

SO YOU WANT TO BE A HOME PERFORMANCE CONTRACTOR...

So you want to be a home performance contractor. / Well, listen now to what I say... / Just get a blower door / And take some time and learn how to test. (with apologies to the Byrds)

by GREG THOMAS

So how do you get started in the home performance business? As with many building science questions, the answer is, it depends. It depends on what you are doing now. Are you currently a contractor? If so, what type of contractor? Or are you thinking of starting up a new company? It depends on how much risk you are comfortable with. Do you want to manage people and projects, or would you rather be a trusted advisor without having to worry about any employees? And it depends on where you live. What type of climate do you live in? What types of construction are typical where you live?

Once you work your way through this maze of questions, you need to put together a business process that supports all the stages of your contact with the customer. This type of business is different in important ways from a typical contracting or consulting business, so understanding all of these stages will increase your chances of success.

My Background

Twenty-five years ago, I built a blower door and started offering whole-house audits. I was working for a heating contractor who had started out setting up wood stoves and solar hot water systems and now wanted to move into doing more complete work on houses. Fast-forward 25 years. I now own two companies. Performance Systems Contracting, Incorporated is a home performance contracting company that installs and retrofits heating and cooling systems, insulation, windows, and solar and wind energy systems. Performance Systems Development, Incorporated develops software and provides training and consulting services all over the United States. The



Analyst Jerone Gagliano involves the homeowner in the infrared scan of his home.

ROB GARRITY

two companies combined currently have 32 staff members. Most of these staff members were hired in the last five years, fueled by a growing demand for home performance services.

Along the way, I have written a number of articles for *Home Energy* on the development of the home performance business. Our company has also supported home performance programs in New York, California, and Wisconsin with consulting, training, and software services. We have also interviewed successful home performance contractors from around the country, and I coauthored a report on how these contractors manage their businesses (see “Strategies for Success,” *HE* Mar/Apr ‘04, p. 24).

Over the last 25 years, I have seen a number of contractors try to implement the home performance business model without understanding how all of the pieces of the puzzle fit together. More recently, I have seen more and more contractors understand how to make this business work and succeed. Still, there are risks. I hope this article helps you to reduce your risks in starting a home performance business.

The Big Picture

Treating a home from a whole-house perspective means taking control of the home's flows of energy, heat, air, and moisture, and producing an indoor environment that will truly satisfy customers and turn them into the best advertising any contractor could have: happy customers who are excited to tell others what you did to their homes. There are a few prerequisites before you can get to this point. First, you will need to have adequate tools and training (see "A Toolbox Primer," p.7). Both require a substantial investment of time and money. Next, you have to find customers who want you to put those tools and training to work, and you have to be able to turn that knowledge into a scope of work and put a price on it. You have to know how long it takes to get things done, how much things cost, and how much it costs to be in business. Then you have to produce a legal contract and maybe even a report and put them in front of the customer for a signature. And if you can find financing for your customers, then more of them will be able to sign that contract.

Once they sign, you have to order materials and mobilize your workforce. You have to make sure all of your staff and subcontractors know what they are doing, and you have to make sure that they have everything they need. You have to make sure that everyone stays on schedule and stays safe. If you are subcontracting, you have to make sure that someone else's employees do all the things that you would want them to do if they were your employees. Then, once the work is done, you have to make sure that it measures up to your expectations and to the expectations of the customer. And you or your employees have to test the building again after the work is done, making sure that the entire workscope was completed and that no safety problems were created in the process. Then you have to make sure that you keep track of all of your expenses and that you make enough money to go on to the next job. Through all of this you need to make sure that everyone has all the skills and knowledge that they need to do their job, even the ones who just got here last week.

And, as in any business, to be a successful home performance contractor you must have business systems, and

you must be able to manage those systems successfully to consistently and profitably turn out the desired product. Successful businesses are designed as machines that create a consistent product, even in a service business like contracting. This consistent process is the "business" side of your business. You need to have a consistent process for answering the phone and scheduling appointments. You need

to be able to track the status of each of your jobs, and you need to be able to produce an invoice and know how to collect money from your customers. Tracking and feedback is an essential part of managing and improving your process. If you are just getting into the business, spend as much time learning about running a business as you spend learning about fixing houses—maybe even more. If you are in a contracting business already, be aware that a home performance business requires more complex and robust systems than a trade-based business may have.

Sounds easy, doesn't it? —NOT!

Why Do It?

For all of the difficulties associated with starting any new business or steering an existing business in a different direction, there are some very good reasons to get into home performance contracting. Here are my top five reasons:

Ethics. "I want to do the right thing." Despite the bad reputation that contractors have, I have met a lot of contractors who really want to do the right thing. And home performance does the right thing. Home performance is doing quality work that also happens to be good for the planet. Through this work, you will be helping



Emelie Cuppernell enjoys a cup of coffee while reading about her favorite home performance analyst in the local newspaper.

homeowners to reduce their energy use and the resulting greenhouse gas emissions. It is truly right livelihood.

