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The Delhi, a plan by Dahlin Group Architecture | Planning for JayMarc Homes in Seattle, makes comfort and convenience a priority **page 44**

PHOTO: HD ESTATES / JAYMARC HOMES

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Wanted: Smaller, More Affordable Homes

A RECENT ARTICLE FROM the National Association of Realtors' economists about single women homebuyers surprised me. I was aware that the cohort has been the second largest group of buyers, after married couples, for nearly 20 years. In fact, online lending marketplace Lending Tree reports that single women homeowners outnumber single men owners in every one of America's 50 largest metro areas.

What I didn't know is that this group's numbers have been diminishing, from 27% of buyers in 2006 to 17% in the current market. Despite an enormous amount of press devoted to single female homebuyers, even today, hardly anything has been reported about why their numbers have decreased.

One obvious reason is escalating home prices. Women still earn less than men—79 cents for every dollar that men made in 2019. That difference in earnings makes it even harder to keep up with increasing prices, which, according to the S&P CoreLogic Case-Shiller National Home Price Index, have risen by more than 20% in the last five years.

But it turns out women are also paying more than men when they buy a house. An incredibly comprehensive study from Yale University's School of Management, which looked at more than 9 million U.S. housing transactions between 1991 and 2017, reveals that women pay about 2% more at the time of purchase. Add the difference in down payments and fees and subsequent higher mortgage payments, and the gap grows to more than 7%.

It would be easy to say that the disparity stems from women being less effective negotiators. But in an article for the university's publication *Yale Insights*, Kelly Shue, professor of finance at Yale and one of the study's authors, cites research on car buying that refutes that assumption. In that study, men and women were given identical scripts to use while buying identical cars, but in many of those interactions men were offered discounts that women were not. Additional research shows that when women attempt to negotiate aggressively, sellers react negatively.

Most builders already know that women are their primary target market, regardless of whether they're married or single. They've listened to their customers and changed floor plans to reflect a woman's point of view, such as moving laundry rooms closer to where the clothes actually are or making the owner's entry a more welcoming place.

In many cases, however, single women buyers just want smaller homes, also known as homes they can afford. A recent report from the Urban Land Institute notes that builders are currently building fewer smaller homes than ever. Before 1999, 16% of new construction homes in the U.S. were 1,400 square feet or less. Since that time, just 8% of new homes built were in that category. New homes 1,800 square feet or less also declined after 1999, from 40% of the market to 22%. Larger homes, over 2,400 square feet, rose from being a third of all newly constructed homes to fully half of the market.

The same report reveals a disconnect between builders and buyers: While surveyed builders agreed that more affordable homes are in demand from a sizable segment of buyers, they believe that the way to achieve attainability is to limit community amenities, provide lower-quality finishes, and locate homes in less desirable areas. An RCLCO survey of consumer preferences, however, shows that buyers prefer the opposite: They want to purchase affordable homes in good locations with better amenities.

Current statistics show there's an array of these buyers waiting in the wings (for example, 89% of Millennials, according to Apartment List). It will be up to you to find a way to give them what they want.



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• Our COVID-19 survey remains open. Share your experience by taking this short survey at <https://coronavirussurvey.questionpro.com>

• Register for the Under40 Summit, June 8-9 in San Francisco, with a pass to PCBC, too: <https://under40summit.probuilder.com/2020/>



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Lessons From a Crisis

AS I WRITE THIS, the world as we know it has changed, at least for the time-being, thanks to the extraordinary (and completely appropriate) measures to limit the spread of the COVID-19 (corona) virus in the U.S. and abroad.

Everything seems to be in flux, from travel to toilet paper, and despite early hopes that closures and suspensions and social distancing—but not hand washing!—might be reevaluated and perhaps eased by the first of April, when this column will appear, that timeline is already certain to be extended. And with it, the very real impact of the virus and its ripple effects on nearly every aspect of our personal and professional lives.

I want to pause here to be clear: The lives of those suffering or who have died from contracting this virus far outweigh any financial hardships those of us who are healthy may experience during this time, even those that force businesses to close or lay off staff. Let's try to keep it in perspective.

We, as a society and an industry, will get through this, of course. And, I hope, come out the other side stronger, more united, and more appreciative of life, liberty, and the pursuit of happiness while shedding the selfishness of hoarding or profiteering at the expense of our fellow citizens, especially those who are most vulnerable.

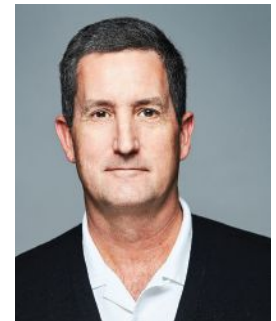
Another thing I'd really like to see when the dust settles is a groundswell of sharing. I realize that sounds a bit soft and cuddly (or socialist) to some of you, but hear me out: At both our own Under 40 Leadership Summit last summer and the two most recent annual John Burns Housing Design Summits, I experienced the

power of industry leaders willingly and openly sharing information, best practices, lessons learned, and data to help solve the serious and seemingly chronic issues of skilled labor, housing affordability, and next-level customer experiences. It works like you wouldn't believe.

If it wasn't clear before, it was at those events: We can't, and won't, solve those problems alone. Yes, solutions are likely more local than national, but even so, without the power of a collective effort—and in this case, everyone is a stakeholder—I'm afraid we'll still be talking about these issues in 10 years' time or longer, which is simply unacceptable. And unsustainable.

So, let's learn something from this crisis: to work together, seek out and offer help, and share ideas and data aimed at solutions, while applying creativity and innovation—not hoarding secrets, which aren't as unique as you believe anyway—to find a competitive edge. That's how we'll get through it.

And, if you're skeptical (and secretive), I guess I get it, but I also gotta ask: How's that workin' for ya?



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**WITHOUT THE
POWER OF A
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I'M AFRAID WE'LL
STILL BE TALKING
ABOUT THESE
ISSUES IN 10 YEARS**

CORRECTION: In the March issue *Forty Under 40* article, we inadvertently omitted Andrew Comstock's job title. He is VP at Gilbert C. Martin Co. We regret the error.

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NAHB's Response to COVID-19, Supporting Builders

As Americans respond to the novel coronavirus and practice social distancing to control its spread, the National Association of Home Builders is working hard to help members understand and respond to COVID-19 and the effects of the evolving economic slowdown by:

- Providing NAHB members with access to a range of materials online, including updated economic forecasts and information about business continuity and personal preparedness on nahb.org/coronavirus.
- Offering consumer resources and materials to assist NAHB state and local partner associations on our coronavirus web page.
- Conducting a series of webinars to inform members about the association's resources, policy advocacy efforts, and the industry outlook from NAHB chief economist Robert Dietz.
- Working with the White House on strategies to help support the housing sector regarding COVID-19's economic impact.

Government Efforts

NAHB participated in a call with White House officials to discuss COVID-19 and strategies to aid the housing sector. Less than 48 hours later, President Trump put into effect NAHB's recommendation to provide mortgage relief to homeowners, specifically that HUD would suspend foreclosures and evictions for FHA-insured mortgages through the end of April. Fannie Mae and Freddie Mac also will suspend foreclosures and evictions for at least 60 days for homeowners with mortgages backed by those enterprises.

Meanwhile, Congress passed an emergency response coronavirus bill that includes tax credits to help businesses and the self-employed cover some of the costs of mandatory sick leave included in the legislation.

Senate Republicans offered a \$1 trillion economic stimulus bill that includes checks of up to \$1,200 for taxpayers and \$300 billion earmarked for loans to small businesses with fewer than 500 employees.

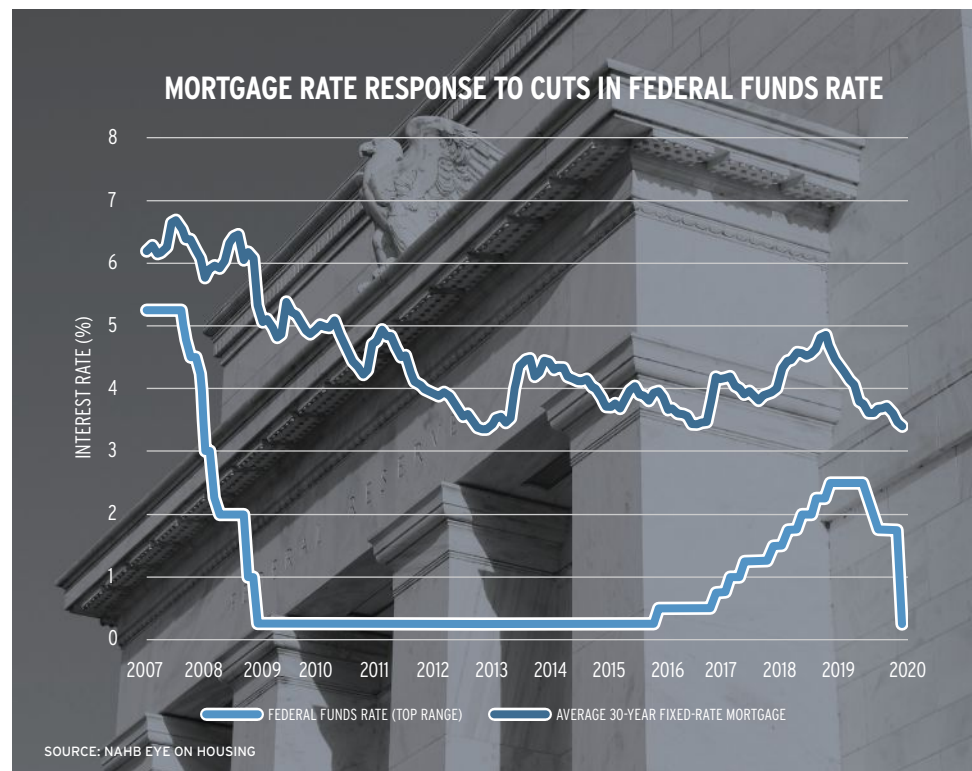
The Federal Reserve dramatically reduced the federal funds rate to effectively zero (see chart, below) and restarted quantitative easing (including for mortgage-backed securities), among other policy moves to shore up the financial system.

NAHB forecasts that second quarter GDP growth will be markedly negative, likely the worst performance since Q3 of 2008. Approximately 40% of the economy is on a full or partial pause due to the coronavirus. If virus containment efforts are successful

within an eight-week period (consistent with South Korea's experience), NAHB forecasts a weak third quarter followed by a rebound at the end of 2020. Fortunately, the economy was in solid shape at the start of 2020—particularly for housing—and history suggests a robust rebound will follow this significant (if temporary) economic shock.

But this is uncharted territory, so NAHB will continue to survey the industry, analyze the data, advocate on behalf of members, and help them understand and respond to this fast-changing economic environment.

A longer version of this article is available at probuilder.com/nahb-briefing-covid-19-response



ABOUT NAHB: The National Association of Home Builders is a Washington, D.C.-based trade association representing more than 140,000 members involved in home building, remodeling, multifamily construction, property management, subcontracting, design, housing finance, building product manufacturing, and other aspects of residential and light commercial construction. For more, visit nahb.org.

UP TO THE CHALLENGE?

By Rich Binsacca, Editor-in-Chief

Building homes in today's highly regulated, labor-challenged, and consumer-driven environment is hard work for the relatively modest 7.6% net profit earned by the average builder. A recent NAHB/Wells Fargo Housing Market Index survey revealed that current roadblocks, such as lack of skilled labor, have persisted as multiyear trends, while others are likely short-term headwinds.

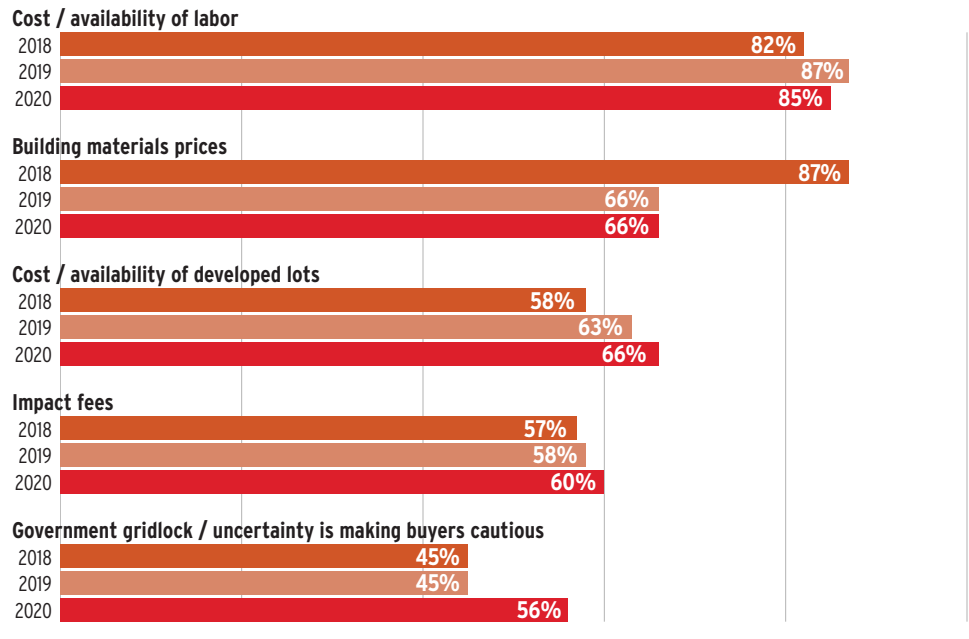
And, depending on where and what you build, such challenges may not align with national sentiment. For instance, the survey revealed that difficulty obtaining approvals is nearly twice as problematic in the West as it is in the Midwest (see "Regional Differences," opposite page). And while just 18% of builders of any size find student debt is making buyers cautious, a third of those starting more than 100 units a year suffer that experience (see "Differences by Size," opposite page).

"What's noteworthy is what has changed or is changing," says Paul Emrath, VP for survey and housing policy research at NAHB, which conducts and reports the survey. He points to a decrease in builder concerns about materials prices (following a lumber price spike in 2018), while issues related to approvals are becoming more widespread. "As we get further away from the downturn," Emrath says, "local jurisdictions are processing more requests and may either be more careful about what gets approved and/or see it as an opportunity to revisit or update more development standards."

That issue appears to affect larger builders more than the very smallest-volume shops. "A smaller, custom-home builder usually is dealing with a finished and approved lot," he says, "while a larger builder is more involved in the land development process, which is a longer road" to gain approvals and incur additional costs.

TOP 5 CHALLENGES: 2018, 2019, AND WHAT'S EXPECTED IN 2020

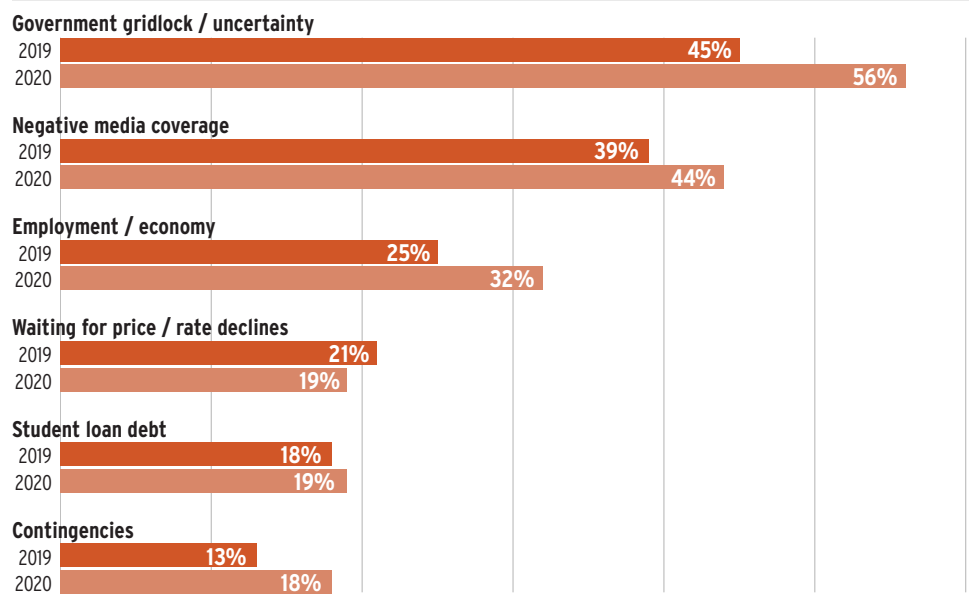
What were the most significant problems faced by builders during 2018 and 2019, and which do you expect to be most significant during 2020?



