

# This Old House

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# H I G H S T Y L E

A vaulted ceiling gives a new master bedroom visual drama, while an eyebrow window adds architectural appeal

PHOTOGRAPHS BY JOHN GRUEN

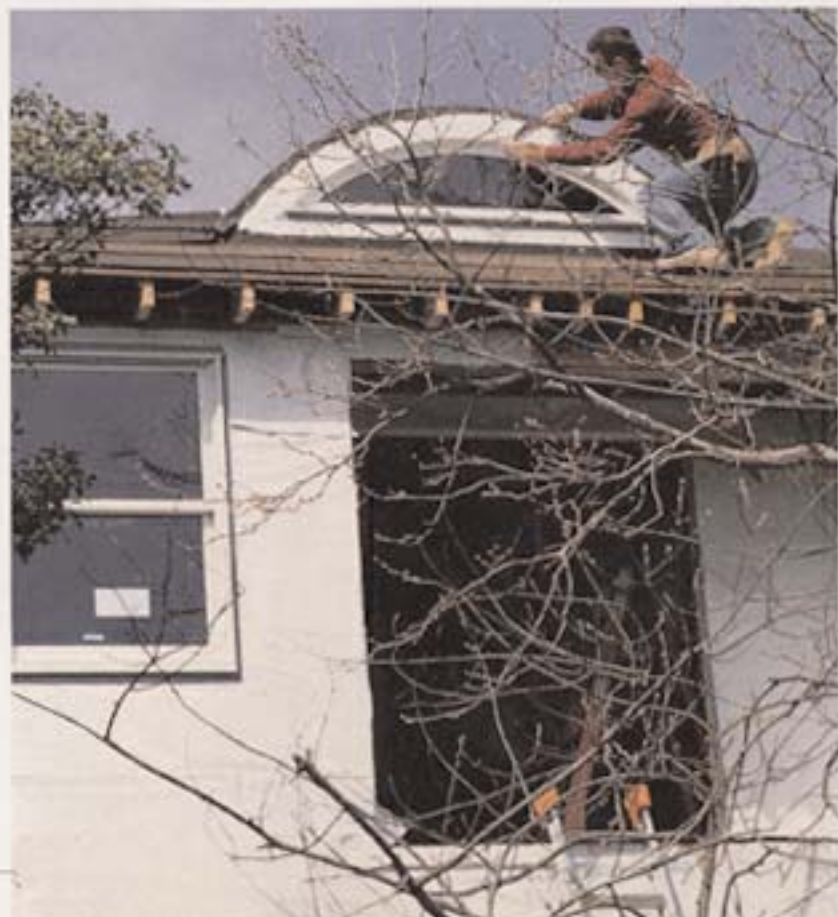
BY JEANNE HUBER

When architects proposed a barrel-vaulted ceiling for Lauren Payne's new master bedroom, she had only a vague idea of what she and her husband, Perry Pappas, would be getting. "I remembered Renaissance examples from art history class, like Michelangelo's Sistine Chapel," she says. "But I really had no idea what one would look like in a house like this."

Months later, Payne watched with wonder as workmen made the architectural form take shape in her 1920s cottage, erecting arched ribs of wood and then bending wallboard into their curves. The remarkable result—a half-cylinder ceiling running down the middle of her new second-floor bedroom, accented by a semicircular "eyebrow" window at one end—draws light into the room and pulls the eye upward. The space makes Payne's spirits soar: "It's just fabulous."

