Test Report
For

Tremco, Inc.

Tested in Accordance with

ASTM E283

Products Tested:

ExoAir 110, ExoAir 110 LT, ExoAir 230, Spectrem 1, Proglaze ETA

Report No.: T0512-001 Rev. C
Test Start Time: 5/16/2012 9:32 AM
Test Completion Time: 5/16/2012 4:00 PM

Revision Date – 8/31/2012

Test Technician: Tim Mattox
Test Engineer: Tim Mattox

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I. Test Assembly Description

Basic Dimensions
Test Assembly Height (in.): 76.000
Test Assembly Width (in.): 48.000
Crack Perimeter (in.): 100.000

Test Area (m^2): 2.354
Crack Perimeter (m): 2.540

This is a test for the Connectivity series for seismic drift joints. There were three modules that were tested in one test assembly. Each was tested independently for air leakage in accordance with ASTM E283. At the completion of the air leakage testing, all three assemblies were tested simultaneously in accordance with ASTM E331 for water leakage. All tests were performed in strict accordance with the test method. The ASTM E331 test was performed with exposure to various pressure differentials above and beyond the requirements of the test method standard of 137 Pa. These various pressure scenarios are described in the commentary section of the report.

All module assemblies were constructed identically and joints were treated separately. The main assembly is constructed with 2x6 white pine studs. There are three openings in the assembly, each measuring 36 in. x 14 in. Each opening was fitted with a module measuring 34 in. x 12 in., providing a 1 in. gap space around the perimeter. The frame outside the opening was fitted with USG Secure Rock exterior grade sheathing and the window was fitted with 5/8 in. plywood. Each module was constructed with metal rails to allow the unit to move horizontally in the rough opening.

The main assembly was covered with ExoAir 230 in accordance with manufacturer's instructions. The product was applied at a rate of 70 mil wet thickness and the openings were flashed approximately 3 in. into the opening. All modules were covered with ExoAir 230 applied at 70 mil wet thickness.

The module on opening 1 (top) was treated with Proglaze ETA at the corners and runs in accordance with manufacturer's instructions, with approximately 1 in. overlaps. All overlaps were sealed with Spectrem 1 sealant on each side of the joint.

The module on opening 2 (middle) was treated with ExoAir 110. 12 in. wide strips were used, which were cut to a 7 in. width and centered over the joint gap. This provided an approximate 3 in. overlap onto the adjacent surfaces. All cut edges of the joint patch were sealed with termination mastic. The

installation was performed by a field professional. The ExoAir 110 was looped into the joint to accommodate movement, and the corners were treated with a custom made corner joint by the installer.

The module in assembly 3 is covered under a separate report.

The test program started with a baseline air leakage test, and then each module was tested for air leakage independently. After the initial air leakage testing, each module system was then cycled 3 full cycles. Each cycle consisted of starting centered in the opening, a horizontal move of ½ in. to one side, a return to center, a horizontal move of ½ in. to the opposite side, and a return to center. Each module system was then tested again for air leakage independently. After the air leakage tests, the assembly was exposed to an ASTM E331 test for water leakage evaluation.

Each individual test performed under this test project is detailed below:

- T0512-001 – Air Leakage test – Baseline prior to cycling
- T0512-002 – Air Leakage test – Proglaze ETA prior to cycling
- T0512-003 – Air Leakage test – ExoAir 110 prior to cycling
- T0512-005 – Movement cycling of module systems
- T0512-006 – Air Leakage test – Baseline after cycling
- T0512-007 – Air Leakage test – Proglaze ETA after cycling
- T0512-008– Air Leakage test – ExoAir 110 after cycling
- T0512-010 – Water leakage test in accordance with ASTM E331

II. Test Conditions

T0512-001 Air Leakage Test – Baseline Prior to Cycling

Test Temperature at Start(°F): 68.952
Test Temperature at End (°F): 66.973
Average Temperature (°F): 67.945
Avg. Barometric Pressure (in. Hg): 29.603

T0512-002 Air Leakage Test – Proglaze ETA Prior to Cycling

Test Temperature at Start(°F): 77.751
Test Temperature at End (°F): 77.781
Average Temperature (°F): 77.553
Avg. Barometric Pressure (in. Hg): 29.942

T0512-003 Air Leakage Test – ExoAir 110 Prior to Cycling

Test Temperature at Start(°F): 77.488
Test Temperature at End (°F): 77.673
Average Temperature (°F): 77.701
Avg. Barometric Pressure (in. Hg): 29.954

T0512-005 Movement Cycling of Module Systems

Temperature and Barometric Pressure were not recorded for the Cycling test. 3 full cycles were provided for each module system. A cycle consisted of starting at center, moving ½ in. to the left, moving back to the center, to a point ½ in. to the right of center, and returning back to center. Cycling was performed starting with the Proglaze ETA, then ExoAir 110.

T0512-006 Baseline After Cycling

Test Temperature at Start(°F): 76.828
Test Temperature at End (°F): 77.116
Average Temperature (°F): 76.972
Avg. Barometric Pressure (in. Hg): 30.026

T0512-007 Proglaze ETA After Cycling

Test Temperature at Start(°F): 77.013
Test Temperature at End (°F): 77.247
Average Temperature (°F): 77.005
Avg. Barometric Pressure (in. Hg): 30.033

T0512-008 ExoAir 110 After Cycling

Test Temperature at Start(°F): 77.592
Test Temperature at End (°F): 76.990
Average Temperature (°F): 77.241
Avg. Barometric Pressure (in. Hg): 30.036

T0512-010 Water Leakage Test in Accordance with ASTM E331

Test Temperature at Start(°F): 76.375
Test Temperature at End (°F): 75.112
Average Temperature (°F): 76.115
Avg. Barometric Pressure (in. Hg): 30.041

III. Test Results

T0512-001 was the baseline for T0512-002 and T0512-003. T0512-006 was the baseline for T0512-007and T0512-008. The performance figures shown indicate the measured performance of each system with the subtraction of the performance of the baseline for each test. The baseline was performed to measure the extraneous leakage, so by subtracting the baseline data from each system, you are isolating the performance of each module individually.

T0512-001 Baseline Prior to Cycling

Pre-Conditioning Infiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.021 L/s (0.044 cfm)
Area Leakage Rate – 0.009 L/s·m^2 (0.0017 cfm/ft^2)

Pre-Conditioning Exfiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.022 L/s (0.046 cfm)
Area Leakage Rate – 0.009 L/s·m^2 (0.0018 cfm/ft^2)

T0512-002 Proglaze ETA Prior to Cycling

Pre-Conditioning Infiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.031 L/s (0.065 cfm)
Crack Leakage Rate – 0.012 L/s*m (0.008 cfm/ft)
Area Leakage Rate – 0.013 L/s·m^2 (0.0026 cfm/ft^2)

Pre-Conditioning Exfiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.032 L/s (0.067 cfm)
Crack Leakage Rate – 0.013 L/s*m (0.008 cfm/ft)
Area Leakage Rate – 0.014 L/s·m^2 (0.0027 cfm/ft^2)

T0512-003 ExoAir 110 Prior to Cycling

Pre-Conditioning Infiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.161 L/s (0.341 cfm)
Crack Leakage Rate – 0.063 L/s*m (0.041 cfm/ft)
Area Leakage Rate – 0.068 L/s·m^2 (0.0135 cfm/ft^2)

Pre-Conditioning Exfiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.157 L/s (0.333 cfm)
Crack Leakage Rate – 0.062 L/s*m (0.040 cfm/ft)
Area Leakage Rate – 0.067 L/s·m^2 (0.131 cfm/ft^2)

T0512-005 Movement Cycling of Module Systems

There was no visually apparent damage to any of the systems during the course of the cycling movement. The ExoAir 110 was obviously very stressed at the corner transitions. In compression and extension on the vertical joints, there was no problem, but in the shear movement on the horizontal joints, there was some obvious stresses occurring in the material. Neither of the other two systems showed much distress.

