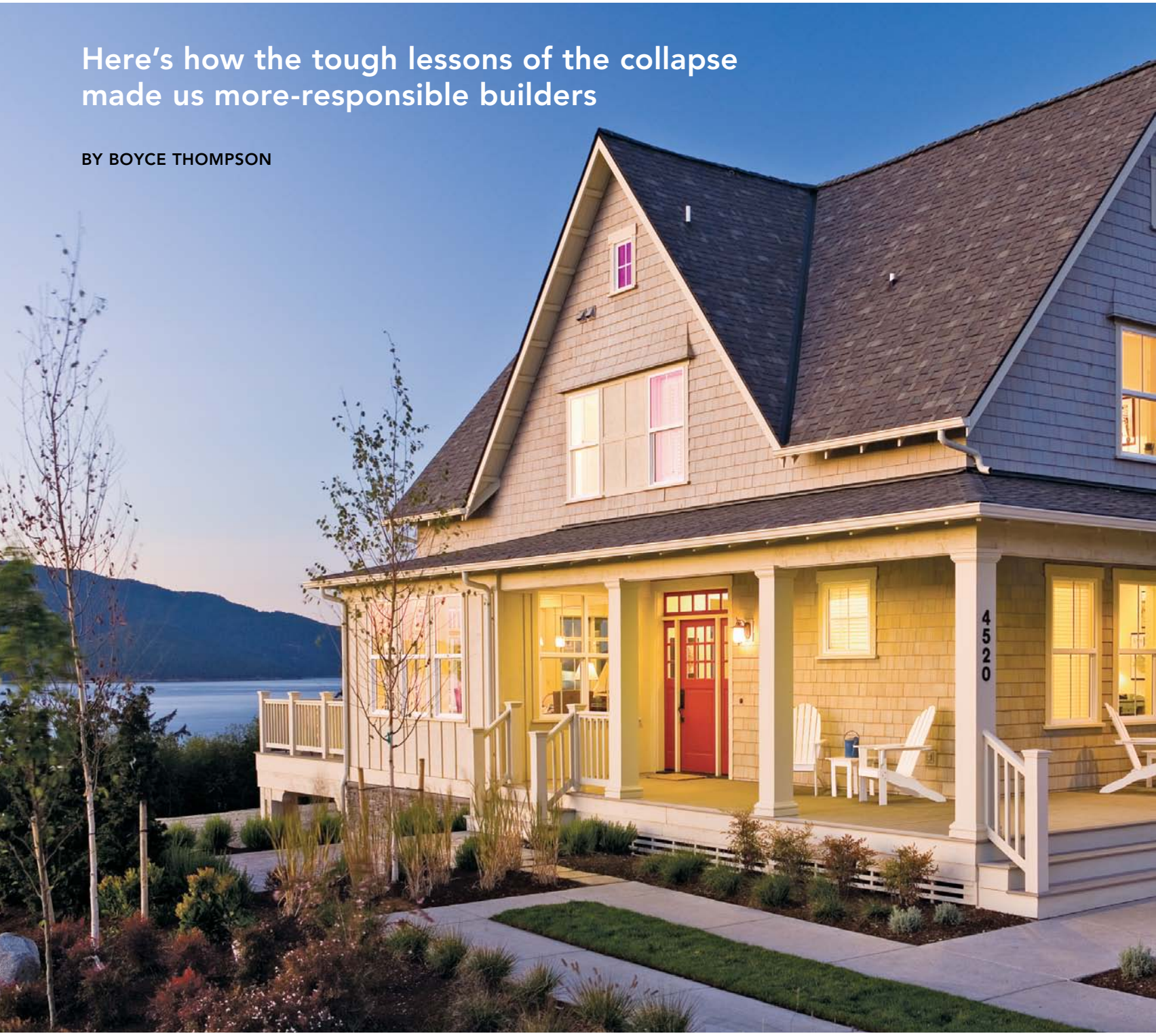
Housing Is Back.

Here's how the tough lessons of the collapse made us more-responsible builders

BY BOYCE THOMPSON



Designed by Union Studio, this home's simple footprint makes it inexpensive to build, and close attention to energy details makes it inexpensive to heat and cool.

Photo: Peter Kuhnlein

Is It Better?

