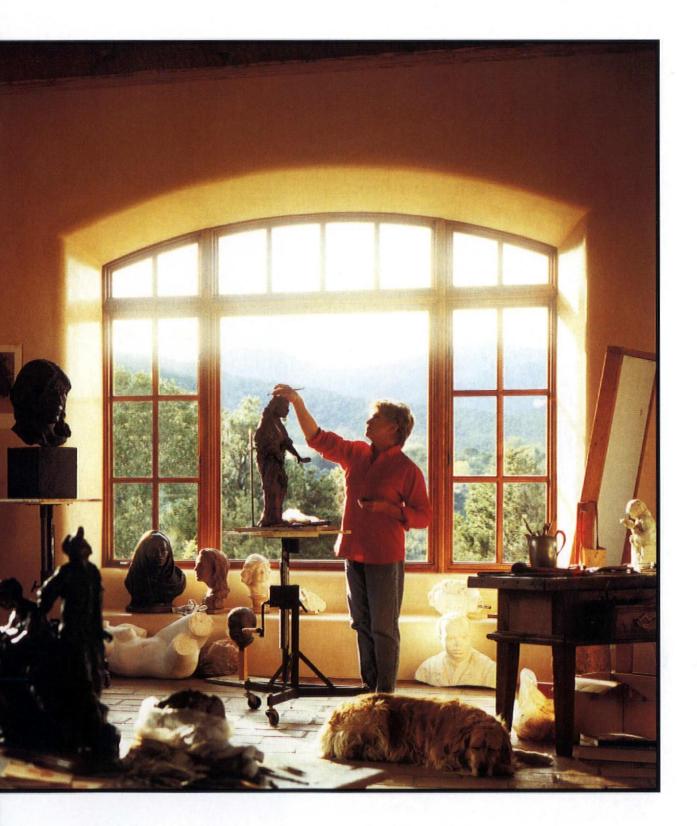


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that time: the Vietnam Women's Memorial in Washington, D.C. Following its official dedication on November 11, 1993, Slenna began work on another masterpiece: the new home she was building in Santa Fe. Slenna Goodacre could have had any



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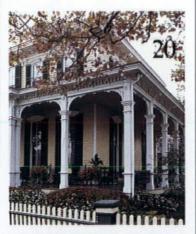
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Great Gothic

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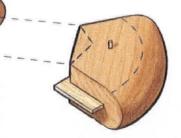
A restoration mason details his procedures for repairing the stucco on a Frank Lloyd Wright home in Wisconsin. BY JACOB ARNDT



55 OLD HOUSE LIVING

The Hidden Staircase

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ON THE COVER: The triple-decker side porch of a Charleston, South Carolina, single house maximizes the narrow city lot and funnels ocean breezes into the building.

> COVER PHOTOGRAPH BY STEVE MARSEL



ESTABLISHED 1973

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A cordless wet saw, a kit for building a corner hutch, garage doors that look historic, a porch rocker, and Victorian porch ornament. BY JOSH GARSKOF

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Lava Rock Houses of Hawaii BY TONIA S. MOY

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Short Takes

short on room for an Editor's Page this OHJ, so they tell me I have to keep my comments brief — no small task for a guy attracted to long beers and compound sentences!

The space crunch is the result of a happy problem: an issue packed to the covers with solid, in-depth reading for summertime restoration work. If you're like me, you spend all winter planning, dreaming, itching for fair weather when

it's finally right to start working outside the old house again. Not only are the days longer and more productive, it's prime time for processes you just can't do right when it's cold and wet — specialized woodworking and masonry among them.

Maybe that's why this group of outdoor-oriented articles holds such strong appeal for me. Instead of covering the obvious, they get down to some real depth of information. John Leeke makes a "column doctor" house call with unique advice on constructing column bases that not only look correct, but survive beyond a couple of seasons. Jacob Arndt (who amazed us all a while ago by turning columns from stone) spells out the subtleties of invisible stucco repairs. In each case it's clear that long-lasting building construction goes beyond sticking parts together willy-nilly. In much the same way, there's often more to the appearance of old houses than meets the eye. Warm weather gives us the time to notice and appreciate the architectural details that contribute to their richness and make them special. The porch is at the top of my list. In this issue's Reading the Old House depart-

ment, Jim Massey and Shirley Maxwell bring some uncommon insights to the "altered porch syndrome" that is epidemic among old houses. It takes a kind of x-ray vision to recog-

nize the loggia that doesn't fit, to see the verandah that has vanished. The same holds true for sleeping porches. Before reading Lynn's article on page 38, how many people would know one of these quintessential post-Victorian porches if they walked past — or into — one. (Now I drive through 'teens neighborhoods and realize they're on the backs, fronts, and sides of nearly every house!)

To sum things up quickly, in my mind a major part of what drives the restoration movement is the rediscovery and appreciation of the details that go into historic buildings, both their construction and design. Care and quality speak for themselves. 'Nuff said.

GOLDON ROCK



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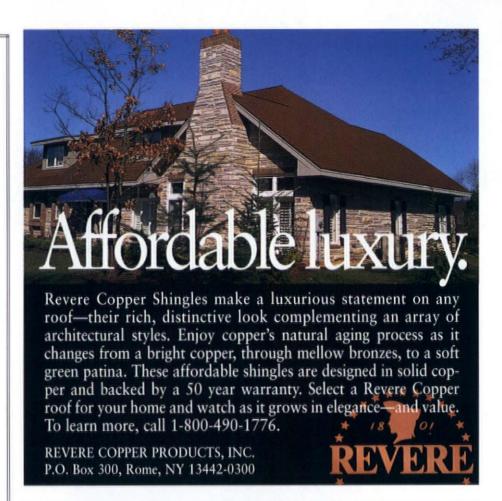
William J. O'Donnell IV

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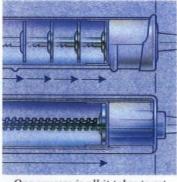


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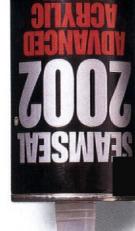
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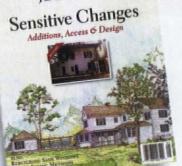
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OLD-HOUSE JOURNAL

M A I L B O



OLD-HOUSE ACCESSIBILITY

Dear OHJ.

THANK YOU FOR YOUR ARTICLE ON the important issue of "Lowering Old Barriers" (May/June 1995). Accessible housing is safe and attractive for everyone, and as you pointed out, doesn't have to compromise the old house. Here's another simple technique to avoid injuries. To assist residents with impaired vision, use strong contrasting colors for different surfaces. Some examples: a dark switch plate on a light wall, a dark counter over a light floor, a white toilet over dark tile.

For more information, the Veterans Benefits Administration — where I work as a physical therapist — has a user-friendly booklet on the subject called "Handbook for Design: Specially Adapted Housing." It focuses on new construction, but includes many insights that are useful for old-house folks who are retrofitting for accessibility. Contact your local Veterans Administration office, at (800) 827-1000.

ARLYNN J. HACKER
 Ann Arbor, Mich.

DUTCH HOUSES

I'D LIKE TO CLARIFY INFORMATION that appeared in the edited version of my article, "The Hudson Valley's Dutch Brick Houses" (May/June 1995). This vernacular house form was built in a large area that was called Albany County during

colonial times, but is now several counties. Also, the primary factor that brought this vernacular form to the northern Hudson Valley in the early 1700s was the isolation of the Dutch in the region.

— WILLIAM BRANDOW Albany, N.Y.

REMUDDLED ADDITION

IN REFERENCE TO "MAKING SENSE of Sensitive Additions" (May/June 1995), here's a photo of a bad addition to an old farmhouse in Vermont. Ooph!, it's overwhelming.

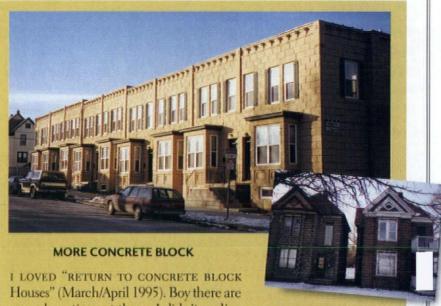
 JONATHAN HALE Watertown, Mass.



An example of how not to design an addition to an old house.

A SUITABLE FAMILY

MY HUMBLE APPRECIATION FOR RUNning my old house ad in Emporium. The second respondents fell



Houses" (March/April 1995). Boy there are some beauties out there. I didn't realize there was such an assortment of styles. I've never seen the subject covered anywhere else, and I'd like to see more about concrete block houses.

— Joy V. Sмітн Lakeland, Fla. TOP: An eleven-unit apartment building, built when the material was still experimental. ABOVE: The corner blocks have protruding ends, suggestive of a log cabin.

OK, here's some more concrete block houses. These two sets of apartment buildings were both built in 1885 in Minneapolis. A different generation of block houses, they did not fit into the scope of the original article. Thanks to David Erpestad, Minneapolis, Minn., for sending the pictures.

- The Editors

in love with the house, visited twice, and bought it. I feel that these fellow OHJ readers will cherish it, and will continue its restoration.

> George W. Gatliff Malvem, Ark.

OLD-HOUSE FLOODS

I AM STUDYING THE EFFECTS OF flooding on historic buildings and I am interested in OHJ readers' experiences. Please write and tell me how you handled the water damage. I am especially curious about historic homes that sustained damage during the recent widespread flooding in the Midwest and Southeast. My study will be published by the Alabama Historical Commission. I'll share copies with anyone who responds. I'll also be presenting my findings in late August at a seminar called Emergency Care for Historic Buildings. (Call 205-242-3184 for information about the time and place.) Send your flood-related old-house experiences to John Leeke, Preservation Consultant, 26 Higgins St., Portland, ME 04103.

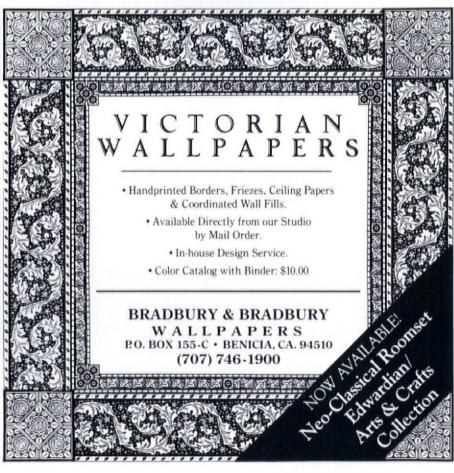
— JOHN LEEKE OHJ Contributing Editor Portland, Maine

TOWN SELF-INTEREST

I WANT TO TELL YOU HOW MUCH I enjoyed reading "How to Get Your Town Interested in Itself" (Jan./Feb. 1995). I'd like to offer a technique that we used for the 140th anniversary of Onarga, Illinois, population 1,600. We printed a supplement for the local newspaper that detailed town history, tidbits on old businesses, biographies of founding figures, and a bit of architectural history. By all accounts, it was a great success and led to greater town self-awareness.

— CHERYL RABE Onarga, Ill.





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Colored Storms

I am restoring a bungalow and plan to return its exterior to authentic Arts & Crafts colors. However, I need to replace all of the old storm windows. Does anyone make aluminum storm windows in custom colors? So far, I can only find them in black, green, white, and unfinished aluminum.

John Arthur
 South Hadley, Mass.

NO DOUBT ABOUT IT, ALUMINUM storms are light, effective, and affordable. Unfortunately, their metallic coloring stands out on any house, especially a historic building with a polychrome paint job. Factory painted storms are a good idea because the paint stays put.

We know of at least two sources for custom colored storms. Try Allied Window Inc., 2724 West McMicken Avenue, Dept. OHJ, Cincinnati, OH 45214, (513) 5591212; or Walsh Screen & Window Inc., 554 East Third St., Dept. OHJ, Mount Vernon, NY 10553, (914) 668-7811.

Vaulted Ceilings

I was most interested in your article about Henry Chapman Mercer and the innovations he used in the construction of Fonthill ("Henry Mercer Valued Most the Everyday Objects," Jan./Feb. 1995). How did he produce those incredible vaulted ceilings?

Edward G. Mc Vey
 Deep River, Ontario

FONTHILL WAS A WORKING EXPERIment in poured concrete — still a new construction method in the 1910s. To build the groin-vaulted [continued on page 16]

Protecting Plank Walls

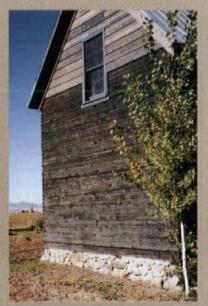
I recently restored a 120-year-old building constructed of boards laid like Lincoln Logs (see right). It's located in a semi-arid valley, but the few rainstorms that do occur manage to drive rain through the walls, where there are some rather large gaps. How did the original owners keep this building dry?

- Melanie Shaw Lewiston, Utah

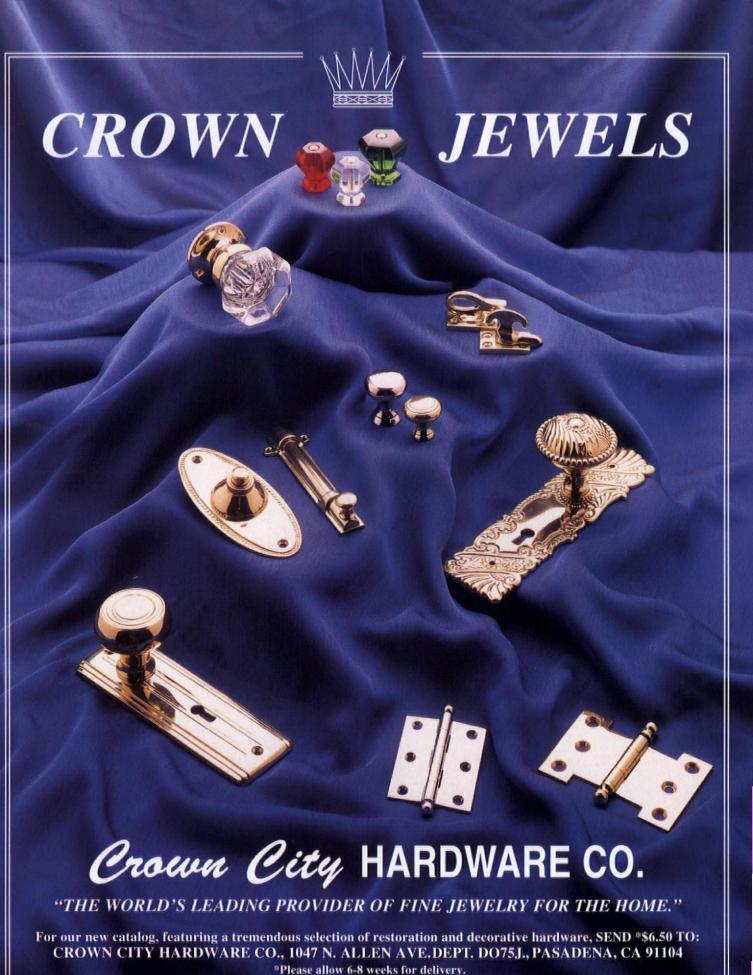
PLANK-ON-PLANK IS AN OFFBEAT construction method that pops up sporadically in 19th-century houses and agricultural buildings (see "Houses Without Frames," May/June 1993 OHJ). Where lumber was plentiful, it was cheap and

simple to erect, but weak on structure. All of the plank-on-plank houses we've heard about had some form of exterior cladding. Stucco was an easy option because indenting every other board automatically created a lathlike base — for both interior and exterior plaster. Horizontal wood siding was probably most common, however.

