

Our Newest Listing Is a Case Study on How to Achieve Net Zero Energy at Home

Regular readers of this column know my commitment to sustainability. Our office is Net Zero Energy, with our 20-kilowatt solar PV system providing all the energy to heat, cool and power our office plus charge our four electric cars, while also providing free charging to the public. My home is also solar powered, satisfying all our electrical needs, although we still have natural gas service.

Readers may also recall me saying that the most affordable way to invest in sustainable features is to buy a home which already has them, since the investment in sustainability pays for itself over time but rarely returns what you paid for it in the resale value of your home.

The home I just listed at **6187 Terry Way in Arvada's Sunrise Ridge subdivision** is a good example of that. The seller, like me, is fanatical about sustainability and has invested over \$80,000 in solar power, insulation, daylighting, and other improvements, but the listing price of **\$450,000**, while higher than for a comparable home with a higher monthly energy bill, recovers for the seller only a fraction of her investment.

Meanwhile, whether or not you are interested in purchasing a terrific 2-bed-room patio home, let me use it as an example of the ways you can invest in sustainable features for your own home.

I've written in the past about Steve Steven's 1970s brick ranch which he took beyond Net Zero. I did a narrated video tour of it when it was on the annual tour of solar homes, and it took over 40 minutes to describe all its sustainable features!

This home, however, is a 2002 frame-built tract home that was constructed with above-average but below-optimum energy and insulation features, leaving plenty of room for improvement. And improve it the seller did! (You'll understand why, knowing that she is Steve Stevens' significant other!)

What follows is a run-down of the improvements which brought this home's electrical bill down to the cost of its connection to Xcel Energy's grid. In fact, the home is beyond Net Zero Energy to **Net Carbon Positive**, meaning that its excess electrical generation more than compensates for the natural gas being used for cooking and heating. On top of that, the seller charges her electric car in the home's 2-car garage.

Here are the sustainability highlights:

First, of course, a 4.4-kilowatt solar photovoltaic system was installed on the roof. Having done that, the next tasks involved reducing electrical demand so that 4.4kW of solar would be sufficient.

Of course, all incandescent, fluorescent and CFL light bulbs were replaced with LED bulbs and fixtures. That alone reduced the electrical load substantially.

This home was on the 2017 Green Homes Tour



Next, five 14- and 22-inch diameter Velux sun tunnels were installed, bringing natural light into all the rooms, nearly eliminating the need for artificial lighting except at night.

Next, all the appliances, including the central A/C unit, were replaced with high efficiency Energy Star-rated models. In the case of the kitchen appliances, they are all stainless steel.

At this point, the electrical efficiency was pretty much maxed out, so attention was given to reducing the natural gas load for heating the home.

Additional cellulose insulation was blown into the attic, bringing it up to an R-100 rating — more than twice what you'll find in the typical production home. We have a picture of this home after a snow storm, showing the snow melted off the roofs of neighboring homes but not off this home's roof — clear evidence of good attic insulation.

The rim joist (accessible because the basement is unfinished) was insulated to R-50. This area of

the house, I've found, is the most neglected area of any house when it comes to insulation. It's where the joists for the main floor sit on the home's foundation. Most home builders stuff some fiberglass insulation between the joists, but they don't enclose that fiberglass in plastic. Cold winter air easily infiltrates through loose fiberglass insulation. It's the plastic sheeting which stops that air. And closed-cell foam sprayed between the joists further inhibits air infiltration.

Next, the windows and patio door were replaced with Energy Star-rated Champion products. Improving the windows further was the installation of insulating Hunter Douglas blinds.

Those are the improvements which made the home more energy efficient, bringing it past Net Zero Energy. Other improvements worth noting which add value to this home are the large deck with seating on the sunny south side of the house, the beautiful oak Murphy bed with wall storage in the guest bedroom which allows the bedroom to be used as an office, and the 240-Volt wiring in the garage to provide EV charging.

Since this is a "paired home," the party wall already had double-wall construction with insulation which reduced the transmission of noise between the units, but my seller added a third wall which consumed 5 inches on the her side of the party wall, into which cellulose insulation was blown, creating an even better sound barrier.

I hope this article has inspired you to improve the energy efficiency of your own home, even if it hasn't inspired you to call your agent or me at **303-525-1851** to arrange a private showing!

You can view a video tour of this listing at www.ArvidaPatioHome.info narrated by me. It's just like an actual showing!

Price Reduced on This Fabulous 5-BR Arvada Ranch



You'll appreciate the quality features of this luxurious ranch home at **11948 W. 66th Lane**, from the fabulous living room with invisible surround sound speakers, to the gourmet kitchen, the elegant master suite with fireplace and sunroom, and the finished garage with epoxy floor. The location is super quiet, too, yet convenient to old town Arvada, downtown Denver and I-70 into the mountains. Call your agent or Jim Smith at **303-525-1851** for a private showing! You can also appreciate this home by visiting www.ArvidaRanch.info where you can view a video tour of the home narrated by Jim. Our tours simulate an actual showing — much better than a slideshow of still photos with music.

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