PuriFi

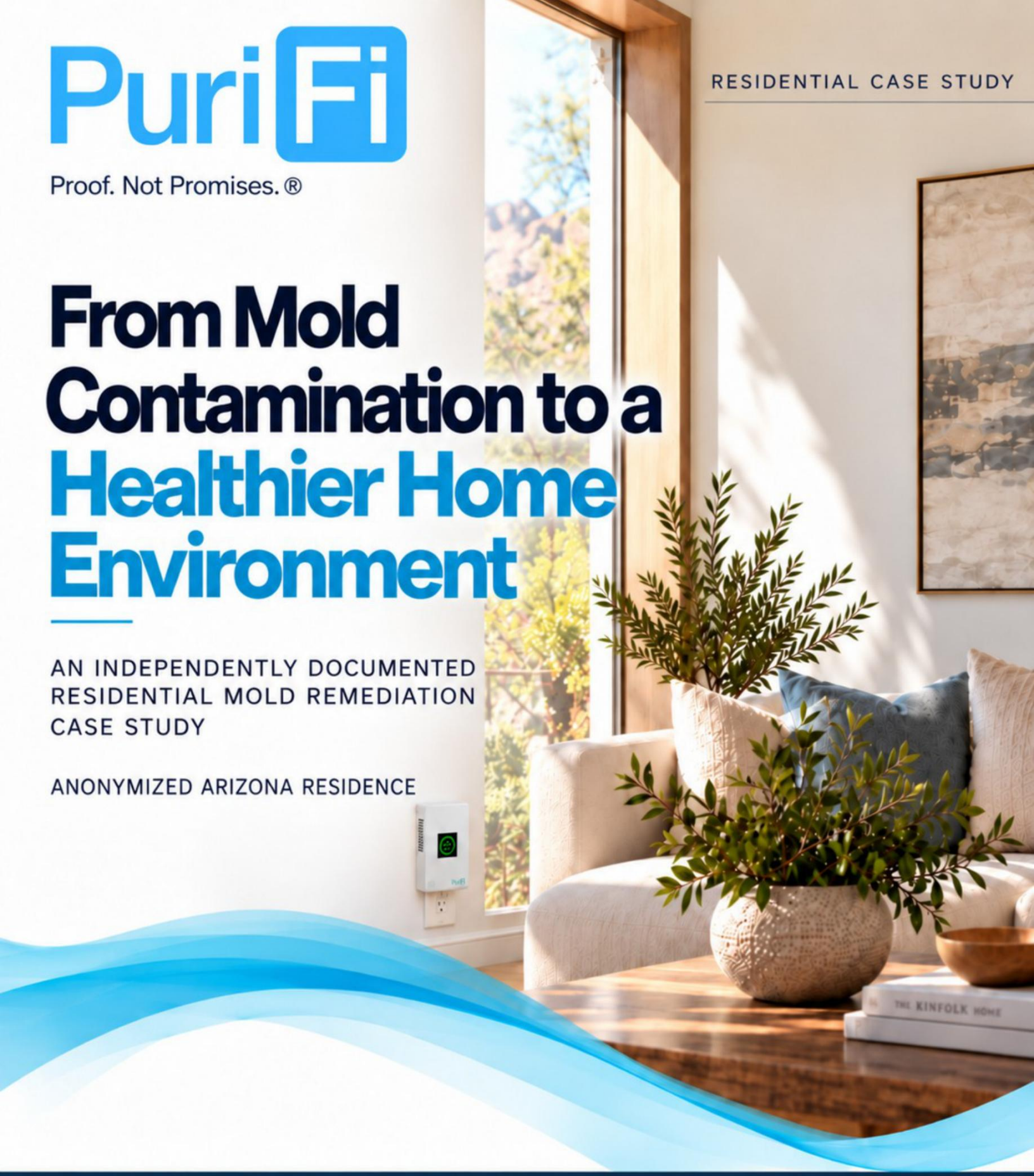
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RESIDENTIAL CASE STUDY

From Mold Contamination to a Healthier Home Environment

AN INDEPENDENTLY DOCUMENTED RESIDENTIAL MOLD REMEDIATION CASE STUDY

ANONYMIZED ARIZONA RESIDENCE



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READING NOTES

Results reflect two independent assessment dates. Indoor spore counts are reported in spores/m^3. Descriptive homeowner information is distinguished from independent laboratory measurements. PuriFi supports air purification and **did not perform mold remediation.**

1. Case Study Detail

Case study detail	Information
Project type	Residential mold assessment; **outside remediation** with PuriFi-supported air purification
Residence	6,907 sq ft | Single-family home | 5 bedrooms / 5 bathrooms
Location	Arizona residence (anonymized)
Study dates	June 29 and September 9, 2026
Independent assessor	Kirsten Shaw, CIEC and Building Biologist
Assessment organization	Advanced Energy Efficiency & Environmental Quality, LLC
Independent laboratory	EMSL Analytical, Inc.
Primary measure	Total airborne mold spores, spores per cubic meter (spores/m^3)
Prepared by	PuriFi Labs

