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HY-C COMPANY, LLC
TEST REPORT

SCOPE OF WORK
EPA EMISSIONS TESTING FOR MODEL SF1000E

REPORT NUMBER
103537042MID-001R2

TEST DATE(S)
10/01/18 - 10/09/18

ISSUE DATE **REVISED DATE**
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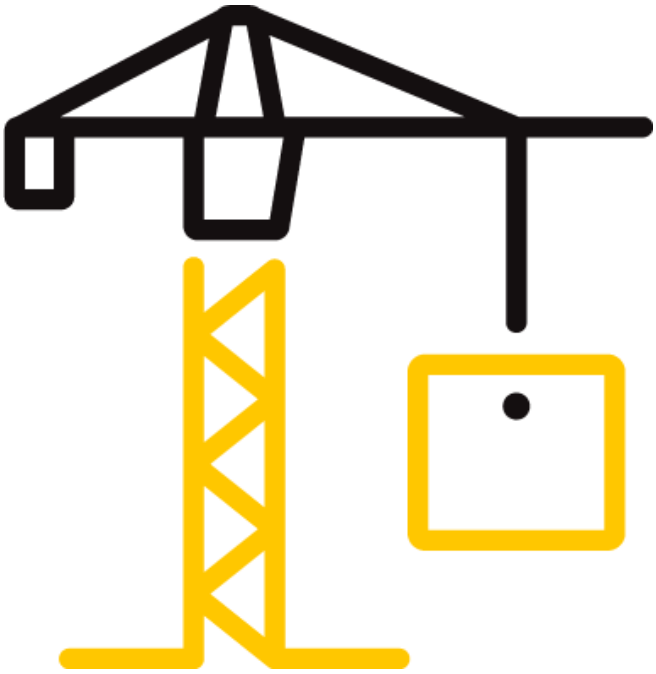

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TEST REPORT FOR HY-C COMPANY, LLC
Report No.: 103537042MID-001R2
Date: 10/30/18

REPORT ISSUED TO

HY-C COMPANY, LLC
10950 Linpage Place
St Louis, MO 63132

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by HY-C Company, LLC to perform testing in accordance with EPA 40 CFR Part 60, “Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces,” ASTM E2515-11, "Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel," CSA B415.1-10, "Performance Testing of Solid-Fuel-Burning Heating Appliances", and EPA Alternate Test Method Letter, Alternate test method letter issued by the U.S. EPA on July 26, 2018 for their model SF1000E Solid Fuel Air Furnace. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek test facility in Middleton, WI.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

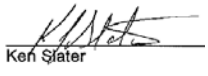
SECTION 2

SUMMARY OF TEST RESULTS

The appliance tests resulted in the following performance:

Particulate Emissions: 0.106 lb/MMBtu Output
Carbon Monoxide Emissions: 1.935 g/min
Heating Efficiency: 50.13% (Higher Heating Value Basis)

For INTERTEK B&C:

COMPLETED BY:	Ken Slater	**REVIEWED BY:**	Brian Ziegler
TITLE:	Associate Engineer - Hearth	**TITLE:**	Technical Team Leader - Hearth
SIGNATURE:	 Ken Slater	**SIGNATURE:**	
DATE:	03/01/19	**DATE:**	03/01/19

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SECTION 3
TEST METHOD(S)

The specimen was evaluated in accordance with the following:

EPA 40 CFR Part 60-2015, *Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces*

ASTM E2515-11, *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel*

CSA B415.1-10 (R2015), *Performance Testing of Solid-Fuel-Burning Heating Appliances*

EPA Alternate Test Method Letter, *Alternate test method letter issued by the U.S. EPA on July 26, 2018 for testing models FC1000E and SF1000E. See Appendix A for a copy.*

SECTION 4
MATERIAL SOURCE

A sample was submitted to Intertek directly from the client. The sample was not independently selected for testing. The test unit was received at Intertek in Middleton, WI on October 1, 2018 and was shipped via the client. The unit was inspected upon receipt and found to be in good condition. The unit was set up following the manufacturer's instructions without difficulty.

Following assembly, the unit was placed on the test stand. Prior to beginning the emissions tests, the manufacturer operated the unit for a minimum of 10 hours at high-to-medium burn rates to break in the stove. The unit was found to be operating satisfactory during this break-in. The 10 plus hours of pre-burning were conducted from September 12, 2018 to September 26, 2018. The fuel used for the break-in process was wood pellets.

The unit's chimney system and laboratory dilution tunnels were cleaned using standard wire brush chimney cleaning equipment. On October 1, 2018 the unit was set-up for testing.

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SECTION 5
EQUIPMENT

EQUIPMENT	INV NUMBER	CALIBRATION DUE	MU
Platform Scale	008	10/4/18	± 27g
Balance	713	10/4/18	0.47mg
Data Logger	986	10/5/18	0.33°F
Scale	1134	10/4/18	± 27g
Timer	1212	4/4/19	±0.3 sec
Timer	1213	4/4/19	±0.3 sec
Flow Meter	1413	2/8/19	± 17mL/min
Flow Meter	1414	2/8/19	± 17mL/min
Barometer	1420	10/9/18	0.24°F,1.7%RH, 0.011 in Hg
DGM	1210	1/2/19	0.009925 ft^3

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Danny Hanes	HY-C Company, LLC
Ken Slater	Intertek B&C

SECTION 7
TEST PROCEDURE

From October 1, 2018 to October 9, 2018, the unit was tested for EPA emissions. For air furnaces, the test was conducted in accordance with CSA B415.1-2010. The fuel used for the test run was oak cordwood.

The applicable EPA regulatory limits are:

Step 1 – 2016 – 0.93 lbs/MMBtu Output (0.4g/MJ) – For furnaces rated less than 65,000 Btu/hr
Step 1 – 2017 – 0.93 lbs/MMBtu Output (0.4g/MJ) – For furnaces rated more than 65,000 Btu/hr
Step 2 – 2020 – 0.15 lbs/MMBtu Output (0.026 g/MJ)

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TEST SET-UP DESCRIPTION

A 6" diameter vertical single wall pipe and insulated chimney system was installed to 15' above floor level. The singe wall pipe extended to 8 feet above the floor and insulated chimney extended the remaining height.

AIR SUPPLY SYSTEM

Combustion air enters an inlet pipe located on the back of the heater, which is directed to the firebox. All gases exit through the 6" flue also located at the top of the heater. The exhaust gases are assisted by a combustion blower.

TEST FUEL PROPERTIES

Wood used for the testing is split and seasoned oak cordwood. Oak has a default heating value of 8550 Btu/hr (19887 kJ/kg) and a moisture content between 18% and 28% on a dry basis.

SAMPLING LOCATIONS

Particulate samples are collected from the dilution tunnel at a point 20 feet from the tunnel entrance. The tunnel has two elbows and two mixing baffles in the system ahead of the sampling section. (See Figure 3.) The sampling section is a continuous 13 foot section of 6 inch diameter pipe straight over its entire length. Tunnel velocity pressure is determined by a standard Pitot tube located 60 inches from the beginning of the sampling section. The dry bulb thermocouple is located six inches downstream from the Pitot tube. Tunnel samplers are located 60 inches downstream of the Pitot tube and 36 inches upstream from the end of this section. (See Figure 1.)

Stack gas samples are collected from the steel chimney section 8 feet ± 6 inches above the scale platform. (See Figure 2.)

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FIGURE 1 – DILUTION TUNNEL

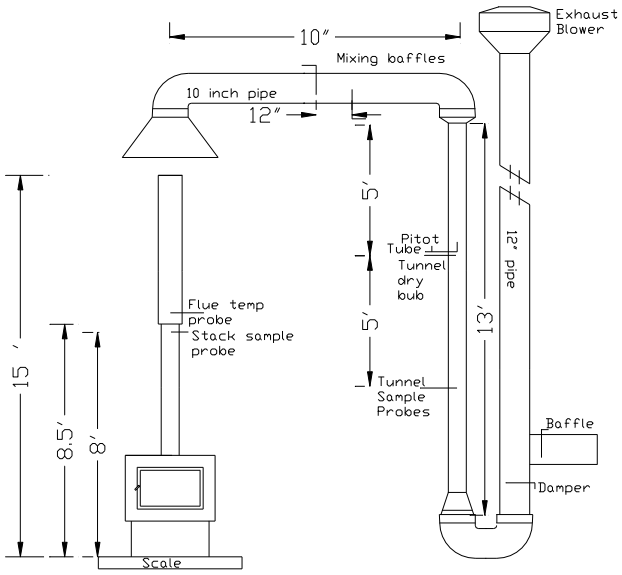
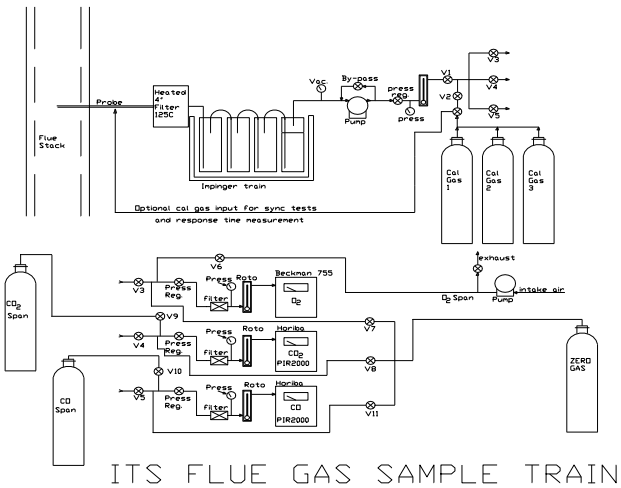


FIGURE 1

FIGURE 2 – STACK GAS SAMPLE TRAIN



ITS FLUE GAS SAMPLE TRAIN

FIGURE 2

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FIGURE 3 – DILUTION TUNNEL SAMPLE SYSTEMS

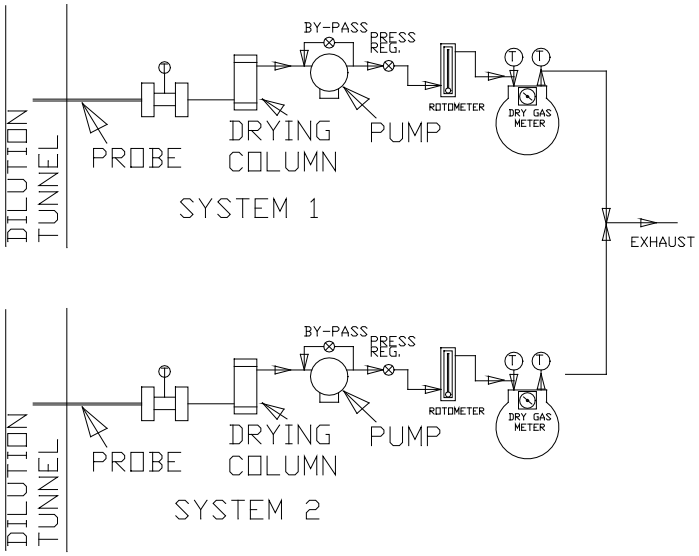

Figure 3

SAMPLING METHODS

PARTICULATE SAMPLING

Particulates were sampled in strict accordance with ASTM E2515-2011. This method uses two identical sampling systems with Gelman A/E 61631 binder free, 47-mm diameter filters. The dryers used in the sample systems are filled with “Drierite” before each test run. In order to measure first-hour emissions rates the a third filter set is prepared at one hour into the test run, the filter sets are changed in one of the two sample trains. The two filter sets used for this train are analyzed individually to determine the first hour and total emissions rate.

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INSTRUMENT CALIBRATION

DRY GAS METERS

At the conclusion of each test program the dry gas meters are checked against our standard dry gas meter. Three runs are made on each dry gas meter used during the test program. The average calibration factors obtained are then compared with the six-month calibration factor and, if within 5%, the six-month factor is used to calculate standard volumes. Results of this calibration are contained in Appendix D.

An integral part of the post test calibration procedure is a leak check of the pressure side by plugging the system exhaust and pressurizing the system to 10" W.C. The system is judged to be leak free if it retains the pressure for at least 10 minutes.

The standard dry gas meter is calibrated every 6 months using a Spirometer designed by the EPA Emissions Measurement Branch. The process involves sampling the train operation for 1 cubic foot of volume. With readings made to .001 ft^3, the resolution is .1%, giving an accuracy higher than the ±2% required by the standard.

STACK SAMPLE ROTAMETER

The stack sample rotometer is checked by running three tests at each flow rate used during the test program. The flow rate is checked by running the rotometer in series with one of the dry gas meters for 10 minutes with the rotometer at a constant setting. The dry gas meter volume measured is then corrected to standard temperature and pressure conditions. The flow rate determined is then used to calculate actual sampled volumes.

GAS ANALYZERS

The continuous analyzers are zeroed and spanned before each test with appropriate gases. A mid-scale multi-component calibration gas is then analyzed (values are recorded). At the conclusion of a test, the instruments are checked again with zero, span and calibration gases (values are recorded only). The drift in each meter is then calculated and must not exceed 5% of the scale used for the test.

At the conclusion of each unit test program, a three-point calibration check is made. This calibration check must meet accuracy requirements of the applicable standards. Consistent deviations between analyzer readings and calibration gas concentrations are used to correct data before computer processing. Data is also corrected for interferences as prescribed by the instrument manufacturer's instructions.

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TEST METHOD PROCEDURES

LEAK CHECK PROCEDURES

Before and after each test, each sample train is tested for leaks. Leakage rates are measured and must not exceed 0.02 CFM or 4% of the sampling rate. Leak checks are performed checking the entire sampling train, not just the dry gas meters. Pre-test and post-test leak checks are conducted with a vacuum of 10 inches of mercury. Vacuum is monitored during each test and the highest vacuum reached is then used for the post test vacuum value. If leakage limits are not met, the test run is rejected. During, these tests the vacuum was typically less than 2 inches of mercury. Thus, leakage rates reported are expected to be much higher than actual leakage during the tests.

TUNNEL VELOCITY/FLOW MEASUREMENT

The tunnel velocity is calculated from a center point Pitot tube signal multiplied by an adjustment factor. This factor is determined by a traverse of the tunnel as prescribed in EPA Method 1. Final tunnel velocities and flow rates are calculated from EPA Method 2, Equation 6.9 and 6.10. (Tunnel cross sectional area is the average from both lines of traverse.)

Pitot tubes are cleaned before each test and leak checks are conducted after each test.

PM SAMPLING PROPORTIONALITY

Proportionality was calculated in accordance with ASTM E2515-11. The data and results are included in Appendix C.

DEVIATIONS FROM STANDARD METHOD:

SECTION 8
TEST CALCULATIONS

NOMENCLATURE FOR ASTM E2515:

A = Cross-sectional area of tunnel m2 (ft2).
B_{ws} = Water vapor in the gas stream, proportion by volume (assumed to be 0.02 (2.0 %)).
C_p = Pitot tube coefficient, dimensionless (assigned a value of 0.99).
c_r = Concentration of particulate matter room air, dry basis, corrected to standard conditions, g/dscm (gr/ dscf) (mg/dscf).
c_s = Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions, g/dscm (gr/dscf) (mg/dscf).
E_T = Total particulate emissions, g.
F_p = Adjustment factor for center of tunnel pitot tube placement.

$F_p = V_{strav}/V_{scent}$

K_P = Pitot Tube Constant, 34.97 $\frac{m}{\sec}\left[\frac{\left(\frac{g}{g}\blacksquare mole\right)(mm\ Hg)}{(K)(mm\ water)}\right]^{\frac{1}{2}}$

or

= Pitot Tube Constant, 85.49 $\frac{ft}{\sec}\left[\frac{\left(\frac{lb}{lb}-mole\right)(in\ Hg)}{(R)(in\ water)}\right]^{\frac{1}{2}}$

L_a = Maximum acceptable leakage rate for either a pretest or post-test leak- check, equal to 0.0003 m3/min (0.010 cfm) or 4 % of the average sampling rate, whichever is less.

L_p = Leakage rate observed during the post-test leak-check, m3/min (cfm).

m_p = mass of particulate from probe, mg.

m_f = mass of particulate from filters, mg.

m_g = mass of particulate from filter gaskets, mg.

m_r = mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly, mg.

m_n = Total amount of particulate matter collected, mg.

M_s = the dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole (lb/lb mole).

P_{bar} = Barometric pressure at the sampling site, mm Hg (in. Hg).

P_g = Static Pressure in the tunnel (in. water).

P_R = Percent of proportional sampling rate.

P_s = Absolute average gas static pressure in dilution tunnel, mm Hg (in. Hg).

P_{std} = Standard absolute pressure, 760 mm Hg (29.92 in. Hg).

Q_{std} = Average gas flow rate in dilution tunnel.

$Q_{std} = 60\ (1 - B_{ws})\ V_s\ A\ [T_{std}\ P_s/T_s\ P_{std}]$

dscm/min (dscf/min).

T_m = Absolute average dry gas meter temperature, K (R).

T_{mi} = Absolute average dry gas meter temperature during each 10-min interval, *i*, of the test run.

$T_{mi} = (T_{mi(b)} + T_{mi(e)})/2$

where:

$T_{mi(b)}$ = Absolute dry gas meter temperature at the beginning of each 10-min test interval, i, of the test run, K (R), and

$T_{mi(e)}$ = Absolute dry gas meter temperature at the end of each 10-min test interval, i, of the test run, K (R).

Ts = Absolute average gas temperature in the dilution tunnel, K (R).

Tsi = Absolute average gas temperature in the dilution tunnel during each 10-min interval, i, of the test run, K (R).

$T_{si} = (T_{si(b)} + T_{m=si(e)})/2$

where:

$T_{si(b)}$ = Absolute gas temperature in the dilution tunnel at the beginning of each 10-min test interval, i, of the test run, K (R), and

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$T_{si(e)}$ = Absolute gas temperature in the dilution tunnel at the end of each 10-min test interval, i, of the test run, K (R).

V_m = Volume of gas sample as measured by dry gas meter, dcm (dcf).

V_{mc} = Volume of gas sampled corrected for the post test leak rate, dcm (dcf).

V_{mi} = Volume of gas sample as measured by dry gas meter during each 10-min interval, i, of the test run, dcm.

$V_{m(std)}$ = Volume of gas sample measured by the dry gas meter, corrected to standard conditions.

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

where:

K_1 = 0.3855 K/mm Hg for SI units and = 17.64 R/in. Hg for inch-pound units.

$$V_{m(std)} = K_1 V_{mc} Y [(P_{bar} + (\Delta H/13.6))/T_m]$$

where:

V_{mc} = Vm– (Lp– La)u

V_{mr} = Volume of room air sample as measured by dry gas meter, dcm (dcf), and

$V_{mr(std)}$ = Volume of room air sample measured by the dry gas meter, corrected to standard conditions.

$$V_{m(std)} = K_1 V_{mr} Y [(P_{bar} + (\Delta H/13.6))/T_m]$$

Where:

K_1 = 0.3855 K/mm Hg for SI units and = 17.64 R/in. Hg for inch-pound units, and

V_s = Average gas velocity in the dilution tunnel.

$$V_s = F_p K_p C_p (\sqrt{\Delta P_{avg}})(\sqrt{(T_s/P_s M_s)})$$

V_{si} = Average gas velocity in dilution tunnel during each 10-min interval, i, of the test run.

$$V_{si} = F_p K_p C_p (\sqrt{\Delta P_i})(\sqrt{(T_{si}/P_s M_s)})$$

V_{scent} = Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse.

V_{strav} = Average gas velocity calculated after the multipoint Pitot traverse.

Y = Dry gas meter calibration factor.

ΔH = Average pressure at the outlet of the dry gas meter or the average differential pressure across the orifice meter, if used, mm water (in. water).

ΔP_{avg} = Average velocity pressure in the dilution tunnel, mm water (in. water).

ΔP_i = Velocity pressure in the dilution tunnel as measured with the Pitot tube during each 10-min interval, i, of the test run.

$$\Delta P_i = (\Delta P_{i(b)} + \Delta P_{i(e)})/2$$

where:

$\Delta P_{i(b)}$ = Velocity pressure in the dilution tunnel as measured with the Pitot tube at the beginning of each 10-min interval, i, of the test run, mm water (in. water), and

$\Delta P_{i(e)}$ = Velocity pressure in the dilution tunnel as measured with the Pitot tube at the end of each 10-min interval, i, of the test run, mm water (in. water).

θ = Total sampling time, min.

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10 = ten min, length of first sampling period.
13.6 = Specific gravity of mercury.
100 = Conversion to percent.

TOTAL PARTICULATE WEIGHT – ASTM E2515

$$M_n = m_p + m_f + m_g$$

PARTICULATE CONCENTRATION – ASTM E2515

$$C_s = K_2(m_n/V_{m(std)})\ g/dscm\ (g/dscf)$$

where:
K_2 = 0.001 g/mg

TOTAL PARTICULATE EMISSIONS (g) – ASTM E2515

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

PROPORTIONAL RATE VARIATION (%) – ASTM E2515

$$PR = [\theta(V_{mi}\ V_s\ T_m\ T_{si})/(10(V_m\ V_{si}\ T_s\ T_{mi})] \times 100$$

MEASUREMENT OF UNCERTAINTY – ASTM E2515

$$MU_{weighing} = \sqrt{0.1^2} \bullet X$$

GENERAL FORMULA – ASTM E2515

$$uY = \sqrt{((\delta Y/\delta x_1) \times u_1)^2 + \ldots + ((\delta Y/\delta x_n) \times u_n)^2}$$

Where:
$\delta Y/\delta x_i$ = Partial derivative of the combining formula with respect to individual measurement xi,
u_i = is the uncertainty associated with that measurement.

TOTAL PARTICULATE EMISSIONS – ASTM E2515

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

where:
c_s = sample filter catch/(sample flow rate x test duration), g/dscf,
c_r = room background filter catch/(sample flow x sampling time), g/dscf,
Q_{std} = average dilution tunnel flow rate, dscf/min, and
θ = sampling time, minutes.

MU OF c_s

$$c_s = F_c/(Q_{sample} \times \theta) = 0.025/(0.25 \times 180) = 0.0005555$$
$$\delta c_s/\delta F_c = 1/Q_{sample} \bullet \Theta = 1/0.25 \bullet 180 = 0.0222$$
$$\delta c_s/\delta Q_{sample} = -F_c/Q^2_{sample} \bullet \Theta = -0.025/0.25^2 \bullet 180 = -0.00222$$
$$\delta c_s/\delta \Theta = -F_c/Q_{sample} \bullet \Theta^2 = -0.025/0.25 \bullet 180^2 = -0.000003$$
$$MUc_s = \sqrt{(0.00027 \bullet 0.0222)^2 + (0.0025 \bullet - 0.00222)^2}$$
$$\sqrt{} + (0.1 \bullet - 0.000003)^2 = 0.0000091g$$

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Thus, c_s would be 0.555 mg/dscf ± 0.0081 mg/dscf at 95% confidence level.

MU OF c_r

$c_r = BG_c/(QBG \times \theta) = 0.002/(0.15 \times 180) = 0.000074$
$\delta c_r/\delta BG_c = 1/Q_{BG} \bullet \Theta = 1/0.15 \bullet 180 = 0.03704$
$\delta c_r/\delta Q_{BG} = -BG_c/Q^2_{BG} \bullet \Theta = -0.002/0.15^2 \bullet 180 = -0.0004938$
$\delta c_r/\delta \Theta = -BG_c/Q_{BG} \bullet \Theta^2 = -0.002/0.15 \bullet 180^2 = -0.0000004$
$MUc_r = \sqrt{(0.00027 \bullet 0.03704)^2 + (0.0015 \bullet - 0.0004938)^2}$
$\sqrt{} + (0.1 \bullet - 0.0000004)^2 = 0.00001g$
Thus, c_r would be 0.074 mg/dscf ± 0.01 mg/dscf at 95% confidence level.

E_T AND MU_{ET}

$E_T = (c_s - c_r)\, Q_{sd}\, \theta = (0.000555 - 0.000074) \times 150 \times 180 = 13.00g$
$\delta E_T/\delta c_s = Q_{std} \bullet \Theta = 150 \bullet 180 = 27{,}000$
$\delta E_T/\delta c_r = Q_{std} \bullet \Theta = 150 \bullet 180 = 27{,}000$
$\delta E_T/\delta Q_{std} = c_s \bullet \Theta - c_r \bullet \Theta = 0.000555 \bullet 180 - 0.000074 \bullet 180 = 0.08667$
$\delta E_T/\delta \Theta = c_s \bullet Q_{std} - c_r \bullet Q_{std} = 0.000555 \bullet 180 - 0.000074 \bullet 180 = 0.07222$
$MU_{ET} = \sqrt{(27{,}000 \bullet 0.0000081)^2 + (27{,}000 \bullet 0.00001)^2\, (0.08667 \bullet 3)^2}$
$\sqrt{} + (0.07222 \bullet 0.1)^2 = 0.436$
Thus the result in this example would be:
ET = 13.00g ± 0.44 g at a 95% confidence level.

EFFICIENCY – CSA B415.1

The change in enthalpy of the circulating air shall be calculated using the moisture content and temperature rise of the circulating air, as follows:

$$\Delta h = \Delta t\,(1.006 + 1.84x)$$

Where:
Δh = change in enthalpy, kJ/kg
Δt = temperature rise, °C
1.006 = specific heat of air, kJ/kg °C
1.84 = specific heat of water vapor, kJ/kg °C
x = humidity ratio, kg/kg

The equivalent duct diameter shall be calculated as follows:

$$ED = 2HW/H+W$$

Where:
ED = equivalent duct diameter

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H = duct height, m
W = duct width, m

The air flow velocity shall be calculated as follows:

$$V = F_p \times C_p \times 34.97 \times \sqrt{T}/28.56(P_{baro} + P_s)$$

where
V = velocity, m/s
F_P = Pitot tube calibration factor determined from vane anemometer measurements
C_P = Pitot factor
= 0.99 for a standard Pitot tube or as determined by calibration for a Type S Pitot tube
34.97 = Pitot tube constant
Note: The Pitot tube constant is determined on the basis of the following units: $m/s[g/g\ mole\ (mm\ Hg)/(K)(mm\ H_2O)]^{0.5}$
ΔP = velocity pressure, mm H2O
T = temperature, K
28.56 = molecular weight of air
P_{Baro} = barometric pressure, mm Hg
P_s = duct static pressure, mm Hg

The mass flow rate shall be calculated as follows:

$$m = 3600VAp$$

where:
m = mass flow rate, kg/h
V = air flow velocity, m/s
3600 = number of seconds per hour
A = duct cross-sectional area, m2
p = density of air at standard temperature and pressure (use 1.204 kg/m3)

The rate of heat release into the circulating air shall be calculated using the air flow and change in enthalpy, as follows:

$$\Delta e = \Delta h \times m$$

Where:
Δe = rate of heat release into the circulating air, kJ/h
Δh = change in enthalpy of the circulating air, kJ/kg
m = mass air flow rate, kg/h

The heat output over any time interval shall be calculated as the sum of the heat released over each measurement time interval, as follows:

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$$E_t = \sum(\Delta e \times i) \text{ for } i = t_1 \text{ to } t_2$$

Where:

Et = delivered heat output over any time interval $t_2 - t_1$, kJ

i = time interval for each measurement, h

The average heat output rate over any time interval shall be calculated as follows:

$$e_t = E_t / t$$

where

e_t = average heat output, kJ/h

t = time interval over which the average output is desired, h

The total heat output during the burn shall be calculated as the sum of all the heat outputs over each time interval, as follows:

$$E_d = \sum(E_t) \text{ for } t = t_0 \text{ to } t_{final}$$

Where:

E_d = heat output over a burn, kJ/h (Btu/h)

E_t = heat output during each time interval, kJ/h (Btu/h)

The efficiency shall be calculated as the total heat output divided by the total energy input, expressed as a percentage as follows:

$$\text{Efficiency, \%} = 100 \times E_d / I$$

Where:

E_d = total heat output of the appliance over the test period, kJ/kg

I = input energy (fuel calorific value as-fired times weight of fuel charge), kJ/kg (Btu/lb)

SECTION 9

TEST SPECIMEN DESCRIPTION

The model SF1000E Solid Fuel Air Furnace is constructed of sheet steel. The outer dimensions are 50.5-inches deep, 42-inches high, and 25.5-inches wide. The unit has a fueling door located on the front.

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TEST REPORT FOR HY-C COMPANY, LLC
Report No.: 103537042MID-001R2
Date: 10/30/18

SECTION 10
TEST RESULTS

DESCRIPTION OF TEST RUNS:

RUN #1 (10/1/18): The furnace was set to draw a category 4 draw rate. The Test load weighed 36.3 lbs. and utilized a 9.1 lb. coal bed. The average Btu/hr. output was 27,764. Burn time was 3.66 hours. The kg/hr. burn rate was 3.668. Final Btu/hr was below anticipated, Fan limit switch was adjusted 5°F, therefore, this test will not be used.

RUN #2 (10/2/18): The furnace was set to draw a category 3 draw rate. The Test load weighed 36.68 lbs. and utilized a 9.1 lb. coal bed. The average Btu/hr. output was 28,360. Burn time was 4.216 hours. The kg/hr. burn rate was 3.228.

RUN #3 (10/3/18): The furnace was set to draw a category 4 draw rate. The Test load weighed 34.44 lbs. and utilized an 8.3 lb. coal bed. The average Btu/hr. output was 34,536. Burn time was 3.38 hours. The kg/hr. burn rate was 3.806.

RUN #4 (10/4/18): The furnace was set to draw a category 1 draw rate. The Test load weighed 36.50 lbs. and utilized a 6.8 lb. coal bed. The average Btu/hr. output was 19,900. Burn time was 6.28 hours. The kg/hr. burn rate was 2.139.

RUN #5 (10/5/18): The furnace was set to draw a category 1 draw rate. The Test load weighed 36.77 lbs. and utilized a 6.7 lb. coal bed. The average Btu/hr. output was 20,186. Burn time was 6.13 hours. The kg/hr. burn rate was 2.217. Testing conducted in other parts of building created a negative pressure and caused the unit to smoke excessively therefore this test will not be used.

RUN #6 (10/8/18): The furnace was set to draw a category 2 draw rate. The Test load weighed 36.43 lbs. and utilized a 6.1 lb. coal bed. The average Btu/hr. output was 22,173. Burn time was 6.2 hours. The kg/hr. burn rate was 2.170.

RUN #7 (10/9/18): The furnace was set to draw a category 1 draw rate. The Test load weighed 36.69 lbs. and utilized a 6.4 lb. coal bed. The average Btu/hr. output was 20,776. Burn time was 6.18 hours. The kg/hr. burn rate was 2.189.

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TABLE 1 – DATA SUMMARY PART A

						Θ	W_{fuel}	MC_{ave}	Q_{in}	Q_{out}
Cat	**Run No.**	**Load % Capacity**	**Target Load**	**Actual Load**	**Actual Load**	**Test Duration**	**Wood Weight as-fired**	**Wood Moisture**	**Heat Input**	**Heat Output**
			Btu/hr	Btu/hr	% of Max	hrs	lb	% DB	Btu	Btu
I	**4 & 7**	<35% of Max	**13,895**	**20,338**	**53.66**	**6.23**	**36.60**	**23.07**	**252,747**	**126,753**
2	**6**	36-53% of Max	**17,468**	**22,173**	**58.50**	**6.20**	**36.43**	**22.85**	**252,061**	**137,470**
3	**2**	<54-76% of Max	**25,805**	**28,360**	**71.43**	**4.22**	**36.68**	**22.23**	**255,075**	**119,585**
4	**3**	Max capacity	**37,900**	**34,536**	**86.99**	**3.38**	**34.44**	**21.32**	**241,292**	**116,848**

TABLE 2. – DATA SUMMARY PART B

			E_T	E	E	E	E	$E_{g/hr}$	η_{del}	η_{SLM}
Category	**Run No.**	**Load % Capacity**	**Total PM Emissions**	**PM Output Based**	**1st Hour Emissions**	**1st Hour Emissions**	**PM Output Based**	**PM Rate**	**Delivered Efficiency**	**Stack Loss Efficiency**
			g	lb/mmBtu Out	g/hr	Lb/mmBtu Out	g/MJ	g/hr	%	%
I	**4 & 7**	<35% of Max	**6.06**	**0.11**	**3.51[1]**	**0.221[2]**	**0.045**	**0.97**	**50.1**	**71.8**
2	**6**	36-53% of Max	**9.23**	**0.15**	**5.01**	**0.290**	**0.064**	**1.49**	**54.5**	**71.9**
3	**2**	<54-76% of Max	**4.70**	**0.09**	**5.67**	**0.304**	**0.037**	**1.12**	**46.9**	**68.3**
4	**3**	Max capacity	**5.70**	**0.11**	**4.69**	**0.212**	**0.046**	**1.68**	**48.4**	**70.0**

Notes:

1) 1st hour g/hr emissions averaged from tests 4 and 7. Test 4 had a result of 4.25 g/hr for the first hour and Test 7 had a result of 2.77 g/hr for the first hour, with an average of 3.51 g/hr.
2) 1st hour lb/MMBtu Output emissions is averaged from test 4 and 7. Test 4 had a result of 0.249 lb/MMBtu with an output of 37700 Btu for the first hour and Test 7 had a result of 0.193 lb/MMBtu with an output of 31660 for the first hour, with an average of 0.221 lb/MMBtu.

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TABLE 3 – WEIGHTED AVERAGE

Category	Run No.	Weighting Factor	Delivered Efficiency	Emissions g/MJ	Stack Loss Efficiency	Emissions lbs/MMBtu Output	Emissions g/hr	CO Emissions g/min
I	4 & 7	0.934	46.773	0.042	67.032	0.098	0.906	1.818
2	6	0.055	2.991	0.003	3.946	0.008	0.082	0.156
3	2	0.060	2.791	0.002	4.065	0.005	0.066	0.055
4	3	0.012	0.581	0.001	0.840	0.001	0.020	0.022
Totals		1.060	50.129	0.048	71.588	0.106	1.013	1.935

TABLE 4 - CSA B415.1 STACK LOSS RESULTS

RUN NO.	CO EMISSIONS (g/min)	HEATING EFFICIENCY (% HHV)	HEAT OUTPUT (Btu/hr)
4 & 7	1.95	71.8	28,878
6	2.85	71.6	28,843
2	0.92	68.3	41,105
3	1.83	70.0	49,090

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SECTION 11
CONCLUSION

This test demonstrates that this unit is an affected facility under the definition given in the regulation. The emission rate of 0.106 lb/MMBtu Output meets the EPA requirements for the Step 2 limits.

The model FC1000E is identical to the tested model SF1000E with the only differences being the exterior color and the name casted into the fuel door.

SECTION 12
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	10/30/18	N/A	Original Report Issue
1	2/8/2019	2, 3, 19, 20-23	Updated Section 1 to include US EPA Alternate Test Method. Updated Section 3 to include US EPA Alternate Test Method. Updated Section 11 to correct emissions units from g/hr to lb/MMBtu Output. Added a copy of the US EPA Alternate Test Method as an Appendix.
2	3/1/2019	2, 16-19	U.S. EPA requested a change to the Category 1 and Category 2 results. The average of tests 4 & 6 was changed to the average of tests 4 & 7, with test 6 used as the Category 2 results. The final particulate emissions rate changed from 0.118 lb/MMBtu to 0.106 lb/MMBtu, the CO emissions changed from 2.473 g/min to 1.935 g/min, and the overall direct efficiency changed from 51.7% to 50.1%. This required changes to all reported results including tables 1 through 4.

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SECTION 13
APPENDIX

U.S. EPA Alternate Test Method Letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

JUL 26 2018

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Mr. David Walters
HY-C Company
10950 Linpage Place
Saint Louis, Missouri 63132

Dear Mr. Walters,

I am writing in response to your correspondence dated June 6, 2018, regarding certification testing of the Fire Chief and Shelter Furnace brand wood-fired forced-air furnaces: Models FC1000E and SF1000E. You are planning to use the cordwood option to obtain 2020 certification under 40 CFR 60, Subpart QQQQ - Standards of Performance for New Residential Hydronic Heaters and Forced Air Furnaces (Subpart QQQQ), section 60.5476(e), using the Canadian Standards Association (CSA) B415.1-10 test method, "Performance testing of solid-fuel-burning heating appliances," including thermostatically controlled warm air furnaces using cordwood as stated in section 7.2 of the CSA standard.

In your correspondence, you are requesting alternative certification testing procedures for your furnaces because they are both thermostatically-controlled with a forced combustion inducer and have the potential for extreme BTU delivery when in "call for heat" mode, thus causing a longer time to ramp down to lowest BTU delivered, after the thermostat temperature is satisfied. You also note that when operating at the lowest possible combustion rate (preset by factory) with the distribution blower in normal operating mode, these heaters will produce more delivered BTU output (measured heat and velocity delivered to home through ducting) than allowed for the Category 1 heat output rate under Subpart QQQQ, section 60.5476(e), which requires use of the "burn rate categories in Method 28 WHH for the 2020 particulate matter emission standards" (15 percent less of manufacturer's rated heat output capacity). You state that these required test method procedures will force the fire to go out and the appliance cannot maintain combustion.

To address these issues, you are requesting to use the burn rate categories of CSA Method B415.1-10 in lieu of those in Method 28 WHH with the following modifications:

- Category IV – Operate at maximum capacity with forced combustion inducer engaged during the entire test.
- Category III - Operate with the switch for inducer "on" and "off" to meet specific output range.

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- Category II - Operate with the switch for inducer "on" and "off" to meet specific output range.

- Category I - Operate at the lowest delivered output that the unit is able to operate at, which may be a higher delivered output average BTU than the test method allows. Using two test runs at this low output (averaging the two runs), operating the heater at the intended lowest "real world" operational mode.

With the caveats discussed below, we approve your alternative method request for testing the Fire Chief and Shelter Furnace brand thermostatically-controlled forced air furnaces: Models FC1000E and SF1000E. As required in Subpart QQQQ, section 60.5476(e)(6), the manufacturer or approved test lab must also measure the first hour of particulate matter emissions for each test run using a separate filter in one of the two parallel sampling trains. These results must be reported separately and also included in the total particulate matter emissions per run. Also, as required in Subpart QQQQ, section 60.5476(a), the manufacturer must have the approved test laboratory measure the efficiency, heat output, and carbon monoxide emissions of the tested wood heater using CSA Method B415.1-10. For particulate matter emission concentrations, ASTM E2515-11 "Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel" must be used; four inch filters are acceptable. Disregard sections 8.3.1 and 8.4 in CSA Method B415.1-10 regarding the use of Douglas fir lumber in a crib wood configuration for EPA testing. However, for cordwood, you may use Douglas fir as well as the other species of wood listed in CSA Method B415.1-10. A copy of this letter must be included in each certification test report.

The FC1000 and SF1000E forced-air furnace design incorporates a low setting on its controller which is the lowest heat output (Btu/hr) setting available to the user and corresponds to the lowest burn rate to be evaluated during certification testing: this is consistent with 40 CFR part 60, Subpart QQQQ, section 60.5476, 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.*"

The following changes to CSA Method B415.1-10 must be followed:

1. When conducting the Category I burn, operate at lowest delivered output that the unit is intended to operate; the result for the higher of the two test runs may not be greater than 15 percent higher than that for the lower test run.

The following changes to ASTM E2515-11 must be followed:

1. Filters must be weighed in pairs to reduce weighing error propagation. See ASTM E2515-11, section 10.2.1, Analytical Procedure.
2. Sample filters must be Pall TX-40 or equivalent Teflon-coated glass fiber filters, and 47 mm, 90 mm, 100 mm, or 110 mm in diameter.

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3. Only one point is allowed outside the +/- 10 percent proportionality range per test run.

If you have additional questions regarding this approval, please contact Michael Toney of my staff at 919-541-5247 or *toney.mike@epa.gov*.

Sincerely,

Steffan M. Johnson, Group Leader
Measurement Technology Group

cc: Amanda Aldridge, EPA/OAQPS/OID
Adam Baumgart-Getz, EPA/OAQPS/OID
Rochelle Boyd, EPA/OAQPS/SPPD
Chuck French, EPA/OAQPS/SPPD
Rafael Sanchez, EPA/OECA
Michael Toney, EPA/OAQPS/AQAD

Certificate of Conformity

Emissions – Wood Burning Forced Air Furnace

EPA 40 CFR Part 60, Subpart QQQQ, CSA B415.1-2010

Certificate number: WHI18 – 10583804

This is a certificate of conformity to certify that the bearer has successfully completed the requirements of the above scheme which include the testing of products, the initial assessment, and are subject to continuing annual assessments of their compliance and testing of samples of products taken from production (as applicable to the scheme) and has been registered within the scheme for the products detailed.

Organization:

Company Name: HY-C Company, LLC
Address: 10950 Linpage Place
City, State: St. Louis, MO
Zip Code: 63132
Country: USA

Product: Model FC1000E and SF1000E
Manufacturer's Rated Output: 37,900 Btu/hour
Weighted Average Emissions: 0.118 lb/million Btu/hour
Weighted Average Annual Delivered Efficiency: 52%
Test Fuel Type: Cordwood
Compliance: Certified to comply with 2020 particulate emissions standard.
Report Number: 103537042MID-001

Certification body: Intertek Testing Services NA, Inc.
Initial registration: October 30, 2018
Date of expiry: NA
Issue status: 1

Charles Meyers		10/30/2018
Certification Coordination Manager		
Name	Signature	Date

www.intertek.com

Registered address:
Intertek Testing Services NA, Inc. 545 E. Algonquin Rd. Arlington Heights, IL 60005 USA

INTRODUCTION

This document provides a systematic guide for the technician conducting tests to CAN/CSA B415.1-2010 Performance Testing of Solid-Fuel-Burning Heating Appliances. This guide cannot cover every possible contingency that may develop during a particular test program. Many questions that may arise can be answered by a complete understanding of the test protocol and its intent. When in doubt on any detail check with the laboratory manager and be sure you understand the procedures involved.

The primary measurements to be obtained are particulate emission data and efficiency data. The technician's duties include the following steps. It is critical that all spaces on the data forms be properly filled in. Each test must be represented by a complete record of what was done and when.

I. APPLIANCE INSPECTION AND SET-UP
   - A. Incoming Inspection
   - B. Unit Set-Up

II. SAMPLING SYSTEMS - SET-UP
   - A. Gas Analysis
   - B. Dilution Tunnel

III. TEST CONDUCT
   - A. Pre-Test Fuel Load
   - B. Test Fuel Load
   - C. Unit Start - up
   - D. Test Run

IV. POST TEST PROCEDURE
   - A. Leak Checks
   - B. Particulate Sample Recovery

V. TEST EQUIPMENT AND FIGURES

VI. FUEL HANDLING AND STORAGE

The technician running this test must be familiar with the following documents that are to be kept in the laboratory at all times.

1. ASTM E2515
2. CSA B415.1

I. APPLIANCE INSPECTION AND SET-UP

A. Incoming Inspection

1. Check for completeness of unit including parts, accessories, installation and operating instructions, drawings and specifications, etc. Note any discrepancies or missing parts.
2. Check for shipping damage. If damage has occurred, notify the laboratory manager. In some cases repairs may be made, provided the manufacturer and laboratory manager concur that repairs will not affect the unit's performance. If damage is irreparable, a new unit will need to be obtained.
3. Note whether unit is catalytic or non-catalytic.
4. Mark unit with manufacturer's name, model number, work order number, and date received.
5. If unit is safety listed, note label data including listing agency and serial number.

B. Unit Set-Up

1. Prior to placing unit on scale, the scale must be turned on and allowed to warm up for 1-hour minimum.
2. Place unit on scale and align so chimney will be centered in hood. Record the weight of the unit and all accessories. (Do not weigh with chimney attached.)
3. Chimney and connector should be cleaned with a wire brush prior to mounting. Attach chimney and connector then seal all joints. Be sure the single wall stove pipe terminates and insulated pipe starts at proper level above scale platform. Chimney must be supported from scale so that it does not touch test enclosure or hood walls.
5. Measure firebox dimensions and record on appropriate data form. Make a three dimensional sketch of the firebox including firebrick, baffles, and obstructions. Calculate load area volume in cubic feet. See Section 8.2 of the CAN/CSA B415.1-2010 Performance Testing of Solid-Fuel-Burning Heating Appliances for details.
7. Plug thermocouples into data acquisition system jacks and verify that all instrumentation is working properly.
8. Dilution tunnel must be cleaned prior to each certification test series, and at anytime a higher burn rate follows a lower burn rate.
9. Install outlet air duct in accordance with the manufacturer's requirements and section 5.3.2 of CAN/CSA B415.1-2010 Performance Testing of Solid-Fuel-Burning Heating Appliances.
10. Set duct static pressure to 0.2 in/wc or to the manufacturer's specifications by reducing the duct outlet size uniformly.

II. SAMPLING SYSTEMS SET-UP

A. Gas Analysis

1. All instruments should be turned on and allowed to warm up for 1-hour minimum.
2. Prior to calibrating, make sure that the outlet pressure on each calibration gas bottle reads 10 PSI. Adjust flow meters at each gas analyzer to required flow.

All gas analyzers (CO_2, CO, O_2) are zeroed on nitrogen. The O_2 analyzer is spanned on air and set for 20.93%. CO_2 and CO analyzers are spanned with their respective gases.

Calibrate analyzers as follows:

a. With calibration switch at "SPAN", adjust all span controls to values specified on span gas label.
b. Switch to "ZERO" and adjust zero controls to provide 0.00 readout on all analyzers.
c. Repeat a. and b. until no further adjustment is required.
d. Record these values on the appropriate data sheet.
e. Switch to "CAL." and record all analyzer values.

3. Response time synchronization check.

a. With switch at "SAMPLE" and no fire in unit, allow readings to stabilize (O_2 analyzer should read 20.93, CO and CO_2 should read 0.00).
b. Switch to "CAL" setting and start the stopwatch. Note the time required for each unit to reach the calibration gas bottle value. If all three analyzers reach this value within 5 seconds of each other, synchronization is adequate. If not, contact the laboratory manager. Synchronization is adjusted by either internal instrument setting or adjustment of sample line length.
c. Use section 8 of ASTM E2515 for procedures to check calibration of instruments.

4. Sample clean-up train.

a. Load a new filter in 4-inch glass filter holder.
b. Load four Impingers as follows:
   #1: 100 ml. distilled or de-ionized water
   #2: 100 ml. distilled or de-ionized water
   #3: Empty
   #4: 200-300 grams Drierite.

c. Place Impingers in container and connect with greased "U TUBES". (Grease carefully on bottom half of ball joint so that grease will not get into tubes.)
d. Connect filter to impinger #1 and sample line to impinger #4.
e. Connect stack probe to filter.
f. Leak check system as follows:
    1) Plug probe.
    2) Turn on sample system and increase flow rate slowly.
    3) Set vacuum-adjust valve to obtain a vacuum of 10 inches mercury.
    4) If sapphire float in rotometer does not stabilize below 10 on scale, system must be resealed.
    5) Repeat leak-check procedure until satisfactory results are obtained.
    6) Unplug probe slowly, then decrease flow rate slowly before shutting off system.

g. Just prior to starting test, fill impinger container with ice.

B. Dilution Tunnel Sample Train Set-Up:

1. Filters and holders.

a. Clean probes and filter holder front housings carefully and desiccate to a constant weight prior to use.
b. Filters and filter probe combinations should be numbered and labeled prior to use.
c. Weigh desiccated filters and probe filter units on analytical balance. Record the weights on the appropriate form. Note that the probe and front half of the front filter holder is to be weighed as a unit.
d. Carefully assemble the filter holder units and connect to sampling systems.

2. Leak checking.

a. Each sample system is to be checked for leakage prior to inserting probes in tunnel.
b. Plug probes and start the samplers. Adjust pump bypass valve to produce a vacuum reading of 10 inches mercury. NOTE: During test, highest vacuum recorded is required for posttest leak check.
c. Allow vacuum indication to stabilize at 10" mercury, record dry gas meter readings, (DGM_1, DGM_2). At a convenient DGM value start stopwatch. Time for 1 minute then stop vacuum pumps. Record dry gas meter readings again, (DGM_3, DGM_4). NOTE: If rotometer ball is floating above the 5-mm mark, system is leaking too much and all seals should be checked.

d. Calculate leakage rate as follows.

System 1: DGM3-DGM_1 = CFM_1
System 2: DGM4-DGM_2 = CFM_2

If CFM_1 or CFM_2 is greater than 0.02 cfm, or $_1$S greater than 0.04 x Sample Rate, leakage is unacceptable and system must be resealed. For most tests the sample rate will be 0.25 cfm, thus leakage rates in excess of 0.04 x 0.25 = 0.010 cfm are not acceptable.

e. To prevent contamination, do not insert probes in tunnel until the start of the test run.

III. TEST CONDUCT

A. Pre-Test Fuel Load

1. Using oak wood, operate normally until the unit is heated and has cycled at least 2 times. Then remove all contents and zero scale
2. Reload with oak wood (pieces approximately 2" thick) and allow to burn down to specified coal bed weight.

B. Test Fuel Load

1. Determine optimum load weight by multiplying loading area volume (ft^3) by 10lbs/ft^3. This is the ideal load weight.
2. Test load fuel shall be red or white oak cordwood with a dimension of 20-inches (± 4"). Moisture content of each piece needs to be within 18-28%, with the overall average to be between 18-28%.
3. Weigh out test load and adjust weight by shortening or lengthening all pieces equally if necessary.
4. Measure and record moisture content of each fuel piece (using five total measurements). Determine if fuel load moisture content is within required range (18-28%). If not, construct new fuel pieces using wood with required moisture content. Contact laboratory manager if you cannot find suitable pieces.

C. Unit Start-Up

1. With all doors and air controls closed, zero draft magnehelic using screw located at bottom of meter.
2. Before lighting a fire turn on dilution tunnel and set flow rate to 60 scfm.
3. Check draft imposed on cold stove. All inlets must be closed and a draft gauge in the chimney. If draft is greater than 0.005 inches water column, adjust tunnel to stack gap until draft is less than 0.005 inches water column.

4. With hot wire anemometer check for ambient airflow around unit (must be less than 50 ft/min).
5. Zero scale and start fire with newspaper and kindling. (Make sure stack sample probe is on the unit.)
6. Once kindling is burning well, add preload fuel. Operate at high fire for sufficient time to get fuel load burning well. Then adjust settings to intended test run levels.
7. Perform the dilution tunnel traverse as prescribed in ASTM #2515, Section 9.3. (Pitot tube should be carefully cleaned prior to each test.)
8. Pretest load must burn until the unit has cycled at least 2 times.
9. Stir fire often during preburn (after a reading) to get a good coal bed. Fire can only be raked once (door open 1 minute or less) during the 15 minutes prior to the start of the test.
10. Traverse the outlet duct velocity with a vane anemometer and enter into the spreadsheet.

D. Test Run

1. Stack gas analyzers should be on and in the sample mode.
2. When the fuel bed is between 10-20% of the test load weight the test is to be started.

    a. Insert the sample probes into the tunnel being careful not to hit sides of tunnel with probe tip.
    b. Check tunnel Pitot tube for proper position.
    c. Record initial readings.
    d. Turn on probe sample systems and start timing test.
    e. Tare platform scale.
    f. Open stove doors and load stove. Close door or follow manufacturer's start-up procedures. Five minutes is the maximum time before all doors and controls must be set to final positions for duration of test.
    g. Record length of time door and bypass are open, include any air control setting adjustments.
    h. Every 10 minutes or less record the following:

        1) Dry gas meter readings.
        2) Weight remaining.
        4) Tunnel Pitot tube reading.
        5) Draft reading.
        6) Rotometer readings.

    i. Every 1 minute record the following:

        1) All temperature points
        2) Water meter
        3) Delta T thermopile

j. Filter temperatures shall not exceed 90ºF anytime during the test. If the filters are approaching 90ºF turn on cooling pump. Filters must be kept above the dilution tunnel wet bulb temperature in order to prevent condensation.
k. Regularly check impinger train for ice level during test.
l. After 30 seconds of 0.00 lbs. weight, and on the minute, shut off sample trains and record last reading.
m. Record final dry gas meter values.

IV. POST TEST PROCEDURES

A. Leak Checks

1. Dilution Tunnel

a. Remove both sample probes from tunnel and plug with rubber stopper.
b. Turn on sample system and set vacuum to 10" mercury or to the highest value reached during the test.
c. At a convenient value start stopwatch and record the DGM starting value.
d. After 1 minute stop sample system and record ending DGM value.
e. Calculate leakage rate per pre-test description (see II.B.2.c.).

2. Gas Analyzers

a. Set stack sample flow to about 75 mm on the rotometer.
b. Plug with rubber stopper.
c. Adjust vacuum to 10" mercury.
d. Let system stabilize then record rotometer readings.
e. If the rotometer readings do not equal zero, check with the laboratory manager.
f. SLOWLY unplug probe and decrease flow rate to zero.
g. Turn off stack sampling system.
h. Zero, span and calibrate the analyzers (see Gas Analysis). RECORD ONLY these meter values.

B. Particulate Sample Recovery

1. Disassemble filter holder and scrape gasket with scalpel. Collect all loose material on filters.
2. Weigh and record probes and filters for each train. NOTE: 24 hours of desiccation must pass before final "no change" weight values can be recorded.
3. Weigh and record probes and fillers at 6-hour intervals until weight change between weighing is less than 0.2 mg.

V. TEST EQUIPMENT AND FIGURES

Figure 1 – Dilution Tunnel

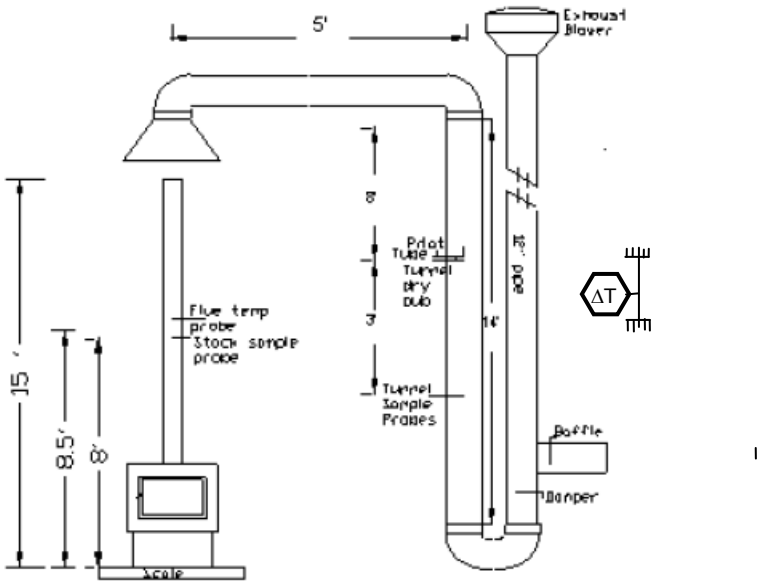
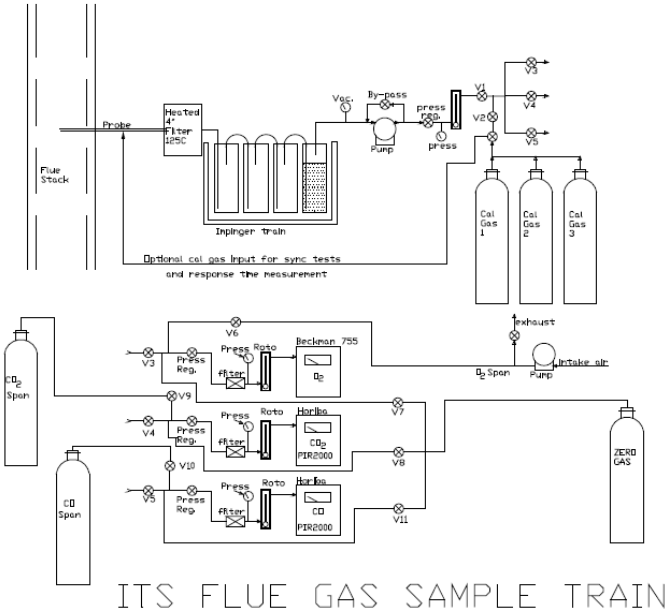
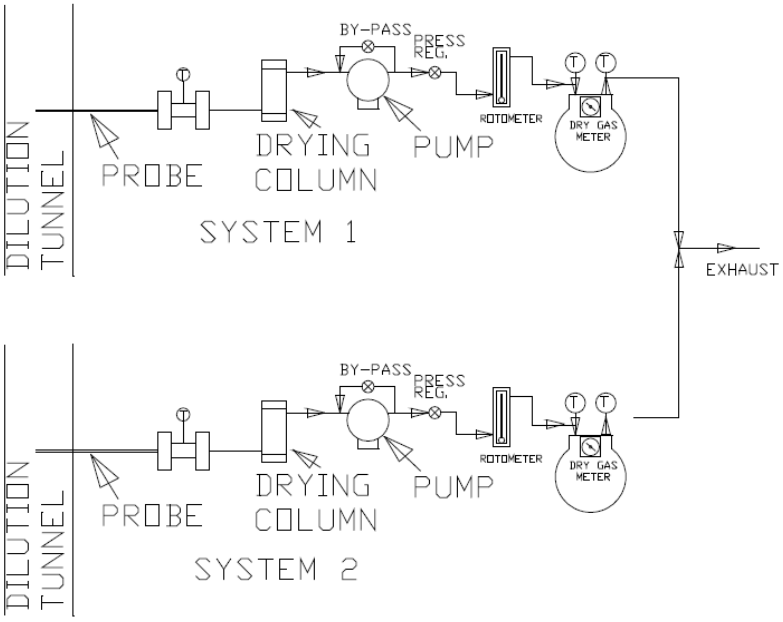


Figure 2 – Flue Gas Sample Train



ITS FLUE GAS SAMPLE TRAIN

Figure 4 – Dilution Tunnel Sample System



VI. FUEL HANDLING AND STORAGE

Test fuel is purchased at various sources and once received; the moisture is checked by the Intertek staff. The fuel is then placed in a sealed room with the humidity and temperature maintained at a desired level to equilibrate and maintain the moisture content of the fuel. The room is only opened as necessary to retrieve the fuel for preparation prior to the test.

Raw Data

Reading Interval	1	Minutes																			4.387877		0.043373					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
0	541.0	72.5	113.7	140.1	71.1	77.29577	74.76572	73.88224	76.40063	77.29082	74.71	73.96	73.75	0.02	0.02	1.1813	1.3102	0.033016	9.428175	10.8477	36.33074	1.1731	0.043275	0.07755	0.045335	0.001	0.001
1	612.7	73.3	117.9	139.2	71.1	70.05973	75.7891	77.2683	75.42075	76.59205	75.55	73.95	76.94	3.95	3.93	1.2023	1.3342	0.133685	6.480531	14.12718	35.93207	1.207811	0.051953	0.083546	0.050581	0.139	0.139
2	810.3	73.0	129.9	142.5	72.2	68.88337	75.91792	80.2859	75.40096	77.00063	76.57	73.73	79.19	4.00	3.92	1.2288	1.3118	0.304495	4.401135	16.18122	35.3371	1.194839	0.04871	0.077956	0.057198	0.141	0.139
3	880.8	74.0	139.0	148.1	72.1	68.68209	76.44619	82.69418	75.47274	77.52084	77.57	73.81	81.29	4.03	3.91	1.24	1.2934	0.270065	6.046681	14.24194	34.62021	1.207397	0.051849	0.073353	0.05885	0.142	0.138
4	929.8	73.2	146.1	153.6	71.8	68.51025	76.55547	84.72233	75.76774	77.60166	78.24	74.13	82.89	4.05	3.89	1.24	1.2700	0.229612	9.694233	10.41464	33.92893	1.231744	0.057936	0.06751	0.05999	0.143	0.137
5	948.2	74.3	150.7	158.7	71.6	68.8879	76.49806	85.9592	75.66958	77.6106	78.86	73.86	84.10	3.91	3.88	1.24	1.3003	0.422197	11.12511	9.016255	33.23155	1.197216	0.049304	0.075066	0.060206	0.138	0.137
6	703.2	73.9	120.7	159.4	71.7	69.87334	76.78072	85.47897	75.74365	77.63781	79.09	74.04	83.55	3.93	3.86	1.21	1.2925	0.662903	11.65969	8.442472	32.63293	1.206823	0.051706	0.073125	0.053629	0.139	0.136
7	655.4	74.1	111.3	159.0	73.0	70.286	76.98589	84.302	75.807	77.74802	78.96	74.22	82.40	3.95	3.85	1.21	1.3088	1.770839	11.86818	7.90627	32.17573	1.174868	0.043717	0.077206	0.052476	0.139	0.136
8	634.7	73.7	107.6	157.6	71.7	70.95571	76.8658	83.33228	75.85676	77.63714	78.98	74.02	81.67	3.96	3.97	1.21	1.3069	3.0569	13.31246	6.076044	31.73926	1.212456	0.053114	0.07673	0.05159	0.140	0.140
9	627.1	73.7	105.9	156.1	72.1	71.58883	76.80952	82.71585	75.85537	77.64914	79.19	73.97	81.37	3.98	4.02	1.20	1.2899	2.228124	13.75698	6.10186	31.33449	1.229001	0.05725	0.072484	0.050099	0.140	0.142
10	622.1	73.1	104.4	155.2	72.2	72.00842	76.95468	82.82598	75.79218	77.82021	79.26	74.05	81.46	3.99	4.01	1.20	1.3160	2.042172	13.66966	6.33744	30.93094	1.217528	0.054382	0.078989	0.04988	0.141	0.142
11	623.8	73.8	103.7	154.1	72.0	72.3047	76.88953	82.31298	75.93052	77.53018	79.36	74.24	81.22	4.00	4.01	1.20	1.3326	2.017215	13.74433	6.309886	30.42741	1.221381	0.055345	0.083162	0.04955	0.141	0.142
12	624.6	74.0	103.5	154.0	71.3	72.67785	76.86109	82.53572	75.96149	77.49422	79.44	74.19	81.21	4.01	4.00	1.20	1.3188	1.899111	13.75028	6.356977	30.04214	1.209713	0.052428	0.079711	0.050892	0.142	0.141
13	626.5	73.4	103.0	154.2	72.0	73.18223	77.30524	82.55128	75.85059	77.58412	79.55	74.16	81.64	4.02	3.99	1.20	1.3535	1.581144	13.98921	6.222377	29.63493	1.209859	0.052465	0.088371	0.050126	0.142	0.141
14	626.1	72.5	102.7	153.8	71.5	73.66669	76.97313	82.69238	76.07049	77.58315	79.68	74.16	81.31	4.03	3.99	1.19	1.3845	1.424318	14.11	6.163033	29.12531	1.227269	0.056817	0.096116	0.047795	0.142	0.141
15	627.3	73.1	102.5	154.4	71.6	74.19089	76.98195	82.67468	75.95116	77.51735	79.76	74.13	81.72	4.04	4.03	1.20	1.3474	1.469258	14.19019	6.076013	28.71932	1.205056	0.051264	0.086862	0.048926	0.142	0.142
16	629.8	74.1	102.6	154.0	71.5	74.46703	77.12421	82.72916	76.13796	77.39628	80.15	74.28	81.84	4.04	4.02	1.20	1.3438	1.429365	14.15791	6.142094	28.34259	1.231049	0.057762	0.085944	0.051023	0.143	0.142
17	630.5	74.0	102.3	154.6	72.0	74.57292	77.08956	82.93257	76.17378	77.47894	80.16	74.15	81.82	4.05	4.01	1.20	1.3648	1.403348	14.11737	6.170105	27.93416	1.220491	0.055123	0.091208	0.05045	0.143	0.142
18	631.2	73.0	102.5	154.8	72.0	74.78039	77.14978	83.19653	76.18631	77.39108	80.17	74.26	81.87	4.05	4.00	1.20	1.3216	1.415966	14.17684	6.10183	27.42575	1.210713	0.052678	0.080406	0.049127	0.143	0.141
19	633.2	73.3	102.6	155.4	71.8	75.21641	77.09719	83.03249	76.29533	77.5938	80.10	74.23	82.03	4.06	3.99	1.20	1.2962	1.426708	14.20991	6.062785	27.04171	1.229708	0.057427	0.074039	0.049462	0.143	0.141
20	634.2	73.0	102.5	155.5	72.3	75.28052	77.05421	83.19469	76.1852	77.81164	80.29	74.51	82.26	4.06	3.98	1.20	1.2925	1.363797	14.14615	6.155901	26.63206	1.214102	0.053526	0.073134	0.050084	0.143	0.141
21	636.4	73.2	102.2	155.6	71.7	75.29848	77.12572	83.2058	76.13348	77.43864	80.18	74.25	82.43	3.91	3.98	1.20	1.3182	1.204825	14.06928	6.289799	26.23095	1.195741	0.048935	0.079541	0.050386	0.138	0.140
22	636.5	73.6	102.3	156.1	71.2	75.32146	77.10854	83.44623	76.18148	77.68744	80.53	74.31	82.12	3.92	3.97	1.20	1.3071	1.164567	14.05596	6.3026	25.82495	1.216528	0.054132	0.076764	0.048859	0.138	0.140
23	635.9	73.1	102.0	156.2	71.9	74.9493	76.96394	83.26407	76.04103	77.3395	80.36	74.11	82.25	3.92	3.97	1.20	1.3007	1.055315	14.02289	6.356885	25.43603	1.239279	0.05982	0.07517	0.049422	0.138	0.140
24	637.9	73.8	102.0	156.5	71.4	75.19778	77.13881	83.50908	76.41256	77.63071	80.63	74.22	82.20	3.92	3.96	1.20	1.3299	1.01602	13.96251	6.444668	25.02151	1.227294	0.056823	0.08247	0.050011	0.138	0.140
25	637.3	74.2	102.0	156.7	71.9	75.21671	76.8967	83.38255	76.03613	77.60901	80.61	74.34	82.42	3.92	3.96	1.20	1.3673	1.018361	13.9434	6.444668	24.62161	1.213493	0.053373	0.091824	0.050081	0.138	0.140
26	636.9	73.2	102.2	157.2	72.4	75.22986	77.16418	83.5275	76.17572	77.46081	80.59	74.40	82.28	3.92	3.95	1.20	1.3189	0.948172	13.98915	6.398643	24.14003	1.216272	0.054068	0.079733	0.050075	0.138	0.140
27	636.7	73.1	102.1	157.1	71.4	74.99442	77.18309	83.77052	76.25848	77.61718	80.82	74.10	82.61	3.92	3.95	1.20	1.3545	0.902513	14.00225	6.393126	23.83279	1.232158	0.05804	0.088621	0.050166	0.138	0.139
28	635.5	73.5	101.9	157.2	71.7	75.36161	77.06168	83.7234	75.96511	77.46437	80.57	74.12	82.38	3.92	3.95	1.20	1.3256	0.85005	13.91663	6.490875	23.42436	1.202495	0.050624	0.081409	0.050111	0.138	0.139
29	635.4	73.2	102.2	157.5	71.1	75.46629	77.07265	83.70122	76.02577	77.54511	80.65	74.35	82.64	3.92	3.94	1.20	1.3137	0.855037	13.81858	6.5782	23.03056	1.211481	0.05287	0.078437	0.049971	0.138	0.139
30	634.6	73.1	101.7	157.4	71.7	75.48284	77.02896	83.86273	76.15538	77.65465	80.82	74.23	82.70	3.93	3.94	1.20	1.3345	0.80444	13.76341	6.646292	22.63067	1.239669	0.059917	0.083622	0.049496	0.139	0.139
31	634.2	73.1	101.7	157.5	72.2	75.5326	77.06533	83.71381	76.35523	77.52653	80.76	74.31	82.93	3.93	3.94	1.20	1.3513	0.731861	13.6418	6.787383	22.32465	1.183366	0.045842	0.087834	0.050474	0.139	0.139
32	632.6	73.8	101.9	157.6	72.4	75.90815	77.16647	83.93891	76.15228	77.66492	80.84	74.39	83.00	3.93	3.94	1.20	1.3039	0.689701	13.57368	6.86151	21.93451	1.213724	0.053431	0.075974	0.050605	0.139	0.139
33	631.9	73.9	101.6	157.3	71.5	75.75529	77.16755	84.10496	76.117	77.79028	81.06	74.37	82.80	3.94	3.95	1.20	1.3458	0.641092	13.55447	6.875379	21.53217	1.228184	0.057046	0.086438	0.048798	0.139	0.139
34	628.5	74.0	101.7	157.1	72.0	75.82874	77.00673	83.9398	76.23888	77.69799	81.12	74.27	82.80	3.93	3.95	1.20	1.2986	0.58496	13.48684	6.953773	21.11887	1.221649	0.055412	0.074655	0.049602	0.139	0.140
35	628.0	73.3	101.1	156.6	71.2	75.70531	77.30497	83.8445	76.19936	77.68524	81.34	74.32	82.87	3.94	3.95	1.20	1.3453	0.547689	13.41884	7.035581	20.82382	1.218125	0.054531	0.086316	0.049526	0.139	0.139
36	626.3	73.9	100.8	156.6	71.2	75.46996	77.00269	84.1008	76.04385	77.68368	81.20	74.22	83.08	3.93	3.95	1.20	1.3053	0.531242	13.21697	7.241564	20.41783	1.248215	0.062054	0.076325	0.049703	0.139	0.139
37	624.3	73.2	100.9	156.0	71.4	75.12019	77.02105	83.95392	75.92867	77.65549	81.10	74.16	82.90	3.94	3.95	1.20	1.3175	0.512869	13.16689	7.28006	20.04354	1.220003	0.055001	0.079385	0.048846	0.139	0.139
38	623.8	73.6	101.0	155.7	71.2	75.01591	76.83646	84.15467	75.73165	77.55888	81.11	74.06	82.95	3.94	3.94	1.19	1.2837	0.488607	13.15607	7.28009	19.72777	1.206933	0.051733	0.070918	0.04831	0.139	0.139
39	622.1	73.2	100.8	155.5	71.2	75.09753	76.87791	84.19555	75.98794	77.78839	81.17	74.13	83.04	3.94	3.94	1.20	1.3691	0.467112	13.12934	7.309961	19.43516	1.21654	0.054135	0.092272	0.049364	0.139	0.139
40	620.1	73.5	100.4	155.5	71.5	75.10159	76.96898	84.10056	75.96078	77.84156	81.46	74.37	83.03	3.94	3.94	1.20	1.3295	0.427171	13.03537	7.419506	19.12061	1.230464	0.057616	0.082372	0.049483	0.139	0.139
41	620.6	73.6	100.5	155.0	70.9	74.71262	76.66033	83.76984	75.59059	77.57175	81.17	74.21	82.83	3.94	3.94	1.20	1.3104	0.400361	12.94189	7.519754	18.71584	1.227782	0.056945	0.077611	0.048965	0.139	0.139
42	618.9	73.1	100.3	154.7	70.7	75.03636	77.03761	84.08244	75.94457	77.82534	81.35	74.18	83.02	3.94	3.94	1.20	1.3109	0.4003	12.95576	7.480008	18.42689	1.240242	0.06006	0.077718	0.049011	0.139	0.139
43	622.2	73.6	100.0	154.6	70.2	74.99713	76.9917	84.01077	76.05096	77.58369	81.18	74.10	82.95	3.94	3.93	1.19	1.3633	0.389595	12.9489	7.486988	18.11356	1.235182	0.058796	0.090836	0.048179	0.139	0.139
44	623.9	73.2	100.1	154.6	70.8	74.84888	76.97732	84.08238	75.97475	77.70158	81.35	74.27	83.09	3.94	3.97	1.19	1.3234	0.37922	12.90233	7.53286	17.72951	1.219893	0.054973	0.08086	0.048682	0.139	0.140
45	621.7	73.1	99.9	154.4	70.2	75.07746	76.85783	84.16916	75.85419	77.7015	81.37	74.07	83.03	3.94	3.97	1.20	1.3422	0.384292	12.95948	7.4541	17.42227	1.208457	0.052114	0.085545	0.049133	0.139	0.140
46	623.1	73.1	99.5	154.7	71.1	75.1171	76.83054	84.20824	76.0407	77.74745	81.39	74.30	83.11	3.94	3.97	1.20	1.3544	0.389559	12.99489	7.399297	17.13332	1.22271	0.055677	0.088605	0.049246	0.139	0.140
47	620.7	73.3	99.6	154.4	70.7	74.62015	76.92259	84.08122	75.72712	77.54765	81.33	73.92	83.02	3.94	3.97	1.20	1.3614	0.389559	13.02879	7.359857	16.81389	1.229379	0.057345	0.090349	0.048929	0.139	0.140
48	619.9	73.3	99.5	154.6	70.2	74.73577	76.99805	83.95104	75.83276	77.6399	81.50	73.93	83.10	3.94	3.97	1.19	1.3403	0.39229	12.97542	7.416183	16.414	1.207336	0.051834	0.085082	0.048596	0.139	0.140
49	615.4	73.1	99.1	154.0	70.6	74.71895	76.88753	84.09945	75.69469	77.46169	81.26	74.16	83.08	3.94	3.97	1.19	1.2999	0.389547	12.96329	7.426028	16.12749	1.221551	0.055388	0.074969	0.048206	0.139	0.140
50	613.4	73.4	99.1	154.0	70.9	74.7662	76.95486	84.37701	75.94359	77.61018	81.52	74.10	83.19	3.94	3.97	1.19	1.3470	0.318065	12.79452	7.627592	15.8166	1.20942	0.052355	0.086755	0.047645	0.139	0.140
51	609.4	73.0	98.8	153.7	70.1	74.42584	76.65466	83.97544	75.77732	77.77857	81.50	73.96	82.97	3.95	3.97	1.20	1.3557	0.243206	12.59207	7.846651	15.52765	1.171772	0.042943	0.088922	0.048886	0.139	0.140
52	606.3	72.6	98.7	153.5	71.5	74.50122	76.56271	84.00356	75.77406	77.61468	81.36	73.81	82.85	3.95	3.97	1.19	1.3234	0.218749	12.49813	7.92666	15.21066	1.217699	0.054425	0.08086	0.048179	0.139	0.140
53	604.5	73.2	98.8	153.3	70.0	74.61375	76.67524	84.07491	75.83561	77.72977	81.44	74.09	82.96	3.94	3.97	1.19	1.3263	0.2004	12.41968	8.007036	14.91561	1.209201	0.0523	0.081586	0.048657	0.139	0.140
54	601.2	73.4	98.7	152.6	70.3	74.77566	76.81707	84.24115	75.95878	77.6856	81.30	73.95	83.08	3.93	3.97	1.19	1.3089	0.192219	12.41974	7.980184	14.7181	1.250617	0.062654	0.077236	0.047191	0.139	0.140
55	600.0	71.9	98.6	152.5	70.6	74.97202	76.79256	83.92001	75.81203	77.492	81.33	73.93	82.87	3.94	3.97	1.19	1.3202	0.176491	12.27691	8.128377	14.41087	1.185036	0.046259	0.08004	0.047895	0.139	0.140
56	599.8	72.1	98.5	152.5	71.6	75.04848	76.86902	84.05479	76.01007	77.75698	81.30	74.05	82.88	3.94	3.97	1.19	1.2969	0.158094	12.19035	8.214421	14.12314	1.183	0.04575	0.074222	0.047402	0.139	0.140
57	595.1	72.6	98.1	152.0	70.9	74.85477	76.93633	83.9166	75.77791	77.50474	81.46	73.81	82.83	3.94	3.97	1.19	1.3265	0.144475	12.08333	8.335	13.81468	1.205714	0.051428	0.081622	0.048243	0.139	0.140
58	597.1	73.4	98.2	151.8	69.7	74.76015	76.82163	83.96848	75.99045	77.82436	81.56	74.04	83.14	3.94	3.97	1.19	1.3192	0.133649	12.1232	8.294705	13.52451	1.177038	0.04426	0.079803	0.046841	0.139	0.140
59	593.5	72.0	98.2	151.5	70.3	75.05665	76.79018	83.98366	75.79038	77.66446	81.31	73.96	83.16	3.94	3.97	1.19	1.3324	0.1232	12.09723	8.322503	13.31725	1.218199	0.05455	0.083088	0.047463	0.139	0.140
60	592.0	73.2	97.6	150.9	70.3	74.62993	76.65794	83.7477	75.72525	77.49223	81.30	73.88	83.00	3.93	3.97	1.19	1.3546	0.112337	12.03057	8.404311	13.02342	1.193705	0.048426	0.088639	0.047697	0.139	0.140
61	589.5	73.3	97.6	150.5	70.2	74.68204	76.5695	83.89147	75.72499	77.69947	81.26	74.01	81.64	3.94	3.96	1.19	1.3196	0.101693	11.93618	8.518214	12.80275	1.20291	0.050727	0.079912	0.046929	0.139	0.140
62	587.0	72.5	97.3	150.5	69.8	74.77238	76.63977	83.67699	75.64523	77.58624	81.13	73.86	80.80	3.93	3.95	1.19	1.3375	0.091086	11.92216	8.538696	12.51136	1.210189	0.052547	0.084366	0.047042	0.139	0.139
63	587.9	73.9	97.1	150.0	70.2	74.7159	76.74393	83.97766	75.96575	77.81975	81.39	73.94	80.58	3.93	3.94	1.18	1.3605	0.085941	11.82093	8.637634	12.20778	1.214395	0.053599	0.090132	0.044543	0.139	0.139
64	586.7	72.7	96.7	149.9	70.3	74.86347	76.91827	83.7008	75.97429	77.82159	81.27	73.93	80.38	3.92	3.94	1.19	1.3444	0.080967	11.7059	8.736907	12.00662	1.211249	0.052812	0.086109	0.046301	0.139	0.139
65	583.6	72.9	96.8	149.7	70.8	74.58938	76.75796	83.48335	75.72808	77.68247	81.45	74.09	80.13	3.92	3.95	1.18	1.3394	0.078687	11.77473	8.655769	11.70547	1.213895	0.053474	0.084847	0.046079	0.139	0.139
66	580.8	72.8	96.7	149.7	71.3	74.62403	76.83277	83.76169	75.9485	77.7021	81.31	74.21	80.28	3.93	3.94	1.19	1.3257	0.075566	11.73992	8.674728	11.50675	1.208616	0.052154	0.081433	0.047652	0.139	0.139
67	580.5	73.4	97.0	149.4	70.4	74.66275	76.83803	83.81966	75.95644	77.62972	81.20	73.93	80.04	3.93	3.94	1.19	1.3470	0.069982	11.6525	8.756506	11.2178	1.205446	0.051361	0.086761	0.046478	0.139	0.139
68	579.9	73.0	97.0	149.2	70.3	74.79417	76.80882	83.73147	75.93048	77.71085	81.26	73.92	79.78	3.92	3.95	1.19	1.3551	0.064508	11.60611	8.789028	11.00322	1.221832	0.055458	0.088785	0.046469	0.138	0.139
69	577.8	72.9	96.6	148.8	70.0	74.78005	76.57381	83.76373	75.95618	77.74326	81.29	74.11	79.74	3.93	3.94	1.19	1.3483	0.061911	11.49123	8.889063	10.71793	1.200154	0.050039	0.087075	0.046774	0.139	0.139
70	576.2	73.0	96.7	148.8	70.1	74.65907	76.6804	83.67744	75.83546	77.60915	81.22	74.18	79.70	3.92	3.94	1.18	1.3252	0.059265	11.46493	8.909484	10.49238	1.211895	0.052974	0.08129	0.046195	0.138	0.139
71	577.6	73.5	96.6	148.6	70.0	74.50312	76.71856	83.63587	75.88358	77.65057	81.30	74.08	79.66	3.93	3.93	1.18	1.3187	0.056839	11.39071	8.983734	10.29853	1.220125	0.055031	0.079666	0.045838	0.139	0.139

Raw Data

Reading Interval	1	Minutes																			4.387877		0.043373					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
72	573.5	73.2	96.2	148.4	70.0	74.68409	76.70541	83.55693	75.89491	77.64851	80.99	73.90	79.28	3.93	3.93	1.18	1.3299	0.056827	11.2306	9.143296	10.01324	1.207506	0.051877	0.082476	0.045698	0.139	0.139
73	569.7	72.9	95.7	147.7	69.8	74.82926	76.5427	83.64067	75.93898	77.7662	81.03	74.02	79.38	3.93	3.93	1.18	1.3275	0.053901	11.17747	9.164113	9.795	1.209798	0.05245	0.081866	0.045426	0.139	0.139
74	567.0	73.4	95.8	147.7	70.3	74.58781	76.6426	83.35641	75.86535	77.67918	81.10	74.04	79.26	3.92	3.93	1.19	1.2992	0.040746	10.88115	9.457513	9.607244	1.21832	0.05458	0.074801	0.046441	0.138	0.139
75	564.1	73.3	95.4	146.8	69.4	74.62058	76.74231	83.44811	75.81951	77.67352	81.26	74.04	79.26	3.93	3.93	1.18	1.3476	0.030199	10.60143	9.731497	9.413392	1.220917	0.055229	0.086908	0.045082	0.139	0.139
76	562.6	73.7	95.4	146.5	69.6	74.41371	76.62914	83.46853	75.77806	77.59859	81.20	74.10	79.07	3.93	3.93	1.18	1.2780	0.027481	10.53328	9.759142	9.201252	1.206592	0.051648	0.0695	0.04436	0.139	0.139
77	560.8	73.2	95.5	146.4	70.2	74.62445	76.59893	83.43214	75.73016	77.71133	81.11	74.05	79.22	3.92	3.93	1.18	1.3217	0.027481	10.44641	9.852319	9.003743	1.232475	0.058119	0.080418	0.045393	0.138	0.139
78	559.3	72.4	95.3	145.8	70.5	74.80042	76.78828	83.52644	75.91797	77.71173	81.24	74.04	79.17	3.92	3.93	1.18	1.2849	0.027456	10.39368	9.878654	8.79526	1.193656	0.048414	0.071235	0.04475	0.138	0.139
79	554.4	72.9	95.2	145.5	69.6	74.74956	76.81105	83.48289	75.79305	77.56004	81.04	74.11	79.07	3.91	3.93	1.17	1.3481	0.030187	10.32712	9.920167	8.596532	1.216711	0.054178	0.087023	0.043582	0.138	0.139
80	550.4	72.1	94.8	145.0	70.9	74.86109	76.51429	83.1837	75.91078	77.6443	80.90	73.93	78.99	3.91	3.92	1.18	1.3150	0.024945	10.25427	9.96549	8.495339	1.195692	0.048923	0.078742	0.044741	0.138	0.138
81	548.2	72.3	94.6	144.3	70.6	74.85464	76.69525	83.17075	75.9407	77.5872	80.97	74.23	78.81	3.93	3.92	1.18	1.3049	0.014642	10.01622	10.18924	8.302707	1.215711	0.053928	0.07623	0.045198	0.139	0.138
82	544.6	72.6	93.7	143.7	70.2	74.64915	76.62363	83.21232	75.7035	77.63113	80.99	74.10	78.74	3.93	3.92	1.17	1.3381	0.011802	9.863183	10.3221	8.094224	1.212846	0.053212	0.084533	0.043643	0.139	0.138
83	540.5	72.6	93.5	143.3	69.6	74.83144	76.78584	83.28646	76.02572	77.7057	81.14	74.29	78.70	3.93	3.92	1.18	1.3423	0.011802	9.69341	10.47472	7.894277	1.195058	0.048765	0.085563	0.043835	0.139	0.138
84	538.1	73.2	93.6	142.4	69.6	74.92339	76.68369	83.25833	75.84989	77.90469	81.01	74.09	78.66	3.93	3.92	1.17	1.4317	0.006584	9.599624	10.55479	7.800399	1.200947	0.050237	0.107936	0.042891	0.139	0.138
85	537.2	73.0	93.3	141.9	70.1	74.78427	76.86584	83.02217	75.90268	77.85707	81.02	74.10	78.39	3.92	3.92	1.18	1.3272	0.004194	9.460026	10.67604	7.591917	1.228306	0.057076	0.081808	0.044378	0.138	0.138
86	533.0	72.6	92.8	141.2	70.4	74.66611	76.7209	82.93866	75.78616	77.70039	80.64	74.14	78.25	3.92	3.92	1.17	1.3287	0.00417	9.339813	10.77565	7.394408	1.191462	0.047865	0.082165	0.043134	0.138	0.138
87	530.1	72.9	92.8	140.9	70.0	74.86134	76.74211	82.84738	75.7991	77.63972	80.94	74.25	78.28	3.92	3.92	1.18	1.3158	0.004182	9.250843	10.84096	7.305407	1.203422	0.050855	0.078943	0.044009	0.139	0.138
88	525.3	72.3	92.8	139.9	69.7	74.68237	76.77732	82.74351	75.81962	77.84095	80.68	74.19	78.52	3.92	3.92	1.17	1.3294	-0.0009	9.156691	10.92125	7.206652	1.217845	0.054461	0.08236	0.043518	0.138	0.138
89	522.6	72.5	92.1	139.3	69.0	74.53086	76.58566	82.80531	75.61478	77.6294	80.69	74.17	78.08	3.92	3.92	1.17	1.3302	-0.00089	8.929128	11.12955	6.996951	1.205092	0.051273	0.082543	0.042345	0.138	0.138
90	521.2	72.3	92.1	138.8	69.6	74.61293	76.67442	82.73444	75.67476	77.74963	80.86	74.19	77.96	3.91	3.92	1.17	1.3305	-0.00091	8.722322	11.32889	6.8921	1.220576	0.055144	0.082634	0.043	0.138	0.138
91	515.5	72.2	91.4	137.8	68.8	74.56977	76.55094	82.67209	75.63041	77.68521	80.44	73.99	77.89	3.91	3.92	1.17	1.3607	-0.00118	8.621952	11.41682	6.795784	1.200094	0.050023	0.090172	0.042025	0.138	0.138
92	509.0	71.9	91.0	137.3	69.6	74.66859	76.73678	82.55835	75.99409	77.92171	80.68	74.20	78.06	3.92	3.92	1.17	1.3800	-0.00121	8.528471	11.47607	6.597055	1.21081	0.052703	0.095003	0.041723	0.138	0.138
93	503.8	72.9	90.9	136.6	69.6	74.92626	76.69324	82.53523	75.71992	77.54714	80.49	74.29	77.97	3.91	3.91	1.17	1.3261	-0.00119	8.339922	11.67627	6.500739	1.191791	0.047948	0.081516	0.041476	0.138	0.138
94	497.0	72.6	91.0	136.1	69.3	74.85958	76.78051	82.2979	75.92466	77.8389	80.71	74.11	77.88	3.91	3.92	1.17	1.3339	-0.00119	7.996568	12.03672	6.386135	1.230317	0.057579	0.083466	0.04176	0.138	0.138
95	493.5	72.2	90.4	135.3	69.8	75.09728	76.91113	82.30789	75.91133	77.77872	80.63	74.38	77.92	3.90	3.92	1.16	1.3590	-0.00088	7.769371	12.24526	6.291038	1.204202	0.051051	0.089757	0.041107	0.138	0.138
96	490.4	72.4	90.3	134.4	70.5	75.07727	76.95805	82.33437	75.86893	77.68946	80.30	74.05	77.83	3.90	3.92	1.16	1.3445	0.001512	7.628432	12.38178	6.193502	1.2117	0.052925	0.086115	0.040565	0.138	0.138
97	487.4	71.5	90.1	133.6	70.3	75.20239	77.03632	82.31254	76.03087	78.00535	80.65	74.28	77.92	3.91	3.91	1.16	1.3233	0.004194	7.461097	12.54561	6.092309	1.201349	0.050337	0.080827	0.040208	0.138	0.138
98	480.9	71.2	89.6	132.9	69.5	75.08211	76.79555	82.10155	76.04668	77.95423	80.35	74.06	77.85	3.91	3.91	1.16	1.3258	0.006608	7.340154	12.66589	6.002089	1.220515	0.055129	0.081439	0.040541	0.138	0.138
99	475.9	71.4	89.6	132.3	70.0	74.97709	76.76416	82.35437	76.25247	77.71827	80.44	74.15	77.79	3.90	3.91	1.16	1.3717	0.006584	7.199489	12.81637	5.899677	1.209042	0.052261	0.092927	0.039294	0.138	0.138
100	469.9	72.3	89.5	131.6	71.2	75.01556	76.90972	82.04253	75.82092	77.75523	80.36	74.22	77.62	3.90	3.91	1.16	1.3764	0.011826	6.979608	13.04804	5.896019	1.19757	0.049392	0.094104	0.038754	0.138	0.138
101	461.2	71.9	89.0	130.5	70.4	75.12322	76.84336	81.9771	75.8398	77.8812	80.41	74.25	77.55	3.90	3.92	1.16	1.3507	0.016996	6.778989	13.24391	5.785073	1.218686	0.054672	0.08767	0.039251	0.138	0.138
102	457.7	72.0	88.5	129.7	70.4	74.98654	76.76692	81.65756	75.80199	77.82333	80.03	74.15	77.55	3.89	3.91	1.15	1.3477	0.027456	6.555267	13.45224	5.691195	1.18144	0.04536	0.086917	0.038584	0.137	0.138
103	455.5	71.5	88.6	129.3	70.8	75.33611	77.75233	81.71844	75.95248	77.96711	80.37	74.34	77.40	3.90	3.91	1.16	1.3108	0.0485	6.374522	13.60546	5.59244	1.228196	0.057049	0.07769	0.039145	0.138	0.138
104	453.1	72.4	88.3	128.4	69.8	75.14776	76.7608	81.51295	75.81277	77.94788	80.14	74.29	77.37	3.90	3.92	1.15	1.3333	0.056827	6.293507	13.68693	5.59244	1.19963	0.049908	0.083317	0.038188	0.138	0.138
105	453.4	72.3	88.3	127.8	70.2	75.24577	76.89229	81.59639	75.97321	77.9276	80.33	74.33	77.34	4.13	3.91	1.15	1.3211	0.061899	6.266258	13.69382	5.497343	1.215114	0.053778	0.080269	0.038056	0.146	0.138
106	451.3	71.8	88.0	127.4	70.4	75.32791	77.02797	81.52559	75.89668	77.79083	79.95	74.32	77.21	3.95	3.91	1.15	1.3244	0.061911	6.232852	13.70629	5.403465	1.187316	0.046829	0.081095	0.038337	0.139	0.138
107	450.5	72.1	87.9	126.7	70.2	75.23677	76.91005	81.35654	75.82333	78.15254	80.43	74.49	77.55	3.96	3.91	1.15	1.3792	0.064544	6.226725	13.7129	5.303491	1.236548	0.059137	0.094808	0.038197	0.140	0.138
108	446.9	72.4	87.7	126.2	70.6	75.08595	76.78601	81.33322	75.80383	77.95232	79.95	74.10	77.06	3.94	3.91	1.15	1.3310	0.059241	6.213497	13.70955	5.192544	1.174295	0.043574	0.082741	0.037992	0.139	0.138
109	447.2	71.7	87.8	125.8	71.3	75.29231	76.99237	81.3057	75.93783	78.01271	80.07	74.42	77.40	3.95	3.91	1.15	1.3072	0.059229	6.2537	13.66139	5.190106	1.219406	0.054851	0.076803	0.037682	0.139	0.138
110	445.6	71.9	87.6	125.1	70.1	75.12729	76.84743	81.1958	76.0826	77.8429	79.76	74.32	77.28	3.95	3.91	1.15	1.3320	0.061887	6.286405	13.59854	5.091352	1.197533	0.049383	0.083	0.037014	0.139	0.138
111	443.5	72.0	87.8	124.9	70.7	75.12902	76.92947	81.11171	75.83628	77.91116	79.78	74.16	77.07	3.94	3.91	1.15	1.3653	0.059217	6.239588	13.64685	5.088913	1.16848	0.04212	0.091336	0.037221	0.139	0.138
112	442.1	72.0	87.5	124.3	69.9	75.38966	76.92908	81.09153	75.96252	77.99724	79.72	74.26	77.17	3.95	3.91	1.15	1.3594	0.061899	6.159091	13.72016	4.999912	1.221576	0.055394	0.089843	0.03756	0.139	0.138
113	441.3	72.1	87.5	123.9	70.4	75.2489	76.86195	81.13752	76.14287	78.00356	79.81	74.36	77.17	3.95	3.91	1.15	1.2930	0.059229	6.146319	13.73875	4.903595	1.195534	0.048883	0.073246	0.037069	0.139	0.138
114	438.7	71.6	87.5	123.4	70.1	75.19502	76.875	80.992	75.95995	77.85411	79.71	74.17	77.12	3.93	3.93	1.15	1.2958	0.059241	6.119071	13.75893	4.898719	1.205178	0.051294	0.073957	0.037227	0.139	0.139
115	436.3	71.6	87.0	123.1	69.8	75.03738	77.03194	80.89597	75.90996	77.89112	79.72	74.24	76.72	3.94	3.93	1.15	1.3229	0.064508	6.079142	13.81138	4.798745	1.194912	0.048728	0.080732	0.036968	0.139	0.139
116	433.8	71.8	87.1	122.5	69.8	75.19918	76.95278	80.90371	76.03899	77.83275	79.56	74.20	76.74	3.94	3.93	1.15	1.3130	0.069921	6.025954	13.87243	4.706086	1.170735	0.042684	0.078242	0.036334	0.139	0.139
117	431.8	71.9	86.8	122.4	70.2	75.38098	77.04089	80.8256	76.06136	78.19647	79.61	74.29	76.86	3.93	3.93	1.15	1.3352	0.072725	5.980601	13.91776	4.702429	1.219893	0.054973	0.083789	0.036874	0.139	0.139
118	426.6	71.1	86.6	121.3	69.7	75.13387	77.00795	80.73373	75.80453	77.91286	79.44	74.14	76.63	3.93	3.93	1.15	1.2951	0.078626	5.959539	13.94415	4.486631	0.990952	0	0.073774	0.03731	0.139	0.139
119	430.4	70.4	85.9	115.8	70.7	75.25119	76.93786	80.73722	75.8735	78.02869	79.46	74.26	76.67	3.93	3.93	1.15	1.3201	0.08343	5.924883	13.98573	4.482974	1.016385	0.004096	0.080028	0.036913	0.139	0.139
120	431.8	71.5	86.2	130.9	69.8	74.99859	76.81243	80.65314	75.90301	78.07159	79.49	74.22	76.87	3.93	3.93	1.15	1.2963	0.099279	5.959478	13.94418	4.387877	1.22872	0.05718	0.074075	0.037005	0.139	0.139
121	428.9	71.8	86.7	128.2	70.0	75.04731	76.88123	80.51639	75.80469	78.05358	79.22	74.26	76.67	3.94	3.93	1.15	1.3	0.117836	6.032538	13.8446	4.386658	1.194034	0.048509	0.080184	0.036633	0.139	0.139
122	424.8	71.9	86.5	126.3	70.2	74.92336	77.025	80.60536	75.83687	77.97198	79.28	74.32	76.59	3.93	3.93	1.14	1.3	0.128309	6.013245	13.85832	4.285464	1.19924	0.04981	0.081363	0.035773	0.139	0.139
123	422.2	71.8	86.4	125.0	70.4	75.30441	76.93754	80.53231	75.78391	77.96587	79.43	74.29	76.89	3.93	3.93	1.15	1.3	0.128309	5.973377	13.89206	4.290341	1.181574	0.045393	0.081564	0.036365	0.139	0.139
124	422.6	71.8	86.5	123.8	70.2	75.25322	77.16077	80.74581	76.01242	77.93335	79.36	74.27	76.74	3.93	3.93	1.14	1.3	0.131125	5.932381	13.93769	4.192806	1.185305	0.046326	0.078864	0.035786	0.139	0.139
125	419.2	71.8	86.2	122.7	69.9	75.12109	77.19597	80.47036	75.75297	78.0554	79.02	74.17	76.44	3.92	3.93	1.14	1.3	0.1232	5.891111	13.99146	4.079421	1.193912	0.048478	0.084899	0.03556	0.138	0.139
126	418.5	71.6	85.9	122.0	70.1	75.38481	77.22543	80.4532	75.77296	77.94823	79.11	74.23	76.78	3.93	3.93	1.14	1.3	0.125773	5.988495	13.88033	4.08064	1.185256	0.046314	0.081305	0.035816	0.139	0.139
127	415.7	71.9	85.9	121.6	70.6	75.10555	76.98632	80.25705	75.82135	78.08363	79.13	74.43	76.46	3.92	3.93	1.15	1.4	0.120811	6.019249	13.85192	3.983105	1.186378	0.046594	0.088825	0.036316	0.138	0.139
128	418.8	71.0	85.4	117.7	70.2	75.21587	77.08996	80.20085	75.93026	78.19923	79.26	74.19	76.37	3.93	3.92	1.15	1.3	0.120798	5.988434	13.89206	3.889227	0.990757	0	0.081537	0.036377	0.139	0.138
129	419.3	70.7	84.9	132.3	69.9	75.16081	77.14868	80.17296	75.74958	78.01186	79.06	74.39	76.33	3.92	3.93	1.15	1.3	0.120823	5.952102	13.93187	3.886788	1.201044	0.050261	0.078142	0.036334	0.138	0.139
130	414.8	71.5	85.5	129.2	70.3	75.30845	77.32309	80.13374	75.80513	78.22136	79.04	74.39	76.54	3.92	3.93	1.14	1.3	0.125785	5.878737	14.01743	3.788034	1.205434	0.051358	0.083735	0.035911	0.138	0.139
131	411.1	71.6	85.4	126.2	69.8	75.04841	77.04966	80.18092	75.80435	78.28082	79.21	74.47	76.47	3.92	3.93	1.14	1.3	0.139099	5.777514	14.12468	3.790472	1.216077	0.049069	0.083963	0.03517	0.138	0.139
132	407.0	71.7	85.4	124.4	70.1	75.03329	77.0747	80.14622	75.6653	78.33586	79.23	74.47	76.54	3.91	3.93	1.14	1.3	0.14984	5.615482	14.29147	3.694156	1.22221	0.055552	0.081351	0.035423	0.138	0.139
133	402.9	71.4	85.1	122.7	70.5	74.94408	76.95871	79.91306	75.76224	77.8371	78.89	74.24	76.28	3.91	3.93	1.14	1.4	0.16091	5.52191	14.39087	3.692936	1.205775	0.051444	0.093982	0.03513	0.138	0.139
134	400.0	71.5	85.2	122.7	70.6	75.04501	77.11319	80.07857	75.82967	78.03841	79.02	74.31	76.31	3.92	3.93	1.14	1.3	0.17131	5.434494	14.4994	3.59662	1.002791	0.000698	0.078785	0.034634	0.138	0.139
135	400.6	70.9	84.7	118.3	70.3	74.94215	77.04379	79.85176	75.81482	78.08379	79.07	74.32	76.37	3.92	3.93	1.14	1.3	0.181783	5.367925	14.57841	3.478359	0.990684	0	0.08197	0.034722	0.138	0.139
136	399.8	71.3	84.2	130.5	70.2	74.96752	76.8416	79.63921	75.54343	77.81241	78.90	74.20	76.27	3.91	3.93	1.14	1.3	0.189634	5.320804	14.63163	3.478359	1.195192	0.048798	0.085185	0.03485	0.138	0.139
137	399.0	71.7	84.6	127.1	70.1	75.11621	76.94344	79.8782	75.50303	78.02634	78.86	74.20	76.16	3.91	3.93	1.14	1.4	0.200375	5.266824	14.6843	3.479578	1.202569	0.050642	0.090169	0.034131	0.138	0.139
138	394.9	71.2	84.5	124.6	70.0	74.97814	77.15342	79.83446	75.78433	78.13363	78.91	74.53	76.25	3.91	3.93	1.14	1.3	0.203119	5.227657	14.73873	3.386919	1.190474	0.047619	0.078894	0.034576	0.138	0.139
139	392.8	71.5	84.8	122.5	69.6	74.79917	76.84058	79.38742	75.3848	77.94157	78.79	74.52	76.17	3.90	3.93	1.14	1.3	0.200375	5.280418	14.69097	3.389357	1.217479	0.05437	0.08236	0.033777	0.138	0.139
140	388.7	71.6	84.3	120.9	70.0	74.98807	76.94247	79.67267	75.63511	78.20528	78.73	74.34	76.20	3.91	3.93	1.14	1.3	0.166262	5.293829	14.71118	3.283276	1.215748	0.053937	0.075289	0.034085	0.138	0.139
141	386.5	71.1	84.6	122.2	69.9	74.90701	76.82124	79.67194	75.62098	78.11082	78.62	74.16	76.12	3.89	3.93	1.13	1.3	0.160922	5.273652	14.7512	3.288153	0.990404	0	0.08542	0.033372	0.137	0.139
142	386.5	70.8	83.9	116.0	70.7	74.98458	76.86536	79.49105	75.62022	78.01637	78.53	74.50	76.15	3.88	3.93	1.14	1.3	0.16091	5.227657	14.81103	3.190618	0.990708	0	0.082003	0.034536	0.137	0.139
143	387.1	71.4	83.9	129.1	70.1	74.99878	77.08704	79.57104	75.70153	78.00397	78.70	74.38	76.10	3.93	3.93	1.14	1.3	0.168786	5.20751	14.83913	3.190618	1.207457	0.051864	0.075496	0.033872	0.139	0.139