Architects Tom Degnan and Ed Ballantyne developed the design as part of an expansion of the couple's 2,035-square-foot home in the beach community of Bay Head, New Jersey. The story-and-a-half house had served them well as a weekend retreat when they lived in Manhattan. But after 4½ years living there full-time with two growing children, 6-year-old Alex and 5-year-old Erica, it was simply too cramped. Payne and Pappas wanted to add a master bedroom with ample closets and a private

*OPPOSITE: With the ceiling's arching cage of plywood installed, contractor David Thomas McCain adjusts the placement of the eyebrow window around which the barrel vault was designed. BELOW: Carpenter Ed Serafin nails the window flange to the sheathing. The opening below him will soon hold French doors leading to a 3-by-9-foot balcony—just enough to provide nice views and breezes, says architect Tom Degnan.*



bathroom. They imagined high ceilings in a light-filled, airy space. And because they live on a busy street a block west of the Atlantic Ocean and a block east of Barnegat Bay, they longed for a balcony off the bedroom that would open onto their private backyard. With the doors open, they would be able to feel the ocean breezes and listen to the surf while falling asleep.

Still, they didn't want to wreck the quaint, small-cottage feel of their house. Earlier remodeling had left the home looking a little unsure of its identity, but the architects saw in its facade some hallmarks of the Shingle style, which originated in Boston about 1880 and became popular for seaside estates along the Northeast coast. Payne and Pappas' house was shingled, and it had other features typical of the style, such as a wraparound front porch and dormers.

The architects found inspiration in the Shingle style while maintaining the home's existing footprint. Their solution was to rebuild the upper half-story, which was 5½ inches out of level from one end to the other, in part due to undersized framing. They would keep the roof ridge at the same height, maintaining the scale and appearance of the exterior, but lift the eaves three feet and extend the roof over a one-story wing, thus adding 600 square feet of living space. Another Shingle-style element, a semicircular window backed by a shallow dormer, would be the key to a design for the homeowners' dream bedroom. During the 19th century, such "eyebrow" windows

served mostly to dress up exteriors and to light attics. But in the Payne-Pappas house, Degnan and Ballantyne saw the detail as a graceful way to integrate a barrel-vaulted ceiling into the second-story addition. Most of the vault would cover the former attic space, but a few feet of it would project out of the roof, shaping a curved dormer. Facing south, the window would admit light, as would French doors opening onto a narrow balcony sheltered by the roof overhang.

Once the homeowners approved the idea, contractor David Thomas McCann took over. Working from 7 A.M. to 8 P.M., his crew managed to get the old second story off and the new one built and weathertight in just eight days. (In the interest of time, his crew framed out a standard roof; the curved dormer would come later.) Then, as they watched rain pour down for three straight days, they prepared to construct the vault.

Building barrel vaults has gotten much easier since the ancients invented them as a way to enclose wide spaces. The earliest ones consisted of wide arches made of wedge-shaped stones or bricks locked together by the pull of gravity. Toward the end of the first century, the Romans discovered they could create arches more easily by casting them in place using rudimentary concrete. Medieval builders used intersecting vaults to span even larger areas.

McCann and subcontractor Fred Johnson Jr., of H&F Drywall, executed their version of the tradition with wood and drywall.




ABOVE: Using a jig saw, Serafin cuts a curved ceiling joist out of ½-inch plywood. He'll join pairs of these cutouts side-by-side with construction adhesive and screws to create 2-by-6-inch framing. RIGHT: Squirting construction adhesive onto the joists fills minor irregularities in the curve of the woodwork and keeps the drywall attached more securely than screws alone. In some cases, using adhesive can also reduce the number of drywall fasteners needed.



## ON A BENDER

Thinking outside the box—at least architecturally speaking—is a lot easier than it used to be, thanks to wallboard that bends effortlessly into a curve. When the Gypsum Association, a trade group, sponsors contests for innovative uses of drywall, the bendable type used to create Lauren Payne and Perry Pappas' vaulted ceiling features prominently in the entries. Columns, curving walls, ceilings that undulate in and out like corrugation—there's no limit to what builders come up with.

