

# No Cold Feet

How to Make Sure You Get the Right Heating System...  
And Get it Installed Right.



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## INTRODUCTION: What You Most Need to Know Before You Buy



Getting a new heating system is a big deal. It's expensive. It's complicated. And it's a decision you and your family will live with for years to come—for better or worse.

So it's no wonder that many people get "cold feet" when trying to make this decision.

We understand. Our family has been installing heating systems in New Hampshire for over 40 years. We've heard all the questions and stories. We've seen the costly mistakes that homeowners and contractors can make. And the truth is, most of those mistakes could have been avoided with better information.

That's why we've written this guide. We've tried to give you some straight talk about the things you most need to know before you get a new heating system—so that you can shop smart. We've shared some inside information that you often won't hear from contractors.

*Armed with this information, you'll be better equipped to ask the right questions, evaluate what contractors tell you, and make a well-informed decision.*

Hopefully, this guide will not only help eliminate the "cold feet" from your decision-making process, but also help you end up with a heating system you're truly happy with—a system that keeps your feet warm all winter!

So take a few moments to read through NO COLD FEET.

Then, if you'd like to see a free, hands-on demonstration of new heating systems, call us at 1-800-977-4737 to schedule a visit to our Home Comfort Center.

Or, if you want us to do a free, no-obligation Heating Analysis of your home, to find out how much you could reduce your heating bill with a new, efficient system, just give us a call.

If you have any questions, or if we can help you in any way, feel free to call us or send an email to [info@JustCallHeritage.com](mailto:info@JustCallHeritage.com).

*– Craig and Steve Chartier*

# 1. DOING THE HOMEWORK: Look for a Contractor Who Does a Thorough Home Analysis.

*When Harvey needed a new furnace, he got three bids and chose to go with the lowest bid. It bothered Harvey a little that the contractor didn't look over his house beforehand, but otherwise the installation went smoothly. Later, when the coldest days of winter came along, Harvey really had to crank up the heat to keep the house warm, and the heating bill went through the roof. When Harvey called another contractor to do some repairs, the contractor told him, "Your furnace is actually undersized for your house. Since you have so many big windows, you really should have a more powerful furnace."*

When you're buying a new heating system, it can be tempting to go with the low bid. But sometimes the contractor giving the low bid is cutting corners to get the business. And cutting corners can leave you stuck in a corner!

For example, some contractors skip the homework: they don't take time to do a thorough analysis of your home before they put together a recommendation. And, unless you're very lucky, this can lead to problems.

**This is why the EPA (Environmental Protection Agency) states that you should "only hire a contractor who asks questions, measures windows, doors, floors, ceilings, checks insulation, calculates a heating load, and fixes system problems that may compromise comfort and cost you money."**

Your contractor should never recommend a heating system without first doing a complete analysis of your home and checking a list of factors that include:

- The size and style of your house
- How well insulated or airtight it is
- How much useful solar energy comes in through the windows
- How much heat the lights and appliances give off
- The condition of ducts and pipes
- Your typical thermostat settings
- The number of occupants in the home

Your contractor should also do a computer load calculation—measuring all the rooms, checking the insulation and doors, and inputting all this data into special industry software to calculate the heat loss/gain. He should ask you questions, such as:

- Are there any drafty areas in the home?
- Do you have moisture problems? Hot or cold rooms?
- Are you about to make any changes to your home?
- How have your heating bills been running (he should ask to review past bills).

Finally, your contractor should do static pressure, temperature, and flow tests to help determine exactly how your heating system's current distribution system is working within your home.

When you are interviewing contractors, ask them to describe the methods they'll use for doing an analysis of your home. Then work with a contractor who does his homework.

## 2. AVOIDING INSTALLATION STALL-OUT: Make Sure Your System is Installed to Factory Specifications.

*Charles and Maggie bought a new, brand-name furnace, but to save money they had it installed by a friend who had some background in heating. Over time, they began to have some problems with the performance of the furnace, so they called a heating contractor. The contractor told them that there was nothing wrong with the equipment, but that it had not been properly installed and tuned to factory specifications.*

There's a saying in the heating industry: A great piece of equipment that is incorrectly installed is no better than a poor piece of equipment that is correctly installed.

And it's true. On average, about 65% of how well a piece of heating equipment performs is directly related to how well the entire system is designed, installed and calibrated.

**In fact, an industry study found that over 66% of equipment failure is a result of poor installation and lack of proper maintenance. And bad installation accounts for the loss of 30% to 50% of heat in many homes!**

To perform properly, your entire heating system needs to be installed, tuned and calibrated to factory specifications set down by the company that manufactured that equipment. What does this mean?

It means, among other things, that your contractor should balance the air flow by making sure that the setting on the furnace fan is matched to the size and characteristics of your ductwork and to the characteristics of your furnace.

It also means that when your contractor installs the furnace or boiler, he should also tune it and test it to make sure it works efficiently in your home environment. This is important because your equipment has been tuned and adjusted at the factory, and the environment there does not mirror your home environment.

