IN HARMONY

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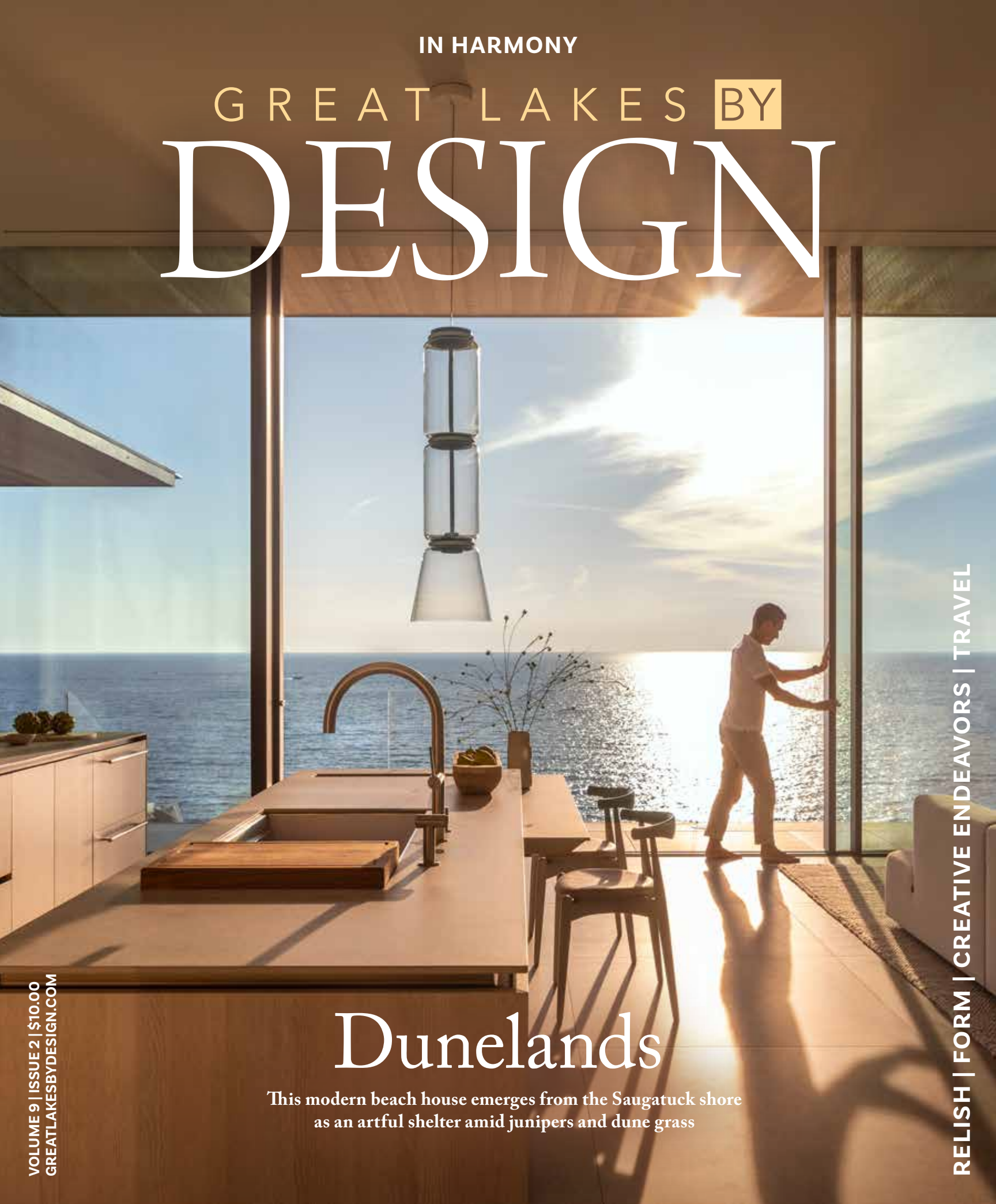

Dunelands

This modern beach house emerges from the Saugatuck shore as an artful shelter amid junipers and dune grass

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Landscapes, driven by deep-rooted, powerful geologic forces, are in constant motion. It is a motion relative to glacial activity and those massive earth-moving forces of ice, wind, and water, where the advance and retreat of moraines carved, sculpted, and pushed whole regions into form, recognizable today as coastal shorelines and vast habitat ecosystems across the Great Lakes. From sea caves and shale cliffs to granite shorelines and wetlands, and perched, white sand dunes, it is a dynamic and often harsh environment informed by erosion—the shifting, colliding, and collapsing of dune formations—and powerful currents that reshape lakebeds and shorelines.

