HVAC and VOC Forensic Analysis

Unit 806 · 315 N 12th Street
Goldtex Apartments · Philadelphia PA 19107
Greystar Real Estate Partners (property manager)

Document date:	Sunday, May 17, 2026 (evening)
Period covered:	Nov 22, 2025 → May 17, 2026 (4,235 readings)
Event window:	May 12 → May 20, 2026 (5 days actual + 3 forecast)
Prepared by:	Justin Horn (Thumper)
Primary sensor:	Sonoff SNZB-02 (Zigbee → eWeLink cloud, hourly)
Cross-validation:	Apple HomePod (Apple HomeKit)
Unit status:	Vacant since May 6, 2026 (VOC displacement)
Audiences:	L&I · civil counsel · PCHR · council · medical · family

HOW TO READ THIS DOCUMENT. This is a technical forensic analysis paired with plain-language explanations of each finding. Throughout, technical material is followed by a labeled blue box that restates the key finding in everyday language. Readers can engage with either portion based on background and needs. The plain-language summary in Section 1 is self-contained for readers who want only the conclusions; the technical sections document the supporting evidence.

1. Plain-Language Summary

Unit 806 has had no working air conditioning since the building's heating season ended. The tenant has been displaced from the unit since May 6, 2026 due to chemical fumes (VOCs) coming off of materials that the property manager (Greystar) installed in the unit, documented by his treating physician.

On Sunday May 17, 2026 — the day before a forecast 89°F-95°F heat wave — something changed. The AC began producing cold air for the first time. The tenant went to the unit to verify it. Within minutes of entering, he developed a headache and dizziness and had to leave.

This report explains what almost certainly happened mechanically, why the AC improvement does not make the unit safe to occupy, and why the timing and selective nature of the work points to the unit being prepared as a setup — an apparent improvement designed to undermine the tenant's legal posture, not to remediate the underlying problem.

The four findings, in plain English

1 They added refrigerant to a system that has a leak and/or fouled coil.

The AC now produces some cold air but the part that pulls moisture out of the air is broken. As a result, the unit is now cold AND damp instead of warm and dry. The humidity in the unit climbed from 45% to 62% over the course of today while the AC ran.

2 Cold-and-damp is worse for this tenant than warm-and-dry.

The chemicals (VOCs) that have been soaking into the walls, carpet, and furniture for months are released back into the air when humidity rises. The damp air pulls them out of the surfaces like wringing a sponge. The cool air settles at face level instead of rising. Cold damp surfaces in a closed apartment begin growing mold within 24-72 hours. The tenant's headache and dizziness within minutes of entering today were consistent with breathing this concentrated, damp, contaminated air.

3 The timing points to a setup, not a repair.

The work was done on the calendar day before a major heat wave. It was performed selectively on this one tenant's unit while neighboring tenants with failed AC remain without cooling. It was done without written notice to the tenant or guarantor about what work was performed, by whom, with what refrigerant, or whether a leak test was conducted. The most parsimonious explanation: property management wants the tenant to re-enter the unit (undermining displacement) and wants a 72°F sensor reading on file (to argue habitability).

4 The forecast 89°F to 95°F heat wave will resolve whether the work was real.

A properly fixed AC system will hold indoor temperatures in the low 70s through the heat wave with humidity dropping into the low 50s. A partial refrigerant top-off without repair will fail under load, and indoor temperatures will climb back into the 80s by Tuesday or Wednesday. The sensor keeps logging regardless of who is in the unit.

BOTTOM LINE: Whatever was done on May 17 did not address the chemical contamination that displaced the tenant. The temperature improvement is real but cosmetic. The unit is currently less safe to occupy than it was before, not more. The tenant should not be expected to return based on a thermometer reading.

2. Sensor Methodology and Cross-Validation

Indoor environmental data is collected by a Sonoff SNZB-02 wireless temperature and humidity sensor paired through an ITEAD Zigbee bridge to the eWeLink cloud platform. The internal sensor IC is manufacturer-specified at ±0.3°C / ±3% RH accuracy. The sensor is wall-mounted on the supply-air side of the central HVAC vent serving Unit 806, away from direct sunlight.

This placement was a deliberate, disclosable choice: the sensor is positioned at the coolest reading location available in the unit, biased in favor of the property manager's interest. Every temperature reading in this dataset is therefore a floor (not a ceiling) of the conditions experienced in the occupiable parts of the room.

In plain English:

The thermometer is mounted on a wall right next to where cold air comes out of the AC vent. That spot reads colder than the rest of the room. The tenant put it there on purpose so nobody can accuse him of cherry-picking hot readings — every reading the tenant has reported is the most favorable possible reading for the landlord.

2.1 Independent second sensor — cross-validation

An Apple HomePod with integrated environmental sensing operates in the same unit, reporting through Apple HomeKit (separate vendor, separate cloud, separate data path). On May 17, 2026, both sensors produced readings within sensor tolerance across multiple time points:

Time	Sonoff reading	HomePod reading	Sonoff Td	HomePod Td	Agreement
17:23 EDT	72.1°F / 60.7%	75°F / 54%	57.8°F	57.3°F	0.5°F
21:56 EDT	72.1°F / 62.0%	74°F / 55%	58.4°F	57.0°F	1.4°F

Dewpoint (Td) is a property of air moisture content and is independent of sensor location. Convergence of dewpoint readings across two unrelated commercial IoT platforms within 0.5–1.4°F establishes that the Sonoff dataset is independently corroborated by an Apple-manufactured device the tenant does not control.

In plain English:

Two completely different sensors — one a $20 wireless sensor on a Chinese cloud platform, the other a $300 Apple device on Apple's cloud — agree on the air in this room. They were never connected to each other. They report to separate companies. That makes it very difficult to argue either one was tampered with or wrong.

