331	332.9	1074.6
107	296	336	181	520	331	332.8	1074.3
108	296	336	181	519	330	332.6	1073.8
109	297	337	181	519	330	332.6	1073.2
110	297	337	181	518	330	332.6	1073.0
111	297	338	181	518	329	332.7	1073.2
112	298	338	181	518	329	332.7	1073.3
113	298	339	181	518	329	332.9	1073.4
114	298	340	181	518	328	333.0	1073.5
115	298	341	182	518	328	333.2	1073.7
116	299	341	182	518	328	333.4	1073.3
117	299	342	182	518	328	333.5	1072.2
118	299	343	182	517	327	333.6	1071.2
119	300	344	182	517	327	333.8	1069.4
120	300	345	182	516	327	333.9	1066.5
121	301	346	182	515	327	334.0	1062.1
122	301	347	182	515	326	334.2	1057.1
123	302	348	182	513	326	334.0	1052.0
124	302	349	182	511	326	334.0	1046.7
125	302	350	181	509	326	333.8	1044.9
126	303	351	181	509	326	333.7	1045.6
127	303	351	181	508	325	333.7	1044.8
128	303	351	181	507	325	333.5	1042.1
129	303	351	181	507	325	333.4	1039.0
130	303	351	181	505	325	333.1	1035.8
131	303	351	181	504	325	332.9	1033.0
132	303	351	181	502	325	332.5	1030.9
133	304	351	181	501	325	332.3	1028.3
134	304	351	181	500	325	332.1	1026.1
135	304	352	181	498	324	331.9	1023.8
136	304	352	181	497	324	331.5	1021.7
137	304	352	181	495	324	331.3	1019.2
138	304	352	181	493	324	330.9	1016.6
139	304	353	181	492	324	330.9	1016.1
140	305	353	181	490	324	330.6	1017.6
141	305	353	181	489	324	330.5	1019.3
142	305	354	181	488	324	330.4	1020.6
143	306	354	181	488	324	330.3	1021.6

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
144	306	354	181	487	324	330.2	1022.1
145	306	354	181	487	323	330.2	1022.2
146	306	354	181	486	323	330.1	1022.4
147	306	354	181	486	323	330.0	1022.6
148	306	354	181	486	323	330.0	1022.8
149	306	354	182	486	323	330.1	1022.5
150	306	354	182	485	323	330.0	1021.6
151	306	354	182	485	323	330.0	1020.3
152	306	354	182	485	323	330.0	1019.1
153	307	354	182	485	323	330.1	1018.2
154	307	355	182	485	323	330.2	1017.0
155	307	355	182	484	323	330.2	1014.9
156	307	355	183	483	323	330.1	1013.2
157	307	355	183	483	323	330.2	1012.0
158	308	355	183	482	323	330.0	1010.6
159	308	356	183	482	323	330.2	1008.1
160	308	356	183	481	323	330.0	1004.0
161	308	356	183	478	323	329.6	999.8
162	309	357	183	479	323	329.9	995.9
163	309	357	183	476	322	329.4	993.9
164	309	357	183	476	322	329.4	995.3
165	309	357	183	476	322	329.4	997.7
166	309	356	183	476	322	329.3	999.4
167	309	356	183	476	322	329.3	1000.0
168	309	356	184	476	322	329.3	1000.1
169	309	356	184	475	322	329.1	1000.1
170	309	356	184	475	322	329.3	999.9
171	309	356	184	474	322	328.9	999.7
172	309	356	184	475	322	329.1	999.6
173	309	356	184	475	322	328.9	999.8
174	309	356	184	475	322	329.0	1000.3
175	309	355	184	475	322	328.9	1002.7
176	309	355	184	476	321	329.0	1009.8
177	309	355	184	477	321	329.2	1020.0
178	309	355	184	479	321	329.5	1029.2
179	309	355	184	480	321	329.9	1036.2
180	309	355	184	482	321	330.4	1041.4
181	309	355	184	484	321	330.8	1045.4
182	309	355	184	486	321	331.1	1048.2
183	310	356	184	488	320	331.5	1050.0
184	310	356	184	490	320	332.1	1050.3
185	310	356	184	491	320	332.4	1049.9
186	310	357	184	490	320	332.3	1049.0
187	311	357	184	492	320	332.8	1048.1
188	311	358	184	494	320	333.4	1047.0
189	311	358	185	495	320	333.7	1046.1
190	311	359	185	496	320	334.0	1045.4
191	312	359	185	497	320	334.4	1044.7

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
192	312	360	184	498	320	334.7	1044.7
193	312	361	185	498	320	335.0	1044.9
194	312	362	185	499	320	335.4	1044.1
195	313	363	185	498	320	335.6	1043.2
196	313	364	184	498	320	335.6	1042.3
197	313	364	184	497	320	335.8	1041.4
198	314	365	184	500	320	336.4	1040.8
199	314	366	184	499	320	336.5	1040.6
200	314	366	185	500	320	337.0	1040.6
201	315	367	185	501	320	337.5	1037.0
202	316	369	185	501	320	337.9	1032.6
203	316	370	185	500	320	338.1	1029.7
204	317	372	185	498	320	338.3	1025.4
205	317	374	185	495	320	338.1	1020.4
206	318	375	185	493	320	338.1	1013.8
207	318	376	185	491	320	337.9	1006.5
208	318	378	185	487	320	337.5	997.3
209	318	379	185	484	320	337.1	986.7
210	319	380	185	480	320	336.6	975.7
211	319	381	185	476	320	336.0	964.6
212	319	382	185	472	320	335.4	953.8
213	319	382	185	467	320	334.7	943.4
214	319	383	185	463	320	333.9	933.5
215	319	383	185	459	320	333.2	924.3
216	319	383	185	455	320	332.3	915.8
217	319	383	185	451	320	331.4	908.2
218	318	383	184	446	320	330.5	900.9
219	318	383	184	442	320	329.6	894.5
220	318	383	184	438	320	328.7	888.6
221	317	383	184	435	320	327.9	883.1
222	317	383	184	431	320	327.0	877.8
223	317	382	184	428	320	326.1	873.0
224	317	382	183	425	320	325.5	867.8
225	316	382	183	422	320	324.7	862.8
226	316	382	183	419	320	323.9	858.8
227	315	382	183	416	320	323.1	855.7
228	315	381	182	414	320	322.4	853.9
229	314	381	182	411	320	321.7	850.3
230	314	380	182	408	320	320.9	844.1
231	313	380	182	406	321	320.2	837.7
232	313	380	182	403	321	319.5	831.9
233	312	379	182	400	321	318.7	826.6
234	312	379	181	398	321	318.0	822.1
235	311	378	181	395	321	317.3	818.5
236	311	377	181	393	321	316.7	815.9
237	311	377	181	391	321	316.0	814.3
238	310	376	181	389	321	315.5	813.6
239	310	375	181	387	321	314.9	813.3

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
240	310	374	181	386	322	314.3	812.8
241	309	373	180	384	322	313.5	812.3
242	309	372	180	382	322	313.0	812.2
243	308	371	180	381	323	312.5	813.0
244	308	370	180	380	323	312.1	814.8
245	308	369	180	379	324	311.8	816.6
246	307	368	180	378	324	311.5	817.9
247	307	368	179	377	325	311.1	819.2
248	307	367	179	377	325	311.0	820.6
249	307	366	179	376	326	310.7	822.3
250	306	366	179	376	326	310.6	824.2
251	306	365	179	376	327	310.4	826.5
252	306	365	178	375	327	310.2	829.5
253	305	364	178	375	328	310.1	832.7
254	305	363	178	375	328	310.0	835.9
255	305	363	178	375	329	309.9	839.3
256	305	362	178	375	330	309.9	842.7
257	305	362	178	376	330	309.9	845.7
258	304	361	177	376	331	309.9	848.3
259	304	361	177	376	331	309.9	850.9
260	304	361	177	377	332	310.2	853.7
261	304	361	177	377	332	310.3	856.5
262	304	361	177	378	333	310.4	859.2
263	304	360	177	379	333	310.6	861.7
264	304	360	177	379	334	310.8	864.1
265	303	360	177	380	334	310.9	866.5
266	303	360	177	380	335	311.1	868.6
267	303	361	177	381	335	311.4	870.5
268	303	361	177	382	336	311.5	872.6
269	303	361	176	382	336	311.6	875.5
270	303	361	176	383	337	311.8	878.2
271	303	361	176	384	337	312.1	880.5
272	303	361	176	385	337	312.4	882.5
273	303	361	176	386	338	312.7	884.9
274	303	361	176	387	338	312.9	888.0
275	302	361	176	388	338	313.2	891.5
276	302	361	176	389	339	313.3	894.9
277	302	361	176	390	339	313.6	898.3
278	302	361	176	391	339	313.7	901.3
279	302	360	176	392	339	313.8	903.4
280	302	360	176	393	339	314.0	905.1
281	302	360	176	394	340	314.1	906.0
282	301	359	176	394	340	314.1	906.4
283	301	359	176	395	340	314.2	906.2
284	301	359	176	396	340	314.3	905.5
285	301	358	176	396	340	314.3	904.6
286	301	358	176	397	340	314.3	903.6
287	301	358	176	398	340	314.4	902.4

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
288	300	357	176	398	340	314.3	900.7
289	300	357	176	398	340	314.2	898.0
290	300	357	176	397	340	314.1	895.2
291	300	357	176	397	340	314.0	892.3
292	300	356	176	397	341	313.9	889.4
293	300	356	176	396	341	313.8	887.1
294	301	356	176	396	341	313.8	882.6
295	301	356	177	395	340	313.7	873.7
296	301	356	177	394	340	313.5	862.9
297	301	356	177	392	340	313.3	853.3
298	302	356	177	390	340	313.0	845.0
299	302	356	178	388	340	312.8	838.1
300	302	356	178	386	340	312.4	832.6
301	303	356	178	384	340	312.1	827.9
302	303	356	178	382	340	311.8	823.9
303	303	356	178	381	340	311.6	821.4
304	303	357	179	379	339	311.4	819.5
305	304	357	179	378	339	311.3	817.8
306	304	357	179	377	339	311.2	816.8
307	304	358	180	376	339	311.2	816.3
308	305	358	180	375	338	311.2	815.2
309	305	358	181	374	338	311.2	813.8
310	305	359	181	374	338	311.3	813.2
311	305	359	182	373	338	311.4	814.0
312	306	360	182	373	337	311.6	815.6
313	306	361	182	373	337	311.7	817.9
314	306	361	183	373	337	311.9	821.8
315	307	362	183	373	336	312.2	828.4
316	307	363	184	374	336	312.7	837.0
317	307	363	184	376	336	313.2	847.2
318	307	364	185	377	335	313.8	858.3
319	308	365	185	380	335	314.6	869.0
320	308	366	186	382	335	315.3	877.3
321	308	366	187	385	335	316.1	884.8
322	309	367	188	387	334	317.0	893.3
323	309	368	188	390	334	317.8	901.9
324	310	369	189	392	334	318.7	909.8
325	310	370	189	395	334	319.6	916.8
326	310	371	190	398	333	320.4	926.8
327	310	372	190	403	333	321.4	948.5
328	310	372	190	408	333	322.6	973.6
329	310	372	190	414	333	323.9	992.6
330	310	373	190	420	333	325.1	1003.5
331	310	373	190	425	333	326.1	1009.2
332	310	373	190	430	333	327.2	1011.4
333	310	373	191	434	332	328.0	1011.6
334	310	373	191	438	332	328.8	1010.3
335	310	373	191	441	332	329.5	1008.4

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
336	310	373	191	444	332	330.1	1006.3
337	311	373	191	446	332	330.5	1003.7
338	311	373	191	448	332	330.9	1001.1
339	311	373	191	449	332	331.2	998.6
340	311	372	191	450	332	331.3	996.3
341	312	372	191	451	331	331.5	994.0
342	312	372	191	451	331	331.6	992.0
343	312	372	191	452	331	331.6	990.0
344	312	371	191	452	331	331.5	988.0
345	313	371	191	452	331	331.4	986.4
346	313	371	192	452	331	331.5	985.1
347	313	370	192	452	331	331.3	984.0
348	313	370	192	451	331	331.3	983.3
349	313	370	192	451	330	331.1	982.5
350	314	369	192	450	330	330.9	981.9
351	314	369	192	450	330	330.9	981.6
352	314	369	192	450	330	330.8	981.8
353	314	368	192	450	330	330.6	982.3
354	314	368	191	450	329	330.5	983.1
355	314	367	192	450	329	330.4	984.2
356	315	367	192	450	329	330.3	985.4
357	315	366	192	450	329	330.4	986.7
358	315	366	192	451	329	330.4	988.0
359	315	366	192	451	329	330.4	989.5
360	315	365	192	452	328	330.5	991.0
361	315	365	192	452	328	330.6	992.6
362	316	365	193	452	328	330.7	994.4
363	316	365	193	453	328	330.7	996.1
364	316	364	193	453	328	330.7	997.6
365	316	364	193	454	328	331.0	999.5
366	316	364	193	455	328	331.2	1001.9
367	316	364	193	455	328	331.3	1004.0
368	316	363	194	456	327	331.4	1005.7
369	317	363	194	458	327	331.8	1007.0
370	317	363	194	459	327	332.0	1008.5
371	317	362	195	460	327	332.2	1010.2
372	317	362	195	460	327	332.4	1011.8
373	317	362	196	461	327	332.7	1013.4
374	318	362	196	462	327	333.1	1014.5
375	318	362	196	463	327	333.2	1015.4
376	318	361	197	464	327	333.6	1015.7
377	318	361	198	465	327	333.8	1014.9
378	318	361	198	465	327	333.8	1013.9
379	319	360	199	465	328	334.2	1013.4
380	319	360	199	466	328	334.3	1013.1
381	319	360	200	467	328	334.6	1013.0
382	319	359	201	467	328	334.9	1012.6
383	319	359	201	468	328	335.1	1012.3

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (*F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
384	319	359	202	469	328	335.3	1011.9
385	319	359	202	469	328	335.4	1011.3
386	320	359	203	468	328	335.4	1010.6
387	320	359	203	468	328	335.5	1009.6
388	320	358	204	469	328	335.7	1008.4
389	320	358	204	468	328	335.8	1007.0
390	320	358	205	469	328	335.9	1004.9
391	320	358	206	468	328	335.9	1002.6
392	320	358	206	468	329	335.9	1000.3
393	320	357	207	467	329	335.9	998.0
394	319	357	207	467	329	335.9	995.8
395	319	357	208	466	329	335.6	993.7
396	319	356	208	466	329	335.5	991.6
397	319	356	208	465	329	335.4	989.8
398	319	356	209	464	329	335.2	987.8
399	319	355	209	463	329	335.0	985.7
400	319	355	209	463	329	334.8	983.7
401	319	354	210	461	329	334.5	981.9
402	319	354	210	460	329	334.3	979.9
403	319	353	210	459	329	334.1	974.7
404	319	353	211	458	329	333.9	965.5
405	319	353	212	455	329	333.6	948.5
406	320	352	213	452	329	333.0	928.7
407	320	352	213	448	329	332.3	912.4
408	320	351	215	443	329	331.5	900.6
409	320	351	216	439	329	330.8	892.5
410	320	350	217	434	329	330.0	887.1
411	320	350	218	431	328	329.3	883.9
412	320	349	219	427	328	328.6	882.5
413	320	348	220	424	328	328.1	881.7
414	320	348	221	421	328	327.5	881.2
415	320	347	222	418	328	327.1	880.8
416	320	346	223	416	328	326.6	880.4
417	319	346	224	414	328	326.3	879.9
418	319	345	226	412	328	325.9	879.1
419	319	344	227	410	328	325.6	878.6
420	319	344	228	409	328	325.3	878.7
421	318	343	229	407	328	325.0	879.4
422	318	342	230	406	328	324.8	880.8
423	318	342	231	405	328	324.6	882.1
424	318	341	232	403	328	324.5	882.5
425	318	340	233	403	328	324.4	881.5
426	318	340	235	402	328	324.3	879.3
427	318	339	236	400	328	324.1	876.1
428	318	338	236	399	328	323.9	872.3
429	318	338	237	398	328	323.7	867.8
430	318	337	238	396	328	323.4	863.2
431	318	337	239	395	328	323.2	858.3

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
432	318	336	240	393	328	323.0	852.5
433	318	336	241	391	328	322.7	846.0
434	318	335	242	390	328	322.4	839.2
435	318	334	243	387	328	322.1	831.9
436	318	334	244	386	328	321.8	824.2
437	318	333	245	384	328	321.5	817.0
438	318	333	245	381	328	320.9	809.7
439	318	332	246	378	328	320.4	801.8
440	318	332	246	376	328	319.8	793.9
441	318	331	247	374	328	319.3	785.6
442	318	330	247	371	328	318.6	777.0
443	317	330	247	368	327	318.0	768.8
444	317	330	248	365	327	317.4	761.1
445	317	329	248	363	327	316.7	753.4
446	317	329	248	360	327	315.9	745.8
447	317	328	248	357	327	315.3	738.7
448	316	328	248	354	327	314.6	732.1
449	316	327	248	352	327	313.8	726.3
450	316	326	248	349	326	313.1	721.4
451	315	326	248	347	326	312.4	717.3
452	315	325	248	345	326	311.6	713.5
453	314	324	248	342	326	311.0	709.7
454	314	324	248	341	325	310.3	706.2
455	313	323	248	339	325	309.6	703.1
456	313	322	248	337	325	308.9	700.2
457	312	321	248	335	325	308.3	697.4
458	312	321	249	333	325	307.7	695.0
459	311	320	248	332	325	307.1	692.8
460	310	319	249	330	325	306.6	690.7
461	310	318	249	329	325	306.0	688.8
462	309	317	249	328	325	305.5	686.6
463	309	316	249	326	325	305.0	684.1
464	308	316	249	325	325	304.4	681.0
465	308	315	249	324	325	303.8	679.0
466	307	314	249	323	325	303.4	678.5
467	306	313	248	322	325	302.8	678.9
468	306	312	248	321	325	302.3	678.9
469	305	311	248	320	325	301.7	678.2
470	305	310	247	319	325	301.2	677.3
471	305	310	247	318	325	300.7	676.5
472	304	309	246	317	325	300.1	675.8
473	304	308	246	316	325	299.6	675.3
474	303	307	246	315	324	299.1	674.9
475	303	306	246	315	324	298.7	674.7
476	303	305	245	314	324	298.1	674.7
477	302	305	245	313	324	297.7	674.7
478	302	304	245	313	323	297.2	675.1
479	301	303	245	312	323	296.9	676.0

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
480	301	302	244	312	323	296.3	677.3
481	300	301	244	311	322	295.9	679.0
482	300	301	244	311	322	295.4	681.0
483	300	300	243	311	322	295.0	683.4
484	299	299	243	310	321	294.6	685.6
485	299	298	243	310	321	294.2	687.3
486	299	298	243	310	320	294.0	688.7
487	299	297	243	310	320	293.7	689.8
488	299	296	243	310	320	293.5	690.9
489	299	296	243	310	319	293.3	692.0
490	299	295	243	310	319	293.1	693.2
491	299	294	242	310	318	292.7	694.5
492	299	294	242	310	318	292.5	695.4
493	299	293	243	310	318	292.4	697.4
494	299	293	243	310	317	292.3	700.2
495	299	292	243	310	317	292.2	703.0
496	299	291	244	310	316	292.1	705.2
497	299	291	244	311	316	292.1	706.5
498	299	291	245	311	316	292.1	707.6
499	299	290	246	311	315	292.2	709.2
500	299	289	246	312	315	292.1	710.8
501	298	289	246	312	314	292.0	712.2
502	298	289	247	312	314	292.0	713.5
503	298	288	247	313	314	292.0	715.0
504	298	288	248	313	313	292.0	716.7
505	298	287	248	314	313	291.9	718.4
506	298	287	248	314	312	291.9	720.0
507	298	287	249	315	312	291.9	721.9
508	298	286	249	315	311	291.8	723.9
509	298	286	249	315	311	291.6	725.8
510	297	286	249	316	310	291.6	727.6
511	297	286	249	316	310	291.6	728.3
512	297	285	250	317	309	291.6	726.9
513	297	285	250	316	309	291.3	725.3
514	296	285	249	317	308	291.1	728.1
515	296	285	249	318	308	291.0	739.7
516	295	285	248	319	307	291.0	756.3
517	295	285	248	321	307	291.1	772.2
518	294	285	247	324	306	291.3	785.8
519	294	285	247	327	306	291.6	796.7
520	293	285	247	329	305	291.8	804.7
521	293	285	246	332	305	292.0	810.7
522	293	285	245	334	304	292.2	815.5
523	292	285	245	337	304	292.3	819.2
524	292	284	244	339	303	292.5	822.8
525	291	284	243	341	303	292.6	826.0
526	291	284	243	343	302	292.7	828.8
527	290	284	243	345	302	292.9	831.2

WOODSTOVE SURFACE TEMPERATURE DATA

Client: Blaze KingJob #: 25-428Model: PE32Tracking #: 183Run #: 3Technician: AKDate: 6/23/2025Stove ΔT: 19

Elapsed Time (min)	Temperature Data (°F)						
	FB Left	FB Right	FB Back	FB Top	FB Bottom	Stove Surface Average	Catalyst Exit
528	290	284	242	347	301	292.9	833.5
529	290	284	242	349	301	293.2	835.1
530	289	284	241	351	301	293.2	836.2
531	289	284	241	352	300	293.3	837.3
532	289	284	241	354	300	293.4	838.0
533	288	284	240	355	300	293.5	838.9
534	288	284	240	356	299	293.6	839.8
535	288	284	240	358	299	293.7	840.4
536	288	284	240	358	299	293.8	840.9
537	288	284	240	359	299	293.8	841.1
538	288	284	239	360	298	293.9	841.2
539	288	284	239	361	298	294.1	841.1
540	288	284	239	362	298	294.2	840.6
541	288	284	239	362	298	294.3	840.0
542	288	284	239	363	298	294.4	839.4
543	288	284	239	363	298	294.5	838.6
544	288	284	239	363	298	294.5	837.6
545	288	284	239	364	297	294.5	836.4
546	288	284	239	364	297	294.6	834.9
547	288	284	239	364	297	294.6	833.4
548	289	284	239	364	297	294.6	832.1
549	289	284	239	364	297	294.6	830.5
550	289	284	239	364	297	294.6	829.2
551	289	284	239	364	297	294.5	827.9
552	289	284	239	364	297	294.6	826.8
553	289	284	239	363	297	294.5	825.9
554	289	284	239	363	297	294.3	824.9
555	289	284	239	362	297	294.2	823.3
556	289	284	239	362	297	294.1	817.5
557	289	284	239	360	297	293.8	801.9
558	289	284	239	358	297	293.5	784.0
559	289	285	240	355	297	293.1	769.3
560	290	285	240	352	298	292.7	757.4
561	290	285	240	349	298	292.3	747.6
562	290	285	240	347	299	291.9	739.9
563	290	285	240	344	299	291.6	734.8
Average	298.9	332.2	198.7	411.2	331.3	314.4	895.6

LAB SAMPLE DATA - ASTM E2515

Client: Blaze KingModel: PE32Run #: 3Job #: 25-428Tracking #: 183Technician: AKDate: 6/23/2025

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	A	G1309	242.5	243.1	0.6
	B	G1310	241.4	242.0	0.6
	C - 1st Hour	G1311	242.9	242.9	0.0
	Amb	G1312	243.1	243.2	0.1
Probes	A	4A	116024.9	116025.1	0.2
	B	4B	116183.8	116183.9	0.1
	C - 1st Hour	4C	116999.1	116999.2	0.1
O-rings	A	4A	3373.4	3374.2	0.8
	B	4B	3577.1	3578.0	0.9
	C - 1st Hour	4C	3369.1	3370.0	0.9

Placed in Dessicator on:

6/23/2025

Balance Audit (mg):

200.0200.0

		Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time	Weight (mg)	Date/Time
Filters	A	243.2	6/26 9:30	243.1	6/27 13:00				
	B	242.1	6/26 9:30	242.0	6/27 13:00				
	C - 1st Hour	242.9	6/26 9:30	242.9	6/27 13:00				
	Amb	243.2	6/26 9:30	243.2	6/27 13:00				
Probes	A	116025.2	6/26 9:30	116025.1	6/27 13:00				
	B	116183.9	6/26 9:30	116183.9	6/27 13:00				
	C - 1st Hour	116999.3	6/26 9:30	116999.2	6/27 13:00				
O-Rings	A	3374.1	6/26 9:30	3374.2	6/27 13:00				
	B	3578.0	6/26 9:30	3578.0	6/27 13:00				
	C - 1st Hour	3370.1	6/26 9:30	3370.0	6/27 13:00				

Train A Aggregate, mg: **1.6**Train B Aggregate, mg: **1.6**Train C Aggregate, mg: **1.0**Ambient, mg: **0.1**

ASTM E2780 Wood Heater Run Sheets

Client: Blaze King Job Number: 25-428 Tracking #: 183
Model: PE32 Run Number: 3 Test Date: 6/23/2025

Wood Heater Run Notes

Test Control Settings

Primary Air Setting(s): Knob to 80°
Targeted Burn Category: I

Preburn Notes

Time	Notes
	-None-

Test Notes

Test Burn Start Time: 12:44 Test Fuel Loaded by: 25 seconds
Door Closed: 35 seconds Air Control Set at: 0 seconds
Other Loading Notes: Bypass open @ 0 sec, closed @ 40 sec, fan on high @ 0 sec

Time	Notes
	-None-

Test Burn End Time: 22:07

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO₂ (%): 17.35 CO (%): 4.350
Mid Gas CO₂ (%): 10.00 CO (%): 2.500

Calibration Results:

	Pre Test			Post Test		
	Zero	Span	Mid	Zero	Span	Mid
Time	10:09	10:10	10:11	6/24 8:15	6/24 8:16	6/24 8:17
CO ₂	0.00	17.31	10.14	-0.02	17.29	10.08
CO	0.000	4.352	2.464	-0.013	4.348	2.455

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

Technician Signature: 

Date: 6/24/25

ASTM E2780 Wood Heater Run Sheets

Client: Blaze King

Job Number: 25-428

Tracking #: 183

Model: PE32

Run Number: 3

Test Date: 6/23/2025



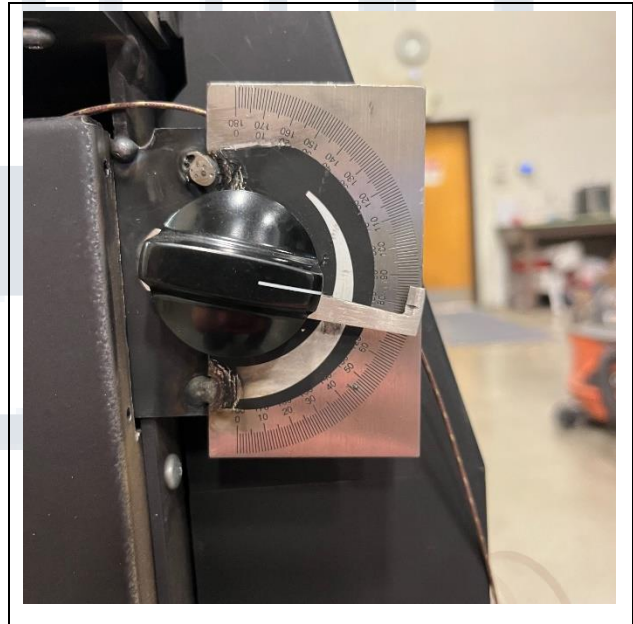
Test Fuel Front/Side View



Test Fuel Iso View



Test Fuel Loaded in Stove



Air Setting

Technician Signature: _____

[Handwritten Signature]

Date: 6/24/25

ASTM E2515 - Glass Fiber Filters

Date:	6/8/25	6/9/25	-	-			
Time:	12:30	14:15	-	-			
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G01285	244.2	244.1	-	-	A	24-364	#1
G01286	243.8	243.7	-	-	A		↓
G01287	244.4	244.8	-	-	A		↓
G01288	242.87	242.5	-	-	A		↓
G01289	244.6	244.8	-	-	A		#2
G01290	244.8	245.0	-	-	A		↓
G01291	245.4	245.4	-	-	A		↓
G01292	244.82	244.0	-	-	A		↓
G01293	243.4	243.5	-	-	A		#3
G01294	244.1	244.0	-	-	A		↓
G01295	244.6	244.4	-	-	A		↓
G01296	243.8	243.6	-	-	A		↓
G01297	246.2	246.1	-	-	A		#4
G01298	244.5	244.4	-	-	A		↓
G01299	245.3	245.3	-	-	A		↓
G01300	243.9	244.1	-	-	A		↓

Date:	6/9/25	6/10/25	-	-			
Time:	14:15	15:30	-	-			
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
G01301	244.0	243.9	-	-	A	24-364	#1
G01302	242.5	242.5	-	-	A		↓
G01303	243.3	243.4	-	-	A		↓
G01304	244.9	245.0	-	-	A		↓
G01305	241.1	241.1	-	-	A		#2
G01306	241.4	241.9	-	-	A		↓
G01307	243.5	243.3	-	-	A		↓
G01308	243.8	243.7	-	-	A		↓
G01309	242.6	242.5	-	-	A		#3
G01310	241.6	241.7	-	-	A		↓
G01311	242.8	242.9	-	-	A		↓
G01312	243.0	243.1	-	-	A		↓
G01313	242.8	242.6	-	-	A	22-721	Maple 1
G01314	242.4	242.2	-	-	A		↓
G01315	242.4	242.4	-	-	A		Maple 2
G01316	242.1	242.2	-	-	A		↓

ASTM E2515 - O-Ring Samples 1-10

Date:	6/9/25	6/10/25	6/11/25				
Time:	17:00	15:00	10:00				
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
1A	3565.9	3566.1	-	-	A	24-364	#4
1B	3554.5	3554.7	-	-	A		
1C	4165.0	4165.2	-	-	A		
2A	3550.9	3551.1	-	-	A	25-428	#1
2B	3570.6	3570.6	-	-	A	24-274	
2C	3387.5	3388.1	3388.1	-	A	RTA	
3A	3577.4	3577.6	-	-	A	25-428	#2
3B	3565.8	3565.9	-	-	A	24-274	
3C	3619.9	3620.4	3620.4	-	A	RTA	
4A	3372.9	3373.3	3373.4	-	A	25-428	#3
4B	3576.6	3577.0	3577.1	-	A	24-274	
4C	3368.6	3369.0	3369.1	-	A	RTA	
5A	3533.6	3533.8	-	-	A	22-791	Maple 1
5B	3528.8	3528.9	-	-	A	22-791	Maple 2
5C	3371.9	3372.3	3372.5	-	A		

Date:	6/25/25						
Time:	4:00 pm						
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
6A	3393.7						
6B	3610.9						
6C	3390.2						
7A	3568.9						
7B	3520.7						
7C	3403.5						
8A	3550.2						
8B	3355.3						
8C	3584.1						
9A	3578.4						
9B	3521.3						
9C	3427.6						
10A	3358.6						
10B	3568.6						
10C	3363.5						

ASTM E2515 - Probe Samples 1-10

Date:	6/9/25	6/10/25					
Time:	14:45	15:00					
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
1A	115629.0	115628.8	-	-	A	24-384	#4
1B	115904.1	115904.0	-	-	A		
1C	116434.6	116434.4	-	-	A		
2A	116059.1	116059.0	-	-	A	24-274 At 25-428	#1
2B	116175.2	116175.0	-	-	A		
2C	116430.0	116429.9	-	-	A		
3A	115881.49	115881.49	-	-	A	24-274 At 25-428	#2
3B	116122.2	116122.1	-	-	A		
3C	116619.4	116619.5	-	-	A		
4A	116024.9	116024.9	-	-	A	24-274 At 25-428	#3
4B	116813.8	116813.8	-	-	A		
4C	116999.2	116999.1	-	-	A		
5A	116758.7	116758.6	-	-	A	22-791	Maple 1
5B	116876.9	116876.8	-	-	A	22-791	Maple 2
5C	115856.5	115856.6	-	-	A		

Date:	6/26/25						
Time:	4:20 pm						
	Weight 1	Weight 2	Weight 3	Weight 4	Initial	Project	Run
6A	116384.1						
6B	115955.8						
6C	115129.0						
7A	116559.9						
7B	117130.3						
7C	116551.8						
8A	116635.3						
8B	116667.1						
8C	116663.6						
9A	116532.4						
9B	117739.3						
9C	116603.6						
10A	116647.6						
10B	117754.6						
10C	116729.1						

Sample Calculations – ASTM E2780 & E2515

Client: Blaze King
 Model: PE32
 Run: 3

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

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

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

D_{Cdb} - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft³

M_{FTAdb} - Total weight of fuel crib excluding nails, dry basis, kg

BR – Dry burn rate, kg/hr

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

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

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

m_n – Total particulate matter collected, mg

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

E_T – Total particulate emissions, g

PR - Proportional rate variation

PM_R – Particulate emissions for test run, g/hr

PM_F – Particulate emission factor for test run, g/dry kg of fuel burned

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

ASTM E2780 equation (1)

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

Where,

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

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

Sample Calculation:

$$FM_S = 22.7 \%$$

$$M_{Swb} = 2.6 \text{ lbs}$$

0.4536 = Conversion factor from lbs to kg

$$M_{Sdb} = [(2.6 \times 0.4536) (100/(100 + 22.7))]$$

$$M_{Sdb} = 0.96 \text{ kg}$$

M_{Cdb}— Weight of test fuel crib, excluding nails and spacers, dry basis, kg
 ASTM E2780 equation (2)

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

Where,

M_{CPnwb} = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg
 FM_{CPn} = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation (test fuel piece 1):

$$M_{CPnwb} = 4.43$$

$$FM_{CPn} = 21.1$$

$$= 4.4 (100/(100+ 21.1)$$

$$= 3.7 \text{ lbs}$$

Total dry crib weight, excluding spacers = 13.51 lbs

$$M_{Cdb} = \mathbf{6.13 \text{ kg}}$$

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

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

Where,

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

Sample calculation:

$$V_C = 762.1 \text{ in}^3$$

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

$$D_{Cdb} = 13.51 / 762.1 * 1728$$

$$= \mathbf{30.62 \text{ lbs/ft}^3}$$

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

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

Sample calculation:

$$M_{FTAdb} = 0.96 + 6.13$$

$$= 7.09 \text{ kg}$$

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:

$$M_{Bdb} = 7.09 \quad \text{kg}$$

$$\theta = 563 \quad \text{min}$$

$$BR = \frac{60 \times 7.09}{563}$$

$$BR = 0.76 \quad \text{kg/hr}$$

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

ASTM E2515 equations (9)

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

Where:

- F_p = Adjustment factor for pitot tube center point reading = $\frac{V_{strav}}{V_{scent}}$, ASTM E2515 Equation (1)
 V_{scent} = Dilution tunnel velocity calculated after the multi-point pitot traverse at the center, ft/sec
 V_{strav} = Dilution tunnel velocity calculated after the multi-point pitot traverse, ft/sec
 k_p = Pitot tube constant, 85.49
 C_p = Pitot tube coefficient: 0.99, unitless
 ΔP^* = Velocity pressure in the dilution tunnel, in H₂O
 T_s = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
 P_s = Absolute average gas static pressure in dilution tunnel, = $P_{bar} + P_g$, in Hg
 P_{bar} = Barometric pressure at test site, in. Hg
 P_g = Static pressure of tunnel, in. H₂O; (in Hg = in H₂O/13.6)
 M_s =

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

Sample calculation:

$$F_p = \frac{17.39}{19.24} = 0.904$$

$$V_s = 0.904 \times 85.49 \times 0.99 \times 0.319 \times \left(\left(\frac{86.0}{30.05} + \frac{460}{-0.12} \right) \times \frac{28.78}{13.6} \right)^{1/2}$$

$$V_s = 19.41 \text{ ft/s}$$

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

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

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

ASTM E2515 equation (3)

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

Where:

- 3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
- B_{ws} = Water vapor in gas stream, proportion by volume; assume 2%
- A = Cross sectional area of dilution tunnel, ft²
- T_{std} = Standard absolute temperature, 528 °R
- P_s = Absolute average gas static pressure in dilution tunnel, = $P_{bar} + P_g$, in Hg
- $T_{s(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
- P_{std} = Standard absolute pressure, 29.92 in Hg

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.02) \times 19.41 \times 0.1963 \times \frac{528}{86.0 + 460} \times \frac{30.05 + \frac{-0.12}{13.6}}{29.92}$$

$Q_{sd} = \mathbf{13058.6} \quad \text{dscf/hr}$

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

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

Where:

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

Sample Calculation:

Using equation for Train A:

$$V_{m(std)} = 17.64 \times 91.350 \times 1.019 \times \frac{\left(30.05 + \frac{2.56}{13.6} \right)}{\left(101.0 + 460 \right)}$$

$$V_{m(std)} = \mathbf{88.510} \text{ dscf}$$

Using equation for Train B:

$$V_{m(std)} = 17.64 \times 89.856 \times 1.005 \times \frac{\left(30.05 + \frac{2.48}{13.6} \right)}{\left(100.9 + 460 \right)}$$

$$V_{m(std)} = \mathbf{85.869} \text{ dscf}$$

Using equation for ambient train:

$$V_{m(std)} = 17.64 \times 129.22 \times 1.012 \times \frac{\left(\underline{30.05} + \frac{0.00}{13.6} \right)}{\left(74.5 + 460 \right)}$$

$$V_{m(std)} = \mathbf{129.694} \text{ dscf}$$

m_n – Total Particulate Matter Collected, mg

ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

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

Sample Calculation:

Using equation for Train A:

$$m_n = 0.2 + 0.6 + 0.8$$

$$m_n = 1.6 \text{ mg}$$

Using equation for Train B:

$$m_n = 0.1 + 0.6 + 0.9$$

$$m_n = 1.6 \text{ mg}$$

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

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

Where:

K₂ = 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:

$$C_s = 0.001 \times \frac{1.6}{88.51}$$

$$C_s = 0.00002 \text{ g/dscf}$$

For Train B

$$C_s = 0.001 \times \frac{1.6}{85.87}$$

$$C_s = 0.00002 \text{ g/dscf}$$

For Ambient Train

$$C_r = 0.001 \times \frac{0.1}{129.69}$$

$$C_r = 0.000001 \text{ g/dscf}$$

E_T – Total Particulate Emissions, g

ASTM E2515 equation (15)

$$E_T = (C_s - C_r) \times Q_{std} \times \theta$$

Where:

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

Sample calculation:

For Train A

$$E_T = (0.000018 - 0.000001) \times 13058.6 \times 563 / 60$$

$$E_T = 2.12 \text{ g}$$

For Train B

$$E_T = (0.000019 - 0.000001) \times 13058.6 \times 563 / 60$$

$$E_T = 2.19 \text{ g}$$

Average

$$E = 2.15 \text{ g}$$

PR - Proportional Rate Variation

ASTM E2515 equation (16)

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

Where:

- θ = Total sampling time, min
- θ_i = Length of recording interval, min
- V_{mi} = Volume of gas sample measured by the dry gas meter during the "ith" time interval, dcf
- V_m = Volume of gas sample as measured by dry gas meter, dcf
- V_{si} = Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec
- V_s = Average gas velocity in the dilution tunnel, ft/sec
- T_{mi} = Absolute average dry gas meter temperature during the "ith" time interval, °R
- T_m = Absolute average dry gas meter temperature, °R
- T_{si} = Absolute average gas temperature in the dilution tunnel during the "ith" time interval, °R
- T_s = Absolute average gas temperature in the dilution tunnel, °R

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

$$PR = \left(\frac{563 \times 1.428 \times 19.41 \times (82.3 + 460) \times (101.0 + 460)}{10 \times 91.35 \times 17.98 \times (86.0 + 460) \times (75.9 + 460)} \right) \times 100$$

$$PR = 99 \%$$

PM_R – Particulate emissions for test run, g/hr

ASTM E2780 equation (6)

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

Where,

E_T = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation:

$$E_T \text{ (Dual train average)} = 2.15 \text{ g}$$

$$\theta = 563 \text{ min}$$

$$PM_R = 60 \times (2.15 / 563)$$

$$PM_R = 0.23 \text{ g/hr}$$

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

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

Sample Calculation:

$$\begin{aligned} E_T (\text{Dual train average}) &= 2.15 \text{ g} \\ M_{Bdb} &= 7.09 \text{ kg} \\ PM_F &= 2.15 / 7.09 \\ PM_F &= \mathbf{0.30} \text{ g/kg} \end{aligned}$$

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

Manufacturer: Blaze King
Model: PE32
Date: 06/23/25
Run: 3
Control #: 25-428
Test Duration: 563 min

	HHV	LHV
Eff	84.63%	91.47%
Comb Eff	99.50%	99.50%
HT Eff	85.05%	91.93%
Output	12,669	kJ/h
Burn Rate	0.76	kg/h
Grams CO	20	g
Input	14,971	kJ/h
MC wet	18.26	
Averages	0.03	12.86

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

Ultimate CO₂
CO_{2-ult} 19.64
F₀
1.063

Overall Heating Efficiency: 84.63%
Combustion Efficiency: 99.50%
Heat Transfer Efficiency: 85.05%

Air Fuel Ratio
Dry Molecular W
Dry Moles Exhaust
Air Fuel Ratio

Heat Output: 12,018 Btu/h 12,669 kJ/h
Heat Input: 14,201 Btu/h 14,971 kJ/h
Burn Duration: 9.38 h
Burn Rate: 1.67 lb/h 0.756 kg/h
Stack Temp: 205.2 Deg. F 96.2 Deg. C

INPUT DATA				Oxygen Calculation			Input Data		Combust Eff	Heat Transfer	Net Eff	Air Fuel	Wet Wt
Elapsed Time	Weight Remaining (kg)	% CO [e]	% CO ₂ [d]	Excess Air EA	Total O ₂	Calc. % O ₂ [g]	Flue Gas (°C)	Room Temp (°C)	%	%	%	Ratio	Now Wt
0	8.68	0.01	9.23	112.8%	20.33	11.10	90.1	21.9	100.3%	84.5%	84.8%	12.9	8.68
1	8.68	0.02	1.72	1030.2%	20.83	19.10	114.4	21.9	102.3%	57.0%	58.3%	68.9	8.68
2	8.68	0.01	2.69	628.3%	20.76	18.07	97.3	22.1	101.8%	72.3%	73.7%	44.2	8.68
3	8.68	0.00	4.14	374.4%	20.67	16.53	87.8	21.9	101.1%	79.5%	80.4%	28.7	8.68
4	8.67	0.01	4.47	339.3%	20.64	16.18	82.3	22.1	101.0%	81.0%	81.8%	26.6	8.67
5	8.66	0.00	4.64	322.6%	20.63	15.99	79.9	22.1	100.9%	81.6%	82.4%	25.6	8.66
6	8.66	0.01	4.83	306.5%	20.62	15.79	78.9	22.1	100.9%	82.0%	82.8%	24.6	8.66
7	8.65	0.00	5.01	291.5%	20.61	15.59	78.4	22.1	100.9%	82.4%	83.1%	23.7	8.65
8	8.64	0.01	5.26	273.2%	20.59	15.33	79.3	22.0	100.8%	82.6%	83.2%	22.6	8.64
9	8.63	0.00	5.52	255.6%	20.58	15.05	80.0	21.8	100.7%	82.8%	83.4%	21.5	8.63
10	8.62	0.00	5.75	241.3%	20.56	14.81	81.1	21.9	100.7%	82.9%	83.5%	20.6	8.62
11	8.61	0.00	6.01	226.5%	20.54	14.53	82.3	21.9	100.7%	83.0%	83.6%	19.7	8.61
12	8.59	0.00	6.29	212.3%	20.52	14.24	83.2	22.0	100.6%	83.2%	83.7%	18.9	8.59
13	8.58	0.00	6.56	199.5%	20.51	13.95	84.8	22.0	100.6%	83.3%	83.8%	18.1	8.58
14	8.56	0.00	6.81	188.5%	20.49	13.68	86.8	22.0	100.6%	83.3%	83.7%	17.4	8.56
15	8.55	0.00	7.11	176.1%	20.47	13.36	88.3	22.1	100.5%	83.4%	83.8%	16.7	8.55
16	8.53	0.00	7.51	161.4%	20.44	12.93	89.8	22.1	100.5%	83.5%	83.9%	15.8	8.53
17	8.50	0.00	8.20	139.4%	20.40	12.20	93.5	21.9	100.4%	83.7%	84.0%	14.5	8.50
18	8.48	0.00	12.14	61.8%	20.14	8.00	96.9	21.9	100.2%	85.1%	85.3%	9.8	8.48
19	8.45	0.00	10.82	81.4%	20.23	9.40	101.0	22.0	100.2%	84.4%	84.6%	11.0	8.45
20	8.42	0.01	9.55	105.5%	20.31	10.75	103.1	21.9	100.3%	83.7%	83.9%	12.4	8.42
21	8.40	0.00	9.34	110.2%	20.32	10.98	105.4	22.0	100.3%	83.4%	83.7%	12.7	8.40
22	8.37	0.00	9.22	112.9%	20.33	11.11	106.8	22.1	100.3%	83.2%	83.5%	12.9	8.37
23	8.34	0.00	9.15	114.6%	20.34	11.18	107.9	22.1	100.3%	83.1%	83.4%	13.0	8.34
24	8.32	0.00	8.83	122.4%	20.36	11.52	108.3	22.1	100.4%	82.9%	83.2%	13.5	8.32
25	8.29	0.00	8.72	125.3%	20.36	11.65	108.7	22.1	100.4%	82.8%	83.1%	13.6	8.29
26	8.28	0.01	8.71	125.4%	20.36	11.65	109.3	22.1	100.3%	82.7%	83.0%	13.6	8.28
27	8.25	0.00	8.77	123.8%	20.36	11.58	110.3	22.1	100.4%	82.7%	83.0%	13.5	8.25
28	8.21	0.00	8.52	130.4%	20.38	11.85	110.7	22.0	100.4%	82.5%	82.8%	13.9	8.21
29	8.19	0.00	8.95	119.5%	20.35	11.40	111.7	21.9	100.4%	82.7%	83.0%	13.3	8.19
30	8.16	0.00	9.09	116.1%	20.34	11.25	113.0	22.1	100.3%	82.7%	83.0%	13.1	8.16
31	8.14	0.00	9.27	111.8%	20.33	11.06	113.8	22.0	100.3%	82.7%	83.0%	12.8	8.14
32	8.10	0.00	9.41	108.8%	20.32	10.91	114.1	22.1	100.3%	82.8%	83.1%	12.6	8.10
33	8.08	0.00	9.55	105.7%	20.31	10.76	115.3	22.0	100.3%	82.8%	83.1%	12.4	8.08
34	8.05	0.01	9.53	105.9%	20.31	10.77	116.7	22.0	100.3%	82.7%	82.9%	12.5	8.05
35	8.02	0.00	9.55	105.7%	20.31	10.76	117.2	22.0	100.3%	82.7%	82.9%	12.4	8.02
36	7.99	0.00	9.64	103.7%	20.30	10.66	118.2	22.0	100.3%	82.6%	82.9%	12.3	7.99
37	7.96	0.00	10.17	93.2%	20.27	10.10	120.8	22.1	100.3%	82.8%	83.0%	11.7	7.96

Ratio (A/F)	
Weight (M _a)	30.35
st Gas (N _p):	329.89
o (A/F)	9.50

%HC
0.88

Combustion Efficiency: 99.50%
 Total Input (kJ): 140,474 133,233 (Btu)
 Total Output (kJ): 118,879 112,751 (Btu)
 Efficiency: 84.63%
 Total CO (g): 19.86

Moisture of Wood (wet basis): 18.2598
 Initial Dry Weight W_{t_{do}} (kg): 7.09
 Moisture Content Dry 22.34

Load Weight (kg): 8.68
 Fuel Heating HHV 18,329
 Value in kJ/kg - CV: 19,810 Btu/lb HHV 8522.5

62.76	2.86	59.73	140559	4.06	6.87	2.74	19810.00	18.26	79.90	21.19	3.17	10.91	-0.01	0.32	40.78
% Wet Consumed	Dry Wt. Now	% Dry Consumed	Total Input	Fuel Properties				Mw Moisture Fuel Burnt	Mass Balance (moles/100 mole dry flue gas)					kg Wood per 100 mole dfp	
x	W _{t_{dn}}	y		Carbon /12= [a]	Hydrogen /1= [b]	Oxygen /16= [c]	Calorific Value		[h]	[u]	[w]	[j]	[k]	Nk	CO ₂
0.00	7.09	0.00	0	4.06	6.87	2.74	19810.00	18.26	79.67	21.13	2.27	7.83	-0.02	0.23	40.87
-0.10	7.10	-0.10	-147	4.06	6.87	2.74	19810.00	18.26	79.16	21.00	0.42	1.50	-0.03	0.04	40.97
-0.10	7.10	-0.10	73	4.06	6.87	2.74	19810.00	18.26	79.24	21.02	0.66	2.31	-0.03	0.07	41.17
0.00	7.09	0.00	110	4.06	6.87	2.74	19810.00	18.26	79.33	21.04	1.01	3.53	-0.03	0.10	41.03
0.05	7.09	0.05	110	4.06	6.87	2.74	19810.00	18.26	79.35	21.05	1.09	3.81	-0.03	0.11	41.00
0.16	7.08	0.16	110	4.06	6.87	2.74	19810.00	18.26	79.36	21.05	1.14	3.96	-0.03	0.11	41.00
0.21	7.08	0.21	110	4.06	6.87	2.74	19810.00	18.26	79.38	21.05	1.18	4.12	-0.02	0.12	40.98
0.31	7.07	0.31	147	4.06	6.87	2.74	19810.00	18.26	79.39	21.06	1.23	4.27	-0.02	0.12	40.98
0.42	7.06	0.42	147	4.06	6.87	2.74	19810.00	18.26	79.41	21.06	1.29	4.48	-0.02	0.13	40.96
0.52	7.05	0.52	184	4.06	6.87	2.74	19810.00	18.26	79.42	21.07	1.35	4.70	-0.02	0.13	40.96
0.68	7.04	0.68	184	4.06	6.87	2.74	19810.00	18.26	79.44	21.07	1.41	4.90	-0.02	0.14	40.96
0.78	7.04	0.78	220	4.06	6.87	2.74	19810.00	18.26	79.46	21.08	1.48	5.12	-0.02	0.15	40.95
0.99	7.02	0.99	220	4.06	6.87	2.74	19810.00	18.26	79.47	21.08	1.54	5.35	-0.02	0.15	40.95
1.10	7.01	1.10	220	4.06	6.87	2.74	19810.00	18.26	79.49	21.09	1.61	5.57	-0.02	0.16	40.93
1.31	7.00	1.31	257	4.06	6.87	2.74	19810.00	18.26	79.51	21.09	1.67	5.78	-0.02	0.17	40.92
1.46	6.99	1.46	257	4.06	6.87	2.74	19810.00	18.26	79.53	21.09	1.75	6.04	-0.02	0.17	40.91
1.67	6.97	1.67	367	4.06	6.87	2.74	19810.00	18.26	79.55	21.10	1.85	6.38	-0.02	0.18	40.91
1.99	6.95	1.99	441	4.06	6.87	2.74	19810.00	18.26	79.60	21.11	2.02	6.96	-0.02	0.20	40.89
2.30	6.93	2.30	441	4.06	6.87	2.74	19810.00	18.26	79.86	21.18	2.99	10.28	-0.01	0.30	40.85
2.62	6.91	2.62	441	4.06	6.87	2.74	19810.00	18.26	79.77	21.16	2.66	9.18	-0.01	0.26	40.85
2.93	6.88	2.93	367	4.06	6.87	2.74	19810.00	18.26	79.69	21.14	2.35	8.10	-0.02	0.23	40.86
3.14	6.87	3.14	404	4.06	6.87	2.74	19810.00	18.26	79.67	21.13	2.30	7.92	-0.02	0.23	40.87
3.50	6.84	3.50	478	4.06	6.87	2.74	19810.00	18.26	79.67	21.13	2.27	7.82	-0.02	0.23	40.88
3.82	6.82	3.82	404	4.06	6.87	2.74	19810.00	18.26	79.66	21.13	2.25	7.76	-0.02	0.22	40.88
4.08	6.80	4.08	404	4.06	6.87	2.74	19810.00	18.26	79.64	21.13	2.17	7.49	-0.02	0.22	40.89
4.39	6.78	4.39	367	4.06	6.87	2.74	19810.00	18.26	79.63	21.12	2.14	7.40	-0.02	0.21	40.88
4.60	6.76	4.60	331	4.06	6.87	2.74	19810.00	18.26	79.63	21.12	2.14	7.39	-0.02	0.21	40.87
4.86	6.75	4.86	514	4.06	6.87	2.74	19810.00	18.26	79.64	21.12	2.16	7.45	-0.02	0.21	40.88
5.33	6.71	5.33	514	4.06	6.87	2.74	19810.00	18.26	79.62	21.12	2.09	7.23	-0.02	0.21	40.89
5.60	6.69	5.60	404	4.06	6.87	2.74	19810.00	18.26	79.65	21.13	2.20	7.59	-0.02	0.22	40.89
5.91	6.67	5.91	404	4.06	6.87	2.74	19810.00	18.26	79.66	21.13	2.23	7.71	-0.02	0.22	40.88
6.17	6.65	6.17	478	4.06	6.87	2.74	19810.00	18.26	79.67	21.13	2.28	7.86	-0.02	0.23	40.87
6.59	6.62	6.59	514	4.06	6.87	2.74	19810.00	18.26	79.68	21.14	2.31	7.98	-0.02	0.23	40.87
6.90	6.60	6.90	441	4.06	6.87	2.74	19810.00	18.26	79.69	21.14	2.35	8.10	-0.02	0.23	40.87
7.22	6.58	7.22	441	4.06	6.87	2.74	19810.00	18.26	79.69	21.14	2.34	8.09	-0.02	0.23	40.86
7.53	6.56	7.53	441	4.06	6.87	2.74	19810.00	18.26	79.69	21.14	2.35	8.10	-0.02	0.23	40.87
7.85	6.53	7.85	514	4.06	6.87	2.74	19810.00	18.26	79.70	21.14	2.37	8.18	-0.02	0.24	40.87
8.26	6.51	8.26	661	4.06	6.87	2.74	19810.00	18.26	79.73	21.15	2.50	8.62	-0.02	0.25	40.86

Moisture Content M_{Cwb} : 18.25984

Dry kg : 7.09

CA: 49

HY: 7

OX: 43.9

LHV
7885.2

26.18	0.07	-0.03	265.79	34.59	12.41	369.34	2849.88	2163.11	2107.98	2083.67	2703.22	2523.97	296.75	65518.25	31175.14
Moles per kg of Dry Wood					Moisture	Stack Temp K	Heat Content Change - Ambient to Stack Temperature Flue Gas Constituent						Room Temp K		
O ₂	CO	HC	N ₂	H ₂ O	Present		CO ₂	O ₂	CO	N ₂	CH ₄	H ₂ O		CO ₂	O ₂
49.19	0.02	-0.08	352.92	34.67	12.41	363.21	2664.26	2027.56	1977.18	1954.10	2515.48	2367.77	295.04	108.88	99.73
455.71	0.50	-0.66	1889.03	35.84	12.41	387.59	3650.22	2763.14	2690.90	2660.25	3478.68	3221.35	295.04	149.55	1259.20
276.31	0.08	-0.43	1211.77	35.39	12.41	370.43	2948.09	2239.92	2183.38	2158.09	2791.40	2614.43	295.21	121.37	618.91
163.92	0.04	-0.26	786.81	35.04	12.41	360.93	2573.06	1959.13	1910.69	1888.34	2427.22	2288.22	295.04	105.57	321.14
148.50	0.05	-0.23	728.47	34.99	12.41	355.43	2347.11	1789.19	1745.47	1724.94	2209.48	2090.51	295.21	96.23	265.70
141.14	0.04	-0.22	700.66	34.97	12.41	353.04	2249.89	1715.96	1674.24	1654.51	2116.02	2005.27	295.26	92.24	242.19
134.06	0.04	-0.21	673.88	34.94	12.41	352.09	2212.33	1687.67	1646.72	1627.30	2079.93	1972.34	295.26	90.66	226.26
127.44	0.03	-0.20	648.86	34.92	12.41	351.59	2194.58	1674.33	1633.76	1614.47	2062.78	1956.83	295.21	89.93	213.38
119.44	0.04	-0.19	618.57	34.90	12.41	352.43	2229.82	1700.93	1659.64	1640.06	2096.55	1987.80	295.15	91.33	203.15
111.69	0.03	-0.18	589.31	34.87	12.41	353.15	2264.89	1727.47	1685.48	1665.61	2129.99	2018.74	294.98	92.77	192.95
105.43	0.02	-0.17	565.65	34.86	12.41	354.21	2304.78	1757.46	1714.64	1694.45	2168.45	2053.64	295.04	94.40	185.29
98.91	0.02	-0.16	541.00	34.83	12.41	355.43	2353.46	1794.10	1750.27	1729.69	2215.31	2096.27	295.04	96.37	177.46
92.72	0.01	-0.15	517.61	34.82	12.41	356.37	2386.88	1819.15	1774.60	1753.75	2247.69	2125.38	295.15	97.73	168.68
87.11	0.02	-0.14	496.37	34.80	12.41	357.98	2451.16	1867.48	1821.59	1800.22	2309.67	2181.60	295.15	100.33	162.68
82.27	0.02	-0.13	478.08	34.78	12.41	359.93	2528.84	1925.83	1878.31	1856.32	2384.68	2249.47	295.15	103.49	158.45
76.86	0.02	-0.12	457.59	34.76	12.41	361.43	2586.72	1969.24	1920.48	1898.03	2440.73	2299.92	295.21	105.82	151.36
70.43	0.02	-0.11	433.28	34.74	12.41	362.93	2646.78	2014.30	1964.27	1941.34	2498.86	2352.31	295.21	108.27	141.86
60.81	0.01	-0.10	396.91	34.71	12.41	366.65	2802.46	2131.12	2077.78	2053.61	2649.49	2488.11	295.04	114.60	129.60
26.93	0.01	-0.04	268.80	34.61	12.41	370.04	2936.66	2231.48	2175.22	2150.00	2780.04	2604.67	295.09	119.96	60.10
35.47	0.02	-0.05	301.08	34.63	12.41	374.15	3100.34	2353.71	2293.85	2267.37	2939.70	2746.55	295.15	126.66	83.50
46.01	0.02	-0.07	340.89	34.66	12.41	376.21	3185.55	2417.34	2355.60	2328.46	3022.80	2820.41	295.09	130.17	111.21
48.06	0.02	-0.07	348.68	34.67	12.41	378.59	3280.14	2487.80	2423.93	2396.07	3115.47	2902.13	295.15	134.06	119.56
49.23	0.01	-0.08	353.13	34.68	12.41	379.98	3334.33	2528.10	2463.01	2434.74	3168.68	2948.85	295.21	136.31	124.46
49.94	0.01	-0.08	355.81	34.68	12.41	381.09	3379.41	2561.67	2495.56	2466.95	3212.88	2987.77	295.21	138.14	127.94
53.35	0.01	-0.08	368.70	34.69	12.41	381.48	3393.09	2571.78	2505.35	2476.64	3226.42	2999.47	295.26	138.74	137.20
54.63	0.01	-0.09	373.54	34.69	12.41	381.87	3410.99	2585.17	2518.34	2489.49	3243.86	3015.02	295.21	139.46	141.23
54.70	0.02	-0.08	373.78	34.69	12.41	382.43	3431.45	2600.32	2533.02	2504.02	3264.07	3032.56	295.26	140.26	142.24
53.97	0.02	-0.08	371.03	34.69	12.41	383.48	3476.47	2633.86	2565.56	2536.21	3308.15	3071.47	295.21	142.11	142.15
56.87	0.01	-0.09	382.01	34.70	12.41	383.82	3492.14	2645.58	2576.93	2547.46	3323.41	3085.07	295.15	142.78	150.46
52.08	0.01	-0.08	363.90	34.69	12.41	384.87	3537.20	2679.13	2609.47	2579.67	3367.57	3123.99	295.09	144.62	139.53
50.62	0.01	-0.08	358.39	34.68	12.41	386.15	3585.00	2714.52	2643.74	2613.58	3414.87	3164.95	295.21	146.55	137.42
48.75	0.02	-0.08	351.30	34.67	12.41	386.98	3621.07	2741.37	2669.78	2639.35	3450.25	3196.08	295.15	148.00	133.65
47.41	0.01	-0.07	346.25	34.67	12.41	387.21	3628.02	2746.46	2674.69	2644.22	3457.22	3201.96	295.21	148.29	130.22
46.08	0.02	-0.07	341.19	34.67	12.41	388.43	3679.98	2785.10	2712.15	2681.28	3508.29	3246.74	295.15	150.39	128.34
46.18	0.02	-0.07	341.54	34.66	12.41	389.82	3736.68	2827.16	2752.90	2721.61	3564.21	3295.46	295.15	152.69	130.54
46.08	0.01	-0.07	341.19	34.67	12.41	390.32	3757.11	2842.30	2767.57	2736.13	3584.36	3313.00	295.15	153.56	130.97
45.21	0.01	-0.07	337.92	34.66	12.41	391.37	3800.26	2874.29	2798.55	2766.79	3626.96	3350.03	295.15	155.32	129.95
40.61	0.01	-0.06	320.52	34.65	12.41	393.98	3905.01	2951.81	2873.62	2841.09	3730.67	3439.76	295.21	159.57	119.88

SUMS					AVERAGE	SUMS							
11028.63	309517.49	-16181.54	906931.36	325431.01	2896.14	20955.91	62.93	20892.98	119603.54	64.89	19.86	-2.48	
Energy Losses (kJ/kg of Dry Fuel)					Total Loss Rate								
Flue Gas Constituent						Total Loss	Chemical Loss 1	Sensible and Latent Loss	Total Output	Chem Loss 2	Grams Produced		
CO	N ₂	CH ₄	H ₂ O Comb	H ₂ O Fuel MC							CO	HC	
6.31	689.64	-67.76	1606.70	575.07	3018.57	0.00	0	0.00	0	0	0.00	0.00	
143.16	5025.30	-589.92	1691.44	585.66	8264.39	-61.30	3	-64.61	-86	3	-0.10	0.08	
21.81	2615.10	-387.00	1648.56	578.13	5216.87	19.35	-1	20.70	54	-1	0.01	-0.03	
11.30	1485.76	-230.24	1620.78	574.08	3888.41	21.63	-1	22.85	89	-1	0.01	-0.02	
13.07	1256.57	-207.23	1611.49	571.63	3607.45	20.07	-1	21.15	90	-1	0.01	-0.02	
10.05	1159.25	-198.02	1607.56	570.57	3483.85	19.38	-1	20.42	91	-1	0.01	-0.02	
12.08	1096.60	-186.93	1605.26	570.16	3414.10	18.99	-1	19.96	91	-1	0.01	-0.02	
9.31	1047.56	-178.68	1603.87	569.97	3355.34	24.89	-1	26.14	122	-1	0.01	-0.02	
11.09	1014.49	-166.39	1603.69	570.35	3327.71	24.68	-1	25.83	122	-1	0.01	-0.02	
8.45	981.57	-156.48	1603.75	570.74	3293.73	30.54	-1	31.91	153	-1	0.01	-0.03	
6.08	958.46	-148.58	1604.15	571.17	3270.97	30.33	-1	31.65	153	-1	0.01	-0.02	
5.82	935.76	-139.35	1604.68	571.70	3252.43	36.19	-1	37.67	184	-1	0.01	-0.03	
3.71	907.76	-131.43	1604.88	572.06	3223.38	35.86	-1	37.28	185	-1	0.00	-0.03	
5.34	893.57	-122.64	1605.92	572.76	3217.95	35.80	-1	37.11	185	-1	0.01	-0.02	
5.14	887.47	-115.80	1607.58	573.60	3219.92	41.80	-1	43.23	215	-1	0.01	-0.03	
6.56	868.52	-107.38	1608.46	574.22	3207.55	41.64	-1	42.94	216	-1	0.01	-0.02	
4.66	841.14	-99.02	1609.41	574.87	3181.19	58.99	-2	60.74	308	-2	0.01	-0.03	
4.26	815.11	-85.40	1612.71	576.56	3167.44	70.48	-2	72.28	370	-2	0.01	-0.03	
1.92	577.92	-37.81	1611.79	578.01	2911.87	64.80	-1	65.59	376	-1	0.00	-0.02	
4.31	682.66	-49.01	1617.87	579.77	3045.75	67.77	-1	68.77	373	-1	0.01	-0.02	
6.10	793.76	-63.33	1621.93	580.68	3180.53	58.98	-1	60.04	308	-1	0.01	-0.02	
5.00	835.45	-66.79	1625.12	581.70	3234.10	65.97	-1	67.23	338	-1	0.01	-0.02	
2.53	859.79	-69.60	1627.04	582.28	3262.81	78.66	-2	80.27	399	-2	0.01	-0.03	
3.83	877.78	-70.04	1628.43	582.76	3288.84	67.09	-1	68.43	337	-1	0.01	-0.03	
2.64	913.14	-75.47	1629.41	582.91	3328.57	67.90	-1	69.38	336	-1	0.01	-0.03	
4.02	929.93	-76.69	1630.08	583.10	3351.12	62.14	-1	63.48	305	-1	0.01	-0.03	
6.70	935.95	-75.57	1630.57	583.32	3363.47	56.13	-1	57.28	274	-1	0.01	-0.02	
5.32	941.01	-75.15	1631.87	583.80	3371.12	87.52	-2	89.32	427	-2	0.01	-0.03	
4.11	973.16	-79.88	1632.84	583.97	3407.45	88.46	-2	90.42	426	-2	0.01	-0.04	
2.61	938.74	-73.68	1633.54	584.45	3369.81	68.74	-1	70.18	335	-1	0.01	-0.03	
3.86	936.68	-71.02	1634.68	584.96	3373.12	68.80	-1	70.17	335	-1	0.01	-0.03	
5.04	927.20	-67.79	1635.42	585.35	3366.85	81.16	-2	82.67	396	-2	0.01	-0.03	
3.72	915.55	-66.47	1635.48	585.42	3352.22	87.03	-2	88.65	427	-2	0.01	-0.03	
4.89	914.82	-64.02	1636.78	585.98	3357.16	74.70	-1	76.02	366	-1	0.01	-0.03	
6.12	929.52	-63.60	1638.42	586.58	3380.28	75.22	-1	76.49	366	-1	0.01	-0.03	
3.67	933.55	-64.58	1639.13	586.80	3383.10	75.28	-1	76.63	366	-1	0.01	-0.03	
3.64	934.95	-63.36	1640.29	587.26	3388.04	87.96	-2	89.50	426	-2	0.01	-0.03	
3.45	910.62	-56.83	1642.70	588.37	3367.76	112.41	-2	114.19	549	-2	0.01	-0.03	

- List of required data points for combustor conditioning (suitable replacement)
- 50 hours (1 minute increments) 50.38333 hours
 - Type of combustor Performance Industries, Metal (Manufacturer Part No. 115-0776)
 - Hourly data logged points
 - o fuel weight
 - o flue temperature
 - o catalyst temperature
 - o ambient temperature
 - Fuel type (Doug Fir cordwood, dimensional lumber)
 - o moisture content (Dry Basis)
 - o load weight at the time of loading (lbs)
 - Documentation of thermostat setting/time setting is changed (category 2, 3)
 - o Burn rate will be determined based on data logged weight loss

kindling 6/11/2025 10.46am-12.49pm
additional kindling 6/11/2025 7.32am-9.38am
6/17/2025 8.15am-8.59am

