



Test Report
For

Tremco, Inc.

Tested in Accordance with

ASTM E283

Products Tested:

ExoAir 110, ExoAir 110 LT, Spectrem 1, ExoAir Primer, ProGlaze ETA

Report Nos.: T0412-005-013 and 023 Rev. C

Test Start Time: 4/12/2012 5:20 PM

Test Completion Time: 4/19/2012 6:35 PM

Revision Date - 8/31/2012

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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

Test Area (m²): 2.317

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 in strict accordance at 137 Pa for 15 minutes, and then the assembly was exposed to various pressure differentials above and beyond the requirements of the test method. These various pressure scenarios are described in the commentary section of the report.

All three modules in the test assembly were constructed identically and the joints were treated separately. The main test assembly was constructed with 2x6 white pine studs. Each assembly has three modules, which have a 36" x 14" rough opening and a floating module measuring 34" x 12", creating a 1" joint around the module's perimeter. The test assembly was sheathed with 5/8" USG Secure Rock exterior grade sheathing. The modules are sheathed with 5/8" 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 110 in accordance with manufacturer's instructions, using ExoAir primer on dissimilar surfaces for adhesion. A general 2 in. overlap was used, except for where dissimilar surfaces met. There a 3 in. overlap was used. Termination mastic was used to seal the perimeter.

The top module was treated with Proglaze ETA System 3 molded corners, which were trimmed to create a 3" wide strip around the module's corners and were lapped with lengths of 3" wide ribbed silicone sheet. The ends of the corners were overlapped by 1" with the ribbed silicone sheet. The molded corners and silicone extrusion laps were sealed using Spectrem 1 silicone sealant and onto the ExoAir 110 membrane with a 1" lap joint on either side of the 1" joint.



The second module (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 bottom or third module in the test assembly is covered under a separate report.

All module openings were flashed with ExoAir primer and ExoAir 110.

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 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:

- T0412-005 – Air Leakage test – Baseline prior to cycling
- T0412-006 – Air Leakage test – Proglaze ETA prior to cycling
- T0412-007 – Air Leakage test – ExoAir 110 prior to cycling
- T0412-009 – Movement cycling of module systems
- T0412-010 – Air Leakage test – Proglaze ETA after cycling
- T0412-011 – Air Leakage test – Baseline after cycling
- T0412-012 – Air Leakage test – ExoAir 110 after cycling
- T0412-023 – Water leakage test in accordance with ASTM E331



II. Test Conditions

T0412-005 Air Leakage Test – Baseline Prior to Cycling

Test Temperature at Start(°F): 72.542
Test Temperature at End (°F): 72.929
Average Temperature (°F): 72.639
Avg. Barometric Pressure (in. Hg): 30.149

T0412-006 Air Leakage Test – Proglaze ETA Prior to Cycling

Test Temperature at Start(°F): 73.071
Test Temperature at End (°F): 73.503
Average Temperature (°F): 73.153
Avg. Barometric Pressure (in. Hg): 30.143

T0412-007 Air Leakage Test – ExoAir 110 Prior to Cycling

Test Temperature at Start(°F): 67.574
Test Temperature at End (°F): 67.593
Average Temperature (°F): 67.370
Avg. Barometric Pressure (in. Hg): 30.170

T0412-009 – 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.



T0412-010 Air Leakage Test – Proglaze ETA After Cycling

Test Temperature at Start(°F): 74.449
Test Temperature at End (°F): 74.171
Average Temperature (°F): 74.332
Avg. Barometric Pressure (in. Hg): 30.159

T0412-011 Air Leakage Test – Baseline After Cycling

Test Temperature at Start(°F): 74.257
Test Temperature at End (°F): 74.654
Average Temperature (°F): 74.522
Avg. Barometric Pressure (in. Hg): 30.172

T0412-012 Air Leakage Test – ExoAir 110 After Cycling

Test Temperature at Start(°F): 74.407
Test Temperature at End (°F): 74.769
Average Temperature (°F): 74.646
Avg. Barometric Pressure (in. Hg): 30.178

T0412-023 Water Leakage Test in Accordance with ASTM E331

Test Temperature at Start(°F): 67.574
Test Temperature at End (°F): 67.593
Average Temperature (°F): 67.370
Avg. Barometric Pressure (in. Hg): 30.170



III. Test Results

T0412-005 was the baseline for T0412-006 and T0412-007. T0412-011 was the baseline for T0412-010 and T0412-012. 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.

T0412-005 Air Leakage Test – Baseline Prior to Cycling

Pre-Conditioning Infiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.040 L/s (0.084 cfm)

Area Leakage Rate – 0.017 L/s·m² (0.0033 cfm/ft²)

Pre-Conditioning Exfiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.046 L/s (0.098 cfm)

Area Leakage Rate – 0.020 L/s·m² (0.0039 cfm/ft²)

T0412-006 Air Leakage Test – ProGlaze ETA Prior to Cycling

Pre-Conditioning Infiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.013 L/s (0.028 cfm)

Area Leakage Rate – 0.006 L/s·m² (0.0011 cfm/ft²)

Pre-Conditioning Exfiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.013 L/s (0.028 cfm)

Area Leakage Rate – 0.006 L/s·m² (0.0011 cfm/ft²)

Comment: - It is important to view this data in accordance with the statistical charts provided in the Charts and Graphs section of this report. The difference in the performance of the Proglaze ETA system vs. the performance of the baseline system was so incrementally small, that the statistical linear prediction was not very good. While it is possible there was some difference in performance, it is believed that the Proglaze ETA showed a performance that was virtually immeasurable and it is believed that the true leakage approached zero.

T0412-007 Air Leakage Test – ExoAir 110 Prior to Cycling



Pre-Conditioning Infiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.090 L/s (0.191 cfm)

Area Leakage Rate – 0.038 L/s·m² (0.0076 cfm/ft²)

Pre-Conditioning Exfiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.087 L/s (0.183 cfm)

Area Leakage Rate – 0.037 L/s·m² (0.0072 cfm/ft²)

T0412-009 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.

T0412-010 Air Leakage Test – Proglaze ETA After Cycling

Pre-Conditioning Infiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.00 L/s (0.00 cfm)

Area Leakage Rate – 0.000 L/s·m² (0.000 cfm/ft²)

Pre-Conditioning Exfiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.037 L/s (0.078cfm)

Area Leakage Rate – 0.016 L/s·m² (0.0031 cfm/ft²)

T0412-011 Air Leakage Test – Baseline After Cycling

Pre-Conditioning Infiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.155 L/s (0.329 cfm)

Area Leakage Rate – 0.066 L/s·m² (0.013 cfm/ft²)

Pre-Conditioning Exfiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.160 L/s (0.339 cfm)

Area Leakage Rate – 0.068 L/s·m² (0.0134 cfm/ft²)



T0412-012 Air Leakage Test – ExoAir 110 After Cycling

Pre-Conditioning Infiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.121 L/s (0.257 cfm)

Area Leakage Rate – 0.052 L/s·m² (0.0102 cfm/ft²)

Pre-Conditioning Exfiltration

Assembly Air Leakage Values @ 75Pa

Air Leakage – 0.110 L/s (0.233 cfm)

