

Clearing Widespread Mold From an 85,000-Sq-Ft Warehouse—Without Shutting It Down

A Commercial Mold Remediation Case Study: MK2 Properties LLC, Ashtabula, Ohio

Client	MK2 Properties LLC
Facility	85,000 sq. ft. commercial warehouse, Ashtabula, Ohio
Problem	Building-wide Aspergillus/Penicillium contamination confirmed by independent lab testing
Approach	Engineered whole-building airflow management (no standard poly containment)
Standards followed	ANSI/IICRC S520 (Mold Remediation), ANSI/IICRC S500, OSHA
Independent lab	EMSL Analytical
Result	97–98%+ reduction in airborne mold at every tested location, verified by an independent lab
Timeline	Inspection Mar. 16, 2026 → Mobilization May 26, 2026 → Completion Jul. 1, 2026

Prepared by Pine Ridge Restoration, Inc. | Author: Richard McGuigan, IICRC Triple Master Certified Restorer | pineridgerestoration.com

The Challenge

MK2 Properties LLC owns an 85,000-square-foot commercial warehouse in Ashtabula, Ohio—a single, contiguous industrial space built with CMU walls, exposed structural steel, open-web steel joists, and a metal pan ceiling. During a facility assessment, visible discoloration consistent with microbial growth was found across the building's exposed structural steel, ceiling pans, and joist assemblies.

Visible mold is only part of the picture in a building this size. Before committing to a remediation strategy, Pine Ridge Restoration needed to know whether the contamination was confined to a few isolated spots or spreading through the building's air. So the team brought in an independent, accredited laboratory—EMSL Analytical—to test before touching a single surface.

What the Lab Found

On May 26, 2026, Pine Ridge collected calibrated air samples (Zefon Z-Lite IAQ pump, Air-O-Cell media, 15 L/min for 5 minutes) from five locations: an outdoor reference point, the northwest warehouse, the southeast warehouse, the women's restroom, and the upstairs cafeteria. All samples were submitted under chain-of-custody to EMSL for independent analysis.

Sample Location	Aspergillus/Penicillium (spores/m³)	Compared to Outdoor Air
Exterior reference	~15,720	Baseline
Northwest warehouse	~17,200	Above outdoor reference
Southeast warehouse	~16,300	Above outdoor reference
Women's restroom	~13,800	Substantial indoor concentration
Upstairs cafeteria	~28,100	~1.8× outdoor reference

Three of the four interior locations tested at or above the outdoor reference, and the cafeteria—an occupied support space—came in at nearly double. Because the pattern repeated across widely separated areas of the building rather than clustering in one room, it pointed to a building-wide problem, not a single leak or isolated trouble spot.

Why a Textbook Containment Plan Wasn't the Right Call

The standard residential playbook for mold remediation relies on sealed poly containment around a work area. In an 85,000-square-foot warehouse operating as one open volume, that approach would have provided limited engineering benefit while seriously slowing down the job—and the client needed the facility back in operation.

Instead, Pine Ridge Restoration's team, led by IICRC Triple Master Certified Restorer Richard McGuigan, designed a whole-building push-pull airflow strategy purpose-built for the facility's size and geometry:

- Approximately 30,000–40,000 CFM of controlled exhaust airflow, established with high-capacity axial air movers.
- Phoenix Guardian-R HEPA air scrubbers supplying continuously filtered make-up air.
- A directional airflow pattern engineered to cut particulate residence time and prevent uncontrolled recirculation during active cleaning.

The strategy followed the intent of ANSI/IICRC S520 (the industry standard for professional mold remediation) and ANSI/IICRC S500, along with applicable OSHA requirements—applying engineering judgment to the building's specific conditions rather than forcing a one-size-fits-all containment model onto a space it wasn't designed for.

“Conventional room-by-room containment wasn't practical in a warehouse this size. We engineered airflow the way you'd engineer HVAC for a building—moving contaminated air out and clean, filtered air in, continuously, everywhere at once.”

— Richard McGuigan, IICRC Triple Master Certified Restorer

The Work: Source Removal, Controlled Drying, Independent Proof

With engineering controls established, crews mobilized on May 26, 2026 and completed the project on July 1, 2026. A project-specific Health and Safety Program addressed elevated work at heights approaching twenty-four feet, chemical exposure, and slip hazards from wet cleaning—crews worked in full-face respirators, protective suits, and hearing protection, with daily tailgate meetings to review sequencing and conditions.

The remediation sequence:

- HEPA vacuuming of all accessible structural components.
- High-velocity air washing to dislodge accumulated particulate from steel members and joists.
- PHire cleaning solution, boosted with CitruSolv where needed, followed by pressure washing of affected structural surfaces.
- Continuous truck-mounted extraction to recover wash water and limit secondary wetting.
- Mechanical floor scrubbing with a ride-on propane scrubber following overhead cleaning.
- Commercial dehumidification to accelerate drying and stabilize humidity for roughly one week.
- Final application of ProKlean L antimicrobial (EPA Reg. No. 87508-3-104210) per label.