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combust	[3]Flue
6/11/2025	10:46:27 AM	13.18	69.22	71.07	71.91
6/11/2025	10:47:27 AM	13.95	69.33	117.97	72.3
6/11/2025	10:48:28 AM	13.85	69.33	113.65	219.05
6/11/2025	10:49:28 AM	13.68	69.16	156.12	277.93
6/11/2025	10:50:28 AM	13.56	69.11	216.24	197.35
6/11/2025	10:51:28 AM	13.49	69.22	311.55	207.9
6/11/2025	10:52:29 AM	13.39	69.22	333.35	231.65
6/11/2025	10:53:29 AM	13.29	69.16	405.41	257.2
6/11/2025	10:54:29 AM	13.17	69.05	463.17	280.62
6/11/2025	10:55:30 AM	13.06	69.44	463.79	275.69
6/11/2025	10:56:30 AM	13.04	69.33	510.18	244.82
6/11/2025	10:57:30 AM	12.95	68.99	610.2	267.57
6/11/2025	10:58:31 AM	12.9	69.05	589.02	286.78
6/11/2025	10:59:31 AM	12.82	69.05	641.35	279.06
6/11/2025	11:00:31 AM	12.78	69.16	672.95	292.84
6/11/2025	11:01:31 AM	12.71	69.05	666.51	299.9
6/11/2025	11:02:32 AM	12.63	69.11	676.99	307.13
6/11/2025	11:03:32 AM	12.56	69.11	692.12	311.33
6/11/2025	11:04:32 AM	12.49	69.22	716.27	322.31
6/11/2025	11:05:33 AM	12.42	69.33	738.96	325.51
6/11/2025	11:06:33 AM	12.35	69.22	778.35	336.6
6/11/2025	11:07:33 AM	12.28	69.39	754.31	336.43
6/11/2025	11:08:34 AM	12.2	69.33	767.25	345.06
6/11/2025	11:09:34 AM	12.09	69.5	768.71	351.62
6/11/2025	11:10:34 AM	12	69.55	784.68	365.79
6/11/2025	11:11:34 AM	11.91	69.55	816.62	372.91
6/11/2025	11:12:35 AM	11.82	69.67	838.3	384.17
6/11/2025	11:13:35 AM	11.69	69.78	863.52	392.63
6/11/2025	11:14:35 AM	11.59	70	912.77	411.29
6/11/2025	11:15:35 AM	11.46	69.95	902.18	419.02
6/11/2025	11:16:36 AM	11.36	69.95	845.14	419.97
6/11/2025	11:17:36 AM	11.25	70.12	827.26	419.69
6/11/2025	11:18:37 AM	11.14	70.17	814.38	423.9
6/11/2025	11:19:37 AM	11.03	70.12	827.43	427.43
6/11/2025	11:20:37 AM	10.92	70.12	834.27	430.84
6/11/2025	11:21:38 AM	10.8	70.45	806.31	434.99
6/11/2025	11:22:38 AM	10.68	70.68	819.89	440.48
6/11/2025	11:23:38 AM	10.53	70.68	846.37	444.35
6/11/2025	11:24:38 AM	10.39	70.79	896.24	451.29
6/11/2025	11:25:38 AM	10.22	70.84	944.59	456.51
6/11/2025	11:26:38 AM	10.07	70.96	986.73	462.05
6/11/2025	11:27:39 AM	9.93	71.07	989.19	466.98
6/11/2025	11:28:39 AM	9.77	71.01	1028.58	469.9
6/11/2025	11:29:40 AM	9.63	71.07	1085.51	479.65
6/11/2025	11:30:40 AM	9.46	71.35	1097.84	480.88
6/11/2025	11:31:40 AM	9.29	71.29	1117.51	483.79
6/11/2025	11:32:40 AM	9.15	71.52	1122.1	485.19
6/11/2025	11:33:40 AM	8.99	71.52	1114.59	483.57
6/11/2025	11:34:40 AM	8.86	71.52	1120.81	489
6/11/2025	11:35:41 AM	8.72	71.52	1107.48	491.36
6/11/2025	11:36:41 AM	8.54	71.68	1105.01	489.17
6/11/2025	11:37:41 AM	8.4	71.91	1095.93	488.84
6/11/2025	11:38:41 AM	8.25	71.91	1076.49	488.84
6/11/2025	11:39:41 AM	8.11	71.96	1068.48	485.47
6/11/2025	11:40:41 AM	7.95	71.96	1066.21	484.91
6/11/2025	11:41:42 AM	7.82	72.24	1054.53	481.1
6/11/2025	11:42:42 AM	7.66	72.19	1059.91	484.58
6/11/2025	11:43:42 AM	7.53	72.24	1043.15	480.6
6/11/2025	11:44:42 AM	7.39	72.19	1025.56	479.65
6/11/2025	11:45:43 AM	7.24	72.36	1028.25	482.06
6/11/2025	11:46:43 AM	7.1	72.36	1010.99	477.57
6/11/2025	11:47:43 AM	6.96	72.58	991.72	478.81
6/11/2025	11:48:44 AM	6.82	72.69	1033.23	473.09
6/11/2025	11:49:44 AM	6.71	72.92	1065.17	475.67
6/11/2025	11:50:44 AM	6.59	72.75	1064.11	476
6/11/2025	11:51:44 AM	6.43	72.69	1068.09	478.75
6/11/2025	11:52:45 AM	6.28	73.03	1073.35	476.79
6/11/2025	11:53:45 AM	6.15	73.25	1069.43	476.12
6/11/2025	11:54:45 AM	6.02	73.03	1063.38	474.66
6/11/2025	11:55:45 AM	5.89	73.2	1069.82	473.54
6/11/2025	11:56:45 AM	5.75	73.48	1071.34	470.29
6/11/2025	11:57:45 AM	5.66	73.36	1076.55	466.42
6/11/2025	11:58:46 AM	5.54	73.53	1091.9	467.15
6/11/2025	11:59:46 AM	5.4	73.53	1079.18	463.51
6/11/2025	12:00:46 PM	5.32	73.53	1083.05	461.55
6/11/2025	12:01:46 PM	5.2	73.36	1086.35	459.64
6/11/2025	12:02:46 PM	5.1	73.81	1092.68	462.5
6/11/2025	12:03:46 PM	4.98	73.65	1087.19	460.71
6/11/2025	12:04:47 PM	4.89	73.81	1086.46	456.23
6/11/2025	12:05:47 PM	4.77	73.87	1081.87	453.76
6/11/2025	12:06:48 PM	4.67	73.81	1082.54	459.42
6/11/2025	12:07:48 PM	4.56	73.93	1081.42	455.72
6/11/2025	12:08:49 PM	4.43	73.98	1076.6	454.77
6/11/2025	12:09:49 PM	4.35	73.98	1073.69	450.9
6/11/2025	12:10:49 PM	4.24	73.98	1075.26	449.33
6/11/2025	12:11:50 PM	4.15	73.98	1063.77	451.24
6/11/2025	12:12:50 PM	4.05	73.98	1062.89	449.81
6/11/2025	12:13:50 PM	3.94	74.49	1080.86	447.48
6/11/2025	12:14:50 PM	3.86	74.37	1107.76	442.72
6/11/2025	12:15:50 PM	3.78	74.15	1098.73	443.67
6/11/2025	12:16:51 PM	3.69	74.49	1093.58	439.98
6/11/2025	12:17:51 PM	3.61	74.32	1099.69	443
6/11/2025	12:18:51 PM	3.51	74.49	1087.08	445.24
6/11/2025	12:19:52 PM	3.43	74.54	1070.72	444.18
6/11/2025	12:20:52 PM	3.33	74.32	1085.06	435.16
6/11/2025	12:21:52 PM	3.25	74.32	1078.84	436.78
6/11/2025	12:22:52 PM	3.16	74.37	1099.8	437.46
6/11/2025	12:23:53 PM	3.1	74.26	1096.66	433.08
6/11/2025	12:24:53 PM	3.03	74.32	1082.43	432.24
6/11/2025	12:25:53 PM	2.96	74.77	1062.48	430.68
6/11/2025	12:26:53 PM	2.89	74.32	1046.35	431.18
6/11/2025	12:27:53 PM	2.82	74.93	1029.76	426.47
6/11/2025	12:28:53 PM	2.77	74.71	994.63	422.89
6/11/2025	12:29:53 PM	2.72	74.6	973.28	422.48
6/11/2025	12:30:53 PM	2.67	74.77	964.48	416.56
6/11/2025	12:31:53 PM	2.62	74.6	949.3	415.04
6/11/2025	12:32:53 PM	2.56	74.88	931.15	412.52
6/11/2025	12:33:54 PM	2.51	75.1	910.25	406.75
6/11/2025	12:34:54 PM	2.47	74.71	897.25	405.13
6/11/2025	12:35:54 PM	2.42	74.71	884.14	402.1

6/11/2025	12:36:54 PM	2.39	74.88	864.86	398.85
6/11/2025	12:37:54 PM	2.34	74.82	839.93	395.15
6/11/2025	12:38:54 PM	2.29	75.16	820.6	392.41
6/11/2025	12:39:55 PM	2.3	74.6	808.16	388.88
6/11/2025	12:40:55 PM	2.22	74.82	816.56	386.92
6/11/2025	12:41:56 PM	2.17	74.88	820.26	386.35
6/11/2025	12:42:56 PM	2.14	74.93	818.3	387.53
6/11/2025	12:43:56 PM	2.1	74.54	822.73	384.23
6/11/2025	12:44:57 PM	2.05	74.82	819.92	386.02
6/11/2025	12:45:57 PM	2.01	74.77	805.86	385.01
6/11/2025	12:46:57 PM	1.97	75.21	795.83	382.94
6/11/2025	12:47:57 PM	1.94	75.21	783.28	382.49
6/11/2025	12:48:57 PM	0.48	74.88	849.12	572.43
6/11/2025	12:49:58 PM	26.51	75.1	648.08	516.91
6/11/2025	12:50:58 PM	28.41	75.27	622.13	279.95
6/11/2025	12:51:58 PM	28.52	75.44	692.85	269.92
6/11/2025	12:52:58 PM	31.19	75.44	740.92	251.1
6/11/2025	12:53:58 PM	31.15	75.55	738.06	233.95
6/11/2025	12:54:59 PM	31.1	75.44	749.38	228.12
6/11/2025	12:55:59 PM	31.05	75.49	750.73	221.23
6/11/2025	12:56:59 PM	31.02	75.16	741.59	217.53
6/11/2025	12:57:59 PM	30.97	75.27	749.38	211.2
6/11/2025	12:58:59 PM	30.93	75.38	746.58	208.62
6/11/2025	12:59:59 PM	30.88	75.21	746.41	206.49
6/11/2025	1:01:00 PM	30.86	74.93	749.83	203.02
6/11/2025	1:02:00 PM	30.84	74.88	744.23	200.39
6/11/2025	1:03:00 PM	30.79	74.77	739.63	197.19
6/11/2025	1:04:00 PM	30.77	74.82	734.98	196.35
6/11/2025	1:05:00 PM	30.71	75.05	729.1	196.52
6/11/2025	1:06:00 PM	30.68	74.88	719.61	194.73
6/11/2025	1:07:00 PM	30.63	75.05	712.01	196.74
6/11/2025	1:08:00 PM	30.63	74.82	724.84	199.27
6/11/2025	1:09:01 PM	30.58	74.88	722.32	203.3
6/11/2025	1:10:01 PM	30.55	74.77	732.46	208.06
6/11/2025	1:11:01 PM	30.5	74.88	746.86	212.04
6/11/2025	1:12:02 PM	30.43	74.77	762.44	219.16
6/11/2025	1:13:02 PM	30.41	74.77	780.03	223.7
6/11/2025	1:14:02 PM	30.35	75.05	807.83	234.29
6/11/2025	1:15:02 PM	30.31	74.77	822.95	236.86
6/11/2025	1:16:02 PM	30.24	74.88	833.04	240.73
6/11/2025	1:17:02 PM	30.2	74.77	843.34	243.64
6/11/2025	1:18:02 PM	30.13	74.93	852.48	250.65
6/11/2025	1:19:02 PM	30.08	75.05	856.06	250.26
6/11/2025	1:20:02 PM	30.03	75.1	877.41	255.75
6/11/2025	1:21:03 PM	29.98	74.93	886.32	259.16
6/11/2025	1:22:03 PM	29.93	75.1	918.31	264.88
6/11/2025	1:23:03 PM	29.86	75.16	946.89	269.42
6/11/2025	1:24:03 PM	29.8	75.27	969.69	274.52
6/11/2025	1:25:04 PM	29.72	75.21	998.27	278.72
6/11/2025	1:26:04 PM	29.65	75.21	1027.97	283.93
6/11/2025	1:27:05 PM	29.59	75.38	1043.1	288.52
6/11/2025	1:28:05 PM	29.53	75.38	1052.79	290.71
6/11/2025	1:29:05 PM	29.48	75.38	1054.81	294.74
6/11/2025	1:30:05 PM	29.39	75.55	1044.33	298.27
6/11/2025	1:31:05 PM	29.32	75.44	1024.44	300.57
6/11/2025	1:32:05 PM	29.26	75.44	1013.51	300.74
6/11/2025	1:33:05 PM	29.19	75.27	1003.76	302.59
6/11/2025	1:34:05 PM	29.13	75.44	1006.17	302.48
6/11/2025	1:35:05 PM	29.07	75.61	1011.1	303.82
6/11/2025	1:36:05 PM	28.98	75.61	1034.69	304.27
6/11/2025	1:37:06 PM	28.93	75.55	1039.73	308.08
6/11/2025	1:38:06 PM	28.83	75.61	1055.7	308.36
6/11/2025	1:39:06 PM	28.78	75.61	1066.01	308.53
6/11/2025	1:40:07 PM	28.72	75.55	1069.15	312.23
6/11/2025	1:41:07 PM	28.65	75.61	1077.55	314.52
6/11/2025	1:42:07 PM	28.57	75.55	1059.57	314.75
6/11/2025	1:43:07 PM	28.5	75.77	1054.08	312.56
6/11/2025	1:44:07 PM	28.45	75.55	1041.13	313.63
6/11/2025	1:45:07 PM	28.39	75.55	1051.78	316.54
6/11/2025	1:46:07 PM	28.31	75.38	1057.66	317.16
6/11/2025	1:47:07 PM	28.25	75.55	1064.78	315.36
6/11/2025	1:48:08 PM	28.19	75.49	1071.5	317.72
6/11/2025	1:49:08 PM	28.12	75.61	1085.85	319.79
6/11/2025	1:50:08 PM	28.05	75.55	1087.92	320.46
6/11/2025	1:51:08 PM	27.96	75.55	1092.07	320.07
6/11/2025	1:52:08 PM	27.94	75.72	1092.96	319.79
6/11/2025	1:53:08 PM	27.84	75.55	1090.67	321.19
6/11/2025	1:54:08 PM	27.78	75.77	1092.07	320.8
6/11/2025	1:55:09 PM	27.72	75.77	1085.68	321.41
6/11/2025	1:56:09 PM	27.63	75.55	1070.89	320.52
6/11/2025	1:57:09 PM	27.59	75.44	1064.56	321.61
6/11/2025	1:58:09 PM	27.5	75.72	1058	321.53
6/11/2025	1:59:10 PM	27.46	75.61	1056.6	319.85
6/11/2025	2:00:10 PM	27.4	75.72	1057.44	320.24
6/11/2025	2:01:10 PM	27.33	75.77	1058.73	322.42
6/11/2025	2:02:10 PM	27.25	75.83	1067.69	320.46
6/11/2025	2:03:11 PM	27.18	75.77	1074.7	320.74
6/11/2025	2:04:11 PM	27.13	75.44	1081.36	322.37
6/11/2025	2:05:11 PM	27.05	75.61	1092.23	325
6/11/2025	2:06:11 PM	27	75.44	1097.56	323.88
6/11/2025	2:07:12 PM	26.94	75.44	1101.2	324.38
6/11/2025	2:08:12 PM	26.85	75.49	1113.69	326.12
6/11/2025	2:09:12 PM	26.79	75.49	1119.35	328.36
6/11/2025	2:10:12 PM	26.72	75.49	1129.22	329.32
6/11/2025	2:11:12 PM	26.64	75.55	1134.76	329.48
6/11/2025	2:12:13 PM	26.57	75.38	1144.06	329.04
6/11/2025	2:13:13 PM	26.49	75.44	1150.79	332.96
6/11/2025	2:14:13 PM	26.43	75.61	1159.47	333.01
6/11/2025	2:15:13 PM	26.33	75.49	1165.52	333.63
6/11/2025	2:16:13 PM	26.27	75.38	1175.11	336.49
6/11/2025	2:17:14 PM	26.19	75.55	1185.3	336.38
6/11/2025	2:18:14 PM	26.15	75.44	1194.04	339.91
6/11/2025	2:19:14 PM	26.04	75.44	1199.48	337.89
6/11/2025	2:20:14 PM	25.99	75.44	1213.93	340.3
6/11/2025	2:21:14 PM	25.89	75.44	1223.01	344.88
6/11/2025	2:22:14 PM	25.81	75.38	1231.58	346.67
6/11/2025	2:23:15 PM	25.73	75.44	1244.14	346.8
6/11/2025	2:24:15 PM	25.64	75.55	1253.32	348.53
6/11/2025	2:25:15 PM	25.54	75.61	1258.93	351.39
6/11/2025	2:26:15 PM	25.48	75.49	1272.82	353.24
6/11/2025	2:27:15 PM	25.37	75.55	1283.47	353.3
6/11/2025	2:28:16 PM	25.29	75.72	1293.95	354.25
6/11/2025	2:29:16 PM	25.2	75.55	1302.8	355.82
6/11/2025	2:30:16 PM	25.1	75.83	1314.68	356.32
6/11/2025	2:31:16 PM	25.01	75.55	1324.76	356.99
6/11/2025	2:32:16 PM	24.91	75.72	1331.88	360.92
6/11/2025	2:33:16 PM	24.81	75.61	1338.83	358.06
6/11/2025	2:34:16 PM	24.71	75.83	1345.1	360.02
6/11/2025	2:35:16 PM	24.62	75.83	1344.66	359.63
6/11/2025	2:36:16 PM	24.51	75.83	1333.06	359.24
6/11/2025	2:37:17 PM	24.39	75.89	1248.56	366.97
6/11/2025	2:38:17 PM	24.29	75.94	1152.62	359.46
6/11/2025	2:39:17 PM	24.18	76.22	1119.02	354.59
6/11/2025	2:40:17 PM	24.09	76.11	1116.16	344.16
6/11/2025	2:41:17 PM	23.97	76.11	1103.83	343.38
6/11/2025	2:42:17 PM	23.91	76.11	1087.75	336.04
6/11/2025	2:43:17 PM	23.83	76.17	1077.05	330.88
6/11/2025	2:44:17 PM	23.75	76.22	1053.97	326.96
6/11/2025	2:45:17 PM	23.65	76.28	1049.65	326.57

Added 29.5lbs 19-23% NC, Medium Air Setting

6/11/2025	2:46:17 PM	23.6	76.39	1030.88	323.26
6/11/2025	2:47:18 PM	23.51	76.22	1013.62	322.42
6/11/2025	2:48:18 PM	23.46	76.39	1000.01	317.44
6/11/2025	2:49:18 PM	23.38	76.39	986.62	317.49
6/11/2025	2:50:18 PM	23.31	76.61	977.26	313.74
6/11/2025	2:51:18 PM	23.25	76.61	962.02	313.61
6/11/2025	2:52:18 PM	23.18	76.78	956.14	311.39
6/11/2025	2:53:18 PM	23.13	76.78	941.74	307.8
6/11/2025	2:54:18 PM	23.07	76.84	936.69	307.74
6/11/2025	2:55:19 PM	22.99	76.78	935.35	303.82
6/11/2025	2:56:19 PM	22.95	76.89	943.86	301.97
6/11/2025	2:57:19 PM	22.88	76.78	947.62	301.3
6/11/2025	2:58:19 PM	22.82	76.78	947.56	298.27
6/11/2025	2:59:19 PM	22.76	76.89	948.68	300.01
6/11/2025	3:00:19 PM	22.71	77.06	952.16	299.17
6/11/2025	3:01:19 PM	22.65	76.95	951.32	297.77
6/11/2025	3:02:20 PM	22.59	76.95	954.29	294.91
6/11/2025	3:03:20 PM	22.53	77.06	952.89	294.91
6/11/2025	3:04:20 PM	22.48	76.95	954.01	294.63
6/11/2025	3:05:20 PM	22.42	77.34	954.29	293.34
6/11/2025	3:06:20 PM	22.37	77.29	955.24	289.87
6/11/2025	3:07:20 PM	22.3	77.18	1035.31	291.16
6/11/2025	3:08:20 PM	22.26	77.06	1104.9	294.35
6/11/2025	3:09:21 PM	22.19	77.29	1128.88	296.31
6/11/2025	3:10:21 PM	22.14	76.95	1153.93	296.71
6/11/2025	3:11:21 PM	22.09	76.84	1167.09	299.06
6/11/2025	3:12:21 PM	22.01	77.06	1154.71	300.96
6/11/2025	3:13:22 PM	21.96	76.95	1185.81	304.38
6/11/2025	3:14:22 PM	21.9	76.95	1204.91	304.66
6/11/2025	3:15:22 PM	21.83	76.89	1213.54	305.89
6/11/2025	3:16:23 PM	21.76	77.06	1213.65	305.39
6/11/2025	3:17:23 PM	21.72	77.18	1214.1	308.75
6/11/2025	3:18:24 PM	21.65	77.29	1220.15	309.2
6/11/2025	3:19:24 PM	21.58	77.29	1221.72	306.62
6/11/2025	3:20:24 PM	21.51	77.18	1221.5	308.14
6/11/2025	3:21:24 PM	21.46	77.18	1214.38	308.02
6/11/2025	3:22:25 PM	21.41	77.29	1216.79	308.53
6/11/2025	3:23:25 PM	21.34	77.18	1213.15	309.2
6/11/2025	3:24:25 PM	21.28	77.34	1214.61	308.14
6/11/2025	3:25:25 PM	21.21	77.18	1214.05	307.18
6/11/2025	3:26:25 PM	21.15	77.29	1210.18	309.59
6/11/2025	3:27:25 PM	21.1	77.29	1207.21	308.14
6/11/2025	3:28:26 PM	21.03	77.34	1209.34	307.24
6/11/2025	3:29:26 PM	20.97	77.34	1206.48	306.34
6/11/2025	3:30:26 PM	20.92	77.18	1203.4	306.68
6/11/2025	3:31:26 PM	20.86	77.12	1201.72	307.46
6/11/2025	3:32:26 PM	20.8	77.29	1188.25	307.86
6/11/2025	3:33:26 PM	20.73	77.12	1197.61	305.89
6/11/2025	3:34:27 PM	20.69	77.12	1194.6	305.89
6/11/2025	3:35:27 PM	20.62	77.29	1190.57	304.44
6/11/2025	3:36:27 PM	20.57	76.95	1185.08	304.66
6/11/2025	3:37:28 PM	20.5	77.46	1185.92	302.48
6/11/2025	3:38:28 PM	20.44	77.46	1182.61	302.53
6/11/2025	3:39:28 PM	20.38	77.4	1179.98	301.3
6/11/2025	3:40:29 PM	20.34	77.29	1173.2	301.96
6/11/2025	3:41:29 PM	20.28	77.18	1174.82	300.07
6/11/2025	3:42:29 PM	20.22	77.29	1173.14	299.95
6/11/2025	3:43:29 PM	20.17	77.29	1168.33	301.02
6/11/2025	3:44:30 PM	20.12	77.29	1165.86	299.39
6/11/2025	3:45:30 PM	20.06	77.29	1163.79	298.78
6/11/2025	3:46:30 PM	20.01	77.12	1157.57	299.34
6/11/2025	3:47:31 PM	19.96	77.34	1159.7	296.87
6/11/2025	3:48:31 PM	19.9	77.46	1153.87	295.3
6/11/2025	3:49:31 PM	19.85	77.4	1147.71	297.27
6/11/2025	3:50:32 PM	19.79	77.62	1150	295.98
6/11/2025	3:51:32 PM	19.73	77.29	1144.34	295.98
6/11/2025	3:52:32 PM	19.7	77.18	1141.65	296.71
6/11/2025	3:53:32 PM	19.65	77.4	1141.54	296.82
6/11/2025	3:54:32 PM	19.58	77.34	1139.13	295.42
6/11/2025	3:55:32 PM	19.53	77.4	1136.78	293.4
6/11/2025	3:56:32 PM	19.48	77.51	1135.55	293.62
6/11/2025	3:57:33 PM	19.44	77.4	1128.05	292.5
6/11/2025	3:58:33 PM	19.38	77.46	1131.23	293.68
6/11/2025	3:59:33 PM	19.33	77.18	1129.05	292.33
6/11/2025	4:00:33 PM	19.27	77.34	1127.25	293.18
6/11/2025	4:01:34 PM	19.24	77.18	1123.39	291.89
6/11/2025	4:02:34 PM	19.17	77.18	1119.58	290.09
6/11/2025	4:03:34 PM	19.14	77.4	1121.71	291.55
6/11/2025	4:04:34 PM	19.09	77.46	1122.6	290.37
6/11/2025	4:05:34 PM	19.04	77.46	1120.19	291.48
6/11/2025	4:06:34 PM	18.98	77.34	1120.59	290.71
6/11/2025	4:07:34 PM	18.92	77.34	1118.96	290.82
6/11/2025	4:08:35 PM	18.9	77.46	1090.78	291.16
6/11/2025	4:09:35 PM	18.86	77.51	1067.69	289.53
6/11/2025	4:10:36 PM	18.81	77.34	1052.68	288.08
6/11/2025	4:11:36 PM	18.76	77.4	1042.37	285.72
6/11/2025	4:12:37 PM	18.7	77.34	1035.31	287.18
6/11/2025	4:13:37 PM	18.66	77.18	1027.41	283.93
6/11/2025	4:14:37 PM	18.61	77.18	1018.11	285.27
6/11/2025	4:15:37 PM	18.57	77.29	1015.36	282.98
6/11/2025	4:16:37 PM	18.53	77.34	1011.16	281.69
6/11/2025	4:17:38 PM	18.49	77.4	1006.28	279.56
6/11/2025	4:18:38 PM	18.46	77.18	1003.03	278.66
6/11/2025	4:19:38 PM	18.4	77.29	1000.68	278.44
6/11/2025	4:20:38 PM	18.36	77.51	998.27	277.93
6/11/2025	4:21:38 PM	18.33	77.46	996.09	277.32
6/11/2025	4:22:38 PM	18.28	77.29	992.84	274.96
6/11/2025	4:23:39 PM	18.23	77.34	990.59	275.75
6/11/2025	4:24:39 PM	18.21	77.34	989.7	273.79
6/11/2025	4:25:39 PM	18.18	77.29	990.48	274.35
6/11/2025	4:26:39 PM	18.13	77.12	989.75	272.84
6/11/2025	4:27:39 PM	18.1	77.34	991.04	275.64
6/11/2025	4:28:39 PM	18.05	77.18	990.48	273.06
6/11/2025	4:29:39 PM	18.01	77.34	991.21	272.78
6/11/2025	4:30:39 PM	17.99	77.18	992.72	272.16
6/11/2025	4:31:40 PM	17.93	77.06	992.39	273.66
6/11/2025	4:32:40 PM	17.89	77.12	993.51	270.03
6/11/2025	4:33:40 PM	17.86	76.89	989.25	273.68
6/11/2025	4:34:40 PM	17.82	76.95	992.89	271.72
6/11/2025	4:35:40 PM	17.77	77.4	994.46	270.76
6/11/2025	4:36:40 PM	17.75	77.06	991.72	272.5
6/11/2025	4:37:40 PM	17.69	77.06	1005.72	270.65
6/11/2025	4:38:40 PM	17.65	77.06	1012.05	270.31
6/11/2025	4:39:41 PM	17.63	77.12	1017.55	271.63
6/11/2025	4:40:41 PM	17.59	77.29	1026.62	270.2
6/11/2025	4:41:41 PM	17.54	76.95	1029.76	272.11
6/11/2025	4:42:41 PM	17.5	77.12	1036.65	274.68
6/11/2025	4:43:41 PM	17.47	77.12	1040.18	274.29
6/11/2025	4:44:41 PM	17.44	77.12	1044.27	274.12
6/11/2025	4:45:41 PM	17.38	76.84	1046.07	274.96
6/11/2025	4:46:41 PM	17.34	76.95	1049.82	275.13
6/11/2025	4:47:41 PM	17.31	76.78	1051.33	275.3
6/11/2025	4:48:41 PM	17.26	77.06	1056.54	275.97
6/11/2025	4:49:41 PM	17.22	77.18	1058.28	277.09
6/11/2025	4:50:42 PM	17.19	77.06	1047.35	277.15
6/11/2025	4:51:42 PM	17.12	76.84	1028.64	276.87
6/11/2025	4:52:42 PM	17.1	76.78	1021.86	277.88
6/11/2025	4:53:42 PM	17.06	76.95	1015.3	275.36
6/11/2025	4:54:42 PM	17.03	76.84	1013.06	275.97

6/11/2025	4:55:42 PM	16.97	77.06	1013.68	275.75
6/11/2025	4:56:42 PM	16.93	76.95	1007.85	276.25
6/11/2025	4:57:43 PM	16.9	76.89	1012.28	274.35
6/11/2025	4:58:43 PM	16.85	76.95	1013.79	275.02
6/11/2025	4:59:43 PM	16.82	76.84	1001.41	276.7
6/11/2025	5:00:43 PM	16.78	76.89	1013.34	274.01
6/11/2025	5:01:43 PM	16.72	76.78	1008.86	275.41
6/11/2025	5:02:44 PM	16.68	76.89	1011.49	275.08
6/11/2025	5:03:44 PM	16.65	76.95	1009.25	273
6/11/2025	5:04:44 PM	16.61	76.73	1005.44	275.19
6/11/2025	5:05:44 PM	16.57	76.95	1002.19	272.84
6/11/2025	5:06:44 PM	16.53	76.89	1005.27	272.56
6/11/2025	5:07:44 PM	16.5	77.12	1003.71	274.52
6/11/2025	5:08:45 PM	16.45	76.89	1003.09	271.72
6/11/2025	5:09:45 PM	16.4	76.78	1000.12	271.49
6/11/2025	5:10:45 PM	16.37	76.84	1000.62	272.72
6/11/2025	5:11:46 PM	16.34	76.95	1003.48	273
6/11/2025	5:12:46 PM	16.29	77.06	999.5	272.39
6/11/2025	5:13:46 PM	16.25	76.84	1000.62	269.53
6/11/2025	5:14:46 PM	16.21	76.89	999.67	273.9
6/11/2025	5:15:47 PM	16.19	77.06	1004.04	271.83
6/11/2025	5:16:47 PM	16.13	77.12	998.27	271.49
6/11/2025	5:17:47 PM	16.11	77.12	1001.52	270.65
6/11/2025	5:18:47 PM	16.07	76.89	1014.02	270.87
6/11/2025	5:19:47 PM	16.02	76.84	1025.56	269.75
6/11/2025	5:20:47 PM	15.97	76.89	1031.39	271.1
6/11/2025	5:21:47 PM	15.96	77.06	1040.85	271.38
6/11/2025	5:22:47 PM	15.91	77.29	1045.62	274.12
6/11/2025	5:23:47 PM	15.87	76.89	1046.74	272.28
6/11/2025	5:24:47 PM	15.83	76.95	1048.03	272.16
6/11/2025	5:25:47 PM	15.78	76.95	1048.75	274.63
6/11/2025	5:26:48 PM	15.75	77.06	1048.81	273.4
6/11/2025	5:27:48 PM	15.72	76.95	1048.36	272.89
6/11/2025	5:28:48 PM	15.68	77.18	1047.19	272.11
6/11/2025	5:29:48 PM	15.64	77.06	1045.06	273.28
6/11/2025	5:30:49 PM	15.59	76.78	1047.19	273.9
6/11/2025	5:31:49 PM	15.55	76.89	1048.14	273
6/11/2025	5:32:50 PM	15.52	76.89	1047.69	272.11
6/11/2025	5:33:50 PM	15.49	76.84	1049.92	272.39
6/11/2025	5:34:50 PM	15.45	76.89	1050.88	270.76
6/11/2025	5:35:50 PM	15.4	76.95	1048.87	272.84
6/11/2025	5:36:51 PM	15.36	76.84	1046.4	271.55
6/11/2025	5:37:51 PM	15.34	76.84	1049.15	274.46
6/11/2025	5:38:51 PM	15.3	76.84	1049.26	273.9
6/11/2025	5:39:51 PM	15.25	77.06	1036.2	271.1
6/11/2025	5:40:51 PM	15.22	76.89	1045.67	274.52
6/11/2025	5:41:52 PM	15.18	76.84	1044.78	273.17
6/11/2025	5:42:52 PM	15.15	76.78	1046.46	271.04
6/11/2025	5:43:52 PM	15.11	76.95	1036.93	272.67
6/11/2025	5:44:53 PM	15.07	76.84	1040.13	272.05
6/11/2025	5:45:53 PM	15.04	76.73	1040.01	270.87
6/11/2025	5:46:53 PM	15.01	76.84	1036.32	272.28
6/11/2025	5:47:53 PM	14.97	76.78	1033.23	270.87
6/11/2025	5:48:53 PM	14.93	76.78	1031.67	269.81
6/11/2025	5:49:53 PM	14.91	76.73	1028.85	270.15
6/11/2025	5:50:54 PM	14.85	77.06	1021.86	268.13
6/11/2025	5:51:54 PM	14.81	76.73	1015.81	268.41
6/11/2025	5:52:54 PM	14.79	76.61	1015.58	270.59
6/11/2025	5:53:54 PM	14.77	76.5	1011.05	271.6
6/11/2025	5:54:55 PM	14.73	76.61	1005.05	269.75
6/11/2025	5:55:55 PM	14.7	76.78	999.78	268.3
6/11/2025	5:56:55 PM	14.66	76.56	994.46	269.42
6/11/2025	5:57:55 PM	14.64	76.84	988.52	268.8
6/11/2025	5:58:56 PM	14.6	76.78	986	267.79
6/11/2025	5:59:56 PM	14.57	77.12	983.2	269.19
6/11/2025	6:00:56 PM	14.53	76.73	977.15	268.19
6/11/2025	6:01:56 PM	14.51	76.89	977.54	267.57
6/11/2025	6:02:57 PM	14.47	76.45	972.78	267.57
6/11/2025	6:03:57 PM	14.43	76.28	969.75	268.24
6/11/2025	6:04:57 PM	14.4	76.56	968.91	268.47
6/11/2025	6:05:57 PM	14.39	76.61	968.46	266.62
6/11/2025	6:06:57 PM	14.33	76.39	967.01	266.62
6/11/2025	6:07:58 PM	14.31	76.56	966.5	268.07
6/11/2025	6:08:58 PM	14.28	76.61	965.44	267.85
6/11/2025	6:09:58 PM	14.25	76.45	959.05	266.22
6/11/2025	6:10:58 PM	14.22	76.5	961.85	266
6/11/2025	6:11:59 PM	14.17	76.45	960.79	266.17
6/11/2025	6:12:59 PM	14.15	76.39	961.57	266.5
6/11/2025	6:13:59 PM	14.12	76.28	960.79	268.69
6/11/2025	6:14:59 PM	14.09	76.39	960.06	268.3
6/11/2025	6:15:59 PM	14.06	76.45	966.64	267.34
6/11/2025	6:16:59 PM	14.03	76.28	966.42	266.84
6/11/2025	6:18:00 PM	13.98	76.45	954.12	266.9
6/11/2025	6:19:00 PM	13.97	76.5	955.8	266.45
6/11/2025	6:20:00 PM	13.94	76.56	954.73	267.85
6/11/2025	6:21:00 PM	13.9	76.5	953.11	265.22
6/11/2025	6:22:00 PM	13.87	76.39	955.13	267.79
6/11/2025	6:23:01 PM	13.84	76.5	952.72	267.57
6/11/2025	6:24:01 PM	13.81	76.45	951.6	268.07
6/11/2025	6:25:01 PM	13.78	76.28	950.98	267.96
6/11/2025	6:26:01 PM	13.75	76.39	947.11	268.24
6/11/2025	6:27:02 PM	13.73	76.22	948.68	268.69
6/11/2025	6:28:02 PM	13.7	76.28	949.58	269.59
6/11/2025	6:29:02 PM	13.67	76.39	948.85	270.31
6/11/2025	6:30:02 PM	13.64	76.22	949.69	267.62
6/11/2025	6:31:02 PM	13.61	76.28	948.85	267.91
6/11/2025	6:32:03 PM	13.58	76.17	948.01	268.52
6/11/2025	6:33:03 PM	13.54	76.28	947.84	268.47
6/11/2025	6:34:04 PM	13.52	76.22	947.28	269.36
6/11/2025	6:35:04 PM	13.5	76.17	944.99	268.3
6/11/2025	6:36:04 PM	13.46	76.11	947	269.92
6/11/2025	6:37:05 PM	13.43	76.05	946.16	269.14
6/11/2025	6:38:05 PM	13.4	76.22	945.43	268.86
6/11/2025	6:39:05 PM	13.37	76.11	943.36	270.43
6/11/2025	6:40:06 PM	13.34	76.05	942.18	268.41
6/11/2025	6:41:06 PM	13.29	76.22	926.89	269.92
6/11/2025	6:42:07 PM	13.27	76.05	908.17	269.92
6/11/2025	6:43:07 PM	13.26	76.11	898.09	269.08
6/11/2025	6:44:07 PM	13.21	75.94	910.97	269.42
6/11/2025	6:45:07 PM	13.18	76.17	926.61	268.07
6/11/2025	6:46:07 PM	13.15	76.05	938.43	269.19
6/11/2025	6:47:07 PM	13.13	76.39	947.34	269.87
6/11/2025	6:48:07 PM	13.11	76.22	953.89	269.42
6/11/2025	6:49:07 PM	13.06	75.94	957.48	271.15
6/11/2025	6:50:08 PM	13.03	76.11	960.11	273.12
6/11/2025	6:51:08 PM	12.99	76.17	965.1	271.72
6/11/2025	6:52:08 PM	12.97	75.94	966.16	272.05
6/11/2025	6:53:08 PM	12.94	75.89	964.88	273.84
6/11/2025	6:54:08 PM	12.91	76.05	973.28	273.9
6/11/2025	6:55:09 PM	12.87	76.17	976.03	274.8
6/11/2025	6:56:09 PM	12.82	76.17	976.75	274.63
6/11/2025	6:57:09 PM	12.8	75.94	978.48	274.52
6/11/2025	6:58:10 PM	12.78	75.77	978.77	277.32
6/11/2025	6:59:10 PM	12.74	75.89	979.44	277.49
6/11/2025	7:00:10 PM	12.72	75.77	980.17	277.32
6/11/2025	7:01:10 PM	12.67	75.94	982.75	276.25
6/11/2025	7:02:10 PM	12.64	75.94	985.61	279.62
6/11/2025	7:03:10 PM	12.6	75.89	988.47	275.36
6/11/2025	7:04:10 PM	12.55	75.94	989.36	277.71

6/11/2025	7:05:11 PM	12.52	76.11	994.07	277.77
6/11/2025	7:06:11 PM	12.5	75.83	995.25	279.28
6/11/2025	7:07:12 PM	12.46	75.89	1001.58	280.85
6/11/2025	7:08:12 PM	12.41	75.89	1003.76	279.34
6/11/2025	7:09:13 PM	12.38	75.77	1006.79	278.27
6/11/2025	7:10:13 PM	12.34	75.84	1011.77	281.52
6/11/2025	7:11:13 PM	12.32	75.77	1014.86	281.02
6/11/2025	7:12:13 PM	12.26	75.89	1019.06	282.02
6/11/2025	7:13:14 PM	12.23	75.83	1023.2	281.86
6/11/2025	7:14:14 PM	12.19	75.83	1024.16	281.18
6/11/2025	7:15:14 PM	12.16	75.83	1027.24	283.31
6/11/2025	7:16:15 PM	12.12	75.72	1029.31	283.54
6/11/2025	7:17:15 PM	12.07	75.89	1039.79	284.66
6/11/2025	7:18:16 PM	12.02	75.83	1037.94	285.27
6/11/2025	7:19:16 PM	12	75.89	1028.14	289.59
6/11/2025	7:20:16 PM	11.93	75.77	1009.31	289.7
6/11/2025	7:21:16 PM	11.88	75.72	1007.91	290.32
6/11/2025	7:22:16 PM	11.84	75.77	1009.53	290.82
6/11/2025	7:23:17 PM	11.77	75.72	1018.31	295.02
6/11/2025	7:24:17 PM	11.72	75.77	1024.89	294.3
6/11/2025	7:25:17 PM	11.66	75.49	1034.24	297.77
6/11/2025	7:26:17 PM	11.62	75.89	1039.12	300.91
6/11/2025	7:27:17 PM	11.56	75.72	1041.47	299.45
6/11/2025	7:28:17 PM	11.5	75.44	1044.72	305
6/11/2025	7:29:18 PM	11.42	75.72	1046.63	305.61
6/11/2025	7:30:18 PM	11.37	75.72	1047.63	307.63
6/11/2025	7:31:18 PM	11.3	75.55	1047.91	300.35
6/11/2025	7:32:18 PM	11.22	75.77	1089.49	302.59
6/11/2025	7:33:19 PM	11.16	75.61	1102.15	301.52
6/11/2025	7:34:19 PM	11.1	75.38	1112.18	301.08
6/11/2025	7:35:20 PM	11	75.72	1128.32	318.61
6/11/2025	7:36:20 PM	10.95	75.77	1129.66	300.96
6/11/2025	7:37:21 PM	10.89	75.89	1129.16	295.98
6/11/2025	7:38:21 PM	10.82	75.83	1125.01	295.75
6/11/2025	7:39:21 PM	10.76	75.72	1122.83	294.97
6/11/2025	7:40:21 PM	10.7	75.55	1141.26	295.08
6/11/2025	7:41:21 PM	10.62	75.61	1163.45	292.05
6/11/2025	7:42:21 PM	10.56	75.61	1168.77	290.21
6/11/2025	7:43:21 PM	10.49	75.55	1169.84	288.41
6/11/2025	7:44:22 PM	10.42	75.89	1168.49	288.41
6/11/2025	7:45:22 PM	10.35	75.84	1156.73	269.92
6/11/2025	7:46:22 PM	10.29	75.77	1141.93	273.73
6/11/2025	7:47:22 PM	10.24	75.83	1139.41	268.13
6/11/2025	7:48:23 PM	10.18	75.72	1142.21	267.91
6/11/2025	7:49:23 PM	10.13	75.61	1140.03	265.33
6/11/2025	7:50:23 PM	10.08	75.77	1136.72	263.65
6/11/2025	7:51:23 PM	10.02	75.61	1133.25	260.34
6/11/2025	7:52:24 PM	9.95	75.77	1131.29	257.54
6/11/2025	7:53:24 PM	9.93	75.61	1127.98	257.82
6/11/2025	7:54:24 PM	9.87	75.77	1126.64	254.29
6/11/2025	7:55:24 PM	9.83	75.72	1124.85	252.1
6/11/2025	7:56:24 PM	9.77	75.77	1122.21	251.21
6/11/2025	7:57:25 PM	9.72	75.61	1120.81	249.47
6/11/2025	7:58:25 PM	9.68	75.55	1119.52	247.73
6/11/2025	7:59:25 PM	9.67	75.77	1120.14	246.05
6/11/2025	8:00:26 PM	9.6	75.77	1119.41	242.97
6/11/2025	8:01:26 PM	9.56	75.44	1119.07	241.68
6/11/2025	8:02:26 PM	9.54	75.72	1108.88	240.95
6/11/2025	8:03:27 PM	9.5	75.61	1102.38	239.5
6/11/2025	8:04:27 PM	9.46	75.55	1088.42	237.54
6/11/2025	8:05:27 PM	9.42	75.61	1078.79	234.68
6/11/2025	8:06:27 PM	9.4	75.49	1067.81	234.96
6/11/2025	8:07:27 PM	9.37	75.61	1050.72	231.32
6/11/2025	8:08:27 PM	9.33	75.61	1035.2	230.42
6/11/2025	8:09:28 PM	9.31	75.27	1022.81	228.07
6/11/2025	8:10:28 PM	9.28	75.27	1011.89	227.17
6/11/2025	8:11:28 PM	9.26	75.49	1000.51	225.88
6/11/2025	8:12:28 PM	9.23	75.55	988.58	222.69
6/11/2025	8:13:29 PM	9.22	75.44	980	222.35
6/11/2025	8:14:29 PM	9.19	75.38	971.21	219.61
6/11/2025	8:15:29 PM	9.17	75.38	963.03	218.37
6/11/2025	8:16:30 PM	9.16	75.27	954.68	217.25
6/11/2025	8:17:30 PM	9.14	75.27	946.44	218.04
6/11/2025	8:18:30 PM	9.1	75.16	940	215.4
6/11/2025	8:19:31 PM	9.08	75.27	933.55	214.06
6/11/2025	8:20:31 PM	9.06	75.27	928.29	214.68
6/11/2025	8:21:31 PM	9.06	75.16	924.7	213.11
6/11/2025	8:22:31 PM	9.02	75.05	921.4	211.93
6/11/2025	8:23:32 PM	9	75.21	920.78	213.05
6/11/2025	8:24:32 PM	8.97	75.16	917.25	212.71
6/11/2025	8:25:32 PM	8.94	75.1	920.33	212.38
6/11/2025	8:26:32 PM	8.93	75.05	922.46	214.68
6/11/2025	8:27:32 PM	8.9	75.05	928.34	216.97
6/11/2025	8:28:32 PM	8.89	74.71	928.01	217.25
6/11/2025	8:29:33 PM	8.85	74.77	937.93	220.67
6/11/2025	8:30:33 PM	8.83	74.77	941.12	220.95
6/11/2025	8:31:33 PM	8.8	74.6	944.82	222.74
6/11/2025	8:32:34 PM	8.78	74.37	945.21	226.05
6/11/2025	8:33:34 PM	8.77	74.32	944.87	225.15
6/11/2025	8:34:34 PM	8.73	74.54	942.69	227.17
6/11/2025	8:35:34 PM	8.71	74.49	927.5	227.9
6/11/2025	8:36:34 PM	8.68	74.49	910.02	228.96
6/11/2025	8:37:35 PM	8.65	74.37	894.11	229.64
6/11/2025	8:38:35 PM	8.64	74.37	882.29	229.02
6/11/2025	8:39:35 PM	8.61	74.26	873.15	229.3
6/11/2025	8:40:36 PM	8.6	74.37	866.99	229.3
6/11/2025	8:41:36 PM	8.57	74.21	860.49	229.58
6/11/2025	8:42:36 PM	8.55	74.04	855.9	229.24
6/11/2025	8:43:37 PM	8.53	74.49	851.36	228.57
6/11/2025	8:44:37 PM	8.52	74.15	849.96	229.19
6/11/2025	8:45:37 PM	8.48	74.26	847.6	230.76
6/11/2025	8:46:37 PM	8.47	73.81	843.91	231.82
6/11/2025	8:47:37 PM	8.45	74.04	843.46	231.32
6/11/2025	8:48:37 PM	8.42	73.98	843.01	234.34
6/11/2025	8:49:38 PM	8.41	74.04	841.86	231.88
6/11/2025	8:50:38 PM	8.38	73.87	841.78	232.72
6/11/2025	8:51:38 PM	8.36	73.98	844.07	233.67
6/11/2025	8:52:39 PM	8.34	73.81	845.14	235.24
6/11/2025	8:53:39 PM	8.3	73.87	846.59	234.23
6/11/2025	8:54:39 PM	8.29	73.65	849.51	234.4
6/11/2025	8:55:39 PM	8.25	73.7	852.14	238.81
6/11/2025	8:56:40 PM	8.23	73.59	854.66	236.36
6/11/2025	8:57:40 PM	8.2	73.53	855.06	234.62
6/11/2025	8:58:40 PM	8.2	73.65	856.4	237.57
6/11/2025	8:59:41 PM	8.17	73.65	858.14	238.71
6/11/2025	9:00:41 PM	8.13	73.48	858.7	240.23
6/11/2025	9:01:41 PM	8.13	73.59	857.18	240.79
6/11/2025	9:02:41 PM	8.08	73.31	859.2	241.57
6/11/2025	9:03:41 PM	8.06	73.31	860.6	241.79
6/11/2025	9:04:42 PM	8.03	73.48	857.91	241.46
6/11/2025	9:05:42 PM	8.01	73.59	858.98	242.35
6/11/2025	9:06:43 PM	7.99	73.36	858.42	241.96
6/11/2025	9:07:42 PM	7.93	73.36	854.66	241.91
6/11/2025	9:08:43 PM	7.92	73.48	853.99	239.95
6/11/2025	9:09:43 PM	7.9	73.25	850.96	241.57
6/11/2025	9:10:43 PM	7.89	73.14	848.11	240
6/11/2025	9:11:43 PM	7.88	73.25	846.76	240.39
6/11/2025	9:12:43 PM	7.84	73.14	844.63	239.5
6/11/2025	9:13:43 PM	7.83	73.25	842.9	240.45

6/11/2025	9:14:44 PM	7.8	73.2	840.54	239.78
6/11/2025	9:15:44 PM	7.76	73.2	837.91	239.16
6/11/2025	9:16:44 PM	7.75	72.97	837.85	237.54
6/11/2025	9:17:45 PM	7.71	73.14	836.12	237.54
6/11/2025	9:18:45 PM	7.69	73.14	830.91	238.49
6/11/2025	9:19:45 PM	7.67	72.97	834.32	238.75
6/11/2025	9:20:46 PM	7.66	73.14	833.32	237.98
6/11/2025	9:21:46 PM	7.62	72.97	833.93	237.82
6/11/2025	9:22:46 PM	7.61	72.97	833.26	238.88
6/11/2025	9:23:47 PM	7.58	73.03	833.04	236.64
6/11/2025	9:24:47 PM	7.56	72.92	832.08	238.6
6/11/2025	9:25:47 PM	7.55	72.92	830.07	233.95
6/11/2025	9:26:47 PM	7.52	72.92	826.14	236.75
6/11/2025	9:27:48 PM	7.49	72.92	825.19	234.4
6/11/2025	9:28:48 PM	7.47	72.92	823.57	236.36
6/11/2025	9:29:48 PM	7.45	72.92	822.56	235.24
6/11/2025	9:30:48 PM	7.44	73.03	823.12	237.31
6/11/2025	9:31:48 PM	7.4	72.75	821.44	234.62
6/11/2025	9:32:49 PM	7.38	72.69	824.46	235.13
6/11/2025	9:33:49 PM	7.36	72.75	824.85	234.51
6/11/2025	9:34:49 PM	7.34	72.69	826.42	235.74
6/11/2025	9:35:50 PM	7.33	72.52	826.93	233.84
6/11/2025	9:36:50 PM	7.3	72.58	827.77	234.96
6/11/2025	9:37:50 PM	7.27	72.64	828.27	234.23
6/11/2025	9:38:51 PM	7.25	72.86	828.89	234.34
6/11/2025	9:39:51 PM	7.22	72.69	829	234.57
6/11/2025	9:40:52 PM	7.2	72.58	831.02	235.58
6/11/2025	9:41:52 PM	7.17	72.41	835.16	235.07
6/11/2025	9:42:53 PM	7.17	72.64	838.13	235.41
6/11/2025	9:43:53 PM	7.15	72.58	838.13	234.73
6/11/2025	9:44:53 PM	7.12	72.41	839.59	236.02
6/11/2025	9:45:53 PM	7.1	72.41	840.38	234.68
6/11/2025	9:46:53 PM	7.07	72.41	841.38	234.29
6/11/2025	9:47:54 PM	7.05	72.24	842.11	238.15
6/11/2025	9:48:54 PM	7.03	72.36	840.77	235.24
6/11/2025	9:49:54 PM	7	72.3	840.77	235.58
6/11/2025	9:50:55 PM	6.98	72.36	841.94	236.47
6/11/2025	9:51:55 PM	6.97	72.36	843.4	236.19
6/11/2025	9:52:56 PM	6.92	72.41	844.75	237.03
6/11/2025	9:53:56 PM	6.94	72.3	846.43	237.65
6/11/2025	9:54:56 PM	6.89	72.19	847.83	235.74
6/11/2025	9:55:56 PM	6.89	72.08	849.28	237.54
6/11/2025	9:56:57 PM	6.88	72.24	850.68	238.04
6/11/2025	9:57:57 PM	6.82	72.24	851.25	236.98
6/11/2025	9:58:57 PM	6.81	72.19	850.91	238.04
6/11/2025	9:59:58 PM	6.78	72.24	852.14	237.54
6/11/2025	10:00:58 PM	6.76	72.08	851.92	238.43
6/11/2025	10:01:58 PM	6.73	72.19	852.98	238.6
6/11/2025	10:02:59 PM	6.72	72.19	852.53	238.21
6/11/2025	10:03:59 PM	6.69	72.24	851.41	238.6
6/11/2025	10:04:59 PM	6.67	72.08	852.59	237.87
6/11/2025	10:06:00 PM	6.65	72.02	853.26	238.15
6/11/2025	10:07:00 PM	6.63	72.08	852.2	237.87
6/11/2025	10:08:00 PM	6.61	72.02	851.81	238.32
6/11/2025	10:09:00 PM	6.57	72.08	852.88	238.32
6/11/2025	10:10:01 PM	6.56	72.02	852.53	238.14
6/11/2025	10:11:01 PM	6.54	71.96	853.21	239.22
6/11/2025	10:12:01 PM	6.53	71.96	848.72	238.6
6/11/2025	10:13:02 PM	6.5	71.85	852.53	237.87
6/11/2025	10:14:02 PM	6.48	71.85	852.37	237.82
6/11/2025	10:15:03 PM	6.46	71.68	852.2	237.37
6/11/2025	10:16:03 PM	6.45	71.68	851.69	237.7
6/11/2025	10:17:03 PM	6.4	71.74	851.75	237.65
6/11/2025	10:18:03 PM	6.4	71.63	851.64	238.6
6/11/2025	10:19:03 PM	6.37	71.74	852.25	237.82
6/11/2025	10:20:03 PM	6.35	71.74	851.13	238.15
6/11/2025	10:21:03 PM	6.33	71.91	850.52	237.54
6/11/2025	10:22:04 PM	6.32	71.68	845.87	238.04
6/11/2025	10:23:04 PM	6.28	71.74	844.63	236.47
6/11/2025	10:24:04 PM	6.28	71.52	841.66	236.14
6/11/2025	10:25:05 PM	6.24	71.63	840.71	236.08
6/11/2025	10:26:05 PM	6.23	71.35	838.64	235.97
6/11/2025	10:27:05 PM	6.2	71.52	837.35	238.49
6/11/2025	10:28:05 PM	6.18	71.4	837.91	236.08
6/11/2025	10:29:06 PM	6.17	71.4	837.52	237.26
6/11/2025	10:30:06 PM	6.13	71.52	833.15	237.48
6/11/2025	10:31:06 PM	6.11	71.57	826.7	237.37
6/11/2025	10:32:06 PM	6.11	71.4	822.95	235.41
6/11/2025	10:33:07 PM	6.07	71.63	820.09	235.46
6/11/2025	10:34:07 PM	6.07	71.52	818.9	234.4
6/11/2025	10:35:07 PM	6.03	71.18	812.08	233.28
6/11/2025	10:36:07 PM	6.02	71.35	808.77	233
6/11/2025	10:37:08 PM	5.99	71.52	806.42	233.45
6/11/2025	10:38:08 PM	5.97	71.18	803.28	231.65
6/11/2025	10:39:08 PM	5.95	71.35	801.43	233.28
6/11/2025	10:40:09 PM	5.95	71.35	797.57	232.89
6/11/2025	10:41:09 PM	5.95	71.35	794.99	232.27
6/11/2025	10:42:09 PM	5.91	71.4	792.47	231.82
6/11/2025	10:43:09 PM	5.91	71.29	792.19	231.15
6/11/2025	10:44:09 PM	5.87	71.29	798.52	230.42
6/11/2025	10:45:10 PM	5.84	71.07	803.17	231.04
6/11/2025	10:46:10 PM	5.83	71.12	805.92	232.21
6/11/2025	10:47:10 PM	5.85	71.12	806.59	229.8
6/11/2025	10:48:10 PM	5.77	71.29	806.31	230.25
6/11/2025	10:49:11 PM	5.77	71.07	806.81	231.76
6/11/2025	10:50:11 PM	5.74	71.01	806.14	229.13
6/11/2025	10:51:11 PM	5.75	71.29	806.81	229.3
6/11/2025	10:52:11 PM	5.71	71.07	804.29	229.97
6/11/2025	10:53:12 PM	5.7	71.01	800.31	228.63
6/11/2025	10:54:12 PM	5.69	71.01	802.89	229.52
6/11/2025	10:55:12 PM	5.66	70.96	808.94	230.31
6/11/2025	10:56:12 PM	5.66	71.01	815.72	230.48
6/11/2025	10:57:13 PM	5.63	70.96	818.92	230.2
6/11/2025	10:58:13 PM	5.6	70.96	822.84	229.19
6/11/2025	10:59:13 PM	5.61	71.01	824.24	229.64
6/11/2025	11:00:13 PM	5.57	70.96	823.68	230.03
6/11/2025	11:01:14 PM	5.56	70.84	822.61	229.8
6/11/2025	11:02:14 PM	5.55	70.73	823.17	233
6/11/2025	11:03:15 PM	5.53	70.84	825.58	231.93
6/11/2025	11:04:15 PM	5.5	70.68	828.27	231.76
6/11/2025	11:05:15 PM	5.49	70.68	829	232.72
6/11/2025	11:06:15 PM	5.47	70.73	831.91	232.21
6/11/2025	11:07:15 PM	5.46	70.68	831.97	232.16
6/11/2025	11:08:15 PM	5.43	70.68	834.32	231.68
6/11/2025	11:09:16 PM	5.41	70.68	835.33	231.04
6/11/2025	11:10:16 PM	5.4	70.62	833.65	232.72
6/11/2025	11:11:16 PM	5.37	70.79	832.87	234.01
6/11/2025	11:12:17 PM	5.36	70.73	836.62	232.05
6/11/2025	11:13:17 PM	5.35	70.73	838.47	232.49
6/11/2025	11:14:17 PM	5.33	70.62	840.88	233.5
6/11/2025	11:15:17 PM	5.3	70.51	842.06	233.5
6/11/2025	11:16:17 PM	5.26	70.68	843.29	233.45
6/11/2025	11:17:18 PM	5.27	70.73	845.19	233.56
6/11/2025	11:18:18 PM	5.25	70.45	846.71	233
6/11/2025	11:19:18 PM	5.23	70.51	840.04	231.48
6/11/2025	11:20:18 PM	5.21	70.51	840.88	231.71
6/11/2025	11:21:19 PM	5.18	70.62	847.94	234.34
6/11/2025	11:22:19 PM	5.16	70.45	857.46	234.17
6/11/2025	11:23:19 PM	5.16	70.4	863.52	232.83

6/11/2025	11:24:19 PM	5.14	70.45	867.44	234.4
6/11/2025	11:25:20 PM	5.13	70.28	868.28	234.9
6/11/2025	11:26:20 PM	5.09	70.4	875.73	236.02
6/11/2025	11:27:20 PM	5.09	70.4	877.64	236.7
6/11/2025	11:28:20 PM	5.06	70.4	881.33	236.98
6/11/2025	11:29:20 PM	5.03	70.34	885.59	237.03
6/11/2025	11:30:21 PM	5.03	70.45	887.89	237.31
6/11/2025	11:31:21 PM	4.98	70.28	889.85	237.98
6/11/2025	11:32:21 PM	4.99	70.28	892.09	238.21
6/11/2025	11:33:21 PM	4.98	70.34	891.25	238.04
6/11/2025	11:34:21 PM	4.99	70.06	893.21	237.26
6/11/2025	11:35:22 PM	4.94	70.34	893.77	237.31
6/11/2025	11:36:22 PM	4.93	70.17	894.33	237.98
6/11/2025	11:37:22 PM	4.91	70.12	894.67	238.04
6/11/2025	11:38:22 PM	4.88	70.06	893.6	238.1
6/11/2025	11:39:23 PM	4.86	70.17	893.27	237.76
6/11/2025	11:40:23 PM	4.86	70	892.71	238.32
6/11/2025	11:41:23 PM	4.82	70	893.38	239.16
6/11/2025	11:42:24 PM	4.82	70	895.17	238.54
6/11/2025	11:43:24 PM	4.79	70.06	893.04	237.54
6/11/2025	11:44:24 PM	4.77	70.12	891.92	239.16
6/11/2025	11:45:25 PM	4.73	70	894.67	238.88
6/11/2025	11:46:25 PM	4.73	69.78	895.62	239.16
6/11/2025	11:47:25 PM	4.72	70.06	897.25	240.56
6/11/2025	11:48:26 PM	4.68	69.84	898.14	238.88
6/11/2025	11:49:26 PM	4.66	69.84	899.71	238.94
6/11/2025	11:50:26 PM	4.66	69.72	902.29	240.95
6/11/2025	11:51:26 PM	4.64	69.78	903.91	240
6/11/2025	11:52:26 PM	4.62	69.84	906.16	245.66
6/11/2025	11:53:26 PM	4.59	69.95	899.54	242.75
6/11/2025	11:54:27 PM	4.58	69.72	867.72	242.35
6/11/2025	11:55:27 PM	4.55	69.84	841.61	241.01
6/11/2025	11:56:27 PM	4.54	69.72	820.93	238.49
6/11/2025	11:57:28 PM	4.53	69.84	806.31	237.54
6/11/2025	11:58:28 PM	4.5	69.84	796.05	236.3
6/11/2025	11:59:28 PM	4.49	69.72	789.84	236.08
6/12/2025	12:00:28 AM	4.46	69.67	786.14	233.84
6/12/2025	12:01:28 AM	4.44	69.78	783.45	233.67
6/12/2025	12:02:29 AM	4.41	69.84	782.33	229.92
6/12/2025	12:03:29 AM	4.41	69.55	781.09	232.49
6/12/2025	12:04:29 AM	4.38	69.55	780.48	231.54
6/12/2025	12:05:29 AM	4.37	69.55	780.25	231.65
6/12/2025	12:06:29 AM	4.36	69.67	779.47	231.71
6/12/2025	12:07:30 AM	4.34	69.5	776.95	230.59
6/12/2025	12:08:30 AM	4.3	69.44	776.16	228.57
6/12/2025	12:09:30 AM	4.28	69.55	773.75	228.52
6/12/2025	12:10:30 AM	4.27	69.39	769.33	227.51
6/12/2025	12:11:30 AM	4.26	69.55	765.29	227.17
6/12/2025	12:12:31 AM	4.24	69.39	758.74	226.44
6/12/2025	12:13:31 AM	4.23	69.55	751.23	226.61
6/12/2025	12:14:31 AM	4.22	69.33	744.11	224.82
6/12/2025	12:15:31 AM	4.2	69.33	738.85	224.2
6/12/2025	12:16:31 AM	4.19	69.55	735.09	222.3
6/12/2025	12:17:32 AM	4.17	69.22	730.61	222.35
6/12/2025	12:18:32 AM	4.15	69.39	727.47	221.9
6/12/2025	12:19:32 AM	4.15	69.22	725.18	222.18
6/12/2025	12:20:33 AM	4.13	69.33	723.33	218.99
6/12/2025	12:21:33 AM	4.12	69.11	720.75	218.82
6/12/2025	12:22:33 AM	4.1	69.22	720.92	217.98
6/12/2025	12:23:33 AM	4.09	69.22	719.8	216.47
6/12/2025	12:24:34 AM	4.05	69.16	718.9	215.63
6/12/2025	12:25:34 AM	4.06	68.99	715.37	216.47
6/12/2025	12:26:34 AM	4.05	69.11	711.62	215.07
6/12/2025	12:27:34 AM	4.04	69.16	708.09	214.51
6/12/2025	12:28:35 AM	4.02	69.16	708.03	214.51
6/12/2025	12:29:35 AM	4.01	69.11	705.12	213.61
6/12/2025	12:30:35 AM	4	69.11	704.84	214.12
6/12/2025	12:31:35 AM	3.97	69.05	701.98	213.11
6/12/2025	12:32:35 AM	3.97	68.83	700.19	212.27
6/12/2025	12:33:35 AM	3.95	68.88	700.75	211.43
6/12/2025	12:34:35 AM	3.95	68.88	698.9	212.66
6/12/2025	12:35:35 AM	3.93	68.99	696.88	210.47
6/12/2025	12:36:36 AM	3.92	68.99	696.09	209.58
6/12/2025	12:37:36 AM	3.88	68.88	693.35	209.07
6/12/2025	12:38:36 AM	3.89	68.99	693.41	209.63
6/12/2025	12:39:36 AM	3.86	68.83	691.72	210.92
6/12/2025	12:40:37 AM	3.85	68.77	691.89	210.7
6/12/2025	12:41:37 AM	3.84	68.83	690.44	209.02
6/12/2025	12:42:37 AM	3.83	68.71	691.05	208.23
6/12/2025	12:43:38 AM	3.81	68.71	689.37	209.74
6/12/2025	12:44:38 AM	3.79	68.99	688.25	209.02
6/12/2025	12:45:38 AM	3.79	68.71	687.13	209.86
6/12/2025	12:46:38 AM	3.78	68.55	684.33	210.31
6/12/2025	12:47:38 AM	3.76	68.77	683.99	210.14
6/12/2025	12:48:39 AM	3.76	68.55	685	208.68
6/12/2025	12:49:39 AM	3.72	68.66	684.72	208.06
6/12/2025	12:50:39 AM	3.7	68.55	686.01	209.74
6/12/2025	12:51:40 AM	3.7	68.55	686.18	208.51
6/12/2025	12:52:40 AM	3.69	68.55	686.01	210.19
6/12/2025	12:53:40 AM	3.68	68.49	687.3	210.81
6/12/2025	12:54:40 AM	3.67	68.55	685.39	209.13
6/12/2025	12:55:41 AM	3.63	68.66	684.83	208.9
6/12/2025	12:56:41 AM	3.62	68.49	683.66	209.8
6/12/2025	12:57:41 AM	3.62	68.49	683.77	210.14
6/12/2025	12:58:41 AM	3.59	68.43	683.66	209.41
6/12/2025	12:59:42 AM	3.59	68.66	683.77	210.31
6/12/2025	1:00:42 AM	3.58	68.38	683.15	208.9
6/12/2025	1:01:42 AM	3.55	68.38	682.03	208.51
6/12/2025	1:02:42 AM	3.55	68.43	682.76	209.74
6/12/2025	1:03:42 AM	3.54	68.49	683.15	209.35
6/12/2025	1:04:42 AM	3.51	68.38	681.3	209.13
6/12/2025	1:05:43 AM	3.5	68.38	680.29	208.79
6/12/2025	1:06:43 AM	3.49	68.38	681.02	209.02
6/12/2025	1:07:43 AM	3.47	68.21	680.74	206.66
6/12/2025	1:08:44 AM	3.47	68.27	680.55	209.13
6/12/2025	1:09:44 AM	3.45	68.21	679.78	208.12
6/12/2025	1:10:44 AM	3.45	68.21	677.77	207.39
6/12/2025	1:11:45 AM	3.43	68.1	676.54	209.07
6/12/2025	1:12:45 AM	3.41	68.15	676.99	206.33
6/12/2025	1:13:45 AM	3.4	68.15	678.11	207.73
6/12/2025	1:14:46 AM	3.38	68.04	678.61	208.06
6/12/2025	1:15:46 AM	3.38	68.1	678.89	208.46
6/12/2025	1:16:48 AM	3.36	68.15	678	208.4
6/12/2025	1:17:47 AM	3.34	67.93	678.95	208.51
6/12/2025	1:18:47 AM	3.33	68.27	679.51	210.08
6/12/2025	1:19:47 AM	3.32	68.1	678.89	209.07
6/12/2025	1:20:47 AM	3.3	67.87	681.08	209.74
6/12/2025	1:21:47 AM	3.29	67.87	681.75	209.35
6/12/2025	1:22:48 AM	3.27	68.04	681.58	208.74
6/12/2025	1:23:48 AM	3.27	67.82	682.7	210.59
6/12/2025	1:24:48 AM	3.26	67.93	683.21	209.63
6/12/2025	1:25:48 AM	3.25	68.1	684.83	210.14
6/12/2025	1:26:49 AM	3.22	68.04	685.9	210.87
6/12/2025	1:27:49 AM	3.2	67.93	685.28	210.81
6/12/2025	1:28:49 AM	3.2	67.82	686.35	211.87
6/12/2025	1:29:50 AM	3.18	67.93	687.3	210.14
6/12/2025	1:30:50 AM	3.17	67.76	686.79	212.43
6/12/2025	1:31:50 AM	3.16	67.87	687.86	214.12
6/12/2025	1:32:50 AM	3.13	67.93	689.65	213.44