Raw Data

Reading Interval	1	Minutes																			4.387877		0.043373				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
144	383.6	71.7	84.0	125.1	69.7	74.97466	76.97591	79.57365	75.67382	78.18375	78.65	74.42	76.04	3.93	3.93	1.13	1.4	0.174004	5.155085	14.90497	3.099179	1.178063	0.044516	0.090849	0.03343	0.139	0.139
145	381.2	71.9	84.2	122.5	69.5	74.81426	76.83559	79.48811	75.5821	78.17904	78.57	74.37	76.20	3.93	3.93	1.13	1.4	0.179137	5.115309	14.95322	3.100398	1.209396	0.052349	0.09696	0.033305	0.139	0.139
146	378.8	71.7	83.9	120.5	70.6	75.15437	77.28949	79.68486	75.76498	78.17451	78.54	74.41	76.01	3.93	3.93	1.13	1.3	0.192219	5.101409	14.96562	3.001643	1.201386	0.050346	0.083189	0.032908	0.139	0.139
147	379.2	71.9	84.0	120.1	71.0	74.86137	77.00317	79.39597	75.51882	78.18938	78.57	74.41	75.86	3.92	3.93	1.13	1.3	0.216249	5.148196	14.88452	2.997986	0.990818	0	0.078425	0.033353	0.139	0.139
148	380.5	70.6	83.3	126.8	70.5	74.79276	76.8007	79.4009	75.47874	77.84141	78.34	74.28	75.87	3.93	3.93	1.14	1.3	0.212799	5.181572	14.85666	2.88704	1.195546	0.048886	0.085859	0.034329	0.139	0.139
149	379.0	71.4	83.4	125.7	70.1	74.95314	76.80714	79.20927	75.42413	78.0947	78.45	74.33	76.09	3.93	3.93	1.13	1.3	0.208337	5.161059	14.88458	2.88704	1.221734	0.055434	0.076237	0.033247	0.139	0.139
150	376.2	71.3	83.7	123.0	70.1	74.78472	76.88637	79.14198	75.28066	78.08508	78.45	74.42	75.76	3.92	3.93	1.13	1.3	0.210922	5.14207	14.90488	2.88704	1.180855	0.045214	0.08183	0.032927	0.139	0.139
151	374.7	71.5	83.4	121.0	69.9	74.69357	76.909	79.23711	75.59673	78.0665	78.40	74.25	75.93	3.93	3.93	1.13	1.3	0.216249	5.0392	15.01781	2.783409	1.1929	0.048225	0.069851	0.032841	0.139	0.139
152	371.8	70.5	83.2	119.7	69.9	74.81694	77.01898	79.04034	75.44073	78.08451	78.24	74.33	75.79	3.93	3.93	1.13	1.3	0.216249	4.992079	15.06484	2.691969	0.990586	0	0.083552	0.033189	0.139	0.139
153	372.9	70.5	83.2	115.2	70.7	74.84966	77.00485	79.16663	75.46675	78.11723	78.27	74.48	76.08	3.92	3.93	1.13	1.3	0.218724	4.965561	15.10556	2.689531	1.050644	0.012661	0.073472	0.033274	0.138	0.139
154	374.0	71.5	83.4	126.3	70.6	74.69948	76.78105	79.07013	75.532	78.00846	78.44	74.47	76.11	3.92	3.93	1.13	1.3	0.218724	4.89814	15.18593	2.687093	1.199972	0.049993	0.072884	0.032439	0.138	0.139
155	371.4	71.7	83.7	123.1	70.4	74.72152	77.18459	79.19208	75.42291	78.01985	78.34	74.34	75.96	3.93	3.93	1.13	1.3	0.224162	4.898109	15.17898	2.593215	1.169479	0.04237	0.080013	0.032238	0.139	0.139
156	370.0	71.4	83.4	120.9	70.0	74.62233	76.90469	79.17347	75.56242	78.2129	78.25	74.22	75.86	3.92	3.93	1.13	1.3	0.224186	4.958124	15.12485	2.593215	1.211688	0.052922	0.079211	0.031817	0.138	0.139
157	367.7	71.2	83.6	120.5	70.2	74.96243	77.25149	79.15237	75.63751	78.20099	78.38	74.44	75.82	3.92	3.93	1.13	1.3	0.227137	4.97821	15.11153	2.489584	0.990428	0	0.080504	0.032689	0.138	0.139
158	370.4	70.5	83.0	115.4	70.6	74.85278	77.16193	79.08289	75.52552	78.09568	78.26	74.21	75.93	3.93	3.93	1.13	1.3	0.232221	4.971535	15.11751	2.490803	0.990599	0	0.080933	0.033125	0.139	0.139
159	371.2	71.1	83.4	126.1	69.8	74.89911	76.58577	78.95518	75.49848	78.00172	78.24	74.29	75.81	3.93	3.93	1.13	1.3	0.240329	4.951418	15.13226	2.490803	1.206104	0.051526	0.085173	0.032418	0.139	0.139
160	366.2	71.0	83.4	122.6	70.2	74.85526	76.7695	78.87119	75.42629	78.17048	78.08	74.34	75.79	3.93	3.93	1.13	1.3	0.245998	4.918836	15.17898	2.393268	1.1652	0.0413	0.079443	0.031805	0.139	0.139
161	361.9	71.7	83.4	120.4	70.0	74.89194	76.93335	78.98148	75.52568	77.98875	78.10	74.28	75.67	3.92	3.93	1.13	1.3	0.240329	4.913105	15.19203	2.392049	1.208091	0.052023	0.079989	0.031866	0.138	0.139
162	361.1	71.2	83.2	120.4	70.2	74.71713	77.02627	78.71296	75.67421	78.1239	78.09	74.21	75.63	3.91	3.93	1.13	1.3	0.249046	4.870464	15.22544	2.279883	0.990574	0	0.084868	0.032058	0.138	0.139
163	363.5	70.6	82.9	115.2	70.5	74.90055	77.07583	78.83614	75.67834	78.26859	78.28	74.29	75.60	3.92	3.93	1.13	1.3	0.26164	4.870433	15.22547	2.276226	0.990672	0	0.078718	0.03264	0.138	0.139
164	365.0	71.3	83.0	126.1	70.6	74.73098	76.82593	78.67327	75.61786	78.06755	78.15	74.12	75.62	3.92	3.93	1.13	1.3	0.261616	4.850195	15.24924	2.176252	1.184073	0.046018	0.083832	0.031893	0.138	0.139
165	361.3	71.1	83.2	122.5	69.6	74.78242	76.92423	78.75149	75.36555	77.86209	77.81	73.99	75.33	3.91	3.93	1.13	1.3	0.261628	4.843368	15.26363	2.17991	1.199374	0.049844	0.081875	0.031711	0.138	0.139
166	359.6	71.5	83.1	120.9	69.7	74.98848	77.13028	78.75674	75.5661	78.01579	77.96	74.07	75.55	3.91	3.93	1.13	1.3	0.264323	4.843337	15.2675	2.181129	1.000828	0.000207	0.079169	0.031387	0.138	0.139
167	360.2	70.8	82.7	116.4	69.9	74.6216	76.7634	78.61074	75.32587	77.90942	77.94	74.16	75.41	3.91	3.93	1.13	1.3	0.259178	4.8302	15.28984	2.079937	0.990782	0	0.077608	0.032125	0.138	0.139
168	360.3	70.9	82.6	128.0	70.1	74.65945	76.93512	78.56158	75.33422	77.97801	77.82	74.30	75.50	3.92	3.93	1.13	1.3	0.25641	4.804506	15.32114	2.082375	1.206458	0.051614	0.079687	0.032277	0.138	0.139
169	359.6	71.0	82.8	123.4	70.2	74.50034	76.88309	78.58318	75.38157	78.14584	77.88	73.99	75.38	3.92	3.93	1.13	1.3	0.259165	4.776708	15.34815	2.086032	1.178185	0.044546	0.07481	0.031473	0.138	0.139
170	356.3	71.3	82.9	120.6	69.9	74.64378	77.01315	78.45221	75.34568	78.00955	78.04	74.16	75.37	3.92	3.93	1.12	1.4	0.264347	4.783017	15.33403	1.98484	1.198874	0.049719	0.088093	0.031217	0.138	0.139
171	353.8	71.0	82.9	119.9	70.4	74.89669	76.98495	78.75197	75.62869	78.19217	77.78	74.28	75.36	3.92	3.93	1.13	1.3	0.269931	4.816728	15.28624	1.884866	0.990684	0	0.086469	0.031296	0.138	0.139
172	357.4	70.5	82.4	115.4	70.5	74.94967	77.03123	78.50375	75.67164	78.0477	77.76	74.21	75.32	3.91	3.93	1.13	1.3	0.291547	4.998418	15.06167	1.884866	0.990721	0	0.080635	0.031948	0.138	0.139
173	357.6	71.2	82.5	125.2	69.7	74.64405	76.85278	78.45917	75.46706	78.06401	77.93	74.27	75.58	3.93	3.93	1.12	1.3	0.326282	5.0392	15.025	1.884866	1.227099	0.056775	0.080315	0.031226	0.139	0.139
174	354.0	71.3	82.7	122.2	70.4	74.87455	76.98959	78.4688	75.61185	78.008	77.82	74.33	75.47	3.92	3.93	1.12	1.3	0.345021	5.020333	15.03829	1.884866	1.207019	0.051755	0.075938	0.030961	0.138	0.139
175	351.7	71.1	82.8	119.5	70.0	74.65467	76.9772	78.40955	75.53704	78.00681	77.65	74.21	75.50	3.94	3.93	1.12	1.3	0.365967	4.984764	15.07108	1.78977	1.178916	0.044729	0.081939	0.030775	0.139	0.139
176	351.0	70.9	82.8	117.3	70.3	74.76927	77.05833	78.29658	75.49436	78.16492	77.71	74.18	75.39	3.93	3.93	1.12	1.3	0.37121	4.944591	15.11153	1.671508	0.990733	0	0.084234	0.031137	0.139	0.139
177	353.3	70.6	82.2	114.0	70.9	74.8659	77.08803	78.48022	75.52789	78.0445	77.78	74.17	75.43	3.94	3.93	1.13	1.3	0.384231	4.931454	15.12485	1.671508	1.184183	0.046046	0.06894	0.031653	0.139	0.139
178	352.1	71.1	82.6	124.6	70.6	74.86916	77.12476	78.52365	75.50128	78.03129	77.72	74.32	75.40	3.93	3.93	1.12	1.3	0.38951	4.905303	15.16082	1.676385	1.222673	0.055668	0.070924	0.030772	0.139	0.139
179	350.7	71.5	82.9	121.4	69.7	74.87106	77.16011	78.42514	75.40659	78.18423	77.80	74.24	75.59	3.94	3.93	1.12	1.3	0.408517	4.905272	15.15298	1.671508	1.167699	0.041925	0.067172	0.030555	0.139	0.139
180	349.5	71.4	83.1	121.6	69.9	74.8374	77.12646	78.44503	75.53256	78.40393	77.75	74.35	75.40	3.94	3.93	1.12	1.4	0.408529	4.863759	15.1945	1.582507	0.990586	0	0.088599	0.030244	0.139	0.139
181	350.9	70.5	82.8	115.8	70.8	74.74388	77.15342	78.42514	75.7281	78.24472	77.89	74.28	75.57	3.93	3.93	1.13	1.3	0.405579	4.857632	15.1988	1.481315	0.990769	0	0.08678	0.031497	0.139	0.139
182	352.9	71.0	82.4	127.4	70.2	74.81882	77.16142	78.21896	75.5707	78.22118	77.57	74.05	75.29	3.93	3.93	1.12	1.4	0.400312	4.863667	15.20544	1.483753	1.220796	0.055199	0.088816	0.030787	0.139	0.139
183	350.7	71.4	83.2	123.1	70.4	74.74545	76.82032	78.24599	75.54443	78.03428	77.74	74.07	75.25	3.93	3.93	1.12	1.3	0.41109	4.857632	15.1988	1.480096	1.187743	0.046936	0.079071	0.030244	0.139	0.139
184	348.0	71.9	83.2	120.2	70.9	74.98885	77.17752	78.52287	75.53798	78.06799	77.77	74.41	75.55	3.93	3.93	1.12	1.3	0.424635	4.836388	15.213	1.386218	1.20469	0.051172	0.083844	0.030607	0.139	0.139
185	347.3	71.1	83.1	119.9	70.2	74.84827	76.91646	78.34212	75.66169	78.11807	77.49	74.20	75.17	3.93	3.93	1.12	1.3	0.429878	4.830231	15.21297	1.384999	0.990513	0	0.080793	0.030994	0.139	0.139
186	350.7	70.3	82.9	115.0	70.8	74.88598	77.04118	78.2058	75.55955	77.99585	77.50	74.13	75.36	3.93	3.93	1.12	1.3	0.429878	4.830261	15.21297	1.29356	0.99066	0	0.073384	0.029888	0.139	0.139
187	356.8	71.5	82.9	125.5	70.1	74.92371	76.87811	78.34393	75.565	78.16193	77.69	74.39	75.35	3.93	3.93	1.12	1.3	0.432316	4.836418	15.20553	1.291121	1.176868	0.044217	0.082144	0.030769	0.139	0.139
188	358.1	71.3	83.2	122.1	70.1	74.87534	76.91005	78.30894	75.76457	78.19418	77.65	74.37	75.16	3.93	3.93	1.12	1.3	0.42989	4.870495	15.16085	1.291121	1.16086	0.040215	0.077834	0.030961	0.139	0.139
189	356.4	71.7	83.4	119.8	70.5	74.93882	77.12078	78.37912	75.8062	78.2492	77.63	74.15	75.13	3.93	3.93	1.12	1.3	0.315322	5.174348	14.85745	1.189929	1.201727	0.050432	0.083146	0.030854	0.139	0.139
190	356.4	71.3	82.9	116.8	71.0	74.90086	77.0159	78.28092	75.45453	78.12509	77.72	74.38	75.42	3.93	3.93	1.13	1.3	0.272296	5.22083	14.82441	1.083859	0.990538	0	0.076486	0.031558	0.139	0.139
191	358.9	70.6	82.9	128.2	70.5	74.91059	76.9453	78.12333	75.7683	78.37193	77.82	74.50	75.47	3.97	3.93	1.13	1.3	0.28856	5.187485	14.87751	1.08264	1.218296	0.054574	0.078641	0.031784	0.140	0.139
192	359.1	71.6	83.9	125.1	70.3	75.16123	77.21603	78.46767	76.01404	78.46373	77.82	74.56	75.47	3.95	3.93	1.12	1.3	0.30441	5.161119	14.90488	1.083859	1.219649	0.054912	0.077255	0.030766	0.139	0.139
193	357.1	71.8	84.1	121.7	70.2	74.95655	77.13182	78.16928	75.63748	78.17418	77.43	74.27	75.11	3.94	3.93	1.12	1.3	0.318028	5.135822	14.93277	0.991201	1.167504	0.041876	0.083421	0.03075	0.139	0.139
194	353.8	71.8	83.8	121.2	70.3	74.99914	77.01378	78.07801	75.57917	78.0891	77.57	74.21	75.15	3.94	3.93	1.12	1.3	0.33984	5.12241	14.94776	0.983886	0.990672	0	0.084695	0.031058	0.139	0.139
195	354.4	70.6	83.4	115.5	70.7	74.88072	77.00914	78.1403	75.55716	78.07378	77.34	74.14	75.13	3.94	3.93	1.13	1.3	0.347448	5.074191	15.00491	0.883912	0.99066	0	0.080309	0.03172	0.139	0.139
196	356.9	70.8	83.7	127.5	70.31873	74.83657	76.99845	78.2434	75.37492	78.07894	77.50	74.32	75.11	3.94	3.93	1.12	1.3	0.350105	4.992109	15.0844	0.883912	1.183378	0.045845	0.080812	0.030945	0.139	0.139
197	354.3	71.2	83.8	123.3	70.86539	74.86854	76.93003	78.40255	75.57967	78.14983	77.47	74.23	74.98	3.94	3.92	1.12	1.3	0.352702	4.944591	15.13869	0.890008	1.204422	0.051105	0.078193	0.03076	0.139	0.138
198	351.9	71.3	83.4	120.1	69.92466	74.73191	77.04774	78.09189	75.16824	78.02621	77.42	74.17	74.94	3.94	3.93	1.12	1.3	0.350093	4.918775	15.17898	0.883912	1.204775	0.051194	0.087346	0.030711	0.139	0.139
199	350.1	70.7	83.3	118.0	70.41776	74.6162	76.97218	78.30414	75.34839	78.23982	77.77	74.44	75.29	3.94	3.93	1.12	1.3	0.350093	4.918836	15.17898	0.787596	0.990745	0	0.07834	0.031183	0.139	0.139
200	353.9	70.3	83.0	114.7	70.61949	74.65405	77.15059	78.26167	75.41489	78.07876	77.38	74.11	75.03	3.94	3.93	1.13	1.4	0.347448	4.884424	15.21882	0.792473	1.058484	0.014621	0.092348	0.031515	0.139	0.139
201	353.8	71.1	83.2	125.2	69.77258	74.59212	76.84102	78.16629	75.2569	77.93416	77.28	74.39	75.08	3.89	3.93	1.12	1.3	0.35269	4.89814	15.20547	0.693719	1.202812	0.050703	0.067541	0.030315	0.137	0.139
202	351.2	71.4	83.7	121.8	70.14613	74.53388	76.8698	77.9608	75.35413	78.07824	77.55	74.36	75.05	3.88	3.93	1.12	1.3	0.350118	4.863698	15.23208	0.688842	1.188426	0.047106	0.075901	0.03075	0.137	0.139
203	349.8	71.7	83.8	121.6	70.57899	74.62879	77.01825	78.15611	75.23484	78.12627	77.38	74.10	74.93	3.93	3.93	1.12	1.3	0.345021	4.850103	15.25976	0.592526	0.989989	0	0.073603	0.03047	0.139	0.139
204	352.2	70.1	83.3	116.3	70.7567	74.60811	76.99087	78.22913	75.33801	78.0755	77.34	74.13	75.00	3.97	3.93	1.13	1.3	0.345009	4.836449	15.27323	0.594964	0.990757	0	0.082134	0.0314	0.140	0.139
205	355.7	71.0	83.0	128.6	70.07481	74.80471	77.23432	78.16469	75.48396	78.12106	77.38	74.37	75.08	3.93	3.93	1.12	1.4	0.337353	4.823159	15.29338	0.592526	1.230537	0.057634	0.092458	0.031241	0.139	0.139
206	354.0	71.4	83.5	124.2	70.50949	74.77049	76.91899	78.09701	75.37463	78.2393	77.48	74.18	75.19	3.92	3.93	1.12	1.3	0.33984	4.830231	15.27978	0.523032	1.232232	0.058058	0.078047	0.030482	0.138	0.139
207	350.2	71.4	83.5	120.5	70.22913	74.47256	76.89548	78.09358	75.19936	77.92348	77.33	74.30	74.91	3.91	3.93	1.12	1.3	0.33984	4.843337	15.26753	0.48158	1.190718	0.047679	0.074344	0.030357	0.138	0.139
208	349.4	71.1	83.5	118.6	70.62119	74.75093	77.05338	77.90343	75.40585	78.16343	77.40	74.21	75.02	3.91	3.93	1.12	1.4	0.345009	4.863728	15.24558	0.380387	0.99066	0	0.091516	0.031183	0.138	0.139
209	352.9	70.9	83.4	115.0	71.12218	74.64235	77.0385	78.16296	75.49806	78.22887	77.45	74.47	75.08	3.91	3.93	1.12	1.3	0.345009	4.843368	15.26753	0.377949	0.990526	0	0.080949	0.031144	0.138	0.139
210	353.0	71.4	83.3	125.8	70.64889	74.55209	76.74075	78.04594	75.20583	77.95001	77.47	74.44	74.98	3.90	3.93	1.12	1.3	0.342315	4.810328	15.29962	0.381606	1.183732	0.045933	0.080937	0.030601	0.138	0.139
211	350.3	71.4	83.5	121.9	69.716	74.47587	76.79169	78.07681	75.42316	78.15396	77.38	74.47	74.96	3.91	3.93	1.12	1.3	0.339864	4.797008	15.32727	0.379168	1.215114	0.053778	0.077428	0.030452	0.138	0.139
212	347.6	71.5	83.6	120.2	70.53586	74.57259	77.16953	78.26054	75.43783	78.25565	77.37	74.22	75.08	3.90	3.93	1.12	1.3	0.337353	4.790119	15.32111	0.282852	1.006668	0.001667	0.073484	0.028812	0.138	0.139
213	348.1	70.7	83.0	117.0	70.83908	74.78645	77.05544	78.13974	75.55656	78.09996	77.34	74.10	75.09	3.90	3.93	1.12	1.4	0.339913	4.783109	15.33403	0.185317	0.990916	0	0.088419	0.030878	0.138	0.139
214	351.3	70.7	82.7	128.7	70.86053	74.80083	76.85564	77.83286	75.3917	78.20952	77.33	74.37	75.02	3.90	3.92	1.12	1.3	0.345034	4.756531	15.36211	0.185317	1.21971	0.054928	0.07542	0.031022	0.138	0.138
215	350.0	71.3	83.0	124.2	71.02649	74.7396	76.92157	77.90548	75.34534	78.05607	77.16	74.25	75.05	3.90	3.92	1.12	1.3	0.345034	4.756531	15.35476	0.185317	1.212993	0.053248	0.080769	0.030427	0.138	0.138

Raw Data

Reading Interval	1	Minutes																4.387877		0.043373				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29				
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
216	347.3	71.5	82.6	120.9	70.64004	74.84594	77.06807	77.99174	75.36816	78.22613	77.48	74.40	75.01	3.90	3.93	1.12	1.3	0.347423	4.723886	15.37713	0.187755	1.193376	0.048344	0.086923	0.030119	0.138	0.139
217	344.5	71.1	82.4	120.9	70.54496	74.76199	77.04435	78.00819	75.49527	78.12567	77.19	74.27	74.93	3.90	3.92	1.12	1.4	0.345058	4.704501	15.40164	0.09022	0.99044	0	0.091361	0.030308	0.138	0.138
218	347.2	70.5	82.4	115.7	71.21291	74.91861	77.03365	77.90378	75.3106	78.18864	77.33	74.35	74.96	3.90	3.92	1.12	1.3	0.339828	4.691151	15.41411	0.086562	0.990708	0	0.07435	0.030689	0.138	0.138
219	349.3	70.7	82.0	127.7	70.69084	74.56163	76.80383	77.94839	75.116	78.04759	77.25	74.17	74.82	3.90	3.93	1.12	1.3	0.33734	4.704562	15.39478	0.09022	1.205592	0.051398	0.083686	0.030558	0.138	0.139
220	347.0	71.5	82.4	122.9	69.91573	74.68337	76.97243	77.88941	75.17828	78.11658	77.31	74.29	74.96	3.89	3.93	1.12	1.3	0.339889	4.656069	15.44023	0.029261	1.19796	0.04949	0.080376	0.030513	0.137	0.139

Summary

EPA Method 28 OWHH Testing Parameters

Manufacturer	HY-C
Model Number	SF1000E
Test Technician	Ken Slater
Category	Cat 4
Run Number	1
Test Date	10/1/18
Total Test Fuel Weight (lb)	36.7
Avg. Test Fuel Moisture (% dry)	23.78

Test Duration (min)	220	
Burn Rate (kg/hr)		
Emissions (g)	9.18	Train 2
Beginning Dry Gas Meter Reading (ft3)	0	0
Final Dry Gas Meter Reading (ft3)	30.54611	30.56074
Average Barometric Pressure (“Hg)	29.205	
Average Delta p (inches of water)	0.082	

Average Gas Velocity in Tunnel (feet/sec)	18			
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	849.7484			
	kJ	**Btu**		
Total Input	265708	252012		
Total Output	107,334	101801	**kW**	
Output Rate (kJ/hr, BTU/hr, kW)	29,273	27764	8.13	
Emissions g/MJ	**0.08551**	0.4	B415.1-2010 Limit	
Emissions lb/MMBtu Input	**0.080291**			
Emissions lb/MMBtu Output	**0.198763**	0.93	EPA 2015 Proposed Limit	
Emissions g/hr	**2.50311**			
Efficiency	**40.4%**			

Reading Interval		1	Minutes																		7.59077		0.044686				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
0	455.7	73.7	108.3	136.5	71.6	77.44267	73.6544	74.2233	76.34691	77.33748	75.33	73.68	74.11	0.02	0.02	1.1627	1.2902	-0.0011	7.796436	12.88802	36.22868	1.22959	0.057398	0.072561	0.040673	0.001	0.001
1	564.3	74.3	113.3	134.9	71.6	77.05527	75.59618	75.49578	76.11796	77.84476	75.86	73.98	77.78	2.24	3.85	1.1982	1.2813	0.033004	6.644442	14.17245	35.83853	1.196282	0.04907	0.070324	0.049543	0.079	0.136
2	727.1	74.0	124.0	136.2	71.1	75.89726	76.27875	76.25197	76.19017	77.20082	76.81	73.98	80.53	2.34	3.82	1.2154	1.3119	0.20618	3.984812	17.03316	35.42522	1.236893	0.059223	0.077968	0.053862	0.083	0.135
3	829.3	74.1	134.0	140.6	71.3	76.58892	76.46844	76.14716	76.35639	77.36704	77.83	74.17	82.55	0.71	3.80	1.23	1.2998	0.264068	4.05388	16.70028	34.83025	1.220934	0.055234	0.074957	0.057199	0.025	0.134
4	864.2	74.4	140.2	146.7	72.0	75.66941	76.79382	75.60915	76.78787	77.74499	78.66	74.22	84.46	4.16	3.76	1.24	1.2723	0.075164	7.018585	13.40779	34.23405	1.219678	0.05492	0.068087	0.059284	0.147	0.133
5	895.4	74.1	145.7	152.2	72.2	75.84703	76.89112	75.49895	76.52267	77.92821	79.34	74.18	86.15	3.90	3.87	1.23	1.2893	0.040356	9.545077	10.83284	34.52544	1.207413	0.051853	0.072333	0.058452	0.138	0.137
6	686.3	73.9	118.0	154.3	71.8	75.91384	76.80399	75.01693	76.37165	78.06499	79.60	74.33	85.36	3.94	3.86	1.21	1.3184	0.095964	10.52571	9.911515	32.6308	1.203073	0.050768	0.079596	0.052386	0.139	0.136
7	640.9	74.5	109.5	154.3	72.1	75.87557	77.18739	75.20623	76.23574	78.3039	79.61	74.40	83.63	4.36	3.85	1.20	1.2808	0.25885	11.05552	9.350101	32.72468	1.219959	0.05499	0.070205	0.050884	0.154	0.136
8	624.9	73.6	106.4	153.7	72.4	75.79362	76.89127	74.94357	75.92212	78.26469	79.43	74.17	82.34	4.40	3.83	1.19	1.3168	2.190184	12.56413	7.052483	32.33331	1.217874	0.054468	0.079203	0.048583	0.155	0.135
9	615.1	75.0	104.4	153.1	71.6	75.7705	77.16263	75.18816	75.98132	78.61169	79.42	74.31	82.34	4.42	3.82	1.20	1.2859	1.680214	14.00129	6.008387	31.93463	1.237942	0.059485	0.071476	0.050808	0.156	0.135
10	611.9	75.0	103.8	152.7	71.8	75.81789	77.03601	76.08558	76.09872	78.39444	79.30	74.44	82.05	4.15	3.82	1.20	1.2834	1.115965	14.2758	6.107448	31.52498	1.217801	0.05445	0.070839	0.050576	0.146	0.135
11	609.7	74.3	102.8	152.4	72.1	75.79256	77.11775	78.5367	76.24207	78.43739	79.32	74.16	81.76	4.17	3.81	1.20	1.2926	0.9156	14.33615	6.201723	31.11533	1.230346	0.057587	0.073156	0.050082	0.147	0.135
12	610.9	73.9	102.6	152.4	72.2	75.75858	77.01685	79.48199	76.09645	78.29177	79.37	74.52	81.87	4.24	3.81	1.20	1.3173	0.827671	14.32972	6.314773	30.82394	1.16913	0.042283	0.079337	0.050195	0.149	0.134
13	610.7	74.2	102.4	152.3	71.7	75.70576	77.12466	79.81267	76.21059	78.3189	79.52	74.41	82.17	4.27	3.80	1.19	1.3050	0.816796	14.41637	6.26823	30.42282	1.200561	0.05014	0.076243	0.047757	0.151	0.134
14	609.6	73.8	102.1	152.3	71.8	75.60997	77.12927	80.19337	76.14449	78.37328	79.76	74.36	81.91	4.29	3.79	1.19	1.3465	0.792948	14.41634	6.288591	30.03511	1.204316	0.051079	0.086634	0.047635	0.151	0.134
15	610.9	73.9	101.8	152.5	71.8	75.78233	77.06067	80.55468	76.22266	78.37782	80.01	74.40	82.27	4.30	3.79	1.20	1.3086	0.742204	14.40308	6.308555	29.72422	1.225762	0.056441	0.077161	0.049887	0.152	0.134
16	609.5	74.0	101.9	152.6	72.1	75.65516	77.17445	80.76586	76.09761	78.49373	80.05	74.42	81.95	4.31	3.78	1.20	1.2961	0.665407	14.33621	6.403684	29.31822	1.209242	0.05231	0.074015	0.04932	0.152	0.133
17	609.3	74.2	101.8	153.0	72.1	75.79167	77.28419	81.09184	76.31572	78.43742	79.91	74.35	82.28	4.32	3.78	1.19	1.3308	0.597826	14.25026	6.51579	28.92686	1.203304	0.050826	0.082699	0.047921	0.152	0.133
18	608.4	73.7	102.1	152.9	71.8	75.84386	77.30961	81.34788	76.30347	78.52556	80.22	74.44	82.28	3.91	3.90	1.20	1.2739	0.549606	14.1373	6.643867	28.62327	1.213107	0.053277	0.068483	0.049119	0.138	0.138
19	608.9	74.7	101.7	153.1	71.8	75.72163	77.12045	81.18116	76.20242	78.49145	80.14	74.60	82.19	3.88	3.90	1.19	1.2999	0.512469	14.00126	6.78627	28.23069	1.216764	0.054191	0.074984	0.048287	0.137	0.138
20	607.6	74.0	101.5	153.3	73.0	75.44144	77.02766	81.24806	76.02476	78.12637	80.08	74.24	82.23	3.91	3.89	1.19	1.3007	0.499253	14.0012	6.786209	27.93077	1.199293	0.049823	0.07517	0.048244	0.138	0.137
21	604.4	73.8	101.5	152.9	71.2	75.7664	77.0849	81.37708	76.3448	78.3728	80.30	74.45	82.38	3.91	3.89	1.19	1.2856	0.424235	13.9361	6.853691	27.52477	1.185138	0.046285	0.071412	0.046315	0.138	0.137
22	601.0	73.9	101.0	153.0	72.4	75.63937	77.1185	81.95795	76.49179	78.68711	80.44	74.37	82.44	3.93	3.89	1.19	1.3001	0.339488	13.74322	7.059707	27.22485	1.220154	0.055038	0.075024	0.047796	0.139	0.137
23	595.9	73.9	100.8	152.8	71.9	75.75503	77.18062	81.82122	76.3403	78.58248	80.59	74.67	82.56	3.93	3.88	1.19	1.3036	0.25101	13.43781	7.405686	26.92004	1.206779	0.051695	0.075896	0.047598	0.139	0.137
24	593.6	73.6	100.6	152.7	72.6	75.63206	77.10449	81.75937	76.21811	78.29965	80.35	74.38	82.37	3.94	3.88	1.19	1.2929	0.170921	13.14874	7.713322	26.62865	1.203024	0.050756	0.073235	0.047939	0.139	0.137
25	588.8	73.8	100.2	152.2	72.2	75.83065	77.14915	82.00797	76.52068	78.50182	80.70	74.35	82.39	3.99	3.87	1.18	1.3106	0.127907	12.97442	7.899676	26.31776	1.223543	0.055886	0.077648	0.045839	0.141	0.137
26	584.0	73.9	100.0	151.7	71.4	75.49973	76.9454	81.93246	76.12319	78.15118	80.44	74.26	82.51	3.86	3.87	1.19	1.2861	0.098866	12.70543	8.186129	25.9398	1.22308	0.05577	0.071522	0.047808	0.136	0.137
27	581.4	73.8	99.8	151.0	71.2	75.53954	76.90488	82.13008	76.27553	78.11612	80.57	74.47	82.43	3.88	3.87	1.18	1.2615	0.069495	12.39045	8.537503	25.72523	1.216789	0.054197	0.065374	0.045702	0.137	0.137
28	577.9	73.7	99.5	150.3	71.3	75.50901	76.99483	82.11319	76.00668	78.13508	80.49	74.23	82.44	3.87	3.87	1.19	1.2960	0.053474	12.14896	8.761562	25.43139	1.194758	0.048689	0.074012	0.046818	0.137	0.136
29	575.1	73.4	99.0	149.9	72.5	75.63935	77.10509	82.05032	76.06454	78.07245	80.49	74.28	82.27	3.86	3.86	1.19	1.3242	0.035406	11.90777	8.995222	25.11806	1.206365	0.051591	0.081047	0.047196	0.136	0.136
30	573.3	74.1	98.9	149.0	71.6	75.42693	77.06669	82.21043	76.19054	78.17838	80.75	74.18	82.30	3.84	3.86	1.18	1.3042	0.02703	11.75942	9.134851	24.83155	1.216362	0.05409	0.076039	0.046223	0.136	0.136
31	571.9	73.9	98.8	148.7	71.7	75.32384	77.13761	82.38596	75.93842	78.0735	80.65	74.18	82.42	3.86	3.86	1.18	1.3044	0.024518	11.67612	9.201817	24.52065	1.207828	0.051957	0.076091	0.045675	0.136	0.136
32	570.0	73.6	98.8	148.4	72.0	75.46648	77.00585	82.27583	76.25781	78.31927	80.81	74.36	82.41	3.89	3.85	1.18	1.3040	0.024518	11.61909	9.269483	24.22926	1.21791	0.054478	0.076012	0.045888	0.137	0.136
33	567.5	73.4	98.7	147.9	71.4	75.65972	77.14554	82.33437	76.18062	78.33578	80.93	74.36	82.70	3.83	3.85	1.19	1.2889	0.026993	11.61178	9.259455	24.0159	1.205584	0.051396	0.072229	0.046678	0.135	0.136
34	566.4	73.9	98.8	147.4	72.1	75.79273	77.138	82.6899	76.39822	78.27898	80.90	74.33	82.66	3.77	3.85	1.18	1.3192	0.029761	11.44356	9.430326	23.73304	1.223958	0.055989	0.079794	0.045215	0.133	0.136
35	561.6	74.2	98.4	146.7	71.3	75.60048	77.18	82.59273	76.53951	78.273	80.87	74.32	82.69	3.93	3.85	1.18	1.2914	0.021677	11.27561	9.590834	23.42336	1.208961	0.05224	0.072848	0.046004	0.139	0.136
36	559.8	73.9	98.2	146.2	72.7	75.52567	77.15205	82.57176	76.20287	78.07693	80.73	74.44	82.67	3.84	3.85	1.18	1.3601	0.014192	11.19618	9.66292	23.12832	1.230029	0.057507	0.090032	0.045416	0.135	0.136
37	556.7	73.8	98.0	145.8	71.4	75.60648	77.186	82.66463	76.41889	78.26617	80.81	74.24	82.48	3.83	3.84	1.18	1.3022	0.014228	11.09941	9.757957	22.92837	1.195538	0.048885	0.075554	0.044715	0.135	0.136
38	552.6	73.7	97.6	144.8	71.4	75.48387	77.0567	82.68233	76.31999	78.3346	80.74	74.20	82.42	3.84	3.84	1.18	1.3326	0.019129	10.88029	9.991282	22.62235	1.204182	0.051046	0.083162	0.045306	0.136	0.136
39	549.8	73.5	97.6	144.1	70.9	75.37376	76.90642	82.68594	76.3816	78.2088	80.95	74.35	82.42	3.87	3.84	1.18	1.3064	0.026993	10.74014	10.14015	22.4285	1.215436	0.053859	0.076612	0.04455	0.137	0.136
40	545.9	73.4	97.5	143.5	71.4	75.46236	77.08203	82.95148	76.20522	78.30683	80.94	74.49	82.52	3.85	3.84	1.17	1.2897	0.026993	10.5255	10.36674	22.12126	1.179103	0.044776	0.072418	0.043645	0.136	0.136
41	543.3	73.4	96.8	142.9	71.7	75.60931	77.05497	82.83901	76.42307	78.35735	80.98	74.44	82.55	3.85	3.84	1.18	1.2922	0.016545	10.40538	10.4736	21.92618	1.193953	0.048488	0.07304	0.044562	0.136	0.135
42	539.3	73.5	96.8	142.3	71.8	75.55709	76.84211	82.77431	76.32992	78.21735	80.74	74.21	82.36	3.85	3.84	1.17	1.2934	0.019105	10.2744	10.62024	21.6287	1.179554	0.044889	0.073342	0.043596	0.136	0.135
43	535.1	73.5	96.7	141.3	71.1	75.49009	77.00268	82.72805	76.10374	78.1652	80.90	74.44	82.51	3.87	3.83	1.17	1.2837	0.027005	10.1438	10.73326	21.42509	1.189674	0.047418	0.070918	0.043489	0.137	0.135
44	530.6	73.3	96.4	140.8	71.8	75.63477	76.98003	82.9301	76.33495	78.35625	80.99	74.33	82.53	3.86	3.83	1.17	1.3578	0.026993	10.00173	10.88785	21.11785	1.2198	0.05495	0.089444	0.043383	0.136	0.135
45	525.8	73.5	95.9	140.3	71.8	75.34275	77.0762	82.91274	76.22515	78.17283	80.75	74.27	82.51	3.86	3.83	1.18	1.2841	0.032467	9.835309	11.05488	20.92034	1.2218	0.05545	0.071019	0.044367	0.136	0.135
46	522.0	73.5	96.1	139.3	71.5	75.37069	77.29824	82.88749	76.39213	78.12563	80.81	74.35	82.66	3.85	3.83	1.17	1.3022	0.040283	9.672484	11.22758	20.72527	1.224384	0.056096	0.075545	0.043291	0.136	0.135
47	518.1	73.2	95.6	138.3	71.0	75.3671	77.12732	82.80476	76.41626	78.03598	80.96	74.42	82.30	3.88	3.83	1.17	1.3005	0.048049	9.519017	11.37395	20.51678	1.214497	0.053624	0.075134	0.043026	0.137	0.135
48	516.0	73.4	95.3	137.5	71.6	75.52294	77.24301	82.82643	76.44657	78.20015	80.87	74.35	82.24	3.87	3.82	1.17	1.3226	0.056352	9.351042	11.53016	20.22539	1.191173	0.047793	0.08066	0.043599	0.136	0.135
49	512.9	73.2	95.1	137.1	71.2	75.39172	77.11848	82.76964	76.21634	77.9833	80.79	74.38	82.19	3.86	3.82	1.18	1.2961	0.056364	9.283772	11.60203	20.0291	1.189028	0.047257	0.074018	0.04384	0.136	0.135
50	509.4	73.3	95.0	136.6	71.0	75.47581	77.2762	82.89216	76.5081	78.21482	81.01	74.62	82.48	3.89	3.82	1.17	1.3320	0.053462	9.210742	11.665	19.81574	1.202768	0.050692	0.082988	0.042224	0.137	0.135
51	510.3	73.5	94.8	135.7	71.5	75.30961	77.24386	82.76128	76.3726	78.04585	80.81	74.54	82.19	3.89	3.90	1.17	1.3229	0.050756	9.128568	11.75626	19.62554	1.204975	0.051244	0.080736	0.0422	0.137	0.137
52	506.8	73.5	94.9	135.0	71.2	75.39062	77.16422	82.80155	76.4638	78.17052	80.78	74.50	82.50	3.87	3.90	1.17	1.3199	0.053426	9.108877	11.76318	19.43291	1.191551	0.047888	0.079965	0.043346	0.137	0.137
53	504.2	73.5	94.5	134.5	70.7	75.39369	77.26101	82.76498	76.39872	78.10545	80.81	74.61	82.27	3.86	3.89	1.17	1.3435	0.050768	9.075258	11.80274	19.11348	1.190722	0.047681	0.085872	0.042395	0.136	0.137
54	503.3	72.8	94.3	134.1	71.7	75.34938	77.06275	82.60911	76.54029	78.33402	80.86	74.43	82.16	3.86	3.90	1.17	1.2903	0.051633	9.048771	11.83712	18.92328	1.223226	0.055807	0.072573	0.042255	0.136	0.137
55	501.9	73.8	94.0	133.6	71.8	75.48954	77.17615	82.67471	76.29417	78.0879	80.90	74.51	82.02	3.83	3.89	1.17	1.3154	0.053426	8.983513	11.90467	18.71236	1.209376	0.052344	0.078849	0.042103	0.135	0.137
56	500.8	73.7	94.0	132.9	70.9	75.6339	77.21341	82.80385	76.32691	78.23443	80.87	74.52	82.11	3.84	3.89	1.17	1.3090	0.048049	8.976319	11.91823	18.51728	1.219178	0.054795	0.077249	0.042484	0.136	0.137
57	499.6	73.6	94.0	132.6	71.6	75.6635	77.13593	82.79344	76.51329	78.3204	80.81	74.51	82.13	3.84	3.89	1.17	1.3148	0.045574	8.955196	11.93725	18.32221	1.1832	0.0458	0.078712	0.042584	0.135	0.137
58	501.1	73.5	93.7	132.4	71.0	75.47279	77.00545	82.46682	76.34325	78.00981	80.87	74.27	81.90	3.83	3.89	1.17	1.2773	0.040295	8.941725	11.94679	18.11007	1.193063	0.048266	0.069333	0.042252	0.135	0.137
59	503.1	73.3	93.8	131.9	70.8	75.48078	77.26109	82.53409	76.34391	78.16442	80.62	74.44	82.02	3.84	3.89	1.17	1.3148	0.032455	8.894664	11.99666	17.91987	1.185236	0.046309	0.078691	0.042484	0.135	0.137
60	500.9	73.4	93.7	131.4	71.3	75.39256	77.13271	82.5263	76.55785	78.37166	80.72	74.43	82.16	3.84	3.89	1.17	1.3145	0.01652	9.028958	11.8371	17.72602	1.197599	0.0494	0.078636	0.041764	0.135	0.137
61	503.2	73.9	93.7	131.3	71.5	75.29053	77.14445	82.57748	76.27771	78.02459	80.89	74.40	80.55	3.82	3.89	1.17	1.3072	0.019117	9.115278	11.74367	17.51144	1.173458	0.043365	0.076792	0.042767	0.135	0.137
62	503.2	73.1	93.4	131.1	71.5	75.38571	77.25302	82.46014	76.54354	78.14988	80.92	74.41	80.12	3.82	3.89	1.17	1.3352	0.021641	9.048771	11.80933	17.24565	1.18359	0.045897	0.083808	0.041502	0.135	0.137
63	501.3	73.4	93.6	131.1	70.7	75.44878	77.00151	82.54873	76.22559	78.11302	80.62	74.51	79.84	3.82	3.89	1.17	1.2989	0.021677	9.135395	11.71514	17.00791	1.206365	0.051591	0.074713	0.042935	0.135	0.137
64	501.7	73.1	93.6	130.9	71.7	75.50742	77.36135	82.56036	76.47947	78.25311	80.90	74.32	79.65	3.82	3.89	1.17	1.2905	0.014179	9.162461	11.69536	16.88477	1.205865	0.051466	0.072619	0.042575	0.135	0.137
65	497.6	73.3	93.5	130.7	71.0	75.38715	77.24107	82.58694	76.13284	78.26792	80.72	74.37	79.67	3.82	3.89	1.17	1.3075	0.011351	9.128507	11.72304	16.61654	1.188052	0.047013	0.076877	0.041603	0.135	0.137
66	498.0	72.9	93.3	130.7	70.6	75.22894	77.08286	82.54314	76.16181	78.1898	80.75	74.49	79.30	3.89	3.89	1.17	1.2939	0.01652	9.035604	11.83014	16.40684	1.208498	0.052125	0.073479	0.042746	0.137	0.137
67	497.0	73.5	93.3	130.5	70.8	75.21442	77.37622	82.54862	76.29567	78.29019	80.73	74.46	79.62	3.90	3.89	1.17	1.3226	0.019105	9.042889	11.7961	16.21055	1.181078	0.04527	0.080638	0.041341	0.138	0.137
68	496.3	72.8	93.1	130.2	71.1	75.56502	77.24493	82.47196	76.24919	78.17009	80.64	74.48	79.25	3.93	3.89	1.17	1.2950	0.019105	9.055294	11.79025	16.01548	1.207925	0.051981	0.073759	0.043188	0.139	0.137
69	494.6	73.4	93.0	130.1	71.8	75.31808	77.259	82.56503	76.2447	78.24592	80.79	74.52	79.26	3.92	3.89	1.17	1.3255	0.024457	8.962573	11.89104	15.81309	1.191039	0.04776	0.081376	0.04159	0.138	0.137
70	493.0	73.2	93.1	129.9	71.0	75.36604	77.35383	82.42755	76.38541	78.22599	80.50	74.29	79.22	3.92	3.90	1.16	1.3022	0.024482	8.921425	11.91823	15.61924	1.193782	0.048446	0.075548	0.040127	0.139	0.137
71	494.4	73.6	93.1	130.0	71.6	75.27003	77.10387	82.57047	76.42899	78.38336	80.80	74.39	79.19	3.93	3.89	1.17	1.2601	0.021653	8.867902	11.97925	15.42904	1.197562	0.04939	0.065017	0.042054	0.139	0.137
72	493.3	73.4	93.1	129.8	71.2	75.26758	77.51639	82.66703	76.49207	78.23226	80.67	74.55	79.28	3.90	3.89	1.16	1.3106	0.021665	8.854429	11.97925	15.21446	1.216825	0.054206	0.077654	0.041139	0.138	0.137
73	493.7	72.8	92.8	129.6	71.3	75.38013	77.25414	82.47444	76.384	78.19781	80.73	74.59	78.92	3.94	3.89	1.17	1.2720	0.016508	8.8341	11.9983	15.01817	1.199903	0.049976	0.067989	0.041581	0.139	0.137
74	492.5	73.0	92.8	129.6	70.8	75.30847	77.36319	82.48958	76.33497	78.28934	80.64	74.44	78.86	3.92	3.89	1.17	1.2943	0.014179	8.85446	11.97922	14.82187	1.192051	0.048013	0.073567	0.041435	0.138	0.137
75	493.3	73.4	92.8	129.5	71.4	75.29828	77.46677	82.43993	76.44049	78.22084	80.70	74.55	78.69	3.98	3.89	1.16	1.2853	0.011339	8.867842	11.96008	14.60729	1.201256	0.050314	0.071333	0.041246	0.140	0.137
76	492.7	72.9	92.6	129.5	72.1	75.50558	77.17879	82.41995	76.21967	78.40829	80.64	74.49	78.76	3.96	3.89	1.17	1.2944	0.008717	8.874882	11.9396	14.40978	1.181712	0.045428	0.073598	0.041362	0.140	0.137
77	493.9	73.4	92.3	129.1	70.6	75.43365	77.43482	82.51402	76.4231	78.43771	80.70	74.36	78.66	3.96	3.89	1.16	1.3063	0.006108	8.80746	12.01138	14.21471	1.201975	0.050494	0.076585	0.041197	0.140	0.137
78	496.2	73.1	92.7	129.0	70.8	75.31709	77.20447	82.43867	76.43478	78.08796	80.56	74.54	78.53	3.95	3.89	1.17	1.3268	0.001049	8.754272	12.05911	14.11961	1.178299	0.044575	0.081711	0.042328	0.140	0.137
79	497.6	73.5	92.8	129.3	71.6	75.56388	77.27725	82.41804	76.32098	78.24188	80.62	74.43	78.44	3.93	3.89	1.16	1.3198	-0.00168	8.874851	11.92567	13.90991	1.192795	0.048199	0.079959	0.040432	0.139	0.137
80	498.1	73.0	92.5	129.1	71.4	75.09466	77.11591	82.41734	76.14603	78.07362	80.34	74.34	78.22	3.93	3.92	1.16	1.3073	-0.00167	8.948461	11.85066	13.71484	1.202792	0.050698	0.076828	0.041155	0.139	0.139
81	497.7	73.1	92.7	129.2	71.2	75.2924	77.32034	82.39453	76.31107	78.47962	80.56	74.51	78.51	3.91	3.92	1.17	1.3101	-0.00167	8.996772	11.80271	13.52342	1.181212	0.045303	0.077536	0.041472	0.138	0.139
82	497.8	73.4	92.9	129.4	71.0	75.69176	77.5323	82.33295	76.29512	78.47036	80.62	74.51	78.52	3.97	3.92	1.17	1.3030	-0.00165	9.009299	11.78275	13.31372	1.206218	0.051555	0.075762	0.041487	0.140	0.139
83	497.1	73.3	92.6	129.1	70.9	75.30064	77.26166	82.37627	76.16826	78.39034	80.59	74.36	78.18	3.88	3.89	1.16	1.2966	-0.00166	8.969096	11.83002	13.11133	1.190137	0.047534	0.074143	0.040911	0.137	0.137
84	497.7	73.2	92.8	129.0	70.6	75.61313	77.21272	82.29502	76.28644	78.35459	80.49	74.57	78.15	3.84	3.89	1.17	1.2922	-0.00165	8.914354	11.88397	12.90041	1.19594	0.048985	0.073052	0.042368	0.136	0.137
85	495.6	73.1	92.5	128.9	70.7	75.65055	77.39069	82.4705	76.30479	78.26585	80.38	74.51	78.42	3.83	3.89	1.17	1.3192	-0.00168	8.874821	11.91144	12.70655	1.197928	0.049482	0.079794	0.041252	0.135	0.137
86	494.8	73.6	92.4	128.8	71.1	75.50791	77.26813	82.41564	76.4719	78.25894	80.59	74.44	78.17	3.91	3.89	1.16	1.3127	-0.00168	8.776217	12.01784	12.52002	1.207206	0.051801	0.078182	0.04081	0.138	0.137

Reading Interval		1	Minutes																		7.59077		0.044686				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	**Flue**	**Room**	**Tunnel**	**Degrees F**		**DGM 1**	**DGM 1**	**Filter 1**	**DGM 2**	**DGM 2**	**Filter 2**	**DGM 3**	**Filter 3**	**Meter 1**	**Meter 2**	**Draft**	**Tunnel**					**Duct**	**Duct**	**Tunnel**	**Draft**	**Sys 1**	**Sys 2**
Time	**temp 1**	**temp 2**	**dry bulb 3**	**Outlet air**	**Inlet Air**	**In**	**Out**		**In**	**Out**		**In**					**Pitot**	**CO**	**CO2**	**O2**	**scale**	**Pitot**	**pitot**	**Pitot**	**Correction**	**Cu Ft**	**Cu Ft**
87	491.8	73.0	92.4	128.7	71.2	75.66678	77.21951	82.33472	76.28172	78.4235	80.45	74.54	77.93	3.84	3.89	1.16	1.3014	-0.00165	8.727206	12.05143	12.41151	1.202292	0.050573	0.075359	0.041002	0.136	0.137
88	492.0	73.1	92.3	128.8	71.2	75.72356	77.19598	82.15312	76.41724	78.1909	80.59	74.52	78.03	3.80	3.89	1.17	1.3027	-0.00165	8.694075	12.08426	12.20668	1.18576	0.04644	0.075664	0.042014	0.134	0.137
89	488.4	72.9	92.3	128.7	70.9	75.66051	77.36719	82.42753	76.46813	78.40242	80.68	74.39	78.17	3.82	3.89	1.17	1.2732	-0.00165	8.581725	12.19304	12.00551	1.188186	0.047047	0.068294	0.041341	0.135	0.137
90	488.8	73.0	92.2	128.4	71.2	75.53377	77.42785	82.22996	76.3653	78.21258	80.46	74.35	77.98	3.81	3.89	1.16	1.2836	-0.00165	8.569349	12.19115	11.91041	1.215484	0.053871	0.070897	0.040999	0.134	0.137
91	486.5	73.4	92.3	128.2	70.9	75.73772	77.62511	82.18029	76.56538	78.5666	80.43	74.51	77.90	3.81	3.89	1.16	1.3439	-0.00166	8.480013	12.27199	11.70071	1.20823	0.052058	0.085972	0.040923	0.134	0.137
92	485.5	73.5	92.1	127.9	70.8	75.616	77.3026	82.21866	76.52253	78.31625	80.57	74.51	77.67	3.87	3.89	1.16	1.3051	-0.00166	8.43917	12.29765	11.5032	1.201768	0.050442	0.07628	0.040143	0.137	0.137
93	485.7	73.1	92.0	127.6	71.4	75.75063	77.53092	82.44378	76.6157	78.52991	80.76	74.63	78.09	3.95	3.89	1.16	1.3028	-0.00167	8.418291	12.30378	11.4081	1.199037	0.049759	0.075701	0.04017	0.139	0.137
94	482.6	73.1	92.0	127.6	70.4	75.53857	77.26533	82.19511	76.48721	78.28094	80.56	74.62	77.69	3.91	3.89	1.17	1.2707	-0.00166	8.372083	12.35843	11.21425	1.211071	0.052768	0.067663	0.041776	0.138	0.137
95	482.2	73.0	91.7	127.4	71.1	75.55579	77.55026	82.25827	76.48064	78.56887	80.34	74.53	77.77	3.86	3.89	1.16	1.3269	-0.00166	8.318132	12.39851	11.00211	1.173373	0.043343	0.081717	0.040374	0.136	0.137
96	480.8	72.9	91.5	127.5	71.4	75.70259	77.52305	82.22485	76.50903	78.47679	80.51	74.56	77.59	3.86	3.89	1.16	1.2830	-0.00168	8.310696	12.39845	10.90701	1.185138	0.046285	0.070748	0.03942	0.136	0.137
97	481.0	73.4	91.4	127.1	70.7	75.35426	77.3688	82.03976	76.28704	78.49574	80.50	74.79	77.61	3.87	3.89	1.16	1.3500	-0.00167	8.283813	12.41137	10.70462	1.221117	0.055279	0.087509	0.040835	0.137	0.137
98	480.8	72.9	91.5	127.0	71.6	75.65552	77.28188	82.17843	76.43276	78.55446	80.40	74.56	77.75	3.89	3.89	1.16	1.3043	-0.00168	8.26394	12.41478	10.57782	1.211692	0.052923	0.076063	0.040515	0.137	0.137
99	477.9	73.3	91.6	126.7	71.0	75.48959	77.34351	82.19301	76.41088	78.41879	80.37	74.51	77.44	3.85	3.89	1.16	1.2984	-0.00167	8.150798	12.53847	10.40104	1.190137	0.047534	0.0746	0.039881	0.136	0.137
100	476.3	73.4	91.5	126.9	71.4	75.59997	77.29995	82.17645	76.50673	78.48786	80.33	74.59	77.30	3.94	3.89	1.16	1.3149	-0.00167	8.023543	12.66478	10.29984	1.226372	0.056593	0.07873	0.0401	0.139	0.137
101	472.9	72.7	91.2	126.7	71.1	75.9068	77.58001	82.03024	76.44834	78.48302	80.65	74.58	77.65	3.90	3.89	1.16	1.3221	-0.00166	7.955298	12.73226	10.10599	1.209022	0.052256	0.080523	0.039951	0.138	0.137
102	473.2	73.1	91.2	126.3	70.7	75.74506	77.52537	81.95655	76.41552	78.47028	80.49	74.62	77.43	3.90	3.89	1.16	1.2874	-0.00167	7.874922	12.80977	10.00967	1.185467	0.046367	0.071854	0.038783	0.138	0.137
103	472.8	72.7	91.0	126.2	70.4	75.67735	77.4978	82.12075	76.49022	78.51152	80.33	74.69	77.64	3.85	3.89	1.16	1.3385	-0.00166	7.815273	12.86086	9.795093	1.19488	0.04872	0.084616	0.040124	0.136	0.137
104	473.0	73.0	91.2	126.5	71.2	76.1282	77.92859	82.09675	76.43272	78.68826	80.49	74.78	77.65	3.85	3.89	1.16	1.2892	-0.00165	7.742181	12.92627	9.701214	1.211193	0.052798	0.072308	0.039795	0.136	0.137
105	471.8	73.3	90.9	125.8	70.6	75.55287	77.32647	82.1498	76.31168	78.507	80.52	74.62	77.37	3.89	3.89	1.16	1.2699	-0.00168	7.704661	12.96312	9.504922	1.210644	0.052661	0.067483	0.039783	0.137	0.137
106	469.3	72.8	91.0	125.6	70.5	75.47773	77.44543	82.07572	76.45725	78.53879	80.53	74.80	77.35	3.87	3.89	1.16	1.3073	-0.00171	7.689664	12.95937	9.409824	1.17625	0.044063	0.076825	0.039259	0.137	0.137
107	468.6	73.1	90.8	125.5	70.7	75.73587	77.73703	82.33684	76.60598	78.64066	80.42	74.58	77.41	3.91	3.89	1.16	1.3246	-0.00167	7.68241	12.9594	9.297657	1.207718	0.051929	0.081157	0.039856	0.138	0.137
108	465.5	72.7	90.7	125.1	70.7	75.60954	77.70441	81.93512	76.66581	78.60009	80.60	74.74	77.36	3.91	3.89	1.16	1.3196	-0.00168	7.675857	12.94575	9.105022	1.191661	0.047915	0.079895	0.039271	0.138	0.137
109	465.3	73.2	90.5	125.1	70.9	75.67417	77.47454	81.96584	76.38795	78.50964	80.47	74.78	77.30	3.89	3.89	1.16	1.2758	-0.00168	7.573475	13.04691	9.00139	1.183797	0.045949	0.068946	0.039481	0.137	0.137
110	464.1	73.1	90.7	124.9	70.6	75.60698	77.57468	81.89959	76.36896	78.56427	80.40	74.63	77.19	3.89	3.89	1.16	1.2779	-0.00168	7.452651	13.16694	8.907511	1.203499	0.050875	0.069471	0.039088	0.137	0.137
111	461.0	72.9	90.7	124.4	70.4	75.70927	77.79076	82.07304	76.70084	78.63512	80.50	74.81	77.23	3.89	3.89	1.16	1.2837	-0.00169	7.380445	13.23723	8.689274	1.171508	0.042877	0.070924	0.039183	0.137	0.137
112	458.2	73.5	90.5	124.3	70.7	75.39521	77.75111	82.13293	76.34239	78.42392	80.36	74.63	77.02	3.95	3.89	1.16	1.2826	-0.00172	7.366027	13.2293	8.639286	1.227432	0.056858	0.070656	0.038844	0.139	0.137
113	456.8	73.2	90.2	123.8	70.9	75.47433	77.62944	82.01297	76.4408	78.60934	80.41	74.84	77.21	3.84	3.89	1.15	1.2724	0.001	7.300068	13.28548	8.49542	1.189918	0.047479	0.06809	0.037896	0.136	0.137
114	458.3	73.3	90.4	123.7	71.6	75.60439	77.5587	81.83104	76.55077	78.59215	80.26	74.71	76.98	3.93	3.89	1.15	1.2513	0.014179	7.232463	13.34263	8.396665	1.214692	0.053673	0.062832	0.038164	0.139	0.137
115	460.6	72.9	90.2	123.4	70.8	75.41265	77.55437	81.78057	76.23734	78.51298	80.18	74.77	76.84	3.93	3.89	1.16	1.3199	0.024445	7.225728	13.32099	8.302786	1.192063	0.048016	0.079968	0.039667	0.139	0.137
116	462.1	72.7	90.2	123.5	70.6	75.4482	77.6167	81.74963	76.18772	78.55036	80.21	74.61	77.07	3.90	3.89	1.15	1.2814	0.024445	7.452621	13.00698	8.094302	1.191795	0.047949	0.070339	0.038271	0.138	0.137
117	461.2	72.8	90.1	123.5	70.4	75.35935	77.36051	81.70162	76.5274	78.39476	79.99	74.39	76.84	3.90	3.88	1.16	1.2720	0.019044	7.553297	12.89978	7.997984	1.190381	0.047595	0.068001	0.039472	0.138	0.137
118	462.7	72.8	90.0	125.6	70.2	75.74463	77.39776	81.71195	76.45617	78.52431	80.00	74.67	76.84	3.89	3.89	1.16	1.3061	0.011302	7.621084	12.85339	7.798035	0.990931	0	0.076518	0.039701	0.137	0.137
119	465.6	72.0	89.6	118.5	70.6	75.6258	77.44625	81.83235	76.49748	78.61247	80.36	74.56	76.98	3.89	3.89	1.16	1.3141	0.008864	7.682349	12.79457	7.696841	0.990944	0	0.078514	0.040316	0.137	0.137
120	469.4	72.9	89.9	135.0	71.4	75.37361	77.45509	81.60349	76.23322	78.49546	80.17	74.67	76.88	3.90	3.89	1.16	1.3290	0.006059	7.661623	12.8152	7.59077	1.216679	0.05417	0.082248	0.039173	0.138	0.137
121	464.9	72.7	90.1	131.5	70.4	75.27905	77.41407	81.74123	76.225	78.43369	80.18	74.78	77.05	3.91	3.89	1.16	1.3	0.001024	7.595176	12.87308	7.49811	1.183858	0.045965	0.07318	0.039701	0.138	0.137
122	464.3	72.9	89.9	129.4	71.1	75.3427	77.64504	81.71159	76.2994	78.53487	80.03	74.79	76.95	3.90	3.89	1.16	1.3	0.001012	7.513703	12.93962	7.39204	1.177043	0.044261	0.082239	0.039006	0.138	0.137
123	463.9	73.4	90.1	128.4	70.9	75.35799	77.493	81.64748	76.48706	78.44812	80.30	74.81	76.94	3.90	3.89	1.15	1.3	-0.00167	7.480662	12.97278	7.201844	1.180676	0.045169	0.078288	0.038616	0.138	0.137
124	463.8	73.0	90.3	127.3	71.3	75.69945	77.62699	81.71359	76.39536	78.42335	80.16	74.80	77.06	3.90	3.89	1.16	1.3	-0.00169	7.473622	12.97946	7.104307	1.196172	0.049043	0.077371	0.039048	0.138	0.137
125	462.3	72.9	90.1	126.5	70.7	75.78165	77.58203	81.85405	76.46307	78.67846	80.01	74.80	76.68	3.98	3.89	1.15	1.3	-0.00167	7.460027	12.97943	6.995798	1.19516	0.04879	0.087417	0.03868	0.140	0.137
126	461.6	73.2	90.1	126.0	71.0	75.65173	77.43872	81.59395	76.49941	78.58764	80.09	74.54	76.76	3.94	3.89	1.16	1.3	-0.00169	7.452651	12.97281	6.893384	1.224409	0.056102	0.08051	0.038881	0.139	0.137
127	460.3	73.3	90.2	125.5	71.0	75.56274	77.66431	81.73058	76.51286	78.5877	80.07	74.93	76.93	3.91	3.89	1.16	1.3	-0.00168	7.406017	13.01408	6.795848	1.174507	0.043627	0.078234	0.039448	0.138	0.137
128	459.7	73.1	89.8	125.0	72.2	75.74383	77.75169	81.48018	76.69204	78.67986	80.05	74.71	76.75	3.90	3.89	1.16	1.4	-0.00168	7.372916	13.04685	6.594679	1.201171	0.050293	0.088588	0.039085	0.138	0.137
129	456.0	72.8	90.0	124.8	70.7	75.89934	77.77334	81.50813	76.53846	78.45935	80.11	74.90	76.63	3.90	3.89	1.15	1.3	-0.00167	7.412174	12.97949	6.570295	1.186626	0.046656	0.071113	0.038527	0.138	0.137
130	455.2	73.6	89.7	124.5	70.6	75.80769	77.58799	81.45737	76.60627	78.79489	80.29	74.69	76.62	3.90	3.88	1.15	1.3	-0.00167	7.392606	12.98607	6.472759	1.201488	0.050372	0.07613	0.038229	0.138	0.137
131	454.0	73.5	89.7	124.0	70.6	75.69527	77.5425	81.5181	76.52919	78.55048	79.99	74.82	76.62	3.89	3.88	1.15	1.3	-0.00168	7.260292	13.12037	6.386196	1.159547	0.039887	0.072202	0.038573	0.137	0.137
132	451.7	73.3	89.5	123.9	70.7	75.79825	77.7191	81.54704	76.44661	78.68877	80.24	74.79	76.65	3.88	3.89	1.15	1.3	-0.00166	7.192199	13.17371	6.191123	1.20139	0.050348	0.081391	0.038463	0.137	0.137
133	449.6	73.0	89.6	123.7	71.1	75.75801	77.70563	81.65254	76.67646	78.64421	80.07	74.96	76.72	3.86	3.88	1.15	1.3	-0.00166	7.112372	13.24899	6.091148	1.187174	0.046794	0.080172	0.038085	0.136	0.137
134	452.3	72.4	89.2	120.4	71.1	75.59293	77.60747	81.45017	76.55069	78.5519	79.88	74.80	76.44	3.85	3.88	1.16	1.3	-0.00169	7.060465	13.29456	5.997269	0.991066	0	0.080038	0.038899	0.136	0.137
135	456.8	72.0	89.1	136.3	71.0	75.66666	77.55404	81.39089	76.31698	78.48553	79.91	74.70	76.45	3.86	3.88	1.16	1.3	-0.00167	7.060465	13.28136	5.894856	1.21752	0.05438	0.080986	0.039484	0.136	0.137
136	454.2	72.2	89.5	132.6	70.5	75.73276	77.41935	81.39668	76.48447	78.56599	80.15	74.94	76.77	3.86	3.88	1.15	1.3	-0.00167	7.018219	13.32102	5.782689	1.207279	0.05182	0.081157	0.038329	0.136	0.137
137	452.9	72.9	89.7	130.3	71.2	75.64132	77.67595	81.57709	76.64825	78.64947	80.23	74.99	76.72	3.87	3.88	1.15	1.3	-0.00167	6.978534	13.36107	5.69003	1.182212	0.045553	0.071315	0.037656	0.136	0.137
138	450.7	73.4	89.8	128.3	71.3	75.94894	77.5619	81.51083	76.60992	78.8521	80.10	74.81	76.58	3.86	3.88	1.15	1.3	-0.00167	6.958783	13.3743	5.588836	1.223653	0.055913	0.075704	0.037796	0.136	0.137
139	449.4	72.9	89.4	127.4	70.9	75.66154	77.59578	81.33305	76.54961	78.52406	79.92	74.83	76.45	3.90	3.88	1.15	1.4	-0.00169	6.945555	13.40148	5.494956	1.204804	0.051201	0.089341	0.038497	0.138	0.137
140	446.8	72.8	89.5	126.4	70.5	75.65312	77.66768	81.59532	76.65085	78.8127	80.14	75.06	76.75	3.90	3.88	1.15	1.3	-0.00167	6.931747	13.40828	5.403516	1.213131	0.053283	0.083946	0.03807	0.138	0.137
141	445.2	73.0	89.2	125.1	70.6	75.76581	77.65319	81.52164	76.55413	78.67582	80.09	74.93	76.47	3.78	3.88	1.15	1.3	-0.00172	6.931686	13.41493	5.296226	1.223238	0.05581	0.074146	0.038357	0.133	0.137
142	444.3	73.2	89.1	124.4	70.4	75.69339	77.6544	81.40405	76.48294	78.75858	80.18	74.88	76.42	3.90	3.88	1.15	1.3	-0.00168	6.892336	13.45662	5.188936	1.19755	0.049387	0.077173	0.037448	0.138	0.137
143	444.3	73.0	89.2	124.3	71.3	75.77924	77.73355	81.25112	76.6945	78.52171	80.19	74.75	76.33	3.90	3.88	1.15	1.3	-0.00168	6.905412	13.44306	5.088962	1.193575	0.048394	0.073924	0.038235	0.138	0.137
144	439.0	72.8	88.8	123.8	70.6	75.75371	77.60762	81.52292	76.59235	78.73411	80.14	74.82	76.38	3.94	3.88	1.15	1.3	-0.00168	6.885753	13.46927	4.991425	1.183444	0.045861	0.085662	0.037927	0.139	0.137
145	436.1	72.8	88.7	123.2	70.2	75.75449	77.50801	81.17393	76.48271	78.57094	79.99	74.84	76.34	3.88	3.88	1.15	1.3	-0.00168	6.905382	13.4419	4.897546	1.187589	0.046897	0.07147	0.037588	0.137	0.137
146	434.8	72.9	88.7	122.8	70.6	75.96655	77.62637	81.29062	76.64326	78.76495	79.89	74.90	76.40	3.87	3.88	1.15	1.3	-0.00167	6.750878	13.61805	4.797572	1.23276	0.05819	0.076344	0.037512	0.137	0.137
147	431.2	73.1	88.3	122.5	71.2	75.94701	77.68045	81.35715	76.47487	78.63002	79.86	74.98	76.45	3.86	3.88	1.15	1.3	-0.00167	6.689583	13.66813	4.702474	1.17903	0.044758	0.076255	0.03661	0.136	0.137
148	429.8	72.8	88.3	121.9	70.6	75.83218	77.4853	81.01954	76.56504	78.72689	79.81	74.69	76.33	3.86	3.87	1.15	1.3	-0.00167	6.65639	13.68154	4.586649	1.207547	0.051887	0.070921	0.036622	0.136	0.137
149	424.4	73.6	88.3	122.2	71.3	76.03004	77.81033	81.31363	76.79294	78.58668	79.95	75.07	76.52	3.87	3.87	1.15	1.3	-0.00167	6.676171	13.65295	4.481797	1.22792	0.05698	0.082699	0.036394	0.137	0.137
150	422.7	73.0	88.1	121.9	71.0	75.8024	77.69648	81.26076	76.65871	78.65993	80.03	74.86	76.35	3.89	3.87	1.15	1.4	-0.00168	6.738442	13.57044	4.484236	1.206791	0.051698	0.089764	0.036269	0.137	0.137
151	420.7	73.3	87.9	121.9	71.3	75.94398	77.61049	81.28156	76.47242	78.75474	80.05	74.94	76.35	3.86	3.87	1.15	1.3	0.003694	6.744356	13.53615	4.387918	1.21179	0.052948	0.075646	0.036628	0.136	0.137
152	419.8	73.2	88.1	121.7	70.5	75.76674	77.70097	81.06062	76.46845	78.69724	79.77	75.09	76.21	3.86	3.87	1.15	1.4	0.011265	6.798549	13.44641	4.287944	1.177604	0.044401	0.089084	0.037009	0.136	0.137
153	419.6	72.7	88.0	121.3	70.5	75.98789	77.74811	81.17968	76.42681	78.76937	79.96	75.07	76.47	3.90	3.87	1.14	1.3	0.008693	6.851249	13.38119	4.196503	1.206474	0.051619	0.070836	0.036019	0.138	0.137
154	420.5	73.2	87.9	121.3	71.5	75.8189	77.63935	81.17143	76.30738	78.6901	79.96	74.89	76.49	3.86	3.87	1.14	1.3	0.003682	6.848354	13.38119	4.080679	1.199086	0.049771	0.07311	0.036241	0.136	0.137
155	419.9	73.2	87.8	121.4	71.3	75.6939	77.71514	81.19997	76.58674	78.75528	79.96	75.09	76.21	3.93	3.93	1.14	1.3	0.003682	6.840825	13.38798	3.983143	1.224323	0.056081	0.072531	0.035976	0.139	0.139
156	419.2	73.0	87.7	121.6	71.4	75.77493	77.68239	81.13469	76.72944	78.81767	79.90	74.92	76.35	3.93	3.93	1.15	1.3	0.000988	6.812174	13.38795	3.891702	1.209571	0.052393	0.078551	0.036302	0.139	0.139
157	417.4	73.0	87.8	121.5	70.2	75.68028	77.47395	81.06776	76.4083	78.60362	79.77	74.99	76.52	3.92	3.93	1.14	1.3	0.001	6.7307	13.47622	3.789289	1.211546	0.052887	0.084101	0.03576	0.139	0.139
158	415.4	73.2	87.5	121.5	70.5	75.85775	77.73174	81.27573	76.68916	78.69037	79.84	74.82	76.46	3.92	3.93	1.14	1.3	-0.00169	6.602258	13.584	3.785631	1.219898	0.054974	0.072744	0.035814	0.138	0.139
159	411.7	72.7	87.5	121.3	70.9	75.76093	77.8558	81.09449	76.39947	78.76211	79.69	74.98	76.19	3.91	3.93	1.14	1.3	-0.00169	6.421998	13.79035	3.690533	1.148099	0.037025	0.071705	0.03501	0.138	0.139
160	409.6	72.8	87.3	121.0	71.5	75.77484	77.7693	81.0158	76.55295	78.86874	79.69	74.86	76.41	3.94	3.93	1.14	1.3	-0.00168	6.117959	14.1235	3.591778	1.23376	0.05844	0.071982	0.035882	0.139	0.139
161	407.5	73.4	87.1	121.1	71.7	75.91426	77.62093	81.14668	76.42657	78.92307	79.85	75.17	76.39	3.90	3.93	1.14	1.3	-0.00168	5.99293	14.23926	3.591778	1.205365	0.051341	0.082699	0.035123	0.138	0.139
162	403.6	72.2	87.0	120.7	70.0	75.72491	77.67253	80.828	76.47842	78.72728	79.61	74.97	76.38	3.88	3.93	1.14	1.3	-0.00167	5.883446	14.36295	3.48083	1.211973	0.052993	0.074485	0.034873	0.137	0.139
163	402.9	72.7	86.9	120.1	70.5	75.64355	77.57109	80.93256	76.34821	78.65061	79.76	74.93	76.01	3.87	3.93	1.14	1.3	-0.00171	5.883446	14.34628	3.474734	1.195404	0.048851	0.078639	0.035031	0.137	0.139
164	400.8	73.1	86.9	119.8	70.7	75.58627	77.7079	80.73749	76.34137	78.78433	79.65	74.83	76.32	3.89	3.93	1.14	1.3	-0.00171	5.849461	14.38959	3.384513	1.189637	0.047409	0.082769	0.034391	0.137	0.139
165	399.3	72.8	86.6	119.7	70.4	75.68634	77.84144	80.86916	76.45509	78.74411	79.74	74.87	76.22	3.87	3.88	1.14	1.3	-0.00169	5.7764	14.47749	3.284546	1.199415	0.049854	0.071967	0.034373	0.137	0.137
166	400.1	71.9	86.5	116.4	70.5	75.83042	77.82489	81.00462	76.69553	79.0247	79.98	75.19	76.49	3.87	3.88	1.14	1.3	-0.00168	5.734795	14.52593	3.188229	0.991151	0	0.075652	0.035455	0.137	0.137
167	403.3	72.1	86.2	130.8	70.7	75.61033	77.83906	80.80081	76.46984	78.82579	79.73	75.10	76.28	3.89	3.88	1.14	1.3	-0.00169	5.668165	14.59003	3.188229	1.208888	0.052222	0.066694	0.035409	0.137	0.137
168	399.1	72.5	86.5	127.7	71.9	75.54349	77.46432	80.34554	75.97793	78.39412	79.39	74.70	76.02	3.88	3.88	1.14	1.3	-0.00172	5.594556	14.66284	3.189447	1.20912	0.05228	0.069099	0.034848	0.137	0.137
169	391.7	73.0	86.7	125.1	71.4	75.28109	77.71729	80.71375	76.23181	78.81532	79.37	74.71	76.06	3.88	3.88	1.14	1.3	-0.00171	5.514058	14.74986	3.098007	1.202402	0.050601	0.069873	0.033855	0.137	0.137
170	388.2	72.9	86.4	123.6	71.2	75.61392	77.60838	80.59976	76.37984	78.94997	79.53	75.05	76.17	3.89	3.88	1.13	1.3	0.014143	5.338554	14.91037	3.096788	1.215521	0.05388	0.072381	0.033626	0.137	0.137
171	385.3	73.1	86.5	121.9	70.8	75.53861	77.78741	80.78948	76.46399	78.71285	79.64	75.03	76.20	3.91	3.88	1.13	1.3	0.037649	5.173199	15.06993	3.090692	1.214521	0.05363	0.071199	0.033205	0.138	0.137
172	381.0	72.9	86.5	120.6	71.0	75.84312	77.64349	80.86535	76.60825	78.89057	79.69	75.01	76.25	3.95	3.88	1.13	1.3	0.050695	5.11416	15.11029	2.995594	1.19833	0.049583	0.07638	0.033385	0.139	0.137
173	379.3	73.0	86.5	119.7	71.0	75.68118	77.81621	80.73869	76.44034	78.88329	79.47	75.03	76.11	3.86	3.88	1.13	1.3	0.05334	5.092793	15.12361	2.995594	1.187796	0.046949	0.077819	0.033282	0.136	0.137