NO DOUBT, THE CONGRESSIONAL IMPEACHMENT hearings and the 2020 election season have buyers a bit nervous about the future of our federal government and its role in purchasing decisions more so than in recent years, while labor, materials, and lots are perennial challenges.

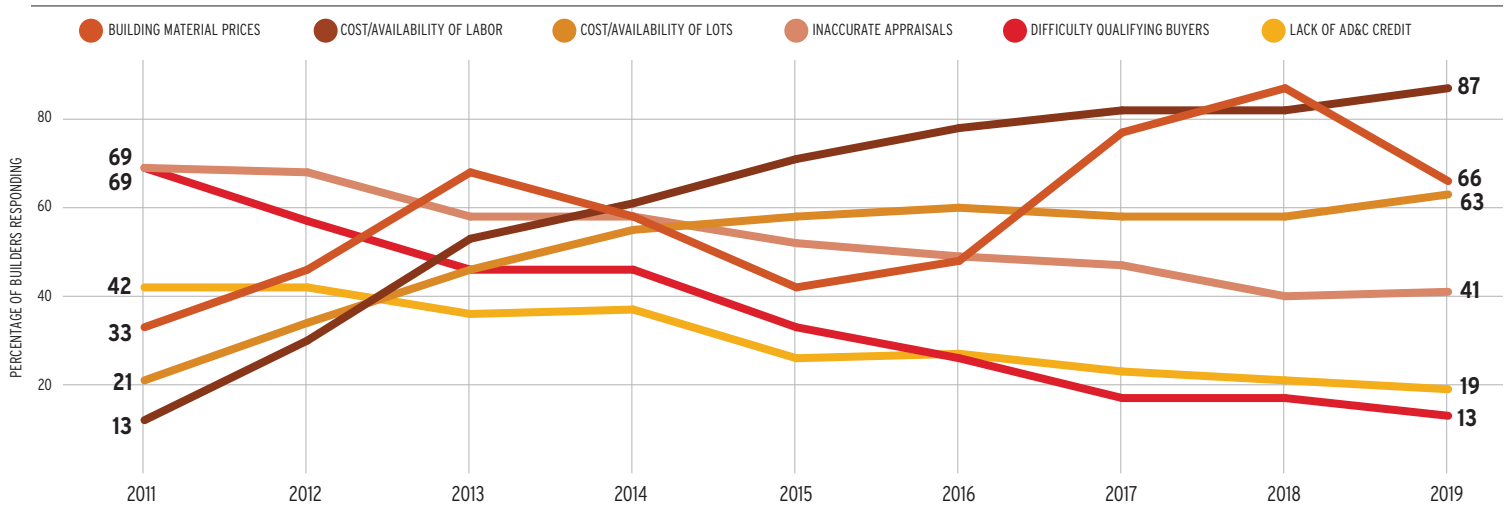
PROBLEMS ATTRACTING BUYERS: 2019 VS. 2020 FORECAST

What made buyers cautious in 2019 and what do you expect in 2020?



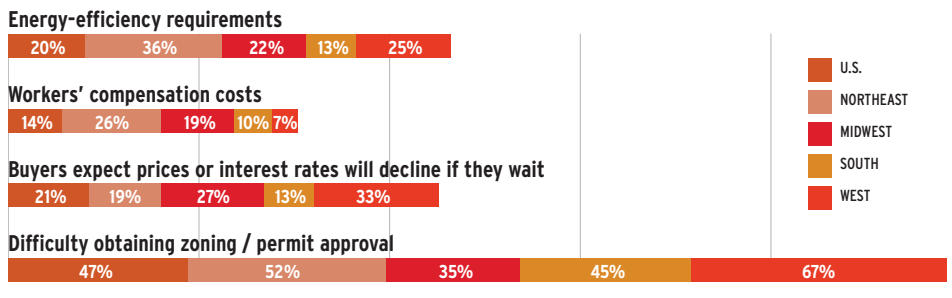
PROBABLY THE TOUGHEST CHALLENGE is not which buyer concern to address first and foremost, but that these all require attention to some degree to help get buyers over the hump, perhaps on a case-by-case basis. Growing concern over selling an existing home to qualify for a new one may drive more interest and use of iBuyers.

CHANGING CHALLENGES: 2011-2019



REGIONAL DIFFERENCES

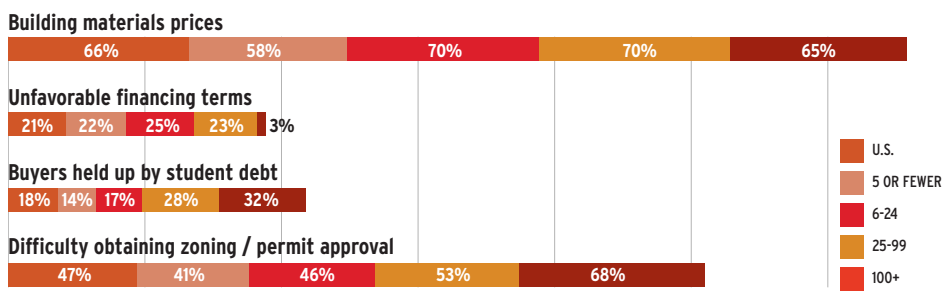
Problems faced in 2019 by region



BUILDERS ACROSS THE COUNTRY are pretty much in lockstep about the challenges of labor and lot shortages and materials pricing, while the metrics above point to distinct differences in policy and housing affordability issues at a regional level.

DIFFERENCES BY SIZE

Problems faced in 2019 (by 2018 housing starts)



NOT SURPRISINGLY, LARGE-VOLUME BUILDERS are far less affected by financing terms but feel more victimized by the approvals process and by student debt that keeps younger, less-affluent consumers from buying. Materials prices appear to not play favorites, underscoring the volatility (if not steady increase) of those costs at the local level and by turnkey trade partners.

A SIGN OF THE TIMES (ABOVE): From the depths of the Great Recession to current conditions, especially noticeable are the increased challenges associated with skilled labor availability and building materials prices, which have swapped places with financing roadblocks during that time frame.

METHODOLOGY AND RESPONDENT INFORMATION: Perennially, the December version of the NAHB/Wells Fargo Housing Market Index survey includes additional questions regarding the most significant problems faced by builders in the previous year, and problems they expect to face in the coming year. For the most recent study, NAHB garnered 332 responses. For more findings, go to probuilder.com/april-2020.

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THE Z.E.N. OF WALLS

The Ultimate Zero Energy Now Home proves there's more than one way to deliver a high-performance wall

By Charlie Wardell

With energy codes likely to mandate some version of net-zero ready energy standards for new construction within a decade, many building science experts believe every home will soon require exterior insulation board to deliver an optimum perimeter wall system.

Others agree with the science, if not the mandate. One is Thrive Home Builders, in Denver, which is partnering with *Pro Builder* and the Energy and Environmental Building Alliance (EEBA) to build The Ultimate Z.E.N. (Zero Energy Now) Home.

While the 2,500-square-foot model home will showcase several building innovations, Thrive chose to build a staggered

double 2x4 stud wall system that some may consider regressive (see details in photo, below).

In fact, the assembly affords Thrive several advantages: familiarity among framing crews; relatively simple flashing details at openings; and an air space that provides a thermal break. Best of all, the wall achieves an insulating value of R-40 without using petroleum-based exterior insulation board, reinforcing Thrive's commitment to more sustainable building practices.

Thrive CEO Gene Myers adds that homeowners love the deep window wells afforded by the 9 1/2-inch-thick walls. "They're a constant reminder of how highly insulated

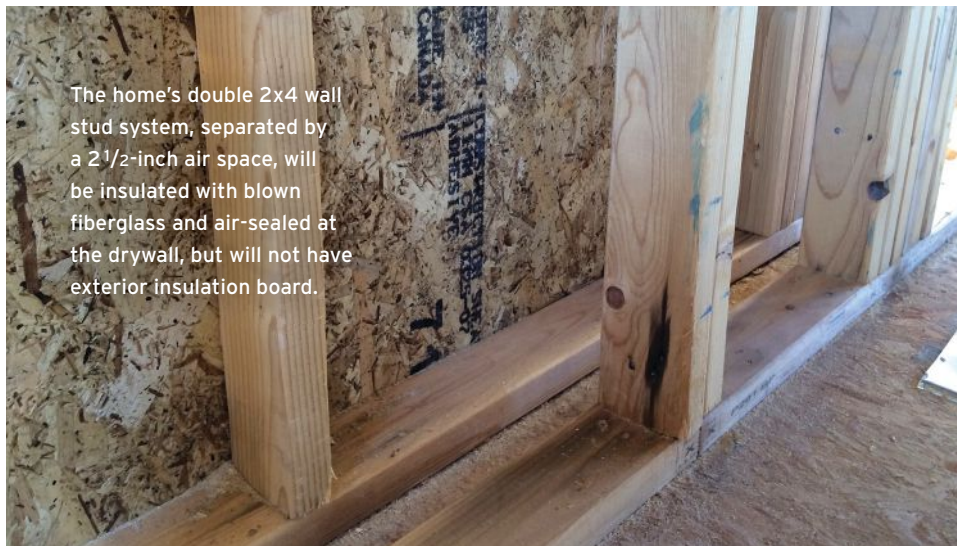
the home is and have become a bragging point for many owners," he says.

Still, double walls get a bad rap because many fear that, with so much embedded R-value, the inside face of the structural sheathing (in this case OSB) will get cold enough in winter for moisture to condense in the wall cavity. In fact, building scientist Joe Lstiburek has advised against a double-wall assembly unless there's also sheathing on the outside of the inner wall to keep moist indoor air from condensing on the inside face of the exterior sheathing panels, a recommendation that kills any cost advantages of the double-wall scheme.

Myers understands the science, but insists that Denver's dry climate nullifies such moisture concerns. He admits the system likely wouldn't work in cold, damp climates, such as New England, though Maine builder Dan Kolbert has found nothing that would indicate a problem after testing several double-wall homes for temperature, relative humidity, dew point, and wood moisture content over several years.

Even so, Thrive went to great lengths to vet the wall design, running various iterations through HERS (Home Energy Rating System) and Passive House software to find the sweet spot for performance and cost. Because the offset 2x4 studs are 24 inches on-center, Thrive also worked with an engineer to make sure all loads would transfer properly. And the project's insulation partner, Owens Corning, conducted a moisture simulation to confirm there would be no issues in Denver's climate.

For The Ultimate Z.E.N. Home, innovation isn't necessarily about rejecting old ways but of scrutinizing and upgrading them as necessary—a theme you can expect to continue as *Pro Builder* follows the home's construction in the months ahead and when it opens for tours during EEBA's annual summit in September. **PB**



The home's double 2x4 wall stud system, separated by a 2 1/2-inch air space, will be insulated with blown fiberglass and air-sealed at the drywall, but will not have exterior insulation board.

PHOTO: THRIVE HOME BUILDERS

THE ULTIMATE Z.E.N. HOME PARTNERS



Carpe Opportunitas!

Use this checklist to dominate Tier 2 and Tier 3 markets

By Bob Schultz, Contributing Editor

Competition and striving for excellence in product design, marketing, and sales is a constant pursuit for any home builder, but especially in Tier 1 markets. That's big-time, where national publics roam and it's far more difficult for a local private builder to make its mark.

But Tier 2 and 3 markets are different and are ripe for opportunity, especially if a builder is committed to excellence in order to become the big—or best or most profitable—fish in a far smaller pond than the major-league markets. In fact, one criterion I use to define market size is the presence

of major professional sports teams. Most Tier 1 markets have at least two, and I currently count eight MSAs with a team in all four major sports leagues (MLB, NFL, NBA, and NHL).

Other criteria are perhaps a bit more relevant to housing professionals, such as population (at least half a million) and the presence of several national public and private home builders operating, and competing, for buyers.

Tier 2 and 3 markets, by contrast, are far smaller, though hardly tiny: usually fewer than 300,000 people, with a good employment base, steady (ideally increasing) new-home permit activity, and a mix of some regional but mostly local builders, and probably a Double-A baseball team and/or a minor-league hockey club.

Case in Point

At just over 167,000 people, Springfield is the third-largest city in Missouri. It's the home of Missouri State University and fields an AA baseball team affiliated with the St. Louis Cardinals. Unemployment is on par with the rest of the country. Local, relatively small builders compete for about 800 new single-family home starts per year.

By most accounts, it's a Tier 3 market, a status I consider to be full of opportunity for smart, forward-thinking builders like Ryan Cantrell, president and founder of Trendsetter Homes (originally founded as K.R. Cantrell Homes).

I met Ryan, a third-generation builder, at our 2019 Best Home Building Practices Summit, where he was looking for strategies to increase his market share.

I learned his grandfather was a home-builder who in 2002 gave him a lot on which to build his first home. His mom, also a home builder, became a mentor, and his dad, a preacher, was his role model for integrity. The core fundamentals of a successful home builder were in Ryan's blood.

As he tells it, the first few years were a battle, if at a small scale. Ryan would build a couple of homes, sell one, start another, netting take-home pay of about \$18,000 a year. But by 2006, K.R. Cantrell Homes



was in the thick of the housing bubble, building 15 to 17 houses per year, until the economy tanked and Ryan experienced his first real wake-up call as a home builder.

Working 80-plus hours a week, he and a skeleton crew did everything possible to survive the downturn, and they ultimately did get through it, thanks mainly to some profitable rental investments.

After attending the International Builders' Show and our Best Home Building Practices Summit last year, Ryan enlisted us to implement some time-tested pillars to achieve excellence and leadership in his market—a progressive checklist suitable for any builder looking to dominate a Tier 2 or 3 market.

1. Identify strengths, weaknesses, and objectives: Assess where you started, where you've been, your goals, and what you learned. As a mentor taught me, and I passed along to Ryan: Good judgment comes from experience, and experience comes from bad judgment.

2. Identify opportunities: John Schleimer, founder of new-home research and product consulting firm Market Perspectives, in Roseville, Calif., conducted a study of the Springfield, Mo., market in June 2019 and found:

- No national or regional builders
- Low unemployment
- Population growth
- 789 single-family permits
- Duplication of similar floor plans among builders
- Home sales dominated by real estate agents with minimal knowledge of builders and product, and no on-site models, dedicated sales environments, or personnel.

3. Fill the voids: Differentiate by improving product and marketing, and by creating model homes and functional sales arenas with dedicated on-site sales teams, with a goal of increasing market share by at least 25%.

Though commonplace in Tier 1, these initiatives are almost never implemented

diligently or completely in Tiers 2 or 3, which is why any builder that does it well in those tiers will seize the market.

In Springfield, Ryan did the following:

- Rebranded K.R. Cantrell Homes to become Trendsetter Homes.
- Created an entirely new product line of 11 plans (The Chelsea Collection) launched in early 2020, thanks to a collaboration with well-known local designer Chelsea Sowder of Nest Interiors + Design.

4. Join the digital world: Ryan also set the local market trend when he:

- Created and implemented digital marketing campaigns to engage and influence target markets.
- Developed virtual reality presentations on oversize screens in the sales center to immerse buyers in the locations, style, and design of Chelsea Collection homes.
- Employed an aggressive social media campaign to motivate prospects to take action.

