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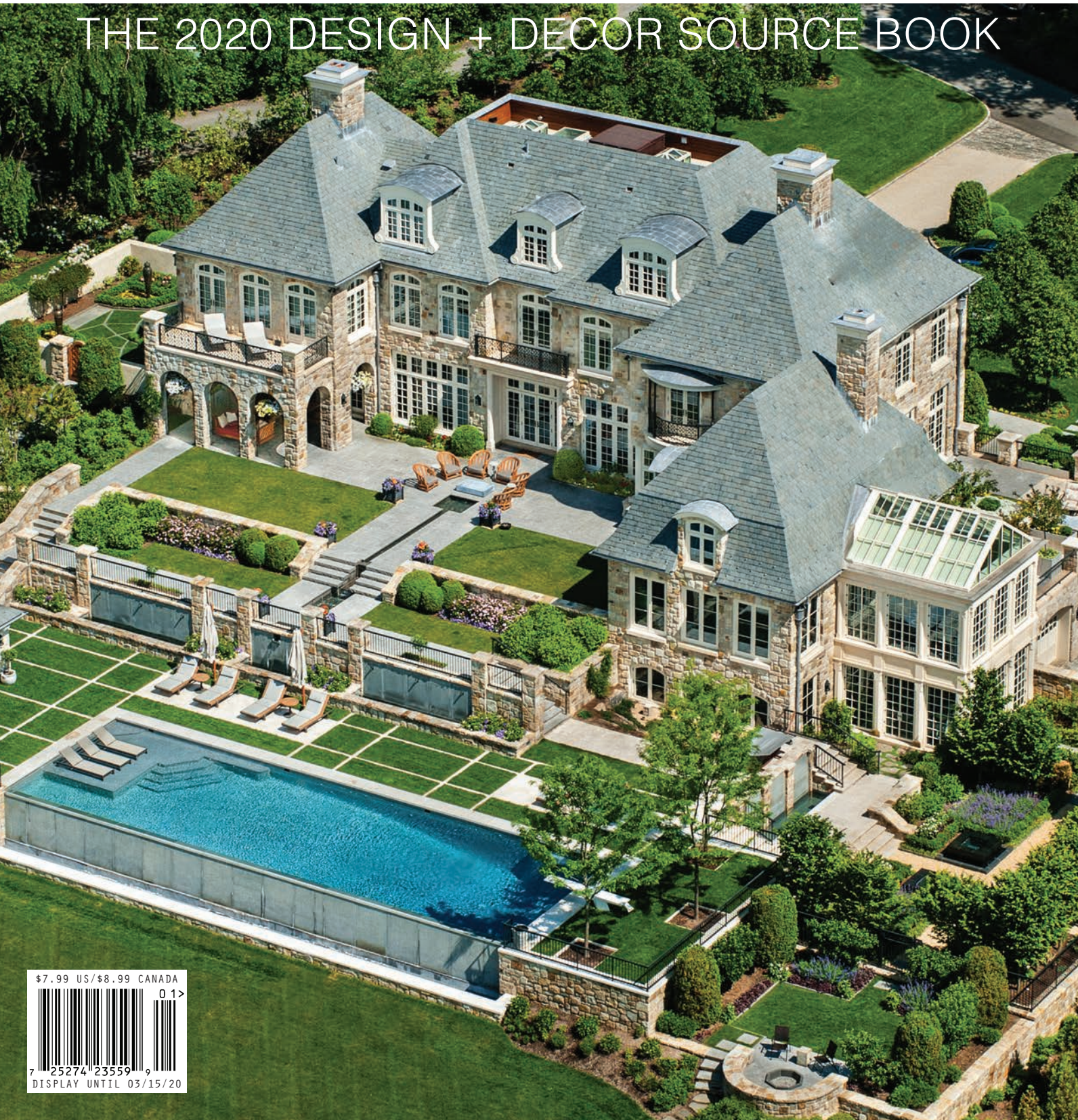

