REPLACING WINDOWS
A buyer's guide
MODERN STYLES,
PERIOD DESIGN,
DECORATIVE GLASS

A 1925
Mediterranean Revival

SPECIAL SECTION (PAGE 59):
The American House—
STEEL HOUSES

A family in Newcastle, Maine heads home in the snow past a row of houses with clapboards painted white: classic American vernacular.

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ON THE COVER: A snowy scene in Newcastle, Maine, a quintessential New England village. The white clapboarded house in the background is a typical example of the Greek Revival style. In the 1830s and 1840s, it was the favored architectural style for a young nation founded on the Democratic ideal. Photo by Brian Vanden Brink

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Steel Houses
BY GORDON BOCK
During the depths of the Depression, the "ferrous alternative" looked like one path to affordable housing. Ultimately, the all-steel house lost out to traditional tastes in materials and construction.
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Circle no. 286
A Preference for Reference

Every so often we get a letter here at OHJ that asks “Is there a book I can buy that describes the names for every part of an old house?” The short answer is no; there is no such book. However, there are many good books that will help, depending upon your interests.

I spend a lot of my time sorting out the definitions, appellations, and explanations that abound in the world of historic buildings, and at least five architectural dictionaries line my desk at any one time. For anyone bitten by the reference bug, here are some noteworthy picks to add to your personal library.

If your wallet permits only one book at a time, begin with Dictionary of Architecture & Construction (McGraw-Hill, Inc.). Edited by Cyril M. Harris, Professor Emeritus of Architecture at Columbia University, this classic volume is informative without being academic, comprehensive yet concise. Though not written exclusively for historic buildings, it will nonetheless set you straight on the difference between muntin and mullion.

Should your architectural interests run strong for the Southlands, you won’t want to be without An Illustrated Glossary of Early Southern Architecture & Landscape (Oxford University Press). Carl R. Lounsbury of The Colonial Williamsburg Foundation has edited a unique dictionary that explores building language and practices in terms of the pre-1820 South, some of the oldest and richest architectural turf in the continent. Where else would you look up the meaning of Virginia house?

Anyone with a soft spot for hand-tools and trades—the arcane the better—will want to place their order for Dictionary of Tools by R.A. Salaman. A British book (now published by Astrapal Press), it runs down all the traditional woodworkers’ implements, from adze to Yankee screwdriver, but from a continental perspective.

A fitting place to end this brief survey may be the Biographical Dictionary of American Architects (Deceased). Despite the cadaverous title, this is a landmark 1957 work (reprinted in 1970 by Hennessey & Ingalls; www.henneseyingalls.com). Authors Henry F. and Elsie R. Withey were the first to collect profiles of the great and small in the architectural profession between two covers. Still, you have to bear the context of this book in mind as you read. You won’t find a listing for Frank Lloyd Wright because he was very much alive in 1957. What you may find though are tidbits of background on the able but now forgotten architects who designed many old houses across the country.
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POSTWAR POST SCRIPT

Despite initial shock over your article on suburban houses (for a moment I thought you'd raided my family album for that picture of two little girls in a wading pool!), I found it entertaining and provocative. ["From Dark Times to Dream Houses," Sept./Oct. 1999, pp. 58–63] These are the house types that define the American landscape: the boxy, symmetrical houses with shingles and shutters, the Dutch Colonials, the adorable cookie-cutter English Cottages. It occurs to me that I've seen these houses in New Jersey and Maine, in Illinois and Oregon. By contrast, the Feds and even Victorians seem not only antique but also regional.

I couldn't help noting the class distinction between houses built by modern architects—Fallingwater [by Frank Lloyd Wright], the Gropius House—and the middle-class developments. I could find some charm in the Tudors and Colonials. That period photograph of Levittown, however, was scary and surreal, something out of an episode of Twilight Zone or The Outer Limits. The barren sameness was crushing; no wonder subsequent owners have personalized their homes with color and additions.

—Teresa Rutigliano
Bergenfield, N.J.

RESTORING FLOORING 101

Regarding "A Buyer's Guide to Wood Flooring," August '99: We're in the business of dismantling, antique houses that are beyond saving except for materials. Over several years we have salvaged maple flooring circa 1920s, oak 50-75 years old, quartersawn and facesawn longleaf pine of various ages, and 2x6 longleaf pine tongue-and-groove (great for exposed loft floors).

Properly removed, salvaged flooring poses no significant installation or refinishing problems for the experienced installer, pro or amateur.

There are several points to consider when buying salvaged flooring: • A varnish-type finish is no more problem to refinish than no finish at all. However, painted flooring should be approached with caution unless you intend to paint your floor. In that case, loose paint can be removed with a power washer before installation. Never, never sand painted flooring without proper lead-abatement procedures. • With tongue-and-groove flooring, check the lower lip of the groove side. This is where most breakage occurs. It should be at least 90% intact. • You need enough wear layer left for 2 to 3 sandings. Many salvaged floors were not sanded at the initial installation, but decades of foot traffic can take its toll. • Regarding surface condition, deep pits and nail holes will not sand out, but they do contribute considerable charm. Does the flooring match what's in your house now? Does it give you the look you want? • Generally, salvaged flooring sells for 25%-50% of the cost of new milled or remilled flooring.

—Bob Gillispie, Jeri Sterling
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PRETTY IN PENSACOLA

I was enjoying your magazine and the article on Pensacola [August '99, Historic Places, page 87.] When I reached page 90 I was delighted and flattered to see my house in the East Hill neighborhood mentioned. The National Register of Historic Places refers to it as the King-Hooten House.

I'm so glad Mr. Dumville in Vermont rescued that wonderful house ["A Village
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STEP BY STEP
WE'RE SENDING THESE before and after pictures to encourage those who have a desire to restore an older house and let them know even a novice can do it.

We purchased our 1896 Cottage Victorian seven years ago, and used the saying “inch by inch, anything’s a cinch!”. We took our time and enjoyed seeing our home return to its restored condition.

—RALPH & NANCY CORL
Linden, Calif.

Your optimism is welcome encouragement! Nobody likes living on a job site. Going slow almost always results in a sensitive rehab that suits the owners. — ED.

IT'S A BARNYARD OUT THERE
I ENJOYED GORDON BOCK'S editorial on amusing architectural monikers ["A House by Any Other Name," May/June '99]. As the owner of a two-room Shotgun which I cambered to accommodate a growing family, I particularly appreciated his recognition of New Orleans's vernacular styles. I was also reminded of my favorite animal appellation: the dog-trot house. This rural antebellum house plan consists of one or more adjoining rooms on either side of a wide central hallway, which is open at either end to let cool breezes—and presumably the family dog—pass through. I


—JEANNE B. RAWLINSON
Pensacola, Fla.
once spent several days at a beautifully restored dog-trot somewhere in northern Louisiana. The only variation from the original form was the screen-enclosed rear portion of the breezeway, which made for a delightful dining area. I'd be interested in seeing an article on such rural Southern architecture.

Hackett Cummins Construction Co.
New Orleans, La.

How did we miss the dog-trot? Must have been too easy . . . like shooting fish in a barrel. —ED.

DUTCH TREAT

We were immediately entranced by “The Porch is Back” [May/June '99]. We bought an 1897 Dutch Colonial in 1994 with a deck instead of a front porch. Luckily we obtained the original blueprints of the house as well as an older picture of the house at the time of purchase.

The house was owned by the original family through the '60s. It was then sold and turned into a second-hand store called the “Switching Post,” with all types of goods from clothing to hardware on all levels of the house. It was again sold in the early '90s and the owners did interior renovation including jacking the house so that the first floor was level.

We have continued renovation and restored the exterior to its original condition (left). This included removing aluminum siding and reconstructing the gable ends before installing redwood siding and cedar shingles on the gables. We also restored the front porch (including obtaining a variance to set it on the original foundation, as the setback was one foot short).

We really enjoy your magazine and find it a treasure in the restoration of our house.

—Steve Fossum, Jim Anderson
The Marshall House
Minneapolis, Minn.
A House Untouched by Mary Ellen Polson

Walk into the living room of Warren Bittner’s 1925 Mediterranean Revival home in Miami Shores, Florida, and you’ll expect the original owner, Ellen Spears Harris, to come gliding in from the porch loggia. When Bittner shows a visitor a picture of Harris with her son Emrys (pronounced "em-ers") and her sister Pratt before the fireplace, dressed for a gala evening out, it’s clear that nothing in the room has changed.

“They’re standing on the same English mohair rug that we’re standing on,” says Bittner, an attorney for the City of Miami. “Here are the candelabra on either side of them. That’s the mantel, and the mirror above it, and the two sconces—everything just like you see in this picture.”

If the living room were the only intact room in the house, that would be impressive enough. But this is a house where the bathrooms, the kitchen, the pantry, and even the bedroom furniture are just as they were decades ago. Harris family portraits hang in the upstairs hall, and the paperwork for every last piece of furniture is squirreled away in the (original) dining room sideboard. “I’ve got Emrys’ dog tags, his ribbons, his eyeglasses—they didn’t throw anything away,” Bittner says, a touch of amazement in his voice. “They didn’t throw away a canceled check.”
"They're standing on the same rug we're standing on. That's the mantel, and the mirror above it, and the two sconces—everything just like you see in this picture." —Warren Bittner, Homeowner
Although Bittner already owned a similar Mediterranean Revival house in the neighborhood, he didn’t hesitate when the Spears Harris house became available about a year ago. An ardent preservationist who is chairman of the local historic preservation board, Bittner knew he’d never have such an opportunity again. “I’ve had my eye on this house ever since I moved here,” he says. “This is my dream house.”

With only minor differences, the layout of the house is just as it was in the late ‘20s, including the three porches, or loggias, the porte cochere, and the detached rear servants’ quarters. Many unusual details are well preserved, including drapery hardware and lighting fixtures, the faint colors on the abacus-like beads of the spindlework, and the painted designs on the pecky-cypress ceiling beams.

Bittner is especially thankful that no one fiddled with the cypress casement windows. The ones on his previous house had been replaced with jalousies, which completely altered the look of the house. As one of the most visible steps in a 10-year restoration, he tore the jalousies out and replaced them with cypress windows with copper screens.

Like many restorers, Bittner hadn’t gotten around to replacing the dark, boxy 1970s kitchen in his old house until he was ready to move. Seizing an irresistible opportunity, he copied the kitchen cabinetry profiles in the Spears Harris kitchen and had a fabricator and finisher build and install them in the other house, including an exact copy of the distinctive butterfly-cut doors under the sink. The two pantries are almost identical.

Considering how much Bittner relishes...
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Even the wicker furniture on the front loggia belonged to the Harris family. Bittner brought the parrot, Baby, with him when he moved in.

restoration, it’s almost a shame that the Spears Harris house is in such good condition. The biggest job will be the restoration of the Cuban barrel-tile roof, lost to Hurricane Andrew in 1992. Ironically, when Bittner replaced the roof on his previous house—also damaged in the storm—many of the 18th-century Cuban tiles were salvaged from the Spears Harris house.