Check the walls for nail holes or bits of old mortar. Patterns in nail holes may indicate what siding was used — a regular grid of horizontal and vertical lines may suggest horizontal clapboards or shiplap, or vertical board-and-batten siding; a more frequent, paired nailing pattern could indicate shingles. Bits of cementitious material are probably remnants of stucco.



The gable drop-siding might have originally protected the entire exterior of this plank-on-plank 19th century Utah farm building.









Top Picture: Rococo Chandelier by Starr, Fellows, New York Center: Deer's Head sconce by Gibson Gas Fixture Works, Phila., PA C: 1890 ONLY TWO OF MANY LOVELY DOCUMENTED REPRODUCTIONS Bottom: A small sample of our hardware

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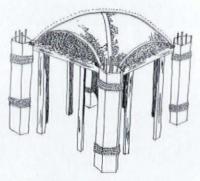
[continued from page 14] ceilings, column and wall forms were first set into place. Next, workers built free-standing platforms below the ceiling-to-come, and piled rounded mounds of earth on top. These mounds would serve as molds for the vaults. Troughs for beams and arches were laid into the mounds with wood forms, and sticks or metal pipes were used to hold the pile's arched shape. Inlaid tiles were carefully placed into the earth with their backs up. In some areas, iron pipe and fence wire were placed in the forms for reinforcement.



The vaulted ceilings of Henry Chapman Mercer's Fonthill are made of poured concrete.

Then concrete was poured into the mold (sometimes vertical elements were poured first, sometimes it was one pour). Once the forms were removed, elaborate clay and plaster cornices and mouldings were added.

In Mercer's words, "All worked well notwithstanding the difficulty of scalloping the wall forms to meet the slopes of the mounds, and cleaning or washing out the column forms from downfallen earth and sand." His architectural feats remain much-studied and debated today. For more information, including tour sched-



Mercer used no blueprints and only limited engineering calculations. Yet his notes and haphazard sketches (redrawn here) indicate his methods.

ules, contact the Fonthill Museum, East Court Street, Doylestown, PA 18901; (215) 348-9461.

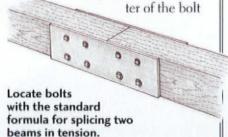
Bolting Beams

I am splicing two timbers with steel plates to repair a tie beam in my garage. From what I've seen, it looks like there's a pattern for bolts. Am I right?

- David Buttercock Madison, Wisc.

YOU BET! FOR A BEAM IN TENSION as you describe, it's important to make sure that the size, spacing, and arrangement of the bolts does not cause timber ends to split and fail. Engineering handbooks generally recommend that bolts be located at

> least 7 times the diameter of the bolt



from the end of the timber for softwoods (5 diameters for hardwoods). Bolts in a row should be spaced at least 4 diameters apart on center, and parallel to the grain. Bolts must also be no closer than 1 1/2 diameters from the edge of the timber.

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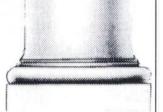
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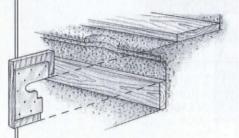
3215 McClure Avenue

Pittsburgh, Pa. 15212

RESTORER'S NOTEBOOK

STAIR REPAIR

B ROKEN STONE STAIR LIPS CAN BE repaired using a running mold — the same technique used to make plaster cornices. Cut sheet metal to the profile of the step using aviation shears or a metal saw. File the pattern smooth, then nail



If you've got a big section to recreate, hold the mold straight with wood guideboards along the tread and riser.

the metal to wood backer. Patch the chipped steps with standard mortar, using multiple coats for large gaps. A latex bonding agent will help. For the final coat, color the mortar to match the steps or use an appropriate stucco mix (such as brownstone stucco). For painted steps, simply match the texture and repaint.

— THOMAS ALEXANDER Memphis, Tenn.

WAXING SCREWS

While decking screws on a recent project, my partner pulled out a chunk of toilet ring wax. These sealer rings — used for installing toilets onto the soil line — make a perfect lubricating material for screw threads. They aren't messy in your hands, and they're inexpensive (most cost less than a dollar). Just one ring will lubricate many hundreds of screws).

Pete Cecil
 Bend, Oreg.

BARBECUE TIP

W HEN THE PAINT STRIPPING IS done — or at least you have no further use for an element-type heat plate — you can use it as a bar-

becue starter. On most units you can simply unfasten the heat shield to expose the naked calrod element and handle. To start a fire, just plunge the element into the charcoal briquettes and turn it on. In a few minutes you'll be on the way to hot coals and a well-deserved cook-out. Best of all, you don't have to use polluting charcoal-starter chemicals.

- Tom Bernie Gloucester, Mass.

STRAIGHTENING STUDS

I F YOU'VE GOT A BOWED NONload-bearing 2x4 stud that's getting in the way of plaster or wallboard repair, here's a trick for





Make an angled cut above the bulge (left) and sink a drywall screw — shown here for clarity — from the opposite angle (right).

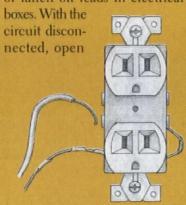
pulling it into line. Make a 1" to 2" deep angled cut at the high point with a trim or reciprocating saw (see above). For severe bulges, a wider kerf may be required. Then sink a drywall screw in the opposite angle through the kerf. This should pull the two sides together and reduce the bulge.

 S. MORIARTY Baltimore, Md.

Share your solutions! We'll pay \$25 for hints or shortcuts that might help other old-house owners. Send them to Notebook Editor, Old-House Journal, Two Main Street, Gloucester, MA 01930.

INSULATING WIRING

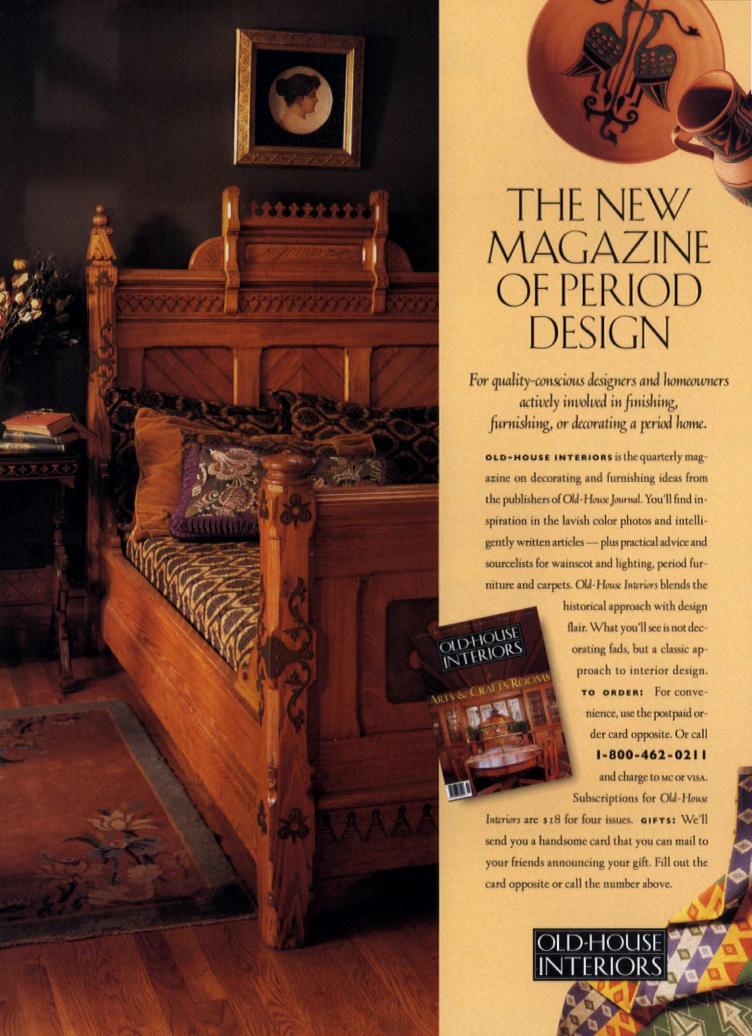
S HRINK TUBING IS USED TO INsulate wiring in the electronics industry. It also makes excellent repairs for old houses where
the rubber insulation has dried out
or fallen off leads in electrical



the outlet or switch box, clean out any dust (a potential fire hazard), and inspect the wires. Remove any loose or disintegrating insulation and make sure the wire itself is sound. Then insert the bare wire into the appropriate sized tubing and apply heat — either a heat gun or a match will do the trick. The tubing shrinks around the wire, creating a tight, strong jacket. You can find shrink tubing at most electronics stores, such as Radio Shack.

- T. Jones Bakersfield, Calif.

You'll have to disconnect the wires from the outlet to thread them into the shrink tubing.



Porch Missing? Altered? Answers to Reader Questions

BY JAMES C. MASSEY AND SHIRLEY MAXWELL

and shady, with a clear view of the neighborhood and a delicious sense of privacy. Old folks rocking in the sunshine. Young folks spooning in the moonlight. Children racing up and down the narrowboard floors on a rainy day.

The image is basic to our traditional concept of home, but old-house owners often find that the porch they own is not the one of their dreams. Letters and photographs from perplexed *Old-House Journal* readers ask a variety of porch-related questions: Is the existing porch historically appropriate? Is it original to the house? If there's only evidence of a former porch, should they build a speculative replica? Or, even, should they tear off and replace a likable porch that happens not to be original. The answers are: maybe, probably not, possibly, and no way.

How the Original Looked

on, might very well have had porches. However, few

original porches remain on the oldest American houses. Colonial and Federal period porches were typically in the nature of sheltered entrances more than full-fledged sitting porches. Some of the earliest 18th-century Middle Atlantic entrance porches did have a built-in seat, traces of which remain to this day. The two-story galleries of the South were meant to shield the house from the sun and to catch vagrant breezes, a tradition also

harking to the 1700s. The Greek Revival period had the fanciest porches (or, more properly, porticoes) replete with classical columns, pilasters, and entablatures.

As a place for serious sitting and socializing, the front porch reached its apogee in the Victorian period. Most 19th-century houses seem stark and bare without one. It's hard to imagine an Italian Villa or Second Empire mansard without a full-width front porch. During the Queen Anne and Colonial Revival periods, porches fre-

quently wrapped around two or even three sides of the house on multiple storeys.

Before they faded in 1930s, big front porches enjoyed a solid place in 20th-century dwellings too. A Foursquare or bungalow can hardly exist without one. Arts & Crafts houses required an upstairs sleeping porch, and their architects took every opportunity to bring the outdoors closer with side and rear porches as well. The rounded arcade of Spanish Revival house is crucial to the style.

Where It Went

what happened to make so many porches only a memory? Fickle styles are partly to blame. For much of the mid-20th century, it was fashionable to do away with the front porch or verandah in order to "modernize" an old house — or, conversely, to "early it up" by simulating a flat Federal facade. The sun and the rain are just as culpable. Porches decay faster than houses, exhibiting a dismaying tendency to fall apart and fall off. Often, the owners just couldn't face the expense of replacing or re-

habilitating their large, elaborate verandahs.

Without any firm figures to back us up, we'd guess that most of the porches seen today on 18th- and 19th-century houses are not original. In the case of 20th-century bungalows, Foursquares, and Colonial Revival houses, the porch is more likely to be a surviving original, because the houses are relatively new. However, it may have been altered almost beyond recogni-



Sometimes a house screams for the porch it had.

tion by enclosure, de-ornamentation, exchange of wood members for ironwork, or other misguided remodeling.

What You Can Do

IF YOU DISCOVER, PERHAPS THROUGH AN OLD PHOTOgraph, that your house once had a different porch, it doesn't mean you need to undertake the expense of replacing what's there. Some latecomer porches work

PORCH PUZZLES



A PORCH REPLACED: The porch on Toni C. James's handsome 1876 Queen Anne in Indianapolis is clearly a replacement of a larger original. Of the Arts & Crafts period, it is an excellent piece of work, compatible in scale, materials, and formality with the house itself, and well worth keeping.



A PORCH PURLOINED: Sandra S. Osborne's house in Chautauqua, New York, is an attractive, small Queen Anne with especially elaborate gables — and a missing porch. Both the house's style and the extra door suggest it was two-storeys, or one-storey with a deck.



PORCH PERFECT: Here's a c. 1924 Arts & Crafts house that still has its porch. The bold detailing of Walter Lewis's Huntington, West Virginia, house blends with the massive brick arches of the porch and porte cochere, and the cornice is the same on the porch and house.



NO PORCH REQUIRED: The front entry, tan brick, and red tile roof, suggest a formal, academic effect in the Beaux Arts tradition, rather than that of the more picturesque Colonial Revival. Any front porch on Robert and Judy Scott's 1928 house in Shorewood, Wisconsin, would be inappropriate and obtrusive.

PORCH PATCH UP: Sometimes the porch remains, but has been altered beyond recognition. M. Regier's Park City, Kansas, house suffered a fate common in the post-war era. Wood columns and railings were replaced with iron — far out of proportion and style with the house. New wood columns and railings are in order.

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very well on the earlier structure. Fancy Victorian scrolled-ornament porches on Federal-period houses or Arts & Crafts porches on Victorian houses can be visually jarring. Yet, even when the periods are at odds, a later porch may match the house in scale, materials, and general air of formality (or informality). In fact, if the porch is over fifty years old, it might be considered historic in its own right.

Think, too, about how (and how much) you want to use your porch. Its role today may be primarily aesthetic — to complement your mansarded facade, for instance. Or it could be functional - such as the early 20th-century side porch that has been enclosed for a den; the rear service porch where

delivery people leave packages and children park bicycles; or the Southern porch that still shelters the house from an overdose of sun.

There are times when the porch is simply missing, or the new model is unacceptable. If you are looking for evidence of the porch that was, old photographs may show the way. The house itself might also furnish clues: beam holes where a former porch floor and roof were attached. for instance, or "ghosts" on the wall showing where a porch once stood, or a difference in the way the building material has aged, a variation in paint colors, or traces of paint on a masonry wall. A bit of digging may reveal old foundations. Research in architectural publications of your home's era and reconnoitering kindred neighborhood houses may yield compatible designs and likely detailing.

PORCH PROTOTYPES



LEFT: Matching scale and detailing indicate an original design. ABOVE: A classic Italianate verandah.



Round and curved add-on porches were popular in the 1930s. Well-designed, and historic themselves, they are keepers.



Many old houses, such as this turn-ofthe-century specimen, are designed with a porch shape in mind.

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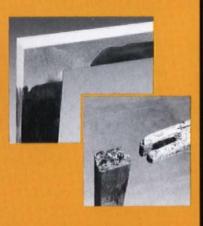
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In Praise of Field Pumps

BY GORDON BOCK

POUNTAINS, FLAMINGOS, OR FERROUS FAWNS CAN materialize on the grounds of any building, but spot a pump in the front or back yard and you know you're looking at an old house. Before city plumbing or electricity, manual machinery was the only way to work water up out of wells or cisterns.

Compared to drawing water with a bucket-andrope, pumps of the past were labor-saving marvels.

Nearly ubiquitous from colonial times on, these faithful mechanical waterboys fall into four basic groups — two of which still see use on farms and parklands. Today, returning a period pump to an old-house yard or garden can be pure fun (some are quite decorative and make attractive focal points), or practical for out-of-the-way watering.

