

Energy Efficiency in New Constructions built by Blake Taylor



"Yes, he builds a beautiful home."

"It is so full of detail."

"He really loves what he does, you can tell."

"It is so rich in architectural detail."

"I'm spoiled, now that I've seen a Blake Taylor home."

"Look at all the houses he's built, he must be staying around, he must be an ok builder."

These are some of the comments I get to hear about the sheer beauty of Blake's new constructions as I show his houses to prospective buyers. But what about the structural integrity, the energy efficiency of these houses? What is behind the walls that are so beautifully designed and finished out?

I interviewed the people who could answer those questions for me, and here is the short answer given to me by one of his service providers: "Everybody wants to know how Blake does it. I think the way he does it is hard work."

Here is the long answer, which is written in a way so that I can understand it. I hope it is understandable and informative for you:

Windows:

Blake selects windows from the following Energy Star provider. Here is the link for you to become as informed as you wish regarding their quality and energy efficiency:

http://mosssupply.com/new_construction.html



Water heater:

Blake's water heater supplier prides himself in providing water heaters made in the USA, with a 6 year tank and parts warranty. No plastic drains here, the drains are made of brass. In addition, a hydro jet spin cycle keeps the water spinning while it is in the water heater. Therefore, sediment cannot stick to the sides of the tank; the water is constantly cycling. These words will never have to cross your lips: "My tank leaked. The bottom rusted out."



HVAC (heating, ventilation, and air conditioning):

Blake's HVAC provider is the only Lennox dealer in town. He supplies Blake's houses with a high end 13 SEER Lennox air conditioner, which he describes as the Cadillac of air conditioners.





Insulation:

What is an R value? The measure of thermal resistance. The higher the number, the better.

Insulation above:

R30 is the required insulation measurement for new constructions in southern Georgia, and to meet Energy Star recommendations. That translates into a depth of 11 ¾ “of blown fiberglass above the ceiling of the home. However,

Blake’s provider guarantees more depth than the minimum.

Insulation around:

The exterior walls are insulated to a rating of R13, using 3 ½” fiberglass batting. This product is ecofriendly, with no additives – it is sand, 30% of which is recycled. Foam or fiberglass and/or caulk is used around all the windows and doors, all exterior penetrations (for plumbing and wiring), all of which makes a better R value.



The house is wrapped with a product that allows moisture to pass through and dissipate, but not air, similar to the higher end exercise and sporting gear available today, designed to keep your body dry as you build up heat and perspire.

Consider that the walls also include OSB (OSB is manufactured from waterproof heat-cured adhesives and rectangular shaped wood strands that are arranged in cross-oriented layers, similar to plywood) with a rating of $\frac{1}{2}$ R, the concrete siding outside and the drywall inside, both with another $\frac{1}{2}$ R, and the walls will actually measure to an R value of 15. For more information on the insulation products used: <http://www.certainteed.com/>



Framing:

A strip of foam is added between the concrete slab and the bottom plate to prevent any air loss. The bottom plate is also caulked to the concrete before sheetrock (dry wall) is installed. This goes beyond the minimum building requirement for new constructions in southern Georgia.



The corner posts are framed in a way that allows the wall insulation to fit behind the corner posts, so as not to lose air at the corners. This is also above and beyond the local building code requirements.



T's at 90 degrees wall intersections: this is a photo taken from outside the home looking in – These intersections are framed in a way that (like the corner posts) do not allow for an air pocket to exist, therefore there cannot be an air pocket without insulation. The intersection is framed in a way that allows wall insulation to fit behind this "T post," which results in less air loss, which results in a lower power bill, and a stronger build.

When the house is finished, a confirmation of its energy efficiency:

Pascals (PA) are a measurement of pressure. CFM (cubic feet per minute) is a rate of flow. A device called a manometer is used to measure either pressure (in pascals) or air flow (in cubic feet).

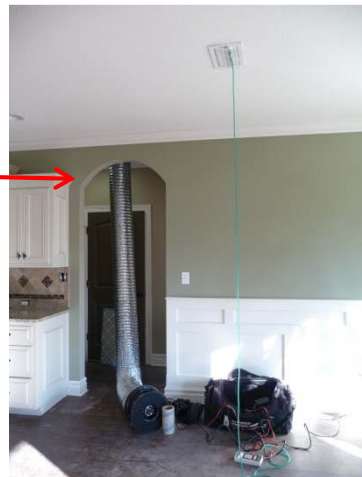


Duct Blaster and Door Blower Test:

A federal law mandates duct blaster and blower door tests for every new construction, with minimum acceptable PA measurements. However, it is up to the county in every state to enforce these energy efficiency tests and standards. Lowndes County does uphold these tests and standards. For comparison, Florida, at the time this document was written, does not.

To prepare for the duct blaster test, all air vents throughout the house are sealed off.

The main return is sealed off except for the fan that is attached to it. With tubing attached from the return to his manometer, the tester turns on the fan, forces air through the duct work and into his tubing, to the manometer. He gets a reading of air pressure, with a minimum requirement of Pascals needed for approval.



The blower door test reveals the integrity of all the openings into the interior living area: windows, doors, electrical outlets, light fixtures, air vents, boot sealants – anything that breaks the solid surface.



The tester measures the cubic feet of the living space (including tray ceilings!). He keeps the vents sealed, closes all doors and windows, and makes sure there is water in all the drains. He then turns on the fan in the red door, which draws air out of the inside of the house.

This change in air pressure causes air to be drawn into the house any way it can get in, which will expose openings – so that, if you put your hand on an electrical outlet that has not been well insulated, you could feel a flow of air onto your hand. He uses his manometer to acknowledge that he has created the correct PA to document CFM flowing throughout the house, and assure the builder, the County, and the buyer, that this house is well built, and will provide energy efficiency, reasonable power bills, and comfort for many years to come.

For potential clients who are looking for “a good deal”

Here is what you get with a Blake Taylor home: quality assurance, backed by a fully licensed, certified and insured builder who insists on integrity and excellent workmanship from his subcontractors, and has a reputation of standing behind his product with his clients – you won’t find a better “deal” than a home built by Blake Taylor.



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