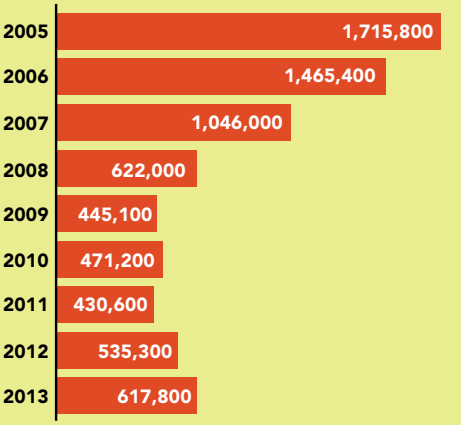
Tens of thousands of homebuilders in this country went out of business during the recession, as new-home starts contracted by 75%. One of the biggest sectors of the American economy was devastated.

Against this backdrop of corporate carnage and financial distress, builders searched desperately for a market niche—a new type of home, a better location, or a new mode of operation—that might ensure their survival. Innovative new homes got smaller, and they also got greener and more energy efficient. Builders went beyond the superficial "greenscaping" of the previous decade, when about the most they would do is install compact-fluorescent light fixtures or carpets made with recycled soda bottles. In many cases, they reassessed all the products they were using to build houses, deleting ones that weren't absolutely necessary and adding substitutes that performed better and lasted longer.

Most important, some builders reexamined the engineering and the systems they used to build homes. They completely overhauled the inner workings of the houses they built and, in a huge break from tradition, called greater attention to the way the houses were built rather than to things like antiqued cabinets or built-in wine chillers.

Home construction collapses

Single-family housing starts, 2005-2013



Source: U.S. Census Bureau (figures rounded to nearest hundred)

Looking under the hood—and in the walls

One of the most exciting examples is the deconstructed model home done by Meritage Homes, the tenth-largest homebuilder in America. Meritage, which builds throughout the West and Southwest, began inviting potential buyers to look under the hood, so to speak—to see into the floor, ceiling, and walls. While half of their displays may be tricked out like the typical model home—with draperies, stainless-steel appliances, and tile floors—the other half look like they belong in a building-science museum. The idea is not only to lay bare superior construction practices but also to get people to linger and explore. The more time shoppers spend immersed in this experience, the builder reasons, the more likely they are to buy a home.

Competing builders also flocked to the models, but for a different reason. They used the models as an educational tool, since they displayed many best practices in an easy-to-learn, interactive setting

The Sage is a 1400-sq.-ft. demonstration home built in Eugene, Ore. It became one of the first houses to achieve LEED Platinum status west of the Rockies thanks to its small photovoltaic system, its use of redwood reclaimed from benches at a local amphitheater, and its double-wall system for thwarting thermal transfer.

(photo facing page). A Meritage deconstructed model in Phoenix, for instance, illustrates (with the help of drywall cutaways and videos) the airtight seal that polyurethane insulation makes when it's sprayed into the ceiling and walls and around pipes and electrical wires. Placards in a skeletal living room point toward a heat-recovery ventilator nestled above the joists that recovers heat from stale indoor air before it's exhausted outside, reducing energy use. A roped-off floor section demonstrates proper pouring of a post-tension slab, a foundation suspended by rebar that allows a house to adjust to shifting, sandy soil—an important precaution in some Southwest regions. To cap the memorable experience, a sign by the door proudly displays the house's Home-Energy Rating System (HERS) score of 40, which is 60 points less than the code minimum and well below the score of any other new house in the neighborhood.

For energy efficiency, a new normal

The lower a home's HERS rating, the better its energy performance. A typical existing home has a HERS rating of about 130, while most new homes rate about 100, having been built to stricter codes. HERS ratings have become the single best way to judge the energy efficiency of the best-built homes. During the housing bust, they surpassed the EPA's Energy Star for Homes standard because so many high-performing homes easily exceeded Energy Star. Even so, the Energy Star standard remains an important benchmark, a *de minimis* standard if you will. One-quarter of the homes built in 2010 carried an Energy Star label, and the EPA upgraded its standard to Version 3 in 2012, requiring that new homes achieve a HERS rating in the low 70s or better.