6/12/2025 1:33:50 AM 3.13 67.48 690.49 213.72
6/12/2025 1:34:51 AM 3.12 67.76 691.28 211.59
6/12/2025 1:35:51 AM 3.1 67.48 692.17 212.83
6/12/2025 1:36:51 AM 3.08 67.76 693.63 214.17
6/12/2025 1:37:51 AM 3.07 67.65 696.71 214.96
6/12/2025 1:38:51 AM 3.07 67.59 698.34 215.8
6/12/2025 1:39:52 AM 3.06 67.37 699.96 215.68
6/12/2025 1:40:52 AM 3.05 67.59 701.47 216.97
6/12/2025 1:41:52 AM 3.03 67.59 703.55 216.47
6/12/2025 1:42:53 AM 3.01 67.37 700.69 218.77
6/12/2025 1:43:53 AM 3.02 67.87 693.74 218.37
6/12/2025 1:44:54 AM 3 67.48 686.35 218.04
6/12/2025 1:45:54 AM 2.99 67.54 682.87 217.08
6/12/2025 1:46:54 AM 2.98 67.54 680.24 215.96
6/12/2025 1:47:54 AM 2.96 67.48 679.12 216.58
6/12/2025 1:48:55 AM 2.94 67.48 677.83 215.85
6/12/2025 1:49:55 AM 2.92 67.37 678.22 218.71
6/12/2025 1:50:55 AM 2.92 67.37 675.64 218.43
6/12/2025 1:51:56 AM 2.93 67.31 676.88 216.92
6/12/2025 1:52:56 AM 2.89 67.31 676.88 218.09
6/12/2025 1:53:56 AM 2.89 67.31 676.93 217.98
6/12/2025 1:54:57 AM 2.87 67.37 678.53 217.08
6/12/2025 1:55:57 AM 2.86 67.37 680.69 216.75
6/12/2025 1:56:57 AM 2.85 67.2 685.84 219.1
6/12/2025 1:57:58 AM 2.82 67.26 687.86 219.61
6/12/2025 1:58:58 AM 2.83 67.26 688.7 220.61
6/12/2025 1:59:58 AM 2.8 67.26 689.32 220.78
6/12/2025 2:00:58 AM 2.8 67.15 689.71 222.63
6/12/2025 2:01:58 AM 2.79 67.31 690.27 223.64
6/12/2025 2:02:59 AM 2.76 67.15 688.64 222.41
6/12/2025 2:03:59 AM 2.77 67.2 690.72 222.35
6/12/2025 2:04:59 AM 2.75 67.2 692.4 223.25
6/12/2025 2:05:59 AM 2.72 67.15 695.81 224.42
6/12/2025 2:07:00 AM 2.72 67.15 699.06 225.43
6/12/2025 2:08:00 AM 2.7 66.98 700.58 223.64
6/12/2025 2:09:00 AM 2.68 66.87 703.43 225.43
6/12/2025 2:10:00 AM 2.67 67.2 701.92 225.43
6/12/2025 2:11:01 AM 2.65 67.03 697.84 225.32
6/12/2025 2:12:01 AM 2.64 67.03 695.37 226.5
6/12/2025 2:13:01 AM 2.6 66.98 691.95 225.94
6/12/2025 2:14:01 AM 2.6 67.03 690.32 224.2
6/12/2025 2:15:02 AM 2.59 67.15 686.79 225.04
6/12/2025 2:16:02 AM 2.57 66.98 683.88 224.48
6/12/2025 2:17:02 AM 2.56 67.15 682.09 225.83
6/12/2025 2:18:02 AM 2.56 66.98 681.25 224.76
6/12/2025 2:19:03 AM 2.57 67.15 678.89 224.42
6/12/2025 2:20:03 AM 2.54 66.92 678 223.3
6/12/2025 2:21:03 AM 2.52 66.87 676.71 223.58
6/12/2025 2:22:04 AM 2.51 66.92 676.43 224.14
6/12/2025 2:23:04 AM 2.5 66.87 675.2 223.75
6/12/2025 2:24:04 AM 2.49 66.87 676.2 223.7
6/12/2025 2:25:04 AM 2.48 66.87 676.37 225.71
6/12/2025 2:26:05 AM 2.48 66.87 676.2 225.15
6/12/2025 2:27:05 AM 2.46 67.76 674.47 224.65
6/12/2025 2:28:06 AM 2.44 67.93 672.79 226.16
6/12/2025 2:29:06 AM 2.44 68.15 671.33 225.63
6/12/2025 2:30:06 AM 2.43 68.27 675.08 227.11
6/12/2025 2:31:06 AM 2.42 68.38 674.07 228.12
6/12/2025 2:32:07 AM 2.4 68.49 675.08 227.11
6/12/2025 2:33:07 AM 2.38 68.77 674.52 227.06
6/12/2025 2:34:07 AM 2.37 68.77 676.04 227.79
6/12/2025 2:35:08 AM 2.36 68.88 675.2 228.12
6/12/2025 2:36:08 AM 2.37 69.05 677.66 228.63
6/12/2025 2:37:08 AM 2.35 69.11 677.16 230.2
6/12/2025 2:38:08 AM 2.34 69.33 677.44 229.02
6/12/2025 2:39:08 AM 2.33 69.39 678.33 228.46
6/12/2025 2:40:09 AM 2.31 69.55 677.49 228.8
6/12/2025 2:41:09 AM 2.3 69.55 678.39 230.2
6/12/2025 2:42:09 AM 2.3 69.72 678.5 231.04
6/12/2025 2:43:09 AM 2.28 69.78 678.89 229.47
6/12/2025 2:44:09 AM 2.27 69.95 680.13 229.47
6/12/2025 2:45:10 AM 2.25 70 680.74 229.64
6/12/2025 2:46:10 AM 2.24 70.12 684.55 230.48
6/12/2025 2:47:10 AM 2.25 70.28 689.32 231.2
6/12/2025 2:48:10 AM 2.23 70.28 689.82 231.43
6/12/2025 2:49:11 AM 2.2 70.45 687.69 231.37
6/12/2025 2:50:11 AM 2.18 70.45 674.58 231.82
6/12/2025 2:51:11 AM 2.19 70.51 668.75 230.64
6/12/2025 2:52:12 AM 2.22 70.62 664.21 229.92
6/12/2025 2:53:12 AM 2.16 70.62 662.82 229.19
6/12/2025 2:54:12 AM 2.15 70.73 663.65 229.86
6/12/2025 2:55:12 AM 2.15 70.79 665.39 228.52
6/12/2025 2:56:12 AM 2.14 70.96 667.63 229.13
6/12/2025 2:57:12 AM 2.12 70.96 667.35 230.64
6/12/2025 2:58:13 AM 2.12 70.96 668.02 229.02
6/12/2025 2:59:13 AM 2.12 71.07 667.07 229.3
6/12/2025 3:00:13 AM 2.09 71.12 665.61 228.63
6/12/2025 3:01:14 AM 2.08 71.12 664.05 229.52
6/12/2025 3:02:14 AM 2.1 71.01 662.67 229.97
6/12/2025 3:03:14 AM 2.07 71.29 662.48 228.52
6/12/2025 3:04:15 AM 2.05 71.18 661.75 228.96
6/12/2025 3:05:15 AM 2.05 71.4 661.47 229.58
6/12/2025 3:06:15 AM 2.04 71.29 660.29 230.59
6/12/2025 3:07:16 AM 2.04 71.52 659.17 229.8
6/12/2025 3:08:16 AM 2.01 71.35 656.99 229.24
6/12/2025 3:09:16 AM 2.01 71.35 657.66 229.8
6/12/2025 3:10:16 AM 2.01 71.35 656.65 228.24
6/12/2025 3:11:16 AM 2 71.52 655.86 228.29
6/12/2025 3:12:17 AM 1.99 71.4 655.47 229.02
6/12/2025 3:13:17 AM 1.98 71.52 654.35 228.4
6/12/2025 3:14:17 AM 1.96 71.52 652.67 226.89
6/12/2025 3:15:18 AM 1.96 71.35 652.89 227.73
6/12/2025 3:16:18 AM 1.96 71.52 651.27 226.78
6/12/2025 3:17:18 AM 1.94 71.12 650.26 226.95
6/12/2025 3:18:18 AM 1.93 70.34 650.21 224.71
6/12/2025 3:19:19 AM 1.92 69.67 650.77 225.94
6/12/2025 7:33:28 AM 13.95 66.25 84.07 105.64
6/12/2025 7:34:28 AM 13.5 66.02 100.37 142.23
6/12/2025 7:35:28 AM 13.34 65.97 120.15 187.05
6/12/2025 7:36:28 AM 13.34 65.86 233.28 328.47
6/12/2025 7:37:28 AM 13.22 65.74 310.66 256.42
6/12/2025 7:38:29 AM 13.07 65.69 379.18 279.22
6/12/2025 7:39:29 AM 12.97 65.74 644.77 270.09
6/12/2025 7:40:29 AM 12.87 65.86 693.29 289.67
6/12/2025 7:41:29 AM 12.78 65.97 673.79 301.47
6/12/2025 7:42:29 AM 12.68 66.31 682.14 310.88
6/12/2025 7:43:29 AM 12.61 66.64 693.69 317.77
6/12/2025 7:44:29 AM 12.52 66.59 698.39 326.29
6/12/2025 7:45:30 AM 12.42 66.53 692.28 333.29
6/12/2025 7:46:30 AM 12.34 66.36 691.67 339.62
6/12/2025 7:47:30 AM 12.25 66.25 703.55 348.31
6/12/2025 7:48:30 AM 12.13 66.31 748.04 354.92
6/12/2025 7:49:30 AM 12.05 66.36 781.49 362.09
6/12/2025 7:50:30 AM 11.95 66.59 786.75 369.94
6/12/2025 7:51:30 AM 11.84 66.59 816.84 380.08
6/12/2025 7:52:31 AM 11.72 66.98 878.25 392.01
6/12/2025 7:53:31 AM 11.6 67.2 915.68 404.62
6/12/2025 7:54:31 AM 11.49 67.37 935.4 413.53
6/12/2025 7:55:31 AM 11.4 67.31 932.49 418.68

6/12/2025	7:56:32 AM	11.27	67.37	924.03	421.6
6/12/2025	7:57:32 AM	11.15	67.48	935.8	425.24
6/12/2025	7:58:32 AM	11.02	67.54	965.38	431.91
6/12/2025	7:59:32 AM	10.91	67.59	1010.21	439.81
6/12/2025	8:00:33 AM	10.76	67.76	1047.63	448.21
6/12/2025	8:01:33 AM	10.63	67.76	1095.77	457.46
6/12/2025	8:02:33 AM	10.48	68.1	1150.62	465.53
6/12/2025	8:03:33 AM	10.33	68.27	1176.95	474.6
6/12/2025	8:04:34 AM	10.21	68.49	1168.38	479.93
6/12/2025	8:05:34 AM	10.08	68.43	1160.99	484.02
6/12/2025	8:06:34 AM	9.95	68.55	1168.33	485.53
6/12/2025	8:07:35 AM	9.82	68.71	1178.19	487.44
6/12/2025	8:08:35 AM	9.7	68.71	1188.78	488.16
6/12/2025	8:09:36 AM	9.58	68.71	1201.66	490.01
6/12/2025	8:10:37 AM	9.45	68.77	1203.57	490.28
6/12/2025	8:11:37 AM	9.32	68.83	1205.14	491.92
6/12/2025	8:12:37 AM	9.18	68.99	1185.53	493.43
6/12/2025	8:13:38 AM	9.06	69.16	1164.63	492.53
6/12/2025	8:14:38 AM	8.93	69.44	1146.92	492.98
6/12/2025	8:15:39 AM	8.78	69.72	1144.18	492.87
6/12/2025	8:16:39 AM	8.67	69.67	1141.99	490.74
6/12/2025	8:17:39 AM	8.53	69.72	1133.82	490.8
6/12/2025	8:18:39 AM	8.4	69.78	1131.29	492.14
6/12/2025	8:19:40 AM	8.26	69.72	1132.69	494.44
6/12/2025	8:20:40 AM	8.12	70.17	1101.87	492.59
6/12/2025	8:21:40 AM	7.99	70	1112.13	492.03
6/12/2025	8:22:41 AM	7.86	70.06	1125.24	491.75
6/12/2025	8:23:41 AM	7.72	70	1104.79	491.69
6/12/2025	8:24:42 AM	7.6	70.34	1098.57	490.46
6/12/2025	8:25:42 AM	7.47	70.28	1096.1	489
6/12/2025	8:26:43 AM	7.33	70.4	1090.16	486.54
6/12/2025	8:27:43 AM	7.22	70.34	1086.07	486.82
6/12/2025	8:28:44 AM	7.1	70.28	1073.8	483.91
6/12/2025	8:29:44 AM	6.98	70.73	1051.56	482.78
6/12/2025	8:30:45 AM	6.84	70.51	1041.92	481.66
6/12/2025	8:31:45 AM	6.72	70.68	1051.16	480.15
6/12/2025	8:32:46 AM	6.59	70.62	1074.59	479.76
6/12/2025	8:33:46 AM	6.46	71.07	1082.15	479.87
6/12/2025	8:34:47 AM	6.32	71.01	1089.77	478.36
6/12/2025	8:35:47 AM	6.19	71.01	1084.11	477.13
6/12/2025	8:36:48 AM	6.06	71.18	1099.29	477.74
6/12/2025	8:37:48 AM	5.91	71.29	1115.88	476.79
6/12/2025	8:38:49 AM	5.77	71.35	1139.64	477.57
6/12/2025	8:39:49 AM	5.65	71.68	1136.28	475.28
6/12/2025	8:40:50 AM	5.52	71.74	1134.93	474.83
6/12/2025	8:41:51 AM	5.4	71.63	1144.74	473.99
6/12/2025	8:42:51 AM	5.31	71.91	1156.78	472.36
6/12/2025	8:43:51 AM	5.15	71.74	1153.03	473.32
6/12/2025	8:44:52 AM	5.04	71.68	1135.27	470.18
6/12/2025	8:45:52 AM	4.91	71.63	1117.9	467.43
6/12/2025	8:46:53 AM	4.8	72.02	1121.93	466.65
6/12/2025	8:47:53 AM	4.69	72.24	1137.17	464.85
6/12/2025	8:48:53 AM	4.58	72.36	1152.75	464.18
6/12/2025	8:49:54 AM	4.5	72.3	1151.46	462.45
6/12/2025	8:50:54 AM	4.39	72.08	1172.81	461.21
6/12/2025	8:51:55 AM	4.29	72.36	1183.85	460.62
6/12/2025	8:52:55 AM	4.21	72.52	1176.23	459.53
6/12/2025	8:53:56 AM	4.12	72.52	1156.78	456.84
6/12/2025	8:54:56 AM	4.05	72.41	1129.16	454.82
6/12/2025	8:55:56 AM	3.95	72.69	1106.35	452.14
6/12/2025	8:56:56 AM	3.86	72.86	1080.86	450.01
6/12/2025	8:57:57 AM	3.8	72.86	1055.14	446.81
6/12/2025	8:58:58 AM	3.74	72.69	1039.96	443.95
6/12/2025	8:59:58 AM	3.66	72.64	1028.53	440.37
6/12/2025	9:00:59 AM	3.6	72.97	1017.27	439.53
6/12/2025	9:01:59 AM	3.53	72.52	1009.31	436.5
6/12/2025	9:03:00 AM	3.45	73.14	1001.91	435.38
6/12/2025	9:04:00 AM	3.4	72.97	992.56	434.04
6/12/2025	9:05:00 AM	3.35	72.75	982.75	431.68
6/12/2025	9:06:00 AM	3.29	72.92	975.02	430.45
6/12/2025	9:07:01 AM	3.23	72.64	964.37	426.53
6/12/2025	9:08:01 AM	3.18	72.86	955.58	424.01
6/12/2025	9:09:01 AM	3.13	72.75	952.27	420.76
6/12/2025	9:10:02 AM	3.09	72.97	950.76	418.4
6/12/2025	9:11:02 AM	3.05	72.97	946.61	416.56
6/12/2025	9:12:03 AM	3	72.58	941.46	413.87
6/12/2025	9:13:03 AM	2.96	72.75	931.48	412.86
6/12/2025	9:14:03 AM	2.92	72.92	919.77	410.22
6/12/2025	9:15:03 AM	2.9	72.86	907.84	409.16
6/12/2025	9:16:03 AM	2.85	72.92	896.91	406.36
6/12/2025	9:17:04 AM	2.81	73.03	888.73	404.62
6/12/2025	9:18:04 AM	2.77	72.92	884.02	402.94
6/12/2025	9:19:05 AM	2.71	73.2	880.83	401.6
6/12/2025	9:20:05 AM	2.68	72.86	878.81	401.76
6/12/2025	9:21:05 AM	2.65	72.75	870.3	401.15
6/12/2025	9:22:05 AM	2.61	73.14	858.64	401.43
6/12/2025	9:23:05 AM	2.58	73.03	844.58	399.3
6/12/2025	9:24:05 AM	2.54	72.97	831.35	398.07
6/12/2025	9:25:05 AM	2.5	72.92	822.05	396.79
6/12/2025	9:26:06 AM	2.46	73.25	816.11	396.27
6/12/2025	9:27:06 AM	2.43	73.31	812.64	393.75
6/12/2025	9:28:06 AM	2.38	73.36	805.92	392.63
6/12/2025	9:29:06 AM	2.34	73.31	792.02	391.57
6/12/2025	9:30:06 AM	2.31	73.65	781.49	389.72
6/12/2025	9:31:06 AM	2.27	73.65	772.52	388.99
6/12/2025	9:32:06 AM	2.24	73.65	766.19	387.7
6/12/2025	9:33:06 AM	2.19	73.65	761.82	385.91
6/12/2025	9:34:06 AM	2.17	73.65	755.6	385.74
6/12/2025	9:35:06 AM	2.13	73.65	752.35	383.22
6/12/2025	9:36:07 AM	2.09	73.98	749.94	381.42
6/12/2025	9:37:07 AM	2.06	73.81	748.65	380.08
6/12/2025	9:38:07 AM	13.08	74.04	680.8	508.84 Added 29.5lbs 19-23% MC, Medium Air Setting
6/12/2025	9:39:08 AM	25.61	73.98	663.88	432.58
6/12/2025	9:40:08 AM	25.47	74.37	785.13	408.21
6/12/2025	9:41:08 AM	25.29	74.37	898.88	423.28
6/12/2025	9:42:08 AM	25.06	74.37	1051.88	450.68
6/12/2025	9:43:09 AM	24.79	74.37	1056.82	467.66
6/12/2025	9:44:09 AM	24.54	74.77	1043.21	475.67
6/12/2025	9:45:09 AM	24.35	74.93	994.07	418.52
6/12/2025	9:46:10 AM	24.23	74.93	1075.26	381.31
6/12/2025	9:47:10 AM	24.14	74.88	1060.91	365.23
6/12/2025	9:48:11 AM	24.02	75.16	1040.18	355.03
6/12/2025	9:49:11 AM	23.94	75.44	1019.56	347.19
6/12/2025	9:50:11 AM	23.84	74.92	1001.46	340.3
6/12/2025	9:51:12 AM	23.74	75.16	983.37	334.08
6/12/2025	9:52:12 AM	23.67	75.1	964.99	330.32
6/12/2025	9:53:12 AM	23.57	74.88	945.66	328.19
6/12/2025	9:54:12 AM	23.46	74.71	952.1	325.79
6/12/2025	9:55:12 AM	23.38	75.38	969.02	324.89
6/12/2025	9:56:12 AM	23.31	76.05	973.62	324.83
6/12/2025	9:57:13 AM	23.23	76.05	967.01	324.55
6/12/2025	9:58:13 AM	23.14	75.77	951.26	323.88
6/12/2025	9:59:13 AM	23.07	75.94	930.19	323.82
6/12/2025	10:00:13 AM	22.99	75.89	911.93	321.86
6/12/2025	10:01:13 AM	22.9	76.17	900.72	322.31
6/12/2025	10:02:14 AM	22.83	76.17	894.5	322.37
6/12/2025	10:03:14 AM	22.74	75.83	902.35	325.51
6/12/2025	10:04:14 AM	22.63	76.05	956.08	328.25
6/12/2025	10:05:14 AM	22.55	76.28	1021.47	332.4

6/12/2025	10:06:14 AM	22.45	76.28	1054.02	337.33
6/12/2025	10:07:15 AM	22.37	76.11	1056.54	341.64
6/12/2025	10:08:15 AM	22.25	76.28	1049.04	345.06
6/12/2025	10:09:16 AM	22.15	76.39	1039.4	346.18
6/12/2025	10:10:16 AM	22.05	76.22	1030.82	346.52
6/12/2025	10:11:17 AM	21.95	76.61	1018.44	346.12
6/12/2025	10:12:17 AM	21.89	76.17	1006.23	346.29
6/12/2025	10:13:17 AM	21.8	76.56	990.26	344.39
6/12/2025	10:14:17 AM	21.72	76.28	977.43	342.76
6/12/2025	10:15:18 AM	21.63	76.61	965.72	340.97
6/12/2025	10:16:18 AM	21.54	76.89	961.74	340.13
6/12/2025	10:17:19 AM	21.45	76.84	960.39	338.34
6/12/2025	10:18:19 AM	21.36	77.06	961.29	338.06
6/12/2025	10:19:19 AM	21.27	76.78	965.39	338.5
6/12/2025	10:20:19 AM	21.2	76.73	975.07	340.41
6/12/2025	10:21:20 AM	21.09	76.45	987.57	342.09
6/12/2025	10:22:20 AM	21.01	77.12	998.38	344.11
6/12/2025	10:23:20 AM	20.9	76.61	1009.87	346.12
6/12/2025	10:24:20 AM	20.82	77.12	1013.68	346.57
6/12/2025	10:25:21 AM	20.72	76.61	1014.35	346.85
6/12/2025	10:26:21 AM	20.64	76.78	1014.58	346.52
6/12/2025	10:27:21 AM	20.55	77.18	1012.17	346.74
6/12/2025	10:28:21 AM	20.46	77.51	1008.52	347.36
6/12/2025	10:29:22 AM	20.36	77.4	1004.94	347.02
6/12/2025	10:30:22 AM	20.28	76.84	1005.39	346.63
6/12/2025	10:31:22 AM	20.19	76.95	1008.52	347.02
6/12/2025	10:32:23 AM	20.1	77.51	1010.88	349.32
6/12/2025	10:33:23 AM	20	75.21	1014.07	348.7
6/12/2025	10:34:23 AM	19.91	76.5	1018.61	349.82
6/12/2025	10:35:23 AM	19.8	75.16	1022.42	351.17
6/12/2025	10:36:23 AM	19.72	74.04	1023.54	352.06
6/12/2025	10:37:24 AM	19.63	73.36	1023.26	352.85
6/12/2025	10:38:24 AM	19.53	73.03	1022.2	354.59
6/12/2025	10:39:25 AM	19.45	73.2	1017.94	354.75
6/12/2025	10:40:25 AM	19.36	73.2	1015.42	352.96
6/12/2025	10:41:25 AM	19.27	73.14	1015.7	353.63
6/12/2025	10:42:26 AM	19.18	72.86	1017.49	354.31
6/12/2025	10:43:26 AM	19.12	72.97	1017.27	353.97
6/12/2025	10:44:26 AM	19.02	72.64	1019.28	352.57
6/12/2025	10:45:26 AM	18.94	72.92	1023.82	353.07
6/12/2025	10:46:27 AM	18.85	72.97	1027.52	353.41
6/12/2025	10:47:27 AM	18.76	72.19	1030.82	354.87
6/12/2025	10:48:28 AM	18.69	72.36	1034.3	354.19
6/12/2025	10:49:28 AM	18.61	72.64	1037.1	354.7
6/12/2025	10:50:28 AM	18.54	72.3	1036.82	354.08
6/12/2025	10:51:29 AM	18.45	72.3	1036.76	354.36
6/12/2025	10:52:29 AM	18.39	73.03	1035.2	353.58
6/12/2025	10:53:29 AM	18.3	72.36	1033.01	354.02
6/12/2025	10:54:30 AM	18.23	72.41	1031.11	353.3
6/12/2025	10:55:30 AM	18.14	72.08	1030.43	354.42
6/12/2025	10:56:31 AM	18.07	72.3	1031.55	353.46
6/12/2025	10:57:31 AM	17.97	72.52	1030.54	354.53
6/12/2025	10:58:31 AM	17.9	72.52	1029.54	354.08
6/12/2025	10:59:32 AM	17.81	72.58	1030.88	355.31
6/12/2025	11:00:32 AM	17.73	72.58	1033.91	357.11
6/12/2025	11:01:32 AM	17.65	72.69	1034.75	356.66
6/12/2025	11:02:33 AM	17.58	72.97	1036.65	357.67
6/12/2025	11:03:33 AM	17.49	73.14	1040.8	358.68
6/12/2025	11:04:33 AM	17.41	72.24	1045.17	359.18
6/12/2025	11:05:34 AM	17.32	71.96	1048.92	360.97
6/12/2025	11:06:34 AM	17.23	72.24	1052.4	361.31
6/12/2025	11:07:34 AM	17.14	72.24	1055.65	361.48
6/12/2025	11:08:34 AM	17.05	72.19	1059.54	361.93
6/12/2025	11:09:34 AM	16.96	72.3	1062.09	363.77
6/12/2025	11:10:34 AM	16.87	72.58	1064.16	366.13
6/12/2025	11:11:34 AM	16.78	72.64	1068.2	367.42
6/12/2025	11:12:34 AM	16.67	72.92	1072.34	368.71
6/12/2025	11:13:35 AM	16.61	72.64	1075.54	369.04
6/12/2025	11:14:35 AM	16.49	72.41	1076.21	370.05
6/12/2025	11:15:35 AM	16.42	72.52	1076.32	369.04
6/12/2025	11:16:35 AM	16.3	73.03	1073.91	370.11
6/12/2025	11:17:35 AM	16.22	73.36	1073.18	369.38
6/12/2025	11:18:36 AM	16.13	72.86	1071	368.14
6/12/2025	11:19:36 AM	16.04	72.64	1065.34	367.08
6/12/2025	11:20:36 AM	15.96	73.36	1060.35	365.74
6/12/2025	11:21:36 AM	15.87	73.03	1060.35	364.33
6/12/2025	11:22:36 AM	15.78	73.25	1056.21	363.72
6/12/2025	11:23:37 AM	15.69	73.31	1053.91	364.11
6/12/2025	11:24:37 AM	15.61	73.03	1049.82	362.77
6/12/2025	11:25:37 AM	15.53	73.25	1045.9	361.25
6/12/2025	11:26:37 AM	15.44	72.97	1046.23	360.08
6/12/2025	11:27:37 AM	15.34	74.26	1039.96	360.08
6/12/2025	11:28:37 AM	15.26	73.48	1035.92	358.96
6/12/2025	11:29:38 AM	15.18	73.48	1036.65	357.84
6/12/2025	11:30:38 AM	15.09	73.25	1038.61	356.32
6/12/2025	11:31:38 AM	14.99	73.65	1047.75	357.72
6/12/2025	11:32:39 AM	14.9	73.81	1063.83	356.99
6/12/2025	11:33:39 AM	14.81	73.53	1063.04	356.04
6/12/2025	11:34:39 AM	14.73	73.65	1057.33	355.59
6/12/2025	11:35:40 AM	14.66	73.98	1045.28	351.9
6/12/2025	11:36:40 AM	14.58	74.15	1034.69	351.73
6/12/2025	11:37:40 AM	14.5	73.59	1029.98	350.33
6/12/2025	11:38:40 AM	14.44	73.87	1025.78	349.26
6/12/2025	11:39:40 AM	14.36	73.98	1020.57	347.69
6/12/2025	11:40:41 AM	14.29	73.81	1021.8	345.79
6/12/2025	11:41:41 AM	14.21	73.65	1018.05	344.72
6/12/2025	11:42:41 AM	14.16	73.65	1012.78	344
6/12/2025	11:43:42 AM	14.06	73.59	1021.64	343.55
6/12/2025	11:44:42 AM	14.01	73.53	1020.35	342.2
6/12/2025	11:45:43 AM	13.94	74.21	1010.88	341.03
6/12/2025	11:46:43 AM	13.87	73.53	1011.61	335.31
6/12/2025	11:47:44 AM	13.82	73.81	1009.76	327.3
6/12/2025	11:48:44 AM	13.74	73.53	1004.83	325.34
6/12/2025	11:49:45 AM	13.69	73.25	1004.83	323.38
6/12/2025	11:50:45 AM	13.61	73.48	997.89	321.69
6/12/2025	11:51:45 AM	13.54	73.31	994.18	319.34
6/12/2025	11:52:46 AM	13.49	73.2	990.31	317.72
6/12/2025	11:53:46 AM	13.44	73.25	981.29	315.36
6/12/2025	11:54:47 AM	13.39	73.81	973.62	313.07
6/12/2025	11:55:47 AM	13.33	73.36	967.45	311.16
6/12/2025	11:56:47 AM	13.28	73.25	961.07	310.43
6/12/2025	11:57:48 AM	13.22	73.31	955.69	308.42
6/12/2025	11:58:48 AM	13.18	73.14	950.03	307.29
6/12/2025	11:59:49 AM	13.13	73.03	947.45	304.63
6/12/2025	12:00:49 PM	13.04	72.92	945.88	302.42
6/12/2025	12:01:50 PM	13.04	73.03	951.15	301.92
6/12/2025	12:02:50 PM	12.99	73.36	962.35	301.02
6/12/2025	12:03:51 PM	12.93	73.14	968.41	300.63
6/12/2025	12:04:51 PM	12.89	72.86	970.98	300.74
6/12/2025	12:05:51 PM	12.82	72.75	973.73	300.46
6/12/2025	12:06:51 PM	12.77	72.86	975.3	299.62
6/12/2025	12:07:52 PM	12.7	72.92	976.36	300.35
6/12/2025	12:08:52 PM	12.7	72.75	974.29	299.45
6/12/2025	12:09:52 PM	12.63	72.86	971.1	299.9
6/12/2025	12:10:52 PM	12.6	72.75	969.75	300.01
6/12/2025	12:11:53 PM	12.54	72.69	965.27	300.35
6/12/2025	12:12:53 PM	12.49	72.64	958.49	300.29
6/12/2025	12:13:53 PM	12.44	72.58	952.66	300.91
6/12/2025	12:14:53 PM	12.39	72.58	947.11	301.8

6/12/2025	12:15:53 PM	12.35	72.64	942.13	301.64
6/12/2025	12:16:54 PM	12.3	72.92	940.39	301.08
6/12/2025	12:17:54 PM	12.25	72.75	941.51	299.95
6/12/2025	12:18:54 PM	12.21	72.64	953.61	299.67
6/12/2025	12:19:54 PM	12.16	72.92	964.76	300.12
6/12/2025	12:20:54 PM	12.13	72.92	979.61	301.47
6/12/2025	12:21:55 PM	12.08	72.64	995.25	303.48
6/12/2025	12:22:55 PM	12.03	72.86	1009.87	304.83
6/12/2025	12:23:55 PM	11.99	72.64	1016.48	306.85
6/12/2025	12:24:55 PM	11.93	72.3	1018.33	306.79
6/12/2025	12:25:55 PM	11.88	72.69	1021.47	308.08
6/12/2025	12:26:55 PM	11.84	72.64	1028.81	310.1
6/12/2025	12:27:55 PM	11.78	72.58	1039.34	312.23
6/12/2025	12:28:55 PM	11.73	72.97	1051.84	312.67
6/12/2025	12:29:56 PM	11.68	73.03	1054.81	313.68
6/12/2025	12:30:56 PM	11.64	73.03	1054.3	314.35
6/12/2025	12:31:56 PM	11.58	72.69	1054.02	314.69
6/12/2025	12:32:56 PM	11.52	72.69	1054.19	316.6
6/12/2025	12:33:57 PM	11.47	73.14	1040.41	316.26
6/12/2025	12:34:57 PM	11.44	72.41	1039.62	319.85
6/12/2025	12:35:57 PM	11.39	72.58	1026.62	316.2
6/12/2025	12:36:57 PM	11.33	72.97	1020.4	317.55
6/12/2025	12:37:57 PM	11.28	73.03	1008.47	315.92
6/12/2025	12:38:58 PM	11.24	72.86	997.82	315.92
6/12/2025	12:39:58 PM	11.18	72.92	995.25	316.43
6/12/2025	12:40:58 PM	11.15	72.75	986.95	313.29
6/12/2025	12:41:59 PM	11.09	72.97	980.73	313.29
6/12/2025	12:42:59 PM	11.05	72.64	976.59	315.48
6/12/2025	12:43:59 PM	11.01	73.14	967.34	311.55
6/12/2025	12:44:59 PM	10.96	72.86	959.27	312.51
6/12/2025	12:45:59 PM	10.91	72.69	960.23	311.78
6/12/2025	12:47:00 PM	10.87	72.92	955.91	311.16
6/12/2025	12:48:00 PM	10.83	72.92	954.29	310.1
6/12/2025	12:49:00 PM	10.78	72.86	952.83	309.76
6/12/2025	12:50:00 PM	10.72	73.14	951.99	309.82
6/12/2025	12:51:00 PM	10.69	72.97	952.16	309.2
6/12/2025	12:52:00 PM	10.64	73.25	951.71	309.09
6/12/2025	12:53:01 PM	10.59	72.58	951.37	309.98
6/12/2025	12:54:01 PM	10.51	72.64	953.84	310.66
6/12/2025	12:55:01 PM	10.48	72.92	952.83	310.99
6/12/2025	12:56:02 PM	10.44	72.92	952.72	313.18
6/12/2025	12:57:02 PM	10.37	72.75	954.57	313.35
6/12/2025	12:58:02 PM	10.34	73.03	954.17	314.3
6/12/2025	12:59:02 PM	10.28	72.92	952.21	311.78
6/12/2025	1:00:03 PM	10.21	72.69	961.07	310.6
6/12/2025	1:01:03 PM	10.18	73.03	974.07	310.99
6/12/2025	1:02:04 PM	10.12	72.52	1005.67	312.28
6/12/2025	1:03:04 PM	10.07	72.75	1022.25	314.3
6/12/2025	1:04:04 PM	10.03	73.14	1040.41	317.49
6/12/2025	1:05:04 PM	9.95	72.69	1026.62	320.46
6/12/2025	1:06:05 PM	9.9	72.64	1038.17	319.85
6/12/2025	1:07:05 PM	9.85	72.75	1048.75	320.18
6/12/2025	1:08:05 PM	9.8	72.75	1047.35	322.7
6/12/2025	1:09:06 PM	9.74	72.92	1057.33	324.16
6/12/2025	1:10:06 PM	9.68	73.25	1055.2	324.61
6/12/2025	1:11:07 PM	9.65	72.92	1041.25	328.61
6/12/2025	1:12:07 PM	9.56	72.86	1054.75	329.43
6/12/2025	1:13:07 PM	9.5	72.52	1050.94	327.58
6/12/2025	1:14:08 PM	9.45	73.36	1049.82	326.63
6/12/2025	1:15:08 PM	9.39	73.14	1052.56	326.74
6/12/2025	1:16:08 PM	9.32	73.31	1047.3	330.27
6/12/2025	1:17:08 PM	9.27	73.48	1048.19	326.4
6/12/2025	1:18:08 PM	9.21	73.48	1048.75	328.25
6/12/2025	1:19:08 PM	9.15	73.31	1044.38	332.79
6/12/2025	1:20:08 PM	9.04	73.48	1048.08	333.07
6/12/2025	1:21:09 PM	9.01	73.81	1039.4	329.09
6/12/2025	1:22:09 PM	8.93	73.7	1044.61	330.32
6/12/2025	1:23:09 PM	8.89	73.65	1040.24	331.89
6/12/2025	1:24:10 PM	8.81	73.59	1042.37	327.63
6/12/2025	1:25:10 PM	8.77	73.53	1038.89	330.16
6/12/2025	1:26:10 PM	8.7	73.65	1037.83	326.07
6/12/2025	1:27:10 PM	8.63	73.59	1043.98	326.29
6/12/2025	1:28:10 PM	8.58	73.53	1038.11	325.34
6/12/2025	1:29:10 PM	8.52	73.48	1041.75	324.1
6/12/2025	1:30:10 PM	8.46	73.53	1040.97	324.5
6/12/2025	1:31:11 PM	8.42	73.14	1044.44	328.53
6/12/2025	1:32:11 PM	8.33	73.53	1049.15	328.08
6/12/2025	1:33:11 PM	8.25	73.7	1050.16	326.91
6/12/2025	1:34:11 PM	8.19	73.2	1060.07	324.1
6/12/2025	1:35:11 PM	8.14	73.25	1060.13	323.26
6/12/2025	1:36:11 PM	8.11	74.32	1047.58	318.5
6/12/2025	1:37:11 PM	8.05	73.93	1050.77	322.09
6/12/2025	1:38:12 PM	7.96	74.15	1064.5	317.21
6/12/2025	1:39:12 PM	7.93	73.65	1064.16	315.87
6/12/2025	1:40:13 PM	7.88	73.65	1077.72	313.01
6/12/2025	1:41:13 PM	7.82	74.15	1081.76	311.33
6/12/2025	1:42:13 PM	7.8	73.98	1086.24	309.09
6/12/2025	1:43:13 PM	7.73	73.98	1086.24	308.81
6/12/2025	1:44:14 PM	7.67	74.04	1084.39	307.01
6/12/2025	1:45:14 PM	7.62	74.15	1077.5	306.51
6/12/2025	1:46:14 PM	7.57	73.59	1066.24	310.04
6/12/2025	1:47:14 PM	7.52	74.37	1077.72	305.39
6/12/2025	1:48:15 PM	7.47	74.82	1078	305.05
6/12/2025	1:49:15 PM	7.43	74.6	1078.4	303.82
6/12/2025	1:50:15 PM	7.37	74.04	1079.74	303.76
6/12/2025	1:51:15 PM	7.33	74.32	1085.85	303.09
6/12/2025	1:52:15 PM	7.28	74.32	1080.92	302.2
6/12/2025	1:53:15 PM	7.23	74.71	1085.4	303.26
6/12/2025	1:54:16 PM	7.18	74.77	1079.85	301.86
6/12/2025	1:55:16 PM	7.14	74.93	1079.35	301.36
6/12/2025	1:56:16 PM	7.1	75.27	1072.46	300.24
6/12/2025	1:57:16 PM	7.06	75.1	1069.37	300.07
6/12/2025	1:58:17 PM	7.01	75.16	1067.97	299.34
6/12/2025	1:59:17 PM	6.96	75.05	1061.64	299.62
6/12/2025	2:00:17 PM	6.91	75.21	1058	297.21
6/12/2025	2:01:17 PM	6.87	75.05	1059.85	297.21
6/12/2025	2:02:17 PM	6.82	74.93	1051.39	296.03
6/12/2025	2:03:17 PM	6.8	75.38	1030.15	300.46
6/12/2025	2:04:17 PM	6.75	75.44	1040.8	293.34
6/12/2025	2:05:17 PM	6.72	75.49	1039.79	291.38
6/12/2025	2:06:18 PM	6.68	75.49	1020.29	294.35
6/12/2025	2:07:18 PM	6.63	75.49	1023.04	291.77
6/12/2025	2:08:18 PM	6.6	75.27	1021.19	290.09
6/12/2025	2:09:19 PM	6.58	75.61	1015.3	288.58
6/12/2025	2:10:19 PM	6.52	75.27	1020.52	287.18
6/12/2025	2:11:19 PM	6.47	75.61	1024.72	286.84
6/12/2025	2:12:19 PM	6.47	75.61	1024.05	285.78
6/12/2025	2:13:19 PM	6.43	75.49	1021.8	285.72
6/12/2025	2:14:19 PM	6.39	75.55	1014.18	285.5
6/12/2025	2:15:20 PM	6.35	75.44	998.49	284.1
6/12/2025	2:16:20 PM	6.33	75.55	996.93	283.93
6/12/2025	2:17:20 PM	6.3	75.27	998.44	281.97
6/12/2025	2:18:21 PM	6.27	75.16	997.93	280.01
6/12/2025	2:19:21 PM	6.23	75.21	997.49	281.69
6/12/2025	2:20:21 PM	6.21	75.21	996.53	281.91
6/12/2025	2:21:21 PM	6.19	75.38	995.47	281.86
6/12/2025	2:22:21 PM	6.14	75.72	995.13	282.47
6/12/2025	2:23:21 PM	6.12	75.38	993.9	280.96
6/12/2025	2:24:21 PM	6.07	75.44	991.6	280.51

6/12/2025	2:25:22 PM	6.05	75.49	989.92	279.67
6/12/2025	2:26:22 PM	6.01	75.1	986.73	280.18
6/12/2025	2:27:22 PM	5.99	75.38	982.53	279.9
6/12/2025	2:28:22 PM	5.97	75.1	977.82	280.01
6/12/2025	2:29:22 PM	5.95	75.38	974.57	279.59
6/12/2025	2:30:22 PM	5.91	75.44	972.1	279.06
6/12/2025	2:31:22 PM	5.89	75.21	970.37	279.78
6/12/2025	2:32:23 PM	5.86	75.16	965.32	278.94
6/12/2025	2:33:23 PM	5.83	74.6	952.61	280.23
6/12/2025	2:34:23 PM	5.8	75.27	934.06	279.9
6/12/2025	2:35:24 PM	5.78	75.61	920.44	279.95
6/12/2025	2:36:24 PM	5.75	75.27	909.24	278.72
6/12/2025	2:37:24 PM	5.72	74.77	900.16	277.99
6/12/2025	2:38:24 PM	5.72	75.55	892.65	276.61
6/12/2025	2:39:24 PM	5.68	75.27	886.32	276.87
6/12/2025	2:40:24 PM	5.66	75.55	880.94	276.14
6/12/2025	2:41:24 PM	5.64	74.6	876.57	275.75
6/12/2025	2:42:24 PM	5.6	75.27	873.1	275.41
6/12/2025	2:43:25 PM	5.59	75.21	870.3	275.41
6/12/2025	2:44:25 PM	5.53	75.49	867.83	275.08
6/12/2025	2:45:25 PM	5.54	74.93	864.8	273.79
6/12/2025	2:46:25 PM	5.51	75.49	860.99	272.78
6/12/2025	2:47:26 PM	5.5	75.44	857.74	272.28
6/12/2025	2:48:26 PM	5.48	75.38	854.61	272.11
6/12/2025	2:49:26 PM	5.45	74.71	852.59	272.28
6/12/2025	2:50:27 PM	5.4	75.1	849.17	271.1
6/12/2025	2:51:27 PM	5.42	74.88	846.03	271.1
6/12/2025	2:52:27 PM	5.38	75.21	840.15	271.44
6/12/2025	2:53:27 PM	5.35	74.82	835.33	270.31
6/12/2025	2:54:27 PM	5.33	74.93	832.96	270.03
6/12/2025	2:55:27 PM	5.32	75.38	830.29	269.47
6/12/2025	2:56:27 PM	5.27	75.55	830.57	268.69
6/12/2025	2:57:28 PM	5.26	74.88	829.51	267.62
6/12/2025	2:58:28 PM	5.24	75.1	829.11	267.57
6/12/2025	2:59:28 PM	5.2	75.21	828.44	268.13
6/12/2025	3:00:29 PM	5.19	75.05	827.6	267.18
6/12/2025	3:01:29 PM	5.16	74.88	827.71	266.95
6/12/2025	3:02:29 PM	5.14	75.38	827.6	266.22
6/12/2025	3:03:29 PM	5.13	75.27	827.26	266
6/12/2025	3:04:29 PM	5.09	75.1	826.31	265.89
6/12/2025	3:05:29 PM	5.07	75.44	824.91	266.11
6/12/2025	3:06:29 PM	5.05	75.27	823.96	264.88
6/12/2025	3:07:29 PM	5.03	75.16	821.55	265.16
6/12/2025	3:08:30 PM	5	75.16	820.88	265.55
6/12/2025	3:09:30 PM	4.98	75.1	820.37	264.32
6/12/2025	3:10:30 PM	4.94	74.6	818.58	263.31
6/12/2025	3:11:30 PM	4.94	75.16	816.73	263.25
6/12/2025	3:12:30 PM	4.9	75.1	814.82	263.25
6/12/2025	3:13:31 PM	4.88	74.93	813.48	262.64
6/12/2025	3:14:31 PM	4.87	75.49	813.48	262.58
6/12/2025	3:15:31 PM	4.84	74.88	813.98	261.29
6/12/2025	3:16:32 PM	4.82	74.71	812.19	261.63
6/12/2025	3:17:32 PM	4.78	74.82	809.28	261.91
6/12/2025	3:18:32 PM	4.78	74.82	807.2	261.57
6/12/2025	3:19:32 PM	4.75	74.77	804.96	261.18
6/12/2025	3:20:32 PM	4.74	74.54	803.67	260.79
6/12/2025	3:21:32 PM	4.72	74.49	801.94	260.51
6/12/2025	3:22:32 PM	4.69	74.77	800.31	260.12
6/12/2025	3:23:32 PM	4.67	74.82	799.47	259.95
6/12/2025	3:24:32 PM	4.65	74.54	798.07	259.61
6/12/2025	3:25:33 PM	4.63	74.82	796.89	259.72
6/12/2025	3:26:33 PM	4.61	74.88	796.22	259.22
6/12/2025	3:27:33 PM	4.59	74.54	794.04	258.83
6/12/2025	3:28:33 PM	4.57	74.71	792.92	258.1
6/12/2025	3:29:33 PM	4.56	74.71	792.8	257.82
6/12/2025	3:30:33 PM	4.53	74.82	793.59	257.76
6/12/2025	3:31:33 PM	4.5	75.16	794.26	256.92
6/12/2025	3:32:34 PM	4.48	75.05	793.81	256.81
6/12/2025	3:33:34 PM	4.46	74.82	793.7	256.64
6/12/2025	3:34:34 PM	4.39	74.77	796.78	263.61
6/12/2025	3:35:35 PM	4.33	74.54	713.8	350.83
6/12/2025	3:36:35 PM	4.27	74.77	735.93	352.9
6/12/2025	3:37:35 PM	4.23	74.6	746.41	357.16
6/12/2025	3:38:35 PM	4.18	74.54	743.33	359.46
6/12/2025	3:39:36 PM	4.15	74.54	737.22	360.8
6/12/2025	3:40:36 PM	4.11	74.49	729.1	361.76
6/12/2025	3:41:36 PM	4.07	74.49	731.11	362.09
6/12/2025	3:42:36 PM	4.04	74.6	726.74	362.77
6/12/2025	3:43:37 PM	4.01	74.77	727.7	362.99
6/12/2025	3:44:37 PM	3.98	74.54	733.19	363.1
6/12/2025	3:45:37 PM	3.94	74.71	736.94	363.05
6/12/2025	3:46:37 PM	3.92	74.54	738.68	363.33
6/12/2025	3:47:38 PM	3.88	74.77	743.33	363.61
6/12/2025	3:48:38 PM	3.85	74.77	746.02	362.49
6/12/2025	3:49:38 PM	3.82	74.6	749.72	364.28
6/12/2025	3:50:38 PM	3.79	74.77	754.03	364.84
6/12/2025	3:51:39 PM	41.9	75.05	667.63	420.98
6/12/2025	3:52:39 PM	41.78	74.77	833.6	391.29
6/12/2025	3:53:39 PM	41.65	74.93	899.92	403.05
6/12/2025	3:54:39 PM	41.52	75.16	933.89	414.71
6/12/2025	3:55:40 PM	41.38	75.21	937.03	420.7
6/12/2025	3:56:40 PM	41.25	75.1	943.64	424.57
6/12/2025	3:57:41 PM	41.14	74.88	921.73	395.43
6/12/2025	3:58:41 PM	41.1	75.27	937.59	350.66
6/12/2025	3:59:41 PM	41.04	75.21	929.86	332.9
6/12/2025	4:00:41 PM	40.99	75.16	906.27	322.65
6/12/2025	4:01:42 PM	40.94	75.1	895.62	315.53
6/12/2025	4:02:42 PM	40.88	74.93	897.75	310.94
6/12/2025	4:03:43 PM	40.83	75.05	908.4	308.14
6/12/2025	4:04:43 PM	40.77	74.93	918.71	305.73
6/12/2025	4:05:44 PM	40.72	74.77	927.95	304.94
6/12/2025	4:06:44 PM	40.66	74.6	934.62	304.44
6/12/2025	4:07:44 PM	40.61	74.77	942.97	304.33
6/12/2025	4:08:44 PM	40.53	74.71	953.67	303.88
6/12/2025	4:09:44 PM	40.47	74.77	962.8	305.11
6/12/2025	4:10:44 PM	40.41	74.71	970.87	305.39
6/12/2025	4:11:44 PM	40.35	74.54	978.77	305.61
6/12/2025	4:12:44 PM	40.3	74.6	986.78	306.06
6/12/2025	4:13:45 PM	40.22	74.71	996.25	308.47
6/12/2025	4:14:45 PM	40.15	74.49	1006.68	309.93
6/12/2025	4:15:45 PM	40.09	74.37	1018.72	310.43
6/12/2025	4:16:46 PM	40.01	74.21	1030.26	311.55
6/12/2025	4:17:46 PM	39.94	74.49	1042.54	314.24
6/12/2025	4:18:46 PM	39.86	74.49	1048.7	314.92
6/12/2025	4:19:46 PM	39.8	74.26	1049.37	315.36
6/12/2025	4:20:46 PM	39.72	74.54	1051.39	316.71
6/12/2025	4:21:46 PM	39.66	74.21	1055.76	315.98
6/12/2025	4:22:46 PM	39.6	74.26	1061.42	317.49
6/12/2025	4:23:46 PM	39.52	74.26	1066.24	318.84
6/12/2025	4:24:47 PM	39.44	74.21	1068.09	319.9
6/12/2025	4:25:47 PM	39.37	73.98	1069.43	319.29
6/12/2025	4:26:47 PM	39.29	73.98	1072.96	321.41
6/12/2025	4:27:47 PM	39.22	74.26	1077.39	322.14
6/12/2025	4:28:48 PM	39.15	74.21	1078.84	323.04
6/12/2025	4:29:48 PM	39.07	74.15	1083.16	324.16
6/12/2025	4:30:48 PM	39	74.32	1081.93	324.83
6/12/2025	4:31:48 PM	38.92	74.15	1083.05	325.73
6/12/2025	4:32:48 PM	38.84	74.26	1084.84	325.95
6/12/2025	4:33:49 PM	38.77	74.26	1083.38	326.12

Added 29.5lbs 19-23% MC, Medium High Air Setting

6/12/2025	4:34:49 PM	38.7	74.15	1088.48	326.4
6/12/2025	4:35:49 PM	38.62	74.21	1086.8	326.18
6/12/2025	4:36:49 PM	38.54	73.98	1082.99	326.63
6/12/2025	4:37:49 PM	38.47	74.04	1080.36	326.91
6/12/2025	4:38:49 PM	38.4	74.21	1084.89	327.3
6/12/2025	4:39:49 PM	38.32	73.98	1087.47	327.55
6/12/2025	4:40:49 PM	38.25	73.93	1087.19	327.75
6/12/2025	4:41:49 PM	38.17	74.04	1088.93	328.53
6/12/2025	4:42:49 PM	38.09	74.04	1092.07	329.2
6/12/2025	4:43:49 PM	38.02	73.98	1088.71	328.92
6/12/2025	4:44:50 PM	37.94	73.98	1085.29	328.92
6/12/2025	4:45:50 PM	37.87	74.04	1084.33	329.43
6/12/2025	4:46:50 PM	37.79	74.21	1079.68	330.77
6/12/2025	4:47:50 PM	37.72	74.21	1076.1	330.1
6/12/2025	4:48:50 PM	37.62	74.26	1053.07	330.88
6/12/2025	4:49:51 PM	37.54	74.21	1025.67	331.84
6/12/2025	4:50:51 PM	37.47	73.93	1010.6	330.32
6/12/2025	4:51:51 PM	37.38	74.21	1006.23	327.58
6/12/2025	4:52:51 PM	37.32	74.15	1005.84	325.67
6/12/2025	4:53:51 PM	37.25	74.15	1014.35	323.99
6/12/2025	4:54:51 PM	37.18	74.26	1033.46	322.76
6/12/2025	4:55:51 PM	37.11	73.98	1051.28	323.1
6/12/2025	4:56:51 PM	37.04	73.98	1062.76	323.49
6/12/2025	4:57:52 PM	36.97	74.26	1065.62	324.1
6/12/2025	4:58:52 PM	36.9	74.15	1069.04	326.01
6/12/2025	4:59:52 PM	36.82	74.04	1078.12	327.07
6/12/2025	5:00:52 PM	36.74	74.04	1083.94	328.14
6/12/2025	5:01:52 PM	36.66	73.81	1084	328.75
6/12/2025	5:02:53 PM	36.6	74.21	1084.28	328.75
6/12/2025	5:03:53 PM	36.52	74.15	1084.59	328.7
6/12/2025	5:04:53 PM	36.44	74.04	1088.2	329.37
6/12/2025	5:05:53 PM	36.37	74.49	1088.65	328.81
6/12/2025	5:06:53 PM	36.3	74.32	1090.72	329.76
6/12/2025	5:07:53 PM	36.24	74.04	1091.56	329.65
6/12/2025	5:08:53 PM	36.14	74.15	1091.62	328.47
6/12/2025	5:09:53 PM	36.07	73.98	1093.02	328.92
6/12/2025	5:10:53 PM	36	74.37	1091.67	327.97
6/12/2025	5:11:54 PM	35.93	73.98	1089.43	328.25
6/12/2025	5:12:54 PM	35.85	74.04	1088.54	328.7
6/12/2025	5:13:54 PM	35.77	74.37	1087.92	328.7
6/12/2025	5:14:54 PM	35.7	74.32	1085.12	327.75
6/12/2025	5:15:55 PM	35.64	74.37	1084.78	326.96
6/12/2025	5:16:55 PM	35.56	74.21	1082.6	326.74
6/12/2025	5:17:55 PM	35.51	74.21	1080.41	326.96
6/12/2025	5:18:55 PM	35.42	74.21	1074.87	325.62
6/12/2025	5:19:55 PM	35.35	74.26	1074.08	325.73
6/12/2025	5:20:56 PM	35.31	74.04	1071.95	324.38
6/12/2025	5:21:56 PM	35.23	73.98	1068.81	323.49
6/12/2025	5:22:56 PM	35.16	74.49	1066.57	322.76
6/12/2025	5:23:56 PM	35.08	74.21	1063.66	322.59
6/12/2025	5:24:57 PM	35.02	74.04	1062.48	323.49
6/12/2025	5:25:57 PM	34.94	74.21	1063.44	320.91
6/12/2025	5:26:57 PM	34.88	74.21	1061.08	321.75
6/12/2025	5:27:57 PM	34.81	74.26	1059.01	322.26
6/12/2025	5:28:58 PM	34.76	74.21	1056.09	319.34
6/12/2025	5:29:58 PM	34.69	74.6	1055.81	320.29
6/12/2025	5:30:58 PM	34.63	74.32	1053.07	319.34
6/12/2025	5:31:59 PM	34.57	74.15	1052.17	318.95
6/12/2025	5:32:59 PM	34.5	74.32	1051.78	317.49
6/12/2025	5:33:59 PM	34.43	74.21	1050.77	318.73
6/12/2025	5:34:59 PM	34.37	74.21	1049.71	318.84
6/12/2025	5:35:59 PM	34.31	74.15	1048.53	317.38
6/12/2025	5:37:00 PM	34.24	74.21	1048.7	317.1
6/12/2025	5:38:00 PM	34.18	74.21	1046.23	317.04
6/12/2025	5:39:00 PM	34.13	74.21	1044.38	316.93
6/12/2025	5:40:00 PM	34.06	74.21	1041.92	316.54
6/12/2025	5:41:01 PM	34	74.21	1038.11	315.87
6/12/2025	5:42:01 PM	33.93	74.26	1037.38	314.75
6/12/2025	5:43:01 PM	33.87	74.21	1035.53	315.87
6/12/2025	5:44:01 PM	33.82	74.26	1034.58	314.69
6/12/2025	5:45:02 PM	33.74	73.93	1031.11	314.92
6/12/2025	5:46:02 PM	33.7	74.15	1031.5	314.02
6/12/2025	5:47:02 PM	33.64	74.21	1028.53	312.23
6/12/2025	5:48:02 PM	33.57	74.21	1025.78	312.11
6/12/2025	5:49:02 PM	33.51	74.04	1023.32	311.83
6/12/2025	5:50:02 PM	33.46	74.21	1021.08	311.78
6/12/2025	5:51:03 PM	33.4	73.93	1020.35	311.39
6/12/2025	5:52:03 PM	33.34	73.87	1016.71	311.27
6/12/2025	5:53:03 PM	33.28	74.26	1019.28	310.71
6/12/2025	5:54:04 PM	33.23	74.15	1018.67	309.93
6/12/2025	5:55:04 PM	33.17	74.15	1019.56	310.66
6/12/2025	5:56:04 PM	33.1	74.21	1018.5	310.54
6/12/2025	5:57:04 PM	33.04	74.32	1022.14	309.98
6/12/2025	5:58:04 PM	32.97	73.98	1022.64	310.66
6/12/2025	5:59:04 PM	32.93	74.21	1020.85	310.43
6/12/2025	6:00:05 PM	32.86	74.15	1023.43	309.65
6/12/2025	6:01:05 PM	32.81	74.04	1023.99	310.32
6/12/2025	6:02:05 PM	32.75	74.26	1026.12	310.38
6/12/2025	6:03:05 PM	32.69	74.15	1027.35	310.38
6/12/2025	6:04:05 PM	32.63	73.87	1028.92	309.09
6/12/2025	6:05:06 PM	32.57	73.65	1028.92	309.65
6/12/2025	6:06:06 PM	32.51	74.21	1027.29	309.59
6/12/2025	6:07:06 PM	32.46	73.98	1029.98	309.98
6/12/2025	6:08:06 PM	32.39	73.93	1029.2	309.14
6/12/2025	6:09:06 PM	32.34	74.04	1029.59	309.09
6/12/2025	6:10:06 PM	32.28	74.04	1030.88	309.48
6/12/2025	6:11:07 PM	32.23	74.04	1031.81	310.21
6/12/2025	6:12:07 PM	32.16	74.15	1029.98	310.71
6/12/2025	6:13:07 PM	32.1	73.98	1030.88	309.59
6/12/2025	6:14:07 PM	32.04	74.04	1032.17	309.59
6/12/2025	6:15:08 PM	31.98	74.32	1031.16	309.7
6/12/2025	6:16:08 PM	31.93	74.26	1031.67	308.7
6/12/2025	6:17:08 PM	31.88	73.93	1032.39	308.64
6/12/2025	6:18:08 PM	31.83	74.26	1032	309.98
6/12/2025	6:19:09 PM	31.76	74.04	1033.79	310.54
6/12/2025	6:20:09 PM	31.71	73.98	1033.46	308.98
6/12/2025	6:21:09 PM	31.65	74.15	1032.06	309.7
6/12/2025	6:22:09 PM	31.58	74.04	1033.23	309.65
6/12/2025	6:23:10 PM	31.53	73.7	1033.23	309.09
6/12/2025	6:24:10 PM	31.47	73.98	1033.23	309.42
6/12/2025	6:25:10 PM	31.41	74.04	1034.35	308.53
6/12/2025	6:26:10 PM	31.34	73.98	1034.58	308.81
6/12/2025	6:27:11 PM	31.3	73.93	1033.91	309.09
6/12/2025	6:28:11 PM	31.23	74.04	1032.51	308.76
6/12/2025	6:29:11 PM	31.18	73.93	1029.87	308.76
6/12/2025	6:30:11 PM	31.12	73.93	1030.99	308.98
6/12/2025	6:31:11 PM	31.07	74.04	1030.82	307.52
6/12/2025	6:32:12 PM	31.02	73.98	1030.1	308.25
6/12/2025	6:33:12 PM	30.94	73.93	1031.5	307.63
6/12/2025	6:34:12 PM	30.89	73.7	1031.67	308.64
6/12/2025	6:35:13 PM	30.84	73.81	1034.52	308.14
6/12/2025	6:36:13 PM	30.77	73.81	1038.23	307.83
6/12/2025	6:37:13 PM	30.71	74.04	1047.58	308.42
6/12/2025	6:38:14 PM	30.65	73.87	1050.27	308.81
6/12/2025	6:39:14 PM	30.6	73.81	1051.33	309.09
6/12/2025	6:40:14 PM	30.56	73.7	1052.17	309.09
6/12/2025	6:41:14 PM	30.5	73.7	1054.08	309.31
6/12/2025	6:42:14 PM	30.45	73.7	1051	308.76
6/12/2025	6:43:14 PM	30.38	73.87	1051.11	309.31

6/12/2025	6:44:14 PM	30.34	73.59	1049.04	308.64
6/12/2025	6:45:14 PM	30.28	73.7	1048.14	308.08
6/12/2025	6:46:15 PM	30.22	73.93	1047.58	308.14
6/12/2025	6:47:15 PM	30.18	73.65	1048.98	307.58
6/12/2025	6:48:15 PM	30.11	73.59	1048.47	307.8
6/12/2025	6:49:15 PM	30.05	73.59	1048.59	308.09
6/12/2025	6:50:15 PM	30	73.53	1048.81	308.64
6/12/2025	6:51:16 PM	29.95	73.65	1049.54	308.53
6/12/2025	6:52:16 PM	29.89	73.36	1051.78	309.48
6/12/2025	6:53:17 PM	29.83	73.31	1052.79	309.59
6/12/2025	6:54:17 PM	29.79	73.59	1053.91	309.2
6/12/2025	6:55:17 PM	29.74	73.53	1055.76	308.02
6/12/2025	6:56:17 PM	29.68	73.36	1057.33	307.58
6/12/2025	6:57:18 PM	29.61	73.65	1058.99	308.36
6/12/2025	6:58:18 PM	29.58	73.48	1060.47	308.81
6/12/2025	6:59:18 PM	29.51	73.31	1061.7	308.64
6/12/2025	7:00:19 PM	29.46	73.25	1063.44	308.42
6/12/2025	7:01:19 PM	29.42	73.36	1063.77	308.42
6/12/2025	7:02:19 PM	29.36	73.25	1065.51	309.42
6/12/2025	7:03:19 PM	29.3	73.25	1065.17	309.82
6/12/2025	7:04:20 PM	29.23	73.2	1066.63	309.76
6/12/2025	7:05:20 PM	29.2	73.25	1067.75	309.31
6/12/2025	7:06:20 PM	29.14	73.31	1067.47	308.86
6/12/2025	7:07:20 PM	29.09	73.2	1068.03	309.7
6/12/2025	7:08:21 PM	29.03	73.53	1067.36	309.59
6/12/2025	7:09:21 PM	28.98	73.53	1062.59	309.76
6/12/2025	7:10:21 PM	28.92	73.25	1060.02	310.21
6/12/2025	7:11:21 PM	28.86	73.31	1063.94	310.38
6/12/2025	7:12:22 PM	28.81	73.31	1066.63	310.1
6/12/2025	7:13:22 PM	28.75	73.03	1072.51	310.84
6/12/2025	7:14:22 PM	28.7	73.2	1073.74	311.95
6/12/2025	7:15:22 PM	28.64	73.14	1076.66	312.23
6/12/2025	7:16:22 PM	28.58	73.2	1078.28	312.73
6/12/2025	7:17:23 PM	28.52	73.2	1076.99	313.18
6/12/2025	7:18:23 PM	28.47	72.97	1078.79	313.63
6/12/2025	7:19:24 PM	28.42	73.14	1077.5	312.79
6/12/2025	7:20:24 PM	28.36	73.14	1071.17	312.51
6/12/2025	7:21:25 PM	28.31	73.25	1077.11	313.29
6/12/2025	7:22:25 PM	28.24	72.92	1077.22	313.96
6/12/2025	7:23:25 PM	28.19	72.92	1071.67	315.76
6/12/2025	7:24:25 PM	28.15	73.14	1050.88	314.07
6/12/2025	7:25:26 PM	28.08	72.75	1033.01	313.18
6/12/2025	7:26:26 PM	28.02	72.92	1021.41	312
6/12/2025	7:27:27 PM	27.97	72.75	1014.35	311.55
6/12/2025	7:28:27 PM	27.92	72.75	1004.43	311.27
6/12/2025	7:29:27 PM	27.85	72.86	996.14	309.59
6/12/2025	7:30:28 PM	27.82	73.03	990.59	308.53
6/12/2025	7:31:28 PM	27.75	72.92	979.5	307.29
6/12/2025	7:32:28 PM	27.7	72.86	968.52	306.51
6/12/2025	7:33:28 PM	27.65	72.69	960.06	305.61
6/12/2025	7:34:29 PM	27.6	72.92	953.95	304.44
6/12/2025	7:35:29 PM	27.55	72.69	947.84	303.37
6/12/2025	7:36:29 PM	27.5	72.64	944.03	302.64
6/12/2025	7:37:29 PM	27.45	72.92	941.01	301.64
6/12/2025	7:38:30 PM	27.4	72.58	942.13	300.12
6/12/2025	7:39:30 PM	27.35	72.58	943.47	299.79
6/12/2025	7:40:31 PM	27.31	72.58	945.38	300.12
6/12/2025	7:41:31 PM	27.26	72.58	946.33	298.83
6/12/2025	7:42:31 PM	27.21	72.64	947.06	298.39
6/12/2025	7:43:31 PM	27.17	72.64	947.67	297.88
6/12/2025	7:44:32 PM	27.12	72.52	948.63	297.32
6/12/2025	7:45:32 PM	27.07	72.41	949.8	296.99
6/12/2025	7:46:32 PM	27.03	72.24	949.64	295.53
6/12/2025	7:47:32 PM	26.97	72.24	951.15	296.2
6/12/2025	7:48:32 PM	26.94	72.41	951.32	296.93
6/12/2025	7:49:33 PM	26.89	72.3	949.97	294.97
6/12/2025	7:50:33 PM	26.84	72.24	946.95	294.35
6/12/2025	7:51:33 PM	26.81	72.36	941.18	294.13
6/12/2025	7:52:34 PM	26.77	72.3	935.35	293.68
6/12/2025	7:53:34 PM	26.7	72.41	929.97	292.56
6/12/2025	7:54:34 PM	26.67	72.19	928.51	291.89
6/12/2025	7:55:35 PM	26.63	72.41	930.7	290.88
6/12/2025	7:56:35 PM	26.58	72.24	935.4	290.32
6/12/2025	7:57:35 PM	26.55	72.36	937.81	289.2
6/12/2025	7:58:35 PM	26.51	72.02	944.14	288.97
6/12/2025	7:59:35 PM	26.47	72.02	950.25	289.25
6/12/2025	8:00:36 PM	26.43	71.96	954.73	289.03
6/12/2025	8:01:36 PM	26.38	71.96	960.51	288.3
6/12/2025	8:02:36 PM	26.34	72.08	962.19	288.36
6/12/2025	8:03:36 PM	26.31	71.91	958.77	287.74
6/12/2025	8:04:37 PM	26.26	71.68	958.49	287.96
6/12/2025	8:05:37 PM	26.23	71.74	961.4	287.01
6/12/2025	8:06:37 PM	26.18	71.85	966.56	287.96
6/12/2025	8:07:37 PM	26.16	71.74	969.98	288.08
6/12/2025	8:08:37 PM	26.1	71.85	971.26	287.63
6/12/2025	8:09:38 PM	26.07	71.91	970.37	287.74
6/12/2025	8:10:38 PM	26.02	71.57	974.29	288.41
6/12/2025	8:11:38 PM	25.98	71.91	974.68	289.53
6/12/2025	8:12:38 PM	25.93	71.52	975.41	289.42
6/12/2025	8:13:38 PM	25.87	71.52	973.9	289.36
6/12/2025	8:14:38 PM	25.86	71.63	976.14	288.92
6/12/2025	8:15:38 PM	25.81	71.52	977.37	289.7
6/12/2025	8:16:38 PM	25.77	71.74	977.65	288.75
6/12/2025	8:17:39 PM	25.72	71.4	978.49	289.36
6/12/2025	8:18:39 PM	25.68	71.57	979.67	290.26
6/12/2025	8:19:39 PM	25.64	71.35	981.24	290.04
6/12/2025	8:20:39 PM	25.59	71.35	981.13	289.59
6/12/2025	8:21:40 PM	25.55	71.29	984.99	289.81
6/12/2025	8:22:40 PM	25.5	71.29	986.62	289.2
6/12/2025	8:23:40 PM	25.47	71.18	988.13	290.65
6/12/2025	8:24:40 PM	25.41	71.01	989.64	290.65
6/12/2025	8:25:40 PM	25.38	71.12	992.22	290.37
6/12/2025	8:26:41 PM	25.33	71.29	996.48	292.45
6/12/2025	8:27:41 PM	25.28	71.18	1001.24	292.33
6/12/2025	8:28:41 PM	25.23	71.29	1005.39	293.01
6/12/2025	8:29:41 PM	25.2	71.01	1010.6	294.46
6/12/2025	8:30:42 PM	25.16	71.35	1014.91	295.14
6/12/2025	8:31:42 PM	25.1	71.01	1019	295.53
6/12/2025	8:32:42 PM	25.06	70.96	1023.93	295.7
6/12/2025	8:33:43 PM	25.02	71.01	1026.85	297.71
6/12/2025	8:34:43 PM	24.98	71.01	1031.22	296.93
6/12/2025	8:35:43 PM	24.92	70.79	1036.26	297.55
6/12/2025	8:36:43 PM	24.88	70.73	1040.24	298.44
6/12/2025	8:37:43 PM	24.83	70.96	1043.94	299.34
6/12/2025	8:38:44 PM	24.76	70.79	1048.03	300.46
6/12/2025	8:39:44 PM	24.72	70.79	1051.84	300.74
6/12/2025	8:40:44 PM	24.68	70.84	1056.49	301.64
6/12/2025	8:41:45 PM	24.61	70.68	1060.47	302.48
6/12/2025	8:42:45 PM	24.58	70.73	1066.01	305.05
6/12/2025	8:43:45 PM	24.51	70.68	1070.27	304.94
6/12/2025	8:44:45 PM	24.47	70.73	1075.37	305.05
6/12/2025	8:45:45 PM	24.42	70.96	1079.46	306.23
6/12/2025	8:46:46 PM	24.37	70.51	1080.69	306.68
6/12/2025	8:47:46 PM	24.33	70.51	1086.41	307.91
6/12/2025	8:48:47 PM	24.26	70.62	1090.67	309.48
6/12/2025	8:49:47 PM	24.21	70.68	1095.54	310.32
6/12/2025	8:50:47 PM	24.16	70.68	1100.02	310.43
6/12/2025	8:51:48 PM	24.1	70.68	1103.27	311.33
6/12/2025	8:52:48 PM	24.05	70.68	1104.56	310.82