An activist as well as a preservationist, Bittner successfully lobbied for an amendment to the South Florida Building Code that made it possible for any Dade County homeowner to re-use salvaged Cuban tile. There’s no comparison, Bittner says, between modern, handmade clay tiles and the old originals, imported from Cuba during the 1920s. Shaped over the thighs of artisan-laborers, the tiles were originally made in Spain and shipped to Cuba in colonial times.

“These were all made two or three hundred years ago, and they’re all personalized,” says Bittner, pointing out some examples. One tile is scored with three grooves, as though the artist dragged his fingers across it; another is marked with a double S; yet another is dimpled with three fingertip holes. “Look at how odd the shapes are,” he says. “They’re not little soldiers. Each tile is different and distinct, and a different shape.”

Even though he’s on vacation, Bittner is hard at work on the servants’ quarters behind the Spears Harris house; he plans to clean all the mortar residue off the salvaged 3” x 6” bathroom tile and re-install it. The original sink and toilet will go back in, too. He acknowledges that most people wouldn’t go that far, “but my restorations are very particular,” he says.

At the end of a long day, Bittner takes a break in the living room sitting area, which still seems fresh with the presence of Ellen and Pratt and Emrys. As a visitor flips through a 1937 copy of Reader’s Digest, Bittner mentions that the magazines, too, belonged to the Harrises. Then he breaks into a grin. “I’m so glad they left them,” he says.
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Supermarket Showdown in the Old Town
by Virginia McAlester

WHAT HAPPENS WHEN a national retailer with plenty of clout decides to locate a suburban-style “big box” store in the midst of a historic residential neighborhood in the heart of a city? At the very least, consternation and controversy, judging from what ensued when Albertson’s, one of the largest retail grocery chains in the country, proposed building acre-and-a-half megastores in or next to historic districts in both New Orleans and Dallas.

While there’s no question that urban residents throughout the country need such merchants as drugstores and supermarkets, the suburban model—with its warehouse-like stores and acres of parking—is typically out of scale with most historic inner-city neighborhoods. In recent years, such humongous entities haven’t posed much of a threat to the fine older neighborhoods painstakingly restored by old-house lovers. Thanks to rising demographics, however, these newly affluent areas now attract the large, mass-market retailers once only seen in the suburbs. Albertson’s is only one example, and New Orleans and Dallas the most recent battlegrounds.

When Albertson’s announced plans for a 66,000-square-foot store in New Orleans’ Central City National Register Historic District in May 1998, the news sent shock waves through the nearby Garden District and Lower Garden District neighborhoods. Albertson’s proposal for the Felicity Street market called for demolishing 10 historic buildings and closing a portion of historic Polymnia Street. The store and 219-car parking lot would be just a block from St. Charles Avenue, with its [continued on page 22]

Modernizing an old house
from The Home Builder’s Handbook, by Kenneth Duncan (1948)

HERE IS A GROUP OF STRANGE PEOPLE, to which the author frankly admits belonging, that loves old houses. The older they are, the better. Such people are never so happy as when planning or actually engaged in the process of restoring, remodeling, and modernizing some old ruin.

It probably represents a mild form of insanity, for the cost, time, and labor involved is sometimes inconsistent with the results achieved. It appeals strongly, however, to the gambling spirit, for when one digs beneath the surface anywhere in an old house some hidden charm may be disclosed to reward, or some unexpected and wholly unanticipated structural fault leap forth to dismay. As a habit, the pursuit is recommended more as an avocation than a vocation.

The extreme fans can’t be interested in a house less than 150 years old and for them, the further back into the murky past go its foundations and ancient timbers, the happier the restorer. For this small group [continued on page 24]
When Albertson’s announced plans for a 66,000-square-foot store in New Orleans’ Central City National Register Historic District, the news sent shock waves through the nearby Garden District and Lower Garden District neighborhoods.

[SUPERMARKET SHOWDOWN continued from page 21]
famed National Historic Landmark trolley, the oldest operating line in the United States.

In Dallas, neighborhood residents first learned of Albertson’s plan to build a 24-hour megastore half a block from the Swiss Avenue Historic District in September 1998, just 10 days before the issue was to go before the city’s planning commission. (In an oversight, the city had failed to send advance notice of the zoning change request to residents and preservation groups.) By this time, the city planning department had already recommended the project.

Luckily, a delay in the review process gave residents and preservationists time to build support among diverse constituencies that included preservation and homeowners’ associations, Asian-American groups, and community organizations serving minorities. With all of these various entities united in opposition, the Dallas Plan Commission voted unanimously against the project in January 1999.

The supermarket giant immediately appealed to the Dallas City Council, where, as in New Orleans, Albertson’s had the unflagging support of the district’s council member. Again, a technicality came to the aid of the opposition. Velletta Forsythe Lill, a council member whose district was just across the street from the proposed site, managed to persuade many council members that the megastore would have a direct—and negative—impact on her constituents. Just days before the scheduled April 1999 hearing date and facing defeat, Albertson’s withdrew its request to build the Dallas store.

Meanwhile in New Orleans, the controversy dragged on for months. The grocery retailer offered design modifications to minimize the scale of the store’s appearance, but declined to decrease either the building’s acre-plus size, or number of parking spaces.

Initially, preservation groups were united in opposition to the plan. Shortly before the September 1999 hearing that would decide the project’s fate, the Albertson’s team persuaded the Preservation Resource Center, the largest preser-
vation group in the city, to drop its opposition to the proposal. In exchange, Albertson's agreed to match the group's fundraising efforts to relocate historic structures with up to $150,000.

The Preservation Resource Center's last-minute reversal played a key role in the New Orleans City Council's unanimous vote in favor of the project. After the loss, William E. Borah, an attorney and activist who represents several of the opposition groups, said he feared allowing suburban-style development in the city's historic core would set a precedent, acting as a catalyst to draw more big-box retailers to the area. "The suburban Godzilla has come to St. Charles Avenue," he says, "and the consequences could be disastrous for this old city."

A gigantic suburban-model store, mindlessly imported into older, smaller-scale urban fabric, is too high a price to pay for new retail development. Other grocery chains are proving that smaller, sensitively designed stores can still be profitable—and these we should welcome in our midst.

**Virginia McAlester** is co-author (with Lee McAlester) of A Field Guide to America's Historic Neighborhoods and Museum Houses. She lives in the Swiss Avenue Historic District in Dallas.
[Modernizing continued from page 21] The aim is to restore to the old home its original charm, frequently obliterated, marred, or concealed by more recent inhabitants. They delight in bringing out the hidden beauty of old random-width pine or chestnut floorboards that most housewives would abominate because the wide cracks gather dirt. They expose the hand-hewn beams, the paint-smeared wrought-iron hardware, and the thrill of a lifetime strikes, as it did the author and his wife, when an investigation of a strange-shaped protuberance, in what was to become the master bedroom, turned out to be a stone-up fireplace. In such restorations the modernization is kept as unobtrusive as possible and confined to such essentials as plumbing, electricity, and heat. The owner of one of the oldest and most beautiful Wallkill Valley farmhouses, built by an original Dutch settler, felt so strongly about restoration being kept “in period” that he refused to install electricity, much to the disgust of other members of the family. To the author, cracked as many of his friends consider him, this seems a little extreme. If an old house is to be lived in, not turned into a museum, period should at least compromise with comfort and convenience.

Who they were...what they did

No one perfected walls that go up faster than plaster until Augustine Sackett patented the first gypsum board in 1894. By sandwiching five thin layers of gypsum (a lightweight, non-combustible rock) between six sheets of felt paper, Inventor Sackett produced a 36” square wallboard that demanded neither supporting lath nor curving time. Sackett continued to improve his Plaster Board until 1909, when it was acquired by the U.S. Gypsum Company, producer of Sheetrock.

Modern fiberboard sprang from the brain of Bror Dahlberg, who emigrated to the U.S. from Sweden at the age of 10. Dahlberg had worked his way up from $2-a-day-odd jobs to furniture and paper manufacturing when he hit on a better raw material for roof insulation. In the 1920s he took bagasse (a fibrous waste product left after crushing sugar cane) and formed it into strong, lightweight boards called Celotex, launching a multi-million-dollar industry.
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Circle no. 317
Aglow in the Dark by Mary Ellen Polson

Is that the moon, or a mica lantern glowing like a piece of gold in the trees? Are those fireflies flickering against a low grassy border, or are they luminaria? Under cover of darkness, outdoor lighting creates its own magical atmosphere. Thoughtfully considered and placed, it can complement or even extend the mood and style of an old house.

Claude Bragdon, an early-20th-century writer, was certainly impressed by the spectacle of thousands of Japanese lanterns hung for a choral performance at a city park in Rochester, New York. "The effect was unexpectedly, almost inexplicably beautiful," he wrote in a 1917 issue of House Beautiful. "But the most remarkable feature was the psychological effect of the lighting on the people."

Americans have long thought of outdoor lamps and lanterns as useful, but not until the late 19th century did they embrace the notion that exterior lighting could be beautiful. Influenced by Japanese lighting forms, homeowners began to introduce lighting for pleasure and effect as well as utility in the lawn and garden.

Lamps and lanterns moved indoors and out with equal ease centuries before the invention of the electric light, so it's not surprising that many early outdoor fixtures took the shape of these ancient vessels. Often, lights were keyed to the design of the house: brass or bronze with mica glass for an Arts & Crafts bungalow, for example, or wrought iron with salt-glazed glass for a Colonial or Tudor Revival lantern. Other forms copied the look of garden and street ornamentation, such as dovecotes, statuary, posts, and bollards.

Of necessity, the placement of fixed outdoor lights would have been sparing, and the light cast discreet. Non-electric paper lanterns and candle-lit luminaria were a festive means of lighting outdoor parties and dances; freestanding lanterns were lit with internal wicks.

These days, you can have a little of everything, from fixtures in period-sensitive styles to long-burning oil lamps—plus low-voltage lighting systems that place small amounts of light just where it's needed. Here are some sugges-

"The entire valley was outlined by thousands of Japanese lanterns suspended from every available bush and tree. The effect was unexpectedly, almost inexplicably beautiful."

—Claude Bragdon (1917)
Clockwise from top: An antique Cotswald cottage-style exterior light, suitable for a Revival-style residence; low, post-mounted Arts & Crafts accent lights; a ca. 1915 wrought-iron porch ceiling fixture at the 1915 home of Roycroft Alexis Jean Fournier; a colonial-style lantern mounted on a post.