The Energy Star standard provides important assurances. Builders must inspect their homes for moisture problems and hire certified HVAC contractors. Homes must resist thermal transfer through walls, so builders need to install a continuous layer of rigid-foam insulation of at least R-3 in warmer climates and R-5 in colder ones, or use one of several alternative wall systems. The standard also prohibits builders from using any material, including framing lumber, with "visible mold," a stipulation that will be difficult to enforce. All this costs money, but it's cash that some builders now spend willingly to get a competitive edge and a government seal of approval.

Putting net zero on the map

Another major development of the housing bust was the rise of net-zero homes, which produce as much energy as they consume. In 2010, Meritage was selling about $35,000 in options to its Phoenix homes (a photovoltaic system and some energy upgrades) that would produce a net-zero home.

Net-zero homes can have strong subliminal appeal. Consider the aging baby-boomer that I met in the Meritage model. His Harley-Davidson parked outside, he wanted to pay cash and take the net-zero option. He imagined a retirement utopia in which he would have no housing expenses besides property taxes. This was the latest variation on a long-standing American dream to cash out of expensive housing markets in California, the Midwest, and the East Coast and buy less expensive homes in the Sun Belt, where property, income, and estate taxes are also lower, if they exist at all. Del Webb, the baseball player turned homebuilder, created an entire business model, Sun City, on this widespread desire for a retirement with financial independence.

Cultivating green

One weakness of some energy ratings is that they don't fully consider other green issues, such as how much recycled content is used in drywall or flooring, whether paints and furniture emit noxious or even toxic fumes, or how big a carbon footprint a home leaves on the planet—a seemingly cosmic notion that, nonetheless, can be measured. When it comes to greenness, the LEED (Leadership in Energy and Environmental Design) standard promulgated by the U.S. Green Building Council may be a better indicator. It creates a system of points—for instance, two points for enhanced control of refrigerants and two to four points for water-efficient landscaping—that can be accumulated to achieve a series of rankings, with LEED Platinum being the highest. (The standard isn't perfect. Critics like to point out that you can score enough points to get a low-level LEED certificate without doing an exceptional job on energy conservation.)

The National Association of Home Builders' (NAHB) National Green Building Standard considers six major green categories, including indoor-air quality and homeowner education, to produce ratings. And many cities now have their own green-building codes. Usually, it costs extra to build to a green-building standard, but it's often money well spent, especially if you can get a certificate to pass on to the next owner.

Is the green movement a passing fad, or is it here to stay? Already, many jurisdictions take provisions from voluntary green standards and drop them into mandatory building codes. Manufacturers of building products have adjusted their production processes—using recycled

Photo this page: Mike Dean, courtesy of Arbor South.
Photo facing page: Meritage.

carpet fibers and even scraps swept off the factory floor—to create greener products, often at great expense. And builders who took the time to investigate green-building techniques during the housing apocalypse aren't turning back. If new homes are a pale green now, they will ripen into a dark shade in years ahead due to this confluence of forces.

