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FALL 2018

BEST IN AMERICAN

REDEFINING HOME AND COMMUNITY

CRAFTING CONNECTION

2017 Community of the Year Oakdale at Mordecai

BUILDING ON HISTORY

HIGH PERFORMANCE, HIGH VALUE

MEDITERRANEAN DESIGN

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ON THE COVER:
This watercolor painting by Margot DeBarmore of the vision of Oakdale at Mordecai in Raleigh, North Carolina, was used to market the neighborhood during pre-construction. It serves as a testament to the developer's extensive advance planning, which was the 2017 Community of the Year.

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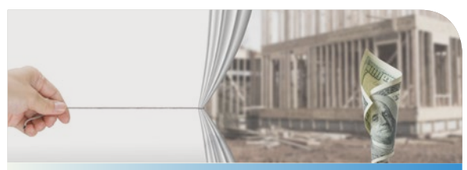

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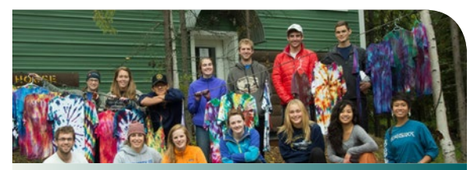

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Published by
NAHB
National Association of Home Builders

EDITOR-IN-CHIEF
Debbie Bassert

ASSISTANT EDITOR
Alexandra Isham

CONTENT EDITORS
Jacyln Toole
Paul Emrath

CONTENT COORDINATOR
Linda Wade

REPRINTS AND BUDGETING
Debra Lesesne

SPONSORSHIP/AD SALES
Don Berey

MANAGING EDITOR
Pat Curry

GRAPHIC DESIGN
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ISSN (2325-9302)

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Building on HISTORY

By William Sanderson, GMB, CGP

ALL IMAGES COURTESY OF WILLIAM SANDERSON

Preservation requirements create challenges—and opportunities—for an urban infill project

As the popularity of urban neighborhoods continues to expand, it has become more difficult to find well-located, larger infill parcels. Because of successful preservation, the Ohio City neighborhood in Cleveland, Ohio, has become "Hot in Cleveland". Ohio City's legacy of historic homes and buildings simultaneously drives desirability and challenges the creativity of builders who choose to build in this authentic neighborhood.

A significant portion of Ohio City is designated as an historic area. Because of this designation, many structures cannot be demolished, even when in poor condition. Many of the homes are

The Greenbrier House, before and after. Preservation and renovation of this important home set the stage for the reimagining of Greenbrier Mews. The Greek Revival elements added around 1900 are not original but are historically significant.

very large and expensive to acquire and renovate, or small and not well-suited to modern lifestyles. Buyer demand for new homes in Ohio City, coupled with the desire of the neighborhood and the Community Development Corporation (CDC) to clean up an eyesore, motivated the development of Greenbrier Mews.

A DYNAMIC, HISTORIC NEIGHBORHOOD

The site is located just blocks from Cleveland's oldest continuously operating municipally owned market, West Side Market. Named one of the 10 Great Public Places in America by the American Planning Association, West Side Market celebrated its centennial in 2012.

Concerted efforts by the CDC have kept the neighborhood economically and racially diverse. Most of the nearby retail space has been reborn as unique local businesses owned by young entrepreneurs returning to the city.

Because of its proximity to the market, Ohio City is nationally known for its leadership in the shop-local/eat-local movement. All this combines to make the neighborhood a dynamic and interesting place to live for residents of all ages and incomes.

This site included an historic, vacant, single home; an historic double; a "worker's cottage" (iconic Rust Belt home located on the rear of a lot, fronting the alley); and a ruined commercial garage being utilized as a smokehouse by a West Side Market vendor. There were two vacant lots where homes once stood. Fortuitously, these properties were all owned by a single owner who was relocating his sausage business to a new facility.

The block of property was bordered by two streets, an alley, a privately owned duplex, and a renovated commercial building that formerly housed a carpet cleaning company. A feature of this building was a carpet drying tower affectionately referred to as the "Green Kitty," which stood 65 feet over the east property line (as opposed to Boston Fenway Park's "Green Monster" left-field wall).

A CHANGE OF PLANS

Due to the historic designation, the first step was to consult neighborhood historians and the Cleveland Landmarks Commission. While meeting onsite, it was agreed that the smokehouse was not historic and that the three 100-plus-year-old homes were significant but in an advanced state of deterioration and had lost many of their historic features because of modifications. With this in mind, a site plan and homes were designed incorporating fee-simple townhome structures. The site plan also featured a courtyard that would maintain a few existing trees.

Several concept plans were presented in work sessions with neighbors; their feedback was incorporated into the final design. A preliminary presentation was made to the Ohio City Design Review Committee, and although some members preferred preservation to demolition of the structures, a presentation to Cleveland Landmarks was scheduled.

At this meeting, a complication came to light. Extensive research by Landmarks staff determined that the small home on the corner of the site is the second oldest home in Ohio City. It had originally been owned by a man named Greenbrier. Mr. Greenbrier was the first person of color to reside in Ohio City, and the home was likely a stop on the Underground Railroad. With the possibility of demolition eliminated, it was back to the drawing board.

Top: The "Green Kitty," the historic duplex, and Greenbrier House, pre-development

Bottom: The Greenbrier House required extensive structural renovation.

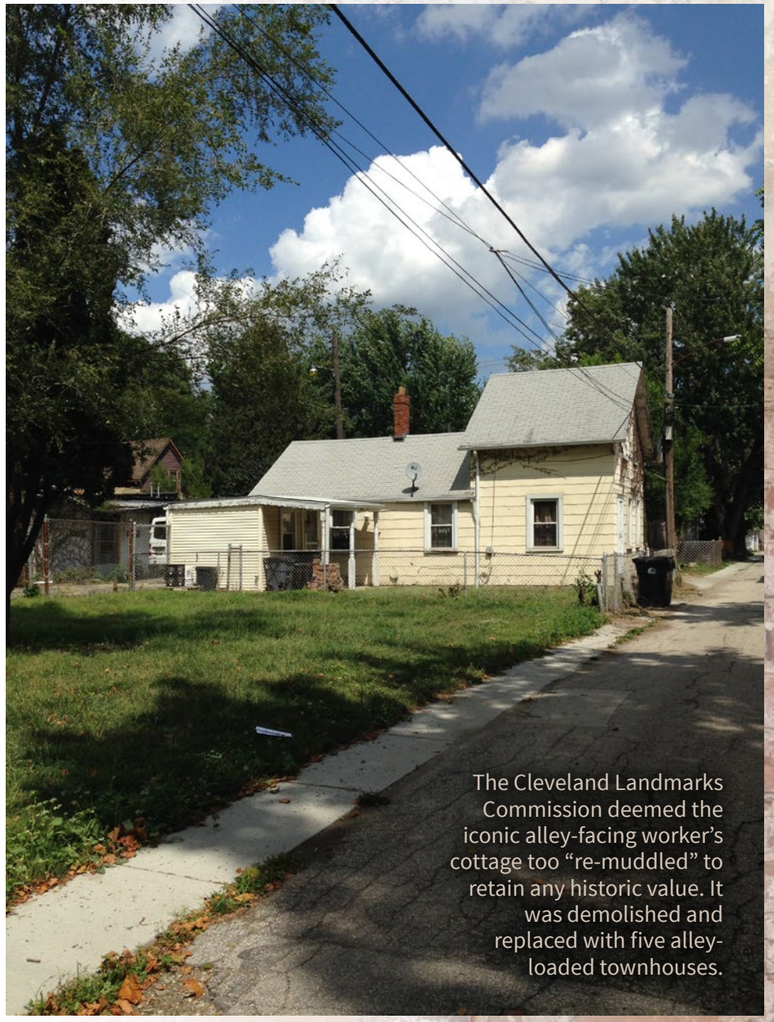
CRAFTING A COMPROMISE

Unfortunately, the Greenbrier home occupied a significant portion of desirable street frontage. Preserving this home would cost land, result in lower density, and challenge the economics of the development; historic renovation is time-consuming and expensive. Sometimes, though, challenging circumstances result in an approach with a better outcome. This can be said of Greenbrier Mews.

Working with stakeholders, a plan was devised to manage the historic structures. It was agreed that the worker's cottage was not viable and that the smokehouse would be demolished. Although in poor condition, the Greenbrier Home would be restored. The two-family home would remain, but not be subject to historic renovation standards. The site was reconfigured, maintaining the historic buildings. These historic properties were sold to a renovator at favorable terms.

In Cleveland's historic districts, garages must be rear/alley loaded, further complicating the site plan and design of product. It was determined that a detached townhome (Bridge House) that mimics neighboring single-family architecture would fit between the historic homes. The best ingress/egress skirted the Greenbrier Home lot.

Rear-loaded townhomes facing the interior efficiently utilized the



The Cleveland Landmarks Commission deemed the iconic alley-facing worker's cottage too "re-muddled" to retain any historic value. It was demolished and replaced with five alley-loaded townhouses.

Above: Italianate architecture informed the ADU on the left. The building on the right is a five-unit townhouse. It faces the interior of the development and features alley-loaded garages.

Left: The Bridge House was designed as a "detached townhome," with architecture that is complementary to the surrounding historic neighborhood.

alley. A unique building with traditional architecture and scale on the ends and a contemporary form that includes fourth-floor roof decks was designed for the middle three homes.

It was critical to Landmarks that the historic integrity of the community be respected, but not duplicated. Significant time was spent with the city historical consultant to determine colors and detailing that would give the impression of a large single- or two-family home instead of a five-unit townhome building. The Bridge House floorplan was recycled with new colors and elevation to create the Randall House.

REIMAGINING ADUs

Since the townhomes accessed the alley to the south, the interior drive lane was underutilized, forcing the homes to sell at a premium. And the "Green Kitty" loomed over the rear auto court. The concept of accessory dwelling units (ADUs) over garages was discussed, but the living space in a traditional ADU is small, there's no additional parking, and an ADU over a detached garage increased the cost of the associated home too much for the appraisal and comfort of the purchaser.

What if a non-traditional ADU was designed? Taking cues from Italianate architecture in the neighborhood, a plan encompassing parking, living, bedrooms, and roof decks maximized density and efficiency, with the benefit of mitigating the "Green Kitty" backdrop. These homes enhanced the courtyard view. Their "blind side" on the east property line is used for stairs, baths, and closets and make the economics more favorable. Designed with historic colors and style, they appealed to neighbors and buyers.

A higher density (36 u/acre) was granted in exchange for the preservation commitment and architectural enhancements. Neighbors' concerns about increased density were addressed by providing off-street parking on the interior court yard for the historic homes and the two spaces per unit created by the ADU designs. The density allowed a lower starting price point—sales prices ranged from $249,000 to $370,000—and served to provide a variety of housing types.

The range of home types and varied price points attracted a diverse group of owners and led to a rapid sell-out. Greenbrier Mews both preserves and adds to the charm of the historic Ohio City neighborhood.

William Sanderson, GMB, CGP is vice president of land acquisition and development at Knez Homes in Concord, Ohio.

HIGH PERFORMANCE HIGH VALUE

By Michelle Dusseau Diller, P.E.

Green building practices are becoming standard in single-family new home construction

Homes are increasingly being designed, constructed, and operated toward the greener end of the construction continuum. A number of design features generally are thought of when discussing green construction (also known as sustainable or high-performance building). These include: efficiently using energy, water, and other resources; reducing waste, pollution, and environmental degradation; lot design; and protecting occupant health.

Many of the design features associated with green building carry direct consumer benefits, such as greater comfort, lower utility bills, reduced maintenance, and increased value. Green building has evolved beyond the original core of design features to also consider resilient construction and practices employed for healthy homes. These strategies all are now being brought under the umbrella of high-performance building.

A recent study by the American Council for an Energy-Efficient Economy found that every dollar invested in energy efficiency yields $1.24 to $4 in benefits. An EPA analysis of upgrading homes to ENERGY STAR insulation and air sealing requirements showed that owners saved 11 percent (as a national average) on annual utility bills. A sales price analysis in the latest North Carolina Building Performance Association study showed that high-performance homes, on average, have a 9.5 percent higher sale price.