Differentiation. "I want to be different and better and maybe charge more for my work." Depending on the image of your company that you want to develop, you might like to be seen as different from and better than the next contractor. Home Performance with Energy Star is an EPA program designed to help contractors differentiate themselves from other contractors who are not using testing.

Risk avoidance. "Problems are eating up my profits." Taking control of the flows in buildings and understanding building science allows you to avoid callbacks and performance failures. Those callbacks have a bottom-line impact of the wrong type.

Profits. "I want to be part of the next big thing." You want to grow your business, and you see home performance as an expanding market with a lot of potential.

Business stability. "I lay off too many trained people in the off season." Insulation and HVAC trades traditionally have fairly seasonal profiles and struggle not to lay off trained staff in the off season. This increases costs and reduces the number of trained staff available. Most successful home perfor-

mance businesses have a different cycle: way too busy and just plain busy.

Starting Points to Entry

Where you are now with your business activities largely determines how you will get to where you want to be. Here are some typical starting points and the issues that you are likely to encounter with each one.



Lexie Hain works to create an airtight closure for an above-grade crawlspace.

Insulation and window (building shell) contractors. Most building shell contractors do not have strong ongoing customer relationships; they serve one customer and then move on to the next one. The building shell market also has few barriers to entry, meaning that just about anyone with a pickup truck can get into the business. This creates more of a commodity market, where low price is critical to success. Building shell contractors who want to get into home performance need to know how to identify customers who might be interested in their product and selling these customers on a more comprehensive home performance solution to their comfort and energy problems. Adding HVAC into the workscope can be a tough step for this type of contractor.

Heating and cooling (HVAC) contractors. HVAC contractors often

have recurring customer relationships, because they make annual clean and tune service calls. When a customer's HVAC system fails, they have to know how to respond fast. So their businesses are typically built on a fast customer turnaround. HVAC contractors also require more highly trained technicians and may not have the right sales staff to do home performance inspections, or the right crew to crawl through attics.

Home inspectors and energy raters. Home inspectors and energy raters have low overheads and few employees—usually because that is the way the owner likes it. The best money in home performance is in delivering the entire package of services. Selling full-price inspections (if you install, you can hide part or all of the cost of inspection in the cost of the job) and taking the time to train subcontractors and maintain the quality of their work is not an easy proposition.

Remodelers. When remodelers walk into a house, the first thing they do is listen to the customer to find out what the customer needs. They don't assume that they will be installing insulation or a furnace and that that will solve the house's problems. Remodelers are also used to managing complex logistics for their business process, so coordinating a whole-house retrofit is not hard for them. But do they see that the home performance market can be big enough to deserve their full attention?

Weatherization agencies or not-for-profit housing groups. Weatherization and not-for-profit groups may be looking for a way to protect themselves against inevitable state and federal funding shifts. But they have a hard time changing the way they work, and there is usually little incentive for management to take on all the extra work

required to set up and run a for-profit subsidiary.

Start-ups. Entrepreneurs don't have to support an existing business model while they change to a new model. But they don't have any business systems either, and they have to create them from scratch. Can they create the right systems at the right time and grow while staying out of trouble?

Steps to Getting Started

There is no cookbook recipe for getting started in home performance. To paraphrase another famous band, sometimes you just got to get out on the street and start testing. While you are building up some experience in testing buildings, try to make sure you cover these bases also:

Develop a list of local problems. You need to understand the climate drivers and the housing problems that are most common in your market. Solving these problems has to be the focus of your business. So keep a list and check it more than twice. Typical problems involve

- comfort (cold or hot rooms);
- health (mold, CO, poor ventilation);
- durability (moisture control, window condensation, peeling paint); and
- efficiency (high energy bills).

What causes these problems in your climate and housing stock? What will you recommend to solve the problems? Can you deliver that service, either with your own crews, with subcontractors, or with supervised contractors? This list will form an important part of your marketing efforts.

Choose your business model. What type of business model will you use to deliver services? Here are some of your choices:

The consultant. Do you want to be a trusted advisor? Is being seen as a third party important to you? Do you want to avoid the obligations of high overhead and the hassles of managing employees? One variation of the consultant model is to work as a subcontractor to an installing contractor. You help them sell jobs and they pay you to do the inspections. But be sure that you can trust them to deliver quality work. It is your reputation that will be on the line.

A Toolbox Primer

What performance-testing equipment will you need to start to diagnose problems in houses? You are going to want to measure the basic flows through the building—air flow, moisture transport, heat flow, and energy use. This list covers the minimum equipment you will need, and then suggests several other items that will likely be useful.