3. Pre-Sunday Baseline — No Cooling Demonstrated

The five days preceding May 17 establish that the HVAC serving Unit 806 was not functioning as a cooling system. The daily-max comparison below shows indoor temperature tracking or exceeding outdoor temperature on multiple days when cooling demand existed.

Date	Outdoor max	Indoor max	Out – In	Cooling status
Tue 5/12	70°F	77.2°F	–7.2°F	No demand (cool day)
Wed 5/13	78°F	78.1°F	–0.1°F	**INDOOR HIGHER than outdoor**
Thu 5/14	67°F	77.5°F	–10.5°F	No demand
Fri 5/15	70°F	77.4°F	–7.4°F	No demand
Sat 5/16	82°F	80.4°F	+1.6°F	**1.6°F gap = no cooling**
Sun 5/17	87°F	77.0°F	+10.0°F	**Step change appeared**

Wednesday May 13 is the most damning data point. Outdoor max 78°F, indoor max 78.1°F. The interior of the apartment was 0.1°F warmer than the outside air. Not partial AC failure — complete absence of cooling capacity over an entire day of meaningful cooling demand.

Saturday May 16 is the controlled comparison for May 17. Outdoor max 82°F, indoor max 80.4°F at 11:00 AM. A 1.6°F differential. A properly functioning residential AC produces 15–25°F of cooling differential against outdoor under normal load. Saturday's differential is consistent with a sealed, uncooled space passively absorbing ambient heat — not with active mechanical cooling.

In plain English:

For most of the week before today, the apartment wasn't being cooled at all. On Wednesday the inside was actually slightly hotter than the outside. On Saturday — a hot day where AC would matter — the apartment was only 1.6°F cooler than the 82°F outdoor air, which is essentially zero cooling. Then today everything changed.

4. The May 17 Step Change

Beginning approximately at 10:00 AM Sunday May 17, indoor temperature decoupled from outdoor temperature. By 5:00 PM indoor was holding 72.1°F against ~85°F outdoor — a 13°F differential, the first such gap in the 4,230-reading dataset under conditions of cooling demand.

Time	Indoor T	Indoor RH	Indoor Td	Outdoor T
Sat 5/16 11:00	80.4°F	42.5%	55.5°F	~80°F
Sat 5/16 22:00	76.8°F	46.8%	54.9°F	~72°F
Sun 5/17 03:00	72.9°F	50.3%	53.3°F	~63°F
Sun 5/17 10:00	77.0°F	54.5%	59.3°F	~80°F

Sun 5/17 13:00	73.0°F	57.6%	57.2°F	~85°F
Sun 5/17 17:00	72.1°F	58.7%	56.8°F	~85°F
Sun 5/17 19:00	71.8°F	59.8%	57.5°F	~83°F
Sun 5/17 21:56	72.1°F	62.0%	58.4°F	~78°F

The cooling appeared. The dehumidification did not. Across the same period where indoor temperature dropped from 80.4°F to 72.1°F, the indoor dewpoint **rose** from 55.5°F to 58.4°F — moving in the wrong direction for a properly functioning AC. This is a critical diagnostic, addressed in Section 5.

5. Why the Temperature Dropped While Humidity Rose

Figure 1. Why temperature dropped while humidity rose

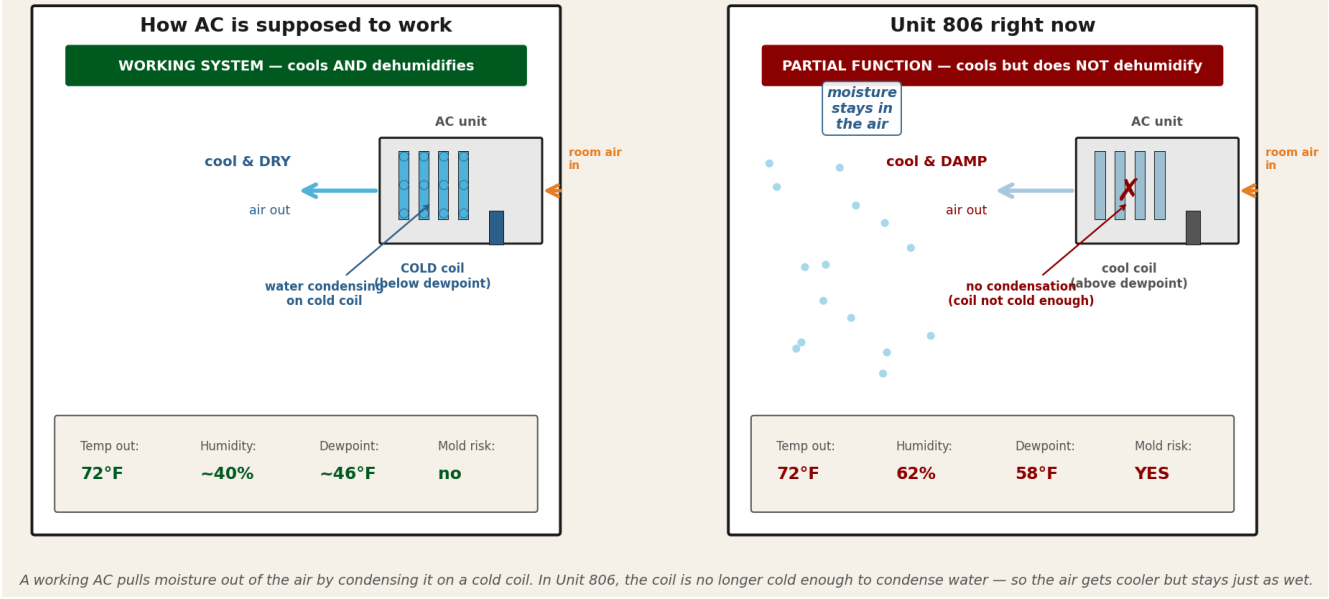


Figure 1. A working AC chills its coil below dewpoint, causing water to condense out of the air. Unit 806's system has the coil running, but not cold enough to condense water — so air gets cooler but stays just as wet.

