# Reinventing a Foursquare

## Energy efficient and simply detailed, a colorful assembly of shapes redefines a traditional Midwestern house

BY ROSEMARY McMONIGAL

Many years as a practicing architect haven't diminished my fondness for the stucco foursquare that was my childhood home. So when the opportunity arose for my husband, Jim, and me to build a new home on the outskirts of St. Paul, Minn., I turned to the foursquare for inspiration. Of course, I had other design ideas as well.

Working with an architecture firm in Finland fine-tuned my appreciation for color, clean lines, exposed structural elements, and uncluttered interior spaces. In Finland as well as St. Paul, energy efficiency is a concern. I was intrigued with the idea of modifying the foursquare's basic cube with well-proportioned additions and subtractions. We brought all these ideas to a beautiful wooded site just outside the St. Paul city limits.

### Between woods and wetlands

The 2-acre lot hadn't been built on before; it was mainly a strip of mature oak woods bordered by a 17-acre wetland on one side and nine houses on the other. Waiting five years to build gave us time to study drainage, wildlife patterns, and views.

We also discovered that a fungus called oak wilt was decimating the trees. About 30 oaks died before construction began.

The house is located in the largest clearing that resulted from the removal of diseased trees, and we worked with local arborists to protect those that remained. This location placed the house far enough from the wetland to avoid basement moisture problems and at the same time left a much-used wildlife trail undisturbed.

### A classic stucco foursquare is the starting point

Our design destination was a modern stucco house, but it was important to start this journey with the details we admired in the traditional stucco foursquare. From the beginning, we envisioned the large, protective

**Foursquare houses** have a rich history throughout the Midwest. Thanks to its modest footprint and basic shape, the foursquare was suited ideally to small lots and became a mainstay of urban development between 1895 and 1930. With its boxy form and overhanging pyramid roof, this is one house style that's easy to spot, even when dormers and porches are added. Photos taken at A and B (inset) on floor plan.

Drawings: Chuck Lockhart

***Living, dining, and kitchen areas mingle freely.*** *Long views and high ceilings combined with abundant light and bold colors create an interior that's open and warm. Photo above taken at C on floor plan; photo below taken at D on floor plan.*

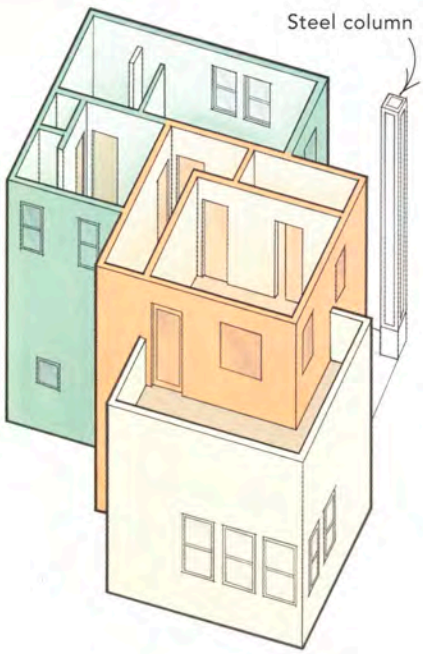
hip roof of the foursquare as a unifying element. The boxy geometry of walls and windows provided a theme to follow when we were expanding the volume of the house.

We used sketches and cardboard models to test our ideas, playing with different designs and the interior spaces they suggested. The final assembly of shapes is square-edged but sculptural. The design extends upward rather than out (drawing left, facing page), preserving the surrounding oaks and nesting the upper floors in the treetops—a result we were hoping for. The footprint of the house takes up less than 1000 sq. ft., but we have around 3500 sq. ft. of living space.

The house is composed of three cubical masses. Each engages the others yet maintains its identity through separate functions and the use of color inside and out. The biggest cube is green and forms the foursquare

## A SCULPTURAL ASSEMBLY OF SHAPES

Beneath the large, protective hip roof are three interlocking cubic volumes that extend up rather than out. The green, clay, and tan colors, drawn from the surrounding landscape, define functions inside the house (floor plans, right). Special spaces include a second-story terrace and an attic studio (photos above, taken at E and F respectively on floor plan).




**Third floor**
An attic studio can double as a guest bedroom.

**Second floor**
Two bedrooms, one with a private terrace, share this space.

Photos taken at lettered positions.

**First floor**
An open plan includes entry, kitchen, living room, and dining room.

core of the house. The tan cube on the west side of the house is the smallest volume. The top of this space is an open terrace with parapet walls (photo above left), so there's no roof here to compete with the dramatic triangular planes of the main roof.

In between the green and tan, a clay-colored section harkens back to the dormers that often are found on traditional foursquare houses. But we've cut away this corner of the house, exposing tall walls that meet at a right angle. Cutting away the roof amplifies the way these two volumes intersect and interact.

### Elegant results from basic materials

The colors used on the exterior certainly contribute to a modern appearance, but they were inspired by the natural hues of the site. The green volume found its origin in the surrounding marsh, the clay volume in the autumn oak leaves, and the light tan volume in the sandy soil nearby.