WOODEN PUMPS — Timber sounds unlikely for pump material, until you realize pipes were being made from hollowed logs as late as 1907. Wood pumps, sold at first by itinerant pump makers, became standard building supply and catalog items in the 1850s. The body was typically 6" square or larger, decoratively turned from woods such as pine, sycamore, and magnolia, then painted or varnished — often with stencilled filagree or pinstriping.

The pump arm connected to a plunger rod that traveled in a cylinder bored in the log; eventually, porcelainlined cylinders were available at extra

expense. Valves and seals of leather captured the water. Wooden pumps could draw water from 20 feet in shallow, hand-dug wells. The suction pipe into the water was wood too. They continued to be sold right up to the 1910s because they were inexpensive (as low as \$2.50 in 1895), and the wood didn't heat up the water in summer like cast iron did.

IRON LIFT PUMPS — Cast iron, the metal that made the industrial revolution, was used to mass-produce an explosion of machines and commodities by the 1860s, and it made possible all kinds of bigger, stronger, and

more efficient pumps. Most common of these for outdoor use was the lift pump. Rumsey, Myers, and Gould were major industry players at the turn of the century — the latter now in the electric pump business.

A lift pump is meant for filling buckets and troughs from relatively shallow wells. It can only raise water as high as its spout because there is no seal where the rod leaves the stand. (Pushing water into a hose or

pipe, or drawing it from great depths, requires a force pump.) A lift pump works on the upstroke, drawing water into the cylinder as the piston is raised. They're practical to a depth of roughly 75 feet, depending upon the pump design and the muscle power of the operator. They're also virtually indestructible. With few moving parts, it takes little more than renewing the leather piston seals and valves to start an old one sucking like new.

chain pumps — By the 1890s, leveractuated lift and force pumps had competition for space over dug wells and cisterns. Free of pistons or valves, chain pumps move more water with as much effort via an ingenious mechanism. Rubber buckets — actually small discs placed every foot or so on an endless traveling chain — become little water-holding vessels when they enter a reservoir tube that runs up to the spout. Cranking the chain out of the tube releases each "bucket" of water at the spout, then

sends it back into the well for more. Besides being faster than lever pumps, chain pumps produce a continuous flow. These pumps are effective to 20 feet deep.

water elevators — Perhaps inspired by the Ferris wheel, the water elevator was actually a spin on the chain pump idea that put true buckets to work for moving water. "What lungs are to the human body, "explained 1905 catalog copy, "the National Water Elevator and Purifier is to any body of water over which it is placed." In short, the train of buckets brought water to the surface on the up-link, air to the stag-







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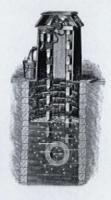
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Close mechanical cousins, chain pumps (left) and water elevators (right) sit atop the curbs of cisterns or dug wells.

nant levels of the well or cistern on the down-link, thereby "carrying destruction to the nimble and deadly microbes and wigglers." Despite the dubious antiseptic value, it too was speedy (though probably not immune to mechanical failure). Water elevators claimed to be good to 30 feet, and avoided the problems of pipes, which could rot, rust, or break.

Artesian wells - the modern, deep-bored kind tapped by submerged electric pumps — made dinosaurs out suction pipe. piston cylinder check valve All lift pumps are akin

pump rod

pump standard

in operation. Lifting the pump rod draws water into the cylinder (typically below the stand in iron pumps). When the check valve closes. the piston valve opens, so the rod will drop and the cycle can repeat.

of most old-time wells and cisterns. Yet hand-operated pumps still stand on many a homestead (waiting only for a little grease and TLC) to get them going again) or can be order new from specialized suppliers. Even in our high-tech age, they're ideal for watering plants or pretending you're in another century for a Saturday afternoon.

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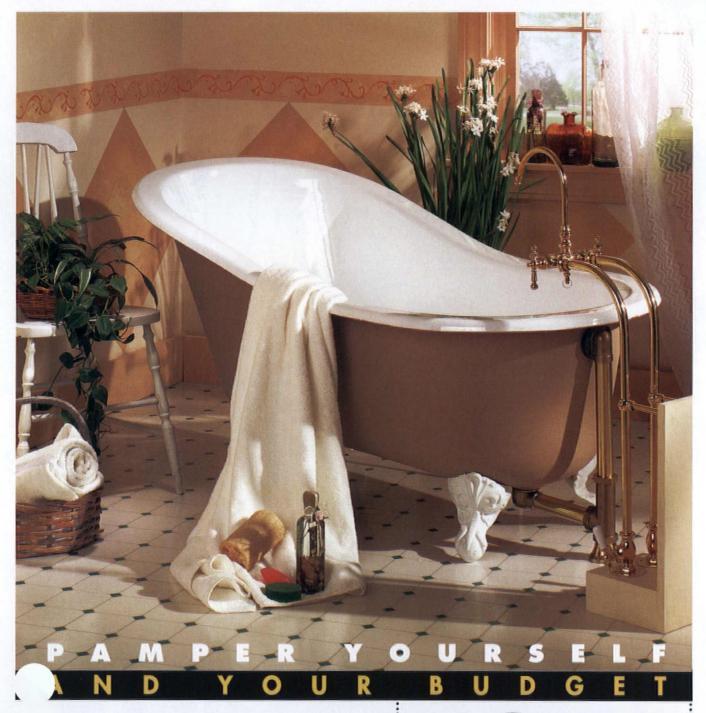
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American Cottages from English Castles

A KIND OF MEDIEVAL MADNESS SWEPT THE ARCHITECTURAL SCENE NEAR THE MIDDLE of the last century. First in England, then in the United States, a passion for pendants and pointed arches took over. By the 1840s the Gothic Revival style was second only to Greek Revival in appeal, and it would fascinate America for another 20 years. † What prompted this fixation with the Middle Ages? In no small way it was the Industrial Revolution, which was not a pretty sight. The common man staggered under the burden of smoking factories and filthy cities. The middle and upper classes were adrift in a sea of badly designed machine-made goods, and all

of society was out of touch with artistry and individualism. Many people felt the best hope for the future lay in a sharp turn toward the past. ‡ In England, Augustus Pugin, John Ruskin, and a flock of ecclesiastical reformers pointed to the golden age of church-building between 1200 and 1600 as the last time man and nature had been in harmony. They called for the restoration of old English cathedrals and country churches and the building of hundreds of new ones in what they deemed "the only proper



OPPOSITE: A nearly free-standing screen of exotic Gothic ornament updated the 1826 Wedding Cake House in Kennebunk, Maine, in 1855. ABOVE: Sedgley, designed by Benjamin Henry Latrobe, was the first Gothic Revival house in America. Its Gothic elements were all in the detail.

style" - Gothic. In their view, truth, beauty, and morality itself had been abandoned in a misguided enthusiasm for austere, symmetrical, pagan Greek and Roman building designs. As a result, architecture had become not just bad, but ugly and boring.

By James C. Massey and Shirley Maxwell



Foils are groups of lobes; the pointed intersections, common in Gothic ornament, are called cusps. The fivelobe design shown is a cinquefoil. Trefoils and quatrefoils were also popular.

BELOW: A far cry from his informal rural cottages, A. J. Davis's Lyndhurst, in Tarrytown, New York, is probably the finest crenellated Gothic house in the United States (rear view). INSET: Its pointed porch arches are structural, as well as visual.

Go back to building in stone, by hand, they said. Honor the humble craftsman and the dedication to God and labor that makes his work sublime. Build an arch! Raise a spire!

THAT WAS GOOD FOR CHURCHES, BUT WHAT about houses? The answer was simple: construct the kind of homes that people lived in during the Middle Ages — a half-timbered cottage or a dark castle plucked from Scotland's craggy highlands, for instance.

These picturesque, romantic images suited the times even better than cathedrals. At the end of the 18th century, artists, poets, and novelists such as Sir Horace Walpole and Sir Walter Scott had turned the castle into a modern ideal. Granted, the idea worked better in England, which had real castles, than it did in the United States. Half-timbered medieval cottages were not all that appealing to Americans. Yet, a few Gothic Revival castles were built here. A.J. Davis's 1838 Lyndhurst, in Tarrytown, New York is a sumptuous, fully developed Gothic dream castle in stone (see below). Revival castles mimicked utilitarian medieval de-

tail. The pointed arch defined the style more than any other single feature (see opposite). It bore the weight of the heavy buildings over windows, doors, and vaulted chambers with a geometry quite apart from the semicircular Roman arch. Crenellated, or battlemented, parapets originated as places to defend the castle from invasion by outside armies, but were civilized for stylistic use on 19th century residences.

Revival architects promoted the Gothic style for rural, middle-class housing.

IN THE U.S., THOUGH, THE GOTHIC REVIVAL was realized primarily in rural cottages for the new middle class, where the arched and pointed details were applied as decoration. A plethora of rooftop spires, pinnacles, and finials — all forms of pointed ornamentation, in stone, wood, and iron — suggested the vertical thrust of the Gothic ideal. As the 19th century began, even Benjamin Henry Latrobe, regarded as America's first professional architect, submitted Gothic





LEFT: Rich with Gothic ornament, this Rhode Island mansion has dripping pendants, diamond-paned casement windows, lancet arches, hood molds, clustered columns, and a crenellated parapet around the bay window. CENTER: A tiny house with four arched openings and a miniscule balcony is on the other end of the revival's spectrum — small, rural cottages.

alternatives with his standard plans (along Greek lines) for some commissions. By the 1830s, Gothic architecture was being taken seriously in its own right as a picturesque, vernacular building form.

The idea of hand-built, vernacular houses in a medieval style was, of course, always more Gothic fantasy than solid fact. Mechanized sawmills and iron foundries made possible the balloon-framed cottages and their lacy ornament. A 19th-century network of canals and rail lines sped build-

ing materials from mills, factories, and forges to faraway sites.

Yet, perhaps more than anything, it was the steam printing press that brought Gothic Revival architecture to the forefront in America. Publishers spewed out tons of architectural pattern books, spreading the Gothic idea to a literate middle-class — itself created by the Industrial Age. The first architectural pattern book

that was both widely available and readily usable was A.J. Davis's Rural Residences. Published in 1837, the author's drawings showed building elevations, details, and, for the first time, floor plans. Andrew Jackson Downing gave Davis and Calvert Vaux an

even broader audience with Cottage Residences (1842) and The Architecture of Country Houses (1850). Davis, Downing, Vaux, and Gervase Wheeler, among others, extolled the wholesomeness of country life and the advantage of modest rustic cottages — preferably in the Gothic mode — as homes for the burgeoning bourgeoisie.

Quirky and angular, Gothic buildings had a restless energy that broke ranks with the sedate formality of the Greek Revival and the Georgian and Federal styles before

> it. Because Gothic Revival architecture was so close to the country-life movement, it appeared more often in rural than in urban settings. Like the Greek Revival style, vernacular Gothic - sometimes called Carpenter Gothic - became a nationwide phenomenon, most popular in the Northeastern and Midwestern states, with some examples in the far West, and relatively few in the South.

Houses of Georgian or Federal design were frequently Gothicized to bring them into current fashion.

Smaller than castles, and constructed of wood more often than masonry, the picturesque little dwellings managed to include



The pointed arch defines Gothic Revival. The lancet arch is narrow, the Tudor is wide, and the ogee has two opposing curves on each side. This Tudor arch is from A. W. Pugin's The True Principles of Pointed Architecture. Note the hood mold on top.



ABOVE: The extraordinary fence, with its quatrefoils and crocketed finials, was added to the Salem, Massachusetts, Pickering House when it was Gothicized in 1841, almost 200 years after construction. RIGHT: New York's Jasper Cropsey House and Studio (c. 1840) has an "organic" rural setting, popular for the style.

their fair share of spires, arches, and Gothic tracery. In this so-called pointed architecture, the general thrust was always upward, expressing man's soaring spirit, while keeping his feet firmly planted on earth.

> Plenty of arches and spiky ornamentation define the Gothic Revival home.

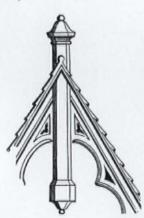
ITS SUPPORTERS THOUGHT THE GOTHIC REvival style offered the only logical way to design a building: from the inside. Eccentric, picturesque designs made it pos-

sible to put rooms, windows, doors, porches, towers, bays, and oriels wherever they were needed, disregarding any rule of balance. In practice, however, the cottages were likely to have a symmetrical, center-hall plan hidden behind proliferous bays, gables, towers, porches, and spiky exterior ornament.

No Gothic building was complete without its share of arches. Doors and windows demanded them for pseudo-structural reasons, and they added style to chimneys, millwork, ironwork, stone tracery, vergeboards (also called bargeboards), porch brackets, balustrades, and roof crestings. Most Gothic Revival roofs were steep, with one, two, or even three front-facing cross gables. Finials and epis of iron or wood topped off the design, and fleur-de-lis or other spearlike forms adorned parapets, roof crestings, and fences. Chimneys were important rooftop features, often clustered and with decorative caps or chimney pots. Towers, generally square, were also popular. A likely decorative motif featured a central cross with a pendant (hanging detail) and imitation crockets (floral designs reaching out of the structure).

Vertical board-and-batten siding was a favorite way to increase the "reach" heavenward, but clapboards and shingles were used as frequently. Cast iron lent itself to complex, small-scale design and was often

Vergeboard (or bargeboard) decorates Gothic gables. This example, from A. J. Downing's Cottage Residences has a kingpost with pendant and finial.







employed for columns, balustrades, roof crestings, and porches. The best Gothic buildings were "organic" structures suited to informal landscapes, and seemed to grow out of their sites (see left).

The multi-paned casement, which had all but disappeared by the middle of the

18th century, made a comeback during the Gothic Revival. It featured two swinging sections, often with diamond-shaped panes, a heavy mullion, and an upper fixed transom. Windows in pointed arches (see p.31), and with Gothic tracery of

wood or stone, were customary. Small trefoil-, quatrefoil-, and cinquefoil-shaped windows (groupings of circles) appeared as well, sometimes with colored glass. Modern rectangular windows were still an option, however, and sidelights and transoms at doorways helped to light interiors. Once inside, guests at grander Gothic Revival houses might encounter a 19thcentury version of the castle's great hall, with an inglenook, or chimney corner, guarded by a massive mantelpiece of stone. In simpler homes, wooden mantels filled the bill. Pointed arches and other Gothic designs

> decorated fireplace surrounds, andirons, and fenders, while medieval-style encaustic floor tiles laid underfoot.

By the 1860s, Gothic Revival was on the wane, but there was a post-Civil War surge of interest in polychromatic, "High-

Victorian" Gothic. This masonry form used a variety of colored stones and bold, heavy ornamentation. Differing materials, textures, and colors highlighted corners, arches, and arcades. Retreating to its ecclesiastical origins, the Gothic Revival continued for churches into the 1920s.

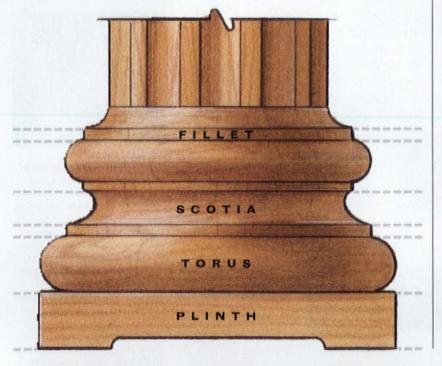


TOP: A textbook example of a Downing rural cottage in New York, replete with triple gables, hood molds, pinnacles, pendants, cusped vergeboard, and diamond panes. ABOVE: In the Garden District of New Orleans, Gothic is turned to cast-iron fencework using an ogee arch and prominent crocket. LEFT: The Hermitage started out as an 18thcentury Dutch house constructed of local New Jersey stone. It was Gothicized in 1847, with gable pendants, vergeboard, and clustered porch columns.