6/12/2025	8:53:48 PM	24	70.45	1109.66	313.07
6/12/2025	8:54:48 PM	23.94	70.51	1111.57	312.95
6/12/2025	8:55:49 PM	23.9	70.45	1114.65	313.01
6/12/2025	8:56:49 PM	23.82	70.28	1118.63	313.35
6/12/2025	8:57:49 PM	23.78	70.45	1122.44	313.87
6/12/2025	8:58:49 PM	23.71	70.4	1125.8	314.13
6/12/2025	8:59:50 PM	23.66	70.34	1126.69	313.68
6/12/2025	9:00:50 PM	23.61	70.4	1130.45	310.94
6/12/2025	9:01:51 PM	23.53	70.45	1134.43	312.79
6/12/2025	9:02:51 PM	23.49	70.4	1136.28	312.84
6/12/2025	9:03:51 PM	23.43	70.45	1138.35	312.95
6/12/2025	9:04:51 PM	23.37	70.28	1141.15	313.29
6/12/2025	9:05:52 PM	23.31	70.34	1141.82	312.17
6/12/2025	9:06:52 PM	23.25	70.28	1142.94	311.95
6/12/2025	9:07:52 PM	23.2	70.4	1141.93	311.27
6/12/2025	9:08:52 PM	23.13	70.4	1143.28	310.04
6/12/2025	9:09:52 PM	23.08	70.34	1143.34	309.82
6/12/2025	9:10:53 PM	23.02	70.45	1143.9	308.86
6/12/2025	9:11:53 PM	22.96	70.4	1141.93	308.08
6/12/2025	9:12:53 PM	22.92	70	1142.33	307.13
6/12/2025	9:13:53 PM	22.85	70.4	1141.15	305.73
6/12/2025	9:14:53 PM	22.79	70.17	1139.69	304.77
6/12/2025	9:15:54 PM	22.74	70.17	1138.57	304.66
6/12/2025	9:16:54 PM	22.68	70.28	1136.61	302.48
6/12/2025	9:17:54 PM	22.63	70.06	1133.75	302.81
6/12/2025	9:18:54 PM	22.55	71.01	1132.35	300.68
6/12/2025	9:19:54 PM	22.51	71.18	1128.38	297.94
6/12/2025	9:20:54 PM	22.45	71.4	1127.59	296.93
6/12/2025	9:21:55 PM	22.42	71.74	1124.62	296.03
6/12/2025	9:22:55 PM	22.35	72.08	1118.57	285.42
6/12/2025	9:23:55 PM	22.32	72.19	1117.51	284.13
6/12/2025	9:24:55 PM	22.25	72.36	1113.3	283.18
6/12/2025	9:25:55 PM	22.21	72.64	1108.65	283.51
6/12/2025	9:26:56 PM	22.16	72.86	1108.43	282.28
6/12/2025	9:27:56 PM	22.1	72.97	1107.03	281.21
6/12/2025	9:28:56 PM	22.04	73.03	1103.05	281.38
6/12/2025	9:29:56 PM	21.99	73.2	1100.64	289.81
6/12/2025	9:30:57 PM	21.94	73.31	1099.29	288.69
6/12/2025	9:31:57 PM	21.88	72.97	1095.82	288.24
6/12/2025	9:32:57 PM	21.85	73.48	1093.64	286.28
6/12/2025	9:33:58 PM	21.79	73.53	1089.21	283.54
6/12/2025	9:34:58 PM	21.75	73.7	1087.7	283.54
6/12/2025	9:35:58 PM	21.69	73.98	1087.02	283.2
6/12/2025	9:36:58 PM	21.64	73.93	1085.74	282.47
6/12/2025	9:37:59 PM	21.58	74.04	1084.84	282.75
6/12/2025	9:38:59 PM	21.55	74.21	1081.93	281.86
6/12/2025	9:39:59 PM	21.5	74.26	1081.76	281.52
6/12/2025	9:40:59 PM	21.46	74.37	1078	280.86
6/12/2025	9:41:59 PM	21.39	74.6	1078.28	280.68
6/12/2025	9:43:00 PM	21.36	74.26	1077.16	279.62
6/12/2025	9:44:00 PM	21.28	72.97	1077.05	279.06
6/12/2025	9:45:01 PM	21.25	72.75	1075.87	277.65
6/12/2025	9:46:01 PM	21.19	72.86	1076.88	276.87
6/12/2025	9:47:01 PM	21.15	72.69	1076.32	276.03
6/12/2025	9:48:01 PM	21.11	72.3	1075.65	274.46
6/12/2025	9:49:01 PM	21.06	72.19	1076.6	274.52
6/12/2025	9:50:02 PM	21	72.02	1076.71	274.18
6/12/2025	9:51:02 PM	20.97	71.63	1076.66	274.35
6/12/2025	9:52:02 PM	20.92	71.57	1073.97	274.07
6/12/2025	9:53:02 PM	20.87	71.74	1070.89	274.91
6/12/2025	9:54:03 PM	20.83	71.52	1068.93	273.79
6/12/2025	9:55:03 PM	20.77	71.63	1067.58	272.89
6/12/2025	9:56:03 PM	20.73	71.18	1066.01	273.45
6/12/2025	9:57:04 PM	20.68	71.18	1064.78	272.72
6/12/2025	9:58:04 PM	20.65	71.29	1062.82	272.16
6/12/2025	9:59:04 PM	20.59	71.12	1060.3	272.11
6/12/2025	10:00:04 PM	20.55	71.01	1059.91	270.93
6/12/2025	10:01:04 PM	20.51	71.12	1057.66	271.1
6/12/2025	10:02:04 PM	20.47	71.12	1056.04	270.82
6/12/2025	10:03:04 PM	20.41	70.79	1054.97	270.03
6/12/2025	10:04:05 PM	20.38	70.73	1051.78	269.53
6/12/2025	10:05:05 PM	20.34	70.51	1047.52	269.08
6/12/2025	10:06:05 PM	20.28	70.45	1043.82	268.69
6/12/2025	10:07:05 PM	20.25	71.57	1038.39	267.85
6/12/2025	10:08:06 PM	20.19	71.74	1035.76	266.45
6/12/2025	10:09:06 PM	20.18	71.74	1032	266.45
6/12/2025	10:10:06 PM	20.13	71.96	1028.92	265.83
6/12/2025	10:11:07 PM	20.09	72.19	1024.16	266
6/12/2025	10:12:07 PM	20.06	72.36	1021.47	264.82
6/12/2025	10:13:07 PM	20.01	72.69	1019.73	265.94
6/12/2025	10:14:08 PM	19.98	72.69	1016.42	265.94
6/12/2025	10:15:08 PM	19.93	72.92	1017.88	265.33
6/12/2025	10:16:09 PM	19.89	72.97	1016.48	266.28
6/12/2025	10:17:09 PM	19.87	73.2	1013.46	265.78
6/12/2025	10:18:09 PM	19.8	73.25	1016.87	265.16
6/12/2025	10:19:10 PM	19.79	73.25	1015.75	264.66
6/12/2025	10:20:10 PM	19.74	73.03	1016.2	264.88
6/12/2025	10:21:10 PM	19.69	73.53	1014.07	263.93
6/12/2025	10:22:10 PM	19.66	73.53	1016.59	264.32
6/12/2025	10:23:11 PM	19.6	73.59	1014.46	263.2
6/12/2025	10:24:11 PM	19.59	73.87	1017.21	263.59
6/12/2025	10:25:11 PM	19.53	73.87	1017.04	263.65
6/12/2025	10:26:12 PM	19.51	73.87	1016.31	263.03
6/12/2025	10:27:12 PM	19.47	73.93	1019.17	262.36
6/12/2025	10:28:12 PM	19.41	73.98	1019.11	262.92
6/12/2025	10:29:13 PM	19.37	74.26	1019.56	263.81
6/12/2025	10:30:13 PM	19.33	74.04	1021.97	263.25
6/12/2025	10:31:13 PM	19.3	73.65	1014.41	263.31
6/12/2025	10:32:14 PM	19.27	73.87	1007.01	262.97
6/12/2025	10:33:14 PM	19.21	73.98	1001.3	261.46
6/12/2025	10:34:14 PM	19.2	74.26	996.48	262.25
6/12/2025	10:35:15 PM	19.14	74.37	995.81	261.52
6/12/2025	10:36:15 PM	19.1	74.37	985.83	261.97
6/12/2025	10:37:15 PM	19.07	74.37	984.6	261.52
6/12/2025	10:38:15 PM	19.02	74.77	980.51	260.85
6/12/2025	10:39:16 PM	19	74.37	980.51	260.28
6/12/2025	10:40:16 PM	18.96	74.77	981.63	260.12
6/12/2025	10:41:16 PM	18.91	74.77	976.81	259.5
6/12/2025	10:42:16 PM	18.88	74.88	974.46	259.89
6/12/2025	10:43:16 PM	18.82	74.88	969.47	260.12
6/12/2025	10:44:16 PM	18.81	74.93	967.73	260.62
6/12/2025	10:45:16 PM	18.76	74.93	970.03	259.16
6/12/2025	10:46:17 PM	18.71	74.82	965.66	260.73
6/12/2025	10:47:17 PM	18.71	74.77	962.55	258.77
6/12/2025	10:48:18 PM	18.65	74.82	963.76	258.63
6/12/2025	10:49:18 PM	18.61	74.82	963.92	258.21
6/12/2025	10:50:18 PM	18.59	75.05	962.58	257.2
6/12/2025	10:51:19 PM	18.54	74.88	964.15	255.63
6/12/2025	10:52:19 PM	18.51	74.93	967.4	255.41
6/12/2025	10:53:19 PM	18.45	75.05	966	256.87
6/12/2025	10:54:20 PM	18.41	74.77	966.61	256.59
6/12/2025	10:55:20 PM	18.4	75.16	968.8	254.96
6/12/2025	10:56:20 PM	18.35	74.77	971.71	255.75
6/12/2025	10:57:20 PM	18.32	74.88	973	257.43
6/12/2025	10:58:21 PM	18.28	75.05	970.87	256.47
6/12/2025	10:59:21 PM	18.23	74.77	968.13	254.51
6/12/2025	11:00:21 PM	18.21	75.1	969.69	254.91
6/12/2025	11:01:21 PM	18.17	75.21	968.85	255.63
6/12/2025	11:02:22 PM	18.14	75.27	969.92	255.13

6/12/2025	11:03:22 PM	18.1	75.1	972.61	254.96
6/12/2025	11:04:23 PM	18.04	75.1	972.33	255.52
6/12/2025	11:05:23 PM	18.02	74.93	972.83	254.4
6/12/2025	11:06:23 PM	17.97	75.05	972.78	254.68
6/12/2025	11:07:23 PM	17.84	74.88	973	254.57
6/12/2025	11:08:23 PM	17.91	75.1	971.62	254.29
6/12/2025	11:09:23 PM	17.86	75.16	973.95	253.79
6/12/2025	11:10:23 PM	17.83	75.27	974.07	254.46
6/12/2025	11:11:24 PM	17.81	75.1	973.73	254.51
6/12/2025	11:12:24 PM	17.76	75.27	974.07	254.79
6/12/2025	11:13:24 PM	17.72	75.21	973.9	254.57
6/12/2025	11:14:25 PM	17.69	75.27	973.9	254.57
6/12/2025	11:15:25 PM	17.65	74.93	971.82	253.95
6/12/2025	11:16:25 PM	17.62	75.16	972.33	254.51
6/12/2025	11:17:25 PM	17.57	75.1	971.49	253.62
6/12/2025	11:18:26 PM	17.53	75.38	969.81	252.89
6/12/2025	11:19:26 PM	17.5	75.38	967.96	253.22
6/12/2025	11:20:27 PM	17.46	75.05	968.46	252.22
6/12/2025	11:21:27 PM	17.43	74.93	968.24	253.34
6/12/2025	11:22:27 PM	17.39	75.16	966.05	252.83
6/12/2025	11:23:27 PM	17.35	75.44	966.73	252.05
6/12/2025	11:24:27 PM	17.33	74.93	967.45	252.16
6/12/2025	11:25:28 PM	17.29	75.16	969.95	253.17
6/12/2025	11:26:28 PM	17.26	75.05	960.34	252.61
6/12/2025	11:27:29 PM	17.22	75.16	956.08	251.77
6/12/2025	11:28:29 PM	17.18	75.21	954.96	251.43
6/12/2025	11:29:29 PM	17.14	74.93	954.73	251.21
6/12/2025	11:30:29 PM	17.14	75.05	956.64	251.21
6/12/2025	11:31:29 PM	17.09	75.21	957.48	250.93
6/12/2025	11:32:30 PM	17.05	75.27	953.67	250.76
6/12/2025	11:33:30 PM	17.03	75.38	952.21	250.57
6/12/2025	11:34:30 PM	17	75.16	952.16	249.86
6/12/2025	11:35:30 PM	16.95	75.05	956.53	250.42
6/12/2025	11:36:31 PM	16.92	75.21	961.63	250.65
6/12/2025	11:37:31 PM	16.89	75.16	965.21	250.76
6/12/2025	11:38:31 PM	16.85	75.27	971.38	250.2
6/12/2025	11:39:31 PM	16.82	75.27	976.64	250.7
6/12/2025	11:40:32 PM	16.79	74.93	980.51	251.77
6/12/2025	11:41:32 PM	16.75	75.05	987.06	251.1
6/12/2025	11:42:32 PM	16.72	75.21	991.04	252.22
6/12/2025	11:43:33 PM	16.67	75.21	994.24	252.94
6/12/2025	11:44:33 PM	16.65	75.21	1001.07	253.62
6/12/2025	11:45:34 PM	16.61	75.21	1005.27	254.57
6/12/2025	11:46:34 PM	16.55	74.88	1007.46	254.91
6/12/2025	11:47:34 PM	16.53	75.1	1011.94	255.86
6/12/2025	11:48:34 PM	16.49	75.21	1013.79	255.41
6/12/2025	11:49:34 PM	16.45	75.05	1012.73	255.8
6/12/2025	11:50:35 PM	16.42	75.27	1016.14	256.59
6/12/2025	11:51:35 PM	16.38	75.05	1018.72	256.75
6/12/2025	11:52:36 PM	16.35	74.93	1020.52	257.15
6/12/2025	11:53:36 PM	16.3	75.38	1022.59	257.15
6/12/2025	11:54:36 PM	16.26	75.05	1021.36	257.6
6/12/2025	11:55:36 PM	16.24	74.93	1024.1	258.44
6/12/2025	11:56:36 PM	16.19	75.21	1024.49	258.94
6/12/2025	11:57:37 PM	16.16	75.05	1025.78	258.72
6/12/2025	11:58:37 PM	16.12	75.05	1026.45	259.61
6/12/2025	11:59:37 PM	16.07	75.38	1026.01	258.83
6/13/2025	12:00:38 AM	16.05	75.16	1025.33	260.23
6/13/2025	12:01:38 AM	16.02	75.1	1024.05	260.17
6/13/2025	12:02:38 AM	15.98	75.05	1023.43	260.06
6/13/2025	12:03:38 AM	15.95	75.05	1023.04	259.84
6/13/2025	12:04:39 AM	15.9	75.16	1021.8	258.83
6/13/2025	12:05:39 AM	15.87	75.16	1020.63	259.16
6/13/2025	12:06:39 AM	15.85	75.38	1018.05	259.16
6/13/2025	12:07:39 AM	15.79	75.16	1017.21	259.28
6/13/2025	12:08:39 AM	15.77	75.16	1015.19	259.61
6/13/2025	12:09:40 AM	15.75	75.1	1014.02	260.06
6/13/2025	12:10:40 AM	15.69	75.21	1011.38	259.72
6/13/2025	12:11:41 AM	15.66	75.16	1009.81	259.89
6/13/2025	12:12:41 AM	15.61	75.16	1008.86	259.11
6/13/2025	12:13:41 AM	15.57	75.1	1009.08	258.49
6/13/2025	12:14:41 AM	15.56	75.27	1007.63	259.56
6/13/2025	12:15:41 AM	15.5	75.27	1006.79	259.28
6/13/2025	12:16:42 AM	15.47	75.44	1004.6	259.11
6/13/2025	12:17:42 AM	15.44	75.16	1004.55	259.56
6/13/2025	12:18:42 AM	15.4	75.27	1004.43	258.94
6/13/2025	12:19:42 AM	15.36	75.05	1005.33	259.11
6/13/2025	12:20:43 AM	15.33	74.88	1002.53	258.88
6/13/2025	12:21:43 AM	15.29	74.93	1006.51	260.45
6/13/2025	12:22:43 AM	15.27	75.1	1008.19	260.06
6/13/2025	12:23:44 AM	15.19	74.93	1013.46	260.73
6/13/2025	12:24:44 AM	15.17	75.05	1018.44	261.57
6/13/2025	12:25:44 AM	15.13	75.1	1022.7	261.29
6/13/2025	12:26:44 AM	15.08	75.05	1027.46	262.02
6/13/2025	12:27:45 AM	15.04	75.1	1031.95	262.13
6/13/2025	12:28:45 AM	14.98	75.21	1035.42	262.47
6/13/2025	12:29:45 AM	14.96	75.27	1040.41	261.57
6/13/2025	12:30:45 AM	14.91	74.93	1045.17	263.03
6/13/2025	12:31:45 AM	14.88	75.16	1047.13	264.09
6/13/2025	12:32:46 AM	14.85	75.05	1053.24	264.09
6/13/2025	12:33:46 AM	14.78	75.05	1057.94	264.82
6/13/2025	12:34:46 AM	14.75	75.05	1062.65	265.55
6/13/2025	12:35:47 AM	14.68	75.1	1067.53	265.44
6/13/2025	12:36:47 AM	14.66	75.05	1072.74	266.9
6/13/2025	12:37:47 AM	14.6	75.16	1078.34	267.06
6/13/2025	12:38:47 AM	14.55	74.88	1085.23	266.5
6/13/2025	12:39:47 AM	14.5	75.05	1092.4	266
6/13/2025	12:40:48 AM	14.46	75.05	1097.11	266
6/13/2025	12:41:48 AM	14.39	75.16	1100.58	266.28
6/13/2025	12:42:48 AM	14.35	74.82	1106.64	265.94
6/13/2025	12:43:49 AM	14.3	74.88	1107.92	265.33
6/13/2025	12:44:49 AM	14.26	75.05	1106.24	264.99
6/13/2025	12:45:50 AM	14.19	75.1	1106.02	264.66
6/13/2025	12:46:50 AM	14.15	74.93	1105.35	263.48
6/13/2025	12:47:50 AM	14.09	75.05	1102.15	262.84
6/13/2025	12:48:50 AM	14.06	75.21	1098.34	261.61
6/13/2025	12:49:50 AM	14	74.88	1094.53	260.12
6/13/2025	12:50:51 AM	13.96	74.88	1088.93	258.44
6/13/2025	12:51:51 AM	13.9	75.1	1084.28	255.3
6/13/2025	12:52:51 AM	13.86	75.05	1079.46	254.51
6/13/2025	12:53:52 AM	13.8	75.21	1074.02	252.27
6/13/2025	12:54:52 AM	13.78	75.1	1068.93	250.26
6/13/2025	12:55:52 AM	13.7	75.1	1064.61	248.07
6/13/2025	12:56:53 AM	13.66	74.93	1058.95	246.28
6/13/2025	12:57:53 AM	13.61	75.1	1053.63	244.04
6/13/2025	12:58:53 AM	13.58	75.16	1047.19	240.62
6/13/2025	12:59:53 AM	13.51	75.16	1040.46	238.38
6/13/2025	1:00:53 AM	13.49	75.21	1033.74	236.02
6/13/2025	1:01:54 AM	13.42	75.1	1027.35	232.77
6/13/2025	1:02:54 AM	13.4	75.21	1020.18	230.64
6/13/2025	1:03:54 AM	13.33	75.1	1013.34	228.52
6/13/2025	1:04:54 AM	13.29	75.1	1008.24	224.82
6/13/2025	1:05:54 AM	13.25	75.05	998.89	222.3
6/13/2025	1:06:55 AM	13.21	75.1	983.31	219.49
6/13/2025	1:07:55 AM	13.16	75.21	964.99	216.02
6/13/2025	1:08:55 AM	13.12	75.16	949.24	213.44
6/13/2025	1:09:56 AM	13.08	75.21	936.64	211.2
6/13/2025	1:10:56 AM	13.02	75.21	924.03	207.9
6/13/2025	1:11:56 AM	12.99	74.82	912.38	205.15

6/13/2025 1:12:57 AM 12.93 75.05 902.68 203.81
6/13/2025 1:13:57 AM 12.91 75.16 892.54 201.84
6/13/2025 1:14:57 AM 12.85 75.05 883.58 200.11
6/13/2025 1:15:57 AM 12.82 74.93 875.17 196.86
6/13/2025 1:16:58 AM 12.8 75.05 866.54 194.06
6/13/2025 1:17:58 AM 12.72 75.05 858.11 193.65
6/13/2025 1:18:59 AM 12.7 75.1 851.69 191.81
6/13/2025 1:19:59 AM 12.65 74.93 843.96 190.13
6/13/2025 1:20:59 AM 12.62 74.82 838.69 188.96
6/13/2025 1:21:59 AM 12.6 74.82 833.71 187.11
6/13/2025 1:22:59 AM 12.56 74.88 829.34 185.65
6/13/2025 1:24:00 AM 12.52 74.88 825.02 184.31
6/13/2025 1:25:00 AM 12.49 74.82 821.49 182.4
6/13/2025 1:26:00 AM 12.46 74.6 817.79 180.72
6/13/2025 1:27:01 AM 12.42 74.88 814.15 179.54
6/13/2025 1:28:01 AM 12.4 74.6 810.57 179.32
6/13/2025 1:29:01 AM 12.37 74.77 806.87 177.3
6/13/2025 1:30:01 AM 12.33 74.49 803.45 176.52
6/13/2025 1:31:02 AM 12.3 74.93 800.37 175.96
6/13/2025 1:32:02 AM 12.3 74.71 797.34 174.78
6/13/2025 1:33:02 AM 12.24 74.6 795.1 172.65
6/13/2025 1:34:02 AM 12.23 74.6 792.36 172.15
6/13/2025 1:35:02 AM 12.21 74.77 788.32 170.97
6/13/2025 1:36:03 AM 12.18 74.71 784.18 169.07
6/13/2025 1:37:03 AM 12.16 74.37 780.81 167.72
6/13/2025 1:38:04 AM 12.13 74.37 779.47 166.04
6/13/2025 1:39:04 AM 12.13 74.71 776.67 165.76
6/13/2025 1:40:04 AM 12.11 74.37 775.15 164.64
6/13/2025 1:41:05 AM 12.05 74.32 773.53 163.86
6/13/2025 1:42:05 AM 12.05 74.82 772.07 163.24
6/13/2025 1:43:06 AM 12.03 74.37 769.89 162.34
6/13/2025 1:44:06 AM 12.02 74.37 768.82 160.55
6/13/2025 1:45:06 AM 12 74.54 766.97 159.09
6/13/2025 1:46:06 AM 11.96 74.26 765.97 158.64
6/13/2025 1:47:07 AM 11.95 74.26 764.9 158.03
6/13/2025 1:48:07 AM 11.93 74.15 764.34 157.64
6/13/2025 1:49:07 AM 11.93 74.04 764.23 157.3
6/13/2025 1:50:08 AM 11.92 73.81 764 157.08
6/13/2025 1:51:08 AM 11.89 74.15 764.62 156.46
6/13/2025 1:52:08 AM 11.87 73.98 765.57 156.01
6/13/2025 1:53:09 AM 11.84 73.81 767.25 155.62
6/13/2025 1:54:09 AM 11.83 74.04 767.65 155.9
6/13/2025 1:55:09 AM 11.83 74.04 769.5 156.68
6/13/2025 1:56:09 AM 11.81 73.98 774.26 157.3
6/13/2025 1:57:10 AM 11.81 74.21 780.42 158.36
6/13/2025 1:58:10 AM 11.74 74.04 790.34 159.32
6/13/2025 1:59:11 AM 11.74 73.98 802.05 161.39
6/13/2025 2:00:11 AM 11.73 74.04 814.38 163.52
6/13/2025 2:01:12 AM 11.72 74.21 825.92 166.6
6/13/2025 2:02:12 AM 11.68 73.98 839.31 170.3
6/13/2025 2:03:12 AM 11.64 73.98 858.53 173.21
6/13/2025 2:04:12 AM 11.64 73.98 867.83 175.23
6/13/2025 2:05:13 AM 11.63 73.98 859.48 178.09
6/13/2025 2:06:13 AM 11.6 73.87 855.9 180.94
6/13/2025 2:07:13 AM 11.56 73.87 855.06 183.97
6/13/2025 2:08:13 AM 11.54 73.98 856.9 187.44
6/13/2025 2:09:13 AM 11.53 73.87 859.71 189.8
6/13/2025 2:10:13 AM 11.51 73.93 862.06 192.99
6/13/2025 2:11:14 AM 11.47 73.81 859.76 194.84
6/13/2025 2:12:14 AM 11.44 73.87 839.14 197.75
6/13/2025 2:13:14 AM 11.44 73.81 819.81 198.59
6/13/2025 2:14:14 AM 11.41 73.81 805.75 200.28
6/13/2025 2:15:15 AM 11.37 73.93 797.18 201.4
6/13/2025 2:16:15 AM 11.34 73.53 790.73 202.01
6/13/2025 2:17:15 AM 11.34 73.65 787.54 202.85
6/13/2025 2:18:16 AM 11.31 73.65 785.63 204.48
6/13/2025 2:19:16 AM 11.28 73.7 782.94 205.37
6/13/2025 2:20:16 AM 11.25 73.81 782.55 205.6
6/13/2025 2:21:17 AM 11.23 73.87 783 206.05
6/13/2025 2:22:17 AM 11.19 73.7 782.16 206.83
6/13/2025 2:23:17 AM 11.16 73.65 785.02 206.94
6/13/2025 2:24:17 AM 11.15 73.87 786.08 206.83
6/13/2025 2:25:18 AM 11.14 73.81 787.09 207.62
6/13/2025 2:26:18 AM 11.08 73.81 787.76 207.62
6/13/2025 2:27:18 AM 11.05 73.7 787.71 208.34
6/13/2025 2:28:18 AM 11.05 73.65 788.15 209.52
6/13/2025 2:29:19 AM 11.02 73.7 789.27 210.19
6/13/2025 2:30:19 AM 10.99 73.93 792.41 210.92
6/13/2025 2:31:20 AM 10.95 73.7 794.88 210.59
6/13/2025 2:32:20 AM 10.94 73.59 796 211.57
6/13/2025 2:33:20 AM 10.91 73.7 795.33 212.04
6/13/2025 2:34:20 AM 10.87 73.59 798.63 212.32
6/13/2025 2:35:20 AM 10.85 73.65 800.37 213.55
6/13/2025 2:36:20 AM 10.81 73.7 803.62 213.78
6/13/2025 2:37:20 AM 10.79 73.7 806.87 215.8
6/13/2025 2:38:21 AM 10.75 73.36 810.45 216.13
6/13/2025 2:39:21 AM 10.74 73.59 816.34 217.2
6/13/2025 2:40:22 AM 10.71 73.7 819.36 218.54
6/13/2025 2:41:22 AM 10.67 73.48 820.6 219.77
6/13/2025 2:42:22 AM 10.64 73.7 821.6 220.61
6/13/2025 2:43:22 AM 10.58 73.59 825.53 221.96
6/13/2025 2:44:22 AM 10.55 73.65 828.5 222.35
6/13/2025 2:45:22 AM 10.54 73.65 832.92 222.35
6/13/2025 2:46:22 AM 10.51 73.48 837.57 223.3
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6/13/2025 2:48:23 AM 10.43 73.81 850.74 222.97
6/13/2025 2:49:23 AM 10.38 73.65 855.45 222.86
6/13/2025 2:50:23 AM 10.36 73.59 861.33 222.63
6/13/2025 2:51:23 AM 10.34 73.81 862.68 221.68
6/13/2025 2:52:23 AM 10.31 73.7 863.46 220.84
6/13/2025 2:53:24 AM 10.26 73.87 861.95 220.11
6/13/2025 2:54:24 AM 10.26 73.81 858.42 219.16
6/13/2025 2:55:24 AM 10.21 73.59 852.42 217.2
6/13/2025 2:56:24 AM 10.18 73.93 848.28 214.84
6/13/2025 2:57:24 AM 10.16 73.87 844.52 213.61
6/13/2025 2:58:25 AM 10.14 73.87 841.27 211.31
6/13/2025 2:59:25 AM 10.11 73.98 838.75 209.35
6/13/2025 3:00:25 AM 10.09 73.81 834.55 207.17
6/13/2025 3:01:26 AM 10.07 73.59 828.16 201.73
6/13/2025 3:02:26 AM 10.06 73.87 823.57 198.99
6/13/2025 3:03:26 AM 10.03 73.87 822.45 196.58
6/13/2025 3:04:26 AM 10.02 73.48 826.31 193.38
6/13/2025 3:05:27 AM 10 73.65 832.59 190.25
6/13/2025 3:06:27 AM 9.98 73.7 835.72 187.44
6/13/2025 3:07:28 AM 9.96 73.7 836.57 185.37
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6/13/2025 3:15:29 AM 9.87 73.65 800.82 172.93
6/13/2025 3:16:30 AM 9.85 73.59 794.65 172.76
6/13/2025 3:17:30 AM 9.84 73.65 788.43 171.76
6/13/2025 3:18:30 AM 9.84 73.59 782.49 169.85
6/13/2025 3:19:31 AM 9.8 73.7 776.95 169.85
6/13/2025 3:20:31 AM 9.8 73.81 770.39 169.29
6/13/2025 3:21:31 AM 9.78 73.59 763.67 168.06

6/13/2025 3:22:31 AM 9.77 73.36 758.23 167.55
6/13/2025 3:23:32 AM 9.77 73.59 751.79 166.15
6/13/2025 3:24:32 AM 9.77 73.59 746.07 165.98
6/13/2025 3:25:32 AM 9.76 73.7 741.26 165.54
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6/13/2025 3:28:33 AM 9.73 73.53 727.08 162.9
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6/13/2025 3:31:34 AM 9.7 73.36 716.6 161.67
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6/13/2025 3:34:34 AM 9.68 73.48 706.91 162.12
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6/13/2025 3:45:37 AM 9.54 73.48 737.33 181.79
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6/13/2025 3:55:40 AM 9.37 72.92 784.29 210.59
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6/13/2025 3:58:41 AM 9.28 73.14 749.72 215.18
6/13/2025 3:59:41 AM 9.28 73.03 743.78 217.2
6/13/2025 4:00:42 AM 9.25 73.14 740.66 217.42
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6/13/2025 4:02:42 AM 9.2 73.03 732.74 219.55
6/13/2025 4:03:42 AM 9.2 73.14 729.38 220.5
6/13/2025 4:04:42 AM 9.18 73.03 725.23 220.78
6/13/2025 4:05:42 AM 9.17 72.92 723.49 220.95
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6/13/2025 4:07:43 AM 9.12 72.92 721.93 221.9
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6/13/2025 4:09:43 AM 9.06 72.97 720.58 223.64
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6/13/2025 4:11:44 AM 9.02 72.97 724.73 223.58
6/13/2025 4:12:44 AM 9.01 72.86 726.24 224.31
6/13/2025 4:13:45 AM 8.98 73.03 727.64 225.04
6/13/2025 4:14:45 AM 8.96 72.86 728.59 224.82
6/13/2025 4:15:46 AM 8.94 72.75 729.21 224.82
6/13/2025 4:16:46 AM 8.9 72.75 733.36 225.71
6/13/2025 4:17:46 AM 8.89 72.86 737 226.39
6/13/2025 4:18:47 AM 8.88 72.75 741.37 227.17
6/13/2025 4:19:47 AM 8.84 72.69 743.95 227.79
6/13/2025 4:20:47 AM 8.81 73.03 748.54 229.52
6/13/2025 4:21:48 AM 8.79 72.97 751.62 229.58
6/13/2025 4:22:48 AM 8.77 72.97 754.42 229.64
6/13/2025 4:23:48 AM 8.75 72.97 757.22 230.87
6/13/2025 4:24:48 AM 8.72 72.86 759.13 232.16
6/13/2025 4:25:49 AM 8.7 72.92 762.38 231.65
6/13/2025 4:26:49 AM 8.68 73.03 764.73 232.72
6/13/2025 4:27:49 AM 8.65 73.03 766.86 233.61
6/13/2025 4:28:50 AM 8.63 73.14 768.54 234.68
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6/13/2025 4:30:50 AM 8.59 73.03 770.22 234.73
6/13/2025 4:31:51 AM 8.55 72.92 771.85 235.01
6/13/2025 4:32:51 AM 8.53 73.14 778.29 236.47
6/13/2025 4:33:52 AM 8.5 72.82 782.83 237.42
6/13/2025 4:34:52 AM 8.49 72.92 785.74 238.32
6/13/2025 4:35:52 AM 8.45 72.69 789.55 238.6
6/13/2025 4:36:53 AM 8.42 73.03 793.25 238.94
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6/13/2025 4:45:55 AM 8.2 72.97 820.76 242.58
6/13/2025 4:46:55 AM 8.19 72.97 825.08 243.31
6/13/2025 4:47:55 AM 8.16 73.03 828.44 242.02
6/13/2025 4:48:56 AM 8.13 73.14 828.27 242.58
6/13/2025 4:49:56 AM 8.1 73.14 830.74 242.24
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6/13/2025 4:51:57 AM 8.05 73.14 833.32 241.35
6/13/2025 4:52:57 AM 8.03 73.2 833.2 240.73
6/13/2025 4:53:57 AM 8.01 72.97 836.85 239.16
6/13/2025 4:54:58 AM 7.98 73.31 840.66 239.78
6/13/2025 4:55:58 AM 7.96 73.25 840.88 239.89
6/13/2025 4:56:58 AM 7.94 73.2 841.55 238.77
6/13/2025 4:57:59 AM 7.92 73.14 841.78 237.54
6/13/2025 4:58:59 AM 7.9 72.75 842.17 236.08
6/13/2025 4:59:59 AM 7.88 73.2 842.5 235.41
6/13/2025 5:01:00 AM 7.85 72.64 844.07 234.85
6/13/2025 5:02:00 AM 7.81 73.03 844.19 233
6/13/2025 5:03:01 AM 7.8 73.53 845.42 232.21
6/13/2025 5:04:01 AM 7.78 73.03 844.8 231.37
6/13/2025 5:05:01 AM 7.75 73.25 845.08 230.64
6/13/2025 5:06:01 AM 7.74 73.25 844.52 229.69
6/13/2025 5:07:01 AM 7.72 73.31 843.74 228.85
6/13/2025 5:08:01 AM 7.69 73.25 841.72 229.24
6/13/2025 5:09:02 AM 7.69 73.25 839.93 228.24
6/13/2025 5:10:02 AM 7.66 73.36 832.92 228.24
6/13/2025 5:11:02 AM 7.64 73.48 827.54 227.06
6/13/2025 5:12:02 AM 7.61 73.03 822.78 226.11
6/13/2025 5:13:03 AM 7.61 73.14 819.76 225.27
6/13/2025 5:14:03 AM 7.58 73.03 816.95 225.04
6/13/2025 5:15:03 AM 7.56 73.14 813.93 224.03
6/13/2025 5:16:04 AM 7.54 73.03 815.78 223.53
6/13/2025 5:17:04 AM 7.51 73.25 815.72 222.58
6/13/2025 5:18:04 AM 7.5 73.2 817.63 222.24
6/13/2025 5:19:05 AM 7.49 73.03 815.5 221.79
6/13/2025 5:20:05 AM 7.44 73.03 816.51 221.23
6/13/2025 5:21:05 AM 7.43 72.92 813.37 220.39
6/13/2025 5:22:05 AM 7.43 72.92 811.58 219.83
6/13/2025 5:23:05 AM 7.4 73.03 810.68 219.1
6/13/2025 5:24:06 AM 7.39 72.92 807.93 217.53
6/13/2025 5:25:06 AM 7.36 73.14 803 216.92
6/13/2025 5:26:06 AM 7.35 73.14 802.39 216.86
6/13/2025 5:27:06 AM 7.32 72.86 800.03 216.64
6/13/2025 5:28:06 AM 7.31 73.2 799.42 216.69
6/13/2025 5:29:07 AM 7.29 72.97 802.61 215.85
6/13/2025 5:30:07 AM 7.28 73.14 803.28 215.8
6/13/2025 5:31:08 AM 7.26 72.92 803.28 215.85

6/13/2025	5:32:08 AM	7.25	72.86	803.28	215.68
6/13/2025	5:33:08 AM	7.23	72.75	802.33	214.9
6/13/2025	5:34:08 AM	7.22	72.92	799.81	214.84
6/13/2025	5:35:08 AM	7.19	72.92	799.75	214.68
6/13/2025	5:36:08 AM	7.18	72.86	798.8	214.28
6/13/2025	5:37:09 AM	7.15	72.75	797.79	214.17
6/13/2025	5:38:09 AM	7.13	72.86	797.85	214.06
6/13/2025	5:39:09 AM	7.12	72.92	797.85	214.12
6/13/2025	5:40:09 AM	7.1	72.64	797.51	213.78
6/13/2025	5:41:09 AM	7.09	72.75	796.89	212.94
6/13/2025	5:42:10 AM	7.08	72.75	794.26	212.94
6/13/2025	5:43:10 AM	7.06	72.86	791.29	212.83
6/13/2025	5:44:10 AM	7.03	72.75	790.4	212.49
6/13/2025	5:45:11 AM	7.03	72.86	789.44	211.93
6/13/2025	5:46:11 AM	6.99	72.97	790.9	211.76
6/13/2025	5:47:11 AM	6.98	72.75	793.76	212.04
6/13/2025	5:48:11 AM	6.96	72.75	796.11	212.49
6/13/2025	5:49:11 AM	6.95	72.75	796.05	211.54
6/13/2025	5:50:12 AM	6.93	72.64	794.04	211.71
6/13/2025	5:51:12 AM	6.92	72.64	789.11	211.71
6/13/2025	5:52:13 AM	6.9	72.41	784.01	211.43
6/13/2025	5:53:13 AM	6.89	72.52	780.37	211.03
6/13/2025	5:54:13 AM	6.86	72.64	778.01	211.31
6/13/2025	5:55:14 AM	6.86	72.69	774.99	210.81
6/13/2025	5:56:14 AM	6.83	72.3	771.23	209.41
6/13/2025	5:57:14 AM	6.82	72.41	769.1	209.74
6/13/2025	5:58:15 AM	6.8	72.36	766.92	209.63
6/13/2025	5:59:15 AM	6.8	72.19	764.17	207.95
6/13/2025	6:00:15 AM	6.77	72.3	762.04	208.06
6/13/2025	6:01:15 AM	6.74	72.52	759.8	208.01
6/13/2025	6:02:15 AM	6.73	72.58	758.74	207.17
6/13/2025	6:03:16 AM	6.72	72.58	755.6	205.93
6/13/2025	6:04:16 AM	6.71	72.3	754.54	206.55
6/13/2025	6:05:16 AM	6.69	72.3	754.48	206.33
6/13/2025	6:06:16 AM	6.69	72.3	752.01	205.32
6/13/2025	6:07:17 AM	6.66	72.41	751.51	206.21
6/13/2025	6:08:17 AM	6.64	72.24	747.98	205.43
6/13/2025	6:09:17 AM	6.64	72.19	745.29	205.77
6/13/2025	6:10:18 AM	6.6	72.52	743.11	205.09
6/13/2025	6:11:18 AM	6.59	72.36	741.48	205.09
6/13/2025	6:12:18 AM	6.58	72.19	740.19	204.81
6/13/2025	6:13:18 AM	6.56	72.3	739.24	203.97
6/13/2025	6:14:19 AM	6.55	72.19	738.06	203.69
6/13/2025	6:15:19 AM	6.54	72.3	737.28	204.09
6/13/2025	6:16:19 AM	6.51	72.3	736.94	203.97
6/13/2025	6:17:19 AM	6.5	72.24	737.22	203.41
6/13/2025	6:18:20 AM	6.49	72.08	737.22	202.91
6/13/2025	6:19:20 AM	6.47	72.3	736.89	202.4
6/13/2025	6:20:20 AM	6.45	72.19	736.77	202.74
6/13/2025	6:21:20 AM	6.44	72.08	736.05	202.57
6/13/2025	6:22:21 AM	6.43	71.96	735.54	202.74
6/13/2025	6:23:21 AM	6.42	71.85	734.87	202.96
6/13/2025	6:24:21 AM	6.4	72.19	734.81	201.45
6/13/2025	6:25:22 AM	6.39	71.85	734.03	202.01
6/13/2025	6:26:22 AM	6.36	71.63	733.3	201.79
6/13/2025	6:27:22 AM	6.35	71.96	733.3	200.44
6/13/2025	6:28:22 AM	6.35	71.85	731.56	201.06
6/13/2025	6:29:22 AM	6.33	71.74	730.83	200.89
6/13/2025	6:30:23 AM	6.31	71.96	729.99	201.73
6/13/2025	6:31:23 AM	6.3	71.63	729.49	201.56
6/13/2025	6:32:23 AM	6.28	71.85	727.58	200.67
6/13/2025	6:33:23 AM	6.26	71.63	726.52	200.56
6/13/2025	6:34:24 AM	6.25	71.74	725.62	200.44
6/13/2025	6:35:24 AM	6.25	71.57	726.91	200.28
6/13/2025	6:36:24 AM	6.22	71.57	727.14	199.77
6/13/2025	6:37:24 AM	6.2	71.68	728.37	200.44
6/13/2025	6:38:25 AM	6.2	71.4	728.37	200.28
6/13/2025	6:39:25 AM	6.17	71.4	728.48	200.16
6/13/2025	6:40:25 AM	6.16	71.4	728.26	200.05
6/13/2025	6:41:26 AM	6.15	71.52	727.7	200.11
6/13/2025	6:42:26 AM	6.13	71.57	727.14	200.67
6/13/2025	6:43:26 AM	6.12	71.4	727.08	201
6/13/2025	6:44:26 AM	6.1	71.4	727.36	200.78
6/13/2025	6:45:26 AM	6.09	71.4	725.85	200.89
6/13/2025	6:46:27 AM	6.07	71.35	727.64	200.78
6/13/2025	6:47:27 AM	6.05	71.52	728.54	201
6/13/2025	6:48:27 AM	6.04	71.68	729.94	201.56
6/13/2025	6:49:28 AM	6.03	71.4	730.33	200
6/13/2025	6:50:28 AM	6.02	71.57	731.45	199.15
6/13/2025	6:51:28 AM	6.02	71.07	732.01	198.04
6/13/2025	6:52:28 AM	5.99	70.68	733.47	197.25
6/13/2025	6:53:29 AM	5.98	71.35	734.03	197.53
6/13/2025	6:54:29 AM	5.97	70.51	734.87	197.08
6/13/2025	6:55:29 AM	5.95	70.17	735.54	196.69
6/13/2025	6:56:30 AM	5.94	69.95	735.2	195.46
6/13/2025	6:57:30 AM	5.92	70.45	735.43	196.02
6/13/2025	6:58:30 AM	5.91	70.4	735.65	196.07
6/13/2025	6:59:30 AM	5.89	70.12	735.48	195.18
6/13/2025	7:00:31 AM	5.87	70.34	734.64	195.79
6/13/2025	7:01:31 AM	5.87	70.12	734.08	196.24
6/13/2025	7:02:32 AM	5.86	70	733.19	196.58
6/13/2025	7:03:32 AM	5.85	70.28	732.12	196.69
6/13/2025	7:04:32 AM	5.82	70.06	731.56	196.58
6/13/2025	7:05:33 AM	5.81	69.67	730.22	195.91
6/13/2025	7:06:33 AM	5.81	69.55	729.21	196.41
6/13/2025	7:07:33 AM	5.79	69.44	728.48	196.58
6/13/2025	7:08:34 AM	5.77	69.72	728.09	196.8
6/13/2025	7:09:34 AM	5.77	69.72	727.36	197.36
6/13/2025	7:10:34 AM	5.76	70.12	726.86	196.8
6/13/2025	7:11:34 AM	5.67	69.95	687.3	320.29
6/13/2025	7:12:35 AM	5.62	69.55	667.07	290.65
6/13/2025	7:13:35 AM	5.57	69.84	723.16	287.12
6/13/2025	7:14:35 AM	5.53	69.5	745.91	290.99
6/13/2025	7:15:35 AM	5.46	69.5	747.53	293.68
6/13/2025	7:16:35 AM	5.42	69.78	750.73	297.49
6/13/2025	7:17:35 AM	5.37	69.78	756.16	300.68
6/13/2025	7:18:35 AM	5.33	69.78	756.05	302.08
6/13/2025	7:19:35 AM	5.26	69.55	755.26	304.66
6/13/2025	7:20:35 AM	18.79	69.72	736.55	379.41
6/13/2025	7:21:35 AM	38.56	69.95	609.92	353.97
6/13/2025	7:22:35 AM	38.51	69.84	696.82	315.03
6/13/2025	7:23:35 AM	38.42	69.84	760.98	307.29
6/13/2025	7:24:35 AM	38.36	69.39	794.82	303.82
6/13/2025	7:25:35 AM	38.3	69.44	824.35	305.45
6/13/2025	7:26:35 AM	38.26	69.22	832.25	305.39
6/13/2025	7:27:36 AM	38.2	69.22	823.57	305.67
6/13/2025	7:28:36 AM	38.14	69.44	824.52	303.71
6/13/2025	7:29:36 AM	38.08	69.22	825.53	306.57
6/13/2025	7:30:36 AM	38.03	68.99	855.62	309.2
6/13/2025	7:31:36 AM	37.93	69.16	865.59	311.61
6/13/2025	7:32:36 AM	37.88	69.05	853.6	316.88
6/13/2025	7:33:36 AM	37.79	68.99	851.02	318.05
6/13/2025	7:34:36 AM	37.74	68.99	863.46	321.47
6/13/2025	7:35:36 AM	37.65	69.05	871.7	325.51
6/13/2025	7:36:36 AM	37.56	68.55	879.26	328.75
6/13/2025	7:37:36 AM	37.49	68.99	879.71	331.22
6/13/2025	7:38:36 AM	37.42	68.99	868.11	333.01
6/13/2025	7:39:37 AM	37.32	68.88	867.94	334.86
6/13/2025	7:40:37 AM	37.25	68.71	870.35	337.16

6/13/2025	7:41:37 AM	37.16	68.71	863.46	339.29
6/13/2025	7:42:37 AM	37.07	68.77	846.87	342.87
6/13/2025	7:43:37 AM	36.98	68.83	839.81	344.72
6/13/2025	7:44:37 AM	36.94	68.88	834.1	344
6/13/2025	7:45:37 AM	36.86	68.55	833.65	341.87
6/13/2025	7:46:37 AM	36.81	68.77	837.24	341.08
6/13/2025	7:47:37 AM	36.75	68.66	848.11	343.38
6/13/2025	7:48:37 AM	36.66	68.71	875.67	346.12
6/13/2025	7:49:37 AM	36.58	68.43	875.67	349.88
6/13/2025	7:50:37 AM	36.48	68.66	868.95	354.42
6/13/2025	7:51:37 AM	36.36	68.66	881.5	358.96
6/13/2025	7:52:38 AM	36.24	68.55	905.43	364.61
6/13/2025	7:53:38 AM	36.14	68.49	914.39	368.31
6/13/2025	7:54:38 AM	36.05	68.49	906.88	369.94
6/13/2025	7:55:38 AM	35.98	68.27	906.38	371.11
6/13/2025	7:56:38 AM	35.87	68.38	910.69	372.52
6/13/2025	7:57:38 AM	35.76	68.1	925.49	374.31
6/13/2025	7:58:38 AM	35.67	68.43	942.69	377.33
6/13/2025	7:59:38 AM	35.58	68.21	959.61	379.74
6/13/2025	8:00:38 AM	35.46	68.43	971.04	382.71
6/13/2025	8:01:38 AM	35.36	68.21	976.7	385.12
6/13/2025	8:02:38 AM	35.27	68.49	975.97	386.3
6/13/2025	8:03:38 AM	35.2	68.49	974.91	387.25
6/13/2025	8:04:38 AM	35.08	68.27	979.16	388.37
6/13/2025	8:05:39 AM	34.97	68.43	986.34	390.22
6/13/2025	8:06:39 AM	34.9	68.55	989.19	392.52
6/13/2025	8:07:39 AM	34.77	68.43	990.26	395.04
6/13/2025	8:08:39 AM	34.67	68.1	1002.98	395.71
6/13/2025	8:09:39 AM	34.55	68.27	1016.31	397.34
6/13/2025	8:10:39 AM	34.44	68.15	1017.89	399.22
6/13/2025	8:11:39 AM	34.36	68.04	1023.99	377.84
6/13/2025	8:12:39 AM	34.26	67.93	1016.42	374.25
6/13/2025	8:13:39 AM	34.18	68.21	997.09	370.67
6/13/2025	8:14:39 AM	34.06	67.87	979.89	367.02
6/13/2025	8:15:39 AM	34.02	68.21	969.3	364.33
6/13/2025	8:16:39 AM	33.92	68.15	959.5	361.65
6/13/2025	8:17:40 AM	33.88	68.38	946.83	359.24
6/13/2025	8:18:40 AM	33.79	68.55	934.84	357.5
6/13/2025	8:19:40 AM	33.76	68.04	924.37	354.59
6/13/2025	8:20:40 AM	33.66	68.49	915.18	353.91
6/13/2025	8:21:41 AM	33.59	68.55	907.89	352.18
6/13/2025	8:22:41 AM	33.52	68.21	902.46	350.72
6/13/2025	8:23:41 AM	33.46	68.38	898.93	350.38
6/13/2025	8:24:42 AM	33.37	68.66	898.03	348.98
6/13/2025	8:25:42 AM	33.3	68.49	898.59	348.42
6/13/2025	8:26:42 AM	33.23	68.55	901.84	347.47
6/13/2025	8:27:42 AM	33.15	68.38	905.2	347.58
6/13/2025	8:28:42 AM	33.11	68.43	906.77	347.75
6/13/2025	8:29:43 AM	33.01	68.49	908.9	347.13
6/13/2025	8:30:43 AM	32.94	68.27	912.49	347.3
6/13/2025	8:31:43 AM	32.86	68.55	914.34	348.25
6/13/2025	8:32:44 AM	32.77	68.43	916.07	347.64
6/13/2025	8:33:44 AM	32.71	68.43	918.93	347.47
6/13/2025	8:34:44 AM	32.63	68.55	921.06	348.03
6/13/2025	8:35:44 AM	32.55	68.55	922.74	348.25
6/13/2025	8:36:44 AM	32.48	68.49	923.69	348.53
6/13/2025	8:37:44 AM	32.41	68.43	923.41	350.05
6/13/2025	8:38:44 AM	32.31	68.55	924.31	349.82
6/13/2025	8:39:44 AM	32.27	68.83	926.44	348.09
6/13/2025	8:40:45 AM	32.17	68.83	927.62	349.82
6/13/2025	8:41:45 AM	32.08	68.83	927.34	349.77
6/13/2025	8:42:45 AM	32.04	68.83	927.5	349.26
6/13/2025	8:43:45 AM	31.93	68.77	928.96	350.05
6/13/2025	8:44:45 AM	31.86	68.71	930.98	349.26
6/13/2025	8:45:45 AM	31.76	68.71	934.4	349.88
6/13/2025	8:46:45 AM	31.7	68.55	937.14	350.78
6/13/2025	8:47:46 AM	31.61	68.83	938.43	351.73
6/13/2025	8:48:46 AM	31.54	68.77	941.4	352.62
6/13/2025	8:49:46 AM	31.45	68.77	943.3	353.63
6/13/2025	8:50:46 AM	31.37	68.71	941.29	353.07
6/13/2025	8:51:46 AM	31.32	68.66	939.77	352.9
6/13/2025	8:52:47 AM	31.2	68.49	941.96	354.42
6/13/2025	8:53:47 AM	31.12	68.71	945.21	355.93
6/13/2025	8:54:47 AM	31.07	68.66	943.75	356.49
6/13/2025	8:55:48 AM	30.95	68.77	940.67	355.87
6/13/2025	8:56:48 AM	30.87	68.77	937.25	355.87
6/13/2025	8:57:48 AM	30.78	68.83	935.18	356.15
6/13/2025	8:58:49 AM	30.69	68.38	932.94	356.66
6/13/2025	8:59:49 AM	30.6	68.83	931.71	356.66
6/13/2025	9:00:49 AM	30.52	68.71	931.15	356.71
6/13/2025	9:01:49 AM	30.43	68.99	929.97	355.59
6/13/2025	9:02:49 AM	30.34	68.99	929.35	356.15
6/13/2025	9:03:49 AM	30.26	68.71	928.51	355.59
6/13/2025	9:04:49 AM	30.18	69.11	928.06	355.31
6/13/2025	9:05:50 AM	30.09	68.99	932.27	355.54
6/13/2025	9:06:50 AM	30.01	68.99	929.41	355.71
6/13/2025	9:07:50 AM	29.91	69.05	921.12	354.7
6/13/2025	9:08:50 AM	29.83	69.11	916.91	353.97
6/13/2025	9:09:50 AM	29.75	69.11	920.56	352.29
6/13/2025	9:10:51 AM	29.67	69.39	930.08	351.45
6/13/2025	9:11:51 AM	29.57	69.05	940.05	350.83
6/13/2025	9:12:51 AM	29.52	69.16	950.14	351.45
6/13/2025	9:13:51 AM	29.41	69.22	956.7	350.33
6/13/2025	9:14:51 AM	29.37	69.33	960.84	350.44
6/13/2025	9:15:52 AM	29.27	69.5	964.71	349.49
6/13/2025	9:16:52 AM	29.2	69.5	967.79	349.26
6/13/2025	9:17:52 AM	29.13	69.22	970.37	349.82
6/13/2025	9:18:52 AM	29.05	69.33	972.72	349.15
6/13/2025	9:19:52 AM	28.96	69.22	976.03	348.7
6/13/2025	9:20:53 AM	28.89	69.5	980.28	348.87
6/13/2025	9:21:53 AM	28.8	69.55	983.76	347.75
6/13/2025	9:22:53 AM	28.73	69.5	986.28	347.92
6/13/2025	9:23:53 AM	28.67	69.67	987.4	347.19
6/13/2025	9:24:53 AM	28.56	69.72	988.52	346.4
6/13/2025	9:25:54 AM	28.5	69.72	989.42	347.02
6/13/2025	9:26:54 AM	28.43	70	990.54	345.62
6/13/2025	9:27:54 AM	28.34	69.84	992.05	345.06
6/13/2025	9:28:54 AM	28.26	70.06	995.75	346.46
6/13/2025	9:29:55 AM	28.19	69.78	998.61	346.01
6/13/2025	9:30:55 AM	28.11	69.84	998.94	346.46
6/13/2025	9:31:55 AM	28.04	70	998.61	345.84
6/13/2025	9:32:55 AM	27.98	70.06	997.99	345.23
6/13/2025	9:33:56 AM	27.91	69.84	997.04	344.95
6/13/2025	9:34:56 AM	27.83	69.72	998.05	344.44
6/13/2025	9:35:56 AM	27.76	69.84	1000.18	344.61
6/13/2025	9:36:56 AM	27.65	69.84	1000.85	344.61
6/13/2025	9:37:56 AM	27.59	69.78	1001.97	344.05
6/13/2025	9:38:57 AM	27.51	69.84	1005.5	343.49
6/13/2025	9:39:57 AM	27.45	70.28	1008.47	344.67
6/13/2025	9:40:57 AM	27.38	70	1011.49	343.66
6/13/2025	9:41:57 AM	27.29	70.51	1010.6	344.28
6/13/2025	9:42:58 AM	27.21	70.45	1006.23	345.23
6/13/2025	9:43:58 AM	27.13	70.17	1004.83	344.67
6/13/2025	9:44:59 AM	27.06	70.34	1004.88	344.5
6/13/2025	9:45:59 AM	26.98	70	1004.55	342.43
6/13/2025	9:46:59 AM	26.89	70.17	999.17	341.53
6/13/2025	9:47:59 AM	26.83	70.34	994.18	338.06
6/13/2025	9:48:59 AM	26.78	70.17	990.15	337.1
6/13/2025	9:49:59 AM	26.7	70.68	985.05	336.09

6/13/2025	9:51:00 AM	26.62	70.45	979.56	335.76
6/13/2025	9:52:00 AM	26.56	70.4	974.96	333.63
6/13/2025	9:53:00 AM	26.5	70.34	974.85	332.4
6/13/2025	9:54:00 AM	26.43	70.45	973.17	329.76
6/13/2025	9:55:00 AM	26.38	70.62	972.88	330.6
6/13/2025	9:56:00 AM	26.32	70.68	973.22	328.87
6/13/2025	9:57:01 AM	26.24	70.51	977.76	329.54
6/13/2025	9:58:01 AM	26.18	70.84	986.95	329.2
6/13/2025	9:59:01 AM	26.11	70.62	990.37	330.16
6/13/2025	10:00:01 AM	26.05	70.96	989.42	329.76
6/13/2025	10:01:02 AM	26.01	70.34	989.53	330.6
6/13/2025	10:02:02 AM	25.91	70.73	990.37	330.04
6/13/2025	10:03:02 AM	25.87	70.73	994.07	329.2
6/13/2025	10:04:02 AM	25.81	70.96	998.72	330.16
6/13/2025	10:05:03 AM	25.73	70.84	1000.79	329.76
6/13/2025	10:06:03 AM	25.68	70.45	1001.86	330.32
6/13/2025	10:07:03 AM	25.6	70.62	1000.12	330.55
6/13/2025	10:08:03 AM	25.54	70.68	997.99	331.56
6/13/2025	10:09:03 AM	25.46	70.84	996.2	332.45
6/13/2025	10:10:03 AM	25.4	70.45	993.84	331.56
6/13/2025	10:11:03 AM	25.34	70.84	993.06	332.17
6/13/2025	10:12:04 AM	25.28	70.06	990.71	332.73
6/13/2025	10:13:04 AM	25.19	70.45	989.98	334.25
6/13/2025	10:14:04 AM	25.11	70.96	991.43	334.81
6/13/2025	10:15:04 AM	25.06	70.84	994.12	334.92
6/13/2025	10:16:04 AM	25	71.18	997.04	333.97
6/13/2025	10:17:04 AM	24.92	71.01	1001.07	335.65
6/13/2025	10:18:04 AM	24.84	70.73	1003.59	336.88
6/13/2025	10:19:04 AM	24.77	70.73	1006.23	337.44
6/13/2025	10:20:04 AM	24.72	71.29	1006.69	337.55
6/13/2025	10:21:05 AM	24.66	71.4	1012.22	338.22
6/13/2025	10:22:05 AM	24.59	71.35	1016.03	337.55
6/13/2025	10:23:05 AM	24.52	71.29	1019.34	337.55
6/13/2025	10:24:06 AM	24.45	71.29	1023.82	339.46
6/13/2025	10:25:06 AM	24.37	71.29	1026.9	339.91
6/13/2025	10:26:06 AM	24.31	71.57	1028.98	341.25
6/13/2025	10:27:07 AM	24.22	71.57	1030.54	340.41
6/13/2025	10:28:07 AM	24.17	71.68	1033.46	340.35
6/13/2025	10:29:07 AM	24.09	71.52	1031.89	341.08
6/13/2025	10:30:08 AM	24.05	71.68	1029.09	339.01
6/13/2025	10:31:08 AM	23.94	71.63	1026.4	336.6
6/13/2025	10:32:08 AM	23.87	71.63	1020.52	335.87
6/13/2025	10:33:08 AM	23.82	71.57	1004.49	334.92
6/13/2025	10:34:09 AM	23.75	71.4	994.24	333.63
6/13/2025	10:35:09 AM	23.68	71.68	988.91	332.56
6/13/2025	10:36:09 AM	23.62	70.4	985.1	333.46
6/13/2025	10:37:09 AM	23.55	71.4	983.63	332.45
6/13/2025	10:38:10 AM	23.49	71.4	982.92	330.16
6/13/2025	10:39:10 AM	23.42	71.96	981.24	328.92
6/13/2025	10:40:10 AM	23.35	71.29	978.83	327.97
6/13/2025	10:41:10 AM	23.28	71.29	976.87	328.08
6/13/2025	10:42:10 AM	23.19	71.68	975.47	327.19
6/13/2025	10:43:11 AM	23.14	71.57	974.01	327.52
6/13/2025	10:44:11 AM	23.1	71.74	972.72	326.96
6/13/2025	10:45:11 AM	23.03	71.74	971.99	325.82
6/13/2025	10:46:12 AM	22.96	71.57	971.21	324.27
6/13/2025	10:47:12 AM	22.88	71.68	970.7	323.6
6/13/2025	10:48:12 AM	22.82	72.02	970.82	324.1
6/13/2025	10:49:13 AM	22.75	72.08	969.08	323.32
6/13/2025	10:50:13 AM	22.68	72.08	968.24	324.22
6/13/2025	10:51:13 AM	22.63	72.08	969.36	323.82
6/13/2025	10:52:14 AM	22.56	72.19	967.23	323.32
6/13/2025	10:53:14 AM	22.49	72.08	963.7	322.14
6/13/2025	10:54:14 AM	22.42	72.19	969.38	322.67
6/13/2025	10:55:14 AM	22.35	72.08	954.06	322.87
6/13/2025	10:56:15 AM	22.31	72.19	950.2	322.48
6/13/2025	10:57:15 AM	22.24	71.96	946.83	322.65
6/13/2025	10:58:15 AM	22.18	71.74	946.05	320.8
6/13/2025	10:59:15 AM	22.14	72.19	948.07	318.89
6/13/2025	11:00:16 AM	22.04	71.68	950.36	318.05
6/13/2025	11:01:16 AM	22.01	72.08	950.25	318.33
6/13/2025	11:02:16 AM	21.97	72.08	951.6	317.83
6/13/2025	11:03:16 AM	21.9	71.68	954.9	315.82
6/13/2025	11:04:16 AM	21.86	72.08	954.96	314.35
6/13/2025	11:05:16 AM	21.78	72.3	954.29	312.51
6/13/2025	11:06:17 AM	21.74	72.19	956.14	312.23
6/13/2025	11:07:17 AM	21.71	72.41	969.81	311.67
6/13/2025	11:08:17 AM	21.65	72.3	964.38	312.56
6/13/2025	11:09:17 AM	21.6	71.96	966.39	312.79
6/13/2025	11:10:17 AM	21.53	72.52	964.82	312.45
6/13/2025	11:11:18 AM	21.5	72.19	980.28	311.33
6/13/2025	11:12:18 AM	21.44	72.64	974.96	312.28
6/13/2025	11:13:18 AM	21.41	71.91	973.62	312.51
6/13/2025	11:14:18 AM	21.34	72.24	978.04	312.67
6/13/2025	11:15:18 AM	21.28	72.52	983.7	313.79
6/13/2025	11:16:19 AM	21.22	72.58	987.68	313.4
6/13/2025	11:17:19 AM	21.18	72.86	991.55	314.86
6/13/2025	11:18:19 AM	21.13	72.64	995.75	315.03
6/13/2025	11:19:19 AM	21.06	72.19	1002.31	315.48
6/13/2025	11:20:20 AM	21	72.75	1010.04	317.55
6/13/2025	11:21:20 AM	20.93	72.75	1017.55	318.84
6/13/2025	11:22:20 AM	20.88	71.74	1027.46	320.91
6/13/2025	11:23:21 AM	20.82	71.96	1036.04	322.7
6/13/2025	11:24:21 AM	20.76	72.41	1041.02	324.38
6/13/2025	11:25:21 AM	20.7	72.75	1042.98	325.51
6/13/2025	11:26:21 AM	20.61	71.96	1047.3	326.4
6/13/2025	11:27:22 AM	20.54	72.58	1049.97	327.75
6/13/2025	11:28:22 AM	20.5	71.68	1052.96	328.87
6/13/2025	11:29:22 AM	20.41	71.91	1057.1	329.93
6/13/2025	11:30:23 AM	20.35	72.36	1059.34	330.77
6/13/2025	11:31:23 AM	20.26	71.96	1061.7	332.06
6/13/2025	11:32:23 AM	20.21	72.19	1060.52	331
6/13/2025	11:33:24 AM	20.14	72.58	1055.93	331.67
6/13/2025	11:34:24 AM	20.08	72.02	1050.27	330.6
6/13/2025	11:35:24 AM	20	72.02	1043.21	330.72
6/13/2025	11:36:24 AM	19.94	72.41	1037.55	330.04
6/13/2025	11:37:24 AM	19.87	71.96	1032.51	328.19
6/13/2025	11:38:25 AM	19.8	72.41	1030.38	327.52
6/13/2025	11:39:25 AM	19.76	72.3	1028.42	325.79
6/13/2025	11:40:25 AM	19.68	71.96	1034.75	324.83
6/13/2025	11:41:26 AM	19.63	72.19	1039.23	325.79
6/13/2025	11:42:26 AM	19.57	72.02	1044.55	324.61
6/13/2025	11:43:27 AM	19.5	72.02	1044.83	324.78
6/13/2025	11:44:27 AM	19.46	72.41	1043.32	323.99
6/13/2025	11:45:27 AM	19.39	72.86	1049.91	322.42
6/13/2025	11:46:27 AM	19.33	72.64	1038.39	321.81
6/13/2025	11:47:28 AM	19.29	72.36	1041.13	320.29
6/13/2025	11:48:28 AM	19.22	72.3	1042.26	319.96
6/13/2025	11:49:28 AM	19.19	72.52	1043.82	320.29
6/13/2025	11:50:28 AM	19.12	73.03	1045.11	319.17
6/13/2025	11:51:28 AM	19.06	73.03	1047.52	319.17
6/13/2025	11:52:29 AM	19	73.31	1045.95	319.51
6/13/2025	11:53:29 AM	18.95	72.86	1048.42	318.79
6/13/2025	11:54:30 AM	18.9	73.59	1053.8	318.11
6/13/2025	11:55:30 AM	18.85	73.93	1060.07	318.61
6/13/2025	11:56:30 AM	18.78	73.7	1065.56	318.61
6/13/2025	11:57:31 AM	18.74	72.75	1070.89	319.06
6/13/2025	11:58:31 AM	18.67	73.65	1074.47	319.62
6/13/2025	11:59:31 AM	18.61	73.03	1079.18	319.17