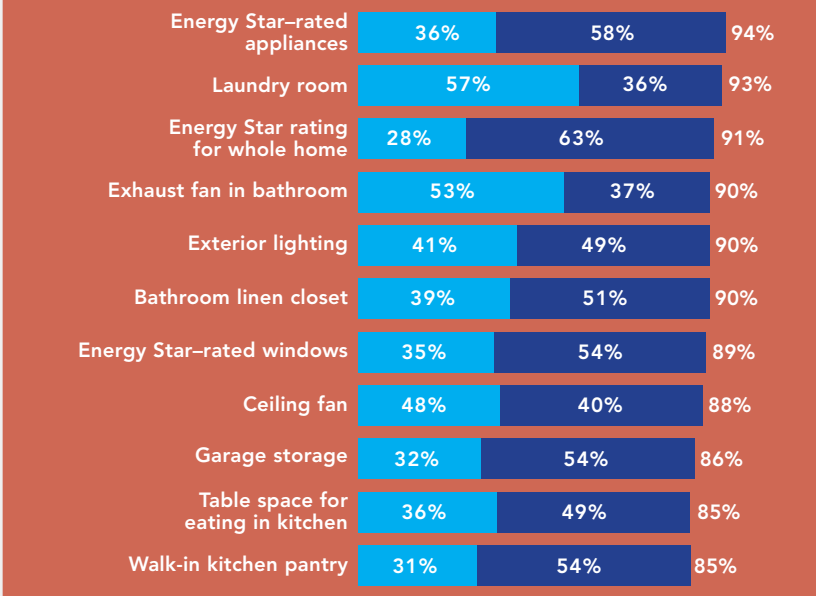
A new vision of home

Another striking development during the housing bust was the long-awaited rise of contemporary-style production homes, which often went hand-in-hand with a deepening green-building movement. Previously, buyers who wanted a more modern-looking home—characterized by strong geometric forms and the use of basic materials such as glass, concrete, and steel—were compelled to hire a custom builder and architect. That often meant having your own lot, an expensive and sometimes risky proposition. Until the housing downturn, off-the-shelf contemporary homes were only available in a few places, such as Palm Springs, Calif., or Miami, where builders felt the pool of potential buyers was big enough to offset the risk. But now, devotees of this style, popularized by architectural magazines, may be able to find them in neighborhoods of production homes built in Salt Lake City; Phoenix; Denver; Austin, Texas; and several other Western markets.

Some builders are drawn to modern design because it can be less expensive to build. Others want to stand out from the glut of traditionally styled homes constructed during the boom. Still others have always had a hankering to build in this vein and believe that demographic—young buyers seem drawn to the style—and economic moons have aligned. In any case, the results have been striking. Shea Homes, one of the largest private builders in the United States, has had so much success with its Spaces series of space-efficient, contemporary homes that it tries to include them in its new master-planned communities. The homes, which start at about $250,000 in California, Arizona, and Colorado, sold during the downturn at a rate of three or four a month per community, compared with the usual one or two.

Interestingly, Spaces started off as an exercise in value engineering—finding the most economical way to build a structure. As part of this process, Shea, with the help of marketing consultants, also tried to figure out what people probably wouldn't pay for in a down market. Deciding

What homebuyers want



During the downturn, progressive builders called attention to how they built homes, highlighting high-performance features—such as heat-recovery ventilators, spray-foam insulation, and post-tension slabs—that are rarely found in less-efficient resale homes.

The Irvine Ranch enjoyed success during the housing downturn with redesigned homes that emphasized big kitchen–family room combinations with oversize nooks and covered back porches (or "California rooms") like the one pictured here. Formal spaces used less frequently were deleted in favor of informal ones that people use more often.

what to leave out is the hardest part of any design process, and it's one that every homebuyer should go through.

One of the first deletions was the rarely used oversize, jetted tub in the master bath—a symbol of excess from the housing boom. The Spaces homes still have a tub, but it tends to be in a hall bath near the children's bedrooms, since kids tend to take more baths. Formal living rooms, dining rooms, and parlors, which also don't get used that often, are also deleted from the informal Shea plans. Instead, the builder found that its target buyers preferred a highly customizable great room, albeit one with a low ceiling that's less expensive to heat and cool.

Standardization pays off

The next order of business was standardizing a few sizes of big-ticket items such as windows, doors, and cabinets.

Too often during the housing boom, builders went overboard with fanciful exterior touches—gables, dormers, and bump-outs—that required different, often expensive millwork treatments. They wound up having to buy windows, doors, and trim in many sizes, sacrificing economies of scale. The recession forced them to simplify housing forms, settle on a few millwork sizes, and buy in greater bulk to obtain better prices. The thinking isn't much different from what Levitt and Sons went through when the company designed some of the earliest production neighborhoods. Some architects of low-income housing are real masters at this; they know how to create distinctive designs with a limited palette of inexpensive materials, often using color to intriguing effect. (One analogy: Nobody seems to mind that Apple products all come with the same sleek, anodized-aluminum frame; it's a point of pride to own one. You can always customize the product with your own case. And besides, you are the master of the personalized content inside.)

Something to talk about

One upside to the housing bust—if you could possibly overlook the incredible pain that it brought many families—is that it left builders with time on their hands, time they could spend constructing demonstration homes. It's amazing how many built prototypes for local events or just to have something to talk about.