Mechanical source removal—not chemistry—was the primary objective throughout; cleaning products supported the physical work rather than substituting for it. Supervisory personnel evaluated cleaning effectiveness and equipment performance throughout production, not just at a final walkthrough, requiring corrective cleaning before crews moved to the next phase.

The Results, Verified by an Independent Lab

After remediation and drying stabilized, Pine Ridge collected a second full round of chain-of-custody air samples from the same five locations and submitted them to EMSL Analytical for independent verification.

Sample Location	Aspergillus/Penicillium (spores/m³)	Result vs. Outdoor Reference
Exterior reference	~11,510	Baseline (day of verification)
Northwest warehouse	~380	~97% below outdoor
Southeast warehouse	~220	~98% below outdoor
Women's restroom	~250	~98% below outdoor
Upstairs cafeteria	~178	More than 98% below outdoor

The upstairs cafeteria is the clearest before-and-after: it went from the building's worst reading—roughly 1.8 times the outdoor level—to more than 98% below outdoor air after remediation. Every interior location flipped from at-or-above the outdoor reference to well below it, and the verification samples showed no detected *Chaetomium*, *Fusarium*, *Stachybotrys*, or hyphal fragments—indicators of active water-damage-related mold growth.

Pine Ridge evaluated the outcome against multiple lines of evidence, not lab numbers alone: completion of the specified cleaning protocol, visual cleanliness, moisture stabilization, ongoing quality-control inspections, and the independent laboratory findings. Together, they supported a clear determination that the contracted remediation scope was successfully completed.

“The cafeteria had the worst numbers going in, so it's the best proof the plan worked. When your worst room comes back cleaner than the outdoor air, that's not luck—that's the airflow design and the cleaning sequence doing exactly what they were built to do.”

— Richard McGuigan, IICRC Triple Master Certified Restorer

Keeping It That Way

Pine Ridge's closeout report gave MK2 Properties clear, practical maintenance guidance: promptly correct any future roof leaks, plumbing failures, or other moisture intrusion; keep indoor humidity in an appropriate range for the occupancy; maintain routine housekeeping on elevated structural components; and inspect the roof and building envelope periodically. A successful remediation is not a permanent guarantee against future growth—it's a clean baseline that good building maintenance can protect.

Commercial Mold Remediation: Frequently Asked Questions

How do you verify that commercial mold remediation actually worked?

Pine Ridge Restoration relies on multiple lines of evidence rather than a single test: completion of the specified cleaning protocol, visual cleanliness, documented moisture stabilization, ongoing quality-control inspections during the work, and independent post-remediation air sampling analyzed by a third-party laboratory (EMSL Analytical on this project). There is no single federal numerical “pass/fail” threshold for airborne mold, so results are compared against a same-day outdoor reference sample and evaluated for abnormal indicator organisms.

Why not use standard poly containment for a large warehouse mold job?

Sealed room-by-room poly containment is designed for smaller, compartmentalized spaces. In a large, open industrial building operating as one contiguous volume, it provides limited engineering benefit while significantly slowing production. Pine Ridge instead engineers whole-building airflow management—high-capacity exhaust paired with HEPA-filtered make-up air—to control contaminant transport across the entire facility at once.

What standards govern professional mold remediation?

Pine Ridge Restoration performs commercial and residential mold remediation consistent with the intent of ANSI/IICRC S520 (the industry standard for professional mold remediation) and ANSI/IICRC S500 (professional water damage restoration), along with applicable OSHA worker-safety requirements.

How long does mold remediation take for a large commercial building?

Timelines depend on square footage, contamination extent, and building geometry. On this 85,000-square-foot warehouse project, active remediation ran roughly five weeks, from mobilization to laboratory-verified completion, following an initial assessment and pre-remediation lab testing.

What credentials should a commercial mold remediation contractor have?

Look for IICRC certification and, ideally, a team led by an IICRC Master Certified Restorer—the credential held by Pine Ridge Restoration’s Richard McGuigan, who holds IICRC Triple Master Restorer status. Ask whether pre- and post-remediation testing is performed by an independent, accredited laboratory rather than the remediation company itself.

About Pine Ridge Restoration

Pine Ridge Restoration, Inc. provides commercial and residential water, fire, construction, and mold restoration services, applying engineering-driven remediation strategies and independent laboratory verification to every project—from single-room water losses to large-scale commercial mold remediation like the MK2 Properties warehouse project detailed in this case study.

This project was led by **Richard McGuigan**, an IICRC Triple Master Certified Restorer. The IICRC Master designation is held by a small percentage of restoration professionals nationwide and requires advanced certification across multiple restoration disciplines.

Facing mold, water, or fire damage in a commercial or residential property? Contact Pine Ridge Restoration to schedule an assessment.

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Source: This case study is based on Pine Ridge Restoration's Commercial Mold Remediation Project Report prepared for MK2 Properties LLC (3201 North Ridge Road East, Ashtabula, Ohio 44004), including pre- and post-remediation laboratory analyses performed by EMSL Analytical. Figures are approximate as reported in the project closeout documentation. Published with client's project information for marketing purposes.