JANUARY/FEBRUARY 1996

This Old House

As seen on public television

pullout guide to **Savannah,** site of the Spring **TV** Project

PLUS: Hammers, Heating and Insulation, Sanders, Driveways, Phone Wiring, Cedar Clapboard

Norm Abram installing soffit vents in Salem, Massachusetts

USA $3.50 CANADA $4.50

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Andersen AW Windows·Patio Doors

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contributors

JANUARY/FEBRUARY

1 **PETE ECKERT** (photographer, "Cedar Siding"), having honed his skills renovating and rewiring a 1914 bungalow, has graduated to a "newer" 1920 bungalow in his home of Portland, Oregon. His architectural photography has appeared in such publications as *Architecture* and *Communication Arts.* 2 **TOM BAKER** (senior editor and author of "Cedar Siding") spends much of his free time working on his 77-year-old Dutch Colonial. His five-year plan: renovate the bathrooms, rebuild the front porch, make bookshelves for the living room and create a dormered fourth bedroom in the attic. The former editor of *Small Boat Journal* and managing editor of *Boats & Gear,* Tom owns three boats and spends his spare time sailing and rowing.

3 **TOM WIRTH** (landscape consultant, "Driveways") is shown here with Laura Abram at the site of Norm and Laura's new home. Author of *The Victory Garden Landscape Guide*, Tom makes frequent guest appearances on *This Old House* and *The Victory Garden* and runs a private landscaping business in Sherborn, Massachusetts. His latest interest is building rustic stick furniture out of driftwood, a practice he considers "the perfect combination of art and craft."

4 **BRUCE IRVING** (reporter, "Carpets") joined *This Old House* in 1988 and is now the series producer, scouting segments and finding and managing the show's project houses. Spending all that time on dusty job sites led him to ensure that the renovated worker's cottage he and his wife bought in Cambridge, Massachusetts, needed nothing more than a new storm door.

5 **ERIK RANK** (photographer, "Driveways") acquired his love of home-building as a child in upstate New York, where he helped his brother and father build one of the houses he grew up in.

6 **JOE KELLER AND AMY KELLER** (photographers, "Comfort Control") are a husband-and-wife team working out of a turn-of-the-century factory in Boston's Fort Point Channel district. Lovers of *This Old House* since the first episode, they someday hope to practice what they've learned on a "big old Victorian".

This Old House

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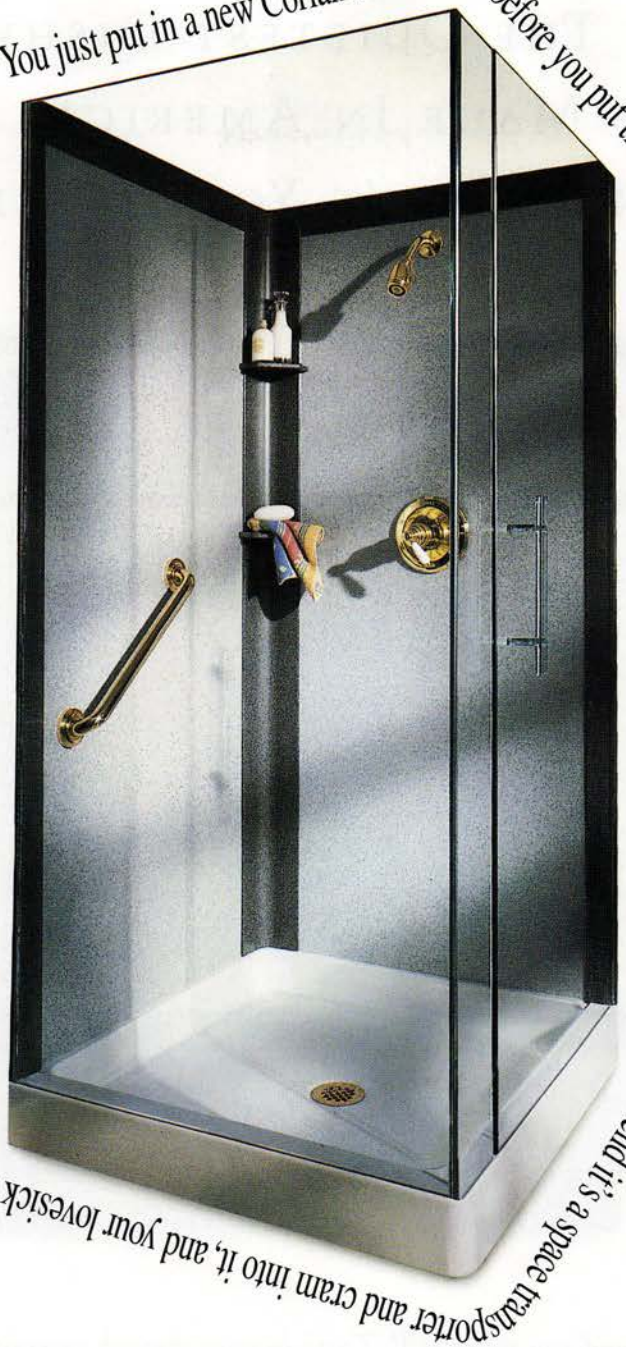
PHOTOGRAPHS, TOP TO BOTTOM, BY RAELENE ECKERT, MELANIE ACEVEDO, RICHARD HOWARD, RORY CARNEGIE, DIANA HAAS, KELLER AND KELLER

You just put in a new Corian® shower and before you put the tools away your psychedelic son tie-dyes his ponytail in it, your nephews pretend it's a space transporter and cram into it, and your lovesick teenager writes his girlfriend's name on it, so you scrub it with cleanser and it looks like



DuPont Corian® isn't one of those fickle materials that looks great when you put it in, then immediately begins a downward spiral into something unsightly. Corian resists the mold, mildew, scratches and stains that wreak havoc with other surfaces. And it's easier to clean than ceramic tile because there's no grout. So long after others look hopelessly haggard, Corian remains amazingly attractive. Even if a mark is made on one of its many colors, you can remove it with a little cleanser. What's more, you can now have Corian for less. Introducing Corian in affordable, ready-to-install kits. New shower kits you can coordinate perfectly with a beautiful one-piece vanity top and bowl. With Corian a bathroom can take what life dishes out without ever turning ugly on you.

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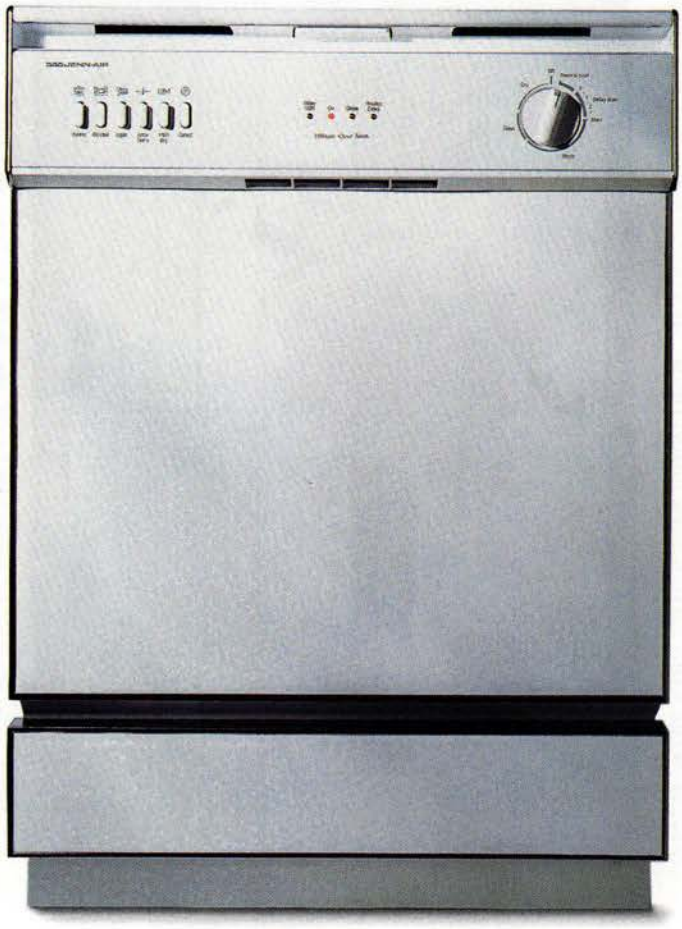

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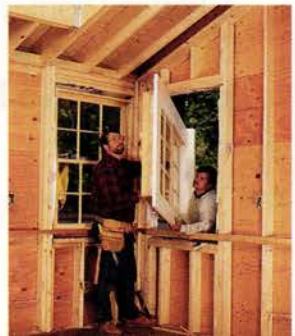
This Old House Online

Download a **3D model of the Salem kitchen** and walk through the remodeled space—as seen on the show.

This Old House can be reached through Pathfinder on the World Wide Web: **http://www.pathfinder.com/TOH/**

Cover photograph by David Barry



This Old House

PHOTOGRAPHS, TOP TO BOTTOM: PETE ECKERT, CHRIS SANDERS, DAVID BARRY

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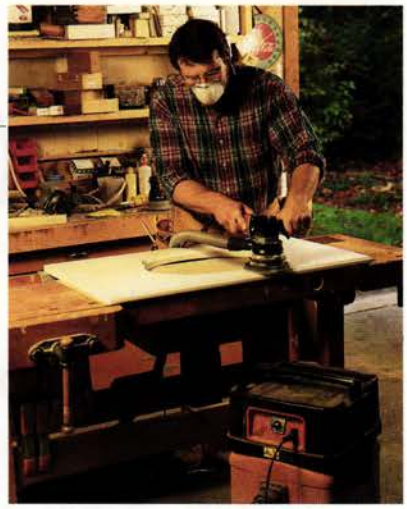

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Construction can be dangerous. Think about your safety, and that of others, when you embark on the projects shown in this magazine.

PHOTOGRAPHS, TOP TO BOTTOM: FURNALD/GRAY; SPENCER JONES; DAVID BARRY; FURNALD/GRAY

SOONER OR LATER YOU HAVE TO GO HOME.

After the kind of day you put in, all you want to do is fall into your favorite easy chair and put your feet up. That's why we designed the inside of the Chevy Full-Size Extended-Cab to be so comfortable. Kick back in the form-fitting seats with their available leather surfaces. Or choose power bucket seats that'll let you adjust to your favorite position with the touch of a finger and a center console that's about as versatile as the Original Swiss Army™ knife. So relax. You can still call on the Chevy C/K Pickup to be tough and dependable. But maybe now you'll also want to call it home.

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WBIQ-TV
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Sat. 8:00 pm

Demopolis
WIIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

Dozier
WDIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

Florence
WFIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

Huntsville
WHIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

Louisville
WGIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

Mobile
WEIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

Montgomery
WAIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

Mount Cheaha
WCIQ-TV
Thu. 8:30 pm
Sat. 8:00 pm

ALASKA

Anchorage
KAKM-TV
Mon. 6:00 pm
Sat. 9:30 am

Bethel
KYUK-TV
Fri. 10:00 am
Fri. 8:00 pm
Sat. 8:00 am

Fairbanks
KUAC-TV
Fri. 8:00 pm
Sat. 8:00 am

Juneau
KTOO-TV
Fri. 8:00 pm
Sat. 8:00 am

ARIZONA

Phoenix
KAET-TV
Thu. 1:00 pm
and 7:30 pm
Sat. 5:00 pm

Tucson
KUAS-TV
Sat. 11:00 am
and 6:30 pm
KUAT-TV
Sat. 11:00 am
and 6:30 pm

ARKANSAS

Arkadelphia
KETG-TV
Sat. noon
Sun. 5:30 pm

Fayetteville
KAFT-TV
Sat. noon
Sun. 5:30 pm

Jonesboro
KTEJ-TV
Sat. noon
Sun. 5:30 pm

Little Rock
KETS-TV
Sat. noon
Sun. 5:30 pm

Mountain View
KEMV-TV
Sat. noon
Sun. 5:30 pm

CALIFORNIA

Eureka
KEET-TV
Wed. 7:30 pm
Sat. 10:30 am

Fresno
KVPT-TV
Sat. 9:30 am

Huntington Beach
KOCE-TV
Sat. 4:30 pm

Los Angeles
KCET-TV
Sat. 5:30 pm

Redding
KIXE-TV
Sat. 1:30 pm

Rohnert Park
KRCB-TV
Wed. noon
Sun. 7:30 pm

Sacramento
KVIE-TV
Thu. 8:00 pm
Sat. 8:30 am

San Bernardino
KVCR-TV
Thu. 8:00 pm

San Diego
KPBS-TV
Sat. 10:30 am
and 5:30 pm

San Francisco
KQED-TV
Sat. 5:00 pm

San Jose
KTEH-TV
Wed. 9:00 pm
Sat. 3:00 pm
Sun. 5:30 pm

San Mateo
KCSM-TV
Wed. 6:30 pm
Sat. 9:30 am
Sun. 9:00 am

COLORADO

Boulder
KBDI-TV
Mon. 10:00 pm
Wed. 5:30 pm
Sat. 5:30 pm
Sun. 4:00 pm

Denver
KRMA-TV
Sat. 2:30 pm
Sun. 5:30 pm

Pueblo
KTSC-TV
Thu. 8:30 pm
Sat. 2:30 pm

CONNECTICUT

Fairfield
WEDW-TV
Tue. noon
Thu. 11:00 pm
Sat. 8:00 pm
Sun. 10:30 am

Hartford
WEDH-TV
Tue. noon
Thu. 11:00 pm
Sat. 8:00 pm
Sun. 10:30 am

New Haven
WEDY-TV
Tue. noon
Thu. 11:00 pm
Sat. 8:00 pm
Sun. 10:30 am

Norwich
WEDN-TV
Tue. noon
Thu. 11:00 pm
Sat. 8:00 pm
Sun. 10:30 am

DISTRICT OF COLUMBIA

WETA-TV
Sat. 9:00 am
and 5:30 pm

FLORIDA

Daytona Beach
WCEU-TV
Tue. 8:00 pm
Sat. 6:00 pm

Fort Myers/Naples
WSFP-TV
Sat. 1:30 pm
Sun. 5:00 pm

Gainesville
WUFT-TV
Sat. 9:30 am
and 1:30 pm

Jacksonville
WJCT-TV
Mon. 8:30 pm
Sat. 2:30 pm

Miami
WLRN-TV
Thu. 7:30 pm
WPBT-TV
Sat. 2:00 pm

Orlando
WMFE-TV
Sat. 9:00 am
and 1:30 pm
Sun. 9:00 am

Pensacola
WSRE-TV
Sat. 12:30 pm

Tampa
WEDU-TV
Sat. 11:30 am
Sun. 7:30 pm
WUSF-TV
Wed. 9:00 pm
Sun. 5:30 pm

GEORGIA

Atlanta
WGTV-TV
Sat. 5:30 pm
Sun. 8:00 pm
WPBA-TV
Mon. 8:00 pm
Wed. 2:00 pm
Sat. 6:00 pm

Chatsworth
WCLP-TV
Sat. 5:30 pm
Sun. 8:00 pm

Cochran
WDCO-TV
Sat. 5:30 pm
Sun. 8:00 pm

Columbus
WJSP-TV
Sat. 5:30 pm
Sun. 8:00 pm

Dawson
WACS-TV
Sat. 5:30 pm
Sun. 8:00 pm

Pelham
WABW-TV
Sat. 5:30 pm
Sun. 8:00 pm

Savannah
WVAN-TV
Sat. 5:30 pm
Sun. 8:00 pm

Waycross
WXGA-TV
Sat. 5:30 pm
Sun. 8:00 pm

Wrens
WCES-TV
Sat. 5:30 pm
Sun. 8:00 pm

HAWAII

Honolulu
KHET-TV
Thu. 7:30 pm
Sun. 4:30 pm

Wailuku
KMEB-TV
Thu. 7:30 pm
Sun. 4:30 pm

IDAHO

Boise
KAID-TV
Sun. 4:30 pm

Coeur d'Alene
KCDT-TV
Sun. 3:30 pm

Moscow
KUID-TV
Sun. 3:30 pm

Pocatello
KISU-TV
Sun. 4:30 pm

Twin Falls
KIPT-TV
Sun. 4:30 pm

ILLINOIS

Carbondale
WSIU-TV
Thu. 7:00 pm
Sat. 12:30 pm

Chicago
WTTW-TV
Tue. 7:30 pm
Sat. 7:00 am
and 5:00 pm

Jacksonville
WSEC-TV
Thu. 10:00 pm
Sun. 1:30 pm

Macomb
WMEC-TV
Thu. 10:00 pm
Sun. 1:30 pm

Moline
WQPT-TV
Tue. 7:00 pm
Sat. 5:30 pm

STEVE THOMAS

January 26-28 in Houston, TX
National Association of Home Builders
Annual Conference at the Astro Dome,
Baldwin Hardware Booth.
202-861-2191

February 10-11 in San Mateo, CA
Orchard Supply Hardware Company
Home Show. 408-365-2372

February 29–March 1 in Atlanta, GA
Atlanta Home Show (February 29-March 3)
at the World Congress Center.
404-998-9800

WILLIAM VAZQUEZ

television listings

where and when to see This Old House

Olney
WUSI-TV
Thu. 7:00 pm
Sat. 12:30 pm
Peoria
WTVP-TV
Thu. 10:00 pm
Sat. 12:30 pm
Quincy
WQEC-TV
Thu. 10:00 pm
Sun. 1:30 pm
Urbana
WILL-TV
Thu. 7:30 pm
Sun. 3:30 pm

INDIANA

Bloomington
WTIU-TV
Mon. 6:00 pm
Thu. 11:00 pm
Sat. 12:30 pm
Evansville
WNIN-TV
Sat. 12:30 pm
and 6:00 pm
Sun. 4:30 pm
Fort Wayne
WFWA-TV
Sat. 10:00 am
Indianapolis
WFYI-TV
Sat. 10:00 am
Sun. 7:00 pm
Merrillville
WYIN-TV
Wed. 9:00 pm
Sun. 3:30 pm
Muncie
WIPB-TV
Thu. 8:00 pm
Sun. 4:30 pm
South Bend
WNIT-TV
Fri. 10:30 am
Sat. 2:00 pm
Vincennes
WVUT-TV
Sat. 1:30 pm
Sun. 1:30 pm

IOWA

Davenport
WQPT-TV
(Quad Cities)
Tue. 7:00 pm
Sat. 5:30 pm
Des Moines
KDIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Fort Dodge
KTIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Iowa City
KIIN-TV
Fri. 6:30 pm
Sat. 1:30 pm

DAVID BARRY

Mason City
KYIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Omaha
KBIN-TV
(Council Bluffs)
Fri. 6:30 pm
Sat. 1:30 pm
Red Oak
KHIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Sioux City
KSIN-TV
Fri. 6:30 pm
Sat. 1:30 pm
Waterloo
KRIN-TV
Fri. 6:30 pm
Sat. 1:30 pm

KANSAS

Bunker Hill
KOOD-TV
Thu. 7:00 pm
Sat. 12:30 pm
Lakin
KSWK-TV
Thu. 7:00 pm
Sat. 12:30 pm
Topeka
KTWU-TV
Sat. 9:30 am
Wichita
KPTS-TV
Sat. 11:30 am
Sun. 11:00 am

KENTUCKY

Ashland
WKAS-TV
Sun. 5:00 pm
Bowling Green
WKGB-TV
Sun. 4:00 pm
WKYU-TV
Tue. 1:00 pm
and 6:30 pm
Covington
WCVN-TV
Sun. 5:00 pm
Elizabethtown
WKZT-TV
Sun. 5:00 pm
Hazard
WKHA-TV
Sun. 5:00 pm
Lexington
WKLE-TV
Sun. 5:00 pm
Louisville
WKMJ-TV
Sun. 5:00 pm
WKPC-TV
Wed. 1:30 pm
Sat. 1:30 pm
Sun. 3:00 pm
Madisonville
WKMA-TV
Sun. 4:00 pm
Morehead
WKMR-TV
Sun. 5:00 pm
Murray
WKMU-TV
Sun. 4:00 pm
Owensboro
WKOH-TV
Sun. 4:00 pm
Owenton
WKON-TV
Sun. 5:00 pm
Paducah
WKPD-TV
Sun. 4:00 pm
Pikeville
WKPI-TV
Sun. 5:00 pm
Somerset
WKSO-TV
Sun. 5:00 pm

LOUISIANA

Alexandria
KLPA-TV
Sat. 4:00 pm
Sun. 10:00 am
Baton Rouge
WLPB-TV
Sat. 4:00 pm
Sun. 10:00 am
Lafayette
KLPB-TV
Sat. 4:00 pm
Sun. 10:00 am
Lake Charles
KLTL-TV
Sat. 4:00 pm
Sun. 10:00 am
Monroe
KLTM-TV
Sat. 4:00 pm
Sun. 10:00 am
New Orleans
WYES-TV
Sat. 8:30 am
Shreveport
KLTS-TV
Sat. 4:00 pm
Sun. 10:00 am

MAINE

Bangor
WMEB-TV
Sat. 1:30 pm
Calais
WMED-TV
Sat. 1:30 pm
Lewiston
WCBB-TV
Sat. 1:30 pm
Portland
WMEA-TV
Wed. 7:00 pm
Presque Isle
WMEM-TV
Sat. 1:30 pm

MARYLAND

Annapolis
WMPT-TV
Sat. 4:30 pm
Sun. 6:30 pm
Baltimore
WMPB-TV
Sat. 4:30 pm
Sun. 6:30 pm
Frederick
WFPT-TV
Sat. 4:30 pm
Sun. 6:30 pm
Hagerstown
WWPB-TV
Sat. 4:30 pm
Sun. 6:30 pm
Oakland
WGPT-TV
Sat. 4:30 pm
Sun. 6:30 pm
Salisbury
WCPB-TV
Sat 4:30 pm
Sun. 6:30 pm

MASSACHUSETTS

Boston
WGBH-TV
Thu. 8:00 pm
Sat. 5:30 pm
WGBX-TV
Sun. 9:00 am
and 12:30 pm
Springfield
WGBY-TV
Thu. 8:00 pm
Sat. 5:30 pm

MICHIGAN

Alpena
WCML-TV
Sat. 2:30 pm
Bad Axe
WUCX-TV
Tue. 12:30 pm
Sun. 5:00 pm
Cadillac
WCMV-TV
Sat. 2:30 pm
Detroit
WTVS-TV
Thu. 1:30 am
and 8:30 pm
Sat. 10:00 am
East Lansing
WKAR-TV
Thu. 9:00 pm
Sat. 1:30 pm
Sun. 5:00 pm
Flint
WFUM-TV
Thu. 9:00 pm
Sat. 1:30 pm
Grand Rapids
WGVU-TV
Thu. 8:30 pm
Sat. 10:00 am
Kalamazoo
WGVK-TV
Thu. 8:30 pm
Sat. 10:00 am
Manistee
WCMW-TV
Sat. 2:30 pm
Marquette
WNMU-TV
Sat. 1:30 pm
Mount Pleasant
WCMU-TV
Sat. 2:30 pm
University Center
WUCM-TV
Tue. 12:30 pm
Sun. 5:00 pm

MINNESOTA

Appleton
KWCM-TV
Thu. 8:00 pm
Sat. 12:30 pm
Austin
KSMQ-TV
Sat. 12:30 pm
Sun. 7:00 pm
Bemidji
KAWE-TV
Sat. 12:30 pm
Brainerd
KAWB-TV
Sat. 12:30 pm
Duluth
WDSE-TV
Sat. 6:30 pm
Sun. 9:30 am
Saint Paul/
Minneapolis
KTCA-TV
Wed. 7:30 pm
Sat. 6:30 pm

MISSISSIPPI

Biloxi
WMAH-TV
Sat. 7:00 pm
Booneville
WMAE-TV
Sat. 7:00 pm
Bude
WMAU-TV
Sat. 7:00 pm
Greenwood
WMAO-TV
Sat. 7:00 pm
Jackson
WMPN-TV
Sat. 7:00 pm
Meridian
WMAW-TV
Sat. 7:00 pm
Mississippi State
WMAB-TV
Sat. 7:00 pm

NORM ABRAM

January 27 in Houston, TX
National Association of Home Builders
Annual Conference at the Astro Dome,
Baldwin Hardware Booth.
202-861-2191

February 10-11 in Suffern, NY
Good Living Expositions Home Show,
Rockland County Community College.
914-574-4380

television listings

where and when to see This Old House

TOM SILVA

February 3-4 in Long Branch, NJ
Jersey Shore Home Show, Ocean Place Hilton. 908-449-4004

February 24-25 in Minot, ND
Minot Home and Garden Show, North Dakota Fairgrounds. 701-852-0496

Oxford
WMAV-TV
Sat. 7:00 pm

MISSOURI

Joplin
KOZJ-TV
Sat. 12:30 pm

Kansas City
KCPT-TV
Thu. 7:30 pm
Sat. 12:30 pm

Saint Louis
KETC-TV
Wed. 12:30 pm
Sat. 6:30 pm

Sedalia
KMOS-TV
Sat. 12:30 pm

Springfield
KOZK-TV
Sat. 12:30 pm

MONTANA

Bozeman
KUSM-TV
Sat. 11:30 am

NEBRASKA

Alliance
KTNE-TV
Sat. 10:30 am
and 5:30 pm

Bassett
KMNE-TV
Sat. 10:30 am
and 5:30 pm

Hastings
KHNE-TV
Sat. 5:30 pm
and 10:30 pm

Lexington
KLNE-TV
Sat. 10:30 am
and 5:30 pm

Lincoln
KUON-TV
Sat. 10:00 am
and 5:00 pm

Merriman
KRNE-TV
Sat. 9:30 am
and 4:30 pm

Norfolk
KXNE-TV
Sat. 10:30 am
and 5:30 pm

North Platte
KPNE-TV
Sat. 10:30 am
and 5:30 pm

Omaha
KYNE-TV
Sat. 10:30 am
and 5:30 pm

NEVADA

Las Vegas
KLVX-TV
Sat. 12:30 pm
and 6:00 pm

Reno
KNPB-TV
Thu. 8:30 pm
Sat. 10:30 am
and 1:00 pm

NEW HAMPSHIRE

Durham
WENH-TV
Thu. 8:30 pm
Sun. 10:00 am

Keene
WEKW-TV
Thu. 8:30 pm
Sun. 10:00 am

Littleton
WLED-TV
Thu. 8:30 pm
Sun. 10:00 am

NEW JERSEY

Camden
WNJS-TV
Tue. 8:00 pm
Sat. 8:00 pm
Sun. 5:30 pm

Montclair
WNJN-TV
Tue. 8:00 pm
Sat. 8:00 pm
Sun. 5:30 pm

New Brunswick
WNJB-TV
Tue. 8:00 pm
Sat. 8:00 pm
Sun. 5:30 pm

Trenton
WNJT-TV
Tue. 8:00 pm
Sat. 8:00 pm
Sun. 5:30 pm

NEW MEXICO

Albuquerque
KNME-TV
Thu. 7:30 pm
Sun. 10:30 am

Las Cruces
KRWG-TV
Sat. 11:30 pm

Portales
KENW-TV
Sat. 3:30 pm

NEW YORK

Binghamton
WSKG-TV
Sat. 1:30 pm

Buffalo
WNED-TV
Sat. 10:30 am
WNEQ-TV
Sun. 7:00 pm

Long Island
WLIW-TV
Thu. 8:30 pm
Sat. 10:30 am
Sun. 8:00 pm

New York
WNET-TV
Sat. 5:30 pm

Norwood
WNPI-TV
Sat. 10:30 am

Plattsburgh
WCFE-TV
Sun. 11:30 am

Rochester
WXXI-TV
Sat. 10:30 am
Sun. 5:30 pm

Schenectady
WMHT-TV
Tue. 1:30 pm
Sat. 10:30 am

Syracuse
WCNY-TV
Thu. 8:00 pm
Sat. 10:30 am

Watertown
WNPE-TV
Sat. 10:30 am

NORTH CAROLINA

Asheville
WUNF-TV
Sat. 5:30 pm
Sun. 9:00 am

Chapel Hill
WUNC-TV
Sat. 5:30 pm
Sun. 9:00 am

Charlotte
WTVI-TV
Tue. 12:30 pm
Thu. 8:00 pm
Sat. 5:00 pm
Sun. 11:00 am
WUNG-TV
Sat. 5:30 pm
Sun. 9:00 am

Columbia
WUND-TV
Sat. 5:30 pm
Sun. 9:00 am

Greenville
WUNK-TV
Sat. 5:30 pm
Sun. 9:00 am

Jacksonville
WUNM-TV
Sat. 5:30 pm
Sun. 9:00 am

Linville
WUNE-TV
Sat. 5:30 pm
Sun. 9:00 am

Roanoke Rapids
WUNP-TV
Sat. 5:30 pm
Sun. 9:00 am

Wilmington
WUNJ-TV
Sat. 5:30 pm
Sun. 9:00 am

Winston-Salem
WUNL-TV
Sat. 5:30 pm
Sun. 9:00 am

NORTH DAKOTA

Bismarck
KBME-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Dickinson
KDSE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Ellendale
KJRE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Fargo
KFME-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Grand Forks
KGFE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Minot
KSRE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

Williston
KWSE-TV
Mon. 10:00 pm
Tue. 10:00 pm
Wed. 10:00 pm
Thu. 7:00 pm
and 10:00 pm
Sat. 6:00 pm

OHIO

Akron
WEAO-TV
Sat. 10:30 am
and 5:00 pm
Sun. 6:00 pm

Athens
WOUB-TV
Sat. 5:00 pm

Bowling Green
WBGU-TV
Mon. 3:00 pm
Sat. 1:30 pm

Cambridge
WOUC-TV
Sat. 5:00 pm

Cincinnati
WCET-TV
Thu. 8:00 pm
Sat. 9:00 am

Cleveland
WVIZ-TV
Tue. 7:30 pm
Sat. 1:00 pm
Sun. 12:30 pm

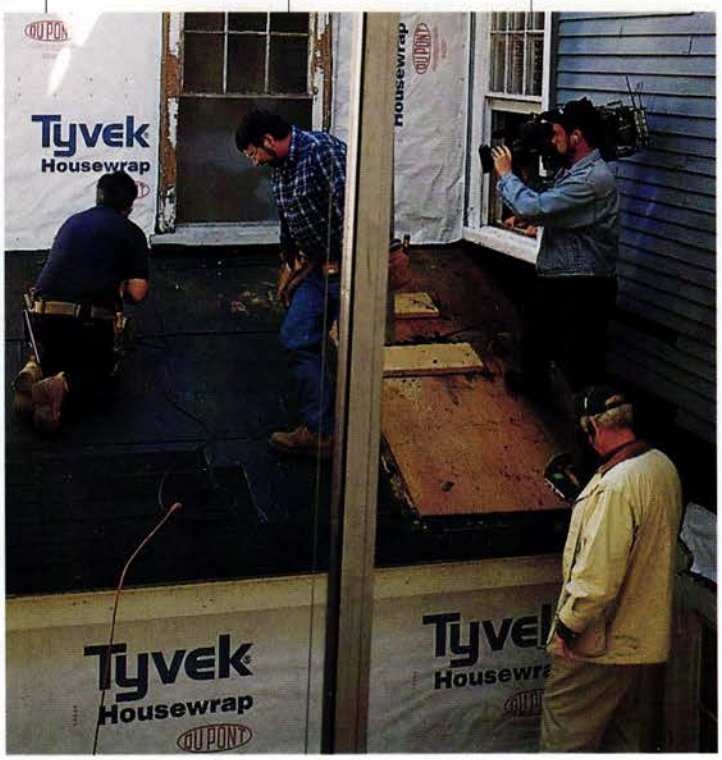
Columbus
WOSU-TV
Thu. 8:00 pm
Sat. 4:30 pm