STEPS FOR FABRICATING WOOD COLUMN BASES

FTER ONLY TWO YEARS IN THE WEATHER, MY FIRST WOOD COLUMN bases were like the singer in the 1960s pop song — they "sure had started something." The joints cracked open and spread until some were 4" wide, thanks to collecting moisture and the wrong kind of adhesive. I see the same problem time and again, even in bases from major column manufacturers. Over the years I've learned how to lick splits in wood bases with construction and materials that give long life and low maintenance. Now I specify these basemaking methods for all my projects — round bases as well as square

plinths. They'll work for you too, "when you go one, two, three ... by John Leeke



I. Copying Bases

IF YOU'RE GOING TO REPRODUCE AN EXISTing base, start with a scale drawing and some sketches. Measure the height of each feature in the profile, such as the torus, fillet, or scotia, and their combined height (see drawing below). With a large pair of calipers, transfer the diameters of the major features to a full-size drawing. Take diameter readings at several places for each feature and calculate their average - old bases are usually distorted. Measure up more than one base too. The idea is to determine the maker's original design.

My most recent column project called for matching a base that was severely decayed. When I'm faced with so little sound wood to use as a model, I simply bandsaw a 1/4" thick profile from the worn-out base - just like a thin slice of pie. First, I lay

Greek-style columns go right to the floor, but Roman-style columns sit on a base composed of several moulded elements dictated by the particular classical order (Ionic, Doric, Corinthian, and so on).

R. BASE MA

out the finish dimensions of the base on a full-size drawing, showing a top view and a cross section of the profile. Next I reconstruct the profile, fitting details from the slice into the correct overall shape. From this I make a pattern out of sheet aluminum to be used later during turning. Then I mark up the wood blank that will be turned into the base. (It needs to be about 1/4" taller and wider than the finish dimensions.)

II. Careful Construction

BASES HAVE A MUCH GREATER RESISTANCE to joint separation if they are built-up of pieshaped sections (see drawing page 36). A void in the center helps control dimensional changes. It not only allows room for wood expansion, it is part of the ventilation path under the plinth and up the interior of the (hollow) column. Multiple sections share the stresses of wood movement among several adhesive joints. Sections also give better service than a solid block of wood because they expose a minimum of end grain. (Wood end grain is like a microscopic bun-

RIGHT: Bases take a beating, and when there isn't enough left to repair, it becomes practical to reproduce them — especially if they can be improved. BELOW: Though deformed, this slice of the old base provides enough evidence of the original design to recreate the profile for a new pattern.

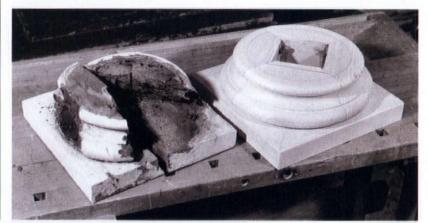
dle of straws, so it wicks up water readily, but holds paint poorly.) Generally, I use four or five sections for bases up to 16" in diameter, and six to eight sections for bases up to 30" in diameter. Larger bases require more sections, but don't get carried away. Too many joints weaken the base.

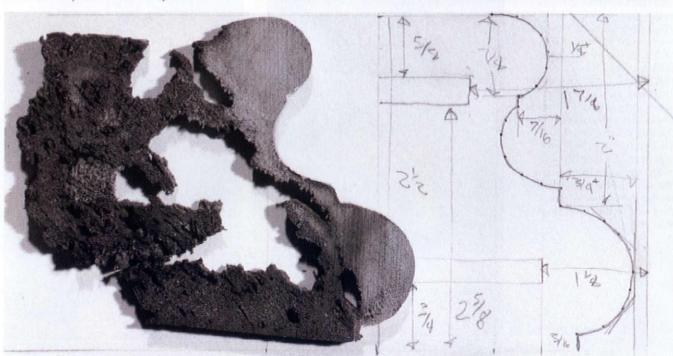
Decay-resistant woods, such as redwood and mahogany, perform best for bases. I often use eastern white pine that is selected for heartwood and "tight grain." Plan to obtain materials well ahead of time; planks 3" to 4" thick may have to be special-ordered. Also plan to have the stock thickness planed on both sides. Planks this size will surely come as rough lumber.

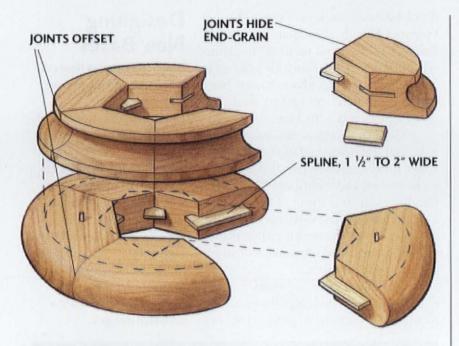
You'll need splines — wood "tongue" reinforcements - to bridge the joints and to hold the sections together. Use two

Designing **New Bases**

When the original bases are long gone you might have to design new ones. Determine the style of your columns by studying the classical Orders of Architecture (illustrated in any architectural reference). Pattern books, such as The American Vignola, were often used by early column makers, and a reprint will show you how to proportion the various dimensions to match the standard designs.



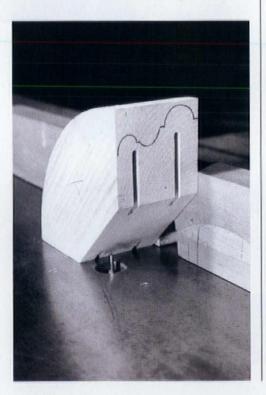




Building Up Bases

If your base is tall, you may well have to build it up in layers, element by element, like stacked pancakes. Be sure to offset the vertical segment joints; it reduces the opportunity for splits. Also plan the horizontal joints where elements meet so shadows will hide them (exactly the strategy of ancient stone bases). The layers will expand and shrink at different rates, and seams will always show a little. Bed each element with caulk or sealant as you assemble the base. I sometimes use two 8d finishing nails as temporary alignment pins, located in the middle of sections roughly 180° apart. Caulk and column weight will be what holds the base together.

RIGHT: Plan spline grooves at the drawing stage so they won't poke through the final profile. Cut them with a router, or try a wood-plate biscuit joiner. FAR RIGHT: Dogs are handy little devices, much like a heavy-duty staple. The inside of each leg is tapered, so as the dog is driven in, it draws the two sides of the joint together. The dogs leave holes, so locate them where the wood will be wasted away during turning, or where they won't show after final assembly.



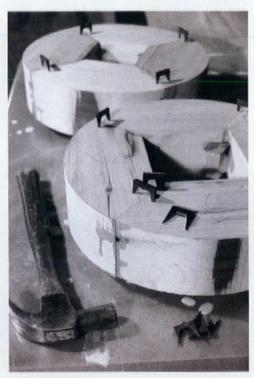
splines per joint if the section is thicker than 3". I like ¼" marine plywood for spline stock, but many a strong, weatherproof material will work.

III. Layout the Base

TO BEGIN THE LAYOUT, I CUT A PIE-SHAPED section pattern out of the top-view drawing (see photo page 37). Layout plans the cuts in the plank for correct grain orientation and most efficient use of the wood, while avoiding defects such as knots, checks, and pitch pockets. As I locate each section I trace around the pattern. Since a base is large and will be turned on a lathe, balance is important. I try to eliminate large, heavy knots in the sections, and roughly match wood density.

IV. From Sections to Blanks

I SAW EACH SECTION OUT OF THE PLANK on a bandsaw, guiding the work by hand and staying just outside of my layout lines. I'm careful to cut the joints as flat and true as possible (adjusting the saw table truly square with the blade helps), but I don't bother setting up a jig to guide the cuts. Precision is not critical because the sections will be joined with a gap-filling adhesive. I cut the grooves for splines with a router.



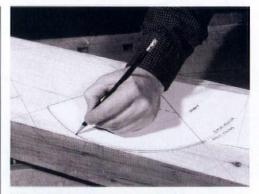
The sections are glued together to make blanks. Two-part epoxy adhesives formulated especially for wood have the three characteristics needed for this work: good gap filling qualities, low clamping pressures, and slight flexibility once cured. Formaldehyde-resorcinol glue is weatherproof, but inelastic. When wood moves, the bond may break. After mixing the ingredients thoroughly, I apply the adhesive with a natural bristle brush to all joint, groove, and spline surfaces. Pinch dogs hold the sections together while the adhesive cures. Drive in dogs on both sides of the blank to keep the pressure on the joint even. Once the epoxy has cured, remove the dogs and excess adhesive from the blank.

Each blank needs to be dressed down on the bottom side to form a truly flat plane. I use my 16" wide joiner. You can ask a wood shop to surface your blanks, or use a hand plane and winding sticks. Next I draw the finish circumference on the top of the blank, centering it well. Then I saw out the circumference on the bandsaw, making the cut just a little full (oversize).

Square plinths are just about complete at this point, but to make round bases you need to shape them on a lathe that can be set up for face-plate turning. My lightweight Delta patternmaker's lathe with a gap bed can turn up to 17" diameter work. To mount the blank I screw a round piece of 3/4" plywood to the bottom. Then the lathe's face plate is screwed to the plywood. I use scraper-type turning tools for this work. They have rounded and angled blades that are sharpened with a slight burr. I begin by flattening the face of the blank and squaring off the edge. Then I measure out and mark the profile features on these surfaces.

I refine the shape until it matches my original or design, using the sheetmetal pattern as a gauge. Then I sand all surfaces lightly with 100-grit paper. Don't polish with finer grits; paint needs a slightly rough surface to form a good bond. What's good music to listen to while finishing column bases? How about "Turn! Turn! Turn!"

John Leeke is a preservation consultant helping homeowners, contractors and architects understand and maintain their historic buildings (26 Higgins St. Portland, ME 04103; 207-773-2306).



I lay out the sections using the top-view drawing. Angles and curves can often be overlapped to make the best use of the wood.



Sections can be cut freehand on the bandsaw because adhesive will make up any slop.



Accurately marking the center and circumference of a base blank keeps it balanced.



In open-face turning the work is supported on just one side of the lathe.

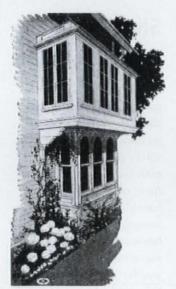
Shaping Safety

Turning large, heavy objects at high speed is potentially dangerous - if parts or tools spin loose they become violent projectiles. Follow all the safety procedures recommended by the manufacturer of your lathe. If you haven't done face-plate turning before, read a book on the topic and get some experience turning smaller pieces before attempting a large column base. Consider taking a course in turning or calling in an experienced turner to give you help.

Suppliers

GARRETT WADE CO. INC. 161 Avenue of Americas, Dept. OHJ New York, NY 10013 (800) 221-2142 Pinch dogs, wood turning tools.

GOUGEON BROTHERS, INC. P.O. Box 908, Dept. OHJ Bay, City, MI 48707 (517) 684-7286 West System epoxy adhesives.



the fact and build our houses accordingly." So pronounced Distinctive Homes of Moderate Costs in 1921. This widespread trend for slumbering alfresco took it's ar-

chitectural form in sleeping porches - sec-

ond-storey rooms open on two or three sides — that became an essential part of the floor plan for an early-20th-century house. Combination sun room/sleeping porch wings were tacked onto the sides of Colonial Revival homes, tower-like "outdoor" rooms



popped up on bungalows, and Foursquares became a little less geometric with a sleeping porch addition. Older houses weren't immune either. Sleeping balconies sprouted off of any residence — from Queen Annes to urban row houses.

Sleeping PORCHES

BY LYNN ELLIOTT



Advertisements offered specifications for every conceivable style of sleeping porch — from a sleeping balcony (above) to an addition thats topped bay window (top) to two-storey loggia for entrances (right).

WHAT STARTED THE RAGE FOR RESTing outdoors? Not surprisingly, sleeping porches were part of the better health movement at the turn of the century. Our ancestors, much like ourselves, were obsessed with disease prevention (which was just beginning to be understood) and physical fitness. Germ-free fresh air and proper sleep were considered keys to good health, and they came together logically in a craze for outdoor dormancy. "The thing [sleeping outdoors] has taken us unawares; we are forced to drag a cot

out upon the fire-escape, or rig up a bedannex so that we can sleep with our heads at least outdoors, shutting the windowsash down on our necks." No doubt the fashion for fresh air was spurred by tuberculous. A crusade was on to control this epidemic lung disease, and patients seemed to improve in the open air. If the fresh air could cure tuberculous, maybe it also could prevent the disease. "Many tubercular cases could be avoided if more persons slept out-of-doors." The nomenclature for sleeping porches varied. Some popular names were "sleeping balconies," "living porches," and "roof gardens."

Planning the Outdoor Room

A BROWSE THROUGH ANY EARLY-20TH-CENtury house plan books shows the importance of these outdoor rooms. The sleeping porch — or its counterpart, the sun parlor — was worked into many a floor plan as a desirable and salable feature.

The most common type was twostorey wing that consisted of a sun room below and a sleeping porch above. This wing would appear on either the side or back of the house. Sometimes the lower section was an open porch, while the upper section was closed in. Sleeping porch wings were built on the grander houses of the era — Foursquares and large neo-colonials — but they were also common on smaller homes and as additions to "update" older homes.

Other forms of the sleeping porch were less porchlike. Favored for warm locales was the tower sleeping porch, a rather rare structure attached to one-storey bungalows. Open on all four sides, the towers



were able to catch breezes from any direction. Sometimes a corner bedroom was left open on two sides, creating a "sleeping area." Completely embracing the fresh-air fad, the second floors of some rustic vacation homes were entirely opened up. The push for house plans with sleeping porches was so strong that a generously windowed room or a small dormer was often purposely mislabeled as a sales point.

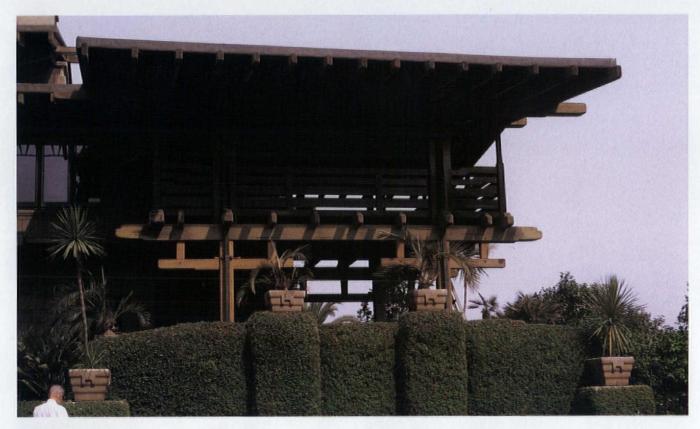
But what if you were saddled with a sleeping porch-less home? No problem. Magazines for builders and contractors were full of advertisements for porch plans that, so they proclaimed, increased the

ABOVE: Combination sun room/sleeping porches were the most typical additions. This grand version sports neo-classical detailing. RIGHT: Many creative solutions were devised for the space beneath a projecting sleeping porch. Here's one interpretation: a garden bench with latticework.

value of your home. "There are few houses that were built before sun parlors and sleeping porches came into demand that cannot be remodeled so as to have these modern features."