Its beauty is unapologetic and honest, and for Kevin Toukoumidis, AIA, LEED, founding principal of dSPACE Studio, and his partner, it was important that the design of their warm, modern beach home respected the land, to appear as if it was emerging from the dune landscape itself with a minimal impact on the small footprint nestled between critical dunes in Saugatuck, Michigan. It is a place of wellness and respite for the homeowners, an artful shelter that supports an active lifestyle and fosters a sense of wonder and adventure—and, at its core, is a joyful destination for family and friends to gather and create beautiful memories.

"For us, it was rugged, it was beautiful. There was an opportunity for four-season adventure, which really drew us to the property. We imagined swimming in Lake Michigan, hiking the sand dunes, and cross-country skiing in the winter on the beach. We are avid swimmers and bicyclists, so it was an ideal place where we could walk out our door and be in the Saugatuck Dunes State Park and the natural beauty of Lake Michigan," Toukoumidis said. "But the land also presented challenges."

The site, while four acres with direct access to the beachfront, features critical dune areas that reduced the overall buildable footprint to 48-by-66-feet. It also is located within a region with a history of wildfires—dating back to the Great Michigan Fire of 1871 that coincided with the Great Chicago Fire and Peshtigo Fire in Wisconsin, and more recently when roughly 30 acres burned in Saugatuck Dunes State Park in 2012—which, in combination with rising lake levels, and government regulations limiting the buildable area, presented a daunting set of constraints.

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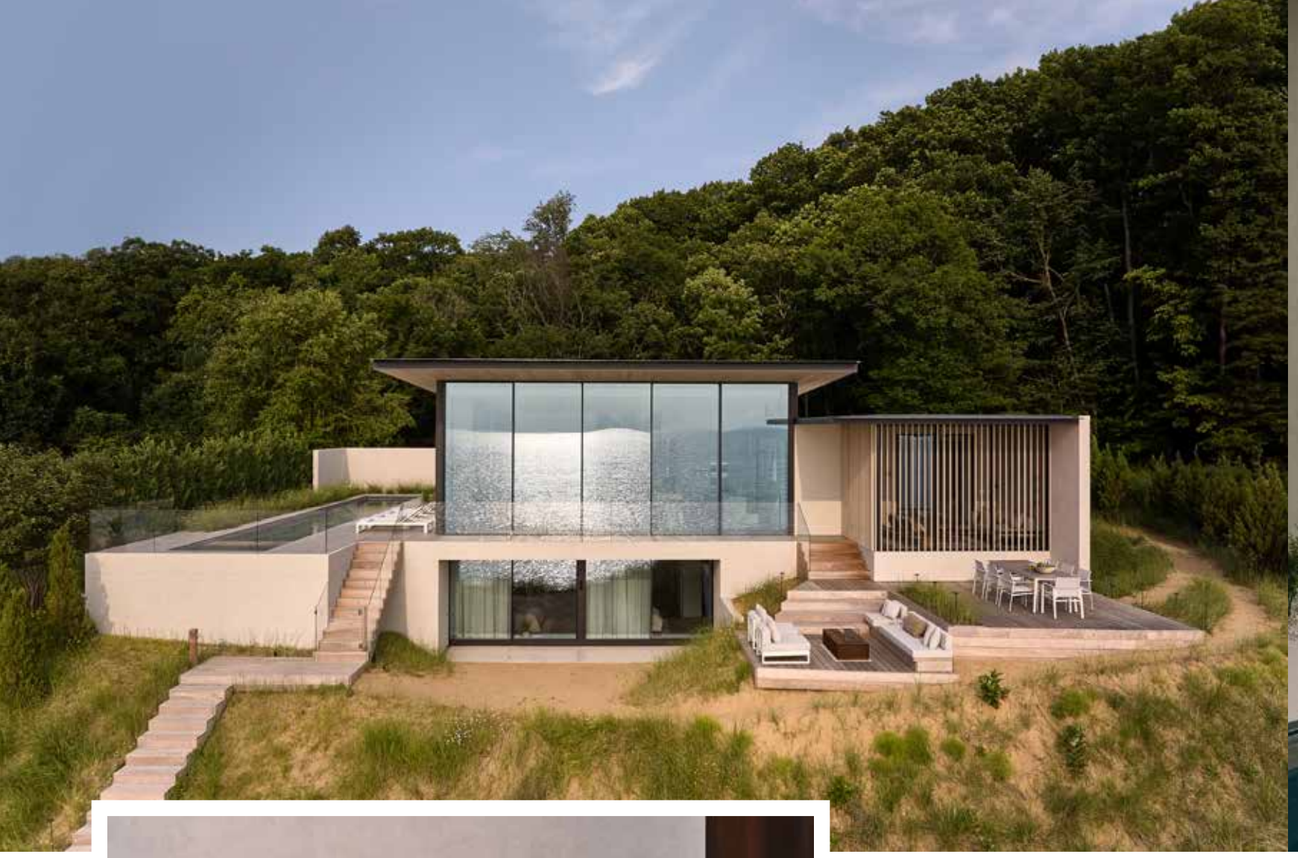