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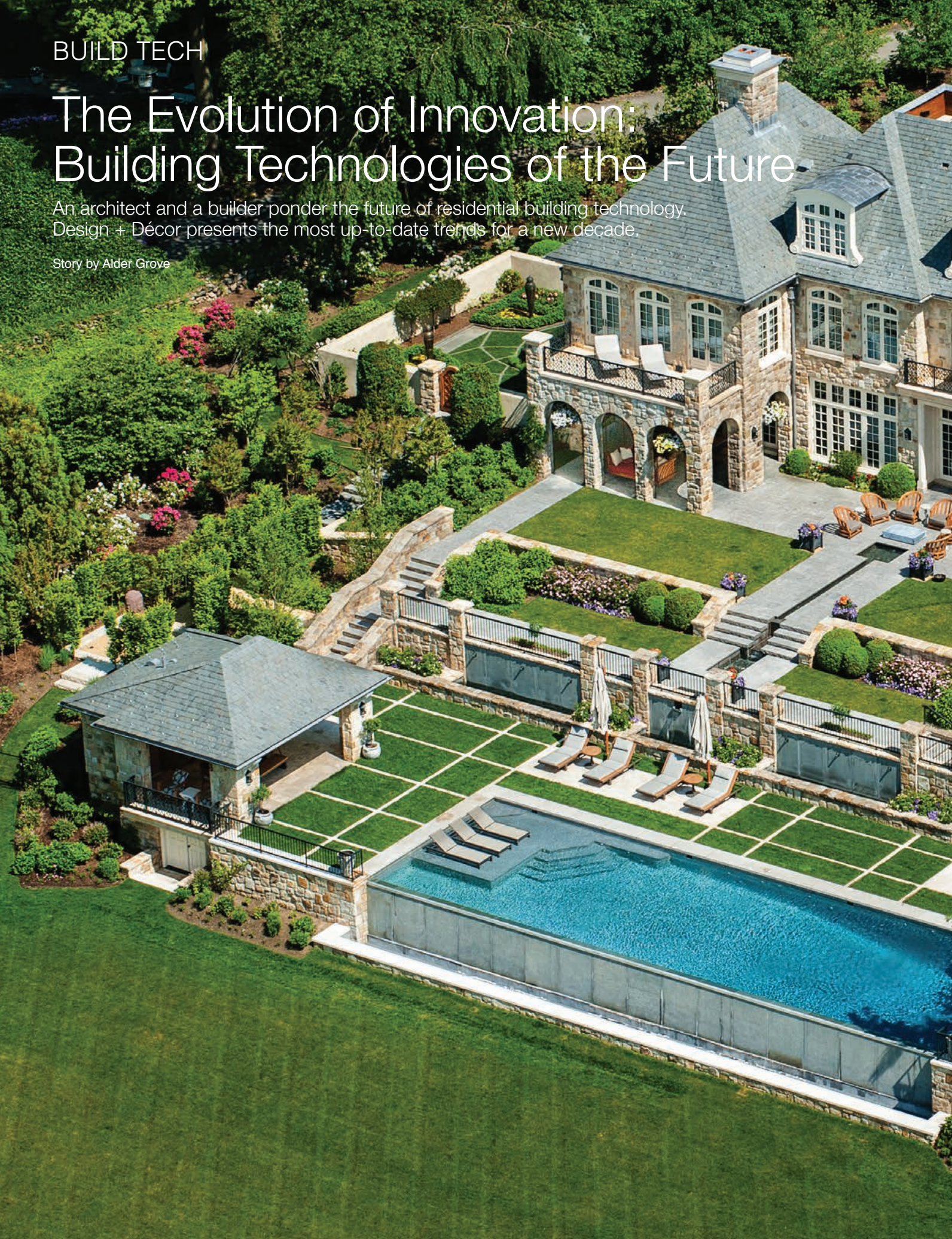
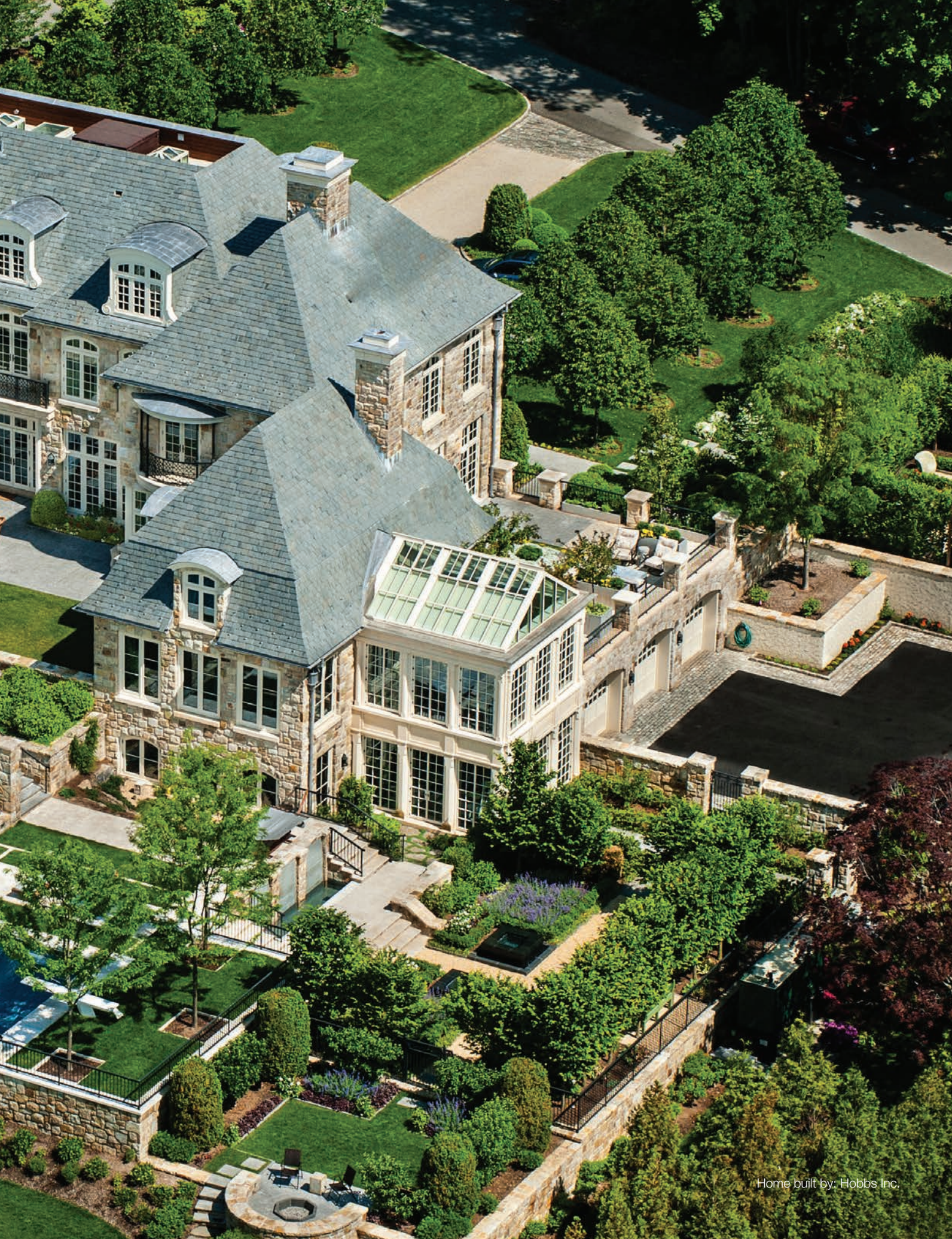
The Evolution of Innovation: Building Technologies of the Future