T0512-006 Baseline After Cycling

Post-Conditioning Infiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.035 L/s (0.073 cfm)
Area Leakage Rate – 0.015 L/s·m^2 (0.0029 cfm/ft^2)

Post-Conditioning Exfiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.042 L/s (0.089 cfm)
Area Leakage Rate – 0.018 L/s·m^2 (0.0035 cfm/ft^2)

T0512-007 Proglaze ETA After Cycling

Post-Conditioning Infiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.042 L/s (0.089 cfm)
Crack Leakage Rate – 0.017 L/s*m (0.011 cfm/ft)
Area Leakage Rate – 0.018 L/s·m^2 (0.0035 cfm/ft^2)

Post-Conditioning Exfiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.033 L/s (0.069 cfm)
Crack Leakage Rate – 0.013 L/s*m (0.008 cfm/ft)
Area Leakage Rate – 0.014 L/s·m^2 (0.0027 cfm/ft^2)

T0512-008 ExoAir 110 After Cycling

Post-Conditioning Infiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.157 L/s (0.334 cfm)
Crack Leakage Rate – 0.062 L/s*m (0.040 cfm/ft)
Area Leakage Rate – 0.067 L/s·m^2 (0.0132 cfm/ft^2)

Post-Conditioning Exfiltration
Assembly Air Leakage Values @ 75Pa
Air Leakage – 0.173 L/s (0.367 cfm)
Crack Leakage Rate – 0.068 L/s*m (0.044 cfm/ft)
Area Leakage Rate – 0.074 L/s·m^2 (0.0145 cfm/ft^2)

T0512-010 Water Leakage Test in Accordance with ASTM E331

The following were recorded comments during the ASTM E331 test:

15:35:38 Test Started
15:36:06 Leaks noted in the top left corner of the EA 110 system
15:43:15 Leaks are still slow and steady from both the EA 110 system.
15:43:47 At 10 minute mark, will increase the pressure to 600 Pa for the Proglaze ETA system.
15:45:40 137 Pa test over. Moving to 600 Pa.
15:46:37 600 Pa test started.
15:48:09 Still no leaks for the Proglaze ETA system. At 5 minutes will move to 1200 Pa.
15:51:35 600 Pa test over. No leaks. Moving to 1200 Pa.
15:52:37 1200 Pa test started.
15:54:59 No leaks for PG ETA system. At 5 min. will move to 2000 Pa.
15:57:35 1200 Pa. test (100 mph) is over. Moving to 2000 Pa.
15:58:00 At 1800 Pa, the test assembly was unable to hold the pressure and then broke shortly afterward. The test was stopped abruptly. There were no leaks in the Proglaze ETA System at the time the test was shut down.

Comments:

The attached Table 1 shows comparisons of each system at 75 Pa and 300 Pa for both the infiltration and exfiltration case:

Air Leakage of Each System								
	Infiltration		Exfiltration		Infiltration		Exfiltration	
System	75 Pa Before Cycling (cfm/ft2)	75 Pa After Cycling (cfm/ft2)	75 Pa Before Cycling (cfm/ft2)	75 Pa After Cycling (cfm/ft2)	300 Pa Before Cycling (cfm/ft2)	300 Pa After Cycling (cfm/ft2)	300 Pa Before Cycling (cfm/ft2)	300 Pa After Cycling (cfm/ft2)
Baseline	0.0017	0.0029	0.0018	0.0035	0.0074	0.0082	0.0080	0.0104
ETA	0.0026	0.0035	0.0027	0.0027	0.0025	0.0039	0.0025	0.0030
110	0.0135	0.0132	0.0131	0.0145	0.0240	0.0285	0.0268	0.0311

Table 1 – Air Leakage of each assembly at 75 Pa and 300 Pa, before and after cycling, for the infiltration and exfiltration case.

The attached Table 2 shows the change in performance of the systems in % difference between the before cycled and after cycled condition at both 75 Pa and 300 Pa and for the infiltration and exfiltration cases:

% Change in air leakage from before to after cycling with notes					
System	Infiltration 75 Pa	Exfiltration 75 Pa	Infiltration 300 Pa	Exfiltration 300 Pa	Notes
Baseline	-71%	-94%	-11%	-30%	Significant decrease in baseline indicates potential damage to test assembly during cycling.
ETA	-35%	0%	-56%	-20%	Consistant reduction in performance with the ExoAir 230 tie-in, but still very limited air leakage.
110	2%	-11%	-19%	-16%	Performance better than EA110 tie in. Only reduced an average of 5% vs. 30% for low wind and only 17% instead of 125% for high wind.

Table 2 – Percent difference in air leakage performance from the before cycled to the after cycled condition for 75 Pa and 300 Pa pressures and infiltration and exfiltration cases.

Note: As a point of clarification, the Table 2 chart indicates the variance in air leakage percent from before cycling to after cycling. If the cell is red, this indicates the performance was negatively affected. If white, the performance was either unchanged or improved. There was a question as to why the baseline air leakage would have changed for the worse, and with different negative numbers. It is not known why this occurred, but it is possible that the test buck itself was damaged during the cycling testing. This is precisely why a baseline was taken before cycling and after cycling, because the baseline serves as the 0 point or tare. Any leakage measured above the tare, calculated by subtracting the baseline leakage from the total leakage for each system, is considered the leakage of the individual system.

Final Conclusions:

ExoAir 110 System

The system tie-in to the ExoAir 230 was observed to have a reduction in performance of only 5% from before cycling to after. Water leakage occurred almost instantly after the pressure was applied. Water penetration was first noted at 28 seconds after the start of the test.

Proglaze ETA

The measured air leakage of the Proglaze ETA system was virtually the same as the air leakage of the baseline wall, or the extraneous leakage, however,

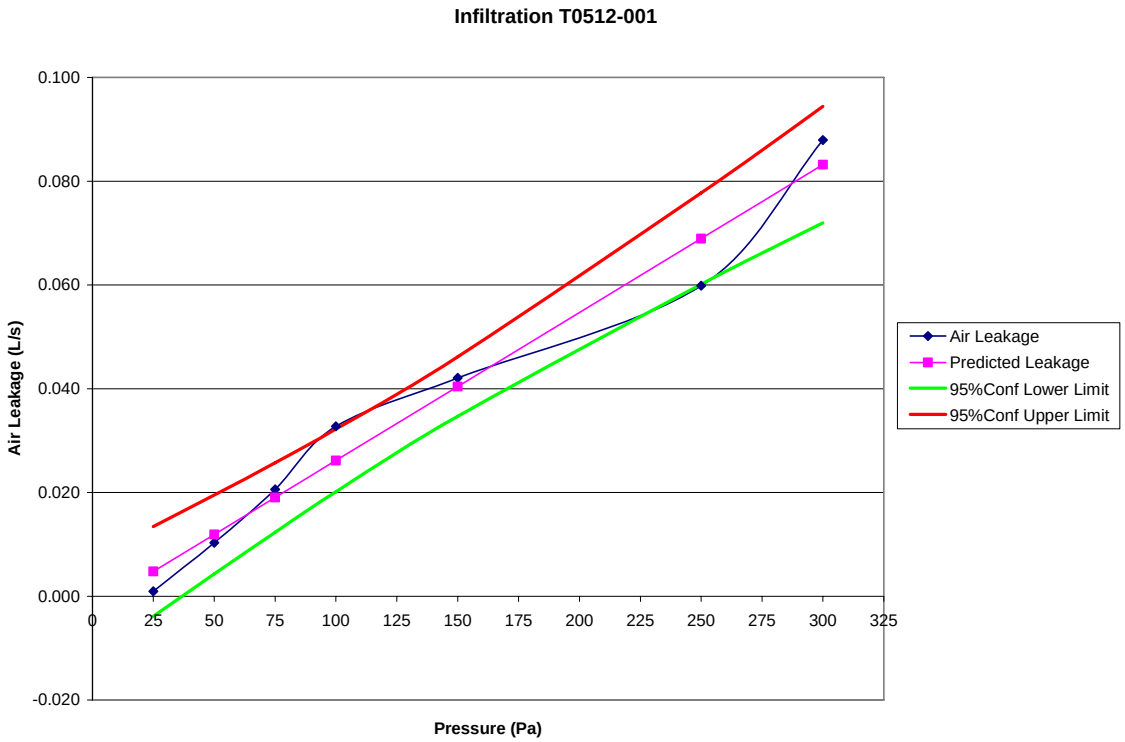
there was a reduction in performance from the before cycled to the after cycled condition. Interestingly, if you look at the air leakage of the ProGlaze ETA in Table 1, you will notice that the air leakage was virtually unchanged from before cycling to after cycling, and even from the low pressure to the higher pressure. It is believed that the measured air leakage here was not due to the Proglaze ETA, but rather it was the test assembly. It is still believed that the true air leakage of the Proglaze ETA system is virtually zero and that it is unaffected by the cycling.

