

Purely sustainable

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High above the Wisconsin shore of Lake Superior and set back into the wooded, bluff-lined site, this compact home of simple forms and materials is a celebration of sustainability and utilitarian aesthetic. Designed to embrace both the landscape and the minimal, the two-story, 1,500-square-foot, year-round retreat balances passive, sustainable strategies and high-performance materials to create a home of energy efficiency and natural materials with an industrial character.

“They did not want a large house; they wanted to minimize really as much as they could,” said Rosemary McMonigal, FAIA, CID, LEED AP, owner, principal architect, and interior designer at McMonigal Architects LLC in Minneapolis, Minnesota. “They were interested in this idea of stripping away what you don’t need and embracing less.”

McMonigal Architects is an architecture and interior design firm specializing in the new build and remodel of residential, commercial, housing, and community projects.

Since its establishment in 1984, the firm has approached each project as an opportunity for innovation and strives to deliver buildings and spaces that not only reflect a distinct way of life, industry, or community, but also support healthy living, energy efficiency, and sustainability. McMonigal, who founded the firm nearly 37 years ago, noted while the initial focus was on commercial work, the practice quickly added residential to their portfolio with single-family, multi-family, and public housing projects across a range

of architectural style, price, size, and scope of work—all with an emphasis on sustainable practices.

“I didn’t want to be a woman doing houses, but I had a client who was very persistent, worked on their house, and fell in love with that. It became a whole new focus and excitement,” McMonigal said.

“We have always had a focus on healthy living, energy efficiency, and sustainability. Long before the word ‘green’ came out, we were living that. We had a few clients early on who were interested in passive solar and that really helped push that idea forward that while adding efficiency, beauty, and lasting value in our design, we can also create something that is very energy-efficient. It has always brought us a lot of very unique clients,” McMonigal added.

McMonigal, whose affinity for math and the arts led her to enroll in architecture and environmental design at the University of Minnesota, has blazed a distinctive path throughout her career highlighted by community and professional service, launching initiatives like the Minneapolis/St. Paul Home Tour, and speaking at organizations

like the American Institute of Architects, Ontario Association of Architects, and the Energy Efficient Building Association. Throughout her career, McMonigal not only has served as Architectural Advisor on the Minnesota Capitol Area Architectural Planning Board and a founding member and past chair of the AIA Small Project Design Committee, but also an educator in the Design and Housing Department at the University of Minnesota and collaborator with the University of Minnesota’s Cold Climate Housing Program—and ultimately recognized by an AIA Minnesota Louis Lundgren Award for Services in 2019.

“I had a real strong interest in math and in art; both sides of the brain. I had no architect relatives or friends of the family, but I had read somewhere that is what architects do: use both sides of your brain,” McMonigal said. “I decided I would enroll in architecture at the University of Minnesota and jumped right in and decided that would be my career.”

While studying at university, McMonigal spent a summer at Trinity College in Dublin, Ireland on a fellowship—unrelated to architecture—and then received a sec-

ond fellowship to work with an architecture firm in Finland known as Arkkitehtitoimisto Annikki Nurminen, which gave her a “good grounding” in Scandinavian architecture and the work of Alvar Aalto. Upon returning to Minnesota, McMonigal practiced with small and large architecture firms before deciding to go out on her own.

Since then, the firm has remained rooted in sustainable practices and worked with clients interested in energy-efficient homes. The team has worked with the University of Minnesota to test homes, track data in terms of performance, and fostered what McMonigal fondly termed “nerd energy.”

“We don’t want to waste what our resources are for future generations and many clients have that attitude. ‘What’s the smallest I can build and still love my house and still have it function well?’ When LED lights first came out, we had a client insisting on using LED lightbulbs and they were \$125 each. I couldn’t even fathom,” McMonigal said.

“He was like, ‘hey, if somebody doesn’t do it, who is ever going to do it? How will the price ever come down?’ You will get people who will do that where they will say, ‘I am in-



terested in pushing to something newer and more efficient. How can I help that happen in the market?" McMonigal added.