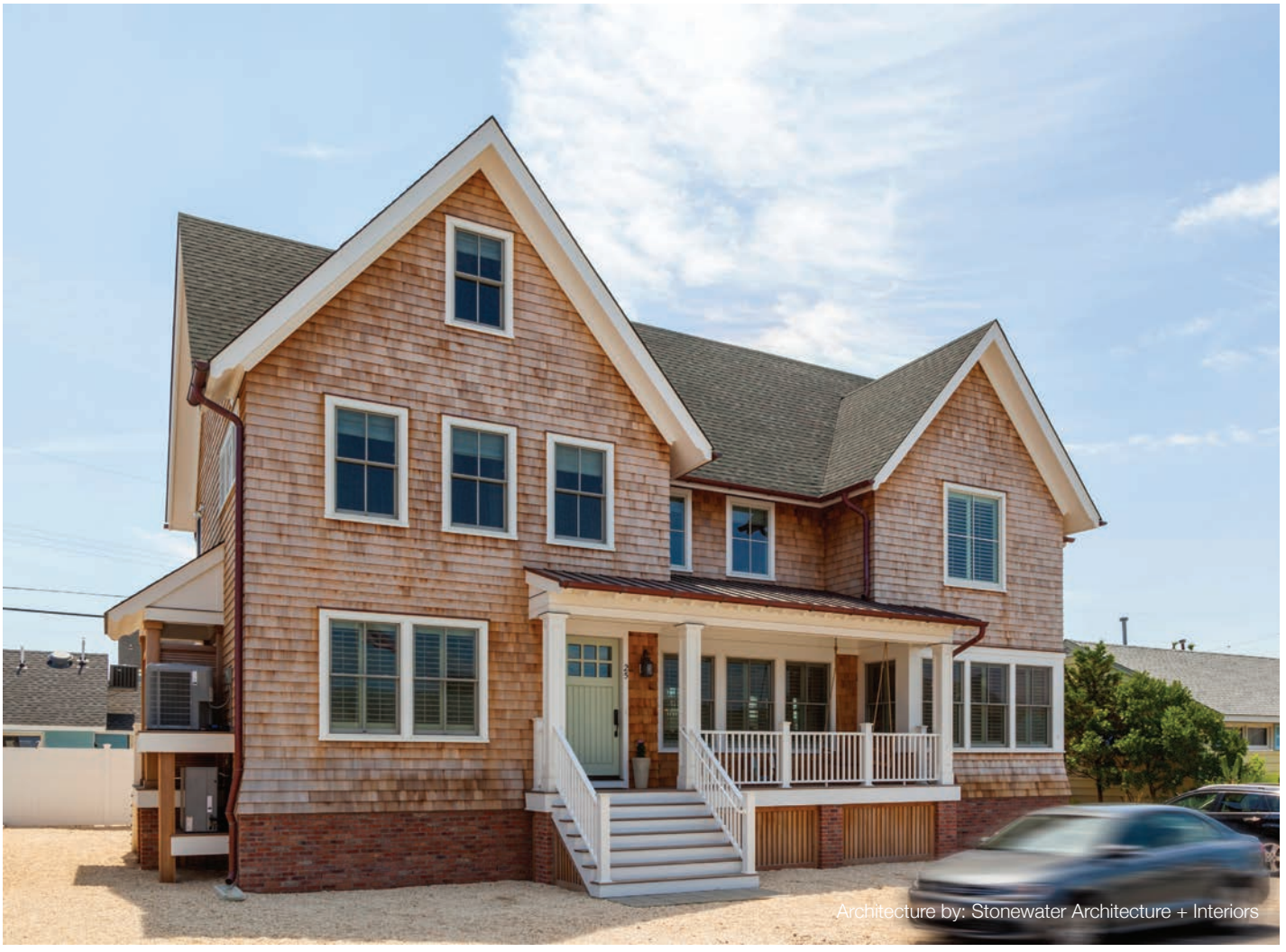
An architect and a builder ponder the future of residential building technology. Design + Décor presents the most up-to-date trends for a new decade.

