OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE
WASHINGTON, D.C. 20460

September 27, 2024

Mr. Guillaume Thibodeau-Fortin
Laboratory Engineering Manager
Stove Builders International, Inc.
250 Rue De Copenhague
Saint Augustin-de-Desmaures
Quebec, G3A 2H3
CANADA

Re: Update of the Certificate of Compliance Number 337-22 for the Bistro Series – Bistro and Gusto Non-Catalytic Wood Heater Models – Adding Gusto Model

Dear Mr. Thibodeau-Fortin:

The United States Environmental Protection Agency is in receipt of your April 5, 2024, letter requesting a new model designation be added to Certificate of Compliance Number 337-22. This Certificate of Compliance currently includes the Bistro model. Specifically, you are requesting the Gusto model be added to the above-referenced Certificate of Compliance. According to your request, you affirm the newly designated model's internal firebox components will be manufactured exactly the same as the currently certified model, and no changes to the tested firebox design have been made to cause the wood heaters within the model line to exceed applicable emission limits. The new model, "Gusto" will have minor aesthetic design variations with regard to the design of the decorative panels and legs as well as the design of the door.

Based on a July 6, 2022,[1] test report prepared by PFS-TECO demonstrating compliance with the EPA Method 28R, ASTM Internationals Test Methods E3053 and E2515, and the May 7, 2022, EPA approved Model Specific Alternative Cordwood Test Method[2], as well as the March 31, 2023,[3] Certification of Conformity by Intertek Testing Services NA, Inc., the EPA is approving the

[1] Revised October 17, 2022, June 14, 2024, and July 17, 2024.
[2]May 7, 2022, letter from Steffan Johnson, Group Leader, Measurement Technology Group, Office of Air Quality Planning and Standards, to Guillaume Thibodeau-Fortin, Laboratory Engineer, Stove Builder International, modifying ASTM Test Method 3053-18 and approving an alternate method for the Stove Builder International Bistro Series model line. A copy of the letter on pages 20-29 of the non-Confidential Business Information test report (dated July 6, 2022, and revised October 17, 2022, June 14, 2024, and July 17, 2024).
[3] Revised March 21, 2024, and July 26, 2024.

request for the new model designation be added to the above-referenced Certificate of Compliance. The EPA has determined that the model line continues to meet the certification requirements in the 2015 New Source Performance Standards (NSPS) for New Residential Wood Heaters, New Residential Hydronic Heaters, and Forced-Air Furnaces at 40 CFR § 60.533. The EPA Wood Heater Database will be updated to create the Bistro Series that includes the Bistro and Gusto models. Please refer to the above-referenced Certificate of Compliance Number in all future correspondence.

Certification under the 2015 Wood Heater Rule is valid through December 16, 2027, and no separate certification is required. This Certificate of Compliance is valid for the above-referenced models and cannot be transferred to another model line without applying for another Certificate of Compliance. This Certificate of Compliance allows you to advertise and sell the above-referenced models through December 16, 2027. Thereafter, you may not advertise for sale, offer for sale, or sell wood heaters under this Certificate of Compliance without applying for and obtaining another Certificate of Compliance.

All wood heaters manufactured or sold under this Certificate of Compliance must comply with EPA labeling requirements found at § 60.536. These provisions require each wood heater to have a permanent label affixed to it, including the month and year of manufacture, model name or number, serial number, certification test emission value, test method, standard met, and compliance certification statement.

In addition, you must comply with all applicable requirements of the regulation, including:

1. Conducting a third-party certifier-approved quality assurance program which ensures that all units within a model line are similar to the wood heater submitted for certification testing in all respects that would affect emissions and are in compliance with the applicable emission limit, pursuant to § 60.533(m);

2. Applying for recertification whenever any change is made to the above-referenced models that affects or is presumed to affect the particulate matter emission rate for the model line, pursuant to § 60.533(k)(1);

3. Providing an owner's manual that includes the information listed in § 60.536(g)(1) with each affected wood heater model offered for sale;

4. Placing a copy of the full non-Confidential Business Information (non-CBI) certification test report and summary of the test report on the manufacturer's website and available to the public within 30 days after the EPA issues a Certificate of Compliance, pursuant to § 60.533(b)(12). The up-to-date non-CBI certification test report and summary (if later revised) should remain posted on the manufacturer's website for as long as the model line is manufactured and offered for sale in the U.S.;

5. Submitting a report to the EPA every two years following issuance of a Certificate of Compliance for each model line. This report must include the sales for each model by state and certify that no changes in the design or manufacture of this model line have been made that require recertification under § 60.533(k);

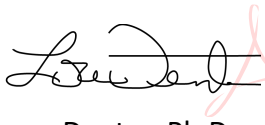
6. Retaining records and submitting reports as required at § 60.537; and

7. Submitting wood heaters for audit testing if selected by the EPA under §§ 60.533(n)(1)(i) and (2)(i).

Failure to comply with these requirements may result in revoking this Certificate of Compliance and enforcement action, including penalties as specified under the Clean Air Act. Pursuant to the EPA-approved model specific test method, you must also include your approval letter in the certification test report for posting on your website. To promote transparency in implementing the Wood Heater Program, we request that manufacturers submit a copy of the Uniform Resource Locator (URL) or web address where the non-CBI certification test report is posted to WoodHeaterReports@epa.gov within ten (10) days of posting.

If you have any questions concerning this letter, please contact the Wood Heater Program at WoodHeaterReports@epa.gov.

Sincerely,



Loren Denton Ph.D.
Director
Monitoring, Assistance, and Media Programs Division
Office of Compliance
Office of Enforcement and Compliance Assurance

CERTIFICATE OF CONFORMITY

Emissions – Wood Heater

EPA 40 CFR Part 60, Subpart AAA, ASTM E3053-17, ASTM E2515-17, CSA B415.1-2010 (R2020)

WHI23 – 21514326

Organization

Stove Builder International
250 de Copenhauge
St Augustin de Desmaures, QC G3A 2H3
Canada

Product: Bistro and Gusto

Catalytic: No
Maximum Output: 47,300 Btu/hr.
Weighted Average Emissions: 2.0 g/hr.
Weighted Average Annual Delivered Efficiency (HHV): 76%
Test Fuel Type: Cordwood
Weighted Average CO Emissions Rate (g/min): 1.0
Conformance: Complies with 2020 particulate emissions standard
Test Report No.: 22-790 (PFS-TECO)
Product Evaluation Report: 105348564MID-001
Product Evaluation Report: 105767365MID-001

Certification Body: Intertek Testing Services NA, Inc.
Registered Address: 545 E. Algonquin Rd., Arlington Heights, IL 60005, USA
Initial Issue Date: 31-Mar-23
Issue Status: 3

This is a certificate of conformity to confirm that the bearer has successfully completed the requirements of the Intertek certification scheme which include the testing of products and the initial assessment. The bearer is subject to continuing assessments of their compliance through surveillance and testing of products samples taken from production (as applicable to the scheme) and has been registered within the scheme for the products detailed. The validity of this certificate is contingent to the listing's status on the Intertek Directory of Building Products: bpdirectory.intertek.com.

Jean-Philippe Kayl Vice President – Global Certification		26-Jul-24
Name	Signature	Date

Certificate of Conformity WHI23-21514326
Appendix A

Certificate of Conformity #:		Certificate of Conformity Issue Date:	
WHI23-21514326			
REVISION #	**REVISION DATE**	**ISSUE STATUS**	**REVISION**
0	March 31, 2023	1	Original Certificate of Conformity Issue
1	March 21, 2024	2	Addition of similar model Gusto per product evaluation report #105767365MID-001
2	July 26, 2024	3	Issue status updated due to revision of 22-790 (PFS-TECO) test report

Revised Report #:		Report Issue Date:	
22-790 (PFS-TECO)		July 6, 2022	
REVISION #	**REVISION DATE**	**REPORT PAGES**	**REVISION**
0	July 6, 2022	N/A	Original Report Issue
1	October 17, 2022	8	The summary table on Page 8 was updated to correct burn rate results, some of which were erroneously rounded off.
		Appendix A, 17	Typos for date of the first weighing of Run 1 sample filters were corrected, sample filters were weighed within 1 hour of the post test leak check as required by the ATM, see Run 1 data in appendix A, and note on page 17.
		9	Further discussion was added to the Run 3 Test Narrative regarding combustion gas sampling, see Page 9.
		5	Added a note on page 5 regarding the amount of bark on test fuel.
		Appendix C, 7	Replaced some calibration documents in Appendix C with English language certificates, corrected equipment ID numbers in equipment table of page 7.
2	June 14, 2024	Appendix C, 6, 8	Specified barometer used for testing in equipment table on page 6 and added its calibration certificate to Appendix C. Added additional calibration document for equipment #107 covering earliest test dates to Appendix C. Added emissions results if negative probe catch weights are not corrected to zero to Run Narrative section for affected runs 1, 2, and 4. See page 8.

3	July 17, 2024	Appendix A, Appendix C	Added certificate for analytical balance used for preliminary sample weights to Appendix C. Added complete calculation spreadsheets for uncorrected negative probe catch weights for runs 1, 2, and 4 to Appendix A.

Revised Product Evaluation Report #:		**Report Issue Date:**	
105348564MID-001		**March 29, 2023**	
REVISION #	**REVISION DATE**	**REPORT PAGES**	**REVISION**
0	March 29, 2023	N/A	Original Report Issue

Revised Product Evaluation Report #:		**Report Issue Date:**	
105767365MID-001		**March 20, 2024**	
REVISION #	**REVISION DATE**	**REPORT PAGES**	**REVISION**
0	March 20, 2024	N/A	Original Report Issue

Stove Builder International

Project # 22-790
Model: Bistro
Type: Non-catalytic Wood Fired Heater
July 6, 2022
Revised: July 17, 2024

ASTM E3053 Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters Using Cordwood Test Fuel (EPA Alternate Test Method)

Contact: Mr. Guillaume Thibodeau-Fortin
250 Rue de Copenhaugue
Saint-Augustin-de-Desmaures, QC G3A 2H3
Canada
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Prepared by: Aaron Kravitz,
Laboratory Manager

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Clackamas, OR 97015-9050
(503) 650-0088
WWW.PFSTECO.COM

Revision Summary

Date: July 6, 2022 – Original Issue

Date: October 17, 2022 – The following revisions were made to the report per a request from EPA:

-The summary table on Page 7 was updated to correct burn rate results, some of which were erroneously rounded off.

-Typos for date of the first weighing of Run 1 sample filters were corrected, sample filters were weighed within 1 hour of the post test leak check as required by the ATM, see Run 1 data in appendix A, and note on page 17.

-Further discussion was added to the Run 3 Test Narrative regarding combustion gas sampling, see Page 8.

-Added a note on page 4 regarding the amount of bark on test fuel.

-Replaced some calibration documents in Appendix C with English language certificates, corrected equipment ID numbers in equipment table of page 6.

Date: June 14, 2024 – The following revisions were made to the report per a request from EPA:

-Specified barometer used for testing in equipment table on page 6 and added its calibration certificate to Appendix C.

-Added additional calibration document for equipment #107 covering earliest test dates to Appendix C.

-Added emissions results if negative probe catch weights are not corrected to zero to Run Narrative section for affected runs 1, 2, and 4. See page 8.

Date: July 17, 2024 – The following revisions were made to the report per a request from EPA:

-Added certificate for analytical balance used for preliminary sample weights to Appendix C.

-Added complete calculation spreadsheets for uncorrected negative probe catch weights for runs 1, 2, and 4 to Appendix A.

Contents

Affidavit

PFS-TECO was contracted by Stove Builder International (SBI) to provide testing services for the Bistro Wood-Fired Room Heater per ASTM E3053, *Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters Using Cordwood Test Fuel*, which was approved for use by EPA under an Alternate Test Method (ATM) in a letter to the manufacturer dated May 7, 2022. All testing and associated procedures were conducted at SBI's Saint-Augustin-de-Desmaures Laboratory beginning on 6/6/2022 and ending on 6/7/2022. SBI's laboratory is located at 250 Rue de Copenhaugue Saint-Augustin-de-Desmaures, QC G3A 2H3. Testing procedures followed ASTM E3053, with variances as described in the ATM. Particulate sampling was performed per ASTM E2515, *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel,* with variances as described in the ATM. A copy of the EPA ATM letter is included in Appendix A for reference, as required by the approval letter.

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 17025:2005 "Requirements for Testing Laboratories." PFS-TECO is also accredited by Standards Council of Canada to ISO 17065:2012 "Requirements for Bodies Operating Product Certification Systems."

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

Aaron Kravitz, Laboratory Manager

Introduction

SBI contracted with PFS-TECO to perform EPA certification testing on the Bistro Wood-Fired Room Heater. All testing was performed at SBI's Saint-Augustin-de-Desmaures Laboratory. All testing was performed by Sebastian Button.

Notes

- Prior to start of testing, 50 hours of conditioning was performed per the ATM.
- Prior to start of testing, the dilution tunnel was cleaned with a steel brush.
- A third separate, independent filter train was utilized to determine 1st hour emissions in accordance with the ATM for all test runs.
- A total of 4 test runs were completed. Test runs were performed in accordance with the ATM. All runs have been found to be appropriate, no anomalies occurred. See the Run Narrative section for further detail on each run.
- No fuel pieces were intentionally squared or debarked and met all requirements specified in the ATM. Fuel pieces used for testing had little to no bark due to natural drying, splitting, and impacts caused by multiple moisture measurements.

Wood Heater Identification and Testing

- Appliance Tested: ***Bistro***
- Serial Number: ***PFS Tracking Number 122***
- Manufacturer***: Stove Builder International***
- Catalyst: ***No***
- Heat exchange blower: ***Optional***
- Type: ***Wood Stove***
- Style: ***Free-Standing***
- Date Received: ***Monday, June 06, 2022***
- Testing Period – Start: ***Monday, June 06, 2022***
  Finish: ***Tuesday, June 07, 2022***
- Test Location: ***SBI***
  250 Rue de Copenhaugue
  Saint-Augustin-de-Desmaures, QC G3A 2H3
- Elevation: ***~235 Feet above sea level***
- Test Technician(s): ***Sebastian Button***
- Observers: ***Guillaume Thibodeau-Fortin, Andre Bouchard, and Bernard Blouin***

Test Procedures and Equipment

All Sampling and analytical procedures were performed by Sebastian Button. All procedures used are directly from ASTM E3053 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
SBI-331	Barometer
SBI-190	5 kg audit weight
SBI-047	Sample Train A Dry Gas Meter
SBI-046	Sample Train B Dry Gas Meter
SBI-290	Sample Train C Dry Gas Meter
SBI-347	Ambient Sample Train Dry Gas Meter
SBI-103	Reference Dry Gas Meter
SBI-197	Temperature Acquisition System
SBI-096	TC Calibrator
SBI-212	Thermo-Hygrometer
SBI-222	Fuel Bench Scale
SBI-332	California Analytical ZRE CO2/CO/O2 IR ANALYZER
SBI-097	Anemometer
109A/B	Troemner 100mg/200mg Audit Weights
SBI-248	Pressure Transmitter – Tunnel Pressure
SBI-252	Pressure Transmitter – Flue Draft
SBI-326	Pressure Transmitter - Meter System Pressure
SBI-327	Pressure Transmitter - Meter System Pressure
SBI-194	Digital Multimieter
SBI-153	Moisture Meter Calibration Block
SBI-014	500 x 0.02kg Platform Scale
SBI-339	Gas Analyzer Calibration Gas
SBI-338	Gas Analyzer Calibration Gas
SBI-282	Gas Analyzer Calibration Gas
SBI-206	Analytical Balance
PFS-101	Tape Measure
PFS-107	Sartorius Analytical Balance

Results

The weighted average emissions rate for the 4 run test series was measured to be **2.0 g/hr** with a Higher Heating Value efficiency of **76%.** The average CO emission rate for the 4 tests was **1.0 g/min.** The SBI Bistro Wood-Fired Room Heater meets the 2020 cordwood PM emission standard of ≤ 2.5 g/hr per CFR 40 part 60, §60.532 (c).

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

Summary Table

	High Fire Test #1	High Fire Test #2	High Fire Average Values	Low Fire Test	Medium Fire Test
Date	6/6/2022	6/7/2022	-	6/7/2022	6/6/2022
Run Number	1	3	-	4	2
PM Emission Rate (g/hr)	3.0	4.7	3.9	1.0	2.1
Burn Rate (kg/hr)	3.64	3.27	3.45	1.04	1.34
Heat Output (BTU/hr)	50,200	44,400	47,300	14,300	17,900
HHV Efficiency (%)	75%	74%	75%	77%	75%
LHV Efficiency (%)	81%	80%	80%	83%	80%
CO Emissions (g/MJ output)	1.3	1.6	1.5	3.4	3.2
CO Emissions (g/kg dry fuel)	19	23	21	49	45
CO Emissions (g/min)	1.2	1.3	1.2	0.85	1.0
1st Hour Emission Rate (g/hr)	3.8	6.0	4.9	8.1	9.9
Weighting Factor (%)	-	-	20%	40%	40%
Weighted particulate emission average of 4 test runs: 2.0 grams per hour.					
Weighted average HHV efficiency of 4 test runs: 76%.					
Average CO emission rate for 4 test runs: 1.0 grams per minute					

Test Run Narrative

Run 1

Run 1 was performed on 6/6/2022 as a high fire test run per the ATM. Emissions sampling began from a cold start ignition of kindling and start-up fuel. The test fuel load was loaded 55 minutes into the test. Testing was completed when 90% of the test fuel load was consumed. Total test time was 159 minutes, main test fuel load burn time was 104 min. The particulate emissions rate from kindling ignition to test completion was 3.0 g/hr. The burn rate of the test fuel load was 3.64 kg/hr. The main test load portion of the run had an overall HHV efficiency of 75%. A negative probe catch weight was observed for Train B and corrected to zero. If this negative catch weight is uncorrected, the measured emission rate is still 3.0 g/hr. All test results were appropriate and valid. There were no anomalies, and all test criteria were met.

Run 2

Run 2 was performed on 6/6/2022 as a medium fire test run per the ATM. The overall test duration was 388 minutes. The burn rate for the test run was 1.34 kg/hr. The particulate emissions rate for the test run was 2.1 g/hr. The run had an overall HHV efficiency of 78%. A negative probe catch weight was observed for Train C and corrected to zero. If this negative catch weight is uncorrected, the measured first hour emission rate is 9.6 g/hr. All test results were appropriate and valid. There were no anomalies, and all test criteria were met.

Run 3

Run 3 was performed on 6/7/2022 as a high fire test run per the ATM. Emissions sampling began from a cold start ignition of kindling and start-up fuel. The test fuel load was loaded 45 minutes into the test. Testing was completed when 90% of the test fuel load was consumed. Total test time was 160 minutes, main test fuel load burn time was 115 min. The particulate emissions rate from kindling ignition to test completion was 4.7 g/hr. The burn rate of the test fuel load was 3.27 kg/hr. The main test load portion of the run had an overall HHV efficiency of 74%. All test results were appropriate and valid. During this test, the combustion gas analyzer filter clogged, and had to be changed in order to maintain adequate gas sampling in accordance with CSA B41.5.1. The analyzer was offline for less than 3 minutes, which has a negligible impact on efficiency results. There were no other anomalies, and all test criteria were met.

Run 4

Run 4 was performed on 6/7/2022 as a low fire test run per the ATM. The overall test duration was 490 minutes. The burn rate for the test run was 1.04 kg/hr. The particulate emissions rate for the test run was 1.0 g/hr. The run had an overall HHV efficiency of

77%. A negative probe catch weight was observed for Train C and corrected to zero. If this negative catch weight is uncorrected, the measured emission rate is still 1.0 g/hr. All test results were appropriate and valid. There were no anomalies, and all criteria were met.

Test Conditions Summary

Testing conditions for all runs fell within allowable specifications of the ATM. A summary of facility conditions, fuel burned, and run times is listed below.

Run	Ambient (°F)		Relative Humidity (%)		Average Barometric Pressure (In. Hg.)	Test Fuel Weight (lbs)	Test Fuel Moisture (%DB)	Test Run Time (Min)
	Pre	Post	Pre	Post				
1	74	84	44.3	40.9	30.03	19.11	20.1%	159[1]
2	83	82	40.9	42.3	30.02	22.97	20.2%	388
3	74	82	40.6	43.4	29.96	19.14	21.1%	160[2]
4	84	82	43.4	48.2	29.88	22.63	21.2%	490

[1]Total test time was 159 min, high fire test load burn duration was 104 min.
[2]Total test time was 160 min, high fire test load burn duration was 115 min.

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	N/A – Cold Start Ignition	Air control set to high fire test setting, fully open, fan on high.
Run 2	This test is a continuation of Run 1, see above	Air control set to medium fire test setting, see test note, fan on high.
Run 3	N/A – Cold Start Ignition	Air control set to high fire test setting, fully open, fan on high.
Run 3	This test is a continuation of Run 3, see above	Air control set to low fire test setting, fully closed, fan on high.

Appliance Description

Model(s): Bistro

Appliance Type: Wood Fired Cookstove

Total Firebox Volume: 2.26 ft^3

Usable Firebox Volume: 1.94 ft^3, see ATM document in Appendix A for further detail on Total versus Usable Firebox Volume.

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

Baffles: Combustion air is routed to the front of the stove with a C cast baffle that sits on top of the secondary air tubes, then back and to either side of the cooking oven located above the firebox.

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

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

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

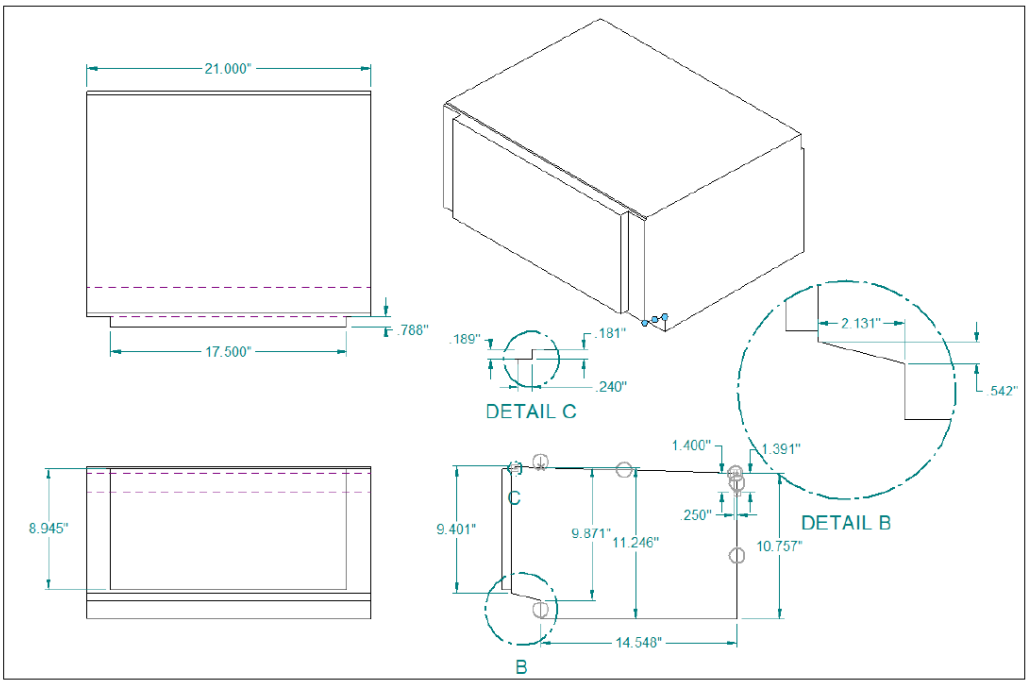
Appliance Dimensions

Bistro Unit Dimensions

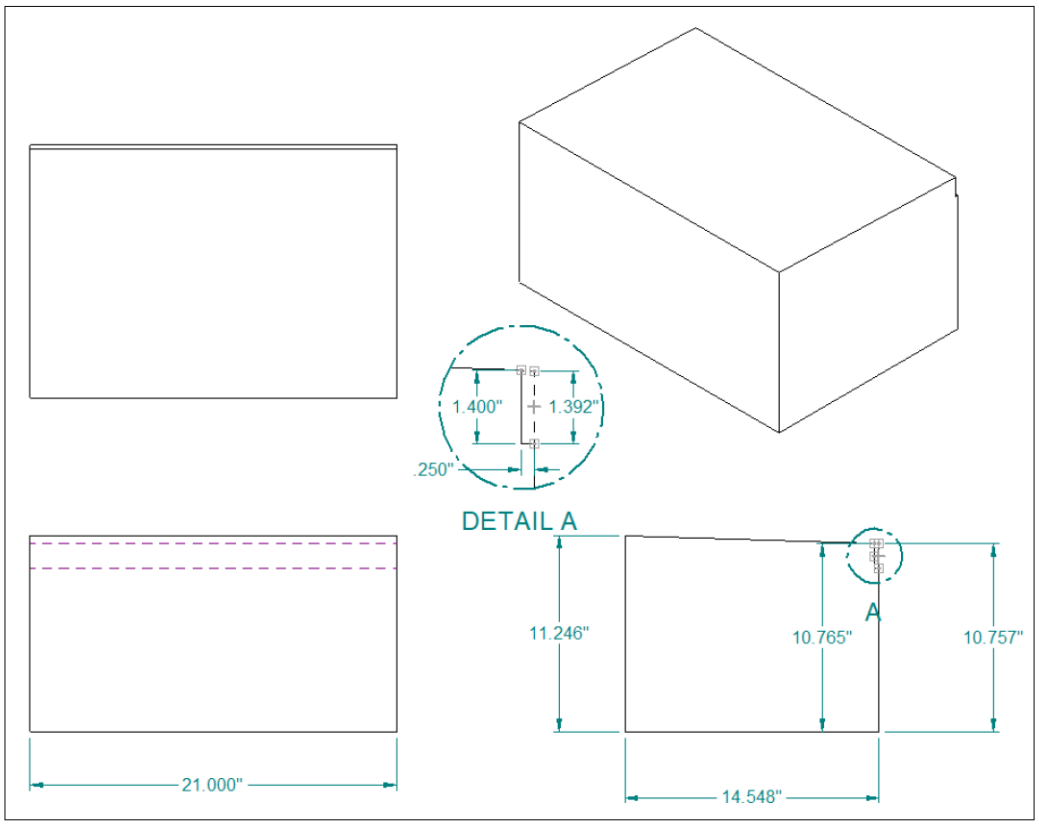
Height	Width	Depth
41.25"	26.875"	22.875"

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

Total Firebox Volume Dimension



Usable Firebox Volume Dimensions

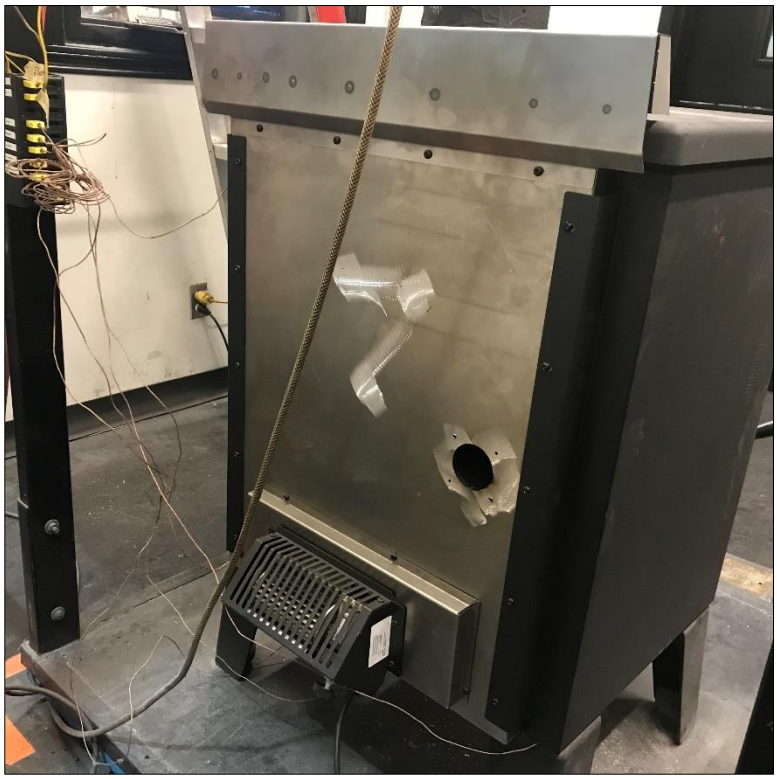


Appliance Front

Appliance Left

Appliance Right

Appliance Rear



Test Fuel Properties

Test fuel used was Beech cordwood, split and air-dried to the specified moisture content range. Typical fuel loads are pictured below:

Typical Kindling Load

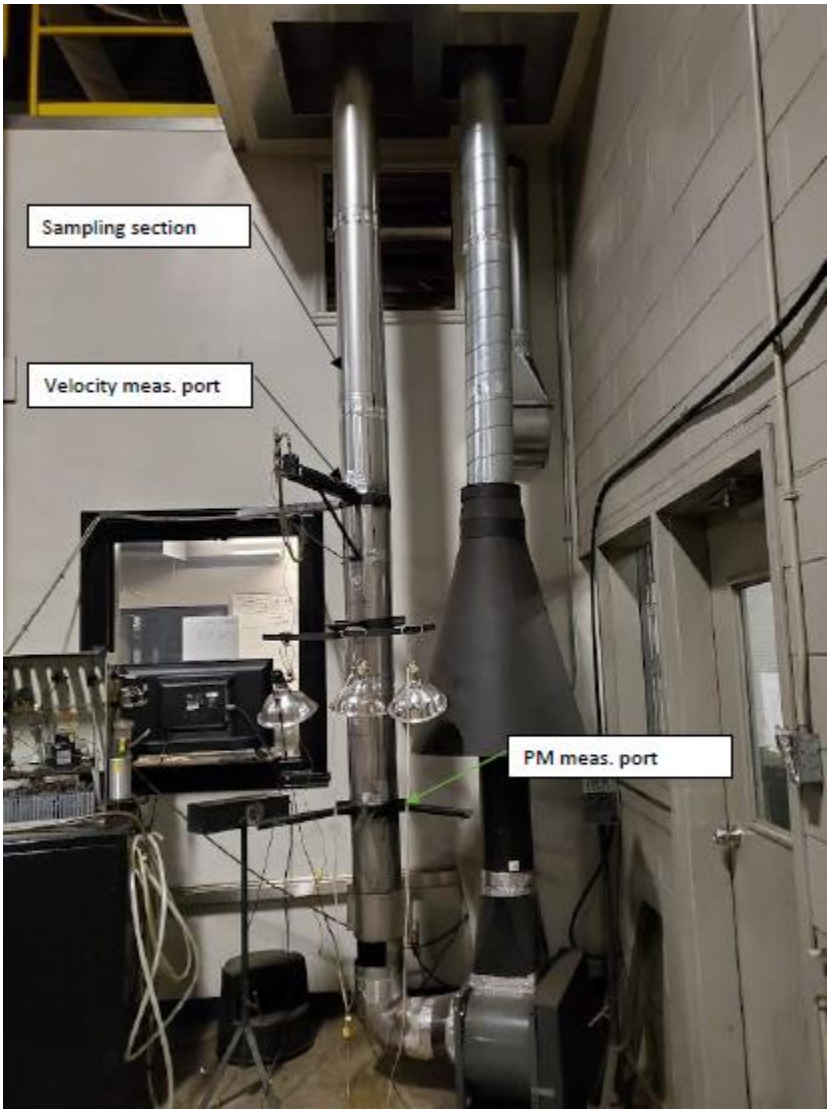
Typical Startup Load

Typical High Fire Load

Typical Low Fire Load

Sampling Locations and Descriptions

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



Sampling Methods

ASTM E2515 was used in collecting particulate samples. The dilution tunnel is 8 inches in diameter. All sampling conditions per ASTM E2515 were followed. No alternate procedures were used with the exception of caveats described in the ATM: Pall TX40 Emfab filters were used, filter temperatures were maintained between 80 and 90°F for all tests, filters were weighed in pairs where applicable, and no sampling intervals fell outside of proportional rates of +/- 10%.

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 at 6 hour intervals to a constant weight per ASTM E2515-11 Section 10. Prior to being placced in the dessicator, sample filters were intially weighed within 1 hour of the post-test leak checks in accordance with the ATM.

Calibration, Quality Control and Assurances

Calibration procedures and results were conducted per EPA Method 28R, ASTM E2515-11 and ASTM E3053. 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: 250 Rue de Copenhaugue Saint-Augustin-de-Desmaures, QC G3A 2H3 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, Sample Analysis, and Alternate Test Method Approval

Appendix B – Labels and Manuals

Appendix C –Equipment Calibration Records

Appendix D – Design Drawings (CBI Report Only)

Appendix E – Manufacturer QAP (CBI Report Only)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Mr. Guillaume Thibodeau-Fortin
Laboratory Engineer
Stove Builder International, Inc.
250, De Copenhague
St-Augustin-de-Desmaures (Qc)
G3A 2H3, Canada

05/07/2022

Dear Mr. Thibodeau-Fortin,

This letter is in response to your correspondence, which started December 13, 2021, went through several iterations, and resulted in a final letter dated April 14, 2022. In your letters, you request the use of alternative testing procedures to demonstrate compliance with 40 CFR part 60, Subpart AAA – Standards of Performance for New Residential Wood Heaters (Subpart AAA). The Office of Air Quality Planning and Standards, as the delegated authority, must make the determination on any major alternatives to test methods and procedures required under 40 CFR parts 59, 60, 61, 63, and 65. Your proposed alternative test method and our approval decisions are discussed below.

According to the information provided, you seek an alternative test method for use when conducting testing on the Stove Builder International, Inc. (SBI) Bistro Series model line. Currently, as required by section 60.534(a)(2) of Subpart AAA, a manufacturer, when using the 2020 cord wood alternative compliance option, must have their appliance tested by an EPA-approved test laboratory and conduct the testing with cord wood using an alternative cord wood test method approved by the EPA Administrator to establish the certification test conditions and the particulate matter (PM) emission values.

Your request seeks to use several specified modifications coupled with ASTM E3053-18 *Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters Using Cordwood Test Fuel* (ASTM E3053-18) as the alternative cord wood test method to certify the SBI Bistro Series model line. In your request, you state that the SBI Bistro Series is a room heater with a cooking surface and an oven and that you would like to test this appliance as a room heater. You state that your appliance has a usable firebox volume of 1.94 ft^3 and an overall firebox volume of 2.26 ft^3. Because the longest length of your usable firebox is 21.00 inches, you state that you will use cord wood fuel between 16.75 inches and 19.95 inches for testing. This represents a range between 80% to 95% of your longest firebox dimension of 21.00 inches. In your request, you state that you would like to use beech cord wood for compliance testing; and in a latter email you requested to include maple as a fuel option if beech is not available at the test laboratory. These two fuels are among the allowable fuel species specified in ASTM E3053-18 according to Figure 2 “Specific Gravity of Commercially Imported Species of Wood Based on Oven-Dry Weight and Oven-Dry Volume.”

We understand from your request, that you also seek use of a number of alternative testing procedures when conducting sampling as required by 40 CFR 60.534(c), which requires that PM emission concentrations be measured using ASTM E2515-11 *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel* (ASTM E2515-11). Additionally, you seek to use a separate sampling train for collecting the first hour of PM emissions, which is required by 40 CFR 60.534(d), which states that the "approved test laboratory must also measure the first hour of PM emissions for each test run using a separate filter in one of the two parallel trains." In your request, you propose to use a third, identical and independent sampling train to sample concurrently for the first hour of the PM paired train compliance testing to independently measure the first hour of PM emissions for each test run, thus avoiding the need to change filters in one of the paired trains.

Based on the information provided and with the caveats set forth below, we are approving your request to use ASTM E3053-18 with modifications as the alternative cord wood test method when conducting certification testing as required by Subpart AAA, section 60.534(a)(2) on the SBI Bistro Series room heater.

When using ASTM E3053-18 as the alternative cord wood test method to certify the SBI Bistro Series model line, these changes and modifications must be made:

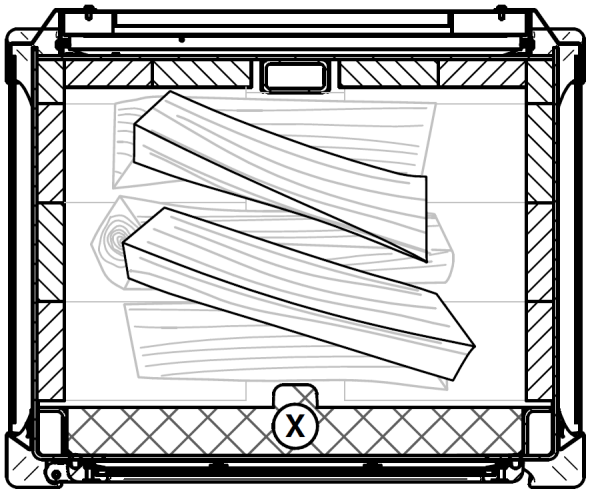
1. Section 3.2.3 - Additional requirements:
    a. No square or near-square fuel pieces are allowed. A variety of test fuel piece shapes in each load is allowed.
    b. The top of any trapezoidal shaped piece may not be greater in dimension than 70% of the base dimension of the trapezoid.
2. Sections 3.2.6 and 8.4.2.8 - Modification to the requirements:
    a. Use fuel length between 16.75 inches and 19.95 inches. This represents 80% to 95% of the longest firebox dimension of 21 inches.
    b. **There will be no additional ± 1 inch allowance to the nominal length.**
3. Sections 8.1.4, 8.1.5, 8.1.6 and 8.1.7 - Additional requirements:
    a. Conduct 50 hours of pre-conditioning at multiple burn rates (high, medium, and low).
    b. Pre-conditioning data shall include all fuel parameters (species, moisture content, load weights, piece amounts, and length of fuel), air settings used, time spent in each air setting phase, and amount of fuel burned at each air setting.
    c. Pre-conditioning fuel length can be different than the required testing fuel length. (e.g., 16 inches long is acceptable even if not in the 80% to 95% of longest firebox dimension range.)
4. Photos must be provided in the test report of the air settings used for pre-conditioning of the appliance. Section 8.3 - Additional requirements:
    a. Full firebox dimensions and usable firebox dimensions must have been provided to EPA prior to alternative method approval. In addition, the usable firebox dimensions must be illustrated in the operator's manual with instructions to the end user for appropriate fueling/loading.
    b. Full firebox volume and usable firebox volume must also be reported in the test report and must agree with dimensions stated in this letter.
    c. Fuel load density must be based on the usable firebox dimensions listed below in this

alternative test method approval.

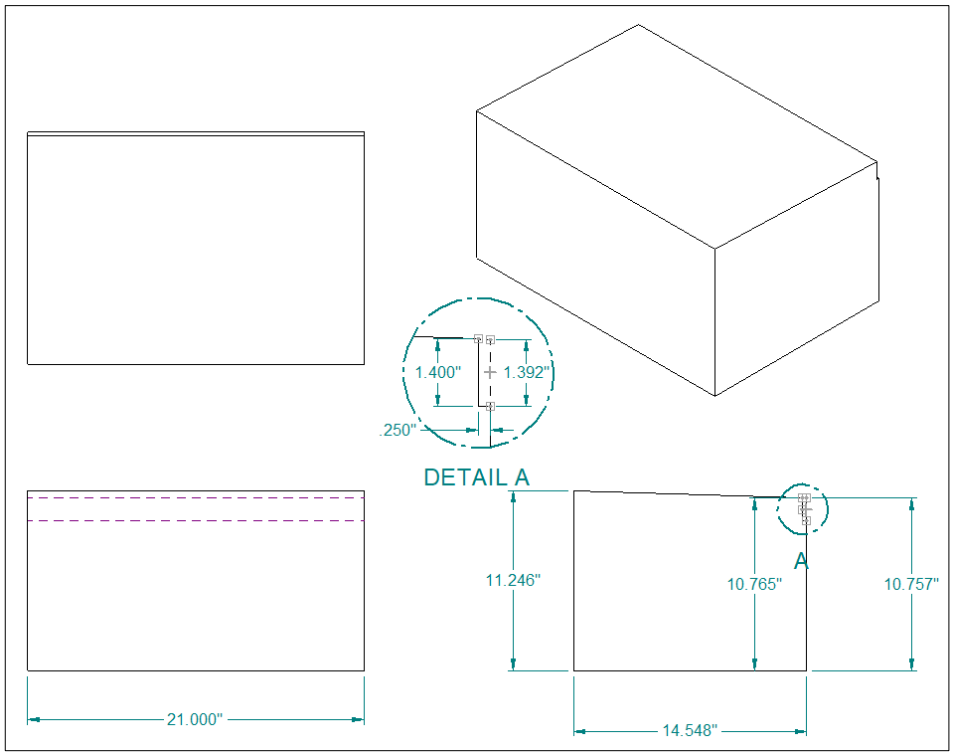
i. On the Bistro Series, the Usable Firebox Volume (UFV) is smaller than the Full Firebox Volume. The reason for this is because wood should not be placed on the lower primary air intake channel. As provided, the User's Manual for the Bistro series specifies:

ii. ***Fuel loading method***

The best loading method for efficient and clean combustion with this fireplace is the EPA loading method which you can find in the section «2.4 EPA Certification Loading». The images... show the space in the firebox where the logs are to be placed. It is important to always respect this space and not to put logs in the grid area marked with an X. The marked area is defined by the space between the glass and primary air channel. Leave enough space between the logs for good air circulation. The log length recommended for this stove is 16 in. EPA testing were done with log length of 17 in.



iii. Bistro Series UFV schematic:



iv. UFV calculation:

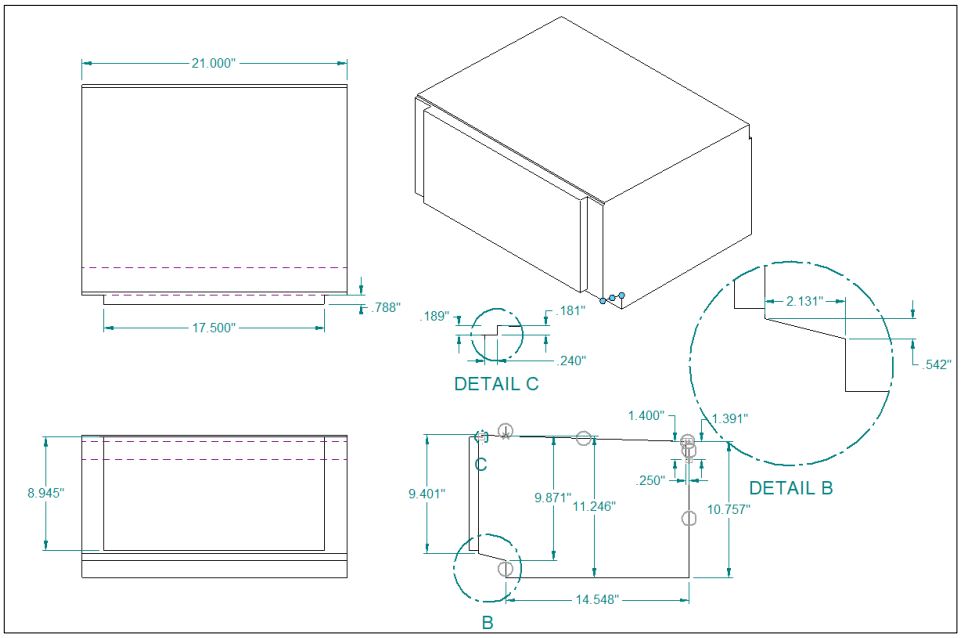
$$UFV_{gross} = 14.548 \times 21.000 \times \frac{10.757 + 11.246}{2} = 3361.046\ in^3$$

$$UFV_{rem} = 0.25 \times 21.000 \times \frac{1.392 + 1.400}{2} = 7.329\ in^3$$

$$UFV = UFV_{gross} - UFV_{rem} = 3361.046 - 7.329 = 3353.717$$

$$UFV = \frac{3353.717}{12^3} = 1.94\ ft^3$$

v. Full Firebox Volume Calculation



vi. $UFV_{gross} = 14.548 \times 21.000 \times \frac{10.757+11.246}{2} = 3361.046\ in^3$

$FFV_{add1} = 21.000 \times \frac{2.131 \times 0.542}{2} = 12.128\ in^3$

$FFV_{add2} = 21.000 \times \frac{9.401 + (9.871 - 0.542)}{2} \times 2.131 = 419.093\ in^3$

$FFV_{add3} = 17.500 \times 8.945 \times 0.788 = 123.352\ in^3$

$FFV_{rem1} = 21.000 \times \frac{0.189 + 0.181}{2} \times 0.240 = 0.932\ in^3$

$FFV_{rem2} = 0.25 \times 21.000 \times \frac{1.391 + 1.400}{2} = 7.326\ in^3$

$FFV = UFV_{gross} + FFV_{add1} + FFV_{add2} + FFV_{add3} - FFV_{rem1} - FFV_{rem2}$

$= 3361.046 + 12.128 + 419.093 + 123.352 - 0.932 - 7.326$

$= 3907.360$

$UFV = \frac{3907.360}{12^3} = 2.261\ ft^3$

5. Section 8.4.2.1 - Additional requirements:
    a. Beech OR maple must be used as the species for cord wood.
    b. If the test fuel pieces have adhered bark, the bark must not be removed. Specifically, the bark side of the fuel species shall not be split off parallel to the bark when fuel weight adjustments are being made to achieve piece or load weight requirements.
6. Section 8.4.2.6 - Additional requirement:
    a. The test fuel may not be thermally dried in order to achieve the target moisture range for the test fuel.
7. Section 8.5 - Additional requirements:
    a. Emissions must be measured and reported from all start-up/high fire test runs.

b. First hour emissions must be included for every test run.
c. The trains must not be disassembled until after a post-test leak check is performed.
d. The manual blower of the Bistro Series is operated manually. The manual blower must be engaged immediately after the high fire test load has been loaded in the stove and the door has been closed.

8. Sections 8.5.5, 8.5.6 and 8.5.7 - Additional requirements:
    a. Manufacturer's instructions to the test lab must all be in writing and all these documents must be included in the test report.
    b. Kindling and start-up instructions are limited to top-down start, or bottom-up start direction. There must be no discussion regarding fuel spacing and piece size in the instructions to the lab. However, general guidance on kindling and start-up fuel arrangement can be supplied (e.g., Split the start-up fuel piece into 6 pieces, use between 12-16 pieces of kindling, put the biggest pieces on the bottom and the smallest on top, stack into 5 to 7 layers).
9. Section 8.5.9.3 - Additional requirements:
    a. The three first fuel pieces will be loaded in an East-West orientation, using the door to represent a South position and the back wall of the firebox to represent a North position.
    b. Following pieces will be loaded on top and will be slightly angled. See following picture for example:

    See also image in point 4.c.ii.
10. Sections 8.5.9.5 (1), (2) and 8.6.8 (1), (2) - Additional requirements:
    a. Documentation must be provided in the test report of all test fuel load adjustments made during testing.
    b. Documentation must include photos of the fuel load before and after any test fuel load adjustment is made and the time that this occurred.
11. Sections 8.5.2 and 8.5.3 - Additional requirements:
    a. The air control setting must be at the full open setting for the high fire test.
    b. Photos must be taken of the air control set point for each test run and provided in the test report.
    c. Follow owner's manual on how to properly operate the secondary air control.
12. Sections 8.6.7 through 8.7.1.2 - Additional requirements:
    a. The low fire air control setting must be the lowest setting at which the user can operate

the unit. The test report and the user manual must illustrate where that position is.

b. Photos must be taken of the air control set point for each test run and provided in the test report.
c. Follow the Owner's Manual on how to properly operate the secondary air control.
d. The manual blower of the Bistro Series is operated manually. The manual blower must be operated on its highest setting and engaged as soon as the combustion air control adjustment period has elapsed.

13. Sections 8.6.7 through 8.8.1.3 - Additional requirements and modification of requirements:
    a. The medium fire test combustion air control setting must be set halfway between the lowest and the highest primary air control settings as measured on the control actuator (lever, knob, etc.).
    b. Photos must be taken of the air control set point for each test run and provided in the test report.
    c. Follow the Owner's Manual instructions on how to properly operate the secondary air control.
    d. The provisions that would require retesting of the medium fire test category per section 8.8.1 do not apply.
    e. The manual blower of the Bistro Series is operated manually. The manual blower must be operated on its highest setting and engaged as soon as the combustion air control adjustment period has elapsed.
14. Sections 3.2.10 through 3.2.11 - Additional requirements:
    a. The manufacturer is allowed to provide written instructions to the lab related to the kindling and start-up (top-down or bottom-up light off), the type of fuel they wish to use for the test, the air control settings for the medium burn, information related to usable firebox dimensions, position of the load door during kindling/startup, high, low and medium fire loading, appliance set-up, and appliance venting. Details on general appliance operation are allowed to be provided but are not allowed to override any specifications in this alternative method approval.
    b. Certification testing procedures must be consistent with the Owner's Manual and the manufacturer's written instructions to the lab.
    c. All fuel loading and door closing procedures as instructed to the test lab must be included in the operating manual.
15. Sections 8.2.7 through 8.6.9.1 - Additional requirements:
    a. Clear and representative (close-up) photos must be in the report (no photos from across the room or signs that are illegible).
    b. Take a close-up photo of the collective fuel load cross section and provide this photo in the test report.
    c. Photo of the complete test installation including venting, front view of stove, rear view of stove and side view of stove.
    d. Photo of the empty firebox.
    e. Photo of kindling and start-up before it is placed in the firebox.
    f. Photo of kindling and start-up fuel in firebox before ignition.
    g. Photo of residual start-up fuel bed before and after raking.

h. Photo of test fuel load before it is placed in firebox.
i. Photo of residual fuel bed before and after raking (after high fire test).
j. If there are fuel adjustments, provide a description and a before and after photo.
k. Photos must be taken of the air control set point for each test run and provided in the test report.

16. Rounding convention - Additional requirements:
    a. Follow Technical Information Document 024 - Memo on Rounding and Significant Figures for rounding conventions: https://www.epa.gov/emc/technical-information-document-024-memo-rounding-and-significant-figures
17. Coal Bed Conditions – Modification of requirement:
    a. Coal bed conditions prior to loading test fuel. The coal bed shall be a level plane without valleys or ridges for all test runs in the high, low, and medium burn rate categories.

Based on the information provided, and with the modifications and caveats set forth below, we are approving your request to use a modified version of ASTM E2515-11 when conducting PM emission sampling as required by 40 CFR 60.534(c) including an alternative sampling procedure when conducting first hour PM emission sampling as required by 40 CFR 60.534(d).

When using ASTM E2515-11 to conduct PM sampling as required by 60.534(c), these changes and modifications must be made:

1. Section 9.2.2 - Modification of requirement:
    a. Tunnel flow rate must be sufficient to maintain tunnel temperature below 125 °F (maximum) and 104 °F on a 10-minute rolling average, excluding periods when the appliance door is open. Two exceedances are allowed of the 10-minute rolling average points in each test run. The tunnel relative humidity must be below 90% humidity at 90°F (ASTM E2515-11 maximum filter temperature) based on 1-minute data excluding periods when the appliance door is open.
        i. Optionally, real-time tunnel dewpoint temperature measurements recorded at a minimum rate of one reading per minute can be made to override the maximum tunnel temperature requirement. Dewpoint temperature measurements in the dilution tunnel must be below the ASTM E2515-11 filter temperature.
        ii. As an alternative to 1.a.i, the tunnel relative humidity may be measured using a psychrometer to measure the wet bulb temperature in the dilution tunnel. These measurements must be taken and recorded, at a minimum of every 2 minutes. ASTM E0377-15 Standard Test Method for Measuring Humidity with a Psychrometer (the Measurement of Wet- and Dry- Bulb Temperatures) may be followed for these purposes.
    b. With respect to the last sentence in section 9.2.2, you shall exclude the following requirement “The maximum tunnel flow rate shall not exceed five times the minimum flow rate determined as shown in 9.2.4.”
2. Sections 10.2.1 and 11.7 - Additional requirements:

a. The filter temperature must be maintained between 80 and 90 °F during testing.
b. Filters must be weighed in pairs to reduce weighing error propagation; see ASTM 2515-11, section 10.2.1 Analytical Procedure. The gravimetric analysis must be done with each pair of filters, pre and post testing.
c. Sample filters must be Pall TX-40 or equivalent Teflon-coated glass fiber, and of 47 mm, 90 mm, 100 mm, or 110 mm in diameter.
d. Only one point is allowed outside the ± 10 percent proportionality range per test run.
e. Non-desiccated post-test filter weights must be taken within an hour after the post-test leak check. These initial weights must be included in the test report.
f. Oven drying desiccation is not allowed.
g. Dual train comparison (precision) must be calculated in terms of percent difference between the two sample trains and in terms of calculated emissions difference on a g/kg basis.
h. Negative filter weights must be discussed in the test report. Where negative mass (i.e., filter material left on O-rings and gaskets) is subtracted from the overall PM mass, the resultant PM mass must be reported with the mass subtracted and with the mass not subtracted for comparison purposes.

3. Sections 9.5.2 through 11.4.2 - Additional requirement:
    a. Ambient background sampling and filter collection must be conducted per ASTM E2515-11, section 4.3 and all other method specific room air sampling requirements.
4. Sections 9.6.4 through 9.6.5.1 - Additional requirement:
    a. Particulate matter emission concentrations must be measured with ASTM E2515-11 with the following exceptions, eliminate section 9.6.5.1 of ASTM E2515-11 and perform the post-test leak checks as specified below:
        i. Post-Test Leak Check: A leak check of each sampling train is mandatory at the conclusion of each sampling run before sample recovery. The leak check must be performed in accordance with the procedures of ASTM E2515-11, section 9.6.4.1, except that it must be conducted at a vacuum equal to or greater than the maximum value reached during the sampling run. If the leakage rate is found to be no greater than 0.0003 m^3/min (0.01 cfm) or 4% of the average sampling rate (whichever is less), the leak check results are acceptable. If a higher leakage rate is obtained, the sampling run is invalid.
    b. Additionally, if a component change of either sampling train is needed during sampling, then perform the leak check specified below:
        i. Leak Checks During Sample Run: If, during a sampling run, a component (e.g., filter assembly) change becomes necessary, a leak check must be conducted immediately before the change is made. The leak check must be done according to the procedure outlined in ASTM E2515-11, section 9.6.4.1, except that it must be done at a vacuum equal to or greater than the maximum value recorded up to that point in the sampling run. If the leakage rate is found to be no greater than 0.0003 m^3/min (0.01 cfm) or 4% of the average sampling rate (whichever is less), the leak check results are acceptable. If a higher leakage rate is obtained, the sampling run is invalid.

c. NOTE: Immediately after component changes, leak checks are optional but highly recommended. If such leak checks are done, the post-test leak check procedure referenced above shall be used.

When using ASTM E2515-11 to conduct first hour PM sampling as required by 60.534(d), these changes and modifications must be made:

1. To conduct the alternative sampling procedure to determine the first hour PM emissions as required by 60.534(d), the manufacturer and approved test laboratory must measure the first hour of PM emissions for each test run by sampling with a third, identical and independent sampling train operated concurrently for the first hour of PM paired train compliance testing. The manufacturer and approved test laboratory must report the test results from this third train separately as the first hour emissions. Filters must be recovered and weighed as a paired set.

All other requirements of ASTM E3053-18 and ASTM E2515-11 must be followed during the testing, and all requirements of 40 CFR part 60, Subpart AAA must be satisfied as described in your test report. This approval is based on the understanding that the lowest heat output (Btu/hr) setting on the SBI Bistro Series room heater available to the user will correspond to the lowest burn rate to be evaluated during certification testing and the test report will reflect that the certification testing was conducted as such. This is consistent with section 60.534(a)(1) of Subpart AAA, which states, "the burn rate for the low burn category must be no greater than the rate that an operator can achieve in home use and no greater than is advertised by the manufacturer or retailer."

A copy of this letter must be included in the certification test report where this alternative test method determination is utilized.

If you have additional questions regarding this approval, please contact Angelina Brashear of my staff at 919-541-4746 or *brashear.angelina@epa.gov.*

Sincerely,

Steffan M Johnson

Steffan M. Johnson
Group Leader
Measurement Technology Group

cc: Angelina Brashear – EPA/OAQPS/AQAD
Shannon Banner – EPA/OAQPS/SPPD
Rafael Sanchez – EPA/OECA
Bill Schrock - EPA/OAQPS/SPPD
Robert Scinta – EPA/OECA
Michael Toney – EPA/OAQPS/AQAD
Mark Turner – EPA/OAQPS/SPPD
Chet Wayland – EPA/OAQPS/AQAD

WOOD HEATER TESTING SUMMARY

SECTION 1 – Model Identification	
Model Name(s)/Number(s)	Bistro
Manufacturer	SBI
Address 1	250 rue de Copenhauge
Address 2	St-Augustin-de-Desmaures, QC G3A 2H3
Appliance Category(s) (Free-standing, Insert, etc.)	Free-Standing
Usable Firebox Volume - ft^3	1.94
Catalytic/Non-Cat	Non-Cat
Convection Air Fan (No, Standard, Optional)	Standard
SECTION 1B – Laboratory Information	
Testing Laboratory	PFS-TECO
Address 1	11785 SE Hwy 212 Ste 305
Address 2	Clackamas, OR 97015
ISO/Accreditation Info	ISO 17025
Dates Tested	
Test Methods/Standards	ASTM E3053 (USING EPA ATM), ASTM E2515
Dilution Tunnel Inside Diameter - in.	8.00
Filter Diameter - mm	47
Filter Material	Pall Type TX40

SECTION 2 – Test Conditions Summary

Test Run #	1	2	3	4
Date Tested	6/6/2022	6/6/2022	6/7/2022	6/7/2022
Test Run Category (L, M, H)	High Fire	Medium Fire	High Fire	Low Fire
Average Barometric Pressure - in Hg	30.03	30.02	29.96	29.88
Max. Observed Ambient Temp - °F	86	89	86	90
Min. Observed Ambient Temp - °F	74	80	74	76
Max. Observed Filter Temp - °F	87	88	88	87
Test Fuel Load				
Cordwood Fuel Species	Beech	Beech	Beech	Beech
Specific Gravity (from Table 1)	0.67	0.67	0.67	0.67
Higher Heating Value - Btu/lb (from Annex A1)	8088	8088	8088	8088
Nom. Test Fuel Load Piece Length - in.	17	17	17	17
Number of Test Fuel Pieces	5	5	5	5
Test Fuel Weight				
Kindling - As Fired lb	3.66	N/A	3.82	N/A
Kindling Wt. - As % of Test Fuel Load	19%	N/A	20%	N/A
Kindling Moisture - % DB	10%	N/A	10%	N/A
Kindling - kg DB	1.51	N/A	1.58	N/A
SU Fuel - As Fired lb	5.47	N/A	574%	N/A
SU Fuel Wt. - As % of Test Fuel Load	29%	N/A	30%	N/A
SU Fuel Moisture - % DB	23%	N/A	21%	N/A
SU Fuel - kg DB	2.02	N/A	2.15	N/A
Test Fuel Load - As Fired lb	19.11	22.97	19.14	22.63
Ave. Test Fuel Load MC % DB	20.1%	20.2%	21.1%	21.2%
Test Fuel Load - kg DB	7.22	8.67	7.17	8.47
Test Fuel Loading Density - lb/ft3	9.85	11.84	9.87	11.66
Residual SU Fuel Wt. - As Fired lb	2.40	N/A	240%	N/A
Residual SU Fuel Wt. - As % of Test Fuel Load	13%	N/A	13%	N/A
Test Run Duration - minutes	159	388	160	490
Test Run Duration - h	2.65	6.47	2.67	8.17
Run Duration of High Fire Load Only - minutes	104	N/A	115	N/A
Run Duration of High Fire Load Only - h	1.73	N/A	1.92	N/A
Test Fuel Load Wt. at End of Test - As Fired lb	2.0	0	2	0
Total Fuel Burned - kg DB	8.76	8.67	8.90	8.47
% Test Fuel Load Wt. at End of Test	10.5%	0.0%	10.4%	0.0%

SECTION 3 – Test Run Results Summary

Test Run #	1	2	3	4
Date Tested	6/6/22	6/6/22	6/7/22	6/7/22
Test Run Category	High Fire	Medium Fire	High Fire	Low Fire
Burn Rate - kg/h DB	3.64	1.34	3.27	1.04
Heat Output - Btu/h	50,191	17,925	44,416	14,314
Average Dilution Tunnel Flow Rate - dscfm	549.22	550.70	545.03	552.37
Average Sample Flow Rates - dscfm				
Train 1	0.178	0.192	0.173	0.196
Train 2	0.180	0.196	0.174	0.200
Total PM Emissions - g				
Train 1	7.96	13.72	13.13	8.19
Train 2	8.14	13.41	11.74	8.26
Average	8.047	13.568	12.432	8.229
PM Emission Train Precision - %	1.1%	1.1%	5.6%	0.4%
PM Emission Train Precision - g/kg	0.01	0.02	0.08	0.00
PM Emission Rate - g/h	3.04	2.10	4.66	1.01
Total CO Emissions - g	123	387	148	417.1
CO Emissions Rate - g/h	71	60	77	51
Overall Efficiency - CSA B415.1-10				
% HHV Basis	75%	75%	74%	77%
% LHV Basis	81%	80%	80%	83%

SECTION 4 - Weighted Average Summary

Test Run Category	High Fire	Medium Fire	High Fire	Low Fire	Avg. High Fire
Burn Rate - kg/h DB	3.64	1.34	3.27	1.04	3.45
PM Emission Rate - g/h	3.04	2.10	4.66	1.01	3.85
CO Emissions Rate - g/h	71.2	59.9	77.1	51.1	74.2
Overall Efficiency - CSA B415.1-10					
% HHV Basis	75%	75%	74%	77%	75%
% LHV Basis	81%	80%	80%	83%	80%
Heat Output - Btu/h	50200	17900	44400	14300	47300
Category Weighting		40%		40%	20%

ASTM E 3053 Weighted Averages			
PM Emission Rate - g/h	2.0		
CO Emissions Rate - g/h (Arithmetic Avg)	62		
CO Emissions Rate - g/min (Arithmetic Avg)	1.0		
Overall Efficiency - CSA B415.1-10			
% HHV Basis	76%		
% LHV Basis	81%		
Heat Output Range - Btu/h	14300	to	47300

SBI Fabricant de poêles international inc. Stove Builder International inc.

Unit preburn period

Total preburning time (h)	51.43

Model tested: Bistro

Identification number: QC20220115BISTRO

Date	Burn cycle	Test run (#)	Duration (min)	Av. Flue (°F)	Load type (-)	Fuel added (lbs)	Moisture (DB%)
2022-06-02	Preload	NA	41	325	Kindling & SUF	9.31	14.8
	Condition		125	489	High fire	18.74	19.1
	Load		522	242	Low fire	22.74	19.5
2022-06-01	Preload	NA	46	338	Kindling & SUF	9.51	14.55
	Condition		121	509	High fire	19.11	19.30
	Load		456	289	Medium fire	22.43	20.00
2022-05-31	Preload	NA	54	316	Kindling & SUF	9.88	14.60
	Condition		136	488	High fire	20.16	19.40
	Load		385	329	Medium fire	23.02	19.80
2022-05-25	Preload	NA	41	352	Kindling & SUF	9.92	14.70
	Condition		126	512	High fire	20.10	19.30
	Load		368	334	Medium fire	22.72	19.50
2022-05-24	Preload	NA	37	365	Kindling & SUF	9.76	14.75
	Condition		118	524	High fire	19.69	19.70
	Load		510	264	Low fire	23.74	19.10

Bistro Pre-burn Data		2022-06-02		Total time (h)	11.47			
Wood Specie:	Beech							
Load time	Load type	Fuel added	Moisture	Piece amount	Length of fuel		Time	Flue Temp
(-)	(-)	(lbs)	(DB %)	(-)	(in.)		(min)	(°F)
2022-06-02 10:45	Kindling & SUF	9.31	14.75	25	17.0	Pre-Charge (min)	41	325.1
2022-06-02 11:27	High fire	18.74	19.1	5	17.0	Conditioning (min)	125	489.3
2022-06-02 13:32	Low fire	22.74	19.5	5	17.0	Load (min)	522	242.2

	Average Tflue (°F)	325.1		489.3		242.2
	Pre-Charge (min)	41	Conditioning (min)	125	Load (min)	522
Air control position	Full open		Full open		Fully closed	
Index	Date & Time	Flue (F)	Date & Time	Flue (F)	Date & Time	Flue (F)
1	2022-06-02 10:45	102.4	2022-06-02 11:27	513.0	2022-06-02 13:32	391.0
2	2022-06-02 10:46	129.5	2022-06-02 11:28	520.2	2022-06-02 13:33	371.7
3	2022-06-02 10:47	124.7	2022-06-02 11:29	520.2	2022-06-02 13:34	372.5
4	2022-06-02 10:48	124.9	2022-06-02 11:30	527.8	2022-06-02 13:35	407.3
5	2022-06-02 10:49	133.4	2022-06-02 11:31	524.3	2022-06-02 13:36	398.4
6	2022-06-02 10:50	145.2	2022-06-02 11:32	518.9	2022-06-02 13:37	414.6
7	2022-06-02 10:51	153.1	2022-06-02 11:33	516.6	2022-06-02 13:38	405.5
8	2022-06-02 10:52	156.7	2022-06-02 11:34	513.2	2022-06-02 13:39	399.7
9	2022-06-02 10:53	165.7	2022-06-02 11:35	511.3	2022-06-02 13:40	401.0
10	2022-06-02 10:54	184.7	2022-06-02 11:36	509.1	2022-06-02 13:41	406.9
11	2022-06-02 10:55	207.2	2022-06-02 11:37	508.7	2022-06-02 13:42	412.1
12	2022-06-02 10:56	225.2	2022-06-02 11:38	507.4	2022-06-02 13:43	409.3
13	2022-06-02 10:57	236.3	2022-06-02 11:39	507.5	2022-06-02 13:44	399.7
14	2022-06-02 10:58	249.5	2022-06-02 11:40	508.2	2022-06-02 13:45	385.8
15	2022-06-02 10:59	268.2	2022-06-02 11:41	507.8	2022-06-02 13:46	375.6
16	2022-06-02 11:00	281.4	2022-06-02 11:42	507.7	2022-06-02 13:47	370.3
17	2022-06-02 11:01	290.1	2022-06-02 11:43	507.6	2022-06-02 13:48	366.9
18	2022-06-02 11:02	288.7	2022-06-02 11:44	508.1	2022-06-02 13:49	365.2
19	2022-06-02 11:03	293.8	2022-06-02 11:45	508.7	2022-06-02 13:50	365.0
20	2022-06-02 11:04	362.3	2022-06-02 11:46	511.0	2022-06-02 13:51	366.1
21	2022-06-02 11:05	351.1	2022-06-02 11:47	512.6	2022-06-02 13:52	368.4
22	2022-06-02 11:06	359.0	2022-06-02 11:48	512.1	2022-06-02 13:53	369.1
23	2022-06-02 11:07	378.2	2022-06-02 11:49	512.1	2022-06-02 13:54	369.3
24	2022-06-02 11:08	388.9	2022-06-02 11:50	511.5	2022-06-02 13:55	371.1
25	2022-06-02 11:09	401.4	2022-06-02 11:51	512.8	2022-06-02 13:56	371.9
26	2022-06-02 11:10	411.4	2022-06-02 11:52	512.2	2022-06-02 13:57	377.2
27	2022-06-02 11:11	418.6	2022-06-02 11:53	511.6	2022-06-02 13:58	379.6
28	2022-06-02 11:12	425.4	2022-06-02 11:54	511.1	2022-06-02 13:59	378.5
29	2022-06-02 11:13	435.1	2022-06-02 11:55	510.8	2022-06-02 14:00	377.0
30	2022-06-02 11:14	442.0	2022-06-02 11:56	510.7	2022-06-02 14:01	374.7
31	2022-06-02 11:15	451.1	2022-06-02 11:57	511.2	2022-06-02 14:02	372.1
32	2022-06-02 11:16	461.4	2022-06-02 11:58	512.0	2022-06-02 14:03	369.4
33	2022-06-02 11:17	463.4	2022-06-02 11:59	513.1	2022-06-02 14:04	367.8
34	2022-06-02 11:18	460.8	2022-06-02 12:00	513.4	2022-06-02 14:05	367.3
35	2022-06-02 11:19	459.6	2022-06-02 12:01	514.4	2022-06-02 14:06	366.6
36	2022-06-02 11:20	456.5	2022-06-02 12:02	516.1	2022-06-02 14:07	367.0
37	2022-06-02 11:21	457.5	2022-06-02 12:03	518.3	2022-06-02 14:08	368.1
38	2022-06-02 11:22	460.0	2022-06-02 12:04	522.3	2022-06-02 14:09	369.3
39	2022-06-02 11:23	461.7	2022-06-02 12:05	523.9	2022-06-02 14:10	371.4
40	2022-06-02 11:24	461.2	2022-06-02 12:06	525.5	2022-06-02 14:11	371.5
41	2022-06-02 11:25	463.0	2022-06-02 12:07	526.1	2022-06-02 14:12	373.2
42	2022-06-02 11:26	463.9	2022-06-02 12:08	528.5	2022-06-02 14:13	375.0
43			2022-06-02 12:09	530.2	2022-06-02 14:14	376.7
44			2022-06-02 12:10	532.7	2022-06-02 14:15	379.9
45			2022-06-02 12:11	537.2	2022-06-02 14:16	381.7
46			2022-06-02 12:12	539.2	2022-06-02 14:17	383.8
47			2022-06-02 12:13	542.7	2022-06-02 14:18	384.2
48			2022-06-02 12:14	543.1	2022-06-02 14:19	384.5
49			2022-06-02 12:15	545.2	2022-06-02 14:20	384.8
50			2022-06-02 12:16	546.1	2022-06-02 14:21	385.0
51			2022-06-02 12:17	546.8	2022-06-02 14:22	385.6
52			2022-06-02 12:18	547.7	2022-06-02 14:23	385.2
53			2022-06-02 12:19	548.7	2022-06-02 14:24	386.0
54			2022-06-02 12:20	549.2	2022-06-02 14:25	386.3
55			2022-06-02 12:21	549.3	2022-06-02 14:26	386.2
56			2022-06-02 12:22	549.3	2022-06-02 14:27	386.8
57			2022-06-02 12:23	549.8	2022-06-02 14:28	387.9
58			2022-06-02 12:24	551.5	2022-06-02 14:29	389.2
59			2022-06-02 12:25	553.2	2022-06-02 14:30	389.1
60			2022-06-02 12:26	552.9	2022-06-02 14:31	388.3
61			2022-06-02 12:27	552.3	2022-06-02 14:32	386.6
62			2022-06-02 12:28	551.5	2022-06-02 14:33	385.4
63			2022-06-02 12:29	551.5	2022-06-02 14:34	385.2
64			2022-06-02 12:30	552.4	2022-06-02 14:35	384.7
65			2022-06-02 12:31	552.3	2022-06-02 14:36	384.4
66			2022-06-02 12:32	553.2	2022-06-02 14:37	384.8
67			2022-06-02 12:33	551.2	2022-06-02 14:38	382.8

68			2022-06-02 12:34	549.4	2022-06-02 14:39	381.7
69			2022-06-02 12:35	544.0	2022-06-02 14:40	382.6
70			2022-06-02 12:36	537.7	2022-06-02 14:41	382.1
71			2022-06-02 12:37	533.6	2022-06-02 14:42	381.8
72			2022-06-02 12:38	528.7	2022-06-02 14:43	381.5
73			2022-06-02 12:39	523.3	2022-06-02 14:44	380.9
74			2022-06-02 12:40	517.5	2022-06-02 14:45	380.4
75			2022-06-02 12:41	511.3	2022-06-02 14:46	380.7
76			2022-06-02 12:42	508.9	2022-06-02 14:47	381.0
77			2022-06-02 12:43	503.7	2022-06-02 14:48	380.6
78			2022-06-02 12:44	498.6	2022-06-02 14:49	378.9
79			2022-06-02 12:45	493.9	2022-06-02 14:50	379.9
80			2022-06-02 12:46	489.9	2022-06-02 14:51	380.1
81			2022-06-02 12:47	485.8	2022-06-02 14:52	380.5
82			2022-06-02 12:48	480.9	2022-06-02 14:53	380.9
83			2022-06-02 12:49	478.9	2022-06-02 14:54	381.5
84			2022-06-02 12:50	475.3	2022-06-02 14:55	381.5
85			2022-06-02 12:51	472.6	2022-06-02 14:56	382.2
86			2022-06-02 12:52	469.1	2022-06-02 14:57	382.3
87			2022-06-02 12:53	467.2	2022-06-02 14:58	382.4
88			2022-06-02 12:54	464.1	2022-06-02 14:59	382.4
89			2022-06-02 12:55	461.0	2022-06-02 15:00	382.1
90			2022-06-02 12:56	457.1	2022-06-02 15:01	380.7
91			2022-06-02 12:57	454.5	2022-06-02 15:02	381.2
92			2022-06-02 12:58	451.3	2022-06-02 15:03	381.1
93			2022-06-02 12:59	448.2	2022-06-02 15:04	380.4
94			2022-06-02 13:00	445.3	2022-06-02 15:05	379.7
95			2022-06-02 13:01	443.1	2022-06-02 15:06	378.0
96			2022-06-02 13:02	440.6	2022-06-02 15:07	378.0
97			2022-06-02 13:03	438.2	2022-06-02 15:08	377.4
98			2022-06-02 13:04	435.3	2022-06-02 15:09	376.6
99			2022-06-02 13:05	432.3	2022-06-02 15:10	375.8
100			2022-06-02 13:06	429.7	2022-06-02 15:11	374.4
101			2022-06-02 13:07	428.2	2022-06-02 15:12	374.8
102			2022-06-02 13:08	425.2	2022-06-02 15:13	375.5
103			2022-06-02 13:09	423.0	2022-06-02 15:14	372.6
104			2022-06-02 13:10	421.3	2022-06-02 15:15	370.4
105			2022-06-02 13:11	418.9	2022-06-02 15:16	368.7
106			2022-06-02 13:12	415.8	2022-06-02 15:17	365.8
107			2022-06-02 13:13	414.4	2022-06-02 15:18	363.3
108			2022-06-02 13:14	412.5	2022-06-02 15:19	359.5
109			2022-06-02 13:15	410.4	2022-06-02 15:20	356.1
110			2022-06-02 13:16	408.5	2022-06-02 15:21	353.4
111			2022-06-02 13:17	407.7	2022-06-02 15:22	351.6
112			2022-06-02 13:18	405.6	2022-06-02 15:23	352.4
113			2022-06-02 13:19	403.5	2022-06-02 15:24	355.7
114			2022-06-02 13:20	402.1	2022-06-02 15:25	353.9
115			2022-06-02 13:21	400.5	2022-06-02 15:26	350.2
116			2022-06-02 13:22	399.5	2022-06-02 15:27	346.9
117			2022-06-02 13:23	398.1	2022-06-02 15:28	343.5
118			2022-06-02 13:24	397.1	2022-06-02 15:29	341.0
119			2022-06-02 13:25	394.7	2022-06-02 15:30	338.5
120			2022-06-02 13:26	392.0	2022-06-02 15:31	336.0
121			2022-06-02 13:27	390.0	2022-06-02 15:32	333.4
122			2022-06-02 13:28	388.1	2022-06-02 15:33	331.0
123			2022-06-02 13:29	386.2	2022-06-02 15:34	328.8
124			2022-06-02 13:30	384.4	2022-06-02 15:35	326.4
125			2022-06-02 13:31	381.5	2022-06-02 15:36	323.6
126			2022-06-02 13:32	394.4	2022-06-02 15:37	320.8
127					2022-06-02 15:38	318.2
128					2022-06-02 15:39	314.9
129					2022-06-02 15:40	312.5
130					2022-06-02 15:41	310.5
131					2022-06-02 15:42	308.3
132					2022-06-02 15:43	306.1
133					2022-06-02 15:44	303.6
134					2022-06-02 15:45	301.3
135					2022-06-02 15:46	298.3
136					2022-06-02 15:47	296.4
137					2022-06-02 15:48	294.2
138					2022-06-02 15:49	292.4
139					2022-06-02 15:50	290.2
140					2022-06-02 15:51	288.4
141					2022-06-02 15:52	286.3
142					2022-06-02 15:53	284.1
143					2022-06-02 15:54	282.2
144					2022-06-02 15:55	280.3
145					2022-06-02 15:56	279.0
146					2022-06-02 15:57	276.7
147					2022-06-02 15:58	275.5

148					2022-06-02 15:59	273.3
149					2022-06-02 16:00	272.0
150					2022-06-02 16:01	270.3
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152					2022-06-02 16:03	267.1
153					2022-06-02 16:04	264.8
154					2022-06-02 16:05	263.8
155					2022-06-02 16:06	262.1
156					2022-06-02 16:07	261.2
157					2022-06-02 16:08	259.9
158					2022-06-02 16:09	258.4
159					2022-06-02 16:10	257.5
160					2022-06-02 16:11	255.9
161					2022-06-02 16:12	255.2
162					2022-06-02 16:13	253.7
163					2022-06-02 16:14	252.3
164					2022-06-02 16:15	251.5
165					2022-06-02 16:16	250.4
166					2022-06-02 16:17	249.0
167					2022-06-02 16:18	248.1
168					2022-06-02 16:19	246.9
169					2022-06-02 16:20	246.0
170					2022-06-02 16:21	245.0
171					2022-06-02 16:22	243.8
172					2022-06-02 16:23	242.8
173					2022-06-02 16:24	242.0
174					2022-06-02 16:25	241.0
175					2022-06-02 16:26	240.1
176					2022-06-02 16:27	239.0
177					2022-06-02 16:28	237.9
178					2022-06-02 16:29	237.3
179					2022-06-02 16:30	236.3
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182					2022-06-02 16:33	233.9
183					2022-06-02 16:34	233.3
184					2022-06-02 16:35	232.3
185					2022-06-02 16:36	231.7
186					2022-06-02 16:37	230.7
187					2022-06-02 16:38	230.1
188					2022-06-02 16:39	229.5
189					2022-06-02 16:40	228.8
190					2022-06-02 16:41	228.3
191					2022-06-02 16:42	227.6
192					2022-06-02 16:43	226.8
193					2022-06-02 16:44	226.0
194					2022-06-02 16:45	225.2
195					2022-06-02 16:46	224.4
196					2022-06-02 16:47	224.0
197					2022-06-02 16:48	223.5
198					2022-06-02 16:49	222.8
199					2022-06-02 16:50	222.3
200					2022-06-02 16:51	221.8
201					2022-06-02 16:52	221.4
202					2022-06-02 16:53	220.8
203					2022-06-02 16:54	220.0
204					2022-06-02 16:55	219.5
205					2022-06-02 16:56	219.0
206					2022-06-02 16:57	218.6
207					2022-06-02 16:58	218.3
208					2022-06-02 16:59	217.8
209					2022-06-02 17:00	217.4
210					2022-06-02 17:01	217.1
211					2022-06-02 17:02	216.5
212					2022-06-02 17:03	215.8
213					2022-06-02 17:04	215.4
214					2022-06-02 17:05	214.9
215					2022-06-02 17:06	214.3
216					2022-06-02 17:07	214.0
217					2022-06-02 17:08	213.6
218					2022-06-02 17:09	213.2
219					2022-06-02 17:10	213.1
220					2022-06-02 17:11	212.4
221					2022-06-02 17:12	212.4
222					2022-06-02 17:13	212.1
223					2022-06-02 17:14	211.8
224					2022-06-02 17:15	211.0
225					2022-06-02 17:16	210.8
226					2022-06-02 17:17	210.3
227					2022-06-02 17:18	210.0

228					2022-06-02 17:19	209.7
229					2022-06-02 17:20	209.4
230					2022-06-02 17:21	209.2
231					2022-06-02 17:22	208.9
232					2022-06-02 17:23	208.6
233					2022-06-02 17:24	208.3
234					2022-06-02 17:25	208.1
235					2022-06-02 17:26	207.5
236					2022-06-02 17:27	207.7
237					2022-06-02 17:28	207.2
238					2022-06-02 17:29	206.6
239					2022-06-02 17:30	206.4
240					2022-06-02 17:31	206.0
241					2022-06-02 17:32	206.1
242					2022-06-02 17:33	205.5
243					2022-06-02 17:34	205.0
244					2022-06-02 17:35	204.7
245					2022-06-02 17:36	204.6
246					2022-06-02 17:37	204.4
247					2022-06-02 17:38	204.2
248					2022-06-02 17:39	204.0
249					2022-06-02 17:40	203.6
250					2022-06-02 17:41	203.3
251					2022-06-02 17:42	203.2
252					2022-06-02 17:43	202.9
253					2022-06-02 17:44	202.7
254					2022-06-02 17:45	202.5
255					2022-06-02 17:46	202.2
256					2022-06-02 17:47	202.1
257					2022-06-02 17:48	201.9
258					2022-06-02 17:49	201.7
259					2022-06-02 17:50	201.5
260					2022-06-02 17:51	201.4
261					2022-06-02 17:52	201.0
262					2022-06-02 17:53	200.7
263					2022-06-02 17:54	200.6
264					2022-06-02 17:55	200.1
265					2022-06-02 17:56	199.9
266					2022-06-02 17:57	199.8
267					2022-06-02 17:58	199.8
268					2022-06-02 17:59	199.6
269					2022-06-02 18:00	199.5
270					2022-06-02 18:01	199.3
271					2022-06-02 18:02	199.1
272					2022-06-02 18:03	198.9
273					2022-06-02 18:04	198.5
274					2022-06-02 18:05	198.6
275					2022-06-02 18:06	198.2
276					2022-06-02 18:07	198.3
277					2022-06-02 18:08	198.0
278					2022-06-02 18:09	197.9
279					2022-06-02 18:10	197.5
280					2022-06-02 18:11	197.3
281					2022-06-02 18:12	197.5
282					2022-06-02 18:13	197.4
283					2022-06-02 18:14	197.5
284					2022-06-02 18:15	197.0
285					2022-06-02 18:16	196.9
286					2022-06-02 18:17	196.7
287					2022-06-02 18:18	196.8
288					2022-06-02 18:19	196.5
289					2022-06-02 18:20	196.2
290					2022-06-02 18:21	196.3
291					2022-06-02 18:22	195.7
292					2022-06-02 18:23	195.7
293					2022-06-02 18:24	195.8
294					2022-06-02 18:25	195.5
295					2022-06-02 18:26	195.5
296					2022-06-02 18:27	195.6
297					2022-06-02 18:28	195.5
298					2022-06-02 18:29	195.4
299					2022-06-02 18:30	195.3
300					2022-06-02 18:31	195.1
301					2022-06-02 18:32	195.1
302					2022-06-02 18:33	194.9
303					2022-06-02 18:34	194.9
304					2022-06-02 18:35	194.7
305					2022-06-02 18:36	194.6
306					2022-06-02 18:37	194.5
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321					2022-06-02 18:52	193.2
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324					2022-06-02 18:55	193.3
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387					2022-06-02 19:58	188.2

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411					2022-06-02 20:22	183.4
412					2022-06-02 20:23	183.1
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513					2022-06-02 22:04	153.8
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520					2022-06-02 22:11	151.9
521					2022-06-02 22:12	151.8
522					2022-06-02 22:13	151.5
523					2022-06-02 22:14	151.3

Bistro Pre-burn Data		2022-06-01		Total time (h)	10.38			
Wood Specie:	Beech							
Load time	Load type	Fuel added	Moisture	Piece amount	Length of fuel		Time	Flue Temp
(-)	(-)	(lbs)	(DB %)	(-)	(in.)		(min)	(°F)
2022-06-01 09:44	Kindling & SUF	9.51	14.55	26	17.0	Pre-Charge (min)	46	337.6
2022-06-01 10:31	High fire	19.11	19.3	5	17.0	Conditioning (min)	121	508.8
2022-06-01 12:32	Medium fire	22.43	20.0	5	17.0	Load (min)	456	289.1

	Average Tflue (°F)	337.6	[redacted]	508.8	[redacted]	289.1
	Pre-Charge (min)	46	Conditioning (min)	121	Load (min)	456
Air control position	Full open		Full open		Mid point	
Index	Date & Time	Flue (F)	Date & Time	Flue (F)	Date & Time	Flue (F)
0	2022-06-01 09:44	107.6	2022-06-01 10:31	512.2	2022-06-01 12:32	398.8
1	2022-06-01 09:45	115.2	2022-06-01 10:32	486.9	2022-06-01 12:33	365.3
2	2022-06-01 09:46	111.9	2022-06-01 10:33	501.5	2022-06-01 12:34	372.3
3	2022-06-01 09:47	118.9	2022-06-01 10:34	506.5	2022-06-01 12:35	399.3
4	2022-06-01 09:48	133.3	2022-06-01 10:35	508.1	2022-06-01 12:36	400.2
5	2022-06-01 09:49	148.5	2022-06-01 10:36	510.7	2022-06-01 12:37	408.5
6	2022-06-01 09:50	164.5	2022-06-01 10:37	511.2	2022-06-01 12:38	418.6
7	2022-06-01 09:51	186.3	2022-06-01 10:38	510.0	2022-06-01 12:39	424.4
8	2022-06-01 09:52	207.2	2022-06-01 10:39	509.8	2022-06-01 12:40	441.3
9	2022-06-01 09:53	237.4	2022-06-01 10:40	508.3	2022-06-01 12:41	446.2
10	2022-06-01 09:54	255.7	2022-06-01 10:41	506.1	2022-06-01 12:42	451.3
11	2022-06-01 09:55	272.6	2022-06-01 10:42	505.8	2022-06-01 12:43	457.4
12	2022-06-01 09:56	282.6	2022-06-01 10:43	503.7	2022-06-01 12:44	461.1
13	2022-06-01 09:57	284.6	2022-06-01 10:44	501.6	2022-06-01 12:45	466.4
14	2022-06-01 09:58	290.6	2022-06-01 10:45	501.9	2022-06-01 12:46	470.0
15	2022-06-01 09:59	298.4	2022-06-01 10:46	500.8	2022-06-01 12:47	473.5
16	2022-06-01 10:00	311.4	2022-06-01 10:47	501.2	2022-06-01 12:48	476.6
17	2022-06-01 10:01	318.6	2022-06-01 10:48	500.0	2022-06-01 12:49	480.2
18	2022-06-01 10:02	325.4	2022-06-01 10:49	499.0	2022-06-01 12:50	484.3
19	2022-06-01 10:03	336.2	2022-06-01 10:50	499.8	2022-06-01 12:51	490.3
20	2022-06-01 10:04	350.5	2022-06-01 10:51	499.9	2022-06-01 12:52	492.4
21	2022-06-01 10:05	355.0	2022-06-01 10:52	502.4	2022-06-01 12:53	493.9
22	2022-06-01 10:06	361.7	2022-06-01 10:53	504.4	2022-06-01 12:54	493.3
23	2022-06-01 10:07	374.6	2022-06-01 10:54	508.5	2022-06-01 12:55	495.3
24	2022-06-01 10:08	381.3	2022-06-01 10:55	509.8	2022-06-01 12:56	497.5
25	2022-06-01 10:09	386.5	2022-06-01 10:56	510.5	2022-06-01 12:57	501.1
26	2022-06-01 10:10	398.0	2022-06-01 10:57	510.7	2022-06-01 12:58	503.8
27	2022-06-01 10:11	399.9	2022-06-01 10:58	512.3	2022-06-01 12:59	506.7
28	2022-06-01 10:12	399.7	2022-06-01 10:59	515.3	2022-06-01 13:00	510.9
29	2022-06-01 10:13	403.3	2022-06-01 11:00	517.6	2022-06-01 13:01	512.9
30	2022-06-01 10:14	411.1	2022-06-01 11:01	519.0	2022-06-01 13:02	516.1
31	2022-06-01 10:15	415.5	2022-06-01 11:02	520.0	2022-06-01 13:03	517.5
32	2022-06-01 10:16	419.3	2022-06-01 11:03	520.2	2022-06-01 13:04	519.5
33	2022-06-01 10:17	429.4	2022-06-01 11:04	522.4	2022-06-01 13:05	521.5
34	2022-06-01 10:18	435.7	2022-06-01 11:05	530.7	2022-06-01 13:06	522.7
35	2022-06-01 10:19	438.4	2022-06-01 11:06	536.9	2022-06-01 13:07	523.8
36	2022-06-01 10:20	437.3	2022-06-01 11:07	546.0	2022-06-01 13:08	524.7
37	2022-06-01 10:21	440.3	2022-06-01 11:08	555.1	2022-06-01 13:09	526.6
38	2022-06-01 10:22	442.9	2022-06-01 11:09	561.3	2022-06-01 13:10	529.7
39	2022-06-01 10:23	441.7	2022-06-01 11:10	562.8	2022-06-01 13:11	530.2
40	2022-06-01 10:24	445.9	2022-06-01 11:11	566.2	2022-06-01 13:12	531.4
41	2022-06-01 10:25	447.6	2022-06-01 11:12	568.2	2022-06-01 13:13	532.2
42	2022-06-01 10:26	448.9	2022-06-01 11:13	570.7	2022-06-01 13:14	532.8
43	2022-06-01 10:27	453.3	2022-06-01 11:14	573.6	2022-06-01 13:15	532.7
44	2022-06-01 10:28	461.2	2022-06-01 11:15	573.5	2022-06-01 13:16	530.9
45	2022-06-01 10:29	465.1	2022-06-01 11:16	576.0	2022-06-01 13:17	530.6
46	2022-06-01 10:30	515.5	2022-06-01 11:17	578.6	2022-06-01 13:18	530.8
47			2022-06-01 11:18	580.7	2022-06-01 13:19	529.8
48			2022-06-01 11:19	582.6	2022-06-01 13:20	529.9
49			2022-06-01 11:20	583.1	2022-06-01 13:21	529.2
50			2022-06-01 11:21	583.4	2022-06-01 13:22	530.0
51			2022-06-01 11:22	582.8	2022-06-01 13:23	529.8
52			2022-06-01 11:23	582.3	2022-06-01 13:24	529.6
53			2022-06-01 11:24	580.8	2022-06-01 13:25	528.4
54			2022-06-01 11:25	581.0	2022-06-01 13:26	526.2
55			2022-06-01 11:26	581.3	2022-06-01 13:27	521.9
56			2022-06-01 11:27	581.3	2022-06-01 13:28	516.2
57			2022-06-01 11:28	581.5	2022-06-01 13:29	511.6
58			2022-06-01 11:29	579.6	2022-06-01 13:30	507.3
59			2022-06-01 11:30	579.7	2022-06-01 13:31	502.5
60			2022-06-01 11:31	581.0	2022-06-01 13:32	499.0
61			2022-06-01 11:32	582.1	2022-06-01 13:33	497.2
62			2022-06-01 11:33	581.4	2022-06-01 13:34	494.9
63			2022-06-01 11:34	582.2	2022-06-01 13:35	489.7
64			2022-06-01 11:35	581.7	2022-06-01 13:36	486.3
65			2022-06-01 11:36	581.0	2022-06-01 13:37	483.8
66			2022-06-01 11:37	578.9	2022-06-01 13:38	480.8

67			2022-06-01 11:38	576.5	2022-06-01 13:39	477.6
68			2022-06-01 11:39	573.8	2022-06-01 13:40	474.9
69			2022-06-01 11:40	569.6	2022-06-01 13:41	472.1
70			2022-06-01 11:41	566.5	2022-06-01 13:42	468.9
71			2022-06-01 11:42	562.9	2022-06-01 13:43	465.4
72			2022-06-01 11:43	558.3	2022-06-01 13:44	463.1
73			2022-06-01 11:44	555.3	2022-06-01 13:45	461.1
74			2022-06-01 11:45	551.2	2022-06-01 13:46	457.6
75			2022-06-01 11:46	547.4	2022-06-01 13:47	456.9
76			2022-06-01 11:47	544.7	2022-06-01 13:48	455.3
77			2022-06-01 11:48	542.4	2022-06-01 13:49	452.2
78			2022-06-01 11:49	538.0	2022-06-01 13:50	449.5
79			2022-06-01 11:50	532.5	2022-06-01 13:51	447.6
80			2022-06-01 11:51	527.0	2022-06-01 13:52	444.1
81			2022-06-01 11:52	521.1	2022-06-01 13:53	440.1
82			2022-06-01 11:53	518.1	2022-06-01 13:54	437.7
83			2022-06-01 11:54	515.1	2022-06-01 13:55	435.0
84			2022-06-01 11:55	509.3	2022-06-01 13:56	431.6
85			2022-06-01 11:56	502.8	2022-06-01 13:57	427.7
86			2022-06-01 11:57	496.6	2022-06-01 13:58	424.6
87			2022-06-01 11:58	492.6	2022-06-01 13:59	421.6
88			2022-06-01 11:59	487.9	2022-06-01 14:00	418.5
89			2022-06-01 12:00	484.1	2022-06-01 14:01	415.1
90			2022-06-01 12:01	480.3	2022-06-01 14:02	411.7
91			2022-06-01 12:02	475.9	2022-06-01 14:03	408.3
92			2022-06-01 12:03	472.1	2022-06-01 14:04	405.0
93			2022-06-01 12:04	467.9	2022-06-01 14:05	402.3
94			2022-06-01 12:05	464.6	2022-06-01 14:06	399.9
95			2022-06-01 12:06	461.0	2022-06-01 14:07	397.4
96			2022-06-01 12:07	456.4	2022-06-01 14:08	395.3
97			2022-06-01 12:08	451.8	2022-06-01 14:09	393.6
98			2022-06-01 12:09	447.3	2022-06-01 14:10	392.7
99			2022-06-01 12:10	443.8	2022-06-01 14:11	391.3
100			2022-06-01 12:11	439.0	2022-06-01 14:12	390.1
101			2022-06-01 12:12	435.7	2022-06-01 14:13	388.9
102			2022-06-01 12:13	433.0	2022-06-01 14:14	387.0
103			2022-06-01 12:14	429.7	2022-06-01 14:15	384.5
104			2022-06-01 12:15	425.9	2022-06-01 14:16	382.0
105			2022-06-01 12:16	423.1	2022-06-01 14:17	379.6
106			2022-06-01 12:17	420.4	2022-06-01 14:18	377.6
107			2022-06-01 12:18	417.2	2022-06-01 14:19	375.3
108			2022-06-01 12:19	413.9	2022-06-01 14:20	372.3
109			2022-06-01 12:20	411.4	2022-06-01 14:21	369.6
110			2022-06-01 12:21	408.2	2022-06-01 14:22	366.6
111			2022-06-01 12:22	405.9	2022-06-01 14:23	363.8
112			2022-06-01 12:23	402.2	2022-06-01 14:24	361.6
113			2022-06-01 12:24	400.2	2022-06-01 14:25	359.2
114			2022-06-01 12:25	397.4	2022-06-01 14:26	356.3
115			2022-06-01 12:26	395.1	2022-06-01 14:27	354.6
116			2022-06-01 12:27	392.5	2022-06-01 14:28	352.6
117			2022-06-01 12:28	389.6	2022-06-01 14:29	350.5
118			2022-06-01 12:29	388.2	2022-06-01 14:30	348.4
119			2022-06-01 12:30	385.9	2022-06-01 14:31	346.2
120			2022-06-01 12:31	384.7	2022-06-01 14:32	344.9
121			2022-06-01 12:32	399.4	2022-06-01 14:33	343.2
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123					2022-06-01 14:35	340.1
124					2022-06-01 14:36	338.4
125					2022-06-01 14:37	336.8
126					2022-06-01 14:38	335.2
127					2022-06-01 14:39	333.9
128					2022-06-01 14:40	332.4
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201					2022-06-01 15:53	247.8
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204					2022-06-01 15:56	246.2
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207					2022-06-01 15:59	244.0
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210					2022-06-01 16:02	242.5
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212					2022-06-01 16:04	241.2
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214					2022-06-01 16:06	240.4
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305					2022-06-01 17:37	208.8
306					2022-06-01 17:38	208.2

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311					2022-06-01 17:43	207.5
312					2022-06-01 17:44	207.4
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327					2022-06-01 17:59	205.4
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331					2022-06-01 18:03	204.9
332					2022-06-01 18:04	205.1
333					2022-06-01 18:05	204.8
334					2022-06-01 18:06	204.6
335					2022-06-01 18:07	204.7
336					2022-06-01 18:08	204.5
337					2022-06-01 18:09	204.3
338					2022-06-01 18:10	204.3
339					2022-06-01 18:11	204.3
340					2022-06-01 18:12	204.4
341					2022-06-01 18:13	204.0
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344					2022-06-01 18:16	204.1
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347					2022-06-01 18:19	203.4
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352					2022-06-01 18:24	203.0
353					2022-06-01 18:25	203.0
354					2022-06-01 18:26	203.0
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363					2022-06-01 18:35	202.0
364					2022-06-01 18:36	201.9
365					2022-06-01 18:37	201.9
366					2022-06-01 18:38	201.7
367					2022-06-01 18:39	201.5
368					2022-06-01 18:40	201.4
369					2022-06-01 18:41	201.5
370					2022-06-01 18:42	201.2
371					2022-06-01 18:43	201.2
372					2022-06-01 18:44	201.0
373					2022-06-01 18:45	200.9
374					2022-06-01 18:46	200.8
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376					2022-06-01 18:48	200.8
377					2022-06-01 18:49	200.8
378					2022-06-01 18:50	200.6
379					2022-06-01 18:51	200.4
380					2022-06-01 18:52	200.4
381					2022-06-01 18:53	200.4
382					2022-06-01 18:54	200.2
383					2022-06-01 18:55	200.2
384					2022-06-01 18:56	199.8
385					2022-06-01 18:57	200.0
386					2022-06-01 18:58	200.0

387					2022-06-01 18:59	199.8
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392					2022-06-01 19:04	199.6
393					2022-06-01 19:05	199.4
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401					2022-06-01 19:13	199.7
402					2022-06-01 19:14	199.7
403					2022-06-01 19:15	199.4
404					2022-06-01 19:16	199.5
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407					2022-06-01 19:19	199.5
408					2022-06-01 19:20	199.7
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410					2022-06-01 19:22	200.8
411					2022-06-01 19:23	201.0
412					2022-06-01 19:24	201.5
413					2022-06-01 19:25	201.9
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415					2022-06-01 19:27	202.4
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421					2022-06-01 19:33	203.3
422					2022-06-01 19:34	203.4
423					2022-06-01 19:35	203.2
424					2022-06-01 19:36	203.4
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426					2022-06-01 19:38	203.3
427					2022-06-01 19:39	203.5
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431					2022-06-01 19:43	202.9
432					2022-06-01 19:44	203.0
433					2022-06-01 19:45	202.5
434					2022-06-01 19:46	203.0
435					2022-06-01 19:47	202.6
436					2022-06-01 19:48	202.4
437					2022-06-01 19:49	202.0
438					2022-06-01 19:50	202.2
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440					2022-06-01 19:52	202.1
441					2022-06-01 19:53	201.8
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443					2022-06-01 19:55	201.9
444					2022-06-01 19:56	201.4
445					2022-06-01 19:57	201.4
446					2022-06-01 19:58	201.6
447					2022-06-01 19:59	201.5
448					2022-06-01 20:00	201.4
449					2022-06-01 20:01	201.3
450					2022-06-01 20:02	201.2
451					2022-06-01 20:03	201.3
452					2022-06-01 20:04	201.1
453					2022-06-01 20:05	201.1
454					2022-06-01 20:06	200.8
455					2022-06-01 20:07	200.6
456					2022-06-01 20:08	200.5

Bistro Pre-burn Data		2022-05-31		Total time (h)	9.58			
Wood Specie:	Beech							
Load time	Load type	Fuel added	Moisture	Piece amount	Length of fuel		Time	Flue Temp
(-)	(-)	(lbs)	(DB %)	(-)	(in.)		(min)	(°F)
2022-05-31 10:04	Kindling & SUF	9.88	14.6	26	17.0	Pre-Charge (min)	54	316.1
2022-05-31 10:59	High fire	20.16	19.4	5	17.0	Conditioning (min)	136	487.9
2022-05-31 13:15	Medium fire	23.02	19.8	5	17.0	Load (min)	385	329.1

	Average Tflue (°F)	316.1		487.9		329.1
	Pre-Charge (min)	54	Conditioning (min)	136	Load (min)	385
Air control position	Full open		Full open		Mid point	
Index	Date & Time	Flue (F)	Date & Time	Flue (F)	Date & Time	Flue (F)
0	2022-05-31 10:04	123.2	2022-05-31 10:59	496.4	2022-05-31 13:15	393.8
1	2022-05-31 10:05	125.5	2022-05-31 11:00	500.6	2022-05-31 13:16	358.5
2	2022-05-31 10:06	123.2	2022-05-31 11:01	487.4	2022-05-31 13:17	346.1
3	2022-05-31 10:07	134.2	2022-05-31 11:02	501.3	2022-05-31 13:18	341.1
4	2022-05-31 10:08	151.1	2022-05-31 11:03	502.2	2022-05-31 13:19	365.7
5	2022-05-31 10:09	168.7	2022-05-31 11:04	506.0	2022-05-31 13:20	382.2
6	2022-05-31 10:10	165.4	2022-05-31 11:05	502.8	2022-05-31 13:21	385.5
7	2022-05-31 10:11	161.5	2022-05-31 11:06	500.0	2022-05-31 13:22	382.9
8	2022-05-31 10:12	161.7	2022-05-31 11:07	500.4	2022-05-31 13:23	409.9
9	2022-05-31 10:13	168.2	2022-05-31 11:08	499.7	2022-05-31 13:24	398.8
10	2022-05-31 10:14	172.7	2022-05-31 11:09	495.7	2022-05-31 13:25	403.2
11	2022-05-31 10:15	179.8	2022-05-31 11:10	495.9	2022-05-31 13:26	392.4
12	2022-05-31 10:16	188.3	2022-05-31 11:11	493.2	2022-05-31 13:27	388.4
13	2022-05-31 10:17	198.5	2022-05-31 11:12	492.8	2022-05-31 13:28	388.9
14	2022-05-31 10:18	212.6	2022-05-31 11:13	492.3	2022-05-31 13:29	398.5
15	2022-05-31 10:19	219.5	2022-05-31 11:14	490.9	2022-05-31 13:30	415.3
16	2022-05-31 10:20	216.4	2022-05-31 11:15	486.6	2022-05-31 13:31	437.5
17	2022-05-31 10:21	209.1	2022-05-31 11:16	483.8	2022-05-31 13:32	450.3
18	2022-05-31 10:22	202.2	2022-05-31 11:17	475.2	2022-05-31 13:33	454.1
19	2022-05-31 10:23	204.8	2022-05-31 11:18	469.0	2022-05-31 13:34	456.6
20	2022-05-31 10:24	209.1	2022-05-31 11:19	463.0	2022-05-31 13:35	456.3
21	2022-05-31 10:25	214.2	2022-05-31 11:20	453.3	2022-05-31 13:36	458.7
22	2022-05-31 10:26	224.7	2022-05-31 11:21	448.5	2022-05-31 13:37	458.8
23	2022-05-31 10:27	229.7	2022-05-31 11:22	447.8	2022-05-31 13:38	460.0
24	2022-05-31 10:28	234.3	2022-05-31 11:23	448.2	2022-05-31 13:39	461.2
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365					2022-05-31 19:20	211.0
366					2022-05-31 19:21	210.5
367					2022-05-31 19:22	210.0
368					2022-05-31 19:23	209.8
369					2022-05-31 19:24	209.1
370					2022-05-31 19:25	209.0
371					2022-05-31 19:26	208.5
372					2022-05-31 19:27	208.1
373					2022-05-31 19:28	207.5
374					2022-05-31 19:29	207.2
375					2022-05-31 19:30	206.6
376					2022-05-31 19:31	206.1
377					2022-05-31 19:32	205.5
378					2022-05-31 19:33	205.1
379					2022-05-31 19:34	204.6
380					2022-05-31 19:35	203.8
381					2022-05-31 19:36	203.7
382					2022-05-31 19:37	203.2
383					2022-05-31 19:38	202.8
384					2022-05-31 19:39	202.5
385					2022-05-31 19:40	202.1

Bistro Pre-burn Data		2022-05-25		Total time (h)	8.92			
Wood Specie:	Beech							
Load time	Load type	Fuel added	Moisture	Piece amount	Length of fuel		Time	Flue Temp
(-)	(-)	(lbs)	(DB %)	(-)	(in.)		(min)	(°F)
2022-05-25 11:04	Kindling & SUF	9.92	14.7	24	17.0	Pre-Charge (min)	41	352.4
2022-05-25 11:46	High fire	20.10	19.3	5	17.0	Conditioning (min)	126	512.1
2022-05-25 13:53	Medium fire	22.72	19.5	5	17.0	Load (min)	368	333.8

	Average Tflue (°F)	352.4	[redacted]	512.1	[redacted]	333.8
	Pre-Charge (min)	41	Conditioning (min)	126	Load (min)	368
Air control position	Full open		Full open		Mid point	
Index	Date & Time	Flue (F)	Date & Time	Flue (F)	Date & Time	Flue (F)
0	2022-05-25 11:04	93.5	2022-05-25 11:46	525.3	2022-05-25 13:53	374.5
1	2022-05-25 11:05	118.1	2022-05-25 11:47	502.9	2022-05-25 13:54	363.2
2	2022-05-25 11:06	140.2	2022-05-25 11:48	504.9	2022-05-25 13:55	351.1
3	2022-05-25 11:07	162.1	2022-05-25 11:49	510.5	2022-05-25 13:56	353.7
4	2022-05-25 11:08	178.5	2022-05-25 11:50	517.6	2022-05-25 13:57	382.5
5	2022-05-25 11:09	204.9	2022-05-25 11:51	520.6	2022-05-25 13:58	406.1
6	2022-05-25 11:10	231.1	2022-05-25 11:52	521.9	2022-05-25 13:59	422.9
7	2022-05-25 11:11	243.9	2022-05-25 11:53	522.8	2022-05-25 14:00	422.2
8	2022-05-25 11:12	250.6	2022-05-25 11:54	523.9	2022-05-25 14:01	424.0
9	2022-05-25 11:13	256.1	2022-05-25 11:55	522.7	2022-05-25 14:02	435.9
10	2022-05-25 11:14	254.6	2022-05-25 11:56	522.2	2022-05-25 14:03	445.2
11	2022-05-25 11:15	257.2	2022-05-25 11:57	521.3	2022-05-25 14:04	457.8
12	2022-05-25 11:16	264.5	2022-05-25 11:58	521.8	2022-05-25 14:05	465.0
13	2022-05-25 11:17	293.9	2022-05-25 11:59	523.1	2022-05-25 14:06	468.4
14	2022-05-25 11:18	317.5	2022-05-25 12:00	524.8	2022-05-25 14:07	471.3
15	2022-05-25 11:19	331.4	2022-05-25 12:01	528.3	2022-05-25 14:08	474.9
16	2022-05-25 11:20	345.1	2022-05-25 12:02	532.5	2022-05-25 14:09	477.2
17	2022-05-25 11:21	352.3	2022-05-25 12:03	536.7	2022-05-25 14:10	479.4
18	2022-05-25 11:22	357.5	2022-05-25 12:04	539.2	2022-05-25 14:11	482.4
19	2022-05-25 11:23	358.7	2022-05-25 12:05	540.8	2022-05-25 14:12	484.9
20	2022-05-25 11:24	363.1	2022-05-25 12:06	541.7	2022-05-25 14:13	486.7
21	2022-05-25 11:25	367.4	2022-05-25 12:07	543.1	2022-05-25 14:14	489.4
22	2022-05-25 11:26	373.5	2022-05-25 12:08	545.0	2022-05-25 14:15	492.6
23	2022-05-25 11:27	385.7	2022-05-25 12:09	547.1	2022-05-25 14:16	495.7
24	2022-05-25 11:28	396.7	2022-05-25 12:10	549.3	2022-05-25 14:17	498.9
25	2022-05-25 11:29	408.8	2022-05-25 12:11	552.3	2022-05-25 14:18	502.1
26	2022-05-25 11:30	426.2	2022-05-25 12:12	555.5	2022-05-25 14:19	505.4
27	2022-05-25 11:31	438.7	2022-05-25 12:13	559.0	2022-05-25 14:20	508.6
28	2022-05-25 11:32	448.0	2022-05-25 12:14	563.4	2022-05-25 14:21	511.0
29	2022-05-25 11:33	453.3	2022-05-25 12:15	567.7	2022-05-25 14:22	513.3
30	2022-05-25 11:34	458.0	2022-05-25 12:16	572.7	2022-05-25 14:23	515.4
31	2022-05-25 11:35	465.1	2022-05-25 12:17	579.0	2022-05-25 14:24	517.4
32	2022-05-25 11:36	466.1	2022-05-25 12:18	586.0	2022-05-25 14:25	520.2
33	2022-05-25 11:37	470.4	2022-05-25 12:19	591.8	2022-05-25 14:26	522.8
34	2022-05-25 11:38	473.9	2022-05-25 12:20	597.0	2022-05-25 14:27	525.2
35	2022-05-25 11:39	477.9	2022-05-25 12:21	602.5	2022-05-25 14:28	527.4
36	2022-05-25 11:40	480.3	2022-05-25 12:22	606.9	2022-05-25 14:29	528.3
37	2022-05-25 11:41	482.2	2022-05-25 12:23	610.6	2022-05-25 14:30	530.3
38	2022-05-25 11:42	486.3	2022-05-25 12:24	613.7	2022-05-25 14:31	531.7
39	2022-05-25 11:43	487.7	2022-05-25 12:25	617.1	2022-05-25 14:32	532.2
40	2022-05-25 11:44	489.2	2022-05-25 12:26	620.4	2022-05-25 14:33	532.3
41	2022-05-25 11:45	490.3	2022-05-25 12:27	621.3	2022-05-25 14:34	533.4
42			2022-05-25 12:28	621.0	2022-05-25 14:35	533.2
43			2022-05-25 12:29	621.3	2022-05-25 14:36	532.4
44			2022-05-25 12:30	620.9	2022-05-25 14:37	531.9
45			2022-05-25 12:31	620.7	2022-05-25 14:38	532.1
46			2022-05-25 12:32	620.1	2022-05-25 14:39	533.1
47			2022-05-25 12:33	619.4	2022-05-25 14:40	533.2
48			2022-05-25 12:34	618.6	2022-05-25 14:41	533.4
49			2022-05-25 12:35	618.3	2022-05-25 14:42	533.1
50			2022-05-25 12:36	618.0	2022-05-25 14:43	533.7
51			2022-05-25 12:37	616.7	2022-05-25 14:44	533.0
52			2022-05-25 12:38	616.3	2022-05-25 14:45	535.0
53			2022-05-25 12:39	614.9	2022-05-25 14:46	536.8
54			2022-05-25 12:40	614.2	2022-05-25 14:47	538.2
55			2022-05-25 12:41	611.9	2022-05-25 14:48	538.0
56			2022-05-25 12:42	609.6	2022-05-25 14:49	537.0
57			2022-05-25 12:43	607.1	2022-05-25 14:50	535.7
58			2022-05-25 12:44	606.0	2022-05-25 14:51	534.8
59			2022-05-25 12:45	603.7	2022-05-25 14:52	534.0
60			2022-05-25 12:46	599.8	2022-05-25 14:53	532.7
61			2022-05-25 12:47	594.8	2022-05-25 14:54	531.7
62			2022-05-25 12:48	589.2	2022-05-25 14:55	529.8
63			2022-05-25 12:49	583.7	2022-05-25 14:56	528.6
64			2022-05-25 12:50	579.3	2022-05-25 14:57	527.5
65			2022-05-25 12:51	574.3	2022-05-25 14:58	526.7
66			2022-05-25 12:52	572.5	2022-05-25 14:59	525.9

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70			2022-05-25 12:56	561.8	2022-05-25 15:03	526.2
71			2022-05-25 12:57	558.2	2022-05-25 15:04	524.2
72			2022-05-25 12:58	554.9	2022-05-25 15:05	523.7
73			2022-05-25 12:59	550.4	2022-05-25 15:06	522.1
74			2022-05-25 13:00	546.9	2022-05-25 15:07	517.5
75			2022-05-25 13:01	543.2	2022-05-25 15:08	512.4
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88			2022-05-25 13:14	493.7	2022-05-25 15:21	459.9
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92			2022-05-25 13:18	478.4	2022-05-25 15:25	447.7
93			2022-05-25 13:19	474.7	2022-05-25 15:26	445.1
94			2022-05-25 13:20	470.6	2022-05-25 15:27	442.3
95			2022-05-25 13:21	466.7	2022-05-25 15:28	439.7
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97			2022-05-25 13:23	460.6	2022-05-25 15:30	435.2
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99			2022-05-25 13:25	454.4	2022-05-25 15:32	428.2
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111			2022-05-25 13:37	352.8	2022-05-25 15:44	399.0
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195					2022-05-25 17:08	277.0
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276					2022-05-25 18:29	247.0
277					2022-05-25 18:30	247.0
278					2022-05-25 18:31	246.6
279					2022-05-25 18:32	246.6
280					2022-05-25 18:33	246.3
281					2022-05-25 18:34	245.9
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364					2022-05-25 19:57	213.7
365					2022-05-25 19:58	213.4
366					2022-05-25 19:59	212.9
367					2022-05-25 20:00	212.5
368					2022-05-25 20:01	212.0

Bistro Pre-burn Data		2022-05-24		Total time (h)	11.08			
Wood Specie:	Beech							
Load time	Load type	Fuel added	Moisture	Piece amount	Length of fuel		Time	Flue Temp
(-)	(-)	(lbs)	(DB %)	(-)	(in.)		(min)	(°F)
2022-05-24 10:45	Kindling & SUF	9.76	14.75	25	17.0	Pre-Charge (min)	37	364.8
2022-05-24 11:23	High fire	19.69	19.7	5	17.0	Conditioning (min)	118	523.9
2022-05-24 13:22	Low fire	23.74	19.1	5	17.0	Load (min)	510	263.9

	Average Tflue (°F)	364.8		523.9		263.9
	Pre-Charge (min)	37	Conditioning (min)	118	Load (min)	510
Air control position	Full open		Full open		Fully closed	
Index	Date & Time	Flue (F)	Date & Time	Flue (F)	Date & Time	Flue (F)
0	2022-05-24 10:45	88.2	2022-05-24 11:23	573.9	2022-05-24 13:22	384.0
1	2022-05-24 10:46	112.1	2022-05-24 11:24	562.4	2022-05-24 13:23	373.7
2	2022-05-24 10:47	130.4	2022-05-24 11:25	549.8	2022-05-24 13:24	388.5
3	2022-05-24 10:48	159.9	2022-05-24 11:26	560.7	2022-05-24 13:25	412.0
4	2022-05-24 10:49	181.1	2022-05-24 11:27	566.3	2022-05-24 13:26	403.0
5	2022-05-24 10:50	210.6	2022-05-24 11:28	571.4	2022-05-24 13:27	407.1
6	2022-05-24 10:51	236.7	2022-05-24 11:29	571.0	2022-05-24 13:28	425.3
7	2022-05-24 10:52	255.3	2022-05-24 11:30	568.2	2022-05-24 13:29	430.6
8	2022-05-24 10:53	263.2	2022-05-24 11:31	567.0	2022-05-24 13:30	439.3
9	2022-05-24 10:54	274.7	2022-05-24 11:32	567.2	2022-05-24 13:31	442.1
10	2022-05-24 10:55	289.6	2022-05-24 11:33	566.5	2022-05-24 13:32	441.0
11	2022-05-24 10:56	307.7	2022-05-24 11:34	565.8	2022-05-24 13:33	423.7
12	2022-05-24 10:57	321.9	2022-05-24 11:35	566.6	2022-05-24 13:34	414.8
13	2022-05-24 10:58	342.5	2022-05-24 11:36	567.8	2022-05-24 13:35	410.4
14	2022-05-24 10:59	349.9	2022-05-24 11:37	567.9	2022-05-24 13:36	407.9
15	2022-05-24 11:00	353.5	2022-05-24 11:38	567.0	2022-05-24 13:37	406.7
16	2022-05-24 11:01	361.7	2022-05-24 11:39	566.4	2022-05-24 13:38	406.2
17	2022-05-24 11:02	369.0	2022-05-24 11:40	565.3	2022-05-24 13:39	406.5
18	2022-05-24 11:03	374.3	2022-05-24 11:41	564.3	2022-05-24 13:40	407.0
19	2022-05-24 11:04	383.9	2022-05-24 11:42	564.5	2022-05-24 13:41	408.6
20	2022-05-24 11:05	392.6	2022-05-24 11:43	564.1	2022-05-24 13:42	410.9
21	2022-05-24 11:06	407.3	2022-05-24 11:44	564.9	2022-05-24 13:43	411.6
22	2022-05-24 11:07	425.9	2022-05-24 11:45	566.6	2022-05-24 13:44	411.9
23	2022-05-24 11:08	439.4	2022-05-24 11:46	568.4	2022-05-24 13:45	411.0
24	2022-05-24 11:09	452.3	2022-05-24 11:47	570.9	2022-05-24 13:46	410.0
25	2022-05-24 11:10	463.9	2022-05-24 11:48	573.2	2022-05-24 13:47	408.7
26	2022-05-24 11:11	472.9	2022-05-24 11:49	574.3	2022-05-24 13:48	406.7
27	2022-05-24 11:12	480.7	2022-05-24 11:50	575.3	2022-05-24 13:49	405.3
28	2022-05-24 11:13	487.7	2022-05-24 11:51	574.5	2022-05-24 13:50	404.5
29	2022-05-24 11:14	489.7	2022-05-24 11:52	572.8	2022-05-24 13:51	403.3
30	2022-05-24 11:15	490.3	2022-05-24 11:53	570.6	2022-05-24 13:52	403.5
31	2022-05-24 11:16	493.3	2022-05-24 11:54	568.8	2022-05-24 13:53	404.1
32	2022-05-24 11:17	495.9	2022-05-24 11:55	569.5	2022-05-24 13:54	405.4
33	2022-05-24 11:18	497.7	2022-05-24 11:56	570.5	2022-05-24 13:55	406.3
34	2022-05-24 11:19	499.1	2022-05-24 11:57	572.0	2022-05-24 13:56	407.6
35	2022-05-24 11:20	502.4	2022-05-24 11:58	574.2	2022-05-24 13:57	408.2
36	2022-05-24 11:21	502.8	2022-05-24 11:59	574.1	2022-05-24 13:58	409.2
37	2022-05-24 11:22	501.2	2022-05-24 12:00	573.4	2022-05-24 13:59	409.6
38			2022-05-24 12:01	573.1	2022-05-24 14:00	409.4
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40			2022-05-24 12:03	574.7	2022-05-24 14:02	409.5
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44			2022-05-24 12:07	590.9	2022-05-24 14:06	413.4
45			2022-05-24 12:08	594.4	2022-05-24 14:07	414.0
46			2022-05-24 12:09	595.8	2022-05-24 14:08	414.7
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49			2022-05-24 12:12	593.6	2022-05-24 14:11	417.6
50			2022-05-24 12:13	592.0	2022-05-24 14:12	419.0
51			2022-05-24 12:14	591.1	2022-05-24 14:13	421.7
52			2022-05-24 12:15	589.9	2022-05-24 14:14	424.5
53			2022-05-24 12:16	589.6	2022-05-24 14:15	427.2
54			2022-05-24 12:17	588.9	2022-05-24 14:16	428.6
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63			2022-05-24 12:26	594.0	2022-05-24 14:25	428.8
64			2022-05-24 12:27	595.3	2022-05-24 14:26	429.4
65			2022-05-24 12:28	593.1	2022-05-24 14:27	429.4
66			2022-05-24 12:29	586.0	2022-05-24 14:28	428.8

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71			2022-05-24 12:34	565.7	2022-05-24 14:33	428.7
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73			2022-05-24 12:36	555.7	2022-05-24 14:35	429.1
74			2022-05-24 12:37	550.5	2022-05-24 14:36	429.3
75			2022-05-24 12:38	545.1	2022-05-24 14:37	428.8
76			2022-05-24 12:39	540.3	2022-05-24 14:38	428.0
77			2022-05-24 12:40	535.2	2022-05-24 14:39	427.7
78			2022-05-24 12:41	530.0	2022-05-24 14:40	428.0
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226					2022-05-24 17:08	237.2

227					2022-05-24 17:09	237.3
228					2022-05-24 17:10	237.0
229					2022-05-24 17:11	236.5
230					2022-05-24 17:12	236.3
231					2022-05-24 17:13	235.8
232					2022-05-24 17:14	235.4
233					2022-05-24 17:15	235.3
234					2022-05-24 17:16	235.0
235					2022-05-24 17:17	233.8
236					2022-05-24 17:18	233.0
237					2022-05-24 17:19	232.7
238					2022-05-24 17:20	232.1
239					2022-05-24 17:21	231.4
240					2022-05-24 17:22	230.6
241					2022-05-24 17:23	230.2
242					2022-05-24 17:24	229.3
243					2022-05-24 17:25	228.9
244					2022-05-24 17:26	228.4
245					2022-05-24 17:27	228.0
246					2022-05-24 17:28	227.7
247					2022-05-24 17:29	227.0
248					2022-05-24 17:30	226.3
249					2022-05-24 17:31	225.7
250					2022-05-24 17:32	225.2
251					2022-05-24 17:33	224.5
252					2022-05-24 17:34	224.1
253					2022-05-24 17:35	223.6
254					2022-05-24 17:36	223.3
255					2022-05-24 17:37	223.1
256					2022-05-24 17:38	222.9
257					2022-05-24 17:39	222.6
258					2022-05-24 17:40	222.2
259					2022-05-24 17:41	222.0
260					2022-05-24 17:42	221.5
261					2022-05-24 17:43	221.0
262					2022-05-24 17:44	220.3
263					2022-05-24 17:45	220.0
264					2022-05-24 17:46	219.6
265					2022-05-24 17:47	219.3
266					2022-05-24 17:48	218.8
267					2022-05-24 17:49	218.5
268					2022-05-24 17:50	218.2
269					2022-05-24 17:51	217.9
270					2022-05-24 17:52	217.4
271					2022-05-24 17:53	217.2
272					2022-05-24 17:54	216.7
273					2022-05-24 17:55	216.5
274					2022-05-24 17:56	216.1
275					2022-05-24 17:57	216.0
276					2022-05-24 17:58	215.7
277					2022-05-24 17:59	215.4
278					2022-05-24 18:00	215.2
279					2022-05-24 18:01	214.7
280					2022-05-24 18:02	214.5
281					2022-05-24 18:03	214.3
282					2022-05-24 18:04	214.4
283					2022-05-24 18:05	213.9
284					2022-05-24 18:06	213.8
285					2022-05-24 18:07	213.4
286					2022-05-24 18:08	213.2
287					2022-05-24 18:09	212.9
288					2022-05-24 18:10	212.7
289					2022-05-24 18:11	212.5
290					2022-05-24 18:12	212.2
291					2022-05-24 18:13	211.6
292					2022-05-24 18:14	211.6
293					2022-05-24 18:15	211.4
294					2022-05-24 18:16	211.0
295					2022-05-24 18:17	210.8
296					2022-05-24 18:18	210.7
297					2022-05-24 18:19	210.4
298					2022-05-24 18:20	210.1
299					2022-05-24 18:21	210.0
300					2022-05-24 18:22	209.6
301					2022-05-24 18:23	209.5
302					2022-05-24 18:24	209.6
303					2022-05-24 18:25	209.3
304					2022-05-24 18:26	209.0
305					2022-05-24 18:27	208.6
306					2022-05-24 18:28	208.6

307					2022-05-24 18:29	208.2
308					2022-05-24 18:30	207.9
309					2022-05-24 18:31	207.7
310					2022-05-24 18:32	207.2
311					2022-05-24 18:33	206.9
312					2022-05-24 18:34	206.7
313					2022-05-24 18:35	206.2
314					2022-05-24 18:36	206.0
315					2022-05-24 18:37	205.8
316					2022-05-24 18:38	205.4
317					2022-05-24 18:39	205.2
318					2022-05-24 18:40	204.7
319					2022-05-24 18:41	204.3
320					2022-05-24 18:42	204.0
321					2022-05-24 18:43	203.7
322					2022-05-24 18:44	203.3
323					2022-05-24 18:45	203.2
324					2022-05-24 18:46	202.7
325					2022-05-24 18:47	202.3
326					2022-05-24 18:48	201.9
327					2022-05-24 18:49	201.8
328					2022-05-24 18:50	201.2
329					2022-05-24 18:51	200.7
330					2022-05-24 18:52	200.3
331					2022-05-24 18:53	199.8
332					2022-05-24 18:54	199.3
333					2022-05-24 18:55	198.6
334					2022-05-24 18:56	198.4
335					2022-05-24 18:57	197.8
336					2022-05-24 18:58	197.6
337					2022-05-24 18:59	197.0
338					2022-05-24 19:00	196.7
339					2022-05-24 19:01	196.4
340					2022-05-24 19:02	195.9
341					2022-05-24 19:03	195.5
342					2022-05-24 19:04	195.4
343					2022-05-24 19:05	195.0
344					2022-05-24 19:06	194.6
345					2022-05-24 19:07	194.4
346					2022-05-24 19:08	194.0
347					2022-05-24 19:09	193.7
348					2022-05-24 19:10	193.2
349					2022-05-24 19:11	192.9
350					2022-05-24 19:12	192.6
351					2022-05-24 19:13	192.3
352					2022-05-24 19:14	192.0
353					2022-05-24 19:15	191.6
354					2022-05-24 19:16	191.5
355					2022-05-24 19:17	191.2
356					2022-05-24 19:18	190.8
357					2022-05-24 19:19	190.7
358					2022-05-24 19:20	190.2
359					2022-05-24 19:21	190.0
360					2022-05-24 19:22	189.7
361					2022-05-24 19:23	189.3
362					2022-05-24 19:24	189.0
363					2022-05-24 19:25	188.6
364					2022-05-24 19:26	188.2
365					2022-05-24 19:27	188.0
366					2022-05-24 19:28	187.8
367					2022-05-24 19:29	187.6
368					2022-05-24 19:30	187.4
369					2022-05-24 19:31	187.1
370					2022-05-24 19:32	187.0
371					2022-05-24 19:33	186.7
372					2022-05-24 19:34	186.5
373					2022-05-24 19:35	186.2
374					2022-05-24 19:36	185.8
375					2022-05-24 19:37	185.5
376					2022-05-24 19:38	185.2
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378					2022-05-24 19:40	184.5
379					2022-05-24 19:41	184.4
380					2022-05-24 19:42	184.2
381					2022-05-24 19:43	183.9
382					2022-05-24 19:44	183.6
383					2022-05-24 19:45	183.2
384					2022-05-24 19:46	183.0
385					2022-05-24 19:47	182.7
386					2022-05-24 19:48	182.5

387					2022-05-24 19:49	182.2
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389					2022-05-24 19:51	181.8
390					2022-05-24 19:52	181.5
391					2022-05-24 19:53	181.3
392					2022-05-24 19:54	181.0
393					2022-05-24 19:55	180.8
394					2022-05-24 19:56	180.7
395					2022-05-24 19:57	180.4
396					2022-05-24 19:58	180.2
397					2022-05-24 19:59	180.0
398					2022-05-24 20:00	179.7
399					2022-05-24 20:01	179.4
400					2022-05-24 20:02	179.2
401					2022-05-24 20:03	179.0
402					2022-05-24 20:04	178.7
403					2022-05-24 20:05	178.6
404					2022-05-24 20:06	178.4
405					2022-05-24 20:07	178.2
406					2022-05-24 20:08	178.0
407					2022-05-24 20:09	177.8
408					2022-05-24 20:10	177.5
409					2022-05-24 20:11	177.4
410					2022-05-24 20:12	177.1
411					2022-05-24 20:13	176.9
412					2022-05-24 20:14	176.7
413					2022-05-24 20:15	176.7
414					2022-05-24 20:16	176.4
415					2022-05-24 20:17	176.3
416					2022-05-24 20:18	176.2
417					2022-05-24 20:19	175.8
418					2022-05-24 20:20	175.6
419					2022-05-24 20:21	175.4
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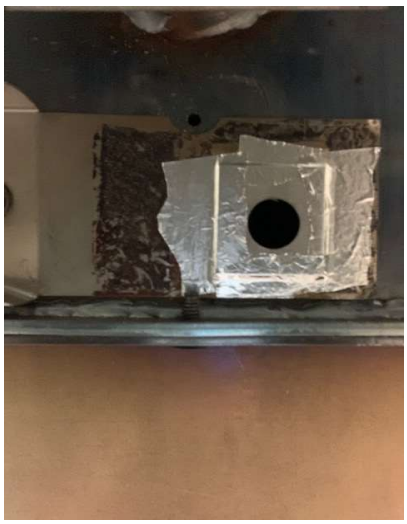
421					2022-05-24 20:23	175.1
422					2022-05-24 20:24	174.9
423					2022-05-24 20:25	174.8
424					2022-05-24 20:26	174.5
425					2022-05-24 20:27	174.2
426					2022-05-24 20:28	174.2
427					2022-05-24 20:29	173.9
428					2022-05-24 20:30	173.9
429					2022-05-24 20:31	173.9
430					2022-05-24 20:32	173.8
431					2022-05-24 20:33	173.7
432					2022-05-24 20:34	173.4
433					2022-05-24 20:35	173.2
434					2022-05-24 20:36	173.2
435					2022-05-24 20:37	173.2
436					2022-05-24 20:38	172.9
437					2022-05-24 20:39	173.0
438					2022-05-24 20:40	172.7
439					2022-05-24 20:41	172.6
440					2022-05-24 20:42	172.4
441					2022-05-24 20:43	172.1
442					2022-05-24 20:44	172.0
443					2022-05-24 20:45	172.0
444					2022-05-24 20:46	171.8
445					2022-05-24 20:47	171.7
446					2022-05-24 20:48	171.5
447					2022-05-24 20:49	171.5
448					2022-05-24 20:50	171.3
449					2022-05-24 20:51	171.1
450					2022-05-24 20:52	171.1
451					2022-05-24 20:53	170.8
452					2022-05-24 20:54	170.7
453					2022-05-24 20:55	170.6
454					2022-05-24 20:56	170.5
455					2022-05-24 20:57	170.3
456					2022-05-24 20:58	170.1
457					2022-05-24 20:59	169.9
458					2022-05-24 21:00	169.8
459					2022-05-24 21:01	169.7
460					2022-05-24 21:02	169.4
461					2022-05-24 21:03	169.6
462					2022-05-24 21:04	169.5
463					2022-05-24 21:05	169.3
464					2022-05-24 21:06	169.1
465					2022-05-24 21:07	169.1
466					2022-05-24 21:08	169.0

467					2022-05-24 21:09	168.8
468					2022-05-24 21:10	168.5
469					2022-05-24 21:11	168.5
470					2022-05-24 21:12	168.4
471					2022-05-24 21:13	168.2
472					2022-05-24 21:14	168.1
473					2022-05-24 21:15	167.9
474					2022-05-24 21:16	167.8
475					2022-05-24 21:17	167.8
476					2022-05-24 21:18	167.7
477					2022-05-24 21:19	167.5
478					2022-05-24 21:20	167.3
479					2022-05-24 21:21	167.1
480					2022-05-24 21:22	166.9
481					2022-05-24 21:23	166.9
482					2022-05-24 21:24	166.9
483					2022-05-24 21:25	166.7
484					2022-05-24 21:26	166.4
485					2022-05-24 21:27	166.4
486					2022-05-24 21:28	166.2
487					2022-05-24 21:29	166.1
488					2022-05-24 21:30	166.0
489					2022-05-24 21:31	165.9
490					2022-05-24 21:32	166.0
491					2022-05-24 21:33	165.9
492					2022-05-24 21:34	165.8
493					2022-05-24 21:35	165.7
494					2022-05-24 21:36	165.7
495					2022-05-24 21:37	165.5
496					2022-05-24 21:38	165.3
497					2022-05-24 21:39	165.3
498					2022-05-24 21:40	165.3
499					2022-05-24 21:41	165.1
500					2022-05-24 21:42	164.9
501					2022-05-24 21:43	164.6
502					2022-05-24 21:44	164.6
503					2022-05-24 21:45	164.6
504					2022-05-24 21:46	164.6
505					2022-05-24 21:47	164.4
506					2022-05-24 21:48	164.2
507					2022-05-24 21:49	164.3
508					2022-05-24 21:50	164.4
509					2022-05-24 21:51	164.5
510					2022-05-24 21:52	164.3

Photo of fully open position


Photo of mid point


Photo of fully closed position

Loading procedure for cookstove Bistro using ATM dated 05-07-2022

- Fuel Specie: Beech
- Fuel length: See ATM, recommended 17 inches.
- UFV: 1.94 ft³ (see ATM for detail where not to put fuel).

High burn rate

Stove lighting:

Split the start-up fuel log into 8 pieces. Crisscross the 8 pieces on the brick on 3 rows (fists row 2 smallest- second row 3 biggest- third row 3 medium) and leaving some space between each wood pieces. Crisscross the kindling on the top of the start-up fuel on 4 rows from biggest to smallest. The kindling is made of between 16-20 small pieces that are about 10% of moisture content. Place newspaper sheets on top of the kindling. Light up the paper and let the door at 90 degrees for one minute and 30 seconds, then close the door. Air control is fully opened.

When there are only faint flames remaining and most of the wood is turned into coal, break ashes and level coal bed. If there are still hard start-up fuel pieces in the back, orient them per the direction shown in the photo. Close the door.

Pre-load (high burn):

Add High Fire load in an East-West configuration. Put 3 pieces on the coal bed. Leave about 2 inches of air space between the rear firebrick and the first piece. See following picture for example of load inside the firebox. The front (3rd) piece should stand off of the steel andirons by approximately 1-2 inches. The 2 other pieces should be added on top of the first 3, stacked in the middle, in an East-West orientation. Let the door open at 90 degree for 1 minutes. Close the door, start the blower at maximum speed, and let burn until the weight is down to target.

For optimal loading of a high fire, take small to medium size fuel pieces (between 2.5 and 3.5 inches cross section dimensions approximately) on the bottom and use medium to large size fuel pieces (4 to 5 inches of cross section dimensions approximately) on top. To make sure combustion is equal, put the biggest piece on top of the first three, in the front of the firebox. See example in picture below:

End of High Fire sampling when 89-91% of the high fire load is consumed.

Low burn rate

Transition to Low

After the high fire sampling, if there is visible yellow flame, close the air control.

When the charcoal bed weight is between 15 and 16% of the low fire load weight, turn off the blower, open the door, stir the coals, and let the door remain slightly open for 1 minute before loading the low burn test fuel.

Loading:

For the loading, put 3 pieces on the coal bed in an East-West orientation. There should be air space between all pieces and with the rear brick. Leave approximately 1 inch of air space between the rear firebrick and the first piece. The front (3rd) piece may contact the steel andirons. The 2 top pieces (fourth and fifth) should be added on top of the first 3, slightly angled (10° from horizontal, top view, see image provided in ATM section 4. c) ii.). The distance between the logs should be approximately 1 inch.

For optimal loading of a low fire, take medium to large size fuel pieces (between 4.5- and 6-inches cross section dimensions approximately) on the bottom and use small to medium size fuel pieces (3 to 4.5 inches cross section dimensions approximately) on top. To have the longest burn time, put the smallest piece on top of the first three, in the front of the firebox. See pictures below for load example:

Let the door ajar at 90° until the flames roll on top of the fuel (between 2:00 and 3:30) and then close the door with the primary air control open. See picture below for rolling flame:

Close the primary air control by small increments (ex: 1/16 of an inch), from 3/8 to fully closed, between 4 and 10 minutes. Before closing further, make sure the flame intensity is increasing or stable. Close the air control completely. Turn on the blower at maximum speed.

Medium burn rate

Transition to Medium Fire

After the high fire sampling, if there is visible yellow flame, close the air control.

When the charcoal bed weight is between 15 and 16% of the low fire load weight, turn off the blower, open the door, stir the coals, and let the door remain slightly open for 1 minute before loading the medium burn test fuel.

Loading:

For the loading, put 3 pieces on the coal bed in an East-West orientation. Leave about 2 inches of air space between the rear firebrick and the first piece. The front (3rd) piece should stand off of the steel andirons by approximately 1-2 inches. The 2 top pieces (fourth and fifth) should be added on top of the first 3, slightly angled (5° from horizontal, top view).

For optimal loading of a medium fire, take small to medium size fuel pieces (between 3 and 4.5 inches cross section dimensions approximately) on the bottom and use medium to large size fuel pieces (4.5 to 6 inches cross section dimensions approximately) on top. To make sure combustion is equal, put the biggest piece on top of the first three, in the front of the firebox.

Let the door ajar at 90° until the flames roll on top of the fuel (between 2:30 and 4:00) and then close the door with the primary air control open. See picture below for rolling flame:

Close the primary air control incrementally, from ½ inch to 3/8 inch open (mid-point of air control) between 5 and 10 minutes. Before closing further, make sure the flame intensity is increasing or stable. Turn on the blower at maximum speed.

Optional fuel load adjustment

If burn time of the medium is about to be longer than the low fire, a stirring of the coal bed could be necessary. If there is more than 0.5 lb of the fuel left and the burn time is approaching six hours, quickly stir the coal bed then level it, closing the door again.