5. Focus on customer experience: Trendsetter transitioned from real estate to retail and simplified the homebuying process to elevate the customer experience by:

- Consistent branding, including its website, signage, sales center environment, and on-site new-home sales professionals.
- Designing a sales environment that ensures customer awareness of the all-important Trendsetter Advantages, using engaging, stimulating graphics.
- Designing with hospitality in mind. The sales arena's warm, modern feel delights and engages prospects. They're invited to enjoy refreshments while learning about the Trendsetter Advantages.
- Merchandising model homes and demonstrations, leaving nothing to chance. Trendsetter Advantages messaging is strategically placed throughout.

6. Create a new culture: Following my mantra, "New-home sales is a business event in which we must always be sociable," Ryan accepted my challenge to create a culture in which his entire company is the sales team, namely:

- The Trendsetter sales team completes the marketing loop.
- Models and sales arenas are staffed seven days a week.
- The on-site sales team is carefully selected and trained in our branded Official New Home Sales Development System, so they are confident and conversational with scripts and can identify customer needs and present how Trendsetter Homes can fulfill those needs.

Never having had a dedicated model, Ryan offered a sneak peek of the first of Trendsetter's three model home and sales arena complexes in December 2019, with the others opening this month. That holiday event enticed 70-plus local real estate agents who

oohed and aahed at the beautiful model and a sales office open seven days a week. The real result: an increase in home sales to 16 from 4 in the same time period a year ago.

No doubt competitors will be watching. But in my experience, they'll only copy bits and pieces and will rarely execute correctly. To wit, within a few weeks of Ryan's event, another Springfield builder announced it was building a model home that would be open for "a few hours on Sunday." My advice to Ryan and others who want to truly lead and dominate: Execute flawlessly, excel in your tier, and create faster than others can copy. **PB**



Bob Schultz is president and CEO of Bob Schultz & The International New Home Sales Specialists. Write him at bob@i-nhss.com.

**THIS PROGRESSIVE
CHECKLIST IS SUITABLE
FOR ANY BUILDER
LOOKING TO
DOMINATE A TIER 2
OR TIER 3 MARKET**



The Price of Oats

A little due diligence and a total cost mindset go a long way to determining if you're getting a good deal on your purchasing

By Mark Hodges

There's an old joke about a man who wanted to buy some oats from a farmer. He asked the farmer how much he charged. "That depends," replied the farmer, "on whether you buy them before or after they've been through the horse."

The residential building products landscape is littered with unfortunate (and expensive) tales of products gone bad, and it's no secret that the price of an inferior product is far different from the ultimate cost of that product.

If you've been around long enough, you remember the story of fire-retardant-treated (FRT) plywood. Treated with chemicals to reduce the movement of flames from one multifamily roof to another (a fine idea), the process ultimately delaminated the OSB sheathing, causing unsightly bulges in roofs and eventually degrading to the point of being hazardous. Thousands of roofs had to be replaced, at enormous cost to builders and great inconvenience to homeowners.

More recently, you may have had the misfortune of using a certain type of Chinese drywall. Laced with formaldehyde from

ILLUSTRATION: RZOOG / STOCK.ADOBE.COM
MODIFIED BY LARRY NICH

gypsum quarries, the product caused massive corrosive damage to wiring, appliances, HVAC coils, and even foil-backed mirrors.

Remediation required moving families from their homes (and housing them), taking the homes down to the studs, and refinishing entire interiors. I had the “fun” of working with more than 40 very unhappy homeowners to solve this major problem, at a cost of literally millions of dollars—not to mention enduring sensational evening news coverage of the issue.

One more example is a now-defunct window manufacturer whose irresistibly low-priced windows quickly began to suffer broken seals and shifting in their openings, wreaking havoc in thousands of homes. We all know that you get what you pay for, as these harsh lessons illustrate.

The good news is that there is much more readily available information today about product quality, thanks to the internet and the ability to search reviews on thousands of products.

The trouble is that home building purchasing managers are often motivated to buy products at the lowest price, intending to save the company money in material costs. This sensible objective results in countless poor and expensive decisions.

Not only is product quality and durability an issue, other factors significantly affect the ultimate cost of selected products, such as:

On-time delivery: No matter how good the product, if it holds up construction because the manufacturer fails to manage its production and distribution processes, you’re spending money on “empty-house days” while waiting for delivery. How many times have you heard your construction manager complain that he can’t move a house ahead because he’s waiting for materials?

Correct delivery: If the cabinets that arrive are oak instead of the maple you ordered, or don’t fit properly in the kitchen openings, you’ve wasted even more time and you risk missing your closing dates—one of the most important influencers of customer satisfaction.

The lesson: A key factor in a manufacturer’s performance and reliability is its distribution network. Smart builders carefully assess a supplier’s distributor program before signing a contract.

Changing product specifications: If a manufacturer is constantly changing specifications or features (and model numbers) of their products without informing you, or without changing out your model displays, you’ll end up in-

stalling products your customers didn’t buy. And believe me, they’ll notice.

My company switched our appliance manufacturer (and we were buying thousands of appliances each year) for the sole reason that they were constantly making modifications to their products that we simply couldn’t keep up with ... and wasting time and money trying.

Poor warranty service: Service performance is critical no matter how good the product normally is. Things break, but if your manufacturers don’t stand behind their products and instead hide behind their flimsy warranties, your buyers don’t blame them, they’ll blame you.

The same goes for hiring trade partners. Too many builders choose their trades on the basis of bid price alone, and don’t even investigate the other key factors that affect the ultimate cost of the services provided.

Consider the following key factors—besides price—that all purchasing managers must evaluate in order to make truly cost-effective decisions:

Capacity: Does the trade partner have sufficient capacity to manage your work?

How many crews do they have? How many projects are they working on? Will you get their crews when you need them? Will they send two guys instead of the three needed to meet your schedule?

Most trades admit they’ll take any project they’re offered, regardless of their capacity to manage it, and many use “subs of subs” when their internal capacity can’t meet the demand for service. Smart builders prohibit the subcontracting of a trade’s work, or at least require notification that the trade intends to do so.

Craftsmen’s skill: Sure you can have 19-year-old plumbers working on your homes, but wouldn’t you rather have plumbers with 19 years of experience? Find out the experience level of the trades’ crews before giving them the job.

Quality assurance: Do your trades inspect for quality to ensure their crews are delivering quality work? If not, that task is left to you, and I can assure you that if they don’t monitor the quality of their work, it’s far more likely to be subpar.

The bottom line is that choosing a product or service based on first price alone fails to take into account the many factors that increase the ultimate cost of that product or service. It’s a relatively easy lesson to learn, but a very difficult one to follow when price is leading the decision-making process.

When giving marching orders to your purchasing folks, make sure they consider not just the price but the ultimate cost of the materials and services they buy. It will often change their decisions, and for the better.

In other words, the next time you’re buying oats, be sure to take delivery before they’ve gone through the horse!

**THE TROUBLE IS THAT
HOME BUILDING
PURCHASING
MANAGERS ARE OFTEN
MOTIVATED TO BUY
PRODUCTS AT THE
LOWEST PRICE**



Mark Hodges is principal of Blueprint Strategic Consulting, providing planning, organizational development, and quality management consulting services to the home building industry. Write him at markhodges1018@gmail.com.

GETTING WASHOUTS RIGHT

PROPER DISPOSAL OF CONCRETE, PAINT, AND OTHER TOXIC SLURRIES IS AN IMPORTANT QUALITY-CONTROL MEASURE

By John Koenig

Washout stations are a crucial piece of every development's Stormwater Pollution Prevention Plan, as neglecting them can have negative impacts on the environment and a builder's profitability.

While concrete washouts are generally properly managed, we see problems with other materials on nearly every jobsite that could come back to bite your budget, as well as your reputation.

Environmental Impact

Simply, liquid slurries from concrete, paint, and plaster are corrosive and alkaline. If dumped on the ground, they can kill plant life and make it difficult to sustain landscaping—an expensive mistake. Worse, if they are allowed to percolate into the soil, they can contaminate rivers, lakes, coastal estuaries, and groundwater.

It should come as no surprise that the Environmental Protection Agency wants to keep this stuff off and out of the ground, and has been using fines as high as \$11,000 per day per project as an incentive for proper disposal. One developer we know got hit with a \$68,000 fine for pollution law violations, and poorly designed concrete washouts were specifically mentioned in the citation.

Concrete Practices

Compliance for concrete deliveries is generally good on most jobsites because truck drivers routinely and properly wash out their chutes.

But we do see some problems, especially with drivers trying to maneuver their pump trucks into roll-off washout stations. Another issue is that most concrete washouts are lined with plastic sheeting, which is supposed to hold the water until it evaporates, after which the hardened concrete can be safely hauled away. Unfortunately, a lot of these sheets are leaky, allowing washout to seep into the soil.

Despite these shortfalls, a typical builder or developer at least understands the need for concrete washouts; not so with other phases of construction.

A Slurry of Problems

If common practice is any indication, few builders seem to remember that the law also requires washout stations for painting, drywall, and plastering equipment.

Compliance for those materials is poor to nonexistent on a lot of jobs, and I often see painters and drywallers outside the garage spraying brushes and trowels with a garden hose and leaving the mess on the ground.

Fortunately, creating an EPA-compliant washout for these materials is neither expensive nor difficult. Some disposal companies will bring a steel bin to the job for this purpose, while do-it-yourself options include a simple 2x8 box or a prefabricated, EPA-compliant washout.

Those last two options should be lined with plastic, and (as with concrete) once the paint or plaster slurry dries and the water has evaporated, the solids should be safely put in the dumpster. In addition,

there are polymer-based powders that more quickly harden the slurry, making it EPA-compliant and ready for the landfill.

However, job supervisors do need to make enforcement of these solutions a standard part of the routine for crews and trade partners.

CREATING AN EPA-COMPLIANT WASHOUT FOR THESE MATERIALS IS NEITHER EXPENSIVE NOR DIFFICULT

Another Impact

While paint waste and plaster spatter may seem to be small oversights, allowing insufficient washouts for those materials can have consequences beyond environmental impacts and EPA fines.

Homebuyers who see trades dumping paint or plaster slurry onto the ground get a bad impression of your home building company. They naturally wonder if that sloppiness reflects the standard of the rest of your quality-control program and will be likely to scrutinize your work more closely. **PB**

John Koenig drives quality and performance in home building as a building performance specialist of the PERFORM Builder Solutions team at IBACOS.



PORTABLE, PREFABRICATED WASHOUTS ARE AN EPA-FRIENDLY SOLUTION FOR SMALL CONCRETE JOBS, AS WELL AS FOR CLEANING PAINTING, PLASTERING, AND DRYWALL TOOLS.



YOUR WASTE DISPOSAL FIRM MAY HAVE A STEEL BIN SPECIFICALLY MADE FOR PAINT AND PLASTER SLURRY THAT THEY WILL HAUL AWAY FOR SAFE DISPOSAL WHEN FULL.



ROLL-OFF WASHOUTS ARE MORE COSTLY AND ARE DIFFICULT FOR PUMP TRUCKS TO MANEUVER INTO.

LIVING EASIER

DESIGNING HOMES THAT ARE EASIER TO LIVE IN
CAN DRAW BUYERS AND MAYBE A PRICE PREMIUM

BY MIKE BEIRNE, SENIOR EDITOR

Could a house reverse aging? Maybe, if it was designed and built to enable its owners to sleep better, thanks to an integrated scheme that automatically optimizes lighting, temperature, and indoor air quality settings at night to match the body's circadian rhythm for melatonin production.

That's just one of several ideas that Dan Swift, president and CEO of BSB Design, in Des Moines, Iowa, promotes as part of his mission to elevate performance and relaxation for inhabitants. It's a concept he advocates at the start of the residential design process rather than an afterthought, no matter the housing style, type, or price point.

A house designed and built to make life easier for buyers would be a powerful sales tool for builders, says Deryl Patterson, founder of Housing Design Matters, with offices in Chicago and in Jacksonville and Tampa, Fla. A former BSB Design principal, Patterson wants to rid the housing industry of the myriad lifestyle irritants suffered by homeowners due to thoughtless design approaches that simply tuck bedrooms and bathrooms into a box.

"The design of a house impacts people's lives, and just because you don't have a custom-built home doesn't mean you shouldn't have one that is thoughtful," Patterson says. "People in this industry have become numb to accepting things the way they are and have always been"—to the detriment of our health, productivity, and happiness at home, she says.

They're not the only players pivoting from a world where buyers are relegated to square pegs jammed into the round holes of home plans. Trumark Companies, a diverse builder/developer with

Opposite page: Housing Design Matters' elements in MasterCraft Builder Group homes include the **[A]** Pocket Office, located near the kitchen so homeowners can pay bills and pull a meal out of the oven; **[B]** Connected Laundry, conveniently situated next to the walk-in closet; **[C]** Family Foyer, a stop-and-drop station; **[D]** Beverage Center, which targets empty nesters' penchant for get-togethers with wine and beer; **[E]** Messy Kitchen space in the Power Pantry, to keep appliances out of sight. The Power Pantry kitchen storage solution accommodates suburban consumers' tendency to buy as much as they can from big-box stores in one car trip.





Lowder Homes applied a few easy-living elements from BSB, such as an Owner's Entry and a Retreat ("snore room") within the Owner's Suite footprint.

offices in San Ramon and Newport Beach, Calif., has conjured, with the help of architectural firm Bassenian Lagoni, a townhome design so flexible that floor plans can be customized and adjusted to fit the lifestyles of multiple buyers in multiple ways.

Meanwhile, Brian Gaudio, CEO of Module, in Pittsburgh (see sidebar, opposite), is offering homes that can grow as homeowners' needs, equity, and ability to afford more space change from the time they first buy a home to when they have a growing family and then become empty nesters.

PROOF OF CONCEPT

The New American Space or the Thoughtful Home, as Swift calls it, can be rejuvenating because living there requires less effort if the house is designed around at least the top-five critical moments homeowners encounter: leaving for work or school, coming home, weekends at home, entertaining, and storing stuff.

Those moments manifest in the floor plans BSB Design developed for 55 homes under construction by Lowder New Homes in New Park, a 1,169-acre, 2,700-unit master planned community in Montgomery, Ala. The homes, ranging in size from 1,534 to 2,380 square feet and priced in the low \$230,000s to \$290,000s, feature private owners'

entrances, laundry rooms accessible from the master walk-in closet, morning kitchens for additional storage, boot benches in the mudroom off the garage, and "snore rooms" within master suite footprints, among other elements of the Thoughtful Home concept.

For example, in the master suite, BSB plans can include a second sleeping space, dubbed the snore room (actually called the Owner's Suite in marketing literature) so each partner can get a decent night's rest. That room and the Morning Kitchen, essentially a second prep kitchen with space for the coffee maker and toaster, are the features most in demand on BSB's floor plans being used in Lowder New Homes' Summerlin community in Auburn, Ala.

"It's radical because we're thinking about how we can make this house best suited for this customer, this family, for a particular living situation," says Jim Rutland, president of the East Montgomery-based builder, which closed 185 homes in 2019, compared with 112 in 2018. "Then we think about cost and efficiency in the building process"—a reversal of common practice and a tenet of Swift's gospel.

Sales of Thoughtful Homes in New Park started slow after their release in March 2018 because Lowder's price per foot was higher than that of a large public builder that preceded it in the community. But by offering Thoughtful elements as options (Millennials prefer



PHOTOS: ED MASSERY (COPYRIGHT 2019 ED MASSERY)

Module's first project is this 880-square-foot in-law home designed using Passive House principles. The roof and wall systems enable owners to add more floors or an addition with a crane, if the need arises.

A HOUSE THAT GROWS

Brian Gaudio, CEO of Module Design, in Pittsburgh, and co-founder Hallie Dumont, are redesigning home ownership by providing the amount of house buyers need and can afford today with the ability to expand that modest footprint later.

Module's patent-pending roof and wall system enables homeowners to pop off the roof and add a second or third story, or a grade-level addition, should they require more house as their family grows or their needs change. Floor plans start at less than 1,000 square feet and can expand to more than 2,500.