You are investing in a quality piece of equipment. But if that equipment is not installed correctly, you won't get optimum performance. Ask contractors if they guarantee that the heating equipment will be installed and tuned to factory specifications.

## 3. AVOIDING OVERKILL: Don't Buy More Heating System Than You Need.

*When Sharon's furnace finally quit, she knew one thing for sure. She wanted her new furnace to be powerful enough to keep her family warm throughout the house—even on the coldest nights. She was tired of the draftiness and the hot and cold spots. "I want my home to be a warm, cozy place for my kids," she explained to her heating contractor. And naturally, the contractor was happy to oblige. He did a rough estimate of the square-footage of the house, and then he told her, "The furnace we're installing will be more than powerful enough to heat your entire home, even on the coldest days."*

Both Sharon and her contractor came to some reasonable conclusions. And both were wrong. Sharon ended up with a heating system that was oversized for her home—and she ended up with some problems as a result.

Her over-sized heating system would overheat quickly, then cool down, then overheat again. As a result, it cycled on and off more frequently. This not only wasted energy, it also meant that her home alternated between feeling too warm and feeling too cool. And to make matters worse, this was increasing the wear and tear on her heating equipment and would eventually shorten its life.

Unfortunately, Sharon's story is not an isolated one.

**The EPA (Environmental Protection Agency) estimates that nearly half of all existing heating equipment is over-sized, and that this results in 20% wasted energy each year!**

To avoid this problem, tell the contractors you're talking with that you want to buy heating equipment that is right for heating your home, but you don't want oversized equipment. Ask them what their recommendation would be, and ask them to explain why the equipment they are recommending is right for your particular size and style of house.

## **4. THE AGE GAP: The Problem of Connecting New Equipment to an Older System.**

*Gary lives in an older home, and recently his furnace broke down. A contractor told him that because the new furnaces are up to 95% efficient—much more efficient than his old furnace—he could expect to see his heating bill go down significantly. Gary thought that was good news. He figured the savings on his heating bill would help offset the payments on the new system. Unfortunately, however, the savings didn't materialize. Gary's heating bill is still as high as it was before.*

Why didn't Gary's heating bill go down? The problem was that Gary's new furnace got hooked up to an older system of vents and ducts. And this severely limited its efficiency.

*About half of the efficiency of heating equipment is determined by the design of the whole system it's connected to. When homes were built 10, 20, 30 or more years ago, many of the heating systems were poorly designed because they didn't have the knowledge and technology we have today. So if you connect a new piece of equipment to an old system of ducts or pipes and vents or radiators, you may not get the efficiency you expected.*

It's important to realize that when a manufacturer slaps a label on a furnace saying that it is 95% efficient, this means *they have tested it under ideal conditions, with ducts or pipes that are just the right size, with vents and return air vents or radiators that are properly located.* But in older homes, conditions are often far less than ideal.

Will your contractor explain all this to you? Maybe not. Many heating contractors do not have the training or the mindset to think in terms of whole system design and how it all works together. They are primarily trained and geared to replace equipment.

So when you are interviewing contractors, you should ask them how well they think a new furnace will work with your current system of ducts and vents. How they answer will be revealing. Of course, you may choose *not* to replace your older ducts and vents, but you have a right to at least know the score before you make your decision.

In the next two points, we'll elaborate on some of the problems you can get into when you connect a new piece of heating equipment to an older system design—especially with regards to a forced hot air heating system.

## **5. FORCED AIR: The Problem of Undersized Air Ducts.**

*In Gary's case, his new 95% efficient furnace was trying to force air through ducts that were too small. This made the system much less efficient. In addition, his new furnace now has to work harder to push air through those vents, and this will cause more problems and repairs and dramatically shorten the life of his new furnace.*

If you have a forced air system, one of the problems you can run into when you connect a new furnace to an older system is the problem of undersized air ducts.

**The National Comfort Institute says it's not unusual to see return air systems undersized by 30-50%! They add that many equipment problems and failures are often a result of improperly sized and improperly installed air ducts.**

And yet, as important as this issue is, many contractors will not even bring it up. They know that if they tell the customer, "Your ducts are too small, we really should replace them," the customer might think they are just trying to jack up the price, and they might lose the job.

As we said before, whether you replace your ducts or not, you certainly have a right to know how well your new furnace will perform with your existing ducts—before you buy! So make sure that you bring this issue up when you talk to contractors.

## **6. BLOWING HOT AND COLD: The Problem of Poor Air Circulation**

*Imagine that you set up a fan in your living room and turn it on. Then, you put a garbage bag on the back of the fan. What will that do? It will restrict the air flow. The same thing happens when you connect a new furnace to a system that is not designed for good air circulation. If your ducts are too small, or if you don't have enough air vents or return vents, or the vents are not in the right locations, air flow could be severely restricted, and you could end up with hot and cold spots in the house.*

For forced air systems, the issue of air circulation is very important. Remember: the efficiency of your forced air heating system depends to a great extent on the blower or fan that circulates warm air throughout the house while removing colder air. And if anything is restricting the air flow, this can create problems.