Raw Data

Reading Interval	1	Minutes																				7.59077		0.044686				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel						Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
174	374.8	73.1	86.3	118.8	71.1	75.75182	77.75298	80.61695	76.53845	79.05504	79.41	74.85	76.25	3.86	3.88	1.13	1.3	0.058693	5.065544	15.15174	2.884646	1.185967	0.046492	0.069062	0.033059	0.136	0.137
175	372.2	73.0	85.7	117.5	70.9	75.82026	77.70763	80.43365	76.65334	78.8018	79.43	74.83	76.04	3.86	3.88	1.13	1.4	0.061338	5.045244	15.17152	2.884646	1.175677	0.043919	0.088069	0.032532	0.136	0.137
176	375.2	71.8	85.5	115.0	70.9	75.52479	77.65311	80.3205	76.29035	78.77347	79.44	74.97	76.18	3.87	3.88	1.13	1.3	0.061338	5.019184	15.19755	2.782232	0.991078	0	0.072235	0.033151	0.137	0.137
177	376.1	71.5	85.3	127.7	70.9	75.74339	77.69769	80.43045	76.42142	78.90453	79.42	74.98	76.20	3.89	3.88	1.13	1.4	0.061326	5.03799	15.17149	2.783451	1.207303	0.051826	0.08952	0.033282	0.137	0.137
178	375.7	72.6	85.6	124.9	71.0	75.31184	77.6008	80.34811	76.36625	78.80251	79.28	74.81	76.18	3.92	3.88	1.13	1.3	0.058705	4.983613	15.23806	2.778575	1.18248	0.04562	0.069449	0.032367	0.138	0.137
179	372.2	72.5	85.7	122.3	70.4	75.35676	77.67249	80.33961	76.10919	78.77971	79.46	74.78	76.07	3.89	3.88	1.13	1.3	0.061351	4.990929	15.22416	2.682257	1.206706	0.051676	0.078127	0.032757	0.137	0.137
180	370.2	72.8	85.8	120.7	70.9	75.4875	77.5355	80.29693	76.50681	78.96315	79.51	74.97	76.05	3.87	3.88	1.13	1.3	0.058693	4.964441	15.25147	2.684696	1.213143	0.053286	0.069379	0.032358	0.137	0.137
181	367.2	73.0	85.7	119.2	71.1	75.54298	77.71815	80.39783	76.68239	79.08519	79.55	75.11	76.03	3.93	3.88	1.13	1.3	0.056315	4.990929	15.23075	2.587159	1.213399	0.05335	0.081516	0.031928	0.139	0.137
182	365.6	73.0	85.8	118.4	71.7	75.68528	77.914	80.47215	76.54866	79.07864	79.64	75.40	76.35	3.85	3.89	1.13	1.3	0.061363	4.964411	15.25855	2.588378	1.195794	0.048949	0.073787	0.032133	0.136	0.137
183	362.3	73.2	85.2	117.1	71.0	75.69806	77.83308	80.34616	76.59753	78.89993	79.23	74.93	76.06	3.82	3.88	1.13	1.3	0.063972	4.943471	15.27854	2.58594	1.201878	0.050469	0.078465	0.03177	0.135	0.137
184	363.0	71.8	84.9	115.2	71.1	75.52306	77.60454	80.3848	76.47231	79.26183	79.66	75.24	76.33	3.91	3.88	1.13	1.3	0.06691	4.930365	15.29844	2.483526	0.990919	0	0.073768	0.032428	0.138	0.137
185	366.9	71.4	84.7	125.5	70.7	75.40992	77.79928	80.07526	76.26691	78.68979	79.11	74.83	76.07	3.91	3.89	1.13	1.3	0.066825	4.924025	15.30533	2.390867	1.194636	0.048659	0.080766	0.032867	0.138	0.137
186	365.6	71.6	84.8	123.4	70.8	75.05414	77.47025	79.99503	76.27152	78.72786	79.36	75.01	76.08	3.93	3.89	1.13	1.3	0.069422	4.869344	15.38129	2.388428	1.208169	0.052042	0.080922	0.03241	0.139	0.137
187	361.1	72.7	85.1	121.1	71.6	75.26843	77.80503	80.3845	76.25748	79.09533	79.44	75.13	76.34	3.94	3.89	1.13	1.3	0.07503	4.875988	15.37589	2.393305	1.204487	0.051122	0.078282	0.031916	0.139	0.137
188	358.3	72.3	85.1	118.8	70.7	75.03835	77.66196	80.09165	76.08099	78.7649	79.19	74.97	76.11	3.94	3.89	1.12	1.3	0.075006	4.889856	15.37589	2.389647	1.188076	0.047019	0.071278	0.030932	0.139	0.137
189	357.0	72.4	84.6	119.4	70.7	74.99882	77.51533	80.15166	75.97526	78.75956	79.23	74.99	76.16	3.94	3.89	1.13	1.3	0.078139	4.911985	15.35355	2.273823	0.990761	0	0.078855	0.031517	0.139	0.137
190	359.5	71.6	84.3	114.9	70.4	74.82714	77.63815	79.94279	76.11639	78.76013	79.27	74.91	76.14	3.95	3.89	1.13	1.3	0.080395	4.917685	15.35352	2.173847	0.990883	0	0.081154	0.032392	0.139	0.137
191	361.7	71.3	84.2	126.7	70.4	75.02547	77.62901	80.09875	76.21098	78.74764	79.33	75.01	76.10	3.88	3.89	1.13	1.3	0.080395	4.904152	15.36803	2.178724	1.196721	0.04918	0.079474	0.032004	0.137	0.137
192	358.0	71.7	84.3	122.7	70.8	75.09624	77.68639	79.85837	76.17022	78.84743	79.25	75.10	76.30	3.89	3.89	1.13	1.3	0.080419	4.875957	15.40634	2.179944	1.200793	0.050198	0.067175	0.031499	0.137	0.137
193	357.1	72.2	84.5	120.4	70.7	75.13718	77.78755	80.01091	76.23165	78.85532	79.03	75.15	76.10	3.85	3.89	1.13	1.3	0.080419	4.862577	15.42683	2.177505	1.187918	0.04698	0.079364	0.031435	0.136	0.137
194	355.4	71.9	84.2	118.9	70.5	75.1907	77.55328	79.84591	76.20559	78.74894	78.94	74.97	76.06	3.89	3.89	1.12	1.3	0.08293	4.883334	15.40034	2.084845	1.21257	0.053143	0.067169	0.031191	0.137	0.137
195	354.1	72.2	84.2	117.4	71.7	75.22075	77.67702	79.92173	76.47035	78.79284	78.91	74.92	76.14	3.86	3.89	1.13	1.3	0.085369	4.883303	15.40622	2.081188	1.213972	0.053493	0.072583	0.031325	0.136	0.137
196	350.9	72.2	84.3	117.8	71.05635	75.39865	77.52029	79.70779	76.42464	78.72035	79.02	75.00	76.11	3.86	3.89	1.13	1.3	0.088124	4.889796	15.40625	1.982432	0.991102	0	0.070793	0.03162	0.136	0.137
197	354.0	71.7	84.1	112.9	71.32623	75.59536	77.65676	80.01393	76.61675	78.70498	78.99	74.95	76.20	3.85	3.89	1.13	1.4	0.088124	4.862577	15.44539	1.983651	0.990968	0	0.089401	0.031681	0.136	0.137
198	356.1	72.1	84.1	125.5	70.86701	75.55014	77.645	79.75157	76.41191	78.64069	78.98	74.94	76.01	3.96	3.89	1.13	1.3	0.082918	4.848983	15.47233	1.979993	1.205536	0.051384	0.068602	0.03166	0.140	0.137
199	355.5	72.4	84.9	121.9	71.04421	75.26796	77.72424	79.75711	76.2775	78.99488	79.21	74.97	76.12	3.92	3.89	1.13	1.3	0.085369	4.89708	15.41948	1.889772	1.217691	0.054423	0.077213	0.031319	0.138	0.137
200	353.5	72.5	84.9	119.5	70.64581	75.20129	77.57056	79.78376	76.39433	78.79044	79.00	75.09	76.20	3.91	3.89	1.12	1.3	0.090575	4.943471	15.38135	1.883676	1.221629	0.055407	0.072845	0.031178	0.138	0.137
201	350.7	73.0	84.9	118.1	71.19492	75.6252	77.73345	79.82558	76.4823	78.7981	79.10	75.08	76.03	3.91	3.89	1.12	1.3	0.093245	4.937345	15.39357	1.886114	1.188333	0.047083	0.078459	0.030758	0.138	0.137
202	349.5	72.5	84.5	116.9	70.85658	75.58259	77.7243	79.73737	76.43434	78.93754	79.10	74.96	76.07	3.91	3.89	1.12	1.3	0.093233	4.917655	15.42683	1.786139	1.20973	0.052432	0.074987	0.03084	0.138	0.137
203	348.6	72.1	84.3	116.1	70.71585	75.60675	77.72169	79.76778	76.58315	78.75839	78.92	74.91	76.05	3.91	3.89	1.12	1.3	0.090563	4.889826	15.45252	1.671534	0.990846	0	0.076371	0.031038	0.138	0.137
204	351.9	71.5	84.1	111.7	71.28062	76.16916	77.66165	79.75478	76.55578	79.0322	78.94	75.10	75.96	3.95	3.89	1.13	1.3	0.093245	4.883303	15.45871	1.67763	0.990883	0	0.081663	0.031602	0.139	0.137
205	351.3	72.5	84.0	123.5	71.09991	75.75393	77.60116	79.74793	76.55995	79.05646	78.97	75.04	75.98	3.90	3.89	1.12	1.3	0.093257	4.862577	15.48574	1.676411	1.201415	0.050354	0.071129	0.030944	0.138	0.137
206	349.9	72.7	84.4	120.7	70.99368	75.60492	77.65293	79.58781	76.52579	78.85496	78.75	74.95	75.94	3.88	3.89	1.12	1.3	0.101158	4.856511	15.49827	1.675192	1.186272	0.046568	0.074832	0.030682	0.137	0.137
207	348.4	72.8	84.5	118.5	71.35867	75.78462	77.672	79.60001	76.5868	78.98961	78.88	74.95	76.04	3.94	3.89	1.12	1.3	0.103791	4.815638	15.53835	1.581313	1.190076	0.047519	0.073241	0.030039	0.139	0.137
208	345.9	72.8	84.5	116.9	71.02016	75.46777	77.47562	79.62415	76.30466	78.8547	78.77	75.17	76.20	3.87	3.89	1.12	1.3	0.101145	4.815668	15.54497	1.578874	1.193209	0.048302	0.085527	0.030106	0.137	0.137
209	344.6	72.1	84.2	117.1	70.55052	75.60747	77.70233	79.55073	76.33706	78.85364	78.69	74.88	76.02	3.84	3.89	1.12	1.3	0.101145	4.815699	15.54497	1.481337	0.990919	0	0.069446	0.030578	0.136	0.137
210	346.9	71.7	83.8	112.1	71.31607	75.60277	77.59054	79.4339	76.41418	78.7032	78.89	75.04	75.87	3.84	3.89	1.12	1.3	0.106376	4.809176	15.55884	1.478899	0.990992	0	0.082101	0.030935	0.136	0.137
211	348.4	72.2	83.8	124.4	70.69879	75.47514	77.69717	79.39384	76.39903	78.97585	78.86	74.77	75.91	3.82	3.89	1.12	1.3	0.117373	4.775587	15.59276	1.476461	1.190649	0.047662	0.084323	0.030487	0.135	0.137
212	345.3	72.2	84.2	121.1	71.10734	75.36293	77.59834	79.48779	76.36635	78.63529	78.77	74.91	75.78	3.82	3.89	1.12	1.3	0.117336	4.761962	15.61202	1.382582	1.224701	0.056175	0.086283	0.030386	0.135	0.137
213	344.4	72.6	84.1	118.8	71.1293	75.36554	77.68797	79.58275	76.28883	78.73848	78.78	74.90	75.93	3.82	3.89	1.12	1.3	0.120287	4.755348	15.61803	1.383801	1.202768	0.050692	0.083635	0.03045	0.135	0.137
214	340.9	73.0	84.5	117.4	71.81566	75.88779	78.18345	80.16369	77.02325	79.44868	79.21	75.27	76.15	3.89	3.89	1.12	1.3	0.122664	4.761992	15.61208	1.381362	1.166948	0.041737	0.079172	0.029965	0.137	0.137
215	339.1	72.5	84.0	118.0	71.31425	75.37521	77.58385	79.53948	76.4772	79.04063	78.91	75.05	76.05	3.87	3.89	1.12	1.3	0.122664	4.722734	15.6447	1.288703	0.991041	0	0.079718	0.030023	0.137	0.137
216	342.9	72.0	83.7	112.5	71.45255	75.44448	77.73344	79.41642	76.53275	78.79499	78.57	74.77	75.88	3.87	3.89	1.12	1.3	0.130626	4.697772	15.67115	1.189947	0.990931	0	0.077121	0.030596	0.137	0.137
217	343.2	72.3	83.8	124.4	71.18039	75.69706	77.67145	79.26949	76.2213	78.87844	78.76	74.96	75.83	3.89	3.89	1.12	1.3	0.133089	4.675551	15.7049	1.187508	1.196855	0.049214	0.072683	0.030413	0.137	0.137
218	341.2	72.7	84.1	120.9	71.41709	75.42232	77.44355	79.32197	76.27197	78.77517	78.65	74.81	75.78	3.88	3.89	1.12	1.3	0.133076	4.634464	15.7519	1.188728	1.204194	0.051049	0.083138	0.029789	0.137	0.137
219	339.2	72.4	84.0	118.6	70.83026	75.463	77.51769	79.44127	76.34795	78.72398	78.60	74.96	75.98	3.88	3.89	1.12	1.3	0.141501	4.654947	15.73144	1.191166	1.184968	0.046242	0.080446	0.029697	0.137	0.137
220	337.2	72.7	83.8	116.9	70.92879	75.4962	77.44382	79.27603	76.33978	78.67564	78.74	74.91	75.75	3.90	3.89	1.12	1.3	0.154791	4.675551	15.69853	1.081437	1.191734	0.047934	0.079434	0.029316	0.138	0.137
221	334.4	72.5	83.8	115.4	70.4892	75.48444	77.51907	79.33704	76.42372	78.73283	78.69	74.82	75.92	3.87	3.89	1.12	1.3	0.165812	4.654947	15.71127	1.080218	1.016669	0.004167	0.081187	0.029411	0.137	0.137
222	335.5	72.0	83.7	112.7	70.99316	75.49904	77.7947	79.41082	76.58916	79.11913	78.68	75.10	75.99	3.86	3.89	1.12	1.3	0.170823	4.654886	15.70496	0.986339	0.990931	0	0.078106	0.030148	0.136	0.137
223	338.5	71.4	83.5	124.4	71.10722	75.64005	77.62782	79.32548	76.31272	78.94308	78.60	74.97	75.76	3.92	3.89	1.12	1.3	0.173554	4.654916	15.71133	0.983901	1.173812	0.043453	0.072531	0.030383	0.138	0.137
224	337.8	72.4	83.4	121.1	71.31386	75.52251	77.6843	79.32837	76.212	78.86244	78.53	74.73	75.86	3.78	3.89	1.12	1.3	0.17865	4.620718	15.7586	0.982681	1.177079	0.04427	0.085942	0.029786	0.133	0.137
225	334.3	72.5	83.6	118.7	70.91313	75.45663	77.70544	79.30301	76.3587	78.83512	78.53	74.93	75.98	3.95	3.89	1.12	1.3	0.181296	4.566981	15.82602	0.98512	1.193283	0.048321	0.068136	0.029411	0.139	0.137
226	332.6	72.5	83.5	116.6	71.29191	75.65073	77.80583	79.25682	76.50934	78.91213	78.43	74.94	75.94	3.90	3.89	1.12	1.3	0.186551	4.534307	15.84529	0.982681	1.153366	0.038341	0.075621	0.029374	0.138	0.137
227	331.2	71.9	83.7	115.9	71.38017	75.51611	77.77831	79.1303	76.27814	78.7211	78.49	75.01	75.74	3.92	3.89	1.12	1.3	0.197109	4.546834	15.81917	0.882706	0.990956	0	0.076255	0.029609	0.138	0.137
228	333.3	72.2	83.2	111.3	71.84567	75.56992	77.63802	79.18374	76.41885	78.81495	78.45	74.97	75.54	3.90	3.89	1.12	1.3	0.199889	4.5269	15.84526	0.787608	0.990931	0	0.075073	0.029981	0.138	0.137
229	335.1	72.4	83.5	123.0	71.51527	75.54263	77.83159	79.24922	76.47302	78.91598	78.57	75.01	75.77	3.90	3.89	1.12	1.3	0.199889	4.513458	15.86489	0.788827	1.21151	0.052877	0.0834	0.029651	0.138	0.137
230	332.0	72.6	83.7	119.6	71.0606	75.48458	77.78024	78.98499	76.29195	78.98256	78.58	74.93	75.77	3.87	3.89	1.12	1.3	0.199877	4.494226	15.89171	0.791266	1.186589	0.046647	0.074661	0.029145	0.137	0.137
231	329.5	72.7	83.5	117.2	70.96542	75.48389	77.5386	78.91068	76.29465	78.82461	78.54	74.90	75.80	3.88	3.89	1.12	1.3	0.205546	4.453778	15.93161	0.790047	1.195916	0.048979	0.08198	0.028899	0.137	0.137
232	327.1	72.6	83.7	115.9	71.0091	75.90252	77.76313	78.96119	76.47492	78.87103	78.48	74.70	75.52	3.86	3.89	1.12	1.3	0.202608	4.487824	15.88869	0.792485	1.183712	0.045928	0.07175	0.029112	0.136	0.137
233	326.9	72.4	83.4	114.1	71.37762	75.63872	77.75366	79.0789	76.16225	78.66544	78.34	74.97	75.64	3.88	3.89	1.12	1.3	0.199877	4.520225	15.8526	0.690072	0.990895	0	0.078715	0.029182	0.137	0.137
234	329.5	71.8	83.0	110.5	71.59718	75.5856	77.53322	78.88522	76.12764	78.61076	78.46	74.79	75.82	3.90	3.89	1.12	1.3	0.197109	4.507332	15.87848	0.590097	0.990907	0	0.079465	0.029353	0.138	0.137
235	330.7	72.6	83.3	121.9	70.91006	75.4727	77.69473	78.90618	76.33545	78.67132	78.30	74.78	75.69	3.90	3.89	1.12	1.3	0.202632	4.474505	15.91411	0.587658	1.199732	0.049933	0.076005	0.029435	0.138	0.137
236	328.8	72.7	83.3	118.9	71.07342	75.4137	77.77629	78.95427	76.40752	78.79025	78.47	74.98	75.80	3.90	3.89	1.12	1.3	0.210472	4.500443	15.87126	0.593754	1.172568	0.043142	0.064853	0.02885	0.138	0.137
237	325.5	73.0	83.7	117.0	71.41187	75.69073	77.64503	79.15098	76.50735	78.90347	78.54	74.95	76.02	3.89	3.89	1.12	1.3	0.207863	4.482216	15.89174	0.587658	1.186565	0.046641	0.078078	0.028944	0.137	0.137
238	324.0	72.9	83.6	115.0	71.1628	75.79242	77.7802	79.0385	76.48092	78.77663	78.24	74.83	75.59	3.89	3.89	1.11	1.3	0.202632	4.433174	15.94453	0.480368	1.042577	0.010644	0.072744	0.028566	0.137	0.137
239	324.8	71.8	83.2	112.4	70.89162	75.60267	77.48335	79.00269	76.53857	78.73389	78.41	74.62	75.50	3.89	3.89	1.12	1.3	0.221006	4.439879	15.93155	0.477929	0.991005	0	0.073723	0.029511	0.137	0.137
240	329.1	71.5	83.1	123.1	71.09014	75.45728	77.72617	79.05139	76.36838	78.89165	78.24	74.88	75.63	3.89	3.89	1.12	1.4	0.218275	4.474383	15.90616	0.375516	1.197208	0.049302	0.090874	0.029484	0.137	0.137
241	329.8	72.7	83.2	121.0	71.35258	75.71194	77.78004	79.06511	76.23849	78.94248	78.48	74.91	75.86	3.89	3.89	1.12	1.3	0.21046	4.526961	15.83953	0.377954	1.167716	0.041929	0.0788	0.028999	0.137	0.137
242	329.3	72.6	83.5	117.9	70.86938	75.57403	77.5618	78.84017	76.51506	78.84424	78.38	74.71	75.56	3.87	3.89	1.12	1.4	0.207863	4.553265	15.82599	0.374297	1.223433	0.055858	0.088231	0.028889	0.137	0.137
243	326.9	72.9	83.3	116.0	71.10664	75.62453	77.80641	78.8773	76.33038	78.78004	78.44	74.92	75.77	3.88	3.89	1.11	1.3	0.194549	4.526961	15.86489	0.374297	1.21585	0.053962	0.080014	0.02838	0.137	0.137
244	325.8	72.1	83.3	115.4	71.80912	75.59315	77.67464	79.08688	76.43259	78.85548	78.15	74.87	75.84	3.87	3.89	1.12	1.3	0.210411	4.634525	15.71837	0.284075	0.991163	0	0.076524	0.029243	0.137	0.137
245	326.9	72.0	82.8	111.1	71.75955	75.7336	77.88871	78.85251	76.39686	78.91344	78.28	74.90	75.55	3.89	3.89	1.12	1.3	0.221006	4.642023	15.70496	0.282856	0.990895	0	0.078578	0.029459	0.137	0.137
246	327.9	72.5	83.0	122.7	71.10618	75.39722	77.59248	78.88425	76.31395	78.93762	78.28	74.99	75.90	3.90	3.89	1.12	1.3	0.229065	4.588653	15.75857	0.1841	1.191771	0.047943	0.07314	0.02924	0.138	0.137
247	326.1	72.6	83.4	119.5	71.37221	75.61402	77.85613	78.96049	76.47926	78.81513	78.38	74.93	75.65	3.86	3.89	1.11	1.3	0.245512	4.546865	15.81301	0.1841	1.200512	0.050128	0.079096	0.028713	0.136	0.137
248	323.9	73.1	83.3	117.2	71.40453	75.60279	77.63072	79.06304	76.3083	78.91188	78.30	74.88	75.62	3.94	3.89	1.11	1.3	0.258679	4.487855	15.87129	0.180443	1.174885	0.043721	0.074872	0.028612	0.139	0.137
249	321.2	72.7	83.3	116.3	71.18894	75.57533	77.84421	78.98203	76.4146	78.87764	78.36	74.76	75.72	3.93	3.88	1.11	1.3	0.253437	4.446494	15.91826	0.180443	1.000758	0.00019	0.073604	0.028432	0.139	0.137
250	323.5	72.3	83.2	113.1	71.73108	76.42533	77.71034	78.93518	76.5295	79.15317	78.28	74.98	75.73	4.03	3.89	1.12	1.3	0.253449	4.453778	15.89869	0.085345	0.991005	0	0.078462	0.029356	0.142	0.137
251	325.5	72.2	82.8	122.2	71.68235	75.73441	77.72219	78.79977	76.37556	78.85867	78.30	74.82	75.65	3.95	3.88	1.12	1.3	0.253424	4.439879	15.91826	0.087783	1.190637	0.047659	0.086241	0.029334	0.139	0.137
252	325.9	72.6	83.3	121.4	71.08317	75.51485	77.69672	79.08219	76.18204	78.93288	78.45	75.02	75.67	3.92	3.89	1.11	1.3	0.248609	4.42723	15.93776	0.086564	1.179615	0.044904	0.068645	0.028496	0.138	0.137
253	323.0	72.4	83.3	118.2	71.1321	75.57787	77.81329	79.03143	76.40155	78.83112	78.33	75.02	75.50	3.92	3.88	1.11	1.3	0.234368	4.413027	15.95892	-0.01341	1.200573	0.050143	0.082662	0.028493	0.138	0.137

Summary

EPA Method 28 OWHH Testing Parameters

Manufacturer	HY-C
Model Number	SF1000E
Test Technician	Ken Slater

Category	Cat 3
Run Number	2
Test Date	10/2/18
Total Test Fuel Weight (lb)	36.68
Avg. Test Fuel Moisture (% dry)	22.23

Test Duration (min)	253	
Burn Rate (kg/hr)		
Emissions (g)	4.70	Train 2
Beginning Dry Gas Meter Reading (ft3)	0	0
Final Dry Gas Meter Reading (ft3)	34.65743	34.656033
Average Barometric Pressure (“Hg)	29.16	
Average Delta p (inches of water)	0.077	

Average Gas Velocity in Tunnel (feet/sec)	17			
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	805.338			
	kJ	**Btu**		
Total Input	268939	255075		
Total Output	126,084	119585	**kW**	
Output Rate (kJ/hr, BTU/hr, kW)	29,901	28360	8.31	
Emissions g/MJ	**0.037303**		0.4	B415.1-2010 Limit
Emissions lb/MMBtu Input	**0.040651**			
Emissions lb/MMBtu Output	**0.086708**		0.93	EPA 2015 Proposed Limit
Emissions g/hr	**1.115395**			
Efficiency	**46.9%**			

Raw Data

Reading Interval	1	Minutes																			2.99921		0.048494					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
0	623.2	78.0	127.0	159.5	75.7	80.1158	78.12814	77.1242	79.51824	80.21778	77.88	76.38	76.75	0.02	0.02	1.1907	1.3115	0.027237	12.06963	8.440562	33.64114	1.209208	0.052302	0.077867	0.047682	0.001	0.001
1	787.8	77.4	135.7	159.7	76.6	79.84162	78.52609	80.50156	79.12653	79.56251	79.05	76.22	81.41	3.89	3.87	1.2257	1.2726	0.06975	6.832016	14.20879	33.13152	1.182739	0.045685	0.068162	0.05642	0.137	0.137
2	865.6	78.2	144.8	163.9	76.3	79.68248	79.02731	83.81364	79.35204	80.19017	80.21	76.84	84.45	3.94	3.90	1.2245	1.2937	0.125577	6.210929	14.67945	32.44511	1.236555	0.059139	0.073429	0.056137	0.139	0.138
3	898.9	78.1	150.9	168.4	76.5	79.54118	79.0848	85.57294	79.12674	80.17648	80.96	76.93	86.43	3.76	3.87	1.23	1.2637	0.075334	10.75854	9.732994	31.83918	1.194553	0.048638	0.065915	0.056332	0.133	0.137
4	692.4	78.6	124.9	169.8	76.0	79.37966	79.48524	86.12416	79.00916	80.25853	81.19	76.72	86.37	3.91	3.90	1.20	1.2694	0.12298	11.61975	8.936316	31.332	1.208867	0.052217	0.067351	0.050611	0.138	0.138
5	656.2	78.1	117.5	170.0	77.4	79.60708	79.65987	85.34187	79.35092	80.57182	81.48	77.05	85.20	3.94	3.89	1.20	1.3051	1.986079	12.13008	7.733677	30.93576	1.204124	0.051031	0.076276	0.050358	0.139	0.137
6	642.0	77.1	114.0	169.0	76.5	79.60211	79.60211	84.84856	78.99833	80.42603	81.50	77.14	84.70	4.06	3.86	1.20	1.2843	3.065103	13.52709	5.965245	30.43345	1.198577	0.049644	0.07107	0.049355	0.143	0.136
7	636.3	78.4	112.3	168.6	76.3	79.52824	79.66022	84.62951	79.09427	80.54044	81.56	77.13	84.35	3.95	3.92	1.20	1.2968	2.616854	14.10303	5.633748	30.04819	1.238042	0.059511	0.074194	0.048855	0.139	0.138
8	631.9	78.5	111.5	168.5	75.7	79.34335	79.67332	84.49742	79.32218	80.66846	81.74	77.30	84.67	3.93	3.90	1.19	1.3036	1.987177	14.56712	5.49351	29.63976	1.216572	0.054143	0.075901	0.048166	0.139	0.138
9	631.7	78.7	110.8	167.9	75.7	79.706	80.16795	84.74127	79.2578	80.73608	81.79	77.18	84.72	3.95	3.97	1.20	1.2868	1.728098	14.67218	5.536242	29.22767	1.216682	0.05417	0.07171	0.049404	0.139	0.140
10	631.3	78.7	110.2	167.8	75.7	79.43815	79.88691	84.59882	79.23782	80.87449	82.00	77.28	84.76	3.97	3.96	1.20	1.2945	1.610653	14.75146	5.528349	28.73024	1.215731	0.053933	0.073615	0.048883	0.140	0.140
11	630.4	78.3	110.0	167.5	75.9	79.42554	79.94688	84.6126	79.074	80.55344	82.27	77.28	84.86	3.96	3.94	1.19	1.2827	1.474262	14.75149	5.587601	28.33888	1.237725	0.059431	0.070676	0.048416	0.140	0.139
12	630.6	78.8	109.8	167.1	75.9	79.33774	79.93828	85.01315	79.30836	80.83283	82.42	77.49	85.01	3.97	3.93	1.20	1.3236	1.322545	14.82513	5.593362	27.94264	1.202515	0.050629	0.080905	0.049014	0.140	0.139
13	629.9	78.7	109.7	167.0	76.2	79.39337	79.79594	84.93681	79.13499	80.66637	82.44	77.16	84.94	3.97	3.92	1.19	1.2714	1.241859	14.90557	5.554043	27.533	1.234226	0.058556	0.067842	0.047822	0.140	0.138
14	629.3	77.5	109.2	167.2	77.9	79.33344	80.01318	85.38502	79.48753	80.82062	82.65	77.37	85.31	3.97	3.91	1.19	1.3086	1.178046	14.88585	5.613479	27.13798	1.181801	0.04545	0.077153	0.047913	0.140	0.138
15	630.1	78.2	109.6	167.1	75.4	79.56289	80.09744	85.40329	79.41082	80.6845	82.74	77.54	85.28	3.97	3.90	1.19	1.2886	1.186386	14.85171	5.653315	26.73564	1.198601	0.04965	0.072158	0.047676	0.140	0.138
16	629.1	79.0	109.4	167.0	76.2	79.62923	80.15059	85.36404	79.32765	80.83892	82.85	77.54	85.40	3.98	3.99	1.19	1.2926	1.146018	14.8992	5.606316	26.32599	1.211537	0.052884	0.073148	0.047938	0.140	0.141
17	628.1	78.4	109.2	167.3	77.3	79.72251	80.19767	85.80049	79.55138	80.91746	83.27	77.80	85.79	3.98	3.98	1.19	1.3046	1.052311	14.83912	5.686508	25.94073	1.21973	0.054932	0.076148	0.048109	0.141	0.140
18	627.6	78.4	109.0	166.9	75.3	79.46688	80.28521	85.82864	79.4594	80.83868	83.44	77.47	85.85	3.98	3.97	1.20	1.2796	0.889585	14.81218	5.761092	25.53108	1.224655	0.056164	0.069893	0.048782	0.140	0.140
19	627.3	78.4	109.0	166.9	77.5	79.65292	80.16107	85.8101	79.36447	80.69095	83.58	77.70	85.92	3.98	4.05	1.19	1.2994	0.774371	14.81221	5.780294	25.22629	1.209452	0.052363	0.074852	0.048593	0.141	0.143
20	624.7	78.6	108.9	167.1	77.0	79.60529	80.12663	86.01322	79.65919	80.86688	83.76	77.79	85.98	4.00	4.04	1.19	1.2532	0.692124	14.71787	5.901542	24.8398	1.208525	0.052131	0.063294	0.047487	0.141	0.143
21	624.5	78.0	109.0	166.5	75.8	79.64919	80.09135	86.08353	79.59874	80.87902	83.91	77.74	86.05	4.01	4.04	1.19	1.2886	0.662644	14.61872	5.989719	24.43625	1.224131	0.056033	0.072143	0.047587	0.141	0.143
22	624.9	78.4	108.7	166.8	77.5	79.57592	80.18966	86.08945	79.6311	81.00377	83.99	77.80	86.20	4.01	4.03	1.19	1.2893	0.599648	14.50439	6.075368	24.02782	1.185336	0.046334	0.072322	0.04731	0.142	0.142
23	624.2	78.3	108.5	166.5	76.1	79.79395	80.15692	86.20849	79.72286	80.79195	84.14	77.96	86.45	3.89	3.88	1.19	1.2573	0.502284	14.43712	6.134834	23.74253	1.210123	0.052531	0.064315	0.047319	0.137	0.137
24	625.0	78.3	108.3	166.5	76.5	79.46941	80.04355	86.14132	79.6852	80.90608	83.86	77.64	86.39	3.90	3.90	1.19	1.3069	0.476583	14.39677	6.155255	23.33532	1.225716	0.056429	0.076733	0.047703	0.138	0.138
25	626.3	78.4	108.2	166.0	75.6	79.56042	79.9894	86.33134	79.79148	80.82758	84.08	77.72	86.25	3.90	3.89	1.19	1.2636	0.447968	14.36427	6.182809	23.04028	1.214548	0.053637	0.065897	0.048575	0.138	0.137
26	625.5	78.0	108.3	166.6	76.7	79.57394	80.20749	86.53624	79.81527	80.81177	84.24	77.65	86.38	3.92	3.89	1.19	1.2923	0.424389	14.38988	6.141418	22.6355	1.236335	0.059084	0.073087	0.048383	0.138	0.137
27	623.6	77.9	108.1	166.4	77.3	79.56297	80.11732	86.49227	79.66422	80.92471	84.37	77.81	86.56	3.92	3.88	1.19	1.3171	0.405419	14.36424	6.189088	22.22585	1.207672	0.051918	0.079281	0.047389	0.138	0.137
28	622.5	78.2	108.2	166.0	75.5	79.82298	80.34433	86.74567	79.81174	80.91383	84.42	77.74	86.71	3.87	3.88	1.19	1.3266	0.33968	14.25635	6.329081	21.93935	1.226009	0.056502	0.081646	0.047389	0.136	0.137
29	620.0	78.3	108.1	165.8	75.4	79.4948	80.18774	86.66827	79.80481	80.9333	84.31	77.79	86.53	3.87	3.87	1.19	1.2947	0.52045	14.17628	6.28327	21.5297	1.189482	0.04737	0.073679	0.047353	0.136	0.137
30	617.5	79.0	107.9	165.3	77.2	79.76377	80.13335	86.59408	79.60143	80.76951	84.41	77.68	86.62	3.87	3.87	1.19	1.3175	0.461928	14.06865	6.44978	21.231	1.201893	0.050473	0.079385	0.047426	0.136	0.136
31	612.4	78.0	107.5	164.9	75.9	79.6926	80.29974	86.78687	79.80612	80.80262	84.60	77.69	86.61	3.88	3.90	1.19	1.2896	0.357809	13.96868	6.644302	20.92742	1.207453	0.051863	0.072411	0.047435	0.137	0.138
32	610.5	78.4	107.4	164.7	76.5	79.91212	80.30148	86.93381	79.87193	81.04001	84.69	78.09	86.83	3.88	3.89	1.19	1.2809	0.30425	13.88196	6.773231	20.63115	1.209574	0.052393	0.070234	0.046956	0.137	0.137
33	609.0	77.7	107.2	164.0	77.0	79.6894	80.01277	86.90247	79.86838	80.90447	84.87	78.02	87.06	3.89	3.92	1.19	1.3062	0.264187	13.69	6.999269	20.22882	1.203673	0.050918	0.076562	0.046719	0.137	0.138
34	608.3	78.4	107.5	164.0	77.5	79.77216	80.18792	86.96542	79.77052	80.9188	84.77	78.07	86.98	3.90	3.91	1.19	1.2833	0.218553	13.55391	7.158861	19.9228	1.188592	0.047148	0.070832	0.046383	0.138	0.138
35	606.7	78.0	107.3	163.7	76.8	79.8611	80.30326	87.10716	79.86577	80.97445	85.13	78.14	86.96	3.89	3.91	1.19	1.2313	0.178978	13.55994	7.152582	19.63507	1.202466	0.050617	0.057835	0.046496	0.137	0.138
36	605.4	78.5	106.9	162.9	75.0	79.61819	80.18574	86.85107	79.75044	80.83273	84.96	77.81	87.00	3.90	3.91	1.19	1.3047	0.160751	13.371	7.372736	19.32296	1.22218	0.055545	0.076181	0.046661	0.138	0.138
37	605.1	78.3	106.9	162.7	76.1	79.6749	80.18305	86.96056	79.90508	81.05995	84.76	77.91	86.89	3.90	3.90	1.19	1.3311	0.141731	13.37804	7.365574	19.02914	1.220083	0.055021	0.082777	0.047322	0.138	0.138
38	604.8	78.4	106.9	162.7	76.9	79.79644	80.17261	87.1085	80.00926	80.93316	85.06	78.06	87.19	3.91	3.95	1.19	1.2892	0.128064	13.3446	7.406142	18.61949	1.184641	0.04616	0.072298	0.046725	0.138	0.139
39	603.4	78.4	106.9	162.4	76.6	79.92784	80.3238	87.09471	79.98273	80.94623	85.10	77.87	87.14	3.91	3.95	1.19	1.3064	0.130856	13.35747	7.384989	18.32932	1.204014	0.051004	0.076605	0.047581	0.138	0.139
40	603.0	77.9	106.9	162.3	76.7	79.76292	80.16548	87.08158	80.05838	80.94269	85.28	78.14	87.23	3.91	3.92	1.18	1.2963	0.106594	13.35741	7.398614	18.02574	1.203112	0.050778	0.074069	0.045381	0.138	0.138
41	600.7	78.7	106.6	161.9	75.9	79.78456	80.31911	87.321	80.11325	81.20213	85.50	78.13	87.44	3.92	3.92	1.18	1.2722	0.088392	13.29858	7.466797	17.73435	1.204112	0.051028	0.068055	0.045454	0.138	0.138
42	599.5	78.5	106.7	161.9	75.8	79.88322	80.1274	87.0567	79.95892	80.94221	85.34	78.04	87.21	3.92	3.91	1.19	1.2831	0.067092	13.29858	7.466827	17.43078	1.212976	0.053244	0.070786	0.046374	0.138	0.138
43	601.1	78.7	106.3	161.8	75.1	79.80564	80.36659	87.38828	80.13969	81.06359	85.45	78.09	87.35	3.92	3.91	1.18	1.2723	0.053596	13.25045	7.50572	17.13329	1.224546	0.056136	0.068083	0.046231	0.138	0.138
44	601.5	78.5	106.4	161.6	76.2	79.94762	80.28419	87.23329	80.14664	81.14973	85.40	78.09	87.29	3.92	3.91	1.18	1.2914	0.056534	13.34442	7.38502	16.82118	1.229459	0.057365	0.072853	0.04578	0.138	0.138
45	603.1	78.2	106.4	161.7	75.6	79.92226	80.12024	87.39271	80.22604	81.20274	85.50	78.27	87.31	3.93	3.91	1.18	1.2755	0.061594	13.31778	7.391878	16.52858	1.194419	0.048605	0.068875	0.046155	0.139	0.138
46	600.4	79.1	106.4	161.7	76.0	79.958	80.26817	87.41525	80.42552	81.17123	85.49	78.13	87.37	3.93	3.90	1.18	1.2862	0.072481	13.28669	7.412147	16.22012	1.203161	0.05079	0.071539	0.045777	0.139	0.138
47	599.2	79.0	106.3	162.0	77.7	80.20148	80.33347	87.52674	80.32957	81.33927	85.52	78.28	87.58	3.93	3.90	1.18	1.3147	0.061569	13.24369	7.453355	15.92751	1.213512	0.053378	0.078687	0.046054	0.139	0.138
48	597.1	78.6	106.4	162.2	77.7	80.38411	80.58869	87.53778	80.62435	81.29087	85.77	78.37	87.60	3.86	3.90	1.19	1.2919	0.050914	13.13542	7.579724	15.62028	1.212634	0.053159	0.072975	0.046947	0.136	0.138
49	595.4	79.6	106.2	161.8	76.7	80.11562	80.51818	87.65205	80.59682	81.22375	85.66	78.53	87.55	3.88	3.90	1.18	1.3091	0.027139	13.08885	7.640318	15.33377	1.223924	0.055981	0.077263	0.045347	0.137	0.138
50	595.0	78.8	105.8	161.6	77.3	80.13807	80.45484	87.43034	80.81272	81.25485	85.62	78.35	87.48	3.88	3.90	1.19	1.2718	0.019263	13.07062	7.647786	15.01922	1.212451	0.053113	0.067948	0.046874	0.137	0.138
51	594.5	78.7	106.2	161.4	75.8	80.2175	80.39568	87.51637	80.63454	81.14266	85.83	78.45	87.51	3.89	3.90	1.18	1.2947	0.003914	12.95522	7.766595	14.82049	1.211	0.05275	0.073685	0.045716	0.137	0.138
52	594.7	78.5	105.6	161.1	76.0	80.11728	80.40765	87.61413	80.42595	81.16506	85.84	78.39	87.34	3.89	3.90	1.19	1.2711	-0.00144	12.90131	7.819112	14.40962	1.202807	0.050702	0.067775	0.046307	0.137	0.138
53	591.0	77.8	105.7	161.1	75.3	80.25047	80.44185	87.37115	80.32002	81.05913	85.78	78.40	87.82	3.89	3.89	1.18	1.2645	-0.00144	12.95513	7.753398	14.20967	1.208184	0.052046	0.066123	0.045981	0.137	0.137
54	590.6	78.2	105.5	161.0	76.5	80.11582	80.3402	87.47408	80.48988	81.24219	85.90	78.50	87.41	3.89	3.89	1.18	1.2767	-0.00146	12.90167	7.825848	13.90366	1.212061	0.053015	0.069171	0.04578	0.137	0.137
55	589.8	78.6	105.6	161.0	76.8	80.21954	80.47691	87.71638	80.4412	81.2529	86.10	78.51	87.41	3.89	3.88	1.18	1.3415	-0.00144	12.86848	7.852518	13.71712	1.211866	0.052967	0.085374	0.046069	0.137	0.137
56	587.4	78.3	104.9	160.4	75.5	79.90411	80.34627	87.58574	80.4706	81.03152	85.62	78.37	87.32	3.85	3.88	1.18	1.3042	-0.00145	12.94123	7.766565	13.4111	1.240883	0.060221	0.076062	0.044838	0.136	0.137
57	585.8	79.0	105.3	160.4	76.9	80.14553	80.58109	87.59618	80.64724	81.25436	86.03	78.51	87.42	3.82	3.88	1.18	1.2940	-0.00145	12.91478	7.792869	13.1124	1.203575	0.050894	0.073511	0.043969	0.135	0.137
58	583.1	79.4	104.7	160.2	76.2	80.00285	80.39221	87.59209	80.41505	81.02216	85.71	78.16	87.21	3.85	3.89	1.18	1.2693	-0.00145	12.87552	7.833346	12.89417	1.183934	0.045984	0.067314	0.044317	0.136	0.137
59	581.7	78.3	104.8	159.7	76.1	79.97293	80.3293	87.3642	80.52319	81.35468	86.12	78.59	87.66	3.88	3.88	1.18	1.2784	-0.00146	12.80752	7.913142	12.60278	1.219303	0.054826	0.069607	0.045634	0.137	0.137
60	581.9	79.8	104.6	159.9	75.8	80.18571	80.2781	87.55717	80.52061	81.18052	85.85	78.38	87.40	3.82	3.88	1.18	1.2830	-0.00146	12.73315	7.979465	12.29189	1.217535	0.054384	0.070756	0.044856	0.135	0.137
61	580.4	79.0	104.9	159.6	76.5	80.18127	80.74222	87.53954	80.81158	81.23391	86.01	78.41	85.75	3.88	3.87	1.18	1.3064	-0.00145	12.82111	7.852487	12.09925	1.217791	0.054448	0.076596	0.044262	0.137	0.137
62	577.1	78.7	104.3	159.3	77.9	80.0098	80.51794	87.53305	80.73785	81.44395	86.11	78.34	85.21	3.88	3.87	1.18	1.2985	-0.00145	12.75354	7.925882	11.80421	1.176229	0.044057	0.074621	0.044439	0.137	0.137
63	572.5	78.6	104.4	159.1	76.5	79.98886	80.56301	87.49232	80.72926	81.29677	85.87	78.19	84.94	3.82	3.87	1.18	1.2951	-0.00145	12.64076	8.019699	11.59695	1.218072	0.054518	0.073779	0.044914	0.135	0.137
64	571.5	78.8	104.5	158.4	76.5	79.87134	80.62367	87.44079	80.7272	81.25512	85.93	78.32	84.70	3.79	3.87	1.18	1.3190	-0.00145	12.4047	8.253265	11.31044	1.216328	0.054082	0.07975	0.045131	0.134	0.137
65	570.7	77.9	104.0	158.3	76.2	80.04611	80.52787	87.70795	80.68699	81.2545	85.90	78.33	84.75	3.69	3.87	1.18	1.2927	-0.00146	12.34374	8.293955	11.09708	1.198113	0.049528	0.073167	0.044661	0.130	0.136
66	569.4	78.5	103.8	158.2	76.3	79.80624	80.65757	87.60007	80.43793	81.10443	85.96	78.07	84.45	3.95	3.86	1.18	1.2701	-0.00144	12.39077	8.246499	10.80081	1.210903	0.052726	0.067528	0.04474	0.139	0.136
67	569.4	78.2	104.0	158.0	75.8	79.91782	80.45897	87.61926	80.73389	81.2882	86.08	78.21	84.38	3.82	3.86	1.18	1.2871	-0.00146	12.35694	8.273503	10.60574	1.196455	0.049114	0.07178	0.043832	0.135	0.136
68	568.7	78.4	103.9	157.8	76.1	80.10389	80.40746	87.62054	80.77338	81.55868	86.12	78.03	84.31	3.92	3.86	1.18	1.3031	-0.00146	12.37129	8.253265	10.39482	1.19676	0.04919	0.07577	0.044469	0.139	0.136
69	569.4	78.2	103.7	157.8	76.0	80.16927	80.62463	87.50775	80.92118	81.4623	86.18	78.24	84.12	3.87	3.86	1.18	1.2908	-0.00146	12.45185	8.180236	10.09978	1.182361	0.04559	0.0727	0.045045	0.136	0.136
70	566.5	78.0	103.6	157.3	75.9	79.91228	80.71081	87.55433	80.78223	81.38934	86.24	78.33	84.05	3.97	3.86	1.17	1.2884	-0.00145	12.39077	8.246468	9.88886	1.17223	0.043058	0.072103	0.043485	0.140	0.136
71	567.1	78.7	103.6	157.4	76.6	80.05964	80.60739	87.6291	80.8304	81.4375	86.06	78.30	83.82	3.93	3.86	1.18	1.2968	-0.00145	12.41201	8.213672	9.603569	1.214182	0.053546	0.0742	0.045347	0.139	0.136

Raw Data

Reading Interval	1	Minutes																			2.99921		0.048494				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
72	566.7	78.0	103.6	157.2	76.3	79.96255	80.6291	87.61121	80.61749	81.31039	86.03	78.15	83.88	3.93	3.85	1.18	1.3106	-0.00145	12.33027	8.287524	9.407279	1.202381	0.050595	0.077659	0.045051	0.139	0.136
73	566.7	78.1	103.5	157.0	75.2	80.05054	80.69068	87.36922	80.41057	81.45324	85.91	78.20	83.77	3.89	3.85	1.18	1.3116	-0.00146	12.29003	8.32794	9.19514	1.18074	0.045185	0.077894	0.044951	0.137	0.136
74	562.5	78.8	103.6	157.2	76.9	80.32098	80.74994	87.73205	80.94964	81.51715	86.28	78.22	83.76	3.88	3.85	1.18	1.2650	-0.00148	12.18979	8.435167	9.003727	1.210488	0.052622	0.066248	0.043765	0.137	0.136
75	563.5	78.3	103.6	157.1	76.8	80.19827	80.86481	87.62914	80.8756	81.41011	86.06	78.09	83.38	3.87	3.85	1.17	1.2658	-0.00149	12.21734	8.400939	8.685518	1.223204	0.055801	0.066446	0.043646	0.136	0.136
76	561.5	79.0	103.3	157.0	76.8	80.10959	80.61115	87.81763	80.77614	81.48883	86.19	78.30	83.36	3.84	3.85	1.18	1.2745	-0.00146	12.14263	8.468878	8.491667	1.211586	0.052896	0.068613	0.045064	0.136	0.136
77	559.2	78.7	103.3	156.7	77.4	80.27554	80.7969	87.69981	80.90119	81.68649	86.29	78.13	83.29	3.92	3.84	1.18	1.2761	-0.0015	12.07646	8.544103	8.299034	1.189262	0.047316	0.069024	0.044195	0.138	0.136
78	556.9	79.0	102.8	156.3	76.6	80.11708	80.46684	87.59415	80.9091	81.37102	86.01	78.21	83.17	3.92	3.85	1.17	1.2848	-0.00149	11.99145	8.629232	8.088114	1.19114	0.047785	0.071195	0.042711	0.138	0.136
79	554.9	78.6	102.9	156.3	75.7	80.41897	80.67635	87.52647	81.03027	81.53839	86.28	78.29	83.33	3.84	3.84	1.17	1.2804	-0.0015	11.86731	8.721951	7.893044	1.20605	0.051513	0.070106	0.043082	0.136	0.136
80	554.0	78.6	102.8	155.9	76.5	80.42527	80.64305	87.51298	80.9389	81.5196	86.21	78.30	83.30	3.84	3.84	1.18	1.2937	-0.00149	11.67331	8.9087	7.699193	1.2031	0.050775	0.073429	0.043911	0.136	0.136
81	553.3	78.6	102.5	155.3	76.0	80.09291	80.69345	87.47758	81.01247	81.47439	86.01	78.31	82.95	3.83	3.84	1.17	1.3596	-0.00146	11.53889	9.045158	7.494369	1.203393	0.050848	0.089888	0.043156	0.135	0.136
82	551.2	78.4	102.3	155.4	76.6	80.41354	80.71051	87.75202	81.08235	81.79505	86.34	78.43	82.94	3.81	3.84	1.18	1.2725	-0.00146	11.4708	9.101576	7.294421	1.213207	0.053302	0.068122	0.045152	0.135	0.135
83	548.4	79.0	102.4	155.2	77.1	80.26451	80.78587	87.75478	80.96117	81.61446	86.21	78.28	82.97	3.74	3.83	1.17	1.2889	-0.00149	11.43681	9.108342	7.101789	1.217755	0.054439	0.072228	0.042787	0.132	0.135
84	547.9	79.2	102.3	154.8	77.3	80.34628	80.67625	87.60557	80.97349	81.52779	86.10	78.22	83.32	3.73	3.84	1.17	1.2729	-0.0015	11.35205	9.196124	6.887211	1.167536	0.041884	0.068226	0.042327	0.132	0.135
85	548.8	79.0	101.9	154.6	77.6	80.3712	80.60878	87.46551	80.82675	81.48005	86.13	78.27	82.90	3.84	3.83	1.17	1.2849	-0.00148	11.3163	9.228981	6.693359	1.237396	0.059349	0.071237	0.042814	0.136	0.135
86	546.1	78.7	102.1	154.4	76.9	80.24892	80.95506	87.6204	80.88216	81.78624	86.23	78.20	82.86	3.95	3.89	1.17	1.3030	-0.0015	11.32358	9.202159	6.500728	1.205209	0.051302	0.075754	0.041802	0.140	0.137
87	546.6	79.0	102.2	154.0	76.1	80.50388	81.02524	87.64439	80.92428	81.55778	86.14	78.18	82.70	3.95	3.89	1.17	1.2689	-0.0015	11.2828	9.223099	6.292245	1.178143	0.044536	0.067235	0.042768	0.139	0.137
88	543.9	79.2	101.8	153.7	77.5	80.22636	80.81372	87.42627	80.8057	81.56459	86.18	78.41	82.72	3.94	3.89	1.17	1.2954	-0.00149	11.22772	9.285948	6.187396	1.193285	0.048321	0.073852	0.041632	0.139	0.137
89	544.0	78.9	102.0	153.5	76.6	80.33147	80.83302	87.38618	81.14594	81.64745	86.31	78.28	82.62	3.93	3.89	1.17	1.3092	-0.00148	11.10306	9.386836	5.991106	1.183544	0.045886	0.077312	0.041403	0.139	0.137
90	540.2	78.3	101.5	153.1	76.3	80.41809	80.97244	87.5322	81.02523	81.69173	86.34	78.41	82.79	3.92	3.93	1.17	1.3325	-0.00149	11.03564	9.43795	5.778966	1.209842	0.052461	0.083134	0.041705	0.138	0.139
91	538.6	79.1	101.4	153.0	76.7	80.28052	80.91406	87.38803	80.95447	81.71996	86.21	78.28	82.65	3.91	3.92	1.16	1.3050	-0.00148	10.91521	9.536369	5.582676	1.1749	0.043725	0.076239	0.041144	0.138	0.138
92	535.7	79.2	101.2	152.6	76.2	80.08506	80.8242	87.17278	81.0719	81.48761	86.22	78.27	82.43	3.90	3.92	1.17	1.2766	-0.00148	10.77345	9.663195	5.488799	1.193285	0.048321	0.069159	0.041586	0.138	0.138
93	531.9	78.3	101.1	151.9	74.8	80.31201	80.77396	87.55151	81.07674	81.89502	86.42	78.24	82.59	3.97	3.92	1.17	1.2578	-0.00151	10.63964	9.771093	5.296166	1.212829	0.053207	0.064462	0.04268	0.140	0.138
94	526.7	78.8	101.0	151.7	77.7	80.2881	80.99424	87.5804	81.30987	81.94337	86.46	78.58	82.65	3.91	3.94	1.17	1.2794	-0.00151	10.42564	9.96467	5.18522	1.170218	0.042555	0.06985	0.041525	0.138	0.139
95	523.3	78.3	100.6	151.4	76.8	80.3922	81.00595	87.42712	81.24422	81.73914	86.51	78.60	82.73	3.89	3.93	1.16	1.3006	-0.00149	10.21878	10.14703	4.997465	1.18797	0.046992	0.075148	0.040184	0.137	0.139
96	518.0	79.4	100.5	150.8	76.2	80.42351	80.91187	87.33304	80.995	81.92547	86.47	78.39	82.39	3.88	3.93	1.17	1.2968	-0.0015	10.05681	10.29559	4.893833	1.19164	0.04791	0.074191	0.04136	0.137	0.139
97	513.5	78.6	100.0	150.0	75.6	80.17302	80.77356	87.35313	81.07741	81.7835	86.26	78.33	82.34	3.87	3.82	1.16	1.3115	-0.00149	9.814404	10.51989	4.697544	1.172242	0.043061	0.077864	0.039672	0.137	0.135
98	505.2	78.8	99.7	149.3	76.1	80.40372	80.91187	87.19447	81.19212	81.79922	86.06	78.53	82.41	3.86	3.78	1.16	1.3340	-0.00149	9.532618	10.79314	4.693886	1.190932	0.047733	0.083502	0.040257	0.136	0.134
99	499.7	79.6	99.5	148.7	76.3	80.54861	80.87859	87.19418	81.2289	81.902	86.26	78.59	82.31	3.83	3.78	1.16	1.2885	-0.00149	9.16942	11.12284	4.482966	1.196724	0.049181	0.072115	0.038815	0.135	0.134
100	497.0	79.0	99.3	147.6	76.3	80.51031	80.93267	87.24165	81.31559	81.7445	86.15	78.53	82.42	3.78	3.78	1.16	1.3223	-0.0015	8.75456	11.54967	4.387869	1.190957	0.047739	0.080573	0.039733	0.134	0.133
101	492.2	78.0	98.9	146.8	76.6	80.39948	80.73605	86.85366	80.96097	81.68686	85.71	78.16	82.08	3.79	3.78	1.16	1.2636	-0.00151	8.556411	11.72332	4.286676	1.165744	0.041436	0.065897	0.03891	0.134	0.133
102	488.8	79.0	98.6	145.5	75.9	80.24757	80.82832	86.80734	81.15264	81.70034	85.95	78.64	82.29	3.78	3.78	1.15	1.2740	-0.0015	8.365485	11.90495	4.191579	1.171937	0.042984	0.0685	0.03834	0.133	0.133
103	484.5	78.8	98.2	144.8	76.6	80.3938	81.00753	86.83478	81.14673	81.76702	85.95	78.46	82.07	3.78	3.78	1.15	1.3190	-0.00151	8.177486	12.08456	4.075756	1.140799	0.0352	0.079753	0.038227	0.133	0.133
104	480.4	78.6	98.1	144.2	76.2	80.35573	80.92328	86.9749	81.26192	81.74362	85.95	78.67	82.25	3.78	3.78	1.15	1.2874	-0.0015	8.069831	12.16656	3.980659	1.190481	0.04762	0.071862	0.037739	0.133	0.133
105	476.8	78.8	97.8	143.3	77.0	80.40843	80.98257	86.79662	81.37468	82.05438	86.15	78.83	82.25	3.78	3.78	1.15	1.2836	-0.00148	7.923284	12.29789	3.975783	1.188701	0.047175	0.070893	0.038233	0.133	0.133
106	471.3	77.8	97.6	142.4	76.3	80.50022	80.99518	86.80922	81.0327	81.85098	85.92	78.75	82.23	3.78	3.78	1.15	1.2923	-0.00149	7.682829	12.5114	3.881905	1.191542	0.047886	0.073063	0.03787	0.133	0.133
107	468.3	78.6	97.2	141.8	76.2	80.3661	80.94685	86.76089	81.276	81.9557	85.99	78.60	81.96	3.77	3.78	1.15	1.3163	-0.00149	7.399337	12.78112	3.778274	1.183203	0.045801	0.079074	0.037562	0.133	0.133
108	463.9	79.2	97.3	140.8	76.1	80.4276	81.00175	86.65742	81.17509	81.98676	85.87	78.55	82.22	3.76	3.78	1.15	1.3107	-0.00151	7.239532	12.92023	3.688053	1.20766	0.051915	0.077687	0.03762	0.133	0.133
109	459.9	79.2	96.6	139.9	76.9	80.46585	81.35017	86.51089	80.97819	81.95486	85.63	78.46	81.99	3.79	3.78	1.15	1.2836	-0.00152	7.098927	13.04026	3.590518	1.16016	0.04004	0.070899	0.036581	0.134	0.133
110	455.4	79.1	96.6	139.4	76.6	80.48795	81.28648	86.68476	81.13992	82.09019	85.81	78.87	82.10	3.74	3.78	1.15	1.2691	-0.00149	7.053117	13.06668	3.590518	1.218364	0.054591	0.067287	0.03759	0.132	0.133
111	452.7	78.9	96.4	138.5	75.7	80.72286	81.25081	86.6755	81.17783	82.0951	85.81	78.68	82.05	3.74	3.78	1.15	1.2901	-0.00151	6.97902	13.13407	3.479572	1.186592	0.046648	0.072536	0.036938	0.132	0.133
112	450.2	79.3	96.3	137.8	75.6	80.58825	81.32738	86.55408	81.27789	81.93118	85.80	78.91	82.00	3.74	3.78	1.15	1.3122	-0.0015	6.879595	13.23758	3.380817	1.190262	0.047565	0.078062	0.037081	0.132	0.133
113	443.9	79.2	95.9	137.0	76.5	80.57449	81.21464	86.36875	81.08994	81.96761	85.66	78.66	81.84	3.74	3.78	1.15	1.3204	-0.00151	6.841282	13.24922	3.380817	1.215828	0.053957	0.080101	0.036801	0.132	0.133
114	438.5	78.9	95.6	136.3	76.0	80.37161	80.99856	86.28466	81.09986	82.09632	85.66	78.59	81.89	3.74	3.77	1.15	1.2932	-0.00151	6.731158	13.35502	3.278405	1.158039	0.03951	0.073304	0.036587	0.132	0.133
115	430.2	78.7	95.4	135.8	76.7	80.30216	80.95551	86.19541	81.14427	82.08134	85.43	78.48	81.65	3.73	3.78	1.14	1.3079	-0.00151	6.588696	13.47624	3.280843	1.162428	0.040607	0.076977	0.03559	0.132	0.133
116	426.4	78.9	95.0	135.2	76.6	80.576	81.21613	86.30426	81.23336	81.85365	85.53	78.70	81.79	3.72	3.77	1.14	1.2873	-0.0015	6.401824	13.63943	3.184528	1.189152	0.047288	0.071826	0.035597	0.131	0.133
117	424.0	79.4	94.7	134.3	75.9	80.61121	81.24475	86.0623	81.36005	82.02654	85.52	78.67	81.81	3.72	3.77	1.14	1.2938	-0.00152	6.238971	13.79067	3.185746	1.174205	0.043551	0.073459	0.035484	0.131	0.133
118	421.1	79.4	94.6	133.8	75.8	80.70945	81.16481	86.06155	81.23704	82.2203	85.31	78.62	81.88	3.72	3.77	1.14	1.2765	-0.0015	6.085444	13.95696	3.089431	1.17924	0.04481	0.069113	0.034521	0.131	0.133
119	417.4	79.7	94.2	132.8	75.5	80.60111	81.28745	86.1974	81.20147	82.21113	85.50	78.81	81.69	3.72	3.77	1.14	1.2903	-0.0015	5.999613	14.05706	3.09065	1.158636	0.039659	0.072569	0.03517	0.131	0.133
120	415.3	78.5	94.1	132.2	76.5	80.46747	81.2132	85.83938	81.06994	81.97401	85.33	78.53	81.76	3.77	3.74	1.14	1.2809	-0.00154	5.951485	14.11089	2.99921	1.194395	0.048599	0.070225	0.034627	0.133	0.132
121	411.1	79.0	93.8	131.3	75.7	80.4902	81.14355	85.84232	81.12617	82.03024	85.22	78.64	81.73	3.76	3.74	1.13	1.3	-0.00151	5.924175	14.13698	2.994334	1.188055	0.047014	0.082609	0.033725	0.133	0.132
122	407.6	78.8	93.9	131.0	76.4	80.74213	81.38226	86.06123	81.27266	82.22293	85.26	78.75	81.87	3.76	3.74	1.14	1.3	-0.00151	5.776806	14.31105	2.884606	1.214353	0.053588	0.077739	0.033981	0.133	0.132
123	404.0	78.8	93.5	130.1	76.3	80.60812	81.30106	85.88763	81.24414	82.03602	85.03	78.72	81.65	3.79	3.74	1.14	1.3	-0.0015	5.715816	14.37633	2.885826	1.173815	0.043454	0.066854	0.034158	0.134	0.132
124	400.8	79.3	93.4	129.8	76.2	80.42253	81.35305	85.82084	81.26276	82.10084	85.21	78.87	81.66	3.78	3.74	1.14	1.3	-0.00152	5.668602	14.41736	2.873634	1.17868	0.04467	0.072761	0.033792	0.133	0.132
125	398.5	78.4	93.0	129.1	75.0	80.40922	81.05596	85.52376	81.12204	82.14491	85.21	78.89	81.50	3.78	3.74	1.13	1.3	-0.00154	5.614836	14.48448	2.779756	1.192493	0.048123	0.076858	0.033323	0.133	0.132
126	396.4	79.1	93.0	128.5	75.3	80.47079	81.18353	85.70411	80.93386	81.96331	84.83	78.66	81.49	3.77	3.74	1.13	1.3	-0.00152	5.601699	14.49844	2.774879	1.219961	0.05499	0.078153	0.03335	0.133	0.132
127	391.5	79.2	92.4	127.8	75.6	80.49162	81.51452	85.73814	81.21641	82.26566	85.06	78.88	81.75	3.77	3.74	1.13	1.3	-0.00151	5.588319	14.5262	2.679782	1.179131	0.044783	0.081463	0.032667	0.133	0.132
128	388.3	78.9	92.4	126.9	74.7	80.22657	81.19669	85.4533	80.98033	81.8976	84.70	78.62	81.40	3.78	3.74	1.13	1.3	-0.00152	5.582253	14.5351	2.681001	1.155759	0.03894	0.068534	0.032481	0.133	0.132
129	385.4	79.2	92.5	126.8	74.9	80.54684	81.39817	85.37761	81.32451	82.07019	84.88	78.80	81.23	3.77	3.74	1.13	1.3	-0.00152	5.514527	14.61752	2.587124	1.184251	0.046063	0.076126	0.032277	0.133	0.132
130	381.7	79.3	92.0	126.0	75.4	80.27045	81.20097	85.22661	81.10583	81.9505	84.66	78.79	81.25	3.76	3.76	1.13	1.3	-0.00152	5.474172	14.68326	2.587124	1.160477	0.040119	0.085304	0.032347	0.133	0.133
131	379.4	79.5	91.8	125.6	74.8	80.37015	81.32706	85.28671	81.16015	82.09061	84.78	78.75	81.23	3.75	3.76	1.13	1.3	-0.00151	5.440857	14.72444	2.588343	1.189372	0.047343	0.068323	0.032579	0.132	0.133
132	377.2	79.7	91.9	125.4	75.8	80.65139	81.44991	85.50855	81.37914	82.32281	84.90	78.91	81.42	3.75	3.76	1.13	1.3	-0.00152	5.40672	14.76318	2.493246	1.165171	0.041293	0.064757	0.032128	0.132	0.133
133	374.0	79.3	91.5	124.7	75.1	80.32609	81.09822	85.01167	81.11873	82.17458	84.62	78.68	81.21	3.74	3.76	1.13	1.3	-0.00152	5.386817	14.80284	2.484712	1.196846	0.049211	0.07523	0.032286	0.132	0.133
134	370.2	79.3	91.5	124.3	76.0	80.50443	81.40195	85.15701	81.25464	82.15871	84.51	78.75	81.23	3.74	3.76	1.13	1.3	-0.00154	5.380111	14.81637	2.481054	1.192347	0.048087	0.069402	0.031445	0.132	0.133
135	369.3	78.9	91.3	124.0	75.5	80.33662	81.18134	85.13439	81.1839	82.39815	84.56	78.92	81.30	3.74	3.76	1.13	1.3	-0.00154	5.360391	14.85023	2.388396	1.180167	0.045042	0.073133	0.031253	0.132	0.133
136	366.6	78.7	91.1	123.5	76.2	80.07204	81.01575	84.81702	81.02296	82.07222	84.29	78.79	81.27	3.74	3.76	1.12	1.3	-0.00156	5.320158	14.90394	2.389615	1.148053	0.037013	0.082804	0.031217	0.132	0.133
137	363.5	78.9	91.1	123.6	76.7	80.3316	81.4337	85.11618	81.09958	82.43262	84.60	78.84	81.09	3.73	3.76	1.12	1.3	-0.00152	5.354142	14.86983	2.272572	1.189006	0.047252	0.07612	0.031034	0.132	0.133
138	359.7	78.5	90.9	123.2	76.2	80.22017	81.28267	84.88596	80.99551	82.28235	84.31	78.81	81.20	3.73	3.76	1.12	1.3	-0.00155	5.306441	14.93896	2.27623	1.190225	0.047556	0.064593	0.030872	0.132	0.133
139	357.8	78.8	90.9	123.0	77.1	80.21487	81.31697	84.74207	81.06287	82.04613	84.30	78.75	81.10	3.71	3.76	1.12	1.3	-0.00155	5.234631	15.01683	2.273792	1.221888	0.055472	0.069405	0.030141	0.131	0.133
140	355.7	78.9	90.8	122.4	77.2	80.21132	81.18803	84.9563	81.18522	82.24767	84.54	78.94	81.11	3.71	3.76	1.12	1.3	0.011046	5.24024	15.0168	2.175037	1.170669	0.042667	0.072222	0.030595	0.131	0.133
141	354.2	79.1	90.7	121.9	76.6	80.23764	81.31995	84.89684	81.18264	82.2055	84.49	78.83	80.91	3.71	3.76	1.12	1.3	0.016544	5.213142	15.0442	2.175037	1.190713	0.047678	0.071429	0.030473	0.131	0.133
142	352.1	78.7	90.6	121.8	76.4	80.25576	81.36446	84.86876	81.16299	82.04066	84.38	78.85	80.93	3.69	3.76	1.12	1.3	0.029773	5.186839	15.07721	2.176256	1.190664	0.047666	0.073636	0.02986	0.130	0.133
143	350.1	78.6	90.3	121.5	76.8	80.14874	81.38943	84.85413	81.16409	82.09455	84.15	78.76	80.74	3.68	3.77	1.12	1.3	0.032467	5.180926	15.097	2.076283	1.200491	0.050123	0.077001	0.029799	0.130	0.133

Raw Data

Reading Interval	1	Minutes																			2.99921		0.048494				
1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
144	347.9	78.6	90.4	120.8	76.7	80.10931	81.3038	84.7289	81.17607	82.43651	84.24	78.90	81.02	3.67	3.76	1.12	1.3	0.035418	5.160413	15.12385	2.078721	1.206246	0.051561	0.077894	0.02986	0.130	0.133
145	347.0	78.6	90.1	120.5	75.6	80.20522	81.26112	84.60703	81.13586	82.14552	84.08	78.71	80.89	3.68	3.76	1.12	1.3	0.040307	5.167088	15.11056	2.07994	1.177753	0.044438	0.068302	0.029476	0.130	0.133
146	345.5	79.0	90.5	120.2	76.1	80.40514	81.38845	84.77396	81.28929	82.34515	84.20	78.94	80.93	3.79	3.76	1.12	1.3	0.048061	5.160413	15.12385	1.978747	1.208269	0.052067	0.076803	0.029735	0.134	0.133
147	343.4	78.7	89.9	119.7	75.8	80.26863	81.35094	84.53847	81.07369	82.24174	84.08	78.85	80.87	3.78	3.76	1.12	1.3	0.048036	5.160413	15.13122	1.977528	1.159636	0.039909	0.067013	0.029641	0.134	0.133
148	341.7	78.9	89.8	119.3	75.7	80.10634	81.43282	84.37617	81.06036	82.07662	84.12	78.68	80.88	3.79	3.77	1.12	1.3	0.056363	5.129659	15.16813	1.981186	1.196882	0.049221	0.068845	0.029202	0.134	0.133
149	340.3	78.7	90.2	119.2	75.0	80.14539	81.32008	84.56041	81.08289	82.19153	84.09	79.18	80.95	3.78	3.76	1.12	1.3	0.061435	5.086621	15.21788	1.881212	1.188531	0.047133	0.073097	0.029299	0.134	0.133
150	338.0	78.4	89.9	118.8	75.8	80.00624	81.19413	84.36186	80.77108	82.1767	83.76	78.67	80.61	3.79	3.76	1.12	1.3	0.066934	5.08656	15.21782	1.881212	1.166171	0.041543	0.078205	0.028836	0.134	0.133
151	337.4	78.6	89.7	118.6	76.2	79.90038	81.23345	84.23621	80.77238	82.1516	83.81	78.67	80.69	3.78	3.76	1.12	1.3	0.069482	5.093296	15.21196	1.817814	1.194322	0.04858	0.076111	0.028961	0.134	0.133
152	335.8	78.7	89.4	118.4	76.3	80.08208	81.44156	84.45091	81.03145	82.21269	83.99	78.75	80.89	3.78	3.76	1.12	1.3	0.07231	5.107347	15.19776	1.784896	1.180484	0.045121	0.07851	0.028848	0.134	0.133
153	335.0	78.9	89.6	118.1	76.4	80.17805	81.59033	84.3621	81.23032	82.32577	83.98	78.95	80.77	3.78	3.76	1.12	1.3	0.07231	5.093266	15.21635	1.784896	1.210098	0.052525	0.084383	0.028839	0.133	0.133
154	334.2	78.3	89.5	117.8	75.9	80.01	81.31008	84.25344	80.80019	82.01443	83.78	78.67	80.64	3.78	3.76	1.11	1.3	0.078223	5.073484	15.23095	1.786115	1.192237	0.048059	0.073103	0.028489	0.134	0.133
155	332.9	78.4	89.2	117.9	75.8	79.90088	81.28676	84.23672	80.90252	82.31474	83.80	78.79	80.65	3.77	3.76	1.11	1.3	0.075102	5.065987	15.23827	1.669073	1.16294	0.040735	0.072423	0.028415	0.133	0.133
156	331.9	78.6	89.3	117.4	76.2	79.99523	81.4537	84.26506	80.94702	82.21406	83.85	78.75	80.73	3.83	3.77	1.11	1.3	0.075102	5.08656	15.21196	1.666634	1.184568	0.046142	0.065193	0.028729	0.135	0.133
157	329.8	78.6	89.3	117.3	76.0	79.8142	81.29906	84.12363	80.70133	82.18615	83.68	78.64	80.53	3.83	3.77	1.11	1.3	0.075078	5.079732	15.21788	1.67273	1.184629	0.046157	0.070109	0.028086	0.135	0.133
158	329.0	78.6	89.2	116.8	76.3	79.62204	81.16631	84.14926	80.84898	82.26779	83.71	78.58	80.67	3.83	3.76	1.11	1.3	0.072323	5.073484	15.22443	1.575195	1.183922	0.045981	0.070619	0.028001	0.135	0.133
159	327.5	78.5	89.2	116.9	76.7	79.94181	81.43328	84.10606	80.86169	82.00333	83.59	78.44	80.65	3.83	3.77	1.11	1.3	0.088209	5.059037	15.24467	1.575195	1.15927	0.039818	0.077568	0.028214	0.135	0.133
160	327.2	78.4	89.0	116.6	76.5	79.89894	81.25842	83.96421	80.79052	82.25554	83.49	78.73	80.59	3.78	3.77	1.11	1.3	0.088184	5.032093	15.27231	1.577633	1.1462	0.03655	0.075946	0.028364	0.133	0.133
161	326.0	78.3	89.0	116.3	75.9	80.01452	81.53239	84.13258	81.02368	82.18513	83.83	78.79	80.81	3.77	3.77	1.11	1.3	0.101205	5.065987	15.21785	1.475221	1.192652	0.048163	0.075181	0.028629	0.133	0.133
162	324.7	78.3	88.9	116.0	75.1	79.79642	81.47268	84.00027	80.84053	82.17356	83.51	78.58	80.51	3.77	3.76	1.11	1.3	0.085466	5.038585	15.27228	1.471564	1.147383	0.036846	0.071667	0.027885	0.133	0.133
163	324.3	78.5	88.8	116.4	75.5	79.70927	81.32612	83.82732	80.83659	82.16302	83.52	78.73	80.59	3.77	3.76	1.11	1.3	0.080491	5.073514	15.22446	1.469125	1.198321	0.04958	0.082448	0.027751	0.133	0.133
164	323.7	78.5	88.6	116.3	76.8	79.69022	81.22788	83.76208	80.62628	82.1309	83.48	78.55	80.49	3.78	3.76	1.11	1.3	0.082978	5.08653	15.20447	1.378905	1.165476	0.041369	0.076318	0.027775	0.133	0.133
165	323.2	78.4	88.6	116.1	76.4	79.82942	81.2879	83.8287	80.68159	82.22581	83.24	78.39	80.39	3.77	3.76	1.11	1.3	0.090598	5.093266	15.20444	1.381344	1.178399	0.0446	0.083737	0.027943	0.133	0.133
166	323.2	78.1	88.5	115.7	75.6	79.88329	81.24936	83.90895	80.60873	81.96815	83.33	78.57	80.52	3.77	3.76	1.11	1.3	0.098877	5.059068	15.22443	1.287466	1.177034	0.044258	0.079775	0.028025	0.133	0.133
167	322.3	78.9	88.8	115.6	76.2	79.82253	81.36018	83.7492	80.84916	82.0964	83.30	78.38	80.44	3.77	3.77	1.11	1.3	0.085417	5.086499	15.212	1.282589	1.159782	0.039946	0.077321	0.028071	0.133	0.133
168	321.5	78.6	88.7	115.6	76.0	79.91748	81.27696	83.69897	80.8418	82.38602	83.48	78.65	80.36	3.77	3.77	1.11	1.3	0.090598	5.100733	15.19099	1.283808	1.188933	0.047233	0.081317	0.02773	0.133	0.133
169	322.2	78.4	88.9	115.6	76.1	79.90613	81.37779	83.8856	80.8614	82.35281	83.49	78.76	80.60	3.77	3.77	1.11	1.3	0.098864	5.079672	15.21194	1.181396	1.192188	0.048047	0.085441	0.027885	0.133	0.133
170	322.2	78.3	88.8	115.7	76.4	79.72362	81.33387	83.68989	80.82648	82.15951	83.26	78.62	80.28	3.76	3.77	1.11	1.3	0.098816	5.079702	15.20447	1.185054	1.189762	0.04744	0.080671	0.027897	0.133	0.133
171	320.3	78.0	88.6	115.6	76.6	79.90378	81.23686	83.51369	80.5955	81.97473	83.31	78.71	80.34	3.76	3.77	1.11	1.3	0.093281	5.059037	15.24467	1.121656	1.197821	0.049455	0.078458	0.027702	0.133	0.133
172	320.1	78.6	88.6	115.2	76.3	79.54382	81.18707	83.66848	80.6825	82.23992	83.12	78.74	80.37	3.77	3.76	1.11	1.3	0.09589	5.038585	15.27231	1.075327	1.179143	0.044786	0.086858	0.02758	0.133	0.133
173	320.0	77.9	88.4	115.3	75.9	79.65211	81.20297	83.45341	80.57671	82.07471	83.02	78.55	80.23	3.76	3.77	1.11	1.3	0.106399	5.079702	15.20465	1.076546	1.173059	0.043265	0.075724	0.027602	0.133	0.133
174	319.6	77.6	88.5	115.2	76.4	79.7067	81.21796	83.3826	80.52058	82.18358	83.15	78.61	80.19	3.76	3.76	1.11	1.3	0.106375	5.08653	15.2119	0.981449	1.200162	0.05004	0.075319	0.0273	0.133	0.133
175	319.1	78.5	88.5	115.3	76.3	79.77628	81.34694	83.55118	80.8008	82.20643	83.22	78.65	80.41	3.76	3.77	1.11	1.3	0.098828	5.052087	15.24467	0.977791	1.214975	0.053744	0.080689	0.027693	0.133	0.133
176	318.7	78.2	88.7	115.5	76.8	79.86098	81.39864	83.64247	80.7786	82.19743	83.28	78.68	80.46	3.75	3.77	1.11	1.3	0.106423	5.059006	15.23098	0.979011	1.173803	0.043451	0.082795	0.027718	0.132	0.133
177	318.4	78.2	88.2	115.2	76.9	79.59595	81.06102	83.46323	80.56225	82.18565	83.07	78.51	80.33	3.75	3.77	1.11	1.3	0.106436	5.045687	15.25171	0.881475	1.167305	0.041826	0.074258	0.027285	0.132	0.133
178	319.4	78.3	88.5	115.0	75.5	79.71026	81.29412	83.47855	80.74043	82.26484	83.12	78.65	80.53	3.75	3.77	1.11	1.3	0.106423	5.052087	15.24461	0.880256	1.197736	0.049434	0.067787	0.027687	0.132	0.133
179	319.1	78.4	88.3	115.1	76.7	79.69744	81.31429	83.43933	80.72517	82.1308	82.86	78.47	80.27	3.75	3.77	1.11	1.3	0.103814	5.107286	15.18496	0.881475	1.178911	0.044728	0.068598	0.027404	0.132	0.133
180	318.8	78.5	88.5	114.9	76.5	79.58006	81.17051	83.42094	80.74164	82.08126	83.08	78.56	80.53	3.74	3.76	1.11	1.3	0.114604	5.154378	15.13119	0.78394	1.184971	0.046243	0.078306	0.027513	0.132	0.133
181	318.8	78.0	88.6	115.0	76.2	79.74286	81.18153	83.28017	80.72195	82.27277	83.14	78.62	80.46	3.75	3.77	1.11	1.3	0.125284	5.135176	15.14485	0.785159	1.176119	0.04403	0.070884	0.027312	0.132	0.133
182	317.8	78.4	88.2	114.8	76.8	79.92401	81.50127	83.48112	80.72353	82.24134	83.03	78.75	80.36	3.74	3.77	1.11	1.3	0.120359	5.107317	15.1849	0.786378	1.171718	0.04293	0.074825	0.027303	0.132	0.133
183	317.4	77.9	88.3	114.9	77.2	79.98501	81.32468	83.58832	80.81571	82.06295	83.04	78.49	80.29	3.75	3.77	1.11	1.3	0.120347	5.086499	15.2045	0.683966	1.162342	0.040586	0.070082	0.027644	0.132	0.133
184	318.3	78.2	88.3	114.8	76.2	79.97048	81.56094	83.35601	80.91382	82.21385	82.90	78.68	80.43	3.74	3.77	1.11	1.3	0.1227	5.073484	15.21782	0.686405	1.170779	0.042695	0.072164	0.027065	0.132	0.133
185	316.9	78.2	88.6	115.0	76.6	80.03648	81.40915	83.39561	80.85313	82.31155	82.95	78.60	80.34	3.73	3.77	1.11	1.3	0.120359	5.065925	15.23095	0.681528	1.186214	0.046554	0.07797	0.027349	0.132	0.133
186	317.4	78.1	88.4	114.8	76.1	79.70763	81.34428	83.36373	80.86573	82.20535	82.99	78.57	80.32	3.73	3.77	1.11	1.3	0.117372	5.065956	15.2383	0.582773	1.182447	0.045612	0.079641	0.027129	0.132	0.133
187	317.2	77.8	88.5	114.7	75.6	79.69987	81.46851	83.23059	80.64652	82.06535	82.77	78.36	80.20	3.73	3.76	1.11	1.3	0.120298	5.100733	15.19773	0.586431	1.202137	0.050534	0.074246	0.02705	0.132	0.133
188	317.4	78.3	88.5	114.7	76.1	79.95895	81.33823	83.50287	80.70674	82.29055	82.98	78.65	80.26	3.73	3.77	1.11	1.3	0.114604	5.107378	15.20148	0.590089	1.161721	0.04043	0.075447	0.027416	0.132	0.133
189	317.5	77.9	88.4	114.9	76.3	80.17913	81.51881	83.30728	80.88493	82.28395	82.98	78.59	80.28	3.73	3.77	1.11	1.3	0.109276	5.114663	15.19779	0.479142	1.189104	0.047276	0.083697	0.027144	0.132	0.133
190	316.6	78.2	88.1	115.0	76.5	79.88602	81.2323	83.11977	80.85813	82.33636	82.80	78.51	80.29	3.78	3.77	1.11	1.3	0.106423	5.121856	15.2045	0.475485	1.178948	0.044737	0.079982	0.027577	0.133	0.133
191	317.7	78.2	88.3	114.9	76.1	79.80265	81.4327	83.20798	80.63212	82.15652	82.71	78.53	80.29	3.78	3.77	1.11	1.3	0.114616	5.107317	15.21194	0.477923	1.207428	0.051857	0.081405	0.026946	0.133	0.133
192	317.0	78.0	88.4	114.8	76.2	79.88407	81.30294	83.2564	80.69396	82.27777	82.78	78.53	80.30	3.77	3.77	1.11	1.3	0.120359	5.08656	15.23098	0.369415	1.153991	0.038498	0.081686	0.02741	0.133	0.133
193	316.5	78.5	88.2	114.8	76.2	79.91953	81.29881	83.09389	80.80615	82.29757	82.83	78.31	80.22	3.77	3.77	1.11	1.3	0.11736	5.100763	15.22443	0.373073	1.179655	0.044914	0.076571	0.027218	0.133	0.133
194	317.0	78.1	88.2	114.8	76.3	79.73758	81.47323	83.40028	80.68994	82.18136	83.03	78.50	80.34	3.77	3.77	1.11	1.3	0.117372	5.100733	15.22446	0.358442	1.185397	0.046349	0.075111	0.027175	0.133	0.133
195	316.8	78.5	88.1	114.8	76.1	79.55889	81.22855	83.36018	80.5668	82.17699	82.79	78.46	80.45	3.77	3.77	1.11	1.3	0.114629	5.114663	15.21782	0.279195	1.159745	0.039936	0.075901	0.027455	0.133	0.133
196	317.2	78.1	88.1	114.9	76.64754	79.67238	81.19024	83.2163	80.80348	82.2883	82.92	78.50	80.10	3.76	3.76	1.11	1.3	0.111824	5.100703	15.23827	0.274318	1.181971	0.045493	0.081338	0.0273	0.133	0.133
197	317.0	78.1	88.1	114.8	76.28976	79.69296	81.29662	83.26987	80.80953	82.36035	82.96	78.70	80.29	3.76	3.77	1.11	1.3	0.109276	5.121825	15.21782	0.176783	1.168548	0.042137	0.064401	0.027529	0.133	0.133
198	316.5	78.5	88.4	115.0	76.58001	79.87421	81.54387	83.31915	80.81293	82.32415	82.90	78.68	80.34	3.77	3.76	1.11	1.3	0.101181	5.100733	15.24464	0.178002	1.204331	0.051083	0.079445	0.027218	0.133	0.133
199	317.1	78.4	88.4	114.7	76.52707	79.92073	81.3594	83.08848	80.66387	82.28727	82.90	78.58	80.00	3.76	3.76	1.11	1.3	0.095902	5.065925	15.28515	0.176783	1.163647	0.040912	0.066522	0.027291	0.133	0.133
200	315.2	78.5	88.4	114.8	76.2715	79.79858	81.46164	83.13793	80.75532	82.25334	82.86	78.57	80.13	3.76	3.77	1.11	1.3	0.101181	5.100733	15.25168	0.080467	1.183837	0.045959	0.086087	0.02758	0.133	0.133
201	315.2	78.6	88.1	115.0	76.702	79.77414	81.57578	83.33125	80.81451	82.37852	82.83	78.62	80.21	3.76	3.76	1.11	1.3	0.09589	5.121856	15.23095	0.079247	1.195517	0.048879	0.077004	0.027193	0.133	0.133
202	314.5	78.3	88.2	114.9	76.53254	79.83982	81.52267	83.09337	80.86778	82.48459	82.98	78.90	80.28	3.76	3.76	1.11	1.3	0.078723	5.059037	15.31252	0.079247	1.188372	0.047093	0.072938	0.027102	0.133	0.133
203	314.8	78.5	88.2	114.9	76.6235	79.88718	81.54363	83.09454	80.72044	82.36364	82.87	78.69	80.32	3.76	3.76	1.11	1.3	0.075078	5.073484	15.29234	-0.01463	1.189238	0.047309	0.078671	0.026785	0.133	0.133

Category	Cat 4
Run Number	3
Test Date	10/3/18
Total Test Fuel Weight (lb)	34.44
Avg. Test Fuel Moisture (% dry)	21.32

Test Duration (min)	203	
Burn Rate (kg/hr)		
Emissions (g)	5.70	Train 2
Beginning Dry Gas Meter Reading (ft3)	0	0
Final Dry Gas Meter Reading (ft3)	27.42564	27.429718
Average Barometric Pressure (“Hg)	28.795	
Average Delta p (inches of water)	0.074	

Average Gas Velocity in Tunnel (feet/sec)	17			
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	810.6255			
	kJ	**Btu**		
Total Input	254406	241292		
Total Output	123,198	116848	**kW**	
Output Rate (kJ/hr, BTU/hr, kW)	36,413	34536	10.11	
Emissions g/MJ	**0.046264**		0.4	B415.1-2010 Limit
Emissions lb/MMBtu Input	**0.052077**			
Emissions lb/MMBtu Output	**0.107539**		0.93	EPA 2015 Proposed Limit
Emissions g/hr	**1.684629**			
Efficiency	**48.4%**			

Raw Data

Reading Interval	1	Minutes																			8.40272		0.029839					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
0	631.0	75.5	122.8	162.2	74.4	78.82778	76.47849	76.4919	78.40119	78.94333	77.09	75.95	76.19	0.02	0.02	1.2044	1.2815	0.298984	12.32134	7.496415	35.84202	1.179804	0.044951	0.070368	0.051111	0.001	0.001
1	850.4	75.1	135.2	164.8	75.7	77.27877	77.55987	79.9448	77.63787	78.81584	78.56	76.07	81.12	3.96	3.95	1.2336	1.3044	0.152595	6.472099	14.374	35.12513	1.208016	0.052004	0.076101	0.058404	0.140	0.139
2	920.7	76.2	144.6	170.8	75.7	77.07886	78.07611	82.90872	77.73215	79.16435	79.87	75.84	84.52	3.83	3.86	1.2415	1.2661	0.133502	8.725234	11.79991	34.4375	1.215222	0.053805	0.066534	0.06037	0.135	0.136
3	725.5	75.4	122.3	173.9	75.8	77.29868	78.09515	84.02296	77.73383	79.43657	80.58	75.97	85.34	3.88	3.84	1.21	1.3351	0.352678	12.72331	7.573469	33.93275	1.206907	0.051727	0.083773	0.05233	0.137	0.135
4	659.8	76.4	112.9	173.1	76.3	77.5313	78.50848	83.38782	77.78833	79.41772	80.75	75.94	84.29	3.86	3.82	1.21	1.2897	2.247813	13.36522	6.456562	33.54261	1.204334	0.051084	0.072429	0.052144	0.136	0.135
5	642.4	76.0	109.1	171.7	75.3	77.31848	78.50315	82.90741	77.76192	79.56986	80.63	76.04	83.27	3.84	3.80	1.20	1.3188	3.546467	13.58748	5.909387	33.04152	1.188936	0.047234	0.079701	0.050303	0.136	0.134
6	634.4	76.4	107.7	170.4	74.9	77.23887	78.60424	82.86851	77.75368	79.49575	80.45	75.89	83.19	3.79	3.79	1.20	1.2702	2.721094	14.18354	5.694107	32.6343	1.238911	0.059728	0.067543	0.05023	0.134	0.134
7	627.9	76.2	106.6	169.3	74.0	77.17432	78.66686	82.69928	77.8867	79.66649	80.60	76.17	83.08	3.73	3.78	1.20	1.2719	2.365917	14.32329	5.761254	32.13687	1.22183	0.055457	0.067979	0.051114	0.132	0.133
8	625.5	76.1	105.5	168.2	74.8	77.16188	78.58749	82.70021	77.89633	79.6562	80.71	76.10	83.00	3.72	3.76	1.20	1.3256	2.172162	14.26956	5.887898	31.74551	1.203371	0.050843	0.081411	0.050428	0.131	0.133
9	626.8	75.6	105.0	167.7	76.0	77.37323	78.60474	82.77001	77.88029	79.75255	80.68	75.99	83.09	3.72	3.75	1.20	1.3127	2.037709	14.33067	5.88165	31.33098	1.221171	0.055293	0.07818	0.050913	0.131	0.132
10	629.1	75.7	104.8	167.8	75.8	77.34084	78.76645	82.88985	77.83028	79.73624	80.81	76.13	83.19	3.70	3.74	1.20	1.2941	1.949877	14.31662	5.915391	30.93108	1.230864	0.057716	0.073523	0.050373	0.131	0.132
11	629.3	76.0	104.7	166.8	75.2	77.50888	78.74039	83.00935	78.00146	79.83244	81.07	76.22	83.15	3.87	3.82	1.20	1.2690	1.780226	14.3232	5.970712	30.52143	1.221708	0.055427	0.067241	0.050147	0.137	0.135
12	630.9	75.6	104.3	166.6	75.8	77.4417	78.96102	82.94971	77.90719	79.78568	81.20	76.13	83.26	3.85	3.80	1.21	1.3018	1.575864	14.49791	5.855772	30.1386	1.234534	0.058633	0.075449	0.051763	0.136	0.134
13	631.9	75.5	104.2	166.3	75.0	77.31746	78.73637	83.14397	77.84852	79.68824	81.07	76.09	83.28	3.80	3.79	1.20	1.2516	1.52562	14.59304	5.774361	29.73505	1.24041	0.060103	0.062898	0.050751	0.134	0.134
14	631.9	75.9	104.1	166.0	74.8	77.67554	79.061	83.44425	78.25873	79.78914	81.47	76.20	83.66	3.79	3.78	1.20	1.2946	1.295838	14.62642	5.83401	29.33027	1.196751	0.049188	0.073654	0.050644	0.134	0.133
15	634.4	76.5	104.3	165.8	73.9	77.64303	78.94147	83.35939	77.91669	79.69606	81.54	76.24	83.71	3.78	3.78	1.20	1.2812	1.060825	14.63214	5.909295	28.93647	1.208638	0.05216	0.070289	0.050391	0.134	0.133
16	635.2	75.6	104.0	165.8	74.9	77.22112	78.69359	83.35255	77.76913	79.73535	81.53	76.08	83.42	3.76	3.77	1.20	1.2713	0.955986	14.61252	5.97687	28.53779	1.246616	0.061654	0.067826	0.050586	0.133	0.133
17	633.4	75.0	103.8	165.5	73.7	77.25108	78.73023	83.59326	77.67515	79.78127	81.73	76.14	83.60	3.74	3.76	1.20	1.2826	0.838846	14.80564	5.813832	28.12936	1.22122	0.055305	0.070658	0.049578	0.132	0.133
18	631.9	75.7	103.7	165.9	75.1	77.38218	78.98182	83.66314	77.78421	79.67763	81.56	76.18	83.64	3.74	3.75	1.20	1.2921	0.782726	14.70524	5.95721	27.74287	1.195044	0.048761	0.073026	0.050568	0.132	0.132
19	632.3	76.4	103.6	165.3	74.1	77.44024	78.86585	83.562	77.865	79.61211	81.74	76.16	83.65	3.73	3.74	1.20	1.3064	0.790334	14.71822	5.922036	27.33688	1.221976	0.055494	0.07661	0.050416	0.132	0.132
20	632.7	75.5	103.5	165.7	75.0	77.53306	78.92521	83.85809	78.12975	79.93253	81.84	76.14	84.18	3.72	3.74	1.20	1.2825	0.723912	14.69192	5.982935	27.04184	1.225195	0.056299	0.07063	0.049349	0.131	0.132
21	541.6	75.3	98.3	164.0	74.9	77.32027	78.8329	83.70109	78.02995	79.81434	81.93	76.16	83.63	3.81	3.73	1.19	1.2921	0.668304	14.71819	5.989793	26.63462	1.225756	0.056439	0.073035	0.046658	0.134	0.132
22	510.2	75.2	96.0	161.8	75.3	77.36649	78.77201	83.38368	78.06671	79.6592	81.98	76.10	83.21	3.78	3.72	1.18	1.3165	2.356919	13.86045	6.516516	26.32861	1.203676	0.050919	0.079128	0.045152	0.133	0.131
23	494.6	74.8	94.7	159.5	74.4	77.44817	78.86039	83.18706	77.98225	79.73431	81.58	76.03	83.09	3.77	3.71	1.18	1.3383	3.641089	12.7672	7.312622	26.03965	1.191496	0.047874	0.084572	0.045755	0.133	0.131
24	480.7	75.0	93.5	157.4	74.0	77.57742	78.86916	83.22211	77.89568	79.56977	81.40	76.09	82.72	3.76	3.71	1.17	1.3234	2.540762	12.58609	7.682434	25.83117	1.163491	0.040873	0.080844	0.043442	0.133	0.131
25	471.6	74.9	93.0	155.6	74.6	77.5489	78.90088	82.91022	77.94148	79.68092	81.61	76.26	82.71	3.76	3.71	1.17	1.3186	1.702502	12.54525	7.952761	25.53247	1.215319	0.05383	0.079649	0.043603	0.133	0.131
26	463.8	75.2	92.6	153.8	74.3	77.49266	78.81788	82.74258	78.00031	79.58053	81.49	76.43	82.56	3.76	3.75	1.17	1.3177	1.431827	12.43936	8.121132	25.33252	1.181438	0.045359	0.079421	0.042147	0.133	0.132
27	458.5	75.1	92.1	152.2	74.3	77.31114	78.77691	82.56361	78.02077	79.69971	81.57	76.37	82.41	3.76	3.74	1.16	1.3304	1.308969	12.38468	8.213974	25.02894	1.193874	0.048468	0.082612	0.040891	0.133	0.132
28	453.4	75.2	92.1	150.9	73.9	77.64191	79.14114	82.53998	78.16924	79.8065	81.52	76.34	82.43	3.74	3.74	1.17	1.2850	1.231659	12.33719	8.253628	24.83387	1.214454	0.053613	0.071249	0.041345	0.132	0.132
29	450.6	75.1	91.3	149.0	73.2	77.32996	78.66856	82.47658	78.20567	79.69723	81.43	76.22	82.19	3.74	3.73	1.16	1.3068	1.287511	12.15733	8.408466	24.52297	1.206151	0.051538	0.076699	0.04115	0.132	0.132
30	448.4	74.4	90.6	147.8	74.4	77.58717	78.77183	82.36063	77.92496	79.55244	81.33	76.31	82.10	3.73	3.73	1.16	1.2843	1.252837	12.09719	8.476924	24.33278	1.174549	0.043637	0.071066	0.040839	0.132	0.132
31	442.6	75.0	90.5	146.3	74.2	77.38873	78.81432	82.33653	78.15765	79.78846	81.37	76.28	82.26	3.71	3.73	1.16	1.3368	1.116238	12.03053	8.583817	24.14258	1.185912	0.046478	0.084212	0.041113	0.131	0.132
32	440.9	74.2	89.9	145.3	74.4	77.5635	78.66783	82.32408	78.26562	79.54517	81.33	76.14	82.18	3.72	3.73	1.16	1.3190	1.015849	11.86146	8.775292	23.928	1.227231	0.056808	0.079762	0.039156	0.131	0.132
33	438.4	74.9	90.1	144.2	73.7	77.496	78.91492	82.24434	78.01572	79.67492	81.40	76.28	82.05	3.71	3.73	1.17	1.3484	0.985637	11.82086	8.808455	23.64149	1.20765	0.051913	0.087099	0.042247	0.131	0.132
34	436.3	74.3	89.3	143.1	74.0	77.14268	78.74901	82.16654	77.98935	79.52354	81.26	76.20	82.08	3.65	3.72	1.15	1.3159	0.937552	11.78822	8.855759	23.43057	1.19797	0.049493	0.078979	0.037922	0.129	0.131
35	435.2	74.2	89.3	142.1	74.3	77.23805	78.78413	82.11539	77.81662	79.66339	81.41	76.11	81.95	3.79	3.83	1.16	1.3254	0.910717	11.83498	8.82848	23.2294	1.15247	0.038117	0.08135	0.039827	0.134	0.135
36	433.0	74.5	89.2	141.1	73.2	77.50716	78.63828	82.03757	78.01097	79.49207	81.22	76.23	82.05	3.88	3.83	1.16	1.2645	0.847624	11.76758	8.903064	23.03189	1.192191	0.048048	0.066135	0.040747	0.137	0.135
37	430.2	74.4	89.1	140.2	73.5	77.33522	78.76752	81.90103	78.09602	79.62871	81.11	76.36	81.79	3.85	3.83	1.16	1.3271	0.80917	11.72695	8.958598	22.82463	1.165832	0.041458	0.08178	0.040117	0.136	0.135
38	426.8	73.6	88.4	139.4	73.2	76.98074	78.62721	81.69009	77.84647	79.68623	80.99	76.19	81.76	3.82	3.83	1.15	1.3288	0.769217	11.65234	9.049063	22.52714	1.232144	0.058036	0.0822	0.037992	0.135	0.135
39	426.9	74.1	88.2	135.7	74.4	77.26157	78.92812	81.9472	78.06442	79.74934	81.45	76.24	81.82	3.75	3.82	1.16	1.3664	0.779788	11.61994	9.08189	22.3211	0.990048	0	0.091604	0.039888	0.132	0.135
40	430.5	74.1	87.7	149.1	74.1	77.2179	78.70373	81.71275	77.93071	79.6373	81.00	76.17	81.43	3.74	3.82	1.16	1.2754	0.779788	11.45901	9.249773	22.12968	1.197275	0.049319	0.068847	0.039141	0.132	0.135
41	427.8	74.0	88.3	144.9	74.3	77.31683	78.77589	81.62552	77.81842	79.59917	80.87	76.06	81.49	3.69	3.83	1.16	1.2814	0.753209	11.39731	9.296499	21.93461	1.200579	0.050145	0.070347	0.038916	0.130	0.135
42	425.3	74.2	87.8	142.3	73.6	77.02222	78.68878	81.63202	77.83219	79.46097	81.01	76.28	81.59	3.68	3.82	1.15	1.2931	0.764218	11.48485	9.202651	21.72735	1.161041	0.04026	0.073282	0.037824	0.130	0.135
43	422.3	74.8	87.8	140.1	73.6	76.99957	78.69289	81.41171	77.54269	79.44609	80.88	75.98	81.45	3.90	3.82	1.16	1.2998	0.782689	11.47132	9.209357	21.53959	1.1681	0.042025	0.074962	0.038809	0.138	0.135
44	425.2	73.1	87.1	135.6	72.8	76.85765	78.75845	81.39056	77.58527	79.63326	81.00	76.05	81.49	3.89	3.82	1.16	1.3383	0.787725	11.43736	9.249804	21.23479	0.990182	0	0.084563	0.039348	0.137	0.135
45	425.7	74.0	87.1	147.6	72.6	76.80646	78.3793	81.35328	77.44704	79.2594	80.75	75.81	81.11	3.87	3.82	1.16	1.3254	0.798502	11.45894	9.216002	21.11775	1.185412	0.046353	0.081347	0.039156	0.136	0.135
46	423.0	74.3	87.9	143.6	72.3	76.6609	78.32744	81.19656	77.37398	79.43813	80.71	76.16	81.57	3.87	3.82	1.15	1.3048	0.769205	11.57382	9.108743	20.92512	1.178292	0.044573	0.07619	0.038513	0.137	0.135
47	419.3	73.7	87.3	140.5	72.4	76.63347	78.32679	81.41369	77.62865	79.66283	80.69	75.88	81.25	3.85	3.82	1.16	1.3100	0.809121	11.5459	9.128889	20.72882	1.109261	0.027315	0.077488	0.038803	0.136	0.135
48	423.5	73.3	86.8	135.7	72.7	76.53475	78.34185	81.05238	77.27029	79.48767	80.91	75.99	81.38	3.82	3.82	1.16	1.2752	0.88665	11.45894	9.209295	20.42037	0.990207	0	0.068795	0.039547	0.135	0.135
49	426.0	73.7	86.9	147.6	72.3	76.80637	78.57331	81.208	77.31258	79.52938	80.59	75.78	81.17	3.82	3.83	1.16	1.3766	0.865314	11.48479	9.163546	20.23139	1.200774	0.050194	0.094158	0.03937	0.135	0.135
50	422.4	74.1	87.1	143.1	72.2	76.6311	78.48505	81.23318	77.47111	79.65268	80.72	76.01	81.31	3.80	3.82	1.15	1.3121	0.795698	11.56818	9.11621	20.0351	1.208943	0.052236	0.078028	0.038333	0.134	0.135
51	420.1	73.6	86.9	144.1	72.0	76.50998	78.30369	80.89597	77.23196	79.29151	80.45	75.61	81.08	3.79	3.82	1.15	1.3516	0.753197	11.61991	9.07555	19.82296	0.990329	0	0.087909	0.038364	0.134	0.135
52	426.4	72.4	86.2	151.9	72.1	76.4407	78.49545	81.07844	77.26492	79.60117	80.58	75.88	81.05	3.79	3.83	1.16	1.3113	0.761926	11.69245	9.00252	19.63642	1.162199	0.04055	0.077821	0.038961	0.134	0.135
53	425.8	73.7	86.8	146.6	72.2	76.45058	78.35138	80.98919	77.32008	79.2728	80.56	75.57	80.92	3.78	3.83	1.15	1.3250	0.713305	11.72689	8.9892	19.44379	1.202908	0.050727	0.081246	0.037834	0.134	0.135
54	423.2	73.3	87.0	143.1	73.3	76.52966	78.55093	80.99457	77.03766	79.34409	80.37	75.84	81.09	3.78	3.83	1.15	1.2810	0.612696	11.95656	8.788551	19.22433	1.180353	0.045088	0.07024	0.038413	0.133	0.135
55	420.2	73.4	87.1	140.9	72.6	76.21937	78.40128	80.88001	77.12381	79.25087	80.39	75.68	80.89	3.77	3.82	1.15	1.2692	0.517855	12.15727	8.637096	19.02682	1.193203	0.048301	0.06729	0.038029	0.133	0.135
56	420.9	73.5	87.1	139.3	73.5	76.32491	78.21232	80.95766	77.14009	79.18112	80.39	75.69	80.94	3.77	3.77	1.15	1.3002	0.619268	12.06982	8.702048	18.83053	0.990207	0	0.075062	0.038532	0.133	0.133
57	426.2	73.6	86.4	150.9	73.0	76.51837	78.43925	81.02963	77.40206	79.45922	80.50	75.69	81.10	3.77	3.77	1.15	1.3260	0.622145	12.06979	8.702048	18.61961	1.194337	0.048584	0.081496	0.038233	0.133	0.133
58	425.4	73.3	87.0	145.4	73.4	76.33772	78.23183	80.51495	77.36916	79.22221	80.26	75.86	81.02	3.77	3.77	1.16	1.3150	0.633362	12.23039	8.544376	18.42698	1.204737	0.051184	0.078759	0.038855	0.133	0.133
59	422.9	73.6	87.3	142.3	73.7	76.66399	78.48448	80.78386	77.47957	79.42345	80.24	75.79	80.91	3.76	3.77	1.15	1.3511	0.571048	12.23731	8.569858	18.23068	1.195617	0.048904	0.087784	0.03784	0.133	0.133
60	419.8	73.2	86.9	143.7	72.1	76.64359	78.59126	80.72415	77.65691	79.26176	80.20	75.78	80.88	3.75	3.77	1.15	1.3071	0.654795	12.23731	8.550472	17.9271	0.989853	0	0.076769	0.038605	0.132	0.133
61	424.6	73.0	86.1	148.9	72.9	76.66185	78.66306	80.64977	77.51225	79.49528	80.43	75.95	80.25	3.75	3.77	1.16	1.3032	0.633337	12.1431	8.637127	17.73569	1.201859	0.050465	0.075812	0.039166	0.133	0.133
62	423.3	73.8	86.7	147.1	72.3	76.62488	78.52569	80.66611	77.53586	79.51195	80.43	75.83	80.08	3.75	3.77	1.15	1.3337	0.63035	12.09018	8.7193	17.52233	1.214697	0.053674	0.083426	0.038288	0.133	0.133
63	420.0	74.2	87.2	143.4	73.2	76.54724	78.46812	80.80073	77.48417	79.48738	80.32	75.66	79.67	3.75	3.77	1.15	1.3090	0.611611	12.00527	8.801779	17.42723	1.188058	0.047015	0.077251	0.038221	0.132	0.133
64	417.9	73.6	86.9	140.8	72.7	76.48129	78.50925	80.64991	77.37398	79.62291	80.46	75.91	79.69	3.74	3.77	1.15	1.2999	0.640909	11.96333	8.828388	17.13097	1.106372	0.026593	0.074986	0.038065	0.132	0.133
65	423.1	73.1	86.4	135.3	73.7	76.56615	78.60751	80.72698	77.34771	79.41882	80.08	75.88	79.66	3.74	3.77	1.16	1.2735	0.640896	12.21786	8.563243	16.92005	0.990134	0	0.068363	0.039159	0.132	0.133
66	425.7	72.9	86.2	148.3	73.3	76.24151	78.38995	80.54548	77.1193	79.28601	80.33	75.89	79.69	3.74	3.78	1.15	1.3323	0.616659	12.21786	8.569948	16.82007	1.163943	0.040973	0.083063	0.038574	0.132	0.133
67	422.1	73.6	86.7	144.3	73.3	76.36647	78.48145	80.5697	77.32448	79.29034	80.10	75.85	79.40	3.74	3.77	1.15	1.2713	0.620694	12.20445	8.583786	16.52502	1.185851	0.046463	0.06782	0.038333	0.132	0.133
68	417.8	73.0	86.8	141.5	73.5	76.43847	78.45306	80.31072	77.30024	79.33243	80.04	75.83	79.41	3.71	3.77	1.15	1.3130	0.603284	12.13005	8.655354	16.41286	1.209723	0.052431	0.078244	0.037742	0.131	0.133
69	414.9	73.5	87.1	143.0	73.0	76.64719	78.46098	80.7013	77.41962	79.26536	80.04	75.81	79.32	3.71	3.77	1.15	1.2928	0.590678	12.08323	8.715826	16.12391	0.989829	0	0.073206	0.037224	0.131	0.133
70	420.6	73.0	86.3	133.9	73.4	76.74458	78.55168	80.61916	77.40514	79.38307	80.24	76.07	79.36	3.84	3.79	1.16	1.2725	0.584777	12.10469	8.689491	15.93128	1.005398	0.00135	0.068134	0.038879	0.136	0.134
71	420.2	73.7	86.5	147.2	73.5	76.50409	78.45844	80.45461	77.43842	79.36967	80.16	76.06	79.19	3.85	3.78	1.15	1.2884	0.544555	11.98469	8.835429	15.82033	1.19074	0.047685	0.072103	0.038504	0.136	0.134