WOOD STOVE TEST DATA PACKET
ASTM E3053/E2515

Run 1 Data Summary

Client:	SBI
Model:	Bistro
Job #:	22-790
Tracking #:	122
Test Date:	6/6/2022

Techician Signature

10/13/2022
Date

TEST RESULTS - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

Burn Rate (kg/hr):	3.64

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	18.968	28.370	28.675	9.694
Average Gas Velocity in Dilution Tunnel (ft/sec)	28.05			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	32953.3			
Average Gas Meter Temperature (°F)	79.7	77.9	76.9	76.9
Total Sample Volume (dscf)	18.395	28.533	28.977	9.506
Average Tunnel Temperature (°F)	95.0			
Total Time of Test (min)	159			
Total Particulate Catch (mg)	0.0	2.6	2.7	1.1
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000911	0.0000932	0.0001157
Total PM Emissions (g)	0.00	7.96	8.14	3.81
Particulate Emission Rate (g/hr)	0.00	3.00	3.07	3.81
Emissions Factor (g/kg)	-	0.91	0.93	-
Difference from Average Total Particulate Emissions (g)	-	0.09	0.09	-
Difference from Average Total Particulate Emissions (%)	-	1.1%	1.1%	-
Difference from Average Emissions Factor (g/kg)	-	0.01	0.01	-

Final Average Results	
Total Particulate Emissions (g)	8.05
Particulate Emission Rate (g/hr)	3.04
Emissions Factor (g/kg)	0.92
HHV Efficiency (%)	75.2%
LHV Efficiency (%)	80.6%
CO Emissions (g/min)	1.19

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	>80 °F, <90 °F	Min: 81.3 / Max: 86.9	OK
Face Velocity	< 30 ft/min	9.7	OK
Leakage Rate	Less than 4% of average sample rate	0.002 cfm	OK
Ambient Temp	55-90 °F	Min:73.7/ Max:85.6	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-3.7%	OK
Pro-Rate Variation	All but 1 reading between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Tunnel Dew Point	Tunnel dew point temps must be below filter temps at all times	See Data Tabs	OK

B415.1 Efficiency Results

Manufacturer:	SBI
Model:	Bistro
Date:	06/06/22
Run:	1
Control #:	22-790
Test Duration:	104
Output Category:	High

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	75.2%	80.6%
Combustion Efficiency	98.8%	98.8%
Heat Transfer Efficiency	76.1%	81.6%

Output Rate (kJ/h)	52,910	50,191	**(Btu/h)**
Burn Rate (kg/h)	3.74	8.25	**(lb/h)**
Input (kJ/h)	70,366	66,750	**(Btu/h)**

Test Load Weight (dry kg)	6.49	14.30	**dry lb**
MC wet (%)	16.71		
MC dry (%)	20.06		
Particulate (g)	8.05		
CO (g)	123		
Test Duration (h)	1.73		

Emissions	**Particulate**	**CO**
g/MJ Output	0.09	1.35
g/kg Dry Fuel	1.24	19.02
g/h	4.64	71.21
g/min	0.08	1.19
lb/MM Btu Output	0.20	3.13

Air/Fuel Ratio (A/F)	10.03

VERSION: **2.2** **12/14/2009**

HIGH FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 1
Technician: SJB
Date: 6/6/2022

Nominal Loading Density (lbs/ft^3, wet basis):	10		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	19.40		
Total Load Weight Range (lbs):	18.40	to	20.40
Core Load Weight Range (lbs):	8.70	to	12.60
Remainder Load Weight Range (lbs):	6.80	to	10.70
Core Load Piece Range (lbs):	2.90	to	4.90
Remainder Load Piece Range (lbs):	1.90	to	10.70
Max Allowable Kindling Weight (lbs):	3.82		
Max Allowable Start-up Fuel Weight (lbs):	5.73		

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	3.98	In Range	27.2	20.4	15.9	21.2	In Range	3.28	1.49
2	17.00	4.03	In Range	23.1	18.7	18.2	20.0	In Range	3.36	1.52
3	17.00	3.49	In Range	23.7	18.1	16.2	19.3	In Range	2.92	1.33
Core Load Wt. (lbs)		11.50	In Range							

REMAINDER LOAD DATA (1 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	2.53	In Range	25.7	16.5	22.3	21.5	In Range	2.08	0.94
2	17.00	5.08	In Range	23.7	19.0	14.4	19.0	In Range	4.27	1.94
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		7.61	In Range							

Total Load Weight (lbs):	19.11	In Range	
Core Load % of Total Weight:	60%	In Range	45-65%
Remainder % of Total Weight:	40%	In Range	35-55%
Total Load % of Target Weight:	99%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	9.9		
Total Load Average Moisture Content (%DB):	20.1	In Range	19-25%
Total Load Average Moisture Content (%WB):	16.7		
Total Test Load Weight (dry basis):	15.92 lbs	7.22 kg	

KINDLING AND START-UP FUEL

		Kindling Moisture Readings (%DB)					Dry Weight	
Kindling Weight (lbs)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
3.66	In Range	10	10	10	10.0	In Range	3.33	1.51

		Start-up Moisture Readings (%DB)					Dry Weight	
Start-up Fuel Wt. (lb)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
5.47	In Range	24.4	23.1	20.4	22.6	In Range	4.46	2.02

TEST FUEL LOADING RANGE

Allowable Residual Start-up Fuel Range (lb):	1.9	to	3.8	
Actual Residual Start-up Fuel Weight (lb):		2.40		In Range

TEST END POINT

High Fire Test Run End Point Range:	1.7	to	2.1	lb
Actual Fuel Load Ending Weight (lb):		2.00		In Range

Total Weight All Fuel Added: 28.24 lbs, wet basis
23.71 lbs, dry basis
10.75 kg, dry basis

Total Weight All Fuel Burned (dry basis): 19.31 lbs
8.76 kg

DILUTION TUNNEL & MISC. DATA - ASTM E3053 / E2515

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	1	Technician:	SJB
Test Start Time:	13:56	Date:	6/6/2022
Test Type:	High Fire		

Recording Interval (min):	1
Total Sampling Time (min):	159
High Fire Test Load Time (min):	55

Meter Box γ Factor:	1.022 (A)
Meter Box γ Factor:	1.025 (B)
Meter Box γ Factor:	0.993 (C)
Meter Box γ Factor:	0.988 (Ambient)

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100
Date Flue Pipe Last Cleaned:	6/3/2022

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.04	30.02	30.03
Relative Humidity (%)	44.3	40.9	
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	22.2	22.2	

Ambient Sample Volume: 18.968 ft^3

Sample Train Post-Test Leak Checks

(A)	0.000 cfm @	-5	in. Hg
(B)	0.002 cfm @	-5	in. Hg
(C)	0.001 cfm @	-4	in. Hg
(Ambient)	0.001 cfm @	-5	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.168	76
2	0.201	76
3	0.196	76
4	0.179	76
5	0.146	76
6	0.186	76
7	0.199	76
8	0.177	76
Center	0.207	76

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	8	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:	0.3491	ft^2
V_{strav}:	28.37	ft/sec
V_{scent}:	30.34	ft/sec
F_p:	0.935	[ratio]
Initial Tunnel Flow:	575.3	scf/min

Static Pressure: -0.418 in. H_2O

TEST FUEL PROPERTIES

ASTM 3053-17 - Table A1.1 Fuel Properties by Fuel Species

Select Fuel Type	Species	%C	%H	%O	%Ash	MJ/kg	BTU/lb
	Ash, White	49.70	6.90	43.00	0.30	20.75	8927
X	Beech	48.70	5.80	44.70	0.60	18.80	8088
	Birch, Yellow	49.80	6.50	43.40	0.30	20.12	8656
	Doug Fir (Coast, Int. West)	48.73	6.87	43.90	0.50	19.81	8522
	Doug Fir (Int. South)	48.73	6.87	43.90	0.50	19.81	8522
	Elm, Rock	50.40	6.60	42.30	0.70	20.49	8815
	Elm, Soft	50.40	6.60	42.30	0.70	20.49	8815
	Larch, Western	50.54	6.36	42.40	0.70	17.58	7558
	Maple, Hard	50.64	6.02	41.74	1.35	19.96	8587
	Maple, Sugar	50.64	6.02	41.74	1.35	19.96	8587
	Oak, Red	49.50	6.62	43.70	0.20	20.20	8690
	Oak, White	50.40	6.59	42.70	0.20	20.50	8819
	Pine, Southern Long Leaf	52.60	7.02	40.10	1.30	22.30	9594

WOODSTOVE PREBURN DATA

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	1	Technician:	SJB
		Date:	6/6/2022

High Fire Test Begins from Cold Start, No Preburn is Performed

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
0	268.860		0.201	-0.34	76.2	-0.43		9.15		77.2	53.1	75.2	81.3	73.7
1			0.202	-0.37	76.5	0.20	-	9.09	-0.0515	79.9	54.8	105.8	82.1	73.8
2			0.200	-0.31	76.5	0.23	-	9.02	-0.0736	79.1	54.5	124.9	82.2	73.8
3			0.199	-0.31	76.5	0.23	-	8.96	-0.0588	78.1	54.3	126.4	82.1	73.9
4			0.202	-0.32	76.5	0.25	-	8.90	-0.0664	78.3	54.6	136.8	82.2	73.9
5			0.200	-0.31	76.5	0.28	-	8.81	-0.0828	78.8	55.3	151.7	82.4	74.1
6			0.200	-0.31	76.6	0.28	-	8.77	-0.046	78.7	55.6	159.1	82.6	74.1
7			0.200	-0.31	76.6	0.30	-	8.69	-0.0809	79.0	55.8	165.2	82.6	74.1
8			0.201	-0.31	76.6	0.31	-	8.61	-0.0782	79.4	56.1	174.5	82.8	74.2
9			0.199	-0.31	76.6	0.31	-	8.52	-0.0857	79.5	56.2	181.4	82.8	74.3
10	270.646	0.179	0.201	-0.31	76.7	0.33	97	8.48	-0.0427	79.4	55.9	177.5	82.9	74.3
11			0.199	-0.37	76.7	0.32	-	8.43	-0.0477	79.4	55.6	174.7	83.1	74.4
12			0.202	-0.34	76.7	0.31	-	8.34	-0.0925	79.7	55.7	180.9	83.2	74.4
13			0.198	-0.37	76.7	0.33	-	8.25	-0.0923	80.2	56.4	196.8	83.2	74.5
14			0.201	-0.38	76.7	0.34	-	8.18	-0.0625	80.4	56.3	202.0	83.5	74.5
15			0.199	-0.36	76.8	0.33	-	8.12	-0.0669	80.4	55.9	200.5	83.8	74.6
16			0.200	-0.37	76.8	0.35	-	8.03	-0.0917	80.9	56.3	209.4	84.0	74.6
17			0.201	-0.36	76.8	0.35	-	7.93	-0.0959	81.4	57.1	222.2	84.2	74.7
18			0.198	-0.31	76.9	0.36	-	7.85	-0.0805	81.4	56.7	226.7	84.4	74.8
19			0.198	-0.31	76.9	0.35	-	7.76	-0.0887	81.6	56.7	233.7	84.6	74.9
20	272.428	0.178	0.198	-0.32	76.9	0.35	98	7.67	-0.0921	81.8	57.1	242.0	84.8	75.1
21			0.199	-0.36	77.0	0.37	-	7.55	-0.1152	82.2	57.5	251.1	84.9	75.2
22			0.199	-0.37	77.0	0.36	-	7.45	-0.1035	82.4	57.7	256.6	85.1	75.1
23			0.199	-0.37	77.0	0.34	-	7.35	-0.0979	82.4	57.6	257.0	85.2	75.2
24			0.199	-0.37	77.0	0.39	-	7.24	-0.1099	82.6	57.7	258.0	85.2	75.3
25			0.200	-0.37	77.0	0.40	-	7.16	-0.0817	82.9	57.6	260.5	85.4	75.4
26			0.200	-0.36	77.0	0.37	-	7.05	-0.1088	83.0	57.5	264.8	85.6	75.4
27			0.199	-0.35	77.1	0.39	-	6.94	-0.1158	83.1	57.8	271.2	85.7	75.7
28			0.198	-0.31	77.1	0.40	-	6.81	-0.1249	83.8	58.4	283.6	85.8	75.8
29			0.200	-0.34	77.1	0.42	-	6.69	-0.1257	84.1	58.7	292.5	86.0	75.9
30	274.198	0.177	0.199	-0.31	77.2	0.42	97	6.56	-0.1211	84.1	58.4	297.5	86.0	76.0
31			0.198	-0.37	77.2	0.42	-	6.43	-0.1338	84.6	58.5	302.0	86.3	76.1
32			0.199	-0.31	77.2	0.45	-	6.28	-0.148	85.8	59.3	307.3	86.5	75.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
33			0.199	-0.32	77.2	0.46	-	6.09	-0.1918	87.2	60.5	325.0	86.7	75.7
34			0.196	-0.32	77.2	0.48	-	5.90	-0.1917	87.0	61.2	340.0	86.7	76.0
35			0.195	-0.31	77.3	0.48	-	5.70	-0.2042	87.4	61.3	358.8	86.7	76.4
36			0.198	-0.31	77.3	0.48	-	5.46	-0.2307	88.6	62.0	378.9	86.7	76.6
37			0.197	-0.34	77.3	0.50	-	5.27	-0.1922	88.9	61.6	386.2	86.9	76.9
38			0.199	-0.34	77.3	0.49	-	5.08	-0.194	89.3	61.6	392.6	86.7	77.1
39			0.197	-0.37	77.3	0.48	-	4.87	-0.2034	89.5	61.6	396.2	86.6	77.3
40	275.985	0.179	0.195	-0.34	77.4	0.49	99	4.70	-0.1747	89.6	61.4	394.2	86.2	77.4
41			0.196	-0.31	77.4	0.50	-	4.52	-0.1837	90.0	61.2	393.5	85.9	77.6
42			0.195	-0.34	77.4	0.46	-	4.33	-0.1913	90.5	61.3	401.2	85.8	77.8
43			0.194	-0.32	77.4	0.49	-	4.14	-0.1873	90.9	61.6	411.8	85.5	78.1
44			0.196	-0.30	77.4	0.50	-	3.96	-0.1811	91.0	61.1	412.5	85.4	78.3
45			0.198	-0.31	77.4	0.48	-	3.79	-0.169	91.2	60.9	413.4	85.1	78.5
46			0.195	-0.31	77.5	0.51	-	3.63	-0.1612	91.5	60.9	414.9	84.9	78.7
47			0.195	-0.33	77.5	0.51	-	3.46	-0.1666	91.7	60.9	417.4	84.7	78.9
48			0.198	-0.31	77.5	0.48	-	3.30	-0.1578	91.9	60.5	418.2	84.4	79.2
49			0.196	-0.31	77.5	0.49	-	3.15	-0.1529	92.0	60.4	418.2	84.2	79.3
50	277.772	0.179	0.196	-0.36	77.5	0.48	100	3.00	-0.1483	92.4	60.5	420.1	84.1	79.5
51			0.197	-0.31	77.5	0.50	-	2.83	-0.1743	92.7	60.5	423.0	83.8	79.6
52			0.196	-0.33	77.5	0.47	-	2.68	-0.1432	95.3	60.3	424.1	83.9	79.6
53			0.197	-0.31	77.5	0.50	-	2.56	-0.1247	93.2	60.1	423.7	83.6	80.1
54			0.197	-0.34	77.5	0.48	-	2.43	-0.1332	92.9	60.0	422.6	83.5	80.7
55			0.191	-0.35	77.6	0.53	-	21.54	19.1148	119.0	62.3	462.8	84.9	81.7
56			0.193	-0.36	77.5	0.50	-	21.19	-0.3466	99.0	62.7	436.0	84.3	82.1
57			0.196	-0.32	77.5	0.52	-	21.05	-0.1385	95.3	62.4	422.5	83.8	82.1
58			0.195	-0.36	77.6	0.52	-	20.90	-0.1534	95.0	62.2	421.4	83.6	82.2
59			0.196	-0.31	77.6	0.52	-	20.74	-0.1596	94.9	61.8	421.1	83.4	81.9
60	279.560	0.179	0.196	-0.37	77.6	0.53	100	20.53	-0.209	96.2	63.5	439.9	83.3	82.1
61			0.195	-0.37	77.6	0.49	-	20.29	-0.2389	96.6	63.2	448.2	83.3	81.9
62			0.192	-0.37	77.7	0.51	-	20.12	-0.1699	100.0	63.2	454.7	83.5	80.1
63			0.193	-0.36	77.7	0.50	-	19.97	-0.1556	99.0	62.9	457.4	83.2	79.5
64			0.192	-0.34	77.7	0.47	-	19.81	-0.1626	98.9	62.9	458.6	83.2	78.3
65			0.196	-0.35	77.7	0.51	-	19.65	-0.1536	98.9	62.5	458.6	83.3	78.7

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
66			0.193	-0.31	77.7	0.50	-	19.50	-0.1554	98.9	62.3	457.6	83.2	79.1
67			0.195	-0.34	77.7	0.49	-	19.33	-0.1654	98.9	62.2	457.1	83.2	79.2
68			0.195	-0.31	77.8	0.50	-	19.18	-0.1483	98.7	62.0	456.5	83.2	79.1
69			0.192	-0.37	77.8	0.47	-	19.05	-0.1355	98.8	61.9	456.2	83.2	78.4
70	281.340	0.178	0.194	-0.33	77.8	0.51	100	18.90	-0.1492	98.8	61.7	455.4	83.2	79.0
71			0.195	-0.32	77.8	0.51	-	18.75	-0.1437	98.8	61.6	454.6	83.3	79.1
72			0.194	-0.31	77.8	0.51	-	18.60	-0.1509	98.8	61.6	452.4	83.3	78.6
73			0.194	-0.31	77.8	0.49	-	18.46	-0.1424	98.9	61.4	451.6	83.2	78.8
74			0.196	-0.32	77.8	0.50	-	18.33	-0.1314	98.8	61.3	450.3	83.1	79.1
75			0.194	-0.37	77.8	0.49	-	18.20	-0.1347	98.6	61.3	446.8	83.2	79.6
76			0.193	-0.32	77.8	0.46	-	18.05	-0.1425	99.9	61.0	444.0	83.4	80.4
77			0.196	-0.34	77.9	0.49	-	17.91	-0.1413	100.6	60.8	440.1	83.6	80.6
78			0.193	-0.37	77.8	0.48	-	17.78	-0.1295	100.9	60.8	436.5	83.8	80.8
79			0.193	-0.37	77.9	0.49	-	17.65	-0.1349	101.3	60.9	433.2	84.1	80.9
80	283.111	0.177	0.195	-0.35	77.9	0.50	100	17.52	-0.1227	101.2	60.9	433.3	84.2	80.7
81			0.196	-0.37	77.9	0.50	-	17.40	-0.1236	98.0	61.2	430.7	84.3	82.0
82			0.194	-0.34	77.9	0.52	-	17.27	-0.1327	97.9	61.0	429.4	84.3	82.7
83			0.194	-0.35	78.0	0.49	-	17.13	-0.1361	97.4	60.9	428.1	84.4	83.2
84			0.195	-0.35	77.9	0.48	-	16.99	-0.1467	97.7	61.0	425.4	84.6	83.6
85			0.196	-0.32	78.0	0.48	-	16.83	-0.1505	97.8	61.1	424.5	84.6	83.8
86			0.195	-0.32	78.0	0.53	-	16.70	-0.1387	98.2	61.3	424.9	84.8	83.8
87			0.194	-0.31	78.0	0.49	-	16.56	-0.1399	98.5	61.3	425.2	85.1	83.9
88			0.195	-0.34	78.0	0.52	-	16.41	-0.1495	98.6	61.4	426.1	85.1	84.2
89			0.196	-0.31	78.0	0.52	-	16.25	-0.1586	98.9	61.7	428.6	85.2	84.1
90	284.895	0.178	0.197	-0.35	78.0	0.46	100	16.10	-0.1487	99.1	62.0	433.7	85.3	84.5
91			0.195	-0.32	78.1	0.50	-	15.94	-0.1639	99.4	62.3	438.4	85.7	85.1
92			0.193	-0.31	78.1	0.52	-	15.76	-0.1759	99.7	62.3	441.9	85.5	85.2
93			0.195	-0.35	78.1	0.48	-	15.60	-0.1643	100.0	62.4	445.6	85.5	85.3
94			0.193	-0.37	78.1	0.47	-	15.42	-0.1753	100.2	62.6	449.0	85.5	85.6
95			0.192	-0.34	78.1	0.51	-	15.23	-0.189	102.7	63.3	456.5	85.5	84.3
96			0.193	-0.36	78.1	0.50	-	15.06	-0.1666	104.3	63.1	468.8	85.7	82.6
97			0.193	-0.34	78.1	0.50	-	14.88	-0.1833	103.5	63.9	477.9	85.9	83.6
98			0.194	-0.31	78.1	0.50	-	14.68	-0.1989	104.1	64.3	485.1	85.9	83.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
99			0.192	-0.33	78.1	0.52	-	14.47	-0.2112	104.6	64.5	491.5	86.0	83.4
100	286.689	0.179	0.194	-0.32	78.1	0.54	101	14.25	-0.2241	105.2	64.9	498.3	86.0	83.2
101			0.192	-0.32	78.2	0.50	-	14.00	-0.2506	106.1	65.3	505.7	86.1	82.2
102			0.192	-0.31	78.2	0.52	-	13.72	-0.2757	104.9	65.6	511.8	85.9	82.1
103			0.193	-0.32	78.2	0.55	-	13.49	-0.2319	104.5	65.7	519.4	85.9	83.2
104			0.192	-0.36	78.2	0.55	-	13.25	-0.2361	104.1	65.8	527.6	85.8	83.6
105			0.191	-0.32	78.2	0.57	-	12.98	-0.2737	103.4	65.8	533.4	85.9	82.7
106			0.192	-0.31	78.3	0.57	-	12.72	-0.2547	103.2	65.7	540.0	85.8	82.1
107			0.192	-0.32	78.2	0.56	-	12.46	-0.2652	102.9	65.5	545.3	85.7	81.7
108			0.193	-0.34	78.3	0.59	-	12.21	-0.2509	102.9	65.4	549.3	85.7	81.1
109			0.193	-0.32	78.3	0.61	-	11.94	-0.2695	102.9	65.4	551.9	85.5	81.2
110	288.468	0.178	0.190	-0.31	78.3	0.61	101	11.67	-0.2697	102.9	65.4	553.9	85.6	81.1
111			0.193	-0.31	78.3	0.64	-	11.39	-0.275	103.1	65.5	555.3	85.7	80.8
112			0.189	-0.31	78.4	0.62	-	11.17	-0.2261	102.3	64.5	551.7	85.5	80.7
113			0.191	-0.32	78.4	0.64	-	10.96	-0.2084	101.9	63.8	547.2	85.6	81.2
114			0.192	-0.32	78.4	0.61	-	10.74	-0.2164	101.7	63.7	543.4	85.4	80.6
115			0.193	-0.32	78.4	0.61	-	10.51	-0.2361	101.5	63.8	542.5	85.4	80.5
116			0.193	-0.31	78.4	0.66	-	10.31	-0.1984	101.9	63.6	543.0	85.3	80.8
117			0.194	-0.31	78.4	0.68	-	10.08	-0.2244	101.7	63.5	542.4	85.4	80.8
118			0.193	-0.31	78.5	0.63	-	9.87	-0.218	101.6	63.3	542.3	85.3	80.4
119			0.192	-0.31	78.5	0.66	-	9.64	-0.2231	101.5	63.2	542.5	85.3	80.4
120	290.250	0.178	0.193	-0.31	78.5	0.66	101	9.46	-0.1876	101.7	63.0	541.9	85.2	80.6
121			0.191	-0.31	78.5	0.66	-	9.24	-0.2197	101.7	62.9	540.0	85.4	80.8
122			0.194	-0.31	78.5	0.66	-	9.05	-0.1893	101.6	62.7	540.1	85.2	80.8
123			0.197	-0.31	78.6	0.65	-	8.85	-0.2011	101.4	62.7	538.5	85.2	80.8
124			0.192	-0.31	78.6	0.66	-	8.65	-0.1948	101.3	62.7	538.2	85.2	80.9
125			0.192	-0.32	78.6	0.67	-	8.45	-0.1961	101.3	62.5	536.9	85.2	80.7
126			0.193	-0.32	78.7	0.66	-	8.24	-0.2143	101.3	62.3	535.9	85.2	81.3
127			0.194	-0.31	78.6	0.68	-	8.08	-0.1625	101.2	62.0	533.5	85.2	80.7
128			0.193	-0.32	78.7	0.69	-	7.89	-0.1838	100.9	62.0	531.2	85.2	81.1
129			0.193	-0.37	78.7	0.67	-	7.71	-0.1885	101.0	61.9	529.9	85.1	81.3
130	292.038	0.179	0.193	-0.31	78.7	0.66	101	7.54	-0.1689	101.2	61.7	527.8	85.2	81.3
131			0.197	-0.32	78.7	0.67	-	7.36	-0.1753	101.2	61.6	526.1	85.0	81.3

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
132			0.192	-0.31	78.7	0.68	-	7.17	-0.1962	101.0	61.4	525.0	85.1	81.1
133			0.193	-0.32	78.7	0.69	-	6.99	-0.1756	100.9	61.3	523.2	85.0	81.6
134			0.193	-0.31	78.7	0.67	-	6.84	-0.1496	101.0	61.2	524.1	85.0	81.1
135			0.194	-0.32	78.7	0.68	-	6.68	-0.1594	100.8	61.0	522.4	84.9	82.0
136			0.190	-0.31	78.8	0.71	-	6.52	-0.1562	100.9	60.9	522.4	85.0	81.5
137			0.192	-0.32	78.7	0.70	-	6.36	-0.1677	100.8	60.9	521.7	84.9	81.4
138			0.194	-0.37	78.8	0.71	-	6.20	-0.1563	100.6	60.6	520.2	85.0	81.1
139			0.193	-0.34	78.8	0.71	-	6.07	-0.1329	100.5	60.4	518.6	84.9	81.8
140	293.820	0.178	0.192	-0.36	78.8	0.71	101	5.91	-0.1566	100.3	60.1	516.9	85.0	81.4
141			0.196	-0.31	78.8	0.71	-	5.80	-0.1141	100.1	59.9	514.5	84.9	81.6
142			0.192	-0.33	78.8	0.72	-	5.66	-0.138	100.0	59.7	510.9	84.9	81.5
143			0.194	-0.32	78.9	0.72	-	5.53	-0.1295	99.5	59.2	506.3	84.8	81.6
144			0.195	-0.31	78.9	0.71	-	5.43	-0.0951	99.3	58.6	501.1	84.9	81.8
145			0.196	-0.32	78.9	0.71	-	5.34	-0.0977	98.9	58.3	497.1	84.7	81.7
146			0.195	-0.31	78.9	0.72	-	5.25	-0.0826	98.5	58.0	492.5	84.6	81.8
147			0.195	-0.32	78.9	0.70	-	5.14	-0.1099	98.4	57.8	488.7	84.8	81.8
148			0.194	-0.31	78.9	0.68	-	5.09	-0.0532	98.2	57.7	485.0	84.6	81.6
149			0.195	-0.32	78.9	0.70	-	5.00	-0.0901	98.0	57.5	481.9	84.5	81.8
150	295.615	0.180	0.195	-0.31	78.9	0.71	101	4.92	-0.0816	97.7	57.3	479.5	84.5	81.5
151			0.195	-0.32	78.9	0.72	-	4.84	-0.0784	97.8	57.2	476.6	84.5	81.3
152			0.197	-0.32	78.9	0.69	-	4.76	-0.0783	97.5	57.1	474.4	84.4	81.2
153			0.196	-0.34	78.9	0.72	-	4.72	-0.0457	97.2	56.8	470.1	84.3	81.3
154			0.194	-0.32	78.9	0.73	-	4.66	-0.055	97.0	56.4	467.0	84.3	81.0
155			0.194	-0.31	78.9	0.71	-	4.59	-0.0742	96.7	56.3	462.6	84.4	81.5
156			0.196	-0.32	78.9	0.72	-	4.52	-0.0712	96.7	56.1	460.2	84.2	80.9
157			0.196	-0.32	79.0	0.72	-	4.46	-0.0589	96.3	56.0	456.9	84.2	80.8
158			0.196	-0.31	79.0	0.72	-	4.42	-0.0378	96.3	55.8	453.8	84.2	80.8
159	297.230	0.179	0.197	-0.31	79.0	0.72	100	4.37	-0.046	96.0	55.7	451.0	84.1	81.0
Avg/Tot	28.370	0.178	0.195	-0.33	78	0.52	100			95	61	417	85	79.7

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	287.429		-0.31	75.7	-0.50		84	-0.003	0.13	0.00
1			-0.32	75.7	0.10	-	84	0.018	1.42	0.01
2			-0.32	75.7	0.22	-	84	0.012	2.04	0.02
3			-0.32	75.7	0.19	-	85	0.016	6.94	0.11
4			-0.32	75.6	0.22	-	85	0.022	8.07	0.20
5			-0.32	75.6	0.18	-	85	0.025	8.43	0.19
6			-0.31	75.7	0.19	-	86	0.024	8.23	0.10
7			-0.31	75.6	0.24	-	86	0.027	5.28	0.15
8			-0.33	75.7	0.25	-	87	0.029	6.76	0.10
9			-0.32	75.7	0.27	-	87	0.030	6.01	0.16
10	289.227	0.180	-0.32	75.7	0.25	97	87	0.027	5.21	0.19
11			-0.31	75.7	0.23	-	87	0.026	3.88	0.20
12			-0.32	75.7	0.29	-	87	0.032	3.86	0.22
13			-0.31	75.7	0.20	-	87	0.035	6.96	0.14
14			-0.32	75.8	0.22	-	87	0.034	6.53	0.13
15			-0.32	75.7	0.26	-	86	0.033	4.70	0.18
16			-0.32	75.8	0.26	-	86	0.038	5.03	0.19
17			-0.32	75.9	0.32	-	86	0.038	6.91	0.19
18			-0.32	75.9	0.23	-	86	0.038	6.23	0.24
19			-0.32	75.9	0.24	-	86	0.038	6.02	0.20
20	291.024	0.180	-0.32	75.9	0.33	98	86	0.041	6.84	0.19
21			-0.32	76.0	0.33	-	86	0.045	7.06	0.18
22			-0.32	76.0	0.31	-	86	0.044	7.89	0.19
23			-0.32	76.0	0.29	-	86	0.044	7.44	0.25
24			-0.32	76.0	0.30	-	86	0.044	7.20	0.29
25			-0.32	76.0	0.32	-	86	0.044	7.17	0.29
26			-0.32	76.1	0.34	-	86	0.045	6.07	0.36
27			-0.32	76.1	0.25	-	86	0.047	7.26	0.22
28			-0.32	76.1	0.34	-	86	0.049	7.88	0.21
29			-0.32	76.1	0.36	-	86	0.050	9.41	0.18
30	292.834	0.181	-0.32	76.1	0.33	99	86	0.049	8.99	0.29
31			-0.32	76.2	0.29	-	86	0.051	8.38	0.29
32			-0.32	76.2	0.37	-	86	0.055	9.30	0.26

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
33			-0.32	76.2	0.33	-	86	0.058	12.01	0.35
34			-0.32	76.2	0.32	-	86	0.061	13.42	0.28
35			-0.32	76.2	0.37	-	86	0.061	13.29	0.16
36			-0.32	76.2	0.34	-	86	0.063	14.15	0.15
37			-0.32	76.3	0.38	-	86	0.066	14.10	0.14
38			-0.32	76.3	0.35	-	86	0.065	13.43	0.19
39			-0.32	76.3	0.33	-	86	0.067	13.64	0.17
40	294.629	0.180	-0.32	76.3	0.39	99	86	0.064	13.12	0.10
41			-0.33	76.4	0.40	-	86	0.063	12.94	0.15
42			-0.32	76.4	0.40	-	85	0.067	12.77	0.11
43			-0.32	76.4	0.37	-	85	0.067	13.47	0.11
44			-0.33	76.4	0.39	-	85	0.067	12.91	0.07
45			-0.32	76.4	0.34	-	85	0.067	12.13	0.08
46			-0.33	76.4	0.39	-	85	0.067	12.15	0.11
47			-0.34	76.4	0.35	-	84	0.068	12.07	0.14
48			-0.32	76.4	0.40	-	84	0.069	11.97	0.11
49			-0.33	76.4	0.40	-	84	0.066	11.57	0.16
50	296.429	0.180	-0.30	76.5	0.41	100	84	0.068	11.50	0.19
51			-0.30	76.4	0.37	-	84	0.068	11.86	0.21
52			-0.32	76.4	0.34	-	83	0.067	11.78	0.14
53			-0.32	76.4	0.38	-	83	0.069	11.24	0.10
54			-0.31	76.5	0.40	-	83	0.067	11.17	0.08
55			-0.32	76.5	0.37	-	83	0.086	8.77	0.13
56			-0.31	76.5	0.43	-	83	0.068	6.11	0.14
57			-0.33	76.5	0.38	-	83	0.069	7.29	0.17
58			-0.32	76.5	0.38	-	83	0.069	8.59	0.12
59			-0.32	76.5	0.42	-	83	0.071	8.76	0.16
60	298.233	0.180	-0.32	76.5	0.39	100	83	0.074	10.13	0.14
61			-0.32	76.5	0.40	-	83	0.074	13.39	0.07
62			-0.32	76.6	0.39	-	82	0.074	11.96	0.05
63			-0.32	76.6	0.41	-	82	0.074	11.31	0.06
64			-0.32	76.6	0.42	-	82	0.074	11.11	0.06
65			-0.32	76.7	0.41	-	82	0.073	10.76	0.06

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
66			-0.32	76.7	0.40	-	82	0.073	10.50	0.05
67			-0.32	76.7	0.38	-	82	0.072	10.14	0.06
68			-0.32	76.7	0.45	-	82	0.072	10.02	0.06
69			-0.32	76.7	0.38	-	82	0.072	9.82	0.06
70	300.050	0.182	-0.31	76.7	0.38	101	82	0.071	9.63	0.07
71			-0.32	76.7	0.38	-	82	0.070	9.50	0.08
72			-0.32	76.7	0.44	-	82	0.071	9.36	0.09
73			-0.33	76.7	0.39	-	82	0.071	9.15	0.10
74			-0.32	76.7	0.37	-	82	0.072	8.90	0.12
75			-0.32	76.7	0.39	-	82	0.070	8.70	0.15
76			-0.33	76.7	0.37	-	82	0.070	8.41	0.20
77			-0.32	76.8	0.41	-	82	0.070	8.17	0.28
78			-0.32	76.8	0.43	-	83	0.070	7.95	0.35
79			-0.32	76.8	0.45	-	83	0.070	8.02	0.36
80	301.848	0.180	-0.32	76.8	0.38	100	83	0.069	8.05	0.36
81			-0.33	76.8	0.42	-	84	0.070	7.91	0.45
82			-0.31	76.9	0.42	-	84	0.068	7.81	0.46
83			-0.33	76.9	0.44	-	84	0.068	8.01	0.44
84			-0.32	76.9	0.45	-	84	0.071	8.38	0.40
85			-0.32	76.9	0.46	-	85	0.069	8.64	0.36
86			-0.32	76.9	0.47	-	85	0.070	8.92	0.33
87			-0.32	76.9	0.45	-	85	0.068	9.04	0.32
88			-0.32	77.0	0.42	-	86	0.069	9.03	0.33
89			-0.33	77.0	0.40	-	86	0.070	9.23	0.32
90	303.648	0.180	-0.32	77.1	0.44	100	86	0.071	9.59	0.29
91			-0.32	77.1	0.44	-	86	0.072	10.18	0.25
92			-0.34	77.1	0.45	-	86	0.073	10.41	0.24
93			-0.32	77.1	0.44	-	86	0.071	10.45	0.20
94			-0.31	77.1	0.41	-	86	0.073	10.65	0.18
95			-0.32	77.2	0.45	-	86	0.075	11.07	0.13
96			-0.32	77.1	0.40	-	86	0.075	11.39	0.09
97			-0.32	77.1	0.41	-	86	0.075	12.24	0.08
98			-0.32	77.2	0.44	-	86	0.075	12.89	0.11

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
99			-0.31	77.2	0.45	-	86	0.078	13.51	0.16
100	305.452	0.180	-0.32	77.2	0.43	101	86	0.078	14.12	0.25
101			-0.32	77.2	0.40	-	86	0.080	14.82	0.26
102			-0.32	77.3	0.41	-	86	0.077	15.16	0.32
103			-0.32	77.3	0.41	-	85	0.079	15.82	0.41
104			-0.32	77.3	0.49	-	85	0.082	16.32	0.39
105			-0.32	77.3	0.44	-	85	0.082	16.88	0.45
106			-0.32	77.3	0.51	-	85	0.081	17.28	0.64
107			-0.32	77.4	0.52	-	85	0.080	17.50	0.60
108			-0.32	77.4	0.46	-	85	0.083	17.63	0.60
109			-0.32	77.4	0.53	-	85	0.085	17.79	0.60
110	307.256	0.180	-0.33	77.4	0.57	102	85	0.082	17.79	0.79
111			-0.32	77.4	0.51	-	85	0.082	18.07	0.76
112			-0.32	77.4	0.59	-	85	0.083	17.65	0.62
113			-0.32	77.5	0.57	-	85	0.082	15.84	0.24
114			-0.32	77.5	0.57	-	84	0.080	15.20	0.14
115			-0.32	77.5	0.53	-	84	0.080	15.43	0.14
116			-0.32	77.5	0.58	-	84	0.081	15.62	0.15
117			-0.32	77.5	0.59	-	84	0.081	15.73	0.16
118			-0.32	77.5	0.53	-	84	0.083	15.78	0.15
119			-0.32	77.6	0.53	-	84	0.081	15.67	0.13
120	309.062	0.181	-0.32	77.6	0.55	102	84	0.082	15.47	0.12
121			-0.32	77.6	0.52	-	84	0.081	15.46	0.11
122			-0.35	77.6	0.60	-	84	0.079	15.41	0.12
123			-0.33	77.6	0.58	-	84	0.080	15.29	0.12
124			-0.35	77.6	0.59	-	84	0.079	15.26	0.13
125			-0.32	77.7	0.53	-	84	0.081	15.12	0.12
126			-0.33	77.7	0.58	-	84	0.080	14.96	0.11
127			-0.32	77.7	0.54	-	84	0.079	14.84	0.12
128			-0.32	77.7	0.55	-	84	0.080	14.70	0.12
129			-0.32	77.7	0.59	-	84	0.079	14.54	0.10
130	310.865	0.180	-0.32	77.7	0.60	101	84	0.079	14.39	0.11
131			-0.32	77.8	0.57	-	84	0.079	14.31	0.12

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
132			-0.32	77.8	0.56	-	84	0.079	14.24	0.12
133			-0.33	77.8	0.59	-	84	0.079	14.17	0.11
134			-0.32	77.8	0.59	-	83	0.078	14.36	0.07
135			-0.34	77.8	0.58	-	83	0.078	14.32	0.08
136			-0.32	77.8	0.59	-	83	0.079	14.25	0.08
137			-0.32	77.8	0.59	-	83	0.077	14.23	0.06
138			-0.32	77.8	0.57	-	83	0.079	14.17	0.05
139			-0.34	77.8	0.63	-	83	0.077	13.93	0.04
140	312.667	0.180	-0.31	77.9	0.59	101	83	0.076	13.74	0.03
141			-0.34	77.9	0.60	-	83	0.076	13.46	0.03
142			-0.34	77.9	0.67	-	83	0.075	13.28	0.03
143			-0.37	77.9	0.65	-	83	0.076	12.84	0.02
144			-0.35	77.9	0.60	-	83	0.074	11.70	0.02
145			-0.35	77.9	0.66	-	83	0.075	11.00	0.02
146			-0.34	77.9	0.57	-	83	0.074	10.72	0.02
147			-0.33	77.9	0.61	-	83	0.074	10.56	0.03
148			-0.35	77.9	0.62	-	83	0.073	10.40	0.03
149			-0.32	77.9	0.58	-	83	0.072	10.28	0.03
150	314.478	0.181	-0.35	77.9	0.63	101	83	0.073	10.12	0.03
151			-0.32	78.0	0.60	-	83	0.072	9.88	0.03
152			-0.33	78.0	0.61	-	83	0.071	9.72	0.04
153			-0.32	78.0	0.61	-	83	0.070	9.48	0.04
154			-0.32	78.0	0.62	-	83	0.069	9.17	0.05
155			-0.32	78.0	0.65	-	83	0.070	8.89	0.06
156			-0.32	78.0	0.65	-	83	0.070	8.82	0.08
157			-0.32	78.0	0.63	-	83	0.069	8.76	0.08
158			-0.32	78.1	0.63	-	83	0.069	8.45	0.10
159	316.104	0.181	-0.32	78.1	0.62	100	83	0.068	8.32	0.07
Avg/Tot	28.675	0.180	-0.32	77	0.43	100	84	0.065	10.93	0.18

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
0	75	73	74	74	74	73.9	N/A
1	77	73	76	77	76	75.8	N/A
2	81	73	81	86	82	80.7	N/A
3	88	73	87	98	86	86.6	N/A
4	96	73	96	112	91	93.6	N/A
5	105	73	105	126	96	101.3	N/A
6	112	73	111	139	103	107.6	N/A
7	117	73	115	147	108	112.2	N/A
8	122	74	120	158	114	117.7	N/A
9	126	74	125	169	121	122.9	N/A
10	127	74	129	177	126	126.5	N/A
11	130	74	131	182	131	129.7	N/A
12	135	74	136	188	135	133.5	N/A
13	141	74	143	200	140	139.6	N/A
14	146	75	148	210	147	144.9	N/A
15	149	75	151	216	152	148.7	N/A
16	153	75	155	221	157	152.1	N/A
17	159	76	159	224	166	156.6	N/A
18	162	76	163	228	176	160.9	N/A
19	165	77	168	231	185	165.2	N/A
20	169	78	174	236	194	170.1	N/A
21	174	78	181	243	203	175.7	N/A
22	178	79	189	251	212	181.9	N/A
23	183	80	197	257	222	187.7	N/A
24	188	81	205	263	231	193.5	N/A
25	192	82	213	267	241	199.1	N/A
26	195	83	220	272	251	204.1	N/A
27	199	84	227	277	260	209.4	N/A
28	204	85	234	285	269	215.6	N/A
29	210	86	242	296	279	222.9	N/A
30	216	88	251	307	288	230.0	N/A
31	221	89	260	318	298	237.1	N/A
32	228	90	270	327	309	245.0	N/A
33	240	91	283	339	324	255.5	N/A
34	251	93	298	352	345	267.9	N/A
35	261	95	312	367	367	280.5	N/A
36	272	97	325	383	389	293.2	N/A
37	281	99	337	399	410	305.1	N/A
38	290	100	349	416	427	316.2	N/A
39	297	102	361	434	442	327.3	N/A
40	305	105	373	451	457	338.2	N/A
41	313	107	387	465	472	348.8	N/A
42	320	109	399	478	486	358.5	N/A
43	327	112	408	490	499	367.4	N/A
44	332	115	417	502	511	375.5	N/A
45	337	118	425	512	521	382.7	N/A
46	342	120	433	522	529	389.2	N/A
47	346	124	440	532	537	395.9	N/A
48	350	126	448	543	544	402.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
49	353	130	455	553	550	408.3	N/A
50	356	134	462	562	555	414.1	N/A
51	360	138	469	572	561	419.9	N/A
52	363	140	475	582	565	425.2	N/A
53	365	145	482	591	570	430.6	N/A
54	368	148	488	598	574	435.3	N/A
55	367	156	499	607	581	442.0	N/A
56	367	158	505	609	588	445.5	N/A
57	367	163	507	610	590	447.2	N/A
58	368	167	509	609	589	448.5	N/A
59	368	173	509	610	590	449.9	N/A
60	373	176	509	612	590	452.3	N/A
61	379	181	509	616	592	455.4	N/A
62	385	182	507	619	593	457.1	N/A
63	390	185	505	621	595	459.2	N/A
64	395	187	502	623	596	460.8	N/A
65	398	192	500	625	597	462.6	N/A
66	402	196	497	627	599	464.0	N/A
67	405	198	495	627	600	465.0	N/A
68	407	198	493	627	601	465.4	N/A
69	409	202	491	627	602	466.4	N/A
70	411	206	490	627	603	467.2	N/A
71	412	207	488	627	603	467.3	N/A
72	413	208	486	626	604	467.4	N/A
73	413	209	484	625	605	467.1	N/A
74	413	213	482	623	605	467.2	N/A
75	414	214	480	620	606	466.7	N/A
76	414	217	478	616	607	466.3	N/A
77	414	217	476	613	607	465.2	N/A
78	414	218	474	608	606	463.8	N/A
79	414	219	472	602	605	462.5	N/A
80	413	220	470	597	604	461.0	N/A
81	413	222	469	593	602	459.8	N/A
82	412	222	468	589	601	458.5	N/A
83	411	224	468	585	601	458.0	N/A
84	412	226	468	583	601	457.6	N/A
85	413	227	466	580	602	457.7	N/A
86	416	228	465	577	604	458.0	N/A
87	419	229	463	575	606	458.4	N/A
88	421	230	463	573	608	458.9	N/A
89	424	231	462	571	609	459.4	N/A
90	427	231	463	570	610	460.3	N/A
91	429	232	465	570	611	461.5	N/A
92	432	233	466	571	612	462.8	N/A
93	433	234	468	572	613	464.0	N/A
94	434	234	471	575	613	465.4	N/A
95	434	230	472	580	614	466.1	N/A
96	436	229	474	586	615	467.9	N/A
97	438	232	477	593	616	471.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
98	442	232	480	601	618	474.8	N/A
99	446	234	485	611	621	479.6	N/A
100	451	234	492	623	626	485.1	N/A
101	456	234	498	636	631	491.1	N/A
102	463	235	505	650	638	498.2	N/A
103	470	234	512	665	646	505.4	N/A
104	478	233	520	680	656	513.3	N/A
105	484	232	529	696	668	522.0	N/A
106	490	235	541	712	682	532.0	N/A
107	497	236	554	727	696	542.0	N/A
108	503	237	568	740	710	551.7	N/A
109	509	238	581	752	724	560.7	N/A
110	514	238	596	763	736	569.4	N/A
111	519	237	609	773	748	577.4	N/A
112	523	240	621	784	759	585.3	N/A
113	525	241	630	792	767	591.0	N/A
114	525	242	640	799	772	595.4	N/A
115	526	242	649	804	776	599.3	N/A
116	526	243	658	810	780	603.5	N/A
117	527	244	667	815	785	607.7	N/A
118	528	246	676	820	789	611.7	N/A
119	529	247	683	824	793	615.3	N/A
120	530	248	690	827	797	618.5	N/A
121	531	248	697	831	801	621.5	N/A
122	531	249	703	834	805	624.5	N/A
123	532	250	708	837	808	627.3	N/A
124	533	252	713	841	812	630.2	N/A
125	533	254	719	844	815	633.1	N/A
126	533	255	724	848	817	635.5	N/A
127	533	254	729	852	819	637.3	N/A
128	533	257	733	855	821	639.7	N/A
129	532	257	737	859	821	641.4	N/A
130	532	259	741	862	821	643.0	N/A
131	532	260	744	866	821	644.4	N/A
132	531	262	747	869	820	645.8	N/A
133	530	264	750	872	818	647.0	N/A
134	529	266	752	875	817	647.8	N/A
135	528	267	754	879	816	648.7	N/A
136	528	268	756	881	815	649.6	N/A
137	526	268	758	883	815	650.3	N/A
138	525	272	761	884	816	651.5	N/A
139	523	273	762	885	817	652.1	N/A
140	521	275	763	886	817	652.5	N/A
141	519	277	764	886	817	652.7	N/A
142	517	278	765	886	817	652.6	N/A
143	514	279	767	886	816	652.4	N/A
144	510	283	767	883	815	651.7	N/A
145	506	285	767	878	813	649.7	N/A
146	502	287	766	872	811	647.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
147	498	290	765	867	808	645.6	N/A
148	494	290	763	861	805	642.9	N/A
149	491	293	761	856	802	640.6	N/A
150	487	296	759	850	799	638.2	N/A
151	484	298	758	845	795	635.8	N/A
152	480	300	755	840	792	633.3	N/A
153	476	301	753	834	789	630.4	N/A
154	472	304	749	828	786	627.7	N/A
155	468	306	745	821	782	624.7	N/A
156	464	308	741	815	779	621.5	N/A
157	461	310	737	808	776	618.3	N/A
158	457	314	732	802	772	615.4	N/A
159	454	316	728	795	769	612.2	N/A
Average	381	190	484	585	563	441	N/A

LAB SAMPLE DATA - ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	H100	185.2	187.6	2.4
	B	H101	183.9	186.4	2.5
	C - 1st Hour	H102	185.0	185.9	0.9
	Amb	H103	184.6	184.6	0.0
Probes	**A**	4A	116020.4	116020.6	0.2
	B	4B	116179.0	116178.9	0.0*
	C - 1st Hour	4C	116994.3	116994.4	0.1
O-rings	**A**	4A	3623.0	3623.0	0.0
	B	4B	3580.5	3580.7	0.2
	C - 1st Hour	4C	3373.9	3374.0	0.1

**Negative value corrected to zero*

Placed in Dessicator on:	6/13 - 8:30

Filters	**A**	187.8	6/6 17:16	187.7	6/15 12:05	187.6	6/16 8:55		
	B	186.5	6/6 17:16	186.5	6/15 12:05	186.4	6/16 8:55		
	C - 1st Hour	186.1	6/6 17:16	186.0	6/15 12:05	185.9	6/16 8:55		
	Amb	184.5	6/6 17:16	184.6	6/15 12:05	184.6	6/16 8:55		
Probes	**A**			116020.5	6/15 12:06	116020.6	6/16 8:55		
	B			116179.0	6/15 12:06	116178.9	6/16 8:55		
	C - 1st Hour			116994.6	6/15 12:06	116994.4	6/16 8:56		
O-Rings	**A**			3623.0	6/15 12:06	3623.0	6/16 8:56		
	B			3580.8	6/15 12:06	3580.7	6/16 8:56		
	C - 1st Hour			3374.0	6/15 12:06	3374.0	6/16 8:56		

Train A Aggregate, mg:	**2.6**
Train B Aggregate, mg:	**2.7**
Train C Aggregate, mg:	**1.1**
Ambient Aggregate, mg:	**0.0**

WOOD STOVE TEST DATA PACKET
ASTM E3053/E2515

Run 2 Data Summary

Client: SBI
Model: Bistro
Job #: 22-790
Tracking #: 122
Test Date: 6/6/2022

6/16/2022

Techician Signature | Date

TEST RESULTS - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

Burn Rate (kg/hr):	1.34

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	45.820	74.630	75.963	9.897
Average Gas Velocity in Dilution Tunnel (ft/sec)	28.19			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	33042.0			
Average Gas Meter Temperature (°F)	83.7	80.0	78.7	79.9
Total Sample Volume (dscf)	44.095	74.739	76.469	9.649
Average Tunnel Temperature (°F)	96.0			
Total Time of Test (min)	388			
Total Particulate Catch (mg)	0.0	4.8	4.8	2.9
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000642	0.0000628	0.0003005
Total PM Emissions (g)	0.00	13.72	13.41	9.93
Particulate Emission Rate (g/hr)	0.00	2.12	2.07	9.93
Emissions Factor (g/kg)	-	1.58	1.55	-
Difference from Average Total Particulate Emissions (g)	-	0.16	0.16	-
Difference from Average Total Particulate Emissions (%)	-	1.1%	1.1%	-
Difference from Average Emissions Factor (g/kg)	-	0.02	0.02	-

Final Average Results	
Total Particulate Emissions (g)	13.57
Particulate Emission Rate (g/hr)	2.10
Emissions Factor (g/kg)	1.57
HHV Efficiency (%)	75.0%
LHV Efficiency (%)	80.3%
CO Emissions (g/min)	1.00

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	>80 °F, <90 °F	Min: 81.3 / Max: 88.4	OK
Face Velocity	< 30 ft/min	10.7	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:80.1/ Max:89.4	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-3.4%	OK
Pro-Rate Variation	All but 1 reading between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Tunnel Dew Point	Tunnel dew point temps must be below filter temps at all times	See Data Tabs	OK

B415.1 Efficiency Results

Manufacturer:	SBI
Model:	Bistro
Date:	06/06/22
Run:	2
Control #:	22-790
Test Duration:	388
Output Category:	Medium

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	75.0%	80.3%
Combustion Efficiency	97.0%	97.0%
Heat Transfer Efficiency	77.3%	82.8%

Output Rate (kJ/h)	18,896	17,925	**(Btu/h)**
Burn Rate (kg/h)	1.34	2.96	**(lb/h)**
Input (kJ/h)	25,211	23,916	**(Btu/h)**

Test Load Weight (dry kg)	8.67	19.11	**dry lb**
MC wet (%)	16.80		
MC dry (%)	20.19		
Particulate (g)	13.57		
CO (g)	387		
Test Duration (h)	6.47		

Emissions	**Particulate**	**CO**
g/MJ Output	0.11	3.17
g/kg Dry Fuel	1.56	44.64
g/h	2.10	59.86
g/min	0.03	1.00
lb/MM Btu Output	0.26	7.36

Air/Fuel Ratio (A/F)	16.06

VERSION: **2.2** **12/14/2009**

HIGH FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 2
Technician: SJB
Date: 6/6/2022

Nominal Loading Density (lbs/ft^3, wet basis):	10		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	19.40		
Total Load Weight Range (lbs):	18.40	to	20.40
Core Load Weight Range (lbs):	8.70	to	12.60
Remainder Load Weight Range (lbs):	6.80	to	10.70
Core Load Piece Range (lbs):	2.90	to	4.90
Remainder Load Piece Range (lbs):	1.90	to	10.70
Max Allowable Kindling Weight (lbs):	3.82		
Max Allowable Start-up Fuel Weight (lbs):	5.73		

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	3.98	In Range	27.2	20.4	15.9	21.2	In Range	3.28	1.49
2	17.00	4.03	In Range	23.1	18.7	18.2	20.0	In Range	3.36	1.52
3	17.00	3.49	In Range	23.7	18.1	16.2	19.3	In Range	2.92	1.33
Core Load Wt. (lbs)		11.50	In Range							

REMAINDER LOAD DATA (1 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	2.53	In Range	25.7	16.5	22.3	21.5	In Range	2.08	0.94
2	17.00	5.08	In Range	23.7	19.0	14.4	19.0	In Range	4.27	1.94
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		7.61	In Range							

Total Load Weight (lbs):	19.11	In Range	
Core Load % of Total Weight:	60%	In Range	45-65%
Remainder % of Total Weight:	40%	In Range	35-55%
Total Load % of Target Weight:	99%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	9.9		
Total Load Average Moisture Content (%DB):	20.1	In Range	19-25%
Total Load Average Moisture Content (%WB):	16.7		
Total Test Load Weight (dry basis):	15.92 lbs	7.22 kg	

KINDLING AND START-UP FUEL

		Kindling Moisture Readings (%DB)					Dry Weight	
Kindling Weight (lbs)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
3.66	In Range	10	10	10	10.0	In Range	3.33	1.51

		Start-up Moisture Readings (%DB)					Dry Weight	
Start-up Fuel Wt. (lb)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
5.47	In Range	24.4	23.1	20.4	22.6	In Range	4.46	2.02

TEST FUEL LOADING RANGE

Allowable Residual Start-up Fuel Range (lb):	1.9	to	3.8	
Actual Residual Start-up Fuel Weight (lb):		2.40		In Range

LOW & MEDIUM FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 2
Technician: SJB
Date: 6/6/2022

Nominal Loading Density (lbs/ft^3, wet basis):	12		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	23.28		
Total Load Weight Range (lbs):	22.12	to	24.44
Core Load Weight Range (lbs):	10.48	to	15.13
Remainder Load Weight Range (lbs):	8.15	to	12.80
Core Load Piece Range (lbs):	3.49	to	5.82
Remainder Load Piece Range (lbs):	2.33	to	6.98

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	4.35	In Range	20.8	18.6	18.6	19.3	In Range	3.65	1.65
2	17.00	4.76	In Range	18.2	20.1	17.3	18.5	In Range	4.02	1.82
3	17.00	4.73	In Range	23.1	21.1	18.0	20.7	In Range	3.92	1.78
Core Load Wt. (lbs)		13.84	In Range							

REMAINDER LOAD DATA (2 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	5.59	In Range	24.3	20.5	18.1	21.0	In Range	4.62	2.10
2	17.00	3.54	In Range	25.7	20.5	18.6	21.6	In Range	2.91	1.32
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		9.13	In Range							

Remainder Load Small/Large Piece Weight Ratio:	63%	In Range	≤ 67%
Total Load Weight (lbs):	22.97	In Range	
Core Load % of Total Weight:	60%	In Range	45-65%
Remainder % of Total Weight:	40%	In Range	35-55%
Total Load % of Target Weight:	99%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	11.8		
Total Load Average Moisture Content (%DB):	20.2	In Range	19-25%
Total Load Average Moisture Content (%WB):	16.8		
Total Test Load Weight (dry basis):	19.11 lbs	8.67 kg	

TEST FUEL LOADING RANGE

Allowable Charcoal Bed Weight Range (lb):	2.3	to	4.5	
Actual Charcoal Bed Wt. (lb):	3.20	In Range		

TEST END POINT

Actual Fuel Load Ending Weight (lb): 0.00 Valid Test (≥90%)

Total Fuel Burned During Test Run:	23.0	lbs, wet basis
	19.1	lbs, dry basis
	8.67	kg, dry basis

DILUTION TUNNEL & MISC. DATA - ASTM E3053 / E2515

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	2	Technician:	SJB
Test Start Time:	17:04	Date:	6/6/2022
Test Type:	Medium Fire		

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

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.02	30.02	30.02
Relative Humidity (%)	40.9	42.3	
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	22.2	22.2	

Meter Box γ Factor:	1.022	(A)
Meter Box γ Factor:	1.025	(B)
Meter Box γ Factor:	0.993	(C)
Meter Box γ Factor:	0.988	(Ambient)

Ambient Sample Volume: 45.820 ft^3

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100
Date Flue Pipe Last Cleaned:	6/3/2022

Sample Train Post-Test Leak Checks

(A)	0.001	cfm @	-5	in. Hg
(B)	0.001	cfm @	-5	in. Hg
(C)	0.000	cfm @	-5	in. Hg
(Ambient)	0.000	cfm @	-5	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.168	76
2	0.201	76
3	0.196	76
4	0.179	76
5	0.146	76
6	0.186	76
7	0.199	76
8	0.177	76
Center	0.207	76

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	8	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:	0.3491	ft^2
V_{strav}:	28.37	ft/sec
V_{scent}:	30.33	ft/sec
F_p:	0.935	[ratio]
Initial Tunnel Flow:	575.3	scf/min

Static Pressure: -0.418 in. H_2O

TEST FUEL PROPERTIES

ASTM 3053-17 - Table A1.1 Fuel Properties by Fuel Species

Select Fuel Type	Species	%C	%H	%O	%Ash	MJ/kg	BTU/lb
	Ash, White	49.70	6.90	43.00	0.30	20.75	8927
X	Beech	48.70	5.80	44.70	0.60	18.80	8088
	Birch, Yellow	49.80	6.50	43.40	0.30	20.12	8656
	Doug Fir (Coast, Int. West)	48.73	6.87	43.90	0.50	19.81	8522
	Doug Fir (Int. South)	48.73	6.87	43.90	0.50	19.81	8522
	Elm, Rock	50.40	6.60	42.30	0.70	20.49	8815
	Elm, Soft	50.40	6.60	42.30	0.70	20.49	8815
	Larch, Western	50.54	6.36	42.40	0.70	17.58	7558
	Maple, Hard	50.64	6.02	41.74	1.35	19.96	8587
	Maple, Sugar	50.64	6.02	41.74	1.35	19.96	8587
	Oak, Red	49.50	6.62	43.70	0.20	20.20	8690
	Oak, White	50.40	6.59	42.70	0.20	20.50	8819
	Pine, Southern Long Leaf	52.60	7.02	40.10	1.30	22.30	9594

WOODSTOVE PREBURN DATA

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	2	Technician:	SJB
		Date:	6/6/2022

Medium Fire performed as a continuation of High Fire Test, see Run 1 test data for details

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
0	297.414		0.194	-0.34	78.9	-0.44		22.97		103.9	52.6	387.2	83.6	82.7
1			0.191	-0.32	79.3	0.32	-	22.94	-0.0313	110.4	57.1	359.7	84.4	85.4
2			0.192	-0.32	79.3	0.33	-	23.71	0.77043	111.7	59.3	347.4	84.9	85.2
3			0.190	-0.32	79.3	0.34	-	22.64	-1.0656	113.6	61.1	351.4	84.9	86.6
4			0.191	-0.31	79.4	0.32	-	22.42	-0.2205	118.0	63.5	379.6	85.1	87.0
5			0.193	-0.31	79.4	0.31	-	22.19	-0.2329	101.3	64.6	393.4	84.7	87.1
6			0.196	-0.32	79.4	0.31	-	22.05	-0.1415	98.4	63.6	385.8	84.5	85.0
7			0.195	-0.32	79.5	0.30	-	21.94	-0.111	96.7	62.7	381.6	84.1	86.2
8			0.195	-0.34	79.5	0.31	-	21.74	-0.202	98.4	63.7	400.3	84.1	85.9
9			0.196	-0.31	79.5	0.32	-	21.51	-0.2248	99.4	64.9	416.6	84.1	85.5
10	299.322	0.191	0.196	-0.31	79.6	0.32	100	21.33	-0.1851	97.3	64.4	420.1	84.2	86.5
11			0.196	-0.31	79.6	0.30	-	21.14	-0.1883	97.8	63.5	416.0	84.2	86.2
12			0.196	-0.31	79.6	0.31	-	20.99	-0.1514	97.0	62.7	407.5	84.2	87.5
13			0.196	-0.31	79.7	0.32	-	20.84	-0.1478	96.8	62.2	401.5	84.2	88.0
14			0.196	-0.32	79.7	0.33	-	20.68	-0.1571	97.4	62.6	403.1	84.3	88.0
15			0.195	-0.31	79.7	0.32	-	20.47	-0.2157	100.4	63.6	412.9	84.2	86.1
16			0.196	-0.31	79.8	0.34	-	20.32	-0.1477	100.2	63.4	424.7	84.2	83.9
17			0.195	-0.31	79.8	0.32	-	20.15	-0.1639	99.7	63.4	431.6	84.1	85.0
18			0.196	-0.34	79.8	0.33	-	19.97	-0.1871	99.1	63.5	436.4	84.2	85.4
19			0.196	-0.31	79.9	0.33	-	19.78	-0.1897	99.4	63.4	439.7	84.2	85.8
20	301.217	0.189	0.195	-0.32	79.9	0.33	99	19.58	-0.1939	99.6	63.2	441.0	84.1	85.0
21			0.196	-0.31	79.9	0.30	-	19.39	-0.1895	99.7	63.0	441.4	84.0	84.1
22			0.195	-0.32	79.9	0.31	-	19.23	-0.1622	99.7	62.9	441.0	84.1	83.5
23			0.195	-0.32	79.9	0.31	-	19.05	-0.1802	99.6	62.7	438.7	84.0	83.3
24			0.195	-0.32	80.0	0.30	-	18.88	-0.1677	99.6	62.4	436.5	84.0	83.2
25			0.196	-0.31	80.0	0.32	-	18.74	-0.1428	99.4	62.3	435.0	84.0	82.9
26			0.195	-0.31	80.0	0.30	-	18.57	-0.1671	99.5	62.2	432.5	83.9	82.8
27			0.198	-0.31	80.0	0.29	-	18.43	-0.1438	99.6	62.0	429.2	84.0	82.1
28			0.197	-0.31	80.0	0.30	-	18.27	-0.1602	99.4	61.9	428.5	84.0	82.3
29			0.196	-0.32	80.0	0.31	-	18.14	-0.1271	99.2	61.7	426.4	84.1	82.1
30	303.110	0.189	0.199	-0.31	80.0	0.30	99	18.00	-0.1392	99.0	61.6	424.0	83.9	82.4
31			0.196	-0.31	80.0	0.31	-	17.85	-0.1512	99.1	61.3	422.1	84.0	82.4
32			0.195	-0.31	80.0	0.32	-	17.72	-0.1287	99.1	61.3	418.3	84.0	82.1

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
33			0.195	-0.31	80.0	0.31	-	17.60	-0.1231	97.5	61.3	410.8	83.9	83.0
34			0.197	-0.32	80.1	0.31	-	17.45	-0.1497	97.5	61.3	400.3	83.9	84.7
35			0.197	-0.33	80.1	0.31	-	17.31	-0.1437	97.4	61.2	395.5	84.0	85.9
36			0.196	-0.35	80.1	0.31	-	17.17	-0.1337	97.8	61.3	394.3	83.9	86.5
37			0.195	-0.32	80.1	0.31	-	17.02	-0.1538	97.8	61.3	393.8	83.8	86.8
38			0.197	-0.32	80.1	0.32	-	16.89	-0.128	98.1	61.4	393.9	83.9	87.4
39			0.195	-0.32	80.1	0.31	-	16.75	-0.143	98.0	61.4	392.8	83.8	87.9
40	305.010	0.190	0.199	-0.32	80.1	0.32	98	16.60	-0.1465	98.4	61.4	392.3	84.0	88.3
41			0.195	-0.31	80.1	0.32	-	16.46	-0.1403	98.3	61.5	391.1	83.8	88.7
42			0.196	-0.32	80.1	0.30	-	16.33	-0.1339	98.5	61.5	390.2	83.8	89.0
43			0.196	-0.30	80.2	0.31	-	16.19	-0.1356	98.4	61.6	389.2	83.8	89.4
44			0.194	-0.32	80.2	0.33	-	16.04	-0.153	101.7	61.9	389.8	84.0	89.2
45			0.198	-0.33	80.2	0.33	-	15.90	-0.1418	103.9	62.0	391.5	84.1	87.4
46			0.194	-0.33	80.2	0.33	-	15.79	-0.108	104.4	62.3	392.1	84.2	88.0
47			0.194	-0.31	80.2	0.32	-	15.66	-0.1294	104.6	62.4	392.1	84.3	87.5
48			0.194	-0.32	80.2	0.33	-	15.53	-0.1297	104.8	62.4	392.7	84.3	87.1
49			0.194	-0.32	80.2	0.32	-	15.41	-0.1217	104.8	62.4	392.7	84.4	87.0
50	306.926	0.192	0.194	-0.31	80.2	0.32	100	15.28	-0.1309	104.9	62.6	392.8	84.5	87.3
51			0.192	-0.32	80.2	0.31	-	15.14	-0.1351	104.9	62.6	392.6	84.6	87.6
52			0.194	-0.31	80.2	0.33	-	15.00	-0.1385	105.2	62.6	393.2	84.6	87.7
53			0.192	-0.32	80.2	0.34	-	14.87	-0.1321	105.2	62.7	393.3	84.7	87.4
54			0.195	-0.31	80.2	0.32	-	14.73	-0.1448	105.3	62.7	393.9	84.8	87.8
55			0.197	-0.32	80.3	0.33	-	14.60	-0.1235	105.4	62.6	394.0	84.9	87.3
56			0.195	-0.31	80.3	0.32	-	14.46	-0.1462	105.4	62.6	394.6	84.8	87.5
57			0.196	-0.31	80.3	0.35	-	14.32	-0.1354	105.6	62.7	395.4	84.9	87.2
58			0.195	-0.32	80.3	0.33	-	14.19	-0.1368	105.6	62.7	396.0	84.9	87.7
59			0.193	-0.32	80.3	0.34	-	14.04	-0.1418	105.9	62.6	396.9	85.0	87.1
60	308.810	0.188	0.193	-0.32	80.3	0.34	100	13.90	-0.1452	106.0	62.7	399.3	85.2	87.7
61			0.195	-0.31	80.4	0.35	-	13.75	-0.1469	106.1	62.8	399.6	85.1	86.8
62			0.193	-0.32	80.4	0.32	-	13.61	-0.1404	106.4	63.0	401.4	85.3	87.4
63			0.194	-0.31	80.4	0.34	-	13.47	-0.145	106.5	63.0	404.3	85.3	86.9
64			0.193	-0.31	80.4	0.33	-	13.32	-0.1447	106.7	62.9	407.4	85.5	87.1
65			0.194	-0.32	80.4	0.34	-	13.16	-0.1586	106.9	63.1	411.1	85.6	87.8

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
66			0.194	-0.31	80.4	0.34	-	13.02	-0.1446	107.4	63.1	413.5	85.7	86.3
67			0.192	-0.31	80.4	0.35	-	12.87	-0.1471	108.2	63.5	418.9	85.7	85.2
68			0.194	-0.32	80.4	0.34	-	12.74	-0.1278	108.4	63.5	425.1	85.7	85.2
69			0.194	-0.31	80.4	0.35	-	12.58	-0.1633	108.6	63.6	429.1	86.0	85.4
70	310.712	0.190	0.194	-0.32	80.3	0.35	101	12.44	-0.1422	108.7	63.6	433.0	86.1	84.8
71			0.196	-0.31	80.4	0.37	-	12.26	-0.1813	108.8	63.7	437.7	86.0	85.0
72			0.194	-0.32	80.4	0.38	-	12.11	-0.1484	107.0	63.7	441.5	86.0	85.0
73			0.194	-0.32	80.4	0.41	-	11.96	-0.1496	105.3	63.8	446.3	86.1	84.8
74			0.196	-0.34	80.4	0.41	-	11.78	-0.1818	104.8	63.9	452.2	86.0	84.8
75			0.193	-0.31	80.4	0.49	-	11.58	-0.1945	104.9	64.1	457.4	85.9	85.9
76			0.193	-0.32	80.3	0.57	-	11.40	-0.1824	104.7	64.2	462.1	85.8	86.0
77			0.193	-0.31	80.4	0.62	-	11.19	-0.2076	104.8	64.2	466.0	85.8	85.5
78			0.192	-0.34	80.3	0.69	-	10.98	-0.2101	104.6	64.2	469.9	85.7	87.1
79			0.194	-0.31	80.4	0.72	-	10.75	-0.2288	105.3	64.2	474.1	85.8	87.4
80	312.478	0.177	0.193	-0.31	80.3	0.85	94	10.53	-0.2209	105.8	64.2	476.5	85.8	86.3
81			0.194	-0.31	80.4	1.01	-	10.30	-0.2316	106.0	64.1	477.7	86.0	86.4
82			0.192	-0.31	80.4	1.05	-	10.09	-0.2119	106.3	64.0	479.5	86.1	86.2
83			0.193	-0.32	80.4	1.04	-	9.88	-0.2095	106.5	63.9	480.9	86.1	85.4
84			0.194	-0.32	80.4	1.06	-	9.66	-0.2221	106.6	64.0	481.8	86.0	84.4
85			0.195	-0.32	80.4	1.07	-	9.46	-0.1937	106.5	63.9	482.5	86.2	85.3
86			0.193	-0.32	80.4	1.07	-	9.26	-0.2077	106.8	63.9	483.0	86.0	85.5
87			0.193	-0.32	80.4	1.07	-	9.05	-0.2035	106.9	63.8	483.6	86.1	85.3
88			0.192	-0.31	80.5	1.10	-	8.87	-0.1854	106.9	63.6	483.3	86.1	84.9
89			0.193	-0.31	80.5	1.11	-	8.68	-0.1918	106.8	63.5	483.1	86.2	84.8
90	314.368	0.189	0.192	-0.31	80.5	1.11	100	8.50	-0.1792	106.6	63.5	482.4	86.2	84.8
91			0.193	-0.32	80.5	1.11	-	8.31	-0.1834	106.8	63.3	482.1	86.2	84.9
92			0.193	-0.32	80.5	1.10	-	8.18	-0.1327	106.8	63.3	481.5	86.2	84.2
93			0.193	-0.32	80.6	1.12	-	7.96	-0.2247	107.1	63.3	482.2	86.2	84.0
94			0.191	-0.32	80.5	1.15	-	7.79	-0.1661	106.8	63.2	482.8	86.4	83.8
95			0.189	-0.32	80.5	1.15	-	7.62	-0.1667	107.0	63.1	483.6	86.3	84.8
96			0.193	-0.31	80.6	1.16	-	7.43	-0.1876	106.8	63.1	483.9	86.3	84.6
97			0.193	-0.32	80.6	1.16	-	7.27	-0.1652	107.1	62.9	484.0	86.4	84.9
98			0.195	-0.32	80.6	1.15	-	7.10	-0.1733	107.2	62.7	483.8	86.4	84.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
99			0.193	-0.32	80.6	1.15	-	6.93	-0.1675	107.1	62.6	483.0	86.3	85.0
100	316.258	0.189	0.192	-0.31	80.6	1.14	100	6.78	-0.147	107.0	62.5	482.6	86.4	84.5
101			0.190	-0.31	80.6	1.15	-	6.61	-0.1723	107.1	62.3	482.3	86.4	84.6
102			0.191	-0.31	80.6	1.16	-	6.46	-0.1486	106.9	62.2	481.2	86.4	84.7
103			0.193	-0.32	80.6	1.20	-	6.31	-0.1468	106.8	62.1	480.1	86.5	84.8
104			0.193	-0.31	80.6	1.17	-	6.16	-0.1499	106.9	62.0	479.4	86.5	84.5
105			0.196	-0.31	80.6	1.18	-	6.02	-0.1485	106.8	62.0	477.8	86.5	84.0
106			0.193	-0.32	80.6	1.19	-	5.86	-0.1548	106.8	62.0	475.8	86.5	84.5
107			0.193	-0.32	80.6	1.19	-	5.74	-0.1209	106.7	61.9	472.2	86.5	84.9
108			0.193	-0.31	80.6	1.18	-	5.62	-0.1235	106.5	61.5	468.3	86.5	84.3
109			0.194	-0.31	80.6	1.17	-	5.52	-0.099	106.4	60.9	464.6	86.4	85.2
110	318.152	0.189	0.190	-0.32	80.6	1.17	101	5.41	-0.1052	106.1	60.3	459.5	86.5	85.2
111			0.193	-0.32	80.7	1.24	-	5.35	-0.0647	105.8	59.6	454.8	86.6	84.6
112			0.193	-0.32	80.7	1.20	-	5.26	-0.0906	105.5	59.2	449.7	86.4	84.8
113			0.194	-0.32	80.7	1.20	-	5.18	-0.0749	105.3	58.9	444.4	86.6	85.0
114			0.193	-0.32	80.7	1.20	-	5.11	-0.0736	105.1	58.6	440.2	86.5	84.5
115			0.192	-0.32	80.7	1.19	-	5.06	-0.0493	105.1	58.3	435.7	86.2	84.4
116			0.193	-0.32	80.7	1.20	-	5.00	-0.0555	104.8	58.1	432.1	86.3	84.4
117			0.193	-0.31	80.7	1.19	-	4.96	-0.0464	104.1	58.0	427.9	86.2	84.8
118			0.194	-0.32	80.7	1.18	-	4.89	-0.0698	104.2	57.9	424.3	86.3	84.6
119			0.194	-0.31	80.7	1.20	-	4.85	-0.0411	103.9	57.8	420.7	86.2	85.0
120	320.064	0.191	0.195	-0.31	80.7	1.19	101	4.80	-0.0487	103.7	57.7	417.8	86.3	84.4
121			0.194	-0.31	80.7	1.20	-	4.74	-0.0588	103.4	57.7	414.4	86.3	84.6
122			0.194	-0.34	80.7	1.21	-	4.70	-0.038	103.3	57.7	411.4	86.2	84.0
123			0.194	-0.32	80.7	1.18	-	4.62	-0.0793	103.3	57.6	408.9	86.2	83.4
124			0.194	-0.31	80.7	1.18	-	4.59	-0.0295	103.2	57.5	405.8	86.1	83.6
125			0.193	-0.33	80.7	1.17	-	4.54	-0.0493	102.8	57.4	403.7	86.1	84.2
126			0.195	-0.31	80.7	1.17	-	4.50	-0.0441	102.8	57.3	401.4	86.1	84.4
127			0.196	-0.31	80.7	1.18	-	4.46	-0.0407	102.5	57.2	399.0	86.1	84.6
128			0.196	-0.33	80.8	1.18	-	4.42	-0.0417	102.4	57.0	396.4	85.9	83.5
129			0.194	-0.31	80.8	1.16	-	4.38	-0.0398	102.2	56.9	394.5	86.0	84.1
130	321.968	0.190	0.195	-0.32	80.7	1.18	100	4.31	-0.0648	102.1	56.9	392.0	85.9	84.0
131			0.195	-0.33	80.7	1.18	-	4.27	-0.0391	102.0	56.9	389.6	85.8	83.3

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
132			0.193	-0.31	80.7	1.16	-	4.22	-0.0484	101.8	56.9	387.4	86.0	83.9
133			0.193	-0.32	80.7	1.16	-	4.21	-0.0164	101.5	56.9	385.1	85.9	84.2
134			0.196	-0.32	80.7	1.15	-	4.17	-0.0396	101.3	56.8	382.6	85.7	82.9
135			0.197	-0.32	80.7	1.15	-	4.15	-0.0217	100.9	56.6	379.6	85.8	83.9
136			0.194	-0.32	80.8	1.16	-	4.13	-0.0177	100.4	56.5	377.4	85.8	84.5
137			0.196	-0.32	80.8	1.17	-	4.13	-0.0023	100.0	56.2	375.0	85.6	85.0
138			0.196	-0.31	80.8	1.17	-	4.10	-0.0223	99.7	56.0	373.5	85.6	85.3
139			0.196	-0.32	80.8	1.16	-	4.07	-0.0304	99.5	55.9	371.7	85.5	84.9
140	323.869	0.190	0.196	-0.31	80.8	1.15	100	4.04	-0.0345	99.4	55.9	370.0	85.5	85.0
141			0.195	-0.32	80.8	1.17	-	4.01	-0.0325	99.2	55.8	367.7	85.5	85.5
142			0.196	-0.31	80.8	1.15	-	3.98	-0.0264	99.0	55.7	366.2	85.4	85.1
143			0.195	-0.32	80.8	1.14	-	3.96	-0.0252	98.9	55.6	364.6	85.3	85.8
144			0.197	-0.33	80.8	1.13	-	3.93	-0.0293	98.7	55.5	363.3	85.3	85.6
145			0.196	-0.32	80.8	1.14	-	3.89	-0.0352	98.6	55.5	361.3	85.2	86.2
146			0.195	-0.31	80.8	1.15	-	3.86	-0.0354	98.4	55.5	359.3	85.2	86.2
147			0.195	-0.31	80.8	1.17	-	3.83	-0.0261	98.3	55.5	357.6	85.1	86.0
148			0.197	-0.31	80.8	1.14	-	3.81	-0.0199	98.3	55.4	356.0	85.0	86.3
149			0.197	-0.31	80.8	1.17	-	3.78	-0.0336	98.0	55.3	354.6	85.0	86.4
150	325.765	0.190	0.198	-0.32	80.9	1.16	99	3.74	-0.0394	97.8	55.3	353.2	85.0	86.1
151			0.194	-0.32	80.9	1.15	-	3.72	-0.0157	97.7	55.2	350.8	84.9	86.1
152			0.196	-0.31	80.9	1.15	-	3.68	-0.0453	97.6	55.1	349.0	84.8	86.6
153			0.195	-0.31	80.9	1.16	-	3.66	-0.019	97.6	55.1	347.5	84.6	86.2
154			0.199	-0.32	80.9	1.15	-	3.63	-0.0308	97.4	55.1	345.1	84.7	86.3
155			0.199	-0.31	80.9	1.16	-	3.61	-0.0181	97.1	55.0	343.3	84.6	85.7
156			0.199	-0.32	80.9	1.17	-	3.58	-0.0229	97.1	55.0	341.1	84.5	85.0
157			0.196	-0.32	80.9	1.16	-	3.57	-0.0198	96.9	54.8	338.9	84.5	85.3
158			0.198	-0.35	80.9	1.14	-	3.53	-0.0342	96.8	54.8	337.2	84.5	86.1
159			0.197	-0.32	80.9	1.14	-	3.50	-0.0271	96.6	54.7	335.4	84.5	86.2
160	327.664	0.190	0.195	-0.32	80.9	1.16	99	3.50	-0.0062	96.5	54.7	333.2	84.3	86.0
161			0.197	-0.32	80.9	1.16	-	3.47	-0.03	96.2	54.6	331.5	84.3	85.5
162			0.196	-0.31	80.9	1.17	-	3.44	-0.0248	96.0	54.5	330.1	84.3	85.6
163			0.196	-0.32	80.9	1.16	-	3.42	-0.024	96.0	54.4	328.2	84.1	85.4
164			0.198	-0.32	80.9	1.17	-	3.41	-0.0138	95.8	54.5	326.8	84.1	85.7

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
165			0.196	-0.32	80.9	1.17	-	3.40	-0.0075	95.8	54.4	325.3	84.0	85.2
166			0.195	-0.32	80.9	1.17	-	3.37	-0.0285	95.6	54.4	323.9	84.0	85.7
167			0.198	-0.32	80.9	1.15	-	3.34	-0.0316	95.6	54.4	323.0	84.0	85.7
168			0.199	-0.32	80.9	1.16	-	3.32	-0.0143	95.4	54.4	321.5	84.0	85.5
169			0.197	-0.32	80.9	1.16	-	3.30	-0.0269	95.3	54.4	320.1	83.8	84.9
170	329.581	0.192	0.198	-0.32	80.9	1.16	100	3.28	-0.0129	95.2	54.4	318.4	83.9	85.0
171			0.197	-0.31	80.9	1.18	-	3.26	-0.0185	95.0	54.4	316.6	83.8	84.6
172			0.197	-0.32	80.9	1.19	-	3.25	-0.0155	94.9	54.4	315.7	83.7	84.8
173			0.197	-0.32	80.9	1.18	-	3.22	-0.0314	94.9	54.2	313.8	83.7	85.3
174			0.197	-0.31	80.9	1.13	-	3.20	-0.0176	94.8	54.3	312.4	83.6	85.2
175			0.197	-0.31	80.9	1.17	-	3.18	-0.0208	94.6	54.2	311.2	83.7	84.7
176			0.200	-0.32	80.9	1.14	-	3.15	-0.0253	94.4	54.2	309.4	83.6	85.4
177			0.198	-0.31	80.9	1.16	-	3.15	-0.0052	94.4	54.2	308.2	83.4	85.0
178			0.198	-0.31	80.8	1.13	-	3.13	-0.0206	94.3	54.1	307.1	83.4	85.2
179			0.195	-0.32	80.9	1.18	-	3.10	-0.0301	94.2	54.1	305.9	83.4	85.4
180	331.510	0.193	0.198	-0.31	80.8	1.15	100	3.08	-0.0151	94.1	54.1	304.4	83.3	85.3
181			0.200	-0.32	80.8	1.17	-	3.06	-0.0202	94.0	54.1	303.5	83.3	84.6
182			0.197	-0.32	80.8	1.18	-	3.05	-0.0135	93.9	54.1	302.3	83.3	85.1
183			0.199	-0.32	80.8	1.17	-	3.02	-0.0313	93.7	54.1	301.1	83.2	85.1
184			0.198	-0.32	80.8	1.18	-	3.00	-0.0225	93.7	54.1	300.3	83.2	84.9
185			0.198	-0.31	80.8	1.11	-	2.97	-0.0248	93.6	54.0	299.5	83.1	84.6
186			0.197	-0.32	80.8	1.02	-	2.95	-0.0252	93.5	54.1	298.6	83.0	84.7
187			0.197	-0.32	80.8	1.14	-	2.94	-0.0022	93.5	54.0	297.7	83.0	84.9
188			0.199	-0.32	80.8	1.16	-	2.91	-0.0369	93.3	53.9	296.7	82.9	84.5
189			0.198	-0.32	80.8	1.17	-	2.89	-0.0127	93.2	54.0	295.8	83.0	84.3
190	333.418	0.191	0.197	-0.32	80.8	1.17	99	2.88	-0.015	93.0	53.9	294.5	82.9	84.7
191			0.197	-0.34	80.8	1.15	-	2.85	-0.0299	93.0	53.9	293.8	82.8	84.6
192			0.197	-0.32	80.8	1.15	-	2.82	-0.0309	93.0	53.8	293.2	82.8	84.7
193			0.200	-0.32	80.8	1.16	-	2.80	-0.0138	92.8	53.8	292.4	82.8	84.2
194			0.200	-0.31	80.8	1.16	-	2.78	-0.0256	92.7	53.9	291.7	82.8	84.4
195			0.198	-0.32	80.7	1.15	-	2.77	-0.0101	92.7	54.0	290.9	82.6	84.8
196			0.198	-0.32	80.7	1.17	-	2.74	-0.0286	92.7	53.9	290.3	82.7	84.5
197			0.197	-0.31	80.7	1.16	-	2.73	-0.009	92.6	53.9	289.7	82.6	84.4

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
198			0.198	-0.31	80.7	1.17	-	2.70	-0.0296	92.5	53.9	289.1	82.7	84.3
199			0.197	-0.31	80.7	1.18	-	2.68	-0.0181	92.3	53.9	288.1	82.6	84.3
200	335.346	0.193	0.197	-0.32	80.7	1.17	100	2.66	-0.0236	92.3	53.8	287.2	82.6	84.2
201			0.196	-0.31	80.7	1.17	-	2.65	-0.0107	92.3	53.8	286.7	82.4	84.0
202			0.196	-0.32	80.7	1.18	-	2.63	-0.0198	92.2	53.8	286.1	82.4	84.1
203			0.199	-0.31	80.7	1.17	-	2.60	-0.0324	92.2	53.7	285.3	82.4	84.4
204			0.200	-0.31	80.7	1.17	-	2.58	-0.0193	92.1	53.7	284.8	82.3	84.3
205			0.196	-0.31	80.7	1.17	-	2.55	-0.0306	92.0	53.7	283.9	82.2	84.7
206			0.198	-0.32	80.7	1.15	-	2.53	-0.0211	91.9	53.7	283.3	82.3	84.5
207			0.197	-0.31	80.7	1.18	-	2.52	-0.0085	91.9	53.7	282.8	82.2	84.1
208			0.195	-0.32	80.6	1.16	-	2.49	-0.0306	91.8	53.7	282.2	82.2	84.4
209			0.198	-0.30	80.6	1.17	-	2.47	-0.0127	91.7	53.7	281.7	82.2	84.3
210	337.294	0.195	0.200	-0.32	80.6	1.19	100	2.45	-0.0268	91.7	53.7	281.3	82.1	84.3
211			0.198	-0.29	80.6	1.18	-	2.43	-0.0147	91.6	53.7	280.5	82.1	83.9
212			0.199	-0.32	80.6	1.17	-	2.41	-0.021	91.5	53.7	279.6	82.1	84.2
213			0.196	-0.31	80.6	1.19	-	2.38	-0.0285	91.5	53.7	278.9	82.1	84.3
214			0.199	-0.32	80.6	1.18	-	2.38	-0.0031	91.4	53.7	278.3	82.1	83.9
215			0.197	-0.31	80.6	1.17	-	2.35	-0.0278	91.3	53.7	277.5	82.7	84.0
216			0.197	-0.31	80.5	1.20	-	2.33	-0.02	91.2	53.7	276.8	84.4	83.7
217			0.198	-0.32	80.6	1.19	-	2.32	-0.0123	91.2	53.7	276.1	85.9	83.5
218			0.197	-0.37	80.5	1.19	-	2.30	-0.0187	91.1	53.6	275.4	87.3	84.1
219			0.199	-0.32	80.5	1.19	-	2.28	-0.0165	91.0	53.5	274.5	87.1	83.9
220	339.232	0.194	0.197	-0.31	80.5	1.19	100	2.26	-0.0252	91.1	53.5	274.0	86.6	83.8
221			0.198	-0.31	80.5	1.20	-	2.25	-0.0097	91.0	53.5	273.1	86.4	84.1
222			0.200	-0.32	80.5	1.20	-	2.23	-0.0234	90.9	53.4	272.6	86.0	83.9
223			0.197	-0.31	80.5	1.20	-	2.21	-0.017	90.9	53.5	271.7	85.7	83.5
224			0.199	-0.34	80.5	1.19	-	2.18	-0.0315	90.8	53.4	271.1	85.5	83.6
225			0.197	-0.34	80.5	1.17	-	2.16	-0.0191	90.7	53.4	270.6	85.3	83.8
226			0.198	-0.31	80.4	1.17	-	2.14	-0.0185	90.7	53.4	270.1	85.1	84.0
227			0.199	-0.32	80.5	1.18	-	2.13	-0.0088	90.7	53.4	268.9	84.8	84.0
228			0.199	-0.31	80.4	1.18	-	2.11	-0.0258	90.5	53.4	268.7	84.7	83.8
229			0.199	-0.31	80.5	1.18	-	2.09	-0.0124	90.6	53.4	268.0	84.5	83.6
230	341.185	0.195	0.199	-0.34	80.4	1.19	101	2.07	-0.0231	90.5	53.4	267.3	84.3	83.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
231			0.199	-0.32	80.4	1.19	-	2.06	-0.0133	90.4	53.4	266.4	84.2	83.3
232			0.201	-0.31	80.4	1.19	-	2.04	-0.0175	90.3	53.3	266.1	83.9	83.9
233			0.199	-0.32	80.4	1.19	-	2.02	-0.0208	90.3	53.3	265.3	83.7	83.9
234			0.200	-0.31	80.4	1.19	-	2.00	-0.0154	90.2	53.3	264.7	83.6	83.3
235			0.200	-0.31	80.4	1.19	-	1.98	-0.0246	90.2	53.3	264.2	83.4	83.1
236			0.200	-0.31	80.3	1.17	-	1.96	-0.0192	90.1	53.3	263.8	83.2	83.6
237			0.200	-0.32	80.3	1.20	-	1.95	-0.0141	90.0	53.4	263.0	83.0	83.3
238			0.200	-0.34	80.3	1.18	-	1.92	-0.0223	90.1	53.4	262.7	83.0	83.2
239			0.200	-0.32	80.3	1.20	-	1.90	-0.0267	90.1	53.4	262.1	82.8	82.5
240	343.130	0.194	0.199	-0.34	80.3	1.20	100	1.88	-0.0177	90.2	53.5	261.1	82.7	81.9
241			0.200	-0.31	80.3	1.17	-	1.87	-0.0127	91.4	53.6	260.3	82.6	82.3
242			0.197	-0.32	80.3	1.18	-	1.86	-0.004	92.0	53.5	259.5	82.5	82.5
243			0.200	-0.32	80.3	1.17	-	1.85	-0.0078	92.3	53.5	258.8	82.7	82.6
244			0.196	-0.32	80.3	1.19	-	1.84	-0.0191	92.6	53.5	258.1	82.9	82.3
245			0.196	-0.32	80.3	1.19	-	1.83	-0.0077	92.7	53.5	257.4	83.3	82.2
246			0.199	-0.32	80.3	1.18	-	1.81	-0.0189	92.7	53.6	257.0	83.6	82.4
247			0.198	-0.31	80.2	1.20	-	1.79	-0.0169	92.8	53.6	256.4	83.6	82.5
248			0.199	-0.34	80.2	1.21	-	1.78	-0.0108	92.7	53.6	255.8	83.9	82.4
249			0.196	-0.31	80.2	1.20	-	1.76	-0.0199	92.7	53.7	255.4	84.0	82.4
250	345.082	0.195	0.198	-0.31	80.2	1.20	101	1.74	-0.0181	92.8	53.6	254.7	84.2	82.8
251			0.198	-0.32	80.2	1.20	-	1.73	-0.0116	92.8	53.6	254.0	84.3	82.6
252			0.197	-0.35	80.2	1.19	-	1.71	-0.0224	92.9	53.5	253.6	84.5	82.7
253			0.198	-0.32	80.2	1.20	-	1.71	-0.0031	92.9	53.4	253.1	84.6	82.7
254			0.198	-0.32	80.2	1.21	-	1.69	-0.0206	92.8	53.4	252.3	84.8	82.2
255			0.199	-0.31	80.2	1.20	-	1.67	-0.0148	92.9	53.3	252.3	84.9	82.3
256			0.197	-0.31	80.2	1.20	-	1.65	-0.0202	92.8	53.3	251.9	85.0	82.3
257			0.200	-0.32	80.2	1.21	-	1.63	-0.0175	92.7	53.3	251.6	85.2	82.3
258			0.198	-0.32	80.2	1.19	-	1.61	-0.0219	92.7	53.3	250.8	85.3	82.4
259			0.197	-0.36	80.1	1.21	-	1.60	-0.0114	92.7	53.3	250.3	85.3	82.5
260	347.022	0.194	0.199	-0.32	80.1	1.22	100	1.58	-0.017	92.7	53.3	249.8	85.3	82.6
261			0.198	-0.32	80.1	1.21	-	1.57	-0.0144	92.6	53.3	249.8	85.2	82.4
262			0.197	-0.32	80.1	1.20	-	1.56	-0.0096	92.5	53.2	249.3	85.0	82.6
263			0.196	-0.34	80.1	1.21	-	1.55	-0.0112	92.4	53.1	248.8	84.9	82.6

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
264			0.200	-0.34	80.1	1.21	-	1.52	-0.0298	92.3	53.1	248.5	84.7	81.7
265			0.196	-0.34	80.0	1.21	-	1.51	-0.0117	92.3	53.1	247.7	84.5	82.3
266			0.199	-0.37	80.0	1.22	-	1.49	-0.0141	92.2	53.0	247.6	84.3	81.7
267			0.199	-0.37	80.0	1.22	-	1.48	-0.0117	92.1	53.0	247.4	84.2	82.5
268			0.198	-0.32	80.0	1.22	-	1.46	-0.0153	92.0	52.9	247.1	84.0	82.4
269			0.198	-0.34	79.9	1.19	-	1.45	-0.0121	92.1	52.9	246.5	83.9	82.3
270	348.978	0.196	0.198	-0.34	79.9	1.22	101	1.43	-0.0245	92.0	52.9	245.9	83.7	82.3
271			0.198	-0.32	79.9	1.22	-	1.42	-0.0124	92.0	52.8	245.6	83.5	82.0
272			0.199	-0.31	79.9	1.19	-	1.40	-0.0181	91.9	52.9	245.0	83.5	82.5
273			0.197	-0.31	79.8	1.20	-	1.38	-0.0195	91.9	52.9	244.5	83.3	82.1
274			0.200	-0.35	79.8	1.21	-	1.36	-0.0201	91.9	52.9	244.3	83.2	82.1
275			0.201	-0.37	79.8	1.23	-	1.34	-0.0135	91.8	52.8	244.0	83.0	82.4
276			0.199	-0.36	79.7	1.21	-	1.33	-0.0114	91.7	52.7	243.6	82.9	82.0
277			0.201	-0.38	79.7	1.23	-	1.31	-0.0225	91.2	52.7	243.5	82.8	81.4
278			0.199	-0.34	79.7	1.23	-	1.31	-0.0009	91.2	52.8	243.0	82.6	82.2
279			0.199	-0.34	79.7	1.22	-	1.30	-0.007	91.4	52.7	242.3	82.4	82.0
280	350.928	0.195	0.198	-0.32	79.7	1.20	101	1.29	-0.012	91.3	52.6	241.7	82.4	81.7
281			0.197	-0.36	79.6	1.20	-	1.28	-0.0104	91.3	52.6	241.2	82.3	81.6
282			0.198	-0.37	79.6	1.21	-	1.27	-0.0076	91.3	52.6	240.6	82.2	81.7
283			0.199	-0.33	79.6	1.21	-	1.25	-0.0192	91.2	52.5	240.2	82.0	81.7
284			0.200	-0.36	79.6	1.21	-	1.24	-0.0165	91.2	52.5	239.6	81.9	81.6
285			0.199	-0.36	79.6	1.21	-	1.22	-0.0148	91.1	52.5	239.2	81.9	81.5
286			0.201	-0.36	79.5	1.21	-	1.21	-0.0072	91.1	52.5	238.9	81.7	81.5
287			0.197	-0.35	79.5	1.21	-	1.20	-0.0115	90.9	52.5	238.3	81.6	81.5
288			0.199	-0.35	79.5	1.23	-	1.17	-0.0302	90.9	52.6	237.8	81.6	81.6
289			0.198	-0.34	79.5	1.21	-	1.15	-0.0249	91.1	52.6	237.4	81.8	81.2
290	352.880	0.195	0.198	-0.34	79.4	1.22	101	1.12	-0.0252	91.2	52.6	237.0	81.9	81.3
291			0.199	-0.31	79.5	1.22	-	1.12	-0.0052	91.3	52.5	236.7	82.2	81.4
292			0.197	-0.35	79.4	1.21	-	1.10	-0.0225	91.2	52.5	236.4	82.3	81.3
293			0.197	-0.37	79.4	1.22	-	1.09	-0.0094	91.3	52.5	236.0	82.5	80.8
294			0.201	-0.37	79.4	1.22	-	1.06	-0.0229	91.2	52.5	235.8	82.7	81.1
295			0.199	-0.37	79.4	1.21	-	1.05	-0.0158	91.3	52.6	235.4	82.8	81.1
296			0.200	-0.36	79.4	1.23	-	1.03	-0.0208	91.2	52.5	235.1	83.0	81.0

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
297			0.200	-0.37	79.4	1.21	-	1.01	-0.0121	91.2	52.5	234.8	83.1	81.3
298			0.199	-0.37	79.4	1.22	-	1.00	-0.0178	91.2	52.5	234.4	83.3	81.3
299			0.200	-0.34	79.4	1.21	-	0.99	-0.0074	91.2	52.5	234.1	83.5	81.0
300	354.840	0.196	0.199	-0.34	79.4	1.22	101	0.96	-0.0263	91.2	52.5	234.0	83.7	81.5
301			0.198	-0.31	79.4	1.21	-	0.96	-0.0071	91.2	52.4	233.6	83.8	80.9
302			0.198	-0.37	79.3	1.22	-	0.94	-0.0132	91.2	52.4	233.1	83.9	80.9
303			0.198	-0.34	79.3	1.23	-	0.92	-0.0197	91.1	52.4	232.8	84.1	81.2
304			0.199	-0.34	79.3	1.22	-	0.92	-0.0038	91.0	52.5	232.5	84.3	81.1
305			0.197	-0.37	79.3	1.22	-	0.90	-0.0149	91.1	52.4	232.2	84.4	81.1
306			0.201	-0.37	79.3	1.22	-	0.88	-0.0268	91.0	52.4	232.0	84.5	81.2
307			0.197	-0.34	79.3	1.22	-	0.86	-0.0144	91.0	52.4	231.7	84.6	81.2
308			0.197	-0.31	79.3	1.22	-	0.85	-0.0105	90.9	52.4	231.2	84.7	81.3
309			0.201	-0.31	79.2	1.22	-	0.84	-0.0144	90.9	52.4	231.0	84.6	81.2
310	356.787	0.195	0.197	-0.31	79.3	1.23	101	0.84	-0.0006	90.9	52.4	230.6	84.4	81.3
311			0.200	-0.34	79.3	1.20	-	0.84	-0.0016	91.0	52.4	229.9	84.3	81.6
312			0.200	-0.36	79.3	1.22	-	0.82	-0.0145	91.0	52.3	229.8	84.2	81.9
313			0.198	-0.37	79.3	1.20	-	0.82	-0.0036	90.9	52.3	229.1	84.1	81.8
314			0.199	-0.34	79.2	1.22	-	0.81	-0.0072	90.8	52.3	228.5	83.9	81.5
315			0.199	-0.34	79.2	1.20	-	0.81	-0.0051	90.7	52.3	227.8	83.8	81.7
316			0.199	-0.37	79.2	1.22	-	0.80	-0.0089	90.7	52.3	227.3	83.5	81.8
317			0.199	-0.37	79.2	1.22	-	0.78	-0.0156	90.7	52.3	226.8	83.4	81.7
318			0.200	-0.36	79.2	1.20	-	0.78	-0.0012	90.7	52.2	226.2	83.3	81.8
319			0.201	-0.34	79.2	1.20	-	0.77	-0.0136	90.6	52.2	225.9	83.1	81.3
320	358.748	0.196	0.200	-0.34	79.2	1.20	101	0.74	-0.0223	90.6	52.2	225.5	82.9	81.7
321			0.201	-0.31	79.1	1.21	-	0.75	0.00154	90.5	52.2	225.1	82.8	81.3
322			0.201	-0.31	79.1	1.22	-	0.73	-0.0172	90.5	52.2	224.6	82.6	81.5
323			0.201	-0.34	79.1	1.20	-	0.72	-0.0072	90.3	52.1	223.9	82.4	81.1
324			0.200	-0.36	79.1	1.21	-	0.71	-0.0151	90.3	52.1	223.6	82.3	81.1
325			0.202	-0.37	79.1	1.20	-	0.69	-0.0197	90.3	52.1	223.1	82.1	80.8
326			0.200	-0.36	79.0	1.20	-	0.67	-0.0141	90.3	52.1	222.8	82.2	80.9
327			0.197	-0.37	79.0	1.23	-	0.66	-0.0117	90.4	52.1	222.6	82.2	81.3
328			0.200	-0.36	79.0	1.22	-	0.65	-0.0088	90.4	52.1	222.3	82.3	80.9
329			0.197	-0.35	79.0	1.21	-	0.63	-0.0207	90.4	52.1	221.8	82.4	80.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
330	360.695	0.195	0.201	-0.31	79.0	1.21	100	0.63	-0.0059	90.3	52.1	221.3	82.5	81.1
331			0.198	-0.31	79.0	1.23	-	0.62	-0.0082	90.3	52.0	220.9	82.5	80.9
332			0.199	-0.36	78.9	1.23	-	0.61	-0.0091	90.2	52.0	220.6	82.5	80.9
333			0.197	-0.36	78.9	1.22	-	0.58	-0.026	89.9	52.1	220.2	82.5	81.1
334			0.200	-0.37	78.9	1.24	-	0.57	-0.0123	89.6	52.1	219.8	82.7	81.0
335			0.198	-0.31	78.9	1.23	-	0.56	-0.0079	89.6	52.1	219.2	82.7	80.7
336			0.199	-0.29	78.9	1.24	-	0.55	-0.011	89.6	52.1	219.0	82.8	80.6
337			0.199	-0.36	78.9	1.23	-	0.53	-0.0158	89.5	52.1	218.8	82.9	80.9
338			0.198	-0.36	78.8	1.23	-	0.52	-0.0175	89.5	52.1	218.6	82.9	80.9
339			0.199	-0.37	78.8	1.21	-	0.51	-0.0065	89.5	52.1	218.1	83.0	81.1
340	362.656	0.196	0.200	-0.35	78.8	1.23	101	0.50	-0.0136	89.4	52.0	218.2	83.0	81.0
341			0.199	-0.36	78.8	1.24	-	0.49	-0.0054	89.4	52.0	217.8	83.0	80.7
342			0.198	-0.37	78.8	1.24	-	0.48	-0.0137	89.4	52.0	217.6	83.1	80.9
343			0.197	-0.37	78.8	1.23	-	0.46	-0.0201	89.4	52.0	217.1	83.2	80.9
344			0.199	-0.35	78.7	1.23	-	0.46	-0.0027	89.3	52.1	216.5	83.1	80.9
345			0.199	-0.36	78.7	1.23	-	0.43	-0.0207	89.3	52.1	216.3	83.2	80.6
346			0.201	-0.34	78.7	1.22	-	0.42	-0.0118	89.3	52.1	216.1	83.2	81.2
347			0.198	-0.33	78.7	1.24	-	0.42	0.00089	89.2	52.0	215.7	83.3	81.0
348			0.198	-0.35	78.7	1.23	-	0.41	-0.0133	89.2	52.0	215.3	83.3	80.7
349			0.198	-0.37	78.7	1.23	-	0.39	-0.0179	89.2	52.0	215.2	83.4	80.8
350	364.620	0.196	0.198	-0.37	78.7	1.23	101	0.39	-0.0063	89.1	52.0	215.1	83.3	80.6
351			0.197	-0.36	78.7	1.22	-	0.38	-0.0082	89.1	52.0	214.8	83.5	81.0
352			0.197	-0.37	78.6	1.21	-	0.36	-0.0143	89.1	52.0	214.3	83.4	80.9
353			0.198	-0.37	78.6	1.24	-	0.36	-0.0077	88.9	52.0	213.9	83.4	80.6
354			0.199	-0.34	78.6	1.22	-	0.34	-0.0135	89.0	52.0	213.8	83.5	80.7
355			0.200	-0.37	78.6	1.23	-	0.33	-0.0109	88.9	52.0	213.5	83.5	80.8
356			0.199	-0.37	78.6	1.23	-	0.32	-0.0098	88.9	52.0	213.3	83.6	80.9
357			0.199	-0.36	78.5	1.22	-	0.30	-0.0189	88.8	52.1	213.1	83.5	80.7
358			0.198	-0.36	78.5	1.23	-	0.29	-0.009	88.9	52.0	212.7	83.6	80.5
359			0.200	-0.34	78.5	1.22	-	0.28	-0.0107	88.8	52.1	212.7	83.5	80.5
360	366.572	0.195	0.198	-0.37	78.5	1.23	101	0.27	-0.0151	88.8	52.1	212.3	83.5	80.9
361			0.201	-0.34	78.5	1.22	-	0.27	0.00198	88.7	52.0	212.0	83.5	80.7
362			0.200	-0.34	78.5	1.22	-	0.26	-0.0098	88.7	52.0	211.7	83.5	80.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
363			0.200	-0.36	78.5	1.22	-	0.25	-0.0085	88.7	52.0	211.4	83.5	80.8
364			0.199	-0.37	78.4	1.21	-	0.24	-0.0147	88.7	52.0	211.1	83.5	80.6
365			0.198	-0.37	78.4	1.21	-	0.23	-0.0085	88.7	52.0	210.8	83.5	80.5
366			0.197	-0.37	78.4	1.22	-	0.22	-0.0098	88.6	52.0	210.5	83.4	80.7
367			0.198	-0.36	78.4	1.23	-	0.21	-0.012	88.6	52.0	210.2	83.4	80.7
368			0.199	-0.37	78.4	1.22	-	0.20	-0.0071	88.6	52.0	210.0	83.5	80.8
369			0.198	-0.34	78.4	1.21	-	0.18	-0.0206	88.5	52.0	209.8	83.5	80.4
370	368.533	0.196	0.199	-0.37	78.3	1.21	101	0.18	-0.0008	88.5	51.9	209.4	83.5	80.6
371			0.199	-0.32	78.3	1.21	-	0.16	-0.0149	88.4	52.0	209.4	83.5	80.5
372			0.199	-0.37	78.3	1.23	-	0.16	-0.0076	88.4	52.0	209.4	83.4	80.6
373			0.200	-0.37	78.3	1.21	-	0.14	-0.0123	88.4	52.0	208.9	83.4	80.8
374			0.199	-0.34	78.3	1.22	-	0.13	-0.0109	88.3	52.0	208.8	83.4	80.5
375			0.199	-0.36	78.3	1.20	-	0.12	-0.0091	88.3	52.0	208.7	83.4	80.9
376			0.201	-0.34	78.3	1.23	-	0.11	-0.0122	88.3	51.9	208.4	83.4	80.5
377			0.200	-0.37	78.2	1.23	-	0.10	-0.0098	88.3	51.9	208.1	83.4	80.5
378			0.199	-0.37	78.2	1.21	-	0.09	-0.0093	88.3	51.9	207.9	83.4	80.8
379			0.198	-0.37	78.2	1.22	-	0.08	-0.0148	88.2	51.9	207.7	83.4	80.5
380	370.482	0.195	0.200	-0.36	78.2	1.20	100	0.07	-0.0094	88.2	51.9	207.4	83.4	80.4
381			0.201	-0.32	78.2	1.22	-	0.06	-0.0077	88.1	51.9	207.0	83.4	80.2
382			0.199	-0.36	78.2	1.22	-	0.05	-0.0092	88.0	51.9	207.0	83.4	80.4
383			0.201	-0.37	78.2	1.22	-	0.05	-0.0018	88.0	51.9	206.9	83.3	80.7
384			0.200	-0.37	78.1	1.22	-	0.03	-0.0197	88.1	51.9	206.5	83.1	80.4
385			0.199	-0.37	78.1	1.22	-	0.02	-0.013	88.0	51.9	206.4	83.0	80.4
386			0.203	-0.31	78.1	1.22	-	0.01	-0.0065	88.0	51.9	206.1	82.8	80.6
387			0.199	-0.37	78.1	1.22	-	0.00	-0.0076	87.9	51.9	205.7	82.6	80.1
388	372.044	0.195	0.199	-0.35	78.1	1.21	101	0.00	-0.0049	87.9	51.9	205.5	82.5	80.3
Avg/Tot	74.630	0.192	0.197	-0.33	80	1.01	100			96	56	319	84	83.7

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	316.246		-0.37	78.0	-0.57		85	0.058	2.74	0.21
1			-0.38	78.2	0.18	-	86	0.065	2.21	0.16
2			-0.36	78.2	0.27	-	87	0.065	1.71	0.22
3			-0.37	78.3	0.19	-	87	0.070	2.13	0.23
4			-0.38	78.3	0.16	-	85	0.079	2.86	0.21
5			-0.37	78.3	0.16	-	83	0.064	8.80	0.34
6			-0.32	78.4	0.22	-	82	0.063	8.26	0.48
7			-0.37	78.4	0.24	-	81	0.063	7.12	0.42
8			-0.35	78.5	0.14	-	81	0.069	9.43	0.39
9			-0.35	78.5	0.23	-	82	0.071	13.35	0.30
10	318.202	0.196	-0.38	78.5	0.19	101	83	0.069	15.26	0.61
11			-0.38	78.6	0.16	-	84	0.067	13.20	0.42
12			-0.37	78.6	0.23	-	85	0.067	10.91	0.40
13			-0.37	78.6	0.19	-	86	0.067	9.60	0.49
14			-0.38	78.7	0.23	-	87	0.069	10.50	0.36
15			-0.37	78.7	0.24	-	87	0.071	12.48	0.29
16			-0.38	78.8	0.25	-	86	0.070	13.35	0.28
17			-0.35	78.8	0.18	-	84	0.072	13.42	0.20
18			-0.37	78.8	0.17	-	84	0.071	13.59	0.23
19			-0.38	78.9	0.18	-	83	0.070	13.59	0.22
20	320.128	0.193	-0.32	78.9	0.18	99	83	0.070	13.06	0.20
21			-0.35	79.0	0.23	-	82	0.070	12.71	0.19
22			-0.35	79.0	0.23	-	82	0.070	12.56	0.17
23			-0.32	79.0	0.16	-	82	0.070	12.13	0.17
24			-0.38	79.0	0.22	-	82	0.069	11.72	0.19
25			-0.38	79.1	0.24	-	82	0.070	11.45	0.20
26			-0.38	79.0	0.22	-	82	0.070	11.15	0.19
27			-0.38	79.0	0.17	-	82	0.068	10.80	0.23
28			-0.35	79.1	0.24	-	82	0.067	10.72	0.28
29			-0.37	79.1	0.19	-	82	0.066	10.57	0.31
30	322.060	0.193	-0.37	79.1	0.18	99	83	0.067	10.27	0.34
31			-0.35	79.1	0.15	-	83	0.065	10.09	0.36
32			-0.38	79.2	0.21	-	83	0.066	9.91	0.39

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
33			-0.35	79.2	0.16	-	83	0.065	9.90	0.42
34			-0.34	79.2	0.24	-	83	0.065	9.46	0.46
35			-0.32	79.2	0.23	-	83	0.065	9.57	0.46
36			-0.31	79.2	0.23	-	83	0.065	9.90	0.46
37			-0.32	79.2	0.22	-	83	0.063	10.21	0.44
38			-0.35	79.2	0.17	-	83	0.065	10.29	0.45
39			-0.35	79.3	0.19	-	83	0.064	10.26	0.45
40	323.993	0.193	-0.32	79.3	0.23	98	83	0.066	10.21	0.47
41			-0.37	79.3	0.25	-	83	0.065	10.21	0.48
42			-0.38	79.3	0.24	-	83	0.064	10.26	0.47
43			-0.38	79.3	0.18	-	83	0.064	10.34	0.46
44			-0.37	79.4	0.25	-	84	0.065	10.36	0.47
45			-0.37	79.4	0.23	-	84	0.064	10.25	0.44
46			-0.39	79.4	0.19	-	84	0.064	10.29	0.45
47			-0.37	79.4	0.21	-	84	0.063	10.37	0.44
48			-0.39	79.4	0.24	-	84	0.063	10.49	0.45
49			-0.37	79.4	0.25	-	85	0.063	10.58	0.45
50	325.954	0.196	-0.37	79.4	0.18	101	85	0.064	10.68	0.46
51			-0.37	79.4	0.24	-	85	0.063	10.73	0.45
52			-0.38	79.5	0.18	-	85	0.063	10.80	0.46
53			-0.37	79.5	0.18	-	85	0.063	10.88	0.47
54			-0.37	79.5	0.20	-	85	0.064	10.94	0.48
55			-0.37	79.5	0.17	-	85	0.063	10.92	0.49
56			-0.37	79.5	0.23	-	85	0.063	10.99	0.46
57			-0.34	79.5	0.24	-	85	0.063	11.11	0.49
58			-0.38	79.6	0.19	-	85	0.064	11.25	0.48
59			-0.38	79.6	0.19	-	86	0.065	11.42	0.52
60	327.866	0.191	-0.35	79.6	0.25	99	85	0.064	11.51	0.51
61			-0.38	79.6	0.18	-	86	0.065	11.61	0.53
62			-0.38	79.6	0.25	-	86	0.064	11.68	0.52
63			-0.37	79.6	0.25	-	86	0.066	11.71	0.52
64			-0.38	79.7	0.22	-	86	0.065	11.80	0.51
65			-0.37	79.7	0.23	-	86	0.065	11.90	0.52

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
66			-0.38	79.7	0.22	-	86	0.067	11.92	0.52
67			-0.38	79.7	0.26	-	86	0.066	11.92	0.54
68			-0.38	79.7	0.26	-	86	0.067	12.01	0.56
69			-0.37	79.6	0.21	-	86	0.067	12.21	0.56
70	329.794	0.193	-0.38	79.7	0.26	100	86	0.067	12.62	0.50
71			-0.37	79.7	0.28	-	86	0.068	13.18	0.42
72			-0.37	79.7	0.32	-	86	0.069	13.71	0.37
73			-0.37	79.7	0.33	-	86	0.070	14.10	0.28
74			-0.37	79.7	0.30	-	86	0.069	14.78	0.34
75			-0.37	79.7	0.35	-	86	0.070	15.57	0.51
76			-0.37	79.7	0.50	-	86	0.070	15.98	0.71
77			-0.38	79.7	0.55	-	86	0.071	16.30	0.82
78			-0.37	79.7	0.58	-	86	0.072	16.47	0.86
79			-0.38	79.7	0.66	-	86	0.072	16.67	0.83
80	331.594	0.180	-0.38	79.6	0.84	94	86	0.071	16.85	0.81
81			-0.38	79.7	1.01	-	86	0.072	16.88	0.81
82			-0.38	79.7	0.98	-	86	0.073	16.82	0.80
83			-0.37	79.7	1.05	-	86	0.071	16.72	0.75
84			-0.35	79.7	1.05	-	86	0.072	16.67	0.70
85			-0.38	79.7	1.03	-	86	0.073	16.68	0.66
86			-0.38	79.8	1.08	-	86	0.072	16.63	0.60
87			-0.35	79.8	1.10	-	86	0.071	16.59	0.59
88			-0.37	79.8	1.06	-	86	0.073	16.45	0.53
89			-0.37	79.8	1.07	-	86	0.073	16.36	0.48
90	333.520	0.193	-0.37	79.8	1.07	100	86	0.072	16.18	0.47
91			-0.37	79.8	1.06	-	86	0.070	16.25	0.44
92			-0.37	79.8	1.10	-	86	0.071	16.15	0.42
93			-0.38	79.9	1.11	-	86	0.070	16.36	0.48
94			-0.37	79.8	1.16	-	86	0.073	16.22	0.42
95			-0.37	79.9	1.14	-	87	0.074	16.20	0.37
96			-0.38	79.9	1.17	-	87	0.073	16.15	0.28
97			-0.38	79.9	1.16	-	87	0.071	15.96	0.24
98			-0.37	79.9	1.16	-	87	0.072	16.01	0.23

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
99			-0.38	79.9	1.18	-	87	0.072	15.92	0.19
100	335.448	0.193	-0.37	79.9	1.11	101	87	0.072	15.91	0.17
101			-0.37	79.9	1.18	-	87	0.072	15.86	0.16
102			-0.35	79.9	1.15	-	87	0.070	15.75	0.15
103			-0.37	79.9	1.19	-	87	0.071	15.62	0.14
104			-0.37	79.9	1.13	-	87	0.070	15.47	0.12
105			-0.37	79.9	1.20	-	87	0.069	15.34	0.11
106			-0.37	80.0	1.15	-	87	0.070	15.13	0.11
107			-0.37	79.9	1.20	-	87	0.069	15.33	0.07
108			-0.37	80.0	1.15	-	87	0.067	14.88	0.06
109			-0.37	80.0	1.16	-	87	0.070	14.10	0.04
110	337.385	0.194	-0.37	80.0	1.20	101	87	0.068	12.47	0.02
111			-0.38	80.0	1.17	-	87	0.068	11.11	0.02
112			-0.37	80.0	1.15	-	87	0.065	10.46	0.02
113			-0.37	80.0	1.17	-	86	0.065	10.16	0.02
114			-0.38	80.0	1.19	-	86	0.065	9.87	0.03
115			-0.37	80.0	1.13	-	86	0.063	9.32	0.04
116			-0.38	80.0	1.17	-	86	0.063	8.88	0.05
117			-0.38	80.0	1.15	-	86	0.064	8.80	0.05
118			-0.36	80.0	1.17	-	86	0.063	8.72	0.06
119			-0.37	80.0	1.19	-	86	0.062	8.63	0.06
120	339.320	0.194	-0.37	80.0	1.18	100	86	0.063	8.56	0.06
121			-0.37	80.0	1.18	-	86	0.062	8.47	0.11
122			-0.37	80.0	1.17	-	86	0.061	8.45	0.09
123			-0.37	80.0	1.13	-	86	0.061	8.38	0.13
124			-0.37	80.0	1.17	-	86	0.061	8.39	0.08
125			-0.37	80.0	1.12	-	86	0.060	8.41	0.08
126			-0.38	80.1	1.17	-	86	0.060	8.42	0.08
127			-0.38	80.0	1.12	-	86	0.059	8.41	0.08
128			-0.37	80.1	1.11	-	86	0.059	8.24	0.10
129			-0.38	80.1	1.13	-	86	0.058	8.19	0.11
130	341.264	0.194	-0.38	80.0	1.10	100	86	0.058	8.15	0.12
131			-0.39	80.0	1.16	-	86	0.058	8.10	0.12

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
132			-0.38	80.1	1.09	-	86	0.057	8.08	0.13
133			-0.38	80.0	1.14	-	86	0.057	7.89	0.14
134			-0.39	80.0	1.15	-	86	0.055	7.79	0.16
135			-0.37	80.0	1.11	-	86	0.056	7.75	0.17
136			-0.37	80.0	1.15	-	86	0.056	7.73	0.17
137			-0.38	80.0	1.14	-	86	0.055	7.68	0.19
138			-0.37	80.0	1.14	-	85	0.056	7.69	0.18
139			-0.37	80.0	1.10	-	85	0.055	7.65	0.19
140	343.205	0.194	-0.39	80.0	1.10	100	85	0.056	7.60	0.20
141			-0.37	80.0	1.08	-	85	0.055	7.57	0.20
142			-0.39	79.9	1.10	-	85	0.054	7.55	0.21
143			-0.37	80.0	1.14	-	85	0.053	7.41	0.22
144			-0.38	79.9	1.14	-	85	0.054	7.41	0.22
145			-0.37	79.9	1.14	-	85	0.053	7.34	0.25
146			-0.38	79.9	1.12	-	85	0.053	7.29	0.27
147			-0.38	79.9	1.12	-	85	0.054	7.29	0.27
148			-0.37	79.9	1.14	-	85	0.053	7.25	0.28
149			-0.38	79.9	1.10	-	85	0.054	6.87	0.27
150	345.146	0.194	-0.37	79.9	1.13	99	85	0.053	6.67	0.31
151			-0.38	79.9	1.10	-	85	0.053	6.59	0.33
152			-0.38	79.9	1.09	-	85	0.052	6.52	0.38
153			-0.38	79.9	1.14	-	85	0.052	6.53	0.41
154			-0.38	79.9	1.14	-	85	0.052	6.53	0.42
155			-0.38	79.8	1.14	-	85	0.053	6.48	0.43
156			-0.35	79.9	1.14	-	84	0.051	6.27	0.47
157			-0.37	79.8	1.13	-	84	0.051	6.14	0.44
158			-0.38	79.8	1.13	-	84	0.050	6.06	0.45
159			-0.38	79.8	1.10	-	84	0.049	6.09	0.45
160	347.085	0.194	-0.37	79.8	1.07	99	84	0.050	6.09	0.45
161			-0.38	79.8	1.14	-	84	0.050	6.12	0.45
162			-0.37	79.8	1.12	-	84	0.049	6.16	0.45
163			-0.38	79.8	1.15	-	84	0.047	6.18	0.45
164			-0.38	79.8	1.16	-	84	0.049	6.16	0.45

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
165			-0.37	79.8	1.10	-	84	0.047	6.16	0.45
166			-0.38	79.7	1.10	-	84	0.047	6.21	0.45
167			-0.38	79.7	1.09	-	84	0.049	6.24	0.46
168			-0.37	79.7	1.14	-	84	0.047	6.27	0.45
169			-0.37	79.7	1.14	-	84	0.048	6.28	0.45
170	349.043	0.196	-0.35	79.7	1.16	100	84	0.048	5.93	0.40
171			-0.36	79.7	1.12	-	84	0.046	5.76	0.45
172			-0.37	79.7	1.10	-	84	0.048	5.75	0.47
173			-0.37	79.6	1.09	-	83	0.047	5.77	0.49
174			-0.38	79.7	1.11	-	83	0.047	5.76	0.50
175			-0.35	79.6	1.08	-	83	0.046	5.75	0.49
176			-0.38	79.6	1.10	-	83	0.046	5.76	0.50
177			-0.37	79.6	1.11	-	83	0.047	5.77	0.50
178			-0.37	79.6	1.10	-	83	0.046	5.77	0.49
179			-0.38	79.6	1.15	-	83	0.045	5.79	0.49
180	351.005	0.196	-0.35	79.5	1.12	100	83	0.046	5.80	0.49
181			-0.32	79.5	1.12	-	83	0.044	5.82	0.50
182			-0.38	79.5	1.11	-	83	0.044	5.83	0.50
183			-0.35	79.5	1.09	-	83	0.046	5.78	0.50
184			-0.38	79.4	1.09	-	83	0.044	5.79	0.49
185			-0.37	79.4	1.15	-	83	0.045	5.79	0.49
186			-0.38	79.4	1.12	-	83	0.047	5.82	0.49
187			-0.38	79.4	1.11	-	83	0.046	5.82	0.49
188			-0.37	79.4	1.09	-	83	0.045	5.85	0.49
189			-0.37	79.4	1.11	-	83	0.043	5.83	0.48
190	352.969	0.196	-0.37	79.4	1.14	100	83	0.043	5.87	0.49
191			-0.37	79.4	1.10	-	83	0.044	5.88	0.48
192			-0.37	79.4	1.08	-	83	0.043	5.89	0.48
193			-0.38	79.4	1.11	-	83	0.044	5.89	0.48
194			-0.39	79.4	1.15	-	83	0.043	5.90	0.48
195			-0.39	79.3	1.09	-	83	0.045	5.94	0.47
196			-0.32	79.4	1.15	-	82	0.043	5.97	0.47
197			-0.33	79.3	1.14	-	82	0.043	5.83	0.46

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
198			-0.36	79.3	1.09	-	82	0.043	5.80	0.47
199			-0.33	79.3	1.09	-	82	0.042	5.79	0.46
200	354.937	0.197	-0.36	79.3	1.14	100	82	0.042	5.81	0.45
201			-0.37	79.3	1.13	-	82	0.044	5.75	0.45
202			-0.37	79.3	1.15	-	82	0.042	5.74	0.44
203			-0.34	79.3	1.14	-	82	0.042	5.75	0.44
204			-0.37	79.2	1.13	-	82	0.044	5.77	0.44
205			-0.33	79.2	1.10	-	82	0.043	5.79	0.44
206			-0.35	79.2	1.10	-	82	0.040	5.78	0.43
207			-0.34	79.2	1.13	-	82	0.041	5.75	0.43
208			-0.32	79.2	1.08	-	82	0.042	5.76	0.43
209			-0.34	79.1	1.09	-	82	0.042	5.75	0.43
210	356.905	0.197	-0.34	79.1	1.09	100	82	0.042	5.61	0.45
211			-0.32	79.1	1.08	-	82	0.041	5.57	0.44
212			-0.35	79.1	1.10	-	82	0.041	5.57	0.44
213			-0.36	79.1	1.12	-	82	0.041	5.54	0.43
214			-0.35	79.1	1.10	-	82	0.042	5.47	0.43
215			-0.32	79.1	1.14	-	82	0.042	5.48	0.42
216			-0.34	79.1	1.12	-	83	0.041	5.46	0.42
217			-0.33	79.1	1.12	-	84	0.042	5.49	0.42
218			-0.34	79.0	1.11	-	85	0.042	5.37	0.43
219			-0.34	79.0	1.14	-	85	0.039	5.34	0.42
220	358.872	0.197	-0.33	79.0	1.10	100	85	0.039	5.33	0.41
221			-0.33	79.0	1.15	-	85	0.040	5.33	0.41
222			-0.32	79.0	1.09	-	85	0.042	5.34	0.41
223			-0.32	79.0	1.09	-	85	0.041	5.31	0.41
224			-0.35	79.0	1.09	-	85	0.041	5.30	0.40
225			-0.35	79.0	1.13	-	84	0.039	5.29	0.40
226			-0.32	78.9	1.13	-	84	0.040	5.30	0.39
227			-0.35	78.9	1.10	-	84	0.040	5.27	0.39
228			-0.35	78.9	1.11	-	84	0.039	5.26	0.39
229			-0.38	78.9	1.15	-	84	0.042	5.24	0.39
230	360.848	0.198	-0.38	78.9	1.12	100	83	0.038	5.26	0.38

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
231			-0.38	78.9	1.14	-	83	0.039	5.19	0.38
232			-0.35	78.9	1.13	-	83	0.040	5.20	0.38
233			-0.37	78.9	1.11	-	83	0.042	5.17	0.37
234			-0.37	78.9	1.15	-	83	0.041	5.18	0.37
235			-0.33	78.8	1.11	-	83	0.040	5.16	0.37
236			-0.32	78.8	1.10	-	82	0.039	5.15	0.37
237			-0.32	78.8	1.09	-	82	0.039	5.14	0.37
238			-0.32	78.8	1.15	-	82	0.040	5.13	0.37
239			-0.32	78.8	1.15	-	82	0.039	5.12	0.37
240	362.833	0.199	-0.32	78.8	1.15	100	82	0.039	5.12	0.37
241			-0.32	78.8	1.09	-	82	0.038	5.06	0.36
242			-0.35	78.8	1.09	-	82	0.038	5.01	0.36
243			-0.35	78.8	1.12	-	82	0.038	4.96	0.36
244			-0.32	78.8	1.09	-	83	0.039	4.95	0.36
245			-0.32	78.8	1.15	-	83	0.039	4.94	0.35
246			-0.35	78.8	1.13	-	83	0.038	4.93	0.35
247			-0.35	78.8	1.08	-	84	0.038	4.91	0.35
248			-0.38	78.7	1.16	-	84	0.037	4.92	0.36
249			-0.35	78.7	1.10	-	85	0.038	4.93	0.36
250	364.814	0.198	-0.34	78.7	1.11	100	85	0.037	4.86	0.36
251			-0.32	78.7	1.11	-	85	0.037	4.85	0.36
252			-0.32	78.7	1.11	-	86	0.036	4.83	0.36
253			-0.31	78.7	1.11	-	86	0.038	4.83	0.36
254			-0.34	78.7	1.14	-	86	0.038	4.81	0.35
255			-0.32	78.7	1.17	-	86	0.037	4.82	0.36
256			-0.32	78.7	1.17	-	86	0.037	4.81	0.35
257			-0.35	78.7	1.16	-	87	0.038	4.78	0.35
258			-0.35	78.7	1.17	-	87	0.036	4.80	0.35
259			-0.32	78.6	1.17	-	87	0.037	4.80	0.36
260	366.790	0.198	-0.32	78.6	1.10	100	87	0.036	4.79	0.35
261			-0.32	78.6	1.17	-	87	0.038	4.76	0.35
262			-0.32	78.6	1.17	-	86	0.036	4.76	0.35
263			-0.32	78.5	1.12	-	86	0.037	4.74	0.35

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
264			-0.32	78.5	1.11	-	86	0.037	4.73	0.35
265			-0.32	78.5	1.11	-	85	0.038	4.71	0.35
266			-0.32	78.5	1.17	-	85	0.036	4.71	0.35
267			-0.32	78.5	1.14	-	85	0.037	4.71	0.35
268			-0.33	78.4	1.11	-	85	0.037	4.70	0.35
269			-0.32	78.4	1.12	-	84	0.036	4.68	0.35
270	368.771	0.198	-0.32	78.4	1.09	100	84	0.036	4.68	0.34
271			-0.32	78.3	1.16	-	84	0.035	4.66	0.34
272			-0.32	78.3	1.14	-	84	0.036	4.65	0.34
273			-0.32	78.3	1.14	-	83	0.037	4.61	0.34
274			-0.32	78.2	1.10	-	83	0.037	4.62	0.34
275			-0.31	78.2	1.14	-	83	0.037	4.61	0.34
276			-0.32	78.2	1.12	-	83	0.036	4.61	0.33
277			-0.32	78.1	1.15	-	83	0.034	4.60	0.33
278			-0.33	78.1	1.10	-	82	0.035	4.59	0.33
279			-0.32	78.1	1.11	-	82	0.036	4.45	0.33
280	370.758	0.199	-0.32	78.1	1.16	101	82	0.036	4.44	0.33
281			-0.32	78.1	1.10	-	82	0.036	4.44	0.33
282			-0.33	78.0	1.13	-	82	0.036	4.42	0.33
283			-0.32	78.0	1.17	-	82	0.035	4.40	0.33
284			-0.33	78.0	1.11	-	82	0.036	4.38	0.32
285			-0.33	78.0	1.13	-	81	0.035	4.35	0.32
286			-0.33	78.0	1.15	-	81	0.036	4.33	0.32
287			-0.31	77.9	1.11	-	81	0.036	4.32	0.32
288			-0.31	77.9	1.12	-	81	0.036	4.33	0.32
289			-0.32	77.9	1.17	-	82	0.034	4.31	0.32
290	372.745	0.199	-0.36	77.9	1.10	101	82	0.037	4.33	0.32
291			-0.32	77.9	1.10	-	83	0.037	4.33	0.32
292			-0.33	77.8	1.15	-	83	0.035	4.29	0.31
293			-0.32	77.8	1.17	-	84	0.034	4.28	0.32
294			-0.32	77.8	1.11	-	84	0.035	4.30	0.32
295			-0.32	77.8	1.15	-	85	0.034	4.29	0.32
296			-0.32	77.8	1.12	-	85	0.034	4.27	0.32

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
297			-0.33	77.7	1.12	-	85	0.036	4.28	0.32
298			-0.32	77.7	1.17	-	86	0.034	4.26	0.31
299			-0.32	77.7	1.16	-	86	0.036	4.25	0.32
300	374.728	0.198	-0.32	77.7	1.19	101	86	0.035	4.24	0.32
301			-0.32	77.7	1.16	-	87	0.036	4.22	0.32
302			-0.32	77.6	1.20	-	87	0.036	4.18	0.32
303			-0.33	77.6	1.14	-	87	0.034	4.16	0.33
304			-0.32	77.6	1.18	-	88	0.032	4.14	0.33
305			-0.32	77.6	1.16	-	88	0.034	4.14	0.33
306			-0.32	77.6	1.19	-	88	0.034	4.14	0.33
307			-0.32	77.6	1.14	-	88	0.036	4.12	0.33
308			-0.32	77.6	1.19	-	88	0.034	4.12	0.33
309			-0.32	77.6	1.14	-	88	0.034	4.11	0.33
310	376.714	0.199	-0.32	77.6	1.12	101	88	0.034	4.11	0.33
311			-0.32	77.6	1.13	-	87	0.034	4.10	0.32
312			-0.32	77.6	1.19	-	87	0.033	4.08	0.32
313			-0.32	77.6	1.13	-	87	0.034	4.03	0.32
314			-0.32	77.6	1.15	-	86	0.035	3.93	0.32
315			-0.32	77.6	1.15	-	86	0.034	3.91	0.32
316			-0.32	77.6	1.15	-	85	0.032	3.89	0.32
317			-0.32	77.6	1.13	-	85	0.032	3.88	0.32
318			-0.32	77.6	1.14	-	85	0.033	3.86	0.32
319			-0.32	77.5	1.13	-	84	0.032	3.83	0.32
320	378.700	0.199	-0.32	77.5	1.20	101	84	0.032	3.82	0.32
321			-0.32	77.5	1.17	-	84	0.033	3.80	0.32
322			-0.32	77.5	1.12	-	83	0.032	3.80	0.32
323			-0.32	77.4	1.15	-	83	0.032	3.79	0.32
324			-0.32	77.4	1.18	-	83	0.032	3.78	0.32
325			-0.32	77.4	1.11	-	83	0.034	3.78	0.31
326			-0.32	77.4	1.13	-	83	0.033	3.78	0.31
327			-0.32	77.4	1.10	-	83	0.033	3.77	0.31
328			-0.32	77.4	1.15	-	83	0.033	3.76	0.31
329			-0.33	77.3	1.14	-	83	0.032	3.78	0.31

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
330	380.688	0.199	-0.33	77.3	1.09	100	83	0.032	3.76	0.31
331			-0.31	77.3	1.16	-	83	0.032	3.75	0.31
332			-0.32	77.3	1.11	-	83	0.033	3.73	0.31
333			-0.31	77.2	1.17	-	84	0.033	3.73	0.31
334			-0.32	77.2	1.11	-	84	0.032	3.71	0.31
335			-0.32	77.2	1.15	-	84	0.033	3.72	0.30
336			-0.31	77.2	1.12	-	84	0.033	3.71	0.30
337			-0.32	77.2	1.15	-	84	0.033	3.71	0.30
338			-0.33	77.2	1.17	-	84	0.032	3.69	0.30
339			-0.33	77.2	1.15	-	84	0.032	3.70	0.30
340	382.668	0.198	-0.32	77.1	1.14	100	84	0.032	3.68	0.30
341			-0.33	77.1	1.17	-	85	0.031	3.68	0.30
342			-0.32	77.1	1.11	-	85	0.031	3.68	0.30
343			-0.32	77.1	1.12	-	85	0.033	3.66	0.30
344			-0.33	77.1	1.11	-	85	0.031	3.66	0.30
345			-0.31	77.0	1.15	-	85	0.032	3.64	0.30
346			-0.31	77.0	1.11	-	85	0.033	3.65	0.29
347			-0.32	77.0	1.12	-	85	0.031	3.65	0.29
348			-0.32	77.0	1.15	-	85	0.031	3.67	0.29
349			-0.31	77.0	1.14	-	85	0.030	3.67	0.30
350	384.651	0.198	-0.32	77.0	1.15	100	85	0.032	3.65	0.30
351			-0.32	77.0	1.17	-	85	0.032	3.63	0.30
352			-0.33	77.0	1.18	-	85	0.030	3.64	0.29
353			-0.32	76.9	1.13	-	85	0.032	3.65	0.29
354			-0.32	76.9	1.13	-	85	0.032	3.66	0.29
355			-0.32	76.9	1.16	-	85	0.031	3.64	0.29
356			-0.32	76.9	1.14	-	85	0.030	3.63	0.29
357			-0.32	76.9	1.12	-	85	0.030	3.63	0.29
358			-0.32	76.9	1.16	-	85	0.030	3.63	0.29
359			-0.32	76.8	1.19	-	85	0.032	3.64	0.29
360	386.644	0.199	-0.32	76.8	1.12	101	85	0.030	3.64	0.28
361			-0.32	76.8	1.18	-	85	0.030	3.64	0.28
362			-0.32	76.8	1.12	-	85	0.031	3.65	0.28

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
363			-0.33	76.8	1.12	-	85	0.030	3.65	0.28
364			-0.32	76.7	1.17	-	85	0.030	3.64	0.28
365			-0.32	76.7	1.13	-	85	0.030	3.63	0.28
366			-0.32	76.7	1.16	-	85	0.031	3.62	0.28
367			-0.32	76.7	1.15	-	85	0.032	3.62	0.28
368			-0.32	76.7	1.19	-	85	0.030	3.63	0.28
369			-0.32	76.7	1.15	-	85	0.030	3.63	0.28
370	388.627	0.198	-0.32	76.7	1.16	101	85	0.030	3.65	0.28
371			-0.32	76.6	1.12	-	85	0.029	3.64	0.28
372			-0.32	76.6	1.13	-	85	0.029	3.63	0.28
373			-0.32	76.6	1.18	-	85	0.030	3.61	0.29
374			-0.32	76.6	1.19	-	85	0.030	3.63	0.29
375			-0.32	76.6	1.17	-	85	0.030	3.62	0.29
376			-0.32	76.6	1.17	-	85	0.031	3.61	0.29
377			-0.33	76.6	1.17	-	85	0.030	3.61	0.28
378			-0.32	76.6	1.13	-	85	0.029	3.60	0.28
379			-0.32	76.6	1.17	-	85	0.029	3.62	0.28
380	390.620	0.199	-0.32	76.5	1.18	101	85	0.030	3.61	0.28
381			-0.32	76.5	1.12	-	85	0.030	3.61	0.28
382			-0.32	76.5	1.16	-	85	0.028	3.60	0.28
383			-0.32	76.5	1.18	-	85	0.032	3.61	0.28
384			-0.32	76.5	1.12	-	84	0.030	3.61	0.28
385			-0.33	76.5	1.13	-	84	0.029	3.61	0.28
386			-0.32	76.5	1.11	-	84	0.030	3.60	0.28
387			-0.32	76.4	1.17	-	83	0.031	3.55	0.28
388	392.209	0.199	-0.32	76.4	1.12	101	83	0.030	3.55	0.28
Avg/Tot	75.963	0.196	-0.35	79	0.94	100	84	0.048	7.27	0.35

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
0	353	382	590	624	632	516.1	N/A
1	348	387	588	616	626	513.1	N/A
2	341	391	585	606	619	508.5	N/A
3	335	394	581	596	611	503.2	N/A
4	331	394	575	587	606	498.6	N/A
5	333	394	571	584	605	497.4	N/A
6	335	395	564	584	603	495.9	N/A
7	337	393	557	581	600	493.7	N/A
8	342	393	553	583	599	493.8	N/A
9	350	391	551	590	600	496.3	N/A
10	358	392	551	600	604	501.1	N/A
11	364	390	548	609	609	504.1	N/A
12	369	391	545	612	612	505.9	N/A
13	373	391	542	613	613	506.3	N/A
14	379	389	539	615	613	507.0	N/A
15	387	381	537	619	614	507.5	N/A
16	395	379	535	624	616	509.8	N/A
17	402	380	534	630	618	512.9	N/A
18	410	380	534	637	621	516.5	N/A
19	416	378	535	645	625	519.8	N/A
20	422	376	535	651	628	522.5	N/A
21	428	374	535	656	631	524.7	N/A
22	432	373	535	660	634	526.7	N/A
23	435	370	535	662	637	527.9	N/A
24	438	369	536	664	639	529.0	N/A
25	439	367	536	666	640	529.6	N/A
26	439	365	536	667	641	529.7	N/A
27	439	364	537	668	641	529.7	N/A
28	438	360	538	669	639	529.0	N/A
29	438	357	538	670	638	528.2	N/A
30	437	357	538	671	635	527.8	N/A
31	436	355	538	672	633	526.8	N/A
32	434	353	539	673	629	525.6	N/A
33	432	351	539	673	625	524.3	N/A
34	430	350	540	674	621	523.2	N/A
35	428	350	541	675	617	522.2	N/A
36	427	348	542	677	612	521.2	N/A
37	426	347	543	679	607	520.4	N/A
38	425	345	544	681	603	519.8	N/A
39	424	344	546	684	598	519.3	N/A
40	424	343	547	687	594	518.8	N/A
41	423	341	548	690	590	518.4	N/A
42	422	340	549	692	586	518.0	N/A
43	422	339	551	695	583	517.7	N/A
44	421	335	553	697	579	517.0	N/A
45	421	331	554	700	576	516.4	N/A
46	420	329	556	702	573	516.1	N/A
47	420	328	558	705	571	516.0	N/A
48	419	324	560	707	568	515.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
49	419	324	562	710	566	516.2	N/A
50	419	321	564	713	565	516.3	N/A
51	419	320	566	716	563	517.0	N/A
52	419	321	569	719	562	518.0	N/A
53	420	318	571	722	561	518.4	N/A
54	420	317	573	726	560	519.2	N/A
55	421	314	575	729	559	519.6	N/A
56	421	316	577	731	559	520.8	N/A
57	422	315	579	734	558	521.8	N/A
58	424	313	581	738	558	522.7	N/A
59	426	313	583	742	558	524.1	N/A
60	427	312	585	745	557	525.4	N/A
61	430	311	587	749	557	526.9	N/A
62	433	306	590	753	557	527.8	N/A
63	435	309	592	756	558	530.0	N/A
64	438	309	594	759	558	531.5	N/A
65	439	307	596	762	559	532.5	N/A
66	440	305	597	764	561	533.2	N/A
67	441	303	598	766	562	534.0	N/A
68	441	301	599	767	565	534.6	N/A
69	441	297	600	769	568	535.1	N/A
70	441	294	601	772	572	535.9	N/A
71	441	294	604	774	576	537.8	N/A
72	442	290	607	776	582	539.4	N/A
73	444	291	609	778	589	542.3	N/A
74	446	290	612	781	597	545.3	N/A
75	450	290	616	784	607	549.4	N/A
76	453	288	619	788	618	553.3	N/A
77	458	286	623	792	631	558.0	N/A
78	462	291	627	796	644	563.9	N/A
79	467	291	631	801	656	569.2	N/A
80	471	291	635	806	669	574.3	N/A
81	475	291	639	811	680	579.3	N/A
82	479	293	643	816	691	584.2	N/A
83	483	292	646	821	701	588.6	N/A
84	486	291	651	825	710	592.6	N/A
85	489	291	655	829	718	596.6	N/A
86	491	291	659	833	726	600.0	N/A
87	494	291	663	837	732	603.4	N/A
88	496	292	667	841	739	606.9	N/A
89	497	293	671	844	744	609.9	N/A
90	499	292	674	847	750	612.4	N/A
91	500	291	678	850	755	614.7	N/A
92	501	292	681	853	759	617.2	N/A
93	502	291	685	856	764	619.5	N/A
94	503	292	689	859	769	622.3	N/A
95	504	292	692	861	773	624.5	N/A
96	505	291	695	863	778	626.5	N/A
97	506	292	696	864	782	628.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
98	507	293	698	864	787	629.8	N/A
99	508	292	701	863	791	631.0	N/A
100	508	293	703	863	796	632.5	N/A
101	508	293	704	863	800	633.7	N/A
102	509	293	706	863	804	635.0	N/A
103	508	293	707	862	808	635.9	N/A
104	507	295	710	863	812	637.4	N/A
105	506	296	712	864	816	638.8	N/A
106	505	296	715	864	819	639.7	N/A
107	504	295	716	864	821	640.1	N/A
108	502	296	718	863	823	640.4	N/A
109	499	297	719	861	824	639.9	N/A
110	496	296	718	856	824	638.1	N/A
111	492	298	716	850	822	635.7	N/A
112	488	299	715	843	818	632.4	N/A
113	483	298	713	835	814	628.5	N/A
114	478	298	710	827	808	624.3	N/A
115	474	298	706	818	803	619.7	N/A
116	469	300	701	809	797	615.1	N/A
117	465	299	696	800	791	610.2	N/A
118	460	301	691	792	785	605.8	N/A
119	456	302	687	783	779	601.4	N/A
120	452	303	682	775	773	597.2	N/A
121	448	301	678	767	768	592.6	N/A
122	445	303	673	760	763	588.8	N/A
123	441	303	669	752	759	584.9	N/A
124	438	305	665	745	755	581.5	N/A
125	435	306	660	739	751	578.1	N/A
126	432	306	657	732	747	574.6	N/A
127	429	306	652	726	743	571.3	N/A
128	425	306	649	721	738	568.0	N/A
129	422	307	645	716	733	564.8	N/A
130	419	308	641	711	728	561.6	N/A
131	416	309	638	707	723	558.5	N/A
132	413	310	634	703	717	555.3	N/A
133	410	310	630	698	712	552.1	N/A
134	407	310	627	694	706	548.9	N/A
135	404	305	624	690	701	544.7	N/A
136	401	306	620	686	696	541.7	N/A
137	397	305	617	682	692	538.5	N/A
138	394	305	613	678	687	535.4	N/A
139	391	304	610	674	682	532.2	N/A
140	388	305	607	670	678	529.5	N/A
141	385	303	603	666	674	526.3	N/A
142	383	307	600	662	670	524.2	N/A
143	380	304	596	659	666	521.0	N/A
144	377	304	593	655	662	518.2	N/A
145	374	306	590	652	658	516.0	N/A
146	372	305	586	648	654	513.2	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
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Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
147	369	306	583	645	651	510.9	N/A
148	367	308	580	641	648	508.7	N/A
149	365	307	577	638	644	506.1	N/A
150	362	309	573	635	641	504.0	N/A
151	360	305	569	631	638	500.8	N/A
152	358	306	565	628	635	498.4	N/A
153	356	308	562	624	631	496.2	N/A
154	354	307	558	621	628	493.4	N/A
155	351	306	554	617	625	490.6	N/A
156	349	305	550	614	621	487.7	N/A
157	346	309	546	610	618	485.6	N/A
158	344	309	541	606	614	483.0	N/A
159	342	310	537	602	610	480.2	N/A
160	340	311	533	598	607	477.6	N/A
161	337	306	529	594	603	474.0	N/A
162	335	311	525	591	600	472.3	N/A
163	333	312	521	587	596	469.9	N/A
164	331	312	517	584	593	467.5	N/A
165	330	312	514	580	589	464.9	N/A
166	328	308	510	577	586	461.8	N/A
167	326	310	507	574	583	459.9	N/A
168	324	308	504	571	580	457.5	N/A
169	322	312	501	568	577	456.2	N/A
170	321	309	498	565	575	453.6	N/A
171	319	309	495	562	572	451.4	N/A
172	317	308	492	559	569	449.0	N/A
173	316	311	489	556	566	447.6	N/A
174	314	311	486	553	563	445.6	N/A
175	313	310	483	550	561	443.4	N/A
176	311	312	480	547	558	441.7	N/A
177	310	312	477	544	555	439.8	N/A
178	308	312	475	542	553	437.8	N/A
179	307	313	472	539	551	436.3	N/A
180	306	311	470	537	548	434.2	N/A
181	304	310	467	534	546	432.2	N/A
182	303	310	465	532	544	430.5	N/A
183	301	312	463	530	542	429.3	N/A
184	300	311	460	527	540	427.6	N/A
185	299	307	458	525	537	425.4	N/A
186	297	311	456	523	535	424.7	N/A
187	296	312	454	521	533	423.3	N/A
188	295	310	452	519	532	421.6	N/A
189	294	310	450	517	530	420.4	N/A
190	293	308	448	516	528	418.6	N/A
191	292	310	446	514	527	417.8	N/A
192	291	312	445	512	525	416.9	N/A
193	290	309	443	511	523	415.2	N/A
194	289	310	441	509	522	414.1	N/A
195	287	309	440	507	520	412.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
196	286	309	438	506	519	411.7	N/A
197	285	310	437	505	518	411.0	N/A
198	284	309	436	503	517	409.7	N/A
199	283	311	434	502	515	409.2	N/A
200	282	308	433	501	514	407.7	N/A
201	282	306	431	499	513	406.4	N/A
202	281	308	430	498	512	405.8	N/A
203	280	308	429	496	511	404.8	N/A
204	279	309	427	495	510	404.0	N/A
205	279	307	426	494	509	402.9	N/A
206	277	310	425	492	508	402.6	N/A
207	277	310	424	491	507	401.6	N/A
208	276	308	422	490	506	400.4	N/A
209	275	308	421	488	505	399.5	N/A
210	275	307	420	487	504	398.4	N/A
211	274	306	419	486	503	397.3	N/A
212	273	308	417	484	502	396.8	N/A
213	272	307	416	483	501	396.0	N/A
214	272	309	415	482	500	395.5	N/A
215	271	307	414	480	499	394.3	N/A
216	270	307	413	479	498	393.5	N/A
217	269	309	412	478	497	392.9	N/A
218	268	309	411	476	496	392.0	N/A
219	268	308	410	475	495	391.1	N/A
220	267	308	409	474	494	390.4	N/A
221	267	307	408	473	493	389.4	N/A
222	266	307	407	471	492	388.6	N/A
223	265	308	406	470	490	387.9	N/A
224	264	307	405	469	489	386.8	N/A
225	264	306	404	467	488	386.1	N/A
226	263	305	403	466	487	385.0	N/A
227	263	306	403	465	486	384.4	N/A
228	262	306	402	464	485	383.5	N/A
229	261	306	401	462	484	382.8	N/A
230	261	303	400	461	482	381.4	N/A
231	260	304	399	460	481	380.8	N/A
232	260	305	398	459	480	380.3	N/A
233	259	306	397	457	479	379.6	N/A
234	259	306	396	456	478	378.9	N/A
235	258	302	395	455	477	377.4	N/A
236	257	301	394	454	476	376.3	N/A
237	257	299	393	453	474	375.2	N/A
238	257	300	392	452	473	374.8	N/A
239	256	302	392	450	472	374.5	N/A
240	256	306	390	449	471	374.3	N/A
241	255	305	389	448	470	373.4	N/A
242	255	306	388	447	468	372.9	N/A
243	255	304	387	445	467	371.9	N/A
244	255	305	387	444	466	371.4	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
245	254	305	386	443	465	370.6	N/A
246	254	304	385	442	464	369.8	N/A
247	254	305	384	441	463	369.3	N/A
248	253	305	383	440	462	368.6	N/A
249	253	304	382	438	461	367.8	N/A
250	253	305	381	437	460	367.1	N/A
251	252	304	381	436	459	366.4	N/A
252	252	304	380	435	458	365.5	N/A
253	252	304	379	434	457	364.8	N/A
254	251	304	378	433	455	364.1	N/A
255	251	304	377	431	454	363.5	N/A
256	250	303	377	430	453	362.7	N/A
257	250	302	376	429	452	361.9	N/A
258	250	302	375	428	451	361.2	N/A
259	249	303	375	427	450	360.7	N/A
260	249	303	374	426	449	360.0	N/A
261	248	302	373	425	448	359.3	N/A
262	248	302	372	424	447	358.6	N/A
263	248	301	372	423	446	357.8	N/A
264	247	301	371	422	445	357.3	N/A
265	247	301	370	421	444	356.6	N/A
266	246	300	370	420	443	355.9	N/A
267	246	300	369	419	442	355.3	N/A
268	246	300	368	418	441	354.6	N/A
269	245	299	367	417	440	353.9	N/A
270	245	299	367	416	439	353.3	N/A
271	244	298	366	416	439	352.6	N/A
272	244	298	366	415	438	352.1	N/A
273	243	298	365	414	437	351.5	N/A
274	243	298	364	413	436	350.7	N/A
275	243	297	364	412	435	350.0	N/A
276	242	297	363	411	434	349.5	N/A
277	241	297	362	410	433	348.9	N/A
278	241	297	362	410	433	348.3	N/A
279	240	296	361	409	432	347.5	N/A
280	240	296	360	408	431	346.9	N/A
281	239	295	359	407	430	346.2	N/A
282	239	295	358	406	430	345.5	N/A
283	238	294	358	405	429	344.8	N/A
284	238	294	357	404	428	344.2	N/A
285	237	293	356	403	427	343.4	N/A
286	237	294	355	403	426	342.9	N/A
287	236	293	354	402	425	342.2	N/A
288	236	295	354	401	424	341.9	N/A
289	235	295	353	400	423	341.3	N/A
290	235	295	352	399	422	340.6	N/A
291	234	295	351	398	422	340.1	N/A
292	234	294	350	398	421	339.4	N/A
293	234	294	350	397	420	338.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
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Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
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	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
294	233	294	349	396	419	338.1	N/A
295	233	294	348	395	418	337.6	N/A
296	232	294	348	395	417	336.9	N/A
297	232	293	347	394	416	336.3	N/A
298	232	294	346	393	415	335.8	N/A
299	231	293	346	392	414	335.2	N/A
300	231	293	345	391	413	334.5	N/A
301	230	293	344	391	412	334.0	N/A
302	230	293	344	390	411	333.5	N/A
303	230	292	343	389	410	332.9	N/A
304	229	292	342	388	409	332.3	N/A
305	229	292	342	388	408	331.7	N/A
306	229	291	341	387	407	331.1	N/A
307	228	291	341	386	406	330.5	N/A
308	228	291	340	386	405	329.9	N/A
309	227	291	339	385	404	329.3	N/A
310	227	289	339	384	403	328.4	N/A
311	227	289	338	384	402	327.9	N/A
312	226	288	337	383	401	327.3	N/A
313	226	288	337	382	400	326.6	N/A
314	225	287	336	382	399	325.9	N/A
315	225	287	336	381	398	325.3	N/A
316	225	286	335	380	397	324.6	N/A
317	224	285	334	380	396	323.8	N/A
318	224	285	334	379	395	323.2	N/A
319	223	284	333	378	394	322.5	N/A
320	223	283	332	378	393	321.6	N/A
321	222	284	332	377	391	321.2	N/A
322	222	284	331	376	390	320.6	N/A
323	222	284	330	375	389	320.1	N/A
324	221	284	330	375	388	319.5	N/A
325	221	282	329	374	387	318.5	N/A
326	220	283	328	373	386	318.1	N/A
327	220	282	328	372	385	317.3	N/A
328	219	283	327	372	383	316.8	N/A
329	219	282	326	371	382	316.0	N/A
330	219	282	325	370	381	315.5	N/A
331	218	281	325	369	380	314.8	N/A
332	218	281	324	369	379	314.1	N/A
333	217	281	323	368	378	313.7	N/A
334	217	282	323	367	377	313.2	N/A
335	217	281	322	366	376	312.6	N/A
336	216	281	321	366	375	312.0	N/A
337	216	281	321	365	374	311.4	N/A
338	216	281	320	364	373	310.9	N/A
339	215	280	320	364	372	310.3	N/A
340	215	280	319	363	371	309.7	N/A
341	215	280	318	362	371	309.2	N/A
342	214	280	318	362	370	308.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
343	214	280	317	361	369	308.1	N/A
344	214	280	316	360	368	307.6	N/A
345	213	279	316	360	367	306.9	N/A
346	213	279	315	359	366	306.5	N/A
347	213	278	314	359	365	305.9	N/A
348	212	278	314	358	364	305.4	N/A
349	212	278	313	357	364	304.8	N/A
350	212	278	313	357	363	304.3	N/A
351	211	277	312	356	362	303.8	N/A
352	211	277	311	356	361	303.2	N/A
353	211	277	311	355	360	302.9	N/A
354	211	277	311	354	360	302.4	N/A
355	210	277	310	354	359	301.9	N/A
356	210	277	310	353	358	301.5	N/A
357	210	276	309	352	357	301.0	N/A
358	209	276	309	352	357	300.6	N/A
359	209	276	308	351	356	300.1	N/A
360	209	276	308	351	355	299.8	N/A
361	209	276	307	350	355	299.3	N/A
362	208	276	307	350	354	298.9	N/A
363	208	275	306	349	354	298.5	N/A
364	208	275	306	348	353	298.0	N/A
365	207	275	306	348	352	297.7	N/A
366	207	275	305	347	352	297.2	N/A
367	207	274	305	347	351	296.8	N/A
368	207	275	304	346	350	296.5	N/A
369	206	274	304	346	350	296.0	N/A
370	206	274	304	345	349	295.8	N/A
371	206	274	303	345	349	295.4	N/A
372	206	274	303	344	348	295.1	N/A
373	205	274	303	344	348	294.7	N/A
374	205	274	303	344	347	294.4	N/A
375	205	274	302	343	347	294.1	N/A
376	205	273	302	343	346	293.8	N/A
377	204	273	302	342	345	293.4	N/A
378	204	273	301	342	345	293.2	N/A
379	204	273	301	341	345	292.7	N/A
380	204	273	301	341	344	292.5	N/A
381	203	273	301	341	344	292.2	N/A
382	203	273	300	340	343	291.9	N/A
383	203	273	300	340	343	291.6	N/A
384	203	273	300	339	342	291.4	N/A
385	202	273	300	339	342	291.1	N/A
386	202	272	299	339	341	290.7	N/A
387	202	272	299	338	341	290.4	N/A
388	202	272	299	338	340	290.2	N/A
Average	322	306	470	550	534	437	N/A

LAB SAMPLE DATA - ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	H104	184.7	189.2	4.5
	B	H105	183.9	188.2	4.3
	C - 1st Hour	H106	186.0	188.7	2.7
	Amb	H107	187.2	187.2	0.0
Probes	**A**	5A	116754.5	116754.5	0.0
	B	5B	116873.1	116873.3	0.2
	C - 1st Hour	5C	115854.4	115854.3	0.0*
O-rings	**A**	5A	3536.2	3536.5	0.3
	B	5B	3532.0	3532.3	0.3
	C - 1st Hour	5C	3378.2	3378.4	0.2

**Negative value corrected to zero*

Placed in Dessicator on:	6/13 - 8:30

Filters	**A**	189.2	6/6 23:59	189.3	6/15 12:06	189.2	6/16 8:57		
	B	188.3	6/6 23:59	188.3	6/15 12:06	188.2	6/16 8:57		
	C - 1st Hour	189.0	6/6 23:59	188.7	6/15 12:06	188.7	6/16 8:57		
	Amb	187.1	6/6 23:59	187.2	6/15 12:06	187.2	6/16 8:57		
Probes	**A**			116754.4	6/15 12:06	116754.5	6/16 8:57		
	B			116873.2	6/15 12:07	116873.3	6/16 8:58		
	C - 1st Hour			115854.4	6/15 12:07	115854.3	6/16 8:58		
O-Rings	**A**			3536.5	6/15 12:07	3536.5	6/16 8:58		
	B			3532.2	6/15 12:07	3532.3	6/16 8:58		
	C - 1st Hour			3378.4	6/15 12:07	3378.4	6/16 8:58		

Train A Aggregate, mg:	**4.8**
Train B Aggregate, mg:	**4.8**
Train C Aggregate, mg:	**2.9**
Ambient Aggregate, mg:	**0.0**

ASTM E3053 Wood Heater Run Sheets

Client: SBI | Job Number: 22-790 | Tracking #: 122
Model: Bistro | Run Number: 1&2 | Test Date: 6/6/2022

Wood Heater Run Notes

High Fire Test Notes
Test Burn Start Time: 13:56
Air Control Setting: Fully Open

Time	Notes
0 min	Ignited newspaper on top of kindling, for 20 seconds, left door ajar 90 degrees, air fully open, fan off
1.5 min	Closed door
55 min	@ 2.4 lbs remaining, leveled coal bed and loaded fuel, door open for 1 minute then closed, fan on high immediately after closing.
159 min	End of Test @4.4 lbs (2 lbs of remaining HF load + 2.4lbs coal bed)

Test Burn End Time: 16:35

Low/Medium Fire Test Notes
Test Burn Start Time: 17:04
Air Control Setting: Medium Air Setting ~halfway open, set using 3/8" drill bit in primary air inlet.