The specifications could embellish existing architectural elements by putting a sleeping porch over a bay window or redoing







TOP: Designed with great ingenuity, each bedroom in the 1908 Gamble House in South Pasadena, California, has a sleeping porch, and each is concealed from the other. ABOVE: The second storey of this Arts & Crafts house, featured in the 1912 Modern American Homes, is almost completely open. Not just for sleeping, this area was used as an open-air "roof garden."

your front entrance with a two-storey "classic loggia." If your house didn't have any convertible features, a sleeping balcony both roofed and roofless — could always jut out from any place on the second floor. In some cases, the main roof of the house was extended over the sleeping porch so that the wing did not look detached.

Location Is Everything

SLEEPING PORCHES WERE PLACED ON THE second floor because the air quality was believed to be better up high. Moreover, an upper sleeping porch gained privacy and less exposure to odors, insects, and street noise. Adjacent to the sleeping porch was a dressing room, which robbed the sleeping porch of its one sting; snoozing in the night air was one thing, but changing in the morning chill of the great outdoors was another.

Wide eaves kept the room cool and partly protected from rain - although not driving winds. In the East and the Mid-West, sleeping porches were often enclosed by windows (or at least screens) so that the room could be used in the winter. "Even the most enthusiastic advocate prefers to have the rain and snow and hail kept off his bed." Casement win-



Sleeping porches were often tucked away in large dormers, such as the one on this modest bungalow in Massachusetts. Triangular openings on each side of the dormer provided cross-ventilation.

dows — hinged at the sides and opening out — were best because they could be adjusted to suit the weather conditions, yet didn't defeat the purpose of the sleeping porch. More arid — and less buggy — climates, like the West Coast, could afford to leave sleeping porches completely open.

Sleep In Style

THE FURNISHINGS IN SLEEPING PORCHES ranged from sparse to plush, depending if the space was strictly used for sleeping or doubled as a sun room during the day. Folding beds were recommended, but in actuality day beds or cots were more often used. (One hearty soul advised putting in French doors so that you could slide a double bed onto the porch at night and into the bedroom during the day.) Canvas rollup blinds protected night-time dozers from strong winds and daydreamers from bright sun. Occasionally chintz or cretonne curtains also were hung, adding a more colorful touch. Tastemakers suggested matching sets of wicker or mission furniture to make the room more inviting. In the average house, though, the furniture was probably a mixed bag of cast-offs from the other rooms. Ferns and potted plants completed

Canvas roll-up blinds were de riqueur window treatments because they were both functional and decorative. The lattice enclosure below the sleeping porch is a garden room.



the setting, and also helped emphasize that you were "outdoors."

Gradually, the sleeping porch became more enclosed and less distinguishable from a well-ventilated room. At the same time, the public began to doubt the cure-all effects of sleeping outside. The combination dealt a crushing blow to the sleeping porch's popularity. However, the sleeping porch and its companion outdoor rooms did leave a legacy. Surely the light-filled, glass-wall living spaces preferred by later generations were taking a cue from the rooms that brought the outdoors into the house.



TOP: Enclosing the sleeping porch with casement windows meant that the room was usable in winter as well as summer. ABOVE: The treehouse-like tower sleeping porches are open on all four sides. Very few towers were built — mostly in warm locations.



ROCK'N' ROLL

Laying Down the Standard of Simple Roofs where just three or four guitar chords get you through a song, roll roofing provides unadomed building protection that anyone with a repertoire of basic skills can install. Roll roofing is strictly functional — a "farmer's roof" to some — but very cost-effective and quick to lay. It's also one of the few ways to cover the low-pitch roofs so often found on porches and outbuildings.

No surprise that roll roofing comes in a roll — typically a full square (100 square

feet) of material, one yard wide and 36' long. Around for most of a century, it's the same stuff as shingles: felt (or an inorganic base) saturated with asphalt, then covered with mineral granules to give it sun resistance — and color. There's a medley of weights and two types of roll roofing. Single coverage is surfaced with mineral over

the full width. *Double coverage* or "half-lap" has mineral on only half the surface and gets lapped to produce a two-ply roof — more expensive, but also more durable.

Everybody has their own style of installing roll roofing. On many old-time jobs, you see the roofing brought over the deck edge and hammered to the facia boards — funky, but wind-proof. For more finesse, plus best roof integrity (good for pitches as low as 2" per foot), I like to hide all heads completely. Here's how:

Prepare the Building — Strip off all materials down to a plank or plywood deck — you can't "roll" over old roofing. Inspect the deck thoroughly. Repair all damaged boards, and nail sheetmetal patches over large cracks or knot holes. Afterwards, sweep the deck as clean as possible.

Single coverage requires underlayment, so cover the deck with 15 lb. black felt "tarpaper" next. You can't beat a staple hammer for speedy tacking. I add metal drip edge around the roof perimeter over the felt. It's cheap, keeps water from creeping back



ABOVE: Roll roofing works at the low pitches common on porches because it's sealed at the joints.
RIGHT: Be sure to pull all nails when stripping off an old roof. Then go back and give all deck nails a whack with the hammer to reset them so they don't rise up and puncture the new roof. Keep the deck clean — dirt, pine needles, or mineral can start you sliding earthward.



III FIN BY GORDON BOCK

under the roofing, and it crisps-up the deck edges of old, uneven buildings.

Prepare the Materials - If the weather is cold, store the roofing indoors for 24 hours. The day of the job, uncoil it on a flat surface and cut the roll into two or three pieces — that is, 18' or 12' lengths, depending upon what the project requires. Longer strips are not only difficult to maneuver, they wrinkle and buckle on a wavy old roof deck.

For a single coverage job, take some of the roofing and cut it into 9"-wide strips. Use a straightedge and razor knife, working from the back of the roll. Recoil the rest of the roofing, mineral-side-in. With doublecoverage material, take roofing equal to the length of the roof and divide it into two pieces - one all mineral-covered finish strip, and one all-selvage starter strip.

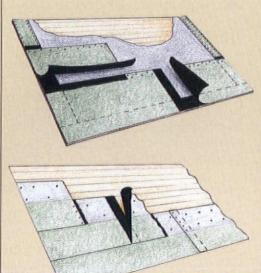
Let the Roofing Roll — Begin a single coverage, hidden-nail roof by nailing the 9" edge strips around the perimeter (see drawings). Position the strips \%" or so out past the the drip edge (I use a plywood scrap as a gauge), and butt them where they meet. Then nail them down with large-head galvanized roofing nails. Next, start the first course of roofing flush with the edge strips. Lap sheets 6", but don't nail here or over the edge strips yet. Instead, carefully lift the roofing and apply cement evenly to the strips (and lap joints) with a toothed trowel. Afterwards press the roofing down and complete nailing. Plan the rest of the courses so they lap by at least 3" horizontally, and repeat the process up the roof.

Double-coverage roofing is even simpler to install. Take the no-mineral starter strip and position it %" beyond the drip edge, then nail it down with three staggered rows - 4 1/2" from the top, through the middle (both every 12"), and 1" from the bottom (every 6"). Start the first course on top of this, and nail it with two staggered rows. Continue the same way for further courses, staggering the joints where strips



lap. Use the all-mineral finish strip for the last course. When done, return and cement all selvage areas, starting with the bottom.

Don't work in the hot sun - roll roofing gets soft and tears easily. If you have hips or ridges, cap them with 12" x 36" strips, gently formed by hand and cemented on. (Lap strips by 6", nailing down the hidden end first.) Expect at least five years' performance from a roll roof - much more if it isn't on a south-facing slope. Also, no need to worry if the courses don't come out absolutely parallel. On a low-pitch roof, they'll be "Close enough for Rock 'n' Roll!"



Edging strips go on before the first course of single coverage. Roofing is best done by two people, but if you're alone, try clips to hold the roll in place.

SUPPLIERS

Single and double coverage roofing, in several colors.

BIRD INC. 1077 Pleasant St., Dept. OHJ Norwood, MA 02062 (800) 247-3462

GEORGIA-PACIFIC 133 Peachtree Street N.E. P.O. Box 105605. Dept. OHJ Atlanta, GA 30303 (800) BUILD G-P

TOP: Single coverage that is "blind-nailed" (top) starts with edge strips nailed 4" apart, 1" from each side. Each course is staggernailed about 2" from the top, 4" apart, BOTTOM: Double coverage begins with a starter strip of 19" selvage. Then each course is stagger-nailed in two rows about 4 1/2" and 13 below the top. Always lap vertical joints 6".



Corners cut in construction 120 years ago come back now as a "washline" roof ridge (above) and spreading walls (below) — structural defects that are dramatic in the King barn, but by no means unique.



THREE FIXES FOR BULGING OUTBUILDINGS

BY CHARLES PROWELL

I've rehabbed many pre-1906 earth-quake Victorian houses in San Francisco, yet I have never seen an outbuilding like the one on the old King estate. Built in 1868 from first-growth redwood, "The Barn" as the owners called it, was an old carriage house divided into three bays. The structure almost defied gravity. The wall above the doors tilted way out of plumb; the ridge line drooped like the spine of an old mare. The decent thing to do, I suggested to the owners, would be to put it to rest. They decided otherwise, however, because the barn was an original outbuilding, with significance for the early main house and for them personally. So it became my job to stabilize the structurally sagging building. Outbuildings seldom share the same quality of construction as living quarters, and their repair can often involve

unorthodox carpentry and seat-of-the-pants engineering. You can use the methods I adapted for the King barn to stabilize many a neglected outbuilding - though hopefully not as swaybacked as this one.

Shear-Walling the Frame

LIKE MANY OUTBUILDINGS, THE BARN'S FRAMing was rudimentary, almost nonexistent. In a phrase, it came closest to box-frame construction. The height of each gable-end wall was framed by nothing more than two horizontal 4x4s - three if you include the mud sill. This "frame" was sheathed with vertical planks and batten boards, a method used well into the mid-20th century. Amazingly, these vertical redwood planks were single lengths of wood, some of them running the full 22' from the slab to the ridge. Although the north and west walls of the barn were sided this way, the east gable and the long south wall had shingles over planks about as load-bearing as duck feathers. I hired a structural engineer for a one-hour consultation, and we both agreed that the first order of business was to add some much-needed lateral support.

Because earthquakes and mild tremors are a fact of life out this way, the UBC (Uniform Building Code of California) requires that all new structures be shear-walled -

that is, wrapped outside the frame, and beneath the finish siding, with ½" plywood. A shear wall is a panel that stiffens a wood-frame building so it resists seismic movements. particularly long periods of shaking that can literally wiggle its members apart. (In many cases shear walls also help tie the building to the mud sill so it doesn't hop off the foundation.) I gained nearly the same results by wrapping the interior walls — an option that often presents itself with outbuildings.

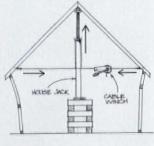
Before fitting the interior plywood shear wall, I beefed up the framing by adding vertical studs between the existing horizontal timbers wherever possible. A little planning allowed me to set these studs in a pattern that coincided with the plywood edges. The nailing pattern is important here; simply tacking the sheets in place with a few errant fasteners is as useless as tying up a boat with a piece of twine. Plywood shear walls require 7d common nails placed 4" O.C. (oncenter) around the edges, and 8" O.C. in the field. I used ½" AC exterior-grade plywood (one good side). In recent years a number of new materials have been developed specifically for shear-walling, the most common being "wafer board." Surprisingly, this material - basically wood chips and glue, compressed in a random pattern — is as effective as plywood.

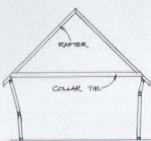


Setting realistic goals -I call them "outbuilding allowances" — is an essential part of working on old service buildings. Walls this far out of plumb will get better, but never perfect.

PATHOLOGY OF AN OUTBUILDING 5/8" T&G plywood skip-sheathing bevel siding vertical planks

Under the clapboard and shingle siding, the barn's major walls were supported by little more than vertical planks (see gable end on drawing). Joined with two or three horizontal members, there was no bracing to keep this "box frame" from twisting out of shape - a common outbuilding mutation. Adding plywood shear walls stiffened the structure. Open skipsheathing on the roof offered no support and was unsuitable for asphalt shingles. A tightly nailed plywood deck added integrity here, too.





TOP: Rafter spread in a simple building can be corrected. A series of winches draws the tails together while jacks raise the ridge.

ABOVE: The permanent fix is adding collar ties (above), which create triangles that stabilize the roof framing.

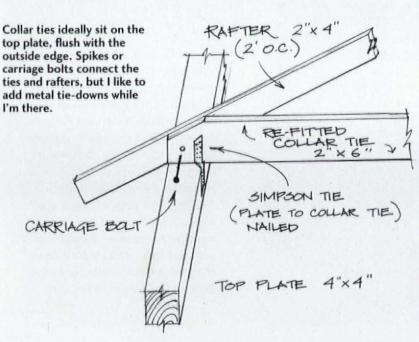
OPPOSITE: Lacking bracing of any kind, the Barn had racked and twisted in several directions, most visible from inside.

Stabilizing Spread

ceiling joists are essential to the structural stability of any building. They serve as anchor points for the top plates of the interior walls, framing for the ceiling and, most importantly, tie beams that keep rafters or outer walls from spreading out. Where there is no true ceiling, as is the case in many garages, stables, and small outbuildings, ceiling joists are eliminated in lieu of collar ties. The collar tie (also called a collar beam) is simply a horizontal member fastened to two common rafters, no closer to the peak than half the length of the rafter.

This barn had neither ceiling joists nor collar ties — a structural deformity surprisingly common in outbuildings. The result was predictable. Viewed from the gable end, the barn had spread dramatically, with one wall migrating towards Canada, the other towards Mexico.

In outbuildings where the spread problem isn't as advanced as this barn, it's possible to use a series of 1 to 1½-ton "come-alongs" (cable winches) to gradually pull back the walls. The cables should be fastened to the top plate, set approximately two feet apart, and not any closer than eight feet from the gable-end walls. Because you're pulling in the rafter tails — shortening the bottom leg of a triangle — it's simple geometry that the rafter heads along the ridge are going to want to move up. This movement





can be aided by setting a series of standard house jacks beneath the ridge board and connecting them with shoring timbers. Beginning with the center come-a-long and moving outward, the cables are tightened gradually in an even sequence that avoids too much stress in any one area. Take your time, putting just a half-turn a day on each device.

With the barn, however, we decided to leave well enough alone and just stabilize the structure from further movement. I installed 2"x 6" collar ties at every other pair of rafters, "saddling" them where the rafters rest on the top plate. Collar ties should be fastened to the rafters with 16d nails - better yet, carriage bolts - and secured to the top plate with construction fasteners, those twisted metal straps manufactured for tying framing connections together (particularly where natural forces are a threat to the building). They give a roof wind-lift resistance and generally help tighten up an old outbuilding. Because the exposed interiors of most outbuildings provide easy access to their framing, I recommend using metal fasteners (with their seemingly endless applications) whenever possible. Hurricane Hugo proved their effectiveness. In the most seriously damaged Florida homes, "hurricane ties" were nowhere to be found.

One last word about collar ties. They are most effective when set on the top plate,

but it is virtually impossible to span this distance with a single length of lumber. Even with 24" spacing, there just isn't enough clearance between the rafters to wedge in a tie that will run from outside wall to outside wall. Therefore, it's necessary to use two lengths that overlap in the middle by approximately four feet, and spliced them with staggered carriage bolts set about 12" apart.