One of my favorites is a small (1400 sq. ft.) supersustainable infill home built in 2009 for a local home show in a suburb of Eugene, Ore. (photo p. 72). The Sage, designed by the local firm Arbor South to educate its architects as well as the public, managed to embody nearly all the trends manifested during the downturn. The design sympathetically picks up on material—clapboard siding

Photo this page: Bassenian-Lagoni Architects.
Photo facing page: Jeffrey Aaron Photography.

and asphalt roofing—used in the surrounding neighborhood. But its building form, especially the roofline and structural massing, are much more contemporary. The house meets the delicate challenge of constructing infill housing: How do you create something innovative and fresh that still makes a good neighbor?

The home was built with a full complement of energy-efficient materials and methods, including double-stud walls—essentially exterior and interior wall systems separated by insulation. Formerly considered heretical, double-wall systems caught on during the recession as builders, especially in cold climates, looked for the next big thing in energy performance. Building separate wall systems for the inside and outside portions of the house might seem redundant, but the incremental cost pays back over the long term from the efficiency gained from reducing air-conditioning and heating needs.

The Sage not only minimized material waste on the job but also used reclaimed siding and flooring, an increasingly common green practice enabled by the rise of local salvage firms in many cities. The redwood siding was milled from benches reclaimed from a local amphitheater. In addition, the architects employed a host of sustainable building materials, such as cork, recycled paper, fly-ash concrete, and wood grown with sustainable forestry practices. Strategically oriented to gain maximum natural light, the home included a full complement of renewable systems, including solar hot water, a 2.1kw photovoltaic system, passive ventilation (allowing hot air to rise through a vertical space and venting it), rainwater collection, low-flow faucets, and dual-flush toilets. The architects estimated that it cost an additional $35,000 to build the $450,000, two-bedroom, two-bath home to such a high environmental level. When completed, the Sage was the highest-scoring LEED project west of the Rockies, earning Platinum status.

One of the most striking aspects of the Sage may be its "soft-loft" interior architecture, borrowed from the urban loft movement of the last 20 years. As space is taken from needless hallways, overwrought master bathrooms, and infrequently used formal rooms, some of it is going into kitchens, great rooms, and porches that get more use. In this fashion, it's possible to design a home that actually feels bigger and lives better than the McMansions built during the decade of the 2000s.

Back at the ranch, a sales boom

The Irvine Ranch of Southern California has long been a breeding ground for innovation in production housing. During the housing boom, much of the development at the Ranch was of the super-high-end production variety—semicustom homes that could sell for $3 million after buyers were done selecting from a rich palette of design options. The market for these homes came to a screeching halt at the onset of the housing downturn.

So Donald Bren, the billionaire owner of the Ranch, took matters into his own hands. He dispatched market researchers to ask people what it would take to get them to buy. The answer: more storage space, great rooms as opposed to formal living spaces, and functional porches that work with indoor spaces. And, oh, a great price, too.

The findings were anathema to what most designers and builders in the region had practiced for the previous 10 years. Bren knew he had to break with the past, if only to send a message that his homes were more economical. He dialed back interior and exterior specs, working with architects to develop a series of simpler homes that emphasized practical living (photo facing page). The new plans typically came with a mudroom by the garage to store school backpacks and dirty shoes, large functional closets with inexpensive organizers, and second-floor laundry rooms with large linen closets.

"Defeaturing" homes, along with a reappraisal of lot prices, meant that Bren could market homes at 35% to 40% below peak housing-boom prices, a magic threshold that seemed to stimulate sales during the housing bust. The experiment more than worked: Homes in some sections of the Ranch sold at a rate of 20 a month, right in the teeth of the housing recession. As it turned out, the attraction wasn't just design and price. The Irvine Ranch is home to some of the best schools in California, a fact known to many Asian-American buyers, who jumped at the opportunity to live there.

As word spread within the industry that the "recession busters" were selling so quickly in a moribund market, builders throughout the country flocked to see the models. The astute ones could see immediately how value had been maximized and took home lessons worthy of imitation. The Irvine Ranch had renewed its reputation as a center of innovation within the home-building industry. □

Boyce Thompson was editorial director of *Builder* magazine for 17 years.

The distinctive wing over the entry to this contemporary home is a nod to Denver's Stapleton Airport, which used to occupy the site. Designed by architect Michael Woodley for Imagine Homes, it features a creative palette of exterior materials.

This article was adapted from *The New, New Home* (The Taunton Press, 2014) by Boyce Thompson. To learn more about the book, visit tauntonstore.com/new.