Story by Alder Grove





Home built by: Hobbs Inc.


Architecture by: Stonewater Architecture + Interiors

The technology involved in building design and construction has been evolving exponentially for at least 20 years. To learn about the latest innovations in building technology, methods, materials, products and systems, Design + Décor spoke with Michael Moritz, principal architect at Stonewater Architecture + Interiors, in Colonia, New Jersey, and Scott Hobbs, owner and project executive at the luxury homebuilding firm Hobbs, Inc., in New Canaan, Connecticut, whose team builds high-end homes in Connecticut, New York City, New Jersey and the Hamptons.

Virtual Understanding

The recent proliferation of 3D design programs has helped project teams to better understand the architect's design intent. Scott is passionate as he describes the enormous rewards of designers presenting their projects in three dimensions. "There's a big benefit for builders on a complicated multilevel house," he says. "It's frequently challenging to figure out where all the elevation changes are, or where the tricky details could be when using only 2D drawings. But 3D plans very quickly allow the build team to get a firm grasp of what is being designed and where issues will come up." Having built scores of residential projects, Scott knows that feasibility, estimating and scheduling are all more accurate now that virtual models have taken over the industry. He's also happy witnessing the ease with which owners can understand their projects when they view virtual fly-throughs and computer-generated perspectives. Clients get an early look at the inside of spaces, giving them a chance to see what's being proposed and speak up if they want to tweak something.

Not Your Grandmother's Insulation

Insulation has improved dramatically and now takes center stage as a critical variable in the sustainability equation. "If a home is well insulated, then other factors can be optimized for energy efficiency," says Michael. Heating and cooling loads are minimized when a house is appropriately draft stopped and has high insulation values. He stresses the importance of keeping the air conditioning and heating equipment inside the thermal envelope of the house. Michael has a strong preference for spray foam insulation at all exterior stud cavities, including walls, floors and roofs. Scott agrees that insulation is a crucial factor; he builds homes with a broad spectrum of insulation types, including spray foam and ultra-green wool products. "It's funny to think that wool insulation is actually a high-tech product, but it is, thanks to the treatments that prevent bugs, pest infestations and other issues that a natural fiber material

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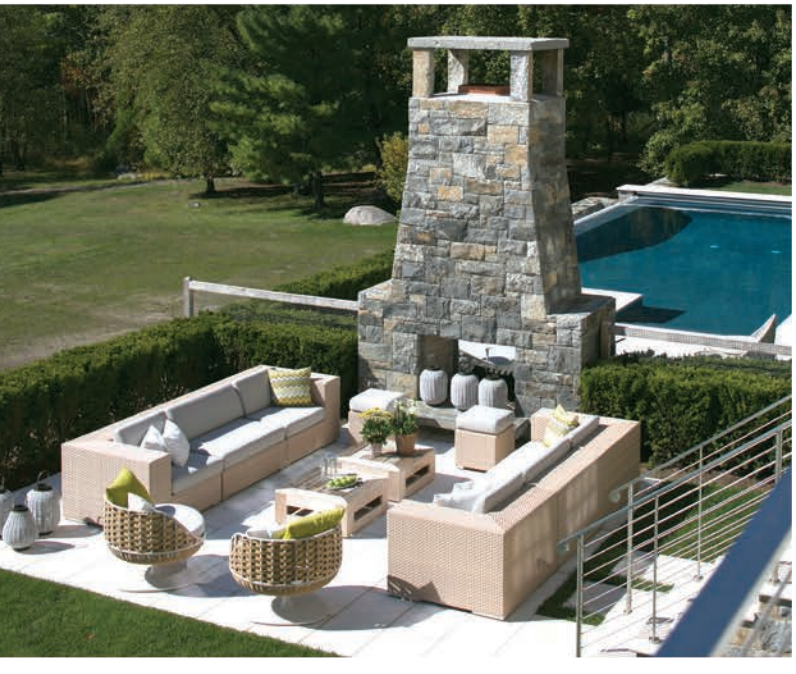