An AC compressor cools by circulating cold refrigerant through an evaporator coil. Room air is blown across the coil; air gives up heat to the cold metal and exits cooler than it entered. Simultaneously, water vapor condenses on the coil whenever the coil surface temperature drops below the dewpoint of the room air. The condensed water drips into a pan and out a drain line. This is the dehumidification pathway: cold coil → condensation → water removed from circulation.

For an AC to cool air without dehumidifying it — the failure mode observed in Unit 806 today — one of these must be true:

(a) Low refrigerant charge. A leak has reduced refrigerant quantity below specification. The compressor still produces some cooling differential but cannot drive coil temperature below dewpoint. Air gets modestly cooler but moisture does not condense. A quick refrigerant top-off without leak repair produces exactly this behavior, and the symptom returns as the refrigerant leaks back out over days to weeks.

(b) Fouled evaporator coil. Accumulated dust, biofilm, or degraded insulation on the coil surface blocks direct air-to-metal heat transfer. Cooling capacity is reduced; dehumidification capacity is reduced disproportionately because moisture condensation is more sensitive to surface contact than air cooling is.

(c) Blocked or bypassed condensate drain. Water condenses on the coil but cannot drain. The pan fills, water evaporates back into the air stream, and net moisture removed approaches zero. Sometimes a deliberate workaround when a drain line clogs and someone doesn't want to deal with the actual repair.

(d) Fresh-air dampening. A mechanical damper introduces outdoor air into the supply stream. Outdoor dewpoint in Philly today is ~58°F; with a high outdoor-air fraction, indoor dewpoint will track outdoor dewpoint regardless of what the coil does.

The Sonoff dataset shows indoor dewpoint climbing from 53.3°F (Sun 3 AM, no AC running) to 58.4°F (Sun 9:56 PM, AC running ~12 hours). Dewpoint rose 5°F over the period the AC was active — the opposite of what a

properly functioning system produces. Combined with the temperature drop (indicating refrigerant is present and the compressor is producing some cooling), this is most consistent with explanation (a): refrigerant was added to a system with an underlying leak or coil issue, producing partial cooling without restoring dehumidification.

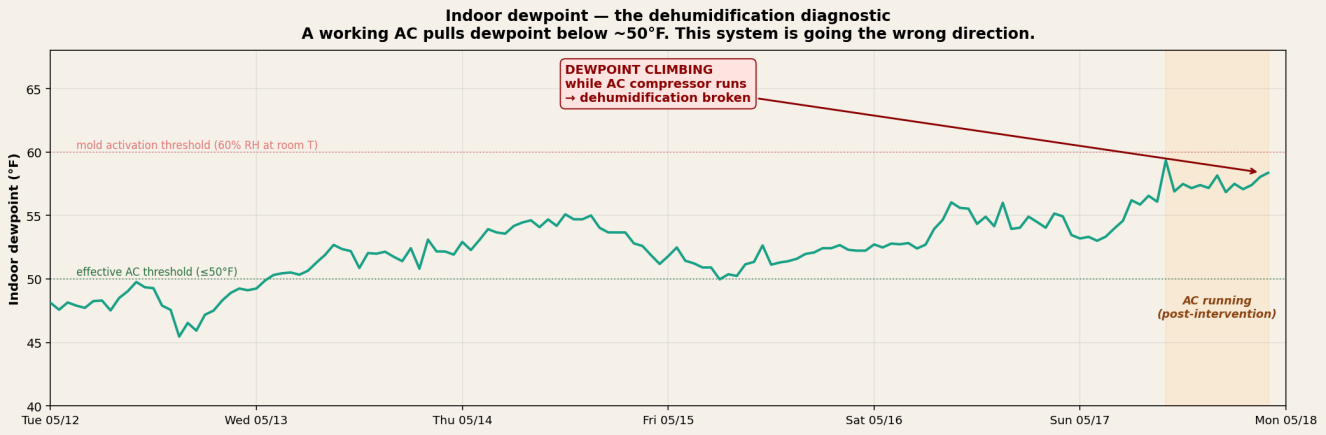
In plain English:

An air conditioner is supposed to do two jobs at once: make the air cooler AND drier. It does both by running cold pipes through the air — the cold pipes both chill the air and cause water to condense out of it, like the outside of a glass of ice water on a humid day.

What probably happened today: someone added refrigerant gas to a system that has either a leak or a clogged coil. There's now enough refrigerant to make the pipes cool, but not enough to make them COLD. So they chill the air a little, but they don't get cold enough to pull the water out.

Result: the air is cooler than it was, but just as moist — and because cooler air can hold less moisture, the relative humidity actually goes UP as the temperature goes down. That's why the humidity reading climbed from 45% this morning to 62% tonight, even though the AC was running the whole time.

5.1 Indoor dewpoint trace — the diagnostic



Indoor dewpoint from the Sonoff sensor, May 12–17. The green threshold (50°F) is what a working AC would pull air down to. The red threshold (60°F) is sustained mold-activation. Dewpoint crosses INTO the danger zone during AC operation rather than out of it — mechanically impossible for a system with effective dehumidification.

