

a greener grandiosity



With sustainable design and green construction, we can build smart, live large and decrease our energy bills and maintenance costs—all while reducing our impact on the environment. Perhaps that sounds grandiose, but for one Chattanooga developer, grandiosity is in the architectural design, building materials and construction methods. In fact, for Christian Rushing, living large is about enlarging your vision of living space, not enlarging the space in which you live.

As the architect and developer, Mr. Rushing is responsible for what will be Chattanooga's first three LEED certified homes. The homes are part of a six house development on Madison Street in Jefferson Heights, and LEED (Leadership in Energy and Environmental Design) is the third-party verification program that will certify these homes as high performance green buildings. The aptly named Madison Moderns were recently awarded Green Development of the Year by the Tennessee Chapter of the American Planning Association, and one of the homes has already sold—to Mr. Rushing that is.

good.



Mr. Rushing moved into his new home in November. Having been involved in Chattanooga's urban renaissance for nearly a decade, he had always wanted to build his own home using state of the art sustainable design and construction methods. And his vision for the Madison Street properties date back to a design he concocted as an urban planner 10 years before. So

when Chattanooga Neighborhood Enterprises released a request for proposal on the Madison Street lots two years ago, Mr. Rushing saw it as not only an opportunity to build his dream home, but also as an opportunity "to go beyond environmental cosmetics and do something that would raise the green bar downtown." Construction began this summer and has recently drawn to completion, situating the Madison Moderns as the finest homes on the market in 2009.

Among the Madison Moderns, Mr. Rushing's home features a unique architectural design, and the exterior mix of aluminum, fiber-cement and larch cladding help his sustainable urban dwelling stand out as an innovative 21st Century structure. Each of the Madison Moderns is adorned by a butterfly roof front that counter-balances the shed roof design. The homes' distinctive look, Mr. Rushing explains, is inspired by the industrial heritage of the Southside. Additionally, the inset, two-story porches are a defining characteristic within the neighborhood.

"The important thing to me is that the homes needed to respect the neighborhood in general. You can pretend not to see the industrial buildings, or you can choose to embrace them. I wanted to embrace it all from a residential standpoint, pick the characteristics that were most recognizable and create my interpretation of that," Mr. Rushing explains.

