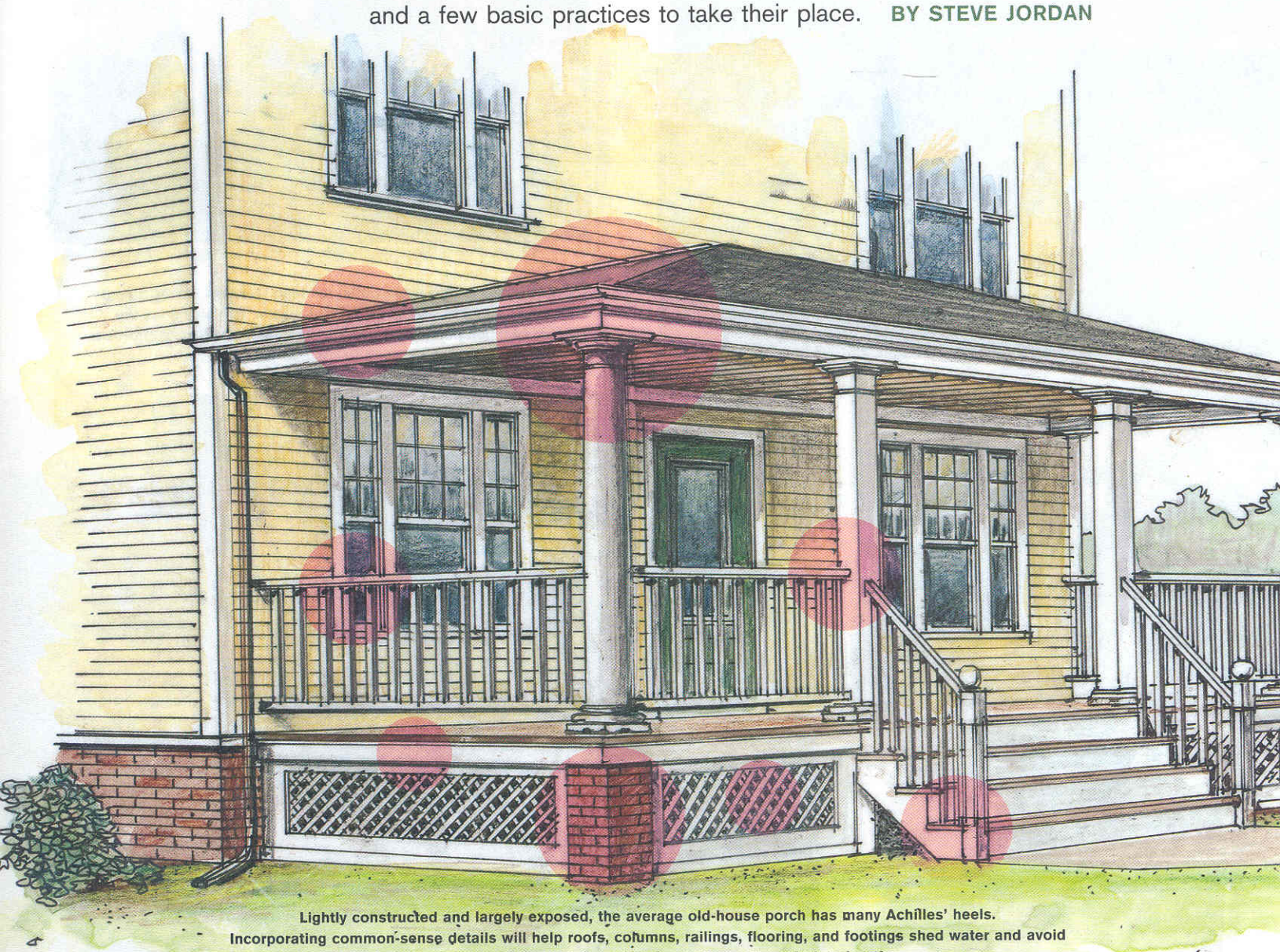
Details that Endure

PLANNING TO AVOID PORCH PROBLEMS

Drenched in rain, covered with snow, and bleached by sunlight, porches take a pounding. Unable to escape these extremes of environment, their best chances for longevity have always rested on durable materials and regular maintenance. But today those time-honored materials aren't always available, and time for care is even scarcer. If you're restoring or rebuilding a period porch, you'll need a combination of enduring construction details and a few basic practices to take their place. **BY STEVE JORDAN**



Lightly constructed and largely exposed, the average old-house porch has many Achilles' heels. Incorporating common-sense details will help roofs, columns, railings, flooring, and footings shed water and avoid the moisture problems that are the agents in most porch deterioration.

