

Building or buying green

An introduction to green building certification in Western North Carolina

▣ BY MAGGIE LESLIE ▣

Green buildings use less energy, water, and materials than code-built homes. According to the EPA, the way we build and live in our buildings is responsible for 39 percent of total energy use, 68 percent of total electricity consumption, 30 percent of landfill waste and 12 percent of total water consumption nationally.

However, green buildings are not only better for the environment; the truth is that homes built using green building methods are simply better buildings. The growth of the green building industry can be attributed to the fact that by building green, everyone wins – the environment, the economy, the homeowner and the builder. Homeowners get a healthier, more comfortable home with lower utility bills and less maintenance requirements without having to compromise aesthetics or function. Studies show that green homes are worth more when sold and they hold their value extremely well over time.

According to Mary Love, a local Realtor and Director of Asheville Keller Williams Green Division, "In today's market more buyers want certified 'Green' homes. They are looking for energy efficiency that will help offset house payments. They also are much more aware of indoor air quality and carbon footprints. Buyers appreciate houses that are certified because it removes the fear of 'green washing.' Sellers are discovering the value of green improvements and look to certified ECO or GREEN Realtors to help them make wise improvements that will attract more buyers."

Building or renovating green is one of the best investments you can make. So how do you get started? Luckily, Western North Carolina has vast resources available when buying a new green certified home or renovating your existing home to be more environmentally friendly.

When buying new, look for a third party certified green home. In the absence of a universally approved definition of green, certifi-

cation programs have emerged to prevent green-washing and to provide a marketing edge for builders who are willing to make human health and environmental sustainability top priorities. In WNC, there are four main certification programs for green building: ENERGY STAR Homes, Green Built NC, Leadership in Energy and Environmental Design (LEED) for homes and the National Green Building Certification Program.

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— Mary Love, Love the Green
Keller Williams

ENERGY STAR homes focus just on energy efficiency while Green Built NC, LEED for Homes and National Green Building Certification Program also address water use, healthy indoor air quality, site impacts and resource conservation. Each program is third party inspected for quality assurance and designed to be a road map to help consumers and builders make ed-



Diagnostic airflow testing being performed at a final Green Built NC inspection for quality assurance. Home Energy Partners photo

ucated decisions while weighing the cost benefit of different green upgrades.

Green homes cost on average from 0 to 10 percent more depending on how green you go. Most often this increased mortgage cost is more than offset by the monthly utility savings. Add the reduced maintenance, healthy indoor air and comfort on top of that and it's a no-brainer.

According to Sean Sullivan of Living Stone Construction Inc., a local builder of Green Built NC and ENERGY STAR Homes and current president of North Carolina Home Builders Association, "There are many reasons why building 'green' is attractive to me: energy efficiency, using local suppliers and tradesmen, designing and building for passive solar, and water retention/collection among some of them. However, the most popular reason my clients choose to build 'healthy' is that the clean indoor

air quality is best for people moving here with allergies. The fresh air exchanges, media air filters and low VOC products are a 'no brainer' for anyone who struggles with seasonal allergies!"

If you are planning to build your dream home, the first place to start is with the site and design. Choosing a site that can take advantage of the sun's free energy to heat the home can provide comfort and savings for the life of the home. Designing in green features from the early stages makes the process as seamless and affordable as possible.

Choosing a builder is probably the most critical step, though. An experienced general contractor with a passion for green building is easy to find in Western North Carolina, so don't settle for less. But if you find a contractor that doesn't know much about green

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Program Descriptions

ENERGY STAR is a household name for appliances, but what is an ENERGY STAR Home? Like the appliances, the standards are created by the National Environmental Protection Agency and inspected by a third party. But ENERGY STAR Homes include more than just efficient appliances. Every ENERGY STAR Home is built to be at least 15 percent more energy efficient than the same home built to code.



This standard is reached through a combination of well-installed and efficient insulation, heating and cooling equipment, lighting, water heaters, and windows. Each home is computer modeled to determine its energy usage and then inspected by a nationally trained Home Energy Rater to make sure the home will perform as intended. ENERGY STAR

homes are more comfortable, durable, and energy efficient.