Flexible drywall, made by several companies since the 1980s, bows partly because it is so thin—just  $\frac{1}{8}$  inch. But the material also has thicker front and back paper, and the gypsum core has less fiberglass in it to make it more malleable, says Mike McGovern, product manager at U.S. Gypsum. "The core crushes but the paper doesn't tear," he says. As a result, flexible drywall bends into a 30-inch radius if used dry; 20 inches if moistened (about 30 to 40 percent tighter circles than are possible with standard  $\frac{1}{2}$ -inch drywall). Flexible board costs about \$11.40 for a 4-by-8-foot sheet, up to 50 percent more than ordinary  $\frac{1}{2}$ -inch drywall.



ed Johnson Jr. squirts adhesive into the first layer of flexible drywall before adding another  $\frac{1}{8}$ -inch-thick board. The combination will meet the building code, which requires a  $\frac{1}{2}$ -inch-thick covering.



A decade ago, when Johnson needed to install drywall on curved surfaces, he had to prebend all the sheets. He'd moisten a paint roller with water, apply it to the board's surface, and let it soak in for an hour or so. Then he'd hold one end in place with a cleat nailed to the floor and gently arch the sheet until the other end fit against another cleat nailed the proper distance away. After the panel dried, he would install it. Nowadays, he can use flexible drywall, which bends in place without moistening (see "On a Bender," p. 127). Still, since the sheets have a tendency to spring out of the curve, McCann's first step at the Payne-Pappas' house was to erect a support structure that would give Johnson plenty of wood to which he could fasten the drywall.

McCann needed to make the curve of the ceiling joists match that of the eyebrow window. When the unit didn't arrive on time, he was forced to rely on the manufacturer's promise that the shape would be equivalent to a 15-inch-deep slice off the top of a circle with an 8½-foot radius. To create a template for the 6-inch wide joists, he drew an arc based on this shape, then another, 6 inches beyond the first, using an improvised compass—a block of wood nailed to a sheet of plywood at one end, with a pencil at the other. Lead carpenter Ed Serafin cut along the lines with a jigsaw and traced the piece onto other sheets of ¾-inch plywood. By gluing pairs of the shapes together, he created 1½-inch thick joists. To support the arched joists, the team built two beams by nailing together three 2-by-10-inch timbers; at 12 feet long they would extend from one end of the bedroom to the base of the eyebrow window.

When all the parts were ready, the carpenters pried off part of the roof they had built a few weeks earlier and removed seven rafters to make

space for the 6 feet of the barrel vault that would penetrate the slope. They hoisted the beams into place, bolted them, and, using metal strap hangers, anchored the arched joists every 16 inches along the lengths of the beams. Bracing made of 2x6s was placed every 12 inches between the joists. In two days, the vault was in and the crew replaced the roof rafters with shorter ones that rest on the curved joists of the barrel. McCann topped the the new rafters and the dormer formed by the arched joists with a layer of ¾-inch plywood. To bend it over the joists, he screwed the sheets in place from the top of the arch downward. He covered the sheathing on the dormer with a rubber membrane, and then everything with heavyweight asphalt shingles.

When the window arrived, it fit to within ¼ inch—to everyone's great relief. After it was installed, fiberglass batt insulation went between the joists, and the ½-inch flexible drywall arrived. To meet fire codes requiring a ½-inch thickness of drywall on ceilings, they glued and screwed one layer of the gypsum board to the framing, squirted it with more adhesive, and applied a second layer.

After the walls were taped and sanded, Payne had them painted the same pale yellow she had used elsewhere in the house. But in this magical room, the color was all wrong. "There is so much green from the trees reflecting in through the eyebrow that the walls took on a chartreuse tone," Payne says. "So I became one of those millions of people who repaint a freshly painted room." Now the walls are a soft beige—"kind of a sand color," Payne says, fitting for a room filled with the sounds and breezes of the sea. ■



*There's an art to attaching drywall properly. TOP: The crew keeps it pressed against the first layer while driving the screws. FROM LEFT: Screws heads are sunk just below the surface but don't push through the paper, which provides the drywall's strength. The final piece, at the opposite end of the ceiling from the eyebrow window, was cut with a homemade string compass, but instead of a pencil, a matte knife traced the arc. OPPOSITE: The finale of a job well done: surfaces so free of bulges and dimples that one might think it's lath and plaster. The room's light and sunny feel makes the homeowners happy.*

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—LAUREN PAYNE