For the Lake Superior retreat, located on a heavily wooded, steep-banked site adjacent to the clients' multi-generational family property in northwestern Wisconsin, sustainability and energy efficiency not only shaped its footprint, landscaping, and materials, but also its siting, placement of windows, and finishes. McMonigal noted the clients had been interested in building near the family cottage for quite some time and when land became available, acquired it with the idea of creating a retreat that would become a full-time residence upon retirement.

"Where they are located in Wisconsin, there is a very large drop down to the lake, almost like a bluff line. It is very challenging to get down to the lake, but the interesting thing is by being up higher, the distant views are incredible," McMonigal said. "Walking the site, we talked about that long-term, ag-

ing-in-place in the house and what it means to be way up above the water. It was a real issue, thinking about how to develop that."

The other challenge at the onset was the tight lot lines, including the main road that had been installed on the property itself rather than the public right-of-way. Rather than working to have the road moved off the site, the team decided to use it as a parameter and in the end designed a concrete wall that runs parallel to it to provide some privacy and act as a buffer.

"It is just a small road that serves a small area, but the reality is, there are people who drive along it and the road happens to take a bend right there," McMonigal said. "Every time people are flowing in close to their home, they felt like they were looking in at it, so a response became to have this large concrete wall that ran parallel."

With the clients' vision in mind of slowing down, simplifying, and embracing the natural beauty of the landscape, the team

leveraged a four-foot module to design a compact home that can sleep up to 10 people and minimally disturbed the site. Its alternating metal, shed roofs add ceiling height and take on the changing characteristics of the sky, while the main volume opens out toward the lake and property, allowing daylight deep in the home. Intentional window placement not only promote cross-ventilation and eliminated the need for air conditioning, but also support ample daylight to flood the home and reduce electricity use.

Its super-insulated envelope integrated a concrete wall system with continuous wall core insulation and structurally insulated panels, or SIPs, for roof construction that were then finished with a wood veneer. Between its small footprint and wooden walkways that float above the forest floor, the home leaves a minimal imprint in the landscape, which features natural grasses and prairie flowers. The team also incorporated low-VOC finishes, tall concrete walls to

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shelter the home from prevailing west winds, and triple-glazed, H-windows manufactured in Ashland, Wisconsin roughly 30 miles away—another added sustainable element of local sourcing.

"It originates from Norway and has been made in the U.S. for probably 30 years. It had been made in Minnesota and then the plant was moved to Ashland, so we were really excited to have a window that is made near where they are," McMonigal said. "Some of the wood materials inside were harvested locally and so while sometimes it seems like they are just a dream, it's actually doable when you do a little research into what might be available in the area, what can be done, and what can be used. It is often times readily available."

Other materials used on the exterior and interior of the home comprise: brown cedar

siding, concrete floors and walls, exposed laminated veneer beams featuring the original wax seal from the manufacturer, and vertical steel rods on the stairs. The latter of which features black, C-shaped structural steel channels, threaded stainless steel rods, and beveled washers that delivers a view of the lake as one travels up and down it. McMonigal said the clients' interest in stripping down the excess informed the materiality of the home and the simple expression of durable materials in the stair design is both beautiful and affordable.

"One thing that took me by surprise a little, knowing they are going to live here as their primary home at some point, is they only wanted one bathroom. In their mind, they just felt people build way more bathrooms than they need, they go through way more water than they need, and so they

thought of that as self-affirming that you really don't need as much as what people might think," McMonigal said. "We ended up compartmentalizing the bathroom into these three separate components, so there was the toilet in its own area, the sink in its own area, and the shower in its own area so different people could use different functions without being in the same room."

In the end, the retreat is one defined by sustainability and informed by a celebration of economical materials and a rugged, utilitarian interior that blends into its surrounding landscape, as if it has been among the timbers and prairie flowers all along.

"I do think it is a balance between products, materials, and passive strategies," McMonigal said in reference to sustainability. "Good design is beauty, efficiency, and lasting value."

