

Discover Geos Community, Where the Homes' Energy Costs Are Essentially Zero

That's what it's like for Jim & Patty Horan, who bought their 3-bedroom, 3-bath, 2,135-sq.-ft. home at **15062 W. 69th Place** in Arvada's Geos Community. They paid \$525,000 for it three years ago (July 2017).

Like all Geos homes, this one has no gas service. With only 6kW of solar panels on the roof, the home is heated by a ground source heat pump. It draws heat from the earth via a 300-foot-deep loop under the home. The heat pump uses very little electricity during the summer to further cool the 55° fluid in that loop, and not much more energy during heating season to heat that fluid to 100 degrees.

On Saturday, Jim Horan gave me a tour of his home which I recorded for this fall's Metro Denver Green Homes Tour. You can view the video at [YouTube.com/jimsmith145](https://www.youtube.com/jimsmith145).

Geos Community is the only subdivision I know that's built entirely "net zero energy." There are developers building solar-powered communities like KB Home's subdivision on the northeast corner of Hwy 93 and 58th Ave., but they don't come close to being net zero.

There's a term for such homes — "greenwashing," which Wikipedia defines as "a form of marketing spin in which green PR and green marketing are deceptively used to persuade the public that an organization's products, aims and policies are environmentally friendly." I've always marveled that those KB Homes were built with many of the solar panels installed on north-facing roof surfaces.

Getting back to the Horans' home, there's more to going net zero than having solar panels and a ground-source heat pump. Those features must be coupled with energy saving features so that the limited number of solar panels are enough to meet the home's energy needs — with energy left over to charge an electric car.

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By **JIM SMITH, Realtor®**

Here are some of those features which I covered in my video tour with Jim Horan.

First and foremost, the building's "envelope" has to be very tight. That starts with foam insulation blown onto the interior surfaces of the roof and exterior walls, replacing more conventional blown-in cellulose and fiberglass batting. The windows are Alpen triple-pane windows which also have foam-insulated fiberglass framing. (Fiberglass is better for this than vinyl.)

Those elements make a house too air-tight for healthy living, so an energy recovery ventilator is installed which constantly brings in fresh air, using a heat exchanger designed so that the heat (or coolness) of the air being exhausted is used to heat or cool the fresh air being brought into the house. A heat pump within this device, called a CERV (Google it to learn how it works), provides further heating or cooling of that fresh air as needed.

In the townhomes at the Geos Community, the CERV works with an **air-source** heat pump mini-split instead of a ground-source heat pump to heat and cool the home year-round.

Have you heard the term "indoor air quality" or "sick building syndrome"? It refers to high levels of CO₂ or volatile organic compounds (VOCs) which can build up in a home, especially in a home as airtight as the Geos homes.

The CERV monitors both CO₂ and VOC levels in the house and will bring in additional fresh air when those gases exceed the level

set by the homeowner. (The Horans have the level for each gas set at 950 parts per million, or ppm.)

What are VOCs? If you can smell it, it's probably a volatile organic compound. Examples include new carpet smell and, worst of all, cat litter smells.

Two appliances in Geos homes also contribute to their low energy load. One is the Bosch condensation clothes dryer, which pulls in cool, dry air from the room. The air is heated and passed through the clothes; but instead of being vented outdoors, the air travels through a stainless steel cooling device or heat exchanger. It does heat the room it is in, so the Horans choose to dry their clothes on an outdoor line during the summer, even though their heat pump could handle the additional cooling load if they didn't do that. Home Depot sells the Bosch 300 "ventless" dryer for \$989.

The other appliance is the heat-pump water heater. It has a heat pump above the tank which transfers the heat from the room into the water. I've written about this product before. Home Depot sells one for \$1,200 which earns a \$500 rebate from Xcel Energy. Because this appliance emits cold air, it's in a pantry which the Horans keep closed in the winter and open in the

summer. (I would put it in a wine cellar or in a room with a freezer, which emits hot air — a symbiotic arrangement within one room.)

As you are beginning to gather, building a net zero energy home is best done from scratch, when the additional cost is less than retrofitting a home. (My home is net zero in terms of electricity, but we still burn \$30 to \$50 of natural gas each month, and it takes twice as many solar panels for my home, which has about the same square footage as the Horans'.)

You may be wondering how much more it cost to build the Horans' house, which they bought new in July 2017. To answer that, I searched all the comparable homes (2- or 3-story, between 1,500 and 2,500 square feet within 1 mile radius) sold during the summer months of 2017, and I found that the \$246 per finished square foot paid by the Horans was actually below the median price (\$253 per finished square foot) for the seven comparable sales. And those homes probably pay thousands of dollars per year more for electricity (and gas) than the Horans.

If you want to learn more about Geos community, give me a call at 303-525-1851 or visit the Geos website, www.DiscoverGeos.com.

This Home Is Close to All That Makes Golden 'Golden'

This 3-bedroom, 3½-bath home at **538 Canyon View Drive** is in Canyon Point Villas, a small community of paired homes within walking distance (via pedestrian bridge) of Clear Creek, the Golden Rec Center, downtown Golden and the Colorado School of Mines.

There's a city maintained park with playground within the subdivision, and Mitchell Elementary is just a few blocks away! This 2-story unit is nicely isolated from the noise of Highway 93 to Boulder and Highway 6 to Denver or the mountains. It's in move-in condition with all new stainless steel kitchen appliances and windows throughout. It has new paint top to bottom, inside and out! View interior and exterior still photos and take a narrated video tour, include drone footage, at www.CanyonPointVillas.com, then call your agent or Jim Smith at 303-525-1851 to arrange a private showing.



Cohousing Community Coming to Geos Community

Cohousing communities have been built in Golden and Boulder, and one will be built as part of Geos, incorporating the same net zero energy design elements described above. 10 members are already signed up. When there are 12, design and construction work will begin.

At RalstonCreekCohousing.org

you can learn about their monthly video chats and events. The community will consist of 20 or so units in a U-shaped condo-style building with main-floor common spaces and a courtyard facing Ralston Creek. If you like the idea of cohousing, check out this one, which has the additional feature of being net zero energy.



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Jim Smith

Broker/Owner, 303-525-1851
Jim@GoldenRealEstate.com

Broker Associates:

- JIM SWANSON — 303-929-2727
- CARRIE LOVINGIER — 303-907-1278
- KRISTI BRUNEL — 303-525-2520
- CHUCK BROWN — 303-885-7855
- DAVID DLUGASCH — 303-908-4835
- CAROL MILAN — 720-982-4941