Blower door. Like the song says, start by getting a blower door and learning how to test. The blower door is the fundamental tool for inducing pressures and measuring air leakage in buildings. It allows you to feel and see, with the help of artificial smoke, the sources of the leaks. And you can begin to test duct leakage with a blower door combined with a digital manometer.

Carbon monoxide measurement. As you start to work on a building—whether you are installing insulation, air sealing, putting in new heating equipment, or changing a duct system—you change the pressure relationships in that building. This work can introduce carbon monoxide (CO) into the building from combustion appliances. So being safe means testing, knowing the specific level of CO being produced, and being ready to take appropriate action.

Digital manometer. The manometer takes the information provided by the blower door and moves you into a whole new realm of knowledge. You can now measure just how connected one part of a building is to another, and you can measure the effects of depressurization on the combustion systems—another key safety test. Combine a digital manometer with a pressure pan and a blower door, and you can start to measure how connected the ducts are to the outside.

Air flow measurement. Basic comfort testing requires that you measure the flow of air in and out of heating and cooling supply and return registers. Basic health and safety testing requires that you measure the flow of air out of exhaust fans. Air flow measurement can be done using a digital manometer and various or adjustable orifice plates, or even garbage bags. Or you can invest in

a balometer. These tend to be less accurate at low flows, so be careful.

Thermometers. Two digital thermometers allow you to measure temperature differences, such as the temperature rise on heating equipment or the drop across cooling equipment. And you can measure all sorts of other things—such as outside air temperature (for adjusting blower door numbers), hot water temperatures, and so on. Make sure that they are calibrated with one another.

Digital hygrometer or sling psychrometer. To understand moisture conditions, it is critical to measure relative humidity, which can be accomplished with either of these instruments. Eliminating condensation is the key to avoiding mold and moisture damage inside a house.

Computer and software. A computer and an energy-modeling tool will teach you a tremendous amount about how buildings actually use energy. If you know where energy is being used, and you know the most cost-effective choices for reducing energy use, you can make the best recommendations for your customers. Use your computer to look at the energy bills also. Your energy model should be adjusted to predict close to what the bills will actually be, so that your savings predictions are reasonable. Saving energy isn't the only reason people invest in their buildings, but it does create the most positive cash flow. Software is also used to determine the proper size of the heating and cooling equipment. And you can use a computer to create reports, do estimates, and run your business.

Now you have enough equipment to start really understanding what might be going on in the buildings you are testing. What other equipment might be useful?

Combustion efficiency. Actually measuring the combustion efficiency of the heating equipment can help you to know when to recommend that the HVAC equipment be replaced.

Infrared camera. An infrared camera allows you to see heat loss and heat gain, which is a great sales tool; it is something that people intuitively understand. It

helps you diagnose problems quickly and differentiates you from the competition.

Duct Blaster. The Duct Blaster is a sort of mini blower door that helps you to measure the size of the hole in ducts, just like a blower door tells you how leaky a house is.

Watt-hour meter. Appliances are contributing to an increasing percentage of our total energy bill. A watt-hour meter allows you to meter the energy use of an appliance during a sampling period and then predict energy use over the course of a year.

Tru flow air flow meter. This gauge is another extension of your digital manometer; it lets you quickly measure air flow across a heating or cooling system. Reduced distribution system air flow causes many efficiency and comfort problems.

Refrigerant gauges. Measuring refrigerant charge will help you to diagnose and treat underproducing cooling equipment.

Wood moisture meter. A wood moisture meter allows you to determine if wood is wet enough to be at risk for developing rot or mold. A wide range of meters are available.

Data loggers. We use data loggers for all sorts of testing, typically in multifamily or commercial buildings. In single-family houses, they are great for testing attic air temperatures and for getting a quick look at how often heating or cooling equipment is cycling on and off.

Don't be overwhelmed by all this equipment. To get the right work done on a building, you will need to know how to test buildings, and you will need to understand energy and moisture flows. However, testing by itself does not save energy. Customers investing in improvements are what saves energy and creates real value. You will need to know how to test buildings—but you will also need to set up your business, get customers, and deliver services. Keep in mind that delivering real value is the foundation of successful and sustainable businesses. And that is exactly what home performance delivers—real value.

General contractor. General contracting works if you can keep down your cost of subs and if jobs are intermittent and you don't want to try to carry employees over the slow periods. But one of the basic tenets of home performance contracting is doing quality work. Getting quality insulation and HVAC subcontractors to work for you for

whole-house job, are your customers getting that really big boost in comfort that makes them create referrals for the next five years or more?

The whole-house option. You put it all together in one shop. You control the quality and the schedule. And you get the profits. But you also get the headaches, and you have to be able to

manage a wide variety of types of work and staff. Certain business models drive faster growth, and this is one of them. If you are creating and maintaining the customer relationships, you control the flow of work. If you are doing whole house, you create larger jobs and need fewer customers. And doing the work with your own crews, if you do it well, typically creates higher profits than subcontracting the work.