Green Built NC was created through collaboration between the N.C. State Energy Office, the N.C. Solar Center and building professionals throughout the state. This program is administered locally by the WNC Green Building Council. Every Green Built NC Home is also required to be energy efficient, but the program goes above and beyond energy. Green Built NC Homes start with a menu of items which is divided into seven

sections: site (erosion control to native plants); water (low flow fixtures to rain gardens); building envelope (insulation and framing); comfort systems (heat pumps to geothermal systems); appliances, lighting and renewables (CFLS to solar hot water systems), indoor air quality (moisture resistance to non toxic paints) and materials (recycling to bamboo). Each home must attain a certain number of points in each the sections to qualify for the certification. This way, builders are required to approach and improve all aspects of environmental friendly construction. These



homes are then inspected to make sure each of the items is actually achieved. Certified Homes span price range and style options from alternative to conventional, high end to affordable. LEED, Leadership in Energy and Environmental Design, is a green building rating system created by the U.S. Green Building Council. The LEED Rating System is a nationally recognized standard for green building but has primarily focused on commercial construction (categorized into New, Existing, and Interiors) until recently. LEED for Homes is a voluntary rating system, similar to Green Built NC. Like Green Built NC, energy efficiency is a pre-requisite and third party inspections are required.



Living Building Challenge certifies buildings that are net positive energy (meaning

they produce more than they use), net positive water, have locally sourced materials and zero red list chemicals. Hoping to inspire builders and designers to think beyond "less bad" buildings, the Living Building Challenge offers ideas and a path forward to truly sustainable living.

Home Energy Score with Green Gauge. The Home Energy Score, a program of the DOE is similar to a vehicle's miles-per-gallon rating. It helps homeowners and homebuyers understand how much energy a home is expected to use and provides suggestions for improving its energy efficiency. It also allows homeowners to compare the energy performance of their homes to other homes nationwide. The Home Energy Score includes: 1) the score itself, 2) facts about the home including data collected and energy use breakdown, and 3) recommendations to improve the score and the energy efficiency of the home. The process starts with a Home Energy Score Assessor collecting energy information during a brief home walk-through. Using the Home Energy Scoring Tool, developed by Lawrence Berkeley National Laboratory, the assessor scores the home on a scale of 1 to 10. A score of 10 indicates that the home has excellent energy performance. A score of 1 indicates the home needs extensive energy improvements. Coupled with Green Gauge, WNCGBC's new program for existing homes, the program also offers information about other green features including water efficiency, site, air quality and materials.



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building, the WNC Green Building Council and the various certification programs can help provide the education and guidance necessary to provide you and your contractor with the tools necessary to green your dream home. An integrated team that meets regularly and works together is critical. If your framer and your HVAC contractor aren't working together, for instance, it can make it difficult to design the HVAC system to perform optimally, costing you more money in the long run.

If looking to buy a relatively new home, buyers can find certified green homes in affordable to high-end price ranges, in a variety of sizes, touting green features including everything from solar panels and reclaimed lumber to simple well-constructed, craftsman cottages that someone would be hard pressed to distinguish on the surface from a code-built, non-certified green home. When it comes to green homes, the devil is in the details. While there are many technologies and materials that are

constantly improving how our homes perform, the details and craftsmanship are the most important aspect to ensuring homes are comfortable, efficient and healthy. Details such as proper site drainage and air sealing don't cost more and you can't see them, but they do ensure that the home will save energy and last for years to come. What is greener than that?

When looking at a prospective home, it is impossible to tell that the builder was so conscientious during construction that he or she didn't even fill a single dumpster during the process by wasting little and recycling where possible. However, if the home is certified by Green Built NC or LEED-Homes, the Realtor or seller should be able to provide a buyer with a checklist of the green features of the home providing further guidance about what sets this home apart from the rest.

But what about an existing home? It is easy to do it right if you are starting from scratch, but isn't renovating an existing home the ultimate form of recycling? Yes! But where do you start? If you are

on the market for a home, the first step is to find an ECO or NAR GREEN certified real estate professional, someone who knows what questions to ask and what resources are available for evaluating just how much you would need to do to make an existing home "greener."

Consider getting a Home Energy Score with a Green Gauge Assessment before (or soon after) you buy. This process cost about the same as a home inspection, but you will receive valuable information that isn't included in a typical home inspection. How much will it cost to heat and cool the home? Is there any insulation? How old is the furnace? How can you improve the air quality? Is this a green home? These factors are very important when assessing the true cost of ownership.