For example, if you don't have properly located vents and return vents upstairs, you're going to get poor circulation of air up there. And when you feel the "cold spots" in your house, you may want to turn the heat up, which will put more wear and tear on the equipment and burn more fuel.

With good air circulation, you'll have nice even comfort throughout the home, without those hot and cold spots. And you'll also have a more efficient heating system with lower heating bills. Here's another problem that results from poor air circulation design. If you don't have enough return air vents placed where they should be, your system will try to suck return air from wherever it can. Usually, this means it will try to suck air through the joints of your ducts that are in the basement or the attic. And of course, if these spaces are not heated, it will be sucking cold air into your system.

When talking with contractors, ask them to evaluate the air circulation in your home and tell you what it would take to correct any circulation problems. It could be that new air vents will add years to the life of your system and, if so, they will pay for themselves many times over.

## **7. KEEPING THE HEAT INDOORS: Evaluating Your Home's "Envelope."**

*Jim and Marge planned to install a new heating system in their older home and they wanted to do it up right, with new, larger air ducts and better placement of vents and return air vents. They were excited about the prospect of reducing their heating bill while making their home more comfortable.*

*But when they sat down with their contractor, and explained what they wanted, he told them, "I hate to tell you this, but I don't think a new system will really be that much more efficient because you're losing so much heat through your walls and your windows because of poor insulation and poor window quality. I don't like to give you bad news, but I would hate to install a new system for you and then have you find out that the new system is not very efficient because your house envelope is so porous."*

As you probably know, this is also a common problem. If you don't have a good "home envelope"—i.e. good insulation and windows, to protect you from outside cold—then you'll lose much or most of the efficiency you could have gained from your new furnace.

For example, if you have 4 inches of insulation in your attic and the recommended amount is 18-22 inches, you are losing a lot of heat through your roof! In this case, you won't realize the full energy savings of your new 95% furnace. The same is true if you have poor wall insulation and/or windows that only give you minimal protection from the cold.

With poor windows and insulation, you may need a 100,000 BTU furnace to heat your house comfortably; but if you replaced the windows and insulation, you might be able to heat the same house comfortably with an 80,000 BTU furnace, which will be much more energy efficient.

Should you change the windows and insulation? That will be up to you, of course. But again, you have a right to know these things before you have your new heating system installed. If you suspect that your windows and insulation are not up to snuff, have the contractor look at them and at least tell you what he thinks.

## **8. APPLES AND ORANGES: Comparing Upfront Cost vs. Ongoing Costs of Ownership**

It's easy to get fixated on the upfront costs of installing your new heating system. But of course, that is only a part of the total cost. You need to also take into account how much the system might save you in fuel, how long the system will last, and the potential cost of repairs over time. A reputable contractor can help you think through these issues.

You'll want to know, for example, the actual energy efficiency of the system you are getting. Older, conventional furnaces or boilers can often have an energy efficiency lower than 65%. Today's more efficient heating systems have efficiency ratings that range from 78% to 97% for forced air systems and 80% to 95% for hot water systems. That's why upgrading to a new, more efficient system has the potential for reducing your monthly heating bills by 20-40%.

But as we've seen, that depends on a number of factors, such as making sure your system is installed to factory specifications, and making sure the rest of your system will work well with your new furnace.

The extra money you spend for a high-efficiency model will usually pay you back in energy savings in a relatively short time. For example, suppose you are choosing between a unit with an efficiency rating of 80% and one with a rating of 95%. The higher-efficiency system will cost about \$1,000 more, but will probably save you, on average, about \$225 each year in operating costs. So you will recover the \$1,000 additional upfront cost in less than five years.

If you are not planning to stay in the home long enough to reach the payback point, you may wish to choose a lower-priced model. But remember, a high-efficiency heating system can be a good selling point when it comes time to sell your home.

You'll also want to know what kind of guarantees come with your new heating equipment. At Heritage, for example, when you buy a new furnace, you are guaranteed to pay not one penny for heating system repairs for the first five years.

So as you talk with contractors, by all means compare upfront costs. But also, keep in mind the overall costs of ownership over the next several years. It often happens that the more expensive, higher quality heating system ends up being much less expensive to own when all the costs are added up.

Conversely, the cheaper heating system comes with a lot of hidden costs which include: more frequent problems and repairs, shorter life, and higher heating bills—not to mention the aggravation and perhaps time off from work that is involved whenever there is a repair.

## **9. OUTSIDE THE BOX: When Getting Bids, Price Out the Entire System, Not Just “The Box.”**

Some contractors focus on getting the sale by pricing “boxes” (equipment only) instead of offering total solutions. But to get the heating system that is just right for your home, you have to think outside the box and realize that there is a lot more to your heating system than just a “box in the basement.”



So when you are getting bids from companies, don't just get a bid for installing a new furnace or boiler. You should also get bids on the cost of buying and installing the components necessary to address the whole system, including any fittings and adjustments required and any changes to the ductwork and piping, plus balancing and adjusting the whole system to work together.

It may cost more to have everything done right, but the benefits and the payback are almost always well worth it. And your toasty toes will thank you.