

Thrive Home Builders

WestRidge 3-Story Rowhomes
Wheat Ridge, CO



BUILDER PROFILE

Thrive Home Builders

Denver, Colorado; ThriveHomeBuilders.com
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FEATURED HOME/DEVELOPMENT:

Project Data:

- Name: WestRidge 3-Story Rowhomes
- Location: Wheat Ridge, CO
- Layout: 2 bdrm, 2.5 bath, 3 fls, 1,793 ft²
- Climate: IECC 5A, cold
- Completed: 2020
- Category: Attached Housing

Modeled Performance Data:

- HERS Index: without PV 50; with PV 29
- Annual Energy Costs: without PV \$900; with PV \$450
- Annual Energy Cost Savings: (vs typical new homes) without PV \$1,300; with PV \$1,750
- Annual Energy Savings: without PV 3,800 kWh, 400 Therms; with PV 6,600 kWh, 400 Therms
- Savings in the First 30 Years: without PV \$59,800; with PV \$81,300

“This is it” proclaimed the little girl as she pranced through the rooms of the new home by Thrive Home Builders. It wasn’t the model home’s clever modern décor that caught her attention. It was the awareness that she had no allergy symptoms, for the first time since her parents had begun touring houses in their search for a new home.

Stories like this aren’t unique among Thrive homeowners; others tell of putting the inhalers in a drawer the day they move in and not touching them again, or fewer asthma-related trips to the hospital.

Health is what attracted the buyer to this 1,793-ft² three-story town home at WestRidge Rowhomes, in Wheat Ridge, Colorado. “Having a healthy home is huge with having a three-year old and definitely something we looked into before purchasing. Improving our health and staying healthy has been something I have been striving to do since 2018 when my late husband passed away from leukemia. I have really been impressed in the fact that neither of us have been sick this last winter season; we have stayed healthy through this pandemic. This house has hugely impacted that since we have had to stay inside so much lately.”

Thrive Home Builders achieves high indoor air quality in part because it adheres to the high performance requirements of the U.S. Department of Energy (DOE) Zero Energy Ready Home program. That includes certifying the home to the program checklists of ENERGY STAR Certified Homes Version 3.0, 3.1, or 3.2 and the U.S. Environmental Protection Agency’s Indoor airPLUS. Builders must also meet other efficiency requirements like the hot water distribution requirements of the EPA’s WaterSense program; the insulation requirements of the latest International Energy Conservation Code; HVAC and water heating efficiencies; third-party verified air sealing targets; installation of ENERGY STAR appliances, windows, and lighting; and ducts in conditioned space. In addition, homes are required to have solar electric panels installed or have the conduit and electrical panel space in place for it.



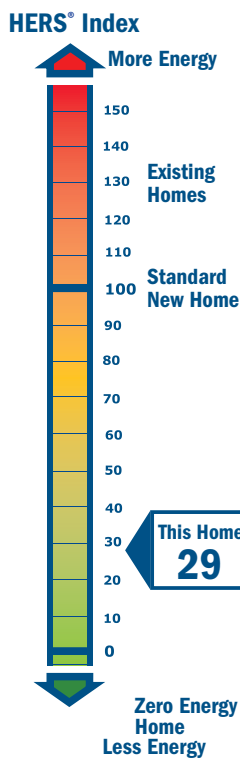
The U.S. Department of Energy invites home builders across the country to meet the extraordinary levels of excellence and quality specified in DOE’s Zero Energy Ready Home program. Every DOE Zero Energy Ready Home starts with ENERGY STAR Certified Homes Version 3.0/3.1/3.2 for an energy-efficient home built on a solid foundation of building science research. Advanced technologies are designed in to give you superior construction, durability, and comfort; healthy indoor air; high-performance HVAC, lighting, and appliances; and solar-ready components for low or no utility bills in a quality home that will last for generations to come.

Thrive Home Builders built these 1,793-ft² three-story rowhomes in Wheat Ridge, Colorado, to the high-performance requirements of the U.S. Department of Energy's Zero Energy Ready Home program. These homes achieved a Home Energy Rating System (HERS) score of 29 due in part to high insulation levels in the attic, walls, and under the slab, along with ENERGY STAR appliances, and solar PV panels.



What makes a home a DOE ZERO ENERGY READY HOME?