Time	Notes
0 min	@ 3.2 lbs, turned off fan, leveled remaining coal bed, loaded medium fire test load, air on high, door open left open.
4 min	Closed door
8 min	Closed air down to approximately halfway between high and medium setting
9 min	Set to test setting, fan on high
388 min	End of Test

Test Burn End Time: 23:32

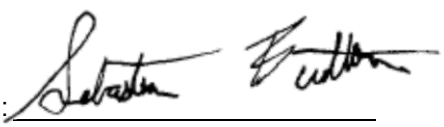
Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO_2 (%): 18.00 CO (%): 1.973
Mid Gas CO_2 (%): 8.16 CO (%): -

Calibration Results:

	Pre Test			Post Test		
	Zero	Mid	Span	Zero	Mid	Span
Time	11:51	12:06	12:02	6/7 – 8:30	6/7 – 8:40	6/7 – 8:36
CO_2	0.00	8.11	18.00	0.03	8.19	17.96
CO	0.000	-	1.973	0.000	-	1.967

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

Technician Signature:  Date: 6/7/2022

ASTM E3053 Wood Heater Run Sheets

Client: SBI | Job Number: 22-790 | Tracking #: 122
Model: Bistro | Run Number: 1&2 | Test Date: 6/6/2022

Test Photos

Kindling Fuel Load

Start-up Fuel Load

Kindling & Start-up Loaded in Stove

High Fire Fuel Load

Technician Signature: _____ Date: 6/7/2022

ASTM E3053 Wood Heater Run Sheets

Client: SBI Job Number: 22-790 Tracking #: 122
Model: Bistro Run Number: 1&2 Test Date: 6/6/2022

Residual Start-up Fuel Coal Bed – Pre Rake

Residual Start-up Fuel Coal Bed – Post Rake

High Fire Fuel Loaded

Air Setting – High Fire

Technician Signature: Date: 6/7/2022

ASTM E3053 Wood Heater Run Sheets

Client: SBI Job Number: 22-790 Tracking #: 122
Model: Bistro Run Number: 1&2 Test Date: 6/6/2022

Residual High Fire Load Coal Bed – Pre Rake

Residual High Fire Load Coal Bed – Post Rake

Medium Fire Fuel Load

Medium Fire Fuel Loaded

Technician Signature: _____ Date: 6/7/2022

ASTM E3053 Wood Heater Run Sheets

Client: SBI Job Number: 22-790 Tracking #: 122
Model: Bistro Run Number: 1&2 Test Date: 6/6/2022

Medium Fire Air Setting

Technician Signature: Date: 6/7/2022

WOOD STOVE TEST DATA PACKET
ASTM E3053/E2515

Run 3 Data Summary

Client:	SBI
Model:	Bistro
Job #:	22-790
Tracking #:	122
Test Date:	6/7/2022

Techician Signature

6/16/2022
Date

TEST RESULTS - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

Burn Rate (kg/hr):	3.27

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	24.111	27.645	27.808	13.014
Average Gas Velocity in Dilution Tunnel (ft/sec)	27.90			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	32702.0			
Average Gas Meter Temperature (°F)	80.1	77.1	75.9	75.3
Total Sample Volume (dscf)	23.307	27.774	28.084	12.770
Average Tunnel Temperature (°F)	94.9			
Total Time of Test (min)	160			
Total Particulate Catch (mg)	0.1	4.3	3.9	2.4
Particulate Concentration, dry-standard (g/dscf)	0.0000043	0.0001548	0.0001389	0.0001879
Total PM Emissions (g)	0.37	13.13	11.74	6.01
Particulate Emission Rate (g/hr)	0.14	4.92	4.40	6.01
Emissions Factor (g/kg)	-	1.48	1.32	-
Difference from Average Total Particulate Emissions (g)	-	0.70	0.70	-
Difference from Average Total Particulate Emissions (%)	-	5.6%	5.6%	-
Difference from Average Emissions Factor (g/kg)	-	0.08	0.08	-

Final Average Results	
Total Particulate Emissions (g)	12.43
Particulate Emission Rate (g/hr)	4.66
Emissions Factor (g/kg)	1.40
HHV Efficiency (%)	74.3%
LHV Efficiency (%)	79.6%
CO Emissions (g/min)	1.29

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	>80 °F, <90 °F	Min: 81.5 / Max: 88.1	OK
Face Velocity	< 30 ft/min	9.5	OK
Leakage Rate	Less than 4% of average sample rate	0.006 cfm	OK
Ambient Temp	55-90 °F	Min:74.4/ Max:86.2	OK
Negative Probe Weight Evaluation	<5% of Total Catch	Probe Catch Not Negative	OK
Pro-Rate Variation	All but 1 reading between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Tunnel Dew Point	Tunnel dew point temps must be below filter temps at all times	See Data Tabs	OK

B415.1 Efficiency Results

Manufacturer:	SBI
Model:	Bistro
Date:	06/07/22
Run:	3
Control #:	22-790
Test Duration:	115
Output Category:	High

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	74.3%	79.6%
Combustion Efficiency	98.5%	98.5%
Heat Transfer Efficiency	75.4%	80.7%

Output Rate (kJ/h)	46,823	44,416	**(Btu/h)**
Burn Rate (kg/h)	3.35	7.39	**(lb/h)**
Input (kJ/h)	63,049	59,808	**(Btu/h)**

Test Load Weight (dry kg)	6.43	14.17	**dry lb**
MC wet (%)	17.42		
MC dry (%)	21.09		
Particulate (g)	12.43		
CO (g)	148		
Test Duration (h)	1.92		

Emissions	**Particulate**	**CO**
g/MJ Output	0.14	1.65
g/kg Dry Fuel	1.93	23.00
g/h	6.49	77.13
g/min	0.11	1.29
lb/MM Btu Output	0.32	3.83

Air/Fuel Ratio (A/F)	11.49

VERSION: **2.2** **12/14/2009**

HIGH FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 3
Technician: SJB
Date: 6/7/2022

Nominal Loading Density (lbs/ft^3, wet basis):	10		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	19.40		
Total Load Weight Range (lbs):	18.40	to	20.40
Core Load Weight Range (lbs):	8.70	to	12.60
Remainder Load Weight Range (lbs):	6.80	to	10.70
Core Load Piece Range (lbs):	2.90	to	4.90
Remainder Load Piece Range (lbs):	1.90	to	10.70
Max Allowable Kindling Weight (lbs):	3.83		
Max Allowable Start-up Fuel Weight (lbs):	5.74		

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	3.11	In Range	26.0	24.2	18.1	22.8	In Range	2.53	1.15
2	17.00	3.83	In Range	23.4	18.2	15.6	19.1	In Range	3.22	1.46
3	17.00	3.87	In Range	21.1	16.0	18.3	18.5	In Range	3.27	1.48
Core Load Wt. (lbs)		10.81	In Range							

REMAINDER LOAD DATA (1 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	5.04	In Range	26.0	25.4	24.3	25.2	In Range	4.02	1.83
2	17.00	3.29	In Range	20.5	18.4	18.0	19.0	In Range	2.77	1.25
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		8.33	In Range							

Total Load Weight (lbs):	19.14	In Range	
Core Load % of Total Weight:	56%	In Range	45-65%
Remainder % of Total Weight:	44%	In Range	35-55%
Total Load % of Target Weight:	99%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	9.9		
Total Load Average Moisture Content (%DB):	21.1	In Range	19-25%
Total Load Average Moisture Content (%WB):	17.4		
Total Test Load Weight (dry basis):	15.81 lbs	7.17 kg	

KINDLING AND START-UP FUEL

		Kindling Moisture Readings (%DB)					Dry Weight	
Kindling Weight (lbs)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
3.82	In Range	10	10	10	10.0	In Range	3.47	1.58

		Start-up Moisture Readings (%DB)					Dry Weight	
Start-up Fuel Wt. (lb)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
5.74	In Range	21.8	18.8	23.1	21.2	In Range	4.73	2.15

TEST FUEL LOADING RANGE

Allowable Residual Start-up Fuel Range (lb):	1.9	to	3.8	
Actual Residual Start-up Fuel Weight (lb):		2.40		In Range

TEST END POINT

High Fire Test Run End Point Range:	1.7	to	2.1	lb
Actual Fuel Load Ending Weight (lb):		2.00		In Range

Total Weight All Fuel Added: 28.70 lbs, wet basis
24.01 lbs, dry basis
10.89 kg, dry basis

Total Weight All Fuel Burned (dry basis): 19.61 lbs
8.90 kg

DILUTION TUNNEL & MISC. DATA - ASTM E3053 / E2515

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	3	Technician:	SJB
Test Start Time:	9:59	Date:	6/7/2022
Test Type:	High Fire		

Recording Interval (min):	1
Total Sampling Time (min):	160
High Fire Test Load Time (min):	45

Meter Box γ Factor:	1.022	(A)
Meter Box γ Factor:	1.025	(B)
Meter Box γ Factor:	0.993	(C)
Meter Box γ Factor:	0.988	(Ambient)

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100
Date Flue Pipe Last Cleaned:	6/3/2022

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.97	29.94	29.96
Relative Humidity (%)	40.6	43.4	
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	22.2	22.2	

Ambient Sample Volume: 24.111 ft^3

Sample Train Post-Test Leak Checks

(A)	0.001 cfm @	-4	in. Hg
(B)	0.001 cfm @	-4	in. Hg
(C)	0.006 cfm @	-5	in. Hg
(Ambient)	0.001 cfm @	-5	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.159	75
2	0.193	75
3	0.193	75
4	0.178	75
5	0.134	75
6	0.186	75
7	0.198	75
8	0.176	75
Center	0.204	75

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	8	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:	0.3491	ft^2
V_{strav}:	28.02	ft/sec
V_{scent}:	30.13	ft/sec
F_p:	0.930	[ratio]
Initial Tunnel Flow:	567.7	scf/min

Static Pressure: -0.419 in. H_2O

TEST FUEL PROPERTIES

ASTM 3053-17 - Table A1.1 Fuel Properties by Fuel Species

Select Fuel Type	Species	%C	%H	%O	%Ash	MJ/kg	BTU/lb
	Ash, White	49.70	6.90	43.00	0.30	20.75	8927
X	Beech	48.70	5.80	44.70	0.60	18.80	8088
	Birch, Yellow	49.80	6.50	43.40	0.30	20.12	8656
	Doug Fir (Coast, Int. West)	48.73	6.87	43.90	0.50	19.81	8522
	Doug Fir (Int. South)	48.73	6.87	43.90	0.50	19.81	8522
	Elm, Rock	50.40	6.60	42.30	0.70	20.49	8815
	Elm, Soft	50.40	6.60	42.30	0.70	20.49	8815
	Larch, Western	50.54	6.36	42.40	0.70	17.58	7558
	Maple, Hard	50.64	6.02	41.74	1.35	19.96	8587
	Maple, Sugar	50.64	6.02	41.74	1.35	19.96	8587
	Oak, Red	49.50	6.62	43.70	0.20	20.20	8690
	Oak, White	50.40	6.59	42.70	0.20	20.50	8819
	Pine, Southern Long Leaf	52.60	7.02	40.10	1.30	22.30	9594

WOODSTOVE PREBURN DATA

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	3	Technician:	SJB
		Date:	6/7/2022

High Fire Test Begins from Cold Start, No Preburn is Performed

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
0	372.228		0.201	-0.37	74.6	-0.33		9.65		75.3	50.6	76.5	87.6	74.4
1			0.201	-0.37	74.9	0.30	-	9.59	-0.064	76.6	51.8	93.3	85.7	74.4
2			0.201	-0.37	75.0	0.34	-	9.49	-0.1014	77.0	52.1	115.1	84.6	74.4
3			0.199	-0.37	75.0	0.32	-	9.47	-0.0186	75.8	51.5	115.7	83.7	74.4
4			0.203	-0.37	75.0	0.33	-	9.39	-0.0733	75.8	51.8	123.0	83.1	74.5
5			0.201	-0.36	75.0	0.34	-	9.31	-0.0867	76.2	52.4	140.6	82.7	74.6
6			0.200	-0.36	75.1	0.36	-	9.17	-0.1413	77.0	54.1	170.1	82.4	74.7
7			0.199	-0.36	75.1	0.38	-	9.00	-0.1642	77.9	56.1	199.8	82.0	74.8
8			0.197	-0.37	75.1	0.37	-	8.79	-0.2147	79.1	57.9	233.1	81.8	74.9
9			0.197	-0.37	75.2	0.39	-	8.55	-0.2347	80.2	59.9	264.1	81.5	75.2
10	373.945	0.172	0.199	-0.36	75.2	0.40	97	8.28	-0.2679	81.1	61.0	287.7	82.1	75.3
11			0.199	-0.36	75.3	0.41	-	8.04	-0.2416	81.3	61.1	298.7	83.0	75.5
12			0.197	-0.36	75.3	0.45	-	7.82	-0.2273	82.5	60.6	310.2	83.8	75.6
13			0.198	-0.36	75.3	0.44	-	7.59	-0.226	82.6	60.4	320.0	84.3	75.8
14			0.197	-0.36	75.3	0.46	-	7.40	-0.1872	83.2	60.0	326.8	84.8	76.0
15			0.197	-0.35	75.3	0.47	-	7.20	-0.2009	83.4	59.8	337.7	85.3	76.1
16			0.196	-0.36	75.4	0.47	-	6.99	-0.21	84.0	60.1	350.6	85.9	76.4
17			0.196	-0.36	75.4	0.48	-	6.82	-0.1762	84.1	59.5	354.8	86.3	76.6
18			0.197	-0.36	75.5	0.48	-	6.64	-0.1733	84.2	58.7	358.7	86.8	76.9
19			0.197	-0.37	75.5	0.47	-	6.42	-0.2186	85.2	59.8	371.7	87.3	77.0
20	375.663	0.172	0.197	-0.37	75.5	0.47	98	6.21	-0.2178	85.7	60.3	382.8	87.1	77.4
21			0.194	-0.36	75.6	0.48	-	6.01	-0.1937	85.9	59.8	386.2	86.7	77.6
22			0.197	-0.36	75.6	0.46	-	5.81	-0.2003	86.5	60.1	393.5	86.3	77.7
23			0.196	-0.37	75.6	0.48	-	5.61	-0.2	86.6	60.0	397.5	86.1	78.1
24			0.198	-0.36	75.6	0.49	-	5.44	-0.1694	86.8	59.3	394.7	85.8	78.2
25			0.197	-0.36	75.6	0.48	-	5.29	-0.151	86.7	58.6	391.7	85.5	78.4
26			0.198	-0.36	75.7	0.49	-	5.14	-0.1488	86.7	58.2	390.1	85.4	78.5
27			0.196	-0.36	75.7	0.48	-	5.01	-0.1374	86.9	58.1	390.1	85.3	78.6
28			0.196	-0.37	75.7	0.47	-	4.86	-0.1476	87.1	58.0	390.3	85.2	78.7
29			0.198	-0.36	75.8	0.48	-	4.72	-0.1387	87.3	58.0	392.0	85.0	78.8
30	377.385	0.172	0.197	-0.37	75.7	0.49	99	4.57	-0.1487	87.7	58.2	394.6	84.9	79.1
31			0.196	-0.37	75.8	0.50	-	4.41	-0.1625	88.2	58.5	400.3	84.8	79.4
32			0.197	-0.37	75.8	0.49	-	4.25	-0.1554	88.6	58.6	404.6	84.8	79.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
33			0.196	-0.36	75.8	0.48	-	4.11	-0.1402	88.5	58.4	404.3	84.8	79.3
34			0.195	-0.37	75.9	0.48	-	3.95	-0.1586	88.8	58.4	405.8	84.7	79.6
35			0.196	-0.36	75.9	0.48	-	3.79	-0.1682	89.5	59.0	411.3	84.7	79.8
36			0.195	-0.38	75.9	0.49	-	3.62	-0.1639	89.8	59.0	415.8	84.6	80.1
37			0.196	-0.37	76.0	0.46	-	3.47	-0.1528	90.2	58.7	421.1	84.6	80.2
38			0.197	-0.36	76.0	0.48	-	3.31	-0.1545	90.6	58.7	424.9	84.6	80.4
39			0.197	-0.38	76.0	0.50	-	3.16	-0.1583	90.8	58.7	429.6	84.6	80.6
40	379.115	0.173	0.194	-0.36	76.0	0.50	100	3.00	-0.1584	91.5	58.8	433.4	84.5	80.9
41			0.195	-0.36	76.0	0.51	-	2.85	-0.1467	92.9	58.6	438.1	84.7	80.3
42			0.195	-0.34	76.1	0.46	-	2.69	-0.1571	92.1	59.0	441.1	84.7	81.5
43			0.194	-0.31	76.1	0.48	-	2.53	-0.1665	92.3	59.3	446.2	84.6	81.8
44			0.193	-0.31	76.1	0.49	-	2.37	-0.1551	92.5	59.2	446.8	84.8	82.4
45			0.187	-0.36	76.2	0.50	-	21.51	19.1381	121.1	62.1	495.1	85.5	83.2
46			0.193	-0.37	76.2	0.53	-	21.06	-0.4488	100.0	62.0	468.6	85.0	83.4
47			0.192	-0.36	76.2	0.50	-	20.88	-0.1803	100.1	63.0	458.4	84.8	81.5
48			0.193	-0.36	76.2	0.51	-	20.71	-0.1744	100.3	62.5	455.6	84.7	81.4
49			0.195	-0.36	76.3	0.47	-	20.55	-0.1577	100.4	62.1	454.2	84.6	80.8
50	380.860	0.175	0.192	-0.37	76.3	0.52	102	20.37	-0.1779	100.7	62.4	457.4	84.6	81.1
51			0.192	-0.38	76.3	0.49	-	20.19	-0.1799	100.9	62.3	458.4	84.5	80.8
52			0.192	-0.37	76.3	0.48	-	20.04	-0.1511	100.8	61.5	454.6	84.5	81.2
53			0.194	-0.36	76.4	0.50	-	19.90	-0.1375	100.8	61.0	449.5	84.5	81.3
54			0.192	-0.37	76.4	0.47	-	19.78	-0.1271	100.7	60.5	443.8	84.8	81.3
55			0.195	-0.38	76.5	0.46	-	19.67	-0.1063	96.5	60.0	436.3	85.0	82.2
56			0.195	-0.36	76.5	0.48	-	19.54	-0.1246	95.5	59.6	430.0	85.1	82.9
57			0.195	-0.37	76.5	0.47	-	19.44	-0.1049	94.2	59.1	424.3	85.2	83.4
58			0.195	-0.36	76.5	0.44	-	19.31	-0.1272	93.8	58.8	416.2	85.5	83.7
59			0.195	-0.36	76.5	0.45	-	19.22	-0.0902	93.8	58.6	408.7	85.5	84.2
60	382.568	0.171	0.196	-0.37	76.6	0.45	99	19.12	-0.0977	93.5	58.4	403.1	85.7	84.2
61			0.195	-0.35	76.6	0.42	-	19.02	-0.1025	93.1	58.4	397.1	85.8	83.9
62			0.196	-0.31	76.6	0.43	-	18.93	-0.0885	93.0	58.0	390.4	85.9	84.3
63			0.196	-0.36	76.7	0.43	-	18.82	-0.112	92.4	57.6	383.5	86.1	84.6
64			0.194	-0.37	76.7	0.39	-	18.75	-0.072	92.4	57.3	376.8	86.2	84.7
65			0.194	-0.36	76.8	0.40	-	18.67	-0.0786	92.6	57.3	372.6	86.4	84.1

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
66			0.197	-0.37	76.9	0.39	-	18.60	-0.0732	92.1	57.3	368.5	86.4	84.3
67			0.196	-0.37	76.9	0.38	-	18.52	-0.0819	91.9	57.3	365.0	86.6	84.5
68			0.196	-0.33	76.9	0.36	-	18.41	-0.105	92.1	57.9	368.9	86.7	84.2
69			0.197	-0.36	77.0	0.37	-	18.32	-0.0928	92.5	58.3	372.3	86.7	84.5
70	384.311	0.174	0.194	-0.37	77.1	0.36	101	18.20	-0.1169	94.0	58.6	374.3	86.4	84.2
71			0.195	-0.34	77.1	0.41	-	18.14	-0.0634	93.0	58.7	375.8	86.3	84.7
72			0.194	-0.31	77.2	0.35	-	18.02	-0.1172	92.8	58.8	376.0	86.1	85.0
73			0.197	-0.32	77.2	0.38	-	17.92	-0.0968	92.8	58.9	374.9	85.9	85.2
74			0.196	-0.37	77.2	0.37	-	17.80	-0.1193	92.9	58.8	374.7	85.7	85.1
75			0.197	-0.37	77.2	0.35	-	17.68	-0.1274	92.8	59.0	374.5	85.5	85.4
76			0.198	-0.30	77.2	0.35	-	17.57	-0.111	93.0	59.1	375.2	85.3	85.9
77			0.196	-0.31	77.3	0.40	-	17.44	-0.1289	93.1	59.3	376.9	85.3	86.2
78			0.195	-0.34	77.3	0.35	-	17.29	-0.1457	97.4	59.8	381.6	85.2	84.1
79			0.196	-0.34	77.3	0.36	-	17.19	-0.1002	96.9	59.7	387.3	85.2	83.4
80	386.035	0.172	0.197	-0.36	77.3	0.35	100	17.06	-0.132	96.9	60.3	392.5	85.2	82.7
81			0.197	-0.31	77.4	0.37	-	16.92	-0.1349	96.6	60.5	397.6	85.2	81.2
82			0.194	-0.36	77.4	0.39	-	16.76	-0.1611	96.9	60.7	401.7	85.2	81.4
83			0.197	-0.36	77.5	0.35	-	16.61	-0.1561	97.1	60.8	406.1	85.1	80.6
84			0.195	-0.37	77.4	0.36	-	16.45	-0.1583	97.0	60.9	410.2	85.0	80.1
85			0.194	-0.37	77.5	0.36	-	16.29	-0.1628	97.1	61.0	414.8	85.0	80.2
86			0.197	-0.34	77.5	0.35	-	16.12	-0.1673	97.2	61.1	420.2	84.9	80.3
87			0.195	-0.34	77.5	0.39	-	15.94	-0.1774	97.7	61.3	426.5	85.0	79.3
88			0.194	-0.36	77.6	0.38	-	15.77	-0.1762	98.0	61.5	430.8	85.0	79.5
89			0.194	-0.31	77.6	0.38	-	15.59	-0.1792	98.0	61.6	435.2	84.9	79.5
90	387.765	0.173	0.194	-0.32	77.6	0.39	100	15.39	-0.1947	98.2	61.7	439.0	84.9	79.0
91			0.194	-0.31	77.6	0.34	-	15.20	-0.1877	98.3	61.8	442.2	84.9	78.4
92			0.194	-0.31	77.6	0.37	-	15.03	-0.1753	98.4	61.9	445.5	84.9	78.4
93			0.196	-0.31	77.7	0.37	-	14.85	-0.1826	98.7	62.0	447.8	84.8	78.5
94			0.193	-0.34	77.7	0.39	-	14.66	-0.1879	99.0	62.0	450.4	84.8	78.4
95			0.195	-0.36	77.7	0.39	-	14.46	-0.2025	99.2	62.0	452.3	84.9	78.3
96			0.196	-0.33	77.7	0.40	-	14.27	-0.1837	99.5	62.0	455.2	84.9	78.2
97			0.195	-0.34	77.7	0.38	-	14.08	-0.194	99.5	62.2	456.9	85.0	78.1
98			0.195	-0.33	77.7	0.43	-	13.90	-0.1786	99.6	62.1	458.7	84.9	78.4

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
99			0.194	-0.31	77.7	0.40	-	13.70	-0.2025	99.8	62.1	460.6	84.9	78.3
100	389.480	0.172	0.194	-0.31	77.7	0.46	100	13.51	-0.1899	100.1	62.1	462.8	84.9	78.4
101			0.193	-0.32	77.8	0.50	-	13.30	-0.2029	100.1	62.1	464.8	85.0	78.4
102			0.193	-0.31	77.8	0.49	-	13.12	-0.1844	100.1	62.2	466.1	85.0	78.2
103			0.194	-0.32	77.8	0.49	-	12.94	-0.1798	100.5	62.0	467.3	85.0	78.4
104			0.193	-0.32	77.9	0.54	-	12.74	-0.2002	100.5	62.0	468.5	85.0	78.4
105			0.196	-0.33	77.9	0.53	-	12.55	-0.1922	100.7	62.0	469.9	84.9	78.8
106			0.193	-0.32	77.9	0.59	-	12.36	-0.1838	100.9	62.0	470.3	84.9	78.5
107			0.192	-0.31	77.9	0.61	-	12.17	-0.1959	101.0	62.1	472.3	84.9	78.2
108			0.192	-0.31	77.9	0.61	-	11.99	-0.1739	101.1	62.1	473.4	84.9	79.2
109			0.192	-0.31	77.9	0.65	-	11.81	-0.1885	101.3	62.1	474.5	84.9	79.1
110	391.187	0.171	0.194	-0.31	77.9	0.66	99	11.62	-0.1843	101.3	62.0	475.3	84.9	78.8
111			0.193	-0.31	78.0	0.70	-	11.43	-0.1881	101.7	62.0	476.0	85.0	79.2
112			0.193	-0.31	78.0	0.70	-	11.23	-0.1984	101.8	62.0	477.3	85.1	78.9
113			0.193	-0.32	78.0	0.74	-	11.06	-0.1751	101.9	62.0	478.3	85.1	78.8
114			0.193	-0.34	78.1	0.73	-	10.88	-0.1821	102.2	62.0	480.1	85.2	78.3
115			0.192	-0.31	78.1	0.72	-	10.69	-0.1848	102.1	62.1	482.1	85.2	78.5
116			0.191	-0.32	78.1	0.77	-	10.49	-0.1983	102.3	62.3	483.2	85.1	79.4
117			0.193	-0.35	78.1	0.78	-	10.30	-0.1965	102.6	62.3	484.7	85.1	79.1
118			0.192	-0.34	78.2	0.78	-	10.10	-0.1998	102.4	62.3	486.0	85.2	78.7
119			0.194	-0.34	78.2	0.80	-	9.90	-0.1958	102.8	62.2	486.5	85.3	79.9
120	392.887	0.170	0.192	-0.34	78.2	0.84	99	9.72	-0.1809	103.1	62.2	488.2	85.4	79.5
121			0.193	-0.34	78.2	0.83	-	9.54	-0.1856	103.2	62.4	489.2	85.4	80.2
122			0.194	-0.37	78.2	0.85	-	9.34	-0.1981	103.1	62.4	490.9	85.4	80.1
123			0.191	-0.31	78.2	0.92	-	9.13	-0.2119	103.8	62.4	492.7	85.4	79.4
124			0.193	-0.34	78.3	0.90	-	8.93	-0.1958	103.5	62.5	494.9	85.5	80.4
125			0.191	-0.32	78.3	0.92	-	8.75	-0.1825	104.0	62.4	496.7	85.6	80.2
126			0.192	-0.37	78.3	0.88	-	8.56	-0.1899	104.1	62.5	497.0	85.4	80.7
127			0.191	-0.34	78.3	0.92	-	8.37	-0.1881	104.0	62.2	496.8	85.3	79.6
128			0.195	-0.31	78.3	0.94	-	8.19	-0.1822	103.8	61.9	495.6	85.1	80.7
129			0.192	-0.31	78.3	0.95	-	8.04	-0.151	103.9	61.6	495.1	85.1	80.7
130	394.619	0.173	0.195	-0.36	78.3	0.97	101	7.87	-0.1675	104.0	61.6	495.3	85.0	80.8
131			0.192	-0.32	78.3	0.96	-	7.70	-0.1692	104.3	61.4	495.3	84.8	81.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
132			0.194	-0.31	78.3	0.95	-	7.54	-0.1574	104.5	61.7	498.5	84.8	80.9
133			0.193	-0.31	78.3	0.98	-	7.36	-0.1822	104.9	61.9	501.7	84.7	80.4
134			0.193	-0.31	78.3	0.93	-	7.19	-0.1716	104.8	61.9	503.9	84.6	81.1
135			0.192	-0.34	78.4	0.95	-	7.01	-0.1766	104.8	61.7	504.1	84.5	80.9
136			0.193	-0.34	78.4	0.96	-	6.85	-0.157	105.1	61.6	503.5	84.4	82.0
137			0.193	-0.32	78.4	0.98	-	6.69	-0.1685	104.4	61.3	502.9	84.3	81.2
138			0.193	-0.34	78.5	0.98	-	6.53	-0.1517	102.6	61.3	501.1	84.2	81.1
139			0.193	-0.32	78.4	0.92	-	6.36	-0.17	101.7	61.1	498.9	84.1	81.9
140	396.344	0.172	0.194	-0.37	78.4	1.00	100	6.24	-0.1271	100.9	60.6	497.4	83.8	81.8
141			0.193	-0.36	78.4	0.97	-	6.10	-0.1373	99.8	59.8	495.0	83.7	81.9
142			0.194	-0.33	78.4	0.97	-	5.95	-0.1477	99.2	59.6	493.7	83.6	81.6
143			0.192	-0.31	78.4	0.96	-	5.84	-0.1148	98.3	59.3	491.3	83.5	81.6
144			0.195	-0.31	78.4	0.98	-	5.72	-0.1143	97.9	59.0	489.4	83.3	81.1
145			0.194	-0.37	78.4	0.98	-	5.60	-0.1239	97.6	58.7	487.3	83.2	80.6
146			0.193	-0.34	78.4	0.95	-	5.49	-0.106	97.0	58.6	485.4	83.1	81.0
147			0.197	-0.32	78.5	0.97	-	5.37	-0.1232	96.7	58.3	484.3	83.0	81.0
148			0.196	-0.31	78.5	0.99	-	5.27	-0.0951	96.5	58.1	482.7	82.9	80.9
149			0.195	-0.31	78.5	0.96	-	5.17	-0.1058	95.9	57.8	480.6	82.7	80.4
150	398.102	0.176	0.194	-0.32	78.5	0.96	102	5.08	-0.0921	96.1	57.7	479.2	82.7	80.7
151			0.195	-0.34	78.5	0.93	-	4.97	-0.1101	95.9	57.3	479.3	82.6	80.4
152			0.194	-0.31	78.5	0.89	-	4.89	-0.0778	95.3	57.1	477.3	82.5	80.2
153			0.197	-0.31	78.5	0.92	-	4.78	-0.1042	95.1	56.7	476.0	82.3	80.4
154			0.197	-0.32	78.5	0.93	-	4.72	-0.0631	94.6	56.5	473.6	82.2	80.7
155			0.196	-0.32	78.6	0.93	-	4.66	-0.0634	94.5	56.0	470.3	82.3	79.8
156			0.197	-0.32	78.5	0.95	-	4.56	-0.0938	94.4	55.7	466.4	82.3	80.3
157			0.196	-0.32	78.6	0.94	-	4.51	-0.0543	93.9	55.6	463.0	82.4	80.0
158			0.193	-0.31	78.6	0.93	-	4.46	-0.0488	93.9	55.4	460.2	82.4	79.8
159			0.196	-0.31	78.6	0.93	-	4.39	-0.0693	93.6	55.1	456.9	82.3	79.7
160	399.873	0.177	0.195	-0.32	78.6	0.950293	102	4.36	-0.0367	93.5	54.8	453.5	82.4	79.8
Avg/Tot	27.645	0.173	0.195	-0.34	77	0.58	100			95	60	419	85	80.1

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	400.751		-0.27	73.4	-0.49		87	0.001	0.17	0.01
1			-0.30	73.5	0.11	-	86	0.015	1.09	0.02
2			-0.29	73.6	0.19	-	86	0.014	1.85	0.04
3			-0.26	73.6	0.15	-	85	0.013	6.91	0.17
4			-0.28	73.6	0.25	-	85	0.020	6.47	0.26
5			-0.29	73.6	0.25	-	85	0.029	8.89	0.23
6			-0.29	73.7	0.20	-	84	0.037	11.88	0.81
7			-0.32	73.7	0.24	-	84	0.044	11.70	0.70
8			-0.28	73.7	0.25	-	84	0.052	12.95	0.76
9			-0.27	73.7	0.23	-	84	0.056	13.21	1.17
10	402.503	0.175	-0.32	73.8	0.22	99	84	0.060	13.91	1.05
11			-0.27	73.8	0.27	-	84	0.060	14.05	1.32
12			-0.27	73.8	0.36	-	84	0.062	13.04	1.07
13			-0.27	73.9	0.27	-	84	0.062	12.74	0.57
14			-0.29	73.9	0.29	-	84	0.063	12.66	0.51
15			-0.32	73.9	0.28	-	84	0.065	11.77	0.16
16			-0.32	74.0	0.32	-	84	0.065	13.38	0.27
17			-0.32	74.0	0.27	-	85	0.064	12.79	0.16
18			-0.32	74.0	0.32	-	85	0.066	11.21	0.12
19			-0.32	74.1	0.32	-	85	0.070	11.22	0.15
20	404.223	0.172	-0.32	74.1	0.37	98	85	0.070	14.99	0.24
21			-0.32	74.1	0.36	-	85	0.069	12.76	0.19
22			-0.32	74.2	0.29	-	85	0.071	13.20	0.19
23			-0.32	74.2	0.29	-	86	0.071	13.89	0.09
24			-0.32	74.2	0.33	-	86	0.069	12.08	0.13
25			-0.32	74.2	0.35	-	86	0.070	10.36	0.16
26			-0.32	74.3	0.28	-	86	0.068	9.66	0.17
27			-0.32	74.3	0.34	-	86	0.069	9.77	0.17
28			-0.32	74.3	0.36	-	86	0.066	9.71	0.17
29			-0.32	74.4	0.35	-	86	0.069	9.99	0.15
30	405.954	0.173	-0.32	74.4	0.28	99	86	0.070	10.14	0.19
31			-0.32	74.4	0.34	-	86	0.071	10.99	0.14
32			-0.32	74.4	0.35	-	86	0.071	11.68	0.12

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
33			-0.32	74.4	0.36	-	86	0.068	11.01	0.10
34			-0.32	74.5	0.34	-	86	0.071	10.91	0.13
35			-0.31	74.5	0.33	-	86	0.072	11.91	0.11
36			-0.32	74.5	0.28	-	86	0.072	12.92	0.08
37			-0.32	74.6	0.35	-	86	0.069	12.28	0.04
38			-0.31	74.6	0.32	-	86	0.072	12.35	0.06
39			-0.32	74.6	0.30	-	86	0.074	12.26	0.05
40	407.683	0.173	-0.31	74.7	0.35	99	86	0.075	12.19	0.08
41			-0.32	74.7	0.34	-	86	0.072	12.09	0.05
42			-0.32	74.7	0.36	-	86	0.072	12.67	0.05
43			-0.32	74.8	0.37	-	87	0.074	13.12	0.04
44			-0.32	74.8	0.37	-	87	0.072	13.35	0.04
45			-0.32	74.8	0.36	-	88	0.100	9.44	0.14
46			-0.32	74.8	0.36	-	88	0.077	8.05	0.22
47			-0.32	74.9	0.31	-	87	0.076	9.87	0.11
48			-0.33	74.9	0.38	-	87	0.078	9.46	0.22
49			-0.32	75.0	0.31	-	87	0.076	9.89	0.15
50	409.420	0.174	-0.32	75.0	0.31	101	87	0.079	9.74	0.20
51			-0.33	75.1	0.38	-	87	0.077	11.27	0.09
52			-0.32	75.1	0.38	-	87	0.075	9.93	0.15
53			-0.32	75.1	0.32	-	87	0.074	8.64	0.24
54			-0.33	75.2	0.30	-	87	0.072	7.80	0.32
55			-0.31	75.2	0.31	-	86	0.073	7.33	0.34
56			-0.30	75.2	0.31	-	86	0.073	6.79	0.40
57			-0.32	75.3	0.36	-	86	0.070	6.44	0.46
58			-0.32	75.3	0.30	-	86	0.069	6.07	0.50
59			-0.32	75.3	0.30	-	85	0.069	5.90	0.48
60	411.155	0.173	-0.32	75.3	0.28	100	85	0.068	5.78	0.47
61			-0.33	75.4	0.28	-	85	0.067	5.48	0.46
62			-0.32	75.4	0.28	-	85	0.066	4.98	0.54
63			-0.32	75.5	0.31	-	85	0.063	4.19	0.63
64			-0.32	75.6	0.28	-	84	0.064	3.51	0.63
65			-0.32	75.7	0.30	-	84	0.064	3.67	0.58

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
66			-0.32	75.8	0.26	-	84	0.063	3.73	0.54
67			-0.32	75.9	0.28	-	84	0.063	3.79	0.53
68			-0.32	75.9	0.20	-	84	0.064	3.80	0.53
69			-0.32	76.1	0.28	-	84	0.065	4.34	0.48
70	412.924	0.177	-0.32	76.1	0.28	102	84	0.063	5.50	0.40
71			-0.32	76.1	0.27	-	84	0.064	5.70	0.39
72			-0.32	76.2	0.28	-	84	0.064	5.45	0.41
73			-0.32	76.2	0.23	-	84	0.065	3.31	0.16
74			-0.32	76.2	0.23	-	84	0.064	7.07	0.32
75			-0.32	76.2	0.23	-	84	0.064	7.20	0.31
76			-0.33	76.2	0.21	-	84	0.065	7.42	0.29
77			-0.31	76.2	0.26	-	84	0.065	7.77	0.27
78			-0.32	76.2	0.19	-	84	0.067	8.03	0.26
79			-0.32	76.2	0.27	-	84	0.067	8.18	0.24
80	414.668	0.174	-0.32	76.3	0.23	100	84	0.067	8.56	0.23
81			-0.33	76.3	0.22	-	85	0.069	8.96	0.22
82			-0.32	76.3	0.21	-	85	0.070	9.37	0.22
83			-0.32	76.4	0.23	-	85	0.069	9.60	0.23
84			-0.32	76.3	0.23	-	85	0.069	9.94	0.22
85			-0.32	76.4	0.21	-	85	0.072	10.02	0.23
86			-0.32	76.4	0.28	-	85	0.071	10.39	0.21
87			-0.32	76.4	0.28	-	85	0.072	10.71	0.20
88			-0.32	76.4	0.27	-	85	0.073	10.99	0.20
89			-0.32	76.4	0.22	-	85	0.072	11.28	0.19
90	416.401	0.173	-0.32	76.4	0.26	100	85	0.075	11.35	0.20
91			-0.32	76.5	0.27	-	85	0.073	11.47	0.19
92			-0.32	76.5	0.22	-	85	0.073	11.61	0.18
93			-0.32	76.5	0.27	-	85	0.073	11.65	0.17
94			-0.33	76.5	0.28	-	85	0.074	11.71	0.17
95			-0.32	76.5	0.29	-	86	0.074	11.75	0.17
96			-0.32	76.5	0.28	-	86	0.075	11.76	0.17
97			-0.33	76.6	0.28	-	86	0.074	11.80	0.17
98			-0.32	76.6	0.26	-	86	0.074	11.87	0.17

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
99			-0.32	76.6	0.26	-	86	0.075	12.02	0.15
100	418.124	0.172	-0.32	76.6	0.28	100	86	0.076	12.14	0.16
101			-0.32	76.7	0.33	-	86	0.077	12.09	0.16
102			-0.32	76.7	0.32	-	86	0.076	11.97	0.17
103			-0.32	76.8	0.34	-	86	0.075	11.88	0.17
104			-0.32	76.7	0.39	-	86	0.078	11.88	0.17
105			-0.32	76.8	0.46	-	86	0.078	11.88	0.15
106			-0.32	76.8	0.43	-	86	0.076	12.03	0.14
107			-0.32	76.8	0.52	-	86	0.077	12.06	0.15
108			-0.32	76.8	0.48	-	86	0.074	12.11	0.15
109			-0.32	76.8	0.50	-	86	0.076	12.18	0.14
110	419.843	0.172	-0.32	76.8	0.60	100	86	0.075	12.24	0.13
111			-0.32	76.9	0.58	-	86	0.075	12.37	0.12
112			-0.32	76.9	0.66	-	86	0.079	12.33	0.12
113			-0.32	77.0	0.69	-	86	0.077	12.41	0.11
114			-0.35	77.0	0.64	-	87	0.075	12.58	0.09
115			-0.32	77.0	0.69	-	87	0.078	12.82	0.07
116			-0.32	77.1	0.69	-	87	0.075	13.32	0.08
117			-0.32	77.0	0.72	-	87	0.076	13.49	0.08
118			-0.32	77.1	0.80	-	87	0.075	13.59	0.08
119			-0.32	77.1	0.77	-	87	0.079	13.73	0.08
120	421.565	0.172	-0.32	77.1	0.83	100	87	0.078	13.85	0.08
121			-0.32	77.1	0.89	-	87	0.077	13.95	0.08
122			-0.32	77.1	0.86	-	87	0.077	14.14	0.09
123			-0.32	77.2	0.94	-	87	0.077	14.29	0.09
124			-0.32	77.2	0.93	-	87	0.077	14.49	0.12
125			-0.32	77.2	0.93	-	87	0.078	14.61	0.20
126			-0.32	77.2	0.91	-	87	0.078	14.59	0.14
127			-0.32	77.2	0.92	-	87	0.079	14.37	0.12
128			-0.32	77.2	0.92	-	86	0.079	13.79	0.07
129			-0.32	77.3	0.98	-	86	0.074	13.42	0.08
130	423.313	0.175	-0.32	77.3	0.99	101	86	0.078	13.35	0.05
131			-0.32	77.2	0.95	-	86	0.077	13.34	0.05

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
132			-0.32	77.3	1.00	-	86	0.076	13.30	0.09
133			-0.35	77.3	1.00	-	85	0.077	14.52	0.11
134			-0.32	77.3	1.00	-	85	0.079	14.59	0.10
135			-0.32	77.3	0.96	-	85	0.079	14.40	0.07
136			-0.32	77.3	0.99	-	85	0.077	14.00	0.08
137			-0.32	77.3	1.00	-	85	0.077	13.67	0.07
138			-0.32	77.4	0.96	-	85	0.078	13.41	0.06
139			-0.32	77.4	0.93	-	85	0.079	13.21	0.06
140	425.058	0.175	-0.32	77.4	0.96	101	84	0.077	12.90	0.07
141			-0.31	77.4	0.93	-	84	0.078	12.68	0.06
142			-0.32	77.4	0.99	-	84	0.076	12.49	0.06
143			-0.33	77.3	0.95	-	84	0.077	12.36	0.05
144			-0.32	77.4	0.97	-	83	0.079	12.20	0.05
145			-0.32	77.4	0.95	-	83	0.076	12.07	0.06
146			-0.32	77.4	0.93	-	83	0.076	11.98	0.06
147			-0.32	77.4	0.91	-	83	0.076	11.89	0.06
148			-0.32	77.4	0.92	-	83	0.075	11.80	0.06
149			-0.32	77.4	0.92	-	83	0.076	11.72	0.05
150	426.802	0.174	-0.32	77.4	0.96	101	83	0.077	11.67	0.04
151			-0.32	77.4	0.91	-	82	0.073	11.50	0.03
152			-0.33	77.4	0.93	-	82	0.074	11.07	0.02
153			-0.32	77.4	0.97	-	82	0.073	10.75	0.02
154			-0.32	77.4	0.97	-	82	0.074	10.42	0.02
155			-0.32	77.4	0.96	-	82	0.072	9.99	0.02
156			-0.32	77.5	0.97	-	82	0.073	9.64	0.03
157			-0.32	77.5	0.97	-	83	0.074	9.51	0.03
158			-0.32	77.5	0.92	-	83	0.073	9.37	0.03
159			-0.32	77.5	0.93	-	83	0.069	9.25	0.03
160	428.559	0.176	-0.32	77.47861308	0.9447637	101	83	0.072	8.77	0.03
Avg/Tot	27.808	0.174	-0.32	76	0.48	100	85	0.070	10.64	0.21

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
0	76	76	77	77	77	76.6	N/A
1	77	76	78	78	79	77.6	N/A
2	79	76	82	84	86	81.6	N/A
3	84	76	88	91	93	86.4	N/A
4	91	76	94	97	100	91.5	N/A
5	100	76	105	106	110	99.6	N/A
6	112	76	122	125	125	112.0	N/A
7	123	76	138	145	142	124.9	N/A
8	133	76	152	165	161	137.5	N/A
9	142	76	167	190	183	151.5	N/A
10	150	76	184	219	204	166.7	N/A
11	159	76	205	248	224	182.3	N/A
12	171	76	223	275	243	197.8	N/A
13	184	77	242	302	260	213.0	N/A
14	195	77	259	327	275	226.6	N/A
15	206	77	275	350	290	239.8	N/A
16	221	78	287	377	304	253.5	N/A
17	233	79	299	400	317	265.7	N/A
18	241	80	310	419	330	275.8	N/A
19	252	81	321	433	342	285.5	N/A
20	261	82	333	450	358	296.7	N/A
21	269	83	346	467	375	308.0	N/A
22	276	85	359	484	390	318.8	N/A
23	285	87	371	496	405	328.9	N/A
24	292	89	382	506	419	337.5	N/A
25	298	92	389	511	431	344.3	N/A
26	304	94	396	515	441	349.9	N/A
27	308	96	402	518	449	354.7	N/A
28	312	99	408	520	456	359.0	N/A
29	316	103	413	522	463	363.2	N/A
30	320	106	418	526	469	367.7	N/A
31	325	109	424	533	475	372.9	N/A
32	330	112	430	542	480	378.7	N/A
33	335	115	436	549	485	383.9	N/A
34	340	118	441	557	490	389.1	N/A
35	347	120	447	568	494	395.0	N/A
36	353	124	453	581	498	401.9	N/A
37	358	127	461	592	504	408.2	N/A
38	364	130	467	602	510	414.5	N/A
39	369	133	473	609	519	420.5	N/A
40	373	136	478	616	530	426.6	N/A
41	378	137	482	623	542	432.6	N/A
42	383	142	487	630	555	439.5	N/A
43	388	144	494	638	567	446.2	N/A
44	392	148	500	645	579	452.5	N/A
45	392	154	513	651	590	460.1	N/A
46	395	155	520	653	600	464.4	N/A
47	396	158	522	653	606	466.9	N/A
48	398	159	523	652	608	468.0	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
49	400	162	523	651	608	468.8	N/A
50	401	166	523	649	607	469.4	N/A
51	404	169	523	647	607	470.0	N/A
52	406	173	521	645	608	470.3	N/A
53	406	176	518	642	607	469.9	N/A
54	406	177	514	638	606	468.1	N/A
55	405	185	509	634	603	467.1	N/A
56	403	187	504	629	600	464.6	N/A
57	401	191	499	623	596	462.0	N/A
58	399	195	492	616	591	458.6	N/A
59	396	196	487	608	586	454.9	N/A
60	394	198	481	600	582	451.0	N/A
61	390	201	476	591	579	447.3	N/A
62	387	202	470	581	575	442.9	N/A
63	382	205	465	571	569	438.5	N/A
64	377	207	459	561	563	433.3	N/A
65	373	209	452	551	554	427.8	N/A
66	369	210	445	543	545	422.5	N/A
67	365	212	439	535	536	417.3	N/A
68	363	213	433	531	527	413.1	N/A
69	361	214	428	529	518	410.3	N/A
70	360	215	425	530	511	408.2	N/A
71	359	214	422	532	504	406.5	N/A
72	358	216	421	536	499	406.3	N/A
73	358	217	422	541	495	406.5	N/A
74	358	218	423	546	491	407.4	N/A
75	357	219	426	551	488	408.2	N/A
76	357	220	428	555	486	409.2	N/A
77	357	220	431	559	484	410.3	N/A
78	358	215	435	563	482	410.6	N/A
79	358	214	438	567	482	412.0	N/A
80	359	215	442	572	482	413.9	N/A
81	360	218	445	576	483	416.5	N/A
82	361	218	449	582	485	419.0	N/A
83	363	218	453	588	487	421.9	N/A
84	365	218	459	593	491	425.3	N/A
85	368	219	464	599	495	428.9	N/A
86	370	220	469	606	499	432.8	N/A
87	372	220	474	614	504	436.9	N/A
88	375	220	480	622	510	441.3	N/A
89	378	220	486	630	516	446.0	N/A
90	382	221	492	638	522	450.9	N/A
91	385	223	498	646	528	456.2	N/A
92	388	222	504	654	535	460.8	N/A
93	392	224	511	662	541	465.9	N/A
94	395	224	517	669	548	470.4	N/A
95	398	225	523	676	554	475.2	N/A
96	401	224	529	682	561	479.4	N/A
97	404	226	535	688	567	484.0	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
98	407	226	541	693	573	488.1	N/A
99	410	228	547	699	579	492.5	N/A
100	413	228	553	704	584	496.4	N/A
101	415	229	559	709	590	500.5	N/A
102	418	229	563	714	595	504.0	N/A
103	421	231	568	718	601	507.7	N/A
104	423	233	573	722	605	511.3	N/A
105	426	233	577	726	610	514.3	N/A
106	428	236	581	730	614	517.8	N/A
107	430	235	585	733	618	520.3	N/A
108	432	237	589	737	622	523.2	N/A
109	434	238	593	740	626	526.2	N/A
110	436	239	597	744	630	529.0	N/A
111	437	240	601	748	634	531.8	N/A
112	439	241	605	751	637	534.7	N/A
113	441	242	609	754	641	537.5	N/A
114	442	244	613	757	645	540.2	N/A
115	444	244	617	760	648	542.7	N/A
116	446	246	623	762	653	546.0	N/A
117	447	247	629	765	658	549.3	N/A
118	449	248	634	769	664	552.7	N/A
119	450	249	639	773	669	556.1	N/A
120	452	247	643	777	675	558.9	N/A
121	454	252	648	781	680	563.1	N/A
122	456	253	652	787	686	566.6	N/A
123	458	254	657	791	691	570.1	N/A
124	460	256	661	797	697	574.2	N/A
125	463	258	664	802	702	578.0	N/A
126	466	259	668	808	708	581.9	N/A
127	468	261	672	812	714	585.4	N/A
128	469	262	675	816	720	588.4	N/A
129	470	264	677	820	724	590.9	N/A
130	470	266	680	822	728	593.3	N/A
131	471	266	682	825	731	595.1	N/A
132	474	268	685	827	734	597.7	N/A
133	477	269	691	829	737	600.7	N/A
134	480	270	695	831	742	603.7	N/A
135	483	274	701	832	750	607.8	N/A
136	485	273	705	833	758	610.7	N/A
137	486	274	709	833	765	613.6	N/A
138	488	273	713	833	773	615.9	N/A
139	488	277	716	832	780	618.4	N/A
140	488	279	719	831	786	620.5	N/A
141	487	278	721	829	791	621.4	N/A
142	487	280	724	827	796	622.7	N/A
143	486	283	725	825	801	624.2	N/A
144	486	284	728	823	805	625.3	N/A
145	485	286	730	821	809	626.2	N/A
146	485	287	731	818	813	626.9	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
147	485	289	733	815	817	627.9	N/A
148	486	291	734	811	821	628.6	N/A
149	486	293	734	808	825	629.1	N/A
150	486	294	734	805	828	629.6	N/A
151	486	296	735	802	831	630.0	N/A
152	485	297	735	799	833	629.9	N/A
153	482	299	736	797	833	629.5	N/A
154	479	302	736	795	832	628.7	N/A
155	476	303	735	794	829	627.3	N/A
156	471	305	734	792	826	625.8	N/A
157	467	307	733	790	822	624.0	N/A
158	464	310	732	788	817	622.0	N/A
159	460	311	731	786	812	619.9	N/A
160	456	313	729	784	807	617.7	N/A
Average	375	198	507	619	559	452	N/A

LAB SAMPLE DATA - ASTM E2515

Client: SBI
Model: Bistro
Run #: 3

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	H108	189.3	193.0	3.7
	B	H109	187.8	191.5	3.7
	C - 1st Hour	H110	188.2	190.2	2.0
	Amb	H111	187.9	188.0	0.1
Probes	**A**	6A	116382.0	116382.3	0.3
	B	6B	115953.5	115953.6	0.1
	C - 1st Hour	6C	115128.2	115128.5	0.3
O-rings	**A**	6A	3615.4	3615.7	0.3
	B	6B	3397.7	3397.8	0.1
	C - 1st Hour	6C	3402.5	3402.6	0.1

Placed in Dessicator on:	6/13 - 8:30

Filters	**A**	193.3	6/7 13:42	193.2	6/15 12:07	193.0	6/16 8:59		
	B	192.1	6/7 13:42	191.6	6/15 12:07	191.5	6/16 8:59		
	C - 1st Hour	190.7	6/7 13:42	190.1	6/15 12:07	190.2	6/16 8:59		
	Amb	188.1	6/7 13:42	187.9	6/15 12:07	188.0	6/16 8:59		
Probes	**A**			116382.4	6/15 12:08	116382.3	6/16 8:59		
	B			115953.5	6/15 12:08	115953.6	6/16 9:00		
	C - 1st Hour			115128.6	6/15 12:08	115128.5	6/16 9:00		
O-Rings	**A**			3615.9	6/15 12:08	3615.7	6/16 9:00		
	B			3397.8	6/15 12:08	3397.8	6/16 9:00		
	C - 1st Hour			3402.5	6/15 12:08	3402.6	6/16 9:01		

Train A Aggregate, mg:	**4.3**
Train B Aggregate, mg:	**3.9**
Train C Aggregate, mg:	**2.4**
Ambient Aggregate, mg:	**0.1**

WOOD STOVE TEST DATA PACKET
ASTM E3053/E2515

Run 4 Data Summary

Client: SBI
Model: Bistro
Job #: 22-790
Tracking #: 122
Test Date: 6/7/2022

Techician Signature

6/16/2022
Date

TEST RESULTS - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

Burn Rate (kg/hr):	1.04

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	72.084	96.021	97.971	12.963
Average Gas Velocity in Dilution Tunnel (ft/sec)	28.02			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	33142.4			
Average Gas Meter Temperature (°F)	79.2	79.5	78.2	78.1
Total Sample Volume (dscf)	69.604	95.786	98.257	12.619
Average Tunnel Temperature (°F)	88.3			
Total Time of Test (min)	490			
Total Particulate Catch (mg)	0.0	2.9	3.0	3.1
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000303	0.0000305	0.0002457
Total PM Emissions (g)	0.00	8.19	8.26	8.14
Particulate Emission Rate (g/hr)	0.00	1.00	1.01	8.14
Emissions Factor (g/kg)	-	0.97	0.98	-
Difference from Average Total Particulate Emissions (g)	-	0.03	0.03	-
Difference from Average Total Particulate Emissions (%)	-	0.4%	0.4%	-
Difference from Average Emissions Factor (g/kg)	-	0.00	0.00	-

Final Average Results	
Total Particulate Emissions (g)	8.23
Particulate Emission Rate (g/hr)	1.01
Emissions Factor (g/kg)	0.97
HHV Efficiency (%)	77.3%
LHV Efficiency (%)	82.9%
CO Emissions (g/min)	0.85

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	>80 °F, <90 °F	Min: 81.8/Max: 87	OK
Face Velocity	< 30 ft/min	11.5	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:76.2/Max:89.8	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-3.4%	OK
Pro-Rate Variation	All but 1 reading between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Tunnel Dew Point	Tunnel dew point temps must be below filter temps at all times	See Data Tabs	OK

B415.1 Efficiency Results

Manufacturer:	SBI
Model:	Bistro
Date:	06/07/22
Run:	4
Control #:	22-790
Test Duration:	490
Output Category:	Low

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	77.3%	82.9%
Combustion Efficiency	96.6%	96.6%
Heat Transfer Efficiency	80.1%	85.8%

Output Rate (kJ/h)	15,090	14,314	**(Btu/h)**
Burn Rate (kg/h)	1.04	2.29	**(lb/h)**
Input (kJ/h)	19,511	18,508	**(Btu/h)**

Test Load Weight (dry kg)	8.48	18.68	**dry lb**
MC wet (%)	17.46		
MC dry (%)	21.15		
Particulate (g)	8.23		
CO (g)	417		
Test Duration (h)	8.17		

Emissions	**Particulate**	**CO**
g/MJ Output	0.07	3.38
g/kg Dry Fuel	0.97	49.22
g/h	1.01	51.08
g/min	0.02	0.85
lb/MM Btu Output	0.16	7.87

Air/Fuel Ratio (A/F)	15.20

VERSION: **2.2** **12/14/2009**

HIGH FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 4
Technician: SJB
Date: 6/7/2022

Nominal Loading Density (lbs/ft^3, wet basis):	10		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	19.40		
Total Load Weight Range (lbs):	18.40	to	20.40
Core Load Weight Range (lbs):	8.70	to	12.60
Remainder Load Weight Range (lbs):	6.80	to	10.70
Core Load Piece Range (lbs):	2.90	to	4.90
Remainder Load Piece Range (lbs):	1.90	to	10.70
Max Allowable Kindling Weight (lbs):	3.83		
Max Allowable Start-up Fuel Weight (lbs):	5.74		

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	3.11	In Range	26.0	24.2	18.1	22.8	In Range	2.53	1.15
2	17.00	3.83	In Range	23.4	18.2	15.6	19.1	In Range	3.22	1.46
3	17.00	3.87	In Range	21.1	16.0	18.3	18.5	In Range	3.27	1.48
Core Load Wt. (lbs)		10.81	In Range							

REMAINDER LOAD DATA (1 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	5.04	In Range	26.0	25.4	24.3	25.2	In Range	4.02	1.83
2	17.00	3.29	In Range	20.5	18.4	18.0	19.0	In Range	2.77	1.25
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		8.33	In Range							

Total Load Weight (lbs):	19.14	In Range	
Core Load % of Total Weight:	56%	In Range	45-65%
Remainder % of Total Weight:	44%	In Range	35-55%
Total Load % of Target Weight:	99%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	9.9		
Total Load Average Moisture Content (%DB):	21.1	In Range	19-25%
Total Load Average Moisture Content (%WB):	17.4		
Total Test Load Weight (dry basis):	15.81 lbs	7.17 kg	

KINDLING AND START-UP FUEL

		Kindling Moisture Readings (%DB)					Dry Weight	
Kindling Weight (lbs)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
3.82	In Range	10	10	10	10.0	In Range	3.47	1.58

		Start-up Moisture Readings (%DB)					Dry Weight	
Start-up Fuel Wt. (lb)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
5.74	In Range	21.8	18.8	23.1	21.2	In Range	4.73	2.15

TEST FUEL LOADING RANGE

Allowable Residual Start-up Fuel Range (lb):	1.9	to	3.8	
Actual Residual Start-up Fuel Weight (lb):		2.40		In Range

LOW & MEDIUM FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 4
Technician: SJB
Date: 6/7/2022

Nominal Loading Density (lbs/ft^3, wet basis):	12		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	23.28		
Total Load Weight Range (lbs):	22.12	to	24.44
Core Load Weight Range (lbs):	10.48	to	15.13
Remainder Load Weight Range (lbs):	8.15	to	12.80
Core Load Piece Range (lbs):	3.49	to	5.82
Remainder Load Piece Range (lbs):	2.33	to	6.98

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	4.13	In Range	17.7	21.1	17.8	18.9	In Range	3.47	1.58
2	17.00	4.20	In Range	24.2	19.2	15.5	19.6	In Range	3.51	1.59
3	17.00	4.81	In Range	23.1	23.8	20.3	22.4	In Range	3.93	1.78
Core Load Wt. (lbs)		13.14	In Range							

REMAINDER LOAD DATA (2 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	5.89	In Range	24.6	17.9	20.8	21.1	In Range	4.86	2.21
2	17.00	3.60	In Range	27.4	19.3	25.7	24.1	In Range	2.90	1.32
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		9.49	In Range							

Remainder Load Small/Large Piece Weight Ratio:	61%	In Range	≤ 67%
Total Load Weight (lbs):	22.63	In Range	
Core Load % of Total Weight:	58%	In Range	45-65%
Remainder % of Total Weight:	42%	In Range	35-55%
Total Load % of Target Weight:	97%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	11.7		
Total Load Average Moisture Content (%DB):	21.2	In Range	19-25%
Total Load Average Moisture Content (%WB):	17.5		
Total Test Load Weight (dry basis):	18.68 lbs	8.47 kg	

TEST FUEL LOADING RANGE

Allowable Charcoal Bed Weight Range (lb):	2.3	to	4.5	
Actual Charcoal Bed Wt. (lb):	3.30	In Range		

TEST END POINT

Actual Fuel Load Ending Weight (lb):	0.00	Valid Test (≥90%)

Total Fuel Burned During Test Run:	22.6	lbs, wet basis
	18.7	lbs, dry basis
	8.47	kg, dry basis

DILUTION TUNNEL & MISC. DATA - ASTM E3053 / E2515

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	4	Technician:	SJB
Test Start Time:	13:10	Date:	6/7/2022
Test Type:	Low Fire		

Recording Interval (min):	1
Total Sampling Time (min):	490

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.94	29.81	29.88
Relative Humidity (%)	43.4	48.2	
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	22.2	22.2	

Meter Box γ Factor:	1.022	(A)
Meter Box γ Factor:	1.025	(B)
Meter Box γ Factor:	0.993	(C)
Meter Box γ Factor:	0.988	(Ambient)

Ambient Sample Volume: 72.084 ft^3

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100
Date Flue Pipe Last Cleaned:	6/3/2022

Sample Train Post-Test Leak Checks

(A)	0.001	cfm @	-5	in. Hg
(B)	0.000	cfm @	-5	in. Hg
(C)	0.000	cfm @	-5	in. Hg
(Ambient)	0.001	cfm @	-5	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.159	75
2	0.193	75
3	0.193	75
4	0.178	75
5	0.134	75
6	0.186	75
7	0.198	75
8	0.176	75
Center	0.204	75

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	8	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:	0.3491	ft^2
V_{strav}:	28.04	ft/sec
V_{scent}:	30.14	ft/sec
F_p:	0.930	[ratio]
Initial Tunnel Flow:	566.9	scf/min

Static Pressure: -0.419 in. H_2O

TEST FUEL PROPERTIES

ASTM 3053-17 - Table A1.1 Fuel Properties by Fuel Species

Select Fuel Type	Species	%C	%H	%O	%Ash	MJ/kg	BTU/lb
	Ash, White	49.70	6.90	43.00	0.30	20.75	8927
X	Beech	48.70	5.80	44.70	0.60	18.80	8088
	Birch, Yellow	49.80	6.50	43.40	0.30	20.12	8656
	Doug Fir (Coast, Int. West)	48.73	6.87	43.90	0.50	19.81	8522
	Doug Fir (Int. South)	48.73	6.87	43.90	0.50	19.81	8522
	Elm, Rock	50.40	6.60	42.30	0.70	20.49	8815
	Elm, Soft	50.40	6.60	42.30	0.70	20.49	8815
	Larch, Western	50.54	6.36	42.40	0.70	17.58	7558
	Maple, Hard	50.64	6.02	41.74	1.35	19.96	8587
	Maple, Sugar	50.64	6.02	41.74	1.35	19.96	8587
	Oak, Red	49.50	6.62	43.70	0.20	20.20	8690
	Oak, White	50.40	6.59	42.70	0.20	20.50	8819
	Pine, Southern Long Leaf	52.60	7.02	40.10	1.30	22.30	9594

WOODSTOVE PREBURN DATA

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	4	Technician:	SJB
		Date:	6/7/2022

Low Fire performed as a continuation of High Fire Test, see Run 3 test data for details

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
0	399.868		0.193	-0.32	78.3	-0.39		22.63		100.6	53.6	391.8	83.1	83.6
1			0.189	-0.31	78.6	0.33	-	22.58	-0.0483	111.2	58.5	371.8	83.6	85.6
2			0.190	-0.31	78.7	0.32	-	22.37	-0.2089	114.8	62.4	369.6	83.9	86.7
3			0.190	-0.31	78.7	0.33	-	22.05	-0.3248	116.6	62.7	400.4	84.2	87.4
4			0.192	-0.31	78.8	0.33	-	21.84	-0.2064	104.7	66.3	408.8	84.2	86.2
5			0.192	-0.31	78.8	0.34	-	21.62	-0.2216	101.7	66.4	428.9	84.0	85.7
6			0.193	-0.31	78.8	0.33	-	21.36	-0.2618	98.0	66.1	431.7	83.9	86.5
7			0.192	-0.32	78.8	0.32	-	21.14	-0.2162	100.9	65.6	430.1	83.7	86.0
8			0.194	-0.32	78.8	0.33	-	20.94	-0.2007	101.5	65.4	431.6	83.5	85.6
9			0.194	-0.33	78.8	0.32	-	20.74	-0.205	101.6	65.3	430.2	83.4	86.2
10	401.744	0.188	0.193	-0.31	78.8	0.35	98	20.61	-0.1314	100.3	64.4	412.6	83.3	85.3
11			0.192	-0.32	78.8	0.32	-	20.50	-0.1014	99.9	63.4	395.8	83.3	85.2
12			0.193	-0.31	78.9	0.34	-	20.38	-0.1201	97.7	61.9	381.2	83.3	85.1
13			0.196	-0.31	78.9	0.32	-	20.31	-0.0712	95.2	60.7	366.1	83.1	85.7
14			0.193	-0.34	79.0	0.32	-	20.15	-0.1577	100.8	61.0	376.1	83.1	85.5
15			0.193	-0.31	79.0	0.36	-	19.95	-0.2023	103.6	62.4	405.5	83.1	85.7
16			0.194	-0.32	79.0	0.34	-	19.79	-0.1671	102.5	63.4	406.3	83.1	84.8
17			0.197	-0.34	79.0	0.34	-	19.64	-0.1468	97.1	63.9	393.7	83.1	84.9
18			0.195	-0.34	79.0	0.33	-	19.45	-0.1919	95.1	63.5	390.7	83.0	86.8
19			0.197	-0.32	79.1	0.36	-	19.26	-0.1825	94.4	62.8	388.1	82.8	87.8
20	403.642	0.190	0.195	-0.32	79.1	0.35	99	19.08	-0.1818	94.5	62.3	385.0	82.8	88.4
21			0.198	-0.31	79.1	0.36	-	18.93	-0.1558	94.2	62.0	381.7	82.6	88.8
22			0.197	-0.32	79.1	0.35	-	18.77	-0.1593	94.2	61.8	379.1	82.7	89.0
23			0.196	-0.37	79.1	0.30	-	18.61	-0.161	94.3	61.8	377.4	82.8	89.2
24			0.195	-0.34	79.1	0.35	-	18.43	-0.1783	97.0	62.4	378.0	83.0	89.8
25			0.193	-0.32	79.1	0.34	-	18.28	-0.1466	100.2	62.3	381.2	83.2	86.8
26			0.194	-0.32	79.1	0.36	-	18.16	-0.118	97.7	62.5	383.0	83.5	86.4
27			0.196	-0.31	79.1	0.36	-	18.03	-0.1367	96.9	62.5	383.8	83.6	86.1
28			0.196	-0.31	79.1	0.36	-	17.87	-0.1613	97.0	62.6	384.4	83.8	85.8
29			0.195	-0.31	79.1	0.38	-	17.69	-0.1729	96.9	62.5	385.5	84.0	85.0
30	405.552	0.191	0.195	-0.32	79.1	0.34	99	17.52	-0.1679	96.7	62.5	386.7	84.3	83.7
31			0.196	-0.31	79.1	0.35	-	17.36	-0.161	96.8	62.4	386.2	84.4	83.1
32			0.197	-0.32	79.2	0.36	-	17.20	-0.1661	96.6	62.3	384.9	84.6	83.6

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
33			0.196	-0.31	79.1	0.34	-	17.04	-0.1607	96.5	62.4	385.1	84.7	82.3
34			0.195	-0.32	79.2	0.34	-	16.87	-0.1634	96.6	62.3	386.0	85.0	81.6
35			0.193	-0.31	79.2	0.33	-	16.70	-0.1745	96.7	62.3	386.0	85.1	81.2
36			0.196	-0.32	79.2	0.35	-	16.53	-0.1705	96.4	62.2	386.4	85.4	80.9
37			0.194	-0.31	79.2	0.36	-	16.36	-0.1675	96.4	62.2	385.5	85.6	81.2
38			0.195	-0.32	79.2	0.37	-	16.21	-0.1459	96.6	62.3	386.0	85.6	81.2
39			0.196	-0.32	79.2	0.37	-	16.05	-0.1661	96.5	62.3	387.4	85.9	81.0
40	407.465	0.191	0.195	-0.31	79.2	0.37	99	15.87	-0.181	96.6	62.5	388.3	86.1	80.6
41			0.197	-0.31	79.3	0.37	-	15.70	-0.1718	96.6	62.6	388.7	86.1	80.6
42			0.195	-0.31	79.3	0.36	-	15.54	-0.1513	96.9	62.5	390.1	86.1	80.8
43			0.195	-0.31	79.3	0.35	-	15.37	-0.1728	96.9	62.5	391.6	86.0	80.2
44			0.196	-0.35	79.3	0.37	-	15.21	-0.1651	96.9	62.4	392.5	85.9	79.9
45			0.195	-0.31	79.3	0.35	-	15.02	-0.182	96.8	62.5	394.2	85.9	80.8
46			0.196	-0.34	79.3	0.35	-	14.85	-0.1794	96.9	62.7	395.5	85.9	80.2
47			0.196	-0.34	79.3	0.36	-	14.68	-0.1631	97.0	62.6	396.5	85.7	80.1
48			0.195	-0.37	79.4	0.35	-	14.51	-0.1688	97.1	62.5	397.1	85.5	80.3
49			0.196	-0.33	79.3	0.37	-	14.34	-0.1772	97.3	62.5	397.4	85.5	80.2
50	409.364	0.190	0.195	-0.31	79.4	0.35	99	14.17	-0.1628	97.1	62.3	396.7	85.3	80.3
51			0.194	-0.33	79.4	0.34	-	14.00	-0.1746	97.2	62.4	396.6	85.1	80.5
52			0.195	-0.32	79.3	0.34	-	13.83	-0.1665	97.1	62.4	398.2	84.9	80.6
53			0.194	-0.32	79.4	0.35	-	13.67	-0.1648	97.1	62.3	397.9	84.8	80.3
54			0.194	-0.31	79.3	0.35	-	13.50	-0.1628	97.1	62.2	397.4	84.6	80.5
55			0.195	-0.30	79.4	0.36	-	13.32	-0.1856	97.0	62.4	397.5	84.4	80.3
56			0.195	-0.33	79.3	0.36	-	13.17	-0.1519	97.1	62.3	398.1	84.2	80.2
57			0.196	-0.30	79.3	0.34	-	13.00	-0.1673	97.2	62.3	398.1	84.1	80.4
58			0.196	-0.31	79.3	0.35	-	12.83	-0.1694	97.4	62.3	398.9	84.0	80.4
59			0.196	-0.31	79.4	0.31	-	12.67	-0.1625	97.2	62.3	399.6	83.9	80.4
60	411.282	0.192	0.195	-0.31	79.4	0.36	100	12.51	-0.1588	97.3	62.3	400.6	83.8	80.7
61			0.196	-0.31	79.4	0.33	-	12.34	-0.1714	97.3	62.3	400.5	83.8	81.0
62			0.195	-0.31	79.4	0.35	-	12.18	-0.1598	97.2	62.3	399.9	83.6	80.5
63			0.195	-0.33	79.4	0.35	-	12.00	-0.1736	97.1	62.3	400.1	83.5	80.5
64			0.197	-0.31	79.4	0.34	-	11.85	-0.1516	97.2	62.2	397.9	83.4	80.1
65			0.196	-0.32	79.4	0.35	-	11.70	-0.1549	97.3	62.0	397.3	83.3	80.3

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
66			0.197	-0.31	79.4	0.36	-	11.54	-0.1575	97.4	62.0	396.1	83.4	80.9
67			0.194	-0.31	79.4	0.37	-	11.37	-0.1697	97.4	62.0	394.3	83.3	81.1
68			0.194	-0.31	79.4	0.37	-	11.23	-0.1372	97.7	61.9	392.6	83.2	80.7
69			0.195	-0.31	79.4	0.37	-	11.09	-0.1484	97.4	61.9	391.2	83.0	80.9
70	413.191	0.191	0.194	-0.31	79.4	0.35	99	10.93	-0.1521	97.2	61.7	390.6	82.9	80.7
71			0.195	-0.31	79.4	0.35	-	10.78	-0.1509	96.9	61.7	388.6	82.8	80.6
72			0.195	-0.31	79.4	0.35	-	10.63	-0.1547	96.9	61.6	386.8	82.7	81.1
73			0.195	-0.33	79.4	0.34	-	10.50	-0.1323	96.8	61.6	385.2	82.6	81.0
74			0.196	-0.34	79.4	0.38	-	10.36	-0.1368	96.7	61.5	383.6	82.7	80.8
75			0.195	-0.32	79.4	0.36	-	10.22	-0.1422	96.7	61.3	380.8	82.6	80.7
76			0.196	-0.35	79.4	0.38	-	10.07	-0.1422	96.7	61.3	379.3	82.4	80.7
77			0.197	-0.30	79.4	0.38	-	9.96	-0.1157	96.5	61.2	378.1	82.4	80.7
78			0.195	-0.32	79.4	0.36	-	9.83	-0.1283	96.7	61.3	376.7	82.4	80.5
79			0.200	-0.34	79.4	0.38	-	9.70	-0.1312	96.7	61.2	375.9	82.3	80.9
80	415.092	0.190	0.194	-0.32	79.5	0.38	99	9.58	-0.1218	96.7	61.2	375.5	82.3	80.1
81			0.196	-0.31	79.4	0.37	-	9.42	-0.154	96.5	61.1	374.2	82.1	80.7
82			0.196	-0.33	79.4	0.39	-	9.30	-0.119	96.6	61.2	374.2	82.1	80.9
83			0.198	-0.34	79.4	0.37	-	9.18	-0.1225	96.6	61.1	373.5	82.1	80.8
84			0.196	-0.30	79.4	0.39	-	9.05	-0.1338	96.5	61.0	373.1	82.1	80.1
85			0.193	-0.32	79.4	0.37	-	8.92	-0.1232	96.8	61.1	372.2	82.1	80.4
86			0.196	-0.31	79.4	0.37	-	8.81	-0.1151	96.7	61.0	372.1	82.1	80.4
87			0.193	-0.33	79.4	0.35	-	8.70	-0.1094	97.1	60.9	372.1	82.1	80.4
88			0.195	-0.37	79.4	0.36	-	8.57	-0.1284	96.7	60.9	370.4	82.1	81.2
89			0.196	-0.31	79.4	0.34	-	8.46	-0.1128	96.4	60.9	370.2	81.9	80.6
90	416.987	0.190	0.195	-0.31	79.4	0.40	98	8.34	-0.1217	96.4	60.9	370.0	81.9	80.8
91			0.197	-0.31	79.4	0.41	-	8.22	-0.1201	96.3	60.8	369.1	81.8	80.3
92			0.196	-0.31	79.4	0.41	-	8.09	-0.1271	96.1	60.8	368.2	81.8	80.5
93			0.196	-0.30	79.4	0.42	-	7.96	-0.1252	96.2	60.7	367.4	82.0	80.7
94			0.197	-0.31	79.4	0.44	-	7.85	-0.112	96.3	60.7	367.4	82.2	80.6
95			0.196	-0.31	79.4	0.44	-	7.74	-0.1102	96.4	60.7	366.1	82.5	80.7
96			0.196	-0.30	79.4	0.44	-	7.63	-0.1124	96.3	60.8	366.3	82.7	80.5
97			0.198	-0.32	79.4	0.46	-	7.52	-0.1108	96.2	60.7	366.4	82.9	80.7
98			0.196	-0.32	79.4	0.44	-	7.40	-0.1178	96.4	60.6	365.4	83.2	80.4

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
99			0.195	-0.33	79.4	0.47	-	7.30	-0.0969	96.4	60.5	364.1	83.4	80.0
100	418.893	0.191	0.196	-0.30	79.4	0.47	99	7.18	-0.1294	96.4	60.5	363.5	83.6	80.4
101			0.196	-0.33	79.4	0.50	-	7.07	-0.1039	96.3	60.5	362.6	83.8	80.8
102			0.195	-0.31	79.4	0.52	-	6.96	-0.1157	96.2	60.6	362.4	83.9	80.6
103			0.195	-0.32	79.5	0.56	-	6.85	-0.1051	96.1	60.6	362.7	84.1	80.9
104			0.196	-0.32	79.5	0.59	-	6.72	-0.1288	96.3	60.6	362.9	84.3	81.2
105			0.197	-0.30	79.5	0.63	-	6.61	-0.1152	96.4	60.6	363.0	84.6	80.7
106			0.198	-0.32	79.4	0.65	-	6.49	-0.1132	96.0	60.5	362.3	84.7	80.5
107			0.196	-0.30	79.5	0.73	-	6.39	-0.1043	96.2	60.3	360.6	84.7	80.9
108			0.194	-0.32	79.5	0.73	-	6.28	-0.1133	96.0	60.1	359.1	84.8	80.4
109			0.195	-0.32	79.5	0.76	-	6.22	-0.0574	95.9	59.9	357.3	84.8	80.7
110	420.781	0.189	0.196	-0.30	79.5	0.76	98	6.12	-0.0977	96.1	59.7	355.4	84.8	80.5
111			0.197	-0.31	79.5	0.76	-	6.05	-0.0751	95.9	59.6	353.5	84.8	80.8
112			0.195	-0.32	79.5	0.78	-	5.97	-0.0752	96.0	59.5	351.3	84.8	80.6
113			0.198	-0.31	79.5	0.78	-	5.90	-0.0659	96.0	59.5	348.7	84.9	80.4
114			0.195	-0.30	79.6	0.78	-	5.82	-0.0795	95.9	59.5	347.2	84.9	80.8
115			0.196	-0.32	79.6	0.78	-	5.76	-0.0603	95.8	59.5	346.0	84.9	80.9
116			0.195	-0.33	79.6	0.78	-	5.69	-0.0787	95.8	59.5	344.1	84.8	80.6
117			0.196	-0.34	79.6	0.77	-	5.61	-0.0741	95.7	59.3	343.1	84.9	80.7
118			0.194	-0.32	79.6	0.81	-	5.54	-0.0726	95.5	59.3	341.4	84.8	81.4
119			0.197	-0.34	79.6	0.81	-	5.46	-0.0744	95.4	59.2	340.5	84.8	80.9
120	422.678	0.190	0.198	-0.31	79.6	0.80	98	5.38	-0.0814	95.4	59.1	339.2	84.8	81.3
121			0.196	-0.31	79.6	0.81	-	5.31	-0.0686	95.2	59.1	338.2	84.8	81.2
122			0.196	-0.31	79.6	0.81	-	5.25	-0.0652	95.0	59.0	336.2	84.8	80.5
123			0.198	-0.34	79.6	0.82	-	5.19	-0.0564	94.9	58.8	334.7	84.9	81.0
124			0.198	-0.32	79.6	0.81	-	5.13	-0.0675	94.9	58.6	333.0	84.9	80.8
125			0.196	-0.34	79.6	0.82	-	5.07	-0.0589	94.6	58.6	331.1	84.9	81.2
126			0.196	-0.31	79.6	0.80	-	5.02	-0.0474	94.4	58.5	329.3	84.9	81.2
127			0.194	-0.32	79.6	0.81	-	4.96	-0.0571	94.3	58.4	327.0	84.9	81.0
128			0.196	-0.31	79.6	0.83	-	4.92	-0.0433	94.2	58.3	324.9	84.7	80.7
129			0.198	-0.36	79.6	0.79	-	4.88	-0.0406	94.0	58.1	322.6	84.8	80.4
130	424.588	0.191	0.197	-0.32	79.6	0.79	98	4.85	-0.0274	93.5	58.0	320.0	84.7	80.8
131			0.196	-0.32	79.6	0.80	-	4.81	-0.0369	93.2	57.7	316.6	84.6	80.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
132			0.196	-0.31	79.6	0.75	-	4.78	-0.0294	93.2	57.5	314.5	84.7	80.7
133			0.196	-0.34	79.6	0.81	-	4.75	-0.0309	93.2	57.3	312.3	84.7	80.6
134			0.196	-0.34	79.6	0.79	-	4.74	-0.0183	93.1	57.2	309.9	84.7	80.4
135			0.197	-0.31	79.7	0.81	-	4.69	-0.0406	93.1	57.1	307.9	84.7	80.6
136			0.197	-0.31	79.6	0.82	-	4.66	-0.032	92.9	57.1	305.5	84.8	80.1
137			0.198	-0.31	79.7	0.81	-	4.65	-0.0146	92.7	57.1	303.7	84.8	80.2
138			0.199	-0.32	79.6	0.81	-	4.62	-0.0285	92.8	57.0	302.0	84.7	80.1
139			0.196	-0.31	79.7	0.80	-	4.60	-0.0232	92.8	57.0	299.7	84.8	80.5
140	426.526	0.194	0.195	-0.32	79.7	0.81	100	4.56	-0.0337	92.8	56.9	297.8	84.6	80.1
141			0.195	-0.31	79.7	0.81	-	4.54	-0.0198	92.8	56.9	295.6	84.5	80.3
142			0.196	-0.34	79.7	0.80	-	4.51	-0.0319	92.4	56.9	293.9	84.5	80.2
143			0.197	-0.31	79.7	0.80	-	4.49	-0.0171	92.3	56.9	292.1	84.6	80.4
144			0.196	-0.31	79.7	0.81	-	4.46	-0.0304	92.1	56.9	290.1	84.4	80.1
145			0.197	-0.31	79.7	0.81	-	4.45	-0.0165	92.2	56.8	288.4	84.5	80.1
146			0.196	-0.32	79.7	0.79	-	4.42	-0.0286	92.0	56.7	286.9	84.6	80.3
147			0.197	-0.33	79.7	0.79	-	4.40	-0.02	91.9	56.7	285.7	84.5	79.5
148			0.197	-0.32	79.7	0.79	-	4.37	-0.0256	91.9	56.7	284.2	84.5	80.3
149			0.196	-0.31	79.7	0.79	-	4.36	-0.0118	91.9	56.6	282.2	84.5	80.4
150	428.473	0.195	0.198	-0.32	79.7	0.78	100	4.34	-0.0169	91.6	56.7	280.8	84.6	80.0
151			0.198	-0.31	79.8	0.77	-	4.31	-0.0335	91.5	56.6	278.9	84.5	79.7
152			0.199	-0.32	79.7	0.78	-	4.28	-0.03	91.5	56.7	277.6	84.6	79.6
153			0.198	-0.31	79.7	0.80	-	4.27	-0.0149	91.3	56.6	275.9	84.5	80.1
154			0.198	-0.31	79.8	0.79	-	4.25	-0.0179	91.0	56.6	274.7	84.5	80.0
155			0.197	-0.33	79.8	0.78	-	4.22	-0.0261	91.0	56.6	273.4	84.5	80.0
156			0.198	-0.34	79.8	0.78	-	4.20	-0.0203	91.0	56.6	272.4	84.5	79.9
157			0.196	-0.32	79.8	0.76	-	4.20	-0.0066	90.9	56.6	270.6	84.5	80.1
158			0.199	-0.31	79.8	0.77	-	4.16	-0.0332	90.9	56.6	269.2	84.6	79.8
159			0.198	-0.34	79.7	0.77	-	4.14	-0.0173	90.7	56.6	267.8	84.7	79.7
160	430.436	0.196	0.199	-0.32	79.7661	0.760681	100	4.11	-0.0317	90.5	56.6	266.3	84.4	79.7
161			0.198	-0.32	79.7328	0.762816	-	4.09	-0.027	90.6	56.6	265.3	84.3	79.7
162			0.197	-0.32	79.7373	0.76031	-	4.07	-0.0121	90.6	56.6	264.0	84.4	79.7
163			0.198	-0.31	79.7395	0.755774	-	4.05	-0.0188	90.6	56.5	263.0	84.4	79.9
164			0.198	-0.31	79.757	0.779908	-	4.04	-0.0189	90.3	56.6	261.6	84.4	79.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
165			0.198	-0.31	79.7538	0.755835	-	4.01	-0.0248	90.2	56.6	260.6	84.4	79.7
166			0.201	-0.31	79.7408	0.745944	-	3.99	-0.0163	90.0	56.5	259.0	84.3	79.8
167			0.199	-0.32	79.723	0.774696	-	3.98	-0.0127	89.8	56.4	257.9	84.2	79.9
168			0.198	-0.32	79.7528	0.762282	-	3.94	-0.04	89.9	56.4	257.3	84.3	79.8
169			0.198	-0.31	79.7564	0.763713	-	3.93	-0.0132	89.9	56.4	255.9	84.3	79.8
170	432.402	0.197	0.195	-0.31	79.7632	0.744444	101	3.90	-0.0258	90.0	56.4	255.3	84.3	79.7
171			0.197	-0.33	79.774	0.743244	-	3.89	-0.0126	89.9	56.4	254.1	84.3	79.6
172			0.198	-0.32	79.7615	0.76511	-	3.87	-0.0191	89.9	56.4	253.0	84.3	79.7
173			0.198	-0.32	79.7952	0.750672	-	3.85	-0.0244	89.8	56.4	251.6	84.3	79.8
174			0.199	-0.32	79.7923	0.755324	-	3.83	-0.0168	89.6	56.4	250.9	84.2	79.8
175			0.196	-0.32	79.7609	0.756462	-	3.81	-0.0239	89.3	56.4	250.0	84.1	79.6
176			0.196	-0.31	79.7774	0.745204	-	3.78	-0.0218	89.3	56.4	248.7	84.1	79.8
177			0.196	-0.32	79.7845	0.734014	-	3.77	-0.012	89.4	56.3	248.0	84.1	79.8
178			0.197	-0.31	79.7953	0.757389	-	3.75	-0.0237	89.3	56.2	247.3	84.1	79.6
179			0.199	-0.32	79.8096	0.732252	-	3.73	-0.021	89.2	56.3	246.3	84.1	79.7
180	434.355	0.195	0.197	-0.31	79.7932	0.73441	100	3.71	-0.0149	89.0	56.2	245.4	84.1	79.2
181			0.199	-0.34	79.8205	0.720074	-	3.70	-0.0089	88.9	56.3	244.4	84.0	79.3
182			0.199	-0.37	79.7965	0.738838	-	3.69	-0.0181	88.9	56.2	244.2	84.1	79.4
183			0.197	-0.31	79.8147	0.732817	-	3.67	-0.0133	88.8	56.2	243.6	84.1	79.6
184			0.199	-0.31	79.8023	0.721689	-	3.63	-0.038	88.9	56.2	242.7	84.1	79.3
185			0.199	-0.31	79.821	0.728723	-	3.63	-0.0093	88.8	56.2	241.5	84.1	79.6
186			0.198	-0.31	79.8281	0.724453	-	3.60	-0.0226	88.9	56.2	240.5	84.1	79.6
187			0.199	-0.34	79.8319	0.743399	-	3.60	-0.0036	88.8	56.2	239.5	84.1	79.6
188			0.198	-0.31	79.8331	0.722936	-	3.59	-0.0105	88.8	56.2	238.6	84.1	79.3
189			0.199	-0.31	79.8338	0.714551	-	3.57	-0.0174	88.7	56.2	237.4	84.0	79.6
190	436.315	0.196	0.198	-0.31	79.8423	0.743131	100	3.54	-0.0305	88.3	56.2	236.8	84.1	79.1
191			0.197	-0.34	79.8599	0.739254	-	3.53	-0.0117	88.3	56.2	236.0	84.0	79.6
192			0.197	-0.32	79.8228	0.715773	-	3.52	-0.0048	88.3	56.2	235.1	83.9	79.5
193			0.197	-0.34	79.8515	0.727858	-	3.49	-0.0309	88.4	56.2	234.2	83.9	79.4
194			0.199	-0.31	79.8793	0.722323	-	3.48	-0.0107	88.2	56.1	233.2	84.0	79.4
195			0.199	-0.32	79.849	0.721038	-	3.46	-0.0228	88.3	56.2	232.2	83.9	79.2
196			0.197	-0.31	79.8529	0.731748	-	3.45	-0.0102	88.2	56.2	231.3	83.9	79.2
197			0.200	-0.32	79.8634	0.713639	-	3.43	-0.0184	88.2	56.1	230.7	84.0	79.2

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
198			0.199	-0.31	79.8688	0.735713	-	3.43	-0.0005	88.0	56.1	229.8	84.0	79.4
199			0.197	-0.31	79.8328	0.70109	-	3.41	-0.0248	87.9	56.1	229.0	83.9	79.1
200	438.268	0.195	0.199	-0.31	79.8332	0.719988	100	3.39	-0.0181	87.9	56.1	227.9	83.9	79.3
201			0.197	-0.31	79.8352	0.724556	-	3.37	-0.0186	87.7	56.1	227.2	83.8	79.2
202			0.196	-0.32	79.8336	0.721989	-	3.36	-0.0112	87.7	56.1	226.8	83.9	79.1
203			0.198	-0.31	79.8364	0.734216	-	3.34	-0.019	87.8	56.1	226.3	83.9	79.4
204			0.198	-0.31	79.8519	0.721431	-	3.33	-0.0123	87.7	56.1	225.3	83.9	79.1
205			0.200	-0.31	79.8518	0.703033	-	3.31	-0.0208	87.7	56.1	224.6	83.9	79.2
206			0.198	-0.31	79.8421	0.700451	-	3.29	-0.013	87.4	56.1	223.8	83.9	79.3
207			0.199	-0.31	79.8464	0.709637	-	3.28	-0.0173	87.4	56.1	223.3	83.8	79.1
208			0.197	-0.31	79.8268	0.69483	-	3.25	-0.0224	87.4	56.1	222.7	83.9	79.1
209			0.199	-0.31	79.8235	0.692495	-	3.24	-0.017	87.4	56.1	222.2	83.8	79.1
210	440.218	0.195	0.199	-0.32	79.8327	0.706416	99	3.21	-0.0239	87.4	56.2	221.9	83.8	79.2
211			0.197	-0.32	79.83	0.72696	-	3.21	-0.0071	87.2	56.1	221.3	83.8	79.2
212			0.198	-0.31	79.8279	0.704567	-	3.19	-0.0147	87.2	56.1	220.7	83.8	79.0
213			0.198	-0.31	79.8466	0.717401	-	3.17	-0.0246	87.2	56.1	220.0	83.8	79.2
214			0.198	-0.32	79.881	0.712759	-	3.16	-0.0014	87.3	56.1	219.4	83.7	79.2
215			0.199	-0.31	79.887	0.710222	-	3.15	-0.014	87.2	56.1	219.2	83.7	79.0
216			0.200	-0.31	79.8631	0.716742	-	3.12	-0.0254	87.1	56.2	218.6	83.7	79.2
217			0.200	-0.32	79.8506	0.719916	-	3.12	-0.0045	87.0	56.1	218.0	83.7	78.9
218			0.198	-0.32	79.8618	0.709378	-	3.09	-0.0286	87.2	56.2	217.7	83.7	78.6
219			0.196	-0.31	79.8916	0.709074	-	3.07	-0.0198	87.0	56.2	217.2	83.8	79.1
220	442.181	0.196	0.200	-0.31	79.8465	0.706416	100	3.06	-0.008	87.2	56.2	216.9	83.8	79.0
221			0.200	-0.32	79.8586	0.695875	-	3.04	-0.0206	87.2	56.2	216.2	83.7	79.1
222			0.199	-0.34	79.8642	0.71897	-	3.02	-0.0258	87.0	56.1	215.7	83.7	79.1
223			0.199	-0.31	79.8922	0.728077	-	3.02	0.00104	87.0	56.1	215.2	83.7	79.2
224			0.200	-0.32	79.8591	0.735239	-	2.99	-0.0281	87.0	56.1	215.1	83.6	79.0
225			0.199	-0.34	79.8698	0.717502	-	2.98	-0.0083	87.0	56.1	215.0	83.5	79.0
226			0.197	-0.32	79.8595	0.705826	-	2.97	-0.0094	86.9	56.0	214.5	83.6	79.1
227			0.198	-0.32	79.9043	0.698425	-	2.96	-0.017	86.9	56.0	214.0	83.4	79.3
228			0.199	-0.31	79.859	0.714397	-	2.94	-0.0164	86.8	56.0	213.3	83.4	79.3
229			0.199	-0.37	79.8502	0.694331	-	2.92	-0.0238	86.9	56.0	213.3	83.4	79.1
230	444.126	0.194	0.200	-0.31	79.8509	0.705022	99	2.90	-0.0134	86.8	56.0	212.8	83.5	79.2

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
231			0.199	-0.34	79.8845	0.698565	-	2.88	-0.0266	86.9	55.9	212.9	83.5	78.8
232			0.199	-0.32	79.8666	0.713143	-	2.86	-0.0143	86.8	55.9	212.4	83.5	78.9
233			0.200	-0.31	79.8737	0.707694	-	2.85	-0.0117	86.7	55.9	212.4	83.5	79.0
234			0.200	-0.31	79.8497	0.722262	-	2.84	-0.0095	86.7	56.0	211.7	83.5	78.7
235			0.199	-0.31	79.8945	0.70081	-	2.83	-0.0138	86.5	55.9	211.5	83.5	79.0
236			0.198	-0.32	79.8797	0.699686	-	2.82	-0.0017	86.3	56.0	210.8	83.5	78.9
237			0.199	-0.31	79.8764	0.718498	-	2.80	-0.0201	86.3	56.0	210.7	83.6	78.8
238			0.199	-0.31	79.8679	0.707448	-	2.78	-0.0247	86.3	56.0	209.8	83.4	78.7
239			0.197	-0.31	79.8373	0.718045	-	2.77	-0.0112	86.3	56.0	209.5	83.3	78.7
240	446.087	0.196	0.201	-0.32	79.8572	0.690203	99	2.75	-0.0213	86.2	56.0	209.1	83.4	79.0
241			0.200	-0.31	79.8245	0.70436	-	2.74	-0.0032	86.2	56.0	208.5	83.3	78.9
242			0.199	-0.31	79.8521	0.715714	-	2.73	-0.0129	86.3	56.0	208.2	83.4	79.0
243			0.200	-0.32	79.8672	0.707898	-	2.71	-0.0198	86.1	56.1	207.7	83.4	78.9
244			0.200	-0.32	79.8607	0.709892	-	2.70	-0.0129	85.9	56.0	207.3	83.3	78.9
245			0.198	-0.32	79.8448	0.711574	-	2.69	-0.0124	86.1	56.0	206.5	83.4	79.0
246			0.198	-0.32	79.8236	0.710227	-	2.67	-0.0169	85.9	56.0	206.0	83.4	78.8
247			0.199	-0.31	79.8281	0.719867	-	2.65	-0.0233	86.0	56.0	205.8	83.4	78.9
248			0.198	-0.31	79.8521	0.703517	-	2.64	-0.0049	86.0	56.0	205.5	83.4	78.9
249			0.197	-0.32	79.8036	0.719216	-	2.63	-0.014	85.9	56.0	205.1	83.3	78.7
250	448.046	0.196	0.200	-0.31	79.8336	0.720679	99	2.61	-0.0152	86.0	56.0	204.8	83.4	78.8
251			0.199	-0.34	79.8325	0.712383	-	2.60	-0.0096	85.9	56.0	204.2	83.6	78.7
252			0.199	-0.32	79.8523	0.720676	-	2.59	-0.0121	85.7	56.0	203.9	83.6	78.9
253			0.201	-0.32	79.8282	0.730122	-	2.57	-0.0155	85.8	56.0	203.6	83.8	78.7
254			0.200	-0.32	79.8345	0.705993	-	2.57	-0.0073	85.7	56.0	203.3	83.7	78.9
255			0.198	-0.32	79.8301	0.71243	-	2.55	-0.0173	85.8	56.0	202.8	83.8	78.6
256			0.199	-0.32	79.8531	0.699526	-	2.55	-0.0004	85.6	56.0	202.0	83.7	78.5
257			0.201	-0.32	79.8211	0.713976	-	2.53	-0.022	85.8	56.0	201.6	83.9	78.7
258			0.198	-0.31	79.8288	0.709339	-	2.51	-0.0135	85.7	56.0	201.2	83.9	78.8
259			0.199	-0.31	79.831	0.709703	-	2.50	-0.0093	85.7	56.0	200.7	84.0	78.8
260	450.000	0.195	0.200	-0.31	79.8299	0.690262	99	2.49	-0.0166	85.7	56.0	200.5	84.0	78.8
261			0.199	-0.31	79.851	0.70184	-	2.48	-0.006	85.8	55.9	200.3	84.2	78.7
262			0.200	-0.31	79.8943	0.6907	-	2.47	-0.0125	85.6	55.9	199.7	84.2	78.8
263			0.200	-0.32	79.8863	0.7206	-	2.46	-0.0108	85.6	55.9	199.3	84.2	78.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
264			0.199	-0.31	79.9156	0.711276	-	2.45	-0.0118	85.5	55.9	198.7	84.2	78.6
265			0.198	-0.31	79.8977	0.721333	-	2.43	-0.0145	85.6	55.9	198.3	84.2	78.7
266			0.200	-0.31	79.9008	0.721918	-	2.42	-0.0099	85.5	55.9	197.8	84.3	78.8
267			0.198	-0.32	79.898	0.709125	-	2.42	-0.0025	85.5	55.9	197.6	84.3	78.8
268			0.201	-0.32	79.8739	0.70543	-	2.40	-0.0221	85.3	55.9	197.1	84.5	78.7
269			0.199	-0.31	79.8949	0.716663	-	2.39	-0.0121	85.4	55.9	196.7	84.5	78.7
270	451.965	0.196	0.201	-0.32	79.8396	0.710327	99	2.37	-0.0187	85.3	55.9	196.1	84.4	78.6
271			0.200	-0.34	79.8514	0.708493	-	2.36	-0.0063	85.3	55.9	195.8	84.5	78.6
272			0.202	-0.31	79.8657	0.712675	-	2.34	-0.0224	85.3	55.9	195.4	84.3	78.8
273			0.201	-0.32	79.8799	0.71939	-	2.33	-0.0091	85.4	55.9	195.2	84.2	78.8
274			0.200	-0.31	79.8555	0.712828	-	2.33	-0.0029	85.4	55.9	194.9	84.2	78.6
275			0.201	-0.31	79.8731	0.70658	-	2.31	-0.0213	85.3	55.9	194.7	84.2	78.5
276			0.201	-0.31	79.8856	0.71911	-	2.31	0.00445	85.2	55.9	194.3	84.3	78.6
277			0.199	-0.31	79.879	0.710369	-	2.28	-0.0259	85.3	55.9	193.9	84.4	78.8
278			0.202	-0.31	79.8893	0.695204	-	2.28	-0.002	85.1	55.9	193.6	84.4	78.6
279			0.200	-0.31	79.8642	0.703126	-	2.27	-0.0112	85.1	55.8	193.2	84.5	78.6
280	453.922	0.196	0.200	-0.32	79.8885	0.713209	99	2.26	-0.0105	85.0	55.9	192.7	84.5	78.7
281			0.198	-0.32	79.8752	0.715879	-	2.25	-0.0089	84.9	55.9	192.1	84.5	78.8
282			0.199	-0.32	79.8935	0.696578	-	2.24	-0.011	84.9	55.9	192.2	84.5	78.4
283			0.200	-0.32	79.8806	0.70898	-	2.22	-0.0222	84.7	55.9	191.8	84.3	78.8
284			0.199	-0.32	79.8588	0.707687	-	2.21	-0.0094	84.7	55.9	191.3	84.3	78.6
285			0.200	-0.31	79.8532	0.702079	-	2.19	-0.0183	84.7	55.9	191.1	84.4	78.6
286			0.197	-0.31	79.8862	0.732013	-	2.19	-0.0033	84.7	55.9	190.9	84.4	78.6
287			0.200	-0.31	79.8914	0.729815	-	2.17	-0.0209	84.8	55.8	190.5	84.4	78.4
288			0.200	-0.30	79.8928	0.709425	-	2.16	-0.0076	84.8	55.9	190.3	84.4	78.4
289			0.199	-0.32	79.8676	0.717163	-	2.14	-0.0162	84.9	55.8	190.1	84.5	78.4
290	455.884	0.196	0.201	-0.33	79.9	0.726722	99	2.13	-0.0122	84.8	55.8	190.1	84.4	78.3
291			0.201	-0.32	79.8999	0.72206	-	2.13	0.00168	84.7	55.8	189.7	84.5	78.5
292			0.199	-0.31	79.8874	0.691981	-	2.11	-0.0183	84.6	55.8	189.4	84.5	78.5
293			0.201	-0.32	79.907	0.711198	-	2.11	-0.004	84.6	55.8	189.1	84.5	78.5
294			0.199	-0.32	79.9	0.728482	-	2.10	-0.0087	84.5	55.7	189.0	84.5	78.4
295			0.200	-0.31	79.9148	0.714583	-	2.10	-0.0056	84.4	55.8	188.7	84.6	78.5
296			0.199	-0.32	79.9019	0.711134	-	2.08	-0.0147	84.5	55.7	188.2	84.6	78.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
297			0.200	-0.31	79.898	0.696856	-	2.06	-0.0196	84.5	55.7	188.2	84.5	78.4
298			0.200	-0.30	79.9224	0.704869	-	2.05	-0.01	84.7	55.7	188.0	84.6	78.2
299			0.199	-0.31	79.9216	0.664465	-	2.03	-0.0174	84.4	55.6	187.7	84.6	78.4
300	457.851	0.197	0.200	-0.31	79.912	0.703593	100	2.03	-0.0036	84.3	55.6	187.4	84.5	78.6
301			0.200	-0.31	79.9019	0.699723	-	2.02	-0.0135	84.2	55.7	186.9	84.6	78.2
302			0.198	-0.32	79.8874	0.700249	-	2.01	-0.0093	84.2	55.7	186.7	84.4	78.3
303			0.200	-0.32	79.8611	0.70481	-	1.99	-0.0136	84.3	55.7	186.2	84.5	78.4
304			0.200	-0.34	79.8656	0.713443	-	1.99	-0.0078	84.2	55.7	186.2	84.6	78.3
305			0.200	-0.34	79.8805	0.680017	-	1.96	-0.0222	84.2	55.7	186.2	84.6	78.4
306			0.200	-0.32	79.8496	0.691403	-	1.95	-0.0148	84.2	55.7	185.7	84.6	78.4
307			0.200	-0.32	79.8379	0.693812	-	1.94	-0.011	84.2	55.6	185.4	84.5	78.2
308			0.199	-0.33	79.8434	0.705115	-	1.92	-0.0208	84.2	55.6	185.2	84.5	78.2
309			0.199	-0.31	79.8293	0.710561	-	1.91	-0.0044	84.1	55.7	185.7	84.5	78.1
310	459.806	0.195	0.200	-0.31	79.8532	0.70915	99	1.91	-0.0071	84.1	55.6	185.3	84.6	78.4
311			0.201	-0.31	79.8504	0.706947	-	1.90	-0.0088	84.1	55.6	184.9	84.5	78.4
312			0.199	-0.30	79.8604	0.75153	-	1.89	-0.0031	84.0	55.6	184.9	84.5	78.3
313			0.201	-0.32	79.8158	0.727629	-	1.86	-0.034	84.0	55.6	184.7	84.4	78.4
314			0.200	-0.31	79.8359	0.724812	-	1.85	-0.0109	84.0	55.6	184.7	84.4	78.2
315			0.200	-0.32	79.8285	0.746128	-	1.85	0.00226	83.7	55.6	184.3	84.5	78.3
316			0.201	-0.31	79.8287	0.753286	-	1.84	-0.0107	83.8	55.7	184.1	84.4	78.1
317			0.202	-0.31	79.8372	0.702983	-	1.83	-0.0146	83.8	55.6	183.8	84.4	78.0
318			0.203	-0.32	79.7929	0.748973	-	1.82	-0.007	83.8	55.6	183.3	84.5	78.1
319			0.201	-0.32	79.8023	0.745334	-	1.80	-0.0181	83.8	55.6	183.3	84.4	78.0
320	461.795	0.199	0.200	-0.34	79.8146	0.743244	101	1.79	-0.0128	83.9	55.6	183.0	84.3	78.2
321			0.200	-0.31	79.8266	0.72923	-	1.77	-0.0171	83.8	55.6	182.8	84.3	78.0
322			0.201	-0.34	79.7975	0.699585	-	1.75	-0.0165	83.7	55.5	182.5	84.3	78.0
323			0.200	-0.32	79.8054	0.722805	-	1.75	-0.0071	83.7	55.6	182.6	84.3	78.0
324			0.201	-0.31	79.8002	0.703318	-	1.73	-0.0203	83.6	55.5	182.6	84.3	78.1
325			0.201	-0.33	79.7976	0.727275	-	1.73	-0.0003	83.5	55.5	182.3	84.2	78.2
326			0.200	-0.34	79.7947	0.718252	-	1.72	-0.0107	83.6	55.5	182.1	84.2	78.0
327			0.199	-0.31	79.7848	0.729001	-	1.70	-0.0132	83.7	55.5	181.9	84.3	77.9
328			0.199	-0.32	79.7564	0.725549	-	1.69	-0.0079	83.6	55.5	181.7	84.3	78.0
329			0.202	-0.32	79.7675	0.734251	-	1.67	-0.0201	83.6	55.5	181.9	84.3	78.1

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
330	463.793	0.200	0.199	-0.31	79.7748	0.730349	101	1.67	-0.0059	83.6	55.5	181.2	84.3	77.9
331			0.201	-0.32	79.7509	0.716855	-	1.66	-0.0062	83.6	55.5	181.4	84.3	77.8
332			0.200	-0.31	79.7259	0.720897	-	1.64	-0.0223	83.6	55.5	181.0	84.3	77.7
333			0.200	-0.31	79.7375	0.721628	-	1.62	-0.016	83.6	55.5	181.0	84.2	77.8
334			0.201	-0.31	79.7384	0.735185	-	1.62	-0.003	83.6	55.5	180.8	84.3	77.8
335			0.203	-0.32	79.7364	0.731394	-	1.60	-0.0238	83.6	55.5	181.3	84.2	78.0
336			0.203	-0.32	79.7313	0.74128	-	1.59	-0.0041	83.5	55.5	181.7	84.2	78.0
337			0.201	-0.31	79.7089	0.721065	-	1.57	-0.0228	83.5	55.5	181.6	84.2	77.9
338			0.201	-0.32	79.6857	0.727769	-	1.57	-0.0003	83.6	55.5	181.4	84.2	77.8
339			0.202	-0.31	79.6911	0.734745	-	1.56	-0.013	83.6	55.5	181.3	84.2	77.7
340	465.789	0.200	0.198	-0.31	79.6942	0.738049	101	1.54	-0.014	83.6	55.5	181.6	84.2	77.8
341			0.201	-0.31	79.6804	0.723363	-	1.53	-0.0128	83.5	55.5	181.6	84.0	77.8
342			0.201	-0.32	79.6774	0.741504	-	1.52	-0.0107	83.6	55.5	181.4	83.9	77.8
343			0.199	-0.31	79.6552	0.697097	-	1.51	-0.0063	83.5	55.5	181.0	84.0	77.9
344			0.202	-0.31	79.667	0.726316	-	1.50	-0.0182	83.4	55.4	181.1	84.0	77.7
345			0.201	-0.32	79.6396	0.719503	-	1.49	-0.0052	83.4	55.4	181.0	83.9	77.7
346			0.200	-0.32	79.6728	0.733407	-	1.47	-0.0236	83.3	55.4	181.1	84.0	77.7
347			0.202	-0.32	79.6538	0.711473	-	1.46	-0.0101	83.3	55.4	180.9	83.9	77.8
348			0.199	-0.32	79.6399	0.725876	-	1.45	-0.0076	83.3	55.4	180.4	83.9	77.8
349			0.201	-0.31	79.639	0.726788	-	1.43	-0.0167	83.3	55.4	180.5	83.9	77.8
350	467.790	0.200	0.202	-0.31	79.6332	0.706226	101	1.42	-0.0087	83.4	55.4	180.0	83.9	77.7
351			0.202	-0.32	79.6177	0.710996	-	1.42	-0.0049	83.4	55.4	180.0	83.8	77.8
352			0.200	-0.30	79.6025	0.733761	-	1.41	-0.0098	83.4	55.4	180.0	83.8	77.8
353			0.202	-0.32	79.5935	0.725384	-	1.39	-0.0233	83.4	55.4	180.1	83.9	77.8
354			0.202	-0.31	79.5884	0.72458	-	1.38	-0.0013	83.2	55.4	179.9	83.9	77.7
355			0.202	-0.31	79.6147	0.713042	-	1.37	-0.0101	83.2	55.4	179.7	83.9	77.7
356			0.201	-0.32	79.6003	0.725918	-	1.37	-0.0062	83.3	55.4	179.8	83.8	77.8
357			0.201	-0.34	79.5877	0.744073	-	1.35	-0.0179	83.3	55.4	179.5	83.9	77.8
358			0.202	-0.32	79.5929	0.735974	-	1.33	-0.0176	83.3	55.3	179.5	83.9	77.5
359			0.200	-0.32	79.606	0.723749	-	1.31	-0.0177	83.1	55.4	179.5	83.7	77.7
360	469.786	0.200	0.202	-0.34	79.5973	0.715592	101	1.30	-0.0147	83.1	55.3	179.5	83.8	77.7
361			0.199	-0.31	79.5705	0.729404	-	1.28	-0.0222	83.2	55.4	179.2	83.8	77.7
362			0.201	-0.31	79.5209	0.731944	-	1.29	0.00836	83.2	55.3	179.1	83.7	77.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
363			0.200	-0.32	79.5241	0.74381	-	1.26	-0.0298	83.2	55.3	178.9	83.8	77.7
364			0.199	-0.37	79.5155	0.736985	-	1.24	-0.015	83.2	55.3	179.3	83.8	77.5
365			0.202	-0.31	79.5145	0.732677	-	1.24	0.00199	83.1	55.3	179.4	83.9	77.6
366			0.201	-0.31	79.5301	0.713986	-	1.22	-0.0183	83.1	55.3	179.3	83.7	77.6
367			0.201	-0.31	79.4867	0.722579	-	1.21	-0.0189	83.1	55.3	179.3	83.7	77.5
368			0.200	-0.34	79.4761	0.727782	-	1.18	-0.0252	83.2	55.3	179.4	83.6	77.4
369			0.199	-0.32	79.4582	0.719766	-	1.18	-0.0028	83.2	55.3	179.3	83.7	77.3
370	471.782	0.200	0.200	-0.32	79.4549	0.728777	101	1.17	-0.008	83.1	55.3	179.4	83.7	77.5
371			0.202	-0.31	79.489	0.683636	-	1.16	-0.005	82.9	55.3	179.7	83.7	77.6
372			0.199	-0.32	79.4964	0.724861	-	1.16	-0.0046	82.7	55.3	179.5	83.6	77.6
373			0.200	-0.31	79.4721	0.73786	-	1.15	-0.0129	83.0	55.3	179.5	83.7	77.6
374			0.202	-0.31	79.4617	0.740282	-	1.14	-0.0114	82.8	55.2	179.6	83.7	77.5
375			0.200	-0.31	79.4501	0.697705	-	1.13	-0.0053	82.7	55.2	179.4	83.6	77.4
376			0.199	-0.31	79.447	0.720479	-	1.11	-0.0206	82.9	55.3	179.2	83.7	77.5
377			0.200	-0.31	79.4308	0.721964	-	1.10	-0.0123	82.9	55.2	179.0	83.6	77.5
378			0.200	-0.31	79.4174	0.739153	-	1.09	-0.0075	82.7	55.2	178.8	83.6	77.4
379			0.201	-0.32	79.4208	0.712014	-	1.07	-0.0173	82.8	55.3	178.7	83.5	77.4
380	473.787	0.201	0.201	-0.32	79.4007	0.725564	101	1.07	-0.0052	82.7	55.2	178.6	83.6	77.4
381			0.198	-0.31	79.4089	0.727983	-	1.06	-0.0118	82.8	55.2	178.4	83.6	77.4
382			0.200	-0.31	79.4192	0.744348	-	1.04	-0.0144	82.7	55.2	178.4	83.5	77.4
383			0.199	-0.31	79.4048	0.735846	-	1.03	-0.0074	82.7	55.2	178.4	83.6	77.3
384			0.201	-0.32	79.3788	0.708525	-	1.02	-0.0157	82.7	55.2	178.0	83.5	77.4
385			0.200	-0.32	79.3932	0.718355	-	1.00	-0.0189	82.8	55.2	177.7	83.5	77.5
386			0.200	-0.34	79.3877	0.73054	-	0.99	-0.0063	82.8	55.2	177.6	83.6	77.5
387			0.199	-0.31	79.3542	0.712019	-	0.99	-0.0053	82.9	55.2	177.5	83.4	77.5
388			0.200	-0.32	79.3868	0.727403	-	0.97	-0.0143	82.9	55.2	177.3	83.4	77.6
389			0.199	-0.37	79.3802	0.73757	-	0.96	-0.0147	82.8	55.1	177.2	83.4	77.1
390	475.786	0.200	0.199	-0.37	79.3631	0.738563	101	0.95	-0.007	82.8	55.2	177.0	83.4	77.4
391			0.200	-0.34	79.3803	0.711404	-	0.94	-0.0154	82.9	55.2	176.8	83.4	77.5
392			0.199	-0.37	79.3471	0.738189	-	0.94	-0.0007	82.8	55.1	177.0	83.4	77.4
393			0.200	-0.37	79.377	0.673361	-	0.93	-0.0086	82.6	55.1	176.9	83.3	77.4
394			0.201	-0.34	79.391	0.718296	-	0.91	-0.0212	82.4	55.1	176.8	83.5	77.3
395			0.200	-0.31	79.3882	0.722523	-	0.89	-0.0157	82.4	55.1	176.7	83.3	77.3

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
396			0.201	-0.34	79.3948	0.718975	-	0.89	-0.0021	82.4	55.1	176.7	83.3	77.3
397			0.201	-0.32	79.3659	0.722272	-	0.87	-0.0187	82.5	55.1	176.6	83.3	77.3
398			0.201	-0.31	79.3679	0.716501	-	0.87	0.00474	82.4	55.1	176.2	83.2	77.4
399			0.199	-0.31	79.3386	0.690122	-	0.86	-0.0146	82.3	55.1	176.2	83.3	77.3
400	477.782	0.200	0.200	-0.31	79.3319	0.728256	101	0.85	-0.0103	82.2	55.1	176.0	83.2	77.3
401			0.200	-0.31	79.3239	0.685706	-	0.84	-0.0136	82.3	55.1	175.9	83.2	77.1
402			0.202	-0.31	79.3462	0.724962	-	0.83	-0.0091	82.2	55.1	175.9	83.0	77.2
403			0.203	-0.36	79.3401	0.719899	-	0.81	-0.0155	82.3	55.1	175.9	83.0	77.1
404			0.202	-0.36	79.3473	0.700623	-	0.81	0.00092	82.2	55.1	175.7	83.1	77.1
405			0.202	-0.32	79.321	0.731003	-	0.80	-0.0149	82.1	55.1	175.5	83.2	77.1
406			0.199	-0.33	79.3272	0.685224	-	0.79	-0.0068	82.2	55.0	175.6	83.1	77.0
407			0.200	-0.31	79.2848	0.730508	-	0.78	-0.0133	82.2	55.0	175.3	83.1	77.1
408			0.199	-0.32	79.2842	0.731551	-	0.78	9E-05	82.2	55.0	175.0	83.3	76.9
409			0.201	-0.31	79.2757	0.736065	-	0.75	-0.0223	82.1	55.0	174.9	83.2	77.1
410	479.791	0.201	0.200	-0.31	79.2793	0.728841	102	0.76	0.00197	82.3	55.0	174.8	83.1	77.1
411			0.200	-0.34	79.2811	0.729387	-	0.74	-0.0192	82.1	55.0	174.6	83.2	76.9
412			0.201	-0.34	79.2667	0.717558	-	0.73	-0.0101	82.1	55.0	174.6	83.2	77.2
413			0.201	-0.32	79.2344	0.740594	-	0.72	-0.0123	82.2	55.0	174.5	83.2	77.1
414			0.200	-0.31	79.2406	0.71928	-	0.72	0.00044	82.1	55.0	174.3	83.3	77.1
415			0.201	-0.31	79.2555	0.72237	-	0.70	-0.013	82.2	55.0	173.9	83.3	77.1
416			0.200	-0.34	79.2412	0.723159	-	0.69	-0.0086	82.1	55.0	173.8	83.2	77.1
417			0.200	-0.34	79.2229	0.723481	-	0.68	-0.0142	82.1	55.0	173.4	83.1	77.1
418			0.199	-0.29	79.1858	0.740434	-	0.67	-0.0113	82.2	55.0	173.3	83.2	77.1
419			0.200	-0.34	79.1648	0.728775	-	0.66	-0.0123	82.1	54.9	173.2	82.9	77.0
420	481.798	0.201	0.200	-0.30	79.1571	0.72	101	0.64	-0.0151	82.2	55.0	173.1	82.8	76.9
421			0.200	-0.31	79.1547	0.722328	-	0.64	0.0004	82.2	54.9	173.0	82.9	77.0
422			0.199	-0.31	79.1678	0.724989	-	0.62	-0.0209	82.0	54.9	173.1	82.9	77.0
423			0.201	-0.31	79.1597	0.729599	-	0.61	-0.0073	82.1	54.9	172.8	82.9	76.9
424			0.198	-0.34	79.1338	0.723575	-	0.61	-0.0079	82.1	54.9	172.7	82.9	76.7
425			0.200	-0.36	79.1221	0.733336	-	0.60	-0.0059	82.1	54.9	172.5	83.0	76.7
426			0.201	-0.36	79.1289	0.734226	-	0.57	-0.0297	82.2	54.9	172.5	83.0	76.9
427			0.201	-0.33	79.1181	0.736291	-	0.57	-0.0014	82.2	54.9	172.3	82.9	77.0
428			0.199	-0.35	79.1013	0.733673	-	0.56	-0.0078	82.1	54.9	172.1	82.9	76.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
429			0.200	-0.32	79.0836	0.734882	-	0.54	-0.0205	82.1	54.8	171.9	82.8	76.9
430	483.813	0.201	0.201	-0.34	79.0837	0.723054	102	0.52	-0.0183	82.2	54.8	171.6	82.8	77.0
431			0.199	-0.34	79.0837	0.720924	-	0.52	-0.0018	82.2	54.9	171.5	82.8	76.8
432			0.202	-0.32	79.0834	0.724209	-	0.51	-0.0105	82.3	54.8	171.3	82.8	76.9
433			0.202	-0.31	79.0904	0.723501	-	0.50	-0.0084	82.1	54.8	171.3	82.7	76.9
434			0.200	-0.32	79.0678	0.729901	-	0.49	-0.0073	82.2	54.8	171.1	82.6	76.9
435			0.199	-0.32	79.0517	0.734076	-	0.49	-0.0049	82.2	54.8	171.0	82.6	76.9
436			0.202	-0.31	79.051	0.721224	-	0.48	-0.0088	82.2	54.8	170.7	82.6	76.7
437			0.199	-0.32	79.0709	0.728517	-	0.47	-0.0127	82.2	54.8	170.7	82.7	76.7
438			0.201	-0.36	79.0531	0.711183	-	0.45	-0.0176	82.2	54.8	170.4	82.6	76.7
439			0.200	-0.34	79.0402	0.721527	-	0.44	-0.0106	82.0	54.8	170.5	82.6	76.8
440	485.825	0.201	0.201	-0.34	78.9971	0.734956	101	0.44	0.00441	81.8	54.8	170.3	82.7	76.8
441			0.200	-0.32	78.9971	0.745241	-	0.44	-0.0079	81.8	54.8	170.0	82.7	76.8
442			0.199	-0.31	79.0258	0.719427	-	0.43	-0.0097	81.7	54.8	169.8	82.6	76.7
443			0.200	-0.37	79.0325	0.72533	-	0.41	-0.0124	81.8	54.8	169.8	82.7	76.7
444			0.199	-0.34	79.031	0.728241	-	0.41	0.00032	81.5	54.7	169.6	82.7	76.9
445			0.202	-0.37	79.0132	0.71537	-	0.41	-0.0021	81.6	54.8	169.4	82.6	76.7
446			0.202	-0.34	79.0065	0.739647	-	0.39	-0.0175	81.7	54.7	169.2	82.6	76.7
447			0.201	-0.37	78.9683	0.738425	-	0.39	-0.0075	81.9	54.7	168.9	82.6	76.8
448			0.201	-0.37	78.9867	0.731145	-	0.38	-0.008	81.8	54.7	168.8	82.5	76.7
449			0.203	-0.37	78.9541	0.758341	-	0.36	-0.0151	81.8	54.7	168.5	82.4	76.8
450	487.842	0.202	0.199	-0.37	78.9132	0.73902	102	0.35	-0.0143	81.7	54.7	168.3	82.4	76.8
451			0.200	-0.37	78.9074	0.729286	-	0.34	-0.012	81.8	54.8	168.5	82.4	76.6
452			0.201	-0.36	78.9229	0.742217	-	0.33	-0.0078	81.8	54.7	168.5	82.4	76.6
453			0.199	-0.34	78.9252	0.730666	-	0.33	-0.0024	81.6	54.7	168.2	82.3	76.8
454			0.199	-0.37	78.8767	0.727868	-	0.32	-0.012	81.7	54.7	168.0	82.4	76.7
455			0.199	-0.31	78.8862	0.736087	-	0.31	-0.0062	81.7	54.7	168.0	82.5	76.6
456			0.202	-0.36	78.8921	0.724856	-	0.30	-0.0136	81.6	54.7	167.8	82.3	76.8
457			0.199	-0.36	78.8773	0.738369	-	0.29	-0.0037	81.7	54.7	167.5	82.4	76.5
458			0.199	-0.36	78.8665	0.729247	-	0.28	-0.0155	81.7	54.7	167.3	82.4	76.6
459			0.202	-0.34	78.8765	0.725416	-	0.27	-0.0056	81.6	54.7	167.0	82.5	76.7
460	489.854	0.201	0.201	-0.31	78.87	0.739603	102	0.26	-0.0062	81.4	54.6	166.8	82.5	76.6
461			0.199	-0.31	78.844	0.737862	-	0.27	0.00089	81.4	54.7	166.8	82.4	76.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
462			0.201	-0.31	78.835	0.718372	-	0.25	-0.0157	81.6	54.6	166.6	82.4	76.4
463			0.200	-0.34	78.8333	0.736554	-	0.24	-0.0088	81.6	54.6	166.3	82.4	76.6
464			0.201	-0.31	78.8372	0.740943	-	0.24	-0.0032	81.5	54.6	166.1	82.5	76.6
465			0.201	-0.32	78.8185	0.73309	-	0.22	-0.0133	81.5	54.7	166.1	82.5	76.5
466			0.201	-0.32	78.8018	0.735281	-	0.21	-0.0133	81.6	54.6	165.9	82.4	76.3
467			0.201	-0.37	78.789	0.731271	-	0.21	-0.0043	81.5	54.6	165.8	82.4	76.5
468			0.202	-0.36	78.7709	0.727452	-	0.19	-0.0197	81.5	54.6	165.7	82.3	76.4
469			0.199	-0.33	78.8086	0.739406	-	0.18	-0.008	81.6	54.6	165.3	82.2	76.4
470	491.864	0.201	0.199	-0.36	78.7591	0.735212	102	0.16	-0.0176	81.5	54.6	165.3	82.2	76.6
471			0.202	-0.37	78.7643	0.719213	-	0.14	-0.0182	81.5	54.6	165.2	82.2	76.5
472			0.202	-0.36	78.773	0.711353	-	0.14	-0.0012	81.2	54.6	165.2	82.3	76.5
473			0.200	-0.37	78.773	0.700608	-	0.14	-0.001	81.2	54.6	165.0	82.2	76.4
474			0.200	-0.36	78.7691	0.723309	-	0.14	-0.0008	81.2	54.6	164.7	82.2	76.4
475			0.201	-0.37	78.7584	0.722409	-	0.13	-0.0113	81.3	54.6	164.5	82.3	76.5
476			0.202	-0.37	78.7327	0.717438	-	0.12	-0.0074	81.2	54.6	164.2	82.4	76.4
477			0.201	-0.37	78.743	0.733624	-	0.11	-0.0118	81.2	54.6	164.3	82.4	76.3
478			0.202	-0.37	78.7134	0.735787	-	0.11	-0.004	81.3	54.6	164.2	82.3	76.3
479			0.203	-0.34	78.6813	0.73431	-	0.09	-0.0209	81.4	54.6	163.9	82.3	76.3
480	493.886	0.202	0.199	-0.36	78.6939	0.726904	103	0.08	-0.001	81.3	54.6	163.9	82.2	76.3
481			0.200	-0.31	78.6522	0.738789	-	0.07	-0.0137	81.2	54.5	163.6	82.2	76.2
482			0.200	-0.33	78.6244	0.723536	-	0.06	-0.0112	81.3	54.6	163.4	82.2	76.4
483			0.202	-0.34	78.644	0.736016	-	0.06	-0.0026	81.3	54.6	162.9	82.2	76.5
484			0.201	-0.36	78.6466	0.743153	-	0.06	-0.0013	81.3	54.5	162.9	82.0	76.5
485			0.201	-0.33	78.6745	0.735787	-	0.04	-0.0152	81.4	54.6	162.7	82.1	76.4
486			0.201	-0.36	78.6689	0.730747	-	0.03	-0.0095	81.4	54.6	162.6	82.2	76.3
487			0.202	-0.32	78.6318	0.742802	-	0.02	-0.0083	81.2	54.6	162.5	82.2	76.2
488			0.199	-0.31	78.625	0.725099	-	0.01	-0.0101	81.3	54.6	162.2	82.1	76.2
489			0.201	-0.31	78.6015	0.726375	-	0.01	-0.0033	81.2	54.6	162.0	82.0	76.3
490	495.889	0.200	0.201	-0.32	78.5999	0.731851	101	0.00	-0.0104	81.2	54.5	161.9	82.0	76.3
Avg/Tot	96.021	0.196	0.198	-0.32	79	0.65	100			88	57	248	84	79.2

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	428.562		-0.35	77.3	-0.54		83	0.062	2.83	0.19
1			-0.32	77.5	0.16	-	86	0.071	2.92	0.18
2			-0.32	77.5	0.26	-	87	0.076	2.16	0.38
3			-0.32	77.6	0.18	-	87	0.070	3.29	0.40
4			-0.32	77.6	0.19	-	86	0.071	11.45	0.52
5			-0.32	77.6	0.17	-	84	0.078	11.96	0.43
6			-0.32	77.6	0.19	-	83	0.074	16.03	0.44
7			-0.32	77.6	0.16	-	84	0.073	14.74	0.30
8			-0.32	77.6	0.17	-	84	0.075	15.08	0.21
9			-0.32	77.6	0.16	-	84	0.074	15.20	0.34
10	430.465	0.190	-0.32	77.7	0.25	98	84	0.069	14.72	0.42
11			-0.32	77.7	0.18	-	84	0.067	11.62	0.45
12			-0.35	77.8	0.26	-	84	0.065	8.94	0.58
13			-0.35	77.8	0.22	-	83	0.062	7.18	0.74
14			-0.35	77.9	0.27	-	83	0.066	4.80	0.74
15			-0.32	77.9	0.29	-	84	0.074	7.25	0.78
16			-0.32	77.9	0.20	-	84	0.069	12.78	0.26
17			-0.35	78.0	0.20	-	83	0.068	15.58	0.51
18			-0.33	77.9	0.20	-	83	0.068	15.82	0.57
19			-0.32	78.0	0.27	-	83	0.069	14.79	0.46
20	432.405	0.194	-0.34	78.0	0.20	99	83	0.068	14.06	0.47
21			-0.35	78.0	0.28	-	83	0.068	13.26	0.43
22			-0.32	78.0	0.24	-	83	0.067	12.85	0.45
23			-0.32	78.0	0.26	-	83	0.067	12.65	0.46
24			-0.32	78.1	0.24	-	83	0.066	12.98	0.45
25			-0.32	78.1	0.22	-	84	0.067	13.24	0.44
26			-0.32	78.1	0.21	-	84	0.068	13.09	0.35
27			-0.35	78.1	0.21	-	84	0.068	13.68	0.33
28			-0.32	78.1	0.23	-	84	0.067	13.98	0.34
29			-0.30	78.1	0.28	-	84	0.069	14.46	0.42
30	434.341	0.194	-0.32	78.1	0.29	98	84	0.066	14.47	0.43
31			-0.32	78.2	0.21	-	84	0.067	14.31	0.41
32			-0.32	78.2	0.21	-	84	0.066	14.46	0.42

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
33			-0.32	78.2	0.28	-	84	0.068	14.07	0.43
34			-0.32	78.2	0.24	-	84	0.067	14.32	0.42
35			-0.32	78.3	0.21	-	85	0.067	14.14	0.40
36			-0.32	78.3	0.28	-	85	0.067	14.47	0.37
37			-0.32	78.3	0.27	-	85	0.066	13.71	0.36
38			-0.32	78.3	0.27	-	85	0.065	14.35	0.30
39			-0.33	78.3	0.19	-	85	0.066	14.50	0.23
40	436.288	0.195	-0.32	78.3	0.21	99	85	0.065	14.58	0.22
41			-0.33	78.3	0.27	-	85	0.067	14.66	0.23
42			-0.35	78.3	0.28	-	85	0.067	14.98	0.20
43			-0.37	78.3	0.21	-	85	0.066	15.10	0.18
44			-0.33	78.3	0.23	-	85	0.065	15.32	0.16
45			-0.35	78.4	0.21	-	86	0.066	15.59	0.19
46			-0.36	78.4	0.27	-	86	0.065	15.78	0.18
47			-0.33	78.4	0.27	-	86	0.069	15.92	0.21
48			-0.35	78.4	0.20	-	86	0.066	15.95	0.21
49			-0.31	78.5	0.25	-	85	0.065	15.95	0.25
50	438.230	0.194	-0.32	78.4	0.26	99	85	0.066	16.03	0.23
51			-0.33	78.5	0.20	-	85	0.066	15.92	0.28
52			-0.35	78.5	0.20	-	85	0.065	15.80	0.28
53			-0.32	78.5	0.21	-	85	0.066	15.80	0.30
54			-0.33	78.4	0.20	-	85	0.066	15.65	0.24
55			-0.32	78.5	0.19	-	85	0.066	15.81	0.29
56			-0.32	78.5	0.25	-	84	0.066	15.74	0.24
57			-0.34	78.5	0.20	-	84	0.067	15.73	0.31
58			-0.32	78.5	0.26	-	84	0.067	15.73	0.29
59			-0.32	78.5	0.22	-	84	0.069	15.92	0.32
60	440.182	0.195	-0.32	78.5	0.27	99	84	0.067	16.15	0.32
61			-0.32	78.5	0.20	-	84	0.067	16.18	0.34
62			-0.31	78.5	0.20	-	84	0.066	16.13	0.35
63			-0.31	78.5	0.21	-	84	0.066	16.01	0.31
64			-0.33	78.5	0.27	-	84	0.067	15.93	0.35
65			-0.31	78.5	0.20	-	84	0.067	15.86	0.35

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
66			-0.32	78.5	0.27	-	84	0.068	15.62	0.35
67			-0.36	78.5	0.22	-	84	0.066	15.56	0.34
68			-0.32	78.5	0.27	-	84	0.066	15.54	0.37
69			-0.32	78.5	0.23	-	84	0.064	15.57	0.31
70	442.129	0.195	-0.32	78.5	0.26	99	84	0.066	15.65	0.33
71			-0.33	78.5	0.26	-	83	0.065	14.80	0.36
72			-0.32	78.5	0.27	-	83	0.064	14.77	0.41
73			-0.35	78.5	0.23	-	83	0.065	14.59	0.41
74			-0.32	78.5	0.21	-	83	0.066	14.33	0.38
75			-0.33	78.5	0.30	-	83	0.065	14.11	0.37
76			-0.32	78.5	0.28	-	83	0.064	13.82	0.46
77			-0.31	78.5	0.26	-	83	0.063	13.80	0.43
78			-0.30	78.5	0.27	-	83	0.065	13.65	0.47
79			-0.32	78.5	0.24	-	83	0.064	13.54	0.50
80	444.073	0.194	-0.33	78.5	0.23	99	83	0.063	13.54	0.47
81			-0.32	78.4	0.27	-	83	0.063	13.40	0.53
82			-0.32	78.4	0.30	-	83	0.063	13.51	0.53
83			-0.32	78.4	0.27	-	83	0.063	13.60	0.40
84			-0.31	78.4	0.24	-	83	0.064	13.76	0.40
85			-0.32	78.4	0.24	-	83	0.062	13.77	0.37
86			-0.31	78.4	0.23	-	83	0.062	13.77	0.37
87			-0.33	78.4	0.29	-	83	0.063	13.84	0.33
88			-0.33	78.4	0.31	-	83	0.063	13.81	0.28
89			-0.33	78.4	0.32	-	83	0.062	13.81	0.27
90	446.021	0.195	-0.32	78.4	0.30	99	83	0.064	13.91	0.25
91			-0.32	78.4	0.30	-	83	0.061	13.93	0.27
92			-0.31	78.4	0.29	-	83	0.061	14.02	0.27
93			-0.32	78.4	0.28	-	83	0.063	14.01	0.27
94			-0.32	78.4	0.35	-	83	0.061	14.10	0.29
95			-0.32	78.4	0.30	-	83	0.062	13.98	0.32
96			-0.32	78.4	0.31	-	84	0.061	14.03	0.29
97			-0.33	78.4	0.36	-	84	0.060	13.96	0.33
98			-0.33	78.4	0.34	-	84	0.060	13.89	0.26

