Loose House Leakage Test Report #1

Report Prepared For:	[redacted]
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Date Of Test:	October 6, 2020
Living Area:	3,000 square feet on 2 Story; 3 Bedrooms; 9 ft Avg. Ceiling Height
Wind Shielding:	Normal suburban (Wind Shielding Factor: 1)
Climate:	West Chester (LBL Climate Zone: 2)
Temperatures:	Inside = 70°F, Outside = 58°F, Depressurize from inside
Test Data:	25 pa House Pressure, 99 pa Flow Pressure on Ring A, 2,608 CFM

Leakage Areas and Sealing Potential

Calculated Optimum Leakage Area:	1.65 square feet, 237.2 square inches
Measured Leakage Area:	3.36 square feet, 484.4 square inches
Total Leakage Area is equal to a crack half an inch high by	81 feet long.
247 square inches can be sealed before reaching the Optimum Leakage Area.	

Air Exchange Rates: Annual Average, Manual J and Mechanical

Estimated Annual Average Air Change Rate:	13.07 per day, 0.54 per hour
Estimated Manual J Air Change Rate: (C = 322 N = 0.650)	Winter = 0.68 per hour or 306 CFM Summer = 0.41 per hour or 184 CFM
Constant Mechanical Whole Building Ventilation Rate Specified By ASHRAE 62P: (assumes 60 cfm is also provided by building leakage)	60 cfm

Imbalanced Airflow Required to Pressurize/Depressurize (Approximate)

322 cfm = 1 pa	505 cfm = 2 pa	657 cfm = 3 pa	792 cfm = 4 pa	916 cfm = 5 pa

Humidification/Dehumidification Requirements (Approximate)

Added Duct Leakage to Outside	Winter to 35% RH (Add)	Summer to 45% RH (Remove)
None	+21.8 gallons/day	-19.8 gallons/day
50 cfm	+25.4 gallons/day	-25.1 gallons/day
100 cfm	+29.0 gallons/day	-30.5 gallons/day
200 cfm	+36.1 gallons/day	-41.3 gallons/day
300 cfm	+43.2 gallons/day	-52.0 gallons/day

Maximum Acceptable Total Duct Leakage Per New Construction Codes

Based on Total Air Conditioner Size (5% of 400 cfm/ton):

1.5 tons: 30 cfm, 6 sq. in.	3.0 tons: 60 cfm, 11 sq. in.	4.0 tons: 80 cfm, 15 sq. in.
2.0 tons: 40 cfm, 8 sq. in.	3.5 tons: 70 cfm, 13 sq. in.	5.0 tons: 100 cfm, 19 sq. in.
2.5 tons: 50 cfm, 9 sq. in.		

Or, if there is no air conditioning, 12.3 square inches (66 cfm) for all the duct systems in the home, based on 3% of conditioned floor space in CFM25

CFM @ 50 Pa = 4,092 Air changes @ 50 Pa = 9.094 ELA Reference Pressure = 25 Pa