Dayton
WPTD-TV
Thu. 8:00 pm
Sat. 9:30 am
Sun. noon

Portsmouth
WPBO-TV
Thu. 8:00 pm
Sat. 4:30 pm

Toledo
WGTE-TV
Thu. 8:00 pm
Sat. 1:00 pm
Sun. 1:00 pm

Youngstown
WNEO-TV
Sat. 10:30 am
and 5:00 pm
Sun. 6:00 pm



MICHEAL MCLAUGHLIN

television listings

where and when to see This Old House

OKLAHOMA
Cheyenne
KWET-TV
Sat. 9:30 am
and 12:30 pm
Sun. 3:00 pm
Eufaula
KOET-TV
Sat. 9:30 am
and 12:30 pm
Sun. 3:00 pm
Oklahoma City
KETA-TV
Sat. 9:30 am
and 12:30 pm
Sun. 3:00 pm
Tulsa
KOED-TV
Sat. 9:30 am
and 12:30 pm
Sun. 3:00 pm

OREGON
Bend
KOAB-TV
Thu. 8:00 pm
Sat. 5:00 pm
Corvallis
KOAC-TV
Thu. 8:00 pm
Sat. 5:00 pm
Eugene
KEPB-TV
Thu. 8:00 pm
Sat. 5:00 pm
Klamath Falls
KFTS-TV
Thurs. 8:00 pm
La Grande
KTVR-TV
Thu. 8:00 pm
Sat. 5:00 pm
Medford
KSYS-TV
Thu. 8:00 pm
Portland
KOPB-TV
Thu. 8:00 pm
Sat. 5:00 pm

PENNSYLVANIA
Allentown
WLVT-TV
Fri. 7:30 pm
Sat. 6:00 pm
Erie
WQLN-TV
Sat. 6:30 pm
Harrisburg
WITF-TV
Thu. 8:00 pm
Sat. 6:00 pm
Philadelphia
WHYY-TV
Thu. 8:00 pm
Sat. 6:00 pm
Pittsburgh
WQED-TV
Sat. 6:30 pm
WQEX-TV
Wed. 8:30 pm
Pittston
WVIA-TV
Thu. 8:00 pm
Sat. 5:00 pm
and 5:30 pm
University Park
WPSX-TV
Sat. 5:00 pm
Sun. 4:30 pm

RHODE ISLAND
Providence
WSBE-TV
Tue. 8:30 pm
Sun. 6:00 pm

SOUTH CAROLINA
Allendale
WEBA-TV
Sat. 1:30 pm
Beaufort
WJWJ-TV
Sat. 1:30 pm
Charleston
WITV-TV
Sat. 1:30 pm
Columbia
WRLK-TV
Sat. 1:30 pm
Conway
WHMC-TV
Sat. 1:30 pm
Florence
WJPM-TV
Sat. 1:30 pm
Greenville
WNTV-TV
Sat. 1:30 pm
Greenwood
WNEH-TV
Sat. 1:30 pm
Rock Hill
WNSC-TV
Sat. 1:30 pm
Spartanburg
WRET-TV
Sat. 1:30 pm
Sumter
WRJA-TV
Sat. 1:30 pm

SOUTH DAKOTA
Aberdeen
KDSD-TV
Sat. 4:30 pm
Brookings
KESD-TV
Sat. 4:30 pm
Eagle Butte
KPSD-TV
Sat. 3:30 pm
Lowry
KQSD-TV
Sat. 4:30 pm
Martin
KZSD-TV
Sat. 3:30 pm
Pierre
KTSD-TV
Sat. 4:30 pm
Rapid City
KBHE-TV
Sat. 3:30 pm
Sioux Falls
KCSD-TV
Sat. 4:30 pm
Vermillion
KUSD-TV
Sat. 4:30 pm

TENNESSEE
Chattanooga
WTCI-TV
Sat. 1:30 pm
Cookeville
WCTE-TV
Sat. 12:30 pm
Knoxville
WKOP-TV
Sat. 1:30 pm
WSJK-TV
Sat. 1:30 pm
Lexington
WLJT-TV
Thu. 9:30 pm
Sat. 12:30 pm
Memphis
WKNO-TV
Thu. 7:30 pm
Sat. 9:30 am
Nashville
WDCN-TV
Sat. 4:30 pm

TEXAS
Amarillo
KACV-TV
Sat. 12:30 pm
Austin
KLRU-TV
Sat. 5:30 pm
College Station
KAMU-TV
Sat. 12:30 pm
Corpus Christi
KEDT-TV
Sat. 12:30 pm
and 9:00 pm
Dallas/Fort Worth
KERA-TV
Sat. 9:00 am
and 6:30 pm
El Paso
KCOS-TV
Tues. 7:00 pm
Harlingen
KMBH-TV
Sat. 12:30 pm
Houston
KUHT-TV
Mon. 1:30 pm
Sun. 11:30 am
Killeen
KNCT-TV
Sat. 12:30 pm
Sun. 9:30 am
Lubbock
KTXT-TV
Sat. 12:30 pm
Odessa
KOCV-TV
Tue. noon
Sun. 12:30 pm
San Antonio
KLRN-TV
Sat. 5:30 pm
Waco
KCTF-TV
Mon. 12:30 pm
Sat. 12:30 pm

UTAH
Provo
KBYU-TV
Sat. 9:30 am
and noon

Salt Lake City
KUED-TV
Sat. 8:00 am
and 5:00 pm

VERMONT
Burlington
WETK-TV
Thu. 8:00 pm
Sat. 11:00 am
Rutland
WVER-TV
Thu. 8:00 pm
Sat. 11:00 am
Saint Johnsbury
WVTB-TV
Thu. 8:00 pm
Sat. 11:00 am
Windsor
WVTA-TV
Thu. 8:00 pm
Sat. 11:00 am

VIRGINIA
Charlottesville
WHTJ-TV
Sat. 8:30 am
Falls Church
WNVT-TV
Sat. 4:00 pm
Harrisonburg
WVPT-TV
Sat. 1:30 pm
Sun. 10:30 am
Marion
WMSY-TV
Sat. 1:30 pm
Norfolk
WHRO-TV
Thu. 8:00 pm
Sat. 8:30 am
and 2:00 pm
Norton
WSBN-TV
Sat. 1:30 pm
Richmond
WCVE-TV
Sat. 8:30 am
WCVW-TV
Fri. 8:30 pm
Roanoke
WBRA-TV
Sat. 1:30 pm

WASHINGTON
Centralia
KCKA-TV
Thu. 6:30 pm
Sat. 12:30 pm
Pullman
KWSU-TV
Wed. 7:30 am
Sat. 2:00 pm
Richland
KTNW-TV
Thu. 7:00 pm
Sat. 2:00 pm
Seattle
KCTS-TV
Sun. 5:00 pm
Spokane
KSPS-TV
Sat. 9:30 am
Sun. 5:30 pm
Tacoma
KBTC-TV
Thu. 6:30 pm
Sat. 12:30 pm
Yakima
KYVE-TV
Sun. 5:00 pm

WEST VIRGINIA
Beckley
WSWP-TV
Sat. 1:30 pm
Huntington
WPBY-TV
Sat. 1:30 pm
Morgantown
WNPB-TV
Sat. 7:00 pm

WISCONSIN
Green Bay
WPNE-TV
Wed. 7:00 pm
Sun. 4:00 pm
La Crosse
WHLA-TV
Wed. 7:00 pm
Sun. 4:00 pm
Madison
WHA-TV
Wed. 7:00 pm
Sun. 4:00 pm
Menomonie
WHWC-TV
Wed. 7:00 pm
Sun. 4:00 pm
Milwaukee
WMVS-TV
Thu. 7:30 pm
Sat. 8:00 am
Park Falls
WLEF-TV
Wed. 7:00 pm
Sun. 4:00 pm
Wausau
WHRM-TV
Wed. 7:00 pm
Sun. 4:00 pm

WYOMING
Riverton
KCWC-TV
Sat. noon
and 5:00 pm

MICHEAL MCLAUGHLIN

Letters

from our readers

Could you explain why it is impossible to find a true 2x4?

John Gunterman via e-mail

Unlike length, the thickness of wood is commonly measured in "nominal" dimensions, which are greater than the actual dimensions due to surfacing, drying and parsimonious lumber manufacturers. There are limits, however, to the differences: The American Softwood Lumber Standard (ALS) specifies that a 2x4, for instance, must measure at least 1½x3½ to legitimately bear that name.

I've really enjoyed reading Norm Abram's book about building his dream home, but I was wondering why he painted his house two different colors.

Marty Backe via e-mail

He didn't. The cover of the book showed a work in progress. The tan on the front of the house is the final color; the gray in back was the primer coat.

In "Veneer Plaster" (September/October, page 40), you refer to a "plaster washer." I visited two hardware stores and a lumberyard, and they had never heard of such a thing. What is it?

Ron Carlson via e-mail

A plaster washer is specifically designed for drilling screws into lath; it is a perforated metal disk a bit larger than a quarter, with a slight curvature that helps spread pressure over a greater surface area. They're not easy to find, so try this company, which specializes in them: Charles Street Supply Co., 54 Charles St., Boston, MA 02114.

We would like to save an old home. Is there a listing of preservation societies or trusts where we can ask about purchasing an historic home?

J. P. Ellington Chesapeake, Virginia

For $6, the National Trust for Historic Preservation will supply you with a list of state or local preservation groups. To order, contact the National Trust for Historic Preservation, 1785 Massachusetts Ave., N.W., Washington, DC 20036; 202-673-4286. Their magazine, *Historic Preservation*, also has a real estate section that lists only houses more than 50 years old.

My wife once lived in the house in Saint Joseph, Missouri, that you featured in "Save This Old House" (November/December, page 124). She says it's the house that created her lifelong interest in older homes. Any news?

Jim Parker via e-mail

Dozens of potential buyers from all over the country have called about the house, and it has been shown many times—but so far, no sale. "Save This Old House" is now two for two (the North Carolina girls' school sold in October), so we have high hopes that this house will be saved too.

punch list:

definition: a list of items incorrectly done or remaining to be fixed on a construction job

- We know that the Bouchard House window on page 110 of the November/December issue is not technically Victorian, since the house was built in 1916. The photo showed a type of window we couldn't find anywhere else.
- We apologize to anyone who tried to attend Antique Tool Discovery Day at the Mercer Museum in Doylestown, Pennsylvania, on November 12. The actual date was November 4.
- As alert reader Jeff Shay pointed out, the upper-right-hand photo on page 110 of "Architectural Salvage" in September/October showed old door hinges, not the components of an iron fence.
- "Give us the tools and we will finish the job," which we attributed to Franklin Delano Roosevelt (September/October, page 25), was actually said by Winston Churchill to FDR. Our thanks to Joyce Galloway of Chester, Nova Scotia.
- We left out ordering information for the Saitek Eco-Charger (September/October, page 27); it is #50-199 and costs $59 from Real Goods, 555 Leslie St., Ukiah, CA 95482; 800-762-7325.

OWN AN ORIGINAL.

If you're thinking about a custom home, Lindal's ORIGINALS *idea book* is a must-read. ORIGINALS is a remarkable resource containing 680 color photos, 115 plans and 266 pages loaded with helpful ideas and keen insights. This award-winning, 11″ x 14″ hardbound, coffee table book is perfect for anyone dreaming of an original home.

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Return this coupon for your copy of ORIGINALS.

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Phone: ( ) _____

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If you have house-related news, write:

This Old House
20 West 43rd Street
New York, NY 10036

or e-mail:
letters @ toh.timeinc.com

extras

calendar of events

■ **THE BUILDERS' SHOW,** sponsored by the National Association of Home Builders, will be held in Houston January 26–29. Call 800-368-5242, ext. 111.

■ **CONTEMPORARY JAPANESE ARCHITECTURE,** home design and other topics will be presented at a winter lecture series sponsored by the Boston Society of Architects. Call 617-951-1433.

■ **THE SEVENTH AMERICAN FOREST CONGRESS** considers our native forests and their future. February 20–24 in Washington, D.C. Call 203-432-5117.

■ **BASIC WOODWORKING AND FURNITURE-MAKING** are among the classes this winter at Harris Enterprises in Manchester, Connecticut. Harris also offers finishing and lathe classes. Call 203-649-4663.

■ **RESIDENTIAL LANDSCAPE DESIGN,** an eight-week course at the Chicago Botanic Garden, runs from January 30–March 19. Call 708-835-8261.

■ **"REENGINEERING AMERICA'S ARCHITECTURE,"** an American Institute of Architects forum on the upgrading and reuse of existing buildings, will be held February 9–11 in Washington, D.C.. Call 202-626-7482.

Photographs by Darrin Haddad

Name That Wood

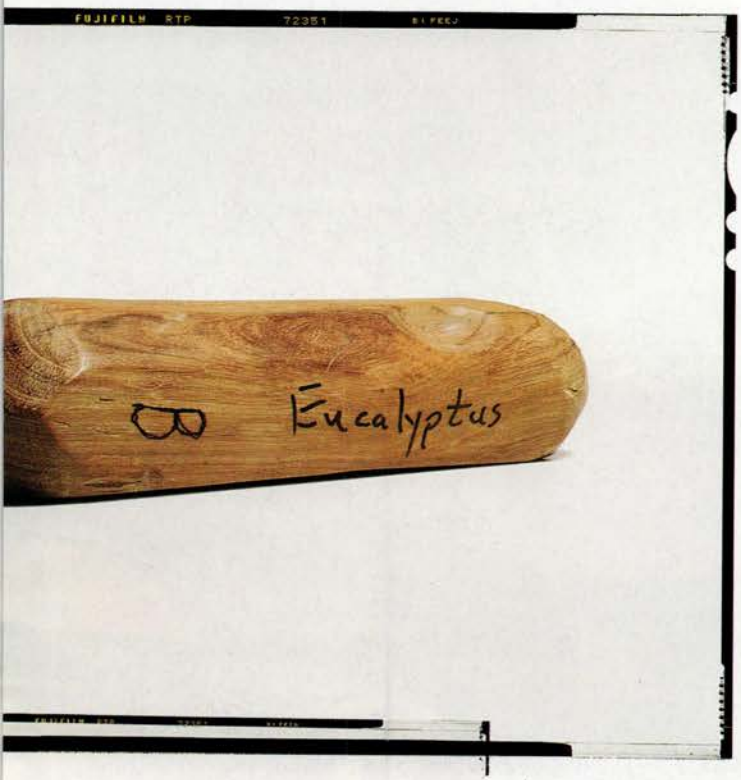
Mail a piece of wood to the U.S. Forest Service's research lab in Madison, Wisconsin, and experts there will tell you what it is. The service is free to anyone (with a limit of five samples a year). Botanist Harry Alden says people send amazing things: a piece of King Herod's tomb; bits of ships wrecked off the coast of Florida; 8-million-year-old wood from a Swedish bog; shingles from Mount Vernon. "And lots of antiques," he adds. "Lots and lots of antiques."

Seventy years ago, experts at the Forest Products Lab proved that the ladder used to kidnap the Lindbergh baby was made of wood from the prime suspect's attic: species, nail holes and tool marks matched. Most of the unit's work is more mundane, like identifying the species of a porch baluster or a tree root dug out from a sewer. "If the root belongs to your neighbor's willow, you might be able to bill him," says Alden. To use the service, send a chunk of the wood, along with a letter saying what you know about it—whether it came from the soffit or the sewer line, whether it might have been treated to resist decay. "Send in a reasonable-size piece," says Regis Miller, who supervises the program. "What we really like is six inches off a board. That doesn't mean we can't work with less. But if I say less, man, I really get a lot less." Mail to the Center for Wood Anatomy Research, Forest Products Laboratory, USDA Forest Service, 1 Gifford Pinchot Drive, Madison, WI 53705.

"When we build, let us think that we **build forever**."

John Ruskin

Homeowners On-line: Looking for a copy of the manual for that ancient furnace in your basement? Want to compare real-estate horror stories? If you have Internet access, try posting your questions to **misc.consumers.house**, one of the newsgroups in that free informational swap meet called Usenet. Before diving in, get the Frequently Asked Questions sheet by sending an e-mail request to **house-archive@dg-rtp.dg.com**. Other newsgroups of interest are comp.home.automation (home automation techniques) and alt.architecture.alternative (nontraditional building issues). The World Wide Web provides even more house-related resources via the Net: an e-tour of historic Salem **(http://www.star.net/salem/houses.htm)**; the National Materials Exchange Network, where you can find items from scrap metal to mink fat **(http://www.earthcycle.com/g/p/earthcycle)**; and a listing of the best loan rates, published by *Money* magazine **(http://www.pathfinder.com/money/best)**, to name just a few. The hardest part of surfing the Web is figuring out where to start, so check out the "Interesting Links" page on our *This Old House* Web site **(http://www.pathfinder.com/TOH/)** for recommendations.



MARK SINCLAIR

"Hello, Arianna?"

Why risk $100 million to run for the White House when for only $8.5 million you can own it? Now on the market, this 22-room, 27,000-square-foot Georgian Colonial in Hillsborough, California, is a near replica. It was designed in 1878 in the style of a French chateau and transformed into the "Western White House" in 1930 by its then owner, George Hearst, who inherited his grandiose taste from his father, publisher William Randolph Hearst. Like the original, it has an oval office, cherry trees and even a checkered past: The house nearly burned down in 1922, has had at least three facelifts and has changed hands repeatedly. But unlike the original, it's available for immediate occupancy.

(Continued on page 20)

Except for th the wheels things are prett you'd expect

Because of Dodge Intrepid's cab-forward design, you won't find the windshield in the usual place. Its leading edge is moved forward and down, to enhance visibility and aerodynamics.

The wheels are pushed toward the corners, for greater stability and increased interior room.

And this year many features that were options are standard. So now the price of a well-equipped Intrepid may be lower than you'd expect… while resale value is higher than Taurus, Lumina, Camry and every car in its class.†

e windshield, and the price, y much where them to be.

*$18,995,**
well-equipped

- *Standard 3.3L, sequential EFI V-6 engine, 161 hp*
- *Standard speed control*
- *Standard power windows and door locks*
- *Standard 16" touring tires*
- *Standard fog lamps*
- *Standard power heated outside mirrors*
- *Standard airbags for driver and front passenger*
- *Standard air conditioning*
- *Standard AM/FM cassette and center console with storage*
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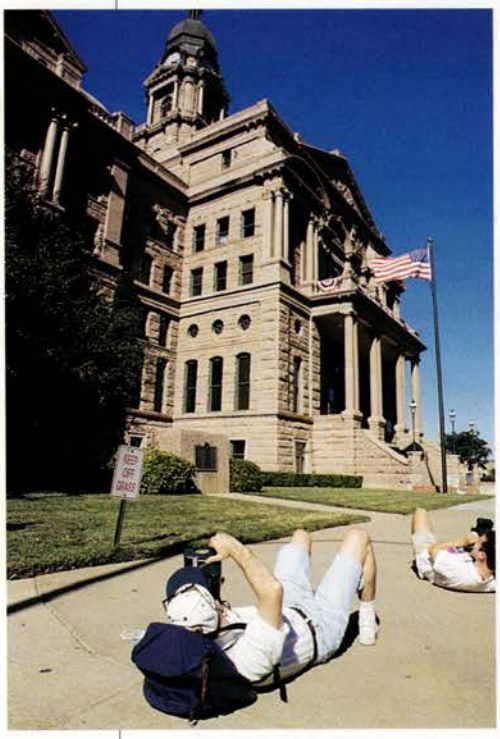
- *For still more information, call 1-800-4-A-DODGE.*

Intrepid The New Dodge
A DIVISION OF THE CHRYSLER CORPORATION

Always wear your seat belt. *Includes destination. Base MSRP at time of printing excludes tax & color shown. PRICES HIGHER IN CA, MA, NY. †We calculated resale using avg. trade-in values for '93 & '94 models of competitors mentioned and those in Ward's Large class vs. MSRPs, published in Oct. '94 through July '95 *N.A.D.A. Official Used Car Guide®* monthly editions. Use of these values does not constitute NADA's endorsement. ††See limited warranty & restrictions at dealer. Excludes normal maintenance & wear items.



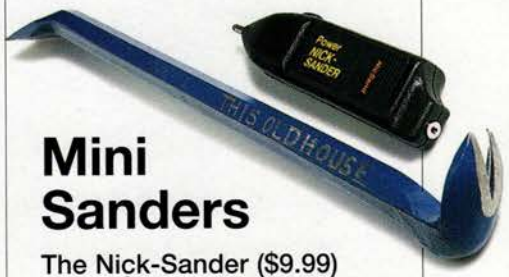
CUBE's Evangelists

The guy lying on the sidewalk in downtown Fort Worth hasn't had one too many margaritas. He's positioning a Polaroid camera for a shot of the impressive cornice on the building across the street. He and his fellow pedestrians are spending a Texas afternoon at a program run by CUBE, the Center for Understanding the Built Environment. A sort of urban-architecture evangelism program based in Prairie Village, Kansas, CUBE teaches through hands-on exploration. A few minutes ago, CUBE founder Ginny Graves's "students" were captives in a nondescript meeting room in a nearby hotel, attending a seminar at a National Trust for Historic Preservation conference. After her presentation on ways to teach ourselves and our kids to see, understand and preserve the worthy buildings around us, Graves turns the group of teachers, architects, urban planners and sundry preservationists loose in the historic district to play the "City Game." Variously outfitted for extensive walking—tennies, Birkenstocks, hiking boots and one ill-advised pair of high heels—the Cubists set out, architectural treasure-hunt maps in hand, Polaroids around necks. In Sundance Square, a Savannah interior-design professor and a Tampa preservation volunteer hunt for keystones, parapets, pointed corbeling and cast-iron columns. A woman from Coral Gables gives her camera and her Topsiders a workout. "This is really fun!" she says. "I can't wait to get home to take my kids out to look for Mediterranean details in our town." Mission accomplished. Graves knows if her students pass the message on to children, part of the battle is won. The child alerted to the bucking bronco emblems on the sidewalks of Fort Worth, for example, knows there's a whole built world to be discovered—and preserved.

—Dana Joseph Williams

lightbulb/ night-light

Whoever thought buying a lightbulb could promote family harmony? NiteLite Plus from Philips Lighting Co. can dim from 60 watts to the level of a night-light over 20 minutes—perfect for kids who can't fall asleep without a light on.

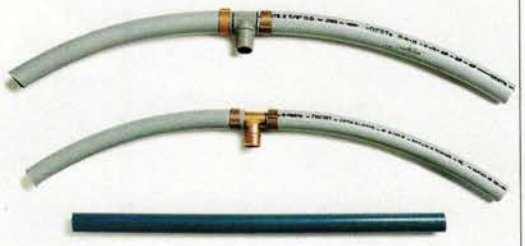


Mini Sanders

The Nick-Sander ($9.99) uses the power of two AA batteries and the abrasiveness of industrial diamonds to feather the edges of chipped paint, scrub oxidation from electrical contacts and solder joints and even write your name on other tools. (The batteries aren't included, but four diamond tips are.)

Polybutylene Settlement

Homeowners with polybutylene plumbing—plastic pipe installed mostly in the South and West during the 1980s—should know about the recent $950 million class-action settlement with manufacturers Shell and Hoechst Celanese. The plastic fittings allegedly corrode in contact with the chlorine in tap water; eligible homeowners can recoup damages from leaks and may qualify for replumbing. Call the settlement information line, 800-876-4698, for details.

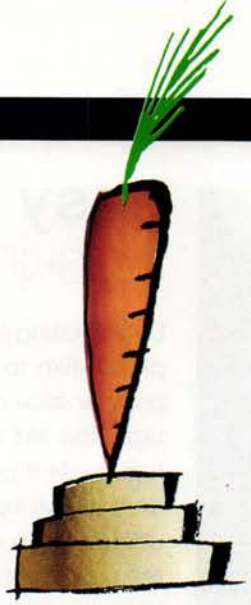


Testing for **Wood Rot**

Borrowing techniques from immunology, forest products researchers have developed a litmus test for wood rot. Rot fungi, which can do as much damage to a house as termites but get less publicity, are difficult to detect. The usual method is to probe with an ice pick; if the tip goes in, rot is suspected. But by then the damage is done. With the new test, a bit of sawdust from the wood is stirred into the test solution and a strip is dipped in. If a blue line appears, rot is present. The test works even in the earliest stages of fungal growth—important because wood that loses 1 percent of its weight to brown rot, the most damaging kind, can be weakened by 50 percent. Unfortunately, the test isn't yet on the market. Companies interested in producing it can contact John Bachhuber at the Forest Products Laboratory in Madison, Wisconsin, at 608-231-9282.

FORT WORTH PHOTOGRAPH BY MICHAEL MANUEL

GOLDEN CARROT



Now it can be less costly to buy a high-efficiency washing machine. Thanks to the Consortium for Energy Efficiency's "Golden Carrot" program, some utilities offer rebates to consumers who conserve before 1999—when the federal government is expected to issue efficiency regulations for clothes washers. If your machine meets the consortium's specifications and you live in Santa Clara, California, for example, Pacific Gas & Electric will give you a rebate of up to $225. The water utility adds another $75, making the initial sticker shock (prices start at $800) more manageable. With water and energy savings, buyers should break even in about three years.

"Huh? What?"

We're loath to admit it, but our days of enjoying ear-splitting power tools (not to mention roaring rock concerts) are over. What we seek most is silence. And here's how we find it. Ear muffs **(1)** may be hot and bulky and get in the way of hats and glasses, but *This Old House* master carpenter Norm Abram and contractor Tom Silva prefer them because they're typically better at blocking sound than other types of protection. Foam inserts **(2,4,5,7,8)** are small, light and offer good hearing protection, but they're easy to lose (a string connector helps). Show host Steve Thomas keeps his in a film canister on his tool belt. Molded-plastic earplugs **(3,6)** are easier to insert than the foam variety and offer comparable hearing protection. Semi-inserts **(9)** don't protect as well as other varieties because they can't be fully inserted. But they're easy to pop on and off and hang around your neck when you don't need them. Prices range from 50 cents or less for foam inserts to $17 for ear muffs.

"Castles in the air...
so easy to build." *Henrik Ibsen*

Concrete Delivery

Anyone who's ordered concrete has probably sweated about how much to ask for. Too much wastes money; too little can ruin a project. For a more relaxed approach, look for a company with trucks that keep ingredients separate during transit. Though not common, we've seen them both in the East (when *This Old House* worked on the Maitland house in Massachusetts) and in the West (the one shown here was spotted in San Jose, California). On-site mixing ensures fresher concrete and more working time before it sets. The truck mixes just the amount that's needed. And trucks tend to be small, so they can get into backyards. Search the Yellow Pages for suppliers with "mobile mix" or "short pour" services.

Semiprecious **tile**

Decadent, perhaps, but tiles like these, made with semiprecious stones, were often used in the palaces of Europe during the 12th and 13th centuries. Now you too can walk across floors decorated with lapis lazuli, malachite, onyx and red jasper—if you can afford them. Each 12-by-12-inch square costs $382; 4-by-16-inch border tiles sell for $148.

ILLUSTRATION BY SCOTT MENCHIN; CONCRETE TRUCK PHOTOGRAPH BY CHRISTINE ALICINO

So long, cam-out

Sometimes even the most careful of us (that would be Norm) strips a screw head when the driver loses its grip and "cams out." So we've enjoyed testing a product called ScrewGrab, designed to prevent cam-out. A drop of this gritty liquid on the tip of a screwdriver bonds with the screw head—as long as pressure is applied. Releasing pressure frees the bit. According to the manufacturer, ScrewGrab increases grip by 400 percent. We can't vouch for that, but the stuff does work.

easy masking

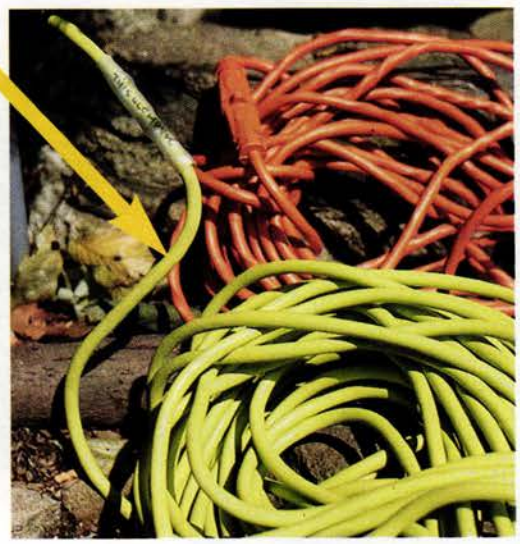
By attaching thin plastic film to its popular blue masking tape, the 3M company has made it possible to mask off baseboards while covering the inevitable gaps between wall and drop cloth. Ready-Mask dispenses from palm-size rolls that come in lengths of 25 or 30 yards; the film is available in three different widths up to 35 inches. It certainly beats the alternatives: taping up sheets of newspaper or scraping little blobs of paint off the floor.

Attention Frank Lloyd Wright groupies

The Frank Lloyd Wright Building Conservancy's first annual auction, held in Wisconsin in October, gave disciples a chance to bid on everything from a weekend at the architect's "Fallingwater" (left) in Mill Run, Pennsylvania (it went for $700), to a catered dinner for four at a privately owned Wright house. If those prizes seem too fleeting, consider the lucky bidder who walked out (for $400) with an actual piece of concrete trim from the Bogk house in Milwaukee. The conservancy will use the proceeds from the auction to help preserve the more than 400 Wright buildings across the country.