2. Executive Summary

A 6,907-square-foot, five-bedroom, five-bathroom single-family home in Arizona experienced multiple water-intrusion events, including roof leaks affecting several rooms. The homeowner commissioned independent evaluations following moisture-related repairs. Baseline testing identified elevated airborne mold-spore concentrations. After **third-party remediation and corrective work**, retesting documented substantially reduced spore concentrations during a PuriFi-supported air-cleaning period. **PuriFi did not perform mold remediation.**

Across nine indoor samples, the mean airborne total-spore concentration was reduced by 97.8% (rounded to 98%), from 3,473 spores/m^3 at baseline to approximately 76 spores/m^3 at retest. All nine retest samples were below the contemporaneous 1,040 spores/m^3 outdoor reference.

Despite Arizona's dry desert climate, outdoor mold spores, including Aspergillus and Cladosporium, remain present in the environment. These airborne spores can enter homes through ventilation, open doors, and other pathways. Complete elimination of airborne mold spores is therefore not a realistic expectation. The independently documented 97.8% reduction is particularly noteworthy in this environmental context.

Five PuriFi IQ Generators were already integrated into the residence's five HVAC systems. Energy Cores and HVAC filters were replaced June 15, 2026. The measured change reflects the overall corrective strategy and cannot be attributed to PuriFi alone.



3. The Challenge & Corrective Strategy

Evidence at the first assessment

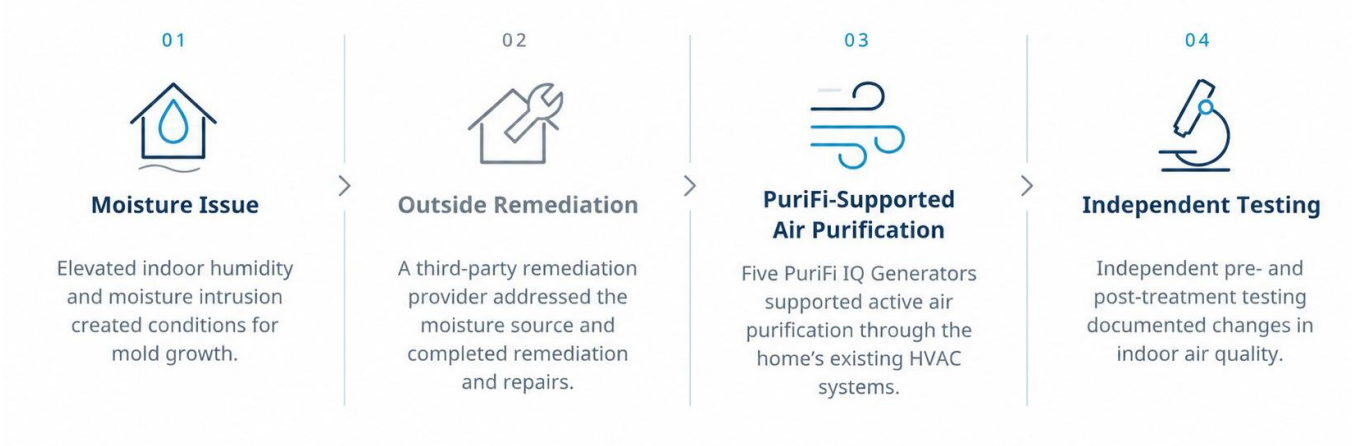
The June 29 baseline found eight of nine indoor locations above the 260 spores/m^3 outdoor reference. Total airborne concentrations ranged from 190 to 13,390 spores/m^3. Aspergillus/Penicillium-like spores predominated in most rooms; the assessor also reported conidiophores in the family room and one of the bedrooms, supporting concern about nearby fungal growth.

Area or finding	Documented condition
Most affected bedroom	13,390 total spores/m^3
Family room	6,550 total spores/m^3
Office	1,700 total spores/m^3
Baseline cultures	High viable-fungi counts in several selected rooms; some plates exceeded quantifiable range
Surface swab	Fungal growth documented on a bedroom wall

PuriFi as part of a comprehensive approach

The independent assessor recommended correcting moisture sources; cleaning or removing affected materials; maintaining HVAC filters; damp cleaning settled dust; and operating the PuriFi systems before follow-up testing. **Third-party professionals**, not PuriFi, **completed remediation and repairs**.

Five PuriFi IQ Generators were already integrated into the home's five HVAC systems. AMP Technology provides active air purification beyond HVAC filtration. PuriFi supported air treatment after remediation; it did not remediate mold or repair water intrusion.