6. Why Cold-and-Damp is Worse Than Hot-and-Dry for This Tenant

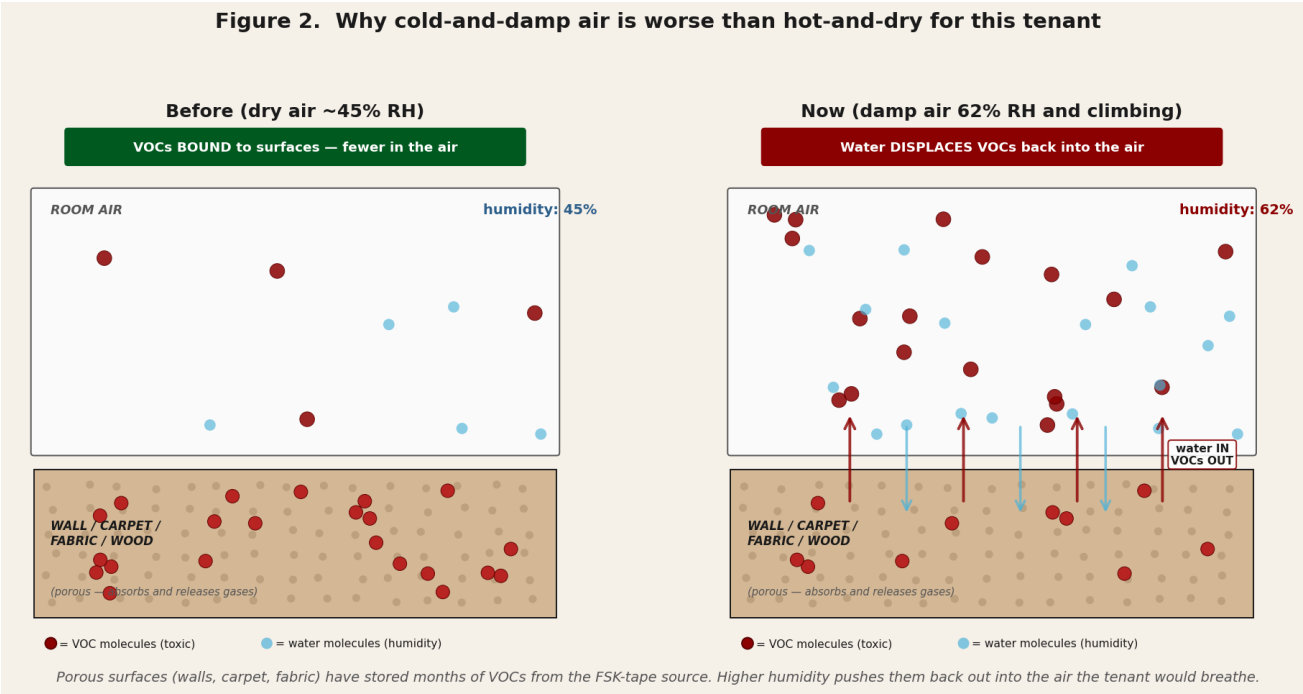


Figure 2. Porous surfaces (walls, carpet, fabric) absorb VOCs over months. Water molecules outcompete VOC molecules for surface binding sites. When humidity rises, VOCs are displaced back into the air the tenant would breathe.

Unit 806 has been off-gassing VOCs from FSK-taped HVAC components installed by Greystar, documented in Dr. Mark Fabi's April 10, 2026 medical letter. The May 17 intervention addressed temperature but not the VOC source or dehumidification. The combination — cooler air, higher humidity, unchanged VOC source — produces a worse exposure environment through four distinct mechanisms.

6.1 Surface-sink effect — humidity-driven VOC re-emission

Porous interior surfaces (drywall, paint binders, carpet padding, fabric, wood, paper) act as reservoirs for airborne VOCs. Over months they absorb contaminants from the source and slowly re-release them through partition equilibrium with the air — the indoor sink-source effect (ASTM D6670; ASHRAE 62.1 literature).

Release rate is governed by competition between water and VOC molecules for surface binding sites. When humidity rises, water displaces previously-bound VOCs back into the air. This is humidity-driven re-emission. The effect is measurable, replicable, and well-established in building science literature.

A unit absorbing VOCs for months at 40–45% RH and now sustained at 60%+ RH will release a wave of previously-banked contaminants over the following hours to days.

In plain English:

Months of chemical fumes have soaked into the walls, paint, carpet, fabric, and wood — like a sponge soaking up spilled liquid. They've been sitting there waiting.

Water molecules and chemical molecules compete for the same parking spots in those materials. As humidity goes up, water muscles in and knocks the chemicals out — squeezing them back out of the surfaces and into the air the tenant would breathe.

Every 1% rise in humidity is releasing more chemicals back into the air. The apartment isn't just NOT being cleaned of contamination — it's actively being made more contaminated.

6.2 Condensation chemistry on cold surfaces

Any surface in the unit below the indoor dewpoint (58.4°F as of 9:56 PM) is collecting a water film. The AC evaporator coil is the primary cold surface; supply ductwork is secondary; cold-bridged exterior wall sections or window glass are tertiary. Water-soluble VOCs (formaldehyde, acetaldehyde, glycol ethers) dissolve into this condensate film.

Two downstream consequences. First, water sits on cold surfaces long enough for biological activation: Aspergillus, Penicillium, and Stachybotrys spores (present in normal dust) germinate within 24–72 hours under sustained 60%+ RH with active condensation. Second, when AC cycles off and surfaces warm, water evaporates and concentrated VOCs re-volatilize at higher concentrations than originally present.

In plain English:

Cold metal surfaces inside the AC and ductwork are now wet — water is condensing on them. Chemicals from the air dissolve into that water. When the AC eventually cycles off and the surfaces warm back up, water evaporates back into the air and the chemicals come with it — at stronger concentration than before, because they got concentrated in the water film.

Also: sustained dampness plus dust equals mold within 1-3 days. The unit is now in the active mold-growth zone. If the AC keeps running in this configuration, what was a chemical exposure problem becomes a chemical AND biological exposure problem.