ILLUSTRATIONS BY ROB LEANNA

Above: Close ground and poor ventilation kills floor framing first. Pressure-treated lumber (which can hide behind a skirt board) holds up under high moisture. Below: Lifting sections of porch floor gives access for structural repairs. Bottom: A porch is only as level as its piers. Rebuild crumbling footings while the framing rests on cribbing.

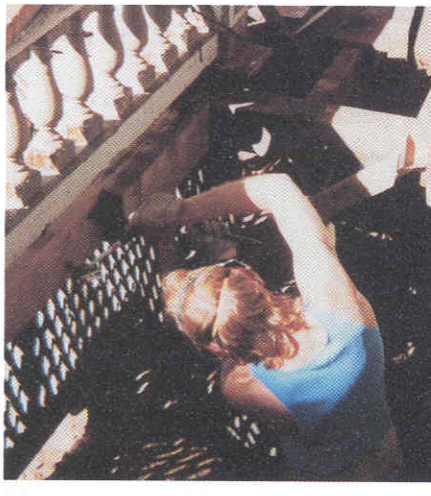
ROOFS AND GUTTERS Whether it's gabled, shed, hipped, or flat, the roof and its constituent parts protect your porch. Unless you make your porch roof your top restoration priority, everything under it will face ruin. Leaks, curled or missing shingles, moss growth, and loss of roofing mineral all indicate roofing with problems or little remaining life. As with other features, it's often a good idea to replace them with materials similar to the originals. Also plan to remove all old roofing before applying the new roof. A "tear-off", as roofers call this process, prevents layers of shingles from accumulating next to your siding, and avoids the weight of multiple roofs—a burden on porches built with marginal framing and footings.

It also pays to install metal drip edge at the eaves to divert water into the gutter and prevent it from running under the roof and decking. To maintain your shingle warranty and eliminate excessive heat and moisture, ventilate the space between the roof and the porch ceiling with soffit vents.

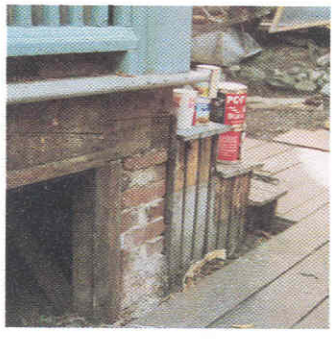
Before you lay a new roof, evaluate the quality and efficiency of your gutter system. This is best done in a heavy rain when leaks and associated problems are obvious. Rust, holes, open seams, and overflowing troughs are signals your gutter might be worn out. The time to replace or repair the gutter is with the new roof.

Many old houses originally had built-in gutters. If yours is one, hire a repair contractor who specializes in sheet metal work. Built-in systems require meticulous maintenance because leaks often create serious structural damage. For this reason, many a built-in gutter was covered over long ago and replaced by hung gutters, which are simpler to repair and replace. Half-round gutters have been around for over 100 years, so they usually look better on old houses than contemporary K-style gutters. You can buy them in copper, galvanized steel, and aluminum with hangers that adapt to any fascia.

FOOTINGS AND FOUNDATIONS Many porches droop because their pier footings have settled. Deflected horizontal and vertical lines, leaning columns, sagging gutters that don't drain, and cracks at the junction of the porch and house are common symptoms of this problem. Should your porch show settling, look for inadequate footings or deteriorated pier masonry. Shallow footings, for example, allow frost to lift and shift the masonry a little every year.



Your remedy is to excavate below the frost line, pour new footings in forms, then reuse the historic materials (stone, brick, block, etc.) above grade for the exposed portions. If the pointing is deteriorated, jack the porch up and rebuild or repoint the pier. Always raise the porch as close as possible to its original position, but don't jack more than necessary or to the point of ruining original details. Correct minor settling by jacking and installing shims between the framing and piers.



COLUMNS AND POSTS I frequently notice century-old wood columns sitting directly on porch floors with no signs of deterioration. Reproduced now with average materials, these same details probably wouldn't last ten years. Old-growth woods, with their rot-resistant qualities, are virtually impossible to find anymore, and recent plantation-grown woods do not have the same characteristics.