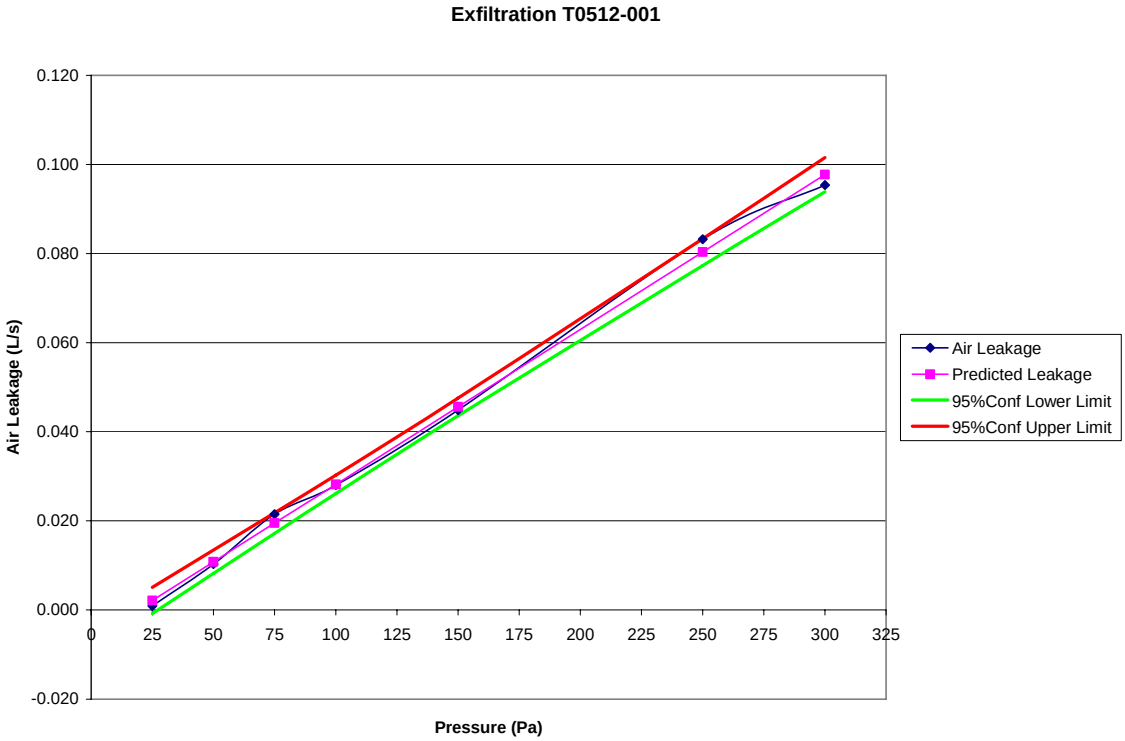
The Proglaze ETA was exposed to a 1200 Pa. pressure differential for 5 minutes, after about 15 minutes of exposure at lesser pressures. During the ascension to a 2000 Pa. pressure, the test assembly lost pressure and some buckling occurred. The test had to be stopped prematurely since the test assembly was no longer able to maintain pressure. The test pressure peaked at 1800 Pa. There was no water leakage of the Proglaze system at any time during the test.

IV. Conversion Charts

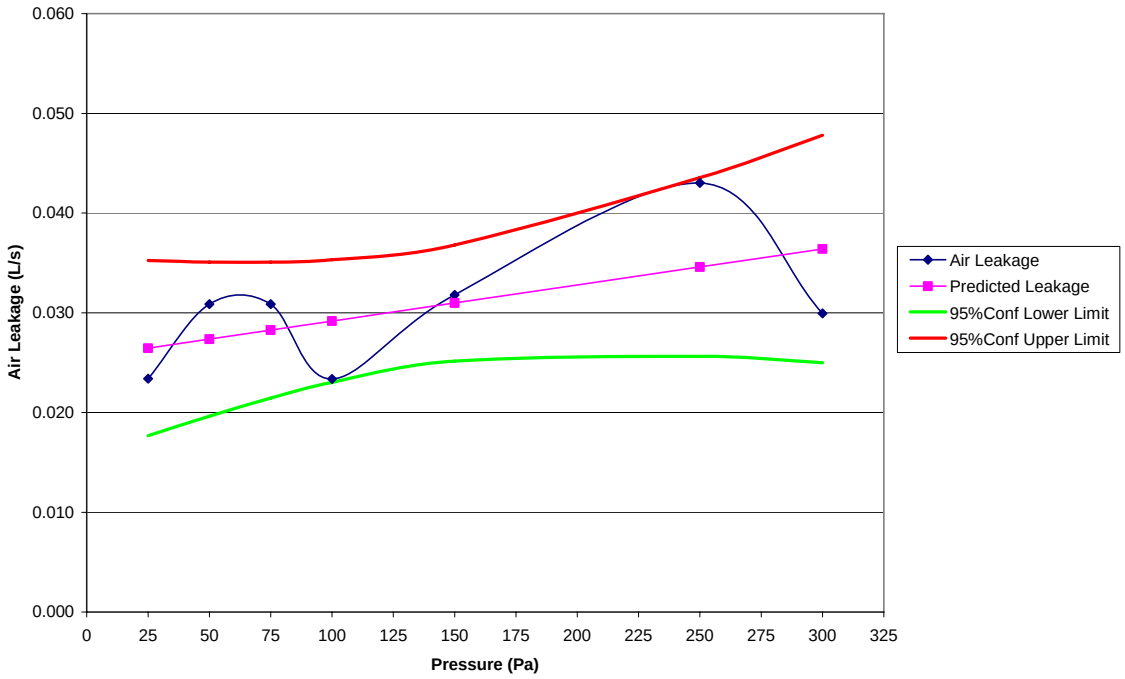
Pressure (Pa)	Pressure (psf)	Wind Speed (mph)
10	0.21	9.1
20	0.42	12.9
30	0.63	15.8
40	0.84	18.3
50	1.05	20.5
60	1.25	22.4
70	1.46	24.2
80	1.67	25.9
90	1.88	27.4
100	2.09	28.9
110	2.30	30.3
120	2.51	31.7
130	2.72	33.0
140	2.93	34.2
150	3.14	35.4
160	3.34	36.6
170	3.55	37.7
180	3.76	38.8
190	3.97	39.9
200	4.18	40.9
210	4.39	41.9
220	4.60	42.9
230	4.81	43.9
240	5.02	44.8
250	5.23	45.7
260	5.43	46.6
270	5.64	47.5
280	5.85	48.4
290	6.06	49.3
300	6.27	50.1
400	8.36	57.9
500	10.45	64.7
600	12.54	70.9
700	14.63	76.5
800	16.72	81.8
900	18.81	86.8
1000	20.90	91.5
1100	22.99	95.9
1200	25.08	100.2
1300	27.17	104.3
1400	29.26	108.2
1500	31.35	112.0
1600	33.44	115.7