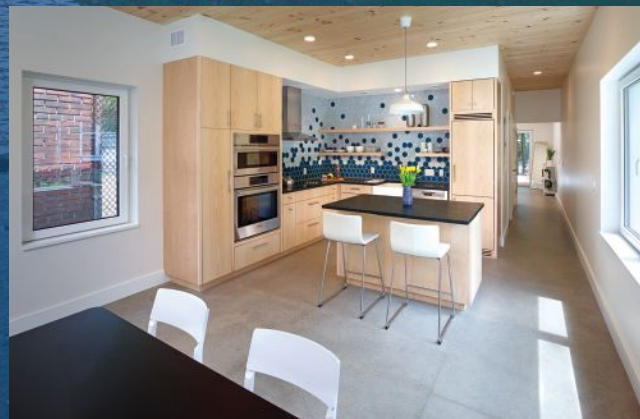
The technology takes future expansion into account by prefabricating connection points for the next story and ground-level additions and designing space for future stairs, mechanical runs, and passage openings.

Module's first house was built using panels manufactured in New Walpole, N.H., and shipped to an infill lot where a local contractor coordinated the field work. The company poured foundations in February for a mixed-income project with one duplex and two single-family detached units. The modules will be shipped and installed by the end of March and are set to be completed by June.

Gaudio and Dumont hope the pilot project will not only lead to building more Module projects for the city's blighted infill lots, but also demonstrate their expandability concept: The day after finishing the two-story duplex, they plan to pop off the roof with a crane and add the third-story box. "That will be an important R&D test case for us," Gaudio says. "It will tell us how quickly we can make this addition and what are the potential time and cost savings there."

Gaudio and Dumont have received some push back when they pitch Module to builders and developers, mostly because their starter box pencils out at a higher per-foot cost to build compared with a house that immediately amortizes everything across 3,000 square feet. But Gaudio contends that building a house that grows with its buyers creates a longer-term relationship and presents opportunities for recurring revenue streams.

"Buyers aren't seeing what they want in a home anymore. The average home the builder is providing is for the nuclear family with mom, dad, and two kids, but what about that single person? What about the couple with a dog and no kids, or buyers with no plans for kids? What kind of home can we be selling them?" he says. "That's a challenge the industry has, and we are uniquely suited to serve the demographic that is typically not served by builders."



a home office over a snore room) and explaining how the flexible spaces create easier living for everyday tasks, the product caught on.

As of March, half of the 55 planned units have sold, and Lowder has purchased 30 more lots in that community. Success at New Park encouraged Rutland to adopt the designs company-wide, and in nearby Prattville, 34 of 47 lots have sold since September 2019. Rutland credits the premium price per square foot that Lowder is receiving there, compared with the competition, to the Thoughtful Home layout.

AN ENDURING PRODUCT

About 400 miles southeast, in Fruit Cove, Fla., MasterCraft Builder Group is the flagship builder in Shearwater, a 1,500-acre master plan of 2,634 housing units, where company founder and CEO Chris Shee wanted to build an “enduring product” that looks more at how people live versus forcing them to fit their lifestyles into a standard home, an approach that embraces several design elements conceived by Housing Design Matters’ Patterson.

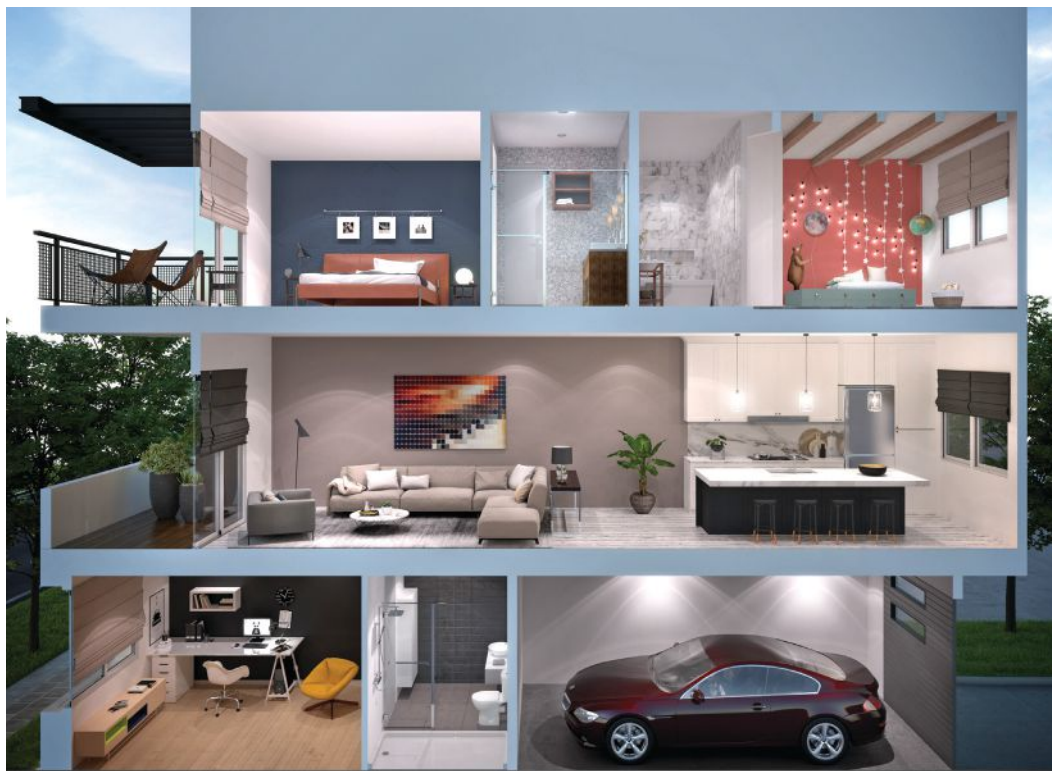
Since opening for sales in 2016, the 70 “live easier” homes by MasterCraft in Shearwater range in size from 2,985 to 4,150 square feet and are priced in the mid-\$400,000s (after starting in the high \$300,000s), and feature a variety of built-in lifestyle conveniences that distinguish them from the competition.

Consider the Family Foyer, a stop-and-drop station just inside from the garage (where most people enter their homes) featuring a few base and upper cabinets, usable counter space, hooks and benches, shoe storage, electrical outlets, and USB plug-ins. “This is where you shed your stuff,” Shee says. “It catches all of the clutter before it ends up in the kitchen.”

Meanwhile, MasterCraft’s kitchens at Shearwater feature big islands and are located next to a breakfast nook called the Café, a combined area that accommodates a dozen people and provides places for doing homework as well as food prep and casual dining.

A separate Messy Kitchen serves as a buffet space in the Power Pantry, where (among other things) small appliances are kept out of sight. And a nearby Beverage Center is essentially a bar where friends can sit in the middle of the living room off the Family Foyer, with easy access to the kitchen and Café.

If prospective buyers don’t want a dedicated happy-hour space, MasterCraft offers the option to place a second refrigerator in the



Trumark Homes secured six reservations a week after the first open house in February for West Village, in Brea, Calif. The townhome development debuts TruFlex, which enables buyers to customize floors by selecting from 24 preset layouts. Two examples are shown (above and opposite).

laundry room or in the Power Pantry, both alternatives to the typical (and often irritating) practice of retrieving surplus beverages from an extra refrigerator in a hot garage.

“Kitchens have a drinking problem,” Patterson says. “If you think about all of the beverages we store in our refrigerators, where does the food go? Whether the center is for beer, wine, or other drinks, the idea can cross multiple buyer profiles. For example, mom comes home from work, the kids are hungry, and she’s trying to get dinner going. She can get the kids away from the food prep area, or if she’s entertaining and preparing the meal, her guests can help themselves to coffee or a glass of wine.”

Similar to Lowder’s experience, the “live easier” floor plans didn’t catch on right away. It took MasterCraft merchandising the spaces in the models—a coffee maker and toaster in the Messy Kitchen; a laptop, mail sorting shelves, and magazines in the Pocket Office; and Costco-size food storage in the Power Pantry—so customers could see how these design elements would actually make living easier.

Since then, sales have picked up and Shee intends to build 110 to 120 homes this year, up from 80 last year, and has received top honors from the local Parade of Homes for the floor plan of one model and the kitchen of another.



the real revolution is inside each unit, where buyers can select from different preset layouts per floor—24 floor plan combinations per home—to suit their lifestyle needs and preferences. Not bad for a market-attainable product priced in the \$700,000s. “We want density and modularity, but we don’t want to achieve those things without a heart for humanity,” says Richard Douglass, president of Trumark’s Southern California division.

Called TruFlex, the concept offers a ground floor with a two-car garage and full bath with either a den or a bedroom; a second level with two different kitchen, dining room, and living room orientations, as well as a kitchen, dining, living, and bedroom setup; and a third floor that can be customized four ways with secondary bedrooms, master suites, and/or a bonus room. “The concept really expands the buyer profile for a townhouse,” says Steven Dewan, senior principal for architect Bassenian Lagoni, in Newport Beach, which created the design platform with Trumark.

AN EVOLUTIONARY APPROACH

While Lowder New Homes and MasterCraft Builder Group are both enjoying success with homes that live easier, they aren’t the only builders thinking along those lines. As far back as the 1990s, Kimball Hill Homes (which went out of business in 2008 as a result of the downturn) featured walk-in master suite closets that connected directly to a laundry room for ease of housekeeping. Meritage Homes’ Texas division was an early practitioner of a similar approach and also of the pocket office, and Darling Homes in Dallas and Houston, a Taylor Morrison company, offers the Darling Loop layout option, which connects the master closet to the utility room.

In Charlotte, N.C., Classica Homes brands utility space as a Do Zone, giving buyers the option to combine the laundry with a home office or creative studio. The Super Laundry is one of 12 options in PulteGroup’s Life Tested Home Design features, and Dan Ryan Builders markets “ease of living” with spaces customers can personalize into a breakfast area, pocket office, wine room, or more storage.

FLOOR PLAN FLEXIBILITY

Constructing attainable homes in urban California increasingly demands higher densities. But in a market suffering a shortage of skilled labor, simplifying production—maybe even turning to a modular solution—could result in nondescript-looking housing.

For its West Village project in Brea, Calif., Trumark turned to a more efficient panelized approach to frame 62 three-story townhomes. But

For the better part of a year, Trumark’s operations, marketing, and sales teams met with Bassenian Lagoni’s crew twice a week for half a day to go over every possible iteration of TruFlex. For construction efficiency, they “preprogrammed” the wall panels to accommodate flexible (and future) window locations and with chases for plumbing, electrical, and HVAC runs regardless of the floor plans selected.

That effort not only ensured that the box could be customized per each buyers’ desire before move-in, but also would enable owners to remodel their layout later, such as covering or creating a window opening should a couple want to add a bedroom and bathroom as they start a family, or if empty nesters decide to blow out a child’s former bedroom into a master suite.

While flexibility is a signature attribute of TruFlex, another driver was eliminating the odd floor plan that has to be discounted or “thrown away” because it doesn’t sell—an unwanted and all-too-common outcome, says Douglass, based on old-school attempts to appeal to several customer segments. And, by using a panelized shell that’s easier for trade partners to build, Trumark is better able to plow those and other cost savings back into the product, such as standardizing floating staircases and premium light packages that are upgrades among its competitors.

“We paused during the last year or so and decided we should not be doing five years from now what we’ve been doing the last five,” Douglass says. “We needed to look forward. That’s what led us to TruFlex.” **PB**



HOW TO GET OUT

SUCCESSION PLANNING
IS ESSENTIAL FOR A SMOOTH
LEADERSHIP TRANSFER

BY JOHN CAULFIELD
CONTRIBUTING EDITOR

PHOTO: PHOTOBANK / STOCK.ADOBE.COM

Editor's Note: The reporting and writing of this article was done months before the COVID-19 pandemic and resulting disruptions to the housing industry and the builders featured. We trust the information remains valuable, despite recent changes that may have occurred.



uccession planning has been a topic of conversation at the Rutt household ever since middle son Ben was 6 years old.

His father, Jeff, founded Keystone Custom Homes, in Lancaster, Pa., in 1992, and admits that Ben, now 30 and the company's director of marketing, has acquitted himself well in every sales, purchasing, and marketing position he's managed since joining Keystone six years ago. He would seem to be the heir apparent. Just not yet. "I'm 61, so it should happen sometime in the next 35 years," Jeff says, laughing. Actually, he's grooming Ben as the likely No. 1, presumably sooner than later.

The Rutts are a prime example of the housing industry, in which family-owned businesses are common and succession often comes from within. As far as timing is concerned, "Boomer owners are looking at options to sell now rather than go through another housing cycle," says David Rosen, founder and president of Long Grove Capital, in Chicago, a mergers and acquisitions advisor to home builders. "Those who restarted or recovered after the Great Recession had a good run, but they're ready to cash out."

LOTS OF OPTIONS

The who and when of business (especially family business) succession gets complicated when an owner's timetable for ceding control extends beyond what children or relatives waiting in the wings deem acceptable, leaving them champing at the bit. Another set of challenges arises when an owner chooses to sell the business to outsiders, which usually requires some financial and operational polishing to present the company's best face to potential buyers.

An employee stock ownership plan (ESOP) is a kind of hybrid, in which ownership (family or otherwise) retains a measure of financial and management control, but offers employees equity (stock) ownership, a benefit plan that also has some tax advantages.

But succession planning of any sort remains an afterthought for too many private home builders. "The big mistake companies make

is that they assume things will happen without putting together a game plan," observes Chuck Shinn, a long-time industry consultant and president of Builder Partnerships, in Littleton, Colo.

So whether you're an aging owner looking at your options or are in denial about how your company might carry on without you, consider how builders with recent succession experience got their companies and employees ready for the next step.

HOW PREPARED ARE YOU?

"We have several people who would be more than capable of stepping in if I decided to do something else," says Pat Hamill, president of Oakwood Homes, in Denver, which he sold to Clayton Properties Group in July 2017.

At Keystone, Rutt says he actively encourages key managers—at weekly meetings and through writing exercises and reading—to think about how they would manage the company in good times or bad.

But sometimes management succession from within isn't as clear or viable. Consider Robert and Karen Schroeder, co-owners of Mayberry Homes, in Lansing, Mich. Both are in their mid-60s and have been thinking about succession for a while. "I've been in the business since the late 1970s, and I'm ready to go," Karen says.

"THE BIG MISTAKE THAT COMPANIES MAKE IS THAT THEY ASSUME THINGS WILL HAPPEN WITHOUT PUTTING TOGETHER A GAME PLAN."

CHUCK SHINN, PRESIDENT
BUILDER PARTNERSHIPS

Two of Bob's sons work for the company, including Joe, in his 40s, who manages estimating and production. Two of Karen's brothers are in the company, too, as is her daughter, Jodie, who handles sales, marketing, and model home setups. But Karen doesn't think there's any one employee ready to step in and run the entire show.

"At this point, I see it being more of a team approach, with a few very talented employees leading various roles in the company," she says. Any transition, though, remains uncertain, as Mayberry seeks to build its volume to 100 units this year and "get leaner without jeopardizing our integrity," Karen says.

Tony Misura, founder of Misura Group, in Hudson, Wis., a succession plan consultancy, advises builder owners to start vetting the next generation of leadership for their companies at least a decade before they plan to exit. That diligence includes recruiting and mentoring younger talent, as Misura sees too many owners

surrounded by what he calls “mini-mes,” which can become a self-inflicted risk if the owner suddenly gets sick or is incapacitated.

One of Jeff Rutt’s keys to succession success was requiring his sons to work for another organization for at least three years and earn at least one promotion before being considered for a job at Keystone. “That has paid huge dividends in building their confidence and the respect of the teams around them,” he says.

Todd Olthof, who co-owns Olthof Homes, in St. John, Ind., with brothers Scot and Fritz Jr., concedes that the next generation of leadership may be nonfamily members. Its management team already includes “a handful of people who could run things,” he says, and Olthof Homes continues to seek out bright, young talent.