Frog wire

Extension cords often twist and kink after they've been coiled and unwound a few times. *This Old House* electrical regular Paul Kennedy reports that the FrogHide brand (it's green) stays flexible even in cold weather; it coils smoothly for him every time. (He also likes the integral name tag. No more "accidentally" walking off with his cord, guys.)



MASKING FILM PHOTOGRAPH BY MELANIE ACEVEDO; FALLINGWATER BY ARCHIVE PHOTOS; FROG WIRE BY KEVIN WILKES

Lead encapsulants

The bad news: Title X, a federal law that goes into effect this year, requires all home sellers to fess up if there's lead paint in the house. The good news: The law also lets homeowners use encapsulants, a new abatement method. Encapsulants are easily rolled, brushed or sprayed over lead paint. You are considered "lead safe" for the life of the encapsulant—20 years, in the case of the best ones.

Note that they can't be used in all situations (chipping and peeling paint, for instance). And most go on thick, so fine woodwork can't be covered without losing detail. But experts say encapsulants can save homeowners 50 to 80 percent of the cost of traditional techniques.

Since there's no national standard, look for encapsulants that meet Massachusetts lead-program standards (see Directory) and contain an anti-ingestant such as Bitrex, a foul-tasting additive to discourage kids from eating paint chips.

Radiant Heat Mesh

Richard Trethewey, our heating consultant, is fond of radiant floor systems—he installed one in the Salem house to warm the bathroom tiles. But the bulky hot-water tubing is only practical when you're constructing a new floor. For retrofits, the Warm Touch system is an electric alternative with 14-gauge copper wires embedded in polyester mesh. A typical installation, sandwiching the mesh between layers of thin-set mortar, is only ⅛-inch thick and consumes 10 to 15 watts per square foot. Richard wouldn't use it as a sole heat source: "Electricity is just too expensive in New England. But it might be a good choice for weekend homes or guest rooms."

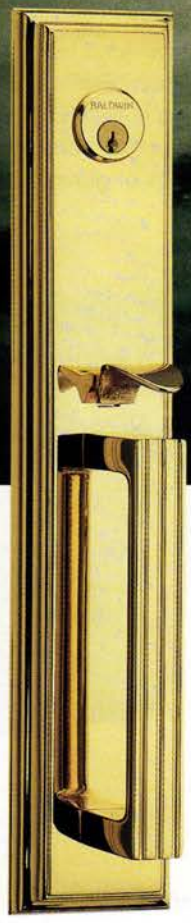
plastic nails

They're lightweight, they can't rust, they come in different colors and you can paint them. If you saw through one, it won't damage your blade. Plus, their tensile strength (resistance to withdrawal) is as much as 1½ times greater than that of smooth metal nails because they fuse with wood fibers. Is this the end of the venerable steel nail? Well, not yet, according to *This Old House* contractor Tom Silva, who tried a few Raptor plastic nails. Their shear strength (resistance to snapping or bending) is about half that of a metal nail, so they're not suitable for framing. You can't hammer them; a special nail gun is required. And they won't work on hardwoods or medium-density fiberboard (known as MDF). But Tom thinks they might be just the thing for hanging siding, where shear loads aren't important but beating the elements is.

Save your old brushes

A good paintbrush never wears out, it just clogs up with dried paint. This brings up three questions: Why don't we clean brushes properly? What can we do with those stiff-as-a-board brushes that were never cleaned? And why should we keep shelling out the $15 a decent brush now costs? We may not have answers, but we've got Nutec, a new paint stripper that cleans even hardened brushes like magic. It's the liquid version of the paste stripper we used on the Salem house portico (see page 52). A smelly solvent, Nutec peels paint off brushes in no time—even those caked with modern paints like polyurethanes. It's also reusable (strain out paint that settles to the bottom). Not all paint stores stock it yet; call 800-523-4114 for information.

Style is everything.



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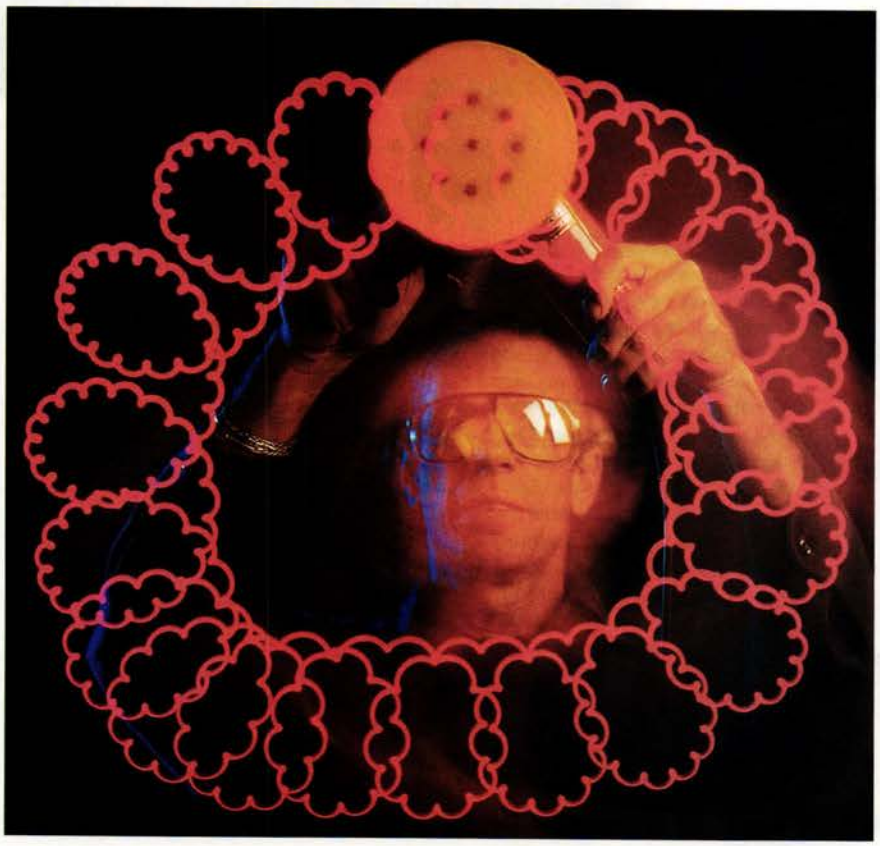
Random-Orbit Sanders

Eccentricity makes them work

BY MARK FEIRER **PHOTOGRAPH BY WAYNE SORCE**

Don't sand against the grain. That's the first woodworking rule people learn, whether sanding by hand or with a power sander. So you'll probably cringe the first time you sweep a random-orbit sander across a tabletop. But as the surface begins to smooth with no sign of scratching, you'll see that this tool ignores the rule and gets away with it. As master carpenter Norm Abram says, "It's not a magic tool, just a lot more forgiving than any other sander."



To map a "random" orbit, a tiny battery-powered light was slipped into a felt-covered sanding pad. The photographer snapped this shot as the sander operated against a sheet of Plexiglas. Exposure: 4 seconds at f4.

A random-orbit sander incorporates two simultaneous actions: As the pad spins in circles, an offset drive bearing causes it to also move in an elliptical orbit. The motion isn't truly random (the photo shows how orderly it is), but as you work the two motions overlap, reducing scratching across the grain and keeping any swirl marks to a minimum.

Versatility is another random-orbit hallmark. The tool can strip paint like a belt sander but is easier to control. It can finish like an orbital sander but without grain-direction worries. And because it can suck up and remove dust through holes in the pad, a random-orbit sander is great where ventilation is lousy. Says Norm, "This tool is starting to dominate my sander collection."

Elements of **Sanding**

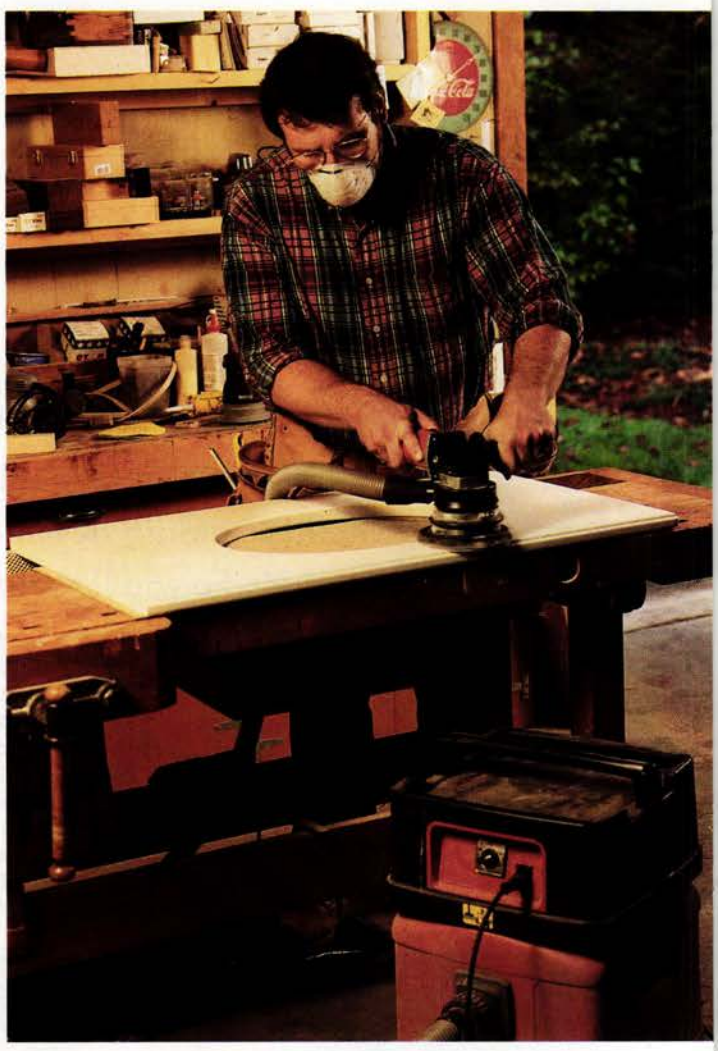
When it comes to finish sanding, a random-orbit sander is only as good as your patience. The most common mistake Norm sees is the failure to spend enough time with each grit. You have to start with coarse and earn your way up to fine, but if you don't sand thoroughly at each stage you'll see scratches at the end. Before changing grits, Norm *slowly* sweeps back and forth across the entire surface with overlapping horizontal strokes, then re-covers the territory with vertical strokes.

Use two hands on a right-angle model.

"I start with 80 grit to strip a finish on solid wood," he says, "otherwise the first step is 100 or 120 followed by 150. I stop there if the surface will be painted. If I'm staining, I go to 180 grit and then 220."

A random-orbit sander and silicon carbide sandpaper are ideal for taking scratches out of solid-surface countertops (right). The process generates extremely fine dust and a minute amount of styrene vapor, so a vacuum or a fitted, NIOSH-approved dust respirator is a must.

Some in-line and palm-grip models (see page 27) will scuff wood if you're not careful. The pads start spinning as soon as you pull the trigger, but the orbiting motion doesn't kick in until the tool is in full contact with the wood. In that moment of transition, the sander can leave an arc of scratches where it first touches down. Many newer sanders have features that minimize scuffing, but Norm still thinks it's best to start these models while they're flat against the wood. Because random-orbits generate a lot of dust, most have a bag or canister to collect dust sucked through holes in the sanding pad; a vacuum hookup is even more efficient. Norm's shop vac starts automatically when he turns on the sander.



The Papers

The right sandpaper is crucial if a random-orbit sander is to deliver top performance, but lots of options make choosing tricky. • Sanding pads will accommodate hook-and-loop (Velcro-type) or pressure-sensitive adhesive (PSA) discs, but not both. Hook-and-loop discs can be taken off and reattached as often as needed; they're the best choice if you change grits frequently. PSA discs are less expensive, but you can't reattach them. • Discs come in 5- and 6-inch sizes to match the pad diameter of the sander. • Dust collection suffers if the vacuum holes in pad and paper don't line up. Discs can have as few as 5 holes or as many as 16, so make sure the ones you buy fit your machine. • For perfect placement every time (well, almost), Norm sights through the paper's holes as he presses the disc into place. • The sandpaper's backing—what the grit is stuck to—is usually paper. Lightweight backings ("A" weight) are best for finish sanding; heavier backings ("C" or "D") are for heavy-duty stock removal or sanding hard surfaces. Unfortunately, manufacturers don't always list backing weight on their packaging. • Uncoated aluminum oxide is the best abrasive for raw wood. On painted or sealed wood, use stearated aluminum oxide discs to minimize clogging.

PHOTOGRAPHS BY FURNALD/GRAY

Sanding Across Grain Is No Problem

The eccentric movement of the sanding pad lets you disregard grain direction entirely, a real time-saver on furniture and cabinet projects. For example, when sanding this dresser he built out of recycled antique pine (right), Norm hardly paused as he crossed the border onto its breadboard edge. His only caution: "Just don't go too far off an edge or you'll round it over when the sander tips." Cabinet doors (below left) present a similar situation. The grain changes direction where stile meets rail, but a random-orbit sander zips over the intersection. The wood pegs in this door stood slightly above the surface—until Norm took them down with the random-orbit; the tool is unusually efficient at sanding end grain. On narrow surfaces, hold the sander firmly to keep it from sliding off one edge or the other. You'll notice more vibration with a random-orbit sander than with other types. It takes some practice to get the touch just right, particularly with powerful right-angle models. Sanders with variable speed settings give you the most control. A random-orbit sander won't fit into corners (left), so you will have to finish them off by hand or with a detail sander. Remember to lift, not drag, the vacuum hose over your work. As Norm learned the hard way, the ribs on the hose can rasp away wood edges.

Choosing a Random-Orbit Sander

Palm-grip models (A) are the lightweights of the family (and usually the least expensive.) They're easy to hold against narrow surfaces, such as cabinet face frames, and they maneuver like sports cars. Pads are 5 inches in diameter; most accept a vacuum attachment. Right-angle sanders (B) have gears that link their powerful motors to the sanding pad. This increases torque and reduces orbiting speed. The tool is a bit noisier (and more expensive) than the others, but you can push it hard without slowing it down—a plus if you're stripping a finish or smoothing a glued-up surface. With a lighter touch and fine sandpaper, it also makes a great finish sander. Five-inch pads are most common, but Norm prefers the greater coverage of 6-inch models. An in-line sander (C), with its motor directly over the pad, is mechanically identical to a palm-grip sander. In-lines, however, have features that improve their utility, including stronger motors, variable speeds, handles and 5- or 6-inch pads.

(See Directory, page 106, for details and sources)

Window Glass

The right choice can make all the difference in comfort and peace of mind

BY JEANNE HUBER **PHOTOGRAPH BY DARRIN HADDAD**

"Fantastic" is the word researcher Charles Greenberg chooses to describe glass, the material that captivates his curiosity. Glass can be bent, colored, shaped, strengthened—and still remain transparent, durable and cheap. No wonder it's found in virtually every building in the modern world. "If it didn't exist, we'd have to invent it," says Greenberg, senior scientist for flat glass development at PPG Industries, a Pittsburgh company with 68 glass factories worldwide.

But for all the magic of glass, it's a rare homeowner who pays much attention to what type is in the windows. This is true, window salespeople say, even when consumers shop for replacements. Maintenance and ease of cleaning matter; the glass itself is taken for granted.

Yet the choice of glass actually has a great deal to do with what it's like to live in a room. It can allow us to see that gorgeous view to the west or force us to draw the drapes to escape the heat. It can mean the difference between cozying up with a book in a window seat or shivering there.

All window glass begins as mostly sand, plus varying amounts of other materials. To produce it, the ingredients are melted in furnaces heated to about 2,900 degrees Fahrenheit, then poured onto a bed of molten tin, where the mix floats out into a level, continuous ribbon. Blasted with air, the glass cools as it runs along a long conveyor belt to machines that cut it into pieces (using automated glass cutters functionally no different from those we use at home).

Once a float-glass operation fires up, it runs 24 hours a day until it's time to rebuild—about 10 years later. Were it to

what glass is made of:

be shut down, a pool of glass would harden near the furnace and have to be jackhammered out. Other building materials can be produced to meet demand, but a glass line spews out a constant 600 tons of material every day. "The glass keeps coming out, and we have to sell it," says Michael Rupert, manager of new business development for flat glass at PPG.

Today, homeowners have a lot to choose from when they install new windows or retrofit old ones. Those who go with standard glass, whether or not they realize it, get a product with a slight greenish cast (because of its iron content). The glass will let in most of the sun's energy: 90 percent of visible light, 80 percent of ultraviolet (the short-wave radiation that degrades fabrics) and 79 percent of infrared (longer-wave radiation that causes objects to heat up). It will break into shards if struck by a baseball or a burglar or subjected to the intense heat of a fire.

Other glasses are far different. Low-emissivity glass, developed in the 1980s, offers the most dramatic temperature control with the least change in appearance. Made by coating glass with an invisibly thin layer of silver or tin oxide, this type allows most visible light to pass through but reflects interior heat, keeping rooms warmer in winter.

A variety of "low-e" glasses are available for different situations. Where summer cooling costs are most significant, buyers can choose glass that deflects most of the sun's heat. But where free solar heat is an asset, they can use glass that admits most of it. Windows with different characteristics can be chosen for different exposures of a house.

Low-e coatings can be either pyrolytic, which means the metals are applied while the glass is still molten, or added later. The latter are often called "soft" coatings because they scratch more easily. Since soft coatings tend to give better thermal performance, they're good inside double-pane insulated windows. Pyrolytic coatings are the only way to go for storm or single-glazed windows.

Other, older ways of limiting heat from the sun—tinted and reflective glass—are not as well suited to homes because they change a window's look. But styles may change. PPG is conducting a marketing survey to find out what range of tinted glass homeowners might accept if they knew the benefits. Glass with slightly more green than normal, for example, admits most visible light (83 percent) but blocks nearly half of ultraviolet and 45 percent of infrared.

Besides solar considerations, glass can be selected to resist breakage, muffle sound or withstand fire. Often this is done by laminating thin plastic film between two sheets of glass. By using low-e, tinted or reflective glass for one or both of the layers, it's possible to get glass that has several advantages.

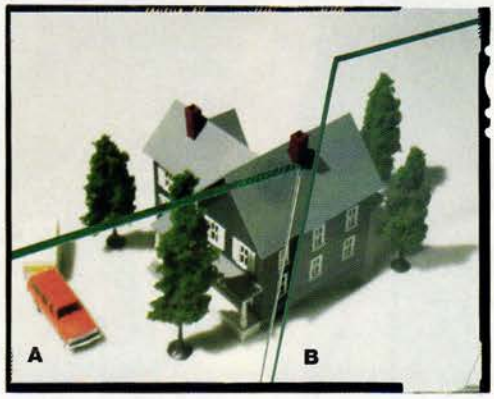
This is true with insulated glass too, which has an air layer between the panes to keep heat from moving by conduction (physical contact) and convection (air flow). With the right glass, it can deal with radiant heat and security issues as well. Not all companies offer all options, so shop around.

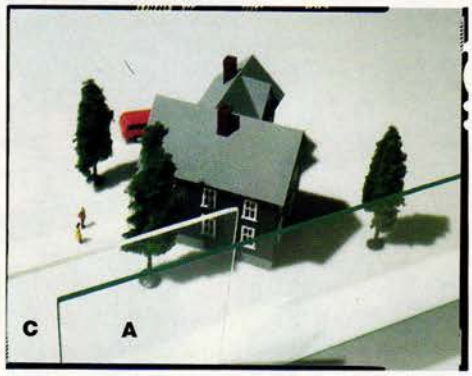
hot stuff

Because float glass furnaces run uninterrupted for years, any problems must be fixed with the fire roaring. This is a job for the "hot workers," who wear amazingly thin clothing made of a fire-resistant material called Momex. "The heavier you dress, the more tired you get," says Andy Steinour (at right above), working with Terry Sanders to retrieve a blob of molten glass at PPG's factory in Carlisle, Pennsylvania. They're often called on to lift 90-pound firebricks into place, a job made harder because the fire robs most of the oxygen from the air.

PHOTOGRAPH BY GUY AROCH

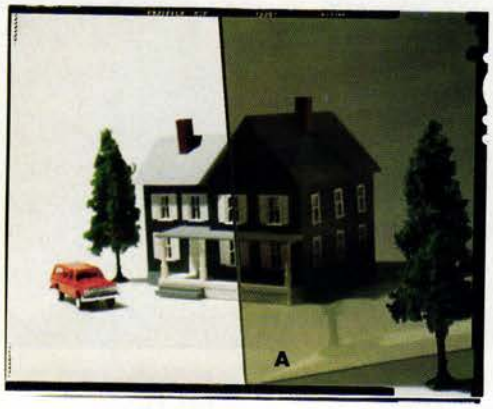
Window Glass **Options**

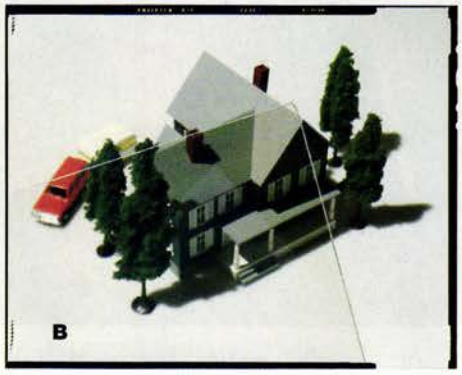




"clear" glass

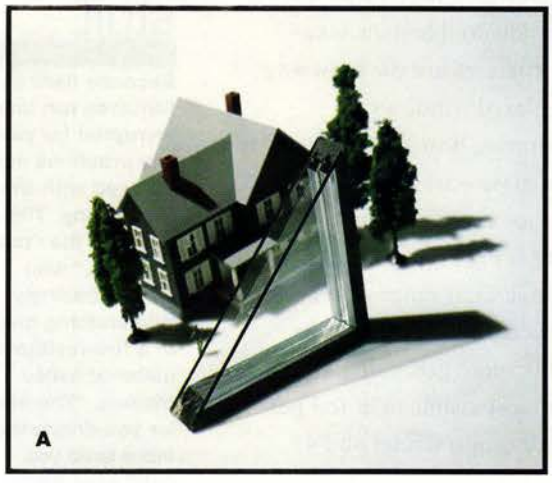
Standard window glass (A) is what we're used to. It's cheap and in warm climates is still the best choice for windows that don't get a lot of sun. We're so accustomed to it that we barely notice its greenish tint. But for use in solar collectors, **low-iron glass (B)** is better. It has no green, and more solar energy gets through. If you don't want to see yourself when you peer through a window, pick glass with a **nonreflective coating (C)**.





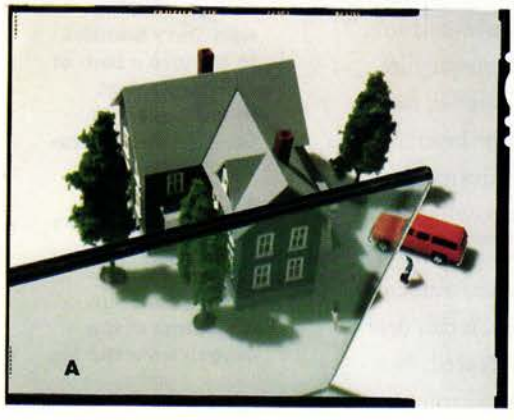
reflective glass

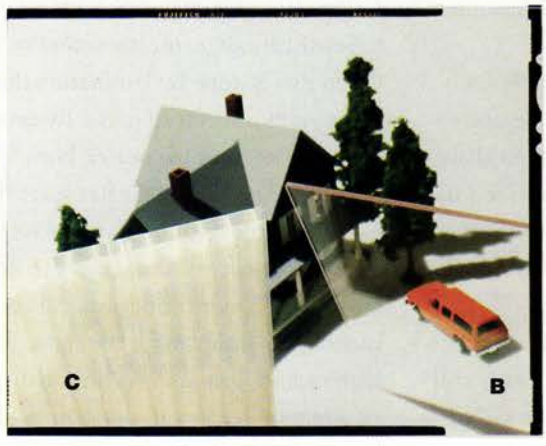
Standard reflective glass (A) can keep sun-drenched rooms from roasting. But it darkens interiors and makes windows look like mirrors. Not for our house, but maybe good for a mountaintop retreat. **Low-emissivity glass (B)** is great for homes. It lets in almost as much light as standard glass but reflects interior infrared energy to keep rooms warmer in winter. It can be made to deflect or admit infrared from outside. The only drawback: It's more reflective than we're used to.



insulated glass

Insulated windows (A), which can be made of any kind of glass, help keep heat in (or out) of a building. Metal spacers filled with desiccant hold the two panes apart, creating an air layer in the middle. That space, sometimes filled with argon or other inert gases instead of just air, acts like insulation in a wall. **Heat-Mirror glass (B)** insulates twice as well because it's made by suspending a transparent sheet of plastic (with low-e coating) in the air space, creating two insulating layers.

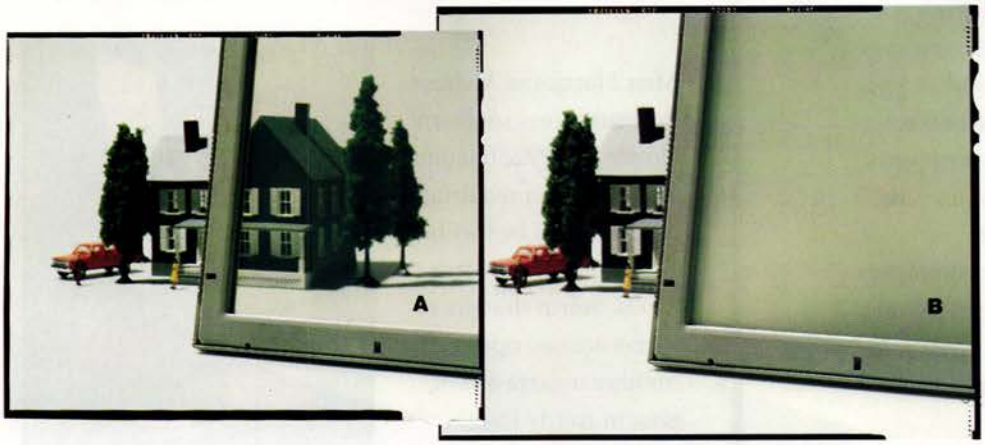




safety glazing

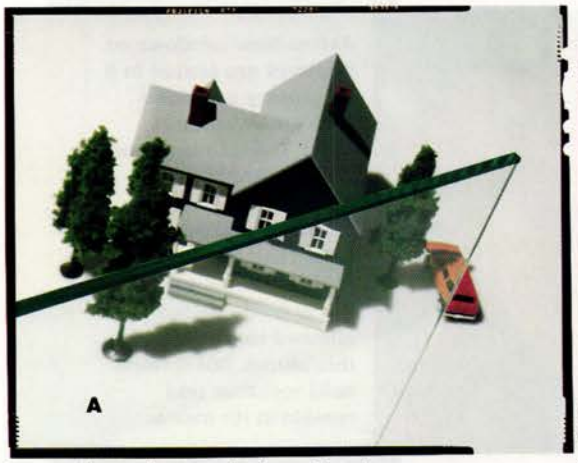
Where people might fall through, building codes require glazing that won't cause injuries if it breaks. Tempered glass is one option. Another is **laminated glass (A)**, with a thin layer of polyvinyl butyral between two layers of glass. This sample has a low-e film between two PVB layers. **Lexan (B)**, a plastic, is a low-cost alternative. Buy it only with a scratch-resistant coating. It's available with **insulating air channels (C)**, but they're very visible.

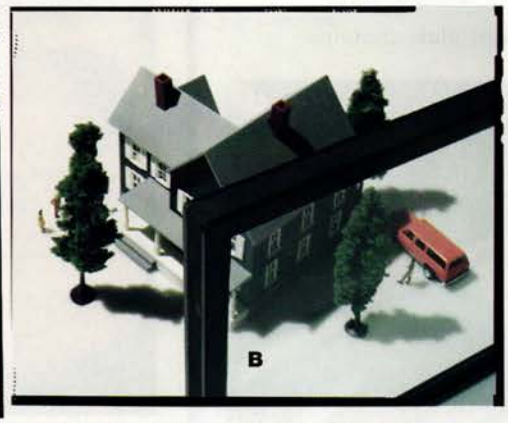
PHOTOGRAPHS BY DARRIN HADDAD

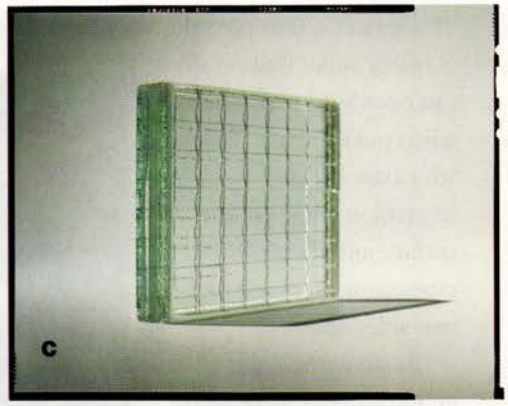


switchable glass

This is the perfect glass for folks who want a conversation piece or hate closing drapes. Switch it on **(A)** and **Privacy Glass** changes from opaque to clear. Turn it off **(B)** and it's back to milky white. Its magic is a thin film of liquid crystals. Usually in random order, they line up when the film is charged by electricity, letting you see through the window. The glass has no significant energy savings. Could glass be made to change from admitting to blocking the sun's heat at the flip of a switch? Maybe, but don't look for it soon.