Sections for effective outdoor lighting around an old house:

- Use exterior display lights. Mounted on a post or pier, or hanging from a porch wall or ceiling, they extend the impact of your home's period and architectural style.
- Be subtle. Lighting in the garden should be as unobtrusive as possible—either concealed behind shrubbery or as an integral part of the landscape. Lights can shine up to silhouette trees or down to illuminate a porch or walkway.
- Use light sources as garden focal points. The classic example is the Japanese stone lantern, traditionally used in 15th- and 16th-century gardens to light a turn in a path or the entryway to a tea house.
- Simulate moonlight or filtered sunlight by placing accent lighting in trees or shrubs. Concealed lighting can be as utilitarian and contemporary as you like.
- Choose fixtures that throw the minimum amount of light needed. Use an energy-efficient low-voltage (12-volt) system, which is safer to use and more easily installed than a standard 120-volt system.
- Hide fixtures among plants along a walkway. Even though this technique essentially serves as path lighting, the foliage gives it an interesting texture.
- Don't be a slave to electricity. Several manufacturers make free-standing fixtures in period styles that burn candles or oil. Inexpensive and easy to place, these lights will supplement hard-wired reproduction fixtures and lighting systems.

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GET TUBULAR If you thought tube lights for the bathroom vanity mirror went the way of the vacuum tube, here's a stylish substitute. Alinea and Delta luminaires offer the look of Art Deco or Moderne-style linear fluorescents without the old-fashioned flicker. Plated in nickel, brass, or chrome, they're available in lengths from 2' to 4'. Prices begin at $220. Contact AAMSCO Lighting Inc., (800) 221-9092, www.AAMSCO.com. Circle 5 on the resource card.

RICE COUNTRY
The swirling body, pineapple finials, and ball-and-claw feet mark these solid-brass andirons as something special. An adaptation of a Historic Charleston design, the sand-cast, hand-finished Rice Andirons measure 13" high x 15" deep, including the cast-iron dogs. A pair retails for $199.50. Contact Virginia Metalcrafters, (540) 949-9400. Circle 6 on the resource card.

RECLINER REVIVAL New the recliner has gone nostalgic. La-Z-Boy is re-issuing a limited-edition version of its original recliner, based on a 1928 deck-chair design. Made of solid beech with brass-plated hardware, the chair is available at La-Z-Boy Furniture Galleries stores and other La-Z-Boy dealers for about $399. Contact La-Z-Boy, (800) 625-3246. Circle 7 on the resource card.
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Finishing is just the beginning.
Tuck in Your Steam Pipes  by Dan Holohan

When you take an old house under your wing you may also take possession of a steam heating system and the old asbestos pipe insulation that goes with it. Some old-house owners choose to contain these asbestos “blankets” by carefully wrapping them in plastic. But let’s suppose someone already removed the old insulation from your steam pipes. Are you going to replace it?

You should if you don’t want to wind up with an undersized boiler. With an undersized boiler, the rooms in your home will heat unevenly. Some will never get warm enough; others will be too hot. If your thermostat is in a room that has a cold radiator, your fuel bills will probably also increase because your burner will run longer than necessary. You’re also liable to get water hammer noise, especially if the asbestos abatement folks didn’t do a good job of reattaching your pipe hangers. Sags in the pipes cause water to form puddles, and puddles cause problems in steam heating systems.

STEAM PIPE PHYSICS Steam, you see, is a hot gas that desperately wants to give up its latent heat energy (an amazing 970 BTUs per pound!) and turn back into water. The steam will give up that tremendous amount of energy to anything that is colder than itself. When steam leaves your boiler it’s roughly 215 degrees F. That’s hotter than just about everything else in your old house, right? So when the steam hits a cold pipe, it will quickly make that pipe hot by condensing on it and releasing its latent heat energy.

As soon as the steam condenses it stops moving because, at that point, it’s no longer steam. The colder the pipes in your home, the faster the steam will condense on them. That’s why the builders of your old house covered your steam pipes with an asbestos “blanket.” Like a thermos bottle, insulation keeps the steam hot; it prevents it from condensing too soon. Those long-gone installers wanted that steam to stay hot so that it would travel farther—particularly to your upstairs bedrooms. You don’t need your basement to be 90 degrees, do you?

Insulation makes a huge difference when it comes to steam mains. Suppose you have a 2-1/2” steel main that runs around your basement. Let’s say it’s 50’ long. Okay, the original installer covered that main with a 1” thick layer of asbestos insulation years before you were born. That was pretty standard practice. When the air in your basement is 70 degrees, the heat loss of that insulated main is going to be about 2,450 BTUs per hour. Naturally, if the air in your basement is even colder, the heat loss from the main will be greater.

Now, take the insulation off that pipe and the heat loss of the pipe jumps to an incredible 13,250 BTUs per hour—more than five times the prior heat loss! If your basement is colder

It’s simple to keep your steam pipes hot with lengths of manufactured insulation that seal with an adhesive strip, or just batts of wall insulation bound with tape.

Those insulation blankets suspended from your basement ceiling are as much a part of your heating system as the boiler. Here’s why you need to keep your pipes under wraps.
Always remember that when you remove—and don’t replace—any type of pipe covering those pipes become radiators. They’ll quickly turn steam into water because they’re in full contact with the relatively cold air in the room.

(or if that main runs through a cold crawl space), the heat loss will be even more extreme. That’s why your basement is a cozy 90 degrees, even though you’re freezing in your bedroom.

As I said, the load that uninsulated pipes add to the system can effectively undersize your boiler. When heating contractors size replacement steam boilers, they have to make sure the boiler’s ability to produce steam matches the system’s ability to condense steam. It’s like having an evaporator and a condenser in an air conditioning system. In this case, the boiler becomes the evaporator, and the system becomes the condenser. If the “condenser” (the system) is bigger than the “evaporator” (the boiler) the boiler can run for a long, long time before it shuts off because it will never develop any pressure. This will be most apparent during the spring and the fall because the boiler has to overcome the heat loss of the bare pipe every time it starts. During the winter months, when the boiler runs for a longer time, the pipes won’t have the same opportunity to cool off, so the problem won’t be as noticeable. Spring and fall, though, will drive you nuts.

**LOSS OF PICK-UP** The heat loss of the piping is what steam boiler manufacturers call the “pick-up” factor. When they rate their steam boilers they allow for a piping “pick-up” load that’s equal to 1/3 of the system’s total radiation load. In other words, they measure how much radiation you have in your home, and then they add 1/3 more boiler capacity to allow for the heat loss of the pipes that connect your boiler to your radiators.

They base this 1/3 “pick-up” factor on insulated mains because steam mains are supposed to be insulated. When the insulation’s gone, the “pick-up” factor the boiler manufacturer built into the sizing chart will suddenly be too small. That’s how the same boiler that’s been sitting in your basement for years suddenly becomes undersized, and your rooms cold.

So insulate all the steam pipes you can see in your home. Tuck ’em in and keep ’em warm. Most plumbing suppliers and good hardware stores sell retrofit pipe insulation products that are non-asbestos and easy to install.

The insulation doesn’t have to be fancy to work either. You can use something as simple as batt insulation and duct tape if the aesthetics aren’t important. (Who cares what it looks like in that crawl space?) Install the fiberglass insulation so it’s one layer thick, leaving the paper or foil as the outer covering. Your goal should be to give steam the best possible chance to get to where you are. Here’s to a cozier you!}

*Dan Holohan is the author of The Lost Art of Steam Heating (order at 516-942-7271 or www.danholohan.com).*
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“Sills may be the lowliest parts of a wood-frame house, but like the keel of a boat, they form the all-important base that supports every other structural member.”
—page 54

November/December 1999

“While it’s almost always better to repair rather than replace original windows, some old-house owners don’t have that option. If you’re in the market for new windows because yours are missing, too far gone to repair, or because you’re adding on to an old house, you’ll be pleased to discover the host of period-friendly choices in wood windows. These days, manufacturers offer literally hundreds of shapes and sizes built to order.”
—page 40

“For a short but dazzling period between 1880 and 1920, beveled, etched, brilliant-cut, and figured glass was standard on residential door and window panels. The results can put diamonds to shame.”
—page 46
Terry Krekorian and Andrea Garai faced the kind of dilemma every restorer dreads. All 55 windows in their 1932 Spanish Colonial Revival house were rotten beyond repair. The more the Los Angeles couple searched for a solution, the more obvious it became that they needed to match the old windows as closely as possible.

"If you change the size of the windows, move them, or even remove the original muntins—like lots of people do when they remodel—the whole look of the house changes," Krekorian says. "We decided we didn't want that."

Ultimately, Krekorian and Garai hired a local windowmaker to custom-build new windows patterned after the originals. While it's almost always better to repair rather than replace original windows, some old-house owners don't have that option (see "Help for Old Windows," p. 45). If you're in the market for new windows because yours are missing, too far gone to repair, or because you're adding on to an old house, you'll be pleased to discover the host of period-friendly choices in wood windows.

In most cases, these won't be standard, off-the-shelf units; they're more likely to be semi-custom. These days, quality wood-window manufacturers offer literally hundreds of window shapes and sizes that are built to order. It may come as a pleasant surprise that buying a window custom-made to fit won't cost much more than a standard window in the next largest size. Unlike a stock window, yours will come with an almost bewildering array of options, from low-e coated glass to true divided lights.

For purposes of this article, we'll assume you're shopping for double- or single-hung sash windows or casement windows, with one or more lights (panes) per sash. A double-hung window has two sashes that move up and
If the windows on your 1920s-era house are of the plain vanilla variety, chances are there’s a manufacturer making something similar today. In terms of both size, proportion, and muntin detailing, the wood windows above (from Andersen) closely match stock windows (shown in black and white) offered in a 1917 builder’s catalog. As the 20th century unfolded, window units became increasingly standardized. Even so, windows that appear to be identical may not be the same on the outside, where they were likely sized to fit into a rough opening. For that reason, measure carefully inside and out before you order.
A true divided light is a window sash composed of individual panes of glass, held in a frame of wood muntins.

To simulate the appearance of true divided lights, manufacturers put a shadow or spacer bar between double glazing, then apply mock muntins on both sides of the glass.

A Light Divided  Not long ago, old-house owners didn’t have much choice when it came to replacement windows. If you wanted the traditional look of a multi-pane sash with moulded wood muntins, you could either buy a window with a snap-in grille that simulated the look, or pay for a custom window with true divided lights.

Now there are better alternatives. Most window manufacturers offer at least three options; the cheapest is still the snap-in, removable grille, designed to fit a sash with a single large pane of glass. A second option is what’s called a simulated divided light, which consist of muntins that are permanently attached to the interior and exterior panes with a durable adhesive—a compromise solution for homeowners who want dual-paned windows or low-e glazing. Some companies, such as Marvin, offer simulated divided lights with a spacer or shadow bar. The spacer removes the reflection that can make the simulated divided lights look fake, and makes it very difficult for all but the sharpest eyes to tell the difference. Pozzi Wood Window’s version features interior wood muntins, an internal shadow bar, and external muntins made of solid aluminum.