Area Leakage Rate – 0.047 L/s·m² (0.0092 cfm/ft²)

T0412-023 Water Leakage Test in Accordance with ASTM E331

The following were recorded comments during the ASTM E331 test:

17:49:30 Test started.
17:50:26 ExoAir 110 leaking immediately after start of test, within 10 seconds.
17:51:11 ExoAir 110 leaking at all 4 corners.
17:55:57 Small leaks coming from the straight run of ExoAir 110 on middle of bottom.
18:01:46 Only ExoAir 110 leaking. Proglaze ETA is dry.
18:04:04 Changing to 300 Pa at 15 min.
18:04:45 300 Pa. test started.
18:06:17 Will run the 300 Pa. test for 5 min. and proceed to 1200 Pa.
18:11:21 No leakage from the Proglaze ETA. Moving to 1200 Pa.
18:12:47 1200 Pa. test started.
18:16:42 No observed leakage for Proglaze ETA. At 5 min. will move to 2000 Pa.
18:18:28 No observed leakage for Proglaze ETA.
18:20:03 2000 Pa. test started. Will run for 15 minutes.
18:27:07 No observed leakage for Proglaze ETA.
18:27:38 Video taken from approx. 3 min. into test to approx. 6-1/2 min. into test. Video of external side taken at 7 min. into test.
18:31:52 No observed leakage for Proglaze ETA.
18:32:47 Will shut down after 15 min. at 2000 Pa.
18:35:03 2000 Pa. test over. No water leakage on Proglaze ETA.

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								
System	Infiltration		Exfiltration		Infiltration		Exfiltration	
	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	0.0033	0.0130	0.0039	0.0134	0.0111	0.0269	0.0200	0.0293
ETA	0.0011	0.0000	0.0011	0.0031	0.0011	0.0028	0.0000	0.0000
110	0.0076	0.0102	0.0072	0.0092	0.0122	0.0211	0.0111	0.0303

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	Exfiltration	Infiltration	Exfiltration	Notes
	75 Pa	75 Pa	300 Pa	300 Pa	
Baseline	-294%	-244%	-142%	-47%	Significant decrease in baseline indicates potential damage to test assembly during cycling.
ETA	100%	-182%	-155%	0%	Very small air leakage. Changes likely due to noise error and variance in baseline performance.
110	-34%	-28%	-73%	-173%	Significant percentage difference on high air leakage

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

There was no clear visual indication of damage to the ExoAir 110 membrane during cycling, although there was a measurable increase in air leakage from the before cycled state to the after cycled state.

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. If you view the graphs of the statistical linear air leakage line, the slope is not as expected and the r squared value is extremely poor, indicating that the linear prediction is not reliable. It is believed that the performance of the Proglaze ETA system would indicate that the air leakage was immeasurable and likely approached zero for the system. Any measurements that were taken were subject to other variables that are usually very small in comparison, producing small error. But, with very small air leakage measurements, these small errors are larger in comparison and produce the results that we see here. No exact conclusions can be drawn for the true air leakage measurement, but the air leakage was very small if it existed at all.

The Proglaze ETA was exposed to a 2000 Pa. pressure differential for 15 minutes, after about 25 minutes of exposure at lesser pressures. A 2000 Pa pressure is equivalent to a 130 mph wind. There was no time during the entire test that the system leaked water. This further substantiates the theory that the air leakage approached zero.