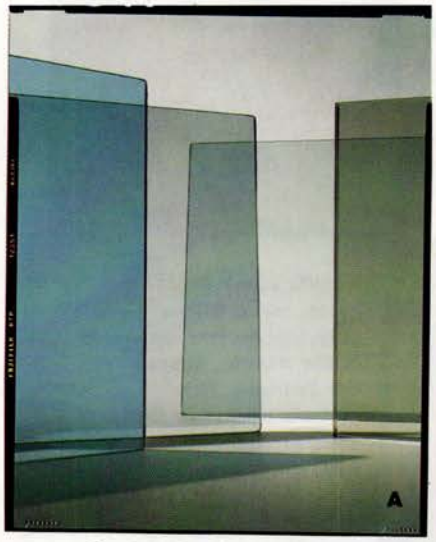






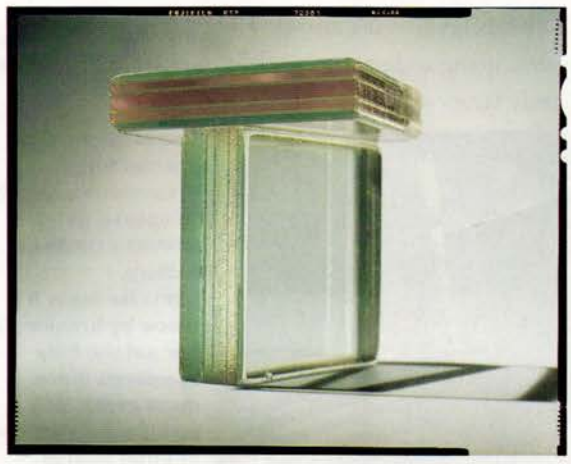
heat-resistant glass

A regular window can burst during a fire, allowing flames to spread. In institutions and other places where it is crucial for glass to hold together, a traditional solution is wire-embedded glass. But wire glass and alternatives like wire-free **Superlite I (A)** can still transmit enough radiant heat as flames encroach to set a room on fire from the inside. Not **Superlite II (B)**. Its inner gel layer, made of a polymer containing salt and water, actually absorbs heat. After 60 or 90 minutes, depending on thickness, the nonfire side will remain below 250 degrees. Perhaps worth buying for homes in fire-prone areas, but other fireproofing is more important. **Inferno-Lite (C)** is the ultimate in wire glass. Laminated to resist impact, it's intended mostly for prisons and psychiatric hospitals.



tinted glass

Tints can be functional or purely decorative. Some absorb heat and block ultraviolet radiation, thanks to the **metallic oxides** that happen to color them green, gray, blue or bronze **(A)**. For looks alone, windows can be made any color by **laminating** one or several layers of plastic between sheets of glass **(B)**. Tinted glass looks strange in old homes but could be great in some spots in newer ones.



bad-guy glass

Standard laminated glass resists impact, but it can't withstand bullets or repeated punches. Secur-Tem + Poly can. For those of us whose children insist on playing ball indoors, the product, shown here in two thicknesses, is the ultimate in protection. It can be ordered in colors or as a one-way mirror.

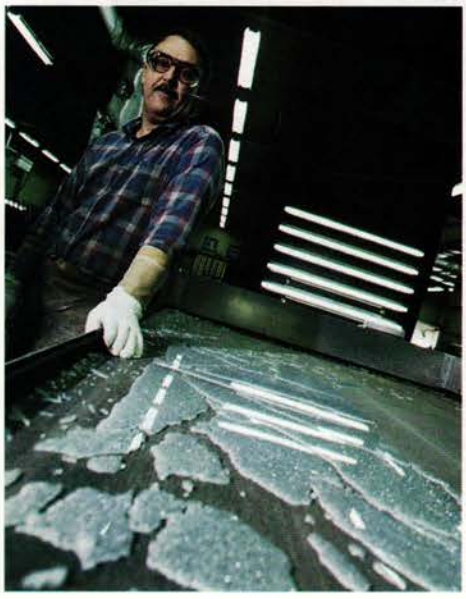
Strengthening glass

PHOTOGRAPHS BY GUY AROCH

To understand why glass behaves as it does, you must understand its atomic structure: nearly random and completely frozen. This explains why glass differs from most building materials in the way it deals with heavy loads. In metal, for example, atoms or molecules can slide about, allowing the material to deform, even to the point of being permanently misshapen, before giving way completely. But in glass, a network of bonded silicon and oxygen atoms and a sprinkling of other ingredients are locked in place. If pressure exceeds the strength of those atomic bonds, the glass breaks.

Curiously, the theoretical strength of the bonds is about 100 times greater than the actual strength of window glass. The reason is that even the smoothest-looking glass contains invisibly small fissures that can open into wide cracks when pulled apart. That's why glass is "cut" by scratching a line on one surface and then either tapping or snapping the two sides apart.

To strengthen glass, manufacturers increase the density of atoms at the surface; the added pressure keeps any surface flaws pushed tightly closed. The most common method of strengthening is to heat pieces of glass and then cool the surfaces faster than the center. Tempered glass has a surface compression 75 times greater than regular glass; heat-strengthened glass, which is made by a similar process, has a surface compression 20 times greater. It's also possible to chemically strengthen glass; sodium atoms near the surface are replaced by slightly larger potassium atoms.

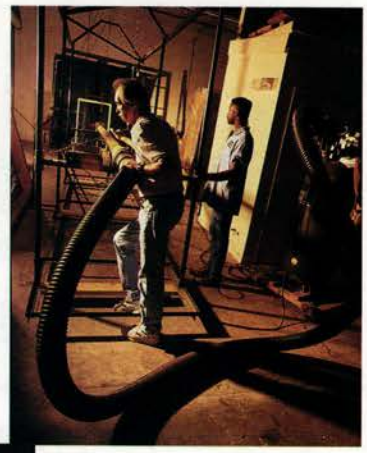


ABOVE: Doug Roof checks for distortions in newly tempered glass at PPG's Carlisle factory. LEFT: He tests a piece by breaking it. For safety, fully tempered glass must break into small cubes instead of large shards. Where falling cubes might be a problem, heat-strengthened glass is a better choice because it holds together more when broken.

At the test lab

PHOTOGRAPHS BY BRIAN SMITH

After Hurricane Andrew stormed across southern Florida in 1992, building officials began requiring that windows be fortified against hurricane-force winds. Storm shutters or covers are one option. Another is extra-strong glass in sturdy frames.



ABOVE: New windows or shutters are tested in a laboratory equipped with an air cannon. LEFT: The cannon shoots a 9-pound 2x4 at 34 mph. Windows or shutters also must withstand winds of at least 110 mph through 9,000 gusts. Glass is allowed to break under this abuse, but it must hold together and remain in its frame.

Is laminated glass the way to go? For most homes, no. True, it should hold together if broken in a storm, protecting against catastrophic damage. But homeowners would still be left with expensive replacement bills. Shutters or covers that protect glass are smarter.

ABOVE: Laminated glass, made with a polyvinyl butyral layer in the middle, passes the 2x4 test. This glass is similar to that used in automobile windshields. LEFT: Tempered glass fails the hurricane test. The gaping hole would allow wind and water to enter the house.

(See Directory, page 106, for details and sources)

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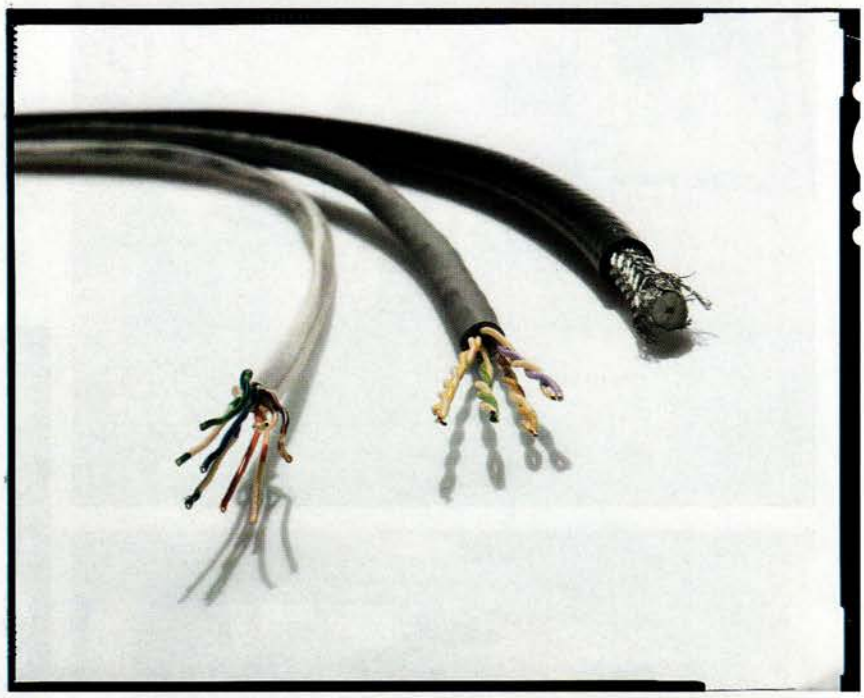
Phone and Data Wiring

It pays to plan for services you don't yet need

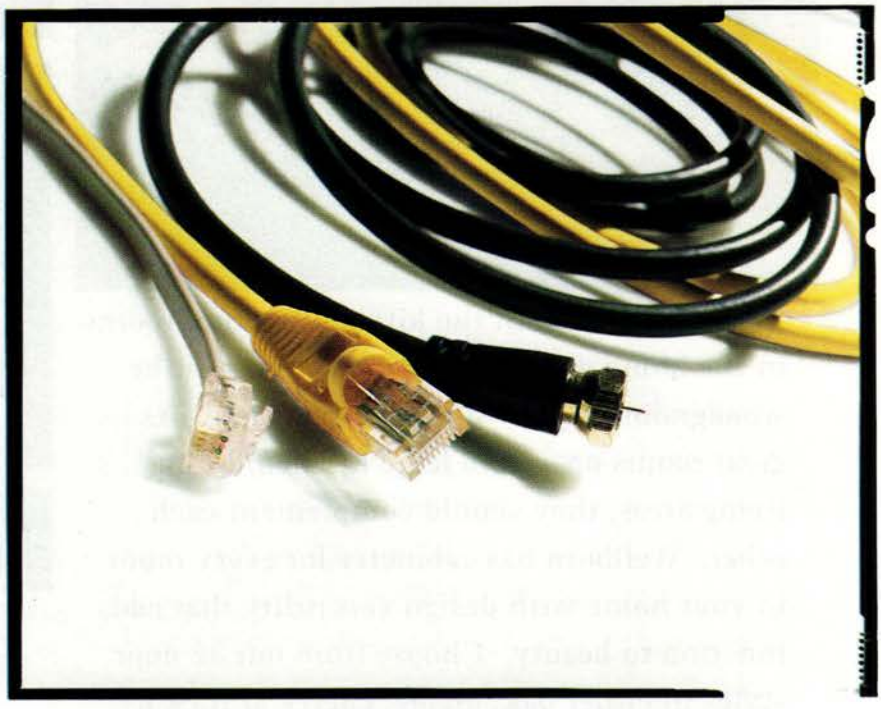
BY PAMELA HARTFORD **PHOTOGRAPHS BY DARRIN HADDAD**

The demand for phone wiring—your home office, your kid's e-mail address, your spouse's Internet habit—forces many homeowners to think about adding second and third lines. In most older houses, that means adding confusion—unless you have a strategy that makes economic and functional sense.

When Norm Abram built his new house, his son, Bob Pitard, laid in a simple system—star wiring—that allows for flexibility and future expansion. Norm's literary agent, Don Cutler, recently hired Pitard to design a similar system for his 1846 Greek Revival house in Salem, Massachusetts. Cutler told Pitard: "I need four lines—business, personal, dedicated fax and modem for my office—but I also want to be able to answer calls in the kitchen, use my modem on any floor and check e-mail in my dressing room. Can I do it?" Here's what *This Old House* learned about adding lines to an older home.



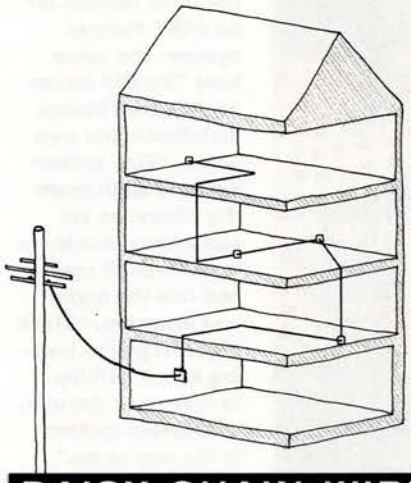
These are the wires to run in your walls: "four-pair" (left), which carries eight wires in color-coded twisted pairs for four phone or fax lines; category 5 high-speed twisted-pair (middle) for carrying data on a computer network; and coaxial cable (right) for hooking up your cable television.



The equipment connectors: the RJ-11 (left), which can be used to deliver two phone lines through one jack; the category 5 connector (middle) for computer networks and high-speed phone services like ISDN; and the coaxial cable connector (right), which someday may also run video into your computer.

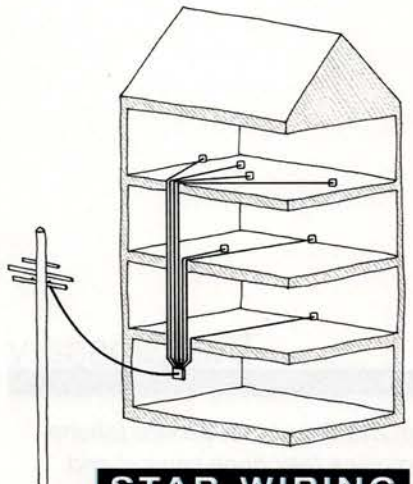
Wiring Topology

ILLUSTRATIONS BY JOHN MURPHY



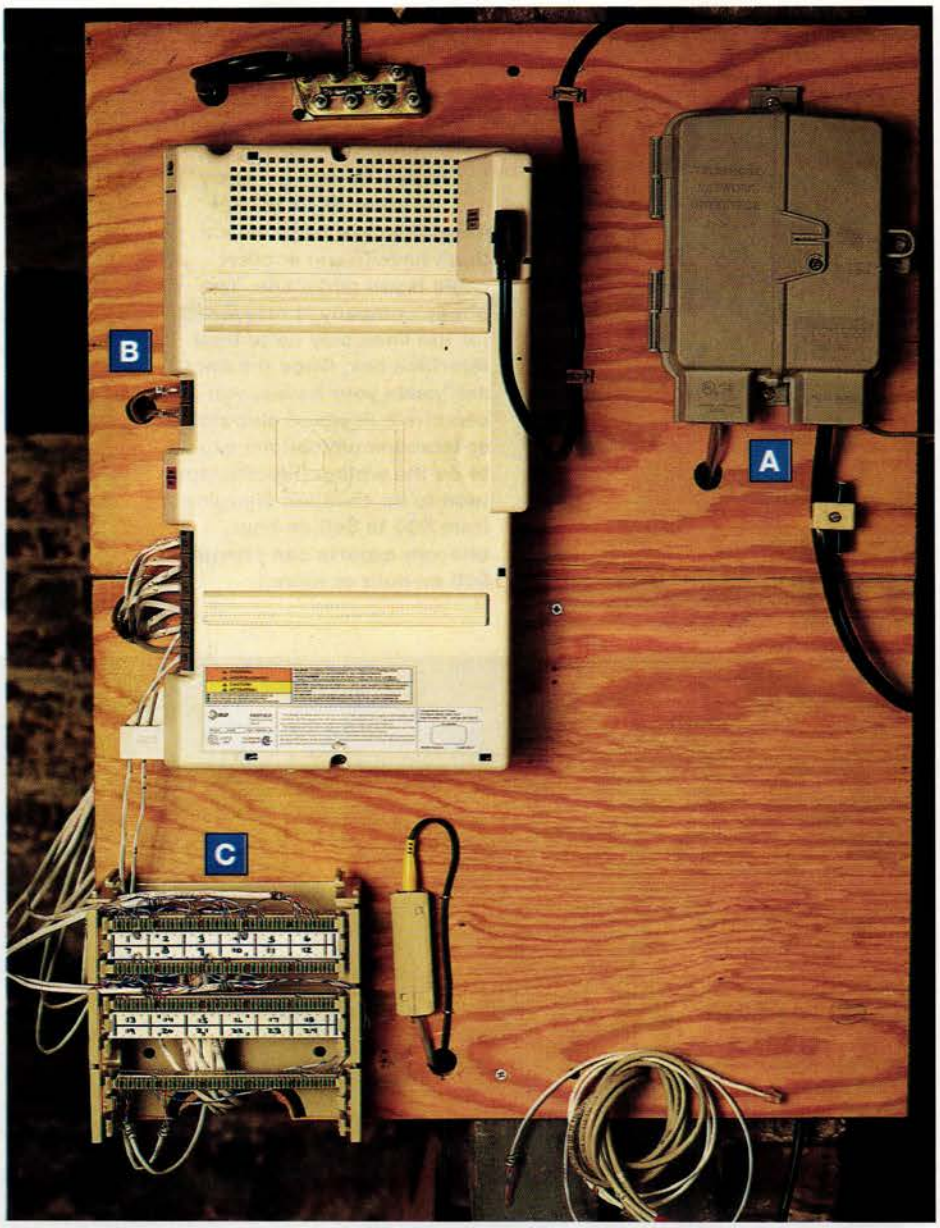
DAISY-CHAIN WIRING

Most older homes have daisy-chain wiring, also known as series or loop. One cable comes from the network interface box (where your house's wiring connects with the phone company's) usually found in the basement and runs in a chain from one jack to the next. If there is a break anywhere in the line, everything downstream goes out. To add lines within this system, new wiring must be run from the interface box. This can follow the existing daisy chain or a new route to the desired jacks. Result: lots of spaghetti, inside and out; breaks or bad connections are hard to locate.



STAR WIRING

Star or "home run" wiring is more flexible. With this system, cable bundles are run from the interface box directly to each jack location (the points of the "star"). Extra phone, video and data-network wire can be included in each bundle, even if it's not currently needed—a smart choice since wire is cheap and electricians expensive. "The wire outlives the equipment," says Jahan Salehi, a telecommunications consultant in Dobbs Ferry, New York. "Put good cable in the walls, and overwire. It's extremely economical to do while the technician is there." With star wiring, breaks in a line can be isolated and repaired faster.



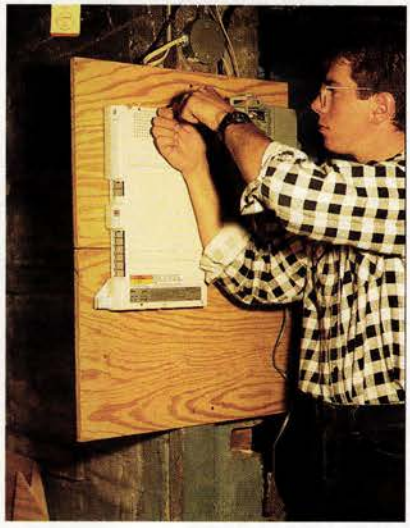
The Hub

All Don Cutler's wiring is organized through this hub board. The phone company's network interface box **(A)** has two halves. The wire pairs from the main cable run from the terminal block on the right half to test jacks on the left. Bob Pitard ran Cutler's four lines into an AT&T Partner panel **(B)**, a business telecommunications system that links the phone lines to the desired house extensions and can be programmed to provide an array of features: paging, conference calling, call transferring, a door intercom and on-hold music. Pitard added the cross-connect block **(C)** to augment the system so multiple lines could be bridged into one extension. Category 5 high-speed wire for the separate computer network is coiled at the bottom.

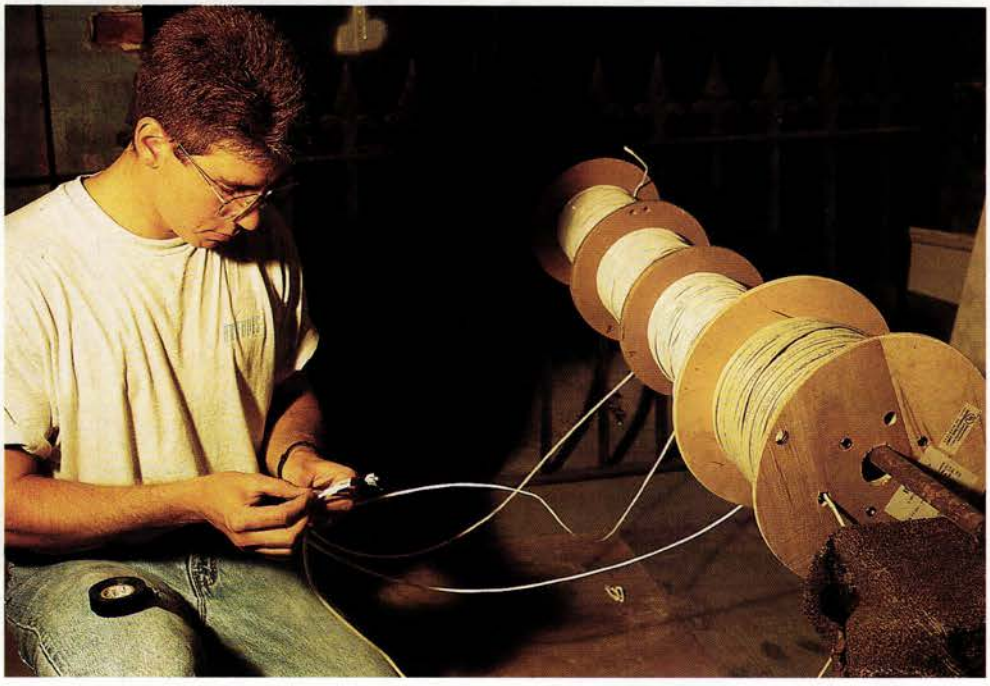
In the Basement

PHOTOGRAPHS BY FURNALD/GRAY

Bob Brown, a Nynex technician, brings a 6-line "drop line" cable from the pole to the house. Drop lines carry 1, 2, 6, 12 or 24 lines. Get more than you need so you don't have to run another cable if you add a line. The phone company is responsible for the lines only up to their interface box. Once the lines are inside your house, you can hire a licensed electrician or telecommunications expert to do the wiring. (Electricians tend to be cheaper, charging from $30 to $45 an hour; telecom experts can charge $65 an hour or more.)



Bob Pitard puts up the base module for an AT&T Partner system, the same kind *This Old House* host Steve Thomas installed in his own home. "This system extends all through the house, so we can answer business lines from all over and use the pager and intercom," Steve says. "If you're looking for something to last you a decade, a business system is the way to go."



Pitard does some prep work to make running the wires up the walls as problem-free as possible. For each phone extension, he bundles together the necessary cable, then adds extra so future phone and data lines can be hooked up without the expense of rewiring the home. He then tapes together each bundle, carefully labeling both ends with the designated extension number so no lines get crossed.

The Glossary

Bridging: *Combining several lines into one extension at a connecting block, or splitting an incoming line into two separate lines via a bridge/splitter at the jack.*

Connecting block: *A plastic block containing metal terminals for connecting groups of wires. The block has insulation-displacement connections, which means you can connect an insulated wire ("punch it down") without having to first strip off some of the plastic coating.*

ISDN (Integrated Services Digital Network): *High-speed technology that permits two voice conversations plus data transmission, all at the same time, on home wiring.*

Network: *Computer equipment connected via cable. Local area networks (LANs) such as AppleTalk and Ethernet carry data within offices, homes or campuses. Separate from telephone wiring, but can be run at the same time.*

POTS and PANS: *Plain Old Telephone Service (phone company lingo for basic single-line telephone service) and Pretty Amazing New Stuff (new services such as ISDN).*

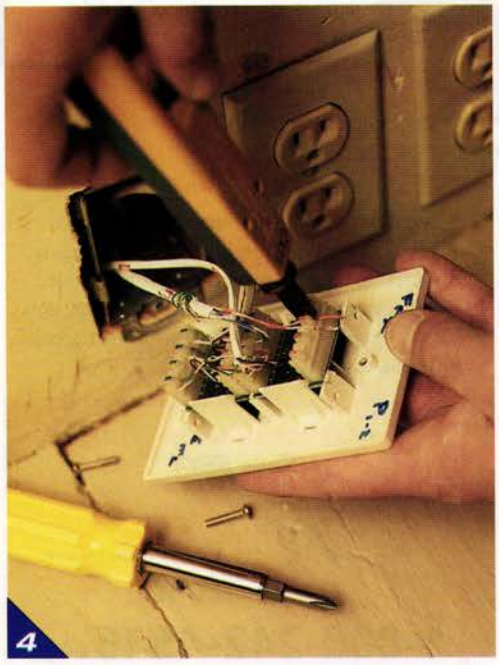
Quad wire: *A cable consisting of four unpaired wires (green, red, black and yellow), adequate for standard analog telephone service only. To use business-system features such as call waiting, hold buttons and conference calling, it should be replaced with twisted-pair wire.*

Topology: *The configuration of a wiring system. Two main topologies are the star and the daisy chain.*

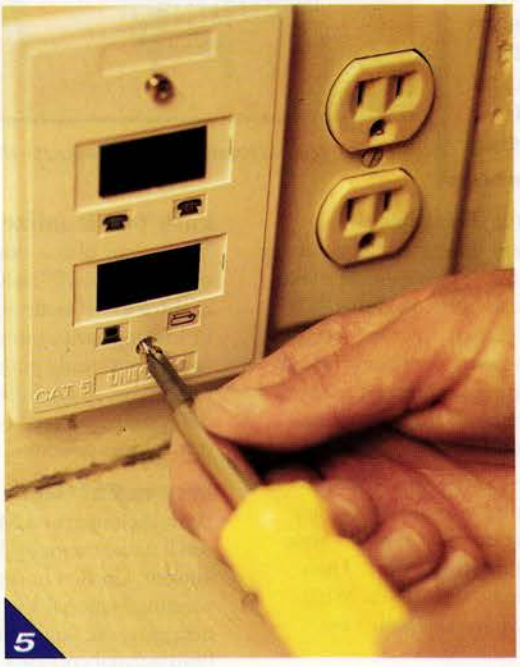
Twisted-pair wire: *Copper phone wires bundled in color-coded pairs, usually four to a cable. Each pair is twisted at a different rate to prevent interference from other pairs. Twisted-pair can handle more current and future telecommunications possibilities, such as all-digital phone service.*

(1) Only one ungrounded electrical outlet served the new home office, and there was no phone jack. The closet offered access to the heating duct, a handy channel Bob Pitard used for pulling up the cable from the basement.

(2) Bob Russell, an electrician familiar to *This Old House* viewers, and partner Joe Tremblay lift up the old pine floorboards, exposing the old-fashioned knob-and-tube wiring. They "fish" new electrical lines along this channel to the center of the room. (3) Pitard's "pull" from the basement must go carefully so the cable doesn't get pinched, knotted or stressed by too much pressure on the way up.



(4) Pitard connects the wire—"punches in the pair"—for the fax line on the terminal block. The second pair of the four-pair cable, for phone use, gets punched in next. The third pair is for the modem, and the fourth is an extra line for later. An independent pair of category 5 high-speed wire for the data network is punched in at the bottom of the terminal block for convenience.

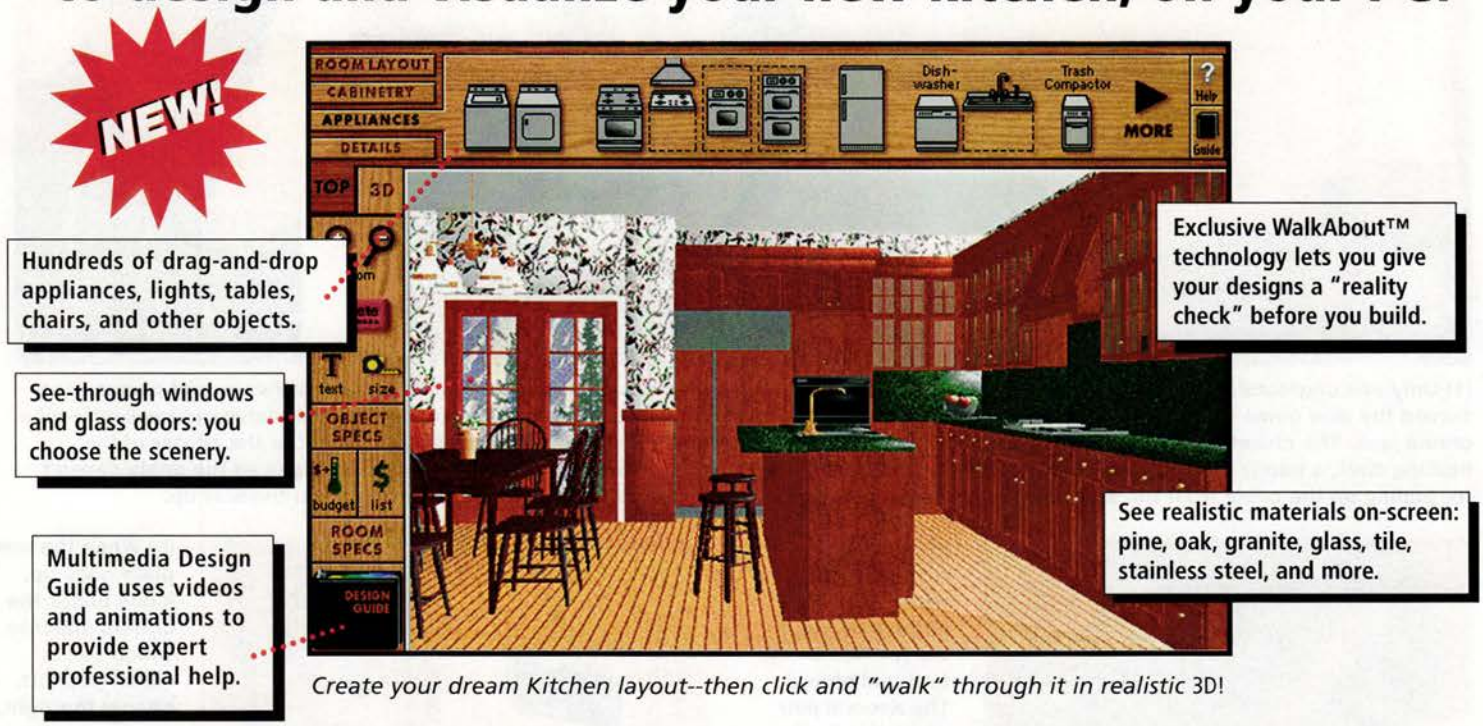


(5) When the wall plate goes up, icons under the outlets indicate which line is which (top left, phone; top right, fax; lower left, modem; lower right, data network). Wall plates for phone and network jacks come in a variety of configurations, including those with coaxial cable outlets for video equipment. Electrical outlets should be contained in their own housings.

The finish Jacks have been installed in the center of the floor where a large work table will sit, allowing for greater accessibility. A 20-amp dedicated power circuit was added, with outlets for lighting as well as office equipment. "A 20-amp circuit can handle three computers with monitors and a printer with power to spare," says telecommunications consultant Andrew Barabas. "I recommend a dedicated circuit for computers where possible. It greatly reduces surging problems associated with having multiple appliances running on one outlet." (It does not, however, eliminate the need for a surge suppressor.) The printer is plugged into the data network, serving members of the household working from different rooms. New phones came from an authorized secondary market vendor at a significant savings. Total cost for materials, components and labor to wire a computer network and four phone lines into six rooms: $4,410.

(See Directory, page 106, for details and sources)

Announcing revolutionary *3D Kitchen*—the easy way to design and visualize your new kitchen, on your PC!



