Whole-House Indoor Air Quality Checklist

14 things to inspect in a Birmingham home, MERV ratings explained in plain English, and the 3 IAQ upgrades that actually move the needle.

WHO IT IS FOR

Birmingham homeowners worried about allergies, asthma, mold, or chemical sensitivities -- or anyone who just wants to breathe easier indoors.

WHAT IS INSIDE

14-point IAQ walkthrough room by room, MERV rating chart with what each level removes, humidity targets backed by EPA and ASHRAE, the 3 upgrades worth paying for and the 4 not worth it.

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Read online: https://birminghamheatingandairconditioning.com/downloads/whole-house-indoor-air-quality-checklist/

Why IAQ matters in Birmingham

Birmingham's pollen season runs roughly mid-February through November. Wooded neighborhoods (Mountain Brook, Vestavia, parts of Hoover) see the worst of it. Humidity in summer regularly exceeds 70% indoors without active dehumidification. Mold thrives in those conditions. The EPA ranks indoor air quality among the top five environmental health risks, and Birmingham's climate amplifies several of the typical issues.

14-point IAQ inspection

Walk the home with this checklist:

* 1. Filter on the air handler -- what MERV? When changed last?
* 2. Return-air grilles -- visible dust accumulation = leaking filter or air bypass
* 3. Supply-air registers -- dust streaks on the ceiling around them = duct leakage
* 4. Drain pan under air handler -- water present? Sludge? Smell?
* 5. Outside the home -- visible mold on siding near AC drain? Algae growth?
* 6. Crawlspace or basement -- humidity reading (under 60% is target)
* 7. Attic -- visible insulation gaps, missing vapor barrier, daylight at ducts
* 8. Bathrooms -- exhaust fans vent to outside (not into attic)? Mold around shower?
* 9. Kitchen -- range hood vents to outside? Filter clean?
* 10. Laundry -- dryer vent unobstructed, vent to outside, lint trap clean?
* 11. Carpets -- age, last deep clean, visible staining
* 12. Pet areas -- beds and food zones (highest dander concentration)
* 13. Garage -- door to interior seals well, no idling cars, chemical storage minimal
* 14. Living spaces -- humidity meter reading on a normal day

MERV ratings explained

MERV (Minimum Efficiency Reporting Value) measures filter effectiveness. Higher = more particles caught. But higher MERV also means higher static pressure (resistance to airflow), which can strain residential blowers if pushed too far.

* MERV 1-4 -- fiberglass spun-glass filter. Catches large lint and pet hair. Most homes can do much better
* MERV 5-8 -- pleated filter, standard residential. Catches dust mite debris, mold spores, hair spray, pollen. Sweet spot for most Birmingham homes
* MERV 9-12 -- pleated higher-density. Catches pet dander, Legionella, smoke. Good for allergy and asthma households
* MERV 13-14 -- HEPA-adjacent. Catches bacteria, smoke particles. Best filter most residential systems can handle without modification
* MERV 15-16 -- true HEPA territory. Most residential blowers cannot push enough air through these without help
* MERV 17+ -- true HEPA, lab and medical use. Not appropriate for residential without a dedicated HEPA system

What MERV is right for your home?

A rough decision framework:

* No allergies, no pets, post-2010 home -- MERV 8 is fine
* Mild allergies, pet, post-2010 home -- MERV 11
* Asthma in the home OR multiple pets OR pre-2000 home -- MERV 13
* Severe asthma, chemical sensitivity, immunocompromised -- MERV 13 + portable HEPA in key rooms
* Going above MERV 13 in residential = blower modification or whole-house IAQ upgrade -- talk to a contractor first

Humidity targets

EPA and ASHRAE both recommend keeping indoor humidity between 30% and 60% year-round. In Birmingham specifically:

* Summer target: 45-55% (anything over 60% = mold and dust mite friendly)
* Winter target: 30-45% (anything over 50% = window condensation = potential mold)
* Buy a $15 hygrometer at any hardware store. Put it in the main living area
* If summer reading is consistently over 60%, the AC is oversized, undersized for the load, or short-cycling
* If winter reading is consistently under 25%, a whole-house humidifier on the furnace is the move

The 3 IAQ upgrades worth paying for

* MERV 11-13 pleated filter on a regular replacement schedule -- single highest ROI IAQ improvement in most Birmingham homes
* Whole-house dehumidifier integrated into the air handler -- if summer humidity stays over 60% with the AC running normally, this fixes it. Aprilaire, Honeywell, and Santa Fe all make residential units
* Sealed and insulated ductwork -- leaky ducts pull attic air, crawlspace air, and outside air into the system. Mastic-sealed and properly insulated ducts pay back in efficiency AND IAQ

The 4 IAQ upgrades not worth it (for most homes)

* In-duct UV lights for general air purification -- limited real-world impact unless installed exactly at the cooling coil for specific anti-microbial reasons
* Ozone generators -- known health risk per the EPA. Avoid entirely
* Ionizers -- limited evidence base for residential effectiveness, can produce ozone byproducts
* Premium HVAC filter subscriptions priced 3x retail -- find the equivalent MERV rating at a hardware store

When mold is the real problem

No filter or air purifier fixes a mold problem at the source. Visible mold, persistent musty smell, water-damaged drywall, or recurring respiratory symptoms in the home need a mold inspection -- not an air purifier. Common Birmingham mold sources:

* Crawlspace humidity over 70% -- fix the moisture barrier and dehumidification, then deal with growth
* Bathroom ceilings -- exhaust fan venting into the attic instead of outside
* Window sills -- condensation from over-humidified interior air in winter
* Around HVAC drain pans -- flush condensate lines twice yearly

Sources

* U.S. EPA -- Indoor Air Quality -- epa.gov/indoor-air-quality-iaq
* EPA -- Mold guidance -- epa.gov/mold
* ASHRAE Standard 62.2 -- Ventilation and Acceptable Indoor Air Quality in Residential Buildings
* CDC -- Indoor air pollutants and health -- cdc.gov
* Energy Star -- Healthy Indoor Environment guidance -- energystar.gov

Disclaimer

This guide is informational. It is not a substitute for licensed HVAC inspection, diagnosis, or service. Conditions vary by home and equipment. Refrigerant work, gas-line work, and high-voltage electrical work require an EPA Section 608 certified technician and a licensed HVAC contractor under Alabama law. When in doubt, call.

No pricing on this site is a quote. No response time is a guarantee. All ranges shown are observed market data, not promises.

About the author

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John has been turning wrenches on Birmingham HVAC systems for 25 years. Alabama HVAC contractor licensed, bonded, and insured. EPA Section 608 Universal certified. He has walked roofs, attics, crawlspaces, and condenser pads across every neighborhood in this metro and has written every guide on this site from the working tech's perspective -- not the salesman's.

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