"This land had been owned by one family since the '60s, but they never built on it. When they decided to sell, it sat on the market for a long time. I think many potential buyers were daunted by the fire history. Also, the buildable area was small, and at that time, the lake levels were rising, which made the property less desirable. For me, as an architect, it was an interesting set of constraints. Constraints are often opportunities for architectural innovation. We embraced the site for everything it offered and saw the potential in it," Toukoumidis said.

The wide-open vistas, the beautiful dune grass, and the sloping dunes inspired them to build a sculptural yet durable shelter that responsibly integrated with its environment. Dunelands needed to work for the two of them, as well as support larger groups of family and friends as they gathered on the lakeshore. The interior, as a result, is deliberately compact at 1,900 square feet, but lives much larger as it integrates with roughly 3,000 square feet of outdoor space. The walk-out lower level opens onto the dune, and features two guest suites, a bunk room, and a flex room. This design intentionally makes the home appear to be one story.

"We wanted a house that respected the land," Toukoumidis said. "Designing your own home is a wonderful privilege. We started with our goals for the property as a modern beach house and went from there. Its guiding principles were that it needed to be calming and artful and promote a healthy outdoor lifestyle."

Toukoudmidis treated it like a normal dSPACE Studio project, in which he and his partner served as the clients, identifying goals like wanting something warm and organic and modern, something that was timeless and durable to withstand the harsh climate and fire hazard potential. It had to be artful and beautiful, calming and flexible, and fully integrate exterior and interior spaces to promote wellness and outdoor living. They would meet at regular intervals to review progress of the build—which held its own set of challenges as the team navigated transporting materials to a site with a steep hill that proved impossible for a tractor trailer to climb in winter—and they looked to the expertise of Zahn Builders of Holland, Michigan to bring the home to fruition.

"We have known each other for about 15 years, have worked together on two other successful projects in the area, and we have built a solid builder-architect relationship. So, when he and his partner began looking at building sites, particularly this one, he engaged me casually as friends to look at the site for due diligence," said Tony Zahn, founder and president of Zahn Builders.

"It was a challenging site to build on, it was in the EGLE Critical Dunes jurisdiction and high-risk erosion, which we are

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very familiar with the regulations in place and minimizing the impact and limiting the area of disturbance. It was a relatively small footprint, which Kevin [Toukoumidis] was up to the challenge—I was a little skeptical of the size of the footprint and the access—but through planning, we were able to pull it off," Zahn added.

For Toukoudmidis, who leads a firm known for warm modernist designs that integrate with the land and promote health and wellness for their clients, Dunelands is a highly personal space—designed with every detail of their lifestyle in mind. It also presented an opportunity to build on the work the firm has done over the years with an exploration of new innovation. The home, which is oriented parallel to the dune crest, maximizes views and captures lake breezes for passive cooling. Its steel superstructure and ultra-thin roof—which was an engineering feat to achieve its thin edge and assembly onsite—enables the deep overhangs, designed with passive solar, snow loads, and gale-force winds in mind.

The structure lives in harmony with the environment, where its sand-colored stucco and wood soffits will intentionally blend into native grass and junipers over time. It is engineered to thrive in its harsh microclimate, and features triple-pane glazing and sustainable strategies like a solar power array and a rainwater collection system to mitigate runoff. Its operable window wall system, including a 32-foot-wide threshold where porcelain and pavers bridge indoor and outdoor spaces, is a study in liminality, where the boundary between home and dunescape become blurred.

"We learn from every project. Dunelands, which is what we call the house, naturally incorporates design elements from our previous home designs. The expansive use of operable window walls, for example, dissolves that barrier between home and lake. It feels like an infinity house when you are inside because you just see the floor of the house extend visually out into the lake," Toukoumidis said. "There is an intentional balance of prospect and refuge."

