

Build Design Green Building

Green builders get creative with custom homes: Rocky Mountain Green

Custom homes are an opportunity to test the limits of what green builders can do

□ April 12, 2019 □ Danielle Andrus □ 106 Views □ 2 Comments □ rmg19, rocky mountain green



Custom homes give builders an opportunity to work with the higher costs of high-performance housing. (Photo: Pixabay)

Although they account for just 22% of all housing created in the United States, single-family custom homes are ideal projects to test green building strategies, said Scott Rodwin, founding principal of [Rodwin Architecture](#) and [Skycastle Construction](#) in Boulder.

“They’re an area where we as architects and engineers and designers and builders get to exert a level of control, and our clients get to give us permission to utilize all of our design, engineering and problem-solving skills, in a way that we don’t often get to on other types of projects,” he told attendees at [Rocky Mountain Green](#) in Denver on Thursday.

[Related: [From code minimum to competitive advantage: Rocky Mountain Green](#)]

Because those types of homes are built for wealthier clients, builders don’t have the budget constraints they do on other projects, Rodwin said.

“Green generally costs more. It’s higher performance,” he said.



Colorado Builder

Sign up today to receive your FREE subscription to *Colorado Builder*.

FREE SUBSCRIPTION

Latest Posts

One of the easiest ways to bring clients' expectations for the cost of a green home in line with reality is to make it smaller.

"Most of our clients over the years have wanted more house than they want to pay for," he said. "One of the ways we can get people to be greener right off the bat is to say, 'You can't afford that much house. Let's shrink it by 20%.'"

He highlighted three projects his firm has done that take green building to the extreme.

The Edge House

This project was completed for a family from Germany, where green building is much more entrenched than in the United States. The client was deeply committed to sustainable building and willing to pay whatever it took to build a cutting-edge home.

Many of the features of the home were innovative in the mid-2000s, but are standard now, Rodwin noted. In fact, the home achieved LEED Platinum certification when it was built, but wouldn't have met that standard today, he said.

The home had a Western view so it could only support partial passive solar. Triple-paned double low-E windows helped limit how much the family needed to use the air conditioner.

There's no way to build a net-zero single-family home without a ground source heat pump, Rodwin said. The problem with this project was that every hole they tried to drill filled in with gravel. The firm built a sleeve for the first 100 feet of the scree field, which allowed the driller to reach 250 for the geothermal wells.

The home was powered with 10kW of solar PV. Rodwin said that's roughly what's needed to offset 100% of energy for a home between 3,000 and 5,000 square feet. He noted that Xcel is often "the limiting factor" in how much renewable energy homes can support because "they only allow you to generate 120% of the anticipated energy on your house, and even to get to that, you have to do an energy model on your house; otherwise you have to use their standardized tables."

Rodwin and his team employed central thermal mass to help control internal temperatures. A large skylight, typically discouraged for homes that use passive solar, helped light the center of the home. To control the temperature, the firm used an R-22 window filled with translucent aerogel insulation.

Other green features included:

- An extensive solar thermal system to heat water
- R-38 walls, R-65 roof, R-20 underslab, R-10 foundation and R-30 soffits with a 1-inch extruded polystyrene wrap
- ENERGY STAR appliances
- Compact fluorescent lighting, which was updated to LEDs once CFL fell out of fashion.
- Energy recovery ventilator. "When you seal up a house really tightly, you can build up toxicity inside the house so you have to introduce air mechanically," Rodwin explained. ERVs also help decrease heat loss in the home.
- Hot water recirculation pumps
- Graywater system
- Subsurface irrigation for the 10-by-15 foot lawn

The advantage to custom homes, Rodwin said, "is that we know exactly how the homeowner is going to be using the house. ... We're able to tailor specific solutions" to them.

The Farmhouse

This project was for a family that wanted a "better-than-net-zero energy" house, and wanted to establish permaculture gardens on the property. The home was built in 2015 and achieved LEED Platinum certification.

Pages: [1](#) [2](#)



[Build](#) [Design](#) [Green Building](#)

Green builders get creative with custom homes: Rocky Mountain Green

[April 12, 2019](#) [Danielle Andrus](#) [2](#)

Custom homes are an opportunity to test the limits of what green builders can do.



From code minimum to competitive advantage: Rocky Mountain Green

[April 12, 2019](#) [0](#)



To sell green homes, builders become storytellers: Rocky Mountain Green

[April 11, 2019](#) [0](#)



Colorado recognized as a leader in LEED

[April 10, 2019](#) [0](#)

[← From code minimum to competitive advantage: Rocky Mountain Green](#)

You May Also Like



How phase change materials can impact building efficiency

May 4, 2018 0



From code minimum to competitive advantage: Rocky Mountain Green

April 12, 2019 0



To sell green homes, builders become storytellers: Rocky Mountain Green

April 11, 2019 0

2 thoughts on “Green builders get creative with custom homes: Rocky Mountain Green”



Scott Rodwin
April 12, 2019 at 3:12 pm
[Permalink](#)

Wonderful article. You nailed it.

[Reply](#)



Danielle Andrus **Post author**
April 12, 2019 at 3:45 pm
[Permalink](#)

Thanks for the great session, Scott!

[Reply](#)

Leave a Reply

Your email address will not be published. Required fields are marked *

Comment

Name *

Email *

Website

Post Comment

Digital Magazine



Recent Posts

Green builders get creative with custom homes: Rocky Mountain Green

From code minimum to competitive advantage: Rocky Mountain Green

To sell green homes, builders become storytellers: Rocky Mountain Green

Colorado recognized as a leader in LEED

3 not-so-sci-fi trends in construction tech

Useful Links

[About Us](#)

[Contact Us](#)

[Subscribe](#)

[Community Partners](#)

[Builder Industry Events](#)

[Advertise](#)

[Digital Edition Archive](#)

[Terms and Conditions](#)