For true divided lights, look for a manufacturer that makes all-wood windows. Cedar Windows by Bergerson, for example, custom-manufacturers windows in rot-resistant cedar.

“The wood goes all the way through and separates the window panes,” says Charles Bergerson, the company’s owner.

“That’s what true divided light means.”
down, one behind the other. *Single-hung* windows operate similar to double-hung units except that there is only one sash. Many modern double- and single-hung windows offer sashes that tilt in, making it easy to clean both sides of the window from inside the house—a real convenience over fixed sashes. *Casement windows* are hinged on one side and open and close like a door. Look for multi-point locking, especially on tall ones; otherwise they won’t close tightly.

New windows work best in old houses when they take their cues from the originals. If you’re shopping for replacement windows, try to match the look and characteristics of the existing windows as closely as possible, particularly if your house represents a particular style or era. Otherwise, you risk altering the architectural appearance. If the originals are long gone, a historically sensitive choice can dramatically improve the house’s appearance. If the windows are *for a new room or an addition*, choosing a slightly different window can make a visual distinction between the old and new—a technique recommended by the National Park Service, which administers the National Register of Historic Places. Here are some guidelines to help you get a close match in either case.

**SIZE AND PROPORTION** Obviously, you want to buy windows of the same size and proportion as the old, but this isn’t as easy to do as it sounds. Of the two, proportion is more important than exact size. In other words, if the window is 2-1/2’ x 5’, it’s more important that the new window match the *ratio* of width to length than the exact measurements.

When you measure, check for overall width and length, including the width and length of stiles and rails; panes of glass, especially, should be similarly proportioned. If the overall dimensions are the same, but the stiles and rails are different (making the panes fatter or skinnier than the originals), the window may not be a good match.

**SASHES AND LIGHTS** If you’re replacing windows, the new windows should have the same pattern (number of sashes and panes) as the old. Both should closely match the proportions of

Specialty windows have been the jewel points of houses since the 18th century. As the custom-made wheel window at top demonstrates, it’s still possible to get specialty designs today. Above: Colonial Revival-style specialty windows at the turn of the century include wheel, lunette, and cameo patterns.
The Efficient Window

New windows may not have the charm or character of vintage originals, but they do offer energy-saving advantages. Here’s a primer on the lingo.

**R-VALUES AND U-FACTORS** Windows are rated by either R-value, a measure of resistance to heat flow, or by U-factor, which is the ability to transfer heat. The higher the R-value, the more energy-efficient the window. U-factors are the reverse; the lower the number, the better the window. A well-sealed, insulated glazed window has a whole-unit R-value of 2.5. The U-factor will be 0.4. From a thermal point of view, wood-framed windows have a U-factor in the range of 0.3 to 0.5 and high R-values. They’re not affected by temperature extremes, nor do they promote condensation. These standards, set by the National Fenestration Rating Council (NFRC), will appear on the energy label on the window. Custom windows may lack an energy label; if so, ask the manufacturer to rate the window according to NFRC standards.

**GLAZING** The best way to reduce heat loss is by adding layers of glass. As more panes are added, the R-value increases. Two layers, or double-glazing, cuts heat loss almost in half. Triple-glazing cuts heat loss by two-thirds, but it also reduces light transmission by 10%.

**SEALING** The seals around the window frame should be tight or you’ll get an energy-sapping draft. Look for units with a rating no higher than 0.2 cfm/ft (cubic feet of air leakage per minute per foot of window edge).

**INERT GAS** The insulating value of a double-glazed window can be improved about 20% by sealing low-conductivity argon or krypton gas between the panes—without reducing light transmission. These inert gases occur naturally in the atmosphere and are harmless if the window breaks. Krypton is more expensive and insulates better than argon. Its use allows the window assembly to be thinner.

**LOW-E COATINGS** Another technique for increasing energy efficiency is coating the glass. Windows equipped with low-emissivity (low-e) coatings conduct visible light, but limit energy exchange. That means heat has a much harder time escaping on cold days and entering on hot ones. Low-e coatings also screen out ultraviolet rays, which fade fabrics. Some manufacturers make windows “tuned” to hot or cold climates. The basic difference is that hot-climate windows block more solar radiation to reduce cooling costs while cold-climate windows admit more solar radiation to lower heating bills.

**SOLAR HEAT GAIN COEFFICIENT** The solar heat gain coefficient indicates how effectively the window holds or rejects solar heat. This number appears on the NFRC label and ranges from 0.2 to 0.5. If you live in a warmer climate, seek a lower number; in the colder states, choose a higher number.

**SUPPLIERS**


the old windows. If the new windows are for an addition, the windows should be similar and complementary, but need not be identical. For example, around 1910 it was common practice to use 1-over-1 or 2-over-1 sash windows on an addition where the main house had 2-over-2 sash. While muntins need not be true divided lights (see “A Light Divided,” p. 42), they should be a close match to the old in terms of width and moulding profile.

**Fenestration** Particularly on the front façade, replacement windows should have the same placement as the originals; otherwise, you risk changing the fenestration (arrangement and design of the windows) on the house. If you’re going to fiddle with window placement, try to base it on a historic example you’ve seen on a house very much like your own. Since altering key architectural elements in a façade is tricky business, you may want to consult an architect to get the proportions right.

**Materials** As a general rule of thumb, if the originals are wood, the replacements should also be wood, even if they’ll be painted. Many manufacturers these days offer high-quality wood windows with exterior cladding designed to increase the longevity of the window. Cladding usually means wrapping the exterior portions of the window in either aluminum or vinyl, although some windows with a metal core can be wood clad. While window manufacturers have made great strides in mimicking architectural detail with non-wood materials, it’s still hard to mistake vinyl or aluminum for wood. Windows clad with aluminum, for example, have a crisp edge that more closely resembles early-20th-century steel casement windows than wood.

While Krekorian and Garai came to the conclusion that only custom-built replacements would do, clearly there are plenty of options depending on your situation and pocketbook. Bear in mind that choosing period-appropriate windows for an old house is an inexact science. By paying attention to proportion, window placement, the configuration of sashes and panes, and materials, you should be able to make your window decision a sound one.

JENNIE L. PHIPPS writes about houses from Bloomfield Hills, Michigan.

**Help for Old Windows** A wood window has to be pretty far gone before it needs to be replaced. A local millworker can install modern weatherstripping; an experienced glazier can rebuild sashes and reinstall period glass. Even severely rotten wood can be strengthened and rebuilt with durable epoxy fillers. Here are some other alternatives for weather-challenged windows:

- Follow the example of the National Park Service and install interior storm windows on the inside of the sash. While the new glass may throw a second reflection, it’s difficult to see from the outside. Inner Glass Window Systems (800-743-6207) slides glass panels into a channel that screws into the inside of the window frame.
- Another alternative is to mount a piece of clear acrylic inside the window. A1 Technologies (800-533-2805), whose clients include Colonial Williamsburg, installs a narrow steel subframe around the window and uses magnets to seal clear acrylic panels in place.
- If you don’t like the idea of an extra layer between you and your window, consider reconditioning the sash to accommodate double glazing. Bi-Glass Inc. (800-729-0742, www.bi-glass.com) uses a patented router to cut out old window putty and glass and make the channel in the sash deep enough to accommodate two layers of low-e glass. Check the Yellow Pages for a local dealer; all work is done on-site.
N o d o u b t you’ve seen examples of these intricate styles if you live in a historic neighborhood. You may be lucky enough to own a few decorative glass panels yourself—and unlucky enough to need to replace a broken piece or two. Fortunately, there are still craftspeople who practice the techniques needed to create these decorative works of art (see Suppliers, page 47). What may help most is understanding what you have—and how each type of decorative glass is made.

**ETCHED GLASS** In the 19th century, glass artisans etched delicate designs into glass with acids. First they coated the glass with paraffin or beeswax, and picked out the design with a sharp tool. Then they flooded the surface with hydrofluoric acid. This dangerous procedure ate away at the exposed surface, producing designs with contrasting texture. While fine examples are true works of art, etched glass was commonly available from catalogs in repeating patterns that resemble fabrics and wallpaper of the era. Occasionally, clear glass would be flashed with a thin coat of color, such as red, before it was etched. The pattern appeared as a clear design in the colored “background.”

**SAND-BLASTED GLASS** Sandblasted glass has a smooth, frosted finish similar to etched glass. It proved to be a much safer technique than etching patterns with acids. Unlike etching, sandblasting does not cut below the surface of the glass. Typical 19th-century patterns are amazingly detailed. They include elaborate heraldic shields, urns, romanticized natural and pastoral scenes, and lifelike floral sprays and ferns. Both sandblasting and etching were also used to “fog,” or frost, glass.

**BRILLIANT-CUT (OR WHEEL-CUT) GLASS** Probably the most spectacular type of orna-

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**Decorative Glass**

Colorful, gem-like leaded art glass gets all the glory today, but clear ornamental glass is just as ubiquitous on Victorian-era doors and windows. For a short but dazzling period between 1880 and 1920, beveled, etched, brilliant-cut, and figured glass was standard for residential doors and windows, sidelights, and transoms. These shimmering lights were often treated to multiple decorative techniques. The results can put diamonds to shame.

by Mary Ellen Polson
mental glass, artisans create brilliant-cut glass by moving a piece of frosted glass carefully over a vertically rotating stone wheel. They cool each cut with water, and polish the entire design to a high degree of brilliance when it’s completed. While many cut-glass designs are similar to those seen in etched glass, etching tends to fog the appearance of the glass. Cut glass is much brighter and actually sparkles.

**BEVELED GLASS** Beveled glass was the last of the showy treatments to become fashionable, mostly because it begins with plate glass. This thick, machine-made, optically clear glass didn’t become commercially viable until about 1885. Shops bevel plate glass by grinding and polishing the edges at an angle. The finished piece yields the same brilliant good looks as faceting a jewel. While window bevels were typically 3/8” to 5/8” deep and door panels 1” to 2”, there’s no set angle for a bevel. After the glass is ground with sand and water and smoothed on a sandstone wheel, it’s polished in two steps—first with pumice, and lastly with cerium or ferrous oxide on a felt wheel.

**GLUE-CHIP GLASS** This technique produces a glittering glass that looks as though it has been permanently subjected to an icy frost. First the artisan grinds or sandblasts a sheet of glass, then coats it with glue. He heats the glass, and the glue shrinks and shrivels off, taking slivers of glass with it. The same sheet might be treated two or three times, producing double- or triple-chipped glass.

**FIGURED (OR PATTERN) GLASS** Designed for privacy and inexpensive to make, figured glass came in an assortment of ornamental designs, including floral and starburst patterns. Manufacturers pressed or rolled patterns into one side of fresh plate glass while it was still plastic. Historic patterns are more intricate than today’s pattern glass, which often has a dimpled appearance.