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
99			-0.34	78.4	0.42	-	84	0.061	13.77	0.22
100	447.956	0.194	-0.33	78.4	0.38	98	84	0.062	13.69	0.22
101			-0.31	78.4	0.43	-	85	0.060	13.79	0.25
102			-0.32	78.4	0.50	-	85	0.061	13.87	0.30
103			-0.32	78.4	0.55	-	85	0.060	14.08	0.33
104			-0.32	78.4	0.52	-	85	0.061	14.50	0.41
105			-0.32	78.4	0.56	-	85	0.059	14.72	0.49
106			-0.32	78.4	0.61	-	85	0.062	14.58	0.39
107			-0.32	78.5	0.68	-	85	0.060	13.89	0.31
108			-0.32	78.4	0.75	-	85	0.060	13.67	0.23
109			-0.33	78.5	0.72	-	85	0.058	13.03	0.13
110	449.880	0.192	-0.32	78.5	0.72	97	85	0.058	12.48	0.09
111			-0.32	78.5	0.78	-	85	0.060	12.33	0.10
112			-0.38	78.5	0.77	-	86	0.059	12.07	0.09
113			-0.34	78.5	0.79	-	86	0.056	12.01	0.11
114			-0.35	78.5	0.75	-	86	0.058	11.94	0.12
115			-0.38	78.6	0.78	-	86	0.055	11.77	0.11
116			-0.33	78.5	0.77	-	86	0.055	11.69	0.10
117			-0.32	78.5	0.80	-	86	0.057	11.71	0.10
118			-0.32	78.6	0.81	-	86	0.055	11.49	0.11
119			-0.38	78.5	0.81	-	86	0.053	11.51	0.11
120	451.821	0.194	-0.35	78.6	0.79	98	86	0.057	11.41	0.11
121			-0.32	78.5	0.84	-	86	0.056	11.32	0.12
122			-0.34	78.6	0.82	-	86	0.055	11.11	0.11
123			-0.32	78.6	0.80	-	86	0.054	10.59	0.14
124			-0.32	78.5	0.81	-	86	0.053	10.26	0.15
125			-0.32	78.6	0.83	-	86	0.054	10.12	0.16
126			-0.32	78.6	0.81	-	86	0.055	9.94	0.18
127			-0.33	78.5	0.86	-	86	0.054	9.65	0.20
128			-0.35	78.5	0.83	-	86	0.052	9.36	0.20
129			-0.35	78.6	0.83	-	86	0.053	9.06	0.20
130	453.767	0.195	-0.35	78.6	0.86	98	86	0.052	8.72	0.23
131			-0.37	78.6	0.85	-	86	0.051	7.99	0.26

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
132			-0.32	78.6	0.81	-	86	0.051	7.58	0.30
133			-0.33	78.6	0.85	-	85	0.050	7.50	0.34
134			-0.34	78.6	0.84	-	85	0.049	7.47	0.37
135			-0.35	78.6	0.80	-	85	0.048	7.43	0.39
136			-0.35	78.6	0.79	-	85	0.050	7.39	0.40
137			-0.32	78.6	0.79	-	85	0.048	7.43	0.42
138			-0.35	78.6	0.78	-	85	0.046	7.42	0.43
139			-0.32	78.6	0.82	-	85	0.047	7.39	0.44
140	455.761	0.199	-0.37	78.7	0.79	101	85	0.047	7.33	0.42
141			-0.32	78.7	0.77	-	86	0.047	7.32	0.42
142			-0.36	78.6	0.80	-	85	0.048	7.34	0.44
143			-0.36	78.7	0.82	-	85	0.047	7.30	0.46
144			-0.35	78.6	0.76	-	85	0.046	7.28	0.47
145			-0.38	78.7	0.82	-	85	0.047	7.25	0.48
146			-0.32	78.7	0.79	-	85	0.046	7.23	0.49
147			-0.39	78.7	0.79	-	85	0.044	7.23	0.51
148			-0.34	78.7	0.78	-	85	0.044	7.28	0.53
149			-0.32	78.7	0.77	-	85	0.044	7.27	0.54
150	457.755	0.199	-0.33	78.7	0.74	100	85	0.045	7.27	0.54
151			-0.32	78.6	0.74	-	85	0.043	7.27	0.56
152			-0.32	78.7	0.75	-	85	0.044	7.27	0.56
153			-0.32	78.6	0.78	-	85	0.043	7.28	0.57
154			-0.32	78.6	0.74	-	85	0.042	7.28	0.57
155			-0.33	78.7	0.76	-	85	0.043	7.26	0.58
156			-0.32	78.7	0.78	-	85	0.043	7.25	0.58
157			-0.32	78.6	0.77	-	85	0.042	7.25	0.58
158			-0.33	78.6	0.77	-	85	0.041	7.30	0.59
159			-0.32	78.6	0.74	-	85	0.041	7.30	0.60
160	459.751	0.200	-0.32	78.63457379	0.7259524	100	85	0.042	7.31	0.60
161			-0.32	78.60830249	0.7916954	-	85	0.041	7.28	0.61
162			-0.32	78.61217979	0.7709391	-	85	0.042	7.26	0.61
163			-0.32	78.58164836	0.7470037	-	85	0.041	7.26	0.61
164			-0.32	78.59159874	0.7675019	-	85	0.042	7.21	0.61

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
165			-0.35	78.58446235	0.7660365	-	85	0.039	7.20	0.61
166			-0.32	78.58355774	0.7090342	-	85	0.038	7.19	0.62
167			-0.32	78.58164296	0.7721217	-	85	0.040	7.25	0.62
168			-0.32	78.59925258	0.7031604	-	85	0.039	7.24	0.62
169			-0.32	78.59849928	0.7562238	-	85	0.039	7.25	0.62
170	461.735	0.198	-0.31	78.60695234	0.7233413	100	85	0.039	7.25	0.61
171			-0.33	78.61940862	0.7523342	-	85	0.039	7.27	0.61
172			-0.30	78.60694551	0.7413635	-	85	0.037	7.26	0.59
173			-0.32	78.62054464	0.7372182	-	85	0.038	7.30	0.59
174			-0.32	78.61476295	0.72699	-	85	0.037	7.35	0.59
175			-0.32	78.57065302	0.7012745	-	85	0.038	7.30	0.58
176			-0.37	78.59425302	0.7340268	-	85	0.039	7.31	0.58
177			-0.36	78.59243639	0.7642146	-	85	0.039	7.31	0.58
178			-0.35	78.60486116	0.7545323	-	85	0.036	7.27	0.57
179			-0.35	78.63597982	0.7443852	-	84	0.036	7.26	0.57
180	463.731	0.200	-0.36	78.60629632	0.7538537	100	84	0.037	7.29	0.58
181			-0.34	78.61221186	0.6951622	-	84	0.037	7.07	0.59
182			-0.32	78.60024265	0.6822418	-	84	0.037	7.00	0.59
183			-0.38	78.62384444	0.694995	-	84	0.037	7.01	0.58
184			-0.35	78.61351999	0.7417544	-	84	0.038	7.02	0.57
185			-0.37	78.59204944	0.6868715	-	84	0.037	7.02	0.57
186			-0.35	78.60348215	0.7247132	-	84	0.037	6.28	0.69
187			-0.35	78.60370821	0.7562361	-	84	0.035	6.25	0.68
188			-0.32	78.60829433	0.7210744	-	84	0.036	6.24	0.67
189			-0.32	78.59606439	0.7482675	-	84	0.036	6.28	0.66
190	465.725	0.199	-0.32	78.5917286	0.6750108	100	84	0.036	6.24	0.64
191			-0.35	78.61282643	0.7114732	-	84	0.035	6.22	0.63
192			-0.38	78.60626544	0.7327114	-	84	0.035	6.29	0.64
193			-0.33	78.63764043	0.6895294	-	84	0.035	6.30	0.64
194			-0.31	78.64724312	0.7458457	-	84	0.034	6.28	0.62
195			-0.32	78.60364137	0.742974	-	84	0.035	6.34	0.62
196			-0.35	78.57952752	0.7180158	-	84	0.033	6.35	0.61
197			-0.35	78.61684016	0.7109421	-	84	0.034	6.35	0.61

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
198			-0.34	78.58967402	0.6934092	-	84	0.034	6.34	0.60
199			-0.35	78.56463857	0.7026711	-	84	0.033	6.37	0.60
200	467.723	0.200	-0.35	78.57560572	0.683036	100	84	0.035	6.40	0.60
201			-0.32	78.5585118	0.6665504	-	84	0.033	6.42	0.60
202			-0.35	78.54633412	0.72922	-	84	0.034	6.45	0.60
203			-0.32	78.57156611	0.7387548	-	84	0.032	6.46	0.60
204			-0.37	78.5602518	0.7170421	-	84	0.032	6.49	0.60
205			-0.35	78.56539062	0.665862	-	84	0.032	6.48	0.59
206			-0.32	78.54860318	0.7328122	-	84	0.033	6.36	0.61
207			-0.35	78.55190081	0.6674184	-	84	0.032	6.38	0.61
208			-0.34	78.53992537	0.7235429	-	84	0.033	6.39	0.61
209			-0.37	78.53376597	0.7001067	-	84	0.033	6.41	0.60
210	469.714	0.199	-0.37	78.53400758	0.7008271	99	84	0.032	6.41	0.60
211			-0.37	78.54909405	0.6769261	-	84	0.031	6.41	0.60
212			-0.35	78.54894643	0.6551052	-	84	0.032	6.41	0.60
213			-0.37	78.56535619	0.6685887	-	84	0.032	6.40	0.60
214			-0.35	78.57053458	0.6597423	-	84	0.033	6.45	0.61
215			-0.38	78.56364017	0.6495928	-	84	0.032	6.44	0.61
216			-0.37	78.53663503	0.6686944	-	84	0.032	6.45	0.59
217			-0.32	78.5237224	0.6588031	-	84	0.030	6.45	0.58
218			-0.35	78.52874413	0.6586949	-	84	0.032	6.45	0.58
219			-0.35	78.52155868	0.714994	-	84	0.033	6.48	0.58
220	471.705	0.199	-0.35	78.50860315	0.7095136	99	84	0.032	6.49	0.57
221			-0.35	78.5169973	0.6849513	-	84	0.031	6.50	0.57
222			-0.35	78.52388349	0.7064993	-	84	0.030	6.48	0.57
223			-0.34	78.53254339	0.7143031	-	84	0.030	6.47	0.56
224			-0.32	78.52346911	0.7030251	-	84	0.031	6.48	0.56
225			-0.33	78.54774335	0.6578491	-	84	0.029	6.46	0.56
226			-0.35	78.53121409	0.7089801	-	84	0.030	6.46	0.56
227			-0.38	78.55298826	0.6907956	-	83	0.030	6.48	0.56
228			-0.37	78.51673445	0.6466326	-	83	0.031	6.50	0.55
229			-0.37	78.52991168	0.689136	-	83	0.028	6.53	0.55
230	473.699	0.199	-0.35	78.52031112	0.6878083	99	83	0.030	6.54	0.56

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
231			-0.37	78.54473801	0.7060592	-	83	0.029	6.54	0.56
232			-0.37	78.5295995	0.7046675	-	83	0.029	6.52	0.55
233			-0.38	78.53770963	0.6582007	-	83	0.030	6.54	0.56
234			-0.32	78.53422476	0.716275	-	83	0.030	6.50	0.54
235			-0.37	78.54068667	0.7286349	-	83	0.031	6.52	0.55
236			-0.32	78.52374492	0.6580139	-	83	0.029	6.57	0.56
237			-0.35	78.5271271	0.657114	-	83	0.030	5.92	0.63
238			-0.32	78.49288592	0.6732995	-	83	0.029	5.77	0.64
239			-0.35	78.49673628	0.7282636	-	83	0.029	5.71	0.62
240	475.699	0.200	-0.32	78.48866422	0.6862495	99	83	0.029	5.68	0.61
241			-0.32	78.44759001	0.6592039	-	83	0.029	5.68	0.61
242			-0.32	78.49907794	0.7045741	-	83	0.032	5.67	0.60
243			-0.32	78.50855751	0.7230413	-	83	0.030	5.64	0.60
244			-0.32	78.47329457	0.6823524	-	83	0.030	5.66	0.60
245			-0.32	78.46212918	0.7122575	-	83	0.030	5.65	0.60
246			-0.32	78.45689322	0.6988994	-	83	0.028	5.64	0.60
247			-0.32	78.43580379	0.7123264	-	83	0.028	5.66	0.60
248			-0.32	78.4545116	0.7201843	-	83	0.027	5.64	0.59
249			-0.32	78.40672681	0.6963793	-	83	0.031	5.67	0.60
250	477.705	0.201	-0.33	78.43847365	0.7125181	100	83	0.030	5.60	0.59
251			-0.32	78.43563983	0.6595874	-	83	0.030	5.63	0.59
252			-0.32	78.45947249	0.6511467	-	83	0.029	5.59	0.59
253			-0.33	78.45107767	0.7198524	-	83	0.030	5.59	0.59
254			-0.32	78.41594116	0.6896007	-	84	0.030	5.53	0.59
255			-0.34	78.42515778	0.6550339	-	84	0.027	5.52	0.59
256			-0.32	78.44071998	0.6956712	-	84	0.030	5.51	0.59
257			-0.32	78.45187284	0.6958998	-	84	0.029	5.56	0.59
258			-0.32	78.46368118	0.6583753	-	84	0.029	5.55	0.59
259			-0.35	78.43088413	0.6507656	-	84	0.030	5.51	0.58
260	479.717	0.201	-0.32	78.42620635	0.707468	100	84	0.030	5.32	0.60
261			-0.32	78.44671964	0.6628476	-	84	0.029	5.27	0.59
262			-0.32	78.48596945	0.6264467	-	84	0.029	5.26	0.59
263			-0.35	78.4870263	0.6967678	-	84	0.029	5.26	0.59

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
264			-0.32	78.48064599	0.6524548	-	84	0.027	5.28	0.59
265			-0.32	78.43584381	0.6530252	-	84	0.030	5.26	0.58
266			-0.32	78.44449082	0.6212466	-	84	0.029	5.25	0.58
267			-0.32	78.45624691	0.677349	-	84	0.027	5.24	0.58
268			-0.32	78.44084472	0.6705384	-	84	0.027	5.22	0.58
269			-0.32	78.42141082	0.6571509	-	84	0.026	5.27	0.58
270	481.695	0.198	-0.32	78.40545735	0.6660194	98	84	0.027	5.20	0.57
271			-0.34	78.40943471	0.68503	-	84	0.027	5.27	0.58
272			-0.35	78.43961583	0.6430208	-	84	0.028	5.23	0.57
273			-0.32	78.4232131	0.6393008	-	84	0.030	5.24	0.57
274			-0.32	78.42817671	0.6300364	-	84	0.028	5.22	0.57
275			-0.32	78.41806088	0.6480586	-	84	0.025	5.22	0.57
276			-0.32	78.41005321	0.6471046	-	84	0.029	5.19	0.57
277			-0.32	78.42165993	0.713927	-	84	0.025	5.20	0.57
278			-0.32	78.41141777	0.6672807	-	84	0.029	5.17	0.56
279			-0.32	78.41371231	0.6981004	-	84	0.029	5.17	0.56
280	483.699	0.200	-0.33	78.41232786	0.6977537	99	84	0.025	5.20	0.57
281			-0.37	78.40437011	0.6407096	-	84	0.025	5.19	0.57
282			-0.35	78.43157114	0.6867314	-	84	0.026	5.20	0.57
283			-0.36	78.43897988	0.6932051	-	84	0.026	5.18	0.56
284			-0.35	78.43088358	0.6781038	-	84	0.026	5.19	0.56
285			-0.37	78.40933558	0.6937239	-	84	0.027	5.22	0.56
286			-0.32	78.42617521	0.7011442	-	84	0.026	5.20	0.56
287			-0.31	78.42473112	0.7009033	-	84	0.026	5.19	0.56
288			-0.35	78.42679239	0.6509451	-	84	0.025	5.21	0.56
289			-0.36	78.41497037	0.714136	-	84	0.024	5.19	0.56
290	485.730	0.203	-0.33	78.42777759	0.706814	101	84	0.028	5.19	0.56
291			-0.32	78.41929882	0.7091325	-	84	0.028	5.24	0.57
292			-0.37	78.42279347	0.7000673	-	84	0.027	5.24	0.57
293			-0.35	78.43746928	0.6626657	-	84	0.025	5.15	0.56
294			-0.32	78.45695079	0.6361389	-	84	0.024	5.15	0.56
295			-0.37	78.45770126	0.6373535	-	84	0.024	5.19	0.57
296			-0.37	78.43942929	0.6822369	-	84	0.023	5.18	0.57

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
297			-0.34	78.41429429	0.7027547	-	84	0.026	5.18	0.56
298			-0.35	78.4328947	0.6831687	-	84	0.026	5.18	0.56
299			-0.37	78.43629483	0.6451598	-	84	0.026	5.13	0.55
300	487.755	0.202	-0.32	78.427494	0.7140868	100	84	0.025	5.19	0.56
301			-0.34	78.4217038	0.6806215	-	84	0.026	5.17	0.55
302			-0.38	78.40352872	0.636075	-	84	0.026	5.22	0.56
303			-0.35	78.37775846	0.6835572	-	84	0.027	5.21	0.56
304			-0.37	78.39928596	0.6228447	-	84	0.028	5.21	0.56
305			-0.32	78.40174687	0.670236	-	84	0.025	5.21	0.56
306			-0.34	78.36798147	0.634585	-	84	0.027	5.20	0.55
307			-0.32	78.36513561	0.623902	-	84	0.025	5.21	0.55
308			-0.32	78.3346304	0.681519	-	84	0.024	5.23	0.55
309			-0.32	78.34039635	0.6480512	-	84	0.026	5.18	0.54
310	489.752	0.200	-0.31	78.40123872	0.6062363	99	84	0.027	5.18	0.54
311			-0.32	78.35136067	0.6219153	-	84	0.025	5.23	0.55
312			-0.31	78.35158325	0.6838695	-	84	0.026	5.22	0.54
313			-0.32	78.33330913	0.6538193	-	84	0.028	5.19	0.54
314			-0.32	78.32441359	0.6996125	-	84	0.025	5.15	0.53
315			-0.33	78.34046144	0.6424356	-	84	0.026	5.14	0.54
316			-0.33	78.32627078	0.6957966	-	84	0.025	5.15	0.53
317			-0.34	78.30032376	0.6913439	-	84	0.025	5.20	0.54
318			-0.33	78.29756196	0.6395122	-	84	0.025	5.22	0.54
319			-0.32	78.28347074	0.7052281	-	84	0.023	5.21	0.53
320	491.782	0.203	-0.32	78.27339488	0.6648834	101	84	0.025	5.21	0.53
321			-0.32	78.30694627	0.6387918	-	84	0.026	5.22	0.53
322			-0.35	78.29108426	0.6956368	-	84	0.025	5.24	0.53
323			-0.36	78.27889593	0.6464359	-	84	0.024	5.25	0.53
324			-0.31	78.28988336	0.6380935	-	84	0.023	5.22	0.53
325			-0.34	78.26878487	0.6998534	-	84	0.022	5.21	0.52
326			-0.35	78.2543536	0.7069615	-	84	0.026	5.20	0.52
327			-0.33	78.26041447	0.6693312	-	84	0.023	5.20	0.52
328			-0.34	78.23696071	0.6521646	-	84	0.026	5.20	0.51
329			-0.32	78.2368653	0.6470555	-	84	0.023	5.20	0.51

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
330	493.824	0.204	-0.32	78.22696423	0.7042643	101	84	0.025	5.22	0.51
331			-0.32	78.1965551	0.663541	-	84	0.022	5.22	0.51
332			-0.32	78.19562606	0.6674774	-	84	0.026	5.20	0.51
333			-0.35	78.19436637	0.6873043	-	84	0.026	5.23	0.51
334			-0.33	78.19923557	0.6761811	-	84	0.022	5.24	0.51
335			-0.32	78.20180444	0.6930723	-	84	0.024	5.28	0.51
336			-0.31	78.18562671	0.6574336	-	84	0.022	5.19	0.50
337			-0.32	78.18789417	0.7093833	-	84	0.024	5.21	0.50
338			-0.32	78.16659887	0.7074139	-	84	0.027	5.20	0.49
339			-0.32	78.16578061	0.7029366	-	84	0.024	5.20	0.49
340	495.862	0.204	-0.32	78.17244633	0.6443952	101	84	0.026	5.19	0.49
341			-0.31	78.13205035	0.6727537	-	84	0.024	5.20	0.50
342			-0.34	78.11036739	0.6956786	-	84	0.024	5.20	0.50
343			-0.32	78.10284989	0.7063173	-	84	0.024	5.19	0.50
344			-0.33	78.11636693	0.630624	-	84	0.026	5.20	0.49
345			-0.32	78.08412692	0.6853889	-	84	0.026	5.21	0.49
346			-0.32	78.11678145	0.7045372	-	84	0.023	5.20	0.49
347			-0.33	78.08343823	0.7063444	-	84	0.026	5.19	0.49
348			-0.32	78.08755219	0.7034923	-	84	0.022	5.17	0.49
349			-0.31	78.09621281	0.656873	-	84	0.022	5.15	0.49
350	497.904	0.204	-0.32	78.07384232	0.6522704	101	84	0.025	5.19	0.49
351			-0.32	78.06867039	0.6466695	-	84	0.026	5.19	0.49
352			-0.33	78.06875689	0.7125304	-	84	0.023	5.21	0.49
353			-0.32	78.04649003	0.6660956	-	84	0.025	5.20	0.49
354			-0.32	78.06004899	0.6440288	-	84	0.025	5.21	0.48
355			-0.32	78.05383071	0.6397482	-	84	0.025	5.25	0.48
356			-0.33	78.03543859	0.7013335	-	84	0.025	5.27	0.48
357			-0.32	78.03329023	0.7119649	-	84	0.026	5.28	0.48
358			-0.32	78.03890521	0.6648294	-	84	0.022	5.28	0.47
359			-0.33	78.03789696	0.6716522	-	84	0.023	5.28	0.47
360	499.950	0.205	-0.32	78.02463039	0.6405498	101	84	0.022	5.24	0.47
361			-0.32	78.02468919	0.65125	-	84	0.027	5.24	0.46
362			-0.32	77.98398653	0.6539669	-	84	0.026	5.25	0.46

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
363			-0.32	77.96457622	0.7032735	-	84	0.022	5.27	0.47
364			-0.32	77.95374633	0.6920299	-	84	0.025	5.27	0.48
365			-0.32	77.97262082	0.6572123	-	84	0.024	5.44	0.60
366			-0.32	77.94159818	0.7088178	-	84	0.023	5.42	0.57
367			-0.32	77.91850546	0.7116527	-	84	0.027	5.42	0.56
368			-0.32	77.91653454	0.6839481	-	84	0.025	5.36	0.54
369			-0.32	77.88742337	0.7181338	-	84	0.022	5.35	0.54
370	501.989	0.204	-0.32	77.87708313	0.6578639	101	84	0.023	5.33	0.53
371			-0.32	77.92329797	0.6436821	-	84	0.022	5.31	0.53
372			-0.32	77.91547335	0.7089457	-	84	0.024	5.28	0.52
373			-0.32	77.90384534	0.6535169	-	84	0.025	5.25	0.52
374			-0.32	77.88934655	0.6479431	-	84	0.024	5.28	0.53
375			-0.32	77.86545808	0.6619846	-	84	0.023	4.96	0.52
376			-0.32	77.86275489	0.6837121	-	84	0.025	4.88	0.52
377			-0.32	77.86461162	0.6604578	-	83	0.024	4.86	0.51
378			-0.32	77.84907655	0.6847964	-	83	0.026	4.83	0.51
379			-0.32	77.82530491	0.7123018	-	84	0.026	4.85	0.51
380	504.049	0.206	-0.32	77.81453657	0.6702631	102	84	0.025	4.83	0.51
381			-0.33	77.81670956	0.6507263	-	83	0.024	4.80	0.50
382			-0.32	77.8056471	0.69455	-	83	0.025	4.80	0.50
383			-0.32	77.80021237	0.6991969	-	83	0.022	4.77	0.50
384			-0.32	77.83844325	0.6303855	-	83	0.024	4.77	0.50
385			-0.32	77.80432823	0.653662	-	83	0.025	4.80	0.51
386			-0.32	77.78055267	0.6408842	-	83	0.026	4.77	0.51
387			-0.32	77.7656884	0.6405768	-	83	0.025	4.74	0.51
388			-0.32	77.77556203	0.6765008	-	83	0.024	4.74	0.51
389			-0.33	77.76626285	0.7020539	-	83	0.023	4.71	0.50
390	506.094	0.205	-0.32	77.76905619	0.6829327	101	83	0.025	4.71	0.51
391			-0.33	77.77985453	0.6784013	-	83	0.023	4.78	0.57
392			-0.32	77.78103091	0.6442673	-	83	0.024	4.79	0.56
393			-0.32	77.7669749	0.6980758	-	83	0.025	4.77	0.56
394			-0.32	77.78868939	0.6310174	-	83	0.023	4.77	0.55
395			-0.34	77.77303378	0.6926765	-	83	0.024	4.76	0.55

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
396			-0.32	77.77626528	0.6889909	-	83	0.025	4.75	0.54
397			-0.32	77.78487718	0.6677109	-	83	0.023	4.74	0.54
398			-0.32	77.77463539	0.6556535	-	83	0.023	4.74	0.54
399			-0.32	77.73949766	0.6843169	-	83	0.022	4.73	0.53
400	508.133	0.204	-0.33	77.73925807	0.672021	101	83	0.024	4.75	0.54
401			-0.32	77.71587002	0.6735307	-	83	0.022	4.75	0.53
402			-0.32	77.72825139	0.6982331	-	83	0.026	4.72	0.53
403			-0.32	77.74169338	0.6703467	-	83	0.025	4.69	0.53
404			-0.32	77.73747347	0.68845	-	83	0.026	4.69	0.52
405			-0.33	77.72065152	0.6824115	-	83	0.025	4.70	0.52
406			-0.31	77.71565108	0.6908497	-	83	0.023	4.70	0.52
407			-0.32	77.67804187	0.6622281	-	83	0.025	4.67	0.52
408			-0.33	77.6658339	0.6655743	-	83	0.023	4.63	0.52
409			-0.32	77.69344118	0.7037504	-	83	0.021	4.62	0.52
410	510.184	0.205	-0.32	77.64721304	0.6706884	102	83	0.022	4.62	0.51
411			-0.32	77.64923808	0.6584441	-	83	0.022	4.61	0.51
412			-0.32	77.65638525	0.6602193	-	83	0.023	4.62	0.51
413			-0.32	77.62464638	0.6406998	-	83	0.022	4.61	0.51
414			-0.33	77.62960291	0.6489708	-	83	0.024	4.62	0.51
415			-0.32	77.64453304	0.6808969	-	83	0.025	4.61	0.51
416			-0.32	77.62277373	0.7019482	-	83	0.022	4.60	0.51
417			-0.33	77.60075313	0.6389197	-	83	0.022	4.61	0.50
418			-0.32	77.58000147	0.6630714	-	83	0.023	4.61	0.50
419			-0.32	77.5595295	0.6496002	-	83	0.021	4.60	0.50
420	512.227	0.204	-0.32	77.5383589	0.6480267	101	83	0.023	4.57	0.50
421			-0.33	77.54614798	0.6621764	-	83	0.022	4.57	0.50
422			-0.32	77.53394101	0.6899572	-	83	0.022	4.58	0.50
423			-0.32	77.53001217	0.6521671	-	83	0.021	4.49	0.56
424			-0.32	77.48892888	0.699251	-	83	0.022	4.43	0.54
425			-0.33	77.48695172	0.7025309	-	83	0.025	4.45	0.54
426			-0.36	77.46490787	0.6935002	-	83	0.024	4.44	0.53
427			-0.32	77.45973879	0.713	-	83	0.023	4.42	0.52
428			-0.33	77.46673854	0.702526	-	83	0.024	4.42	0.52

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
429			-0.33	77.45651644	0.6469178	-	83	0.024	4.43	0.51
430	514.279	0.205	-0.32	77.45679421	0.6500329	102	83	0.020	4.45	0.51
431			-0.32	77.46261783	0.6534628	-	83	0.022	4.46	0.51
432			-0.32	77.44472082	0.6451524	-	83	0.023	4.44	0.51
433			-0.32	77.44571719	0.722171	-	83	0.023	4.45	0.50
434			-0.32	77.43245332	0.6977832	-	83	0.024	4.45	0.50
435			-0.32	77.42064794	0.6596735	-	83	0.025	4.44	0.50
436			-0.32	77.42164711	0.6538538	-	83	0.022	4.43	0.49
437			-0.31	77.40627928	0.6867265	-	83	0.023	4.43	0.49
438			-0.32	77.39512507	0.7012844	-	83	0.024	4.43	0.49
439			-0.32	77.37783532	0.6908792	-	83	0.024	4.42	0.49
440	516.307	0.203	-0.32	77.37303348	0.7019236	100	83	0.023	4.39	0.49
441			-0.32	77.37164601	0.7029465	-	83	0.024	4.30	0.48
442			-0.32	77.39908338	0.6398343	-	83	0.023	4.28	0.48
443			-0.32	77.38400255	0.7145416	-	83	0.024	4.28	0.48
444			-0.32	77.40512437	0.6543627	-	83	0.021	4.26	0.47
445			-0.33	77.3755218	0.6502911	-	83	0.023	4.26	0.47
446			-0.32	77.3675079	0.6919881	-	83	0.025	4.27	0.47
447			-0.33	77.34606623	0.6541045	-	83	0.022	4.28	0.47
448			-0.32	77.32489159	0.7000968	-	83	0.021	4.27	0.47
449			-0.32	77.30181785	0.6937829	-	83	0.023	4.26	0.47
450	518.343	0.204	-0.32	77.28560075	0.6458728	101	83	0.021	4.25	0.47
451			-0.32	77.26668223	0.6817329	-	83	0.022	4.25	0.47
452			-0.32	77.29242034	0.6830188	-	83	0.022	4.24	0.46
453			-0.32	77.27581838	0.6221366	-	83	0.023	4.22	0.46
454			-0.32	77.24884769	0.6786054	-	83	0.023	4.22	0.46
455			-0.32	77.24301476	0.6275458	-	83	0.023	4.21	0.46
456			-0.32	77.23709058	0.6444099	-	83	0.020	4.22	0.46
457			-0.32	77.24698346	0.6490839	-	83	0.024	4.22	0.46
458			-0.32	77.22716624	0.5972375	-	83	0.021	4.22	0.46
459			-0.32	77.2062816	0.6730414	-	83	0.023	4.22	0.46
460	520.340	0.200	-0.32	77.20745922	0.6186256	99	83	0.021	4.19	0.46
461			-0.32	77.19863904	0.6909702	-	83	0.022	4.18	0.45

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
462			-0.32	77.20251616	0.6982725	-	83	0.023	4.19	0.46
463			-0.32	77.17526564	0.6558133	-	83	0.021	4.20	0.46
464			-0.32	77.19326538	0.6693533	-	83	0.022	4.19	0.45
465			-0.32	77.1480546	0.7173421	-	83	0.021	4.22	0.45
466			-0.32	77.14728757	0.6489585	-	83	0.022	4.21	0.46
467			-0.32	77.12698462	0.7053142	-	83	0.022	4.19	0.46
468			-0.33	77.14005589	0.7280915	-	83	0.023	4.20	0.46
469			-0.33	77.15558298	0.6774769	-	83	0.023	4.20	0.46
470	522.398	0.206	-0.32	77.11225362	0.7009795	102	83	0.021	4.20	0.46
471			-0.32	77.11064078	0.7173544	-	83	0.020	4.18	0.45
472			-0.32	77.13774967	0.6492044	-	83	0.023	4.15	0.45
473			-0.32	77.10619334	0.6390598	-	83	0.022	4.14	0.45
474			-0.32	77.09379538	0.6653678	-	82	0.021	4.17	0.45
475			-0.32	77.10847189	0.5805995	-	83	0.022	4.16	0.45
476			-0.32	77.08397939	0.562356	-	82	0.022	4.15	0.45
477			-0.32	77.07914483	0.56956	-	82	0.023	3.97	0.45
478			-0.32	77.04133719	0.5824558	-	83	0.021	3.92	0.44
479			-0.32	77.0351648	0.5587491	-	82	0.022	3.92	0.44
480	524.393	0.200	-0.32	77.02312092	0.5902671	99	82	0.021	3.89	0.44
481			-0.32	76.98990467	0.695268	-	82	0.022	3.88	0.43
482			-0.31	76.98756218	0.6680527	-	82	0.020	3.86	0.43
483			-0.33	77.01094122	0.7132754	-	82	0.021	3.84	0.43
484			-0.32	77.01398129	0.679611	-	82	0.022	3.84	0.43
485			-0.34	77.0451873	0.6853103	-	82	0.020	3.80	0.43
486			-0.31	77.047718	0.7136344	-	82	0.022	3.79	0.43
487			-0.33	76.99918346	0.6657932	-	82	0.023	3.76	0.43
488			-0.32	76.98408605	0.8333038	-	82	0.019	3.75	0.42
489			-0.32	76.97322821	0.8852462	-	82	0.020	3.74	0.42
490	526.533	0.214	-0.32	77.0120207	0.8416363	106	82	0.020	3.73	0.42
Avg/Tot	97.971	0.200	-0.33	78	0.60	100	84	0.038	7.57	0.48

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
0	367	386	593	629	648	524.6	N/A
1	361	390	593	623	644	522.0	N/A
2	354	394	591	613	637	517.8	N/A
3	350	396	589	607	631	514.5	N/A
4	354	395	585	606	628	513.8	N/A
5	360	395	583	608	629	514.7	N/A
6	368	396	582	613	632	518.2	N/A
7	376	396	580	618	636	521.2	N/A
8	384	395	580	624	639	524.5	N/A
9	391	392	580	632	642	527.2	N/A
10	395	394	579	637	644	530.0	N/A
11	395	391	577	640	644	529.7	N/A
12	394	396	573	640	642	529.0	N/A
13	391	396	568	636	638	525.8	N/A
14	387	389	560	629	632	519.5	N/A
15	388	389	555	623	625	515.8	N/A
16	391	383	554	621	623	514.5	N/A
17	394	387	554	622	626	516.5	N/A
18	396	387	554	623	630	517.9	N/A
19	397	387	554	626	634	519.5	N/A
20	398	386	554	629	637	520.7	N/A
21	398	385	554	631	639	521.4	N/A
22	398	384	554	634	640	522.0	N/A
23	398	382	554	637	641	522.3	N/A
24	398	377	553	640	640	521.8	N/A
25	399	368	553	643	640	520.5	N/A
26	399	369	552	645	640	521.2	N/A
27	399	368	552	648	640	521.6	N/A
28	400	364	553	653	641	522.2	N/A
29	401	362	554	657	643	523.3	N/A
30	402	362	556	661	644	524.9	N/A
31	403	358	557	665	645	525.7	N/A
32	404	357	558	669	646	527.0	N/A
33	405	354	559	674	648	528.0	N/A
34	406	352	561	678	649	529.3	N/A
35	408	350	562	683	651	530.7	N/A
36	409	349	563	686	652	531.7	N/A
37	410	346	564	689	654	532.8	N/A
38	411	343	565	692	655	533.5	N/A
39	413	340	567	695	657	534.2	N/A
40	414	337	568	698	659	535.2	N/A
41	415	338	569	701	661	537.0	N/A
42	417	336	571	704	663	538.1	N/A
43	417	334	572	706	666	539.1	N/A
44	419	329	575	708	668	539.7	N/A
45	420	330	577	711	671	541.6	N/A
46	422	327	579	714	673	543.0	N/A
47	424	327	581	717	676	545.1	N/A
48	425	325	583	720	680	546.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
49	427	324	585	723	683	548.3	N/A
50	429	322	587	726	686	549.8	N/A
51	431	321	589	729	688	551.5	N/A
52	432	318	591	730	691	552.6	N/A
53	434	317	593	733	693	553.9	N/A
54	435	314	595	735	696	554.9	N/A
55	437	313	596	737	698	556.2	N/A
56	438	313	598	738	700	557.4	N/A
57	438	309	600	739	702	557.8	N/A
58	439	309	602	740	704	559.0	N/A
59	440	308	604	742	706	560.1	N/A
60	441	308	606	743	709	561.4	N/A
61	442	305	608	745	711	562.4	N/A
62	443	305	610	747	713	563.8	N/A
63	444	303	612	750	715	564.8	N/A
64	446	302	614	752	717	566.1	N/A
65	447	301	615	754	718	567.2	N/A
66	448	301	617	756	719	568.3	N/A
67	449	300	618	758	720	569.1	N/A
68	451	299	619	760	721	569.9	N/A
69	452	297	620	762	722	570.4	N/A
70	453	297	621	764	722	571.4	N/A
71	455	296	622	766	721	571.8	N/A
72	457	295	623	767	719	572.0	N/A
73	458	295	623	767	717	572.2	N/A
74	460	293	624	767	714	571.7	N/A
75	461	293	624	767	711	571.3	N/A
76	463	292	624	766	708	570.6	N/A
77	466	292	623	765	704	570.1	N/A
78	468	291	622	764	700	569.1	N/A
79	470	292	621	763	696	568.4	N/A
80	472	290	619	762	692	567.3	N/A
81	474	290	617	762	689	566.2	N/A
82	475	291	616	761	685	565.6	N/A
83	476	290	616	762	681	564.9	N/A
84	477	290	615	763	679	564.7	N/A
85	478	290	614	764	676	564.4	N/A
86	479	289	613	765	674	564.0	N/A
87	480	287	612	766	672	563.4	N/A
88	480	287	612	767	671	563.3	N/A
89	479	287	611	768	669	562.8	N/A
90	479	286	610	769	668	562.5	N/A
91	478	286	610	770	666	562.2	N/A
92	477	286	611	771	665	561.9	N/A
93	476	286	611	772	664	561.7	N/A
94	476	287	612	772	663	561.9	N/A
95	476	286	613	773	662	562.0	N/A
96	476	286	613	774	661	562.1	N/A
97	476	286	614	775	661	562.3	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
98	476	287	614	775	660	562.4	N/A
99	475	286	615	775	660	562.2	N/A
100	474	287	616	775	660	562.5	N/A
101	474	287	617	775	660	562.5	N/A
102	474	285	618	775	660	562.2	N/A
103	474	284	619	775	660	562.3	N/A
104	475	283	620	776	661	563.0	N/A
105	476	286	621	778	662	564.4	N/A
106	476	284	622	779	663	564.7	N/A
107	475	288	624	779	664	565.8	N/A
108	473	286	626	778	665	565.6	N/A
109	471	287	627	778	665	565.6	N/A
110	467	289	628	776	665	564.9	N/A
111	463	288	628	774	664	563.4	N/A
112	460	288	629	772	662	562.0	N/A
113	456	288	629	770	660	560.4	N/A
114	453	288	629	768	657	559.1	N/A
115	449	289	629	766	654	557.6	N/A
116	447	289	629	764	651	556.0	N/A
117	443	289	629	762	648	554.4	N/A
118	441	289	628	760	645	552.9	N/A
119	439	289	628	759	643	551.3	N/A
120	437	288	627	757	640	549.8	N/A
121	435	289	627	756	637	548.6	N/A
122	432	289	625	754	634	546.9	N/A
123	430	290	624	752	631	545.3	N/A
124	427	290	622	748	628	542.9	N/A
125	423	291	621	744	625	540.9	N/A
126	420	290	620	739	622	538.2	N/A
127	417	290	617	735	619	535.5	N/A
128	413	293	614	730	616	533.1	N/A
129	410	291	610	726	613	529.8	N/A
130	407	290	606	720	610	526.6	N/A
131	403	290	602	715	606	523.3	N/A
132	399	289	597	709	603	519.4	N/A
133	395	291	592	702	600	516.0	N/A
134	392	292	587	695	596	512.5	N/A
135	388	293	582	688	593	508.9	N/A
136	385	293	577	681	589	505.0	N/A
137	382	295	572	675	586	501.7	N/A
138	378	295	567	668	582	498.2	N/A
139	375	296	562	662	579	494.9	N/A
140	372	297	557	656	576	491.7	N/A
141	369	297	553	650	573	488.3	N/A
142	366	295	548	644	570	484.8	N/A
143	363	296	544	639	567	481.9	N/A
144	360	298	540	633	564	479.1	N/A
145	357	298	536	628	561	476.2	N/A
146	355	300	532	623	558	473.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
147	352	301	528	618	556	471.1	N/A
148	350	303	525	613	553	468.7	N/A
149	348	302	521	609	550	466.0	N/A
150	345	303	518	604	548	463.6	N/A
151	343	305	514	600	545	461.3	N/A
152	340	306	511	596	543	459.1	N/A
153	338	305	508	592	540	456.5	N/A
154	336	305	505	588	538	454.4	N/A
155	334	307	502	584	536	452.6	N/A
156	332	310	499	581	533	451.0	N/A
157	330	308	496	577	531	448.6	N/A
158	328	310	494	574	529	446.9	N/A
159	326	310	491	571	527	444.9	N/A
160	324	312	489	568	525	443.4	N/A
161	322	313	486	565	523	441.8	N/A
162	321	314	484	562	521	440.4	N/A
163	319	314	482	559	519	438.5	N/A
164	317	314	479	556	517	436.8	N/A
165	315	315	477	554	515	435.3	N/A
166	314	317	476	551	513	434.1	N/A
167	312	317	474	549	511	432.6	N/A
168	310	318	472	546	510	431.3	N/A
169	309	319	470	544	508	430.0	N/A
170	308	321	468	542	506	428.9	N/A
171	306	321	466	540	505	427.6	N/A
172	305	322	464	538	503	426.4	N/A
173	304	322	462	535	502	425.0	N/A
174	302	323	460	533	500	423.9	N/A
175	301	324	459	532	499	422.8	N/A
176	300	324	457	530	497	421.7	N/A
177	298	325	456	528	496	420.6	N/A
178	297	326	454	526	495	419.7	N/A
179	296	326	453	525	494	418.6	N/A
180	295	327	451	523	492	417.6	N/A
181	293	328	450	521	491	416.6	N/A
182	292	328	448	520	490	415.6	N/A
183	291	328	447	518	489	414.4	N/A
184	290	329	446	516	487	413.6	N/A
185	288	329	444	514	486	412.5	N/A
186	287	331	443	512	485	411.7	N/A
187	286	331	442	510	484	410.5	N/A
188	284	331	440	508	482	409.3	N/A
189	283	331	439	506	481	407.9	N/A
190	281	332	438	503	480	406.8	N/A
191	280	332	436	501	479	405.5	N/A
192	279	333	434	499	477	404.3	N/A
193	277	333	432	497	476	403.1	N/A
194	276	333	431	495	475	401.8	N/A
195	275	333	429	492	473	400.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
196	274	334	427	490	472	399.5	N/A
197	272	334	426	488	471	398.2	N/A
198	271	334	424	486	470	397.0	N/A
199	270	333	423	484	468	395.8	N/A
200	269	334	422	482	467	394.8	N/A
201	268	334	420	480	466	393.7	N/A
202	267	335	419	479	465	392.8	N/A
203	266	334	417	477	464	391.7	N/A
204	265	334	416	475	463	390.6	N/A
205	264	334	415	474	462	389.6	N/A
206	263	333	414	472	461	388.6	N/A
207	262	333	412	471	460	387.7	N/A
208	261	333	411	469	459	386.8	N/A
209	260	333	410	468	458	386.0	N/A
210	259	334	409	467	457	385.1	N/A
211	258	334	408	465	456	384.2	N/A
212	257	333	407	464	455	383.3	N/A
213	257	333	406	462	454	382.5	N/A
214	256	333	405	461	454	381.7	N/A
215	255	333	404	460	453	380.8	N/A
216	255	333	403	458	452	380.0	N/A
217	254	332	402	457	451	379.2	N/A
218	253	331	401	456	450	378.2	N/A
219	252	332	400	455	449	377.7	N/A
220	251	332	399	454	448	377.1	N/A
221	251	332	398	453	448	376.3	N/A
222	250	332	398	452	447	375.7	N/A
223	250	331	397	451	446	375.0	N/A
224	249	331	396	450	445	374.3	N/A
225	249	331	395	449	445	373.7	N/A
226	248	331	394	448	444	373.2	N/A
227	247	330	393	447	443	372.2	N/A
228	247	330	393	446	443	371.6	N/A
229	246	330	392	446	442	371.2	N/A
230	246	329	391	445	441	370.4	N/A
231	245	330	391	444	441	370.1	N/A
232	245	330	390	443	440	369.6	N/A
233	244	330	389	442	439	369.1	N/A
234	244	329	389	442	439	368.4	N/A
235	243	329	388	441	438	367.9	N/A
236	243	329	387	440	438	367.4	N/A
237	242	328	387	439	437	366.7	N/A
238	241	328	386	438	437	366.1	N/A
239	241	328	385	437	436	365.5	N/A
240	240	328	384	436	436	365.0	N/A
241	239	328	384	435	435	364.2	N/A
242	239	328	383	434	434	363.7	N/A
243	238	327	382	433	434	362.9	N/A
244	238	326	381	432	433	362.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
245	237	326	380	431	432	361.4	N/A
246	237	326	380	430	431	360.8	N/A
247	236	326	379	429	431	360.0	N/A
248	236	325	378	428	430	359.4	N/A
249	235	325	377	427	429	358.6	N/A
250	235	324	376	426	428	357.8	N/A
251	234	324	375	425	427	357.2	N/A
252	234	324	374	424	427	356.5	N/A
253	233	323	373	423	426	355.7	N/A
254	232	323	372	422	425	354.9	N/A
255	232	323	372	421	424	354.2	N/A
256	231	322	371	420	424	353.5	N/A
257	231	321	370	419	423	352.6	N/A
258	230	321	369	418	422	352.1	N/A
259	230	320	368	417	421	351.2	N/A
260	229	319	367	416	421	350.5	N/A
261	229	319	366	415	420	349.8	N/A
262	228	318	366	414	419	349.1	N/A
263	228	318	365	413	418	348.3	N/A
264	227	316	364	412	417	347.4	N/A
265	227	316	363	411	417	346.7	N/A
266	226	316	362	410	416	346.0	N/A
267	226	315	361	409	415	345.2	N/A
268	225	314	360	408	414	344.3	N/A
269	225	314	360	407	413	343.7	N/A
270	224	313	359	406	412	342.9	N/A
271	224	312	358	405	411	342.1	N/A
272	223	312	357	405	410	341.5	N/A
273	223	311	356	404	409	340.7	N/A
274	223	311	356	403	408	340.1	N/A
275	222	310	355	402	408	339.2	N/A
276	222	309	354	401	407	338.5	N/A
277	221	309	353	400	406	337.8	N/A
278	221	309	352	400	405	337.3	N/A
279	220	308	352	399	404	336.6	N/A
280	220	307	351	398	403	335.7	N/A
281	219	306	350	397	402	335.0	N/A
282	219	306	349	396	401	334.4	N/A
283	219	306	348	396	401	333.8	N/A
284	218	305	348	395	400	333.1	N/A
285	218	304	347	394	399	332.3	N/A
286	217	304	346	393	398	331.7	N/A
287	217	303	346	393	397	331.1	N/A
288	217	303	345	392	397	330.6	N/A
289	216	302	344	391	396	329.8	N/A
290	216	302	343	391	395	329.3	N/A
291	216	301	343	390	394	328.7	N/A
292	215	300	342	389	393	327.9	N/A
293	214	299	341	389	393	327.3	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
294	214	299	341	388	392	326.8	N/A
295	214	299	340	387	391	326.3	N/A
296	213	298	339	387	391	325.6	N/A
297	213	298	339	386	390	325.3	N/A
298	213	297	338	386	389	324.7	N/A
299	213	297	338	385	389	324.2	N/A
300	212	297	337	384	388	323.7	N/A
301	212	296	337	384	387	323.1	N/A
302	212	295	336	383	387	322.5	N/A
303	211	295	336	383	386	322.1	N/A
304	211	295	335	382	385	321.7	N/A
305	211	295	335	382	385	321.3	N/A
306	210	294	334	381	384	320.7	N/A
307	210	293	334	381	384	320.2	N/A
308	210	293	333	380	383	319.8	N/A
309	210	293	333	380	382	319.4	N/A
310	209	292	332	379	382	319.0	N/A
311	209	292	331	379	381	318.4	N/A
312	208	291	331	378	380	317.9	N/A
313	208	292	331	378	380	317.6	N/A
314	208	291	330	378	379	317.1	N/A
315	208	290	330	377	378	316.6	N/A
316	207	290	329	377	378	316.2	N/A
317	207	289	329	376	377	315.6	N/A
318	207	288	328	376	377	315.2	N/A
319	206	289	328	375	376	314.9	N/A
320	206	289	328	375	376	314.6	N/A
321	206	289	327	375	375	314.4	N/A
322	206	287	327	374	374	313.7	N/A
323	206	287	327	374	374	313.5	N/A
324	205	288	326	374	373	313.3	N/A
325	205	287	326	373	373	313.0	N/A
326	205	287	325	373	372	312.5	N/A
327	205	287	325	373	372	312.2	N/A
328	205	285	325	373	371	311.7	N/A
329	204	286	325	372	371	311.5	N/A
330	204	286	324	372	370	311.3	N/A
331	204	286	324	372	370	311.2	N/A
332	204	286	324	372	369	310.8	N/A
333	204	286	323	371	369	310.5	N/A
334	204	285	323	371	368	310.2	N/A
335	203	285	323	371	368	309.9	N/A
336	203	285	322	370	367	309.4	N/A
337	202	284	322	370	367	309.1	N/A
338	202	284	322	370	367	308.8	N/A
339	202	284	321	369	366	308.6	N/A
340	201	284	321	369	366	308.3	N/A
341	201	284	321	368	366	308.0	N/A
342	201	285	320	368	365	307.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
343	200	284	320	368	365	307.4	N/A
344	200	284	320	367	365	307.2	N/A
345	200	284	319	367	364	307.0	N/A
346	200	284	319	367	364	306.7	N/A
347	199	284	319	366	364	306.4	N/A
348	199	284	319	366	363	306.3	N/A
349	199	284	319	366	363	306.1	N/A
350	198	283	319	366	363	305.8	N/A
351	198	284	318	365	362	305.7	N/A
352	198	284	318	365	362	305.6	N/A
353	198	284	318	365	362	305.4	N/A
354	198	284	318	365	362	305.2	N/A
355	198	284	318	365	361	305.0	N/A
356	197	283	318	365	361	304.8	N/A
357	197	283	318	365	361	304.7	N/A
358	197	284	318	365	361	304.7	N/A
359	197	284	318	365	360	304.7	N/A
360	197	284	318	365	360	304.5	N/A
361	197	283	318	365	360	304.3	N/A
362	196	283	317	365	360	304.2	N/A
363	196	283	317	365	359	304.1	N/A
364	196	283	318	365	359	304.1	N/A
365	196	283	318	365	359	304.2	N/A
366	196	283	318	365	359	304.2	N/A
367	196	282	318	365	359	304.1	N/A
368	196	283	319	365	358	304.1	N/A
369	196	283	319	365	358	304.3	N/A
370	196	283	319	365	358	304.3	N/A
371	197	283	319	365	358	304.3	N/A
372	197	283	319	364	358	304.3	N/A
373	197	282	319	364	358	304.2	N/A
374	196	283	319	364	358	304.2	N/A
375	196	283	320	364	358	304.3	N/A
376	196	282	320	364	358	304.0	N/A
377	196	282	320	364	358	303.9	N/A
378	196	282	320	364	358	303.9	N/A
379	196	282	320	363	358	303.7	N/A
380	196	282	320	363	357	303.6	N/A
381	195	282	320	363	357	303.4	N/A
382	195	282	319	362	357	303.2	N/A
383	195	282	319	362	357	302.9	N/A
384	195	281	319	361	357	302.6	N/A
385	195	279	319	361	356	302.0	N/A
386	195	281	319	360	356	302.2	N/A
387	194	281	318	360	356	301.8	N/A
388	194	281	318	359	355	301.5	N/A
389	194	280	318	359	355	301.1	N/A
390	194	280	317	358	355	300.9	N/A
391	194	280	317	358	354	300.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
392	193	280	317	357	354	300.4	N/A
393	193	278	317	357	354	299.8	N/A
394	193	278	317	356	354	299.6	N/A
395	193	279	317	356	353	299.5	N/A
396	193	278	317	355	353	299.2	N/A
397	193	278	317	355	353	299.0	N/A
398	192	278	316	354	353	298.7	N/A
399	192	276	316	354	353	298.1	N/A
400	192	275	316	353	353	297.9	N/A
401	192	276	316	353	352	297.7	N/A
402	192	276	316	352	352	297.6	N/A
403	192	275	316	352	352	297.3	N/A
404	192	276	315	351	352	297.2	N/A
405	192	274	315	351	352	296.6	N/A
406	191	274	315	350	351	296.4	N/A
407	191	274	314	350	351	296.1	N/A
408	191	274	314	349	351	295.9	N/A
409	191	274	314	349	351	295.6	N/A
410	191	273	313	349	350	295.1	N/A
411	190	272	313	348	350	294.8	N/A
412	190	272	313	348	350	294.6	N/A
413	190	271	313	347	350	294.1	N/A
414	190	272	312	347	349	294.0	N/A
415	190	272	312	346	349	293.8	N/A
416	190	272	312	346	349	293.5	N/A
417	190	271	311	345	348	293.0	N/A
418	189	271	311	345	348	292.8	N/A
419	189	271	311	344	348	292.5	N/A
420	189	270	311	344	347	292.1	N/A
421	189	269	310	343	347	291.7	N/A
422	188	269	310	343	347	291.4	N/A
423	188	269	310	343	347	291.2	N/A
424	188	269	309	342	346	290.9	N/A
425	188	267	309	342	346	290.4	N/A
426	188	268	309	341	346	290.4	N/A
427	188	268	308	341	345	290.0	N/A
428	187	268	308	340	345	289.7	N/A
429	187	267	308	340	345	289.4	N/A
430	187	267	308	339	345	289.2	N/A
431	187	266	307	339	345	288.8	N/A
432	187	266	307	338	344	288.5	N/A
433	187	266	307	338	344	288.1	N/A
434	187	265	306	337	344	287.8	N/A
435	186	265	306	337	343	287.6	N/A
436	186	265	306	336	343	287.2	N/A
437	186	265	306	336	343	287.1	N/A
438	186	265	305	336	342	286.7	N/A
439	186	265	305	335	342	286.5	N/A
440	186	264	304	335	341	286.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
441	185	264	304	334	341	285.7	N/A
442	185	263	304	334	341	285.3	N/A
443	185	263	303	333	340	285.1	N/A
444	185	263	303	333	340	284.7	N/A
445	185	263	303	332	339	284.5	N/A
446	185	263	303	332	339	284.1	N/A
447	184	262	302	332	338	283.7	N/A
448	184	262	302	331	338	283.4	N/A
449	184	262	302	331	337	283.1	N/A
450	184	262	301	330	337	282.8	N/A
451	183	263	301	330	336	282.6	N/A
452	183	263	300	330	336	282.3	N/A
453	183	263	300	329	335	282.0	N/A
454	183	263	299	329	334	281.7	N/A
455	183	262	299	328	334	281.2	N/A
456	183	261	299	328	333	280.8	N/A
457	182	262	298	327	333	280.4	N/A
458	182	262	298	327	332	280.1	N/A
459	182	261	297	327	332	279.6	N/A
460	182	261	297	326	331	279.5	N/A
461	182	261	296	326	331	279.1	N/A
462	182	260	296	325	330	278.6	N/A
463	181	261	296	325	329	278.4	N/A
464	181	261	295	324	329	278.2	N/A
465	181	261	295	324	328	277.8	N/A
466	181	261	295	324	328	277.5	N/A
467	181	260	294	323	327	277.1	N/A
468	180	260	294	323	327	276.8	N/A
469	180	261	294	322	326	276.6	N/A
470	180	260	293	322	326	276.3	N/A
471	180	260	293	322	325	276.0	N/A
472	180	260	293	321	325	275.8	N/A
473	180	260	292	321	324	275.3	N/A
474	179	259	292	320	324	274.9	N/A
475	179	259	292	320	323	274.7	N/A
476	179	259	291	320	323	274.4	N/A
477	179	259	291	319	323	274.2	N/A
478	178	260	290	319	322	273.9	N/A
479	178	259	290	319	322	273.4	N/A
480	178	259	289	318	321	273.2	N/A
481	178	259	289	318	321	272.8	N/A
482	178	259	288	317	320	272.4	N/A
483	177	259	288	317	320	272.0	N/A
484	177	258	287	316	319	271.6	N/A
485	177	258	286	316	319	271.2	N/A
486	177	259	286	316	318	271.0	N/A
487	177	259	285	315	318	270.6	N/A
488	176	259	285	314	317	270.3	N/A
489	176	259	284	314	317	269.9	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
490	176	259	284	313	316	269.5	N/A
Average	284	303	427	496	475	397	N/A

LAB SAMPLE DATA - ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	H112	187.5	190.2	2.7
	B	H113	187.9	190.7	2.8
	C - 1st Hour	H114	188.1	191.0	2.9
	Amb	H115	188.5	188.5	0.0
Probes	**A**	7A	116558.4	116558.3	0.0*
	B	7B	117128.0	117128.1	0.1
	C - 1st Hour	7C	116550.5	116550.7	0.2
O-rings	**A**	7A	3573.1	3573.3	0.2
	B	7B	3523.7	3523.8	0.1
	C - 1st Hour	7C	3408.0	3408.0	0.0

**Negative value corrected to zero*

Placed in Dessicator on:	6/13 - 8:30

Filters	**A**	190.1	6/7 21:42	190.2	6/15 12:08	190.2	6/16 9:01		
	B	190.8	6/7 21:42	190.7	6/15 12:08	190.7	6/16 9:01		
	C - 1st Hour	191.0	6/7 21:42	190.9	6/15 12:08	191.0	6/16 9:01		
	Amb	188.5	6/7 21:42	188.5	6/15 12:09	188.5	6/16 9:01		
Probes	**A**			116558.4	6/15 12:09	116558.3	6/16 9:02		
	B			117128.2	6/15 12:09	117128.1	6/16 9:02		
	C - 1st Hour			116550.8	6/15 12:09	116550.7	6/16 9:02		
O-Rings	**A**			3573.5	6/15 12:09	3573.3	6/16 9:02		
	B			3524.0	6/15 12:09	3523.8	6/16 9:02		
	C - 1st Hour			3408.1	6/15 12:09	3408.0	6/16 9:03		

Train A Aggregate, mg:	**2.9**
Train B Aggregate, mg:	**3.0**
Train C Aggregate, mg:	**3.1**
Ambient Aggregate, mg:	**0.0**

ASTM E3053 Wood Heater Run Sheets

Client: SBI | Job Number: 22-790 | Tracking #: 122
Model: Bistro | Run Number: 3&4 | Test Date: 6/7/2022

Wood Heater Run Notes

High Fire Test Notes
Test Burn Start Time: 9:59
Air Control Setting: Fully Open

Time	Notes
0 min	Ignited newspaper on top of kindling, for 20 seconds, left door ajar 90 degrees, air fully open, fan off
1.5 min	Closed door
44 min	@ 2.4 lbs remaining, leveled coal bed and loaded fuel, door open for 1 minute then closed, fan on high immediately after closing.
72 min	Had to change gas sampling system filter, analyzer off-line for ~2 minutes
160 min	End of Test @4.4 lbs (2 lbs of remaining HF load + 2.4lbs coal bed)

Test Burn End Time: 12:39

Low/Medium Fire Test Notes
Test Burn Start Time: 13:10
Air Control Setting: Low Air Setting – Fully Closed

Time	Notes
0 min	@ 3.4 lbs, turned off fan, leveled remaining coal bed, loaded low fire test load, air on high, door open left open.
3 min	Closed door
5 min	Closed air down to approximately halfway between high and low setting
7 min	Closed by half again
8 min	Closed by half again
9 min	Set air to test setting, fan on high
11 min	Flame went out, opened air back up to high setting to recover.
15 min	Air turned back to low setting
490 min	End of Test

Test Burn End Time: 21:20

Flue Gas Concentration Measurement

Calibration Gas Values: Span Gas CO_2 (%): 18.00 CO (%): 1.973
Mid Gas CO_2 (%): 8.16 CO (%): -

Calibration Results:

	Pre Test			Post Test		
	Zero	Mid	Span	Zero	Mid	Span
Time	8:30	8:40	8:36	6/8 – 10:20	6/8 - 10:25	6/8 – 10:27
CO_2	0.03	8.19	17.96	0.07	7.99	17.88
CO	0.000	-	1.967	0.004	-	1.968

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

Technician Signature: Date: 6/8/2022

ASTM E3053 Wood Heater Run Sheets

Client: SBI | Job Number: 22-790 | Tracking #: 122
Model: Bistro | Run Number: 3&4 | Test Date: 6/7/2022

Test Photos

Kindling Fuel Load

Start-up Fuel Load

Kindling & Start-up Loaded in Stove

High Fire Fuel Load

Technician Signature: _____ Date: 6/8/2022

ASTM E3053 Wood Heater Run Sheets

Client: SBI Job Number: 22-790 Tracking #: 122
Model: Bistro Run Number: 3&4 Test Date: 6/7/2022

Residual Start-up Fuel Coal Bed – Pre Rake

Residual Start-up Fuel Coal Bed – Post Rake

High Fire Fuel Loaded

Air Setting – High Fire

Technician Signature: _____ Date: 6/8/2022

ASTM E3053 Wood Heater Run Sheets

Client: SBI Job Number: 22-790 Tracking #: 122
Model: Bistro Run Number: 3&4 Test Date: 6/7/2022

Residual High Fire Load Coal Bed – Pre Rake

Residual High Fire Load Coal Bed – Post Rake

Low Fire Fuel Load

Low Fire Fuel Loaded

Technician Signature: _____ Date: 6/8/2022

ASTM E3053 Wood Heater Run Sheets

Client: SBI Job Number: 22-790 Tracking #: 122
Model: Bistro Run Number: 3&4 Test Date: 6/7/2022

Low Fire Air Setting

Technician Signature: Date: 6/8/2022

Sample Calculations – ASTM E3053 & E2515

Client: SBI
Model: Bistro
Run: 1

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

M_{Fldb} – Weight of test fuel load, dry basis, lb (kg)

M_{SUdb} – Weight of start-up fuel, dry basis, lb (kg)

M_{Kdb} - Weight of kindling, dry basis, lb (kg)

M_{FREHdb} - Total weight of all remaining fuel at end of high fire test run, lb (kg)

M_{TFBHdb} - Total weight of all fuel burned during high fire test run, lb (kg), dry basis

BR_H – Dry burn rate for high fire test run, from time when test fuel load is added to end of test run, lb/h (kg/h)

M_{TFBdb} - Total weight of fuel burned during low or medium fire test run, lb (kg), dry basis

BR - Dry burn rate for low and medium fire test runs, lb/h (kg/h)

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_{RH} - Particulate emission rate for high fire test run, g/hr

PM_{FH} - Particulate emission factor for high fire test run, g/dry kg of fuel burned

PM_R – Particulate emission rate for low or medium fire test run, g/hr

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

M_{Fldb} – Weight of test fuel load, dry basis, lb (kg)
ASTM E3053 equation (1)

$$M_{Fldb} = \Sigma((M_{FLnwb})(100/(100 + MC_{FLn})))$$

Where,

M_{FLnwb} = Weight of each test fuel piece, n, in test fuel load per 8.4.1, wet basis, lb (kg)
MC_{FLn} = Average fuel moisture of test fuel piece, n, in test fuel load, % dry basis
n = individual test fuel pieces that comprise the test fuel load, as applicable.

Sample Calculation:

n	M_{FLnwb}	MC_{FLn}	$(M_{FLnwb})(100/(100 + MC_{FLn}))$		
1	3.98	21.2	3.98 (100) / (100+ 21.2)) =	3.28	
2	4.03	20.0	4.03 (100) / (100+ 20)) =	3.36	
3	3.49	19.3	3.49 (100) / (100+ 19.3)) =	2.92	
4	2.53	21.5	2.53 (100) / (100+ 21.5)) =	2.08	
5	5.08	19.0	5.08 (100) / (100+ 19)) =	4.27	
6	0.00	NA	N/A	-	
7	N/A	N/A	N/A	-	
			SUM	15.92	lbs

M_{Fldb} = **15.92** lbs
M_{Fldb} = **7.22** kg

M_{SUdb} – Weight of start-up fuel, dry basis, lb (kg)
ASTM E3053 equation (2)

$$M_{SUdb} = (M_{SUwb})(100/(100 + MC_{SU}))$$

Where,

M_{SUwb} = Total weight of start-up fuel pieces, wet basis, lb (kg)

MC_{SU} = Average fuel moisture of the piece(s) from which start-up fuel was split, % dry basis

Sample Calculation:

M_{SUwb} = 5.47

MC_{SU} = 22.6

M_{SUdb} = 5.5 (100/(100+ 22.6)

M_{SUdb} = **4.46** lbs

= **2.02** kg

M_{Kdb} - Weight of kindling, dry basis, lb (kg)
ASTM E3053 equation (3)

$$M_{Kdb} = (M_{Kwb})(100/(100 + MC_K))$$

Where,

M_{Kwb} = Weight of kindling per 8.5.6, wet basis, lb (kg);

MC_K = Average moisture of kindling (may be assumed 10%), % dry basis.

Sample calculation:

M_{Kwb} = 3.66

MC_K = 10.0

M_{Kdb} = 3.66 (100/(100+ 10.0)

M_{Kdb} = **3.33** lbs

= **1.51** kgs

M_{FREHdb} - Total weight of all remaining fuel at end of high fire test run, lb (kg)
ASTM E3053 equation (4)

$$M_{FREHdb} = M_{RSUBdb} + M_{FLEHdb}$$

Where,

M_{RSUBdb} = Weight of residual start-up fuel bed when high fire test load added, lb (kg)

M_{FLEHdb} = Weight of unburned portion of test fuel load at the end of the high fire test run, lb (kg)

Sample calculation:

M_{RSUBdb} = 2.4

M_{FLEHdb} = 2

M_{FREHdb} = 2.40 + 2

M_{FREHdb} = **4.40** lbs

= **2.00** kg

M_{TFBHdb} - Total weight of all fuel burned during high fire test run, lb (kg), dry basis

ASTM E3053 equation (5)

$$M_{TFBHdb} = M_{Kdb} + M_{SUdb} + M_{FLdb} - M_{FREHdb}$$

Sample Calculation:

M_{Kdb} = 3.33

M_{SUdb} = 4.46

M_{FLdb} = 15.92

M_{FREHdb} = 4.40

M_{TFBHdb} = 3.33 + 4.46 + 15.92 - 4.40

= **19.31** lbs

= **8.76** kg

BR_H – Dry burn rate for high fire test run, from time when test fuel load is added to end of test run, lb/h (kg/h)

ASTM E3053 equation (6)

$$BR_H = 60 (M_{FLdb} - M_{FLEHdb})/\theta_{H1}$$

Where,

θ_{H1} = Total duration of high fire test run, from time when test fuel load is added to end of test run, min.

Sample calculation:

M_{FLdb} = 15.92

M_{FLEHdb} = 2.00

θ_{H1} = 104

$$BR_H = \frac{60 (15.92 - 2.00)}{104}$$

BR_H = **8.03** lb/hr

= **3.64** kg/hr

M_{TFBdb} - Total weight of fuel burned during low or medium fire test run, lb (kg), dry basis
ASTM E3053 equation (7)

$$M_{TFBdb} = M_{FLdb} - M_{FREdb}$$

Where,

M_{FLdb} = Total weight of fuel burned during low or medium fire test run, lb (kg), dry basis

M_{FREdb} = Weight of remaining fuel at end of low or medium fire test run, lb (kg)

Sample Calculation:

M_{FLdb} = N/A - Applicable to Low/Medium Fire Tests Only

M_{FREdb} = N/A - Applicable to Low/Medium Fire Tests Only

M_{TFBdb} = N/A - N/A

= **N/A** lbs

= **N/A** kg

BR - Dry burn rate for low and medium fire test runs, lb/h (kg/h)
ASTM E3053 equation (8)

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

Where,

θ = Total test run duration for low or medium fire test run, min.

Sample Calculation:

M_{TFBdb} = N/A - Applicable to Low/Medium Fire Tests Only
θ = N/A - Applicable to Low/Medium Fire Tests Only

$$BR = \frac{60 \text{ x } \text{N/A}}{\text{N/A}}$$

BR = **N/A** lb/hr
= **N/A** kg/hr

V_s – Average gas velocity in the dilution tunnel, ft/sec
ASTM E2515 equation (9)

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

Where:

F_p	=	Adjustment factor for pitot tube center point reading = $\frac{V_{strav}}{V_{scent}}$, ASTM E2515 Equation (1)
v_{scent}	=	Dilution tunnel velocity calculated after the multi-point pitot traverse at the center, ft/sec
v_{strav}	=	Dilution tunnel velocity calculated after the multi-point pitot traverse, ft/sec
k_p	=	Pitot tube constant, 85.49
C_p	=	Pitot tube coefficient: 0.99, unitless
ΔP*	=	Velocity pressure in the dilution tunnel, in H_2O
T_s	=	Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_s	=	Absolute average gas static pressure in dilution tunnel, = P_{bar} + P_g , in Hg
P_{bar}	=	Barometric pressure at test site, in. Hg
P_g	=	Static pressure of tunnel, in. H_20; (in Hg = in H_20/13.6)
M_s	=	**The dilution tunnel wet molecular weight; M_s = 28.78 assuming a dry weight of 29 lb/lb-mole

Sample calculation:

$$Fp = \frac{28.37}{30.34} = 0.935$$

$$V_s = 0.935 \times 85.49 \times 0.99 \times 0.442 \times \left(\frac{95.0 + 460}{\left(30.03 + \frac{-0.42}{13.6}\right) \times 28.78} \right)^{1/2}$$

V_s = **28.05** ft/s

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

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

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

ASTM E2515 equation (3)

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

Where:

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

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.02) \times 28.05 \times 0.3491 \times \frac{528}{95.0 + 460} \times \frac{30.03 + \frac{-0.42}{13.6}}{29.92}$$

Q_{sd} = **32953.3** dscf/hr

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

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

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Using equation for Train 1:

$V_{m(std)}$ = 17.64 x 28.370 x 1.022 x $\dfrac{\left(30.03 + \frac{-0.33}{13.6}\right)}{(77.9 + 460)}$

$V_{m(std)}$ = **28.533** dscf

Using equation for Train 2:

$V_{m(std)}$ = 17.64 x 28.675 x 1.025 x $\dfrac{\left(30.03 + \frac{-0.32}{13.6}\right)}{(76.9 + 460)}$

$V_{m(std)}$ = **28.977** dscf

Using equation for ambient train:

$V_{m(std)}$ = 17.64 x 18.97 x 0.988 x $\dfrac{\left(\underline{30.03} + \frac{0.00}{13.6}\right)}{(79.7 + 460)}$

$V_{m(std)}$ = **18.395** 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 + 2.4 + 0.0

m_n = 2.6 mg

Using equation for Train B:

m_n = 0 + 2.5 + 0.2

m_n = **2.7** mg

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

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

Where:

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

Sample calculation:

For Train 1:

$$C_s = 0.001 \times \frac{2.6}{28.53}$$

C_s = **0.00009** g/dscf

For Train 2

$$C_s = 0.001 \times \frac{2.7}{28.98}$$

C_s = **0.00009** g/dscf

For Ambient Train

$$C_r = 0.001 \times \frac{0.0}{18.40}$$

C_r = **0.000000** 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 = (0.000091 - 0.000000) x 32953.3 x 159 /60

E_T = **7.96** g

For Train B

E_T = (0.000093 - 0.000000) x 32953.3 x 159 /60

E_T = **8.14** g

Average

E = **8.05** g

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

7.5% of the average =	0.60
Train 1 difference =	0.09
Train 2 difference =	0.09

PR - Proportional Rate Variation

ASTM E2515 equation (16)

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

Where:

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

Sample calculation (for the first 10 minute interval of Train A):

$$PR = \left(\frac{159 \times 1.786 \times 28.05 \times (79.9 + 460) \times (77.9 + 460)}{10 \times 28.37 \times 28.14 \times (95.0 + 460) \times (76.2 + 460)} \right) \times 100$$

PR = **97** %

PM_{RH} - Particulate emission rate for high fire test run, g/hr;
ASTM E3053 equation (9)

$$PM_{RH} = 60(E_{TH}/\theta_{H2})$$

Where,

E_{TH} = Total particulate emissions for high fire test run including kindling and start-up, g

θ_{H2} = Total duration of high fire test run, from ignition of kindling to end of test run, min.

Sample Calculation:

E_{TH} = 8.05

θ_{H2} = 159

PM_{RH} = 60(8.05 / 159)

PM_{RH} = **3.04** g/hr

PM_{FH} - Particulate emission factor for high fire test run, g/dry kg of fuel burned.

ASTM E3053 equation (10)

$$PM_{FH} = E_{TH}/M_{TFBHdb}$$

Sample Calculation:

E_{TH} = 8.05

M_{TFBHdb} = 8.76

PM_{FH} = 8.05 / 8.76

= **0.92** g/kg

PM_R - Particulate emission rate for low or medium fire test runs, g/hr
ASTM E3053 equation (12)

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

Where,

E_T = Total particulate emissions for low or medium fire test runs from Test Method E2515, g

Sample Calculation:

E_T = N/A - Applicable to Low/Medium Fire Tests Only
θ = N/A - Applicable to Low/Medium Fire Tests Only

PM_R = 60(N/A / N/A)

PM_{RH} = **N/A** g/hr

PM_{FH} - Particulate emission factor for high fire test run, g/dry kg of fuel burned.

ASTM E3053 equation (13)

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

Sample Calculation:

E_T = N/A - Applicable to Low/Medium Fire Tests Only
M_{TFBdb} = N/A - Applicable to Low/Medium Fire Tests Only

PM_{FH} = N/A / N/A
= **N/A** g/kg

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

Manufacturer: SBI
Model: Bistro
Date: 06/06/22
Run: 1
Control #: 22-790
Test Duration: 104 min

	HHV	LHV
Eff	75.19%	80.55%
Comb Eff	98.75%	98.75%
HT Eff	76.14%	81.57%
Output	52,910	kJ/h
Burn Rate	3.74	kg/h
Grams CO	123	g
Input	70,366	kJ/h
MC wet	16.71	

Note: In the "Input data", "Calc. % O_2", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a]. [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

Ultimate CO_2
$CO_{2\text{-ult}}$ 20.77
F_0 1.005

Overall Heating Efficiency: 75.19%
Combustion Efficiency: 98.75%
Heat Transfer Efficiency: 76.14%

Air Fuel Ratio (A/F)	
Dry Molecular Weight (M_d)	30.27
Dry Moles Exhaust Gas (N_d):	348.03
Air Fuel Ratio (A/F)	10.03

%HC 1.32

Heat Output: 50,191 Btu/h 52,910 kJ/h
Heat Input: 66,750 Btu/h 70,366 kJ/h
Burn Duration: 1.73 h
Burn Rate: 8.25 lb/h 3.743 kg/h
Stack Temp: 486.2 Deg. F 252.3 Deg. C

Averages	**0.18**	**12.03**	**0.82**	**20.84**	**8.72**	**252.22**	**27.51**	**98.9%**	**75.8%**	**75.0%**	**10.30**	**3.63**	**53.42**	**3.12**	**51.97**	**122155**	**4.06**
INPUT DATA			**Oxygen Calculation**			**Input Data**											
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)**	**Combust Eff %**	**Heat Transfer %**	**Net Eff %**	**Air Fuel Ratio**	**Wet Wt Now Wt**	**% Wet Consumed x**	**Dry Wt. Now Wt_{dn}**	**% Dry Comsumed y**	**Total Input**	**Carbon /12= [a]**
0	7.79	0.13	8.77	133.4%	20.87	12.03	239.3	27.6	99.1%	73.0%	72.4%	13.2	7.79	0.00	6.49	0.00	0	4.06
1	7.63	0.14	6.11	232.3%	20.89	14.71	224.4	27.8	98.7%	68.2%	67.3%	18.8	7.63	2.02	6.36	2.02	2954	4.06
2	7.57	0.17	7.29	178.5%	20.88	13.51	217.0	27.9	98.5%	72.2%	71.1%	15.8	7.57	2.83	6.30	2.83	1037	4.06
3	7.50	0.12	8.59	138.4%	20.87	12.22	216.4	27.9	99.2%	74.7%	74.1%	13.5	7.50	3.72	6.25	3.72	1112	4.06
4	7.43	0.16	8.76	132.9%	20.87	12.03	216.2	27.7	98.8%	75.0%	74.1%	13.2	7.43	4.65	6.19	4.65	1309	4.06
5	7.33	0.14	10.13	102.3%	20.86	10.66	226.6	27.8	99.1%	76.1%	75.4%	11.5	7.33	5.87	6.11	5.87	1591	4.06
6	7.22	0.07	13.39	54.3%	20.83	7.41	231.2	27.7	99.7%	78.8%	78.6%	8.8	7.22	7.26	6.02	7.26	1452	4.06
7	7.15	0.05	11.96	72.9%	20.84	8.86	234.9	26.7	99.8%	77.4%	77.3%	9.8	7.15	8.25	5.95	8.25	1156	4.06
8	7.08	0.06	11.31	82.8%	20.85	9.51	236.3	26.4	99.8%	76.6%	76.5%	10.4	7.08	9.15	5.89	9.15	1131	4.06
9	7.00	0.06	11.11	86.1%	20.85	9.71	237.0	25.7	99.8%	76.3%	76.2%	10.6	7.00	10.10	5.83	10.10	1124	4.06
10	6.93	0.06	10.76	92.1%	20.85	10.07	237.0	25.9	99.8%	76.0%	75.8%	10.9	6.93	11.00	5.77	11.00	1098	4.06
11	6.86	0.05	10.50	96.8%	20.86	10.33	236.4	26.2	99.8%	75.7%	75.6%	11.2	6.86	11.90	5.72	11.90	1140	4.06
12	6.79	0.06	10.14	103.6%	20.86	10.69	236.2	26.2	99.8%	75.3%	75.1%	11.6	6.79	12.87	5.65	12.87	1114	4.06
13	6.72	0.06	10.02	106.1%	20.86	10.81	235.8	26.2	99.8%	75.1%	75.0%	11.7	6.72	13.73	5.60	13.73	1008	4.06
14	6.66	0.06	9.82	110.2%	20.86	11.01	235.7	25.8	99.8%	74.9%	74.7%	11.9	6.66	14.52	5.55	14.52	1011	4.06
15	6.59	0.07	9.63	114.1%	20.86	11.20	235.2	26.1	99.7%	74.6%	74.4%	12.2	6.59	15.39	5.49	15.39	1041	4.06
16	6.53	0.08	9.50	116.8%	20.86	11.32	234.8	26.2	99.6%	74.5%	74.2%	12.3	6.53	16.22	5.44	16.22	1047	4.06
17	6.46	0.09	9.36	119.9%	20.86	11.46	233.6	25.9	99.5%	74.4%	74.0%	12.5	6.46	17.10	5.38	17.10	1042	4.06
18	6.39	0.10	9.15	124.6%	20.87	11.67	233.1	26.0	99.4%	74.1%	73.6%	12.7	6.39	17.93	5.32	17.93	973	4.06
19	6.33	0.12	8.90	130.2%	20.87	11.91	232.4	26.2	99.2%	73.7%	73.1%	13.1	6.33	18.70	5.27	18.70	945	4.06
20	6.27	0.15	8.70	134.7%	20.87	12.09	230.5	26.5	98.9%	73.6%	72.8%	13.3	6.27	19.48	5.22	19.48	985	4.06
21	6.21	0.20	8.41	141.2%	20.87	12.36	228.9	26.9	98.3%	73.2%	72.0%	13.7	6.21	20.31	5.17	20.31	1008	4.06
22	6.14	0.28	8.17	145.9%	20.87	12.56	226.7	27.0	97.6%	73.0%	71.2%	13.9	6.14	21.14	5.12	21.14	962	4.06
23	6.08	0.35	7.95	150.4%	20.87	12.75	224.7	27.1	96.8%	72.7%	70.4%	14.1	6.08	21.89	5.07	21.89	939	4.06
24	6.02	0.36	8.02	147.8%	20.87	12.67	222.9	27.2	96.7%	73.0%	70.6%	14.0	6.02	22.68	5.02	22.68	915	4.06
25	5.97	0.36	8.05	147.1%	20.87	12.64	223.0	27.1	96.7%	73.0%	70.6%	13.9	5.97	23.39	4.97	23.39	875	4.06
26	5.91	0.45	7.91	148.6%	20.87	12.74	221.5	27.8	95.8%	72.9%	69.9%	14.0	5.91	24.11	4.92	24.11	911	4.06
27	5.85	0.46	7.81	151.2%	20.87	12.83	220.8	28.2	95.6%	72.8%	69.6%	14.1	5.85	24.88	4.87	24.88	955	4.06
28	5.79	0.44	8.01	145.9%	20.87	12.64	220.0	28.4	95.9%	73.3%	70.3%	13.8	5.79	25.68	4.82	25.68	1005	4.06
29	5.72	0.40	8.38	136.7%	20.87	12.29	218.6	28.6	96.5%	74.2%	71.5%	13.3	5.72	26.53	4.77	26.53	1056	4.06
30	5.65	0.36	8.64	130.8%	20.87	12.05	218.1	28.8	96.9%	74.6%	72.3%	13.0	5.65	27.41	4.71	27.41	1027	4.06
31	5.59	0.33	8.92	124.7%	20.87	11.78	218.3	28.8	97.3%	75.1%	73.0%	12.7	5.59	28.22	4.66	28.22	990	4.06
32	5.53	0.32	9.04	121.9%	20.87	11.66	218.4	28.8	97.3%	75.2%	73.2%	12.5	5.53	29.03	4.60	29.03	1028	4.06
33	5.46	0.33	9.03	121.9%	20.87	11.67	218.9	29.0	97.2%	75.2%	73.1%	12.5	5.46	29.90	4.55	29.90	1094	4.06
34	5.39	0.32	9.23	117.5%	20.86	11.47	220.4	28.9	97.4%	75.4%	73.4%	12.3	5.39	30.83	4.49	30.83	1091	4.06
35	5.32	0.29	9.59	110.3%	20.86	11.13	223.2	29.2	97.8%	75.7%	74.0%	11.9	5.32	31.69	4.43	31.69	1110	4.06
36	5.25	0.25	10.18	99.3%	20.86	10.55	225.8	29.5	98.2%	76.3%	74.9%	11.3	5.25	32.65	4.37	32.65	1207	4.06
37	5.17	0.24	10.41	95.1%	20.86	10.33	227.7	29.6	98.3%	76.4%	75.1%	11.0	5.17	33.67	4.30	33.67	1209	4.06
38	5.09	0.20	10.45	95.0%	20.86	10.30	229.8	29.6	98.6%	76.3%	75.3%	11.0	5.09	34.63	4.24	34.63	1207	4.06
39	5.01	0.18	10.65	91.9%	20.85	10.12	231.7	29.8	98.8%	76.4%	75.5%	10.9	5.01	35.65	4.17	35.65	1294	4.06
40	4.93	0.13	11.07	85.5%	20.85	9.72	235.8	29.0	99.2%	76.6%	76.0%	10.5	4.93	36.75	4.10	36.75	1263	4.06
41	4.85	0.09	11.39	80.9%	20.85	9.41	242.7	28.1	99.5%	76.4%	76.0%	10.3	4.85	37.72	4.04	37.72	1243	4.06
42	4.77	0.08	12.24	68.7%	20.84	8.56	247.7	28.7	99.7%	76.9%	76.7%	9.6	4.77	38.79	3.97	38.79	1358	4.06
43	4.68	0.11	12.89	59.8%	20.84	7.89	251.7	28.8	99.4%	77.3%	76.8%	9.1	4.68	39.95	3.90	39.95	-1508	4.06
44	4.58	0.16	13.51	52.0%	20.83	7.24	255.3	28.6	99.2%	77.5%	76.9%	8.6	4.58	41.18	4.13	36.32	-1421	4.06
45	4.48	0.25	14.12	44.6%	20.83	6.58	259.1	28.4	98.6%	77.7%	76.7%	8.2	4.48	42.48	4.05	37.62	1685	4.06
46	4.37	0.26	14.82	37.8%	20.82	5.87	263.1	27.9	98.6%	78.0%	76.9%	7.8	4.37	43.94	3.95	39.08	1879	4.06
47	4.24	0.32	15.16	34.2%	20.82	5.50	266.6	27.9	98.3%	78.0%	76.7%	7.6	4.24	45.55	3.85	40.70	1822	4.06
48	4.14	0.41	15.82	28.0%	20.81	4.79	270.8	28.5	97.9%	78.2%	76.6%	7.2	4.14	46.90	3.76	42.07	1689	4.06
49	4.03	0.39	16.32	24.4%	20.81	4.29	275.4	28.7	98.1%	78.3%	76.8%	7.0	4.03	48.28	3.67	43.47	1850	4.06
50	3.90	0.45	16.88	19.9%	20.80	3.70	278.5	28.2	97.8%	78.4%	76.7%	6.8	3.90	49.87	3.56	45.10	1927	4.06
51	3.79	0.64	17.28	15.9%	20.80	3.20	282.2	27.8	96.9%	78.4%	76.0%	6.5	3.79	51.35	3.46	46.63	1907	4.06
52	3.67	0.60	17.50	14.8%	20.80	3.00	285.1	27.6	97.2%	78.4%	76.2%	6.5	3.67	52.90	3.36	48.23	1902	4.06
53	3.55	0.60	17.63	14.0%	20.79	2.87	287.4	27.3	97.2%	78.3%	76.1%	6.4	3.55	54.36	3.26	49.75	1928	4.06
54	3.43	0.60	17.79	13.0%	20.79	2.70	288.8	27.3	97.2%	78.4%	76.2%	6.4	3.43	55.93	3.15	51.39	2007	4.06
55	3.31	0.79	17.79	11.8%	20.79	2.61	289.9	27.3	96.3%	78.2%	75.4%	6.3	3.31	57.50	3.05	53.04	2037	4.06

Moisture Content M_{Cwb}: 16.70506

Combustion Efficiency:	98.75%		Moisture of Wood (wet basis):	16.7051	Dry kg : 6.49
Total Input (kJ):	121,968	115,681 (Btu)	Initial Dry Weight Wt_{do} (kg):	6.49	CA: 49
Total Output (kJ):	91,710	86,983 (Btu)	Moisture Content Dry	20.06	HY: 6
Efficiency:	75.19%				OX: 44.9
Total CO (g):	123.42				

Load Weight (kg):	**7.79**			
Fuel Heating	**HHV**	**LHV**	**HHV**	**LHV**
Value in kj/kg - CV:	**18,800**	**17,549**	Btu/lb **8088.0**	**7549.9**

5.80	2.81	18800.00	16.71	79.07	20.97	3.01	8.71	0.01	0.30	40.17	33.98	0.63	0.03	282.36	29.11	11.14	525.37	9337.40	6855.86	6624.74	6560.15
Fuel Properties			**Mw**	**Mass Balance**					**kg Wood per**								**Stack**	**Heat Content Change - Ambient to Stack T**			
Hydrogen	**Oxygen**	**Calorific**	**Moisture**	**(moles/100 mole dry flue gas)**					**100 mole dfp**	**Moles per kg of Dry Wood**						**Moisture**	**Temp**	**Flue Gas Constituent**			
/1= [b]	**/16= [c]**	**Value**	**Fuel Burnt**	**[h]**	**[u]**	**[w]**	**[j]**	**[k]**	**Nk**	**CO_2**	**O_2**	**CO**	**HC**	**N_2**	**H_2O**	**Present**	**K**	**CO_2**	**O_2**	**CO**	**N_2**
5.80	2.81	18800.00	16.71	79.07	20.97	2.19	6.36	0.00	0.22	40.24	55.22	0.59	0.00	362.77	29.18	11.14	512.49	8751.83	6445.86	6233.59	6171.75
5.80	2.81	18800.00	16.71	79.04	20.97	1.54	4.47	0.00	0.15	39.93	96.12	0.92	-0.02	516.48	29.21	11.14	497.57	8083.11	5971.14	5778.97	5720.70
5.80	2.81	18800.00	16.71	79.03	20.96	1.84	5.33	0.00	0.18	39.89	73.90	0.92	0.01	432.46	29.15	11.14	490.11	7755.59	5737.95	5555.48	5499.00
5.80	2.81	18800.00	16.71	79.07	20.97	2.15	6.23	0.00	0.21	40.26	57.27	0.58	-0.01	370.57	29.19	11.14	489.50	7726.75	5717.27	5535.62	5479.31
5.80	2.81	18800.00	16.71	79.05	20.97	2.20	6.37	0.00	0.22	40.08	55.04	0.73	0.02	361.68	29.14	11.14	489.32	7727.11	5718.00	5536.44	5480.10
5.80	2.81	18800.00	16.71	79.07	20.97	2.53	7.34	0.00	0.25	40.26	42.35	0.56	0.01	314.22	29.15	11.14	499.78	8181.76	6041.33	5846.23	5787.43
5.80	2.81	18800.00	16.71	79.13	20.99	3.32	9.62	0.00	0.33	40.62	22.47	0.22	0.00	240.04	29.18	11.14	504.38	8387.54	6187.57	5986.32	5926.41
5.80	2.81	18800.00	16.71	79.13	20.99	2.96	8.59	-0.01	0.29	40.66	30.12	0.18	-0.02	269.04	29.22	11.14	508.01	8586.39	6330.88	6124.12	6063.00
5.80	2.81	18800.00	16.71	79.12	20.99	2.80	8.13	-0.01	0.28	40.65	34.18	0.20	-0.02	284.35	29.22	11.14	509.50	8665.51	6387.73	6178.73	6117.15
5.80	2.81	18800.00	16.71	79.12	20.99	2.75	7.99	-0.01	0.27	40.65	35.54	0.20	-0.03	289.51	29.23	11.14	510.13	8717.81	6426.30	6216.05	6154.10
5.80	2.81	18800.00	16.71	79.12	20.99	2.66	7.74	-0.01	0.26	40.64	38.02	0.22	-0.03	298.83	29.23	11.14	510.14	8710.82	6420.86	6210.71	6148.83
5.80	2.81	18800.00	16.71	79.12	20.99	2.60	7.55	-0.01	0.26	40.65	39.99	0.21	-0.03	306.30	29.24	11.14	509.58	8677.31	6396.60	6187.36	6125.68
5.80	2.81	18800.00	16.71	79.11	20.98	2.51	7.30	-0.01	0.25	40.60	42.79	0.26	-0.03	316.76	29.23	11.14	509.31	8663.40	6386.64	6177.80	6116.21
5.80	2.81	18800.00	16.71	79.11	20.98	2.48	7.21	-0.01	0.25	40.62	43.83	0.24	-0.03	320.72	29.24	11.14	508.97	8650.23	6377.42	6169.01	6107.47
5.80	2.81	18800.00	16.71	79.11	20.98	2.43	7.07	-0.01	0.24	40.60	45.51	0.26	-0.03	327.03	29.24	11.14	508.83	8658.75	6384.41	6175.94	6114.30
5.80	2.81	18800.00	16.71	79.10	20.98	2.39	6.94	-0.01	0.24	40.55	47.14	0.31	-0.03	333.07	29.23	11.14	508.39	8626.68	6360.88	6153.21	6091.79
5.80	2.81	18800.00	16.71	79.09	20.98	2.36	6.86	-0.01	0.23	40.50	48.27	0.35	-0.02	337.18	29.22	11.14	507.94	8604.93	6345.37	6138.35	6077.05
5.80	2.81	18800.00	16.71	79.09	20.98	2.33	6.76	-0.01	0.23	40.48	49.56	0.38	-0.02	342.01	29.22	11.14	506.71	8560.10	6314.22	6108.69	6047.59
5.80	2.81	18800.00	16.71	79.08	20.98	2.28	6.62	0.00	0.23	40.40	51.51	0.45	-0.02	349.17	29.21	11.14	506.28	8536.97	6297.56	6092.67	6031.70
5.80	2.81	18800.00	16.71	79.07	20.97	2.22	6.45	0.00	0.22	40.28	53.88	0.56	-0.01	357.83	29.19	11.14	505.52	8497.10	6268.93	6065.16	6004.43
5.80	2.81	18800.00	16.71	79.05	20.97	2.18	6.32	0.00	0.22	40.11	55.75	0.71	0.01	364.47	29.15	11.14	503.61	8401.93	6200.77	5999.74	5939.55
5.80	2.81	18800.00	16.71	79.03	20.96	2.12	6.14	0.01	0.21	39.82	58.52	0.97	0.04	374.17	29.09	11.14	502.03	8316.81	6139.41	5940.74	5881.06
5.80	2.81	18800.00	16.71	78.99	20.95	2.09	6.01	0.02	0.21	39.40	60.60	1.34	0.09	380.95	29.00	11.14	499.88	8216.20	6067.63	5871.90	5812.79
5.80	2.81	18800.00	16.71	78.95	20.94	2.05	5.89	0.03	0.20	39.00	62.54	1.70	0.14	387.27	28.90	11.14	497.86	8123.80	6001.74	5808.72	5750.13
5.80	2.81	18800.00	16.71	78.95	20.94	2.07	5.95	0.03	0.21	38.93	61.51	1.76	0.15	383.17	28.88	11.14	496.05	8042.24	5943.63	5753.02	5694.87
5.80	2.81	18800.00	16.71	78.95	20.94	2.08	5.97	0.03	0.21	38.95	61.18	1.73	0.14	382.02	28.89	11.14	496.12	8049.12	5948.76	5758.00	5699.79
5.80	2.81	18800.00	16.71	78.90	20.93	2.07	5.92	0.04	0.21	38.46	61.95	2.17	0.20	383.64	28.77	11.14	494.64	7956.52	5881.22	5692.85	5635.26
5.80	2.81	18800.00	16.71	78.90	20.93	2.05	5.85	0.04	0.20	38.36	63.05	2.25	0.21	387.54	28.75	11.14	493.90	7909.88	5847.19	5660.02	5602.74
5.80	2.81	18800.00	16.71	78.91	20.93	2.09	5.99	0.04	0.21	38.53	60.82	2.11	0.19	379.55	28.79	11.14	493.18	7867.38	5816.29	5630.24	5573.23
5.80	2.81	18800.00	16.71	78.93	20.94	2.17	6.23	0.04	0.22	38.83	56.96	1.83	0.16	365.75	28.85	11.14	491.71	7795.35	5764.54	5580.51	5523.93
5.80	2.81	18800.00	16.71	78.95	20.94	2.23	6.39	0.03	0.22	39.05	54.45	1.64	0.14	356.85	28.90	11.14	491.22	7768.32	5744.97	5561.68	5505.26
5.80	2.81	18800.00	16.71	78.97	20.95	2.29	6.57	0.03	0.23	39.27	51.88	1.44	0.12	347.68	28.94	11.14	491.45	7779.33	5752.86	5569.25	5512.77
5.80	2.81	18800.00	16.71	78.97	20.95	2.31	6.66	0.03	0.23	39.31	50.71	1.41	0.11	343.36	28.95	11.14	491.57	7781.84	5754.50	5570.79	5514.30
5.80	2.81	18800.00	16.71	78.97	20.95	2.31	6.66	0.03	0.23	39.26	50.73	1.45	0.12	343.29	28.93	11.14	492.07	7798.41	5765.99	5581.72	5525.16
5.80	2.81	18800.00	16.71	78.97	20.95	2.36	6.79	0.03	0.23	39.34	48.90	1.37	0.11	336.64	28.95	11.14	493.50	7862.07	5811.38	5625.24	5568.33
5.80	2.81	18800.00	16.71	78.99	20.95	2.44	7.03	0.02	0.24	39.54	45.88	1.19	0.09	325.73	28.99	11.14	496.32	7977.50	5893.04	5703.36	5645.86
5.80	2.81	18800.00	16.71	79.02	20.96	2.57	7.43	0.02	0.26	39.80	41.26	0.96	0.07	308.93	29.04	11.14	498.93	8080.26	5965.39	5772.49	5714.48
5.80	2.81	18800.00	16.71	79.03	20.96	2.63	7.59	0.02	0.26	39.86	39.54	0.90	0.06	302.61	29.05	11.14	500.89	8163.79	6024.56	5829.12	5770.67
5.80	2.81	18800.00	16.71	79.04	20.97	2.63	7.60	0.01	0.26	40.01	39.45	0.77	0.05	302.63	29.08	11.14	502.90	8250.52	6086.01	5887.94	5829.03
5.80	2.81	18800.00	16.71	79.06	20.97	2.67	7.72	0.01	0.27	40.13	38.12	0.66	0.03	297.91	29.11	11.14	504.80	8328.10	6140.66	5940.16	5880.87
5.80	2.81	18800.00	16.71	79.08	20.98	2.76	8.00	0.00	0.27	40.34	35.40	0.48	0.01	288.18	29.15	11.14	508.97	8540.01	6292.49	6085.93	6025.42
5.80	2.81	18800.00	16.71	79.11	20.98	2.83	8.21	0.00	0.28	40.51	33.47	0.33	-0.01	281.33	29.19	11.14	515.83	8880.90	6535.82	6319.30	6256.88
5.80	2.81	18800.00	16.71	79.12	20.99	3.03	8.80	0.00	0.30	40.58	28.39	0.26	-0.01	262.32	29.19	11.14	520.86	9084.17	6677.85	6454.73	6391.38
5.80	2.81	18800.00	16.71	79.11	20.98	3.21	9.29	0.00	0.32	40.46	24.76	0.36	0.01	248.30	29.15	11.14	524.86	9256.15	6798.56	6569.97	6505.79
5.80	2.81	18800.00	16.71	79.09	20.98	3.37	9.75	0.01	0.33	40.33	21.62	0.47	0.03	236.11	29.11	11.14	528.45	9426.60	6919.09	6685.28	6620.22
5.80	2.81	18800.00	16.71	79.05	20.97	3.55	10.24	0.02	0.35	40.06	18.68	0.70	0.07	224.30	29.04	11.14	532.22	9601.72	7042.50	6803.21	6737.28
5.80	2.81	18800.00	16.71	79.05	20.97	3.72	10.74	0.03	0.37	40.06	15.87	0.70	0.07	213.69	29.03	11.14	536.29	9806.11	7187.33	6941.85	6874.84
5.80	2.81	18800.00	16.71	79.02	20.96	3.82	11.02	0.04	0.38	39.89	14.46	0.85	0.09	207.90	28.99	11.14	539.70	9960.83	7295.76	7045.32	6977.58
5.80	2.81	18800.00	16.71	78.99	20.95	4.01	11.53	0.05	0.40	39.69	12.01	1.02	0.12	198.15	28.94	11.14	543.92	10128.27	7411.25	7155.04	7086.63
5.80	2.81	18800.00	16.71	79.00	20.96	4.13	11.88	0.05	0.41	39.78	10.47	0.94	0.11	192.56	28.95	11.14	548.51	10329.30	7551.16	7288.29	7218.99
5.80	2.81	18800.00	16.71	78.97	20.95	4.28	12.31	0.05	0.43	39.65	8.69	1.05	0.13	185.52	28.92	11.14	551.69	10493.19	7666.87	7398.93	7328.80
5.80	2.81	18800.00	16.71	78.88	20.92	4.44	12.70	0.08	0.44	39.19	7.25	1.45	0.18	178.92	28.81	11.14	555.36	10673.26	7793.26	7519.60	7448.60
5.80	2.81	18800.00	16.71	78.91	20.93	4.48	12.83	0.08	0.45	39.32	6.73	1.34	0.17	177.27	28.83	11.14	558.30	10816.21	7893.39	7615.14	7543.46
5.80	2.81	18800.00	16.71	78.91	20.93	4.51	12.93	0.08	0.45	39.32	6.39	1.33	0.17	176.00	28.83	11.14	560.52	10929.65	7973.13	7691.30	7619.07
5.80	2.81	18800.00	16.71	78.91	20.93	4.55	13.04	0.08	0.45	39.34	5.98	1.32	0.17	174.48	28.84	11.14	561.98	10995.46	8018.80	7734.76	7662.25
5.80	2.81	18800.00	16.71	78.81	20.91	4.60	13.14	0.10	0.46	38.88	5.70	1.72	0.22	172.26	28.73	11.14	563.09	11048.07	8055.46	7769.69	7696.94

			SUMS							AVERAGE	SUMS						
9363.58	7914.19	300.66	39399.45	23082.34	19044.70	189591.95	3207.42	158567.38	60698.29	4700.87	30253.80	1516.34	28737.5	91901.4	1520.3	123.4	4.8
emperature		Room Temp	Energy Losses (kJ/kg of Dry Fuel) Flue Gas Constituent							Total Loss	Total	Chemical	Sensible and	Total	Chem	Grams Produced	
CH_4	H_2O	K	CO_2	O_2	CO	N_2	CH_4	H_2O Comb	H_2O Fuel MC	Rate	Loss	Loss 1	Latent Loss	Output	Loss 2	CO	HC
8732.69	7448.51	300.74	352.16	355.93	171.15	2238.95	-2.13	1500.35	572.89	5189.31	0.00	0	0.00	0	0	0.00	0.00
8026.45	6906.72	301.00	322.72	573.95	266.06	2954.64	-16.91	1486.22	566.85	6153.54	967.03	38	928.69	1987	38	4.05	-0.05
7682.05	6640.31	301.01	309.36	424.05	266.83	2378.08	13.21	1475.04	563.89	5430.45	299.58	15	284.42	738	15	1.43	0.01
7652.06	6616.63	301.06	311.07	327.42	166.33	2030.48	-6.74	1476.60	563.62	4868.78	287.94	9	278.69	824	9	0.95	-0.01
7651.40	6617.65	300.84	309.70	314.70	211.22	1982.04	15.09	1474.17	563.63	4870.55	339.19	15	323.72	970	15	1.43	0.02
8130.28	6986.89	300.96	329.36	255.87	161.84	1818.52	11.25	1485.36	567.75	4629.96	391.86	14	377.50	1199	14	1.33	0.02
8347.26	7153.86	300.88	340.68	139.03	62.24	1422.57	-3.96	1491.96	569.61	4022.13	310.74	4	306.33	1142	4	0.47	-0.01
8552.57	7318.26	299.88	349.16	190.66	53.08	1631.20	-18.04	1498.37	571.44	4275.88	263.02	2	260.92	893	2	0.32	-0.02
8634.63	7383.40	299.53	352.22	218.34	59.24	1739.44	-20.91	1500.60	572.16	4421.10	265.86	2	263.61	865	2	0.34	-0.02
8686.69	7428.00	298.89	354.40	228.41	58.20	1781.70	-23.17	1502.16	572.66	4474.37	267.40	2	265.36	856	2	0.34	-0.02
8680.37	7421.60	299.10	354.01	244.10	62.26	1837.44	-24.78	1502.16	572.59	4547.79	265.60	2	263.47	832	2	0.35	-0.03
8646.01	7393.73	299.32	352.74	255.79	60.46	1876.30	-28.17	1501.73	572.28	4591.12	278.38	2	276.48	862	2	0.35	-0.03
8631.50	7382.33	299.36	351.74	273.29	74.10	1937.36	-26.20	1501.17	572.15	4683.62	277.63	3	274.87	837	3	0.43	-0.03
8617.30	7371.86	299.32	351.39	279.50	69.17	1958.81	-29.65	1501.26	572.04	4702.50	252.11	2	250.06	756	2	0.36	-0.03
8624.27	7380.20	298.93	351.51	290.57	76.51	1999.54	-28.83	1501.41	572.13	4762.83	256.19	2	253.70	755	2	0.40	-0.03
8592.05	7353.04	299.27	349.81	299.88	88.88	2029.02	-25.82	1500.27	571.83	4813.86	266.45	3	263.05	774	3	0.48	-0.03
8569.22	7335.33	299.31	348.49	306.27	102.30	2049.07	-21.69	1499.28	571.63	4855.35	270.30	4	265.92	776	4	0.55	-0.02
8520.41	7300.04	299.06	346.47	312.94	108.76	2068.36	-20.71	1498.14	571.24	4885.20	270.71	5	265.95	771	5	0.58	-0.02
8496.52	7280.93	299.17	344.88	324.37	128.91	2106.07	-14.86	1496.91	571.02	4957.31	256.47	6	250.70	716	6	0.65	-0.01
8455.13	7248.12	299.33	342.24	337.79	160.90	2148.57	-4.62	1494.79	570.66	5050.33	253.97	8	246.28	691	8	0.78	0.00
8355.91	7170.10	299.61	337.01	345.72	203.85	2164.80	10.91	1490.74	569.79	5122.83	268.37	11	257.35	717	11	1.03	0.01
8268.06	7099.70	300.02	331.17	359.27	279.08	2200.52	38.79	1485.52	569.00	5263.36	282.23	17	265.51	726	17	1.45	0.04
8162.58	7017.64	300.16	323.74	367.67	385.90	2214.37	80.86	1478.36	568.09	5418.98	277.28	23	253.84	685	23	1.91	0.07
8065.67	6942.32	300.27	316.79	375.38	490.14	2226.85	122.02	1471.51	567.25	5569.93	278.28	30	248.24	661	30	2.37	0.11
7979.97	6875.92	300.31	313.05	365.57	507.33	2182.11	130.65	1468.61	566.51	5533.82	269.35	31	238.85	646	31	2.39	0.11
7986.71	6881.87	300.21	313.54	363.97	500.21	2177.45	128.09	1469.07	566.58	5518.91	256.87	29	228.14	618	29	2.26	0.11
7892.87	6804.08	300.94	306.00	364.32	626.02	2161.91	179.91	1460.96	565.71	5664.83	274.38	38	236.02	636	38	2.94	0.16
7845.61	6764.88	301.31	303.45	368.64	650.81	2171.31	188.86	1458.82	565.27	5707.17	289.97	42	248.04	665	42	3.21	0.17
7802.33	6729.32	301.59	303.11	353.72	608.06	2115.30	173.92	1459.49	564.88	5578.48	298.12	41	257.04	707	41	3.15	0.17
7727.62	6670.01	301.80	302.70	328.34	529.52	2020.37	146.13	1460.91	564.22	5352.18	300.58	37	263.28	755	37	2.89	0.15
7699.91	6647.53	301.93	303.37	312.83	472.14	1964.57	125.40	1462.60	563.97	5204.89	284.46	32	252.36	743	32	2.50	0.12
7711.38	6656.56	301.92	305.51	298.44	415.43	1916.67	105.04	1465.16	564.07	5070.31	266.91	27	239.98	723	27	2.12	0.10
7714.32	6658.38	301.98	305.87	291.82	406.51	1893.42	102.85	1465.46	564.09	5030.00	275.04	27	247.66	753	27	2.16	0.10
7732.42	6671.39	302.12	306.13	292.49	419.01	1896.75	108.07	1465.25	564.23	5051.93	294.08	30	263.92	800	30	2.37	0.11
7799.21	6723.27	302.10	309.32	284.20	396.14	1874.50	100.89	1467.56	564.81	4997.42	290.13	28	261.78	801	28	2.23	0.10
7921.77	6816.35	302.32	315.46	270.38	344.04	1839.03	83.04	1472.27	565.85	4890.07	288.82	25	264.04	822	25	1.97	0.09
8031.59	6898.68	302.63	321.58	246.14	277.71	1765.35	61.36	1477.12	566.76	4716.01	302.80	21	281.42	904	21	1.73	0.07
8120.10	6966.16	302.70	325.42	238.24	261.00	1746.24	56.63	1479.61	567.52	4674.66	300.53	20	280.49	908	20	1.63	0.06
8211.96	7036.25	302.75	330.10	240.10	223.42	1764.04	40.96	1483.43	568.30	4650.35	298.45	17	281.80	908	17	1.39	0.05
8294.83	7098.45	302.92	334.23	234.08	191.63	1752.00	29.39	1486.55	568.99	4596.87	316.41	15	301.48	978	15	1.28	0.04
8515.55	7272.29	302.20	344.50	222.77	138.00	1736.42	10.50	1493.77	570.93	4516.88	303.50	10	293.73	960	10	0.90	0.01
8872.66	7550.52	301.25	359.74	218.78	94.66	1760.23	-5.13	1503.67	574.03	4505.98	297.90	6	292.12	945	6	0.61	-0.01
9092.28	7711.73	301.80	368.64	189.60	73.89	1676.55	-7.05	1508.60	575.82	4386.06	316.76	5	312.04	1041	5	0.52	-0.01
9276.93	7848.95	301.97	374.50	168.36	103.61	1615.38	10.25	1510.61	577.35	4360.06	-349.65	-9	-340.71	-1158	-9	-0.80	-0.01
9457.96	7986.33	301.73	380.19	149.62	134.91	1563.12	27.56	1512.62	578.88	4346.89	-328.67	-12.03	-316.65	-1093	-12	-0.99	-0.04
9644.92	8126.80	301.58	384.68	131.54	202.28	1511.17	59.71	1512.98	580.45	4382.81	392.72	22.99	369.73	1292	23	1.75	0.10
9861.34	8292.00	301.03	392.84	114.06	202.20	1469.05	63.42	1517.35	582.29	4341.22	433.80	25.99	407.81	1445	26	1.95	0.11
10027.82	8415.20	301.01	397.29	105.48	246.47	1450.66	83.83	1518.56	583.66	4385.96	424.98	31.33	393.65	1397	31	2.31	0.14
10212.06	8545.67	301.62	401.96	89.01	296.25	1404.22	107.93	1519.53	585.11	4404.01	395.64	35.54	360.10	1293	36	2.57	0.17
10430.49	8704.24	301.80	410.89	79.04	272.40	1390.07	99.99	1525.05	586.88	4364.32	429.42	35.85	393.56	1420	33	2.59	0.17
10604.99	8836.04	301.31	416.08	66.62	304.24	1359.62	115.67	1527.03	588.35	4377.60	448.73	42.11	406.62	1478	44	3.01	0.21
10798.31	8979.73	300.98	418.33	56.53	421.06	1332.71	166.45	1525.22	589.95	4510.25	457.42	58.28	399.15	1449	57	4.12	0.30
10952.23	9093.48	300.75	425.25	53.16	389.78	1337.24	154.03	1529.96	591.22	4480.64	453.34	53.80	399.54	1449	55	3.80	0.28
11073.75	9184.17	300.44	429.80	50.97	387.73	1340.97	153.61	1532.63	592.23	4487.93	460.15	54.26	405.89	1467	52	3.83	0.28
11145.55	9235.88	300.46	432.52	47.96	384.42	1336.88	152.77	1534.22	592.81	4481.58	478.42	56.05	422.36	1529	56	3.95	0.29
11202.62	9277.45	300.42	429.57	45.92	500.77	1325.85	201.80	1529.63	593.27	4626.81	501.36	74.41	426.95	1536	74	5.23	0.39

ASTM E2515 - TX Filters

Sample	Weight 1	Weight 2	Weigth 3	Weight 4	Initial	Project	Run
H0074	193.9	193.9	–	–	SB	21-733	#5
H0075	189.7	189.9	–	–	SB	20-654	#1
H0076	190.0	190.2	–	–	SB	↓	↓
H0077	181.8	182.3	182.3	–	SB		
H0078	191.3	191.4	–	–	SB		
H0079	181.2	181.5	181.3	–	SB	20-654	#2
H0080	182.7	182.7	–	–	SB	↓	↓
H0081	193.0	193.1	–	–	SB		
H0082	183.7	183.7	–	–	SB		
H0083	185.5	185.7	–	–	SB	20-654	#3
H0084	183.5	183.6	–	–	SB	↓	↓
H0085	189.6	189.7	–	–	SB		
H0086	187.1	187.3	–	–	SB		
H0087	188.8	188.8	–	–	SB		
H0088	187.4	187.4	–	–	SB	~~20~~ 22-751	#1
H0089	184.6	184.8	–	–	SB	↓	↓
H0090	186.2	186.2	–	–	SB		
H0091	186.8	186.8	–	–	SB		

Weight 1 Date/Time:
11/17/21 - 1600
Weight 2 Date/Time:
11/19/21 - 7:30
Weight 3 Date/Time:
11/22/21 - 9:45
Weight 4 Date/Time:

Sample	Weight 1	Weight 2	Weigth 3	Weight 4	Initial	Project	Run
H0092	187.7	187.8	–	–	A	22-751	#2
H0093	187.82	187.4	–	–	A	↓	↓
H0094	187.6	187.5	–	–	A		
H0095	187.7	187.7	–	–	A		
H0096	187.2	187.2	–	–	A	22-751	#3
H0097	185.9	185.8	–	–	A	↓	↓
H0098	185.4	185.5	–	–	A		
H0099	185.4	185.6	–	–	A		
H0100	185.3	185.2	–	–	A	~~20-790~~	#1
H0101	184.1	183.9	–	–	A	22-790	#1
H0102	184.8	185.0	–	–	A	↓	↓
H0103	184.4	184.6	–	–	A		
H0104	184.8	184.7	–	–	A	22-790	#2
H0105	184.0	183.9	–	–	A	↓	↓
H0106	186.1	186.0	–	–	A		
H0107	187.4	187.2	–	–	A		
H0108	189.4	189.3	–	–	A	22-790	#3
H0109	187.9	187.8	–	–	A	↓	↓

Weight 1 Date/Time:
1/17/22 1000
Weight 2 Date/Time:
1/18/22 0900
Weight 3 Date/Time:
Weight 4 Date/Time:

ASTM E2515 - TX Filters

Sample	Weight 1	Weight 2	Weigth 3	Weight 4	Initial	Project	Run
H0110	188.3	188.2	–	–	SB	22-790	#3
H0111	188.1	187.9	–	–	SB	↓	↓
H0112	187.4	187.5	–	–	SB	22-790	#4
H0113	187.7	187.9	–	–	SB	↓	↓
H0114	188.1	188.1	–	–	SB	↓	↓
H0115	188.5	188.5	–	–	SB	↓	↓
H0116	188.4	188.4	–	–	SB		
H0117	187.3	187.2	–	–	SB		
H0118	186.6	188.6	–	–	SB		
H0119	187.0	187.1	–	–	SB		
H0120	187.5	187.6	–	–	SB		
H0121	188.4	188.4	–	–	SB		
H0122	188.4	188.3	–	–	SB		
H0123	188.8	188.7	–	–	SB		
H0124	188.6	188.5	–	–	SB		
H0125	186.5	186.5	–	–	SB		
H0126	186.9	187.1	–	–	SB		
H0127	186.7	186.7	–	–	SB		

Weight 1 Date/Time:
5/26 - 16:00
Weight 2 Date/Time:
5/31 - 8:30
Weight 3 Date/Time:
Weight 4 Date/Time:

Sample	Weight 1	Weight 2	Weigth 3	Weight 4	Initial	Project	Run
H0128	187.4	187.5	–	–	SB		
H0129	187.3	187.4	–	–	SB		
H0130	187.9	187.9	–	–	SB		
H0131	188.4	188.4	–	–	SB		
H0132	188.1	188.1	–	–	SB		
H0133	188.0	188.0	–	–	SB		
H0134	188.4	188.5	–	–	SB		
H0135	189.2	189.3	–	–	SB		
H0136	188.7	188.7	–	–	SB		
H0137	188.0	188.1	–	–	SB		
H0138	187.0	187.1	–	–	SB		
H0139	187.6	187.5	–	–	SB		
H0140	187.4	187.5	–	–	SB		
H0141	188.0	187.8	–	–	SB		
H0142	188.1	188.1	–	–	SB		
H0143	188.8	188.8	–	–	SB		
H0144	188.7	188.7	–	–	SB		
H0145	188.6	188.7	–	–	SB		

Weight 1 Date/Time:
5/26 - 16:40
Weight 2 Date/Time:
5/31 - 8:30
Weight 3 Date/Time:
Weight 4 Date/Time:

ASTM E2515 - O-Ring Samples 1-10

Date:	1/7/22	1/18/22	-	-			
Time:	1600	0900	-	-			
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
1A	3568.0	3567.9	-	-	A	22-751	1
1B	3556.2	3556.1	-	-	A		
1C	4168.4	4168.2	-	-	A		
2A	3553.4	3553.5	-	-	A	22-751	2
2B	3572.3	3572.4	-	-	A		
2C	3392.5	3392.4	-	-	A		
3A	3588.6	3580.7	-	-	A	22-751	3
3B	3569.1	3569.1	-	-	A		
3C	3377.2	3377.1	-	-	A		
4A	3627.1	3623.0	-	-	A	22-790	#1
4B	3580.3	3580.5	-	-	A		
4C	3373.7	3373.9	-	-	A		
5A	3536.0	3536.2	-	-	A	22-790	#2
5B	3531.9	3532.0	-	-	A		
5C	3378.1	3378.2	-	-	A		

Date:	3/2/22	3/3/22	-	-			
Time:	1330	0900	-	-			
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
6A	3615.2	3615.4	-	-	A	22-790	#3
6B	3397.5	3397.7	-	-	A		
6C	3402.7	3402.5	-	-	A		
7A	3573.0	3573.1	-	-	A	22-790	#4
7B	3523.7	3523.7	-	-	A		
7C	3407.9	3408.0	-	-	A		
8A	3552.7	3552.5	-	-	A		
8B	3587.1	3587.0	-	-	A		
8C	3359.2	3359.1	-	-	A		
9A	3581.23	3581.3	-	-	A		
9B	3524.4	3524.3	-	-	A		
9C	3432.0	3432.2	-	-	A		
10A	3362.3	3362.4	-	-	A		
10B	3570.6	3570.6	-	-	A		
10C	3367.5	3367.6	-	-	A		

ASTM E2515 - Probe Samples 1-10

Date:	1/17/22	1/18/22	-	-			
Time:	16:00	0900	-	-			
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
1A	115624.9	115624.9	-	-		22-751	#1
1B	115900.1	115900.1	-	-			
1C	116431.9	116431.8	-	-			
2A	116055.6	116055.5	-	-		22-751	#2
2B	116172.2	116172.1	-	-			
2C	116428.5	116428.5	-	-			
3A	115877.8	115877.8	-	-		22-751	#3
3B	116117.7	116117.6	-	-			
3C	116615.5	116615.3	-	-			
4A	116020.5	116020.4	-	-		22-790	#1
4B	116178.1	116178.0	-	-			
4C	116994.2	116994.3	-	-			
5A	116754.6	116754.5	-	-		22-790	#2
5B	116873.3	116873.1	-	-			
5C	115854.4	115854.4	-	-			

Date:	3/2/22	3/3/22	3/4/22	-			
Time:	1330	0906	0900	-			
	Weight 1	**Weight 2**	**Weigth 3**	**Weight 4**	**Initial**	**Project**	**Run**
6A	116381.7	116382.1	116382.0	-		22-790	#3
6B	115953.5	115953.5	-	-			
6C	115128.2	115128.2	-	-			
7A	116558.4	116558.4	-	-		22-790	#4
7B	117128.0	117128.0	-	-			
7C	116550.7	116550.5	-	-			
8A	116640.6	116640.8	-	-			
8B	116664.3	116664.2	-	-			
8C	116661.9	116661.8	-	-			
9A	116530.1	116530.0	-	-			
9B	117738.2	117738.2	-	-			
9C	116602.3	116602.5	-	-			
10A	116642.8	116642.9	-	-			
10B	117750.3	117750.5	-	-			
10C	116727.5	116727.6	-	-			

ASTM E2515-2017 dilution tunnel dimensions for Stove Builder International (SBI)

- Address: 250 rue de Copenhague, Saint-Augustin-de-Desmaures, QC, Canada.
- Test bay ID : “Banc 4”
- No mixing baffles.
- Presence of mixing section

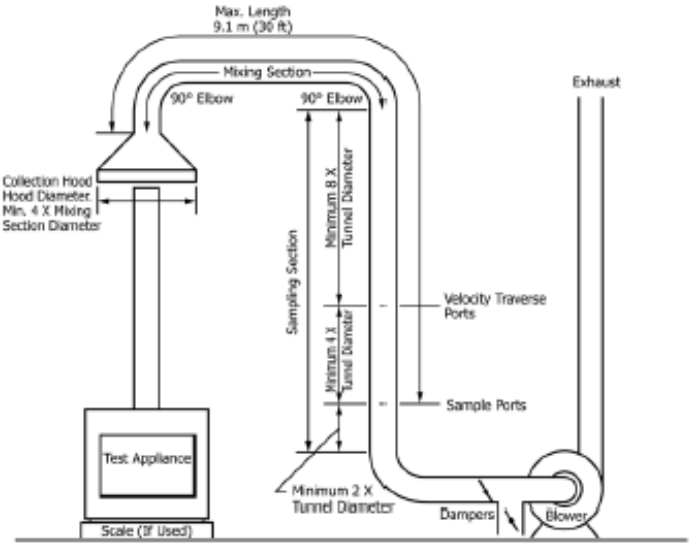


FIG. 3 Steel-Constructed Dilution Tunnel Apparatus

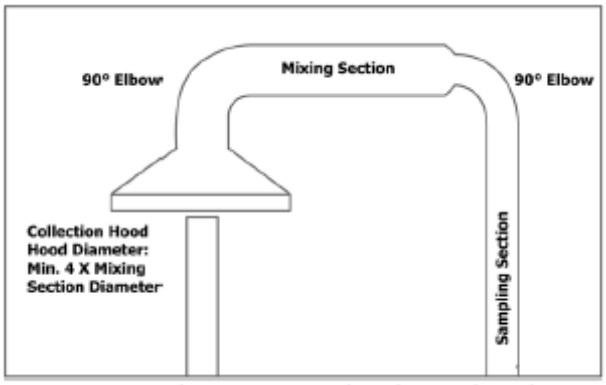


FIG. 4 Mixing Section and Sampling Section with Different Diameters

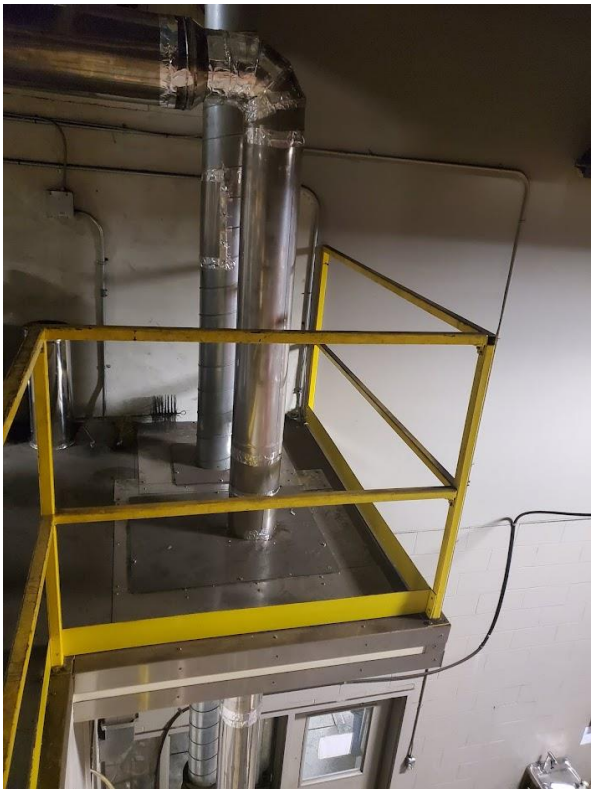
8-in tunnel:

Collection hood – 48-in (bottom) to 12-in (top) diameter
12 to 10-in reducer after the collection hood
10-in 90° elbow
Mixing section – 10-in diameter, 73-in in length to the reducer.
10 to 8-in reducer
8-in 90° elbow
Sampling section – 8-in diameter, 60-in from elbow to floor, 80-in from floor to traverse ports, 48-in from traverse ports to sample ports.
By-pass allow change range between 150 to 600 scfm approx.