If you find the perfect home that is within your budget, but it costs \$200 a month in electricity vs. \$50 a month for the home next door, that needs to be factored into your decision. Home Energy Score with Green Gauge is a locally available program that can help

you answer these questions, at a low cost, before you buy to find out just how the home compares. According to Mary Love, "programs like Green Gauge help buyers and sellers determine important green features in existing homes, therefore making the selection process easier for the buyer while providing the seller a quicker sell."

If you know a home needs work, and most do, the next step is your choice: you can hire a home performance contractor to do the work for you or you can do it yourself (if you are handy many of the most basic improvements are very simple and low-cost). Duke Energy Progress also offers incentives/rebates for making some energy retrofits if using an approved contractor. The WNC Green Building Council, a local educational non-profit organization also offers a free email or phone hotline to answer your burning green building questions and can help you get started.

Maggie Leslie is Director for the WNC Green Building Council. She can be reached at 828.254.1995 or Maggie@wncgbc.org, or visit our website for more information at www.wncgbc.org.



Advanced framing and blocking at Prospect Terrace, built by Mountain Housing Opportunities, the pilot project for NC Healthy Built Homes (now Green Built NC).

Green Built NC and ENERGY STAR receive an update

□ BY AMY MUSSER □

HVAC checklist splits into two – design checklist and the commissioning checklist

The design checklist will still be collected and reviewed, however the commissioning checklist, while still required, will be optional to collect. This should expedite certification because documenting this checklist often holds up certification. HVAC companies still have to pay to participate via an H-QUITO provider except for ductless HVAC or mini-splits.

Additional Changes to HVAC Requirements include oversizing limits expanded for multistage AC, testing and balancing is no longer required and expanded options for total duct leakage and rough-in duct testing (can't use with NC HERO though.)

Minor changes to builder requirements

Advanced framing (insulated corners, headers, t-walls, framing at windows/doors limited to 1 king/1 jack (or code) is still required unless exterior insulated sheathing except a structural framing document can be used where solid framing structurally required. The HERS rater will have to collect this document. "Drill and fill" is now allowed. The Water Management Checklist is still required but the rater does not have to collect it.

Green Built Version 2 – Announcing a Net Zero and Net Zero Ready Certification!

Green Built has gotten leaner and greener. Many items that our now standard construction practices have been removed, while opportunities to gain points for many new technologies have been added. The sections have been overhauled to be more streamlined and organized so it is easier to fill out. Major changes include:

New Prerequisites:

- Energy Efficiency- now only two pathways: ENERGY STAR or NC HERO
- Duct Testing- to Align better with ENERGY STAR: Test all air distribution systems to have no more than 4% leakage to the outside and no more than 8% total leakage
- Radon- For homes in Radon Zone 1, follow the EPA's guidelines for radon resistant construction and perform a passive test OR have an active radon test done by a Certified Radon Measurement Professional.
- Erosion Control Plan required
- No "Rank 1" Invasive Plants

Net Zero Certified Homes

- Net Zero = Green Built NC with a HERS of 15 or lower
Or
Net Zero Ready= HERS 55 or lower
- South roof area suitable for future photovoltaic collectors facing within 45° East or West of solar South and free of shade
- A minimum of 110 sq.ft. of roof area per 2000 sq.ft. of conditioned area
- Chase and conduit installed

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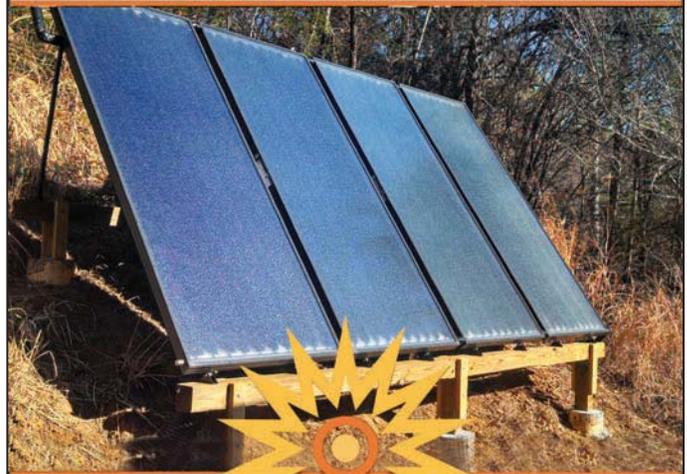
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