Today, we have to back up wood performance with careful installation. For example, when you repair or replace columns or posts,

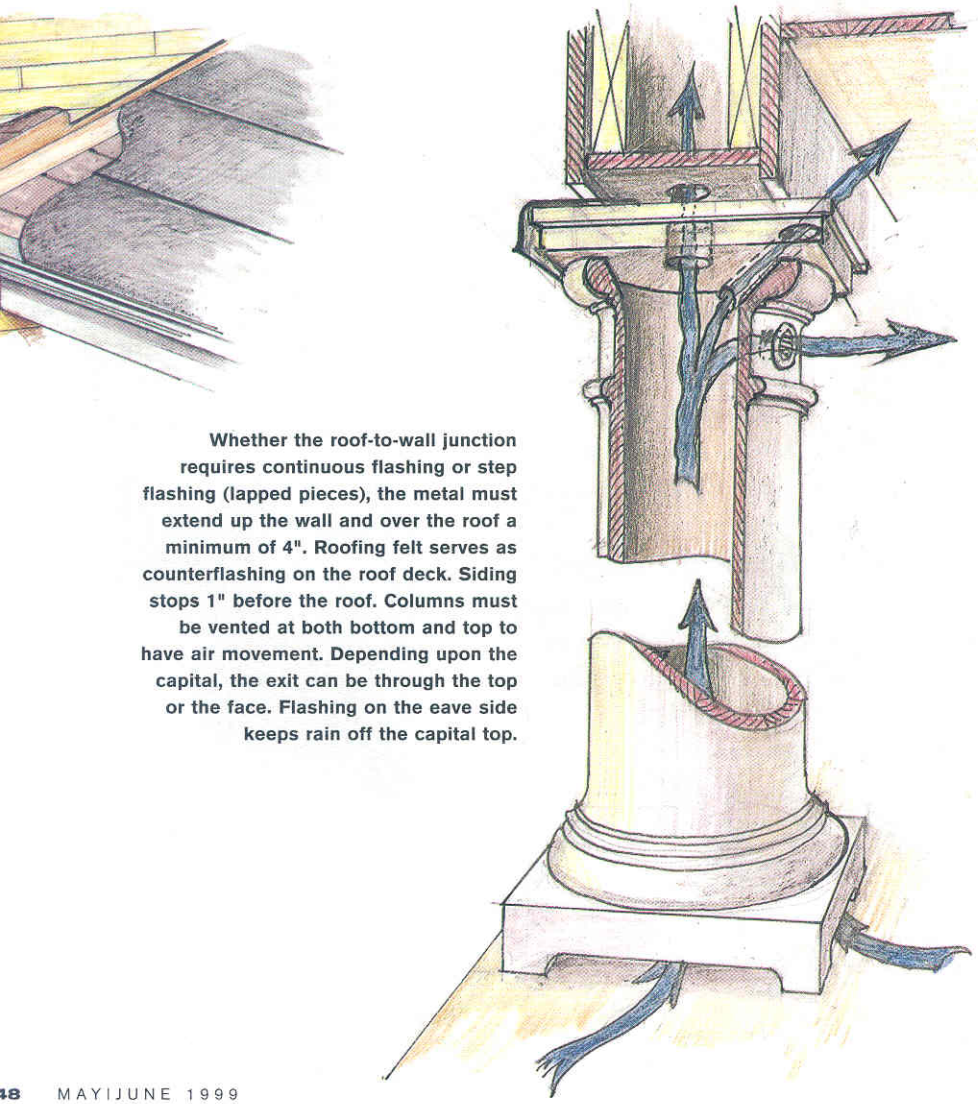
GORDON BOCK (TOP)
ALL OTHER PHOTOS COURTESY OF CLASSIC RESTORATIONS

Moving Water and Moisture

If you have an attached porch that projects from the face of the house, as most porches do, the roof must be flashed where it meets the wall. Flashing protects the house, the porch structure, and the porch ceiling from water penetration, and it should be evaluated with every new roof. Leaks at the junction of the porch and house, or patches of asphalt over the flashing are signs of missing or failing flashing.

Since the labor for installing most flashing materials is about the same, consider using durable metals such as copper or lead instead of aluminum. Flashing should last as long—if not longer—than the roof. References such as *Architectural Graphic Standards* (John Wiley & Sons) or *Architectural Sheet Metal Manual* (Sheet Metal and Air Conditioning Contractor National Association) have pages of specific details that show how to install flashing in common building conditions.

You must also provide a way for water (in the form of moisture vapor) to escape from hollow columns and posts. Unvented moisture will rot the wood. Footed bases or plinth blocks allow air to enter the column; holes or louvered vents provide an exit port at the top.



Whether the roof-to-wall junction requires continuous flashing or step flashing (lapped pieces), the metal must extend up the wall and over the roof a minimum of 4". Roofing felt serves as counterflashing on the roof deck. Siding stops 1" before the roof. Columns must be vented at both bottom and top to have air movement. Depending upon the capital, the exit can be through the top or the face. Flashing on the eave side keeps rain off the capital top.

always seal the cut ends and hollow shafts with wood preservative or primer. Ventilate hollow columns at the top and the bottom, and use aluminum plinths, lead shims, or aluminum post supports to elevate wood shafts from the water–prone porch floor.