Photos of 8-in tunnel:

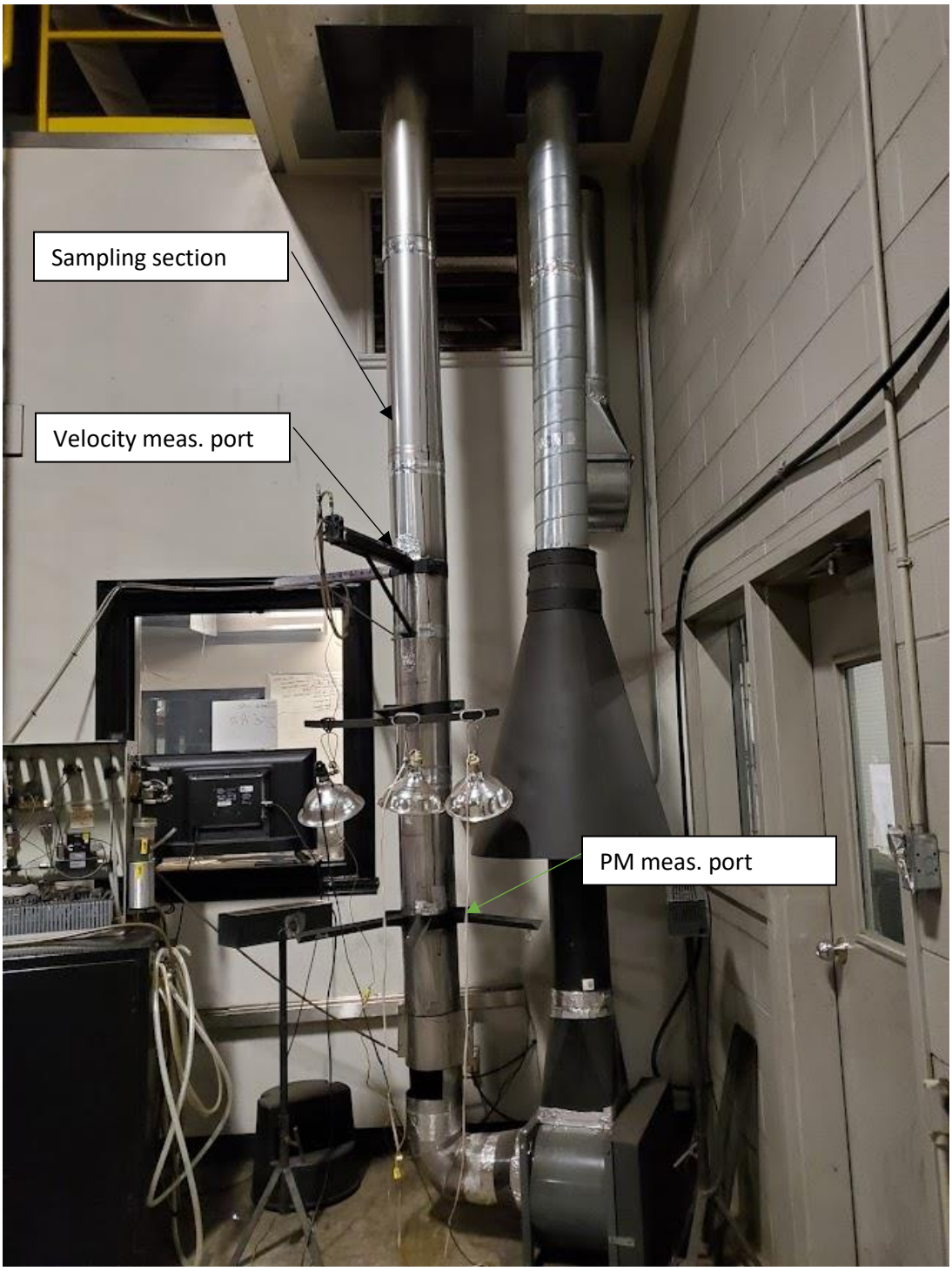
Collection Hood

Mixing Section



Sampling Section (elbow to floor)

Sampling Section (elbow to floor)



Traverse and sampling ports

WOOD STOVE TEST DATA PACKET
ASTM E3053/E2515

Run 1 Data Summary

Client:	SBI
Model:	Bistro
Job #:	22-790
Tracking #:	122
Test Date:	6/6/2022

Technician Signature

7/10/2024
Date

TEST RESULTS - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

Burn Rate (kg/hr):	3.64

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	18.968	28.370	28.675	9.694
Average Gas Velocity in Dilution Tunnel (ft/sec)	28.05			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	32953.3			
Average Gas Meter Temperature (°F)	79.7	77.9	76.9	76.9
Total Sample Volume (dscf)	18.395	28.533	28.977	9.506
Average Tunnel Temperature (°F)	95.0			
Total Time of Test (min)	159			
Total Particulate Catch (mg)	0.0	2.6	2.6	1.1
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000911	0.0000897	0.0001157
Total PM Emissions (g)	0.00	7.96	7.84	3.81
Particulate Emission Rate (g/hr)	0.00	3.00	2.96	3.81
Emissions Factor (g/kg)	-	0.91	0.89	-
Difference from Average Total Particulate Emissions (g)	-	0.06	0.06	-
Difference from Average Total Particulate Emissions (%)	-	0.8%	0.8%	-
Difference from Average Emissions Factor (g/kg)	-	0.01	0.01	-

Final Average Results	
Total Particulate Emissions (g)	7.90
Particulate Emission Rate (g/hr)	2.98
Emissions Factor (g/kg)	0.90
HHV Efficiency (%)	75.2%
LHV Efficiency (%)	80.6%
CO Emissions (g/min)	1.19

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	>80 °F, <90 °F	Min: 81.3 / Max: 86.9	OK
Face Velocity	< 30 ft/min	9.7	OK
Leakage Rate	Less than 4% of average sample rate	0.002 cfm	OK
Ambient Temp	55-90 °F	Min:73.7/ Max:85.6	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-3.8%	OK
Pro-Rate Variation	All but 1 reading between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Tunnel Dew Point	Tunnel dew point temps must be below filter temps at all times	See Data Tabs	OK

B415.1 Efficiency Results

Manufacturer:	SBI
Model:	Bistro
Date:	06/06/22
Run:	1
Control #:	22-790
Test Duration:	104
Output Category:	High

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	75.2%	80.6%
Combustion Efficiency	98.8%	98.8%
Heat Transfer Efficiency	76.1%	81.6%

Output Rate (kJ/h)	52,910	50,191	**(Btu/h)**
Burn Rate (kg/h)	3.74	8.25	**(lb/h)**
Input (kJ/h)	70,366	66,750	**(Btu/h)**

Test Load Weight (dry kg)	6.49	14.30	**dry lb**
MC wet (%)	16.71		
MC dry (%)	20.06		
Particulate (g)	7.90		
CO (g)	123		
Test Duration (h)	1.73		

Emissions	**Particulate**	**CO**
g/MJ Output	0.09	1.35
g/kg Dry Fuel	1.22	19.02
g/h	4.56	71.21
g/min	0.08	1.19
lb/MM Btu Output	0.20	3.13

Air/Fuel Ratio (A/F)	10.03

VERSION: **2.2** **12/14/2009**

HIGH FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 1
Technician: SJB
Date: 6/6/2022

Nominal Loading Density (lbs/ft^3, wet basis):	10		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	19.40		
Total Load Weight Range (lbs):	18.40	to	20.40
Core Load Weight Range (lbs):	8.70	to	12.60
Remainder Load Weight Range (lbs):	6.80	to	10.70
Core Load Piece Range (lbs):	2.90	to	4.90
Remainder Load Piece Range (lbs):	1.90	to	10.70
Max Allowable Kindling Weight (lbs):	3.82		
Max Allowable Start-up Fuel Weight (lbs):	5.73		

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	3.98	In Range	27.2	20.4	15.9	21.2	In Range	3.28	1.49
2	17.00	4.03	In Range	23.1	18.7	18.2	20.0	In Range	3.36	1.52
3	17.00	3.49	In Range	23.7	18.1	16.2	19.3	In Range	2.92	1.33
Core Load Wt. (lbs)		11.50	In Range							

REMAINDER LOAD DATA (1 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	2.53	In Range	25.7	16.5	22.3	21.5	In Range	2.08	0.94
2	17.00	5.08	In Range	23.7	19.0	14.4	19.0	In Range	4.27	1.94
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		7.61	In Range							

Total Load Weight (lbs):	19.11	In Range	
Core Load % of Total Weight:	60%	In Range	45-65%
Remainder % of Total Weight:	40%	In Range	35-55%
Total Load % of Target Weight:	99%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	9.9		
Total Load Average Moisture Content (%DB):	20.1	In Range	19-25%
Total Load Average Moisture Content (%WB):	16.7		
Total Test Load Weight (dry basis):	15.92 lbs	7.22 kg	

KINDLING AND START-UP FUEL

		Kindling Moisture Readings (%DB)					Dry Weight	
Kindling Weight (lbs)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
3.66	In Range	10	10	10	10.0	In Range	3.33	1.51

		Start-up Moisture Readings (%DB)					Dry Weight	
Start-up Fuel Wt. (lb)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
5.47	In Range	24.4	23.1	20.4	22.6	In Range	4.46	2.02

TEST FUEL LOADING RANGE

Allowable Residual Start-up Fuel Range (lb):	1.9	to	3.8	
Actual Residual Start-up Fuel Weight (lb):		2.40		In Range

TEST END POINT

High Fire Test Run End Point Range:	1.7	to	2.1	lb
Actual Fuel Load Ending Weight (lb):		2.00		In Range

Total Weight All Fuel Added: 28.24 lbs, wet basis
23.71 lbs, dry basis
10.75 kg, dry basis

Total Weight All Fuel Burned (dry basis): 19.31 lbs
8.76 kg

DILUTION TUNNEL & MISC. DATA - ASTM E3053 / E2515

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	1	Technician:	SJB
Test Start Time:	13:56	Date:	6/6/2022
Test Type:	High Fire		

Recording Interval (min):	1
Total Sampling Time (min):	159
High Fire Test Load Time (min):	55

Meter Box γ Factor:	1.022 (A)
Meter Box γ Factor:	1.025 (B)
Meter Box γ Factor:	0.993 (C)
Meter Box γ Factor:	0.988 (Ambient)

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100
Date Flue Pipe Last Cleaned:	6/3/2022

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.04	30.02	30.03
Relative Humidity (%)	44.3	40.9	
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	22.2	22.2	

Ambient Sample Volume: 18.968 ft^3

Sample Train Post-Test Leak Checks

(A)	0.000 cfm @	-5	in. Hg
(B)	0.002 cfm @	-5	in. Hg
(C)	0.001 cfm @	-4	in. Hg
(Ambient)	0.001 cfm @	-5	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.168	76
2	0.201	76
3	0.196	76
4	0.179	76
5	0.146	76
6	0.186	76
7	0.199	76
8	0.177	76
Center	0.207	76

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	8	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:	0.3491	ft^2
V_{strav}:	28.37	ft/sec
V_{scent}:	30.34	ft/sec
F_p:	0.935	[ratio]
Initial Tunnel Flow:	575.3	scf/min

Static Pressure: -0.418 in. H_2O

TEST FUEL PROPERTIES

ASTM 3053-17 - Table A1.1 Fuel Properties by Fuel Species

Select Fuel Type	Species	%C	%H	%O	%Ash	MJ/kg	BTU/lb
	Ash, White	49.70	6.90	43.00	0.30	20.75	8927
X	Beech	48.70	5.80	44.70	0.60	18.80	8088
	Birch, Yellow	49.80	6.50	43.40	0.30	20.12	8656
	Doug Fir (Coast, Int. West)	48.73	6.87	43.90	0.50	19.81	8522
	Doug Fir (Int. South)	48.73	6.87	43.90	0.50	19.81	8522
	Elm, Rock	50.40	6.60	42.30	0.70	20.49	8815
	Elm, Soft	50.40	6.60	42.30	0.70	20.49	8815
	Larch, Western	50.54	6.36	42.40	0.70	17.58	7558
	Maple, Hard	50.64	6.02	41.74	1.35	19.96	8587
	Maple, Sugar	50.64	6.02	41.74	1.35	19.96	8587
	Oak, Red	49.50	6.62	43.70	0.20	20.20	8690
	Oak, White	50.40	6.59	42.70	0.20	20.50	8819
	Pine, Southern Long Leaf	52.60	7.02	40.10	1.30	22.30	9594

WOODSTOVE PREBURN DATA

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	1	Technician:	SJB
		Date:	6/6/2022

High Fire Test Begins from Cold Start, No Preburn is Performed

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
0	268.860		0.201	-0.34	76.2	-0.43		9.15		77.2	53.1	75.2	81.3	73.7
1			0.202	-0.37	76.5	0.20	-	9.09	-0.0515	79.9	54.8	105.8	82.1	73.8
2			0.200	-0.31	76.5	0.23	-	9.02	-0.0736	79.1	54.5	124.9	82.2	73.8
3			0.199	-0.31	76.5	0.23	-	8.96	-0.0588	78.1	54.3	126.4	82.1	73.9
4			0.202	-0.32	76.5	0.25	-	8.90	-0.0664	78.3	54.6	136.8	82.2	73.9
5			0.200	-0.31	76.5	0.28	-	8.81	-0.0828	78.8	55.3	151.7	82.4	74.1
6			0.200	-0.31	76.6	0.28	-	8.77	-0.046	78.7	55.6	159.1	82.6	74.1
7			0.200	-0.31	76.6	0.30	-	8.69	-0.0809	79.0	55.8	165.2	82.6	74.1
8			0.201	-0.31	76.6	0.31	-	8.61	-0.0782	79.4	56.1	174.5	82.8	74.2
9			0.199	-0.31	76.6	0.31	-	8.52	-0.0857	79.5	56.2	181.4	82.8	74.3
10	270.646	0.179	0.201	-0.31	76.7	0.33	97	8.48	-0.0427	79.4	55.9	177.5	82.9	74.3
11			0.199	-0.37	76.7	0.32	-	8.43	-0.0477	79.4	55.6	174.7	83.1	74.4
12			0.202	-0.34	76.7	0.31	-	8.34	-0.0925	79.7	55.7	180.9	83.2	74.4
13			0.198	-0.37	76.7	0.33	-	8.25	-0.0923	80.2	56.4	196.8	83.2	74.5
14			0.201	-0.38	76.7	0.34	-	8.18	-0.0625	80.4	56.3	202.0	83.5	74.5
15			0.199	-0.36	76.8	0.33	-	8.12	-0.0669	80.4	55.9	200.5	83.8	74.6
16			0.200	-0.37	76.8	0.35	-	8.03	-0.0917	80.9	56.3	209.4	84.0	74.6
17			0.201	-0.36	76.8	0.35	-	7.93	-0.0959	81.4	57.1	222.2	84.2	74.7
18			0.198	-0.31	76.9	0.36	-	7.85	-0.0805	81.4	56.7	226.7	84.4	74.8
19			0.198	-0.31	76.9	0.35	-	7.76	-0.0887	81.6	56.7	233.7	84.6	74.9
20	272.428	0.178	0.198	-0.32	76.9	0.35	98	7.67	-0.0921	81.8	57.1	242.0	84.8	75.1
21			0.199	-0.36	77.0	0.37	-	7.55	-0.1152	82.2	57.5	251.1	84.9	75.2
22			0.199	-0.37	77.0	0.36	-	7.45	-0.1035	82.4	57.7	256.6	85.1	75.1
23			0.199	-0.37	77.0	0.34	-	7.35	-0.0979	82.4	57.6	257.0	85.2	75.2
24			0.199	-0.37	77.0	0.39	-	7.24	-0.1099	82.6	57.7	258.0	85.2	75.3
25			0.200	-0.37	77.0	0.40	-	7.16	-0.0817	82.9	57.6	260.5	85.4	75.4
26			0.200	-0.36	77.0	0.37	-	7.05	-0.1088	83.0	57.5	264.8	85.6	75.4
27			0.199	-0.35	77.1	0.39	-	6.94	-0.1158	83.1	57.8	271.2	85.7	75.7
28			0.198	-0.31	77.1	0.40	-	6.81	-0.1249	83.8	58.4	283.6	85.8	75.8
29			0.200	-0.34	77.1	0.42	-	6.69	-0.1257	84.1	58.7	292.5	86.0	75.9
30	274.198	0.177	0.199	-0.31	77.2	0.42	97	6.56	-0.1211	84.1	58.4	297.5	86.0	76.0
31			0.198	-0.37	77.2	0.42	-	6.43	-0.1338	84.6	58.5	302.0	86.3	76.1
32			0.199	-0.31	77.2	0.45	-	6.28	-0.148	85.8	59.3	307.3	86.5	75.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
33			0.199	-0.32	77.2	0.46	-	6.09	-0.1918	87.2	60.5	325.0	86.7	75.7
34			0.196	-0.32	77.2	0.48	-	5.90	-0.1917	87.0	61.2	340.0	86.7	76.0
35			0.195	-0.31	77.3	0.48	-	5.70	-0.2042	87.4	61.3	358.8	86.7	76.4
36			0.198	-0.31	77.3	0.48	-	5.46	-0.2307	88.6	62.0	378.9	86.7	76.6
37			0.197	-0.34	77.3	0.50	-	5.27	-0.1922	88.9	61.6	386.2	86.9	76.9
38			0.199	-0.34	77.3	0.49	-	5.08	-0.194	89.3	61.6	392.6	86.7	77.1
39			0.197	-0.37	77.3	0.48	-	4.87	-0.2034	89.5	61.6	396.2	86.6	77.3
40	275.985	0.179	0.195	-0.34	77.4	0.49	99	4.70	-0.1747	89.6	61.4	394.2	86.2	77.4
41			0.196	-0.31	77.4	0.50	-	4.52	-0.1837	90.0	61.2	393.5	85.9	77.6
42			0.195	-0.34	77.4	0.46	-	4.33	-0.1913	90.5	61.3	401.2	85.8	77.8
43			0.194	-0.32	77.4	0.49	-	4.14	-0.1873	90.9	61.6	411.8	85.5	78.1
44			0.196	-0.30	77.4	0.50	-	3.96	-0.1811	91.0	61.1	412.5	85.4	78.3
45			0.198	-0.31	77.4	0.48	-	3.79	-0.169	91.2	60.9	413.4	85.1	78.5
46			0.195	-0.31	77.5	0.51	-	3.63	-0.1612	91.5	60.9	414.9	84.9	78.7
47			0.195	-0.33	77.5	0.51	-	3.46	-0.1666	91.7	60.9	417.4	84.7	78.9
48			0.198	-0.31	77.5	0.48	-	3.30	-0.1578	91.9	60.5	418.2	84.4	79.2
49			0.196	-0.31	77.5	0.49	-	3.15	-0.1529	92.0	60.4	418.2	84.2	79.3
50	277.772	0.179	0.196	-0.36	77.5	0.48	100	3.00	-0.1483	92.4	60.5	420.1	84.1	79.5
51			0.197	-0.31	77.5	0.50	-	2.83	-0.1743	92.7	60.5	423.0	83.8	79.6
52			0.196	-0.33	77.5	0.47	-	2.68	-0.1432	95.3	60.3	424.1	83.9	79.6
53			0.197	-0.31	77.5	0.50	-	2.56	-0.1247	93.2	60.1	423.7	83.6	80.1
54			0.197	-0.34	77.5	0.48	-	2.43	-0.1332	92.9	60.0	422.6	83.5	80.7
55			0.191	-0.35	77.6	0.53	-	21.54	19.1148	119.0	62.3	462.8	84.9	81.7
56			0.193	-0.36	77.5	0.50	-	21.19	-0.3466	99.0	62.7	436.0	84.3	82.1
57			0.196	-0.32	77.5	0.52	-	21.05	-0.1385	95.3	62.4	422.5	83.8	82.1
58			0.195	-0.36	77.6	0.52	-	20.90	-0.1534	95.0	62.2	421.4	83.6	82.2
59			0.196	-0.31	77.6	0.52	-	20.74	-0.1596	94.9	61.8	421.1	83.4	81.9
60	279.560	0.179	0.196	-0.37	77.6	0.53	100	20.53	-0.209	96.2	63.5	439.9	83.3	82.1
61			0.195	-0.37	77.6	0.49	-	20.29	-0.2389	96.6	63.2	448.2	83.3	81.9
62			0.192	-0.37	77.7	0.51	-	20.12	-0.1699	100.0	63.2	454.7	83.5	80.1
63			0.193	-0.36	77.7	0.50	-	19.97	-0.1556	99.0	62.9	457.4	83.2	79.5
64			0.192	-0.34	77.7	0.47	-	19.81	-0.1626	98.9	62.9	458.6	83.2	78.3
65			0.196	-0.35	77.7	0.51	-	19.65	-0.1536	98.9	62.5	458.6	83.3	78.7

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
66			0.193	-0.31	77.7	0.50	-	19.50	-0.1554	98.9	62.3	457.6	83.2	79.1
67			0.195	-0.34	77.7	0.49	-	19.33	-0.1654	98.9	62.2	457.1	83.2	79.2
68			0.195	-0.31	77.8	0.50	-	19.18	-0.1483	98.7	62.0	456.5	83.2	79.1
69			0.192	-0.37	77.8	0.47	-	19.05	-0.1355	98.8	61.9	456.2	83.2	78.4
70	281.340	0.178	0.194	-0.33	77.8	0.51	100	18.90	-0.1492	98.8	61.7	455.4	83.2	79.0
71			0.195	-0.32	77.8	0.51	-	18.75	-0.1437	98.8	61.6	454.6	83.3	79.1
72			0.194	-0.31	77.8	0.51	-	18.60	-0.1509	98.8	61.6	452.4	83.3	78.6
73			0.194	-0.31	77.8	0.49	-	18.46	-0.1424	98.9	61.4	451.6	83.2	78.8
74			0.196	-0.32	77.8	0.50	-	18.33	-0.1314	98.8	61.3	450.3	83.1	79.1
75			0.194	-0.37	77.8	0.49	-	18.20	-0.1347	98.6	61.3	446.8	83.2	79.6
76			0.193	-0.32	77.8	0.46	-	18.05	-0.1425	99.9	61.0	444.0	83.4	80.4
77			0.196	-0.34	77.9	0.49	-	17.91	-0.1413	100.6	60.8	440.1	83.6	80.6
78			0.193	-0.37	77.8	0.48	-	17.78	-0.1295	100.9	60.8	436.5	83.8	80.8
79			0.193	-0.37	77.9	0.49	-	17.65	-0.1349	101.3	60.9	433.2	84.1	80.9
80	283.111	0.177	0.195	-0.35	77.9	0.50	100	17.52	-0.1227	101.2	60.9	433.3	84.2	80.7
81			0.196	-0.37	77.9	0.50	-	17.40	-0.1236	98.0	61.2	430.7	84.3	82.0
82			0.194	-0.34	77.9	0.52	-	17.27	-0.1327	97.9	61.0	429.4	84.3	82.7
83			0.194	-0.35	78.0	0.49	-	17.13	-0.1361	97.4	60.9	428.1	84.4	83.2
84			0.195	-0.35	77.9	0.48	-	16.99	-0.1467	97.7	61.0	425.4	84.6	83.6
85			0.196	-0.32	78.0	0.48	-	16.83	-0.1505	97.8	61.1	424.5	84.6	83.8
86			0.195	-0.32	78.0	0.53	-	16.70	-0.1387	98.2	61.3	424.9	84.8	83.8
87			0.194	-0.31	78.0	0.49	-	16.56	-0.1399	98.5	61.3	425.2	85.1	83.9
88			0.195	-0.34	78.0	0.52	-	16.41	-0.1495	98.6	61.4	426.1	85.1	84.2
89			0.196	-0.31	78.0	0.52	-	16.25	-0.1586	98.9	61.7	428.6	85.2	84.1
90	284.895	0.178	0.197	-0.35	78.0	0.46	100	16.10	-0.1487	99.1	62.0	433.7	85.3	84.5
91			0.195	-0.32	78.1	0.50	-	15.94	-0.1639	99.4	62.3	438.4	85.7	85.1
92			0.193	-0.31	78.1	0.52	-	15.76	-0.1759	99.7	62.3	441.9	85.5	85.2
93			0.195	-0.35	78.1	0.48	-	15.60	-0.1643	100.0	62.4	445.6	85.5	85.3
94			0.193	-0.37	78.1	0.47	-	15.42	-0.1753	100.2	62.6	449.0	85.5	85.6
95			0.192	-0.34	78.1	0.51	-	15.23	-0.189	102.7	63.3	456.5	85.5	84.3
96			0.193	-0.36	78.1	0.50	-	15.06	-0.1666	104.3	63.1	468.8	85.7	82.6
97			0.193	-0.34	78.1	0.50	-	14.88	-0.1833	103.5	63.9	477.9	85.9	83.6
98			0.194	-0.31	78.1	0.50	-	14.68	-0.1989	104.1	64.3	485.1	85.9	83.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
99			0.192	-0.33	78.1	0.52	-	14.47	-0.2112	104.6	64.5	491.5	86.0	83.4
100	286.689	0.179	0.194	-0.32	78.1	0.54	101	14.25	-0.2241	105.2	64.9	498.3	86.0	83.2
101			0.192	-0.32	78.2	0.50	-	14.00	-0.2506	106.1	65.3	505.7	86.1	82.2
102			0.192	-0.31	78.2	0.52	-	13.72	-0.2757	104.9	65.6	511.8	85.9	82.1
103			0.193	-0.32	78.2	0.55	-	13.49	-0.2319	104.5	65.7	519.4	85.9	83.2
104			0.192	-0.36	78.2	0.55	-	13.25	-0.2361	104.1	65.8	527.6	85.8	83.6
105			0.191	-0.32	78.2	0.57	-	12.98	-0.2737	103.4	65.8	533.4	85.9	82.7
106			0.192	-0.31	78.3	0.57	-	12.72	-0.2547	103.2	65.7	540.0	85.8	82.1
107			0.192	-0.32	78.2	0.56	-	12.46	-0.2652	102.9	65.5	545.3	85.7	81.7
108			0.193	-0.34	78.3	0.59	-	12.21	-0.2509	102.9	65.4	549.3	85.7	81.1
109			0.193	-0.32	78.3	0.61	-	11.94	-0.2695	102.9	65.4	551.9	85.5	81.2
110	288.468	0.178	0.190	-0.31	78.3	0.61	101	11.67	-0.2697	102.9	65.4	553.9	85.6	81.1
111			0.193	-0.31	78.3	0.64	-	11.39	-0.275	103.1	65.5	555.3	85.7	80.8
112			0.189	-0.31	78.4	0.62	-	11.17	-0.2261	102.3	64.5	551.7	85.5	80.7
113			0.191	-0.32	78.4	0.64	-	10.96	-0.2084	101.9	63.8	547.2	85.6	81.2
114			0.192	-0.32	78.4	0.61	-	10.74	-0.2164	101.7	63.7	543.4	85.4	80.6
115			0.193	-0.32	78.4	0.61	-	10.51	-0.2361	101.5	63.8	542.5	85.4	80.5
116			0.193	-0.31	78.4	0.66	-	10.31	-0.1984	101.9	63.6	543.0	85.3	80.8
117			0.194	-0.31	78.4	0.68	-	10.08	-0.2244	101.7	63.5	542.4	85.4	80.8
118			0.193	-0.31	78.5	0.63	-	9.87	-0.218	101.6	63.3	542.3	85.3	80.4
119			0.192	-0.31	78.5	0.66	-	9.64	-0.2231	101.5	63.2	542.5	85.3	80.4
120	290.250	0.178	0.193	-0.31	78.5	0.66	101	9.46	-0.1876	101.7	63.0	541.9	85.2	80.6
121			0.191	-0.31	78.5	0.66	-	9.24	-0.2197	101.7	62.9	540.0	85.4	80.8
122			0.194	-0.31	78.5	0.66	-	9.05	-0.1893	101.6	62.7	540.1	85.2	80.8
123			0.197	-0.31	78.6	0.65	-	8.85	-0.2011	101.4	62.7	538.5	85.2	80.8
124			0.192	-0.31	78.6	0.66	-	8.65	-0.1948	101.3	62.7	538.2	85.2	80.9
125			0.192	-0.32	78.6	0.67	-	8.45	-0.1961	101.3	62.5	536.9	85.2	80.7
126			0.193	-0.32	78.7	0.66	-	8.24	-0.2143	101.3	62.3	535.9	85.2	81.3
127			0.194	-0.31	78.6	0.68	-	8.08	-0.1625	101.2	62.0	533.5	85.2	80.7
128			0.193	-0.32	78.7	0.69	-	7.89	-0.1838	100.9	62.0	531.2	85.2	81.1
129			0.193	-0.37	78.7	0.67	-	7.71	-0.1885	101.0	61.9	529.9	85.1	81.3
130	292.038	0.179	0.193	-0.31	78.7	0.66	101	7.54	-0.1689	101.2	61.7	527.8	85.2	81.3
131			0.197	-0.32	78.7	0.67	-	7.36	-0.1753	101.2	61.6	526.1	85.0	81.3

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
132			0.192	-0.31	78.7	0.68	-	7.17	-0.1962	101.0	61.4	525.0	85.1	81.1
133			0.193	-0.32	78.7	0.69	-	6.99	-0.1756	100.9	61.3	523.2	85.0	81.6
134			0.193	-0.31	78.7	0.67	-	6.84	-0.1496	101.0	61.2	524.1	85.0	81.1
135			0.194	-0.32	78.7	0.68	-	6.68	-0.1594	100.8	61.0	522.4	84.9	82.0
136			0.190	-0.31	78.8	0.71	-	6.52	-0.1562	100.9	60.9	522.4	85.0	81.5
137			0.192	-0.32	78.7	0.70	-	6.36	-0.1677	100.8	60.9	521.7	84.9	81.4
138			0.194	-0.37	78.8	0.71	-	6.20	-0.1563	100.6	60.6	520.2	85.0	81.1
139			0.193	-0.34	78.8	0.71	-	6.07	-0.1329	100.5	60.4	518.6	84.9	81.8
140	293.820	0.178	0.192	-0.36	78.8	0.71	101	5.91	-0.1566	100.3	60.1	516.9	85.0	81.4
141			0.196	-0.31	78.8	0.71	-	5.80	-0.1141	100.1	59.9	514.5	84.9	81.6
142			0.192	-0.33	78.8	0.72	-	5.66	-0.138	100.0	59.7	510.9	84.9	81.5
143			0.194	-0.32	78.9	0.72	-	5.53	-0.1295	99.5	59.2	506.3	84.8	81.6
144			0.195	-0.31	78.9	0.71	-	5.43	-0.0951	99.3	58.6	501.1	84.9	81.8
145			0.196	-0.32	78.9	0.71	-	5.34	-0.0977	98.9	58.3	497.1	84.7	81.7
146			0.195	-0.31	78.9	0.72	-	5.25	-0.0826	98.5	58.0	492.5	84.6	81.8
147			0.195	-0.32	78.9	0.70	-	5.14	-0.1099	98.4	57.8	488.7	84.8	81.8
148			0.194	-0.31	78.9	0.68	-	5.09	-0.0532	98.2	57.7	485.0	84.6	81.6
149			0.195	-0.32	78.9	0.70	-	5.00	-0.0901	98.0	57.5	481.9	84.5	81.8
150	295.615	0.180	0.195	-0.31	78.9	0.71	101	4.92	-0.0816	97.7	57.3	479.5	84.5	81.5
151			0.195	-0.32	78.9	0.72	-	4.84	-0.0784	97.8	57.2	476.6	84.5	81.3
152			0.197	-0.32	78.9	0.69	-	4.76	-0.0783	97.5	57.1	474.4	84.4	81.2
153			0.196	-0.34	78.9	0.72	-	4.72	-0.0457	97.2	56.8	470.1	84.3	81.3
154			0.194	-0.32	78.9	0.73	-	4.66	-0.055	97.0	56.4	467.0	84.3	81.0
155			0.194	-0.31	78.9	0.71	-	4.59	-0.0742	96.7	56.3	462.6	84.4	81.5
156			0.196	-0.32	78.9	0.72	-	4.52	-0.0712	96.7	56.1	460.2	84.2	80.9
157			0.196	-0.32	79.0	0.72	-	4.46	-0.0589	96.3	56.0	456.9	84.2	80.8
158			0.196	-0.31	79.0	0.72	-	4.42	-0.0378	96.3	55.8	453.8	84.2	80.8
159	297.230	0.179	0.197	-0.31	79.0	0.72	100	4.37	-0.046	96.0	55.7	451.0	84.1	81.0
Avg/Tot	28.370	0.178	0.195	-0.33	78	0.52	100			95	61	417	85	79.7

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	287.429		-0.31	75.7	-0.50		84	-0.003	0.13	0.00
1			-0.32	75.7	0.10	-	84	0.018	1.42	0.01
2			-0.32	75.7	0.22	-	84	0.012	2.04	0.02
3			-0.32	75.7	0.19	-	85	0.016	6.94	0.11
4			-0.32	75.6	0.22	-	85	0.022	8.07	0.20
5			-0.32	75.6	0.18	-	85	0.025	8.43	0.19
6			-0.31	75.7	0.19	-	86	0.024	8.23	0.10
7			-0.31	75.6	0.24	-	86	0.027	5.28	0.15
8			-0.33	75.7	0.25	-	87	0.029	6.76	0.10
9			-0.32	75.7	0.27	-	87	0.030	6.01	0.16
10	289.227	0.180	-0.32	75.7	0.25	97	87	0.027	5.21	0.19
11			-0.31	75.7	0.23	-	87	0.026	3.88	0.20
12			-0.32	75.7	0.29	-	87	0.032	3.86	0.22
13			-0.31	75.7	0.20	-	87	0.035	6.96	0.14
14			-0.32	75.8	0.22	-	87	0.034	6.53	0.13
15			-0.32	75.7	0.26	-	86	0.033	4.70	0.18
16			-0.32	75.8	0.26	-	86	0.038	5.03	0.19
17			-0.32	75.9	0.32	-	86	0.038	6.91	0.19
18			-0.32	75.9	0.23	-	86	0.038	6.23	0.24
19			-0.32	75.9	0.24	-	86	0.038	6.02	0.20
20	291.024	0.180	-0.32	75.9	0.33	98	86	0.041	6.84	0.19
21			-0.32	76.0	0.33	-	86	0.045	7.06	0.18
22			-0.32	76.0	0.31	-	86	0.044	7.89	0.19
23			-0.32	76.0	0.29	-	86	0.044	7.44	0.25
24			-0.32	76.0	0.30	-	86	0.044	7.20	0.29
25			-0.32	76.0	0.32	-	86	0.044	7.17	0.29
26			-0.32	76.1	0.34	-	86	0.045	6.07	0.36
27			-0.32	76.1	0.25	-	86	0.047	7.26	0.22
28			-0.32	76.1	0.34	-	86	0.049	7.88	0.21
29			-0.32	76.1	0.36	-	86	0.050	9.41	0.18
30	292.834	0.181	-0.32	76.1	0.33	99	86	0.049	8.99	0.29
31			-0.32	76.2	0.29	-	86	0.051	8.38	0.29
32			-0.32	76.2	0.37	-	86	0.055	9.30	0.26

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
33			-0.32	76.2	0.33	-	86	0.058	12.01	0.35
34			-0.32	76.2	0.32	-	86	0.061	13.42	0.28
35			-0.32	76.2	0.37	-	86	0.061	13.29	0.16
36			-0.32	76.2	0.34	-	86	0.063	14.15	0.15
37			-0.32	76.3	0.38	-	86	0.066	14.10	0.14
38			-0.32	76.3	0.35	-	86	0.065	13.43	0.19
39			-0.32	76.3	0.33	-	86	0.067	13.64	0.17
40	294.629	0.180	-0.32	76.3	0.39	99	86	0.064	13.12	0.10
41			-0.33	76.4	0.40	-	86	0.063	12.94	0.15
42			-0.32	76.4	0.40	-	85	0.067	12.77	0.11
43			-0.32	76.4	0.37	-	85	0.067	13.47	0.11
44			-0.33	76.4	0.39	-	85	0.067	12.91	0.07
45			-0.32	76.4	0.34	-	85	0.067	12.13	0.08
46			-0.33	76.4	0.39	-	85	0.067	12.15	0.11
47			-0.34	76.4	0.35	-	84	0.068	12.07	0.14
48			-0.32	76.4	0.40	-	84	0.069	11.97	0.11
49			-0.33	76.4	0.40	-	84	0.066	11.57	0.16
50	296.429	0.180	-0.30	76.5	0.41	100	84	0.068	11.50	0.19
51			-0.30	76.4	0.37	-	84	0.068	11.86	0.21
52			-0.32	76.4	0.34	-	83	0.067	11.78	0.14
53			-0.32	76.4	0.38	-	83	0.069	11.24	0.10
54			-0.31	76.5	0.40	-	83	0.067	11.17	0.08
55			-0.32	76.5	0.37	-	83	0.086	8.77	0.13
56			-0.31	76.5	0.43	-	83	0.068	6.11	0.14
57			-0.33	76.5	0.38	-	83	0.069	7.29	0.17
58			-0.32	76.5	0.38	-	83	0.069	8.59	0.12
59			-0.32	76.5	0.42	-	83	0.071	8.76	0.16
60	298.233	0.180	-0.32	76.5	0.39	100	83	0.074	10.13	0.14
61			-0.32	76.5	0.40	-	83	0.074	13.39	0.07
62			-0.32	76.6	0.39	-	82	0.074	11.96	0.05
63			-0.32	76.6	0.41	-	82	0.074	11.31	0.06
64			-0.32	76.6	0.42	-	82	0.074	11.11	0.06
65			-0.32	76.7	0.41	-	82	0.073	10.76	0.06

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
66			-0.32	76.7	0.40	-	82	0.073	10.50	0.05
67			-0.32	76.7	0.38	-	82	0.072	10.14	0.06
68			-0.32	76.7	0.45	-	82	0.072	10.02	0.06
69			-0.32	76.7	0.38	-	82	0.072	9.82	0.06
70	300.050	0.182	-0.31	76.7	0.38	101	82	0.071	9.63	0.07
71			-0.32	76.7	0.38	-	82	0.070	9.50	0.08
72			-0.32	76.7	0.44	-	82	0.071	9.36	0.09
73			-0.33	76.7	0.39	-	82	0.071	9.15	0.10
74			-0.32	76.7	0.37	-	82	0.072	8.90	0.12
75			-0.32	76.7	0.39	-	82	0.070	8.70	0.15
76			-0.33	76.7	0.37	-	82	0.070	8.41	0.20
77			-0.32	76.8	0.41	-	82	0.070	8.17	0.28
78			-0.32	76.8	0.43	-	83	0.070	7.95	0.35
79			-0.32	76.8	0.45	-	83	0.070	8.02	0.36
80	301.848	0.180	-0.32	76.8	0.38	100	83	0.069	8.05	0.36
81			-0.33	76.8	0.42	-	84	0.070	7.91	0.45
82			-0.31	76.9	0.42	-	84	0.068	7.81	0.46
83			-0.33	76.9	0.44	-	84	0.068	8.01	0.44
84			-0.32	76.9	0.45	-	84	0.071	8.38	0.40
85			-0.32	76.9	0.46	-	85	0.069	8.64	0.36
86			-0.32	76.9	0.47	-	85	0.070	8.92	0.33
87			-0.32	76.9	0.45	-	85	0.068	9.04	0.32
88			-0.32	77.0	0.42	-	86	0.069	9.03	0.33
89			-0.33	77.0	0.40	-	86	0.070	9.23	0.32
90	303.648	0.180	-0.32	77.1	0.44	100	86	0.071	9.59	0.29
91			-0.32	77.1	0.44	-	86	0.072	10.18	0.25
92			-0.34	77.1	0.45	-	86	0.073	10.41	0.24
93			-0.32	77.1	0.44	-	86	0.071	10.45	0.20
94			-0.31	77.1	0.41	-	86	0.073	10.65	0.18
95			-0.32	77.2	0.45	-	86	0.075	11.07	0.13
96			-0.32	77.1	0.40	-	86	0.075	11.39	0.09
97			-0.32	77.1	0.41	-	86	0.075	12.24	0.08
98			-0.32	77.2	0.44	-	86	0.075	12.89	0.11

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
99			-0.31	77.2	0.45	-	86	0.078	13.51	0.16
100	305.452	0.180	-0.32	77.2	0.43	101	86	0.078	14.12	0.25
101			-0.32	77.2	0.40	-	86	0.080	14.82	0.26
102			-0.32	77.3	0.41	-	86	0.077	15.16	0.32
103			-0.32	77.3	0.41	-	85	0.079	15.82	0.41
104			-0.32	77.3	0.49	-	85	0.082	16.32	0.39
105			-0.32	77.3	0.44	-	85	0.082	16.88	0.45
106			-0.32	77.3	0.51	-	85	0.081	17.28	0.64
107			-0.32	77.4	0.52	-	85	0.080	17.50	0.60
108			-0.32	77.4	0.46	-	85	0.083	17.63	0.60
109			-0.32	77.4	0.53	-	85	0.085	17.79	0.60
110	307.256	0.180	-0.33	77.4	0.57	102	85	0.082	17.79	0.79
111			-0.32	77.4	0.51	-	85	0.082	18.07	0.76
112			-0.32	77.4	0.59	-	85	0.083	17.65	0.62
113			-0.32	77.5	0.57	-	85	0.082	15.84	0.24
114			-0.32	77.5	0.57	-	84	0.080	15.20	0.14
115			-0.32	77.5	0.53	-	84	0.080	15.43	0.14
116			-0.32	77.5	0.58	-	84	0.081	15.62	0.15
117			-0.32	77.5	0.59	-	84	0.081	15.73	0.16
118			-0.32	77.5	0.53	-	84	0.083	15.78	0.15
119			-0.32	77.6	0.53	-	84	0.081	15.67	0.13
120	309.062	0.181	-0.32	77.6	0.55	102	84	0.082	15.47	0.12
121			-0.32	77.6	0.52	-	84	0.081	15.46	0.11
122			-0.35	77.6	0.60	-	84	0.079	15.41	0.12
123			-0.33	77.6	0.58	-	84	0.080	15.29	0.12
124			-0.35	77.6	0.59	-	84	0.079	15.26	0.13
125			-0.32	77.7	0.53	-	84	0.081	15.12	0.12
126			-0.33	77.7	0.58	-	84	0.080	14.96	0.11
127			-0.32	77.7	0.54	-	84	0.079	14.84	0.12
128			-0.32	77.7	0.55	-	84	0.080	14.70	0.12
129			-0.32	77.7	0.59	-	84	0.079	14.54	0.10
130	310.865	0.180	-0.32	77.7	0.60	101	84	0.079	14.39	0.11
131			-0.32	77.8	0.57	-	84	0.079	14.31	0.12

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
132			-0.32	77.8	0.56	-	84	0.079	14.24	0.12
133			-0.33	77.8	0.59	-	84	0.079	14.17	0.11
134			-0.32	77.8	0.59	-	83	0.078	14.36	0.07
135			-0.34	77.8	0.58	-	83	0.078	14.32	0.08
136			-0.32	77.8	0.59	-	83	0.079	14.25	0.08
137			-0.32	77.8	0.59	-	83	0.077	14.23	0.06
138			-0.32	77.8	0.57	-	83	0.079	14.17	0.05
139			-0.34	77.8	0.63	-	83	0.077	13.93	0.04
140	312.667	0.180	-0.31	77.9	0.59	101	83	0.076	13.74	0.03
141			-0.34	77.9	0.60	-	83	0.076	13.46	0.03
142			-0.34	77.9	0.67	-	83	0.075	13.28	0.03
143			-0.37	77.9	0.65	-	83	0.076	12.84	0.02
144			-0.35	77.9	0.60	-	83	0.074	11.70	0.02
145			-0.35	77.9	0.66	-	83	0.075	11.00	0.02
146			-0.34	77.9	0.57	-	83	0.074	10.72	0.02
147			-0.33	77.9	0.61	-	83	0.074	10.56	0.03
148			-0.35	77.9	0.62	-	83	0.073	10.40	0.03
149			-0.32	77.9	0.58	-	83	0.072	10.28	0.03
150	314.478	0.181	-0.35	77.9	0.63	101	83	0.073	10.12	0.03
151			-0.32	78.0	0.60	-	83	0.072	9.88	0.03
152			-0.33	78.0	0.61	-	83	0.071	9.72	0.04
153			-0.32	78.0	0.61	-	83	0.070	9.48	0.04
154			-0.32	78.0	0.62	-	83	0.069	9.17	0.05
155			-0.32	78.0	0.65	-	83	0.070	8.89	0.06
156			-0.32	78.0	0.65	-	83	0.070	8.82	0.08
157			-0.32	78.0	0.63	-	83	0.069	8.76	0.08
158			-0.32	78.1	0.63	-	83	0.069	8.45	0.10
159	316.104	0.181	-0.32	78.1	0.62	100	83	0.068	8.32	0.07
Avg/Tot	28.675	0.180	-0.32	77	0.43	100	84	0.065	10.93	0.18

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
0	75	73	74	74	74	73.9	N/A
1	77	73	76	77	76	75.8	N/A
2	81	73	81	86	82	80.7	N/A
3	88	73	87	98	86	86.6	N/A
4	96	73	96	112	91	93.6	N/A
5	105	73	105	126	96	101.3	N/A
6	112	73	111	139	103	107.6	N/A
7	117	73	115	147	108	112.2	N/A
8	122	74	120	158	114	117.7	N/A
9	126	74	125	169	121	122.9	N/A
10	127	74	129	177	126	126.5	N/A
11	130	74	131	182	131	129.7	N/A
12	135	74	136	188	135	133.5	N/A
13	141	74	143	200	140	139.6	N/A
14	146	75	148	210	147	144.9	N/A
15	149	75	151	216	152	148.7	N/A
16	153	75	155	221	157	152.1	N/A
17	159	76	159	224	166	156.6	N/A
18	162	76	163	228	176	160.9	N/A
19	165	77	168	231	185	165.2	N/A
20	169	78	174	236	194	170.1	N/A
21	174	78	181	243	203	175.7	N/A
22	178	79	189	251	212	181.9	N/A
23	183	80	197	257	222	187.7	N/A
24	188	81	205	263	231	193.5	N/A
25	192	82	213	267	241	199.1	N/A
26	195	83	220	272	251	204.1	N/A
27	199	84	227	277	260	209.4	N/A
28	204	85	234	285	269	215.6	N/A
29	210	86	242	296	279	222.9	N/A
30	216	88	251	307	288	230.0	N/A
31	221	89	260	318	298	237.1	N/A
32	228	90	270	327	309	245.0	N/A
33	240	91	283	339	324	255.5	N/A
34	251	93	298	352	345	267.9	N/A
35	261	95	312	367	367	280.5	N/A
36	272	97	325	383	389	293.2	N/A
37	281	99	337	399	410	305.1	N/A
38	290	100	349	416	427	316.2	N/A
39	297	102	361	434	442	327.3	N/A
40	305	105	373	451	457	338.2	N/A
41	313	107	387	465	472	348.8	N/A
42	320	109	399	478	486	358.5	N/A
43	327	112	408	490	499	367.4	N/A
44	332	115	417	502	511	375.5	N/A
45	337	118	425	512	521	382.7	N/A
46	342	120	433	522	529	389.2	N/A
47	346	124	440	532	537	395.9	N/A
48	350	126	448	543	544	402.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
49	353	130	455	553	550	408.3	N/A
50	356	134	462	562	555	414.1	N/A
51	360	138	469	572	561	419.9	N/A
52	363	140	475	582	565	425.2	N/A
53	365	145	482	591	570	430.6	N/A
54	368	148	488	598	574	435.3	N/A
55	367	156	499	607	581	442.0	N/A
56	367	158	505	609	588	445.5	N/A
57	367	163	507	610	590	447.2	N/A
58	368	167	509	609	589	448.5	N/A
59	368	173	509	610	590	449.9	N/A
60	373	176	509	612	590	452.3	N/A
61	379	181	509	616	592	455.4	N/A
62	385	182	507	619	593	457.1	N/A
63	390	185	505	621	595	459.2	N/A
64	395	187	502	623	596	460.8	N/A
65	398	192	500	625	597	462.6	N/A
66	402	196	497	627	599	464.0	N/A
67	405	198	495	627	600	465.0	N/A
68	407	198	493	627	601	465.4	N/A
69	409	202	491	627	602	466.4	N/A
70	411	206	490	627	603	467.2	N/A
71	412	207	488	627	603	467.3	N/A
72	413	208	486	626	604	467.4	N/A
73	413	209	484	625	605	467.1	N/A
74	413	213	482	623	605	467.2	N/A
75	414	214	480	620	606	466.7	N/A
76	414	217	478	616	607	466.3	N/A
77	414	217	476	613	607	465.2	N/A
78	414	218	474	608	606	463.8	N/A
79	414	219	472	602	605	462.5	N/A
80	413	220	470	597	604	461.0	N/A
81	413	222	469	593	602	459.8	N/A
82	412	222	468	589	601	458.5	N/A
83	411	224	468	585	601	458.0	N/A
84	412	226	468	583	601	457.6	N/A
85	413	227	466	580	602	457.7	N/A
86	416	228	465	577	604	458.0	N/A
87	419	229	463	575	606	458.4	N/A
88	421	230	463	573	608	458.9	N/A
89	424	231	462	571	609	459.4	N/A
90	427	231	463	570	610	460.3	N/A
91	429	232	465	570	611	461.5	N/A
92	432	233	466	571	612	462.8	N/A
93	433	234	468	572	613	464.0	N/A
94	434	234	471	575	613	465.4	N/A
95	434	230	472	580	614	466.1	N/A
96	436	229	474	586	615	467.9	N/A
97	438	232	477	593	616	471.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
98	442	232	480	601	618	474.8	N/A
99	446	234	485	611	621	479.6	N/A
100	451	234	492	623	626	485.1	N/A
101	456	234	498	636	631	491.1	N/A
102	463	235	505	650	638	498.2	N/A
103	470	234	512	665	646	505.4	N/A
104	478	233	520	680	656	513.3	N/A
105	484	232	529	696	668	522.0	N/A
106	490	235	541	712	682	532.0	N/A
107	497	236	554	727	696	542.0	N/A
108	503	237	568	740	710	551.7	N/A
109	509	238	581	752	724	560.7	N/A
110	514	238	596	763	736	569.4	N/A
111	519	237	609	773	748	577.4	N/A
112	523	240	621	784	759	585.3	N/A
113	525	241	630	792	767	591.0	N/A
114	525	242	640	799	772	595.4	N/A
115	526	242	649	804	776	599.3	N/A
116	526	243	658	810	780	603.5	N/A
117	527	244	667	815	785	607.7	N/A
118	528	246	676	820	789	611.7	N/A
119	529	247	683	824	793	615.3	N/A
120	530	248	690	827	797	618.5	N/A
121	531	248	697	831	801	621.5	N/A
122	531	249	703	834	805	624.5	N/A
123	532	250	708	837	808	627.3	N/A
124	533	252	713	841	812	630.2	N/A
125	533	254	719	844	815	633.1	N/A
126	533	255	724	848	817	635.5	N/A
127	533	254	729	852	819	637.3	N/A
128	533	257	733	855	821	639.7	N/A
129	532	257	737	859	821	641.4	N/A
130	532	259	741	862	821	643.0	N/A
131	532	260	744	866	821	644.4	N/A
132	531	262	747	869	820	645.8	N/A
133	530	264	750	872	818	647.0	N/A
134	529	266	752	875	817	647.8	N/A
135	528	267	754	879	816	648.7	N/A
136	528	268	756	881	815	649.6	N/A
137	526	268	758	883	815	650.3	N/A
138	525	272	761	884	816	651.5	N/A
139	523	273	762	885	817	652.1	N/A
140	521	275	763	886	817	652.5	N/A
141	519	277	764	886	817	652.7	N/A
142	517	278	765	886	817	652.6	N/A
143	514	279	767	886	816	652.4	N/A
144	510	283	767	883	815	651.7	N/A
145	506	285	767	878	813	649.7	N/A
146	502	287	766	872	811	647.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
147	498	290	765	867	808	645.6	N/A
148	494	290	763	861	805	642.9	N/A
149	491	293	761	856	802	640.6	N/A
150	487	296	759	850	799	638.2	N/A
151	484	298	758	845	795	635.8	N/A
152	480	300	755	840	792	633.3	N/A
153	476	301	753	834	789	630.4	N/A
154	472	304	749	828	786	627.7	N/A
155	468	306	745	821	782	624.7	N/A
156	464	308	741	815	779	621.5	N/A
157	461	310	737	808	776	618.3	N/A
158	457	314	732	802	772	615.4	N/A
159	454	316	728	795	769	612.2	N/A
Average	381	190	484	585	563	441	N/A

LAB SAMPLE DATA - ASTM E2515

Client: SBI
Model: Bistro
Run #: 1

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	H100	185.2	187.6	2.4
	B	H101	183.9	186.4	2.5
	C - 1st Hour	H102	185.0	185.9	0.9
	Amb	H103	184.6	184.6	0.0
Probes	**A**	4A	116020.4	116020.6	0.2
	B	4B	116179.0	116178.9	-0.1
	C - 1st Hour	4C	116994.3	116994.4	0.1
O-rings	**A**	4A	3623.0	3623.0	0.0
	B	4B	3580.5	3580.7	0.2
	C - 1st Hour	4C	3373.9	3374.0	0.1

Placed in Dessicator on:	6/13 - 8:30

Filters	**A**	187.8	6/6 17:16	187.7	6/15 12:05	187.6	6/16 8:55		
	B	186.5	6/6 17:16	186.5	6/15 12:05	186.4	6/16 8:55		
	C - 1st Hour	186.1	6/6 17:16	186.0	6/15 12:05	185.9	6/16 8:55		
	Amb	184.5	6/6 17:16	184.6	6/15 12:05	184.6	6/16 8:55		
Probes	**A**			116020.5	6/15 12:06	116020.6	6/16 8:55		
	B			116179.0	6/15 12:06	116178.9	6/16 8:55		
	C - 1st Hour			116994.6	6/15 12:06	116994.4	6/16 8:56		
O-Rings	**A**			3623.0	6/15 12:06	3623.0	6/16 8:56		
	B			3580.8	6/15 12:06	3580.7	6/16 8:56		
	C - 1st Hour			3374.0	6/15 12:06	3374.0	6/16 8:56		

Train A Aggregate, mg:	**2.6**
Train B Aggregate, mg:	**2.6**
Train C Aggregate, mg:	**1.1**
Ambient Aggregate, mg:	**0.0**

WOOD STOVE TEST DATA PACKET
ASTM E3053/E2515

Run 2 Data Summary

Client:	SBI
Model:	Bistro
Job #:	22-790
Tracking #:	122
Test Date:	6/6/2022

Technician Signature

7/10/2024
Date

TEST RESULTS - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

Burn Rate (kg/hr):	1.34

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	45.820	74.630	75.963	9.897
Average Gas Velocity in Dilution Tunnel (ft/sec)	28.19			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	33042.0			
Average Gas Meter Temperature (°F)	83.7	80.0	78.7	79.9
Total Sample Volume (dscf)	44.095	74.739	76.469	9.649
Average Tunnel Temperature (°F)	96.0			
Total Time of Test (min)	388			
Total Particulate Catch (mg)	0.0	4.8	4.8	2.8
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000642	0.0000628	0.0002902
Total PM Emissions (g)	0.00	13.72	13.41	9.59
Particulate Emission Rate (g/hr)	0.00	2.12	2.07	9.59
Emissions Factor (g/kg)	-	1.58	1.55	-
Difference from Average Total Particulate Emissions (g)	-	0.16	0.16	-
Difference from Average Total Particulate Emissions (%)	-	1.1%	1.1%	-
Difference from Average Emissions Factor (g/kg)	-	0.02	0.02	-

Final Average Results	
Total Particulate Emissions (g)	13.57
Particulate Emission Rate (g/hr)	2.10
Emissions Factor (g/kg)	1.57
HHV Efficiency (%)	75.0%
LHV Efficiency (%)	80.3%
CO Emissions (g/min)	1.00

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	>80 °F, <90 °F	Min: 81.3 / Max: 88.4	OK
Face Velocity	< 30 ft/min	10.7	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:80.1/ Max:89.4	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-3.6%	OK
Pro-Rate Variation	All but 1 reading between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Tunnel Dew Point	Tunnel dew point temps must be below filter temps at all times	See Data Tabs	OK

B415.1 Efficiency Results

Manufacturer:	SBI
Model:	Bistro
Date:	06/06/22
Run:	2
Control #:	22-790
Test Duration:	388
Output Category:	Medium

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	75.0%	80.3%
Combustion Efficiency	97.0%	97.0%
Heat Transfer Efficiency	77.3%	82.8%

Output Rate (kJ/h)	18,896	17,925	**(Btu/h)**
Burn Rate (kg/h)	1.34	2.96	**(lb/h)**
Input (kJ/h)	25,211	23,916	**(Btu/h)**

Test Load Weight (dry kg)	8.67	19.11	**dry lb**
MC wet (%)	16.80		
MC dry (%)	20.19		
Particulate (g)	13.57		
CO (g)	387		
Test Duration (h)	6.47		

Emissions	**Particulate**	**CO**
g/MJ Output	0.11	3.17
g/kg Dry Fuel	1.56	44.64
g/h	2.10	59.86
g/min	0.03	1.00
lb/MM Btu Output	0.26	7.36

Air/Fuel Ratio (A/F)	16.06

VERSION: **2.2** **12/14/2009**

HIGH FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 2
Technician: SJB
Date: 6/6/2022

Nominal Loading Density (lbs/ft^3, wet basis):	10		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	19.40		
Total Load Weight Range (lbs):	18.40	to	20.40
Core Load Weight Range (lbs):	8.70	to	12.60
Remainder Load Weight Range (lbs):	6.80	to	10.70
Core Load Piece Range (lbs):	2.90	to	4.90
Remainder Load Piece Range (lbs):	1.90	to	10.70
Max Allowable Kindling Weight (lbs):	3.82		
Max Allowable Start-up Fuel Weight (lbs):	5.73		

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	3.98	In Range	27.2	20.4	15.9	21.2	In Range	3.28	1.49
2	17.00	4.03	In Range	23.1	18.7	18.2	20.0	In Range	3.36	1.52
3	17.00	3.49	In Range	23.7	18.1	16.2	19.3	In Range	2.92	1.33
Core Load Wt. (lbs)		11.50	In Range							

REMAINDER LOAD DATA (1 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	2.53	In Range	25.7	16.5	22.3	21.5	In Range	2.08	0.94
2	17.00	5.08	In Range	23.7	19.0	14.4	19.0	In Range	4.27	1.94
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		7.61	In Range							

Total Load Weight (lbs):	19.11	In Range		
Core Load % of Total Weight:	60%	In Range	45-65%	
Remainder % of Total Weight:	40%	In Range	35-55%	
Total Load % of Target Weight:	99%	In Range	95-105%	
Actual Fuel Loading Density (lb/ft3):	9.9			
Total Load Average Moisture Content (%DB):	20.1	In Range	19-25%	
Total Load Average Moisture Content (%WB):	16.7			
Total Test Load Weight (dry basis):	15.92	lbs	7.22	kg

KINDLING AND START-UP FUEL

		Kindling Moisture Readings (%DB)					Dry Weight	
Kindling Weight (lbs)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
3.66	In Range	10	10	10	10.0	In Range	3.33	1.51

		Start-up Moisture Readings (%DB)					Dry Weight	
Start-up Fuel Wt. (lb)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
5.47	In Range	24.4	23.1	20.4	22.6	In Range	4.46	2.02

TEST FUEL LOADING RANGE

Allowable Residual Start-up Fuel Range (lb):	1.9	to	3.8	
Actual Residual Start-up Fuel Weight (lb):		2.40		In Range

LOW & MEDIUM FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 2
Technician: SJB
Date: 6/6/2022

Nominal Loading Density (lbs/ft^3, wet basis):	12		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	23.28		
Total Load Weight Range (lbs):	22.12	to	24.44
Core Load Weight Range (lbs):	10.48	to	15.13
Remainder Load Weight Range (lbs):	8.15	to	12.80
Core Load Piece Range (lbs):	3.49	to	5.82
Remainder Load Piece Range (lbs):	2.33	to	6.98

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	4.35	In Range	20.8	18.6	18.6	19.3	In Range	3.65	1.65
2	17.00	4.76	In Range	18.2	20.1	17.3	18.5	In Range	4.02	1.82
3	17.00	4.73	In Range	23.1	21.1	18.0	20.7	In Range	3.92	1.78
Core Load Wt. (lbs)		13.84	In Range							

REMAINDER LOAD DATA (2 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	5.59	In Range	24.3	20.5	18.1	21.0	In Range	4.62	2.10
2	17.00	3.54	In Range	25.7	20.5	18.6	21.6	In Range	2.91	1.32
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		9.13	In Range							

Remainder Load Small/Large Piece Weight Ratio:	63%	In Range	≤ 67%
Total Load Weight (lbs):	22.97	In Range	
Core Load % of Total Weight:	60%	In Range	45-65%
Remainder % of Total Weight:	40%	In Range	35-55%
Total Load % of Target Weight:	99%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	11.8		
Total Load Average Moisture Content (%DB):	20.2	In Range	19-25%
Total Load Average Moisture Content (%WB):	16.8		
Total Test Load Weight (dry basis):	19.11 lbs	8.67 kg	

TEST FUEL LOADING RANGE

Allowable Charcoal Bed Weight Range (lb):	2.3	to	4.5	
Actual Charcoal Bed Wt. (lb):	3.20	In Range		

TEST END POINT

Actual Fuel Load Ending Weight (lb):	0.00	Valid Test (≥90%)

Total Fuel Burned During Test Run:	23.0	lbs, wet basis
	19.1	lbs, dry basis
	8.67	kg, dry basis

DILUTION TUNNEL & MISC. DATA - ASTM E3053 / E2515

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	2	Technician:	SJB
Test Start Time:	17:04	Date:	6/6/2022
Test Type:	Medium Fire		

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

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	30.02	30.02	30.02
Relative Humidity (%)	40.9	42.3	
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	22.2	22.2	

Meter Box γ Factor:	1.022	(A)
Meter Box γ Factor:	1.025	(B)
Meter Box γ Factor:	0.993	(C)
Meter Box γ Factor:	0.988	(Ambient)

Ambient Sample Volume: 45.820 ft^3

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100
Date Flue Pipe Last Cleaned:	6/3/2022

Sample Train Post-Test Leak Checks

(A)	0.001	cfm @	-5 in. Hg
(B)	0.001	cfm @	-5 in. Hg
(C)	0.000	cfm @	-5 in. Hg
(Ambient)	0.000	cfm @	-5 in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.168	76
2	0.201	76
3	0.196	76
4	0.179	76
5	0.146	76
6	0.186	76
7	0.199	76
8	0.177	76
Center	0.207	76

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	8	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:	0.3491	ft^2
V_{strav}:	28.37	ft/sec
V_{scent}:	30.33	ft/sec
F_p:	0.935	[ratio]
Initial Tunnel Flow:	575.3	scf/min

Static Pressure: -0.418 in. H_2O

TEST FUEL PROPERTIES

ASTM 3053-17 - Table A1.1 Fuel Properties by Fuel Species

Select Fuel Type	Species	%C	%H	%O	%Ash	MJ/kg	BTU/lb
	Ash, White	49.70	6.90	43.00	0.30	20.75	8927
X	Beech	48.70	5.80	44.70	0.60	18.80	8088
	Birch, Yellow	49.80	6.50	43.40	0.30	20.12	8656
	Doug Fir (Coast, Int. West)	48.73	6.87	43.90	0.50	19.81	8522
	Doug Fir (Int. South)	48.73	6.87	43.90	0.50	19.81	8522
	Elm, Rock	50.40	6.60	42.30	0.70	20.49	8815
	Elm, Soft	50.40	6.60	42.30	0.70	20.49	8815
	Larch, Western	50.54	6.36	42.40	0.70	17.58	7558
	Maple, Hard	50.64	6.02	41.74	1.35	19.96	8587
	Maple, Sugar	50.64	6.02	41.74	1.35	19.96	8587
	Oak, Red	49.50	6.62	43.70	0.20	20.20	8690
	Oak, White	50.40	6.59	42.70	0.20	20.50	8819
	Pine, Southern Long Leaf	52.60	7.02	40.10	1.30	22.30	9594

WOODSTOVE PREBURN DATA

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	2	Technician:	SJB
		Date:	6/6/2022

Medium Fire performed as a continuation of High Fire Test, see Run 1 test data for details

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
0	297.414		0.194	-0.34	78.9	-0.44		22.97		103.9	52.6	387.2	83.6	82.7
1			0.191	-0.32	79.3	0.32	-	22.94	-0.0313	110.4	57.1	359.7	84.4	85.4
2			0.192	-0.32	79.3	0.33	-	23.71	0.77043	111.7	59.3	347.4	84.9	85.2
3			0.190	-0.32	79.3	0.34	-	22.64	-1.0656	113.6	61.1	351.4	84.9	86.6
4			0.191	-0.31	79.4	0.32	-	22.42	-0.2205	118.0	63.5	379.6	85.1	87.0
5			0.193	-0.31	79.4	0.31	-	22.19	-0.2329	101.3	64.6	393.4	84.7	87.1
6			0.196	-0.32	79.4	0.31	-	22.05	-0.1415	98.4	63.6	385.8	84.5	85.0
7			0.195	-0.32	79.5	0.30	-	21.94	-0.111	96.7	62.7	381.6	84.1	86.2
8			0.195	-0.34	79.5	0.31	-	21.74	-0.202	98.4	63.7	400.3	84.1	85.9
9			0.196	-0.31	79.5	0.32	-	21.51	-0.2248	99.4	64.9	416.6	84.1	85.5
10	299.322	0.191	0.196	-0.31	79.6	0.32	100	21.33	-0.1851	97.3	64.4	420.1	84.2	86.5
11			0.196	-0.31	79.6	0.30	-	21.14	-0.1883	97.8	63.5	416.0	84.2	86.2
12			0.196	-0.31	79.6	0.31	-	20.99	-0.1514	97.0	62.7	407.5	84.2	87.5
13			0.196	-0.31	79.7	0.32	-	20.84	-0.1478	96.8	62.2	401.5	84.2	88.0
14			0.196	-0.32	79.7	0.33	-	20.68	-0.1571	97.4	62.6	403.1	84.3	88.0
15			0.195	-0.31	79.7	0.32	-	20.47	-0.2157	100.4	63.6	412.9	84.2	86.1
16			0.196	-0.31	79.8	0.34	-	20.32	-0.1477	100.2	63.4	424.7	84.2	83.9
17			0.195	-0.31	79.8	0.32	-	20.15	-0.1639	99.7	63.4	431.6	84.1	85.0
18			0.196	-0.34	79.8	0.33	-	19.97	-0.1871	99.1	63.5	436.4	84.2	85.4
19			0.196	-0.31	79.9	0.33	-	19.78	-0.1897	99.4	63.4	439.7	84.2	85.8
20	301.217	0.189	0.195	-0.32	79.9	0.33	99	19.58	-0.1939	99.6	63.2	441.0	84.1	85.0
21			0.196	-0.31	79.9	0.30	-	19.39	-0.1895	99.7	63.0	441.4	84.0	84.1
22			0.195	-0.32	79.9	0.31	-	19.23	-0.1622	99.7	62.9	441.0	84.1	83.5
23			0.195	-0.32	79.9	0.31	-	19.05	-0.1802	99.6	62.7	438.7	84.0	83.3
24			0.195	-0.32	80.0	0.30	-	18.88	-0.1677	99.6	62.4	436.5	84.0	83.2
25			0.196	-0.31	80.0	0.32	-	18.74	-0.1428	99.4	62.3	435.0	84.0	82.9
26			0.195	-0.31	80.0	0.30	-	18.57	-0.1671	99.5	62.2	432.5	83.9	82.8
27			0.198	-0.31	80.0	0.29	-	18.43	-0.1438	99.6	62.0	429.2	84.0	82.1
28			0.197	-0.31	80.0	0.30	-	18.27	-0.1602	99.4	61.9	428.5	84.0	82.3
29			0.196	-0.32	80.0	0.31	-	18.14	-0.1271	99.2	61.7	426.4	84.1	82.1
30	303.110	0.189	0.199	-0.31	80.0	0.30	99	18.00	-0.1392	99.0	61.6	424.0	83.9	82.4
31			0.196	-0.31	80.0	0.31	-	17.85	-0.1512	99.1	61.3	422.1	84.0	82.4
32			0.195	-0.31	80.0	0.32	-	17.72	-0.1287	99.1	61.3	418.3	84.0	82.1

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
33			0.195	-0.31	80.0	0.31	-	17.60	-0.1231	97.5	61.3	410.8	83.9	83.0
34			0.197	-0.32	80.1	0.31	-	17.45	-0.1497	97.5	61.3	400.3	83.9	84.7
35			0.197	-0.33	80.1	0.31	-	17.31	-0.1437	97.4	61.2	395.5	84.0	85.9
36			0.196	-0.35	80.1	0.31	-	17.17	-0.1337	97.8	61.3	394.3	83.9	86.5
37			0.195	-0.32	80.1	0.31	-	17.02	-0.1538	97.8	61.3	393.8	83.8	86.8
38			0.197	-0.32	80.1	0.32	-	16.89	-0.128	98.1	61.4	393.9	83.9	87.4
39			0.195	-0.32	80.1	0.31	-	16.75	-0.143	98.0	61.4	392.8	83.8	87.9
40	305.010	0.190	0.199	-0.32	80.1	0.32	98	16.60	-0.1465	98.4	61.4	392.3	84.0	88.3
41			0.195	-0.31	80.1	0.32	-	16.46	-0.1403	98.3	61.5	391.1	83.8	88.7
42			0.196	-0.32	80.1	0.30	-	16.33	-0.1339	98.5	61.5	390.2	83.8	89.0
43			0.196	-0.30	80.2	0.31	-	16.19	-0.1356	98.4	61.6	389.2	83.8	89.4
44			0.194	-0.32	80.2	0.33	-	16.04	-0.153	101.7	61.9	389.8	84.0	89.2
45			0.198	-0.33	80.2	0.33	-	15.90	-0.1418	103.9	62.0	391.5	84.1	87.4
46			0.194	-0.33	80.2	0.33	-	15.79	-0.108	104.4	62.3	392.1	84.2	88.0
47			0.194	-0.31	80.2	0.32	-	15.66	-0.1294	104.6	62.4	392.1	84.3	87.5
48			0.194	-0.32	80.2	0.33	-	15.53	-0.1297	104.8	62.4	392.7	84.3	87.1
49			0.194	-0.32	80.2	0.32	-	15.41	-0.1217	104.8	62.4	392.7	84.4	87.0
50	306.926	0.192	0.194	-0.31	80.2	0.32	100	15.28	-0.1309	104.9	62.6	392.8	84.5	87.3
51			0.192	-0.32	80.2	0.31	-	15.14	-0.1351	104.9	62.6	392.6	84.6	87.6
52			0.194	-0.31	80.2	0.33	-	15.00	-0.1385	105.2	62.6	393.2	84.6	87.7
53			0.192	-0.32	80.2	0.34	-	14.87	-0.1321	105.2	62.7	393.3	84.7	87.4
54			0.195	-0.31	80.2	0.32	-	14.73	-0.1448	105.3	62.7	393.9	84.8	87.8
55			0.197	-0.32	80.3	0.33	-	14.60	-0.1235	105.4	62.6	394.0	84.9	87.3
56			0.195	-0.31	80.3	0.32	-	14.46	-0.1462	105.4	62.6	394.6	84.8	87.5
57			0.196	-0.31	80.3	0.35	-	14.32	-0.1354	105.6	62.7	395.4	84.9	87.2
58			0.195	-0.32	80.3	0.33	-	14.19	-0.1368	105.6	62.7	396.0	84.9	87.7
59			0.193	-0.32	80.3	0.34	-	14.04	-0.1418	105.9	62.6	396.9	85.0	87.1
60	308.810	0.188	0.193	-0.32	80.3	0.34	100	13.90	-0.1452	106.0	62.7	399.3	85.2	87.7
61			0.195	-0.31	80.4	0.35	-	13.75	-0.1469	106.1	62.8	399.6	85.1	86.8
62			0.193	-0.32	80.4	0.32	-	13.61	-0.1404	106.4	63.0	401.4	85.3	87.4
63			0.194	-0.31	80.4	0.34	-	13.47	-0.145	106.5	63.0	404.3	85.3	86.9
64			0.193	-0.31	80.4	0.33	-	13.32	-0.1447	106.7	62.9	407.4	85.5	87.1
65			0.194	-0.32	80.4	0.34	-	13.16	-0.1586	106.9	63.1	411.1	85.6	87.8

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
66			0.194	-0.31	80.4	0.34	-	13.02	-0.1446	107.4	63.1	413.5	85.7	86.3
67			0.192	-0.31	80.4	0.35	-	12.87	-0.1471	108.2	63.5	418.9	85.7	85.2
68			0.194	-0.32	80.4	0.34	-	12.74	-0.1278	108.4	63.5	425.1	85.7	85.2
69			0.194	-0.31	80.4	0.35	-	12.58	-0.1633	108.6	63.6	429.1	86.0	85.4
70	310.712	0.190	0.194	-0.32	80.3	0.35	101	12.44	-0.1422	108.7	63.6	433.0	86.1	84.8
71			0.196	-0.31	80.4	0.37	-	12.26	-0.1813	108.8	63.7	437.7	86.0	85.0
72			0.194	-0.32	80.4	0.38	-	12.11	-0.1484	107.0	63.7	441.5	86.0	85.0
73			0.194	-0.32	80.4	0.41	-	11.96	-0.1496	105.3	63.8	446.3	86.1	84.8
74			0.196	-0.34	80.4	0.41	-	11.78	-0.1818	104.8	63.9	452.2	86.0	84.8
75			0.193	-0.31	80.4	0.49	-	11.58	-0.1945	104.9	64.1	457.4	85.9	85.9
76			0.193	-0.32	80.3	0.57	-	11.40	-0.1824	104.7	64.2	462.1	85.8	86.0
77			0.193	-0.31	80.4	0.62	-	11.19	-0.2076	104.8	64.2	466.0	85.8	85.5
78			0.192	-0.34	80.3	0.69	-	10.98	-0.2101	104.6	64.2	469.9	85.7	87.1
79			0.194	-0.31	80.4	0.72	-	10.75	-0.2288	105.3	64.2	474.1	85.8	87.4
80	312.478	0.177	0.193	-0.31	80.3	0.85	94	10.53	-0.2209	105.8	64.2	476.5	85.8	86.3
81			0.194	-0.31	80.4	1.01	-	10.30	-0.2316	106.0	64.1	477.7	86.0	86.4
82			0.192	-0.31	80.4	1.05	-	10.09	-0.2119	106.3	64.0	479.5	86.1	86.2
83			0.193	-0.32	80.4	1.04	-	9.88	-0.2095	106.5	63.9	480.9	86.1	85.4
84			0.194	-0.32	80.4	1.06	-	9.66	-0.2221	106.6	64.0	481.8	86.0	84.4
85			0.195	-0.32	80.4	1.07	-	9.46	-0.1937	106.5	63.9	482.5	86.2	85.3
86			0.193	-0.32	80.4	1.07	-	9.26	-0.2077	106.8	63.9	483.0	86.0	85.5
87			0.193	-0.32	80.4	1.07	-	9.05	-0.2035	106.9	63.8	483.6	86.1	85.3
88			0.192	-0.31	80.5	1.10	-	8.87	-0.1854	106.9	63.6	483.3	86.1	84.9
89			0.193	-0.31	80.5	1.11	-	8.68	-0.1918	106.8	63.5	483.1	86.2	84.8
90	314.368	0.189	0.192	-0.31	80.5	1.11	100	8.50	-0.1792	106.6	63.5	482.4	86.2	84.8
91			0.193	-0.32	80.5	1.11	-	8.31	-0.1834	106.8	63.3	482.1	86.2	84.9
92			0.193	-0.32	80.5	1.10	-	8.18	-0.1327	106.8	63.3	481.5	86.2	84.2
93			0.193	-0.32	80.6	1.12	-	7.96	-0.2247	107.1	63.3	482.2	86.2	84.0
94			0.191	-0.32	80.5	1.15	-	7.79	-0.1661	106.8	63.2	482.8	86.4	83.8
95			0.189	-0.32	80.5	1.15	-	7.62	-0.1667	107.0	63.1	483.6	86.3	84.8
96			0.193	-0.31	80.6	1.16	-	7.43	-0.1876	106.8	63.1	483.9	86.3	84.6
97			0.193	-0.32	80.6	1.16	-	7.27	-0.1652	107.1	62.9	484.0	86.4	84.9
98			0.195	-0.32	80.6	1.15	-	7.10	-0.1733	107.2	62.7	483.8	86.4	84.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
99			0.193	-0.32	80.6	1.15	-	6.93	-0.1675	107.1	62.6	483.0	86.3	85.0
100	316.258	0.189	0.192	-0.31	80.6	1.14	100	6.78	-0.147	107.0	62.5	482.6	86.4	84.5
101			0.190	-0.31	80.6	1.15	-	6.61	-0.1723	107.1	62.3	482.3	86.4	84.6
102			0.191	-0.31	80.6	1.16	-	6.46	-0.1486	106.9	62.2	481.2	86.4	84.7
103			0.193	-0.32	80.6	1.20	-	6.31	-0.1468	106.8	62.1	480.1	86.5	84.8
104			0.193	-0.31	80.6	1.17	-	6.16	-0.1499	106.9	62.0	479.4	86.5	84.5
105			0.196	-0.31	80.6	1.18	-	6.02	-0.1485	106.8	62.0	477.8	86.5	84.0
106			0.193	-0.32	80.6	1.19	-	5.86	-0.1548	106.8	62.0	475.8	86.5	84.5
107			0.193	-0.32	80.6	1.19	-	5.74	-0.1209	106.7	61.9	472.2	86.5	84.9
108			0.193	-0.31	80.6	1.18	-	5.62	-0.1235	106.5	61.5	468.3	86.5	84.3
109			0.194	-0.31	80.6	1.17	-	5.52	-0.099	106.4	60.9	464.6	86.4	85.2
110	318.152	0.189	0.190	-0.32	80.6	1.17	101	5.41	-0.1052	106.1	60.3	459.5	86.5	85.2
111			0.193	-0.32	80.7	1.24	-	5.35	-0.0647	105.8	59.6	454.8	86.6	84.6
112			0.193	-0.32	80.7	1.20	-	5.26	-0.0906	105.5	59.2	449.7	86.4	84.8
113			0.194	-0.32	80.7	1.20	-	5.18	-0.0749	105.3	58.9	444.4	86.6	85.0
114			0.193	-0.32	80.7	1.20	-	5.11	-0.0736	105.1	58.6	440.2	86.5	84.5
115			0.192	-0.32	80.7	1.19	-	5.06	-0.0493	105.1	58.3	435.7	86.2	84.4
116			0.193	-0.32	80.7	1.20	-	5.00	-0.0555	104.8	58.1	432.1	86.3	84.4
117			0.193	-0.31	80.7	1.19	-	4.96	-0.0464	104.1	58.0	427.9	86.2	84.8
118			0.194	-0.32	80.7	1.18	-	4.89	-0.0698	104.2	57.9	424.3	86.3	84.6
119			0.194	-0.31	80.7	1.20	-	4.85	-0.0411	103.9	57.8	420.7	86.2	85.0
120	320.064	0.191	0.195	-0.31	80.7	1.19	101	4.80	-0.0487	103.7	57.7	417.8	86.3	84.4
121			0.194	-0.31	80.7	1.20	-	4.74	-0.0588	103.4	57.7	414.4	86.3	84.6
122			0.194	-0.34	80.7	1.21	-	4.70	-0.038	103.3	57.7	411.4	86.2	84.0
123			0.194	-0.32	80.7	1.18	-	4.62	-0.0793	103.3	57.6	408.9	86.2	83.4
124			0.194	-0.31	80.7	1.18	-	4.59	-0.0295	103.2	57.5	405.8	86.1	83.6
125			0.193	-0.33	80.7	1.17	-	4.54	-0.0493	102.8	57.4	403.7	86.1	84.2
126			0.195	-0.31	80.7	1.17	-	4.50	-0.0441	102.8	57.3	401.4	86.1	84.4
127			0.196	-0.31	80.7	1.18	-	4.46	-0.0407	102.5	57.2	399.0	86.1	84.6
128			0.196	-0.33	80.8	1.18	-	4.42	-0.0417	102.4	57.0	396.4	85.9	83.5
129			0.194	-0.31	80.8	1.16	-	4.38	-0.0398	102.2	56.9	394.5	86.0	84.1
130	321.968	0.190	0.195	-0.32	80.7	1.18	100	4.31	-0.0648	102.1	56.9	392.0	85.9	84.0
131			0.195	-0.33	80.7	1.18	-	4.27	-0.0391	102.0	56.9	389.6	85.8	83.3

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
132			0.193	-0.31	80.7	1.16	-	4.22	-0.0484	101.8	56.9	387.4	86.0	83.9
133			0.193	-0.32	80.7	1.16	-	4.21	-0.0164	101.5	56.9	385.1	85.9	84.2
134			0.196	-0.32	80.7	1.15	-	4.17	-0.0396	101.3	56.8	382.6	85.7	82.9
135			0.197	-0.32	80.7	1.15	-	4.15	-0.0217	100.9	56.6	379.6	85.8	83.9
136			0.194	-0.32	80.8	1.16	-	4.13	-0.0177	100.4	56.5	377.4	85.8	84.5
137			0.196	-0.32	80.8	1.17	-	4.13	-0.0023	100.0	56.2	375.0	85.6	85.0
138			0.196	-0.31	80.8	1.17	-	4.10	-0.0223	99.7	56.0	373.5	85.6	85.3
139			0.196	-0.32	80.8	1.16	-	4.07	-0.0304	99.5	55.9	371.7	85.5	84.9
140	323.869	0.190	0.196	-0.31	80.8	1.15	100	4.04	-0.0345	99.4	55.9	370.0	85.5	85.0
141			0.195	-0.32	80.8	1.17	-	4.01	-0.0325	99.2	55.8	367.7	85.5	85.5
142			0.196	-0.31	80.8	1.15	-	3.98	-0.0264	99.0	55.7	366.2	85.4	85.1
143			0.195	-0.32	80.8	1.14	-	3.96	-0.0252	98.9	55.6	364.6	85.3	85.8
144			0.197	-0.33	80.8	1.13	-	3.93	-0.0293	98.7	55.5	363.3	85.3	85.6
145			0.196	-0.32	80.8	1.14	-	3.89	-0.0352	98.6	55.5	361.3	85.2	86.2
146			0.195	-0.31	80.8	1.15	-	3.86	-0.0354	98.4	55.5	359.3	85.2	86.2
147			0.195	-0.31	80.8	1.17	-	3.83	-0.0261	98.3	55.5	357.6	85.1	86.0
148			0.197	-0.31	80.8	1.14	-	3.81	-0.0199	98.3	55.4	356.0	85.0	86.3
149			0.197	-0.31	80.8	1.17	-	3.78	-0.0336	98.0	55.3	354.6	85.0	86.4
150	325.765	0.190	0.198	-0.32	80.9	1.16	99	3.74	-0.0394	97.8	55.3	353.2	85.0	86.1
151			0.194	-0.32	80.9	1.15	-	3.72	-0.0157	97.7	55.2	350.8	84.9	86.1
152			0.196	-0.31	80.9	1.15	-	3.68	-0.0453	97.6	55.1	349.0	84.8	86.6
153			0.195	-0.31	80.9	1.16	-	3.66	-0.019	97.6	55.1	347.5	84.6	86.2
154			0.199	-0.32	80.9	1.15	-	3.63	-0.0308	97.4	55.1	345.1	84.7	86.3
155			0.199	-0.31	80.9	1.16	-	3.61	-0.0181	97.1	55.0	343.3	84.6	85.7
156			0.199	-0.32	80.9	1.17	-	3.58	-0.0229	97.1	55.0	341.1	84.5	85.0
157			0.196	-0.32	80.9	1.16	-	3.57	-0.0198	96.9	54.8	338.9	84.5	85.3
158			0.198	-0.35	80.9	1.14	-	3.53	-0.0342	96.8	54.8	337.2	84.5	86.1
159			0.197	-0.32	80.9	1.14	-	3.50	-0.0271	96.6	54.7	335.4	84.5	86.2
160	327.664	0.190	0.195	-0.32	80.9	1.16	99	3.50	-0.0062	96.5	54.7	333.2	84.3	86.0
161			0.197	-0.32	80.9	1.16	-	3.47	-0.03	96.2	54.6	331.5	84.3	85.5
162			0.196	-0.31	80.9	1.17	-	3.44	-0.0248	96.0	54.5	330.1	84.3	85.6
163			0.196	-0.32	80.9	1.16	-	3.42	-0.024	96.0	54.4	328.2	84.1	85.4
164			0.198	-0.32	80.9	1.17	-	3.41	-0.0138	95.8	54.5	326.8	84.1	85.7

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
165			0.196	-0.32	80.9	1.17	-	3.40	-0.0075	95.8	54.4	325.3	84.0	85.2
166			0.195	-0.32	80.9	1.17	-	3.37	-0.0285	95.6	54.4	323.9	84.0	85.7
167			0.198	-0.32	80.9	1.15	-	3.34	-0.0316	95.6	54.4	323.0	84.0	85.7
168			0.199	-0.32	80.9	1.16	-	3.32	-0.0143	95.4	54.4	321.5	84.0	85.5
169			0.197	-0.32	80.9	1.16	-	3.30	-0.0269	95.3	54.4	320.1	83.8	84.9
170	329.581	0.192	0.198	-0.32	80.9	1.16	100	3.28	-0.0129	95.2	54.4	318.4	83.9	85.0
171			0.197	-0.31	80.9	1.18	-	3.26	-0.0185	95.0	54.4	316.6	83.8	84.6
172			0.197	-0.32	80.9	1.19	-	3.25	-0.0155	94.9	54.4	315.7	83.7	84.8
173			0.197	-0.32	80.9	1.18	-	3.22	-0.0314	94.9	54.2	313.8	83.7	85.3
174			0.197	-0.31	80.9	1.13	-	3.20	-0.0176	94.8	54.3	312.4	83.6	85.2
175			0.197	-0.31	80.9	1.17	-	3.18	-0.0208	94.6	54.2	311.2	83.7	84.7
176			0.200	-0.32	80.9	1.14	-	3.15	-0.0253	94.4	54.2	309.4	83.6	85.4
177			0.198	-0.31	80.9	1.16	-	3.15	-0.0052	94.4	54.2	308.2	83.4	85.0
178			0.198	-0.31	80.8	1.13	-	3.13	-0.0206	94.3	54.1	307.1	83.4	85.2
179			0.195	-0.32	80.9	1.18	-	3.10	-0.0301	94.2	54.1	305.9	83.4	85.4
180	331.510	0.193	0.198	-0.31	80.8	1.15	100	3.08	-0.0151	94.1	54.1	304.4	83.3	85.3
181			0.200	-0.32	80.8	1.17	-	3.06	-0.0202	94.0	54.1	303.5	83.3	84.6
182			0.197	-0.32	80.8	1.18	-	3.05	-0.0135	93.9	54.1	302.3	83.3	85.1
183			0.199	-0.32	80.8	1.17	-	3.02	-0.0313	93.7	54.1	301.1	83.2	85.1
184			0.198	-0.32	80.8	1.18	-	3.00	-0.0225	93.7	54.1	300.3	83.2	84.9
185			0.198	-0.31	80.8	1.11	-	2.97	-0.0248	93.6	54.0	299.5	83.1	84.6
186			0.197	-0.32	80.8	1.02	-	2.95	-0.0252	93.5	54.1	298.6	83.0	84.7
187			0.197	-0.32	80.8	1.14	-	2.94	-0.0022	93.5	54.0	297.7	83.0	84.9
188			0.199	-0.32	80.8	1.16	-	2.91	-0.0369	93.3	53.9	296.7	82.9	84.5
189			0.198	-0.32	80.8	1.17	-	2.89	-0.0127	93.2	54.0	295.8	83.0	84.3
190	333.418	0.191	0.197	-0.32	80.8	1.17	99	2.88	-0.015	93.0	53.9	294.5	82.9	84.7
191			0.197	-0.34	80.8	1.15	-	2.85	-0.0299	93.0	53.9	293.8	82.8	84.6
192			0.197	-0.32	80.8	1.15	-	2.82	-0.0309	93.0	53.8	293.2	82.8	84.7
193			0.200	-0.32	80.8	1.16	-	2.80	-0.0138	92.8	53.8	292.4	82.8	84.2
194			0.200	-0.31	80.8	1.16	-	2.78	-0.0256	92.7	53.9	291.7	82.8	84.4
195			0.198	-0.32	80.7	1.15	-	2.77	-0.0101	92.7	54.0	290.9	82.6	84.8
196			0.198	-0.32	80.7	1.17	-	2.74	-0.0286	92.7	53.9	290.3	82.7	84.5
197			0.197	-0.31	80.7	1.16	-	2.73	-0.009	92.6	53.9	289.7	82.6	84.4

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
198			0.198	-0.31	80.7	1.17	-	2.70	-0.0296	92.5	53.9	289.1	82.7	84.3
199			0.197	-0.31	80.7	1.18	-	2.68	-0.0181	92.3	53.9	288.1	82.6	84.3
200	335.346	0.193	0.197	-0.32	80.7	1.17	100	2.66	-0.0236	92.3	53.8	287.2	82.6	84.2
201			0.196	-0.31	80.7	1.17	-	2.65	-0.0107	92.3	53.8	286.7	82.4	84.0
202			0.196	-0.32	80.7	1.18	-	2.63	-0.0198	92.2	53.8	286.1	82.4	84.1
203			0.199	-0.31	80.7	1.17	-	2.60	-0.0324	92.2	53.7	285.3	82.4	84.4
204			0.200	-0.31	80.7	1.17	-	2.58	-0.0193	92.1	53.7	284.8	82.3	84.3
205			0.196	-0.31	80.7	1.17	-	2.55	-0.0306	92.0	53.7	283.9	82.2	84.7
206			0.198	-0.32	80.7	1.15	-	2.53	-0.0211	91.9	53.7	283.3	82.3	84.5
207			0.197	-0.31	80.7	1.18	-	2.52	-0.0085	91.9	53.7	282.8	82.2	84.1
208			0.195	-0.32	80.6	1.16	-	2.49	-0.0306	91.8	53.7	282.2	82.2	84.4
209			0.198	-0.30	80.6	1.17	-	2.47	-0.0127	91.7	53.7	281.7	82.2	84.3
210	337.294	0.195	0.200	-0.32	80.6	1.19	100	2.45	-0.0268	91.7	53.7	281.3	82.1	84.3
211			0.198	-0.29	80.6	1.18	-	2.43	-0.0147	91.6	53.7	280.5	82.1	83.9
212			0.199	-0.32	80.6	1.17	-	2.41	-0.021	91.5	53.7	279.6	82.1	84.2
213			0.196	-0.31	80.6	1.19	-	2.38	-0.0285	91.5	53.7	278.9	82.1	84.3
214			0.199	-0.32	80.6	1.18	-	2.38	-0.0031	91.4	53.7	278.3	82.1	83.9
215			0.197	-0.31	80.6	1.17	-	2.35	-0.0278	91.3	53.7	277.5	82.7	84.0
216			0.197	-0.31	80.5	1.20	-	2.33	-0.02	91.2	53.7	276.8	84.4	83.7
217			0.198	-0.32	80.6	1.19	-	2.32	-0.0123	91.2	53.7	276.1	85.9	83.5
218			0.197	-0.37	80.5	1.19	-	2.30	-0.0187	91.1	53.6	275.4	87.3	84.1
219			0.199	-0.32	80.5	1.19	-	2.28	-0.0165	91.0	53.5	274.5	87.1	83.9
220	339.232	0.194	0.197	-0.31	80.5	1.19	100	2.26	-0.0252	91.1	53.5	274.0	86.6	83.8
221			0.198	-0.31	80.5	1.20	-	2.25	-0.0097	91.0	53.5	273.1	86.4	84.1
222			0.200	-0.32	80.5	1.20	-	2.23	-0.0234	90.9	53.4	272.6	86.0	83.9
223			0.197	-0.31	80.5	1.20	-	2.21	-0.017	90.9	53.5	271.7	85.7	83.5
224			0.199	-0.34	80.5	1.19	-	2.18	-0.0315	90.8	53.4	271.1	85.5	83.6
225			0.197	-0.34	80.5	1.17	-	2.16	-0.0191	90.7	53.4	270.6	85.3	83.8
226			0.198	-0.31	80.4	1.17	-	2.14	-0.0185	90.7	53.4	270.1	85.1	84.0
227			0.199	-0.32	80.5	1.18	-	2.13	-0.0088	90.7	53.4	268.9	84.8	84.0
228			0.199	-0.31	80.4	1.18	-	2.11	-0.0258	90.5	53.4	268.7	84.7	83.8
229			0.199	-0.31	80.5	1.18	-	2.09	-0.0124	90.6	53.4	268.0	84.5	83.6
230	341.185	0.195	0.199	-0.34	80.4	1.19	101	2.07	-0.0231	90.5	53.4	267.3	84.3	83.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
231			0.199	-0.32	80.4	1.19	-	2.06	-0.0133	90.4	53.4	266.4	84.2	83.3
232			0.201	-0.31	80.4	1.19	-	2.04	-0.0175	90.3	53.3	266.1	83.9	83.9
233			0.199	-0.32	80.4	1.19	-	2.02	-0.0208	90.3	53.3	265.3	83.7	83.9
234			0.200	-0.31	80.4	1.19	-	2.00	-0.0154	90.2	53.3	264.7	83.6	83.3
235			0.200	-0.31	80.4	1.19	-	1.98	-0.0246	90.2	53.3	264.2	83.4	83.1
236			0.200	-0.31	80.3	1.17	-	1.96	-0.0192	90.1	53.3	263.8	83.2	83.6
237			0.200	-0.32	80.3	1.20	-	1.95	-0.0141	90.0	53.4	263.0	83.0	83.3
238			0.200	-0.34	80.3	1.18	-	1.92	-0.0223	90.1	53.4	262.7	83.0	83.2
239			0.200	-0.32	80.3	1.20	-	1.90	-0.0267	90.1	53.4	262.1	82.8	82.5
240	343.130	0.194	0.199	-0.34	80.3	1.20	100	1.88	-0.0177	90.2	53.5	261.1	82.7	81.9
241			0.200	-0.31	80.3	1.17	-	1.87	-0.0127	91.4	53.6	260.3	82.6	82.3
242			0.197	-0.32	80.3	1.18	-	1.86	-0.004	92.0	53.5	259.5	82.5	82.5
243			0.200	-0.32	80.3	1.17	-	1.85	-0.0078	92.3	53.5	258.8	82.7	82.6
244			0.196	-0.32	80.3	1.19	-	1.84	-0.0191	92.6	53.5	258.1	82.9	82.3
245			0.196	-0.32	80.3	1.19	-	1.83	-0.0077	92.7	53.5	257.4	83.3	82.2
246			0.199	-0.32	80.3	1.18	-	1.81	-0.0189	92.7	53.6	257.0	83.6	82.4
247			0.198	-0.31	80.2	1.20	-	1.79	-0.0169	92.8	53.6	256.4	83.6	82.5
248			0.199	-0.34	80.2	1.21	-	1.78	-0.0108	92.7	53.6	255.8	83.9	82.4
249			0.196	-0.31	80.2	1.20	-	1.76	-0.0199	92.7	53.7	255.4	84.0	82.4
250	345.082	0.195	0.198	-0.31	80.2	1.20	101	1.74	-0.0181	92.8	53.6	254.7	84.2	82.8
251			0.198	-0.32	80.2	1.20	-	1.73	-0.0116	92.8	53.6	254.0	84.3	82.6
252			0.197	-0.35	80.2	1.19	-	1.71	-0.0224	92.9	53.5	253.6	84.5	82.7
253			0.198	-0.32	80.2	1.20	-	1.71	-0.0031	92.9	53.4	253.1	84.6	82.7
254			0.198	-0.32	80.2	1.21	-	1.69	-0.0206	92.8	53.4	252.3	84.8	82.2
255			0.199	-0.31	80.2	1.20	-	1.67	-0.0148	92.9	53.3	252.3	84.9	82.3
256			0.197	-0.31	80.2	1.20	-	1.65	-0.0202	92.8	53.3	251.9	85.0	82.3
257			0.200	-0.32	80.2	1.21	-	1.63	-0.0175	92.7	53.3	251.6	85.2	82.3
258			0.198	-0.32	80.2	1.19	-	1.61	-0.0219	92.7	53.3	250.8	85.3	82.4
259			0.197	-0.36	80.1	1.21	-	1.60	-0.0114	92.7	53.3	250.3	85.3	82.5
260	347.022	0.194	0.199	-0.32	80.1	1.22	100	1.58	-0.017	92.7	53.3	249.8	85.3	82.6
261			0.198	-0.32	80.1	1.21	-	1.57	-0.0144	92.6	53.3	249.8	85.2	82.4
262			0.197	-0.32	80.1	1.20	-	1.56	-0.0096	92.5	53.2	249.3	85.0	82.6
263			0.196	-0.34	80.1	1.21	-	1.55	-0.0112	92.4	53.1	248.8	84.9	82.6

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
264			0.200	-0.34	80.1	1.21	-	1.52	-0.0298	92.3	53.1	248.5	84.7	81.7
265			0.196	-0.34	80.0	1.21	-	1.51	-0.0117	92.3	53.1	247.7	84.5	82.3
266			0.199	-0.37	80.0	1.22	-	1.49	-0.0141	92.2	53.0	247.6	84.3	81.7
267			0.199	-0.37	80.0	1.22	-	1.48	-0.0117	92.1	53.0	247.4	84.2	82.5
268			0.198	-0.32	80.0	1.22	-	1.46	-0.0153	92.0	52.9	247.1	84.0	82.4
269			0.198	-0.34	79.9	1.19	-	1.45	-0.0121	92.1	52.9	246.5	83.9	82.3
270	348.978	0.196	0.198	-0.34	79.9	1.22	101	1.43	-0.0245	92.0	52.9	245.9	83.7	82.3
271			0.198	-0.32	79.9	1.22	-	1.42	-0.0124	92.0	52.8	245.6	83.5	82.0
272			0.199	-0.31	79.9	1.19	-	1.40	-0.0181	91.9	52.9	245.0	83.5	82.5
273			0.197	-0.31	79.8	1.20	-	1.38	-0.0195	91.9	52.9	244.5	83.3	82.1
274			0.200	-0.35	79.8	1.21	-	1.36	-0.0201	91.9	52.9	244.3	83.2	82.1
275			0.201	-0.37	79.8	1.23	-	1.34	-0.0135	91.8	52.8	244.0	83.0	82.4
276			0.199	-0.36	79.7	1.21	-	1.33	-0.0114	91.7	52.7	243.6	82.9	82.0
277			0.201	-0.38	79.7	1.23	-	1.31	-0.0225	91.2	52.7	243.5	82.8	81.4
278			0.199	-0.34	79.7	1.23	-	1.31	-0.0009	91.2	52.8	243.0	82.6	82.2
279			0.199	-0.34	79.7	1.22	-	1.30	-0.007	91.4	52.7	242.3	82.4	82.0
280	350.928	0.195	0.198	-0.32	79.7	1.20	101	1.29	-0.012	91.3	52.6	241.7	82.4	81.7
281			0.197	-0.36	79.6	1.20	-	1.28	-0.0104	91.3	52.6	241.2	82.3	81.6
282			0.198	-0.37	79.6	1.21	-	1.27	-0.0076	91.3	52.6	240.6	82.2	81.7
283			0.199	-0.33	79.6	1.21	-	1.25	-0.0192	91.2	52.5	240.2	82.0	81.7
284			0.200	-0.36	79.6	1.21	-	1.24	-0.0165	91.2	52.5	239.6	81.9	81.6
285			0.199	-0.36	79.6	1.21	-	1.22	-0.0148	91.1	52.5	239.2	81.9	81.5
286			0.201	-0.36	79.5	1.21	-	1.21	-0.0072	91.1	52.5	238.9	81.7	81.5
287			0.197	-0.35	79.5	1.21	-	1.20	-0.0115	90.9	52.5	238.3	81.6	81.5
288			0.199	-0.35	79.5	1.23	-	1.17	-0.0302	90.9	52.6	237.8	81.6	81.6
289			0.198	-0.34	79.5	1.21	-	1.15	-0.0249	91.1	52.6	237.4	81.8	81.2
290	352.880	0.195	0.198	-0.34	79.4	1.22	101	1.12	-0.0252	91.2	52.6	237.0	81.9	81.3
291			0.199	-0.31	79.5	1.22	-	1.12	-0.0052	91.3	52.5	236.7	82.2	81.4
292			0.197	-0.35	79.4	1.21	-	1.10	-0.0225	91.2	52.5	236.4	82.3	81.3
293			0.197	-0.37	79.4	1.22	-	1.09	-0.0094	91.3	52.5	236.0	82.5	80.8
294			0.201	-0.37	79.4	1.22	-	1.06	-0.0229	91.2	52.5	235.8	82.7	81.1
295			0.199	-0.37	79.4	1.21	-	1.05	-0.0158	91.3	52.6	235.4	82.8	81.1
296			0.200	-0.36	79.4	1.23	-	1.03	-0.0208	91.2	52.5	235.1	83.0	81.0

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
297			0.200	-0.37	79.4	1.21	-	1.01	-0.0121	91.2	52.5	234.8	83.1	81.3
298			0.199	-0.37	79.4	1.22	-	1.00	-0.0178	91.2	52.5	234.4	83.3	81.3
299			0.200	-0.34	79.4	1.21	-	0.99	-0.0074	91.2	52.5	234.1	83.5	81.0
300	354.840	0.196	0.199	-0.34	79.4	1.22	101	0.96	-0.0263	91.2	52.5	234.0	83.7	81.5
301			0.198	-0.31	79.4	1.21	-	0.96	-0.0071	91.2	52.4	233.6	83.8	80.9
302			0.198	-0.37	79.3	1.22	-	0.94	-0.0132	91.2	52.4	233.1	83.9	80.9
303			0.198	-0.34	79.3	1.23	-	0.92	-0.0197	91.1	52.4	232.8	84.1	81.2
304			0.199	-0.34	79.3	1.22	-	0.92	-0.0038	91.0	52.5	232.5	84.3	81.1
305			0.197	-0.37	79.3	1.22	-	0.90	-0.0149	91.1	52.4	232.2	84.4	81.1
306			0.201	-0.37	79.3	1.22	-	0.88	-0.0268	91.0	52.4	232.0	84.5	81.2
307			0.197	-0.34	79.3	1.22	-	0.86	-0.0144	91.0	52.4	231.7	84.6	81.2
308			0.197	-0.31	79.3	1.22	-	0.85	-0.0105	90.9	52.4	231.2	84.7	81.3
309			0.201	-0.31	79.2	1.22	-	0.84	-0.0144	90.9	52.4	231.0	84.6	81.2
310	356.787	0.195	0.197	-0.31	79.3	1.23	101	0.84	-0.0006	90.9	52.4	230.6	84.4	81.3
311			0.200	-0.34	79.3	1.20	-	0.84	-0.0016	91.0	52.4	229.9	84.3	81.6
312			0.200	-0.36	79.3	1.22	-	0.82	-0.0145	91.0	52.3	229.8	84.2	81.9
313			0.198	-0.37	79.3	1.20	-	0.82	-0.0036	90.9	52.3	229.1	84.1	81.8
314			0.199	-0.34	79.2	1.22	-	0.81	-0.0072	90.8	52.3	228.5	83.9	81.5
315			0.199	-0.34	79.2	1.20	-	0.81	-0.0051	90.7	52.3	227.8	83.8	81.7
316			0.199	-0.37	79.2	1.22	-	0.80	-0.0089	90.7	52.3	227.3	83.5	81.8
317			0.199	-0.37	79.2	1.22	-	0.78	-0.0156	90.7	52.3	226.8	83.4	81.7
318			0.200	-0.36	79.2	1.20	-	0.78	-0.0012	90.7	52.2	226.2	83.3	81.8
319			0.201	-0.34	79.2	1.20	-	0.77	-0.0136	90.6	52.2	225.9	83.1	81.3
320	358.748	0.196	0.200	-0.34	79.2	1.20	101	0.74	-0.0223	90.6	52.2	225.5	82.9	81.7
321			0.201	-0.31	79.1	1.21	-	0.75	0.00154	90.5	52.2	225.1	82.8	81.3
322			0.201	-0.31	79.1	1.22	-	0.73	-0.0172	90.5	52.2	224.6	82.6	81.5
323			0.201	-0.34	79.1	1.20	-	0.72	-0.0072	90.3	52.1	223.9	82.4	81.1
324			0.200	-0.36	79.1	1.21	-	0.71	-0.0151	90.3	52.1	223.6	82.3	81.1
325			0.202	-0.37	79.1	1.20	-	0.69	-0.0197	90.3	52.1	223.1	82.1	80.8
326			0.200	-0.36	79.0	1.20	-	0.67	-0.0141	90.3	52.1	222.8	82.2	80.9
327			0.197	-0.37	79.0	1.23	-	0.66	-0.0117	90.4	52.1	222.6	82.2	81.3
328			0.200	-0.36	79.0	1.22	-	0.65	-0.0088	90.4	52.1	222.3	82.3	80.9
329			0.197	-0.35	79.0	1.21	-	0.63	-0.0207	90.4	52.1	221.8	82.4	80.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
330	360.695	0.195	0.201	-0.31	79.0	1.21	100	0.63	-0.0059	90.3	52.1	221.3	82.5	81.1
331			0.198	-0.31	79.0	1.23	-	0.62	-0.0082	90.3	52.0	220.9	82.5	80.9
332			0.199	-0.36	78.9	1.23	-	0.61	-0.0091	90.2	52.0	220.6	82.5	80.9
333			0.197	-0.36	78.9	1.22	-	0.58	-0.026	89.9	52.1	220.2	82.5	81.1
334			0.200	-0.37	78.9	1.24	-	0.57	-0.0123	89.6	52.1	219.8	82.7	81.0
335			0.198	-0.31	78.9	1.23	-	0.56	-0.0079	89.6	52.1	219.2	82.7	80.7
336			0.199	-0.29	78.9	1.24	-	0.55	-0.011	89.6	52.1	219.0	82.8	80.6
337			0.199	-0.36	78.9	1.23	-	0.53	-0.0158	89.5	52.1	218.8	82.9	80.9
338			0.198	-0.36	78.8	1.23	-	0.52	-0.0175	89.5	52.1	218.6	82.9	80.9
339			0.199	-0.37	78.8	1.21	-	0.51	-0.0065	89.5	52.1	218.1	83.0	81.1
340	362.656	0.196	0.200	-0.35	78.8	1.23	101	0.50	-0.0136	89.4	52.0	218.2	83.0	81.0
341			0.199	-0.36	78.8	1.24	-	0.49	-0.0054	89.4	52.0	217.8	83.0	80.7
342			0.198	-0.37	78.8	1.24	-	0.48	-0.0137	89.4	52.0	217.6	83.1	80.9
343			0.197	-0.37	78.8	1.23	-	0.46	-0.0201	89.4	52.0	217.1	83.2	80.9
344			0.199	-0.35	78.7	1.23	-	0.46	-0.0027	89.3	52.1	216.5	83.1	80.9
345			0.199	-0.36	78.7	1.23	-	0.43	-0.0207	89.3	52.1	216.3	83.2	80.6
346			0.201	-0.34	78.7	1.22	-	0.42	-0.0118	89.3	52.1	216.1	83.2	81.2
347			0.198	-0.33	78.7	1.24	-	0.42	0.00089	89.2	52.0	215.7	83.3	81.0
348			0.198	-0.35	78.7	1.23	-	0.41	-0.0133	89.2	52.0	215.3	83.3	80.7
349			0.198	-0.37	78.7	1.23	-	0.39	-0.0179	89.2	52.0	215.2	83.4	80.8
350	364.620	0.196	0.198	-0.37	78.7	1.23	101	0.39	-0.0063	89.1	52.0	215.1	83.3	80.6
351			0.197	-0.36	78.7	1.22	-	0.38	-0.0082	89.1	52.0	214.8	83.5	81.0
352			0.197	-0.37	78.6	1.21	-	0.36	-0.0143	89.1	52.0	214.3	83.4	80.9
353			0.198	-0.37	78.6	1.24	-	0.36	-0.0077	88.9	52.0	213.9	83.4	80.6
354			0.199	-0.34	78.6	1.22	-	0.34	-0.0135	89.0	52.0	213.8	83.5	80.7
355			0.200	-0.37	78.6	1.23	-	0.33	-0.0109	88.9	52.0	213.5	83.5	80.8
356			0.199	-0.37	78.6	1.23	-	0.32	-0.0098	88.9	52.0	213.3	83.6	80.9
357			0.199	-0.36	78.5	1.22	-	0.30	-0.0189	88.8	52.1	213.1	83.5	80.7
358			0.198	-0.36	78.5	1.23	-	0.29	-0.009	88.9	52.0	212.7	83.6	80.5
359			0.200	-0.34	78.5	1.22	-	0.28	-0.0107	88.8	52.1	212.7	83.5	80.5
360	366.572	0.195	0.198	-0.37	78.5	1.23	101	0.27	-0.0151	88.8	52.1	212.3	83.5	80.9
361			0.201	-0.34	78.5	1.22	-	0.27	0.00198	88.7	52.0	212.0	83.5	80.7
362			0.200	-0.34	78.5	1.22	-	0.26	-0.0098	88.7	52.0	211.7	83.5	80.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
363			0.200	-0.36	78.5	1.22	-	0.25	-0.0085	88.7	52.0	211.4	83.5	80.8
364			0.199	-0.37	78.4	1.21	-	0.24	-0.0147	88.7	52.0	211.1	83.5	80.6
365			0.198	-0.37	78.4	1.21	-	0.23	-0.0085	88.7	52.0	210.8	83.5	80.5
366			0.197	-0.37	78.4	1.22	-	0.22	-0.0098	88.6	52.0	210.5	83.4	80.7
367			0.198	-0.36	78.4	1.23	-	0.21	-0.012	88.6	52.0	210.2	83.4	80.7
368			0.199	-0.37	78.4	1.22	-	0.20	-0.0071	88.6	52.0	210.0	83.5	80.8
369			0.198	-0.34	78.4	1.21	-	0.18	-0.0206	88.5	52.0	209.8	83.5	80.4
370	368.533	0.196	0.199	-0.37	78.3	1.21	101	0.18	-0.0008	88.5	51.9	209.4	83.5	80.6
371			0.199	-0.32	78.3	1.21	-	0.16	-0.0149	88.4	52.0	209.4	83.5	80.5
372			0.199	-0.37	78.3	1.23	-	0.16	-0.0076	88.4	52.0	209.4	83.4	80.6
373			0.200	-0.37	78.3	1.21	-	0.14	-0.0123	88.4	52.0	208.9	83.4	80.8
374			0.199	-0.34	78.3	1.22	-	0.13	-0.0109	88.3	52.0	208.8	83.4	80.5
375			0.199	-0.36	78.3	1.20	-	0.12	-0.0091	88.3	52.0	208.7	83.4	80.9
376			0.201	-0.34	78.3	1.23	-	0.11	-0.0122	88.3	51.9	208.4	83.4	80.5
377			0.200	-0.37	78.2	1.23	-	0.10	-0.0098	88.3	51.9	208.1	83.4	80.5
378			0.199	-0.37	78.2	1.21	-	0.09	-0.0093	88.3	51.9	207.9	83.4	80.8
379			0.198	-0.37	78.2	1.22	-	0.08	-0.0148	88.2	51.9	207.7	83.4	80.5
380	370.482	0.195	0.200	-0.36	78.2	1.20	100	0.07	-0.0094	88.2	51.9	207.4	83.4	80.4
381			0.201	-0.32	78.2	1.22	-	0.06	-0.0077	88.1	51.9	207.0	83.4	80.2
382			0.199	-0.36	78.2	1.22	-	0.05	-0.0092	88.0	51.9	207.0	83.4	80.4
383			0.201	-0.37	78.2	1.22	-	0.05	-0.0018	88.0	51.9	206.9	83.3	80.7
384			0.200	-0.37	78.1	1.22	-	0.03	-0.0197	88.1	51.9	206.5	83.1	80.4
385			0.199	-0.37	78.1	1.22	-	0.02	-0.013	88.0	51.9	206.4	83.0	80.4
386			0.203	-0.31	78.1	1.22	-	0.01	-0.0065	88.0	51.9	206.1	82.8	80.6
387			0.199	-0.37	78.1	1.22	-	0.00	-0.0076	87.9	51.9	205.7	82.6	80.1
388	372.044	0.195	0.199	-0.35	78.1	1.21	101	0.00	-0.0049	87.9	51.9	205.5	82.5	80.3
Avg/Tot	74.630	0.192	0.197	-0.33	80	1.01	100			96	56	319	84	83.7

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	316.246		-0.37	78.0	-0.57		85	0.058	2.74	0.21
1			-0.38	78.2	0.18	-	86	0.065	2.21	0.16
2			-0.36	78.2	0.27	-	87	0.065	1.71	0.22
3			-0.37	78.3	0.19	-	87	0.070	2.13	0.23
4			-0.38	78.3	0.16	-	85	0.079	2.86	0.21
5			-0.37	78.3	0.16	-	83	0.064	8.80	0.34
6			-0.32	78.4	0.22	-	82	0.063	8.26	0.48
7			-0.37	78.4	0.24	-	81	0.063	7.12	0.42
8			-0.35	78.5	0.14	-	81	0.069	9.43	0.39
9			-0.35	78.5	0.23	-	82	0.071	13.35	0.30
10	318.202	0.196	-0.38	78.5	0.19	101	83	0.069	15.26	0.61
11			-0.38	78.6	0.16	-	84	0.067	13.20	0.42
12			-0.37	78.6	0.23	-	85	0.067	10.91	0.40
13			-0.37	78.6	0.19	-	86	0.067	9.60	0.49
14			-0.38	78.7	0.23	-	87	0.069	10.50	0.36
15			-0.37	78.7	0.24	-	87	0.071	12.48	0.29
16			-0.38	78.8	0.25	-	86	0.070	13.35	0.28
17			-0.35	78.8	0.18	-	84	0.072	13.42	0.20
18			-0.37	78.8	0.17	-	84	0.071	13.59	0.23
19			-0.38	78.9	0.18	-	83	0.070	13.59	0.22
20	320.128	0.193	-0.32	78.9	0.18	99	83	0.070	13.06	0.20
21			-0.35	79.0	0.23	-	82	0.070	12.71	0.19
22			-0.35	79.0	0.23	-	82	0.070	12.56	0.17
23			-0.32	79.0	0.16	-	82	0.070	12.13	0.17
24			-0.38	79.0	0.22	-	82	0.069	11.72	0.19
25			-0.38	79.1	0.24	-	82	0.070	11.45	0.20
26			-0.38	79.0	0.22	-	82	0.070	11.15	0.19
27			-0.38	79.0	0.17	-	82	0.068	10.80	0.23
28			-0.35	79.1	0.24	-	82	0.067	10.72	0.28
29			-0.37	79.1	0.19	-	82	0.066	10.57	0.31
30	322.060	0.193	-0.37	79.1	0.18	99	83	0.067	10.27	0.34
31			-0.35	79.1	0.15	-	83	0.065	10.09	0.36
32			-0.38	79.2	0.21	-	83	0.066	9.91	0.39

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
33			-0.35	79.2	0.16	-	83	0.065	9.90	0.42
34			-0.34	79.2	0.24	-	83	0.065	9.46	0.46
35			-0.32	79.2	0.23	-	83	0.065	9.57	0.46
36			-0.31	79.2	0.23	-	83	0.065	9.90	0.46
37			-0.32	79.2	0.22	-	83	0.063	10.21	0.44
38			-0.35	79.2	0.17	-	83	0.065	10.29	0.45
39			-0.35	79.3	0.19	-	83	0.064	10.26	0.45
40	323.993	0.193	-0.32	79.3	0.23	98	83	0.066	10.21	0.47
41			-0.37	79.3	0.25	-	83	0.065	10.21	0.48
42			-0.38	79.3	0.24	-	83	0.064	10.26	0.47
43			-0.38	79.3	0.18	-	83	0.064	10.34	0.46
44			-0.37	79.4	0.25	-	84	0.065	10.36	0.47
45			-0.37	79.4	0.23	-	84	0.064	10.25	0.44
46			-0.39	79.4	0.19	-	84	0.064	10.29	0.45
47			-0.37	79.4	0.21	-	84	0.063	10.37	0.44
48			-0.39	79.4	0.24	-	84	0.063	10.49	0.45
49			-0.37	79.4	0.25	-	85	0.063	10.58	0.45
50	325.954	0.196	-0.37	79.4	0.18	101	85	0.064	10.68	0.46
51			-0.37	79.4	0.24	-	85	0.063	10.73	0.45
52			-0.38	79.5	0.18	-	85	0.063	10.80	0.46
53			-0.37	79.5	0.18	-	85	0.063	10.88	0.47
54			-0.37	79.5	0.20	-	85	0.064	10.94	0.48
55			-0.37	79.5	0.17	-	85	0.063	10.92	0.49
56			-0.37	79.5	0.23	-	85	0.063	10.99	0.46
57			-0.34	79.5	0.24	-	85	0.063	11.11	0.49
58			-0.38	79.6	0.19	-	85	0.064	11.25	0.48
59			-0.38	79.6	0.19	-	86	0.065	11.42	0.52
60	327.866	0.191	-0.35	79.6	0.25	99	85	0.064	11.51	0.51
61			-0.38	79.6	0.18	-	86	0.065	11.61	0.53
62			-0.38	79.6	0.25	-	86	0.064	11.68	0.52
63			-0.37	79.6	0.25	-	86	0.066	11.71	0.52
64			-0.38	79.7	0.22	-	86	0.065	11.80	0.51
65			-0.37	79.7	0.23	-	86	0.065	11.90	0.52

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
66			-0.38	79.7	0.22	-	86	0.067	11.92	0.52
67			-0.38	79.7	0.26	-	86	0.066	11.92	0.54
68			-0.38	79.7	0.26	-	86	0.067	12.01	0.56
69			-0.37	79.6	0.21	-	86	0.067	12.21	0.56
70	329.794	0.193	-0.38	79.7	0.26	100	86	0.067	12.62	0.50
71			-0.37	79.7	0.28	-	86	0.068	13.18	0.42
72			-0.37	79.7	0.32	-	86	0.069	13.71	0.37
73			-0.37	79.7	0.33	-	86	0.070	14.10	0.28
74			-0.37	79.7	0.30	-	86	0.069	14.78	0.34
75			-0.37	79.7	0.35	-	86	0.070	15.57	0.51
76			-0.37	79.7	0.50	-	86	0.070	15.98	0.71
77			-0.38	79.7	0.55	-	86	0.071	16.30	0.82
78			-0.37	79.7	0.58	-	86	0.072	16.47	0.86
79			-0.38	79.7	0.66	-	86	0.072	16.67	0.83
80	331.594	0.180	-0.38	79.6	0.84	94	86	0.071	16.85	0.81
81			-0.38	79.7	1.01	-	86	0.072	16.88	0.81
82			-0.38	79.7	0.98	-	86	0.073	16.82	0.80
83			-0.37	79.7	1.05	-	86	0.071	16.72	0.75
84			-0.35	79.7	1.05	-	86	0.072	16.67	0.70
85			-0.38	79.7	1.03	-	86	0.073	16.68	0.66
86			-0.38	79.8	1.08	-	86	0.072	16.63	0.60
87			-0.35	79.8	1.10	-	86	0.071	16.59	0.59
88			-0.37	79.8	1.06	-	86	0.073	16.45	0.53
89			-0.37	79.8	1.07	-	86	0.073	16.36	0.48
90	333.520	0.193	-0.37	79.8	1.07	100	86	0.072	16.18	0.47
91			-0.37	79.8	1.06	-	86	0.070	16.25	0.44
92			-0.37	79.8	1.10	-	86	0.071	16.15	0.42
93			-0.38	79.9	1.11	-	86	0.070	16.36	0.48
94			-0.37	79.8	1.16	-	86	0.073	16.22	0.42
95			-0.37	79.9	1.14	-	87	0.074	16.20	0.37
96			-0.38	79.9	1.17	-	87	0.073	16.15	0.28
97			-0.38	79.9	1.16	-	87	0.071	15.96	0.24
98			-0.37	79.9	1.16	-	87	0.072	16.01	0.23

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
99			-0.38	79.9	1.18	-	87	0.072	15.92	0.19
100	335.448	0.193	-0.37	79.9	1.11	101	87	0.072	15.91	0.17
101			-0.37	79.9	1.18	-	87	0.072	15.86	0.16
102			-0.35	79.9	1.15	-	87	0.070	15.75	0.15
103			-0.37	79.9	1.19	-	87	0.071	15.62	0.14
104			-0.37	79.9	1.13	-	87	0.070	15.47	0.12
105			-0.37	79.9	1.20	-	87	0.069	15.34	0.11
106			-0.37	80.0	1.15	-	87	0.070	15.13	0.11
107			-0.37	79.9	1.20	-	87	0.069	15.33	0.07
108			-0.37	80.0	1.15	-	87	0.067	14.88	0.06
109			-0.37	80.0	1.16	-	87	0.070	14.10	0.04
110	337.385	0.194	-0.37	80.0	1.20	101	87	0.068	12.47	0.02
111			-0.38	80.0	1.17	-	87	0.068	11.11	0.02
112			-0.37	80.0	1.15	-	87	0.065	10.46	0.02
113			-0.37	80.0	1.17	-	86	0.065	10.16	0.02
114			-0.38	80.0	1.19	-	86	0.065	9.87	0.03
115			-0.37	80.0	1.13	-	86	0.063	9.32	0.04
116			-0.38	80.0	1.17	-	86	0.063	8.88	0.05
117			-0.38	80.0	1.15	-	86	0.064	8.80	0.05
118			-0.36	80.0	1.17	-	86	0.063	8.72	0.06
119			-0.37	80.0	1.19	-	86	0.062	8.63	0.06
120	339.320	0.194	-0.37	80.0	1.18	100	86	0.063	8.56	0.06
121			-0.37	80.0	1.18	-	86	0.062	8.47	0.11
122			-0.37	80.0	1.17	-	86	0.061	8.45	0.09
123			-0.37	80.0	1.13	-	86	0.061	8.38	0.13
124			-0.37	80.0	1.17	-	86	0.061	8.39	0.08
125			-0.37	80.0	1.12	-	86	0.060	8.41	0.08
126			-0.38	80.1	1.17	-	86	0.060	8.42	0.08
127			-0.38	80.0	1.12	-	86	0.059	8.41	0.08
128			-0.37	80.1	1.11	-	86	0.059	8.24	0.10
129			-0.38	80.1	1.13	-	86	0.058	8.19	0.11
130	341.264	0.194	-0.38	80.0	1.10	100	86	0.058	8.15	0.12
131			-0.39	80.0	1.16	-	86	0.058	8.10	0.12

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
132			-0.38	80.1	1.09	-	86	0.057	8.08	0.13
133			-0.38	80.0	1.14	-	86	0.057	7.89	0.14
134			-0.39	80.0	1.15	-	86	0.055	7.79	0.16
135			-0.37	80.0	1.11	-	86	0.056	7.75	0.17
136			-0.37	80.0	1.15	-	86	0.056	7.73	0.17
137			-0.38	80.0	1.14	-	86	0.055	7.68	0.19
138			-0.37	80.0	1.14	-	85	0.056	7.69	0.18
139			-0.37	80.0	1.10	-	85	0.055	7.65	0.19
140	343.205	0.194	-0.39	80.0	1.10	100	85	0.056	7.60	0.20
141			-0.37	80.0	1.08	-	85	0.055	7.57	0.20
142			-0.39	79.9	1.10	-	85	0.054	7.55	0.21
143			-0.37	80.0	1.14	-	85	0.053	7.41	0.22
144			-0.38	79.9	1.14	-	85	0.054	7.41	0.22
145			-0.37	79.9	1.14	-	85	0.053	7.34	0.25
146			-0.38	79.9	1.12	-	85	0.053	7.29	0.27
147			-0.38	79.9	1.12	-	85	0.054	7.29	0.27
148			-0.37	79.9	1.14	-	85	0.053	7.25	0.28
149			-0.38	79.9	1.10	-	85	0.054	6.87	0.27
150	345.146	0.194	-0.37	79.9	1.13	99	85	0.053	6.67	0.31
151			-0.38	79.9	1.10	-	85	0.053	6.59	0.33
152			-0.38	79.9	1.09	-	85	0.052	6.52	0.38
153			-0.38	79.9	1.14	-	85	0.052	6.53	0.41
154			-0.38	79.9	1.14	-	85	0.052	6.53	0.42
155			-0.38	79.8	1.14	-	85	0.053	6.48	0.43
156			-0.35	79.9	1.14	-	84	0.051	6.27	0.47
157			-0.37	79.8	1.13	-	84	0.051	6.14	0.44
158			-0.38	79.8	1.13	-	84	0.050	6.06	0.45
159			-0.38	79.8	1.10	-	84	0.049	6.09	0.45
160	347.085	0.194	-0.37	79.8	1.07	99	84	0.050	6.09	0.45
161			-0.38	79.8	1.14	-	84	0.050	6.12	0.45
162			-0.37	79.8	1.12	-	84	0.049	6.16	0.45
163			-0.38	79.8	1.15	-	84	0.047	6.18	0.45
164			-0.38	79.8	1.16	-	84	0.049	6.16	0.45

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
165			-0.37	79.8	1.10	-	84	0.047	6.16	0.45
166			-0.38	79.7	1.10	-	84	0.047	6.21	0.45
167			-0.38	79.7	1.09	-	84	0.049	6.24	0.46
168			-0.37	79.7	1.14	-	84	0.047	6.27	0.45
169			-0.37	79.7	1.14	-	84	0.048	6.28	0.45
170	349.043	0.196	-0.35	79.7	1.16	100	84	0.048	5.93	0.40
171			-0.36	79.7	1.12	-	84	0.046	5.76	0.45
172			-0.37	79.7	1.10	-	84	0.048	5.75	0.47
173			-0.37	79.6	1.09	-	83	0.047	5.77	0.49
174			-0.38	79.7	1.11	-	83	0.047	5.76	0.50
175			-0.35	79.6	1.08	-	83	0.046	5.75	0.49
176			-0.38	79.6	1.10	-	83	0.046	5.76	0.50
177			-0.37	79.6	1.11	-	83	0.047	5.77	0.50
178			-0.37	79.6	1.10	-	83	0.046	5.77	0.49
179			-0.38	79.6	1.15	-	83	0.045	5.79	0.49
180	351.005	0.196	-0.35	79.5	1.12	100	83	0.046	5.80	0.49
181			-0.32	79.5	1.12	-	83	0.044	5.82	0.50
182			-0.38	79.5	1.11	-	83	0.044	5.83	0.50
183			-0.35	79.5	1.09	-	83	0.046	5.78	0.50
184			-0.38	79.4	1.09	-	83	0.044	5.79	0.49
185			-0.37	79.4	1.15	-	83	0.045	5.79	0.49
186			-0.38	79.4	1.12	-	83	0.047	5.82	0.49
187			-0.38	79.4	1.11	-	83	0.046	5.82	0.49
188			-0.37	79.4	1.09	-	83	0.045	5.85	0.49
189			-0.37	79.4	1.11	-	83	0.043	5.83	0.48
190	352.969	0.196	-0.37	79.4	1.14	100	83	0.043	5.87	0.49
191			-0.37	79.4	1.10	-	83	0.044	5.88	0.48
192			-0.37	79.4	1.08	-	83	0.043	5.89	0.48
193			-0.38	79.4	1.11	-	83	0.044	5.89	0.48
194			-0.39	79.4	1.15	-	83	0.043	5.90	0.48
195			-0.39	79.3	1.09	-	83	0.045	5.94	0.47
196			-0.32	79.4	1.15	-	82	0.043	5.97	0.47
197			-0.33	79.3	1.14	-	82	0.043	5.83	0.46

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
198			-0.36	79.3	1.09	-	82	0.043	5.80	0.47
199			-0.33	79.3	1.09	-	82	0.042	5.79	0.46
200	354.937	0.197	-0.36	79.3	1.14	100	82	0.042	5.81	0.45
201			-0.37	79.3	1.13	-	82	0.044	5.75	0.45
202			-0.37	79.3	1.15	-	82	0.042	5.74	0.44
203			-0.34	79.3	1.14	-	82	0.042	5.75	0.44
204			-0.37	79.2	1.13	-	82	0.044	5.77	0.44
205			-0.33	79.2	1.10	-	82	0.043	5.79	0.44
206			-0.35	79.2	1.10	-	82	0.040	5.78	0.43
207			-0.34	79.2	1.13	-	82	0.041	5.75	0.43
208			-0.32	79.2	1.08	-	82	0.042	5.76	0.43
209			-0.34	79.1	1.09	-	82	0.042	5.75	0.43
210	356.905	0.197	-0.34	79.1	1.09	100	82	0.042	5.61	0.45
211			-0.32	79.1	1.08	-	82	0.041	5.57	0.44
212			-0.35	79.1	1.10	-	82	0.041	5.57	0.44
213			-0.36	79.1	1.12	-	82	0.041	5.54	0.43
214			-0.35	79.1	1.10	-	82	0.042	5.47	0.43
215			-0.32	79.1	1.14	-	82	0.042	5.48	0.42
216			-0.34	79.1	1.12	-	83	0.041	5.46	0.42
217			-0.33	79.1	1.12	-	84	0.042	5.49	0.42
218			-0.34	79.0	1.11	-	85	0.042	5.37	0.43
219			-0.34	79.0	1.14	-	85	0.039	5.34	0.42
220	358.872	0.197	-0.33	79.0	1.10	100	85	0.039	5.33	0.41
221			-0.33	79.0	1.15	-	85	0.040	5.33	0.41
222			-0.32	79.0	1.09	-	85	0.042	5.34	0.41
223			-0.32	79.0	1.09	-	85	0.041	5.31	0.41
224			-0.35	79.0	1.09	-	85	0.041	5.30	0.40
225			-0.35	79.0	1.13	-	84	0.039	5.29	0.40
226			-0.32	78.9	1.13	-	84	0.040	5.30	0.39
227			-0.35	78.9	1.10	-	84	0.040	5.27	0.39
228			-0.35	78.9	1.11	-	84	0.039	5.26	0.39
229			-0.38	78.9	1.15	-	84	0.042	5.24	0.39
230	360.848	0.198	-0.38	78.9	1.12	100	83	0.038	5.26	0.38

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
231			-0.38	78.9	1.14	-	83	0.039	5.19	0.38
232			-0.35	78.9	1.13	-	83	0.040	5.20	0.38
233			-0.37	78.9	1.11	-	83	0.042	5.17	0.37
234			-0.37	78.9	1.15	-	83	0.041	5.18	0.37
235			-0.33	78.8	1.11	-	83	0.040	5.16	0.37
236			-0.32	78.8	1.10	-	82	0.039	5.15	0.37
237			-0.32	78.8	1.09	-	82	0.039	5.14	0.37
238			-0.32	78.8	1.15	-	82	0.040	5.13	0.37
239			-0.32	78.8	1.15	-	82	0.039	5.12	0.37
240	362.833	0.199	-0.32	78.8	1.15	100	82	0.039	5.12	0.37
241			-0.32	78.8	1.09	-	82	0.038	5.06	0.36
242			-0.35	78.8	1.09	-	82	0.038	5.01	0.36
243			-0.35	78.8	1.12	-	82	0.038	4.96	0.36
244			-0.32	78.8	1.09	-	83	0.039	4.95	0.36
245			-0.32	78.8	1.15	-	83	0.039	4.94	0.35
246			-0.35	78.8	1.13	-	83	0.038	4.93	0.35
247			-0.35	78.8	1.08	-	84	0.038	4.91	0.35
248			-0.38	78.7	1.16	-	84	0.037	4.92	0.36
249			-0.35	78.7	1.10	-	85	0.038	4.93	0.36
250	364.814	0.198	-0.34	78.7	1.11	100	85	0.037	4.86	0.36
251			-0.32	78.7	1.11	-	85	0.037	4.85	0.36
252			-0.32	78.7	1.11	-	86	0.036	4.83	0.36
253			-0.31	78.7	1.11	-	86	0.038	4.83	0.36
254			-0.34	78.7	1.14	-	86	0.038	4.81	0.35
255			-0.32	78.7	1.17	-	86	0.037	4.82	0.36
256			-0.32	78.7	1.17	-	86	0.037	4.81	0.35
257			-0.35	78.7	1.16	-	87	0.038	4.78	0.35
258			-0.35	78.7	1.17	-	87	0.036	4.80	0.35
259			-0.32	78.6	1.17	-	87	0.037	4.80	0.36
260	366.790	0.198	-0.32	78.6	1.10	100	87	0.036	4.79	0.35
261			-0.32	78.6	1.17	-	87	0.038	4.76	0.35
262			-0.32	78.6	1.17	-	86	0.036	4.76	0.35
263			-0.32	78.5	1.12	-	86	0.037	4.74	0.35

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
264			-0.32	78.5	1.11	-	86	0.037	4.73	0.35
265			-0.32	78.5	1.11	-	85	0.038	4.71	0.35
266			-0.32	78.5	1.17	-	85	0.036	4.71	0.35
267			-0.32	78.5	1.14	-	85	0.037	4.71	0.35
268			-0.33	78.4	1.11	-	85	0.037	4.70	0.35
269			-0.32	78.4	1.12	-	84	0.036	4.68	0.35
270	368.771	0.198	-0.32	78.4	1.09	100	84	0.036	4.68	0.34
271			-0.32	78.3	1.16	-	84	0.035	4.66	0.34
272			-0.32	78.3	1.14	-	84	0.036	4.65	0.34
273			-0.32	78.3	1.14	-	83	0.037	4.61	0.34
274			-0.32	78.2	1.10	-	83	0.037	4.62	0.34
275			-0.31	78.2	1.14	-	83	0.037	4.61	0.34
276			-0.32	78.2	1.12	-	83	0.036	4.61	0.33
277			-0.32	78.1	1.15	-	83	0.034	4.60	0.33
278			-0.33	78.1	1.10	-	82	0.035	4.59	0.33
279			-0.32	78.1	1.11	-	82	0.036	4.45	0.33
280	370.758	0.199	-0.32	78.1	1.16	101	82	0.036	4.44	0.33
281			-0.32	78.1	1.10	-	82	0.036	4.44	0.33
282			-0.33	78.0	1.13	-	82	0.036	4.42	0.33
283			-0.32	78.0	1.17	-	82	0.035	4.40	0.33
284			-0.33	78.0	1.11	-	82	0.036	4.38	0.32
285			-0.33	78.0	1.13	-	81	0.035	4.35	0.32
286			-0.33	78.0	1.15	-	81	0.036	4.33	0.32
287			-0.31	77.9	1.11	-	81	0.036	4.32	0.32
288			-0.31	77.9	1.12	-	81	0.036	4.33	0.32
289			-0.32	77.9	1.17	-	82	0.034	4.31	0.32
290	372.745	0.199	-0.36	77.9	1.10	101	82	0.037	4.33	0.32
291			-0.32	77.9	1.10	-	83	0.037	4.33	0.32
292			-0.33	77.8	1.15	-	83	0.035	4.29	0.31
293			-0.32	77.8	1.17	-	84	0.034	4.28	0.32
294			-0.32	77.8	1.11	-	84	0.035	4.30	0.32
295			-0.32	77.8	1.15	-	85	0.034	4.29	0.32
296			-0.32	77.8	1.12	-	85	0.034	4.27	0.32

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
297			-0.33	77.7	1.12	-	85	0.036	4.28	0.32
298			-0.32	77.7	1.17	-	86	0.034	4.26	0.31
299			-0.32	77.7	1.16	-	86	0.036	4.25	0.32
300	374.728	0.198	-0.32	77.7	1.19	101	86	0.035	4.24	0.32
301			-0.32	77.7	1.16	-	87	0.036	4.22	0.32
302			-0.32	77.6	1.20	-	87	0.036	4.18	0.32
303			-0.33	77.6	1.14	-	87	0.034	4.16	0.33
304			-0.32	77.6	1.18	-	88	0.032	4.14	0.33
305			-0.32	77.6	1.16	-	88	0.034	4.14	0.33
306			-0.32	77.6	1.19	-	88	0.034	4.14	0.33
307			-0.32	77.6	1.14	-	88	0.036	4.12	0.33
308			-0.32	77.6	1.19	-	88	0.034	4.12	0.33
309			-0.32	77.6	1.14	-	88	0.034	4.11	0.33
310	376.714	0.199	-0.32	77.6	1.12	101	88	0.034	4.11	0.33
311			-0.32	77.6	1.13	-	87	0.034	4.10	0.32
312			-0.32	77.6	1.19	-	87	0.033	4.08	0.32
313			-0.32	77.6	1.13	-	87	0.034	4.03	0.32
314			-0.32	77.6	1.15	-	86	0.035	3.93	0.32
315			-0.32	77.6	1.15	-	86	0.034	3.91	0.32
316			-0.32	77.6	1.15	-	85	0.032	3.89	0.32
317			-0.32	77.6	1.13	-	85	0.032	3.88	0.32
318			-0.32	77.6	1.14	-	85	0.033	3.86	0.32
319			-0.32	77.5	1.13	-	84	0.032	3.83	0.32
320	378.700	0.199	-0.32	77.5	1.20	101	84	0.032	3.82	0.32
321			-0.32	77.5	1.17	-	84	0.033	3.80	0.32
322			-0.32	77.5	1.12	-	83	0.032	3.80	0.32
323			-0.32	77.4	1.15	-	83	0.032	3.79	0.32
324			-0.32	77.4	1.18	-	83	0.032	3.78	0.32
325			-0.32	77.4	1.11	-	83	0.034	3.78	0.31
326			-0.32	77.4	1.13	-	83	0.033	3.78	0.31
327			-0.32	77.4	1.10	-	83	0.033	3.77	0.31
328			-0.32	77.4	1.15	-	83	0.033	3.76	0.31
329			-0.33	77.3	1.14	-	83	0.032	3.78	0.31

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
330	380.688	0.199	-0.33	77.3	1.09	100	83	0.032	3.76	0.31
331			-0.31	77.3	1.16	-	83	0.032	3.75	0.31
332			-0.32	77.3	1.11	-	83	0.033	3.73	0.31
333			-0.31	77.2	1.17	-	84	0.033	3.73	0.31
334			-0.32	77.2	1.11	-	84	0.032	3.71	0.31
335			-0.32	77.2	1.15	-	84	0.033	3.72	0.30
336			-0.31	77.2	1.12	-	84	0.033	3.71	0.30
337			-0.32	77.2	1.15	-	84	0.033	3.71	0.30
338			-0.33	77.2	1.17	-	84	0.032	3.69	0.30
339			-0.33	77.2	1.15	-	84	0.032	3.70	0.30
340	382.668	0.198	-0.32	77.1	1.14	100	84	0.032	3.68	0.30
341			-0.33	77.1	1.17	-	85	0.031	3.68	0.30
342			-0.32	77.1	1.11	-	85	0.031	3.68	0.30
343			-0.32	77.1	1.12	-	85	0.033	3.66	0.30
344			-0.33	77.1	1.11	-	85	0.031	3.66	0.30
345			-0.31	77.0	1.15	-	85	0.032	3.64	0.30
346			-0.31	77.0	1.11	-	85	0.033	3.65	0.29
347			-0.32	77.0	1.12	-	85	0.031	3.65	0.29
348			-0.32	77.0	1.15	-	85	0.031	3.67	0.29
349			-0.31	77.0	1.14	-	85	0.030	3.67	0.30
350	384.651	0.198	-0.32	77.0	1.15	100	85	0.032	3.65	0.30
351			-0.32	77.0	1.17	-	85	0.032	3.63	0.30
352			-0.33	77.0	1.18	-	85	0.030	3.64	0.29
353			-0.32	76.9	1.13	-	85	0.032	3.65	0.29
354			-0.32	76.9	1.13	-	85	0.032	3.66	0.29
355			-0.32	76.9	1.16	-	85	0.031	3.64	0.29
356			-0.32	76.9	1.14	-	85	0.030	3.63	0.29
357			-0.32	76.9	1.12	-	85	0.030	3.63	0.29
358			-0.32	76.9	1.16	-	85	0.030	3.63	0.29
359			-0.32	76.8	1.19	-	85	0.032	3.64	0.29
360	386.644	0.199	-0.32	76.8	1.12	101	85	0.030	3.64	0.28
361			-0.32	76.8	1.18	-	85	0.030	3.64	0.28
362			-0.32	76.8	1.12	-	85	0.031	3.65	0.28

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
363			-0.33	76.8	1.12	-	85	0.030	3.65	0.28
364			-0.32	76.7	1.17	-	85	0.030	3.64	0.28
365			-0.32	76.7	1.13	-	85	0.030	3.63	0.28
366			-0.32	76.7	1.16	-	85	0.031	3.62	0.28
367			-0.32	76.7	1.15	-	85	0.032	3.62	0.28
368			-0.32	76.7	1.19	-	85	0.030	3.63	0.28
369			-0.32	76.7	1.15	-	85	0.030	3.63	0.28
370	388.627	0.198	-0.32	76.7	1.16	101	85	0.030	3.65	0.28
371			-0.32	76.6	1.12	-	85	0.029	3.64	0.28
372			-0.32	76.6	1.13	-	85	0.029	3.63	0.28
373			-0.32	76.6	1.18	-	85	0.030	3.61	0.29
374			-0.32	76.6	1.19	-	85	0.030	3.63	0.29
375			-0.32	76.6	1.17	-	85	0.030	3.62	0.29
376			-0.32	76.6	1.17	-	85	0.031	3.61	0.29
377			-0.33	76.6	1.17	-	85	0.030	3.61	0.28
378			-0.32	76.6	1.13	-	85	0.029	3.60	0.28
379			-0.32	76.6	1.17	-	85	0.029	3.62	0.28
380	390.620	0.199	-0.32	76.5	1.18	101	85	0.030	3.61	0.28
381			-0.32	76.5	1.12	-	85	0.030	3.61	0.28
382			-0.32	76.5	1.16	-	85	0.028	3.60	0.28
383			-0.32	76.5	1.18	-	85	0.032	3.61	0.28
384			-0.32	76.5	1.12	-	84	0.030	3.61	0.28
385			-0.33	76.5	1.13	-	84	0.029	3.61	0.28
386			-0.32	76.5	1.11	-	84	0.030	3.60	0.28
387			-0.32	76.4	1.17	-	83	0.031	3.55	0.28
388	392.209	0.199	-0.32	76.4	1.12	101	83	0.030	3.55	0.28
Avg/Tot	75.963	0.196	-0.35	79	0.94	100	84	0.048	7.27	0.35

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
0	353	382	590	624	632	516.1	N/A
1	348	387	588	616	626	513.1	N/A
2	341	391	585	606	619	508.5	N/A
3	335	394	581	596	611	503.2	N/A
4	331	394	575	587	606	498.6	N/A
5	333	394	571	584	605	497.4	N/A
6	335	395	564	584	603	495.9	N/A
7	337	393	557	581	600	493.7	N/A
8	342	393	553	583	599	493.8	N/A
9	350	391	551	590	600	496.3	N/A
10	358	392	551	600	604	501.1	N/A
11	364	390	548	609	609	504.1	N/A
12	369	391	545	612	612	505.9	N/A
13	373	391	542	613	613	506.3	N/A
14	379	389	539	615	613	507.0	N/A
15	387	381	537	619	614	507.5	N/A
16	395	379	535	624	616	509.8	N/A
17	402	380	534	630	618	512.9	N/A
18	410	380	534	637	621	516.5	N/A
19	416	378	535	645	625	519.8	N/A
20	422	376	535	651	628	522.5	N/A
21	428	374	535	656	631	524.7	N/A
22	432	373	535	660	634	526.7	N/A
23	435	370	535	662	637	527.9	N/A
24	438	369	536	664	639	529.0	N/A
25	439	367	536	666	640	529.6	N/A
26	439	365	536	667	641	529.7	N/A
27	439	364	537	668	641	529.7	N/A
28	438	360	538	669	639	529.0	N/A
29	438	357	538	670	638	528.2	N/A
30	437	357	538	671	635	527.8	N/A
31	436	355	538	672	633	526.8	N/A
32	434	353	539	673	629	525.6	N/A
33	432	351	539	673	625	524.3	N/A
34	430	350	540	674	621	523.2	N/A
35	428	350	541	675	617	522.2	N/A
36	427	348	542	677	612	521.2	N/A
37	426	347	543	679	607	520.4	N/A
38	425	345	544	681	603	519.8	N/A
39	424	344	546	684	598	519.3	N/A
40	424	343	547	687	594	518.8	N/A
41	423	341	548	690	590	518.4	N/A
42	422	340	549	692	586	518.0	N/A
43	422	339	551	695	583	517.7	N/A
44	421	335	553	697	579	517.0	N/A
45	421	331	554	700	576	516.4	N/A
46	420	329	556	702	573	516.1	N/A
47	420	328	558	705	571	516.0	N/A
48	419	324	560	707	568	515.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
49	419	324	562	710	566	516.2	N/A
50	419	321	564	713	565	516.3	N/A
51	419	320	566	716	563	517.0	N/A
52	419	321	569	719	562	518.0	N/A
53	420	318	571	722	561	518.4	N/A
54	420	317	573	726	560	519.2	N/A
55	421	314	575	729	559	519.6	N/A
56	421	316	577	731	559	520.8	N/A
57	422	315	579	734	558	521.8	N/A
58	424	313	581	738	558	522.7	N/A
59	426	313	583	742	558	524.1	N/A
60	427	312	585	745	557	525.4	N/A
61	430	311	587	749	557	526.9	N/A
62	433	306	590	753	557	527.8	N/A
63	435	309	592	756	558	530.0	N/A
64	438	309	594	759	558	531.5	N/A
65	439	307	596	762	559	532.5	N/A
66	440	305	597	764	561	533.2	N/A
67	441	303	598	766	562	534.0	N/A
68	441	301	599	767	565	534.6	N/A
69	441	297	600	769	568	535.1	N/A
70	441	294	601	772	572	535.9	N/A
71	441	294	604	774	576	537.8	N/A
72	442	290	607	776	582	539.4	N/A
73	444	291	609	778	589	542.3	N/A
74	446	290	612	781	597	545.3	N/A
75	450	290	616	784	607	549.4	N/A
76	453	288	619	788	618	553.3	N/A
77	458	286	623	792	631	558.0	N/A
78	462	291	627	796	644	563.9	N/A
79	467	291	631	801	656	569.2	N/A
80	471	291	635	806	669	574.3	N/A
81	475	291	639	811	680	579.3	N/A
82	479	293	643	816	691	584.2	N/A
83	483	292	646	821	701	588.6	N/A
84	486	291	651	825	710	592.6	N/A
85	489	291	655	829	718	596.6	N/A
86	491	291	659	833	726	600.0	N/A
87	494	291	663	837	732	603.4	N/A
88	496	292	667	841	739	606.9	N/A
89	497	293	671	844	744	609.9	N/A
90	499	292	674	847	750	612.4	N/A
91	500	291	678	850	755	614.7	N/A
92	501	292	681	853	759	617.2	N/A
93	502	291	685	856	764	619.5	N/A
94	503	292	689	859	769	622.3	N/A
95	504	292	692	861	773	624.5	N/A
96	505	291	695	863	778	626.5	N/A
97	506	292	696	864	782	628.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
98	507	293	698	864	787	629.8	N/A
99	508	292	701	863	791	631.0	N/A
100	508	293	703	863	796	632.5	N/A
101	508	293	704	863	800	633.7	N/A
102	509	293	706	863	804	635.0	N/A
103	508	293	707	862	808	635.9	N/A
104	507	295	710	863	812	637.4	N/A
105	506	296	712	864	816	638.8	N/A
106	505	296	715	864	819	639.7	N/A
107	504	295	716	864	821	640.1	N/A
108	502	296	718	863	823	640.4	N/A
109	499	297	719	861	824	639.9	N/A
110	496	296	718	856	824	638.1	N/A
111	492	298	716	850	822	635.7	N/A
112	488	299	715	843	818	632.4	N/A
113	483	298	713	835	814	628.5	N/A
114	478	298	710	827	808	624.3	N/A
115	474	298	706	818	803	619.7	N/A
116	469	300	701	809	797	615.1	N/A
117	465	299	696	800	791	610.2	N/A
118	460	301	691	792	785	605.8	N/A
119	456	302	687	783	779	601.4	N/A
120	452	303	682	775	773	597.2	N/A
121	448	301	678	767	768	592.6	N/A
122	445	303	673	760	763	588.8	N/A
123	441	303	669	752	759	584.9	N/A
124	438	305	665	745	755	581.5	N/A
125	435	306	660	739	751	578.1	N/A
126	432	306	657	732	747	574.6	N/A
127	429	306	652	726	743	571.3	N/A
128	425	306	649	721	738	568.0	N/A
129	422	307	645	716	733	564.8	N/A
130	419	308	641	711	728	561.6	N/A
131	416	309	638	707	723	558.5	N/A
132	413	310	634	703	717	555.3	N/A
133	410	310	630	698	712	552.1	N/A
134	407	310	627	694	706	548.9	N/A
135	404	305	624	690	701	544.7	N/A
136	401	306	620	686	696	541.7	N/A
137	397	305	617	682	692	538.5	N/A
138	394	305	613	678	687	535.4	N/A
139	391	304	610	674	682	532.2	N/A
140	388	305	607	670	678	529.5	N/A
141	385	303	603	666	674	526.3	N/A
142	383	307	600	662	670	524.2	N/A
143	380	304	596	659	666	521.0	N/A
144	377	304	593	655	662	518.2	N/A
145	374	306	590	652	658	516.0	N/A
146	372	305	586	648	654	513.2	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
147	369	306	583	645	651	510.9	N/A
148	367	308	580	641	648	508.7	N/A
149	365	307	577	638	644	506.1	N/A
150	362	309	573	635	641	504.0	N/A
151	360	305	569	631	638	500.8	N/A
152	358	306	565	628	635	498.4	N/A
153	356	308	562	624	631	496.2	N/A
154	354	307	558	621	628	493.4	N/A
155	351	306	554	617	625	490.6	N/A
156	349	305	550	614	621	487.7	N/A
157	346	309	546	610	618	485.6	N/A
158	344	309	541	606	614	483.0	N/A
159	342	310	537	602	610	480.2	N/A
160	340	311	533	598	607	477.6	N/A
161	337	306	529	594	603	474.0	N/A
162	335	311	525	591	600	472.3	N/A
163	333	312	521	587	596	469.9	N/A
164	331	312	517	584	593	467.5	N/A
165	330	312	514	580	589	464.9	N/A
166	328	308	510	577	586	461.8	N/A
167	326	310	507	574	583	459.9	N/A
168	324	308	504	571	580	457.5	N/A
169	322	312	501	568	577	456.2	N/A
170	321	309	498	565	575	453.6	N/A
171	319	309	495	562	572	451.4	N/A
172	317	308	492	559	569	449.0	N/A
173	316	311	489	556	566	447.6	N/A
174	314	311	486	553	563	445.6	N/A
175	313	310	483	550	561	443.4	N/A
176	311	312	480	547	558	441.7	N/A
177	310	312	477	544	555	439.8	N/A
178	308	312	475	542	553	437.8	N/A
179	307	313	472	539	551	436.3	N/A
180	306	311	470	537	548	434.2	N/A
181	304	310	467	534	546	432.2	N/A
182	303	310	465	532	544	430.5	N/A
183	301	312	463	530	542	429.3	N/A
184	300	311	460	527	540	427.6	N/A
185	299	307	458	525	537	425.4	N/A
186	297	311	456	523	535	424.7	N/A
187	296	312	454	521	533	423.3	N/A
188	295	310	452	519	532	421.6	N/A
189	294	310	450	517	530	420.4	N/A
190	293	308	448	516	528	418.6	N/A
191	292	310	446	514	527	417.8	N/A
192	291	312	445	512	525	416.9	N/A
193	290	309	443	511	523	415.2	N/A
194	289	310	441	509	522	414.1	N/A
195	287	309	440	507	520	412.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
196	286	309	438	506	519	411.7	N/A
197	285	310	437	505	518	411.0	N/A
198	284	309	436	503	517	409.7	N/A
199	283	311	434	502	515	409.2	N/A
200	282	308	433	501	514	407.7	N/A
201	282	306	431	499	513	406.4	N/A
202	281	308	430	498	512	405.8	N/A
203	280	308	429	496	511	404.8	N/A
204	279	309	427	495	510	404.0	N/A
205	279	307	426	494	509	402.9	N/A
206	277	310	425	492	508	402.6	N/A
207	277	310	424	491	507	401.6	N/A
208	276	308	422	490	506	400.4	N/A
209	275	308	421	488	505	399.5	N/A
210	275	307	420	487	504	398.4	N/A
211	274	306	419	486	503	397.3	N/A
212	273	308	417	484	502	396.8	N/A
213	272	307	416	483	501	396.0	N/A
214	272	309	415	482	500	395.5	N/A
215	271	307	414	480	499	394.3	N/A
216	270	307	413	479	498	393.5	N/A
217	269	309	412	478	497	392.9	N/A
218	268	309	411	476	496	392.0	N/A
219	268	308	410	475	495	391.1	N/A
220	267	308	409	474	494	390.4	N/A
221	267	307	408	473	493	389.4	N/A
222	266	307	407	471	492	388.6	N/A
223	265	308	406	470	490	387.9	N/A
224	264	307	405	469	489	386.8	N/A
225	264	306	404	467	488	386.1	N/A
226	263	305	403	466	487	385.0	N/A
227	263	306	403	465	486	384.4	N/A
228	262	306	402	464	485	383.5	N/A
229	261	306	401	462	484	382.8	N/A
230	261	303	400	461	482	381.4	N/A
231	260	304	399	460	481	380.8	N/A
232	260	305	398	459	480	380.3	N/A
233	259	306	397	457	479	379.6	N/A
234	259	306	396	456	478	378.9	N/A
235	258	302	395	455	477	377.4	N/A
236	257	301	394	454	476	376.3	N/A
237	257	299	393	453	474	375.2	N/A
238	257	300	392	452	473	374.8	N/A
239	256	302	392	450	472	374.5	N/A
240	256	306	390	449	471	374.3	N/A
241	255	305	389	448	470	373.4	N/A
242	255	306	388	447	468	372.9	N/A
243	255	304	387	445	467	371.9	N/A
244	255	305	387	444	466	371.4	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
245	254	305	386	443	465	370.6	N/A
246	254	304	385	442	464	369.8	N/A
247	254	305	384	441	463	369.3	N/A
248	253	305	383	440	462	368.6	N/A
249	253	304	382	438	461	367.8	N/A
250	253	305	381	437	460	367.1	N/A
251	252	304	381	436	459	366.4	N/A
252	252	304	380	435	458	365.5	N/A
253	252	304	379	434	457	364.8	N/A
254	251	304	378	433	455	364.1	N/A
255	251	304	377	431	454	363.5	N/A
256	250	303	377	430	453	362.7	N/A
257	250	302	376	429	452	361.9	N/A
258	250	302	375	428	451	361.2	N/A
259	249	303	375	427	450	360.7	N/A
260	249	303	374	426	449	360.0	N/A
261	248	302	373	425	448	359.3	N/A
262	248	302	372	424	447	358.6	N/A
263	248	301	372	423	446	357.8	N/A
264	247	301	371	422	445	357.3	N/A
265	247	301	370	421	444	356.6	N/A
266	246	300	370	420	443	355.9	N/A
267	246	300	369	419	442	355.3	N/A
268	246	300	368	418	441	354.6	N/A
269	245	299	367	417	440	353.9	N/A
270	245	299	367	416	439	353.3	N/A
271	244	298	366	416	439	352.6	N/A
272	244	298	366	415	438	352.1	N/A
273	243	298	365	414	437	351.5	N/A
274	243	298	364	413	436	350.7	N/A
275	243	297	364	412	435	350.0	N/A
276	242	297	363	411	434	349.5	N/A
277	241	297	362	410	433	348.9	N/A
278	241	297	362	410	433	348.3	N/A
279	240	296	361	409	432	347.5	N/A
280	240	296	360	408	431	346.9	N/A
281	239	295	359	407	430	346.2	N/A
282	239	295	358	406	430	345.5	N/A
283	238	294	358	405	429	344.8	N/A
284	238	294	357	404	428	344.2	N/A
285	237	293	356	403	427	343.4	N/A
286	237	294	355	403	426	342.9	N/A
287	236	293	354	402	425	342.2	N/A
288	236	295	354	401	424	341.9	N/A
289	235	295	353	400	423	341.3	N/A
290	235	295	352	399	422	340.6	N/A
291	234	295	351	398	422	340.1	N/A
292	234	294	350	398	421	339.4	N/A
293	234	294	350	397	420	338.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
294	233	294	349	396	419	338.1	N/A
295	233	294	348	395	418	337.6	N/A
296	232	294	348	395	417	336.9	N/A
297	232	293	347	394	416	336.3	N/A
298	232	294	346	393	415	335.8	N/A
299	231	293	346	392	414	335.2	N/A
300	231	293	345	391	413	334.5	N/A
301	230	293	344	391	412	334.0	N/A
302	230	293	344	390	411	333.5	N/A
303	230	292	343	389	410	332.9	N/A
304	229	292	342	388	409	332.3	N/A
305	229	292	342	388	408	331.7	N/A
306	229	291	341	387	407	331.1	N/A
307	228	291	341	386	406	330.5	N/A
308	228	291	340	386	405	329.9	N/A
309	227	291	339	385	404	329.3	N/A
310	227	289	339	384	403	328.4	N/A
311	227	289	338	384	402	327.9	N/A
312	226	288	337	383	401	327.3	N/A
313	226	288	337	382	400	326.6	N/A
314	225	287	336	382	399	325.9	N/A
315	225	287	336	381	398	325.3	N/A
316	225	286	335	380	397	324.6	N/A
317	224	285	334	380	396	323.8	N/A
318	224	285	334	379	395	323.2	N/A
319	223	284	333	378	394	322.5	N/A
320	223	283	332	378	393	321.6	N/A
321	222	284	332	377	391	321.2	N/A
322	222	284	331	376	390	320.6	N/A
323	222	284	330	375	389	320.1	N/A
324	221	284	330	375	388	319.5	N/A
325	221	282	329	374	387	318.5	N/A
326	220	283	328	373	386	318.1	N/A
327	220	282	328	372	385	317.3	N/A
328	219	283	327	372	383	316.8	N/A
329	219	282	326	371	382	316.0	N/A
330	219	282	325	370	381	315.5	N/A
331	218	281	325	369	380	314.8	N/A
332	218	281	324	369	379	314.1	N/A
333	217	281	323	368	378	313.7	N/A
334	217	282	323	367	377	313.2	N/A
335	217	281	322	366	376	312.6	N/A
336	216	281	321	366	375	312.0	N/A
337	216	281	321	365	374	311.4	N/A
338	216	281	320	364	373	310.9	N/A
339	215	280	320	364	372	310.3	N/A
340	215	280	319	363	371	309.7	N/A
341	215	280	318	362	371	309.2	N/A
342	214	280	318	362	370	308.6	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
343	214	280	317	361	369	308.1	N/A
344	214	280	316	360	368	307.6	N/A
345	213	279	316	360	367	306.9	N/A
346	213	279	315	359	366	306.5	N/A
347	213	278	314	359	365	305.9	N/A
348	212	278	314	358	364	305.4	N/A
349	212	278	313	357	364	304.8	N/A
350	212	278	313	357	363	304.3	N/A
351	211	277	312	356	362	303.8	N/A
352	211	277	311	356	361	303.2	N/A
353	211	277	311	355	360	302.9	N/A
354	211	277	311	354	360	302.4	N/A
355	210	277	310	354	359	301.9	N/A
356	210	277	310	353	358	301.5	N/A
357	210	276	309	352	357	301.0	N/A
358	209	276	309	352	357	300.6	N/A
359	209	276	308	351	356	300.1	N/A
360	209	276	308	351	355	299.8	N/A
361	209	276	307	350	355	299.3	N/A
362	208	276	307	350	354	298.9	N/A
363	208	275	306	349	354	298.5	N/A
364	208	275	306	348	353	298.0	N/A
365	207	275	306	348	352	297.7	N/A
366	207	275	305	347	352	297.2	N/A
367	207	274	305	347	351	296.8	N/A
368	207	275	304	346	350	296.5	N/A
369	206	274	304	346	350	296.0	N/A
370	206	274	304	345	349	295.8	N/A
371	206	274	303	345	349	295.4	N/A
372	206	274	303	344	348	295.1	N/A
373	205	274	303	344	348	294.7	N/A
374	205	274	303	344	347	294.4	N/A
375	205	274	302	343	347	294.1	N/A
376	205	273	302	343	346	293.8	N/A
377	204	273	302	342	345	293.4	N/A
378	204	273	301	342	345	293.2	N/A
379	204	273	301	341	345	292.7	N/A
380	204	273	301	341	344	292.5	N/A
381	203	273	301	341	344	292.2	N/A
382	203	273	300	340	343	291.9	N/A
383	203	273	300	340	343	291.6	N/A
384	203	273	300	339	342	291.4	N/A
385	202	273	300	339	342	291.1	N/A
386	202	272	299	339	341	290.7	N/A
387	202	272	299	338	341	290.4	N/A
388	202	272	299	338	340	290.2	N/A
Average	322	306	470	550	534	437	N/A

LAB SAMPLE DATA - ASTM E2515

Client: SBI
Model: Bistro
Run #: 2

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/6/2022

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	H104	184.7	189.2	4.5
	B	H105	183.9	188.2	4.3
	C - 1st Hour	H106	186.0	188.7	2.7
	Amb	H107	187.2	187.2	0.0
Probes	**A**	5A	116754.5	116754.5	0.0
	B	5B	116873.1	116873.3	0.2
	C - 1st Hour	5C	115854.4	115854.3	-0.1
O-rings	**A**	5A	3536.2	3536.5	0.3
	B	5B	3532.0	3532.3	0.3
	C - 1st Hour	5C	3378.2	3378.4	0.2

**Negative value corrected to zero*

Placed in Dessicator on:	6/13 - 8:30

Filters	**A**	189.2	6/6 23:59	189.3	6/15 12:06	189.2	6/16 8:57		
	B	188.3	6/6 23:59	188.3	6/15 12:06	188.2	6/16 8:57		
	C - 1st Hour	189.0	6/6 23:59	188.7	6/15 12:06	188.7	6/16 8:57		
	Amb	187.1	6/6 23:59	187.2	6/15 12:06	187.2	6/16 8:57		
Probes	**A**			116754.4	6/15 12:06	116754.5	6/16 8:57		
	B			116873.2	6/15 12:07	116873.3	6/16 8:58		
	C - 1st Hour			115854.4	6/15 12:07	115854.3	6/16 8:58		
O-Rings	**A**			3536.5	6/15 12:07	3536.5	6/16 8:58		
	B			3532.2	6/15 12:07	3532.3	6/16 8:58		
	C - 1st Hour			3378.4	6/15 12:07	3378.4	6/16 8:58		

Train A Aggregate, mg:	**4.8**
Train B Aggregate, mg:	**4.8**
Train C Aggregate, mg:	**2.8**
Ambient Aggregate, mg:	**0.0**

WOOD STOVE TEST DATA PACKET
ASTM E3053/E2515

Run 4 Data Summary

Client:	SBI
Model:	Bistro
Job #:	22-790
Tracking #:	122
Test Date:	6/7/2022

Technician Signature

7/10/2024
Date

TEST RESULTS - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

Burn Rate (kg/hr):	1.04

	Ambient Sample	Sample Train A	Sample Train B	1st Hour Filter
Total Sample Volume (ft^3)	72.084	96.021	97.971	12.963
Average Gas Velocity in Dilution Tunnel (ft/sec)	28.02			
Average Gas Flow Rate in Dilution Tunnel (dscf/hr)	33142.4			
Average Gas Meter Temperature (°F)	79.2	79.5	78.2	78.1
Total Sample Volume (dscf)	69.604	95.786	98.257	12.619
Average Tunnel Temperature (°F)	88.3			
Total Time of Test (min)	490			
Total Particulate Catch (mg)	0.0	2.8	3.0	3.1
Particulate Concentration, dry-standard (g/dscf)	0.0000000	0.0000292	0.0000305	0.0002457
Total PM Emissions (g)	0.00	7.91	8.26	8.14
Particulate Emission Rate (g/hr)	0.00	0.97	1.01	8.14
Emissions Factor (g/kg)	-	0.93	0.98	-
Difference from Average Total Particulate Emissions (g)	-	0.18	0.18	-
Difference from Average Total Particulate Emissions (%)	-	2.2%	2.2%	-
Difference from Average Emissions Factor (g/kg)	-	0.02	0.02	-