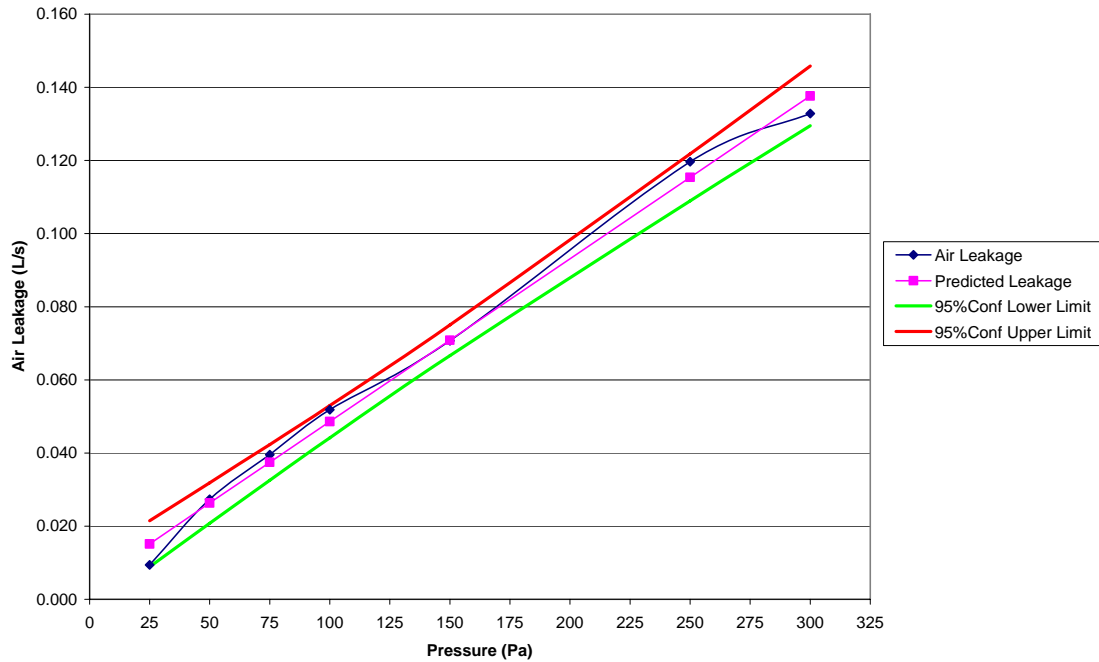
IV. Conversion Charts

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

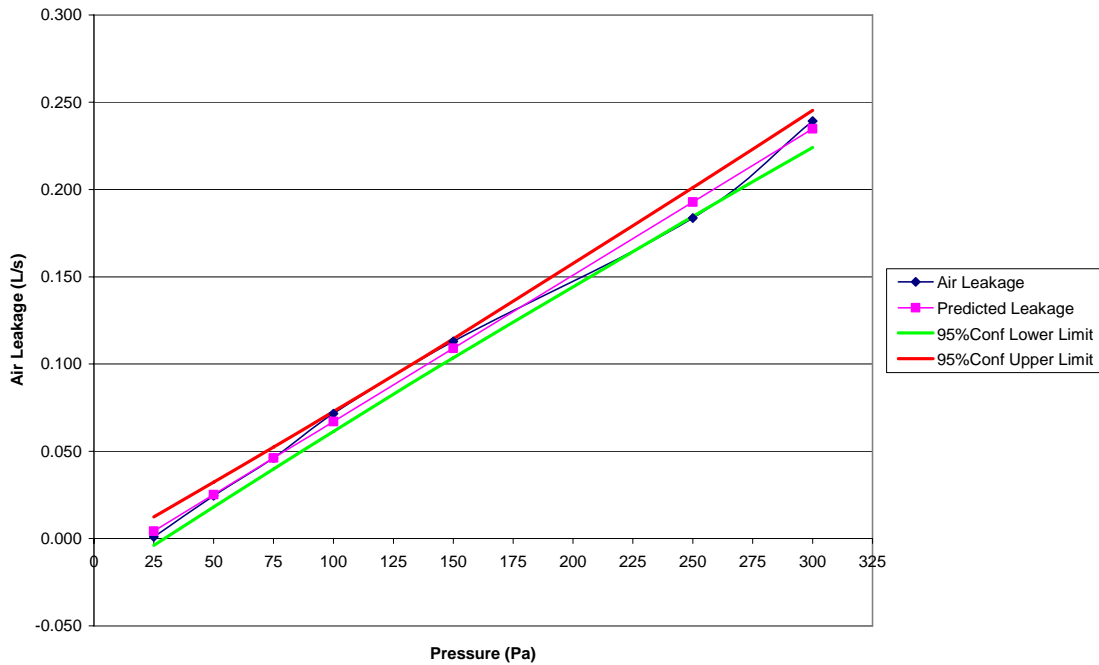


V. Charts and Graphs

Infiltration T0412-005

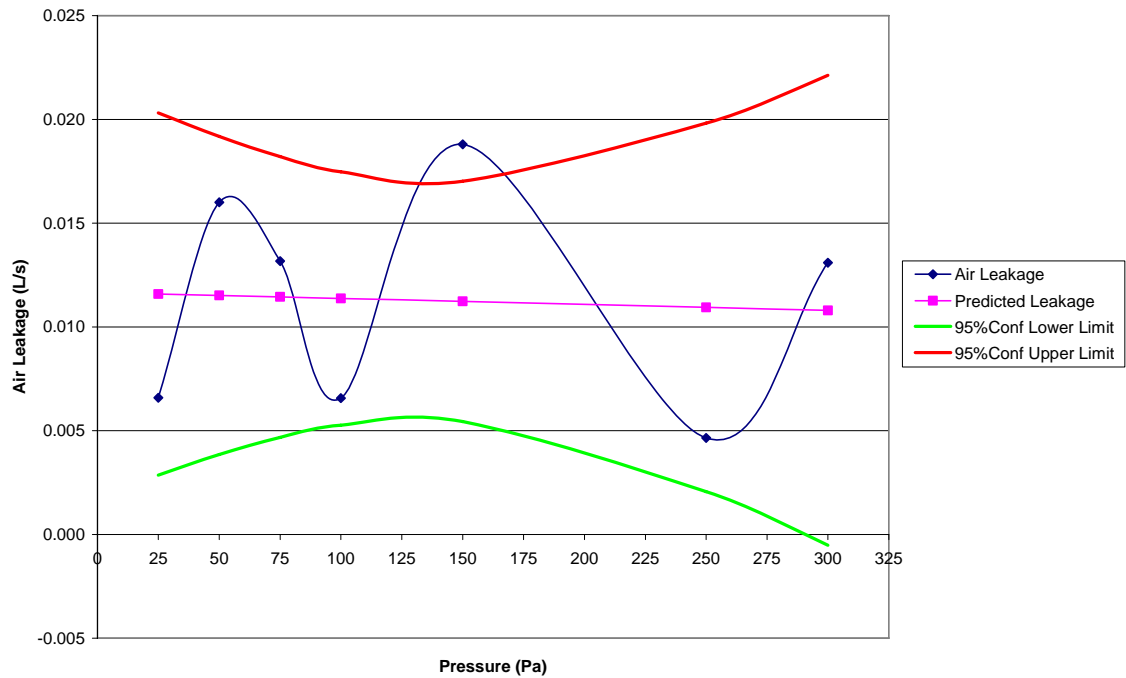


Exfiltration T0412-005

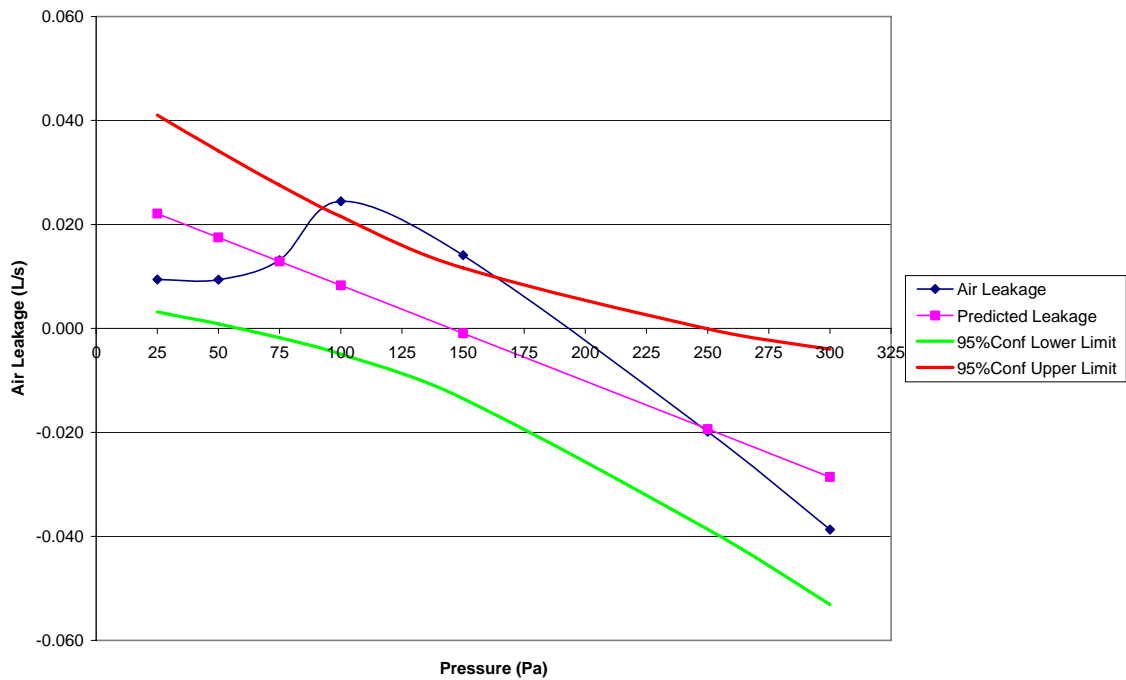




Infiltration T0412-006

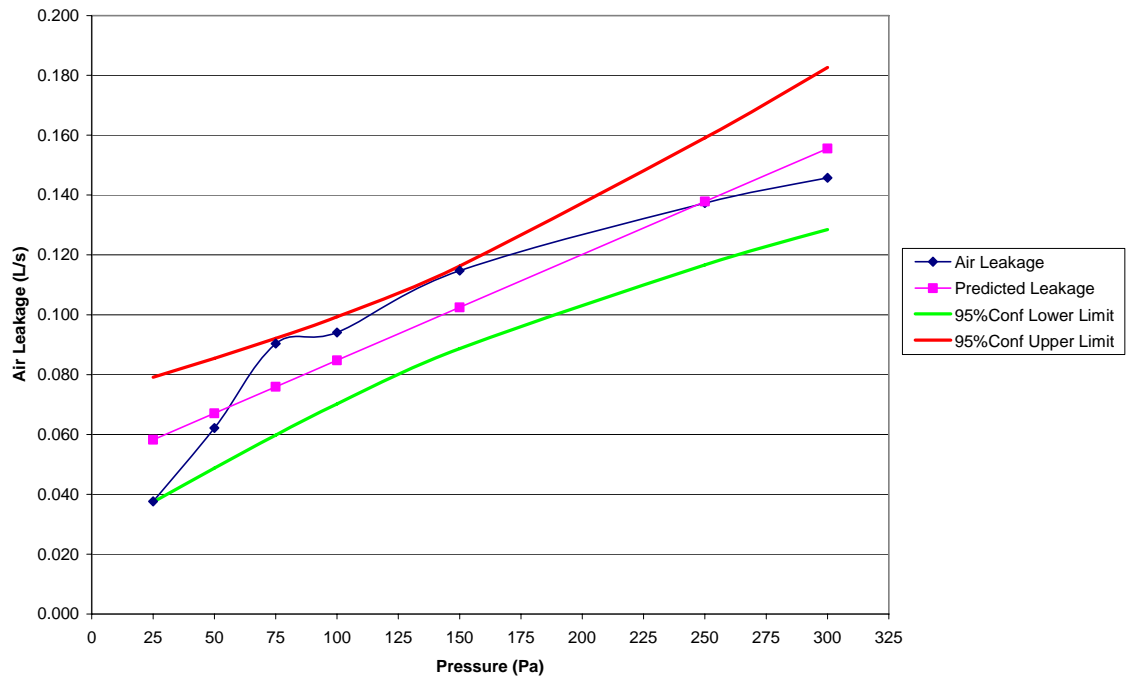


Exfiltration T0412-006

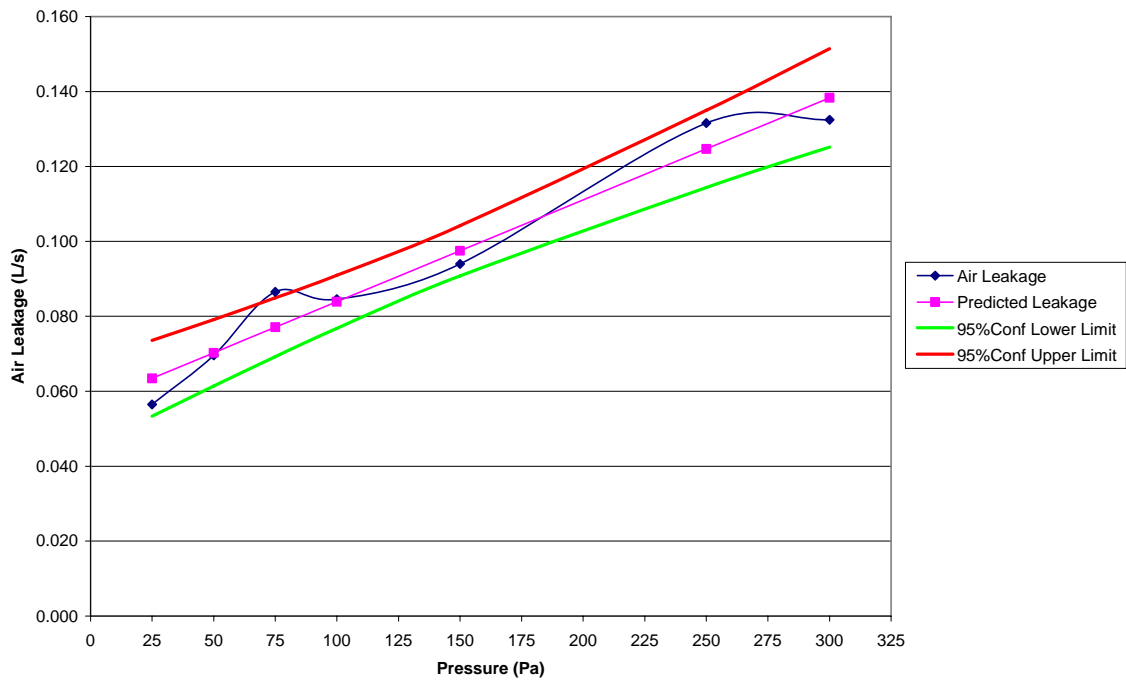




Infiltration T0412-007

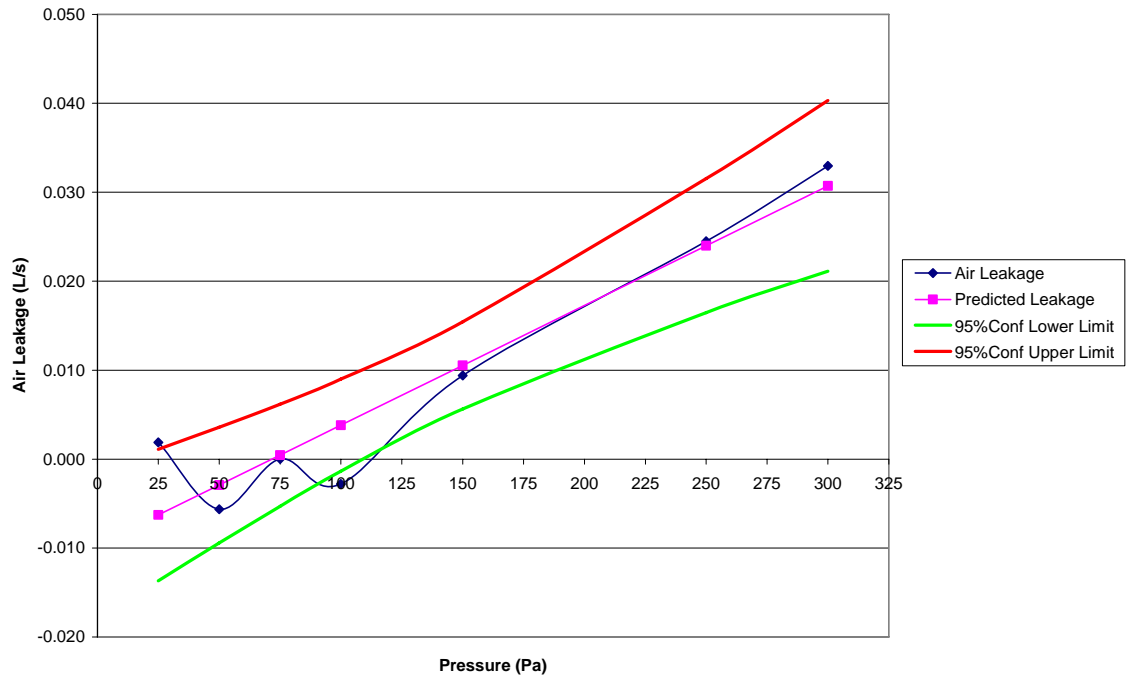


Exfiltration T0412-007

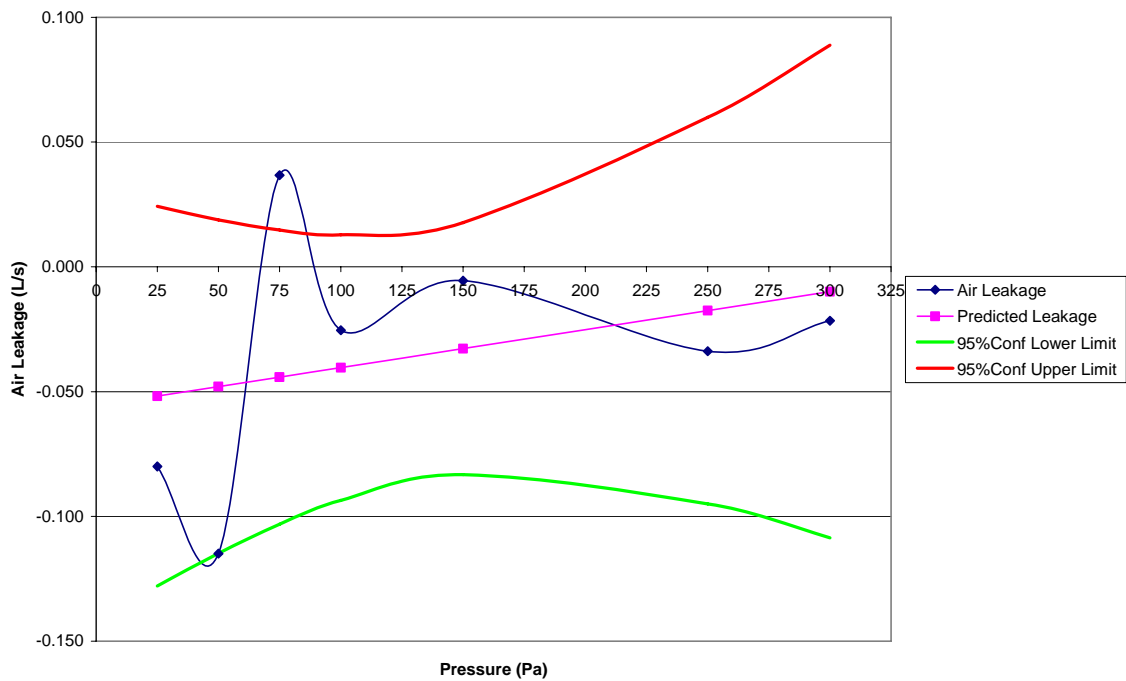