Raw Data

Reading Interval	1	Minutes																			8.40272		0.029839					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
72	416.5	74.1	86.8	143.5	72.6	76.5972	78.4043	80.56622	77.29005	79.33557	80.09	75.86	79.00	3.84	3.79	1.15	1.2377	0.533619	11.97076	8.828358	15.62526	1.186632	0.046658	0.059414	0.037163	0.136	0.134
73	412.4	72.8	86.2	142.7	73.5	76.40252	78.3167	80.42706	77.33743	79.38229	80.23	75.95	79.08	3.84	3.79	1.15	1.2945	0.5418	11.94354	8.8685	15.42775	0.994133	0	0.073623	0.03766	0.135	0.134
74	419.0	73.2	85.8	134.3	73.8	76.55267	78.56725	80.33094	77.48412	79.46094	80.12	76.05	79.10	3.84	3.79	1.15	1.3124	0.541788	11.90215	8.89206	15.11929	0.990329	0	0.078098	0.03766	0.135	0.134
75	419.0	73.5	86.5	147.9	73.3	76.60387	78.25034	80.28904	77.38037	79.30585	80.06	75.87	78.84	3.83	3.79	1.15	1.3680	0.494007	11.84083	8.976368	15.02297	1.183827	0.045957	0.092006	0.038126	0.135	0.134
76	416.9	73.0	86.4	144.0	72.3	76.52511	78.32552	80.23117	77.40504	79.38956	79.90	75.81	78.84	3.82	3.79	1.15	1.3135	0.464308	11.91569	8.881789	14.82912	1.207846	0.051961	0.078369	0.038102	0.135	0.134
77	415.0	73.3	86.6	141.3	73.1	76.53472	78.41544	80.25385	77.35893	79.53548	80.11	75.78	79.07	3.82	3.79	1.15	1.3066	0.462003	11.90858	8.888586	14.72183	1.204968	0.051242	0.076641	0.037203	0.135	0.134
78	415.4	73.1	86.0	141.0	72.3	76.37486	78.56346	80.2876	77.16969	79.39508	79.96	76.04	78.74	3.82	3.79	1.15	1.3010	0.440436	11.90855	8.903034	14.41581	0.990036	0	0.07526	0.038477	0.135	0.134
79	419.7	73.2	85.6	151.4	73.1	76.55315	78.4071	80.31821	77.62342	79.40031	80.15	76.02	78.68	3.81	3.79	1.15	1.3245	0.424476	11.88198	8.92251	14.31827	1.204249	0.051062	0.081122	0.037879	0.134	0.134
80	417.1	73.6	86.8	145.9	72.9	76.49582	78.55057	80.51246	77.58475	79.30279	79.91	76.07	78.78	3.81	3.79	1.15	1.2953	0.402848	12.05681	8.736491	14.1232	1.225634	0.056408	0.073828	0.037035	0.134	0.134
81	416.0	73.0	86.4	142.7	73.1	76.47845	78.47297	80.40955	77.53356	79.46349	80.08	75.84	78.70	3.81	3.79	1.15	1.3211	0.371112	12.13618	8.671294	13.91228	1.196739	0.049185	0.080265	0.036861	0.134	0.134
82	413.4	73.6	86.5	142.4	72.7	76.54407	78.48503	80.28287	77.51526	79.65662	79.87	75.94	78.79	3.81	3.79	1.15	1.3170	0.363004	11.97082	8.86216	13.72209	0.992158	0	0.079259	0.037212	0.134	0.134
83	417.4	72.6	85.4	134.3	73.4	76.55957	78.75488	80.23876	77.4608	79.52374	80.03	75.96	78.74	3.81	3.79	1.15	1.2991	0.33189	12.10463	8.713235	13.52579	0.991146	0	0.074766	0.038718	0.134	0.134
84	416.7	73.1	86.0	147.6	72.5	76.40242	78.56425	80.28838	77.41523	79.45901	79.99	75.72	78.63	3.80	3.79	1.15	1.2948	0.274856	12.03044	8.814794	13.41729	1.198872	0.049718	0.073703	0.037233	0.134	0.134
85	413.8	74.2	86.2	143.9	73.1	76.72484	78.40477	80.4281	77.34817	79.39288	79.94	75.96	78.75	3.79	3.79	1.15	1.2803	0.234745	12.07695	8.749842	13.22465	1.188265	0.047066	0.070079	0.037663	0.134	0.134
86	412.6	73.5	86.4	141.7	72.8	76.47327	78.44771	80.33185	77.50187	79.54443	79.91	76.12	78.64	3.79	3.79	1.15	1.3087	0.229453	12.11673	8.715886	13.02714	1.183254	0.045814	0.077168	0.03784	0.134	0.134
87	411.8	73.7	86.4	141.5	72.8	76.66027	78.55438	80.23245	77.48005	79.43713	79.79	75.97	78.62	3.79	3.79	1.15	1.3065	0.218627	12.08314	8.75609	12.80647	0.990243	0	0.076617	0.036956	0.134	0.134
88	416.1	73.4	86.0	151.4	73.2	76.82159	78.52829	80.42451	77.60304	79.58479	80.01	76.15	78.81	3.79	3.79	1.15	1.3548	0.208227	11.92901	8.909039	12.71137	1.198129	0.049532	0.088708	0.036672	0.134	0.134
89	414.4	73.7	86.4	146.2	72.7	76.52485	78.44573	80.13193	77.43334	79.39767	79.83	75.75	78.25	3.79	3.79	1.15	1.2901	0.203021	11.87493	8.936317	12.51752	1.157529	0.039382	0.072532	0.037175	0.134	0.134
90	411.5	72.9	86.2	142.8	73.0	76.64635	78.32628	80.09994	77.14628	79.3588	79.78	76.00	78.38	3.79	3.79	1.15	1.2995	0.202997	11.97735	8.814825	12.30172	1.19074	0.047685	0.074867	0.037547	0.134	0.134
91	407.5	73.3	86.4	140.8	73.4	76.37663	78.35106	80.19035	77.52147	79.29978	79.62	75.80	78.34	3.79	3.79	1.15	1.3162	0.232099	11.95659	8.822566	12.21028	1.208455	0.052114	0.079061	0.03656	0.134	0.134
92	405.3	73.5	86.1	142.9	72.4	76.53476	78.60959	80.1153	77.47315	79.39073	79.80	75.84	78.22	3.79	3.79	1.15	1.3058	0.285683	11.78801	8.983287	12.01521	0.989707	0	0.076461	0.036691	0.134	0.134
93	409.7	72.6	85.6	147.2	73.4	76.50729	78.55534	80.174	77.39748	79.35571	79.90	75.97	78.52	3.79	3.79	1.15	1.3197	0.272247	11.78822	8.983227	11.8177	1.198068	0.049517	0.07993	0.037779	0.134	0.134
94	408.4	73.7	85.8	146.3	73.4	76.53012	78.43093	80.09093	77.37002	79.34843	79.86	75.90	78.21	3.79	3.79	1.15	1.2943	0.274832	11.67968	9.08189	11.70797	1.205285	0.051321	0.073578	0.037297	0.134	0.134
95	404.0	72.9	85.9	142.7	72.6	76.39633	78.45108	79.95902	77.22434	79.36318	79.82	75.92	78.26	3.79	3.79	1.14	1.3498	0.261518	11.53932	9.209265	11.50924	1.200738	0.050184	0.087449	0.035968	0.134	0.134
96	400.8	73.7	85.9	140.5	72.5	76.35028	78.55897	80.05219	77.23678	79.30286	79.93	76.01	78.30	3.79	3.79	1.14	1.3625	0.227027	11.53201	9.209234	11.41536	1.187912	0.046978	0.090622	0.035712	0.134	0.134
97	396.9	73.8	86.1	138.8	72.8	76.63381	78.66849	80.02158	77.34101	79.45182	79.68	76.00	78.22	3.78	3.79	1.14	1.2976	0.210873	11.47766	9.249651	11.22273	1.168258	0.042065	0.074389	0.035587	0.133	0.134
98	394.0	73.1	85.7	140.0	72.4	76.45342	78.36092	79.97572	77.33583	79.44671	79.91	75.89	78.08	3.78	3.79	1.15	1.3046	0.208239	11.1454	9.599286	11.00937	0.989987	0	0.076147	0.036685	0.133	0.134
99	398.5	73.1	85.1	148.2	72.7	76.67535	78.40213	79.93716	77.46152	79.39906	79.76	75.95	78.06	3.78	3.79	1.14	1.3084	0.22137	10.86834	9.865925	10.90817	1.215831	0.053958	0.077089	0.036008	0.133	0.134
100	394.9	73.1	85.4	143.5	73.1	76.78259	78.36214	79.91092	77.28179	79.35384	79.76	75.98	77.92	3.78	3.79	1.14	1.3020	0.200241	10.61986	10.06615	10.81308	1.211284	0.052821	0.075501	0.035999	0.133	0.134
101	387.0	73.5	85.4	140.3	73.5	76.80264	78.54951	80.02967	77.30338	79.26952	79.56	76.00	78.03	3.77	3.79	1.14	1.2955	0.166189	10.4062	10.25665	10.618	1.201774	0.050444	0.073867	0.034981	0.133	0.134
102	383.1	74.0	85.5	141.4	72.4	76.78873	78.61593	79.81799	77.40475	79.57406	79.66	76.09	77.99	3.78	3.80	1.14	1.3313	0.256288	10.13075	10.52033	10.49487	0.990065	0	0.082825	0.034633	0.133	0.134
103	385.5	73.2	84.6	143.3	72.9	76.54926	78.46345	79.78644	77.35583	79.45322	79.70	75.94	77.93	3.78	3.79	1.14	1.2952	0.408383	9.921905	10.64167	10.40465	1.221769	0.055442	0.073791	0.036054	0.133	0.134
104	382.9	73.5	84.8	143.3	73.5	76.45122	78.51266	79.78876	77.57891	79.39602	79.40	75.93	77.95	3.77	3.79	1.13	1.3332	0.456285	9.915352	10.58043	10.30711	1.191386	0.047847	0.083292	0.033554	0.133	0.134
105	379.3	73.3	84.9	139.7	73.2	76.68661	78.5071	79.75689	77.43816	79.673	79.72	76.01	77.92	3.77	3.79	1.14	1.3129	0.459041	9.995757	10.4619	10.20957	1.185681	0.04642	0.078232	0.034447	0.133	0.134
106	374.6	74.0	85.0	139.7	72.4	76.4613	78.49597	79.71951	77.29605	79.3085	79.56	75.78	78.01	3.78	3.80	1.13	1.2661	0.437522	10.05772	10.38073	10.0145	0.991694	0	0.066528	0.033472	0.133	0.134
107	378.0	73.1	84.2	132.2	72.9	76.65468	78.57556	79.85738	77.6706	79.49303	79.66	75.96	77.86	3.77	3.80	1.14	1.3319	0.434901	10.07772	10.32175	9.902335	1.062859	0.015715	0.082984	0.035042	0.133	0.134
108	377.8	73.1	84.4	143.0	72.7	76.57687	78.33044	79.60249	77.2399	79.51051	79.62	75.98	77.84	3.77	3.79	1.14	1.2970	0.416613	10.12405	10.26274	9.806018	1.184364	0.046091	0.07426	0.033795	0.133	0.134
109	373.3	73.3	84.6	139.1	73.2	76.5389	78.43971	79.79603	77.2674	79.30665	79.62	76.00	77.69	3.77	3.79	1.13	1.3260	0.402836	10.10396	10.23708	9.707263	1.193008	0.048252	0.081506	0.033716	0.133	0.134
110	369.3	73.3	84.5	139.8	72.3	76.52882	78.30245	79.74648	77.22237	79.34144	79.63	75.80	77.62	3.92	3.79	1.14	1.2900	0.416588	10.10393	10.1888	9.513411	0.989487	0	0.072499	0.034505	0.138	0.134
111	371.9	73.5	83.7	131.0	73.0	76.63225	78.38581	79.67689	77.54279	79.53198	79.54	75.96	77.76	3.84	3.81	1.14	1.3054	0.368381	9.902885	10.40161	9.419532	1.216197	0.054049	0.076339	0.034167	0.136	0.135
112	369.0	73.9	84.1	142.1	73.3	76.49672	78.53139	79.66204	77.61388	79.62187	79.52	75.87	77.85	3.83	3.82	1.13	1.3257	0.33723	9.773864	10.53289	9.302489	1.191167	0.047792	0.081423	0.033548	0.135	0.135
113	365.0	74.2	84.5	138.5	73.0	76.74234	78.48921	79.70625	77.35766	79.48144	79.41	75.93	77.83	3.84	3.81	1.13	1.3231	0.337243	9.822266	10.43425	9.208611	1.188619	0.047155	0.080774	0.032832	0.135	0.135
114	361.7	74.1	84.5	136.1	73.5	76.51539	78.6103	79.55506	77.44103	79.51744	79.35	76.18	77.66	3.83	3.81	1.13	1.2978	0.344911	9.741737	10.49387	9.112294	1.203042	0.05076	0.074456	0.031866	0.135	0.135
115	360.7	74.0	84.4	137.5	73.3	76.6933	78.74805	79.63808	77.71338	79.73317	79.64	75.97	77.61	3.84	3.81	1.13	1.3168	0.329037	9.760544	10.46187	9.011101	0.989817	0	0.079198	0.032445	0.135	0.135
116	361.7	73.1	83.5	130.4	73.3	76.64462	78.72614	79.5043	77.46904	79.43288	79.32	75.72	77.54	3.84	3.81	1.13	1.3119	0.334975	9.720098	10.4939	8.913565	1.184998	0.046249	0.077979	0.033384	0.135	0.135
117	362.8	72.9	83.9	140.3	73.7	76.59457	78.68278	79.60014	77.6265	79.34396	79.25	76.09	77.60	3.84	3.82	1.13	1.3248	0.304349	9.713696	10.51375	8.802617	1.203115	0.050779	0.081201	0.033213	0.135	0.135
118	361.1	73.9	84.3	137.1	73.3	76.7198	78.54698	79.44644	77.51916	79.36349	79.58	76.15	77.79	3.83	3.81	1.13	1.3008	0.288487	9.687393	10.54737	8.698986	1.190874	0.047719	0.075196	0.033637	0.135	0.135
119	357.8	73.6	84.1	134.8	73.9	76.76462	78.56503	79.37846	77.47737	79.48067	79.35	75.84	77.65	3.83	3.82	1.13	1.3357	0.282903	9.680047	10.5619	8.60023	1.2027	0.050675	0.083932	0.032295	0.135	0.135
120	358.5	73.5	83.1	131.1	73.4	76.69701	78.73167	79.54936	77.67335	79.81909	79.36	75.94	77.61	3.83	3.81	1.13	1.3386	0.3043	9.741769	10.45638	8.40272	0.990134	0	0.084639	0.033079	0.135	0.135
121	358.3	73.5	83.5	141.5	72.9	76.68832	78.65606	79.5276	77.3693	79.67769	79.40	76.10	77.68	3.84	3.82	1.13	1.3	0.282891	9.693306	10.52036	8.40394	1.213942	0.053485	0.069655	0.03274	0.135	0.135
122	354.5	73.3	83.5	137.8	74.0	76.59834	78.4389	79.28709	77.48335	79.64494	79.37	75.92	77.47	3.83	3.81	1.13	1.3	0.264249	9.552885	10.67035	8.307623	1.204103	0.051026	0.077912	0.03203	0.135	0.135
123	350.4	74.3	83.7	135.0	73.4	76.61999	78.59441	79.41402	77.51629	79.52565	79.29	75.84	77.50	3.83	3.81	1.13	1.3	0.234757	9.479581	10.72159	8.191798	1.210491	0.052623	0.07249	0.03257	0.135	0.135
124	348.1	73.6	83.7	135.6	73.2	76.66998	78.58418	79.31153	77.51207	79.57428	79.38	76.05	77.49	3.83	3.81	1.13	1.3	0.232111	9.33154	10.86804	8.099139	0.99056	0	0.081798	0.032018	0.135	0.135
125	352.9	73.5	82.8	142.6	73.2	76.87694	78.64388	79.41	77.75217	79.58665	79.44	76.02	77.54	3.82	3.82	1.13	1.3	0.224089	9.33154	10.8471	8.005261	1.186875	0.046719	0.075275	0.032481	0.135	0.135
126	351.7	73.3	83.1	138.4	72.9	76.68591	78.52648	79.12887	77.52226	79.51174	79.12	75.96	77.24	3.83	3.82	1.13	1.3	0.216164	9.325109	10.8471	7.90163	1.177353	0.044338	0.063205	0.031847	0.135	0.135
127	347.9	74.1	83.5	135.5	73.1	76.64021	78.37369	79.07647	77.47269	79.39027	79.07	75.99	77.26	3.83	3.82	1.12	1.3	0.213372	9.366348	10.78087	7.805313	1.195446	0.048862	0.076973	0.030869	0.135	0.135
128	343.4	73.9	83.5	133.2	73.8	76.70835	78.46861	79.08437	77.3808	79.53724	79.11	75.74	77.20	3.83	3.82	1.13	1.3	0.192097	9.325078	10.80062	7.7029	1.180011	0.045003	0.071328	0.031317	0.135	0.135
129	344.0	73.4	82.8	130.9	73.3	76.63368	78.6215	79.06326	77.25188	79.49591	78.95	75.95	77.26	3.83	3.82	1.13	1.3	0.146987	9.21788	10.88847	7.598049	0.989841	0	0.071014	0.031954	0.135	0.135
130	343.8	73.3	82.6	140.5	72.8	76.55791	78.61935	79.20763	77.47813	79.52103	78.93	75.81	77.16	3.83	3.82	1.13	1.3	0.136197	9.109798	10.99508	7.502952	1.212539	0.053135	0.079009	0.031838	0.135	0.135
131	340.1	73.8	83.0	136.4	73.2	76.57804	78.44539	79.10132	77.35538	79.4264	79.06	76.05	77.45	3.83	3.82	1.12	1.3	0.106753	8.955997	11.15547	7.498075	1.215051	0.053763	0.070935	0.030933	0.135	0.135
132	336.1	74.0	83.2	133.6	73.4	76.72754	78.5882	79.15711	77.50594	79.58144	79.19	76.09	77.55	3.83	3.82	1.12	1.3	0.096207	8.901896	11.18866	7.401758	1.19908	0.04977	0.068177	0.030896	0.135	0.135
133	334.2	73.7	82.9	134.3	72.6	76.53642	78.81203	79.26563	77.77348	79.59445	79.10	76.12	77.37	3.83	3.82	1.12	1.3	0.086075	8.834962	11.24456	7.310318	0.990426	0	0.075745	0.030488	0.135	0.135
134	336.8	73.3	82.2	140.1	73.1	76.54699	78.84939	78.9364	77.47112	79.69889	79.18	76.11	77.44	3.82	3.82	1.12	1.3	0.083247	8.777081	11.29556	7.214002	1.174342	0.043586	0.070856	0.030994	0.135	0.135
135	333.2	74.0	82.5	137.5	72.7	76.59012	78.74526	79.1067	77.38893	79.54526	79.01	76.09	77.38	3.83	3.82	1.12	1.3	0.075371	8.782658	11.26809	7.211563	1.197873	0.049468	0.07947	0.030031	0.135	0.135
136	327.7	73.6	82.5	133.9	73.4	76.59304	78.60094	79.05608	77.53741	79.45409	79.01	76.13	77.40	3.83	3.83	1.12	1.3	0.069775	8.681618	11.36807	7.117684	1.196836	0.049209	0.06341	0.029939	0.135	0.135
137	323.1	74.2	82.7	131.7	73.5	76.46681	78.50149	78.92985	77.15533	79.32153	78.95	76.01	77.26	3.82	3.82	1.12	1.3	0.109569	8.621785	11.35475	6.999422	1.16966	0.042415	0.074178	0.029007	0.135	0.135
138	320.9	73.2	82.5	130.6	73.3	76.73156	78.56544	78.75954	77.34338	79.50695	78.92	75.98	77.08	3.83	3.82	1.12	1.3	0.176369	8.460608	11.44204	6.899448	0.990109	0	0.085221	0.029671	0.135	0.135
139	323.6	73.5	81.9	140.1	72.9	76.82745	78.57433	78.7952	77.29842	79.48241	78.78	75.97	77.31	3.83	3.83	1.12	1.3	0.218639	8.500994	11.30266	6.898229	1.20837	0.052092	0.079945	0.029729	0.135	0.135
140	320.0	73.1	82.3	135.3	72.7	76.60999	78.52419	78.75845	77.35326	79.45729	78.91	75.83	77.17	3.83	3.82	1.12	1.3	0.208288	8.400043	11.36798	6.806788	1.188643	0.047161	0.073438	0.029314	0.135	0.135
141	317.0	73.4	82.4	132.4	73.8	76.68058	78.58808	78.92944	77.44442	79.402	78.74	75.86	77.21	3.82	3.82	1.12	1.3	0.186952	8.304947	11.43482	6.80435	1.195373	0.048843	0.070533	0.029089	0.135	0.135
142	314.3	74.0	82.3	130.3	73.5	76.73501	78.67598	78.76299	77.69064	79.52597	78.81	75.90	77.07	3.83	3.83	1.12	1.3	0.1895	8.270992	11.38102	6.706814	1.025795	0.006449	0.078784	0.029244	0.135	0.135
143	317.5	73.7	81.9	127.1	72.9	76.74752	78.69518	78.76881	77.63254	79.47529	78.74	75.99	77.00	3.82	3.82	1.12	1.3	0.168701	8.304916	11.28199	6.600744	0.989939	0	0.072843	0.029671	0.135	0.135

Raw Data

Reading Interval	1	Minutes																			8.40272		0.029839					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
144	316.6	73.3	81.6	136.9	72.7	76.70949	78.5032	78.77094	77.48847	79.32005	78.61	76.07	76.93	3.82	3.82	1.12	1.3	0.120652	8.339755	11.23673	6.598306	1.180499	0.045125	0.078223	0.029275	0.135	0.135
145	314.1	73.8	82.1	133.0	73.1	76.91697	78.86463	78.93157	77.4537	79.56293	78.98	76.20	77.27	3.82	3.82	1.11	1.3	0.088477	8.217652	11.4087	6.601963	1.169039	0.04226	0.075571	0.028662	0.135	0.135
146	312.1	73.8	82.3	130.6	73.8	76.68608	78.64713	78.75423	77.47183	79.44882	78.82	75.97	77.24	3.82	3.82	1.11	1.3	0.093574	8.231551	11.39468	6.508085	1.160846	0.040211	0.074901	0.027992	0.135	0.135
147	308.4	73.3	82.0	129.9	73.0	76.90437	78.55753	78.73157	77.66469	79.44099	78.82	76.00	77.25	3.82	3.82	1.11	1.3	0.080735	8.257703	11.36804	6.389823	0.995986	0	0.074474	0.027879	0.135	0.135
148	310.6	73.0	81.3	124.8	72.8	77.01575	78.66891	78.61537	77.47137	79.51435	78.83	75.91	76.96	3.82	3.82	1.12	1.3	0.075359	8.239079	11.4087	6.295944	0.989987	0	0.072523	0.02886	0.135	0.135
149	312.3	73.4	81.3	135.7	72.8	76.69679	78.44366	78.69131	77.48261	79.45945	78.78	76.00	76.97	3.82	3.82	1.11	1.3	0.07848	8.197719	11.46957	6.293506	1.206504	0.051626	0.073306	0.027919	0.135	0.135
150	307.6	74.0	81.8	131.9	73.1	76.71178	78.63267	78.48544	77.54759	79.55651	78.91	76.09	77.13	3.82	3.82	1.11	1.3	0.064325	8.050257	11.66903	6.295944	1.207882	0.051971	0.075739	0.027516	0.135	0.135
151	305.6	73.4	81.7	129.8	73.6	76.83509	78.68236	78.77607	77.66006	79.8192	79.04	76.12	77.28	3.82	3.83	1.11	1.3	0.064288	8.016821	11.70271	6.199627	1.19541	0.048852	0.069618	0.027303	0.135	0.135
152	305.8	73.3	81.2	126.2	72.8	76.695	78.83007	78.65605	77.50255	79.58469	78.31	75.98	76.94	3.82	3.83	1.11	1.3	0.061728	8.063455	11.64257	6.199627	0.99028	0	0.065485	0.028668	0.135	0.135
153	308.6	73.2	80.8	137.1	73.1	76.64329	78.93229	78.62442	77.51081	79.52685	78.66	75.93	76.90	3.82	3.82	1.11	1.3	0.061679	8.070313	11.64885	6.098434	1.173379	0.043345	0.082076	0.02801	0.135	0.135
154	305.8	74.2	81.2	132.7	72.9	76.69151	78.67263	78.69272	77.66105	79.43081	78.66	75.89	76.99	3.82	3.82	1.11	1.3	0.061728	7.982652	11.77692	6.105749	1.172135	0.043034	0.084301	0.028016	0.135	0.135
155	302.5	73.8	81.6	130.1	73.4	76.70165	78.70287	78.60917	77.73955	79.5478	78.70	76.04	77.10	3.81	3.82	1.11	1.3	0.059046	7.943181	11.83776	6.003336	1.177926	0.044482	0.082399	0.027129	0.135	0.135
156	298.5	73.3	81.4	130.7	72.5	76.78661	78.54017	78.36616	77.44199	79.67677	78.46	76.08	77.22	3.82	3.82	1.11	1.3	0.061704	7.96281	11.7968	5.926527	0.990353	0	0.082819	0.02701	0.135	0.135
157	298.2	73.4	80.6	123.0	73.7	76.69186	78.63283	78.36511	77.45148	79.56075	78.42	76.18	76.75	3.81	3.83	1.11	1.3	0.064362	7.889628	11.87778	5.903362	0.989975	0	0.078238	0.027824	0.135	0.135
158	297.6	73.5	80.9	133.8	72.3	76.64146	78.67612	78.56235	77.5509	79.56638	78.55	76.10	77.11	3.81	3.82	1.11	1.3	0.075383	7.635242	12.13125	5.904582	1.171416	0.042854	0.078829	0.027227	0.135	0.135
159	294.8	74.0	81.0	130.3	72.6	76.64094	78.67561	78.38781	77.32398	79.52741	78.59	76.15	76.95	3.81	3.83	1.11	1.4	0.090903	7.320324	12.44508	5.905801	1.191996	0.047999	0.089619	0.026654	0.134	0.135
160	290.6	73.3	81.3	128.8	73.5	76.58902	78.81779	78.37605	77.58981	79.53876	78.57	76.01	76.90	3.81	3.83	1.11	1.3	0.093574	7.18606	12.58653	5.792415	1.004593	0.001148	0.077656	0.02641	0.134	0.135
161	291.8	73.1	80.5	124.5	72.9	76.52957	78.76504	78.40362	77.44875	79.40627	78.53	75.95	76.87	3.81	3.83	1.11	1.3	0.099133	7.173198	12.57943	5.69366	0.989865	0	0.081893	0.027096	0.134	0.135
162	292.1	73.1	80.5	133.3	72.9	76.48366	78.51833	78.22384	77.31742	79.41537	78.31	75.92	76.93	3.81	3.83	1.11	1.3	0.106716	7.152898	12.6	5.697318	1.20915	0.052288	0.075391	0.026465	0.134	0.135
163	289.4	74.1	81.1	129.7	73.2	76.5899	78.65134	78.31001	77.37337	79.60251	78.32	75.91	76.76	3.80	3.83	1.10	1.3	0.099145	7.125802	12.63899	5.697318	1.171318	0.04283	0.079585	0.025946	0.134	0.135
164	286.3	74.1	81.1	130.3	73.4	76.74723	78.66812	78.30001	77.41917	79.64108	78.61	76.37	77.06	3.80	3.83	1.11	1.3	0.093574	7.19307	12.55185	5.699756	0.99	0	0.073998	0.026315	0.134	0.135
165	288.0	73.8	80.2	123.2	73.0	76.76894	78.68983	78.18787	77.37836	79.42265	78.25	75.83	76.89	3.81	3.83	1.11	1.3	0.093598	7.24001	12.46501	5.597343	0.989853	0	0.071027	0.026858	0.134	0.135
166	288.5	73.2	80.5	132.7	73.3	76.50976	78.66489	78.16962	77.28739	79.55074	78.26	75.92	76.73	3.81	3.83	1.11	1.3	0.090916	7.213035	12.50479	5.597343	1.185815	0.046454	0.079783	0.026324	0.134	0.135
167	286.4	73.9	80.7	129.1	73.2	76.68994	78.67107	78.27618	77.17491	79.48602	78.39	76.05	76.92	3.81	3.83	1.10	1.3	0.085734	7.152868	12.57946	5.596124	1.192362	0.04809	0.083551	0.026193	0.134	0.135
168	282.5	74.0	80.9	128.7	73.0	76.54498	78.5261	78.18476	77.28096	79.60378	78.44	76.07	76.74	3.80	3.83	1.10	1.3	0.085698	7.167407	12.5584	5.504684	0.989987	0	0.072755	0.025681	0.134	0.135
169	286.9	73.3	80.0	135.7	72.8	76.52993	78.43743	78.02916	77.16853	79.44674	78.08	75.93	76.87	3.81	3.83	1.10	1.3	0.085722	7.193101	12.53161	5.501026	1.187778	0.046944	0.076952	0.026236	0.134	0.135
170	283.7	73.3	79.9	131.4	72.7	76.68485	78.41833	78.10377	77.28179	79.6178	78.29	75.92	76.81	3.81	3.83	1.10	1.4	0.088502	7.125802	12.63896	5.40471	1.175366	0.043842	0.087827	0.025593	0.134	0.135
171	280.3	73.2	80.0	128.2	72.9	76.62669	78.68145	78.01884	77.40305	79.4074	78.33	76.02	76.65	3.81	3.83	1.10	1.3	0.090879	7.067037	12.73997	5.403491	1.177695	0.044424	0.079009	0.024971	0.134	0.135
172	280.9	73.1	79.8	126.0	72.4	76.58351	78.61149	77.98904	77.28159	79.67039	78.19	75.84	76.75	3.81	3.83	1.10	1.3	0.096207	7.086452	12.73293	5.304736	0.990073	0	0.084615	0.025803	0.134	0.135
173	282.3	72.6	79.3	134.5	71.4	76.51406	78.61566	78.12038	77.36892	79.53213	78.32	76.05	76.83	3.80	3.83	1.10	1.3	0.106704	7.132263	12.71309	5.347407	1.169441	0.04236	0.074995	0.025956	0.134	0.135
174	280.3	73.0	79.1	128.6	70.6	76.50475	78.50596	78.04414	77.29556	79.45319	78.22	76.02	76.85	3.81	3.83	1.10	1.3	0.112142	7.067006	12.82818	5.302297	1.1854	0.04635	0.079314	0.025197	0.134	0.135
175	280.2	71.0	79.2	125.7	70.6	76.48772	78.50231	77.90663	77.25877	79.48952	78.22	75.89	76.78	3.80	3.83	1.10	1.3	0.125626	7.086452	12.82815	5.193788	0.990268	0	0.072721	0.025965	0.134	0.135
176	281.7	71.7	78.4	133.8	70.0	76.26188	78.41702	77.74773	76.98116	79.27519	78.07	75.96	76.58	3.81	3.83	1.10	1.3	0.133466	7.079534	12.86155	5.305954	1.186936	0.046734	0.074669	0.025718	0.134	0.135
177	279.6	72.0	78.7	128.2	70.7	76.29831	78.52708	77.84439	77.06063	79.32055	78.00	76.02	76.80	3.81	3.83	1.10	1.3	0.138903	7.039392	12.92696	5.195007	1.191667	0.047917	0.074745	0.025825	0.134	0.135
178	279.0	71.6	78.5	125.5	70.9	76.15028	78.43929	77.82354	76.97213	79.39827	78.02	75.99	76.76	3.81	3.82	1.10	1.3	0.155143	7.086422	12.89359	5.102348	0.990036	0	0.070015	0.025907	0.134	0.135
179	282.0	72.1	78.4	133.4	70.1	76.07222	78.52186	78.01319	77.19184	79.48952	78.14	76.07	76.90	3.82	3.83	1.10	1.3	0.120664	7.206299	12.76725	5.196227	1.195056	0.048764	0.073623	0.025898	0.135	0.135
180	279.0	71.5	78.6	128.1	70.4	75.97682	78.33276	77.53629	76.9537	79.43949	77.76	75.84	76.34	3.81	3.83	1.10	1.3	0.120664	6.985503	13.04059	5.098691	1.196836	0.049209	0.076034	0.025209	0.135	0.135
181	277.6	71.3	78.5	124.5	70.8	76.04035	78.45653	77.65337	77.06705	79.32028	77.68	75.93	76.74	3.81	3.83	1.10	1.3	0.128162	6.959717	13.08037	5.002374	0.990219	0	0.073291	0.025919	0.135	0.135
182	278.0	71.9	78.2	132.7	70.0	75.93037	78.36663	77.70403	76.89369	79.36053	77.86	76.12	76.77	3.82	3.83	1.10	1.4	0.130954	6.919331	13.15446	5.103568	1.188351	0.047088	0.088592	0.025264	0.135	0.135
183	274.2	72.2	78.3	127.8	70.2	75.78759	78.15691	77.47423	76.62097	79.3886	77.84	75.92	76.53	3.81	3.83	1.10	1.3	0.136185	6.874068	13.23006	5.002374	1.005581	0.001395	0.078613	0.025188	0.134	0.135
184	276.4	71.2	77.9	124.2	70.7	75.88438	78.17338	77.45723	76.74952	79.20518	77.86	75.89	76.74	3.82	3.83	1.10	1.3	0.144304	6.893332	13.23009	4.903619	0.989707	0	0.075656	0.025712	0.135	0.135
185	275.2	70.8	78.2	131.6	69.8	75.72111	78.53217	77.66208	76.87903	79.32627	77.73	75.92	76.70	3.81	3.83	1.10	1.3	0.155167	6.854805	13.28208	4.903619	1.190179	0.047545	0.071289	0.025148	0.135	0.135
186	271.8	72.2	78.7	129.8	70.1	75.85004	78.29967	77.44967	76.76245	79.4225	77.73	75.97	76.60	3.81	3.83	1.10	1.3	0.168737	6.854866	13.30827	4.906057	0.989805	0	0.078528	0.024322	0.135	0.135
187	272.5	71.2	78.5	123.3	71.1	75.66743	78.23754	77.57494	76.74419	79.41769	77.61	75.90	76.65	3.81	3.83	1.10	1.3	0.168701	6.841729	13.34338	4.913373	0.990061	0	0.074818	0.024892	0.135	0.135
188	271.3	72.4	78.7	131.6	71.8	75.81178	78.46221	77.46495	76.73564	79.35647	77.87	76.00	76.78	3.82	3.83	1.10	1.3	0.189525	6.820637	13.36179	4.910934	1.178207	0.044552	0.081381	0.024358	0.135	0.135
189	269.0	72.3	78.7	127.1	71.8	75.74406	78.2941	77.44408	76.72684	79.2224	77.57	75.90	76.71	3.81	3.84	1.10	1.3	0.21336	6.806373	13.37508	4.906057	1.206785	0.051696	0.083026	0.023816	0.135	0.135
190	269.4	72.3	78.9	124.5	72.1	76.11945	78.52224	77.43797	76.9275	79.45325	77.89	75.97	76.86	3.82	3.83	1.10	1.3	0.21336	6.785799	13.41574	4.804864	0.989878	0	0.077013	0.024602	0.135	0.135
191	269.7	72.3	78.9	132.7	72.3	76.10591	78.46854	77.69215	77.04088	79.55183	77.96	76.06	76.57	3.82	3.83	1.10	1.4	0.221407	6.813078	13.37514	4.803645	1.194166	0.048542	0.088543	0.02431	0.135	0.135
192	266.7	73.0	79.4	127.9	72.3	75.95134	78.59509	77.5309	76.94466	79.40419	77.70	75.99	76.74	3.82	3.84	1.09	1.3	0.229441	6.809817	13.39632	4.803645	1.18551	0.046377	0.077083	0.023721	0.135	0.135
193	265.6	72.4	79.1	124.1	72.7	76.08817	78.47089	77.63425	77.03287	79.20738	77.60	76.00	76.76	3.82	3.84	1.10	1.3	0.229453	6.834536	13.37514	4.709766	0.989914	0	0.072746	0.024023	0.135	0.135
194	267.0	72.5	78.9	133.5	72.6	76.12958	78.35835	77.4481	77.26432	79.3432	77.70	75.97	76.68	3.82	3.84	1.10	1.3	0.2459	6.880073	13.32186	4.709766	1.18056	0.04514	0.075257	0.024273	0.135	0.136
195	265.1	72.7	79.2	128.2	72.1	76.00333	78.35258	77.66319	76.84447	79.42418	77.63	75.98	76.54	3.82	3.83	1.09	1.3	0.256324	6.84176	13.38203	4.706109	1.179438	0.04486	0.073334	0.023097	0.135	0.135
196	264.1	72.5	79.1	124.5	72.31627	75.90902	78.33858	77.4551	77.06573	79.31239	77.58	75.97	76.48	3.81	3.83	1.10	1.3	0.269821	6.813169	13.40909	4.587846	0.989768	0	0.076101	0.024267	0.135	0.135
197	266.2	72.4	78.7	133.9	72.67458	75.76836	78.39871	77.23412	76.91763	79.17296	77.51	75.73	76.51	3.82	3.84	1.10	1.3	0.288487	6.880043	13.31552	4.591504	1.202091	0.050523	0.076543	0.023944	0.135	0.135
198	264.7	72.3	79.2	129.1	72.60017	76.14201	78.47118	77.46722	76.95581	79.2238	77.63	75.99	76.75	3.81	3.83	1.09	1.4	0.298984	6.841729	13.36182	4.591504	1.213722	0.053431	0.08751	0.023645	0.135	0.135
199	262.6	72.5	79.5	126.9	73.15585	76.0073	78.36994	77.58016	77.36057	79.49749	77.81	76.08	76.66	3.82	3.83	1.10	1.3	0.337267	6.799576	13.40236	4.491529	0.989707	0	0.076876	0.023752	0.135	0.135
200	265.5	72.4	78.7	120.9	73.07172	76.22703	78.64989	77.67271	77.32719	79.47778	77.91	76.18	76.89	3.81	3.83	1.10	1.3	0.368369	6.813169	13.36901	4.493968	0.990024	0	0.076623	0.024331	0.135	0.135
201	264.3	72.6	78.7	130.2	72.36896	76.06352	78.34585	77.30842	76.97778	79.30485	77.51	75.81	76.65	3.88	3.83	1.09	1.3	0.381695	6.813108	13.37508	4.49031	1.189143	0.047286	0.075294	0.0232	0.137	0.135
202	261.3	72.9	79.2	125.9	72.60555	75.92494	78.41474	77.38401	77.03584	79.28291	77.54	75.89	76.65	3.87	3.83	1.09	1.3	0.384182	6.751843	13.4471	4.491529	1.026271	0.006568	0.081003	0.023328	0.137	0.135
203	262.3	72.7	78.7	121.5	73.02803	76.36417	78.439	77.27441	77.0786	79.34486	77.81	75.77	76.57	3.87	3.84	1.10	1.3	0.392168	6.799545	13.39635	4.397651	0.989926	0	0.086273	0.023977	0.137	0.135
204	264.8	72.6	78.8	131.9	71.36623	76.1552	78.47768	77.11899	76.92936	79.3429	77.65	75.97	76.45	3.87	3.84	1.09	1.3	0.392143	6.886778	13.29534	4.397651	1.200067	0.050017	0.075541	0.0236	0.137	0.136
205	261.7	71.4	78.6	126.2	70.21599	76.00581	78.33498	77.26409	76.88515	79.3455	77.49	75.85	76.69	3.87	3.84	1.09	1.3	0.381658	6.820607	13.40906	4.395213	1.011555	0.002889	0.08114	0.023578	0.137	0.136
206	262.5	72.4	78.0	121.5	70.58752	76.04305	78.2049	77.26118	76.93452	79.45358	77.61	75.97	76.55	3.87	3.84	1.10	1.3	0.38167	6.711092	13.53056	4.295238	0.990036	0	0.08506	0.024136	0.137	0.136
207	263.8	71.9	77.5	131.8	69.90795	75.86897	78.21152	77.20757	76.69753	79.34529	77.27	75.58	76.43	3.87	3.84	1.10	1.3	0.40286	6.684575	13.5369	4.295238	1.195544	0.048886	0.079241	0.02399	0.137	0.136
208	260.5	71.8	78.1	126.3	70.70318	75.72081	78.25077	77.25351	76.62287	79.35748	77.44	75.86	76.38	3.87	3.84	1.09	1.3	0.413796	6.589203	13.63986	4.297677	1.087621	0.021905	0.084392	0.02331	0.137	0.136
209	260.8	71.8	77.8	122.1	70.90464	75.92699	78.216	77.10497	76.6116	79.22098	77.57	75.88	76.60	3.87	3.84	1.10	1.3	0.440472	6.632028	13.57128	4.203799	0.98989	0	0.078531	0.024191	0.137	0.136
210	262.7	71.7	77.5	132.4	70.37614	75.67812	78.04744	76.8427	76.68156	79.1312	77.29	75.83	76.21	3.87	3.84	1.10	1.3	0.456261	6.637697	13.5511	4.200141	1.167429	0.041857	0.079793	0.024218	0.136	0.136
211	258.9	71.4	77.8	126.7	70.07549	75.70118	78.15082	76.90591	76.36189	79.01901	77.08	75.84	76.46	3.87	3.84	1.09	1.3	0.450921	6.541929	13.66897	4.203799	1.205273	0.051318	0.077805	0.023033	0.137	0.136
212	259.0	71.7	77.8	122.7	71.67523	75.8798	78.14874	77.07784	76.69156	79.18102	77.09	75.87	76.44	3.87	3.84	1.10	1.3	0.466953	6.529036	13.67439	4.089194	0.989805	0	0.085505	0.024273	0.136	0.136
213	262.1	71.3	77.6	133.1	69.76495	75.88759	78.20337	76.99192	76.62022	79.22288	77.23	75.84	76.44	3.87	3.84	1.10	1.3	0.48846	6.589294	13.59109	4.203799	1.166076	0.041519	0.081567	0.023801	0.136	0.136
214	259.5	71.6	77.8	126.7	70.63611	75.80322	78.19932	76.81386	76.44767	79.22432	77.38	75.74	76.41	3.87	3.84	1.09	1.4	0.448092	6.576432	13.63245	4.087975	1.172452	0.043113	0.088229	0.023529	0.136	0.136
215	260.1	71.3	77.6	121.8	70.11508	75.7379	77.97337	76.82217	76.54536	79.25465	77.34	75.74	76.38	3.87	3.84	1.10	1.3	0.432206	6.624164	13.56475	3.991658	0.989695	0	0.080655	0.023941	0.136	0.136

Raw Data

Reading Interval	1	Minutes																			8.40272		0.029839					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
216	262.5	70.8	77.0	133.4	69.74567	75.64658	78.17653	76.85131	76.29864	79.26215	77.32	75.50	76.27	3.87	3.85	1.10	1.3	0.450945	6.617062	13.55896	4.090413	1.195897	0.048974	0.083344	0.024045	0.136	0.136
217	258.7	71.0	78.2	126.9	69.59479	75.46972	78.22055	76.98903	76.36792	79.14552	77.16	75.74	76.35	3.87	3.84	1.09	1.3	0.448068	6.541898	13.65385	4.083098	1.180048	0.045012	0.076233	0.022719	0.137	0.136
218	257.8	71.9	78.4	122.1	70.71068	75.52225	77.98527	76.86753	76.46976	79.23289	77.18	75.75	76.17	3.87	3.85	1.09	1.4	0.453493	6.568995	13.63245	3.990438	0.989817	0	0.094466	0.02317	0.137	0.136
219	260.2	71.6	78.4	134.0	71.54957	75.53095	78.24832	76.99003	76.6897	79.35737	77.44	75.80	76.42	3.86	3.85	1.09	1.3	0.464381	6.624194	13.57777	3.988	1.192191	0.048048	0.070621	0.023584	0.136	0.136
220	257.0	72.4	79.1	128.7	71.71805	75.7392	78.19555	77.11797	76.71706	79.21935	77.32	75.71	76.35	3.86	3.85	1.09	1.3	0.466965	6.624103	13.57774	3.992877	1.186802	0.046701	0.075553	0.022575	0.136	0.136
221	255.4	72.8	79.4	126.5	71.86277	75.87993	78.33627	77.3457	76.9019	79.26303	77.46	75.73	76.39	3.82	3.85	1.09	1.3	0.464356	6.632058	13.58493	3.897779	0.989597	0	0.084618	0.022341	0.135	0.136
222	257.8	72.4	79.1	119.2	72.79865	75.78093	78.34436	77.20654	76.69991	79.41362	77.30	75.75	76.26	3.83	3.84	1.09	1.3	0.472354	6.624103	13.59816	3.898999	0.989548	0	0.080933	0.02342	0.135	0.136
223	256.3	72.3	79.2	130.7	72.15841	75.82207	78.19141	77.00674	76.9273	78.90843	77.05	75.65	76.27	3.82	3.85	1.09	1.3	0.477597	6.670402	13.54415	3.895341	1.181901	0.045475	0.080695	0.022389	0.135	0.136
224	252.6	72.5	79.8	125.8	72.53838	75.72455	78.06711	76.68834	76.31493	78.74449	77.10	75.42	76.27	3.83	3.84	1.09	1.3	0.480316	6.644158	13.57134	3.897779	1.146569	0.036642	0.081234	0.021813	0.135	0.136
225	253.0	72.6	79.6	121.4	72.54939	76.02698	78.53017	77.11124	76.84927	79.18475	77.20	75.60	76.14	3.83	3.84	1.09	1.3	0.485741	6.677168	13.54415	3.794148	0.989695	0	0.074465	0.02292	0.135	0.136
226	255.9	72.7	79.5	132.7	72.54988	76.15434	78.32957	76.93741	76.90263	79.06447	77.26	75.59	76.13	3.82	3.84	1.09	1.3	0.491118	6.670432	13.55119	3.799025	1.190752	0.047688	0.065875	0.02285	0.135	0.136
227	254.5	73.1	79.6	128.5	72.24063	76.21103	78.18546	77.07442	76.90828	79.34851	77.20	75.62	76.27	3.82	3.84	1.09	1.3	0.488448	6.624133	13.60508	3.799025	1.141997	0.035499	0.074958	0.021905	0.135	0.136
228	251.6	73.2	80.0	127.1	72.53814	76.19272	78.34118	77.08958	77.15027	79.21095	77.42	75.58	76.30	3.82	3.84	1.09	1.3	0.491142	6.66269	13.57134	3.701489	0.989573	0	0.076882	0.021981	0.135	0.136
229	252.5	72.5	79.9	119.9	72.64725	76.17339	78.3687	77.07694	77.18179	79.26183	77.33	75.66	76.26	3.82	3.83	1.09	1.3	0.496653	6.690549	13.52333	3.700269	0.989707	0	0.07907	0.022487	0.135	0.135
230	255.1	72.7	79.4	131.9	72.72308	76.10091	78.07536	77.19187	77.33969	79.29873	77.36	75.75	76.25	3.82	3.83	1.09	1.3	0.49953	6.711061	13.50416	3.69905	1.17483	0.043707	0.0716	0.021935	0.135	0.135
231	251.4	73.3	80.0	126.5	72.52091	76.20477	78.29969	77.18195	77.06625	79.11431	77.27	75.65	76.38	3.82	3.83	1.09	1.3	0.502371	6.670402	13.55902	3.69905	1.221574	0.055393	0.076821	0.02153	0.135	0.135
232	250.4	73.3	79.9	124.2	72.75105	76.41649	78.11651	76.83145	77.1285	79.32147	77.17	75.54	76.10	3.82	3.83	1.09	1.3	0.505517	6.684544	13.53705	3.605172	0.989719	0	0.078409	0.022304	0.135	0.135
233	253.5	72.6	79.7	119.1	73.24596	76.42797	78.33548	76.92995	77.15742	79.218	77.27	75.62	76.12	3.82	3.83	1.09	1.3	0.507784	6.703808	13.5101	3.603953	0.989695	0	0.074044	0.022664	0.135	0.135
234	252.8	73.3	80.0	129.3	72.64743	76.51569	78.18895	77.12476	77.12115	79.14914	77.26	75.64	76.08	3.81	3.83	1.09	1.3	0.502371	6.677107	13.54409	3.608829	1.178695	0.044674	0.081009	0.021752	0.135	0.135
235	249.7	73.6	80.2	127.1	72.97886	76.47416	78.42852	76.92928	77.06735	79.26118	77.46	75.68	76.26	3.81	3.83	1.09	1.4	0.499542	6.595909	13.63242	3.606391	0.989146	0	0.090808	0.021472	0.135	0.135
236	251.3	73.3	80.2	120.6	73.19046	76.47245	78.46027	77.17521	77.34514	79.39648	77.60	75.94	76.35	3.81	3.83	1.09	1.3	0.474878	6.576462	13.65388	3.488129	0.98989	0	0.071865	0.022298	0.134	0.135
237	252.1	73.5	79.8	133.4	72.95664	76.59957	78.31968	77.0547	77.23771	79.20478	77.37	75.77	76.21	3.81	3.83	1.09	1.3	0.47233	6.59597	13.63245	3.486909	1.174598	0.04365	0.083889	0.022197	0.135	0.135
238	249.3	73.9	80.1	127.5	72.14503	76.40258	78.36363	76.91793	77.23056	79.25713	77.12	75.54	76.08	3.81	3.83	1.09	1.3	0.472367	6.54903	13.69932	3.484471	1.178841	0.04471	0.080948	0.021539	0.135	0.135
239	247.5	73.5	80.3	125.1	73.34309	76.55474	78.5158	77.19727	77.19773	79.1387	77.36	75.82	76.33	3.81	3.82	1.09	1.3	0.474841	6.501726	13.74547	3.399127	0.989695	0	0.072541	0.021819	0.135	0.135
240	248.8	73.2	80.1	118.2	73.19206	76.23653	78.35152	77.28063	77.09278	79.09399	77.27	75.59	76.08	3.89	3.82	1.09	1.3	0.494056	6.48167	13.75172	3.396689	0.989756	0	0.076492	0.022106	0.137	0.135
241	250.1	72.9	79.7	130.2	72.57333	76.27867	78.31335	77.0149	77.18133	79.30757	77.38	75.68	75.84	3.83	3.82	1.09	1.3	0.49953	6.461888	13.77869	3.397908	1.189509	0.047377	0.075157	0.021512	0.135	0.135
242	247.7	74.0	80.2	125.1	72.37803	76.42495	78.386	76.85999	77.03992	79.22094	77.27	75.60	76.17	3.83	3.82	1.09	1.3	0.496677	6.423027	13.83782	3.39425	1.209601	0.0524	0.074843	0.021256	0.135	0.135
243	246.7	73.6	80.0	121.8	72.82241	76.47674	78.19014	77.03225	77.30877	79.37383	77.34	75.66	75.84	3.83	3.82	1.09	1.3	0.499542	6.435524	13.81103	3.295489	0.98967	0	0.076918	0.021734	0.135	0.135
244	249.3	73.3	79.8	117.5	73.48151	76.77109	78.43765	77.10573	77.44066	79.2399	77.33	75.48	76.07	3.83	3.82	1.09	1.3	0.502371	6.488224	13.74553	3.29427	0.989805	0	0.071868	0.022307	0.135	0.135
245	248.4	73.4	79.9	128.7	72.8901	76.5796	78.33986	77.06149	77.31708	79.25665	77.20	75.77	75.94	3.83	3.82	1.08	1.3	0.496677	6.435524	13.8253	3.293051	1.179963	0.044991	0.084151	0.021167	0.135	0.135
246	244.5	73.8	80.2	126.0	72.86146	76.36255	78.44408	77.09878	77.33849	79.29754	77.38	75.57	76.05	3.83	3.82	1.09	1.3	0.496677	6.475148	13.77869	3.295489	0.991255	0	0.0774	0.021408	0.135	0.135
247	247.1	73.5	80.5	120.1	73.11392	76.51646	78.24326	77.05859	77.32634	79.24597	77.34	75.59	75.98	3.83	3.82	1.09	1.3	0.459089	6.609838	13.66903	3.201611	0.989756	0	0.080247	0.021688	0.135	0.135
248	249.4	73.6	80.1	132.6	73.27597	76.61679	78.29673	77.03175	77.41108	79.29653	77.54	75.58	76.09	3.83	3.81	1.09	1.3	0.480328	6.673785	13.59121	3.193077	1.181267	0.045317	0.074992	0.021752	0.135	0.135
249	247.5	74.0	80.5	126.9	72.73223	76.67213	78.48594	76.98669	77.41283	79.35104	77.45	75.52	76.12	3.83	3.82	1.08	1.3	0.472342	6.632028	13.63998	3.200392	1.170185	0.042546	0.080433	0.021073	0.135	0.135
250	245.5	74.2	80.4	125.0	72.97553	76.76723	78.50072	77.33613	77.52407	79.30235	77.52	75.62	76.08	3.82	3.81	1.09	1.3	0.472354	6.589234	13.67753	3.102856	0.989756	0	0.074782	0.021362	0.135	0.135
251	247.5	73.7	80.0	118.0	73.13374	76.59091	78.51181	77.05273	77.47372	79.19331	77.49	75.86	76.26	3.82	3.81	1.09	1.3	0.48846	6.582528	13.68058	3.101637	0.989829	0	0.080207	0.02185	0.135	0.135
252	247.8	73.3	79.9	130.1	72.72851	76.56872	78.4026	77.07738	77.26361	79.3557	77.45	75.69	75.84	3.82	3.81	1.09	1.3	0.485766	6.523275	13.74864	3.102856	1.182889	0.045722	0.079671	0.021347	0.135	0.135
253	246.4	73.7	80.2	125.3	72.68088	76.70937	78.40939	77.15778	77.40416	79.28311	77.46	75.90	76.12	3.82	3.81	1.08	1.3	0.477609	6.475087	13.80433	3.105295	1.210552	0.052638	0.071094	0.020908	0.135	0.135
254	244.3	74.0	80.0	121.8	73.27373	76.66195	78.40883	77.07691	77.34248	79.33447	77.50	75.76	75.96	3.82	3.81	1.09	1.3	0.477609	6.455245	13.82822	3.00654	0.989658	0	0.077836	0.021493	0.135	0.135
255	246.8	73.3	80.3	117.8	73.28809	76.81272	78.78716	77.26784	77.63216	79.6267	77.36	75.72	76.15	3.82	3.81	1.09	1.3	0.488448	6.515717	13.73837	3.004101	0.989707	0	0.072983	0.021676	0.135	0.135
256	246.5	73.8	80.0	128.1	72.84092	76.77355	78.30625	76.95425	77.41298	79.37759	77.39	75.60	75.88	3.81	3.81	1.08	1.3	0.496677	6.442473	13.82527	3.007759	1.179926	0.044981	0.083892	0.021167	0.135	0.135
257	243.2	74.1	80.0	125.8	73.28378	76.72379	78.18955	77.0919	77.36178	79.45909	77.37	75.86	76.06	3.81	3.81	1.08	1.3	0.494044	6.448508	13.80762	3.004101	0.99234	0	0.072328	0.020853	0.135	0.135
258	243.6	73.4	79.8	120.7	73.68335	76.66804	78.34798	76.92236	77.39508	79.28075	77.23	75.64	75.80	3.81	3.81	1.09	1.3	0.496653	6.442442	13.8178	2.896812	0.989841	0	0.078686	0.021743	0.135	0.135
259	246.9	73.5	79.6	132.3	72.97267	76.88481	78.63839	77.30647	77.61264	79.52166	77.44	75.73	75.99	3.81	3.81	1.09	1.3	0.505504	6.461888	13.77875	2.895593	1.203981	0.050995	0.081097	0.021682	0.135	0.135
260	244.7	73.3	79.6	126.3	71.98334	76.78584	78.30516	76.97324	77.29993	79.17374	77.25	75.52	75.87	3.81	3.81	1.08	1.3	0.505492	6.435493	13.8253	3.005321	1.192764	0.048191	0.076428	0.021237	0.134	0.135
261	243.2	73.0	79.5	124.0	71.61278	76.54092	78.42834	76.92911	77.24889	79.30159	77.24	75.49	75.77	3.81	3.81	1.09	1.3	0.491106	6.381087	13.88315	2.896812	0.989853	0	0.073657	0.021728	0.134	0.134
262	245.0	73.0	79.1	118.8	72.36718	76.51693	78.28388	76.97874	77.25592	79.27553	77.20	75.58	75.80	3.81	3.81	1.09	1.4	0.480303	6.374381	13.88546	2.790742	0.990182	0	0.096874	0.022255	0.134	0.134
263	245.9	73.1	78.9	129.3	71.36022	76.6483	78.16091	76.77545	77.10941	79.27626	77.26	75.69	76.02	3.81	3.81	1.09	1.3	0.474854	6.347071	13.9175	2.791961	1.188107	0.047027	0.073008	0.021438	0.135	0.134
264	243.0	73.0	78.9	123.6	70.97025	76.40395	78.37169	77.03308	77.40573	79.49583	77.23	75.89	75.87	3.81	3.81	1.08	1.3	0.469514	6.293365	13.98541	2.790742	1.022991	0.005748	0.073849	0.021237	0.135	0.135
265	244.0	72.4	78.8	120.3	72.20861	76.466	78.43374	77.0349	77.27737	79.27688	77.35101	75.63756	75.91196	3.806991	3.809332	1.08651	1.3	0.47233	6.326741	13.95033	2.789523	0.990012	0	0.078912	0.021627	0.134	0.134
266	246.0	72.1	78.5	131.2	71.82287	76.17805	78.05209	76.81387	77.20135	79.30751	77.14113	75.64854	76.00327	3.809771	3.806577	1.087692	1.3	0.477609	6.388584	13.87208	2.794399	1.187631	0.046908	0.072913	0.021923	0.134	0.134
267	243.7	72.5	78.8	125.6	70.86275	76.21275	78.1738	76.76826	77.11414	79.4063	77.18778	75.64835	75.83575	3.81238	3.811868	1.085815	1.3	0.469514	6.313787	13.9638	2.694425	1.20092	0.05023	0.082642	0.021454	0.135	0.135
268	242.1	72.4	78.9	123.6	71.21912	76.11266	78.19419	77.13669	77.23227	79.2522	77.3126	75.72631	75.84679	3.811039	3.811941	1.085656	1.3	0.466965	6.293426	13.98538	2.690768	0.989975	0	0.074328	0.021414	0.135	0.135
269	243.5	72.4	78.1	118.4	71.95387	76.23132	78.19907	76.98093	77.2369	79.31617	77.56487	75.8782	76.03214	3.806967	3.808601	1.089229	1.3	0.472354	6.361488	13.90473	2.598109	0.990158	0	0.082999	0.022307	0.134	0.134
270	244.9	72.8	78.3	128.1	70.71387	76.05855	78.27393	77.08257	77.12794	79.27473	77.00079	75.64207	75.88302	3.809795	3.811941	1.087778	1.3	0.472367	6.326741	13.94386	2.693206	1.197641	0.04941	0.074459	0.021944	0.134	0.134
271	242.7	72.9	78.7	125.8	71.64502	76.12788	78.30311	76.90426	77.08241	79.29582	77.28321	75.73708	75.96464	3.810454	3.809356	1.08484	1.3	0.462028	6.272578	14.01092	2.594451	0.989487	0	0.083283	0.02121	0.135	0.134
272	243.6	72.1	78.6	119.3	71.5464	76.04751	78.08218	77.05145	77.02147	79.11638	77.24905	75.68953	75.78992	3.809917	3.809332	1.087339	1.3	0.45631	6.2727	14.01705	2.599328	0.989902	0	0.077997	0.021835	0.134	0.134
273	245.7	72.4	78.6	130.6	70.80428	75.74673	78.31014	76.94476	76.75468	79.23666	77.29015	75.89796	75.90465	3.812331	3.81633	1.08612	1.3	0.453505	6.333843	13.95752	2.600547	1.222439	0.05561	0.06899	0.02153	0.135	0.135
274	243.5	72.5	79.1	124.6	71.29834	75.95747	78.24648	76.96811	76.96101	79.14294	77.26891	75.84995	76.01057	3.813868	3.812112	1.084291	1.2	0.445483	6.279893	14.01705	2.59567	1.199409	0.049852	0.059667	0.021073	0.135	0.135
275	243.1	72.3	79.4	121.2	71.72778	75.75332	78.38367	77.06514	77.02256	79.3028	77.22337	75.73078	76.02527	3.812453	3.814745	1.087034	1.3	0.445483	6.293365	13.99748	2.495696	0.990085	0	0.072084	0.021759	0.135	0.135
276	245.2	72.4	78.9	120.0	72.52753	75.98486	78.10654	76.92188	77.07896	79.05339	77.15929	75.89427	75.90096	3.812526	3.814867	1.088253	1.3	0.442838	6.381147	13.89784	2.496915	1.181401	0.04535	0.074376	0.022063	0.135	0.135
277	242.7	73.1	79.5	126.7	71.96654	75.88103	78.30389	77.10584	76.89383	78.99544	77.06117	75.79615	75.84299	3.813819	3.814672	1.082889	1.3	0.44046	6.333934	13.96383	2.493258	1.181328	0.045332	0.080567	0.020722	0.135	0.135
278	241.0	72.9	79.5	125.3	72.83035	75.94991	78.24561	76.82669	76.83736	79.23898	77.21887	75.55896	75.71291	3.80982	3.816916	1.082901	1.3	0.440484	6.293335	14.01095	2.39816	0.989646	0	0.083609	0.020725	0.134	0.135
279	243.1	72.8	79.5	118.3	72.48612	76.01054	78.54051	77.1082	76.91974	79.16183	77.24102	76.04962	75.98269	3.808454	3.814599	1.086546	1.3	0.437546	6.367614	13.91082	2.399379	0.989914	0	0.075501	0.021637	0.134	0.135
280	244.4	72.8	79.3	130.6	72.45375	76.24117	78.4164	76.9707	76.99719	79.12557	77.28501	75.82589	75.97983	3.809771	3.81477	1.085157	1.4	0.437546	6.388524	13.90482	2.404256	1.183632	0.045908	0.089168	0.021289	0.134	0.135
281	241.4	73.4	79.6	124.9	72.21962	75.94402	78.13933	77.04166	76.96658	79.34	77.38157	75.69489	75.91576	3.807016	3.814697	1.082291	1.3	0.429768	6.320279	13.97779	2.405476	1.192801	0.0482	0.085419	0.020573	0.134	0.135
282	241.2	73.4	80.0	121.7	72.68376	76.25645	78.53876	76.98598	77.09095	79.35044	77.2449	75.6787	75.85271	3.807065	3.814648	1.084145	1.3	0.434888	6.340122	13.95761	2.288433	0.989597	0	0.071789	0.021036	0.134	0.135
283	243.0	73.4	79.6	117.3	73.24065	76.36607	78.4476	77.11568	77.39798	79.27042	77.41808	75.75817	76.05936	3.80704	3.814355	1.086437	1.3	0.434888	6.417418	13.86517	2.294529	0.989792	0	0.086398	0.021609	0.134	0.135
284	242.6	73.7	79.9	127.2	72.85969	76.38219	78.30308	76.95109	77.19413	79.38618	77.46855	75.8622	76.20354	3.80704	3.817428	1.08223	1.3	0.424525	6.35402	13.93734	2.285994	1.186327	0.046582	0.068594	0.020558	0.134	0.135
285	238.8	73.5	79.9	125.6	73.4648	76.01199	78.34785	76.86199	77.17149	79.20548	77.11796	75.699	75.80608	3.807138	3.815745	1.082706	1.3	0.426988	6.326741	13.97779	2.285994	0.989427	0	0.076824	0.020676	0.134	0.135
286	241.5	73.2	79.7	118.9	73.33968	76.2374	78.37247	77.07403	77.21303	79.30583	77.34691	75.8744	75.84763	3.804602	3.813282	1.08573	1.3	0.434901	6.361518	13.92408	2.188458	0.989975	0	0.075891	0.021432	0.134	0.135
287	242.7	73.3	79.8	130.7	73.00763	76.34222	78.44383	77.09184	77.26914	79.21597	77.3227	75.77657	76.03091	3.806942	3.811844	1.08462	1.3	0.440472	6.402392	13.87998	2.183582	1.160163	0.040041	0.082377	0.021155	0.134	0.135

Raw Data

Reading Interval	1	Minutes																			8.40272		0.029839					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
288	241.1	73.6	80.0	125.4	72.72912	76.51157	78.45253	77.14739	77.38528	79.29089	77.6731	75.81909	76.0065	3.807138	3.814697	1.081865	1.3	0.432182	6.286294	14.01095	2.18602	1.222915	0.055729	0.087467	0.020466	0.134	0.135
289	239.3	74.1	80.0	123.5	72.82856	76.35242	78.49419	77.17566	77.3009	79.35947	77.70248	75.86857	75.97565	3.80982	3.809332	1.082889	1.3	0.434913	6.320279	13.97084	2.188458	0.989939	0	0.079677	0.020722	0.134	0.134
290	240.8	73.5	79.6	117.6	73.38763	76.29192	78.25967	77.09509	77.16342	79.07763	77.1032	75.5303	75.80472	3.805772	3.809381	1.085254	1.3	0.440484	6.374381	13.89165	2.089704	0.989975	0	0.079588	0.021314	0.134	0.134
291	242.5	73.6	79.7	128.5	73.44748	76.33521	78.38996	76.81709	77.20673	79.31941	77.30044	75.68739	75.68738	3.804455	3.8106	1.083425	1.3	0.440484	6.353929	13.92411	2.09458	1.203615	0.050904	0.071517	0.020856	0.134	0.135
292	239.7	73.8	80.4	123.6	73.00874	76.39804	78.41264	76.96694	77.17024	79.07774	77.11002	75.60404	75.76468	3.804553	3.810941	1.081853	1.3	0.437546	6.326741	13.95752	2.089704	1.21972	0.05493	0.080759	0.020463	0.134	0.135
293	239.4	73.4	80.1	120.1	73.29422	76.61345	78.51427	77.16897	77.28702	79.36559	77.38743	75.7476	75.89485	3.801919	3.810625	1.084462	1.3	0.469514	6.35399	13.89171	2.089704	0.990036	0	0.065537	0.021115	0.134	0.135
294	241.4	73.4	79.7	115.7	73.2411	76.37511	78.42316	77.16487	77.26194	79.19568	77.14818	75.70914	75.76937	3.80448	3.812624	1.085644	1.3	0.507772	6.35402	13.85803	1.98973	0.994108	0	0.080161	0.021411	0.134	0.135
295	242.0	74.0	80.0	126.3	73.12704	76.43131	78.19827	77.2077	77.30891	79.27499	77.21523	75.85651	75.8699	3.80448	3.811893	1.082974	1.3	0.520549	6.347132	13.85319	1.990949	1.184498	0.046124	0.084694	0.020744	0.134	0.135
296	238.2	74.1	80.5	125.1	72.74458	76.25365	78.46235	77.00996	77.28127	79.35332	77.35491	75.82218	75.87572	3.799213	3.811844	1.081121	1.3	0.531083	6.326771	13.8855	1.98973	0.98978	0	0.077177	0.02028	0.134	0.135
297	238.9	73.5	80.0	118.1	73.03662	76.16216	78.11652	76.84484	77.00855	78.94953	77.08219	75.53606	75.79039	3.801968	3.80665	1.083462	1.3	0.541837	6.347132	13.85797	1.98851	0.989756	0	0.076793	0.020865	0.134	0.134
298	242.3	73.6	80.2	130.7	73.35215	76.48648	78.49439	76.9416	77.16269	79.2364	77.38358	75.66343	75.62327	3.799262	3.806577	1.084547	1.3	0.547518	6.35399	13.85157	1.990949	1.183913	0.045978	0.07387	0.021137	0.134	0.134
299	241.1	73.5	80.4	125.0	72.67629	76.48479	78.1982	76.87967	77.38019	79.37826	77.28651	75.85416	75.74707	3.802041	3.807845	1.081816	1.3	0.541849	6.333843	13.87995	1.990949	1.174208	0.043552	0.076982	0.020454	0.134	0.134
300	239.2	74.0	80.4	122.7	73.26884	76.61338	78.17954	77.00826	77.13967	79.41168	77.46764	75.8479	75.71404	3.799237	3.804017	1.082669	1.3	0.53368	6.293365	13.93728	1.894632	0.989975	0	0.077382	0.020667	0.134	0.134
301	240.5	73.9	80.3	117.8	73.53574	76.40539	78.55384	76.99435	77.42391	79.26959	77.28338	75.53646	75.8778	3.786119	3.803943	1.084657	1.3	0.528474	6.293396	13.92411	1.893413	0.989768	0	0.076702	0.021164	0.134	0.134
302	242.4	73.8	80.1	128.9	73.35899	76.58434	78.60563	77.2871	77.41583	79.26822	77.21506	75.84296	75.64216	3.786192	3.806552	1.083828	1.3	0.517891	6.272639	13.95752	1.894632	1.187717	0.046929	0.069887	0.020957	0.134	0.134
303	239.1	74.3	80.5	123.7	73.08636	76.79344	78.67418	77.18163	77.32894	79.43332	77.36242	75.73598	75.78283	3.786094	3.806577	1.080011	1.3	0.510259	6.259502	13.97081	1.897071	1.20053	0.050133	0.074517	0.020003	0.134	0.134
304	239.7	73.4	80.1	119.3	72.90018	76.40868	78.2961	76.99097	77.21618	79.16375	77.25635	75.50274	75.68345	3.784778	3.806577	1.084157	1.3	0.499518	6.246243	13.99108	1.799535	0.990012	0	0.071039	0.021039	0.134	0.134
305	241.2	73.6	79.9	129.8	73.18921	76.43493	78.1818	77.01722	77.22256	79.31522	77.39659	75.5292	75.56267	3.786143	3.803943	1.084254	1.3	0.494044	6.286294	13.95749	1.799535	1.220842	0.055211	0.077869	0.021064	0.134	0.134
306	239.6	74.4	80.4	126.0	73.30627	76.57093	78.29103	76.99258	77.23225	79.36438	77.24565	75.67275	75.84676	3.786094	3.806626	1.082279	1.3	0.476219	6.207077	14.05762	1.798316	1.189631	0.047408	0.076912	0.02057	0.134	0.134
307	237.8	74.3	80.5	124.6	73.20013	76.801	78.53449	77.32305	77.49698	79.27563	77.42337	75.73	75.817	3.847639	3.809283	1.081414	1.3	0.480316	6.14633	14.12424	1.682492	0.989768	0	0.075102	0.020353	0.136	0.134
308	239.3	73.9	80.5	118.5	73.37019	76.57701	78.39082	77.03214	77.53197	79.29034	77.4249	75.67799	76.00594	3.845006	3.801261	1.083864	1.3	0.496653	6.193635	14.06505	1.686149	0.989987	0	0.073648	0.020966	0.136	0.134
309	240.9	73.7	80.2	129.9	73.18401	76.87656	78.52973	77.31159	77.4036	79.44753	77.6111	75.74371	75.67008	3.841909	3.803992	1.084218	1.3	0.491093	6.213448	14.03451	1.683711	1.167856	0.041964	0.075474	0.021054	0.136	0.134
310	238.0	74.3	80.3	124.1	72.66003	76.59639	78.4035	76.93104	77.18111	79.30735	77.36183	75.48775	75.65507	3.842202	3.806528	1.08017	1.3	0.472342	6.132005	14.14125	1.68493	1.1765	0.044125	0.073313	0.020043	0.136	0.134
311	237.1	74.2	80.6	121.3	73.31553	76.66988	78.477	77.25887	77.52256	79.55823	77.70329	75.77567	76.05676	3.83691	3.804017	1.081596	1.3	0.47233	6.158979	14.10227	1.587394	0.989768	0	0.075336	0.020399	0.135	0.134
312	239.0	74.1	80.2	116.8	73.36906	76.62137	78.65604	77.13673	77.5611	79.37185	77.57449	76.02168	75.87443	3.834155	3.801334	1.084023	1.3	0.464344	6.201377	14.06499	1.59349	0.989926	0	0.08142	0.021006	0.135	0.134
313	240.0	73.7	80.1	127.6	73.16444	76.78799	78.59511	77.12933	77.52731	79.44413	77.41355	75.71349	75.80048	3.836935	3.800115	1.083401	1.3	0.453469	6.201408	14.07151	1.589833	1.210759	0.05269	0.071682	0.02085	0.135	0.134
314	236.7	74.3	80.3	124.8	72.80272	76.80954	78.50287	77.11072	77.65102	79.53971	77.44356	75.9242	75.8305	3.832643	3.802822	1.079634	1.3	0.474841	6.099178	14.17073	1.587394	0.990646	0	0.081149	0.019908	0.135	0.134
315	237.4	73.9	80.3	119.0	73.24908	76.80667	78.58701	77.13462	77.58018	79.27849	77.37941	75.58564	75.67934	3.831546	3.797555	1.082706	1.3	0.507735	6.10567	14.14488	1.492297	0.989987	0	0.085361	0.020676	0.135	0.134
316	239.6	74.0	80.2	130.7	72.98899	76.87742	78.33649	76.94434	77.4029	79.37426	77.423	75.656	75.58907	3.834131	3.801334	1.083852	1.3	0.502347	6.132066	14.1183	1.489859	1.191447	0.047862	0.071603	0.020963	0.135	0.134
317	238.5	74.1	80.6	125.5	72.90496	76.61878	78.60661	77.02036	77.39595	79.28821	77.38927	75.62228	75.73605	3.832838	3.796604	1.081694	1.3	0.485741	6.045625	14.21669	1.486201	1.184461	0.046115	0.080823	0.020424	0.135	0.134
318	237.0	74.2	80.7	122.9	73.25394	76.66728	78.49447	77.1224	77.33555	79.28805	77.35564	75.74928	75.81621	3.832107	3.796262	1.081377	1.4	0.474805	6.025935	14.24034	1.491078	0.989744	0	0.088607	0.020344	0.135	0.134
319	238.4	74.2	80.1	117.1	73.77228	76.69756	78.54482	77.08573	77.44126	79.45827	77.40112	75.7546	75.82153	3.832814	3.798798	1.084352	1.3	0.472354	6.079031	14.18396	1.393542	0.989829	0	0.082386	0.021088	0.135	0.134
320	239.1	74.1	80.5	129.4	73.86022	76.92492	78.52454	77.09893	77.49551	79.37319	77.38845	75.65491	75.83562	3.812209	3.796287	1.082182	1.3	0.469514	6.058609	14.21038	1.395981	1.176841	0.04421	0.075184	0.020545	0.135	0.134
321	237.0	74.6	80.5	123.6	72.90144	76.61613	78.69096	77.23188	77.35378	79.43801	77.58137	75.72736	75.64034	3.807138	3.796311	1.080999	1.3	0.459053	6.013194	14.27015	1.394761	1.160992	0.040248	0.079738	0.02025	0.134	0.134
322	236.6	74.3	80.5	120.7	73.31762	76.49041	78.58532	77.11285	77.2793	79.31178	77.23247	75.58595	75.8202	3.809869	3.798798	1.08234	1.3	0.539032	6.11896	14.09367	1.386227	0.989695	0	0.075784	0.020585	0.134	0.134
323	237.4	73.6	80.1	116.4	74.09904	76.79029	78.58401	77.19855	77.42193	79.44582	77.48219	75.76203	75.83566	3.809747	3.801237	1.084132	1.3	0.603308	6.201408	13.99504	1.296006	0.98989	0	0.070579	0.021033	0.134	0.134
324	237.5	74.0	80.2	127.4	73.5383	76.47427	78.49556	77.15695	77.25106	79.34994	77.39163	75.59786	75.85889	3.804553	3.796262	1.082035	1.3	0.624754	6.165564	14.02393	1.380131	1.162296	0.040574	0.074952	0.020509	0.134	0.134
325	234.7	74.6	80.9	123.2	73.98071	76.72598	78.5264	77.11417	77.60823	79.49092	77.59486	75.86803	75.72077	3.807016	3.796287	1.079329	1.3	0.649089	6.165564	14.01699	1.297226	1.157249	0.039312	0.075864	0.019832	0.134	0.134
326	234.4	74.2	80.6	119.4	73.26151	76.72854	78.34824	77.17696	77.62944	79.78899	77.56922	75.74868	75.70182	3.805675	3.79358	1.083072	1.3	0.665671	6.158949	14.01086	1.298445	0.98989	0	0.063906	0.020768	0.134	0.134
327	237.6	74.2	80.4	115.9	73.92653	76.84947	78.60304	77.19081	77.44897	79.38008	77.55607	75.769	75.81584	3.806309	3.794873	1.08362	1.3	0.681935	6.132035	14.02387	1.19969	0.990097	0	0.076717	0.020905	0.134	0.134
328	237.2	74.6	80.4	126.2	73.10242	76.94206	78.55507	77.183	77.66168	79.47764	77.46091	75.72738	75.78761	3.801944	3.798823	1.08128	1.3	0.674059	6.052148	14.12428	1.202128	1.196105	0.049026	0.064854	0.02032	0.134	0.134
329	234.3	74.7	80.6	124.4	73.24678	76.71842	78.59246	77.06644	77.51331	79.41052	77.31254	75.64594	75.83334	3.801944	3.793605	1.079463	1.3	0.662683	6.013255	14.15713	1.202128	0.990219	0	0.072477	0.019866	0.134	0.134
330	236.2	74.2	80.7	118.2	73.36105	76.80923	78.56279	77.1104	77.60664	79.32436	77.61334	75.65894	75.72587	3.803285	3.793556	1.08284	1.3	0.665646	6.045594	14.11141	1.197251	0.989975	0	0.081039	0.02071	0.134	0.134
331	237.6	74.0	80.3	129.7	73.28232	76.67936	78.66718	77.51598	77.58385	79.46688	77.62402	75.83695	75.7834	3.805772	3.793531	1.083754	1.3	0.665646	6.093448	14.06502	1.18384	1.194252	0.048563	0.081146	0.020939	0.134	0.134
332	235.8	74.6	80.5	125.4	72.77621	76.82639	78.68036	77.20119	77.52319	79.45986	77.56337	75.7629	75.69597	3.801919	3.793605	1.079682	1.4	0.649065	6.013164	14.15061	1.10825	1.201457	0.050364	0.08755	0.019921	0.134	0.134
333	233.7	74.7	80.8	123.2	73.01411	76.83038	78.69104	77.30558	77.48129	79.50435	77.48132	75.90172	75.78793	3.801944	3.790898	1.081158	1.3	0.646297	6.019229	14.15061	1.089962	0.99	0	0.078189	0.020289	0.134	0.134
334	235.5	74.2	80.5	116.9	73.25391	76.69257	78.55322	77.06068	77.62923	79.30044	77.50877	75.75516	75.72838	3.801895	3.790874	1.082986	1.3	0.657258	6.065742	14.09364	1.088743	0.989963	0	0.079491	0.020747	0.134	0.134
335	237.1	74.2	80.6	129.9	73.25222	77.01434	78.67421	77.31551	77.57446	79.5632	77.55439	75.76731	75.79408	3.804504	3.790947	1.082389	1.3	0.643749	6.025905	14.13753	1.089962	1.185729	0.046432	0.074425	0.020597	0.134	0.134
336	234.7	74.7	80.8	124.1	73.66712	76.96997	78.70345	77.35815	77.54166	79.45168	77.54168	75.92193	75.89516	3.800457	3.793605	1.079731	1.3	0.638324	5.973266	14.19837	1.085085	1.189911	0.047478	0.07968	0.019933	0.134	0.134
337	234.1	74.3	80.8	120.0	73.69012	76.76009	78.84163	77.34908	77.58008	79.42357	77.60017	75.8131	75.90679	3.799286	3.788362	1.081694	1.3	0.633362	5.973296	14.19843	0.991207	0.989963	0	0.076077	0.020424	0.134	0.134
338	236.0	73.5	80.3	116.0	73.70633	76.84498	78.49815	77.25324	77.55788	79.42807	77.41734	75.75742	75.77081	3.800505	3.788386	1.083096	1.3	0.635715	6.019168	14.14485	0.98755	0.990024	0	0.07921	0.020774	0.134	0.134
339	237.0	74.3	80.7	127.4	73.19911	76.85788	78.59136	77.18583	77.53788	79.50074	77.44419	75.69727	75.75081	3.799213	3.790947	1.080731	1.4	0.63335	6.025935	14.13747	0.992426	1.196592	0.049148	0.090698	0.020183	0.134	0.134
340	233.6	74.6	81.0	124.6	73.03379	76.72459	78.79942	77.46751	77.45251	79.62114	77.53953	75.58512	75.81268	3.801968	3.793507	1.078926	1.3	0.622206	6.00018	14.17691	0.893671	0.989219	0	0.072115	0.019732	0.134	0.134
341	234.2	74.3	80.7	118.3	73.71088	76.97496	78.73522	77.58402	77.75175	79.64563	77.59114	76.07178	75.96469	3.796701	3.793507	1.080804	1.3	0.616683	6.000118	14.1707	0.897329	0.990158	0	0.077238	0.020201	0.134	0.134
342	236.4	74.2	80.5	128.0	73.71804	76.82722	78.72804	77.20203	77.46637	79.7338	77.70733	75.94702	75.90018	3.800554	3.790874	1.082499	1.3	0.600846	6.052117	14.11833	0.89611	1.185778	0.046445	0.0832	0.020625	0.134	0.134
343	234.8	74.6	80.4	125.6	73.15619	76.68671	78.6076	77.269	77.38703	79.49719	77.50082	75.81415	75.75391	3.796604	3.790849	1.08045	1.3	0.554918	6.093387	14.11147	0.893671	1.161943	0.040486	0.06843	0.020113	0.134	0.134
344	233.1	74.7	81.1	124.2	73.56538	76.80165	78.69577	77.49772	77.65067	79.62514	77.81801	76.01755	75.9707	3.799188	3.788411	1.079353	1.3	0.54458	6.093417	14.12428	0.801012	0.989926	0	0.080542	0.019838	0.134	0.134
345	234.6	73.7	80.6	117.5	73.66724	76.82289	78.74379	77.2847	77.51102	79.55345	77.59805	75.80428	75.71726	3.796653	3.788362	1.082621	1.3	0.544543	6.105609	14.10535	0.803451	0.990048	0	0.082463	0.020655	0.134	0.134
346	236.7	74.1	80.5	130.7	73.76701	77.02882	78.75562	77.27646	77.54865	79.57076	77.73608	75.96908	75.96908	3.798018	3.790922	1.081779	1.3	0.539032	6.125177	14.07868	0.801012	1.168368	0.042092	0.08366	0.020445	0.134	0.134
347	235.5	74.6	80.7	124.9	73.21963	76.79218	78.75992	77.41461	77.44846	79.45876	77.66265	75.71494	75.82871	3.801554	3.790874	1.079414	1.3	0.526072	6.065711	14.1571	0.799793	1.19469	0.048673	0.077583	0.019854	0.134	0.134
348	233.1	74.6	80.8	123.2	73.38949	76.71582	78.49615	77.35165	77.4029	79.55244	77.60371	75.69615	75.6426	3.794019	3.790849	1.080182	1.3	0.520537	6.058549	14.17094	0.699819	0.989695	0	0.074864	0.020046	0.134	0.134
349	234.6	74.3	80.5	116.7	73.47958	76.89847	78.70557	77.50083	77.6059	79.6734	77.84017	75.91254	75.75191	3.796628	3.790922	1.082377	1.3	0.520549	6.111888	14.10535	0.697381	0.990024	0	0.067137	0.020594	0.134	0.134
350	236.2	74.4	80.4	130.4	73.92575	76.82997	78.74417	77.50597	77.69135	79.70486	77.6579	76.09169	75.99129	3.801895	3.78963	1.081511	1.3	0.520537	6.105579	14.12428	0.702257	1.175452	0.043863	0.079735	0.020378	0.134	0.134
351	233.5	74.8	80.5	124.4	73.8429	76.79045	78.6444	77.33926	77.63026	79.53244	77.38264	75.8432	75.68256	3.799188	3.789971	1.07372	1.3	0.517843	6.052117	14.18392	0.701038	1.190643	0.047661	0.077534	0.01843	0.134	0.134
352	231.9	74.6	80.8	121.9	73.58829	76.882	78.59541	77.37057	77.54331	79.61828	77.6571	75.87003	75.92357	3.800432	3.789606	1.080731	1.3	0.515453	6.056994	14.17691	0.596187	0.989597	0	0.070673	0.020183	0.134	0.134
353	234.4	74.5	80.8	116.3	73.96436	77.00826	78.76852	77.24251	77.55038	79.59226	77.6441	76.01766	75.85033	3.79931	3.785704	1.081731	1.3	0.523171	6.099148	14.13095	0.597407	0.990121	0	0.0847	0.020433	0.134	0.134
354	236.2	74.1	80.7	129.0	73.3184	77.04921	78.63544	77.41732	77.71393	79.59513	77.68049	75.81309	75.77962	3.796555	3.7908	1.08095	1.3	0.515465	6.065742	14.17073	0.598626	1.177817	0.044454	0.071472	0.020238	0.134	0.134
355	233.0	74.6	81.0	123.4	73.03555	76.92364	78.87131	77.45238	77.44119	79.56379	77.72901	75.7746	75.78799	3.799188	3.788386	1.078536	1.3	0.512685	6.032457	14.21041	0.599845	1.192093	0.048023	0.076674	0.019634	0.134	0.134
356	233.6	74.4	80.9	120.3	73.30454	76.9465	78.79377	77.34138	77.61298	79.62759	77.62638	75.68536	75.81253	3.796945	3.788386	1.080426	1.3	0.517855	6.052148	14.18396	0.48524	0.990061	0	0.076467	0.020107	0.134	0.134
357	234.8	73.9	80.8	115.7	73.71108	77.04249	78.69566	77.39051	77.6851	79.49413	77.46426	75.77757	75.9315	3.801919	3.783241	1.083047	1.3	0.523183	6.072021	14.15058	0.488898	0.990121	0	0.078528	0.020762	0.134	0.134
358	235.9	74.2	80.6	127.7	73.30078	76.84433	78.67822	77.27267	77.6283	79.60309	77.42083	75.79438	75.65382	3.796677	3.78568	1.079695	1.3	0.523171	6.085919	14.1375	0.48646	1.180206	0.045052	0.086126	0.019924	0.134	0.134
359	233.2	74.6	81.1	123.0	73.69892	77.07156	78.77828	77.49322	77.68824	79.80737	77.72842	75.8744	75.88779	3.797847	3.785753	1.079207	1.3	0.510235	6.079031	14.15061	0.488898	1.176866	0.044216	0.075215	0.019802	0.134	0.134

Raw Data

Reading Interval	1	Minutes																		8.40272		0.029839				
1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
360	233.1	74.0	80.7	119.0	73.45055	76.9775	78.885	77.55309	77.70966	79.57113	77.64275	75.79543	76.08323	3.796653	3.785704	1.081097	1.3	0.496604	6.131944	14.10529	0.442568	0.990024	0	0.077552	0.020274	0.134	0.134
361	235.4	74.6	80.6	115.4	73.71069	77.10113	78.78107	77.5027	77.63322	79.56176	77.68678	75.73238	75.85954	3.796555	3.830888	1.083023	1.3	0.485717	6.207016	14.02101	0.381609	0.990207	0	0.068933	0.020756	0.134	0.135
362	236.7	74.7	80.6	127.5	73.45035	77.01196	78.81907	77.3466	77.65782	79.56621	77.5039	75.97115	75.89083	3.796604	3.830863	1.081231	1.3	0.474781	6.138771	14.0991	0.386485	1.171257	0.042814	0.074709	0.020308	0.134	0.135
363	234.1	74.8	80.7	122.5	73.01328	76.82578	78.62619	77.33443	77.56155	79.52409	77.50803	75.89497	75.77449	3.796653	3.833545	1.077634	1.3	0.464344	6.065711	14.19075	0.380389	1.198823	0.049706	0.071639	0.019409	0.134	0.135
364	233.4	74.6	81.1	119.1	73.86597	76.92478	78.83228	77.50706	77.82478	79.68463	77.7177	75.91724	75.72983	3.79397	3.830766	1.080646	1.4	0.469477	6.058549	14.17694	0.381609	0.990158	0	0.08751	0.020161	0.134	0.135
365	235.5	74.4	80.6	115.3	73.81709	77.12853	78.92226	77.51003	77.77743	79.53896	77.70383	75.91674	75.93012	3.795433	3.83079	1.08401	1.3	0.480279	6.099178	14.12424	0.28895	0.990231	0	0.073566	0.021003	0.134	0.135
366	235.9	74.6	80.7	126.7	73.51057	77.03448	78.88174	77.40258	77.7878	79.66797	77.67403	75.89365	75.88695	3.792702	3.830741	1.080158	1.4	0.469477	6.072021	14.1635	0.285292	1.162979	0.040745	0.089494	0.020039	0.134	0.135
367	232.9	74.8	80.8	122.1	73.34779	77.00084	78.86149	77.48273	77.8736	79.55459	77.74644	75.75188	75.94598	3.795214	3.830839	1.078158	1.3	0.459041	6.058549	14.18386	0.28773	1.192984	0.048246	0.079735	0.01954	0.134	0.135
368	233.4	74.7	80.9	118.5	73.37707	77.09356	78.78689	77.52859	77.86539	79.5465	77.75163	75.72359	75.78384	3.793995	3.83079	1.081158	1.3	0.459016	6.099148	14.15064	0.219455	0.989939	0	0.075736	0.020289	0.134	0.135
369	235.9	74.3	80.7	115.0	74.03362	77.19412	78.94099	77.3949	77.72266	79.74892	77.7963	75.98914	75.94228	3.794044	3.82801	1.08362	1.3	0.456261	6.118929	14.11824	0.188976	0.990231	0	0.081816	0.020905	0.134	0.135
370	235.8	74.6	80.8	126.8	73.60764	77.24522	78.93185	77.59994	78.09414	79.78524	77.90006	76.03936	76.02597	3.796214	3.830839	1.08117	1.4	0.450921	6.079031	14.17688	0.188976	1.177951	0.044488	0.090457	0.020292	0.134	0.135
371	233.4	75.1	80.8	122.1	74.15199	77.06336	78.83701	77.42478	77.81229	79.69212	77.59814	75.78429	75.83782	3.792727	3.83079	1.079061	1.3	0.453432	6.052087	14.20398	0.192633	1.186595	0.046649	0.071145	0.019765	0.134	0.135
372	233.6	74.9	80.6	119.0	73.77344	77.02843	78.81545	77.49023	77.88086	79.70692	77.68008	75.98671	75.95993	3.796092	3.830912	1.081267	1.3	0.448031	6.099148	14.14479	0.187756	0.990085	0	0.074324	0.020317	0.134	0.135
373	236.0	73.9	80.6	115.1	74.02045	77.13412	78.70026	77.50891	77.63345	79.76655	77.64016	75.91331	75.93339	3.782339	3.829449	1.083011	1.4	0.450909	6.165564	14.07148	0.087782	0.990219	0	0.089625	0.020753	0.134	0.135
374	235.6	74.5	80.6	126.7	73.57298	77.24135	78.95476	77.43544	77.78872	79.75467	77.71511	76.01505	76.09536	3.783656	3.830863	1.081206	1.3	0.456249	6.125147	14.12424	0.089001	1.184144	0.046036	0.078266	0.020302	0.134	0.135
375	233.5	75.1	80.9	122.0	73.71732	77.18996	78.87659	77.43089	77.7886	79.93932	77.80869	76.02161	75.86098	3.784899	3.830863	1.078829	1.3	0.456261	6.105518	14.15704	0.092659	1.197507	0.049377	0.077897	0.019707	0.134	0.135
376	232.4	74.8	81.1	119.5	73.88118	77.16541	78.95914	77.58038	77.59118	79.75787	77.61797	75.75057	75.91789	3.781169	3.828059	1.080706	1.3	0.461991	6.111858	14.13744	0.09144	0.989987	0	0.082511	0.020177	0.133	0.135
377	234.0	74.8	80.8	114.8	73.90363	77.40443	78.8635	77.48473	77.81929	79.91679	77.80592	76.05901	75.9586	3.780071	3.830888	1.082864	1.3	0.466917	6.11896	14.10529	0.012192	0.990146	0	0.075687	0.020716	0.133	0.135

