

# NET ZERO ENERGY AND ZERO ENERGY READY HOMES

How garage doors fit in this growing market and what installing dealers need to know



By Dan Ditzler  
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Imagine a futuristic home that produces more energy than it consumes and delivers amazing reprieves from the typical energy utility bill (heating or cooling). Incredibly, the future is here now in the form of net zero energy and Zero Energy Ready Homes. These revolutionary homes meet rigorous requirements that help ensure outstanding levels of energy savings, comfort, health, and durability.

## What is a Zero Energy Ready Home?

To qualify as a Zero Energy Ready Home, its builder must integrate all of the following systems or qualifications: thermal enclosure system, water management system, energy efficient appliances and lighting, an optimum-performance HVAC system, comprehensive air quality, enhanced quality assurance, and a solar-ready design.

Other related standards include the Home Energy Rating system, National Green Building standards, and Energy Star certified homes. To achieve critical performance levels, builders rely on a variety of home technologies, including solar, geothermal, and structural insulating panels, to create a tight, high-functioning building envelope.

## The future is here

Samuel Rashkin, chief architect for DOE Building Technologies Office, said, “Zero Energy Ready Homes are the home of the future because they live, work, and last better with incredibly low or no energy costs. What’s exciting for American homebuyers is that these homes are available today, thanks to leading builders across the country.”

## Advice for dealers from a net zero energy builder

We caught up with one net zero energy builder to gain some insight for installing garage door dealers. Kiere DeGrandchamp runs construction operations for High Performance Homes, a builder who, for the past decade, has focused entirely on net zero energy homes up and down the East Coast. Currently, DeGrandchamp is building net zero energy homes in Pennsylvania and Maryland.

Here’s what he thinks installing dealers should know about net zero energy homes and their garages.



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*-Kiere DeGrandchamp*

## What do the Department of Energy’s programs mean for the building industry as a whole?

Currently, not a lot. There are only five to 10 builders like us in the country, and we are on the leading edge of this shift. The DOE website lists more partners, including architects and consultants. However, a regulatory wave is coming. Within the next 15 years, codes are going to push everyone toward these increasingly attainable standards.

## So, is now the time for garage door installers to get their heads around this trend?

Absolutely. Garage door installers should consider partnering with local builders promoting net zero energy homes, if they aren’t already. In fact, it can be a point

of differentiation, since some of this is being driven by knowledgeable homebuyers.

## What are some of the things they should know on the garage side?

Rolling garage doors are not going to ever be as tight-sealing as solid core doors. Builders can compensate for that by installing interior wall and ceiling insulating panels and by using spray foam as a finishing step.

As far as the doors go, we are not wed to a specific thermal efficiency rating (e.g., U-factor). We use a range of doors and make them work within the overall numbers of each project. The greater challenge with garages is ventilation and air quality because of vehicle exhaust, garden chemicals, and other exposure to outside allergens, etc.

## How do you solve air-quality issues?

We are not allowed to tie ducting from the garage into the main house HVAC system. All our builds include a dedicated garage exhaust fan linked to a motion sensor. When a vehicle enters or leaves, the fan kicks on to ensure carbon monoxide and overall exhaust is vented outside.

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Net Zero Home under construction



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*-Kiere DeGrandchamp*

The fan and motion sensor are tied into the overall smart home controls. Sometimes, we run across buyers who spend a lot of time in their garages. For these customers, we install a separate mini HVAC system for the garage.

### What upgrades are required inside the house to manage air quality?

Because of the tight building envelope of a net zero energy home, we need to address indoor air quality in the entire house. We employ an advanced air filtration system tied to the

HVAC ducting. Typically, it combines HEPA air filtration with photocatalytic oxidation to .0001 microns.

The result is improved indoor air

quality, an improved environment for those with allergies and asthma, and a reduction in the spread of airborne germs. It can even help those with other health issues associated with poor air quality.

### What do you require of the garage door companies you work with?

High Performance Homes is easy to work with in that regard. Most of the door models we use are Amarr, but not exclusively. We have a long relationship with Advantage Garage Door in central Pennsylvania. David Nichol is very mindful of our tight building envelope and the need to seal the garage as much as possible.

In our designs, the garage is part of the house's attic, so we need to prevent air

infiltration in this area. We also need to be able to account for every nut and bolt.

As you know, garage doors and garage door operators require their share of mounting hardware and multiple points mounting. Installers should be prepared to make as few holes as possible, to make them as small as possible, and to tightly seal around the openings created.

### Are there other unique aspects to net zero energy homes that garage door installers should be aware of?

One thing that garage guys are already well-versed in is smart home technology. We use a variety of Z-Wave and Internet-based capabilities to empower the homeowner. These technologies allow them to know what is going on within their homes and to be able to control and adjust accordingly, usually via their smartphones.

Another thing garage door installers should know is that we are often asked to build ADA-compliant homes, and that occasionally carries over to the garage.

For example, the home we designed that was recently honored by the DOE required a cement floor in the garage to be the same level as the entrance into the home. This was so the homeowner could exit his vehicle in a wheelchair and enter his home without using a ramp. That required extra design and engineering to devise.

For homebuyers who want a roomier garage or a multilevel design with an elevator, we have installed jackshaft operators and doors that travel straight up. This configuration is more common in commercial settings.

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**Any thoughts on DASMA moving to a U-factor for garage doors vs. an R-value?**

That really makes no difference for a builder like High Performance Homes.

The U-factor rates the thermal efficiency of the installed garage door, while the R-value rates the thermal efficiency of a garage door section. What's important for us to remember is

that the lower the U-factor, the better the insulating properties.

**What final advice do you have for garage door installers about this important trend in residential building?**

Learn all you can about net zero energy homes so you are prepared for the changes ahead. Encourage the builders you already partner with to investigate net zero energy home construction for themselves.

The regulatory and code changes won't happen overnight, but the benefits for everyone are so significant that market demand may drive them sooner than expected. Fortunately, it won't mean major upheaval for garage door and operator installers, but an understanding of the need for a tight building envelope will keep you on solid footing with builders and homeowners in the coming years. ■

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*-Kiere DeGrandchamp*

*Dan Ditzler is a metro Philadelphia based business-to-business advertising and PR expert with a long history in this industry, representing manufacturers of garage doors, door operators, gate operators, access control systems, radio controls, and related residential building products.*



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