- 1 **BASELINE**
ENERGY STAR Certified Homes Version 3.0/3.1
- 2 **ENVELOPE**
meets or exceeds 2012 IECC levels
- 3 **DUCT SYSTEM**
located within the home's thermal boundary
- 4 **WATER EFFICIENCY**
meets or exceeds the EPA WaterSense Section 3.3 specs
- 5 **LIGHTING AND APPLIANCES**
ENERGY STAR qualified
- 6 **INDOOR AIR QUALITY**
meets or exceeds the EPA Indoor airPLUS Verification Checklist
- 7 **RENEWABLE READY**
meets EPA Renewable Energy-Ready Home.



The Denver area builder is nearly tied for total number of DOE Zero Energy Ready homes built, having certified 1,019 to date since the program began in 2012. Thrive has been recognized with DOE Housing Innovation Awards every year since 2013 and has received grand awards in every year as well including four in the production home category, four in the multifamily category, and one in the affordable home category. They received a grand award this year in the multifamily category.

The DOE Zero Energy Ready Home label helps to differentiate Thrive in a bustling Denver housing market dominated by large national construction firms including fourteen of the top twenty homebuilders on *Builder Magazine's* Top 100 list, according to Thrive's Vice President of Home Building Operations Bill Rectanus. Thrive ranks 122 on the list. "In a strong demand environment like Denver, we have had the ability to consistently raise prices to pay for our unique, innovative features and maintain our margin despite the escalating costs in today's market. In each of the previous three years, market studies have shown that Thrive has commanded a higher average price per square foot than the average of the top 25 ranked builders in the entire Denver market," said Rectanus, who added that Thrive has been paving the way for the rest of the industry, not just in sales but also in housing innovation, energy efficiency, and health. Rectanus gives credit to the third-party verification required on every home by DOE's Zero Energy Ready Home Program. "We believe quality is quantifiable, and we look to third-party certification programs as one way to set and meet our standards."

Thrive has also implemented numerous in-house quality management procedures. Thrive Home Builders created an internal Quality Assurance Department to develop continuous improvement across all departments including construction, purchasing, architecture, warranty and vendor-partner relations. The Department has implemented a quality assurance management program called FTQ360. "This program allows us to document and correct issues during construction, as well as review best practices, through a series of QA checklists at critical stages of construction. All QA checklists are based on manufacturer's installation guidelines and building science best practices compiled through working with industry experts and product manufacturers. It also generates internal reports that help us find trends in vendor performance, identifying areas for future trainings," said Rectanus.

Another vital role for the Quality Assurance Department is developing training sessions for vendors and employees as a new Thrive product is brought to market. "As a DOE Zero Energy Ready Home builder, Thrive Home Builders is unique in the marketplace; we meet the extraordinary levels of excellence and quality specified by



Textured house wrap covers the OSB sheathing over the R-23 insulated walls. The house wrap provides a weather resistant barrier and drainage plane under the stucco, brick veneer, and fiber cement siding.

U.S. Department of Energy guidelines. Thrive consistently introduces cutting edge products and techniques into our homes. We are aware that this continual innovation can be a challenge for our trades and construction staff. To ensure successful implementation of new technology, the QA department works alongside manufacturer representatives and third-party consultants to provide training for our vendors and employees,” said Rectanus.

Thrive Home Builders recently implemented a project management software that allows two-way communication, in real time, between Thrive and its trade partners regarding purchase orders, schedules, changes, issues with installation, etc.

Another important indicator of success for Thrive is customer satisfaction. In each of the last four years, Thrive’s total homebuyer scores in the Colorado region were above the industry average. Thrive measures key customer satisfaction processes using AVID® ratings. A survey is emailed to each homeowner after move-in, at mid-year and at year-end. Customer responses are sent to every Thrive employee for review. Employees are encouraged to add comments in the feedback section of the survey to ensure communication throughout Thrive. The leadership team meets monthly to review AVID surveys. Thrive designed a process for leadership to reach out to customers within 48 hours of closing to address any concerns and solicit customer feedback. Thrive also shares customers’ feedback with trade partners in multiple forums, including a vendor council, vendor appreciation events, and meetings.

In the past four years, Thrive’s customer satisfaction scores have risen: from 79.5 (2016) to 82.2 (2017) to 83.8 (2018) to 88.6 (2019). In addition, Thrive recognizes that referrals from homeowners are a key customer satisfaction indicator. In 2019 Thrive’s “recommend to a friend” customer satisfaction score was above the national industry average of 88.4 with a score of 90.7, according to Rectanus.

Every one of the 87 townhomes at WestRidge will be constructed to the DOE Zero Energy Ready Home requirements, which have helped Thrive earn these high customer satisfaction ratings by providing energy efficient, quiet, comfortable, durable, and healthy homes.

