

When It's Time to Replace Your Gas Forced-Air Furnace, Consider the Alternatives

As I write this, I have just completed shooting videos of the 15 homes on this year's **Metro Denver Green Homes Tour**.

The tour, currently in its 25th year, takes place on the first Saturday in October. Normally, you would register for \$10 and get a book describing the homes, along with a map. Armed with that, you create a self-guided tour of the homes which interest you. You'd have to complete your tour by 4pm that day, followed by a reception and expo.

Because of the pandemic, this year's tour will be totally virtual, which is actually better because you'll get a link to view detailed videos of every home on the tour and not miss any of them due to time constraints. We won't release the URL for the tour until October, but when we do you'll be able to take your time to view all 15 — and the virtual tour is free! I'll publish that URL in my October 1st column.

Meanwhile, let me share one particular lesson that you will learn from viewing the 15 videos: that gas forced air furnaces, no matter how efficient, are obsolete.

One thing you learn really quickly in the sustainability arena is that America is far behind other countries when it comes to energy-efficient technology. That's because our fossil fuel costs have always been lower than in Europe and Asia, specifically Germany and Japan, where you'll find the most innova-

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By **JIM SMITH, Realtor®**

tion and product development. With our higher standard of living and higher incomes, Americans have long been able to waste money and energy with abandon. The result has been to leave it to other countries to create more energy efficient and less costly products.

Since home heating and transportation are the most energy-intensive aspects of modern life, that's where we have seen the greatest innovation abroad. We in America continue to play catch-up and hang on to old technology. Our continued use of gas furnaces is an example of hanging on to old technology.

For a long time, I thought that higher efficiency gas forced air furnaces was the direction we should go to reduce our carbon footprint. However, after viewing the videos of highly efficient net zero energy and even energy positive/carbon negative homes, I think you'll agree that it is time to abandon altogether that method of heating our homes.

When Rita and I purchased our current home in 2012 and installed the maximum solar photovoltaic system allowed by Xcel Energy (10 kW), we looked into how we might heat our home using the free energy we were creating from the sun. That's when we learned about and purchased the **Carrier Hybrid Heat®** system, which uses an air source heat pump paired with a gas furnace to heat our home in the win-

It's also important to stay informed on national issues and politics. I subscribe to email newsletters from the *New York Times*, *Washington Post*, *Atlantic Magazine*, and *The New Yorker*. My radio diet is strictly **Colorado Public Radio** (90.1 FM), which has a great local news staff. I even listen on my dog walks!

For TV, I watch the evening news on both CBS and NBC. I watch **CBS This Morning** six days a week, and my Sunday morning viewing includes **CBS Sunday Morning**, **Reliable Sources** and **Fareed Zakaria GPS** on CNN, and **Fox News Sunday with Chris Wallace**. I record **Meet the Press** and **Face the Nation** to see if there's a guest I want to see interviewed. CNN has some really great **Special Reports** which I always record and frequently watch. All our TV programs are recorded so we don't waste time on commercials.

ter and cool it in the summer. It looks just like a gas forced air furnace, but the gas flame only comes on when the outside air is below the temperature at which the heat pump can generate heat from outside air.

Although Carrier still sells its hybrid system, heat pump technology has advanced far enough that gas back-up is no longer needed in our region. However, since our hybrid furnace uses natural gas so seldom, we won't replace it anytime soon.

When you gas forced air furnace needs replacing, don't make the mistake of replacing it with a newer and better gas forced air furnace. Instead, look into the many alternative ways of heating your home, which you'll learn about when those 15 video tours are released in October. (If you can't wait, Google "heat pumps" and investigate the options.)

Heat pump systems can use your existing ductwork (as in our home), or they can be ductless (like at Golden Real Estate's office). My January 4, 2018, column described the transition to the ductless system at our office. Find and read it online at www.JimSmithColumns.com.

Solar thermal, using both flat panels and evacuated tubes, is another technology, typically augmented by electric and heat pump units, which can provide heating as well as domestic hot water. A few of the homes on this year's tour have solar thermal systems.

Geothermal heating, present in other homes on the tour, takes advantage of the earth's temperature below the surface. In our latitude that subsurface temperature is about 55°F year-round. It is extracted by running a liquid-filled loop 300 feet or so into the earth and using a heat pump to heat that 55-degree liquid for radiant floor or forced air heating, or using it at 55 degrees for cooling in the summer. That takes less energy than our **air source heat pumps**, which take much colder air from outside and extract heat from it in the winter, and can then cool your

house (like A/C) in the summer.

The thing to remember about heat pumps is that **they don't create heat** (such as from burning fossil fuels), **they move heat**. The difference between a traditional A/C system and a heat pump system is that a heat pump moves heat in two directions, not just one.

There is so much more to learn about efficient heating and cooling of your home. But first, to provide the highest return on investment (and lowest heating cost), you will want to improve your home's insulation. A **blower-door test**, conducted by an energy efficiency professional, identifies where the leaks are in your home, so they can be sealed. A **heat recovery ventilator (HRV)** can then help you bring in fresh air without losing your home's heat. (A heat exchanger within the HRV transfers the temperature of the outgoing air to the incoming air.)

Thermal mass can play a big role in reducing the energy needed to heat a home. You'll see thermal mass applications in many of this year's videos. Concrete, brick, water and even dirt can function as a thermal mass to accumulate heat from the sun and then release it slowly after dark. (There is an example of a "climate battery" using dirt on this year's tour.) With the proper roof overhang on south-facing windows, your thermal mass is shaded from the sun during summer months but exposed to the sun in the winter, when the sun is lower in the sky.

The best way to heat and cool your home may be different than the best way to heat and cool someone else's home, and it's hard to do justice to this subject in a single article. In the posting of this column at www.GoldenREblog.com, I'll provide the names and contact info for vendors I know and trust who can provide a free consultation and estimate specific to your situation. I don't get a referral fee from them, so you can trust that they are contractors that you can trust, too.

Readers have asked me how I manage to come up with new topics to write about each week, so this week I'd like to share my sources of ideas and information.

My primary source of topics is from working with buyers and sellers and hearing their questions about the market, contracts, and other topics. I frequently take a moment and enter a topic idea on my iPhone's Sunday calendar. When I sit down to write my column on Sunday, I look there.

I also get **email newsletters** from **Realtor.com**, my Realtor association, the **National Association of Realtors**, and **Realtor Magazine**. I also subscribe to **Inman News Service**, which has a daily newsletter. Lenders, inspectors and other industry partners have their own newsletters which often spark a topic idea for me.



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