

The Power of Building houses and community



A neighborhood rises. Drawing on the narrow lots, front porches, and sidewalked streets of early 1900s urban streetscapes, the town plan is intended to foster community interaction.

The 2019 *Fine Homebuilding House* is part of a planned New Urbanism community outside Louisville, Kentucky, called Norton Commons. A central theme of the three previous *FHB Houses* was the high-performance details that help them achieve net-zero energy. With the Kentucky house, we'll be focused on the importance of design—both the urban

planning of the Norton Commons development and the design choices for the house.

An antidote to sprawl

In the early 1990s, a Louisville family was looking to sell 600 acres of land that had been an educational farm. Concerned about the farm's progressive legacy, they were particular about potential buyers. They wanted

a better development model than the sprawl of repetitive houses on dead-end streets far removed from retail spaces, which, by zoning custom, were plopped together like an asphalt island miles from the residential areas.

The landowners ended up partnering with a pair of developers enamored with New Urbanism, a design movement that combats urban sprawl by breaking down typical

Good Design

with New Urbanism

BY JASON BLACK



FOLLOW THE BUILD IN THREE PARTS

- Planning & Framing
- Envelope & Mechanicals
- Design & Reveal

In this three-part series, we explore the design and construction of a traditionally styled house in Kentucky. This installment recounts the neighborhood's impact on the design and the home's production framing.

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segregated zoning for residential and commercial spaces and creating walkable communities (see sidebar, p. 66). The developers were committed to bringing Andrés Duany on board to create the town plan. About 15 years earlier, Duany's firm, Duany Plater-Zyberk, had introduced New Urbanism ideas to Seaside, Florida. Also called a Traditional Neighborhood Development, Seaside

struck a chord with people for the quality and human scale of its architecture.

Creating engagement

One of Duany's principles that particularly struck the Norton Commons developers was the idea that design shapes behavior. We see this in the way the master plan seeks to build community by creating opportunities

and places for natural interactions between people. The community incorporates mixed-used development with different types, sizes, and price points of residential housing, and adds business, retail, restaurant, and community spaces—including a post office, schools, churches, and a YMCA—on the same blocks as residential space. By densely developing the area and including the resources that

WHAT IS NEW URBANISM?

The goal of New Urbanism is to create developments with a higher quality of life for residents. Guiding principles include:

Walkable/pedestrian centric

- Most locations within a 10-minute walk
- Sidewalks on both sides
- Buildings close to street

Mixed use

- Shops, offices, apartments and homes

Diverse housing

- Mixed use within neighborhoods, blocks, and buildings
- Housing of different sizes for different ages and income levels

Good design

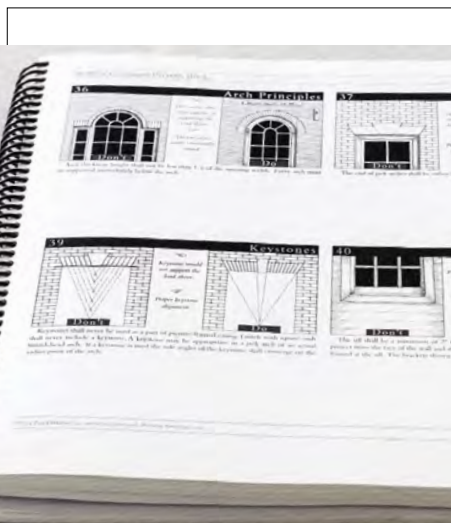
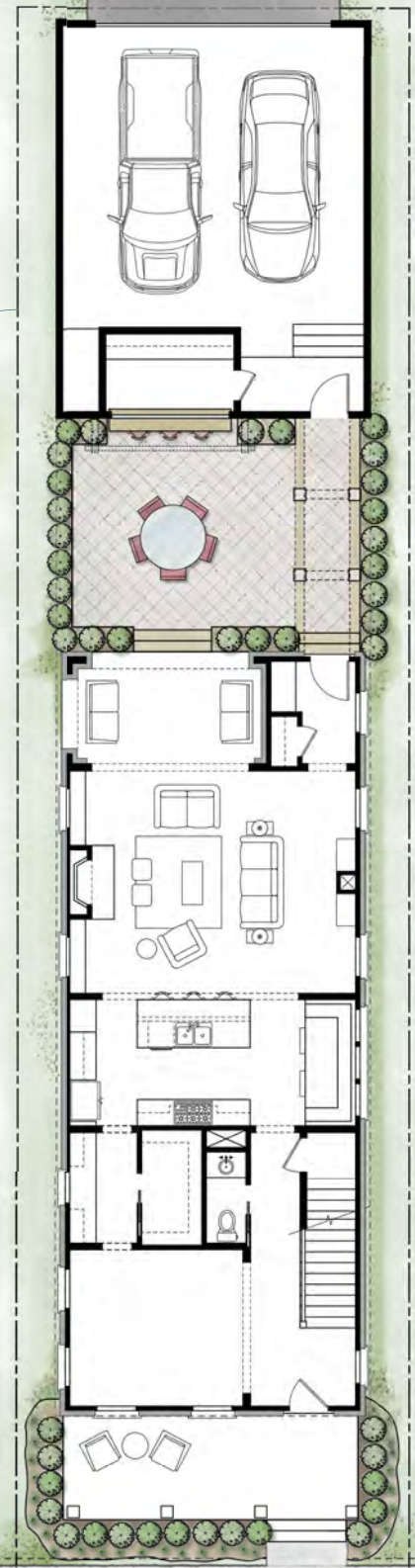
- Emphasis on beauty, aesthetics, and human scale