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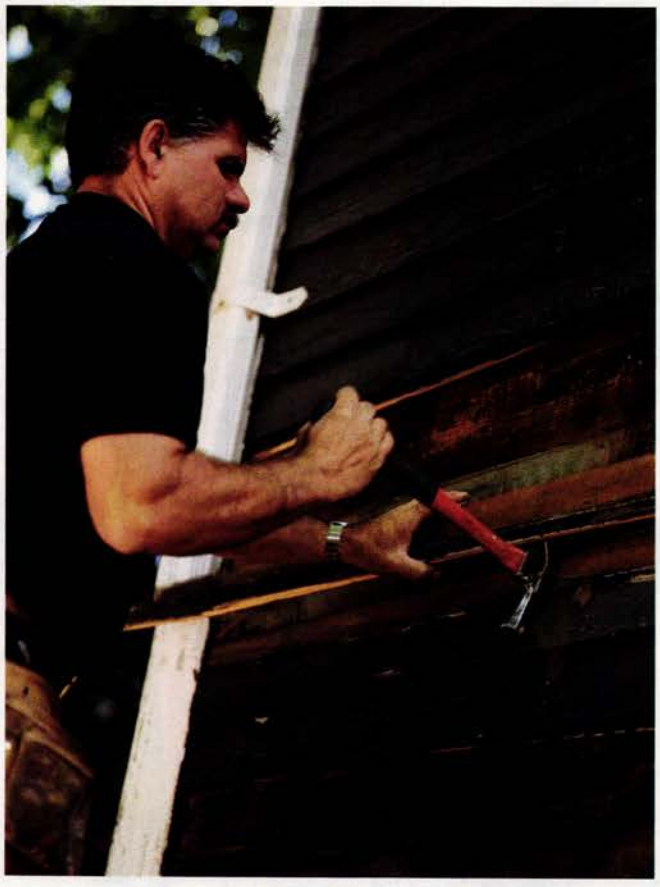
Choosing Hammers

A well-equipped toolbox is full of them

BY STEPHEN PETRANEK **PHOTOGRAPH BY J MICHAEL MYERS**

Sometimes you have to wonder: How does the brain do that? How can you pick up a hammer that weighs more than a pound, swing it through a huge arc at such an awesome speed you could crush the skull of an ox and then land it squarely on top of a dot of steel? That's beautiful.

"It's a mighty good feeling when you do it right," says *This Old House* contractor Tom Silva. "You can always tell an amateur. He doesn't swing, he tries to push the nail or punch it, he tries to do it with his wrist instead of his arm, he misses and he hits his finger. That's ugly."



It took some getting used to, but now Tom Silva is crazy about this Yamaguchi with a long bent neck and extended handle. "It has extraordinary balance," he says, "and the long handle lets you get some beef into it for driving nails."

Pretty or pathetic, a guy without several hammers is a guy without tools. Master carpenter Norm Abram has six quite different types in his toolbox. Tom can get by with three for general contracting, but if he starts working with metal or chipping bricks, he's got to go back to the truck for more.

For every job that requires some sort of pummeling, there's a specific hammer that makes it easier, safer and better done. But even with the right hammer, there's style to consider. When it comes to a standard carpenter's hammer, for example, Norm likes a solid steel model with a leather-wrapped handle. Tom prefers a fiberglass handle with a rubber grip, and Russ Morash, the show's director, can't stand to swing anything that isn't plain wood. "There is nothing," he says, "as elegant as wood."

ten for **the toolbox**

CARPENTER'S

Designed to drive nails, it should never be used to drive metal tools such as chisels or hardened masonry nails. This steel-shaft version is one of Norm's favorites; Tom says the best all-around weight is 16 ounces.

RIP

Also known as a framer's hammer. Most have a straight claw that can be used as a last-ditch safety device: A falling carpenter slams it into anything wooden and hangs on tight. Great for tearing up old framing or prying apart two pieces of wood to insert a wedge.

BOAT BUILDER

The pointed end of the head countersinks fasteners. Imported from Japan, this hammer is a favorite of finish carpenters. The white oak handle is easy on the user's hands.

TACK

The perfect tool for setting small fasteners. Used by cabinetmakers because the broad face is good for nails and the tapered end is right for striking brads held between fingers. Also good for upholstery tacks.

BALL PEEN

Primarily for shaping metal. "There's nothing like it for working rivets," Norm says. Can also be used for driving cold steel chisels and steel punches.

SHINGLER'S

The small, replaceable sliding blade cuts asphalt and fiberglass shingles; the movable pin functions as a gauge. One side of the head is a sharp blade to split shakes, the other serves as a hammer for roofing nails.

Tips from Norm and Tom

1. Look for a hammer with a forged-steel head. Tiny particles of metal tend to chip off cast-steel heads and go flying in all directions.

2. Carpenter's hammers with curved claws pull nails better than straight-claw models and help protect amateurs from sticking the claw into their head on the backswing.

3. Avoid hammers with waffle-iron faces. A single blow that slips off the nail and onto a thumb is sure to send you to the hospital.

4. If a wood, fiberglass or leather-clad hammer handle is slippery, rough it up with sandpaper before using it.

HOW TO HAMMER A NAIL

A tenpenny nail shouldn't require more than two taps to position it, then three solid blows to sink it. A common mistake the neophyte makes is to stand directly over the nail, endangering his head as he raises the hammer. Another frequent error is gripping the hammer too high up the handle. Try this: Stand back, grasp the hammer low and firmly, then swing from the shoulder instead of the elbow, in a full arc. "Above all," Norm says, "remember to keep your eye on the nail."

PHOTOGRAPHS BY SPENCER JONES

oldies but goodies

There are more hammer patents on the books in the United States—by far—than in any country in the world, says retired veterinarian Ron Baird, who has been researching them as a hobby for three decades. To date, Baird has found about 1,800 hammer patents, "but there are many more," he says. Below, from left, are a few examples of the diversity he has discovered.

Leather mallet: rounded end used to beat and thin leather; beveled end helps make folds.

Square-faced planishing hammer: used by silversmiths and coppersmiths for smoothing surfaces.

Fencing hammer: all metal, with a pry bar for lifting fence staples.

Dinging hammer: for pounding out dents in sheet metal.

Double-claw hammer: patented in 1902, this design pulls nails without bending them; the upper claw starts, the lower one finishes.

Bumping hammer: an auto-body tool modified to remove hubcaps.

MALLET
To many, the ultimate driver for wood-carving tools. Usually lathed from a solid piece of wood. Also good for knocking wood-handled chisels and for joinery.

BARREL
A fat head puts the hammer's mass near the centerline of the handle, allowing more control when chiseling. Heads are tempered to be soft on the inside and hard on the outside, reducing rebound.

DEAD BLOW
Usually filled with lead or steel shot to absorb the impact of the blow and keep the hammer from rebounding. Particularly useful in tight spaces and for assembling furniture. This one has replaceable faces; Norm thinks it has great balance.

SPLIT-HEAD RAWHIDE
Faces of water buffalo hide are forgiving. Used to break apart old construction when wood is to be saved or to assemble delicate items. Faces are replaceable. A favorite of timber framers.

(See Directory, page 106, for details and sources)

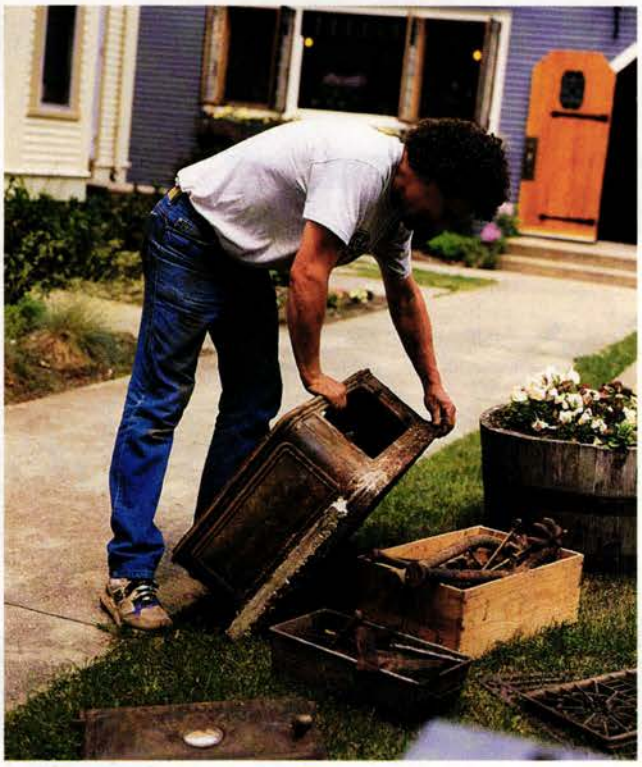
New Life for an Old Stove

A rusty castoff becomes the centerpiece of a new kitchen

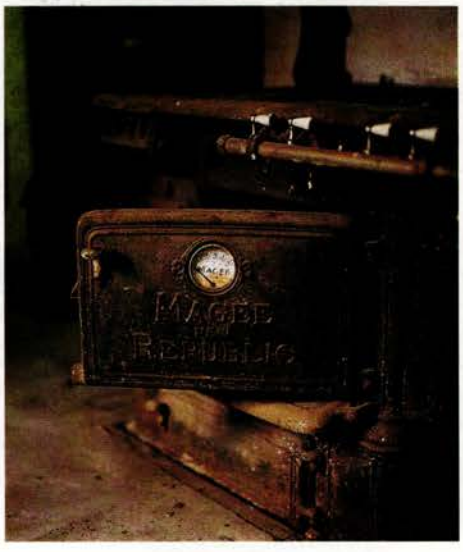
BY JEANNE HUBER **PHOTOGRAPHS BY DAVID BARRY**

Dave Erickson sees beauty where others see rust; he expects great performance where others assume muss and fuss. For 17 years, Erickson has been restoring old stoves, from tiny parlor heaters to the most ornate kitchen ranges ever made. He started in the 1970s by fixing up his own stove, drawing on skills from his job as a shop teacher for the deaf and blind. Word got around, and by 1980 he was in business full-time in a funky old train station in Littleton, Massachusetts. In the early years, customers mostly wanted a way to cook and heat with wood; prices for other fuels were soaring. Nowadays, Erickson's customers generally have been out shopping for commercial ranges, which can cost thousands of dollars, and are drawn in because Erickson's stoves also are heavy-duty but with character. He's often asked to convert wood- or coal-burning stoves to gas or electricity, which causes minimal disruption to the look. "Everybody in the 1920s and '30s did this," Erickson says. He specializes in combination gas and wood or coal ranges, such as the 1920s Magee New Republic being restored here. He and his crew completely rebuilt it, adding new nickel plating and a safety gas-shutoff valve. Now it gleams as the $5,000 showpiece of a kitchen in Concord, Massachusetts.

The 350-pound stove is moved in pieces. Here, the top ovens head for repair.



Above: Erickson sorts as he works, making sure small parts don't get lost. Below: Rust covers the door, but the temperature gauge, a nice feature, is intact.



Erickson found the stove in a basement on Cape Cod, where it had been sitting for so long that a floor had been poured around it. The base was crusted with spattered concrete.

Stove history

The first stoves in this country were made of wood and lined with mud, clay or brick. Cast-iron stoves weren't produced in quantity until the early 1700s, but it took decades for them to become popular. Most innovation occurred between 1840 and 1870; by 1884, when these illustrations appeared in the catalog of Southard, Robertson and Co. in Peekskill, New York, the variety was amazing. Two categories of kitchen stoves evolved. "Cook stoves" were narrow and deep, with oven doors on both sides. "Ranges" were wider, with a single oven door at the front. Coal, often cheaper than wood, was first used around 1830. Gas stoves became available after 1850, and electric stoves made their debut in 1908. By then, rolled steel was replacing cast iron as the stove material of choice.

Regal
Parlor stove was self-feeding from coal bin at top.

Madison Square
Top-of-line parlor stove had elaborate air flow, fancy trim.

Bono
Basic range was just firebox and oven.

Southard
Coal/wood range had low warming oven, water tank.

Laundry
Coal burner heated eight tailor's irons.

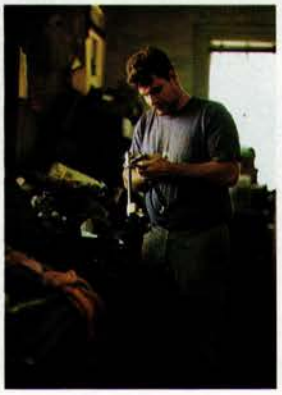
Sandblasting

Sandblasting is the quickest way to clean rust and even splashed concrete from cast-iron parts. When Erickson started out in 1980, he had his own sandblasting equipment. Stricter health and safety rules nowadays send him to a friend's shop, where he pays by the hour to use an enclosed machine loaded with steel shot. He compares it to a microwave oven: "You put the rustiest piece of garbage in there for two minutes, and it comes out brand new."

Nickel plating

Nickel plating became popular on stoves in about 1865, after electroplaters discovered a trick to sticking nickel to iron: First apply a coat of copper. "The copper is sort of like a primer coat," Erickson says. It also fills tiny nicks and levels the surface; any scratches that still show can be filled with silver solder before the nickel is added. After about 1930, nickel was largely replaced by chrome because chrome doesn't tarnish. Nickel requires polishing a few times a year, but for antiques it's the only way to go. "The only time I recommend chrome is when people live near the ocean," Erickson says. To remove tarnish, he suggests a product called Nevr-Dull or a gentle rub with superfine steel wool.

Painting and adjusting



After touch-up buffing with a drill-mounted wire brush, Erickson employee Keith Arseneault sprays the lower oven door with black stove paint. The Dampney Paint Co. in Everett, Massachusetts, developed the formula after Erickson pleaded for a high-temperature paint with a satin gloss finish—"not flat, dead, lifeless paint." Inside Erickson's shop, where a layer of black dust seems to coat everything, Tim Wiley adjusts the thermostat that controls the temperature of the top ovens, which he has just lined with new stainless-steel boxes. The old steel liners were badly rusted. Arseneault and Wiley then assemble the stove, caulking all the joints with a material developed for bonding firebricks.

How stoves were made

We treasure old stoves partly because so much human energy went into making them. From extracting the ore to stoking the furnace, stove-making was a grimy, muscle-intensive business. It's no wonder that the faces staring out in century-old stove foundry photographs, like this one from Peekskill, are invariably either young or unhealthy-looking.

Peekskill molders with double-frame casting flasks.

Stove-making started in the woodcarver's shop. Each piece was carved separately, with intricate parts sometimes formed in wax or plaster. Carvers borrowed freely from architectural guides of the time, which is why many early stoves look like miniature buildings. To cast both sides of patterns, molders used two-part flasks, or molding boxes, that opened to reveal impressions made by the carvings in the clay-like molding sand. Stove factories had hundreds of these boxes, and molders spent days preparing them. When the foundry floor was filled, the cupola furnace was fired up, and a glowing ribbon of iron began to flow out. Men raced back and forth with ladles of molten iron, filling mold after mold. Burns were common, as were lung diseases from the silica and smoke. When the pieces had cooled, the boxes were opened and the parts dusted off. After a trip to the mounting room for a final touch-up, they were ready for assembly and sale.

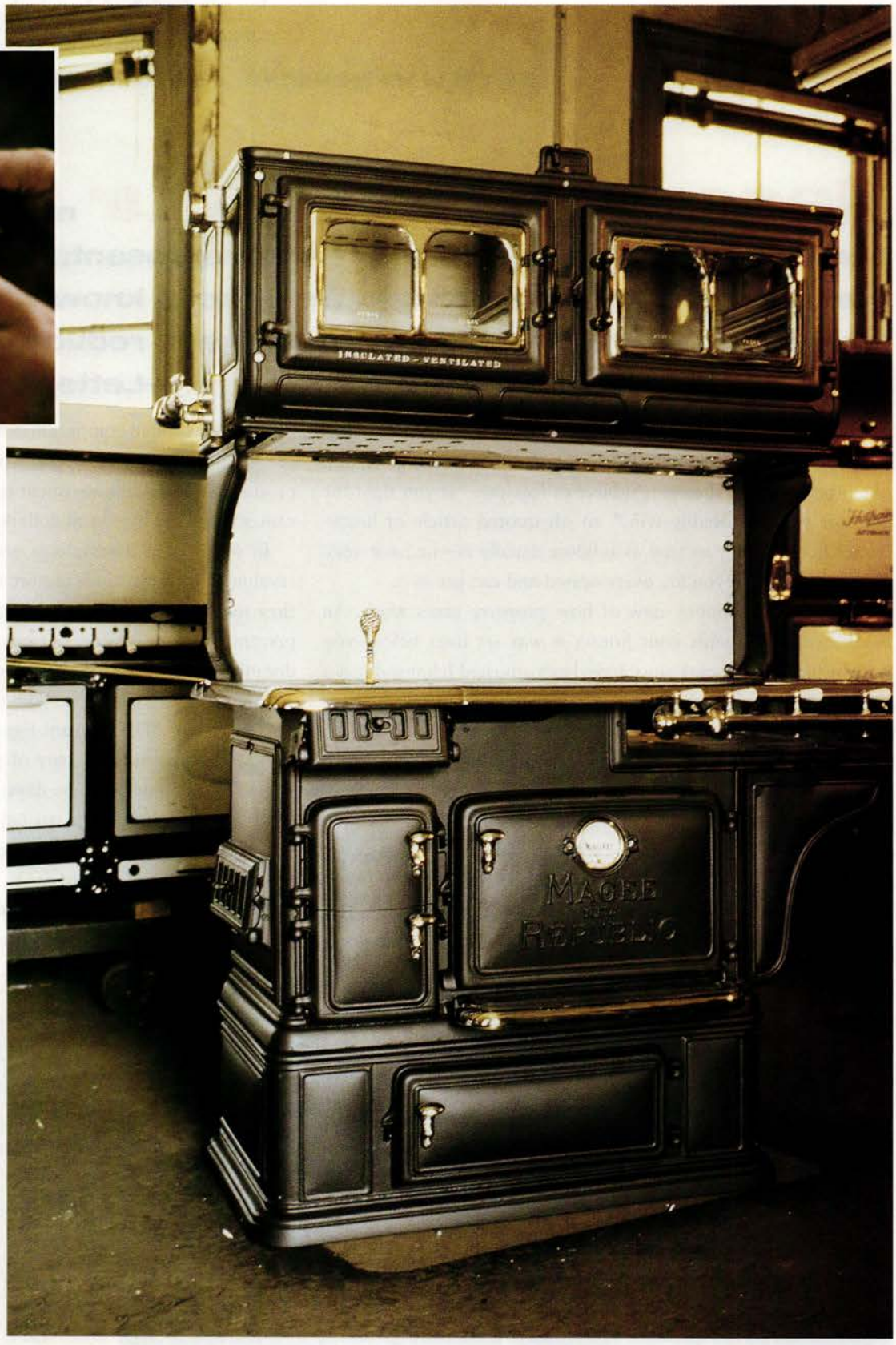
Iron flows into ladles in one of the last furnace firings in Peekskill, about 1950.

VINTAGE PHOTOGRAPHS COURTESY OF THE PEEKSKILL MUSEUM

It's all in the thermostat

Old gas stoves often cook better than new ones, Dave Erickson says, and the reason has little to do with what they're made of. Modern ranges have "snap throttle" thermostats, which shut off the gas when the temperature rises above the target level and turn it on again when the oven cools. Temperatures may swing 35 degrees above and below the goal. Modulating thermostats, like the Magee's 1925 Wilcolator (above), regulate temperature by using two materials that expand at different rates when heated—in this case, a carbon rod inside a copper tube. Because copper expands faster, gas flows freely at first. As heat increases to the desired level, the carbon expands, slowing the gas supply and keeping the temperature constant. When thermostats were new, cooks were used to working by observation, so the Wilcolator has both temperature and "dish" markings: 400 degrees, or "muffins, cookies, apple pie."—*Ben Kalin*

The final result



The finished product: three working ovens, eight burners and a heater, all fired by gas. The top ovens allow precise baking without heating the house; one has an extra burner for broiling. The lower oven, warmed by the heater, has a temperature gauge but no thermostat. It heats to about 350 degrees.

(See Directory, page 106, for details and sources)

Property Taxes

How to understand—and contest—your bill

BY WILLIAM MARSANO PHOTOGRAPHS BY MELANIE ACEVEDO

Recently we and our neighbors have been getting letters from property-tax representatives suggesting that we're paying too much tax. We'd like to know what our assessment is, but we're afraid to ask. We'd like to reduce our tax, but we're afraid to ask about that, too. —Letter to *This Old House*

Fear of tax assessors is an American tradition: They're major demons, right up there with insurers and mortgage bankers, and like other demons, they're a subject of folklore. "If you fight the assessor you'll probably win," an oft-quoted article of homeowner faith, is only as true as folklore usually is—i.e., not very. But you can win if you are overassessed and can prove it.

Here is a bare-bones view of how property taxes work. An assessment came with your house; it was set long before you bought the place. It may since have been adjusted (changed just a tick) or completely redone, and it can change again upward or downward in the future.

It was calculated by assessors who estimate properties' market values and then determine the "level of assessment" in the community. Technically speaking, they "discover" that level by comparing selling prices of houses with their assessments. If the average price is five times the assessment, the level of assessment is 20 percent.

The same house can have many different values: the seller's asking price, the buyer's purchase price, the insurer's replacement value . . . and the assessed value for property taxes, which may not have changed in 20 years.

Here's a sample computation: A house's current market value ($250,000) multiplied by the level of assessment (20 percent) produces a $50,000 assessment for tax purposes. Applying a tax rate of $100 per thousand dollars produces a tax bill of $5,000.

In some areas assessments are up to date due to townwide revaluations (some states require them every few years); in others they may be decades old. New assessment values may be 100 percent of market value, old ones a mere fraction—but it often doesn't matter as long as the town treats all homeowners equally (see page 49, "Some Numbers Don't Count").

The relevant figures are on your tax bill. If you pay tax as part of your mortgage payment (as is common these days), you may not get a bill or even a statement, so call the assessor's office for the details. You'll get an answer in minutes—probably not from the boss himself (he'll be too busy harassing widows and orphans) but from some clerk who hates taxes as much as you do.

(Continued on page 48)

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Reducing your tax bill isn't easy. Assessment levels and tax rates, being computations, are results, not causes. The discretionary figures are the town's budget and your assessment. Slashing the budget might require a citizen rebellion against property taxes; a lower assessment, on the other hand, can be negotiated directly with the assessor. Convince him that yours is unfair and you'll save—but remember, the burden of proof is on you.

Assessors' offices handle enough protests that many provide useful brochures to help you mount a challenge (New York State, for example, provides a 40-page booklet and supplementary instruction forms). If you want to see what your neighbors are paying, check the tax rolls: They're a matter of public record, open to all. That is, in fact, how the property-tax representatives—who make a living by winning tax reductions for property owners—picked our reader as a possible client.

Next, get a copy of your property record card, which contains a detailed "inventory" of your property—location and size of lot, number of rooms (and their sizes) in your house, improvements (such as freestanding garages and other outbuildings), type of construction—in short, a very full description of the thing being taxed.

Close examination may reveal technical errors. Room measurements may be inaccurate, and the room count could be wrong if you have reduced living space (for example, by demolishing a structurally unsound one-bedroom addition that wasn't worth the cost of repair). Maybe the record shows an in-ground pool when yours is actually above-ground, or lists a detached garage when all you have is a carport. Such errors are grounds for a reduction that cuts your tax bill.

YOU'RE ASSESSING WHAT?

Technically, anything that increases the value of your property is tax-assessable. "Even landscaping," says Richard O'Donnell, an assessor in New York's Westchester County. "If you turn your weed-grown lot into a botanical showplace, I could assess you—but I won't. It's too much of a judgment call; the arguments about how much value it adds would go on forever. A new roof could be assessable too, but it's also a maintenance item. Few assessors will get you for taking proper care of your most important asset. Putting in a fancy new kitchen might result in an upward adjustment, though."

"Might" is the key word. In some areas, assessors don't pounce unless you actually increase your living space. An ordinary screened porch won't cost you—but a closed, winterized porch suitable for use as a bedroom or study could.

And some improvements don't add value at all, in the assessor's eyes. Adding central air conditioning to a house in Florida wouldn't be assessable. It would be viewed as merely bringing the house up to local standard, because so many other houses there already have it.

"Homeowners who are planning major improvements should see their assessors," O'Donnell says. "He can tell them how or whether their property taxes will be affected and save them unpleasant surprises."

So are neglected exemptions. Many municipalities have as many as three levels of veterans' exemptions (for serving in a period of war, for serving in a combat zone and for service-connected disabilities); people over 65 often qualify for exemptions, especially from school taxes.

Of the numerous grounds for tax complaint, unequal assessment is among the most important. Suppose fire damage drops the value of our $250,000 sample house to $200,000, but the owner is still assessed $5,000 in property taxes: Simple arithmetic proves his level of assessment is 25 percent. If the tax rolls show everyone else is at 20 percent, he can demand a similar reduction, cutting his tax bill—at least temporarily—to $4,000.

"It can be worthwhile to investigate if you live in an area that has become highly desirable and suddenly gets a lot of new growth," says John Steensland, an appraiser in White Bear Lake, Minnesota. "That's where owners of older, unimproved houses sometimes get caught in a general tax increase." Their valuations may be ripe for challenge.

One of the least successful grounds is a drop in the overall

HIRING A TAX GLADIATOR

The letters our reader got suggesting that she might be overtaxed came from property-tax representatives (PTRs) offering (for a fee) to do battle on her behalf with her local tax authorities. Should she hire a gladiator? Should you?

First, discuss your assessment informally with your assessor. "Most people would rather go to the dentist," says assessor Richard O'Donnell, "but those who nerve themselves to it find I'm not a daytime Dracula after all." You may be able to make your case in person and win an adjustment quickly and easily.

Complicated appeals can require appraisers and lawyers—or PTRs. Typically, you seek the former while the latter come to you. PTRs scan local tax rolls for properties with high tax valuations and send out bulk mailings soliciting clients. Assessors we talked to think PTRs do a pretty good job. Bob

market. Another of our readers, who paid $485,000 during the '80s property boom, refinanced after sinking $90,000 into her house. The market had collapsed since she bought, so the bank's reappraisal was only $460,000—less than she paid and far less than her total cost. On paper, she'd lost 20 percent of her investment. Could she get her assessment cut by 20 percent?

Fat chance. Unless her assessor, like the Maytag repairman, is starved for companionship, he'll say no. If he doesn't, every other similarly affected homeowner will demand a similar reduction. The only way to make up the resulting budgetary shortfall will be to raise the tax rate, leaving everyone exactly where he started.

Nevertheless, "the assessor must give you a hearing," says Westchester County, New York, tax official Andy Jackson. "The mayor can refuse your calls, the town clerk can decline to see you, but the tax assessor has to hear you out. Grievance days and appeals procedures are a matter of law."

But heed this caveat: Property taxes are local by their very nature; they vary greatly from place to place. "General rules? Universals?" says Bob Clatanoff of the International Association of Taxing Officers. "Around here, we don't even say 'typically.' We say 'by and large.'" But he did offer some guidelines:

Beware of spot assessments (post-sale tax revaluations), also called "welcome, stranger" valuations because the buyer is socked with a higher assessment after he closes. They're illegal in some states and, says Clatanoff, "poor policy everywhere because they produce unfairness." Fortunately, he adds, "they're not used—by and large." But check at the assessor's office when buying.

Tax protests can be simple, and you can appeal if not satisfied. "You can start with an informal conference with the assessor—a conversation, really," Clatanoff says, "and get your answer right there." Even formal appeals can often be argued without outside help. Beyond that there may be one or more state review boards and judicial reviews, for which you could require the help of an appraiser or a lawyer. You can also hire someone to do battle for you (see "Hiring a Tax Gladiator").

You may win (get a reduction) or not win, but—by and large—you can't lose. If a review shows you've been underassessed, no harm done: Tax authorities don't want to be seen as punishing those who protest, so they won't bill you for their mistakes.

Write for the International Association of Taxing Officers' free booklets, see what brochures your state tax office has to offer and don't be afraid to fight. Taxes aren't most Americans' cup of tea, remember—and haven't been since December 16, 1773.

SOME NUMBERS DON'T COUNT

When some homeowners learn others' assessments are several decades old and extremely low, they may demand a townwide revaluation. Their hopes of greatly reduced taxes are high—and soon brought low by the facts. They usually have low assessments too, even if they're much more recent, assuming the assessor has done his job well and steered clear of unequal assessment.

But out-of-date assessments do pose problems: They tend to mask inequities and make them more difficult to correct. When a house's market value is $250,000, it can be hard to show that an assessment value of $50,000 is too high. Revaluation to 100 percent of market makes challenges easier.

Raising assessments doesn't necessarily raise taxes. Say the $250,000 house now has a 100 percent assessment of $250,000. The old tax rate ($100 per thousand) would quintuple tax bills, producing an unwanted budget surplus and homeowner bankruptcy. The new assessment level requires a tax-rate cut of 80 percent to $20 per thousand.

But we're not out of the woods yet. Town officials don't like revaluations: They're tedious, expensive and emotional projects. And law requires revaluation of all properties—commercial included. "Very often," says an assessor speaking anonymously, "commercial properties are grossly overassessed, to the point of subsidizing residentials. Revaluations can expose that situation—and fairness would remove it. Residentials can end up paying more. Residentials are where the votes are, so elected officials avoid revaluations whenever possible."

Wheatley, who admits to being his New York State village's "official tax-gouger for the past decade," recalls a PTR who won a reduction for a dozen homeowners in a relatively new housing development: "The challenge also helped those in the same development who hadn't protested," Wheatley says. "They were also overassessed, and they got adjustments automatically."

When considering a PTR, make sure the firm will take your case on contingency: no tax reduction, no pay. When successful, PTRs usually charge 50 percent of the first two years' reduction. The catch is that it's payable immediately—the homeowner has to wait for his saving—and that can sometimes be a problem. "One woman called asking me to please not reduce her taxes any more," says O'Donnell. "She said she couldn't afford to save any more money."

(See Directory, page 106, for details and sources)

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This Old House

A LETTER FROM THE **Salem Project**

In 1989, *This Old House* undertook the restoration of an 1850s post-and-beam barn. We planned to dismantle the structure timber by timber, save those in good shape, replace those in poor shape and re-erect the frame. As it turned out, every timber in the barn was rotten or filled with powder-post beetles. We pulled the whole thing down, saving only four knee-braces and a handful of pegs, which we used in the new frame.

"So how can you claim the barn was a restoration?" people would ask. I'd answer: "Ever hear the saying, 'This is my grandfather's ax. My dad replaced the head and I replaced the handle'?"