Summary

EPA Method 28 OWHH Testing Parameters

Manufacturer	HY-C
Model Number	SF1000E
Test Technician	Ken Slater

Category	Cat 1
Run Number	4
Test Date	10/4/18
Total Test Fuel Weight (lb)	36.5
Avg. Test Fuel Moisture (% dry)	23.16

Test Duration (min)	377	
Burn Rate (kg/hr)		
Emissions (g)	4.83	Train 2
Beginning Dry Gas Meter Reading (ft3)	0	0
Final Dry Gas Meter Reading (ft3)	50.67804	50.685918
Average Barometric Pressure (“Hg)	29.24	
Average Delta p (inches of water)	0.077	

Average Gas Velocity in Tunnel (feet/sec)	17			
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	811.2126			
	kJ	**Btu**		
Total Input	265592	251901		
Total Output	131,836	125040	**kW**	
Output Rate (kJ/hr, BTU/hr, kW)	20,982	19900	5.83	
Emissions g/MJ	**0.036617**		0.4	B415.1-2010 Limit
Emissions lb/MMBtu Input	**0.042249**			
Emissions lb/MMBtu Output	**0.085114**		0.93	EPA 2015 Proposed Limit
Emissions g/hr	**0.768285**			
Efficiency	**49.6%**			

Raw Data

Reading Interval	1	Minutes																			10.19991		0.034596					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
0	659.0	74.4	124.1	158.8	74.2	76.78236	74.44643	73.40232	76.02638	76.81618	73.87	73.26	73.24	0.02	0.02	1.2020	1.2717	0.179188	12.73332	7.172369	36.0447	1.161274	0.040318	0.067915	0.050512	0.001	0.001
1	854.4	75.2	135.8	161.5	73.1	75.93968	75.25027	77.77361	75.71773	76.30673	75.26	73.48	78.61	3.85	3.84	1.2264	1.2870	0.075445	8.748472	11.90549	35.33756	1.208421	0.052105	0.071762	0.056608	0.136	0.135
2	929.4	74.4	145.5	167.3	75.1	75.98492	75.81088	81.14388	75.7488	76.91342	76.68	73.65	82.34	3.77	3.80	1.2322	1.3021	0.09366	7.742743	12.97364	34.62676	1.20964	0.05241	0.07552	0.058046	0.133	0.134
3	706.9	75.7	120.1	169.8	74.3	75.82377	75.83044	81.76371	75.53814	76.89017	77.25	73.64	82.66	3.78	3.78	1.21	1.2900	0.397939	11.84064	8.361129	34.14761	1.222637	0.055659	0.07249	0.053011	0.133	0.133
4	644.4	74.9	111.5	169.0	74.6	75.96701	76.08747	80.99423	75.64809	77.12728	77.22	73.70	81.46	3.76	3.76	1.20	1.2967	1.556861	12.81474	7.020273	33.73674	1.209469	0.052367	0.074179	0.050829	0.133	0.133
5	624.4	75.0	107.7	167.2	73.0	75.93072	76.21851	80.75387	75.84448	77.28352	77.27	74.08	80.95	3.73	3.74	1.20	1.2737	3.235728	12.82153	6.612172	33.23199	1.188133	0.047033	0.068415	0.050396	0.132	0.132
6	619.0	75.3	106.2	166.0	72.6	75.96501	76.32642	80.6095	75.87501	77.18687	77.15	74.04	80.85	3.72	3.72	1.20	1.2891	2.748043	12.95559	6.829527	32.82477	1.216882	0.054221	0.07228	0.04928	0.131	0.131
7	616.1	75.1	105.0	164.9	73.6	75.97193	76.24633	80.47773	75.61304	76.97176	76.97	73.98	80.57	3.71	3.68	1.19	1.3127	2.433816	13.14222	6.794505	32.4456	1.215322	0.05383	0.078163	0.048302	0.131	0.130
8	611.7	75.5	104.5	163.9	73.9	76.01006	76.22422	80.53513	75.74937	77.43607	77.40	74.18	80.52	3.96	3.73	1.20	1.3025	2.228025	13.14225	6.861074	32.03107	1.20953	0.052383	0.075627	0.04911	0.140	0.132
9	610.9	74.4	104.0	163.4	74.0	76.06852	76.49686	80.43438	75.85677	77.35604	77.28	74.00	80.71	3.93	3.92	1.20	1.2965	2.158286	13.36497	6.677857	31.52144	1.194888	0.048722	0.074127	0.049158	0.139	0.138
10	611.6	75.0	103.9	162.7	74.1	76.10835	76.60361	80.57923	75.81409	77.3736	77.49	73.97	80.79	3.92	3.91	1.19	1.2934	2.185011	13.33881	6.713519	31.1191	1.230818	0.057704	0.073362	0.048479	0.138	0.138
11	614.0	74.7	104.2	162.5	73.1	75.90567	76.51472	80.68957	75.77799	77.50484	77.68	74.01	80.60	3.92	3.90	1.20	1.2782	2.055153	13.47936	6.62467	30.73017	1.215797	0.053949	0.06954	0.048866	0.138	0.138
12	618.1	75.1	103.6	162.4	74.4	75.96542	76.62803	80.88707	75.76514	77.48529	77.64	74.24	80.93	3.93	3.88	1.19	1.2983	1.88061	13.60914	6.57776	30.33027	1.220101	0.055025	0.074569	0.048607	0.139	0.137
13	620.0	74.9	103.4	162.3	72.7	75.82122	76.55075	81.18044	75.81937	77.62653	77.94	74.31	81.11	3.93	3.87	1.20	1.2765	1.643547	13.76298	6.490404	29.92671	1.218479	0.05462	0.069119	0.048963	0.139	0.137
14	619.5	75.2	103.3	161.9	72.5	75.82833	76.65157	81.24024	75.81218	77.47878	77.77	74.20	81.16	3.93	3.86	1.19	1.3474	1.339146	14.00902	6.349676	29.53047	1.203934	0.050984	0.086856	0.047985	0.139	0.136
15	618.1	74.6	103.2	162.2	72.7	75.81975	76.45557	81.32417	75.96279	77.54238	78.07	74.20	81.04	3.92	3.85	1.20	1.2902	1.21525	13.92102	6.476383	29.12569	1.220479	0.05512	0.072539	0.049046	0.138	0.136
16	621.7	74.7	102.9	161.6	72.7	76.14756	76.79677	81.40321	75.78114	77.60168	78.07	74.00	81.34	3.80	3.84	1.20	1.3274	1.064324	13.85521	6.584191	28.83796	1.18973	0.047433	0.081854	0.049451	0.134	0.136
17	622.9	74.9	102.8	162.5	74.4	75.94808	76.66422	81.57609	75.91356	77.51992	78.39	74.19	81.54	3.78	3.84	1.20	1.2995	0.886794	13.95607	6.497963	28.42952	1.214639	0.05366	0.074886	0.04886	0.133	0.135
18	624.1	73.9	103.0	162.3	74.0	76.06763	76.66328	81.3574	75.88049	77.37307	78.41	74.31	81.60	3.78	3.82	1.20	1.2906	0.892024	13.94909	6.46288	28.03084	1.213639	0.05341	0.072661	0.049253	0.134	0.135
19	624.5	74.4	102.5	162.4	73.6	76.08804	76.68369	81.49632	76.07341	77.70654	78.56	74.31	81.83	3.79	3.81	1.19	1.2956	0.884026	13.93108	6.516404	27.74067	1.217004	0.054251	0.073901	0.048405	0.134	0.135
20	619.3	74.6	102.5	162.2	72.2	75.9752	76.7047	81.75461	76.06718	77.59991	78.78	74.09	81.81	3.75	3.80	1.19	1.3029	0.844609	13.94294	6.510063	27.33223	1.205092	0.051273	0.075715	0.048308	0.132	0.134
21	525.3	74.7	97.8	160.8	72.6	76.02381	76.86041	81.72334	76.14272	77.68215	78.78	74.34	81.46	3.75	3.80	1.18	1.3018	0.740111	13.76301	6.701357	27.04085	1.201349	0.050337	0.075459	0.04462	0.132	0.134
22	496.7	75.2	95.8	158.5	72.7	76.12868	76.69086	81.42419	76.06616	77.65915	78.74	74.29	81.12	3.73	3.79	1.17	1.3303	1.121785	13.43839	6.986226	26.72629	1.216419	0.054105	0.082579	0.043532	0.132	0.134
23	478.9	74.5	94.1	156.3	73.2	75.8232	76.70666	81.37376	76.09641	77.6693	78.60	74.28	81.00	3.73	3.79	1.18	1.2910	2.88579	12.69342	7.303434	26.52999	1.217223	0.054306	0.072743	0.045717	0.132	0.134
24	464.2	74.0	93.3	154.5	72.9	75.91256	76.53497	80.83493	75.95782	77.57758	78.51	74.16	80.89	3.73	3.78	1.17	1.2998	2.228001	12.89539	7.172399	26.23007	1.201154	0.050289	0.074953	0.043401	0.132	0.133
25	454.5	74.8	92.3	152.7	72.8	75.71368	76.44318	80.68503	75.86274	77.62305	78.51	74.16	80.36	3.73	3.77	1.15	1.3084	1.583769	12.66642	7.640576	26.03378	1.210359	0.05259	0.077099	0.036667	0.132	0.133
26	448.9	75.0	92.1	151.3	72.9	76.04048	76.9574	80.98085	76.28153	77.80089	78.69	74.53	80.62	3.70	3.77	1.16	1.3125	1.282306	12.47156	7.919501	25.82285	1.19857	0.049642	0.078135	0.041148	0.130	0.133
27	445.2	74.7	91.4	149.1	72.1	75.76814	76.47755	80.76511	76.14949	77.66885	78.34	74.17	80.26	3.77	3.76	1.17	1.2949	1.086952	12.21759	8.220371	25.52902	1.167187	0.041797	0.073716	0.041599	0.133	0.133
28	440.6	74.4	90.9	147.7	73.4	75.70184	76.63213	80.67995	75.97637	77.50242	78.47	74.25	80.34	3.76	3.75	1.16	1.2982	0.914531	12.0242	8.476832	25.32786	1.20686	0.051715	0.074548	0.039633	0.133	0.133
29	435.6	73.8	90.6	146.0	72.2	75.55933	76.46284	80.54604	75.96665	77.40569	78.38	74.20	80.12	3.75	3.75	1.17	1.2855	0.811764	11.84064	8.708604	25.11571	1.180891	0.045223	0.071381	0.04188	0.133	0.132
30	431.8	74.4	90.4	145.2	72.6	75.81506	76.6985	80.75199	76.02702	77.68024	78.54	74.33	80.25	3.75	3.74	1.15	1.2904	0.764312	11.67361	8.895478	24.92795	1.181171	0.045293	0.0726	0.03831	0.133	0.132
31	426.5	74.0	90.0	143.5	71.5	75.73994	76.65014	80.48653	76.01511	77.44076	78.36	74.23	80.10	3.74	3.74	1.15	1.3295	0.689574	11.49079	9.101952	24.7341	1.2132	0.0533	0.082387	0.037155	0.132	0.132
32	423.3	74.0	89.5	142.0	72.1	75.75909	76.76969	80.48561	75.96107	77.5072	78.33	74.13	80.06	3.74	3.74	1.15	1.2649	0.590769	11.28986	9.350914	24.52074	1.224136	0.056034	0.066233	0.0387	0.132	0.132
33	419.4	73.6	88.9	141.1	73.3	75.80346	76.52625	80.45017	76.13454	77.63381	78.48	74.27	80.12	3.74	3.74	1.15	1.3331	0.54461	11.17038	9.491734	24.32566	1.188999	0.04725	0.083265	0.038091	0.132	0.132
34	415.6	74.3	89.0	139.8	72.4	75.83141	76.5542	80.27975	76.14812	77.44659	78.46	74.47	80.10	3.74	3.73	1.15	1.3172	0.507765	11.03005	9.630297	24.13547	1.190791	0.047698	0.079303	0.037637	0.132	0.132
35	411.9	74.1	88.2	138.8	72.8	75.85364	76.6099	80.16309	75.87135	77.65173	78.30	74.28	79.82	3.74	3.73	1.15	1.2919	0.523225	10.89112	9.764653	23.9282	1.190901	0.047725	0.072963	0.037585	0.132	0.132
36	408.1	73.6	88.2	137.7	71.7	75.69369	76.4968	80.01197	75.75198	77.59261	78.51	74.35	79.90	3.74	3.73	1.14	1.3435	0.472372	10.74741	9.931807	23.73313	1.204227	0.051057	0.085868	0.034351	0.132	0.132
37	404.1	73.3	88.1	136.5	71.4	75.57919	76.51616	79.99146	75.86938	77.63638	78.30	74.26	79.75	3.72	3.72	1.15	1.3340	0.462069	10.66026	10.01307	23.53074	1.190645	0.047661	0.083491	0.036881	0.131	0.131
38	402.0	73.6	87.6	135.7	72.4	75.65839	76.57529	80.17515	76.12965	77.66239	78.44	74.34	79.72	3.70	3.72	1.15	1.2706	0.472347	10.6196	10.03367	23.42101	1.194948	0.048737	0.067653	0.036774	0.130	0.131
39	400.1	73.9	87.4	134.9	72.8	75.79249	76.82316	80.20177	76.16226	77.72178	78.30	74.33	79.73	3.70	3.72	1.14	1.3270	0.432223	10.44598	10.21594	23.22472	1.159506	0.039877	0.081747	0.036009	0.130	0.131
40	396.9	73.4	87.3	133.9	72.0	75.55601	76.65361	79.9884	76.05812	77.48377	78.37	74.30	79.61	3.69	3.71	1.15	1.3345	0.402913	10.26777	10.40148	23.02843	1.17916	0.04479	0.083615	0.037271	0.130	0.131
41	395.7	73.7	87.2	133.1	72.7	75.68067	76.62433	79.91334	75.94097	77.71467	78.16	74.28	79.60	3.66	3.71	1.15	1.3099	0.38949	10.21208	10.44845	22.8175	1.183988	0.045997	0.077468	0.036335	0.129	0.131
42	393.6	73.3	87.0	132.2	71.5	75.54753	76.6719	79.91405	75.91405	77.48026	78.16	74.21	79.63	3.66	3.71	1.14	1.3432	0.392208	10.21208	10.42787	22.62731	1.179318	0.04483	0.085792	0.03497	0.129	0.131
43	392.4	73.4	86.7	131.5	71.8	75.68087	76.7517	79.74855	75.95393	77.86818	78.27	74.18	79.71	3.66	3.71	1.15	1.3563	0.422006	10.17852	10.45625	22.52733	1.178209	0.044552	0.089078	0.036829	0.129	0.131
44	390.0	73.2	86.5	130.8	72.2	75.75909	76.68937	79.80588	75.96277	77.64945	78.43	74.27	79.52	3.66	3.71	1.14	1.2661	0.392208	10.09068	10.55424	22.32129	1.214395	0.053599	0.066531	0.035381	0.129	0.131
45	388.4	73.6	86.6	130.1	71.6	75.73239	76.74298	79.88514	76.15454	77.79436	78.34	74.21	79.43	3.65	3.70	1.14	1.3050	0.394891	10.03651	10.60728	22.12255	1.211615	0.052904	0.076258	0.034948	0.129	0.131
46	387.2	73.7	86.3	129.8	71.8	75.68687	76.79786	79.64228	76.04706	77.71366	78.08	74.09	79.34	3.86	3.71	1.14	1.3439	0.413849	9.921539	10.71417	22.02745	1.186987	0.046747	0.085966	0.034485	0.136	0.131
47	385.0	73.5	86.3	129.2	71.9	75.4998	76.80489	79.81419	76.08903	77.54144	78.24	74.45	79.36	3.87	3.82	1.14	1.2754	0.421969	9.895235	10.7338	21.83482	1.18439	0.046098	0.06886	0.035223	0.136	0.135
48	384.7	73.5	86.0	128.5	71.7	75.46025	76.91927	79.82798	76.02712	77.86105	78.20	74.15	79.52	3.86	3.83	1.14	1.3188	0.432211	9.814554	10.80665	21.6239	1.172673	0.043168	0.079708	0.034263	0.136	0.135
49	383.2	72.9	86.2	128.3	72.5	75.63248	77.05804	79.81963	76.13385	77.87408	78.15	74.39	79.55	3.86	3.82	1.14	1.3427	0.442854	9.773558	10.83381	21.42395	1.197302	0.049325	0.085682	0.035043	0.136	0.135
50	384.2	74.0	85.7	127.5	72.1	75.4893	76.64713	79.55966	75.85464	77.82913	78.04	74.15	79.31	3.82	3.82	1.14	1.3474	0.424542	9.801051	10.80668	21.32885	1.183659	0.045915	0.086843	0.035381	0.135	0.135
51	384.9	72.9	85.7	127.0	71.6	75.44373	76.70195	79.46192	75.94402	77.51022	77.95	74.23	79.16	3.82	3.81	1.14	1.2928	0.445451	9.828117	10.76066	21.11305	1.178404	0.044601	0.073203	0.03589	0.135	0.135
52	385.0	73.5	85.7	126.6	71.9	75.5593	77.02502	79.64848	75.92195	77.76258	78.20	74.23	79.29	3.82	3.82	1.14	1.2911	0.424518	9.828484	10.76758	20.91676	1.20469	0.051172	0.072786	0.035201	0.135	0.135
53	386.5	73.4	85.9	126.6	71.9	75.45847	76.79032	79.72064	76.12679	78.02097	78.11	74.47	79.40	3.80	3.82	1.14	1.3106	0.416617	9.949063	10.63419	20.82653	1.20875	0.052187	0.077644	0.035381	0.134	0.135
54	387.5	73.1	85.6	126.5	72.1	75.51683	76.70144	79.40863	75.84683	77.79455	78.02	74.16	79.26	3.79	3.81	1.14	1.3275	0.424505	10.01572	10.55418	20.6278	1.175039	0.04376	0.081881	0.034049	0.134	0.135
55	388.8	72.7	85.7	127.3	71.6	75.31268	76.67799	79.44489	75.91163	77.73886	78.13	74.10	79.08	3.79	3.81	1.14	1.3120	0.440477	10.1036	10.44135	20.41566	0.990475	0	0.078001	0.035768	0.134	0.135
56	396.4	71.5	85.4	119.8	71.6	75.28175	76.80099	79.4276	76.00837	77.79545	77.86	74.13	79.18	3.79	3.82	1.14	1.3132	0.432186	10.2749	10.26941	20.22303	0.990584	0	0.078294	0.035412	0.134	0.135
57	399.7	72.8	85.4	137.7	72.3	75.27725	76.64256	79.39017	75.94868	77.68221	78.04	74.15	79.10	3.79	3.81	1.14	1.3427	0.44806	10.33394	10.20823	20.12549	1.193693	0.048423	0.085679	0.035214	0.134	0.135
58	399.0	72.8	85.7	134.7	72.5	75.22935	76.72182	79.44193	75.98962	77.64284	77.96	74.10	79.11	3.79	3.82	1.14	1.3386	0.413801	10.42587	10.12011	19.91335	1.169881	0.04247	0.084646	0.036027	0.134	0.135
59	397.3	72.9	85.9	132.8	72.4	75.11568	76.72194	79.27045	75.94711	77.83459	77.89	74.19	79.13	3.79	3.82	1.14	1.3336	0.416593	10.40578	10.15373	19.72193	1.19807	0.049517	0.083408	0.035616	0.134	0.135
60	396.0	72.8	85.8	131.2	71.8	75.27342	76.75252	79.10854	75.80746	77.69495	77.88	73.86	79.05	3.79	3.81	1.14	1.3476	0.413788	10.53941	10.02011	19.62439	1.195619	0.048905	0.086889	0.035473	0.134	0.135
61	395.9	73.1	85.7	129.9	71.7	75.01744	76.75755	79.0935	75.88314	77.81747	77.95	74.12	78.17	3.79	3.81	1.14	1.3042	0.41096	10.60095	9.965031	19.43054	1.178209	0.044552	0.076038	0.035217	0.134	0.134
62	395.7	72.5	85.7	129.2	72.6	74.94139	76.43385	78.90366	75.81018	77.77129	77.78	74.04	77.74	3.77	3.81	1.15	1.2772	0.424481	10.66017	9.905076	19.21962	1.214395	0.053599	0.069308	0.038399	0.133	0.134
63	394.4	73.3	86.0	129.1	72.0	75.35323	76.752	79.12141	75.71287	77.59365	77.77	74.06	77.83	3.77	3.81	1.14	1.2956	0.413801	10.72771	9.832259	19.1172	1.18706	0.046765	0.073904	0.035378	0.133	0.134
64	393.8	72.4	85.6	128.4	71.6	75.17676	76.66923	79.09888	75.9715	77.67825	78.01	74.15	77.73	3.77	3.81	1.14	1.2966	0.41096	10.7346	9.839086	18.92822	1.179611	0.044903	0.074142	0.035366	0.133	0.135
65	393.0	72.8	85.6	127.7	72.4	75.11208	76.70494	79.04758	75.89217	77.57215	77.93	73.93	77.60	3.77	3.80	1.14	1.2837	0.429736	10.76121	9.80632	18.71121	1.174832	0.043708	0.070917	0.035165	0.133	0.134
66	391.8	72.8	85.3	127.3	72.2	75.15981	76.89993	79.27436	75.78423	77.84573	77.79	73.87	77.57	3.77	3.80	1.14	1.2828	0.416593	10.715	9.871578	18.61611	1.218869	0.054717	0.070695	0.035476	0.133	0.134
67	392.2	73.0	85.4	129.2	71.2	75.30155	76.90781	78.86893	75.80894	77.74997	77.94	74.17	77.56	3.73	3.81	1.14	1.3130	0.389441	10.68141	9.905076	18.42225	0.990779	0	0.078254	0.035354	0.132	0.134
68	398.3	72.5	85.4	121.8	72.2	75.38326	76.96275	79.03096	75.91127	77.73181	77.79	73.95	77.66	3.73	3.81	1.14	1.3316	0.392184	10.76121	9.806381	18.22718	0.990511	0	0.082902	0.034013	0.132	0.134
69	401.9	72.6	85.5	139.4	71.5	75.13852	76.73808	78.86654	75.67067	77.7054	77.61	73.83	77.32	3.73	3.81	1.14	1.2783	0.371165	10.71519	9.8781	18.0126	1.214907	0.053727	0.06957	0.034567	0.132	0.134
70	401.6	72.4	85.7	135.6	71.3	75.34181	76.92799	78.99622	75.69032	77.83884	77.88	74.04	77.37	3.73	3.81	1.15	1.2972	0.344976	10.66785	9.931716	17.92238	1.184988	0.046247	0.074304	0.036341	0.132	0.134
71	400.3	72.6	85.9	133.5	71.8	75.46872	77.10845	79.06288	75.85123	77.81902	78.03	74.21	77.43	3.86	3.80	1.14	1.3656	0.331918	10.6947	9.905046	17.72365	1.19112	0.04778	0.0914	0.035177	0.136	0.134

Raw Data

Reading Interval	1	Minutes																			10.19991		0.034596				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
72	399.5	72.9	85.8	132.0	71.1	75.19872	76.65771	79.08067	75.98466	77.96584	77.97	74.26	77.41	3.85	3.81	1.15	1.2975	0.334991	10.77365	9.814306	17.5176	1.183329	0.045832	0.07438	0.036555	0.136	0.134
73	398.6	72.8	85.6	130.9	71.8	75.20666	76.85307	79.09531	75.79951	77.98148	77.90	74.16	77.43	3.85	3.80	1.14	1.2898	0.326212	10.89466	9.697566	17.32131	1.195266	0.048816	0.072438	0.035582	0.136	0.134
74	395.7	72.8	85.5	130.0	72.1	75.19643	76.79598	79.00476	75.76274	77.79077	77.53	73.94	77.23	3.85	3.81	1.14	1.3311	0.326176	10.86049	9.7371	17.22377	1.189584	0.047396	0.082783	0.035418	0.136	0.134
75	394.9	72.9	85.8	129.2	71.4	75.37917	76.8248	79.27949	76.07767	77.94507	77.90	74.12	77.10	3.85	3.80	1.14	1.2930	0.309851	10.82074	9.799188	17.00675	1.176624	0.044156	0.073246	0.036158	0.136	0.134
76	392.8	72.8	85.7	128.7	71.1	75.27366	76.74606	78.92805	75.86088	77.70151	77.76	73.86	76.93	3.85	3.80	1.14	1.3017	0.304352	10.80056	9.819823	16.91287	1.183659	0.045915	0.075413	0.036241	0.136	0.134
77	394.6	73.4	85.9	128.0	71.0	75.2215	76.99509	78.98969	76.00023	77.96133	77.97	74.28	77.20	3.85	3.80	1.14	1.3699	0.312813	10.83351	9.778034	16.71414	1.208079	0.05202	0.092485	0.035988	0.136	0.134
78	394.6	73.5	85.8	127.7	71.3	75.22958	76.93623	78.81704	75.7942	77.65491	77.48	73.94	76.89	3.85	3.80	1.14	1.3052	0.320641	10.84668	9.758527	16.61904	1.172283	0.043071	0.076309	0.035253	0.136	0.134
79	393.9	73.0	86.0	127.6	71.9	75.31462	76.92757	78.94894	76.06604	77.75272	77.79	74.17	76.93	3.85	3.80	1.14	1.3283	0.344976	10.80748	9.785379	16.41056	1.179087	0.044772	0.082064	0.035134	0.136	0.134
80	394.5	72.7	85.8	127.4	70.7	75.21961	76.8928	79.05472	75.85352	77.79454	77.57	74.20	76.81	3.84	3.80	1.14	1.3247	0.347378	10.74731	9.851735	16.21061	1.20686	0.051715	0.081183	0.035604	0.136	0.134
81	394.3	72.9	85.6	127.0	71.0	75.20071	76.59947	78.88857	75.73409	77.91606	77.82	74.17	76.94	3.85	3.80	1.14	1.3227	0.355534	10.74055	9.839086	16.11551	1.181147	0.045287	0.080686	0.035485	0.136	0.134
82	394.7	73.1	85.7	127.0	71.5	75.15504	76.98217	79.07716	75.85769	77.73178	77.70	73.94	76.68	3.84	3.80	1.14	1.3077	0.352669	10.8151	9.750937	15.92166	1.152325	0.038081	0.076919	0.034738	0.136	0.134
83	393.8	73.3	85.7	126.9	71.2	75.3517	76.8174	78.74506	75.90141	77.6818	77.70	74.14	76.78	3.84	3.80	1.14	1.2830	0.347366	10.8739	9.705247	15.70951	1.16776	0.04194	0.07075	0.03521	0.136	0.134
84	393.9	72.4	85.7	127.1	72.1	75.41483	76.82698	78.90858	76.00588	77.82642	77.69	74.08	76.81	3.85	3.80	1.14	1.3429	0.335015	10.86789	9.717409	15.62173	1.190023	0.047506	0.085737	0.034397	0.136	0.134
85	395.4	72.7	85.9	127.1	71.2	75.51397	77.07338	79.00773	76.0284	78.17691	77.78	74.17	76.78	3.84	3.80	1.14	1.3271	0.352669	10.82077	9.771389	15.42544	1.185097	0.046274	0.081768	0.035201	0.136	0.134
86	395.9	72.8	85.7	127.3	71.5	75.48726	77.06006	78.98103	75.99441	77.9689	77.61	74.04	76.69	3.84	3.80	1.14	1.2920	0.37392	10.81501	9.750937	15.2072	1.192498	0.048124	0.073011	0.034735	0.136	0.134
87	397.1	72.6	85.6	127.1	71.1	75.39185	77.07173	79.17979	76.09099	77.93831	77.81	74.13	76.67	3.84	3.80	1.14	1.3163	0.371177	10.84058	9.723841	15.11454	1.190803	0.047701	0.079068	0.03546	0.136	0.134
88	399.1	73.0	85.6	127.1	71.3	75.38863	76.91457	79.02295	75.91836	78.10703	77.61	74.17	76.47	3.84	3.80	1.14	1.3079	0.339794	10.91535	9.656905	14.91581	1.202934	0.050734	0.076968	0.035055	0.136	0.134
89	400.1	73.4	85.8	127.0	70.9	75.40182	76.89429	78.90227	75.91219	77.92014	77.66	74.07	76.62	3.84	3.80	1.14	1.3234	0.315276	10.97543	9.611002	14.71708	1.175185	0.043796	0.080842	0.036049	0.136	0.134
90	398.8	72.7	85.6	127.0	71.4	75.2251	76.93176	79.02674	75.80135	78.01011	77.70	74.04	76.46	3.84	3.80	1.14	1.2916	0.285722	11.00819	9.577139	14.60613	1.182805	0.045701	0.072902	0.034863	0.135	0.134
91	397.2	73.3	86.1	127.4	72.2	75.42779	77.06752	78.94163	76.06085	78.0688	77.47	73.97	76.45	3.84	3.80	1.14	1.2805	0.282894	11.02996	9.570677	14.41227	1.183232	0.045808	0.070131	0.034912	0.135	0.134
92	394.9	73.4	86.2	127.7	72.9	75.42699	76.96631	79.13493	76.31702	78.2915	77.72	74.21	76.51	3.84	3.79	1.14	1.3005	0.288527	10.92885	9.680375	14.31839	1.198435	0.049609	0.07513	0.034796	0.135	0.134
93	393.5	72.7	86.2	127.3	72.0	75.53007	77.10287	79.08407	76.15725	78.05811	77.83	74.20	76.55	3.84	3.84	1.14	1.3243	0.304364	10.91538	9.683576	14.11844	1.192169	0.048042	0.081083	0.035186	0.135	0.135
94	394.8	72.6	85.7	127.1	71.6	75.18818	76.95507	79.0099	75.9727	77.88696	77.47	73.87	76.41	3.83	3.89	1.14	1.3587	0.307107	10.94147	9.651084	13.90752	1.190962	0.04774	0.089684	0.034656	0.135	0.137
95	397.5	73.0	85.7	126.9	71.2	75.50596	76.99174	78.9194	76.0218	77.98289	77.57	73.97	76.29	3.84	3.88	1.14	1.2998	0.296427	11.00176	9.591282	13.8112	1.206531	0.051633	0.074956	0.035131	0.135	0.137
96	399.0	73.2	86.1	127.3	71.2	75.52852	77.06785	79.0089	76.15497	78.12945	77.70	74.35	76.52	3.84	3.88	1.14	1.2771	0.299036	11.00182	9.577139	13.61369	1.172247	0.043062	0.069287	0.035076	0.135	0.137
97	399.9	73.4	85.7	127.6	71.7	75.481	77.20774	79.02161	76.04893	78.07697	77.63	74.07	76.43	3.83	3.88	1.14	1.3027	0.312813	11.07601	9.497281	13.52347	1.155763	0.038941	0.075681	0.034884	0.135	0.137
98	401.1	72.5	85.8	127.7	70.9	75.20914	77.08311	78.89699	75.95271	78.00751	77.50	74.04	76.38	3.83	3.88	1.14	1.2662	0.29383	11.17693	9.389776	13.31133	1.183061	0.045765	0.066547	0.034869	0.135	0.137
99	400.6	72.3	86.2	127.7	70.9	75.30879	77.03552	78.95649	76.02214	77.9297	77.85	73.94	76.31	3.83	3.88	1.14	1.3693	0.26986	11.14502	9.44394	13.11016	1.171259	0.042815	0.092336	0.035808	0.135	0.137
100	402.7	72.9	86.0	128.0	70.8	75.2194	76.70517	78.89387	76.08733	78.08859	77.73	74.23	76.18	3.83	3.88	1.14	1.3304	0.296427	11.08961	9.491611	13.01872	1.177331	0.044333	0.08261	0.035814	0.135	0.137
101	404.3	73.4	85.9	128.2	71.5	75.37116	77.12466	79.05902	76.22971	77.96994	77.78	74.26	76.26	3.83	3.88	1.14	1.2937	0.309814	11.08967	9.484082	12.79682	1.206799	0.0517	0.073414	0.034933	0.135	0.137
102	404.3	73.4	86.1	128.5	71.3	75.54148	77.15443	79.10887	76.11263	78.14735	77.83	74.41	76.40	3.83	3.88	1.15	1.3054	0.285735	11.03578	9.550103	12.70416	1.188097	0.047024	0.076358	0.036734	0.135	0.137
103	402.5	73.1	86.0	128.3	71.6	75.51831	77.22497	79.13255	76.29829	78.26608	77.76	74.19	76.45	3.83	3.88	1.14	1.3023	0.261558	11.04867	9.529864	12.51031	1.197314	0.049328	0.075581	0.035183	0.135	0.137
104	400.8	72.7	86.3	128.7	71.9	75.68096	77.38763	79.20748	76.09537	78.17696	77.82	74.36	76.38	3.83	3.88	1.14	1.3380	0.261558	11.12442	9.438179	12.41521	1.197801	0.04945	0.084499	0.035122	0.135	0.137
105	399.9	72.8	86.2	128.5	71.4	75.50553	77.16534	79.02606	76.22184	78.08924	77.74	74.29	76.33	3.83	3.88	1.14	1.3070	0.243111	11.07598	9.491642	12.19941	1.154032	0.038508	0.076751	0.035079	0.135	0.137
106	399.0	73.0	86.0	128.2	71.3	75.4847	77.07088	78.96507	76.14954	78.08386	77.68	74.00	76.07	3.83	3.88	1.14	1.3045	0.227078	11.25649	9.249537	12.00555	1.204275	0.051069	0.076117	0.034622	0.135	0.137
107	396.6	73.1	85.8	128.4	72.1	75.62641	77.33307	78.96622	76.27451	77.96788	77.53	74.11	76.13	3.83	3.88	1.14	1.3212	0.210875	11.11716	9.411692	11.9068	1.199094	0.049773	0.080305	0.034482	0.135	0.137
108	393.6	72.6	86.1	127.7	71.6	75.36004	76.91944	78.68646	75.8793	77.81364	77.58	74.17	75.85	3.83	3.88	1.14	1.2907	0.194976	10.88719	9.663428	11.80804	1.187365	0.046841	0.072685	0.035253	0.135	0.137
109	392.2	72.8	85.6	127.8	72.0	75.23006	77.02372	78.81751	76.0575	77.97175	77.68	74.18	75.87	3.83	3.88	1.14	1.3121	0.136149	10.70961	9.8781	11.60078	1.174429	0.043607	0.078013	0.033845	0.135	0.137
110	390.7	73.2	85.8	127.6	71.3	75.31133	77.05814	79.05273	76.14451	78.119	77.81	74.16	76.09	3.83	3.85	1.14	1.3333	0.136125	10.61311	9.972437	11.50446	1.191449	0.047862	0.083317	0.034461	0.135	0.136
111	392.6	73.3	85.9	127.4	71.4	75.42317	77.07629	79.15119	76.19282	78.04013	77.73	74.38	76.27	3.83	3.79	1.14	1.2851	0.163923	10.63978	9.919554	11.41302	1.177819	0.044455	0.071283	0.034866	0.135	0.134
112	392.9	72.9	85.9	127.3	71.3	75.63745	77.17009	79.09106	76.35931	78.17316	77.68	74.02	76.00	3.83	3.79	1.14	1.3085	0.189563	10.68748	9.839025	11.21551	1.206994	0.051749	0.077114	0.034625	0.135	0.134
113	393.1	72.9	85.5	127.4	71.1	75.36635	77.06631	78.80656	76.04759	78.14925	77.45	73.99	75.79	3.83	3.79	1.14	1.2934	0.216203	10.67358	9.858289	11.09724	1.208262	0.052066	0.073338	0.034019	0.135	0.134
114	391.6	73.0	86.0	127.1	71.1	75.54224	77.07487	78.67456	76.0773	78.02502	77.78	74.13	75.76	3.83	3.79	1.14	1.2980	0.272226	10.54675	9.965397	10.90095	1.160786	0.040197	0.07449	0.034732	0.135	0.134
115	390.7	73.4	85.6	127.0	70.8	75.36555	77.15252	78.99316	76.20734	78.04127	77.75	74.19	75.91	3.82	3.79	1.14	1.3265	0.272238	10.48	10.01288	10.79854	1.204775	0.051194	0.081625	0.034589	0.135	0.134
116	389.2	72.8	85.8	127.0	71.5	75.59485	77.14756	79.02837	76.23788	78.03165	77.62	74.07	75.68	3.82	3.79	1.14	1.3307	0.27225	10.52593	9.958112	10.70588	1.176368	0.044092	0.082683	0.034686	0.135	0.134
117	386.2	72.9	86.0	126.8	71.1	75.47301	77.15289	78.97346	76.18726	77.98772	77.54	74.19	75.87	3.82	3.79	1.14	1.3581	0.277493	10.41895	10.05312	10.49008	1.197472	0.049368	0.08952	0.034238	0.135	0.134
118	385.4	72.5	85.4	126.5	70.8	75.4827	77.31653	78.84929	76.28415	78.21178	77.60	74.31	75.70	3.82	3.78	1.14	1.3179	0.285722	10.41279	10.04614	10.3962	1.183866	0.045966	0.079479	0.033872	0.135	0.134
119	384.1	73.2	85.6	126.1	71.3	75.69532	77.3886	78.92136	76.08706	77.99462	77.75	74.36	75.74	3.81	3.79	1.14	1.3297	0.296451	10.35262	10.07266	10.29866	1.18639	0.046597	0.082424	0.033958	0.135	0.134
120	380.7	72.9	85.4	126.1	70.8	75.49394	77.1805	78.96761	76.17855	78.07272	77.46	74.31	75.82	3.82	3.79	1.13	1.2925	0.232126	10.34616	10.05309	10.19991	1.162054	0.040514	0.073133	0.033321	0.135	0.134
121	378.2	72.6	85.3	125.7	71.0	75.62182	77.24146	78.75414	76.1601	78.24167	77.64	74.41	76.03	3.82	3.78	1.13	1.3	0.189551	10.13694	10.26944	10.00361	1.220796	0.055199	0.086188	0.033333	0.135	0.134
122	373.6	73.0	85.6	125.6	71.3	75.68036	77.25983	78.94654	76.40578	78.29326	77.90	74.38	75.99	3.82	3.79	1.13	1.3	0.163935	9.975124	10.43415	9.893884	1.168784	0.042196	0.073618	0.033229	0.135	0.134
123	370.5	72.7	85.1	125.1	71.1	75.76249	77.2215	78.92159	76.22929	78.10337	77.68	74.34	75.85	3.81	3.78	1.13	1.3	0.128103	9.780416	10.64797	9.792689	1.173807	0.043452	0.071862	0.033424	0.135	0.134
124	366.6	72.5	85.0	124.5	70.9	75.58395	77.1969	78.72298	76.12231	78.12357	77.53	74.19	75.62	3.82	3.78	1.13	1.3	0.101414	9.666053	10.78711	9.698811	1.162908	0.040727	0.078406	0.032114	0.135	0.134
125	362.1	72.8	84.5	124.1	70.7	75.69177	77.01022	78.73709	76.1945	78.07528	77.51	74.26	75.77	3.81	3.78	1.13	1.3	0.099061	9.592443	10.86075	9.601274	1.187341	0.046835	0.062517	0.032415	0.135	0.134
126	360.6	72.8	84.6	123.4	70.7	75.48055	76.91947	78.70658	76.04891	77.83599	77.49	74.11	75.69	3.82	3.78	1.13	1.3	0.096147	9.552728	10.9009	9.503737	1.188584	0.047146	0.070652	0.033501	0.135	0.134
127	357.7	72.6	84.6	123.2	70.9	75.43751	77.21778	78.54975	75.84848	78.17102	77.36	74.14	75.43	3.81	3.78	1.12	1.3	0.112058	9.48564	10.95378	9.4062	1.193802	0.048451	0.076959	0.030773	0.135	0.133
128	354.7	73.4	84.3	122.9	72.0	75.3719	76.95137	78.49084	75.95381	77.96177	77.31	74.19	75.71	3.81	3.78	1.13	1.3	0.101475	9.243535	11.26126	9.296471	1.190767	0.047692	0.080473	0.031675	0.135	0.134
129	347.9	72.5	84.4	122.4	71.1	75.69488	77.28775	78.58625	75.99979	78.04791	77.59	74.21	75.60	3.81	3.78	1.13	1.3	0.093501	9.06934	11.45472	9.196496	1.141376	0.035344	0.07171	0.031824	0.135	0.133
130	347.4	72.0	83.7	118.9	71.4	75.49724	77.11018	78.46893	75.93695	78.052	77.38	74.30	75.60	3.81	3.78	1.13	1.3	0.106644	8.761824	11.74419	9.102617	0.990706	0	0.079254	0.031525	0.135	0.133
131	349.3	72.0	83.5	134.9	71.6	75.37048	77.16414	78.46934	76.07742	78.11884	77.60	74.27	75.60	3.81	3.78	1.13	1.3	0.176335	8.324978	12.18475	9.002642	1.206226	0.051557	0.077269	0.03276	0.135	0.134
132	339.6	72.5	83.4	130.9	71.2	75.3167	77.09028	78.52934	75.9891	78.20454	77.55	74.10	75.67	3.81	3.78	1.12	1.4	0.179041	8.304465	12.13108	8.998984	1.167943	0.041986	0.09098	0.029233	0.135	0.133
133	312.8	72.5	83.4	127.0	70.8	75.44725	77.27437	78.51263	76.17577	78.2105	77.43	74.29	75.55	3.81	3.78	1.11	1.3	0.184564	8.090189	12.34508	8.903886	1.196436	0.049109	0.081976	0.02767	0.135	0.133
134	295.4	72.7	82.8	124.2	72.0	75.56651	77.30663	78.3307	76.01208	78.21413	77.32	74.14	75.50	3.81	3.78	1.11	1.3	0.473749	6.971955	13.63857	8.7905	1.183841	0.04596	0.076974	0.027225	0.135	0.133
135	284.6	73.0	82.8	121.7	71.9	75.4489	77.48351	78.67492	76.2963	78.33102	77.50	74.22	75.81	3.81	3.78	1.11	1.3	0.87053	5.802637	14.86409	8.690524	1.176697	0.044174	0.081457	0.026578	0.135	0.134
136	276.4	72.7	82.7	121.1	71.3	75.30165	77.15555	78.17963	75.92268	77.99088	77.13	74.08	75.53	3.81	3.78	1.10	1.3	0.918396	5.635118	14.96504	8.688086	0.993669	0	0.070485	0.025554	0.134	0.133
137	274.0	72.0	82.1	116.6	71.5	75.41045	77.09032	78.12778	75.95947	77.94734	77.25	74.13	75.58	3.81	3.78	1.10	1.3	0.904997	5.601711	14.96513	8.58933	0.990743	0	0.070195	0.025972	0.134	0.133
138	273.2	71.9	81.5	120.4	71.8	75.28529	77.07895	78.34399	75.86035	78.13603	77.13	74.21	75.62	3.81	3.78	1.11	1.3	0.907716	5.614879	14.91847	8.490574	1.189986	0.047497	0.076032	0.026325	0.134	0.133
139	269.1	71.5	81.6	125.8	71.1	75.3948	76.8471	77.93812	75.7487	78.13148	77.07	74.20	75.39	3.81	3.78	1.10	1.3	0.902241	5.601711	14.91106	8.394257	1.207128	0.051782	0.079357	0.025478	0.134	0.134
140	264.7	72.3	81.6	121.8	71.3	75.33256	77.09943	78.13021	76.02624	78.28854	77.41	74.53	75.79	3.80	3.78	1.10	1.3	0.88961	5.542397	14.9651	8.395476	1.205812	0.051453	0.079589	0.024673	0.134	0.134
141	259.2	72.4	81.6	118.9	71.2	75.38201	77.01503	78.13282	75.8988	78.22803	77.13	74.04	75.42	3.81	3.78	1.10	1.3	0.896987	5.595097	14.89164	8.300378	1.186329	0.046582	0.082213	0.0241	0.134	0.134
142	256.0	72.6	81.4	118.7	71.2	75.40548	77.02512	77.92872	76.08056	78.12867	77.29	74.27	75.59	3.80	3.78	1.10	1.3	0.902241	5.627924	14.83081	8.184552	0.990621	0	0.072941	0.024494	0.134	0.134
143	256.1	71.9	81.1	113.8	71.8	75.26693	77.24799	78.19176	76.13223	78.3142	77.14	74.39	75.35	3.80	3.79	1.10	1.3	0.918396	5.721956	14.72489	8.093112	0.990926	0	0.081134	0.024503	0.134	0.134

Raw Data

Reading Interval	1	Minutes																			10.19991		0.034596					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
144	257.0	71.6	80.3	127.6	71.0	75.11124	77.10569	77.82188	75.81303	77.97492	77.02	74.16	75.40	3.80	3.78	1.10	1.3	0.907703	5.701595	14.73824	8.091892	1.20141	0.050353	0.079147	0.02435	0.134	0.134
145	256.2	71.8	80.9	122.9	71.2	75.39716	77.0101	78.07434	75.72042	78.03627	77.17	74.27	75.49	3.80	3.79	1.10	1.3	0.904997	5.701625	14.71776	7.993136	1.172527	0.043132	0.075401	0.023866	0.134	0.134
146	252.4	72.4	80.9	119.2	72.0	75.05347	77.02783	77.9649	75.81641	78.29958	76.98	74.07	75.45	3.80	3.79	1.09	1.3	0.896987	5.701625	14.70419	7.896819	1.150484	0.037621	0.075179	0.023354	0.134	0.134
147	247.1	72.5	80.8	116.5	71.7	75.18791	77.12212	77.88517	75.85329	78.22938	77.14	74.12	75.49	3.80	3.79	1.09	1.3	0.840183	5.870548	14.52125	7.896819	1.165663	0.041416	0.075956	0.023003	0.134	0.134
148	246.4	72.4	80.8	114.5	71.4	75.57162	77.39205	77.84721	75.97392	78.28307	77.08	74.43	75.49	3.80	3.79	1.09	1.3	0.886635	5.771182	14.6254	7.801721	0.990816	0	0.072103	0.023652	0.134	0.134
149	248.0	71.5	80.5	111.4	72.0	75.3715	77.11829	77.76087	75.76955	78.05192	77.03	74.02	75.29	3.80	3.79	1.09	1.3	0.902278	5.771182	14.61455	7.698088	0.990609	0	0.079842	0.023018	0.134	0.134
150	325.8	72.0	82.9	125.0	71.7	75.37811	77.05128	77.88126	75.97569	78.17775	77.12	74.11	75.35	3.80	3.79	1.12	1.3	0.904985	5.735276	14.65061	7.589578	1.18717	0.046792	0.070701	0.030663	0.134	0.134
151	357.1	72.5	84.1	120.6	71.9	75.1861	77.24078	78.0306	75.82078	78.14331	76.97	73.99	75.25	3.80	3.79	1.12	1.3	0.81975	5.878046	14.44398	7.492042	1.191327	0.047832	0.072725	0.031074	0.134	0.134
152	371.5	72.7	84.9	118.5	70.8	75.21557	77.06946	78.05338	75.9898	78.38596	77.23	74.29	75.45	3.80	3.79	1.13	1.3	0.517824	5.81614	14.40427	7.396943	1.207397	0.051849	0.079001	0.032705	0.134	0.134
153	382.2	72.5	85.4	119.1	71.5	75.12589	77.18057	78.0574	75.82092	78.18362	77.27	74.11	75.39	3.80	3.79	1.13	1.3	0.408339	6.078515	14.0574	7.300626	0.99056	0	0.083073	0.032693	0.134	0.134
154	392.0	72.1	85.6	113.0	71.4	75.26051	77.12779	78.1318	76.16457	78.11229	77.24	74.34	75.49	3.80	3.79	1.14	1.3	0.368348	6.212873	13.91049	7.206746	0.990853	0	0.086773	0.033836	0.134	0.134
155	402.7	71.6	85.4	113.1	71.8	75.08356	77.05123	78.28951	75.98302	78.28548	77.35	74.09	75.21	3.80	3.79	1.15	1.3	0.30979	6.33327	13.78472	7.10799	1.177892	0.044473	0.067269	0.036408	0.134	0.134
156	408.2	72.2	86.0	125.3	71.0	75.21158	77.15918	78.47775	75.99776	78.34707	77.38	74.32	75.40	3.80	3.79	1.14	1.3	0.282894	6.326168	13.81082	6.994604	1.18339	0.045848	0.077873	0.035716	0.134	0.134
157	405.1	72.2	86.3	122.4	71.7	74.99082	77.31323	78.31723	75.85767	78.11997	77.26	74.22	75.36	3.80	3.79	1.14	1.3	0.248963	6.428765	13.6803	6.889752	1.17805	0.044513	0.084502	0.033906	0.134	0.134
158	399.8	72.4	86.5	120.5	70.8	75.40169	77.35599	78.54739	76.14523	78.19334	77.32	74.14	75.46	3.80	3.79	1.14	1.3	0.227017	6.494755	13.58462	6.890971	1.171527	0.042882	0.076181	0.034226	0.134	0.134
159	399.9	72.7	86.7	118.9	71.3	75.37952	77.2468	78.47168	75.94054	78.41702	77.48	74.25	75.34	3.80	3.79	1.14	1.3	0.240282	6.245547	13.8648	6.795873	1.184146	0.046037	0.075709	0.033863	0.134	0.134
160	400.9	72.4	86.5	120.0	71.0	75.38682	77.29426	78.43212	75.97427	78.096	77.17	74.15	75.32	3.79	3.79	1.14	1.3	0.253816	6.258928	13.79088	6.697117	0.990377	0	0.074538	0.034866	0.134	0.134
161	404.6	71.7	86.3	113.9	70.8	75.28071	77.25508	78.39964	76.03394	78.20922	77.33	74.15	75.39	3.79	3.79	1.14	1.3	0.205913	6.373809	13.65357	6.595922	0.990645	0	0.078032	0.034418	0.134	0.134
162	412.1	71.2	86.3	125.1	71.3	75.2002	77.27496	78.53331	75.95704	78.22603	77.54	74.32	75.48	3.79	3.79	1.14	1.3	0.179017	6.367042	13.64622	6.498386	1.174771	0.043693	0.076709	0.035805	0.134	0.134
163	412.8	72.5	86.7	127.5	72.2	75.35746	77.06409	78.57678	75.98094	78.27001	77.38	74.26	75.34	3.80	3.79	1.14	1.3	0.157949	6.380545	13.62537	6.481317	1.187743	0.046936	0.077029	0.035284	0.134	0.134
164	412.8	72.3	87.1	124.4	71.1	75.43523	77.33598	78.64787	76.01551	78.47191	77.38	74.18	75.46	3.80	3.78	1.14	1.3	0.14177	6.408922	13.57746	6.38378	1.199325	0.049831	0.079437	0.034985	0.134	0.134
165	412.0	72.4	87.3	122.6	71.6	75.3605	77.22108	78.70699	76.24158	78.33654	77.51	74.49	75.47	3.79	3.79	1.14	1.3	0.106632	6.436415	13.54378	6.287462	1.185719	0.04643	0.082701	0.035214	0.134	0.134
166	411.6	72.6	87.0	121.1	71.2	75.50616	77.29311	78.62508	76.20425	78.28584	77.54	74.33	75.58	3.79	3.78	1.14	1.2	0.093489	6.422425	13.53737	6.191145	1.191547	0.047887	0.060234	0.035128	0.134	0.134
167	412.4	72.7	87.4	120.0	71.9	75.44202	77.26915	78.70821	75.87453	78.30416	77.37	74.19	75.16	3.79	3.79	1.14	1.3	0.085625	6.428643	13.55082	6.09117	1.164615	0.041154	0.074566	0.035271	0.134	0.134
168	412.4	72.9	87.3	119.6	71.1	75.57032	77.45768	78.66917	76.18417	78.4063	77.65	74.33	75.37	3.79	3.78	1.14	1.3	0.083162	6.40179	13.57746	6.015579	1.170808	0.042702	0.077772	0.035034	0.134	0.134
169	412.1	72.5	87.5	118.9	71.3	75.43602	77.21629	78.84276	76.16753	78.36958	77.54	74.29	75.50	3.79	3.78	1.14	1.3	0.072519	6.394505	13.58462	5.996071	1.164566	0.041141	0.074584	0.034884	0.134	0.134
170	382.4	72.9	85.9	118.7	71.5	75.63877	77.15801	78.71754	76.33691	78.38502	77.66	74.29	75.34	3.79	3.78	1.12	1.3	0.058973	6.408983	13.56444	5.897316	1.179562	0.044891	0.073188	0.030355	0.134	0.134
171	332.3	72.7	84.1	117.9	71.4	75.68831	77.41504	78.77378	76.42408	78.45881	77.60	74.36	75.47	3.79	3.78	1.12	1.3	0.035613	6.408953	13.57097	5.781491	1.188682	0.04717	0.071588	0.029188	0.134	0.134
172	313.0	72.3	83.3	117.3	70.7	75.54967	77.14922	78.43434	76.11597	78.31803	77.60	74.31	75.24	3.79	3.78	1.12	1.3	0.099049	6.992073	12.75425	5.788806	1.185792	0.046448	0.074093	0.029319	0.134	0.133
173	303.6	72.8	82.8	117.1	71.4	75.61499	77.34172	78.32564	76.32888	78.41046	77.47	74.43	75.24	3.78	3.78	1.11	1.3	0.216154	7.822114	11.70984	5.686392	1.195009	0.048752	0.072417	0.027853	0.134	0.133
174	297.3	72.4	82.4	116.8	70.9	75.58472	77.19767	78.41586	76.0407	78.24945	77.55	74.24	75.09	3.78	3.78	1.11	1.3	0.240246	7.923247	11.61572	5.583979	1.181074	0.045268	0.078309	0.028285	0.133	0.133
175	292.4	72.3	82.4	116.6	71.8	75.66305	77.5571	78.33353	76.11648	78.37878	77.48	74.17	75.14	3.78	3.78	1.11	1.3	0.232101	7.875271	11.68912	5.591294	1.184268	0.046067	0.075947	0.027212	0.133	0.133
176	289.4	72.2	82.1	116.2	71.2	75.51021	77.25033	78.23425	76.07526	78.24385	77.20	74.31	74.97	3.78	3.78	1.11	1.3	0.205913	7.855124	11.75041	5.496196	1.172405	0.043101	0.08239	0.027383	0.133	0.133
177	285.9	72.6	81.9	115.9	71.5	75.58034	77.32045	78.16382	76.19743	78.22547	77.35	74.28	75.11	3.78	3.78	1.11	1.3	0.200256	7.84156	11.78321	5.494977	1.196229	0.049057	0.076383	0.026633	0.134	0.133
178	283.5	72.7	81.8	116.1	72.5	75.77217	77.43867	78.44936	76.25505	78.31655	77.23	74.11	75.20	3.79	3.78	1.11	1.3	0.224079	7.768682	11.88453	5.398659	1.169345	0.042336	0.073639	0.026658	0.134	0.134
179	280.8	72.7	81.4	115.2	70.2	75.47652	77.30363	78.04661	75.93906	78.39545	77.42	74.50	75.28	3.78	3.87	1.11	1.3	0.22136	7.762128	11.91196	5.297464	1.203715	0.050929	0.079705	0.026688	0.134	0.136
180	279.8	71.8	81.0	114.7	69.8	75.39191	77.1521	77.8616	75.85542	78.05078	77.21	74.30	74.85	3.78	3.87	1.10	1.3	0.197464	7.697175	12.0247	5.297464	1.173929	0.043482	0.07701	0.026152	0.133	0.137
181	281.2	70.5	80.8	112.5	69.7	75.15453	77.1289	77.9388	75.68343	78.31386	77.13	74.20	75.01	3.78	3.87	1.11	1.3	0.181663	7.621491	12.13836	5.188955	0.990658	0	0.074139	0.027215	0.134	0.137
182	286.0	69.5	80.2	108.5	69.7	75.03082	76.95832	77.795	75.64075	78.23102	77.20	74.24	75.20	3.79	3.87	1.11	1.3	0.173908	7.533739	12.25791	5.091418	0.990694	0	0.075169	0.027865	0.134	0.137
183	286.9	70.7	79.8	123.9	68.9	74.55138	77.22851	77.82423	75.4461	78.21038	77.15	74.31	75.25	3.79	3.87	1.11	1.3	0.155072	7.439707	12.39281	5.08776	1.175014	0.043754	0.073091	0.026624	0.134	0.137
184	283.3	71.4	79.8	121.1	69.4	74.55534	77.23917	77.97544	75.75731	78.30072	77.18	74.40	75.44	3.79	3.87	1.10	1.3	0.157925	7.345919	12.52464	5.091418	1.196655	0.049164	0.080007	0.02596	0.134	0.137
185	281.3	70.9	80.1	119.3	69.5	74.56312	77.10638	77.86274	75.48966	78.24725	77.16	74.36	75.09	3.79	3.87	1.11	1.3	0.166179	7.339427	12.52467	4.99632	1.191462	0.047865	0.07167	0.026432	0.134	0.137
186	279.3	70.9	80.0	117.8	69.0	74.61327	77.08291	77.79242	75.31734	78.14186	76.96	74.32	75.19	3.79	3.87	1.10	1.3	0.166179	7.32699	12.53138	4.99632	1.181525	0.045381	0.079458	0.025905	0.134	0.137
187	277.8	70.9	80.0	116.7	68.6	74.31301	77.04369	77.6461	75.43774	77.93429	76.74	74.05	74.97	3.78	3.87	1.10	1.3	0.18454	7.281117	12.5792	4.898783	1.166102	0.041525	0.078976	0.025862	0.134	0.137
188	275.3	70.5	79.9	115.5	69.3	74.03637	76.88751	77.6171	75.20777	77.95867	77.03	74.35	75.19	3.78	3.79	1.10	1.3	0.189527	7.260665	12.60602	4.898783	1.160043	0.040011	0.081845	0.024536	0.134	0.134
189	273.2	70.5	79.6	114.7	68.9	73.98067	76.97238	77.85591	75.07735	78.11606	76.98	74.31	75.31	3.78	3.79	1.10	1.3	0.18165	7.260574	12.60581	4.792712	1.183854	0.045963	0.077961	0.024643	0.134	0.134
190	270.2	69.8	79.5	115.6	68.9	74.16932	76.87991	77.52918	75.20225	77.93976	76.84	74.47	75.14	3.78	3.79	1.10	1.3	0.19494	7.239512	12.61922	4.79637	0.991352	0	0.078413	0.024939	0.134	0.134
191	272.7	69.6	79.6	110.2	69.6	74.14915	77.16764	77.59603	75.338	78.15583	76.93	74.26	75.22	3.78	3.79	1.10	1.3	0.202987	7.145297	12.73276	4.698833	0.990536	0	0.084923	0.025371	0.134	0.134
192	274.4	69.7	79.2	124.1	68.7	74.25927	76.9297	77.61913	75.24403	77.9146	76.94	74.25	75.26	3.78	3.79	1.10	1.3	0.201085	7.125241	12.76028	4.702491	1.187926	0.046981	0.082918	0.025146	0.134	0.134
193	270.6	69.9	79.3	121.5	68.9	74.19017	76.82714	77.46972	75.12229	78.04721	76.86	74.38	75.08	3.83	3.79	1.11	1.3	0.197476	7.066475	12.82801	4.584227	1.149326	0.037331	0.069442	0.026597	0.135	0.134
194	267.9	70.0	79.3	119.0	68.9	73.93779	76.96966	77.63231	75.14233	78.14088	76.79	74.18	75.28	3.83	3.79	1.10	1.3	0.221385	6.953515	12.92689	4.576912	1.19579	0.048947	0.078147	0.024058	0.135	0.134
195	264.5	70.5	79.4	117.2	68.7	74.04779	77.02612	77.42104	74.94727	77.95251	76.69	74.16	75.11	3.83	3.79	1.10	1.3	0.269824	6.792853	13.08017	4.58057	1.176417	0.044104	0.079754	0.024152	0.135	0.134
196	262.5	70.3	79.5	115.6	69.06071	73.96143	76.93975	77.6024	75.05196	77.93671	76.73	74.20	75.25	3.83	3.79	1.10	1.3	0.293806	6.72409	13.13431	4.483033	1.160189	0.040047	0.076139	0.026018	0.135	0.134
197	259.3	70.8	79.6	114.8	68.05251	73.81455	76.94682	77.34843	74.88364	78.10975	76.86	74.36	75.27	3.83	3.79	1.10	1.3	0.31524	6.848784	12.97331	4.483033	1.000704	0.000176	0.065891	0.024116	0.135	0.134
198	261.8	69.7	79.2	111.2	69.15651	73.95766	76.8289	77.38445	75.14407	78.156	76.62	74.21	75.24	3.83	3.81	1.10	1.4	0.326176	6.805868	13.01467	4.390373	0.990792	0	0.091525	0.024241	0.135	0.135
199	265.2	69.3	79.0	123.5	68.98991	74.01701	76.97526	77.40364	75.37888	78.04277	76.81	74.19	75.18	3.81	3.85	1.10	1.3	0.334979	6.820072	12.9866	4.386715	1.194692	0.048673	0.070082	0.024576	0.135	0.136
200	264.3	70.2	78.9	120.8	68.42948	74.00333	76.90133	77.17578	74.99718	77.92879	76.62	74.23	75.02	3.81	3.85	1.10	1.3	0.309814	6.86058	12.95316	4.391592	1.201752	0.050438	0.074734	0.024643	0.135	0.136
201	260.7	70.5	79.2	118.4	69.08957	74.19042	76.99474	77.33611	75.2001	78.08487	76.93	74.26	75.23	3.82	3.85	1.09	1.3	0.298939	6.820072	13.01464	4.364769	1.174112	0.043528	0.07381	0.023396	0.135	0.136
202	257.0	70.5	79.1	116.1	68.43559	73.79125	76.91682	77.31175	74.93697	77.98238	76.56	74.08	75.24	3.82	3.85	1.09	1.3	0.304303	6.751308	13.07435	4.28674	1.192474	0.048118	0.087365	0.022796	0.135	0.136
203	254.2	70.0	79.0	114.5	68.50158	73.76145	76.66615	77.06776	75.06078	77.9795	76.65	74.16	75.03	3.76	3.85	1.09	1.3	0.315252	6.79898	13.03144	4.290398	1.181293	0.045323	0.069192	0.022881	0.133	0.136
204	252.6	69.6	79.0	113.2	69.37701	74.07993	76.89094	77.19884	75.19661	77.95419	76.72	74.17	75.22	3.76	3.85	1.09	1.3	0.307107	6.812696	13.01464	4.191642	0.990755	0	0.078769	0.022973	0.133	0.136
205	254.4	69.3	78.7	108.6	69.52701	73.92647	76.87133	77.17924	75.14801	77.73158	76.63	74.11	75.16	3.76	3.85	1.10	1.3	0.312813	6.751308	13.0834	4.192861	0.990597	0	0.085447	0.023939	0.133	0.136
206	255.6	69.6	78.8	121.8	68.67599	74.08731	77.1125	77.15937	75.16193	78.08685	76.79	74.23	75.37	3.76	3.85	1.09	1.3	0.298987	6.631459	13.2433	4.195299	1.154593	0.038648	0.082018	0.02318	0.133	0.136
207	252.1	70.2	78.8	118.2	68.5832	73.95304	77.03178	77.07195	75.07409	77.94547	76.44	74.24	75.31	3.76	3.85	1.09	1.3	0.304328	6.487622	13.4022	4.19408	1.17905	0.044762	0.070564	0.023119	0.133	0.136
208	249.7	69.9	78.8	116.0	68.83651	73.82552	76.73692	76.90427	75.02896	77.95388	76.53	74.21	75.16	3.76	3.85	1.09	1.3	0.277456	6.528466	13.34389	4.080694	1.189425	0.047356	0.0731	0.022622	0.133	0.136
209	247.2	70.4	78.7	114.3	68.90178	73.9104	76.7214	76.88876	74.96287	77.95472	76.48	74.17	75.14	3.76	3.69	1.09	1.3	0.298975	6.461287	13.42295	4.080694	1.013371	0.003343	0.066403	0.022454	0.133	0.130
210	248.2	69.3	78.6	111.1	69.38857	73.97578	76.73993	77.10139	74.99174	78.00368	76.45	74.16	75.19	3.76	3.74	1.09	1.3	0.282906	6.501155	13.37486	3.983157	0.990426	0	0.078473	0.023104	0.133	0.132
211	250.6	68.7	78.2	122.6	68.84523	73.93308	76.66377	76.91145	74.91322	77.84483	76.39	74.12	75.05	3.76	3.74	1.09	1.3	0.298963	6.434953	13.4545	3.981938	1.182988	0.045747	0.073115	0.023253	0.133	0.132
212	249.4	69.8	78.2	119.7	68.56226	73.90704	76.56409	76.75153	74.97476	77.91307	76.37	74.14	75.06	3.76	3.74	1.09	1.3	0.312813	6.37393	13.53034	3.985595	1.174173	0.043543	0.083286	0.022601	0.133	0.132
213	247.3	70.4	78.6	116.9	69.08493	73.92917	76.64647	76.78705	74.93203	77.95735	76.44	74.24	75.36	3.76	3.74	1.09	1.3	0.337271	6.33961	13.5645	3.983157	1.184305	0.046076	0.08631	0.022442	0.133	0.132
214	243.6	70.2	78.5	114.7	68.97706	73.90703	76.72473	76.93893	74.90503	77.86341	76.42	74.09	75.18	3.76	3.74	1.09	1.3	0.368373	6.299863	13.60492	3.980719	1.193485	0.048371	0.074493	0.021827	0.133	0.132
215	243.2	69.3	78.4	112.3	69.06766	73.94546	76.91042	76.89036	75.12462	78.12317	76.40	74.09	75.15	3.76	3.74	1.09	1.3	0.36302	6.313275	13.57746	3.88562	0.990536	0	0.081625	0.022576	0.133	0.132

Raw Data

Reading Interval	1	Minutes																			10.19991		0.034596					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
216	246.2	69.4	77.9	109.0	69.52322	74.00883	76.61904	76.63914	75.02088	77.82533	76.31	74.02	75.25	3.76	3.74	1.09	1.4	0.394842	6.292822	13.60483	3.890497	1.191193	0.047798	0.089004	0.022345	0.133	0.132
217	245.4	69.1	78.0	119.7	68.41926	74.10519	76.8225	76.68197	75.1037	77.92153	76.37	74.08	75.24	3.75	3.74	1.09	1.3	0.400231	6.226101	13.69328	3.890497	1.202008	0.050502	0.076992	0.022144	0.132	0.132
218	241.0	70.5	78.3	116.6	68.44958	74.01182	76.76259	76.66222	75.08631	77.99784	76.28	74.08	75.31	3.75	3.74	1.09	1.3	0.405534	6.206594	13.71233	3.802714	1.193022	0.048256	0.071826	0.021382	0.132	0.132
219	238.3	69.9	78.5	115.9	68.87357	74.06969	76.68661	76.57285	75.11806	77.98943	76.27	74.08	75.25	3.75	3.74	1.09	1.3	0.429711	6.186019	13.72849	3.79296	0.990511	0	0.081433	0.021817	0.132	0.132
220	239.7	69.6	78.1	110.8	69.08162	74.31043	76.86042	76.69981	75.21554	78.08022	76.35	74.14	75.30	3.75	3.74	1.09	1.3	0.499475	6.045108	13.8915	3.701519	0.990658	0	0.074014	0.022241	0.132	0.132
221	241.3	70.0	77.7	121.8	67.65839	74.01538	76.65907	76.61224	75.20476	77.93558	76.22	73.99	75.00	3.75	3.74	1.09	1.3	0.590708	5.883959	14.03814	3.791741	1.186	0.0465	0.081732	0.022098	0.132	0.132
222	237.0	70.1	78.1	117.8	68.89117	74.27775	76.92813	76.77421	75.22963	78.03407	76.33	74.25	75.25	3.75	3.74	1.09	1.3	0.622152	5.802607	14.12415	3.696643	1.184207	0.046052	0.071372	0.0214	0.132	0.132
223	234.2	70.3	78.1	115.0	68.589	74.02623	76.73015	76.51599	75.12571	77.86992	76.32	74.01	75.07	3.74	3.74	1.08	1.3	0.616653	5.836165	14.06487	3.694204	1.1652	0.0413	0.073914	0.020885	0.132	0.132
224	233.0	69.8	78.1	112.8	69.37222	74.16367	76.87429	76.66682	75.02983	77.83427	76.24	74.11	75.28	3.75	3.74	1.09	1.3	0.624712	5.842689	14.05749	3.695424	0.990438	0	0.072621	0.021412	0.132	0.132
225	234.0	68.8	78.0	108.6	69.78512	73.85913	76.65006	76.41582	75.02614	77.87743	76.17	73.98	74.95	3.74	3.74	1.09	1.3	0.624737	5.896974	13.99732	3.595448	0.990341	0	0.066565	0.021711	0.132	0.132
226	235.2	69.6	77.7	121.4	67.99168	73.91283	76.92464	76.52307	74.9867	77.93169	76.15	73.78	74.88	3.74	3.75	1.09	1.3	0.613995	5.910416	14.0107	3.597887	1.22688	0.05672	0.074481	0.021272	0.132	0.132
227	233.3	70.3	77.9	117.1	68.58435	73.99906	76.8904	76.66285	75.00953	77.94114	76.16	74.15	75.08	3.74	3.74	1.08	1.3	0.611593	5.904046	14.03064	3.599106	1.200996	0.050249	0.074127	0.02069	0.132	0.132
228	231.3	70.2	78.2	115.2	68.90215	74.02681	76.77759	76.48311	75.09921	77.94382	76.14	74.05	75.10	3.74	3.75	1.08	1.3	0.619274	5.944829	13.99735	3.597887	0.990353	0	0.072786	0.020809	0.132	0.132
229	233.3	69.1	77.9	109.8	69.81855	73.97963	76.79065	76.44262	75.09111	77.88885	76.17	74.32	75.07	3.74	3.75	1.09	1.3	0.619287	5.93797	14.01074	3.4845	0.990402	0	0.073734	0.021458	0.132	0.132
230	234.4	69.4	77.5	122.7	68.19884	74.03039	76.75439	76.41306	74.95505	77.71933	76.16	73.91	75.04	3.75	3.75	1.09	1.3	0.616653	5.890908	14.05082	3.480843	1.194607	0.048652	0.06676	0.021266	0.132	0.132
231	231.9	70.0	77.8	118.3	69.0741	74.01223	76.67599	76.4953	75.19504	77.89908	76.11	74.02	75.12	3.74	3.75	1.08	1.3	0.61163	5.836227	14.11818	3.483281	1.162127	0.040532	0.084359	0.020098	0.132	0.132
232	228.8	69.7	77.9	117.3	68.71179	73.85556	76.74689	76.45242	75.19102	78.04231	76.20	73.95	75.06	3.74	3.75	1.08	1.3	0.616641	5.84275	14.12412	3.480843	0.990438	0	0.077769	0.020741	0.132	0.132
233	230.0	69.3	77.8	110.8	69.62625	74.1048	76.71503	76.44063	75.13454	77.93899	75.97	74.09	75.01	3.74	3.75	1.08	1.3	0.630369	5.904137	14.03814	3.389402	0.990475	0	0.070652	0.021138	0.132	0.132
234	232.8	69.5	77.4	123.7	68.82301	74.13382	76.86452	76.36256	75.23214	77.84248	76.01	73.97	75.11	3.74	3.75	1.09	1.3	0.630345	5.870548	14.07855	3.385744	1.187682	0.046921	0.068787	0.021275	0.132	0.132
235	230.4	69.9	77.6	118.7	68.42558	74.31537	76.71812	76.31654	75.16812	77.89225	76.06	74.08	74.97	3.74	3.74	1.08	1.3	0.630369	5.878229	14.07858	3.389402	1.20124	0.05031	0.078266	0.02044	0.132	0.132
236	227.0	70.6	77.9	117.8	68.65897	74.26723	76.83062	76.35542	75.24083	77.97165	76.06	74.11	75.15	3.74	3.74	1.08	1.3	0.630345	5.850065	14.11824	3.390621	0.990292	0	0.067939	0.020257	0.132	0.132
237	228.6	69.7	77.9	111.6	69.26706	74.24883	76.91261	76.33032	75.15504	78.03981	75.94	74.06	75.00	3.74	3.74	1.08	1.3	0.643781	5.88402	14.06481	3.287004	0.990438	0	0.087453	0.020988	0.132	0.132
238	230.2	69.3	77.5	117.5	69.49403	73.9699	76.6069	76.13839	75.01538	77.73282	75.91	74.06	75.08	3.74	3.75	1.08	1.3	0.651815	5.93797	14.0036	3.2931	1.174441	0.04361	0.068894	0.021214	0.132	0.132
239	230.1	69.6	77.5	120.0	68.47832	74.18827	76.69141	76.27644	74.99281	77.91773	75.99	74.12	75.17	3.74	3.75	1.08	1.3	0.64094	5.836227	14.13732	3.290661	1.172832	0.043208	0.070366	0.020406	0.132	0.132
240	227.0	70.0	77.6	116.0	68.11913	74.02529	76.61543	76.14693	74.90039	77.88555	75.92	74.01	75.07	3.74	3.75	1.08	1.3	0.649084	5.856466	14.10516	3.290661	1.190949	0.047737	0.0747	0.020312	0.132	0.132
241	227.3	69.6	77.8	112.7	69.42067	74.13407	76.71752	76.35611	74.98459	77.85597	76.00	74.13	75.13	3.74	3.75	1.08	1.3	0.654814	5.88405	14.07862	3.190686	0.990402	0	0.082427	0.020726	0.132	0.132
242	229.7	69.4	77.5	109.2	69.94744	73.99543	76.72613	76.17062	75.02603	77.91079	75.99	73.97	75.05	3.74	3.75	1.08	1.3	0.657265	5.890512	14.07139	3.191905	0.990426	0	0.075139	0.020873	0.132	0.132
243	230.7	69.6	77.5	120.3	68.25378	74.21145	76.72128	76.25278	74.93032	78.06943	76.16	74.29	75.08	3.74	3.75	1.08	1.3	0.662715	6.018743	13.91067	3.194344	1.15469	0.038673	0.073798	0.020275	0.132	0.132
244	228.0	70.4	78.0	116.4	68.32265	74.0334	76.58339	76.18851	74.98327	77.82117	76.07	74.21	75.18	3.74	3.75	1.08	1.3	0.671201	6.065287	13.85148	3.193124	1.190767	0.047692	0.078233	0.019839	0.132	0.132
245	227.0	70.4	77.6	113.0	69.33381	73.99371	76.60394	76.12204	75.01726	77.78154	76.04	74.01	75.07	3.74	3.75	1.08	1.3	0.674054	6.098662	13.83102	3.100464	0.990389	0	0.072752	0.020638	0.132	0.132
246	229.6	69.3	77.5	109.4	70.17653	74.17454	76.6509	76.07531	74.84148	77.73293	75.95	74.04	75.06	3.74	3.75	1.08	1.3	0.677175	6.118474	13.81764	3.099245	0.990328	0	0.075806	0.020775	0.132	0.132
247	230.8	69.9	77.1	122.4	68.14562	74.09961	76.62952	76.22126	74.87509	77.86025	75.98	74.13	75.12	3.74	3.75	1.08	1.3	0.689513	6.098723	13.84413	3.099245	1.175892	0.043973	0.069488	0.020723	0.132	0.132
248	228.7	70.2	77.7	117.6	68.85915	73.86125	76.58526	76.96281	74.91602	77.91457	75.85	74.05	75.14	3.74	3.75	1.08	1.4	0.689525	6.085464	13.85785	3.102902	1.170564	0.042641	0.090666	0.019854	0.132	0.133
249	225.4	70.0	77.6	116.6	68.55876	74.15989	76.75005	76.38194	75.22131	78.14624	75.96	74.06	75.29	3.74	3.75	1.08	1.3	0.659984	6.124632	13.82505	3.004146	0.99028	0	0.081662	0.020147	0.132	0.132
250	228.2	69.6	77.5	110.6	69.22598	74.02318	76.61333	76.33892	75.02131	77.81906	75.82	74.00	75.21	3.74	3.75	1.08	1.3	0.687087	6.145724	13.78479	3.004146	0.990353	0	0.070469	0.020595	0.132	0.132
251	231.0	69.8	77.6	122.2	69.28769	74.21003	76.80019	76.33168	75.19183	78.00297	75.95	74.18	75.01	3.74	3.75	1.08	1.3	0.700047	6.131551	13.79103	3.004146	1.184597	0.046149	0.079674	0.020559	0.132	0.132
252	230.6	70.0	77.4	119.7	68.62101	73.95615	76.68685	76.09787	74.98572	77.75669	75.79	74.10	74.99	3.74	3.75	1.08	1.3	0.689513	6.124723	13.81761	3.004146	1.189218	0.047305	0.074916	0.019882	0.132	0.132
253	227.6	70.4	77.9	116.0	68.87277	74.16396	76.62025	76.22537	75.16439	77.88851	75.87	74.16	75.35	3.74	3.75	1.08	1.3	0.692183	6.13152	13.81094	2.88954	1.188206	0.047052	0.080342	0.02012	0.132	0.132
254	227.7	69.9	77.8	112.9	69.08374	74.37753	76.53932	76.33854	75.27348	77.95744	75.94	74.13	75.18	3.74	3.75	1.08	1.3	0.674078	6.16508	13.77293	2.894417	0.990584	0	0.082466	0.020537	0.132	0.132
255	230.0	69.6	77.5	109.4	70.02876	74.14765	76.78466	76.11536	75.09563	77.83315	75.95	74.08	75.13	3.74	3.75	1.08	1.3	0.640915	6.178887	13.7729	2.784687	0.990438	0	0.074456	0.020866	0.132	0.132
256	231.6	69.6	77.4	121.5	68.34305	74.21847	76.72162	76.12594	75.05591	77.9139	75.88	74.17	75.10	3.74	3.75	1.08	1.3	0.633369	6.18608	13.77848	2.787126	1.189035	0.047259	0.078227	0.020226	0.132	0.132
257	227.6	70.2	77.6	117.1	69.13943	74.10319	76.82721	76.21814	75.02743	77.83187	75.81	73.94	75.04	3.74	3.75	1.08	1.3	0.59806	6.226131	13.73812	2.789564	1.190218	0.047554	0.086959	0.01951	0.132	0.132
258	226.2	69.8	77.6	115.5	68.81466	74.08599	76.75646	76.04031	74.99558	77.82011	75.79	74.02	74.98	3.74	3.75	1.08	1.3	0.544586	6.279381	13.71962	2.792002	0.990353	0	0.084201	0.020062	0.132	0.132
259	228.6	69.0	77.6	110.2	69.39816	74.08042	76.5434	75.88079	74.9524	77.72337	75.72	73.83	74.86	3.74	3.75	1.08	1.3	0.573773	6.319859	13.66091	2.685931	0.990426	0	0.071746	0.020446	0.132	0.132
260	231.0	69.6	77.6	123.6	68.61567	73.97465	76.6652	76.14984	74.9066	77.7579	75.65	73.88	74.84	3.74	3.75	1.08	1.3	0.552413	6.380637	13.60495	2.690808	1.200155	0.050039	0.067302	0.020793	0.132	0.132
261	229.8	70.1	77.7	119.0	68.46739	74.13915	76.73601	76.06001	75.19183	77.90257	75.95	73.97	74.86	3.74	3.75	1.08	1.3	0.541842	6.37393	13.62553	2.689589	1.16976	0.04244	0.079187	0.019861	0.132	0.132
262	227.1	70.0	77.8	115.7	68.73548	74.18919	76.71242	76.0565	75.09148	77.99633	75.85	74.17	75.16	3.74	3.75	1.08	1.3	0.541842	6.367134	13.63976	2.689589	1.19913	0.049783	0.075678	0.019644	0.132	0.132
263	227.5	70.0	77.7	112.6	69.04317	74.23741	76.73386	76.07795	75.04653	77.7305	75.71	73.88	74.98	3.73	3.75	1.08	1.3	0.544561	6.419743	13.57755	2.596928	0.990426	0	0.078254	0.020056	0.132	0.132
264	229.5	69.3	77.5	108.6	69.59706	74.49243	76.90189	75.88454	75.16801	77.95237	75.70	73.84	74.78	3.73	3.75	1.08	1.3	0.565702	6.435074	13.551	2.59449	0.99045	0	0.067485	0.020583	0.132	0.132
265	231.5	69.8	77.3	122.3	68.07244	74.41012	76.83295	75.77544	75.21938	77.67577	75.70793	74.02128	74.92481	3.736027	3.748692	1.080771	1.3	0.552413	6.422547	13.57115	2.595709	1.193912	0.048478	0.079988	0.020193	0.132	0.132
266	229.3	70.0	77.5	117.6	68.30277	74.35838	76.66074	75.84418	75.2152	77.85232	75.70377	73.88325	74.90726	3.736027	3.748838	1.079138	1.3	0.536514	6.422517	13.58471	2.59449	1.164846	0.041212	0.081345	0.019784	0.132	0.132
267	227.3	70.6	77.8	116.8	68.74929	74.35387	76.84364	76.10741	75.13332	77.82398	75.62858	73.92184	74.87893	3.733565	3.749911	1.079089	1.3	0.54183	6.416908	13.58477	2.59449	0.990145	0	0.075846	0.019772	0.132	0.132
268	227.8	69.8	77.8	111.1	69.53049	74.47999	76.76896	76.08627	75.3071	78.01115	75.83582	74.06216	74.91215	3.791355	3.748643	1.081247	1.3	0.549828	6.428795	13.57112	2.490856	0.990304	0	0.080305	0.020312	0.134	0.132
269	230.6	69.5	77.4	108.6	70.34438	74.36519	76.74786	75.89784	75.1376	77.85503	75.90727	74.15368	74.85642	3.790575	3.751472	1.08338	1.3	0.528468	6.454734	13.5439	2.488418	0.990377	0	0.083369	0.020845	0.134	0.132
270	230.2	69.4	77.4	120.3	68.21095	74.50726	76.67574	75.97298	75.30556	77.80882	75.56656	74.02046	74.73659	3.788795	3.751399	1.079418	1.3	0.488441	6.454764	13.56789	2.489637	1.18478	0.046195	0.080662	0.019854	0.134	0.132
271	228.3	70.3	77.6	116.4	68.88043	74.09171	76.61494	75.84524	75.07558	78.00719	75.70469	74.09167	74.7877	3.788722	3.75491	1.079077	1.3	0.517885	6.422517	13.57758	2.489637	1.199106	0.049776	0.068476	0.019769	0.134	0.133
272	226.7	70.0	77.8	115.0	69.0163	74.18052	76.62343	75.92735	75.01399	77.72473	75.66988	73.94307	74.75959	3.785991	3.74996	1.079564	1.3	0.53905	6.422547	13.56463	2.393319	0.990206	0	0.071064	0.019891	0.134	0.132
273	229.9	69.4	77.5	109.0	69.80398	74.05453	76.47067	75.98878	74.94334	77.78795	75.61262	73.76534	74.76257	3.786015	3.754203	1.082307	1.3	0.531089	6.441963	13.5439	2.3921	0.990548	0	0.075584	0.020577	0.134	0.133
274	231.9	70.0	77.3	122.4	68.19442	74.08242	76.7462	75.94973	75.06203	77.86649	75.68446	73.98442	74.82103	3.786161	3.751447	1.081698	1.3	0.515459	6.451503	13.54396	2.3921	1.1637	0.040925	0.072286	0.020424	0.134	0.132
275	230.3	70.1	77.8	118.1	68.9678	74.03355	76.67725	76.0548	74.81503	77.9876	75.70518	74.07877	74.98232	3.788819	3.751472	1.078955	1.3	0.502352	6.416908	13.60495	2.28359	1.15124	0.03781	0.069186	0.019739	0.134	0.132
276	227.6	70.4	77.5	115.0	68.4529	74.2945	76.6638	76.02795	74.97491	77.91991	75.9253	73.97762	74.94808	3.786137	3.751447	1.077394	1.3	0.515459	6.409044	13.59806	2.282371	1.176051	0.044013	0.073612	0.019349	0.134	0.132
277	227.6	69.5	77.8	111.9	69.49437	74.04496	76.60835	76.14653	75.29834	77.98901	75.67312	74.02663	74.7963	3.784967	3.754227	1.080491	1.3	0.528455	6.454734	13.54399	2.279932	0.990328	0	0.073438	0.020123	0.134	0.133
278	230.0	69.7	77.6	108.4	70.0199	74.09879	76.76927	76.07319	75.145	77.80889	75.64695	74.04731	74.83037	3.786186	3.753422	1.082746	1.3	0.536539	6.474638	13.50994	2.178737	0.990462	0	0.074654	0.020687	0.134	0.132
279	231.4	69.7	77.5	120.5	68.20415	74.03864	76.5351	75.90595	74.77779	77.76964	75.58093	73.71356	74.77773	3.784942	3.751399	1.080467	1.3	0.541818	6.447968	13.54399	2.176299	1.201666	0.050417	0.077681	0.020117	0.134	0.132
280	228.4	70.2	77.7	116.7	68.76851	74.01515	76.53168	75.8423	74.94653	77.83128	75.63588	74.02285	74.73228	3.784528	3.754715	1.07826	1.3	0.536502	6.435044	13.54117	2.179957	1.170308	0.042577	0.073325	0.019565	0.134	0.133
281	227.5	70.5	78.0	115.9	68.78645	74.09913	76.75623	75.85935	74.98485	77.89639	75.70097	74.08794	74.70367	3.781212	3.754251	1.079991	1.3	0.531052	6.447998	13.55874	2.182395	0.990255	0	0.075508	0.019998	0.133	0.133
282	229.5	69.8	77.5	109.9	69.81873	73.83461	76.51847	75.73539	74.77581	77.64719	75.59903	73.87891	74.85607	3.781138	3.751423	1.082393	1.3	0.526102	6.468694	13.54393	2.079981	0.990365	0	0.083088	0.020598	0.133	0.132
283	232.1	69.5	77.5	122.7	69.47604	74.04527	76.60866	75.83227	74.7859	77.55688	75.62251	73.99609	74.87955	3.78248	3.756885	1.083197	1.4	0.52609	6.454764	13.56118	2.086077	1.180074	0.045019	0.087615	0.020799	0.134	0.133
284	231.1	69.7	77.7	119.4	68.99901	74.0518	76.72228	76.18684	74.96927	77.86073	75.68539	74.0389	74.72157	3.786113	3.751447	1.080223	1.3	0.528443	6.447937	13.57115	2.088516	1.16459	0.041148	0.079202	0.020056	0.134	0.132
285	228.5	70.3	77.7	116.1	68.52419	73.92252	76.60638	75.93038	74.87502	77.77986	75.41043	73.83087	74.86158	3.783674	3.755519	1.078101	1.3	0.523213	6.447998	13.57758	2.088516	1.181293	0.045323	0.076355	0.019525	0.134	0.133
286	226.2	70.1	77.8	115.6	68.99615	74.20247	76.61861	76.27058	75.02986	77.9347	75.81292	74.12627	74.94949	3.783699	3.756934	1.079296	1.3	0.526127	6.474576	13.54393	1.989759	0.990145	0	0.070741	0.019824	0.134	0.133
287	228.3	69.7	77.8	109.8	69.80389	73.9753	76.92689	75.76897	74.94249	77.83395	75.68539	74.05228	75.02945	3.783577	3.751472	1.082685	1.3	0.480309	6.535019	13.504	1.986101	0.990462	0	0.081378	0.020671	0.134	0.132