**SUPPLIERS** Most of the firms listed below offer beveled and etched (or sandblasted) glass. Specialties are noted in parentheses.

ANDERSON GLASS ARTS (Massachusetts), (617) 357-5166. Circle 47 on the resource card.  
ART & ARCHITECTURAL GLASS CO. (Oregon), (503) 281-7633. Circle 48 on the resource card.  
ART GLASS STUDIO (New York), (718) 596-4353. Circle 49 on the resource card.  
ART GLASS UNLIMITED (Missouri), (314) 361-0474. Circle 50 on the resource card.  
BEVELED GLASS WORKS INC. (California), (800) 421-0518. Circle 51 on the resource card.  
CARVART GLASS (New York), (718) 855-4459. Circle 51 on the resource card.  
J. GORSUCH COLLINS ARCHITECTURAL GLASS (Colorado), (303) 985-8081. Circle 52 on the resource card.  
GREAT PANES GLASSWORKS (Colorado) (800) 338-5408. Circle 53 on the resource card.  
LEHMANN GLASS STUDIO (California), (510) 465-7158, (brilliant-cut glass). Circle 54 on the resource card.  
POMPEI & CO. ART GLASS (Massachusetts), (888) 395-8867. Circle 55 on the resource card.
In a continent where individuality is prized and homeownership has a long tradition, there's a housing heritage with polar opposite origins—the company town. Also called "locations," "camps," and a host of regional names, the term "company town" is generally applied to any community planned and developed by a single industry. Usually permanent neighborhoods and enclaves, as opposed to the short-lived work camps common in lumber country, company towns are the forerunners of today's planned communities. Much has been written about the economic and social nature of company towns, but since these districts represent thousands of old houses across the continent—and homes to many old-house restorers—it's valuable to take a look at their lesser known architectural side.

**ARCHITECT-DESIGNED TOWNS**

Many company towns were the quickest and cheapest of housing, intended for immigrant laborers fleeing much worse in their homelands. However, some companies tapped top architectural talent to build factory utopias with no commute.

**THE PULLMAN DISTRICT, CHICAGO, ILLINOIS** Any old-house enthusiast visiting the Windy City should tour the "Town of Pullman" on Chicago's far southeast side. Developed for railroad-car magnate George M. Pullman by Chicago architect Solon Spencer Beman and New York landscape architect Nathan F. Barrett, Pullman remains the largest and most celebrated company town in America. Along with more than 1,700 dwellings for workers, it once incorporated a school, marketplace, water tower, and churches as well as the Palace Car Company manufacturing buildings and the Hotel Florence—the town centerpieces. The intent however was far from a philanthropic. By building this enclave of blue collar housing, G.M. Pullman

In Ambler, Pennsylvania, Keasby & Mattison Co. chose distinctive Dutch gables for employee houses, built in hierarchies.
hoped to avoid the nasty habits of Chicago's rough and rowdy immigrant work force. In fact, he expected every aspect of his dream town to earn a 4% to 6% profit!

Pullman was laid out on 500 acres of swampy farmland along Lake Calumet. The first residents arrived in January 1881, and the factory began to produce railroad cars the following summer. The houses were mostly built of local brick, made with clay dredged from the bottom of the lake. By 1886 Pullman housed 14,000 people; it won an international prize as the "Most Perfect Town in the World" in 1896.

Though only in his mid-twenties, Beman designed cottages, duplexes, and tenement houses alike. Through simple, ingenious variations in the roof line (including mansards and purlin gables) and subtle ornamental details, he added stylistic diversity to essentially vernacular façades—all this while maintaining a community character and keeping construction standardized. The five-room row house was one of the most popular designs. First floors invariably have a kitchen and spacious double parlor; the second floor features a front bedroom and two small rear rooms split by a skylit stair hall that leads to a bathroom. Every room had a window for light and fresh air. Even the most inexpensive flat was piped with steam heat, gas lighting, and running water.

All was not perfect in Pullman-land, however. Disgruntled with housing prices and their inability to own homes, in 1889 residents voted to annex Pullman to Chicago—much to the Company's chagrin. Then, a nationwide depression sparked events that led to the infamous Pullman strike of May 1894. In 1898 the Illinois Supreme Court ruled that the Company charter did not authorize it to own or manage a town. Today, Pullman is a multi-ethnic community including the South Pullman Historic District and the Hotel Florence, a proposed historic site.

MAIL-ORDER TOWNS

INNOVATIONS, SUCH AS balloon framing, mail-order plans, and ready-cut houses expedited the building of company towns to new levels. By the 1910s, an entire town could be ordered from producers such as The Aladdin Company, Montgomery Ward & Co., Minter Homes, or Sears & Roebuck, and shipped by rail anywhere.

Like its competitors, Aladdin of Bay City, Michigan dedicated an entire catalog to the lucrative market. The company promised it could furnish anything from a single house to a complete city, including sewers, walks, lighting, stores, schools, churches, hotels and dwellings. "The industrial housing 'problem' ceases to be a problem to any alert manufacturer," advised the catalog, "when stripped of the theoretics of professional 'experts.'"

CARLINVILLE, ILLINOIS Aladdin was not alone. Sears & Roebuck sold about 100,000 mail-order houses from 1908 to 1940, many purchased in quantity by industrialists. For as little as $400 per house the company bought floor plans, precut lumber, and all the materials needed for a complete house, right through to the nails and paint. Translated into today's construction jargon, mail-order presented a sort of "turn-key" (ready for occupancy) program. Sears even provided mortgages!

In Carlinville, Illinois, about 152 Sears & Roebuck houses ordered by the Standard Oil Company in 1918 still stand, down to the standard-issue two trees in the front
Company Towns in Common

Company towns are architectural extensions of the enterprises they were built to serve. Indeed, most company towns, flourishing from the 1830s to the 1930s, are products of the Industrial Revolution. The concept, probably imported to this country from Great Britain, was first realized in New England mill towns such as Derby, Connecticut, built around 1803. Some company towns, particularly those of substantial size or quality, survive intact or have been absorbed by larger communities. However, many large-scale developments, seemingly constructed overnight, were just as swiftly abandoned when the industry went bust.

Typically conceived by industrial tycoons who held profit margins paramount, company towns limited architects and builders to the fundamentals of housing: simple design, highly efficient floor plans, and prosaic yet durable materials. A few towns—usually those designed or planned by professionals—met these goals while achieving much more. The best incorporated harmony with the natural environment, compatibility with regional lifestyles, and modern conveniences not available to the general working class of the period.

On the downside, most company towns were paternalistic—that is, the company retained ownership of the buildings while dictating their design, construction, maintenance, and even their use. Many towns are associated with some of the largest "smokestack" and heavy-labor industries ever known, particularly coal, iron, and copper mining and processing. Mark Twain eloquently described the coke towns of western Pennsylvania as "Hell . . . with the lid off."
Bygone Tyrone

Tyrone, New Mexico ranks among the most important company towns ever developed. Nestled 6,000 feet high among the Burro Mountains, it was established by the Phelps-Dodge Company, which opened a large copper mine there in 1914. Tyrone was to be a model mining community, and Bertram Grosvenor Goodhue of New York was selected as the architect and town planner. Though renowned for his ecclesiastical commissions, Phelps-Dodge execs (and, reportedly, their wives) were more intimately familiar with Goodhue from his work at the 1915 Panama-California Exposition in San Diego.

Goodhue conceived Tyrone as an idealized Mexican village built around a large central plaza. The most prominent buildings were styled with Spanish Baroque elements familiar from the San Diego Fair. However simple shops and dwellings drew on Native American adobe buildings found near Santa Fe and Taos.

Stylistically, the houses were Pueblo Revival (with flat roofs) or Spanish Revival (with pitched roofs). Not an ounce of ornament was employed, but the stucco was pigmented with various pastel tints found in the surrounding landscape.

Floor plans generally covered four or five rooms and made the most of every square foot. Although stark, interiors included full baths and electricity. Concerned about worker safety, Goodhue fireproofed wood floors and roofs.

Copper prices sank rapidly after World War I and mining stopped in 1921. Remnants of Tyrone survived until 1968 when the last buildings were leveled.

yards. Standard oil opened two coal mines near Carlinville that year and needed fast rental housing for the work force. The houses ordered by Standard Oil are modeled after the garden-variet American Foursquare, but downsized to a 24'-foot-print (1,200 square feet) and three-over-three room plan. They cost about $1,000 apiece.

The “Gladstone”—a two-story vernacular house with a hipped roof and full-width front porch—was one economy model used in Carlinville. The houses sit about 3' above grade on raised foundation walls, adding basement headroom without digging lower than necessary for frost. In the interest of saving space, the plan eschews vestibules, and one generally enters directly into the living room. Even the small back porch was attached to avoid cutting into the small kitchen area. These sturdy frame houses served a family of four well, and are great starter houses.

ORE TOWNS

Hundreds of small mining towns once dotted remote areas of the Rockies and the Southwest. Most have not survived as living communities, but a rare few with special qualities have adapted and flourished.

REDSTONE, COLORADO

Named for the surrounding red sandstone cliffs, Redstone’s wellspring was the the rich black coal deposits below ground. Redstone was acquired by John Cleveland Osgood—reportedly for $500—while he was scouting for the Chicago, Burlington & Quincy Railroad Co. in 1881. He started the Colorado Coal Company in 1887 and built a coal mining empire. Like George Pullman, Osgood wanted to create an ideal town where “happy and contented workers would stay

As spied from the hillside west of town, Bramwell, West Virginia presents the typical setting of coal and ore mining communities—pockets of self-sufficient buildings isolated by rugged countryside. Inset: Ample houses can still be found far from the city.
galows under 800 square feet. These houses had simple hip roofs, shiplap siding, and a central fireplace. An article in *Camp and Plant* noted that “plans were drawn for three, four, five and six room houses painted in different colors to avoid the monotony of the stereotyped form of company town.”

When better coal deposits were found elsewhere, Redstone was mothballed in 1910. When Osgood returned in 1924, he re-opened many buildings needed to sustain the community. Under an hour from Aspen, Redstone thrives as a romantic resort.

**UNCLE SAM’S TOWNS**

When the federal government acts as industry, it too can father company towns. The United States was deep in the Great Depression when the Tennessee Valley Authority (TVA) was created to tame the Tennessee River. The Norris Dam near Knoxville was just one in the system.

**NORRIS, TENNESSEE** Built for dam workers in 1934-37, the town of Norris was the TVA’s first project. Initial estimates predicted it would house 5,000 people, but the population peaked at 2,000 around 1940. Many players were involved in Norris, including distinguished city planners, Earle S. Draper and Benton Mackaye, and architect William Duguid. Norris is a prime example of the “greenbelt concept” where houses are nestled in the existing topography. Houses employed about a dozen floor plans—including regional dog trot forms—ranging from three rooms for unskilled workers to six rooms for company foremen. Most of the houses were attractive vernacular cottages built on concrete slabs with side-gable roofs, red brick veneer, steel casement windows, and screened porches. Frank Lloyd Wright described Norris houses as “more pleasant than most summer resorts,” and volunteers lined up for them.

