


# A Screened-porch Addition

Simple detailing and inexpensive materials provide a shelter from the swarm

by Jerry Germer

A two-story house with red siding and a white-trimmed porch. The house has a dark roof and a white gable. A large tree is in the foreground, partially obscuring the porch. The house is set on a green lawn with some bushes in front. The sky is clear and blue.

Screened porches have graced our homes since horse tails were first woven into screens in the mid 1800s. On hot summer evenings, people would sit on the porch, perhaps in a swing hung from the roof, and pass the time with family, friends and neighbors. But in the middle of this century,





**Roof structure.** A three-tiered 15-in. fascia conceals a very shallow-pitched shed roof constructed of pressure-treated framing and corrugated, fiber-reinforced plastic (FRP) panels.

when postwar builders were faced with the need to build massive numbers of houses quickly and economically, they built smaller houses on smaller lots. Large outside porches no longer fit the houses or the lots. Lifestyles changed, too: People were spending more of their free time inside and in front of the television.

Recently, however, screened porches have been making a quiet comeback. Has television lost its charm, or are people rediscovering the outdoors? I'm not sure, but for our family, a screened porch (photo previous page) was the only way we could enjoy the

beauty of our rural New Hampshire site without being assaulted by hordes of pesky insects.

**Making plans**—The north side of the house off the living room seemed the obvious location for the new porch. Snugged against the house on its shadiest and most private side, the porch could project over the small bank that drops away to the backyard. A 3-ft. wide walkway could run along the back wall of the house, connecting the porch with the back door near the kitchen. That way, we'd be able to bring food out onto the porch without hav-

ing to negotiate steps or pass through the living room. Steps would lead from just outside the porch deck to the lawn.

To economize on materials, I decided to lay out the plan on a 3-ft. by 3-ft. grid, yielding a 15-ft. by 9-ft. deck floor—just about right for barbecue equipment, a small table and a few chairs. An existing window and the wall section below it would be cut out of the living-room wall to provide a passageway to the porch from indoors. A screen door would link the porch to the stairs and to the deck/walkway.

**Getting the deck to float**—The bank at the rear of the house drops off about 5 ft. right away. If I built the new porch at the same level as the living-room floor, the open space below the porch would range from 1 ft. to 4 ft. Closing off this space with open, lattice-type skirting would have been tricky, and a solid foundation seemed an even less attractive alternative—I didn't want to stand in the backyard and see a 4-ft. high wall of parged concrete block.

A simpler and more elegant solution was to cantilever the floor structure over the sloping bank, supporting the joists on a perpendicular 4x10 beam 6 ft. from the house (drawing p. 83). The beam rests atop two 4x4 posts, which bear on concrete footings resting about 3 ft. below grade. The posts are spaced 9 ft. apart, so the beam cantilevers out 3 ft. at each end. I used 2x6s on 3-ft. centers for floor joists, fastening one end of each joist (with a joist hanger) to a 2x8 ledger bolted to the house sill. The floor of the porch consists of 2x4 boards in continuous lengths, spaced ½ in. apart and screwed to the joists. All structural members, as well as the decking, are pressure-treated Southern yellow pine. The effect, with the house's skirtboard wrapping around the joists, is of a porch that floats out over the bank.

With no foundation walls to which I could attach screen, though, I needed to find another way of maintaining continuity of the insect barrier. The only solution that came to mind was to screen the floor. That's why I stapled fiberglass screen over the tops of the joists, before screwing down the decking. It worked; bugs can't get up through the bottom of the deck. But after two years of summertime use, the porch revealed the flaw in my scheme. Bits of debris, ranging from dust to pencils, fall into the cracks and get trapped by the screen. Vacuuming has been only partially effective in cleaning out the cracks, but then again, our aging Electrolux no longer has the suck it once did. Nevertheless, if ever I have occasion to build another screened porch, I'll take the time to come up with a solution that allows for periodic cleaning of the screen.

**Daylight and privacy**—I wanted the walls of the porch to be as light and open as possible, yet still offer some privacy. Because the roof structure would be very lightweight, supporting posts were kept lean as well—2x4s on 3-ft. centers. Two posts meet at the corners so that neither post overlaps the inside face of the other. I stapled 36-in. widths of black fiber-

glass insect screen to the inside face of each post, then secured 1x2 wood strips over the stapled edges with drywall screws.

Black screen over regularly spaced posts doesn't make for a very interesting wall surface, however, nor does it provide much in the way of privacy. Hoping to take care of both of these problems, I wrapped 30-in. high panels of 1x2 balusters around three sides of the porch. The panels are screwed to the outside faces of the posts, which allows removal of the panels for maintenance and repainting. The effect though, with all balusters spaced approximately on 5-in. centers, is of a continuous rail.

**Keeping rain out, letting light in**

Most roofed porches have a downside. In providing a sheltered space outdoors, they shade the windows, darkening the rooms. While summers here are short, winters are long, and gray days abound. When I remodeled our house, I tried to maximize passive-solar gain. By adding more windows on the south side of the house and removing non-bearing interior partitions on the first floor, I'd been able both to warm the house and to make it feel lighter and more cheerful. But in my zeal for energy efficiency, I had also eliminated some north-facing windows. I didn't want to block out light remaining from the north windows by shading them with an opaque porch roof.