BUYERS DON'T LIKE SURPRISES

When owners start shopping their companies, they’re likely to encounter three buyer types, Long Grove Capital’s Rosen says. One type, such as Clayton, prefers keeping the seller’s management, including the owner, in place. The second type will ask the owner to hang around during the transition period. And the third type, Rosen says, “wants the owner gone, so it can put its own DNA onto the company.”

Shinn observes that while most buyers fall into the third category, there are recent exceptions, such as Century Communities’ 2018 purchase of Wade Journey Homes, whose owner stayed on, and Clayton’s recent spate of acquisitions where the sellers’ leadership remained on board. “Clayton kept every promise and commitment they made,” says Hamill, specifically noting the synergy of both builders being dedicated to prefabrication.



Todd Olthof (far right), who co-owns Olthof Homes with his two brothers, Scot (far left) and Fritz Jr. (next to Todd), has fashioned a leadership team that also includes the next generation (Scot’s son Matt, center), to continue the legacy of Karen and Fritz Sr. (foreground). Brother Dennis Olthof (second from left) owns and runs a framing company independent of Olthof Homes.

Regardless of the buyer type, the quality of a builder’s financial performance is at least as important as its land position and the quality of its management when it comes to valuing the company for acquisition.

Bruce Werner, managing director of Kona Advisors, in Chicago, advises builders, before they think about selling, to perform a “quality of earnings” analysis that provides buyers with a clean balance sheet so they can assess a company’s performance and value over time.

And, at least to start, acquirers typically don’t want interruptions in the operations they’re buying, says John Wagner, managing director of 1st West Mergers & Acquisitions, in Cloverdale, Calif.

A CAUTIONARY TALE

MIKE CONNOR FOUNDED Connor Mill-Built Homes, in Middlebury, Vt., in 1969 to design and manufacture historical colonial reproduction house kits. In 2012, he sold the business to a group of investors to put the company on a sustainable path for the future. Five years later, the new owners presided over its liquidation.

Undaunted, Connor, then nearing 70 years old, rebooted the business with pretty much the same business model. He even went the investor route again, bringing on North by East Property, led by local businessman Gregor Kent, to help finance the effort.

In February 2019, Connor hired Glenn (Skip) Wyer as COO, a 58-year-old venture capitalist from Minnesota. Within six months, Wyer was promoted to CEO, despite having no experience in home building or construction prefabrication.

Around the same time, Kent’s group paid \$1.84 million for the 50,000-square-foot factory in Middlebury that Connor Mill-Built Homes was partially leasing for production, a move Wyer said showed the group’s commitment to the company’s growth and its 22 employees.

But by November of 2019, Wyer had resigned, and North by East Property was about to pull the plug on the company, which it did in February of this year.

What caused the sudden change of heart? In an interview with *Pro Builder* for this article last summer, then-CEO Wyer said that Connor was looking for partners to codevelop residential communities for the company to supply with homes, expand its network of contractor customers, and deliver components for about 30 homes in 2019—double its 2018 total. He and Connor also were evaluating potential growth

avenues, such as single-family rentals and smaller, more energy-efficient homes.

But Connor tells a different story, namely that he wanted to continue with reproduction house kits—an outlook that eventually excluded him from strategic discussions. Neither Wyer nor Kent responded to follow-up inquiries for comment.

On the outs at the company he’d founded 50 years earlier, Connor and his wife launched a home-based consulting business to provide design and component manufacturing for historical reproduction homes.

And, a month before it shuttered Connor Mill-Built Homes, North by East agreed to lease 20,000 square feet of the factory building to builder Silver Maple Construction, of New Haven, Vt., for its high-end, energy-efficient homes and custom kitchen, bath, and renovation work.

“Succession planning means more than just keeping a few nameplates on C-suite doors,” he says. “It demands leaders remain in place to retain and integrate workplace culture, customer relationships, and vendor relationships, and to ensure continued success of the operation under new ownership.”

WHEN IS A SUCCESSOR ‘READY’?

Timberlake Homes, in Annapolis, Md., is a classic example of how family-owned businesses get passed along.

John Minzer, Timberlake’s current owner and president, married the founder’s daughter and joined the company 41 years ago. In 2001, he and his brother-in-law, Frank Lucente, bought out Frank’s father through a 10-year tax-free payout. By 2008, Timberlake had \$85 million in nonrecurring debt, and Minzer wanted to borrow more. Frank, who ran the renovation and custom-home division, balked. So Minzer bought him out under a structured agreement.

Minzer, now 66, comes into the office every day, and he plans to stick around for another five years before handing the reins to his 35-year-old son Jason through a similar buyout arrangement.

Jason joined the company in 2007 as an assistant site manager, and is now Timberlake’s VP of construction and purchasing. But his father still thinks Jason needs more seasoning, especially on the financial side. “It’s a rarity to find someone under 40 who is able to run a company,” Minzer says. Even so, he points out, his son is already formulating a business model that would maintain Timberlake’s current production level of 100 to 115 homes per year with a greater focus on profitability.

Snyder Homes, in Shelburne, Vt., has a similar story. Before joining his family’s business in 2000, Chris Snyder cut his teeth working for a national builder in management positions in Texas and Florida. He was, he says, essentially running Snyder Homes from 2006 to 2011 when he approached his parents, Bob and Pat, about owning the company outright.

Over the next two years, the family, along with the company’s accountant and a trusted financial advisor, hammered out the details of that transition. Each of the company’s 17 LLCs was assigned an assessed value, and over a five-year period the parents would receive a portion of every home sale. Chris, 46, got the company into multifamily construction, and this year Snyder Homes expects to complete 120 apartment units and 48 single-family for-sale homes.

SETTING PRIORITIES

Snyder’s parents remain at arm’s length as board members. But it’s clear that other builders find it hard to let go.

Do they want to cash out? Preserve their legacy? Both? In March 2019, Keystone Custom Homes donated 89% of its nonvoting stock to the National Christian Foundation’s Charitable Trust. Rutt’s family retains 100% control of the company and accrues “major tax benefits” from that transaction, Rutt says.

The Olthof brothers, who bought out their father in 2012 through a six-year payout, are currently working with advisors on

FUTURE-PROOFING

IN SEPTEMBER, FLORIDA-BASED Arthur Rutenberg Homes, with a network of 45 franchises operating in 10 states, promoted Jim Rosewater, a 21-year company veteran, from COO to CEO, replacing Frank Pizzica, who remains in an emeritus role.

Simultaneously, the company rebranded itself as AR Homes, with aspirations to double its growth in the next five years through design innovation and customization, full pricing disclosure, and its “proven process” for streamlined luxury-home construction. It also wants to enhance

its customer-experience approach through 3D modeling and virtual tours of homes and properties. “We intend to be a leader in every phase of the business,” Rosewater says.

Chairman Barry Rutenberg says the company’s owners have dedicated more resources to realize that game plan. And in recent months, AR Homes has shaken up its executive suite with several personnel changes, appointing Don Whetro as EVP of franchise operations and elevating Kelley Vitorino to lead all of the company’s interior design work. It’s also looking for a new chief technology officer and a new chief marketing officer.

Rosewater believes the timing of AR’s corporate maneuvering is auspicious. “We live in a world where change is happening at an incredible rate,” he says. “Independent builders are looking for solutions to everyday problems to stay competitive and they want partners that can develop software, products, and vendor relationships,” a role the retooled AR Homes now seems geared to fill.



AR Homes’ Chairman Barry Rutenberg (top) and CEO Jim Rosewater are longtime company veterans, but recently shook up the company’s upper echelon.

the next stage of their succession plan, which will take into account the different timetables of each brother. “We’re looking for flexibility so if one of us wants to take chips off the table, he can,” Todd Olthof says.

Karen Schroeder says that while she and her husband may consider selling Mayberry Homes if the right deal comes along, they also have four new pieces of land that, once developed, will set up the company for many years.

And Minzer, as he plots his company’s path, says he’s not exactly sure how succession would translate individually for his company’s 35 employees. “I haven’t figured that out yet.” **PB**



WINDOWS INTO THE FUTURE

NEW TECHNOLOGIES HELP MEET DEMAND FOR LARGER, MORE DURABLE, AND BETTER-PERFORMING FENESTRATION PRODUCTS AND SYSTEMS

BY WANDA JANKOWSKI

Today's fenestration options provide homeowners with much more than great views. Technological advances in the materials and construction of windows, glass walls, patio doors, and skylights have also made them more energy efficient, durable, and secure.

Understanding trends in fenestration begins with insights into the homeowner's mindset. "People have a desire to simplify their lives and homes, along with forging a deeper connection with nature, the surrounding environment, and each other," says Brenda Pellund-Brunk, product profile strategist at Marvin, in Warroad, Minn., insight the company derived from recent consumer research.

"Everyone is requesting more daylight," adds Christopher Brandon, president of Brandon Architects, in Costa Mesa, Calif. "Though they likely don't really understand how much extra windows and larger panes drive up the budget."

BIGGER IS BETTER

When it comes to consumer preferences for fenestration, more is more and bigger is better. "Homeowners continue to request larger windows and doors, Pellund-Brunk says. "It's a trend we don't see slowing down anytime soon." To meet that demand, Marvin offers its Modern multi-slide patio door for openings up to 12 feet tall and 60 feet wide, and its fixed, single-pane Direct Glaze window (promoted as "made to be built big and perform at scale") in sizes approaching 94 square feet.

Nick Pesl, product and market specialist at Kolbe Windows & Doors, in Wausau, Wis., adds, "We have seen a significant uptick in requests for large, expansive door products such as multi-slide, lift and slide, and folding door products that help blend indoor and outdoor living."

The trend toward contemporary styling in homes today dovetails with the desire for more and larger view-providing windows and doors with a minimum of obstructive framing.

PHOTO: MARVIN



Marvin's Modern collection of patio doors and windows (above) now includes casement and awning units with sleek aesthetics, high-density fiberglass exteriors and aluminum interiors, and lock-status sensors. Jeld-Wen's new Siteline multi-slide patio door (upper right) offers a sleek, narrow stile and rail to increase the amount of natural light entering the home. Skylights from Velux America (right) are being used to bring more natural light to tight areas and to provide ventilation.

BRINGING IN THE LIGHT

Craving more daylight, homeowners are accepting windows, patio doors, and skylights in more areas of the home.

Laura Sikes, marketing and national account manager for Hy-Lite, a U.S. Block Windows Company, in Pensacola, Fla., cites the popularity of decorative glass transom windows in master bathroom showers. "Prairie and Mission are the most popular glass styles for us," she says.

"Homeowners really enjoy natural light, and builders are calling us to incorporate glass into almost anything," says Jason Sawyer, president of Renaissance Conservatories & Custom Skylights, in Lancaster, Pa. Over-the-ridge skylights are popular, he says, "and I'm seeing a lot of custom glass roof dormer projects cross my desk."

Like windows in showers, stairwells are getting attention for skylight applications, a placement builders often neglect. "Not only do stairwell skylights provide natural light, this location is ideal

for creating whole-home air flow, since stairwell skylights are typically at the center and the highest point of the home," says Ross Vandermark, national product manager at Velux America.

STYLE BY TECHNOLOGY

As consumers demand more of their fenestration in terms of style and size, advancements in the technologies used to engineer, manufacture, and finish those products have kept pace. "In the past, it was enough for a builder to simply fill the opening," says Caleb Standafer, director of strategy and general manager of composite windows at Jeld-Wen, in Charlotte, N.C. "Now, they need to have a window that matches the aesthetic of the whole house."



The Series 7000 is Western Window Systems' most energy-efficient line, offering high-performance insulated glass. The series is available in casement, awning, hopper, and fixed window styles, as well as multi-slide patio doors and window walls.



The Kolbe VistaLuxe Collection's AL line offers thermally broken, all-aluminum windows and patio doors in a range of styles that deliver the look of steel at lower cost, achieve heights to about 8 feet, and feature energy-efficient low-emissivity insulated glass.

Technologies such as wood fiber-polymer composites that consistently deliver clean, crisp lines and mimic the natural beauty of wood at an attractive price point are exactly what consumers want to see in windows and patio doors, Standafer says.

The new Marvin Modern line of windows and doors blends what the company claims is an industry first: a high-density fiberglass exterior and an aluminum interior that deliver a modern aesthetic and the ability to achieve high performance in demanding climates.

"The demand for fiberglass, in particular, continues to grow due to its inherent strength and versatility," says Erik Ashcraft, a product

manager at Milgard Windows & Doors, in Tacoma, Wash. Vinyl also remains popular, he says, due to its energy efficiency, limited maintenance requirements, and options.

In fact, according to research by Home Innovation Research Labs, in Upper Marlboro, Md., vinyl windows command a 53% market share among all window-frame materials (and even more so among production builders), twice that of wood.

Brandon also sees a trend toward steel-framed products. "The steel look is popular for the transitional and traditional homes we design," he says, which is notable given that the cost of steel is approximately three to four times the cost of more common materials such as wood and vinyl. "We are starting to see manufacturers create knockoffs, but we think they still have a long way to go to catch up with the look of real steel," he adds.

Popular style upgrades include exotic wood species and nonstandard colors. "Darker colors are requested the most, particularly black, which has become the most in-demand, nonstandard color," Ashcraft says.

But clean-lined styles in larger, heavier window panels and doors require more technically sophisticated operating systems to ease use while remaining visually unobtrusive. For instance, Jeld-Wen's so-called "low-friction" gliding patio doors incorporate innovative hardware for easy opening.

Manufacturers also are striving to make installation of larger fenestration elements easier for professionals. Andersen, in Bayport, Minn., offers its Easy Connect Joining System for large window combinations, a clever "click to connect" solution that allows installers to attach multiple window units to one another in the same rough opening and still meet structural and other performance requirements. "Most contractors we surveyed said they could reduce the number of installers by 50% using that system," says Steve Berg, technical marketing manager at Andersen.

PERFORMANCE MATTERS

Quality and performance also play a significant role in consumer demand and expectations for various window and door products. According to the 2019 edition of NAHB's report, "What Homebuyers Really Want," high on the list of homeowner desires are windows rated and certified by the EPA's Energy Star program; specifically, 38% of homebuyers felt that distinction was essential or a "must have," while another 51% found it desirable. Another 77% wanted triple-pane insulating glass and 62% want low-emissivity-coated insulating glass to improve the thermal efficiency of their home's fenestration package within an overall desire to reduce home energy use and costs.

“As glass combinations continue to grow larger, many homeowners worry about the loss of energy efficiency, and if their windows and doors will continue to perform through extreme temperature changes,” says Melissa Meyers, product marketing manager at Andersen.

For his own home, which is being built as a template for sustainability that can be replicated across the country, C.R. Herro, VP of innovation at Meritage Homes, in Scottsdale, Ariz., chose Series 7000 windows and patio doors from Phoenix-based Western Window Systems. It’s the company’s most energy-efficient line, featuring glass with above-standard U-values and customization options to deliver a high level of thermal performance.

Skylights and roof windows from Velux America, in Fort Mill, S.C., use energy-efficient coatings on their glazings to manage the effect of ultraviolet (UV) rays and mitigate heat loss and gain. And the company’s solar-powered and sunlight-activated skylight blinds are offered in light-filtering or room-darkening options for energy efficiency through natural light control.

weather forecasts to automatically open skylights when needed.

Finally, as resilient housing practices against storms, wildfires, and other natural forces proliferate, fenestration manufacturers are responding with tougher (and smarter) products. To wit, Andersen’s A-Series Impact windows and doors feature the company’s proprietary Stormwatch system of hidden structural reinforcements engineered to meet stricter building codes.

PRIVACY AND SECURITY

The more glass there is in the home, the more concern there is regarding privacy and security. And traditional draperies, blinds, and shades often don’t suit the modern aesthetic that’s gaining popularity across many housing types and price points.

To fill the void, Hy-Lite’s Vari-Lite window integrates blinds in a clear double-glass 4-by-4-foot system to deliver a combination of privacy and daylight control. “This is the first integrated-blinds window of that size available in the U.S.,” Sikes says.