Like the original barn, the new timber frame was native pine; a group of craftsmen fashioned each joint by hand and then together raised the frame on the old foundation. Its form was true to the original. So, I argue, the barn was restored. I concede, though, we renovated it too, by adding a kitchen, bathrooms, a heating system and elegant living space.

Most of our *This Old House* projects are a combination of renovation and restoration. One of the best examples is the current project in Salem, Massachusetts. The house was built in 1784, with two rooms remodeled in high Federal style during the early 1800s. Stepping into those rooms, you inhale the air of a time when Salem was one of the richest towns in the United States and its ships could be found from Archangel to Zanzibar. Some people believe such historic houses should not be altered in any way. But houses are for living in. The new owners, Deborah and Kevin Guinee, have three small children and two full-time jobs. They (like most of us) want to cook in a modern kitchen and enjoy modern bathrooms, laundry facilities and adequate lighting and heating.

The front parlor and bedchamber of our old house inspire particular respect, with mantelpieces hand-carved by Samuel McIntire, the "architect of Salem." It would be unthinkable to alter these rooms, and so, with advice from the curators at the Peabody Essex Museum and the Society for the Preservation of New England Antiquities, we will lovingly restore them. The more functional rooms will be renovated. When we are done, the home will have regained its balance.

My own house, up on Boston's North Shore, was built (as far as I can tell), in the late 1700s. It was moved to the site in 1836 and was added to in the 1860s. Around 1914, it was added to again. The house's style has been transformed several times; it's now a Georgian Colonial. In 1986, I renovated. The facade and the front rooms are "original"; I didn't alter a thing. In the rear of the house, though, I installed the modern kitchen and other amenities we needed.

Some years hence another owner will change the house again. That's okay. It will still be the same house, as long as the work is done with respect—for the original design, for the craftsmanship and for the fact that the house has stood on the earth far longer than we have and with luck will stand far longer still.

This goes to the heart of the notion that we are not owners of our houses after all but stewards. Respect for an old house means knowing what to restore and what to renovate, and how to do both. The best teacher is often the house itself. If we only pay attention, our old houses will teach us much of what we need to know.

Steve Thomas

Steve and the Guinee family (minus dad Kevin, who's at work) in Salem

KELLER AND KELLER

A PORTICO SAVED

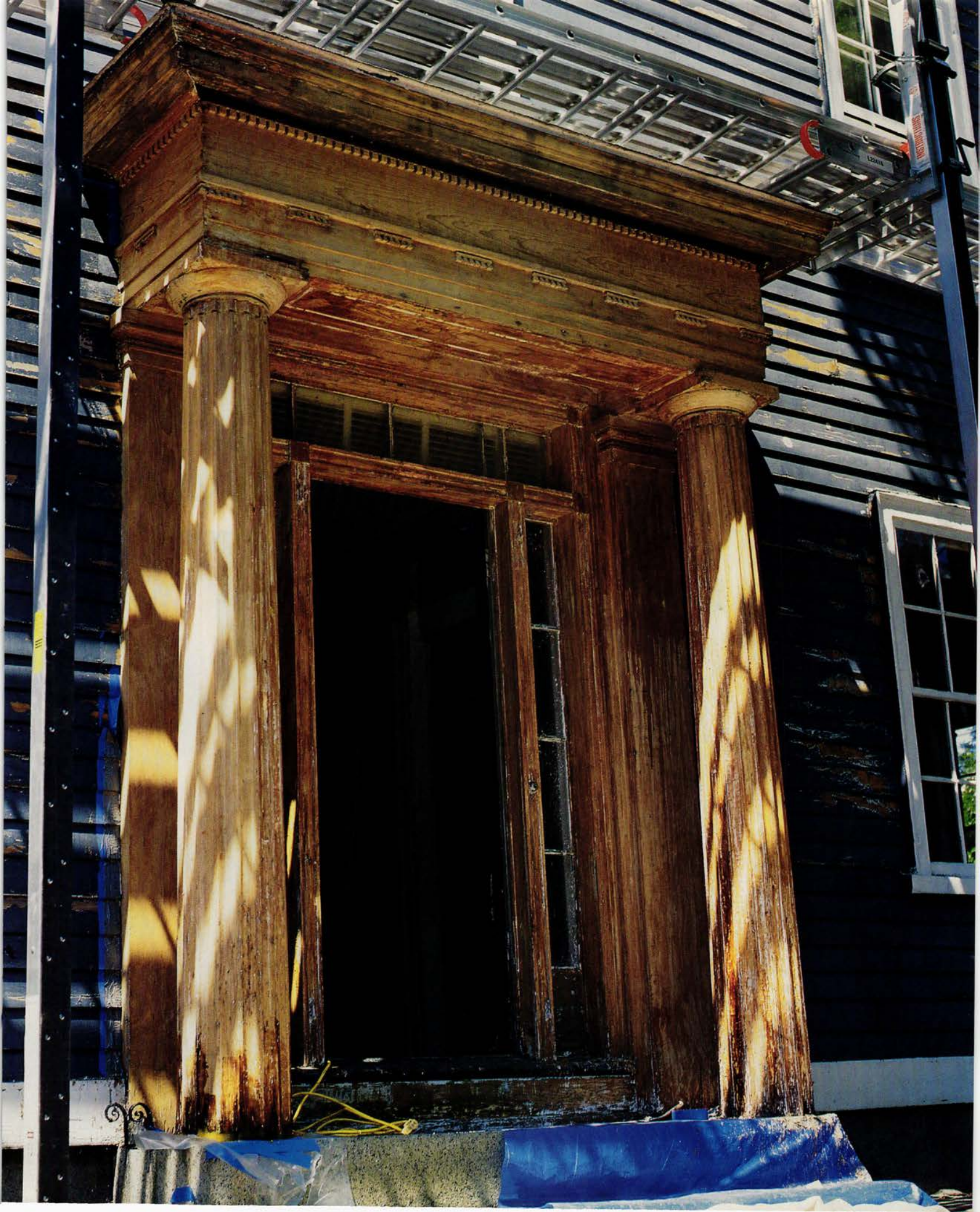
20 GALLONS OF STRIPPER
50 HOURS OF SCRAPING
DAYS OF EPOXY, PUTTY AND PAINT

BY STEPHEN PETRANEK PHOTOGRAPHS BY WILLIAM VAZQUEZ

Painter John W. Dee stroked the 150-year-old wood column on the portico of the Salem project house, dug into his pocket for a knife and poked at the thick coating. He looked at Norm Abram and guessed, "15 or 20 coats of paint here?" "I'd say that's conservative," Norm replied. They inspected the rot in the base of the hollow columns where water from a leaky roof had been collecting and shook their heads. Then Dee stood back, looked over what he termed a "very needy" project and saw something else: "A piece of fine exterior furniture." Although the portico would require a month of solid work and cost $6,000 to restore, Dee knew it would be worth the effort. "When you take a prominent space and treat it with impeccable craftsmanship, it makes for an impressive welcome to guests. In a neighborhood like this, you have to pamper the architecture, and the portico is the most significant architecture of this house."

STRIPPING

Brooks Washburn had to spray more than 20 gallons of semi-paste stripper (at $22 a gallon) on the portico. "About 10 coats of paint came off on the first pass," Dee says. "The rest came off on the second." Washburn used an expensive European-made system that pumps pure paint remover to the spray gun, where it is mixed with a very small amount of air. Brooks's father, Dick Washburn, president of the company that distributes the solvent-based stripper, says the two prefer spraying it on to application with a brush or mop because it can be applied more evenly, less of the stripper gets on the user, and the air injected at the gun causes it to foam, making it adhere better. As soon as the paint underneath started to wrinkle, the hard work of scraping—50 hours' worth—began.



SCRAPING AND SANDING

(1) Although Dee usually uses this hand scraping tool that has nine interchangeable blades of varying shapes and sizes, he will try anything that works and has become known for favoring dental tools. "The most intricate architectural detailing on that portico is called guttae, Latin for drops," he says of the fine carving on the frieze above the columns. "Dental tools were essential to get in there." Scraping was followed by sanding with 100-grit paper. **(2)** To get into the horizontal groove near the top of each column, Dee wrapped a cabinet scraper with sandpaper and pushed it into the slot. He says that the scratches produced by 100-grit paper are usually filled in by exterior primers, but to get an even smoother surface, he sanded the portico a second time with 150-grit paper. **(3)** A random-orbit electric sander was used on flat surfaces and to give a fine edge to the ribs on the columns. **(4)** After sanding, Dee removed the rotted wood in the base of the Doric columns with a flexible-shaft router connected to a variable-speed motor worn on a waist belt. Just to be sure the roof would not fall down as the bottoms of the columns were routed away, he braced it with a 2x4. He was especially concerned that the rot in the base of the columns had destroyed the structural integrity of the vertical joints running down the middle of every other rib. To prepare for filling with epoxy, he routed up about 12 inches at each joint, cleaning out all the failed glue and deteriorated wood.

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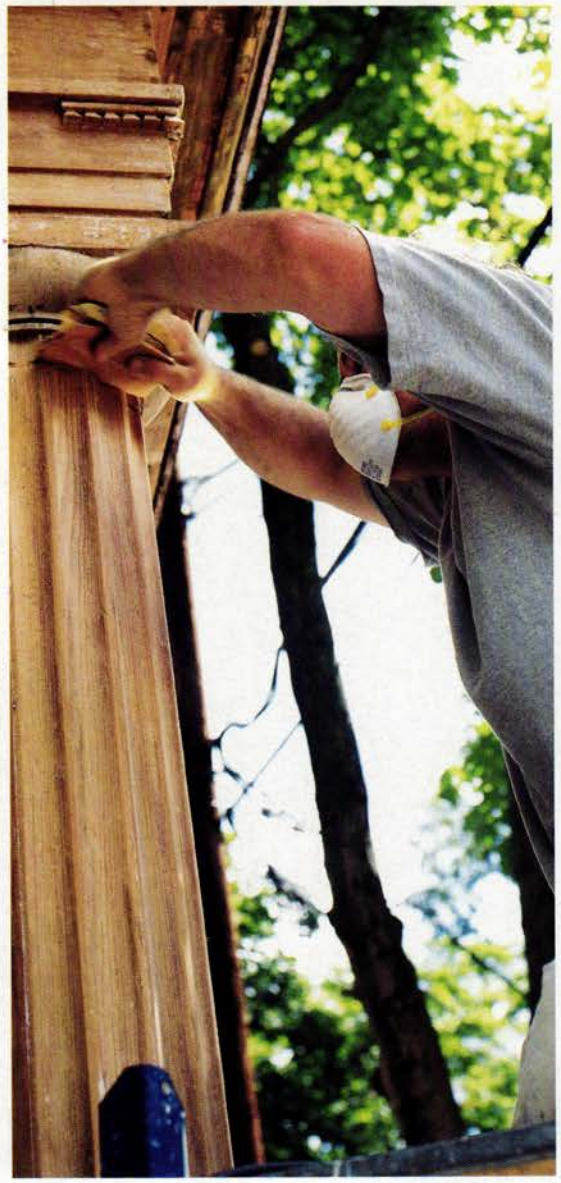

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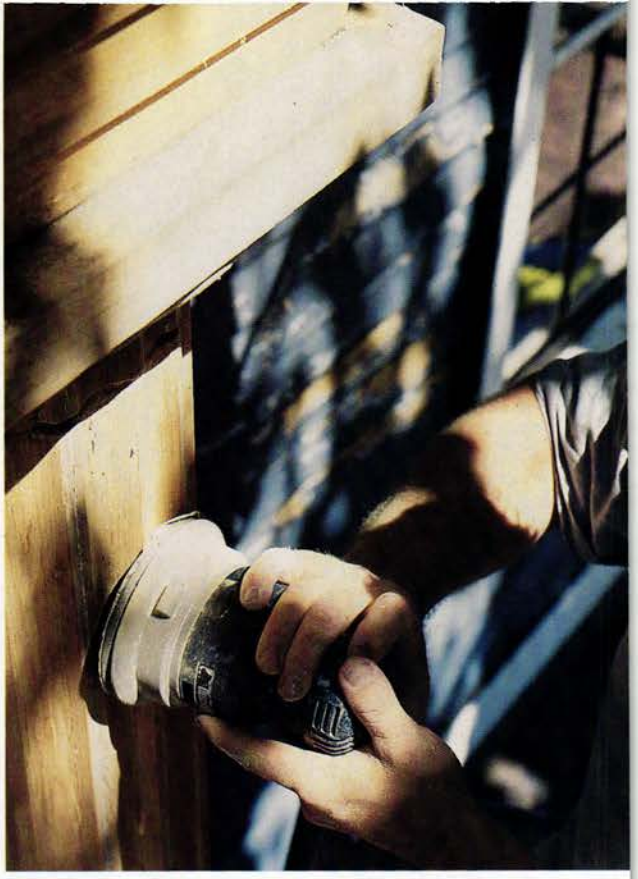

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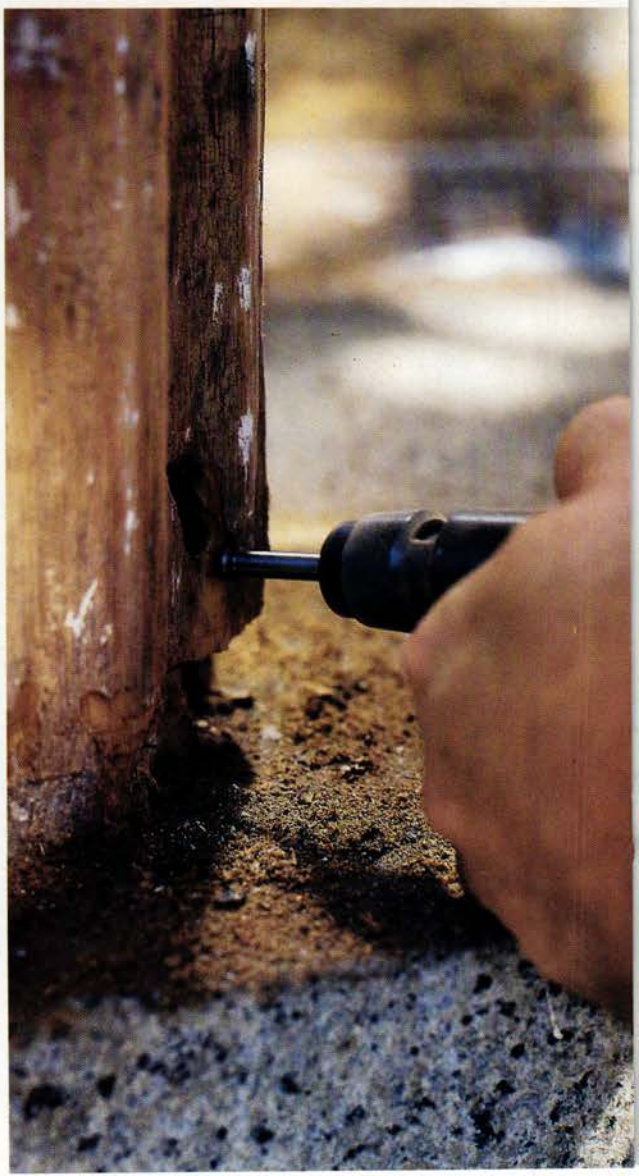

FILLING

(1) After routing out all the wet, rotted wood, Dee tested the columns with a moisture meter: If there is even a hint of dampness, the epoxy may seal it in, allowing the rot spores to continue consuming the wood. Also, epoxy will not bond with moist wood. **(2)** To increase adhesion and seal end grain, Dee first applied a runny epoxy that penetrated the wood and ensured a good bond with the thicker epoxy filler. **(3)** When the epoxy primer had set (in about 20 minutes), Dee mixed a thick epoxy that is resistant to sagging. **(4)** The epoxy emerges green and clear from the two tubes but turns amber-colored when properly mixed. **(5)** After laying down plastic film to mask the granite stoop, Dee pushed epoxy into all the holes he had routed in the columns. On that 90-degree summer day, it set up so fast that he had to do all the necessary shaping within five minutes. "The sooner you get it where you want it, the better," he says. "The more you try to tool it, the more it will sag." He used throwaway plastic putty knives to apply the epoxy and shape it to the columns' dimensions. A second application filled in any voids. After the epoxy cured, Dee sanded out any imperfections, then painted the entire porch with an alkyd primer. Although he felt the epoxy was essential to a lasting fix, he was taken aback by its price: "It costs $42 for a double tube, and we used 11 just on the portico."

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4

5

FINISHING

Dee says one of the most important steps of a restoration project is preparing the surface with Swedish putty, a filler made in Holland of finely ground limestone and linseed oil. "It's remarkable stuff," he says. "The Schreuder family in the Netherlands has been making it for 350 years. It takes three weeks to grind the limestone fine enough, but it will fill an indentation as small as a pin scratch." Dee uses it only for fine filling and doesn't recommend it for any imperfection deeper than the thickness of a dime. **(1)** First he used a contour gauge to match the pattern of the column ribs and flutes, then **(2)** transferred the outline to a vinyl wallpaper smoother and cut it to fit with a utility knife. **(3)** Before applying the putty, Dee mixed it with tinting to make it easier to see against the paint primer. **(4)** He squeegeed it onto the columns, torquing the wallpaper smoother a bit here and there to conform to irregularities in the wood. "The key characteristic of a great paint job is paint that levels to a perfect smoothness," he says. To achieve that effect, he sanded the Swedish putty with 150-grit paper, primed again and finished with two thin coats of paint. "It may seem a bit like overkill, but if you think of it as exterior art, you see that it's worth it."

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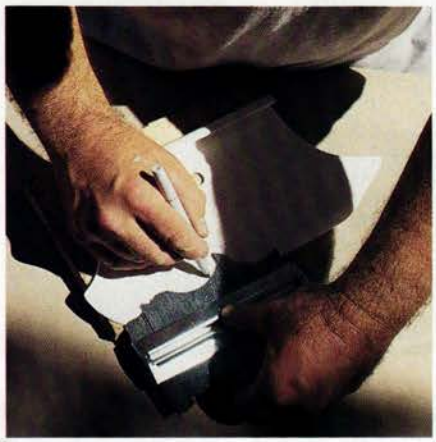
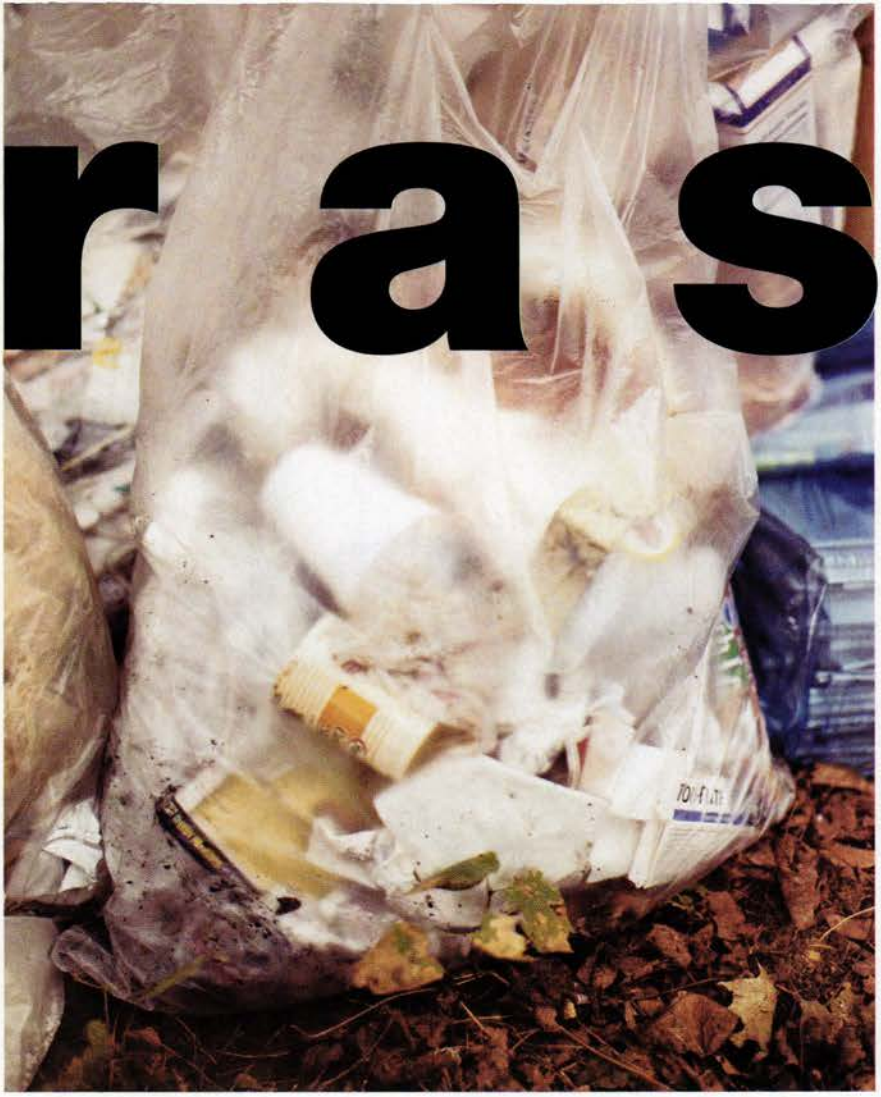


3

4

See Directory, on page 106, for details and sources

trash



WHAT'S IN THE GUINEES' GARBAGE?

In Salem, site of the current *This Old House* project, trash is collected weekly, recyclables every two weeks. Before designing the Guinees' trash shed, we measured their output:

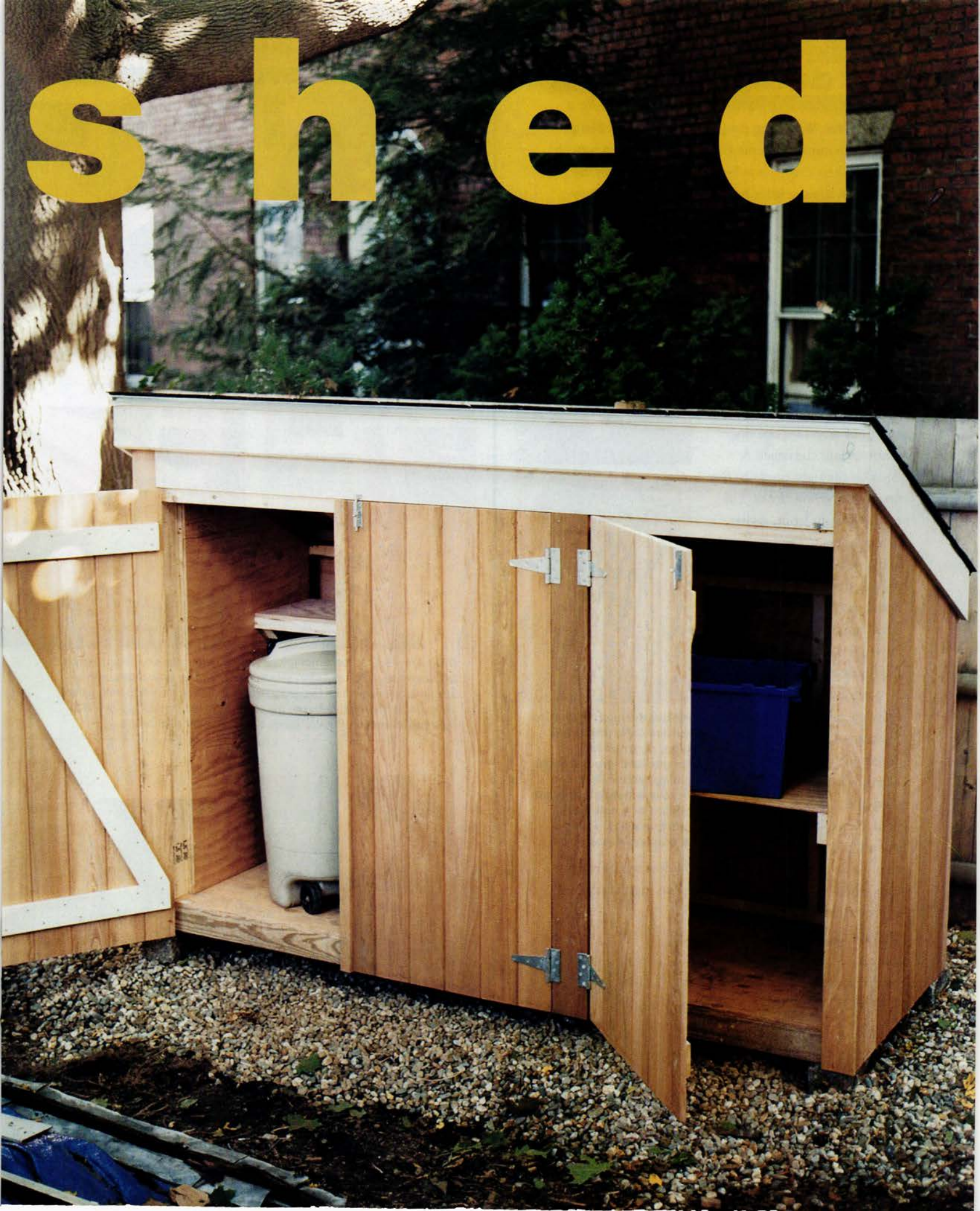
- **three 15-gallon bags of trash (including disposable diapers)**
- **two overflowing bins of cans and bottles**
- **one blue recycling bag of newspapers.**

BY PAMELA HARTFORD
PHOTOGRAPHS BY J MICHAEL MYERS

The average American produces almost three-quarters of a ton of garbage every year. Multiplied by a family of four, that's a lot to haul to the curb. Although efforts have begun to reduce the amount of trash we make, changing our habits will take more than a generation, says William Rathje, a "garbage archaeologist" and author of *Rubbish! What Our Garbage Tells Us About Ourselves*. Rathje is optimistic that we can meet the challenge: "No society in history has been better equipped to deal sensibly with large amounts of garbage than ours," he says.

For the Guinees, current *This Old House* homeowners (five people; 3.28 tons of garbage per year), the problems start in the kitchen. Like most towns these days, Salem, Massachusetts, mandates not only separating recyclables from general trash but also separating paper from glass, plastic and metal. While this policy has saved Salem (population 38,000) $419,000 in disposal costs over the past two years, it has cost Deborah Guinee a lot in aggravation. "I need to get the cans out from underfoot," she says. She plans to streamline the sorting process in her new kitchen with a pull-out bin for cans and bottles and a basket near the back door for newspapers. For the rest of the trash, a compactor helps manage bulk; the Guinees use it a few times a week, producing a packet of trash weighing about eight pounds.

The next step is creating a place outdoors where the garbage can wait for pickup. *This Old House* master carpenter Norm Abram designed a trash shed that met several requirements: It had to be nice looking, economical to make, child-proof, rodentproof, easily opened by an adult with one free hand, well ventilated, easy to clean inside and big enough for two recycling bins and two 30-gallon trash barrels on rollers, which Kevin Guinee will haul out for weekly collection.


shed

materials and design

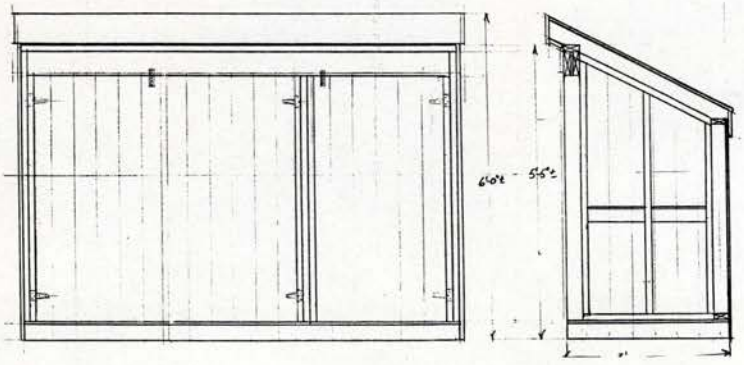
"I'd just built a large storage shed for a *New Yankee Workshop* project, so I had some design features in mind when the Guinees asked about a trash shed for their yard," says Norm. "We agreed on the location—along a fence near their back door. I drew up some plans, which they approved, and Kevin suggested adding a shelf along the inside back wall for some garden tools."

Tongue-and-groove cedar siding sheathes the sides and doors for a clean, uncluttered look. The double doors on the left are held closed by a slide bolt and an astragal, a strip of wood on one door that overlaps the other. A door on the right opens to the divided recycling closet. The roof is high in front, giving better access to the bins and allowing rainwater and leaves to slide down the back. The doors close flush against the shed frame. For easy washdown, the interior is covered in plywood sheathing.

Norm built the shed in one day, relying on his sliding compound miter saw, nail guns and cordless drill. While Norm was constructing the shed in the Guinees' backyard, Kevin had the site dug out and filled with gravel to create a level foundation with good drainage. The finished shed was carried over and set on granite paving stones to raise it above ground level.

Materials used: kiln-dried spruce 2x's; preprimed pine, plywood and tongue-and-groove cedar siding; galvanized hardware; stainless steel nails. For a complete materials list, see the Directory on page 106.

TOTAL COST of materials: $540.



how to build it

(1) Norm sets up shop in the Guinees' backyard. Using his sliding compound miter box, he **cuts joists** and builds the floor first. **(2)** The floor is set on shims to compensate for the unlevel surface. The back side of the shed is made of **exterior-grade plywood**, which he attaches with fivepenny stainless ring-shank nails driven flush to the surface.

(7) In a few hours, the temperature starts to drop, the sky gets overcast and the pace picks up. Norm sets in place the two **jack studs** with spacer blocks on which two of the doors will hang. A 2x4 to hold a shelf will go in the opening between the studs. **(8)** Norm checks to see that the **roof is square**, then attaches a ⅝-inch sheet of plywood.

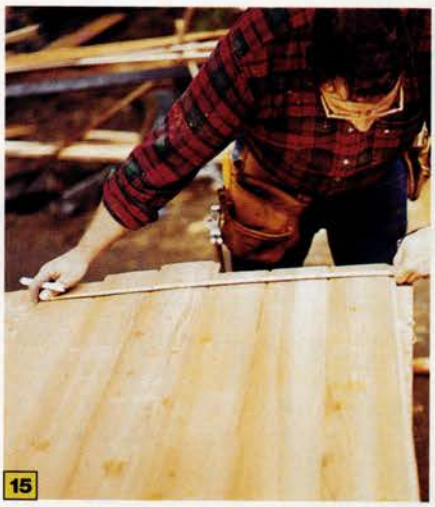
(13) With all the rake and fascia boards installed, the roofing can go on. A galvanized **drip edge** goes on the top and bottom. The layout of the shingles was calculated so the pattern remains even across the entire roof. **(14)** To prevent water from running under the top drip edge, Norm runs a bead of **caulk** between the shingle and the drip edge.