Energy-efficient mortgage facilitator. In a few places—most notably in

California—general contractors have used federal mortgage programs to help create a market for whole-house improvements. They use consultant energy raters to set the scope and calculate savings and then bring in subcontractors to get the work done. This is a variation of the general-contractor model, where the emphasis is on maintaining the connection to the banker and realtors to get a steady stream of business referrals.

The decision to be a prime contractor or a subcontractor is a key one. Do you have the capital you will need to get started with equipment and some modest marketing, and then to make payroll and pay suppliers? Do you have the necessary marketing skills? Are you a people

person, or are you more comfortable doing the work and testing the houses? Do you want to engage in a long-term process of learning about building science and performance testing? Are you familiar with the contracting business? Do you want to take financial risks in return for potential payoffs? In the end your choice of how you fit into this business is as much about your own personal goals and desires as it is about the specific requirements of a business model.

Assemble Your Whole-House Installation Team

Whole-house work has the biggest impact on the customer. On top of that, generally speaking, the bigger the job, the simpler it is to get the business model to work. So how do you assemble a whole-house team? Who needs to be on the team, and what do they need to know? And where do you find these people?

The whole-house home performance business consists of

- testing in and testing out of buildings for both efficiency and safety;
- installing heating, cooling, and ventilation equipment, and improving distribution systems—the meat of home performance;
- installing insulation and air sealing—the potatoes of home performance;
- installing windows and doors—because the customers want them and you don't want to send those customers elsewhere;
- doing foundation work and grading—sometimes necessary, but not often enough to justify buying heavy equipment; and
- having appliances and lighting readily available.

So where do you find the members of your installation team? Are they employees, subcontractors, or marketing partners? Start by looking for people who understand the value of learning new things. Being in this business means making a commitment to learning. If your team members are not interested in learning, then you have to spend a lot of time supervising or cajoling them. If they are interested in knowledge and self-improvement, then building science and performance testing will feed their soul. So look for your team members in



Jason Whitmarsh puts the final touches on a recently enclosed stairway, once a massive chase between unconditioned and conditioned space.

“Being in this business means making a commitment to learning.”

below-market rates may not be easy. This can work if you have the marketing skills that the subcontractors lack and can keep them busy and happy.

Subcontractor. The general contracting models described above presume that there are subcontractors delivering the installation services. You can be that subcontractor, if that is what you prefer. If installations are your forte and marketing is something you do because you have to, subcontractor status may be just the right fit.

Trade-based contractor. You may not do all the work to do a whole-house job, but as a trade-based contractor you do at least half, and you subcontract for the rest. But is it really worth the hassle of subcontracting? And if you don't do a

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places where people are learning. Look at the presentations put on by local trade groups. Look at who is carrying the most technical products at the home shows. Look in online technical discussion groups. Look for people who are engaged in green building-related activities. And look for people who understand the value of doing quality work.

Access Training

You now know what problems you will need to know how to solve, and what team members you will need to solve those problems. Now you need to make sure you know enough to be able to diagnose the problems correctly, solve them appropriately, and keep yourself and your customers safe.

Start by taking advantage of any building science-based training that is offered by utilities or weatherization programs. Many home performance contractors get their start working for these subsidized programs. You may not see this as a long-term business proposition, but these programs typically provide good training, and working for them is a

great way to build experience before you go out into the market. The training may be based on the program priorities, but the physics is always the same.

Home Energy publishes a list of trainers and training centers (see *HE* July/August '05, p. 26, or visit www.homeenergy.org). This is a good place to start looking. Many utility programs have their own internal training programs, so don't neglect to find out about locally available training options.

Get training for your crews also, and set up an internal training plan. Other good resources include *Insulate and Weatherize: Expert Advice from Start to Finish* by Bruce Harley, *Residential Energy* by John Krigger and Chris Dorsai of Saturn Resource Management; and the *Best of Home Energy*, vol. 2, a CD-ROM with over 250 articles selected based on their usefulness to home performance contractors.

Conferences are another great training resource, most notably the ACI (formerly Affordable Comfort) national and regional conferences. These events are very contractor focused and provide a lot of value.

Opportunity Abounds

There's a lot of opportunity out there in existing buildings. They keep building more buildings with problems each year. Only 25% or so of the new-construction market is built to Energy Star standards. So the market for improving existing homes is not going to go away any time soon. The question is, do you have a business model that can tap into this market, and can your business model withstand the ups and downs of energy prices and the variations in subsidies and tax credits and any errors you might make along the way? This business clearly requires a complex business system, but there is a lot of value to be provided using performance testing and building science to solve problems. Someone is going to find a way to create that value at a profit. Will that someone be you?



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