Herro believes that, in the next couple of years, reactive technology allowing clear glass to darken or become opaque, either automatically or at the flip of a switch, will be affordable to the mainstream as a means for satisfying privacy, aesthetic, and solar heat gain demands.

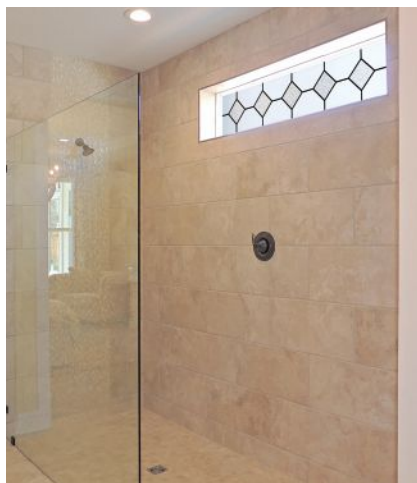
In response to safety concerns for occupants in houses with abundant glass, manufacturers see trends in smart or connected home systems. “Consumers want products that are easy to operate, lock, and unlock,” Pesl says. “Our automation systems for sliding patio and multi-slide doors allow easy operation of very large glass panels, while

also providing touch-screen lock options.”

Meanwhile, Marvin offers a Home Automation Lock Status Sensor that integrates with almost any home security system (and now also with mobile devices and voice assistants) to let homeowners know if their windows or doors are open or closed, locked or unlocked.

Increasingly, the wonders of technology are enabling fenestration portals to marry modern forms and minimally obstructed views with superior energy efficiency, durability, and security. **PB**

Wanda Jankowski, a writer based in New York, covers design and products and has written several books.



Hy-Lite’s Mission-style transom window (left) is specially made for shower areas, with insulated, argon gas-filled tempered safety glass. An operable awning style also is available. A custom over-the-ridge skylight from Renaissance Conservatories & Custom Skylights (right) adds drama and natural light to any living space.

Fenestration is also key to providing healthy indoor air. Windows, patio doors, skylights, and roof windows can all be leveraged for passive fresh-air ventilation to supplement or offset mechanical means, many with technologies that operate them at the touch of a button, by voice command, or automatically via a sensor.

The Velux Active with Netatmo system, for instance, is compatible with Apple HomeKit and Google Home systems, enabling the skylights to be programmed to automatically open multiple times during the day or to adjust the blinds to admit or block natural light to warm or shade a space, as well as for passive venting.

Smart sensor technology also can monitor carbon dioxide, humidity, and temperature levels in the home, and connect to online

LIFE LESSONS

THE MILL WHERE MY CAREER BEGAN MAY BE GONE, BUT THE MANAGEMENT AND LEADERSHIP LESSONS LEARNED ARE AS FRESH AS EVER

BY SCOTT SEDAM, CONTRIBUTING EDITOR

U.S. Steel South Works began as the Chicago Rolling Mill Company in 1882, and it continued nonstop, under several names—Carnegie Steel, Illinois Steel, U.S. Steel, and finally USX Corp.—for more than 100 years until closing in 1992. A mammoth, powerful beast fed by immense quantities of water, natural gas, diesel fuel, and electricity—along with the backs and brains of thousands of workers on each shift—running the mill demanded constant vigilance. Anything less, and serious injury or death rose from merely possible to probable.

A key element in the American “Arsenal of Democracy,” which turned World War II in our favor, the South Works Structural Mill became the largest of its kind on the planet. From the front-end “soaking pits” where 20-ton stripped ingots were brought to more than 2,000° F for rolling, to the far reaches of the finishing end where steel beams were loaded into rail cars, it would have stretched more than a mile laid end to end. South Works steel went into most of the skyscrapers in North America, America’s largest aircraft carriers, destroyers, and submarines, and on down to countless interstate highway overpasses and the miles of piling bar

that hold back lakes and oceans. It was a heady place to start my first “career job” right out of college, still short of my 22nd birthday.

After the “circuit course” where college recruits spent a week in each of 15 mill locations interspersed with days of training off-site, we received our assignments. I was named a Turn Foreman in Structural Finishing over a crew of 70 people. Hardly any of my charges “looked like me,” with a broad array of ethnicities and countries of origin. The average age was mid-40s and I was younger than all but two or three. Several old-timers with more than 40 years of service could recount stories of the union-busting days of the 1930s when unspeakable atrocities were carried out on the workers by hired company thugs.

There were nice guys, tough guys, and two or three women on the typical crew who knew how to take care of their jobs and themselves. Perhaps the most interesting crew member represented something totally new to me. Tina, a 40-something woman, ran the kiosk generating punch cards that determined the fate of a 10-ton steel beam as it moved through the back end of the mill. Tina had platinum blonde hair, tons of makeup, the tightest onesie work suit ever, and was extremely flirtatious. Today’s 22-year-olds would hardly be phased by a Tina, who up until the previous year had always been known as



“LeRoy,” and on the company roster was listed as male. It was a different era and I was naïve, but the crew helped me figure it all out.

One might guess life wasn’t easy in a steel mill for Tina so many years ago, but you’d be wrong. Tina was great at her job, took care of business, and managed the ever-critical “steel lineup”—the steel mill equivalent of a construction schedule—to a T. Nobody messed with Tina, and therein was my first big “people” lesson: When there’s work to be done, if someone proves their worth, most accept them for who they are and couldn’t care less about what they wear or their personal relationships. And if someone is part of your tribe, despite any internal squabbles, you protect them from any outside threat.

THANKS, DAD

I remember calling my dad the day after my first shift as a turn foreman. I described the impossible task of leading 70 people, most of whom could be my parent, in a mill I knew absolutely nothing about. He offered advice that saved me. “Help them. Offer to bust your can to do whatever they need to make their work or their lives better, whether it’s getting a tool replaced or a paycheck straightened out. Help them, and they’ll run the mill for you.” I recall it almost word for

word. Then, after a long silence he added, “And don’t BS them. Ever. If you don’t know, say so, then go find out. If it’s bad news, tell them straight.” He went on to tell me this was the best learning opportunity I’d ever have and I should resolve each day to make it so. I did my best to follow his advice. And, as usual, dad was right.

I was now an official member of management, signified by my two-tone blue hard-hat with the yellow stripe down the middle. The yellow stripe indicated Structural Division, and I wore it with pride. Workers referred to all of us as a group—the “blue hats”—and had developed an elaborate signaling system so everyone knew where we were at all times. It was an interesting management culture, to say the least. In a nutshell, this was how we were taught to think as front-line supers:

First, everyone is guilty until proven innocent. Never trust anyone except another blue hat from Structural Division—and even then, be wary. Blue hats from other mill divisions were competition, not colleagues. The “no trust” list included all yellow hats—United Steel Workers (USW) members—and especially their official representatives, called “grievance men.” Also on the no-trust roster were the white hats from engineering and the green hats worn by internal safety and anyone from OSHA or the Environmental Protection Agency.

It was hard not to become cynical and, in truth, most people did—on both sides. Our mill general superintendent, the top guy, was named “Swede Savage,” a befitting appellation. Our department manager was named “The Colonel,” after his stint as a Marine Corps officer, and he spent his career trying to establish Marine Corps discipline within the ranks of structural finishing and the USW.

After several months working the day shift in this culture, my idealistic notions about the world were severely challenged. Then something serendipitous occurred. I moved to live up near Wrigley Field on Chicago’s north side. The commute up and down Lake Shore Drive back then was reasonable, and up north was a much better place to be for a young buck in the city. I quickly discovered there is no better place on Earth for a 22-year-old than whiling away summer afternoons in the Wrigley Field bleachers drinking Old Style beer and making friends with the locals. This discovery inspired a change in my work schedule and set me on a different course regarding people.

In the mill, we worked rotating shifts: 7 a.m. to 3 p.m., 3 p.m. to 11 p.m., and 11 p.m. to 7 a.m. But no one, especially the older guys with families, wanted to work 11-7. This became my opportunity. I had reached the point where I was trusted on the night shift, and volunteered to work as many nights as possible so I could spend as many afternoons as possible at Wrigley. Who needs sleep when you’re 22?

NIGHT AND DAY

After a few weeks working nights, I encountered a strange phenomenon. Many of the employees who were marginal or even lousy workers on the day shift were just fine on the night shift. It wasn’t because I had a breakthrough in management skills, but everything seemed easier on the night shift. Work was, dare I say, fun. Then

September came, the Cubs (as always) were out of the playoffs, and it was time to go back to the regular swing-shift rotation. And it's there the real shock hit me. All of these great people on the night shift turned right back into marginally performing automatons when working days! What was going on?

Here's what: On the night shift, a millwright would help an electrician, and a pipe fitter would help a rigger. On the day shift, it was always "not-my-job." On the night shift, the union rep always looked the other way on minor work rules and let you put the right guy in the right job to make things work. On the day shift, USW work rules ruled. Ten times more grievances were filed against supervisors on the day shift compared with the night shift. On nights, people truly looked out for one another. They shared their food, their problems, their lives. On days, people ate alone or in small groups and talked about work only, mostly how bad management was. It was every man for himself.

I started following the performance statistics. Production was higher on the night shift, quality was better, and the accident rate was lower. Go figure. Of course, management thought we were just cheating on the night shift. But something profound and important was taking place and the controlling variable could not be the workers. They were perfectly capable of being good workers—or poor workers—depending on their environment. I began to realize everything the senior managers taught us about the workers was wrong. Because middle management and above worked only day shifts, they never saw the other side of these people. Their workers were smart, capable, caring, conscientious—when they chose to be. Or was it when they were allowed to be?

A GENUINE PHENOMENON

So, what was the variable? For just the finishing end of the day shift, we had one division superintendent, three department superintendents, four general foremen, two assistant general foremen, nine turn foremen, plant engineering, corporate engineering, OSHA, EPA, five or 10 union reps, safety coordinators, a host of people from quality control—and 150 people working. On the night shift, we had three foremen, one QC inspector—and 150 people working. Management theorists might call this "a clue." It took a while, but I got it, and this knowledge changed the way I look at the world, *forever*. Rather than give you all of my conclusions from this episode here, I suggest you share this scenario with your team and talk about the implications and draw whatever parallels you can to home building. Consider, however, these questions.

Is it possible some of our trades and even our own employees we consider poor performers are simply responding naturally to the environment management has created? Is it possible those same people could become valued team members if we treated them

differently? Is it possible they are great trades for some other builder who has cracked the code on this thing? Could the real problem be us, not them? Have you ever fired someone, only to see them do well with another builder, or vice versa? I know you have. Ask yourself why.

Eventually I saw the writing on the wall, as we cut back from around 12,000 employees when I arrived to fewer than 8,000, with maintenance and new investment in the mill a fraction of what it had been. I returned to college for an MBA. Course after course in accounting, finance, statistics, marketing, management, and a couple on human resources—which were almost totally on law, rules, regulations, and policy. Even the management classes were taught on a level that was more strategic than tactical. I found the models helpful, such as Maslow's hierarchy of needs and Herzberg's motivation-hygiene theory. Yet I don't recall one instance where we applied these theories to a real-life work problem. So, even in a well-regarded MBA program, very little was taught or discussed about the day-to-day ins and outs of how to work with people.

How and where do we learn about people? What motivates them? What gives them hope, makes them feel accomplished, drives them to get out of bed and come to work? How do you build trust? How do you breed loyalty? What moves them to do their very best job with what they've got, or not? Ask senior managers about the toughest problems they have dealt with in their careers and more than 90% will look back on "people problems." It seems that when it comes to people, it's never easy, and most of the learning will be on the job, while you make every mistake in the book. Meanwhile, my dad would tell you, first, be of help. Every day is an opportunity. Make each one count.

I remain an ardent disciple of quality guru Dr. W. Edwards Deming, nearly 30 years after his passing, who said, "There is no substitute for knowledge." I have found this to be true, with one caveat: Knowledge doesn't accomplish much if it's not applied to solving and preventing problems on a continual basis. If you're really lucky, you had a job early in your career that taught you a lot of the truths—and debunked many of the myths—regarding people, adding to your store of knowledge. Such an experience can help you avoid the worst mistakes. How fortunate for me it was my first job out of college. **PB**



Scott Sedam is president of TrueNorth Development, a consulting firm that works with builders to improve product, process, and profits. For a link to a list of PDF article collections on important topics such as "Bridging the Margin Gap" and "Solving the Trade Shortage," email your request to info@truen.com. You may reach Scott at scott@truen.com or 248.446.1275.

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WALLS AGAINST MOISTURE

A PAIR OF RECENT RESEARCH STUDIES REVEAL BEST PRACTICES—AND A NEW ASSEMBLY SEQUENCE—TO COMBAT MOISTURE IN FRAMED WALLS

BY LENA BURKETT

The housing industry has come a long way toward improving the thermal efficiency of wood-framed wall assemblies by using new and better insulation and air-sealing products, weather-resistant barriers, and building practices.

But as increasingly stringent energy codes require higher-performance building envelopes, issues of trapped moisture developing in tight, well-insulated wall assemblies can lead to a host of problems for builders and homebuyers.

That concern dovetails with builder complaints about the premium cost to purchase and properly install continuous exterior wall insulation (for example, foam panels), a proven solution that adds thermal resistance to the envelope, drastically reduces thermal bridging, and minimizes air infiltration.

To better understand those and other building-science-related issues, the Department of Energy's Building Technologies Office (BTO) supports a significant number of real-world research and field testing of projects through its Building America program, including the two conducted by Home Innovation Research Labs, a market research, product testing, and accredited third-party certification agency in Upper Marlboro, Md.

A NEXT-GEN WALL ASSEMBLY

Leveraging BTO funding, Home Innovation took on the challenge to field test and lab test a new perimeter wall assembly that makes it easier and less costly for builders to benefit from continuous exterior insulation.

The Extended Plate and Beam Wall System (EP&B) is a remarkably simple yet measurably more effective, buildable, and cost-efficient R-23 or higher assembly. Even better, EP&B's use of conventional wood-framed, high-R wall materials—albeit assembled in a slightly different sequence—make the system adaptable to both site-built construction and factory panelization.

Here's how it works: Standard 2x4 studs are installed flush to the inside edges of 2x6 bottom and top plates, leaving a 2-inch space to the exterior. Continuous 2-inch rigid foam insulation is fastened and joint-taped directly against the exterior face of the studs, resting on top of the extended bottom plate and tight to the underside of the extended top plate; structural sheathing is then installed over that insulation layer, but is attached directly to the face of the extended top and bottom plates, as well as through the insulation along the stud lengths (see illustration, at right).