V. Charts and Graphs

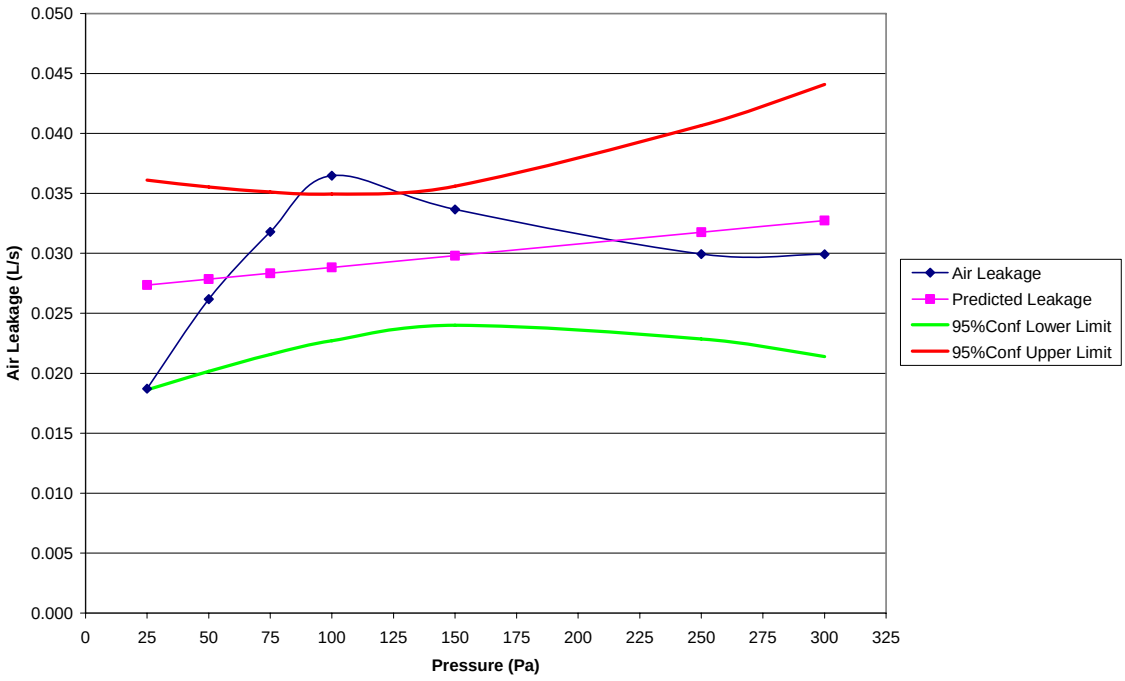




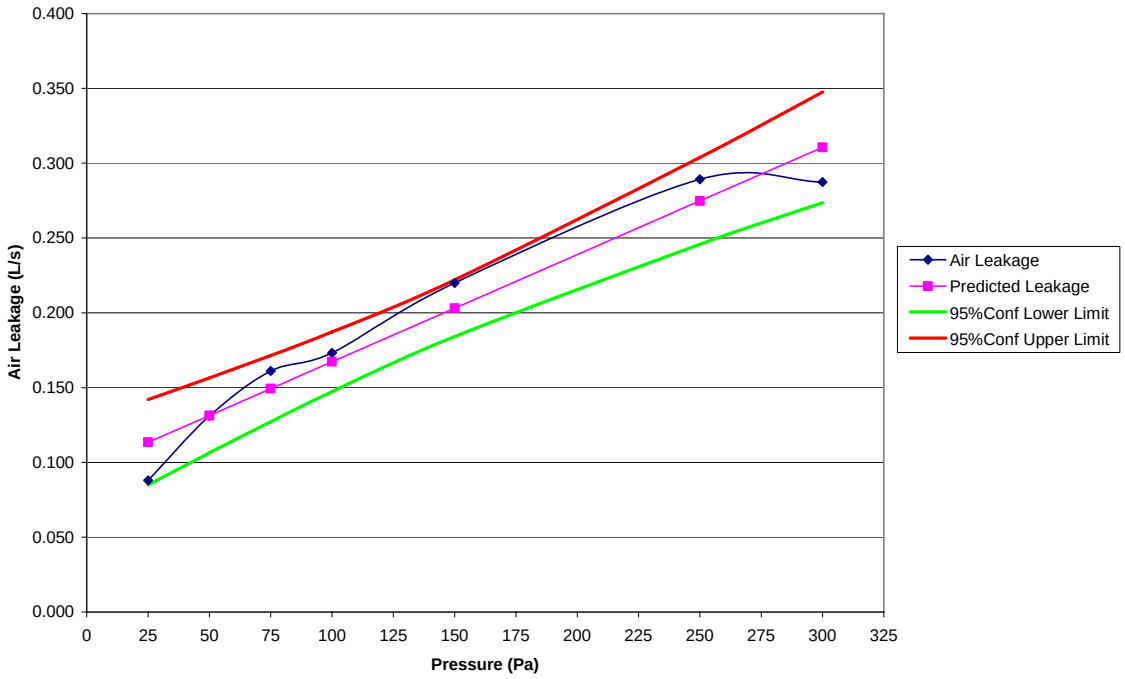
Infiltration T0512-002



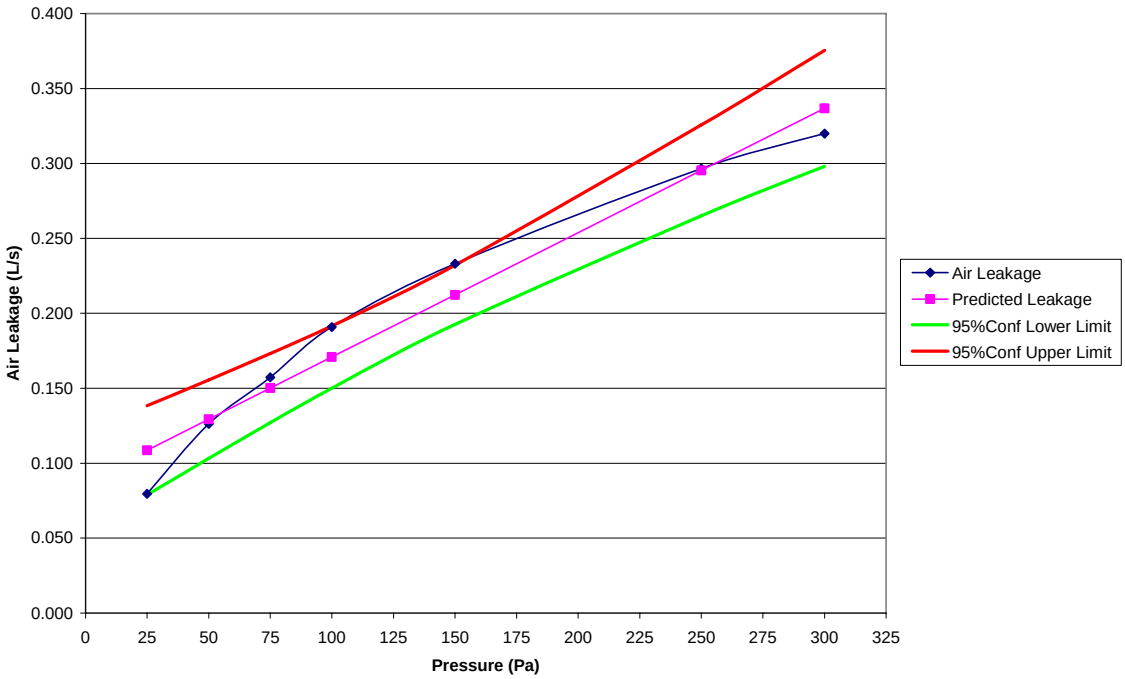
Exfiltration T0512-002



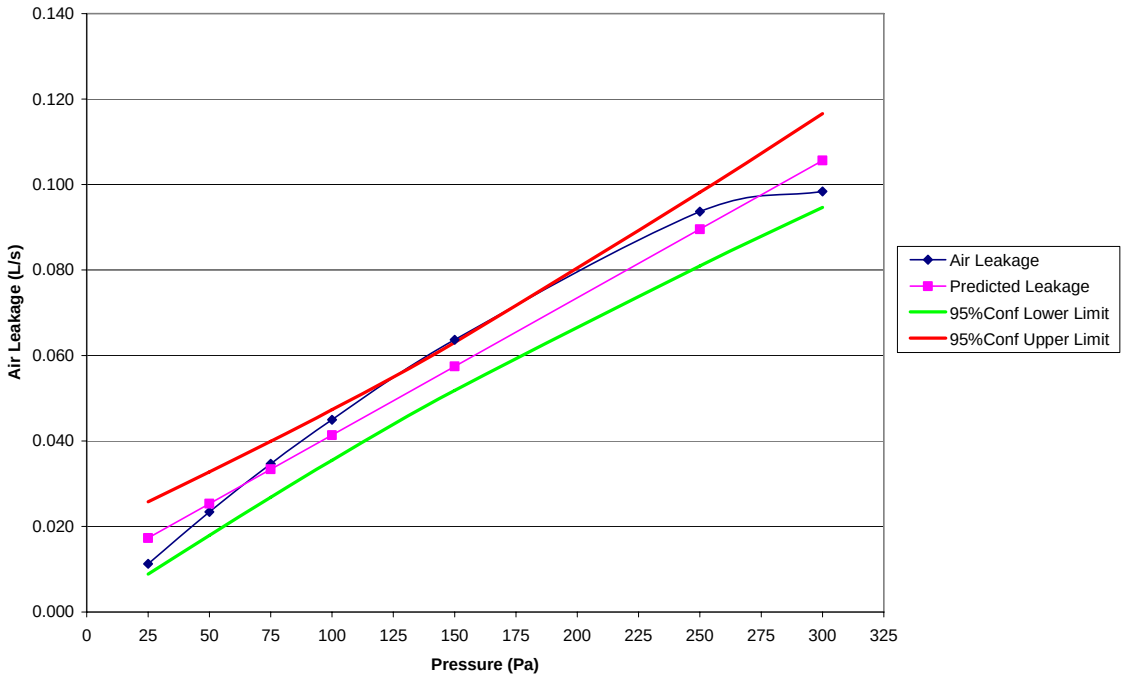