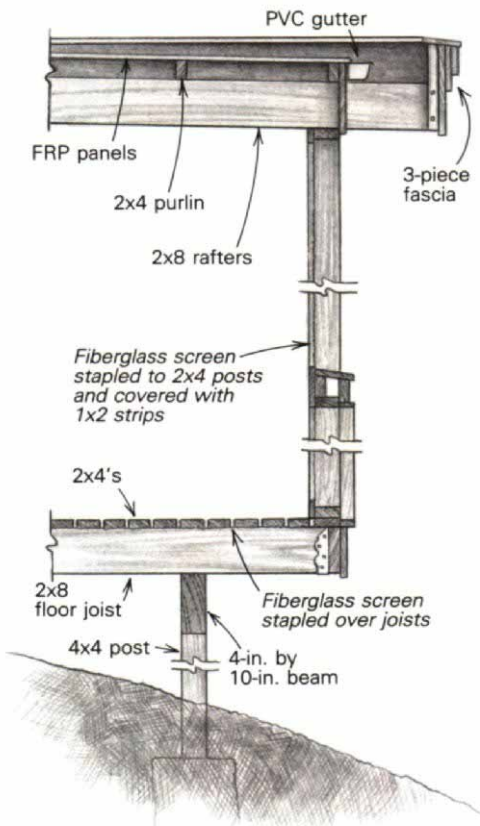
"Why not design a roof that would allow light to pass through?" I thought to myself. If I could find the right material, the idea might have promise. Glass was ruled out immediately as being too expensive. Options in plastic included double-skinned polycarbonate sheet (such as Exolite) and corrugated fiber-reinforced plastic (FRP). Exolite would work but isn't cheap. FRP would be cheap, but in order to drain properly, the panels would have to overhang the eave. The exposed ends, undulating like a washboard, would fit better on a shed or a chicken coop—not at all in keeping with the character of our house. If I were to use the FRP, I would have to come up with an eave detail that hid the corrugated panel ends without impeding drainage.

**A shallow pitch concealed**—The two challenges confronting me were how to make the porch roof seem to belong to the house and how to hide the corrugated ends of the FRP from view. A shed roof that matched the pitch of the house's roof would run smack into the second-floor windows. And a shallower pitched roof would seem an afterthought. A completely level roof, on the other hand, would underscore the house's horizontal eave and frieze board. But I still needed to provide some slope for



**Behind the fascia.** Vertical cleats nailed to the joist support the fascia. Flashing and an angled 1x6 protect the fascia boards from runoff.

**Section through porch**



drainage. A solution was suggested by the roofing material itself.

Because the panels are 12 ft. long, I'd be able to use them full-length (no horizontal lap joints), all but eliminating the chance of wind-driven rain getting up under my roofing. I figured I could get by with a minimum pitch for drainage—say, 1/4 in. per ft. Later, I could wrap a fascia around the three exposed sides of the roof to hide the rafters, the result being a flat-looking roof with good drainage (photos left and facing page).

Because my goal was to let in as much light as possible, I left all roof framing exposed. The 2x8 rafters, spaced 3 ft. o. c., run perpendicular to the house, dropping 3 in. in 12 ft. The high ends of the rafters are fastened to a 2x8 ledger lag-bolted to the house. The lower ends of the rafters extend 15 in. past the top of the outer wall, to carry the fascia. I also ran 2x4 purlins (22 in. o. c.) 15 in. out to support the fascia at the side walls. Two 1/8-in. cables run diagonally under the rafters, corner to corner, to brace the roof against racking. The FRP roofing panels were then attached to the purlins with aluminum roofing nails and rubber washers. The nails are spaced 6 in. to 8 in.

o. c. (I had to predrill the panels).

**Details, details**—Concealing the rafters and the FRP would require a 15-in. wide fascia, which, I felt, would be overly heavy-looking if installed in one piece. Some horizontal lines would be necessary to reduce the apparent width of the fascia and to add a little interest to an otherwise plain facade. So I built a three-leveled fascia, with layered boards of diminishing size.

Behind the fascia, the FRP panels project over the porch's front wall by about an inch. A PVC gutter attached to an interior fascia above the screen wall collects runoff and carries it to downspout tees at each end (photo above). Rather than run downspouts down the corners of the porch, where they would have messed up the corner-post detail, I elected to let the water drip directly to the ground.

The translucent roof panels function well in winter, allowing a great deal of northern light into the house. In the summer, the porch is shaded by the house throughout the day, except for early in the morning and late in the afternoon. But the late afternoon summer sun was a nuisance. Hoping to resolve the problem simply and inexpensively, I draped sheets of burlap on 1x1 battens from eyehooks screwed into the purlins, a solution that has worked quite nicely. According to my wife, an architect never knows when to quit. □

*Jerry Germer is an architect and writer living in Marlborough, N. H. Photos by Vincent Laurence.*