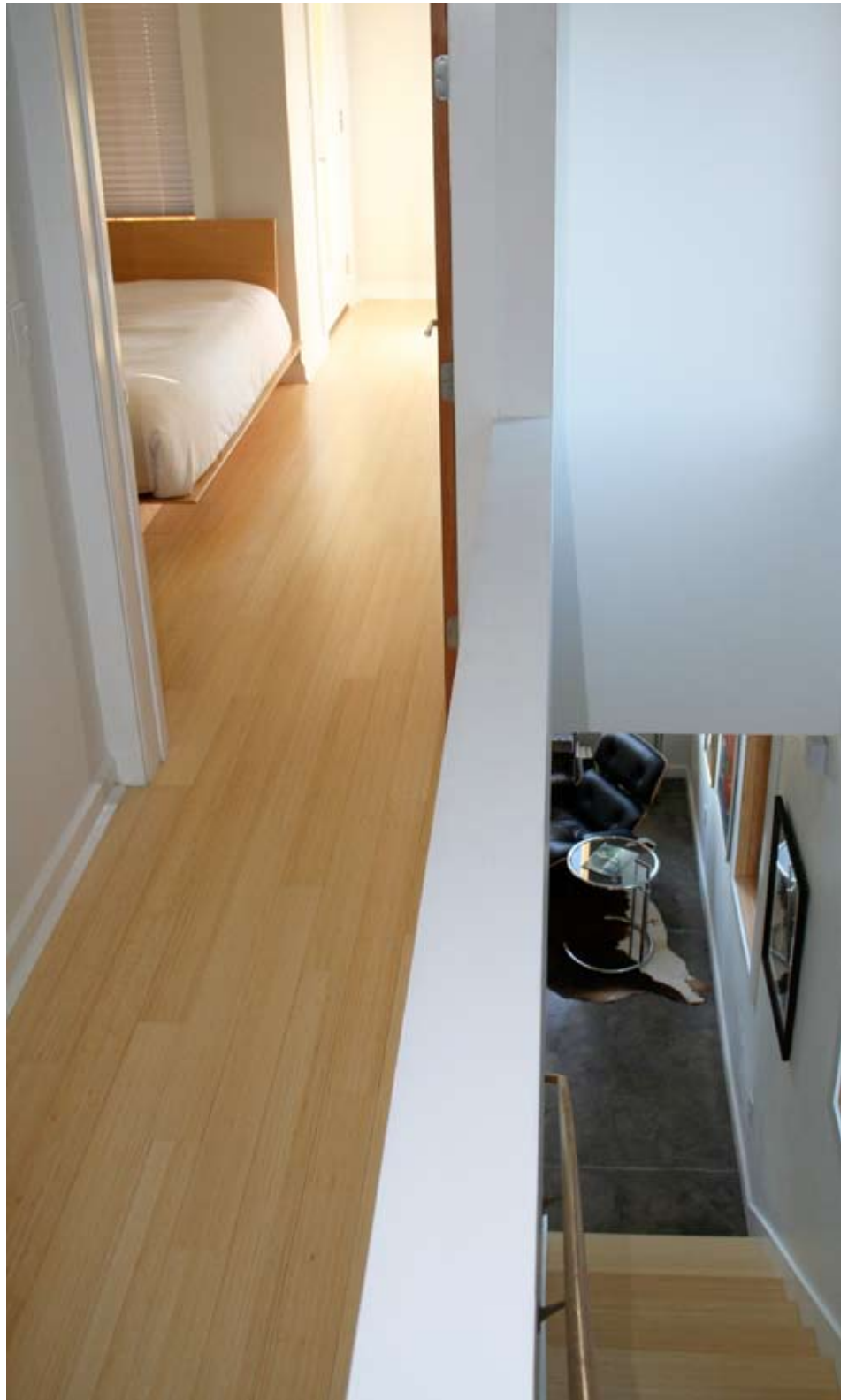
While his home's exterior design pushes innovative urban chic, its

good.

interior design is built out to accommodate the modern family's lifestyle. Mr. Rushing explains that traditional enclosed rooms are the result of precedent, not functionality. Mr. Rushing's home, on the other hand, opens into an elongated space that incorporates the living room, kitchen and dining room. The space draws on his family's propensity to spend their time cooking. The kitchen, dining room and living area remain uninterrupted by walls, and because these areas flow into one another, the Rushings can host large groups of people.

"How about the concept that people can be in the kitchen, living room and dining room and still have a conversation? You are not separated from somebody by walls," he says. "But it is not necessarily practical to have one living level because people need to have a psychological difference between spaces." So with his home, spaces are differentiated by shelves, countertops, a step up into the kitchen, and even lighting. The living room, for example, has taller ceilings, and the dining room features more windows.

Spaces are also distinguished by flooring materials. Polished concrete floors in the living room give way to bamboo steps leading into the kitchen's stylish cork floor. And the materials are as green as they are aesthetic. The concrete floors and countertops were locally manufactured, reducing embedded carbon caused by transportation. Cork and bamboo are rapidly renewable re-



good.



sources, much like the Siberian larch exterior. And the exterior's Zap-pone aluminum panels and hardi siding are also highly sustainable products—made from recyclable materials, highly durable, and in the case of the aluminum, easily recyclable.

But it's because of style and substance that the Madison Moderns are the first of their kind. From passive solar heating and daylighting to pervious paving materials

for the driveway, these homes were designed with energy efficiency and sustainability as the guiding principles. And from specification of locally manufactured materials to the advanced framing techniques used, these homes are a model of green construction—or as the builder clarifies, “a whole-systems approach to design and construction.”

“A whole systems approach means that we are building a better performing home—a home that consumes less energy and water; a home that resists rot, mold, mildew, termite damage; a home that stands up against the elements and lasts twice as long as a home built with traditional methods,” says Ethan Collier.

Collier Construction not only used advanced framing to reduce energy loss through the home's walls, the company also insulated the crawl space and attic to move temperature differential to the exterior of the home, thus preventing mold, mildew, bugs and rot. Also, the sealed air barrier and the rain screen siding system help stop both air and moisture from penetrating the home's shell. “Green construction gives us a home that has a significantly lesser impact on the environment,” Mr. Collier explains.