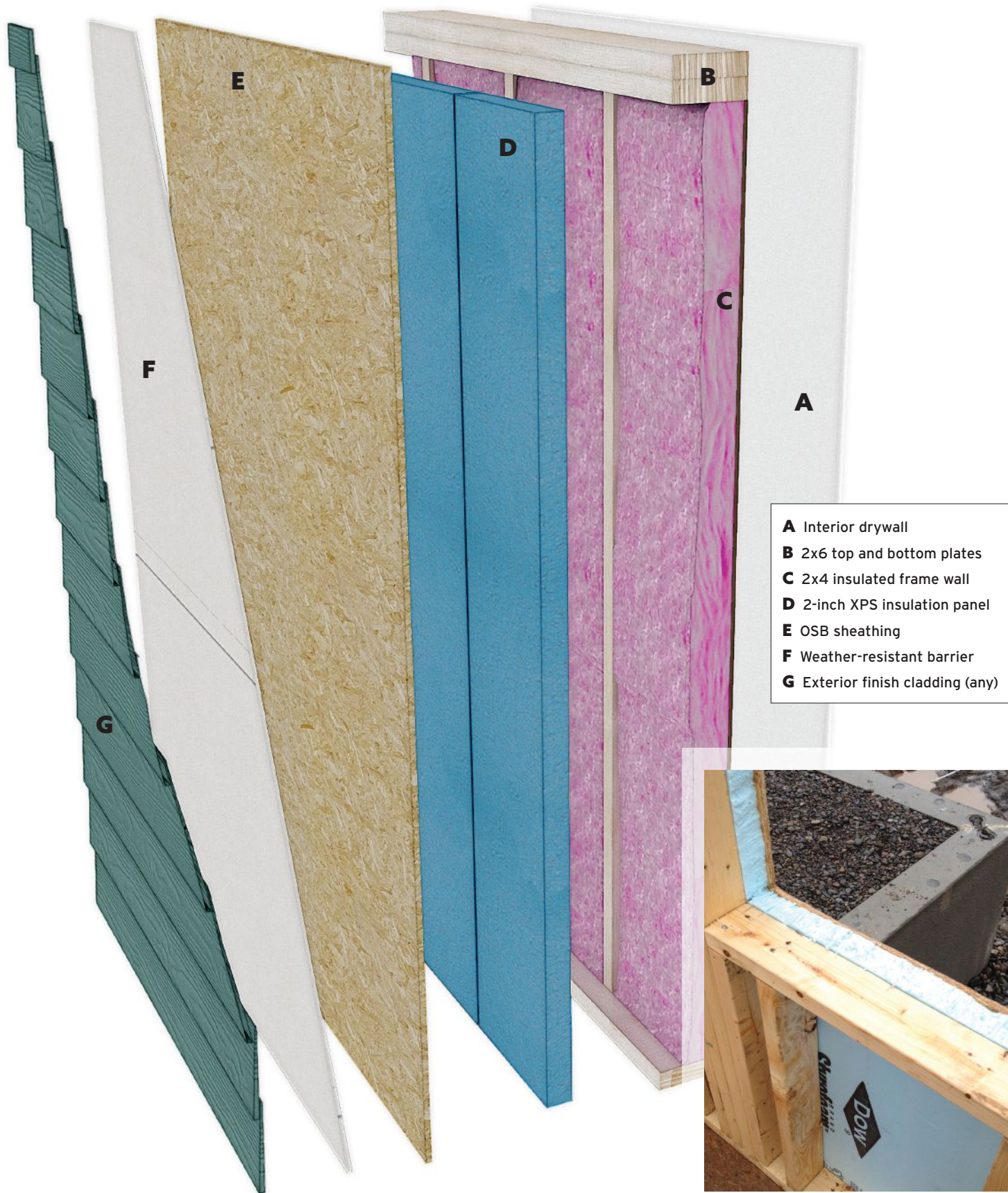
This sequence, with the studs and structural sheathing sandwiching the rigid foam insulation, provides a drainage plane surface for a separate weather-resistant barrier over the sheathing, more rigid support for windows and doors, and a solid, structural nailing surface for finish claddings, instead of furring strips attached to or embedded in the insulation panel. Also, in an off-site panelized scenario, the sequence of materials better protects the wall assembly from damage during transport to the jobsite.

REAL-WORLD RESULTS

To test the wall in the real world (in addition to lab tests and computer simulations), Home Innovation partnered with Michigan builder McIntyre Builders, and its framing contractor, Kevin L. Smith Construction, to build two test homes in Grand Rapids, Mich., in the heart of climate zone 5a, a narrow band from Nebraska to New York per the map of U.S. Climate Zones set by the International Energy Conservation Code (IECC).

The EP&B walls for those homes used extruded polystyrene (XPS) as the continuous rigid foam insulation material and a 1-inch-thick layer of closed-cell spray foam and blown fiberglass to insulate the 2x4 wall cavities.

A full year of monitoring the two occupied homes, along with computer simulations of heat and moisture transfer in several other



areas across the country, verified the long-term moisture performance of the EP&B wall assembly. Specifically, the average peak wood moisture content within the walls was less than 15%—well below accepted levels of risk—and the relative humidity readings in the EP&B wall cavities never breached 80%, averaging between 40% and 60%, which is comparable to normal interior ambient conditions.

The EP&B assembly also meets or exceeds International Residential Code prescriptive requirements for vertical loading and shear performance, as well as the most stringent prescriptive insulation requirements for above-grade walls in all IECC climate zones.

And to assure builders about the assembly's cost compared with more common approaches, Home Innovation priced out the EP&B wall at \$21.12 per square foot, about 50 cents per foot less than a conventionally sequenced 2x4 wall with continuous insulation achieving the same R-value. **PB**

Lena Burkett is a Building Science Research Engineer, at the National Renewable Energy Laboratory NREL in Washington, D.C., with a focus on residential energy-efficiency research.

ADDRESSING MOISTURE

In a separate study, Home Innovation Research Labs sought to monitor moisture performance of thermally resistant (high R-value) walls in newly built and occupied homes across the country. Researchers selected 22 homes with different wood-framed wall assemblies in IECC climate zones 4 through 7 (roughly the mid-to-northern half of the country), specifically where moisture vapor driven from the home's interior (aka "vapor drive") is substantial in winter.

Researchers considered three categories of wood-frame wall assemblies: those with continuous insulation and no vapor retarder (Fig. 1, below); those with continuous insulation and an interior vapor retarder (Fig. 2, below); and those with various types of vapor retarders and no continuous insulation (Fig. 3, below).

The walls studied used 2x4, 2x6, or 2x8 framing, and either plywood, oriented strand board, or the Zip system from Huber Engineered Woods, which integrates a weather-resistant barrier to the exterior face of an OSB sheathing panel. All walls included full cavity insulation; assemblies with continuous exterior insulation over the sheathing used 2-inch thick panels.

Researchers attached sensors to the structural sheathing, wall studs, and rim joists to measure temperature, relative humidity, and moisture content in the finished walls just before and during occupancy.

POSITIVE RESULTS

During several months of monitoring, most of the walls showed moisture content levels that

would not saturate the fibers of their various wood-framing components, either during winter infiltration or as the components dried in the spring.

Specifically, the study verified the value of continuous exterior insulation to mitigate the forces of vapor drive and, perhaps more importantly, its capacity to dry out incidental moisture.

Similarly, walls with a standard polyethylene vapor retarder placed on the inside face of the wall studs (a practice to be avoided in hot/humid climates), also showed low moisture content levels, regardless of exterior sheathing or finish cladding materials.

WHAT TO AVOID

On the other hand, and specifically in climate zone 5a (roughly along the upper Midwest), walls insulated with damp-sprayed cellulose and without an interior vapor retarder or exterior insulation experienced large seasonal moisture fluctuations, a condition made worse with deeper wall cavities or with impermeable cladding and interior finishes.

Similarly, in climate zones 4a and 4c, walls without exterior insulation or an interior vapor retarder experienced substantial seasonal moisture fluctuations.

And, at a house in New York, the use of open-cell spray-foam cavity insulation (instead of the closed-cell variety specified), resulted in moisture content levels that neared saturation of the OSB sheathing fibers, underscoring the difference in vapor permeability between those two spray-foam insulation materials. *—L.B.*

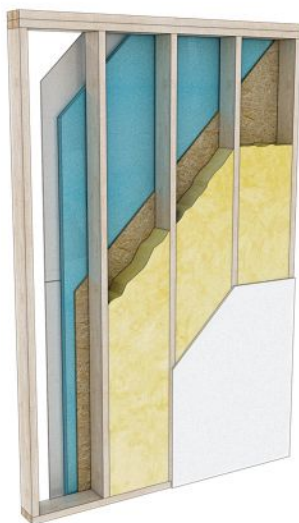


FIG. 1

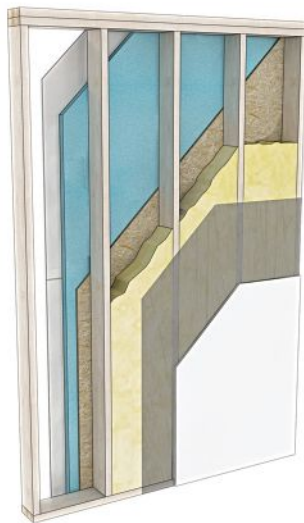


FIG. 2

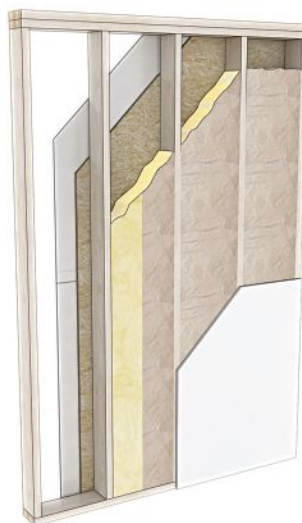


FIG. 3

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DROP ZONES

By Larry W. Garnett, FAIBD,
House Review Lead Designer

Elaborate foyers with vaulted ceilings and multiple layers of crown molding contribute to the initial impression of a home—at least for guests who actually enter through the front door. Typically, homeowners enter through a side or back door or through the garage, with the first stop in the kitchen, where we deposit the mail, keys, and phone, making the kitchen island a constant reminder of our sometimes disorganized and often hectic lives.

A family entry with a drop zone provides a practical solution. Essentially becoming a transition space, these areas can include a variety of storage and organizational solutions, including cubbies, benches, and even individual lockers with storage for shoes, coats, and sports equipment. After all, the real measure of a home's lasting appeal and satisfaction probably has more to do with how we enjoy our day-to-day experience than how “impressed” our guests are with our formal foyers.



LOTTERY HOUSE

DESIGNER

Seth Hart
DTJ Design
shart@dtjdesign.com
303.443.7333

DIMENSIONS

Width: 48 feet
Depth: 100 feet
Living area: 5,320 sf



Designed as a show home for Averton Homes, this residence boasts multiple drop zones that respond to an array of life's needs. Each of these zones flows along a private corridor along the back of the home, which also serves as the owners' entry experience.

The first room upon entering the home is a large, open area with a variety of storage solutions including benches and cubbies, as well as an enclosed closet to keep things tidy. From there, you transition through the tech niche and walk-in pantry to the back kitchen, which continues on to a walk-through wine room. Whether you're dropping jackets, keys, laptops, or groceries, this home has you covered.



- A** Owner's entry from the garage has a bench, cubbies, and storage for the whole family, as well as closet space to keep things out of sight and organized
- B** Tech niche and home command center designed to drop keys, mail, and to serve as a pocket office space
- C** Walk-in pantry off the entry corridor makes dropping off groceries easy while maintaining convenient access from the kitchen
- D** The back kitchen is another area for grocery drop-off, as well as a beverage center featuring a glass-front refrigerator to display what's available

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Donald F. Evans, AIA
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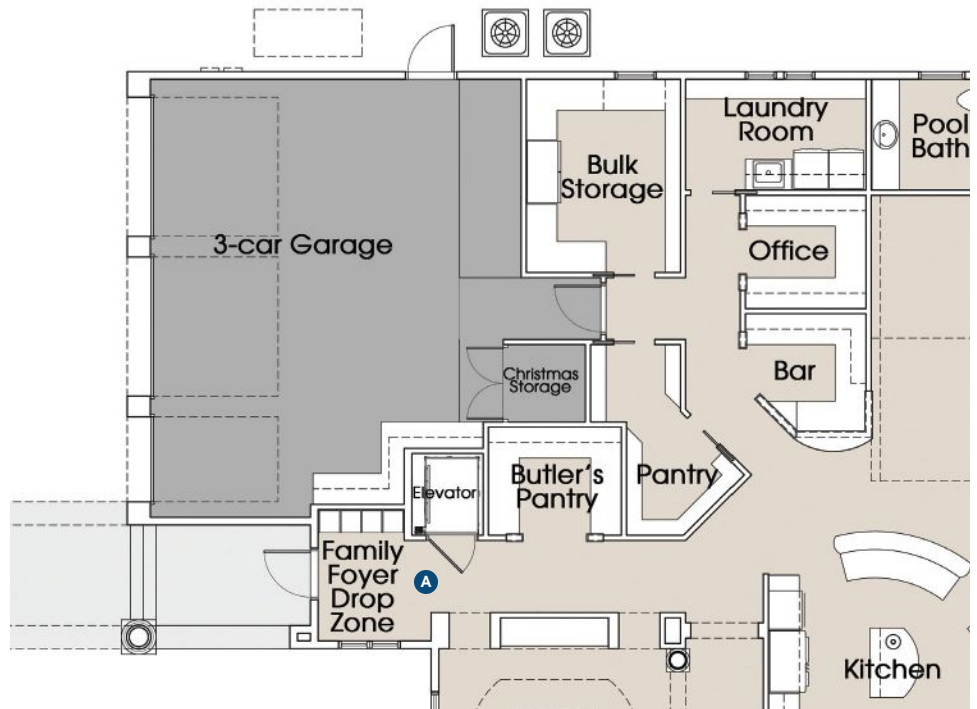
DIMENSIONS

Width: 120 feet
Depth: 180 feet
Living area: 7,300 sf

Drop zones take on the personality of the family that lives in the home. The drop zone for a family with a couple of children may have cubbies for sports paraphernalia, book bags, lunch boxes, shoes, and the like, while one for empty nesters with a fur baby accommodates a briefcase, shopping totes, umbrellas, hats, and a leash.

More and more people are adopting the "shoeless home" policy, so the drop zone also becomes the perfect place for having a bench where homeowners can take off outdoor shoes.

- A** The family drop zone is located at the home's main entrance
- B** An empty-nester drop zone is a pretty space with lots of natural light and room to put their stuff



THE DELHI ARCHITECT

Dahlin Group Architecture | Planning
colette.aviles@dahlingroup.com
925.251.7203

DIMENSIONS

Width: 180 feet
Depth: 124 feet
Living area: 5,818 sf



FIRST FLOOR



Located in the Pacific Northwest, a region known for ample rainfall, the drop zone provides full shelter from the elements, greeting homeowners as they come in from the attached garage. Overall, this breathtaking home is contemporary without being cold, and dramatic while still feeling like home.

- A** Built-in wall hooks, bench, and drawers provide a convenient space for setting down packages, hanging coats and purses, and taking off wet, dirty shoes
- B** A hall closet provides easy access to additional storage for frequently used outside clothing and gear
- C** Stairs provide a direct path to the second story
- D** A short hallway connects the pantry and a buffet to the kitchen, great room, and formal dining room



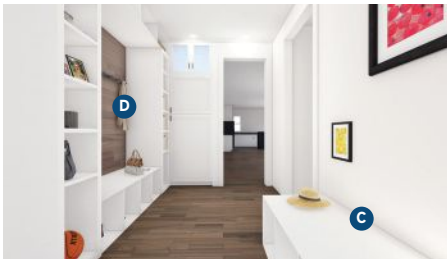
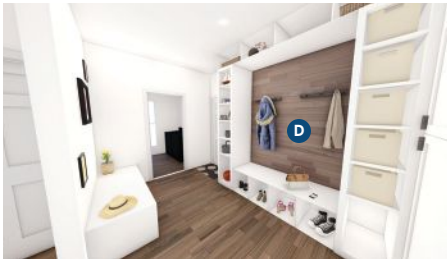
THE VAN OWEN

ARCHITECT

Scott Gardner, AIA
GMD Design Group
scott@gmddesigngroup.com
919.320.3022

DIMENSIONS

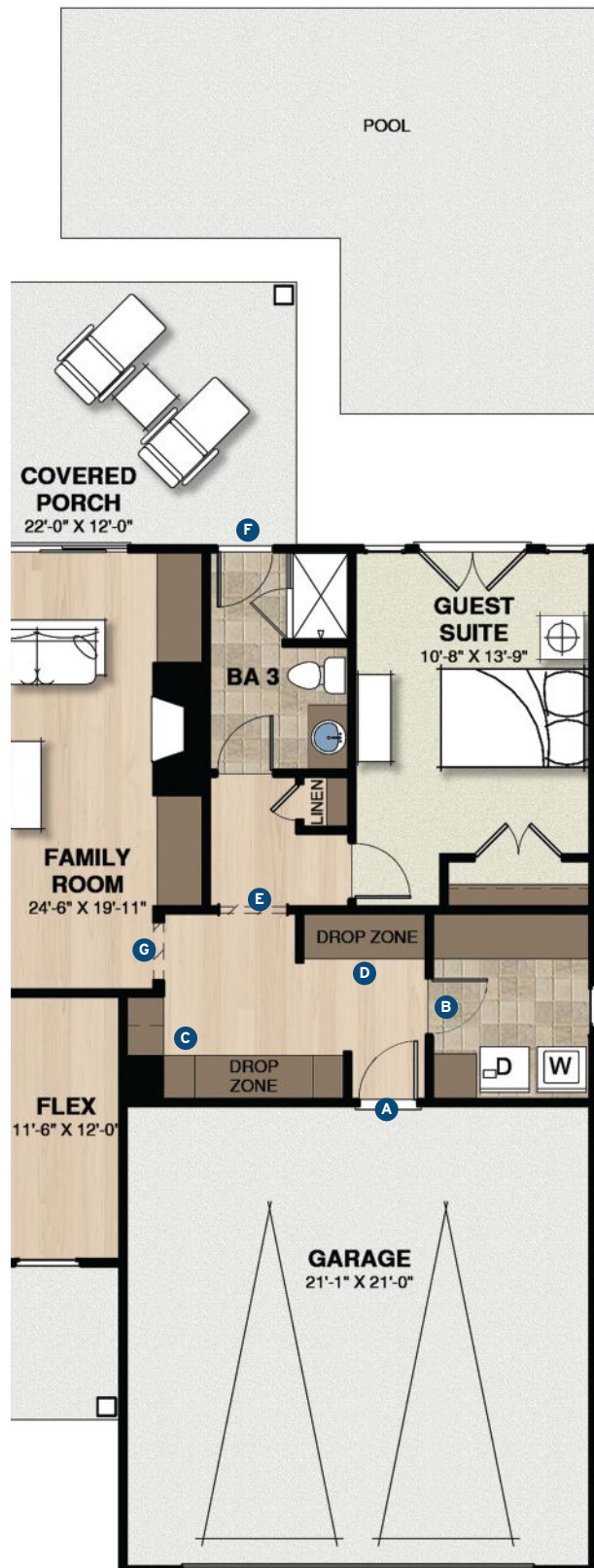
Width: 55 feet
Depth: 71 feet
Living area: 2,825 sf



The drop zone is the hub of this home. It serves as a connection to the garage, laundry room, guest room, and pool bath, and features multiple walls with storage, charging stations, and coat racks and hooks.