Infiltration T0412-010

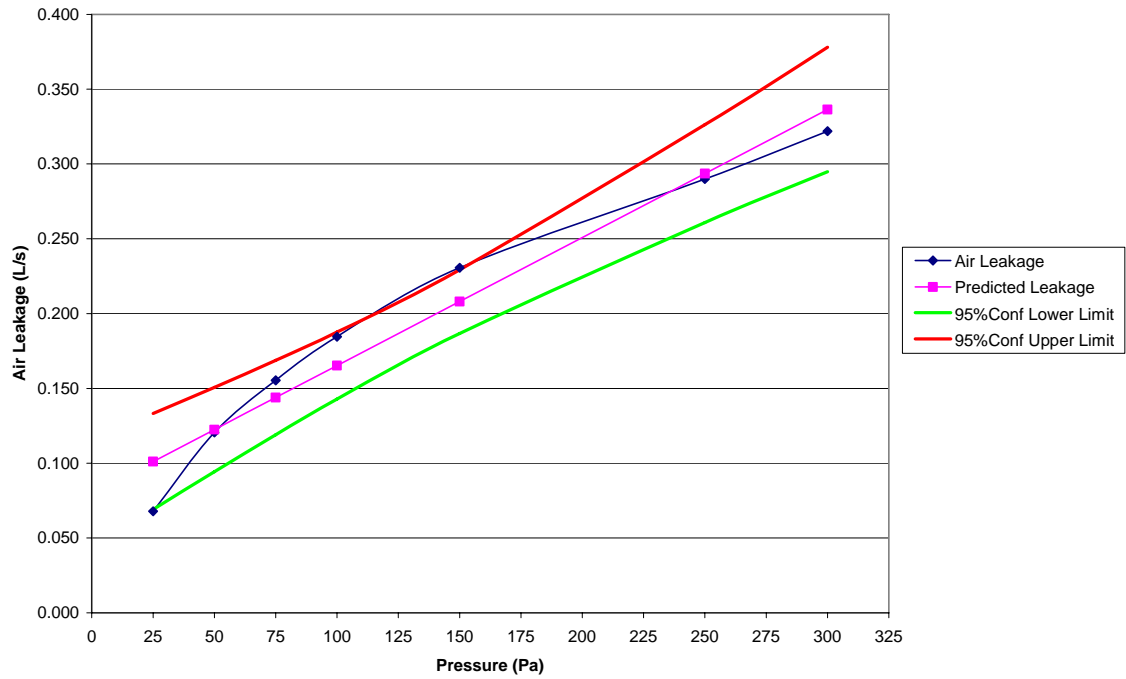


Exfiltration T0412-010

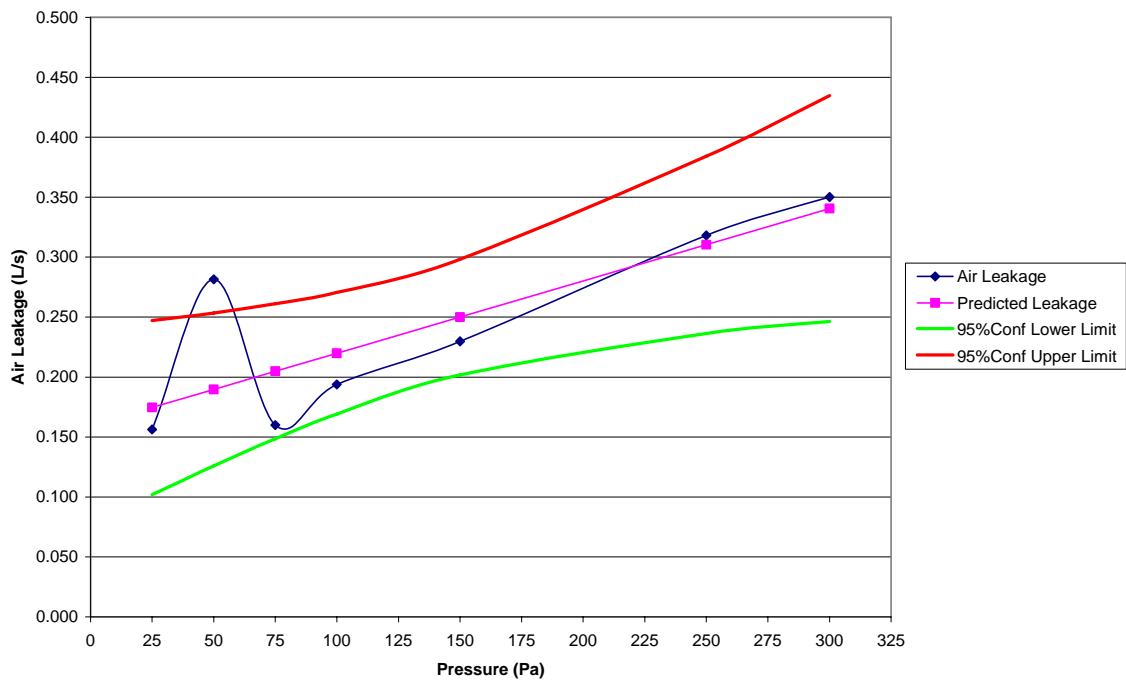




Infiltration T0412-011

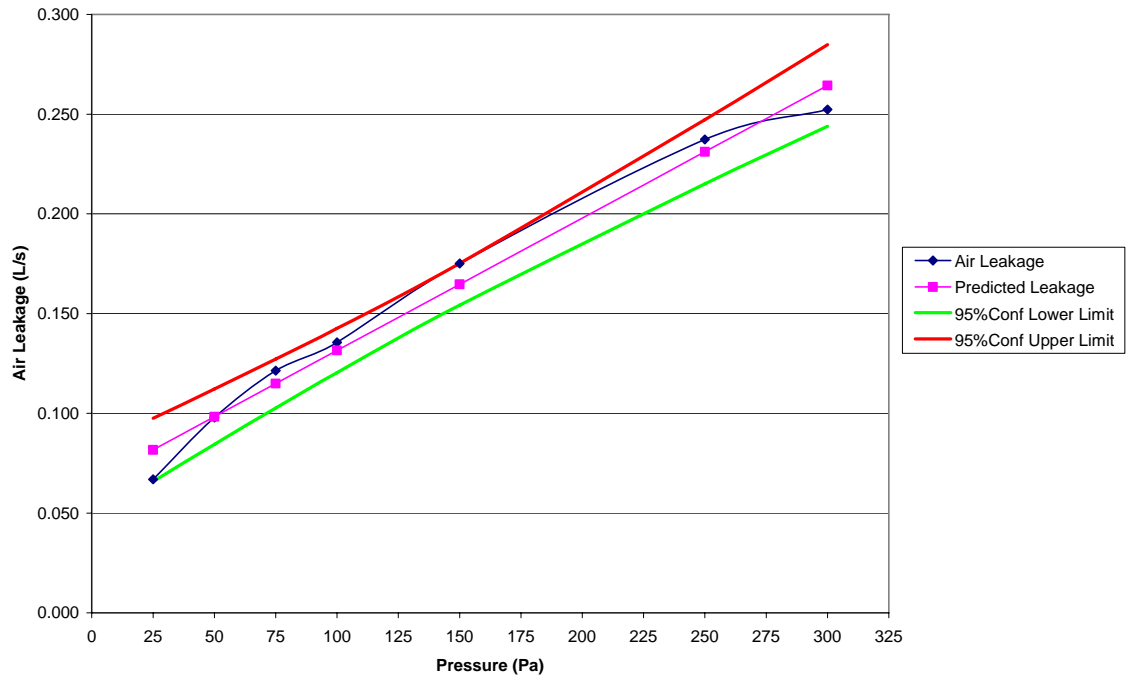


Exfiltration T0412-011

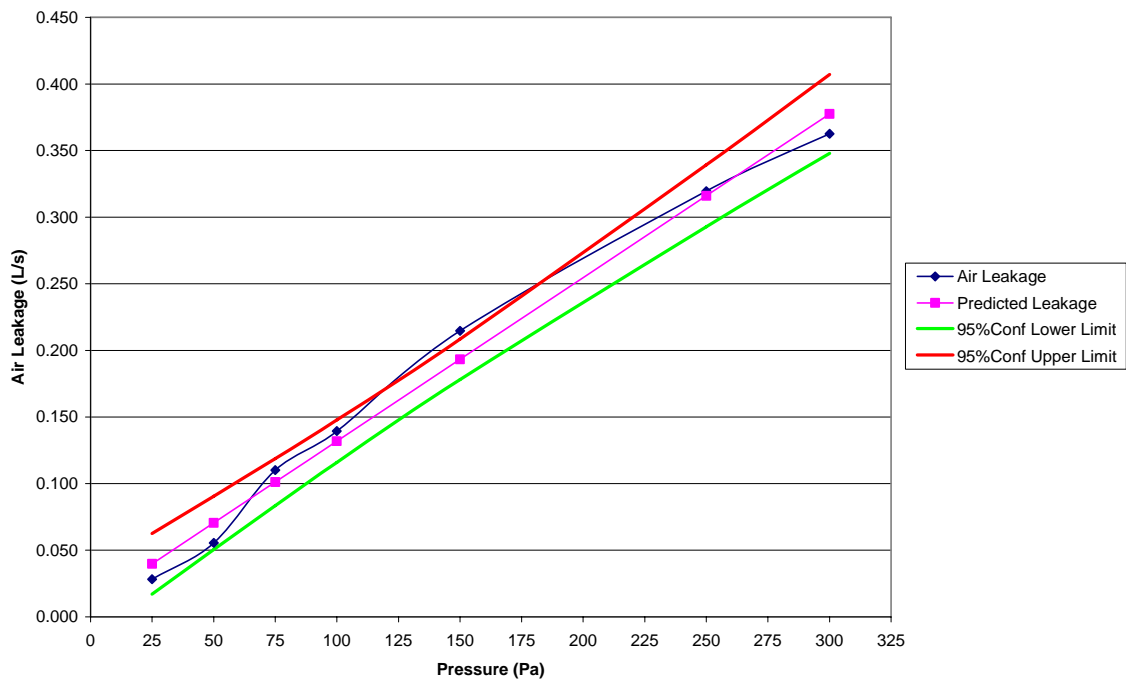




Infiltration T0412-012



Exfiltration T0412-012



Infiltration T0412-005													
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	0.009	0.000	0.009	No Data	0.004	0.015	0.009	0.021	0.020	0.000	0.020	No Data	0.0008
50	0.027	0.000	0.027	No Data	0.012	0.026	0.021	0.032	0.058	0.000	0.058	No Data	0.0023
