# BUILT TO BE BETTER THAN ENERGY STAR!

**This house is designed to dramatically exceed Energy Star standards. To meet Energy Star ratings, you merely have a house 15% better than average. Many builders meet the Energy Star rating by installing Energy Star appliances and ignore the more costly state-of-the-art "building science" guidelines. Building using these guidelines is expensive, but results in a house that dramatically exceeds the Energy Star rating (an average unrated house is 100, Energy Star is 85 and THIS HOUSE IS 71). Compare Energy Star reports of any house you are considering for this rating (unrated houses could be much worse). Having a lower rating is better and will result in a more efficient, healthy and COMFORTABLE house. Having a house this well designed can save many thousands of dollars in energy costs over time, especially when homeowners don't have to run HVAC systems excessively to be comfortable—the relationship of a comfortable house to monthly energy costs, particularly in a so-called "mixed humid" region such as the Piedmont of North Carolina is often ignored by builders. This house includes state-of-the-art building science, such as:**

**Completely conditioned building envelope**

- No unconditioned crawl space (unconditioned crawl spaces have efficiency issues as well as potential issues for future mold and mildew)
- No unconditioned attic space (with limited exceptions)
- Fully insulated foundation walls and slab ("high tech" Superior Walls foundation system with Dow Foam insulation for walls and slab)

**Exterior roof system insulated with gap-proof "high tech" polyurethane foam insulation system.** R-value measures insulation's ability to inhibit conductive heat flow but it doesn't address the primary method of heat transfer – air leakage (convection), which causes up to 40% of building energy loss

- Extensive computer modeling and field data have shown that the energy performance of polyurethane insulation at much lower R-values almost always outperforms fiberglass insulation in the field due to its superior air-sealing ability.
- Conventional fiberglass insulation systems are almost never installed properly and can shift and gap over time (especially in critical roof and floor systems), significantly lowering effective R ratings.

**All exterior walls covered in 1" foam sheathing** underneath the siding to eliminate "thermal bridging". Thermal bridging occurs when walls studs come into direct contact with exterior sheathing. Thermal bridging effectively lowers the R-rating of wall insulation. Applying foam sheathing outside of external structural sheathing and the studs raises the effectiveness of the wall insulation system by breaking the conductivity of the structural material.

**No ductwork in unconditioned spaces**, raises the effective efficiency of HVAC and eliminates potential for condensing of ductwork surfaces. Ductwork in unconditioned spaces is considered by most building science professionals to be a poor practice.

**Low-e windows**, with wood interiors. Wood is a much better insulator than vinyl.

**Zoned high efficiency** tank-less "on-demand" water heaters.

**Multiple zoned "right-sized" high efficiency HVAC system**, **with dehumidified fresh air system**. Bringing in dehumidified fresh air reduces the load on HVAC by reducing the work the system has to remove humidity from the air. Most conventional HVAC systems need to run for longer periods to remove humidity, resulting in overcooled homes and increased energy costs. Fresh air is also critical for a healthy interior environment. Also, contributing to the interior environment are extensive use of low-VOC finishes, elimination of carpeting, oversized ventilation of bathrooms and oversized cook-top ventilation system.

**Energy Star Appliances:** Extensive use throughout the house.