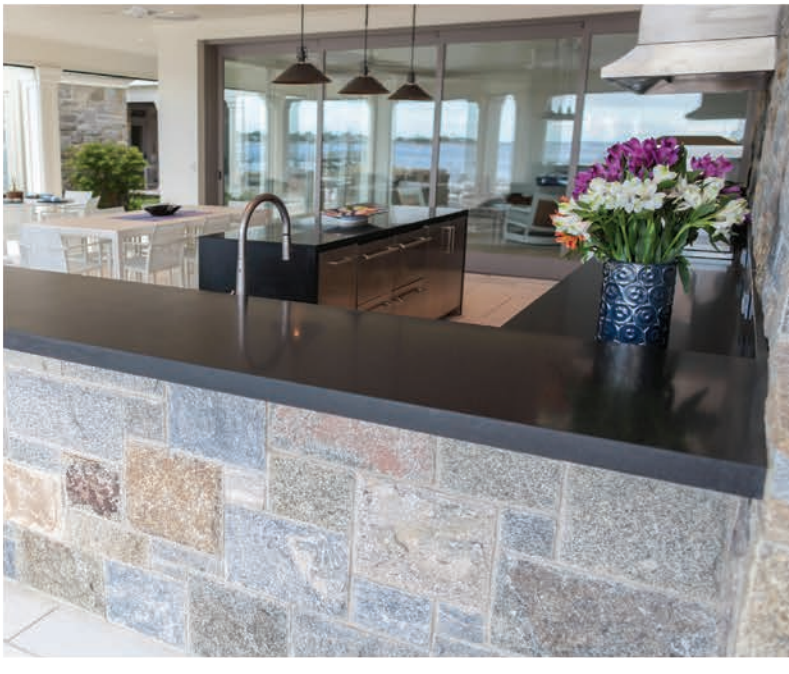

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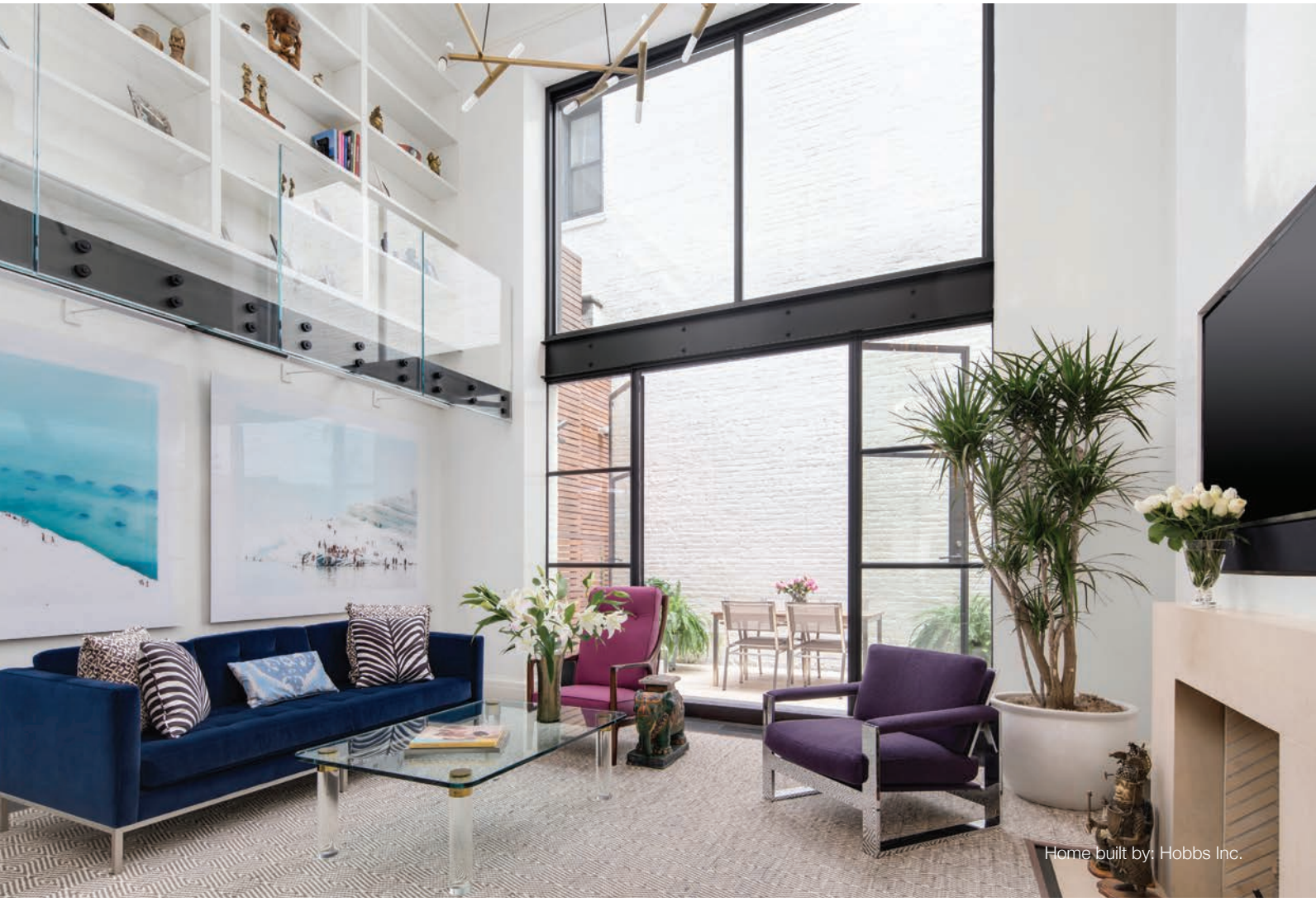
TOP & BOTTOM RIGHT: Architect: Peter Cadoux Architects, Builder: Hobbs, Inc.
BOTTOM LEFT: Architect: Beinfield Architects, Designer: Clarity Home Interiors, Builder: Artisans