75	0.040	0.000	0.040	No Data	0.017	0.037	0.033	0.042	0.084	0.000	0.084	No Data	0.0033
100	0.052	0.000	0.052	No Data	0.022	0.049	0.044	0.053	0.110	0.000	0.110	No Data	0.0043
150	0.071	0.000	0.071	No Data	0.030	0.071	0.067	0.075	0.150	0.000	0.150	No Data	0.0059
250	0.120	0.000	0.120	No Data	0.051	0.115	0.109	0.122	0.254	0.000	0.254	No Data	0.0100
300	0.133	0.000	0.133	No Data	0.056	0.138	0.129	0.146	0.282	0.000	0.282	No Data	0.0111

Exfiltration T0412-005													
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	No Data	0.000	0.004	-0.004	0.012	0.002	0.000	0.002	No Data	0.0001
50	0.025	0.000	0.025	No Data	0.010	0.025	0.018	0.032	0.052	0.000	0.052	No Data	0.0020
75	0.046	0.000	0.046	No Data	0.020	0.046	0.040	0.052	0.098	0.000	0.098	No Data	0.0039
100	0.072	0.000	0.072	No Data	0.030	0.067	0.061	0.073	0.152	0.000	0.152	No Data	0.0060
150	0.113	0.000	0.113	No Data	0.048	0.109	0.104	0.114	0.240	0.000	0.240	No Data	0.0095
250	0.184	0.000	0.184	No Data	0.078	0.193	0.185	0.201	0.389	0.000	0.389	No Data	0.0154
300	0.239	0.000	0.239	No Data	0.102	0.235	0.224	0.245	0.507	0.000	0.507	No Data	0.0200