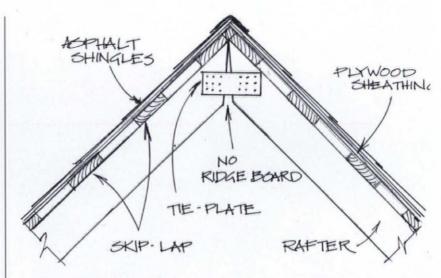
Roof Reinforcements

THE BARN NEEDED A NEW ROOF LIKE A sunken galleon needs a new coat of varnish, but that was the job. With the shear-walling finished and the collar ties in place, it was finally safe to go aloft. Out of curiosity, I strung a line from one gable peak to the other and found that, at its lowest point, the ridge dipped a full 14" below my 32' string line. While walls were spreading, the ridge was dropping. The lack of a ridge board didn't help. Neither did the weight of seven layers of old roofing - four over the legal maximum.

Using a shovel, I stripped off the old roofs to find skip-sheathing under the original wood shingles. Skip-sheathing is an "open deck" of 1 x 6 planks running perpendicular to the rafters, spaced 4" to 5" apart. It was common practice for supporting (and ventilating) wood roofs on residences and outbuildings built before the 1920s. However, the barn now needed a "closed deck" for the new asphalt shingle roof, and plywood would add more structural reinforcement as well.

Laying %" tongue & groove plywood on the curved lines of an old barn was a job better suited for a boatbuilder than a house carpenter. Simply put, when an outbuilding roof is way out of plumb and true, I've found it's best to start the sheathing in the middle and along the lowest portion of the eaves. After this, sheathing is as for a normal job. Each plywood sheet is nailed down with 7d coated sinker nails at 4" O.C. along the edge and 8" O.C. in the field. The structural stability of any skipsheathed roof is tightened considerably with the use of plywood. When the roof is fully sheathed, I simply cut the waste along the curve of the fascia.

Before laying the final course of ply-



Connecting rafters with a pair of metal plates is more easy insurance when an outbuilding has no ridge board.

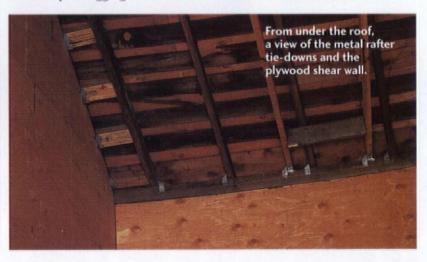
wood, I took advantage of the easy access to the rafter heads and fastened all of them with rectangular tie-plates. These plates come perforated for nailing (don't use selfnailing plates). The rafters were only toenailed together, so adding plates on both sides considerably reinforced the connection. It's important to use appropriate joist-hanger or truss nails with these plates. They are manufactured with thick shanks that can take the shear load and are coated or barbed to resist pull-out.

Though an extreme case of the "loose framing" often seen in secondary structures, the barn does illustrate the most common problem areas and methods that come up in stabilizing such a structure. Working on outbuildings is an endless series of compromises; you can't make everything as plumb and level as new. Besides, the aging lines of a building like the barn have a certain charm to my way of thinking, more appealing that the square rigging of a new structure.

SUPPLIERS

P.O. Box 203, Dept. OHJ Colliers Way Colliers, West Virginia 26035 (800) 638-8989 Manufacturers of structural wood fasteners; contact for nearest dealer.

SIMPSON STRONG-TIE COMPANY, INC. 1450 Dolittle Drive, Dept. OH San Leandro, CA 94577 (800) 999-5099 Manufacturers of structural timber connectors; contact for nearest dealer.





ready for maintenance. INSET: The many corners and overhangs of the style are particularly needy of repair.



based plaster went on wood-frame and masonry homes - especially in southern clismes. With the spread of portland cement at the turn of the century, more weather-resistant stucco sided houses in higher latitudes too, and was adopted in earnest by the

Prairie School movement. Repairing old stucco involves excavating damaged areas, rebuilding the faults underneath, and care-

SEAMLESS STUC



fully feathering new stucco into surrounding material. I used the following techniques for the restoration of a 1908 Frank Lloyd Wright house in Madison, Wisconsin.

Investigating

FIRST, INSPECT THE STUCCO FOR damage. Sketch elevations of the house and note all evidence of failure on the drawing — even small cracks. This will help you determine what caused the damage. The major culprits are structural settling and failed drainage systems.

structural failure: Because it's so hard and brittle, stucco will crack under almost any stress. Old houses that have settled or shifted often have faults riddling their stucco exterior. These failures are warning signs of underlying problems.

Check outside comers for vertical cracks. When one part of a wall looses integrity, but an adjacent area remains solid, the brittle plaster will crack along the stress lines. Areas around window and door openings are most susceptible. Note hairline cracks, real fissures (at least

"wide and 3' long), and soft spots. Locate cavities by tapping with a wooden hammer and listening for a hollow sound. Identify and rectify any ongoing structural failure before proceeding with stucco repairs.

water INFILTRATION: Once water gets under the brittle stucco crust, it doesn't take long to do real damage. Moisture penetration is even more problematic in northern locations, where frequent freeze-thaw cycles force the invading water to expand and contract, ripping apart the friable stucco.



A vertical crack indicates a structural problem underneath. In this case, the foundation had given out.

Check near grade level for water damage from splashback, close vegetation, or rising damp, and for continuous moisture from improperly maintained roofing, gutters, and downspouts. If water is the major cause of stucco failure, you'll find buckling, bulging, or punky areas. New roof drainage systems may be in order; regrade so that stucco is 8" to 1' above the soil.

Keep in mind that structural and drainage failures are very often related: support problems can change the pitch on gutters or roofs; a faulty downspout may eventually lead to a soggy sill corner. Also, there may be other causes of failure, such as horizontal shifting, pressure from root systems,

lath failure, standing water, and physical injury. Once you have corrected these continuing problems, the actual stucco repairs are pretty straightforward.

Planning

CONSIDER REPLACING WHOLE sections of a stucco wall rather than strictly the damaged spots. If new areas are too small - say 3" to 4" wide, and following a crack for some distance - the finished repair will likely stand out. You probably don't need to replace large areas of substructure, however,

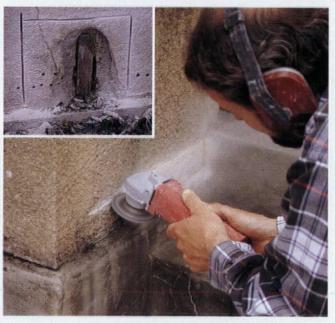
just consider applying stucco, or perhaps just the final dashing, to the whole wall section. (This is less of an issue on painted stucco houses, where repainting may help to mask repairs.) As a rule, do not excavate small cracks, but target material that has pulled away from the substrate or has fissured and spalled.

You'll also need to determine what you're dealing with, lime- or portland-cement-based stucco. Test by pushing the trowel edge into the wall. It will yield easily if it's made from lime; portland cement stucco is harder and the trowel will only scratch the surface. (You can also test with dilute hydrochloric acid, which will dissolve lime-based stucco, but not portland cement.) Lime-based stucco, used before the

20th century, is relatively easy to repair because the soft material bonds well with matching new materials. Portland cement stucco, however, is brittle and requires care.

Excavating and Repairing

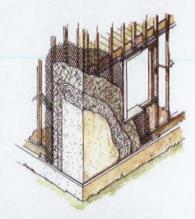
SMALL CRACKS AND CHIPS MAY NOT NEED TO be excavated. Repair minor defects by overcoating with a thin "slurry" of finish stucco. Even paint or whitewash might hide tiny blemishes. Do not attempt to fill cracks with masonry caulk, however, because the material is not compatible and will weather differently, marring the appearance of the stucco even when painted. Large areas of



ABOVE: Bevel your cuts so the new stucco can key in behind the old material. INSET: Cut a few inches beyond the damaged area. In this case, someone had drilled weep holes in a futile effort to avert the water damage.

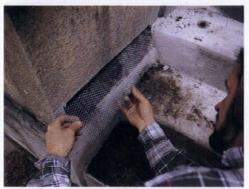
damaged stucco must be removed and replastered. Remove soft or weak spots, and sections that have vertical cracks, water damage, loose material, or rust from metal architectural components.

Portland cement is so hard that it should not be removed with hammer and chisel because the vibrations may weaken surrounding stucco. Use an angle grinder with a tuck-pointing blade (or thinner tool). Score deep into the stucco, then wedge along the line to remove the waste. Clean



Early 20th-century stucco was applied in three layers, over wire lath, on balloon framing — prefered because it shifted less than modern platform framing. You might also find sheathing between studs and lath.





TOP: Good masonry supply yards offer diamond metal lath, which best approximates early 20th century materials. Cut with straight snips. ABOVE: On our project the lath sat directly on wood framing, however it's more common to find sheathing in between. Always restore what you find.

the area with strong spray from a garden hose and decide if the lath, wood framing, or masonry substrate needs replacement.

Under the stucco, we encountered metal lath nailed to a stud wall - typical for 20th-century buildings. We excavated to 3" beyond where the spalling and fissuring had occurred to be sure remaining stucco was still firmly keyed into the lath. When water has gotten into a fault, which it usually has, the lath is so rusted it comes away with the stucco, but if good lath remains, pick the old stucco out of the mesh.

Replace all questionable wood members, then cut lath to match. Use galvanized diamond metal lath. Do not place a seam between old and new lath where there isn't a solid nailer; either excavate to the next stud or install furring. Nail the lath with galvanized staples not more than 8" apart over the nailers. Plan vertical laps so they occur at supports, and fasten with sta-

Experiments

One of the most labor-intensive, time-consuming, and fun parts of stucco work is experimenting with mortar mixes, textures, and colors. This separates a quality job from sloppy work. I usually start on it very early in the project so it doesn't get rushed.

Set up a test site with a sheet of plywood. For wood or metal lath, create a dummy stud wall and attach the lath. Or apply a coat of concrete to simulate a masonry substrate. Then trowel on a thick scratch coat. Let that set for a few days to cure.

Now you're ready to test the final dashing. Try out sample mixes, varying the lime content. Watch how the pigmented stucco dries to determine the right proportions. Practice creating the final texture. Carefully document your experiment so you'll be able to recreate your best effort. And don't judge the results until they've cured for a week or more. Practice until you get it right.

ples not more than 4" apart. Lock or butt horizontal joints and lace tightly with 18 gauge galvanized wire.

For stucco over wood lath, use replacement lath strips (available at good lumber yards). In fact, always repeat the original lath because dissimilar materials will wear differently. For stucco applied directly to masonry — poured concrete, block, hollow tile, or brick — the process is simpler. Remove the damaged stucco with hammer and chisel, and clean the rough substrate to receive new material. Both masonry substrate and wood lath must be dampened before plastering for a good bond.

Mixing

MINUTE STUCCO ANALYSIS IS USUALLY A waste of time because even if you identify all of the ingredients, you still will not know what blending and application procedures were used. For a responsible and successful match, locate sand of similar color and texture. Start with 3 parts sand to 1 part cement, with some lime mixed in for workability; experiment to develop your own recipe from there. Adding more lime will give you a stickier consistency, but stucco with too much lime is prone to shrinkage and cracking. Overdoing the sand will make stucco hard to trowel. We found the batch for the scratch coats was "leaner" on the lime than the final coat, which used more lime to achieve a stippled finish. Limit lime to 10% dry weight. Going "richer" may reduce mortar strength.



Measure and record all of your test batches. Cement, sand, lime, pigment, additives, and even water should be gauged to insure proper adhesion and consistent coloration.



Lay sand on surfaces underneath your work area to prevent spilled mortar from sticking. You want the first coat to ooze through the lath for a good grip.



The second coat should be only slightly below the plane of the wall. Key all undercoats to give upper layers something to hold.



The final coat should be a thinner mix so it can take the texture. Get a solid coat on the patch and let it harden slightly before texturing.

Additives

Most historic stucco additives — like animal hair, linseed oil, stone dust, or other idiosyncrasies — are impractical today. Even if you could locate them, just how they were used will still be a question mark. In my experience, trying to simulate old quirky ingredients causes problems.

The one additive that you might consider, if you find evidence of it, is animal hair — used only in the first coat to help prevent the mortar from falling through the lath. Use only clean, cattle or goat hair, that's free of impurities. You may be able to get it from a farm. It should not be used if you're plastering the stucco directly onto masonry.

If you're working on a pre-20th-century house, with lime-based stucco, you'll want to reproduce the original mortar. However, the lime available at masonry yards today is not as strong as the lime used before portland cement. I'd recommend using a little white portland cement in the mix just for insurance, and to meet modern specs. Hydrated lime is ready to use, but I prefer quick lime. It must be slaked, or hydrated although not for nearly as long as nonmanufactured lime of a century ago. First mix it well with water, using a paddle mixer if possible. Be careful, the lime will actually boil from the chemical reaction. After it's wet, with no pockets of dry lime, let it "fatten up" for 20 to 30 minutes. Then mix up your stucco. A good guideline is 1 part lime, 6 to 7 parts sand, and 4 part portland cement. As with portland stucco, match the original sand as well as possible, and experiment to get the consistency right.

Dashing

trowel the base coat onto the Lath and key it into the next coat by cutting it with a trowel or scratching it with a nail. Trowel the second coat onto the dampened first coat the next day, if possible. Key this surface as well, but be careful to avoid deep grooves and high lumps — they may affect the thin, final dashing. Wait at least one week before

applying the finish coat, keeping the surface wet by soaking thoroughly three times a day, or as much as possible. Actually, concrete takes a month to completely cure; the wetter it's kept, the stronger it will be.

It's especially important to get the final dashing right — it's what you'll see, and a poor match in materials, texturing, or coloring will highlight the replaced sections. This is a job for an experienced plasterer. In fact, some non-masons who do most of the work themselves hire a professional to handle this phase.

Coloring

of patchwork. First clean an area of good existing stucco for a model. Then experiment with pigment available at the masonry supply yard or from art suppliers. (One good source is Kremer Pigments Inc., 228 Elizabeth St., New York, N.Y. 10012; 212-219-2394.) Be certain to use lime-fast pigments, which won't be destroyed by the alkaline mortar. Deep colors are rarely desired in stucco, so there's usually not more than 5 pounds of pigment to a 90 pound bag of portland cement. (A good guideline is between ½2 and ½4 part pigment to 1 part cement.)

It's essential to first blend the pigment and cement thoroughly. Sift the cement

and pigment together through a standard window screen until the mix is uniformly colored. Next mix the dry cement, sand, and lime until the color is homogeneous. Then add the water, measuring carefully because variations will cause different shades in the stucco. Allow stucco samples to dry for at least ten days before assessing their color mortar will lighten as it dries.

Texturing

EARLY STUCCO BUILDINGS OFTEN HAD smooth finishes with lines scored into them to imitate ashlar block. Revival styles of the early-20th century were pebbledashed, sponged, roughcast, spatterdashed, or handrubbed to approximate adobe. Only the texture in your stucco will bring to light what method was used to apply the finish coat.

For our Prairie project, simple tools produced the most pleasing texture effects. Start with a steel trowel (preferably an old one with rounded edges), a wood float, a bundle of twigs, a burlap bag, and a brush. Experiment with these basic utensils to create the desired match. Thoroughly wet



the second coat before applying the finish, which should stay plastic for an hour. Keep the surface damp for one week to cure. You can use the misting process to help gain an aged look by exposing the aggregate as the stucco cures.