6.3 Stratification — cool air sinks to face level

Cold air is denser than warm air and settles at floor level; warm air rises and exhausts upward through leakage paths. In a room with active cooling and limited ventilation, this produces vertical stratification of contaminants. The highest contaminant concentration is typically at 3–6 feet off the floor — human breathing height. This is one mechanism by which basement-level contamination feels worse to occupants than the same contamination would in an unconditioned upper-floor space.

In plain English:

Cold air sinks and gets stuck at face level. Warm air rises and escapes through any little gap. So in a cool room with VOC contamination, the worst concentration of fumes ends up exactly where the tenant's nose and mouth are when standing or sitting normally.

Same room, same chemicals, but the AC running has effectively pushed the contamination into the breathing zone.

6.4 Olfactory and irritation thresholds shift with humidity

Many toxicologically-significant VOCs have olfactory thresholds higher than their irritation thresholds — meaning exposure to harmful concentrations can occur without smelling them. Humidity affects perception in two competing directions. Higher humidity increases the moisture layer on mucous membranes (eyes, nasal passages, upper airway), which (a) increases dissolution and uptake of water-soluble irritants like formaldehyde, and (b) lowers perception threshold for many compounds, making them feel more aggressive even at constant ambient concentration.

Net effect: in cool damp air, the tenant inhales more irritant per breath (mucous membrane dissolution) and feels irritation more strongly at lower air concentrations than in warm dry conditions. The acute symptoms (headache, dizziness) on May 17 entry are entirely consistent with this profile.

In plain English:

In dry air, irritating chemicals tend to slide off the lining of the nose and lungs. In humid air, the lining is wet and the chemicals dissolve into it like sugar dissolving in water — the body absorbs more with each breath. The tenant's nose and lungs are more efficient at absorbing the fumes when the air is humid.

That's why the tenant felt sick within minutes today, even at a 'comfortable' 72°F. The temperature improvement is making the chemical exposure worse, not better.

6.5 Why this matters for habitability arguments

If anyone characterizes the May 17 work as making the unit safer for the tenant, the physics is direct: they made it cooler and wetter. Both changes increase the airborne concentration of the compounds that already injured him. The temperature improvement is real but is not the relevant variable for the tenant's health. The relevant variables are (a) whether the VOC source has been remediated (it has not), (b) whether the surface reservoir of absorbed VOCs has been remediated (it has not, and is now being actively released), and (c) whether the air-quality control system (the tenant's scrubber, plus building HVAC filtration) can keep up with continuous re-emission (it cannot — scrubbers handle airborne contamination, not surface-bound).

7. The 5-Hour Holding Pattern — Proof of Active Cooling

Between 17:00 and 21:56 on May 17, the Sonoff sensor recorded indoor temperature pinned at 72.0°F ± 0.3°F across five consecutive hours. During the same period, outdoor temperature dropped from ~87°F to ~78°F — a 9°F decrease.

This is diagnostic. A passively cooled space (closed unit, no active refrigeration) tracks outdoor temperature with thermal-mass lag — outdoor drops 9°F, indoor drifts down with it. The opposite signature — indoor remaining constant while outdoor changes — is the signature of active thermostat-controlled cooling: the compressor cycles on and off to maintain a setpoint, holding indoor temperature steady regardless of outdoor.

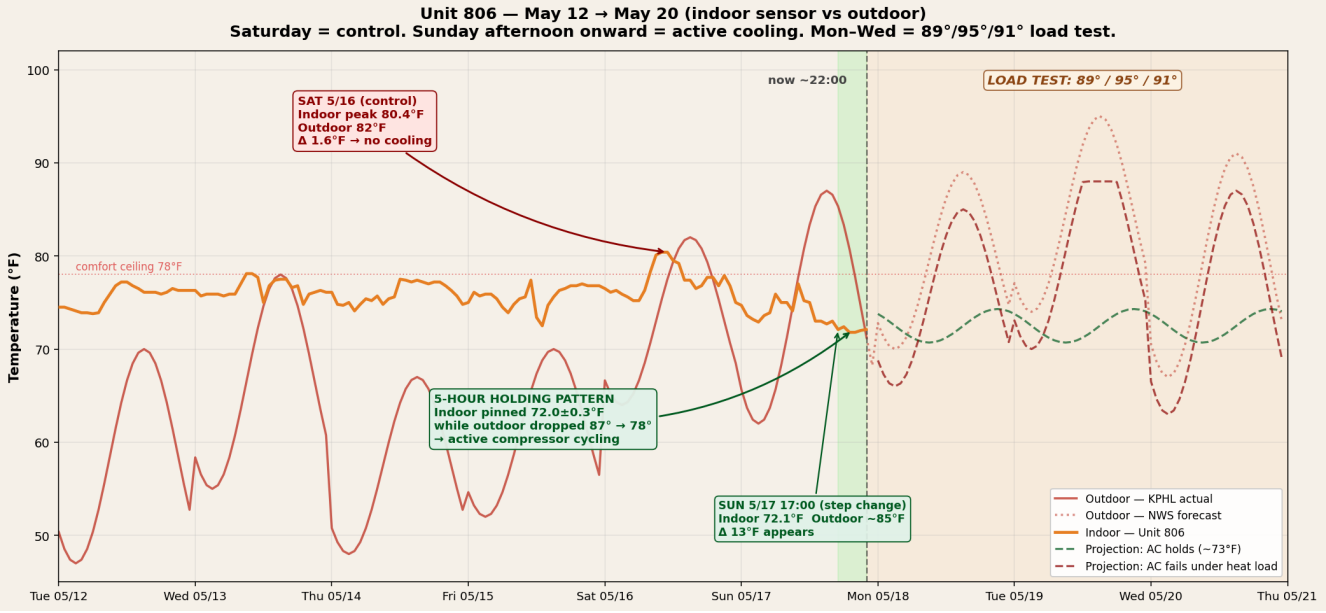
This 5-hour pinned signature constitutes the strongest evidence yet that the compressor is now actually running — confirming a real intervention occurred. The system is no longer the non-functional one of the prior 5 days. However, as documented in Section 5, the partial restoration is missing the dehumidification half of the cycle.