Traditional neighborhood

- A defined middle and edge with public space at the center

Increased density

- Buildings, residences, shops, and services close together



A COMMON ARCHITECTURAL DESIGN LANGUAGE

One reason that the houses in Norton Commons strike a chord is that they look good. They fit in with their surroundings and appeal to the eye. Builders in the town must be approved—once they are, they receive a 90-page pattern book that serves as a design bible for the development. Much like Marianne Cusato's *Get Your House Right*, the book delivers graphic design guidelines in an easy-to-understand right/wrong format.

Deeply comfortable

Consistent ground temperature below the frost line is used to narrow the temperature differential that the heat pump must overcome.



sustain those who live there, all daily actions take place within the community. There is no need to leave the neighborhood in the morning and return at the end of the day. My experience bears this out: I have lived in several houses in Norton Commons over 11 years; my company, Artisan Signature Homes, has an office here; my wife, Gretchen Black, has her interior design office here; my kids have gone to school in town; and our favorite restaurant is down the street.

This mix of commercial, retail, and residential space is only one part of New Urbanism community creation. The development is laid out so that no home is more than a 10-minute walk from one of the town centers. With necessities and recreation so close by, people leave their cars at home. The primacy of the pedestrian is reinforced by sidewalks on both sides of the street, and by the fact that cars are shunted to the back of the properties—garages are in the rear and accessed by alleyways. Wide front porches draw people out from behind their front doors and create moments of interaction with neighbors. As a homeowner in Norton Commons, I've been struck by the number of clubs and activity groups. I think it points to the success of the master plan in creating a sense of community: People find themselves face to face often, and this familiarity makes them comfortable beginning a conversation or offering a hand.

The house lots in Norton Commons are extremely tight—without good urban planning, the lack of even a moderately sized lawn might be a liability. But in this environment with lots of nearby, easily accessible parks and green spaces, the neighborhood streetscapes are broken up. These communal areas foster additional human interaction. Of the 600-acre town plot, 150 acres are devoted to open space, including a small park just a few lots from the *FHB* House.

Building in a planned community

The lot on which we are building the *FHB* House is a hair under 37 ft. wide. With our 3-ft. setbacks, there are only 6 ft. to the

houses on either side. In such close quarters, the success of the design hinges on the creation of private and inviting indoor and outdoor spaces. For this house, Gretchen Black—our designer—and I use the garage in the rear of the lot to create a courtyard space that connects to the great room and includes an outdoor bar integrated with the garage. Done properly (as we believe this one is), our small, 674-sq.-ft. backyard will feel more private than the ½-acre lots we've seen developed in other neighborhoods.

The town plan addresses the issue of mechanical noise from neighboring houses. During the first phase of development, Norton Commons allowed central-air-conditioning systems and had designated active and passive sides for each lot to determine where condensing units could be installed. Corner and interior lots led to problematic placements, and compressor noise was still an issue. As a remedy, all of the buildings—residential and commercial—in the town's North Village, where our house is being built, must have ground-source heat pumps (see sidebar, right).

As a builder of spec houses, we appreciate working in a master-planned community because it ensures a high design standard and home buyers consider the neighborhood desirable. The flip side of the high design benchmark is that our choices must all be approved by the town architect. This extends beyond simply exterior colors and finishes: The architect has the final say on the massing, volume, and even ceiling heights of all the houses.

Maximizing a small footprint

To create the sort of living space we want in a house only 30 ft. wide, we have to finish the basement—and its rooms must be pleasant spaces. They shouldn't feel like an afterthought. We start with a full 9-ft.-high finished ceiling. Our lot—and indeed the whole village—is dead flat, so a walkout basement is not option. The required egress, a window well, is an opportunity to bring natural light into the basement bedroom

Ground-source heat pumps

The most common residential "geothermal" system we see in the United States is a ground-source heat pump. A heat pump can transfer heat in both directions to either warm or cool a space. This closed-loop ground-source system pumps glycol through a buried loop to transfer heat between the earth (below the frost line) and the conditioned house. The fairly constant ground temperature (around 60°F in this part of Kentucky) is ideal for heating and cooling because the difference in temperature isn't enormous. The operating coefficient of performance is likely to be in the 4 to 5 range instead of the real-world COP of 3 that you might see with a minisplit system.

This level of performance—and silence—comes at a price. This house relies on two 350-ft. vertical wells. Because this type of heating/cooling system is required of all buildings, the developer contracts for all of the wells on a block before it comes into development and then charges the builder \$7000 per lot. The mechanical equipment costs about \$15,000 more than the 93%-efficiency gas-fired furnace systems we typically see installed in new homes outside of Norton Commons.

with an en suite bathroom. The adjacent space, which has no natural light, will be finished as a media room with a bar.