(3) The easiest way to build the end walls is to draw a **full-scale layout** with pencil and chalk lines right on the floor. Norm sets the 2x4s directly on the layout and marks them for length, then cuts them at the miter box. **(4)** Norm installs the end walls. Afterward, he will nail **plywood sheathing** on the interior to keep the walls square and to make cleaning easier.

(5) Each of the rafters requires five cuts, so it's useful to **make a template**. Here Norm checks the layout of the notch where the rafter will sit over the front framing. **(6)** The frame consists of a **stud** and a **jack** (a shorter stud) on each end, and a **header** that sits on top. The header is built of two 2x6s with ½-inch ply in between and a 2x4 cap on top.

(9) Because the plywood sheathing is on the inside, Norm nails 2x4s horizontally between the studs of the end wall so he will have something to nail the **cedar siding** into. **(10)** After siding covers one wall, he tacks on a **temporary straightedge** following the angle of the roof. The straightedge guides the base of his circular saw as he cuts off the excess siding.

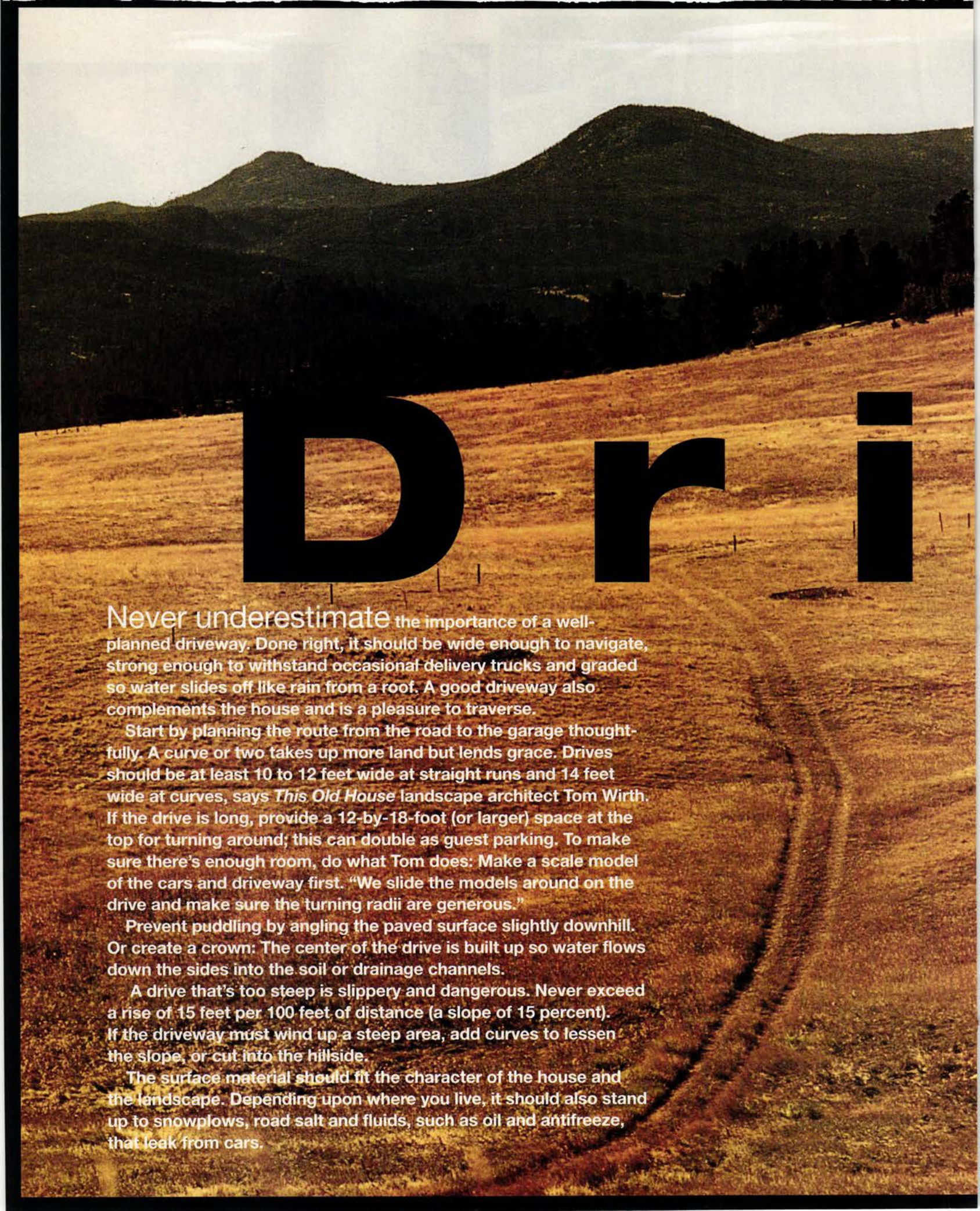
(11) There are no cornerboards, so Norm rips the tongued and grooved edges off two pieces of siding to make a **flush corner**. **(12)** Using a square, he makes sure the top of the **fascia** (front trim board) is even with the roof sheathing. A vent strip sits in a kerf cut in the fascia and on top of the siding. The fascia is mitered to receive the **rake** (side trim board).



(15) With rain beginning to fall on the project, Norm test-fits the tongue-and-groove boards of the **Z-brace door**. Each end board gets either its tongue or groove removed. **(16)** The Z is made of **1x3 preprimed pine**, attached with 1¼-inch galvanized deck screws in predrilled holes.

(17) The door hangs on **T-hinges**, which Norm installs while the door is still on the worktable. The key to hanging a Z-brace door is to place the lower hinge on the side of the door where the Z's diagonal meets its bottom horizontal. This will prevent the door from sagging.

♦ *See Directory,* on page 106, *for details and sources*



Dri

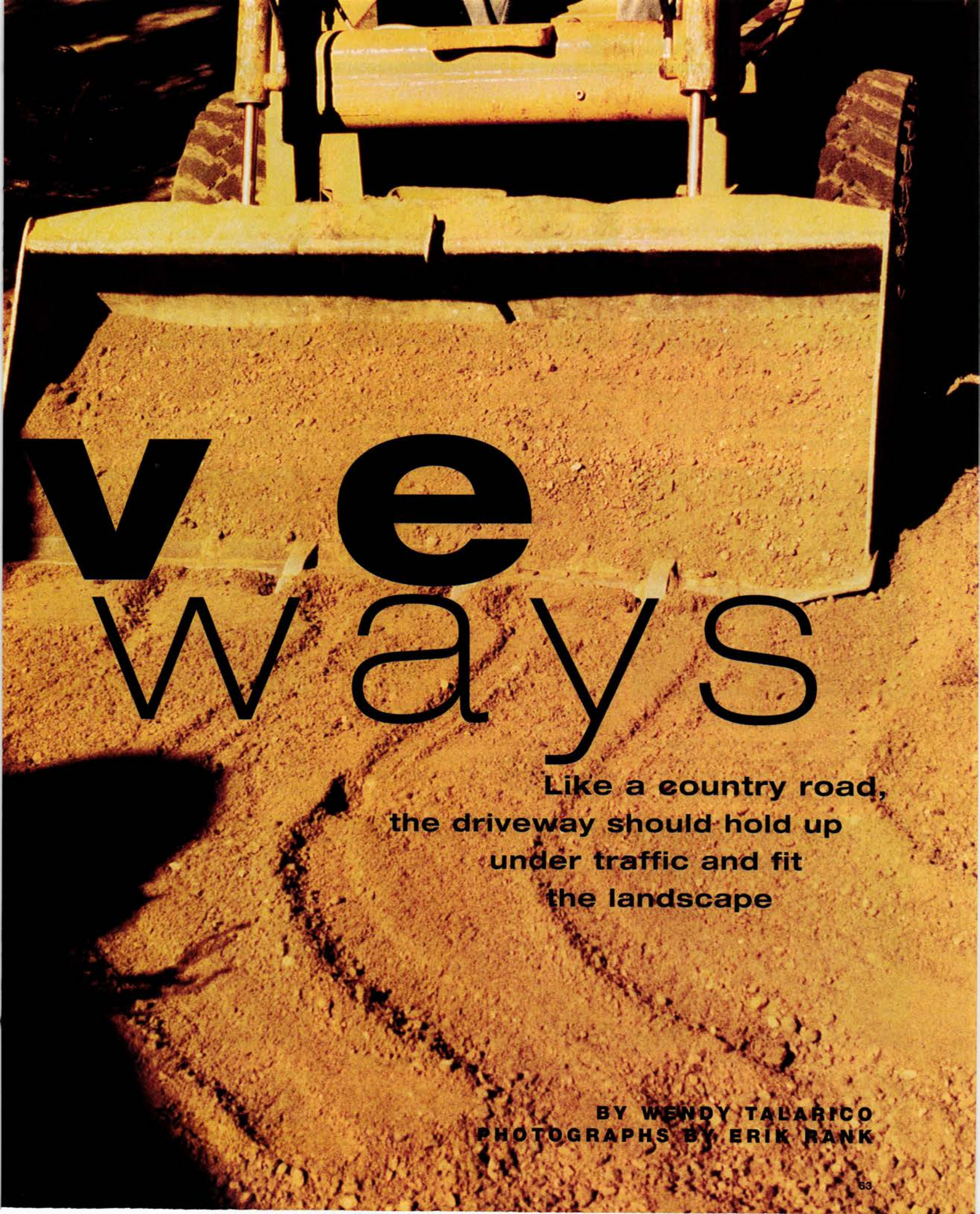
Never underestimate the importance of a well-planned driveway. Done right, it should be wide enough to navigate, strong enough to withstand occasional delivery trucks and graded so water slides off like rain from a roof. A good driveway also complements the house and is a pleasure to traverse.

Start by planning the route from the road to the garage thoughtfully. A curve or two takes up more land but lends grace. Drives should be at least 10 to 12 feet wide at straight runs and 14 feet wide at curves, says *This Old House* landscape architect Tom Wirth. If the drive is long, provide a 12-by-18-foot (or larger) space at the top for turning around; this can double as guest parking. To make sure there's enough room, do what Tom does: Make a scale model of the cars and driveway first. "We slide the models around on the drive and make sure the turning radii are generous."

Prevent puddling by angling the paved surface slightly downhill. Or create a crown: The center of the drive is built up so water flows down the sides into the soil or drainage channels.

A drive that's too steep is slippery and dangerous. Never exceed a rise of 15 feet per 100 feet of distance (a slope of 15 percent). If the driveway must wind up a steep area, add curves to lessen the slope, or cut into the hillside.

The surface material should fit the character of the house and the landscape. Depending upon where you live, it should also stand up to snowplows, road salt and fluids, such as oil and antifreeze, that leak from cars.



ve ways

Like a country road, the driveway should hold up under traffic and fit the landscape

BY WENDY TALARICO
PHOTOGRAPHS BY ERIK RANK

THE SURFACES

concrete

PLAIN

COST $2.50 to $4.50

Provides a low-maintenance, level surface that's easy to plow (also good for basketball and skateboarding). Concrete will stain and breaks down with exposure to road salt.

PAVERS

COST $6 to $10

Cast-concrete units, available in a range of colors, come in interlocking shapes that make them easy to install. If a paver is damaged or broken, it can be replaced without sacrificing the entire driveway.

PIGMENTED

COST $4 to $5

Colors (there are hundreds to choose from) are mixed into the concrete or dusted on while it is wet. The latter yields stronger hues, but chips reveal the gray beneath.

ACID-STAINED

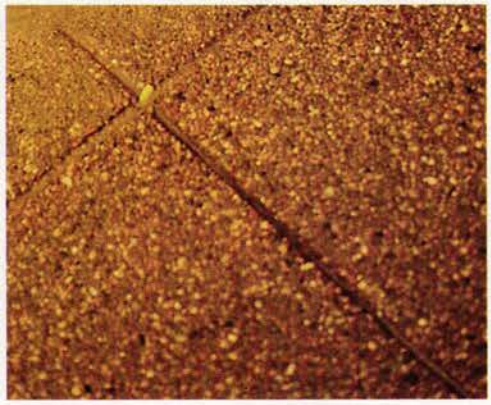
COST $3 to $6

Stain penetrates the top ⅛-inch of concrete to impart color. Multiple colors may be combined to give the appearance of stone. Colors fade and wear over time.

STAMPED

COST $6.50 to $8

Wire mats pressed into wet concrete leave texture that imitates cobblestone, slate or brick. The concrete is typically stained or pigmented as well. If not done right, the result looks hokey.



EXPOSED AGGREGATE

COST $4.50 to $6.50

A layer of concrete is washed from the surface to reveal the color and texture of the aggregate (gravel) beneath. The uneven surface promotes freeze/thaw damage; acrylic sealers protect.

stone

CRUSHED

COST 50 cents to $1.25

Chief advantages are low cost and rustic look. Type of stone varies with location; it's often shale, sandstone or granite. Potholes form easily. Hard to shovel or plow without stripping away stone.

COBBLESTONE

COST $10 to $14

Belgian block (cut granite squares) or rounded river rock is expensive but looks pretty. Plants shoot up through interstices. Uneven surface makes snow-clearing difficult.

GRAVEL

COST 75 cents to $1.25

Rounded surface is easier on tires and bare feet than jagged crushed stone. Requires a border to hold it in place and a fabric ground cover to prevent plants from sprouting through.

PRICES, BASED ON NATIONAL AVERAGES, ARE PER SQUARE FOOT AND INCLUDE LABOR AND MATERIALS.

asphalt

PLAIN

COST $1.25 to $2.50

A mix of aggregate and asphalt laid over a gravel base. Must be sealed regularly with asphalt emulsion to prevent brittleness. Difficult to get neat-looking edges.

CHIP SEAL

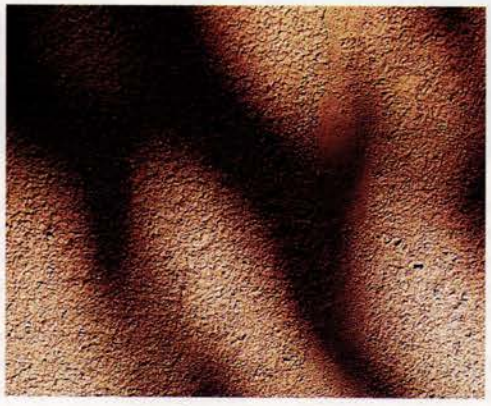
COST $2 to $3.50

Gravel is rolled into a sticky top layer of asphalt emulsion. The surface has more texture and color than plain asphalt, but stones are apt to loosen with freeze/thaw cycles and plowing.

STAMPED

COST $3 to $5

Wire templates pressed into fresh asphalt leave a textured surface that imitates brick. Can be deformed by heat and pressure; as with stamped concrete, the finish often looks fake.



COLORED

COST $2 to $3.50

Powdered pigment dissolved in an asphalt-based sealer provides color. Pigment must be reapplied every 2 to 5 years, as color breaks down with wear and weather.

brick

PAVERS

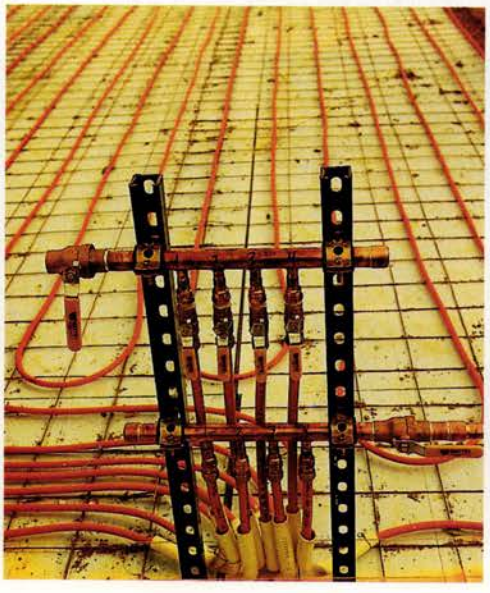
COST $7 to $10

Hard-fired brick is attractive and stands up well to traffic, but irregularities in the surface make it susceptible to weather damage. Inconsistent shapes and sizes make it hard to install.

CRUSHED

COST $3 to $4

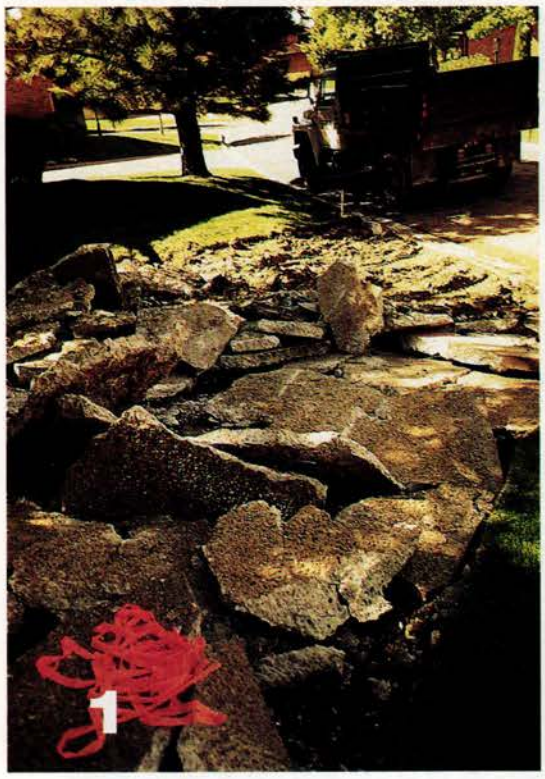
Used for garden paths, crushed brick crumbles to dust with wear. It's pretty, but hard to clear snow from without taking up a lot of the material. Not readily available in much of the country.

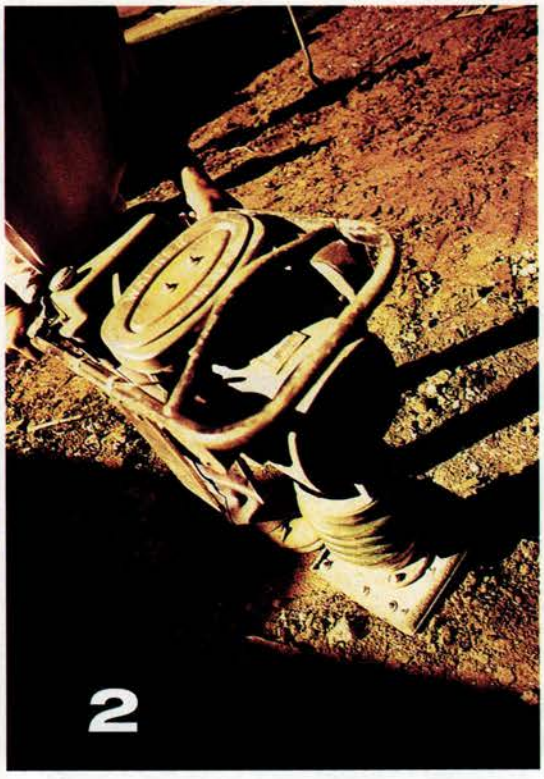


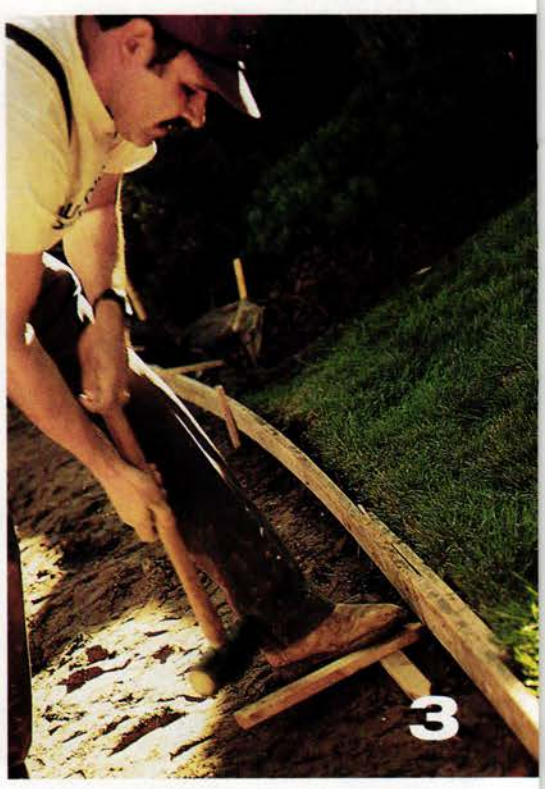
so long, **snow**

Installing a snow-melt system means never setting shovel to pavement again. Hydronic systems work by circulating water and glycol antifreeze through plastic tubing (cross-linked polyethylene, which won't break down when exposed to hot water) coiled beneath your driveway. The water/glycol solution is heated to between 120 and 130 degrees, enough to warm the surface. Supply and return manifolds (left) send warm solution from the system's boiler to the driveway and direct cooled solution back to the boiler. The tubing rests on expanded polystyrene board for insulation. The surfacing material—any type will work—goes on top. Hydronic systems are controlled manually (you flip a switch at the first sign of snow) or automatically (a sensor keeps track of air temperature and moisture). Installation by a plumbing and heating contractor, including labor and materials, runs about $3.50 per square foot. Expect some variation: A driveway on a windy north slope will require more tubing than one with a protected, southern exposure. Electric snow-melt systems consist of a grid of heating elements installed beneath the driveway surface. These systems eat up lots of power, making them less popular.

THE CONSTRUCTION

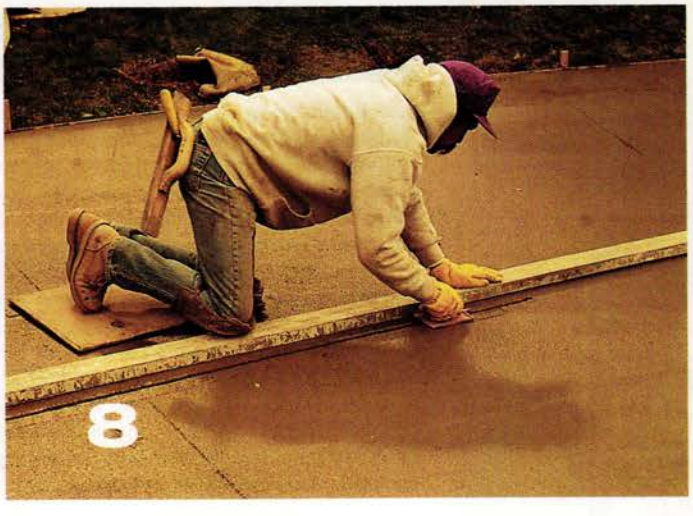


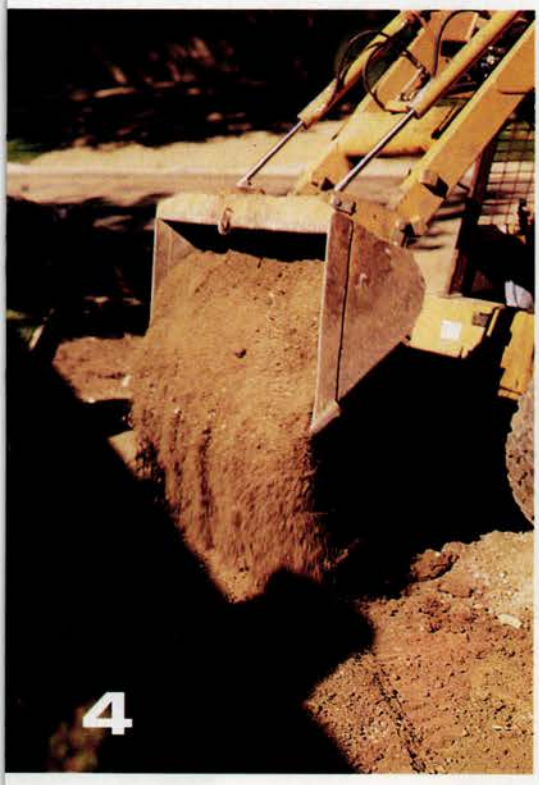


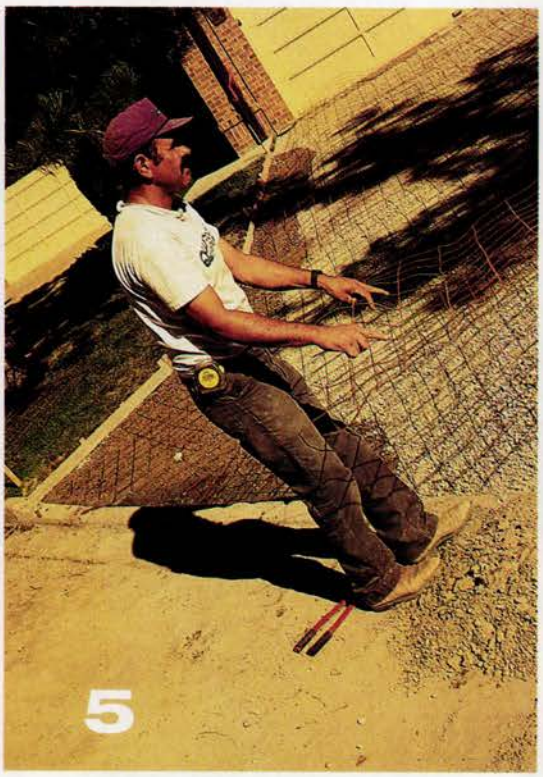


Of all the various driveway materials, concrete is among the most practical. As long as cracks are sealed promptly and salt isn't allowed to collect on the surface, a concrete drive will hold up for 15 years or more. Also, snow is easy to clear—an important consideration here in Colorado, where snow-plowing season lasts for 6 months out of the year. This **new concrete driveway** will get an exposed aggregate finish, which allows the texture and color of the gravel used in the mix to show. The look is rustic, pebbly and softer than a monolithic gray slab. Different ready-mix suppliers use different types of aggregate, so select your supplier according to the look you want. **(1)** The 18-year-old concrete drive, riddled with cracks, is **broken up** with a hydraulic jackhammer and hauled away. Concrete and asphalt can be pulverized and reused as roadbed, the gravelly base for pavement. **(2)** The ground is **leveled and firmed** with a "jumping jack" compactor. Whether the driveway is concrete, stone, brick or asphalt, the ground beneath must be flat and stable for good results. If you've got clay or other problematic types of soil, consult with a civil engineer. **(3)** Forms

(7) A screed (in this case, an aluminum bar with handles) is used to **distribute and level** the concrete. The surface is then worked with a float, which resembles a trowel, to make it smooth and to release any excess water that has risen to the top of the pour. Installers must be careful not to overwork the concrete, as releasing or "bleeding" too much water leaves a chalky surface and compromises the strength of the slab. **(8)** Using a 2x4 as a guide, **control joints** are cut with a jointer, which resembles a trowel with a blade in the center. At this point the concrete is firm enough to support some weight but still wet enough to be worked. The joints, which divide the drive into 8-by-8-foot squares, give the concrete a place to **expand and contract**. The idea here is that the concrete will crack along the joints and not in the middle of the slab. If cracks do form elsewhere (usually due to shifting soil or an inadequate base), they must be patched to prevent water from working its way into the concrete and

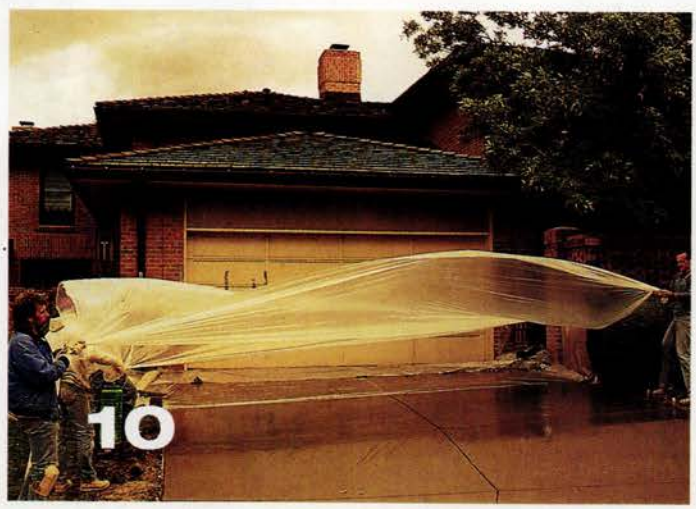




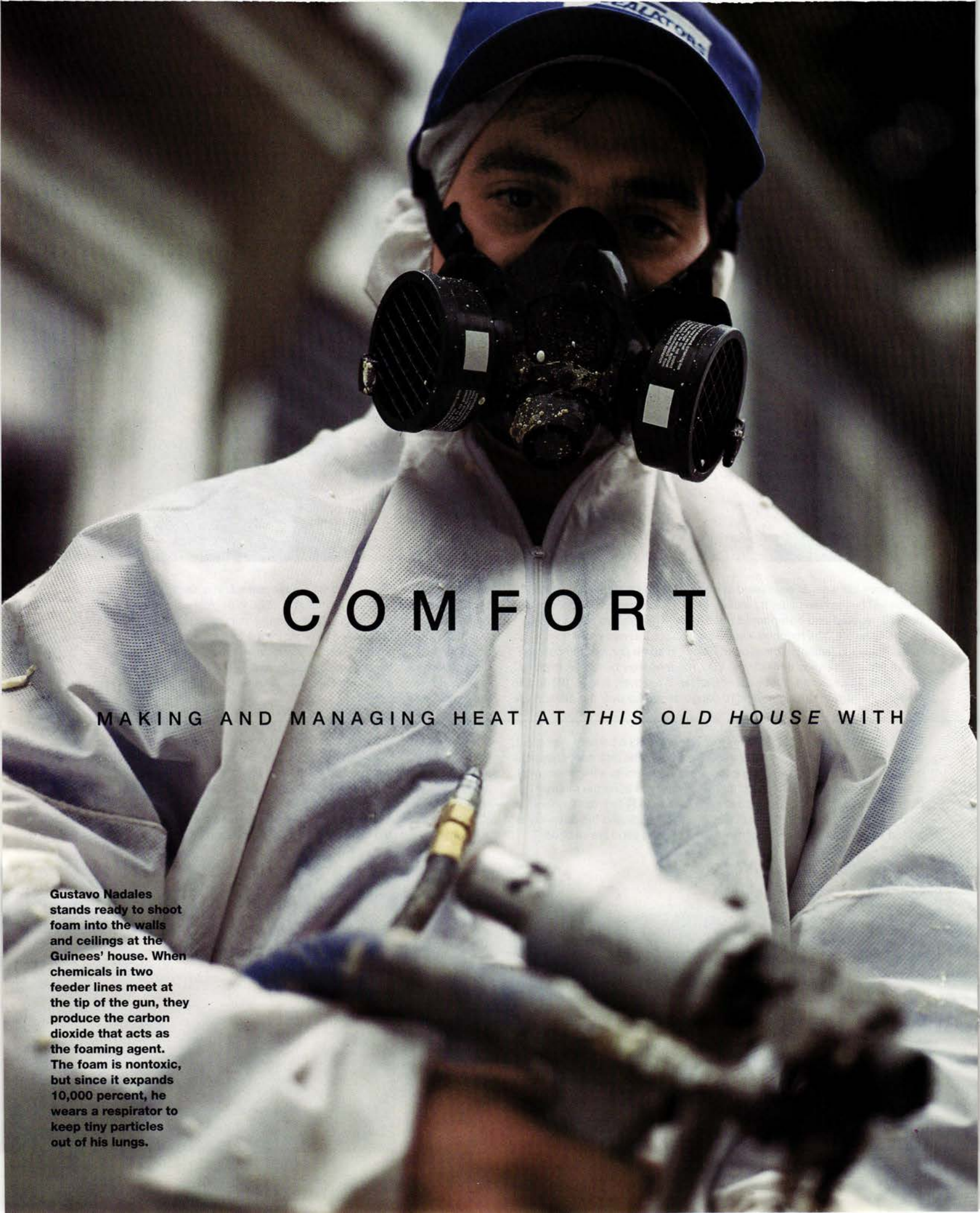


made from 1x6 boards are staked in place to shape and hold the concrete. These will be removed after it sets up. **(4)** A 4-inch layer of roadbed is **poured, leveled and compacted** once again. This creates a firm base for the concrete. The roadbed also helps insulate the pavement from freeze/thaw movement in the ground below. In some parts of the country, where the soil is sandy or filled with clay, roadbed may be laid as thick as 12 inches. The soil here, just west of Denver, is relatively stable. **(5)** To add strength, **wire reinforcing mesh** (10 gauge) is spread over the drive. It will be lifted into the concrete as the slab is poured. You can forgo the mesh by specifying a concrete mix that is fortified with plastic fiber. If the soil base is poor, steel reinforcing rods (rebar) can be used to strengthen the slab. **(6)** Concrete is **poured** to a depth of 4 to 6 inches, depending upon how much traffic the driveway will carry. In some communities, codes dictate how thick the driveway slab, as well as the roadbed, must be. Check with your building department. As a rule, the thicker the concrete, the stronger the driveway.

spalling it. **(9)** A **chemical retarder** that has sugar as a primary ingredient is sprayed on the surface to slow the setting time. The retarder penetrates only the top ⅛-inch, allowing the concrete underneath to set at its normal rate. **(10)** A **film of plastic** is laid on the driveway to keep the retarder from evaporating and to protect it in case of rain. **(11)** Two to 12 hours after the retarder is applied, the plastic is peeled back and the driveway is **hosed down** with water. Fine cement particles and sand are washed from the surface, exposing the aggregate beneath. Then a muriatic acid solution is applied to clean the stone. The next day, an **acrylic sealer** is sprayed on to protect the surface from staining and weathering. The sealer also makes the surface appear damp, bringing out the colors of the aggregate. For best results, the sealer, which is available at home centers, should be reapplied every 2 to 5 years, depending on weather conditions. In about 10 days, the driveway is firm enough for traffic.