Infiltration T0412-006													
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	0.016	0.009	0.007	No Data	0.003	0.012	0.003	0.020	0.034	0.020	0.014	No Data	0.0006
50	0.043	0.027	0.016	No Data	0.007	0.012	0.004	0.019	0.092	0.058	0.034	No Data	0.0013
75	0.053	0.040	0.013	No Data	0.006	0.011	0.005	0.018	0.112	0.084	0.028	No Data	0.0011
100	0.058	0.052	0.007	No Data	0.003	0.011	0.005	0.017	0.124	0.110	0.014	No Data	0.0005
150	0.089	0.071	0.019	No Data	0.008	0.011	0.005	0.017	0.190	0.150	0.040	No Data	0.0016
250	0.124	0.120	0.005	No Data	0.002	0.011	0.002	0.020	0.263	0.254	0.010	No Data	0.0004
300	0.146	0.133	0.013	No Data	0.006	0.011	-0.001	0.022	0.309	0.282	0.028	No Data	0.0011

Exfiltration T0412-006													
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	0.001	0.009	No Data	0.004	0.022	0.003	0.041	0.022	0.002	0.020	No Data	0.0008
50	0.034	0.025	0.009	No Data	0.004	0.017	0.001	0.034	0.072	0.052	0.020	No Data	0.0008
75	0.059	0.046	0.013	No Data	0.006	0.013	-0.002	0.028	0.126	0.098	0.028	No Data	0.0011
100	0.096	0.072	0.024	No Data	0.010	0.008	-0.005	0.022	0.204	0.152	0.052	No Data	0.0020
150	0.127	0.113	0.014	No Data	0.006	-0.001	-0.013	0.012	0.269	0.240	0.030	No Data	0.0012
250	0.164	0.184	-0.020	No Data	-0.008	-0.019	-0.039	0.000	0.347	0.389	-0.042	No Data	-0.0017
300	0.201	0.239	-0.039	No Data	-0.016	-0.029	-0.053	-0.004	0.425	0.507	-0.082	No Data	-0.0032

Infiltration T0412-007													
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	0.047	0.009	0.038	No Data	0.016	0.058	0.037	0.079	0.100	0.020	0.080	No Data	0.0031
50	0.089	0.027	0.062	No Data	0.026	0.067	0.049	0.085	0.190	0.058	0.132	No Data	0.0052
75	0.130	0.040	0.090	No Data	0.038	0.076	0.060	0.092	0.275	0.084	0.191	No Data	0.0076
100	0.146	0.052	0.094	No Data	0.040	0.085	0.070	0.099	0.309	0.110	0.199	No Data	0.0079
150	0.185	0.071	0.115	No Data	0.049	0.102	0.089	0.116	0.393	0.150	0.243	No Data	0.0096
250	0.257	0.120	0.137	No Data	0.058	0.138	0.117	0.159	0.544	0.254	0.291	No Data	0.0115
300	0.279	0.133	0.146	No Data	0.062	0.156	0.129	0.183	0.590	0.282	0.309	No Data	0.0122

Exfiltration T0412-007													
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	0.057	0.001	0.056	No Data	0.024	0.063	0.053	0.074	0.122	0.002	0.120	No Data	0.0047
50	0.094	0.025	0.070	No Data	0.030	0.070	0.061	0.079	0.199	0.052	0.147	No Data	0.0058
75	0.133	0.046	0.087	No Data	0.037	0.077	0.069	0.085	0.281	0.098	0.183	No Data	0.0072
100	0.156	0.072	0.085	No Data	0.036	0.084	0.077	0.091	0.331	0.152	0.179	No Data	0.0071
150	0.207	0.113	0.094	No Data	0.040	0.097	0.091	0.104	0.439	0.240	0.199	No Data	0.0079
250	0.315	0.184	0.132	No Data	0.056	0.125	0.114	0.135	0.668	0.389	0.279	No Data	0.0110
300	0.372	0.239	0.132	No Data	0.056	0.138	0.125	0.151	0.788	0.507	0.281	No Data	0.0111

Infiltration T0412-008													
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	0.145	0.009	0.136	No Data	0.058	0.124	0.113	0.136	0.307	0.020	0.287	No Data	0.0113
50	0.237	0.027	0.210	No Data	0.089	0.220	0.210	0.231	0.503	0.058	0.445	No Data	0.0176
75	0.353	0.040	0.313	No Data	0.133	0.317	0.308	0.326	0.748	0.084	0.664	No Data	0.0262
100	0.464	0.052	0.412	No Data	0.175	0.413	0.405	0.421	0.983	0.110	0.873	No Data	0.0345
150	0.680	0.071	0.610	No Data	0.259	0.606	0.598	0.613	1.442	0.150	1.292	No Data	0.0510
250	1.106	0.120	0.986	No Data	0.419	0.991	0.979	1.002	2.343	0.254	2.090	No Data	0.0825
300	1.320	0.133	1.187	No Data	0.504	1.183	1.168	1.198	2.796	0.282	2.515	No Data	0.0993

Exfiltration T0412-008													
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	0.124	0.001	0.123	No Data	0.052	0.140	0.082	0.197	0.263	0.002	0.261	No Data	0.0103
50	0.245	0.025	0.220	No Data	0.094	0.231	0.180	0.281	0.519	0.052	0.467	No Data	0.0184
75	0.369	0.046	0.323	No Data	0.137	0.322	0.277	0.367	0.782	0.098	0.684	No Data	0.0270
100	0.485	0.072	0.413	No Data	0.176	0.413	0.373	0.453	1.027	0.152	0.875	No Data	0.0346
150	0.736	0.113	0.623	No Data	0.265	0.596	0.557	0.634	1.559	0.240	1.320	No Data	0.0521
250	1.200	0.184	1.016	No Data	0.432	0.960	0.902	1.019	2.543	0.389	2.154	No Data	0.0850
300	1.324	0.239	1.085	No Data	0.461	1.143	1.068	1.218	2.806	0.507	2.299	No Data	0.0908

Infiltration T0412-010													
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	0.070	0.068	0.002	No Data	0.001	-0.006	-0.014	0.001	0.148	0.144	0.004	No Data	0.0002
50	0.115	0.120	-0.006	No Data	-0.002	-0.003	-0.009	0.004	0.243	0.255	-0.012	No Data	-0.0005
75	0.155	0.155	0.000	No Data	0.000	0.000	-0.005	0.006	0.329	0.329	0.000	No Data	0.0000
100	0.182	0.185	-0.003	No Data	-0.001	0.004	-0.001	0.009	0.385	0.391	-0.006	No Data	-0.0002
150	0.240	0.231	0.009	No Data	0.004	0.011	0.006	0.015	0.509	0.489	0.020	No Data	0.0008
250	0.314	0.290	0.024	No Data	0.010	0.024	0.016	0.032	0.666	0.614	0.052	No Data	0.0020
300	0.355	0.322	0.033	No Data	0.014	0.031	0.021	0.040	0.752	0.682	0.070	No Data	0.0028