Raw Data

Reading Interval	1	Minutes																			10.19991		0.034596				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
288	231.4	69.6	77.5	122.7	69.05933	73.96125	76.71874	75.82857	75.01206	77.8232	75.84867	73.8876	74.84468	3.783601	3.755495	1.082832	1.3	0.472335	6.515268	13.50543	1.984882	1.201703	0.050426	0.086511	0.020708	0.134	0.133
289	229.5	70.0	77.7	118.5	68.57559	73.92978	76.68057	75.99789	74.79551	77.70705	75.56518	73.91869	74.67497	3.782065	3.754178	1.079077	1.3	0.491111	6.428826	13.56457	1.987321	1.160079	0.04002	0.067379	0.019769	0.134	0.133
290	226.7	70.4	77.7	115.7	68.48255	73.99904	76.7833	75.98014	74.84375	77.77536	75.66697	73.97363	74.8437	3.783479	3.755641	1.078479	1.3	0.491111	6.394627	13.60492	1.891003	1.189962	0.04749	0.067613	0.01962	0.134	0.133
291	226.1	69.8	77.8	114.3	69.41357	74.02295	76.6265	75.98397	75.19374	77.71038	75.78271	73.9488	74.83895	3.781016	3.756763	1.079601	1.3	0.507765	6.388073	13.62553	1.891003	0.990243	0	0.081131	0.0199	0.133	0.133
292	228.9	69.3	77.6	109.0	69.89085	73.98277	76.53276	75.75637	74.86815	77.74622	75.55751	74.03149	74.70746	3.781138	3.754227	1.082137	1.3	0.571091	6.394688	13.58477	1.799562	0.990438	0	0.074837	0.020534	0.133	0.133
293	230.8	69.6	77.4	123.4	69.12814	73.99931	76.61625	75.92017	75.09385	78.02547	75.50209	73.96938	74.80598	3.78109	3.754227	1.082076	1.3	0.595597	6.339702	13.64644	1.799562	1.211347	0.052837	0.071015	0.020519	0.133	0.133
294	229.5	70.1	77.7	119.3	68.75702	74.32592	76.69522	76.11292	75.21001	78.00106	75.6718	74.26626	75.10956	3.781114	3.754227	1.079442	1.3	0.614032	6.307545	13.69337	1.795904	1.17015	0.042537	0.075057	0.019861	0.133	0.133
295	227.3	70.5	77.8	115.7	68.99276	73.90105	76.51129	76.04279	74.96055	77.77837	75.60975	73.84946	75.09436	3.781041	3.754227	1.078321	1.3	0.635758	6.24573	13.75842	1.797123	1.187853	0.046963	0.080589	0.01958	0.133	0.133
296	226.6	70.2	77.9	114.0	69.16269	73.97775	76.64823	76.0057	75.08978	77.77374	75.63858	73.95193	74.73499	3.78109	3.754227	1.079223	1.3	0.643768	6.279442	13.71974	1.797123	0.990267	0	0.072091	0.019806	0.133	0.133
297	228.6	68.9	77.9	109.0	69.98823	74.00134	76.71198	75.78164	74.88197	77.84705	75.51778	73.97838	74.73466	3.781016	3.754203	1.081637	1.3	0.643793	6.35357	13.64637	1.684955	0.990377	0	0.081653	0.020409	0.133	0.133
298	231.4	69.8	77.4	123.3	68.94302	74.05529	76.67223	76.09663	74.84669	77.74483	75.58958	73.8427	74.80647	3.78109	3.744595	1.081637	1.3	0.64094	6.32629	13.68045	1.681298	1.177148	0.044287	0.084655	0.020409	0.133	0.132
299	229.3	70.1	77.6	118.7	68.95119	73.98479	76.7356	75.93912	74.855	77.81339	75.52428	74.09866	74.8951	3.781065	3.741864	1.078491	1.3	0.63838	6.292975	13.71965	1.678859	1.185256	0.046314	0.081976	0.019623	0.133	0.132
300	227.0	70.2	77.9	115.5	68.87511	74.01543	76.73277	76.11032	75.16019	77.86423	75.54836	74.10935	74.95934	3.780163	3.743205	1.077748	1.3	0.635734	6.292944	13.71968	1.680078	1.184232	0.046058	0.087297	0.019437	0.133	0.132
301	225.7	70.2	77.9	115.6	68.52683	74.17068	76.67383	75.92421	75.1107	77.74112	75.44532	73.77206	74.84962	3.777139	3.743205	1.078504	1.3	0.630381	6.346681	13.66887	1.58498	0.990145	0	0.081064	0.019626	0.133	0.132
302	227.8	69.8	77.7	110.0	69.56295	74.17892	76.54153	75.78521	74.96331	77.76106	75.48534	73.81876	74.80262	3.779846	3.740572	1.081271	1.4	0.622201	6.422486	13.5848	1.588637	0.990341	0	0.093372	0.020318	0.133	0.132
303	230.8	69.6	77.3	117.9	69.90601	74.07148	76.6081	75.94549	74.97137	77.72896	75.72766	74.21503	74.89099	3.781163	3.74323	1.082234	1.3	0.603303	6.388073	13.64631	1.586199	1.178745	0.044686	0.085399	0.020559	0.133	0.132
304	230.5	69.8	77.6	119.4	68.97961	73.94929	76.61977	75.89691	75.04605	77.73002	75.57478	73.78103	74.73141	3.778481	3.809067	1.07926	1.3	0.603327	6.380667	13.65369	1.58498	1.169089	0.042272	0.085444	0.019815	0.133	0.134
305	227.1	70.0	77.5	115.8	68.76888	73.85497	76.62585	75.87622	74.9437	77.67451	75.45233	73.95309	74.77631	3.78109	3.811701	1.079296	1.3	0.585173	6.367195	13.68646	1.587418	1.18094	0.045235	0.072966	0.019824	0.133	0.135
306	225.4	70.6	78.0	115.8	68.4741	74.17663	76.68649	75.94355	75.09544	77.85303	75.58401	74.17847	74.82767	3.778456	3.810384	1.078345	1.3	0.55779	6.401881	13.65369	1.487442	0.990084	0	0.071564	0.019586	0.133	0.135
307	228.2	69.7	77.7	109.6	69.55457	73.96842	76.69915	75.99638	74.94305	77.78095	75.49854	74.01937	74.89614	3.778432	3.809092	1.082198	1.3	0.554949	6.428886	13.6126	1.483785	0.990255	0	0.074185	0.020549	0.133	0.134
308	231.3	69.4	77.7	107.3	70.00335	74.14556	76.52824	76.15344	74.97123	77.88277	75.5535	74.02748	74.9578	3.781138	3.811603	1.08321	1.4	0.544622	6.422547	13.61876	1.389905	0.990231	0	0.092113	0.020802	0.133	0.135
309	232.4	69.6	77.5	120.5	68.77685	74.02724	76.66426	76.10205	75.09425	77.67782	75.43556	73.89616	74.85325	3.778481	3.810384	1.079272	1.4	0.528504	6.367134	13.69917	1.386248	1.178782	0.044695	0.091802	0.019818	0.133	0.135
310	229.2	70.7	77.8	117.1	68.93919	74.09691	76.61346	75.90399	75.07658	77.86095	75.52499	74.03244	74.72179	3.775993	3.810238	1.078796	1.3	0.531101	6.401912	13.68039	1.389905	1.182976	0.045744	0.067744	0.019699	0.133	0.135
311	227.0	70.5	77.9	116.0	68.38095	74.2443	76.63367	75.85059	75.28543	77.98279	75.62675	74.1275	74.81686	3.775993	3.811603	1.077284	1.4	0.510265	6.416969	13.67426	1.393563	0.989658	0	0.088995	0.019321	0.133	0.135
312	227.6	69.6	77.8	110.8	69.41809	74.15326	76.54932	75.82648	74.98367	77.7011	75.61279	73.83912	74.6021	3.776067	3.806312	1.080771	1.3	0.499523	6.435074	13.64634	1.294806	0.990426	0	0.079144	0.020193	0.133	0.134
313	232.0	69.2	77.3	108.1	69.95859	74.32204	76.65118	75.65391	75.08172	77.65859	75.4565	73.97064	74.78717	3.775993	3.807775	1.083295	1.3	0.491111	6.454764	13.63229	1.298464	0.990243	0	0.070762	0.020824	0.133	0.134
314	233.2	69.5	77.3	121.6	68.1729	73.88038	76.35676	75.68076	74.78326	77.58772	75.23836	73.78597	74.48871	3.775993	3.809092	1.079455	1.3	0.488465	6.447998	13.66091	1.298464	1.201069	0.050267	0.078035	0.019864	0.133	0.134
315	231.0	70.4	77.6	117.8	69.09886	73.90469	76.50155	75.79208	75.0639	77.8148	75.69302	74.02645	74.76936	3.778456	3.811701	1.078869	1.4	0.477602	6.401912	13.72541	1.297245	1.197704	0.049426	0.089709	0.019717	0.133	0.135
316	228.0	70.3	77.8	114.8	68.55089	74.10511	76.75552	76.02598	75.06781	77.62461	75.54299	73.90988	74.75318	3.774555	3.810213	1.077711	1.3	0.474859	6.409105	13.71971	1.294806	1.140035	0.035009	0.078635	0.019428	0.133	0.135
317	227.8	69.9	77.9	112.4	69.4584	74.15898	76.74246	75.97945	75.22469	77.81495	75.65971	74.22739	74.80965	3.776042	3.809116	1.080345	1.3	0.472347	6.435044	13.68649	1.194831	0.990523	0	0.080415	0.020086	0.133	0.134
318	232.0	69.5	77.6	108.4	69.78946	74.19075	76.51319	76.0246	75.25725	77.7672	75.73243	73.93868	74.98278	3.774628	3.809165	1.083515	1.3	0.480357	6.508349	13.60032	1.198488	0.990499	0	0.080427	0.020879	0.133	0.134
319	234.9	69.7	77.4	122.8	67.9675	74.17617	76.59901	75.76907	75.01769	77.55441	75.35901	73.67235	74.68298	3.775896	3.810091	1.082234	1.3	0.488465	6.474607	13.63232	1.197269	1.171284	0.042821	0.085426	0.020559	0.133	0.134
320	232.4	69.7	77.3	118.2	67.75449	74.0499	76.51289	75.64949	74.87858	77.78342	75.56794	73.9616	74.85845	3.775944	3.809092	1.080308	1.3	0.505522	6.422547	13.68655	1.200927	1.197448	0.049362	0.073816	0.020077	0.133	0.134
321	230.3	70.2	77.6	115.4	68.26238	74.04264	76.73321	76.04382	75.08774	77.81187	75.52276	74.1306	74.65263	3.773433	3.811725	1.079186	1.3	0.50551	6.409075	13.69325	1.194831	1.168589	0.042147	0.077657	0.019797	0.133	0.135
322	229.7	69.9	77.8	112.9	69.10549	74.25379	76.65656	75.75298	75.05946	77.98438	75.53464	74.13579	74.7783	3.773433	3.814407	1.080747	1.3	0.523237	6.448059	13.62562	1.088759	0.990255	0	0.068427	0.020187	0.133	0.135
323	232.0	68.9	77.5	108.4	69.9854	74.16319	76.45885	75.82971	74.91545	77.54587	75.42409	73.71066	74.85516	3.776018	3.809043	1.083368	1.3	0.526114	6.448029	13.63232	1.086321	0.990499	0	0.0763	0.020842	0.133	0.134
324	235.2	69.1	77.2	123.6	68.15926	74.33065	76.8472	75.93024	75.2179	77.64083	75.53914	73.96626	74.59538	3.773335	3.814407	1.083856	1.3	0.523237	6.442024	13.64637	1.08754	1.153081	0.03827	0.074167	0.020964	0.133	0.135
325	233.5	70.0	77.4	118.5	68.42901	73.75082	76.38783	75.68506	74.75693	77.77555	75.28564	73.67931	74.46906	3.773994	3.817212	1.079918	1.3	0.515507	6.422547	13.68652	0.990003	1.184134	0.046034	0.079147	0.019979	0.133	0.135
326	231.0	70.6	77.9	115.8	68.76651	73.92661	76.60379	75.69353	74.89988	77.74448	75.61601	74.02306	74.75927	3.773409	3.813139	1.079125	1.3	0.512764	6.380697	13.7454	0.991222	1.180976	0.045244	0.086191	0.019781	0.133	0.135
327	229.5	70.1	77.7	114.9	68.72974	74.08794	76.57102	75.86826	74.99258	77.77026	75.54139	73.90827	74.79174	3.770824	3.751496	1.079576	1.3	0.520591	6.422577	13.69923	0.991222	0.990194	0	0.068007	0.019894	0.133	0.132
328	231.5	69.3	77.4	109.1	69.38068	73.84359	76.60108	75.79122	74.95868	77.73635	75.4941	73.81413	74.55704	3.770824	3.748619	1.082771	1.3	0.515532	6.448059	13.67436	0.896123	0.990475	0	0.086612	0.020693	0.133	0.132
329	235.7	69.3	77.3	110.6	69.91729	74.31078	76.81394	75.87691	75.2514	77.86843	75.57932	74.03323	74.70251	3.773457	3.752837	1.084331	1.3	0.512752	6.435074	13.69633	0.892465	1.197692	0.049423	0.076544	0.021083	0.133	0.132
330	234.2	69.5	77.3	120.0	68.19215	73.90661	76.74442	75.77393	74.73083	77.54198	75.41351	73.84733	74.65716	3.773457	3.748692	1.08121	1.3	0.510301	6.41703	13.72544	0.893685	1.18589	0.046472	0.083003	0.020303	0.133	0.132
331	231.7	69.9	77.6	116.2	68.63953	73.9109	76.65501	75.85854	74.79858	77.73689	75.49464	74.00208	74.89224	3.773506	3.751399	1.079455	1.3	0.511569	6.388104	13.75854	0.896123	1.173832	0.043458	0.074292	0.019864	0.133	0.132
332	228.9	70.2	77.8	115.5	68.42512	74.01609	76.50586	75.58891	74.97056	77.78839	75.37881	74.01343	74.66931	3.77236	3.751423	1.079613	1.3	0.499548	6.353509	13.78171	0.888808	0.990206	0	0.073173	0.019903	0.133	0.132
333	230.1	69.2	77.5	109.7	69.38731	73.7841	76.48805	75.65141	74.98569	77.56927	75.36047	73.92147	74.52381	3.773506	3.748692	1.082576	1.3	0.496683	6.361098	13.76537	0.796147	0.99028	0	0.070914	0.020644	0.133	0.132
334	233.6	68.8	77.4	106.9	70.10129	74.16869	76.56477	75.58757	74.93497	77.87997	75.53733	73.94437	74.83453	3.770873	3.75152	1.083649	1.3	0.491123	6.353539	13.77299	0.796147	0.990219	0	0.075599	0.020912	0.133	0.132
335	233.9	69.6	77.1	120.9	67.64153	73.83056	76.42742	75.84512	75.05023	77.6338	75.26437	73.83875	74.92301	3.772116	3.75152	1.081088	1.3	0.485771	6.299924	13.84419	0.805901	1.169589	0.042397	0.077087	0.020272	0.133	0.132
336	230.1	70.1	77.3	117.0	68.05515	73.91396	76.67815	75.61395	74.87903	77.69686	75.38767	73.86835	74.57778	3.770873	3.748643	1.079906	1.3	0.485746	6.272218	13.8854	0.798586	1.170723	0.042681	0.082082	0.019976	0.133	0.132
337	226.6	70.5	77.7	114.4	68.34384	74.05716	76.66741	75.66344	75.00729	77.87198	75.28837	73.86275	74.76629	3.772165	3.754276	1.077967	1.3	0.496646	6.078576	14.08575	0.693733	1.206885	0.051721	0.082207	0.019492	0.133	0.133
338	225.9	69.3	77.6	111.4	69.46776	74.17295	76.57571	75.80602	75.05152	77.71541	75.47316	73.83335	74.74358	3.769678	3.748667	1.081478	1.3	0.494049	5.987866	14.15701	0.701049	0.990353	0	0.076398	0.02037	0.133	0.132
339	229.1	69.1	77.5	107.9	69.85907	73.93874	76.40175	75.68559	74.89603	77.80088	75.33775	73.82511	74.65503	3.771019	3.754203	1.082637	1.3	0.494049	5.983233	14.15055	0.696172	0.990292	0	0.079184	0.020659	0.133	0.133
340	232.5	69.4	77.4	123.2	68.03767	74.08156	76.64496	75.78155	74.824	77.7757	75.5736	73.96056	74.80387	3.773482	3.770638	1.081478	1.3	0.485759	5.938001	14.21032	0.690076	1.171454	0.042864	0.071146	0.02037	0.133	0.133
341	229.2	70.2	77.5	118.6	68.08246	73.98569	76.50893	75.74592	74.83869	77.77699	75.682	74.18275	74.87881	3.773067	3.770491	1.07915	1.4	0.485746	5.897065	14.2568	0.693733	1.178379	0.044595	0.088663	0.019787	0.133	0.133
342	225.9	70.3	77.4	115.4	68.4748	73.8815	76.61892	75.67519	74.86766	77.83275	75.57041	73.94399	74.71367	3.772189	3.773027	1.077918	1.3	0.474859	5.878168	14.28381	0.591319	1.195741	0.048935	0.082122	0.01948	0.133	0.133
343	225.1	70.2	77.5	113.0	68.8784	73.98118	76.71191	75.89535	75.05345	77.73073	75.50856	74.08293	74.9664	3.771336	3.770442	1.080345	1.3	0.472347	5.938001	14.22367	0.597415	0.990389	0	0.079254	0.020086	0.133	0.133
344	227.1	69.2	77.3	108.7	69.69586	73.92004	76.50352	75.62003	74.71281	77.50387	75.22815	73.68204	74.54543	3.770702	3.770735	1.081503	1.3	0.46697	5.944798	14.21657	0.485248	0.990353	0	0.081467	0.020376	0.133	0.133
345	230.8	69.3	77.5	124.0	68.98856	74.03463	76.74528	76.06928	75.23034	77.94778	75.71222	73.96532	74.87556	3.773409	3.770491	1.082125	1.3	0.459107	5.897005	14.28387	0.598635	1.175246	0.043812	0.073027	0.020531	0.133	0.133
346	228.5	69.8	77.3	119.2	68.39706	74.14012	76.64329	75.90705	75.08324	77.79398	75.50488	74.00563	74.70168	3.770848	3.773003	1.079479	1.3	0.459094	5.88402	14.29097	0.485248	1.177343	0.044336	0.081134	0.01987	0.133	0.133
347	225.6	70.1	77.5	115.7	68.67447	74.019	76.52216	75.59851	74.95628	77.87451	75.60549	73.99915	74.71528	3.762923	3.770418	1.078187	1.3	0.450962	5.878198	14.3107	0.484028	1.196838	0.04921	0.079958	0.019547	0.133	0.133
348	223.0	70.0	77.5	114.2	68.97826	74.14292	76.65278	75.69566	74.71029	77.88956	75.39965	73.88032	74.60315	3.762875	3.7731	1.078711	1.4	0.453462	5.917457	14.28384	0.486467	0.989963	0	0.090577	0.019678	0.133	0.133
349	226.5	69.1	77.6	109.2	69.58392	73.99258	76.4422	75.48509	74.63087	77.78336	75.43402	73.89461	74.77138	3.764191	3.7731	1.081808	1.3	0.440489	5.931935	14.2647	0.381614	0.990341	0	0.084079	0.020452	0.133	0.133
350	229.5	68.7	77.3	111.3	69.51573	73.74353	76.36717	75.67109	74.6677	77.63947	75.37045	73.8645	74.80821	3.765606	3.770491	1.082064	1.3	0.432211	5.944798	14.25086	0.381614	1.205312	0.051328	0.081418	0.020516	0.133	0.133
351	229.8	69.5	77.4	119.6	68.32281	73.98442	76.46751	75.59071	74.60009	77.5384	75.51702	73.8839	74.7339	3.764289	3.773052	1.078686	1.3	0.427041	5.958941	14.25683	0.380395	1.170979	0.042745	0.073158	0.019672	0.133	0.133
352	226.3	69.7	77.5	116.0	68.49267	74.05967	76.38881	75.61241	74.47591	77.48785	75.18535	73.80658	74.46917	3.762972	3.775734	1.076845	1.3	0.424542	5.931844	14.29804	0.380395	1.181171	0.045293	0.079952	0.019211	0.133	0.133
353	223.1	69.7	77.4	115.5	68.42017	73.77426	76.47821	75.69512	74.76228	77.64705	75.37801	73.65789	74.61498	3.760339	3.773027	1.078199	1.3	0.424554	5.870609	14.36367	0.381614	0.989999	0	0.0731	0.01955	0.133	0.133
354	225.5	68.7	77.5	109.2	69.65929	73.85681	76.50723	75.57688	74.96643	77.50315	75.455	73.74157	74.79906	3.760363	3.773052	1.080723	1.3	0.429797	5.931844	14.28384	0.284077	0.990292	0	0.075925	0.020181	0.133	0.133
355	228.1	69.1	77.2	107.2	69.77209	74.11846	76.49445	75.73145	74.72776	77.733	75.48405	73.73716	74.51353	3.760266	3.770394	1.082052	1.3	0.427029	5.917396	14.30588	0.286516	0.990292	0	0.07655	0.020513	0.133	0.133
356	229.3	69.6	77.0	121.1	67.15103	73.83466	76.50516	75.70199	74.71875	77.66375	75.48843	73.86201	74.78564	3.76029	3.77054	1.079723	1.3	0.427053	5.88402	14.3369	0.287735	1.176721	0.04418	0.071548	0.019931	0.133	0.133
357	226.0	70.2	77.2	116.6	67.72493	73.74194	76.39903	75.4687	74.6032	77.72892	75.43982	73.73978	74.87089	3.762948	3.77432	1.077077	1.3	0.427029	5.863567	14.37031	0.286516	1.207762	0.051941	0.084256	0.019269	0.133	0.133
358	223.3	70.0	77.5	116.1	68.23402	74.0845	76.52073	75.62386	74.79195	77.77041	75.47462	73.88166	74.71158	3.760461	3.773052	1.07737	1.3	0.427029	5.816231	14.41789	0.285296	0.989975	0	0.0789	0.019342	0.133	0.133
359	225.0	69.4	77.4	109.6	69.47851	73.92632	76.36254	75.49914	74.71397	77.94678	75.2293	73.83046	74.74739	3.760339	3.775563	1.07993	1.3	0.427029	5.836196	14.3904	0.187759	0.990219	0	0.074865	0.019983	0.133	0.133

Raw Data

Reading Interval	1	Minutes																	10.19991		0.034596				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29				
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
360	227.0	69.1	77.1	107.1	69.87401	73.85308	76.36963	75.53969	74.78886	77.70039	75.21049	73.62423	74.54785	3.760266	3.7731	1.081198	1.3	0.429809	5.856466	14.36367	0.18654	0.990194	0	0.079833	0.020299	0.133	0.133
361	227.8	69.4	77.2	120.6	68.22652	73.80252	76.3927	75.73008	74.60523	77.5837	75.23435	73.76188	74.62527	3.760363	3.775661	1.078735	1.3	0.427041	5.829552	14.40451	0.18654	1.164419	0.041105	0.074529	0.019684	0.133	0.133
362	224.1	70.2	77.3	116.6	68.40008	73.77454	76.27101	75.6084	74.75103	77.7228	75.19274	73.80058	74.68405	3.760339	3.773027	1.07726	1.3	0.424554	5.829521	14.40445	0.187759	1.169638	0.042409	0.079428	0.019315	0.133	0.133
363	222.1	70.3	77.5	115.8	68.6301	73.89744	76.4073	75.62421	74.86652	77.68434	75.18775	73.86253	74.68575	3.759388	3.776831	1.077199	1.3	0.416654	5.829552	14.41783	0.095099	0.990109	0	0.075901	0.0193	0.133	0.133
364	223.3	68.7	77.2	109.3	69.42395	73.83755	76.3608	75.59109	74.6426	77.53406	75.25165	73.64531	74.63586	3.76029	3.778026	1.080113	1.3	0.424542	5.904167	14.32398	0.09266	0.990206	0	0.070917	0.020028	0.133	0.133
365	226.5	68.8	77.2	107.1	69.80287	73.91904	76.32181	75.65919	74.86588	77.84435	75.37453	73.82842	74.65834	3.760339	3.775588	1.08132	1.3	0.432223	5.842719	14.38412	0.09266	0.990414	0	0.080254	0.02033	0.133	0.133
366	227.5	69.8	77.2	121.5	67.71568	73.77472	76.41175	75.64204	74.83683	77.53419	75.51951	73.84623	74.55567	3.759022	3.775612	1.078638	1.3	0.434942	5.809465	14.42426	0.095099	1.182183	0.045546	0.077602	0.019659	0.133	0.133
367	225.2	69.8	77.2	116.8	68.29434	73.87148	76.30771	75.55807	74.62138	77.69355	75.17688	73.74456	74.62802	3.76029	3.759567	1.077821	1.3	0.43493	5.783801	14.45093	0.09266	1.181013	0.045253	0.079891	0.019455	0.133	0.133
368	223.4	70.0	77.4	116.1	68.4125	73.70392	76.33425	75.63148	74.6749	77.72701	75.17017	73.65753	74.65479	3.760241	3.759518	1.078211	1.3	0.440501	5.783221	14.44401	-0.00366	0.98995	0	0.075657	0.019553	0.133	0.133

Summary

EPA Method 28 OWHH Testing Parameters

Manufacturer	HY-C
Model Number	SF1000E
Test Technician	Ken Slater

Category	Cat 1
Run Number	5
Test Date	10/5/18
Total Test Fuel Weight (lb)	36.77
Avg. Test Fuel Moisture (% dry)	22.67

Test Duration (min)	368	
Burn Rate (kg/hr)		
Emissions (g)	19.99	Train 2
Beginning Dry Gas Meter Reading (ft3)	0	0
Final Dry Gas Meter Reading (ft3)	49.15812	49.16045
Average Barometric Pressure (“Hg)	29.03	
Average Delta p (inches of water)	0.077	

Average Gas Velocity in Tunnel (feet/sec)	17			
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	809.3156			
	kJ	**Btu**		
Total Input	268628	254780		
Total Output	130,533	123805	**kW**	
Output Rate (kJ/hr, BTU/hr, kW)	21,283	20186	5.91	
Emissions g/MJ	**0.153163**	0.4	B415.1-2010 Limit	
Emissions lb/MMBtu Input	**0.173**			
Emissions lb/MMBtu Output	**0.35602**	0.93	EPA 2015 Proposed Limit	
Emissions g/hr	**3.259704**			
Efficiency	**48.6%**			

Raw Data

Reading Interval	1	Minutes																			8.300367		0.037412					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
0	616.7	72.9	120.9	152.3	71.8	76.59586	74.34689	73.79804	75.54131	76.79966	74.25	73.23	73.37	0.02	0.02	1.1890	1.2747	-0.00128	9.660246	10.57414	35.83374	1.167747	0.041937	0.068686	0.047247	0.001	0.001
1	730.2	72.9	126.9	153.0	72.4	75.63451	75.39355	78.23152	75.26599	76.51094	77.49	73.41	77.97	3.98	3.93	1.2081	1.2593	0.056705	5.756554	15.03799	35.32777	1.177586	0.044397	0.064824	0.052026	0.141	0.139
2	811.6	73.1	134.2	157.0	72.3	75.27655	75.68484	80.89435	75.4397	76.75828	80.07	73.65	80.86	4.01	3.95	1.2109	1.2768	0.053779	6.219426	14.5329	34.73279	1.201007	0.050252	0.069201	0.052715	0.142	0.139
3	676.9	73.3	115.3	158.8	71.4	75.36057	75.80232	81.74932	75.27543	77.00899	81.05	73.39	81.12	3.84	3.83	1.20	1.2771	0.001366	9.53293	11.06231	34.32802	1.193887	0.048472	0.069286	0.050328	0.136	0.135
4	633.8	73.2	108.3	158.8	72.0	75.60689	75.97503	80.5733	75.50915	77.11554	80.87	73.57	80.25	3.84	3.89	1.20	1.2576	0.926611	11.35806	8.881822	33.82448	1.203397	0.050849	0.064406	0.049938	0.136	0.137
5	620.8	73.9	105.5	158.5	71.4	75.32072	76.27118	79.46621	75.46806	77.20831	80.52	73.63	79.91	3.82	3.87	1.20	1.3076	2.206769	13.74993	5.989866	33.41483	1.223599	0.0559	0.0769	0.04981	0.135	0.137
6	614.1	72.5	104.6	158.4	72.0	75.32681	76.21701	79.24122	75.41366	77.44843	80.10	74.14	79.72	3.83	3.85	1.19	1.3022	2.292028	14.1833	5.694148	33.02956	1.210078	0.05252	0.075544	0.048545	0.135	0.136
7	613.9	72.6	103.7	157.9	71.5	75.66034	76.43677	79.3259	75.51767	77.2914	80.22	73.86	79.65	3.83	3.83	1.20	1.2719	2.402062	14.20299	5.720757	32.52359	1.179098	0.044775	0.067975	0.049194	0.135	0.135
8	613.4	73.5	104.2	158.1	70.9	75.46753	76.37112	79.30737	75.23525	77.37041	80.12	73.67	79.82	3.84	3.82	1.20	1.2868	2.353732	14.263	5.727219	32.12125	1.211297	0.052824	0.071697	0.049042	0.136	0.135
9	611.4	73.0	102.9	157.1	70.3	75.3247	76.45587	79.93869	75.65193	77.49929	80.27	73.88	79.82	3.82	3.80	1.19	1.2893	2.316059	14.35109	5.686376	31.73476	1.195496	0.048874	0.072328	0.048009	0.135	0.134
10	613.3	72.7	102.8	156.9	70.3	75.35218	76.2357	80.33537	75.5215	77.50941	80.38	73.70	79.86	3.83	3.79	1.20	1.3167	2.201221	14.24261	5.868067	31.22269	1.203068	0.050767	0.079171	0.04949	0.135	0.134
11	614.8	72.7	102.8	156.8	70.6	75.25247	76.37695	80.42184	75.55756	77.40491	80.70	73.97	80.10	3.83	3.78	1.20	1.2797	2.134713	14.31646	5.813813	30.82035	1.219771	0.054943	0.069923	0.048938	0.135	0.133
12	618.2	72.7	103.1	157.1	70.8	75.46961	76.64764	80.92632	75.67503	77.7165	80.88	73.98	80.15	3.83	3.79	1.20	1.2748	1.944358	14.37081	5.833991	30.41924	1.168393	0.042098	0.068692	0.049475	0.135	0.134
13	619.8	72.9	102.7	157.0	70.6	75.03365	76.53964	80.85282	75.39713	77.47874	80.71	73.89	80.33	3.84	3.80	1.19	1.3034	1.728205	14.32302	5.965208	30.03641	1.168942	0.042235	0.075857	0.048405	0.136	0.134
14	619.3	72.9	102.5	157.1	70.5	75.02557	76.47134	81.10886	75.59874	77.55318	81.03	73.97	80.44	3.85	3.78	1.19	1.3453	1.503797	14.51895	5.820305	29.62431	1.206652	0.051663	0.086321	0.048338	0.136	0.133
15	619.1	73.3	102.4	157.7	70.5	75.1777	76.63016	81.17965	75.62464	77.41175	80.97	73.84	80.42	3.85	3.89	1.19	1.2919	1.392264	14.56704	5.827559	29.21832	1.165077	0.041269	0.072977	0.048448	0.136	0.137
16	619.3	73.1	102.4	157.7	70.9	75.28568	76.62434	81.41811	75.7196	77.50002	80.95	74.05	80.59	3.85	3.88	1.20	1.3198	1.233998	14.56701	5.901565	28.82451	1.228476	0.057119	0.079939	0.049039	0.136	0.137
17	619.3	72.1	102.7	157.7	70.8	75.27674	76.55517	81.64688	75.49311	77.46093	81.13	74.07	80.75	3.86	3.87	1.20	1.2840	1.191826	14.54833	5.936191	28.42339	1.201556	0.050389	0.071002	0.049277	0.136	0.137
18	618.8	72.1	102.6	157.8	70.3	75.23471	76.45959	81.54604	75.69644	77.51032	81.18	74.04	80.60	3.86	3.86	1.20	1.3069	1.120197	14.43729	6.079996	28.02349	1.20753	0.051882	0.076717	0.049057	0.136	0.136
19	617.0	72.4	102.1	157.9	71.2	75.38364	76.66206	81.85786	75.66825	77.70301	81.33	74.00	80.91	3.86	3.85	1.20	1.3593	1.026196	14.35097	6.195364	27.63091	1.214138	0.053535	0.08983	0.049716	0.136	0.136
20	616.2	72.3	102.2	157.8	70.8	75.13679	76.55577	81.94445	75.5937	77.46113	81.35	74.11	81.04	3.87	3.84	1.20	1.3035	0.980293	14.24328	6.309206	27.22247	1.201458	0.050365	0.075876	0.049344	0.137	0.136
21	530.0	72.5	96.9	156.3	70.9	75.18989	76.50848	82.0892	75.7118	77.4989	81.45	74.33	80.82	3.86	3.83	1.18	1.3496	0.958664	14.21585	6.315424	26.91645	1.210359	0.05259	0.087397	0.045704	0.136	0.135
22	494.7	72.2	94.6	153.6	70.3	75.053	76.61255	81.43287	75.51539	77.44974	80.85	73.87	80.21	3.84	3.83	1.18	1.3091	2.212609	13.56013	6.756746	26.62018	1.188791	0.047198	0.077278	0.043879	0.136	0.135
23	477.8	72.4	93.7	151.6	70.0	75.24551	76.77829	81.60949	75.97594	77.7095	80.96	74.24	80.35	3.84	3.82	1.17	1.3053	3.85642	12.43291	7.492659	26.3166	1.204555	0.051139	0.076324	0.043647	0.136	0.135
24	468.0	72.6	92.9	150.0	69.9	75.30739	76.59251	81.41972	75.85257	77.5125	80.85	74.09	79.95	3.84	3.84	1.17	1.2663	3.054058	12.27667	7.740219	26.02643	1.196252	0.049063	0.066582	0.042854	0.136	0.136
25	460.7	72.3	91.9	148.1	70.4	75.23479	76.45968	81.01817	75.45582	77.54412	80.56	74.04	79.93	3.85	3.83	1.16	1.2707	2.56518	12.29679	7.746558	25.71797	1.212175	0.053044	0.067674	0.040632	0.136	0.135
26	457.5	71.4	91.4	146.8	70.7	75.26785	76.46596	81.03094	75.49617	77.77188	80.50	74.13	79.71	3.86	3.83	1.16	1.3359	2.310865	12.30383	7.759939	25.52168	1.217198	0.0543	0.083971	0.039816	0.136	0.135
27	452.6	71.7	91.3	145.6	70.5	75.16249	76.72873	80.97327	75.67371	77.60806	80.47	74.07	79.83	3.86	3.82	1.17	1.2548	2.068035	12.1631	7.946203	25.21322	1.207054	0.051764	0.063705	0.042172	0.136	0.135
28	449.5	72.0	90.8	144.2	70.6	74.97092	76.47023	80.92957	75.66299	77.55718	80.33	74.02	79.64	3.86	3.82	1.17	1.3292	1.787458	12.19721	7.979732	25.01083	1.203921	0.05098	0.082289	0.042089	0.136	0.135
29	444.1	71.9	90.3	143.1	69.8	74.79782	76.41761	80.7721	75.49197	77.37948	80.02	73.93	79.64	3.86	3.86	1.16	1.3155	1.773255	12.07678	8.108754	24.7231	1.179354	0.044838	0.078863	0.041099	0.136	0.136
30	445.6	72.3	90.2	142.1	69.8	74.8129	76.3189	80.66158	75.47305	77.50111	80.20	74.20	79.51	3.86	3.85	1.17	1.3007	1.773242	12.05084	8.140606	24.51461	1.2221	0.055525	0.075187	0.041711	0.136	0.136
31	443.8	71.9	90.2	141.4	70.2	74.80303	76.35589	80.64525	75.65807	77.63928	80.11	74.15	79.65	3.86	3.84	1.15	1.2690	1.738836	12.09696	8.108724	24.22322	1.177354	0.044339	0.06725	0.036649	0.136	0.136
32	442.1	71.7	90.0	140.7	69.9	74.75842	76.32465	80.73325	75.67205	77.58633	80.18	74.05	79.75	3.86	3.84	1.16	1.2913	1.691238	12.16304	8.033163	24.01352	1.180476	0.045119	0.072828	0.040974	0.136	0.136
33	442.5	71.7	89.5	140.1	69.9	74.95972	76.45901	80.37077	75.596	77.4902	80.18	74.25	79.52	3.86	3.84	1.16	1.3342	1.781582	12.09007	8.084553	23.72335	1.225623	0.056406	0.083554	0.04091	0.136	0.135
34	440.1	71.4	89.0	139.1	70.0	74.52222	76.01483	80.24298	75.28286	77.25067	79.79	73.89	79.18	3.86	3.84	1.16	1.2839	1.567854	12.05663	8.200683	23.52583	1.149398	0.037349	0.070984	0.040666	0.136	0.135
35	438.3	71.9	89.2	138.5	70.1	74.81998	76.41969	80.33858	75.46899	77.54391	79.85	73.75	79.15	3.86	3.92	1.16	1.3272	1.368611	12.08998	8.233753	23.23444	1.188535	0.047134	0.081798	0.038993	0.136	0.138
36	437.4	72.0	88.8	138.1	70.1	74.69136	76.24421	80.13257	75.35521	77.26278	79.86	73.87	79.43	3.86	3.91	1.16	1.3219	1.247129	12.0174	8.371431	23.01864	1.196557	0.049139	0.080475	0.039593	0.136	0.138
37	434.4	71.9	88.6	137.3	69.5	74.53683	76.25702	80.25079	75.48029	77.30754	79.87	73.91	79.36	3.87	3.91	1.16	1.3084	1.266124	11.73955	8.668461	22.81626	1.166089	0.041522	0.077101	0.039023	0.136	0.138
38	432.3	72.2	88.3	136.4	69.8	74.53308	76.36705	80.16129	75.45241	77.2328	79.87	73.87	79.11	3.86	3.91	1.16	1.2839	1.278743	11.75354	8.642735	22.5968	1.167381	0.041845	0.070968	0.039282	0.136	0.138
39	431.5	72.0	88.2	135.9	69.6	74.52718	76.14027	80.10928	75.3064	77.26083	79.93	73.90	79.19	3.86	3.90	1.16	1.3054	1.279743	11.94943	8.423126	22.31394	1.184572	0.046143	0.07636	0.039014	0.136	0.138
40	428.3	71.3	88.0	135.1	69.8	74.72678	76.49382	80.16089	75.4612	77.36208	79.66	73.86	79.11	3.86	3.90	1.15	1.3195	1.263491	11.8205	8.569888	22.11765	1.197764	0.049441	0.079869	0.038151	0.136	0.138
41	423.9	71.8	87.7	134.5	69.9	74.57915	76.51353	80.04174	75.46593	77.15262	79.45	73.70	79.14	3.86	3.91	1.15	1.3405	1.217758	11.58605	8.814827	21.92258	1.188791	0.047198	0.085136	0.038319	0.136	0.138
42	422.2	72.0	87.7	133.8	69.8	74.3875	76.24825	80.02435	75.16919	77.12362	79.41	73.56	79.04	3.86	3.90	1.15	1.2705	1.140314	11.47745	8.93629	21.71653	1.189193	0.047298	0.067622	0.03874	0.136	0.138
43	421.1	71.4	87.9	133.1	69.4	74.5071	76.30091	80.06308	75.48154	77.53636	79.65	73.75	79.06	3.86	3.90	1.15	1.2835	1.121575	11.46449	8.925591	21.51902	1.178683	0.044671	0.070886	0.038121	0.136	0.138
44	419.1	71.1	87.5	132.8	69.8	74.33615	76.10988	79.96053	75.30489	77.3664	79.34	73.73	79.11	3.86	3.90	1.16	1.3282	1.111029	11.55298	8.82202	21.21909	1.193655	0.048414	0.082042	0.039029	0.136	0.138
45	418.4	72.1	87.3	131.9	70.2	74.29654	76.27777	79.96767	75.26397	77.29871	79.40	73.68	79.02	3.86	3.90	1.15	1.3062	1.108542	11.44416	8.929859	21.01305	1.203433	0.050858	0.076552	0.037106	0.136	0.138
46	416.9	71.8	87.2	131.5	69.4	74.1895	76.37822	79.74333	75.15799	77.48724	79.60	73.71	79.07	3.81	3.90	1.15	1.3114	1.070978	11.34452	9.03788	20.82041	1.191473	0.047868	0.077845	0.037304	0.134	0.138
47	414.2	71.3	87.2	131.2	70.0	74.1944	76.38312	79.98576	75.28953	77.42467	79.60	73.88	79.19	3.92	3.90	1.15	1.2861	1.028878	11.33029	9.081833	20.62046	1.191644	0.047911	0.071517	0.037142	0.138	0.138
48	412.9	71.7	86.8	130.7	69.8	74.1795	76.13396	79.87208	75.30439	77.47301	79.42	73.66	78.91	3.89	3.90	1.15	1.3073	0.972136	11.28304	9.163519	20.41076	1.180305	0.045076	0.076836	0.036789	0.137	0.138
49	412.0	71.2	86.7	130.4	70.2	74.26505	76.22619	79.63963	75.39032	77.2845	79.36	73.63	78.79	3.88	3.90	1.15	1.3354	0.918467	11.24452	9.249657	20.21934	1.199069	0.049767	0.083849	0.037718	0.137	0.138
50	413.6	71.7	86.7	130.9	69.5	74.31185	76.36671	79.6	75.33581	77.36386	79.30	73.77	78.98	3.88	3.89	1.15	1.3492	0.891961	11.28304	9.215945	20.02305	0.990498	0	0.087297	0.037654	0.137	0.137
51	420.0	70.5	86.5	122.0	70.3	74.62303	76.40346	79.74183	75.30444	77.38604	79.35	73.81	78.78	3.88	3.89	1.15	1.2621	0.889645	11.35229	9.142762	19.76702	0.994339	0	0.065528	0.037804	0.137	0.137
52	421.4	70.7	86.4	140.6	69.9	74.13357	76.16164	79.39121	75.14272	77.2377	79.16	73.60	78.66	3.88	3.89	1.15	1.3081	0.811725	11.41027	9.108624	19.61827	1.189803	0.047451	0.077028	0.037667	0.137	0.137
53	417.6	71.8	86.7	137.7	70.6	74.25918	76.1467	79.42927	75.11179	77.31387	79.34	73.56	78.97	3.88	3.90	1.15	1.2937	0.787707	11.48458	9.055863	19.4293	1.207945	0.051986	0.073416	0.037898	0.137	0.138
54	415.1	71.7	87.0	135.8	70.4	74.44475	76.35235	79.51984	75.47332	77.41435	79.42	73.74	78.92	3.88	3.89	1.15	1.2988	0.817016	11.41024	9.128833	19.21106	1.204323	0.051081	0.074693	0.03695	0.137	0.137
55	414.9	71.9	86.8	134.1	69.7	74.42751	76.3485	79.48306	75.43194	77.33951	79.19	73.61	78.80	3.88	3.89	1.15	1.3099	0.819808	11.53167	9.022092	19.01842	1.186133	0.046533	0.07747	0.037435	0.137	0.137
56	411.8	71.5	86.6	132.9	70.0	74.26962	76.11028	79.45935	75.44942	77.32352	79.41	73.84	78.80	3.88	3.89	1.15	1.2977	0.819808	11.51826	9.042208	18.82335	1.19524	0.04881	0.074422	0.037398	0.137	0.137
57	411.4	71.6	86.6	132.0	69.5	74.54757	76.41501	79.56842	75.34067	77.31516	79.43	73.53	78.96	3.87	3.89	1.15	1.3662	0.801313	11.53164	9.028553	18.60999	1.193972	0.048493	0.091543	0.036999	0.137	0.137
58	411.2	72.0	86.6	131.4	69.8	74.5832	76.57112	79.71575	75.56657	77.50092	79.25	73.85	79.08	3.87	3.89	1.15	1.2810	0.777112	11.63207	8.93629	18.41857	1.19802	0.049505	0.070243	0.036633	0.137	0.137
59	409.8	71.9	86.4	130.7	69.9	74.60618	76.44016	79.23685	75.53757	77.3849	79.13	73.61	78.78	3.87	3.88	1.15	1.3129	0.734427	11.63853	8.958448	18.21984	1.197471	0.049368	0.078223	0.036853	0.137	0.137
60	410.1	71.3	86.9	130.5	70.2	74.40536	76.29288	79.45461	75.4318	77.52679	79.19	73.62	78.77	3.88	3.89	1.15	1.3099	0.702655	11.67362	8.93629	18.00892	1.186218	0.046555	0.077479	0.037106	0.137	0.137
61	409.5	72.2	86.9	130.2	70.4	74.36485	76.39962	79.36847	75.51546	77.30255	79.13	73.58	77.95	3.87	3.89	1.14	1.2955	0.705215	11.72668	8.86841	17.81506	1.200446	0.050112	0.073879	0.036066	0.137	0.137
62	408.6	71.6	86.4	130.1	70.6	74.62522	76.49266	79.36121	75.56862	77.42265	79.16	73.89	77.82	3.87	3.89	1.14	1.3245	0.69768	11.62558	9.002371	17.61146	1.22121	0.055302	0.081124	0.035189	0.137	0.137
63	408.5	71.8	86.2	129.5	69.9	74.37008	76.11703	79.31423	75.32194	77.16257	78.92	73.60	77.24	3.88	3.88	1.14	1.2816	0.67404	11.75354	8.868471	17.41638	1.176355	0.044089	0.070392	0.036188	0.137	0.137
64	409.2	71.6	86.4	129.5	70.2	74.41319	76.3007	79.42272	75.4819	77.20205	79.20	73.73	77.41	3.87	3.88	1.14	1.3239	0.665652	11.68584	8.958418	17.21521	1.191473	0.047868	0.080987	0.036213	0.137	0.137
65	408.3	71.7	86.2	129.2	70.0	74.47906	76.2394	79.17751	75.44226	77.06871	78.93	73.63	77.36	3.88	3.88	1.15	1.2959	0.657264	11.68578	8.943483	17.12377	1.15653	0.039133	0.073986	0.036896	0.137	0.137
66	408.4	71.8	86.2	129.3	70.0	74.35421	76.14133	79.226	75.329	77.39052	79.01	73.72	77.19	3.87	3.88	1.15	1.3308	0.635708	11.69212	8.950585	16.9031	1.196594	0.049148	0.082697	0.037069	0.137	0.137
67	406.9	71.8	86.2	129.5	70.3	74.58331	76.28341	79.06784	75.52519	77.32567	78.91	73.68	77.06	3.87	3.89	1.15	1.3167	0.630331	11.65914	8.976311	16.70924	1.216077	0.054019	0.079171	0.036859	0.137	0.137
68	405.9	71.6	86.2	129.2	71.1	74.85654	76.45625	79.25271	75.55473	77.52254	79.20	73.73	77.19	3.88	3.88	1.15	1.3252	0.605996	11.60568	9.048944	16.52027	1.160798	0.040199	0.081298	0.036865	0.137	0.137
69	404.9	71.8	86.2	129.3	71.0	74.44543	76.21917	79.1107	75.59542	77.46952	79.02	73.57	77.10	3.88	3.88	1.15	1.3066	0.603289	11.59894	9.035655	16.31056	1.20792	0.05198	0.076662	0.036627	0.137	0.137
70	404.9	72.2	86.0	129.3	70.3	74.57611	76.41679	79.1742	75.49555	77.30941	79.05	73.65	77.16	3.88	3.88	1.15	1.3387	0.600814	11.67349	8.963875	16.11305	1.160688	0.040172	0.084666	0.036874	0.137	0.137
71	404.2	72.3	86.1	129.1	70.3	74.84097	76.32021	79.27036	75.53175	77.48617	79.10	73.89	76.96	3.88	3.88	1.14	1.2791	0.593023	11.65204	8.976279	15.99479	1.167918	0.041979	0.069783	0.035847	0.137	0.137

Raw Data

Reading Interval	1	Minutes																			8.300367		0.037412					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
72	403.1	72.4	86.4	129.2	70.2	74.75803	76.62547	79.34037	75.7935	77.52035	79.15	73.82	76.86	3.88	3.88	1.15	1.2905	0.571065	11.5182	9.142762	15.73875	1.202507	0.050627	0.072617	0.036679	0.137	0.137
73	403.0	71.8	86.1	128.9	70.8	74.79081	76.39721	78.94737	75.39191	77.48019	78.68	73.45	76.76	3.88	3.88	1.15	1.3215	0.565677	11.59294	9.041903	15.62049	1.186266	0.047067	0.080381	0.036993	0.137	0.137
74	402.0	71.9	86.3	129.1	70.5	74.79456	76.58837	79.35659	75.80716	77.71474	78.91	73.81	76.77	3.88	3.88	1.14	1.3244	0.552387	11.61961	9.022061	15.4242	1.171795	0.042949	0.081088	0.03507	0.137	0.137
75	400.9	71.7	86.2	128.9	70.8	74.80457	76.48459	79.39945	75.60935	77.42321	79.10	73.98	76.63	3.88	3.88	1.15	1.2702	0.575296	11.51216	9.135386	15.20962	1.194484	0.048621	0.067539	0.036289	0.137	0.137
76	402.7	72.1	86.2	128.9	70.6	74.86406	76.48384	79.16113	75.64437	77.44485	78.98	73.73	76.72	3.88	3.88	1.14	1.3203	0.613994	11.51207	9.116153	15.0182	1.171917	0.042979	0.08007	0.035716	0.137	0.137
77	401.4	72.2	86.3	129.0	70.9	74.95644	76.56284	79.03269	75.72372	77.32339	78.92	73.60	76.43	3.88	3.88	1.14	1.3416	0.611629	11.55289	9.075432	14.88043	1.197033	0.049258	0.085398	0.035664	0.137	0.137
78	402.0	71.6	86.3	129.1	70.1	75.12083	76.64691	79.20972	75.79736	77.75848	79.16	73.89	76.93	3.88	3.88	1.14	1.3202	0.592975	11.58605	9.015599	14.72315	1.166101	0.041525	0.080042	0.036097	0.137	0.137
79	402.2	72.0	86.5	129.2	70.6	75.30843	76.80104	79.3089	75.79095	77.60481	79.14	73.89	76.49	3.87	3.87	1.14	1.2720	0.63572	11.67359	8.915686	14.51223	1.197752	0.049438	0.068006	0.035844	0.137	0.137
80	404.1	71.7	86.2	129.3	70.7	75.25074	76.74335	79.23882	75.9883	77.58799	79.06	73.93	76.68	3.87	3.88	1.15	1.2935	0.614006	11.62552	8.970093	14.31838	1.184462	0.046116	0.073376	0.036383	0.137	0.137
81	403.9	72.6	86.4	129.1	70.6	75.14481	76.48348	79.10727	75.88844	77.54167	78.95	73.76	76.79	3.87	3.88	1.15	1.3396	0.651789	11.54914	9.035716	14.11843	1.205847	0.051462	0.084892	0.036487	0.137	0.137
82	404.7	72.5	86.2	129.2	70.6	75.29691	76.45486	79.17876	75.82993	77.50992	79.00	73.84	76.53	3.87	3.87	1.14	1.3511	0.697668	11.5182	9.035686	14.01114	1.190315	0.047579	0.087766	0.034838	0.137	0.137
83	405.2	72.2	86.3	129.3	71.2	75.12424	76.61016	79.23289	75.90313	77.65006	78.94	73.66	76.55	3.87	3.87	1.14	1.2818	0.710555	11.57349	8.963965	13.8124	1.191363	0.047841	0.070462	0.035807	0.137	0.137
84	404.8	72.3	86.7	129.5	70.6	75.13129	76.70422	78.91972	75.83772	77.6382	79.00	73.76	76.25	3.87	3.87	1.14	1.2744	0.687098	11.60562	8.929707	13.61733	1.195972	0.048993	0.068594	0.035859	0.137	0.137
85	403.4	72.1	86.3	129.5	70.4	75.08746	76.64031	78.92944	75.7311	77.62528	78.90	73.69	76.27	3.88	3.87	1.14	1.2593	0.734391	11.69931	8.80172	13.41129	1.195655	0.048914	0.064818	0.035463	0.137	0.137
86	404.7	72.4	86.4	129.8	71.0	75.06477	76.65109	78.98707	75.69103	77.4982	78.99	73.96	76.48	3.87	3.87	1.14	1.2858	0.740023	11.78795	8.701928	13.21499	1.193911	0.048478	0.071453	0.035064	0.137	0.137
87	403.7	72.6	86.7	130.1	70.6	75.21986	76.67902	79.21497	75.79238	77.6531	78.94	73.76	76.08	3.87	3.87	1.14	1.3054	0.766736	11.76719	8.722259	13.11624	1.170368	0.042592	0.076345	0.034936	0.137	0.137
88	399.9	72.5	86.2	129.7	70.7	75.20081	76.55956	79.12311	75.71885	77.63981	78.87	73.72	76.27	3.87	3.87	1.14	1.2875	0.750606	11.67353	8.795868	12.898	1.204823	0.051206	0.071883	0.034969	0.137	0.136
89	399.0	72.8	86.4	130.1	70.7	75.14229	76.70184	78.98428	75.71906	77.6534	79.00	73.92	76.03	3.87	3.87	1.14	1.3245	0.635708	11.52503	8.936198	12.70537	1.182341	0.045585	0.081121	0.035295	0.137	0.136
90	398.2	72.4	86.1	129.5	70.6	75.09527	76.63473	78.9841	76.0481	77.64109	79.04	73.70	76.22	3.87	3.87	1.15	1.2974	0.533636	11.21684	9.290043	12.60905	1.19741	0.049353	0.074349	0.036255	0.137	0.137
91	396.8	71.6	86.2	129.5	70.6	75.13252	76.66528	78.84063	75.68808	77.70943	78.98	73.87	76.14	3.87	3.87	1.14	1.2987	0.474821	11.17033	9.35085	12.41275	1.213346	0.053336	0.074663	0.034954	0.137	0.136
92	395.4	72.6	86.0	129.1	70.5	75.41255	76.75791	79.10728	75.8792	77.67968	78.96	73.70	75.97	3.87	3.87	1.14	1.2928	0.434843	11.09647	9.430952	12.30059	1.179695	0.044924	0.073197	0.034631	0.137	0.136
93	392.5	72.3	86.1	129.0	70.6	75.09579	76.58171	78.89761	75.92062	77.74117	78.87	73.84	76.01	3.87	3.87	1.14	1.3238	0.426967	11.03295	9.491669	12.10064	1.194984	0.048746	0.080951	0.03532	0.137	0.137
94	391.4	72.3	86.3	129.0	70.9	75.4906	76.80249	79.11839	76.00263	77.70271	78.87	73.88	76.00	3.87	3.87	1.14	1.3145	0.426955	11.00836	9.510017	12.00432	1.183621	0.045905	0.078625	0.03514	0.137	0.136
95	390.5	73.1	86.1	128.8	71.2	75.37981	76.73856	78.94737	76.21031	77.87024	79.08	73.91	75.96	3.87	3.86	1.14	1.2670	0.419676	10.93203	9.599264	11.80925	1.171661	0.042915	0.066747	0.034424	0.137	0.136
96	388.6	72.9	86.1	128.6	71.6	75.38783	76.58593	78.97546	76.04214	77.72214	78.95	73.84	75.79	3.87	3.86	1.14	1.3397	0.384148	11.07608	9.450551	11.70074	1.198435	0.049609	0.084916	0.034744	0.137	0.136
97	389.2	72.5	86.2	128.8	71.2	75.75481	76.87929	79.16826	76.12732	77.69353	78.85	73.97	75.98	3.87	3.86	1.14	1.2949	0.379077	11.07611	9.444058	11.50323	1.216174	0.054044	0.073733	0.035073	0.137	0.136
98	389.7	72.8	86.0	128.5	70.9	75.35838	76.90453	79.12004	76.11183	77.91901	79.08	74.14	75.81	3.87	3.86	1.14	1.3156	0.355473	11.06227	9.477312	11.40813	1.156433	0.039108	0.07889	0.034424	0.137	0.136
99	391.3	72.2	85.8	128.1	70.4	75.26858	76.69425	78.90306	75.9244	77.72488	79.04	74.04	75.81	3.87	3.86	1.14	1.3660	0.355497	11.07611	9.450459	11.30571	1.204665	0.051166	0.0915	0.034387	0.137	0.136
100	391.1	72.7	86.1	128.1	70.9	75.21082	76.49593	78.85869	76.00585	77.69254	78.90	73.83	75.61	3.87	3.86	1.13	1.3002	0.349974	11.16435	9.358227	11.09845	1.21732	0.05433	0.075062	0.033232	0.137	0.136
101	392.1	71.8	85.7	128.1	70.7	75.56373	76.64805	79.03088	76.0741	77.61353	78.73	73.72	75.55	3.87	3.86	1.14	1.3196	0.347328	11.12455	9.398765	10.90094	1.197618	0.049404	0.079896	0.034634	0.137	0.136
102	391.2	72.2	86.1	128.3	71.1	75.67451	77.03326	79.22108	76.31812	77.93118	78.86	74.16	75.96	3.87	3.86	1.14	1.3283	0.349986	11.19678	9.316743	10.80218	1.178306	0.044576	0.082082	0.034329	0.136	0.136
103	391.4	71.9	86.1	127.8	70.8	75.43749	76.78955	78.8511	75.89915	77.67953	78.74	73.93	75.83	3.87	3.86	1.14	1.3030	0.344926	11.15128	9.372034	10.70343	1.213211	0.053303	0.075751	0.034826	0.136	0.136
104	392.6	72.7	85.5	128.0	71.0	75.39432	76.58573	78.9351	76.1037	77.80377	78.87	73.90	75.70	3.87	3.85	1.14	1.3799	0.35785	11.17033	9.337255	10.49494	1.169283	0.042321	0.094969	0.033835	0.136	0.136
105	393.9	73.0	86.0	128.6	71.6	75.55881	76.99788	79.03265	76.25529	77.86835	78.99	74.03	75.82	3.87	3.85	1.14	1.3053	0.357838	11.13168	9.379197	10.39375	1.154872	0.038718	0.07633	0.034238	0.137	0.136
106	392.5	72.7	86.1	128.3	71.2	75.58018	76.83853	79.0875	76.06934	77.86982	78.92	73.99	75.67	3.86	3.85	1.14	1.3121	0.357826	11.23007	9.263037	10.19623	1.199788	0.049947	0.078019	0.034893	0.136	0.136
107	391.0	72.1	86.2	128.8	70.5	75.68318	77.02185	79.04993	76.33851	77.8244	78.91	74.08	75.76	3.86	3.85	1.14	1.3119	0.347328	11.33736	9.142732	10.10601	1.200434	0.050109	0.077964	0.034887	0.136	0.136
108	390.2	72.3	85.9	128.2	71.3	75.58724	76.89244	79.00754	76.10239	77.81586	78.69	73.87	75.47	3.87	3.85	1.14	1.3368	0.337258	11.36421	9.121975	9.892653	1.166187	0.041547	0.084197	0.034795	0.136	0.136
109	390.9	72.6	85.8	128.2	70.5	75.84772	76.89857	79.06052	76.26162	78.04871	78.70	74.01	75.74	3.86	3.84	1.14	1.2944	0.317945	11.30316	9.196285	9.779265	1.195947	0.048987	0.073605	0.034866	0.136	0.136
110	390.2	72.2	85.9	128.1	70.7	75.85106	76.98223	79.07056	76.18014	77.87352	79.04	74.02	75.65	3.86	3.84	1.14	1.3161	0.32904	11.25019	9.242311	9.604919	1.175867	0.043967	0.079015	0.034914	0.136	0.136
111	389.3	72.2	85.6	128.3	70.8	75.62151	77.05389	79.14221	76.38736	78.05397	78.73	73.90	75.52	3.86	3.84	1.13	1.2668	0.320591	11.39024	9.081711	9.502505	1.191241	0.04781	0.066689	0.033719	0.136	0.136
112	387.2	72.7	86.1	128.4	71.4	75.77999	77.09857	78.83884	76.34041	77.65897	78.89	74.13	75.53	3.83	3.84	1.13	1.2882	0.329004	11.43063	9.022732	9.29646	1.194192	0.048548	0.072044	0.033543	0.135	0.136
113	384.9	72.8	85.5	128.5	71.6	75.81769	77.04256	78.9167	76.24448	78.01818	78.89	73.96	75.62	3.83	3.84	1.14	1.2852	0.269811	11.29709	9.196346	9.197703	1.219308	0.054827	0.071301	0.03439	0.135	0.136
114	381.9	72.4	85.7	128.2	71.0	75.84027	76.79073	78.81212	76.22013	77.90013	78.72	74.15	75.52	3.83	3.84	1.14	1.3214	0.224042	11.17697	9.323509	9.097729	1.172807	0.043202	0.080353	0.034564	0.135	0.136
115	378.1	72.5	85.5	128.2	70.6	75.84251	76.89336	78.80096	76.2119	78.07261	78.98	74.10	75.50	3.83	3.84	1.14	1.2658	0.189477	11.06212	9.430861	8.897779	1.186243	0.046561	0.066454	0.033878	0.135	0.136
116	376.6	71.6	85.2	127.6	70.2	75.71294	76.91104	78.9726	76.28347	78.04378	78.75	74.03	75.45	3.83	3.84	1.13	1.3093	0.157949	10.94837	9.544094	8.790488	1.18734	0.046835	0.077336	0.033299	0.135	0.135
117	375.0	72.3	85.4	127.7	71.6	75.5938	77.09981	79.03419	76.20356	77.84339	78.79	74.13	75.59	3.83	3.84	1.13	1.2943	0.109522	10.65405	9.884497	8.685637	1.197532	0.049383	0.073581	0.033287	0.135	0.135
118	374.2	72.3	85.3	127.8	71.6	75.66306	77.0285	78.95618	76.25007	77.92336	78.80	74.07	75.36	3.83	3.84	1.14	1.3052	0.114825	10.61315	9.90501	8.493002	1.191717	0.047929	0.07629	0.034158	0.135	0.135
119	375.1	72.1	85.5	127.3	70.4	75.6378	76.97647	78.86399	76.07025	78.04475	78.77	74.04	75.52	3.83	3.84	1.13	1.3095	0.120568	10.66018	9.81424	8.396685	1.177257	0.044314	0.077369	0.033564	0.135	0.135
120	375.0	72.2	85.1	127.2	70.6	75.63438	76.99313	78.74009	76.29226	77.78483	78.74	74.20	75.35	3.83	3.84	1.13	1.2672	0.144232	10.76711	9.650957	8.300367	1.17655	0.044137	0.066808	0.032796	0.135	0.136
121	368.2	72.4	85.0	127.4	71.0	75.68472	77.05015	78.85736	76.18437	77.91791	78.90	74.10	75.53	3.83	3.84	1.13	1.3	0.168665	10.92883	9.463963	8.183323	1.166101	0.041525	0.078378	0.033555	0.135	0.135
122	358.7	72.1	84.8	126.9	70.7	75.68582	77.1115	78.74468	76.32882	78.0155	78.91	74.29	75.67	3.83	3.83	1.13	1.3	0.141794	10.71526	9.656779	8.087006	1.184633	0.046158	0.069012	0.032299	0.135	0.135
123	347.6	72.3	84.9	126.4	70.1	75.85511	77.22056	78.94744	76.4496	78.16306	78.94	74.29	75.60	3.82	3.83	1.13	1.3	0.146939	9.902534	10.46798	7.990688	1.159408	0.039852	0.078784	0.031443	0.135	0.135
124	338.9	72.0	84.2	125.3	70.0	75.89371	76.93787	78.59112	76.27562	78.04932	78.68	74.07	75.54	3.82	3.84	1.12	1.3	0.280296	9.142632	11.14214	7.890713	1.199593	0.049898	0.077753	0.03097	0.135	0.135
125	334.0	71.8	84.1	124.5	70.2	75.75757	77.16317	78.80304	76.29665	77.99671	78.73	74.48	75.47	3.82	3.82	1.12	1.3	0.499437	8.854868	11.28823	7.798053	1.169369	0.042342	0.077321	0.030281	0.135	0.135
126	329.4	72.4	83.8	123.8	70.4	75.52314	76.80157	78.64893	76.29406	77.93388	78.62	74.02	75.20	3.82	3.82	1.12	1.3	0.549741	8.714324	11.36787	7.696859	1.166857	0.041714	0.066226	0.02994	0.135	0.135
127	323.3	71.7	83.7	123.3	70.0	75.68975	77.00164	78.48088	76.23169	78.03885	78.49	74.21	75.48	3.82	3.82	1.11	1.3	0.592914	8.508216	11.53689	7.588349	1.186255	0.046564	0.07209	0.028681	0.135	0.135
128	320.4	72.3	83.7	122.9	70.5	75.59118	76.95661	78.55633	76.22793	78.0284	78.49	74.33	75.40	3.82	3.82	1.12	1.3	0.587525	8.460758	11.53683	7.585911	1.16782	0.041955	0.07213	0.029909	0.135	0.135
129	317.7	72.5	83.8	122.2	70.7	75.63083	77.19038	78.63615	76.46421	78.13081	78.66	74.36	75.49	3.82	3.82	1.11	1.3	0.592914	8.378675	11.5766	7.490813	1.165443	0.041361	0.074093	0.028629	0.135	0.135
130	314.3	72.5	83.6	121.8	70.8	75.58915	77.00813	78.47398	76.27615	77.90259	78.51	74.17	75.24	3.82	3.82	1.12	1.3	0.597949	8.412234	11.50284	7.38718	1.188596	0.047149	0.086419	0.029452	0.135	0.135
131	311.9	72.0	83.2	121.4	70.8	75.6906	77.07611	78.59551	76.19407	77.98115	78.30	74.19	75.46	3.82	3.82	1.11	1.3	0.592938	8.39224	11.4755	7.293301	1.21437	0.053592	0.065427	0.028715	0.135	0.135
132	307.7	72.4	83.3	121.0	71.0	75.56933	77.18912	78.65497	76.46198	78.24237	78.76	74.33	75.40	3.82	3.82	1.11	1.3	0.557679	8.500657	11.31581	7.199422	1.194679	0.04867	0.085285	0.02816	0.135	0.135
133	304.6	72.3	83.1	120.8	70.8	75.79018	77.25603	78.5947	76.33233	78.23989	78.55	74.31	75.38	3.82	3.81	1.11	1.3	0.552314	8.439635	11.32206	7.195765	1.173282	0.043321	0.074891	0.028062	0.135	0.135
134	300.7	71.8	82.8	120.0	70.3	75.62257	77.06165	78.36685	76.38111	78.22843	78.61	74.18	75.24	3.82	3.82	1.11	1.3	0.485648	8.311193	11.44188	7.100667	1.197788	0.049447	0.073706	0.027968	0.135	0.135
135	299.2	72.0	82.8	119.5	70.5	75.87535	77.26756	78.31842	76.12829	78.06262	78.45	74.15	75.30	3.82	3.82	1.11	1.2	0.491012	8.133158	11.6158	6.988499	1.184999	0.04625	0.059151	0.027047	0.135	0.135
136	297.5	72.1	82.6	119.1	70.6	75.81204	77.13062	78.31535	76.13378	78.0815	78.28	74.23	75.28	3.82	3.81	1.11	1.4	0.510166	8.097038	11.58885	6.989718	1.152336	0.038084	0.090412	0.027319	0.135	0.135
137	296.5	71.8	82.5	119.8	70.7	75.81655	77.11506	78.43365	76.29997	78.2343	78.56	74.42	75.35	3.82	3.82	1.11	1.3	0.517786	8.024008	11.64872	6.889743	0.991169	0	0.080411	0.027992	0.135	0.135
138	299.1	71.2	81.7	112.6	71.0	75.64281	77.04841	78.18629	76.1563	78.13079	78.18	74.05	75.13	3.82	3.81	1.11	1.3	0.523102	8.009438	11.63595	6.792207	0.991279	0	0.071185	0.028459	0.135	0.135
139	301.6	71.1	81.7	129.3	70.2	75.66487	76.9366	78.1414	76.08788	77.89504	78.13	74.09	75.33	3.82	3.81	1.11	1.3	0.51536	8.024038	11.59529	6.695889	1.175806	0.043952	0.073584	0.027044	0.135	0.135
140	300.0	71.8	81.6	126.0	70.1	75.38013	76.87943	78.03738	75.88315	77.95804	77.96	74.28	75.29	3.82	3.81	1.11	1.4	0.493938	7.955671	11.66448	6.699547	1.181061	0.045265	0.089793	0.027227	0.135	0.135
141	298.1	71.9	81.9	124.1	70.7	75.44084	77.20787	78.17172	76.0264	78.1013	78.16	74.38	75.30	3.82	3.81	1.11	1.3	0.49395	7.895717	11.69581	6.592257	1.186194	0.046548	0.074721	0.027035	0.135	0.135
142	294.2	72.0	81.9	122.6	70.8	75.58433	77.14388	78.09433	76.10732	78.04165	78.17	74.26	75.32	3.82	3.81	1.11	1.3	0.520444	7.988742	11.54591	6.594695	1.170064	0.042516	0.074269	0.026846	0.135	0.135
143	289.7	72.1	81.7	121.4	69.8	75.58218	77.21535	77.91816	76.08764	78.20938	78.33	74.28	75.30	3.82	3.82	1.11	1.3	0.520444	8.009407	11.47544	6.502035	1.156494	0.039123	0.069057	0.026718	0.135	0.135

Raw Data

Reading Interval	1	Minutes																			8.300367		0.037412				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
144	286.1	71.5	81.6	120.1	70.3	75.66477	77.15069	77.87357	76.22333	78.26476	78.19	74.16	75.20	3.81	3.81	1.11	1.3	0.456167	7.90992	11.54987	6.497158	1.197142	0.049286	0.068408	0.026807	0.135	0.135
145	282.1	71.8	81.6	119.2	70.6	75.50686	77.14003	77.93654	76.51875	78.40623	78.06	74.24	75.29	3.81	3.81	1.10	1.3	0.389354	7.701161	11.75665	6.384991	1.201117	0.050279	0.077068	0.025984	0.135	0.135
146	278.2	71.9	81.4	118.5	70.9	75.74026	77.18602	78.03609	76.19208	78.09963	77.79	74.18	75.09	3.81	3.81	1.10	1.3	0.337172	7.46689	11.9922	6.380115	1.212517	0.053129	0.074614	0.025834	0.135	0.135
147	278.8	71.6	81.3	115.3	70.8	75.60651	77.07904	77.88895	76.15231	78.23389	77.97	74.21	75.17	3.81	3.81	1.10	1.3	0.317884	7.275627	12.16673	6.282578	0.991559	0	0.077132	0.02609	0.135	0.135
148	281.8	71.2	80.9	127.9	70.8	75.74178	77.10053	77.99744	76.10244	78.21749	77.92	74.40	75.22	3.81	3.81	1.10	1.3	0.307009	7.246945	12.1667	6.281359	1.193472	0.048368	0.075544	0.026179	0.134	0.135
149	279.0	71.2	80.7	124.4	70.0	75.51719	77.32439	78.0138	76.14291	78.18435	77.90	74.11	75.21	3.81	3.81	1.10	1.3	0.291342	7.185619	12.21105	6.187479	1.201129	0.050282	0.081569	0.026163	0.135	0.135
150	276.0	71.6	80.8	122.1	70.6	75.24815	76.93487	77.71799	76.12206	78.043	77.90	74.44	75.04	3.81	3.81	1.10	1.3	0.277358	7.198908	12.18166	6.188699	1.207664	0.051916	0.076787	0.025447	0.135	0.134
151	274.1	71.7	80.9	120.4	70.4	75.3441	77.05759	77.84741	76.09405	78.33627	78.01	74.37	75.16	3.81	3.82	1.10	1.3	0.291354	7.232955	12.11189	6.189918	1.18111	0.045277	0.081426	0.024847	0.135	0.135
152	272.2	71.9	81.3	118.9	70.6	75.3756	77.18949	77.91907	76.19114	78.35304	77.90	74.22	75.33	3.81	3.81	1.10	1.3	0.285636	7.19269	12.15185	6.092381	1.188181	0.047045	0.072684	0.025219	0.135	0.135
153	270.5	72.4	81.3	118.0	71.5	75.33419	77.28864	78.05169	76.11373	78.18862	77.93	74.47	75.34	3.81	3.81	1.10	1.3	0.33182	7.152487	12.1667	6.089943	1.179708	0.044927	0.079884	0.024874	0.134	0.135
154	268.4	72.3	81.0	117.0	71.6	75.49561	77.36974	77.98553	76.09335	78.27533	77.87	74.41	75.08	3.81	3.81	1.10	1.3	0.312715	7.232924	12.0381	6.086286	1.195557	0.048889	0.079003	0.024511	0.134	0.134
155	267.0	72.3	81.2	116.3	71.0	75.44381	77.29787	77.86681	76.09647	78.31193	77.90	74.23	75.07	3.81	3.81	1.10	1.3	0.298889	7.327138	11.92615	5.989968	1.208274	0.052068	0.075187	0.024301	0.134	0.135
156	268.7	71.6	80.9	114.0	70.9	75.5696	77.35671	77.83864	76.18969	78.15749	77.74	74.24	74.98	3.81	3.81	1.10	1.3	0.293659	7.345944	11.90512	5.891212	0.991522	0	0.073904	0.025267	0.134	0.135
157	273.0	71.0	80.1	122.7	70.9	75.59102	77.39153	77.76636	76.41058	78.33823	77.74	74.33	75.20	3.81	3.81	1.10	1.3	0.274773	7.419555	11.79987	5.891212	1.169271	0.042318	0.072965	0.025673	0.134	0.134
158	274.5	71.2	80.4	123.7	70.3	75.41553	77.29636	77.72474	76.23788	78.35962	77.70	74.30	75.23	3.81	3.81	1.10	1.3	0.229333	7.474083	11.80319	5.888774	1.189437	0.047359	0.071075	0.025264	0.134	0.134
159	274.0	72.0	80.7	121.4	70.5	75.4547	77.1749	77.73044	75.96819	78.30412	77.65	74.28	75.31	3.81	3.81	1.10	1.3	0.189441	7.553759	11.73056	5.891212	1.199605	0.049901	0.07202	0.024767	0.134	0.135
160	273.2	72.2	80.9	120.0	70.6	75.48177	77.32243	77.93153	76.1881	78.37008	77.79	74.31	75.37	3.81	3.81	1.10	1.3	0.163801	7.581038	11.74113	5.779045	1.19474	0.048685	0.078942	0.024563	0.134	0.135
161	270.0	72.2	80.7	118.2	70.6	75.32143	77.14202	77.78458	76.29727	78.70013	77.60	74.36	75.17	3.81	3.81	1.10	1.3	0.160753	7.614415	11.72346	5.776607	1.205311	0.051328	0.077854	0.024508	0.134	0.134
162	268.8	72.5	80.9	117.6	71.0	75.42905	77.28979	77.61776	76.03001	78.34586	77.69	74.23	75.27	3.81	3.81	1.10	1.3	0.163813	7.634775	11.72346	5.688824	1.170673	0.042668	0.075614	0.024292	0.134	0.134
163	267.0	72.3	80.8	116.6	70.6	75.44891	77.36989	77.53722	76.16491	78.45398	77.76	74.45	75.11	3.81	3.81	1.10	1.3	0.141757	7.649192	11.7636	5.67907	1.192192	0.048048	0.074285	0.023935	0.134	0.134
164	266.1	72.0	80.3	116.8	70.6	75.47573	77.42348	77.53059	76.15565	78.4715	77.65	74.46	75.21	3.81	3.81	1.10	1.3	0.146854	7.662086	11.75653	5.681509	1.001398	0.00035	0.077482	0.024383	0.134	0.135
165	267.8	71.1	80.0	112.8	71.3	75.3785	77.32626	77.50029	76.05114	78.47408	77.62	74.22	75.28	3.81	3.81	1.10	1.3	0.144769	7.71058	11.73845	5.581533	0.991242	0	0.078677	0.025249	0.134	0.134
166	271.6	71.5	79.8	121.5	71.4	75.327	77.12081	77.58266	76.046	78.47562	77.55	74.18	75.04	3.81	3.81	1.10	1.3	0.152438	7.668791	11.81697	5.587629	1.176416	0.044104	0.084864	0.025075	0.134	0.134
167	271.0	71.5	79.7	124.2	70.2	75.42544	77.28618	77.50706	76.03109	78.34025	77.52	74.50	75.21	3.81	3.81	1.10	1.3	0.157888	7.614384	11.93996	5.588849	1.179232	0.044808	0.077189	0.024886	0.134	0.134
168	268.5	71.9	79.8	121.6	70.2	75.18269	77.13713	77.39149	75.9148	78.25073	77.31	74.32	75.12	3.81	3.81	1.10	1.3	0.176273	7.507215	12.0908	5.491312	1.181207	0.045302	0.074638	0.024136	0.134	0.134
169	265.3	72.0	79.7	119.6	70.8	75.42934	77.24992	77.59129	76.1619	78.21671	77.48	74.43	75.17	3.81	3.81	1.09	1.3	0.197378	7.541171	12.01826	5.493751	1.188547	0.047137	0.074605	0.023664	0.134	0.134
170	262.4	72.0	80.2	118.3	70.9	75.528	77.22811	77.32851	76.01158	78.27388	77.59	74.33	75.01	3.80	3.81	1.10	1.3	0.205827	7.567505	12.00707	5.490093	1.178952	0.044738	0.076589	0.023941	0.134	0.134
171	260.1	72.3	80.1	117.3	70.7	75.48791	77.31519	77.53607	76.03965	78.30865	77.50	74.42	75.27	3.81	3.81	1.09	1.3	0.223969	7.541141	12.04502	5.393775	1.200495	0.050124	0.079085	0.023393	0.134	0.135
172	258.7	72.0	79.9	116.2	70.3	75.48946	77.16279	77.24981	76.17437	78.53038	77.55	74.49	75.04	3.80	3.81	1.09	1.3	0.223957	7.520261	12.08388	5.393775	1.203482	0.050871	0.087111	0.022838	0.134	0.134
173	256.8	72.2	80.1	115.3	70.7	75.63051	77.23022	77.42433	76.12675	78.37566	77.35	74.27	75.15	3.80	3.81	1.09	1.3	0.232016	7.55379	12.03234	5.393775	1.170917	0.042729	0.078723	0.023317	0.134	0.134
174	255.6	72.2	80.0	114.7	70.5	75.4475	77.31494	77.31494	76.06464	78.41396	77.30	74.35	75.13	3.80	3.81	1.09	1.3	0.226883	7.541079	12.07769	5.2938	1.018613	0.004653	0.084145	0.022911	0.134	0.134
175	257.7	71.6	79.6	112.0	71.0	75.65022	77.61137	77.61137	76.40787	78.66348	77.41	74.49	75.35	3.80	3.81	1.09	1.4	0.229345	7.541141	12.08467	5.296239	0.991608	0	0.08876	0.023676	0.134	0.135
176	259.5	71.1	79.1	108.5	71.5	75.41485	77.30907	77.23544	76.0922	78.40805	77.29	74.41	75.21	3.80	3.81	1.10	1.3	0.248877	7.541171	12.10433	5.185291	0.991425	0	0.076958	0.02413	0.134	0.134
177	260.4	71.7	79.0	123.7	71.4	75.64246	77.45635	77.46974	76.22871	78.45754	77.34	74.42	75.08	3.81	3.81	1.09	1.3	0.240172	7.541141	12.12436	5.184072	1.183255	0.045814	0.067863	0.023118	0.134	0.134
178	258.1	72.1	79.7	120.9	70.9	75.67839	77.42535	77.33164	76.30048	78.30174	77.33	74.46	75.20	3.80	3.81	1.09	1.3	0.240123	7.573906	12.11177	5.185291	1.164821	0.041205	0.07864	0.023445	0.134	0.134
179	257.0	72.1	79.6	118.7	71.0	75.44535	77.36634	77.30611	76.39838	78.45319	77.26	74.30	75.23	3.80	3.81	1.09	1.3	0.264129	7.580977	12.11186	5.184072	1.161371	0.040343	0.078665	0.022884	0.134	0.134
180	255.5	72.2	79.9	117.3	70.9	75.52577	77.52708	77.21918	76.0562	78.49252	77.43	74.55	75.19	3.78	3.81	1.09	1.3	0.280235	7.520261	12.19163	5.086535	1.177867	0.044467	0.084538	0.0221	0.134	0.134
181	254.5	72.4	79.9	116.4	71.0	75.73229	77.68005	77.34539	76.38939	78.52451	77.43	74.36	75.20	3.80	3.81	1.09	1.3	0.282796	7.560343	12.15182	5.087754	1.180232	0.045058	0.074382	0.022817	0.134	0.135
182	252.3	72.5	79.9	115.4	71.5	75.87878	77.4584	77.4584	76.20732	78.58341	77.54	74.35	75.23	3.81	3.81	1.09	1.3	0.27737	7.541201	12.18474	5.086535	1.204226	0.051056	0.077193	0.022192	0.134	0.134
183	250.6	72.6	79.7	114.5	71.2	75.81653	77.50325	77.29576	76.19137	78.45367	77.32	74.32	75.14	3.81	3.81	1.09	1.3	0.2856	7.526967	12.21839	5.090193	1.071612	0.017903	0.071502	0.022338	0.134	0.134
184	252.3	71.7	79.7	111.4	71.4	75.75298	77.39954	77.18536	76.23514	78.45059	77.31	74.33	75.07	3.81	3.81	1.09	1.3	0.309716	7.453083	12.30422	4.990218	0.991254	0	0.078534	0.023054	0.134	0.134
185	255.2	71.4	79.3	108.6	71.6	75.83232	77.47219	77.29147	76.75232	78.78036	77.19	74.42	75.06	3.81	3.81	1.09	1.3	0.315117	7.488897	12.27243	4.992656	0.991449	0	0.083145	0.023591	0.134	0.134
186	257.1	71.5	79.3	123.9	70.9	75.68489	77.51217	77.15073	76.38683	78.39478	77.40	74.25	75.12	3.79	3.81	1.09	1.3	0.331747	7.406418	12.39277	4.993876	1.174575	0.043644	0.073431	0.023231	0.134	0.134
187	255.1	72.1	79.4	121.0	70.7	75.67263	77.47982	77.08492	76.40092	78.46912	77.34	74.41	75.16	3.81	3.80	1.09	1.3	0.344829	7.353168	12.46464	4.995094	1.187133	0.046783	0.078207	0.022405	0.134	0.134
188	253.2	72.0	79.5	118.8	71.3	75.83642	77.46289	77.10815	76.4203	78.36132	77.18	74.44	75.09	3.81	3.80	1.09	1.3	0.35774	7.300468	12.53133	4.898777	1.191595	0.047899	0.076455	0.022582	0.134	0.134
189	251.0	72.4	79.6	117.3	71.3	75.79726	77.44382	77.24972	76.36951	78.46448	77.25	74.46	75.04	3.81	3.81	1.09	1.3	0.397645	7.220061	12.61914	4.896338	1.188327	0.047082	0.076144	0.022786	0.134	0.134
190	248.4	72.0	79.5	115.8	70.5	75.58571	77.47992	77.22558	76.28178	78.45707	77.08	74.44	75.06	3.79	3.81	1.09	1.3	0.432027	7.205736	12.6122	4.896338	1.184572	0.046143	0.08495	0.022359	0.134	0.134
191	246.9	72.4	79.5	115.0	70.9	75.89881	77.55206	77.19731	76.28665	78.52888	77.17	74.38	75.18	3.79	3.80	1.09	1.3	0.461897	7.220092	12.59409	4.791487	1.186852	0.046713	0.077555	0.021875	0.134	0.134
192	244.6	72.1	79.0	114.0	70.9	75.7611	77.48129	77.03954	76.28948	78.6321	77.37	74.48	75.06	3.80	3.80	1.09	1.3	0.485599	7.192598	12.61924	4.790267	1.186962	0.04674	0.072627	0.021881	0.134	0.134
193	245.9	71.6	79.2	111.9	71.0	75.52334	77.60497	76.98917	76.34012	78.50871	77.27	74.45	75.23	3.81	3.81	1.09	1.3	0.499364	7.192598	12.61924	4.698827	0.991376	0	0.083749	0.022628	0.134	0.134
194	248.6	71.3	78.8	108.1	71.3	75.69705	77.6582	77.0625	76.20554	78.72218	77.24	74.55	75.17	3.80	3.81	1.09	1.3	0.507593	7.203693	12.61222	4.695169	0.991401	0	0.073907	0.022829	0.134	0.134
195	250.2	71.5	78.8	124.4	70.5	75.50303	77.39055	76.96887	76.23866	78.3671	76.90	74.27	75.08	3.81	3.80	1.09	1.3	0.507606	7.166873	12.66523	4.696389	1.186401	0.0466	0.072794	0.022414	0.134	0.134
196	248.0	72.0	79.4	120.7	70.79732	75.45613	77.43066	77.11608	76.23356	78.38207	76.86	74.37	74.89	3.81	3.80	1.09	1.3	0.520383	7.145355	12.68593	4.697608	1.164199	0.04105	0.084182	0.021695	0.134	0.134
197	245.2	72.2	79.6	118.7	70.9772	75.7358	77.59654	77.21503	76.33368	78.65621	77.08	74.68	74.99	3.81	3.80	1.09	1.3	0.523053	7.145355	12.68599	4.696389	1.191851	0.047963	0.071048	0.021884	0.135	0.134
198	242.7	72.3	79.6	116.8	70.76083	75.675	77.48888	77.21446	76.31091	78.62675	77.03	74.40	75.07	3.81	3.81	1.09	1.3	0.530929	7.179218	12.63198	4.578125	1.190424	0.047606	0.074184	0.021482	0.134	0.134
199	241.3	72.3	79.5	115.4	71.45177	75.85786	77.65837	77.05597	76.32739	78.55623	77.12	74.48	75.02	3.81	3.81	1.09	1.3	0.533502	7.19263	12.60598	4.57203	1.180793	0.045198	0.075458	0.021287	0.134	0.134
200	239.0	72.4	79.6	114.3	70.84634	75.66295	77.55047	77.13548	76.51838	78.64682	77.15	74.28	74.95	3.95	3.81	1.08	1.3	0.552241	7.205827	12.59964	4.574468	1.090571	0.022643	0.074507	0.020948	0.140	0.134
201	240.6	71.6	79.4	111.4	71.26755	75.83653	77.50986	76.90077	76.38052	78.44202	77.06	74.37	74.88	3.84	3.80	1.09	1.3	0.554813	7.138984	12.6652	4.472054	0.991291	0	0.074318	0.021921	0.136	0.134
202	243.3	71.4	78.8	108.3	71.5733	75.81821	77.47815	76.95607	76.30412	78.64674	76.91	74.14	74.88	3.86	3.80	1.09	1.3	0.562848	7.192598	12.59412	4.474493	0.991449	0	0.075882	0.022225	0.136	0.134
203	244.4	72.0	78.6	123.7	70.93137	75.54713	77.34763	76.78539	76.16978	78.52578	76.85	74.34	74.96	3.83	3.80	1.09	1.3	0.562824	7.152457	12.65209	4.383052	1.180061	0.045015	0.076248	0.022024	0.135	0.134
204	244.1	72.4	79.1	120.4	70.87614	75.42362	77.39146	76.90285	76.21754	78.72749	76.97	74.59	74.87	3.84	3.80	1.09	1.3	0.568517	7.139015	12.6652	4.38549	1.212053	0.053013	0.078662	0.021634	0.136	0.134
205	240.9	72.6	79.3	118.2	71.07339	75.73679	77.56406	76.69393	76.04994	78.45279	76.68	74.50	74.97	3.84	3.87	1.08	1.3	0.554801	7.07903	12.73966	4.384272	1.180451	0.045113	0.078915	0.021198	0.136	0.137
206	238.8	72.5	79.1	116.3	71.09129	75.45739	77.56579	76.80945	76.38527	78.52708	77.04	74.52	74.98	3.84	3.87	1.08	1.3	0.541682	7.112802	12.70065	4.376956	1.177586	0.044397	0.087361	0.021134	0.135	0.137
207	237.5	72.5	79.5	115.0	71.60728	75.67142	77.53886	76.74905	76.06994	78.54642	76.84	74.42	74.88	3.83	3.87	1.08	1.3	0.554777	7.232924	12.56178	4.38671	1.188998	0.047249	0.086175	0.021171	0.135	0.137
208	236.2	72.4	79.1	114.0	71.53873	75.69398	77.43426	76.73145	76.18324	78.47231	76.73	74.26	74.95	3.82	3.87	1.08	1.3	0.54968	7.220031	12.57199	4.285515	1.195996	0.048999	0.077424	0.02097	0.135	0.137
209	237.3	72.0	78.8	112.3	71.22613	75.79313	77.51331	76.79713	75.87755	78.06621	76.63	74.18	74.69	3.82	3.87	1.09	1.3	0.533514	7.300407	12.47168	4.279419	0.991596	0	0.082883	0.021479	0.135	0.136
210	239.5	72.0	78.9	108.4	71.73098	75.79323	77.68745	77.10513	76.65475	78.60917	77.06	74.52	75.13	3.88	3.87	1.09	1.3	0.517737	7.306442	12.47165	4.189198	0.991462	0	0.075925	0.022055	0.137	0.136
211	243.3	72.1	78.8	124.3	71.20782	75.72592	77.77409	76.97758	76.48085	78.73645	77.08	74.63	75.19	3.87	3.87	1.09	1.3	0.487001	7.29358	12.51768	4.187979	1.189522	0.047381	0.074614	0.021704	0.137	0.136
212	242.1	72.3	78.9	120.4	71.48033	75.56612	77.50719	76.86462	76.26127	78.53025	76.76	74.38	74.98	3.87	3.87	1.09	1.4	0.464202	7.327108	12.49183	4.186759	1.18573	0.046433	0.089311	0.021442	0.137	0.136
213	240.7	72.6	78.9	118.3	71.50463	75.69258	77.64034	76.88399	76.40106	78.71691	77.02	74.56	75.22	3.87	3.87	1.08	1.3	0.440317	7.275596	12.56559	4.074593	1.146045	0.036511	0.079564	0.021177	0.137	0.137
214	239.5	72.9	79.2	116.6	71.17389	75.89697	77.71756	77.16202	76.67425	78.70898	77.27	74.71	75.15	3.87	3.87	1.08	1.3	0.432027	7.306473	12.52456	4.183102	1.182731	0.045683	0.076114	0.021174	0.137	0.137
215	237.5	72.8	79.6	115.3	71.94619	75.83009	77.53019	76.82739	76.53662	78.48433	76.80	74.49	75.16	3.87	3.87	1.08	1.3	0.413653	7.33293	12.50451	4.074593	1.18901	0.047253	0.063918	0.020796	0.137	0.137