BALUSTERS AND RAILS There's probably no area more vulnerable to the weather than the balusters and rails. When you must rebuild an entire section, construct the hand rail, balusters, and bottom rail to shed water. Avoid any flat, horizontal surfaces that can hold or trap snow and water. Before assembling mating parts, prime or seal the hidden sides of every joint, especially if they are end-grain wood. If your rails span 8' or longer, place one or two small, painted support blocks between the bottom rail and the floor.

FLOORS AND FRAMING The best porch floors were milled from vertical grain 5/4" tongue-and-groove Douglas fir. With care, a quality porch floor can last 100 years. However, it's typical for the boards at the floor's edge to separate and deteriorate. Historically, this damage was repaired by surgically cutting out old boards and splicing in new ones. For such a "weave" repair today, you must order reproduction boards of the exact thickness and width, or have the luck to salvage them from a demolition project.

When floor repairs reveal structural problems, replace rotten joists and rim joists with pressure-treated lumber that will stand up to these high moisture conditions. (Joist hangers can make the carpentry easier.) When you're ready for new flooring, buy the best material you can afford.

Whatever species of flooring you use, you'll extend its life by priming every board on all sides before installation, including the tongues and grooves. A quality wood preservative, a thinned coat of oil-based porch paint, or a thinned coat of primer are all acceptable. Some guidebooks recommend running a small bead of caulk between the tongue and groove just prior to installation. Take this step in addition to priming, not as the sole protection. I prefer oil-based enamel for my finish paint, but paint chemists and product testing labs claim top quality latex porch paints perform equally well.

Porch roofs benefit from simple upgrades. Cheap and easy to install, metal drip edge goes on before roofing. This roof may also get vents in the soffits and gutters.

Make sure that sealers, primers, and finish coats are compatible with each other before you paint. For the very best work, prime everything but the board tops prior to installation, then hire a floor finisher to smooth out the surface with a commercial sander prior to priming and painting.

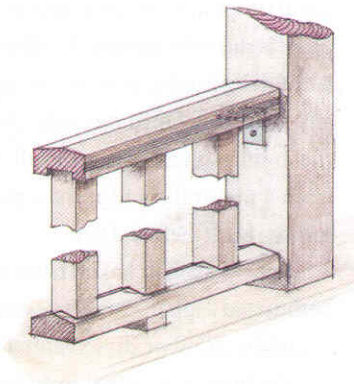
Install the floor with a pitch of about 1/4" per foot so that rain and snow melt will drain. If you replace the skirt board that hides the framing, it's a good idea to first install thin (1/8" to 1/4") pressure-treated nailers over the rim joist. These strips create a void that prevents water from getting trapped behind the skirt.

APRON Decorative aprons below the floor keep animals and trash out from under the porch and allow air to circulate. This ventilation is crucial for preventing the dampness that attracts wood-eating insects and promotes rot. Aprons are constructed in many ways. Some carpenters hang or hinge panels of intricate cut-outs from the floor framing. Others support sturdy frames of lattice on stakes driven into the ground. (Mine are tacked to the framing, but rest on a narrow bed of crushed stone.) Whatever method you use, leave easy access on one or more sides in case you need to rescue the neighborhood kitten. If the grade under your porch is low, fill it with clean soil, or re-grade the lawn to gently slope away from the house.

STEPS Now that your period porch is almost perfect, build a set of steps worthy of your historic house. Some carpenters prefer to install steps on a separate footer—a great base, but more work. In really cold climates, clever carpenters connect the steps to the porch with hinges, allowing them to move with the frozen soil. In either case, make sure all the wood that touches the ground—the stringers and the bottom riser—is pressure-treated. If the base is masonry, set these parts on a thin sheet of lead.

Your treads should overlap the risers and the stringers about 1" (a little more if you use a small cove between the tread and riser), and slope forward slightly to drain water. Most tread stock comes bullnosed from the lumber company, but you'll need to fashion your own edges on the return sides with a router. For a finishing touch, add little fine crushed sand your topcoat of paint. It makes the steps less slippery in the rain and snow, and keeps the mailman friendly.

Contributing editor STEVE JORDAN *maintains his full-width porch in upstate New York.*



Rails shed water best when they're pitched like roofs; angle brackets make for strong anchoring and easy service. Check support blocks periodically for debris and dampness.