The walls are constructed of 2x6 studs framed at 24 inches on center and incorporating advanced framing details like two-stud corners, right-sized headers and ladder blocking at interior walls to provide more room in the walls for insulation. The walls are packed with 5.5 inches of dense-packed blown fiberglass then sheathed with OSB, wrapped

HOME CERTIFICATIONS

DOE Zero Energy Ready Home Program - 100% commitment

ENERGY STAR Certified Homes Version 3.0

LEED Gold

EPA Indoor airPLUS

DOE Zero Energy Ready Home Quality Management Guidelines



Every DOE Zero Energy Ready Home combines a building science baseline specified by ENERGY STAR Certified Homes with advanced technologies and practices from DOE’s Building America research program.



Efficient ENERGY STAR windows minimize heat loss to keep out summer sun and winter cold.

The slab for the slab-on-grade foundation is wrapped in R-10 of high-density rigid foam both under the slab and at the slab edge. As part of Thrive's radon-resistant construction practices, the insulated slab sits on a 4-inch base of clean gravel topped by a vapor barrier and an active radon mitigation system has been installed.

Redundant air sealing measures include the taped house wrap, gaskets and foam sealing around all penetrations, 2 inches of closed-cell spray foam at all rim joists, foam tape drywall gaskets at all top plates at the attic interface and on the garage-house connection wall, and caulking of all outlets, switches, and light fixture penetrations in drywall at exterior walls and ceilings. With these measures these production townhomes achieved a blower door-tested air tightness of 2.99 air changes per hour at 50 Pascals. Continuous exhaust provides ventilation and exhaust fans provide moisture removal.

The homes are equipped with a 92% efficient gas furnace and SEER 13 air conditioner. All ducts are located within the conditioned space of the home. Ducts are mastic sealed and the duct system has a compact layout to limit duct length and improve distribution efficiency. The central air handler has a MERV 8 filter.

All of the home's LED lighting and the refrigerator, exhaust fans, and dishwasher are ENERGY STAR labeled and plumbing fixtures are EPA WaterSense rated for additional utility savings. The home is prewired for a future electric vehicle.

A 2.56-kW array of solar panels was installed on the roof. The solar panels help to bring down the already low electric bills from \$915 a year to \$452 per year and bring annual savings up to \$1,750 per year compared to a home built to the 2015 IECC. Added costs to build up from the 2015 IECC to the DOE Zero Energy Ready Home criteria were estimated to be \$4,100 per unit.

in corrugated house wrap, and sided with a combination of stucco, brick veneer, and fiber cement siding.

The engineered truss roof is designed to maximize solar photovoltaic potential. It is sheathed in 15/32-inch OSB, covered with a synthetic underlayment and ice-and-water shield at the valleys and roof edges, and topped with 30-year asphalt shingles. The vented attic is insulated with 17 inches (R-50) of blown insulation.

KEY FEATURES

- **Walls:** 2x6 24" o.c., R-23 total: 5" blown fiberglass, 7/16" OSB sheathing, textured house wrap; stucco, brick veneer, and fiber cement siding.
- **Roof:** Truss gable roof, 15/32" OSB, synthetic underlayment, ice and water shield at valleys and roof edges, 30-yr asphalt shingles.
- **Attic:** Vented attic: 17" R-50 blown fiberglass on attic floor.
- **Foundation:** Slab on grade: R-10 sub-slab & perimeter insulation, 4" gravel, vapor barrier, frost-depth walls.
- **Windows:** Double-pane, argon-fill, low-e; vinyl single-hung, fixed, and sliding frames, U=0.3, SHGC=0.3.
- **Air Sealing:** 2.99 ACH 50. Paint-on flashing and foam seal all penetrations; closed-cell spray foam at rim joists; drywall gasket at top plates; caulking at outlets, switches, and light fixture penetrations.
- **Ventilation:** Continuous exhaust, MERV 8 filter on furnace.
- **HVAC:** Gas forced-air furnace on main floor, 92% efficient. 13 SEER AC.
- **Hot Water:** Tankless water heater, smart recirculation pump, .96 EF.
- **Lighting:** 100% LED, daylighting.
- **Appliances:** ENERGY STAR refrigerator, hood/exhaust fan, and dishwasher.
- **Solar:** 2.56-kW rooftop panels.
- **Water Conservation:** EPA WaterSense fixtures. Drip irrigation. Recirc pump.
- **Energy Management System:** Energy monitoring system for PV and energy usage, smart programmable thermostat.
- **Other:** Prewired for future electric vehicle charging station. Certified cabinets, plywood, particleboard. No-VOC paints and finishes.

Photos courtesy of Thrive Home Builders