

Alabama Energy Code Guide



for Home Inspectors

Use this guide to assess homes and offer advice on expected energy use for clients interested in buying homes in Alabama. Meeting or exceeding the new energy code requirements is an indication of quality construction. Energy-efficient homes are more comfortable, cost less to operate, and reduce air pollution.

This guide does not cover all aspects of the Alabama energy code. It addresses the requirements that are easiest to identify after construction is complete. Older homes will not meet these requirements, but the checklist can still be used to pinpoint energy efficiency improvements.

Energy Efficient Lighting

Lighting accounts for about 12 percent of energy use in homes. The energy code requires builders to put high efficiency light bulbs (such as compact fluorescents, high-efficiency halogens, LEDs, etc.) in at least 50 percent of the permanent lighting fixtures. Determine whether high efficiency lights have been installed in permanent fixtures.



Windows — New or Remodeled Homes

The energy code requires U-factor and solar heat gain coefficient ratings for windows and skylights. A U-factor rating indicates how much heat loss a window allows. Single-paned windows are about 1.0; double-paned windows are about 0.5; high-performance double-paned windows are about 0.3. Conversely, a solar heat gain coefficient measures how well a window blocks heat from the sun, which is especially important in warm regions like Alabama.

- Ask for documentation of the U-factor and solar heat gain coefficients. If the home is new, ask the builder for copies of window labels or invoices to confirm that the requirements are met.
- Some manufacturers label their windows with serial numbers or other indicators, which you can use to track down information on the efficiency rating. Look for them etched in the corner of the window glass and/or paper or metal labels that may be attached to the window sill, header, or tracks on the sides. Contact the customer service department of the manufacturer to confirm the product's ratings.

Table of Required U-factors in Alabama

	Window U-Factor	Skylight U-Factor	Solar Heat Gain Coefficient
Baldwin & Mobile Counties	0.65	0.75	0.30
All Other Counties	0.50	0.65	0.30

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Windows — Existing Homes, not Remodeled

Windows account for upwards of 20 percent of energy loss in homes. You should consider a number of factors when evaluating older windows, as energy performance varies significantly based on the materials used and the condition they are in.

- Can you see daylight around the sides of the window frame or sash?
- Are windows loose in their tracks? Can you slip a piece of paper between the sash and frame when they are closed and locked?
- What are the windows made of? Aluminum is typically a poor insulator. Fiberglass, wood and vinyl are better, but much depends on the construction of the windows.
- Are windows single, double, or triple-paned? NOTE: Storm windows installed over single-paned windows can perform about as well as conventional double-paned windows, but do not match the performance of high-performance windows with low-E glass and gas fills.
- The ability of double or triple panes to block heat transfer depends greatly on whether they are “low-E coated” or not. Low-E coatings are invisible, but can be detected by specialists.

For more information on window technology and benefits, please visit the Efficient Windows Collaborative web site: http://www.efficientwindows.org/code_overview.cfm

Check the access hatches/doors in the attic

These can be a major source of air leakage in the home, sending air conditioning out through the roof in the summer. You may be able to feel air movement under the door or around the hatch. Hatches/doors to the attic should be weather-stripped, insulated and airtight. The insulation should be attached so that it isn't damaged or become loose when the hatch or door is used.



Insulated attic hatch and insulated ducts

Get under the house to look at the crawl space

Either the floor over a crawl space or (preferred) - if the crawl space does not have vents - the crawl space walls should be insulated. Insulation should be attached securely without gaps and should also not be compressed. Compressing the batts reduces the insulation value significantly, effectively eliminating it.



Crawl space vent



An example of proper installation (no vent)



An example of improper installation

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Look for sources of air leakage into and out of the home

Air leakage is responsible for 30 percent or more of total energy loss. All joints, seams and penetrations between the inside and outside of the home should be sealed. Typically, caulk, gaskets, spray foam or weatherstripping is used to seal air leaks.

- Check to see whether leaks have been sealed where phone lines, electrical lines, plumbing and other services enter the house.
- Check penetrations in the attic floor where pipes and ducts lead to the rooms below to determine whether they've been sealed with caulk, foam or other materials.
- Check cabinets beneath the kitchen sink, kitchen island, bathroom sinks, etc., for pipes leading to the floor below or out through walls. Determine if the spaces around the pipes are filled with caulk, foam or other materials to prevent airflow.
- In the basement, check exterior walls with penetrations for pipes and wires and also where pipes and ducts penetrate the basement ceiling to the floor above. Determine if they are sealed tightly.
- Check recessed lights, especially those located directly below an unfinished attic. Trim should be sealed to the ceiling with caulk.

For more information on air leakage from homes, please visit:
<http://www.pacificnorthwestinspections.com/index.php/resource-library/online-resources/914-hvac/275-stackeffect>

Fireplaces

Generally speaking, fireplaces usually reduce the energy efficiency of a home. The energy code requires the doors of wood-burning fireplaces to have gaskets. to reduce air leaks.



Fireplace with door gaskets

Ductwork should be insulated and sealed

Leaky ducts are responsible for 10-30 percent of energy loss in a home.

- Unless the attic ceiling and walls are insulated, the energy code requires ducts running through an attic space to be insulated to a minimum of R-6. (This increases to R-8 as of July 1, 2013.) Are the ducts in the attic insulated to R-6?
- All ducts and air handlers should be sealed with mastic (a special type of caulk that is easily visible). NOTE: Duct tape is not appropriate for sealing ductwork; it deteriorates too quickly.
- As of July 1, 2013, the energy code requires the entire duct system to be tested in new homes if any part of the ductwork is located in an un-insulated crawlspace, attic or garage. After July 1, 2013, if a new home has ductwork in the crawlspace, attic or garage, ask the builder for a copy of the leakage test results.



This duct has been sealed but not insulated



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Was a blower door test done ?

The most effective and objective way to evaluate air leakage in a home is to have a “blower door” test done. The cost ranges from \$250-350. NOTE: The national energy code requires new or substantially remodeled homes to be tested with blower doors unless the air sealing in the home was inspected by a qualified professional (usually the local building inspector). Ask whether a blower door test was done and request a copy of the test results.

For more information on blower door testing, please visit:
<http://www.greenbuildingadvisor.com/blogs/dept/musings/blower-door-basics>

Insulation Certificate Requirement

Properly installed insulation is critical for making a home comfortable and affordable, yet insulation is where homes are often short-changed. The energy code provides added protection for new home buyers when insulation is blown or sprayed into walls and ceilings. Builders must provide a certificate listing the type, manufacturer and R-value (a measure of the material’s performance) of the insulation. Depending on the type, the installer must provide additional information, such as number of bags installed, coverage area and thickness of the insulation after it settles, and sign, date and post the certificate on the job site. Request a copy of the certificate to confirm the insulation was installed properly.

Insulation Requirements that Apply in Alabama			
	Ceiling R-value	Wood Frame Wall R-value	Floor R-value
Baldwin & Mobile Counties	30	13	13
All Other Counties	30	13	19

Energy Certificate (Voluntary)

Builders can attach a permanent certificate that lists materials, equipment values and ratings on or in the electrical distribution panel. While this requirement is voluntary in Alabama, it’s a great way for builders to show homeowners that they have met the energy code requirements. The certificate should not obstruct the visibility of the circuit directory label, service disconnect label or other required labels. Examples of completed energy certificate can be found on Alabama Department of Economic and Community Affairs’ web site.

For more information, please visit the Alabama Department of Economic and Community Affairs web site: www.adeca.alabama.gov/C0/codes

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