6/13/2025	12:00:31 PM	18.55	73.2	1084.5	319.85
6/13/2025	12:01:31 PM	18.49	73.59	1085.9	319.79
6/13/2025	12:02:31 PM	18.44	74.21	1087.75	320.24
6/13/2025	12:03:31 PM	18.37	73.93	1089.6	320.07
6/13/2025	12:04:32 PM	18.34	73.48	1087.64	320.57
6/13/2025	12:05:32 PM	18.25	73.7	1086.24	321.08
6/13/2025	12:06:32 PM	18.19	72.52	1087.64	321.25
6/13/2025	12:07:32 PM	18.14	72.64	1089.15	320.69
6/13/2025	12:08:33 PM	18.06	73.48	1092.12	321.25
6/13/2025	12:09:33 PM	18	74.04	1096.1	322.48
6/13/2025	12:10:33 PM	17.93	73.93	1101.26	323.6
6/13/2025	12:11:33 PM	17.85	73.25	1107.7	323.77
6/13/2025	12:12:34 PM	17.8	73.7	1112.46	324.27
6/13/2025	12:13:34 PM	17.72	73.98	1114.09	325.06
6/13/2025	12:14:34 PM	17.65	73.81	1114.65	324.44
6/13/2025	12:15:34 PM	17.58	73.7	1116.1	324.55
6/13/2025	12:16:34 PM	17.51	73.93	1114.14	325.39
6/13/2025	12:17:35 PM	17.43	73.48	1111.62	325.45
6/13/2025	12:18:35 PM	17.36	73.98	1108.65	325.45
6/13/2025	12:19:35 PM	17.28	73.93	1105.29	325.17
6/13/2025	12:20:35 PM	17.21	73.36	1097.22	325.62
6/13/2025	12:21:35 PM	17.13	73.36	1092.74	325.73
6/13/2025	12:22:35 PM	17.03	73.48	1086.18	325.79
6/13/2025	12:23:36 PM	16.98	73.7	1078.23	324.78
6/13/2025	12:24:36 PM	16.88	73.65	1071.06	324.27
6/13/2025	12:25:36 PM	16.8	73.25	1065.68	324.22
6/13/2025	12:26:36 PM	16.7	73.48	1060.69	322.7
6/13/2025	12:27:36 PM	16.64	73.53	1053.07	320.29
6/13/2025	12:28:37 PM	16.55	73.93	1047.24	316.88
6/13/2025	12:29:37 PM	16.47	73.36	1037.88	314.24
6/13/2025	12:30:37 PM	16.39	73.81	1029.76	310.1
6/13/2025	12:31:37 PM	16.3	73.65	1024.38	307.8
6/13/2025	12:32:37 PM	16.23	73.59	1017.04	303.37
6/13/2025	12:33:37 PM	16.16	73.87	1008.24	297.55
6/13/2025	12:34:37 PM	16.08	73.98	999.17	294.13
6/13/2025	12:35:38 PM	16.01	73.81	990.31	288.75
6/13/2025	12:36:38 PM	15.94	73.98	1004.71	283.43
6/13/2025	12:37:38 PM	15.86	74.54	1024.72	279.06
6/13/2025	12:38:38 PM	15.82	74.21	1029.93	274.29
6/13/2025	12:39:38 PM	15.73	73.98	1029.26	270.87
6/13/2025	12:40:39 PM	15.67	74.15	1028.08	268.91
6/13/2025	12:41:39 PM	15.62	74.21	1026.85	266.11
6/13/2025	12:42:39 PM	15.56	73.36	1025.5	262.81
6/13/2025	12:43:40 PM	15.5	73.7	1022.81	260.85
6/13/2025	12:44:40 PM	15.43	74.15	1021.92	259.22
6/13/2025	12:45:40 PM	15.37	73.65	1021.41	257.6
6/13/2025	12:46:40 PM	15.31	73.7	1021.41	255.97
6/13/2025	12:47:41 PM	15.26	73.65	1020.96	254.91
6/13/2025	12:48:41 PM	15.21	73.53	1020.07	254.68
6/13/2025	12:49:41 PM	15.15	74.21	1020.07	253.95
6/13/2025	12:50:41 PM	15.11	74.21	1020.35	252.72
6/13/2025	12:51:41 PM	15.04	73.59	1020.85	251.43
6/17/2025	8:24:09 AM	7.12	70.28	1103.83	595.86
6/17/2025	8:25:09 AM	6.86	70.34	1100.53	606.28
6/17/2025	8:26:09 AM	6.74	70.06	1008.64	416.95
6/17/2025	8:27:09 AM	6.68	70.4	945.94	337.44
6/17/2025	8:28:09 AM	6.66	70.62	923.25	297.43
6/17/2025	8:29:09 AM	6.6	70.62	966.89	271.1
6/17/2025	8:30:09 AM	6.56	70.79	976.25	251.71
6/17/2025	8:31:09 AM	6.52	70.45	963.42	238.04
6/17/2025	8:32:09 AM	6.49	70.68	946.72	226.16
6/17/2025	8:33:09 AM	6.49	70.45	927.9	215.91
6/17/2025	8:34:09 AM	6.47	70.28	908.79	209.63
6/17/2025	8:35:09 AM	6.45	69.95	890.41	203.58
6/17/2025	8:36:10 AM	6.43	69.84	872.82	197.19
6/17/2025	8:37:10 AM	6.41	70.34	857.52	191.65
6/17/2025	8:38:10 AM	6.4	70.4	842.45	189.07
6/17/2025	8:39:10 AM	6.35	70.51	886.6	258.16
6/17/2025	8:40:10 AM	6.28	70.68	905.93	324.16
6/17/2025	8:41:10 AM	6.2	70.79	919.04	348.25
6/17/2025	8:42:10 AM	6.1	70.96	936.3	359.68
6/17/2025	8:43:10 AM	6.01	70.96	958.83	369.27
6/17/2025	8:44:10 AM	5.92	71.12	980.34	377.28
6/17/2025	8:45:10 AM	5.82	71.18	988.41	383.39
6/17/2025	8:46:10 AM	5.72	71.18	986.17	390.95
6/17/2025	8:47:10 AM	5.59	70.73	980.28	396.89
6/17/2025	8:48:10 AM	5.53	70.62	997.93	400.19
6/17/2025	8:49:11 AM	5.43	70.34	1004.43	406.08
6/17/2025	8:50:11 AM	5.33	70.68	1018.5	409.27
6/17/2025	8:51:11 AM	5.21	71.07	1046.01	415.48
6/17/2025	8:52:11 AM	5.07	71.29	1066.85	423.11
6/17/2025	8:53:11 AM	4.94	71.29	1059.18	427.99
6/17/2025	8:54:11 AM	4.81	70.68	1030.32	431.91
6/17/2025	8:55:11 AM	4.67	71.18	989.53	432.75
6/17/2025	8:56:11 AM	4.54	71.35	969.64	431.12
6/17/2025	8:57:11 AM	4.39	71.29	962.8	428.88
6/17/2025	8:58:11 AM	4.26	71.52	950.87	425.46
6/17/2025	8:59:11 AM	4.13	71.4	946.63	424.06
6/17/2025	9:00:11 AM	4.67	71.35	1010.54	475.16
6/17/2025	9:01:11 AM	32.77	71.68	1046.46	407.65
6/17/2025	9:02:11 AM	32.66	71.35	1006.56	334.69
6/17/2025	9:03:12 AM	32.58	71.57	1015.19	300.35
6/17/2025	9:04:12 AM	32.52	71.63	1043.32	278.72
6/17/2025	9:05:12 AM	32.47	71.74	1072.4	262.47
6/17/2025	9:06:12 AM	32.41	72.02	1065.12	250.37
6/17/2025	9:07:12 AM	32.35	71.74	1046.12	239.27
6/17/2025	9:08:12 AM	32.3	71.4	1027.18	233.11
6/17/2025	9:09:12 AM	32.28	71.68	1009.65	227.95
6/17/2025	9:10:12 AM	32.23	71.63	995.3	227.79
6/17/2025	9:11:12 AM	32.2	71.91	982.64	231.54
6/17/2025	9:12:12 AM	32.13	71.4	976.42	233.17
6/17/2025	9:13:12 AM	32.09	71.52	974.85	235.74
6/17/2025	9:14:12 AM	32.03	70.96	963.92	241.18
6/17/2025	9:15:12 AM	31.99	71.12	949.13	245.66
6/17/2025	9:16:12 AM	31.96	70.96	949.02	252.95
6/17/2025	9:17:13 AM	31.89	70.84	933.05	254.91
6/17/2025	9:18:13 AM	31.83	71.12	918.59	258.83
6/17/2025	9:19:13 AM	31.81	71.35	909.69	262.19
6/17/2025	9:20:13 AM	31.75	70.68	907.5	265.16
6/17/2025	9:21:13 AM	31.67	70.45	910.25	268.8
6/17/2025	9:22:13 AM	31.62	70.79	914.28	271.21
6/17/2025	9:23:13 AM	31.56	70.34	919.32	273.56
6/17/2025	9:24:13 AM	31.51	70.68	924.48	277.77
6/17/2025	9:25:13 AM	31.43	70.28	926.89	281.3
6/17/2025	9:26:13 AM	31.37	70.51	947.62	288.3
6/17/2025	9:27:13 AM	31.27	70.28	983.53	291.49
6/17/2025	9:28:13 AM	31.21	70.17	1002.7	298.11
6/17/2025	9:29:13 AM	31.13	70.12	1010.09	302.31
6/17/2025	9:30:13 AM	31.08	70.12	999.62	304.1
6/17/2025	9:31:14 AM	31.01	70.06	978.88	305.56
6/17/2025	9:32:14 AM	30.92	70.34	960.73	306.51
6/17/2025	9:33:14 AM	30.87	70.12	947.11	305.67
6/17/2025	9:34:14 AM	30.8	70.17	936.02	306.29
6/17/2025	9:35:14 AM	30.76	70.34	923.13	305.33
6/17/2025	9:36:14 AM	30.69	70.4	905.37	303.99
6/17/2025	9:37:14 AM	30.65	70.34	887.44	302.25
6/17/2025	9:38:14 AM	30.57	70.34	868.89	301.52
6/17/2025	9:39:14 AM	30.54	70.45	856.29	301.08
6/17/2025	9:40:14 AM	30.46	70.51	853.04	300.29

Added 29.5lbs 19-23% MC, Medium Air Setting

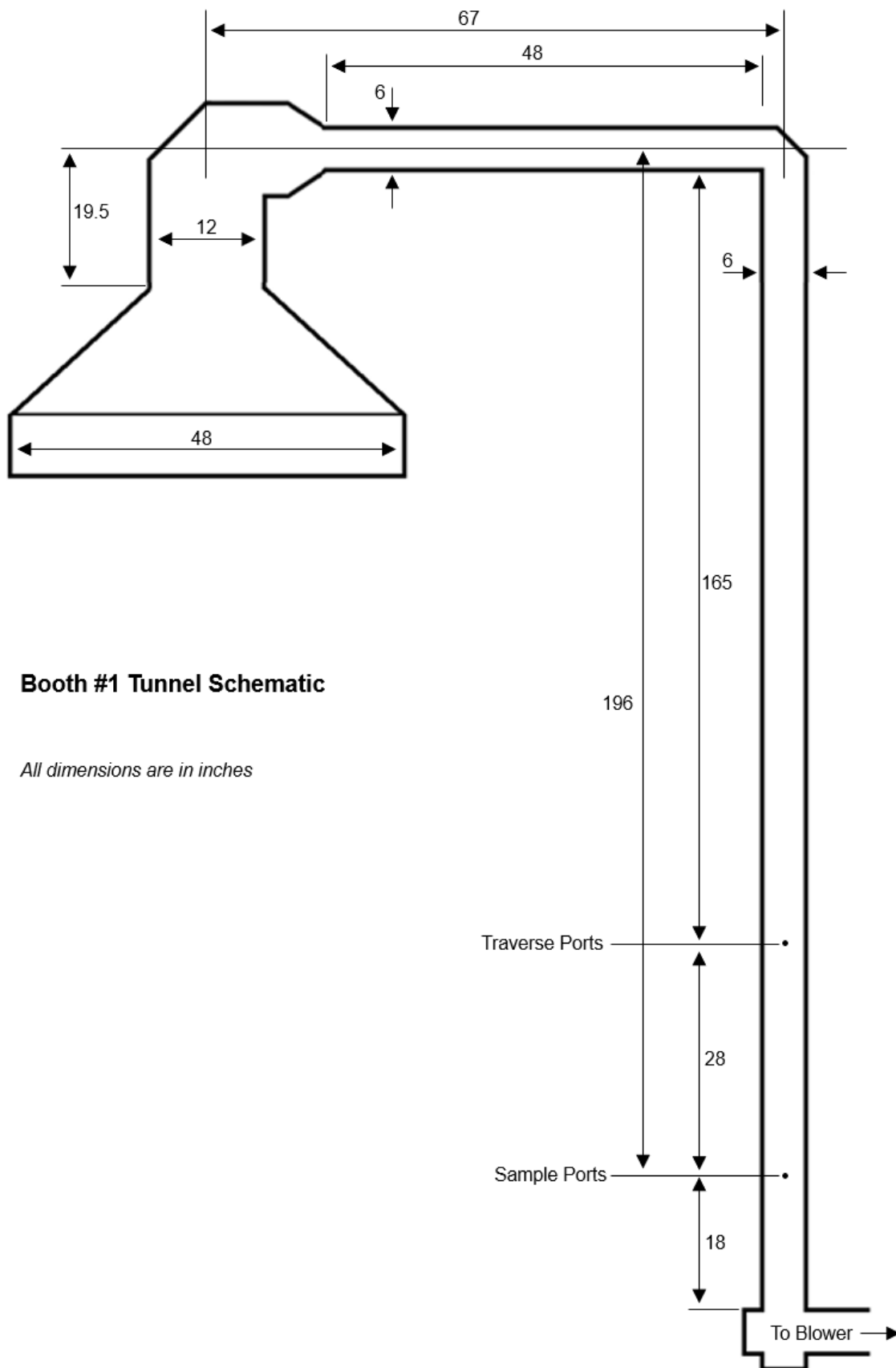
6/17/2025	9:41:14 AM	30.42	70.73	858.25	300.01
6/17/2025	9:42:14 AM	30.35	70.51	868.67	301.24
6/17/2025	9:43:14 AM	30.27	70.62	878.98	302.48
6/17/2025	9:44:15 AM	30.21	70.4	890.35	305.22
6/17/2025	9:45:15 AM	30.15	70.12	897.47	308.25
6/17/2025	9:46:15 AM	30.07	69.78	903.58	310.54
6/17/2025	9:47:15 AM	30	70.06	904.53	312.17
6/17/2025	9:48:15 AM	29.91	70.28	903.86	312.51
6/17/2025	9:49:15 AM	29.87	70.17	902.23	314.35
6/17/2025	9:50:15 AM	29.79	70.06	901.28	314.02
6/17/2025	9:51:15 AM	29.69	69.95	898.54	315.64
6/17/2025	9:52:15 AM	29.63	70.17	896.85	315.14
6/17/2025	9:53:15 AM	29.56	69.95	892.15	316.71
6/17/2025	9:54:15 AM	29.53	69.84	890.97	318.15
6/17/2025	9:55:15 AM	29.44	69.55	895.57	316.48
6/17/2025	9:56:15 AM	29.35	70	899.26	317.49
6/17/2025	9:57:15 AM	29.27	70	906.21	318.45
6/17/2025	9:58:16 AM	29.21	70.06	913.61	319.96
6/17/2025	9:59:16 AM	29.13	69.78	922.46	322.14
6/17/2025	10:00:16 AM	29.09	69.5	930.92	323.21
6/17/2025	10:01:16 AM	28.98	69.78	935.24	323.66
6/17/2025	10:02:16 AM	28.9	69.84	940.61	326.29
6/17/2025	10:03:16 AM	28.84	70.34	942.3	326.57
6/17/2025	10:04:16 AM	28.74	69.84	948.24	325.67
6/17/2025	10:05:16 AM	28.66	70.12	1012.95	330.1
6/17/2025	10:06:16 AM	28.59	69.67	1029.87	334.92
6/17/2025	10:07:16 AM	28.52	69.84	1018.44	336.04
6/17/2025	10:08:16 AM	28.42	69.5	1016.2	337.78
6/17/2025	10:09:16 AM	28.33	69.5	1053.85	339.62
6/17/2025	10:10:16 AM	28.19	70.06	1080.62	345.34
6/17/2025	10:11:17 AM	28.12	70.34	1068.73	346.85
6/17/2025	10:12:17 AM	28.06	70.28	1063.49	347.19
6/17/2025	10:13:17 AM	27.98	70.12	1059.57	349.77
6/17/2025	10:14:17 AM	27.87	70.28	1044.38	351.17
6/17/2025	10:15:17 AM	27.8	70.28	1032.06	351.06
6/17/2025	10:16:17 AM	27.73	70.51	1023.6	348.03
6/17/2025	10:17:17 AM	27.62	70.45	1080.08	348.25
6/17/2025	10:18:17 AM	27.53	70.96	1076.04	352.23
6/17/2025	10:19:17 AM	27.44	70.96	1055.25	352.62
6/17/2025	10:20:17 AM	27.33	70.73	1049.65	353.24
6/17/2025	10:21:17 AM	27.26	70.73	1041.02	352.85
6/17/2025	10:22:17 AM	27.17	70.62	1030.38	353.58
6/17/2025	10:23:17 AM	27.05	70.84	1025	353.3
6/17/2025	10:24:18 AM	26.96	70.73	1029.93	359.85
6/17/2025	10:25:18 AM	26.87	70.79	1023.76	368.65
6/17/2025	10:26:18 AM	26.75	70.96	1020.96	372.8
6/17/2025	10:27:18 AM	26.64	70.62	1027.66	374.03
6/17/2025	10:28:18 AM	26.5	70.79	1049.2	377.38
6/17/2025	10:29:18 AM	26.4	70.96	1059.46	379.63
6/17/2025	10:30:18 AM	26.27	70.68	1058.62	380.25
6/17/2025	10:31:18 AM	26.17	71.01	1058.62	380.58
6/17/2025	10:32:18 AM	26.07	70.68	1050.04	379.86
6/17/2025	10:33:18 AM	25.97	71.01	1045.84	377.56
6/17/2025	10:34:18 AM	25.88	71.18	1041.64	376.77
6/17/2025	10:35:18 AM	25.81	71.01	1037.49	375.15
6/17/2025	10:36:18 AM	25.7	71.12	1032.84	373.75
6/17/2025	10:37:18 AM	25.61	70.96	1027.35	372.29
6/17/2025	10:38:19 AM	25.49	71.35	1024.49	371.67
6/17/2025	10:39:19 AM	25.42	71.4	1025.67	370.39
6/17/2025	10:40:19 AM	25.32	71.35	1028.58	370.11
6/17/2025	10:41:19 AM	25.21	71.12	1035.76	371.9
6/17/2025	10:42:19 AM	25.1	71.35	1046.85	372.91
6/17/2025	10:43:19 AM	24.99	71.35	1059.18	373.47
6/17/2025	10:44:19 AM	24.9	71.35	1069.43	375.43
6/17/2025	10:45:19 AM	24.77	71.18	1076.15	375.48
6/17/2025	10:46:19 AM	24.67	71.57	1080.69	376.33
6/17/2025	10:47:19 AM	24.54	71.4	1082.21	375.71
6/17/2025	10:48:19 AM	24.45	71.63	1083.27	375.09
6/17/2025	10:49:19 AM	24.35	71.52	1082.99	374.48
6/17/2025	10:50:19 AM	24.25	71.68	1082.04	375.71
6/17/2025	10:51:20 AM	24.16	71.91	1081.08	373.92
6/17/2025	10:52:20 AM	24.04	71.52	1076.66	373.97
6/17/2025	10:53:20 AM	23.94	71.74	1073.07	371.95
6/17/2025	10:54:20 AM	23.84	72.08	1067.61	369.32
6/17/2025	10:55:20 AM	23.77	71.96	1063.21	367.36
6/17/2025	10:56:20 AM	23.65	71.91	1059.12	365.4
6/17/2025	10:57:20 AM	23.55	71.96	1053.63	364.11
6/17/2025	10:58:20 AM	23.47	71.96	1048.59	362.21
6/17/2025	10:59:20 AM	23.38	71.96	1042.65	360.64
6/17/2025	11:00:20 AM	23.29	71.91	1036.71	358.88
6/17/2025	11:01:20 AM	23.21	71.91	1032.39	356.99
6/17/2025	11:02:20 AM	23.11	71.91	1026.23	355.15
6/17/2025	11:03:20 AM	23.02	71.85	1018.72	352.68
6/17/2025	11:04:20 AM	22.95	71.96	1012.22	351.28
6/17/2025	11:05:21 AM	22.87	71.85	1004.77	348.59
6/17/2025	11:06:21 AM	22.81	71.96	999.28	347.02
6/17/2025	11:07:21 AM	22.72	72.08	995.64	345.84
6/17/2025	11:08:21 AM	22.64	71.91	992.22	344.39
6/17/2025	11:09:21 AM	22.59	71.74	989.97	342.31
6/17/2025	11:10:21 AM	22.51	71.96	984.94	340.13
6/17/2025	11:11:21 AM	22.42	71.57	981.74	338.06
6/17/2025	11:12:21 AM	22.37	72.19	979.67	336.77
6/17/2025	11:13:21 AM	22.31	71.91	977.88	334.08
6/17/2025	11:14:21 AM	22.22	71.85	979.89	333.46
6/17/2025	11:15:21 AM	22.15	72.36	979.11	332.9
6/17/2025	11:16:21 AM	22.08	72.08	978.04	332.79
6/17/2025	11:17:21 AM	22	72.36	978.88	331.11
6/17/2025	11:18:21 AM	21.94	72.02	980.06	330.1
6/17/2025	11:19:22 AM	21.9	72.19	978.66	329.15
6/17/2025	11:20:22 AM	21.82	72.19	976.81	328.25
6/17/2025	11:21:22 AM	21.76	71.96	975.41	327.35
6/17/2025	11:22:22 AM	21.69	71.96	970.65	326.57
6/17/2025	11:23:22 AM	21.63	72.24	967.68	323.77
6/17/2025	11:24:22 AM	21.56	71.91	965.21	323.6
6/17/2025	11:25:22 AM	21.52	72.02	965.32	321.83
6/17/2025	11:26:22 AM	21.46	72.19	961.4	321.69
6/17/2025	11:27:22 AM	21.42	72.19	960.17	321.19
6/17/2025	11:28:22 AM	21.33	72.24	958.26	318.84
6/17/2025	11:29:22 AM	21.3	72.24	956.7	319.62
6/17/2025	11:30:22 AM	21.21	72.08	955.63	318.11
6/17/2025	11:31:22 AM	21.18	71.96	957.54	317.77
6/17/2025	11:32:22 AM	21.11	72.3	959.05	316.76
6/17/2025	11:33:23 AM	21.04	72.3	956.75	316.54
6/17/2025	11:34:23 AM	20.99	72.02	954.57	317.44
6/17/2025	11:35:23 AM	20.95	72.24	953	318.28
6/17/2025	11:36:23 AM	20.9	72.19	951.43	318.05
6/17/2025	11:37:23 AM	20.84	72.3	950.36	318.5
6/17/2025	11:38:23 AM	20.78	72.08	947.51	319.29
6/17/2025	11:39:23 AM	20.74	72.08	947.95	319.17
6/17/2025	11:40:23 AM	20.68	72.19	946.61	319.85
6/17/2025	11:41:23 AM	20.62	71.91	947.67	320.52
6/17/2025	11:42:23 AM	20.57	72.41	948.4	322.48
6/17/2025	11:43:23 AM	20.5	72.41	949.02	322.87
6/17/2025	11:44:23 AM	20.43	72.41	947.06	323.6
6/17/2025	11:45:23 AM	20.39	72.3	947.06	324.83
6/17/2025	11:46:23 AM	20.33	72.3	947.51	326.35
6/17/2025	11:47:24 AM	20.24	72.3	947.51	326.4
6/17/2025	11:48:24 AM	20.21	72.24	949.97	327.3
6/17/2025	11:49:24 AM	20.12	72.24	955.74	329.15

6/17/2025	11:50:24 AM	20.04	72.41	961.85	331.33
6/17/2025	11:51:24 AM	19.98	72.36	968.8	333.46
6/17/2025	11:52:24 AM	19.88	72.24	980	335.48
6/17/2025	11:53:24 AM	19.8	71.85	993.9	337.44
6/17/2025	11:54:24 AM	19.72	72.58	1013.57	340.75
6/17/2025	11:55:24 AM	19.61	72.41	1032.39	344.61
6/17/2025	11:56:24 AM	19.52	72.3	1043.94	347.3
6/17/2025	11:57:24 AM	19.42	72.52	1045.51	351.56
6/17/2025	11:58:24 AM	19.32	72.52	1043.82	353.91
6/17/2025	11:59:24 AM	19.23	72.52	1039.62	357.16
6/17/2025	12:00:25 PM	19.11	72.52	1034.02	358.23
6/17/2025	12:01:25 PM	18.99	72.86	1029.14	360.47
6/17/2025	12:02:25 PM	18.91	72.86	1022.42	360.8
6/17/2025	12:03:25 PM	18.78	72.86	1016.99	362.62
6/17/2025	12:04:25 PM	18.69	73.03	1012.95	362.09
6/17/2025	12:05:25 PM	18.58	73.25	1008.19	361.31
6/17/2025	12:06:25 PM	18.47	73.03	1001.52	360.8
6/17/2025	12:07:25 PM	18.36	73.03	995.75	360.02
6/17/2025	12:08:25 PM	18.26	73.36	993.23	358.56
6/17/2025	12:09:25 PM	18.15	73.59	988.47	356.15
6/17/2025	12:10:25 PM	18.06	73.48	986.56	354.19
6/17/2025	12:11:25 PM	17.96	73.87	983.25	351.34
6/17/2025	12:12:25 PM	17.85	73.87	981.69	349.77
6/17/2025	12:13:25 PM	17.74	73.65	983.03	346.57
6/17/2025	12:14:26 PM	17.65	73.65	985.61	344
6/17/2025	12:15:26 PM	17.57	73.93	991.1	341.08
6/17/2025	12:16:26 PM	17.5	74.21	996.76	338.22
6/17/2025	12:17:26 PM	17.43	74.15	998.78	335.93
6/17/2025	12:18:26 PM	17.35	74.26	1001.8	332.56
6/17/2025	12:19:26 PM	17.26	74.52	1007.96	329.76
6/17/2025	12:20:26 PM	17.19	74.15	1012.56	327.47
6/17/2025	12:21:26 PM	17.12	74.37	1016.99	323.82
6/17/2025	12:22:26 PM	17.04	74.21	1021.36	320.91
6/17/2025	12:23:26 PM	16.97	74.15	1022.81	317.1
6/17/2025	12:24:26 PM	16.9	74.6	1021.41	312.67
6/17/2025	12:25:26 PM	16.82	74.54	1021.75	310.32
6/17/2025	12:26:26 PM	16.77	75.05	1021.13	307.46
6/17/2025	12:27:26 PM	16.7	74.6	1020.29	302.31
6/17/2025	12:28:27 PM	16.64	74.71	1020.63	299.34
6/17/2025	12:29:27 PM	16.58	74.6	1018.33	294.74
6/17/2025	12:30:27 PM	16.52	74.88	1043.71	292.45
6/17/2025	12:31:27 PM	16.47	74.93	1088.93	289.42
6/17/2025	12:32:27 PM	16.42	75.05	1112.85	287.18
6/17/2025	12:33:27 PM	16.36	75.16	1120.19	286
6/17/2025	12:34:27 PM	16.27	74.6	1123.44	283.76
6/17/2025	12:35:27 PM	16.24	75.05	1125.63	281.41
6/17/2025	12:36:27 PM	16.18	74.88	1126.3	280.23
6/17/2025	12:37:27 PM	16.13	74.82	1126.25	280.51
6/17/2025	12:38:27 PM	16.07	75.16	1126.69	278.89
6/17/2025	12:39:27 PM	16.02	75.16	1125.07	278.1
6/17/2025	12:40:27 PM	15.97	75.1	1120.98	277.09
6/17/2025	12:41:27 PM	15.92	75.16	1119.41	275.92
6/17/2025	12:42:28 PM	15.87	75.27	1116.05	273.68
6/17/2025	12:43:28 PM	15.78	75.21	1112.57	273
6/17/2025	12:44:28 PM	15.77	75.1	1110.11	272.28
6/17/2025	12:45:28 PM	15.72	75.55	1108.54	270.76
6/17/2025	12:46:28 PM	15.67	75.21	1106.41	269.81
6/17/2025	12:47:28 PM	15.62	75.38	1104.79	269.08
6/17/2025	12:48:28 PM	15.57	75.49	1102.21	268.19
6/17/2025	12:49:28 PM	15.51	75.16	1101.54	268.19
6/17/2025	12:50:28 PM	15.48	75.27	1102.1	268.58
6/17/2025	12:51:28 PM	15.43	75.21	1100.58	268.69
6/17/2025	12:52:28 PM	15.36	75.49	1098.01	266.95
6/17/2025	12:53:28 PM	15.31	75.44	1097.39	267.65
6/17/2025	12:54:28 PM	15.28	75.55	1097.67	268.19
6/17/2025	12:55:29 PM	15.24	75.72	1101.03	268.41
6/17/2025	12:56:29 PM	15.16	75.83	1101.26	270.09
6/17/2025	12:57:29 PM	15.13	75.77	1104.11	271.21
6/17/2025	12:58:29 PM	15.1	75.72	1106.3	272.89
6/17/2025	12:59:29 PM	15.02	75.94	1110.78	275.41
6/17/2025	1:00:29 PM	14.98	75.83	1115.77	276.03
6/17/2025	1:01:29 PM	14.9	75.72	1120.19	278.44
6/17/2025	1:02:29 PM	14.87	76.05	1122.49	279.95
6/17/2025	1:03:29 PM	14.8	76.11	1126.86	280.9
6/17/2025	1:04:29 PM	14.76	75.94	1130.95	282.53
6/17/2025	1:05:29 PM	14.7	75.89	1135.15	284.21
6/17/2025	1:06:29 PM	14.65	75.49	1139.64	286.12
6/17/2025	1:07:29 PM	14.57	75.89	1143.9	287.46
6/17/2025	1:08:29 PM	14.54	75.94	1147.99	288.36
6/17/2025	1:09:30 PM	14.47	75.77	1151.74	290.21
6/17/2025	1:10:30 PM	14.41	76.17	1156.28	290.68
6/17/2025	1:11:30 PM	14.35	76.05	1157.18	291.55
6/17/2025	1:12:30 PM	14.3	76.05	1157.06	294.07
6/17/2025	1:13:30 PM	14.25	76.05	1156.78	294.13
6/17/2025	1:14:30 PM	14.18	76.22	1158.02	294.07
6/17/2025	1:15:30 PM	14.13	76.22	1157.62	295.75
6/17/2025	1:16:30 PM	14.05	76.22	1155.44	295.98
6/17/2025	1:17:30 PM	14	76.45	1157.79	296.31
6/17/2025	1:18:30 PM	13.95	75.94	1157.06	297.68
6/17/2025	1:19:30 PM	13.9	76.39	1158.35	297.55
6/17/2025	1:20:30 PM	13.84	76.73	1156.45	297.71

Dilution Tunnel Information Sheet

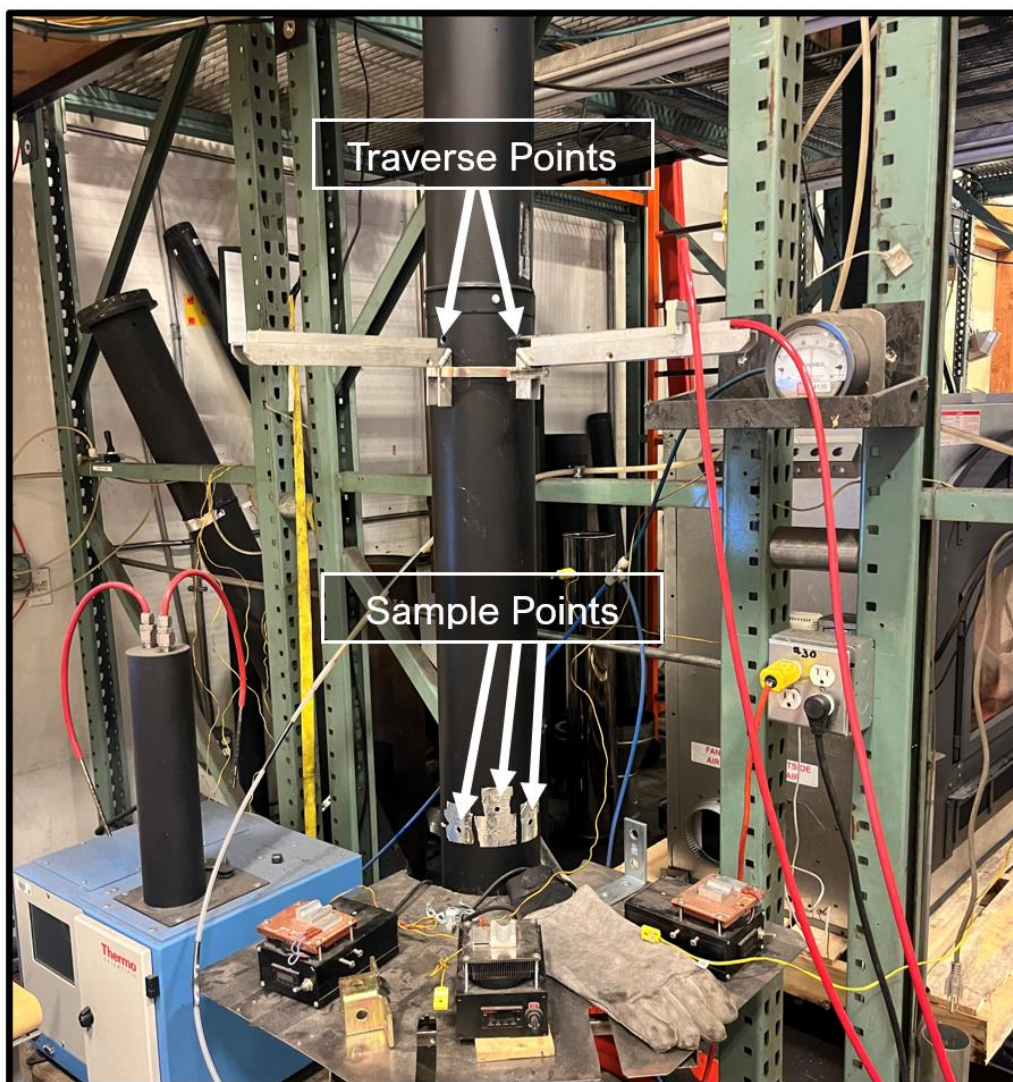
As of January 2024

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



Booth #1 Tunnel Schematic

All dimensions are in inches



Note To File

Subject: Low Burn Rate Justification

Parties: EPA Staff

Dr. Rafael Sanchez-OEECA

Robert (Bob) Scinta-OEECA

Steffan Johnson-OAQPS

Patrick Yellin-OEECA

Angelina Brashear-OAQPS

Mike Toney-OAQPS

Ashnil Reddy-Blaze King

Chris Neufeld-Blaze King

Background: On January 1, 2021, we received an email from Dr. Sanchez in which he comments that EPA had received an email expressing concern about the low burn rate on the PE32 test report. The email expressing concern was from ADEC.

EPA requested data to support the PE32 was in fact tested at the lowest burn rate possible. Data was submitted (attached) to EPA on January 13, 2021. Subsequently, EPA requested a virtual phone call with Blaze King's Ashnil Reddy and Chris Neufeld where we were to be asked questions related to the data. OAQPS was given the time to review the data and Low Burn Justification memorandum submitted 01/13/2021.

Blaze King and EPA conducted a virtual phone call. Present were all the parties cited in the header of this memorandum. Several questions were asked about the data and responded to by Ashnil Reddy. OEECA's Bob Scinta inquired of Steffan Johnson if he was satisfied that the Blaze King Princess 32 had in fact been tested at the lowest burn rate possible. Stef asked Angelina Brashear her opinion, having reviewed the supporting data and she commented she was. Stef then asked Mike Toney, having also reviewed the data, and he too acknowledged his support.

Stef then said that as far as he and his staff were concerned, the data a supporting document supported the PE32 had been tested at the lowest possible burn rate.

Bob Scinta commented that as far as EPA was concerned, Blaze King had provided sufficient data for the agency to review and it was the decision of EPA that the PE32 had been tested at the lowest possible burn rate.

Update:

Dr. Rafael Sanchez called me (Chris Neufeld) and asked that we included the letter of Low Burn Justification with each test report for all our units that use out thermostat.

This cover memo and supporting documents and data will be included in all CBI reports submitted to EPA

Low Burn Rate Justification

Completed by Ashnil Reddy

Product Development, Blaze King Ind.

December 14, 2016

Revised January 13, 2021

The two main components of a Blaze King thermostat are the damper blade and the bimetallic coil; they work in unison to produce a consistent heat output. The damper blade is controlled by a thermostat knob that can be positioned accordingly based on desired heat output. The bimetallic coil regulates the volume of intake combustion air by adjusting the damper blade angle based on its reaction with heat radiating off the unit. As the fire loses intensity and the unit radiates less heat, the bimetallic coil contracts and repositions the damper blade angle to allow more combustion air to stoke the fire so the unit can continue to radiate the desired heat output. As the fire gains intensity, the same procedure occurs in the opposite direction.

When performing a 5G emission test run in the Low Burn Rate Category ($<0.8\text{kg/hr}$), Blaze King's target fuel consumption rate is 0.1lb of test fuel per 10 minute interval. To achieve this, the thermostat knob is positioned such that the damper blade is almost fully closed. If the blade is closed beyond this point, inadequate intake air would cause the burn to stall. This low burn rate is consistently achievable in a test lab environment given that external conditions are held constant. However, when burning in a real world environment, external conditions cannot be held constant which could yield a faster low burn rate given the same thermostat knob setting as used in the test lab environment.

A great example of a real world inconsistency that would affect low burn rate is chimney draft. If the unit were installed with a chimney height of 20ft or greater, the increased draft associated with that chimney height could increase the velocity of combustion air into the unit and result in a faster low burn rate given the same thermostat knob setting as used in the test lab. In this scenario, the operator would be able to turn the thermostat knob lower to account for the increased draft and maintain the same low burn rate that was achieved in the test lab environment. If the consumer were to turn the thermostat knob too low, the fire would stall due to inadequate intake air as previously mentioned. This proves that when the damper blade is closed within the thermostat, regardless of the thermostat knob position, the low burn rate achieved during emissions testing is no greater than the rate that an operator can achieve in real world use.

In compliment with this verbal justification is a data set obtained during inhouse testing. The goal of this test run was to determine the thermostat knob setting that would yield the lowest burn rate achievable while sustaining combustion. For this test, the thermostat knob was positioned at 80 degrees below fully open; the run subsequently failed due to fuel consumption stalling and the fire going out. It was later found that a thermostat knob setting positioned at 76 degrees below fully open yielded the desired low burn rate.

Wood Heater Test Data - EPA Method 5G

Run:

Manufacturer:

Blaze King

Model:

PE32

Tracking No.:

Project No.:

Low Burn - Invalid Run Stalled

Test Date:

02-Jul-18

Beginning Clock Time:

00:00

Recording Interval:

10

 min.

Total Sampling Time:

890

 min.

Burn Rate:

N/A

 kg/hr

Velocity Traverse Data								
	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8
Initial dP								
Initial Temp.								
Equipment Numbers: THERMOSTAT KNOB WAS CLOSED 80° FROM FULLY OPEN								
NOTE: THERM KNOB WAS CLOSED 76° FROM FULLY OPEN FOR OFFICIAL EPA LOW BURN								
TEST TERMINATED AT 890 MINS BECAUSE < .1 LB/MIN WEIGHT CHANGE FOR 30 MINUTES								

PM Control Module:

BK-06

Dilution Tunnel MW(dry):

29.00

 lb/lb-mole

Dilution Tunnel MW(wet):

28.56

 lb/lb-mole

Dilution Tunnel H2O:

4.00

 percent

Dilution Tunnel Static:

-0.680

 "H2O

Pitot Tube Cp:

0.99

Meter Box Y Factor:

0.988

Barometric Pressure:

Begin

Middle

End

Average

0.00

 "Hg

Signature/Date:

Tunnel Velocity:

#DIV/0!

 ft/sec.

Initial Tunnel Flow:

#DIV/0!

 scfm

Average Tunnel Flow:

#DIV/0!

 scfm

Tunnel Area:

0.196

 ft2

Post-Test Leak Check:

.008@6

 cfm@"Hg

Fuel Moisture (dry basis)

22.3

 %

Total Particulate: mg

Filter Holder No.:

	Particulate Sampling Data								Fuel Weight, lb		Wood Heater Temperature Data, oF											Stack	
Elapsed Time	Gas Meter Cubic Feet	Sample Rate, cfm	Orifice dH	Meter oF	Meter Vac. In. Hg.	Dilution Tunnel Temp.	Dilution Tunnel dP	Pro. Rate (10%)	Scale Reading	Weight Change	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Firebox Interior	Average Surface	Stack	Filter	Impinger exit	Ambient	Draft In. H2O	Catalyst Temp.
0	1.000					#DIV/0!	#DIV/0!		20.78		252.89	386.58	200.39	221.34	219.33		256.1	223.14			69.78		382.99
10	1.000	0.00					#DIV/0!	#DIV/0!	20.71	-0.07	234.17	360.64	175.17	191.65	188.9		230.1	199.55			69.95		444.57
20	1.000	0.00						#DIV/0!	20.56	-0.15	231.32	347.64	158.76	170.75	168.45		215.4	185.54			69.39		495.28
30	1.000	0.00						#DIV/0!	20.3	-0.26	246.05	347.92	150.46	159.71	158.64		212.6	183.97			69.39		580.11
40	1.000	0.00					#DIV/0!	#DIV/0!	19.76	-0.54	279.84	354.64	146.54	162.68	160.83		220.9	195.46			69.16		679.73
50	1.000	0.00					#DIV/0!	#DIV/0!	19.11	-0.65	299.51	361.25	147.38	172.2	170.41		230.2	203.97			69.67		685.51
60	1	0.00					#DIV/0!	#DIV/0!	18.42	-0.69	314.3	362.65	147.49	180.55	177.08		236.4	213.44			69.05		709.6
70	1.000	0.00					#DIV/0!	#DIV/0!	17.68	-0.74	341.14	366.3	149.85	186.27	182.46		245.2	225.43			68.88		765.74
80	1.000	0.00					#DIV/0!	#DIV/0!	16.94	-0.74	369.88	371.34	151.58	196.3	192.26		256.3	237.98			69.67		785.91
90	1.000	0.00					#DIV/0!	#DIV/0!	16.4	-0.54	360.36	369.27	151.7	200.5	199.83		256.3	235.46			69.78		735.15
100	1.000	0.00					#DIV/0!	#DIV/0!	15.87	-0.53	372.35	367.81	152.03	201.9	204.7		259.8	237.82			69.84		806.59
110	1.000	0.00					#DIV/0!	#DIV/0!	15.43	-0.44	400.25	368.59	151.75	200.39	200.28		264.3	244.6			70.45		856.18
120	1	0.00					#DIV/0!	#DIV/0!	14.85	-0.58	428.6	366.35	153.38	201.84	199.15		269.9	252.55			70.45		874.27
130	1.000	0.00					#DIV/0!	#DIV/0!	14.38	-0.47	434.21	364	154.39	206.21	201.45		272.1	255.75			70.62		854.44
140	1.000	0.00					#DIV/0!	#DIV/0!	13.94	-0.44	426.31	363.38	156.24	208.74	204.37		271.8	254.96			70.28		835.5
150	1.000	0.00					#DIV/0!	#DIV/0!	13.49	-0.45	427.43	365.4	157.97	213.16	207.45		274.3	255.91			71.12		846.99
160	1.000	0.00					#DIV/0!	#DIV/0!	13.03	-0.46	437.34	369.94	160.61	218.04	211.54		279.5	258.83			71.4		863.18
170	1.000	0.00					#DIV/0!	#DIV/0!	12.61	-0.42	442.72	374.81	164.47	223.64	215.24		284.2	261.97			71.63		855.34
180	1	0.00					#DIV/0!	#DIV/0!	12.19	-0.42	440.2	377.22	167.44	228.52	218.43		286.4	262.25			71.96		841.94
190	1.000	0.00					#DIV/0!	#DIV/0!	11.81	-0.38	437.4	377.22	171.08	231.32	220.17		287.4	262.36			72.02		841.55
200	1.000	0.00					#DIV/0!	#DIV/0!	11.4	-0.41	438.41	375.88	174.28	234.51	222.18		289.1	263.7			72.41		843.23
210	1.000	0.00					#DIV/0!	#DIV/0!	11.03	-0.37	434.6	372.18	177.3	235.91	224.71		288.9	263.53			72.58		830.91
220	1.000	0.00					#DIV/0!	#DIV/0!	10.67	-0.36	433.14	368.09	181.39	237.26	224.65		288.9	263.31			72.92		833.2
230	1.000	0.00					#DIV/0!	#DIV/0!	10.28	-0.39	441.77	364.78	186.49	238.49	226.95		291.7	265.5			73.03		852.2
240	1	0.00					#DIV/0!	#DIV/0!	9.89	-0.39	448.33	361.93	191.53	239.11	229.36		294.1	267.79			73.2		844.35
250	1.000	0.00					#DIV/0!	#DIV/0!	9.57	-0.32	437.29	355.76	195.57	237.7	231.82		291.6	266.9			73.48		806.14
260	1.000	0.00					#DIV/0!	#DIV/0!	9.31	-0.26	412.07	346.52	199.27	238.71	231.32		285.6	261.97			73.65		758.23
270	1.000	0.00					#DIV/0!	#DIV/0!	9.1	-0.21	383.67	336.88	200.44	236.14	229.36		277.3	255.3			73.98		706.35
280	1.000	0.00					#DIV/0!	#DIV/0!	8.92	-0.18	356.04	326.68	200.5	231.93	226.83		268.4	247.4			74.21		665.56

Wood Heater Test Data - EPA Method 5G

Run:

Manufacturer: Blaze King

Model: PE32

Tracking No.:

Project No.: Low Burn - Invalid Run Stalled

Test Date: 02-Jul-18

Beginning Clock Time: 00:00

Recording Interval: 10 min.

Total Sampling Time: 890 min.

Burn Rate: N/A kg/hr

Velocity Traverse Data								
	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8
Initial dP								
Initial Temp.								
Equipment Numbers: THERMOSTAT KNOB WAS CLOSED 80° FROM FULLY OPEN								
NOTE: THERM KNOB WAS CLOSED 76° FROM FULLY OPEN FOR OFFICIAL EPA LOW BURN								
TEST TERMINATED AT 890 MINS BECAUSE < .1 LB/MIN WEIGHT CHANGE FOR 30 MINUTES								

PM Control Module: BK-06

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

Dilution Tunnel MW(wet): 28.56 lb/lb-mole

Dilution Tunnel H2O: 4.00 percent

Dilution Tunnel Static: -0.680 "H2O

Pitot Tube Cp: 0.99

Meter Box Y Factor: 0.988

Barometric Pressure: Begin Middle End

Average 0.00 "Hg

Signature/Date:

Tunnel Velocity: #DIV/0! ft/sec.

Intial Tunnel Flow: #DIV/0! scfm

Average Tunnel Flow: #DIV/0! scfm

Tunnel Area: 0.196 ft2

Post-Test Leak Check: .008@6 cfm@"Hg

Fuel Moisture (dry basis: 22.3 %

Total Particulate: mg

Filter Holder No.:

	Particulate Sampling Data								Fuel Weight, lb		Wood Heater Temperature Data, oF											Stack	
Elapsed Time	Gas Meter Cubic Feet	Sample Rate, cfm	Orifice dH	Meter oF	Meter Vac. In. Hg.	Dilution Tunnel Temp.	Dilution Tunnel dP	Pro. Rate (10%)	Scale Reading	Weight Change	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Firebox Interior	Average Surface	Stack	Filter	Impinger exit	Ambient	Draft In. H2O	Catalyst Temp.
290	1.000	0.00					#DIV/0!	#DIV/0!	8.75	-0.17	339.23	316.71	201.23	226.83	223.92		261.6	241.57			74.26		655.19
300	1	0.00					#DIV/0!	#DIV/0!	8.55	-0.2	336.43	307.01	204.09	222.86	222.63		258.6	240.17			74.37		672.56
310	1.000	0.00					#DIV/0!	#DIV/0!	8.33	-0.22	343.49	298.11	209.58	219.55	222.91		258.7	241.79			74.32		695.76
320	1.000	0.00					#DIV/0!	#DIV/0!	8.1	-0.23	353.24	290.21	213.33	217.25	226.11		260.0	243.87			74.54		716.21
330	1.000	0.00					#DIV/0!	#DIV/0!	7.84	-0.26	366.86	283.71	216.58	215.85	233.56		263.3	246.05			74.54		738.29
340	1.000	0.00					#DIV/0!	#DIV/0!	7.61	-0.23	372.01	278.94	218.82	215.29	240.62		265.1	247.62			74.82		740.58
350	1.000	0.00					#DIV/0!	#DIV/0!	7.38	-0.23	371.28	275.69	220.17	215.57	245.21		265.6	248.18			74.77		727.98
360	1	0.00					#DIV/0!	#DIV/0!	7.18	-0.2	359.4	273.79	219.66	215.63	248.85		263.5	246.05			75.05		695.25
370	1.000	0.00					#DIV/0!	#DIV/0!	7.03	-0.15	339.62	274.07	214.84	214.56	249.81		258.6	240.11			74.93		653.4
380	1.000	0.00					#DIV/0!	#DIV/0!	6.91	-0.12	323.54	276.42	209.13	212.83	249.69		254.3	233.5			74.93		633.62
390	1.000	0.00					#DIV/0!	#DIV/0!	6.76	-0.15	318.39	278.16	203.92	210.98	249.41		252.2	229.58			75.16		644.15
400	1.000	0.00					#DIV/0!	#DIV/0!	6.58	-0.18	326.29	279.84	200.44	210.36	251.26		253.6	229.3			75.27		681.64
410	1.000	0.00					#DIV/0!	#DIV/0!	6.37	-0.21	352.85	283.87	202.46	210.59	253.79		260.7	235.91			75.38		737
420	1	0.00					#DIV/0!	#DIV/0!	6.17	-0.2	357.61	288.69	205.49	213.27	259.61		264.9	241.18			75.44		722.82
430	1.000	0.00					#DIV/0!	#DIV/0!	6.01	-0.16	353.97	292.84	208.23	216.36	264.99		267.3	243.64			75.55		705.34
440	1.000	0.00					#DIV/0!	#DIV/0!	5.84	-0.17	345.9	295.42	208.23	217.81	267.79		267.0	243.2			75.61		684.22
450	1.000	0.00					#DIV/0!	#DIV/0!	5.71	-0.13	334.81	295.36	206.89	217.81	267.51		264.5	240.62			75.77		662.03
460	1.000	0.00					#DIV/0!	#DIV/0!	5.57	-0.14	325.67	293.79	203.75	216.41	264.32		260.8	237.03			75.89		645.22
470	1.000	0.00					#DIV/0!	#DIV/0!	5.47	-0.1	313.63	291.55	198.71	214.28	260.73		255.8	231.54			75.77		618.27
480	1	0.00					#DIV/0!	#DIV/0!	5.36	-0.11	303.54	288.36	193.89	210.53	256.42		250.5	225.55			75.83		609.64
490	1.000	0.00					#DIV/0!	#DIV/0!	5.23	-0.13	305	285.78	188.4	207.06	252.44		247.7	222.07			75.77		641.8
500	1.000	0.00					#DIV/0!	#DIV/0!	5.08	-0.15	307.86	287.18	187.67	205.49	251.04		247.8	221.85			75.83		637.93
510	1.000	0.00					#DIV/0!	#DIV/0!	4.98	-0.1	303.2	289.25	188.34	204.09	248.46		246.7	221.51			75.77		623.87
520	1.000	0.00					#DIV/0!	#DIV/0!	4.86	-0.12	297.43	289.25	187.05	202.01	243.53		243.9	219.83			75.77		619.28
530	1.000	0.00					#DIV/0!	#DIV/0!	4.74	-0.12	295.64	290.93	186.44	200.39	238.49		242.4	219.1			75.77		620.28
540	1	0.00					#DIV/0!	#DIV/0!	4.62	-0.12	293.4	293.68	184.53	199.15	233.22		240.8	217.76			75.55		617.76
550	1.000	0.00					#DIV/0!	#DIV/0!	4.49	-0.13	291.61	295.75	184.36	199.32	228.18		239.8	217.48			75.72		620.28
560	1.000	0.00					#DIV/0!	#DIV/0!	4.3	-0.19	303.88	298.16	184.92	202.01	223.64		242.5	221.34			75.55		668.25
570	1.000	0.00					#DIV/0!	#DIV/0!	4.09	-0.21	326.12	299.51	185.54	207.62	220.5		247.9	227.95			75.72		720.36

Wood Heater Test Data - EPA Method 5G

Run:

Manufacturer:

Blaze King

Model:

PE32

Tracking No.:

Project No.:

Low Burn - Invalid Run Stalled

Test Date:

02-Jul-18

Beginning Clock Time:

00:00

Recording Interval:

10

min.

Total Sampling Time:

890

min.

Burn Rate:

N/A

kg/hr

Velocity Traverse Data								
	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8
Initial dP								
Initial Temp.								
Equipment Numbers: THERMOSTAT KNOB WAS CLOSED 80° FROM FULLY OPEN								
NOTE: THERM KNOB WAS CLOSED 76° FROM FULLY OPEN FOR OFFICIAL EPA LOW BURN								
TEST TERMINATED AT 890 MINS BECAUSE < .1 LB/MIN WEIGHT CHANGE FOR 30 MINUTES								

PM Control Module:

BK-06

Dilution Tunnel MW(dry):

29.00

lb/lb-mole

Dilution Tunnel MW(wet):

28.56

lb/lb-mole

Dilution Tunnel H2O:

4.00

percent

Dilution Tunnel Static:

-0.680

"H2O

Pitot Tube Cp:

0.99

Meter Box Y Factor:

0.988

Barometric Pressure:

Begin

Middle

End

Average

0.00

"Hg

Signature/Date:

Tunnel Velocity:

#DIV/0!

ft/sec.

Intial Tunnel Flow:

#DIV/0!

scfm

Average Tunnel Flow:

#DIV/0!

scfm

Tunnel Area:

0.196

ft2

Post-Test Leak Check:

.008@6

cfm@"Hg

Fuel Moisture (dry basis)

22.3

%

Total Particulate:

mg

Filter Holder No.:

	Particulate Sampling Data								Fuel Weight, lb		Wood Heater Temperature Data, oF											Stack	
Elapsed Time	Gas Meter Cubic Feet	Sample Rate, cfm	Orifice dH	Meter oF	Meter Vac. In. Hg.	Dilution Tunnel Temp.	Dilution Tunnel dP	Pro. Rate (10%)	Scale Reading	Weight Change	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Firebox Interior	Average Surface	Stack	Filter	Impinger exit	Ambient	Draft In. H2O	Catalyst Temp.
580	1.000	0.00					#DIV/0!	#DIV/0!	3.81	-0.28	359.24	301.97	187.72	216.75	220.11		257.2	237.48			75.27		789.44
590	1.000	0.00					#DIV/0!	#DIV/0!	3.5	-0.31	400.64	304.77	191.03	229.69	223.02		269.8	249.47			75.05		837.07
600	1	0.00					#DIV/0!	#DIV/0!	3.21	-0.29	415.04	305.89	194.45	243.03	226.11		276.9	256.19			75.44		815.72
610	1.000	0.00					#DIV/0!	#DIV/0!	2.98	-0.23	400.92	305.39	195.23	253.11	228.18		276.6	255.91			75.44		766.81
620	1.000	0.00					#DIV/0!	#DIV/0!	2.82	-0.16	374.25	302.81	193.5	260.96	227.23		271.8	251.1			75.44		707.92
630	1.000	0.00					#DIV/0!	#DIV/0!	2.7	-0.12	343.66	298.27	190.19	262.64	222.58		263.5	243.31			75.16		650.93
640	1.000	0.00					#DIV/0!	#DIV/0!	2.62	-0.08	320.41	292.61	184.98	261.52	217.08		255.3	235.24			75.1		621.29
650	1.000	0.00					#DIV/0!	#DIV/0!	2.5	-0.12	308.14	286.79	180.61	259.28	211.43		249.3	229.19			75.16		619.39
660	1	0.00					#DIV/0!	#DIV/0!	2.35	-0.15	292.78	281.97	179.1	263.87	209.02		245.3	226.33			74.77		578.77
670	1.000	0.00					#DIV/0!	#DIV/0!	2.2	-0.15	284.88	280.01	178.82	272.56	208.79		245.0	227.9			74.71		573.95
680	1.000	0.00					#DIV/0!	#DIV/0!	2.07	-0.13	280.46	279.17	179.71	276.7	208.4		244.9	230.76			74.37		556.69
690	1.000	0.00					#DIV/0!	#DIV/0!	1.94	-0.13	275.36	277.26	179.1	277.09	207.39		243.2	231.09			74.49		547.28
700	1.000	0.00					#DIV/0!	#DIV/0!	1.83	-0.11	270.93	274.63	176.91	274.91	206.83		240.8	227.95			74.15		539.26
710	1.000	0.00					#DIV/0!	#DIV/0!	1.73	-0.1	267.74	274.07	175.45	273.73	205.88		239.4	225.15			74.04		534.56
720	1	0.00					#DIV/0!	#DIV/0!	1.63	-0.1	268.52	273.4	172.65	266.22	203.47		236.9	222.97			73.98		550.97
730	1.000	0.00					#DIV/0!	#DIV/0!	1.53	-0.1	270.2	271.94	171.14	258.83	200.56		234.5	220.78			73.65		553.94
740	1.000	0.00					#DIV/0!	#DIV/0!	1.43	-0.1	268.97	270.31	169.35	253.28	199.15		232.2	218.82			73.59		552.26
750	1.000	0.00					#DIV/0!	#DIV/0!	1.32	-0.11	268.75	272.11	167.89	247.4	197.36		230.7	216.47			73.31		558.26
760	1.000	0.00					#DIV/0!	#DIV/0!	1.22	-0.1	266.95	273.45	166.38	242.75	195.74		229.1	214.68			73.2		554.95
770	1.000	0.00					#DIV/0!	#DIV/0!	1.12	-0.1	260.28	274.18	163.86	238.94	193.78		226.2	211.59			73.14		530.41
780	1	0.00					#DIV/0!	#DIV/0!	1.03	-0.09	259.22	275.36	160.61	232.72	189.74		223.5	208.12			72.69		550.47
790	1.000	0.00					#DIV/0!	#DIV/0!	0.93	-0.1	259.28	273.51	157.41	225.71	185.48		220.3	204.87			72.86		550.36
800	1.000	0.00					#DIV/0!	#DIV/0!	0.86	-0.07	253.95	272.11	154.11	219.94	181.67		216.4	200.39			72.58		532.6
810	1.000	0.00					#DIV/0!	#DIV/0!	0.82	-0.04	243.2	271.88	150.13	212.43	176.52		210.8	193.72			72.36		495.84
820	1.000	0.00					#DIV/0!	#DIV/0!	0.75	-0.07	230.59	268.8	145.14	204.65	170.92		204.0	186.44			72.08		473.6
830	1.000	0.00					#DIV/0!	#DIV/0!	0.72	-0.03	219.94	263.81	140.6	197.42	165.2		197.4	179.43			72.19		451.91
840	1	0.00					#DIV/0!	#DIV/0!	0.67	-0.05	210.47	257.82	136.46	190.75	159.43		191.0	172.99			71.96		432.24
850	1.000	0.00					#DIV/0!	#DIV/0!	0.64	-0.03	197.42	251.77	132.2	183.35	153.77		183.7	165.93			72.08		391.68
860	1.000	0.00					#DIV/0!	#DIV/0!	0.61	-0.03	172.2	245.32	128.05	174.5	147.83		173.6	154.72			71.74		279.22

Wood Heater Test Data - EPA Method 5G

Run:

Manufacturer:

Blaze King

Model:

PE32

Tracking No.:

Project No.:

Low Burn - Invalid Run Stalled

Test Date:

02-Jul-18

Beginning Clock Time:

00:00

Recording Interval:

10

min.

Total Sampling Time:

890

min.

Burn Rate:

N/A

kg/hr

Velocity Traverse Data								
	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8
Initial dP								
Initial Temp.								

Equipment Numbers: THERMOSTAT KNOB WAS CLOSED 80° FROM FULLY OPEN

NOTE: THERM KNOB WAS CLOSED 76° FROM FULLY OPEN FOR OFFICIAL EPA LOW BURN

TEST TERMINATED AT 890 MINS BECAUSE < .1 LB/MIN WEIGHT CHANGE FOR 30 MINUTES

PM Control Module:

BK-06

Dilution Tunnel MW(dry):

29.00

lb/lb-mole

Dilution Tunnel MW(wet):

28.56

lb/lb-mole

Dilution Tunnel H2O:

4.00

percent

Dilution Tunnel Static:

-0.680

"H2O

Pitot Tube Cp:

0.99

Meter Box Y Factor:

0.988

Barometric Pressure:

Begin

Middle

End

Average

0.00

"Hg

Signature/Date:

Tunnel Velocity:

#DIV/0!

ft/sec.

Intial Tunnel Flow:

#DIV/0!

scfm

Average Tunnel Flow:

#DIV/0!

scfm

Tunnel Area:

0.196

ft2

Post-Test Leak Check:

.008@6

cfm@"Hg

Fuel Moisture (dry basis)

22.3

%

Total Particulate:

mg

Filter Holder No.:

	Particulate Sampling Data								Fuel Weight, lb		Wood Heater Temperature Data, oF												Stack	
Elapsed Time	Gas Meter Cubic Feet	Sample Rate, cfm	Orifice dH	Meter oF	Meter Vac. In. Hg.	Dilution Tunnel Temp.	Dilution Tunnel dP	Pro. Rate (10%)	Scale Reading	Weight Change	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Firebox Interior	Average Surface	Stack	Filter	Impinger exit	Ambient	Draft In. H2O	Catalyst Temp.	
870	1.000	0.00					#DIV/0!	#DIV/0!	0.59	-0.02	156.01	238.04	123.46	164.92	141.39		164.8	145.08			71.63		248.18	
880	1.000	0.00					#DIV/0!	#DIV/0!	0.59	0	145.08	229.52	119.25	156.07	135.62		157.1	137.13			71.29		226.78	
890	1.000	0.00					#DIV/0!	#DIV/0!	0.59	0	136.4	219.55	115.11	147.77	129.73		149.7	130.35			71.4		210.31	
Avg/Total	0.00	0.00	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!		-0.23	324.50	307.69	177.47	218.79	213.29		248.26	227.70			73.35		650.81	



QUALITY CONTROL SERVICES

LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS
2340 SE 11TH Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293
(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com



PFS Teco
11785 SE Hwy 212 STE#305
Clackamas, OR 97015

Report Number: DIRI0182484A0912013i241204

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
kg	0.01	QC033	12/4/24	12/28/23	12/2025

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	
As-Found: Pass: ☒ Fail: ☐	As-Found: Pass: ☒ Fail: ☐	As-Found: Pass: ☒ Fail: ☐	☐ Good ☒ Fair ☐ Poor
As-Left: Pass: ☒ Fail: ☐	As-Left: Pass: ☒ Fail: ☐	As-Left: Pass: ☒ Fail: ☐	Temperature: 17.2°C

CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
400	399.98	399.98	0.006
200	200.00	200.00	0.005
100	100.00	100.00	0.005
75	75.00	75.00	0.005
50	50.00	50.00	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	7/26/24	7/2026	20221688

Permanent Information Concerning this Equipment:

12 month calibration cycle. Scale calibrates in kg only.

