

Great Lakes Home Performance

The “Go To” Resource for Home Energy Optimization



By **Douglas Elbinger**,

Energy Systems Finance, Newman Consulting Group LLC



You recognize the name ENERGY STAR®. It is one of the most recognized brands in the country, and it is easy to understand when picking out appliances. For instance, when Whirlpool wants to get a refrigerator certified, they build a prototype and send it to the lab for testing. If it makes the grade, then they build a zillion of them just like it, and they're all ENERGY STAR® qualified. Homes are different - each one is unique and must be inspected as each is being built and then tested when complete.

Everybody reading this knows that building a house is a lot more complicated than it used to be, especially when you add extra energy conservation measures and certifications - such as LEED, ENERGY STAR, HERS (home energy rating system), Passivehaus, Net-Zero Ready, Indoor AirPlus, and others - the paperwork and complication can seem overwhelming. Thankfully there are a few businesses in Michigan to help guide builders through the process, manage the paperwork, and verify compliance for codes and certifications.

One such business is Great Lakes Home Performance, LLC, based in the Greater Lansing area and serving customers across the state. Matt Rosendaul, owner and principle building analyst, got his start in the business when he started looking for answers to lower the energy bills in his 1892 Victorian home. “I couldn’t get anyone to give me honest answers. All they wanted to do was sell me something, but I knew there had to be some science behind it,” Rosendaul stated. That science turned out to be Building Science, and his search for answers turned into a new career and

launched a business that now serves approximately 40 builders and certifies 500 new homes each year.

“I formed the company in 2006 right when the housing industry was taking a huge hit and builders were going out of business. The bottom of the market was about 2009, but that was the first year that my business really took off. By encouraging and guiding builders to build more efficient homes, we help them stay ahead of the code changes, but they also avoid costly call-back issues. Each year, we find attics with NO insulation in them, duct systems that are not connected, attics that are not vented, ventilation systems that don’t work, and heating equipment that is too small or way oversized.”

Some of the services Great Lakes Home Performance provides;

- Failure Diagnostics
- Energy Audits and Modeling
- HVAC Load Analysis
- Multi-Family Enterprise Green Communities Projects
- Pre & Post Remodeling Testing and Improvement Analysis
- Thermal Infrared Photography Inspections
- Solar and Off-Grid System Consulting
- Rebate and Tax Credit Compliance

Since the building industry moved away from the model where builders did most of the work “in-house” with their own framers, carpenters, and masons, etc, to a new model of using all subcontractors, there are a LOT of moving parts that don’t always line up, especially when it comes to energy efficiency. Rosendaul explained, “We make



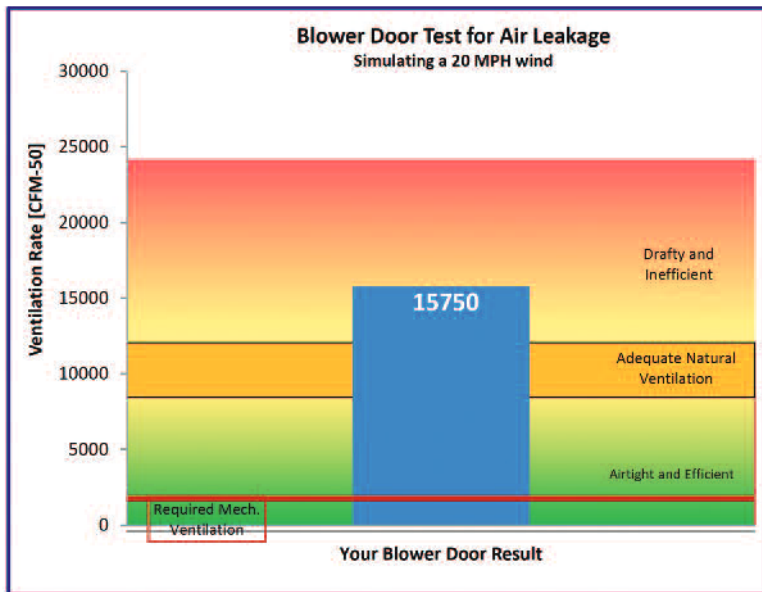
Matt Rosendaul performing the blower test

sure the builder and the homeowner get what they paid for and a house that will perform well. Homeowners have an expectation and assumption that their new house will be built with the best materials and practices. We can verify the steps to make sure that happens.”