Infiltration T0512-003



Exfiltration T0512-003



Infiltration T0512-006



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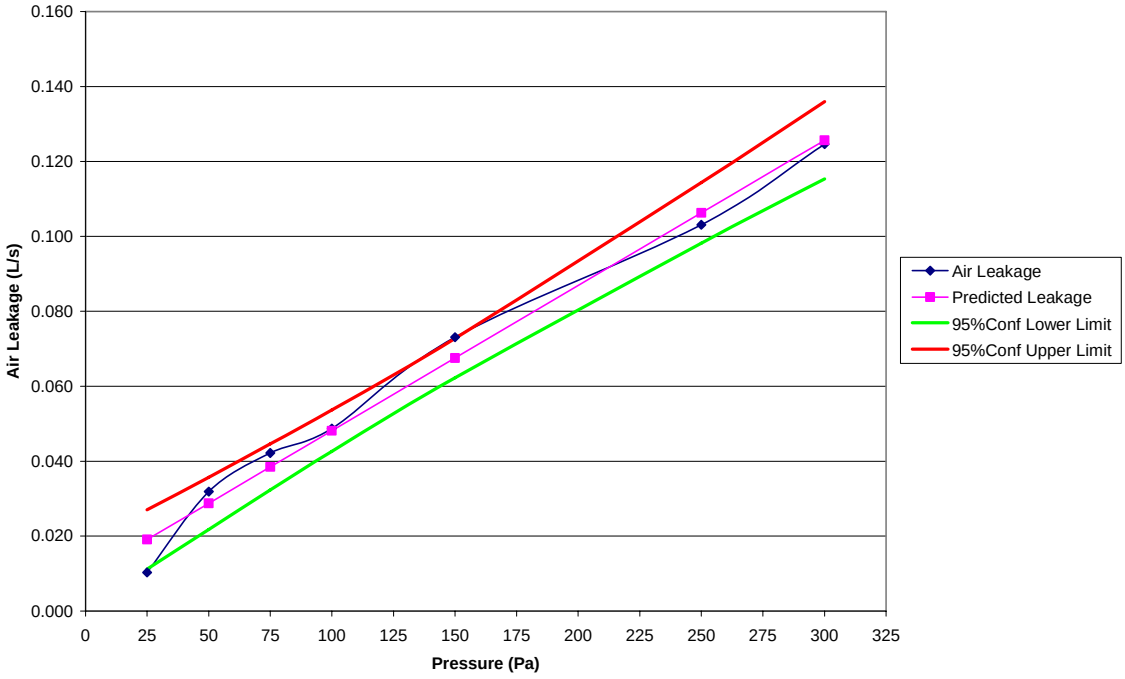

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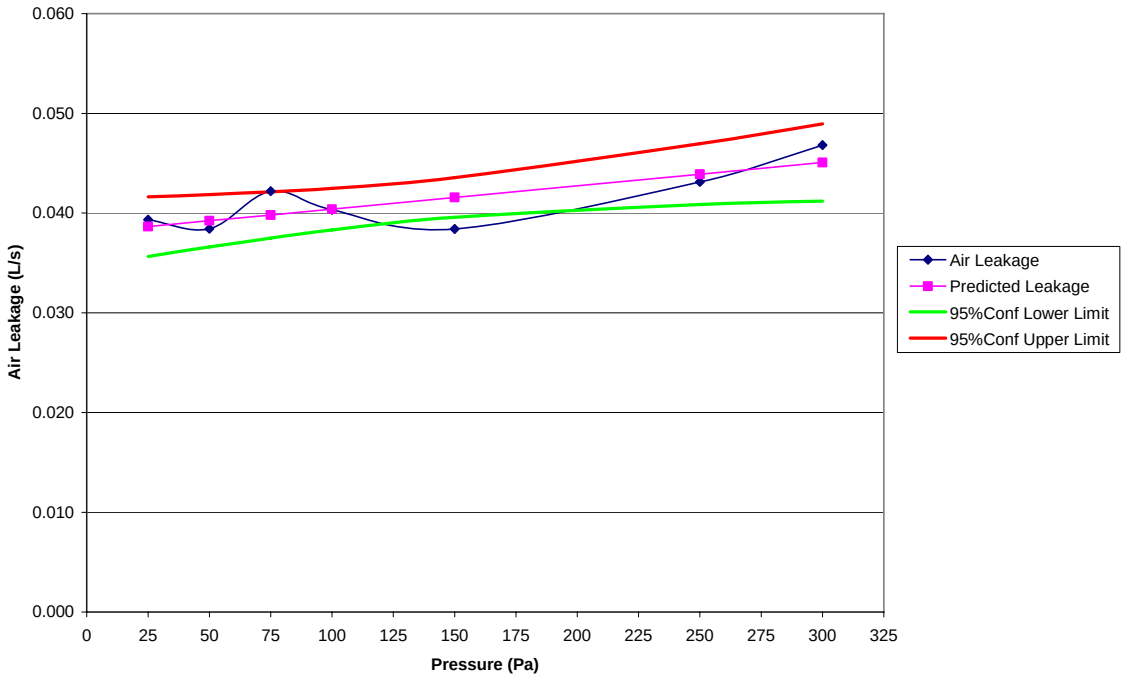