Home built by: Hobbs Inc.

might otherwise have," Scott observes.

A Clear View

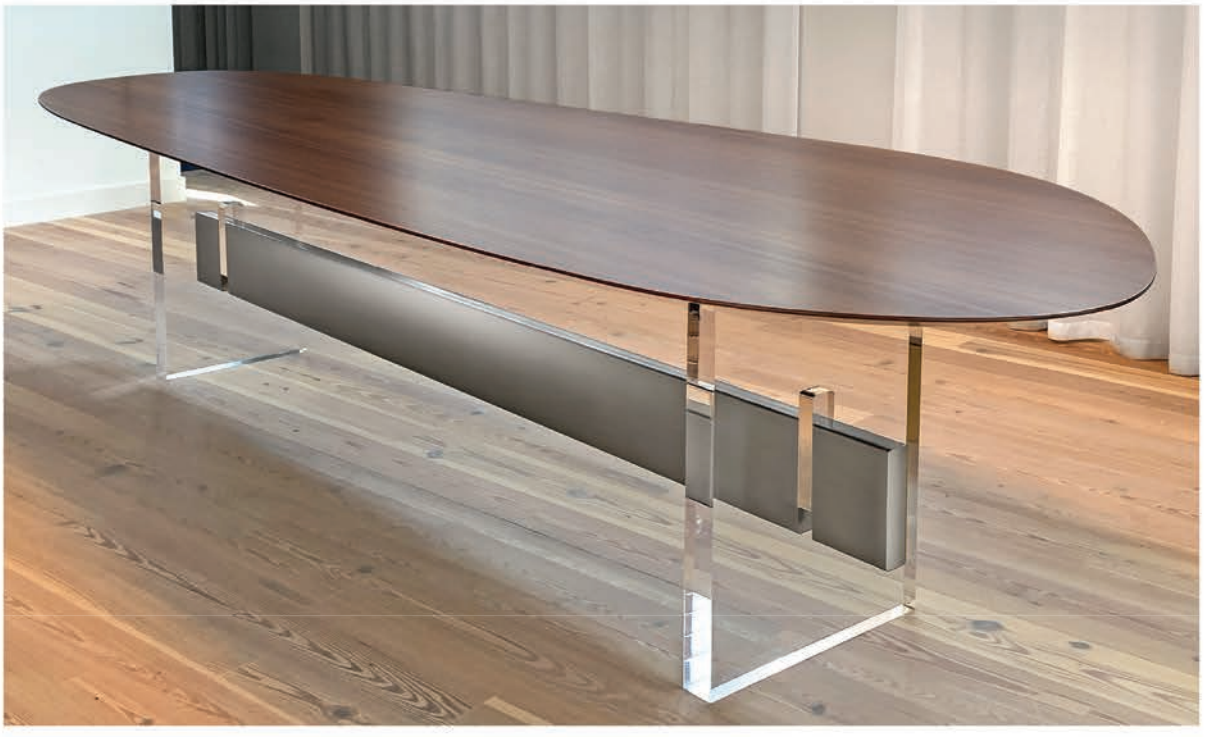
Windows with excellent thermal performance are also must-have components. Indeed, Michael sees the value in a combination package. "Without proper insulation, high-efficiency heating and cooling, and double- or triple-paned windows, you might as well not do any of it," he says. Quality selections and installations in all three categories must be in effect for the greenest aspects to provide the best value for homeowners. Michael relies on several options to maximize the insulation of his homes. In addition to the spray-foamed wall, floor and roof cavities, he opts for mineral wool insulation on the interior of the stud wall and a continuous layer of "outsulation"—a rigid foam/engineered wood product—beyond the face of framing as the most cutting-edge solution for a tight thermal envelope.