Opportunity Knocks

The adoption of the 2015 energy code has sparked a small industry in energy efficiency. The new Michigan Residential Code (2015 MRC) requires blower door testing on all residential dwelling units, and duct leakage testing if any portion of the system falls outside the thermal envelope. “Our industry in Michigan went from doing 3,300 tests per year to over 20,000,” Rosendaul noted. Needless to say, there aren’t enough certified individuals in the state to complete all the required testing, and that’s why he has helped to organize trainings and offered apprenticeships and mentoring opportunities to others trying to get into the business.

To ensure that those opportunities turn into actual work, Rosendaul created the website www.michiganblowerdoor.com so builders can find qualified individuals to do their blower door and duct leakage testing. Besides a list of professionals, the site also has an extensive list of code Frequently Asked Questions (FAQs) that helps to clarify and simplify the new requirements. Rosendaul stated, “The FAQ list was compiled from questions that arose while conducting code trainings. The answers have been vetted by code officials and the most knowledgeable individuals in the industry.”



This is an example of Blower Door Test results from a home built in the 1980s ...with very poor score.

The company website, www.GreatLakesHomePerformance.com, contains a wealth of information about HERS, ENERGY STAR Certifications, and other programs for builders. There is also a section for homeowners to learn about energy audits and measures that can be applied to existing homes.

New Code Requirement: Blower Door Test?

This testing is done by individuals with certification from the Residential Energy Services Network, or Resnet for short. The Blower Door Test (BDT) measures the amount of air needed to keep a house at an elevated pressure of 50 Pascal. This depressurization of air essentially amplifies a home's air leaks, making it easier to measure them. When a Blower Door Test is performed, all doors, windows, vents, and flues must be closed as much as possible. An infrared camera can be used as a visual to see the leaks. Air leaks, insulation voids, and moisture damage will typically show blue on an infrared screen. Even with today's technology, there is still no such thing as a perfectly airtight house. Michigan recently adopted the 2015 edition of the International Energy Conservation Code (IECC). As part of the 2015 code, Michigan builders are required to complete a BDT on all new residential constructions. To avoid conflict of interest, builders and contractors are not permitted to perform their own BDTs and must hire an independent third party to complete the testing. The average cost is between \$250- \$450 USD.

Michigan Energy Code Highlights

In summary, all new homes and some additions and renovations permitted AFTER February 8, 2016, must comply with these new code standards. This new code contains some HUGE changes from previous versions of the code.

Examples of CRITICAL CHANGES from the 2009 Code:

- Window U-Factors must be .32 or lower
- Crawlspace insulation is R-15 continuous or R-19 cavity
- Blower door testing is required, and the maximum allowable leakage is 4 ACH50
- Sealed ductwork is required, and if ANY portion of the ductwork is outside the thermal envelope, it must be tested for airtightness
- Building cavities may NOT BE USED AS DUCTS, including returns; fully ducted systems only
- Automatic whole-house mechanical ventilation is required
- Lights and or fixtures must be 75% CFL or LED
- Band joist insulation needs to be covered with an air barrier

What Did NOT Change

- Wall insulation must be minimum R-20 or R-13+5
- Basement foundation insulation must be R-10
- Attic R-value R-38 or R-49 (depending on climate zone 5A, 6A, or 7)

For more information please contact:
Matt Rosendaul, owner.
Great Lakes Home Performance, LLC
matt@greatlakeshomeperformance.com
www.greatlakeshomeperformance.com

Fire Protection Specialists Since 1979

Fire Protection Specialists

**DESIGN
INSTALL
INSPECT
MAINTAIN
SERVICE**

**1111 W. Oakley Park Rd.
Commerce Twp., MI 48390**

248-669-5155

Jackson Associates Inc.

JacksonAssociatesInc.com

**“LARGEST”
used cargo van
dealer in Michigan!**



**We deliver anywhere
within Michigan free**



CARGO CO

231-331-6095
Rapid City, Michigan
cargovandealer.com