Comments/Information Concerning this Calibration

12/04/2024: RH-37%

Report prepared/reviewed by: TLP

Date: 12.04.2024

Technician: T. Peterson

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

Member: National Conference of Standards Laboratories and Weights & Measures

PT ID: DIRI01

Dry Gas Meter Calibration

DUT

Manufacturer: Apex
 Model: XC-60
 Lab ID #: 53
 Serial #: 1902130
 Calibration Date: 2/1/2025
 Calibration Expiration: 8/1/2025
 Barometric Pressure: 30.02 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		NI	Aquatech	Dwyer
Model: SK25DA		9213	DBX2	W17AE
Lab ID#: 47		215	202	124
Calibration Expiration Date: 5/1/2025		2/26/2025	6/17/2025	6/16/2025
Calibration γ Factor: 0.998				

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	236.809	287.051	244.102
Standard DGM Temperature (°F)	70.6	70.3	71.8
Standard DGM Pressure (in H ₂ O)	0.00	0.00	0.0
DGM Initial Volume (ft ³)	0.000	0.000	0.000
DGM Final Volume (ft ³)	8.217	10.148	8.812
DGM Temperature (°F)	80.2	86.9	91.0
DGM Pressure (in H ₂ O)	3.43	2.25	1.38
Net Volume for Standard DGM (ft ³)	8.363	10.137	8.620
Net Volume for DGM (ft ³)	8.217	10.148	8.812
Dry Gas Meter γ Factor	1.025	1.022	1.008
γ Factor Deviation From Average	0.007	0.004	0.011

Average Gas Meter γ Factor

1.019

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-4662

Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 38860-203324-21 **Customer PO#:** 1126
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

10-01442 Compound Gauge Fluke SN: 4582643 Cal: 01/24/2025 Due: 01/31/2026 Vendor: Fluke Report #: EVL1027223
14-01349 Thermo-Hygrometer Comark SN: 06210350162 Cal: 08/23/2024 Due: 08/31/2025 Vendor: Cal-Cert Range: 122 °F 95 %RH Report #: 36408-71148-5

Instrument Data

Calibration Date:	February 27, 2025	Reference:	ASME B40.100
Recommended Due Date:	February 27, 2026	Cal-Cert Procedure:	CP-003
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Newport Industries	Temperature:	67 °F
Type:	Pressure Transducer	Humidity:	41% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	Unknown	Asset #:	53C
Capacity:	5 In H2O	Service Location:	Service Address
Tolerance:	± 1.00% of Span	As Found:	Pass
Gauge Class:	A	As Left:	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure		
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±	
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005	
0.50	0.4981	0.4981	0.00	0.5048	0.00	0.05	0.018	
1.25	1.2278	1.2278	-0.02	1.2351	-0.01	0.05	0.019	
2.50	2.4664	2.4664	-0.03	2.4746	-0.03	0.05	0.022	
3.75	3.7213	3.7213	-0.03	3.7158	-0.03	0.05	0.016	
5.00	4.9584	4.9584	-0.04	4.9521	-0.05	0.05	0.018	
3.75	3.7024	3.7024	-0.05	3.7233	-0.03	0.05	0.054	
2.50	2.4709	2.4709	-0.03	2.4769	-0.02	0.05	0.016	
1.25	1.2356	1.2356	-0.01	1.2386	-0.01	0.05	0.009	
0.50	0.4978	0.4978	0.00	0.5010	0.00	0.05	0.01	
0.00	0.0000	0.0000	0.00	0.0000	0.00	0.05	0.005	

Manufacturer: Newport Industries

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: Samuel Owens

Date: February 27, 2025

Quality Manager: Tony Lewandowski

Signature:



Dry Gas Meter Calibration

DUT

Manufacturer: Apex
 Model: XC-60
 Lab ID #: 54
 Serial #: 1902133
 Calibration Date: 2/1/2025
 Calibration Expiration: 8/1/2025
 Barometric Pressure: 30.02 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		NI	Aquatech	Dwyer
Model: SK25DA		9213	DBX2	W17AE
Lab ID#: 47		215	202	124
Calibration Expiration Date: 5/1/2025		2/26/2025	6/17/2025	6/16/2025
Calibration γ Factor: 0.998				

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	145.607	267.121	243.468
Standard DGM Temperature (°F)	63.5	66.0	67.5
Standard DGM Pressure (in H ₂ O)	0.00	0.00	0.0
DGM Initial Volume (ft ³)	0.000	0.000	0.000
DGM Final Volume (ft ³)	5.095	9.615	8.854
DGM Temperature (°F)	69.9	81.0	89.9
DGM Pressure (in H ₂ O)	2.93	1.93	3.42
Net Volume for Standard DGM (ft ³)	5.142	9.433	8.598
Net Volume for DGM (ft ³)	5.095	9.615	8.854
Dry Gas Meter γ Factor	1.012	1.002	1.002
γ Factor Deviation From Average	0.007	0.003	0.004

Average Gas Meter γ Factor

1.005

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Report and Certificate of Calibration



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Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 38860-203325-21 **Customer PO#:** 1126
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

10-01442 Compound Gauge Fluke SN: 4582643 Cal: 01/24/2025 Due: 01/31/2026 Vendor: Fluke Report #: EVL1027223
14-01349 Thermo-Hygrometer Comark SN: 06210350162 Cal: 08/23/2024 Due: 08/31/2025 Vendor: Cal-Cert Range: 122 °F 95 %RH Report #: 36408-71148-5

Instrument Data

Calibration Date:	February 27, 2025	Reference:	ASME B40.100
Recommended Due Date:	February 27, 2026	Cal-Cert Procedure:	CP-003
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Newport Industries	Temperature:	66 °F
Type:	Pressure Transducer	Humidity:	41% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	Unknown	Asset #:	54B
Capacity:	1 In H2O	Service Location:	Service Address
Tolerance:	± 1.00% of Span	As Found:	Pass
Gauge Class:	A	As Left:	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure		
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±	
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O
0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.005	
0.10	0.1058	0.1058	0.01	0.1024	0.00	0.01	0.01	
0.25	0.2534	0.2534	0.00	0.2546	0.00	0.01	0.006	
0.50	0.5056	0.5056	0.01	0.5073	0.01	0.01	0.007	
0.75	0.7502	0.7502	0.00	0.7589	0.01	0.01	0.023	
1.00	1.0081	1.0081	0.01	1.0051	0.01	0.01	0.009	
0.75	0.7533	0.7533	0.00	0.7544	0.00	0.01	0.006	
0.50	0.5079	0.5079	0.01	0.5036	0.00	0.01	0.012	
0.25	0.2584	0.2584	0.01	0.2576	0.01	0.01	0.006	
0.10	0.1096	0.1096	0.01	0.1083	0.01	0.01	0.006	
0.00	0.0000	0.0000	0.00	0.0000	0.00	0.01	0.005	

Manufacturer: Newport Industries

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.**

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--

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This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Samuel Owens

Date: February 27, 2025

Quality Manager: Tony Lewandowski

Signature:



Report and Certificate of Calibration



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Address
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Milwaukie, OR 97222

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Report #: 38860-203326-21 **Customer PO#:** 1126
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

10-01442 Compound Gauge Fluke SN: 4582643 Cal: 01/24/2025 Due: 01/31/2026 Vendor: Fluke Report #: EVL1027223
14-01349 Thermo-Hygrometer Comark SN: 06210350162 Cal: 08/23/2024 Due: 08/31/2025 Vendor: Cal-Cert Range: 122 °F 95 %RH Report #: 36408-71148-5

Instrument Data

Calibration Date:	February 27, 2025	Reference:	ASME B40.100
Recommended Due Date:	February 27, 2026	Cal-Cert Procedure:	CP-003
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Newport Industries	Temperature:	66 °F
Type:	Pressure Transducer	Humidity:	43% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	Unknown	Asset #:	54C
Capacity:	5 In H2O	Service Location:	Service Address
Tolerance:	± 1.00% of Span	As Found:	Pass
Gauge Class:	A	As Left:	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure		
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±	
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O
0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.005	
0.50	0.4690	0.4690	-0.03	0.5120	0.01	0.05	0.112	
1.25	1.2455	1.2455	0.00	1.2373	-0.01	0.05	0.022	
2.50	2.4891	2.4891	-0.01	2.4813	-0.02	0.05	0.021	
3.75	3.7327	3.7327	-0.02	3.7142	-0.04	0.05	0.048	
5.00	4.9519	4.9519	-0.05	4.9562	-0.04	0.05	0.013	
3.75	3.7261	3.7261	-0.02	3.7208	-0.03	0.05	0.015	
2.50	2.4775	2.4775	-0.02	2.4740	-0.03	0.05	0.011	
1.25	1.2316	1.2316	-0.02	1.2336	-0.02	0.05	0.007	
0.50	0.4971	0.4971	0.00	0.4990	0.00	0.05	0.007	
0.00	0.0000	0.0000	0.00	0.0000	0.00	0.05	0.005	

Manufacturer: Newport Industries

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.**

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This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Samuel Owens

Date: February 27, 2025

Quality Manager: Tony Lewandowski

Signature:



Dry Gas Meter Calibration

DUT

Manufacturer: Apex
 Model: XC-50-DIR
 Lab ID #: 203
 Serial #: A2204292
 Calibration Date: 2/1/2025
 Calibration Expiration: 8/1/2025
 Barometric Pressure: 30.02 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		NI	Aquatech	Dwyer
Model: SK25DA		9213	DBX2	W17AE
Lab ID#: 47		215	202	124
Calibration Expiration Date: 5/1/2025		2/26/2025	6/17/2025	6/16/2025
Calibration γ Factor: 0.998				

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	166.553	142.180	215.972
Standard DGM Temperature (°F)	66.2	65.6	68.1
Standard DGM Pressure (in H ₂ O)	0.00	0.00	0.0
DGM Initial Volume (ft ³)	0.000	0.000	0.000
DGM Final Volume (ft ³)	5.748	5.020	7.675
DGM Temperature (°F)	72.1	80.1	84.0
DGM Pressure (in H ₂ O)	1.10	0.81	1.41
Net Volume for Standard DGM (ft ³)	5.882	5.021	7.627
Net Volume for DGM (ft ³)	5.748	5.020	7.675
Dry Gas Meter γ Factor	1.030	1.024	1.018
γ Factor Deviation From Average	0.006	0.000	0.006

Average Gas Meter γ Factor

1.024

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Report and Certificate of Calibration



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Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 38860-203319-21 **Customer PO#:** 1126
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

10-01442 Compound Gauge Fluke SN: 4582643 Cal: 01/24/2025 Due: 01/31/2026 Vendor: Fluke Report #: EVL1027223
14-01349 Thermo-Hygrometer Comark SN: 06210350162 Cal: 08/23/2024 Due: 08/31/2025 Vendor: Cal-Cert Range: 122 °F 95 %RH Report #: 36408-71148-5

Instrument Data

Calibration Date:	February 27, 2025	Reference:	ASME B40.100
Recommended Due Date:	February 27, 2026	Cal-Cert Procedure:	CP-003
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Red Lion	Temperature:	66 °F
Type:	Pressure Transducer	Humidity:	43% RH
Model Number:	Unknown	Cal Factor:	None
Serial #:	Unknown	Asset #:	203B
Capacity:	1 In H2O	Service Location:	Service Address
Tolerance:	± 1.00% of Span	As Found:	Pass
Gauge Class:	A	As Left:	Pass

Instrument Range:		Range Resolution:		Mode Verified:		Pressure		
UUT Reading	Standard As Found	Standard Verification Reading #1	Error	Standard Verification Reading #2	Error	Tolerance	Expanded Uncertainty ±	
In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	In H2O	
0.000	0.00	0.00	0.00	0.00	0.00	0.01	0.0005	
0.100	0.0929	0.0929	-0.01	0.0992	0.00	0.01	0.0164	
0.250	0.2473	0.2473	0.00	0.2488	0.00	0.01	0.0039	
0.500	0.4955	0.4955	0.00	0.4990	0.00	0.01	0.0091	
0.750	0.7533	0.7533	0.00	0.7427	-0.01	0.01	0.0276	
1.000	1.0045	1.0045	0.00	0.9909	-0.01	0.01	0.0354	
0.750	0.7462	0.7462	0.00	0.7517	0.00	0.01	0.0143	
0.500	0.4976	0.4976	0.00	0.4925	-0.01	0.01	0.0132	
0.250	0.2431	0.2431	-0.01	0.2447	-0.01	0.01	0.0042	
0.100	0.1020	0.1020	0.00	0.1008	0.00	0.01	0.0031	
0.000	0.0000	0.0000	0.00	0.0000	0.00	0.01	0.0005	

Manufacturer: Red Lion

Type: Pressure Transducer

Serial #: Unknown

Remarks:

**We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.**

**Cal-Cert is accredited by A2LA under Calibration Laboratory Code #4986.01.
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This report shall not be reproduced except in full, without written approval from Cal-Cert.

Service Engineer: Samuel Owens

Date: February 27, 2025

Quality Manager: Tony Lewandowski

Signature: 

Dry Gas Meter Calibration

DUT

Manufacturer: Apex
 Model: XC-60
 Lab ID #: 55
 Serial #: 810016
 Calibration Date: 2/1/2025
 Calibration Expiration: 8/1/2025
 Barometric Pressure: 30.02 in. Hg



Equipment Used:	Ref. Std. DGM	Thermometer	Barometer	Manometer
Manufacturer: Apex		NI	Aquatech	Dwyer
Model: SK25DA		9213	DBX2	W17AE
Lab ID#: 47		215	202	124
Calibration Expiration Date: 5/1/2025		2/26/2025	6/17/2025	6/16/2025
Calibration γ Factor: 0.998				

Use in accordance with EPA Method 5, sections 10.3 and 16.1. Use only calibrated, NIST traceable reference standard DGM. Calibrate over expected operating flow range of DUT.

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	148.998	157.125	207.888
Standard DGM Temperature (°F)	70.2	71.1	69.8
Standard DGM Pressure (in H ₂ O)	0.00	0.00	0.0
DGM Initial Volume (ft ³)	0.000	0.000	0.000
DGM Final Volume (ft ³)	5.249	5.608	7.444
DGM Temperature (°F)	80.0	82.2	83.8
DGM Pressure (in H ₂ O)	0.00	0.00	0.00
Net Volume for Standard DGM (ft ³)	5.262	5.549	7.341
Net Volume for DGM (ft ³)	5.249	5.608	7.444
Dry Gas Meter γ Factor	1.019	1.008	1.010
γ Factor Deviation From Average	1.019	1.008	1.010

Average Gas Meter γ Factor

1.012

Measurement Uncertainty: Total measurement uncertainty +/- 0.748% RD, K=2

Calculations:

- Deviation = |Average value for all runs - current run value|
- $\gamma = [V_{std} \times (\gamma_{std}) \times (P_{bar} + P_{std}/13.6) \times (T_{DGM} + 460)] / [V_{DGM} \times (T_{std} + 460) \times (P_{bar} + P_{DGM}/13.6)]$

Report and Certificate of Calibration



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 #: 36866-28785-3646 **Customer PO#:** 1122
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

10-00391 | Thermo-Hygrometer | Comark | SN: 6217150001 | Cal: 05/02/2024 | Due: 04/30/2025 | Vendor: Cal-Cert | Range: 122 °F 95 %RH | Report #: 34722-30759-4525
LP-01158 | Electrical Meter | Keithley | SN: 1388607 | Cal: 07/24/2023 | Due: 07/31/2025 | Vendor: Techmaster Electronics | Report #: TSV-0-545118

Instrument Data

Calibration Date:	September 25, 2024	Reference:	Manufactures Tolerances
Recommended Due Date:	September 25, 2025	Cal-Cert Procedure:	CP-080
Calibration Frequency:	12 Months	Indicating System:	Digital
Manufacturer:	Delmhorst	Temperature:	72 °F
Type:	Resistivity Meter	Humidity:	49% RH
Model Number:	MCS-1	Asset #:	#094
Serial #:	#094	Service Location:	Cal-Cert Lab
Capacity:	120 Megaohms	As Found:	Pass
Tolerance:	1.00 % of indication	As Left:	Pass

Instrument Range:		120 Megaohms		Resolution:	0.001	Mode Verified:	Resistance
Standard Reading	UUT	UUT	Error	UUT	Error	OUT OF TOLERANCE	
	As Found	Reading #1		Reading #2			
0.000	0.000	0.000	0.000	0.000	0.000		
1,100,000	1,095,000	1,095,000	-5,000.000	1,095,000	-5,000.000		
120,000,000	120,830,000	120,830,000	830,000.000	120,830,000	830,000.000	OUT OF TOLERANCE	

Expanded Uncertainty± 2.50 Megaohms

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.

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: September 25, 2024

Quality Manager: Jason Wimmer

Signature:

Resistivity Meter CF-080-01

Revision 7

7/24/2017



CERTIFICATE OF CALIBRATION

CUSTOMER: PFS-TECO : CLACKAMAS, OR
PO NUMBER: 1120
INST. MANUFACTURER: DWYER
INST. DESCRIPTION: VELOMETER
MODEL NUMBER: 471
SERIAL NUMBER: CP288559 ID# 095
RATED ACCURACY: SEE NOTES BELOW.
UNCERTAINTY GIVEN: $\pm 0.43\%$ RD ; k=2
NOTES: $\pm 3.0\%$ FS (0-500 / 0-1500) ** $\pm 4.0\%$ F.S. (0-5000) ** $\pm 5.0\%$ F.S. (0-15000) ** $\pm 2^\circ\text{F}$

CALIBRATION DATE: 06/17/2024
CALIBRATION DUE: 06/17/2025
PROCEDURE: T.O.33K6-4-1769-1
CALIBRATION FLUID: AIR @ 14.7 PSIA 70°F
RECEIVED CONDITION: WITHIN MFG. SPECS.
LEFT CONDITION: WITHIN MFG. SPECS.
AMBIENT CONDITIONS: 763mm HGA 53% RH 70°F
CERTIFICATE FILE #: 490265.2024

Q.MANUAL IM 2.0 REV 2020.2 DATED 7-27-2020

DECISION RULE: SIMPLE ACCEPTANCE. MEASUREMENT UNCERTAINTIES NOT TAKEN INTO CONSIDERATION WHEN DETERMINING PASS/FAIL

UUT 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 $\pm .02\%$ RD -140 TO 1372 DEG °C TRACE# 2023004415	DUE	11/13/24
A800 flow nozzles +/- .2% RD (.2-5, 5-100, 100-1650 SCFM)TRACE# 144613547,1424683640,1583314714	DUE	02/14/25

All instruments used in the performance of the shown calibration have traceability to the National Institute of Standards and Technology (NIST). The uncertainty ratio between the calibration standards (DM.STD.) and the Unit Under Test (UUT) is a minimum of 4:1, unless otherwise noted. Calibration has been performed according to the shown procedure. The use of IAS/ILAC logo indicates calibrations are in accordance to ISO/IEC 17025:2017.

Dick Munns Company - 11133 Winners Circle, Los Alamitos, CA 90720
Phone: 714-827-1215 - www.dickmunns.com

This Calibration Certificate shall not be reproduced except, in full, without approval by Dick Munns Company. The data shown applies only to the instrument being calibrated and under the stated conditions of calibration.

Issuing Date:

Approved By:

Cal. Technician:

Calibrated at: ☒ Lab

☐ On-Site (Customer's)

Page 1 of 1

06/17/2024

[Signature]

A.W.

Certificate of Calibration

Certificate Number: 743892



JJ Calibrations, Inc.

7724 SE Aspen Summit Drive

Portland, OR 97266-9217

Phone 503.786.3005

FAX 503.786.2994

PFS TECO

11785 SE Hwy 212

Suite 305

Clackamas, OR 97015

PO: 1033

Order Date: 03/08/2021

Authorized By: N/A

Calibrated on: 03/18/2021

*Recommended Due: 03/18/2026

Environment: 19 °C 41 % RH

* As Received: Other - See Remarks

* As Returned: Other - See Remarks

Action Taken: Calibrated

Technician: 126



0723.01

Calibration

Property #: 097

User: N/A

Department: N/A

Make: Unknown

Model: 10 Lbs.

Serial #: 097

Description: Mass

Procedure: DCN 500901

Accuracy: Raw Data

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Data is provided for your determination of acceptability. Received/returned without accessories.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
484A	Rice Lake	1kg-10kg (Class ASTM 1)	Mass Set,	05/28/2021	699197
503A	Rice Lake	1mg-200g (Class 0)	Mass Set,	09/11/2021	729241
550A	And (A&D) Co.	HP-30K	Balance 30 Kg	12/31/2021	739307
723A	Rice Lake	1mg-200g (Class 0)	Mass Set,	06/09/2021	723431

Parameter

Measurement Data

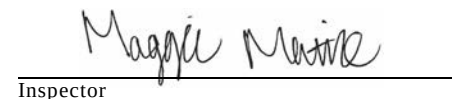
Measurement Description	Range	Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After								Accredited = $\bar{u}$
Mass								
Raw Data		g	4535.92370000	0.0000000	0.0000000	0.1785299	4536.1022299 g	3.5E-01 $\bar{u}$

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to either the SI or to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCCL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by JCGM 106:2012. Unless otherwise stated, a test accuracy 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



QUALITY CONTROL SERVICES

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PFS Teco
11785 SE Hwy 212 STE#305
Clackamas, OR 97015

Report Number: DIRI0134307497250605

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	6/5/25	12/4/24	12/2025

FUNCTIONAL CHECKS

ECCENTRICITY		LINEARITY		STANDARD DEVIATION			ENVIRONMENTAL CONDITIONS		
Test Wt:	Tol:	Test Wt:	Tol:	Test Wt:	Tol:		☐ ☒ ☐ Good Fair Poor Temperature: 22.6°C		
100	0.0003	50 x 4	0.0002	100	0.0001				
As-Found:		As-Found:		1. 100.0000	5. 100.0000	9. 99.9999			
Pass: ☒	Fail: ☐	Pass: ☒	Fail: ☐	2. 99.9999	6. 100.0000	10. 99.9999			
As-Left:		As-Left:		3. 99.9999	7. 99.9999	<u>Result</u>			
Pass: ☒	Fail: ☐	Pass: ☒	Fail: ☐	4. 100.0000	8. 99.9999	0.00005			

A2LA ACCREDITED SECTION OF REPORT

Standard	As-Found	As-Left	Expanded Uncertainty
200	199.9994	200.0000	0.00017
100	99.9998	100.0000	0.00016
50	49.9999	50.0001	0.00015
20	19.9999	19.9999	0.00015
0.1	0.1000	0.0999	0.00015
0.05	0.0500	0.0499	0.00015

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	Rice Lake	10 kg to 1 mg	D123	7/1/24	7/2025	20241353

Permanent Information Concerning this Equipment:

6 month calibration cycle

Comments/Info Concerning this Calibration:

6/25 - Cleaned, leveled, & adjusted span. RH = 49%

Report prepared/reviewed by: 

Date: 6.5.25

Technician: D. Oudeans

Signature: 

THIS CERTIFICATE SHALL NOT BE REPRODUCED WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation and readability of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards. Results relate only to the item(s) tested. Unless otherwise noted, statements of conformity do not include measurement

Member: National Conference of Standards Laboratories and Weights & Measures

PT ID: DIRI01



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Report of Calibration

Firm: PFS-TECO
Address: 11785 SE Hwy 212, Ste 305
City/State/Zip: Clackamas, OR 97015

Test Completed: 05/09/22
Purchase Order: 1067
Traceable Number: 20220682

Test Item: 200 mg and 100 mg Individual Weights
Serial No.: Listed in Table

Manufacturer: Troemner
Customer ID: Listed in Table

<u>Material</u>	<u>Assumed Density</u>	<u>Range</u>	<u>Tolerance Class</u>
Stainless Steel	7.95 g/cm ³	200 mg & 100 mg	ASTM Class 1

Method and Traceability

The procedure used for this calibration is NIST IR 6969 SOP 4 Double Substitution Weighing Design. Standards used for comparison are traceable to the National Institute of Standards and Technology (reports on file) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and traceability within the level of uncertainty reported. The Traceable Number listed above is Traceable to National Standards through an unbroken chain of comparison each having stated uncertainties.

Standards Used:

100 g to 1 mg Working Standards Were Calibrated: 07/02/21 Due: 07/31/22 Standards ID: 723318
Mass Comparators Used: MET-05 Tested by: D. Thompson

Conventional Mass: “The conventional value of the result of weighing a body in air is equal to the mass of a standard, of conventionally chosen density, at a conventionally chosen temperature, which balances this body at this reference temperature in air of conventionally chosen density. International Recommendation 33 (OIML IR 33 1973, 1979). “Conventional Value of the Result of Weighing in Air” (Previously known as “Apparent Mass vs. 8.0 g/cm³).

Uncertainty Statement: The uncertainty conforms to the ISO Guide to the Expressions of Uncertainty in Measurement. Uncertainty as reported is based on a coverage factor $k=2$ for an approximate 95 percent level of uncertainty. Uncertainty components include the standard deviation of the process, the uncertainty of the standard used, an uncertainty component associated with the potential drift of the standard used, and the estimated uncertainty related to measuring and determining the air buoyancy effect.

Conventional Mass Values are listed on page 2 of this report.

page 1 of 2

Quality Control Services, Inc.
Metrology Laboratory Manager
E-mail dthompson@qc-services.com

Date: 05/09/22


Signature David S. Thompson

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Report of Calibration

Firm: PFS-TECO
Address: 11785 SE Hwy 212, Ste 305
City/State/Zip: Clackamas, OR 97015

Test Completed: 05/09/22
Purchase Order: 1067
Traceable Number: 20220682

Test Item: 200 mg and 100 mg Individual Weights
Serial No.: Listed in Table

Manufacturer: Troemner
Customer ID: Listed in Table

Laboratory Environment at time of test

Temperature °C	Pressure mmHg	Humidity %RH
21.93 to 21.94	760.7 to 760.8	47.8 to 47.9

Conventional Mass Value

Nominal Value	As Found Value (g)	As Found Correction* (mg)	As Left Value (g)	As Left Correction* (mg)	Uncertainty (mg)	Tolerance (mg)
200 mg, 1000101395, #109-B	0.2000082	0.0082	0.2000082	0.0082	0.0014	0.010
100 mg, 1000126267, #109-A	0.1000065	0.0065	0.1000065	0.0065	0.0014	0.010

*Correction is the difference between the conventional mass value of a weight and its nominal value.

Comments: These weights were received in good condition and were within ASTM Class 1 tolerances As Found.

Recalibration Due: The customer has requested a 5-year calibration cycle. The calibration due date for these weights is 05/09/27. The values listed above were found at the time of calibration. Any number of factors may cause these items to drift out of calibration before the calibration interval has expired.

Accredited by the American Association for Laboratory Accreditation (A2LA) under Calibration Laboratory Code 115953 and Certificate Number 1550.01. This laboratory meets the requirements of ISO/IEC 17025:2017 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration.

page 2 to 2

Quality Control Services, Inc.
Metrology Laboratory Manager
E-mail dthompson@qc-services.com

Date: 05/09/22


Signature David S. Thompson

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PFS Teco
11785 SE Hwy 212 STE#305
Clackamas, OR 97015

Report Number: DIRI01C101887027241204

A2LA ACCREDITED **CERTIFICATE OF CALIBRATION WITH DATA**

INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Scale	Mettler	IND570 - 1000lhx0.	C101887027	#189	Lab
Units	Readability	SOP	Cal Date	Last Cal Date	Cal Due Date
lbs	0.02	QC033	12/4/24	12/28/23	12/2025

FUNCTIONAL CHECKS

SHIFT TEST	LINEARITY	REPEATABILITY	ENVIRONMENTAL CONDITIONS
Test Wt: Tol: 400 0.10	Test Wt: Tol: HB44 HB44	Test Wt: Tol: 200 0.04	☐ ☒ ☐ Good Fair Poor
As-Found: Pass: ☒ Fail: ☐	As-Found: Pass: ☒ Fail: ☐	As-Found: Pass: ☒ Fail: ☐	Temperature: 16.1°C
As-Left: Pass: ☒ Fail: ☐	As-Left: Pass: ☒ Fail: ☐	As-Left: Pass: ☒ Fail: ☐	

CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
1000	1000.02	1000.02	0.012
600	599.92	599.92	0.011
400	399.94	399.94	0.011
200	199.94	199.94	0.011
100	99.98	99.98	0.011
50	49.98	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	7/26/24	7/2026	20221688

Permanent Information Concerning this Equipment:

Comments/Information Concerning this Calibration

12/04/2024: RH = 38%

Report prepared/reviewed by: TUP

Date: 12-04-2024

Technician: E.J. Vasko

Signature: [Signature]

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

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PT ID: DIRI01

Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 39356-1216144-4847 **Customer PO#:** 1128
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

10-00027 Gage Block Set Mitutoyo SN: 975536 Cal: 03/28/2023 Due: 03/31/2025 Vendor: Cal-Cert Report #: 28026-56355-5
10-00954 Gage Block Set Shars SN: 120018 Cal: 05/26/2023 Due: 05/26/2025 Vendor: American Gage Report #: 109141
LP-01346 Thermo-Hygrometer Comark SN: 06210350198 Cal: 03/08/2024 Due: 03/31/2025 Vendor: Cal-Cert Range: 122 °F 95 %RH Report #: 33563-67215-3616

Instrument Data

Calibration Date:	March 5, 2025	Reference:	Manufacturer's Spec
Calibration Due Date:	March 5, 2026	Cal-Cert Procedure:	CP-115
Calibration Frequency:	12 Months	Indicating System:	Scaling
Manufacturer:	Craftsman	Temperature:	66 °F
Type:	Tape Measure	Humidity:	40% RH
Model Number:	CMHT37365	Asset #:	209
Serial #:	Unknown	Service Location:	Cal-Cert Lab
Capacity:	25.00 Feet	As Found:	Pass
		As Left:	Pass

Instrument Range:	25.000 Feet	Range Resolution:	0.06250 Feet
	Calibration Standard	As Found Reading	Verification Reading #1
			Verification Reading #2
	0.0000	0.0000	0.0000
	0.5000	0.5000	0.5000
	0.1000	0.1000	0.1000
	12.0000	12.0000	12.0000
	48.0000	48.0000	48.0000
	96.0000	96.0000	96.0000
	192.0000	192.0000	192.0000

Expanded Uncertainty ± 0.07217 Feet

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/NC SL 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: Justin Roye **Date:** March 5, 2025
Quality Manager: Tony Lewandowski **Signature:**

Report and Certificate of Calibration



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Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 38860-206391-21 **Customer PO#:** 1126
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

14-00235 Thermocouple Meter Tegan SN: T-276988 Cal: 08/23/2024 Due: 08/31/2025 Vendor: Cal-Cert Range: 2400 °F Report #: 36408-30865-3646
14-01349 Thermo-Hygrometer Comark SN: 06210350162 Cal: 08/23/2024 Due: 08/31/2025 Vendor: Cal-Cert Range: 122 °F 95 %RH Report #: 36408-71148-5

Instrument Data

Calibration Date:	February 28, 2025	Reference:	Navair 17-20ST-95
Recommended Due Date:	February 28, 2026	Cal-Cert Procedure:	CP-013
Calibration Frequency:	12 Months	Indicating System:	Computer
Manufacturer:	National Instruments	Temperature:	61 °F
Type:	Data Logger	Humidity:	45% RH
Model Number:	NI 9213	Asset #:	215 Booth 1
Serial #:	1B182FB	Service Location:	Service Address
Resolution:	0.1 °F	As Found:	Pass
Capacity:	2,500 °F	As Left:	Pass
Tolerance:	± 3.0 °F		
Thermocouple Type:	K		

Thermocouple LOGGING FUNCTION

Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Tunnel	0.00	0.40	0.40	0.50	0.45	0.784
	500.00	500.10	500.10	500.30	0.20	
	1000.00	1000.10	1000.10	1000.20	0.15	
	1500.00	1499.70	1499.70	1500.40	0.05	
	2000.00	2000.10	2000.10	2000.20	0.15	
	2400.00	2399.90	2399.90	2400.00	-0.05	
	0.00	0.50	0.50	0.40	0.45	

Thermocouple LOGGING FUNCTION

Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Flue	0.00	0.30	0.30	0.40	0.35	0.511
	500.00	500.10	500.10	500.20	0.15	
	1000.00	1000.10	1000.10	1000.20	0.15	
	1500.00	1500.00	1500.00	1500.10	0.05	
	2000.00	1999.80	1999.80	1999.90	-0.15	
	2400.00	2399.80	2399.80	2399.80	-0.20	
	0.00	0.00	0.00	0.20	0.10	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter A	0.00	0.10	0.10	0.10	0.10	0.436
	500.00	500.00	500.00	500.00	0.00	
	1000.00	1000.00	1000.00	1000.00	0.00	
	1500.00	1500.10	1500.10	1500.00	0.05	
	2000.00	1999.80	1999.80	1999.80	-0.20	
	2400.00	2399.70	2399.70	2399.70	-0.30	
	0.00	0.10	0.10	0.00	0.05	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Back	0.00	0.00	0.00	0.00	0.00	0.511
	500.00	499.90	499.90	499.90	-0.10	
	1000.00	999.90	999.90	999.90	-0.10	
	1500.00	1499.90	1499.90	1499.90	-0.10	
	2000.00	1999.70	1999.70	1999.60	-0.35	
	2400.00	2399.50	2399.50	2399.70	-0.40	
	0.00	0.00	0.00	0.00	0.00	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Catalyst	0.00	(0.30)	(0.30)	(0.30)	0.30	0.738
	500.00	499.70	499.70	499.70	-0.30	
	1000.00	999.60	999.60	999.70	-0.35	
	1500.00	1499.60	1499.60	1499.50	-0.45	
	2000.00	1999.40	1999.40	1999.40	-0.60	
	2400.00	2399.40	2399.40	2399.40	-0.60	
	0.00	(0.30)	(0.30)	0.30	0.00	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter A	0.00	-0.40	-0.40	-0.40	0.40	0.436
	500.00	499.50	499.50	499.50	-0.50	
	1000.00	999.50	999.50	999.50	-0.50	
	1500.00	1499.50	1499.50	1499.40	-0.55	
	2000.00	1999.30	1999.30	1999.40	-0.65	
	2400.00	2399.20	2399.20	2399.20	-0.80	
	0.00	0.00	0.00	0.00	0.00	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Left	0.00	-0.40	-0.40	-0.40	0.40	0.436
	500.00	499.50	499.50	499.50	-0.50	
	1000.00	999.50	999.50	999.50	-0.50	
	1500.00	1499.50	1499.50	1499.50	-0.50	
	2000.00	1999.20	1999.20	1999.30	-0.75	
	2400.00	2399.30	2399.30	2399.20	-0.75	
	0.00	-0.40	-0.40	-0.40	0.40	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Right	0.00	-0.50	-0.50	-0.50	0.50	0.436
	500.00	499.40	499.40	499.50	-0.55	
	1000.00	999.40	999.40	999.50	-0.55	
	1500.00	1499.30	1499.30	1499.30	-0.70	
	2000.00	1999.30	1999.30	1999.20	-0.75	
	2400.00	2399.10	2399.10	2399.10	-0.90	
	0.00	-0.50	-0.50	-0.40	0.45	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter B	0.00	0.00	0.00	0.00	0.00	0.436
	500.00	500.80	500.80	500.80	0.80	
	1000.00	1000.40	1000.40	1000.40	0.40	
	1500.00	1500.00	1500.00	1500.00	0.00	
	2000.00	1999.40	1999.40	1999.50	-0.55	
	2400.00	2399.10	2399.10	2399.10	-0.90	
	0.00	0.00	0.00	0.00	0.00	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Top	0.00	-0.50	-0.50	-0.50	0.50	0.511
	500.00	499.50	499.50	499.40	-0.55	
	1000.00	999.40	999.40	999.50	-0.55	
	1500.00	1499.40	1499.40	1499.40	-0.60	
	2000.00	1999.20	1999.20	1999.20	-0.80	
	2400.00	2399.10	2399.10	2398.90	-1.00	
	0.00	-0.50	-0.50	-0.50	0.50	

Remarks:

We sincerely thank you for your business. Please call us at 503-654-9620 for all your sales and calibration needs.
Cleaning and preventative maintenance were performed as part of this service.

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A2LA is recognized under the ILAC mutual recognition agreement (MRA).

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/NCCL 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:

Samuel Owens

Date:

February 28, 2025

Quality Manager:

Tony Lewandowski

Signature:



Report and Certificate of Calibration



www.Cal-Cert.com

Toll Free
800-356-1662

Address
5777 SE International Way
Milwaukie, OR 97222

Local
503-654-9620



Report #: 38860-206391-21-B **Customer PO#:** 1126
Customer Name: PFS TECO
Customer Address: 11785 SE Highway 212, Suite 305
City: Clackamas **State:** OR **Zip:** 97015
Contact: Ethan Frederick
Service Address: 11785 SE Highway 212, Suite 305 Clackamas, OR 97015

Calibration Standards

14-00235 Thermocouple Meter Tegan SN: T-276988 Cal: 08/23/2024 Due: 08/31/2025 Vendor: Cal-Cert Range: 2400 °F Report #: 36408-30865-3646
14-01349 Thermo-Hygrometer Comark SN: 06210350162 Cal: 08/23/2024 Due: 08/31/2025 Vendor: Cal-Cert Range: 122 °F 95 %RH Report #: 36408-71148-5

Instrument Data

Calibration Date:	February 28, 2025	Reference:	Navair 17-20ST-95
Recommended Due Date:	February 28, 2026	Cal-Cert Procedure:	CP-013
Calibration Frequency:	12 Months	Indicating System:	Computer
Manufacturer:	National Instruments	Temperature:	65 °F
Type:	Data Logger	Humidity:	40% RH
Model Number:	NI 9213	Asset #:	215 Booth 1
Serial #:	1B182FB	Service Location:	Service Address
Resolution:	0.1 °F	As Found:	Pass
Capacity:	2,400 °F	As Left:	Pass
Tolerance:	± 3.0 °F		
Thermocouple Type:	K		

Thermocouple LOGGING FUNCTION

Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Bottom	0.00	-0.60	-0.60	-0.60	0.60	0.511
	500.00	499.30	499.30	499.50	-0.60	
	1000.00	999.40	999.40	999.40	-0.60	
	1500.00	1499.30	1499.30	1499.30	-0.70	
	2000.00	1999.10	1999.10	1999.20	-0.85	
	2400.00	2399.00	2399.00	2399.00	-1.00	
	0.00	-0.60	-0.60	-0.60	0.60	

Thermocouple LOGGING FUNCTION

Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter B	0.00	-0.60	-0.60	-0.60	0.60	0.436
	500.00	499.50	499.50	499.50	-0.50	
	1000.00	999.40	999.40	999.50	-0.55	
	1500.00	1499.40	1499.40	1499.40	-0.60	
	2000.00	1999.20	1999.20	1999.30	-0.75	
	2400.00	2399.10	2399.10	2399.10	-0.90	
	0.00	-0.60	-0.60	-0.60	0.60	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Meter C	0.00	2.50	2.50	2.80	2.65	0.738
	500.00	502.40	502.40	502.60	2.50	
	1000.00	1002.30	1002.30	1002.60	2.45	
	1500.00	1502.70	1502.70	1502.70	2.70	
	2000.00	2002.70	2002.70	2002.30	2.50	
	2400.00	2402.80	2402.80	2403.40	3.10	
	0.00	2.80	2.80	2.80	2.80	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Filter C	0.00	-0.20	-0.20	-0.20	0.20	0.511
	500.80	499.80	499.80	499.60	-1.10	
	1000.40	999.70	999.70	999.60	-0.75	
	1500.00	1499.50	1499.50	1499.50	-0.50	
	1999.40	1999.40	1999.40	1999.40	0.00	
	2399.10	2399.20	2399.20	2399.20	0.10	
	0.00	-0.20	-0.20	-0.20	0.20	

Thermocouple LOGGING FUNCTION						
Channel	Calibration Standard	UUT As Found	UUT As Left Reading 1	UUT As Left Reading 2	As Left Error	Expanded Uncertainty±
Ambient	0.00	0.00	0.00	0.00	0.00	0.436
	20.00	18.20	18.20	18.20	-1.80	
	40.00	38.20	38.20	38.20	-1.80	
	60.00	58.10	58.10	58.20	-1.85	
	80.00	78.40	78.40	78.40	-1.60	
	100.00	98.40	98.40	98.30	-1.65	
	0.00	0.00	0.00	0.00	0.00	

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.
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Service Engineer:

Samuel Owens

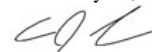
Date:

February 28, 2025

Quality Manager:

Tony Lewandowski

Signature:



Report #: 38860-206391-21-B

Data Logger 10 Channel 6 Point (PCC) CF-013-03

Revision 12 7/24/2017

IN CASE OF EMERGENCY: CALL 1-800-645-4633

SDS ID: P-18-0301-H

DO NOT REMOVE THIS LABEL

Lot No. 70086426104

Cylinder No. DT0042934

Part No. NI CD17CO8E-AS

Volume: 99 ft³

Fill Date: 09/17/2024

Expiration Date: 09/26/2032



ProSpec
By Linde



Linde Gas & Equipment Inc.
6760 S. Alameda
Los Angeles, CA 90048

UN1956

Compressed gas, n.o.s. (Nitrogen,
Oxygen)



EPA Protocol

Molar Concentration	Component	CAS
17.32 %	Carbon dioxide	124-38-9
4.35 %	Carbon monoxide	630-08-0
16.96 %	Oxygen	7782-44-7
Balance	Nitrogen	7727-37-9

Danger



CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE. MAY INCREASE RESPIRATION AND HEART RATE. ASPHYXIATING EVEN WITH ADEQUATE OXYGEN.

TLV:

Carbon dioxide 50 ppm
Carbon monoxide 25 ppm

Obtain special instructions before use; Do not handle until all safety precautions have been read and understood; Do not breathe gas/vapors; Wear protective gloves/protective clothing/eye protection/face protection; IF EXPOSED OR CONCERNED: Get medical advice/attention; Get medical advice/attention; Get medical advice/attention; Contact supplier for any special requirements; Use and store only outdoors or in a well-ventilated place; Use a back flow preventive device in the piping; Use only with equipment rated for cylinder pressure; Do not open valve until connected to equipment prepared for use; Close valve after each use and when empty; Protect from sunlight when ambient temperature exceeds 52°C (125°F); Avoid breathing gas, vapors; IF INHALED: Remove person to fresh air and keep comfortable for breathing; Call a POISON CENTER or doctor/physician.

FIRST AID

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed.



Compressed gas, n.o.s.
(Carbon Monoxide, Carbon Dioxide, Oxygen,
Nitrogen)

UN1956

SPG 5P10162.5VM2
Part Number

Primary Standard, +/- 0.02% Absolute

2.500 % Carbon Monoxide
10.00 % Carbon Dioxide
10.00 % Oxygen
Balance Nitrogen

CAS: 630-08-0
CAS: 124-38-9
CAS: 7782-44-7
CAS: 7727-37-9

DANGER: CAUSES DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE WHEN HEATED. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. MAY INCREASE RESPIRATION AND HEARTRATE. Use only with equipment of compatible materials of construction and rated for cylinder pressure. Protect from sunlight when ambient temperature exceeds 52C (125F). Use a back flow preventive device in the piping. Close valve after each use and when empty. Do not open valve until connected to equipment prepared for use. Obtain special instructions before use. Protect from sunlight. Store in a well-ventilated place. IF exposed or concerned: Get medical advice. Store locked up. Dispose of contents/container in accordance with container/supplier owner instructions. Do not handle until all safety precautions have been read and understood. Do not breathe gas. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Wear protective gloves, protective clothing, eye protection, and/or face protection. Read and follow the Safety Data Sheet (SDS) before use.

FIRST AID: IF ON SKIN: wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. IF exposed or concerned: Get medical advice.



WARNING: This product can expose you to Carbon Monoxide which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Lot No: 1-053-122
Serial Number: CC341544
SPG 5P10162.5VM2
Part Number
PO #: 206483
Expires: 2-2024

NorLAB

To Order Call: 800-657-6672

In Emergency Call: 1-800-424-6300
Norco, Inc.
808 W. Cowen Road
Bozou, Idaho 83705



PFS Report #
F18-420

PRINCESS PE32

BLAZE KING CATALYTIC STOVE - POËLE À BOIS CATALYTIQUE

MODEL / MODÈLE: PE32

ROOM HEATER, SOLID FUEL TYPE / APPAREIL DE CHAUFFAGE, TYPE COMBUSTIBLE SOLIDE

TESTED TO / TESTÉ: UL 1482-11(R2022) & CAN/ULC-S627:2023

CERTIFIED FOR USE IN BOTH USA AND CANADA / CERTIFIÉ POUR UNE UTILISATION AUX ÉTATS-UNIS ET AU CANADA

APPROVED FOR USE IN MOBILE HOMES (USA) AND IN TRANSPORTABLE BUILDINGS (CAN) / APPROUVÉ POUR UNE UTILISATION DANS LES MAISONS MOBILES (USA) ET DANS LES BÂTIMENTS TRANSPORTABLES (CAN)

SN - 64.

Install and use this appliance in accordance with Blaze King's installation and operation instructions. Contact local building or fire officials about restrictions and installation inspection in your area. To be installed as a freestanding space heater with the clearances listed below and in the installation instructions. Not to be installed in any fireplace. DO NOT CONNECT THIS APPLIANCE TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. The flue diameter is 6". Except for the installation detailed below, use a 6" listed, factory built chimney suitable for use with solid fuels conforming to UL-103HT (USA) or CAN/ULC-S629 (CAN) or a code compliant, masonry chimney.

Mobile Home (USA) or Transportable Building (CAN) and residential close clearance installations require a 6" listed double wall, close clearance chimney connector with matching listed factory built chimney suitable for use with solid fuels and conforming to UL-103HT (USA) or CAN/ULC-S629 (CAN). Mobile Home (USA) or Transportable Buildings (CAN) installations are approved for roof exit only. Do not install in a sleeping room. Connection through a wall or ceiling requires special methods, see instructions and refer to local building codes to ensure proper installation.

Installez et utilisez cet appareil conformément aux instructions d'installation et d'utilisation de Blaze King. Contactez les responsables locaux du bâtiment ou des pompiers au sujet des restrictions et de l'inspection de l'installation dans votre région. À installer en tant qu'appareil de chauffage autonome avec les dégagements indiqués ci-dessous et dans les instructions d'installation. Ne pas installer dans une cheminée. NE RACCORDEZ PAS CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL. Le diamètre du conduit est de 6". À l'exception de l'installation détaillée ci-dessous, utilisez une cheminée de 6" homologuée et fabriquée en usine adaptée à une utilisation avec des combustibles solides conformes à UL-103HT (USA) ou CAN/ULC-S629 (CAN) ou un code conforme, cheminée en maçonnerie.

Les installations de maisons mobiles (USA) ou de bâtiments transportables (CAN) et résidentielles à dégagement réduit nécessitent un connecteur de cheminée homologué à double paroi et à dégagement réduit avec une cheminée fabriquée en usine homologuée adaptée à une utilisation avec des combustibles solides et conforme à UL-103HT (USA) ou CAN/ULC-S629 (CAN). Les installations de maisons mobiles (USA) ou de bâtiments transportables (CAN) sont approuvées pour une sortie sur le toit uniquement. Ne pas installer dans une chambre à coucher. La connexion à travers un mur ou un plafond nécessite des méthodes spéciales, voir les instructions et se référer aux codes du bâtiment locaux pour assurer une installation correcte.

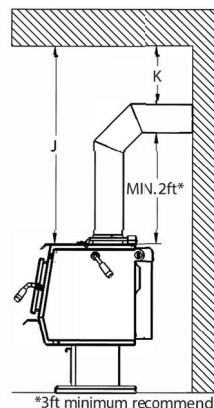
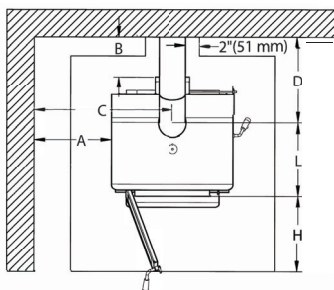
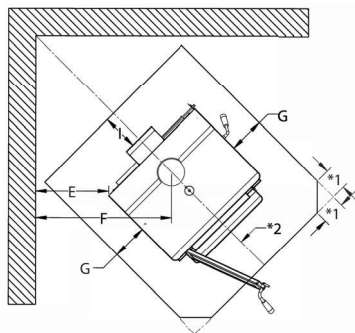
MINIMUM CLEARANCES TO COMBUSTIBLES (see owners manual for complete description of all requirements)

* In Canada, 18" clearances from single wall pipe is required. Check with local codes and pipe manufacturers for minimum pipe clearances.

DÉGAGEMENTS MINIMUM AUX COMBUSTIBLES (voir les directives d'installation pour la description complète de toutes les conditions)

* Au Canada, un dégagement de 18 po est exigé pour un tuyau à simple paroi. Vérifier avec le code du bâtiment local et avec le fabricant de tuyaux pour les dégagements.

Residential Installations / Installations Résidentielles	A	B	* C	* D	E	* F	J
Roof Exit or Wall Exit, Parallel or Corner minimum clearances Dégagements minimaux de sortie de toit ou de sortie murale, parallèle ou d'angle	10"	6"	23.5"	15.125"	4"	17.125"	44"
	254 mm	153 mm	597 mm	385 mm	102 mm	435 mm	1118 mm
Mobile Home (USA) or Transportable Building (CAN) / Maison mobile (USA) or Bâtiment transportable (CAN)							
Roof Exit, Parallel or Corner minimum clearances; outside Air Kit and Fan Kit or Rear Shield required Dégagements minimaux de sortie de toit, parallèles ou en coin; Kit d'air extérieur et kit de ventilateur ou écran arrière requis	10"	6"	23.5"	15.125"	4"	17.125"	44"
	254 mm	153 mm	597 mm	385 mm	102 mm	435 mm	1118 mm



*1 = 2.125" (54 mm) in USA and 5.625" (143 mm) in Canada

*2 = 57.5" (1461 mm) in USA and 59.5" (1511 mm) in Canada

G = 3" (77 mm) in USA 8" (203 mm) in Canada	H = 16" (406 mm) in USA 18" (457 mm) in Canada	I = 0" (0 mm) in USA 8" (203 mm) in Canada	* K = 18" (457 mm) for single wall pipe in Canada	L = 17.375" (442 mm)
--	---	---	--	----------------------

This appliance does not require thermal hearth pad floor protection; however, if installed on a combustible floor, a non-combustible floor shield must be used. Minimum floor protection size is: 32.75" x 42.5" (832 mm x 1080 mm) in USA or 43" x 52.5" (1093 mm x 1334 mm) in Canada.

U.S. ENVIRONMENTAL PROTECTION AGENCY - Certified to comply with 2020 particulate emission standards using crib wood (certified to EPA test method 28R with an emission-rate of 0.55 g/hr). It is against federal regulations to operate this appliance in a manner inconsistent with operating instructions in the owner's manual or if the catalytic combustor is deactivated or removed. This appliance needs periodic inspection and repair for proper operation; consult the owner's manual for instruction.

ONLY OPERATE WITH DOOR CLOSED; open door to feed fire ONLY. DO NOT OBSTRUCT COMBUSTION AIR OPENINGS OR THE SPACE BENEATH THE APPLIANCE. Provide adequate outside air for combustion. For use with solid wood fuel only; do not burn other fuels as this will cause the catalyst in the combustor to become inactive. The performance of the combustor or its durability has not been evaluated as part of the certification. Combustor OEM part number: 115-0556 or 115-0776. Replace glass with 5mm ceramic glass only. This appliance must be installed with either Blaze King Leg Kit Z1713, Classic Base Kit Z3284, or Pedestal Kit Z3903; attach as instructed in the installation instructions.

Cet appareil ne nécessite pas de protection thermique du sol du foyer; cependant, s'il est installé sur un plancher combustible, un protecteur de plancher non combustible doit être utilisé. La taille minimale de la protection de plancher est de: 32.75" x 42.5" (832 mm x 1080 mm) aux USA ou 43" x 52.5" (1093 mm x 1334 mm) au Canada.

L'AGENCE DE PROTECTION ENVIRONNEMENTALE DES U.S. - Certifié conformément aux normes d'émission de particules 2020 (certifié selon la méthode de test EPA 28R avec un taux d'émission de 0.55 g/h). Il est contraire aux réglementations fédérales d'utiliser cet appareil d'une manière incompatible avec les instructions d'utilisation du manuel du propriétaire ou si la chambre de combustion catalytique est désactivée ou retirée. Cet appareil nécessite une inspection et une réparation périodiques pour un bon fonctionnement; consultez le manuel du propriétaire pour obtenir des instructions.

FONCTIONNER UNIQUEMENT AVEC LA PORTE FERMÉE; ouvrir la porte UNIQUEMENT pour alimenter le feu. NE PAS OBSTRUER LES OUVERTURES D'AIR DE COMBUSTION ou l'espace sous l'appareil. Fournir suffisamment d'air extérieur pour la combustion. À utiliser uniquement avec du bois de chauffage solide; ne brûlez pas d'autres combustibles car cela rendrait le catalyseur dans la chambre de combustion inactif. Les performances de la chambre de combustion ou sa durabilité n'ont pas été évaluées dans le cadre de la certification. Numéro de pièce OEM de la chambre de combustion: 115-0556 ou 115-0776. Remplacez le verre par du verre céramique de 5 mm uniquement. Cet appareil doit être installé avec Blaze King Kit de jambe Z1713, Base Classique Kit Z3284, ou Piédestal Kit Z3903; fixer comme indiqué dans les instructions d'installation.

MANUFACTURED IN

☐ USA:

Blaze King Industries
146A Street
Walla Walla, WA.
99362

☐ CANADA:

Valley Comfort Systems
1290 Commercial Way
Penticton, B.C.
V2A 3H5

MANUFACTURE DATE

JAN ☐ FEB ☐ MAR ☐ APR ☐ MAY ☐ JUN ☐
JUL ☐ AUG ☐ SEP ☐ OCT ☐ NOV ☐ DEC ☐
2025 ☐ 2026 ☐ 2027 ☐ 2028 ☐ 2029 ☐ 2030 ☐

170-0274 [08 25]

Blaze King

PRINCESS PE32

SOLID FUEL CATALYTIC STOVE

OPERATION & INSTALLATION MANUAL



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



U.S. EPA CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD



**Installer: Please COMPLETE THE DETAILS ON THE LAST PAGE
and leave this manual with the homeowner.
Homeowner: Please SAVE THESE INSTRUCTIONS for future reference.**

MANUFACTURED BY

Valley Comfort Systems Inc., 1290 Commercial Way, Penticton BC, Canada, V2A 3H5
web: www.blazeking.com email: info@blazeking.com

ATTENTION: The authority having jurisdiction (municipal building department, fire department, etc.) should be consulted before installation to determine the need to obtain a permit.

Pour la version française de nos manuels S.V.P. vous référez à notre site web: www.blazeking.com

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CERTIFICATION LABEL

For reference only - please refer to label on the appliance

PE32



PFS Report #
F18-420

PRINCESS PE32

BLAZE KING CATALYTIC STOVE - POÊLE À BOIS CATALYTIQUE

MODEL / MODÈLE: PE32

ROOM HEATER, SOLID FUEL TYPE / APPAREIL DE CHAUFFAGE, TYPE COMBUSTIBLE SOLIDE

TESTED TO / TESTÉ: UL 1482-11(R2022) & CAN/ULC-S627:2023

CERTIFIED FOR USE IN BOTH USA AND CANADA / CERTIFIÉ POUR UNE UTILISATION AUX ÉTATS-UNIS ET AU CANADA

APPROVED FOR USE IN MOBILE HOMES (USA) AND IN TRANSPORTABLE BUILDINGS (CAN) / APPROUVÉ POUR UNE UTILISATION DANS LES MAISONS MOBILES (USA) ET DANS LES BÂTIMENTS TRANSPORTABLES (CAN)

SN - 64.

Install and use this appliance in accordance with Blaze King's installation and operation instructions. Contact local building or fire officials about restrictions and installation inspection in your area. To be installed as a freestanding space heater with the clearances listed below and in the installation instructions. Not to be installed in any fireplace. DO NOT CONNECT THIS APPLIANCE TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. The flue diameter is 6". Except for the installation detailed below, use a 6" listed, factory built chimney suitable for use with solid fuels conforming to UL-103HT (USA) or CAN/ULC-S629 (CAN) or a code compliant, masonry chimney. Mobile Home (USA) or Transportable Building (CAN) and residential close clearance installations require a 6" listed double wall, close clearance chimney connector with matching listed factory built chimney suitable for use with solid fuels and conforming to UL-103HT (USA) or CAN/ULC-S629 (CAN). Mobile Home (USA) or Transportable Buildings (CAN) installations are approved for roof exit only. Do not install in a sleeping room. Connection through a wall or ceiling requires special methods, see instructions and refer to local building codes to ensure proper installation.

Installez et utilisez cet appareil conformément aux instructions d'installation et d'utilisation de Blaze King. Contactez les responsables locaux du bâtiment ou des pompiers au sujet des restrictions et de l'inspection de l'installation dans votre région. À installer en tant qu'appareil de chauffage autonome avec les dégagements indiqués ci-dessous et dans les instructions d'installation. Ne pas installer dans une cheminée. NE RACCORDEZ PAS CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL. Le diamètre du conduit est de 6". À l'exception de l'installation détaillée ci-dessous, utilisez une cheminée de 6" homologuée et fabriquée en usine adaptée à une utilisation avec des combustibles solides conformes à UL-103HT (USA) ou CAN/ULC-S629 (CAN) ou un code conforme, cheminée en maçonnerie. Les installations de maisons mobiles (USA) ou de bâtiments transportables (CAN) et résidentielles à dégagement réduit nécessitent un connecteur de cheminée homologué à double paroi et à dégagement réduit avec une cheminée fabriquée en usine homologuée adaptée à une utilisation avec des combustibles solides et conforme à UL-103HT (USA) ou CAN/ULC-S629 (CAN). Les installations de maisons mobiles (USA) ou de bâtiments transportables (CAN) sont approuvées pour une sortie sur le toit uniquement. Ne pas installer dans une chambre à coucher. La connexion à travers un mur ou un plafond nécessite des méthodes spéciales, voir les instructions et se référer aux codes du bâtiment locaux pour assurer une installation correcte.

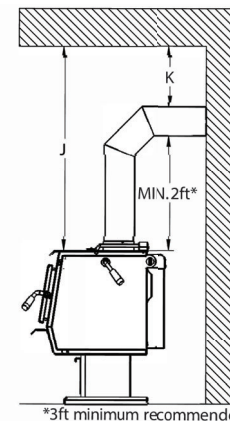
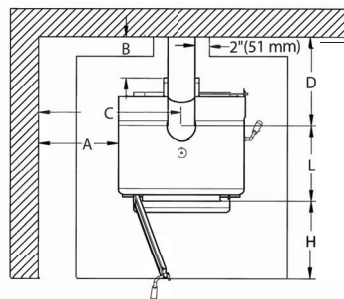
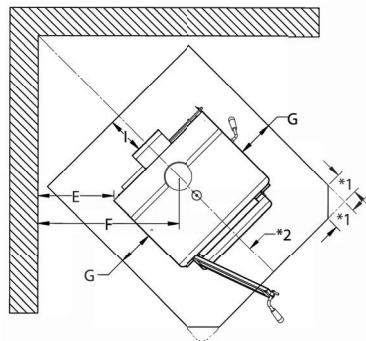
MINIMUM CLEARANCES TO COMBUSTIBLES (see owners manual for complete description of all requirements)

* In Canada, 18" clearances from single wall pipe is required. Check with local codes and pipe manufacturers for minimum pipe clearances.

DÉGAGEMENTS MINIMUM AUX COMBUSTIBLES (voir les directives d'installation pour la description complète de toutes les conditions)

* Au Canada, un dégagement de 18 po est exigé pour un tuyau à simple paroi. Vérifier avec le code du bâtiment local et avec le fabricant de tuyaux pour les dégagements.

Residential Installations / Installations Résidentielles	A	B	* C	* D	E	* F	J
Roof Exit or Wall Exit, Parallel or Corner minimum clearances Dégagements minimaux de sortie de toit ou de sortie murale, parallèle ou d'angle	10" 254 mm	6" 153 mm	23.5" 597 mm	15.125" 385 mm	4" 102 mm	17.125" 435 mm	44" 1118 mm
Mobile Home (USA) or Transportable Building (CAN) / Maison mobile (USA) or Bâtiment transportable (CAN)							
Roof Exit, Parallel or Corner minimum clearances; outside Air Kit and Fan Kit or Rear Shield required Dégagements minimaux de sortie de toit, parallèles ou en coin; Kit d'air extérieur et kit de ventilateur ou écran arrière requis	10" 254 mm	6" 153 mm	23.5" 597 mm	15.125" 385 mm	4" 102 mm	17.125" 435 mm	44" 1118 mm



*1 = 2.125" (54 mm) in USA and 5.625" (143 mm) in Canada

*2 = 57.5" (1461 mm) in USA and 59.5" (1511 mm) in Canada

G = 3" (77 mm) in USA 8" (203 mm) in Canada	H = 16" (406 mm) in USA 18" (457 mm) in Canada	I = 0" (0 mm) in USA 8" (203 mm) in Canada	* K = 18" (457 mm) for single wall pipe in Canada	L = 17.375" (442 mm)
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This appliance does not require thermal hearth pad floor protection; however, if installed on a combustible floor, a non-combustible floor shield must be used. Minimum floor protection size is: 32.75" x 42.5" (832 mm x 1080 mm) in USA or 43" x 52.5" (1093 mm x 1334 mm) in Canada.

U.S. ENVIRONMENTAL PROTECTION AGENCY - Certified to comply with 2020 particulate emission standards using crib wood (certified to EPA test method 28R with an emission-rate of 0.55 g/hr). It is against federal regulations to operate this appliance in a manner inconsistent with operating instructions in the owner's manual or if the catalytic combustor is deactivated or removed. This appliance needs periodic inspection and repair for proper operation; consult the owner's manual for instruction.

ONLY OPERATE WITH DOOR CLOSED; open door to feed fire ONLY. DO NOT OBSTRUCT COMBUSTION AIR OPENINGS OR THE SPACE BENEATH THE APPLIANCE. Provide adequate outside air for combustion. For use with solid wood fuel only; do not burn other fuels as this will cause the catalyst in the combustor to become inactive. The performance of the combustor or its durability has not been evaluated as part of the certification. Combustor OEM part number: 115-0556 or 115-0776. Replace glass with 5mm ceramic glass only. This appliance must be installed with either Blaze King Leg Kit Z1713, Classic Base Kit Z3284, or Pedestal Kit Z3903; attach as instructed in the installation instructions.

Cet appareil ne nécessite pas de protection thermique du sol du foyer; cependant, s'il est installé sur un plancher combustible, un protecteur de plancher non combustible doit être utilisé. La taille minimale de la protection de plancher est de: 32.75" x 42.5" (832 mm x 1080 mm) aux USA ou 43" x 52.5" (1093 mm x 1334 mm) au Canada.

L'AGENCE DE PROTECTION ENVIRONNEMENTALE DES U.S. - Certifiée conformément aux normes d'émission de particules 2020 (certifié selon la méthode de test EPA 28R avec un taux d'émission de 0.55 g/h). Il est contraire aux réglementations fédérales d'utiliser cet appareil d'une manière incompatible avec les instructions d'utilisation du manuel du propriétaire ou si la chambre de combustion catalytique est désactivée ou retirée. Cet appareil nécessite une inspection et une réparation périodiques pour un bon fonctionnement; consultez le manuel du propriétaire pour obtenir des instructions.

FONCTIONNER UNIQUEMENT AVEC LA PORTE FERMÉE; ouvrir la porte UNIQUEMENT pour alimenter le feu. NE PAS OBSTRUER LES OUVERTURES D'AIR DE COMBUSTION ou l'espace sous l'appareil. Fournir suffisamment d'air extérieur pour la combustion. À utiliser uniquement avec du bois de chauffage solide; ne brûlez pas d'autres combustibles car cela rendrait le catalyseur dans la chambre de combustion inactif. Les performances de la chambre de combustion ou sa durabilité n'ont pas été évaluées dans le cadre de la certification. Numéro de pièce OEM de la chambre de combustion: 115-0556 ou 115-0776. Remplacez le verre par du verre céramique de 5 mm uniquement. Cet appareil doit être installé avec Blaze King Kit de jambe Z1713, Base Classique Kit Z3284, ou Piédestal Kit Z3903; fixer comme indiqué dans les instructions d'installation.

MANUFACTURED IN

☐ USA:

Blaze King Industries
146A Street
Walla Walla, WA.
99362

☐ CANADA:

Valley Comfort Systems
1290 Commercial Way
Penticton, B.C.
V2A 3H5

MANUFACTURE DATE

JAN ☐ FEB ☐ MAR ☐ APR ☐ MAY ☐ JUN ☐
JUL ☐ AUG ☐ SEP ☐ OCT ☐ NOV ☐ DEC ☐
2025 ☐ 2026 ☐ 2027 ☐ 2028 ☐ 2029 ☐ 2030 ☐

170-0274 [08 25]

The content within this manual describes the installation and operation of the Blaze King PE32. It is against federal regulations to operate this appliance in a manner inconsistent with the operating instructions in this manual. Blaze King grants no warranty, implied or stated, for the installation and maintenance of this appliance and assumes no responsibility of any consequential damage(s).

EPA CERTIFICATION TEST DATA		
Burn Category	CO Avg	Emission Rate
Low Burn	0.30 g/min	0.14 g/hr
Med-low Burn	0.18 g/min	0.30 g/hr
Med-high Burn	0.72 g/min	0.81 g/hr
High Burn	1.54 g/min	1.76 g/hr
EPA emission rate weighted average		0.55 g/hr

This appliance was tested and listed to CAN/ULC-S627:2023 & UL1482-11 (R2022) by PFS-TECO Testing Laboratories. This appliance is certified to comply with the 2020 U.S. Environmental Protection Agency's particulate emission standards using crib wood. Under specific test conditions, this appliance has been shown to deliver heat at rates ranging from 11,358 to 34,434 Btu/hr. This appliance has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting.

This appliance contains a catalytic combustor which needs periodic inspection and may require replacement to ensure proper operation. It is against federal regulations to operate this appliance if the catalytic combustor is deactivated or removed.

WARNING

IF THIS APPLIANCE IS NOT PROPERLY INSTALLED OR OPERATED, A HOUSE FIRE MAY RESULT LEADING TO SERIOUS BODILY HARM AND EVEN DEATH. TO REDUCE THE RISK OF FIRE, PLEASE READ THIS ENTIRE MANUAL BEFORE INSTALLING AND OPERATING THIS APPLIANCE. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

DO NOT OPERATE THIS APPLIANCE WITHOUT FULLY ASSEMBLING ALL COMPONENTS. DO NOT INSTALL DAMAGED, INCOMPLETE, OR SUBSTITUTE COMPONENTS. FAILURE TO POSITION COMPONENTS IN ACCORDANCE WITH THE DIAGRAMS IN THIS BOOKLET, OR FAILURE TO USE COMPONENTS SPECIFICALLY APPROVED WITH THIS APPLIANCE, MAY RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY.

SMOKE DETECTORS, CARBON MONOXIDE DETECTORS, AND FIRE EXTINGUISHERS

IT IS VERY IMPORTANT TO HAVE AT LEAST ONE SMOKE DETECTOR AND ONE CARBON MONOXIDE MONITOR IN THE ROOM CONTAINING THE APPLIANCE. IT IS RECOMMENDED TO HAVE SEVERAL SMOKE DETECTORS AND CARBON MONOXIDE MONITORS POSITIONED IN KEY AREAS THROUGHOUT YOUR HOME. IF AN ALARM SOUNDS, EVACUATE THE HOME IMMEDIATELY. AFTER YOU HAVE DETERMINED THAT THERE IS NO RISK TO HEALTH OR PROPERTY, YOU MAY CORRECT THE CAUSE OF THE ALARM. DO NOT DE-ACTIVATE OR RELOCATE THE SMOKE DETECTORS OR CARBON MONOXIDE MONITORS. ALL HOMES WITH A SOLID FUEL BURNING APPLIANCE SHOULD HAVE AT LEAST ONE FIRE EXTINGUISHER IN A CENTRAL LOCATION THAT IS KNOWN TO ALL OCCUPANTS IN THE HOUSE.



