

Building Performance Testing: *Delivering Measurable Gains*

Remodeler's Experience



Challenges: Educating the consumer about physics and overcoming a lot of the poor advice out there.

Would you do it again? I have made it standard practice and offer it on every job we do.

PATH Attributes:

- Affordability
- Energy Efficiency

Builder Tips: Raise the bar for yourselves and your clients. The rewards are tremendous, not only financially, but psychologically. You and your team will rise above the competition.

Remodeler:

Michael Lotesto, President
Performance Exteriors, LLC
Crystal Lake, Illinois

The Technology:

Building Performance Testing

The Project:

Renovation of a 2,500-sq-ft., four-bedroom, single-family home built in the 1960s.

“Obtaining the knowledge necessary to do building performance testing will expand the services that you offer to customers, helping you distinguish yourself and rise above the competition.”

– Michael Lotesto on the business advantages of building performance testing.

“With over 25 years of experience in the building and remodeling industry, I found that I could expand my business by adding diagnostic services,” Lotesto says. “Such testing added great credibility to my recommendations, and convinced many clients to undertake the changes. It also made their homes more energy efficient, more comfortable, and healthier. Although it takes additional education, I recommend this as a sure-fire way of increasing a remodeler’s business, professionalism, and confidence. It has increased my leads and closing ratios by about 20 percent.”

LOTESTO’S STORY

Howard W., a homeowner in Flossmoor, Illinois, is far more technology-savvy than the average client. A technical reporter by profession, he spent a significant amount



The energy efficiency upgrades Lotesto performed on this Flossmoor, Illinois home should save \$700 per year in energy costs.

of time and money renovating his home to make it more comfortable and energy efficient. Despite his efforts, the home was still drafty and his utility bills weren’t measurably decreasing.

For help, he turned to Michael Lotesto, President of Performance Exteriors LLC, a building performance testing company that uses whole-house diagnostics to determine precisely why a home is losing energy and how it can be renovated to deliver a better return on investment.

“Over the last few years, Howard used all the knowledge that is readily available to consumers to make what he felt were informed decisions about his house,” Lotesto says.

“The year before last, he spent quite a bit of money to install a high-efficiency boiler, add insulation in the attic and



Founded in 2005, Performance Exteriors provides a whole-house approach to energy efficiency using modern building science to determine the home’s needs. With 25 years in the building industry, Lotesto’s experience includes general contracting, construction and sales consulting, carpentry and installations, building product evaluation and education, and development of energy-efficient homes.

Why he uses building performance testing:

“It takes the guesswork out of remodeling and it completely separates us from the competition. Too often when a homeowner calls a contractor and complains about high utility bills, the contractor simply pushes a product. We sell results, not product name recognition.”



Building performance testing—which includes blower door testing and air infiltration testing—will determine whether a home’s HVAC system and building envelope are operating properly and where repairs and material upgrades are needed.

crawl spaces, re-side the house with rigid foam insulation board, and replace all the windows with energy-efficient ones, only to realize his investments weren’t paying off as he had hoped. He followed the principles that most contractors would to make his house more comfortable, but it was still drafty and cold.”

“We used a series of tests from the Building Performance Institute and found the problems. First, we checked gas lines for leakage, measured the carbon monoxide output of all the home’s combustion appliances, and assessed the vent pressure. We also did a visual inspection and heat loss calculations of the siding, foundation, roof, ceilings, walls, windows, and doors to find out what areas needed the most attention. Then we did a blower door test and depressurized the house to negative 50 pascals. That created a negative pressure in the home that emphasized any points of air infiltration

around windows and doors. We sectioned off individual rooms and crawl spaces, then used a second manometer to take pressure readings to determine specifically where the house was leaking the most air.”

“We discovered that all the contractors who had worked on his home had missed the key areas of air infiltration. A house that is properly air sealed will replenish far less than half of its air in the space of an hour. Howard’s was letting in outside air at over three times this rate. Although he used good products and experienced contractors, they didn’t use the right diagnostics or building science to determine the true cause of the home’s problems.”