Breath of Fresh Air

Another futuristic building technology that Michael relies upon is energy recovery ventilation (ERV)—mechanically assisted ventilation that is required to keep such tightly constructed modern homes breathing easy. Fresh air is introduced to the interior as stale air is exhausted to the outside. "Without the exchange, houses end up with something like sick-building syndrome," says Michael. "Negative pressure can result in the pilot in the basement boiler being snuffed out." A 1,000-cubic-feet-per-minute fan in the kitchen can expel all the interior air without properly engineered makeup ventilation, while a well-tuned ERV system keeps indoor air quality healthy.

Green and Durable

Scott notices the marketplace for green building materials has been maturing lately. "Most products are greener now than people could have even imagined 20 years ago," he says. "They are also better." Scott notes marked improvements in the quality and durability of flat roof membranes, wood-look flooring tiles, superior-quality windows and doors, and PVC trim pieces. Interior specifications, such as countertops and finishes, have boosted their recycled content and benefit from stiff competition between manufacturers. Michael agrees with Scott on the benefits of PVC trims, and takes it a step further to include a favorite siding material: A faux cedar shingle product, made of PVC molded precisely to mimic the variations in cedar shingles, outperforms the cedar shingles made of actual wood that are on the market today. When Michael needs a stable and beautiful exterior cladding with no to low maintenance, faux



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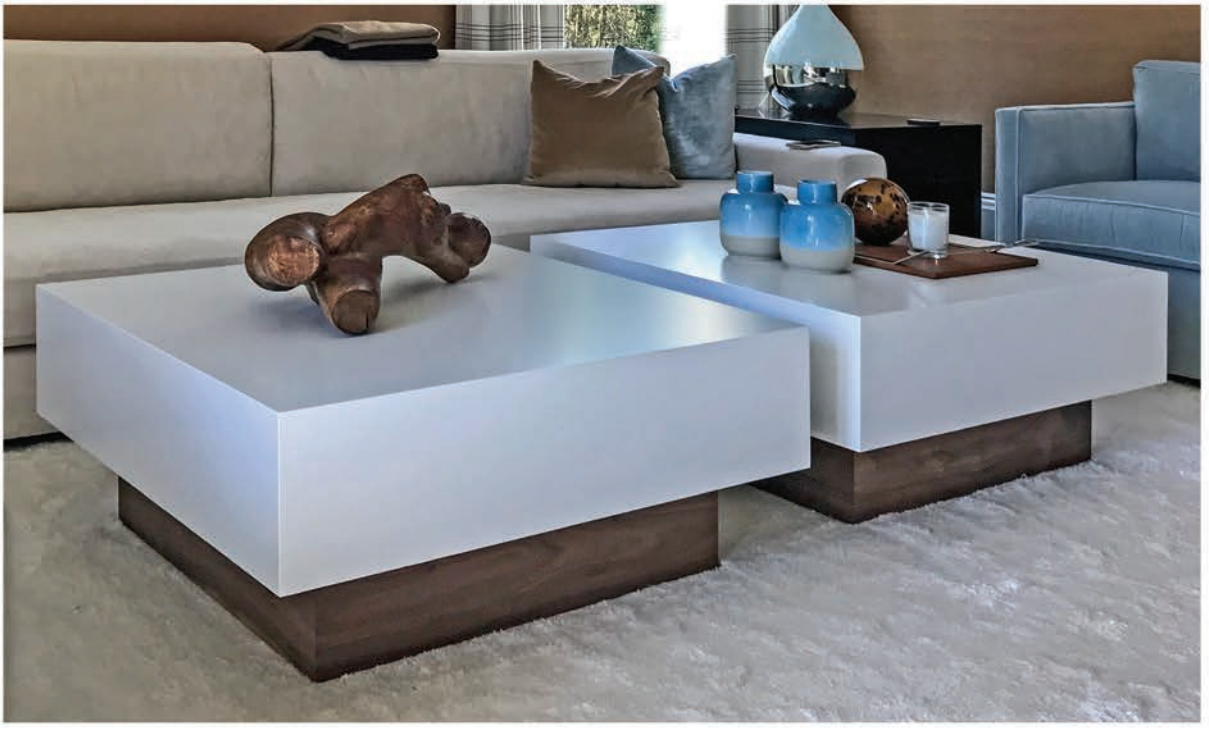