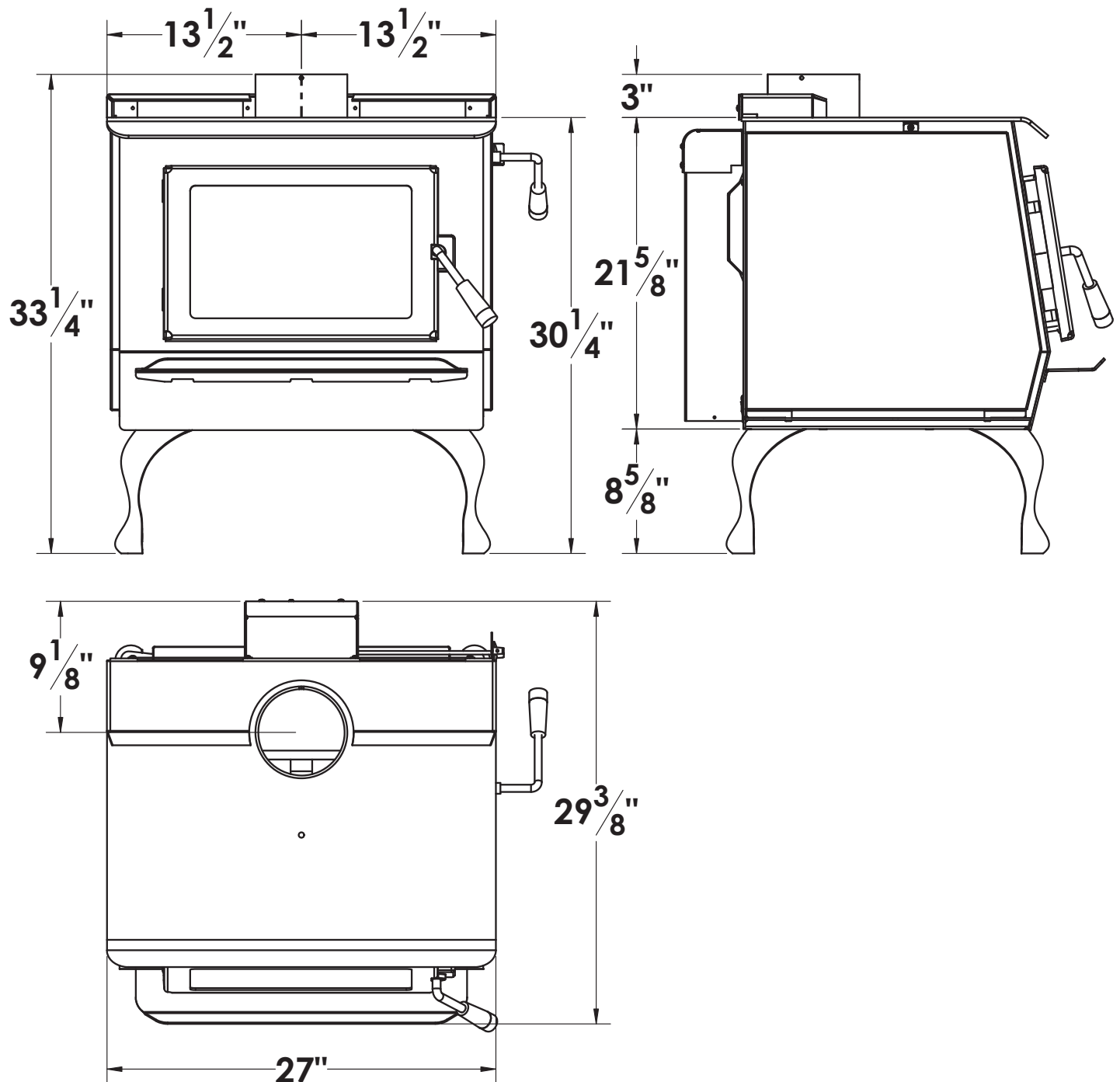
CALIFORNIA PROPOSITION 65

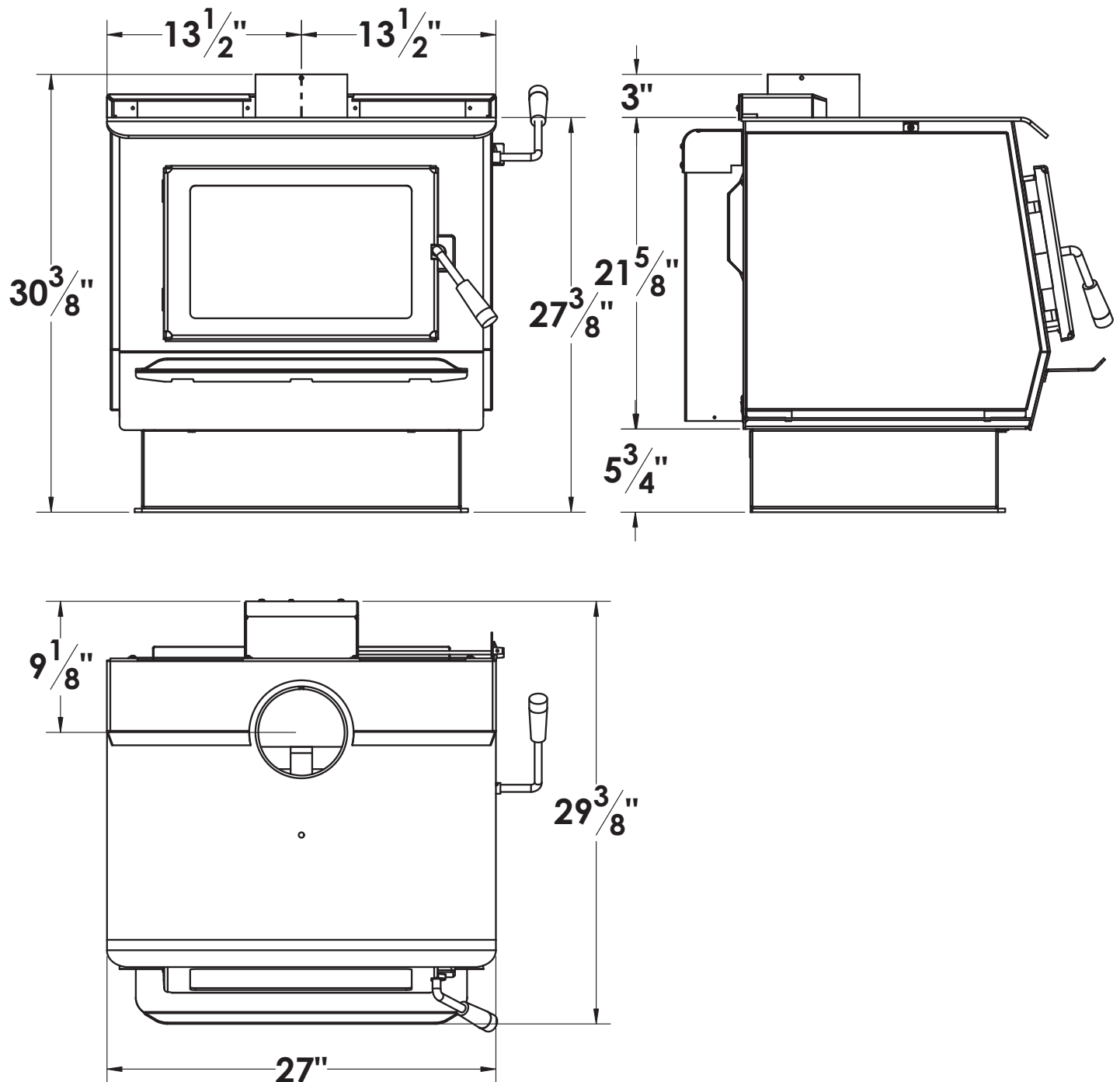
WARNING: This product can expose you to chemicals including benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information:

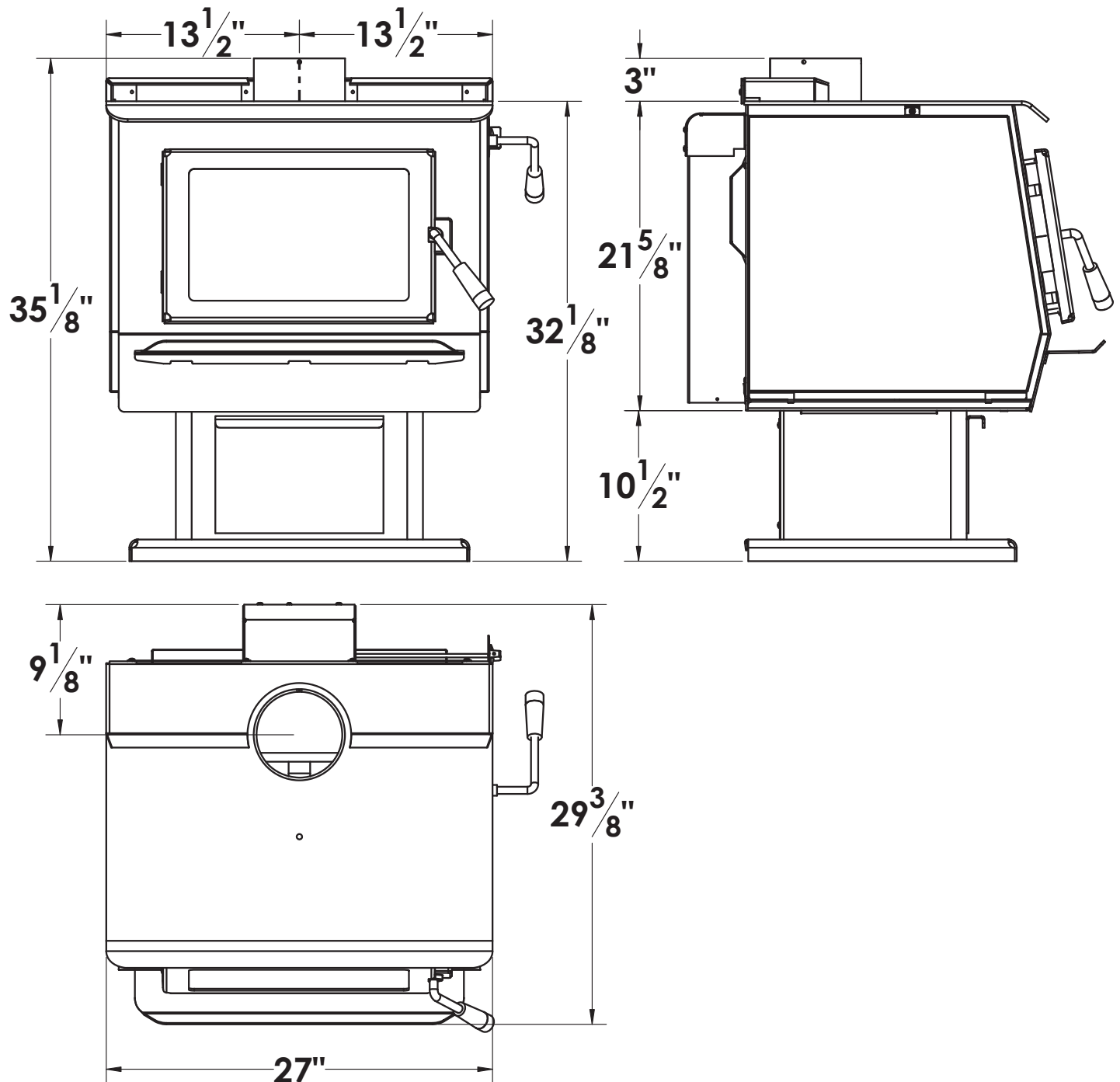
www.P65Warnings.ca.gov

<i>PRINCESS PE32, PE32 SPECIFICATIONS</i>	
Flue Collar Opening	6" I.D. (152 mm)
Firebox Door Opening	16 1/2" x 8 3/4" (420 mm x 223 mm)
Firebox Volume	2.86 ft ³ (0.081 m ³)
Tested Fuel Length	16.75" (426 mm)
Wood Capacity (approximate)	White Oak - 60 lb (27.2 kg) / Douglas Fir - 40 lb (18.1 kg)
Shipping Weight (Firebox only)	368 lb (166.9 kg)
Shipping Weight (Pedestal Kit)	50 lb (22.7 kg)
Shipping Weight (Base Kit)	30 lb (13.6 kg)
Shipping Weight (Leg Kit)	20 lb (9.1 kg)

<i>PARTS INCLUDED</i>	
1. Fire Poker	
2. Manual Kit (w/ Warranty Cards, Catalytic Thermometer, Bypass Handle)	
<i>REQUIRED KIT</i>	
1. S.Z4786 - Door	
<i>REQUIRED KIT (MUST INSTALL ONE OPTION)</i>	
1. S.Z1713 - Parlor Leg Kit	2. S.Z3903 - Ultra Pedestal Kit
3. S.Z3284 - Classic Base Kit	
<i>OPTIONAL ACCESSORIES</i>	
1. S.Z1714 - Fan Kit	2. S.Z3820 - Leg Ash Drawer Kit
3. S.Z4015 - Rear Shield	4. S.Z0103 - Fresh Air Kit 3"
5. S.Z0104 Fresh Air Kit 4"	

PE32 WITH PARLOR LEG KIT (S.Z1713)

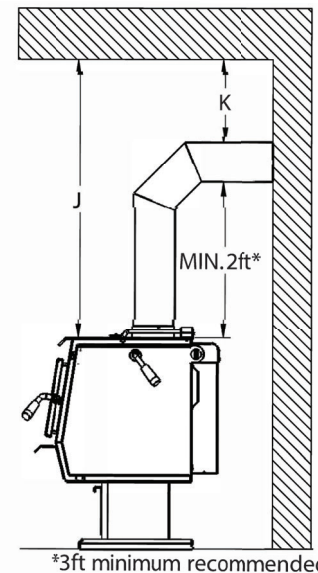
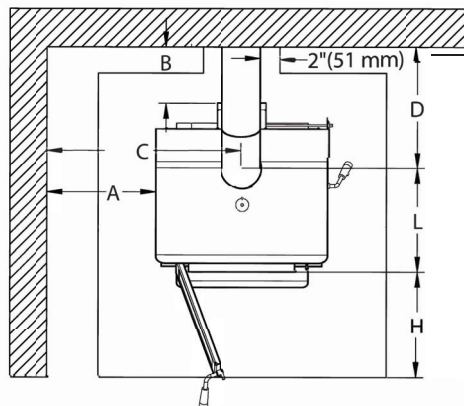
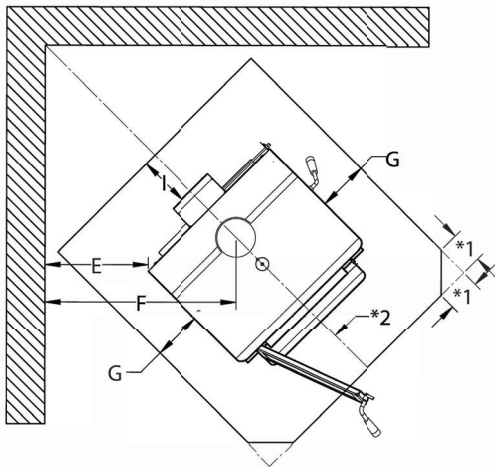
PE32 WITH CLASSIC BASE KIT (S.Z3284)

PE32 WITH ULTRA PEDESTAL KIT (S.Z3903)

MINIMUM CLEARANCES

This appliance must be installed in compliance with all local codes and regulations. Minimum clearances may only be reduced by means approved by the regulatory authority. Flue pipe must be 6" diameter and 24 MSG steel construction. Do not use aluminum or galvanized steel. Refer to local codes and pipe manufacturer specs for required minimum clearances. ***In Canada, a minimum 18" (450 mm) clearance from single wall pipe is required.**

RESIDENTIAL INSTALLATION	A	B	* C	* D	E	* F	J
Roof or Wall exit; Parallel or Corner min clearances	10" 254 mm	6" 153 mm	23.5" 597 mm	15.125" 385 mm	4" 102 mm	17.125" 435 mm	44" 1118 mm
MOBILE HOME (USA) OR TRANSPORTABLE BUILDING (CAN) INSTALLATION							
Roof exit only; Parallel or Corner min clearances *Fan Kit or Rear Shield Kit + Outside Air Kit required	10" 254 mm	6" 153 mm	23.5" 597 mm	15.125" 385 mm	4" 102 mm	17.125" 435 mm	44" 1118 mm



*1 = 2.125" (54 mm) in USA and 5.625" (143 mm) in Canada

*2 = 57.5" (1461 mm) in USA and 59.5" (1511 mm) in Canada

G = 3" (76 mm) in USA 8" (203 mm) in Canada	H = 16" (406 mm) in USA 18" (456 mm) in Canada	I = 0" (0 mm) in USA 8" (203 mm) in Canada	* K = 18" (456 mm) for single wall pipe in Canada	L = 17.375" (442 mm)
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FLOOR PROTECTION

This appliance does not require thermal hearth pad floor protection; however, if installed on a combustible floor, a non-combustible floor shield must be used. In the USA, this floor shield must extend 16" out from the front and 8" out from either side of the fuel-loading door. In Canada, to comply with CSA B365, any combustible covering beneath the appliance and/or within the area extending horizontally at least 18" (450 mm) beyond the appliance on any side equipped with a door, and at least 8" (200 mm) beyond the appliance on other sides, shall be protected by a continuous, durable, non-combustible pad that will provide ember protection. The 18" (450 mm) ember protection required on any side with a door shall extend for the full width of the appliance plus the 8" (200 mm) required on each side of the appliance without a door. Where an appliance is installed less than 8" (200 mm) from a wall, the ember pad need only extend to the base of the wall. An ember pad shall not be placed on top of a carpet unless the pad is structurally supported to prevent displacement and distortion. A non-combustible shield is also required underneath the chimney connector and extend at least 2" on either side of the chimney connector. This shield does not need an insulation value, but must be listed under UL 1618-2009 (Type 1) and have a minimum size of:

32.75" x 42.5" (832 mm x 1080 mm) in USA and 43" x 52.5" (1093 x 1334 mm) in Canada

Blaze King does not recommend adhesive based vinyl flooring in front of appliances due to thermal expansion and warping which could be permanent.

 WARNING

DO NOT CONNECT TO OR USE THIS APPLIANCE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATIONS
THIS APPLIANCE MUST BE CONNECTED TO: 1) A CHIMNEY COMPLYING WITH THE REQUIREMENTS FOR TYPE HT CHIMNEYS IN THE STANDARD FOR CHIMNEYS, FACTORY-BUILT, RESIDENTIAL TYPE AND BUILDING HEATING APPLIANCE, UL 103, OR 2) A CODE-APPROVED MASONRY CHIMNEY WITH A FLUE LINER. FAILURE TO DO SO MAY RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM.

COMBUSTION AIR

In air tight homes (most modern construction), careful considerations must be taken into account before installing a wood burning appliance. It is important to ensure there is adequate intake (combustion) air for all exhausting type appliances within the dwelling. Heat recovery ventilator (HRV) systems along with constant running fan motors in air handlers are examples of appliances that must be taken into account when balancing intake air (others include fireplaces, range hoods, dryers, etc.). It is recommended that a fresh air intake inlet into the room where the appliance is located be installed. Failure to do so may result in air starvation, smoke spillage, and carbon monoxide threats. Consult a HVAC specialist for proper installation practices.

DRAFT PERFORMANCE

Draft is the movement of combustion air into the appliance and out through the chimney as exhaust gas. In essence, it is the difference in pressure between the exhaust gas inside the chimney and the outside air that creates this movement. Warmer, lighter exhaust gasses in the chimney tend to move upward. The amount of draft created by your chimney can depend on chimney length, horizontal offsets, insulating properties, local geography, external forces, and other factors. External factors (outdoor temperature, wind, barometric pressure, topography, etc.) or internal factors within the dwelling (negative pressure from exhaust fans, chimneys, air infiltration, etc.) may adversely affect draft.

Too much draft can yield very high temperatures within the appliance and may result in damage. An uncontrollable burn or excessive room temperatures are indicators of too much draft. Too little draft may cause back puffing (smoke spillage) into the room and plugging of the chimney, chimney cap, or spark arrestor screen. Inadequate draft can also lead to low heat output and the inability for the combustor to remain active at low burn rate settings. Your Blaze King heater is a high efficiency appliance and will require fine tuning of your chimney system in order to maximize draft performance. **Blaze King cannot be responsible for external forces leading to less than optimal draft performance.**

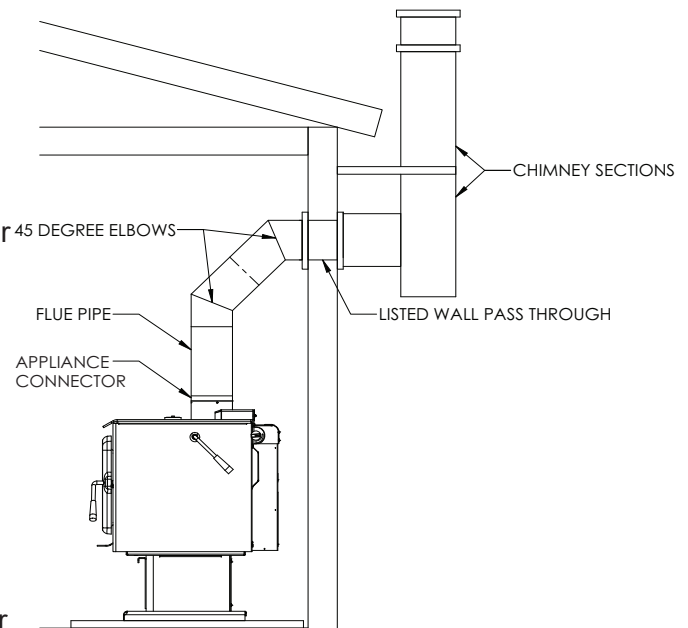
ROLE OF THE CHIMNEY

The role of the chimney is to maintain sufficient draft to achieve complete combustion. To ensure maximum performance, Blaze King recommends a minimum vertical chimney height of 15 ft (from stove top to termination) when installing an appliance at sea level (and up to 1000 ft of elevation). For freestanding installations, it is also recommended to use double wall pipe from stove top adaptor to ceiling support box. Double wall pipe helps to keep the chimney warm and improve draft performance. For wall exit installations, a vertical length of 3 ft from stove top to elbow is recommended. It is also recommended to use a pair of 45 degree elbows rather than a single 90 degree elbow to allow for a smoother transition of airflow. When possible, outside chimney systems should be isolated from the external environment by building a chase around the chimney. Doing so will help keep the chimney warm and maintain sufficient draft (please refer to the *"RECOMMENDED FLUE HEIGHTS"* section). **Without a properly installed chimney, this appliance will not operate at its maximum performance which could yield incomplete combustion.**

VENTING SYSTEM

A venting system consists of:

- Appliance Connector - a “stove top adaptor” that creates a positive connection between the appliance and flue pipe.
- Flue Pipe - either single or double wall pipe that is only used within the room, connecting the appliance to either a ceiling box or wall pass through.
- Chimney - a listed, factory built component with either 1” or 2” insulation that is suitable for use with solid fuels, conforming to CAN/ULC-S629 in Canada or UL 103HT in the USA. Note: This appliance may also be connected to a code compliant Masonry Chimney.

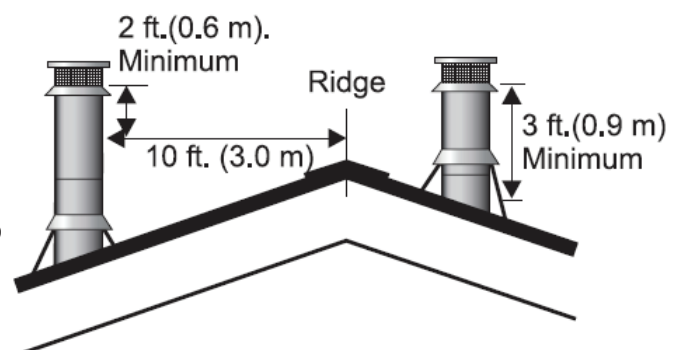


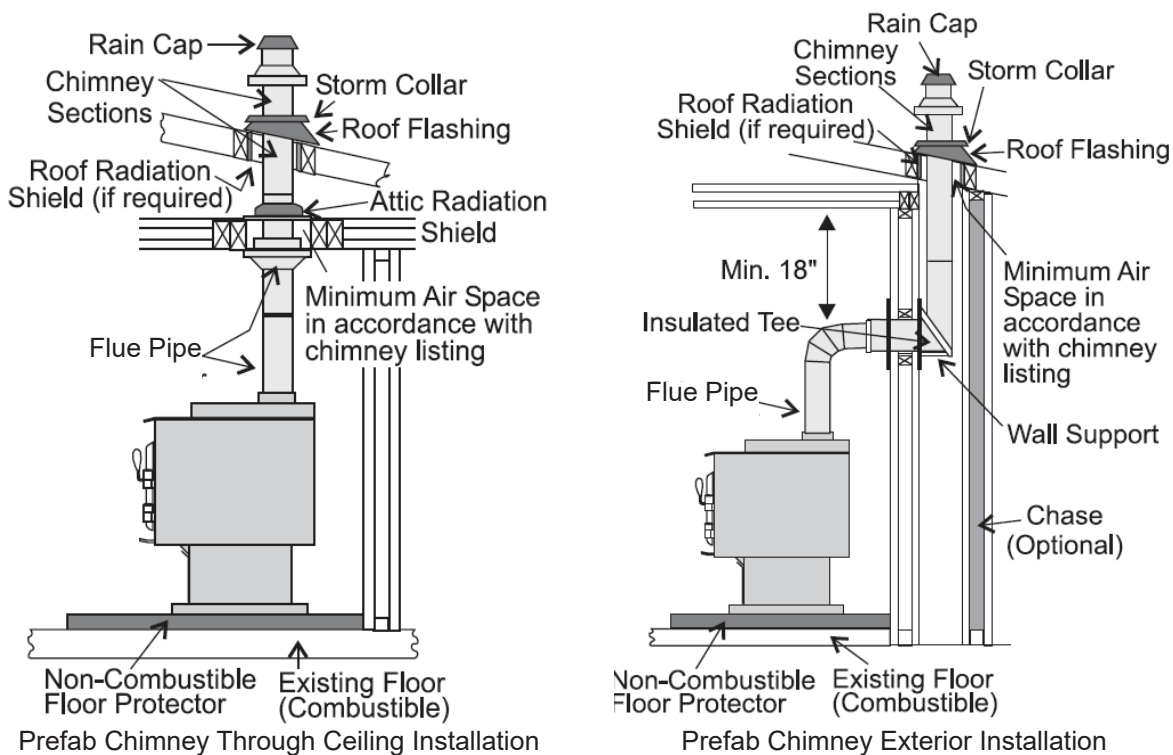
Do not install the chimney directly at the outlet of the appliance. A chimney connector is required unless the appliance is specifically approved for that type of installation. The flue pipe between the appliance connector and chimney should be kept as direct as possible. Do not use a flue pipe to pass through an attic or roof space, closet or similar concealed space, or a floor or ceiling. All joints within the venting system must be securely fastened with sheet metal screws. A chimney support package must be used when a connection is made through a ceiling to a listed prefabricated chimney. A listed wall thimble must be used when a connection is made through a combustible wall to a chimney. These accessories are necessary to provide safe clearances to combustible walls and ceilings as these components can get extremely hot during use. In the event of a creosote fire, temperatures inside the chimney may exceed 2000F (1100°C). An effective vapor barrier must be maintained at the location where the chimney or vent component penetrates the exterior structure. Do not connect this appliance to a chimney serving another appliance, doing so will affect the safe operation of both appliances and will void warranty. You must comply with the local authority having jurisdiction and, in Canada, CSA installation standard B365-M87.

CONNECTION TO A METAL PREFABRICATED CHIMNEY

Refer to the prefabricated chimney manufacturer's installation instructions to ensure safe clearance to combustibles are maintained when installing. All components (ceiling support package or wall pass through and “T” section package, fire stops, insulation shield, roof flashing, chimney cap, etc.) must be purchased from the same prefab chimney manufacturer. There are two common methods of a prefab chimney installation: the recommended method is to install the chimney inside the dwelling up through the ceiling(s) and the roof, while the alternative method is to install an exterior chimney that runs up the outside of the structure. Though not recommended, the alternative method is sometimes it is the only option. In that case it is recommended to build a chase around the external chimney.

The chimney must meet a minimum height above the roof and/or other obstruction(s) for safety purposes and to ensure sufficient draft. It is required that the chimney be at least 3ft higher than the highest point where it passes through the roof and at least 2ft higher than the highest part of the roof or any obstruction within 10ft (measured horizontally) of the chimney. Refer to the “**RECOMMENDED CHIMNEY HEIGHTS**” chart for minimum flue height recommendations and CAN/ULC-S629 in Canada or UL-103HT in the USA for installation codes.



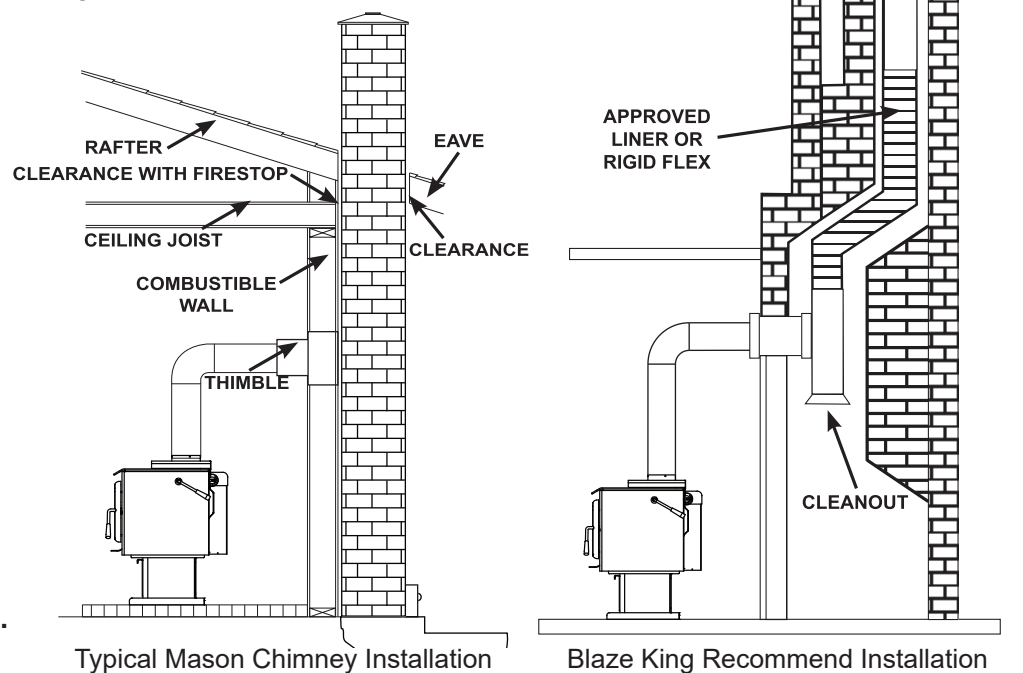


CONNECTION TO A MASONRY CHIMNEY

First and foremost, ensure the masonry chimney meets the minimum standards per the National Fire Protection Association by having it inspected by a certified professional. There must be no cracks, no loose mortar, and no signs of deterioration or blockage. Ensure the chimney is properly cleaned before installing the appliance.

When connecting the appliance through a combustible wall, special methods are required; refer to local jurisdiction for the approved methods of passing a chimney connector through a combustible wall in your area (In the USA, refer to the NFPA minimum standards, and in Canada, refer to CAN/CSA-B365, the Installation Code for Solid Fuel Burning Appliances and Equipment).

Blaze King recommends the use of a stainless steel liner, preferably insulated, inside a masonry chimney. This is to help maintain a proper draft to achieve optimal performance of the appliance.



RECOMMENDED CHIMNEY HEIGHTS

Every installation is unique, especially when considering geographical location. As previously mentioned, maintaining sufficient draft is of utmost importance, but this can be a challenge as draft can be heavily influenced by topographical and geographical phenomena. The understanding of pressure planes and the stack effect are imperative in planning and executing a successful installation.

As previously mentioned, Blaze King recommends a minimum vertical chimney height of 15 feet (from stove top to termination) when installing an appliance at sea level (and up to 1000 feet of elevation). If the install is at a higher elevation, please refer to the table below for recommended chimney heights:

MINIMUM RECOMMENDED CHIMNEY HEIGHT				
ELEVATION ABOVE SEA LEVEL	NUMBER OF ELBOWS			
	0	2 X 15°	2 X 30°	2 X 45°
0 - 1000 ft 0 - 305 m	15 ft 4.6 m	16 ft 4.9 m	18 ft 5.5 m	19 ft 5.8 m
1000 - 2000 ft 305 - 610 m	15.5 ft 4.7 m	16.5 ft 5.0 m	18.5 ft 5.6 m	19.5 ft 5.9 m
2000 - 3000 ft 610 - 914 m	16 ft 4.9 m	17 ft 5.2 m	19 ft 5.8 m	20 ft 6.1 m
3000 - 4000 ft 914 - 1219 m	16.5 ft 5.0 m	17.5 ft 5.3 m	19.5 ft 5.9 m	20.5 ft 6.2 m
4000 - 5000 ft 1219 - 1524 m	17 ft 5.2 m	18 ft 5.5 m	20 ft 6.1 m	21 ft 6.4 m
5000 - 6000 ft 1524 - 1829 m	17.5 ft 5.3 m	18.5 ft 5.6 m	20.5 ft 6.2 m	21.5 ft 6.6 m
6000-7000 ft 1829 - 2134 m	18 ft 5.5 m	19 ft 5.8 m	21 ft 6.4 m	22 ft 6.7 m
7000 - 8000 ft 2134 - 2438 m	18.5 ft 5.6 m	19.5 ft 5.9 m	21.5 ft 6.6 m	22.5 ft 6.9 m
NOTE: No more than one offset (two elbows) are allowed. Two 45° elbows equal one 90° elbow				

For other common chimney components, use the following vertical height(s) to compensate for:

90° elbow = 2.0 ft (0.610 m)

"T" section = 3.0 ft (0.915 m)

1.0 ft (0.305 m) of horizontal run = 2 ft (0.610 m) of vertical rise

Example Chimney Height Calculation (at sea level):

Min Chimney Height = 15.0 ft (4.575 m)

One 90° Elbow = 2.0 ft (0.610 m)

2.0' Horizontal Run = 4.0 ft (1.200 m)

One Base "T" = 3.0 ft (0.915 m)

Final Chimney Height = 24.0 ft (7.3 m)

The above figures are only guidelines, please refer to the "**DRAFT PERFORMANCE**" section.

⚠ WARNING

IF THIS APPLIANCE IS NOT PROPERLY INSTALLED OR OPERATED, A HOUSE FIRE AND/OR PERSONAL INJURY MAY RESULT. TO REDUCE THE RISK OF FIRE AND PERSONAL INJURY, FOLLOW THE INSTALLATION INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

ALCOVES AND FIREPLACES

In Canada, DO NOT INSTALL THIS APPLIANCE IN AN ALCOVE OR FIREPLACE.

In USA, please adhere to minimum safe clearance dimensions.

ELECTRICAL CONNECTION

Your Blaze King fan kit is equipped with a three-prong (grounded) plug to decrease shock hazard. This plug should be inserted directly into a properly grounded, three hole receptacle. DO NOT CUT OR REMOVE THE GROUNDING PRONG FROM THIS PLUG. DO NOT ROUTE THE POWER CORD IN FRONT OF OR UNDER THE APPLIANCE.

MOBILE HOME or TRANSPORTABLE BUILDING INSTALLATION

For Mobile Home (in USA) or Transportable Building (in Canada) installations, an Outside Air Kit (S.Z0103 / S.Z0104) and either a Fan Kit (S.Z1714) or Rear Shield Kit (S.Z4015) are required. It is recommended that the kits be installed prior to appliance installation (refer to the instructions provided with the kits).

When a metal prefabricated chimney is used, the manufacturer's installation instructions must be followed precisely. The ceiling support package must be purchased from the same manufacturer (ie. fire stops, insulation shield and roof flashing, chimney cap, etc). Be sure to maintain required safe clearances to combustibles as recommended by the manufacturer. The flue pipe must be double wall, close clearance type with either CAN/ULC-S629 or ULCS610 designation (single wall pipe is not allowed). Insulated chimney components must be a listed factory built chimney suitable for use with solid fuels and conforming to, CAN/ULC-S629 in Canada or UL-103HT in the USA. Where the space heater is installed in mobile home or transportable building, removal of the chimney is required for transportation of the building

Note: Under no circumstances should the fresh air intake hose (Outside Air Kit) penetrate a wall at a location higher than the bottom of the intake air channel on the rear of the appliance (ie. the fresh air hose must feed up into the intake channel on the rear of the appliance).

CAUTION: THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL, AND CEILING/ROOF MUST BE MAINTAINED.

⚠ WARNING

THE APPLIANCE MAY ONLY BE INSTALLED IN AN OPEN AREA THAT IS NOT USED FOR SLEEPING. UNDER NO CIRCUMSTANCES SHOULD THE APPLIANCE BE INSTALLED INSIDE A BEDROOM. FAILURE TO COMPLY MAY LEAD TO SERIOUS BODILY HARM IN THE EVENT OF A HOUSE FIRE.

For mobile home or transportable building installations, the appliance must be securely fastened to the floor using the tie-downs provided in the Outside Air Kit.

- For Parlor Leg Kit (S.Z1713), use the S.ZR8039 Leg Anchor Kit to secure stove to the floor. **(Fig. 1)**
- For Ultra Pedestal Kit (S.Z3903), use #10 screws and washers through the two holes in the pedestal base to secure the stove to the floor. **(Fig. 2)**
- For Classic Base Kit (S.Z3284), use #10 screws and shipping brackets **(Fig. 3)** from the firebox crate to secure the stove to the floor. **(Fig. 4)**



Fig. 1

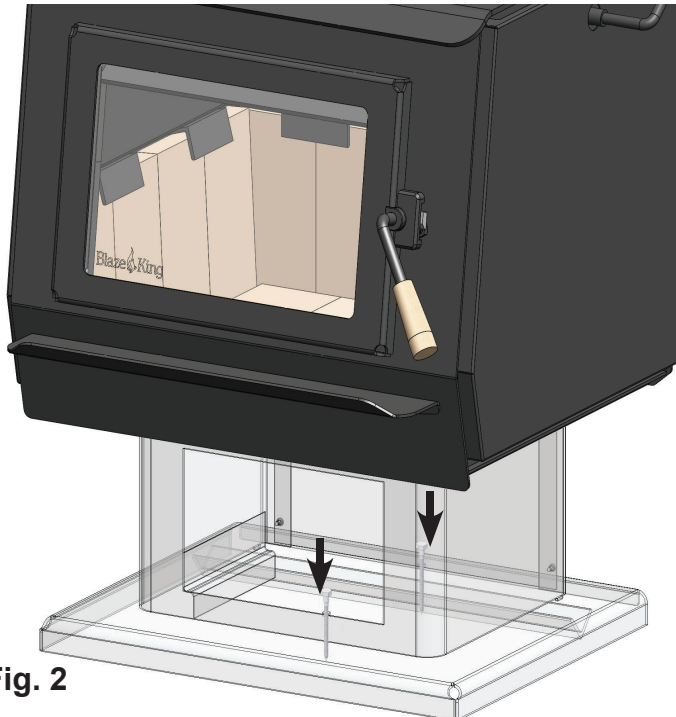


Fig. 2

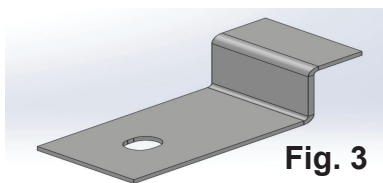


Fig. 3

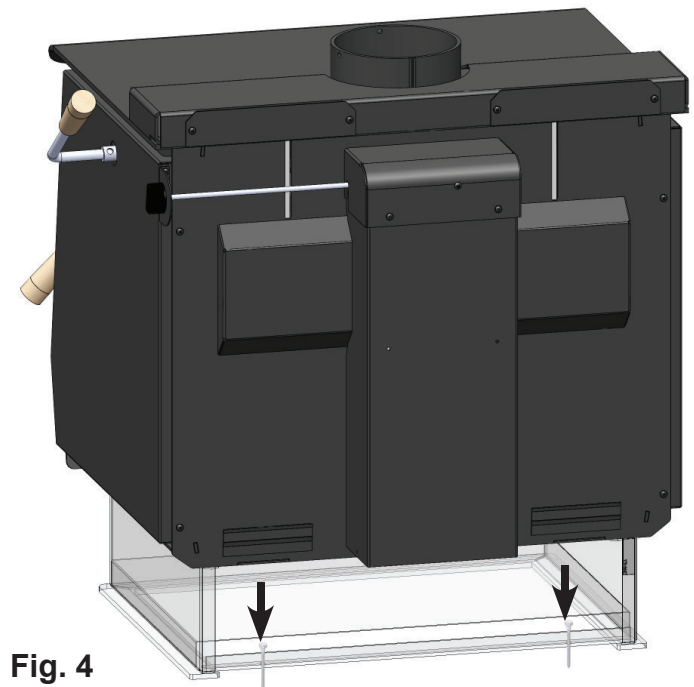


Fig. 4

OPTIONAL ACCESSORIES

- **REAR SHIELD KIT (S.Z4015)** - used to achieve minimum rear clearances; required for mobile home or alcove installations.
- **FAN KIT (S.Z1714)** - used to disperse super heated air from appliance throughout the dwelling; required for mobile home or alcove installations.
- **OUTSIDE AIR KIT (S.Z0103 / S.Z0104)** - The fresh air intake hose is a flexible metal tube used to supply combustion air into the appliance from the outdoor environment. It can be installed through an external wall or up through the floor (DO NOT CHANGE THE STRUCTURAL INTEGRITY OF THE FLOOR). This hose must be kept open at all times. **Under no circumstances should the fresh air intake hose penetrate a wall at a location higher than the bottom of the intake air channel on the rear of the appliance (ie. the fresh air hose must feed up into the intake channel on the rear of the appliance).**

NOTE: EITHER S.Z1713 PARLOR LEG KIT, S.Z3284 CLASSIC BASE KIT, OR S.Z3903 ULTRA PEDESTAL KIT, MUST BE INSTALLED BEFORE THE APPLIANCE CAN BE CONNECTED TO THE CHIMNEY AND BE READY FOR USE.

PARLOR LEG KIT (S.Z1713)

TOOLS NEEDED FOR INSTALLATION: 3/4" wrench or socket wrench

INSTALLATION

1. Lean the appliance backwards onto the main air tube to gain access to the bottom side.
NOTE: Use extreme caution when maneuvering the appliance to avoid injury and/or damage to the floor or appliance. It is recommended to place cardboard inside the firebox to support the bricks when leaning the appliance over.
2. Position each leg accordingly, using alignment holes in appliance base as guides. Fasten the legs to the appliance using the hardware supplied with the kit. (**Fig. 5**)
3. Lift the appliance back to its upright position.
4. Adjust levelling bolts at the bottom of each leg in order to level appliance.

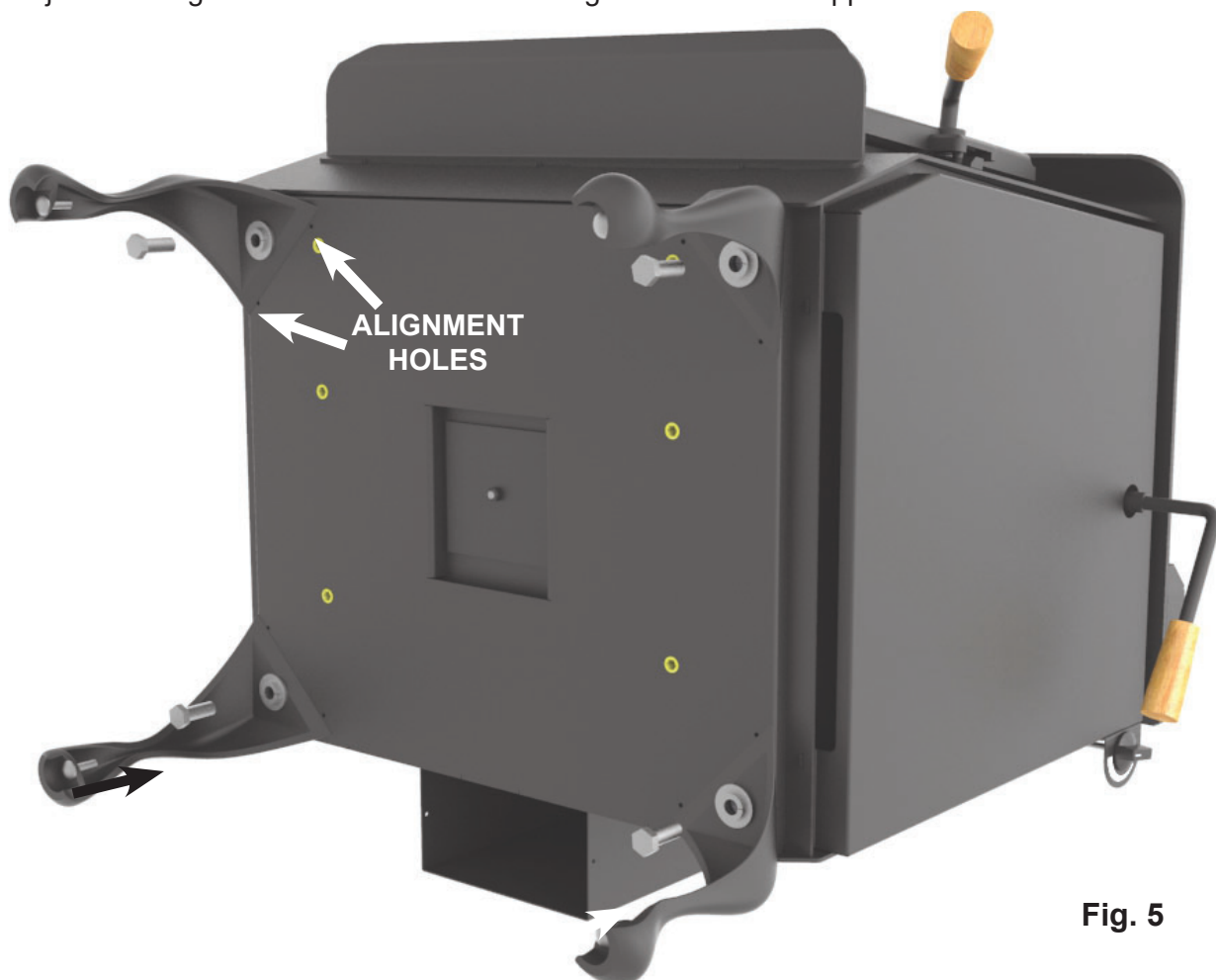


Fig. 5

CLASSIC BASE KIT (S.Z3284)

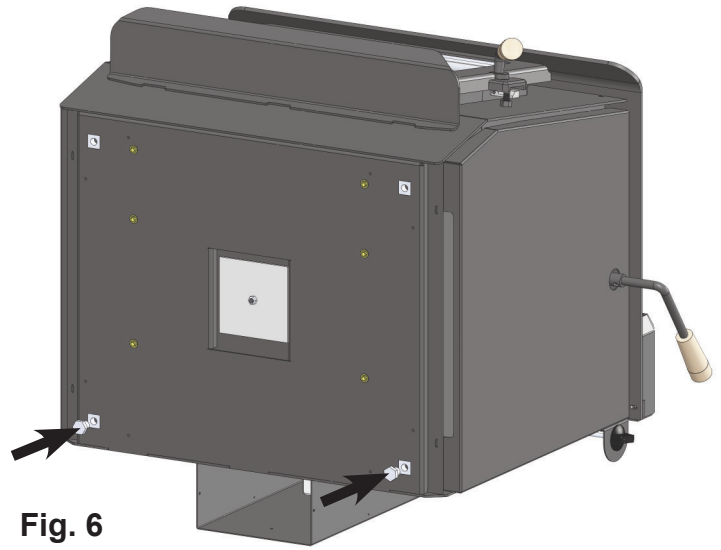
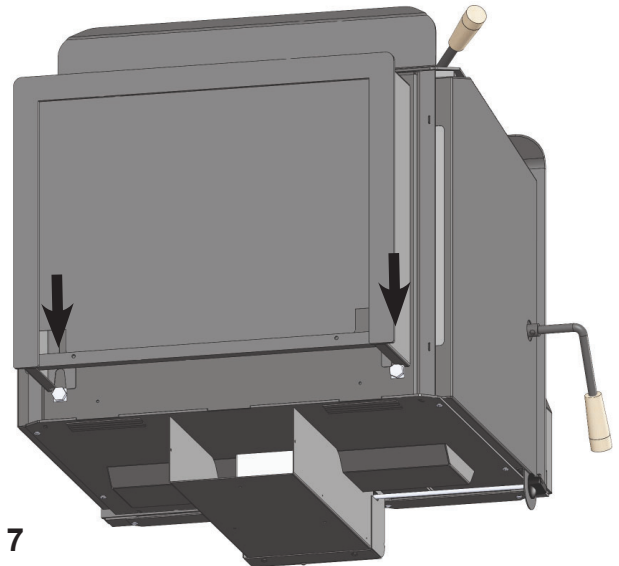
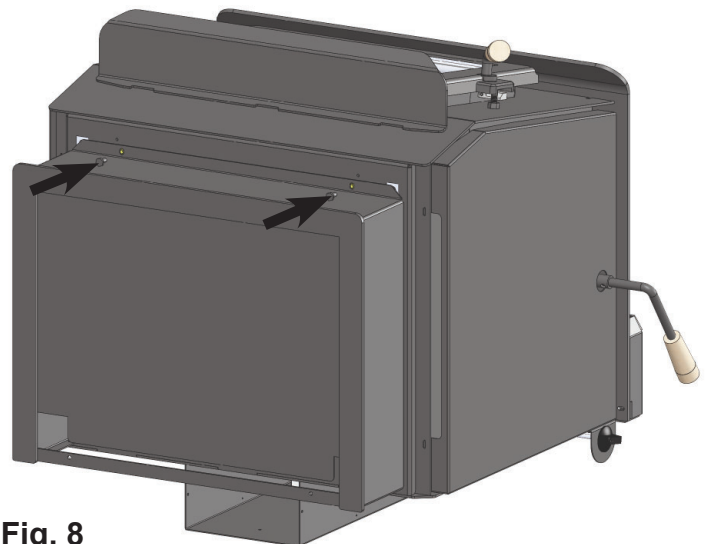
TOOLS NEEDED FOR INSTALLATION: 7/16" and 3/4" wrench or socket wrench

INSTALLATION

1. Lean the appliance backwards to gain access to the bottom side.

NOTE: Use extreme caution when maneuvering the appliance to avoid injury and / or damage to the floor or appliance. It is recommended to place cardboard inside the firebox to support the bricks when leaning the appliance over.

2. There are two 1/2" x 1/2" long bolts supplied with the classic base kit, thread them as shown, leave approximately a 1/4" of thread showing. (**Fig. 6**)
3. Slide the classic base slots onto the bolts from the previous step. (**Fig. 7**)
4. There are two 1/4-20 x 1/2" bolts supplied with the classic base kit, tighten until snug. (**Fig. 8**)
5. Tighten the 1/2" x 1/2" bolts until snug.
6. Lift the appliance back to its upright position.

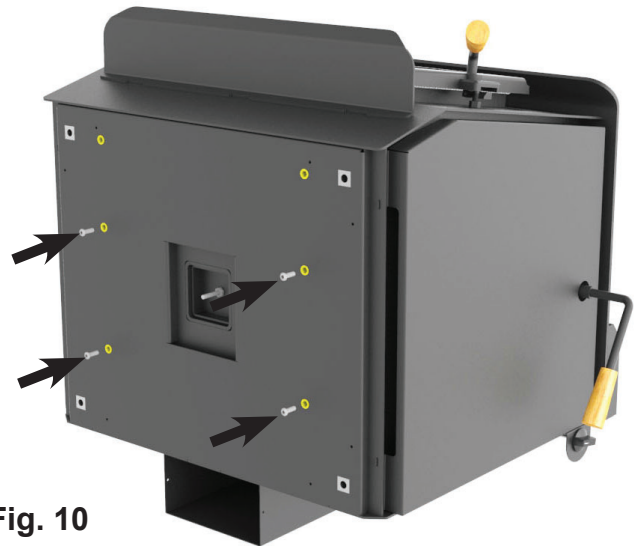
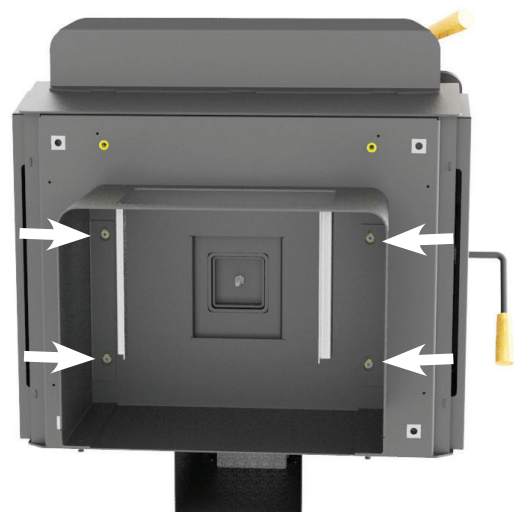
**Fig. 6****Fig. 7****Fig. 8**

ULTRA PEDESTAL KIT (S.Z3903)

TOOLS NEEDED FOR INSTALLATION: 7/16" wrench or socket wrench

INSTALLATION

1. Lean the appliance backwards to gain access to the bottom side. **NOTE: Use extreme caution when maneuvering the appliance to avoid injury and / or damage to the floor or appliance. It is recommended to place cardboard inside the firebox to support the bricks when leaning the appliance over.**
2. Remove "ASH CHANNEL SEAL" by unscrewing the 1/4" nut. (**Fig. 9**)
3. Thread all four 1/4"-20 button head cap screws into the stove base until halfway in (included w/ Pedestal Kit). (**Fig. 10**)
4. Remove the ash drawer from the assembled pedestal. (Can also remove pedestal rear panel if required).
5. Utilizing the key holes on the top of the pedestal body, install the pedestal into place by pushing it against the bottom of the appliance and then sliding it downward (assuming appliance is on its back). (**Fig. 11**)
6. Once the pedestal is in position, fully tighten all four fasteners and then lift appliance back to its upright position.
7. Insert the ash drawer into the pedestal front. (Reattach pedestal rear panel if removed)

**Fig. 9****Fig. 10****Fig. 11**

DOOR INSTALLATION AND CHANGE-OUT (S.Z4786)

To install the door upon appliance installation or to change it out, follow these steps:

1. Align bottom door hinge hole with bottom firebox hinge pin. **(Fig. 12)**
Note: Door is heavy, hold firmly.
2. Lower door onto bottom hinge pin, then align top door hinge hole with top firebox hinge pin.
3. Lower door onto pins until door hinge surface contacts firebox hinge surface.

NOTE: If the door is satin or gold plated, please follow the instructions on the “PLATED DOOR & TRIM CARE” card found inside the manual kit.



Fig. 12

⚠ WARNING

DO NOT OPERATE THIS APPLIANCE WITH THE LOADING DOOR UNINSTALLED OR LEFT OPEN. DOING SO MAY LEAD TO A RUN AWAY FIRE RESULTING IN PROPERTY DAMAGE.

YOUR FIRST FIRE!

The following pages contain information on the operation of the major components on your Blaze King appliance. Please take the time to read through this section as it will give you a better understanding of how your appliance works. This understanding will help you to operate your appliance at its optimum level thus extended its life while allowing you to get the highest efficiencies from your heater.

INTRODUCTION

All Blaze King wood burning appliances are designed as radiant room space heaters. They have been tested and certified to be installed in insulated, habitable rooms within your dwelling. The appliance has not been designed to be installed in a concrete, uninsulated basement or in a shop/garage environment. Such applications may cause the thermostat to be unresponsive due the constant call for heat resulting in appliance being in a constant over fire situation. **Consequential damage from this type of operation will deem the warranty null and void.**

All Blaze King wood appliances are designed to burn cord wood only. Dimensional timber off cuts, very low moisture content small diameter wood and pressed wood logs, when used in excess, may result in excessive internal firebox temperatures that can cause irreversible damage to the firebox's internal structure. Excessive temperatures can be caused by many small pieces of very low moisture content wood being used as a primary fuel source. This may be evident by warping or warped internal plates and retainers, possible cracking of the outer firebox and possibly premature failure of the catalytic combustor. All wood appliances should be cleaned out and inspected at the end of every burning season to identify if any internal components have been affected during the burning season. If problems are observed steps must be taken to identify and correct the problem before the subsequent burning season. Failure to do so will result in the warranty of the product being null and void.

EFFICIENCY

Efficiency was determined using the method outlined in B415.1-10 test method. It is represented by the Higher Heating Value (HHV) as the fuel used during testing contains between 19% - 25% water moisture included in the total calculated fuel weight. (Other test methods such as LHV or Low Heating Value, does not take the water moisture into account).

Annual Fuel Utilization Efficiency (AFUE) attempts to represent the actual, season long, average efficiency of an appliance. HHV is the actual, calculated average efficiency obtained under test conditions. Using correctly seasoned wood is important when trying to gain efficiency. The more seasoned (dry) the wood, the higher the efficiency (less energy wasted on eliminating moisture during combustion). Operating your Blaze King at lower settings will result in higher efficiencies as the fuel will undergo a more complete combustion. For maximum efficiency, the appliance should be installed in a location that provides adequate intake/combustion air as well as a location that will allow for the straightest run of optimal chimney length to establish necessary draft.

FAN OPERATION

Fans are an optional item for most Blaze King appliances. If fans are installed on your appliance, they should be turned off until the stove reaches normal operating temperatures. Approximately 30 minutes after a fire has been established within the appliance, the fan speed should match the thermostat control setting. (i.e. if your thermostat is set to a medium heat output then your fan should also be set at medium, low—low, high—high etc.). We recommend the use of fans on all of our wood appliances. The fan system recirculates room air over the hot surfaces of your appliance and helps spread this super heated air around your home.

SELECTING WOOD

It takes a great deal of energy to evaporate the moisture contained in green or wet wood and that energy will not be heating your home. Green or wet wood will also greatly increase creosote issues. To ensure that your wood fuel has a moisture content of 20% or lower, only use seasoned wood that has been split, stacked, and protected from rain or snow for at least 24 months. Firewood should be split and stacked in a manner that allows for air flow to all areas.

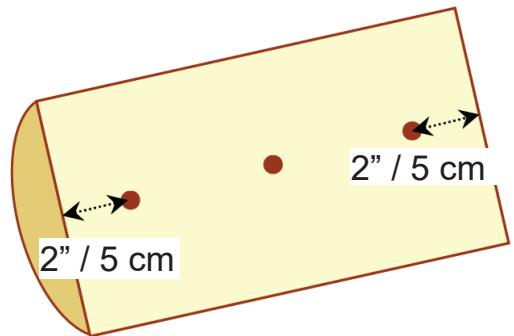
Both hardwood and softwood burn equally well in this appliance, but the more dense hardwood will weigh more per cord and burn a little slower and longer. Never burn salt-water driftwood as it is very corrosive and will deteriorate the structure of the appliance. The burning of salt-water driftwood will void the warranty. The only way to accurately determine wood moisture is to purchase and measure with a moisture meter.

⚠ WARNING

THIS APPLIANCE IS DESIGNED TO BURN NATURAL WOOD ONLY. DO NOT BURN WET UNSEASONED WOOD. DOING SO CAN CAUSE EXCESSIVE CREOSOTE ACCUMULATION AND IF IGNITED, CAN CAUSE A CHIMNEY FIRE THAT MAY RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM. BURNING AIR DRIED SEASONED WOOD WILL REDUCE THE RISK OF CHIMNEY FIRES AND YIELD HIGHER EFFICIENCIES AND LOWER EMISSIONS.

HOW TO USE MOISTURE METERS

1. Randomly select three logs from your wood pile and split each one down the middle.
2. Three points of measurement are required to determine the moisture content of each log: 2" (5 cm) from either end and in the middle of the split surface of the log. To take these measurements, insert the moisture meter pins at the points described, keeping the pins in line with the wood grain. Record each measurement.
3. Do this to all three logs and take an average of the readings (this is an approximate indication).



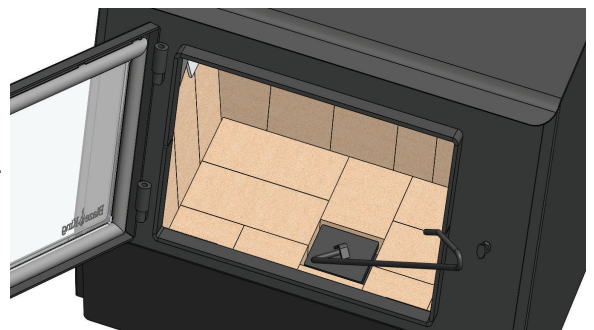
⚠ WARNING

DO NOT BURN TREATED WOOD, COAL, CHARCOAL, COLORED PAPER, CARDBOARD, SOLVENTS OR GARBAGE. BURNING THESE MATERIALS MAY RESULT IN THE RELEASE OF TOXIC FUMES AND/OR CARBON MONOXIDE WHICH MAY RESULT IN POISONING. DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA, OR ENGINE GEL. DO NOT USE CHEMICALS OR FLUIDS SUCH AS GASOLINE TYPE LANTERN FUEL, KEROSENE, OR CHARCOAL LIGHTER FLUID TO START OR FRESHEN UP A FIRE IN THIS APPLIANCE. DOING SO MAY LEAD TO OVER FIRING RESULTING IN A HOUSE FIRE AND SERIOUS BODILY HARM.

FIRE POKER

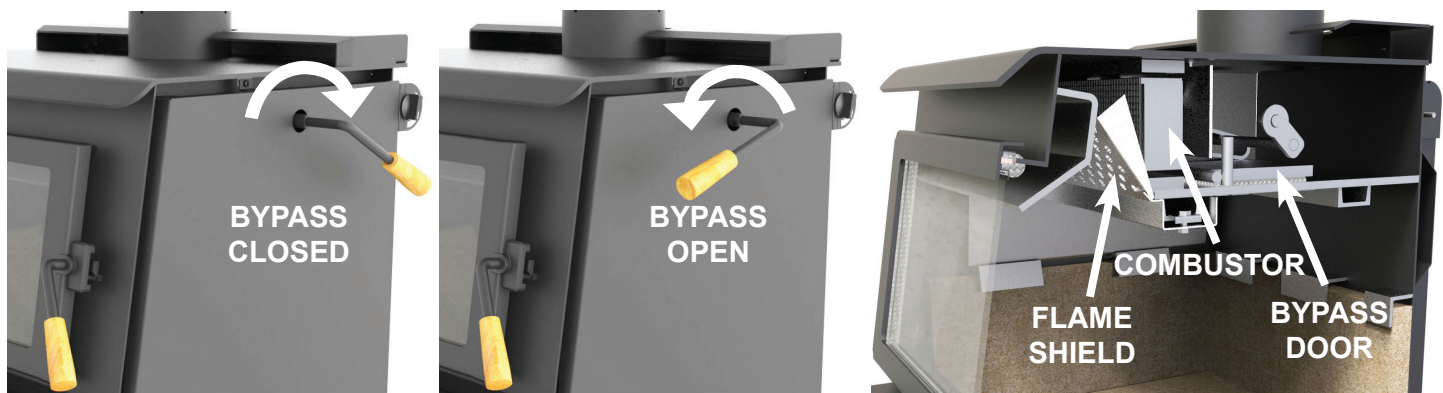
The steel fire poker that is provided with this appliance serves two purposes:

- 1) to manipulate fuel loads
- 2) to remove the ash plug via hook welded to the top plate.



BYPASS DOOR

Your catalytic wood burning appliance is fitted with a bypass door which allows exhaust from the fire to temporarily bypass the catalytic combustor. The bypass door is located inside the dome of the firebox at the top of the appliance. It is a hinged, steel plate door and is controlled by the bypass handle located on the right side of the appliance. When the handle is pointing forward, the bypass door is open. To close the bypass door you must rotate the handle clockwise until it points to the rear of the appliance. To ensure the bypass door is fully closed, push down on the bypass handle until you hear a positive click.

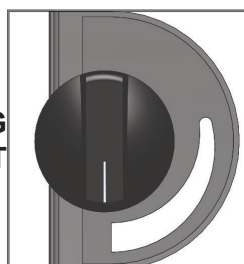
*CATALYTIC THERMOMETER*

The catalytic thermometer is located on the top of the appliance. Its sole purpose is measure the exhaust gasses after they have passed through the combustor to indicate whether the combustor is ACTIVE or INACTIVE. It is important to ensure that the appliance is operated in the ACTIVE zone. When the thermometer reads INACTIVE it means that the combustor temperature is below 500F and is not producing a clean burn. For the most accurate reading, turn the fan off for approximately 5 minutes before reading the thermometer. For calibration instructions, please refer to the “*MAINTENANCE*” section.

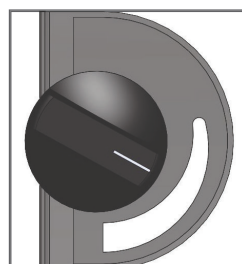
*THERMOSTAT*

The thermostat is located at the rear of the appliance and is controlled by the thermostat knob which is located at the upper right rear corner of the appliance. When the knob is positioned at the HIGH setting, the appliance will operate at its highest burn rate and deliver its maximum heat output. As the knob is rotated counter clockwise the burn rate will decrease along with heat output. Burn rate is greatly influenced by location, installation, and external environment, so you may find it necessary to reposition the knob until you find the ideal setting to suit your situation. Please note that all adjustments to the thermostat should be done gradually as too rapid a change may cause the thermostat to operate improperly. The thermostat 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.

**HIGH SETTING
MAXIMUM HEAT OUTPUT**

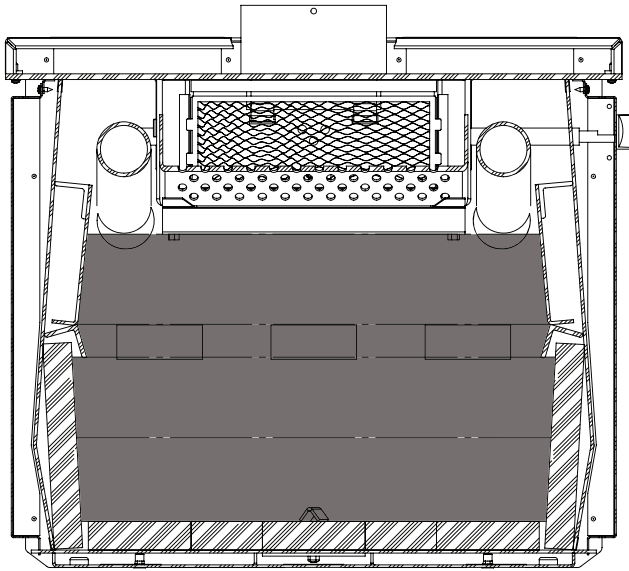


**ROTATE COUNTER CLOCKWISE
FOR REDUCED HEAT OUTPUT**

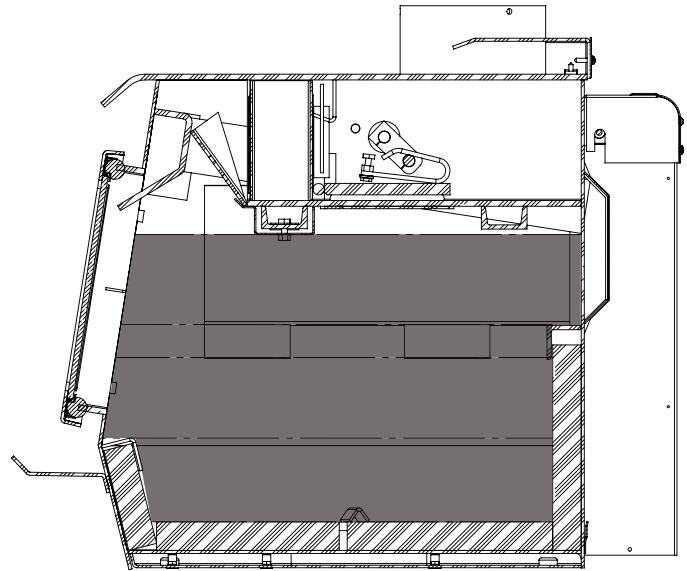


USABLE FIREBOX LOADING AREA

Your Blaze King wood heater is designed and tested to be an exceptionally clean burning and highly efficient heater. To obtain both clean burning and utmost efficiencies, you should **ONLY** load fuel in the area indicated by the grey shaded area in the image below. Attempting to load fuel in any additional space will void your warranty and represents a safety hazard.



Inside fuel loading area - FRONT VIEW



Inside fuel loading area - SIDE VIEW

LIGHTING THE FIRE

NOTE: As you heat up the appliance for the first time, the paint will go through a curing process and will give off a strong odor coupled with smoke. To minimize the inconvenience, burn the stove at a low temperature setting for several hours. It is recommended to open a door or window until the odor and smoke dissipates. You may also notice a change in color as the paint cures, this is normal and will appear uniform after subsequent firings.

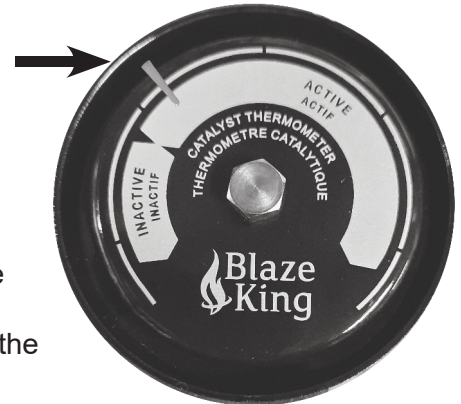
1. **ENSURE ALL BRICKS ARE CORRECTLY POSITIONED INSIDE THE FIREBOX AND BUILD THE FIRE DIRECTLY ON THE BRICK IN THE BOTTOM OF THE STOVE. DO NOT USE A GRATE.**
2. Position the thermostat to the **HIGH** setting and turn the fan (if equipped) **OFF**.
3. Open the bypass then open the loading door.
4. Place 10 balls of non-glossy paper towards the front of the bottom of the firebox then stack 20 pieces of kindling on top of the paper in a crisscross fashion (leaving air gaps in between sticks).
5. Light the fire and allow it to get a good start while leaving the loading door cracked open. **DO NOT LEAVE THE STOVE UNATTENDED.**
6. Once the kindling is fully on fire, place two or three medium size logs onto the fire. Keeping the loading door unlatched, allow the logs to catch fire. **DO NOT LEAVE THE STOVE UNATTENDED.**
7. Once the logs are burning, latch the loading door shut. Once loading door is closed and combustor temperature begins to climb, close the bypass door, turn fan(s) on to high (if equipped). Leaving the loading door open after the wood load has caught fire may cause premature failure of the catalytic combustor.
8. When nearly all of the wood in the firebox is fully burning and the catalytic thermometer is in the active zone, open the bypass door and loading door, and finish loading the appliance. Lay the wood as far back in the stove as possible. Latch the loading door shut, and close the bypass door.
9. Let the fire burn with the thermostat at the **HIGH** setting until the fire is well established. This ensures that the stove, catalyst, and wood load are all stabilized at optimum operating temperatures. The temperature in the stove and the gases entering the combustor must be raised to at least 500F (indicated by the thermometer needle in the **ACTIVE ZONE**) for catalytic activity to be initiated.
10. Gradually turn the thermostat down to the desired heat output setting once the fire is well established. Please note that if the thermostat is turned down too low too quickly, the fire may go out or the combustor may stop working, indicated by the thermometer needle falling into the **INACTIVE ZONE**. If this happens, simply turn the thermostat back to a higher heat output setting to let the fire reestablish itself.
11. Turn the fan (if equipped) on after the initial warm up.

Probably the least understood requirement of maintaining a good fire is that of establishing a good base of coals or embers. A glowing hot coal bed will help to maintain more even temperatures as well as assist in relighting the next fuel load. Put as much wood into the appliance as needed, practice will teach the amount of wood necessary to keep the fire going until the next reloading time. Don't be afraid to fill it completely if necessary. With the Blaze King thermostat, the wood will only burn at the rate set on the thermostat. Once the fire is established, the appliance should be left to complete the full burn cycle. This is evident by a) only a glowing coal bed (ember bed) remaining or b) the catalytic thermometer hovers just inside the active zone. Following this procedure will maximize the efficiency of the appliance as well as limit exhaust emissions and smoke spillage.

RELOADING PROCEDURE

WHEN PREPARING TO RELOAD, IF THE NEEDLE ON THE CATALYTIC THERMOMETER IS STILL IN THE ACTIVE ZONE, FOLLOW THE PROCEDURE BELOW; IF THE NEEDLE HAS DROPPED INTO THE INACTIVE ZONE, REFER BACK TO THE “LIGHTING THE FIRE” PROCEDURE ON THE PREVIOUS PAGE.

It is important to note that the catalytic thermometer is simply displaying the temperature of the catalytic combustor. It may be used as an aid when it comes to identifying a reload point, but other factors such as lack of fuel in the firebox or dropping room temperatures should be used as well.



1. Have your next load of wood ready before beginning. Turn the thermostat to **HIGH** to ensure the remaining coal bed is active before reloading. Wait a few minutes for the air flow to stabilize.
2. To help minimize smoke spillage into the room, open the bypass door and again wait a few minutes for the air flow to stabilize.
3. Open the bypass door and crack open the loading door to allow ambient room air to be introduced into the firebox, this may take a minute to stabilize.
4. Slowly open the loading door and proceed to reload the firebox. If you experience excessive smoke spillage, slightly close the loading door to re-establish a draft through the chimney.
5. Once loaded, latch the loading door shut and (if opened) close the bypass door immediately. Let the fire burn on the HIGH thermostat setting until the fire is well established. At that point, turn the thermostat down to the desired setting. Keep in mind, you may not see a large amount of flame activity in the lower thermostat setting. The thermometer needle will remain in the active zone indicating that the burn cycle is continuing.
6. Should you burn the stove on a very low setting for extended periods of time, you will begin to see creosote deposits forming on the glass door. To remove these deposits, simply run the stove on **HIGH** for approximately 30 minutes. The **HIGH** setting will burn off most of the deposits.