4. Independent Measurement Approach

Kirsten Shaw collected baseline and post-treatment samples, with laboratory analysis by EMSL Analytical. Airborne total-spore samples were analyzed by optical microscopy using Air-O-Cell sampling at 15 liters/minute. Total-spore microscopy includes viable and nonviable fungal spores.

Measurement	June 29 baseline	September 9 retest
Indoor total-spore samples	9	9
Outdoor reference sample	1	1
Viable-fungi cultures	Collected	Not collected
Surface mold sampling	1 swab	Not collected
Baseline / retest outdoor reference	260 spores/m^3	1,040 spores/m^3

Like-for-like comparison

The quantitative comparison in this case study uses nine indoor total-spore measurements from each assessment. They are the same type of laboratory measurement, but some room names and locations differed between visits; the sample sets should not be presented as nine confirmed room-matched pairs.

What changed between testing periods

The residence was unoccupied during baseline repairs, and an additional water-damaged area was reportedly identified and repaired after the June assessment. The homeowner reports that the five AC systems “run all the time” to keep the home cool. The primary bedroom is generally set to 71°F at night and 73°F during the day, with the other four systems set similarly; heating is used at night in winter. These are homeowner-reported settings and do not establish uninterrupted fan or ion-generation operation.

System configuration & homeowner-reported operation

Operating detail	Homeowner-reported information
PuriFi equipment	Five IQ Generators installed in the home
Cooling equipment	Five AC systems; homeowner reports extensive daily operation
Thermostat settings	Primary bedroom: 71°F at night, 73°F by day; four other AC systems generally similar
Winter operation	Heating used at night during the winter
Recent maintenance	IQ Energy Cores and AC filters replaced; June 15, 2026

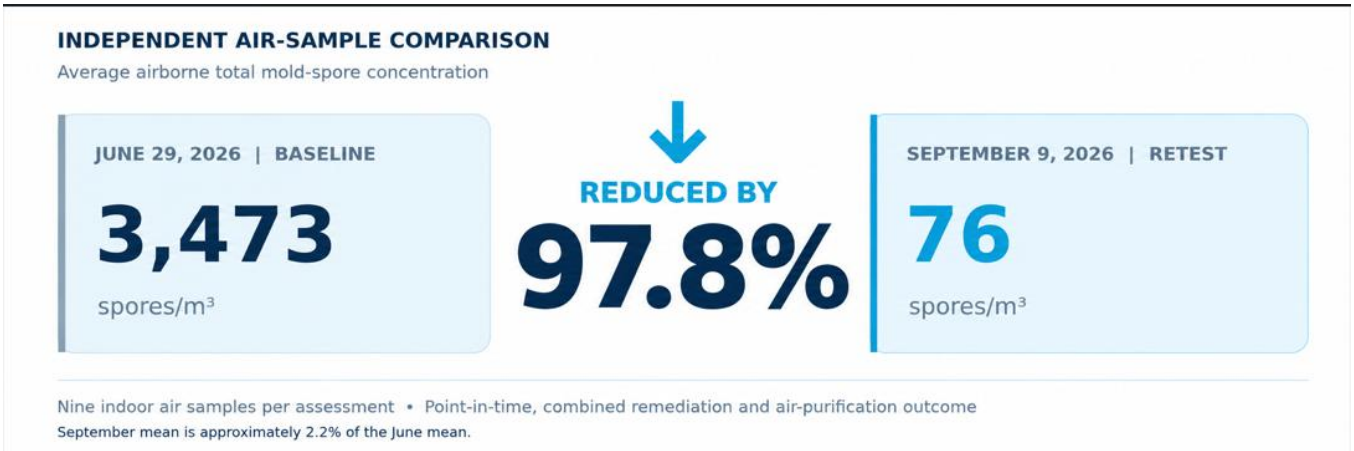
5. Results Dashboard

98%
average total-spore concentration reduced by 98%

99.6%
most affected bedroom count reduced by 99.6%

9 of 9
indoor retest samples below outdoor reference

Average indoor total-spore concentration



Statistic	Baseline	Post-treatment
Mean of nine indoor samples	3,473 spores/m^3	76 spores/m^3
Indoor sample range	190–13,390 spores/m^3	40–160 spores/m^3
Outdoor reference	260 spores/m^3	1,040 spores/m^3

Calculated percent reduced = (31,260 baseline sum − 680 retest sum) / 31,260 × 100 = 97.83%, shown as 98%. The arithmetic mean is computed across nine indoor samples at each date.

6. Corresponding Room Results & Specific Findings

These five room descriptions correspond across the June and September assessments. Each comparison uses the same type of airborne total-spore measurement; exact sampling positions may have differed. The chart shows how much airborne spore counts were reduced in each corresponding area, and Section 7 provides the June and September counts side by side.