Mr. Collier goes on to say that “by using green construction methods, we can build higher quality homes with reduced energy and maintenance costs.” And Mr. Rushing maintains that a green home does not cost more to build. It simply requires better decisions and a smarter skill set. If anything, homebuyers should factor reduced energy and maintenance costs into their monthly mortgage as well as their view of long term value.

Mr. Rushing's home truly is grand. While 1,500 square feet may seem modest, Mr. Rushing's 3 bed 2 ½ bath home feels much larger. Mr. Rushing boasts, “I designed a 1,500 square foot house that, to me, feels bigger than the 1,800 square foot house I used to live in.” And though his home may feel big, its environmental footprint will remain remarkably small.

good.

framing green construction

Ethan Collier



Imagine if by changing the way we build, we could divert vast quantities of lumber from landfills, lessen needless deforestation, reduce the amount of harmful CO2 emissions in the atmosphere, decrease the demand for mined materials such as copper and lead, and lower the amount of traffic on our highways. With green construction, we can. Simple adjustments in the way we frame houses can amount to a positive impact on our environment. That is, if all builders apply advanced framing techniques to building new homes.

Really, advanced framing is not only eco-friendly, it is builder-friendly. In fact, before it was green, it was smart. In the 1970s, the National Association of Home Builders developed optimum value engineering, now referred to as advanced framing, as a method for home builders to save money on labor and materials. The NAHB's innovative technique resulted in a method that reduces building costs by more than 12% and saves homeowners on annual energy costs.

Truth is, advanced framing is no more than a common sense solution to a simple problem—too much lumber, too little insulation. For years, we have framed houses the same way, even though the cost of building materials has continued to rise and building code changed to mandate insulation. Even as building materials improved, our framing techniques remained uninventive. However, advanced framing improves energy and material efficiency as it reduces the use of lumber and increases the use of insulation.

The guiding principle of advanced framing is to use only the optimum amount of lumber necessary for building a home. In wood framed houses, lumber serves as a thermal bridge by which heat is transferred from one side of the wall to the other. In this case, heat is transferred by the process of conduction, a process that intensifies a home's energy consumption. The purpose of advanced framing is to reduce thermal bridging and thereby reduce energy consumption. Using advanced framing, we decrease the total square

good.



2x4 conventional framing

- > One wall 10' x 10' has 100 Sq Ft
- > 23% of wall is made up of framing material with an R-3.5
- > 77% of wall has R-13 insulation
- > The total R Value of the wall is R-11

2x6 advanced framing

- > One wall 10' x 10' has 100 Sq Ft
- > 12% of wall is made up of framing material with an R-5.5
- > 87% of wall has R-19 insulation
- > 100% of wall has R-4 sheathing
- > The total R Value of the wall is R-21

footage of framing in a wall by 54%. In the place of unnecessary lumber is insulation, which further reinforces the wall's thermal capacity. The attractiveness of advanced framing is that it simultaneously decreases thermal bridging and allows for a greater amount of insulation.

While this sounds simple enough, the science of advanced framing involves crunching numbers—particularly the R-value, or thermal resistance, of the various materials that make up a wall. R-value is important because it is the measure of a given material's resistance to heat flow, and the higher a material's R-value, the higher its resistance to energy loss. The total R-value of a conventionally framed

wall is R-11 while an advanced framed wall receives an R-value of 21, a significant difference.

The question remains, does advanced framing compromise the structural integrity of a home and violate building code? The simple answer is that advanced framing is supported by building code. In fact, code officials have been receptive to the changes. Advanced framing is a proven method that has received the approval of engineers and is encouraged by organizations including NAHB, EarthCraft and USGBC.

The biggest challenge in adopting advanced framing is changing our collective mindset. Advanced framing does not mean we change what we do; it means we change

how we do it. And it only takes one workshop. In fact, I was 1,300 miles from home when I first learned about advanced framing. I phoned my superintendents and had them stall the construction of a home until I got back in town. We went on to use advanced framing on that home, and we have never looked back.