In plain English:

From 5 PM to 10 PM tonight, the apartment held a steady 72°F even though the outside cooled off by 9 degrees. Only a working thermostat-controlled cooling system does that. A passively cool apartment would have drifted down along with the outside.

Translation: the AC actually IS running tonight. Whatever was done this morning was real, not imaginary. But the work was incomplete — they got the temperature half working without getting the moisture-removal half working.

7.1 Temperature trace with the 5-hour pinned signature



Indoor temperature (orange) vs outdoor (red), May 12–17 actual with three-day forecast envelope. The green-shaded Sunday-evening band highlights the 5-hour holding pattern where indoor remained at 72°F while outdoor dropped 9°F. Dashed lines show the two Mon–Wed scenarios depending on whether the May 17 fix was real or cosmetic.

8. May 17 Acute Exposure Event

On the afternoon of May 17, 2026, the tenant entered Unit 806 to verify the new HVAC behavior. The unit configuration at the time of entry:

Component	State at time of entry
Central AC	Running, set to HIGH
Operable window	Open to maximum (6-inch high-rise code limit)
Air scrubber (HEPA + activated carbon)	Running
Sonoff sensor	72.1°F / 60.7% RH at 17:00 EDT
HomePod sensor	75°F / 54% RH at 17:35 EDT
Outdoor temperature	~87°F (KPHL)

Within minutes of entry, the tenant developed acute symptoms — headache and dizziness — and exited the unit. These symptoms are consistent with the exposure pattern documented by Dr. Mark Fabi (treating physician) in his April 10, 2026 medical letter regarding VOC exposure in Unit 806 from the FSK-taped exhaust hose. The mechanisms documented in Section 6 (humidity-driven re-emission, mucous membrane uptake, breathing-zone stratification) provide a complete explanation for why a unit the tenant had previously occupied without immediate acute symptoms now produced acute symptoms within minutes.

The May 17 partial-cooling state is therefore not a return toward habitability — it is a worsening of the exposure environment from the tenant's specific medical perspective.

8.1 Second entry — evening AC shutoff

Following the data observations at 21:56, the tenant returned to Unit 806 to manually shut off the AC system, having concluded that continued operation in cooling-without-dehumidification mode was actively worsening the contamination profile. The tenant pre-treated the unit by running an ozone generator for approximately 5 minutes prior to entry on the theory that surface oxidation might reduce transfer of contaminants. Time inside was minimized to approximately 3 seconds with the tenant explicitly attempting to minimize inhalation. Any acute symptomatic response to this second entry should be documented in the tenant's medical record with Dr. Fabi.

> ***On the ozone pre-treatment:*** *ozone is a strong oxidizer that can fragment some VOCs, but with significant trade-offs. 5 minutes is insufficient to oxidize bulk surface-bound reservoirs. Ozone reactions with indoor VOCs and terpenes routinely produce secondary products — formaldehyde, ultrafine particles, and other aldehydes — that can be as harmful as the original compounds. The tenant's brief entry time (~3 seconds) limited total dose either way. The AC is now off.*

9. Building HVAC Architecture

The Goldtex building uses per-unit rooftop condensing equipment, with refrigerant lines running down through the building structure to each apartment's indoor air handler. Approximately 60–80 individual outdoor units are stacked in vertical pairs within a recessed mechanical well on the building roof. Documented photographically by the tenant under FAA Part 107 visual line-of-sight commercial operation on April 29, 2026 at 9:17 AM EDT.

Drone photograph, April 29, 2026 9:17 AM EDT. Building rooftop mechanical well showing stacked per-unit outdoor condensing units. Visible rust streaks and water staining on multiple cabinets indicate deferred maintenance across the equipment fleet.

The per-unit architecture is significant for two reasons. First, AC failures in this building cannot be explained as a single shared central system being down for repair — no such shared system exists. Second, restoring cooling to one unit specifically requires targeted work on that unit's individual rooftop condenser, which generates a discrete service record identifying the technician, refrigerant amount, leak test results, and EPA Section 608 certification.

In plain English:

Every apartment in this building has its own air conditioner on the roof. They are not on a shared system. So when one tenant suddenly has working AC and the others don't, that means somebody went onto the roof and did work on ONE SPECIFIC apartment's equipment, ignoring the others.

That kind of work creates paperwork: who the technician was, when they came, what they did. The tenant has not been shown any of that paperwork, and neither has the lease guarantor.

Other tenants without cooling. Additional tenants in the building reported as of May 17 do not have functional cooling during the same heat wave conditions. The April 28, 2026 building-wide email distributed by Greystar (which omitted Unit 806 from the recipient list) characterizes building HVAC issues as a known matter across multiple residents. The combination of (a) per-unit rooftop equipment, (b) multiple tenants without cooling, and (c) selective restoration of cooling to one tenant on the calendar day before a forecast heat wave is inconsistent with

ordinary-course maintenance.

10. The Selective-Fix Pattern

The May 17 step-change occurred under these documented circumstances:

• Calendar day immediately preceding an NWS-forecast heat wave (89° / 95° / 91°F on Mon–Wed May 18–20).

• Recipient unit is the only unit in the building with documented active legal exposure to the property manager (NTQ issued May 4, 2026; June 15 vacate deadline; pending PCHR/Fair Housing/L&I; complaints; ongoing trust litigation; criminal witness matter).

• Other tenants reported as without cooling did not have service restored.

• Required physical work on a specific rooftop condenser identifiable to Unit 806.