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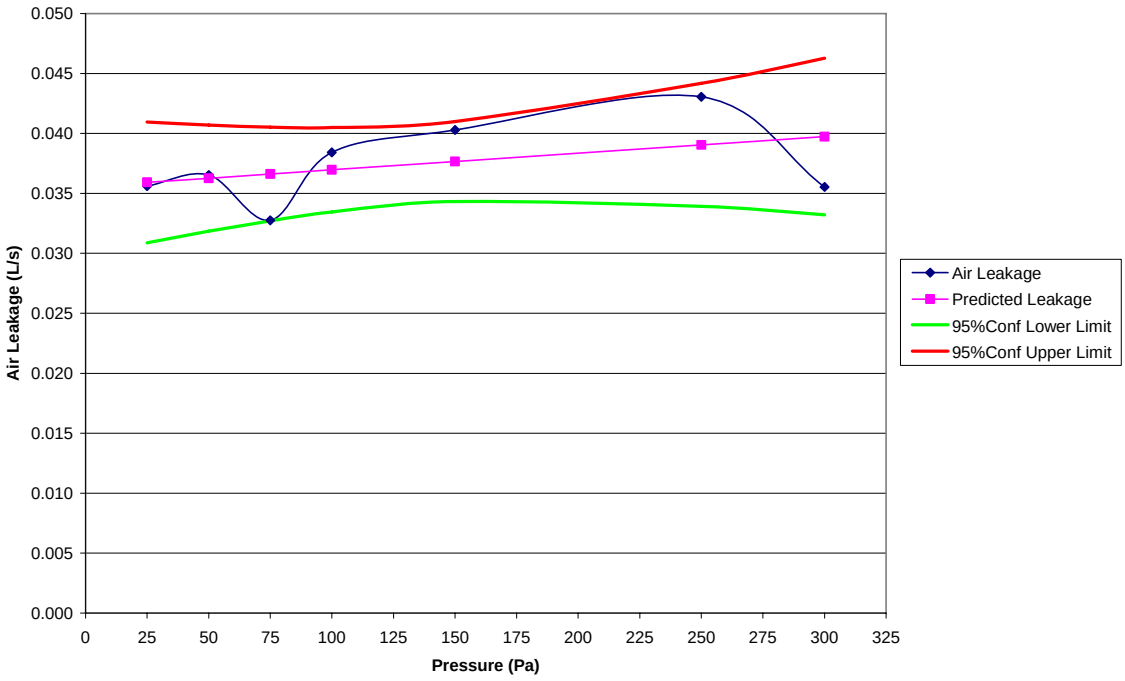
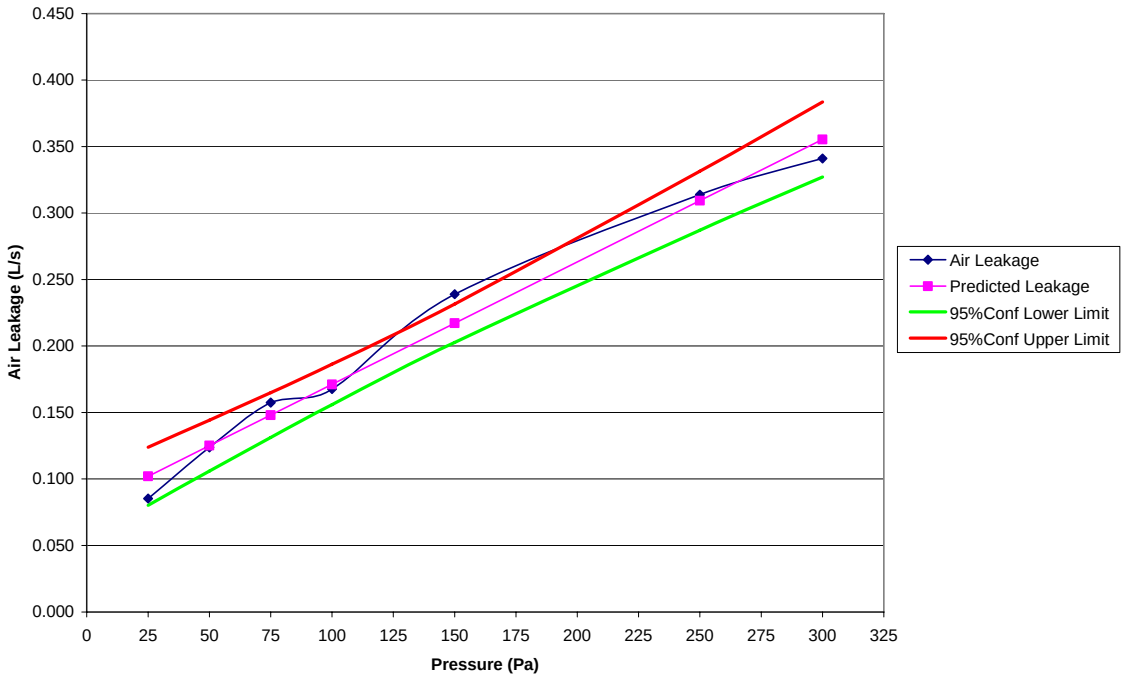
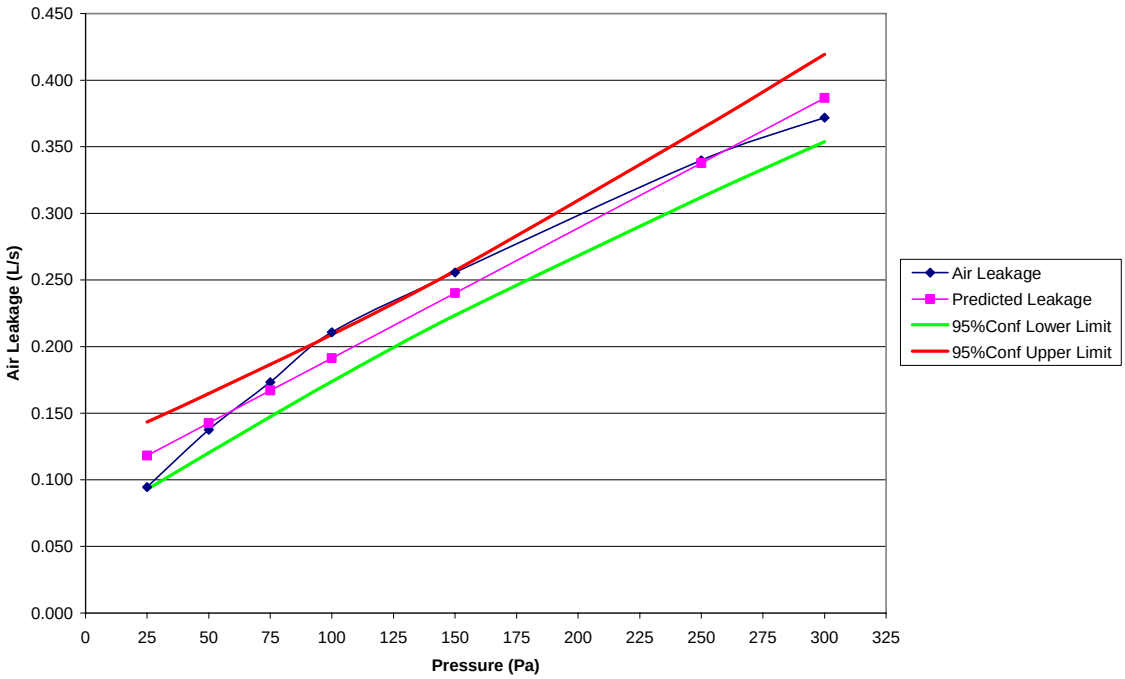


Infiltration T0512-008



Exfiltration T0512-008



Infiltration T0512-001													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.001	0.000	0.001	0.000	0.000	0.005	-0.004	0.013	0.002	0.000	0.002	0.000	0.0001
50	0.010	0.000	0.010	0.004	0.004	0.012	0.004	0.020	0.022	0.000	0.022	0.003	0.0009
75	**0.021**	**0.000**	**0.021**	**0.008**	**0.009**	**0.019**	**0.012**	**0.026**	**0.044**	**0.000**	**0.044**	**0.005**	**0.0017**
100	0.033	0.000	0.033	0.013	0.014	0.026	0.020	0.032	0.069	0.000	0.069	0.008	0.0027
150	0.042	0.000	0.042	0.017	0.018	0.040	0.035	0.046	0.089	0.000	0.089	0.011	0.0035
250	0.060	0.000	0.060	0.024	0.025	0.069	0.060	0.078	0.127	0.000	0.127	0.015	0.0050
300	0.088	0.000	0.088	0.035	0.037	0.083	0.072	0.094	0.186	0.000	0.186	0.022	0.0074