FIVE CORRESPONDING AREAS

Independent measurements: June 29 versus September 9, 2026

AREA	JUNE BASELINE		SEPT. RETEST	REDUCED BY
Most affected bedroom	13,390	→	50	↓ 99.6%
Family room area	6,550	→	40	↓ 99.4%
Office	1,700	→	80	↓ 95.3%
Primary bathroom	2,500	→	80	↓ 96.8%
Primary bedroom	770	→	160	↓ 79.2%

Units: total airborne mold spores/m³. Room descriptions correspond; sampling points may differ.
Percent reduced is calculated independently for each corresponding room area.

Markers noted by the independent assessor

Indicator	Post-treatment finding
Aspergillus/Penicillium-like spores	Not detected in two indoor samples; 40–80 spores/m^3 in the other seven.
Chaetomium	Not detected in any indoor retest sample.
Stachybotrys/Memnoniella-like spores	One particle, reported at 10 spores/m^3 in one previously affected bedroom; absent in eight other indoor retest samples.
Indoor-to-outdoor comparison	Every indoor retest sample was substantially below the 1,040 spores/m^3 front-door reference.

Because the September retest did not include viable-fungi cultures or surface swabs, reductions in airborne total-spore counts should not be described as verified reductions in viable fungi, surface contamination, or spore neutralization.

7. Detailed Indoor Sampling Results

The following five areas can be compared using corresponding room descriptions in the independent assessments. Measurements are airborne mold spores per cubic meter (spores/m^3). These are corresponding areas, not verified identical sampling positions.

Five corresponding areas: direct visual comparison

Corresponding indoor area	June 29 baseline	Sept. 9 retest	Reduced by
Most affected bedroom	13,390	50	99.6%
Family room area	6,550	40	99.4%
Office	1,700	80	95.3%
Primary bathroom	2,500	80	96.8%
Primary bedroom	770	160	79.2%

Percent reduced = (June baseline − September retest) ÷ June baseline × 100. All values are spores/m^3.

Other indoor samples: locations not directly matched

The remaining four locations from each assessment cannot be confidently paired by room name. They are reported separately below and are not included in the five-area comparison percentages.

Additional June 29 samples

Location	Spores/m^3
Living room	1,600
Bedroom west of living room	1,340
Guest bathroom	190
Northwest bedroom	3,220

Additional Sept. 9 samples

Location	Spores/m^3
Additional bedroom 1	40
Additional bedroom 2	90
Media room	50
Front room	90

All nine June samples total 31,260 spores/m^3; all nine September samples total 680 spores/m^3. Original location names remain in the laboratory reports. The lists above are anonymized.

8. Interpretation, Limitations & Conclusion

Independent interpretation

The post-treatment inspector found low indoor total-spore concentrations and no longer observed the previous pattern of widespread indoor amplification in the sampled areas. The report described the results as consistent with effective remediation and air cleaning. One isolated low-level Stachybotrys/Memnoniella-like finding was noted for contextual review rather than interpreted as evidence of an active source by itself.

What the findings support

Independent testing documented that mean airborne total-spore concentrations across nine indoor samples were reduced by 97.8% (rounded to 98%). A third-party provider completed mold remediation and repairs; five existing PuriFi IQ Generators supported air purification.

Responsible limitations

These observational results do not isolate causes. Third-party remediation, repairs, cleaning, filtration, HVAC operation and outdoor spores can all influence results. Arizona can have substantial outdoor mold-spore counts despite its dry heat; Aspergillus/Penicillium and Cladosporium occur in regional air and vary by season. Eliminating all indoor spores is not feasible. Total-spore microscopy measures concentration, not viability or neutralization. The tests do not establish health outcomes or exclude concealed sources.

Conclusion

Following third-party mold remediation and moisture-related repairs, independent air samples documented mean airborne mold-spore concentrations reduced by 97.8% (3,473 to approximately 76 spores/m^3). Five previously installed PuriFi IQ Generators remained integrated into the home's HVAC systems for continued air purification. This is a combined outcome, not a PuriFi-only effect. Continued moisture control, HVAC filtration and air purification support the indoor environment; PuriFi did not perform mold remediation.

Source and anonymization notes

Sources: Kirsten Shaw, Advanced Energy Efficiency & Environmental Quality, LLC: Home Mold Inspection (June 29, 2026) and Post-Treatment Final Inspection (September 9, 2026); EMSL Analytical. Outdoor context: U.S. EPA, "How Can I Tell if I Have a Mold Problem?" (epa.gov/mold); Ochkur et al., "Effect of the Sonoran Desert Climate on Airborne Pollen and Spore Abundance" (2025). **Outside remediation provider unnamed; property anonymized.**

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