Interiors were sparse but nearly all the houses featured aluminum showers and wood paneling of wide-plank pine. Wanting to preserve the “Southern Appalachia” culture, TVA Chairman Arthur E. Morgan insisted on fireplaces as well as hand-rived oak shingle roofs. Every house had an electric refrigerator, electric range, electric water heater, electric heat, and of course electric lights—no surprise from a new hydroelectric authority.

The TVA intended to sell Norris soon after the dam was completed, but World War II postponed any such plans. Until 1948 when Congress demanded that Norris be sold at public auction, the houses were used by employees of nearby Oak Ridge, the “secret city” erected to work on the atomic bomb. Over the years, most of the houses have been enlarged where possible and colonialized with dormers, porticos, and shutters. Nonetheless, Norris lives on very much intact, and since 1975 has been listed on the National Register.

Many of the positive aspects of company towns remain with us too. Stripped of the evils of paternalistic management and low-paying jobs, their strengths in professional design, civic amenities, and comprehensive planning led the way to the garden city movement and scores of planned communities throughout the United States.

**Neal A. Vogel** heads *Restoric, LLC*, a restoration consulting firm in Evanston, Illinois (847-492-0416; restoric@earthlink.net).
Sills may be the lowliest parts of a wood-frame house but, like the keel of a boat, they form the base that supports all other structural members. When old-house sills succumb to rot and insect damage, it takes technique and experience to replace them.

by Gordon Bock | photographs by Jon Crispin

GEORGE YONNONE RESTORATIONS has specialized in this heavy repair work for over 25 years. Since George welcomes any opportunity to share his knowledge, we visited him on the job at an 1790s timber frame house to see the process he uses to successfully jack and repair all kinds of buildings.

Like the best restoration projects, sill repairs start with assessing the present conditions. Sills tend to decay from the outside in, and while they may look good from the basement side, 1/3 to 2/3 of the wood can be gone under the exterior siding. Along with probing with an awl for deteriorated wood fiber, George relies on “sounding” to assess sill integrity. Tapping the wood with a hammer from the basement side produces a telltale tone. A good sill rings with a high pitch; if there’s a little rot on the outside, the pitch is lower. If the sill is really suspect, and the owner is comfortable with a little exploratory surgery, George pops some siding off to survey the sills from the outside.

When inspection reveals a bad sill, the first repair step is to remove siding at the second-storey line above and below windows to expose the timber spanners (or their equivalent in later buildings). Next, George screws a hook into the top of the building at the center of the wall, to which he hangs a “come-along” cable winch. Then after carefully measuring the positions of studs and structural members along the second storey line, he transfers these dimensions to two 3”x10” oak planks that will be the plates for jacking the building. It is important to use two planks for this purpose so they will flex like a hinge as jacks lift the building. After double-checking measurements, George hoists the plates into position with the come-along, and lag screws them to the side of the building.

SET-UP FOR SILLS Setting up the jacks is often the most time-consuming phase of the jacking process. For the average house, 38’ to 40’ on a side, George will use four
jacks to a wall. He positions each jack 24" off the sill—an angle that is effective for lifting while providing clearance to work at the foundation line. After excavating down to undisturbed earth, George sets a jacking pad of laminated lumber in the angled soil. The 24" square pad not only spreads the jacking load through a large area of soil, it provides ample room to finesse the jack's position. On top of the pad comes a block, then the jack and a steel plate.

George selects 20-ton hydraulic jacks for most applications. Even though 12-ton jacks are more than strong enough to carry an average frame house, the larger jacks have a longer cylinder throw—on the order of 9"—that allows for more lift without reworking the setup. Also, the bases are larger, distributing the load across a wider area of the pad and increasing support.

The 4"x4" oak posts running between the jacks and the plates on the house have to be measured and cut for each position, and this dimension is subject to how the jack “loads-up” in the soil. When the jacks are tested, loamy soil often compacts for some time before the building starts to rise. Sandy soil, on the other hand, tends to load quickly. It takes patience and the experience to “read” the soil around a house and position all jacks optimally.

**Jacking Theory** In simple terms, the object of jacking is to raise all the house’s low areas so they are level with a benchmark. Typically, this benchmark is a high point in the foundation or central chimney that represents the most stable base in the structure. Jacking helps remove the old sill but, more importantly, it re-establishes the correct height of the floor and wall framing. Originally, the house may have been built on an 8" square timber—common practice as late as the 1890s. Over decades, this timber could have shrunk and deteriorated to as little as 6-1/2" in height. Simply replacing the sill with a new 6" timber does not regain the building’s original dimensions. Plus, the new material will also settle and shrink in time, bringing sill height down to, say, 5"—a loss of 3/4"!

Most houses tend to fall or sag towards their centers, so there is usually more distance to jack in the middle of a wall than at the corners. In such a job, this means the jacks will run out of travel or lift capability before the middle is level, and the setup will have to be reworked slightly. Typically, George will extend the middle jacks 9" or so, then place blocks and shims or cribbing under the studs at the middle of the wall. With the house temporarily supported this way, he can collapse
Skeletal Secrets

In timber framing, as well as balloon and platform framing, studs, joists, and posts converge along the second-storey line—a structurally stable point to jack. This method also lifts the first-storey walls without putting them under any load, the ideal way to avoid cracking historic plaster finishes. In contrast, jacking at the foundation level risks pushing in the walls. Where bolting a long plate may interfere with mortise joints, George substitutes a jacking pad.

To gently lift the walls, the vertical jacking posts must bear on two oak plates bolted along the length of the second-storey line. Plastic unrolls over the posts for weather protection.

The jacks and build up the pad (or extend the jacking post) to resume jacking.

TIMBER TECHNOLOGY While the whole point of George's thorough jacking and leveling of the structure is to avoid piece-meal repairs with short lengths of material, the typical sill job does require splicing sills. No single timber available these days will span the 35' to 40' length of most walls, so George makes a 40' repair with two 22' timbers. Sill joints have to be as strong as the timber itself, and for this reason George always makes his lap joints no less than 24' long. He also makes sure the joint is in full contact, inserting a reciprocating saw and trimming both faces at the same time, if necessary.

When the fit is correct, 1/2" lag screws fasten the timbers together. George positions the screws in a staggered pattern, offset by about 1" so no two fasteners are in
line to potentially split the wood. George prefers white oak for many sills, especially for the extra weight of timber frame houses. Since oak is one of the densest woods, he bores 3/8" pilot holes for the lag screws, as well as 1/2" holes for the shafts. (Lagging into softwoods requires only a small-diameter pilot hole or none at all.) George’s experience has also taught him to lubricate long lags screws with soap or wax. Otherwise, as these hefty bits of hardware go into the oak, they generate enough heat to seize in the wood halfway down.

Before the sill will mate with all the members in the house, it must be cut for the housings and mortises that hold floor joists and studs. Rather than attempt to measure all these pockets to fit the settled, often slightly eccentric dimensions of a 100 or 200 year old building, George lays out the cuts to some standard spacings apparent in the construction, then deals with irregularities as he goes. Though the goal is to have joists rest in pockets as tightly as possible, practicality may call for trimming a joist slightly to get the proper fit.

Even with the most perfect of fits, however, maneuvering 22' of massive oak so it meshes with floating framing takes equal parts skill and experience. George and his crew call on a variety of bars and levers to “shoehorn” the new sill under wall studs and subflooring. A favorite tool is a flatbar, a tapered piece high-carbon steel that is actually nothing more than a foot or so of truck or car leaf spring. George has several of these tools on hand for inserting under wall studs to make clearance for the sill. Once the new sill is “home,” floor joists and lapped corners secure it in place, ready for the next phases of restoration carpentry. In fact, having the load off the foundation presents the ideal opportunity for masonry work on the foundation, such as resetting the capstones visible just above grade—the finishing touches on so many 18th- and 19th-century old houses.

Special thanks to George Yonnone Restorations (P.O. Box 278, W. Stockbridge, MA 01266; 413-232-7060).
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In the 20th-century, industry brought mass production and manmade materials to every facet of life. Developers were bound to try steel—the skeleton of skyscrapers—for house construction. Steel's appeal actually goes back much earlier. Iron foundries turned out temporary metal houses for the California Gold Rush. By the depths of the Depression, however, prefabricated steel seemed one path to an affordable home. The 1933 Century of Progress Exhibition in Chicago featured over a dozen prefab steel houses, such as the Armco-Ferro Enamel House and the Strand-Steel House. The house of tomorrow was starting to shine like ... steel.

GALLEY KITCHEN, LUSTRON HOUSE [ca. 1947]
Lustron Houses abounded with enameled-steel built-ins and innovative features, like the combination dishwasher/clothes washer in the galley kitchen.
saw in the all-steel house a potential growth area for their equipment—until then used primarily for repair work—and built a score of prototypes in the 1930s. Rather than identical pre-fabs, these houses were unique, often historical designs erected completely in a plant, then trucked to the site. Other corporations, such as General Houses, Inc., and National Houses, Inc., tried models with either skins or structures made of steel. Ultimately, steel could not beat the price of wood or the public’s taste for traditional construction. But with lumber prices ever rising, the steel house’s day may dawn again.

SPECIAL THANKS to Christina O’Neal, Thomas Fetters, Jim Dow, and the Troy Historical Society for their generous help.
The boldest steel experiment by sheer dint of numbers was the legendary Lustron House. The brainchild of industrialist Carl Gunnard Strandlund, Lustrons were all-steel, prefabricated homes produced in four original models (see illustrations at right) and eight exterior enamel colors. Strandlund, an executive with the Chicago Vitreous Products Company, was making enameled metal panels for Standard Oil gas stations and White Castle hamburger stands when World War II limited the steel supply as a regulated commodity. After Washington, D.C., officials turned down his call for more raw material in 1946, Strandlund repackaged his request to satisfy a greater public need: housing for returning vets. The federal government not only sanctioned his idea, but even subsidized it with $37 million in loans and an idle aircraft plant in Columbus, Ohio. All 3,000 parts for each Lustron House were manufactured in the plant, then loaded in reverse-assembly order on a flatbed truck for transport to the site. Though Strandlund's enterprise never reached his promised output of 17,000 houses a year, hundreds of Lustrons were shipped and still stand, especially in the Plains and "rustbelt" states. Not surprisingly, the steel-producing states of the Midwest were the spawning grounds of more than one steel house. Shortly after the 1933 fair, players from different parts of the steel industry dipped their toes in the housing market. For example, the Hobart Brothers Company of Troy, Ohio, makers of welding equipment,
OLD HOUSE HOW-TO

MATCHING Wood Finishes

BY JIM GUN SOLUS

OLDEN-BROWN woodwork, glowing under varnish or shellac—that's what we envision when we think of Victorian or post-Victorian trimwork in an old-house interior. Moreover, if you're lucky, that's what you'll find in your home. For many of us, though, reality falls short of fantasy. Crown mouldings and window casings can be missing, damaged, or painted; door and window openings added at a later date may lack appropriate architrave designs; or perhaps you need to create new mouldings as part of an addition.

