

Your Hidden Money-hole

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With seriously rising energy costs, we are more focused on ways to reduce our utility costs. The simplest means for saving money is to turn off the Heating Ventilating Air Conditioning [HVAC] system and swelter or freeze. Most of us are not ready to do that.

The next best thing is to cut your losses. Primary losses come from low operating efficiency, sucking unconditioned air in, blowing conditioned air out and insufficient insulation. Most houses suffer from more than one of these afflictions.

Efficiency

How old is your system? Newer systems are considerably more efficient out of the box, often more than twice as efficient. The older your system, the more likely the cost of replacement and upgrade will pay for itself in energy cost savings in a matter of months.

Older systems lose efficiency every year. Poorly maintained systems are real energy hogs. Dirt on the blowers reduces air flow making the system work harder. Dirt on the cooling coils blocks air flow with similar results. (We'll save the mold and air quality for other articles.) Bent/blocked/dirty fins on outside heat exchangers cut efficiency. Corrosion in furnaces cuts heat transfer. All these conditions cost you money every day.

These are all very common failings, even in new homes. When was the last time you had your system checked and maintained? A small amount of semiannual maintenance and regular filter changes can save you many times the cost in lower energy bills.

Your system sucks

While it is useful and considered healthy to bring in some outside air it is seldom run through a heat exchanger to save the energy already expended in conditioning the air going out to replace it. For a few hundred dollars you can have a heat exchanger installed that will provide this service. The importance of this increases with the use of blowers sending air outside as well as the use of gas fired appliances and fireplaces. Better air and lower operating costs are always a good deal.

Serious losses come with openings in the return air part of the system. I've seen countless examples of HVAC systems sucking air from the attic. That means sucking the hottest air available into the air conditioning system in summer and the coldest available air into the heating system in winter. The

bigger the opening, the more it costs.

Insulation for the return system ducts may be a bit more subtle, but can still cost you. Missing or inadequate insulation for your ducts means your house is still sucking energy, even if it is not sucking air.

Your system blows

How long has it been since someone checked your ductwork? Any opening means sending conditioned air into unconditioned space. The vast majority of systems out there have holes and gaps in the ducts allowing noticeable amounts of conditioned air to escape. Even a dollar a day's worth of energy adds up to a lot of beer at the end of a year. When energy was cheap, we didn't really notice all that much. At twice the price, and more, everything becomes more significant. Larger houses multiply the impact.

Insulation location

It can't do its job when its not there. This is the first and most neglected principle. Almost every house has places where bats are loose, incomplete or missing. Sometimes they were never installed and others have moved. That means energy holes directly sucking your money.

Newer houses typically have more insulation than older ones. Three inches in the attic used to be considered good. Now, 12 inches is on the low end. Some older houses have none at all. If you have less than six inches of insulation in your attic, your energy bill is much higher than it needs to be.

Blown insulation is most common in attics, primarily because it is easier to install. It is also easy to move around and displace. Activity in attics almost always means insulation movement. That means thin spots – more energy wasted.

Recessed light fixtures make little chimneys. Those rated for contact with insulation are more expensive, so few builders use them. That means at least a twelve inch diameter non-insulated space sucking energy for each one.

Is your attic access opening insulated? Few are. That is a large energy hole in your ceiling.

Most attics have some sort of flooring for access. Many of those attic floors have little or no insulation underneath. That can mean a very large, poorly insulated ceiling area running up your utility costs.

Houses with crawl spaces or basements can have energy losses

underneath too. Floors need insulation with crawl spaces. If you have a basement, be sure the space between the top of the basement wall and the first floor is insulated all the way around.

Walls can be more difficult to assess because they have no ready access other than cutting holes. It is always a good idea to inspect new homes for complete application of insulation before the wallboard goes up. Once the wallboard is installed it's too late – or is it? Actually you can have your walls and ceilings scanned with an infrared camera and very quickly know where insulation is missing. Balancing the few hundred dollars for a one time infrared survey against the daily cost of energy loss doesn't need rocket science math.

Insulation type matters

One of the best types of insulation is blown urethane foam. It doesn't move, is air tight so air cannot blow through it and it's a great insulator. The bad news is the high cost, but the cost to benefit ratio gets better with every increase in energy prices.

Cellulose insulation may be the cheapest. It is essentially ground up paper. While coated with some sort of fire and decay retardant, experience shows it turns to powder with time and eventually goes away. If you have cellulose insulation, you probably could save money on energy cost by adding a layer of blown fiberglass.

Fiberglass tends to last and provides useful energy savings. Batts work well, but can be difficult to install in tight attic spaces. If you add batts, be sure to put the vapor barrier on the proper side, or better still, use batts with no vapor barrier.

Summary

While the cost of energy may vary from month to month, the long term trend is only up. Would you rather spend a little up front or a lot more every year? It is no longer just about the ecology – it's also about that serious dent in your wallet.

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