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SIMPLE → COMPLEX

- Low/no-VOC paints, adhesives, and sealants
- ENERGY STAR® appliances
- WaterSense® flush and flow fixtures
- MERV 8 or better filters
- High-performance windows and doors
- Irrigation controllers
- Use of regional and recycled content materials
- Grade I insulation installation
- Blower door testing
- ENERGY STAR Version 3.0 or 3.1 certification or meet HERS Target Index

Is green here to stay? All indications are yes. Single-family green residential construction market share has continued to grow, from 2 percent in 2005 to 33 percent in 2017. Approximately one third of the builders surveyed in the *2017 SmartMarket Brief: Green Multifamily and Single Family Homes* said that green building is a significant portion of their overall activity (more than 60 percent of their portfolio). By 2022, they predict that at least a third of them will be dedicated green builders (more than 90 percent of their portfolio). Regardless of their overall level of green building involvement, 88 percent of builders reported they are incorporating features to make their homes greener than they did two years ago.

This increased activity persists despite the perception by two-thirds of single-family builders that green construction costs up to 10 percent more than standard construction (builders more involved in green building trended to the lower end of this cost premium). That perception is balanced by the belief that 71 percent of home buyers are willing to pay more for a green home, at premiums that reasonably align with builders' increased costs.

Ongoing research by NAHB and its partners also shows that many home buyers are interested in green. NAHB's report, *Housing Preferences of the Boomer Generation: How They Compare to Other Home Buyers*, asked home buyers across four generations — millennials, Gen Xers, baby boomers, and seniors — what features they consider essential/desirable in a new home. Energy-efficient strategies, including ENERGY STAR appliances and windows and above-code insulation, made the most-wanted list and would positively influence the purchase decision of 80 percent or more of all home buyers.

STANDARD PRACTICES SHIFT GREENER

The 2017 Green Practices Survey was conducted to gather information on sustainable and high-performance building practices being used in single-family home building in 2016. Responses were aligned with practices found in the National Green Building Standard (NGBS) to determine how green the typical single-family home is regardless of whether the builder obtains certification under the standard.

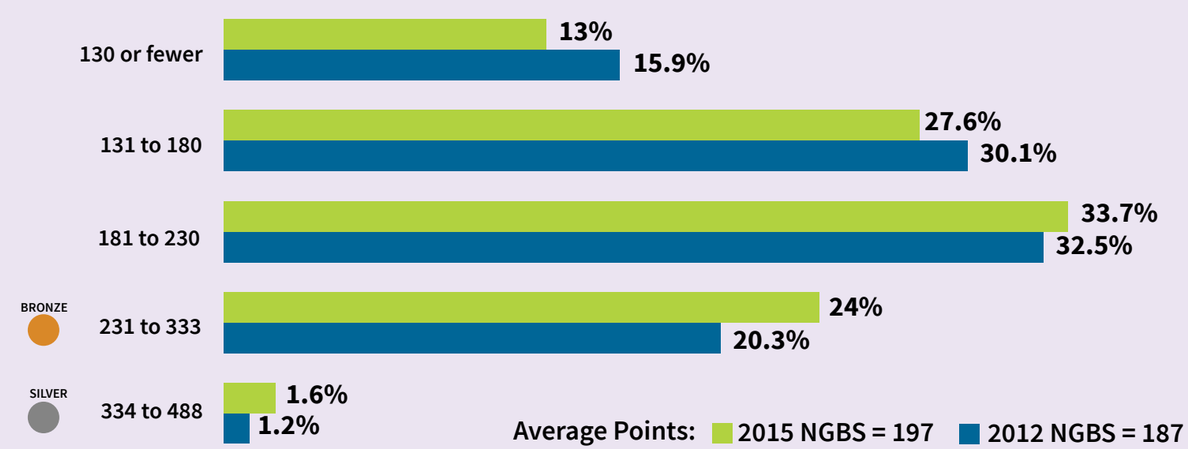
One in four of the homes addressed in the survey would qualify for NGBS Bronze level certification (**Figure 1**). On average, typical homes met or exceeded the NGBS Bronze threshold for energy, water, indoor environmental quality, and operation/maintenance/education. Energy and water efficiency strategies are becoming even more mainstream, with more than 70 percent of the homes in the survey meeting or exceeding NGBS Bronze for these categories.

ICC/ASHRAE 700-2015 NATIONAL GREEN BUILDING STANDARD

The NGBS provides developers, builders, and remodelers with a credible, above-code, voluntary green building framework and a useful measurement of where their home lands on the green building continuum. Using a points-based system, a home or building can attain one of four rating levels—Bronze, Silver, Gold, or Emerald—depending on the green practices included. For a project to attain any certification level, all applicable mandatory provisions must be met, as well as incorporation of a minimum number of features in each of the six categories. The process can accommodate varying climates, market conditions, and home buyer preferences.

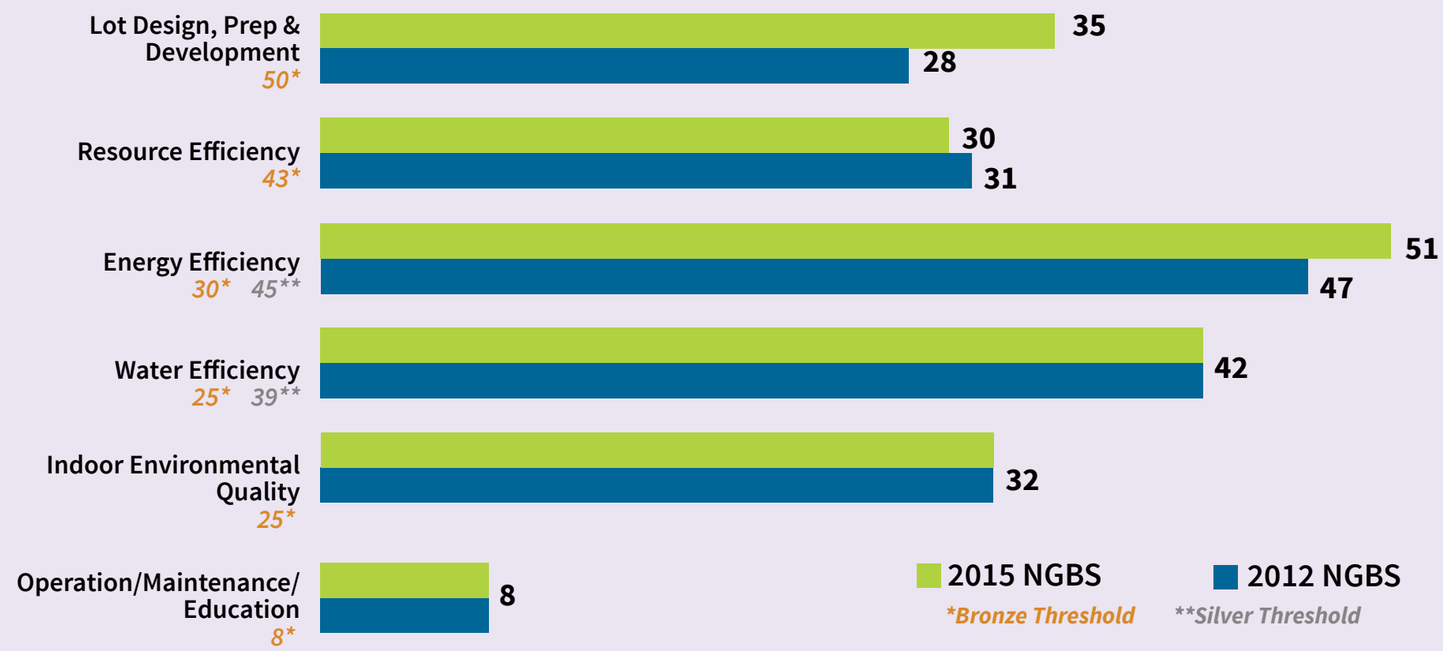
Click here for a free download of the standard.

Figure 1: Total NGBS Points Earned (Percent of Respondents' Typical Homes)



SOURCE: 2017 GREEN PRACTICES SURVEY

Figure 2: Average NGBS Points Earned by Category



The survey results showed that resource efficiency and lot design currently are the most challenging aspects of residential green building (**Figure 2**). On average, typical homes did not meet the thresholds for Bronze in these categories. As homes must meet the minimum requirements across all sections of the NGBS for certification, these gaps prevented more homes in the survey from being eligible for certification.

BUYERS ENJOY THEIR HIGH-PERFORMANCE HOMES

Home owners were surveyed by GuildQuality regarding their satisfaction with their NGBS-certified green homes. Ninety-five percent either agreed or strongly agreed that they were satisfied with the green features of their home and 94 percent would recommend a green home to a friend or family member. Overwhelmingly, respondents reported their homes were more comfortable, quieter, and had lower utility bills than a standard home.

Proper operation and maintenance of any home is critical to ensure that it performs to its highest potential. Chapter 10 of the NGBS includes requirements and strategies to educate the home owner and provide the information needed to take care of their home.

Green Building: A Short History

The modern green building era in the United States was driven by the environmental movement of the 1960s and the desire for more energy-efficient buildings during the energy crisis of the 1970s. Third-party certification systems started to be developed about 25 years ago to promote sustainable practices in the building industry. The NAHB National Green Building Program was unveiled in February 2008; the subsequent National Green Building Standard (NGBS) is now in its third iteration, with another update anticipated in early 2020.

SELLING A GREEN HOME

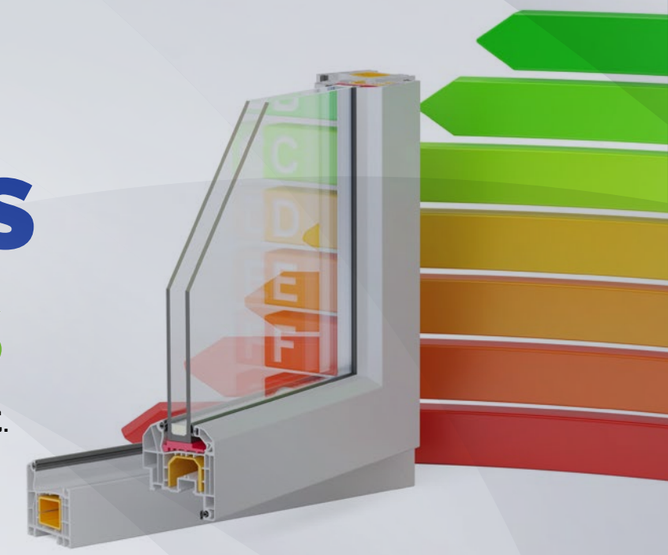
How do sellers make sure the green features of their homes are recognized and rewarded with the best price in the sale? The Appraisal Institute's Residential Green and Energy Efficient Addendum was developed to help ensure home appraisals reflect high-performance features. It documents information known about the property for use by the appraiser during the property review, which can then be added into green fields in the Multiple Listing Service (MLS). Sellers can also contract with a real estate agent who holds a NAR Green Designee credential to sell their current property and help them find a new high-performance residence.

Michelle Dusseau Diller, P.E., is Program Manager for Sustainability and Green Building at the National Association of Home Builders.

Energy Performance Metrics for Windows and Doors

Deciphering U-factor and SHGC ratings

By Michelle Dusseau Diller, P.E.



When you purchase a window or door for home installation, a sticker on the glass provides energy performance ratings for the terms "U-Factor" and "Solar Heat Gain Coefficient" (SHGC). These numbers tell you the relative energy performance of the window or door, helping designers and builders choose products for a home that can result in one that is more comfortable and energy-efficient and has lower utility bills than a home in which the design did not consider these factors.

In 1989, the National Fenestration Rating Council (NFRC) created standard metrics for comparing the performance of windows and doors and summarized them on product stickers. That information, along with the home's orientation and climate zone, allows designers and builders to choose products that will assist with the heating and cooling of the home and contribute toward certification under the National Green Building Standard.

But what do those numbers mean and what values should you be looking for to get a high-performance window or door?

The **U-factor** measures the rate of heat transfer, or how well a product can keep heat from escaping from a room. It is inversely related to the common metric used for insulation, the R-value. R-value measures resistance to heat flow; U-factor is the mathematical inverse (1 divided by R-value gives you U-factor), and measures the rate of that heat flow. U-factor values generally range from 0.20 to 1.25 for windows, 0.00 to 2.0 for doors, and are measured in Btu/h·ft^2·°F. The lower the number, the better the product is at keeping heat from leaking out of the home. Depending on the climate zone, an ENERGY STAR-qualified window has a U-factor of ≤ 0.40 (Southern) to ≤ 0.27 (Northern).

SHGC tells you how well the product blocks heat caused by sunlight. SHGC is measured on a scale of 0 to 1; values typically range from 0.25 to 0.80. It compares the fraction of solar energy, in terms of heat that reaches the glass, compared to the amount that gets through to the inside. The lower the SHGC, the less solar heat the window transmits. ENERGY STAR windows have a SHGC of ≤ 0.25 in the Southern climate zones and ≥ 0.32-0.42 in the North (depending on the product's U-factor).