“Luckily, there were still ways that we could help him by improving the air sealing and insulation in many areas of the home. Our approach is to seal all the places that let air in, especially the crawl spaces, foundation, and the attic, which are more likely to let contaminants and dust into the home. If necessary, we will install a mechanical air supply such as a fan above ground to filter the optimum amount of fresh air into the home.”

“The correct amount of air will vary according to the size of the home and the number of occupants (including pets). In addition to lowering utility bills, air sealing also makes the air in the home cleaner and healthier because air is the number one carrier of moisture and bacteria.”

The cost of Lotesto’s services depends on the upgrades that homeowners choose. Clients who hire Lotesto to perform diagnostic testing pay about \$400; those who use him to perform the recommended upgrades receive the diagnostic testing for free.

The cost of the upgrades to Howard’s home was about \$2,500 dollars; Lotesto estimates that they will save the client \$700 a year on his energy bill.



Lotesto tests the water heater gas lines for leaks.

TECHNOLOGY HIGHLIGHTS

This project included the following PATH-profiled technologies:

- Air sealing
- Attic insulation and air seal systems
- Building performance testing
- Spray foam insulation

DIAGNOSE BEFORE PRESCRIBING

"Our method is similar to a medical approach," Lotesto says. "Much like a doctor, we start asking questions to determine symptoms. A house is a group of systems that are working side by side. If you address one of those systems, it may affect another. If someone is trying to save on their energy bills, going in there and saying, 'I'm going to change all of your windows and it will automatically save you a bundle' is kind of ridiculous. You need the house to tell you what it needs first."

"After we perform the tests, we compile a report that tells the owner about the house's energy efficiency, air infiltration, and other related performance issues. Based on that technical data, we diagnose the problem and make recommendations. Then we educate the homeowner about the solutions that will work best for their home, while letting them know what other areas of the house, such as moisture levels or air pressure in other rooms, will be affected by the renovations."

"We don't guess what the problems are, which makes my clients much more comfortable in making a decision. After the changes are implemented, we retest the home to show the owner that the renovations are doing what they were intended to do."

BUILDING MARKET RECOGNITION

Before reestablishing his remodeling business in Illinois, Lotesto spent two years in New York serving as a consultant to the remodeling industry. Although such testing is popular there, as well as in California, it has been slow to gain recognition in the Midwest. In fact, Lotesto's is the first BPI-accredited company in Illinois.

So far, overcoming the vast amount of incorrect information that guides the industry has been Lotesto's biggest challenge. He says Illinois has not dedicated sufficient funding for programs to educate remodelers about building performance testing, and no state or local agencies require energy rating.

"Public awareness is the greatest challenge facing us right now," Lotesto says.

Lotesto markets his services through print advertisements and has employed the help of a public relations firm to obtain media coverage. Lotesto also believes that government acknowledgement lends credence to his services.

"Gaining media coverage of our work and having the support of government programs such as PATH help a lot, adding legitimacy to what we do."

RAISING YOUR CREW'S MORALE

Lotesto employs a staff of eight to perform upgrades on the building envelopes of the homes that he tests. He believes that the testing has a positive affect on his crew.

"Going into a project, my installers know that their work is going to be evaluated because I retest all of my homes after the

renovations are complete," Lotesto says. "They look forward to this because they get verification that they did a great job. This has a positive effect on them—it makes them feel like they're involved in a stronger operation with a superior end product. It increases morale."

GETTING STARTED IN BUILDING PERFORMANCE TESTING

The amount of time it takes to become certified in building performance testing varies according to the depth of knowledge a building professional desires. It took Lotesto a year because he wanted to become a BPI-Certified Building Analyst, a BPI-Certified Shell Specialist, a RESNET-Certified HERS rater, and a BPI-Accredited Contractor. He estimates that others could

satisfy one or two of the basic requirements in less time if they passed the requisite field and written evaluations. Preparing for those evaluations could take a few weeks or months.