• Greystar has provided no written notice to the tenant or lease guarantor identifying what work was performed, by whom, what refrigerant was added, whether a leak test was performed, or whether the technician held EPA Section 608 certification.

• Improvement is partial — temperature restored without dehumidification, consistent with refrigerant top-off rather than complete service.

Under these conditions, the most parsimonious explanation is targeted remediation of one tenant's equipment to support a habitability claim in the active legal posture, paired with an implicit invitation for the displaced tenant to re-enter the unit and thereby undermine the displacement narrative. This is the configuration sometimes described as a *lure*.

In plain English:

A lure is when someone makes something LOOK fixed to get you to behave in a way that helps them — without actually fixing the underlying problem. In this case: the temperature reading on the sensor looks much better today. That's the bait.

If the tenant moves back in based on that reading, the displacement story (which is what's holding off the eviction) weakens. If the tenant doesn't move back but the landlord can point to a 72°F reading in any future hearing, the landlord can claim the unit is habitable and the tenant is just being unreasonable.

What makes it a lure rather than a real repair: the underlying chemical problem wasn't touched, the work was selective to this one tenant, no notice or paperwork was provided, and the work was done specifically right before the heat wave when temperature readings would matter most.

11. The Forecast Load Test (May 18–20)

NWS forecasts outdoor high temperatures of 89°F Monday, 95°F Tuesday, 91°F Wednesday May 18–20, 2026. AccuWeather and 6abc Action News characterize this as the first heat wave of the 2026 season. Because Unit 806 remains vacant and the Sonoff sensor logs continuously, the next three days produce an involuntary load test of the May 17 intervention.

Scenario A — System restored. Indoor temperatures hold low 70s across all three days. Indoor-outdoor differential grows to ~20°F as outdoor climbs. Dewpoint tracks down to low 50s indicating effective dehumidification (this would require additional work beyond what was done on May 17).

Scenario B — Cosmetic intervention. Refrigerant top-off without addressing underlying issues. Indoor temperatures climb steadily as the building thermal mass loses to outdoor heat load. Expected indoor maxima: mid-80s by Tuesday or Wednesday. Dewpoint remains elevated. Mold growth begins in any condensation zones by Wednesday.

Either outcome produces dispositive evidence. The sensor logs continuously without occupant presence. Based on the partial-cooling-without-dehumidification signature observed today, Scenario B is the more probable outcome.

12. Information Request to Property Management

The following items should be requested in writing of Greystar (and copied to the lease guarantor) regarding the May 17, 2026 work performed on the HVAC equipment serving Unit 806:

• Date and time of any service performed on the rooftop condensing unit associated with Unit 806 between May 12 and May 17, 2026.

• Name and license number of the HVAC contractor and individual technician(s) performing the work.

• EPA Section 608 certification credentials of any technician performing refrigerant handling.

• Type and quantity of refrigerant added.

• Whether a refrigerant leak test was performed before, during, or after the work, and the results.

• Whether the evaporator coil was inspected or serviced.

• Whether the condensate drain line and pan were inspected for blockage or modification.

• Whether any service was performed simultaneously on rooftop equipment associated with other tenants' units who had reported AC failures.

• Service invoice, work order, or service ticket documenting the above.

• Confirmation whether the May 17 work was authorized in response to any specific habitability complaint, and by whom.

A response (or non-response) to this request constitutes evidence regardless of content. A response with documentation supports either: (a) genuine remediation effort, in which case the dehumidification failure is a diagnostic issue Greystar can pursue with their contractor; or (b) partial service consistent with the lure hypothesis. A non-response is itself consistent with the lure hypothesis.

13. Habitability Conclusion — For Each Audience

Figure 3. What habitability requires vs what the May 17 work actually did

What habitability requires	What May 17 work addressed	What is actively WORSE
• **Indoor temperature within range** *(below 78°F when outdoor is hot)*	✓ **Temperature lowered** *Partial — indoor now ~72°F*	▲ Indoor humidity climbing 1-2% per hour while AC runs
• **Humidity controlled** *(40-50% RH, dewpoint <55°F)*	✗ **Humidity NOT controlled** *Climbed from 45% → 62% as AC ran*	▲ Surface-bound VOCs being squeezed back into air by humidity
• **No VOC source actively off-gassing** *(FSK-tape must be remediated)*	✗ **VOC source NOT touched** *FSK-tape exhaust hose unchanged*	▲ Cold air pooling at face height = higher breathing-zone concentration
• **Surface VOC reservoir cleared** *(walls, fabric, carpet decontaminated)*	✗ **Surface reservoir NOT touched** *Months of absorption still present*	▲ Mucous membrane absorption of VOCs increased by damp air
• **Adequate air quality / ventilation** *(filter, fresh air, low particulates)*	✗ **Ventilation NOT addressed** *No filtration or air-exchange work*	▲ Cold surfaces + 60%+ RH → mold growth window opens (24-72 hrs)
• **No biological growth risk** *(no condensation, no sustained RH >60%)*	✗ **Biological risk INCREASED** *Cold surfaces + high RH = mold zone*	▲ Acute symptoms (headache, dizziness) within minutes of entry
• **Valid rental license** *(license expired Feb 28, 2026)*	✗ **License NOT addressed** *Still expired per Eclipse*	▲ Tenant's own air scrubber cannot keep up with surface re-emission
• **No outstanding code violations** *(2 open Unfit Structure citations)*	✗ **Citations NOT addressed** *Both still open*	▲ AC running in this mode is making the unit MORE toxic, not less

BOTTOM LINE:

8 of 8 habitability requirements remain unmet. The one variable that did improve (temperature) is producing 8 distinct worsening conditions through the cold + damp interaction with the unchanged VOC source.

Figure 3. The May 17 work addressed one habitability variable (temperature) while leaving seven others unaddressed and creating eight new worsening conditions through the cold + damp interaction with the unchanged VOC source.