Raw Data

Reading Interval	1	Minutes																			8.300367		0.037412					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
216	236.3	72.7	79.5	114.1	71.64111	75.76966	77.61702	76.95438	76.55652	78.67156	77.11	74.46	75.10	3.87	3.87	1.08	1.4	0.405326	7.366458	12.4647	4.069715	1.194399	0.0486	0.088565	0.020564	0.136	0.137
217	235.4	72.7	79.4	114.5	71.31345	75.88329	77.82436	76.92744	76.54817	78.64314	77.10	74.58	75.07	3.86	3.87	1.08	1.3	0.400035	7.386605	12.43538	3.974618	0.99151	0	0.067366	0.020899	0.136	0.137
218	238.6	72.1	78.9	109.3	71.67074	75.73131	77.50504	76.87587	76.26983	78.67937	76.86	74.51	74.94	3.86	3.87	1.09	1.3	0.391976	7.359447	12.47165	3.977056	0.991535	0	0.080664	0.02189	0.136	0.137
219	241.9	72.0	78.7	121.5	72.12034	75.97363	77.79422	76.95755	76.45987	78.74894	76.84	74.62	75.11	3.87	3.86	1.09	1.3	0.386855	7.366427	12.48613	3.977056	1.18328	0.04582	0.073773	0.021893	0.137	0.136
220	241.2	72.3	78.5	120.9	71.31604	75.67577	77.40934	76.50574	76.31747	78.61992	76.74	74.41	74.94	3.87	3.86	1.09	1.3	0.378991	7.353077	12.52453	3.973398	1.182256	0.045564	0.085322	0.0215	0.137	0.136
221	239.4	72.7	79.2	118.6	71.25581	75.7602	77.70127	76.85122	76.43128	78.49947	76.96	74.67	75.06	3.87	3.86	1.08	1.4	0.36825	7.29358	12.59409	3.8783	1.185499	0.046375	0.095337	0.021021	0.137	0.136
222	237.8	72.7	79.3	117.0	71.3989	75.57656	77.47077	76.98885	76.38126	78.54315	76.83	74.67	75.09	3.87	3.86	1.08	1.3	0.344792	7.313087	12.57915	3.880738	1.163029	0.040757	0.07127	0.020863	0.137	0.136
223	237.6	72.8	79.3	115.5	71.70486	75.72042	77.65479	76.99216	76.48174	78.5834	77.16	74.62	74.99	3.87	3.86	1.08	1.3	0.347219	7.380784	12.49814	3.877081	1.178476	0.044619	0.07637	0.020765	0.137	0.136
224	236.0	72.8	79.4	114.3	71.40117	75.78506	77.80645	77.16389	76.35987	78.61548	76.90	74.71	75.03	3.87	3.86	1.08	1.4	0.355399	7.386575	12.50445	3.8783	1.170295	0.042574	0.088775	0.020698	0.137	0.136
225	234.9	72.9	79.1	113.5	71.12674	75.9122	77.80642	77.05007	76.7505	78.56435	76.93	74.55	75.12	3.86	3.86	1.08	1.3	0.35774	7.386514	12.50448	3.780764	1.187962	0.04699	0.077296	0.020582	0.136	0.136
226	235.9	72.8	78.9	111.6	71.90012	75.80766	77.74873	76.89198	76.51518	78.77748	77.02	74.71	75.10	3.87	3.86	1.09	1.3	0.357716	7.345914	12.56044	3.779544	0.991693	0	0.073645	0.021354	0.137	0.136
227	239.1	72.1	78.7	108.0	71.94141	75.84138	77.48795	76.74499	76.57656	78.59789	77.00	74.78	75.08	3.86	3.86	1.09	1.3	0.349876	7.366427	12.55154	3.683227	0.99151	0	0.072968	0.02168	0.136	0.136
228	242.0	72.6	78.7	122.9	71.88145	75.95015	77.58331	76.61948	76.36472	78.58016	76.98	74.67	75.02	3.86	3.86	1.09	1.3	0.326053	7.327077	12.60595	3.685665	1.205811	0.051453	0.077232	0.021381	0.136	0.136
229	240.6	72.5	79.4	119.9	71.94086	75.65414	77.58852	76.77193	76.21834	78.76845	77.01	74.50	74.97	3.86	3.86	1.08	1.3	0.306948	7.281053	12.67879	3.683227	1.184694	0.046174	0.079177	0.020476	0.136	0.136
230	239.0	73.0	79.5	117.7	72.05437	75.84689	77.69425	76.88436	76.55775	78.70626	76.79	74.69	74.91	3.86	3.86	1.08	1.4	0.301669	7.306442	12.65859	3.685665	1.190473	0.047618	0.091192	0.020329	0.136	0.136
231	236.7	73.0	79.8	116.3	71.45753	75.94334	77.7907	76.96072	76.42824	78.71061	77.10	74.77	75.23	3.85	3.86	1.08	1.3	0.296231	7.339544	12.61911	3.58691	1.186169	0.046542	0.076598	0.020378	0.136	0.136
232	235.5	73.2	79.8	115.2	71.75539	75.98067	77.66071	77.09846	76.73899	78.74025	77.06	74.74	75.05	3.86	3.86	1.08	1.3	0.304217	7.399377	12.54477	3.583252	1.227683	0.056921	0.076281	0.02011	0.136	0.136
233	234.2	73.2	79.9	114.2	72.11961	76.00669	77.96114	77.06423	76.93208	78.91325	77.04	74.82	75.12	3.85	3.86	1.08	1.3	0.323432	7.474083	12.43867	3.588129	1.199288	0.049822	0.080216	0.020095	0.136	0.136
234	233.0	73.2	79.9	113.6	72.16256	76.24529	78.09934	77.04849	76.60938	79.01893	77.27	74.83	75.18	3.85	3.86	1.08	1.3	0.328894	7.474083	12.45117	3.584471	1.216101	0.054025	0.083968	0.020214	0.136	0.136
235	231.5	73.3	79.7	113.0	72.29528	76.08115	77.81473	76.91113	76.95024	78.71723	77.16	74.85	75.25	3.85	3.86	1.08	1.3	0.312666	7.481155	12.45836	3.588129	1.190778	0.047695	0.081484	0.020009	0.136	0.136
236	232.6	72.9	79.4	111.8	72.08777	76.10804	77.72782	76.99825	76.68375	78.96612	77.21	74.64	74.88	3.86	3.86	1.08	1.3	0.298828	7.488897	12.46464	3.467427	0.991644	0	0.077942	0.020418	0.136	0.136
237	236.1	72.7	79.1	107.2	72.1862	76.30666	77.69218	76.80197	76.79166	78.94017	76.99	74.67	75.10	3.84	3.85	1.09	1.3	0.296256	7.514134	12.43821	3.380863	0.992413	0	0.069661	0.021348	0.136	0.136
238	239.5	72.8	79.0	122.2	71.33385	76.25718	77.85688	77.0336	76.669	78.77065	77.00	74.67	75.04	3.84	3.85	1.08	1.3	0.293683	7.473992	12.51149	3.375987	1.177476	0.044369	0.080859	0.020909	0.136	0.136
239	238.9	72.9	79.4	119.1	71.98531	76.31109	77.83717	76.76624	76.59337	78.72849	76.99	74.67	74.99	3.86	3.85	1.08	1.3	0.288343	7.452991	12.54486	3.378425	1.172197	0.043049	0.078747	0.020549	0.136	0.136
240	237.6	73.2	79.4	117.4	71.94065	76.29346	77.82623	76.86907	76.55188	78.7807	76.89	74.70	74.99	3.86	3.85	1.08	1.3	0.285563	7.433636	12.5655	3.374767	1.140754	0.035188	0.07722	0.020604	0.136	0.136
241	236.3	73.0	79.5	115.7	71.79586	76.40431	77.76975	76.97324	76.52023	78.6955	76.93	74.61	75.21	3.85	3.85	1.08	1.3	0.291306	7.460337	12.5313	3.379644	1.192802	0.0482	0.072422	0.020494	0.136	0.136
242	235.4	73.2	79.4	114.9	71.66611	76.31778	77.91748	77.04735	76.8607	79.01591	77.17	74.97	75.05	3.86	3.85	1.08	1.3	0.291281	7.452991	12.53883	3.375987	1.190181	0.047545	0.079152	0.020369	0.136	0.136
243	233.8	73.2	79.7	113.7	71.49033	76.39864	77.80424	76.82701	76.69587	78.94478	77.16	74.81	75.18	3.86	3.85	1.08	1.3	0.298828	7.514074	12.45836	3.278455	1.184645	0.046161	0.069359	0.020186	0.136	0.136
244	233.2	73.1	79.7	114.6	72.41173	76.49903	77.9314	76.75338	76.76788	78.82938	77.14	74.70	74.95	3.86	3.85	1.08	1.3	0.298804	7.514043	12.45111	3.274798	0.991242	0	0.073474	0.020211	0.136	0.136
245	236.5	72.6	79.5	110.2	72.02285	76.52372	78.06318	76.9521	76.9291	79.0843	77.12	75.13	75.20	3.86	3.85	1.08	1.3	0.304168	7.533703	12.43236	3.184576	0.991681	0	0.076287	0.020954	0.136	0.136
246	239.8	72.3	78.9	106.5	71.99905	76.39672	77.95626	76.89202	76.57751	78.6524	77.01	74.81	74.99	3.86	3.85	1.09	1.3	0.296256	7.473962	12.52444	3.184576	0.991803	0	0.083432	0.021631	0.136	0.136
247	241.3	72.8	79.1	121.2	72.32529	76.15786	78.00522	77.03469	76.59532	78.7706	76.96	74.76	75.10	3.86	3.85	1.08	1.3	0.293622	7.426199	12.5719	3.182138	1.143485	0.035871	0.070895	0.020829	0.136	0.136
248	238.7	73.2	79.3	118.9	71.86088	75.93562	77.64911	76.69196	76.38331	78.84641	76.76	74.80	74.94	3.86	3.85	1.08	1.3	0.296268	7.406296	12.59961	3.1797	1.186816	0.046704	0.074967	0.020512	0.136	0.136
249	237.6	73.0	79.5	117.0	72.0089	75.99615	77.87698	76.98676	76.67468	79.13778	76.90	74.67	74.96	3.86	3.84	1.08	1.3	0.298816	7.386514	12.61939	3.090697	1.169966	0.042492	0.080963	0.020393	0.136	0.136
250	236.4	73.7	79.7	115.8	72.27435	76.19256	77.93282	76.99576	76.7316	78.91357	77.22	74.74	75.00	3.86	3.85	1.08	1.3	0.301657	7.446377	12.55151	3.088259	1.140412	0.035103	0.071673	0.020351	0.136	0.136
251	235.2	73.3	79.6	114.5	71.71201	76.03777	77.82488	76.78072	76.5457	78.86823	76.94	74.82	74.83	3.86	3.85	1.08	1.3	0.304168	7.494474	12.49168	3.091917	1.194618	0.048655	0.071974	0.020003	0.136	0.136
252	234.4	73.6	80.0	114.0	71.96721	76.27714	77.95047	76.89961	76.7435	78.86523	77.05	74.98	75.18	3.84	3.84	1.08	1.3	0.304144	7.488806	12.50439	3.090697	1.197228	0.049307	0.075921	0.020003	0.136	0.136
253	233.3	73.5	79.6	113.1	71.9582	75.96784	77.77504	76.87144	76.62928	78.83804	77.07	74.78	75.24	3.83	3.84	1.08	1.3	0.298828	7.466769	12.5245	2.989503	1.176879	0.04422	0.082694	0.019927	0.135	0.136
254	233.7	73.1	79.4	112.6	72.11509	76.35889	77.82471	77.12193	76.8056	78.74661	77.19	74.82	75.01	3.83	3.84	1.08	1.3	0.309643	7.488836	12.49808	2.99438	0.991876	0	0.069566	0.020625	0.135	0.136
255	237.5	72.7	79.5	108.1	72.12384	76.22074	77.9677	77.20467	77.00121	78.80167	77.12	74.99	75.17	3.85	3.84	1.09	1.3	0.304132	7.460306	12.53127	2.878555	0.991766	0	0.07369	0.021287	0.136	0.136
256	240.1	72.8	79.3	122.9	71.54647	76.02515	77.77881	76.8886	76.72347	78.87199	77.18	75.06	75.10	3.84	3.84	1.08	1.3	0.306887	7.453022	12.54477	2.879774	1.176123	0.044031	0.078939	0.02096	0.136	0.136
257	238.9	73.4	80.1	119.9	72.25482	76.21975	77.93993	77.22375	76.87495	79.09039	77.32	75.11	75.34	3.84	3.84	1.08	1.3	0.304156	7.406326	12.61911	2.882212	1.193972	0.048493	0.076766	0.020354	0.136	0.136
258	236.9	73.5	80.0	117.8	71.87301	76.08723	77.90112	77.10461	76.6293	78.87151	77.11	74.92	75.16	3.84	3.84	1.08	1.3	0.31263	7.399285	12.61905	2.818813	1.174428	0.043607	0.076793	0.020348	0.136	0.136
259	236.4	73.5	80.1	116.6	71.96148	76.21405	77.94093	76.98378	76.73978	79.06901	77.39	74.98	75.15	3.86	3.84	1.08	1.3	0.328882	7.406326	12.59397	2.876116	1.202836	0.050709	0.071075	0.020381	0.136	0.136
260	234.3	73.3	80.1	115.3	72.7059	76.24478	78.04528	77.09483	76.79136	78.8997	76.92	74.95	75.35	3.86	3.84	1.08	1.3	0.342061	7.373285	12.61908	2.774922	1.190997	0.047749	0.072096	0.019985	0.136	0.136
261	232.6	73.2	80.2	114.6	72.67272	76.24891	77.98917	77.17259	76.84095	78.88906	77.30	74.93	75.01	3.86	3.84	1.08	1.3	0.365702	7.145233	12.8347	2.771264	1.189461	0.047365	0.068521	0.020323	0.136	0.136
262	232.6	73.7	80.2	113.9	72.42039	76.62291	78.08875	77.29893	77.19903	79.27228	77.35	75.36	75.37	3.85	3.84	1.08	1.3	0.360313	7.032425	12.94617	2.779799	1.178757	0.044689	0.076513	0.02004	0.136	0.135
263	231.1	73.4	80.1	113.0	72.21259	76.44148	78.00771	77.16436	77.03714	79.01162	77.20	74.94	75.26	3.85	3.84	1.08	1.3	0.360301	7.072782	12.89325	2.778579	1.207201	0.0518	0.075836	0.019869	0.136	0.136
264	230.1	73.6	80.0	112.8	72.45499	76.368	78.22205	77.22475	77.04669	79.19467	77.16	75.12	75.09	3.86	3.84	1.08	1.3	0.34478	7.112741	12.87987	2.678604	1.199252	0.049813	0.076242	0.019878	0.136	0.136
265	230.7	73.1	79.4	110.8	72.22971	76.41157	77.94434	77.06082	76.89732	78.78479	77.12484	74.90936	75.07002	3.868693	3.833387	1.082366	1.3	0.331722	7.118593	12.887	2.676166	0.991876	0	0.068231	0.020592	0.137	0.135
266	233.9	72.9	79.2	107.0	72.12955	76.16506	77.93879	76.86785	76.87519	79.01031	76.94207	74.81359	74.99434	3.869083	3.833289	1.083415	1.3	0.328882	7.112649	12.90371	2.673728	0.991949	0	0.074906	0.020854	0.137	0.135
267	237.1	72.8	79.3	122.2	71.89292	76.13495	77.91538	77.01178	76.77167	78.89339	77.07281	74.88409	75.17194	3.871277	3.833338	1.082903	1.4	0.320445	7.052999	13.00024	2.579848	1.167028	0.041757	0.089714	0.020726	0.137	0.135
268	236.4	73.1	79.5	119.3	71.83149	76.10173	77.94908	77.03879	77.05238	79.06702	77.2732	75.13134	75.36563	3.849941	3.833387	1.08144	1.3	0.312617	7.07275	12.99378	2.579848	1.198605	0.049651	0.078396	0.02036	0.136	0.135
269	235.7	73.2	79.7	117.3	71.85909	76.14497	77.95216	76.90131	76.87038	79.07913	77.18492	74.92258	74.97615	3.85277	3.836093	1.08033	1.3	0.293634	7.011943	13.07412	2.579848	1.197057	0.049264	0.066278	0.020083	0.136	0.135
270	233.8	73.5	80.0	116.0	72.08286	76.27444	78.2222	77.19142	76.82286	78.98475	77.25117	75.20972	75.37708	3.825728	3.836045	1.079404	1.3	0.296256	7.053091	13.02785	2.581068	1.179695	0.044924	0.069969	0.019851	0.135	0.135
271	232.2	73.3	80.0	114.7	72.45444	76.33486	78.12867	77.02427	76.98202	79.01674	77.17608	75.20824	75.19488	3.829678	3.83207	1.078526	1.3	0.298804	7.085857	12.99375	2.582287	1.203604	0.050901	0.081338	0.019631	0.135	0.135
272	230.8	73.4	80.0	113.7	71.82633	76.41846	78.09179	77.1815	76.87875	79.00048	77.18659	74.97779	75.07153	3.809439	3.83324	1.079709	1.3	0.288306	7.112679	12.9672	2.479873	1.176221	0.044055	0.073367	0.019927	0.134	0.135
273	229.3	73.6	80.1	112.7	71.98457	76.38544	78.13239	76.99453	76.95142	79.09322	77.21239	75.09061	75.05717	3.825728	3.833289	1.078904	1.3	0.282747	7.060772	13.03407	2.478654	1.177842	0.044461	0.081685	0.019726	0.135	0.135
274	229.4	73.4	79.9	113.2	72.00426	76.66182	78.20798	77.03664	76.94739	79.0892	77.09459	75.23385	75.12679	3.83119	3.827754	1.079367	1.3	0.285527	7.07272	13.02779	2.477435	0.991827	0	0.070085	0.019842	0.135	0.135
275	231.6	73.1	79.6	107.9	71.92504	76.5657	78.11855	76.97398	76.87848	78.94666	77.2064	74.94405	75.09803	3.790956	3.830631	1.081537	1.3	0.291281	7.125207	12.9672	2.382336	0.991827	0	0.081445	0.020384	0.134	0.135
276	234.7	73.0	79.4	106.1	71.95463	76.59766	78.07018	76.91224	76.88792	78.94271	77.17567	74.81293	75.03384	3.785787	3.827827	1.083452	1.3	0.298755	7.085857	13.01444	2.382336	0.99223	0	0.075629	0.020863	0.134	0.135
277	234.8	72.9	79.5	121.1	72.74582	76.43577	78.04217	77.01139	76.85839	78.92657	77.16623	75.11807	75.03778	3.806684	3.827852	1.081013	1.3	0.320433	6.991796	13.12073	2.381117	1.200142	0.050035	0.076833	0.020253	0.134	0.135
278	233.1	73.4	79.7	118.2	72.16343	76.26507	78.17936	77.14858	77.02646	79.24071	77.37445	75.11211	75.0452	3.868742	3.860014	1.080696	1.3	0.344768	6.751184	13.37469	2.381117	1.172039	0.04301	0.067756	0.020174	0.137	0.136
279	230.3	73.4	79.8	116.2	72.07313	76.18779	77.90797	76.85043	76.70437	78.97334	77.17284	74.99082	75.17826	3.856574	3.860453	1.078782	1.3	0.325992	6.744692	13.38502	2.382336	1.217723	0.054431	0.081127	0.019695	0.136	0.136
280	229.3	73.7	79.9	115.0	72.42021	76.47282	78.09261	77.23586	77.01633	79.11128	77.31747	75.14214	75.18903	3.859354	3.858892	1.07805	1.3	0.317775	6.78514	13.32138	2.267731	1.184328	0.046082	0.071938	0.019513	0.136	0.136
281	226.7	73.5	80.0	113.8	71.99235	76.30615	78.03972	76.98886	76.72755	78.9229	77.17594	75.04077	74.9404	3.855403	3.859015	1.077356	1.3	0.320433	6.84866	13.25545	2.272607	1.19346	0.048365	0.067323	0.019339	0.136	0.136
282	225.8	73.6	79.9	114.7	72.35198	76.30999	78.07703	77.19351	76.90755	79.14977	77.16854	75.08023	75.24758	3.86623	3.855162	1.07877	1.3	0.323407	6.892612	13.20125	2.270169	0.991815	0	0.071282	0.019692	0.136	0.136
283	227.9	72.8	79.4	109.4	72.14234	76.41814	78.058	77.08747	76.64781	78.98372	77.18322	75.01458	75.16187	3.86623	3.854967	1.081635	1.3	0.326017	6.879445	13.22244	2.166536	0.991949	0	0.074096	0.020409	0.136	0.136
284	231.3	72.9	79.1	106.8	72.39021	76.18691	78.04766	77.11729	76.83849	79.14764	77.00578	75.06471	75.05135	3.879544	3.854991	1.081306	1.3	0.323359	6.84863	13.25539	2.166536	0.992096	0	0.071267	0.020326	0.137	0.136
285	232.6	73.2	79.3	121.6	71.93729	76.3836	78.06362	77.28051	76.71024	79.12647	77.08501	75.09039	75.06365	3.893077	3.854967	1.080672	1.3	0.328894	6.84866	13.25545	2.170194	1.206701	0.051675	0.073251	0.020168	0.137	0.136
286	231.1	73.6	79.6	118.7	72.49718	76.1482	77.97547	77.0451	76.71552	79.10499	77.184	75.13585	75.26974	3.8862	3.854918	1.078965	1.3	0.317775	6.750331	13.38831	2.162879	1.183609	0.045902	0.075068	0.019741	0.137	0.136
287	229.6	73.7	79.8	116.6	72.12955	76.23911	78.10655	77.14941	76.64338	79.14663	77.19218	75.03024	75.24445	3.871326	3.854991	1.078562	1.3	0.323346	6.757677	13.36844	2.168974	1.191522	0.04788	0.086855	0.019641	0.137	0.136

Raw Data

Reading Interval	1	Minutes																			8.300367		0.037412				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
288	226.8	73.8	80.0	115.0	72.68038	76.33792	78.33253	77.30845	76.86667	79.05533	77.45562	75.34054	75.24016	3.884933	3.85504	1.082683	1.3	0.325992	6.731037	13.38834	2.072657	1.194594	0.048649	0.077235	0.020671	0.137	0.136
289	224.7	73.6	79.9	114.0	72.95824	76.41729	78.25795	77.38783	76.95084	79.15959	77.1449	75.35109	75.04322	3.895954	3.857698	1.077453	1.3	0.337087	6.798856	13.31507	2.075095	1.012639	0.00316	0.081003	0.019363	0.138	0.136
290	227.0	73.3	79.7	111.3	72.17732	76.52716	78.20049	77.31027	77.10961	79.46789	77.51785	75.48978	75.34924	3.888858	3.854991	1.080172	1.3	0.337063	6.792729	13.32138	2.071438	0.991925	0	0.075169	0.020043	0.137	0.136
291	229.4	73.3	79.4	108.0	72.24971	76.38371	78.15075	77.13337	76.93627	79.01784	77.17718	75.13572	75.33654	3.874179	3.852333	1.082062	1.3	0.344756	6.792729	13.31504	1.972682	0.991949	0	0.082252	0.020515	0.137	0.136
292	231.8	73.3	79.1	122.0	72.64164	76.0672	78.01495	77.06451	76.59845	78.94106	77.00668	75.0924	75.23968	3.882275	3.854893	1.08044	1.3	0.342025	6.738718	13.3877	1.978778	1.184597	0.046149	0.072712	0.02011	0.137	0.136
293	230.0	73.9	79.8	119.0	72.75215	76.15387	78.09493	77.21142	76.93012	79.15894	77.12417	75.37721	75.33707	3.887859	3.854991	1.078246	1.3	0.352412	6.738749	13.3688	1.973901	1.184609	0.046152	0.073471	0.019561	0.137	0.136
294	227.6	73.9	79.8	116.6	72.38859	76.22185	77.92864	77.06521	76.7394	78.85444	77.14764	75.01247	75.11959	3.868863	3.906027	1.077587	1.3	0.357655	6.751184	13.34866	1.97512	1.178598	0.04465	0.07779	0.019397	0.137	0.138
295	227.0	73.7	80.2	115.1	72.63032	76.60216	78.31565	77.22464	76.92992	79.13196	77.49879	75.22976	75.35026	3.86011	3.905905	1.077099	1.3	0.370932	6.778251	13.32138	1.966586	1.196423	0.049106	0.07629	0.019275	0.136	0.138
296	225.4	73.8	79.6	113.7	72.48006	76.4986	78.29911	77.29511	76.83571	78.93736	77.13016	75.14893	75.28283	3.85416	3.904564	1.078258	1.3	0.368152	6.805713	13.2891	1.881241	1.167211	0.041803	0.085562	0.019564	0.136	0.138
297	223.6	73.7	79.8	114.2	72.38107	76.61185	78.07768	77.20087	76.80927	79.14517	77.25765	75.0154	75.28985	3.841968	3.903516	1.07777	1.3	0.386794	6.805775	13.26237	1.877583	0.991693	0	0.076421	0.019442	0.136	0.138
298	225.4	73.4	79.7	109.0	72.09857	76.47845	78.13169	77.28833	76.7712	79.23321	77.05896	75.2116	75.27187	3.850088	3.906027	1.080172	1.3	0.408203	6.771179	13.28172	1.784923	0.991986	0	0.065397	0.020043	0.136	0.138
299	229.3	73.1	79.3	106.4	72.11652	76.41407	78.17441	77.03654	76.7955	79.11134	77.17697	75.02841	75.16231	3.860695	3.903345	1.080818	1.3	0.42954	6.812572	13.22253	1.783704	0.991839	0	0.068	0.020205	0.136	0.138
300	230.5	73.5	79.4	121.9	72.53919	76.42939	78.03579	77.10542	76.75375	78.9558	77.09505	75.0402	75.10047	3.85811	3.900614	1.079782	1.3	0.424309	6.751215	13.30141	1.780046	1.193424	0.048356	0.084706	0.019945	0.136	0.138
301	230.1	74.0	80.1	119.0	73.29284	76.63434	78.32105	77.37061	76.91345	79.33387	77.5024	75.29361	75.28694	3.868815	3.900541	1.078441	1.3	0.434648	6.78514	13.26234	1.784923	1.191022	0.047755	0.081469	0.01961	0.137	0.138
302	228.6	73.6	80.1	116.4	71.76691	76.44157	78.09481	77.09081	76.856	79.02458	76.98981	74.9952	75.17595	3.867352	3.901931	1.077295	1.3	0.432112	6.751184	13.30144	1.784923	1.208688	0.052172	0.072785	0.019324	0.137	0.138
303	226.2	73.6	80.1	114.7	72.27953	76.5926	78.20569	77.06783	76.77344	78.96879	77.42264	75.03981	75.09338	3.864743	3.898224	1.076295	1.3	0.437306	6.744692	13.30144	1.664222	1.16732	0.04183	0.069862	0.019074	0.136	0.138
304	224.9	73.6	80.3	113.4	72.15137	76.53893	78.33944	77.13464	76.99273	79.00066	77.32064	75.11855	75.34614	3.866205	3.903321	1.075612	1.3	0.437306	6.76487	13.27505	1.663002	1.162505	0.040626	0.075495	0.018903	0.136	0.138
305	224.1	73.7	80.1	112.8	71.7225	76.51135	78.12444	77.0602	76.95517	79.02335	77.43703	75.1613	75.18141	3.866108	3.900151	1.078002	1.3	0.440244	6.757677	13.2816	1.661783	0.992059	0	0.081536	0.0195	0.136	0.138
306	226.2	73.3	79.9	107.9	71.93822	76.73804	78.26412	77.24673	76.86559	79.21408	77.13995	75.12527	75.219	3.874203	3.899127	1.079831	1.3	0.437306	6.716772	13.32836	1.571562	0.991998	0	0.080673	0.019958	0.137	0.138
307	228.8	73.1	79.8	106.3	72.4183	76.88728	78.2728	77.24872	77.02418	79.31105	77.47257	75.31063	75.27719	3.871399	3.89798	1.081123	1.3	0.440244	6.710432	13.33534	1.570343	0.991888	0	0.069438	0.020281	0.137	0.138
308	230.0	73.6	79.8	121.2	72.41378	76.69234	78.19165	77.06048	76.81355	79.18257	77.41589	75.12678	75.36107	3.85811	3.897737	1.078745	1.3	0.461788	6.643406	13.38145	1.571562	1.166784	0.041696	0.085407	0.019686	0.136	0.138
309	227.6	73.8	80.1	118.1	72.1608	76.40575	78.22633	77.40975	76.93398	79.16272	77.30205	75.09995	75.13345	3.844699	3.897834	1.077563	1.3	0.466701	6.595156	13.43629	1.570343	1.177367	0.044342	0.074093	0.019391	0.136	0.138
310	225.7	73.9	80.1	115.9	72.22673	76.1825	78.11018	77.12625	76.72197	79.07796	77.15697	75.25607	75.10215	3.866132	3.884618	1.076673	1.3	0.466701	6.631336	13.40194	1.571562	1.179525	0.044881	0.073029	0.019168	0.136	0.137
311	224.2	73.9	79.9	114.2	72.44489	76.38203	78.09552	77.29233	76.73006	79.04588	77.39263	75.27086	75.41814	3.847332	3.877815	1.076758	1.3	0.472078	6.669711	13.35497	1.475244	1.179549	0.044887	0.079366	0.01919	0.136	0.137
312	222.0	73.9	80.0	113.0	72.66274	76.44408	78.17765	77.35438	77.0071	79.32063	77.36179	75.34042	75.3806	3.845942	3.876473	1.075917	1.3	0.477357	6.669741	13.34857	1.471586	1.019406	0.004851	0.078302	0.018979	0.136	0.137
313	223.7	73.5	79.8	110.2	72.15354	76.69948	78.19877	77.30187	77.07182	79.35803	77.45998	75.6461	75.58588	3.844748	3.873864	1.079709	1.3	0.477345	6.656695	13.3614	1.470367	0.992144	0	0.07868	0.019927	0.136	0.137
314	226.4	73.6	79.5	107.2	72.18981	76.3667	78.10027	77.13644	76.87293	79.16853	77.27448	75.21963	75.12595	3.845967	3.87384	1.07977	1.3	0.474602	6.662913	13.35506	1.375269	0.992108	0	0.078079	0.019942	0.136	0.137
315	229.1	73.6	79.5	123.5	72.22983	76.39359	78.15393	77.21687	76.91324	79.13536	77.36163	75.2934	75.36036	3.844772	3.873864	1.080404	1.3	0.469261	6.588542	13.45138	1.375269	1.207859	0.051965	0.07277	0.020101	0.136	0.137
316	228.7	73.7	80.0	119.7	72.24471	76.49698	78.21046	77.16631	77.16699	79.20109	77.23387	75.37982	75.35976	3.833945	3.870963	1.076075	1.3	0.469274	6.541145	13.50545	1.378926	1.158554	0.039639	0.069377	0.019019	0.135	0.137
317	225.9	73.9	80.5	117.3	73.03008	76.74505	78.47862	77.56163	77.18793	79.34713	77.64303	75.46101	75.60159	3.839261	3.872474	1.076453	1.3	0.480088	6.528313	13.50956	1.37405	1.194972	0.048743	0.076339	0.019113	0.136	0.137
318	223.3	74.0	80.6	115.0	72.25987	76.31003	78.02351	77.1266	76.80405	79.06635	77.31269	75.1976	75.29134	3.847357	3.876425	1.076124	1.3	0.469274	6.522552	13.51621	1.37405	1.179415	0.044854	0.072029	0.019031	0.136	0.137
319	222.2	74.3	80.7	113.7	72.73495	76.83996	78.2991	77.55614	76.94737	79.20232	77.48278	75.44801	75.14014	3.844625	3.740702	1.073539	1.3	0.474589	6.595217	13.4265	1.375269	1.165211	0.041303	0.079186	0.018385	0.136	0.132
320	220.4	74.4	80.9	112.6	73.24572	76.71952	78.35268	77.52272	76.85143	79.15388	77.57425	75.24498	75.26508	3.839285	3.739142	1.073966	1.3	0.469274	6.581745	13.45138	1.282609	1.183121	0.04578	0.072526	0.018492	0.136	0.132
321	219.6	73.9	80.5	112.2	72.03281	76.81556	78.03374	77.3778	77.15501	79.28166	77.44946	75.2942	75.30762	3.828483	3.735192	1.076429	1.3	0.458813	6.554556	13.48265	1.282609	0.991974	0	0.070578	0.019107	0.135	0.132
322	222.9	73.7	80.1	107.4	72.41006	76.75064	78.25664	77.45344	77.19853	79.11946	77.20516	75.02984	75.26413	3.826216	3.879131	1.078709	1.3	0.47209	6.581806	13.43629	1.285047	0.992169	0	0.073831	0.019677	0.135	0.137
323	226.1	73.4	79.9	105.5	72.58679	76.89252	78.24458	77.38113	77.04153	79.24236	77.46314	75.40829	75.50872	3.831166	3.854991	1.079867	1.3	0.505265	6.575771	13.43629	1.183853	0.99212	0	0.070932	0.019967	0.135	0.136
324	227.2	74.0	80.0	121.1	72.44318	76.49108	78.14433	77.18719	76.85561	79.25043	77.63197	75.36294	75.28934	3.828361	3.849432	1.077185	1.3	0.51002	6.522552	13.48947	1.182634	1.160481	0.04012	0.083209	0.019296	0.135	0.136
325	225.7	74.1	80.0	117.5	72.21227	76.29134	78.33949	77.25517	76.87195	79.10745	77.44751	75.3525	75.24544	3.833775	3.852528	1.076831	1.3	0.512482	6.508013	13.50953	1.180195	1.194484	0.048621	0.075406	0.019208	0.135	0.136
326	223.9	74.3	80.5	115.8	72.68102	76.6935	78.32666	77.33605	76.86095	79.23591	77.51015	75.4553	75.52225	3.83909	3.854918	1.075515	1.3	0.510007	6.522583	13.48947	1.180195	1.160164	0.040041	0.086602	0.018879	0.136	0.136
327	222.2	74.2	80.6	113.9	72.7626	76.80157	78.28748	77.54453	77.11016	79.20444	77.62549	75.5171	75.35648	3.839212	3.853601	1.076258	1.3	0.505252	6.534775	13.46957	1.182634	1.200897	0.050224	0.083602	0.019065	0.136	0.136
328	220.1	74.5	80.4	112.6	73.14738	76.69408	78.34063	77.41026	76.95737	79.02554	77.57978	75.31075	75.27061	3.833872	3.854991	1.07521	1.3	0.505252	6.581776	13.41187	1.072905	1.165955	0.041489	0.078561	0.018802	0.135	0.136
329	220.4	74.5	80.4	111.7	72.37487	76.81374	78.55401	77.58348	76.97048	79.23831	77.5929	75.43095	75.53139	3.825679	3.854918	1.077173	1.3	0.512482	6.669681	13.32129	1.070466	0.991937	0	0.07334	0.019293	0.135	0.136
330	223.8	73.7	80.0	107.3	72.45922	76.81445	78.32714	77.42354	77.08153	79.3148	77.40274	75.28096	75.42824	3.82307	3.833192	1.077685	1.3	0.529478	6.723996	13.24307	0.97293	0.992071	0	0.070932	0.019421	0.135	0.135
331	226.4	73.9	79.8	105.7	72.56441	76.57301	78.34004	77.22896	77.03992	79.25398	77.44816	75.42678	75.2394	3.831214	3.83324	1.079684	1.3	0.525869	6.66965	13.30784	0.979026	1.013444	0.003361	0.078144	0.019921	0.135	0.135
332	227.2	74.2	79.9	120.5	72.51736	76.54803	78.24814	77.20398	76.94465	79.28543	77.48675	75.37835	75.2646	3.831068	3.830558	1.076978	1.3	0.512458	6.623411	13.37459	0.974149	1.220393	0.055098	0.072169	0.019244	0.135	0.135
333	225.3	74.3	80.5	117.4	72.6213	76.81528	78.64256	77.46453	77.09419	79.30089	77.49573	75.30032	75.28696	3.835213	3.830656	1.075966	1.3	0.515213	6.623442	13.37463	0.976587	1.178635	0.044659	0.077473	0.018991	0.135	0.135
334	223.3	74.2	80.4	115.4	72.68861	76.79182	78.41829	77.35406	77.06118	79.14943	77.60997	75.29408	75.47483	3.833775	3.833265	1.075929	1.3	0.507496	6.602593	13.40187	0.975368	1.164687	0.041172	0.065058	0.018982	0.135	0.135
335	221.6	74.3	80.6	113.7	72.52605	76.50262	78.34998	77.33259	77.15399	79.32685	77.52206	75.56092	75.39362	3.829897	3.830583	1.074685	1.3	0.502095	6.623472	13.37463	0.974149	1.218149	0.054537	0.075004	0.018671	0.135	0.135
336	220.2	74.5	80.2	112.2	72.56047	76.7346	78.2339	77.48425	76.96416	79.17927	77.55981	75.43802	75.39789	3.833823	3.831948	1.075978	1.3	0.502095	6.676477	13.32125	0.87905	1.052471	0.013118	0.079549	0.018994	0.135	0.135
337	220.7	74.0	80.0	109.9	72.18629	76.96837	78.27357	77.42352	77.11736	79.27753	77.5122	75.26325	75.36368	3.825679	3.830534	1.078477	1.3	0.507508	6.669681	13.32138	0.87905	0.991937	0	0.068167	0.019619	0.135	0.135
338	224.0	73.6	79.3	106.7	72.16064	76.75175	78.17743	77.2002	76.98961	79.0444	77.5451	75.26267	75.20915	3.83653	3.827754	1.080538	1.3	0.510007	6.662883	13.33884	0.781514	0.991925	0	0.069042	0.020134	0.135	0.135
339	227.1	74.1	79.5	122.7	72.73378	76.59296	78.35329	77.50994	77.109	79.55307	77.73811	75.58955	75.52265	3.833775	3.82512	1.080013	1.4	0.522955	6.494632	13.51925	0.783952	1.19919	0.049798	0.091101	0.020003	0.135	0.135
340	226.4	74.2	79.6	118.6	72.93791	76.8016	78.6088	77.61149	77.19619	79.36845	77.51071	75.44917	75.47598	3.823094	3.827754	1.07688	1.3	0.552143	6.360794	13.64605	0.783952	1.19435	0.048588	0.081947	0.01922	0.135	0.135
341	224.6	74.1	79.8	116.1	73.37804	76.50142	78.32201	77.61251	77.0461	79.39864	77.64843	75.32584	75.46643	3.833799	3.830485	1.076673	1.4	0.559983	6.333179	13.66848	0.783952	1.207189	0.051797	0.087544	0.019168	0.135	0.135
342	221.3	74.3	79.8	114.3	72.64366	76.54917	78.38313	77.36576	77.11852	79.39746	77.54013	75.37819	75.27113	3.831092	3.829193	1.076185	1.3	0.557508	6.271975	13.7249	0.78639	1.186511	0.046628	0.074718	0.019046	0.135	0.135
343	220.4	74.3	79.8	112.9	72.95986	76.46558	78.48028	77.25539	76.93353	79.24147	77.40201	75.38062	75.26017	3.833726	3.831924	1.075112	1.3	0.562714	6.346407	13.62514	0.782733	1.161029	0.040257	0.082871	0.018778	0.135	0.135
344	218.9	74.3	79.9	111.6	73.02342	76.66125	78.55547	77.44437	77.14285	79.28947	77.50423	75.35567	75.38917	3.829556	3.829314	1.074088	1.3	0.559678	6.366859	13.60457	0.780294	1.187913	0.046978	0.081548	0.018522	0.135	0.135
345	220.5	74.0	79.9	110.0	72.79305	76.80732	78.47396	77.41642	77.06709	79.48534	77.52887	75.36023	75.42719	3.828215	3.830509	1.077794	1.3	0.547437	6.346407	13.62517	0.676662	0.991718	0	0.079454	0.019449	0.135	0.135
346	222.9	73.5	79.4	106.5	72.58888	76.67585	78.44288	77.31171	77.08266	79.34892	77.52437	75.46282	75.36245	3.829654	3.833216	1.079879	1.4	0.554667	6.373717	13.58445	0.676662	0.99212	0	0.08833	0.01997	0.135	0.135
347	226.4	73.6	79.3	105.0	72.78506	76.61794	78.41844	77.38097	77.19388	79.42558	77.408	75.58073	75.76817	3.83375	3.827827	1.083708	1.3	0.544304	6.313123	13.66845	0.581563	1.021734	0.005434	0.081292	0.020927	0.135	0.135
348	225.8	74.3	79.4	119.9	72.48335	76.59107	78.31795	77.41435	77.11591	79.43449	77.58439	75.54962	75.5965	3.828313	3.831558	1.078709	1.3	0.528186	6.271944	13.72499	0.579125	1.191168	0.047792	0.082868	0.019677	0.135	0.135
349	224.2	74.5	79.7	116.9	73.04674	76.72321	78.59064	77.29214	76.95287	79.47832	77.47488	75.40665	75.47361	3.828288	3.831851	1.077136	1.3	0.517615	6.26539	13.7378	0.584002	1.200495	0.050124	0.080868	0.019284	0.135	0.135
350	222.3	74.4	79.8	114.6	72.52963	76.29646	78.19736	77.31385	77.0289	79.3355	77.4706	75.50276	75.42248	3.824411	3.830534	1.075746	1.3	0.509995	6.252833	13.7581	0.584002	1.187315	0.046829	0.076598	0.018937	0.135	0.135
351	221.2	74.1	79.8	114.0	72.57483	76.53121	78.5526	77.22062	77.15044	79.39595	77.48505	75.39674	75.4637	3.83119	3.83324	1.077734	1.3	0.502095	6.26539	13.73146	0.581563	0.991815	0	0.081155	0.019433	0.135	0.135
352	223.5	73.8	79.5	108.9	72.51122	76.60687	78.52785	77.43684	76.91683	79.29759	77.45222	75.3773	75.46434	3.831166	3.826437	1.080343	1.3	0.493768	6.252924	13.75803	0.469396	0.992047	0	0.073965	0.020086	0.135	0.135
353	226.6	73.7	78.9	106.5	72.68941	76.37341	78.22076	77.21007	76.87151	79.2859	77.28643	75.27174	75.27847	3.833823	3.827657	1.080769	1.3	0.485489	6.271975	13.7449	0.474273	0.991876	0	0.081164	0.020192	0.135	0.135
354	227.7	74.2	79.5	122.0	73.25424	76.51222	78.42651	77.40244	77.00204	79.44761	77.41026	75.51606	75.45585	3.839188	3.830607	1.079062	1.3	0.464092	6.200742	13.84375	0.473053	1.204921	0.05123	0.070075	0.019766	0.136	0.135
355	227.9	73.7	79.3	115.1	72.53935	76.32674	78.40167	77.29057	77.10162	79.361	77.46969	75.31444	75.47511	3.829556	3.830583	1.081428	1.3	0.474553	6.206289	13.83719	0.364544	0.992254	0	0.073709	0.020357	0.136	0.135
356	230.5	73.3	79.2	124.1	72.32059	76.15491	78.29678	77.21915	76.8409	79.17653	77.2625	75.33484	75.36163	3.824216	3.830583	1.082635	1.3	0.485477	6.225919	13.81052	0.368201	1.204836	0.051209	0.069728	0.020659	0.135	0.135
357	229.5	74.2	79.9	123.4	73.01899	76.42038	78.27443	77.33067	76.87646	79.42937	77.53234	75.52435	75.56454	3.831043	3.83324	1.077965	1.3	0.464104	6.172213	13.87157	0.369421	1.010274	0.002568	0.078796	0.019491	0.135	0.135
358	230.8	73.9	79.8	116.7	72.87231	76.64906	78.46294	77.46564	77.13272	79.45766	77.4941	75.52627	75.7271	3.836457	3.833313	1.081391	1.3	0.466677	6.172243	13.8716	0.368201	0.992083	0	0.082874	0.020348	0.135	0.135
359	232.7	74.3	79.8	127.9	72.75126	76.62464	78.61925	77.40107	77.11965	79.33259	77.48103	75.62698	75.53331	3.836408	3.830583	1.081098	1.3	0.461739	6.185837	13.8574	0.271884	1.215284	0.053821	0.083054	0.020275	0.135	0.135

Raw Data

Reading Interval	1	Minutes																		8.300367		0.037412				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29				
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
360	230.3	74.3	80.3	124.9	73.01802	76.398	78.34576	77.44217	76.8708	79.23241	77.45306	75.29111	75.48525	3.833726	3.827681	1.079282	1.3	0.458776	6.138075	13.90416	0.271884	0.991876	0	0.070255	0.01982	0.135	0.135
361	232.5	74.0	80.1	116.4	72.63667	76.68444	78.3243	77.37386	76.91399	79.242	77.29544	75.49494	75.30756	3.829654	3.829241	1.079745	1.3	0.447791	6.098512	13.95695	0.273103	0.992157	0	0.068981	0.019936	0.135	0.135
362	233.5	74.1	80.3	127.5	72.36194	76.61238	78.50658	77.40888	76.82471	79.34535	77.61446	75.51944	75.41908	3.83375	3.830558	1.079904	1.3	0.469225	6.238781	13.77815	0.274322	1.190022	0.047506	0.072718	0.019976	0.135	0.135
363	232.7	74.3	80.9	124.3	72.65336	76.61871	78.49953	77.58254	77.07977	79.37246	77.6888	75.47331	75.66745	3.833677	3.827657	1.07944	1.3	0.536233	6.313031	13.68001	0.170689	0.992108	0	0.071231	0.01986	0.135	0.135
364	234.4	73.8	80.7	116.3	72.36971	76.61192	78.31203	77.549	76.9068	79.3603	77.50913	75.31372	75.50786	3.836481	3.827803	1.081659	1.3	0.554679	6.353235	13.61831	0.171909	0.992461	0	0.065924	0.020415	0.135	0.135
365	235.4	74.6	80.7	126.3	72.92818	76.82324	78.57689	77.4658	77.01312	79.37934	77.44813	75.51376	75.60749	3.832287	3.82634	1.079599	1.3	0.549559	6.339427	13.63188	0.16947	1.182926	0.045732	0.075806	0.0199	0.135	0.135
366	233.4	74.4	80.5	123.2	72.90173	76.93182	78.4579	77.49406	76.88686	79.13576	77.63646	75.44774	75.48123	3.833701	3.827705	1.080989	1.3	0.528174	6.271914	13.71195	0.168251	0.991791	0	0.084861	0.020247	0.135	0.135
367	234.9	73.5	79.7	115.7	72.67232	76.65783	78.2843	77.4878	76.83732	79.0996	77.56683	75.43835	75.51201	3.828215	3.825096	1.084159	1.4	0.520261	6.339397	13.63188	0.070714	0.992193	0	0.089092	0.02104	0.135	0.135
368	235.7	74.1	80.4	125.3	73.64874	76.60694	78.39405	77.35659	77.11289	79.19392	77.50773	75.35918	75.64033	3.822997	3.822365	1.081123	1.3	0.522919	6.346346	13.62517	0.074372	1.179256	0.044814	0.072249	0.020281	0.135	0.135
369	234.0	74.2	80.7	121.5	72.979	76.59164	78.35867	77.38145	76.77451	79.11041	77.50401	75.35546	75.42242	3.825557	3.824218	1.081159	1.3	0.533367	6.360764	13.61828	0.073153	0.991925	0	0.068545	0.02029	0.135	0.135
370	235.7	74.0	80.7	127.8	72.74276	76.63534	78.45592	77.52555	76.90396	79.13947	77.79411	75.33097	75.53849	3.828142	3.825096	1.082476	1.3	0.525796	6.339397	13.63944	0.070714	1.189376	0.047344	0.07359	0.020619	0.135	0.135
371	234.6	74.0	80.6	124.2	73.10979	76.36092	78.06772	77.1842	76.70206	79.03127	77.5989	75.34325	75.28304	3.831166	3.822341	1.079562	1.3	0.517591	6.30721	13.67998	0.073153	1.203336	0.050834	0.065769	0.019891	0.135	0.135
372	233.9	73.9	80.5	120.5	72.58088	76.75453	78.50818	77.39709	76.96682	79.32709	77.81681	75.28004	75.52772	3.82563	3.821146	1.081172	1.3	0.512434	6.271852	13.71186	-0.02195	0.991876	0	0.074855	0.020293	0.135	0.135

Summary

EPA Method 28 OWHH Testing Parameters

Manufacturer	HY-C
Model Number	SF1000E
Test Technician	Ken Slater

Category	Cat 2
Run Number	6
Test Date	10/8/18
Total Test Fuel Weight (lb)	36.43
Avg. Test Fuel Moisture (% dry)	22.85

Test Duration (min)	372	
Burn Rate (kg/hr)		
Emissions (g)	9.23	Train 2
Beginning Dry Gas Meter Reading (ft3)	0	0
Final Dry Gas Meter Reading (ft3)	50.49773	50.505574
Average Barometric Pressure (“Hg)	29.045	
Average Delta p (inches of water)	0.077	

Average Gas Velocity in Tunnel (feet/sec)	17			
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	807.9821			
	kJ	**Btu**		
Total Input	265761	252061		
Total Output	144,942	137470	**kW**	
Output Rate (kJ/hr, BTU/hr, kW)	23,378	22173	6.49	
Emissions g/MJ	**0.063648**		0.4	B415.1-2010 Limit
Emissions lb/MMBtu Input	**0.080688**			
Emissions lb/MMBtu Output	**0.147946**		0.93	EPA 2015 Proposed Limit
Emissions g/hr	**1.487937**			
Efficiency	**54.5%**			

Raw Data

Reading Interval	1	Minutes																			10.60941		0.032415					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
0	534.8	77.5	117.7	148.6	75.4	80.30051	78.23518	77.51902	79.96325	80.77496	78.09	77.41	76.98	0.02	0.02	1.1679	1.2524	-0.00129	8.817023	11.52858	36.23072	1.203993	0.050998	0.063098	0.041969	0.001	0.001
1	615.4	77.4	122.3	146.9	75.6	79.41348	79.06908	80.91153	79.58269	80.335	79.84	77.64	80.99	3.94	3.92	1.1884	1.2641	0.053693	4.278119	16.60017	35.84546	1.181608	0.045402	0.066015	0.047093	0.139	0.138
2	753.4	77.3	132.2	149.8	75.6	79.29374	79.46532	83.27972	79.61332	80.689	81.78	77.57	83.58	3.90	3.90	1.2082	1.2776	0.096231	4.518635	16.12847	35.3395	1.164662	0.041165	0.069408	0.052058	0.138	0.138
3	808.4	77.6	139.3	154.4	77.0	79.34613	79.82127	85.17992	79.59351	80.82758	83.02	77.75	85.41	3.93	3.91	1.21	1.2761	-0.00129	8.289082	12.09297	34.73844	1.209821	0.052455	0.069036	0.052	0.139	0.138
4	671.4	77.6	117.6	157.0	76.6	79.32655	80.07227	85.24613	79.65394	81.10578	83.78	77.87	85.75	3.93	3.94	1.20	1.2922	-0.00132	10.30767	10.09286	34.23979	1.165015	0.041254	0.073056	0.049687	0.139	0.139
5	627.0	78.5	110.9	158.2	76.2	79.56588	79.96183	84.64735	79.64624	81.23007	83.47	78.12	84.68	3.95	3.92	1.19	1.3044	1.721727	11.87878	7.701509	33.92767	1.204151	0.051038	0.076095	0.048355	0.140	0.138
6	609.1	77.3	108.4	158.3	76.8	79.41695	80.19567	84.37304	79.62263	81.18007	82.96	77.83	84.10	3.97	3.90	1.19	1.3018	1.351164	13.45209	6.423492	33.53387	1.170794	0.042699	0.075452	0.048373	0.140	0.138
7	601.0	77.5	106.7	158.2	75.7	79.43531	80.27343	84.29241	79.42358	81.113	82.88	77.96	84.02	3.90	3.88	1.19	1.3043	1.094961	13.60135	6.543399	33.22908	1.216295	0.054074	0.07607	0.046301	0.138	0.137
8	596.6	77.8	106.3	158.7	76.1	79.28233	80.29202	84.3572	79.66002	81.19765	82.79	78.15	84.29	3.92	3.91	1.19	1.2732	0.918397	13.59431	6.685191	32.82431	1.208065	0.052016	0.068298	0.048074	0.138	0.138
9	595.3	77.6	105.7	158.9	76.5	79.27605	80.24615	84.21895	79.53192	81.20814	82.85	78.02	83.83	3.90	3.89	1.19	1.2970	0.761901	13.70428	6.671323	32.52926	1.209418	0.052355	0.074254	0.047623	0.138	0.137
10	593.1	77.3	105.1	158.6	75.3	79.11395	80.11765	84.44681	79.52935	81.16597	82.92	77.94	84.06	3.90	3.88	1.18	1.2822	0.581886	13.68279	6.801014	32.13546	1.201786	0.050447	0.070538	0.046136	0.138	0.137
11	591.2	77.4	104.9	158.6	75.8	79.35167	80.22938	84.57832	79.59367	81.1643	82.99	78.01	84.15	3.90	3.86	1.19	1.2888	0.448006	13.52006	7.066006	31.8392	1.200835	0.050209	0.072193	0.047611	0.138	0.136
12	587.3	77.4	105.2	158.4	76.6	79.51457	80.51767	85.00521	79.80201	81.24065	83.27	78.01	84.40	3.91	3.94	1.18	1.3160	0.349934	13.4385	7.193594	31.52465	1.199409	0.049852	0.079012	0.045792	0.138	0.139
13	581.7	78.0	104.4	157.9	76.2	79.35971	80.67297	85.16051	79.7235	81.51851	83.45	77.98	84.20	3.90	3.92	1.19	1.3059	0.256263	13.21663	7.499337	31.23448	1.188814	0.047203	0.076473	0.046493	0.138	0.138
14	575.4	77.3	104.1	157.5	76.2	79.23451	80.3036	84.98251	79.53926	81.30127	83.29	78.19	84.15	3.91	3.91	1.18	1.2683	0.208178	12.78035	7.972779	30.9248	1.240093	0.060023	0.067085	0.046115	0.138	0.138
15	568.0	77.9	103.8	157.1	75.8	79.55501	80.5713	85.21062	79.97411	81.32036	83.56	78.17	84.12	3.92	3.90	1.18	1.2853	0.163848	12.51127	8.246792	30.63342	1.182828	0.045707	0.071337	0.046154	0.138	0.138
16	564.7	77.4	103.4	155.8	75.8	79.30595	80.34865	85.27834	79.77004	81.20209	83.60	78.12	84.06	3.93	3.89	1.18	1.2751	0.109569	12.16978	8.6227	30.33106	1.175512	0.043878	0.068774	0.045048	0.139	0.137
17	559.1	76.7	102.9	155.1	74.6	79.15492	80.45502	85.29892	79.72675	81.34357	83.39	78.22	84.56	3.93	3.92	1.18	1.2837	0.099072	11.86126	8.922468	30.04089	1.19964	0.04991	0.070913	0.044258	0.139	0.138
18	553.8	77.7	102.6	154.5	75.8	79.43961	80.4889	85.56378	79.77265	81.36967	83.81	78.33	84.38	3.93	3.96	1.18	1.3143	0.083222	11.60578	9.183223	29.72878	1.180084	0.045021	0.078576	0.044847	0.139	0.140
19	551.9	77.2	102.2	153.4	75.0	79.52298	80.56567	85.73294	80.03903	81.40508	83.70	78.11	84.64	3.92	3.96	1.18	1.2858	0.090867	11.56018	9.223455	29.52517	1.190728	0.047682	0.071456	0.045164	0.138	0.140
20	548.0	77.2	101.7	152.6	75.1	79.2934	80.51427	85.68813	79.88709	81.20695	83.71	78.29	84.52	3.93	3.95	1.18	1.2888	0.056595	11.35243	9.438399	29.22159	1.197458	0.049364	0.072209	0.044088	0.139	0.139
21	476.9	77.0	97.8	150.8	75.7	79.31034	80.57081	85.5203	79.93266	81.3515	83.61	78.29	84.11	3.93	3.94	1.16	1.2792	0.04828	11.14529	9.643711	29.03018	1.185546	0.046387	0.069804	0.041055	0.139	0.139
22	443.5	77.1	95.9	149.2	75.5	79.35612	80.50439	85.10412	79.73835	81.45416	83.51	78.11	83.82	3.92	3.93	1.16	1.2977	0.829969	11.24468	9.270151	28.83755	1.194739	0.048685	0.074425	0.040339	0.138	0.139
23	423.2	76.9	94.3	146.8	74.9	79.32291	80.47118	84.84653	80.01563	81.1573	83.31	78.09	83.44	3.93	3.93	1.15	1.3149	1.490457	10.84421	9.464307	28.62541	1.215856	0.053964	0.078725	0.038687	0.139	0.139
24	409.4	76.7	93.5	144.9	74.9	79.34093	80.61459	84.87776	79.76144	81.33866	83.46	78.18	83.57	3.93	3.92	1.15	1.2609	1.238961	10.33416	10.02815	28.4279	1.181474	0.045369	0.065232	0.037376	0.139	0.138
25	397.7	76.9	92.6	142.9	75.8	79.27071	80.57737	84.64256	79.75151	81.26274	83.28	78.29	83.49	3.94	3.92	1.15	1.2905	1.060714	9.902745	10.48126	28.23527	1.207602	0.0519	0.072629	0.038467	0.139	0.138
26	386.5	76.4	92.2	141.0	75.1	79.26285	80.59591	84.48291	79.80999	81.18924	83.14	78.26	83.37	3.93	3.91	1.15	1.3235	1.057752	9.305037	11.05203	28.1231	1.17305	0.043262	0.080865	0.036736	0.139	0.138
27	377.0	76.9	91.3	142.2	75.1	79.29605	80.56972	84.5821	79.88368	81.4741	83.01	78.41	83.16	3.94	3.94	1.14	1.3310	1.12677	8.755058	11.56275	27.93169	0.991365	0	0.082749	0.035532	0.139	0.139
28	372.0	76.5	90.8	146.0	75.4	79.41222	80.77828	84.59269	80.06613	81.61696	83.34	78.46	83.29	3.93	3.94	1.14	1.2734	1.207176	8.325414	11.91897	27.74027	1.194678	0.04867	0.068341	0.035477	0.139	0.139
29	364.0	76.7	90.5	141.3	74.7	79.16992	80.50298	84.2646	79.85892	81.34375	83.03	78.18	83.03	3.94	3.93	1.13	1.3008	1.17505	7.996385	12.25117	27.64152	1.180243	0.045061	0.075205	0.033447	0.139	0.139
30	407.1	76.9	93.1	140.1	75.2	79.15423	80.34875	84.25555	79.87117	81.3494	83.12	78.29	83.15	3.94	3.93	1.15	1.2981	1.126746	7.62194	12.67276	27.42328	0.999448	0	0.074537	0.036913	0.139	0.139
31	430.0	76.4	93.6	145.0	75.5	79.06723	80.54014	84.43374	80.0667	81.41955	83.06	78.06	83.35	3.90	3.93	1.15	1.2892	0.945159	7.061355	13.26285	27.23553	1.208187	0.052047	0.072306	0.038367	0.138	0.139
32	445.5	77.1	95.2	140.9	75.8	79.06246	80.51564	84.46204	79.83369	81.42411	83.18	78.41	83.48	3.90	3.92	1.15	1.2933	0.761828	7.000273	13.25584	27.0368	1.190923	0.047731	0.073327	0.03837	0.138	0.138
33	458.8	76.5	95.2	137.9	75.3	78.96067	80.24369	84.49366	79.57255	81.21576	82.96	78.05	83.43	3.85	3.92	1.16	1.2989	0.755915	7.474387	12.72479	26.81978	1.152055	0.038014	0.074735	0.040074	0.136	0.138
34	472.5	75.9	95.4	141.0	75.3	79.20889	80.55515	84.67973	79.7855	81.37592	83.30	78.04	83.77	3.84	3.92	1.16	1.2902	0.705074	8.050059	12.16689	26.5284	1.218501	0.054625	0.072544	0.041012	0.136	0.138
35	481.9	76.6	95.5	142.2	74.8	78.99435	80.56067	84.56646	79.67509	81.3843	83.38	78.14	83.58	3.84	3.91	1.16	1.2751	0.622035	8.473516	11.79089	26.41745	1.200506	0.050126	0.06878	0.040784	0.136	0.138
36	487.5	76.5	96.3	139.8	75.3	79.24274	80.66819	84.96436	80.12483	81.45128	83.70	78.32	84.01	3.85	3.91	1.16	1.3142	0.533509	8.883043	11.44824	26.12972	1.205761	0.05144	0.078545	0.040707	0.136	0.138
37	494.8	76.1	96.3	142.1	74.7	79.11867	80.53146	84.86722	79.82146	81.29969	83.49	78.24	83.93	3.85	3.85	1.17	1.2923	0.453346	9.049433	11.35466	25.93831	1.207711	0.051928	0.073065	0.042634	0.136	0.136
38	498.0	76.5	95.9	144.1	74.6	79.15613	80.62779	84.87775	79.79605	81.28747	83.40	78.14	83.82	3.84	3.84	1.17	1.2893	0.405359	9.08991	11.34805	25.72861	1.183791	0.045948	0.072318	0.041658	0.136	0.136
39	438.7	76.4	92.8	141.0	74.4	79.42719	80.46988	84.64725	79.92298	81.50021	83.34	78.26	83.93	3.85	3.84	1.15	1.3183	0.381524	9.237066	11.2086	25.52988	1.166088	0.041522	0.079566	0.037254	0.136	0.135
40	409.0	76.0	91.1	134.5	75.1	79.3203	80.51477	84.57996	80.02713	81.39317	83.41	78.31	83.56	3.85	3.84	1.15	1.2598	0.702489	9.741598	10.63421	25.22142	0.991438	0	0.064961	0.036254	0.136	0.136
41	387.7	76.0	90.1	143.9	74.0	78.94243	80.41048	84.2381	79.8138	81.36462	82.98	78.19	83.17	3.85	3.83	1.14	1.3015	1.215016	9.440123	10.84068	25.11901	1.201055	0.050264	0.075372	0.035995	0.136	0.135
42	369.5	76.6	90.0	140.2	74.7	78.92739	80.44845	84.03189	79.80141	81.14104	83.02	78.10	83.05	3.85	3.84	1.13	1.3635	1.311637	8.432734	11.85785	25.02147	1.005044	0.001261	0.090874	0.033405	0.136	0.135
43	356.2	76.0	89.2	145.1	75.0	78.91142	80.35352	84.04914	79.76766	81.41087	82.77	78.10	83.15	3.84	3.83	1.14	1.2862	1.236388	7.730204	12.60001	24.83006	1.205834	0.051458	0.07155	0.034221	0.136	0.135
44	343.5	76.4	88.5	140.0	74.9	78.9789	80.42665	83.78571	79.82573	81.74612	82.93	78.28	83.09	3.84	3.83	1.13	1.3176	1.142949	7.199154	13.17452	24.73375	1.199945	0.049986	0.079411	0.033213	0.136	0.135
45	333.1	75.6	88.4	136.6	75.2	78.80997	80.38548	83.56635	79.59846	81.34726	82.69	77.98	82.77	3.84	3.83	1.13	1.3052	1.081672	6.696999	13.70587	24.52526	0.991426	0	0.07629	0.032082	0.136	0.135
46	372.3	76.2	90.2	140.7	74.8	78.73015	80.18798	83.60645	79.46041	81.3214	82.74	77.95	82.66	3.84	3.83	1.14	1.3894	1.018823	6.481506	13.91737	24.42895	1.192081	0.04802	0.097345	0.034331	0.136	0.135
47	387.9	75.8	91.3	138.7	74.6	78.82835	80.331	83.71646	79.55274	81.32133	82.65	78.05	82.99	3.84	3.83	1.14	1.3046	0.83604	5.789797	14.66361	24.23266	0.991182	0	0.076162	0.035669	0.136	0.135
48	397.8	75.7	90.9	142.0	75.6	78.81315	80.31602	83.80046	79.71523	81.25284	82.72	77.93	82.84	3.84	3.83	1.14	1.3015	0.69465	5.688817	14.66355	24.13634	1.191008	0.047752	0.075375	0.036041	0.136	0.135
49	407.3	75.9	92.0	136.3	75.4	78.77088	80.43272	84.04256	79.83945	81.50246	82.88	77.93	83.13	3.85	3.83	1.14	1.3250	0.68425	5.932107	14.37667	23.93274	1.182633	0.045658	0.08124	0.036047	0.136	0.135
50	426.8	76.2	92.6	129.4	75.0	79.00658	80.63873	84.18917	79.90001	81.48383	82.88	78.14	83.27	3.85	3.83	1.15	1.2843	0.70505	6.339897	13.93133	23.73279	0.99145	0	0.071084	0.038025	0.136	0.135
51	447.4	76.0	93.1	138.7	74.9	78.9504	80.35236	83.9292	79.68179	81.3976	82.78	77.84	83.13	3.85	3.83	1.15	1.3129	0.684238	7.018744	13.21548	23.53894	1.18245	0.045612	0.078222	0.038138	0.136	0.135
52	461.5	75.5	93.4	135.2	75.0	78.72617	80.38203	84.23604	79.86166	81.32008	83.15	78.10	83.21	3.85	3.83	1.16	1.3265	0.549675	7.782172	12.49199	23.32924	0.991389	0	0.08163	0.040186	0.136	0.135
53	475.9	76.0	93.6	143.0	75.0	78.78952	80.20692	84.08733	79.78455	81.12418	82.92	77.92	83.35	3.85	3.85	1.17	1.3033	0.416454	8.439836	11.89912	23.13051	1.204871	0.051218	0.075836	0.041619	0.136	0.136
54	483.8	76.1	95.1	138.8	75.5	78.7386	80.26891	84.22851	79.78377	81.45998	83.05	78.01	83.57	3.85	3.85	1.16	1.2993	0.347167	8.883043	11.51011	22.93544	1.042352	0.010588	0.074815	0.040378	0.136	0.136
55	493.1	75.8	94.9	130.8	74.9	78.85255	80.37466	84.26826	79.93873	81.39715	83.13	78.02	83.71	3.85	3.85	1.17	1.2805	0.274673	9.237036	11.22119	22.6282	1.181743	0.045436	0.070127	0.041704	0.136	0.136
56	498.3	76.2	95.3	143.2	75.1	78.95122	80.38615	84.42494	79.68594	81.33575	83.26	78.01	83.67	3.85	3.85	1.17	1.3169	0.168554	9.539243	10.99454	22.42947	1.174525	0.043631	0.079234	0.041381	0.136	0.136
57	502.9	76.0	95.9	141.5	75.3	78.82903	80.47026	84.35066	79.78358	81.22221	83.45	77.86	83.73	3.85	3.85	1.17	1.3261	0.099035	9.801095	10.80051	22.21977	0.997254	0	0.081517	0.042012	0.136	0.136
58	508.3	76.0	95.6	147.6	74.9	78.89217	80.40053	84.51851	79.85622	81.27505	83.43	78.07	83.72	3.84	3.85	1.17	1.2782	0.064203	9.995465	10.64226	21.93204	1.178512	0.044628	0.069548	0.043533	0.135	0.136
59	514.4	76.0	95.8	145.3	75.5	78.92657	80.32887	84.71742	79.75885	81.46805	83.37	78.07	83.96	3.84	3.85	1.17	1.2797	0.045769	10.18508	10.48696	21.726	1.164966	0.041242	0.06992	0.042875	0.136	0.136
60	516.9	76.3	96.3	142.3	75.0	78.92826	80.39651	84.5607	79.94096	81.35979	83.45	78.12	83.85	3.84	3.85	1.17	1.3350	0.032614	10.37311	10.31442	21.53093	1.198068	0.049517	0.083754	0.042634	0.136	0.136
61	519.5	75.6	96.1	138.7	75.1	78.98618	80.48662	84.87517	79.9285	81.52551	83.52	78.03	82.86	3.85	3.85	1.18	1.3083	0.032626	10.5131	10.19479	21.11762	0.991487	0	0.077067	0.045164	0.136	0.136
62	525.4	76.0	96.5	148.8	75.7	78.96076	80.77172	84.96889	80.1815	81.62673	83.71	78.13	82.41	3.85	3.84	1.17	1.2486	0.029919	10.6737	10.03352	20.92499	1.222768	0.055692	0.062153	0.042786	0.136	0.136
63	526.1	76.7	97.3	145.5	75.3	78.94222	80.41028	84.85823	79.92308	81.57949	83.78	78.22	82.31	3.85	3.84	1.17	1.2757	0.027127	10.85375	9.865695	20.7287	1.190935	0.047734	0.068932	0.041869	0.136	0.136
64	526.6	76.7	97.2	143.8	74.9	79.261	80.78544	84.94962	80.05879	81.67561	83.99	78.00	81.92	3.85	3.84	1.17	1.3006	0.035588	10.9233	9.79925	20.42025	1.197434	0.049358	0.07515	0.04321	0.136	0.136
65	529.0	76.7	97.8	144.4	75.1	79.06854	80.59423	84.99598	80.0808	81.54583	83.74	77.95	81.78	3.84	3.84	1.18	1.3103	0.03265	11.00834	9.717411	20.12764	1.00035	8.76E-05	0.077567	0.044167	0.136	0.136
66	469.8	76.5	93.7	151.9	75.5	79.26201	80.60826	84.91103	80.28339	81.67582	83.75	78.11	81.87	3.84	3.84	1.16	1.2912	0.021811	11.06226	9.65947	19.91916	1.187582	0.046896	0.072794	0.040775	0.136	0.135
67	438.0	76.2	91.9	147.5	75.0	79.36905	80.65591	84.50332	80.13978	81.52562	83.73	78.02	81.76	3.84	3.83	1.16	1.2709	0.620559	11.3032	9.242323	19.7314	1.17639	0.044098	0.067716	0.039278	0.136	0.135
68	421.4	76.2	91.4	144.2	75.2	79.23117	80.61702	84.54362	80.0343	81.57192	83.36	78.21	81.64	3.85	3.84	1.15	1.2815	1.105861	11.15757	9.337328	19.53755	1.200994	0.050248	0.070386	0.038019	0.136	0.135
69	409.5	76.5	90.6	141.6	74.8	79.13384	80.40784	84.16946	79.8854	81.35703	83.18	77.99	81.47	3.84	3.83	1.14	1.3477	0.841527	10.74073	9.826041	19.43636	1.177487	0.044372	0.086936	0.035825	0.136	0.135
70	402.3	76.1	90.0	139.2	75.3	79.21514	80.6208	84.18443	79.9947	81.61811	83.29	78.18	81.64	3.84	3.83	1.15	1.2919	0.587434	10.51316	10.11292	19.12303	0.99167	0	0.072983	0.03833	0.136	0.135
71	398.3	76.6	89.7	146.0	75.9	79.27278	80.65863	84.04409	80.0277	81.43333	83.23	78.17	81.49	3.84	3.83	1.15	1.3098	0.42183	10.09078	10.58026	19.02671	1.197421	0.049355	0.077451	0.036367	0.136	0.135

Raw Data

Reading Interval	1	Minutes																			10.60941		0.032415				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
72	391.3	76.3	89.9	142.1	75.0	79.37191	80.75117	84.29501	80.0306	81.57482	83.23	78.16	81.38	3.85	3.83	1.14	1.3465	0.402689	9.687131	10.96117	18.92186	1.201567	0.050392	0.086619	0.035285	0.136	0.135
73	384.4	77.2	90.1	139.4	76.4	79.18836	80.759	84.11145	80.11686	81.55549	83.05	78.18	81.54	3.85	3.83	1.14	1.2997	0.469318	9.250538	11.33528	18.71216	1.17628	0.04407	0.07493	0.03609	0.136	0.135
74	383.0	76.1	89.4	132.8	75.4	79.19136	80.49802	83.90987	79.78896	81.36617	83.08	77.96	81.35	3.84	3.83	1.14	1.2864	0.505321	8.963204	11.58887	18.61584	1.064407	0.016102	0.071611	0.035663	0.136	0.135
75	380.9	76.0	89.0	142.8	74.9	79.11166	80.76872	84.04199	80.00636	81.81456	83.00	78.06	81.33	3.84	3.83	1.14	1.3254	0.512538	8.762037	11.77669	18.52074	1.183193	0.045798	0.081343	0.035215	0.136	0.135
76	373.4	76.4	89.2	139.1	75.6	78.92542	80.69069	83.91116	79.91994	81.56315	82.83	78.03	81.28	3.84	3.83	1.14	1.2751	0.477401	8.576233	11.97636	18.32933	1.164064	0.041016	0.068764	0.034804	0.136	0.135
77	369.8	76.3	88.9	132.9	75.3	78.99476	80.84485	83.77496	80.04496	81.60238	83.09	78.31	81.35	3.85	3.83	1.14	1.2715	0.499347	8.378876	12.14482	18.22936	1.145764	0.036441	0.067887	0.034801	0.136	0.135
78	366.6	76.3	88.7	142.0	74.8	79.00359	80.61597	83.72426	79.93847	81.67406	82.91	78.16	81.32	3.85	3.83	1.14	1.3271	0.613842	8.145247	12.33517	18.01722	1.181657	0.045414	0.081782	0.033843	0.136	0.135
79	364.7	76.5	89.2	141.7	75.3	79.11668	80.5295	83.47281	79.82528	81.42889	82.59	78.09	81.23	3.84	3.83	1.13	1.3007	0.616487	8.231383	12.21108	17.92334	0.990987	0	0.075168	0.033152	0.136	0.135
80	411.1	76.3	91.7	145.8	75.3	79.3357	80.84694	84.01462	80.01017	81.54118	82.80	78.12	81.05	3.84	3.83	1.15	1.3478	0.635568	8.339557	12.07789	17.73071	1.197056	0.049264	0.08694	0.037644	0.136	0.135
81	437.6	76.0	92.8	140.7	74.4	79.16451	80.68895	83.87643	79.84698	81.52979	82.94	78.03	81.07	3.84	3.83	1.15	1.2998	0.699844	7.359722	13.10064	17.61367	1.185583	0.046396	0.074961	0.037123	0.136	0.135
82	461.6	76.5	93.9	138.1	75.0	78.87707	80.40543	83.89648	79.75664	81.47904	83.21	77.95	81.00	3.84	3.83	1.16	1.2986	0.638177	7.275841	13.06696	17.42469	1.014201	0.00355	0.074656	0.039321	0.136	0.135
83	483.9	75.6	94.5	143.1	75.1	79.19292	80.85595	84.37999	80.09392	81.67113	83.41	78.21	81.08	3.84	3.83	1.17	1.3178	0.461832	8.148022	12.15899	17.12721	1.218343	0.054586	0.079441	0.042033	0.136	0.135
84	499.5	76.3	95.5	143.0	75.4	79.1823	80.93771	84.43536	80.08495	81.57638	83.20	78.25	81.02	3.84	3.84	1.17	1.3175	0.125443	9.327591	11.13564	16.91629	1.203676	0.050919	0.079377	0.041985	0.136	0.136
85	509.6	76.6	96.3	141.0	74.7	79.12315	80.67447	84.36349	80.08895	81.52758	83.45	77.97	80.91	3.84	3.84	1.16	1.3106	0.016666	10.28822	10.27885	16.71634	1.024332	0.006083	0.077643	0.040619	0.136	0.136
86	521.0	76.2	96.6	148.0	75.2	79.08926	80.79282	84.65344	80.10103	81.71784	83.66	78.29	80.91	3.85	3.84	1.17	1.3040	0.019251	10.8407	9.778005	16.41276	1.178682	0.044671	0.075994	0.043082	0.136	0.136
87	530.8	76.3	97.3	147.1	75.5	79.07696	80.71471	84.68091	79.91301	81.43082	83.55	78.29	80.81	3.85	3.84	1.17	1.3198	0.032626	11.2972	9.358115	16.12381	1.203188	0.050797	0.079941	0.043042	0.136	0.135
88	536.8	76.7	97.9	145.5	75.8	79.11861	80.67	84.76158	79.8019	81.61009	83.54	78.08	80.67	3.85	3.84	1.17	1.2599	0.040429	11.63199	9.028446	15.92508	1.183547	0.045887	0.064982	0.042981	0.136	0.136
89	542.3	76.8	98.5	144.8	75.5	79.20099	80.63303	84.8764	79.87527	81.51848	83.72	78.26	80.81	3.84	3.84	1.18	1.2910	0.050914	11.82712	8.842245	15.61785	1.201823	0.050456	0.07276	0.044402	0.136	0.136
90	546.7	76.9	99.3	144.5	76.4	79.11278	80.49265	84.88781	80.00039	81.5314	84.03	78.14	80.64	3.85	3.84	1.17	1.2932	0.064191	12.01731	8.648942	15.42522	1.183071	0.045768	0.073309	0.043698	0.136	0.135
91	551.2	77.0	99.5	144.8	75.8	79.35387	80.75951	84.93029	79.93852	81.65431	84.06	78.34	80.66	3.84	3.84	1.18	1.3068	0.072469	12.29017	8.334391	15.11066	1.184327	0.046082	0.076692	0.0446	0.136	0.135
92	554.2	77.0	99.4	145.2	75.5	79.43363	80.99107	85.62379	80.26567	81.79668	84.25	78.33	80.96	3.82	3.83	1.18	1.3174	0.069604	12.4451	8.173122	14.82172	1.174037	0.043509	0.07935	0.04396	0.135	0.135
93	555.4	77.3	100.0	145.8	75.6	79.52999	80.81685	85.62775	80.19006	81.63528	84.11	78.24	80.84	3.82	3.83	1.18	1.3246	0.061545	12.47137	8.133743	14.51204	1.198641	0.04966	0.081139	0.043917	0.135	0.135
94	489.9	77.2	96.6	146.0	76.0	79.59962	80.7413	85.40703	80.31178	81.8362	84.23	78.29	80.67	3.82	3.83	1.16	1.3038	0.048219	12.52508	8.060164	14.31819	1.214076	0.053519	0.075955	0.041122	0.135	0.135
95	448.8	77.1	94.7	144.6	76.1	79.39041	80.84886	85.29681	80.15064	81.76746	84.08	78.20	80.70	3.82	3.83	1.16	1.3294	0.557612	12.42705	8.053459	14.11946	1.214783	0.053696	0.082361	0.039159	0.135	0.135
96	427.6	76.8	93.9	143.5	75.0	79.37315	80.60722	84.6922	80.30781	81.55505	83.88	78.10	80.57	3.81	3.83	1.15	1.2795	1.506258	11.94944	8.448904	13.90976	1.205578	0.051394	0.06988	0.038321	0.135	0.135
97	414.0	77.5	93.4	142.4	75.4	79.43761	80.79047	84.61808	80.26931	81.63534	83.72	78.16	80.80	3.81	3.83	1.14	1.2943	1.317416	11.53174	8.908935	13.72079	1.206321	0.05158	0.073577	0.036114	0.135	0.135
98	405.3	77.0	93.0	141.1	75.5	79.45026	80.79651	84.61753	80.1865	81.67133	83.64	77.99	80.47	3.81	3.82	1.15	1.2766	1.033746	11.20972	9.270029	13.5245	1.180218	0.045055	0.069161	0.036449	0.134	0.135
99	401.6	76.8	92.6	142.1	75.3	79.51702	80.68509	84.45991	80.16441	81.67563	83.78	78.16	80.49	3.82	3.83	1.15	1.3287	0.766546	11.05598	9.4505	13.31601	0.991755	0	0.082163	0.036376	0.135	0.135
100	400.9	76.8	92.0	149.0	75.9	79.51881	80.74628	84.42211	80.28872	81.46997	83.42	78.24	80.40	3.82	3.82	1.15	1.2833	0.547347	10.92894	9.630116	13.21604	1.196409	0.049102	0.070825	0.03637	0.135	0.135
101	398.4	76.6	91.0	145.0	74.8	79.45712	80.88257	84.42641	80.12062	81.57904	83.57	78.12	80.63	3.82	3.82	1.14	1.3129	0.326013	10.91541	9.705189	13.10997	1.200128	0.050032	0.078213	0.036221	0.135	0.135
102	394.4	76.6	90.3	142.5	74.8	79.41224	80.80469	84.24294	80.14275	81.63416	83.36	78.06	80.46	3.82	3.82	1.14	1.3029	0.229221	10.78736	9.865695	12.89905	1.189643	0.047411	0.07572	0.035209	0.135	0.135
103	390.5	77.4	90.4	140.9	75.4	79.46671	80.89217	84.20502	80.2114	81.72261	83.45	78.29	80.35	3.82	3.82	1.14	1.2826	0.176174	10.61963	10.03989	12.79908	1.186753	0.046688	0.07066	0.035236	0.135	0.135
104	386.8	77.1	90.3	139.8	76.6	79.44802	80.84706	84.24572	80.45747	81.8301	83.39	78.23	80.46	3.82	3.82	1.14	1.3016	0.160641	10.54685	10.11292	12.60401	1.214783	0.053696	0.0754	0.03445	0.135	0.135
105	385.3	76.7	90.5	138.7	75.4	79.25398	80.87081	84.32227	80.13102	81.84022	83.40	78.42	80.75	3.82	3.82	1.14	1.2919	0.15785	10.5658	10.08012	12.51013	1.168392	0.042098	0.072974	0.034971	0.135	0.135
106	385.0	76.8	90.1	136.9	75.5	79.45952	80.94436	84.13844	80.12957	81.89816	83.36	78.17	80.58	3.82	3.82	1.14	1.3284	0.155021	10.48016	10.17412	12.29555	0.991475	0	0.08209	0.035337	0.135	0.135
107	386.6	76.5	89.6	145.9	75.5	79.28425	80.90768	84.14135	80.26068	81.69271	83.23	78.56	80.70	3.82	3.82	1.14	1.3346	0.144146	10.37305	10.25651	12.20045	1.156237	0.039059	0.083657	0.034861	0.135	0.135
108	385.8	76.8	89.5	142.5	75.2	79.41121	80.86305	84.07034	79.98096	81.69016	83.24	78.22	80.47	3.82	3.82	1.14	1.2794	0.122834	10.54688	10.08606	12.00538	1.179133	0.044783	0.06984	0.034575	0.135	0.135
109	384.5	76.9	89.3	140.4	75.2	79.29436	80.68681	83.7885	79.98528	81.74066	83.16	78.25	80.51	3.82	3.82	1.14	1.2953	0.117518	10.6267	9.99179	11.91029	1.197068	0.049267	0.073833	0.034956	0.135	0.135
110	382.6	77.4	89.4	138.8	75.0	79.24549	80.84252	83.76604	79.94123	81.61083	83.07	78.33	80.43	3.82	3.82	1.14	1.3029	0.122859	10.63987	9.964907	11.70058	1.185315	0.046329	0.075723	0.033795	0.135	0.135
111	377.7	77.4	89.4	137.9	76.7	79.33839	80.88263	84.1823	80.43706	82.00767	83.46	78.43	80.64	3.82	3.82	1.14	1.2865	0.122822	10.6068	9.985146	11.70302	1.17561	0.043902	0.071633	0.034005	0.135	0.135
112	375.8	76.8	88.9	135.2	75.7	79.38886	80.79451	83.916	80.14445	81.86686	83.09	78.36	80.52	3.82	3.82	1.14	1.2952	0.109435	10.25378	10.31433	11.4092	0.991914	0	0.073806	0.034487	0.135	0.135
113	376.4	77.1	88.9	144.6	75.8	79.39948	80.94371	83.84742	80.12244	81.83823	82.87	78.38	80.27	3.82	3.82	1.13	1.3068	0.117518	10.02253	10.55411	11.40798	1.189935	0.047484	0.076692	0.033679	0.135	0.135
114	371.4	77.2	89.4	141.0	75.7	79.36948	80.91372	83.66564	80.15461	81.9166	83.08	78.29	80.13	3.81	3.82	1.13	1.3177	0.090757	9.949044	10.64141	11.21657	1.179255	0.044814	0.07942	0.033331	0.135	0.135
115	367.8	77.1	89.6	138.8	76.0	79.52379	81.09441	83.76056	80.26134	81.90454	83.35	78.57	80.16	3.80	3.82	1.13	1.3313	0.117518	9.787471	10.76747	11.09708	1.181535	0.045384	0.082825	0.032981	0.134	0.135
116	364.0	76.9	89.3	140.2	76.3	79.47068	81.04791	83.55566	80.0929	81.6767	83.10	78.18	80.14	3.81	3.82	1.13	1.3003	0.114763	9.579842	10.95373	11.00199	0.991255	0	0.075086	0.033167	0.134	0.135
117	366.4	76.8	88.2	145.3	76.2	79.42288	80.90112	83.54746	80.07193	81.90652	82.88	78.38	80.42	3.81	3.82	1.13	1.3150	0.109435	9.372183	11.17523	10.90567	1.191923	0.047981	0.078759	0.032508	0.135	0.135
118	365.4	77.0	88.5	141.3	76.1	79.42615	80.85818	83.41874	80.04356	81.73296	83.05	78.20	80.14	3.81	3.81	1.13	1.2998	0.099011	9.312382	11.24107	10.80326	1.192825	0.048206	0.074949	0.033164	0.135	0.135
119	361.6	77.4	89.1	138.4	75.6	79.26886	80.74709	83.44623	79.9711	81.79908	82.93	78.18	80.39	3.82	3.81	1.13	1.2851	0.098974	9.290649	11.24777	10.70085	1.184986	0.046246	0.071267	0.03313	0.135	0.135
120	359.6	77.7	89.2	136.8	76.1	79.52894	81.04018	83.70631	80.16406	81.99204	82.86	78.55	80.30	3.82	3.85	1.13	1.3053	0.111995	9.257792	11.26789	10.60941	1.176073	0.044018	0.07632	0.032222	0.135	0.136
121	361.1	77.0	88.5	132.8	76.2	79.50679	80.97842	83.69077	80.06221	81.8374	82.86	78.20	80.16	3.81	3.85	1.13	1.3	0.114763	9.230726	11.29535	10.39849	0.991645	0	0.075071	0.032899	0.135	0.136
122	359.9	77.1	88.9	141.5	76.0	79.40208	80.99251	83.54646	80.08554	81.89372	82.75	78.33	80.01	3.81	3.85	1.13	1.3	0.122846	9.250446	11.25524	10.29973	1.164844	0.041211	0.083507	0.032161	0.135	0.136
123	339.7	77.3	88.7	138.0	76.6	79.37408	80.99091	83.61745	80.22409	81.86069	82.86	78.35	80.09	3.80	3.85	1.12	1.3	0.141707	9.115817	11.37435	10.2022	1.16632	0.04158	0.075988	0.029738	0.134	0.136
124	324.0	77.3	88.6	135.0	76.2	79.38257	80.93999	83.22997	80.17914	81.78934	82.79	78.30	79.99	3.80	3.84	1.11	1.3	0.39463	8.128971	12.39905	10.20098	1.046509	0.011627	0.081264	0.028522	0.134	0.136
125	392.2	76.4	91.3	130.8	75.7	79.45953	81.05656	83.48512	80.27809	81.75631	82.90	78.39	80.08	3.82	3.85	1.14	1.3	0.868032	6.703491	13.9285	9.892523	0.991536	0	0.080426	0.035593	0.135	0.136
126	423.9	76.9	92.4	139.6	76.1	79.42067	80.89231	83.53866	80.11217	81.78837	82.91	78.37	80.12	3.82	3.84	1.15	1.3	0.677008	7.006278	13.39611	9.894962	1.173233	0.043308	0.077192	0.036736	0.135	0.136
127	437.9	77.4	93.2	136.6	76.2	79.36147	80.8991	83.67742	80.05981	81.7426	83.14	78.35	80.02	3.82	3.84	1.15	1.3	0.39196	7.145571	13.11393	9.697453	1.197129	0.049282	0.077567	0.037263	0.135	0.136
128	449.7	77.3	93.1	137.4	76.1	79.65041	81.06266	83.94657	80.3886	81.9724	83.14	78.36	80.09	3.82	3.84	1.16	1.3	0.325977	7.44662	12.79514	9.603575	0.991524	0	0.07675	0.038982	0.135	0.136
129	463.5	76.9	93.4	143.9	76.4	79.53208	81.02351	84.05922	80.23023	81.84044	83.31	78.36	80.35	3.82	3.84	1.16	1.3	0.264029	7.788786	12.43249	9.409723	1.184559	0.04614	0.086726	0.039244	0.135	0.136
130	472.2	77.6	94.0	140.4	76.3	79.60788	81.11912	84.00963	80.35159	81.84959	83.39	78.41	79.98	3.82	3.84	1.16	1.3	0.136026	8.231323	12.00614	9.295119	1.179646	0.044911	0.072026	0.039561	0.135	0.135
131	479.5	77.8	94.7	138.5	76.4	79.51851	81.11553	84.17764	80.3062	81.9494	83.29	78.39	79.99	3.82	3.84	1.16	1.3	0.001195	8.624787	11.66879	9.103705	1.187168	0.046792	0.074531	0.040336	0.135	0.136
132	480.7	77.6	95.0	137.1	76.3	79.69207	81.2297	84.23241	80.34396	82.06636	83.48	78.27	80.04	3.82	3.81	1.16	1.3	-0.0014	8.895205	11.42187	9.003733	1.204115	0.051029	0.065674	0.039799	0.135	0.135
133	484.8	77.7	95.1	132.9	76.2	79.56801	81.09244	84.35911	80.31201	81.75063	83.40	78.23	80.04	3.82	3.81	1.17	1.3	-0.00141	9.055863	11.26115	8.79525	0.99184	0	0.078143	0.041314	0.135	0.134
134	488.1	77.7	94.9	144.3	76.3	79.62224	81.02788	84.22856	80.26665	82.02204	83.45	78.35	79.96	3.82	3.81	1.16	1.3	-0.00139	9.062325	11.2553	8.687962	1.19847	0.049617	0.073272	0.040116	0.135	0.134
135	444.7	77.9	93.0	141.4	76.3	79.68408	81.12273	84.3102	80.28467	82.12585	83.68	78.57	80.05	3.82	3.81	1.14	1.3	-0.0014	9.109477	11.18836	8.495329	1.20431	0.051077	0.077982	0.036032	0.135	0.134
136	401.7	78.3	91.2	139.4	76.6	79.66552	81.09097	84.28505	80.29914	82.04793	83.44	78.56	80.19	3.81	3.81	1.14	1.3	-0.00141	9.022732	11.26786	8.399014	1.188119	0.04703	0.07533	0.035075	0.135	0.134
137	377.9	78.1	90.7	137.4	76.4	79.78188	81.29312	84.05165	80.36847	81.99847	83.31	78.38	80.01	3.82	3.81	1.13	1.3	0.39997	9.959408	10.11292	8.308793	1.171172	0.042793	0.084833	0.033088	0.135	0.134
138	361.0	77.8	90.4	135.8	76.2	79.80437	81.13083	84.05434	80.39497	82.15695	83.46	78.46	79.80	3.82	3.80	1.13	1.3	0.528217	9.835812	10.25644	8.190532	1.202359	0.05059	0.06991	0.033392	0.135	0.134
139	352.6	78.2	90.2	134.5	77.0	79.68491	81.22914	83.94807	80.47292	81.88515	83.23	78.49	80.14	3.82	3.81	1.13	1.3	0.597834	9.427595	10.67018	8.089338	1.175488	0.043872	0.067786	0.031768	0.135	0.134
140	345.8	77.9	89.9	136.2	76.3	79.95135	81.15243	83.95055	80.48547	82.04948	83.38	78.42	79.82	3.81	3.83	1.13	1.3	0.54158	9.358467	10.73367	7.895487	0.991658	0	0.083486	0.032188	0.135	0.135
141	344.3	77.4	89.3	139.7	76.0	79.91792	81.32355	83.79172	80.66847	82.13348	83.17	78.49	79.83	3.81	3.82	1.13	1.3	0.54959	9.263797	10.80993	7.80039	1.163272	0.040818	0.07579	0.031707	0.134	0.135
142	342.3	77.8	88.9	139.3	75.9	79.68403	81.08968	83.66343	80.48109	82.22987	83.12	78.73	80.14	3.82	3.82	1.13	1.3	0.533423	9.223838	10.84029	7.702854	1.181743	0.045436	0.072413	0.031423	0.135	0.135
143	338.2	78.1	89.5	136.9	76.4	79.79107	81.4343	83.81006	80.73282	82.05926	83.13	78.55	80.19	3.83	3.82	1.12	1.3	0.485509	9.190645	10.84367	7.594346	1.192545	0.048136	0.070563	0.030009	0.135	0.135