Note: Our loading instructions are outlined in general terms due to the variables that arise with each installation. Such variables include type of wood fuel, chimney height and configuration, installation altitude, seasonal weather conditions, draft, and the desired heat output required. Over time you will learn which settings are necessary to achieve optimal performance with your specific installation.

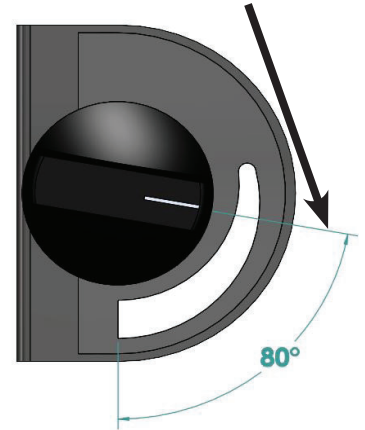
⚠ WARNING

THIS APPLIANCE IS HOT WHILE IN OPERATION. CHILDREN AND PETS MUST BE KEPT FROM TOUCHING THE APPLIANCE WHEN IN USE. COMBUSTIBLE OBJECTS MUST BE KEPT A MINIMUM OF 48" (1219 MM) FROM THE FRONT OF THE APPLIANCE. COMBUSTIBLE MATERIAL SUCH AS CLOTHING OR FURNITURE PLACED TOO CLOSE TO THE APPLIANCE CAN CATCH FIRE. DO NOT STORE WOOD WITHIN THE SPECIFIED SAFETY CLEARANCES OR WITHIN THE SPACE REQUIRED FOR RE-FUELING AND ASH REMOVAL. FAILURE TO COMPLY MAY CAUSE SKIN BURNS OR RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM.

OPTIMAL LOW BURN THERMOSTAT SETTING

Your Blaze King appliance was tested and certified in accordance to the New Source Performance Standards for Residential Wood Heaters. During this test series, the low burn rate of the unit was determined by setting the thermostat knob to a position that yielded the lowest burn rate achievable. If you find that you are setting your thermostat beyond the test setting, please note that if the thermostat is turned down too low the fire will go out or the combustor may stop working which is indicated by the thermometer needle falling into the **INACTIVE ZONE**. If this happens, simply turn the thermostat back to a higher heat output setting and let the fire reestablish itself.

TESTED LOW BURN SETTING



WOOD BURNING IN THE SHOULDER SEASON

There are a few things to consider if you choose to light a fire during the spring or fall seasons when the outside temperature is milder, perhaps 55F to 70F (13°C to 21°C).

You may notice smoke spillage out of the loading door when it is opened during start up or reloading. This is caused by a lack of natural draft within the chimney system. The temperature difference between the chimney system and the outside air causes flue gasses to be drawn up and out of the chimney. Smaller temperature differences produce less draft in your chimney system than larger temperature differences. This air movement, referred to as Stack Effect, is also influenced by air density and moisture differences. To eliminate the smoke spillage you may have to stoke the fire for longer than usual. Once the fire warms the chimney the draft will improve and spillage will be reduced. When operating the appliance on a lower thermostat setting, the resultant lower flue temperatures can cause your chimney system to cool down. This also decreases natural draft and spillage may occur.

General Rules for burning in the shoulder season:

- Run your appliance on **HIGH** for 30 minutes after start up and reloading before gradually turning the thermostat down to the desired heat output setting.
- The thermostat setting needs to be high enough to keep the catalytic thermometer in the active zone. If the thermometer will not stay in the active zone, turn the thermostat to a higher setting and then wait 15 minutes to confirm that the thermometer remains in the active zone. Repeat as required.
- If your appliance is producing too much heat, try to reduce the volume of wood fuel loads rather than turning your thermostat down. It is good burning practice to build smaller, hotter fires on milder days in the spring and fall.

ICE - FORMATION AND PREVENTION

Most of what you see coming from the chimney of a properly operating catalytic appliance is water vapor. In extremely cold weather, and with some exterior chimneys, this vapor may freeze in the chimney to the point of actually blocking the chimney and extinguishing the fire. In such weather, burn the appliance for 5 to 10 minutes with the thermostat set to **HIGH** to melt any possible ice build.

⚠ WARNING

DO NOT OPERATE THIS APPLIANCE WITHOUT THE CATALYTIC COMBUSTOR INSTALLED. DOING SO WILL LEAD TO EXCESSIVE SMOKE AND TEMPERATURES THAT COULD RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM. ONLY BURN SEASONED WOOD. FAILURE TO DO SO MAY DAMAGE THE COMBUSTOR AND WILL VOID ALL WARRANTIES.

COMBUSTOR MONITORING

It is good practice to monitor the catalytic combustor to ensure it is functioning properly. An improperly functioning combustor will result in a loss of heating efficiency and an increase in emissions and creosote buildup. The following list of items should be checked on a periodic basis:

- Combustors should be visually inspected at least three times during the heating season to determine if physical degradation has occurred. Actual removal of the combustor is not recommended unless more detailed inspection is warranted because of decreased performance. Please refer to the “*COMBUSTOR TROUBLESHOOTING*” section.
- This appliance is equipped with a catalytic thermometer to monitor combustor operation. A properly functioning combustor will maintain temperatures in excess of 500 F (indicated by the thermometer needle in the ACTIVE zone) and often reach temperatures in excess of 1000 F. If the combustor temperature falls below 500 F (thermometer needle in the INACTIVE zone), refer to the “*COMBUSTOR TESTING*” section.
- A good way to determine whether the combustor is functioning properly is by comparing the amount of smoke exiting the chimney while the combustor is engaged (bypass door closed) versus when the combustor is bypassed (bypass door open).

Note: Open the bypass door, wait a few minutes and observe the smoke exiting the chimney, then close the bypass door again. Significantly more smoke may be seen when the exhaust is not routed through the combustor (bypass mode). Smoke may be visible shortly after lighting the fire and shortly after reloading the fire so allow the fire to stabilize before making observations.

COMBUSTOR TESTING

Follow these instructions to test the catalytic combustor:

1. Light a fire per the “*LIGHTING THE FIRE*” instructions.
2. After burning a well established fire for 1 hour, position the thermostat knob to a medium-low burn rate setting.
3. After 5 minutes at the lower burn rate, observe the location of the thermometer needle. A properly functioning combustor will have a temperature greater than 500F with the thermometer needle in the ACTIVE zone. An improperly functioning combustor will yield thermometer reading in the INACTIVE zone.
4. Repeat step 3 for at least 3 burn cycles.
5. If the thermometer needle is still not reaching the ACTIVE zone, your combustor may require cleaning.
6. If, after cleaning the combustor and reburning, the thermometer needle is still not reaching the ACTIVE zone, your combustor may need replacing. Contact your Blaze King dealer for a replacement combustor.

Note - It is also possible that the catalytic thermometer itself may not be functioning properly. Before deeming the combustor “dysfunctional”, please refer to the “*CATALYTIC THERMOMETER*” section.

⚠ WARNING

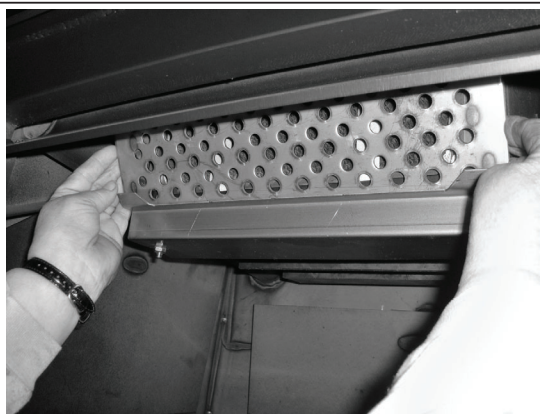
DO NOT PERFORM ANY CLEANING UNTIL THE FIRE IS OUT AND THE APPLIANCE IS COOL. HOT ASH IN A VACUUM CLEANER BAG COULD MELT THE VACUUM AND COULD RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM.

COMBUSTOR CLEANING

Under certain conditions, ash particles may become attached to the face of the combustor. These particles may be seen while the combustor is glowing under fire or when the fire is out. Any deposits on the face of the combustor should be removed. There are two ways to clean the face of the combustor: (1) Brushing the combustor with a soft bristle paint brush, or (2) Passing a vacuum cleaner wand or brush near the face of the combustor. Limit cleaning to the face of the combustor (note - the flame shield will have to be removed to gain access to the face). Do not scrape the combustor with any hard tool or brush and do not run pipe cleaner through the individual cells of the combustor as this may do more harm than good. Do not remove the combustor during this process. **Note - simply burning a hot fire usually proves to be the best method of cleaning the combustor of deposits.**

COMBUSTOR REPLACEMENT

If the catalytic combustor has been deemed “dysfunctional” per the guidelines in “*COMBUSTOR TESTING*”, discontinue use of the appliance until the combustor is replaced. Follow the steps below to complete the replacement (**BLAZE KING RECOMMENDS THAT YOUR DEALER OR CERTIFIED INSTALLER PERFORM THIS PROCEDURE**):



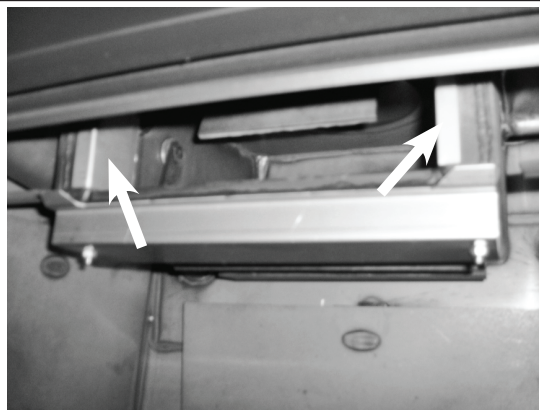
1. The appliance must be cool to touch, having gone at least 12 hours without being burned. A combustor can reach 1400F and hold temperatures for several hours, even after the fire is out. After waiting 12 hours, begin by removing the flame shield by simply lifting the shield off the two tabs at either lower corner. Pay particular attention to orientation of the flame shield in order to reinstall in the correct position.



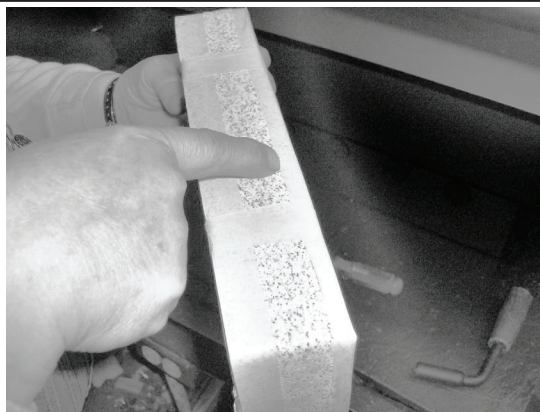
2. Once the flame shield is removed, you will have access to the combustor. The combustor can be made of different materials such as cordierite, mulite, or stainless steel. They are all the same with regard to removal and caution should be taken so as to not drop or damage the combustor. If your combustor has never been cleaned according the manufacturers directions, you may wish to clean the combustor before replacing it with a new combustor (please refer to the “*COMBUSTOR CLEANING*” section).



3. There are metal tabs across the bottom and on either side of the combustor. Using a flat blade screwdriver or pocket knife blade, slide the tip in between the metal tab on the left side of the combustor and the steel dome of the stove (the dome is the housing that encases the combustor). Apply slight pressure until the combustor begins to move forward. Repeat the process on the metal tab on the right side of the combustor. By working back and forth the combustor will work free of the dome housing. It is normal for the gasket that is wrapped around the combustor to fall apart during this process. New combustors are shipped with a new gasket.



4. With the combustor removed, you will see two bypass retainers on either side of the combustor opening within the dome. These retainers are not fixed in position and can fall into the firebox upon combustor removal. Ensure that they are put back into position before replacing the combustor. Use the screwdriver or pocket knife to scrape any old gasket from the surface areas of the dome. If you intend to reuse your existing combustor, you will need to order replacement combustor gasket. It is a good idea to have this combustor gasket on hand prior to performing this procedure.



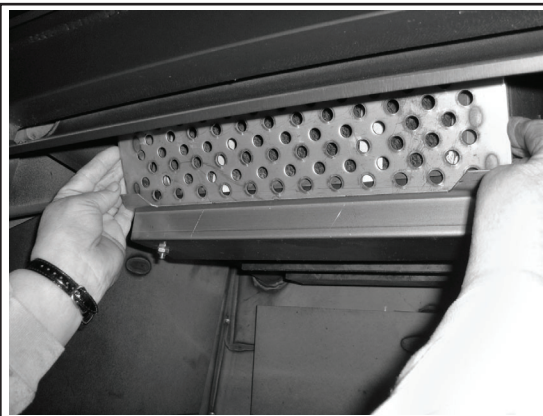
5. The new combustor will already be wrapped in gasket. Note the 1" wide masking tape - this will help to keep the leading edge of the gasket from snagging during installation. If you intend to reuse your original combustor, wrap the combustor gasket as you see here and use the 1" masking tape around the front and rear perimeter. During the first fire the masking tape will burn off and the combustor gasket will swell to provide a tight seal. This seal ensures optimal efficiency and performance. Do not burn the appliance without the combustor gasket installed.



6. Before installing, align the combustor within the opening of the dome housing. Slowly push the combustor in at the top and apply even pressure to the left and right corners. This will allow for a better view of the bottom edge for the final fitting. **DO NOT FORCE THE COMBUSTOR INTO THE OPENING. TAKE YOUR TIME AND WORK IT INTO PLACE SLOWLY.**



7. Once the combustor is fully reinserted into the opening of the dome housing, replace the flame shield. Note the flame shield sides are shaped like a triangle. The point of the triangle should face down to install correctly. Do not operate your appliance without the flame shield in place. The flame shield protects the face of the combustor against direct flame impingement and potential collisions when loading fuel.



8. When correctly installed, the flame shield will rest on the two tabs located on the dome guard and will lean slightly forward. Now that the combustor and flame shield have been properly reinstalled, the appliance can be relit.

A few reminders, do not burn anything other than dry, seasoned cordwood. Burning other materials may contaminate or ruin your new combustor. Also, remember to keep your firebox door gasket seal properly adjusted (please refer to the "**LOADING DOOR TENSION ADJUSTMENT**" section). Doing so will ensure optimal performance of both the appliance and the combustor.

COMBUSTOR WARRANTY

This appliance contains a catalytic combustor, which needs periodic inspection and may require replacement for proper operation. It is against federal regulations to operate this appliance if the catalytic combustor is deactivated or removed.

The catalytic combustor supplied with this appliance is **OEM Blaze King part #115-0556 or #115-0776**.

Please consult the catalytic combustor warranty info also supplied with this appliance. Warranty claims should be addressed to:

CANADA	USA
Blaze King Industries / Valley Comfort Systems Warranty Department 1290 Commercial Way Penticton, BC, Canada V2A 3H5	Blaze King Industries Warranty Department 146 A Street Walla Walla, Washington, USA 99362

COMBUSTOR TROUBLESHOOTING

PROBLEM: CREOSOTE PLUGGING

Possible Cause: The combustor is coated with creosote burning material that produces substantial char and fly-ash.

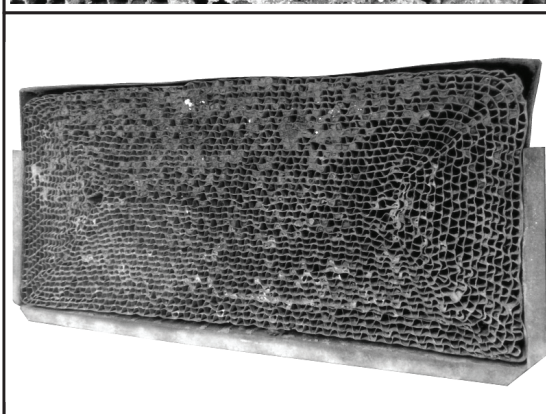
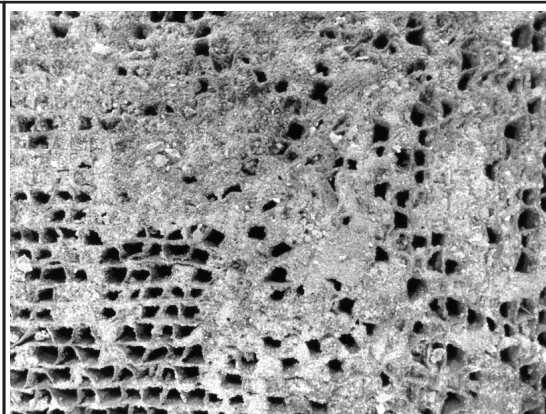
Solution: Only burn dry, seasoned wood. Do not burn materials such as garbage, gift wrap, or cardboard.

Possible Cause: Burning wet, pitchy wood or burning large amounts of small diameter wood without the catalytic thermometer needle in the ACTIVE zone.

Solution: Burn dry, seasoned wood until temperatures are high enough to initiate catalyst light-off (indicated by the catalytic thermometer needle in the ACTIVE zone).

Possible Cause: Combustor not functioning.

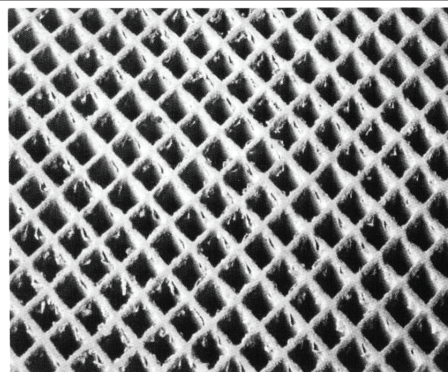
Solution: If proper burning procedures have been followed and this problem persists, replace the combustor with an OEM Blaze King combustor (failure to do so will void your warranty).

**PROBLEM: COMBUSTOR PEELING**

Possible Cause: Over firing and flame impingement can yield extreme temperatures (above 1800F/1000°C) at combustor surface and can cause peeling.

Solution: Avoid extreme temperatures by adjusting size of fuel loads. If peeling is severe, replace combustor.

The images to the right are examples of minor peeling (does not affect proper combustor function) and severe peeling (closed or plugged combustor that needs replacement).

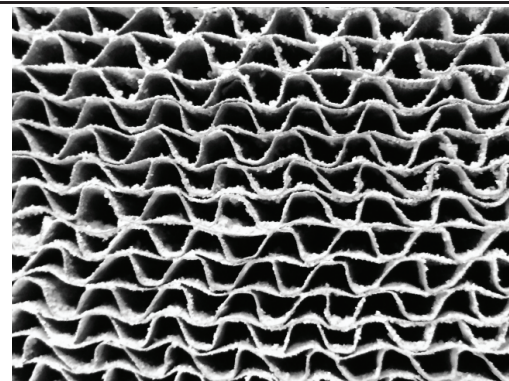


Minor Peeling

PROBLEM: CATALYTIC DEACTIVATION

Possible Cause: Burning improper fuels (ie. garbage, pressure-treated lumber, painted wood, etc.).

Solution: Burn good quality, dry, seasoned wood. If proper burning procedures have been followed and this problem persists, replace the combustor with an OEM Blaze King combustor (failure to do so will void your warranty).

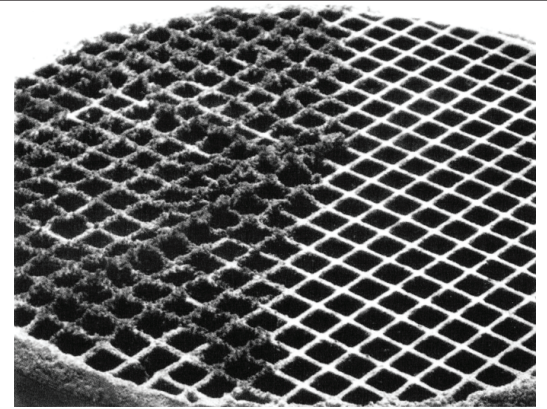


Severe Peeling

PROBLEM: COMBUSTOR MASKING

Possible Cause: The combustor is coated with a layer of fly-ash or soot from burning material that produces substantial char and fly-ash.

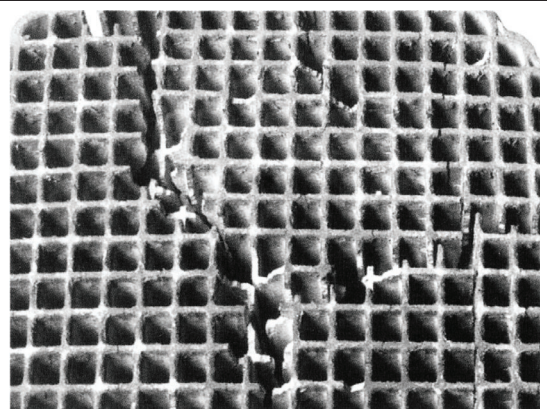
Solution: When the appliance is cool to touch, clean the front face of the combustor with a soft-bristled brush or vacuum lightly (refer to *COMBUSTOR CLEANING* for proper procedure).

**PROBLEM: THERMAL CRACKING**

Possible Cause: Extreme temperature fluctuations (ie. opening loading door while the combustor is in the ACTIVE zone) can cause thermal shock which can lead to cracking.

Solution: Avoid flooding a hot, active combustor with cool room air when reloading.

If cracking causes large pieces of the combustor to separate, replace the combustor with an OEM Blaze King combustor (failure to do so will void your warranty).

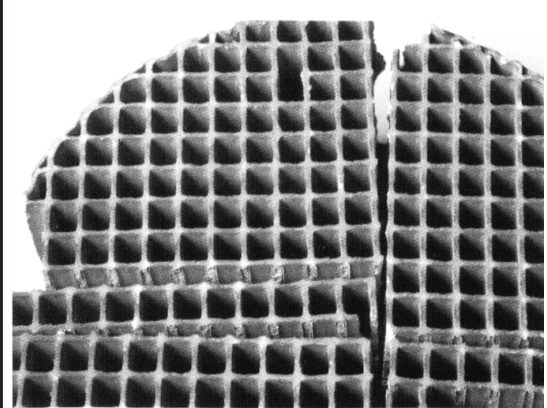
**PROBLEM: MECHANICAL CRACKING**

Possible Cause: Mishandling the combustor or operating the appliance without the proper gasket installed.

Solution: Handle with care. Ensure combustor is wrapped with gasket upon reinstallation.

Possible Cause: Distortion of surrounding dome housing.

Solution: The combustor should slide in and out of the dome housing with relative ease. If this is not the case, contact your dealer for further inspection.

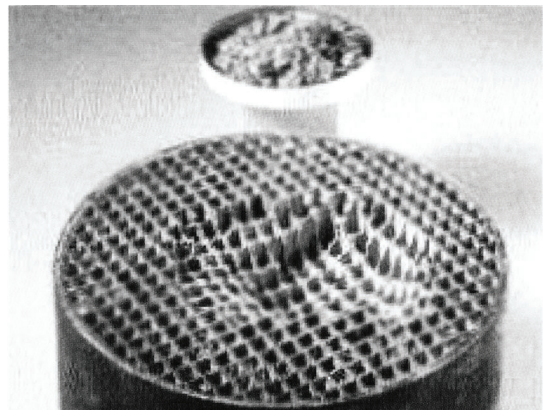
**PROBLEM: COMBUSTOR CRUMBLING**

Possible Cause: Excess air leaking into the firebox.

Solution: Ensure tight seal at loading door (see *MAINTENANCE* for instruction on gasket inspection).

Possible Cause: Excessive chimney draft.

Solution: Use a manometer to check and ensure chimney draft is within manufacturer specifications. Adjusting the appliance thermostat can help regulate chimney draft.



⚠ WARNING

TO PREVENT SERIOUS BURNS, DO NOT PERFORM ANY MAINTENANCE UNTIL THE APPLIANCE IS COOL. APPLIANCE SURFACES, INCLUDING THE GLASS AND ANY ATTACHED COMPONENT, WILL REMAIN HOT FOR EXTENDED PERIODS OF TIME AFTER THE FIRE HAS BEEN PUT OUT.

RECOMMENDED MAINTENANCE

It is strongly recommended to complete the following tasks on a regular basis throughout the heating season:

1. Visually inspect Catalytic Combustor and clean as required (see “*COMBUSTOR CLEANING*”)
2. Clean behind internal baffles (where applicable) and inspect metal components for warping/distortion.
3. Check Catalytic Thermometer for proper calibration.
4. Check Thermostat for proper function.
5. Check Fan Assemblies for proper operation.
6. Remove all ash from firebox and ash drawer after final burn of season.
7. Check all gaskets for proper seal and adjust as required.
8. Inspect and clean the Venting System.

CATALYTIC THERMOMETER MAINTENANCE

The catalytic thermometer probe (shaft) should be cleaned regularly. Ensure the fire is out and the appliance is cool, then remove the thermometer and wipe the probe clean. While removed, confirm the thermometer indicator needle points towards the bottom of the INACTIVE zone (allow the thermometer to sit at room temperature for 10 minutes before checking). If the needle does not point towards the bottom of the INACTIVE zone, it may need adjustment. Grasp the probe with a pair of pliers then slightly loosen the bolt on the top of the dial. Turn the dial to align the needle to the bottom of the INACTIVE zone and then retighten the bolt. Once finished, reinsert the thermometer back into the appliance. **Note: If your appliance is equipped with a fan kit, turn it off and wait 10 minutes before observing the catalytic thermometer reading.**

THERMOSTAT or THERMOMETER MAINTENANCE

Any thermostat or thermometer maintenance must be completed by a certified installer. If the thermostat or thermometer malfunctions, contact your dealer for replacement.

OPTIONAL FAN ASSEMBLY MAINTENANCE

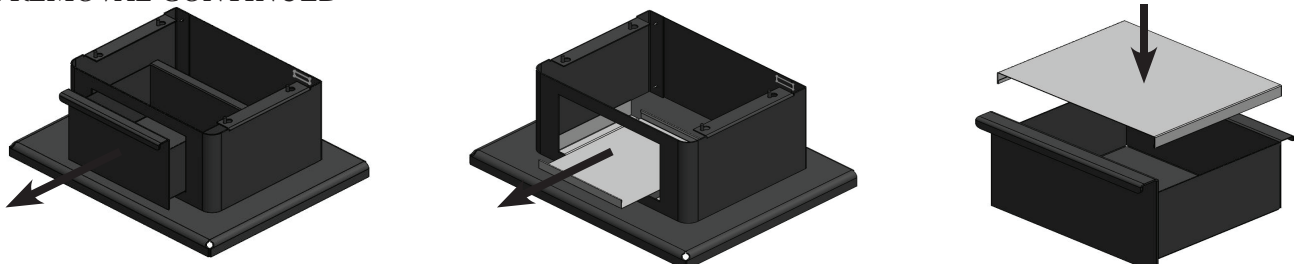
Fan assemblies should be inspected at the beginning of each burn season to ensure they are free from debris such as ash, dust, pet dander, lint, etc. The accumulation of such debris could prevent the fan blades/blower wheels from rotating freely and put excessive strain on the fan motors, ultimately leading to failure.

ASH REMOVAL

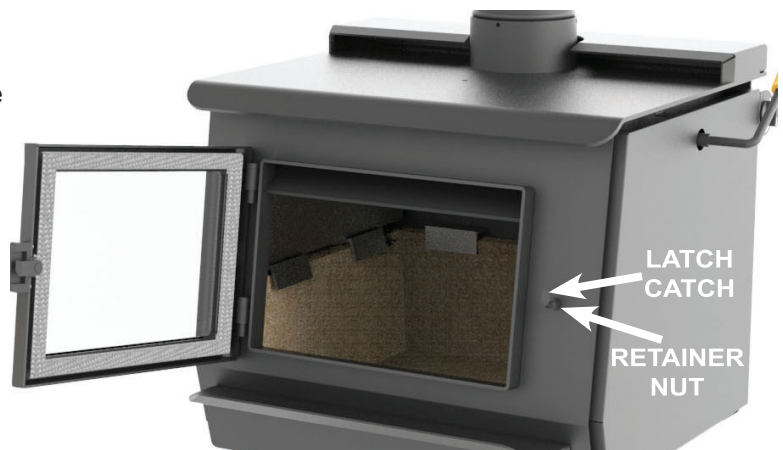
Ashes should be removed any time they come within one inch of the door opening, though it is not advisable to completely remove all of the ashes as wood burns best on a bed of ashes around 1/2” thick. When removing ashes, ensure the fire is out and the appliance is cool to touch. Ashes should be placed 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 (outside), well away from all combustible materials, while awaiting 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. Do not place other waste in this container.

⚠ WARNING

NEVER STORE HOT ASHES IN A GARAGE OR BASEMENT. HOT ASHES WILL GENERATE CARBON MONOXIDE AND / OR FLAMMABLE GASES. THESE GASES MAY CAUSE SUFFOCATION AND POSSIBLE DEATH.

ASH REMOVAL CONTINUED*LOADING DOOR TENSION ADJUSTMENT*

To tighten the loading door seal, use a 9/16" wrench to loosen the retainer nut threaded onto the latch catch on the outer right face of the firebox. Once loose, tighten the nut on inside firebox (also threaded onto the latch catch) to secure the latch catch in a position closer to the firebox. Ensure the outer nut is tight and preform a paper test (see "DOOR GASKET PAPER TEST") to ensure the proper seal was achieved. **DO NOT FORCE THE NUT LOOSE.** Use penetrating oil if necessary to make loosening the nut easier.

*LOADING DOOR GASKET INSPECTION*

Inspect the loading door gasket for physical deterioration, missing sections, or obvious leakage. The appliance door flange should make a groove in the gasket material. The side of the gasket on the inside of the groove will be dark or black while the outer side will be light or white. Dark smudges on the outer side of the gasket may indicate an air leak. If the groove in the gasket is very shallow or if there is a heavy ash or creosote deposit along the bottom edge of the gasket, it may need to be replaced. Frayed or broken gasket material, or a gasket that is hard and unyielding, will also indicate a need for replacement. Any time a piece of gasket is missing or broken the entire gasket must be replaced. A way to physically check if the gasket needs replacing is by performing a paper test (see "DOOR GASKET PAPER TEST")

LOADING DOOR GASKET REPLACEMENT

If door gasket replacement is required, only replace with OEM door gasket ordered through your Blaze King dealer. This gasket will be properly sized and ready to install. **Do not stretch or cut the gasket at any time during this installation. Ensure only high temperature silicone adhesive is used for this installation (do not use household silicone caulking). Blaze King recommends that your dealer perform this task:**

1. Ensure the fire is out and the appliance is cooled to touch before removing the loading door.
2. Use a pair of pliers to pull the old door gasket out of the channel and dispose of it.
3. Clean the gasket channel of any residual adhesive to ensure the new adhesive will adhere sufficiently.
4. To ensure proper fit, dry fit the new gasket by distributing it evenly around the frame and then remove.
5. Run a small bead of a high temperature silicone adhesive along the center of the gasket channel.
6. Starting in the lower right corner, insert the new gasket into the gasket channel. Be sure to distribute the gasket evenly around the entire channel frame.
7. Allow the adhesive to dry for at least 1 hour before reinstalling and closing the loading door.
8. Confirm proper gasket installation by performing a paper test (see "DOOR GASKET PAPER TEST").

⚠ WARNING

DO NOT OPERATE THIS APPLIANCE IF THE DOOR GASKET IS MISSING OR DAMAGED. OVER-FIRING MAY OCCUR WHICH CAN CAUSE DAMAGE TO THE APPLIANCE OR IGNITE CREOSOTE IN THE CHIMNEY WHICH COULD LEAD TO A HOUSE FIRE CAUSING SERIOUS BODILY HARM.

DOOR GASKET PAPER TEST

Perform this test when inspecting or replacing loading door gasket:

1. Ensure the fire is out and the appliance is cooled to touch.
2. Insert a piece of paper (ie. a dollar bill) into the door opening and then latch the door shut.
3. Pull the paper out of the door while noting any obvious resistance when doing so.
4. If no resistance is felt, adjust the door tension (see "*LOADING DOOR TENSION ADJUSTMENT*").
5. Repeat this process around the perimeter of the door until consistent resistance is achieved.

DOOR GLASS GASKET INSPECTION

To inspect the door glass gasket:

1. Ensure the fire is out and the appliance is cooled to touch.
2. Hold the glass by placing the palm of each hand on either side and try to move it; If the glass moves:
 - a. Inspect the glass retainers and ensure the screws holding the retainers in place are tight (hand tight plus 1/4 turn). If loose, retighten, but do not over tighten.
 - b. Inspect the door glass gasket. If the gasket is frayed or missing sections, replace the gasket.

⚠ WARNING

REFRAIN FROM STRIKING THE GLASS OR SLAMMING THE DOOR SHUT. DO NOT OPERATE THIS APPLIANCE IF THE DOOR GLASS OR GASKET SEAL IS BROKEN. DOING SO MAY LEAD TO A RUN AWAY FIRE WHICH COULD RESULT IN PROPERTY DAMAGE.

DOOR GLASS GASKET REPLACEMENT

If door glass gasket replacement is required, only replace with OEM door glass gasket ordered through your Blaze King dealer. The OEM gasket will be ordered to size and ready to re-install. **Do not stretch or cut the gasket at any time during this installation. Blaze King recommends that your dealer perform this task:**

1. Ensure the fire is out and the appliance is cooled to touch.
2. Remove the old glass gasket.
3. Starting at the corner opposite of the "Blaze King" logo, carefully wrap the gasket around the edges of the door glass, pressing firmly onto the sides of the glass with the gasket centered on the edge. Finish the wrapping with a 1/2" overlap. Ensure the thickness of the gasket remains consistent and uniform.
4. Reposition the glass onto the door and then install the glass retainers with original fasteners. Ensure the glass is parallel to the frame and tighten the fasteners (hand tight plus 1/4 turn).



DOOR GLASS CLEANING

The best way to keep the glass clean is to leave the appliance on high burn for a period of time after each reloading. The moisture which is driven from a new load of wood contributes much of the creosote on the inside of the glass. Removing that moisture at the beginning of the burn cycle helps to keep the glass clean. Leaving the thermostat on a higher setting for 30 minutes to an hour before turning to low for an overnight burn will also help. Heavier deposits may require hand cleaning. Manual glass cleaning should be done when the appliance and glass are cool. **DO NOT CLEAN THE GLASS WHILE IT IS HOT AND DO NOT USE ABRASIVE CLEANERS TO CLEAN THE GLASS.** Use a soft cloth. After using any cleaner, thoroughly rinse the glass with water to remove any deposits left by the cleaner. Failure to remove all traces of glass cleaner will result in the glass cleaner residue baking on. This residue may be very difficult to remove.

BYPASS DOOR GASKET INSPECTION

Visually note the amount of smoke exiting the chimney while the bypass door is both OPEN and CLOSED. There should be significantly less smoke when the door is in the CLOSED position. If this is not the case, the bypass gasket may need to be replaced.

Note: This inspection could also yield a dead combustor, see “COMBUSTOR MONITORING”.

BYPASS DOOR GASKET REPLACEMENT

If bypass door gasket replacement is required, only replace with OEM 5/8” fiber glass gasket ordered through your Blaze King dealer. The OEM gasket will be ordered to size and ready to re-install. **Do not stretch or cut the gasket at any time during this installation. Ensure only THERMOSEAL® 1000F high-temperature resistant cement is used for this installation (do not use household silicone caulking). Blaze King recommends that your dealer perform this task:**

1. Ensure the fire is out and the appliance is cooled to touch
2. Remove the flue pipe from the appliance in order to have a clear view of the bypass door (**Fig. 13**).
3. Remove the combustor (see “COMBUSTOR REPLACEMENT”).
4. After removing the combustor you will notice stainless bypass retainers on both the left and right sides of the combustor opening (**Fig. 14**). They secure the bypass door in position during operation. Remove the stainless bypass retainers and set aside.
5. Working down through the flue collar, unhinge the bypass door from the bypass rod (rotating the bypass handle into a neutral position will help), then rotate the bypass door 90 degrees to remove through the combustor opening (**Fig. 15**).
6. Remove the old gasket and clean away any residual cement from the gasket channel.
7. Apply the new high-temperature cement along the channel.
8. Place the new gasket into the channel, tapping it down to seat it securely.
9. Apply high temp anti-seize lubricant to the under side of the bypass hook (**Fig. 16**) and then reinstall the bypass door by following the previous steps in reverse order.
10. Rotate the bypass handle several times to OPEN/CLOSE the bypass door to ensure smooth and proper operation. Once satisfied, reattach the flue pipe.
11. Reinstall stainless bypass retainers into combustor opening.
12. Refer back to “COMBUSTOR REPLACEMENT” to reinstall the combustor. **Note: if the gasket around the combustor is damaged, it will have to be replaced.**



Fig. 13

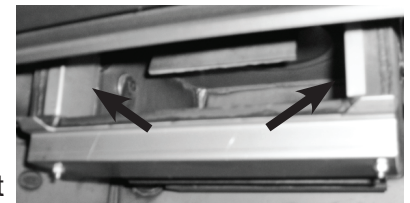


Fig. 14

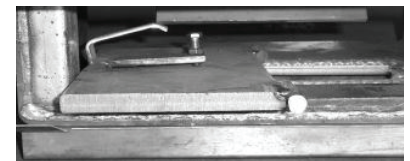


Fig. 15



Fig. 16

VENTING SYSTEM MAINTENANCE

The entire chimney system must be cleaned and inspected regularly, especially during the coldest months of the burn season. The most efficient method to clean the chimney is to “sweep” it using a brush. Brush downwards so soot and creosote residues will come off the inner surface and fall to the bottom of the chimney where they can be removed easily. **Ensure the bypass door is OPEN prior to chimney cleaning so soot and creosote fall into the firebox.** Once cleaned, inspect the chimney for any possible damage. If damage is present, the chimney section in question must be replaced.

CREOSOTE FORMATION AND REMOVAL

When wood is burned slowly, it produces tar and other organic vapors which combine with expelled moisture to form creosote. These vapors condense in the relatively cooler chimney flue of a slow burning fire and when ignited, make an extremely hot fire. Be aware that the hotter the fire, the less creosote is deposited. The flue pipe and chimney should be inspected regularly during the heating season, until a safe frequency for cleaning is established to determine if a creosote build up has occurred. If creosote accumulation is excessive, cleaning is required. It is recommended that a professional chimney sweep does the cleaning. Both the chimney and the appliance have to be cleaned at least once a year or as often as necessary.

WARNING

A CHIMNEY FIRE CAN PERMANENTLY DAMAGE YOUR VENTING SYSTEM, WHICH CAN ONLY BE REPAIRED BY REPLACING THE DAMAGED COMPONENTS. FAILURE TO REPAIR COULD LEAD TO FURTHER PROPERTY DAMAGE. DAMAGE FROM A CHIMNEY FIRE IS NOT COVERED BY THE LIMITED WARRANTY.

RUN-AWAY OR CHIMNEY FIRE

CAUSES:

1. Using incorrect fuel or small fuel pieces which would normally be used as kindling.
2. Leaving the door ajar too long and creating extreme temperatures as the air rushes in the open door.
3. Improperly installed or worn gaskets.
4. Creosote build up in the chimney.
5. Leaving the bypass door open too long.

SOLUTIONS:

1. Do not burn treated or processed wood, coal, charcoal, colored paper, or cardboard.
2. Be careful not to over fire the appliance by leaving the door open too long after the initial start-up.
3. Replace worn, dried out (inflexible) gaskets.
4. Have your chimney cleaned regularly.

WHAT TO DO IF A RUN-AWAY OR CHIMNEY FIRE STARTS:

1. Close the thermostat by rotating the knob fully counter clockwise and ensure the firebox door and the bypass door are closed.
2. Call the local fire department.
3. Examine the chimney, attic, and roof of the house to see if any part has become hot enough to catch fire. If necessary, hose area down with a fire extinguisher or water from a garden hose.
4. Do not operate the appliance again until you are certain the chimney has not been damaged

IT IS ADVISED TO HAVE A WELL UNDERSTOOD PLAN OF ACTION IN THE EVENT OF A CHIMNEY FIRE

Your Blaze King is designed to allow a wide selection of heat output levels. If you begin to lose control of the amount of heat the stove is emitting, determine the cause early so that major problems may be avoided.

The six major needs of a well-controlled fire are:

1. Knowledgeable operator.
2. Adequate air supply.
3. Firewood of good quality and proper size.
4. Catalytic combustor in good condition.
5. Clean chimney, properly sized and installed.
6. Door gasket tight and firm.

Considering all of the above, number one is the most important for safe and efficient operation of any wood stove. Please study the operation instructions carefully. Consult your BLAZE KING dealer if you have any questions not answered in this manual.

All of the six above mentioned needs are interrelated. A deficiency in any one will affect all of the others. If you encounter a problem, determine the source of the problem and then follow-up by checking the other needs as possible contributing factors.

PROBLEM: Chimney Fire

CAUSE

Act immediately regardless of cause

SOLUTION

Turn the thermostat to lowest setting, make sure the loading door and the bypass door are tightly closed.

Call Fire Department.

After the fire is out, have your chimney and flue connector inspected by a certified chimney sweep. A damaged masonry chimney should be repaired or rebuilt. A prefabricated chimney (factory built) that is damaged should be replaced. Any damage to the flue connector should be corrected before the system is used again.

Possible causes of a chimney fire, and remedies for those causes, can be found further in this section: "Excessive Creosote Formation", and "Spots of Creosote Accumulation in Chimney or Flue Pipe".

PROBLEM: Not enough heat.

CAUSE

Green or wet wood.
Not enough fuel in stove.

SOLUTION

Use a moisture meter to ensure you are burning seasoned wood. Don't be afraid to FULLY load the stove. A FULL load of wood won't burn any hotter than the thermostat is set.

Obstruction in chimney or cap screen.
Combustor plugged or coated.

Remove obstruction. See "COMBUSTOR, TESTING"
See "COMBUSTOR, CLEANING"

Combustor not functioning.

See "COMBUSTOR, TESTING".
If needed, replace combustor, See "COMBUSTOR, REPLACING".

Thermostat set too low.

Raise thermostat setting.

Thermostat not operating properly.

Consult your Blaze King dealer.

Poor draft caused by a poorly designed chimney system.

Measure draft with Manometer. See "CHIMNEY DRAFTS"
Consult your Blaze King dealer or a chimney sweep.

Strong, gusting winds causing downdraft in chimney

Install wind-resistant chimney cap. Directional caps may not stay freely rotating. If you have a directional cap, check it frequently.

Tightly sealed house, inadequate air supply.

Slightly open a window, near the stove or install an outside air kit.

Reloading too much wood on top of too few coals.

Allow a larger bed of coals to build up.

PROBLEM: Too much heat.	
CAUSE Bypass door left open.	SOLUTION Close the bypass door.
Thermostat set too high.	Lower thermostat setting.
Loading door gasket leaking, admitting excess air into firebox.	Replace door gasket and/or adjust door. See "GASKET INSPECTION"
Excessive draft in the chimney.	Measure draft with a Manometer. See "DRAFTS". Consult your Blaze King dealer or a chimney sweep. Install a cap.
Thermostat not operating properly.	Consult your Blaze King dealer.
Wood is too small.	Use larger pieces.
PROBLEM: One or both fans will not run, or there is no adjustment for fan speed.	
CAUSE Fans mounted improperly.	SOLUTION Check that fan blade's not touch edges of hole.
Fan speed control.	Consult your Blaze King dealer for replacement.
PROBLEM: Fans minimum speed too fast or maximum speed too slow.	
CAUSE Fan speed control out of adjustment.	SOLUTION Consult your Blaze King Dealer.
PROBLEM: Excessive creosote formation in chimney and chimney Connector.	
CAUSE Bypass door left open.	SOLUTION Close bypass door.
Bypass door not sealing tightly.	Inspect bypass door and seal for warping. Ash or creosote buildup may occur on door or seat. With stove cold scrape and vacuum area around bypass. Be sure all mating steel surfaces are clean and smooth.
Improper operation.	Check thermostat setting and operating procedures. See "THERMOSTAT & OPTIMAL THERMOSTAT SETTING"
Wood too green or wet.	Use seasoned wood. Use a moisture meter to confirm.
Catalytic combustor not operating properly.	Inspect the combustor. See "CATALYTIC COMBUSTOR, TESTING"
Poor draft caused by a poorly designed chimney system.	Measure draft with Manometer. See "DRAFTS". Consult your Blaze King dealer or a chimney sweep.
Chimney too cold or poorly insulated.	Upgrade chimney system. Consult your Blaze King dealer or a chimney sweep.
PROBLEM: Catalytic Thermometer (on top of stove) does not go into "Active" zone, or does not stay there for long. (Fans must be in "off" position for 10 minutes prior to checking)	
CAUSE Improper operation.	SOLUTION Check thermostat setting and operating procedures. See "THERMOSTAT & OPTIMAL THERMOSTAT SETTING"
Obstruction in chimney or cap.	Clean chimney, remove obstructions.
Faulty catalytic thermometer.	Check catalytic thermometer calibration.
Wood too green or wet.	Use seasoned wood.

Combustor plugged or coated.	Clean combustor. See "CATALYTIC COMBUSTOR TESTING"
Combustor not functioning.	Check and test combustor. If needed replace combustor. See "CATALYTIC COMBUSTOR, REPLACING"
Thermostat not operating properly.	Consult your blaze King Dealer.
Bypass door leaking or not closing completely.	Inspect and clean area around bypass doors. Adjust or replace gasket if necessary. Consult your Blaze King Dealer.

PROBLEM: Spots of creosote accumulation in flue pipe or chimney.

CAUSE Air leaks in flue pipe or chimney.	SOLUTION Inspect flue pipe and chimney. Repair or replace as necessary. Check to be sure that the flue pipe is installed correctly.
CAUTION: a leaking chimney system is a fire hazard and demands immediate attention.	
Poor draft caused by an oversize flue, single wall pipe, to many elbows, etc.	Measure draft with Manometer. See "DRAFTS". Consult your Blaze King dealer or a chimney sweep.

PROBLEM: Door glass quickly becomes coated with creosote.

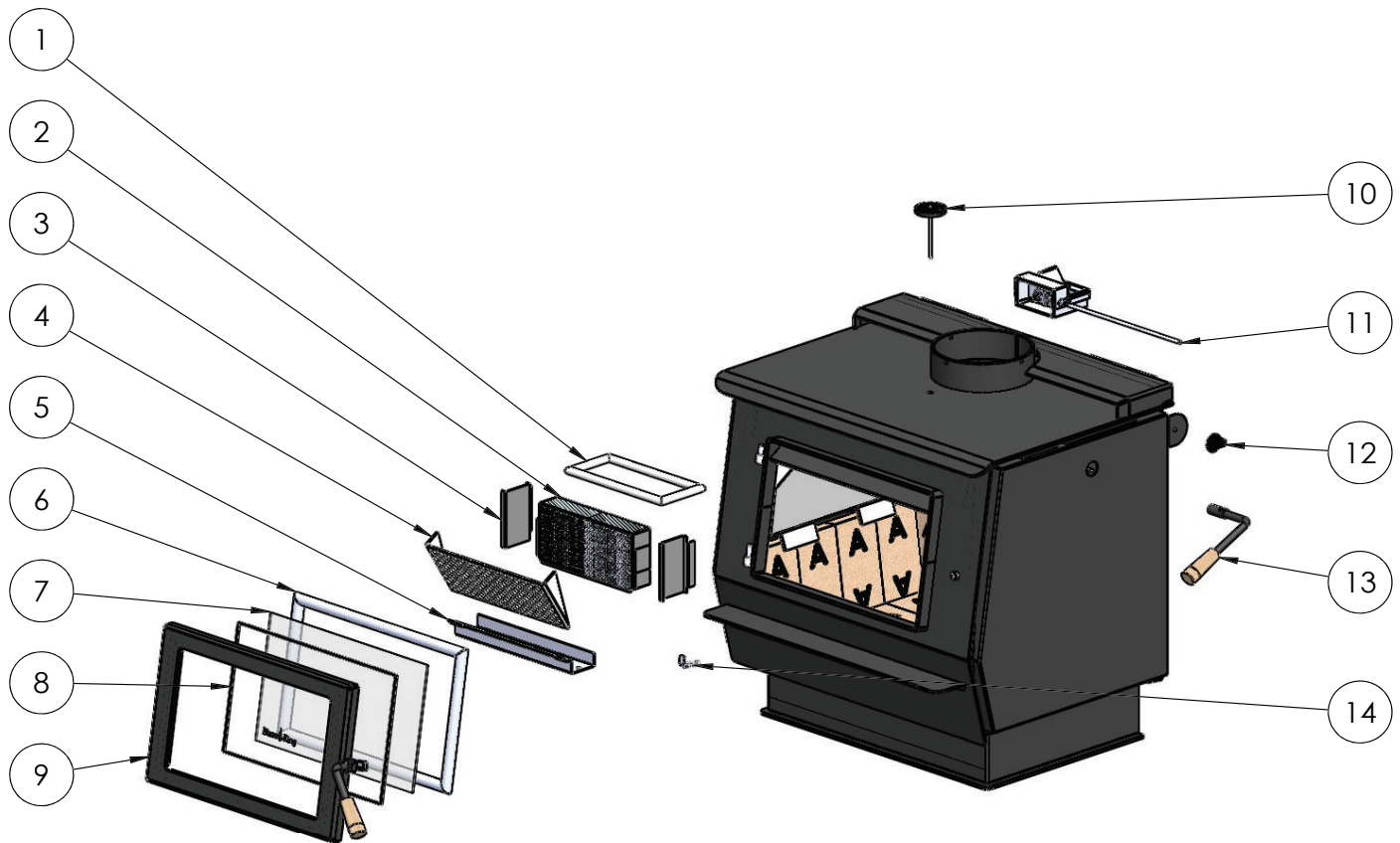
CAUSE Low thermostat setting or lowering the thermostat setting too far, too quickly.	SOLUTION Turn the thermostat to the warmest setting during the first 20-30 minutes or until the fire is well established after each reloading.
Poor draft caused by an oversize or short flue, etc.	Measure draft with Manometer. See "DRAFTS". Consult your Blaze King dealer or a chimney sweep.
Obstruction in chimney or cap screen.	Remove obstruction. Clean chimney and/or cap screen.
Strong, gusting winds causing downdraft in chimney.	Install wind-resistant chimney cap.
Tightly sealed house, inadequate air supply.	Open a window, slightly, near the stove. Install a Fresh Air Kit.
Burning poorly seasoned wet wood, or wood with high pitch content.	Use seasoned wood with low pitch content, such as some types of pine.

PROBLEM: The combustor temperature cannot be controlled. Turning the thermostat down often makes the combustor temperature go up.

CAUSE Turning the thermostat down, particularly in the first half of the burn cycle, causes the fire to emit more smoke, which is fuel for the combustor. The combustor temperature therefore climbs for up to several hours. This is normal, and is of no concern. As long as only the combustor temperature is elevated, there is nothing to worry about.

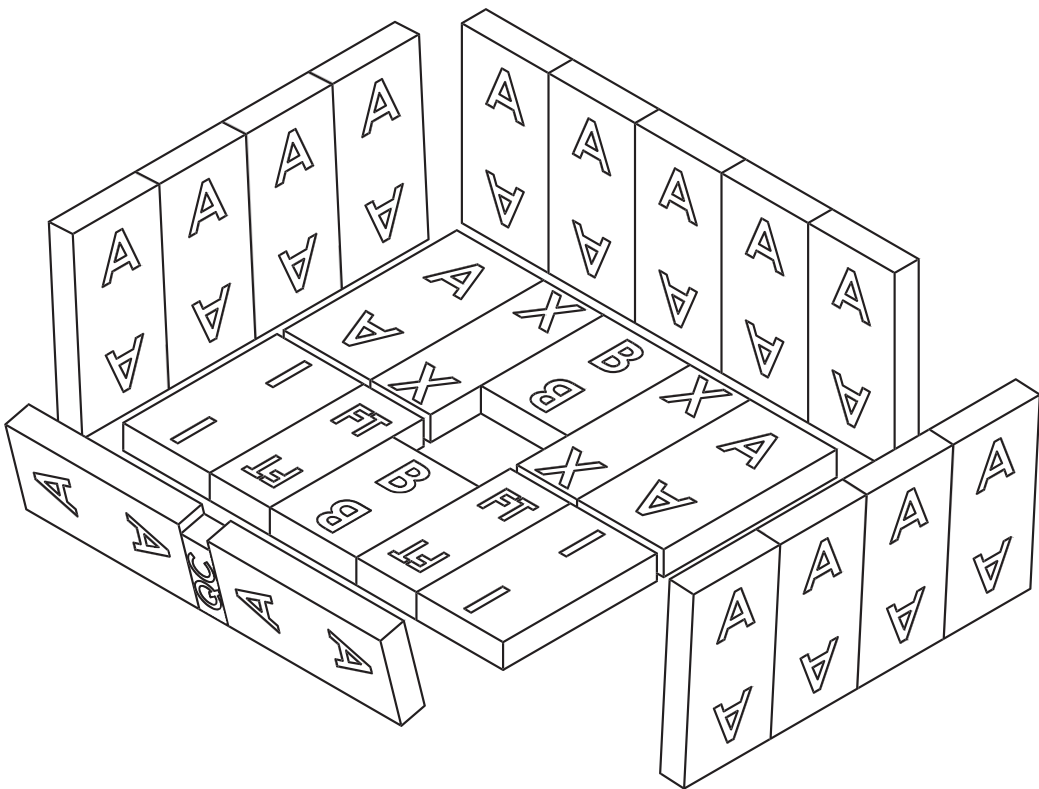
PROBLEM: Smoke spills from door opening when loading fuel

CAUSE Spark arrestor screen on cap plugged.	SOLUTION Clean spark arrestor screen to bare metal wire.
Chimney too cold.	Make certain double wall stove pipe is used in installation.
Not enough vertical rise.	Make certain a minimum vertical rise of 36" is observed prior to elbows. Use two 45 elbows instead of 90 elbow.
Chimney not drafting.	Turn thermostat to highest setting, open bypass, leave loading door closed and wait 5-10 minutes to increase chimney or flue temperature.



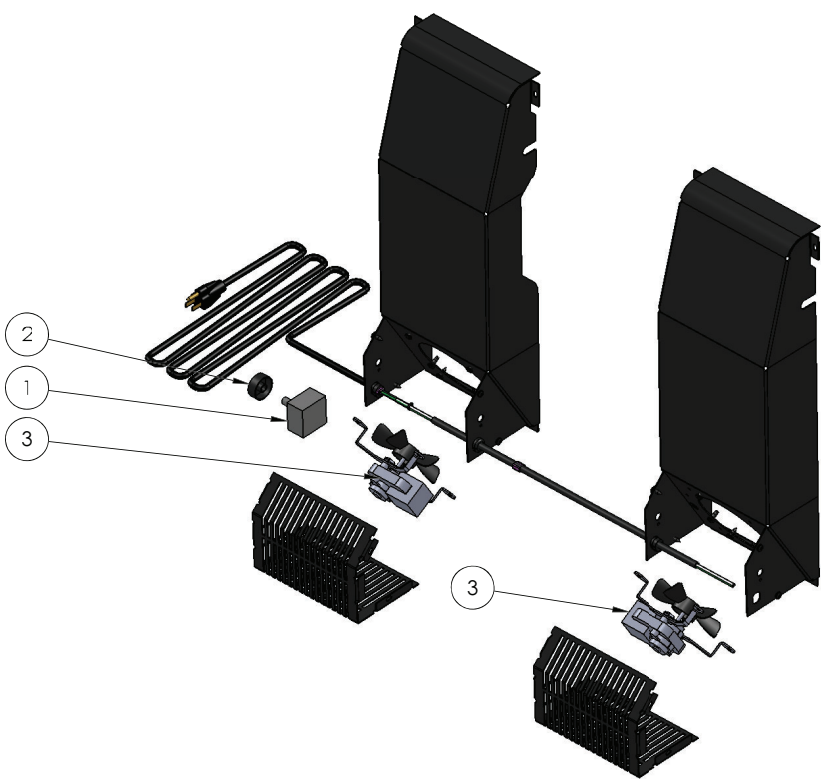
No. exploded view	Part #	Description	QTY
1	S.155.0255.B.3	BYPASS GASKET - 3 ft	1
2	S.CAT203032	COMBUSTOR ASSEMBLY	1
3	S.Z4819	BYPASS RETAINER KIT	1
4	S.Z4438	FLAME SHIELD	1
5	S.Z4551	DOME GUARD REPLACEMENT KIT	1
6	S.155.0186.6	DOOR GASKET - 5 ft	1
7	130-0246	GLASS CERAMIC 5MM	1
8	S.155.0254.6	DOOR GLASS GASKET - 4 ft	1
9	S.Z4786	DOOR ASSEMBLY	1
10	120-0342-E	CATALYTIC THERMOMETER	1
11	S.Z3032	THERMOSTAT PE32	1
12	220-0102	THERMOSTAT KNOB	1
13	S.Z2452.M	BYPASS HANDLE	1
14	S.0693	LATCH CATCH	1

Brick Layout



Part #	QTY
A SIZE BRICK	17
B SIZE BRICK	2
FT SIZE BRICK	2
I SIZE BRICK	2
QC SIZE BRICK	1
X SIZE BRICK	2

S.Z1714 Fan Kit



No.	Part #	Description	QTY
1	145-0136	RHEOSTAT WITH OFF (O/H/LOW)	1
2	220-0137	RHEOSTAT KNOB BLACK SILVER LINE	1
3	150-0175-C	FAN AXIAL SPIDER MOUNT	1

BLAZE KING WOOD LIMITED WARRANTY

Blaze King and Valley Comfort's respective brands extend the following warranty for wood fired appliances purchased from an authorized Blaze King / Valley Comfort dealer and installed in the United States of America or Canada. Warranty starts with date of purchase by the original owner (End User) except as noted for replacement parts.

Warranty Period		Components Covered	
Parts	Labor	Wood	
1 Year		X	All parts, materials and surface finishes (flaking and peeling) Subject to Conditions, Exclusion, and Limitations listed.
2 Years		X	Fan assemblies and motors, thermal sensors, catalytic thermometer, bi-metallic thermostat assembly, door handle metal components.
5 Years	2 Years	X	Firebox & Heat Exchanger, Bypass Door Steel Components
6 Years		X	Catalyst Combustor (see Conditions, Exclusions, and Limitations)
1 Year		X	Other Replacement Parts
SEE CONDITIONS, EXCLUSIONS, AND LIMITATIONS.			

Blaze King Wood Limited 5 Year Warranty

Blaze King is the manufacturer of the Blaze King line of heating products. At Blaze King, our commitment to the highest level of quality and customer service is the most important thing we do. Each Blaze King stove is built on a tradition of using only the finest materials and is backed by our limited warranty to the original purchaser. With Blaze King, you're not just buying a stove; you're buying a company with years of unequalled performance and quality.

Limited Six (6) Year Warranty:

The CATALYTIC COMBUSTOR is under warranty by Blaze King for six (6) years from the date of original retail purchase. The purchaser shall pay the following share of the then current retail price for the combustor: The first three (3) years no charge, 4th year 60%; 5th year 70%, 6th year 80%. The Combustor must be returned to your dealer along with a completed COMBUSTOR FAILURE REPORT and original proof of purchase document.

Limited (5) Year Warranty:

Under this warranty, Blaze King covers the stove body and accessories against defects in materials and workmanship, for part repair or replacement for the first five (5) years *** to the original purchaser. This Warranty covers: All Steel firebox components against defects in material and workmanship. Please see the exclusions and limitation section below as certain restrictions and exclusions apply this warranty.

Limited Two (2) Year Warranty:

Under this warranty, Blaze King covers, fan assemblies , modular thermostat and door handle steel components against defects in materials and workmanship, for part repair or replacement and limited labor for the first two (2) years to the original purchaser. Please see the exclusions and limitation section below as certain restrictions and exclusions apply to this warranty.

Limited One (1) Year Warranty:

Under this warranty, Blaze King covers all parts and materials against defects in materials and workmanship including exterior paint finishes, for part repair or replacement and limited labor for the first year to the original purchaser. Please see the exclusions and limitation section below as certain restrictions and exclusions apply to this warranty.

How the Warranty Works

1. All warranties by the manufacturer are set herein and no claim shall be made against the manufacturer on any oral warranty or representation. All claims under this Limited Warranty must be made in writing by your dealer.
2. Any stove or part thereof that is repaired or replaced during the Limited Warranty period will be warranted under the terms of the Limited Warranty for a period not exceeding the remaining term of the original Limited Warranty or six (6) months, whichever is longer.
3. For any part or parts of this stove, which in our judgment show evidence of defects, Blaze King reserves the option to repair or to replace the defective part(s) through an accredited distributor or agent, provided the defective part is returned to the distributor or agent, transportation prepaid, if requested.
4. If you discover a problem that you think may be covered by the Limited Warranty, you MUST REPORT it to your Blaze King dealer WITHIN 30 DAYS from the date the problem was first detected, giving them proof of purchase and the date of purchase. The dealer will investigate the problem and work with Blaze King to determine whether the problem:
 - a) Is covered by the Limited Warranty or
 - b) Can be fixed in your home or does the product need to be returned to Blaze King for repair.
5. If Blaze King determines that the stove needs to be returned to Blaze King for repair, the customer has the responsibility and the expense of removing it from their home and shipping it to Blaze King. If the problem is covered by the Warranty, Blaze King will repair or replace the item at their discretion and the customer will be responsible for return shipping and re-installation in their home.
6. If the problem is not covered by the Limited Warranty, the customer will be responsible for all repair costs, as well as all storage, shipping and the cost of removing and re-installing the stove.

If you are not satisfied with the service provided by the Blaze King dealer, write to Blaze King at the address listed on the first page of the Owner's Manual. Include a copy of the original purchase invoice and a description of the problem.

Exclusions and Limitations:

1. This Warranty does not cover tarnish, discoloration or wear on the plated surfaces. Painted finishes will change color after initial firing and will continue to change through the lifetime of the stove. This is normal occurrence for all high temperature coatings.
2. This Warranty does not cover gasket material or firebrick.
3. Blaze King strongly recommends installation by a certified installer. Failure to comply may adversely affect coverage under the terms of this warranty. This Limited Warranty covers defects in materials and workmanship only if the product has been installed in accordance with local building and fire codes; in their absence refer to the owner's manual. If the product is damaged or broken as a result of any alteration, wilful abuse, mishandling, accident, neglect, or misuse of the product, the Limited Warranty does not apply.
4. The stove must be operated and maintained at all times in accordance with the instructions in the Owner's Manual. If the unit shows signs of neglect or misuse, it is not covered under the terms of this Warranty policy. Performance problems due to operator error will not be covered by the Limited Warranty policy. Some minor expansion, contraction, or movement of certain parts and resulting noise, is normal and not a defect and, therefore, is not covered under this Limited Warranty.
5. Misuse includes over-firing. Over-firing can be identified later by warped plates and paint pigment being burnt off. Over-firing this appliance can cause serious damage and will nullify the Limited Warranty.
6. The Limited Warranty will cover glass thermal breakage only and will not cover misuse of the stove glass, including but not limited to:
 - a) Glass that is struck, has surface contaminates or has had harsh or abrasive cleaners used on it.
 - b) If the door is slammed or is closed while wood in the firebox is protruding out the stove opening thus striking the glass.
7. This warranty does not cover products made or provided by other manufacturers and used in conjunction with the operation of this stove without prior authorization from Blaze King. The use of such products may nullify the Limited Warranty on this stove. If unsure as to the extent of this Limited Warranty, contact your authorized Blaze King dealer before installation.
8. Blaze King will not be responsible for inadequate performance caused by environmental conditions.
9. The Limited Warranty does not cover installation and operational related problems such as use of downdrafts or spillage caused by environmental conditions. Environmental conditions include but are not limited to nearby trees, buildings, roof tops, wind, hills, mountains, inadequate venting or ventilation, excessive offsets, negative air pressures or other influences caused by mechanical systems such as furnaces, fans, clothes dryers etc.
10. The Limited Warranty does not cover damage caused by burning salt-saturated wood, corrosive driftwood, chemically treated wood or any fuel not recommended in the Owner's Manual (use cord wood only).
11. The Limited Warranty is void if:
 - a) The stove has been operated in atmospheres contaminated by chlorine, fluorine or other damaging chemicals.
 - b) The stove is subject to submersion in water or prolonged periods of dampness or condensation.
 - c) Any damage to the unit, combustion chamber or other components due to water, or weather damage which is the result of, but not limited to, improper chimney/venting installation.
 - d) Salt air in coastal areas or high humidity can be corrosive to the finish; these environmental conditions can cause rusting. Damage caused by salt air or high humidity is not covered by the Limited Warranty.
12. Exclusions to the Limited Warranty include: injury, loss of use, damage, failure to function due to accident, negligence, misuse, improper installation, alteration or adjustment of the manufacturer's settings of components, lack of proper and regular maintenance, alteration, or act of God.
13. The Limited Warranty does not cover damage caused to the stove while in transit. If this occurs, do not operate the stove and contact your courier and/or dealer.
14. The Limited Warranty does not extend to or include paint, door or glass gaskets or firebricks damage caused by normal wear and tear, such as paint discoloration or chipping, worn or torn gaskets, chipped or cracked firebrick, etc.
15. The Limited Warranty does not include damage to the unit caused by abuse, improper installation, or modification of the unit.
16. Damage to plated surfaces caused by fingerprints, scratches, melted items, or other external scores and residues left on the plated surfaces from the use of abrasive cleaners or polishes is not covered in this warranty.

17. Blaze King is free of liability for any damages caused by the stove, as well as inconvenience expenses and materials. The Limited Warranty does not cover incidental or consequential damages.
18. The Limited Warranty does not cover any loss or damage incurred by the use or removal of any component or apparatus to or from the Blaze King stove without the express written permission of Blaze King and bearing a Blaze King label of approval.
19. Any statement or representation of Blaze King Products and their performance contained in Blaze King advertising, packaging literature, or printed material is not part of the Limited Warranty.
20. The Limited Warranty is automatically voided if the stove's serial number has been removed or altered in any way. If the stove is used for commercial purposes, it is excluded from the Limited Warranty.
21. No dealer, distributor, or similar person has the authority to represent or warrant Blaze King Products beyond the terms contained within the Limited Warranty. Blaze King assumes no liability for such warranties or representations.
22. Blaze King will not cover the cost of the removal or re-installation of the stove, hearth, facing, mantels, venting or other components.
23. Labor to replace or repair items under this Limited Warranty will be covered per our warranty service fee reimbursement and labor rates are set per component schedule. Labor rates vary from location to location and as such total labor costs may not be covered. Please consult with your dealer or service technician for any additional charges such as travel time or additional labor charges that may apply.
24. For parts of the Blaze King wood stove or fireplace insert warranted beyond the first year, the five year limited warranty will have the same obligations as described in this document, provided, however that the purchaser shall pay the following percentage of the then current retail cost of the repair or the replacement, according to the year after purchase in the which the defect is brought to the attention of Blaze King.*** During the 2nd year----purchaser pays 20%. 3rd year ----purchaser pays 40%. 4th year -----purchaser pays 60%. 5th year---- purchaser pays 80%.
25. If a defect or problem is determined by Blaze King to be non warrantable, Blaze King is not liable for travel costs for service work. In the event of in-home repair work, the customer will pay any in-home travel fees or service charges required by the Authorized Dealer.
26. At no time will Blaze King be liable for any consequential damages which exceed the purchase price of the unit. Blaze King has no obligation to enhance or modify any stove once manufactured (example: as a stove model evolves, field modifications or upgrades will not be performed).
27. This Limited Warranty is applicable only to the original purchaser and it is nontransferable.
28. This warranty only covers Blaze King Products that are purchased through an authorized Blaze King dealer.
29. If for any reason any section of the Limited Warranty is declared invalid, the balance of the warranty remains in effect and all other clauses shall remain in effect.
30. The Limited Warranty is the only warranty supplied by Blaze King, the manufacturer of the stove. All other warranties, whether express or implied, are hereby expressly disclaimed and the purchaser's recourse is expressly limited to the Limited Warranty.
31. Blaze King and its employees or representatives will not assume any liability for damages, either directly or indirectly, caused by improper usage, operation, installation, servicing or maintenance of this stove.
32. Blaze King reserves the right to make changes without notice. Please complete and mail the warranty registration card and have the installer fill in the installation data sheet in the back of the manual for warranty and future reference.
33. Blaze King is responsible for stocking parts for a maximum of seven (7) years after discontinuing the manufacture or incorporation of the item into its products. An exception to this would be if an OEM supplier is not able to supply a part.

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Appliance Serial No.: _____