According to Lotesto, the basic equipment needed to perform the tests costs about \$5,000 dollars, while the length of time it takes to make up for that investment depends on the aggressiveness of your marketing strategies and how popular building performance testing is in your region.

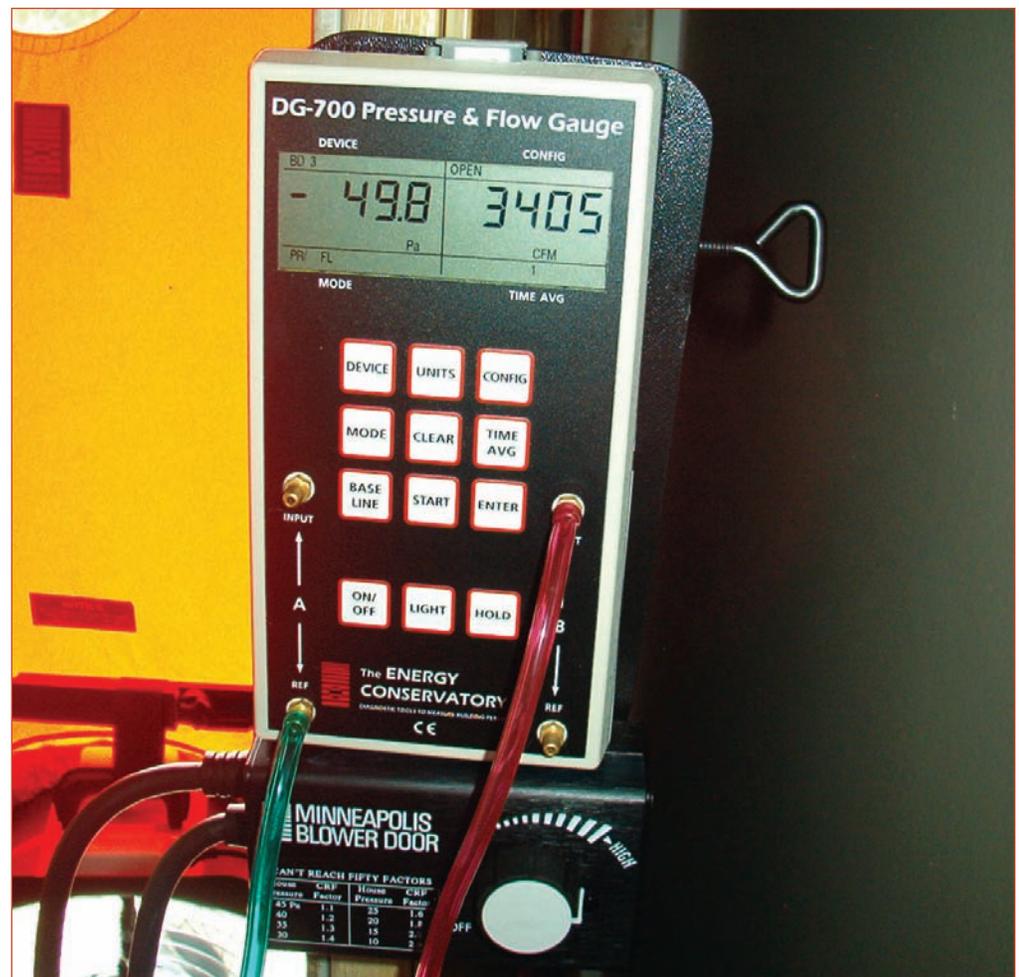
"Testers working in areas where the testing has already gained acceptance will have an easier time earning back their initial investment," says Lotesto.

The Partnership for Advancing Technology in Housing (PATH) brings together builders, manufacturers, researchers, government agencies, and other members of the housing industry. PATH partners work to improve the quality and affordability of new and existing homes. The program is administered by the U.S. Department of Housing and Urban Development's Office of Policy Development and Research.

To learn more about PATH, visit www.pathnet.org. To learn more about PATH-profiled technologies, visit www.toolbase.org/technv.



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This gauge for the blower door test tells the user exactly how leaky the house is.