Exfiltration T0412-010													
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	0.076	0.156	-0.080	No Data	-0.034	-0.052	-0.128	0.024	0.162	0.331	-0.170	No Data	-0.0067
50	0.167	0.281	-0.115	No Data	-0.049	-0.048	-0.115	0.019	0.353	0.596	-0.243	No Data	-0.0096
75	0.197	0.160	0.037	No Data	0.016	-0.044	-0.103	0.015	0.417	0.339	0.078	No Data	0.0031
100	0.169	0.194	-0.025	No Data	-0.011	-0.040	-0.094	0.013	0.357	0.411	-0.054	No Data	-0.0021
150	0.224	0.230	-0.006	No Data	-0.002	-0.033	-0.083	0.018	0.475	0.487	-0.012	No Data	-0.0005
250	0.284	0.318	-0.034	No Data	-0.014	-0.018	-0.095	0.060	0.602	0.674	-0.072	No Data	-0.0028
300	0.329	0.350	-0.022	No Data	-0.009	-0.010	-0.109	0.089	0.696	0.742	-0.046	No Data	-0.0018

Infiltration T0412-011													
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	0.068	0.000	0.068	No Data	0.029	0.101	0.069	0.133	0.144	0.000	0.144	No Data	0.0057
50	0.120	0.000	0.120	No Data	0.051	0.122	0.094	0.151	0.255	0.000	0.255	No Data	0.0101
75	0.155	0.000	0.155	No Data	0.066	0.144	0.119	0.169	0.329	0.000	0.329	No Data	0.0130
100	0.185	0.000	0.185	No Data	0.078	0.165	0.143	0.188	0.391	0.000	0.391	No Data	0.0154
150	0.231	0.000	0.231	No Data	0.098	0.208	0.187	0.229	0.489	0.000	0.489	No Data	0.0193
250	0.290	0.000	0.290	No Data	0.123	0.294	0.261	0.326	0.614	0.000	0.614	No Data	0.0243
300	0.322	0.000	0.322	No Data	0.137	0.336	0.295	0.378	0.682	0.000	0.682	No Data	0.0269

Exfiltration T0412-011													
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	0.156	0.000	0.156	No Data	0.066	0.175	0.102	0.247	0.331	0.000	0.331	No Data	0.0131
50	0.281	0.000	0.281	No Data	0.120	0.190	0.126	0.253	0.596	0.000	0.596	No Data	0.0235
75	0.160	0.000	0.160	No Data	0.068	0.205	0.148	0.261	0.339	0.000	0.339	No Data	0.0134
100	0.194	0.000	0.194	No Data	0.082	0.220	0.169	0.271	0.411	0.000	0.411	No Data	0.0162
150	0.230	0.000	0.230	No Data	0.098	0.250	0.202	0.298	0.487	0.000	0.487	No Data	0.0192
250	0.318	0.000	0.318	No Data	0.135	0.310	0.236	0.384	0.674	0.000	0.674	No Data	0.0266
300	0.350	0.000	0.350	No Data	0.149	0.340	0.246	0.435	0.742	0.000	0.742	No Data	0.0293

Infiltration T0412-012													
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	0.135	0.068	0.067	No Data	0.028	0.082	0.066	0.097	0.285	0.144	0.142	No Data	0.0056
50	0.218	0.120	0.098	No Data	0.042	0.098	0.084	0.112	0.463	0.255	0.207	No Data	0.0082
75	0.277	0.155	0.121	No Data	0.052	0.115	0.103	0.127	0.586	0.329	0.257	No Data	0.0102
100	0.320	0.185	0.136	No Data	0.058	0.131	0.120	0.143	0.678	0.391	0.287	No Data	0.0113
150	0.406	0.231	0.175	No Data	0.074	0.165	0.154	0.175	0.860	0.489	0.371	No Data	0.0146
250	0.527	0.290	0.237	No Data	0.101	0.231	0.215	0.247	1.117	0.614	0.503	No Data	0.0198
300	0.574	0.322	0.252	No Data	0.107	0.264	0.244	0.285	1.217	0.682	0.535	No Data	0.0211

Exfiltration T0412-012													
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	0.185	0.156	0.028	No Data	0.012	0.040	0.017	0.063	0.391	0.331	0.060	No Data	0.0024
50	0.337	0.281	0.056	No Data	0.024	0.070	0.050	0.091	0.714	0.596	0.118	No Data	0.0046
75	0.270	0.160	0.110	No Data	0.047	0.101	0.084	0.119	0.573	0.339	0.233	No Data	0.0092
100	0.333	0.194	0.139	No Data	0.059	0.132	0.116	0.148	0.706	0.411	0.295	No Data	0.0117
150	0.444	0.230	0.215	No Data	0.091	0.193	0.178	0.208	0.942	0.487	0.455	No Data	0.0180
250	0.638	0.318	0.319	No Data	0.136	0.316	0.293	0.339	1.351	0.674	0.677	No Data	0.0267
300	0.713	0.350	0.363	No Data	0.154	0.377	0.348	0.407	1.510	0.742	0.768	No Data	0.0303

Infiltration T0412-013													
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	0.129	0.068	0.061	No Data	0.026	0.038	0.016	0.061	0.273	0.144	0.130	No Data	0.0051
50	0.250	0.120	0.130	No Data	0.055	0.127	0.107	0.147	0.531	0.255	0.275	No Data	0.0109
75	0.364	0.155	0.209	No Data	0.089	0.216	0.198	0.234	0.772	0.329	0.443	No Data	0.0175
100	0.473	0.185	0.288	No Data	0.122	0.305	0.289	0.321	1.001	0.391	0.610	No Data	0.0241
150	0.699	0.231	0.469	No Data	0.199	0.483	0.468	0.498	1.482	0.489	0.993	No Data	0.0392
250	1.131	0.290	0.841	No Data	0.357	0.838	0.815	0.861	2.396	0.614	1.781	No Data	0.0703
300	1.348	0.322	1.026	No Data	0.436	1.016	0.987	1.045	2.857	0.682	2.174	No Data	0.0858

Exfiltration T0412-013													
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	0.132	0.156	-0.024	No Data	-0.010	0.004	-0.102	0.111	0.279	0.331	-0.052	No Data	-0.0020
50	0.273	0.281	-0.008	No Data	-0.004	0.098	0.005	0.191	0.578	0.596	-0.018	No Data	-0.0007
75	0.431	0.160	0.271	No Data	0.115	0.192	0.110	0.274	0.914	0.339	0.574	No Data	0.0227
100	0.560	0.194	0.366	No Data	0.156	0.286	0.212	0.360	1.187	0.411	0.776	No Data	0.0306
150	0.709	0.230	0.479	No Data	0.204	0.473	0.403	0.544	1.502	0.487	1.015	No Data	0.0401
250	1.164	0.318	0.846	No Data	0.360	0.849	0.741	0.957	2.467	0.674	1.793	No Data	0.0708
300	1.359	0.350	1.009	No Data	0.429	1.036	0.899	1.174	2.881	0.742	2.139	No Data	0.0844