All of that storage allows other areas of the home to be less cluttered, since the day-to-day practical items of life within the home are all in this area, to be used by the entire family.

- A** Direct access to the garage from the home
- B** Access to adjacent laundry room
- C** Main "L" shape drop zone on two walls
- D** Secondary drop zone storage area
- E** Opening to guest bedroom and pool/guest bath
- F** Access to rear yard/pool through pool/guest bath
- G** Access to home



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TRANSITIONAL MODERN

Arya, by new-to-the-U.S. Turkish brand **Lineadecor**, is available in a variety of colors and has doors and drawers that feature a flat-panel design. Wall units are available with glass and wire.

Open shelves are optional.

For more info circle 800



EARLY MODERN

The Exeter cabinet door style from **Rutt Handcrafted Cabinetry** draws from the work of early modernist Sir Edwin Lutyens. At 1 1/4 inches thick, the cabinet doors are hefty, to accommodate the vertical and horizontal banding that lends the recessed panel fronts dimension and depth. Decorative molding, leg and edge details, as well as strategically placed solid-brass pulls further distinguish the design.

For more info circle 803

SHIPLAP STYLE

Dura Supreme Cabinetry says one of its new cabinet lines draws inspiration from the popularity of shiplap wall cladding and siding. The introductions include V-Groove Ends, V-Groove Backs, and V-Groove Panels that coordinate with the new Carson V-Groove door style. These options provide numerous opportunities for designers to incorporate shiplap into their projects. Carson V-Groove (shown here in a painted finish) is a Shaker-style door with a beveled inside-edge profile.

For more info circle 801



SMOOTH LOOK

The **Merillat** Masterpiece Collection features mortise-and-tenon construction, dovetail drawers, and full-extension soft-close hardware with a range of paint, stain, and expanded wood options. EverCore doors and drawer fronts made from mechanically super-compressed wood fibers react less to temperature and humidity and have no grain, the company says, providing a smooth painted finish. (Coleson Lagoon Maple and Moonshine Maple are shown.)

For more info circle 802





OPEN SYSTEM

Launched in 2000, **Poggenpohl's** +Segmento kitchen cabinet concept features a simple design that includes thin worktops, handleless cabinet fronts, and a customizable back wall. The updated +Segmento offers black, white, or gray matte finishes and expansive storage solutions to hide appliances. A channel system creates the illusion that the 14-millimeter counter floats effortlessly while offering a fingerhold to open handleless doors.

For more info circle 804



RAISED PANEL

The Alexandria Raised and Alexandria Recessed doors by **Wood-Mode Fine Custom Cabinetry** incorporates a 1-inch-thick cabinet front. Doors feature mortise-and-tenon construction, floating panels, and a rubbed finish. (Raised version in Antique Leather finish on walnut is shown.)

For more info circle 805

CONTEMPORARY STYLE

Ernestomeda says its Soul kitchen offers a wide selection of materials and design solutions to simplify kitchen tasks, such as trays that collect water from dish/cutlery drainers and connect to the sink by a channeled base. The In Line wall unit's door opening/closing system is completely concealed in the lateral sides, and buyers have a choice of handles, including the metal Tag Filter Handle, which integrates ventilation into its design.

For more info circle 806



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CLASSIC CONTEMPORARY

Wellborn Cabinet's Classic Contemporary kitchen embraces the latest in technology, materials, and trends, such as Push to Open and Touch to Open doors and drawers, the company says. The product line features spice and corner pull-outs, drawer inserts, a deluxe under-sink caddy pull-out, and open shelving. (Bel-Air with Husk Alder finish and Midtown in High Gloss Moonlight finish door styles are shown.)

For more info circle 807



FLEXIBLE SYSTEM

Shape, by the Italian brand **Poliform**, is a new modern cabinet line designed to help the kitchen merge with adjacent living spaces. The line's panel system conceals vertical and under-counter appliances, including refrigerators, wine coolers, and beverage centers. Stainless steel and glass hood modules can be equipped with a range of functional options, such as lighting, spice racks, and heat lights, while island configurations can be specified with Poliform's Floating Peninsula, the brand's first cooktop without base cabinet support.

For more info circle 808

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NATURE INSPIRED

Farrow & Ball has collaborated with London's Natural History Museum to create a palette of 16 new colors inspired by nature. Drawn from the museum's collection, including its rare-book library, the palette includes vibrant and jewel-like oranges and reds, natural and opulent greens and blues, and a range of soft neutrals. Products are blended with an eco-friendly water base that's safe for the environment, the company says.

For more info circle 809



MOISTURE BARRIER

Moisture Vapor Barrier by The Sherwin-Williams Co. is an interior latex primer/sealer designed to help reduce moisture loss through walls and ceilings. Ideal

for drywall, wood, and concrete, it uses a new waterborne formula that combines a primer and finish into a single product. It can be top-coated with any interior latex or alkyd paint in as little as 2 hours and can be cleaned up with water.

For more info circle 810

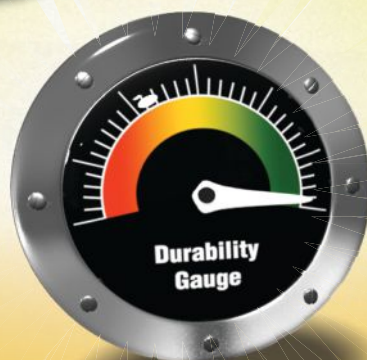


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EXTERIOR STAIN

Valspar says its new line of stains provides all-weather protection for a variety of exterior applications. It's effective in one coat and is available as a clear finish as well as transparent, semi-transparent, and solid-color stains, the brand says. The product comes in 50 nature-inspired shades.

For more info circle 811



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For more info circle 813



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For more info circle 812

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1. Which of the following best describes your company's primary business? (Check one box only.)

- 10 ☐ Builder, Developer, General Contractor
 20 ☐ Architectural Firm, Engineering Firm, Architectural/Engineering Firm, Designer of Homes
 30 ☐ Manufactured or Modular Home Builder
 40 ☐ Remodeler working in building activities
 50 ☐ Land Development
 90 ☐ Other (please specify) _____

2. Which category best describes your job title? (Check one box only.)

- 10 ☐ Owner, Partner, Corporate Executive, Director, General Manager
 20 ☐ Architect, Designer, Engineer
 30 ☐ Construction Manager, Superintendent, Purchasing Agent, Buyer
 40 ☐ Other Management personnel
 50 ☐ Sales or Marketing Manager
 90 ☐ Other (specify): _____

3. What type of construction is your firm involved in? (Check ALL that apply.)

- A ☐ Single Family - Custom
 B ☐ Single Family
 C ☐ Multi-Family
 D ☐ Remodeling
 E ☐ Light Commercial
 F ☐ Other (specify): _____

4. How many homes does your firm build per year? (Check one box only.)

- A ☐ Over 500 units
 B ☐ 101 - 500 units
 C ☐ 26 - 100 units
 D ☐ 11 - 25 units
 E ☐ 1 - 10 units
 F ☐ 0 units ☐

5. What is your firm's annual revenue? (Check one box only.)

- A ☐ More than \$10 million
 B ☐ \$5 million to \$10 million
 C ☐ \$1 million to \$4,999,999
 D ☐ \$1 to \$999,999
 E ☐ \$0 ☐

6. Which of the following building materials, products or equipment do you buy, specify or influence the selection of? (Check ALL that apply.)

- 01 ☐ Appliances
 02 ☐ Cabinets and Countertop Materials
 03 ☐ Caulks and Sealants
 04 ☐ Central Vacuum Systems
 05 ☐ Computer Hardware and Software
 06 ☐ Construction Equipment
 07 ☐ Decking / Fence Materials
 08 ☐ Doors
 09 ☐ Engineered Wood Products
 10 ☐ Fireplaces and Accessories
 11 ☐ Flooring and Floor Coverings
 12 ☐ Garage Doors
 13 ☐ Green Building Products
 14 ☐ Hand and Power Tools
 15 ☐ Home Automation Systems
 16 ☐ HVAC and Environmental Controls
 17 ☐ Insulation and Related Products
 18 ☐ Lighting Fixtures
 19 ☐ Locksets and Hardware
 20 ☐ Paint, Stains and Finishes
 21 ☐ Plumbing Fixtures / Faucets
 22 ☐ Roofing Materials
 23 ☐ Siding
 24 ☐ Sound and Security Systems
 25 ☐ Tile
 26 ☐ Trucks
 27 ☐ Windows
 99 ☐ None of the above ☐

7. Which of the following publications do you receive personally addressed to you? (Check ALL that apply.)

- A ☐ Builder
 B ☐ Custom Home
 C ☐ Neither

8. Excluding land, please indicate the cost per square foot of the homes your company builds. (Check ALL that apply.)

- A ☐ \$25/sq ft or more
 B ☐ \$201-\$250/sq ft
 C ☐ \$151-\$200/sq ft
 D ☐ \$121-\$150/sq ft
 E ☐ \$101-\$120/sq ft
 F ☐ \$100 sq ft or less

→ IN ORDER TO PROCESS, COMPLETE ALL INFORMATION, SIGN AND DATE.

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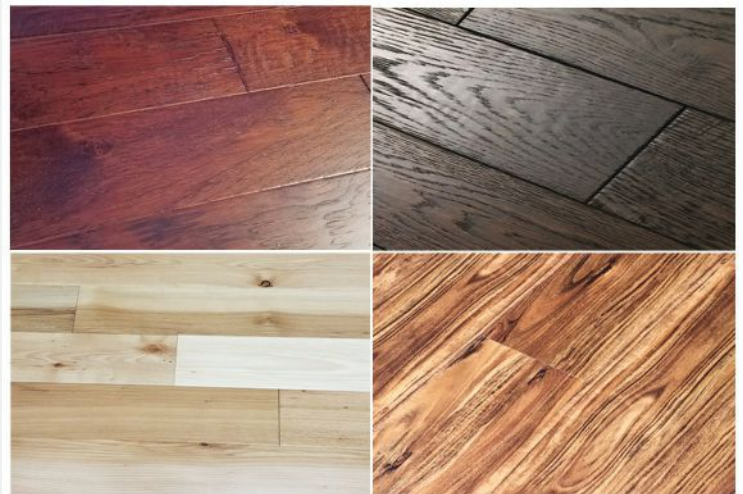
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AARON NITZKIN

EVP of Solar

Citadel Roofing and Solar, Vacaville, Calif.

Effective this year, the cities of Berkeley and Windsor, Calif., banned natural gas hookups for most new-construction homes. Both municipalities were subsequently sued. San Francisco is among 50 California cities and counties, three Massachusetts towns, and Seattle that have enacted or are considering codes calling for all-electric heating and cooling in new construction and/or renovations to reduce fossil fuel use and greenhouse gas emissions. The Green Reach Code ordinance for Davis, Calif., has the same goals, but encourages all-electric for homes by imposing less-strict requirements than for gas-connected buildings. Aaron Nitzkin, as chairman of the city's advisory task force, had a courtside view of how Davis came to use the carrot rather than the stick.

PRO BUILDER: *What is the city of Davis doing regarding codes for all-electric homes?*

AARON NITZKIN: In the past several months, we've seen a lot of momentum across California, with cities introducing reach codes [ordinances with stricter energy-efficiency and emissions standards than the state's Title 24 standard]. The idea is to curtail natural gas use.

Today, electric heat isn't common. People are used to gas. When you introduce a ban without any forewarning, you'll get some people freaking out. Now that solar is so cost-effective, these cities are able to meet the requirements to introduce a reach code that makes an all-electric home cost-effective. You now have electricity able to drive heating, cooling, and cooking in very high-quality, cost-effective ways, where you historically haven't been able to do so.

Davis wanted to see builders building all-electric homes, but the city didn't want to mandate it. So they're saying that if you want to build a mixed-fuel home, you can, but the code is going to be more strict.

For instance, you'll have to improve energy efficiency and maybe use better windows. You might have to put in energy storage and prewire the home for all of the electrical appliances down the road. Or, if you just do all-electric now, then you don't

have to put in all of those extra things. Basically, if you want to build a natural-gas home, you can, but you have to add more to it. It's a way to transition them over.

PB: *How has solar changed the game?*

AN: It's fascinating to recall when solar was new and everyone was rebelling against it because it was too expensive. If California's solar mandate had been implemented 10 years ago, there would have been yelling and screaming. Now there's no yelling and screaming because it's been transitioned in, and solar has been incentivized.

PB: *What are examples of extras that would be required for a mixed-fuel house?*

AN: Two that I read about are energy storage and better windows. It all goes back to the EDR [Energy Design Rating], so you have to get 9.5 points lower than what is normally required. (Editors note: EDR is similar to Resnet's Home Energy Rating System [HERS] Index, where greater energy efficiency results in a lower score.)

PB: *What was your role?*

AN: There's a solar task force made up of representatives from the city, from Cool Davis—a nonprofit organization that promotes sustainability—and local

stakeholders. I'm part of the local stakeholders group and chairman of the task force.

We helped to pioneer a lot of things. In 2016 we recommended a solar target to the city, so we launched a mission that doubled the amount of solar in Davis. The goal is that, by the end of this year, Davis has 4,500 installations—almost half of all the owner-occupied buildings in the city. That's amazing penetration, but the city has been implementing initiatives for over a decade, such as setting carbon-neutrality goals.

Last year the city passed an ordinance that mandates solar on commercial buildings and high-rise multifamily. The city is always thinking ahead and pushing the envelope. I personally wasn't involved in reach code discussions, but our city council and building department are trying to determine what should be done to move the needle.

PB: *How did the notion for this incentive approach come about?*

AN: I've been working with builders for over 16 years, mostly dealing with the solar team, and I really understand the builder mentality. Any change in the building code is really disruptive to the home builder.

For the complete interview with Aaron Nitzkin, see probuilder.com/interview-nitzkin

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