Exfiltration T0512-001													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.001	0.000	0.001	0.000	0.000	0.002	-0.001	0.005	0.002	0.000	0.002	0.000	0.0001
50	0.010	0.000	0.010	0.004	0.004	0.011	0.008	0.013	0.022	0.000	0.022	0.003	0.0009
75	**0.022**	**0.000**	**0.022**	**0.008**	**0.009**	**0.020**	**0.017**	**0.022**	**0.046**	**0.000**	**0.046**	**0.005**	**0.0018**
100	0.028	0.000	0.028	0.011	0.012	0.028	0.026	0.030	0.059	0.000	0.059	0.007	0.0023
150	0.045	0.000	0.045	0.018	0.019	0.046	0.044	0.048	0.095	0.000	0.095	0.011	0.0038
250	0.083	0.000	0.083	0.033	0.035	0.080	0.077	0.083	0.176	0.000	0.176	0.021	0.0070
300	0.095	0.000	0.095	0.038	0.041	0.098	0.094	0.102	0.202	0.000	0.202	0.024	0.0080

Infiltration T0512-002													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.024	0.001	0.023	0.009	0.010	0.026	0.018	0.035	0.052	0.002	0.050	0.006	0.0020
50	0.041	0.010	0.031	0.012	0.013	0.027	0.020	0.035	0.087	0.022	0.065	0.008	0.0026
75	**0.051**	**0.021**	**0.031**	**0.012**	**0.013**	**0.028**	**0.021**	**0.035**	**0.109**	**0.044**	**0.065**	**0.008**	**0.0026**
100	0.056	0.033	0.023	0.009	0.010	0.029	0.023	0.035	0.119	0.069	0.049	0.006	0.0020
150	0.074	0.042	0.032	0.013	0.014	0.031	0.025	0.037	0.157	0.089	0.067	0.008	0.0027
250	0.103	0.060	0.043	0.017	0.018	0.035	0.026	0.044	0.218	0.127	0.091	0.011	0.0036
300	0.118	0.088	0.030	0.012	0.013	0.036	0.025	0.048	0.250	0.186	0.063	0.008	0.0025

Exfiltration T0512-002													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.020	0.001	0.019	0.007	0.008	0.027	0.019	0.036	0.042	0.002	0.040	0.005	0.0016
50	0.036	0.010	0.026	0.010	0.011	0.028	0.020	0.036	0.077	0.022	0.055	0.007	0.0022
75	**0.053**	**0.022**	**0.032**	**0.013**	**0.014**	**0.028**	**0.022**	**0.035**	**0.113**	**0.046**	**0.067**	**0.008**	**0.0027**
100	0.065	0.028	0.036	0.014	0.015	0.029	0.023	0.035	0.137	0.059	0.077	0.009	0.0031
150	0.079	0.045	0.034	0.013	0.014	0.030	0.024	0.036	0.166	0.095	0.071	0.009	0.0028
250	0.113	0.083	0.030	0.012	0.013	0.032	0.023	0.041	0.240	0.176	0.063	0.008	0.0025
300	0.125	0.095	0.030	0.012	0.013	0.033	0.021	0.044	0.266	0.202	0.063	0.008	0.0025

Infiltration T0512-003													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.089	0.001	0.088	0.035	0.037	0.113	0.085	0.142	0.188	0.002	0.186	0.022	0.0074
50	0.141	0.010	0.131	0.052	0.056	0.131	0.106	0.156	0.299	0.022	0.278	0.033	0.0110
75	**0.182**	**0.021**	**0.161**	**0.063**	**0.068**	**0.149**	**0.127**	**0.171**	**0.385**	**0.044**	**0.341**	**0.041**	**0.0135**
100	0.206	0.033	0.173	0.068	0.074	0.167	0.147	0.187	0.436	0.069	0.367	0.044	0.0145
150	0.262	0.042	0.220	0.087	0.093	0.203	0.184	0.222	0.555	0.089	0.466	0.056	0.0184
250	0.349	0.060	0.289	0.114	0.123	0.275	0.246	0.304	0.740	0.127	0.613	0.074	0.0242
300	0.375	0.088	0.287	0.113	0.122	0.311	0.274	0.348	0.795	0.186	0.609	0.073	0.0240

Exfiltration T0512-003													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.080	0.001	0.080	0.031	0.034	0.109	0.079	0.138	0.171	0.002	0.169	0.020	0.0067
50	0.137	0.010	0.126	0.050	0.054	0.129	0.103	0.156	0.289	0.022	0.268	0.032	0.0106
75	**0.179**	**0.022**	**0.157**	**0.062**	**0.067**	**0.150**	**0.127**	**0.173**	**0.379**	**0.046**	**0.333**	**0.040**	**0.0131**
100	0.219	0.028	0.191	0.075	0.081	0.171	0.150	0.192	0.464	0.059	0.404	0.049	0.0160
150	0.278	0.045	0.233	0.092	0.099	0.212	0.193	0.232	0.589	0.095	0.494	0.059	0.0195
250	0.380	0.083	0.297	0.117	0.126	0.295	0.265	0.326	0.805	0.176	0.629	0.075	0.0248
300	0.415	0.095	0.320	0.126	0.136	0.337	0.298	0.375	0.880	0.202	0.678	0.081	0.0268

Infiltration T0512-004													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.142	0.001	0.141	0.056	0.060	0.150	0.137	0.163	0.301	0.002	0.299	0.036	0.0118
50	0.292	0.010	0.281	0.111	0.120	0.280	0.268	0.291	0.618	0.022	0.596	0.072	0.0235
75	**0.433**	**0.021**	**0.412**	**0.162**	**0.175**	**0.409**	**0.399**	**0.420**	**0.918**	**0.044**	**0.874**	**0.105**	**0.0345**
100	0.572	0.033	0.539	0.212	0.229	0.539	0.530	0.548	1.211	0.069	1.142	0.137	0.0451
150	0.846	0.042	0.804	0.316	0.342	0.799	0.790	0.807	1.793	0.089	1.703	0.204	0.0672
250	1.389	0.060	1.329	0.523	0.565	1.318	1.305	1.331	2.943	0.127	2.816	0.338	0.1112
300	1.653	0.088	1.565	0.616	0.665	1.577	1.560	1.594	3.503	0.186	3.317	0.398	0.1309

Exfiltration T0512-004													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.140	0.001	0.139	0.055	0.059	0.149	0.138	0.160	0.297	0.002	0.295	0.035	0.0117
50	0.292	0.010	0.282	0.111	0.120	0.282	0.272	0.291	0.619	0.022	0.597	0.072	0.0236
75	**0.439**	**0.022**	**0.417**	**0.164**	**0.177**	**0.415**	**0.406**	**0.423**	**0.930**	**0.046**	**0.884**	**0.106**	**0.0349**
100	0.579	0.028	0.551	0.217	0.234	0.547	0.540	0.555	1.228	0.059	1.168	0.140	0.0461
150	0.864	0.045	0.819	0.323	0.348	0.812	0.805	0.820	1.831	0.095	1.736	0.208	0.0685
250	1.431	0.083	1.348	0.531	0.573	1.343	1.332	1.354	3.032	0.176	2.856	0.343	0.1127
300	1.695	0.095	1.599	0.630	0.680	1.608	1.594	1.622	3.591	0.202	3.389	0.407	0.1338

Infiltration T0512-006													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.011	0.000	0.011	0.004	0.005	0.017	0.009	0.026	0.024	0.000	0.024	0.003	0.0009
50	0.023	0.000	0.023	0.009	0.010	0.025	0.018	0.033	0.050	0.000	0.050	0.006	0.0020
75	**0.035**	**0.000**	**0.035**	**0.014**	**0.015**	**0.033**	**0.027**	**0.040**	**0.073**	**0.000**	**0.073**	**0.009**	**0.0029**
100	0.045	0.000	0.045	0.018	0.019	0.041	0.035	0.047	0.095	0.000	0.095	0.011	0.0038
150	0.064	0.000	0.064	0.025	0.027	0.057	0.052	0.063	0.135	0.000	0.135	0.016	0.0053
250	0.094	0.000	0.094	0.037	0.040	0.090	0.081	0.098	0.198	0.000	0.198	0.024	0.0078
300	0.098	0.000	0.098	0.039	0.042	0.106	0.095	0.117	0.208	0.000	0.208	0.025	0.0082