Note that due to the different low-e coatings used, higher SHGC values generally also come with somewhat higher U-factors. In other words, to get more solar heat gain, you have to give up some insulation value. On south-facing walls, this is generally an acceptable tradeoff. On north-facing walls, you likely want the lowest U-factor possible.

NGBS: U-factor and SHGC

Choosing high-performance windows and doors can help you toward earning certification under the National Green Building Standard. Projects pursuing the prescriptive path in the Energy Efficiency chapter must meet specified minimum U-factor and SHGC values, based on the 2015 IECC.

DOORS			
GLAZING LEVEL	U-FACTOR	SHGC	
Opaque	≤ 0.17	No Rating	
≤ 1/2 - lite	≤ 0.25	≤ 0.25	
> 1/2-lite	≤ 0.30	Northern North-Central	≤ 0.40
		Southern South-Central	≤ 0.25

Air Leakage for Sliding Doors ≤ 0.3 cfm/ft^2

Air Leakage for Swinging Doors ≤ 0.5 cfm/ft^2

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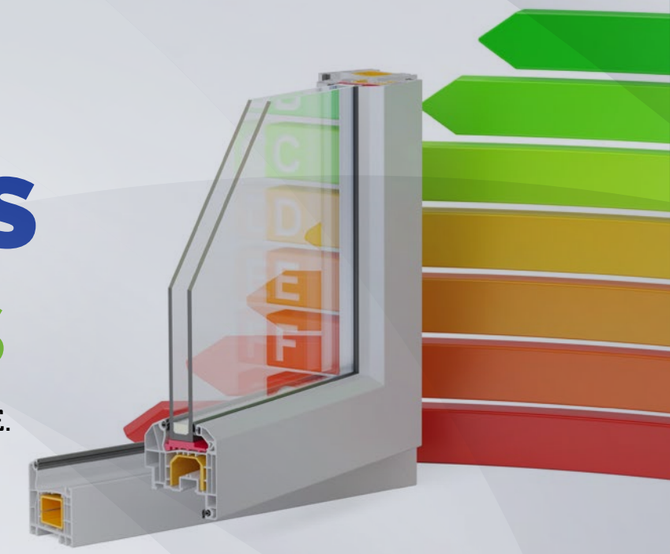

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Projects can also earn up to 6 points depending on climate zone (18 for multifamily) by meeting various enhanced fenestration specifications.

WINDOWS			
CLIMATE ZONE	U-FACTOR	SHGC	
Northern	≤ 0.27	Any	Prescriptive
	= 0.28	≥ 0.32	Equivalent Energy Performance
	= 0.29	≥ 0.37	
	= 0.30	≥ 0.42	
North Central	≤ 0.30	≤ 0.40	
South Central	≤ 0.30	≤ 0.25	
Southern	≤ 0.40	≤ 0.25	

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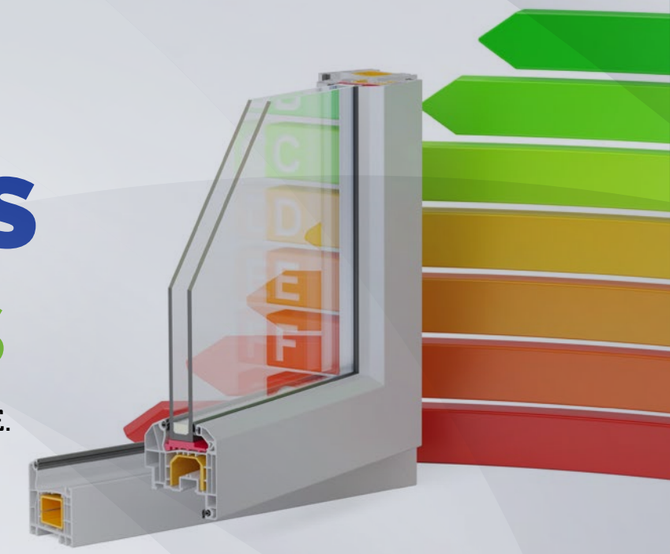

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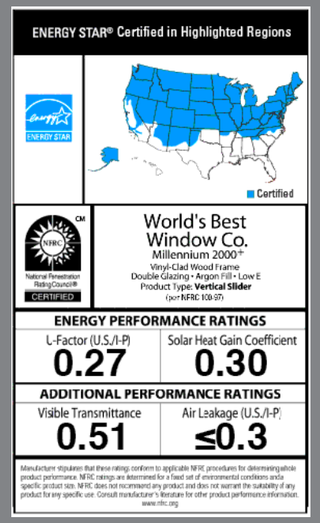
What is the difference between NFRC and ENERGY STAR labels?

The NFRC label helps you compare between products, giving independent ratings in several categories, including energy performance. The ENERGY STAR label tells you that a product is energy-efficient. It uses U-factor and SHGC as one criteria for product qualification (others: manufactured by an ENERGY STAR partner; and tested, certified, and verified by NFRC).



Example of an ENERGY STAR-certified window sticker.

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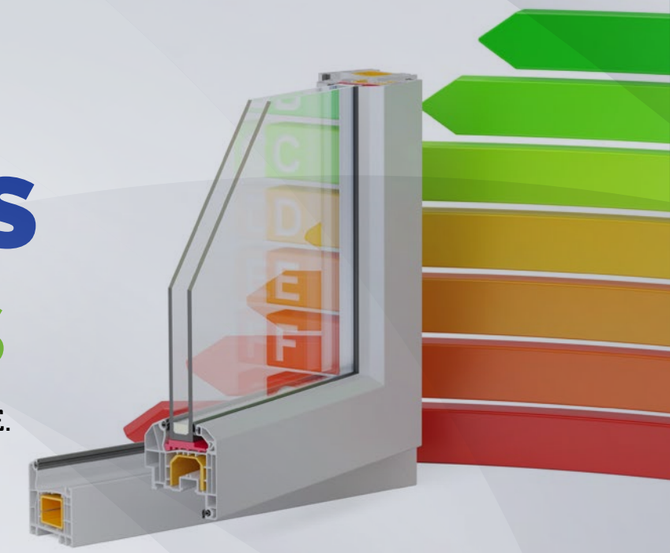
Deciphering U-factor and SHGC ratings

By Michelle Dusseau Diller, P.E.



When you purchase a window or door for home installation, a sticker on the glass provides energy performance ratings for the terms "U-Factor" and "Solar Heat Gain Coefficient" (SHGC). These numbers tell you the relative energy performance of the window or door, helping designers and builders choose products for a home that can result in one that is more comfortable and energy-efficient and has lower utility bills than a home in which the design did not consider these factors.

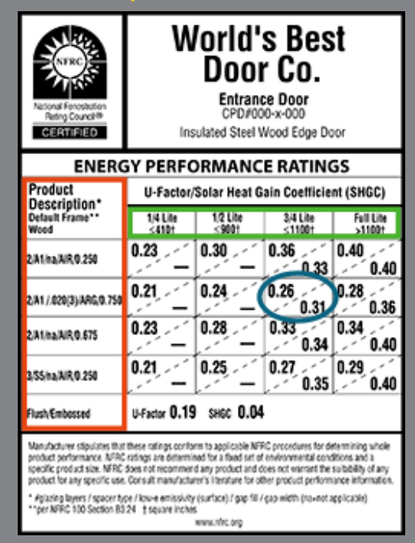
In 1989, the National Fenestration Rating Council (NFRC) created standard metrics for comparing the performance of windows and doors and summarized them on product stickers. That information, along with the home's orientation and climate zone, allows designers and builders to choose products that will assist with the heating and cooling of the home and contribute toward certification under the National Green Building Standard.

But what do those numbers mean and what values should you be looking for to get a high-performance window or door?

The **U-factor** measures the rate of heat transfer, or how well a product can keep heat from escaping from a room. It is inversely related to the common metric used for insulation, the R-value. R-value measures resistance to heat flow; U-factor is the mathematical inverse (1 divided by R-value gives you U-factor), and measures the rate of that heat flow. U-factor values generally range from 0.20 to 1.25 for windows, 0.00 to 2.0 for doors, and are measured in Btu/h·ft^2·°F. The lower the number, the better the product is at keeping heat from leaking out of the home. Depending on the climate zone, an ENERGY STAR-qualified window has a U-factor of ≤ 0.40 (Southern) to ≤ 0.27 (Northern).

NFRC sample window sticker

NFRC sample door sticker



SHGC tells you how well the product blocks heat caused by sunlight. SHGC is measured on a scale of 0 to 1; values typically range from 0.25 to 0.80. It compares the fraction of solar energy, in terms of heat that reaches the glass, compared to the amount that gets through to the inside. The lower the SHGC, the less solar heat the window transmits. ENERGY STAR windows have a SHGC of ≤ 0.25 in the Southern climate zones and ≥ 0.32-0.42 in the North (depending on the product's U-factor).

Note that due to the different low-e coatings used, higher SHGC values generally also come with somewhat higher U-factors. In other words, to get more solar heat gain, you have to give up some insulation value. On south-facing walls, this is generally an acceptable tradeoff. On north-facing walls, you likely want the lowest U-factor possible.

Michelle Dusseau Diller, P.E., is Program Manager for Sustainability and Green Building at the National Association of Home Builders.

Suburban Development in the Urban Core

A Florida development seeks to revive a neglected historic suburb

By Deryl Patterson, AIA

IS IT URBAN OR SUBURBAN? COULD IT BE BOTH?

Located in Riverside, the original suburb of Jacksonville, Florida, the Courtyard on College Street is less than three miles from the downtown urban core and the city's booming finance and logistics sector. The problem is that many people who work downtown have long commutes due to the lack of nearby housing.

PROJECT TEAM

DEVELOPER/BUILDER	Alex Sifakis, JWB Real Estate Capital
LAND PLANNER, LANDSCAPE ARCHITECT	Joe Loretta, Genesis Group
ARCHITECT	Deryl Patterson, AIA, Housing Design Matters Inc.

ALL IMAGES COURTESY OF HOUSING DESIGN MATTERS INC.

Like many historic suburbs, over the years, Riverside's rich architectural heritage was threatened by neglect. Recently, Riverside has seen a return to form, aided by a group called Riverside Avondale Preservation (RAP). RAP not only works to preserve the original buildings, it also strives to control new construction in scale and architectural style.

THE SITE

With many of the area's original homes falling down or being turned into two-family rentals and commercial offices, this infill project seeks to bring in buyers who are looking to plant their roots in an area on the verge of a resurgence. The one-acre site on the once-thriving corridor of College Street was a vacant eyesore, with just a chain-link fence for security. Ringed by three streets and an alley, the only thing the site had going for it was the neighborhood's proximity to shopping and jobs.

Located within walking distance to the vibrant night life of Park Street and a mile from the Five Points shopping district, the site is convenient for shopping, dining, and entertainment. College Street is also on the Jacksonville Transit Authority bus route, making it easier to live without a car.

Getting the most out of the site presented many challenges:

- Creating a single-family detached community with 19 units, plus a green space.
- Establishing turn-key housing for young professionals around $300k, close to jobs in the urban core.
- Conceiving an urban neighborhood that is pedestrian-friendly and focused on walkability.
- Creating floorplans with new designs and features that buyers crave in compact footprints.
- Satisfying RAP and the neighbors with exteriors that harmonize with the existing neighborhood.

GREEN SPACE

The houses hug the boundaries of the site to create a shared courtyard green space. This courtyard is the jewel of the project, allowing residents and their friends to enjoy the outdoors without having to worry about cars. Flanked at both ends with an entry trellis and a gate, the common green space consists of lush Florida landscaping, a central bocce green, and outdoor furniture for

Left: Pedestrian-friendly elevations with front porches line an internal courtyard. The alley elevations are animated to complement to the surrounding neighborhood.

Below: The site has been an untapped jewel located close to the urban core and suburban restaurant and retail district. Houses and families will soon replace the chain link fence.

dining, grilling, and entertaining. The cottages line both sides of the internal green with broad porches, conversational distance away from the pedestrian promenade.

BUILDING TYPES

With prices starting in the low 300s, the project consists of two types of single-family cottages, with each of those featuring two floorplan offerings.

The first type, along College Street, has a two-car parking pad alongside the home instead of a garage. The building pad is a modest 25 feet wide by 42 feet deep. These 1,800-sf homes feature two front elevations. The first is along College Street, where porches are in keeping with the surrounding neighborhood. The second is along the internal green space. Complications included finding storage for yard equipment and the "stuff" we normally put in the garage.