Whatever the situation, you'll want to match the new work to the old as closely as possible. Matching woodwork in an old house requires a few magic tricks, from aging the appearance of new wood to adding fool-the-eye grain patterns.
Simulating Patina
Old fir frequently contains black streaks, a residue from stain and age. New wood (before) lacks this appearance, so before I begin to match the base color, I apply an ebony stain to duplicate this look. Wipe the stain on and let it dry for a minute. Using 220 grit sandpaper on a random orbital sander (above right), remove enough of the darkened wood to match the amount of blackness in the old trim. The “aged” trim (after) already looks like it blends in, even before the stain is applied. Go over everything with a tack cloth to remove dust.

Refreshing Old Trim
Old trimwork in good condition can be spruced up with a simple cleaning. If the finish is shellac, you’ll want to minimize any contact with water, which whitens the finish. Choose an out-of-the-way spot to test clean. Add a tablespoon of Ivory Liquid to a quart of warm water and whip it to create a lot of suds. Dip an old washcloth or towel scrap into the suds (not the water), and rub the test area vigorously. Wipe with a dry cloth to remove any dampness. This method will remove surface grime without harming the patina.

If there’s still a dark residue, brush some mineral spirits or paint thinner onto the test patch and allow it to soak in for about 3 minutes. Using 0000 steel wood, gently rub the surface, going with the grain. Wipe up any drips, and let the patch dry for an hour. At this point, it will look dull; apply some lemon oil or paste wax to add shine to the finish.

possible. Selecting the same species and cut of wood is only half the battle; the real challenge is to achieve a finish and aged appearance that complements the old trimwork.

The secret to duplicating the look of aged trim begins with a close look at the wood you are trying to match. While newly milled wood is fairly uniform in color, the colors in old woodwork vary widely. For instance, the orange-brown of old fir or pine can be shot through with red, yellow, black, or even green streaks; aged oak can range from deep brown to yellow. The idea is to infuse your new woodwork with the same range of colors found in the old. No single stain is going to duplicate what time and yesterday’s carpenter did to your trim. It takes a number of steps, using a variety of materials. To achieve a good color match, follow these basic rules:

1. Use the same wood species as your old trim. If you can’t identify the species, take a piece to a woodworking store or lumberyard for identification, or ask someone in the neighborhood whose house has the same type of wood. Still not sure? Try a wood species that closely matches yours in terms of grain tightness and basic color hue; for example, fir for gumwood.

2. Use the same cut as the old wood. You will never get quartersawn oak, say, to look like
flat-sawn, and vice versa. The grain patterns are completely different.

3. Apply the same kind of stain and finish to your new wood that was used on the old wood. Polyurethane does not look like shellac and never will. Choose a finish and stick to the same type and brand throughout the room.

Combine these rules with the following advice, and no one will know that your old house has undergone cosmetic surgery.

**Prepping the Wood** Many softwoods, such as fir and pine, tend to show grain-color reversal or blotching if they're not primed with a controlling sealer. The traditional method is to apply a weak 1/2- to 1-pound cut of shellac. You can also apply a commercial sealer such as Benite, and let it dry for 24 hours. The controller partially seals the wood, evens out its ability to absorb stain, and prevents a blotchy appearance. Now you're ready to add patina (see "Simulating Patina," p. 68).

**Matching the Base Color** Because the human eye can detect the slightest variation of color between two adjacent objects, no single stain color will match your trim. The objective of the stain is to replicate the main background color of the wood. Keep a piece of the trim you are trying to match at your side during the process. You may need to blend two or more stains to get the right shade; jot down the recipe for each formula as you work. Experiment on scrap pieces or the back of your new trim and don't be afraid to try all sorts of combinations.

While matching color is more art than science, keep these principles in mind:

- **Work in compatible systems**—i.e., varnish-based pigment stain, water-based gel, etc. It's also a good idea to stick with the same manufacturer for your stains.

- **Your true base color is the color of the wood itself**, so begin there. Keep in mind that dye stains are transparent and will penetrate everywhere more or less equally. Pigments are opaque and will tend to lodge in the pores, amplifying the grain of the wood and any flaws, desirable or otherwise.

- **Mix your colors under the same lighting conditions.** Incandescent light brings out warmer, reddish tints in the wood; north light (the best natural light for color matching) and fluorescent light make wood appear cooler (blue or green tints). Whatever light you use, test the color match under a different light source before proceeding; a perfect color match under fluorescent light can be noticeably off under an incandescent bulb—or vice versa.

- **Choose a light-fast medium**—one that won’t lighten, darken, or change color over time. Pigment-based stains are more colorfast, but they're more difficult to manipulate in color matching. The most light-fast dye stains are water-soluble, such as water-based gels and NGR (non-grain-raising) dyes.

If applied too thickly, gel stains (or any other stain that contains pigments) can obscure the grain of the wood. Guard against this by going easy with the amount you use and immediately wiping off the stain after it is applied. Once you've successfully matched the main color in the old trim, let everything dry overnight. The next day, lightly sand with 320-grit sandpaper to take down any raised grain or blotches. Go over everything with a tack cloth.

**Adding Highlights** Now that you have the base color, you're ready to add highlights that fool the eye. After many experiments, I found
Choosing a Stain
Different stains produce different results, depending on the type of colorant, whether or not the stain requires a binder, and the thickness of the application. Generally, stains are either pigment-based or dye-based. Pigmented stains require a binder (either oil, varnish, an oil-varnish combination, lacquer, or water); dye stains do not. Pigmented stain colors wood by penetrating depressions in the surface, while dye stain adheres to the wood itself.

Most gel stains are made with pigment in a varnish binder. Gel stains don’t penetrate the wood as much as liquid stains, which tend to minimize contrasts in the wood and produce an even finish. This is great for a neutral trim wood like fir, but a poor choice for a highly figured wood like curly maple, because the stain obscures the wood grain.

To add highlights, streak shellac tinted with universal pigments over the wood. Using a clean rag or small brush, mimic the grain patterns in the trim work you’re attempting to match.

that the best way to match highlight colors in wood is to add universal tints or aniline dyes to shellac. Universal tints are the pigments added to any tint base to make various colors. Visit your friendly neighborhood paint store and ask for a kit of universal tints; start with red, yellow, brown, and green.

Mix up a small amount of shellac, or use a 1-pound cut of fresh premixed shellac. Add some of the universal pigments, one drop at a time. Apply the mixture with a clean rag or small brush, streaking it to follow the grain patterns in the wood. The process is similar to making a faux marble finish. If you apply too much, dip a rag in alcohol and wipe it off.

As you continue to experiment with tints, keep referring to the match-piece of old trim for comparison. You may need to brush on more than one mixture to mimic the multiple colors in the wood. There is no rule; be as artistic as you like. Once you’ve achieved the look you want, let the surface dry, then go over it with 0000 steel wool and a tack cloth.

Final Finish Provided your woodwork was finished with shellac, you’ll want to apply multiple coats as the last step in the finishing process. To check the finish, wet a paper towel with denatured alcohol and rub in an inconspicuous place. If the finish loosens, it’s shellac. If not, it’s probably oil or varnish.

Premixed shellac comes in two colors: orange, also known as amber, and clear (made by bleaching orange shellac). In an old house, you will generally want to use orange shellac because it matches old shellac. Start with two coats of a 1-pound cut (1 pound of shellac flakes mixed with 1 gallon of denatured alcohol). Apply the shellac with a top quality natural bristle brush and keep it in clean alcohol between coats.

After the first two coats, I usually thicken up the mixture a bit, sanding after every three coats or so. Increase the shellac-to-alcohol ratio as you build up coats, until you achieve the level of gloss and tone that matches your old refinished trim. That’s it. Now the walls are ready for a rich new coat of paint to highlight all of that glowing woodwork!

Jim Gunsolus finish-matched new door and window trim to the old woodwork in his Bellingham, Washington, bungalow.
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MORE THAN A DOOR
The living room of our 1876 row house has what we call a "Jefferson window." When we raise the lower sash and open the bottom doors, it creates a 5'-high entranceway to the side yard. Are these windows common?

— Thomas Dowd
Philadelphia, Penn.

None of the folks in Philadelphia we consulted has heard of the term "Jefferson window," but they are more than familiar with the feature. The combination door and window you describe is a clever device for incorporating a limited use door in a formal room, and appears regularly in houses right up to the turn of this century. Related to triple-hung windows (which open right down to the floor, creating a similar entrance), combination door—windows are detailed to look like interior wainscots or panels, but designed to open as either single or double doors.

Dictionaries such as An Illustrated Glossary of Early Southern Architecture and Landscape offer further insights. They note that doors at the bottom third of a window opening are sometimes called jib doors or jib windows. Often located on the garden side of the building, the door sections are cunningly built with concealed hinges and locks that hide their purpose, allowing them to blend into the walls of some of the most refined houses of the 18th and 19th centuries.

With the bottom sash raised, the combination door turns a window into an entranceway.

BLIND BOARD LIFTER
As strip floors age, individual boards tend to sink lower than the surrounding flooring—usually due to defects hiding in the subfloor. To bring these boards flush again, first drive a thin wood screw into the depressed board. Then, place a wood block on the adjacent board, and lift the screw with a prybar. When the errant board is level, secure it with two or more 8d finishing nails. Drive them into the subfloor at opposite angles, just below the screw.

— Karl Knutsen
Minneapolis, Minn.

RUST BUSTER POULTICE
Have you seen the prices of reproduction clawfoot tubs? Here's how I saved the old one that came with my 1894 house. Most of the objectionable rust stains came out when I applied a paste made out of cream of tartar and hydrogen peroxide. I let this "poultice" sit on the stains overnight, then washed it down the drain the next morning. By the way, the same poultice cleaned the heavily tarnished brass fitting around the plug in the sink.

— Helen Puccio
Brooklyn, N.Y.

MANTLE MAKEOVER
Unfortunately, the rubble-stone fireplace in our Shingle-style house has layers of paint on it. What is the best method for removing paint from stone and mortar?

— Heidi Cassells
Wyckoff, N.J.

Alas, there are no easy ways to remove paint from most kinds of masonry. Heat tools are ineffective on the cold mass, and the rough surface is devilish at holding coatings. Lots of elbow grease and starting with some simple methods will help.