Final Average Results	
Total Particulate Emissions (g)	8.09
Particulate Emission Rate (g/hr)	0.99
Emissions Factor (g/kg)	0.95
HHV Efficiency (%)	77.3%
LHV Efficiency (%)	82.9%
CO Emissions (g/min)	0.85

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	>80 °F, <90 °F	Min: 81.8/Max: 87	OK
Face Velocity	< 30 ft/min	11.5	OK
Leakage Rate	Less than 4% of average sample rate	0.001 cfm	OK
Ambient Temp	55-90 °F	Min:76.2/Max:89.8	OK
Negative Probe Weight Evaluation	<5% of Total Catch	-3.6%	OK
Pro-Rate Variation	All but 1 reading between 90-110%; none greater than 120% or less than 80%	See Data Tabs	OK
Tunnel Dew Point	Tunnel dew point temps must be below filter temps at all times	See Data Tabs	OK

B415.1 Efficiency Results

Manufacturer:	SBI
Model:	Bistro
Date:	06/07/22
Run:	4
Control #:	22-790
Test Duration:	490
Output Category:	Low

Test Results in Accordance with CSA B415.1-09

	HHV Basis	LHV Basis
Overall Efficiency	77.3%	82.9%
Combustion Efficiency	96.6%	96.6%
Heat Transfer Efficiency	80.1%	85.8%

Output Rate (kJ/h)	15,090	14,314	**(Btu/h)**
Burn Rate (kg/h)	1.04	2.29	**(lb/h)**
Input (kJ/h)	19,511	18,508	**(Btu/h)**

Test Load Weight (dry kg)	8.48	18.68	**dry lb**
MC wet (%)	17.46		
MC dry (%)	21.15		
Particulate (g)	8.09		
CO (g)	417		
Test Duration (h)	8.17		

Emissions	**Particulate**	**CO**
g/MJ Output	0.07	3.38
g/kg Dry Fuel	0.95	49.22
g/h	0.99	51.08
g/min	0.02	0.85
lb/MM Btu Output	0.15	7.87

Air/Fuel Ratio (A/F)	15.20

VERSION: **2.2** **12/14/2009**

HIGH FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 4
Technician: SJB
Date: 6/7/2022

Nominal Loading Density (lbs/ft^3, wet basis):	10		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	19.40		
Total Load Weight Range (lbs):	18.40	to	20.40
Core Load Weight Range (lbs):	8.70	to	12.60
Remainder Load Weight Range (lbs):	6.80	to	10.70
Core Load Piece Range (lbs):	2.90	to	4.90
Remainder Load Piece Range (lbs):	1.90	to	10.70
Max Allowable Kindling Weight (lbs):	3.83		
Max Allowable Start-up Fuel Weight (lbs):	5.74		

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	3.11	In Range	26.0	24.2	18.1	22.8	In Range	2.53	1.15
2	17.00	3.83	In Range	23.4	18.2	15.6	19.1	In Range	3.22	1.46
3	17.00	3.87	In Range	21.1	16.0	18.3	18.5	In Range	3.27	1.48
Core Load Wt. (lbs)		10.81	In Range							

REMAINDER LOAD DATA (1 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	5.04	In Range	26.0	25.4	24.3	25.2	In Range	4.02	1.83
2	17.00	3.29	In Range	20.5	18.4	18.0	19.0	In Range	2.77	1.25
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		8.33	In Range							

Total Load Weight (lbs):	19.14	In Range	
Core Load % of Total Weight:	56%	In Range	45-65%
Remainder % of Total Weight:	44%	In Range	35-55%
Total Load % of Target Weight:	99%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	9.9		
Total Load Average Moisture Content (%DB):	21.1	In Range	19-25%
Total Load Average Moisture Content (%WB):	17.4		
Total Test Load Weight (dry basis):	15.81 lbs	7.17 kg	

KINDLING AND START-UP FUEL

		Kindling Moisture Readings (%DB)					Dry Weight	
Kindling Weight (lbs)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
3.82	In Range	10	10	10	10.0	In Range	3.47	1.58

		Start-up Moisture Readings (%DB)					Dry Weight	
Start-up Fuel Wt. (lb)	Within Spec?	1	2	3	Avg.	Within Spec?	lbs	kg
5.74	In Range	21.8	18.8	23.1	21.2	In Range	4.73	2.15

TEST FUEL LOADING RANGE

Allowable Residual Start-up Fuel Range (lb):	1.9	to	3.8	
Actual Residual Start-up Fuel Weight (lb):		2.40		In Range

LOW & MEDIUM FIRE FUEL LOAD DATA - ASTM E3053

Client: SBI
Job #: 22-790
Model: Bistro
Tracking # 122
Run #: 4
Technician: SJB
Date: 6/7/2022

Nominal Loading Density (lbs/ft^3, wet basis):	12		
Usable Firebox Volume (ft^3):	1.94		
Target Load Weight (lbs):	23.28		
Total Load Weight Range (lbs):	22.12	to	24.44
Core Load Weight Range (lbs):	10.48	to	15.13
Remainder Load Weight Range (lbs):	8.15	to	12.80
Core Load Piece Range (lbs):	3.49	to	5.82
Remainder Load Piece Range (lbs):	2.33	to	6.98

CORE LOAD DATA

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	4.13	In Range	17.7	21.1	17.8	18.9	In Range	3.47	1.58
2	17.00	4.20	In Range	24.2	19.2	15.5	19.6	In Range	3.51	1.59
3	17.00	4.81	In Range	23.1	23.8	20.3	22.4	In Range	3.93	1.78
Core Load Wt. (lbs)		13.14	In Range							

REMAINDER LOAD DATA (2 to 3 Pieces)

				Fuel Piece Moisture Readings (%DB)					Dry Weight	
Piece #	Length (in)	Weight (lbs)	Within Spec?	1	2	3	Ave.	Within Spec?	lbs	kg
1	17.00	5.89	In Range	24.6	17.9	20.8	21.1	In Range	4.86	2.21
2	17.00	3.60	In Range	27.4	19.3	25.7	24.1	In Range	2.90	1.32
3			NA				NA	NA	NA	NA
Remainder Load (lbs)		9.49	In Range							

Remainder Load Small/Large Piece Weight Ratio:	61%	In Range	≤ 67%
Total Load Weight (lbs):	22.63	In Range	
Core Load % of Total Weight:	58%	In Range	45-65%
Remainder % of Total Weight:	42%	In Range	35-55%
Total Load % of Target Weight:	97%	In Range	95-105%
Actual Fuel Loading Density (lb/ft3):	11.7		
Total Load Average Moisture Content (%DB):	21.2	In Range	19-25%
Total Load Average Moisture Content (%WB):	17.5		
Total Test Load Weight (dry basis):	18.68 lbs	8.47 kg	

TEST FUEL LOADING RANGE

Allowable Charcoal Bed Weight Range (lb):	2.3	to	4.5	
Actual Charcoal Bed Wt. (lb):	3.30	In Range		

TEST END POINT

Actual Fuel Load Ending Weight (lb):	0.00	Valid Test (≥90%)

Total Fuel Burned During Test Run:	22.6	lbs, wet basis
	18.7	lbs, dry basis
	8.47	kg, dry basis

DILUTION TUNNEL & MISC. DATA - ASTM E3053 / E2515

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	4	Technician:	SJB
Test Start Time:	13:10	Date:	6/7/2022
Test Type:	Low Fire		

Recording Interval (min):	1
Total Sampling Time (min):	490

	Pre-Test	Post Test	Avg.
Barometric Pressure (in. Hg)	29.94	29.81	29.88
Relative Humidity (%)	43.4	48.2	
Room Air Velocity (ft/min)	0	0	
Scale Audit (lbs)	22.2	22.2	

Meter Box γ Factor:	1.022	(A)
Meter Box γ Factor:	1.025	(B)
Meter Box γ Factor:	0.993	(C)
Meter Box γ Factor:	0.988	(Ambient)

Ambient Sample Volume: 72.084 ft^3

Induced Draft Check (in. H_2O):	0
Smoke Capture Check (%):	100
Date Flue Pipe Last Cleaned:	6/3/2022

Sample Train Post-Test Leak Checks

(A)	0.001	cfm @	-5	in. Hg
(B)	0.000	cfm @	-5	in. Hg
(C)	0.000	cfm @	-5	in. Hg
(Ambient)	0.001	cfm @	-5	in. Hg

DILUTION TUNNEL FLOW

Traverse Data

Point	dP (in H_2O)	Temp (°F)
1	0.159	75
2	0.193	75
3	0.193	75
4	0.178	75
5	0.134	75
6	0.186	75
7	0.198	75
8	0.176	75
Center	0.204	75

Dilution Tunnel H_2O:	2.00	percent
Tunnel Diameter:	8	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:	0.3491	ft^2
V_{strav}:	28.04	ft/sec
V_{scent}:	30.14	ft/sec
F_p:	0.930	[ratio]
Initial Tunnel Flow:	566.9	scf/min

Static Pressure: -0.419 in. H_2O

TEST FUEL PROPERTIES

ASTM 3053-17 - Table A1.1 Fuel Properties by Fuel Species

Select Fuel Type	Species	%C	%H	%O	%Ash	MJ/kg	BTU/lb
	Ash, White	49.70	6.90	43.00	0.30	20.75	8927
X	Beech	48.70	5.80	44.70	0.60	18.80	8088
	Birch, Yellow	49.80	6.50	43.40	0.30	20.12	8656
	Doug Fir (Coast, Int. West)	48.73	6.87	43.90	0.50	19.81	8522
	Doug Fir (Int. South)	48.73	6.87	43.90	0.50	19.81	8522
	Elm, Rock	50.40	6.60	42.30	0.70	20.49	8815
	Elm, Soft	50.40	6.60	42.30	0.70	20.49	8815
	Larch, Western	50.54	6.36	42.40	0.70	17.58	7558
	Maple, Hard	50.64	6.02	41.74	1.35	19.96	8587
	Maple, Sugar	50.64	6.02	41.74	1.35	19.96	8587
	Oak, Red	49.50	6.62	43.70	0.20	20.20	8690
	Oak, White	50.40	6.59	42.70	0.20	20.50	8819
	Pine, Southern Long Leaf	52.60	7.02	40.10	1.30	22.30	9594

WOODSTOVE PREBURN DATA

Client:	SBI	Job #:	22-790
Model:	Bistro	Tracking #:	122
Run #:	4	Technician:	SJB
		Date:	6/7/2022

Low Fire performed as a continuation of High Fire Test, see Run 3 test data for details

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
0	399.868		0.193	-0.32	78.3	-0.39		22.63		100.6	53.6	391.8	83.1	83.6
1			0.189	-0.31	78.6	0.33	-	22.58	-0.0483	111.2	58.5	371.8	83.6	85.6
2			0.190	-0.31	78.7	0.32	-	22.37	-0.2089	114.8	62.4	369.6	83.9	86.7
3			0.190	-0.31	78.7	0.33	-	22.05	-0.3248	116.6	62.7	400.4	84.2	87.4
4			0.192	-0.31	78.8	0.33	-	21.84	-0.2064	104.7	66.3	408.8	84.2	86.2
5			0.192	-0.31	78.8	0.34	-	21.62	-0.2216	101.7	66.4	428.9	84.0	85.7
6			0.193	-0.31	78.8	0.33	-	21.36	-0.2618	98.0	66.1	431.7	83.9	86.5
7			0.192	-0.32	78.8	0.32	-	21.14	-0.2162	100.9	65.6	430.1	83.7	86.0
8			0.194	-0.32	78.8	0.33	-	20.94	-0.2007	101.5	65.4	431.6	83.5	85.6
9			0.194	-0.33	78.8	0.32	-	20.74	-0.205	101.6	65.3	430.2	83.4	86.2
10	401.744	0.188	0.193	-0.31	78.8	0.35	98	20.61	-0.1314	100.3	64.4	412.6	83.3	85.3
11			0.192	-0.32	78.8	0.32	-	20.50	-0.1014	99.9	63.4	395.8	83.3	85.2
12			0.193	-0.31	78.9	0.34	-	20.38	-0.1201	97.7	61.9	381.2	83.3	85.1
13			0.196	-0.31	78.9	0.32	-	20.31	-0.0712	95.2	60.7	366.1	83.1	85.7
14			0.193	-0.34	79.0	0.32	-	20.15	-0.1577	100.8	61.0	376.1	83.1	85.5
15			0.193	-0.31	79.0	0.36	-	19.95	-0.2023	103.6	62.4	405.5	83.1	85.7
16			0.194	-0.32	79.0	0.34	-	19.79	-0.1671	102.5	63.4	406.3	83.1	84.8
17			0.197	-0.34	79.0	0.34	-	19.64	-0.1468	97.1	63.9	393.7	83.1	84.9
18			0.195	-0.34	79.0	0.33	-	19.45	-0.1919	95.1	63.5	390.7	83.0	86.8
19			0.197	-0.32	79.1	0.36	-	19.26	-0.1825	94.4	62.8	388.1	82.8	87.8
20	403.642	0.190	0.195	-0.32	79.1	0.35	99	19.08	-0.1818	94.5	62.3	385.0	82.8	88.4
21			0.198	-0.31	79.1	0.36	-	18.93	-0.1558	94.2	62.0	381.7	82.6	88.8
22			0.197	-0.32	79.1	0.35	-	18.77	-0.1593	94.2	61.8	379.1	82.7	89.0
23			0.196	-0.37	79.1	0.30	-	18.61	-0.161	94.3	61.8	377.4	82.8	89.2
24			0.195	-0.34	79.1	0.35	-	18.43	-0.1783	97.0	62.4	378.0	83.0	89.8
25			0.193	-0.32	79.1	0.34	-	18.28	-0.1466	100.2	62.3	381.2	83.2	86.8
26			0.194	-0.32	79.1	0.36	-	18.16	-0.118	97.7	62.5	383.0	83.5	86.4
27			0.196	-0.31	79.1	0.36	-	18.03	-0.1367	96.9	62.5	383.8	83.6	86.1
28			0.196	-0.31	79.1	0.36	-	17.87	-0.1613	97.0	62.6	384.4	83.8	85.8
29			0.195	-0.31	79.1	0.38	-	17.69	-0.1729	96.9	62.5	385.5	84.0	85.0
30	405.552	0.191	0.195	-0.32	79.1	0.34	99	17.52	-0.1679	96.7	62.5	386.7	84.3	83.7
31			0.196	-0.31	79.1	0.35	-	17.36	-0.161	96.8	62.4	386.2	84.4	83.1
32			0.197	-0.32	79.2	0.36	-	17.20	-0.1661	96.6	62.3	384.9	84.6	83.6

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
33			0.196	-0.31	79.1	0.34	-	17.04	-0.1607	96.5	62.4	385.1	84.7	82.3
34			0.195	-0.32	79.2	0.34	-	16.87	-0.1634	96.6	62.3	386.0	85.0	81.6
35			0.193	-0.31	79.2	0.33	-	16.70	-0.1745	96.7	62.3	386.0	85.1	81.2
36			0.196	-0.32	79.2	0.35	-	16.53	-0.1705	96.4	62.2	386.4	85.4	80.9
37			0.194	-0.31	79.2	0.36	-	16.36	-0.1675	96.4	62.2	385.5	85.6	81.2
38			0.195	-0.32	79.2	0.37	-	16.21	-0.1459	96.6	62.3	386.0	85.6	81.2
39			0.196	-0.32	79.2	0.37	-	16.05	-0.1661	96.5	62.3	387.4	85.9	81.0
40	407.465	0.191	0.195	-0.31	79.2	0.37	99	15.87	-0.181	96.6	62.5	388.3	86.1	80.6
41			0.197	-0.31	79.3	0.37	-	15.70	-0.1718	96.6	62.6	388.7	86.1	80.6
42			0.195	-0.31	79.3	0.36	-	15.54	-0.1513	96.9	62.5	390.1	86.1	80.8
43			0.195	-0.31	79.3	0.35	-	15.37	-0.1728	96.9	62.5	391.6	86.0	80.2
44			0.196	-0.35	79.3	0.37	-	15.21	-0.1651	96.9	62.4	392.5	85.9	79.9
45			0.195	-0.31	79.3	0.35	-	15.02	-0.182	96.8	62.5	394.2	85.9	80.8
46			0.196	-0.34	79.3	0.35	-	14.85	-0.1794	96.9	62.7	395.5	85.9	80.2
47			0.196	-0.34	79.3	0.36	-	14.68	-0.1631	97.0	62.6	396.5	85.7	80.1
48			0.195	-0.37	79.4	0.35	-	14.51	-0.1688	97.1	62.5	397.1	85.5	80.3
49			0.196	-0.33	79.3	0.37	-	14.34	-0.1772	97.3	62.5	397.4	85.5	80.2
50	409.364	0.190	0.195	-0.31	79.4	0.35	99	14.17	-0.1628	97.1	62.3	396.7	85.3	80.3
51			0.194	-0.33	79.4	0.34	-	14.00	-0.1746	97.2	62.4	396.6	85.1	80.5
52			0.195	-0.32	79.3	0.34	-	13.83	-0.1665	97.1	62.4	398.2	84.9	80.6
53			0.194	-0.32	79.4	0.35	-	13.67	-0.1648	97.1	62.3	397.9	84.8	80.3
54			0.194	-0.31	79.3	0.35	-	13.50	-0.1628	97.1	62.2	397.4	84.6	80.5
55			0.195	-0.30	79.4	0.36	-	13.32	-0.1856	97.0	62.4	397.5	84.4	80.3
56			0.195	-0.33	79.3	0.36	-	13.17	-0.1519	97.1	62.3	398.1	84.2	80.2
57			0.196	-0.30	79.3	0.34	-	13.00	-0.1673	97.2	62.3	398.1	84.1	80.4
58			0.196	-0.31	79.3	0.35	-	12.83	-0.1694	97.4	62.3	398.9	84.0	80.4
59			0.196	-0.31	79.4	0.31	-	12.67	-0.1625	97.2	62.3	399.6	83.9	80.4
60	411.282	0.192	0.195	-0.31	79.4	0.36	100	12.51	-0.1588	97.3	62.3	400.6	83.8	80.7
61			0.196	-0.31	79.4	0.33	-	12.34	-0.1714	97.3	62.3	400.5	83.8	81.0
62			0.195	-0.31	79.4	0.35	-	12.18	-0.1598	97.2	62.3	399.9	83.6	80.5
63			0.195	-0.33	79.4	0.35	-	12.00	-0.1736	97.1	62.3	400.1	83.5	80.5
64			0.197	-0.31	79.4	0.34	-	11.85	-0.1516	97.2	62.2	397.9	83.4	80.1
65			0.196	-0.32	79.4	0.35	-	11.70	-0.1549	97.3	62.0	397.3	83.3	80.3

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
66			0.197	-0.31	79.4	0.36	-	11.54	-0.1575	97.4	62.0	396.1	83.4	80.9
67			0.194	-0.31	79.4	0.37	-	11.37	-0.1697	97.4	62.0	394.3	83.3	81.1
68			0.194	-0.31	79.4	0.37	-	11.23	-0.1372	97.7	61.9	392.6	83.2	80.7
69			0.195	-0.31	79.4	0.37	-	11.09	-0.1484	97.4	61.9	391.2	83.0	80.9
70	413.191	0.191	0.194	-0.31	79.4	0.35	99	10.93	-0.1521	97.2	61.7	390.6	82.9	80.7
71			0.195	-0.31	79.4	0.35	-	10.78	-0.1509	96.9	61.7	388.6	82.8	80.6
72			0.195	-0.31	79.4	0.35	-	10.63	-0.1547	96.9	61.6	386.8	82.7	81.1
73			0.195	-0.33	79.4	0.34	-	10.50	-0.1323	96.8	61.6	385.2	82.6	81.0
74			0.196	-0.34	79.4	0.38	-	10.36	-0.1368	96.7	61.5	383.6	82.7	80.8
75			0.195	-0.32	79.4	0.36	-	10.22	-0.1422	96.7	61.3	380.8	82.6	80.7
76			0.196	-0.35	79.4	0.38	-	10.07	-0.1422	96.7	61.3	379.3	82.4	80.7
77			0.197	-0.30	79.4	0.38	-	9.96	-0.1157	96.5	61.2	378.1	82.4	80.7
78			0.195	-0.32	79.4	0.36	-	9.83	-0.1283	96.7	61.3	376.7	82.4	80.5
79			0.200	-0.34	79.4	0.38	-	9.70	-0.1312	96.7	61.2	375.9	82.3	80.9
80	415.092	0.190	0.194	-0.32	79.5	0.38	99	9.58	-0.1218	96.7	61.2	375.5	82.3	80.1
81			0.196	-0.31	79.4	0.37	-	9.42	-0.154	96.5	61.1	374.2	82.1	80.7
82			0.196	-0.33	79.4	0.39	-	9.30	-0.119	96.6	61.2	374.2	82.1	80.9
83			0.198	-0.34	79.4	0.37	-	9.18	-0.1225	96.6	61.1	373.5	82.1	80.8
84			0.196	-0.30	79.4	0.39	-	9.05	-0.1338	96.5	61.0	373.1	82.1	80.1
85			0.193	-0.32	79.4	0.37	-	8.92	-0.1232	96.8	61.1	372.2	82.1	80.4
86			0.196	-0.31	79.4	0.37	-	8.81	-0.1151	96.7	61.0	372.1	82.1	80.4
87			0.193	-0.33	79.4	0.35	-	8.70	-0.1094	97.1	60.9	372.1	82.1	80.4
88			0.195	-0.37	79.4	0.36	-	8.57	-0.1284	96.7	60.9	370.4	82.1	81.2
89			0.196	-0.31	79.4	0.34	-	8.46	-0.1128	96.4	60.9	370.2	81.9	80.6
90	416.987	0.190	0.195	-0.31	79.4	0.40	98	8.34	-0.1217	96.4	60.9	370.0	81.9	80.8
91			0.197	-0.31	79.4	0.41	-	8.22	-0.1201	96.3	60.8	369.1	81.8	80.3
92			0.196	-0.31	79.4	0.41	-	8.09	-0.1271	96.1	60.8	368.2	81.8	80.5
93			0.196	-0.30	79.4	0.42	-	7.96	-0.1252	96.2	60.7	367.4	82.0	80.7
94			0.197	-0.31	79.4	0.44	-	7.85	-0.112	96.3	60.7	367.4	82.2	80.6
95			0.196	-0.31	79.4	0.44	-	7.74	-0.1102	96.4	60.7	366.1	82.5	80.7
96			0.196	-0.30	79.4	0.44	-	7.63	-0.1124	96.3	60.8	366.3	82.7	80.5
97			0.198	-0.32	79.4	0.46	-	7.52	-0.1108	96.2	60.7	366.4	82.9	80.7
98			0.196	-0.32	79.4	0.44	-	7.40	-0.1178	96.4	60.6	365.4	83.2	80.4

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
99			0.195	-0.33	79.4	0.47	-	7.30	-0.0969	96.4	60.5	364.1	83.4	80.0
100	418.893	0.191	0.196	-0.30	79.4	0.47	99	7.18	-0.1294	96.4	60.5	363.5	83.6	80.4
101			0.196	-0.33	79.4	0.50	-	7.07	-0.1039	96.3	60.5	362.6	83.8	80.8
102			0.195	-0.31	79.4	0.52	-	6.96	-0.1157	96.2	60.6	362.4	83.9	80.6
103			0.195	-0.32	79.5	0.56	-	6.85	-0.1051	96.1	60.6	362.7	84.1	80.9
104			0.196	-0.32	79.5	0.59	-	6.72	-0.1288	96.3	60.6	362.9	84.3	81.2
105			0.197	-0.30	79.5	0.63	-	6.61	-0.1152	96.4	60.6	363.0	84.6	80.7
106			0.198	-0.32	79.4	0.65	-	6.49	-0.1132	96.0	60.5	362.3	84.7	80.5
107			0.196	-0.30	79.5	0.73	-	6.39	-0.1043	96.2	60.3	360.6	84.7	80.9
108			0.194	-0.32	79.5	0.73	-	6.28	-0.1133	96.0	60.1	359.1	84.8	80.4
109			0.195	-0.32	79.5	0.76	-	6.22	-0.0574	95.9	59.9	357.3	84.8	80.7
110	420.781	0.189	0.196	-0.30	79.5	0.76	98	6.12	-0.0977	96.1	59.7	355.4	84.8	80.5
111			0.197	-0.31	79.5	0.76	-	6.05	-0.0751	95.9	59.6	353.5	84.8	80.8
112			0.195	-0.32	79.5	0.78	-	5.97	-0.0752	96.0	59.5	351.3	84.8	80.6
113			0.198	-0.31	79.5	0.78	-	5.90	-0.0659	96.0	59.5	348.7	84.9	80.4
114			0.195	-0.30	79.6	0.78	-	5.82	-0.0795	95.9	59.5	347.2	84.9	80.8
115			0.196	-0.32	79.6	0.78	-	5.76	-0.0603	95.8	59.5	346.0	84.9	80.9
116			0.195	-0.33	79.6	0.78	-	5.69	-0.0787	95.8	59.5	344.1	84.8	80.6
117			0.196	-0.34	79.6	0.77	-	5.61	-0.0741	95.7	59.3	343.1	84.9	80.7
118			0.194	-0.32	79.6	0.81	-	5.54	-0.0726	95.5	59.3	341.4	84.8	81.4
119			0.197	-0.34	79.6	0.81	-	5.46	-0.0744	95.4	59.2	340.5	84.8	80.9
120	422.678	0.190	0.198	-0.31	79.6	0.80	98	5.38	-0.0814	95.4	59.1	339.2	84.8	81.3
121			0.196	-0.31	79.6	0.81	-	5.31	-0.0686	95.2	59.1	338.2	84.8	81.2
122			0.196	-0.31	79.6	0.81	-	5.25	-0.0652	95.0	59.0	336.2	84.8	80.5
123			0.198	-0.34	79.6	0.82	-	5.19	-0.0564	94.9	58.8	334.7	84.9	81.0
124			0.198	-0.32	79.6	0.81	-	5.13	-0.0675	94.9	58.6	333.0	84.9	80.8
125			0.196	-0.34	79.6	0.82	-	5.07	-0.0589	94.6	58.6	331.1	84.9	81.2
126			0.196	-0.31	79.6	0.80	-	5.02	-0.0474	94.4	58.5	329.3	84.9	81.2
127			0.194	-0.32	79.6	0.81	-	4.96	-0.0571	94.3	58.4	327.0	84.9	81.0
128			0.196	-0.31	79.6	0.83	-	4.92	-0.0433	94.2	58.3	324.9	84.7	80.7
129			0.198	-0.36	79.6	0.79	-	4.88	-0.0406	94.0	58.1	322.6	84.8	80.4
130	424.588	0.191	0.197	-0.32	79.6	0.79	98	4.85	-0.0274	93.5	58.0	320.0	84.7	80.8
131			0.196	-0.32	79.6	0.80	-	4.81	-0.0369	93.2	57.7	316.6	84.6	80.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
132			0.196	-0.31	79.6	0.75	-	4.78	-0.0294	93.2	57.5	314.5	84.7	80.7
133			0.196	-0.34	79.6	0.81	-	4.75	-0.0309	93.2	57.3	312.3	84.7	80.6
134			0.196	-0.34	79.6	0.79	-	4.74	-0.0183	93.1	57.2	309.9	84.7	80.4
135			0.197	-0.31	79.7	0.81	-	4.69	-0.0406	93.1	57.1	307.9	84.7	80.6
136			0.197	-0.31	79.6	0.82	-	4.66	-0.032	92.9	57.1	305.5	84.8	80.1
137			0.198	-0.31	79.7	0.81	-	4.65	-0.0146	92.7	57.1	303.7	84.8	80.2
138			0.199	-0.32	79.6	0.81	-	4.62	-0.0285	92.8	57.0	302.0	84.7	80.1
139			0.196	-0.31	79.7	0.80	-	4.60	-0.0232	92.8	57.0	299.7	84.8	80.5
140	426.526	0.194	0.195	-0.32	79.7	0.81	100	4.56	-0.0337	92.8	56.9	297.8	84.6	80.1
141			0.195	-0.31	79.7	0.81	-	4.54	-0.0198	92.8	56.9	295.6	84.5	80.3
142			0.196	-0.34	79.7	0.80	-	4.51	-0.0319	92.4	56.9	293.9	84.5	80.2
143			0.197	-0.31	79.7	0.80	-	4.49	-0.0171	92.3	56.9	292.1	84.6	80.4
144			0.196	-0.31	79.7	0.81	-	4.46	-0.0304	92.1	56.9	290.1	84.4	80.1
145			0.197	-0.31	79.7	0.81	-	4.45	-0.0165	92.2	56.8	288.4	84.5	80.1
146			0.196	-0.32	79.7	0.79	-	4.42	-0.0286	92.0	56.7	286.9	84.6	80.3
147			0.197	-0.33	79.7	0.79	-	4.40	-0.02	91.9	56.7	285.7	84.5	79.5
148			0.197	-0.32	79.7	0.79	-	4.37	-0.0256	91.9	56.7	284.2	84.5	80.3
149			0.196	-0.31	79.7	0.79	-	4.36	-0.0118	91.9	56.6	282.2	84.5	80.4
150	428.473	0.195	0.198	-0.32	79.7	0.78	100	4.34	-0.0169	91.6	56.7	280.8	84.6	80.0
151			0.198	-0.31	79.8	0.77	-	4.31	-0.0335	91.5	56.6	278.9	84.5	79.7
152			0.199	-0.32	79.7	0.78	-	4.28	-0.03	91.5	56.7	277.6	84.6	79.6
153			0.198	-0.31	79.7	0.80	-	4.27	-0.0149	91.3	56.6	275.9	84.5	80.1
154			0.198	-0.31	79.8	0.79	-	4.25	-0.0179	91.0	56.6	274.7	84.5	80.0
155			0.197	-0.33	79.8	0.78	-	4.22	-0.0261	91.0	56.6	273.4	84.5	80.0
156			0.198	-0.34	79.8	0.78	-	4.20	-0.0203	91.0	56.6	272.4	84.5	79.9
157			0.196	-0.32	79.8	0.76	-	4.20	-0.0066	90.9	56.6	270.6	84.5	80.1
158			0.199	-0.31	79.8	0.77	-	4.16	-0.0332	90.9	56.6	269.2	84.6	79.8
159			0.198	-0.34	79.7	0.77	-	4.14	-0.0173	90.7	56.6	267.8	84.7	79.7
160	430.436	0.196	0.199	-0.32	79.7661	0.760681	100	4.11	-0.0317	90.5	56.6	266.3	84.4	79.7
161			0.198	-0.32	79.7328	0.762816	-	4.09	-0.027	90.6	56.6	265.3	84.3	79.7
162			0.197	-0.32	79.7373	0.76031	-	4.07	-0.0121	90.6	56.6	264.0	84.4	79.7
163			0.198	-0.31	79.7395	0.755774	-	4.05	-0.0188	90.6	56.5	263.0	84.4	79.9
164			0.198	-0.31	79.757	0.779908	-	4.04	-0.0189	90.3	56.6	261.6	84.4	79.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
165			0.198	-0.31	79.7538	0.755835	-	4.01	-0.0248	90.2	56.6	260.6	84.4	79.7
166			0.201	-0.31	79.7408	0.745944	-	3.99	-0.0163	90.0	56.5	259.0	84.3	79.8
167			0.199	-0.32	79.723	0.774696	-	3.98	-0.0127	89.8	56.4	257.9	84.2	79.9
168			0.198	-0.32	79.7528	0.762282	-	3.94	-0.04	89.9	56.4	257.3	84.3	79.8
169			0.198	-0.31	79.7564	0.763713	-	3.93	-0.0132	89.9	56.4	255.9	84.3	79.8
170	432.402	0.197	0.195	-0.31	79.7632	0.744444	101	3.90	-0.0258	90.0	56.4	255.3	84.3	79.7
171			0.197	-0.33	79.774	0.743244	-	3.89	-0.0126	89.9	56.4	254.1	84.3	79.6
172			0.198	-0.32	79.7615	0.76511	-	3.87	-0.0191	89.9	56.4	253.0	84.3	79.7
173			0.198	-0.32	79.7952	0.750672	-	3.85	-0.0244	89.8	56.4	251.6	84.3	79.8
174			0.199	-0.32	79.7923	0.755324	-	3.83	-0.0168	89.6	56.4	250.9	84.2	79.8
175			0.196	-0.32	79.7609	0.756462	-	3.81	-0.0239	89.3	56.4	250.0	84.1	79.6
176			0.196	-0.31	79.7774	0.745204	-	3.78	-0.0218	89.3	56.4	248.7	84.1	79.8
177			0.196	-0.32	79.7845	0.734014	-	3.77	-0.012	89.4	56.3	248.0	84.1	79.8
178			0.197	-0.31	79.7953	0.757389	-	3.75	-0.0237	89.3	56.2	247.3	84.1	79.6
179			0.199	-0.32	79.8096	0.732252	-	3.73	-0.021	89.2	56.3	246.3	84.1	79.7
180	434.355	0.195	0.197	-0.31	79.7932	0.73441	100	3.71	-0.0149	89.0	56.2	245.4	84.1	79.2
181			0.199	-0.34	79.8205	0.720074	-	3.70	-0.0089	88.9	56.3	244.4	84.0	79.3
182			0.199	-0.37	79.7965	0.738838	-	3.69	-0.0181	88.9	56.2	244.2	84.1	79.4
183			0.197	-0.31	79.8147	0.732817	-	3.67	-0.0133	88.8	56.2	243.6	84.1	79.6
184			0.199	-0.31	79.8023	0.721689	-	3.63	-0.038	88.9	56.2	242.7	84.1	79.3
185			0.199	-0.31	79.821	0.728723	-	3.63	-0.0093	88.8	56.2	241.5	84.1	79.6
186			0.198	-0.31	79.8281	0.724453	-	3.60	-0.0226	88.9	56.2	240.5	84.1	79.6
187			0.199	-0.34	79.8319	0.743399	-	3.60	-0.0036	88.8	56.2	239.5	84.1	79.6
188			0.198	-0.31	79.8331	0.722936	-	3.59	-0.0105	88.8	56.2	238.6	84.1	79.3
189			0.199	-0.31	79.8338	0.714551	-	3.57	-0.0174	88.7	56.2	237.4	84.0	79.6
190	436.315	0.196	0.198	-0.31	79.8423	0.743131	100	3.54	-0.0305	88.3	56.2	236.8	84.1	79.1
191			0.197	-0.34	79.8599	0.739254	-	3.53	-0.0117	88.3	56.2	236.0	84.0	79.6
192			0.197	-0.32	79.8228	0.715773	-	3.52	-0.0048	88.3	56.2	235.1	83.9	79.5
193			0.197	-0.34	79.8515	0.727858	-	3.49	-0.0309	88.4	56.2	234.2	83.9	79.4
194			0.199	-0.31	79.8793	0.722323	-	3.48	-0.0107	88.2	56.1	233.2	84.0	79.4
195			0.199	-0.32	79.849	0.721038	-	3.46	-0.0228	88.3	56.2	232.2	83.9	79.2
196			0.197	-0.31	79.8529	0.731748	-	3.45	-0.0102	88.2	56.2	231.3	83.9	79.2
197			0.200	-0.32	79.8634	0.713639	-	3.43	-0.0184	88.2	56.1	230.7	84.0	79.2

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
198			0.199	-0.31	79.8688	0.735713	-	3.43	-0.0005	88.0	56.1	229.8	84.0	79.4
199			0.197	-0.31	79.8328	0.70109	-	3.41	-0.0248	87.9	56.1	229.0	83.9	79.1
200	438.268	0.195	0.199	-0.31	79.8332	0.719988	100	3.39	-0.0181	87.9	56.1	227.9	83.9	79.3
201			0.197	-0.31	79.8352	0.724556	-	3.37	-0.0186	87.7	56.1	227.2	83.8	79.2
202			0.196	-0.32	79.8336	0.721989	-	3.36	-0.0112	87.7	56.1	226.8	83.9	79.1
203			0.198	-0.31	79.8364	0.734216	-	3.34	-0.019	87.8	56.1	226.3	83.9	79.4
204			0.198	-0.31	79.8519	0.721431	-	3.33	-0.0123	87.7	56.1	225.3	83.9	79.1
205			0.200	-0.31	79.8518	0.703033	-	3.31	-0.0208	87.7	56.1	224.6	83.9	79.2
206			0.198	-0.31	79.8421	0.700451	-	3.29	-0.013	87.4	56.1	223.8	83.9	79.3
207			0.199	-0.31	79.8464	0.709637	-	3.28	-0.0173	87.4	56.1	223.3	83.8	79.1
208			0.197	-0.31	79.8268	0.69483	-	3.25	-0.0224	87.4	56.1	222.7	83.9	79.1
209			0.199	-0.31	79.8235	0.692495	-	3.24	-0.017	87.4	56.1	222.2	83.8	79.1
210	440.218	0.195	0.199	-0.32	79.8327	0.706416	99	3.21	-0.0239	87.4	56.2	221.9	83.8	79.2
211			0.197	-0.32	79.83	0.72696	-	3.21	-0.0071	87.2	56.1	221.3	83.8	79.2
212			0.198	-0.31	79.8279	0.704567	-	3.19	-0.0147	87.2	56.1	220.7	83.8	79.0
213			0.198	-0.31	79.8466	0.717401	-	3.17	-0.0246	87.2	56.1	220.0	83.8	79.2
214			0.198	-0.32	79.881	0.712759	-	3.16	-0.0014	87.3	56.1	219.4	83.7	79.2
215			0.199	-0.31	79.887	0.710222	-	3.15	-0.014	87.2	56.1	219.2	83.7	79.0
216			0.200	-0.31	79.8631	0.716742	-	3.12	-0.0254	87.1	56.2	218.6	83.7	79.2
217			0.200	-0.32	79.8506	0.719916	-	3.12	-0.0045	87.0	56.1	218.0	83.7	78.9
218			0.198	-0.32	79.8618	0.709378	-	3.09	-0.0286	87.2	56.2	217.7	83.7	78.6
219			0.196	-0.31	79.8916	0.709074	-	3.07	-0.0198	87.0	56.2	217.2	83.8	79.1
220	442.181	0.196	0.200	-0.31	79.8465	0.706416	100	3.06	-0.008	87.2	56.2	216.9	83.8	79.0
221			0.200	-0.32	79.8586	0.695875	-	3.04	-0.0206	87.2	56.2	216.2	83.7	79.1
222			0.199	-0.34	79.8642	0.71897	-	3.02	-0.0258	87.0	56.1	215.7	83.7	79.1
223			0.199	-0.31	79.8922	0.728077	-	3.02	0.00104	87.0	56.1	215.2	83.7	79.2
224			0.200	-0.32	79.8591	0.735239	-	2.99	-0.0281	87.0	56.1	215.1	83.6	79.0
225			0.199	-0.34	79.8698	0.717502	-	2.98	-0.0083	87.0	56.1	215.0	83.5	79.0
226			0.197	-0.32	79.8595	0.705826	-	2.97	-0.0094	86.9	56.0	214.5	83.6	79.1
227			0.198	-0.32	79.9043	0.698425	-	2.96	-0.017	86.9	56.0	214.0	83.4	79.3
228			0.199	-0.31	79.859	0.714397	-	2.94	-0.0164	86.8	56.0	213.3	83.4	79.3
229			0.199	-0.37	79.8502	0.694331	-	2.92	-0.0238	86.9	56.0	213.3	83.4	79.1
230	444.126	0.194	0.200	-0.31	79.8509	0.705022	99	2.90	-0.0134	86.8	56.0	212.8	83.5	79.2

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
231			0.199	-0.34	79.8845	0.698565	-	2.88	-0.0266	86.9	55.9	212.9	83.5	78.8
232			0.199	-0.32	79.8666	0.713143	-	2.86	-0.0143	86.8	55.9	212.4	83.5	78.9
233			0.200	-0.31	79.8737	0.707694	-	2.85	-0.0117	86.7	55.9	212.4	83.5	79.0
234			0.200	-0.31	79.8497	0.722262	-	2.84	-0.0095	86.7	56.0	211.7	83.5	78.7
235			0.199	-0.31	79.8945	0.70081	-	2.83	-0.0138	86.5	55.9	211.5	83.5	79.0
236			0.198	-0.32	79.8797	0.699686	-	2.82	-0.0017	86.3	56.0	210.8	83.5	78.9
237			0.199	-0.31	79.8764	0.718498	-	2.80	-0.0201	86.3	56.0	210.7	83.6	78.8
238			0.199	-0.31	79.8679	0.707448	-	2.78	-0.0247	86.3	56.0	209.8	83.4	78.7
239			0.197	-0.31	79.8373	0.718045	-	2.77	-0.0112	86.3	56.0	209.5	83.3	78.7
240	446.087	0.196	0.201	-0.32	79.8572	0.690203	99	2.75	-0.0213	86.2	56.0	209.1	83.4	79.0
241			0.200	-0.31	79.8245	0.70436	-	2.74	-0.0032	86.2	56.0	208.5	83.3	78.9
242			0.199	-0.31	79.8521	0.715714	-	2.73	-0.0129	86.3	56.0	208.2	83.4	79.0
243			0.200	-0.32	79.8672	0.707898	-	2.71	-0.0198	86.1	56.1	207.7	83.4	78.9
244			0.200	-0.32	79.8607	0.709892	-	2.70	-0.0129	85.9	56.0	207.3	83.3	78.9
245			0.198	-0.32	79.8448	0.711574	-	2.69	-0.0124	86.1	56.0	206.5	83.4	79.0
246			0.198	-0.32	79.8236	0.710227	-	2.67	-0.0169	85.9	56.0	206.0	83.4	78.8
247			0.199	-0.31	79.8281	0.719867	-	2.65	-0.0233	86.0	56.0	205.8	83.4	78.9
248			0.198	-0.31	79.8521	0.703517	-	2.64	-0.0049	86.0	56.0	205.5	83.4	78.9
249			0.197	-0.32	79.8036	0.719216	-	2.63	-0.014	85.9	56.0	205.1	83.3	78.7
250	448.046	0.196	0.200	-0.31	79.8336	0.720679	99	2.61	-0.0152	86.0	56.0	204.8	83.4	78.8
251			0.199	-0.34	79.8325	0.712383	-	2.60	-0.0096	85.9	56.0	204.2	83.6	78.7
252			0.199	-0.32	79.8523	0.720676	-	2.59	-0.0121	85.7	56.0	203.9	83.6	78.9
253			0.201	-0.32	79.8282	0.730122	-	2.57	-0.0155	85.8	56.0	203.6	83.8	78.7
254			0.200	-0.32	79.8345	0.705993	-	2.57	-0.0073	85.7	56.0	203.3	83.7	78.9
255			0.198	-0.32	79.8301	0.71243	-	2.55	-0.0173	85.8	56.0	202.8	83.8	78.6
256			0.199	-0.32	79.8531	0.699526	-	2.55	-0.0004	85.6	56.0	202.0	83.7	78.5
257			0.201	-0.32	79.8211	0.713976	-	2.53	-0.022	85.8	56.0	201.6	83.9	78.7
258			0.198	-0.31	79.8288	0.709339	-	2.51	-0.0135	85.7	56.0	201.2	83.9	78.8
259			0.199	-0.31	79.831	0.709703	-	2.50	-0.0093	85.7	56.0	200.7	84.0	78.8
260	450.000	0.195	0.200	-0.31	79.8299	0.690262	99	2.49	-0.0166	85.7	56.0	200.5	84.0	78.8
261			0.199	-0.31	79.851	0.70184	-	2.48	-0.006	85.8	55.9	200.3	84.2	78.7
262			0.200	-0.31	79.8943	0.6907	-	2.47	-0.0125	85.6	55.9	199.7	84.2	78.8
263			0.200	-0.32	79.8863	0.7206	-	2.46	-0.0108	85.6	55.9	199.3	84.2	78.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
264			0.199	-0.31	79.9156	0.711276	-	2.45	-0.0118	85.5	55.9	198.7	84.2	78.6
265			0.198	-0.31	79.8977	0.721333	-	2.43	-0.0145	85.6	55.9	198.3	84.2	78.7
266			0.200	-0.31	79.9008	0.721918	-	2.42	-0.0099	85.5	55.9	197.8	84.3	78.8
267			0.198	-0.32	79.898	0.709125	-	2.42	-0.0025	85.5	55.9	197.6	84.3	78.8
268			0.201	-0.32	79.8739	0.70543	-	2.40	-0.0221	85.3	55.9	197.1	84.5	78.7
269			0.199	-0.31	79.8949	0.716663	-	2.39	-0.0121	85.4	55.9	196.7	84.5	78.7
270	451.965	0.196	0.201	-0.32	79.8396	0.710327	99	2.37	-0.0187	85.3	55.9	196.1	84.4	78.6
271			0.200	-0.34	79.8514	0.708493	-	2.36	-0.0063	85.3	55.9	195.8	84.5	78.6
272			0.202	-0.31	79.8657	0.712675	-	2.34	-0.0224	85.3	55.9	195.4	84.3	78.8
273			0.201	-0.32	79.8799	0.71939	-	2.33	-0.0091	85.4	55.9	195.2	84.2	78.8
274			0.200	-0.31	79.8555	0.712828	-	2.33	-0.0029	85.4	55.9	194.9	84.2	78.6
275			0.201	-0.31	79.8731	0.70658	-	2.31	-0.0213	85.3	55.9	194.7	84.2	78.5
276			0.201	-0.31	79.8856	0.71911	-	2.31	0.00445	85.2	55.9	194.3	84.3	78.6
277			0.199	-0.31	79.879	0.710369	-	2.28	-0.0259	85.3	55.9	193.9	84.4	78.8
278			0.202	-0.31	79.8893	0.695204	-	2.28	-0.002	85.1	55.9	193.6	84.4	78.6
279			0.200	-0.31	79.8642	0.703126	-	2.27	-0.0112	85.1	55.8	193.2	84.5	78.6
280	453.922	0.196	0.200	-0.32	79.8885	0.713209	99	2.26	-0.0105	85.0	55.9	192.7	84.5	78.7
281			0.198	-0.32	79.8752	0.715879	-	2.25	-0.0089	84.9	55.9	192.1	84.5	78.8
282			0.199	-0.32	79.8935	0.696578	-	2.24	-0.011	84.9	55.9	192.2	84.5	78.4
283			0.200	-0.32	79.8806	0.70898	-	2.22	-0.0222	84.7	55.9	191.8	84.3	78.8
284			0.199	-0.32	79.8588	0.707687	-	2.21	-0.0094	84.7	55.9	191.3	84.3	78.6
285			0.200	-0.31	79.8532	0.702079	-	2.19	-0.0183	84.7	55.9	191.1	84.4	78.6
286			0.197	-0.31	79.8862	0.732013	-	2.19	-0.0033	84.7	55.9	190.9	84.4	78.6
287			0.200	-0.31	79.8914	0.729815	-	2.17	-0.0209	84.8	55.8	190.5	84.4	78.4
288			0.200	-0.30	79.8928	0.709425	-	2.16	-0.0076	84.8	55.9	190.3	84.4	78.4
289			0.199	-0.32	79.8676	0.717163	-	2.14	-0.0162	84.9	55.8	190.1	84.5	78.4
290	455.884	0.196	0.201	-0.33	79.9	0.726722	99	2.13	-0.0122	84.8	55.8	190.1	84.4	78.3
291			0.201	-0.32	79.8999	0.72206	-	2.13	0.00168	84.7	55.8	189.7	84.5	78.5
292			0.199	-0.31	79.8874	0.691981	-	2.11	-0.0183	84.6	55.8	189.4	84.5	78.5
293			0.201	-0.32	79.907	0.711198	-	2.11	-0.004	84.6	55.8	189.1	84.5	78.5
294			0.199	-0.32	79.9	0.728482	-	2.10	-0.0087	84.5	55.7	189.0	84.5	78.4
295			0.200	-0.31	79.9148	0.714583	-	2.10	-0.0056	84.4	55.8	188.7	84.6	78.5
296			0.199	-0.32	79.9019	0.711134	-	2.08	-0.0147	84.5	55.7	188.2	84.6	78.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
297			0.200	-0.31	79.898	0.696856	-	2.06	-0.0196	84.5	55.7	188.2	84.5	78.4
298			0.200	-0.30	79.9224	0.704869	-	2.05	-0.01	84.7	55.7	188.0	84.6	78.2
299			0.199	-0.31	79.9216	0.664465	-	2.03	-0.0174	84.4	55.6	187.7	84.6	78.4
300	457.851	0.197	0.200	-0.31	79.912	0.703593	100	2.03	-0.0036	84.3	55.6	187.4	84.5	78.6
301			0.200	-0.31	79.9019	0.699723	-	2.02	-0.0135	84.2	55.7	186.9	84.6	78.2
302			0.198	-0.32	79.8874	0.700249	-	2.01	-0.0093	84.2	55.7	186.7	84.4	78.3
303			0.200	-0.32	79.8611	0.70481	-	1.99	-0.0136	84.3	55.7	186.2	84.5	78.4
304			0.200	-0.34	79.8656	0.713443	-	1.99	-0.0078	84.2	55.7	186.2	84.6	78.3
305			0.200	-0.34	79.8805	0.680017	-	1.96	-0.0222	84.2	55.7	186.2	84.6	78.4
306			0.200	-0.32	79.8496	0.691403	-	1.95	-0.0148	84.2	55.7	185.7	84.6	78.4
307			0.200	-0.32	79.8379	0.693812	-	1.94	-0.011	84.2	55.6	185.4	84.5	78.2
308			0.199	-0.33	79.8434	0.705115	-	1.92	-0.0208	84.2	55.6	185.2	84.5	78.2
309			0.199	-0.31	79.8293	0.710561	-	1.91	-0.0044	84.1	55.7	185.7	84.5	78.1
310	459.806	0.195	0.200	-0.31	79.8532	0.70915	99	1.91	-0.0071	84.1	55.6	185.3	84.6	78.4
311			0.201	-0.31	79.8504	0.706947	-	1.90	-0.0088	84.1	55.6	184.9	84.5	78.4
312			0.199	-0.30	79.8604	0.75153	-	1.89	-0.0031	84.0	55.6	184.9	84.5	78.3
313			0.201	-0.32	79.8158	0.727629	-	1.86	-0.034	84.0	55.6	184.7	84.4	78.4
314			0.200	-0.31	79.8359	0.724812	-	1.85	-0.0109	84.0	55.6	184.7	84.4	78.2
315			0.200	-0.32	79.8285	0.746128	-	1.85	0.00226	83.7	55.6	184.3	84.5	78.3
316			0.201	-0.31	79.8287	0.753286	-	1.84	-0.0107	83.8	55.7	184.1	84.4	78.1
317			0.202	-0.31	79.8372	0.702983	-	1.83	-0.0146	83.8	55.6	183.8	84.4	78.0
318			0.203	-0.32	79.7929	0.748973	-	1.82	-0.007	83.8	55.6	183.3	84.5	78.1
319			0.201	-0.32	79.8023	0.745334	-	1.80	-0.0181	83.8	55.6	183.3	84.4	78.0
320	461.795	0.199	0.200	-0.34	79.8146	0.743244	101	1.79	-0.0128	83.9	55.6	183.0	84.3	78.2
321			0.200	-0.31	79.8266	0.72923	-	1.77	-0.0171	83.8	55.6	182.8	84.3	78.0
322			0.201	-0.34	79.7975	0.699585	-	1.75	-0.0165	83.7	55.5	182.5	84.3	78.0
323			0.200	-0.32	79.8054	0.722805	-	1.75	-0.0071	83.7	55.6	182.6	84.3	78.0
324			0.201	-0.31	79.8002	0.703318	-	1.73	-0.0203	83.6	55.5	182.6	84.3	78.1
325			0.201	-0.33	79.7976	0.727275	-	1.73	-0.0003	83.5	55.5	182.3	84.2	78.2
326			0.200	-0.34	79.7947	0.718252	-	1.72	-0.0107	83.6	55.5	182.1	84.2	78.0
327			0.199	-0.31	79.7848	0.729001	-	1.70	-0.0132	83.7	55.5	181.9	84.3	77.9
328			0.199	-0.32	79.7564	0.725549	-	1.69	-0.0079	83.6	55.5	181.7	84.3	78.0
329			0.202	-0.32	79.7675	0.734251	-	1.67	-0.0201	83.6	55.5	181.9	84.3	78.1

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
330	463.793	0.200	0.199	-0.31	79.7748	0.730349	101	1.67	-0.0059	83.6	55.5	181.2	84.3	77.9
331			0.201	-0.32	79.7509	0.716855	-	1.66	-0.0062	83.6	55.5	181.4	84.3	77.8
332			0.200	-0.31	79.7259	0.720897	-	1.64	-0.0223	83.6	55.5	181.0	84.3	77.7
333			0.200	-0.31	79.7375	0.721628	-	1.62	-0.016	83.6	55.5	181.0	84.2	77.8
334			0.201	-0.31	79.7384	0.735185	-	1.62	-0.003	83.6	55.5	180.8	84.3	77.8
335			0.203	-0.32	79.7364	0.731394	-	1.60	-0.0238	83.6	55.5	181.3	84.2	78.0
336			0.203	-0.32	79.7313	0.74128	-	1.59	-0.0041	83.5	55.5	181.7	84.2	78.0
337			0.201	-0.31	79.7089	0.721065	-	1.57	-0.0228	83.5	55.5	181.6	84.2	77.9
338			0.201	-0.32	79.6857	0.727769	-	1.57	-0.0003	83.6	55.5	181.4	84.2	77.8
339			0.202	-0.31	79.6911	0.734745	-	1.56	-0.013	83.6	55.5	181.3	84.2	77.7
340	465.789	0.200	0.198	-0.31	79.6942	0.738049	101	1.54	-0.014	83.6	55.5	181.6	84.2	77.8
341			0.201	-0.31	79.6804	0.723363	-	1.53	-0.0128	83.5	55.5	181.6	84.0	77.8
342			0.201	-0.32	79.6774	0.741504	-	1.52	-0.0107	83.6	55.5	181.4	83.9	77.8
343			0.199	-0.31	79.6552	0.697097	-	1.51	-0.0063	83.5	55.5	181.0	84.0	77.9
344			0.202	-0.31	79.667	0.726316	-	1.50	-0.0182	83.4	55.4	181.1	84.0	77.7
345			0.201	-0.32	79.6396	0.719503	-	1.49	-0.0052	83.4	55.4	181.0	83.9	77.7
346			0.200	-0.32	79.6728	0.733407	-	1.47	-0.0236	83.3	55.4	181.1	84.0	77.7
347			0.202	-0.32	79.6538	0.711473	-	1.46	-0.0101	83.3	55.4	180.9	83.9	77.8
348			0.199	-0.32	79.6399	0.725876	-	1.45	-0.0076	83.3	55.4	180.4	83.9	77.8
349			0.201	-0.31	79.639	0.726788	-	1.43	-0.0167	83.3	55.4	180.5	83.9	77.8
350	467.790	0.200	0.202	-0.31	79.6332	0.706226	101	1.42	-0.0087	83.4	55.4	180.0	83.9	77.7
351			0.202	-0.32	79.6177	0.710996	-	1.42	-0.0049	83.4	55.4	180.0	83.8	77.8
352			0.200	-0.30	79.6025	0.733761	-	1.41	-0.0098	83.4	55.4	180.0	83.8	77.8
353			0.202	-0.32	79.5935	0.725384	-	1.39	-0.0233	83.4	55.4	180.1	83.9	77.8
354			0.202	-0.31	79.5884	0.72458	-	1.38	-0.0013	83.2	55.4	179.9	83.9	77.7
355			0.202	-0.31	79.6147	0.713042	-	1.37	-0.0101	83.2	55.4	179.7	83.9	77.7
356			0.201	-0.32	79.6003	0.725918	-	1.37	-0.0062	83.3	55.4	179.8	83.8	77.8
357			0.201	-0.34	79.5877	0.744073	-	1.35	-0.0179	83.3	55.4	179.5	83.9	77.8
358			0.202	-0.32	79.5929	0.735974	-	1.33	-0.0176	83.3	55.3	179.5	83.9	77.5
359			0.200	-0.32	79.606	0.723749	-	1.31	-0.0177	83.1	55.4	179.5	83.7	77.7
360	469.786	0.200	0.202	-0.34	79.5973	0.715592	101	1.30	-0.0147	83.1	55.3	179.5	83.8	77.7
361			0.199	-0.31	79.5705	0.729404	-	1.28	-0.0222	83.2	55.4	179.2	83.8	77.7
362			0.201	-0.31	79.5209	0.731944	-	1.29	0.00836	83.2	55.3	179.1	83.7	77.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
363			0.200	-0.32	79.5241	0.74381	-	1.26	-0.0298	83.2	55.3	178.9	83.8	77.7
364			0.199	-0.37	79.5155	0.736985	-	1.24	-0.015	83.2	55.3	179.3	83.8	77.5
365			0.202	-0.31	79.5145	0.732677	-	1.24	0.00199	83.1	55.3	179.4	83.9	77.6
366			0.201	-0.31	79.5301	0.713986	-	1.22	-0.0183	83.1	55.3	179.3	83.7	77.6
367			0.201	-0.31	79.4867	0.722579	-	1.21	-0.0189	83.1	55.3	179.3	83.7	77.5
368			0.200	-0.34	79.4761	0.727782	-	1.18	-0.0252	83.2	55.3	179.4	83.6	77.4
369			0.199	-0.32	79.4582	0.719766	-	1.18	-0.0028	83.2	55.3	179.3	83.7	77.3
370	471.782	0.200	0.200	-0.32	79.4549	0.728777	101	1.17	-0.008	83.1	55.3	179.4	83.7	77.5
371			0.202	-0.31	79.489	0.683636	-	1.16	-0.005	82.9	55.3	179.7	83.7	77.6
372			0.199	-0.32	79.4964	0.724861	-	1.16	-0.0046	82.7	55.3	179.5	83.6	77.6
373			0.200	-0.31	79.4721	0.73786	-	1.15	-0.0129	83.0	55.3	179.5	83.7	77.6
374			0.202	-0.31	79.4617	0.740282	-	1.14	-0.0114	82.8	55.2	179.6	83.7	77.5
375			0.200	-0.31	79.4501	0.697705	-	1.13	-0.0053	82.7	55.2	179.4	83.6	77.4
376			0.199	-0.31	79.447	0.720479	-	1.11	-0.0206	82.9	55.3	179.2	83.7	77.5
377			0.200	-0.31	79.4308	0.721964	-	1.10	-0.0123	82.9	55.2	179.0	83.6	77.5
378			0.200	-0.31	79.4174	0.739153	-	1.09	-0.0075	82.7	55.2	178.8	83.6	77.4
379			0.201	-0.32	79.4208	0.712014	-	1.07	-0.0173	82.8	55.3	178.7	83.5	77.4
380	473.787	0.201	0.201	-0.32	79.4007	0.725564	101	1.07	-0.0052	82.7	55.2	178.6	83.6	77.4
381			0.198	-0.31	79.4089	0.727983	-	1.06	-0.0118	82.8	55.2	178.4	83.6	77.4
382			0.200	-0.31	79.4192	0.744348	-	1.04	-0.0144	82.7	55.2	178.4	83.5	77.4
383			0.199	-0.31	79.4048	0.735846	-	1.03	-0.0074	82.7	55.2	178.4	83.6	77.3
384			0.201	-0.32	79.3788	0.708525	-	1.02	-0.0157	82.7	55.2	178.0	83.5	77.4
385			0.200	-0.32	79.3932	0.718355	-	1.00	-0.0189	82.8	55.2	177.7	83.5	77.5
386			0.200	-0.34	79.3877	0.73054	-	0.99	-0.0063	82.8	55.2	177.6	83.6	77.5
387			0.199	-0.31	79.3542	0.712019	-	0.99	-0.0053	82.9	55.2	177.5	83.4	77.5
388			0.200	-0.32	79.3868	0.727403	-	0.97	-0.0143	82.9	55.2	177.3	83.4	77.6
389			0.199	-0.37	79.3802	0.73757	-	0.96	-0.0147	82.8	55.1	177.2	83.4	77.1
390	475.786	0.200	0.199	-0.37	79.3631	0.738563	101	0.95	-0.007	82.8	55.2	177.0	83.4	77.4
391			0.200	-0.34	79.3803	0.711404	-	0.94	-0.0154	82.9	55.2	176.8	83.4	77.5
392			0.199	-0.37	79.3471	0.738189	-	0.94	-0.0007	82.8	55.1	177.0	83.4	77.4
393			0.200	-0.37	79.377	0.673361	-	0.93	-0.0086	82.6	55.1	176.9	83.3	77.4
394			0.201	-0.34	79.391	0.718296	-	0.91	-0.0212	82.4	55.1	176.8	83.5	77.3
395			0.200	-0.31	79.3882	0.722523	-	0.89	-0.0157	82.4	55.1	176.7	83.3	77.3

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
396			0.201	-0.34	79.3948	0.718975	-	0.89	-0.0021	82.4	55.1	176.7	83.3	77.3
397			0.201	-0.32	79.3659	0.722272	-	0.87	-0.0187	82.5	55.1	176.6	83.3	77.3
398			0.201	-0.31	79.3679	0.716501	-	0.87	0.00474	82.4	55.1	176.2	83.2	77.4
399			0.199	-0.31	79.3386	0.690122	-	0.86	-0.0146	82.3	55.1	176.2	83.3	77.3
400	477.782	0.200	0.200	-0.31	79.3319	0.728256	101	0.85	-0.0103	82.2	55.1	176.0	83.2	77.3
401			0.200	-0.31	79.3239	0.685706	-	0.84	-0.0136	82.3	55.1	175.9	83.2	77.1
402			0.202	-0.31	79.3462	0.724962	-	0.83	-0.0091	82.2	55.1	175.9	83.0	77.2
403			0.203	-0.36	79.3401	0.719899	-	0.81	-0.0155	82.3	55.1	175.9	83.0	77.1
404			0.202	-0.36	79.3473	0.700623	-	0.81	0.00092	82.2	55.1	175.7	83.1	77.1
405			0.202	-0.32	79.321	0.731003	-	0.80	-0.0149	82.1	55.1	175.5	83.2	77.1
406			0.199	-0.33	79.3272	0.685224	-	0.79	-0.0068	82.2	55.0	175.6	83.1	77.0
407			0.200	-0.31	79.2848	0.730508	-	0.78	-0.0133	82.2	55.0	175.3	83.1	77.1
408			0.199	-0.32	79.2842	0.731551	-	0.78	9E-05	82.2	55.0	175.0	83.3	76.9
409			0.201	-0.31	79.2757	0.736065	-	0.75	-0.0223	82.1	55.0	174.9	83.2	77.1
410	479.791	0.201	0.200	-0.31	79.2793	0.728841	102	0.76	0.00197	82.3	55.0	174.8	83.1	77.1
411			0.200	-0.34	79.2811	0.729387	-	0.74	-0.0192	82.1	55.0	174.6	83.2	76.9
412			0.201	-0.34	79.2667	0.717558	-	0.73	-0.0101	82.1	55.0	174.6	83.2	77.2
413			0.201	-0.32	79.2344	0.740594	-	0.72	-0.0123	82.2	55.0	174.5	83.2	77.1
414			0.200	-0.31	79.2406	0.71928	-	0.72	0.00044	82.1	55.0	174.3	83.3	77.1
415			0.201	-0.31	79.2555	0.72237	-	0.70	-0.013	82.2	55.0	173.9	83.3	77.1
416			0.200	-0.34	79.2412	0.723159	-	0.69	-0.0086	82.1	55.0	173.8	83.2	77.1
417			0.200	-0.34	79.2229	0.723481	-	0.68	-0.0142	82.1	55.0	173.4	83.1	77.1
418			0.199	-0.29	79.1858	0.740434	-	0.67	-0.0113	82.2	55.0	173.3	83.2	77.1
419			0.200	-0.34	79.1648	0.728775	-	0.66	-0.0123	82.1	54.9	173.2	82.9	77.0
420	481.798	0.201	0.200	-0.30	79.1571	0.72	101	0.64	-0.0151	82.2	55.0	173.1	82.8	76.9
421			0.200	-0.31	79.1547	0.722328	-	0.64	0.0004	82.2	54.9	173.0	82.9	77.0
422			0.199	-0.31	79.1678	0.724989	-	0.62	-0.0209	82.0	54.9	173.1	82.9	77.0
423			0.201	-0.31	79.1597	0.729599	-	0.61	-0.0073	82.1	54.9	172.8	82.9	76.9
424			0.198	-0.34	79.1338	0.723575	-	0.61	-0.0079	82.1	54.9	172.7	82.9	76.7
425			0.200	-0.36	79.1221	0.733336	-	0.60	-0.0059	82.1	54.9	172.5	83.0	76.7
426			0.201	-0.36	79.1289	0.734226	-	0.57	-0.0297	82.2	54.9	172.5	83.0	76.9
427			0.201	-0.33	79.1181	0.736291	-	0.57	-0.0014	82.2	54.9	172.3	82.9	77.0
428			0.199	-0.35	79.1013	0.733673	-	0.56	-0.0078	82.1	54.9	172.1	82.9	76.9

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
429			0.200	-0.32	79.0836	0.734882	-	0.54	-0.0205	82.1	54.8	171.9	82.8	76.9
430	483.813	0.201	0.201	-0.34	79.0837	0.723054	102	0.52	-0.0183	82.2	54.8	171.6	82.8	77.0
431			0.199	-0.34	79.0837	0.720924	-	0.52	-0.0018	82.2	54.9	171.5	82.8	76.8
432			0.202	-0.32	79.0834	0.724209	-	0.51	-0.0105	82.3	54.8	171.3	82.8	76.9
433			0.202	-0.31	79.0904	0.723501	-	0.50	-0.0084	82.1	54.8	171.3	82.7	76.9
434			0.200	-0.32	79.0678	0.729901	-	0.49	-0.0073	82.2	54.8	171.1	82.6	76.9
435			0.199	-0.32	79.0517	0.734076	-	0.49	-0.0049	82.2	54.8	171.0	82.6	76.9
436			0.202	-0.31	79.051	0.721224	-	0.48	-0.0088	82.2	54.8	170.7	82.6	76.7
437			0.199	-0.32	79.0709	0.728517	-	0.47	-0.0127	82.2	54.8	170.7	82.7	76.7
438			0.201	-0.36	79.0531	0.711183	-	0.45	-0.0176	82.2	54.8	170.4	82.6	76.7
439			0.200	-0.34	79.0402	0.721527	-	0.44	-0.0106	82.0	54.8	170.5	82.6	76.8
440	485.825	0.201	0.201	-0.34	78.9971	0.734956	101	0.44	0.00441	81.8	54.8	170.3	82.7	76.8
441			0.200	-0.32	78.9971	0.745241	-	0.44	-0.0079	81.8	54.8	170.0	82.7	76.8
442			0.199	-0.31	79.0258	0.719427	-	0.43	-0.0097	81.7	54.8	169.8	82.6	76.7
443			0.200	-0.37	79.0325	0.72533	-	0.41	-0.0124	81.8	54.8	169.8	82.7	76.7
444			0.199	-0.34	79.031	0.728241	-	0.41	0.00032	81.5	54.7	169.6	82.7	76.9
445			0.202	-0.37	79.0132	0.71537	-	0.41	-0.0021	81.6	54.8	169.4	82.6	76.7
446			0.202	-0.34	79.0065	0.739647	-	0.39	-0.0175	81.7	54.7	169.2	82.6	76.7
447			0.201	-0.37	78.9683	0.738425	-	0.39	-0.0075	81.9	54.7	168.9	82.6	76.8
448			0.201	-0.37	78.9867	0.731145	-	0.38	-0.008	81.8	54.7	168.8	82.5	76.7
449			0.203	-0.37	78.9541	0.758341	-	0.36	-0.0151	81.8	54.7	168.5	82.4	76.8
450	487.842	0.202	0.199	-0.37	78.9132	0.73902	102	0.35	-0.0143	81.7	54.7	168.3	82.4	76.8
451			0.200	-0.37	78.9074	0.729286	-	0.34	-0.012	81.8	54.8	168.5	82.4	76.6
452			0.201	-0.36	78.9229	0.742217	-	0.33	-0.0078	81.8	54.7	168.5	82.4	76.6
453			0.199	-0.34	78.9252	0.730666	-	0.33	-0.0024	81.6	54.7	168.2	82.3	76.8
454			0.199	-0.37	78.8767	0.727868	-	0.32	-0.012	81.7	54.7	168.0	82.4	76.7
455			0.199	-0.31	78.8862	0.736087	-	0.31	-0.0062	81.7	54.7	168.0	82.5	76.6
456			0.202	-0.36	78.8921	0.724856	-	0.30	-0.0136	81.6	54.7	167.8	82.3	76.8
457			0.199	-0.36	78.8773	0.738369	-	0.29	-0.0037	81.7	54.7	167.5	82.4	76.5
458			0.199	-0.36	78.8665	0.729247	-	0.28	-0.0155	81.7	54.7	167.3	82.4	76.6
459			0.202	-0.34	78.8765	0.725416	-	0.27	-0.0056	81.6	54.7	167.0	82.5	76.7
460	489.854	0.201	0.201	-0.31	78.87	0.739603	102	0.26	-0.0062	81.4	54.6	166.8	82.5	76.6
461			0.199	-0.31	78.844	0.737862	-	0.27	0.00089	81.4	54.7	166.8	82.4	76.5

BOX A TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Fuel Weight (lb)		Temperature Data (°F)				
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Dilution Tunnel dP (in H_2O)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Scale Reading	Weight Change	Dilution Tunnel - Dry Bulb	Dilution Tunnel - Dew Point	Flue	Filter	Ambient
462			0.201	-0.31	78.835	0.718372	-	0.25	-0.0157	81.6	54.6	166.6	82.4	76.4
463			0.200	-0.34	78.8333	0.736554	-	0.24	-0.0088	81.6	54.6	166.3	82.4	76.6
464			0.201	-0.31	78.8372	0.740943	-	0.24	-0.0032	81.5	54.6	166.1	82.5	76.6
465			0.201	-0.32	78.8185	0.73309	-	0.22	-0.0133	81.5	54.7	166.1	82.5	76.5
466			0.201	-0.32	78.8018	0.735281	-	0.21	-0.0133	81.6	54.6	165.9	82.4	76.3
467			0.201	-0.37	78.789	0.731271	-	0.21	-0.0043	81.5	54.6	165.8	82.4	76.5
468			0.202	-0.36	78.7709	0.727452	-	0.19	-0.0197	81.5	54.6	165.7	82.3	76.4
469			0.199	-0.33	78.8086	0.739406	-	0.18	-0.008	81.6	54.6	165.3	82.2	76.4
470	491.864	0.201	0.199	-0.36	78.7591	0.735212	102	0.16	-0.0176	81.5	54.6	165.3	82.2	76.6
471			0.202	-0.37	78.7643	0.719213	-	0.14	-0.0182	81.5	54.6	165.2	82.2	76.5
472			0.202	-0.36	78.773	0.711353	-	0.14	-0.0012	81.2	54.6	165.2	82.3	76.5
473			0.200	-0.37	78.773	0.700608	-	0.14	-0.001	81.2	54.6	165.0	82.2	76.4
474			0.200	-0.36	78.7691	0.723309	-	0.14	-0.0008	81.2	54.6	164.7	82.2	76.4
475			0.201	-0.37	78.7584	0.722409	-	0.13	-0.0113	81.3	54.6	164.5	82.3	76.5
476			0.202	-0.37	78.7327	0.717438	-	0.12	-0.0074	81.2	54.6	164.2	82.4	76.4
477			0.201	-0.37	78.743	0.733624	-	0.11	-0.0118	81.2	54.6	164.3	82.4	76.3
478			0.202	-0.37	78.7134	0.735787	-	0.11	-0.004	81.3	54.6	164.2	82.3	76.3
479			0.203	-0.34	78.6813	0.73431	-	0.09	-0.0209	81.4	54.6	163.9	82.3	76.3
480	493.886	0.202	0.199	-0.36	78.6939	0.726904	103	0.08	-0.001	81.3	54.6	163.9	82.2	76.3
481			0.200	-0.31	78.6522	0.738789	-	0.07	-0.0137	81.2	54.5	163.6	82.2	76.2
482			0.200	-0.33	78.6244	0.723536	-	0.06	-0.0112	81.3	54.6	163.4	82.2	76.4
483			0.202	-0.34	78.644	0.736016	-	0.06	-0.0026	81.3	54.6	162.9	82.2	76.5
484			0.201	-0.36	78.6466	0.743153	-	0.06	-0.0013	81.3	54.5	162.9	82.0	76.5
485			0.201	-0.33	78.6745	0.735787	-	0.04	-0.0152	81.4	54.6	162.7	82.1	76.4
486			0.201	-0.36	78.6689	0.730747	-	0.03	-0.0095	81.4	54.6	162.6	82.2	76.3
487			0.202	-0.32	78.6318	0.742802	-	0.02	-0.0083	81.2	54.6	162.5	82.2	76.2
488			0.199	-0.31	78.625	0.725099	-	0.01	-0.0101	81.3	54.6	162.2	82.1	76.2
489			0.201	-0.31	78.6015	0.726375	-	0.01	-0.0033	81.2	54.6	162.0	82.0	76.3
490	495.889	0.200	0.201	-0.32	78.5999	0.731851	101	0.00	-0.0104	81.2	54.5	161.9	82.0	76.3
Avg/Tot	96.021	0.196	0.198	-0.32	79	0.65	100			88	57	248	84	79.2

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
0	428.562		-0.35	77.3	-0.54		83	0.062	2.83	0.19
1			-0.32	77.5	0.16	-	86	0.071	2.92	0.18
2			-0.32	77.5	0.26	-	87	0.076	2.16	0.38
3			-0.32	77.6	0.18	-	87	0.070	3.29	0.40
4			-0.32	77.6	0.19	-	86	0.071	11.45	0.52
5			-0.32	77.6	0.17	-	84	0.078	11.96	0.43
6			-0.32	77.6	0.19	-	83	0.074	16.03	0.44
7			-0.32	77.6	0.16	-	84	0.073	14.74	0.30
8			-0.32	77.6	0.17	-	84	0.075	15.08	0.21
9			-0.32	77.6	0.16	-	84	0.074	15.20	0.34
10	430.465	0.190	-0.32	77.7	0.25	98	84	0.069	14.72	0.42
11			-0.32	77.7	0.18	-	84	0.067	11.62	0.45
12			-0.35	77.8	0.26	-	84	0.065	8.94	0.58
13			-0.35	77.8	0.22	-	83	0.062	7.18	0.74
14			-0.35	77.9	0.27	-	83	0.066	4.80	0.74
15			-0.32	77.9	0.29	-	84	0.074	7.25	0.78
16			-0.32	77.9	0.20	-	84	0.069	12.78	0.26
17			-0.35	78.0	0.20	-	83	0.068	15.58	0.51
18			-0.33	77.9	0.20	-	83	0.068	15.82	0.57
19			-0.32	78.0	0.27	-	83	0.069	14.79	0.46
20	432.405	0.194	-0.34	78.0	0.20	99	83	0.068	14.06	0.47
21			-0.35	78.0	0.28	-	83	0.068	13.26	0.43
22			-0.32	78.0	0.24	-	83	0.067	12.85	0.45
23			-0.32	78.0	0.26	-	83	0.067	12.65	0.46
24			-0.32	78.1	0.24	-	83	0.066	12.98	0.45
25			-0.32	78.1	0.22	-	84	0.067	13.24	0.44
26			-0.32	78.1	0.21	-	84	0.068	13.09	0.35
27			-0.35	78.1	0.21	-	84	0.068	13.68	0.33
28			-0.32	78.1	0.23	-	84	0.067	13.98	0.34
29			-0.30	78.1	0.28	-	84	0.069	14.46	0.42
30	434.341	0.194	-0.32	78.1	0.29	98	84	0.066	14.47	0.43
31			-0.32	78.2	0.21	-	84	0.067	14.31	0.41
32			-0.32	78.2	0.21	-	84	0.066	14.46	0.42

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
33			-0.32	78.2	0.28	-	84	0.068	14.07	0.43
34			-0.32	78.2	0.24	-	84	0.067	14.32	0.42
35			-0.32	78.3	0.21	-	85	0.067	14.14	0.40
36			-0.32	78.3	0.28	-	85	0.067	14.47	0.37
37			-0.32	78.3	0.27	-	85	0.066	13.71	0.36
38			-0.32	78.3	0.27	-	85	0.065	14.35	0.30
39			-0.33	78.3	0.19	-	85	0.066	14.50	0.23
40	436.288	0.195	-0.32	78.3	0.21	99	85	0.065	14.58	0.22
41			-0.33	78.3	0.27	-	85	0.067	14.66	0.23
42			-0.35	78.3	0.28	-	85	0.067	14.98	0.20
43			-0.37	78.3	0.21	-	85	0.066	15.10	0.18
44			-0.33	78.3	0.23	-	85	0.065	15.32	0.16
45			-0.35	78.4	0.21	-	86	0.066	15.59	0.19
46			-0.36	78.4	0.27	-	86	0.065	15.78	0.18
47			-0.33	78.4	0.27	-	86	0.069	15.92	0.21
48			-0.35	78.4	0.20	-	86	0.066	15.95	0.21
49			-0.31	78.5	0.25	-	85	0.065	15.95	0.25
50	438.230	0.194	-0.32	78.4	0.26	99	85	0.066	16.03	0.23
51			-0.33	78.5	0.20	-	85	0.066	15.92	0.28
52			-0.35	78.5	0.20	-	85	0.065	15.80	0.28
53			-0.32	78.5	0.21	-	85	0.066	15.80	0.30
54			-0.33	78.4	0.20	-	85	0.066	15.65	0.24
55			-0.32	78.5	0.19	-	85	0.066	15.81	0.29
56			-0.32	78.5	0.25	-	84	0.066	15.74	0.24
57			-0.34	78.5	0.20	-	84	0.067	15.73	0.31
58			-0.32	78.5	0.26	-	84	0.067	15.73	0.29
59			-0.32	78.5	0.22	-	84	0.069	15.92	0.32
60	440.182	0.195	-0.32	78.5	0.27	99	84	0.067	16.15	0.32
61			-0.32	78.5	0.20	-	84	0.067	16.18	0.34
62			-0.31	78.5	0.20	-	84	0.066	16.13	0.35
63			-0.31	78.5	0.21	-	84	0.066	16.01	0.31
64			-0.33	78.5	0.27	-	84	0.067	15.93	0.35
65			-0.31	78.5	0.20	-	84	0.067	15.86	0.35

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
66			-0.32	78.5	0.27	-	84	0.068	15.62	0.35
67			-0.36	78.5	0.22	-	84	0.066	15.56	0.34
68			-0.32	78.5	0.27	-	84	0.066	15.54	0.37
69			-0.32	78.5	0.23	-	84	0.064	15.57	0.31
70	442.129	0.195	-0.32	78.5	0.26	99	84	0.066	15.65	0.33
71			-0.33	78.5	0.26	-	83	0.065	14.80	0.36
72			-0.32	78.5	0.27	-	83	0.064	14.77	0.41
73			-0.35	78.5	0.23	-	83	0.065	14.59	0.41
74			-0.32	78.5	0.21	-	83	0.066	14.33	0.38
75			-0.33	78.5	0.30	-	83	0.065	14.11	0.37
76			-0.32	78.5	0.28	-	83	0.064	13.82	0.46
77			-0.31	78.5	0.26	-	83	0.063	13.80	0.43
78			-0.30	78.5	0.27	-	83	0.065	13.65	0.47
79			-0.32	78.5	0.24	-	83	0.064	13.54	0.50
80	444.073	0.194	-0.33	78.5	0.23	99	83	0.063	13.54	0.47
81			-0.32	78.4	0.27	-	83	0.063	13.40	0.53
82			-0.32	78.4	0.30	-	83	0.063	13.51	0.53
83			-0.32	78.4	0.27	-	83	0.063	13.60	0.40
84			-0.31	78.4	0.24	-	83	0.064	13.76	0.40
85			-0.32	78.4	0.24	-	83	0.062	13.77	0.37
86			-0.31	78.4	0.23	-	83	0.062	13.77	0.37
87			-0.33	78.4	0.29	-	83	0.063	13.84	0.33
88			-0.33	78.4	0.31	-	83	0.063	13.81	0.28
89			-0.33	78.4	0.32	-	83	0.062	13.81	0.27
90	446.021	0.195	-0.32	78.4	0.30	99	83	0.064	13.91	0.25
91			-0.32	78.4	0.30	-	83	0.061	13.93	0.27
92			-0.31	78.4	0.29	-	83	0.061	14.02	0.27
93			-0.32	78.4	0.28	-	83	0.063	14.01	0.27
94			-0.32	78.4	0.35	-	83	0.061	14.10	0.29
95			-0.32	78.4	0.30	-	83	0.062	13.98	0.32
96			-0.32	78.4	0.31	-	84	0.061	14.03	0.29
97			-0.33	78.4	0.36	-	84	0.060	13.96	0.33
98			-0.33	78.4	0.34	-	84	0.060	13.89	0.26

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
99			-0.34	78.4	0.42	-	84	0.061	13.77	0.22
100	447.956	0.194	-0.33	78.4	0.38	98	84	0.062	13.69	0.22
101			-0.31	78.4	0.43	-	85	0.060	13.79	0.25
102			-0.32	78.4	0.50	-	85	0.061	13.87	0.30
103			-0.32	78.4	0.55	-	85	0.060	14.08	0.33
104			-0.32	78.4	0.52	-	85	0.061	14.50	0.41
105			-0.32	78.4	0.56	-	85	0.059	14.72	0.49
106			-0.32	78.4	0.61	-	85	0.062	14.58	0.39
107			-0.32	78.5	0.68	-	85	0.060	13.89	0.31
108			-0.32	78.4	0.75	-	85	0.060	13.67	0.23
109			-0.33	78.5	0.72	-	85	0.058	13.03	0.13
110	449.880	0.192	-0.32	78.5	0.72	97	85	0.058	12.48	0.09
111			-0.32	78.5	0.78	-	85	0.060	12.33	0.10
112			-0.38	78.5	0.77	-	86	0.059	12.07	0.09
113			-0.34	78.5	0.79	-	86	0.056	12.01	0.11
114			-0.35	78.5	0.75	-	86	0.058	11.94	0.12
115			-0.38	78.6	0.78	-	86	0.055	11.77	0.11
116			-0.33	78.5	0.77	-	86	0.055	11.69	0.10
117			-0.32	78.5	0.80	-	86	0.057	11.71	0.10
118			-0.32	78.6	0.81	-	86	0.055	11.49	0.11
119			-0.38	78.5	0.81	-	86	0.053	11.51	0.11
120	451.821	0.194	-0.35	78.6	0.79	98	86	0.057	11.41	0.11
121			-0.32	78.5	0.84	-	86	0.056	11.32	0.12
122			-0.34	78.6	0.82	-	86	0.055	11.11	0.11
123			-0.32	78.6	0.80	-	86	0.054	10.59	0.14
124			-0.32	78.5	0.81	-	86	0.053	10.26	0.15
125			-0.32	78.6	0.83	-	86	0.054	10.12	0.16
126			-0.32	78.6	0.81	-	86	0.055	9.94	0.18
127			-0.33	78.5	0.86	-	86	0.054	9.65	0.20
128			-0.35	78.5	0.83	-	86	0.052	9.36	0.20
129			-0.35	78.6	0.83	-	86	0.053	9.06	0.20
130	453.767	0.195	-0.35	78.6	0.86	98	86	0.052	8.72	0.23
131			-0.37	78.6	0.85	-	86	0.051	7.99	0.26

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
132			-0.32	78.6	0.81	-	86	0.051	7.58	0.30
133			-0.33	78.6	0.85	-	85	0.050	7.50	0.34
134			-0.34	78.6	0.84	-	85	0.049	7.47	0.37
135			-0.35	78.6	0.80	-	85	0.048	7.43	0.39
136			-0.35	78.6	0.79	-	85	0.050	7.39	0.40
137			-0.32	78.6	0.79	-	85	0.048	7.43	0.42
138			-0.35	78.6	0.78	-	85	0.046	7.42	0.43
139			-0.32	78.6	0.82	-	85	0.047	7.39	0.44
140	455.761	0.199	-0.37	78.7	0.79	101	85	0.047	7.33	0.42
141			-0.32	78.7	0.77	-	86	0.047	7.32	0.42
142			-0.36	78.6	0.80	-	85	0.048	7.34	0.44
143			-0.36	78.7	0.82	-	85	0.047	7.30	0.46
144			-0.35	78.6	0.76	-	85	0.046	7.28	0.47
145			-0.38	78.7	0.82	-	85	0.047	7.25	0.48
146			-0.32	78.7	0.79	-	85	0.046	7.23	0.49
147			-0.39	78.7	0.79	-	85	0.044	7.23	0.51
148			-0.34	78.7	0.78	-	85	0.044	7.28	0.53
149			-0.32	78.7	0.77	-	85	0.044	7.27	0.54
150	457.755	0.199	-0.33	78.7	0.74	100	85	0.045	7.27	0.54
151			-0.32	78.6	0.74	-	85	0.043	7.27	0.56
152			-0.32	78.7	0.75	-	85	0.044	7.27	0.56
153			-0.32	78.6	0.78	-	85	0.043	7.28	0.57
154			-0.32	78.6	0.74	-	85	0.042	7.28	0.57
155			-0.33	78.7	0.76	-	85	0.043	7.26	0.58
156			-0.32	78.7	0.78	-	85	0.043	7.25	0.58
157			-0.32	78.6	0.77	-	85	0.042	7.25	0.58
158			-0.33	78.6	0.77	-	85	0.041	7.30	0.59
159			-0.32	78.6	0.74	-	85	0.041	7.30	0.60
160	459.751	0.200	-0.32	78.63457379	0.7259524	100	85	0.042	7.31	0.60
161			-0.32	78.60830249	0.7916954	-	85	0.041	7.28	0.61
162			-0.32	78.61217979	0.7709391	-	85	0.042	7.26	0.61
163			-0.32	78.58164836	0.7470037	-	85	0.041	7.26	0.61
164			-0.32	78.59159874	0.7675019	-	85	0.042	7.21	0.61

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
165			-0.35	78.58446235	0.7660365	-	85	0.039	7.20	0.61
166			-0.32	78.58355774	0.7090342	-	85	0.038	7.19	0.62
167			-0.32	78.58164296	0.7721217	-	85	0.040	7.25	0.62
168			-0.32	78.59925258	0.7031604	-	85	0.039	7.24	0.62
169			-0.32	78.59849928	0.7562238	-	85	0.039	7.25	0.62
170	461.735	0.198	-0.31	78.60695234	0.7233413	100	85	0.039	7.25	0.61
171			-0.33	78.61940862	0.7523342	-	85	0.039	7.27	0.61
172			-0.30	78.60694551	0.7413635	-	85	0.037	7.26	0.59
173			-0.32	78.62054464	0.7372182	-	85	0.038	7.30	0.59
174			-0.32	78.61476295	0.72699	-	85	0.037	7.35	0.59
175			-0.32	78.57065302	0.7012745	-	85	0.038	7.30	0.58
176			-0.37	78.59425302	0.7340268	-	85	0.039	7.31	0.58
177			-0.36	78.59243639	0.7642146	-	85	0.039	7.31	0.58
178			-0.35	78.60486116	0.7545323	-	85	0.036	7.27	0.57
179			-0.35	78.63597982	0.7443852	-	84	0.036	7.26	0.57
180	463.731	0.200	-0.36	78.60629632	0.7538537	100	84	0.037	7.29	0.58
181			-0.34	78.61221186	0.6951622	-	84	0.037	7.07	0.59
182			-0.32	78.60024265	0.6822418	-	84	0.037	7.00	0.59
183			-0.38	78.62384444	0.694995	-	84	0.037	7.01	0.58
184			-0.35	78.61351999	0.7417544	-	84	0.038	7.02	0.57
185			-0.37	78.59204944	0.6868715	-	84	0.037	7.02	0.57
186			-0.35	78.60348215	0.7247132	-	84	0.037	6.28	0.69
187			-0.35	78.60370821	0.7562361	-	84	0.035	6.25	0.68
188			-0.32	78.60829433	0.7210744	-	84	0.036	6.24	0.67
189			-0.32	78.59606439	0.7482675	-	84	0.036	6.28	0.66
190	465.725	0.199	-0.32	78.5917286	0.6750108	100	84	0.036	6.24	0.64
191			-0.35	78.61282643	0.7114732	-	84	0.035	6.22	0.63
192			-0.38	78.60626544	0.7327114	-	84	0.035	6.29	0.64
193			-0.33	78.63764043	0.6895294	-	84	0.035	6.30	0.64
194			-0.31	78.64724312	0.7458457	-	84	0.034	6.28	0.62
195			-0.32	78.60364137	0.742974	-	84	0.035	6.34	0.62
196			-0.35	78.57952752	0.7180158	-	84	0.033	6.35	0.61
197			-0.35	78.61684016	0.7109421	-	84	0.034	6.35	0.61

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
198			-0.34	78.58967402	0.6934092	-	84	0.034	6.34	0.60
199			-0.35	78.56463857	0.7026711	-	84	0.033	6.37	0.60
200	467.723	0.200	-0.35	78.57560572	0.683036	100	84	0.035	6.40	0.60
201			-0.32	78.5585118	0.6665504	-	84	0.033	6.42	0.60
202			-0.35	78.54633412	0.72922	-	84	0.034	6.45	0.60
203			-0.32	78.57156611	0.7387548	-	84	0.032	6.46	0.60
204			-0.37	78.5602518	0.7170421	-	84	0.032	6.49	0.60
205			-0.35	78.56539062	0.665862	-	84	0.032	6.48	0.59
206			-0.32	78.54860318	0.7328122	-	84	0.033	6.36	0.61
207			-0.35	78.55190081	0.6674184	-	84	0.032	6.38	0.61
208			-0.34	78.53992537	0.7235429	-	84	0.033	6.39	0.61
209			-0.37	78.53376597	0.7001067	-	84	0.033	6.41	0.60
210	469.714	0.199	-0.37	78.53400758	0.7008271	99	84	0.032	6.41	0.60
211			-0.37	78.54909405	0.6769261	-	84	0.031	6.41	0.60
212			-0.35	78.54894643	0.6551052	-	84	0.032	6.41	0.60
213			-0.37	78.56535619	0.6685887	-	84	0.032	6.40	0.60
214			-0.35	78.57053458	0.6597423	-	84	0.033	6.45	0.61
215			-0.38	78.56364017	0.6495928	-	84	0.032	6.44	0.61
216			-0.37	78.53663503	0.6686944	-	84	0.032	6.45	0.59
217			-0.32	78.5237224	0.6588031	-	84	0.030	6.45	0.58
218			-0.35	78.52874413	0.6586949	-	84	0.032	6.45	0.58
219			-0.35	78.52155868	0.714994	-	84	0.033	6.48	0.58
220	471.705	0.199	-0.35	78.50860315	0.7095136	99	84	0.032	6.49	0.57
221			-0.35	78.5169973	0.6849513	-	84	0.031	6.50	0.57
222			-0.35	78.52388349	0.7064993	-	84	0.030	6.48	0.57
223			-0.34	78.53254339	0.7143031	-	84	0.030	6.47	0.56
224			-0.32	78.52346911	0.7030251	-	84	0.031	6.48	0.56
225			-0.33	78.54774335	0.6578491	-	84	0.029	6.46	0.56
226			-0.35	78.53121409	0.7089801	-	84	0.030	6.46	0.56
227			-0.38	78.55298826	0.6907956	-	83	0.030	6.48	0.56
228			-0.37	78.51673445	0.6466326	-	83	0.031	6.50	0.55
229			-0.37	78.52991168	0.689136	-	83	0.028	6.53	0.55
230	473.699	0.199	-0.35	78.52031112	0.6878083	99	83	0.030	6.54	0.56

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
231			-0.37	78.54473801	0.7060592	-	83	0.029	6.54	0.56
232			-0.37	78.5295995	0.7046675	-	83	0.029	6.52	0.55
233			-0.38	78.53770963	0.6582007	-	83	0.030	6.54	0.56
234			-0.32	78.53422476	0.716275	-	83	0.030	6.50	0.54
235			-0.37	78.54068667	0.7286349	-	83	0.031	6.52	0.55
236			-0.32	78.52374492	0.6580139	-	83	0.029	6.57	0.56
237			-0.35	78.5271271	0.657114	-	83	0.030	5.92	0.63
238			-0.32	78.49288592	0.6732995	-	83	0.029	5.77	0.64
239			-0.35	78.49673628	0.7282636	-	83	0.029	5.71	0.62
240	475.699	0.200	-0.32	78.48866422	0.6862495	99	83	0.029	5.68	0.61
241			-0.32	78.44759001	0.6592039	-	83	0.029	5.68	0.61
242			-0.32	78.49907794	0.7045741	-	83	0.032	5.67	0.60
243			-0.32	78.50855751	0.7230413	-	83	0.030	5.64	0.60
244			-0.32	78.47329457	0.6823524	-	83	0.030	5.66	0.60
245			-0.32	78.46212918	0.7122575	-	83	0.030	5.65	0.60
246			-0.32	78.45689322	0.6988994	-	83	0.028	5.64	0.60
247			-0.32	78.43580379	0.7123264	-	83	0.028	5.66	0.60
248			-0.32	78.4545116	0.7201843	-	83	0.027	5.64	0.59
249			-0.32	78.40672681	0.6963793	-	83	0.031	5.67	0.60
250	477.705	0.201	-0.33	78.43847365	0.7125181	100	83	0.030	5.60	0.59
251			-0.32	78.43563983	0.6595874	-	83	0.030	5.63	0.59
252			-0.32	78.45947249	0.6511467	-	83	0.029	5.59	0.59
253			-0.33	78.45107767	0.7198524	-	83	0.030	5.59	0.59
254			-0.32	78.41594116	0.6896007	-	84	0.030	5.53	0.59
255			-0.34	78.42515778	0.6550339	-	84	0.027	5.52	0.59
256			-0.32	78.44071998	0.6956712	-	84	0.030	5.51	0.59
257			-0.32	78.45187284	0.6958998	-	84	0.029	5.56	0.59
258			-0.32	78.46368118	0.6583753	-	84	0.029	5.55	0.59
259			-0.35	78.43088413	0.6507656	-	84	0.030	5.51	0.58
260	479.717	0.201	-0.32	78.42620635	0.707468	100	84	0.030	5.32	0.60
261			-0.32	78.44671964	0.6628476	-	84	0.029	5.27	0.59
262			-0.32	78.48596945	0.6264467	-	84	0.029	5.26	0.59
263			-0.35	78.4870263	0.6967678	-	84	0.029	5.26	0.59

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
264			-0.32	78.48064599	0.6524548	-	84	0.027	5.28	0.59
265			-0.32	78.43584381	0.6530252	-	84	0.030	5.26	0.58
266			-0.32	78.44449082	0.6212466	-	84	0.029	5.25	0.58
267			-0.32	78.45624691	0.677349	-	84	0.027	5.24	0.58
268			-0.32	78.44084472	0.6705384	-	84	0.027	5.22	0.58
269			-0.32	78.42141082	0.6571509	-	84	0.026	5.27	0.58
270	481.695	0.198	-0.32	78.40545735	0.6660194	98	84	0.027	5.20	0.57
271			-0.34	78.40943471	0.68503	-	84	0.027	5.27	0.58
272			-0.35	78.43961583	0.6430208	-	84	0.028	5.23	0.57
273			-0.32	78.4232131	0.6393008	-	84	0.030	5.24	0.57
274			-0.32	78.42817671	0.6300364	-	84	0.028	5.22	0.57
275			-0.32	78.41806088	0.6480586	-	84	0.025	5.22	0.57
276			-0.32	78.41005321	0.6471046	-	84	0.029	5.19	0.57
277			-0.32	78.42165993	0.713927	-	84	0.025	5.20	0.57
278			-0.32	78.41141777	0.6672807	-	84	0.029	5.17	0.56
279			-0.32	78.41371231	0.6981004	-	84	0.029	5.17	0.56
280	483.699	0.200	-0.33	78.41232786	0.6977537	99	84	0.025	5.20	0.57
281			-0.37	78.40437011	0.6407096	-	84	0.025	5.19	0.57
282			-0.35	78.43157114	0.6867314	-	84	0.026	5.20	0.57
283			-0.36	78.43897988	0.6932051	-	84	0.026	5.18	0.56
284			-0.35	78.43088358	0.6781038	-	84	0.026	5.19	0.56
285			-0.37	78.40933558	0.6937239	-	84	0.027	5.22	0.56
286			-0.32	78.42617521	0.7011442	-	84	0.026	5.20	0.56
287			-0.31	78.42473112	0.7009033	-	84	0.026	5.19	0.56
288			-0.35	78.42679239	0.6509451	-	84	0.025	5.21	0.56
289			-0.36	78.41497037	0.714136	-	84	0.024	5.19	0.56
290	485.730	0.203	-0.33	78.42777759	0.706814	101	84	0.028	5.19	0.56
291			-0.32	78.41929882	0.7091325	-	84	0.028	5.24	0.57
292			-0.37	78.42279347	0.7000673	-	84	0.027	5.24	0.57
293			-0.35	78.43746928	0.6626657	-	84	0.025	5.15	0.56
294			-0.32	78.45695079	0.6361389	-	84	0.024	5.15	0.56
295			-0.37	78.45770126	0.6373535	-	84	0.024	5.19	0.57
296			-0.37	78.43942929	0.6822369	-	84	0.023	5.18	0.57

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
297			-0.34	78.41429429	0.7027547	-	84	0.026	5.18	0.56
298			-0.35	78.4328947	0.6831687	-	84	0.026	5.18	0.56
299			-0.37	78.43629483	0.6451598	-	84	0.026	5.13	0.55
300	487.755	0.202	-0.32	78.427494	0.7140868	100	84	0.025	5.19	0.56
301			-0.34	78.4217038	0.6806215	-	84	0.026	5.17	0.55
302			-0.38	78.40352872	0.636075	-	84	0.026	5.22	0.56
303			-0.35	78.37775846	0.6835572	-	84	0.027	5.21	0.56
304			-0.37	78.39928596	0.6228447	-	84	0.028	5.21	0.56
305			-0.32	78.40174687	0.670236	-	84	0.025	5.21	0.56
306			-0.34	78.36798147	0.634585	-	84	0.027	5.20	0.55
307			-0.32	78.36513561	0.623902	-	84	0.025	5.21	0.55
308			-0.32	78.3346304	0.681519	-	84	0.024	5.23	0.55
309			-0.32	78.34039635	0.6480512	-	84	0.026	5.18	0.54
310	489.752	0.200	-0.31	78.40123872	0.6062363	99	84	0.027	5.18	0.54
311			-0.32	78.35136067	0.6219153	-	84	0.025	5.23	0.55
312			-0.31	78.35158325	0.6838695	-	84	0.026	5.22	0.54
313			-0.32	78.33330913	0.6538193	-	84	0.028	5.19	0.54
314			-0.32	78.32441359	0.6996125	-	84	0.025	5.15	0.53
315			-0.33	78.34046144	0.6424356	-	84	0.026	5.14	0.54
316			-0.33	78.32627078	0.6957966	-	84	0.025	5.15	0.53
317			-0.34	78.30032376	0.6913439	-	84	0.025	5.20	0.54
318			-0.33	78.29756196	0.6395122	-	84	0.025	5.22	0.54
319			-0.32	78.28347074	0.7052281	-	84	0.023	5.21	0.53
320	491.782	0.203	-0.32	78.27339488	0.6648834	101	84	0.025	5.21	0.53
321			-0.32	78.30694627	0.6387918	-	84	0.026	5.22	0.53
322			-0.35	78.29108426	0.6956368	-	84	0.025	5.24	0.53
323			-0.36	78.27889593	0.6464359	-	84	0.024	5.25	0.53
324			-0.31	78.28988336	0.6380935	-	84	0.023	5.22	0.53
325			-0.34	78.26878487	0.6998534	-	84	0.022	5.21	0.52
326			-0.35	78.2543536	0.7069615	-	84	0.026	5.20	0.52
327			-0.33	78.26041447	0.6693312	-	84	0.023	5.20	0.52
328			-0.34	78.23696071	0.6521646	-	84	0.026	5.20	0.51
329			-0.32	78.2368653	0.6470555	-	84	0.023	5.20	0.51

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
330	493.824	0.204	-0.32	78.22696423	0.7042643	101	84	0.025	5.22	0.51
331			-0.32	78.1965551	0.663541	-	84	0.022	5.22	0.51
332			-0.32	78.19562606	0.6674774	-	84	0.026	5.20	0.51
333			-0.35	78.19436637	0.6873043	-	84	0.026	5.23	0.51
334			-0.33	78.19923557	0.6761811	-	84	0.022	5.24	0.51
335			-0.32	78.20180444	0.6930723	-	84	0.024	5.28	0.51
336			-0.31	78.18562671	0.6574336	-	84	0.022	5.19	0.50
337			-0.32	78.18789417	0.7093833	-	84	0.024	5.21	0.50
338			-0.32	78.16659887	0.7074139	-	84	0.027	5.20	0.49
339			-0.32	78.16578061	0.7029366	-	84	0.024	5.20	0.49
340	495.862	0.204	-0.32	78.17244633	0.6443952	101	84	0.026	5.19	0.49
341			-0.31	78.13205035	0.6727537	-	84	0.024	5.20	0.50
342			-0.34	78.11036739	0.6956786	-	84	0.024	5.20	0.50
343			-0.32	78.10284989	0.7063173	-	84	0.024	5.19	0.50
344			-0.33	78.11636693	0.630624	-	84	0.026	5.20	0.49
345			-0.32	78.08412692	0.6853889	-	84	0.026	5.21	0.49
346			-0.32	78.11678145	0.7045372	-	84	0.023	5.20	0.49
347			-0.33	78.08343823	0.7063444	-	84	0.026	5.19	0.49
348			-0.32	78.08755219	0.7034923	-	84	0.022	5.17	0.49
349			-0.31	78.09621281	0.656873	-	84	0.022	5.15	0.49
350	497.904	0.204	-0.32	78.07384232	0.6522704	101	84	0.025	5.19	0.49
351			-0.32	78.06867039	0.6466695	-	84	0.026	5.19	0.49
352			-0.33	78.06875689	0.7125304	-	84	0.023	5.21	0.49
353			-0.32	78.04649003	0.6660956	-	84	0.025	5.20	0.49
354			-0.32	78.06004899	0.6440288	-	84	0.025	5.21	0.48
355			-0.32	78.05383071	0.6397482	-	84	0.025	5.25	0.48
356			-0.33	78.03543859	0.7013335	-	84	0.025	5.27	0.48
357			-0.32	78.03329023	0.7119649	-	84	0.026	5.28	0.48
358			-0.32	78.03890521	0.6648294	-	84	0.022	5.28	0.47
359			-0.33	78.03789696	0.6716522	-	84	0.023	5.28	0.47
360	499.950	0.205	-0.32	78.02463039	0.6405498	101	84	0.022	5.24	0.47
361			-0.32	78.02468919	0.65125	-	84	0.027	5.24	0.46
362			-0.32	77.98398653	0.6539669	-	84	0.026	5.25	0.46

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
363			-0.32	77.96457622	0.7032735	-	84	0.022	5.27	0.47
364			-0.32	77.95374633	0.6920299	-	84	0.025	5.27	0.48
365			-0.32	77.97262082	0.6572123	-	84	0.024	5.44	0.60
366			-0.32	77.94159818	0.7088178	-	84	0.023	5.42	0.57
367			-0.32	77.91850546	0.7116527	-	84	0.027	5.42	0.56
368			-0.32	77.91653454	0.6839481	-	84	0.025	5.36	0.54
369			-0.32	77.88742337	0.7181338	-	84	0.022	5.35	0.54
370	501.989	0.204	-0.32	77.87708313	0.6578639	101	84	0.023	5.33	0.53
371			-0.32	77.92329797	0.6436821	-	84	0.022	5.31	0.53
372			-0.32	77.91547335	0.7089457	-	84	0.024	5.28	0.52
373			-0.32	77.90384534	0.6535169	-	84	0.025	5.25	0.52
374			-0.32	77.88934655	0.6479431	-	84	0.024	5.28	0.53
375			-0.32	77.86545808	0.6619846	-	84	0.023	4.96	0.52
376			-0.32	77.86275489	0.6837121	-	84	0.025	4.88	0.52
377			-0.32	77.86461162	0.6604578	-	83	0.024	4.86	0.51
378			-0.32	77.84907655	0.6847964	-	83	0.026	4.83	0.51
379			-0.32	77.82530491	0.7123018	-	84	0.026	4.85	0.51
380	504.049	0.206	-0.32	77.81453657	0.6702631	102	84	0.025	4.83	0.51
381			-0.33	77.81670956	0.6507263	-	83	0.024	4.80	0.50
382			-0.32	77.8056471	0.69455	-	83	0.025	4.80	0.50
383			-0.32	77.80021237	0.6991969	-	83	0.022	4.77	0.50
384			-0.32	77.83844325	0.6303855	-	83	0.024	4.77	0.50
385			-0.32	77.80432823	0.653662	-	83	0.025	4.80	0.51
386			-0.32	77.78055267	0.6408842	-	83	0.026	4.77	0.51
387			-0.32	77.7656884	0.6405768	-	83	0.025	4.74	0.51
388			-0.32	77.77556203	0.6765008	-	83	0.024	4.74	0.51
389			-0.33	77.76626285	0.7020539	-	83	0.023	4.71	0.50
390	506.094	0.205	-0.32	77.76905619	0.6829327	101	83	0.025	4.71	0.51
391			-0.33	77.77985453	0.6784013	-	83	0.023	4.78	0.57
392			-0.32	77.78103091	0.6442673	-	83	0.024	4.79	0.56
393			-0.32	77.7669749	0.6980758	-	83	0.025	4.77	0.56
394			-0.32	77.78868939	0.6310174	-	83	0.023	4.77	0.55
395			-0.34	77.77303378	0.6926765	-	83	0.024	4.76	0.55

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
396			-0.32	77.77626528	0.6889909	-	83	0.025	4.75	0.54
397			-0.32	77.78487718	0.6677109	-	83	0.023	4.74	0.54
398			-0.32	77.77463539	0.6556535	-	83	0.023	4.74	0.54
399			-0.32	77.73949766	0.6843169	-	83	0.022	4.73	0.53
400	508.133	0.204	-0.33	77.73925807	0.672021	101	83	0.024	4.75	0.54
401			-0.32	77.71587002	0.6735307	-	83	0.022	4.75	0.53
402			-0.32	77.72825139	0.6982331	-	83	0.026	4.72	0.53
403			-0.32	77.74169338	0.6703467	-	83	0.025	4.69	0.53
404			-0.32	77.73747347	0.68845	-	83	0.026	4.69	0.52
405			-0.33	77.72065152	0.6824115	-	83	0.025	4.70	0.52
406			-0.31	77.71565108	0.6908497	-	83	0.023	4.70	0.52
407			-0.32	77.67804187	0.6622281	-	83	0.025	4.67	0.52
408			-0.33	77.6658339	0.6655743	-	83	0.023	4.63	0.52
409			-0.32	77.69344118	0.7037504	-	83	0.021	4.62	0.52
410	510.184	0.205	-0.32	77.64721304	0.6706884	102	83	0.022	4.62	0.51
411			-0.32	77.64923808	0.6584441	-	83	0.022	4.61	0.51
412			-0.32	77.65638525	0.6602193	-	83	0.023	4.62	0.51
413			-0.32	77.62464638	0.6406998	-	83	0.022	4.61	0.51
414			-0.33	77.62960291	0.6489708	-	83	0.024	4.62	0.51
415			-0.32	77.64453304	0.6808969	-	83	0.025	4.61	0.51
416			-0.32	77.62277373	0.7019482	-	83	0.022	4.60	0.51
417			-0.33	77.60075313	0.6389197	-	83	0.022	4.61	0.50
418			-0.32	77.58000147	0.6630714	-	83	0.023	4.61	0.50
419			-0.32	77.5595295	0.6496002	-	83	0.021	4.60	0.50
420	512.227	0.204	-0.32	77.5383589	0.6480267	101	83	0.023	4.57	0.50
421			-0.33	77.54614798	0.6621764	-	83	0.022	4.57	0.50
422			-0.32	77.53394101	0.6899572	-	83	0.022	4.58	0.50
423			-0.32	77.53001217	0.6521671	-	83	0.021	4.49	0.56
424			-0.32	77.48892888	0.699251	-	83	0.022	4.43	0.54
425			-0.33	77.48695172	0.7025309	-	83	0.025	4.45	0.54
426			-0.36	77.46490787	0.6935002	-	83	0.024	4.44	0.53
427			-0.32	77.45973879	0.713	-	83	0.023	4.42	0.52
428			-0.33	77.46673854	0.702526	-	83	0.024	4.42	0.52

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
429			-0.33	77.45651644	0.6469178	-	83	0.024	4.43	0.51
430	514.279	0.205	-0.32	77.45679421	0.6500329	102	83	0.020	4.45	0.51
431			-0.32	77.46261783	0.6534628	-	83	0.022	4.46	0.51
432			-0.32	77.44472082	0.6451524	-	83	0.023	4.44	0.51
433			-0.32	77.44571719	0.722171	-	83	0.023	4.45	0.50
434			-0.32	77.43245332	0.6977832	-	83	0.024	4.45	0.50
435			-0.32	77.42064794	0.6596735	-	83	0.025	4.44	0.50
436			-0.32	77.42164711	0.6538538	-	83	0.022	4.43	0.49
437			-0.31	77.40627928	0.6867265	-	83	0.023	4.43	0.49
438			-0.32	77.39512507	0.7012844	-	83	0.024	4.43	0.49
439			-0.32	77.37783532	0.6908792	-	83	0.024	4.42	0.49
440	516.307	0.203	-0.32	77.37303348	0.7019236	100	83	0.023	4.39	0.49
441			-0.32	77.37164601	0.7029465	-	83	0.024	4.30	0.48
442			-0.32	77.39908338	0.6398343	-	83	0.023	4.28	0.48
443			-0.32	77.38400255	0.7145416	-	83	0.024	4.28	0.48
444			-0.32	77.40512437	0.6543627	-	83	0.021	4.26	0.47
445			-0.33	77.3755218	0.6502911	-	83	0.023	4.26	0.47
446			-0.32	77.3675079	0.6919881	-	83	0.025	4.27	0.47
447			-0.33	77.34606623	0.6541045	-	83	0.022	4.28	0.47
448			-0.32	77.32489159	0.7000968	-	83	0.021	4.27	0.47
449			-0.32	77.30181785	0.6937829	-	83	0.023	4.26	0.47
450	518.343	0.204	-0.32	77.28560075	0.6458728	101	83	0.021	4.25	0.47
451			-0.32	77.26668223	0.6817329	-	83	0.022	4.25	0.47
452			-0.32	77.29242034	0.6830188	-	83	0.022	4.24	0.46
453			-0.32	77.27581838	0.6221366	-	83	0.023	4.22	0.46
454			-0.32	77.24884769	0.6786054	-	83	0.023	4.22	0.46
455			-0.32	77.24301476	0.6275458	-	83	0.023	4.21	0.46
456			-0.32	77.23709058	0.6444099	-	83	0.020	4.22	0.46
457			-0.32	77.24698346	0.6490839	-	83	0.024	4.22	0.46
458			-0.32	77.22716624	0.5972375	-	83	0.021	4.22	0.46
459			-0.32	77.2062816	0.6730414	-	83	0.023	4.22	0.46
460	520.340	0.200	-0.32	77.20745922	0.6186256	99	83	0.021	4.19	0.46
461			-0.32	77.19863904	0.6909702	-	83	0.022	4.18	0.45

BOX B TEST DATA - ASTM E3053 / ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Particulate Sampling Data							Flue Gas Data		
Elapsed Time (min)	Gas Meter (ft^3)	Sample Rate (cfm)	Orifice dH (in H_2O)	Meter Temp (°F)	Meter Vacuum (in Hg)	Pro. Rate (%)	Filter (°F)	Flue Draft (in H_2O)	CO_2 (%)	CO (%)
462			-0.32	77.20251616	0.6982725	-	83	0.023	4.19	0.46
463			-0.32	77.17526564	0.6558133	-	83	0.021	4.20	0.46
464			-0.32	77.19326538	0.6693533	-	83	0.022	4.19	0.45
465			-0.32	77.1480546	0.7173421	-	83	0.021	4.22	0.45
466			-0.32	77.14728757	0.6489585	-	83	0.022	4.21	0.46
467			-0.32	77.12698462	0.7053142	-	83	0.022	4.19	0.46
468			-0.33	77.14005589	0.7280915	-	83	0.023	4.20	0.46
469			-0.33	77.15558298	0.6774769	-	83	0.023	4.20	0.46
470	522.398	0.206	-0.32	77.11225362	0.7009795	102	83	0.021	4.20	0.46
471			-0.32	77.11064078	0.7173544	-	83	0.020	4.18	0.45
472			-0.32	77.13774967	0.6492044	-	83	0.023	4.15	0.45
473			-0.32	77.10619334	0.6390598	-	83	0.022	4.14	0.45
474			-0.32	77.09379538	0.6653678	-	82	0.021	4.17	0.45
475			-0.32	77.10847189	0.5805995	-	83	0.022	4.16	0.45
476			-0.32	77.08397939	0.562356	-	82	0.022	4.15	0.45
477			-0.32	77.07914483	0.56956	-	82	0.023	3.97	0.45
478			-0.32	77.04133719	0.5824558	-	83	0.021	3.92	0.44
479			-0.32	77.0351648	0.5587491	-	82	0.022	3.92	0.44
480	524.393	0.200	-0.32	77.02312092	0.5902671	99	82	0.021	3.89	0.44
481			-0.32	76.98990467	0.695268	-	82	0.022	3.88	0.43
482			-0.31	76.98756218	0.6680527	-	82	0.020	3.86	0.43
483			-0.33	77.01094122	0.7132754	-	82	0.021	3.84	0.43
484			-0.32	77.01398129	0.679611	-	82	0.022	3.84	0.43
485			-0.34	77.0451873	0.6853103	-	82	0.020	3.80	0.43
486			-0.31	77.047718	0.7136344	-	82	0.022	3.79	0.43
487			-0.33	76.99918346	0.6657932	-	82	0.023	3.76	0.43
488			-0.32	76.98408605	0.8333038	-	82	0.019	3.75	0.42
489			-0.32	76.97322821	0.8852462	-	82	0.020	3.74	0.42
490	526.533	0.214	-0.32	77.0120207	0.8416363	106	82	0.020	3.73	0.42
Avg/Tot	97.971	0.200	-0.33	78	0.60	100	84	0.038	7.57	0.48

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
0	367	386	593	629	648	524.6	N/A
1	361	390	593	623	644	522.0	N/A
2	354	394	591	613	637	517.8	N/A
3	350	396	589	607	631	514.5	N/A
4	354	395	585	606	628	513.8	N/A
5	360	395	583	608	629	514.7	N/A
6	368	396	582	613	632	518.2	N/A
7	376	396	580	618	636	521.2	N/A
8	384	395	580	624	639	524.5	N/A
9	391	392	580	632	642	527.2	N/A
10	395	394	579	637	644	530.0	N/A
11	395	391	577	640	644	529.7	N/A
12	394	396	573	640	642	529.0	N/A
13	391	396	568	636	638	525.8	N/A
14	387	389	560	629	632	519.5	N/A
15	388	389	555	623	625	515.8	N/A
16	391	383	554	621	623	514.5	N/A
17	394	387	554	622	626	516.5	N/A
18	396	387	554	623	630	517.9	N/A
19	397	387	554	626	634	519.5	N/A
20	398	386	554	629	637	520.7	N/A
21	398	385	554	631	639	521.4	N/A
22	398	384	554	634	640	522.0	N/A
23	398	382	554	637	641	522.3	N/A
24	398	377	553	640	640	521.8	N/A
25	399	368	553	643	640	520.5	N/A
26	399	369	552	645	640	521.2	N/A
27	399	368	552	648	640	521.6	N/A
28	400	364	553	653	641	522.2	N/A
29	401	362	554	657	643	523.3	N/A
30	402	362	556	661	644	524.9	N/A
31	403	358	557	665	645	525.7	N/A
32	404	357	558	669	646	527.0	N/A
33	405	354	559	674	648	528.0	N/A
34	406	352	561	678	649	529.3	N/A
35	408	350	562	683	651	530.7	N/A
36	409	349	563	686	652	531.7	N/A
37	410	346	564	689	654	532.8	N/A
38	411	343	565	692	655	533.5	N/A
39	413	340	567	695	657	534.2	N/A
40	414	337	568	698	659	535.2	N/A
41	415	338	569	701	661	537.0	N/A
42	417	336	571	704	663	538.1	N/A
43	417	334	572	706	666	539.1	N/A
44	419	329	575	708	668	539.7	N/A
45	420	330	577	711	671	541.6	N/A
46	422	327	579	714	673	543.0	N/A
47	424	327	581	717	676	545.1	N/A
48	425	325	583	720	680	546.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
49	427	324	585	723	683	548.3	N/A
50	429	322	587	726	686	549.8	N/A
51	431	321	589	729	688	551.5	N/A
52	432	318	591	730	691	552.6	N/A
53	434	317	593	733	693	553.9	N/A
54	435	314	595	735	696	554.9	N/A
55	437	313	596	737	698	556.2	N/A
56	438	313	598	738	700	557.4	N/A
57	438	309	600	739	702	557.8	N/A
58	439	309	602	740	704	559.0	N/A
59	440	308	604	742	706	560.1	N/A
60	441	308	606	743	709	561.4	N/A
61	442	305	608	745	711	562.4	N/A
62	443	305	610	747	713	563.8	N/A
63	444	303	612	750	715	564.8	N/A
64	446	302	614	752	717	566.1	N/A
65	447	301	615	754	718	567.2	N/A
66	448	301	617	756	719	568.3	N/A
67	449	300	618	758	720	569.1	N/A
68	451	299	619	760	721	569.9	N/A
69	452	297	620	762	722	570.4	N/A
70	453	297	621	764	722	571.4	N/A
71	455	296	622	766	721	571.8	N/A
72	457	295	623	767	719	572.0	N/A
73	458	295	623	767	717	572.2	N/A
74	460	293	624	767	714	571.7	N/A
75	461	293	624	767	711	571.3	N/A
76	463	292	624	766	708	570.6	N/A
77	466	292	623	765	704	570.1	N/A
78	468	291	622	764	700	569.1	N/A
79	470	292	621	763	696	568.4	N/A
80	472	290	619	762	692	567.3	N/A
81	474	290	617	762	689	566.2	N/A
82	475	291	616	761	685	565.6	N/A
83	476	290	616	762	681	564.9	N/A
84	477	290	615	763	679	564.7	N/A
85	478	290	614	764	676	564.4	N/A
86	479	289	613	765	674	564.0	N/A
87	480	287	612	766	672	563.4	N/A
88	480	287	612	767	671	563.3	N/A
89	479	287	611	768	669	562.8	N/A
90	479	286	610	769	668	562.5	N/A
91	478	286	610	770	666	562.2	N/A
92	477	286	611	771	665	561.9	N/A
93	476	286	611	772	664	561.7	N/A
94	476	287	612	772	663	561.9	N/A
95	476	286	613	773	662	562.0	N/A
96	476	286	613	774	661	562.1	N/A
97	476	286	614	775	661	562.3	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
98	476	287	614	775	660	562.4	N/A
99	475	286	615	775	660	562.2	N/A
100	474	287	616	775	660	562.5	N/A
101	474	287	617	775	660	562.5	N/A
102	474	285	618	775	660	562.2	N/A
103	474	284	619	775	660	562.3	N/A
104	475	283	620	776	661	563.0	N/A
105	476	286	621	778	662	564.4	N/A
106	476	284	622	779	663	564.7	N/A
107	475	288	624	779	664	565.8	N/A
108	473	286	626	778	665	565.6	N/A
109	471	287	627	778	665	565.6	N/A
110	467	289	628	776	665	564.9	N/A
111	463	288	628	774	664	563.4	N/A
112	460	288	629	772	662	562.0	N/A
113	456	288	629	770	660	560.4	N/A
114	453	288	629	768	657	559.1	N/A
115	449	289	629	766	654	557.6	N/A
116	447	289	629	764	651	556.0	N/A
117	443	289	629	762	648	554.4	N/A
118	441	289	628	760	645	552.9	N/A
119	439	289	628	759	643	551.3	N/A
120	437	288	627	757	640	549.8	N/A
121	435	289	627	756	637	548.6	N/A
122	432	289	625	754	634	546.9	N/A
123	430	290	624	752	631	545.3	N/A
124	427	290	622	748	628	542.9	N/A
125	423	291	621	744	625	540.9	N/A
126	420	290	620	739	622	538.2	N/A
127	417	290	617	735	619	535.5	N/A
128	413	293	614	730	616	533.1	N/A
129	410	291	610	726	613	529.8	N/A
130	407	290	606	720	610	526.6	N/A
131	403	290	602	715	606	523.3	N/A
132	399	289	597	709	603	519.4	N/A
133	395	291	592	702	600	516.0	N/A
134	392	292	587	695	596	512.5	N/A
135	388	293	582	688	593	508.9	N/A
136	385	293	577	681	589	505.0	N/A
137	382	295	572	675	586	501.7	N/A
138	378	295	567	668	582	498.2	N/A
139	375	296	562	662	579	494.9	N/A
140	372	297	557	656	576	491.7	N/A
141	369	297	553	650	573	488.3	N/A
142	366	295	548	644	570	484.8	N/A
143	363	296	544	639	567	481.9	N/A
144	360	298	540	633	564	479.1	N/A
145	357	298	536	628	561	476.2	N/A
146	355	300	532	623	558	473.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
147	352	301	528	618	556	471.1	N/A
148	350	303	525	613	553	468.7	N/A
149	348	302	521	609	550	466.0	N/A
150	345	303	518	604	548	463.6	N/A
151	343	305	514	600	545	461.3	N/A
152	340	306	511	596	543	459.1	N/A
153	338	305	508	592	540	456.5	N/A
154	336	305	505	588	538	454.4	N/A
155	334	307	502	584	536	452.6	N/A
156	332	310	499	581	533	451.0	N/A
157	330	308	496	577	531	448.6	N/A
158	328	310	494	574	529	446.9	N/A
159	326	310	491	571	527	444.9	N/A
160	324	312	489	568	525	443.4	N/A
161	322	313	486	565	523	441.8	N/A
162	321	314	484	562	521	440.4	N/A
163	319	314	482	559	519	438.5	N/A
164	317	314	479	556	517	436.8	N/A
165	315	315	477	554	515	435.3	N/A
166	314	317	476	551	513	434.1	N/A
167	312	317	474	549	511	432.6	N/A
168	310	318	472	546	510	431.3	N/A
169	309	319	470	544	508	430.0	N/A
170	308	321	468	542	506	428.9	N/A
171	306	321	466	540	505	427.6	N/A
172	305	322	464	538	503	426.4	N/A
173	304	322	462	535	502	425.0	N/A
174	302	323	460	533	500	423.9	N/A
175	301	324	459	532	499	422.8	N/A
176	300	324	457	530	497	421.7	N/A
177	298	325	456	528	496	420.6	N/A
178	297	326	454	526	495	419.7	N/A
179	296	326	453	525	494	418.6	N/A
180	295	327	451	523	492	417.6	N/A
181	293	328	450	521	491	416.6	N/A
182	292	328	448	520	490	415.6	N/A
183	291	328	447	518	489	414.4	N/A
184	290	329	446	516	487	413.6	N/A
185	288	329	444	514	486	412.5	N/A
186	287	331	443	512	485	411.7	N/A
187	286	331	442	510	484	410.5	N/A
188	284	331	440	508	482	409.3	N/A
189	283	331	439	506	481	407.9	N/A
190	281	332	438	503	480	406.8	N/A
191	280	332	436	501	479	405.5	N/A
192	279	333	434	499	477	404.3	N/A
193	277	333	432	497	476	403.1	N/A
194	276	333	431	495	475	401.8	N/A
195	275	333	429	492	473	400.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
196	274	334	427	490	472	399.5	N/A
197	272	334	426	488	471	398.2	N/A
198	271	334	424	486	470	397.0	N/A
199	270	333	423	484	468	395.8	N/A
200	269	334	422	482	467	394.8	N/A
201	268	334	420	480	466	393.7	N/A
202	267	335	419	479	465	392.8	N/A
203	266	334	417	477	464	391.7	N/A
204	265	334	416	475	463	390.6	N/A
205	264	334	415	474	462	389.6	N/A
206	263	333	414	472	461	388.6	N/A
207	262	333	412	471	460	387.7	N/A
208	261	333	411	469	459	386.8	N/A
209	260	333	410	468	458	386.0	N/A
210	259	334	409	467	457	385.1	N/A
211	258	334	408	465	456	384.2	N/A
212	257	333	407	464	455	383.3	N/A
213	257	333	406	462	454	382.5	N/A
214	256	333	405	461	454	381.7	N/A
215	255	333	404	460	453	380.8	N/A
216	255	333	403	458	452	380.0	N/A
217	254	332	402	457	451	379.2	N/A
218	253	331	401	456	450	378.2	N/A
219	252	332	400	455	449	377.7	N/A
220	251	332	399	454	448	377.1	N/A
221	251	332	398	453	448	376.3	N/A
222	250	332	398	452	447	375.7	N/A
223	250	331	397	451	446	375.0	N/A
224	249	331	396	450	445	374.3	N/A
225	249	331	395	449	445	373.7	N/A
226	248	331	394	448	444	373.2	N/A
227	247	330	393	447	443	372.2	N/A
228	247	330	393	446	443	371.6	N/A
229	246	330	392	446	442	371.2	N/A
230	246	329	391	445	441	370.4	N/A
231	245	330	391	444	441	370.1	N/A
232	245	330	390	443	440	369.6	N/A
233	244	330	389	442	439	369.1	N/A
234	244	329	389	442	439	368.4	N/A
235	243	329	388	441	438	367.9	N/A
236	243	329	387	440	438	367.4	N/A
237	242	328	387	439	437	366.7	N/A
238	241	328	386	438	437	366.1	N/A
239	241	328	385	437	436	365.5	N/A
240	240	328	384	436	436	365.0	N/A
241	239	328	384	435	435	364.2	N/A
242	239	328	383	434	434	363.7	N/A
243	238	327	382	433	434	362.9	N/A
244	238	326	381	432	433	362.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
245	237	326	380	431	432	361.4	N/A
246	237	326	380	430	431	360.8	N/A
247	236	326	379	429	431	360.0	N/A
248	236	325	378	428	430	359.4	N/A
249	235	325	377	427	429	358.6	N/A
250	235	324	376	426	428	357.8	N/A
251	234	324	375	425	427	357.2	N/A
252	234	324	374	424	427	356.5	N/A
253	233	323	373	423	426	355.7	N/A
254	232	323	372	422	425	354.9	N/A
255	232	323	372	421	424	354.2	N/A
256	231	322	371	420	424	353.5	N/A
257	231	321	370	419	423	352.6	N/A
258	230	321	369	418	422	352.1	N/A
259	230	320	368	417	421	351.2	N/A
260	229	319	367	416	421	350.5	N/A
261	229	319	366	415	420	349.8	N/A
262	228	318	366	414	419	349.1	N/A
263	228	318	365	413	418	348.3	N/A
264	227	316	364	412	417	347.4	N/A
265	227	316	363	411	417	346.7	N/A
266	226	316	362	410	416	346.0	N/A
267	226	315	361	409	415	345.2	N/A
268	225	314	360	408	414	344.3	N/A
269	225	314	360	407	413	343.7	N/A
270	224	313	359	406	412	342.9	N/A
271	224	312	358	405	411	342.1	N/A
272	223	312	357	405	410	341.5	N/A
273	223	311	356	404	409	340.7	N/A
274	223	311	356	403	408	340.1	N/A
275	222	310	355	402	408	339.2	N/A
276	222	309	354	401	407	338.5	N/A
277	221	309	353	400	406	337.8	N/A
278	221	309	352	400	405	337.3	N/A
279	220	308	352	399	404	336.6	N/A
280	220	307	351	398	403	335.7	N/A
281	219	306	350	397	402	335.0	N/A
282	219	306	349	396	401	334.4	N/A
283	219	306	348	396	401	333.8	N/A
284	218	305	348	395	400	333.1	N/A
285	218	304	347	394	399	332.3	N/A
286	217	304	346	393	398	331.7	N/A
287	217	303	346	393	397	331.1	N/A
288	217	303	345	392	397	330.6	N/A
289	216	302	344	391	396	329.8	N/A
290	216	302	343	391	395	329.3	N/A
291	216	301	343	390	394	328.7	N/A
292	215	300	342	389	393	327.9	N/A
293	214	299	341	389	393	327.3	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
294	214	299	341	388	392	326.8	N/A
295	214	299	340	387	391	326.3	N/A
296	213	298	339	387	391	325.6	N/A
297	213	298	339	386	390	325.3	N/A
298	213	297	338	386	389	324.7	N/A
299	213	297	338	385	389	324.2	N/A
300	212	297	337	384	388	323.7	N/A
301	212	296	337	384	387	323.1	N/A
302	212	295	336	383	387	322.5	N/A
303	211	295	336	383	386	322.1	N/A
304	211	295	335	382	385	321.7	N/A
305	211	295	335	382	385	321.3	N/A
306	210	294	334	381	384	320.7	N/A
307	210	293	334	381	384	320.2	N/A
308	210	293	333	380	383	319.8	N/A
309	210	293	333	380	382	319.4	N/A
310	209	292	332	379	382	319.0	N/A
311	209	292	331	379	381	318.4	N/A
312	208	291	331	378	380	317.9	N/A
313	208	292	331	378	380	317.6	N/A
314	208	291	330	378	379	317.1	N/A
315	208	290	330	377	378	316.6	N/A
316	207	290	329	377	378	316.2	N/A
317	207	289	329	376	377	315.6	N/A
318	207	288	328	376	377	315.2	N/A
319	206	289	328	375	376	314.9	N/A
320	206	289	328	375	376	314.6	N/A
321	206	289	327	375	375	314.4	N/A
322	206	287	327	374	374	313.7	N/A
323	206	287	327	374	374	313.5	N/A
324	205	288	326	374	373	313.3	N/A
325	205	287	326	373	373	313.0	N/A
326	205	287	325	373	372	312.5	N/A
327	205	287	325	373	372	312.2	N/A
328	205	285	325	373	371	311.7	N/A
329	204	286	325	372	371	311.5	N/A
330	204	286	324	372	370	311.3	N/A
331	204	286	324	372	370	311.2	N/A
332	204	286	324	372	369	310.8	N/A
333	204	286	323	371	369	310.5	N/A
334	204	285	323	371	368	310.2	N/A
335	203	285	323	371	368	309.9	N/A
336	203	285	322	370	367	309.4	N/A
337	202	284	322	370	367	309.1	N/A
338	202	284	322	370	367	308.8	N/A
339	202	284	321	369	366	308.6	N/A
340	201	284	321	369	366	308.3	N/A
341	201	284	321	368	366	308.0	N/A
342	201	285	320	368	365	307.8	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
343	200	284	320	368	365	307.4	N/A
344	200	284	320	367	365	307.2	N/A
345	200	284	319	367	364	307.0	N/A
346	200	284	319	367	364	306.7	N/A
347	199	284	319	366	364	306.4	N/A
348	199	284	319	366	363	306.3	N/A
349	199	284	319	366	363	306.1	N/A
350	198	283	319	366	363	305.8	N/A
351	198	284	318	365	362	305.7	N/A
352	198	284	318	365	362	305.6	N/A
353	198	284	318	365	362	305.4	N/A
354	198	284	318	365	362	305.2	N/A
355	198	284	318	365	361	305.0	N/A
356	197	283	318	365	361	304.8	N/A
357	197	283	318	365	361	304.7	N/A
358	197	284	318	365	361	304.7	N/A
359	197	284	318	365	360	304.7	N/A
360	197	284	318	365	360	304.5	N/A
361	197	283	318	365	360	304.3	N/A
362	196	283	317	365	360	304.2	N/A
363	196	283	317	365	359	304.1	N/A
364	196	283	318	365	359	304.1	N/A
365	196	283	318	365	359	304.2	N/A
366	196	283	318	365	359	304.2	N/A
367	196	282	318	365	359	304.1	N/A
368	196	283	319	365	358	304.1	N/A
369	196	283	319	365	358	304.3	N/A
370	196	283	319	365	358	304.3	N/A
371	197	283	319	365	358	304.3	N/A
372	197	283	319	364	358	304.3	N/A
373	197	282	319	364	358	304.2	N/A
374	196	283	319	364	358	304.2	N/A
375	196	283	320	364	358	304.3	N/A
376	196	282	320	364	358	304.0	N/A
377	196	282	320	364	358	303.9	N/A
378	196	282	320	364	358	303.9	N/A
379	196	282	320	363	358	303.7	N/A
380	196	282	320	363	357	303.6	N/A
381	195	282	320	363	357	303.4	N/A
382	195	282	319	362	357	303.2	N/A
383	195	282	319	362	357	302.9	N/A
384	195	281	319	361	357	302.6	N/A
385	195	279	319	361	356	302.0	N/A
386	195	281	319	360	356	302.2	N/A
387	194	281	318	360	356	301.8	N/A
388	194	281	318	359	355	301.5	N/A
389	194	280	318	359	355	301.1	N/A
390	194	280	317	358	355	300.9	N/A
391	194	280	317	358	354	300.5	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
392	193	280	317	357	354	300.4	N/A
393	193	278	317	357	354	299.8	N/A
394	193	278	317	356	354	299.6	N/A
395	193	279	317	356	353	299.5	N/A
396	193	278	317	355	353	299.2	N/A
397	193	278	317	355	353	299.0	N/A
398	192	278	316	354	353	298.7	N/A
399	192	276	316	354	353	298.1	N/A
400	192	275	316	353	353	297.9	N/A
401	192	276	316	353	352	297.7	N/A
402	192	276	316	352	352	297.6	N/A
403	192	275	316	352	352	297.3	N/A
404	192	276	315	351	352	297.2	N/A
405	192	274	315	351	352	296.6	N/A
406	191	274	315	350	351	296.4	N/A
407	191	274	314	350	351	296.1	N/A
408	191	274	314	349	351	295.9	N/A
409	191	274	314	349	351	295.6	N/A
410	191	273	313	349	350	295.1	N/A
411	190	272	313	348	350	294.8	N/A
412	190	272	313	348	350	294.6	N/A
413	190	271	313	347	350	294.1	N/A
414	190	272	312	347	349	294.0	N/A
415	190	272	312	346	349	293.8	N/A
416	190	272	312	346	349	293.5	N/A
417	190	271	311	345	348	293.0	N/A
418	189	271	311	345	348	292.8	N/A
419	189	271	311	344	348	292.5	N/A
420	189	270	311	344	347	292.1	N/A
421	189	269	310	343	347	291.7	N/A
422	188	269	310	343	347	291.4	N/A
423	188	269	310	343	347	291.2	N/A
424	188	269	309	342	346	290.9	N/A
425	188	267	309	342	346	290.4	N/A
426	188	268	309	341	346	290.4	N/A
427	188	268	308	341	345	290.0	N/A
428	187	268	308	340	345	289.7	N/A
429	187	267	308	340	345	289.4	N/A
430	187	267	308	339	345	289.2	N/A
431	187	266	307	339	345	288.8	N/A
432	187	266	307	338	344	288.5	N/A
433	187	266	307	338	344	288.1	N/A
434	187	265	306	337	344	287.8	N/A
435	186	265	306	337	343	287.6	N/A
436	186	265	306	336	343	287.2	N/A
437	186	265	306	336	343	287.1	N/A
438	186	265	305	336	342	286.7	N/A
439	186	265	305	335	342	286.5	N/A
440	186	264	304	335	341	286.1	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
441	185	264	304	334	341	285.7	N/A
442	185	263	304	334	341	285.3	N/A
443	185	263	303	333	340	285.1	N/A
444	185	263	303	333	340	284.7	N/A
445	185	263	303	332	339	284.5	N/A
446	185	263	303	332	339	284.1	N/A
447	184	262	302	332	338	283.7	N/A
448	184	262	302	331	338	283.4	N/A
449	184	262	302	331	337	283.1	N/A
450	184	262	301	330	337	282.8	N/A
451	183	263	301	330	336	282.6	N/A
452	183	263	300	330	336	282.3	N/A
453	183	263	300	329	335	282.0	N/A
454	183	263	299	329	334	281.7	N/A
455	183	262	299	328	334	281.2	N/A
456	183	261	299	328	333	280.8	N/A
457	182	262	298	327	333	280.4	N/A
458	182	262	298	327	332	280.1	N/A
459	182	261	297	327	332	279.6	N/A
460	182	261	297	326	331	279.5	N/A
461	182	261	296	326	331	279.1	N/A
462	182	260	296	325	330	278.6	N/A
463	181	261	296	325	329	278.4	N/A
464	181	261	295	324	329	278.2	N/A
465	181	261	295	324	328	277.8	N/A
466	181	261	295	324	328	277.5	N/A
467	181	260	294	323	327	277.1	N/A
468	180	260	294	323	327	276.8	N/A
469	180	261	294	322	326	276.6	N/A
470	180	260	293	322	326	276.3	N/A
471	180	260	293	322	325	276.0	N/A
472	180	260	293	321	325	275.8	N/A
473	180	260	292	321	324	275.3	N/A
474	179	259	292	320	324	274.9	N/A
475	179	259	292	320	323	274.7	N/A
476	179	259	291	320	323	274.4	N/A
477	179	259	291	319	323	274.2	N/A
478	178	260	290	319	322	273.9	N/A
479	178	259	290	319	322	273.4	N/A
480	178	259	289	318	321	273.2	N/A
481	178	259	289	318	321	272.8	N/A
482	178	259	288	317	320	272.4	N/A
483	177	259	288	317	320	272.0	N/A
484	177	258	287	316	319	271.6	N/A
485	177	258	286	316	319	271.2	N/A
486	177	259	286	316	318	271.0	N/A
487	177	259	285	315	318	270.6	N/A
488	176	259	285	314	317	270.3	N/A
489	176	259	284	314	317	269.9	N/A

WOODSTOVE SURFACE TEMPERATURE DATA

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

	Temperature Data (°F)						
Elapsed Time (min)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Stove Surface Average	Catalyst Exit
490	176	259	284	313	316	269.5	N/A
Average	284	303	427	496	475	397	N/A

LAB SAMPLE DATA - ASTM E2515

Client: SBI
Model: Bistro
Run #: 4

Job #: 22-790
Tracking #: 122
Technician: SJB
Date: 6/7/2022

		Sample ID	Tare, mg	Final, mg	Catch, mg
Filters	**A**	H112	187.5	190.2	2.7
	B	H113	187.9	190.7	2.8
	C - 1st Hour	H114	188.1	191.0	2.9
	Amb	H115	188.5	188.5	0.0
Probes	**A**	7A	116558.4	116558.3	-0.1
	B	7B	117128.0	117128.1	0.1
	C - 1st Hour	7C	116550.5	116550.7	0.2
O-rings	**A**	7A	3573.1	3573.3	0.2
	B	7B	3523.7	3523.8	0.1
	C - 1st Hour	7C	3408.0	3408.0	0.0

Placed in Dessicator on:	6/13 - 8:30

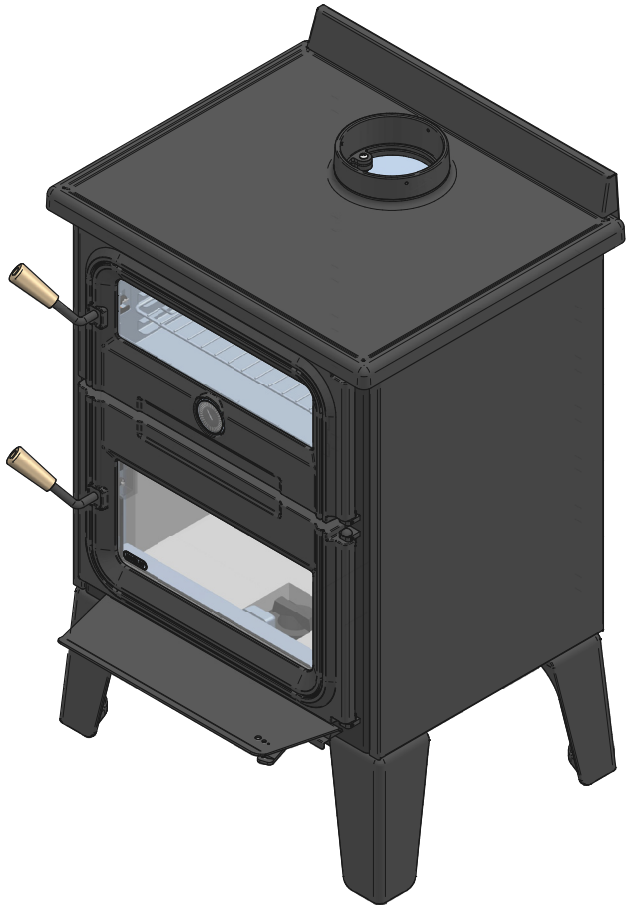
Filters	**A**	190.1	6/7 21:42	190.2	6/15 12:08	190.2	6/16 9:01		
	B	190.8	6/7 21:42	190.7	6/15 12:08	190.7	6/16 9:01		
	C - 1st Hour	191.0	6/7 21:42	190.9	6/15 12:08	191.0	6/16 9:01		
	Amb	188.5	6/7 21:42	188.5	6/15 12:09	188.5	6/16 9:01		
Probes	**A**			116558.4	6/15 12:09	116558.3	6/16 9:02		
	B			117128.2	6/15 12:09	117128.1	6/16 9:02		
	C - 1st Hour			116550.8	6/15 12:09	116550.7	6/16 9:02		
O-Rings	**A**			3573.5	6/15 12:09	3573.3	6/16 9:02		
	B			3524.0	6/15 12:09	3523.8	6/16 9:02		
	C - 1st Hour			3408.1	6/15 12:09	3408.0	6/16 9:03		

Train A Aggregate, mg:	**2.8**
Train B Aggregate, mg:	**3.0**
Train C Aggregate, mg:	**3.1**
Ambient Aggregate, mg:	**0.0**

Installation and Operation Manual
BISTRO WOOD BURNING COOKSTOVE

(DB04815 model)

ENGLISH



US Environmental Protection Agency phase II certified wood stove compliant with 2020 cord wood standard

EPA ≤2.5 g/h

MOBILE HOME

Security test made according to regulations ULC S627 and UL 1482 by an accredited laboratory.

CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN LOCAL AREA.

READ THIS ENTIRE MANUAL BEFORE INSTALLATION AND USE OF THIS WOOD STOVE. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH.

U.S. ENVIRONMENTAL PROTECTION AGENCY: THIS UNIT IS NOT A CERTIFIED RESIDENTIAL WOOD HEATER. THE PRIMARY USE FOR THIS UNIT IS FOR COOKING OR BAKING.

READ AND KEEP THIS MANUAL FOR REFERENCE

2022-07-07

Printed in Canada

46251A

THANK YOU FOR CHOOSING THIS WOOD BURNING COOKSTOVE.

If this cookstove is not installed properly, combustible materials near it may overheat and catch fire.

To reduce the risk of fire, follow the installation instructions in this manual.

As one of North America's largest and most respected wood stove and fireplace manufacturers, Stove Builder International takes pride in the quality and performance of all its products.

The following pages provide general advice on wood heating, detailed instructions for safe and effective installation, and guidance on how to get the best performance from this cookstove.

It is highly recommended that this cookstove be installed and serviced by professionals who are certified in the United States by NFI (National Fireplace Institute®) or in Canada by WETT (Wood Energy Technology Transfer) or in Quebec by APC (Association des Professionnels du Chauffage).

Contact local building or fire officials about restrictions and installation inspection requirements in your local area.

A building permit might be required for the installation of this cookstove and the chimney that it is connected to. It is also highly recommended to inform your home insurance company.

Please read this entire manual before installing and using this cookstove.