The second home type is alley-accessed, allowing for a two-car garage. These homes line the common green space with wide, friendly porches and a building footprint of 30 feet wide by 40 feet deep. While no one would argue against the convenience of a two-car garage, it gobbles up a third of the first-floor building pad. This, combined with a large front porch, challenged us to still give home owners a livable, open floorplan.

ARCHITECTURAL STYLES

The exteriors feature siding-dominant Craftsman and Prairie Style architecture. Rich saturated colors were selected to enhance the architectural styles and complement the surrounding region. The porches and finished floors are raised two steps, in keeping with the neighborhood. And because the site is ringed on all sides by roads, all four elevations had to have the same look, color, and materials as the front elevations.

To keep the home affordable, the buildings had to be efficient; 100 percent stacking plans maximize the building footprint while avoiding costly beams. The modestly sized plans do not compromise what today's buyer is looking for, featuring the "Lifestyle Triangle" of the family room, kitchen, and main dining space. Kitchens are open entertaining spaces with large gathering islands and a single integrated café space. Other features include "Welcome Home Foyers" with drop zones, under-stair pet rooms, large walk-in closets, and four-piece master baths with private toilet rooms.

The project is in the entitlement stage. With only 19 cottages in such a prime location, it is sure to set a new standard for the community.

First floor: Even though more than 30 percent of the building envelope is taken up by the two-car garage, a kitchen-centric plan and welcoming front porch were created.

Second floor: The stairs arrive to light and open space as the loft creates a kid's zone and adult zone.

Deryl Patterson, AIA, is president of Jacksonville, Florida-based Housing Design Matters.

Crafting Connection

By Meredith Horner

The 2017 Community of the Year succeeds by celebrating its historic neighbors

Raleigh, North Carolina, is on a fast-moving growth track. The City of Oaks has been no stranger to national "Best of" lists and news stories claiming it to be one of the top places to move, work, and live. In 2014, Wake County reported more than 1 million residents in the county.

The once-sleepy downtown Raleigh has been reborn, and people once again want to live, work, eat, and play close to the

PAINTING BY MARGOT DEBARMORE

While Robuck Homes built all the homes in Oakdale at Mordecai, each home is so different from the next, it feels like a custom neighborhood. For this home, the buyers had a lighting allowance to choose a porch light fixture from anywhere in the world. The door and ceiling stain color and exterior trim paint colors are all reflections of the buyers' personal tastes.

PHOTO BY MOTION PADS

The first home built in Oakdale was this model home of the 4-bedroom, 3-bath Bailey Plan. The plan offers five architecturally distinctive elevations and an optional rear screened porch and deck.

PHOTO BY MARTIN COMMUNICATIONS

PHOTO BY MARTIN COMMUNICATIONS

city center and the N. Person Street corridor. Adjacent to N. Person Street, and just one mile from the epicenter, Raleigh's oldest neighborhood, Mordecai, was called out in 2016 as the new "Hot Hood" by *Money* Magazine.

These areas have been carefully reacting to the fast rate of transition, being mindful not to erase the rich history of the city during the redevelopment process. A move toward infill development is one example of the ways local developers are looking to grow in Raleigh's dense downtown core.

A VISION FOR REVITALIZATION

In 2014, partners Community Properties and Robuck Homes purchased 71 post-World War II rental units near the growing Person Street District. Nicknamed "Tiny Town," the units were in extremely poor condition and heading toward condemnation.

"The existing communities adjacent to the rental units had beautiful and often historic homes, but it was my belief that the condition of the rental units was holding back the community reinvestment around the property,"

PHOTO BY MOTION PADS

Above: To encourage community, every home in Oakdale offers either front porch or back porch living areas.

To date, only one home in Oakdale features this front entry design. It aptly represents local community values in terms of elegance and stateliness.

PHOTO BY AERIAL LOOK

Downtown Raleigh sits to the southwest from Oakdale at Mordecai. This aerial view shows the community's progress in 2016.

said Jack Morisey, president of Community Properties.

Tiny Town would soon be home to 56 single-family home buyers who were excited to experience modern living within walking distance to local shops and restaurants. This vision, paired with purposeful architecture and community connection, drove the success of what is now Oakdale at Mordecai, the Best in American Living 2017 Community of the Year.

The developer forged connections with the builder, architect, land planner, and interior designer to not only develop and build quality single-family homes, but also to care for buyers and the neighbors affected by the project. Having unity on the ultimate goal proved to be the solution time and time again, as the reality of navigating an infill neighborhood took front and center.

The 2,553-sq, 3-bedroom, 2 1/2-bath Walter Plan offers four elevations, including this inviting Craftsman version. The first floor features a wide open interior ideal for gatherings, plus a tucked-away "command center" perfect for a home office.

PHOTO BY MOTION PADS

MEETING CHALLENGES HEAD-ON

The developers quickly encountered perception issues, small home site hassles, and construction headaches. The 7.5-acre site sits between the historic Oakwood and Mordecai neighborhoods. These neighborhoods are full of older homes with exceptional character and a diverse population that highly values the uniqueness of their communities. Advance communication proved very effective at heading off undesirable press coverage about how the homes would look, how construction crews would interfere with daily life, and how Oakdale would ultimately fit into the neighborhood.

Morisey met with the Mordecai Citizens Advisory Council to explain architectural concepts for the homes, which were priced in the $600,000 – $800,000 range. He reinforced

Downtown Raleigh sits to the southwest from Oakdale at Mordecai. This aerial view shows the community's progress in 2016.

This roomy front porch features ample windows and a glass front door for welcoming in guests and light. Note the unique stain on the ceiling.

PHOTO BY MOTION PADS

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Builder Robuck Homes studied the character of the surrounding communities, with its Bungalow, Craftsman, and influences from Tudor Revival and Dutch Colonial styles, and applied this to the homes in Oakdale.

PHOTO BY TOUR FACTORY

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Several home sites and floor plans offer a one-car detached garage with service door. Many of these double as garden sheds, pottery studios, and extra storage.

PHOTO BY TOUR FACTORY

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This plan features built-ins around the fireplace tucked under the small windows, a common feature in Raleigh's older homes.

PHOTO BY MARTIN COMMUNICATIONS

Oakdale is just a six-minute walk to the North Person Street District, with its restaurants, eclectic locally owned shops, and the nonprofit urban Raleigh City Farm.

how Robuck Homes appreciated the character of the surrounding communities, with its Bungalow, Craftsman, and influences from Tudor Revival and Dutch Colonial styles, and would apply this to the homes in Oakdale. Thoughtful communication at the right times helped establish trust and goodwill with neighbors very early on in the project.

With tight streets and small home sites (the average site is .12 acre), the streetscape required making important choices about placement of garages and driveways. Robuck Homes paid close attention to the views from front to back of the house, as well as window placement along the sides of each home.

"The diversity of streetscape was a design challenge that we took very seriously," said Chip Bishop, general manager of Robuck Homes. "Going through this exercise early on brought unprecedented solutions for congested living, such as rear detached garages, low-maintenance yards, custom storage sheds, and sidewalks: a must for modern downtown living."

Small lot challenges dictate smaller spaces inside. This gourmet kitchen features all the amenities today's buyers desire without sacrificing the entire main floor.

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The trim features on the accent wall and oversized windows add to the feeling of roominess of the master bedroom in this furnished model.

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Several plans in Oakdale offer a loft or flex space on the second floor. This furnished model demonstrates the space as a quiet spot for doing homework.

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PHOTO BY AERIAL LOOK

Who would live in Oakdale at Mordecai? The team already knew most of that answer—the target buyers were young families, move-up buyers, and empty nesters—and was prepared to build homes for people who value community. Outside, it was all about fitting in with historical architecture. Inside the 2,300 – 3,000-sf homes, the goal was to transcend tired expectations with custom features to provide a better flow for today's consumer. Home buyers were greeted with open kitchens, generous storage, and private, fenced backyards.

Oakdale at Mordecai is a modern formula for how to rebuild and sustain community in an existing urban setting. A drive through the neighborhood may reveal the work of a single home builder, but "each home is so different from the next, it feels like a custom neighborhood," Bishop said.

Oakdale is visually stunning and desirably located. Most importantly, it's a place for families who want to live in Raleigh, created by people who live in Raleigh.

Meredith Horner is marketing manager for Fonville Morisey Barefoot New Home Sales and Marketing in Raleigh, North Carolina.

DRAWING BY MARGOT DEBARMORE

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By Paul Emrath and Caitlin Walter

HARD COSTS

Government regulations sharply drive up costs of multifamily development

Regulation imposed by all levels of government accounts for 32.1 percent of the cost of an average multifamily development, according to a new study conducted jointly by the National Association of Home Builders (NAHB) and the National Multifamily Housing Council (NMHC). The study is based primarily on a survey of multifamily developers from both organizations.

The results show that well over 90 percent of multifamily developers typically incur hard costs of fees paid to local governments, both when applying for zoning approval, and again when local jurisdictions authorize the construction of buildings. But the study also shows that government regulation often imposes costs in other ways (**Figure 1**).

Two categories of regulation that are both encountered frequently by multifamily developers—and tend to be relatively costly—when they are encountered are changes in building

Figure 1: Incidence and Typical Magnitude of Regulatory Costs

TYPE OF COST	SHARE OF DEVELOPERS' PROJECTS SUBJECT TO THE COST	AVERAGE COST WHEN PRESENT *(as a share of total development costs)*
Cost of applying for zoning approval	**98%**	**4.1%**
Interest costs on refundable fees charged when site work begins	**50%**	**0.5%**
Other (non-refundable) fees charged when site work begins	**93%**	**4.5%**
Development requirements beyond what the developer would ordinarily do	**95%**	**6.3%**
Land dedicated to the government or otherwise left unbuilt	**50%**	**4.3%**
Fees charged when building construction is authorized	**93%**	**4.2%**
Cost of complying with affordability mandates (e.g., inclusionary zoning)	**30%**	**5.7%**
Cost increases from changes to building codes over the past 10 years	**98%**	**7.2%**
Cost of complying with OSHA requirements	**90%**	**2.6%**
Pure cost of delay (i.e., even if regulation imposed no other type of cost)	**98%**	**0.7%**

codes over the past 10 years and development standards that go beyond what a developer would ordinarily do.

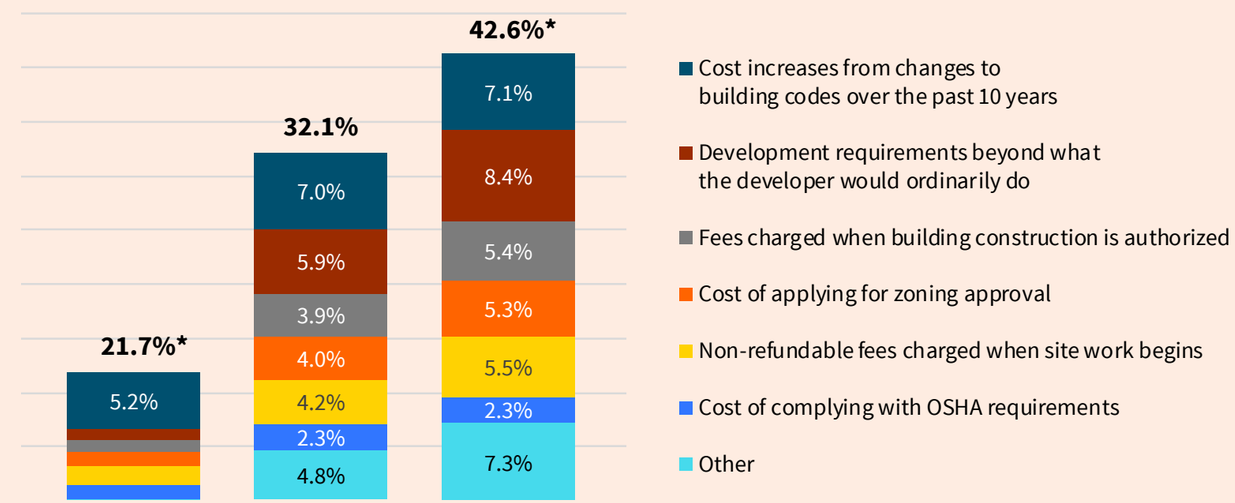
Most jurisdictions have adopted versions of national model codes, which have been in widespread use since the 1950s. Although codes are adopted at the local (sometimes state) level, several federal agencies are actively involved in the process of developing model codes. Although no one would argue against standards for basic soundness and safety of residential structures, codes are increasingly being used to advance policy objectives, such as energy efficiency.