Prospect is an innate human quality where people want to be able to survey their surroundings, be able to see and understand its location, its beauty, and its opportunities. Its counterpart, refuge, is a concept that touches on the human desire to feel safe or be able to retreat, and people are naturally drawn to places that provide both elements. For Dunelands, expansive glass windows in the great room offer prospect over the environ-

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ment—the dunes, the shoreline, the water—while at the same time, there is a thoughtful compression of spaces that provides refuge throughout the home. This is seen best in the screened porch, which is integrated into the massing and concealed by vertical louvers. Its nine-foot ceilings are intentionally human scaled, offering a feeling of safety and calmness—while speaking to the classic lake house vernacular in an inspired modern contemporary design language.

"We also had the opportunity to try new features, like the front courtyard," Toukoumidis said. "It's a defining feature of the home. Lakefront homes typically focus their views over the water and Dunelands is no exception. Still, the surrounding dunes are a stunning landscape that, due to their juxtaposition with postcard-perfect lake vistas, can be underappreciated."

To create a second, but quieter, focal point, the permeable crushed-granite courtyard entry is enclosed by manually operated, movable Cor-Ten panels, drawing inspiration from kinetic architecture principles. This approach integrates elements that can adapt to its environment, without compromising integrity of structures. It lends an added layer of responsiveness to the home, balancing a need for privacy and a desire to experience more than one perspective of the surrounding landscape.

"The panels rotate like sails on a boat. They are a sculptural solution to preserve privacy in the front of the house but have the ability to rotate open, offering views of the golden sunset glow in the back dunes," Toukoumidis said.

The team collaborated with a structural engineer and local steel fabricator in the design of the panels, which as a result require zero maintenance and are designed to withstand the extreme elements. The system also features ultra-high molecular weight bushings that enable low-friction rotation across a range of temperatures, mitigating the need for oil or lubrication, and a continuous concrete foundation wall anchors the 500-pound, Cor-Ten "sails" on stainless-steel pivot posts. The courtyard also features a deconstructed roof with an aperture that frames views of the sky.

"There was a lot of emphasis on getting the details right, but it made all the difference in the world. Every inch was accounted for, so we had very close tolerances and had these big pieces of glass right through the structure, so we had to be careful with dimensions and overall project management from excavating down to hardware. Everything had a purpose and a proper placement," Zahn said. "The home has a lot of energy with its glass, being up on a sand dune overlooking the lake, and a tremendous amount of light coming in, but with the large overhangs, it just feels great."

There are also clerestory windows that allow daylight into the home during the winter months, zoned hydronic radiant heating in the floor, and bronze glass walls that define rooms while preserving space and views. For Toukoumidis, the home is a multisensory experience, where he and his partner live in spaces connected to nature, not sealed off from it.

"We hear the lake when the windows are open. We hear birds. We feel the breeze. You feel the change in temperature and humidity on a hot June day or a warm October day. You are part of nature. It's calming," Toukoumidis said. "Studies show that when you have a home that is integrated into the environment, that connection to nature can offer health and wellness benefits, such as better sleep, improved attention and concentration, elevated mood—even enhanced immune function."

The built environment has a significant impact on health and wellness. As Toukoumidis noted, humans have evolved over millions of years in nature which is a stark contrast to today where most people spend 90 percent of their time indoors, disconnected from the natural world.

"A well-designed home can recreate many of the experiences of living in nature—natural materials, layered lighting, organic shapes, space planning that focuses on prospect and refuge. These design elements are subtle, but they have a profound effect on our quality of life, health, and even longevity," Toukoumidis said. "[Dunelands] is really a place to recharge and connect with family and friends. It's a home for wellness."

To Zahn, who noted the careful integration of the single lane lap pool onsite was an important piece to Dunelands, the project was a challenging one, but a fun and a highly rewarding one at that.

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"The unveiling of the project at the end, when we take the plastic coating off the windows, was really rewarding to experience how that felt," Zahn said. "And the passion behind the project. There was tremendous passion behind this home, and it was fun to see. I think everyone could feel it and that helped drive the project."

For Toukoumidis and his partner, Dunelands is also about creating beautiful memories with their family and friends, enjoying those human connections that matter most to them, and a chance to find refuge in a place that brings them so much joy.

"It has brought us joy seeing it come to life, moving in, and now living in this house. It has felt like home since the day we moved in," Toukoumidis said. "I think a well-designed home reduces life stress and gives us a chance to disconnect from the hectic pace of life and work. Every time I walk in the door, I feel a sense of calm and refuge and that is what a home is really all about."

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