The stucco itself was applied traditionally: two layers of building paper stapled to plywood sheathing, followed by metal lath and scratch and brown coats. For the final topcoat, we took advantage of the flexibility of modern acrylic coatings and applied a textured surface with integral color.

The main entry also provided an opportunity to explore the beauty and utility of basic materials. A series of 6x6 posts and paired 2x10 cross members are supported on concrete piers, forming a simple but elegant colonnade that connects the house to the garage (photo top left, p. 80). Translucent fiberglass panels are secured overhead to provide shelter from the weather. The large steel column on the southeast corner, both artful and

### SPECS

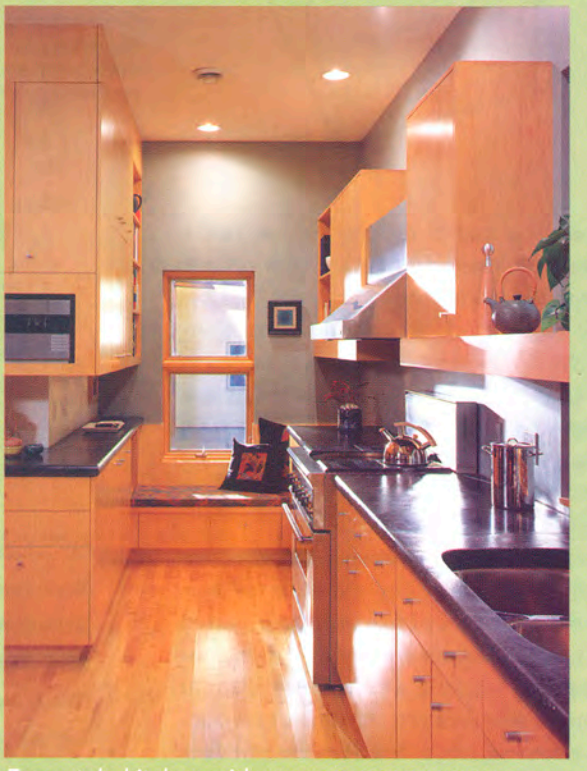
**Bedrooms: 2**
**Bathrooms: 2½**
**Size: 3500 sq. ft.**
**Cost: N/A**
**Completed: 1999**
**Location: Roseville, Minn.**
**Architect: Rosemary McMonigal**
**Builder: Erotas Building Corp.**

## Design with Finland in mind

**Finland is known for innovative architecture, product design, and material use. The ideal interiors are clean, spare, and open. Here are a few design guidelines:**

- Structural members and their steel connections are exposed, not covered with millwork.
- Wall and wall-panel sizes are standardized, simplifying installation.
- Flush, full-overlay cabinets with concealed hinges appear as flat planes of wood.
- Built-in cabinetry creates integrated, clutter-free interior spaces.
- Bathroom and laundry spaces are combined.
- Contrasting colors are used inside and out.
- Basic materials contribute to a simple, elegant appearance: concrete countertops, colored stucco, and fiberglass roof panels, for example.
- Because one-third of Finland is north of the Arctic Circle, available daylight is maximized inside a house, especially in wintertime. Window size, placement, and energy efficiency figure prominently.

*Built-in cabinetry. Photo taken at G on floor plan.*



*Euro-style kitchen with concrete countertops. Photo taken at H on floor plan.*

structural, evokes the traditional Minnesota use of wrought iron.

### The interior is orderly, open, and colorful

Simple, useful interior details and tailored built-ins, which I learned from working in Finland, eliminate the need for much furniture. But the interior also feels spacious because there are few partition walls. Posts and beams are both visual and structural elements; exposed and stained glue-laminated beams allow longer, uninterrupted spans. Adding to the light and openness are carefully placed windows, 10-ft.-high ceilings on the first floor, and a vaulted ceiling in the attic.

Orderly doesn't have to be uninviting. Colors abound and relate to the exterior. The living space is within the tan cube; dining is in the clay; and the kitchen, foyer, and baths are in the green. Smooth-paneled maple cabinets contrast with dark concrete countertops.

### Energy efficiency influences design

Minnesota has cold, windy winters and hot, muggy summers, so we wanted the interior not only to look comfortable but to be comfortable. We oriented the house for solar gain in winter and tailored roof overhangs for optimum summer shading.

The house has a post-and-beam frame with glue-laminated members joined by exposed metal connectors. This framework let us reduce the number of studs required in factory-made exterior-wall panels. Fabricated with rigid-foam insulation, the panels arrived with window and door openings, but without sheathing or interior drywall. Sheathing was installed on site to reduce the panels' shipping weight and to control plywood joint placement, which improves wall strength and reduces air infiltration.

Good ventilation is essential in a tight house. Ours relies on a heat-recovery ventilation (HRV) system that balances the exhaust of stale interior air with the supply of fresh outside air, doing so with minimal heat loss. Low heating and cooling costs have added to our enjoyment of our new home, and attracted the attention of state building officials. Because the house tested so well, it served as a model in the creation of new energy codes in the late 1990s. □

Rosemary McMonigal, AIA, lives and designs houses in St. Paul, Minn. Photos by Karen Melvin.