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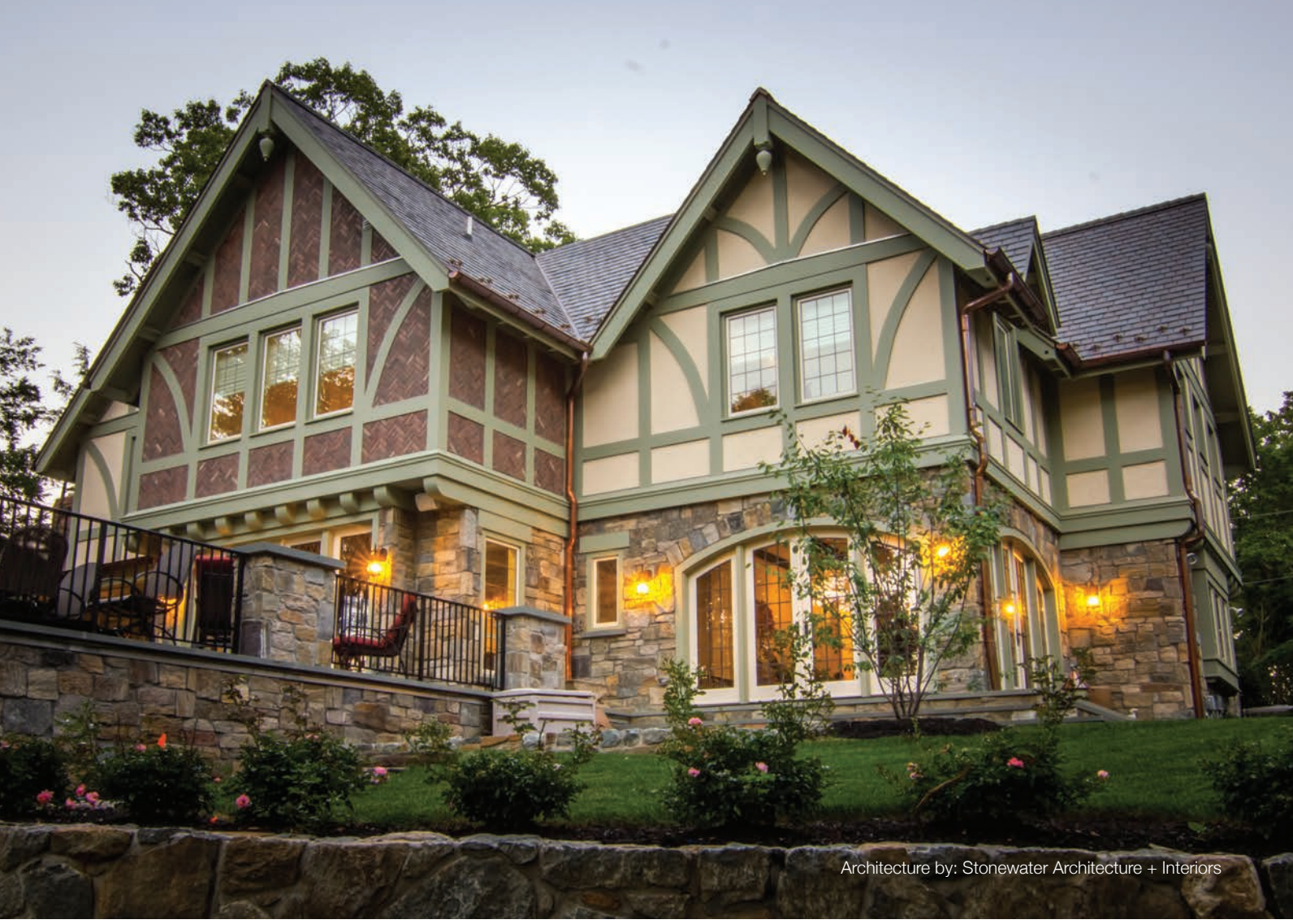

Architecture by: Stonewater Architecture + Interiors

shingles is his go-to selection.

Details of Modern Life

In Hobbs, Inc. projects, rainscreen technology is emerging prominently in houses that embody a progressive aesthetic. "There are a whole bunch of building products out there that allow for the building of ultracontemporary, sophisticated homes with minimalistic details," says Scott. He is referring to excellent quality windows, rainscreen building assemblies and exterior cladding materials with dimensional stability that outperform wood. PVC siding and trims hold paint better, never rot and are not subject to shrinkage or expansion like the materials of yesteryear. The team at Stonewater Architecture + Interiors likes rainscreen waterproofing products, too, says Michael. "Rainscreen roll products allow a channel for water that has penetrated past the exterior siding to exit the wall assembly and keep it dry," he explains. "It performs well and gets the water away from the building's interior."

Many other new building technologies are also being utilized in high-end projects. Innovations like engineered lumber and smart home systems are nearly ubiquitous in new luxury home builds. Composite wood products, such as laminated strand lumber and its cousins, reduce the use of steel and its associated cost. Smart home options automate temperature fine-tuning and energy usage to the point where it's a no-brainer to include them when seeking the best materials and methods for today's high-end homes. It's illuminating and exciting to learn how professionals keep pushing the limits in building technologies.

Resource:

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