Many textured surfaces were achieved by first troweling on a rough final coat, then leaving it for perhaps 1/2 hour to set up. When the mortar started to get stiff, it was hand-troweled, rubbed, splattered, or stippled. You can also add mortar (keeping the total thickness of the final dashing to about 1/8") to create the desired effect. Once the wall has been repaired, wait a week or more before deciding whether you need to re-dash the section of wall to mask the repair.

Repairing old stucco takes patience, care, and experimentation. Remember, your goal is a patch that nobody will notice. Remember, too, that as the new stucco ages, it will look more like the old.

Jacob Arndt specializes in historic masonry at Northwestern Masonry & Stone, 402 N. Eau Claire Avenue, Madison, WI 53705.







An old window screen over a bucket makes an excellent rig for mixing cement with pigment.

There are no fancy gymnastics or equipment required to get the texture right. FIG. 1: I use a wet broom to baptize the stucco, giving it a waterdashed appearance. FIG. 2: After the mortar sets up for 24 hours or so, use a wet scrub brush to rub away lime and expose the aggregate — a good trick for aging the new area. FIG. 3: Experiment with what you've got at the job site; an old scrap board worked well for me. FIG. 4: Some buildings were pebbledashed; use a stiff mix and throw sand or pebbles into it while its soft.

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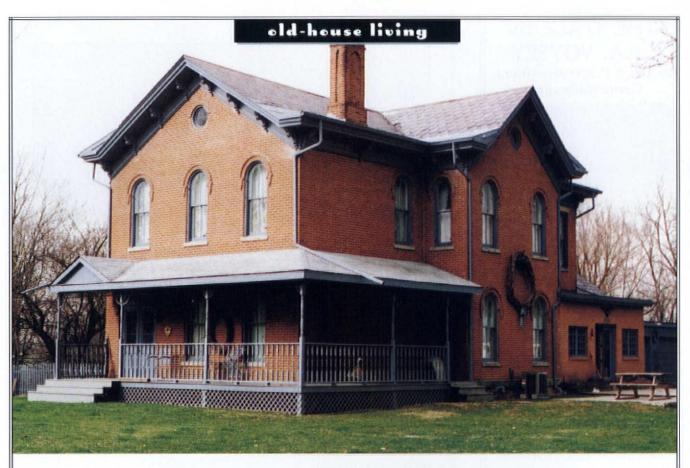
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The Hidden Staircase

A leaking pipe leads to a forgotten passage and a 50-year-old message

BY STEPHEN MARTIN

NE EVENING, I SAT READING THE NEWSPAPER at the kitchen table when I heard the sound of water dripping. I opened the basement door and quickly discovered a sizable puddle, leaking from the cold water pipe that ran up to the second floor. Fortunately, water hadn't damaged the plaster walls and ceilings of the first floor, but gaining access to the pipes was going to be tricky. Like many old houses, there have been a few changes to our Italianate since it was built in 1880 some my wife Carolyn and I knew

about, some we didn't. On the first floor, the pipes ran up between the back wall of a closet and the header above the basement stairway. Since the closet was lined with tongue-and-groove pine boards too nice to damage, I broke through the basement stairway. Luckily, I'd chosen the best way to enter the wall. Looking into a sizable cavity, I could see there were three 50-yearold pipes and a heating duct against the back wall of the closet.

I enlarged the opening enough to stand up inside the wall, but it was such a tight squeeze that

I was barely able to move. I couldn't turn around but I felt something digging into my back. Shining the light over

my shoulder, I discovered ... a staircase to the second floor!

After removing the lowest stair tread to give me room to turn around, I used a small step ladder to climb onto the staircase. It was narrow, well-worn,

and covered with debris. At one time, this was the central staircase in the house, running from what

Our "retirement" home (above) in Hebron, Ohio, was built by farmer William C. Kneller. It had seen many tenants and alterations before Carolyn and I (inset) purchased it.

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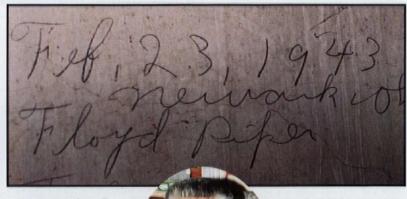
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is now the first-floor closet to the secondfloor hallway. Strips of old wallpaper were still dangling from the walls. In a clear spot, I noticed a message scrawled in pencil:

ART HUMBERT Feb 23, 1943 Newark, Ohio FLOYD PIPER Feb 23, 1943 Newark, Ohio When will the war end?

It was a curious find. Were Art and Floyd former occupants? Did they put in the plumbing and enclose the staircase? Was the "war" World War II? Or was it a grudge between the two men?

Climbing out of the untombed staircase, I told Carolyn what I'd found. She suggested we look in the phone book to see if they were listed. The chance of finding both names seemed unlikely to me, but there they were. Art Humbert's number was disconnected. However, the second call was answered by one Floyd Piper, the same man who had written the message!

I congratulated Floyd on his long-lasting plumbing, but soon learned it wasn't his work. In 1943, he and Art had run the heating ducts for a new coal furnace. They worked for the now defunct Holland Furnace Company - 16year-old Floyd assisting Art, who

Too young for the service in 1943, Floyd Piper left a cryptic time capsule in a staircase - both of which disappeared for 50 years.

was probably in his forties. They had done many furnace installations and conversions in the area, often leaving messages. As far as Floyd knew, we were the first to discover one and try to track down the author.

And the meaning of the message? Floyd explained. Since his parents wouldn't give him permission to join the service, Floyd was worried he'd miss the chance to enter the war. However, he did enlist in the U.S. Navy the following year and served aboard the aircraft carrier USS Guadalcanal until May of 1946. Following the war, Floyd worked at a number of jobs until retiring from a local concrete company.

Discovering the stairway, the message, and talking to Floyd was an exciting window on the past lives of our old house. It even helped me with my plumbing repair. The staircase gave me access to nearly the entire pipe. I found the pin hole leak and temporarily repaired it by clamping a piece of rubber over the hole. After the old pipes are replaced, maybe Carolyn and I will leave a mysterious message on the wall, too.



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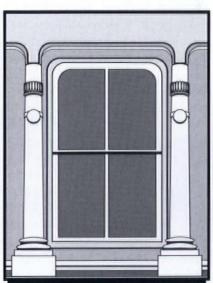
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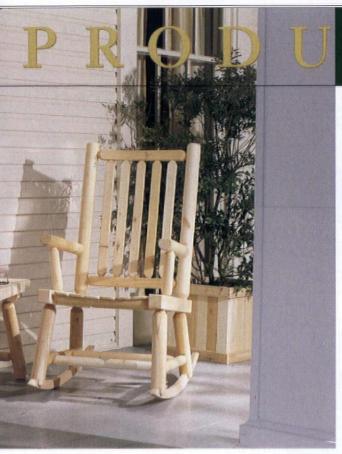
Standard overhead units, custom built to look like side-hinged, tongue & groove barn doors (left) or to match classic raised panel entrances (above).



tail price for the rocker is \$169, and for the side table is \$82. They're available through a variety of furniture stores and outdoors catalogs. For a convenient source, contact Willsboro Wood Products, P.O. Box 509, Dept. OHJ, Keesville, NY 12944; (800) 342-3373.

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CTS Josh Garskof

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pulls. Overall dimensions are 31" wide, 82" tall, and 22 1/2" deep. It's available in northern red oak, or cherry by special order. The kit sells for \$399.95 (or \$779 assembled) plus shipping. See Grand River Workshop's catalog for this and other furniture-making kits; 1955 NW 92nd Court, Dept. OHJ, Clive, IA 50325; (800) 373-1101.

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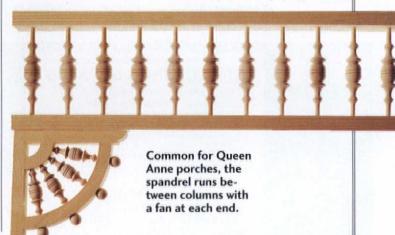
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The bracket's curved design means you can rest your ladder against oldhouse corners, turrets, and bays.

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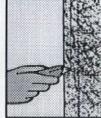
Apply second coat of saturant to wet mat.



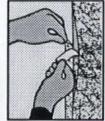
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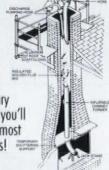
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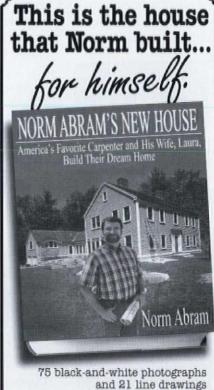
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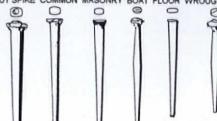
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ail-order plans have a long history in shaping the residential architecture of the country. Of the thousands of house plans available today, few exhibit good design and a grasp of historical proportion and detail. So, in response to requests from OHJ readers, the editors have "done the homework": We've hand-picked plans. In each issue, we offer the most attractive, authentic, and buildable of the historical designs, from all periods of American architectural history. Let us know what plans you're looking for.

You can order actual blueprints for all the houses featured. These plans are designed to conform to national building-code standards. However, the requirements of your site and local building codes mean you'll probably need the assistance of a professional designer (your builder may qualify) or an architect.

For the houses shown in this issue, blueprints include:

- · Detailed floor plans showing dimensions for framing. Some may also have detailed layouts and show the location of electrical and plumbing components.
- · Interior elevations are included in some plans, showing interior views of kitchen, bath, fireplace, builtins, and cabinet designs.
- Building cross sections: comice, fireplace, and cabinet sections when needed to help your builder understand major interior details.
- · Framing diagrams that

show layouts of framing pieces and their locations for roof, first, and second floors.

- · Energy-saving specs, where noteworthy, are included, such as vapor barriers, insulated sheathing, caulking and foam-sealant areas, batt insulation, and attic exhaust ventilators
- · May include foundation plan for basement or crawl space. (Crawl space plans can easily be adapted for full basements by your builder.)

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gage lender, electrician, plumber, heating/ventilating contractor, building permit department, other township use or interior designer, and one for yourself. Ordering the 8-set plan saves money and additional shipping charges.

Other notes: (1) Plans are copyrighted, and they are printed for you when you order. Therefore, they are not refundable. If you would like information on ordering more than 8 sets of the same plan, please call our Customer Service Department at (508) 281-8803.

(2) Mirror-reverse plans are useful when the house would fit the site better "flopped." For this you need one set of mirror-reverse plans for the contractor; but because the reverse plans have backwards lettering and dimensions, all other sets should be ordered rightreading.

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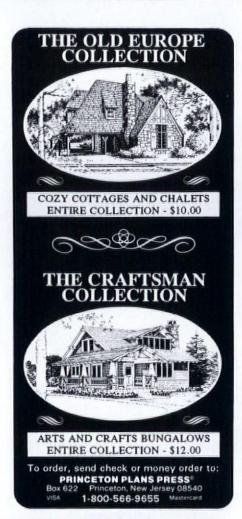
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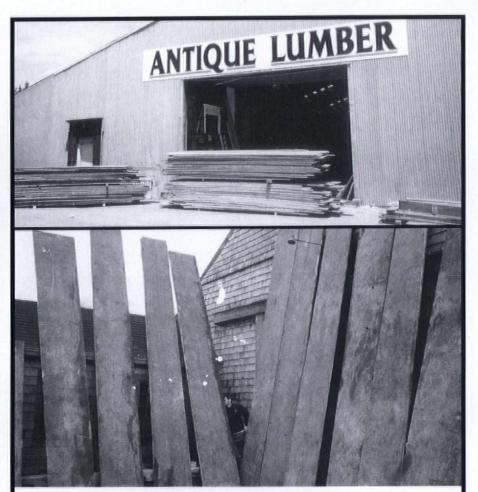
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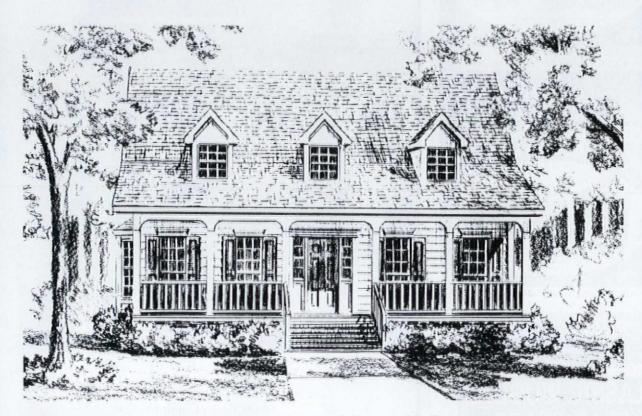
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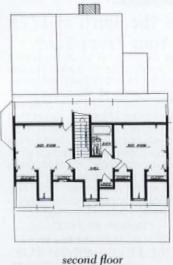


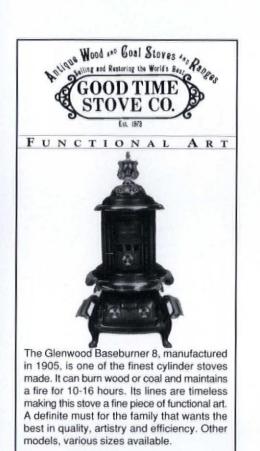
HE HALL-AND-PARLOR FLOOR LAYOUT WAS brought to the South by British settlers and, like many of the original buildings, this plan has been expanded beyond two front rooms. There's a large kitchen behind the dining room on one side

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Plan WL-05-EA	
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Square Footage	2,011'
First Floor	1,441'
Second Floor	570'
Ceiling Height	
First Floor	8'
Second Floor	8'
Overall Dimensions	
Width	41'
Depth	57'-6"

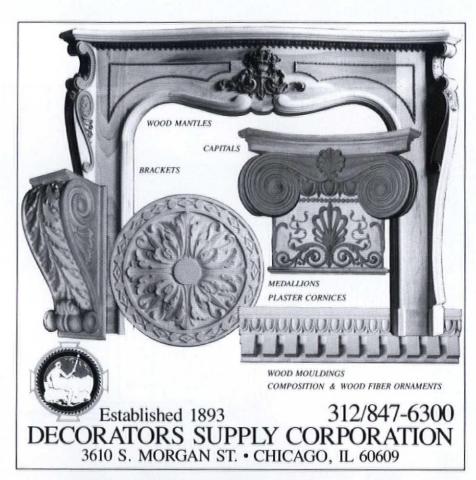




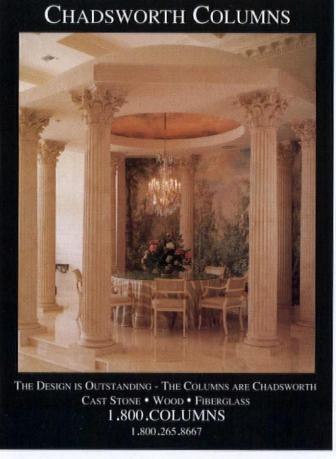


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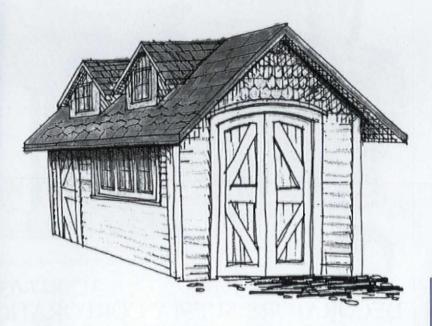
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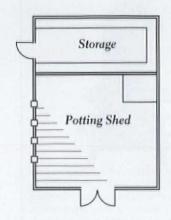






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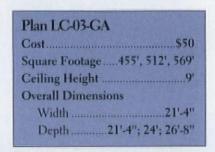
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Plan PR-01-GA Cost......\$50 Square Footage216' Ceiling Height10' Overall Dimensions Width12' Depth18'

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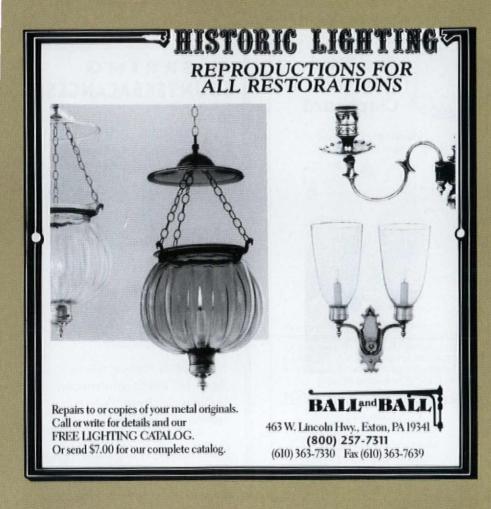
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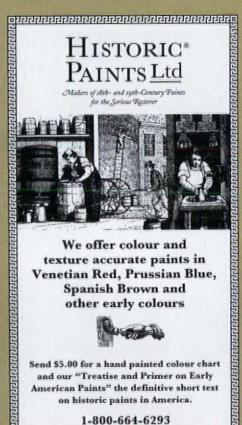
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wood stove, formal DR, hardwood floors, renovated bath, built-in hutches. Two garages. Park-like backyard. \$169,000. Jane Lauder (707) 745-6000.

