

Collective impacts of Green Built NC

□ BY NATHAN ANDERSON AND SAM RUARK-EASTES □

Providing actionable information is the strength of the WNCGBC as an institution, and the Green Built NC checklist facilitates a more integrated approach to design and construction. If you're looking for professionals who know how to do this work, what you hold is a list of WNCGBC members who have the experience, holistic thinking, and direct capacity to help.

The WNCGBC has been providing residential green building programs since 2004. The first chapter was called NC Healthy Built Homes, which evolved into Green Built NC when WNCGBC took over administration in 2012. The team here wanted to know, "what is the collective impact and savings of these green homes?" One of the most compelling effects of the Green Built program has been the collective reduction in energy demand and resulting savings the homeowner will experience over the life of their occupancy.

Of the 1,139 completed Green Built homes we analyzed, the average HERS index was a 66. For those unfamiliar with HERS (home energy rating system), it is an industry standard that models energy use relative to a theoretical home at the same location. A code built home in 2016 should theoretically be a HERS 100,



Green Built NC, Net Zero Energy Gold Certified home in west Asheville. Raymond Jennifer Coates photos

while a typical resale home is around a HERS 130. Therefore, Green Built homes are, on average, 34 percent more energy efficient than a brand new, code built home, and around 50 percent more energy efficient than existing homes.

Taking it one step further, the

average home in North Carolina uses 13,632 kWh of electricity annually, and thus the average Green Built home can be assumed to use 9,054 kWh per year. This displaces 5,213,843 kWh of electricity and 5,526 metric tons of CO2 emissions every year across 1,139 homes.

That's also \$508 in annual savings per home on electricity bills (at \$0.11/kWh) for a collective total savings of \$578,612 per year. There are a few complications to consider, and occupancy behavior is a deciding factor in energy use.

For example, bigger houses use

more energy, and a HERS score will not mean the same thing for a 1,000-square-foot house as a 10,000-square-foot one. As it turns out, the average Green Built home is about 3 percent larger than the average home built in 2015 in North Carolina, however it is possible that someone who chooses a Green Built home could be more in touch with how much energy they are using to make up for that. No guarantee though, so tack 3 percent back on that bill if you like.



Another issue is age. Our data goes back to 2005, but isolating the last two years drops the average Green Built NC HERS index further to 55. There are also tiers of Green Built certification, and Platinum homes score an average of a 26, saving homeowners around \$1,124 per year following the same methodology as above.

The point of all this is that there is an unquestionable statistical correlation with Green Built NC, energy efficiency, and cost savings. If you or your clients are in the market for a home that makes a positive environmental impact, and costs less money to own, Green Built is an absolutely proven system to get you there.

One important strength of the Green Built program is in its ability to elevate future building codes and provide a guide of what is possible on a larger scale. Indoor air quality is one such area, and as houses get better at keeping outside air out, they need ventilation to provide fresh air to occupants and control airborne contaminants that can affect respiratory functions. Radon infiltration is one health and safety issue that isn't currently addressed by our building code despite being the second leading cause of lung cancer in the United States. All Green Built homes in Radon Zone 1 now require radon professional testing or mitigation (with testing required in Radon Zones 2 and 3),

again supplying a blueprint for future code development.

Green Built also incentivizes protecting our water resources, rewarding the selection of low-flow fixtures and appliances, watershed-friendly landscaping, and collection of rain for irrigation. Following Green Built specifications can reduce water consumption by more than 50 percent compared to typical fixtures, which, according to the EPA, equates to about 50 gallons a day per person. That means that if every home in North Carolina were Green Built, we would save 181 billion gallons of water annually, enough to water our state's sweet potato crop for three-plus seasons.

Another way to protect our water and air is by incentivizing tree preservation and planting. Following Green Built tree planting guidelines would net 2.7 million trees on residential land in WNC, or 139,000 trees in the city of Asheville just in backyards. For perspective, there are about 23,000 trees in central park.

The way we build, and the environment we build in, has a huge impact on the community that emerges from our development. Incentivizing site stewardship, using responsible forest products and building for energy efficiency and water conservation are clear and available ways to minimize our footprint. Protecting what we have, particularly in such a dramatically beautiful, magnetic and fragile place like Western North Carolina, is a requirement if we want to keep living here.

Fortunately, green building doesn't cost extra over time, it is an investment that pays off by saving us from ourselves, and coincidentally rewards us economically. You don't have to be an environmentalist to appreciate sustainability and its effect on the built environment.

The City of Asheville is notorious for natural beauty and open-minded character. However, rampant suburban sprawl and short-sighted development can do major damage to our sense of community. Let's continue to make this place a beacon of progress, and not a cautionary tale. Be proud of green spaces, pedestrian accessibility, walkable neighborhoods, and front porch conversation. There is always room for improvement, and it starts with whomever has this directory in their hands. Thanks for reading.

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