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'HIGH PERFORMANCE' and 'HEALTHY' describe the homes of the future

By Shannon Sigafos, Of The Morning Call

What do you think of when you hear the phrase “custom home”? Usually, most people tend to think of one-of-a-kind, upscale creations that come with luxury upgrades and unique architectural elements. They think of a house that is specially designed to meet the specifications of the homeowners who commissioned it. One where plans are drawn up and nobody is ever going to have the exact same home as you.

All of this is true. But in addition to flexibility, buyers can also typically choose their preferred location for their new home, giving the builders a chance to work with the landscape to incorporate environmental elements as much as possible.

It's when nature comes into play that builders can start turning a custom home into a high performance or healthy home — and this is where studio26 homes excels.

As a true single-source design firm, the Orefield-based company has all of their designers and architects under one roof and on one team, ensuring they're able to avoid the disconnect that can potentially happen when your home builders aren't all working for the same business. In their case, you're dealing directly with the people who are going to top-to-bottom customize the place where you're going to live your life.

“It's important to know what you're going to build and how you're going to build it,” says Brian Baker, studio26's director of marketing and design, who runs the business along with his brother, director of operations Scott Baker, and father, company president James Baker. “We're from the Valley. We grew up here and in the community. When we build something, we want to make sure that we do a good job because we live here, too.”

So how did studio26 homes move into building “high performance” and “healthy” homes — and what, exactly, puts a home into those categories, anyway?

James Baker's background in material science, Scott's background in lumber and Brian's background in architecture combined for the family to realize that energy efficiency and healthy buildings were an emerging market — not just locally, but nationally. They aligned themselves with experts and got involved with a building science consulting firm that was connected to the U.S. Department of Energy's Building America program, which has been a source of innovations in residential building energy performance for 20 years.

“We quickly became educated on building science. We then took all of that knowledge and continued to work with them, and now all of those things we learned through that process has become our standard in how we build,” says Brian. “We were fortunate to have them believe that we could develop this type of construction.”

If a studio26 client wants a high performance home, then the goal for the company is to get that house as close as they can to being a net-zero energy property. Net-zero means that the home generates as much energy as it consumes over the course of a year, typically from on-site renewable energy generation. A healthy home, then, is built by implementing healthy design elements — choosing low-toxic building materials and constructed with an emphasis on resistance to water penetration and humidity control.



Photos courtesy of studio26 homes



Above left: Studio26 designed a plan to increase the connectivity and opening between adjacent rooms while still enhancing the overall functionality of the kitchen.

Above right: This minimalist design plays on the juxtaposition of “intersecting circulation spaces (glass) cutting through solids and planes — a typological abstraction of local stone-end barns and the intervention of modern life.”

At left: The client for this lakefront Craftsman home was seeking comfort with an upscale feel, as well as a sustainable conscious home that incorporates a high level of energy-efficient and healthy home features.

PERFORMANCE

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There are people who contact studio26 for home design and don't know exactly how the building process will go — or that a more energy-efficient, healthier home is even an option. To that end, Brian explains how once you contact the company, the design process begins in one of three ways.

“The least common is if somebody already has a design and they bring it to us, and we build it. They bring us a finished set of plans and we can build that house. There's one or two of those homes on our website and that can happen,” he says. “The second way is for us to completely design from scratch. That would be where we get to know the clients early in the phases of ideas, so we can understand how their family lives and what features are important to them in a home. The third way is a hybrid approach to get from point A to point B, and to work with a plan that they may have already found.”

Brian points out that by the

time people contact a builder, they have already been dreaming — and that with all of the resources and floor plans available online, there have to be one or two that catch their eye. If studio26 can start from a floor plan and buy the computer-aided design of the plan, they can modify it and customize it to the homeowner's specifications.

“When you come to the conclusion that you're going to build a custom home, you've already exhausted other options in the market. You're in a fortunate position to be able to do that,” Brian explains. “We want to make sure that we deliver a home that is beautiful and that the process is enjoyable the whole way through. Architecture is imperfect. Things come up and you have to work through it collaboratively.”

Once studio26 knows how they're proceeding, they overlay their specifications in how they build a home so that they can bring it up to high performance building standards. This happens as they seal out air, insulate, and work with materials that define best practices. Even if they're

working with a pre-existing plan, they can blend the two together.

From that point, there are several different levels of “high performance.” One is a completely custom home, where every nook and cranny is maximized and everything from roof overhangs to wall thickness to how the sun traverses over the site are considered. Other homeowners may balance between cost and energy performance and that's where studio26 will overlay their best practices with an existing floor plan. The inside of the home is then where you get more customization in terms of energy efficiency, even if the outside of the home isn't one of a kind.

“If somebody really wants high performance, we're going to be looking at every aspect we can. Even if this house is not going to be a net-zero energy house, that'd be as close to the top of the spectrum as we can get. And you'll start to hear more about ‘net zero energy’ in the future. To do that, you need to set the foundation correct. The foundational principle is to create a terrific passive-design

house,” says Brian. “That means that the passive house is basically a home that is designed where you create a box, and the box you live in is very well-insulated and very airtight.”

To put it in layman's terms, a home where the HVAC, water heating and humidity control are all using a lot of energy to run the home is considered an active home. Passive design is design that causes that energy use to decrease — which saves homeowners money in the long run. The minimum insulation value (measured in what is known in the field as “R Value”) goes up for a passive home, as well, and clients can go as far as getting triple-paned windows to ensure they're not having air leaks around the home. A fully passive home generally means that your home has thick walls, is well insulated, well framed, and uses geothermal energy to heat and cool the home.

The more care that is taken to insulate a home, the better the framing has to be — and studio26 can add insulation in areas normally overlooked, such as the corners of the house, around

window and doors and around the room joist of the home. Normally, a homeowner can put a blower on the door of a home to see how much air is coming in from leaks in crevices and cracks. A well-insulated home is particularly important during the winter months, when it is most at risk for exposure.

“There are different ways to build a house, and based on the client's needs and desires and how much high performance they want or are hoping for, we can help build a home to meet those needs. Not any one of them is necessarily wrong,” says Brian. “We want to minimize any unintended consequences and deliver high energy efficiency. Another piece of the puzzle is a healthy home, even though it's harder to quantify. We can measure energy, but how do you measure a healthy home?”

Typically, studio26 uses best practices to pull the fresh air in, keep the stale air out, and keep that fresh air clean. The air is conditioned through an Energy Recovery Ventilator (ERV), which allows fresh air into a building while retaining pre-

conditioned heating or cooling. For homeowners with allergies, cleaners can be added to the air as it goes into the ERV return and is distributed into the home. The whole house is then being flushed with energy-efficient and clean, fresh air.

Deciding to build a custom home — particularly one that meets the highest standards of energy efficiency and health — is an involved process. In the grand scheme of things, however, these homes are smarter for the environment and a great long-term investment. Studio26 is there to aid you in understanding your different choices and how they could all come together.

“Sometimes people build a home with us because they like the way we build and they like who we are. You're going to be working with us for at least a year. We're sitting at a table with our clients, but we're not on opposite sides of the table,” Brian says. “We're on the same side of the table. We're their advocate in the field. We're not building our house. We're building their house.”