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WASHINGTON, DC - (Mt. Rainer, MD) 1905 unrestored Victorian in Nat'l Historic Trust Trolley Car District. 4 bdrms., 1 bath, foyer, LR, DR, kit., pantry (1,650 sq. ft. plus porches, full attic, basement), 12-ft. ceilings. New roof, furnace. Same family since 1945. 7500 sq. ft. lot. Call (301) 588-4461.

STARKE, FL-Charming c. 1900 home. 2.3 acres in city. Beautiful grounds, wooden floors, high ceiling, 4 frplcs. New central AC/H. 650 sq. ft. of porch, modern kit., hot tub, arbor. 40 min. to large cities. \$75,000. (904) 964-5967.

BUSSEY, IA-2-storey house, c.1898. Good condition. 4 rooms up/ 4 down w/middle enclosed stairway. Original yellow pine

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dio, offices, shop or minifarm. Near Taunton River. Less than hour to Boston, Newport. \$340,000. (508) 823-5412. EASTON, MA-Easton's oldest house, Josiah Keith House (1717). 7 rooms +, connected barn & original corn crib. 2.4 private acres abutting 600 acres of conservation land. Excellent schools, secluded setting yet easy commute via rail/road

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LEBANON, MO-Eleven room Victorian. Carved quartersawn oak woodwork staircase and mantel. Two-car garage w/finished guest house above. Surrounded by trout streams 1 1/2 hrs. from Branson gives it great B&B potential. Bargain at \$89,000. (417) 532-6974.



JAFFREY, NH-Brick/frame, 4 chimney, 1794/1826, "a centerpiece of Dublin's Na-

Real Estate (continued)

tional Historic Registry." Palladian windows, tall blind arcades of brick sides suggest Bullfinch influence. 17 rooms, 10 bdrms., 4 1/2 baths, 5602 sq. ft. excluding decks, porches, basement; 6.9 acres. Fire alarm system, new septic. On main highway; invites business use. Mt. Monadnock rising behind Dublin Lake, Boston 1 1/2 hrs. \$350,000. HKS Asoc., Inc. Realtors (603) 532-4486.

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N. KINGSTON, RI-Lg. Colonial. c. 1710. historic Davisville. National Register. Authentic detail throughout. 6 frplcs. (2 walkin beehive ovens), 3 1/2 baths, stable, 3 acres. Lovely country setting, trout stream. Near shopping, I-95, airport, ocean, \$390,000. Owner financing. (401) 885-1700. WOODRUFF, SC-Pre-Civil War log cabin, 22 x 16, 1 1/2 storey. Will be disassembled and delivered. Massive hewn and dovetail notched logs. \$12,000. Call J. Don Rogers (803) 877-0538.

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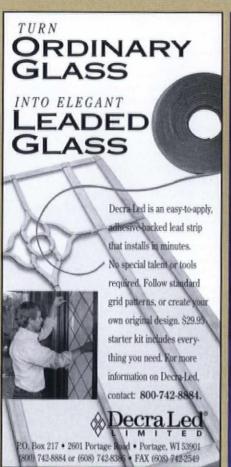


WAVERLY, TN-McAdoo House, c. 1878 National Register, Italianate brick, 1 1/2 storey, L-shaped plan. Quartersawn oak hardwood floors, 6 frplcs., 2 high Victorian mantelpieces, clawfoot tub, Colonial Revival built-ins on sleeping porch. 200 AMP underground electrical service, central air. Remodeled kit. w/oak cabinets, Corian countertops. Southern Homes Realty, Bo Lockhart (615) 535-9755.

NEVADA, TX-2-storey 1903 Victorian on National Register. All original woodwork. Some original lighting and bathroom fixtures. 15 rooms including 3 bathrooms. Interior in need of restoration, but livable. 1 acre w/ numerous trees. \$42,000. Call (214) 843-2303. POQUOSON, VA - Historic plantation w/Antebellum Manor Home. 22 rooms, 5-1/2 baths. Needs renovation/restoration. Approx. 110 acres. Also c. 1750 tenant house. 1 hr. Richmond. 3 hr. Wash., DC. 2 hr VA Beach. Unlimited possibilities. \$395,000. (804) 868-8032

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Real Estate (continued)

ing room, glassed porch, 2 frplcs. Finished basement, 2-car garage, servants' quarters. Mtn. views. 10 min. to Can. \$188,000. Beverly Clarke (802) 873-9025.

CASSVILLE, WI-1855 Greek Revival B&B. 8 years in operation. 4 bdrms., 1 1/4 baths. Fantastic corner of Wis. rugged bluffs, Mississippi just blocks away. 2 village lots w/fruit trees. 2 hours SW of Madison. \$90,000. Owner (608) 725-5419.

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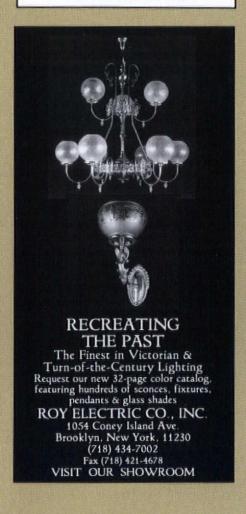
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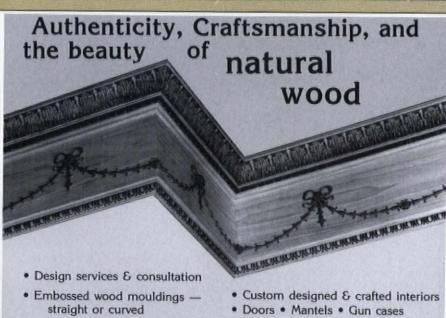
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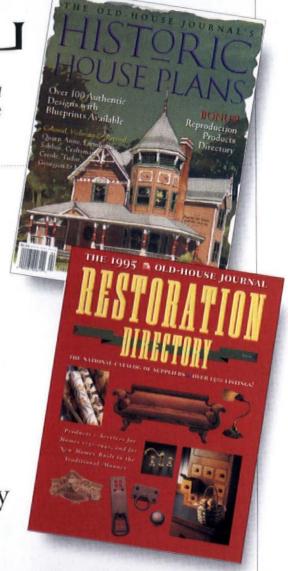
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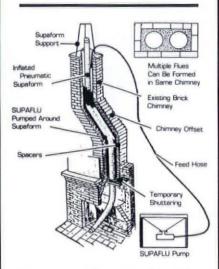
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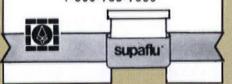
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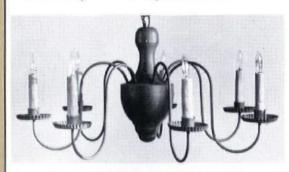
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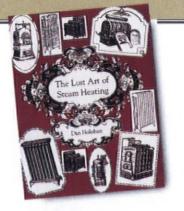
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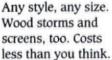
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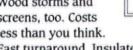
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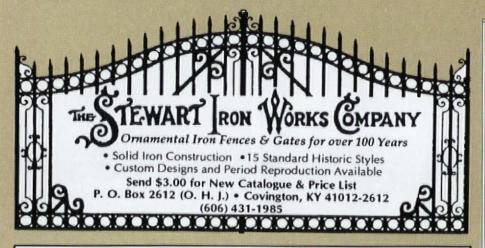
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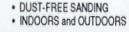
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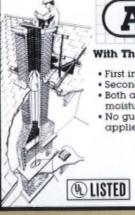
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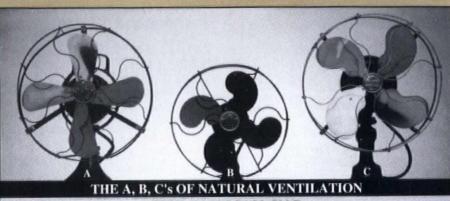
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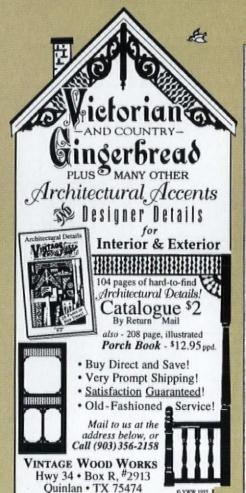
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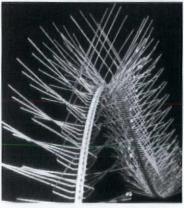
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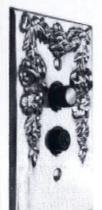
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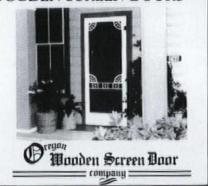
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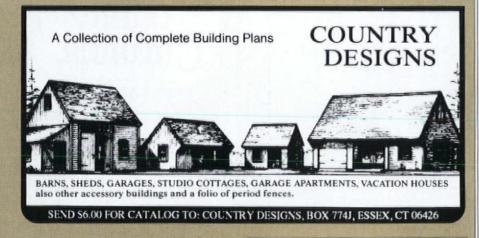


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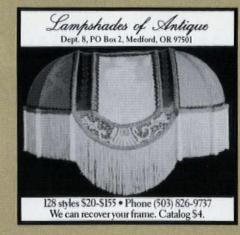
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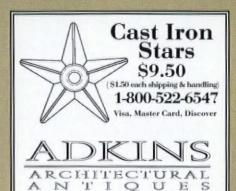


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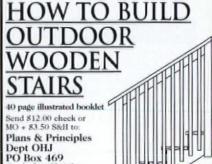
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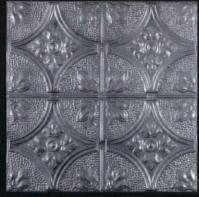
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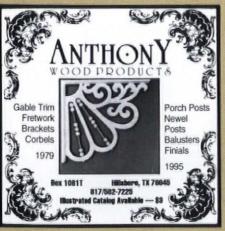


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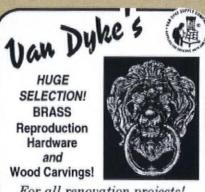




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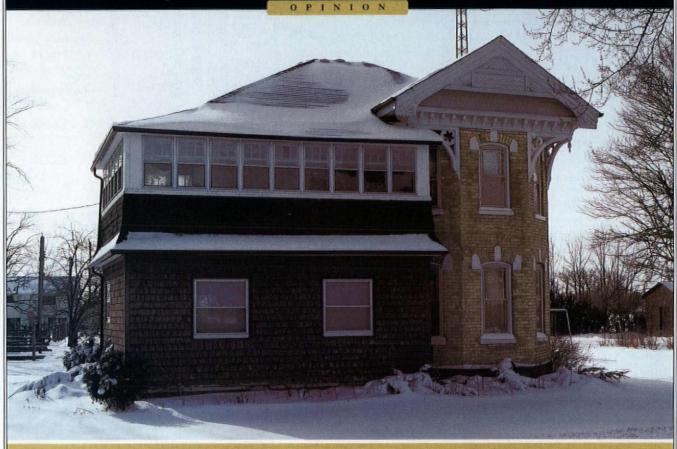
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Class Clown

LL RIGHT CLASS, CLOSE YOUR TEXTBOOKS AND PUT AWAY YOUR NOTES. IT'S TIME FOR A POP QUIZ. When is a Victorian house not a Victorian house? Answer: When it's a remuddling. If your major is misguided expansions, this Queen Anne (above) in Sheddon, Ontario should be required reading. Unfortunately, the tragic text has some common themes. Any school kid can see that the

red-shingled walls on the left don't match the ochre brick of the principal house on the right. Study the windows - they have different geometry too. Perhaps it's a bit academic, but isn't someone absent from class? Who excused the front door? Shouldn't there be a porch present too?

By comparison, the similar house across the street (right) gets good marks for preserved details. An ornate spindlework porch that wraps around two sides appears to have a tenured position. The

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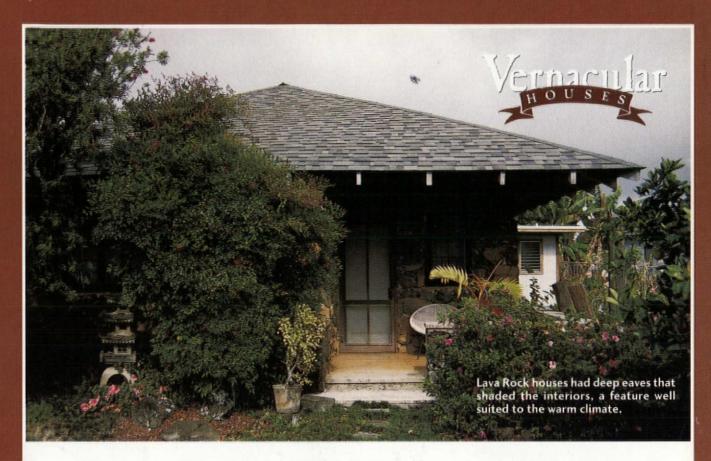
original windows and massing are also on this Dean's list. What happened to the other house? Maybe the designer was at recess. Or, maybe the dog ate the plans.



Here's your homework. Look at this fancy porch (above), and then see if the doubledecker wing (top) isn't a substitute. Thanks to teacher's pet Brian Bea of Rexdale, Ontario.

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The lava rock walls of the 1930 Head Bookkeeper's house were a product of Kauai's volcanic environment.

were mortared into place against the wooden form, which was removed when the wall was finished. The irregular shapes and sizes of the lava rocks gave the 17" thick exterior walls a naturalistic appearance. Inside, the walls and partitions were coated with concrete and colored with an acid stain (usually white) for a uniform appearance.

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plantation Lava Rock houses still exist. These solidly built stone houses have survived the demise of the sugar industry as well as two of the most destructive hurricanes to hit the islands in recorded history.

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