ENGLISH

ONLINE WARRANTY REGISTRATION

If the unit requires repairs during the warranty period, proof of purchase must be provided. The purchase invoice must be kept. The date indicated on it establishes the warranty period. If it can not be provided, the warranty period will be determined by the date of manufacture of the product.

It is also highly recommended to register the warranty online at

https://www.drolet.ca/en/warranty/warranty-registration/

Registering the warranty will help to quickly find the information needed on the unit.

TABLE OF CONTENTS

ENGLISH

ENGLISH

Dealer: _____

_____

Installer: _____

_____

Phone Number: _____

Serial Number: _____

CERTIFICATION PLATE

ENGLISH

C ETL US LISTED
Intertek
June/Juin 2021
Control number: 4002461

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

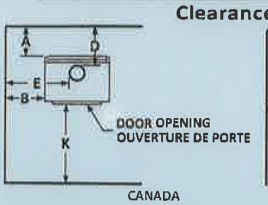
STANDARDS / NORMES D'ESSAI:
Certified to/Certifié selon ULC S627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon ASTM E3053-17
Certified to/Certifié selon ASTM E2515-11 (R2017)

LISTED SOLID FUEL BURNING COOK STOVE
CUISINIÈRE À COMBUSTIBLE SOLIDE HOMOLOGUÉ

MODEL / MODÈLE :
BISTRO

Serial Number / No. de Série: 1

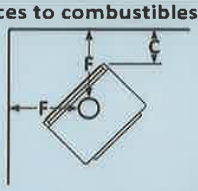
Clearances to combustibles / Dégagements aux combustibles



CANADA

	Single wall connector / Tuyau à paroi simple		Double wall connector / Tuyau à paroi double	
A:	15 in./po.	(381 mm)	6 in./po.	(152 mm)
B:	15 in./po.	(381 mm)	15 in./po.	(381 mm)
C:	7.5 in./po.	(191 mm)	5 in./po.	(127 mm)
D:	18 in./po.	(457 mm)	9 in./po.	(229 mm)
E:	25 in./po.	(635 mm)	24.75 in./po.	(629 mm)
F:	18 in./po.	(457 mm)	15 in./po.	(381 mm)

Floor-ceiling/plancher-plafond: 72 in./po. (183cm)



U.S.A.

	Single wall connector / Tuyau à paroi simple		Double wall connector / Tuyau à paroi double	
A:	15 in./po.	(381 mm)	6 in./po.	(152 mm)
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C:	7.5 in./po.	(191 mm)	5 in./po.	(127 mm)
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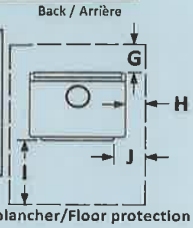
F:	18 in./po.	(457 mm)	15 in./po.	(381 mm)

MOBILE HOME
MAISONS MOBILES
Double wall connector
Tuyau à paroi double

A:	6 in./po.	(152 mm)	D:	9 in./po.	(229 mm)
B:	15 in./po.	(381 mm)	E:	24.75 in./po.	(629 mm)
C:	5 in./po.	(127 mm)	F:	15 in./po.	(381 mm)

Back / Arrière



Protection de plancher/Floor protection

CANADA		U.S.A.	
G:	8 in./po. (203 mm)	I:	16 in./po. (406 mm)
H:	8 in./po (203 mm)	J:	8 in./po. (203 mm)
I:	18 in./po. (457 mm)	K:	36 in./po. (914 mm)
K:	48 in./po. (1219 mm)		

* See owner's manual for other clearances with lowered ceiling/
voir manuel d'installation pour autres dégagements avec plafond abaissé

PREVENT HOUSE FIRES

- Install and use only in accordance with the manufacturer's installation and operating instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- Use listed 152 mm /6 in. diameter single or double wall connectors with prefabricated chimneys approved UL 103 HT (US) and ULC S629 (CAN) suitable for solid fuels or lined masonry chimneys.
- See local building code and manufacturer's instructions for precautions required for passing a chimney through a combustible wall or ceiling.
- This stove must be installed as a free-standing cook stove with the clearances listed in the manufacturer's installation instructions. It is forbidden to install this stove in a factory-built fireplace.
- Do not pass connector through combustible wall or ceiling.
- Do not connect this unit to a chimney serving another appliance.
- Use with wood only. Do not use other fuels.
- Operate only with door closed. Open door to feed the stove only.
- Do not obstruct the space underneath the stove.
- Do not use grate or elevate fire. Build fire directly on hearth.
- Do not overfire. If heater or chimney connector glows, you are overfiring.
- Inspect and clean chimney frequently. Under certain co ·dition of use, creosote buildup may occur rapidly.
- Replace glass with ceramic type only.
- Install unit on a non-combustible material extending as shown above on this label.
- Suitable for mobile-home installation. Floor protection may vary from pedestal to legs version refer to owner's manual.
- Combustion air openings shall not be obstructed.
- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

PRÉVENEZ LES INCENDIES

- Installer et utiliser conformément au manuel d'utilisation du fabricant.
- Contacter les autorités de votre localité ayant juridiction concernant les restrictions et inspections d'installation.
- Utiliser des tuyaux d'évacuation à parois simple ou double homologués d'un diamètre de 6 po. (152 mm) avec une cheminée préfabriquée approuvée UL 103 HT (US) et ULC S629 (CAN) pour utilisation au bois ou une cheminée de maçonnerie gainée.
- Voir les codes locaux et le manuel d'installation du manufacturier pour le passage de la cheminée à travers un mur ou un plafond combustible.
- Ne pas traverser un plafond ou un mur combustible avec un tuyau d'évacuation.
- Ce poêle doit être installé comme une cuisinière autonome avec les dégagements indiqués dans les instructions d'installation du fabricant. Il est strictement défendu d'installer ce poêle dans un foyer préfabriqué.
- Ne pas raccorder cet appareil à une cheminée déservant un autre appareil.
- Brûler du bois seulement. Ne pas utiliser d'autres combustibles.
- Garder la porte fermée en tout temps. Ouvrir la porte que lors du chargement.
- Ne rien entreposer sous l'appareil.
- Ne pas utiliser de grilles ou de chenets pour surélever le feu.Préparer le feu directement sur l'âtre.
- Ne pas surchauffer. Si l'appareil ou le tuyau rougit, il y a surchauffe.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, l'accumulation de créosote peut être rapide.
- Remplacer la vitre seulement avec un verre de céramique.
- Installer l'appareil sur une plaque non combustible tel qu'indiqué sur l'étiquette.
- Poêle approuvé pour maison mobile.La protection de plancher peut varier entre la version plédestal et sur pattes. Voir le manuel d'instructions.
- Les entrées d'air servant à la combustion ne doivent pas être obstruées.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistente par rapport au manuel de l'utilisateur consiste une violation de la loi fédérale (USA).

Optional blower: (115V, 0.8A, 60Hz) — Option ventilateur: (115V, 0.8A, 60Hz)

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using cordwood.
AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.-U. Conforme aux normes d'émission de particules de 2020 avec bûche de bois.
Weighted average emission rate: / Moyenne pondérée des émissions: 2.0 g/h
Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1(ii))

WARNING: This product can expose you to carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. (For more information go to www.p65warnings.ca.gov)

CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.

ATTENTION

- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
- UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.

Made in St-Augustin-de-Desmaures (Qc), Canada
21/06/2022 (# test)

SBI
Fabricant de poêles international
Stove Builder International

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
21/06/2022 (# test)

27883

PART A - OPERATION AND MAINTENANCE

U.S. ENVIRONMENTAL PROTECTION AGENCY: THIS UNIT IS NOT A CERTIFIED RESIDENTIAL WOOD HEATER. THE PRIMARY USE FOR THIS UNIT IS FOR COOKING OR BAKING.

1. Safety Information

- Operate only with doors fully closed. If door is left partly open, gas and flame may be drawn out of the opening, creating risks from both fire and smoke.
- The cookstove is not designed to be used when the door is open. Open the door only to startup or to reload the stove.
- Don't leave unattended when the door is slightly open for startups. Always close the door after ignition.
- **HOT WHILE IN OPERATION, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. GLOVES MAY BE NEEDED FOR COOKSTOVE OPERATION.**
- Using the cookstove with cracked or broken components, such as glass, firebricks or baffle may produce an unsafe condition and may damage the cookstove.
- Open the air control fully before opening the combustion chamber door.
- Do not store fuel within cookstove minimum installation clearances.
- Do not store wood underneath the combustion chamber.
- Burn only seasoned natural firewood.
- Do not elevate the fire by using a grate.
- A smoke detector, a carbon monoxide detector and a fire extinguisher should be installed in the house. The location of the fire extinguisher should be known by all family members.
- This wood heater needs periodic inspection and repairs for the proper operation. It is against federal regulations to operate this wood heater in a manner inconsistent with operating instructions in this guide.
- Paint used on this appliance is not food grade (including the cast iron cooking surface). It is strongly not recommanded to cook directly on the painted surfaces.
- Radiant heat coming from the stove glass can cause intense heat or burning sensations. It is recommanded to cook on the cast iron cooking surface from the side of the appliance.
- During cooking, keep the oven door closed to keep a constant temperature.
- Make sure the ash drawer is in place when the cookstove is in use (when it gives off heat).

- **DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE.**
- **DO NOT BURN GARBAGE OR FLAMMABLE LIQUIDS SUCH AS GASOLINE, NAPHTHA, FUEL OIL, ENGINE OIL, KEROSENE, CHARCOAL LIGHTER FUEL, SIMILAR LIQUIDS, OR AEROSOLS TO START, REVIVE OR NEAR THE FIRE. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE HEATER WHILE IT IS IN USE.**
- This appliance should always be maintained and operated in accordance with these instructions.

WARNING: This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov

2. General information

2.1 Performances

Values are as measured per test method, except for the recommended heating area, firebox volume, maximum burn time and maximum heat output.

Model	Bistro woodburning cookstove (DB04815)	
Combustion type	Non-catalytic	
Fuel Type	Dry Cordwood	
Recommended heating area (sq. ft.)[1]	500 to 2,100 ft^2 (47 to 195 m^2)	
Total firebox volume	2.261 ft^3 (0.064 m^3)	
EPA loading volume	1.94 ft^3 (0.055 m^3)	
Maximum burn time[1]	8 hours	
Overall heat output rate (min. to max.)[2] [2]	14,300 BTU/h to 47,300 BTU/h (4.19 kW to 13.86 kW)	
Average overall efficiency[3] (Dry cordwood)	76 % (HHV)[3]	81 % (LVH)[4]
Optimum efficiency[5]	83 %	
Optimum heat transfer efficiency[6]	80 %	
Average particulate emissions rate[7]	2.0 g/h (EPA / CSA B415.1-10)[8]	
Average CO[9]	62 g/h	

ENGLISH

[1] Recommended heating area and maximum burn time may vary subject to location in home, chimney draft,heat loss factors, climate, fuel type and other variables. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature in the designated area in case of a power failure.

[2] As measured per CSA B415.1-10 stack loss method.

[3] Higher Heating Value of the fuel.

[4] Lower Heating Value of the fuel.

[5] Optimum overall efficiency at a specific burn rate (LHV).

[6] The optimum heat transfer efficiency is for the low burn rate and represents the appliance's ability to convert the energy contained in the wood logs into energy transferred to the room in the form of heat and does not take into account the chemical losses during combustion.

[7] This appliance is officially tested and certified by an independent agency.

[8] Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1(ii) and ASTM E3053-17 based on the approbation letter sent by EPA on May 7th, 2022.

[9] Carbon monoxide.

2.2 Specifications

Maximum log length	20" (508 mm) east-west orientation[10]
Recommanded log length	16" (406 mm)
Flue outlet diameter	6 in (150 mm)
Recommended connector pipe diameter	6 in (150 mm)
Type of chimney	ULC-S629, UL 103 HT (2100 °F)
Necessary flue draft	0,05" H_2O (12 Pa)
Minimum chimney height	12 feet
Baffle material	Vermiculite
Alcove installation	Not approved
Mobile home installation[11]	Approved
Type of door	Simple, glazed or not, with cast iron frame
Type of glass	Ceramic glass
Shipping weight	575 lb (261 kg)
Blower	Optional (up to 100 CFM)
Particulate emission standard[12]	EPA / CSA B415.1-10
USA standard (Safety)	UL 1482, UL 737
Canada standard (Safety)	ULC-S627
Oven dimensions (W x D x H)	18" x 15-5/16" x 7-7/8" 457 mm x 177 mm x 381 mm

[10] East-west orientation: longitudinal side of logs visible; north-south orientation: end of logs visible.

[11] Mobile home (Canada) or prefabricated home (USA): The US department of Housing and urban development describes “prefabricated homes” better known as “mobile homes” as follows; constructed buildings on fixed wheels and those transported on temporary wheels/axles installed on a permanent foundation. In Canada, a mobile home is a dwelling which the assembly of each component is done or mostly done before moving it to a location where it will be placed on foundations and connected to service facilities that meet the standards CAN/CSA-Z240 MH.

[12] Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1(ii) and ASTM E3053-17 based on the approbation letter sent by EPA on May 7th, 2022.

2.3 Cookstove Dimensions

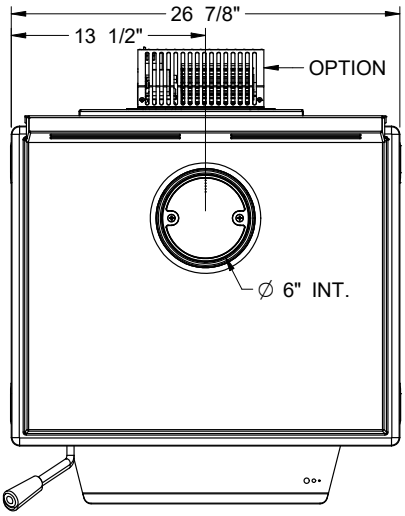


Figure 1: Top view

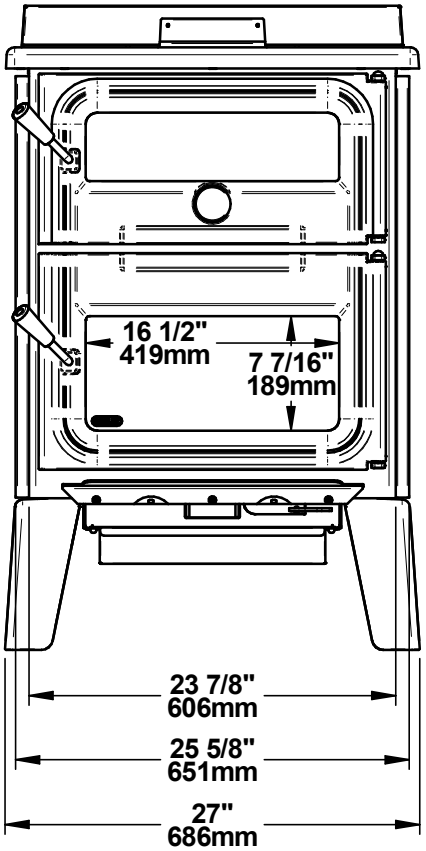


Figure 2: Front view

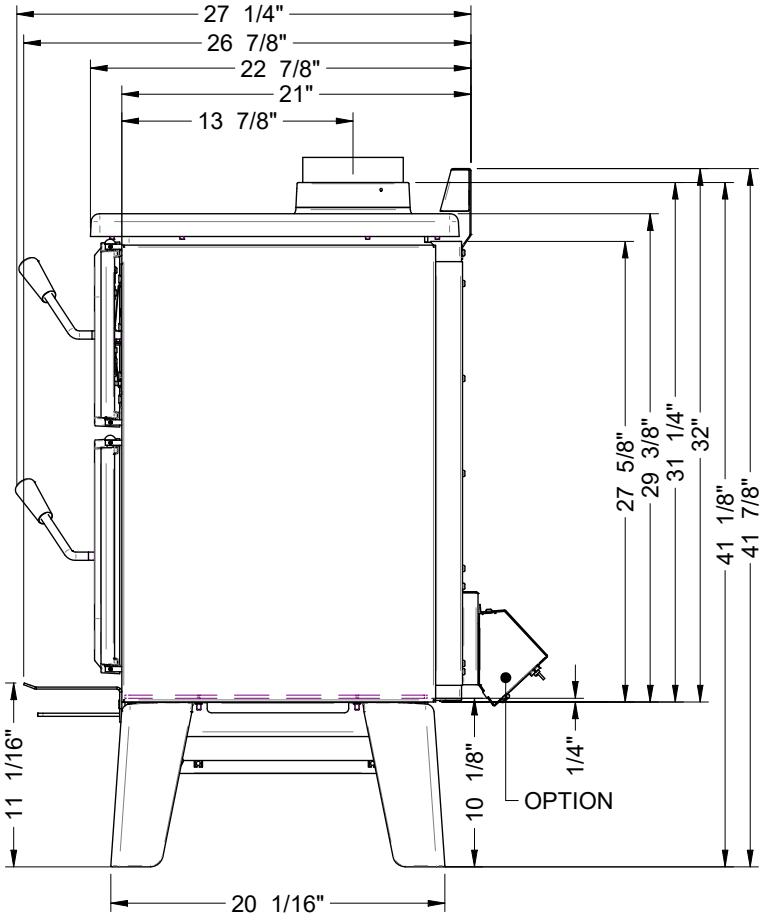


Figure 3: Side view

2.3.1 Combustion Chamber Dimensions

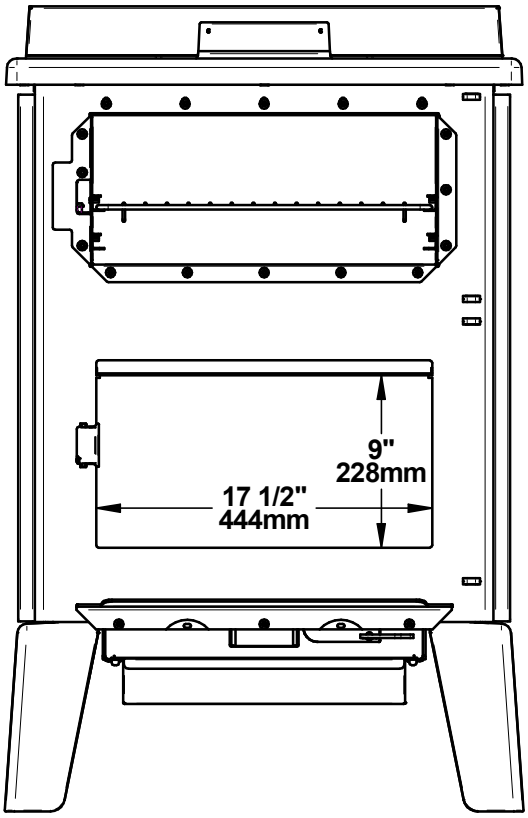


Figure 4: Door opening

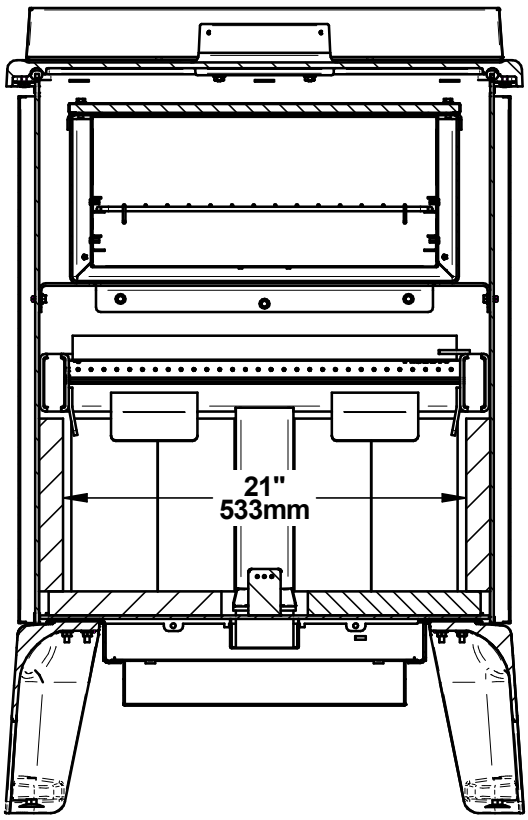


Figure 5: Front view : Combustion chamber

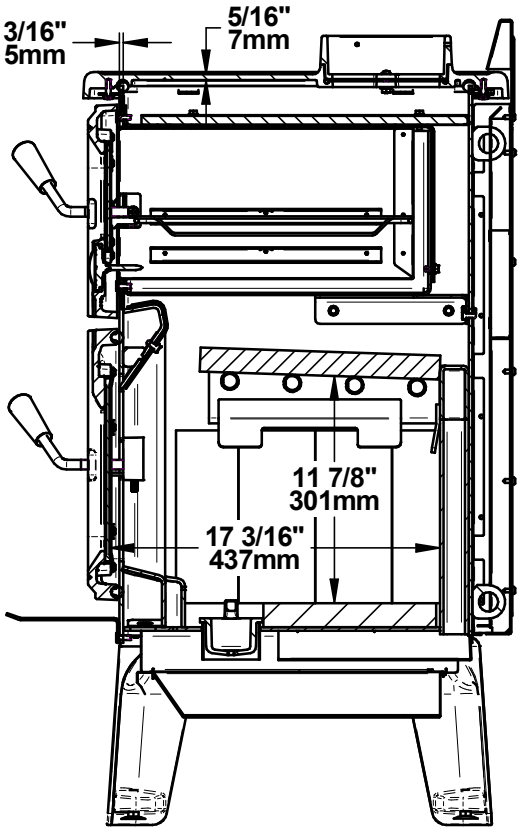
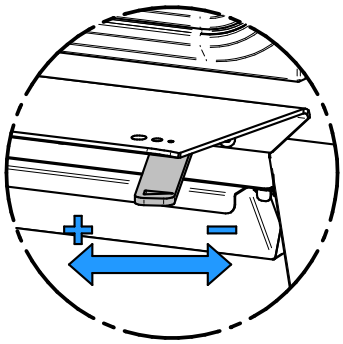


Figure 6: Side view : Combustion chamber

2.4 EPA Loading Procedure

The charging methods shown below are those that were used during emissions certification. The fuel specie used for the certification was beech, the fuel length was 17 inches and the usable firebox volume was 1.94 ft^3. The images below show the space in the firebox where the logs are to be placed. It is important to always respect this space and not to put logs in the grid area marked with an X. The marked area is defined by the space between the glass and primary air channel.

2.4.1 Air control



The air control is located underneath the ash shelf. To open the air control, push the air control handle completely to the left (High). This will increase the burn rate. To close the air control, push the air control handle completely to the right (Low). This will decrease the burn rate.

2.4.2 High burn rate (primary air control open)

Split the start-up fuel log into 8 pieces. Crisscross the 8 pieces on the brick on 3 rows (fists row 2 smallest-second row 3 biggest- third row 3 medium) and leaving some space between each wood pieces (see Figure 7). Crisscross the kindling on the top of the start-up fuel on 4 rows from biggest to smallest (see Figure 8). The kindling is made of between 16-20 small pieces that are about 10% of moisture content. Place newspaper sheets on top of the kindling (see Figure 9). Light up the paper and let the door at 90 degrees for one minute and 30 seconds, then close the door. Air control is fully opened.

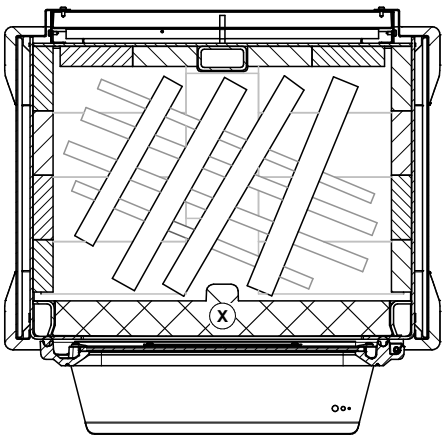


Figure 7: Start-up fuel

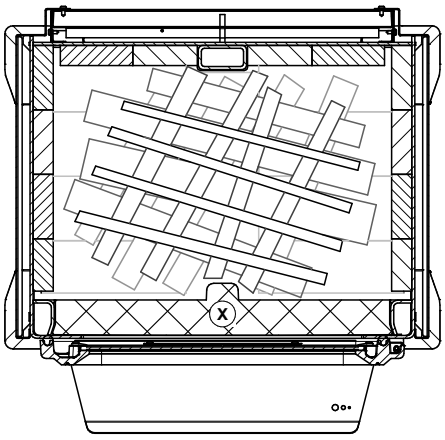


Figure 8: Kindling

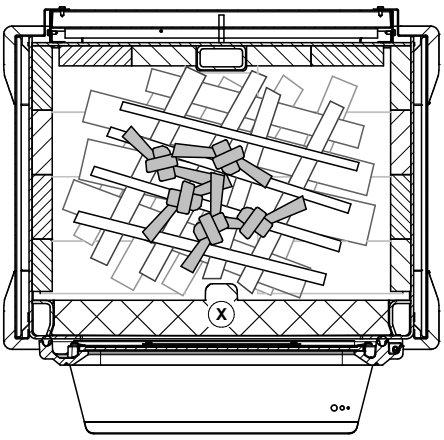


Figure 9: Newspaper

When there are only faint flames remaining and most of the wood is turned into coal, break ashes and level coal bed. If there are still hard start-up fuel pieces in the back, orient them per the direction shown in the Figure 7 (about 45°). Close the door.

Add High Fire load in an East-West configuration. Put 3 pieces on the coal bed. Leave about 2 inches of air space between the rear firebrick and the first piece. See figure 10 and 11 for example of load inside the firebox. The front (3rd) piece should stand off of the steel andirons by approximately 1-2 inches. The 2 other pieces should be added on top of the first 3, stacked in the middle, in an East-West orientation (see Figure 11). Let the door open at 90 degree for 1 minutes. Close the door, start the blower at maximum speed, and let burn until the weight is down to target.

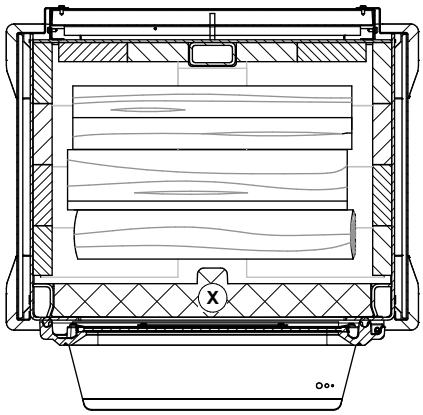


Figure 10: Position of the bottom pieces (High burn)

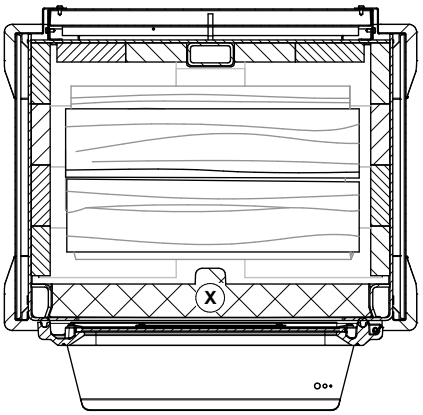


Figure 11: Position of the two top pieces (High burn)

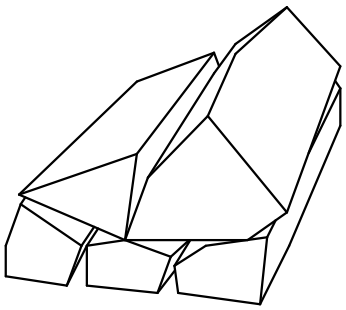


Figure 12: Example high burn load (side view)

For optimal loading of a high fire, take small to medium size fuel pieces (between 2.5 and 3.5 inches cross section dimensions approximately) on the bottom and use medium to large size fuel pieces (4 to 5 inches of cross section dimensions approximately) on top. To make sure combustion is equal, put the biggest piece on top of the first three, in the front of the firebox. See example in the Figure 12 above.

2.4.3 Low burn rate

After the high fire, if there is visible yellow flame, close the air control. When the charcoal bed weight is between 15 and 16% of the low fire load weight, turn off the blower, open the door, stir the coals, and let the door remain slightly open for 1 minute before loading the low burn test fuel.

For the loading, put 3 pieces on the coal bed in an East-West orientation. There should be air space between all pieces and with the rear brick. Leave approximately 1 inch of air space between the rear firebrick and the first piece (see Figure 13). The front (3rd) piece may contact the steel andirons. The 2 top pieces (fourth and fifth) should be added on top of the first 3, slightly angled (10° from horizontal, top view, see Figure 14). The distance between the logs should be approximately 1 inch.

For optimal loading of a low fire, take medium to large size fuel pieces (between 4.5- and 6-inches cross section dimensions approximately) on the bottom and use small to medium size fuel pieces (3 to 4.5 inches cross section dimensions approximately) on top. To have the longest burn time, put the smallest piece on top of the first three, in the front of the firebox (see example in the Figure 15 in the next page).

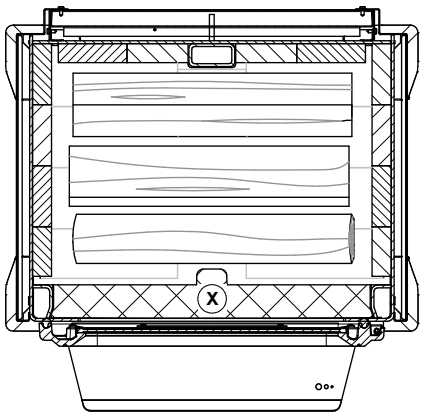


Figure 13: Position of the bottom pieces (Low burn)

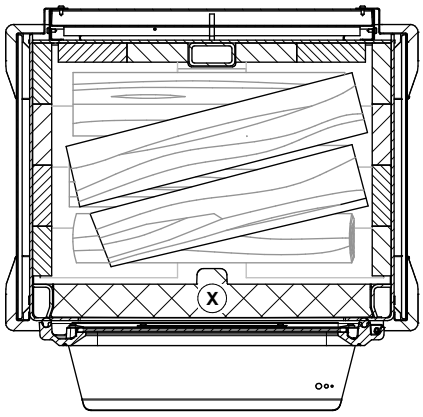


Figure 14: Position of the two top pieces (Low burn)

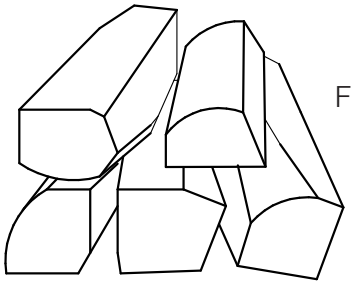


Figure 15: Example low burn load (side view)

Let the door ajar at 90° until the flames roll on top of the fuel (between 2:00 and 3:30) and then close the door with the primary air control open. See picture below for rolling flame:

Close the primary air control by small increments (ex: 1/16 of an inch), from 3/8 to fully closed, between 4 and 10 minutes. Before closing further, make sure the flame intensity is increasing or stable. Close the air control completely. Turn on the blower at maximum speed.

2.4.4 Medium burn rate

After the high fire, if there is visible yellow flame, close the air control. When the charcoal bed weight is between 15 and 16% of the low fire load weight, turn off the blower, open the door, stir the coals, and let the door remain slightly open for 1 minute before loading the medium burn test fuel.

For the loading, put 3 pieces on the coal bed in an East-West orientation. Leave about 2 inches of air space between the rear firebrick and the first piece (see Figure 16). The front (3rd) piece should stand off of the steel andirons by approximately 1-2 inches. The 2 top pieces (fourth and fifth) should be added on top of the first 3, slightly angled (5° from horizontal, top view, see Figure 17).

For optimal loading of a medium fire, take small to medium size fuel pieces (between 3 and 4.5 inches cross section dimensions approximately) on the bottom and use medium to large size fuel pieces (4.5 to 6 inches cross section dimensions approximately) on top. To make sure combustion is equal, put the biggest piece on top of the first three, in the front of the firebox (see Figure 18).

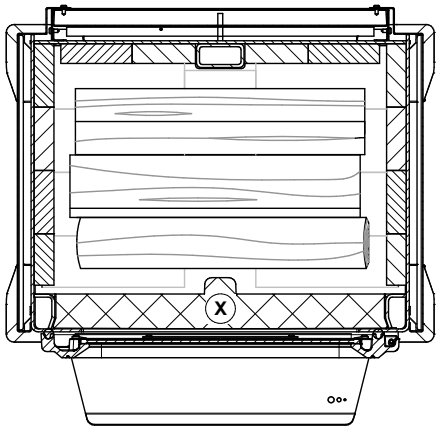


Figure 16: Position of the bottom pieces (Medium burn)

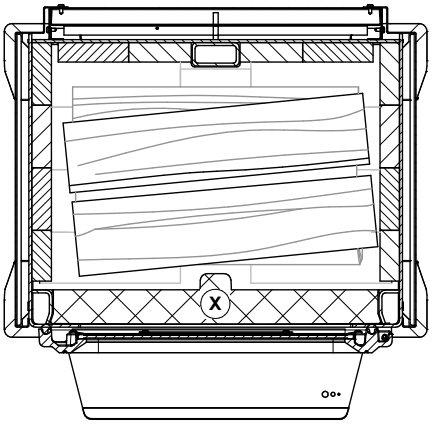


Figure 17: Position of the two top pieces (Medium burn)

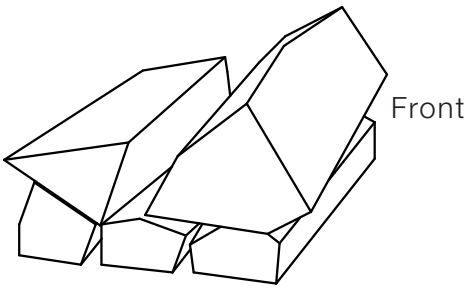


Figure 18: Example medium burn load (side view)

Let the door ajar at 90° until the flames roll on top of the fuel (between 2:30 and 4:00) and then close the door with the primary air control open. See picture below for rolling flame:

Close the primary air control incrementally, from ½ inch to 3/8 inch open (mid-point of air control) between 5 and 10 minutes. Before closing further, make sure the flame intensity is increasing or stable. Turn on the blower at maximum speed.

3. Cookstove operation

3.1 Components use

Cooking with a wood-burning cookstove is an art that requires several attempts to get to know and control the appliance. Many factors can influence how the cookstove will heat the oven and the cooking surface. Among them, the type of fuel used and its quality, the size of the logs and when to load before cooking. It is therefore recommended to do several tests to make the Bistro your own.

A	Oven thermometer
B	Combustion chamber
C	Air control
D	Cast iron cooking suface
E	Stainless steel oven
F	Cooking grills
G	Ash pan

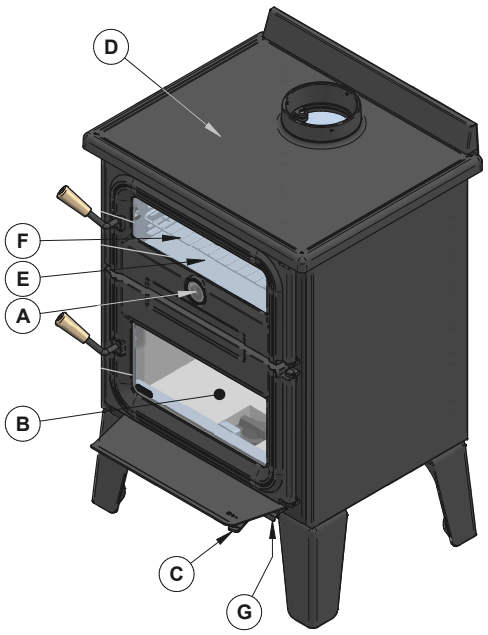


Figure 19: Component Location

It is prohibited to put or store inside the required appliance clearances: alcohol, gasoline, liquid fuel, flammable materials, ashes, paper and wood in the accessory compartment.

3.1.1 Oven

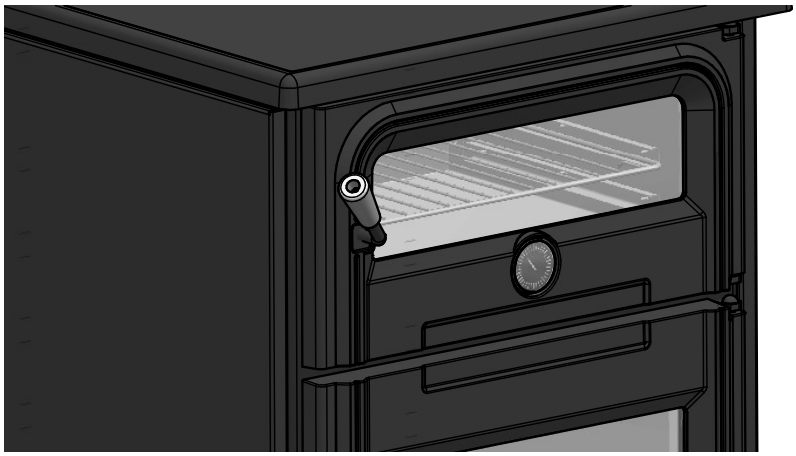


Figure 20: Oven door closed

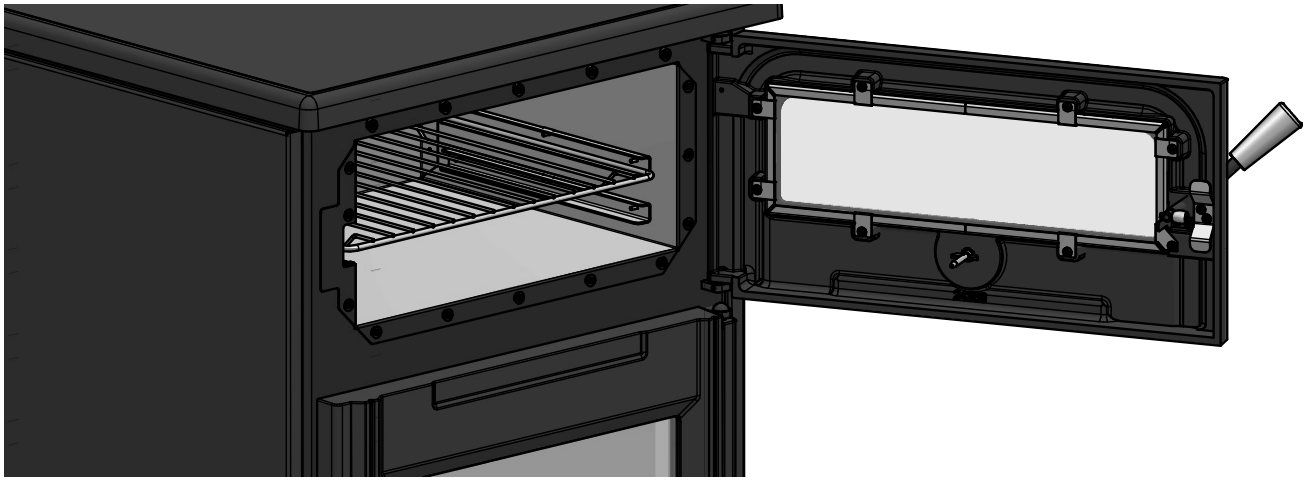


Figure 21: Oven door open

The cooker has a stainless steel oven to cook or bake food. The panoramic glass of the oven door allows you to watch your meal without having to open the door. During cooking, keep the oven door closed to maintain a constant temperature.

The oven cooking temperature can be adjusted using the air intake control (see section "5.6 Air Intake Control") or by opening or closing the oven door. For even cooking, turn the kitchen accessory used (plate, frying pan, dish, etc.) by 180 ° et half the cooking time.

A cooking grid is supplied with the cooker, allowing food to be cooked at center or bottom of the oven.

The thermometer integrated in the oven door simplifies the temperature reading. The dial can indicate temperatures ranging from 150°F to 750°F (Approximately 50°C to 400°C).

The ambient air inside the oven can vary by approximately 50°F between the hottest point and the coldest point. Typically, the coldest spot is at the front left of the oven, near the doorknob, and the hottest spot is at the rear right, completely opposite. The oven wall temperature is not necessarily equal to room temperature. The thermometer indicates the ambient temperature at a specific point in the oven, which is why the temperature indicated by the thermometer is for reference only.

3.1.2 Cast iron cooking surface

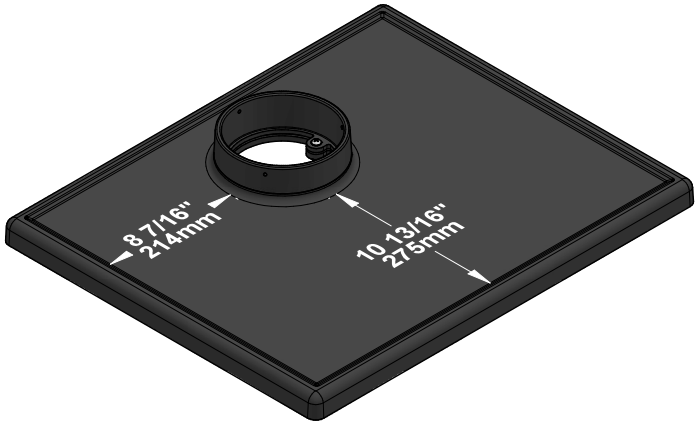


Figure 22: Cast iron cooking surface

It is not recommended to cook food directly on the cast iron top, as the paint used is not food grade.

The cast iron cooking surface on the top of the range is designed to provide intense heat to allow food to be cooked. It was designed to cook with kitchen accessories (frying pan, saucepan, etc.). It is recommended to use heat resistant cast iron or aluminum accessories for best results. The temperature of the cooking surface is not necessarily uniform.

The temperature of Cast iron top cooking can be adjusted with the air intake control.

To reduce the discomfort due to the heat coming from the combustion chamber, it is recommended to cook on the side of the appliance.

3.2 Gas path

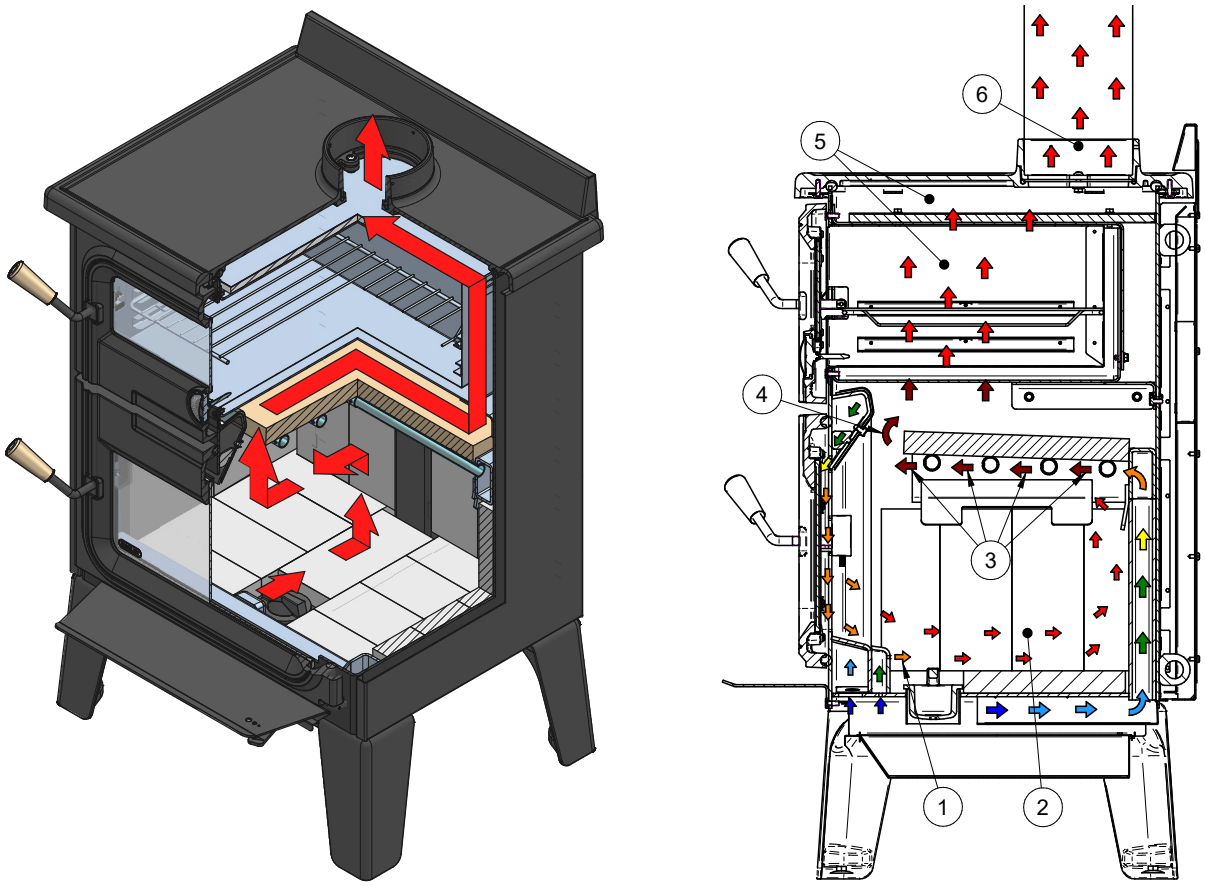


Figure 23: Gas path

The gas path is in fact the circuit followed by the hot gases emitted by burning wood. This circuit is used to heat the stainless steel oven and the cast iron cooking surface.

1. The primary air supply provided by the pilot feeds the wood combustion.
2. Wood burning in the combustion chamber gives off particles and hot gases heading upwards.
3. The secondary air supply from the tubes at the top of the combustion chamber burns a second time gases and particles. This process makes the combustion cleaner and allows to regulate the efficiency of the fire.
4. The gases burned twice are then guided by the baffle towards the front of the combustion chamber.
5. The gases then divide in two, passing through the ducts to the left and right of the oven and joining between the oven and the cooking surface. This portion of the journey is the one that allows for gases to transmit their heat to the oven and to the cooking surface. The path borrowed by gases has an impact on heat distribution. For example, if the fire is further to the left in the combustion chamber, the heat released may pass more through the ducts to the left of the device. The temperature of the cast iron cooking surface may therefore vary according to the path taken by the gases. On the other hand, the oven tends to keep a relatively uniform temperature thanks to its insulation.
6. The gases finally escape through the chimney.

3.3 Blower Operation

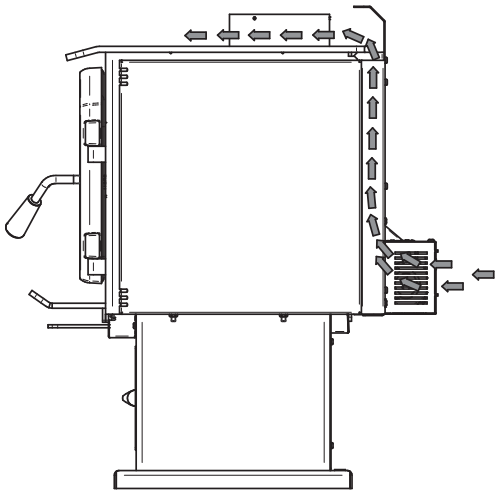


Figure 24: Air flow with a blower

It is possible to install a fan on this cookstove (sold separately). See the *Parts List* section at the end of this manual for the original part number.

The blower is installed on the back of the cookstove to increase the airflow through the heat exchanger and improve hot air circulation in the room. When used regularly, the blower can provide a small increase in efficiency, up to 2%. However, the use of a blower should not be used as a way to gain more output from a stove that is undersized for the space it is intended to heat.

Ensure the blower cord is not in contact with any surface of the stove to prevent electrical shock or fire damage. Do not run cord beneath the stove.

The blower has a rheostat that can be adjusted in three different positions; either from high (HI) to low (LO) or closed (OFF).

Allow the cookstove to reach operating temperature (approximately one hour) before turning on the blower, since increased airflow from the blower will remove heat and affect the start up combustion efficiency.

It is possible to add a heat sensor, sold separately, to the blower. When the blower is ON, the blower will start automatically when the cookstove is hot enough and it will stop when the cookstove has cooled down. Therefore, you can leave the blower speed control at the desired setting.

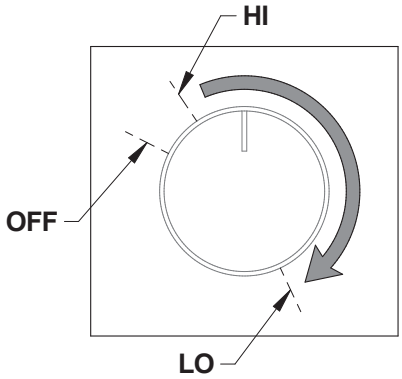


Figure 25: Blower operation

ENGLISH

4. Combustibles

Good firewood has been cut to the correct length for the stove, split to a range of sizes and stacked in the open until its moisture content is down to 15% to 20%.

DO NOT BURN:

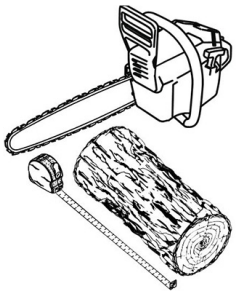
- **GARBAGE;**
- **LAWN CLIPPINGS OR YARD WASTE;**
- **MATERIALS CONTAINING RUBBER, INCLUDING TIRES;**
- **MATERIALS CONTAINING PLASTIC;**
- **WASTE PETROLEUM PRODUCTS, PAINTS OR PAINT THINNERS, OR ASPHALT PRODUCTS;**
- **MATERIALS CONTAINING ASBESTOS;**
- **CONSTRUCTION OR DEMOLITION DEBRIS;**
- **RAILROAD TIES OR PRESSURE-TREATED WOOD;**
- **MANURE OR ANIMAL REMAINS;**
- **SALT WATER DRIFTWOOD OR OTHER PREVIOUSLY SALT WATER SATURATED MATERIALS;**
- **UNSEASONED WOOD; OR**
- **PAPER PRODUCTS, CARDBOARD, PLYWOOD, OR PARTICLE BOARD. THE PROHIBITION AGAINST BURNING THESE MATERIALS DOES NOT PROHIBIT THE USE OF FIRE STARTERS MADE FROM PAPER, CARDBOARD, SAW DUST, WAX AND SIMILAR SUBSTANCES FOR THE PURPOSE OF STARTING A FIRE IN AN AFFECTED WOOD HEATER.**
- **BURNING THESE MATERIALS MAY RESULT IN THE RELEASE OF TOXIC FUMES OR RENDER THE HEATER INEFFECTIVE AND CAUSE SMOKE.**

4.1 Tree Species

The tree species the firewood is produced from is less important than its moisture content. The main difference in firewood from various tree species is the density of the wood. Hardwoods are denser than softwoods.

Note that hardwood trees like oak, maple, ash and beech are slower growing and longer lived than softer woods like poplar and birch. That makes hardwood trees more valuable. The advice that only hardwoods are good to burn is outdated. Old, leaky cast iron stoves wouldn’t hold a fire over e longer period of time unless they were fed large pieces of hardwood. That is no longer true.

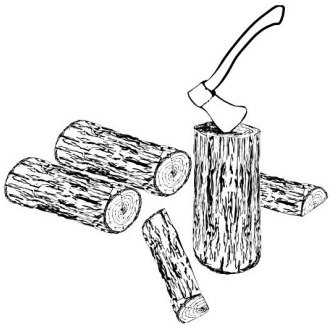
4.2 Log Length

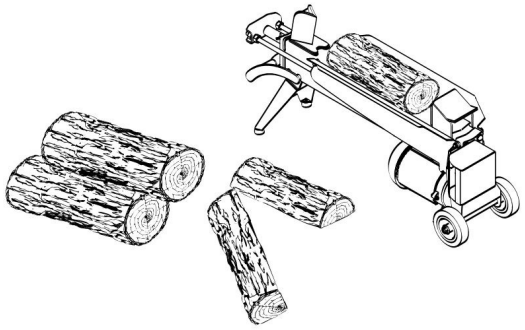


Logs should be cut at least 1" (25 mm) shorter than the firebox so they fit in easily. Pieces that are even slightly too long makes loading the stove very difficult. The most common standard length of firewood is 16" (400 mm).

4.3 Piece Size

Firewood dries more quickly when it is split. Large unsplit rounds can take years to dry enough to burn. Even when dried, unsplit logs are difficult to ignite because they don't have the sharp edges where the flames first catch.

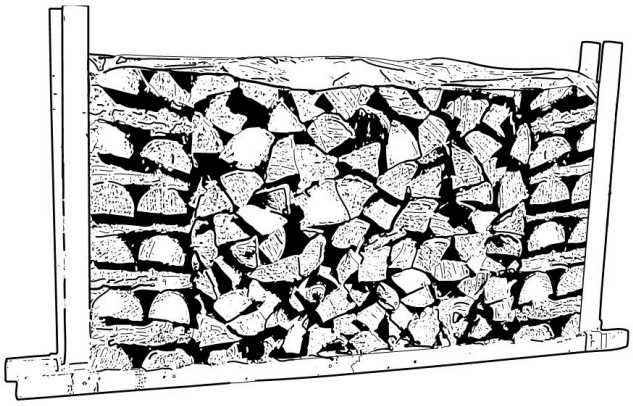




Wood should be split to a range of sizes, from about 3" to 6" (75 mm to 150 mm) in cross section. Having a range of sizes makes starting and rekindling fires much easier.

4.4 Drying Time

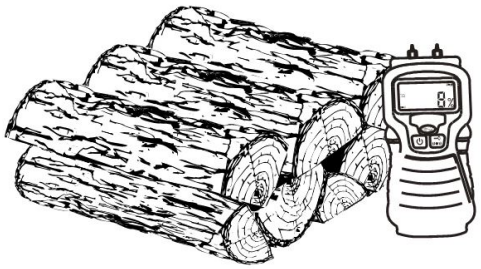
Firewood that is not dry enough to burn is the cause of most complaints about wood burning appliances. Continually burning green or unseasoned wood produces more creosote and involves lack of heat and dirty glass door. Firewood with a moisture content between 15% and 20% will allow the stove to produce its optimal output.



Here are some facts to consider in estimating drying time:

- Firewood bought from a dealer is rarely dry enough to burn, so it is advisable to buy the wood in spring and dry it yourself;
- Drying happens faster in dry weather than in a damp climate;
- Drying happens faster in warm summer weather than in winter weather;
- Small pieces dry more quickly than large pieces;
- Split pieces dry more quickly than unsplit rounds;
- Softwoods like pine, spruce, poplar, and aspen take less time to dry than hardwoods. they can be dry enough to burn after being stacked to air dry only for the summer months;
- Hardwoods like oak, maple and ash can take one, or even two years to dry fully, especially if the pieces are big;
- Firewood dries more quickly when stacked outside in a location exposed to sun and wind; it takes much longer to dry when stacked in a wood shed;
- Ready-to-burn wood with a moisture content of 15% to 20% will allow the appliance to achieve its optimal use.

Use these guidelines to find out if the firewood is dry enough to burn:



- Cracks form at the ends of logs as they dry;
- The wood turns from white or cream colored to grey or yellow;
- Two pieces of wood struck together sounds hollow;
- Dry wood is much lighter in weight than wet wood;
- The face of a fresh cut feels warm and dry;
- The moisture content read by a moisture meter is between 15% to 20%.

5. Efficient wood combustion

5.1 General Advice

Wood burns best in cycles. A cycle starts when a new load of wood is ignited by hot coals and ends when that load has been consumed down to a bed of charcoal about the same size as it was when the wood was loaded. Trying to produce a steady fire by placing a single log at regular intervals is not recommended. Always place at least three, and preferably more pieces on the fire at a time so that the heat radiated from one piece helps to ignite the pieces next to it.

Prolonged and continuous use at a very low rate of combustion or with very wet wood can cause highly flammable creosote to build up in the flue.

Burning in cycles means the stove door does not need to be opened while the wood is flaming. This is an advantage since it is preventing smoke leaking from the stove when the door is opened as a full fire is burning. This is especially true if the chimney is on the outside wall of the house.

If the door must be open while the fire is flaming, fully open the air control for a few minutes then open the door slowly.

5.2 First Use

Two things happen when burning the first few fires; the paint cures and the internal components are conditioned. As the paint cures, some of the chemicals vaporize. The vapors are not poisonous, but they smell bad. Fresh paint fumes can also trigger false alarms in smoke detectors. When lighting the heater for the first few times, it may be wise to open doors and windows to ventilate the house.

Burn two or three small fires to begin the curing and conditioning process. Then build bigger and hotter fires until there is no longer paint smell from the stove. As hotter and hotter fires are burned, more of the painted surfaces reach the curing temperature of the paint. The smell of curing paint does not disappear until one or two very hot fires have been burned.

5.3 Lighting Fires

Each person cooking with wood develops its own favorite way to light fires. Regardless of the method chosen, the goal should be to have a hot fire burning, quickly. A fire that ignites fast produces less smoke and deposits less creosote in the chimney.

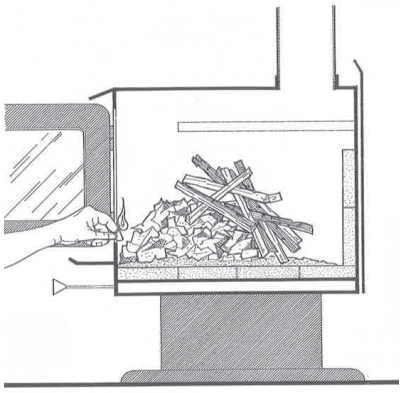
Consult the video using the following link to better visualize the ignition methods:
https://www.youtube.com/watch?v=Y7O0v-nw7QQ&ab_channel=SBI

Never use gasoline, gasoline-type lantern fuel (naphtha), fuel oil, motor oil, kerosene, charcoal lighter fluid, or similar liquids or aerosols to start or 'freshen up' a fire in this wood stove. Keep all such liquids well away from the stove while it is in use.

Here are three popular and effective ways to ignite wood fires.

5.3.1 Conventional Method

The conventional method to build a wood fire is to crumple 5 to 10 sheets of newspaper and place them in the firebox and hold them in place with ten pieces of kindling wood. The kindling should be placed on and behind the newspaper.



Then add two or three small pieces of firewood. Open the air intake control completely and ignite the newspaper. Leave the door slightly ajar.

Once the fire has ignited, the door can be closed with the air control still fully open. When the kindling is almost completely burned, standard firewood pieces can be added.

Do not leave the heater unattended when the door is slightly open. Always close and latch the door after the fire ignites.

5.3.2 The Top Down Method

This method is the opposite of the conventional method and only works properly if well-seasoned wood is used.

Place three or four small, split, dry logs in the firebox. Arrange the kindling wood on the logs in two layers at right angles and place a dozen finely split kindling on the second row.

It is possible to use ragged paper but it may not hold in place since it tends to roll while it is burning. The best is to wrap a sheet on itself, grab the ends of the roll and make a knot. Use four or five sheets of paper tied together and put them on top and around the kindling. Open the air intake control completely, ignite the paper and close the door.

The top down fire method has two advantages over the traditional method: first, the fire does not collapse on itself , and it is not necessary to add wood gradually since the combustion chamber is full before the fire is lit.

5.3.3 Two Parallel Logs Method

Two spit logs are placed in the firebox with a few sheets of twisted newspapers in between the logs. Fine kindling is added across the two logs and some larger kindling across those, log cabin style. Newspaper is lit.

5.3.4 Using Fire Starters

Commercial fire starters can be used instead of a newspaper. Some of these starters are made of sawdust and wax and others are made of specialized flammable solid chemicals. Always follow the package directions when using. Gel starters can also be used, but only to light a fire, in a cold combustion chamber without hot embers inside.

5.4 Combustion Cycles

Wood-burning cookstove don't have a steady heat output. It is normal for the heat output to increase after a new load of wood is ignited and to gradually decrease throughout the burning cycle. This increasing and decreasing temperature can be matched with the household routines. For example, add small pieces of wood for fast and intense cooking heat or bigger pieces for long lasting heat to simmer a dish.

Wood burns best in cycles. A cycle starts when a new load of wood is ignited by hot coals and ends when that load has been consumed down to a bed of charcoal about the same size as it was when the wood was loaded.

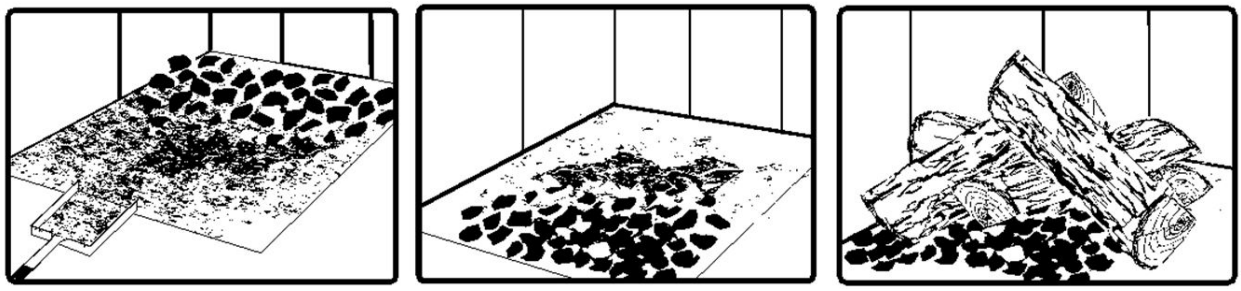
Trying to produce a steady heat output by placing a single log on the fire at regular intervals is not recommended. Always place at least three, and preferably more pieces on the fire at a time so that the heat radiated from one piece helps to ignite the pieces next to it. Each load of wood should provide several hours of heat. The size of each load may vary depending on the amount of heat required.

Burning in cycles means the loading door does not need to be opened while the wood is flaming. This is an advantage since it is preventing smoke leaking from the heater when the door is opened as a full fire is burning. This is especially true if the chimney is on the outside wall of the house.

If the door must be opened while the fire is flaming, fully open air control for a few minutes then open the door slowly.

5.5 Rekindling a Fire

Generally, when you need to cook, it is time to reload. Remove excess ash from the front of the firebox and bring the ashes forward. Place a new load of wood on, and at the back of the embers. Open the air control completely and close the door.



Raking the coals is useful for two reasons. First, it brings them near where most of the combustion air enters the firebox. This will ignite the new load quickly. Secondly, the charcoal will not be smothered by the new load of wood. When the embers are simply spread inside the combustion chamber, the new load smoulder for a long time before igniting.

Close the air control only when the firebox is full of bright turbulent flames, the wood is charred, and its edges are glowing.

The heater should not be left unattended during ignition and the fire should not burn at full intensity for more than a few minutes.

When lighting a new load, the appliance produces a heat surge. This heat boost is useful for reheating the oven and cast iron cooking surface, but can give a feeling of extra heat in the room if it is already hot there. Therefore, it is better to have a cooler room than desired to put back a load of wood for to cook.

5.6 Air Intake Control

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

Once the firewood, firebox and chimney are hot, air intake can be reduced to achieve a steady burn.

As the air intake is reduced, the burn rate decreases. This has the effect of distributing the thermal energy of the fuel over a longer period of time. In addition, the flow rate of exhaust through the appliance and flue pipe slows down, which increases the duration of the energy transfer of the exhaust gases. As the air intake is reduced, the flame slows down.

If the flames diminish to the point of disappearing, the air intake has been reduced too early in the combustion cycle or the wood used is too wet. If the wood is dry and the air control is used properly, the flames should decrease, but remain bright and stable.

On the other hand, too much air can make the fire uncontrollable, creating very high temperatures in the unit as well as in the chimney and seriously damaging them. A reddish glow on the unit and on the chimney components indicates overheating. Excessive temperatures can cause a chimney fire.

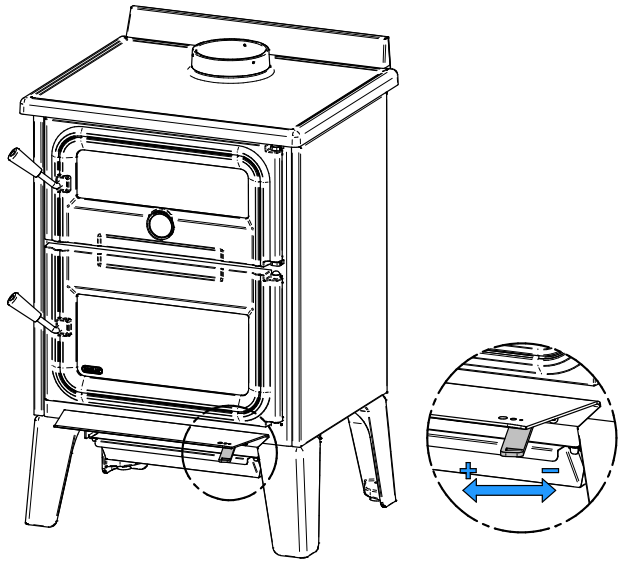


Figure 26: Air Intake Control

The control of the primary and secondary air inlet is simultaneous and is done with a single regulation control, located under the combustion chamber door.

The optimum regulation of the air inlet can vary according to various factors, such as the chimney flue, the temperature of the cookstove and, the quality of the firewood (moisture, size and shape).

Do not alter the air regulation control to increase firing for any reason.

5.6.1 Regulating the air during lighting

Opening the air inlet completely is mandatory during the lighting, and it is recommended to leave the door ajar during lighting as well, in order to avoid condensation of fumes on the glass. Wait enough time (until the hearth has warmed up) before starting to regulate the air inlet.

5.6.2 Regulating the air during combustion

Controlling the air intake is the recommended way to help adjust the temperature of the cooking surface and one of the two recommended ways to adjust the oven temperature. Once the fire is well established in the combustion chamber, when the flames are vivid and there is a good bed of embers, it is possible to close the air intake. The more it will be reduced, the more the combustion will be regulated to stretch over time. On the other hand, you need a very strong combustion to completely shut off the air intake. It is recommended to reduce it between 15 and 40%.

5.7 Carbon Monoxide

When unburned logs remain in the firebox and the flame disappears, go outside and look at the chimney exit. If there is visible smoke, it means that there is still combustible to burn but that the fire lacks air to burn properly. In this situation, the CO rate will increase so it is important to react. Open the door slightly and move the log with a poker. Turn it over and create a passage for the air below, making a trench with the coal bed. Add small pieces of wood to restart the combustion.

6. Maintenance

This cookstove will give many years of reliable service if used and maintained properly. Some of the internal components of the firebox, such as vermiculite and baffle will wear over time under intense heat. Defective parts should always be replaced with original parts. Firing each load hot to begin a cycle will not cause premature deterioration of the cookstove. However, letting the cookstove run with the air intake fully open for the entire burn cycles can cause damage over time. The hotter the cookstove becomes throughout burn cycles, the more quickly its components will deteriorate. For this reason, **the cookstove should never be left unattended while a new load is being fired hot**.

6.1 Combustion Chamber

The cookstove cleaning frequency depends on the type and quality of combustible used. A high humidity rate, ashes, soot, or chemical components in the wood could increase the number of cleanings necessary. Therefore, it is important to pay attention to the combustible used.

To get the maximum performance from the cookstove, ashes should be removed regulary. The use of a personal, central, or commercial vacuum cleaner to clean up the cookstove is not recommended. Ash particles can damage the vacuum engine. Furthermore, hot ashes could ignite the content of the vacuum. The use of a specialized ash vacuum is highly recommended.

6.2 Removing ashes

It is recommended to clean the ashes only when there is an accumulation that is blocking the pilot in front of the combustion chamber or when they come out too easily when opening the door or by putting logs. There are two ways to dispose of ashes:

1. By removing the ash plug and pushing them into the ash drawer through the opening using a shovel.

2. By directly using a shovel in the combustion chamber and putting it in a container.

Always operate the cookstove with the ash drawer in place.

The best time to remove ashes is when the appliance is relatively cold, but there is there is still a little draft to suck the ash dust and prevent it from entering the room. Ashes should be placed in a metal container with a tight cover. The container should be placed on a non-combustible floor or on the ground away from any flammable material. Ashes can contain hot embers that can stay hot for several days. If the ashes are burried in the ground or scattered on site, they should be kept in the closed metal container until they are completely cooled. No other waste should be placed in this container.

NEVER STORE ASHES INDOORS OR IN A NON-METALLIC CONTAINER OR ON A WOODEN DECK.

6.3 Grills and cast iron cooking surface

Clean the grills with a brush and mild soap.

To clean the cast iron cooking surface, wipe it with a soft and damp cloth. **Do not clean the surface when it is hot.** If rust or scratches appear, follow the instructions in section 6.4 Cleaning and painting to repair the surface.

6.4 Cleaning and Painting

Painted surfaces can be wiped down with a soft, damp cloth. If the paint is scratched or damaged, it is possible to repaint the heater with a heat-resistant paint. **Do not clean or paint the appliance when it is hot.** Before painting, the surface should be sanded lightly with sandpaper and then wiped off to remove dust. Apply two thin layers of paint.

6.5 Refractory Materials and Baffle

Inspect the firebricks or the refractory panels and the baffle for damage periodically and replace anything that is broken.

Operation of the heater with a cracked or missing baffle may cause unsafe temperatures and hazardous conditions and will void the warranty.

6.6 Glasses

The cookstove has two glasses to maintain. The combustion chamber glass has a gasket while the furnace does not.

6.6.1 Cleaning

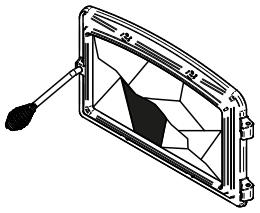
Under normal conditions, the door glass should stay relatively clear. If the firewood is dry enough and the operating instructions in this guide are followed, a whitish, dusty deposit will form on the inner surface of the glass after a week or so of use. This is normal and can be easily removed when the heater is cold by wiping with a damp cloth or paper towel and then drying.

When the stove runs at a low combustion rate, light brown stains may form, especially in the lower corners of the glass. This indicates that the fire has been smoky and some of the smoke has condensed on the glass. It also indicates incomplete combustion of the wood, which also means more smoke emissions and faster formation of creosote in the chimney.

The deposits that form on the glass are the best indication of the fuel quality and success in properly using the stove. These stains can be cleaned with a special wood stove glass cleaner. **Do not use abrasive products to clean the glass.**

The goal should be having a clear glass with no brown stains. If brown stains appear regularly on the glass, something about the fuel or the operating procedure needs to be changed. When brown streaks are coming from the edge of the glass, it is time to replace the gasket around the glass.

The glass gasket should be self-adhesive. Always replace the gasket with a genuine one.



Do not clean the glass when the stove is hot.

Do not abuse the glass door by striking or slamming shut.

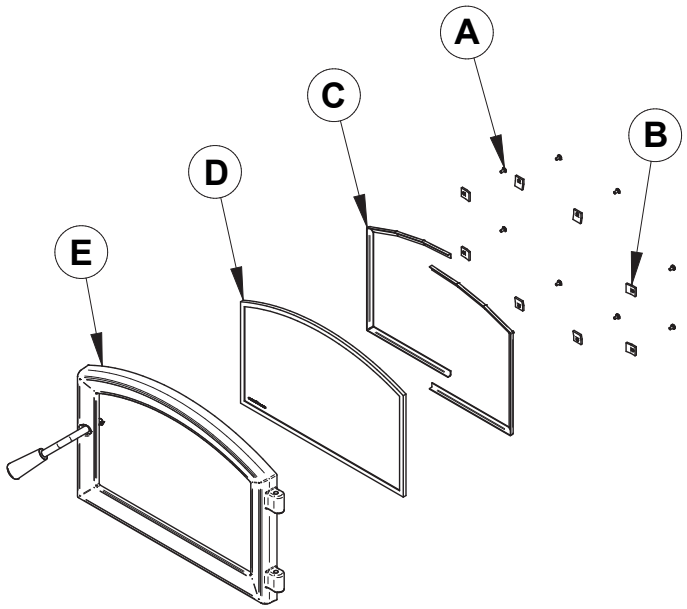
Do not use the stove if the glass is broken.

6.6.2 Replacement

The glass used is a ceramic glass, 5/32" (4 mm) thick, tested to reach temperatures up to 1400º F. If the glass breaks, it must be replaced with one having the same specification.

To remove or replace the glass (D):

THE IMAGES SHOWN ARE FOR GUIDANCE ONLY AND MAY BE DIFFERENT FROM YOUR PRODUCT, BUT THE ASSEMBLY REMAINS THE SAME.

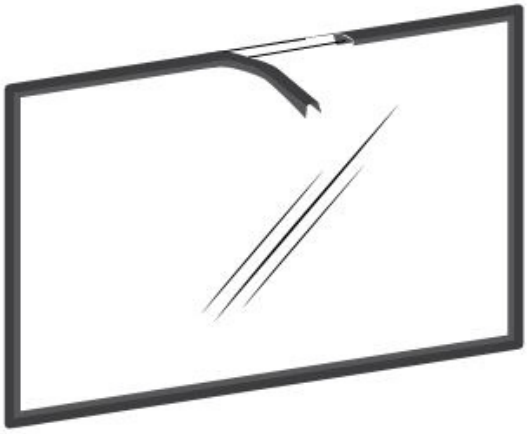


1. Unscrew the setscrew from the hinge at the top of the door to release the rivet (rod inserted in the hinge). Remove the rivet while retaining the door. Lift the door **(E)** to remove it from the lower hinge and place it on a soft, level surface.
2. Remove the screws **(A)**, the glass retainers **(B)**, and the metal frames **(C)**.
3. Remove the glass **(D)**. If it is damaged install a new one in place. The replacement glass must have a gasket all around (see procedure below).
4. Reinstall the glass, being careful to centre the glass in the door and not to over-tightening the retaining screw.

The two main causes of broken door glass are uneven placement in the door and over-tightening the retaining screws.

6.6.3 Gasket

The glass gasket is flat, adhesive-backed, woven fibreglass. The gasket must be centred on the edge of the glass.



1. Follow the steps of the previous section to remove the glass.
2. Remove the old gasket and clean the glass thoroughly.
3. Peel back a section of the paper covering the adhesive and place the gasket on a table with the adhesive side up.
4. Stick the end of the gasket to the middle of one edge, then press the edge of the glass down onto the gasket, taking care that it is perfectly centred on the gasket.
5. Peel off more of the backing and rotate the glass. The gasket must not be stretched during installation.
6. Cut the gasket to the required length.
7. Pinch the gasket onto the glass in a U shape, all around the glass.

6.6.4 Replacing the Glass Door and the Glass Gasket

The glass used in the this cookstove is 4 mm thick, and was tested to reach temperatures up to 1400° F. It has the following dimensions:

– Oven (W x H): 17.5" x 5.375" (without gasket)

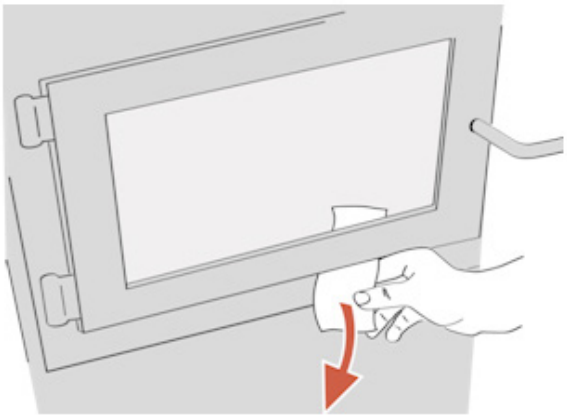
– Combustion chamber (W x H): 17-5/8" x 9-9/16" (with gasket)

If the glass breaks, it must be replaced with one having the same specification. Contact your dealer to obtain a genuine replacement part.

6.6.5 Door sealing

In order for the stove to bur n at its best efficiency, the door must provide a perfect seal with the firebox. The tightness o f the door seal can be verified by closing and latching the door on a strip of paper. The test must be performed all a round the door. If the paper slips out easily anywhere, either adjust the door or replace the gasket.

Perform this test only when the device is cold.



6.6.6 Adjustment of the combustion chamber door

In order for the stove to burn at its best efficiency, the door must provide a perfect seal with the firebox. Therefore, the gasket should be inspected periodically to check for a good seal. The gasket seal may be improved with a simple latch mechanism adjustment:

1. Remove the split pin by pulling and turning it using pliers.
2. Turn the handle one counterclockwise turn to increase pressure.
3. Reinstall the split pin with a small hammer.

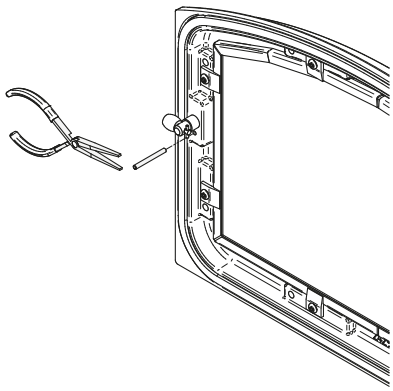


Figure 27: Removing the split pin

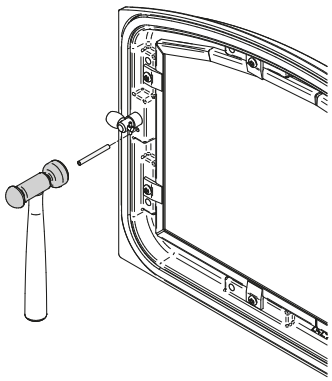


Figure 28: Installing the split pin

6.6.7 Door Alignment

To align, open the door and loosen the pressures screws located on the lower and upper hinges of the door using a 3/32” Allen key to free the adjustable hinge rods.

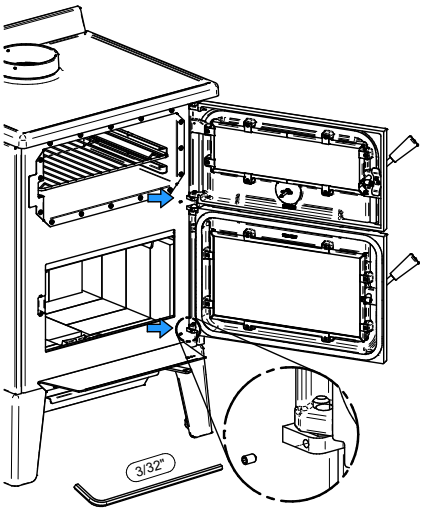


Figure 29: Release eccentric hinges

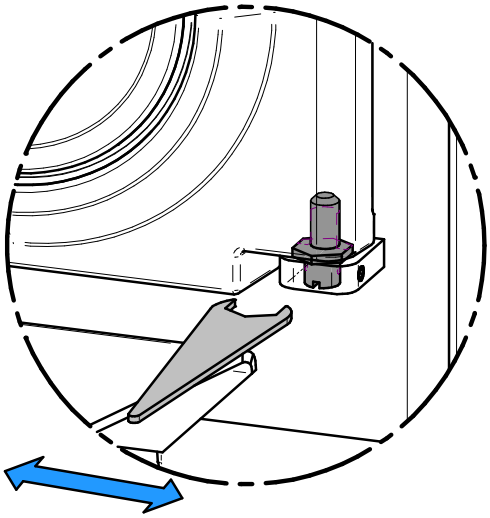


Figure 30: Adjust eccentric hinges

Using a flat screwdriver, turn the adjustable hinge rods in the direction shown to adjust the doors. Tighten all door hinge pressure screws when they are at the desired positions. Configurations 1-2-3-4-5-6-7-8, show in which direction these act on the adjustment of the door.

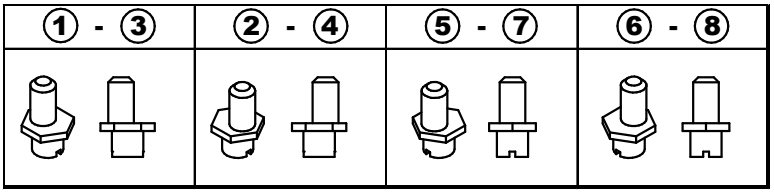


Figure 31: Eccentric hinges depth adjustment

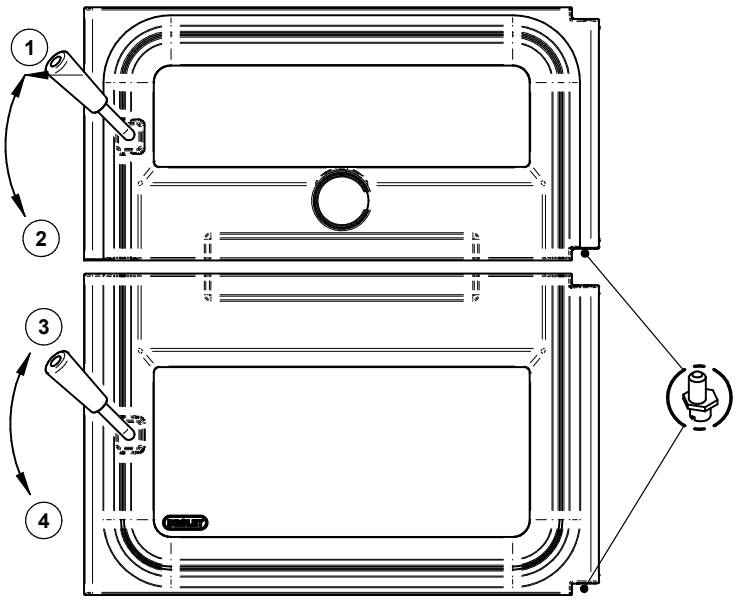


Figure 32: Doors adjustment

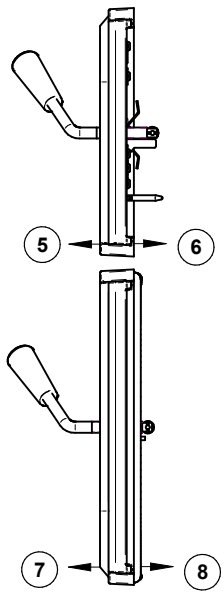


Figure 33: Eccentric hinges lateral adjustment

6.6.8 Gasket

It is important to replace the gasket with another having the same diameter and density to maintain a good seal.

1. Remove the door and place it face-down on something soft like a cushion of rags or a piece of carpet.
2. Remove the old gasket from the door. Use a screwdriver to scrape the old gasket adhesive from the door gasket groove.
3. Apply a bead of approximately 3/16" (5 mm) of high temperature silicone in the door gasket groove. Starting from the middle, hinges side, press the gasket into the groove. The gasket must not be stretched during installation.
4. Leave about ½" long of the gasket when cutting and press the end into the groove. Tuck any loose fibers under the gasket and into the silicone.
5. Close the door. Do not use the stove for 24 hours.

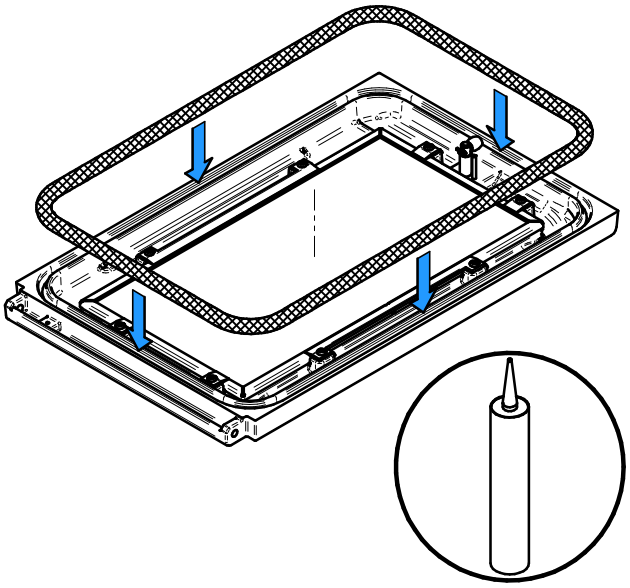
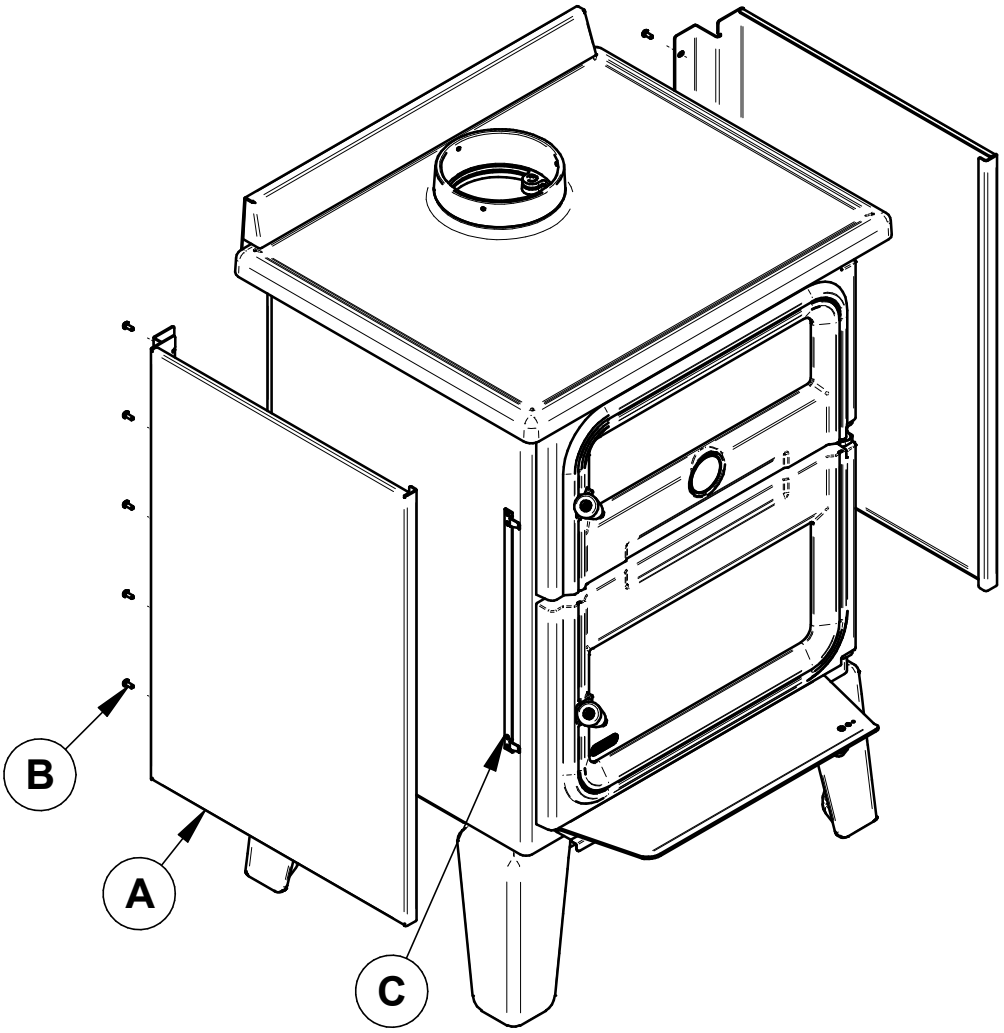


Figure 34: Gasket

6.7 Decorative Panels

To remove the decorative panel **(A)**, remove the screws **(B)** and push forward on the panel to unhook it from the bracket **(C)**.

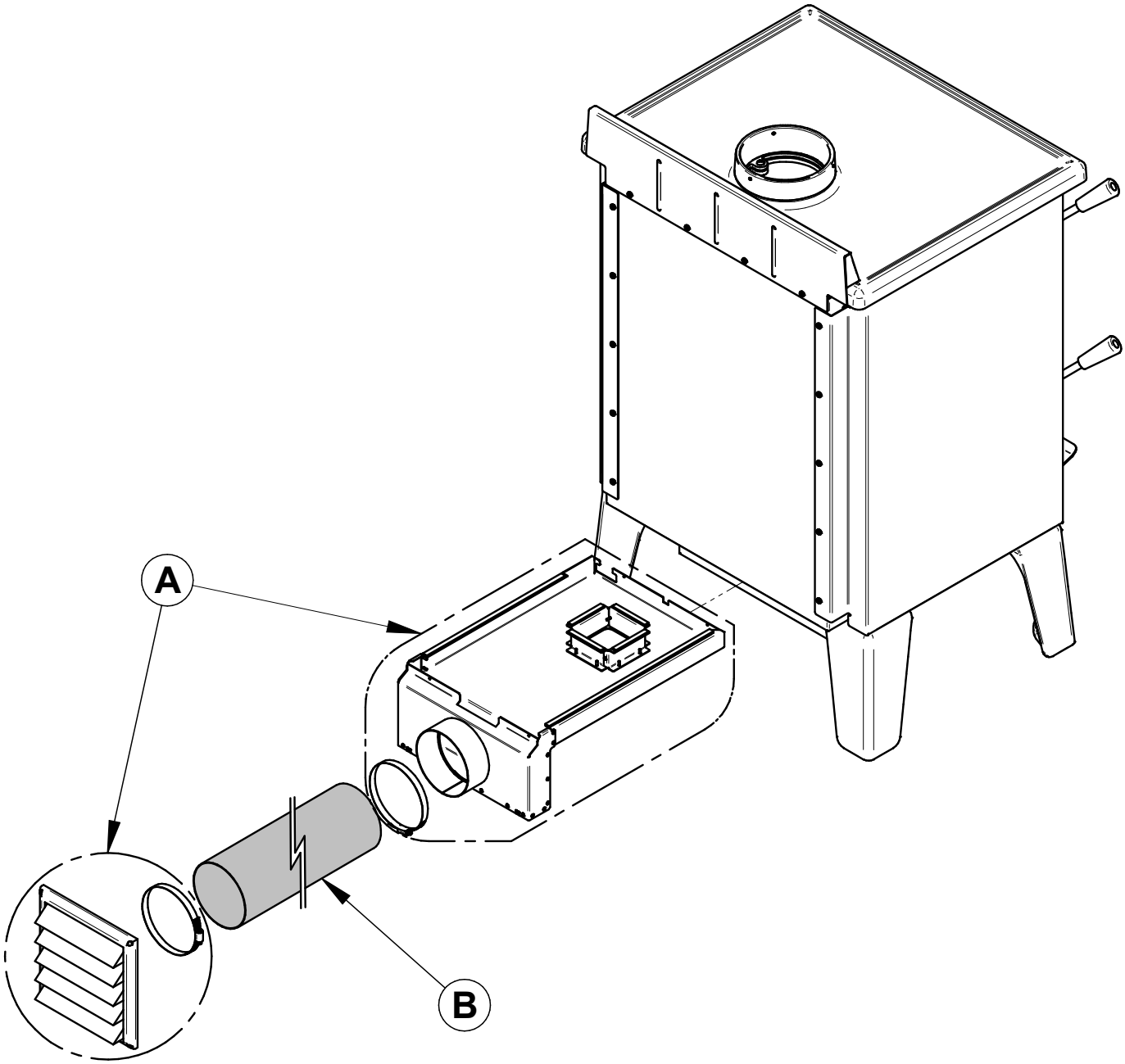


6.8 Fresh Air Intake Kit Installation

The installation of a fresh air intake kit **(A)** requires an insulated fresh air intake pipe **(B)** HVAC type (must meet ULC S110 or UL 181 class 0 or class 1), sold separately.

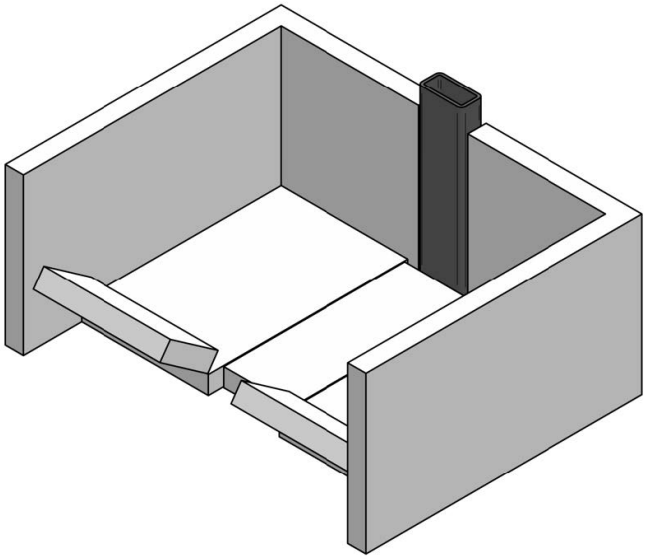
It is mandatory to install the fresh air intake in a mobile home.

Refer to air intake kit installation instructions for more details.

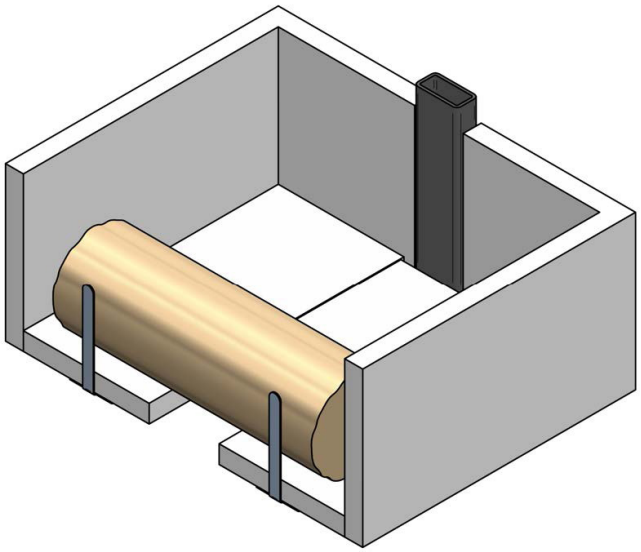


6.9 Log retainers installation

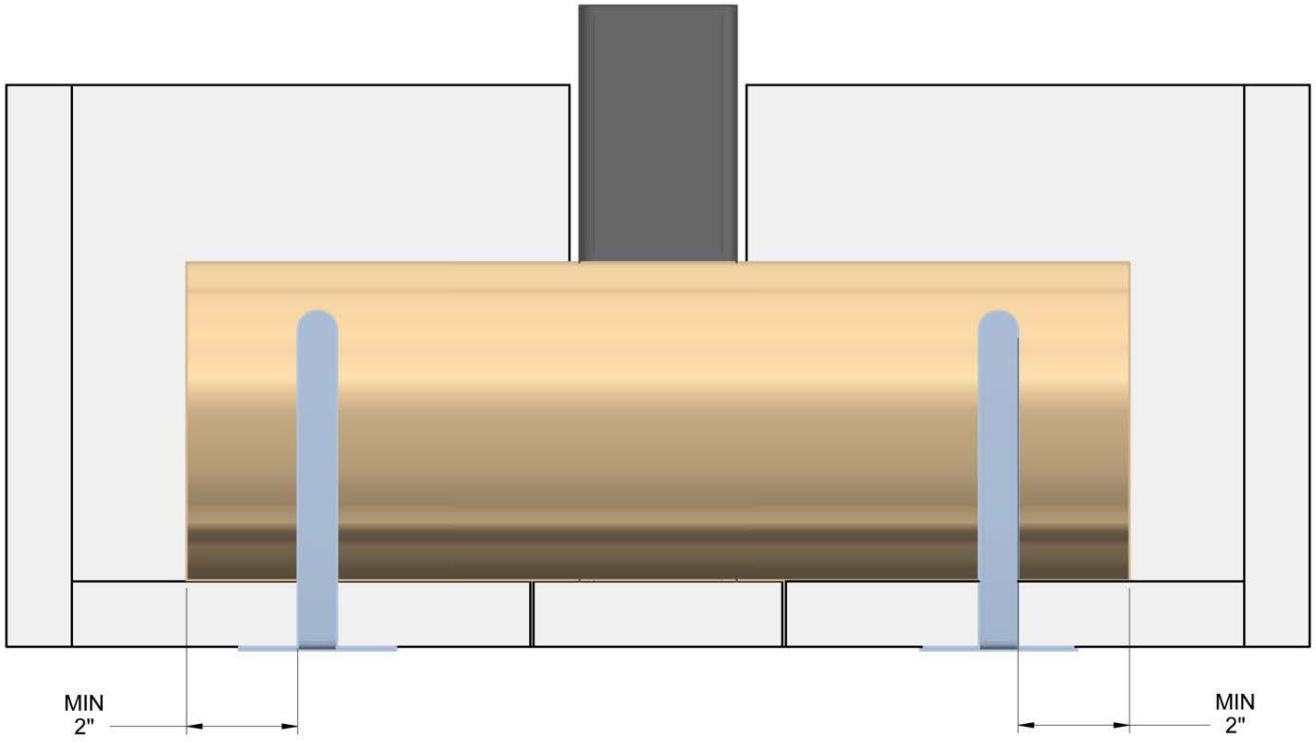
1.



2.



3.

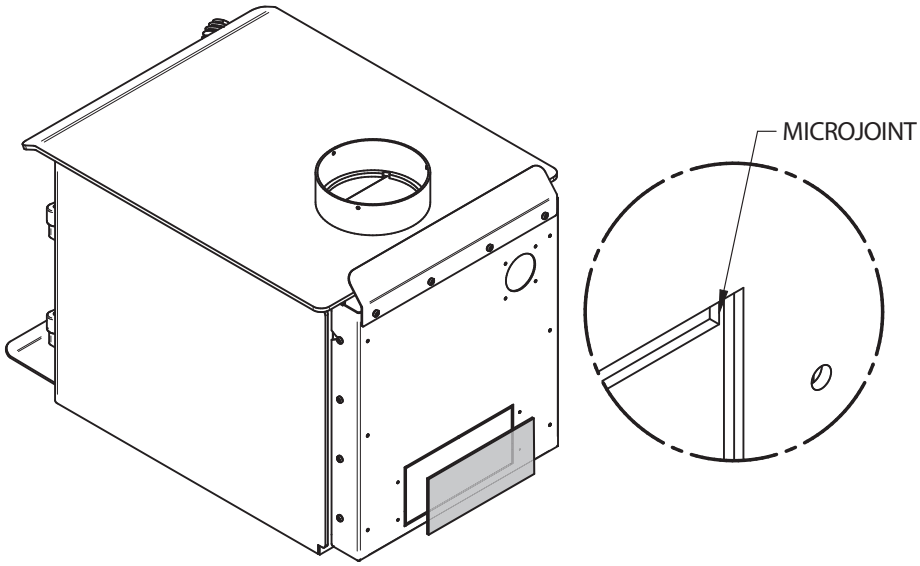


6.10 Optional Blower And Thermodisc Installation

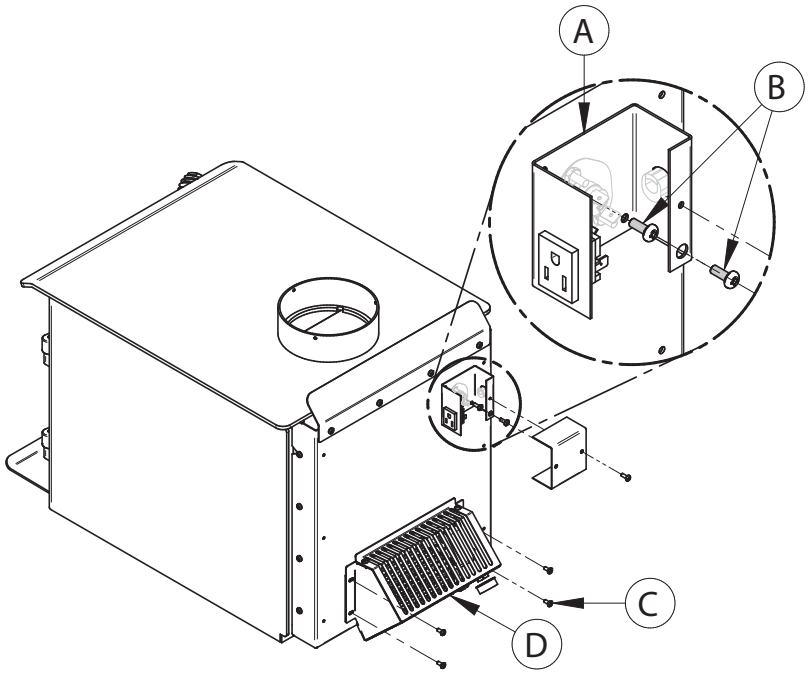
THE IMAGES SHOWN ARE FOR GUIDANCE ONLY AND MAY BE DIFFERENT FROM YOUR PRODUCT, BUT THE ASSEMBLY REMAINS THE SAME.

A blower and a thermodisc, sold separately, can be installed on the Bistro. Thermodisc allows the blower to operate only when the cookstove is hot enough. See the instructions provided with the thermodisc for more details.

1. Remove the backplate by cutting the knockouts with pliers.

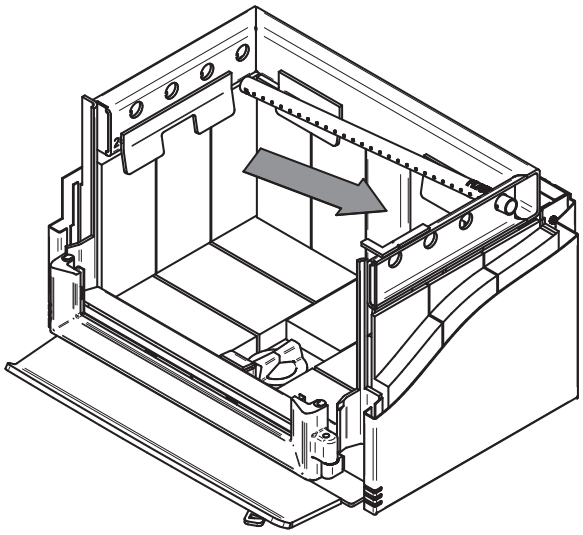


2. Screw the blower **(D)** in place using the screws **(C)** included in the installation manual. Screw the thermodisc **(A)** with the screws **(B)** supplied with the thermodisc on the back of the cookstove. **Ensure that the blower's power cord is not in contact with any surface of the cookstove to prevent electrical shock or fire damage. Do not run the power cord beneath the cookstove.**

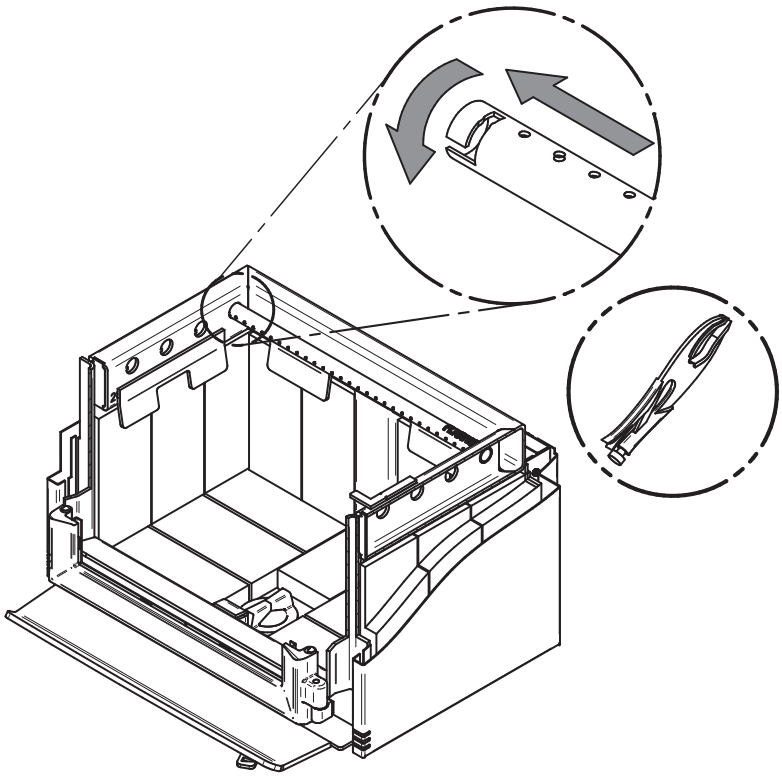


6.11 Air Tubes And Baffle Installation

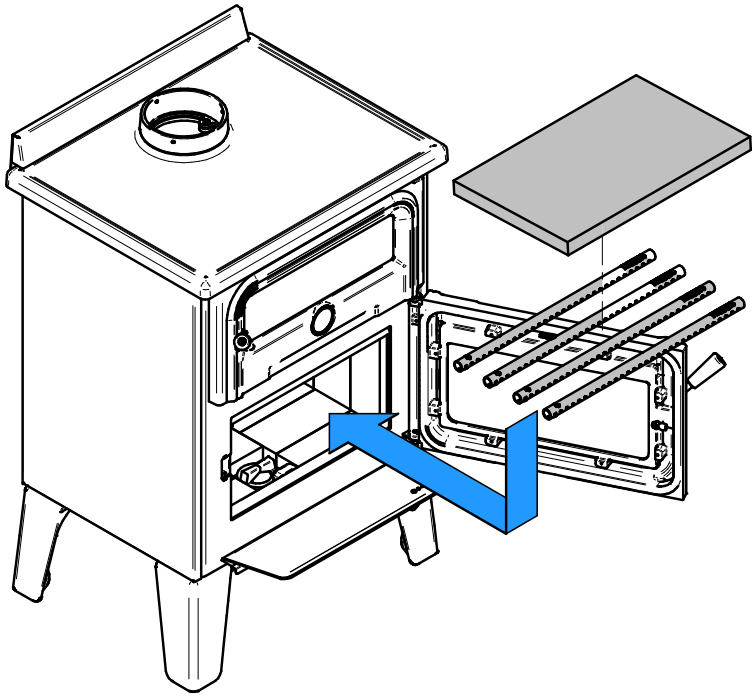
1. Starting with the rear tube, lean and insert the right end of the secondary air tube into the rear right channel hole. Then lift and insert the left end of the tube into the rear left channel.

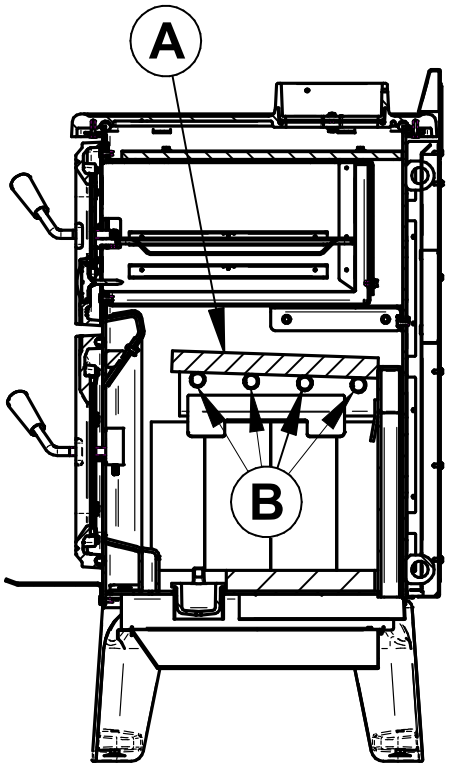


2. Align the notch in the left end of the tube with the key of the left air channel hole. Using a « Wise grip » hold the tube and lock it in place by turning the tube as shown. Make sure the notch reaches the end of the key way.
3. Put the baffle in place.
4. Repeat steps 1 and 2 for the three other tubes.
5. To remove the tubes use the above steps in reverse order.



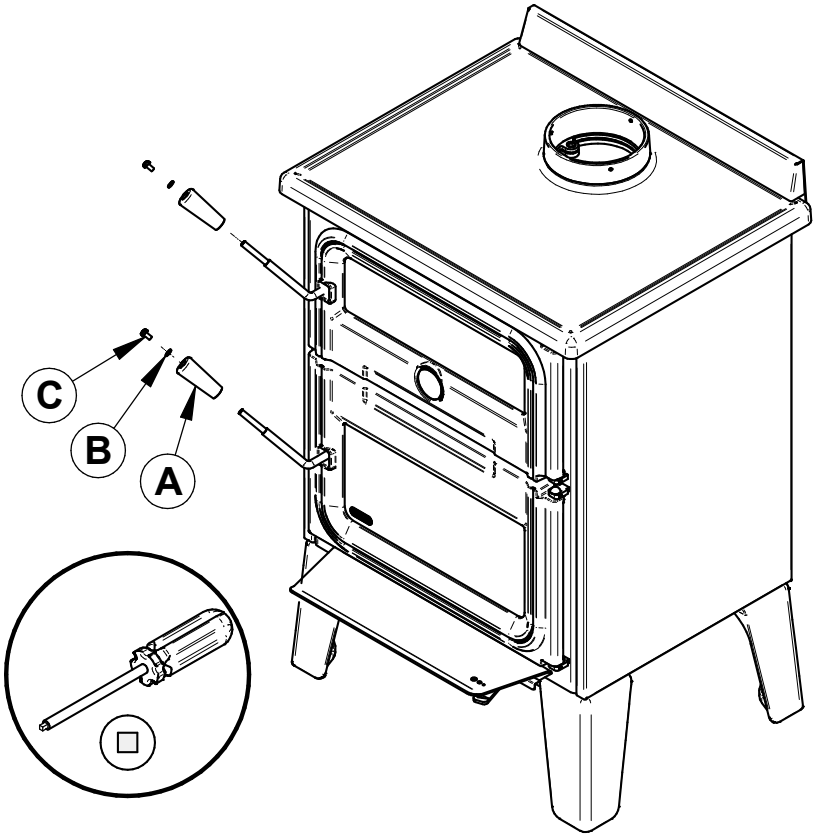
Note that secondary air tubes **(B)** *can be replaced without removing the baffle board* **(A)** *and that all tubes are not necessarely identical (look at the part number on the tube).*





6.12 Handles installation

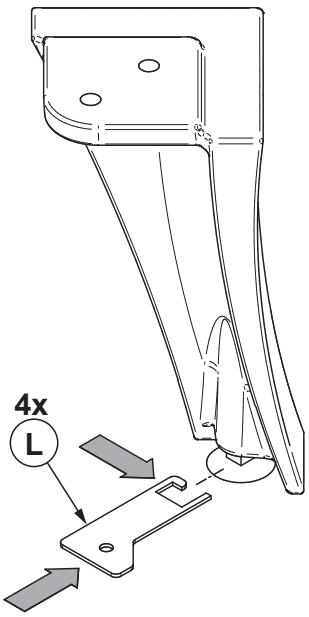
Insert, in order, the natural wood handle **(A)**, the washer **(B)** and the screw **(C)** on the handle rod of each door. Screw everything in place with a square head screwdriver.

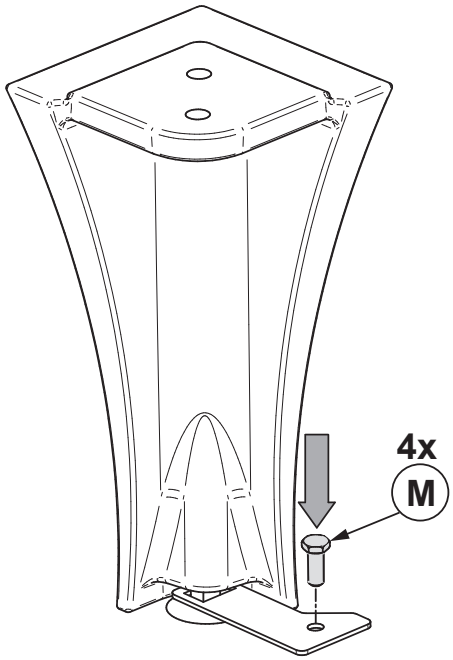


6.13 Mobile Home Installation

THE IMAGES SHOWN ARE FOR GUIDANCE ONLY AND MAY BE DIFFERENT FROM YOUR PRODUCT, BUT THE ASSEMBLY REMAINS THE SAME.

For a stove on legs, install a plate **(L)** on each leg and screw it in place with the proper hardware **(M)**. Plates are included in the fresh air intake kit (AC01211), but the proper hardware to screw the legs in place is not included.





6.14 Exhaust System

Wood smoke can condense inside the chimney, forming a inflammable deposit called creosote. If creosote builds up in the system, it can ignite when a hot fire is burned in the stove. A very hot fire can progress to the top of the chimney. Severe chimney fires can damage even the best chimneys. Smouldering, smoky fires can quickly cause a thick layer of creosote to form. When the stove is operated properly, the exhaust from the chimney is mostly clear and creosote builds up more slowly.

«Creosote - Formation and Need to Removal

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

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred. If a significant layer of creosote has accumulated (⅛" [3 mm] or more) it should be removed to reduce the risk of a chimney fire.»

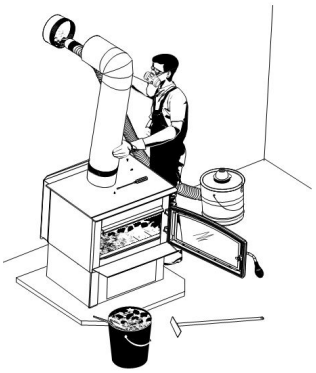
6.14.1 Frequency

It is not possible to predict how much or how quickly creosote will form in the chimney. It is important, therefore, to check the build-up in the chimney monthly until the rate of creosote formation is determined. Even if creosote forms slowly in the system, the chimney should be cleaned and inspected at least once each year.

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

Contact your local municipal or provincial fire authority for information on how to handle a chimney fire. Have a clearly understood plan to handle a chimney fire.

6.14.2 Sweeping the Chimney

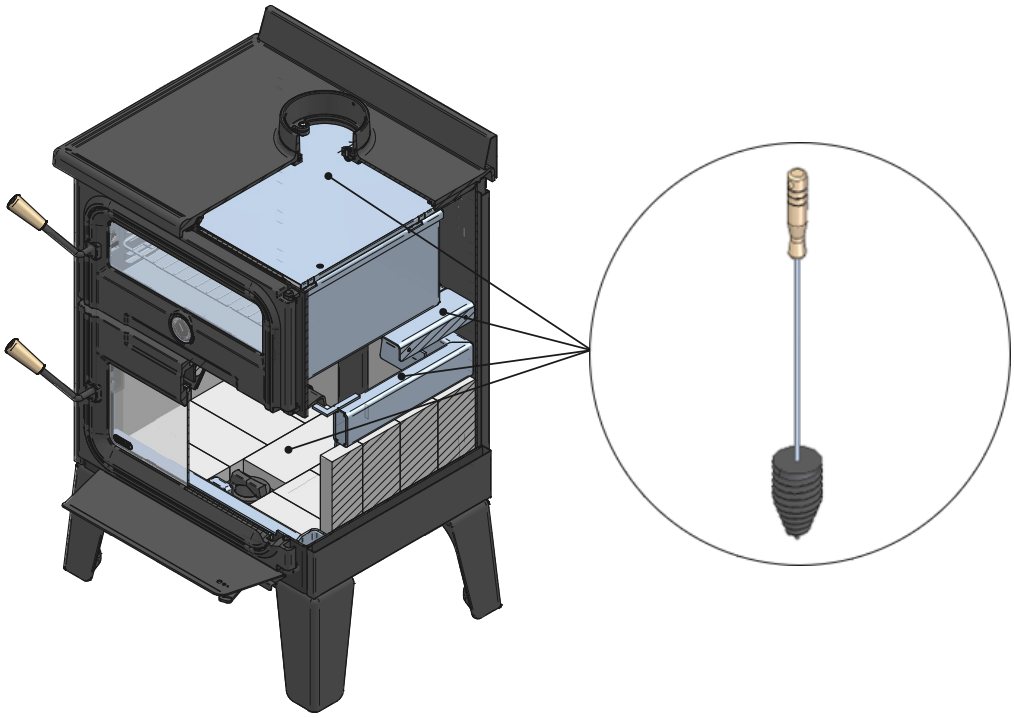


Chimney sweeping can be a difficult and dangerous job. People with no chimney sweeping experience will often prefer to hire a professional chimney sweep to inspect and clean the system for the first time. After seeing the cleaning process, some will choose to do it themselves. The chimney should be checked regularly for creosote build-up.

Inspection and cleaning of the chimney, but mainly cleaning of the gas path, can be facilitated by removing the baffle. See section «6.9 Air Tubes And Baffle Installation»

To properly clean all the gas path, it is recommended to use the cleaning brush. To make sure you reach all corners, especially the top and sides of the oven, it is recommended remove the chimney.

N.B. It is possible to remove the chimney after sweeping. The residues will thus all have fallen on top of the oven. You can also remove the chimney before sweeping and make sure to put a container as airtight as possible at the end of the chimney (where it has been unscrewed), to collect the residues that will fall during the sweeping.



6.14.3 Chimney Fire

Regular chimney maintenance and inspection can prevent chimney fires. If you have a chimney fire, follow these steps:

1. Close the stove door and the air intake control;
2. Alert the occupants of the house of the possible danger;
3. If you require assistance, alert the fire department;
4. If possible, use a dry chemical fire extinguisher, baking soda or sand to control the fire. Do not use water as it may cause a dangerous steam explosion;

Do not use the appliance again until the stove and its chimney have been inspected by a qualified chimney sweep or a fire department inspector.

PART B - INSTALLATION

7. General Information

7.1 Security

- Read this manual completely before installing the cookstove. It is important to fully respect the installation instructions. If the cookstove is not correctly installed, it could result in a fire, bodily injuries or even death.
- The information given on the certification label affixed to the appliance always overrides the information published, in any other media (owner's manual, catalogues, flyers, magazines and web sites).
- Mixing of appliance components from different sources or modifying components may result in hazardous condtions. Where any such changes are planned, Stove Builder International Inc. Should be contacted in advance.
- **DO NOT CONNECT TO OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATION.**
- **DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.**
- **HOT WHILE IN OPERATION, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. GLOVES MAY BE NEEDED FOR THE STOVE OPERATION.**
- **WARNING: DO NOT INSTALL IN THE SLEEPING ROOM.**
- **MAY BE INSTALLED IN A MOBILE HOME:**
  - **THE INSTALLATION REQUIRES A FRESH AIR KIT, SOLD SEPARATELY.**
  - **THE STOVE MUST BE ATTACHED TO THE STRUCTURE OF THE MOBILE HOME.**
  - **CAUTION: THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL, CEILING AND ROOF MUST BE MAINTAINED.**
- Connect this stove only to a listed factory-built chimney for use with solid fuel or to a lined masonry chimney conforming to local and national building codes.
- If required, a supply of combustion air shall be provided to the room.
- Do not use makeshift materials or make any compromises when installing this cookstove.
- Any modification to the device that has not been approved in writing by the approval authority or the manufacturer violates CSA B365 (Canada) and ANSI NFPA 211 (USA) standards.

7.2 Regulations Governing the Installation of the Cookstove

In Canada, the CSA B365 Installation Code for Solid Fuel Burning Appliances and Equipment is to be followed in the absence of local code requirements. In the USA, the ANSI NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances is to be followed in the absence of local code requirements.

This cookstove must be connected to a chimney complying with the requirements for Type HT chimneys in the Standard for Factory-Built Chimneys for Residential Type and Building Heating Appliances, UL 103 HT and ULC S629 or to a code-approved masonry chimney with a flue liner.

7.3 Cookstove Positioning

Choose a location to avoid the chimney conflicting with floor joists, roof trusses, wall studs, water pipes, electric wires, and that allows the least possible deviations in the chimney. The location of the cookstove must allow enough room for its maintenance and the exhaust system.

This cookstove weighs approximately 575 lb (261 kg). To validate the installation of additional floor joist, consult the local building code.

7.4 Location of the Certification Label

Since the information given on the certification label affixed to the appliance always overrides the information published, in any other media (owner's manual, catalogues, flyers, magazines and web sites) it is important to refer to it in order to have a safe and compliant installation. In addition, important information about the stove can be found (model, serial number, etc.). The certification label is located on the back of the stove.

It is recommended to note the stove serial number on page 5 of this manual since it will be needed to precisely identify the version of the appliance in the event replacement parts or technical assistance is required. It is also recommended to register the warranty online.

8. Clearances to Combustible Material

The clearances given in this section have been established following test results in accordance with the procedures described in the standards ULC S627 (Canada) and UL 1482 (USA). When this cookstove is installed respecting the indicated minimum clearances or more, the flammable surfaces won't overheat during normal or even abnormal usage.

None of the cookstove parts or smoke pipe can be installed closer to the combustible materials than the minimum clearances indicated.

Fuel, solid or liquid, should not be located closer to combustibles than the minimum clearances given.

The clearances to the combustible walls can differ slightly between Canada and the United States and can also vary depending on the use of a single wall or double connector. Make sure to use the proper clearances for the location and the type of pipe.

The clearances of the appliance and the flue pipes must be met individually, meaning the appliance can not be installed closer to the combustible materials than the single or double wall pipe allows. To know the safe way to reduce clearances,see section 8.2 Clearances Reduction to the Walls and the Ceiling.

Refer to the following images and tables for minimum required clearances.

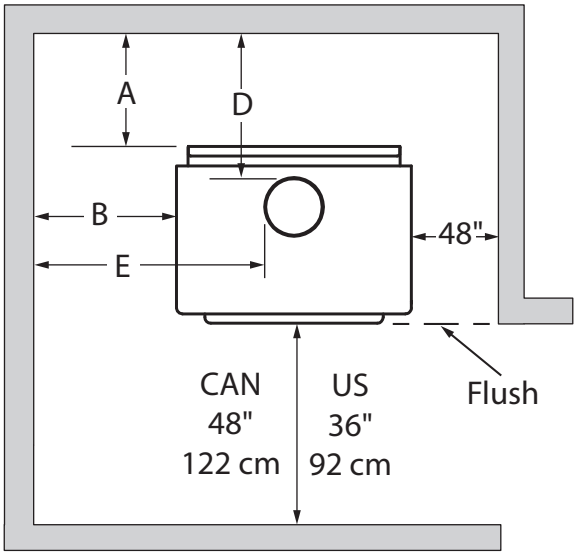


Figure 35: Clearances - Top

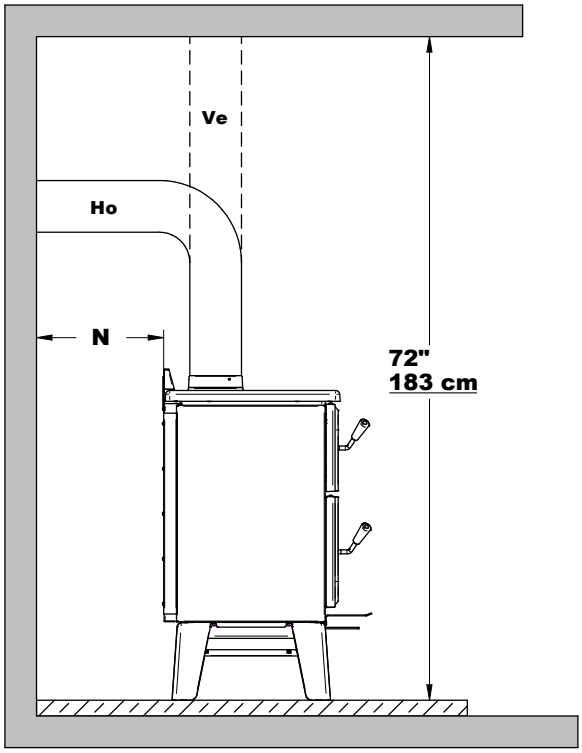


Figure 36: Clearances - Side

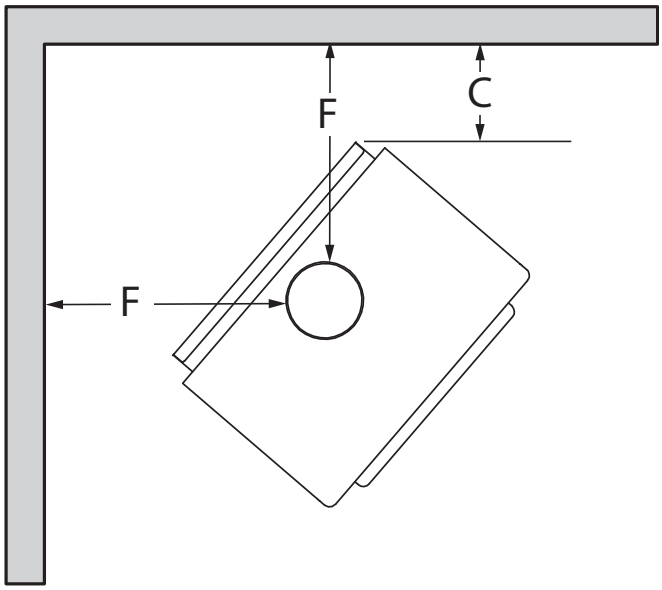


Figure 37: Clearances - Corner

	APPLIANCE CLEARANCES (INSTALLATION WITH SINGLE WALL PIPE CONNECTOR)	
	Canada	**USA**
A	15" (381 mm)	15" (381 mm)
B	15" (381 mm)	15" (381 mm)
C	7.5" (191 mm)	7.5" (191 mm)
L	72" (183 cm)	72" (183 cm)

	APPLIANCE CLEARANCES (INSTALLATION WITH DOUBLE WALL PIPE CONNECTOR)	
	Canada	**USA**
A	6" (152 mm)	6" (152 mm)
B	15" (381 mm)	15" (381 mm)
C	5" (127 mm)	5" (127 mm)
L	72" (183 cm)	72" (183 cm)

If the above clearances are met, then the distances measured from the flue outlet will be:

	DISTANCES[13] FROM PIPE CONNECTOR WITH SINGLE WALL PIPE CONNECTOR	
	Canada	**USA**
D	18" (457 mm)	18" (457 mm)
E	25" (635 mm)	25" (635 mm)
F	18" (457 mm)	18" (457 mm)

	DISTANCES[3] FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	**USA**
D	9" (127 mm)	9" (127 mm)
E	24.75" (318 mm)	24.75" (318 mm)
F	15" (318 mm)	15" (318 mm)

[13] The pipe distances listed in this table refer to the distances obtained when the stove is installed in accordance with the appliance clearances above mentioned.

8.1 Floor Protection

This stove is designed to prevent the floor from overheating. However, it must be placed on a non-flammable surface to protect the floor from hot embers that may fall during loading.

Any type of tile will require a continuous non combustible sheet beneath to prevent the possibility of embers falling through to the combustible floor if cracks or separation should occur in the finished surface. Check local codes for approved alternatives. No protection is required if the unit is installed on a non-combustible floor (ex: concrete).

	FLOOR PROTECTION	
	Canada	**USA**
G[14]	8" (203 mm)	N/A
H	8" (203 mm)	N/A
I	18" (457 mm) From door opening	16" (406 mm) From door opening
J	N/A	8" (203 mm)
K	42 ⅞" (1089 mm)	39 ⅞" (1013 mm)
N[15]	N/A	See note 5
S	48 ⅜" (1229 mm)	38 ⅜" (975 mm)
T	34 ¼" (870 mm)	27 ⅛" (689 mm)
U	42 ⅞" (1089 mm)	39 ⅞" (1013 mm)
V	69 ⅞" (1775 mm)	58 ⅜" (1483 mm)

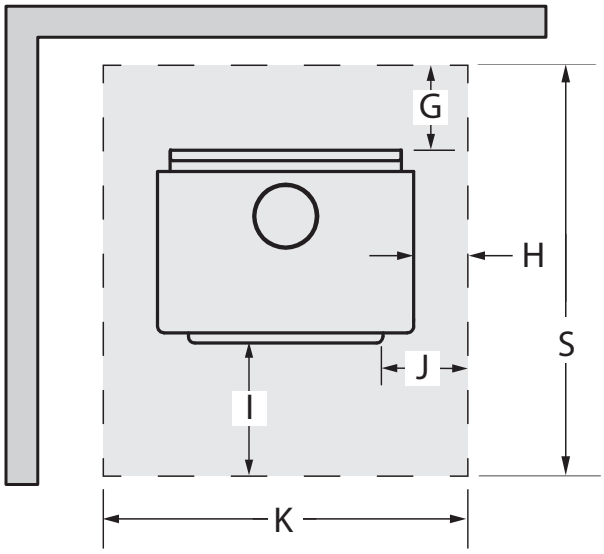


Figure 38: Floor protection

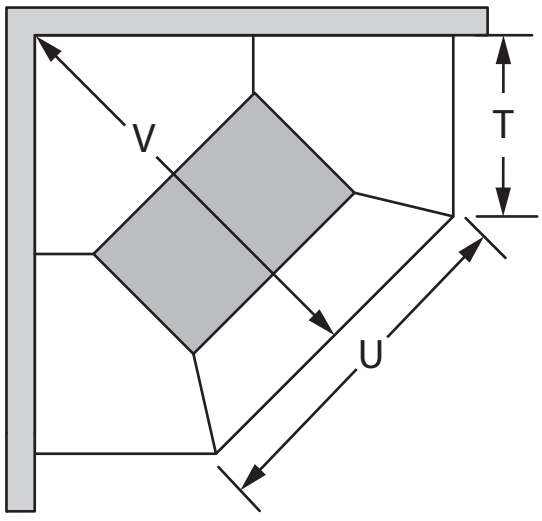


Figure 39: Clearances

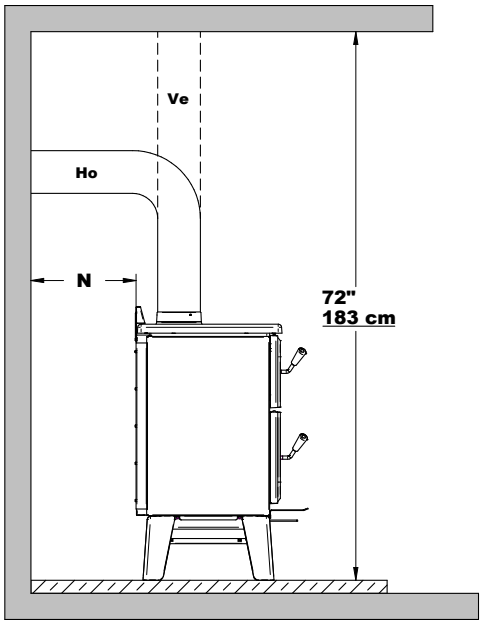
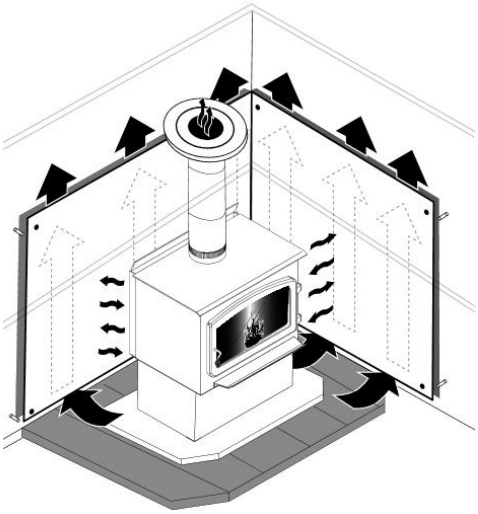


Figure 40: Clearances

[14] The floor protection at the back of the stove is limited to the stove's required clearance if such clearance is smaller than 8 inches (203 mm).

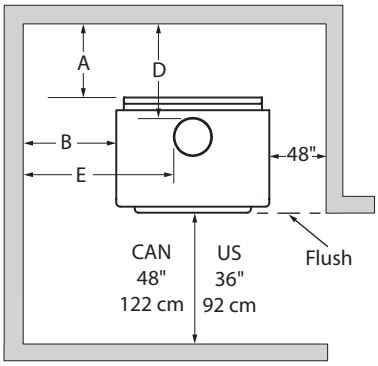
[15] Only required under the horizontal section (Ho) of the connector. Must exceed each side of the connector by at least 2 inches (51 mm).

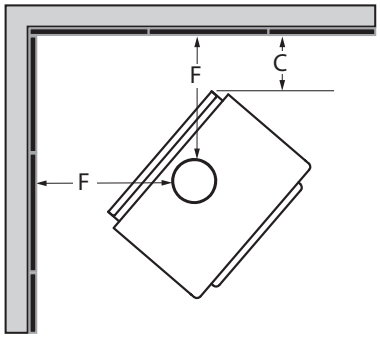
8.2 Clearances Reduction to the Walls and the Ceiling



It is often desired to use as little space as possible when installing cookstove. To do this, it is possible to reduce the clearances safely and install the cookstove closer to the walls by permanently installing a heat shield between the cookstove and the flammable material. It is possible to obtain a heat shield that respects the dimensions requirements indicated in sections 8.3 Clearances for Shield Installation and 8.3.2 Mobile home with heat shield. It is possible that additional sections or extensions are needed in order to reduce clearances easily and safely.

It is also possible to fabricate the heat shield but one must be careful since the rules for heat shield construction are sometimes complicated. Read and apply the instructions carefully. Some regions may have different regulations. Consult the local building code or contact the fire department for restrictions, inspection and installation requirements in the area.





	APPLIANCE CLEARANCES WITH A SINGLE WALL PIPE CONNECTOR AND A HEAT SHIELD[16]	
	Canada	**USA**
A	2.5" (64 mm)	2.5" (64 mm)
B	2.5" (64 mm)	2.5" (64 mm)
C	2.5" (64 mm)	2.5" (64 mm)

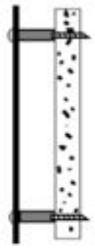
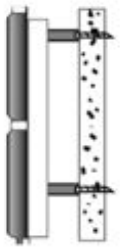
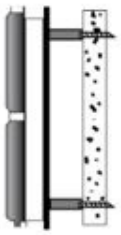
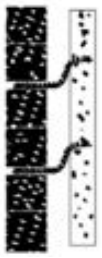
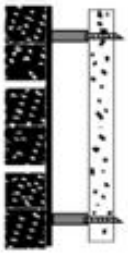
	DISTANCE FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR AND A HEAT SHIELD[6]	
	Canada	**USA**
D	5.5" (140 mm)	5.5" (140 mm)
E	12.25" (311 mm)	12.25" (311 mm)
F	12.5" (318 mm)	12.5" (318 mm)

8.2.1 Heat Shield Construction Rules

- Adhesives used in the shield construction must not inflame or loose their adhesive properties at the temperature that potentially will be reached.
- The assembly hardware must allow for complete vertical ventilation.
- The assembly hardware that penetrates in the combustible material from the screen surface can only be used on the edges of the screen.

[16] Note that to reduce the clearances as close as 6" from combustible material of an appliance using a single wall pipe, a certified heat shield must be used. Only in this situation, the same clearances as with a certified double wall pipe connector can be used.

Table 1 : Clearances Reduction Percentages Table

TYPE OF SHIELD	CLEARANCES MAY BE REDUCED BY THESE PERCENTAGES				
	SIDES AND REAR		TOP (CEILING)		
	CAN /USA (%)	USA MIN.	CAN /USA (%)	USA MIN.	
Sheet metal, a minimum of 24 gauge (0.61 mm) in thickness , spaced out at least 25 mm (1 in)* by non-combustible spacers	67	12 in	50	18 in	
Ceramic tiles, or equivalent non-combustible material, on non-combustible board spaced out at least 25 mm (1 in)* by non-combustible spacers	50	18 in	33	24 in	
Ceramic tiles, or equivalent non-combustible material, on non-combustible board, with a minimum of 24 gauge (0.61 mm) sheet metal backing spaced out at least 25 mm (1 in)* by non-combustible spacers	67	12 in	50	24 in	
Brick, spaced out at least 25 mm (1 in)* by non-combustible spacers	50	18 in	N/A	N/A	
Brick, with a minimum of 24 gauge (0.61 mm) sheet metal backing, spaced out at least 25 mm (1 in)* by non-combustible spacers	67	12 in	N/A	N/A	

* In Canada this space can be 7/8" (21 mm)

ENGLISH

8.3 Clearances for Shield Installation

1	Minimum clearance between the top of the appliance and the unprotected ceiling	833 mm (32 13/16")
2	Shield extension above appliance	500 mm (20")
3	Minimum space behind the shield	USA 25 mm (1") Can. 21 mm (7/8")
4	Clearance at the bottom of the shield	USA 25 mm (1") Can. min. 25 mm (1") max 76 mm (3")
5	Minimum clearance from the top of the shield to the ceiling:	76 mm (3")
6	The assembly hardware must not be located at less than 200 mm (8") from the combustion chamber central axis.	
7	Shield edges clearances from the side and back walls for ceiling shield	75 mm (3")
8	Shield overtaking beyond the sides of the appliance	450 mm (18")

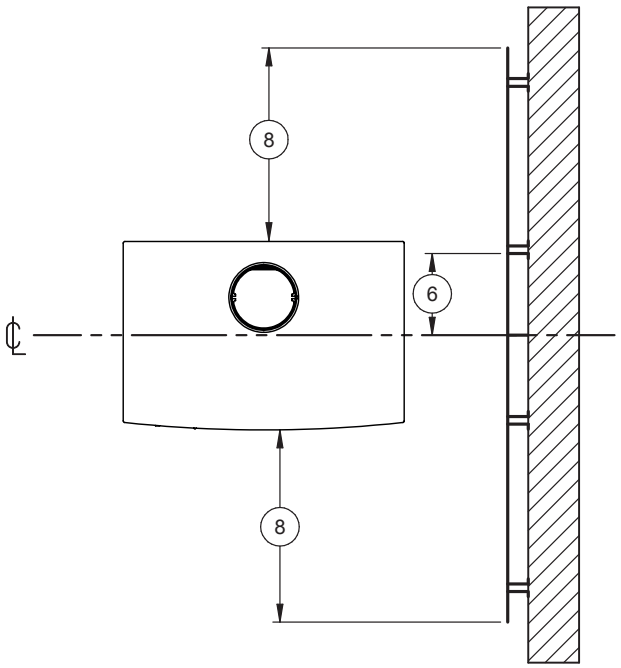


Figure 41: Clearances with Heat Shield - Top

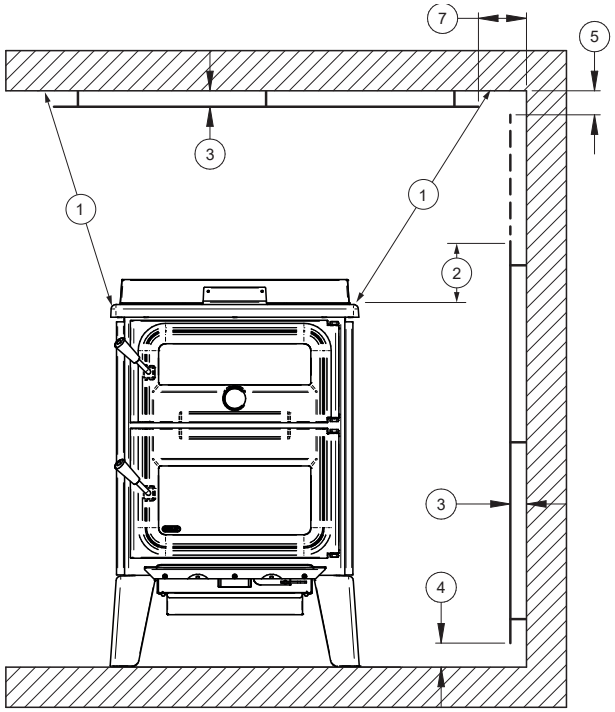


Figure 42: Clearances with Heat Shield - Face

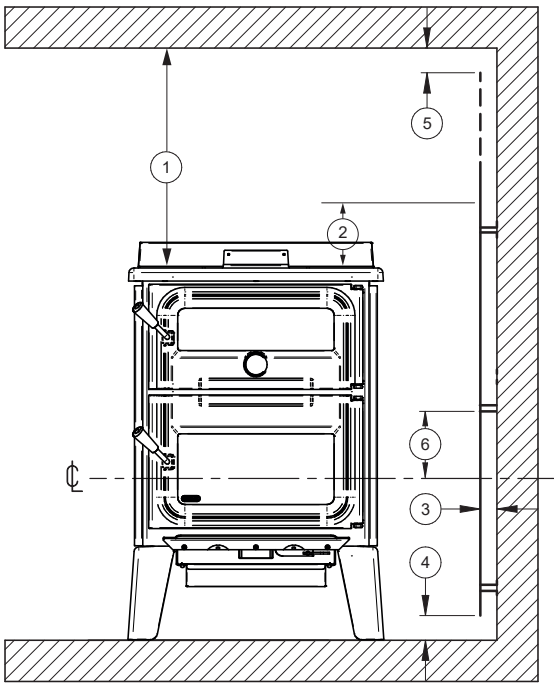


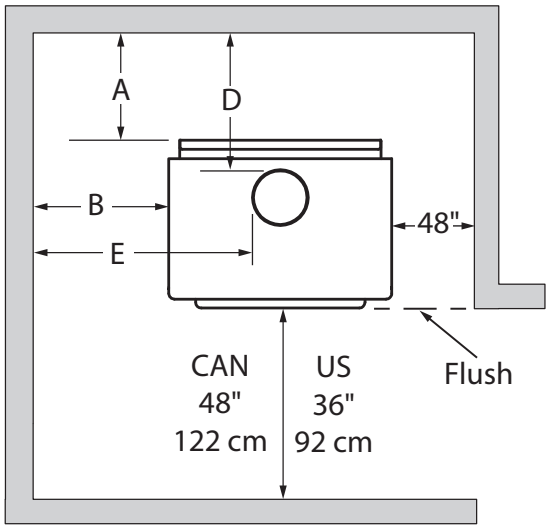
Figure 43: Clearances with Heat Shield - Face

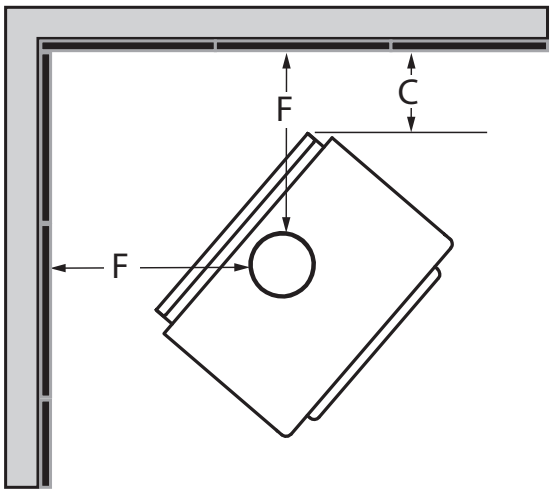
8.3.1 Mobile Home

It is strictly **forbidden** to install a unit with **a single wall pipe** in a **mobile home**.

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	**USA**
A	6" (152 mm)	6" (152 mm)
B	15" (381 mm)	15" (381 mm)
C	5" (127 mm)	5" (127 mm)
L	84" (213 cm)	84" (213 cm)

	DISTANCES[17] FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	**USA**
D	9" (229 mm)	9" (229 mm)
E	24.75" (629 mm)	24.75" (629 mm)
F	15" (381 mm)	15" (381 mm)



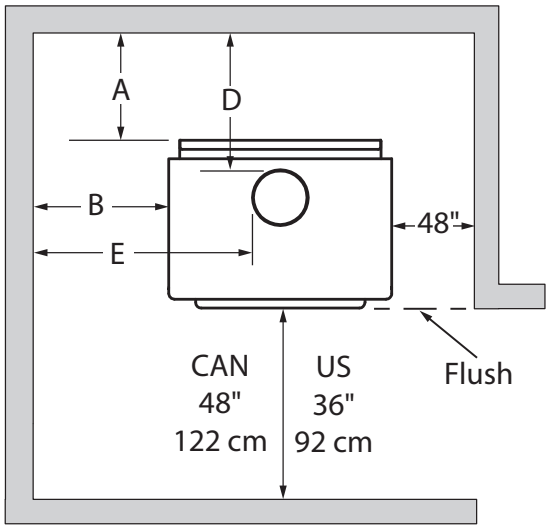


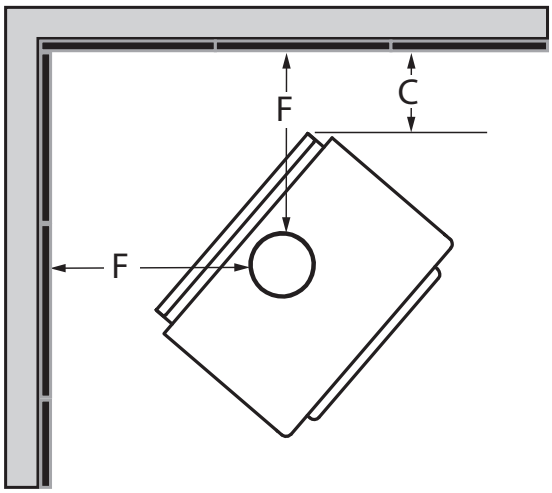
[17] The pipe distances listed in this table refer to the distances obtained when the stove is installed in accordance with the appliance clearances above mentioned.