For the above-grade stories, the town plan dictates that the first-floor ceilings be a minimum of 10 ft. high and the second-level ceilings be 9 ft. Customers appreciate the height, a hallmark design element of classic turn-of-the-20th-century homes in the most popular neighborhoods in the Louisville city limits.

While we embrace the ceiling heights and architectural moldings of that era, we also incorporate open living spaces that wouldn't be part of that time period. These considerations drive some of our framing choices. Especially because of their height, we have found it's well worth the added expense to frame kitchen walls with engineered studs. The finished walls are dead flat and plumb, which makes a world of difference for the cabinet and counter installers. On this project we specified Weyerhaeuser Trus Joist TimberStrand studs. We also used their TJIs for the floor system, as they're dimensionally stable and handle long spans. To satisfy our clients, the floors need to be quiet and stiff. On top the Weyerhaeuser TJIs we use AdvanTech subfloor adhered with their proprietary polyurethane subfloor adhesive for long-term silent performance. The crew also screws the subfloor to the joists.

We're attuned to homeowner comfort because no matter what amenities we provide, our clients won't be happy if there are cold or drafty spots. We began using Zip System sheathing and tape when it first came out because it creates a very tight envelope. Some might consider our wall framing old school, but the 2x4 exterior walls meet our local codes. Now that Zip System's R-sheathing is available in our market, we've adopted it to beef up the insulation in a 2x4 wall—and because it provides continuous insulation on the exterior, reducing thermal bridging and ensuring more even interior temperatures. Plus, unlike fastening foam over the sheathing, which is another step added to the build, R-sheathing has foam already adhered. □

Jason Black is a founder and owner of Artisan Signature Homes in Louisville, Ky. He has weekly updates of the build on his YouTube channel, Building a Better South. Photos by Tim Furlong Jr.



PRODUCT KNOWLEDGE

Weyerhaeuser TJI

- Strong, stable, and lightweight
- Long spans for open floor plans
- Easily cut for plumbing and ductwork



PRODUCT KNOWLEDGE

Simpson Strong-Tie

- Quik Drive system for fast, accurate, standing subfloor fastening
- Self-feeding screw-drive systems and fasteners for a variety of repetitive fastening scenarios
- Structural connectors for safer, stronger framing





PRODUCT KNOWLEDGE

AdvanTech

- High-density panel for stiffness and fastener-holding ability
- Moisture-resistant resins prevent edge swelling
- Polyurethane AdvanTech Subfloor Adhesive backed by a squeak-free guarantee



PRODUCT KNOWLEDGE

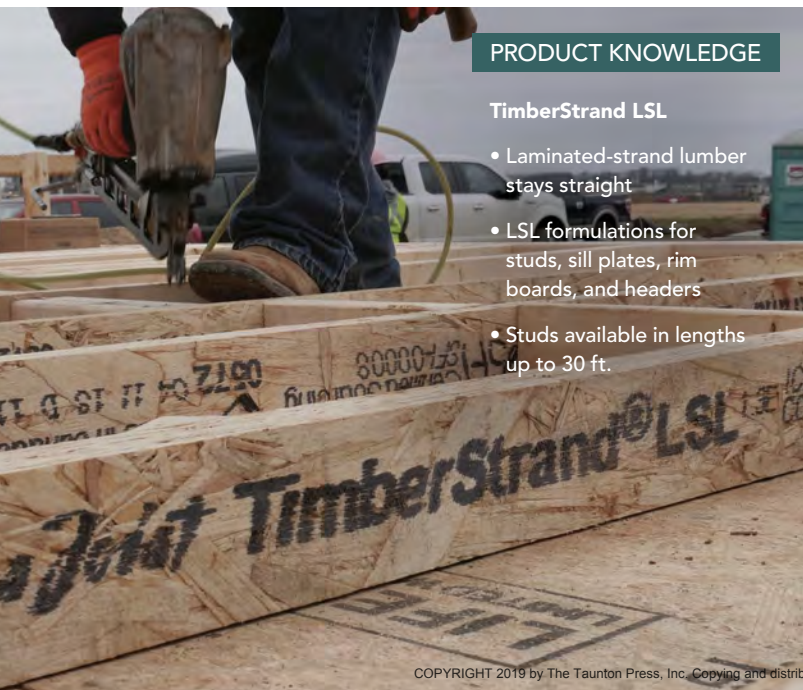
Zip System R-sheathing

- Continuous insulation
- Installed in one step with sheathing
- Liquid-applied flashing and tape options



PRODUCTION FRAMING

The house is framed quickly by a production-framing crew. The material choices are driven by cost, ease of installation, and their contribution to a durable, tight building envelope.



PRODUCT KNOWLEDGE

TimberStrand LSL

- Laminated-strand lumber stays straight
- LSL formulations for studs, sill plates, rim boards, and headers
- Studs available in lengths up to 30 ft.

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