Energy efficiency is a worthwhile objective, but costs need to be kept within reasonable bounds. Representatives from NAHB who attended all the recent code hearings took issue with federal agencies for supporting certain code changes that removed flexibility and increased costs without improving energy efficiency, sometimes to the benefit of specific product manufacturers.

As the figure indicates, local governments frequently require new development to conform to community design standards. This may include standards for streets and sidewalks, parking, height of buildings, landscaping and architectural design of individual buildings. The survey asked specifically about standards that go beyond what the developers would otherwise do. These beyond-ordinary requirements are both frequently encountered, and relatively costly when they do exist.

Local "affordability" mandates are encountered less frequently, but are also relatively costly when they do exist. These mandates attempt to create new affordable housing, but if imposed without any offsetting benefit, they effectively tax some housing units to subsidize

Figure 2: Government Regulation as a Share of Multifamily Development Costs



*NOTE: * FOR QUARTILES, ALL TYPES OF COSTS DO NOT SUM TO THE TOTAL.*

SOURCE: NAHB/WELLS FARGO HMI SURVEY.

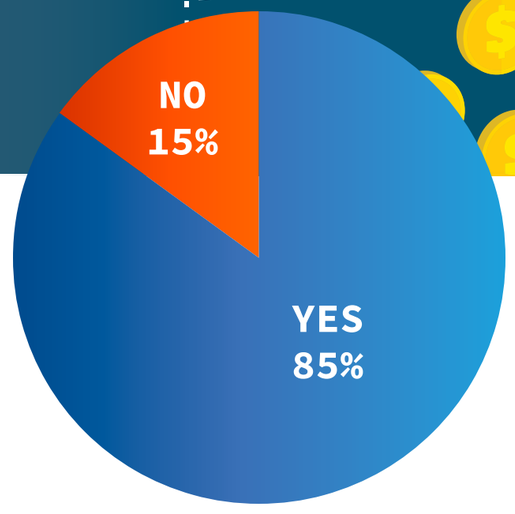


Figure 3: Have you experienced added costs or delays due to neighborhood opposition to multifamily construction?

others. The cost is most obvious in cases where developers pay a fee to avoid the mandate. But, even if developers don't pay a fee, a regulation that requires them to lose money on some housing is effectively a tax, resulting in higher rents on other apartments.

TOTAL COST OF REGULATION

Estimating how much regulations add to development costs requires accounting for both the incidence and magnitude of the regulation. When this is done, the listed types of regulation, on average, account for 32.1 percent of development costs for a multifamily project (**Figure 2**).

Among the listed categories, average cost is highest for changes to building codes over the past 10 years, followed by above-ordinary development standards. It is interesting, but not necessarily surprising, that government control over how a project is built can be more costly than actual fees.

Delays attributable to regulation are very common. If not combined with other regulatory costs, however, they have a comparatively small impact, limited to the extra interest that accrues on development and construction loans. Refundable fees have a particularly small average impact because developers encounter them only half the time and because the costs are limited to interest accruing until the fees are refunded.

In addition to averages, **Figure 2** shows the upper and lower quartiles (costs are below the lower quartile for 25 percent of developers, and above the upper quartile for 25 percent). While regulation on average accounts for 32.1 percent of total multifamily development costs, the quartiles give a range of 21.7 to 42.6 percent.

NEIGHBORHOOD OPPOSITION

The results do not capture all government actions. Local jurisdictions may encourage neighborhood opposition to a development, for example. Allowing local groups to sue any proposed development is an obvious way to do this, but there are more subtle ways to encourage opposition as well.

Figure 3 shows that the overwhelming majority of multifamily developers have experienced added costs or delays due to neighborhood opposition. This may include devoting time and resources to meet with local groups before seeking zoning approval.

Developers may also find it necessary to make concessions to local groups, such as reducing the size of the buildings so that land costs are allocated to fewer apartments and cost per apartment is increased. In an extreme case, neighborhood opposition may reverse the initial decision to approve a multifamily development after the developer has already invested heavily in it. If the business is to survive, margins on successful developments must be sufficient to absorb these losses.

Even when the cost of neighborhood opposition to a multifamily development is clear, it may be virtually impossible for a developer to estimate how much responsibility the local government bears for encouraging it.

For more information, including a complete description of the methodology used to estimate the costs and a copy of the questionnaire, please consult the full NAHB-NMHC study.

Paul Emrath is vice president for survey and housing policy research for the National Association of Home Builders.

Caitlin Walter is vice president of research for the National Multifamily Housing Council.

Looking Behind the Curtain

By Carter T. Froelich, CPA

How are jurisdictions spending your impact fees?

Have you ever wondered if the impact fees your company pays to various jurisdictions are going toward their intended purpose? You may not be shocked to learn that often they're not.

Over the last 20 years, Launch—Development Financial Advisors has worked with the National Association of Home Builders, local NAHB chapters, and various home building companies, to review, critique, and determine the overall fairness and equity of the impact fees proposed by associated jurisdictions. Over the last seven years, Launch conducted a number of in-depth audits of municipalities' fee programs, and we can now conclude greater transparency and oversight are needed related to the expenditure of fees.

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How to peek behind the curtain

The purpose of performing a jurisdictional impact fee audit or peer review is not to certify the accuracy of a public company's accounting records related to generally accepted accounting principles, as a public accountant would do. Rather, it is to determine whether the jurisdiction is utilizing fees to fund the construction of public improvements necessitated by new growth as delineated in their fee study.

As part of the peer review, the jurisdiction's fee study, enabling resolutions, detailed general journals by fee account, capital improvement program (CIP), and certified annual financial reports (CAFR) must be obtained. The fee study is thoroughly reviewed to understand the methodologies (e.g., incremental expansion, plan-based, buy-in) used by the associated municipalities' consultant to estimate the impact fee.

Upon completing the review of the fee study, a sampling of large dollar fee expenditures are selected from the jurisdiction's general ledger for detailed analysis of their appropriateness. Additionally, payments that appear out of place based upon the review of the fee study are also selected for further investigation.

> "Most state impact fee statutes are vague and open to interpretation, which leads to abuses by the public sector."

The purpose of the peer review is not to perform an objective evaluation of a jurisdiction's funds and accounts or to determine whether such funds and accounts have been presented fairly. The intent is to determine if the jurisdiction is spending its fees on capital improvements outlined in the fee study.

If the jurisdiction is not utilizing the fees to fund improvements necessitated by new growth, then the basic tenets of rational nexus and rough proportionality are not being met. In such a case, new growth is not receiving any benefit for the payment of fees, which is in direct conflict with case law related to such matters.

Most common misuses of fees

Most jurisdictions attempt to utilize fees for the intended purposes. There does, however, appear to be an almost uniform "disconnection" between the departments that prepare the fee study (e.g., manager, public works and finance departments) and the departments and/or personnel that collect and expend impact fees (accounting and public works departments). This disconnection can lead to the intentional or unintentional expenditure of impact fees outside of the scope of their intended purpose, which may result in new growth receiving no benefit for the impact fees paid.

In states with no fee audit requirement, Launch's audit findings have found the misuse of impact fees in four general areas:

Using fees to correct existing deficiencies. While reviewing a fee study, it was noted that federal and state authorities had cited a jurisdiction for not having sufficient fire stations. The jurisdiction was required by the authorities to use its own non-impact fee funds to build a second fire station to adequately serve its existing population. This fact was clearly outlined by the fee study. During the peer review of the impact fee accounts, we discovered that the jurisdiction spent approximately $935,000 of impact fees it was collecting for fire stations 3, 4, and 5 for the construction of the second fire station. The local home builders' association is suing the jurisdiction to restore the $935,000 inappropriately utilized from the impact fee accounts.

Using specific impact fees to fund non-authorized capital facilities. During a review of a jurisdiction's water impact fee accounts, for which separate impact fees were being collected for water capacity and water distribution, Launch uncovered that the jurisdiction had utilized $4.1 million collected for water distribution to finance water capacity projects. The same jurisdiction also spent approximately $2.2 million in impact fees specifically for sewage collection facilities to fund the wastewater treatment plant, for which it was collecting a separate fee. The fee study determined the costs necessary to fund both water/sewer capacity projects, as well as distribution/collection systems. To the extent that the separate funds were used to fund projects for which they were not intended, the jurisdiction will not be able to fund improvements for which the fee study intended. This instance precluded new growth from obtaining the benefits for which it paid impact fees.

Using fees for the payment of non-capital assets. A jurisdiction funded more than $2.1 million in public works and park department salaries, payroll taxes, health insurance, vacation pay, overtime pay, and even retirement benefits. Fees were used to fund departmental office supplies, cellular service, travel, and meals. The state in which the city is located requires that funds be used for capital facilities that have a useful life of 5 years or more. At present, the parties are negotiating the appropriateness of these expenditures.

Using fees for the repair and maintenance of existing facilities. In another jurisdiction, approximately $218,000 in funds were used to repair and replace existing park facilities rather than to construct new park facilities. The city has agreed to replenish the funds taken from the fee accounts through their general fund.

> "The requirement of a regularly scheduled audit appears to be bringing more discipline to the fee process and keeps fees flowing toward their intended purpose."

What happens in a state that requires a third-party fee review?

In 2011, the home building associations in Arizona successfully passed Senate Bill 1525 (see Appendix C of the National Association of Home Builders' 2016

Impact Fee Handbook). SB1525 enumerated detailed steps jurisdictions must follow as a precursor to their ability to collect fees, further ensuring that new growth is only funding costs associated with the construction of necessary public infrastructure. Additionally, SB1525 required jurisdictions to perform a biennial audit of their impact fee accounts if they don't have an impact fee advisory board of housing industry representatives to help prepare fee studies.

Since the passage of SB1525, Launch has performed numerous peer reviews of Arizona jurisdictions' fee accounts and have found only minor issues constituting nominal dollar amounts. Accordingly, the requirement of a regularly scheduled audit appears to be bringing more discipline to the fee process and keeps fees flowing toward their intended purpose. For this reason, home building associations and their members are wise to keep a watchful eye on the fee process.

Ensuring proper expenditure of fees

Most state impact fee statutes are vague and open to interpretation, which leads to abuses by the public sector.

A possible solution is enacting impact-fee enabling legislation that outlines specific rules and guidelines for the estimation, collection, and expenditure of impact fees. This legislation should also provide a means for independent third parties knowledgeable in impact fees, public infrastructure, accounting. and finance to audit the jurisdiction's expenditure of impact fees. This will allow for the independent opinion on whether the jurisdiction is property utilizing its impact fee to foster the construction of public infrastructure required by new growth.

As a starting point, industry associations may want to consider a broader effort to implement more specific legislation related to the estimation, collection, and expenditure of impact fees. By providing more detailed guidelines and implementing regular peer reviews of fee accounts, both the public and private sectors can feel more confident that jurisdictions are utilizing impact fees for their intended purpose, which is to provide necessary infrastructure for new growth.

Carter T. Froelich, CPA, is national managing principal of Launch—Development Financial Advisors in Scottsdale, Arizona.

FOUR HOUSES, UNLIMITED TESTING POSSIBILITIES

By Jack Hébert and Molly Rettig

The University of Alaska Fairbanks Sustainable Village is developing best practices for building in one of the planet's coldest climates

What if you could build the same house with different wall assemblies, heating systems, and foundations to compare the best design for your environment? That's what the Cold Climate Housing Research Center (CCHRC) did in a quiet patch of forest in one of the coldest climates on earth. The University of Alaska Fairbanks Sustainable Village features four homes, each serving as a residence for students and a testing ground for energy-efficient construction.

Based in Fairbanks, CCHRC is a statewide nonprofit founded by Alaska home builders to develop the best building practices for the North. With a mission of creating healthy, durable, sustainable shelter, the center assists communities across the state construct more energy-efficient homes that reflect local climate, environments, and culture.

The four homes at the Sustainable Village demonstrate emerging technologies in building science in a location easily accessible to the majority of Alaska's population. Monitored for five years, these homes have influenced building across the North.