First, determine, if you can, what type of paint(s) mask your mantle. Old, interior latex paints sometimes lift by scrubbing full strength with a surface cleaner like Top Job. Oil paints are typically tougher, but they too may yield to a strong solution of the restorer's best friend, TSP (trisodium phosphate). Wire brushes, dental picks and sharpened spoons are useful for the complex surfaces. Once you have removed as much paint as possible with these methods, advance to commercial strippers. Remember to protect walls and floors with masking, and cover the stripper with plastic wrap for maximum effect.
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Circle no. 258
Back in his day, Frank Lloyd Wright, his work and controversy were inseparable. Once derided by his contemporaries, he's now recognized as one of the most important figures of the century, having built some of America's most well-known buildings. Among them is Taliesin, his historic home, studio, and school where he reinvented architecture. But now Taliesin is in need of a salvation befitting its legendary role in the history of creativity. Please join us, along with principal corporate sponsor Hanley-Wood, publisher of this magazine, as we embark upon our $25 million Taliesin fundraising campaign.

Send your tax-deductible donation to Taliesin Preservation, Inc., P.O. Box 399, Spring Green, WI 53588-0399. Or, find out how you or your company can become a Preservation sponsor with a donation of $10,000 or more by calling (608) 588-7090. Thank you for helping us save the home of the world's greatest architect.
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Epitome of an Era

Indeed, this photographic memoir, published last year, was wholly written by the camera-man, then 88 years old and looking forward to his 68th winter on the ski slopes. It is, as promised, a vivid journey. Rarely has there been a book that so consistently portrays an age. It is a chronicle by an active participant, not by a historian or a critic, and as such it reveals the vision of an entire generation. Shulman is unabashedly proud of his work, as aware of the importance of his documentation as he is of the special genius of these 20th-century architects. Yet his words unselfconsciously embody the spirit, the prejudices, and the aspirations of the times.

Referred to on at least one occasion as “the Ansel Adams of architectural photography,” Julius Shulman was born in 1910. After seven years of successful but meandering university study, he became an architectural photographer through a chance meeting with the architect Richard Neutra, who became his first client. Over a career spanning six decades, he has been awarded the AIA Gold Medal for architectural photography (1969) and countless other honors. His photographs were commissioned by every important architectural journal of the times as well as by corporations, governments, and public-relations firms. Although he officially retired years ago, he continues to maintain his archive, whose images are in constant demand by publications today.

The images are inseparable, it seems, from the camera and private, view of my images, throughout my travels. Imagine now that not only the photographic images, but also the text accompanying them, come from Shulman himself: “A retrospective view of my career would at this time be appropriate, for certainly I could state that my cup of experiences runneth over . . . . I will embrace and reveal my abundant life’s adventures with a camera throughout the world and forty-four of the United States. Throughout my travels I have had the rewarding privilege of meeting and working with the giants of the design world.”

As with every assignment I performed throughout the world, every exposure turned out perfectly (to the delight of all concerned)... — JULIUS SHULMAN REFLECTING ON A NEW YORK TIMES MAGAZINE ASSIGNMENT IN NORWAY IN 1959

Shulman documented post-war Case Study Houses commissioned by Arts and Architecture magazine; the spread above shows #20 (Bass House), built by Conrad Buff et al. in Altadena, California, in 1958. Cover image is from the Singleton House, Los Angeles, designed by Richard Neutra in 1959.
their subject: the rational architecture of Modernism. They are technically excellent. They are iconographic through their repeated publication. And they have become a priceless record of buildings now demolished or badly converted.

To Julius Shulman, architectural photography is an independent art form. For one thing, his dedication to maintaining the vision of the designer demanded it. For another, his work relied on perception and experience. From the text: "...ongoing 'expeditions' of picture-taking were reinforced by my earliest avoidance of instruments. When I purchased an exposure meter, a Weston 1, in 1936, I quickly (and wisely) realized that it would derail my ability to literally 'read' light; to switch my mental gymnastics in adapting my exposures to whatever film I was using. I discarded the meter before its first year of use.

"To this day I plead with photographers: learn the values of whatever film is being used. Contribute to your store of understanding of light, artificial or natural. Contrary to this doctrine lies a trap: too many photographers, personal and professional, for their 35mm performances rely upon automatic cameras, no focusing, no exposure concern and, of course, no brains."

Advice for architectural photographers is liberally given throughout the text. The book doesn't read like a manual, however; the advice is meant for everyone who tries to get by with not enough talent or not enough work ethic. It sometimes reads as a verbal spanking to the entire ensuing generation, the black-and-white voice of the postwar Father. It's impossible to feel abused by Shulman, however. He is simply too consistent, honest, and (his word) objective. Even his bragging, as liberal as advice in the book, is refreshing. Read this, his recollection of an important assignment to document the Bethlehem Steel plant, the company's houses, and Lehigh University in 1961: "All the planned assignments took two weeks. Every moment was comfortably and smoothly paced; there were no complications. The final day's goodbye came with a casual request from the company's treasurer: 'Don't forget, send us a bill!' I did just that...it entered my mind at the moment of leaving, no one had ever asked how much the complex assignments would cost. That has been a recurring feature of numerous assignments throughout my career. I attribute it to my constant performance. Never have a I required a 'redo'. What I charge...is considered as favorable; all founded upon a know-how fueled by one hundred per cent efficient utilization of time and facilities." The reader has no cause to doubt him.

Shulman serves up stories and insights about everything from Frank Lloyd Wright's persona (he found him congenial and objective) to the wisdom of not burning the candle at both ends (he turned down a near-irresistible offer to open a Manhattan branch, realizing that bicoastal commuting and hiring more assistants would wear him out). References are made throughout to the well-placed photographs—breathtaking images that are, ultimately, the reason for this book.

If you love architecture or its photography, if you are a student of Modernism (or ready to accept the historical value of 20th-century architecture and its abstract beauty), you must experience this remarkable piece of work. It is an integrated summary of a time that changed the world. —PATRICIA POORE
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Phoenix: Preservation Rising

Year round, there's never a bad time to visit Phoenix. After all, Arizona's biggest city touts itself as the Golf Capital of the World. Phoenix's meteoric rise to prominence as one of America's largest cities is remarkable considering this state capitol in the desert didn't have a regular supply of water until 1911, a year before Arizona entered the Union. Today, this sunny metropolis of 1.3 million is also doing a remarkable job of preserving the heritage of its older homes.

Quick to mobilize in the aftermath of a federal highway project in the 1970s, Phoenix passed its first historic preservation ordinances in the mid-'80s. In little more than a decade, Phoenix has managed to protect a greater percentage of its historic buildings than any of the other 10 largest cities in the nation.

Since Phoenix's heritage is measured in decades, not centuries, the older homes here tend to be a United Nations of architectural styles. Visitors can receive detailed maps and other information on the city's 20 designated historic neighborhoods from the city's Historic Preservation Office (HPO) (602-495-7610). Before beginning your self-guided tour, though, make sure your vehicle has air conditioning.

Phoenix's meteoric rise to prominence as America's sixth largest city is remarkable considering this state capitol in the desert didn't have a regular water supply until 1911.

By Thomas Sheess
Many an old-house aficionado has turned into a 110-degree crisp trying to cover Phoenix’s wide-open spaces on foot. While you’re in the area, don’t miss a chance to see Taliesin West, Frank Lloyd Wright’s winter home and studio in nearby Scottsdale (12621 Frank Lloyd Wright Blvd.; daily tours by reservation, 480-860-2700).

**Roosevelt** Bisected by Interstate 10, it’s no wonder that Roosevelt was the first Phoenix neighborhood to be designated a historic district. Despite the intrusion of the superhighway, this typical streetcar suburb is a mix of architecturally and historically significant commercial and residential styles, including both California and Arts & Crafts bungalows. Just east of Roosevelt is **F.Q. Story**, named after its promoter and developer. Considered a typical middle-class neighborhood in the 1920s and ’30s, F.Q. Story has historically prided itself on its racial and social diversity.

**Willo** To the north of Roosevelt lies Willo, one of the largest historic neighborhoods in Phoenix. Houses in a wide variety of styles, including Tudor Revival, Spanish Revival, bungalow, Cotswold, and ranch, were built during the 1920s and ’30s.

**Encanto-Palmcroft** Some of the city’s finest Spanish Eclectic homes grace the palm-lined streets of this picturesque neighborhood west of Willo and north of F.Q. Story. Developed in the late 1920s, its geometric street plan—three rounded squares lined by irregular building lots—represents an approach to suburban planning that has its roots in 19th-century England.

**Fairview Place** Just west of Encanto-Palmcroft is Fairview Place. This is a wonderful neighborhood to view Southwest, Tudor, and Spanish Colonial Revival homes, all in close proximity to Encanto Park and the State Fairgrounds. Just to the north of Fairview Place is Del Norte Place, conceived as an English Cottage-style neighborhood in 1927 and enclosed on three...
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HOTEL SAN CARLOS 202 North Central Ave., Phoenix, (602) 253-4121. This restored, boutique, 132-room Italian Renaissance-style hotel had the first elevator and working air conditioning system in Arizona when it was built in 1928.

ARIZONA BILMORE HOTEL RESORT AND SPA 24th & Madison, Phoenix, (602) 955-6600. This 730-room hotel opened in 1929 with much fanfare as the city’s first modern resort and spa. Architect Albert McArthur incorporated Frank Lloyd Wright’s ‘California block’ system in the design. The guest rooms and suites pay homage to Wright in their Mission Revival-style furnishings, antique lamps, and desert palette of beige, sand, and ivory.

With planning, Woodland’s Hallmark Park was one of the earliest in Phoenix. This neighborhood of bungalows was the first development outside the original Phoenix town site.

PHOENIX HOMESTEADS The Pueblo Revival-style homes here were built during the Depression by WPA workers using indigenous materials.

ARCADIA Near Camelback Mountain, Arcadia was envisioned as an affluent, modern ranch community in a rural setting. The first Monterey, Pueblo, and Spanish Colonial Revival homes were built here on 5- and 10-acre tracts in the late 1920s and early ’30s. There are a number of Frank Lloyd Wright–designed homes in this vicinity; one privately owned home that can be seen from the road is the Norman Lykes House on North 36th Street, north of Lincoln Road. Also nearby is the Spanish Eclectic-style home of chewing gum magnate William Wrigley, built in 1930 and now a private club (2501 E. Telewa Tr.; reservations required, 602-955-4079).

Thomas Sheess is the editor of North Park News, a community newspaper in a historic San Diego neighborhood.

Clockwise from left: St. Mary’s Basilica, completed in 1914. Tudor Revival, desert style, in Coronado. Palms line the broad avenues of Encanto-Palmcroft. An eclectic, Prairie-influenced house with a deep veranda in the Roosevelt neighborhood.
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<tr>
<td>6' 1500 watts</td>
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<td>5' 1250 watts</td>
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