The May 17 work does not restore Unit 806 to habitable condition. Supported through different lenses depending on audience.

13.1 For L&I; and city enforcement

Habitability under the Philadelphia Property Maintenance Code requires more than a single temperature reading. The May 17 partial cooling restoration does not address: (a) the underlying VOC source identified by the tenant's physician; (b) the surface-bound VOC reservoir now being released by elevated humidity; (c) the dehumidification failure placing the unit in active mold-growth conditions; (d) the unit's status under a rental license that expired Feb 28, 2026; (e) the two open Unfit Structure citations on the building (CF-2026-012614, CF-2026-012633). The May 17 intervention may have triggered additional code issues (condensation, biological growth conditions, indoor air quality) rather than resolving any.

13.2 For civil counsel

The forensic record now contains: (1) a five-day pre-Sunday baseline establishing complete absence of cooling; (2) a Saturday control case (80.4°F indoor against 82°F outdoor); (3) a documented step-change on the calendar day before a heat wave, performed selectively on this tenant's unit; (4) sensor data showing the cooling restoration is partial (no dehumidification); (5) an acute exposure event upon tenant entry; and (6) a forthcoming three-day involuntary load test that will distinguish real remediation from cosmetic intervention. The lease guarantor's position (the trust) should evaluate continued trust payments to a landlord operating an unlicensed property under these conditions, particularly given the trustee's documented medical knowledge of the exposure.

13.3 For PCHR and Fair Housing

Selective restoration of cooling to one tenant — specifically the tenant with the most active legal posture against the landlord, while neighboring tenants who have also reported AC failures remain without service — during a declared heat wave warrants examination as differential treatment.

13.4 For Councilmember Squilla (District 1, chairs L&I;)

A building with approximately 60–80 dedicated per-unit rooftop condensers, multiple tenants reporting AC failures, an expired rental license, two open Unfit Structure citations, and selective remediation of one unit during a declared heat wave on the basis of which tenant has active legal exposure is exactly the building-wide enforcement pattern L&I; oversight is designed to address.

13.5 For Dr. Fabi (treating physician)

The tenant developed acute symptoms (headache, dizziness) within minutes of entering the unit on May 17, 2026 (twice — once daytime to verify the AC behavior, once evening to shut off the AC after data analysis indicated continued operation in cooling-without-dehumidification mode was worsening contamination). The exposure mechanism is well-described in building science literature: humidity-driven re-emission of surface-bound VOCs from a unit that has been off-gassing for months. Clinical significance: the unit is now producing higher acute exposures than before despite an apparent improvement in temperature readings.

13.6 For family and non-technical readers

The temperature in the apartment is better today than it was yesterday. That does not mean the apartment is safe. The chemicals that have been making the tenant sick are still there — and the way they did the temperature fix is making more of those chemicals come out of the walls and into the air. The tenant felt this directly today: he got a headache and felt dizzy within minutes of walking in. That is not a sign the apartment is getting better. That is a sign the apartment is getting worse in a way that's hidden by a more comfortable thermometer reading.

Appendix A. Data Sources and Methodology

A.1 Indoor sensor data

Source: Sonoff SNZB-02 wireless temperature/humidity sensor (Zigbee 3.0). Internal sensing element: Sensirion or Aosong AHT-series, manufacturer-specified ±0.3°C / ±3% RH. Gateway: ITEAD Zigbee bridge. Cloud: eWeLink (ITEAD operated). Sampling: hourly. Export: CSV via eWeLink history function. Time zone: EDT (server-side). Period of record: November 22, 2025 → May 17, 2026 21:56 EDT.

A.2 Cross-validation sensor

Source: Apple HomePod environmental sensor (integrated). Reporting via Apple HomeKit. Display surface: iOS Lock Screen weather widget configured for indoor sensor. Screenshots captured 17:35, 17:50, 21:56 EDT May 17.

A.3 Outdoor temperature data

Source for May 12–17 actuals: KPHL (Philadelphia International Airport) ASOS observations via NOAA/NWS. Source for May 18–20 forecast: NWS Mount Holly NJ forecast office; AccuWeather Philadelphia monthly forecast; 6abc Action News (cross-referenced for heat wave characterization).

A.4 Dewpoint computation

Magnus formula with coefficients a=17.625, b=243.04°C. For temperature T (Celsius) and relative humidity RH (0–1): $\alpha = \ln(RH) + aT / (b+T)$; $T_d = b\alpha / (a - \alpha)$. Computed independently from raw sensor readings.

A.5 Drone imagery

Captured under FAA Part 107 visual line-of-sight commercial operation in Class B Philadelphia airspace under LAANC authorization. April 29, 2026 capture date confirmed by EXIF timestamp. Original files preserved with intact EXIF metadata; cryptographic hashes recorded for forensic chain of custody.

A.6 Chain of custody

All source files (CSV exports, IoT app screenshots, HomePod widget screenshots, drone photographs and video) retained in original form. Analytical computations performed from raw data; intermediate values reproduced in this document are derived not reported. Both the eWeLink and Apple HomeKit platforms record server-side timestamps that are not user-editable. Independent third-party hosting of the underlying data supports forensic admissibility.

A.7 Limitations and uncertainty

Indoor sensor placement is documented and intentional (wall-mounted on AC supply-air side; biased toward landlord-favorable readings). Outdoor temperature for hourly comparison is modeled from daily high/low using a sinusoidal diurnal pattern; actual hourly KPHL observations may vary by 1–3°F from the model. The May 17 step-change interpretation is consistent with the data but does not exclude alternative explanations (concurrent unrelated maintenance, manual setpoint change at a unit thermostat the tenant cannot access remotely). The dehumidification failure analysis is robust across alternative explanations because dewpoint behavior is independent of cooling source.

— End of report —