Each home is 1,600 square feet and has four bedrooms. The winners of a student design competition helped CCHRC make

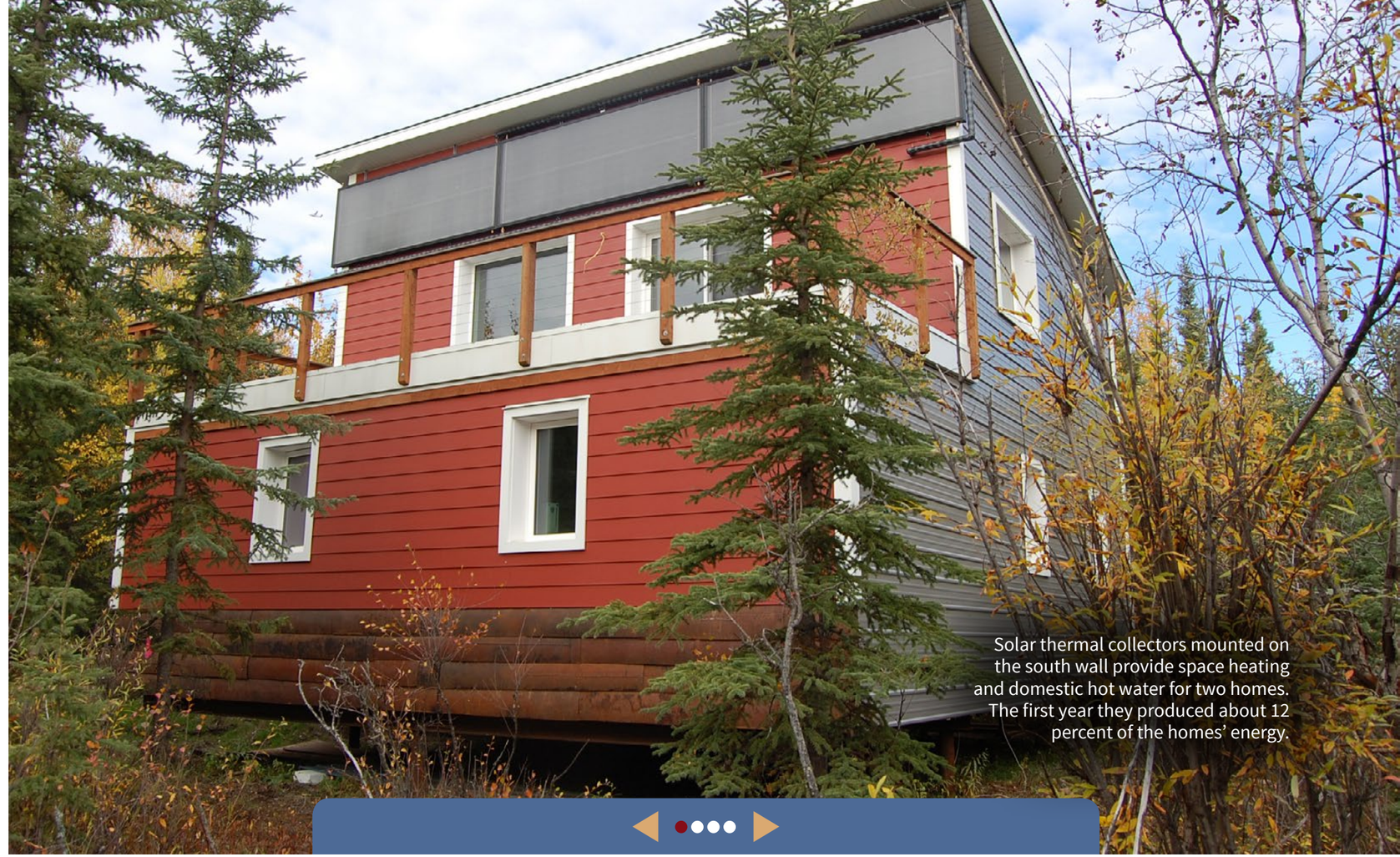
ALL IMAGES COURTESY OF CCHRC

University students at the Sustainable Village act as live-in researchers, helping building scientists learn about the performance of the homes and their various components.

The four homes have different combinations of foundations, wall assemblies, and mechanical systems so researchers can compare the cost and performance of each.

Above: One house has a double wall filled with 5.5 inches of batt insulation on the inside and a 12-inch standoff wall filled with densely packed cellulose insulation.

Left: Three homes use a REMOTE wall with 5.5 inches of batt insulation in the wall cavity and 8 inches of rigid foam outside the sheathing.



Solar thermal collectors mounted on the south wall provide space heating and domestic hot water for two homes. The first year they produced about 12 percent of the homes' energy.

the final working drawings. While the homes have the same amount of insulation (R-50) and comparable heating loads, two different wall assemblies were applied to compare cost and buildability.

The REMOTE (Residential Exterior Membrane Outside Insulation TEchnique) wall moves the majority of the insulation to the exterior of the structure. Typically, 5.5 inches of batt insulation is in the wall cavity with 8 inches of rigid foam outside the structural sheathing. Placing most of the insulation on the exterior prevents moisture from condensing inside the wall, keeping the wood framing warm and dry. This system has been used with success to build healthy, durable homes across Alaska.

The other system is the Arctic Wall. Using the same principle as the REMOTE wall with exterior insulation, the foam board has been replaced with a layer of dense-pack cellulose. This design not only takes advantage of recycled material, but appears to improve humidity levels inside the home.

ENSURING A HEALTHY HOME

Both walls rely on careful air sealing to create a very tight envelope. They were very close in terms of affordability, with the extra material cost of the REMOTE wall balanced out by its faster construction. Both performed at roughly 1 air change per hour in a blower door test (at 50 Pascals of pressure).

In addition to being the coldest city in North America (the record low temperature is 68 below zero), Fairbanks also has some of the highest energy costs. To address this, the Sustainable Village incorporated alternative energy sources and very efficient mechanical systems.

Two homes use solar thermal panels for domestic hot water and space heating. While Fairbanks receives little sunlight in the winter, the abundance of seasonal sun makes it a viable

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University students were involved in every phase of the project, from design to construction to monitoring.

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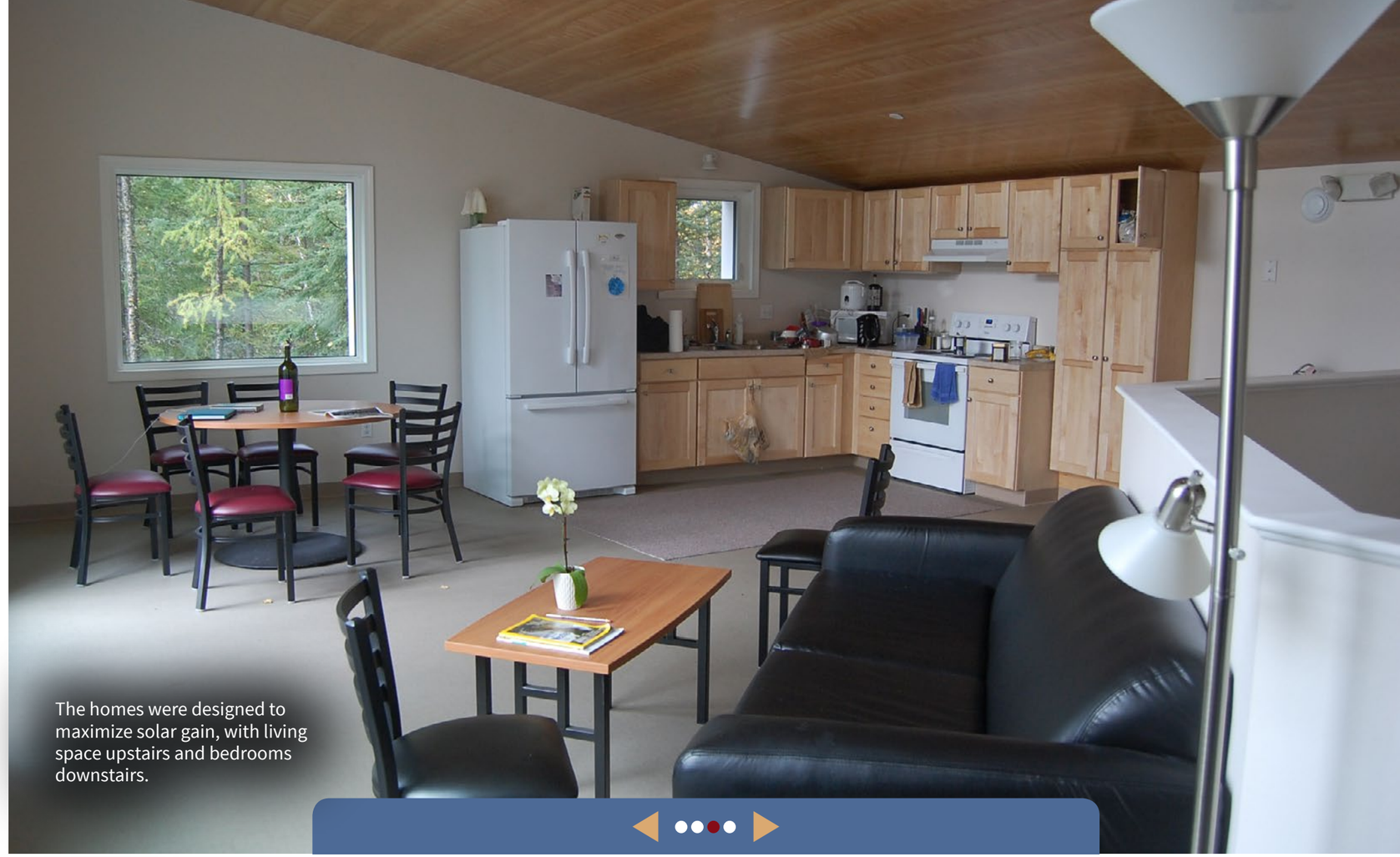

The homes were designed to maximize solar gain, with living space upstairs and bedrooms downstairs.

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An experimental "insulated raft" foundation uses 12 inches of spray foam to prevent the heated building from melting the underlying permafrost. It costs less than other permafrost foundations and is warmer than a raised floor.

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Two homes use solar thermal panels for domestic hot water and space heating. While Fairbanks receives little sunlight in the winter, the abundance of seasonal sun makes it a viable

energy source. Despite the cold, dark winters, solar produced roughly 15 percent of total heating demand for the two homes, saving more than 100 gallons of heating oil a year.

In the two other homes, a modified forced air system provides both heat and ventilation. In this age of airtight and energy-efficient building, one of the biggest challenges is indoor air quality. Without mechanical ventilation, moisture and pollutants can build to unhealthy levels inside the house, significantly affecting the health of its occupants.

CCHRC developed the BrHEAThe System to address this problem. It uses a heat exchanger to tie the heating appliance with the heat recovery ventilator (HRV). This ensures that fresh air is always warm, even when outside temperatures dip well below zero.

RESEARCH AND MONITORING

CCHRC did comprehensive monitoring of the homes and found that, on average, they used half as much energy as a typical house of the same size in Fairbanks. While this type of construction may not be practical everywhere, it is certainly cost effective in Interior Alaska and the Far North. Built for a similar price to other efficient homes, the Sustainable Village demonstrates that efficiency can also be affordable.

Moisture and CO2 levels were measured to ensure the mechanical systems were keeping the air healthy. All the homes maintained healthy indoor air, but CCHRC building scientists ultimately found that user behavior has the greatest influence on indoor air quality. Researchers continue to work with student occupants to ensure they know how to operate the systems. The goal is that the living experience in the Sustainable Village will become a way of life for students after their academic years.