Exfiltration T0512-006													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.010	0.000	0.010	0.004	0.004	0.019	0.011	0.027	0.022	0.000	0.022	0.003	0.0009
50	0.032	0.000	0.032	0.013	0.014	0.029	0.022	0.036	0.068	0.000	0.068	0.008	0.0027
75	**0.042**	**0.000**	**0.042**	**0.017**	**0.018**	**0.038**	**0.032**	**0.045**	**0.089**	**0.000**	**0.089**	**0.011**	**0.0035**
100	0.049	0.000	0.049	0.019	0.021	0.048	0.043	0.054	0.103	0.000	0.103	0.012	0.0041
150	0.073	0.000	0.073	0.029	0.031	0.068	0.062	0.073	0.155	0.000	0.155	0.019	0.0061
250	0.103	0.000	0.103	0.041	0.044	0.106	0.098	0.114	0.218	0.000	0.218	0.026	0.0086
300	0.125	0.000	0.125	0.049	0.053	0.126	0.115	0.136	0.264	0.000	0.264	0.032	0.0104

Infiltration T0512-007													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.051	0.011	0.039	0.015	0.017	0.039	0.036	0.042	0.107	0.024	0.083	0.010	0.0033
50	0.062	0.023	0.038	0.015	0.016	0.039	0.037	0.042	0.131	0.050	0.081	0.010	0.0032
75	**0.077**	**0.035**	**0.042**	**0.017**	**0.018**	**0.040**	**0.037**	**0.042**	**0.163**	**0.073**	**0.089**	**0.011**	**0.0035**
100	0.085	0.045	0.040	0.016	0.017	0.040	0.038	0.042	0.181	0.095	0.085	0.010	0.0034
150	0.102	0.064	0.038	0.015	0.016	0.042	0.040	0.044	0.216	0.135	0.081	0.010	0.0032
250	0.137	0.094	0.043	0.017	0.018	0.044	0.041	0.047	0.290	0.198	0.091	0.011	0.0036
300	0.145	0.098	0.047	0.018	0.020	0.045	0.041	0.049	0.308	0.208	0.099	0.012	0.0039

Exfiltration T0512-007													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.046	0.010	0.036	0.014	0.015	0.036	0.031	0.041	0.097	0.022	0.075	0.009	0.0030
50	0.068	0.032	0.037	0.014	0.016	0.036	0.032	0.041	0.145	0.068	0.077	0.009	0.0031
75	**0.075**	**0.042**	**0.033**	**0.013**	**0.014**	**0.037**	**0.033**	**0.041**	**0.159**	**0.089**	**0.069**	**0.008**	**0.0027**
100	0.087	0.049	0.038	0.015	0.016	0.037	0.033	0.040	0.185	0.103	0.081	0.010	0.0032
150	0.113	0.073	0.040	0.016	0.017	0.038	0.034	0.041	0.240	0.155	0.085	0.010	0.0034
250	0.146	0.103	0.043	0.017	0.018	0.039	0.034	0.044	0.310	0.218	0.091	0.011	0.0036
300	0.160	0.125	0.036	0.014	0.015	0.040	0.033	0.046	0.339	0.264	0.075	0.009	0.0030

Infiltration T0512-008													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.097	0.011	0.085	0.034	0.036	0.102	0.080	0.124	0.205	0.024	0.181	0.022	0.0071
50	0.147	0.023	0.124	0.049	0.053	0.125	0.106	0.144	0.312	0.050	0.262	0.031	0.0103
75	**0.192**	**0.035**	**0.157**	**0.062**	**0.067**	**0.148**	**0.131**	**0.165**	**0.407**	**0.073**	**0.334**	**0.040**	**0.0132**
100	0.213	0.045	0.168	0.066	0.071	0.171	0.156	0.186	0.451	0.095	0.355	0.043	0.0140
150	0.303	0.064	0.239	0.094	0.102	0.217	0.203	0.232	0.641	0.135	0.506	0.061	0.0200
250	0.407	0.094	0.314	0.124	0.133	0.309	0.287	0.331	0.863	0.198	0.665	0.080	0.0262
300	0.439	0.098	0.341	0.134	0.145	0.355	0.327	0.384	0.931	0.208	0.723	0.087	0.0285

Exfiltration T0512-008													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.105	0.010	0.095	0.037	0.040	0.118	0.093	0.143	0.222	0.022	0.200	0.024	0.0079
50	0.170	0.032	0.138	0.054	0.058	0.143	0.120	0.165	0.359	0.068	0.292	0.035	0.0115
75	**0.215**	**0.042**	**0.173**	**0.068**	**0.074**	**0.167**	**0.147**	**0.187**	**0.456**	**0.089**	**0.367**	**0.044**	**0.0145**
100	0.259	0.049	0.211	0.083	0.090	0.191	0.174	0.209	0.550	0.103	0.447	0.054	0.0176
150	0.329	0.073	0.256	0.101	0.109	0.240	0.223	0.257	0.697	0.155	0.542	0.065	0.0214
250	0.443	0.103	0.340	0.134	0.144	0.338	0.312	0.364	0.939	0.218	0.720	0.086	0.0284
300	0.497	0.125	0.372	0.146	0.158	0.387	0.354	0.419	1.052	0.264	0.788	0.095	0.0311

Infiltration T0512-009													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.153	0.011	0.141	0.056	0.060	0.145	0.139	0.152	0.323	0.024	0.300	0.036	0.0118
50	0.301	0.023	0.277	0.109	0.118	0.279	0.273	0.285	0.637	0.050	0.588	0.071	0.0232
75	**0.448**	**0.035**	**0.413**	**0.163**	**0.176**	**0.413**	**0.408**	**0.418**	**0.949**	**0.073**	**0.875**	**0.105**	**0.0346**
100	0.598	0.045	0.553	0.218	0.235	0.546	0.542	0.551	1.266	0.095	1.171	0.141	0.0462
150	0.881	0.064	0.817	0.322	0.347	0.814	0.809	0.818	1.866	0.135	1.731	0.208	0.0683
250	1.437	0.094	1.343	0.529	0.571	1.348	1.342	1.355	3.045	0.198	2.847	0.342	0.1124
300	1.715	0.098	1.616	0.636	0.687	1.616	1.607	1.624	3.634	0.208	3.425	0.411	0.1352

Exfiltration T0512-009													
Pressure Differential	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area	Predicted Leakage	95%Conf Lower Limit	95%Conf Upper Limit	Total Airflow	Extraneous Leakage	Air Leakage	Leakage Rate	Leakage Rate Test Area
P	Qt	Qe	Qs	ql	qa	yf			Qt	Qe	Qs	ql	qa
(Pa)	(L/s)	(L/s)	(L/s)	(L/s*m)	(L/s*m^2)	(L/s)	(L/s)	(L/s)	(cfm)	(cfm)	(cfm)	(cfm/ft)	(cfm/ft^2)
25	0.160	0.010	0.150	0.059	0.064	0.144	0.139	0.150	0.339	0.022	0.318	0.038	0.0125
50	0.307	0.032	0.275	0.108	0.117	0.279	0.275	0.284	0.651	0.068	0.583	0.070	0.0230
75	**0.453**	**0.042**	**0.411**	**0.162**	**0.175**	**0.415**	**0.411**	**0.419**	**0.961**	**0.089**	**0.871**	**0.105**	**0.0344**
100	0.598	0.049	0.550	0.216	0.234	0.550	0.546	0.554	1.268	0.103	1.165	0.140	0.0460
150	0.896	0.073	0.823	0.324	0.350	0.821	0.817	0.824	1.899	0.155	1.744	0.209	0.0688
250	1.466	0.103	1.363	0.536	0.579	1.362	1.357	1.368	3.106	0.218	2.887	0.346	0.1140
300	1.757	0.125	1.632	0.643	0.694	1.633	1.626	1.640	3.723	0.264	3.459	0.415	0.1365