



**Birmingham Heating & Air Conditioning**

*Heating and cooling in the heart of Shelby County.*

FIELD GUIDE · BIRMINGHAM, ALABAMA

# AC Sizing Cheat Sheet for Birmingham Homes

*A simple guide to figuring out what size AC your home actually needs — without a contractor playing guessing games.*

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**Who this is for:** Anyone shopping for new HVAC equipment in Birmingham. Especially anyone hearing wildly different size recommendations from different contractors.

**What's inside:** Square footage to tonnage chart for Birmingham climate, the 4 factors that actually matter, when oversize is worse than undersize, how to spot a lazy sizing job, and what numbers should appear on your written estimate.

**Service area:** Shelby County, Alabama — Helena, Chelsea, Calera, Pelham, Alabaster, Hoover

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## Why Sizing Matters More in Alabama

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Birmingham summers run 95°+ for weeks. Humidity sits at 70-85%. An oversized AC cools the air fast but doesn't run long enough to pull humidity out. You end up with a 72° house that feels clammy and cold like a basement. An undersized unit never gets there. Both shorten equipment life by 30-50%. Both raise power bills. Right-sizing is the single most important decision you make.

## The Birmingham Rule of Thumb (Use With Caution)

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A starting point for typical Shelby County construction (post-1990 home, average insulation, double-pane windows):

- 1,200 sq ft → 2 tons (24,000 BTU)
- 1,500 sq ft → 2.5 tons (30,000 BTU)
- 1,800 sq ft → 3 tons (36,000 BTU)
- 2,100 sq ft → 3.5 tons (42,000 BTU)
- 2,400 sq ft → 4 tons (48,000 BTU)
- 3,000 sq ft → 5 tons (60,000 BTU)
- 3,500+ sq ft → Often two zones, two systems — talk to a tech

## Why Rule of Thumb Isn't Enough

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Rule of thumb misses 4 factors that swing the answer by a full ton:

- Ceiling height — 9-foot ceilings vs 8-foot adds 12% to load
- Window orientation — west-facing windows in afternoon sun add 5,000-8,000 BTU/hour
- Insulation quality — R-19 attic vs R-38 changes load by 20-25%
- Number of people and appliances — kitchen, computers, body heat all add

## The Real Method — Manual J

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Any contractor sizing a new system should run "Manual J" — a calculation defined by ACCA (Air Conditioning Contractors of America). Real Manual J takes 30-45 minutes per home. It factors window area, orientation, insulation, infiltration, internal loads. The output: a BTU/hour cooling load and BTU/hour heating load.

- Ask: "Will you run Manual J on this estimate?"
- If the answer is "we just use square footage" — that's a \$150-\$200 short cut that affects \$10,000 of equipment
- A real Manual J typically takes 1 ton OFF the rule-of-thumb estimate for newer, well-insulated homes
- Walk away from any quote that doesn't include Manual J load calc

## Oversized AC — The Hidden Disaster

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Most Birmingham homes get oversized by 1/2 to 1 full ton. Symptoms:

- Short cycling — AC runs 5-7 minutes then shuts off
- House feels cold but humid (sticky, basement-feeling air at 72°)
- Mold appearing in window frames, around bathroom vents
- High summer electric bills despite "efficient" equipment
- Compressor failure 7-9 years in instead of 12-15

## What to Demand on the Written Estimate

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A real, defensible estimate for new HVAC equipment in Birmingham must include:

- Manual J calculation summary — cooling load (BTU/hr), heating load (BTU/hr)
- Specific equipment model numbers (not just "16 SEER unit")
- AHRI matched-system certificate number — proves indoor + outdoor are rated together
- Refrigerant type (R-410A or new R-454B)
- Warranty terms — parts (typically 10 yr), labor (typically 1-2 yr unless extended)
- Permit & inspection fees if applicable

## Two-Stage and Variable-Speed Equipment

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Newer 2-stage and variable-speed equipment runs longer at lower output. This is GOOD for Alabama humidity. A variable-speed unit might run at 50% capacity for 14 hours instead of 100% capacity for 7 hours — same cooling, much better humidity removal. If your current system has humidity problems, upgrading to a variable-speed unit fixes more than just the cooling.

## Quick Self-Check

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Before any quote: measure your home's square footage (don't trust the listing — measure room by room), note ceiling height, list south- and west-facing windows. Walk into the sales meeting with those numbers. A good contractor will refine your guess; a bad one will rubber-stamp it.

# About Birmingham Heating & Air Conditioning

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Shelby County, Alabama — Helena, Chelsea, Calera, Pelham, Alabaster, Hoover

This guide was written by working HVAC techs, not marketing teams. Direct, honest, practical. Real Alabama numbers, real local context, no guarantees we can't back up.

If something in here saved you a service call — or saved you from a bad one — share it with a neighbor. That's the whole point.

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## **Birmingham Heating & Air Conditioning**

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*Licensed Alabama HVAC contractor. Written estimates. No surprise bills.*