ADDRESSING CLIMATE CHANGE

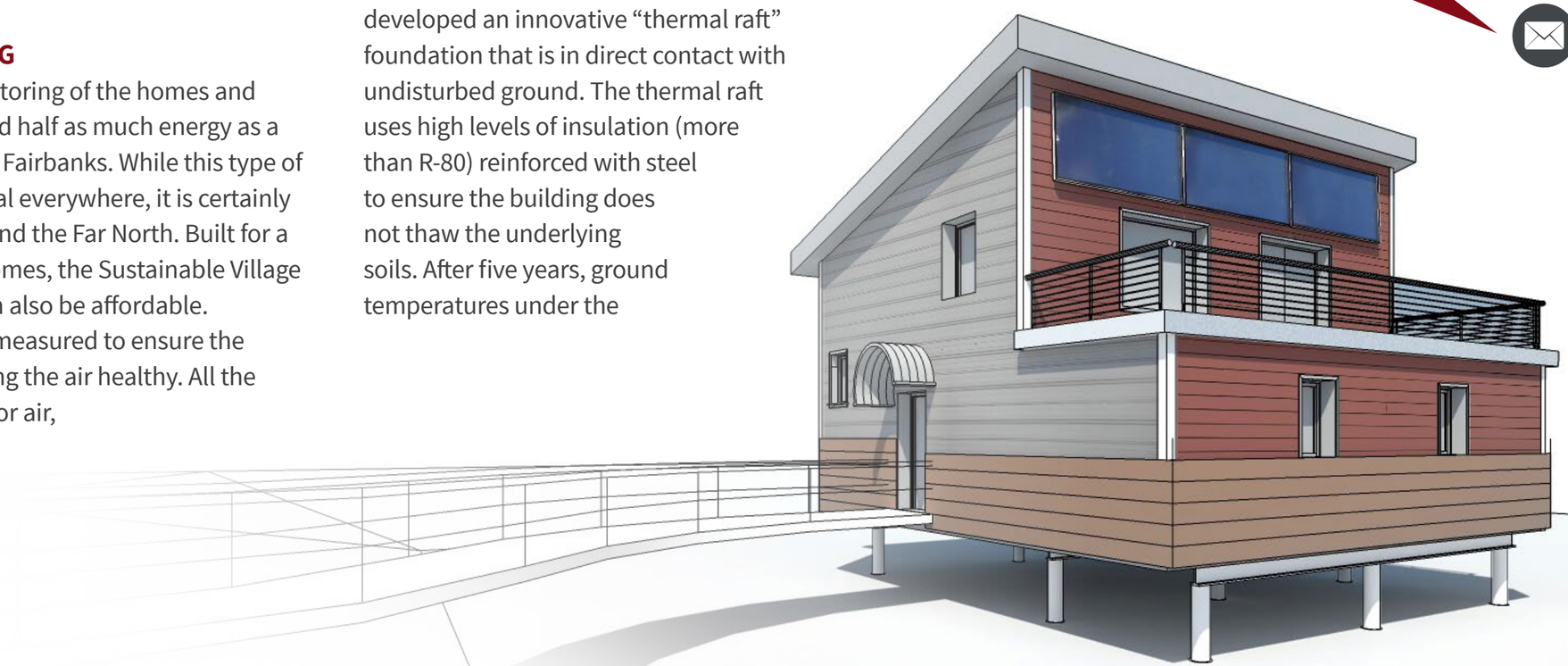
CCHRC also measured ground temperatures to investigate whether heat from the homes was impacting the soil. The site has permafrost, permanently frozen ground that can have a major influence on the integrity of a structure. Steel pilings are a conventional method for building on permafrost, and can be stable if driven securely into the frozen ground. However, this approach may fail as the climate warms.

Working with permafrost scientists, CCHRC developed an innovative "thermal raft" foundation that is in direct contact with undisturbed ground. The thermal raft uses high levels of insulation (more than R-80) reinforced with steel to ensure the building does not thaw the underlying soils. After five years, ground temperatures under the homes have stabilized and permafrost has been maintained.

The Sustainable Village is an ongoing collaboration with the university. Lessons learned and improvements are being applied across rural Alaska and the circumpolar world. Building science, like all science, is evolving. CCHRC and its talented staff and partners continue to make progress to provide affordable, healthy, and energy-efficient homes in extremely cold climates around the globe.

Jack Hébert is the founder and chief executive officer of the Cold Climate Housing Research Center (CCHRC).

Molly Rettig is communications manager for the CCHRC.



The northeast home sits on steel pilings driven deep into the permafrost. As climate change causes permafrost to warm, CCHRC is exploring how to build on unstable ground.

By Rodger Owen

MEDITERRANEAN DESIGN

Indoor/Outdoor Living at its Finest

Mediterranean design encompasses more countries than you might think, taking inspiration from northern Africa, western Asia, and southern Europe. Mediterranean style is warm, rooted in history, and unquestionably chic, which is most likely why we are drawn to it.

Mediterranean architecture takes cues from the vernacular details of exotic places such as Marrakesh, Tangier, the Greek Islands, and Naples. The ambience is open and airy and materials boast earthy textures.

All about the architecture

Social gatherings with friends and family play an important role in Mediterranean culture, so the architecture of this area follows suit. Since there is such a strong relationship between indoors and outdoors, a large emphasis is placed on outdoor living.

High ceilings, open floor plans, arched windows and doors, columns, low-pitched tile roofs, courtyards, verandas and loggias, exterior living rooms and fireplaces: these are the details that bring Mediterranean architecture to life.

It's all in the details

By Rodger Owen

MEDITERRANEAN DESIGN

1

PHOTO BY WAYNE CABLE

This home in Chicago's Lincoln Park neighborhood covers five lots. The exterior is adorned with classic Mediterranean details carved in limestone and a red clay tile roof. The home also incorporates sections of brick to blend into the Chicago vernacular.

Corinthian columns adorn the façade and support elaborate cornices. Palladian arched windows on the first floor are cased in wood with limestone arches and keystone details. Balustrades on the first floor are a typical railing detail of this style and act as an accent on Juliette balconies on the upper level. A traditional pediment detail marks the main entrance of the home.

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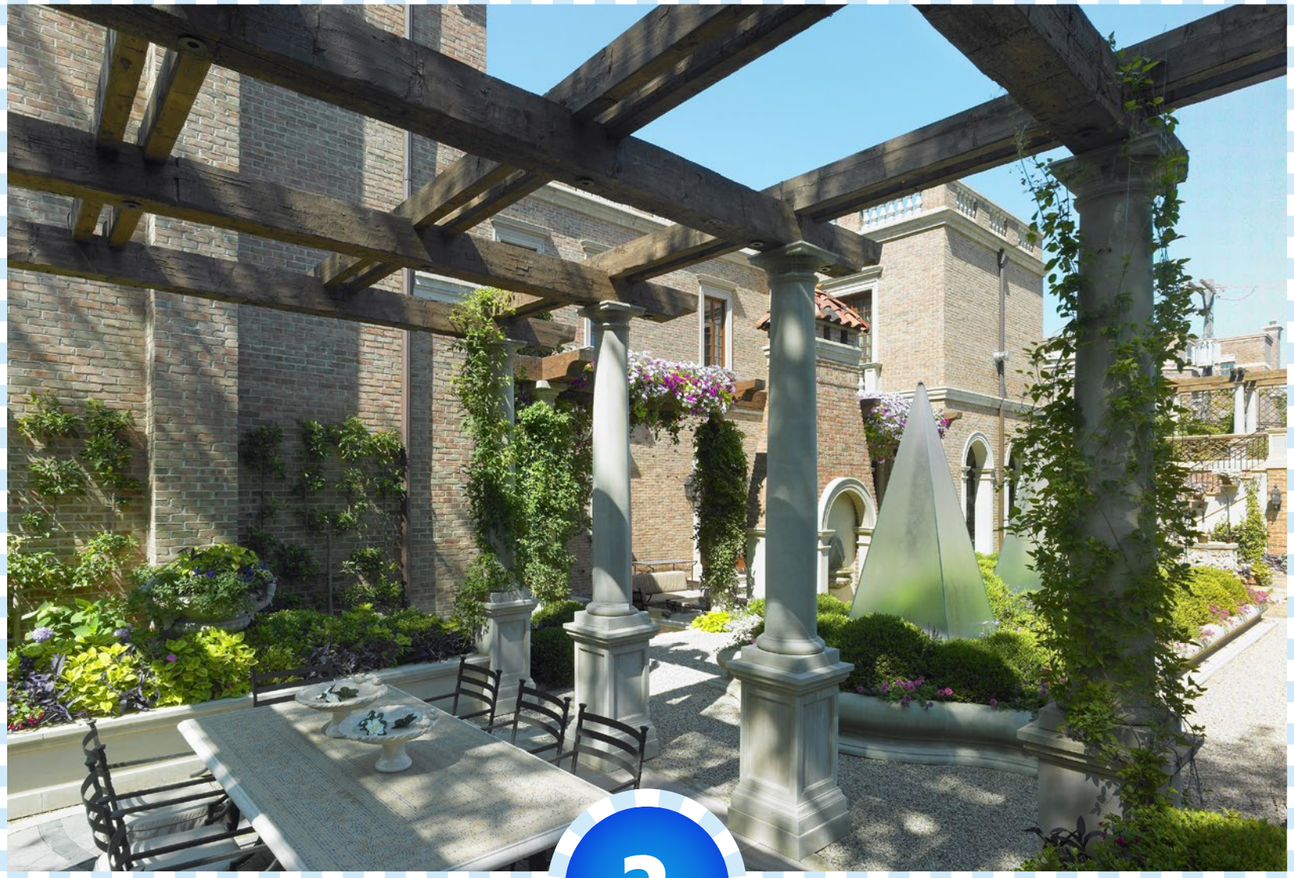

PHOTO BY WAYNE CABLE

2

Tuscan columns support a wood trellis, creating an intimate outdoor dining area. The elaborate landscaping and detailing were inspired by the home of Mildred and Robert Woods Bliss, known as Dumbarton Oaks, in Washington, D.C. The gardens are a colorful mix of annuals and perennials, combined with hardscape patios, stone urns, fountains, and custom wrought iron accents.

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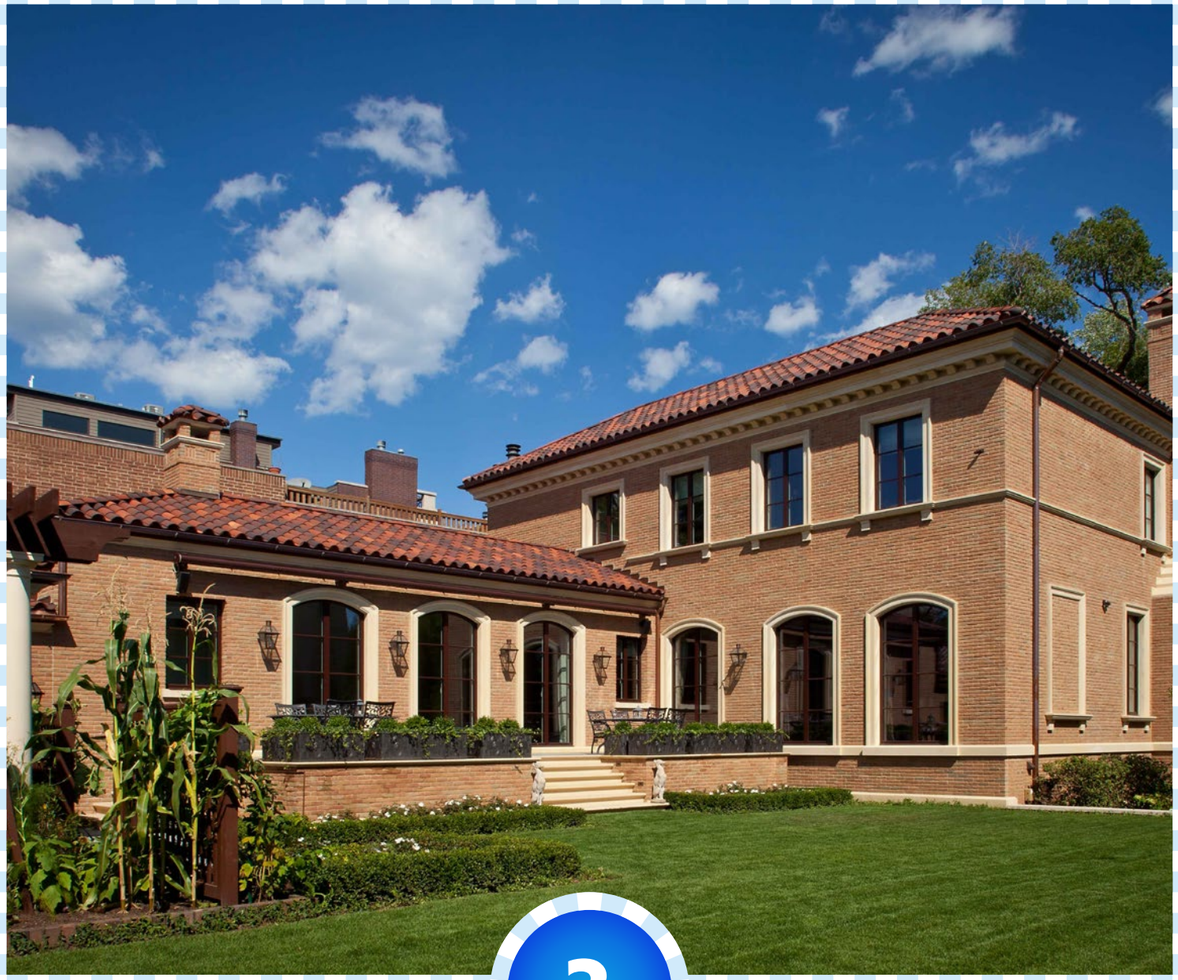

PHOTO BY LAMBROS PHOTOGRAPHY, INC.