8.3.2 Mobile Home With Heat Shield

	APPLIANCE CLEARANCES WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	**USA**
A	3" (76 mm)	3" (76 mm)
B	3" (76 mm)	3" (76 mm)
C	3" (76 mm)	3" (76 mm)

	DISTANCES FROM PIPE CONNECTOR WITH DOUBLE WALL PIPE CONNECTOR	
	Canada	**USA**
D	6.25" (159 mm)	6.25" (159 mm)
E	8.75" (222 mm)	8.75" (222 mm)
F	13" (330 mm)	13" (330 mm)





9. Evacuation System

9.1 General Information

The exhaust system, consisting of the chimney and the pipe that connects the cookstove to the chimney, acts as the engine that drives the wood heating system. Even the best appliance will not work as securely and adequately as expected if it is not connected to an adequate chimney.

The heat contained in the exhaust gas, which goes from the cookstove to the chimney connector, then to the chimney, is not lost heat. The chimney uses that heat to create the draft that draws the combustion air, keeps the smoke in the appliance and evacuates the gas securely toward open air. You can consider the heat contained in the exhaust gas as the combustible that the chimney uses to create the draft.

9.2 Suitable Chimneys

To be suitable, a prefabricated metal chimney must follow the standards UL 103 HT (USA) or ULC S629 (Canada). Furthermore, this wood burning cookstove has a performance and optimal efficiency when it is connected to a 6" chimney flue.

9.2.1 Factory-Built Metal Chimneys

These are sometimes referred to as 'high temp' chimneys because they have the specific characteristics to withstand temperatures that can be created by wood burning stoves. Factory-built chimneys are tested as a system with all the necessary components for installation. The instructions provided with the chimney by its manufacturer are the only reliable source of installation guidelines. To be safe and effective, the chimney must be installed exactly in accordance with the manufacturer's instructions. Only components intended for the brand and model of chimney should be used. Never fabricate or substitute parts from other chimney brands. The chimney must be a type suitable for solid fuel.

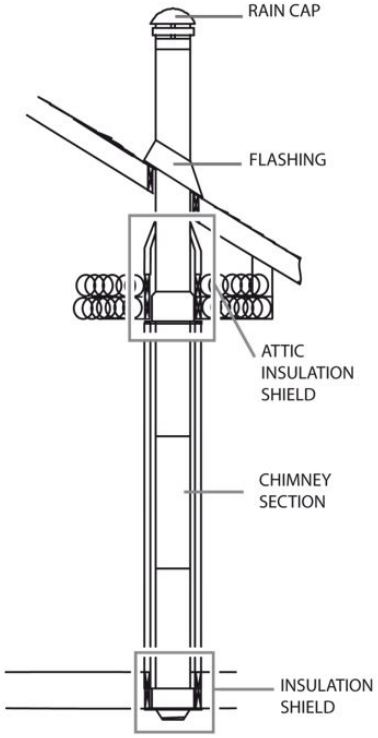


Figure 44: Standard installation

9.2.2 Factory-Built Metal Chimneys in Mobile Homes

For use in a mobile home, this stove is to be connected to a 6" double wall factory built chimney pipe conforming to ULC-S629 or UL 103HT standards for 650°C Factory-built chimney. The total length of the flue system should be at least 12 feet including elbows, from the top of the stove.

To maintain an effective vapour barrier, insulation and waterproof at the chimney and outside flue pipe, a roof flashing must be installed and sealed with silicone adhesive.

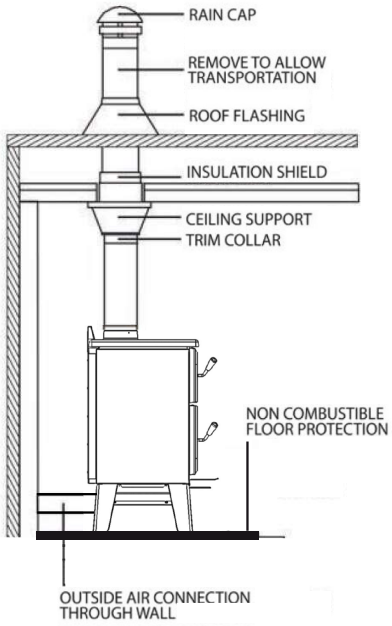


Figure 45: Mobile home installation

9.2.3 Masonry Chimneys

The stove may also be connected to a masonry chimney, provided the chimney complies with the construction rules found in the building code enforced locally. The chimney must have either a clay liner or a suitably listed stainless steel liner. If the masonry chimney has a square or rectangular liner that is larger in cross-sectional area than a round 6" flue, it should be relined with a suitably listed 6" stainless steel liner. Do not downsize the flue to less than 6" unless the venting system is straight and exceeds 25 feet in height. When passing through a combustible wall, the use of an insulated listed thimble is required.

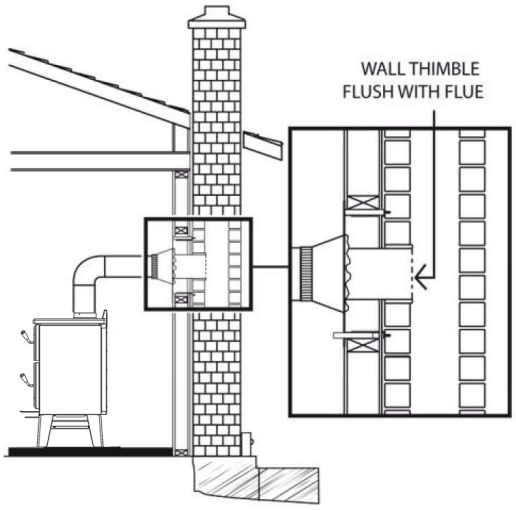


Figure 46: Masonry hearth installation

9.3 Minimum Chimney Height

The top of the chimney should be tall enough to be above the air turbulence caused when wind blows against the house and its roof. The chimney must extend at least 3 ft. (1 m) above the highest point of contact with the roof, and at least 2 ft. (60 cm) higher than any roof line or obstacle within a horizontal distance of 10 ft. (3 m).

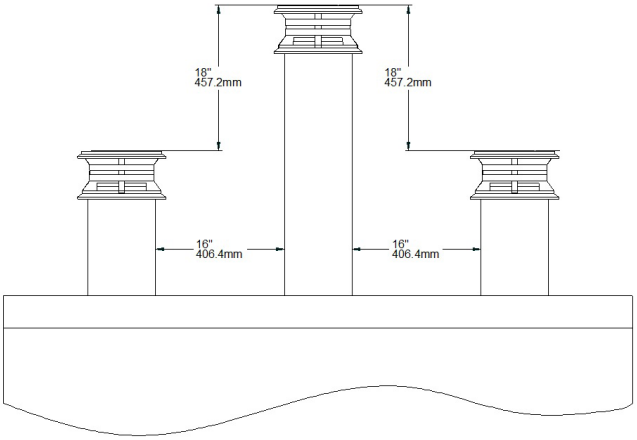


Figure 47: Flat roof

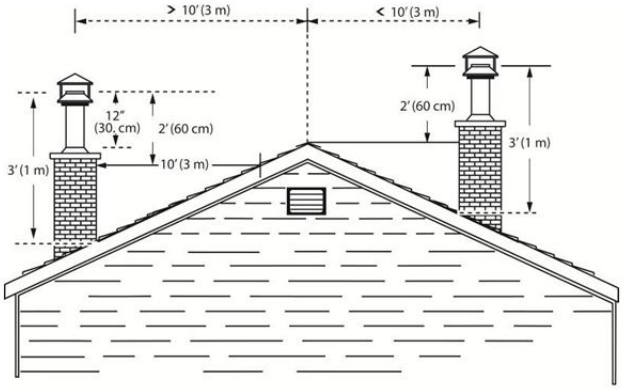


Figure 48: Sloping roof

9.4 Chimney Location

Because the venting system is the engine that drives the wood heating system, it must have the right characteristics. The signs of bad system design are cold back drafting when there is no fire in the stove, slow kindling of new fires, and smoke roll-out when the door is opened for loading. There are two guidelines to follow. First, the chimney should be installed up through the heated space of the house, not outside up on the wall. Second, the chimney should ideally go through the highest heated space of the building or near the highest heated space.

Venting systems that rise straight up from the stove flue collar provide the best performance. Chimneys that rise inside the warm space of the house tend to provide a small amount of draft even when there is no fire burning. This means that when a fire is lit, the smoke goes up the chimney and strong draft build quickly as the chimney flue warms up. Although they are common in North America, chimneys that exit a house wall and run up outside can cause problems.

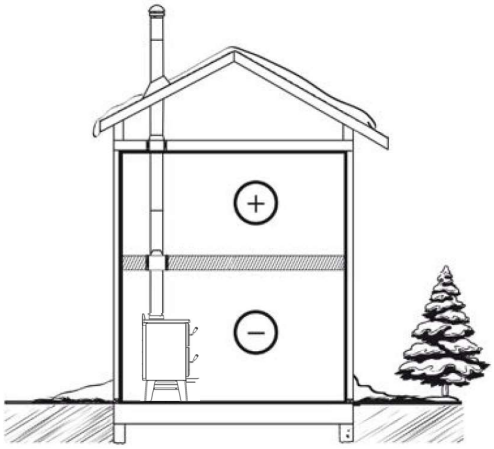


Figure 49: Good System Design

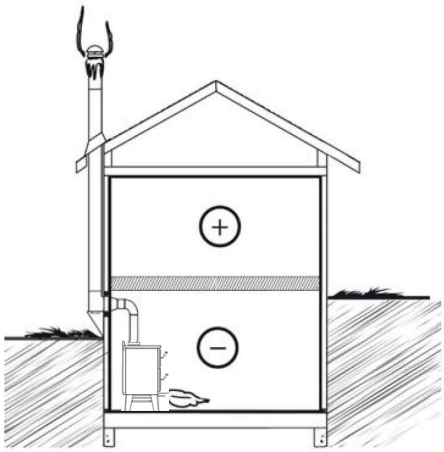


Figure 50: Acceptable System Design

When it is cold outside, the warm air in the house is buoyant so it tends to rise. This creates a slight pressure difference in the house. Called ‘stack effect’, it produces a slightly negative pressure in the lower part of the house (compared to the outside) and a slightly positive pressure zone in the high part of the house. If there is no fire burning in a heater connected to a chimney that is shorter than the warm space inside the house, the slight negative pressure in the lower part of the house will compete against the desired upward flow in the chimney. This occurs for the two following reasons:

First, the chimney runs up the outside of the house, so the air in it is colder and denser than the warm air in the house. And second, the chimney is shorter than the heated space of the house, meaning the negative pressure in the lower part of the house will draw cold air down the chimney, through the stove and into the room. Even the finest stove will not work well when connected to this chimney.

10. Installing the Chimney Connector

The chimney connector is the single or double wall pipe installed between the stove flue collar and the chimney breech. Single wall pipe components are available from most hardware and bu ilding supply stores. These components are not usually tested to a particular standard and certified as compliant. Therefore, a list of rules found in solid fuel installation codes apply to the installation of a single wallpipe.

Double wall chimney connectors are tested and certified. The rules for double wall pipe a refound in the manufacturer's installation instructions. These rules will be very different than those for single wall.

10.1 Installation of Single Wall Chimney Connector

The chimney connector assembly has been called 'the weak link' in the safety of wood heating systems because failure to install the connector properly (which has been common in the past) can result in house fires.

The best flue pipe assembly is one that rises straight up from the stove to the base of the chimney with no elbows. Straight assemblies are less likely to cause problems like smoke rollout when the door is opened for loading. They are also more stable and easier to maintain than assemblies with elbows. Horizontal runs of flue pipe should be avoided where possible because they reduce chimney draft.

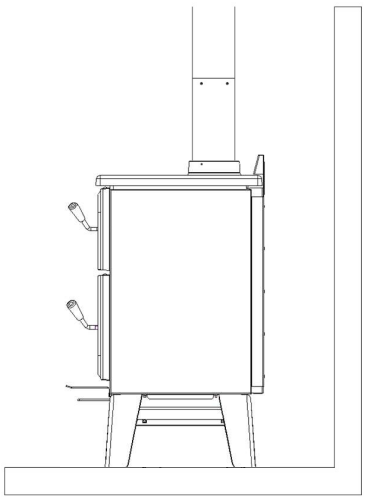


Figure 51: Best

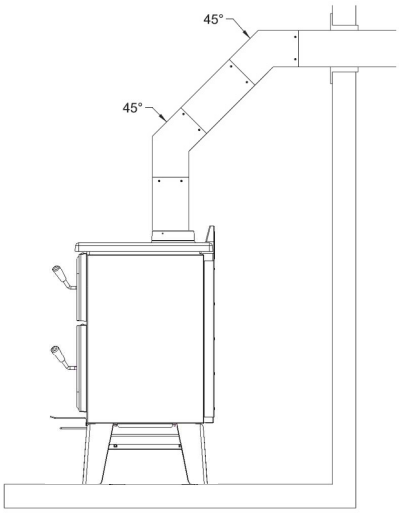


Figure 52: Acceptable

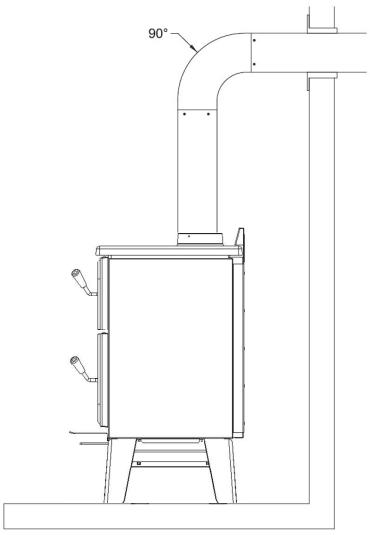


Figure 53: Avoid

The rules below are based on those found in the CSA B365 installation code. Please carefully follow these installation instruction rules, or those enforced by the local code.

- Maximum overall length of horizontal pipe: 10 ft. (3 m) including elbows.
- Minimum clearance from combustible material: 18" (450 mm). The minimum clearance may be reduced by 50 percent to 9" (225 mm) if suitable shielding is installed either on the pipe or on the combustible surface.

- The assembly should be as short and direct as possible between the stove and chimney. The use of two 45 degree elbows is often preferable to a single 90 degree elbow because less turbulence is created in the exhaust flow and they result in less horizontal run.
- The minimum overall height of the chimney system, measured from the stove top to the exterior termination cap of the chimney should be at least 12 ft. (3.66 m). A chimney which is too short may lack the “tunnel effect” required to obtain a proper draft.
- Maximum number of 90-degree elbows: 2.
- Maximum unsupported horizontal length: 3 ft. (1 m).
- Galvanized flue pipes must not be used because the coatings vaporize at high temperatures and release dangerous gases. Use black painted flue pipes.
- Flue pipes must be at least 24 gauge in thickness.
- Flue pipe joints should overlap 1 ¼" (30 mm).
- Each joint in the assembly must be fastened with at least three screws.
- The assembly must make allowance for expansion: elbows in assemblies allow for expansion; straight assemblies should include an inspection wrap with one end unfastened, or a telescopic section.
- Minimum upward slope towards the chimney: ¼ in/ft. (20 mm/m).
- One end of the assembly must be securely fastened to the flue collar with 3 sheet metal screws and the other end securely fastened to the chimney.
- There must be provision for cleaning of the pipes, either through a clean out or by removal of the pipe assembly. Removal of the assembly should not require that the stove be moved.
- The male ends of the sections must be oriented towards the appliance so that falling dust and condensation stay inside the pipe.
- A flue pipe must never pass through a combustible floor or ceiling or through an attic, roof space, closet or concealed space. Where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365, Installation Code for Solid-Fuel-Burning Appliances and Equipment.
- A straight up connector assembly needs either a telescopic length or an inspection wrap (pipe coupler) to allow it to be assembled and disassembled without moving the stove.
- A straight flue pipe assembly offers the least restriction to gas flow and results in a stronger draft. Straight assemblies also need less maintenance because there are no corners to collect creosote.
- The chimney connector must be clean and in good condition.

10.2 Installation of Double wall Chimney Connector

Important!
A double wall chimney connector can be installed only with the universal connector PL36899 supplied with the cookstove and a vented double wall stove adaptor.

To install a double wall connector on the appliance, the universal connector supplied with the stove must be installed as shown on the picture bellow.

Insert the connector **(A)** to the spigot and fix it with the 3 screws **(B)** included with the appliance.

A vortex double wall connector, with its vented stove adapter (VOD0290), is recommended for this type of installation. Consult www.drolet.ca for more details. Other brands of double wall connectors are adequate as long as they offer the option of a vented double wall stove adapter.

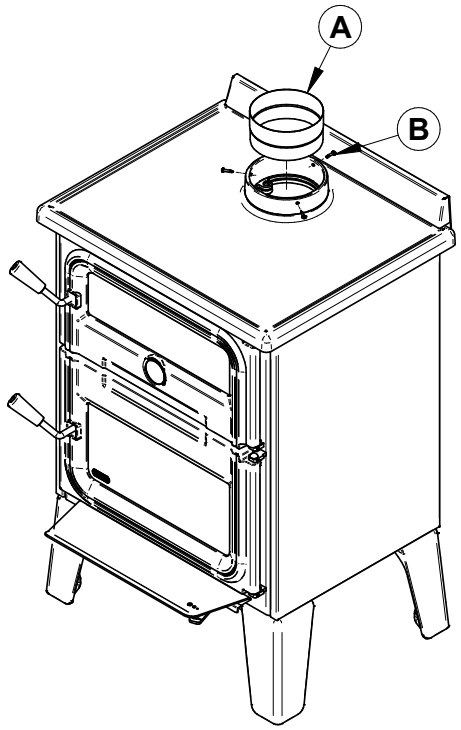


Figure 54: Universal connector PL36899

11. Combustion Air

For the cookstove draft to work correctly, the room must have an outside or fresh air inlet, with a minimum of 5" diameter, from the house exterior to the room, that is at least sufficient to replenish the volume of air that comes out of the chimney flue. In well insulated houses an air inlet must be fitted through the outer wall that is not exposed to the prevailing winds, depending on the surrounding conditions of the house. If a vent is installed, it must be fitted in such a way that it cannot be blocked. A fresh air intake register with a airtight damper may be installed to help prevent any uncomfortable air draft.

When the cookstove and the chimney are completely cold, it may be necessary before starting up to provide an external air supply by opening a door or a window for a short period. A house constructed or renovated in a waterproof manner is prone to not having the air exchange required for the proper functioning of a wood heating appliance.

In that case, avoid, during startups, to use appliances that evacuate air outside of the house, such as:

- Cookstove hood
- Bathroom vent
- Air exchange system
- Ventilated central vacuum cleaner
- Dryer

The supply of fresh combustion air can be done in several ways, provided they comply with CSA B365 and NFPA211.

In Canada, wood stoves are not required to have a combustion air supply from outside, except for mobile homes. Research has shown that outside air supply do not compensate for the depressurization of the house and may not be sufficient to provide a supply of combustion air in windy weather. However, to reduce the risks against smoke spillage due to house depressurization, a carbon monoxide (CO) detector is required in the room where the stove is installed. The CO detector will provide warning if for any reason the wood stove fails to function correctly.

11.1 Mobile home

This stove is ‘mobile home approved’. It must therefore have a supply of combustion air from outdoors. The air intake must not draw air from the attic, from the basement, from a garage or any enclosed space. Air must be drawn from a ventilated crawl space under the floor or directly from outside. Install a flexible or rigid, insulated pipe (HVAC type, must comply to ULC S110 and/or UL 181, Class 0 or Class 1) to the fresh air intake.

Where a mobile home has been converted to a standard house by mounting it on a permanent basement foundation, the supply of outdoor air is not required.

11.2 Conventional House

The safest and most reliable supply of combustion air for a wood stove is from the room in which it is installed. Room air is already preheated so it will not chill the fire, and its availability is not affected by wind pressures on the house. Contrary to commonly expressed concerns, almost all tightly sealed new houses have enough natural leakage to provide the small amount of air needed by the stove. The only case in which the wood stove may not have adequate access to combustion air is if the operation of a powerful exhaust device (such as a kitchen range exhaust) causes the pressure in the house to become negative relative to outdoors.

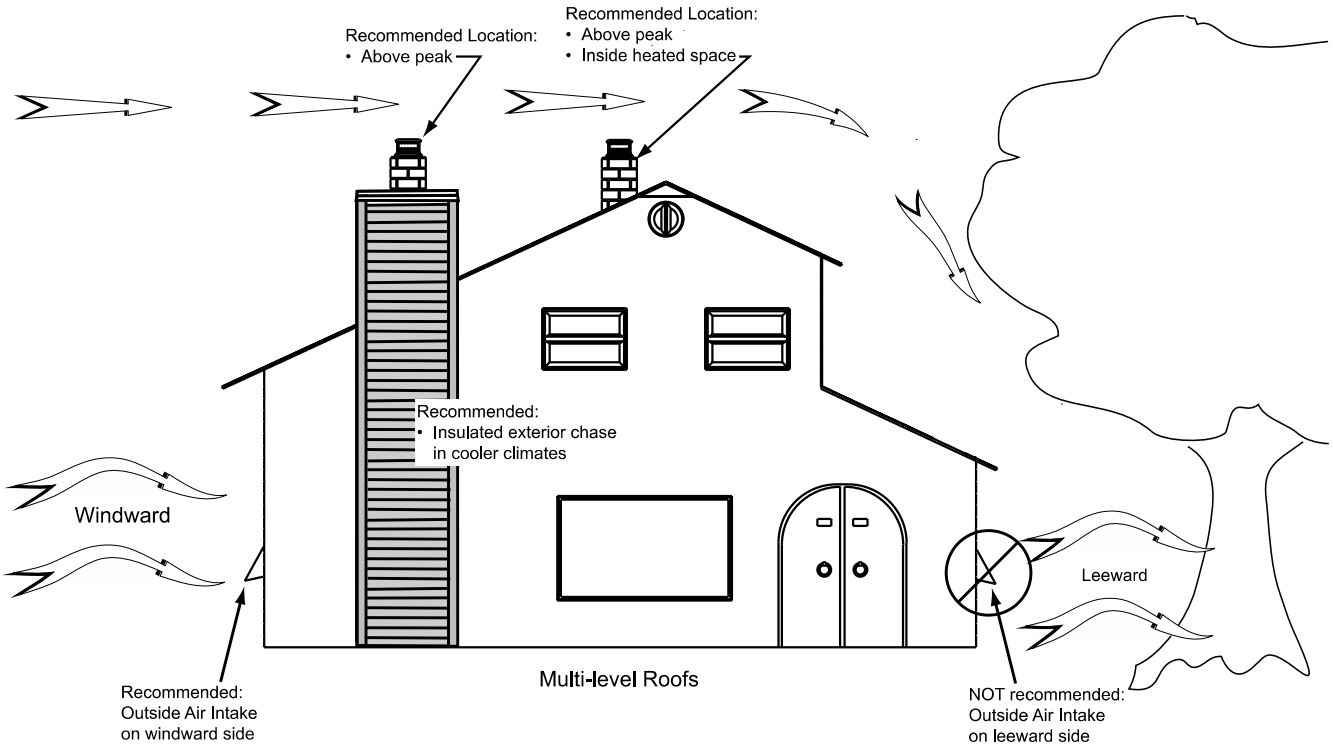


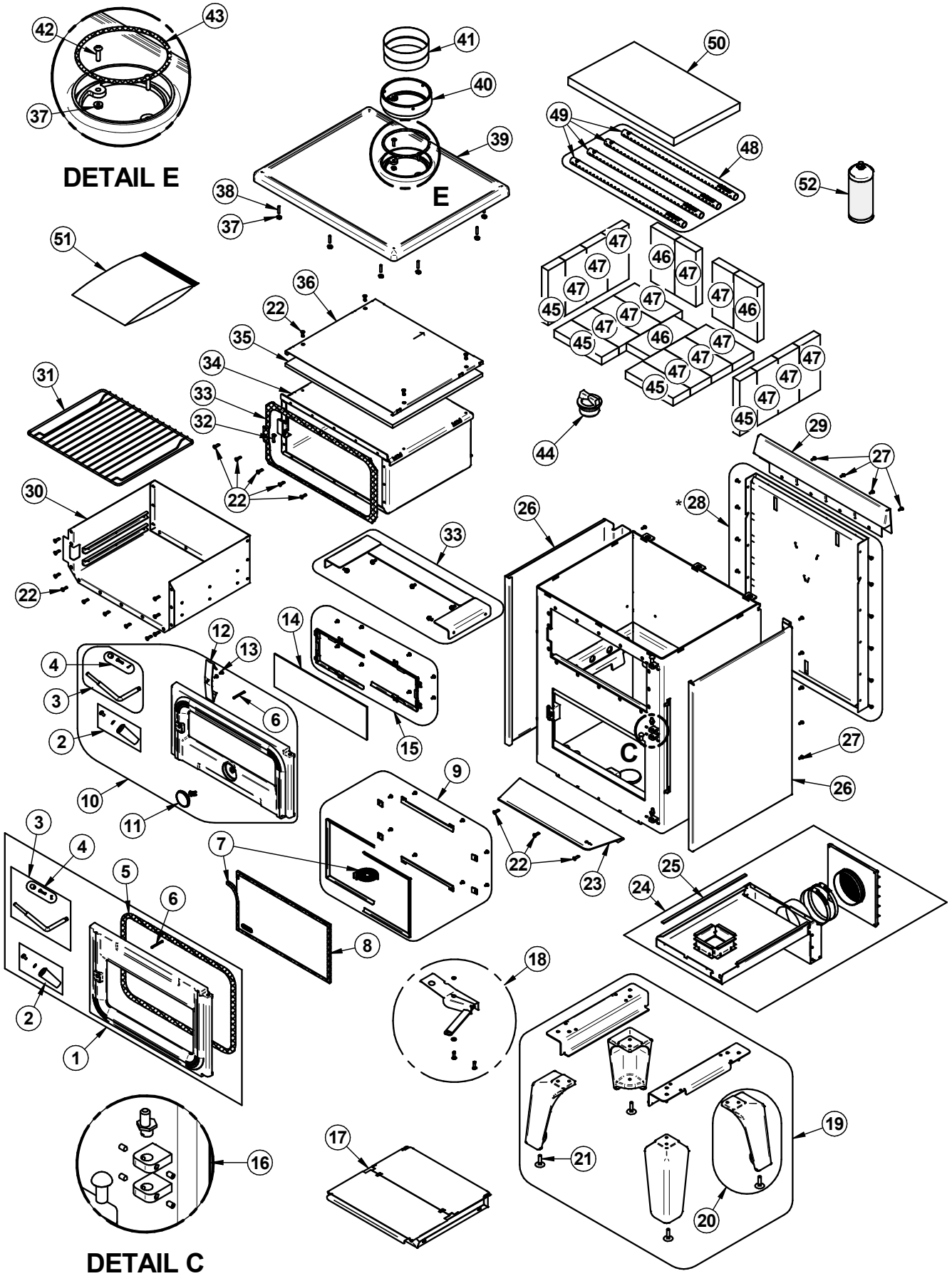
Figure 55: Air supply in conventional houses

If an air intake is installed through the wall of the house, its pressure can vary during windy weather. If there are changes in wood stove performance in windy weather, and in particular if smoke puffs from the stove, the air duct should be disconnected from the stove to determine if it is the cause of the problem. In some windy conditions, negative pressure at the duct weather hood outside the house wall may draw hot exhaust gases from the stove backwards through the duct to outdoors. Check the outdoor air duct for soot deposits when the full system is cleaned and inspected at least once each year.

12. Troubleshooting

PROBLEM	POSSIBLE CAUSES	SOLUTION
Oven window or combustion chamber's window blackening.	• Draft too low • Bad air intake adjustment • Too much combustible in the cookstove. • Wood with a high rate of relative humidity > 20-25% • Unregulated combustion.	• Check that all the pipes are clean. • Modify the chimney: increase the height or check surrondings. • Reduce the quantity of combustible in the combustion chamber. • Dry the wood longer.
Irregular draw.	• Inadequate or dirty chimney. • Dirt in the combustion chamber or in the cookstove. • Strong winds	• Sweep the chimney or have it clean by a professional. • Clean the cookstove. • Relocate chimney or fresh air intake.
Black smoke leaking out of the cookstove.	• Ignition with green wood. • Smoke pipe obstructed.	• Ignite the cookstove with suitable combustible. • Ask for professional qualified assistance.
Smoke coming out of the cookstove.	• Combustion chamber's door open while the cookstove is heating. • Insufficient draw • Bad adjustments of the air inlets during startup. • The cookstove must be cleaned.	• Check the door closing and the tightness of the gaskets. • Check the chimney system. • Eliminate or reduce to minimum the deviations and horizontal lengths in the chimney. • Check all the chimney sections as well as its height on the outside. • Ask for a chimney inspection by a certified technician. • Regularly clean the cookstove as indicated.

13. Parts List



IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for your unit, please provide the model number and the serial number. We reserve the right to change parts due to technology upgrade or availability. Contact an authorized dealer to obtain any of these parts. Never use substitute materials. Use of non-approved parts can result in poor performance and safety hazards.

#	Item	Description	Qty
1	SE24360	OVEN BISTRO DOOR ASSEMBLY	1
2	SE31234	BISTRO HANDLE KIT	1
3	SE74531	BISTRO DOOR HANDLE ROD KIT	2
4	AC09185	DOOR LATCH KIT	2
5	AC06500	SILICONE AND 5/8" X 8' BLACK DOOR GASKET KIT	1
6	31243	PLAIN FINISH STEEL SLOTTED SRPING PIN 3/16"Ø X 2"L	2
7	AC06400	3/4" X 6' FLAT BLACK SELF-ADHESIVE GLASS GASKET	2
8	SE74520	17 5/8" X 9 9/16" GLASS WITH GASKET	1
9	SE74521	BISTRO GLASS RETAINER KIT	1
10	SE24359	OVEN BISTRO DOOR ASSEMBLY	1
11	31227	COOK STOVE THERMOMETER	1
12	PL74524	SHOCK-ABSORBER	1
13	30124	SCREW #8 - 32 X 5/16" TRUSS QUADREX ZINC	2
14	SE74522	17 5/8" X 5 1/2" GLASS WITH GASKET	1
15	SE74523	BISTRO OVEN GLASS RETAINER KIT	1
16	SE31226	COMPLETE HINGE PIN KIT	1
17	SE65867	ASH PAN ASSEMBLY	1
18	SE74542	AIR CONTROL DAMPER ASSEMBLY	1
19	SE74512	SUPPORT AND LEGS KIT	1
20	SE24362	LEG WITH ELEVATOR BOLT	1
21	30050	LEVELING BOLT 3/8-16 X 1 1/2"	4
22	30507	BLACK TORX SCREW WITH FLAT HEAD TYPE F 1/4-20 X 3/4"	17
23	PL74533	BISTRO ASH SHELF	1
24	AC01211	5"Ø FRESH AIR INTAKE KIT FOR WOOD STOVE ON LEGS	1
25	AC06810	SELF ADHESIVE BLACK GASKET KIT 1/8" X 3/8" X 6'	1
26	PL74516	DECORATIVE SIDE	2
27	30154	BLACK SCREW #10 X 5/8" QUADREX #2 TYPE A	14
28	SE74514	REAR HEAT SHIELD ASSEMBLY	1
29	PL74525	BACK-SPLASH	1
30	SE74507	OVEN INTERIOR	1
31	31224	BISTRO GRILL COOK STOVE	1
32	30506	SCREW PAN TORX TYPE F 1/4-20 X 1" BLACK	1
33	AC06950	SELF-ADHESIVE GASKET 1" X 1/8" X 9'	1
34	SE74504	OVEN ASSEMBLY	1

#	Item	Description	Qty
35	21635	17" X 20 5/16" X 1/2" INSULATION	1
36	PL74534	INSULATING PROTECTIVE	1
37	30782	HEX FLANGE NUT SERRATED 1/4-20 STAINLESS 18-8	12
38	30128	1/4"-20 X 1 1/4" SOCKET SET SCREW	10
39	SE24361	TOP ASSEMBLY	1
40	PL24365	CAST IRON SPIGOT PAINTED	1
41	PL36899	DOUBLE WALL ADAPTOR	1
42	30024	1/4-20 X 1" MECHANICAL SCREW PAN QUADREX ZINC	2
43	AC06815	BLACK GASKET AND SILICONE KIT 3/16'' X 5'	1
44	24096	ROUND CAST IRON ASH PLUG	1
45	29007	3 1/4'' X 9'' X 1 1/4'' REFRACTORY BRICK	3
46	29010	4 1/2" X 9" X 1 1/4" REFRACTORY BRICK	4
47	29015	4'' X 9'' X 1 1/4'' REFRACTORY BRICK	14
48	SE65514	SECONDARY AIR TUBE KIT	1
49	PL65514	SECONDARY AIR TUBE	4
50	21388	20" X 12 1/2" X 1 1/4" VERMICULITE BAFFLE	1
51	SE46251	BISTRO INSTRUCTION MANUAL KIT	1
52	AC05959	METALLIC BLACK STOVE PAINT - 342 g (12oz) AEROSOL	1

BISTRO COOKING STOVE LIMITED LIFETIME WARRANTY

The warranty of the manufacturer extends only to the original retail purchaser and is not transferable. This warranty covers brand new products only, which have not been altered, modified nor repaired since shipment from factory. Proof of purchase (dated bill of sale), model name and serial number must be supplied when making any warranty claim to your DROLET dealer.

This warranty is void if the unit is used to burn materials other than cordwood (for which the unit is not certified by the EPA) and void if not operated according to the owner's manual. This warranty applies to normal residential use only. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation, power failures, downdrafts, venting problems or under-estimated heating area are not covered by this warranty. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature in the designated area in case of a power failure.

This warranty does not cover any scratch, corrosion, distortion, or discoloration. Any defect or damage caused by the use of unauthorized or other than original parts voids this warranty. An authorized qualified technician must perform the installation in accordance with the instructions supplied with this product and all local and national building codes. Any service call related to an improper installation is not covered by this warranty.

The manufacturer may require that defective products be returned or that digital pictures be provided to support the claim. Returned products are to be shipped prepaid to the manufacturer for investigation. Transportation fees to ship the product back to the purchaser will be paid by the manufacturer. All parts covered by this warranty are limited according to the table below.

The manufacturer, at its discretion, may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts. The manufacturer shall, in no event, be responsible for any uncommon, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product. A one-time replacement limit applies to all parts benefiting from lifetime coverage. This warranty applies to products purchased after March 1st, 2015.

	WARRANTY APPLICATION*	
DESCRIPTION	**PARTS**	**LABOUR**
Combustion chamber (welds only) and cast iron door frame.	Lifetime	N/A
Surrounds, ash drawer, trims (extrusions), and convector air-mate.	5 years	N/A
Removable stainless steel combustion chamber components, deflectors, and supports.	5 years	N/A
Glass retainers, handle assembly, and air control mechanism.	3 years	N/A
Carbon steel combustion chamber components.	2 years	N/A
Paint (peeling**), plating (defective manufacture**), ceramic glass (thermal breakage only**), gaskets, insulation, and oven thermometer.	1 year	N/A
Firebricks, vermiculite combustion chamber components, oven mitt, and cooking accessories.	N/A	N/A
All parts replaced under the warranty.	90 days	N/A

Subject to limitations above.** ****Picture required.

Shall your unit or a components be defective, contact immediately your **DROLET** dealer. To accelerate processing of your warranty claim, make sure to have on hand the following information when calling:

- Your name, address and telephone number;
- Bill of sale and dealer's name;
- Installation configuration;
- Serial number and model name as indicated on the nameplate fixed to the back of your unit;
- Nature of the defect and any relevant information.

Before shipping your unit or defective component to our plant, you must obtain an Authorization Number from your DROLET dealer. Any merchandise shipped to our plant without authorization will be refused automatically and returned to sender.

Cooking stove_Revision : June 2017

NOTES :

NOTES :

Stove Builder International inc.
250, rue de Copenhague,
St-Augustin-de-Desmaures (Québec) Canada
G3A 2H3
418-908-8002
www.drolet.ca/en/
tech@sbi-international.com

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

LISTED SOLID FUEL BURNING COOK STOVE
CUISINIÈRE À COMBUSTIBLE SOLIDE HOMOLOGUÉ

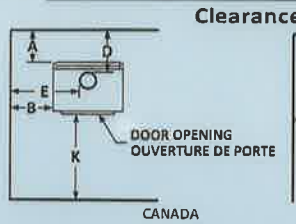
Intertek
June/Juin 2021
Control number: 4002461

STANDARDS / NORMES D'ESSAI:
Certified to/Certifié selon ULC S627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon ASTM E3053-17
Certified to/Certifié selon ASTM E2515-11 (R2017)

MODEL / MODÈLE :
BISTRO

Serial Number / No. de Série: 1

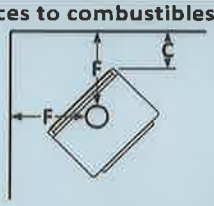
Clearances to combustibles / Dégagements aux combustibles



CANADA

Single wall connector / Tuyau à paroi simple		Double wall connector / Tuyau à paroi double	
A: 15 in./po.	(381 mm)	A: 6 in./po.	(152 mm)
B: 15 in./po.	(381 mm)	B: 15 in./po.	(381 mm)
C: 7.5 in./po.	(191 mm)	C: 5 in./po.	(127 mm)
D: 18 in./po.	(457 mm)	D: 9 in./po.	(229 mm)
E: 25 in./po.	(635 mm)	E: 24.75 in./po.	(629 mm)
F: 18 in./po.	(457 mm)	F: 15 in./po.	(381 mm)

Floor-ceiling/plancher-plafond: 72 in./po. (183cm)



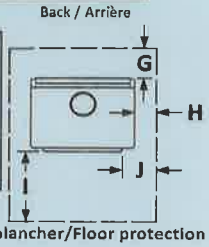
U.S.A.

Single wall connector / Tuyau à paroi simple		Double wall connector / Tuyau à paroi double	
A: 15 in./po.	(381 mm)	A: 6 in./po.	(152 mm)
B: 15 in./po.	(381 mm)	B: 15 in./po.	(381 mm)
C: 7.5 in./po.	(191 mm)	C: 5 in./po.	(127 mm)
D: 18 in./po.	(457 mm)	D: 9 in./po.	(229 mm)
E: 25 in./po.	(635 mm)	E: 24.75 in./po.	(629 mm)
F: 18 in./po.	(457 mm)	F: 15 in./po.	(381 mm)

MOBILE HOME
MAISONS MOBILES
Double wall connector
Tuyau à paroi double

A: 6 in./po.	(152 mm)	D: 9 in./po.	(229 mm)
B: 15 in./po.	(381 mm)	E: 24.75 in./po.	(629 mm)
C: 5 in./po.	(127 mm)	F: 15 in./po.	(381 mm)

Back / Arrière



Protection de plancher/Floor protection

CANADA	U.S.A.
G: 8 in./po. (203 mm)	I: 16 in./po. (406 mm)
H: 8 in./po (203 mm)	J: 8 in./po. (203 mm)
I: 18 in./po. (457 mm)	K: 36 in./po. (914 mm)
K: 48 in./po. (1219 mm)	

* See owner's manual for other clearances with lowered ceiling/
voir manuel d'installation pour autres dégagements avec plafond abaissé

PREVENT HOUSE FIRES

- Install and use only in accordance with the manufacturer's installation and operating instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- Use listed 152 mm /6 in. diameter single or double wall connectors with prefabricated chimneys approved UL 103 HT (US) and ULC S629 (CAN) suitable for solid fuels or lined masonry chimneys.
- See local building code and manufacturer's instructions for precautions required for passing a chimney through a combustible wall or ceiling.
- This stove must be installed as a free-standing cook stove with the clearances listed in the manufacturer's installation instructions. It is forbidden to install this stove in a factory-built fireplace.
- Do not pass connector through combustible wall or ceiling.
- Do not connect this unit to a chimney serving another appliance.
- Use with wood only. Do not use other fuels.
- Operate only with door closed. Open door to feed the stove only.
- Do not obstruct the space underneath the stove.
- Do not use grate or elevate fire. Build fire directly on hearth.
- Do not overfire. If heater or chimney connector glows, you are overfiring.
- Inspect and clean chimney frequently. Under certain co ·dition of use, creosote buildup may occur rapidly.
- Replace glass with ceramic type only.
- Install unit on a non-combustible material extending as shown above on this label.
- Suitable for mobile-home installation. Floor protection may vary from pedestal to legs version refer to owner's manual.
- Combustion air openings shall not be obstructed.
- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

PRÉVENEZ LES INCENDIES

- Installer et utiliser conformément au manuel d'utilisation du fabricant.
- Contacter les autorités de votre localité ayant juridiction concernant les restrictions et inspections d'installation.
- Utiliser des tuyaux d'évacuation à parois simple ou double homologués d'un diamètre de 6 po. (152 mm) avec une cheminée préfabriquée approuvée UL 103 HT (US) et ULC S629 (CAN) pour utilisation au bois ou une cheminée de maçonnerie gainée.
- Voir les codes locaux et le manuel d'installation du manufacturier pour le passage de la cheminée à travers un mur ou un plafond combustible.
- Ne pas traverser un plafond ou un mur combustible avec un tuyau d'évacuation.
- Ce poêle doit être installé comme une cuisinière autonome avec les dégagements indiqués dans les instructions d'installation du fabricant. Il est strictement défendu d'installer ce poêle dans un foyer préfabriqué.
- Ne pas raccorder cet appareil à une cheminée déservant un autre appareil.
- Brûler du bois seulement. Ne pas utiliser d'autres combustibles.
- Garder la porte fermée en tout temps. Ouvrir la porte que lors du chargement.
- Ne rien entreposer sous l'appareil.
- Ne pas utiliser de grilles ou de chenets pour surélever le feu.Préparer le feu directement sur l'âtre.
- Ne pas surchauffer. Si l'appareil ou le tuyau rougit, il y a surchauffe.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, l'accumulation de créosote peut être rapide.
- Remplacer la vitre seulement avec un verre de céramique.
- Installer l'appareil sur une plaque non combustible tel qu'indiqué sur l'étiquette.
- Poêle approuvé pour maison mobile.La protection de plancher peut varier entre la version plédestal et sur pattes. Voir le manuel d'instructions.
- Les entrées d'air servant à la combustion ne doivent pas être obstruées.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistente par rapport au manuel de l'utilisateur consiste une violation de la loi fédérale (USA).

Optional blower: (115V, 0.8A, 60Hz) — Option ventilateur: (115V, 0.8A, 60Hz)

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using cordwood.
AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.-U. Conforme aux normes d'émission de particules de 2020 avec bûche de bois.
Weighted average emission rate: / Moyenne pondérée des émissions: 2.0 g/h
Tested and certified in compliance with CFR 40 part 60, subpart AAA, section 60.534(a)(1(ii))

WARNING: This product can expose you to carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. (For more information go to www.p65warnings.ca.gov)

CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.

ATTENTION

- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
- UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.

Made in St-Augustin-de-Desmaures (Qc), Canada
21/06/2022 (# test)

SBI
Fabricant de poêles international
Stove Builder International

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
21/06/2022 (# test)

27883

SBI-331

CERTIFICATE OF CALIBRATION

ACCREDITED
CALIBRATION
CERT #2260.01

Certificate Number: 2022004021

Manufacturer:	Control Company	***RMA:***	AC22051378
Model:	4199	***Workorder:***	2022004021
Description:	Barometer	***Barcode:***	AL00040146-P
Serial:	200586704	***Received Conditions:***	Out of Tolerance
ID:	SBI-331	***Calibration Date:***	13-May-2022
Customer:	STOVE BUILDER INTERNATIONAL INC. 250 RUE DE COPENHAGUE ST-AUGUSTIN-DE-DESMAURES QC G3A 2H3	***Calibration Due:***	13-May-2023
		Temperature:	22.91°C
		Humidity:	49.5%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor K = 2, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2017 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

STANDARDS USED

Description	*Model*	*ID*	*Cal Date*	*Due Date*
Pressure Controller/Calibrator	DH Instruments PPC3	PRE-CAL-04	01-Jun-2021	01-Jun-2022
Reference Pressure Monitor	Fluke RPM4	PRE-MTR-04	31-May-2021	31-May-2022

Notes: Unit was adjusted.

Performed by: Anthony Morra
Technician
(digitally signed on 13-May-2022 4:37 pm)

QA Reviewed by: Slava Peciurov
Lab Manager
(digitally signed on 13-May-2022 4:50 pm)

Form: ROC101 Rev 9.3.a

Procedure: Pressure/Vacuum: CAL VER /DHI PPC3 (2.3.A) **FOUND (Fail)**

Test Description	True Value	Test Results	Tolerance	Lower Limit	Upper Limit	Status	Uncertainty
PRESSURE TEST							
MEASUREMENT UNITS: hPa a							
998.05	998.0	1017	±5.0	993	1003	Fail	5.9e-001

Procedure: Pressure/Vacuum: CAL VER /DHI PPC3 (2.3.A) **LEFT (Pass)**

Test Description	True Value	Test Results	Tolerance	Lower Limit	Upper Limit	Status	Uncertainty
PRESSURE TEST							
MEASUREMENT UNITS: hPa a							
998.05	998.0	998	±5.0	993	1003	Pass	5.9e-001

END OF CERTIFICATE

ID Certificat de Calibration
CA0003-006-030921-ACC-USI

Mettler-Toledo Inc.
Service Division
1900 Polaris Parkway
Columbus, OH 43240
1-800-METTLER

METTLER TOLEDO

Accredited by the American Association for Laboratory Accreditation (A2LA)
CALIBRATION CERT #1902.01

ISO 17025 Registered
ANSI/NCSL Z540-1 Accredited

Certificat de Calibration de Précision

Accuracy Calibration Certificate

Client

Compagnie:	SBI Fabricant De Poeles		
Adresse:	250 Rue de Copenhague		
Ville:	Saint-Augustin-De-Desmaures	**Contact:**	Gabrielle Santerre
Zip/Code Postal:	G3A 2H3		
État/Province:	Quebec		

Weighing Device

Manufacturier:	Weigh-Tronix	**Type d'Instrument:**	Weighing Instrument
Modèle:	DSL 4848-05	**# Outil:**	SBI-014 FLOOR SCALE
No. Série:	B00927386KL	**Modèle Indicateur:**	N/D
Building:	N/D	**Terminal Serial No.:**	N/D
Floor:	N/D	**Terminal Asset No.:**	N/D
Room:	N/D		

Plage	Capacité Max	Lisibilité (d)
1	500 kg	0.02 kg

Procedure

Instruction de Calibration: EURAMET cg-18 v. 4.0 (11/2015)
Instruction de travail METTLER TOLEDO: 30260953

Ce certificat de calibration contient des mesures pour les calibrations Tel que Trouvé et Tel que Laissé.

The sensitivity/span of the weighing instrument was adjusted before As Left calibration with an external weight.

The calibration was agreed with the user below the maximum capacity of the balance.

	Temperature	
Tel que Trouvé	Start: 22.0 °C	End: 22.0 °C
Tel que Laissé	Start: 22.0 °C	End: 22.0 °C

Environmental conditions have been verified to ensure the accuracy of the calibration.

This certificate is issued in accordance with the conditions of accreditation granted by A2LA, which is based on ISO/IEC 17025. A2LA has assessed the measurement capability of the laboratory and its traceability to recognized national standards.

Date calibration Tel que Trouvé:	09-03-2021	**Authorized A2LA Signatory:**	Dany Careau
Date calibration Tel que Laissé:	09-03-2021		Dany Careau
Date d'Émission:	09-03-2021		

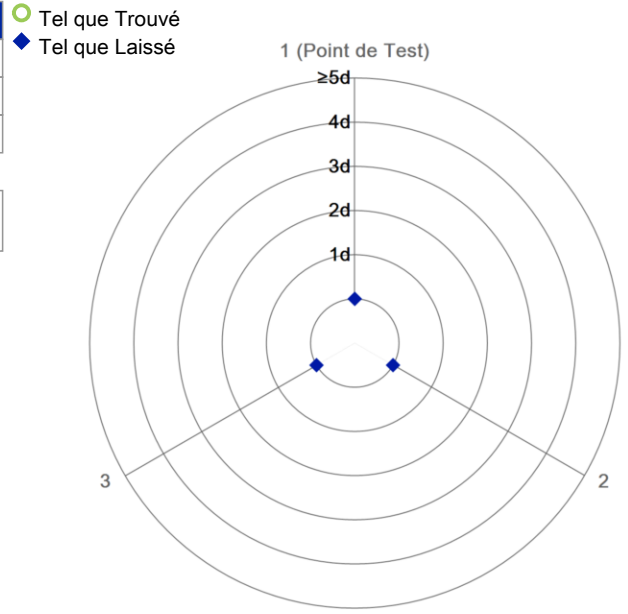
Résultats de Mesure

Répétabilité

Charge de Test: 100 kg

	Tel que Trouvé	Tel que Laissé
1	N/D	100.00 kg
2	N/D	100.00 kg
3	N/D	100.00 kg

Écart Type	**N/D**	**0.000 kg**



The "d" in the graph represents the readability of the range/interval in which the test was performed.

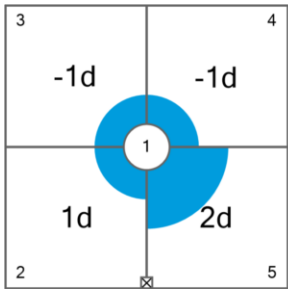
The results of this graph are based upon the absolute values of the differences from the mean value.

Excentricité

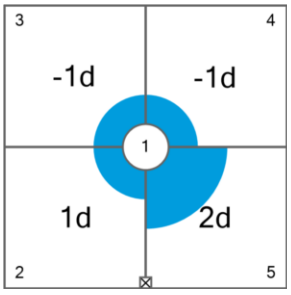
Charge de Test: 100 kg

Position	Tel que Trouvé	Tel que Laissé
1	100.06 kg	100.00 kg
2	100.08 kg	100.02 kg
3	100.04 kg	99.98 kg
4	100.04 kg	99.98 kg
5	100.10 kg	100.04 kg

Déviation Maximale	**0.04 kg**	**0.04 kg**



Tel que Trouvé



Tel que Laissé

The "d" in the graph represents the readability of the range/interval in which the test was performed.

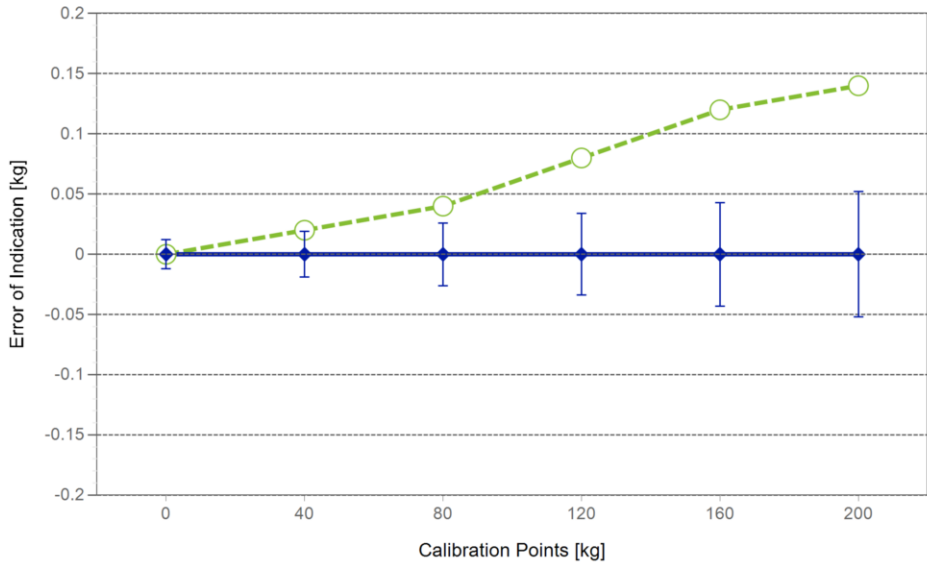
Erreur d'indication

Tel que Trouvé

	Reference Value	Indication	Erreur d'indication	Incertitude Élargie	k
1	0 kg	0.00 kg	0.00 kg	N/D	N/D
2	40 kg	40.02 kg	0.02 kg	N/D	N/D
3	80 kg	80.04 kg	0.04 kg	N/D	N/D
4	120 kg	120.08 kg	0.08 kg	N/D	N/D
5	160 kg	160.12 kg	0.12 kg	N/D	N/D
6	200 kg	200.14 kg	0.14 kg	N/D	N/D

Tel que Laissé

	Reference Value	Indication	Erreur d'indication	Incertitude Élargie	k
1	0 kg	0.00 kg	0.00 kg	0.012 kg	2
2	40 kg	40.00 kg	0.00 kg	0.019 kg	2
3	80 kg	80.00 kg	0.00 kg	0.026 kg	2
4	120 kg	120.00 kg	0.00 kg	0.034 kg	2
5	160 kg	160.00 kg	0.00 kg	0.043 kg	2
6	200 kg	200.00 kg	0.00 kg	0.052 kg	2



Tel que Trouvé

Tel que Laissé

For improved legibility of the graphics only increasing measurement points are shown and measurement points close to zero are not displayed.

The uncertainty stated is the expanded uncertainty at calibration obtained by multiplying the standard combined uncertainty by the coverage factor k – which can be larger than 2 according to EURAMET cg-18. The value of the measurand lies within the assigned range of values with a probability of approximately 95%. The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.

Test Equipment

Tous les poids utilisés pour le contrôle métrologique sont retraçables aux étalons Nationaux et Internationaux. Les poids ont été calibrés et certifiés par un laboratoire de calibration accrédité.

Jeu de Poids 1: OIML M1

Weight Set Number:	Kit 20kg "Q"	Date d'Émission:	03-06-2020
# Certificat:	1415506	Date de Calibration Due:	03-06-2021

Remarques

N/D

End of Accredited Section

The information below and any attachments to this calibration certificate are not part of the accredited calibration.

Incertitude de Mesure du dispositif de pesage en opération

Stated is the expanded uncertainty with k=2 in use. The formula shall be used for the estimation of the uncertainty under consideration of the errors of indication. The value R represents the net load indication in the unit of measure of the device.

Coefficient de température pour l'évaluation de l'incertitude de mesure en opération: $10.0 \cdot 10^{-6}$ / K

Plage d'opération sur le site pour l'évaluation de l'incertitude de mesure en opération: 10 K

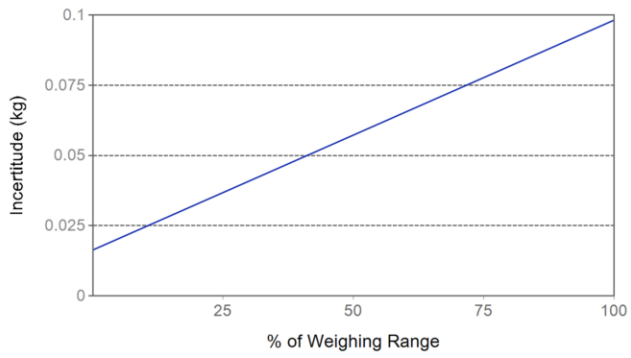
Linéarisation de l'Équation d'Incertitude

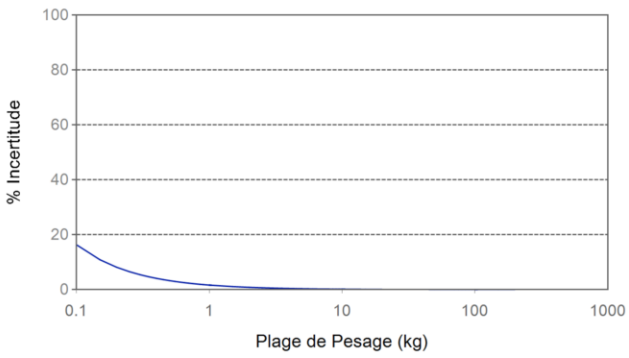
Plage			Tel que Trouvé	Tel que Laissé
	d	Max		
1	0.02 kg	200 kg	N/A	U_1 = 16 g + 0.409 g/kg · R

To optimize the stability of the linearization, besides of the zero load only increasing measurement points with a test load of 5% of the measurement range or larger are taken for the calculation of the linear equation.

Absolute and Relative Measurement Uncertainty in Use for Various Net Indications (Examples)

Indication Net	Tel que Trouvé		Tel que Laissé	
0.20 kg	N/A	N/A	0.016 kg	8.0%
2.00 kg	N/A	N/A	0.017 kg	0.84%
20.00 kg	N/A	N/A	0.024 kg	0.12%
100.00 kg	N/A	N/A	0.057 kg	0.057%
200.00 kg	N/A	N/A	0.098 kg	0.049%





Tel que Trouvé Tel que Laissé

Dry Gas Meter Calibration

Meter Manufacturer:	American Meter Co
Model:	DTM-200A
Lab ID #:	SBI-047
Serial #:	98Z332226
Calibration Date:	6/6/2022
Calibration Expiration:	
Barometric Pressure:	30.03 in. Hg

Reference Standard DGM	
Manufacturer:	American Meter CO
Model:	DTM-200A
Lab ID#:	SBI-103
Serial #:	07J264834
Calibration Expiration Date:	5/19/2023
Calibration γ Factor:	0.995

Unit Under Test Previous Calibration	
Date	5/11/2022
γ Factor:	1.023
Allowable Deviation (±5%):	0.05115
Actual Deviation:	0.00
Result:	PASS

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	152.259	155.516	289.257
Standard DGM Temperature (°F)	72.0	73.0	74.0
Standard DGM Pressure (in H_2O)	0.00	0.00	0.0
DGM Initial Volume (ft^3)	246.419	251.715	257.054
DGM Final Volume (ft^3)	251.715	257.054	266.840
DGM Temperature (°F)	72.0	71.0	71.0
DGM Pressure (in H_2O)	-0.36	-0.36	-0.36
Time (min)			
Net Volume for Standard DGM (ft^3)	5.377	5.492	10.215
Net Volume for DGM (ft^3)	5.296	5.339	9.786

Dry Gas Meter γ Factor	1.011	1.021	1.034
γ Factor Deviation From Average	1.011	1.021	1.034

Average Gas Meter γ Factor: 1.022

Calculations:

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

Standard Reference Meter is calibrated to NIST traceable standards. Uncertainty of measurement is ±0.5%.

Technician:

Dry Gas Meter Calibration

Meter Manufacturer:	American Meter Co
Model:	DTM-200A
Lab ID #:	SBI-046
Serial #:	90R054300
Calibration Date:	6/6/2022
Calibration Expiration:	
Barometric Pressure:	30.03 in. Hg

Reference Standard DGM	
Manufacturer:	American Meter CO
Model:	DTM-200A
Lab ID#:	SBI-103
Serial #:	07J264834
Calibration Expiration Date:	5/19/2023
Calibration γ Factor:	0.995

Unit Under Test Previous Calibration	
Date	5/11/2022
γ Factor:	1.019
Allowable Deviation (±5%):	0.05095
Actual Deviation:	0.01
Result:	PASS

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	188.760	156.988	214.234
Standard DGM Temperature (°F)	72.0	72.0	74.0
Standard DGM Pressure (in H_2O)	0.00	0.00	0.0
DGM Initial Volume (ft^3)	275.541	282.095	393.412
DGM Final Volume (ft^3)	282.095	287.475	400.689
DGM Temperature (°F)	72.0	72.0	74.0
DGM Pressure (in H_2O)	-0.26	-0.26	-0.26
Time (min)			
Net Volume for Standard DGM (ft^3)	6.666	5.544	7.566
Net Volume for DGM (ft^3)	6.554	5.380	7.277

Dry Gas Meter γ Factor	1.013	1.026	1.035
γ Factor Deviation From Average	1.013	1.026	1.035

Average Gas Meter γ Factor: 1.025

Calculations:

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

Standard Reference Meter is calibrated to NIST traceable standards. Uncertainty of measurement is ±0.5%.

Technician:

Dry Gas Meter Calibration

Meter Manufacturer:	American Meter Co
Model:	DTM-200A
Lab ID #:	SBI-290
Serial #:	88N515612
Calibration Date:	6/6/2022
Calibration Expiration:	
Barometric Pressure:	30.03 in. Hg

Reference Standard DGM	
Manufacturer:	Sensus
Model:	S-275
Lab ID#:	SBI-346
Serial #:	25125396
Calibration Expiration Date:	5/18/2023
Calibration γ Factor:	0.994

Unit Under Test Previous Calibration	
Date	5/11/2022
γ Factor:	0.999
Allowable Deviation (±5%):	0.04995
Actual Deviation:	0.01
Result:	PASS

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	182.877	192.675	189.089
Standard DGM Temperature (°F)	72.0	72.0	74.0
Standard DGM Pressure (in H_2O)	0.00	0.00	0.0
DGM Initial Volume (ft^3)	437.775	444.238	470.861
DGM Final Volume (ft^3)	444.238	451.020	477.555
DGM Temperature (°F)	72.0	72.0	74.0
DGM Pressure (in H_2O)	0.40	0.40	0.4
Time (min)			
Net Volume for Standard DGM (ft^3)	6.458	6.804	6.678
Net Volume for DGM (ft^3)	6.463	6.782	6.694

Dry Gas Meter γ Factor	0.992	0.996	0.991
γ Factor Deviation From Average	0.992	0.996	0.991

Average Gas Meter γ Factor: 0.993

Calculations:

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

Standard Reference Meter is calibrated to NIST traceable standards. Uncertainty of measurement is ±0.5%.

Technician:

Dry Gas Meter Calibration

Meter Manufacturer:	Sensus
Model:	S-275
Lab ID #:	SBI-347
Serial #:	25125397
Calibration Date:	6/6/2022
Calibration Expiration:	
Barometric Pressure:	30.03 in. Hg

Reference Standard DGM	
Manufacturer:	Sensus
Model:	S-275
Lab ID#:	SBI-346
Serial #:	25125396
Calibration Expiration Date:	5/18/2023
Calibration γ Factor:	0.994

Unit Under Test Previous Calibration	
Date	5/12/2022
γ Factor:	1.010
Allowable Deviation (±5%):	0.0505
Actual Deviation:	0.02
Result:	PASS

Calibration Data	Run 1	Run 2	Run 3
Standard DGM Initial Volume (L)	0.000	0.000	0.000
Standard DGM Final Volume (L)	150.363	145.010	130.229
Standard DGM Temperature (°F)	71.0	71.0	71.000
Standard DGM Pressure (in H_2O)	0.00	0.00	0.0
DGM Initial Volume (ft^3)	99.005	104.350	109.506
DGM Final Volume (ft^3)	104.350	109.506	114.138
DGM Temperature (°F)	71.0	71.0	72.0
DGM Pressure (in H_2O)	-0.40	0.40	0.4
Time (min)			
Net Volume for Standard DGM (ft^3)	5.310	5.121	4.599
Net Volume for DGM (ft^3)	5.345	5.156	4.632

Dry Gas Meter γ Factor	0.988	0.986	0.988
γ Factor Deviation From Average	0.988	0.986	0.988

Average Gas Meter γ Factor: 0.988

Calculations:

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

Standard Reference Meter is calibrated to NIST traceable standards. Uncertainty of measurement is ±0.5%.

POLYCONTROLS
INTEGRATION • CALIBRATION • INSTRUMENTATION

CLAS 2009-02

#655

CERTIFICAT D'ÉTALONNAGE # 15508

Date d'étalonnage : 2021-11-16
Date d'émission du certificat : 2021-11-16

Stove Builder International
250, rue de Copenhague
Saint-Augustin-de-Desmaures, Québec, Canada
G3A 2H3

Étalonnage d'un
Débitmètre volumétrique American Meter Company DTM-200A S/N : 07J264834

CONFORMITÉ AU PROGRAMME DE QUALITÉ

Tous les étalonnages sont effectués conformément au manuel d'assurance qualité de Polycontrols qui est conforme à la norme ISO/IEC 17025: 2017, à la norme ISO 9001 – 2015 ainsi qu'à toutes autres exigences de qualité définies dans la description d'achat des clients. Les résultats ne sont valides que pour l'objet soumis à l'essai ou à l'étalonnage. Si applicable, la règle de décision est décrite au certificat.

TRAÇABILITÉ

La traçabilité des étalons de débit au National Institute of Standards and Technology, NIST, est maintenue par les laboratoires de Fluke Corporation de Phoenix, Arizona et est conforme aux normes ISO/IEC 17025, ANSI/NCSL Z540-1-1994, ISO-10012-1, MIL-STD 45662A.

Le Service d'évaluation des laboratoires d'étalonnage (CLAS) du Conseil national de recherches du Canada (CNRC) a évalué et certifié la capacité d'étalonnage du laboratoire et la traçabilité au Système international d'unités (SI) ou à des étalons acceptables selon le CLAS. Le présent certificat d'étalonnage est délivré conformément aux conditions de certification du CLAS et aux conditions d'accréditation du Conseil canadien des normes (CCN). Le CLAS et le CCN ne garantissent pas l'exactitude des étalonnages individuels effectués par les laboratoires accrédités.

APTITUDE EN MATIÈRE DE MESURE ET D'ÉTALONNAGE - CMC

Les rendements métrologiques d'étalonnage ont une incertitude de ±0.2% de la lecture pour les mesures entre 5 SCCM à 10 SLPM, ±0.3% de la lecture pour les mesures entre 10 SLPM à 30 SLPM, ±0.2% de la lecture pour les mesures entre 30 SLPM à 3000 SLPM, ±0.3% de la lecture pour les mesures supérieures à 3000 SLPM jusqu'à 6000 SLPM et ±0.5% pour les mesures inférieures à 5 SCCM jusqu'à concurrence de 1 SCCM, équivalent air ou azote. Les incertitudes exprimées sont élargies avec un facteur d'élargissement k = 2, et ce, pour un niveau de confiance d'environ 95 %, dans l'hypothèse d'une distribution normale incluant la résolution de l'instrument. Le rapport d'incertitude des essais (RIE) de cet étalonnage respecte un ratio de 4:1 à moins d'indication contraire.

SOMMAIRE DES CONDITIONS DE L'INSTRUMENT EN TEST

Conditions initiales	En bon état
Travail Effectué	Étalonnage de l'instrument
	Lectures Initiales = Lectures finales, aucun ajustement
Résultats	Lectures finales dans les tolérances
Remarques	Fréquence d'étalonnage aux 12 mois

B Poirier
Bernard Poirier
Métrologiste

Olivier Duchesne Bamber
Responsable du laboratoire

POLYCONTROLS
INTEGRATION • CALIBRATION • INSTRUMENTATION

CLAS NRC-CNRC
CLAS 2009-02

SCC Accredited LAB
LAB Accrédité CCN
#655

Certificat d'étalonnage # 15508

Numéro de série:	07J264834	Station de mesure:	3
Date d'étalonnage:	2021-11-16	Procédure:	POS-CAL-005
Identification de l'instrument:	SBI-103	Règle de décision:	Méthode #3

Instrument de mesure de référence utilisé pour l'étalonnage final

Description	Modèle	# Série	Traçabilité	Date dû
Fluke molbloc_30 slpm	3E4-VCR-V-Q	2403	1500308202	2022-06-03
Fluke molbox1	Molbox1	755	1500311473	2022-07-02
RTD Mist	M22	3061002	2021004861	2022-06-21
Module 44.5 PSI avec Baro 163671	Module 30	160659	2021003409	2022-05-04

Spécifications finales de l'appareil

Gaz	Air
Température d'opération	
Pression à l'entrée	
Pression à la sortie	
Température de référence	
Pression de référence	
Étendue d'échelle	0-200 ACFH
Signaux Entrée/Sortie	-
Alimentation	
Tolérance	±2 %F.S.

Condition d'étalonnage

Gaz	Air
Température ambiante	21 °C
Pression ambiante	1011.43 mbar
Orientation	Horizontale
Élastomère	
Valve	

Lectures finales

Débit du test ACFH	Instrument en test ft³	Valeurs mesurées Pression PSIA	Température °C	Référence ft³	Référence calculée ft³	Erreur calculée ft³	Tolérance acceptable ft³	Incertitude k = 2 ft³	TUR
5.0186	0.8420	14.682	21.02	0.8338	0.8343	0.0077	0.6650	0.0034	>4
10.0496	1.6810	14.681	20.98	1.6724	1.6733	0.0077	0.6660	0.0056	>4
15.0522	2.5230	14.680	20.95	2.5036	2.5049	0.0181	0.6657	0.0083	>4
24.9227	4.1870	14.682	20.92	4.1549	4.1561	0.0309	0.6670	0.0138	>4
39.7734	6.6830	14.687	20.92	6.6241	6.6237	0.0593	0.6661	0.0220	>4

POLYCONTROLS
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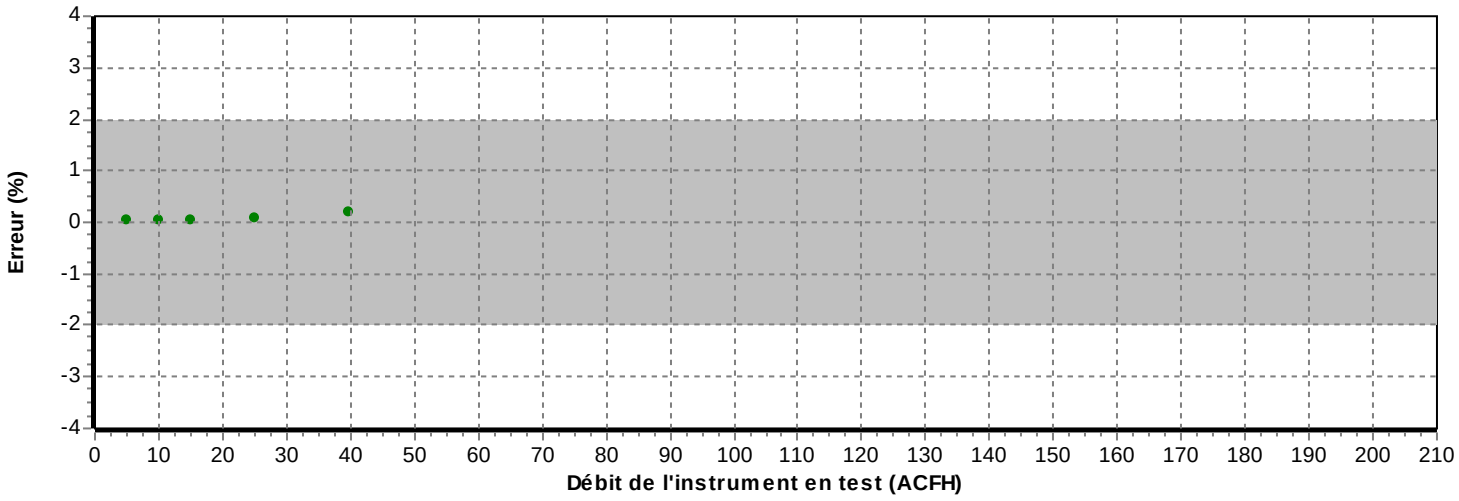
CLAS 2009-02

#655

Certificat d'étalonnage # 15508

Numéro de série:	07J264834	Station de mesure:	3
Date d'étalonnage:	2021-11-16	Procédure:	POS-CAL-005
Identification de l'instrument:	SBI-103	Règle de décision:	Méthode #3

Résultats finaux



Voir l'annexe pour la règle de décision

ULRICH
DIVISION - TRANSCAT CANADA

Transcat Canada Inc.
9900, Côte-de-Liesse
Montréal (Québec)
H8T 1A1

Tél. (514) 631-6653
Fax (514) 631-6122
info@transcat.ca
www.transcat.ca

ACCREDITATION
ISO 17025
SCC Scope Number 220

CALIBRATION CERTIFICATE

Certificate no.:	810437	**Calibration date:**	June 08, 2021
Identification:	SBI-096	**Certificate issued:**	June 08, 2021
Description:	CALIBRATOR, OMEGA CL23A	**Interval:**	12 months
Size:	TC K/J/T	**Due date:**	June 08, 2022
Manufacturer:	OMEGA	**Procedure no.:**	METCAL-U rev. 2
Model no.:	CL23A	**Procedure date:**	2019-02-07
Serial no.:	T-256137	**Environment:**	CLAS Type 2 Laboratory
		Temperature:	23 ± 2°C
		Humidity:	35 - 55% RH
		Metrologist:	NIN

Property of: SBI
250 RUE DE COPENHAGUE
ST-AUGUSTIN-DE-DESMAURES, QC G3A 2H3

Approved by: David Llorens, Quality Manager

This calibration certificate is issued in accordance with the applicable requirements of ISO/IEC 17025 and Ulrich Metrology's quality manual QM-09 Revision 9. Measurement results provi are traceable to either the National Research Council Canada (NRC), the National Institute of Standards and Technology (NIST), a national laboratory of another country signatory to the C. Mutual Recognition Arrangement (MRA), or a calibration laboratory accredited by an accrediting body with which Canada has an equivalence agreement.

CALIBRATION STANDARDS

See notes below.

MEASUREMENT UNCERTAINTY

The uncertainties are expanded using a coverage factor K=2 for a level of confidence of approximately 95%, assuming a normal distribution.

CALIBRATION DATA

See next page for measurement results.

Emissions Sampling System Thermocouple Calibration Check

Calibration based on NIST Monograph 175 per ASTM E2515-11
All thermocouples are type "K"

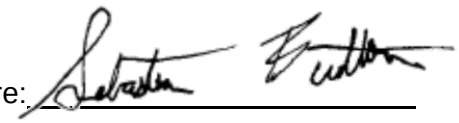
Date: 6/6/2022

Sampling System ID Numbers: SBI EPA Acquisition Software

Performed By: SJB Calibration Instrument ID Number: SBI-096

Reference Temperature (F)	Acceptable Error (F)	Thermocouple Location						
		FB Left	FB Right	FB Back	FB Top	FB Bottom	Catalyst Exit	Flue
0	± 4.0	0.1	0.1	0.2	0.3	-0.1	N/A	0.9
200	± 4.0	199.9	199.9	200.1	200.2	199.7	N/A	200.7
400	± 4.0	399.9	400.0	400.2	400.3	399.8	N/A	400.8
600	± 4.5	599.9	600.0	600.2	600.2	599.8	N/A	600.7
800	± 6.0	799.9	799.9	800.2	800.2	799.8	N/A	800.7

Reference Temperature (F)	Acceptable Error (F)	Thermocouple Location					
		Ambient	Filter A	Filter B	Meter A	Meter B	Dilution Tunnel
0	± 4.0	0.5	-0.4	-0.1	-0.3	-0.3	0.1
200	± 4.0	200.4	199.5	199.9	199.5	199.6	200.0
400	± 4.0	400.5	399.7	400.0	399.6	399.7	400.1
600	± 4.5	600.4	599.6	600.1	599.7	599.7	600.1
800	± 6.0	800.3	799.5	799.9	799.3	799.6	800.1

Technician Signature:  Date: 6/6/2022

Fabricant de poêle international inc.
Stove Builder International Inc.

CERTIFICAT DE VÉRIFICATION

VERIFICATION CERTIFICATE

No. Certificat : 20211021001

Identification : SBI-153
Description : Moisture content standard
Manufacturier : Delmhorst
No. Modèle : MCS-1
No. Série : 81808
Propriété de : SBI
250 de Copenhague
St-Augustin-de-Desmaures, QC G3A 2H3

Date de vérification : 21 octobre 2021
Prochaine vérification : 21 octobre 2022
Méthode utilisée : Cal-MCS_01
Température : 72 °F
Humidité : 41.2 %
État avant calibration : Bon état

Ce certificat de calibration est émis en accordance avec les requis applicables du standard ISO/IEC 17025 et le manuel qualité, version 2.0 de SBI.

MESURES D'INCERTITUDE

Les incertitudes signalées représentent un niveau de confiance de 95% en supposant une distribution normale, avec un facteur de couverture de K = 2.

REMARQUES

L'instrument de mesure est vérifié et nettoyé avant l'étalonnage. Les résultats de calibration de ce certificat se rapportent seulement à l'instrument calibré ci-dessus.

ÉTALON UTILISÉ POUR VÉRIFIER L'ÉQUIPEMENT

No. de l'étalon utilisé	Description	No. de certificat	Date de calibration	Date d'échéance
SBI-194	Multimètre	780975	2020-11-24	2021-11-24

Fabricant de poêle international inc.
Stove Builder International Inc.

CERTIFICAT DE VÉRIFICATION

VERIFICATION CERTIFICATE

DONNÉES DE VÉRIFICATION

Unités : MΩ

Résultat : PASS

22%			
S.D.	0.00	%	
R.M.U.	0.91	%	
O.M.U	**98.08**	**%**	
	Ave A.D.	0.30	%
Standard	Reading	A.D.	
1.10	1.10	0.00	
1.10	1.10	0.00	
1.10	1.09	0.91	

12%			
S.D.	0.00	%	
R.M.U.	0.83	%	
O.M.U	**98.24**	**%**	
	Ave A.D.	0.28	%
Standard	Reading	A.D.	
120	120	0.00	
120	120	0.00	
120	119	0.83	

VÉRIFIÉ PAR : Gabrielle Santerre

Gabrielle Santerre

FIN DU CERTIFICAT

21 octobre 2021

Certificat # 20211021001

Digital Measurement Metrology Inc.
A Trescal company
26 Automatic Road, Unit 4
Brampton, ON, L6S 5N7
Tel. (905) 790-9400 Fax. (905) 790-9266
www.dmm.ca // service@dmm.ca

ACCREDITED
CERTIFICATE #1692.01

CALIBRATION CERTIFICATE

Description:	WEIGHT	**Calibration Date:**	Oct 02, 2018 **Certificate:** 95513
Asset Number:	SBI-190	**Property of:**	SBI ST-AUGUSTIN
Serial/Model Number:	N / A	**Address:**	250, rue de Copenhague, Doors 10-12
Manufacturer:	N / A	**City/Prov/PC:**	St-Augustin-de-Desmaures QC G3A 2H3
Instrument Capacity:	5 kg	**Country:**	Canada
Procedure:	CP34G	**Method Used:**	COMPARISON
Room Humidity:	45 % **Room Temp:** 19.6 °C	**Conformance Stds:**	ISO/IEC 17025: 2005

CALIBRATION DATA

Units: kg

Range	Std/Nominal	As Found	As Left	Min	Max	Tolerance In	Tolerance Out	Comments
	5	5.0005	5.0005	4.9995	5.0005	✔		

Remarks:
Inspected, cleaned and tested using the mfgr's specs and procedures, customer's, national or international standards, or new procedure design. Measurement uncertainty is not included when any statement of compliance is made. The user must decide on acceptance for the intended use.

Received Condition:
In tolerance.

CALIBRATION STANDARD(S) USED

Traceable No.	Asset Number	Calibration Date	Date Due
95457	DMML-2356075	Oct 01, 2018	Oct 01, 2019
W-046636-25724	DMML-21701	Jan 08, 2018	Jan 08, 2020

Weights are accurate to class F tolerance.

Estimated measurement uncertainty is ± 0.2 g.

Reported uncertainties represent a 95 % confidence level assuming a normal distribution, with a coverage factor of k=2.

This calibration was performed in the lab and is traceable to the International System of Units (SI Units) through NIST or NRC. This report is covered by our accreditation.

Calibration of the instrument expires on Oct 02, 2023

CALIBRATED BY Chris Riddle — Christopher Riddle

Q.A. APPROVAL Andrés Galeano — Andres Galeano

END OF REPORT

ACCREDITATION 17025 ISO/IEC

ULRICH
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Transcat Canada Inc.
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info@transcat.ca
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ACCREDITATION
ISO 17025
SCC Scope Number 220

CALIBRATION CERTIFICATE

Certificate no.:	827062	**Calibration date:**	September 23, 2021
Identification:	SBI-212	**Certificate issued:**	September 23, 2021
Description:	THERMO-HYGROMETER, AMPROBE TH-3	**Interval:**	12 months
Manufacturer:	AMPROBE	**Due date:**	September 23, 2022
Model no.:	TH-3	**Procedure no.:**	METCAL-U rev. 2
Serial no.:	100906351	**Procedure date:**	2019-02-07
		Environment:	CLAS Type 2 Laboratory
		Temperature:	23 ± 2°C
		Humidity:	35 - 55% RH
		Metrologist:	NFS

Property of: SBI
250 RUE DE COPENHAGUE
ST-AUGUSTIN-DE-DESMAURES, QC G3A 2H3

Approved by: David Llorens, Quality Manager

This calibration certificate is issued in accordance with the applicable requirements of ISO/IEC 17025 and Ulrich Metrology's quality manual QM-09 Revision 9. Measurement results provi are traceable to either the National Research Council Canada (NRC), the National Institute of Standards and Technology (NIST), a national laboratory of another country signatory to the C Mutual Recognition Arrangement (MRA), or a calibration laboratory accredited by an accrediting body with which Canada has an equivalence agreement.

CALIBRATION STANDARDS

See notes below.

MEASUREMENT UNCERTAINTY

The uncertainties are expanded using a coverage factor K=2 for a level of confidence of approximately 95%, assuming a normal distribution.

CALIBRATION DATA

See next page for measurement results.

234528 P

Ulrich Métrologie inc.
Ulrich Metrology Inc.
9900, Côte-de-Liesse
Montréal (Québec) H8T 1A1

Tél. (514) 631-6653
Fax (514) 631-6122
info@ulrich.ca
www.ulrich.ca

CALIBRATION DATA

Certificate No.: 827062

Identification: SBI-212
Description: THERMO-HYGROMETER
Serial no.: 100906351
Procedure: Amprobe TH-3: 2500ST-LT-M

Result: PASS
Condition: FOUND-LEFT

CALIBRATION STANDARDS

Standard ID	Type	Manufacturer	Model no.	Cal. Date	Due Date
1304953	HUMIDITY GENERATOR	THUNDER SCIENTIFIC	2500ST-LT	2021-01-28	2022-01-31

MEASURMENT RESULTS (Per MET/CAL)

PARAMETER	TEST RESULT	ACCEPTANCE LIMITS LOW	HIGH	UNITS	Exp Uncert	Condition
TEMPERATURE CALIBRATION						
23°C						
23.050 °C	23.50	22.25	23.85	°C	1.0e-001°C	Pass
RELATIVE HUMIDITY CALIBRATION AT 23°C						
20% RH						
20.000 %	21.00	17.00	23.00	%	6.0e-001%	Pass
50% RH						
50.000 %	49.80	47.00	53.00	%	6.0e-001%	Pass
80% RH						
79.990 %	77.10	76.99	82.99	%	6.0e-001%	Pass

End of Test Data

ID Certificat de Calibration
CA0003-007-030921-ACC-USI

METTLER TOLEDO

Mettler-Toledo Inc.
Service Division
1900 Polaris Parkway
Columbus, OH 43240
1-800-METTLER

Accredited by the American Association for Laboratory Accreditation (A2LA)
CALIBRATION CERT #1902.01

ISO 17025 Registered
ANSI/NCSL Z540-1 Accredited

Certificat de Calibration de Précision

Accuracy Calibration Certificate

Client

Compagnie:	SBI Fabricant De Poeles		
Adresse:	250 Rue de Copenhague		
Ville:	Saint-Augustin-De-Desmaures	**Contact:**	Gabrielle Santerre
Zip/Code Postal:	G3A 2H3		
État/Province:	Quebec		

Weighing Device

Manufacturier:	Ohaus	**Type d'Instrument:**	Weighing Instrument
Modèle:	FD15	**# Outil:**	SBI-222 BALANCE BENCH
No. Série:	B144397174	**Modèle Indicateur:**	N/D
Building:	N/D	**Terminal Serial No.:**	N/D
Floor:	N/D	**Terminal Asset No.:**	N/D
Room:	N/D		

Plage	Capacité Max	Lisibilité (d)
1	15000 g	1 g

Procedure

Instruction de Calibration: EURAMET cg-18 v. 4.0 (11/2015)
Instruction de travail METTLER TOLEDO: 30260953

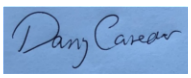
Ce certificat de calibration contient des mesures pour les calibrations Tel que Trouvé et Tel que Laissé.

The sensitivity/span of the weighing instrument was adjusted before As Left calibration with an external weight.

	Temperature	
Tel que Trouvé	Start: 22.0 °C	End: 22.0 °C
Tel que Laissé	Start: 22.0 °C	End: 22.0 °C

Environmental conditions have been verified to ensure the accuracy of the calibration.

This certificate is issued in accordance with the conditions of accreditation granted by A2LA, which is based on ISO/IEC 17025. A2LA has assessed the measurement capability of the laboratory and its traceability to recognized national standards.

Date calibration Tel que Trouvé:	09-03-2021	**Authorized A2LA Signatory:**	
Date calibration Tel que Laissé:	09-03-2021		Dany Careau
Date d'Émission:	09-03-2021		

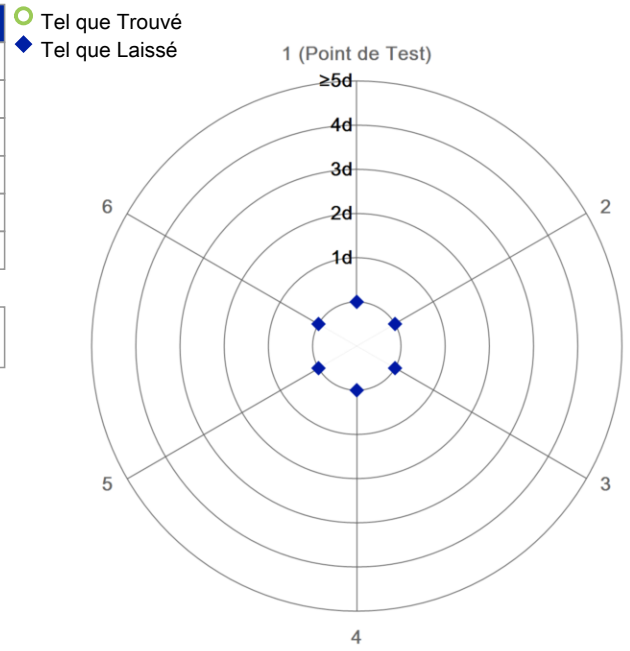
Résultats de Mesure

Répétabilité

Charge de Test: 10000 g

	Tel que Trouvé	Tel que Laissé
1	N/D	10000 g
2	N/D	10000 g
3	N/D	10000 g
4	N/D	10000 g
5	N/D	10000 g
6	N/D	10000 g

Écart Type	**N/D**	**0.0 g**



The "d" in the graph represents the readability of the range/interval in which the test was performed.

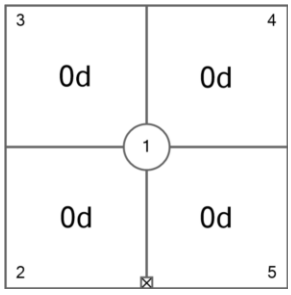
The results of this graph are based upon the absolute values of the differences from the mean value.

Excentricité

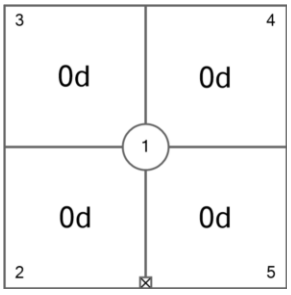
Charge de Test: 5000 g

Position	Tel que Trouvé	Tel que Laissé
1	4999 g	5000 g
2	4999 g	5000 g
3	4999 g	5000 g
4	4999 g	5000 g
5	4999 g	5000 g

Déviation Maximale	**0 g**	**0 g**



Tel que Trouvé



Tel que Laissé

The "d" in the graph represents the readability of the range/interval in which the test was performed.

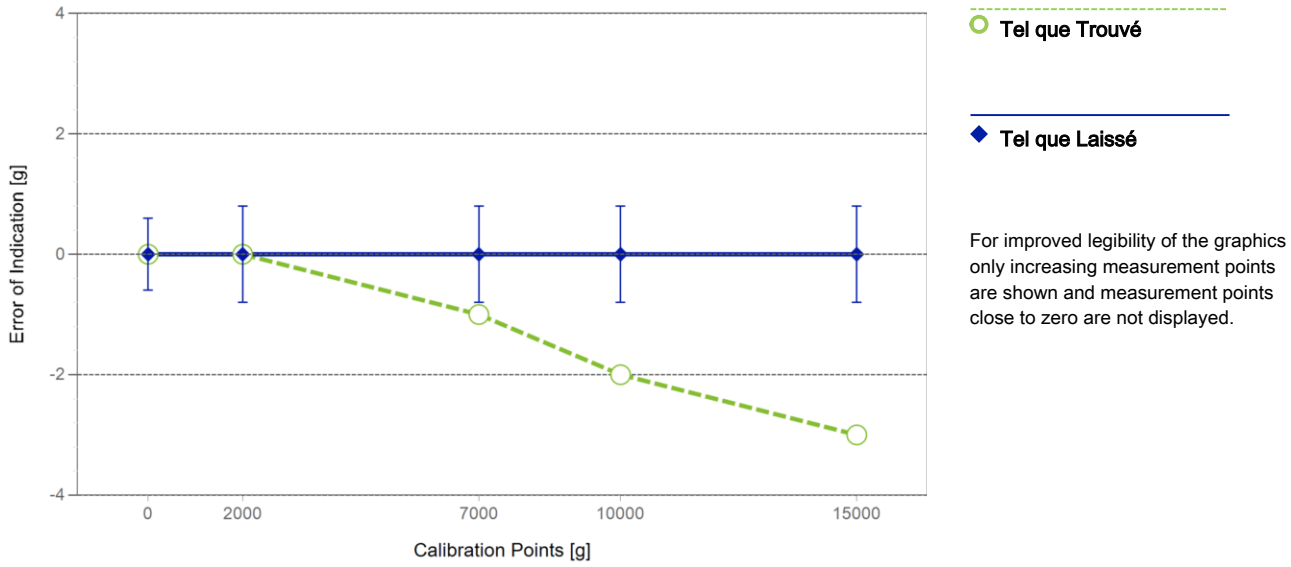
Erreur d'indication

Tel que Trouvé

	Reference Value	Indication	Erreur d'indication	Incertitude Élargie	k
1	0 g	0 g	0 g	N/D	N/D
2	2000 g	2000 g	0 g	N/D	N/D
3	7000 g	6999 g	-1 g	N/D	N/D
4	10000 g	9998 g	-2 g	N/D	N/D
5	15000 g	14997 g	-3 g	N/D	N/D

Tel que Laissé

	Reference Value	Indication	Erreur d'indication	Incertitude Élargie	k
1	0 g	0 g	0 g	0.6 g	2
2	2000 g	2000 g	0 g	0.8 g	2
3	7000 g	7000 g	0 g	0.8 g	2
4	10000 g	10000 g	0 g	0.8 g	2
5	15000 g	15000 g	0 g	0.8 g	2



The uncertainty stated is the expanded uncertainty at calibration obtained by multiplying the standard combined uncertainty by the coverage factor k – which can be larger than 2 according to EURAMET cg-18. The value of the measurand lies within the assigned range of values with a probability of approximately 95%. The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.

Test Equipment

Tous les poids utilisés pour le contrôle métrologique sont retraçables aux étalons Nationaux et Internationaux. Les poids ont été calibrés et certifiés par un laboratoire de calibration accrédité.

Jeu de Poids 1: OIML F1

Weight Set Number:	607	Date d'Émission:	12-02-2021
# Certificat:	01182891-1	Date de Calibration Due:	28-02-2023

Remarques

N/D

End of Accredited Section

The information below and any attachments to this calibration certificate are not part of the accredited calibration.

Incertitude de Mesure du dispositif de pesage en opération

Stated is the expanded uncertainty with k=2 in use. The formula shall be used for the estimation of the uncertainty under consideration of the errors of indication. The value R represents the net load indication in the unit of measure of the device.

Coefficient de température pour l'évaluation de l'incertitude de mesure en opération: $10.0 \cdot 10^{-6}$ / K

Plage d'opération sur le site pour l'évaluation de l'incertitude de mesure en opération: 10 K

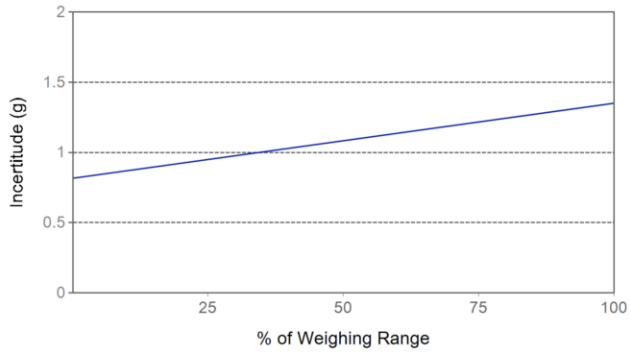
Linéarisation de l'Équation d'Incertitude

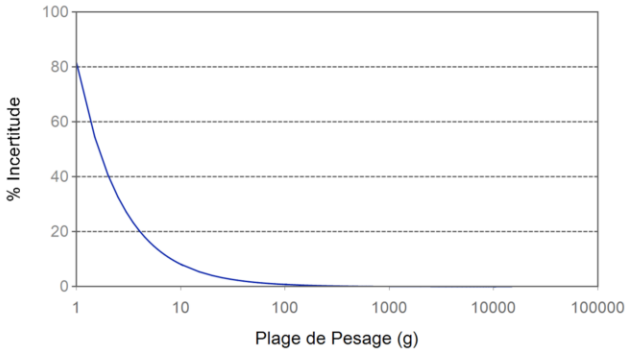
Plage			Tel que Trouvé	Tel que Laissé
	d	Max		
1	1 g	15000 g	N/A	U_1 = 816 mg + 0.0356 mg/g · R

To optimize the stability of the linearization, besides of the zero load only increasing measurement points with a test load of 5% of the measurement range or larger are taken for the calculation of the linear equation.

Absolute and Relative Measurement Uncertainty in Use for Various Net Indications (Examples)

Indication Net	Tel que Trouvé		Tel que Laissé	
15 g	N/A	N/A	0.82 g	5.4%
150 g	N/A	N/A	0.82 g	0.55%
1500 g	N/A	N/A	0.87 g	0.058%
7500 g	N/A	N/A	1.1 g	0.014%
15000 g	N/A	N/A	1.4 g	0.0090%





Tel que Trouvé Tel que Laissé

SBI-097

MICRO PRECISION CALIBRATION, INC.
22835 INDUSTRIAL PLACE
GRASS VALLEY CA 95949
530-268-1860

Certificate of Calibration

CALIBRATION LABORATORY
AC-1969.00

Date: Jan 12, 2022

Cert No. 551220084758925

Customer:

STOVE BUILDERS INTERNATIONAL INC.

PORTES 11-12
250 DE COPENHAGUE
SAINT-AUGUSTIN-DE-DESMAURES QC G3A 2H3

MPC Control #:	DA5991	Work Order #:	SAC-70119227
Asset ID:	SBI-097	Purchase Order #:	71645
Gage Type:	THERMO-ANEMOMETER	Serial Number:	79977
Manufacturer:	EUROTRON	Department:	N/A
Model Number:	VT 50	Performed By:	BARRY MORRIS
Size:	N/A	Received Condition:	IN TOLERANCE
Temp/RH:	68.0°F / 45.0%	Returned Condition:	IN TOLERANCE
Location:	Calibration performed at MPC facility	Cal. Date:	January 11, 2022
		Cal. Interval:	12 MONTHS
		Cal. Due Date:	January 11, 2023

Calibration Notes:

See attached calibration data. (1 page)

Standards Used to Calibrate Equipment

I.D.	Description.	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
CJ5100	WIND TUNNEL WITH CONTROLLER	JS-500	375/305	INTERACTIVE INSTRUMENTS	Nov 30, 2023	551220084628339
CR6800	HUMIDITY GENERATOR/ENVIRONMENTAL CHAMBER	2500	0012263	THUNDER SCIENTIFIC CORPORATION	Jan 31, 2023	551220084745527
CL7223	CHUB-E4 THERMOMETER READOUT	1529-R W/5614	A47665	HART SCIENTIFIC	Jul 31, 2022	551220084428427
AE2821	ANEMOMETER	AM-4822	N272316	LANDTEK	Dec 31, 2022	551220084724240

Procedures Used in this Event

Procedure Name	Description
MPC-AIR-001 Rev. 02	Air Velocity, Temperature and Flow Meters, General, rev02, Jun-28-2021

Calibrating Technician: Barry Morris

BARRY MORRIS

QC Approval:

ANGELICA A. ALZATE

STATEMENTS OF PASS OR FAIL CONFORMANCE: The uncertainty of measurement has been taken into account when determining compliance with specification. All measurements and test results guard banded to ensure the probability of false-accept does not exceed 2% in compliance with ANSI/NCSL Z540.3-2006 and in case without guard banded the probability of false-accept depending on test uncertainty ratio.

THE CALIBRATION REPORT STATUS:
PASS- Term used when compliance statement is given, and the measurement result is PASS.
PASS[2]- Term used when compliance statement is given, and the measurement result is conditional passed or PASS[2].
FAIL- Term used when compliance statement is given, and the measurement result is FAIL.
FAIL[2]- Term used when compliance statement is given, and the measurement result is conditional failed or FAIL[2].
REPORT OF VALUE - Term used when reported measurement is not requiring compliance statement in report.
ADJUSTED- When adjustments are made to an instrument which changes the value of measurement from what was measured as found to new value as left.
LIMITED - When an instrument fails calibration but is still functional in a limited manner.

The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated.
This calibration report complies with ISO/IEC 17025:2017, ANSI/NCSL Z540.3-2006 and ANSI/NCSL Z540.1-1994. Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instruction and are warranted for no less than thirty (30) days. The information on this report pertains only to the instrument identified.

(CERT, Rev 7)

MICRO PRECISION

Calibration Report of Eurotron VT 50 Thermo-Anemometer

MPC Control #:	DA5991	Serial Number:	79977
Asset ID:	SBI-097	Calibration Date:	January 11, 2022

Hotwire Air Velocity Accuracy

Range	Nominal	Lower Limit	As Found	As Left	Upper Limit	Result	Uncertainty (±)	TUR
Velocity, FPM	1500 FPM	1416 FPM	1493 FPM	1493 FPM	1584 FPM	PASS	22 FPM	3.8 : 1
	3000 FPM	2871 FPM	2996 FPM	2996 FPM	3129 FPM	PASS	40 FPM	3.2 : 1
	4500 FPM	4326 FPM	4501 FPM	4501 FPM	4674 FPM	PASS	68 FPM	2.6 : 1
	5700 FPM	5490 FPM	5711 FPM	5711 FPM	5910 FPM	PASS	86 FPM	2.5 : 1

Temperature Accuracy

Range	Nominal	Lower Limit	As Found	As Left	Upper Limit	Result	Uncertainty (±)	TUR
Temperature, °F	45.0 °F	43.56 °F	45.2 °F	45.2 °F	46.44 °F	PASS	0.12 °F	≥ 4.0 : 1
	90.0 °F	87.66 °F	90.3 °F	90.3 °F	92.34 °F	PASS	0.12 °F	≥ 4.0 : 1
	135.0 °F	131.76 °F	135.2 °F	135.2 °F	138.24 °F	PASS	0.12 °F	≥ 4.0 : 1
	171.0 °F	167.04 °F	171.3 °F	171.3 °F	174.96 °F	PASS	0.12 °F	≥ 4.0 : 1

Statements of Pass or Fail Conformance

The uncertainty of measurement has been taken into account when determining compliance with specification.
All measurements and test results guard banded to ensure the probability of false-accept does not exceed 2% in compliance with ANSI/NCSL Z540.3-2006

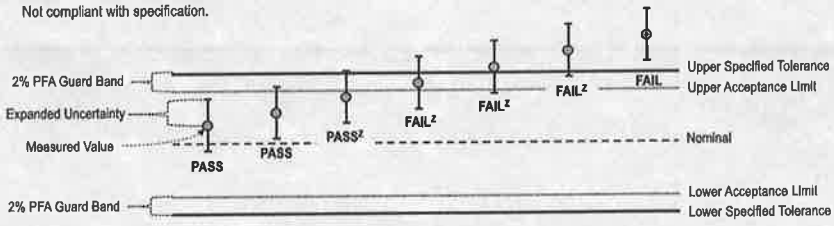
The status of compliance with the acceptance criteria is reported as:

PASS — Compliant with specification.

PASS[Z] — The measured value is within acceptance limits.
However, a portion of the expanded uncertainty of measurement at 95% exceeds the specified tolerance.

FAIL[Z] — The measured value is not within the acceptance limits.
However, a portion of the expanded uncertainty of measurement at 95% is within the specified tolerance.

FAIL — Not compliant with specification.



Acceptance limits for ≤ 2% probability of false accept (PFA) guard band

The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated.

This calibration report complies with ISO/IEC 17025:2017 and ANSI/NCSL Z540.3-2006, Method 6 — Guard Bands Based on Test Uncertainty Ratio.

- End of Calibration Report -

CERTIFICATE OF CALIBRATION

ACCREDITED
CALIBRATION
CERT #2260.01

Certificate Number: 2021005174

Manufacturer:	Dwyer Instruments Inc.	***RMA:***	AC21061937
Model:	MS-121-LCD	***Workorder:***	2021005174
Description:	Digital Pressure Gauge	***Barcode:***	AL0015068-P
Serial:	E51U01003410	***Received Conditions:***	Out of Tolerance
ID:	SBI-247	***Calibration Date:***	09-Jul-2021
Customer:	STOVE BUILDER INTERNATIONAL INC. 250 RUE DE COPENHAGUE ST-AUGUSTIN-DE-DESMAURES QC G3A 2H3	***Calibration Due:***	09-Jul-2022
		Temperature:	23.42°C
		Humidity:	65.4%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor K = 2, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2017 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

STANDARDS USED

Description	*Model*	*ID*	*Cal Date*	*Due Date*
Multimeter	Fluke 8845A	ELC-MTR-04	11-Jan-2021	11-Jan-2022
Low Pressure Calibrator	Ruska 7250LP	PRE-CAL-06	29-Nov-2020	29-Nov-2021

Notes: Adjusted trim pots.

Performed by: Sree Chukka
Technician
(digitally signed on 09-Jul-2021 1:47 pm)

QA Reviewed by: Anthony Morra
Technician
(digitally signed on 09-Jul-2021 4:44 pm)

Form: ROC101 Rev 9.3

Procedure: Dwyer MS-121-LCD 0 to 0.1;0.5 inH2O/7520lp 8845A (1.0.A) **As Found (Fail)**

Test Description	True Value	Test Results	Tolerance	Lower Limit	Upper Limit	Status	Uncertainty
Range: 0 to 0.5 inH2O							
Output signal: 4 to 20 mA							
PRESSURE TEST							
Display Reading						-0.002	
Output @ 0.0000 inH2O, mA						3.919	
0.0000 inH2O	0.0000 inH2O	-0.0025 inH2O	±0.0050 inH2O	-0.0050 inH2O	0.0050 inH2O	Pass	0.00015 inH2O
Display Reading						0.1184	
Output @ 0.1250 inH2O, mA						7.774	
0.1250 inH2O	0.1250 inH2O	0.1179 inH2O	±0.0050 inH2O	0.1200 inH2O	0.1300 inH2O	Fail	0.00015 inH2O
Display Reading						0.2380	
Output @ 0.2500 inH2O, mA						11.627	
0.2500 inH2O	0.2500 inH2O	0.2383 inH2O	±0.0050 inH2O	0.2450 inH2O	0.2550 inH2O	Fail	0.00015 inH2O
Display Reading						0.3611	
Output @ 0.3750 inH2O, mA						15.578	
0.3750 inH2O	0.3750 inH2O	0.3618 inH2O	±0.0050 inH2O	0.3700 inH2O	0.3800 inH2O	Fail	0.00015 inH2O
Display Reading						0.4866	
Output @ 0.5000 inH2O, mA						19.580	
0.5000 inH2O	0.5000 inH2O	0.4869 inH2O	±0.0050 inH2O	0.4950 inH2O	0.5050 inH2O	Fail	0.00015 inH2O
Display Reading						0.3633	
Output @ 0.3750 inH2O, mA						15.638	
0.3750 inH2O	0.3750 inH2O	0.3637 inH2O	±0.0050 inH2O	0.3700 inH2O	0.3800 inH2O	Fail	0.00015 inH2O
Display Reading						0.241	
Output @ 0.2500 inH2O, mA						11.697	
0.2500 inH2O	0.2500 inH2O	0.2405 inH2O	±0.0050 inH2O	0.2450 inH2O	0.2550 inH2O	Fail	0.00015 inH2O
Display Reading						0.1211	
Output @ 0.1250 inH2O, mA						7.862	
0.1250 inH2O	0.1250 inH2O	0.1207 inH2O	±0.0050 inH2O	0.1200 inH2O	0.1300 inH2O	Pass	0.00015 inH2O
Display Reading						-0.0012	
Output @ 0.0000 inH2O, mA						3.954	
0.000 inH2O	0.0000 inH2O	-0.0014 inH2O	±0.0050 inH2O	-0.0050 inH2O	0.0050 inH2O	Pass	0.00015 inH2O

Procedure: Dwyer MS-121-LCD 0 to 0.1;0.5 inH2O/7520lp 8845A (1.0.A) **As Left (Pass)**

Test Description	True Value	Test Results	Tolerance	Lower Limit	Upper Limit	Status	Uncertainty
Range: 0 to 0.5 inH2O							
Output signal: 4 to 20 mA							
PRESSURE TEST							
Display Reading						0	
Output @ 0.0000 inH2O, mA						4.006	
0.0000 inH2O	0.0000 inH2O	0.0002 inH2O	±0.0050 inH2O	-0.0050 inH2O	0.0050 inH2O	Pass	0.00015 inH2O
Display Reading						0.1235	
Output @ 0.1250 inH2O, mA						7.966	
0.1250 inH2O	0.1250 inH2O	0.1239 inH2O	±0.0050 inH2O	0.1200 inH2O	0.1300 inH2O	Pass	0.00015 inH2O
Display Reading						0.2463	
Output @ 0.2500 inH2O, mA						11.889	

Test Description	True Value	Test Results	Tolerance	Lower Limit	Upper Limit	Status	Uncertainty
0.2500 inH2O	0.2500 inH2O	0.2465 inH2O	±0.0050 inH2O	0.2450 inH2O	0.2550 inH2O	Pass	0.00015 inH2O
Display Reading						0.3721	
Output @ 0.3750 inH2O, mA						15.917	
0.3750 inH2O	0.3750 inH2O	0.3724 inH2O	±0.0050 inH2O	0.3700 inH2O	0.3800 inH2O	Pass	0.00015 inH2O
Display Reading						0.4988	
Output @ 0.5000 inH2O, mA						19.982	
0.5000 inH2O	0.5000 inH2O	0.4994 inH2O	±0.0050 inH2O	0.4950 inH2O	0.5050 inH2O	Pass	0.00015 inH2O
Display Reading						0.3733	
Output @ 0.3750 inH2O, mA						15.935	
0.3750 inH2O	0.3750 inH2O	0.3730 inH2O	±0.0050 inH2O	0.3700 inH2O	0.3800 inH2O	Pass	0.00015 inH2O
Display Reading						0.2478	
Output @ 0.2500 inH2O, mA						11.924	
0.2500 inH2O	0.2500 inH2O	0.2476 inH2O	±0.0050 inH2O	0.2450 inH2O	0.2550 inH2O	Pass	0.00015 inH2O
Display Reading						0.1248	
Output @ 0.1250 inH2O, mA						7.984	
0.1250 inH2O	0.1250 inH2O	0.1245 inH2O	±0.0050 inH2O	0.1200 inH2O	0.1300 inH2O	Pass	0.00015 inH2O
Display Reading						0	
Output @ 0.0000 inH2O, mA						4.006	
0.000 inH2O	0.0000 inH2O	0.0002 inH2O	±0.0050 inH2O	-0.0050 inH2O	0.0050 inH2O	Pass	0.00015 inH2O

END OF CERTIFICATE

CERTIFICATE OF CALIBRATION

ACCREDITED
CALIBRATION
CERT #2260.01

Certificate Number: 2021009039

Manufacturer:	Dwyer Instruments Inc.	***RMA:***	AC21111873
Model:	MS-121-LCD	***Workorder:***	2021009039
Description:	Pressure transmitter	***Barcode:***	AL0015072-P
Serial:	E52U0100652	***Received Conditions:***	Out of Tolerance
ID:	SBI-252	***Calibration Date:***	27-Jan-2022
Customer:	STOVE BUILDER INTERNATIONAL INC. 250 RUE DE COPENHAGUE ST-AUGUSTIN-DE-DESMAURES QC G3A 2H3	***Calibration Due:***	27-Jan-2023
		Temperature:	21.40°C
		Humidity:	14.4%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor K = 2, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2017 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

STANDARDS USED

Description	***Model***	***ID***	***Cal Date***	***Due Date***
Multimeter	Fluke 8845A	ELC-MTR-04	12-Jan-2022	31-Jan-2023
Low Pressure Calibrator	Setra 869	PRE-CAL-05	23-Apr-2021	23-Apr-2022

Notes: Adjusted trim pots.

Performed by: Sree Chukka
Technician
(digitally signed on 27-Jan-2022 9:28 am)

QA Reviewed by: Slava Peciurov
Lab Manager
(digitally signed on 27-Jan-2022 10:03 am)

Form: ROC101 Rev 9.3

Test Description	True Value	Test Results	Tolerance	Lower Limit	Upper Limit	Status	Uncertainty
Display Reading						0.499	
Output @ 0.5000 inH2O, mA						19.965	
0.5000 inH2O	0.5000 inH2O	0.4989 inH2O	±0.0050 inH2O	0.4950 inH2O	0.5050 inH2O	Pass	1.5e-004 inH2O
Display Reading						0.3757	
Output @ 0.3750 inH2O, mA						16.02	
0.3750 inH2O	0.3750 inH2O	0.3756 inH2O	±0.0050 inH2O	0.3700 inH2O	0.3800 inH2O	Pass	1.5e-004 inH2O
Display Reading						0.2529	
Output @ 0.2500 inH2O, mA						12.077	
0.2500 inH2O	0.2500 inH2O	0.2524 inH2O	±0.0050 inH2O	0.2450 inH2O	0.2550 inH2O	Pass	1.5e-004 inH2O
Display Reading						0.1284	
Output @ 0.1250 inH2O, mA						8.100	
0.1250 inH2O	0.1250 inH2O	0.1281 inH2O	±0.0050 inH2O	0.1200 inH2O	0.1300 inH2O	Pass	1.5e-004 inH2O
Display Reading						0.0005	
Output @ 0.0000 inH2O, mA						3.996	
0.000 inH2O	0.0000 inH2O	-0.0001 inH2O	±0.0050 inH2O	-0.0050 inH2O	0.0050 inH2O	Pass	1.5e-004 inH2O

END OF CERTIFICATE

CERTIFICATE OF CALIBRATION

ACCREDITED
CALIBRATION
CERT #2260.01

Certificate Number: 2021008468

Manufacturer:	Dwyer Instruments Inc.	***RMA:***	AC21111272
Model:	626-06-GH-P1-E1-S1	***Workorder:***	2021008468
Description:	Pressure Transmitter	***Barcode:***	AL00034373-P
Serial:	046946	***Received Conditions:***	In Tolerance
ID:	SB1-326	***Calibration Date:***	23-Nov-2021
Customer:	STOVE BUILDER INTERNATIONAL INC. 250 RUE DE COPENHAGUE ST-AUGUSTIN-DE-DESMAURES QC G3A 2H3	***Calibration Due:***	23-Nov-2022
		Temperature:	21.29°C
		Humidity:	22%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor K = 2, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2017 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

STANDARDS USED

Description	*Model*	*ID*	*Cal Date*	*Due Date*
Multimeter	Fluke 8845A	ELC-MTR-04	11-Jan-2021	11-Jan-2022
Pressure Controller/Calibrator	DH Instruments PPC3	PRE-CAL-04	01-Jun-2021	01-Jun-2022

Notes: None.

Performed by: Tony Wheaton
Technician
(digitally signed on 23-Nov-2021 10:34 am)

QA Reviewed by: Slava Peciurov
Lab Manager
(digitally signed on 23-Nov-2021 11:25 am)

Procedure: Pressure Transducer: BFSL: CAL VER (1.3.A) **FOUND-LEFT (Pass)**

Test Description	True Value	Test Results	Tolerance	Lower Limit	Upper Limit	Status	Uncertainty
RANGE: 0 psi to 5 psi							
OUTPUT: 4mA to 20mA							
EXCITATION: 24 V							
ACCURACY: 0.25 %FS							
PRESSURE RAW DATA							
@ 0 %FS: 0psi ---> 3.9629mA							
@ 25 %FS: 1.25psi ---> 7.9553mA							
@ 50 %FS: 2.5psi ---> 11.9682mA							
@ 75 %FS: 3.75psi ---> 15.9656mA							
@ 100 %FS: 5psi ---> 19.9655mA							
BEST FIT STRAIGHT LINE (BFSL) COEFFICIENTS							
SLOPE: 3.20124							
INTERCEPT: 3.9604							
PRESSURE BFSL COMPARISON							
0 %FS	3.9600 mA	3.963 mA	±0.0400 mA	3.920 mA	4.000 mA	Pass	5.9e-007 A
25 %FS	7.9620 mA	7.955 mA	±0.0400 mA	7.922 mA	8.002 mA	Pass	7.0e-007 A
50 %FS	11.9630 mA	11.968 mA	±0.0400 mA	11.923 mA	12.003 mA	Pass	9.8e-007 A
75 %FS	15.9650 mA	15.966 mA	±0.0400 mA	15.925 mA	16.005 mA	Pass	1.3e-006 A
100 %FS	19.9670 mA	19.965 mA	±0.0400 mA	19.927 mA	20.007 mA	Pass	1.7e-006 A
CALCULATED PARAMETERS							
ZERO: 3.9604mA							
SPAN: 19.9666mA							
SENSITIVITY: 3.2012mA/psi							

END OF CERTIFICATE

CERTIFICATE OF CALIBRATION

ACCREDITED
CALIBRATION
CERT #2260.01

Certificate Number: 2021008470

Manufacturer:	Dwyer Instruments Inc.	***RMA:***	AC21111272
Model:	626-06-GH-P1-E1-S1	***Workorder:***	2021008470
Description:	Pressure Transmitter	***Barcode:***	AL00034372-P
Serial:	046945	***Received Conditions:***	In Tolerance
ID:	SB1-327	***Calibration Date:***	23-Nov-2021
Customer:	STOVE BUILDER INTERNATIONAL INC. 250 RUE DE COPENHAGUE ST-AUGUSTIN-DE-DESMAURES QC G3A 2H3	***Calibration Due:***	23-Nov-2022
		Temperature:	21.51°C
		Humidity:	21.4%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor K = 2, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2017 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

STANDARDS USED

Description	*Model*	*ID*	*Cal Date*	*Due Date*
Multimeter	Fluke 8845A	ELC-MTR-04	11-Jan-2021	11-Jan-2022
Pressure Controller/Calibrator	DH Instruments PPC3	PRE-CAL-04	01-Jun-2021	01-Jun-2022

Notes: None.

Performed by: Tony Wheaton
Technician
(digitally signed on 23-Nov-2021 10:20 am)

QA Reviewed by: Slava Peciurov
Lab Manager
(digitally signed on 23-Nov-2021 11:25 am)

Form: ROC101 Rev 9.3.a

Procedure: Pressure Transducer: BFSL: CAL VER (1.3.A) **FOUND-LEFT (Pass)**

RANGE: 0 psi to 5 psi

OUTPUT: 4mA to 20mA

EXCITATION: 24 V

ACCURACY: 0.25 %FS

PRESSURE RAW DATA

@ 0 %FS: -0psi ---> 3.9576mA

@ 25 %FS: 1.25psi ---> 7.9389mA

@ 50 %FS: 2.5psi ---> 11.9541mA

@ 75 %FS: 3.75psi ---> 15.9491mA

@ 100 %FS: 5psi ---> 19.9476mA

BEST FIT STRAIGHT LINE (BFSL) COEFFICIENTS

SLOPE: 3.19922

INTERCEPT: 3.95142

PRESSURE BFSL COMPARISON

Test Description	True Value	Test Results	Tolerance	Lower Limit	Upper Limit	Status	Uncertainty
0 %FS	3.9510 mA	3.958 mA	±0.0400 mA	3.911 mA	3.991 mA	Pass	5.9e-007 A
25 %FS	7.9500 mA	7.939 mA	±0.0400 mA	7.910 mA	7.990 mA	Pass	7.0e-007 A
50 %FS	11.9490 mA	11.954 mA	±0.0400 mA	11.909 mA	11.989 mA	Pass	9.8e-007 A
75 %FS	15.9480 mA	15.949 mA	±0.0400 mA	15.908 mA	15.988 mA	Pass	1.3e-006 A
100 %FS	19.9480 mA	19.948 mA	±0.0400 mA	19.908 mA	19.988 mA	Pass	1.7e-006 A

CALCULATED PARAMETERS

ZERO: 3.9514mA

SPAN: 19.9475mA

SENSITIVITY: 3.1992mA/psi

END OF CERTIFICATE

Air Liquide creative oxygen | Specialty Gases

Your complete laboratory solution

CERTIFICATE OF ANALYSIS

SBI-339

Customer: SBI FABRICANT DE POELES INTERNATIONAL INC
250 RUE DE COPENHAGUE
SAINT-AUGUSTIN-DE-DESMAURES QC
G3A 2H3

Analysis Date:	8/3/2021 4:48:08PM	**Servitrax barcode No:**	T267TH8
Product code:	A1326591	**Work order number:**	1530113
Grade:	CERTIFIED	**Pressure:**	1450 psig
Size:	30AL		
CGA #:	590	**Volume:**	4.32 M3
		Expiry date:	08/03/2024

COMPONENTS	NOMINAL CONCENTRATION	ANALYSIS RESULTS
CARBON DIOXIDE	10.0000 % Molar	10.1 % Molar
CARBON MONOXIDE	2.0000 % Molar	1.98 % Molar
OXYGEN	8.0000 % Molar	7.99 % Molar
NITROGEN	BALANCE	BALANCE

Analysis performed by:

Eugeny Makarov

EUGENY MAKAROV CHEMIST SPC

Verified by:

RL

This Air Liquide Canada mixture is traceable to NIST

METHOD OF ANALYSIS:

Method of analysis is based on principles of gas chromatography and as documented in Air Liquide Canada operating procedure , where applicable, FID, TCD, PDHID, FT-IR, FPD,NO/NOx and SO2 chemiluminescence , hygrometer, and electrochemical cells and paramagnetic cell. Detectors were used in conjunction with packed or capillary columns calibrated flow meters and dilution calibrated system.

ANALYTICAL ACCURACY:

Qualitiy	Concentiration	Blend Tolerance	AA
PRIMARY	5%-50%	+/-1%	+/-1%
	0.5%-5%	+/-2%	
	1ppm-0.5%	+/-5%	
CERTIFIED	5%-50%	+/-5%	+/-2%
	0.5%-5%	+/-10%	+/-2%
	1ppm-0.5%	+/-20%	+/-5%
UNANALYZE	5%-50%	+/-10%	
	<5%	+/-20%	

This mixture was certified by a combination of weight and analysis (depending on component) using scales certified against weights traceable to the Institute for National Measurement Standards (INMS) of the National Research Council of Canada (NRCC), Report # W-021221-13857(MTL) and CA3033-022-050621-ACC (Calgary) or calibration standards prepared in that manner

Air Liquide creative oxygen | Specialty Gases

Your complete laboratory solution

CERTIFICATE OF ANALYSIS

SBI-338

Customer: SBI FABRICANT DE POELES
INTERNATIONAL INC
250 RUE DE COPENHAGUE
SAINT-AUGUSTIN-DE-DESMAURES QC
G3A 2H3

Analysis Date:	8/6/2021 11:41:41AM	**Servitrax barcode No:**	T2L7ER7
Product code:	A1326555	**Work order number:**	1530112
Grade:	CERTIFIED	**Pressure:**	2000 psig
Size:	30AL		
CGA #:	590	**Volume:**	4.53 M3
		Expiry date:	08/06/2024

COMPONENTS	NOMINAL CONCENTRATION	ANALYSIS RESULTS
CARBON DIOXIDE	18.0000 % Molar	18.0 % Molar
CARBON MONOXIDE	4,000.0000 ppm Molar	4252 ppm Molar
OXYGEN	18.0000 % Molar	18.0 % Molar
NITROGEN	BALANCE	BALANCE

Analysis performed by:

Evgeny Makarov

EVGENY MAKAROV - CHEMIST SPG

Verified by:

RC

This Air Liquide Canada mixture is traceable to NIST

METHOD OF ANALYSIS:

Method of analysis is based on principles of gas chromatography and as documented in Air Liquide Canada operating procedure , where applicable, FID, TCD, PDHID, FT-IR, FPD,NO/NOx and SO2 chemiluminescence , hygrometer, and electrochemical cells and paramagnetic cell. Detectors were used in conjunction with packed or capillary columns calibrated flow meters and dilution calibrated system.

ANALYTICAL ACCURACY:

Qualitiy	Concentiration	Blend Tolerance	AA
PRIMARY	5%-50%	+/-1%	+/-1%
	0.5%-5%	+/-2%	
	1ppm-0.5%	+/-5%	
CERTIFIED	5%-50%	+/-5%	+/-2%
	0.5%-5%	+/-10%	+/-2%
	1ppm-0.5%	+/-20%	+/-5%
UNANALYZED	5%-50%	+/-10%	
	<5%	+/-20%	

This mixture was certified by a combination of weight and analysis (depending on component) using scales certified against weights traceable to the Institute for National Measurement Standards (INMS) of the National Research Council of Canada (NRCC), Report # W-021221-13857(MTL) and CA3033-022-050621-ACC (Calgary) or calibration standards prepared in that manner.

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CERTIFICATE OF ANALYSIS

SBI-282

Customer: SBI FABRICANT DE POELES INTERNATIONAL INC
250 RUE DE COPENHAGUE
SAINT-AUGUSTIN-DE-DESMAURES QC
G3A 2H3

Analysis Date:	11/12/2020 4:18:49PM	**Servitrax barcode No:**	T2Y1DL4
Product code:	A0923375	**Work order number:**	1398068
Grade:	CERTIFIED	**Pressure:**	2000 psig
Size:	7AL	**Volume:**	.85 M3
CGA #:	580	**Expiry date:**	11/12/2023

COMPONENTS	NOMINAL CONCENTRATION	ANALYSIS RESULTS
CARBON DIOXIDE	8.0000 % Molar	8.16 % Molar
CARBON MONOXIDE	600.0000 ppm Molar	623 ppm Molar
OXYGEN	4.0000 % Molar	4.01 % Molar
NITROGEN	BALANCE	BALANCE

Analysis performed by:

Condric

Verified by:

KATARINA CONDRIC – LAB TECHNICIAN

This Air Liquide Canada mixture is traceable to NIST

METHOD OF ANALYSIS:

Method of analysis is based on principles of gas chromatography and as documented in Air Liquide Canada operating procedure, where applicable, FID, TCD, PDHID, FT-IR, FPD,NO/NOx and SO2 chemiluminescence , hygrometer, and electrochemical cells and paramagnetic cell. Detectors were used in conjunction with packed or capillary columns calibrated flow meters and dilution calibrated system.

ANALYTICAL ACCURACY:

Qualitiy	Concentiration	Blend Tolerance	AA
PRIMARY	5%-50%	+/-1%	+/-1%
	0.5%-5%	+/-2%	
	1ppm-0.5%	+/-5%	
CERTIFIED	5%-50%	+/-5%	+/-2%
	0.5%-5%	+/-10%	+/-2%
	1ppm-0.5%	+/-20%	+/-5%
UNANALYZE	5%-50%	+/-10%	
	<5%	+/-20%	

This mixture was certified by a combination of weight and analysis (depending on component) using scales certified against weights traceable to the Institute for National Measurement Standards (INMS) of the National Research Council of Canada (NRCC), Report # W-021221-13857(MTL) and W-35174-20727(Calgary) or calibration standards prepared in that manner.

How to contact us & order

E-mail within your region: specgas.atlantic@airliquide.com specgas.qc@airliquide.com specgas.on@airliquide.com specgas.ab@airliquide.com specgas.midwest@airliquide.com specgas.pacific@airliquide.com

Customer Solution Center: 1 800 217-2688 Online 24/7 through My.Airliquide.ca Air Liquide Mobile App

Rule Calibration

Rule Equipment ID:	101	Date:	4/14/2022
		Ambient (F):	70
Std. Gage Block ID:	146	Technician:	EF
Cal. Expiration Date:	1/7/2023		
Std. Surface Plate ID:	147		
Cal. Expiration Date:	1/3/2023		

System: ☑ Imperial ☐ Metric

Visual Inspection

☑ Pass ☐ Fail

Scale 1

Tolerance: 0.1

Standard	Measured
1.0	1.0
6.0	6.0

Within Tolerance

Scale 2

Tolerance: 0.1

Standard	Measured
1.0	1.0
6.0	6.0

Within Tolerance

Calibration Due

4/14/2022

Notes

Best condition tape in the shop, should keep separate for inspections.

Technician Signature

EF

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A2LA ACCREDITED
CERTIFICATE #1550.01

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

Report Number: DIRI0134307497220127

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	1/27/22	6/25/21	7/2022

FUNCTIONAL CHECKS

ECCENTRICITY
Test Wt: 100 Tol: 0.0003
As-Found: Pass: ☑ Fail: ☐
As-Left: Pass: ☑ Fail: ☐

LINEARITY
Test Wt: 50 x 4 Tol: 0.0002
As-Found: Pass: ☑ Fail: ☐
As-Left: Pass: ☑ Fail: ☐

STANDARD DEVIATION
Test Wt: 100 Tol: 0.0001

1. 100.0001	5. 100.0001	9. 100.0001
2. 100.0000	6. 100.0000	10. 100.0000
3. 100.0000	7. 100.0000	Result
4. 100.0000	8. 100.0000	0.00004

ENVIRONMENTAL CONDITIONS
☐ Good ☑ Fair ☐ Poor
Temperature: 20.9°C

A2LA ACCREDITED SECTION OF REPORT

Standard	As-Found	As-Left	Expanded Uncertainty
200	199.9997	200.0000	0.00016
100	99.9999	100.0001	0.00016
50	49.9999	50.0000	0.00015
20	20.0000	20.0000	0.00015
1	1.0000	1.0000	0.00015
0.1	0.1000	0.1000	0.00015

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	Rice Lake	20 kg to 1mg	2831W	3/9/21	3/2022	20210413

Permanent Information Concerning this Equipment:
6 month calibration cycle
01/22 Extra checkpoint to encapsulate user range 0.05g.
A/F= 0.0500g A/L= 0.0500

Comments/Info Concerning this Calibration:
1/22 RH= 29%. Adjusted span.

Report prepared/reviewed by: JC **Date:** 1/27/22 **Technician:** J. Colacchio

Signature:

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.

Member: National Conference of Standards Laboratories and Weights & Measures

PT ID: DIRI01

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A2LA ACCREDITED
CERTIFICATE #1550.01

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

Report Number: DIRI0134307497220609

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	6/9/22	1/27/22	1/2023

FUNCTIONAL CHECKS

ECCENTRICITY
Test Wt: 100 Tol: 0.0003
As-Found: Pass: ☑ Fail: ☐
As-Left: Pass: ☑ Fail: ☐

LINEARITY
Test Wt: 50 x 4 Tol: 0.0002
As-Found: Pass: ☑ Fail: ☐
As-Left: Pass: ☑ Fail: ☐

STANDARD DEVIATION
Test Wt: 100 Tol: 0.0001

1. 100.0000	5. 100.0000	9. 100.0001
2. 100.0001	6. 100.0001	10. 100.0000
3. 100.0001	7. 100.0000	**Result**
4. 100.0000	8. 100.0001	0.00005

ENVIRONMENTAL CONDITIONS
☐ Good ☑ Fair ☐ Poor
Temperature: 22.3°C

A2LA ACCREDITED SECTION OF REPORT

Standard	As-Found	As-Left	Expanded Uncertainty
200	199.9988	200.0000	0.00017
100	99.9989	100.0000	0.00016
50	49.9994	49.9999	0.00016
20	19.9999	20.0000	0.00015
1	1.0000	1.0000	0.00015
0.1	0.1000	0.1000	0.00015

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	R.L./Troemner	10kg to 1mg	G782	4/14/22	4/2023	20220751

Permanent Information Concerning this Equipment:
6 month calibration cycle
1/22 Extra checkpoint to encapsulate user range 0.05g.
AF= 0.0500g A/L= 0.0500

Comments/Info Concerning this Calibration:
6/22: Adjusted Span, RH- 45.3%

Report prepared/reviewed by: KD **Date:** 6/9/22 **Technician:** K. Dexter
Signature:

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.

Calibration Certificate ID
CA0003-091-101522-ACC-USL

METTLER TOLEDO

Mettler-Toledo Inc.
Service Division
1900 Polaris Parkway
Columbus, OH 43240
1-800-METTLER

Accredited by the American Association for Laboratory Accreditation (A2LA)
CALIBRATION CERT #1788.01

ISO 17025 Accredited
ANSI/NCSL Z540-1 Accredited

Accuracy Calibration Certificate

Customer

Company:	SBI Fabricant De Poeles		
Address:	250 rue de Copenhague		
City:	Saint-Augustin-de-Desmaures	**Contact:**	André Bouchard
Zip / Postal:	G3A 2H3		
State / Province:	Quebec		

Weighing Device

Manufacturer:	SARTORIUS	**Instrument Type:**	Weighing Instrument
Model:	TE214S	**Asset Number:**	SBI-206 BAL. ANALYTIQUE
Serial No.:	25851066	**Terminal Model:**	N/A
Building:	N/A	**Terminal Serial No.:**	N/A
Floor:	N/A	**Terminal Asset No.:**	N/A
Room:	N/A		

Range	Max. Capacity	Readability (d)
1	210 g	0.0001 g

Procedure

Calibration Guideline: ASTM E898 - 20
METTLER TOLEDO Work Instruction: 30260953

This calibration certificate including procedures and uncertainty estimation also complies with EURAMET cg-18 v 4.0.

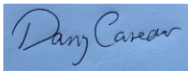
This calibration certificate contains measurements for As Found and As Left calibrations.

The sensitivity/span of the weighing instrument was adjusted before As Left calibration with an external weight.

	Temperature		Humidity	
As Found	Start: 66.0 °F	End: 66.0 °F	Start: 20.0 %	End: 20.0 %
As Left	Start: 68.0 °F	End: 68.0 °F	Start: 20.0 %	End: 20.0 %

Environmental conditions have been verified to ensure the accuracy of the calibration.

This certificate is issued in accordance with the conditions of accreditation granted by A2LA, which is based on ISO/IEC 17025. A2LA has assessed the measurement capability of the laboratory and its traceability to recognized national standards.

As Found Calibration Date:	28-02-2022	**Authorized A2LA Signatory:**	
As Left Calibration Date:	28-02-2022		Dany Careau
Issue Date:	17-10-2022		
Requested Next Calibration Date:	28-02-2023		

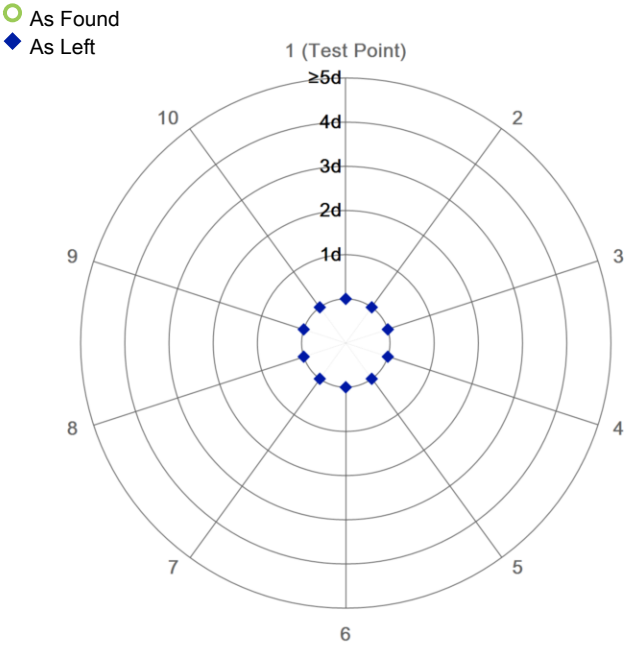
Measurement Results

Repeatability

Test Load: 100 g

	As Found	As Left
1	N/A	100.0000 g
2	N/A	100.0000 g
3	N/A	100.0000 g
4	N/A	100.0000 g
5	N/A	100.0000 g
6	N/A	100.0000 g
7	N/A	100.0000 g
8	N/A	100.0000 g
9	N/A	100.0000 g
10	N/A	100.0000 g

Standard Deviation	**N/A**	**0.00000 g**



The "d" in the graph represents the readability of the range/interval in which the test was performed.

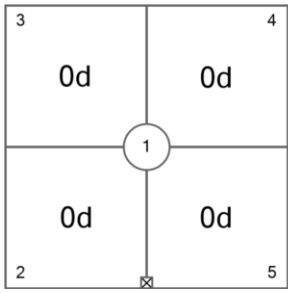
The results of this graph are based upon the absolute values of the differences from the mean value.

Eccentricity

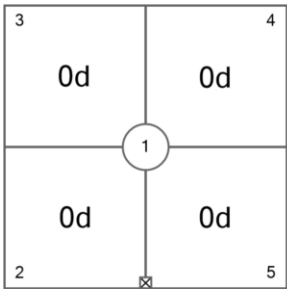
Test Load: 100 g

Position	As Found	As Left
1	100.0003 g	100.0000 g
2	100.0003 g	100.0000 g
3	100.0003 g	100.0000 g
4	100.0003 g	100.0000 g
5	100.0003 g	100.0000 g

Maximum Deviation	**0.0000 g**	**0.0000 g**



As Found



As Left

The "d" in the graph represents the readability of the range/interval in which the test was performed.

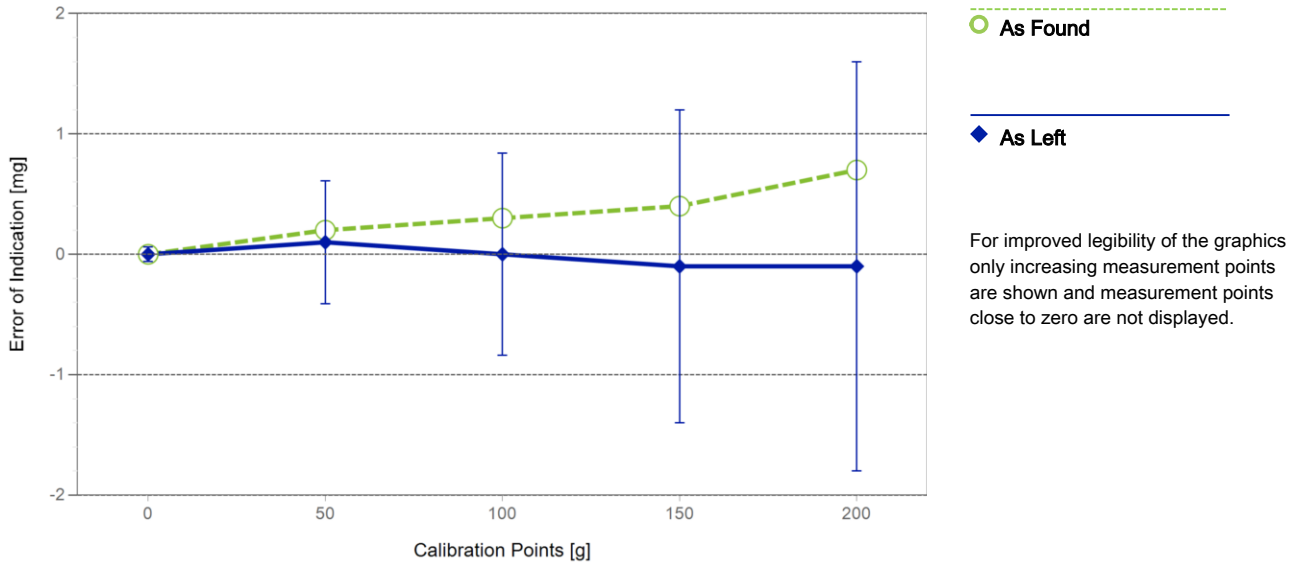
Error of Indication

As Found

	Reference Value	Indication	Error of Indication	Expanded Uncertainty	k
1	0 g	0.0000 g	0.0000 g	N/A	N/A
2	50 g	50.0002 g	0.0002 g	N/A	N/A
3	100 g	100.0003 g	0.0003 g	N/A	N/A
4	150 g	150.0004 g	0.0004 g	N/A	N/A
5	200 g	200.0007 g	0.0007 g	N/A	N/A

As Left

	Reference Value	Indication	Error of Indication	Expanded Uncertainty	k
1	0 g	0.0000 g	0.0000 g	0.06 mg	2
2	50 g	50.0001 g	0.0001 g	0.51 mg	2
3	100 g	100.0000 g	0.0000 g	0.84 mg	2
4	150 g	149.9999 g	-0.0001 g	1.3 mg	2
5	200 g	199.9999 g	-0.0001 g	1.7 mg	2



For improved legibility of the graphics only increasing measurement points are shown and measurement points close to zero are not displayed.

The uncertainty stated is the expanded uncertainty at calibration obtained by multiplying the standard combined uncertainty by the coverage factor k - which can be larger than 2 according to ASTM E898 and EURAMET cg-18. The value of the measurand lies within the assigned range of values with a probability of approximately 95%.

The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.

Test Equipment

All weights used for metrological testing are traceable to national or international standards. The weights were calibrated and certified by an accredited calibration laboratory.

Weight Set 1: OIML F1

Weight Set No.:	607	Date of Issue:	12-02-2021
Certificate Number:	01182891-1	Calibration Due Date:	28-02-2023

Remarks

N/A

End of Accredited Section

The information below and any attachments to this calibration certificate are not part of the accredited calibration.

Measurement Uncertainty of the Weighing Instrument in Use

Stated is the expanded uncertainty with k=2 in use. The formula shall be used for the estimation of the uncertainty under consideration of the errors of indication. The value R represents the net load indication in the unit of measure of the device.

Temperature coefficient for the evaluation of the measurement uncertainty in use: $3.0 \cdot 10^{-6}$ / K

Temperature range on site for the evaluation of the measurement uncertainty in use: 5 °F

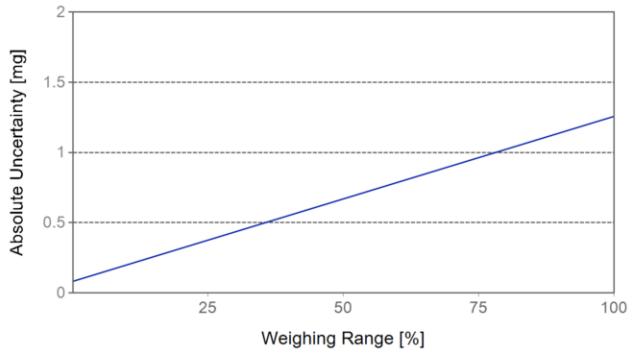
Linearization of Uncertainty Equation

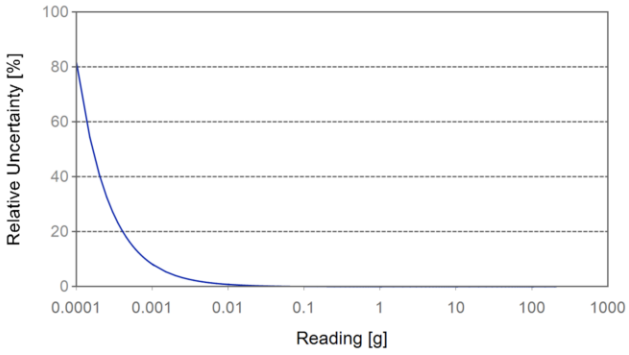
Range			As Found	As Left
	d	Max		
1	0.0001 g	210 g	N/A	U_1 = 0.08 mg + 0.00560 mg/g · R

To optimize the stability of the linearization, besides of the zero load only increasing measurement points with a test load of 5% of the measurement range or larger are taken for the calculation of the linear equation.

Absolute and Relative Measurement Uncertainty in Use for Various Net Indications (Examples)

Net Indication	As Found		As Left	
0.0210 g	N/A	N/A	0.080 mg	0.38%
0.2100 g	N/A	N/A	0.081 mg	0.039%
2.1000 g	N/A	N/A	0.092 mg	0.0044%
21.0000 g	N/A	N/A	0.20 mg	0.00094%
210.0000 g	N/A	N/A	1.3 mg	0.00060%





As Found As Left

METTLER TOLEDO Service

Handbook 44 Tolerance Assessment (Maintenance)

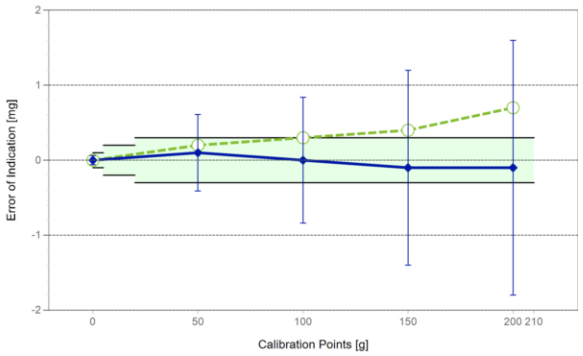
Assessment done without considering measurement uncertainty.
The measurements from the attached calibration certificate were assessed against the Tolerances defined by NIST Handbook 44.
The range of measurements for both Eccentricity and Repeatability (if performed) tests is assessed against Maintenance Tolerances.

	As Found	As Left
Overall	✗	✓

✓ = Passed
✗ = Failed

Weighing Device

Range	Max. Capacity	Readability (d)	Verification Scale Interval (e)	Class
1	210 g	0.0001 g	0.0001 g	I



Tolerances according to NIST Handbook 44

Test Load		Tolerance
From	To	
0.0000 g	0.0000 g	0.000025 g
0.0001 g	5.0000 g	0.0001 g
5.0001 g	20.0000 g	0.0002 g
20.0001 g	210.0000 g	0.0003 g

○ As Found
◆ As Left
— Tolerance

Eccentricity and Repeatability

Test	Test Load	Tolerance	As Found		As Left	
			Max. Error / Range	Result	Max. Error / Range	Result
Eccentricity (Max. Error)	100 g	0.0003 g	0.0003 g	✓	0.0000 g	✓
Eccentricity (Range)	100 g	0.0003 g	0.0000 g	✓	0.0000 g	✓
Repeatability (Max. Error)	100 g	0.0003 g	N/A	N/A	0.0000 g	✓
Repeatability (Range)	100 g	0.0003 g	N/A	N/A	0.0000 g	✓

Max. Error: Maximum of the absolute values of the individual errors.
Range: Difference between largest and smallest measurement value.

Error of Indication

	Reference Value	Tolerance	As Found		As Left	
			Error of Indication	Result	Error of Indication	Result
1	0 g	0.0001 g	0.0000 g	✓	0.0000 g	✓
2	50 g	0.0003 g	0.0002 g	✓	0.0001 g	✓
3	100 g	0.0003 g	0.0003 g	✓	0.0000 g	✓
4	150 g	0.0003 g	0.0004 g	✗	-0.0001 g	✓
5	200 g	0.0003 g	0.0007 g	✗	-0.0001 g	✓

Established 1974

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ACCREDITED
CERTIFICATE #1550.01

Report of Calibration

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

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

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

Manufacturer: Troemner
Customer ID: Listed in Table

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

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

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

Conventional Mass: "The conventional value of the result of weighing a body in air is equal to the mass of a standard, of conventionally chosen density, at a conventionally chosen temperature, which balances this body at this reference temperature in air of conventionally chosen density. International Recommendation 33 (OIML IR 33 1973, 1979). "Conventional Value of the Result of Weighing in Air" **(Previously known as "Apparent Mass vs. 8.0 g/cm^3).**

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

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

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

Date: 05/09/22

Signature David S. Thompson

Established 1974

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ACCREDITED
CERTIFICATE #1550.01

Report of Calibration

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

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

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

Manufacturer: Troemner
Customer ID: Listed in Table

Laboratory Environment at time of test

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

Conventional Mass Value

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

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

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

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

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

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Date: 05/09/22

Signature David S. Thompson