Raw Data

Reading Interval	1	Minutes																			10.60941		0.032415					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
144	334.8	77.7	89.3	135.0	76.7	79.8655	81.21176	83.86469	80.50895	82.05975	83.10	78.69	79.91	3.82	3.82	1.12	1.3	0.49931	9.122828	10.88832	7.493153	1.183474	0.045868	0.073598	0.030795	0.135	0.135
145	331.1	77.7	88.9	133.6	76.0	79.76627	81.25111	83.5015	80.37487	82.04446	82.84	78.61	79.93	3.81	3.82	1.12	1.3	0.495701	9.162939	10.82011	7.391961	1.190057	0.047514	0.075473	0.030512	0.135	0.135
146	328.5	77.9	88.4	132.5	76.0	79.84951	81.28155	83.59132	80.55942	82.09042	82.95	78.52	79.84	3.82	3.82	1.12	1.3	0.496396	9.016666	10.9537	7.30174	1.200372	0.050093	0.078012	0.030134	0.135	0.135
147	325.4	77.8	88.4	131.9	76.5	80.06284	81.09232	83.32951	80.56597	82.01118	82.94	78.35	79.77	3.82	3.82	1.12	1.3	0.440216	9.062234	10.90082	7.202986	1.188997	0.047249	0.071575	0.029433	0.135	0.135
148	322.2	78.1	88.7	131.1	76.1	80.06382	81.25829	83.45586	80.45727	82.12686	82.84	78.57	79.80	3.81	3.82	1.12	1.3	0.405249	8.984022	10.97449	7.10545	1.186534	0.046633	0.070944	0.029881	0.135	0.135
149	319.4	78.0	88.6	130.4	76.3	80.25655	81.31243	83.62221	80.5022	82.05961	82.81	78.65	79.75	3.80	3.82	1.12	1.3	0.399933	8.942234	10.98915	6.992066	1.216575	0.054144	0.067512	0.028954	0.134	0.135
150	319.5	77.9	88.7	130.0	76.5	79.90446	81.3299	83.30312	80.53286	82.19585	82.97	78.47	79.74	3.81	3.82	1.11	1.3	0.397556	8.969605	10.93474	6.889653	1.17266	0.043165	0.084108	0.02836	0.135	0.135
151	318.8	77.0	88.4	127.6	75.9	80.0927	81.37296	83.36597	80.68649	82.02612	82.94	78.70	79.95	3.82	3.81	1.12	1.3	0.389217	8.847716	11.06206	6.795776	0.99184	0	0.072769	0.030076	0.135	0.135
152	321.2	77.3	87.8	136.5	76.1	80.1559	81.49555	83.42917	80.80304	82.35384	82.97	78.71	79.96	3.82	3.81	1.11	1.3	0.368125	8.814707	11.09049	6.69824	1.196288	0.049072	0.066094	0.028686	0.135	0.135
153	319.7	77.8	87.7	134.2	76.8	80.0435	81.54813	83.37616	80.7196	82.2506	82.73	78.65	79.87	3.81	3.81	1.11	1.3	0.34713	8.768927	11.13548	6.589732	1.212929	0.053232	0.076223	0.027857	0.134	0.135
154	318.0	78.0	88.0	132.5	76.7	80.06806	81.30213	83.36114	80.57407	82.09188	82.92	78.55	79.87	3.82	3.81	1.11	1.3	0.349751	8.847716	11.02109	6.57876	1.164088	0.041022	0.073739	0.028354	0.135	0.135
155	316.3	78.3	87.9	131.7	76.8	80.09442	81.50006	83.44688	80.75518	82.28619	82.72	78.82	80.12	3.81	3.81	1.11	1.3	0.378866	8.847716	10.99482	6.499512	1.164137	0.041034	0.070084	0.02818	0.134	0.135
156	313.7	77.8	87.9	130.6	76.6	80.08311	81.28418	83.35638	80.69571	82.24651	82.76	78.72	80.10	3.81	3.81	1.11	1.3	0.357615	8.847747	10.989	6.378812	1.182047	0.045512	0.069042	0.028375	0.134	0.135
157	311.3	78.1	87.9	129.8	76.8	80.04466	81.4899	83.21894	80.72749	82.18591	82.66	78.75	79.88	3.81	3.81	1.11	1.3	0.389168	8.661698	11.16669	6.287373	1.174635	0.043659	0.076963	0.026955	0.135	0.135
158	307.6	78.3	87.9	128.8	76.5	80.18345	81.34492	83.13995	80.76046	82.32446	82.71	78.84	79.92	3.81	3.81	1.11	1.3	0.331671	8.634388	11.168	6.18618	1.188875	0.047219	0.084971	0.027744	0.135	0.135
159	305.0	78.0	87.6	129.5	76.5	80.05512	81.40797	83.32179	80.62245	82.23265	82.77	78.78	80.08	3.81	3.81	1.11	1.3	0.323319	8.439652	11.34107	6.089864	0.991584	0	0.066021	0.02854	0.135	0.135
160	308.0	77.3	87.0	136.4	76.3	79.95313	81.35218	83.17361	80.70051	82.29091	82.74	78.74	79.93	3.81	3.81	1.11	1.3	0.242852	8.493785	11.26115	6.022808	1.178792	0.044698	0.081971	0.028662	0.135	0.135
161	306.7	77.9	87.2	133.2	76.0	79.82346	81.2489	83.00434	80.70512	82.21633	82.72	78.79	79.78	3.82	3.81	1.11	1.3	0.189268	8.432581	11.30233	5.997205	1.173208	0.043302	0.072193	0.027967	0.135	0.135
162	303.7	77.4	87.0	131.3	76.5	79.77037	81.4334	82.91825	80.57297	82.20296	82.55	78.75	79.79	3.82	3.81	1.11	1.3	0.186635	8.251013	11.47515	5.894793	1.195324	0.048831	0.071809	0.027437	0.135	0.134
163	301.8	77.6	87.2	129.9	76.1	79.64877	81.01482	82.79665	80.32146	81.92506	82.54	78.75	79.98	3.82	3.81	1.11	1.3	0.207995	8.197277	11.47539	5.897232	1.176878	0.044219	0.065756	0.026973	0.135	0.134
164	299.4	77.8	87.2	129.1	76.4	79.92163	81.46587	83.15531	80.67825	82.28844	82.56	78.60	79.81	3.82	3.81	1.11	1.3	0.210604	8.224282	11.40148	5.783846	1.186339	0.046585	0.06934	0.026873	0.135	0.135
165	298.1	77.9	87.4	128.2	76.6	79.84581	81.37685	83.15208	80.60798	82.28416	82.64	78.77	79.75	3.81	3.81	1.11	1.3	0.213104	8.210932	11.3881	5.689969	1.152774	0.038194	0.072772	0.027147	0.134	0.134
166	296.8	77.8	87.3	129.6	76.1	79.84591	81.46273	83.07298	80.7658	82.3694	82.56	78.81	79.91	3.82	3.81	1.11	1.3	0.208007	8.190723	11.40843	5.685092	0.99217	0	0.073702	0.026443	0.135	0.134
167	299.6	77.4	86.8	132.0	76.0	80.0515	81.48354	82.96841	80.71974	82.21114	82.43	78.69	79.76	3.81	3.81	1.11	1.3	0.199997	8.170942	11.41602	5.585118	1.190094	0.047523	0.081081	0.027516	0.134	0.134
168	299.6	77.7	86.7	132.6	76.2	79.91454	81.35318	82.71925	80.65282	82.20363	82.57	78.88	79.81	3.80	3.81	1.11	1.3	0.181404	8.184841	11.39432	5.591214	1.192313	0.048078	0.072544	0.026979	0.134	0.134
169	297.4	77.8	87.0	130.3	76.1	79.81542	81.33325	82.9633	80.83969	82.43009	82.69	79.04	79.76	3.81	3.81	1.11	1.3	0.165945	8.133178	11.45485	5.496117	1.175549	0.043887	0.071023	0.026525	0.134	0.134
170	296.6	77.8	86.8	129.1	76.4	79.87672	81.44075	83.0576	80.65857	82.16318	82.34	78.73	79.83	3.81	3.81	1.11	1.3	0.141671	8.151253	11.42821	5.396143	1.162686	0.040672	0.077302	0.026254	0.134	0.134
171	292.8	77.6	86.8	128.0	76.6	80.03011	81.56115	82.96022	80.69851	82.40769	82.57	78.86	79.82	3.81	3.81	1.10	1.3	0.125382	8.145064	11.43464	5.397363	1.168929	0.042232	0.084989	0.026163	0.134	0.134
172	292.6	77.6	86.6	125.6	75.9	80.02193	81.63876	82.95204	80.66299	82.36557	82.61	79.14	79.81	3.82	3.81	1.10	1.3	0.11191	8.02403	11.55574	5.299827	0.991999	0	0.073269	0.026065	0.135	0.134
173	291.8	77.0	86.1	133.5	75.5	79.68118	81.44978	82.83566	80.37955	82.24711	82.32	78.72	79.59	3.82	3.81	1.10	1.3	0.13071	7.862669	11.72341	5.298608	1.202457	0.050614	0.078859	0.026001	0.135	0.134
174	289.8	77.6	87.0	130.8	75.6	79.7636	81.33422	82.71349	80.52902	82.44938	82.47	78.75	79.78	3.81	3.80	1.10	1.3	0.15496	7.64928	11.93994	5.185224	1.213222	0.053306	0.069731	0.026019	0.135	0.134
175	287.3	77.7	86.7	128.9	75.7	79.79328	81.5157	82.98737	80.66842	82.40401	82.48	78.97	80.03	3.81	3.81	1.10	1.3	0.168444	7.676346	11.87742	5.188881	1.203834	0.050959	0.069026	0.02533	0.134	0.134
176	284.4	77.6	86.3	127.7	76.4	79.9155	81.51912	82.70042	80.62311	82.23991	82.28	78.85	79.77	3.81	3.81	1.10	1.3	0.205679	7.788725	11.70972	5.088907	1.050106	0.012526	0.071879	0.025248	0.134	0.134
177	285.0	76.8	85.9	123.8	76.0	79.89038	81.38841	82.74129	80.51388	82.38145	82.35	78.83	79.74	3.81	3.80	1.10	1.3	0.197217	7.710758	11.81698	4.991372	0.992048	0	0.078932	0.026038	0.134	0.134
178	284.6	77.4	85.9	132.2	76.4	79.83926	81.45608	82.65717	80.65716	82.32014	82.33	78.88	79.90	3.82	3.80	1.10	1.4	0.218346	7.716976	11.7965	4.992591	1.184193	0.046048	0.088003	0.025373	0.135	0.134
179	281.8	77.7	86.0	129.7	76.2	79.78967	81.23491	82.66698	80.58651	82.2429	82.14	78.91	79.95	3.80	3.80	1.10	1.3	0.207971	7.641752	11.90388	4.995029	1.189216	0.047304	0.078423	0.024956	0.134	0.134
180	279.9	77.9	85.7	128.1	76.4	79.87859	81.46243	82.7691	80.63303	82.29603	82.22	78.85	79.87	3.81	3.81	1.10	1.3	0.202716	7.614502	11.92601	4.897494	1.21666	0.054165	0.072992	0.024925	0.134	0.134
181	277.3	77.8	86.0	128.8	76.3	80.11987	81.49911	82.6804	80.76019	82.48917	82.58	78.92	79.97	3.80	3.81	1.10	1.3	0.199997	7.614532	11.93256	4.898713	0.991853	0	0.068072	0.024635	0.134	0.134
182	278.2	77.2	85.7	133.8	76.6	80.12029	81.45994	82.62804	80.66353	82.35952	82.30	79.00	79.90	3.80	3.80	1.10	1.3	0.189268	7.547203	12.00599	4.792644	1.184973	0.046243	0.064192	0.02533	0.134	0.134
183	276.5	77.3	85.9	130.8	76.5	80.18011	81.65175	82.66145	80.50823	82.2966	82.30	78.98	79.89	3.81	3.80	1.10	1.3	0.178783	7.514285	12.04494	4.796301	1.190862	0.047716	0.081721	0.024386	0.134	0.134
184	275.4	77.6	85.9	128.4	76.0	79.88904	81.28149	82.57497	80.57278	82.25556	82.30	78.93	80.01	3.81	3.80	1.10	1.3	0.173687	7.439853	12.14464	4.796301	1.176268	0.044067	0.068999	0.024355	0.134	0.134
185	274.4	77.7	86.1	126.4	76.1	80.28529	81.63813	82.76664	80.90726	82.66925	82.44	79.03	79.98	3.82	3.81	1.10	1.3	0.152314	7.406569	12.17219	4.698766	0.991999	0	0.073976	0.024754	0.135	0.134
186	274.6	77.7	85.9	133.5	76.5	80.12683	81.51927	82.71377	80.64366	82.51123	82.27	78.93	80.08	3.82	3.80	1.10	1.3	0.15496	7.381027	12.19155	4.697546	1.167002	0.041751	0.077692	0.024626	0.135	0.134
187	272.4	77.6	85.9	130.0	76.5	80.12051	81.59874	82.45667	80.69687	82.35985	82.06	78.77	80.14	3.81	3.80	1.09	1.3	0.154972	7.333113	12.24446	4.580504	1.203603	0.050901	0.0723	0.023727	0.134	0.134
188	269.9	77.8	86.1	130.2	76.3	79.86631	81.48973	82.47964	80.61465	82.42281	82.26	78.95	79.88	3.81	3.81	1.10	1.3	0.152339	7.32726	12.2508	4.581723	0.992036	0	0.066835	0.023898	0.134	0.134
189	271.1	77.1	85.6	125.1	75.8	80.20821	81.40928	82.3332	80.63795	82.20194	82.12	78.83	79.91	3.80	3.80	1.10	1.3	0.149413	7.319945	12.24065	4.482968	1.199677	0.049919	0.071343	0.024376	0.134	0.134
190	270.0	77.4	85.8	131.2	76.6	79.92818	81.27444	82.47552	80.46552	82.22749	81.89	78.69	80.04	3.80	3.80	1.09	1.3	0.149425	7.260784	12.30755	4.484188	1.195739	0.048935	0.065512	0.02366	0.134	0.134
191	267.4	77.5	85.8	128.4	76.3	79.68803	81.46323	82.38715	80.6122	82.27518	81.91	78.98	79.89	3.81	3.80	1.09	1.3	0.14406	7.212718	12.35885	4.48175	1.199872	0.049968	0.065079	0.023337	0.135	0.134
192	265.3	77.4	85.8	129.1	76.4	79.91392	81.59673	82.34907	80.66047	82.33006	82.16	78.91	79.89	3.81	3.80	1.09	1.3	0.152339	7.145388	12.41176	4.386652	0.991719	0	0.083578	0.023371	0.135	0.134
193	264.7	76.7	85.3	122.5	76.3	80.13042	81.66805	82.14983	80.54908	82.40344	82.07	78.88	79.79	3.82	3.80	1.10	1.3	0.141659	7.053216	12.51152	4.387872	1.143557	0.035889	0.07059	0.024035	0.135	0.134
194	263.7	77.4	85.1	130.5	77.0	79.95735	81.60057	82.35291	80.8894	82.592	82.06	79.00	79.85	3.82	3.80	1.09	1.3	0.127894	6.918892	12.63868	4.387872	1.166551	0.041638	0.085906	0.02348	0.135	0.134
195	260.6	77.4	85.2	127.8	76.3	79.94538	81.45001	82.15616	80.57516	82.47572	81.93	78.87	79.62	3.81	3.80	1.09	1.3	0.138659	6.826842	12.71924	4.387872	1.185839	0.04646	0.071407	0.023096	0.135	0.134
196	259.9	76.8	85.1	125.6	76.12835	79.98641	81.35246	82.21039	80.5482	82.27058	82.07	78.87	79.80	3.81	3.80	1.09	1.4	0.133197	6.757927	12.77368	4.287898	0.991926	0	0.088808	0.023663	0.135	0.134
197	261.0	77.2	85.1	132.9	76.38801	79.87099	81.42841	82.29955	80.63215	82.44032	81.94	79.09	79.93	3.80	3.80	1.09	1.3	0.122773	6.854487	12.63868	4.287898	1.163552	0.040888	0.077463	0.023468	0.134	0.134
198	259.0	77.3	85.1	129.2	76.4006	79.84359	81.52641	82.37774	80.64986	82.65602	81.82	78.98	79.96	3.81	3.80	1.09	1.3	0.114678	6.751435	12.77374	4.287898	1.201311	0.050328	0.073233	0.022602	0.134	0.134
199	256.4	77.8	85.3	126.4	76.41578	79.80556	81.54776	82.08233	80.53608	82.34425	81.87	78.88	79.72	3.80	3.80	1.09	1.3	0.109338	6.706935	12.81562	4.191582	1.173111	0.043278	0.079472	0.022017	0.134	0.134
200	255.6	77.4	85.2	124.0	76.17461	79.97523	81.47987	82.10682	80.6741	82.30408	81.76	78.90	79.77	3.82	3.80	1.09	1.3	0.103863	6.820229	12.70056	4.190362	0.992145	0	0.08078	0.02295	0.135	0.134
201	256.6	77.4	85.1	132.0	76.65196	80.06363	81.65405	82.26122	80.79546	82.42545	82.10	79.00	79.69	3.81	3.80	1.09	1.3	0.107094	6.826812	12.72641	4.192801	1.157639	0.03941	0.068024	0.022471	0.135	0.134
202	255.3	77.8	85.1	127.9	76.14041	79.89207	81.4495	82.05006	80.60298	82.42435	82.03	79.06	79.86	3.81	3.80	1.09	1.3	0.120396	6.771491	12.82181	4.19524	1.19096	0.04774	0.079298	0.022337	0.135	0.134
203	251.3	77.6	85.4	125.6	76.26824	79.53965	81.30825	81.90881	80.6644	82.31419	81.92	78.89	79.74	3.81	3.80	1.09	1.3	0.127016	6.738999	12.87987	4.076978	1.177634	0.044408	0.075238	0.021837	0.135	0.134
204	251.1	77.3	84.8	122.3	76.17838	79.94292	81.68513	82.31868	80.55391	82.35548	81.97	79.13	79.78	3.81	3.80	1.09	1.3	0.14161	6.727235	12.90715	4.075758	0.992084	0	0.070749	0.02235	0.134	0.134
205	251.9	77.3	84.8	130.0	76.01836	80.03568	81.5865	82.27946	80.6534	82.42197	81.97	78.95	79.96	3.80	3.80	1.09	1.3	0.160532	6.731228	12.91471	4.075758	1.201481	0.05037	0.073083	0.022103	0.134	0.134
206	250.2	77.9	85.1	126.7	76.38947	80.10335	81.63438	82.14915	80.82238	82.32698	81.88	79.16	79.79	3.80	3.80	1.09	1.3	0.173675	6.602846	13.08	4.074539	1.185205	0.046301	0.064988	0.021648	0.134	0.134
207	248.5	77.3	84.8	124.4	76.09244	80.09019	81.68722	82.18878	80.71076	82.38035	82.02	79.10	80.13	3.86	3.86	1.09	1.3	0.186635	6.602846	13.08665	3.975785	0.991658	0	0.078356	0.022423	0.136	0.136
208	249.1	77.2	84.1	131.3	75.86633	80.01081	81.55504	82.01701	80.48112	82.56647	81.81	78.95	79.60	3.88	3.86	1.09	1.3	0.202728	6.568465	13.13419	3.979442	1.162577	0.040644	0.06618	0.021819	0.137	0.136
209	248.1	77.4	84.5	127.7	76.36491	80.04285	81.76527	82.09525	80.89891	82.75988	81.84	79.18	79.96	3.88	3.86	1.09	1.3	0.22916	6.528658	13.1946	3.9831	1.193374	0.048343	0.075369	0.021533	0.137	0.136
210	244.5	77.6	84.7	127.3	76.32419	79.84985	81.61185	82.02103	80.71771	82.57208	81.78	79.01	79.92	3.84	3.86	1.09	1.3	0.250996	6.454775	13.28178	3.884345	0.991048	0	0.067548	0.021484	0.136	0.136
211	245.0	77.0	84.3	120.3	76.19734	80.02617	81.78819	82.13796	80.69518	82.61554	82.03	79.28	79.80	3.84	3.86	1.09	1.3	0.256032	6.515308	13.2153	3.881907	0.991901	0	0.073416	0.022075	0.136	0.136
212	244.9	77.7	84.4	128.7	76.46392	79.98572	81.59595	81.97212	80.74937	82.76871	82.06	79.28	79.91	3.84	3.86	1.09	1.3	0.26954	6.494917	13.24316	3.884345	1.194715	0.048679	0.071581	0.021304	0.136	0.136
213	242.5	77.5	84.4	125.4	76.36183	79.77763	81.67822	82.0544	80.60748	82.34306	81.65	79.19	79.86	3.84	3.86	1.08	1.3	0.274539	6.528567	13.22252	3.886784	1.198007	0.049502	0.082953	0.020899	0.135	0.136
214	242.1	77.6	84.5	122.8	76.64847	80.00998	81.79839	82.14816	80.54885	82.5484	81.88	79.16	79.99	3.83	3.86	1.09	1.3	0.269565	6.481201	13.28912	3.78681	0.992243	0	0.066905	0.02174	0.135	0.136
215	243.1	77.3	84.3	130.2	76.38161	79.91241	81.60842	82.0374	80.53628	82.45003	81.85	79.15	79.88	3.85	3.86	1.08	1.3	0.28005	6.561668	13.18787	3.783153	1.190057	0.047514	0.077692	0.021219	0.136	0.136

Raw Data

Reading Interval	1	Minutes																			10.60941		0.032415					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
216	241.3	77.5	84.5	126.3	76.58916	79.92568	81.66788	82.01107	80.75809	82.61246	81.85	79.13	79.85	3.85	3.86	1.08	1.3	0.277172	6.508328	13.27437	3.785591	1.190277	0.047569	0.084882	0.020905	0.136	0.136
217	239.3	77.6	84.7	126.1	76.74137	79.85423	81.77462	81.94622	80.65691	82.57067	81.70	79.03	79.86	3.85	3.86	1.08	1.3	0.282622	6.541491	13.24313	3.781933	0.99178	0	0.080469	0.02067	0.136	0.136
218	239.5	76.6	84.1	119.7	76.39978	79.82289	81.59809	81.89508	80.56515	82.39972	81.65	78.96	79.75	3.85	3.86	1.09	1.3	0.288206	6.568648	13.21527	3.688056	0.992182	0	0.07486	0.021459	0.136	0.136
219	239.3	77.5	84.4	127.4	76.6236	80.15611	81.81253	82.08972	80.81807	82.75163	81.97	79.20	79.88	3.85	3.86	1.08	1.3	0.291181	6.582089	13.20872	3.692932	1.16165	0.040413	0.071959	0.020792	0.136	0.136
220	236.4	77.7	84.5	124.2	76.25168	79.95962	81.64243	81.86023	80.6031	82.51686	81.73	79.06	79.84	3.84	3.86	1.08	1.3	0.288243	6.554749	13.25553	3.688056	1.171538	0.042884	0.077357	0.020338	0.136	0.136
221	237.4	76.9	84.4	120.8	76.25433	79.99759	81.7662	81.91799	80.63877	82.73732	81.77	79.16	79.76	3.84	3.86	1.08	1.3	0.288218	6.582059	13.22256	3.59052	0.992292	0	0.084571	0.021161	0.136	0.136
222	238.4	77.4	84.2	128.2	76.64489	80.01376	81.69657	81.94736	80.73914	82.59351	81.81	79.27	79.95	3.84	3.86	1.08	1.3	0.288194	6.588795	13.22259	3.595397	1.193678	0.04842	0.074781	0.020926	0.136	0.136
223	236.5	77.5	83.9	124.6	76.84718	79.71519	81.69498	81.95238	80.74464	82.59901	81.75	79.14	79.97	3.83	3.86	1.08	1.3	0.288231	6.582059	13.23767	3.594177	1.184169	0.046042	0.071444	0.020502	0.135	0.136
224	235.5	77.2	83.9	122.0	75.8583	79.71157	81.48017	81.86955	80.59806	82.56461	81.67	79.26	79.70	3.83	3.86	1.08	1.3	0.285414	6.548562	13.28169	3.594177	0.992231	0	0.078039	0.020682	0.135	0.136
225	237.0	76.8	83.7	129.2	76.40744	79.7295	81.66969	81.85448	80.66238	82.45736	81.69	79.27	79.90	3.85	3.86	1.08	1.3	0.293534	6.582089	13.22975	3.472259	1.197604	0.049401	0.075229	0.020557	0.136	0.136
226	235.5	77.5	84.3	125.3	76.85009	79.78064	81.71423	81.80663	80.60802	82.58117	81.58	79.19	79.83	3.85	3.86	1.08	1.3	0.296119	6.561668	13.26239	3.471039	1.189801	0.04745	0.083517	0.020234	0.136	0.136
227	234.1	77.4	84.1	124.2	76.46741	79.821	81.5302	81.89979	80.78171	82.60308	81.80	79.25	79.97	3.84	3.86	1.08	1.3	0.298703	6.54146	13.28178	3.473478	0.992133	0	0.075851	0.020192	0.136	0.136
228	236.1	76.7	83.9	127.1	75.79723	79.68268	81.53048	81.5767	80.59167	82.59783	81.49	79.15	79.83	3.84	3.86	1.08	1.3	0.30152	6.616593	13.20134	3.474697	1.194154	0.048538	0.065945	0.020734	0.136	0.136
229	234.2	77.5	84.3	125.9	76.62459	79.89476	81.68316	81.78217	80.66627	82.47444	81.56	79.19	79.95	3.84	3.86	1.08	1.3	0.30152	6.561729	13.26245	3.475916	1.196483	0.049121	0.074595	0.020006	0.136	0.136
230	234.1	77.5	84.0	124.6	76.64408	79.80621	81.79919	81.9048	80.64948	82.49725	81.71	79.32	79.88	3.84	3.86	1.08	1.3	0.301508	6.55478	13.2751	3.380843	0.99334	0	0.072623	0.020027	0.136	0.136
231	235.4	77.2	84.2	118.7	76.20844	80.09927	81.82829	81.75571	80.62823	82.65417	81.80	79.17	79.96	3.84	3.86	1.08	1.3	0.282573	6.616562	13.22966	3.382062	0.992328	0	0.085129	0.020429	0.135	0.136
232	235.7	77.4	83.9	126.6	76.41245	79.79733	81.58573	81.79033	80.55013	82.63548	81.69	79.01	79.88	3.84	3.86	1.08	1.3	0.213079	6.757897	13.10676	3.386915	1.176512	0.044128	0.07561	0.020018	0.135	0.136
233	233.2	77.5	84.2	123.7	76.67959	79.88311	81.75731	81.95531	80.60017	82.9231	81.70	79.33	79.80	3.85	3.86	1.08	1.3	0.210543	6.731258	13.15419	3.279649	1.191167	0.047792	0.077622	0.020042	0.136	0.136
234	234.3	76.9	84.0	119.4	76.12261	79.85623	81.79642	81.71066	80.52405	82.58299	81.45	79.10	79.82	3.85	3.86	1.08	1.3	0.210507	6.751435	13.14703	3.279649	0.992145	0	0.082249	0.020618	0.136	0.136
235	234.7	77.1	83.8	127.7	76.51254	79.85313	81.74052	81.66135	80.64716	82.50153	81.49	79.11	79.92	3.85	3.86	1.08	1.3	0.210543	6.751435	13.14709	3.279649	1.172684	0.043171	0.074839	0.02007	0.136	0.136
236	233.1	77.6	84.1	124.4	76.31352	79.97278	81.78757	81.7348	80.59138	82.64373	81.49	79.25	79.99	3.85	3.86	1.08	1.3	0.210543	6.696815	13.21603	3.279649	1.157139	0.039285	0.074732	0.019811	0.136	0.136
237	232.4	77.2	83.8	121.1	76.54457	79.69336	81.58076	81.66656	80.69773	82.5323	81.53	79.30	79.93	3.84	3.86	1.08	1.3	0.213067	6.696724	13.23764	3.185771	0.992158	0	0.07216	0.020438	0.136	0.136
238	234.2	77.2	83.7	128.5	75.83656	79.61724	81.75542	81.59705	80.74179	82.47076	81.51	79.12	79.83	3.85	3.86	1.08	1.3	0.215835	6.717085	13.20137	3.183332	1.170367	0.042592	0.071145	0.020402	0.136	0.136
239	233.2	77.8	83.8	124.9	76.90514	79.87537	81.63738	81.70999	80.73817	82.67834	81.46	79.17	79.90	3.85	3.86	1.08	1.3	0.21837	6.690171	13.24941	3.184552	1.207614	0.051903	0.080048	0.019658	0.136	0.136
240	233.0	77.4	84.1	122.3	76.2178	79.86929	81.86228	81.72371	80.57941	82.77035	81.38	79.09	79.79	3.85	3.86	1.08	1.3	0.223747	6.669963	13.27516	3.090673	0.992158	0	0.070459	0.019969	0.136	0.136
241	234.8	77.1	83.8	129.1	76.00332	79.9015	81.6041	81.76251	80.64925	82.66859	81.43	79.39	79.92	3.84	3.86	1.08	1.3	0.234464	6.703369	13.22972	3.090673	1.151043	0.037761	0.076183	0.020213	0.136	0.136
242	233.1	77.5	83.9	125.4	76.9296	79.8924	81.88539	81.74682	80.69383	82.68678	81.68	79.22	79.88	3.84	3.86	1.08	1.3	0.245607	6.696785	13.23761	3.091892	1.178634	0.044658	0.081145	0.019454	0.136	0.136
243	231.8	77.7	84.3	124.7	76.39326	79.93221	81.70081	81.60184	80.77493	82.60291	81.49	79.06	79.93	3.84	3.86	1.08	1.3	0.250972	6.757867	13.17418	3.090673	0.991962	0	0.064662	0.019826	0.135	0.136
244	233.2	77.2	84.1	117.7	76.15463	79.79169	81.69228	81.74509	80.62177	82.7401	81.51	79.18	79.80	3.83	3.86	1.08	1.3	0.256007	6.757989	13.1818	2.996795	0.992584	0	0.075714	0.020448	0.135	0.136
245	233.4	77.8	84.3	126.4	76.59084	79.91708	81.84406	81.89688	80.65253	82.79728	81.62	79.31	80.14	3.84	3.86	1.08	1.3	0.253532	6.744913	13.20134	2.994356	1.139071	0.034768	0.073166	0.019515	0.135	0.136
246	232.3	77.9	84.3	123.7	76.98547	80.13592	81.91772	81.77255	80.67859	82.61874	81.63	79.34	80.15	3.85	3.86	1.08	1.3	0.24562	6.693645	13.26242	2.999233	1.186351	0.046588	0.083703	0.019661	0.136	0.136
247	231.8	77.4	84.2	120.3	76.41657	80.06527	81.70189	81.82729	80.73253	82.82447	81.63	79.25	79.99	3.85	3.86	1.08	1.3	0.250996	6.703369	13.2556	2.995576	0.992194	0	0.074876	0.020292	0.136	0.136
248	233.7	77.5	83.6	127.9	76.49486	79.7618	81.6426	81.68221	80.6649	82.75025	81.51	79.18	79.79	3.84	3.86	1.08	1.3	0.25352	6.731319	13.22259	2.995576	1.187461	0.046865	0.073733	0.019954	0.136	0.136
249	232.3	77.6	83.7	124.4	76.88075	79.99792	81.76653	81.65437	80.60439	82.66333	81.64	79.28	80.04	3.86	3.86	1.08	1.3	0.253508	6.744913	13.20878	2.885848	1.192008	0.048002	0.075403	0.019478	0.136	0.136
250	230.8	77.2	83.9	122.5	76.47742	79.85723	81.70503	81.41468	80.45103	82.52979	81.43	79.21	79.75	3.83	3.76	1.08	1.3	0.248668	6.676699	13.29501	2.883409	0.992133	0	0.073294	0.019683	0.135	0.133
251	232.4	77.1	83.5	128.7	75.84711	80.01064	81.67366	81.58788	80.52825	82.72578	81.53	79.22	79.90	3.83	3.75	1.08	1.3	0.25352	6.765121	13.18784	2.883409	1.174708	0.043677	0.074662	0.020234	0.135	0.132
252	232.3	77.7	83.8	125.9	77.60132	79.88122	81.9138	81.79503	80.72745	82.7006	81.37	79.16	79.90	3.82	3.75	1.08	1.3	0.253557	6.738999	13.22259	2.88219	1.170855	0.042714	0.071846	0.019481	0.135	0.132
253	230.6	77.8	84.2	124.7	76.87817	79.896	81.59861	81.73062	80.69769	82.76324	81.43	79.07	79.77	3.83	3.81	1.08	1.3	0.242803	6.676729	13.30796	2.778558	0.990999	0	0.063391	0.019481	0.135	0.135
254	231.9	77.6	83.9	118.8	76.80512	79.75607	81.65005	81.66328	80.60284	82.5826	81.39	79.16	79.66	3.84	3.82	1.08	1.3	0.248692	6.717054	13.25553	2.780997	0.992011	0	0.072861	0.020329	0.135	0.135
255	232.0	77.6	83.5	126.3	76.89912	79.85316	81.73396	81.50299	80.45767	82.60241	81.34	79.02	79.70	3.84	3.82	1.08	1.3	0.248704	6.703369	13.26843	2.780997	1.187363	0.046841	0.074382	0.019692	0.136	0.135
256	230.4	78.0	83.6	125.2	77.35047	79.92164	81.88823	81.45269	80.6958	82.72835	81.37	79.14	79.95	3.84	3.82	1.08	1.3	0.250996	6.669932	13.3015	2.776119	0.992694	0	0.079079	0.019527	0.136	0.135
257	230.7	77.3	83.9	118.7	76.76352	79.9572	81.7654	81.42885	80.53942	82.55216	81.54	79.25	79.85	3.85	3.82	1.08	1.3	0.255995	6.684105	13.28909	2.681022	0.991207	0	0.071355	0.019942	0.136	0.135
258	231.7	77.6	83.7	127.1	76.24727	79.96922	81.73122	81.50027	80.50917	82.6935	81.36	79.15	80.02	3.85	3.82	1.08	1.3	0.26125	6.703369	13.26547	2.68346	1.151348	0.037837	0.072739	0.019487	0.136	0.135
259	230.5	78.0	84.1	123.9	76.85986	80.15403	81.95564	81.53329	80.61995	82.52052	81.24	79.21	79.79	3.85	3.82	1.08	1.3	0.258799	6.64372	13.33545	2.68346	1.185912	0.046478	0.070029	0.019067	0.136	0.135
260	228.8	77.8	83.9	120.7	76.38873	80.08175	81.83716	81.52701	80.54794	82.65308	81.55	79.32	79.82	3.85	3.82	1.08	1.3	0.26125	6.656948	13.32149	2.584705	0.992121	0	0.071258	0.019899	0.136	0.135
261	231.5	77.6	83.8	128.4	76.21356	80.1085	81.8375	81.48776	80.57004	82.52999	81.38	79.19	79.80	3.84	3.82	1.08	1.3	0.269552	6.710684	13.25563	2.588363	1.182925	0.045731	0.081386	0.019966	0.136	0.135
262	229.0	77.8	83.8	124.8	77.16169	79.90284	81.82323	81.3217	80.64507	82.65122	81.36	79.17	79.74	3.84	3.82	1.08	1.3	0.26659	6.631589	13.34307	2.585924	1.172525	0.043131	0.07622	0.019289	0.135	0.135
263	228.4	77.7	84.0	122.1	76.9577	79.97794	81.94453	81.62119	80.86433	82.7385	81.35	79.24	79.87	3.84	3.82	1.08	1.3	0.266614	6.602846	13.37474	2.585924	0.992304	0	0.070569	0.019609	0.136	0.135
264	229.7	76.6	83.5	127.5	76.13299	79.7688	81.68259	81.50443	80.59426	82.58061	81.14	78.98	79.63	3.84	3.82	1.08	1.4	0.266578	6.631497	13.34301	2.488388	1.16432	0.04108	0.088796	0.019774	0.136	0.135
265	229.8	77.6	83.9	125.4	76.86257	79.87991	81.7607	81.52316	80.67628	82.66264	81.38243	79.27728	79.85133	3.844799	3.817321	1.07717	1.3	0.269528	6.609308	13.35511	2.584705	1.181243	0.045311	0.075168	0.019292	0.136	0.135
266	228.2	77.6	84.0	124.4	76.35795	79.88983	81.70464	81.53307	80.45818	82.45772	81.4085	78.95737	79.63322	3.848481	3.822539	1.076206	1.3	0.263968	6.548501	13.42278	2.488388	0.991962	0	0.070355	0.019052	0.136	0.135
267	228.8	76.8	83.9	116.8	76.36059	79.92393	81.79813	81.44178	80.64825	82.67419	81.3412	78.91589	79.79029	3.852919	3.819857	1.077584	1.3	0.26659	6.54143	13.41537	2.48595	0.992243	0	0.077524	0.019396	0.136	0.135
268	229.7	77.5	84.0	126.1	76.23196	79.79271	81.69329	81.25777	80.64111	82.60766	81.24167	79.07597	79.57198	3.852895	3.819979	1.07556	1.3	0.266626	6.54847	13.41543	2.483511	1.195727	0.048932	0.073787	0.01889	0.136	0.135
269	227.1	77.8	84.1	124.2	76.85444	80.02868	81.72469	81.49374	80.65369	82.68624	81.43904	79.19529	79.96732	3.833875	3.825319	1.075377	1.3	0.266651	6.548501	13.41534	2.390852	0.997546	0	0.081849	0.018844	0.135	0.135
270	228.5	77.6	83.9	118.1	76.03059	79.81318	81.79956	81.47622	80.47338	82.59172	81.4501	78.97948	79.80681	3.823122	3.81737	1.078535	1.3	0.269528	6.554749	13.4087	2.385975	0.992182	0	0.07255	0.019634	0.135	0.135
271	229.6	77.6	84.3	127.1	76.53288	79.76259	81.61039	81.37283	80.7362	82.68956	81.50835	79.33719	79.88485	3.82578	3.817321	1.075841	1.3	0.277197	6.609369	13.34301	2.390852	1.154274	0.038568	0.076229	0.01896	0.135	0.135
272	226.5	77.9	84.3	123.6	76.88297	79.97846	81.98464	81.51611	80.72775	82.7009	81.22932	79.1036	79.65202	3.820342	3.817297	1.074816	1.3	0.271905	6.535089	13.43643	2.392071	1.189228	0.047307	0.076326	0.018704	0.135	0.135
273	227.5	77.8	84.2	121.1	76.76395	79.89957	81.99815	81.688	80.68423	82.79597	81.54217	79.14648	79.97147	3.838191	3.819857	1.077291	1.3	0.277148	6.59544	13.35511	2.276247	0.99206	0	0.084888	0.019323	0.135	0.135
274	228.5	77.7	83.8	128.9	76.40981	79.92514	81.80594	81.58818	80.86414	82.61951	81.4911	79.33974	79.9006	3.855504	3.820003	1.078901	1.3	0.288218	6.65704	13.28912	2.277467	1.176427	0.044107	0.080167	0.019725	0.136	0.135
275	228.2	78.0	84.1	125.0	77.29157	80.13628	81.86528	81.65413	80.78413	82.84967	81.72125	79.4709	80.10435	3.852895	3.871136	1.076316	1.3	0.288206	6.64372	13.29601	2.276247	1.177597	0.044399	0.081862	0.019079	0.136	0.137
276	227.4	78.0	84.0	123.6	76.66533	80.20457	81.8148	81.68284	80.96416	82.75914	81.59773	79.35398	79.77625	3.844824	3.869893	1.076267	1.3	0.28005	6.582059	13.3816	2.275028	0.992109	0	0.084559	0.019067	0.136	0.137
277	229.0	77.4	83.8	116.7	76.55125	80.07041	81.69382	81.50246	80.89819	82.85155	81.53835	79.31439	79.78946	3.844726	3.868503	1.078437	1.3	0.280074	6.602877	13.36148	2.173835	0.992206	0	0.081578	0.019609	0.136	0.137
278	228.4	77.8	83.9	125.8	76.75435	79.7707	81.65149	81.53932	80.66811	82.70065	81.39405	79.21629	79.83655	3.836728	3.868478	1.075377	1.3	0.285414	6.623725	13.32838	2.171396	1.175817	0.043954	0.063507	0.018844	0.135	0.137
279	226.5	78.0	84.3	122.9	77.12033	80.15011	82.0705	81.71415	80.87489	83.11201	81.57443	79.28449	79.85855	3.831218	3.852385	1.073756	1.3	0.285414	6.588795	13.36852	2.173835	1.211247	0.052812	0.07768	0.018439	0.135	0.136
280	226.9	77.7	84.0	118.7	76.54748	79.93729	81.63991	81.29016	80.74227	82.59664	81.42204	78.99117	79.74574	3.835168	3.852458	1.077499	1.3	0.282598	6.602816	13.36145	2.173835	0.992353	0	0.07757	0.019375	0.135	0.136
281	228.7	77.8	84.0	127.7	76.0714	79.90459	81.6534	81.59403	80.66068	82.74603	81.44602	79.06905	79.71034	3.835314	3.852336	1.076267	1.3	0.304031	6.670024	13.26846	2.173835	1.171891	0.042973	0.073867	0.019067	0.135	0.136
282	227.3	78.0	84.2	124.0	77.08304	79.95198	81.82618	81.36424	80.73404	82.6478	81.3478	79.0966	79.96848	3.839362	3.849581	1.074292	1.3	0.306774	6.588826	13.34868	2.081175	1.17678	0.044195	0.075717	0.018573	0.136	0.136
283	226.1	77.7	84.4	122.6	76.76514	80.3081	81.89191	81.38379	80.5892	82.59535	81.39435	79.13712	79.71145	3.831291	3.855067	1.076243	1.3	0.312517	6.637258	13.30144	2.082394	0.991901	0	0.07764	0.019061	0.135	0.136
284	228.0	77.7	84.2	116.5	76.77188	79.94427	81.91086	81.52151	80.931	82.76557	81.2082	79.26802	79.74969	3.82834	3.854823	1.077365	1.3	0.312493	6.656979	13.28172	2.082394	0.993523	0	0.069383	0.019341	0.135	0.136
285	228.0	78.0	84.6	125.6	76.86145	80.12936	81.97056	81.60761	80.99397	82.96713	81.58794	79.33099	80.05683	3.828413	3.853726	1.075621	1.3	0.314882	6.609399	13.33542	2.079956	1.199165	0.049791	0.06799	0.018905	0.135	0.136
286	226.3	78.1	84.3	124.2	76.38777	80.04439	81.8922	81.66784	80.82316	82.76331	81.47651	79.20636	79.87941	3.819148	3.852214	1.074719	1.3	0.312505	6.561668	13.38843	1.98242	0.991914	0	0.075699	0.01868	0.135	0.136
287	227.9	77.8	84.5	117.7	76.68206	80.14921	82.0762	81.79245	80.83195	82.74571	81.5447	79.51213	80.0202	3.84614	3.849483	1.077999	1.3	0.309506	6.643659	13.30796	1.983639	0.992097	0	0.0755	0.0195	0.136	0.136

Raw Data

Reading Interval	1	Minutes																			10.60941		0.032415					
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29						
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
288	228.6	78.5	84.3	127.1	76.78011	80.50509	82.2143	81.80516	80.93424	82.9668	81.46222	79.44944	79.9971	3.842117	3.849581	1.074829	1.3	0.304019	6.676729	13.28921	1.975105	1.170038	0.04251	0.065366	0.018707	0.136	0.136
289	226.6	78.2	84.3	123.7	77.35972	80.01374	81.76255	81.63718	80.73606	82.63001	81.34982	79.24465	79.71972	3.836655	3.849508	1.074512	1.3	0.293497	6.602846	13.36855	1.986078	1.163967	0.040992	0.07536	0.018628	0.135	0.136
290	226.9	78.0	84.3	119.2	76.31317	80.25436	81.7194	81.48845	80.65768	82.80242	81.6938	79.33787	79.93832	3.835314	3.848313	1.077474	1.3	0.288194	6.631558	13.33536	1.883665	0.992243	0	0.074226	0.019369	0.135	0.136
291	229.1	78.0	83.9	128.4	76.80708	80.14743	81.84344	81.57289	80.80857	82.68273	81.45533	79.44256	80.14201	3.828462	3.849532	1.077291	1.2	0.282598	6.631558	13.34304	1.884884	1.172879	0.04322	0.062025	0.019323	0.135	0.136
292	227.2	77.6	84.2	124.5	77.62701	80.18394	81.74137	81.42462	80.80307	82.8884	81.40363	79.27866	79.91871	3.831339	3.846899	1.074475	1.3	0.274527	6.55478	13.42921	1.880007	1.203737	0.050934	0.08227	0.018619	0.135	0.136
293	225.2	78.0	84.6	124.0	77.0095	80.21181	81.78244	81.53828	80.78601	82.75256	81.29418	79.17582	79.88186	3.839313	3.849581	1.074426	1.3	0.27716	6.59547	13.38154	1.883665	0.992121	0	0.068844	0.018607	0.136	0.136
294	227.7	77.8	84.5	117.1	76.89274	80.19341	82.14021	81.60567	80.94933	82.81689	81.56969	79.31274	79.8802	3.841946	3.849556	1.077511	1.3	0.277172	6.656979	13.32143	1.787348	0.99206	0	0.075513	0.019378	0.136	0.136
295	228.5	78.3	84.3	127.1	76.57764	80.20408	82.07828	81.51076	80.756	82.88754	81.51494	79.33058	79.90464	3.841946	3.849532	1.075231	1.3	0.27716	6.637288	13.33542	1.789786	1.194922	0.04873	0.073733	0.018808	0.136	0.136
296	225.9	78.4	84.4	123.6	77.24337	80.27203	82.08683	81.65129	80.94461	82.86497	81.3868	79.26183	79.88867	3.825731	3.848752	1.073841	1.3	0.277148	6.608058	13.37468	1.786129	1.186802	0.046701	0.072718	0.01846	0.135	0.136
297	225.9	78.4	84.9	120.2	77.01856	80.35782	82.10664	81.81628	81.01471	82.91528	81.82645	79.49691	80.25575	3.832485	3.849532	1.076731	1.3	0.274551	6.581998	13.40123	1.672743	0.992084	0	0.07493	0.019183	0.135	0.136
298	227.2	78.1	84.5	129.3	76.79383	80.16096	82.22654	81.94939	81.07244	82.9796	81.7456	79.44905	80.31348	3.817611	3.84685	1.076097	1.3	0.261225	6.631528	13.33536	1.672743	1.17244	0.04311	0.07312	0.019024	0.135	0.136
299	226.7	78.5	84.6	125.3	77.23322	80.29791	82.15231	81.82896	81.1206	82.82977	81.55618	79.25304	79.95248	3.81627	3.846923	1.074548	1.3	0.253496	6.54143	13.43649	1.676401	1.178438	0.04461	0.073181	0.018637	0.135	0.136
300	225.2	78.7	85.0	124.5	77.5086	80.39747	81.96149	81.73714	81.09658	83.06973	81.73673	79.4072	79.86246	3.825731	3.846826	1.07439	1.3	0.261237	6.568496	13.39592	1.676401	0.991865	0	0.071212	0.018597	0.135	0.136
301	226.5	77.9	84.7	118.0	76.92663	80.11728	81.81329	81.57574	81.00201	82.78378	81.62238	79.17405	79.89329	3.836606	3.84685	1.07667	1.3	0.263932	6.59544	13.36849	1.575207	0.992023	0	0.072459	0.019167	0.135	0.136
302	228.0	78.5	84.7	127.4	76.90782	80.20776	81.95657	81.64642	80.96953	82.71831	81.49751	79.35275	79.78162	3.844799	3.849556	1.075085	1.4	0.266565	6.616593	13.34871	1.578865	1.155993	0.038998	0.089097	0.018771	0.136	0.136
303	225.0	78.5	84.7	123.6	76.79958	80.37694	81.86837	81.62421	80.70297	82.84111	81.47512	79.23137	79.75922	3.841995	3.84685	1.075548	1.3	0.269491	6.588795	13.38154	1.575207	1.173135	0.043284	0.07276	0.018887	0.136	0.136
304	223.9	78.3	84.8	122.9	77.2925	80.20556	82.05336	81.67062	80.99935	82.84711	81.56692	79.39576	79.79163	3.847409	3.844168	1.073439	1.3	0.266565	6.548501	13.42272	1.581303	0.992133	0	0.073175	0.01836	0.135	0.136
305	226.3	78.2	84.6	116.7	77.22109	80.68463	82.03749	81.85272	80.99876	83.03131	81.66532	79.30938	79.82404	3.850018	3.848289	1.078401	1.3	0.271893	6.602816	13.36139	1.47889	0.992365	0	0.082386	0.0196	0.136	0.136
306	226.4	78.3	84.1	126.0	77.35989	80.44479	81.96923	81.79106	81.06192	82.87009	81.45131	79.39234	79.71561	3.839289	3.844143	1.075438	1.3	0.271918	6.588795	13.38837	1.577646	1.187326	0.046832	0.069792	0.01886	0.136	0.136
307	225.0	78.8	84.4	123.0	76.95045	80.30985	82.05206	81.60992	80.89474	82.8877	81.66689	79.39015	79.74642	3.8339	3.841583	1.072914	1.3	0.274563	6.522746	13.4571	1.476452	1.172684	0.043171	0.076976	0.018229	0.135	0.136
308	223.3	78.6	84.6	120.7	76.26359	80.46439	81.96901	81.56647	81.07388	82.76986	81.48967	79.16673	79.70778	3.835314	3.844095	1.075024	1.3	0.277172	6.575963	13.39602	1.476452	0.992182	0	0.071672	0.018756	0.135	0.136
309	225.3	77.8	84.5	115.8	76.79153	80.55264	82.14966	81.85271	81.14332	82.8393	81.65809	79.32855	80.15997	3.833924	3.841534	1.077633	1.3	0.274539	6.623694	13.34871	1.481329	0.992279	0	0.078548	0.019408	0.135	0.136
310	226.0	78.6	84.6	126.3	77.96502	80.51762	81.88367	81.67251	80.85561	82.96733	81.72674	79.2982	79.76006	3.828413	3.841583	1.074317	1.3	0.280025	6.606138	13.36139	1.476452	1.196141	0.049035	0.07405	0.018579	0.135	0.136
311	224.4	78.6	84.8	123.1	77.29881	80.46426	82.12067	81.57954	80.89072	82.68568	81.53088	79.24094	79.87438	3.831291	3.840144	1.072098	1.3	0.274551	6.548562	13.43997	1.480109	1.17928	0.04482	0.070715	0.018024	0.135	0.136
312	223.8	78.2	84.9	121.1	76.9046	80.45131	82.02853	81.6194	80.85926	82.9578	81.63141	79.30186	79.57895	3.833949	3.841193	1.073439	1.3	0.274563	6.55478	13.42921	1.381354	0.992145	0	0.076028	0.01836	0.135	0.135
313	225.4	77.6	84.6	115.1	76.57336	80.47711	82.12693	81.6518	81.08743	82.79	81.61539	79.29246	79.85991	3.836753	3.841656	1.075902	1.3	0.277148	6.568465	13.41537	1.385012	0.992316	0	0.065223	0.018975	0.135	0.136
314	226.0	78.5	84.9	126.2	77.55363	80.63004	81.85751	81.55396	80.91819	82.70656	81.48576	79.3608	79.90186	3.842044	3.838876	1.073792	1.3	0.274539	6.528597	13.46347	1.382573	1.203725	0.050931	0.072279	0.018448	0.136	0.136
315	223.9	78.6	85.0	122.9	77.30911	80.54551	82.13593	81.54201	81.05358	82.92774	81.66734	79.3246	79.70727	3.83529	3.836072	1.073573	1.3	0.271905	6.494917	13.50376	1.381354	1.191484	0.047871	0.073275	0.018393	0.135	0.135
316	223.8	78.5	84.8	120.0	76.93859	80.60239	82.2324	81.75727	81.00484	82.83939	81.73739	79.37486	79.9753	3.839386	3.841534	1.075621	1.3	0.282586	6.538198	13.44003	1.289914	0.992267	0	0.073007	0.018905	0.136	0.136
317	225.3	78.3	84.7	122.6	76.97273	80.61801	82.20184	81.8125	81.05192	83.04486	81.5271	79.47472	79.77161	3.840703	3.836121	1.07634	1.3	0.285414	6.535089	13.44356	1.286257	1.183169	0.045792	0.074449	0.019085	0.136	0.135
318	224.5	78.5	84.8	125.3	77.1842	80.50604	82.05687	81.73352	80.96387	82.77203	81.54465	79.34708	79.73636	3.828438	3.834682	1.074585	1.3	0.301508	6.448009	13.53333	1.283818	1.189655	0.047414	0.0759	0.018646	0.135	0.135
319	222.3	78.6	85.0	122.5	77.27734	80.49696	82.16657	81.47366	81.18423	82.96599	81.666	79.35626	79.73232	3.828438	3.836072	1.072122	1.3	0.29863	6.441943	13.53016	1.187501	1.095582	0.023895	0.073885	0.018031	0.135	0.135
320	223.4	78.0	84.7	117.7	76.78816	80.36354	82.03315	81.6702	80.93303	82.81379	81.5138	79.10433	79.72531	3.821244	3.836023	1.075463	1.3	0.28539	6.468766	13.50968	1.18872	0.992316	0	0.073809	0.018866	0.135	0.135
321	225.0	78.3	84.5	128.3	76.73741	80.53648	81.98832	81.61218	80.74326	82.79559	81.42301	79.20567	79.49593	3.829876	3.833341	1.075353	1.3	0.277111	6.468704	13.50379	1.186282	1.189082	0.047271	0.084202	0.018838	0.135	0.135
322	224.0	78.7	84.8	124.2	76.86217	80.25127	82.02647	81.49195	80.99517	83.00131	81.61554	79.47738	79.95903	3.841922	3.838876	1.072659	1.3	0.271905	6.494978	13.47667	1.18994	1.184864	0.046216	0.084236	0.018165	0.136	0.136
323	222.2	78.7	85.5	123.3	76.84883	80.55967	82.0313	81.60237	80.97581	82.81697	81.54999	79.33923	79.57671	3.850066	3.836097	1.073231	1.4	0.255983	6.481232	13.49623	1.078992	0.992474	0	0.089643	0.018308	0.136	0.135
324	223.3	77.9	85.0	116.7	76.64713	80.5013	82.03893	81.78157	81.03102	82.81279	81.63819	79.18327	79.8497	3.847555	3.83617	1.075121	1.3	0.253483	6.522806	13.45146	1.077773	0.992316	0	0.068557	0.01878	0.136	0.135
325	224.5	78.4	84.7	126.9	77.23708	80.47901	82.08923	81.83189	81.14876	83.00971	81.69653	79.41319	79.94103	3.839313	3.833268	1.074951	1.3	0.250984	6.494917	13.48273	1.077773	1.179926	0.044981	0.072416	0.018738	0.136	0.135
326	222.8	79.0	84.9	123.5	78.36217	80.53478	81.98663	81.91405	80.98563	83.02477	81.51361	79.40845	79.93629	3.833949	3.827831	1.071707	1.3	0.245571	6.474587	13.51632	1.078992	1.187022	0.046755	0.074208	0.017927	0.135	0.135
327	222.0	78.5	85.1	121.4	77.00591	80.7551	82.27293	81.68562	81.088	82.92255	81.61597	79.26663	79.80108	3.833875	3.833317	1.074487	1.3	0.242791	6.46142	13.53016	0.980237	0.992072	0	0.065817	0.018622	0.135	0.135
328	223.1	78.2	84.9	116.1	77.08624	80.64202	82.23244	81.79691	81.1155	82.99625	81.78865	79.42612	79.657	3.823122	3.833292	1.075633	1.3	0.234415	6.474557	13.51629	0.985114	0.992426	0	0.070785	0.018908	0.135	0.135
329	223.9	78.6	85.0	125.8	77.96734	80.46651	82.20871	81.76658	80.98257	82.87653	81.44456	79.34599	79.78805	3.839337	3.830659	1.072415	1.3	0.23444	6.468704	13.51629	0.985114	1.18679	0.046697	0.065942	0.018104	0.136	0.135
330	221.7	78.6	85.3	122.6	77.41941	80.31988	81.77831	81.79813	81.07042	82.77959	81.58519	79.19626	79.7505	3.81766	3.827806	1.071744	1.3	0.234452	6.454775	13.54131	0.985114	1.180097	0.045024	0.081804	0.017936	0.135	0.135
331	220.9	78.3	85.3	119.8	76.72942	80.52664	82.24245	81.78052	81.30045	82.98981	81.67664	79.51867	79.79575	3.817758	3.82922	1.073402	1.3	0.231782	6.494887	13.48267	0.981456	0.992377	0	0.077655	0.018351	0.135	0.135
332	223.4	78.2	85.0	126.0	76.94392	80.59385	82.11168	81.73553	81.1543	83.03506	81.73508	79.39234	79.85419	3.817684	3.833292	1.075146	1.3	0.231794	6.528537	13.44344	0.881482	1.200055	0.050014	0.065195	0.018786	0.135	0.135
333	222.6	78.9	85.3	124.9	77.48363	80.72414	82.30137	81.79984	81.19363	82.9622	81.8008	79.39207	79.79453	3.825804	3.830659	1.072281	1.3	0.231806	6.488516	13.49626	0.882701	1.183729	0.04582	0.069328	0.01807	0.135	0.135
334	220.7	78.9	85.4	122.4	77.55878	80.58786	82.12549	81.69656	81.11873	82.88069	81.57411	79.33036	79.56124	3.844824	3.830683	1.072329	1.3	0.231782	6.481171	13.50964	0.882701	0.998692	0	0.07255	0.018082	0.136	0.135
335	222.1	78.4	85.2	117.1	76.85356	80.60593	82.07757	81.81361	81.26982	82.99879	81.77139	79.32967	79.81132	3.839337	3.826538	1.074146	1.3	0.231794	6.515247	13.46341	0.88514	0.992316	0	0.070746	0.018536	0.136	0.135
336	224.1	78.7	85.2	127.0	76.94543	80.59098	82.2804	81.82506	81.15768	83.25622	81.91663	79.62009	80.07535	3.833875	3.825002	1.073158	1.3	0.229124	6.508328	13.47042	0.886359	1.181828	0.045457	0.06845	0.01829	0.135	0.135
337	222.7	79.2	85.4	123.6	78.08481	80.7888	82.16144	81.71931	81.20863	83.10258	81.58482	79.40047	79.91512	3.817733	3.822466	1.071403	1.3	0.248655	6.631558	13.34292	0.877824	1.167819	0.041955	0.073099	0.017851	0.135	0.135
338	221.5	78.6	85.4	122.1	76.93569	80.6089	82.06734	81.82319	81.1386	82.92696	81.71277	79.37663	79.88468	3.820367	3.825197	1.07278	1.3	0.248668	6.751405	13.23764	0.7937	0.992182	0	0.065982	0.018195	0.135	0.135
339	223.4	78.1	84.9	115.6	76.82493	80.53839	82.20802	81.76588	81.17117	83.01232	81.69914	79.4026	79.69946	3.833973	3.827831	1.07545	1.3	0.242754	6.7714	13.21518	0.790042	0.99245	0	0.06739	0.018863	0.135	0.135
340	224.3	78.8	85.3	125.7	77.76745	80.64764	82.19846	81.74973	81.16896	82.87814	81.69035	79.407	79.96124	3.8339	3.822442	1.073134	1.3	0.248692	6.731258	13.2555	0.787603	1.179658	0.044914	0.067219	0.018283	0.135	0.135
341	222.5	78.9	85.3	122.4	78.14346	80.64731	82.16514	81.7362	81.07704	83.05019	81.7502	79.55264	79.9683	3.835265	3.819638	1.071647	1.3	0.25096	6.717085	13.26837	0.688848	1.184059	0.046015	0.079441	0.017912	0.135	0.135
342	222.0	78.9	85.5	120.1	76.92254	80.7113	82.36771	81.94538	81.24954	82.89932	81.60594	79.37539	80.06162	3.831193	3.825246	1.073951	1.3	0.248668	6.7714	13.1946	0.683972	0.992267	0	0.072879	0.018488	0.135	0.135
343	223.9	78.5	85.1	115.1	77.17747	80.7282	82.32522	82.02167	81.26075	83.08211	82.0329	79.60436	80.00683	3.828584	3.81971	1.075633	1.3	0.248655	6.799045	13.16028	0.682752	1.140595	0.035149	0.06803	0.018908	0.135	0.135
344	223.5	78.9	85.0	125.0	77.46892	80.79851	82.05896	81.80821	81.16288	83.16242	81.94163	79.67808	79.88256	3.825804	3.822466	1.072232	1.3	0.245571	6.744883	13.22972	0.687629	1.176366	0.044091	0.087223	0.018058	0.135	0.135
345	222.0	79.0	85.5	122.1	77.81847	80.81037	82.15662	82.06425	81.26367	83.03883	81.82464	79.64028	80.05595	3.825731	3.821125	1.071134	1.3	0.242767	6.731258	13.24935	0.590093	1.162796	0.040699	0.077171	0.017784	0.135	0.135
346	221.8	78.6	85.3	119.9	76.74234	80.73963	82.33665	82.0463	81.4106	83.16597	81.92538	79.52985	79.80692	3.831169	3.819345	1.073158	1.3	0.239926	6.757927	13.22252	0.588874	0.992158	0	0.065302	0.01829	0.135	0.135
347	223.5	78.3	85.1	114.7	77.20567	80.66882	82.27245	81.8765	81.30756	83.03652	81.78274	79.54559	79.67088	3.827414	3.822515	1.074951	1.3	0.229124	6.778471	13.19451	0.592531	0.992304	0	0.071684	0.018738	0.135	0.135
348	224.2	78.8	85.4	125.2	77.16882	80.534	82.19041	81.88687	81.44711	83.20908	81.8761	79.54656	79.82363	3.828365	3.817979	1.072427	1.3	0.223711	6.757897	13.22249	0.590093	1.166295	0.041574	0.077921	0.018107	0.135	0.135
349	222.2	78.7	85.3	122.0	77.68114	80.5504	82.06163	81.81748	81.15196	83.0987	81.69973	79.59457	79.86504	3.833827	3.81993	1.071842	1.3	0.221016	6.738908	13.24935	0.577901	1.181255	0.045314	0.074674	0.01796	0.135	0.135
350	221.7	78.6	85.3	120.0	76.74646	80.62144	81.97429	82.00071	81.36235	83.07812	81.86392	79.52119	79.95664	3.836631	3.817248	1.073353	1.3	0.215835	6.731196	13.2555	0.479146	0.992499	0	0.081944	0.018338	0.135	0.135
351	223.2	78.4	85.1	114.2	76.72787	80.66859	82.16663	82.00827	81.25006	82.83384	81.56686	79.4287	79.83776	3.835217	3.817199	1.07567	1.3	0.218285	6.784933	13.18781	0.47305	0.992523	0	0.06867	0.018917	0.135	0.135
352	223.6	78.9	84.8	125.1	77.02752	80.76521	82.44802	81.99269	81.31995	83.11491	81.70934	79.51179	79.76246	3.835365	3.814492	1.07289	1.3	0.21831	6.731228	13.26242	0.480365	1.189606	0.047402	0.077488	0.018223	0.135	0.135
353	221.5	79.0	85.1	122.1	77.53432	80.39027	82.04669	81.80254	81.19037	82.97213	81.78434	79.50099	79.87045	3.833851	3.814419	1.072573	1.3	0.21581	6.738908	13.26239	0.377952	1.175525	0.043881	0.082456	0.018143	0.135	0.135
354	221.4	79.2	85.5	121.6	77.25925	80.85957	82.13322	81.98807	81.53832	83.2475	82.0399	79.73016	80.00723	3.83924	3.817248	1.072427	1.3	0.213018	6.744852	13.2431	0.376733	0.992621	0	0.068999	0.018107	0.136	0.135
355	223.0	78.6	85.1	115.9	77.20627	80.68683	82.08587	81.77573	81.19343	82.8432	81.64222	79.51725	79.66894	3.835217	3.814468	1.075121	1.3	0.213043	6.764999	13.21524	0.371856	0.992316	0	0.074836	0.01878	0.135	0.135
356	224.3	79.1	85.3	126.1	77.44627	80.83377	82.17342	81.90288	81.3141	83.23445	81.77608	79.66431	79.75661	3.839289	3.814492	1.073573	1.3	0.207934	6.757867	13.23761	0.376733	1.169002	0.04225	0.065274	0.018393	0.136	0.135
357	222.9	79.3	85.2	122.9	77.61871	80.65736	82.19498	82.04982	81.22102	83.04237	81.7358	79.52505	79.9407	3.838069	3.811737	1.072146	1.3	0.202631	6.710592	13.29424	0.285293	1.177817	0.044454	0.076832	0.018037	0.135	0.135
358	221.3	78.8	85.2	120.8	76.91496	80.48882	82.13203	82.00668	81.2112	82.86098	81.75898	79.47563	79.7923	3.840508	3.817297	1.074304	1.3	0.207922	6.669902	13.32838	0.281635	0.992487	0	0.065774	0.018576	0.136	0.135
359	224.3	78.5	85.2	115.6	77.07645	80.98649	82.32613	82.10178	81.29369	83.04244	81.87446	79.75609	80.05956	3.847409	3.818857	1.075621	1.3	0.221053	6.684075	13.28906	0.277978	0.992474	0	0.07469	0.018905	0.136	0.135

Raw Data

Reading Interval	1	Minutes																		10.60941		0.032415				
	1	2	3	4	5	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29				
Elapsed	Flue	Room	Tunnel	Degrees F		DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	Filter 2	DGM 3	Filter 3	Meter 1	Meter 2	Draft	Tunnel					Duct	Duct	Tunnel	Draft	Sys 1	Sys 2
Time	temp 1	temp 2	dry bulb 3	Outlet air	Inlet Air	In	Out		In	Out		In					Pitot	CO	CO2	O2	scale	Pitot	pitot	Pitot	Correction	Cu Ft	Cu Ft
360	225.6	78.7	85.2	125.6	77.4503	80.65133	82.15596	81.92501	81.07609	82.92384	81.65026	79.61108	79.90136	3.844799	3.815809	1.072585	1.3	0.215542	6.581967	13.39589	0.281635	1.178707	0.044677	0.083843	0.018146	0.136	0.135
361	222.6	79.1	85.6	122.5	77.99206	80.85492	82.33976	81.91742	81.25252	83.21906	82.10386	79.70173	79.9194	3.847457	3.817297	1.072232	1.3	0.210507	6.541399	13.4435	0.18288	1.170148	0.042537	0.075302	0.018058	0.136	0.135
362	221.1	79.2	85.6	122.6	77.82709	80.8962	82.23586	81.9521	81.24142	83.02317	81.92117	79.56523	79.83571	3.844799	3.817345	1.073171	1.3	0.210482	6.616501	13.35508	0.184099	0.992133	0	0.074129	0.018293	0.136	0.135
363	223.6	78.7	84.9	115.4	77.07102	80.98139	82.32104	81.9713	81.36265	83.13781	82.0358	79.60728	79.91074	3.863575	3.811713	1.075706	1.3	0.210519	6.656857	13.32832	0.178003	0.992609	0	0.070666	0.018927	0.136	0.135
364	224.9	79.0	85.3	126.2	77.51907	80.76554	82.36916	81.89404	81.34962	83.09838	81.8314	79.85162	79.95051	3.817684	3.812176	1.074268	1.4	0.205618	6.616531	13.37459	0.180442	1.188034	0.047008	0.090085	0.018567	0.135	0.135
365	223.0	79.2	85.4	122.9	78.25526	80.7241	82.16273	81.99117	81.32623	83.09479	81.9004	79.55766	79.76874	3.814929	3.814517	1.0725	1.3	0.199924	6.554688	13.43631	0.179222	1.168404	0.042101	0.074873	0.018125	0.135	0.135
366	221.5	79.4	85.4	122.3	77.68501	80.62988	82.2995	81.83757	81.16822	83.03577	81.6962	79.53164	79.78891	3.813637	3.812078	1.072244	1.3	0.202655	6.588735	13.40193	0.082906	0.992487	0	0.080225	0.018061	0.135	0.135
367	221.8	78.5	85.3	116.7	76.88785	80.67599	82.31921	82.11466	81.31704	83.1252	81.95721	79.51548	79.87833	3.806834	3.81181	1.074646	1.3	0.197156	6.602755	13.38157	0.080467	0.992572	0	0.072017	0.018661	0.134	0.135
368	224.0	78.6	85.3	126.4	77.12022	80.63921	82.22304	81.8667	81.21296	83.0871	81.67494	79.74136	79.78085	3.848701	3.810615	1.074402	1.3	0.19712	6.602755	13.38526	0.082906	1.18401	0.046003	0.066439	0.0186	0.136	0.135
369	222.2	78.9	85.4	122.9	77.66199	80.90289	82.22274	82.17657	81.34168	83.33463	82.00825	79.7315	79.92278	3.841995	3.906078	1.072342	1.3	0.205581	6.575902	13.42262	0.080467	1.183462	0.045865	0.064704	0.018085	0.136	0.138
370	221.2	78.9	85.5	120.5	77.21622	80.82669	82.4765	82.09377	81.22021	83.08116	81.87357	79.69581	80.03887	3.8339	3.905981	1.0725	1.3	0.205605	6.575963	13.41525	0.085344	1.189216	0.047304	0.080475	0.018125	0.135	0.138
371	221.7	78.7	85.3	117.6	76.94077	80.86301	82.27525	82.03111	81.40357	83.20513	81.91175	79.57561	79.89227	3.831291	3.906005	1.074402	1.3	0.20791	6.581998	13.41525	-0.00975	0.992487	0	0.079091	0.0186	0.135	0.138

Summary

EPA Method 28 OWHH Testing Parameters

Manufacturer	HY-C
Model Number	SF1000E
Test Technician	Ken Slater

Category	Cat 1
Run Number	7
Test Date	10/9/18
Total Test Fuel Weight (lb)	36.69
Avg. Test Fuel Moisture (% dry)	22.98

Test Duration (min)	371	
Burn Rate (kg/hr)		
Emissions (g)	7.30	Train 2
Beginning Dry Gas Meter Reading (ft3)	0	0
Final Dry Gas Meter Reading (ft3)	50.27759	50.27789
Average Barometric Pressure (“Hg)	29.03	
Average Delta p (inches of water)	0.075	

Average Gas Velocity in Tunnel (feet/sec)	17			
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	791.0074			
	kJ	**Btu**		
Total Input	267374	253592		
Total Output	135,447	128465	**kW**	
Output Rate (kJ/hr, BTU/hr, kW)	21,905	20776	6.08	
Emissions g/MJ	**0.053866**	0.4	B415.1-2010 Limit	
Emissions lb/MMBtu Input	**0.063429**			
Emissions lb/MMBtu Output	**0.12521**	0.93	EPA 2015 Proposed Limit	
Emissions g/hr	**1.179957**			
Efficiency	**50.7%**			

Project No: G103537042 Manufacturer: HY-C Model: SF1000E Date: 10/15/18 Tech: KS

Weighted Average for Solid Fuel Aired Heating Appliances

CAT	Load % Capacity	Tgt Load (Btu/hr)	Act Load (Btu/hr)	Test Duration (Hours)	WoodWt (Lb)	Q_{in} (Btu)	Q_{out} (Btu)	h_N (%)	E_T (g)	E (g/MJ)	E Output (lb/mmbtu)	E Input (lb/mmbtu)	E (g/hr)
I	<35% of max	13,895	20,338	6.23	36.60	252,747	126,753	50.1%	6.06	0.045	0.11	0.05	0.97
II	35-53% of max	17,468	22,173	6.20	36.43	252,061	137,470	54.5%	9.23	0.064	0.15	0.08	1.49
III	53-76% of max	25,805	28,360	4.22	36.68	255,075	119,585	46.9%	4.70	0.04	0.09	0.04	1.12
IV	Max capacity	39,700	34,536	3.38	34.44	241,292	116,848	48.4%	5.70	0.05	0.11	0.05	1.68

		Efficiency	Efficiency			
Average BTU/hr for 8 hr burn time	#DIV/0!	#DIV/0!	#DIV/0!	Y1		Test duration above 8 hours
		HHV	LHV	Y2		Test duration just below 8 hours
				X1		Actual load (BTU/hr) for duration Y1
If the test is ASTM put a 0, if EPA put a 1	0			X2		Actual load (BTU/hr) for duration Y2
				Z1		Efficiency for duration Y1 HHV
Maximum output rating BTU/hr:	39,700			Z2		Efficiency for duration Y2 HHV
				Z3		Efficiency for duration Y1 LHV
				Z4		Efficiency for duration Y2 LHV

Weighted Average

	Weighting	Direct		Stack Loss	Output			
Category	Factor	$\eta_x F_i$	$E_{g/MJ,i} \times F_i$	$\eta_x F_i$	$E_{lb/mmbtu} \times F_i$	$E_{g/hr} \times F_i$	$CO_{g/hr} \times F_i$	$CO_{g/min} \times F_i$
I	0.934	46.773	0.042	67.032	0.098	0.906	109.054	1.818
II	0.055	2.991	0.003	3.946	0.008	0.082	9.386	0.156
III	0.060	2.791	0.002	4.065	0.005	0.066	3.302	0.055
IV	0.012	0.581	0.001	0.840	0.001	0.020	1.320	0.022
Totals	1.060	50.129	0.048	71.588	0.106	1.013	116.095	1.935

/private/var/folders/1p/d2hptx396mx8w7fdmm4sc9tw0000gn/T/com.microsoft.Outlook/Outlook Temp/[Weighted Avg SF1000E - Revised.xls]Sheet1
Remember to use Paste special when copying to this area, values only!

Weighted Average

Category 1 test results Paste in F51

Category	1		
Run Number	4 & 7		
Test Date	10/4/18, 10/9/18		
Total Test Fuel Weight (lb)	36.60		
Avg. Test Fuel Moisture (% dry)	23.07		
Total Test Fuel Weight (Dry kg)	13.44		
Test Duration (min)	374.000		
Burn Rate (kg/hr)	2.164		
Emissions (g)	6.06	Train 2	
Beginning Dry Gas Meter Reading (ft3)	0.00	0	
Final Dry Gas Meter Reading (ft3)	50.48	50.4819042	
Average Barometric Pressure ("Hg)	29.14		
Average Tunnel Delta p (inches of water)	0.08		
Average Gas Velocity in Tunnel (feet/sec)	17		
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	801		

	kJ	Btu		
Total Input	266483	252747		
Total Output	133642	126753	kW	
Output Rate (kJ/hr, BTU/hr, kW)	21444	20338	5.96	
Emissions g/MJ	0.045			
Emissions lb/MMBtu Input	0.05			
Emissions lb/MMBtu Output	0.105			
Emissions g/hr	0.97			
Efficiency	50.1%			
CO g/hr	116.81			

Category 2 test results paste in L51

Category	Cat 2		
Run Number	6		
Test Date	10/8/18		
Total Test Fuel Weight (lb)	36.43		
Avg. Test Fuel Moisture (% dry)	22.85		
Total Test Fuel Weight (Dry kg)	13.45		
Test Duration (min)	372.00		
Burn Rate (kg/hr)	2.170		
Emissions (g)	9.23	Train 2	
Beginning Dry Gas Meter Reading (ft3)	0.000	0	
Final Dry Gas Meter Reading (ft3)	50.498	50.505574	
Average Barometric Pressure ("Hg)	29.05		
Average Tunnel Delta p (inches of water)	0.08		
Average Gas Velocity in Tunnel (feet/sec)	17		
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	808		

	kJ	Btu		
Total Input	265761	252061		
Total Output	144942	137470	kW	
Output Rate (kJ/hr, BTU/hr, kW)	23378	22173	6.49	
Emissions g/MJ	0.064	0.4	B415.1-2010 Limit	
Emissions lb/MMBtu Input	0.08			
Emissions lb/MMBtu Output	0.148	0.93	EPA 2015 Proposed Limit	
Emissions g/hr	1.49			
Efficiency	54.5%			
CO g/hr	171.03			

Category 3 test results paste in F81

Category	Cat 3		
Run Number	2		
Test Date	10/2/18		
Total Test Fuel Weight (lb)	36.68		
Avg. Test Fuel Moisture (% dry)	22.23		
Total Test Fuel Weight (Dry kg)	13.61		
Test Duration (min)	253.00		
Burn Rate (kg/hr)	3.23		
Emissions (g)	4.70	Train 2	
Beginning Dry Gas Meter Reading (ft3)	0.00	0	
Final Dry Gas Meter Reading (ft3)	34.66	34.6560327	
Average Barometric Pressure ("Hg)	29.16		
Average Tunnel Delta p (inches of water)	0.08		
Average Gas Velocity in Tunnel (feet/sec)	17		
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	805		

	kJ	Btu		
Total Input	268939	255075		
Total Output	126084	119585	kW	
Output Rate (kJ/hr, BTU/hr, kW)	29901.338	28360	8.31	
Emissions g/MJ	0.037	0.4	B415.1-2010 Limit	
Emissions lb/MMBtu Input	0.04			
Emissions lb/MMBtu Output	0.09	0.93	EPA 2015 Proposed Limit	
Emissions g/hr	1.115			
Efficiency	46.9%			
CO g/hr				

Category 4 test results Paste in L81

Category	Cat 4		
Run Number	3		
Test Date	10/3/18		
Total Test Fuel Weight (lb)	34.44		
Avg. Test Fuel Moisture (% dry)	21.32		
Total Test Fuel Weight (Dry kg)	12.88		
Test Duration (min)	203.00		
Burn Rate (kg/hr)	3.81		
Emissions (g)	5.70	Train 2	
Beginning Dry Gas Meter Reading (ft3)	0.00	0	
Final Dry Gas Meter Reading (ft3)	27.43	27.429718	
Average Barometric Pressure ("Hg)	28.80		
Average Tunnel Delta p (inches of water)	0.07		
Average Gas Velocity in Tunnel (feet/sec)	17.20		
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	810.63		

	kJ	Btu		
Total Input	254406	241292		
Total Output	123198	116848	kW	
Output Rate (kJ/hr, BTU/hr, kW)	36413	34536	10.11	
Emissions g/MJ	0.046	0.4	B415.1-2010 Limit	
Emissions lb/MMBtu Input	0.05			
Emissions lb/MMBtu Output	0.11	0.93	EPA 2015 Proposed Limit	
Emissions g/hr	1.685			
Efficiency	48.4%			
CO g/hr				

Category 1 Run 4 test results

Category	Cat 1		
Run Number	4		
Test Date	10/4/18		
Total Test Fuel Weight (lb)	36.50		
Avg. Test Fuel Moisture (% dry)	23.16		
Total Test Fuel Weight (Dry kg)	13.44		
Test Duration (min)	377.00		
Burn Rate (kg/hr)	2.14		
Emissions (g)	4.83	Train 2	
Beginning Dry Gas Meter Reading (ft3)	0.00	0	
Final Dry Gas Meter Reading (ft3)	50.68	50.6859184	
Average Barometric Pressure ("Hg)	29.24		
Average Tunnel Delta p (inches of water)	0.08		
Average Gas Velocity in Tunnel (feet/sec)	17		
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	811		
	kJ	Btu	
Total Input	265592	251901	
Total Output	131836	125040	kW
Output Rate (kJ/hr, BTU/hr, kW)	20981.913	19900	5.83
Emissions g/MJ	0.037	0.4	B415.1-2010 Limit
Emissions lb/MMBtu Input	0.04		
Emissions lb/MMBtu Output	0.09	0.93	EPA 2015 Proposed Limit
Emissions g/hr	0.77		
Efficiency	49.6%		
CO g/hr	145.46		

Category 1 Run 7 test results

Category	Cat 1		
Run Number	7		
Test Date	10/9/18		
Total Test Fuel Weight (lb)	36.69		
Avg. Test Fuel Moisture (% dry)	22.98		
Total Test Fuel Weight (Dry kg)			
Test Duration (min)	371.00		
Burn Rate (kg/hr)	2.19		
Emissions (g)	7.30	Train 2	
Beginning Dry Gas Meter Reading (ft3)	0.00	0	
Final Dry Gas Meter Reading (ft3)	50.28	50.27789	
Average Barometric Pressure ("Hg)	29.03		
Average Tunnel Delta p (inches of water)	0.07		
Average Gas Velocity in Tunnel (feet/sec)	17		
Average Gas Flow Rate in Dilution Tunnel (Qsd) (dscfm)	791		
	kJ	Btu	
Total Input	267374	253592	
Total Output	135447	128465	kW
Output Rate (kJ/hr, BTU/hr, kW)	21905.214	20776	6.08
Emissions g/MJ	0.054		
Emissions lb/MMBtu Input	0.06		
Emissions lb/MMBtu Output	0.13		
Emissions g/hr	1.18		
Efficiency	50.7%		
CO g/hr	88.16		

Certificate Number
A2794553
Issue Date: 04/04/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number:
ID Number: 008

Description: SCALE
Manufacturer: GSE
Model Number: 450
Serial Number: 101722
Technician: ARMIN AHMETOVIC
On-Site Calibration: ☑
Comments:

Calibration Date: 04/04/2018
Calibration Due: 10/04/2018
Procedure: TMI-SCALES Rev: 5/13/2014
Temperature: 68 F
Humidity: 40 % RH
As Found Condition: IN TOLERANCE
Calibration Results: IN TOLERANCE

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

Reported uncertainties are expressed as expanded uncertainty values at an approximately 95% confidence level using a coverage factor of k=2. Statements of compliance are based on test results falling within specified limits with no reduction by the uncertainty of the measurement.

TMI's Quality System is accredited to ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994. ISO/IEC 17025:2005 is written in a language relevant to laboratory operations, meeting the principles of ISO 9001 and aligned with its pertinent requirements. This calibration is within the current Scope of Accreditation and complies with the requirements of ISO/IEC 17025:2005 and TMI's Quality Manual, QM-1.

Results contained in this document relate only to the item calibrated. Calibration due dates appearing on the certificate or label are determined by the client for administrative purposes and do not imply continued conformance to specifications.

Measurements not currently on TMI's Scope of Accreditation are identified with an asterisk.

B. SCHICKOWSKI, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
0515114046	OMEGA	OM-73	2/1/2018	2/1/2019
RFD710	RICE LAKE	500LBS	7/12/2017	7/12/2018

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AC-2080.03

Certificate Number
A2794553
Issue Date: 04/04/18

Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Shift Test Center	25.00	24.90	25.10	25.01	25.01	27 grams	lbs	
Shift Test RF	25.00	24.90	25.10	24.95	24.95	27 grams	lbs	
Shift Test RR	25.00	24.90	25.10	25.00	25.00	27 grams	lbs	
Shift Test LF	25.00	24.90	25.10	24.98	24.98	27 grams	lbs	
Shift Test LR	25.00	24.90	25.10	25.01	25.01	27 grams	lbs	
Weight Accuracy	25.00	24.90	25.10	25.00	25.00	27 grams	lbs	
Weight Accuracy	50.00	49.90	50.10	50.01	50.01	27 grams	lbs	
Weight Accuracy	75.00	74.90	75.10	75.01	75.01	27 grams	lbs	
Weight Accuracy	100.00	99.90	100.10	100.01	100.01	27 grams	lbs	

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ANSI/NCSL Z540.3

AC-2080.03

Certificate Number
A2794623
Issue Date: 04/04/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number:
ID Number: 713

Description:	SCALE	Calibration Date:	04/04/2018
Manufacturer:	OHAUS	Calibration Due:	10/04/2018
Model Number:	E12140	Procedure:	TMI-SCALES Rev: 5/13/2014
Serial Number:	B258010639	Temperature:	69 F
Technician:	ARMIN AHMETOVIC	Humidity:	34 % RH
On-Site Calibration:	☑	**As Found Condition:**	**IN TOLERANCE**
Comments:		**Calibration Results:**	**IN TOLERANCE**

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

Reported uncertainties are expressed as expanded uncertainty values at an approximately 95% confidence level using a coverage factor of k=2. Statements of compliance are based on test results falling within specified limits with no reduction by the uncertainty of the measurement.

TMI's Quality System is accredited to ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994. ISO/IEC 17025:2005 is written in a language relevant to laboratory operations, meeting the principles of ISO 9001 and aligned with its pertinent requirements. This calibration is within the current Scope of Accreditation and complies with the requirements of ISO/IEC 17025:2005 and TMI's Quality Manual, QM-1.

Results contained in this document relate only to the item calibrated. Calibration due dates appearing on the certificate or label are determined by the client for administrative purposes and do not imply continued conformance to specifications.

Measurements not currently on TMI's Scope of Accreditation are identified with an asterisk.

B. SCHICKOWSKI, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
0515114046	OMEGA	OM-73	2/1/2018	2/1/2019
RFD-WT-2	RICE LAKE	RFD-WT-2	11/18/2016	11/18/2018

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AC-2080.03

Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Shift Test Center	10.0000	9.9900	10.0100	9.9985	9.9985	0.47 mg	Grams	
Shift Test RF	10.0000	9.9900	10.0100	9.9990	9.9990	0.47 mg	Grams	
Shift Test RR	10.0000	9.9900	10.0100	9.9985	9.9985	0.47 mg	Grams	
Shift Test LF	10.0000	9.9900	10.0100	9.9990	9.9990	0.47 mg	Grams	
Shift Test LR	10.0000	9.9900	10.0100	9.9980	9.9980	0.47 mg	Grams	
Weight Accuracy	10.0000	9.9900	10.0100	9.9990	9.9990	0.47 mg	Grams	
Weight Accuracy	50.0000	49.9900	50.0100	50.0004	50.0004	0.47 mg	Grams	
Weight Accuracy	100.0000	99.9900	100.0100	100.0004	100.0004	0.47 mg	Grams	
Weight Accuracy	150.0000	149.9900	150.0100	150.0003	150.0003	0.47 mg	Grams	
Weight Accuracy	200.0000	199.9900	200.0100	200.0058	200.0058	0.47 mg	Grams	

Certificate Number
A2799991
Issue Date: 04/09/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number:
ID Number: 986

Description:	DATA ACQUISITION SYSTEM	Calibration Date:	04/05/2018
Manufacturer:	OMEGA	Calibration Due:	10/05/2018
Model Number:	NMN	Procedure:	OMEGA OM-DAQ-USB-2401 Rev: 1/12/2012
Serial Number:	NSN	Temperature:	69 F
Technician:	ARMIN AHMETOVIC	Humidity:	34 % RH
On-Site Calibration:	☑	**As Found Condition:**	**IN TOLERANCE**
Comments:		**Calibration Results:**	**IN TOLERANCE**

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

Reported uncertainties are expressed as expanded uncertainty values at an approximately 95% confidence level using a coverage factor of k=2. Statements of compliance are based on test results falling within specified limits with no reduction by the uncertainty of the measurement.

TMI's Quality System is accredited to ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994. ISO/IEC 17025:2005 is written in a language relevant to laboratory operations, meeting the principles of ISO 9001 and aligned with its pertinent requirements. This calibration is within the current Scope of Accreditation and complies with the requirements of ISO/IEC 17025:2005 and TMI's Quality Manual, QM-1.

Results contained in this document relate only to the item calibrated. Calibration due dates appearing on the certificate or label are determined by the client for administrative purposes and do not imply continued conformance to specifications.

Measurements not currently on TMI's Scope of Accreditation are identified with an asterisk.

B. SCHICKOWSKI, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
0515114046	OMEGA	OM-73	2/1/2018	2/1/2019
RFD825	ADDITEL CORPORATION	ADT222A	5/26/2017	5/26/2018

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AC-2080.03

Certificate Number
A2799991
Issue Date: 04/09/18

Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Thermocouple Accuracy (K Type) Input 1	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 2	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 3	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 4	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 5	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 6	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 7	1000.0	998.2	1001.8	999.8	999.8	0.33	°F	
Thermocouple Accuracy (K Type) Input 8	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (T Type) Input 9	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (T Type) Input 10	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (T Type) Input 11	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (T Type) Input 12	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 13	1000.0	998.2	1001.8	999.6	999.6	0.33	°F	
Thermocouple Accuracy (K Type) Input 14	1000.0	998.2	1001.8	999.8	999.8	0.33	°F	
Thermocouple Accuracy (K Type) Input 15	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 16	1000.0	998.2	1001.8	999.9	999.9	0.33	°F	
Thermocouple Accuracy (K Type) Input 17	1000.0	998.2	1001.8	999.8	999.8	0.33	°F	
Thermocouple Accuracy (K Type) Input 18	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 19	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Thermocouple Accuracy (K Type) Input 20	1000.0	998.2	1001.8	1000.0	1000.0	0.33	°F	
Voltage Accuracy 21	10.0	9.5	10.5	9.8	9.8	0.0059	V	
Voltage Accuracy 22	10.0	9.5	10.5	9.9	9.9	0.0059	V	
Voltage Accuracy 23	10.0	9.5	10.5	9.9	9.9	0.0059	V	
Voltage Accuracy 24	10.0	9.5	10.5	9.7	9.7	0.0059	V	
Voltage Accuracy 25	10.0	9.5	10.5	9.8	9.8	0.0059	V	
Voltage Accuracy 26	10.0	9.5	10.5	9.8	9.8	0.0059	V	
Voltage Accuracy 27	10.0	9.5	10.5	9.8	9.8	0.0059	V	
Voltage Accuracy 28	10.0	9.5	10.5	9.9	9.9	0.0059	V	
Voltage Accuracy 29	10.0	9.5	10.5	9.7	9.7	0.0059	V	

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ANSI/NCSL Z540-1
ANSI/NCSL Z540.3

AC-2080.03

Certificate Number
A2794588
Issue Date: 04/04/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number:
ID Number: 1134

Description: SCALE
Manufacturer: RICE LAKE
Model Number: 520-1A
Serial Number: 1494600044
Technician: ARMIN AHMETOVIC
On-Site Calibration: ☑
Comments:

Calibration Date: 04/04/2018
Calibration Due: 10/04/2018
Procedure: TMI-SCALES
Rev: 5/13/2014
Temperature: 68 F
Humidity: 40 % RH
As Found Condition: IN TOLERANCE
Calibration Results: IN TOLERANCE

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

Reported uncertainties are expressed as expanded uncertainty values at an approximately 95% confidence level using a coverage factor of k=2. Statements of compliance are based on test results falling within specified limits with no reduction by the uncertainty of the measurement.

TMI's Quality System is accredited to ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994. ISO/IEC 17025:2005 is written in a language relevant to laboratory operations, meeting the principles of ISO 9001 and aligned with its pertinent requirements. This calibration is within the current Scope of Accreditation and complies with the requirements of ISO/IEC 17025:2005 and TMI's Quality Manual, QM-1.

Results contained in this document relate only to the item calibrated. Calibration due dates appearing on the certificate or label are determined by the client for administrative purposes and do not imply continued conformance to specifications.

This certificate shall not be reproduced, except in full, without the written permission of Technical Maintenance, Inc.

Measurements not currently on TMI's Scope of Accreditation are identified with an asterisk

B. SCHICKOWSKI, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
0515114046	OMEGA	OM-73	2/1/2018	2/1/2019
RFD710	RICE LAKE	500LBS	7/12/2017	7/12/2018

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Certificate Number
A2794588
Issue Date: 04/04/18

Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Weight Accuracy	100.0	99.7	100.3	99.8	99.8	27 grams	lbs	
Weight Accuracy	200.0	199.7	200.3	199.8	199.8	27 grams	lbs	
Weight Accuracy	300.0	299.7	300.3	299.8	299.8	27 grams	lbs	
Weight Accuracy	400.0	399.7	400.3	399.9	399.9	27 grams	lbs	
Weight Accuracy	500.0	499.7	500.3	499.8	499.8	27 grams	lbs	
Weight Accuracy	1000.0	999.7	1000.3	999.8	999.8	27 grams	lbs	
Shift Test RF	100.0	99.7	100.3	99.8	99.8	27 grams	lbs	
Shift Test LF	100.0	99.7	100.3	99.7	99.7	27 grams	Lbs	
Shift Test RR	100.0	99.7	100.3	99.8	99.8	27 grams	lbs	
Shift Test LR	100.0	99.7	100.3	99.8	99.8	27 grams	lbs	
Shift Test Center	100.0	99.7	100.3	99.7	99.7	27 grams	lbs	

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ANSI/NCSL Z540.3

AC-2080.03

Certificate Number
A2799975
Issue Date: 04/09/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number:
ID Number: 001212

Description: TIMER
Manufacturer: COLE PARMER
Model Number: 94440-10
Serial Number: NSN
Technician: ARMIN AHMETOVIC
On-Site Calibration: ☑
Comments:

Calibration Date: 04/04/2018
Calibration Due: 04/04/2019
Procedure: NIST SP 960-12
Rev: 1/1/2009
Temperature: 68 F
Humidity: 40 % RH
As Found Condition: IN TOLERANCE
Calibration Results: IN TOLERANCE

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

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B. SCHICKOWSKI, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
0515114046	OMEGA	OM-73	2/1/2018	2/1/2019
RFD806	HEWLETT PACKARD	53181A	5/9/2017	5/9/2018

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Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Timer Accuracy	60	59	61	60	60	0.3	sec	
Timer Accuracy	300	299	301	300	300	0.3	sec	
Timer Accuracy	1800	1799	1801	1800	1800	0.3	sec	

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ANSI/NCSL Z540-1
ANSI/NCSL Z540.3
AC-2080.03

Certificate Number
A2794500
Issue Date: 04/04/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number:
ID Number: 001213

Description:	TIMER
Manufacturer:	COLE PARMER
Model Number:	94440-10
Serial Number:	NSN
Technician:	ARMIN AHMETOVIC
On-Site Calibration:	☑
Comments:	

Calibration Date:	04/04/2018
Calibration Due:	04/04/2019
Procedure:	NIST SP 960-12 Rev: 1/1/2009
Temperature:	68 F
Humidity:	40 % RH
As Found Condition:	**IN TOLERANCE**
Calibration Results:	**IN TOLERANCE**

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

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Measurements not currently on TMI's Scope of Accreditation are identified with an asterisk

B. SCHICKOWSKI, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
0515114046	OMEGA	OM-73	2/1/2018	2/1/2019
RFD806	HEWLETT PACKARD	53181A	5/9/2017	5/9/2018

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AC-2080.03

Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Timer Accuracy	60	59	61	60	60	0.3	sec	
Timer Accuracy	300	299	301	300	300	0.3	sec	
Timer Accuracy	1800	1799	1801	1800	1800	0.3	sec	

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AC-2080.03

Certificate Number
A2840815
Issue Date: 05/18/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number:
ID Number: 001420

Description:	THERMAL HYGROMETER	Calibration Date:	04/09/2018
Manufacturer:	CONTROL COMPANY	Calibration Due:	10/09/2018
Model Number:	68000-49	Procedure:	TMI-M-HYGROTHERMOGRAPHS Rev: 2/22/2011
Serial Number:	150810334	Temperature:	69 F
Technician:	ARMIN AHMETOVIC	Humidity:	25 % RH
On-Site Calibration: ☐		**As Found Condition:**	**IN TOLERANCE**
Comments:		**Calibration Results:**	**IN TOLERANCE**

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

Reported uncertainties are expressed as expanded uncertainty values at an approximately 95% confidence level using a coverage factor of k=2. Statements of compliance are based on test results falling within specified limits with no reduction by the uncertainty of the measurement.

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B. SCHICKOWSKI, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
0515114046	OMEGA	OM-73	2/1/2018	2/1/2019
RFD406	VAISALA	HMP46/HMI41	2/8/2017	4/26/2018
RFD805	THUNDER SCIENTIFIC	1200	5/4/2017	5/4/2018
RKFD101	FLUKE/HART	1502A	7/17/2017	1/7/2019

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Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Temperature Accuracy	60.0	59.3	60.7	60.2	60.2	0.24	°F	
Temperature Accuracy	70.0	69.3	70.7	70.5	70.5	0.24	°F	
Temperature Accuracy	80.0	79.3	80.7	80.3	80.3	0.24	°F	
Humidity Accuracy	33	30	36	34	34	1.7	%RH	
Humidity Accuracy	50	47	53	51	51	1.7	%RH	
Humidity Accuracy	75	72	78	76	76	1.7	%RH	

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AC-2080.03

intertek Total Quality. Assured.	Calibration Certificate Number	1210-MID-07-02-18
	Issue Date	07/02/18

Middleton Laboratory Local Calibration Data

Asset Number	1210		Asset Description	Dry Gas Meter
Calibration Date	7/2/2018		Peformed By	Ken Slater
Calibration Due	1/2/2019		Reviewed By	Brian Ziegler

Reference Equipment

Asset Description - Asset Number	Spirometer - 051	Calibration Due	NA
Asset Description - Asset Number	Hygrometer - 1420	Calibration Due	10/9/2018
Asset Description - Asset Number	Omega Temp Reader - 1312	Calibration Due	1/16/2019
Asset Description - Asset Number	NA	Calibration Due	NA

Barometric Pressure (in Hg)	29.12

Ambient Temp (^{o}F)	78.1

Relative Humidity (%)	53

As Found Data

Run Number	Meter Initial	Barometric Pressure (in Hg)	Spirometer Temp (^{o}F)	Vapor Pressure of H2O (Hg)	Meter Temp (^{o}F)	Meter Pressure (in Hg)	Measurement (in)	Spirometer Volume	Meter Final	Y
1	419.58	29.12	80.0	1.0220	76.0	4	22.875	1.0398	420.595	0.98113
2	420.595	29.12	80.0	1.0220	77.0	4	22.8125	1.0369	421.608	0.98221
3	421.608	29.12	80.0	1.0220	77.0	4	22.625	1.0284	422.614	0.98092
4	422.614	29.12	81.0	1.0560	78.0	4	22.625	1.0284	423.619	0.98072
5	423.621	29.12	81.0	1.0560	79.0	4	23	1.0455	424.646	0.97933
								1.0358	Ave	0.98086
								0.0074	Std Dev	0.00103
									M of U	0.00234

Pass

As Left Data

Run Number	Meter Initial	Barometric Pressure (in Hg)	Spirometer Temp (^{o}F)	Vapor Pressure of H2O (Hg)	Meter Temp (^{o}F)	Meter Pressure (in Hg)	Measurement (in)	Spirometer Volume	Meter Final	Y
1	419.58	29.12	80.0	1.0220	76.0	4	22.875	1.0398	420.595	0.98113
2	420.595	29.12	80.0	1.0220	77.0	4	22.8125	1.0369	421.608	0.98221
3	421.608	29.12	80.0	1.0220	77.0	4	22.625	1.0284	422.614	0.98092
4	422.614	29.12	81.0	1.0560	78.0	4	22.625	1.0284	423.619	0.98072
5	423.621	29.12	81.0	1.0560	79.0	4	23	1.0455	424.646	0.97933
								1.0358	Ave	0.98086
								0.0074	Std Dev	0.00103
									M of U	0.00234

Pass

33	0.187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.195	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.211	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.219	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	0.228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
39	0.237	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0.247	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
41	0.256	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
42	0.266	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
43	0.277	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
44	0.287	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
47	0.322	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.334	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
49	0.347	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.360	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	0.373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	0.387	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	0.402	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	0.417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	0.432	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	0.448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
57	0.465	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
58	0.482	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	0.499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.517	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	0.536	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	0.555	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
63	0.575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.595	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
65	0.616	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
66	0.638	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
67	0.661	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
68	0.684	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
69	0.707	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
70	0.732	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
71	0.757	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.783	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
73	0.810	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
74	0.838	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
75	0.866	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
76	0.896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

77	0.926	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
78	0.957	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
79	0.989	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
80	1.022	1.0220	1.0220	1.0220	0.0000	0.0000	1.0220	1.0220	1.0220	0.0000	0.0000
81	1.056	0.0000	0.0000	0.0000	1.0560	1.0560	0.0000	0.0000	0.0000	1.0560	1.0560
82	1.091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
83	1.127	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	1.163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	1.201	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	1.241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
87	1.281	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
88	1.322	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
89	1.364	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
90	1.408	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
91	1.453	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
92	1.499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
93	1.546	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
94	1.595	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
95	1.645	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	1.696	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
97	1.749	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
98	1.803	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
99	1.859	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Certificate Number
A2919100
Issue Date: 08/08/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number: C/C

ID Number: 001413

Description:	MASS FLOW METER	Calibration Date:	08/08/2018
Manufacturer:	SIERRA	Calibration Due:	02/08/2019
Model Number:	M50L-AL-DD-2-PV2-V1-5PC	Procedure:	TB 9-6680-293-40 Rev: 4/28/2011
Serial Number:	189158	Temperature:	70 F
Technician:	JEFF BAHMANN	Humidity:	53 % RH
		As Found Condition:	**IN TOLERANCE**
On-Site Calibration: ☐		**Calibration Results:**	**IN TOLERANCE**

Comments:

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

Reported uncertainties are expressed as expanded uncertainty values at an approximately 95% confidence level using a coverage factor of k=2. Statements of compliance are based on test results falling within specified limits with no reduction by the uncertainty of the measurement.

TMI's Quality System is accredited to ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994. ISO/IEC 17025:2005 is written in a language relevant to laboratory operations, meeting the principles of ISO 9001 and aligned with its pertinent requirements. This calibration is within the current Scope of Accreditation and complies with the requirements of ISO/IEC 17025:2005 and TMI's Quality Manual, QM-1.

Results contained in this document relate only to the item calibrated. Calibration due dates appearing on the certificate or label are determined by the client for administrative purposes and do not imply continued conformance to specifications.

Measurements not currently on TMI's Scope of Accreditation are identified with an asterisk.

FRANK BAHMANN, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
FL2146	FLUKE	MOLBOX1+A700-A	7/3/2018	7/3/2020
FL6426	DH INSTRUMENTS	1E4-VCR-V-Q	3/8/2018	3/8/2020

Technical Maintenance, Inc.
12530 TELECOM DRIVE, TEMPLE TERRACE, FL 33637
Phone: 813-978-3054 Fax 813-978-3758
www.tmicalibration.com

ilac-MRA
ANAB ACCREDITED ISO/IEC 17025 ANSI/NCSL Z540-1 ANSI/NCSL Z540.3
AC-2080

Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Flow Accuracy	0.000	-0.300	0.300	0.000	0.000	0.6 mL/min	slm	
Flow Accuracy	2.000	1.700	2.300	1.998	1.998	5.8 mL/min	slm	
Flow Accuracy	4.000	3.700	4.300	3.985	3.985	12 mL/min	slm	
Flow Accuracy	6.000	5.700	6.300	5.982	5.982	17 mL/min	slm	
Flow Accuracy	8.000	7.700	8.300	7.974	7.974	23 mL/min	slm	
Flow Accuracy	10.000	9.700	10.300	9.969	9.969	29 mL/min	slm	

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Certificate Number
A2919108
Issue Date: 08/08/18

Certificate of Calibration

Customer: INTERTEK MIDDLETON
8431 MURPHY DR.
MIDDLETON, WI, 53562
608-824-7422

P.O. Number: C/C

ID Number: 001414

Description:	MASS FLOW METER	Calibration Date:	08/08/2018
Manufacturer:	SIERRA	Calibration Due:	02/08/2019
Model Number:	M50L-AL-DD-2-PV2-V1-5PC	Procedure:	TB 9-6680-293-40 Rev: 4/28/2011
Serial Number:	189157	Temperature:	70 F
Technician:	JEFF BAHMANN	Humidity:	53 % RH
On-Site Calibration: ☐		**As Found Condition:**	**IN TOLERANCE**
Comments:		**Calibration Results:**	**IN TOLERANCE**

Limiting Attribute:

This instrument has been calibrated using standards traceable to the SI units through the National Institute of Standards and Technology (NIST) or other National Metrological Institute (NMI). The method of calibration is direct comparison to a known standard, derived from natural physical constants, ratio measurements or compared to consensus standards.

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FRANK BAHMANN, BRANCH MANAGER

Scott Chamberlain, QUALITY MANAGER

Calibration Standards

Asset Number	Manufacturer	Model Number	Date Calibrated	Cal Due
FL2146	FLUKE	MOLBOX1+A700-A	7/3/2018	7/3/2020
FL6426	DH INSTRUMENTS	1E4-VCR-V-Q	3/8/2018	3/8/2020

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AC-2080

Certificate of Calibration

Data Sheet

Parameter	Nominal	Minimum	Maximum	As Found	As Left	Uncertainty	Unit	ADJ/FAIL
Flow Accuracy	0.000	-0.300	0.300	0.000	0.000	0.6 mL/min	slm	
Flow Accuracy	2.000	1.700	2.300	2.000	2.000	5.8 mL/min	slm	
Flow Accuracy	4.000	3.700	4.300	3.995	3.995	12 mL/min	slm	
Flow Accuracy	6.000	5.700	6.300	5.992	5.992	17 mL/min	slm	
Flow Accuracy	8.000	7.700	8.300	7.985	7.985	23 mL/min	slm	
Flow Accuracy	10.000	9.700	10.300	9.977	9.977	29 mL/min	slm	

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