3

Mecca of materials

Mediterranean architecture has a rustic and earthy vibe, achieved by using materials such as timber beams, terracotta, heavily textured stucco or brick walls, dark iron metals, and clay tile roofs.

This 8,500-sf traditional Italianate home was created for a young family in Chicago's Lincoln Park. The exterior palette is comprised of red clay roof tiles, brick, and creamy limestone.

Situated on two wide lots, it emphasizes an expansive side yard and terrace. With retractable European awnings for shade, the terrace is truly a wonderful place to dine al fresco. The owners make living outdoors a priority and dining outdoors a regular event.

The windows and doors throughout the home are tilt-turn units imported from Europe and are not commonly used in the United States. Opening onto the terrace, the French doors allow light to drench the interior family room, reinforcing the strong connection between indoor and outdoor living.

A third lot, added toward the end of the project, became a large side yard that completed the home's three different outdoor spaces: a 30-by-100-ft lawn where the kids play, a vegetable garden, and a traditional English garden with a limestone wall.

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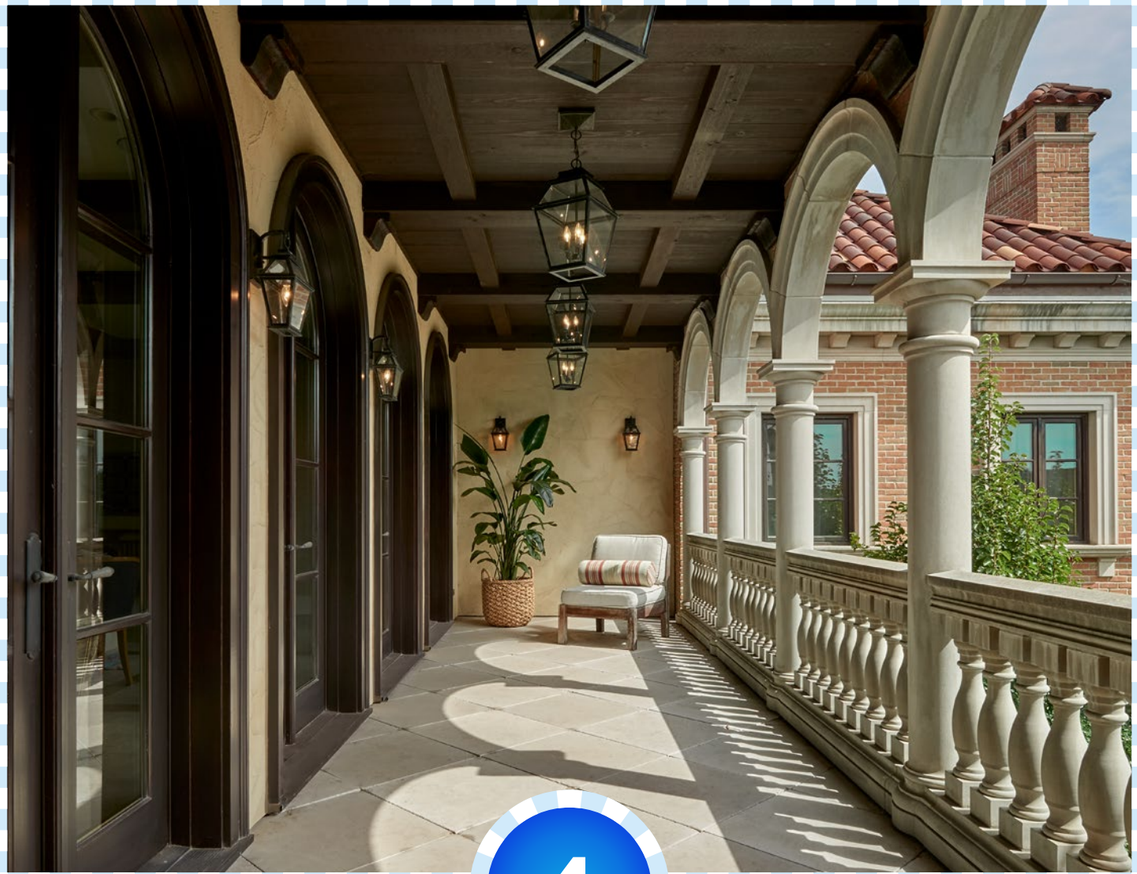

PHOTO BY TONY SOLURI

4

The second floor of this home accommodates more space for outdoor living.

Arched French doors open to this loggia, where the family enjoys an amazing view. The loggia brings in traditional Mediterranean details with a limestone colonnade, Tuscan columns, a limestone balustrade, and oversized limestone flooring set on a bias. The ceiling is wood and creates an intimate and cozy space. Wrought iron details are integrated into the palette, with outdoor lanterns making early evenings with an *aperitivo* a must.

It's all in the details

By Rodger Owen

MEDITERRANEAN DESIGN

5

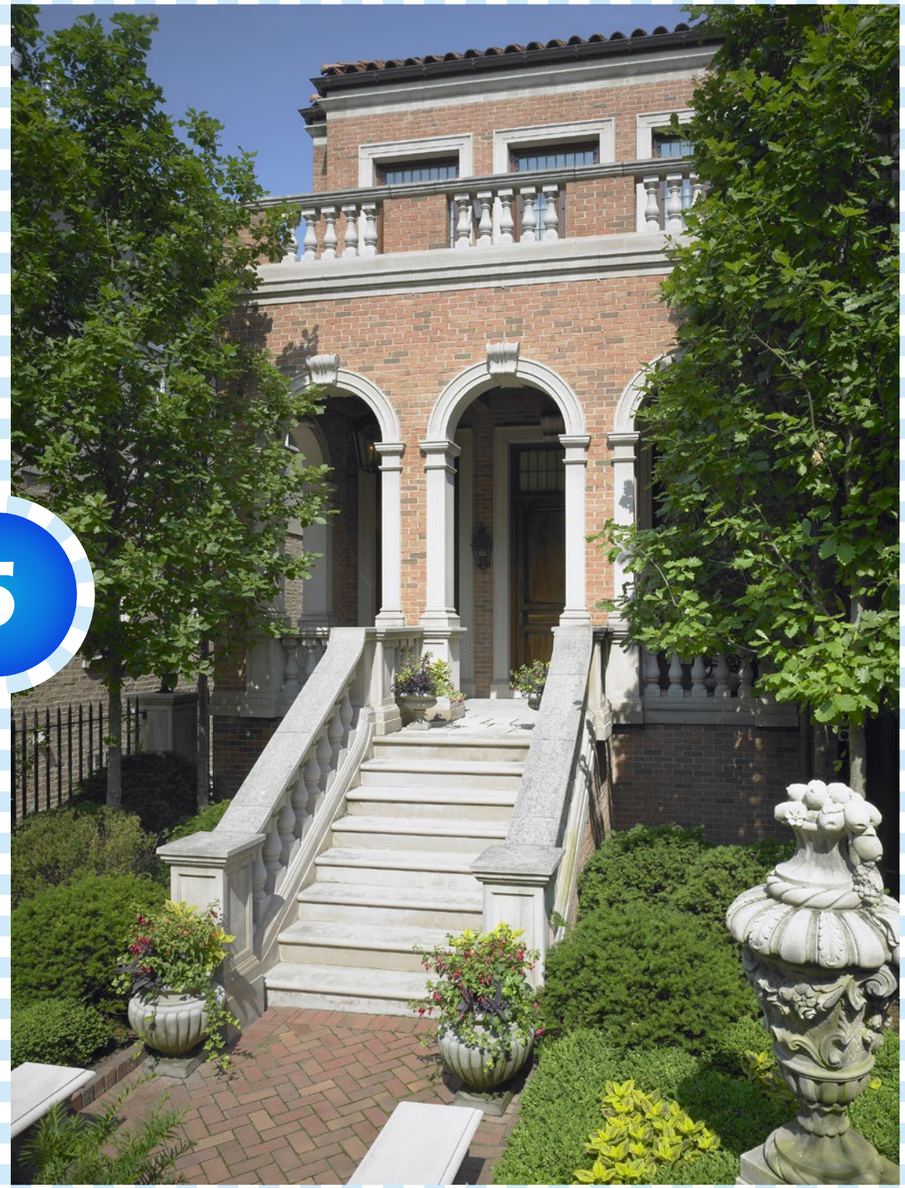

PHOTO BY WAYNE CABLE

Color me happy

Color theory for Mediterranean architecture is simple—what works with green?—as the style is meant to complement the lush landscape. Building materials are often comprised of warm grays, creams, rich browns, and shades of terra cotta, which allow an intense contrast to the vibrant greens of the countryside.

A secondary entrance for this home brings in traditional Mediterranean colors with both materials and landscaping. Earthy browns, natural red tones, whites, creams, and grays are enveloped in verdant foliage.

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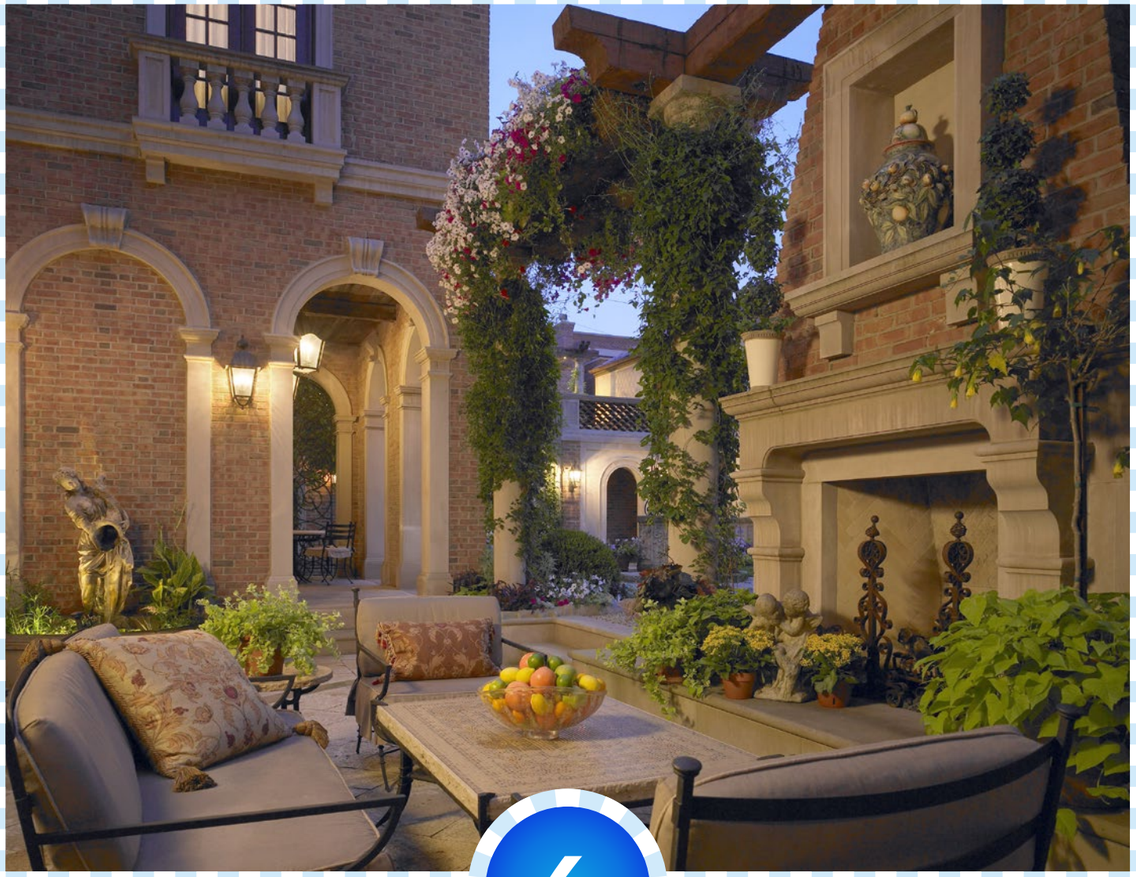

PHOTO BY WAYNE CABLE

6

Mediterranean architecture blurs the lines between interior and exterior spaces. This room is an example of outdoor living at its finest, complete with an oversized limestone fireplace that allows the space to be used well into the late fall. Landscaping elements add to the Mediterranean feel, bringing pops of color to the earthy palette with a wood trellis, climbing vines, and billowing petunias.

Rodger Owen is a principal of BGD&C Luxury Home Builders in Chicago, Illinois.