♦ *See Directory,* on page 106, *for details and sources*



COMFORT

MAKING AND MANAGING HEAT AT *THIS OLD HOUSE* WITH

Gustavo Nadales stands ready to shoot foam into the walls and ceilings at the Guinees' house. When chemicals in two feeder lines meet at the tip of the gun, they produce the carbon dioxide that acts as the foaming agent. The foam is nontoxic, but since it expands 10,000 percent, he wears a respirator to keep tiny particles out of his lungs.

LEFT: Insulation day at the Guinees'. The chemicals and machinery stay on the trucks; only the spray hoses go inside. BELOW: Richard Trethewey and heating contractors Richard and Brian Bilo wrangle the new boiler into the basement.

CONTROL

INNOVATIVE EQUIPMENT AND "LEAK-SEEKING" INSULATION

Measured by its historical assets, Salem, Massachusetts, is a very rich town. In its oldest neighborhoods, narrow streets are lined with one treasure after another, spanning the 17th, 18th and 19th centuries: saltboxes, Colonials, Federals, Victorians—a feast of traditional North American architecture.

The current *This Old House* project at 124 Federal Street was a perfect example of Salem's riches. But like the town's many other unrestored gems, it had some major flaws—especially when it came to energy efficiency. Take away its antique value, and the place was some 3,000 square feet of substandard housing with countless air leaks, zero insulation, failing single-pane windows and thoroughly inadequate heat. Creating and maintaining comfort was an expensive and difficult challenge. The two-pronged solution: Seal and insulate the shell and put in a high-efficiency heating system. Both were done with innovative materials that represent bold options for houses new and old.

BY JOE CARTER PHOTOGRAPHS BY KELLER AND KELLER

AFTER FOUR YEARS of development, followed by rigorous tests, more development and intense industry and government scrutiny, Graeme Kirkland's formula is finally catching on. But for all its merit, his creation—a spray-on foam insulation called icynene—still has to overcome barriers raised by someone else's ill-fated concoction.

"We've had to deal with the legacy of urea-formaldehyde [UF] foam," says Kirkland. In the late 1970s, thousands of homes were shot with what looked like a good product. Then came reports, possibly overblown, of people getting sick from formaldehyde gas and, in the ensuing panic, houses being gutted to get the stuff out—all of which just about killed the industry.

Icynene shares none of UF's chemistry nor any of its risks. And it has passed the barrage of safety tests required to meet major building codes.

Having gained industry acceptance, Kirkland's product seems to make sense for both existing homes and new construction. Icynene performs about the same as fiberglass and cellulose insulation. Its installed cost is about twice that of fiberglass, but with its relative impermeability, icynene can double as an air barrier and triple as a vapor barrier. In new homes, this triple play puts it back on a par with fiberglass/air barrier/vapor barrier construction.

Foam that has expanded all the way to the outside is proof positive that it can seal otherwise inaccessible air leaks.

In existing homes, retrofitting fiberglass requires gutting walls. The foam, on the other hand, easily fills closed cavities. A house the size of the Salem project would cost between $3,000 and $4,000 to insulate, Kirkland says. At the Guinees', icynene also did a great job of stiffening wobbly old plaster. And with the way it cuts down on street noise, the old place has never been quieter.

Setting up for the shoot is fairly simple, if a little strenuous: Heavy, high-pressure hoses that carry the materials have to be hauled up and fed in through a window.

To fill a wall, Ted Franklin presses his gun into predrilled 1-inch holes. He starts at the midpoint and finishes near the top. Overflowing foam tells him the cavity is filled.

Built-in window seats at the Guinees' house are lovely details but also a big source of drafts and heat loss. With a few pulls of the trigger, Gustavo Nadales plugs the leaks and fills the cavity. It's a case of giving up a little storage space and gaining big energy savings.

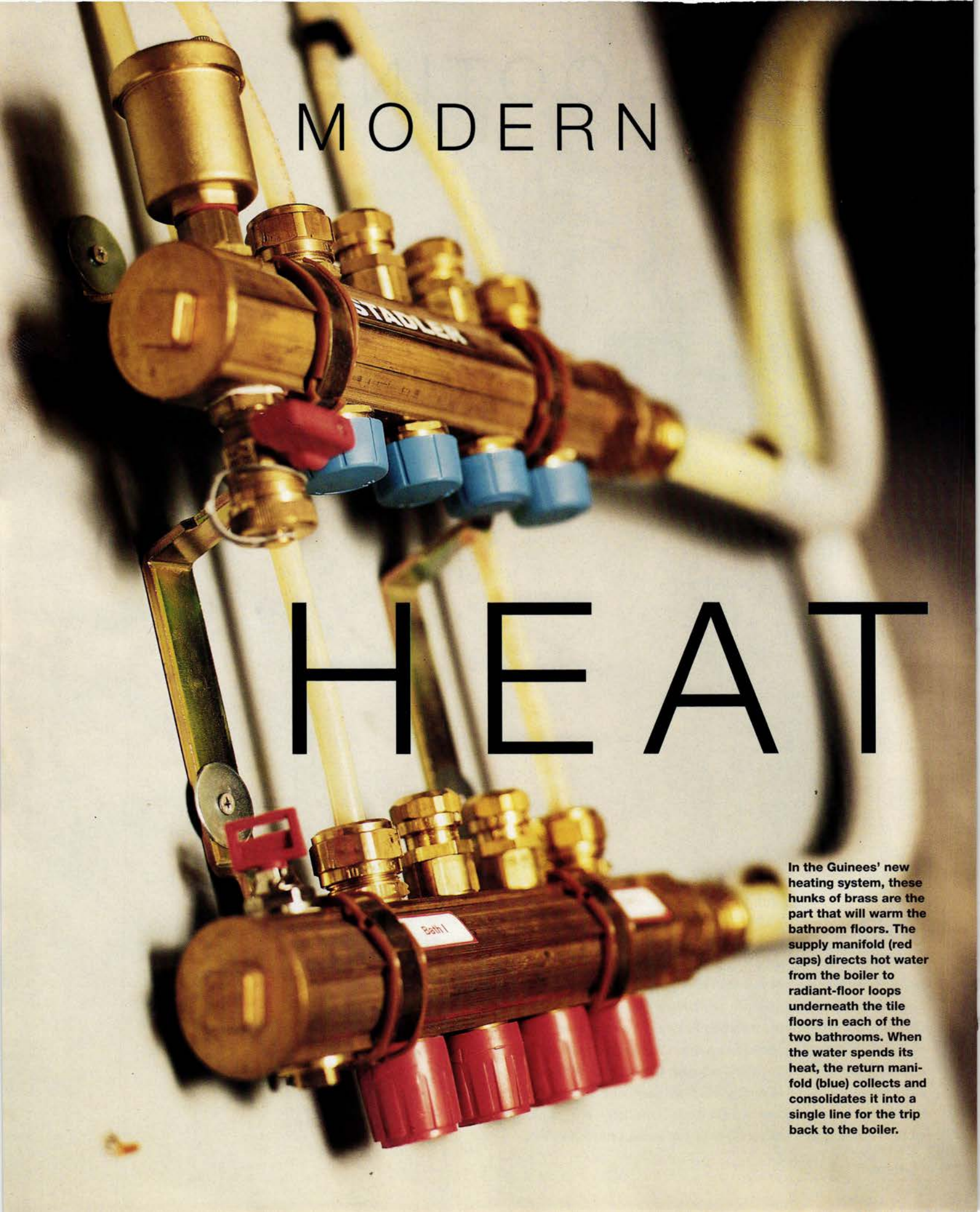
ABOVE: Open wall and roof framing is quickly filled in one or two passes. There's no need for roof vents because water vapor can't pass through the foam. LEFT: Minutes after the foam is applied, John Lojek trims off the excess with a handsaw. Trimmings don't go to waste: They're chopped up and used as loose-fill insulation in attic floors.

SHOOTING FOAM

WHAT'S ICYNENE?

No, Vonnegut fans, it's not the scientific name for the stuff that froze everything all at once. Its full name is polyicynene and, as a modified urethane, its chemistry is similar to that of upholstery, pillow and mattress foams. Icynene Inc. president Graeme Kirkland stresses that unlike polyurethane, its distant cousin, icynene contains nothing that would emit toxic gases and has none of the ozone-depleting compounds sometimes used as foaming agents. Here, Icynene shows off its dramatic 100-to-1 expansion on open framing, where a 1/16- to 1/8-inch-thick spray layer becomes 6 to 12 inches of foam in a matter of seconds. After the excess is trimmed off, any remaining voids or gaps can be filled with touchup sprays. For filling closed cavities where rapid expansion would blow apart existing walls, slower-acting foam with a 60-to-1 expansion ratio is used.

MODERN HEAT



In the Guinees' new heating system, these hunks of brass are the part that will warm the bathroom floors. The supply manifold (red caps) directs hot water from the boiler to radiant-floor loops underneath the tile floors in each of the two bathrooms. When the water spends its heat, the return manifold (blue) collects and consolidates it into a single line for the trip back to the boiler.

THE WAY PLUMBING and heating expert Richard Trethewey sees it, most of America's home-heating systems are oversized reproductions of technology that's half a century old. "For decades, we've been sizing systems to handle what's called the 'design temperature,' then adding 20 to 100 percent more capacity on top of that," he says. "The design temperature in Boston is minus 10 degrees, but it's only that cold less than 1 percent of the time. The rest of the time, you've got boilers and furnaces running at maximum output to meet much lower heat requirements. That's like running your car with the pedal down and constantly hitting the brakes!"

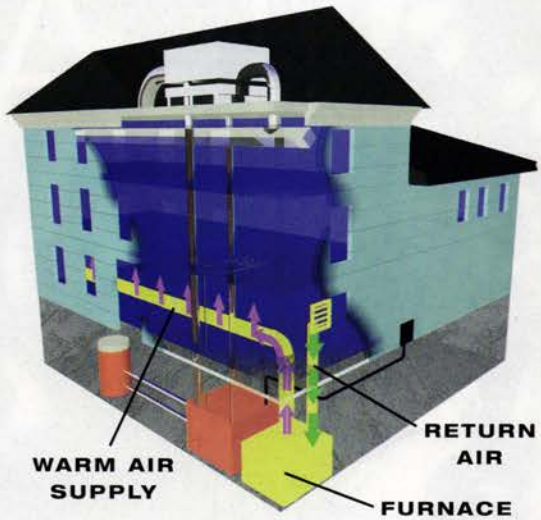
Richard has a few other peeves about the way homes are heated and cooled,

The two Richards, Trethewey and Bilo, ready the new microprocessor-controlled boiler for three functions: warm air, warm floors and hot water.

but he can also point to readily available solutions. Many are included in the new systems at 124 Federal. For example, an exterior temperature sensor raises and lowers the water temperature in the boiler, and the hot water is continuously circulated—not started and stopped—to provide just the right amount of heat and greater comfort. "For every three degrees you lower the boiler water temperature, you burn 1 percent less fuel," says Richard. "If the average temperature is 150 instead of 210, that's a 20 percent savings right there." Better controls like this, he says, are "the next quantum leap in energy efficiency."

HEATING: SOMETHING OLD, SOMETHING NEW

Illustrations by Brian Garrigan

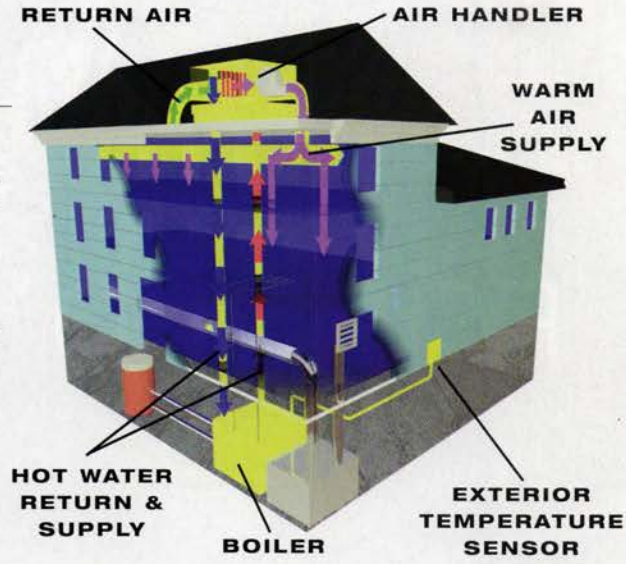


This Old Furnace

Before the Guinees bought it, the house on Federal Street was hardly heated at all, and what heat there was was limited to a first-floor doctor's office served by a conventional forced-air system powered by a gas-fired furnace. To hold down renovation costs, the Guinees decided to keep the system going (even though the old furnace is only 60 to 70 percent efficient) and augment it with a new high-velocity heat system serving the second and third floors. Later on, when the furnace finally quits, they'll expand the new system and heat the whole house at maximum efficiency.

High-Velocity Heat

Compared with the old furnace, the new heating system seems positively state-of-the-art. It starts in the basement with a Viessmann gas boiler, a German import with several innovative features. The hot water it makes is pumped to a water-to-air heat exchanger (air handler) in the attic. This is where a Unico high-velocity forced-air system takes over, pushing warm air through 2-inch ducts at four times the speed of a conventional system. (For more about this system, see the following pages.)



Warm Floors, Hot Showers

In the second-floor bathrooms, the heating is directly underfoot, thanks to a radiant-floor system that circulates heated water through loops of cross-linked polyethylene tubing that lie below the floor tiles. To make hot water, the boiler also pumps water to a heat exchanger in a nearby 53-gallon domestic hot water tank. The system is efficient because there's no separate water-heater burner and minimal heat loss from the tank. According to Richard Bilo, the combined cost for the radiant-floor, tank and high-velocity heating systems would be $16,000 to $18,000 for a house the size of the Guinees'.

FAST FORCED AIR

Sheathed in insulation, this 2-inch duct has a 3½-inch outside diameter, which allows it to be snaked through wall cavities. That makes installing high-velocity forced-air systems in existing houses relatively easy. With a traditional system, walls must be opened, fitted with much larger ducts and reclosed.

NEW IDEAS FOR heating systems are often heralded as major developments when they are really minor tweaks. That's marketing for you. But some innovations don't get enough exposure, which means heating contractors don't learn about them and thus can't make the benefits available to consumers. That may be the case with the type of forced-air heating installed at the Guinees' house.

The new feature in this system is the high velocity at which it delivers warm air—2,000 feet per second, to be exact, about four times the rate of conventional systems. This does not, it turns out, lead to high, whistling winds. Put your hand over one of the ceiling-mounted outlets and you feel a strong push of air, but in just a couple of feet it dissipates to a mild puff. Further away, there's no hint of it; rooms just get warm.

Noise is kept to a whispery minimum with special sound-absorbing supply and return ducts. Because these ducts have fibrous linings, the system can't accommodate an in-line humidifier. What can be included (though it wasn't here) is an electrostatic or an electronic air cleaner, an especially good feature for people with allergies or respiratory problems.

Another benefit that this system shares with newer conventional forced-air systems is having heat outlets on the ceiling instead of underfoot, where they can take up valuable space. Also, individual thermostat-controlled dampers allow you to heat each floor separately.

But what may give this system even greater appeal is its cooling ability. In homes with hot water or steam heat—and thus no ducts—high-velocity central air conditioning can be installed with little disruption. The small-diameter ducts can be fed easily through existing walls.

So is high-velocity some kind of a breakthrough? "It's a great, low-impact way to put heating and cooling into new and existing buildings," says Richard, "but, unfortunately, it's also one of the well-kept secrets in our industry."

INSTALLING AN OUTLET DUCT

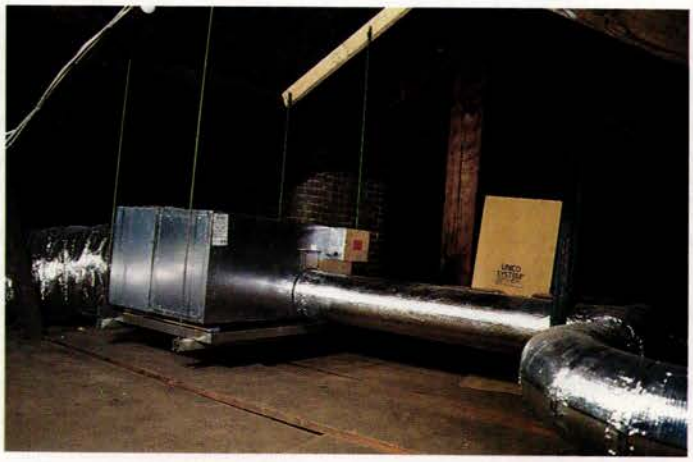
To bring a warm air outlet into a room, Brian Bilo starts by drilling a 4-inch hole through the plaster and lath in the ceiling.

With a helper pulling from above, he feeds the duct up into the attic. If needed, additional lengths can be coupled on up there.

The outlet finish plate slips easily into the end of the duct. It is then clamped tightly to prevent possible air leaks.

When the job is finished and the outlet is in place, it's barely noticeable. The plastic can also be painted to further camouflage it.

AIR CENTRAL

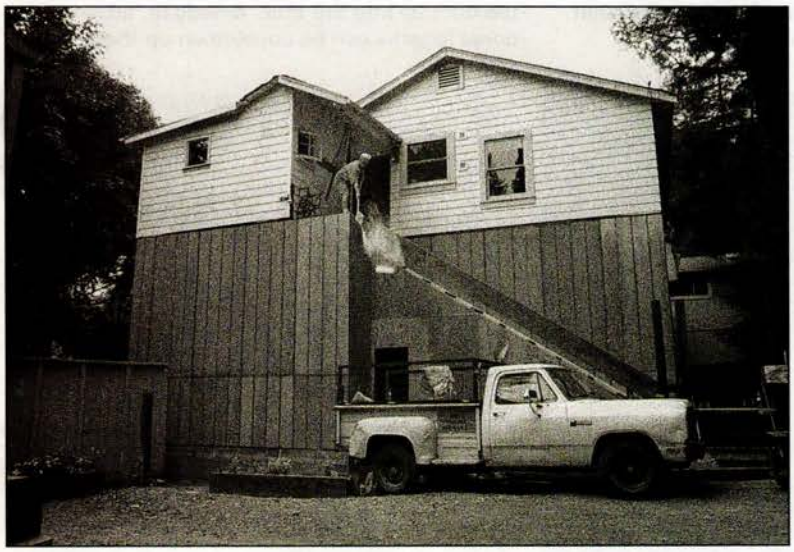


The Unico fan/coil—which houses the heat exchanger and blower in a sheet-metal box—sits in a drain pan suspended from the rafters. This arrangement, with the addition of a few rubber pads, minimizes vibrations that would become noise in downstairs rooms. If the Guinees ever want central air conditioning, a cooling module can be added with a simple system of clamps and gaskets.

IN CALIFORNIA'S SONOMA COUNTY, HOUSES ARE RISING ABOVE FLOOD WATERS.

Raised 12 feet

Raised 11 feet



Raised 15 feet

Raised 14 feet, 6 inches

WHEN THE LET THE

What you don't expect is the sound, the collective groan of the joists and studs, as a house is wrenched free of its foundation and begins its upward climb. The speed with which the house rises—four to five feet a day—is surprising too. Something so heavy, it seems, should take longer to lift.

Within the past eight months, close to 150 houses in Northern California's Sonoma County have made such a climb, riding on hydraulic jacks as much as 23 feet from ground level to get out of the path of the nearby Russian River's flood waters. Once raised, the houses look ungainly and clumsy, teetering on tall wooden piers like skinny-legged teenagers. Simply reaching the front door often requires climbing dozens of stairs.

In Guerneville (population 6,000), flooding has become a way of life. Barbara Coen, who's lived here for 12 years, is matter-of-fact about the musty smell that permeates her house and the furniture that's been ruined with each successive deluge. She points to a pale streak that runs waist-level on the wood paneling around her living-room walls. "That's where the water came up to last time," she says. Similar marks on the walls of the kitchen show that the water was well over the countertops. "We could have ridden around our house in a motorboat."

The Russian River reached its "100-year flood" level in 1986 and came close twice last

FLOOD PHOTOGRAPH BY REUTERS/

Guerneville, California, on January 11, 1995, one day after Russian River flood waters crested.

Raised 20 feet

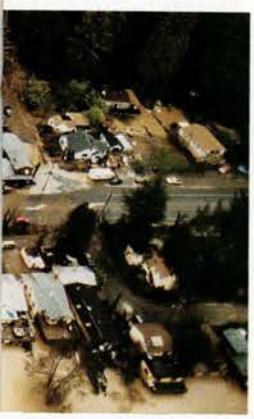
Raised 20 feet

Raised 8 feet

The Coen house, raised 9 feet, 6 inches

RIVER RUN

winter. Floods severe enough to evacuate residents have occurred an average of once a year for the past 30 years. And everyone—from the homeowners who suffer thousands of dollars in damages and spend weeks cleaning and drying out their belongings, to the Federal Emergency Management Agency officials who shell out millions of dollars in compensation—is sick of it.



Last winter, the area was hit with heavy rains that caused two record-setting floods within two months. The same rains soaked the crews working on last season's Duffy house in Napa, about 45 miles east. As a result, Sonoma County passed an ordinance requiring the owners of houses that were damaged significantly in these floods to raise them one foot above flood level. Low-cost loans and government money is available to help offset costs, which for most houses run upwards of $40,000, according to Ed Scott, manager of the county's building permits division. Only about $7,000 of that goes into actually lifting the house. The real expense comes in building a new foundation, setting piers, finishing off the space (typically with cheap plywood, since chances are good it will be ruined in the next flood) and repairing the inevitable rot. But after years of starting over after each inundation, the Coens and the other families who live in the river's path know they'll have homes that will stay dry when the winter rains fall.

BY WENDY TALARICO PHOTOGRAPHS BY LESLIE FLORES

RAISING A HOUSE

Barbara Coen's house sits on a steep embankment overlooking the Russian River. During the floods last winter, water covered the dining-room table. Raising the house 9 and a half feet will put it 1 foot above the 100-year flood level.

Holes are jackhammered in the foundation wall so that 8-by-8-inch timbers can be slid under the house, perpendicular to the floor joists, to support the structure as it begins its upward climb.

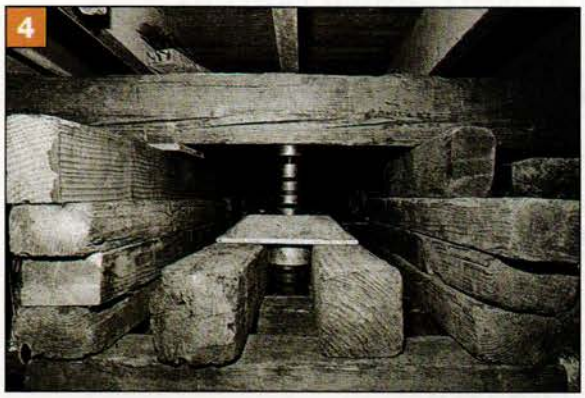
The first inches of the lift are the most crucial. All the connections that tie the house to the foundation should be severed before the procedure begins, but there are often spots that stick.

Archie Hanna of A.C. Hanna House Movers in Windsor, California, monitors pressure gauges to make sure the jacks, which carry different amounts of weight depending upon where they're located, are lifting at the same rate.

Workers, posted around the house, communicate by walkie-talkie.

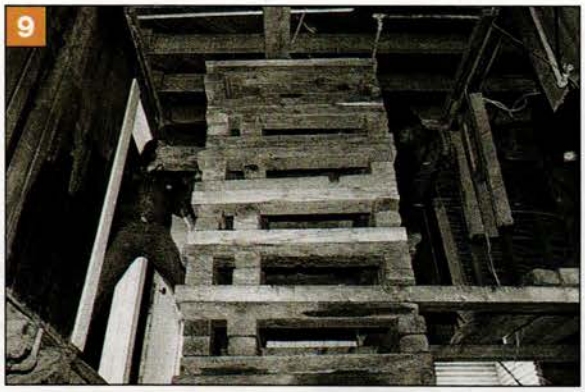
The Coen house now stands a full story taller. The newly acquired space below the house will become a garage—county codes prohibit homeowners from converting it into living space. The family moved back in as soon as the wiring and plumbing were reconnected, using a ladder to get in and out the front door.

Cribbing timber is ready for stacking beneath the house.



Hydraulic jacks (13 were used here) hoist the house 1 foot at a time. Cribbing is stacked around the jacks to support the house, then the jacks are reset to lift the house another foot.

Because of the size of the Coen house, the jacks were augmented with air bags. The jacks and air bags must be synchronized to move at exactly the same pace. If one jack or airbag is off by as little as an inch, the house will pitch and corkscrew.



The stack of cribbing grows as the house rises. The house remains on the cribbing for two months while a new foundation is poured and wooden piers are set. Then A.C. Hanna returns and lowers the structure onto the new foundation.

The actual lift takes only 5 minutes per foot. But resetting the jacks and stacking the cribbing requires more than an hour. The Coen house took two days to lift to its new height, rising 3 feet on the first day and 6 feet, 6 inches on the second.

The A.C. Hanna company's business is booming. Before the floods, they lifted 12 houses a year; last year they lifted 50.

WHY DO PEOPLE LIVE BY RIVERS THAT FLOOD?

The answer is economics. Guerneville, Forestville, Monte Rio and the other small towns along the Russian River were once retreats for San Franciscans who traveled the 75 miles north to fish, boat and swim in the slow summer waters. Most of the homes were summer cottages—cramped and flimsy. If they flooded during the winter, no one much cared. But as California real estate prices soared and Sonoma County became a more desirable place to live, residents winterized the cottages and started occupying them year-round. Because the homes are small and prone to flooding, they remain affordable. For the opportunity to live by the river all year long, residents take their chances with the winter rains.

◆ *See Directory,* on page 106, *for details and sources*

REPRODUCTION FLOOR COVERINGS FROM A 200-YEAR-OLD FACTORY

carpets

BY STEPHANIE WOODARD
WITH REPORTING BY BRUCE IRVING

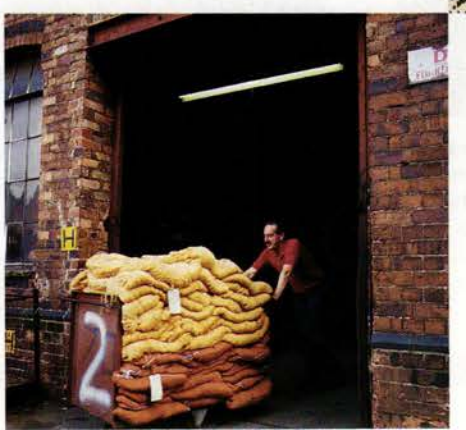
PHOTOGRAPHS BY RORY CARNEGIE

Bare wood floors were typical in all but the finest early American homes; it wasn't until after the Revolution that the former colonies began to get cozy. The most desirable carpets came from English manufacturers like Woodward Grosvenor, founded in 1790. The mill remains active today, producing the Brussels carpeting that Kevin and Deborah Guinee are installing in their *This Old House* renovation, as well as Wilton and Axminster goods (see Glossary, page 83).

LEFT: Woodward Grosvenor's main factory building, built in 1855 to house the first steam-powered looms in the north England city of Kidderminster, is part of a 9-acre complex.

With the invention of steam-powered carpet looms in the 1840s (by an American, Erastus Bigelow), production on both sides of the Atlantic increased and prices came down. The Industrial Revolution provided not only the means but the market—a burgeoning middle class that desired stylish home furnishings. The covered floor became the rule rather than the exception.

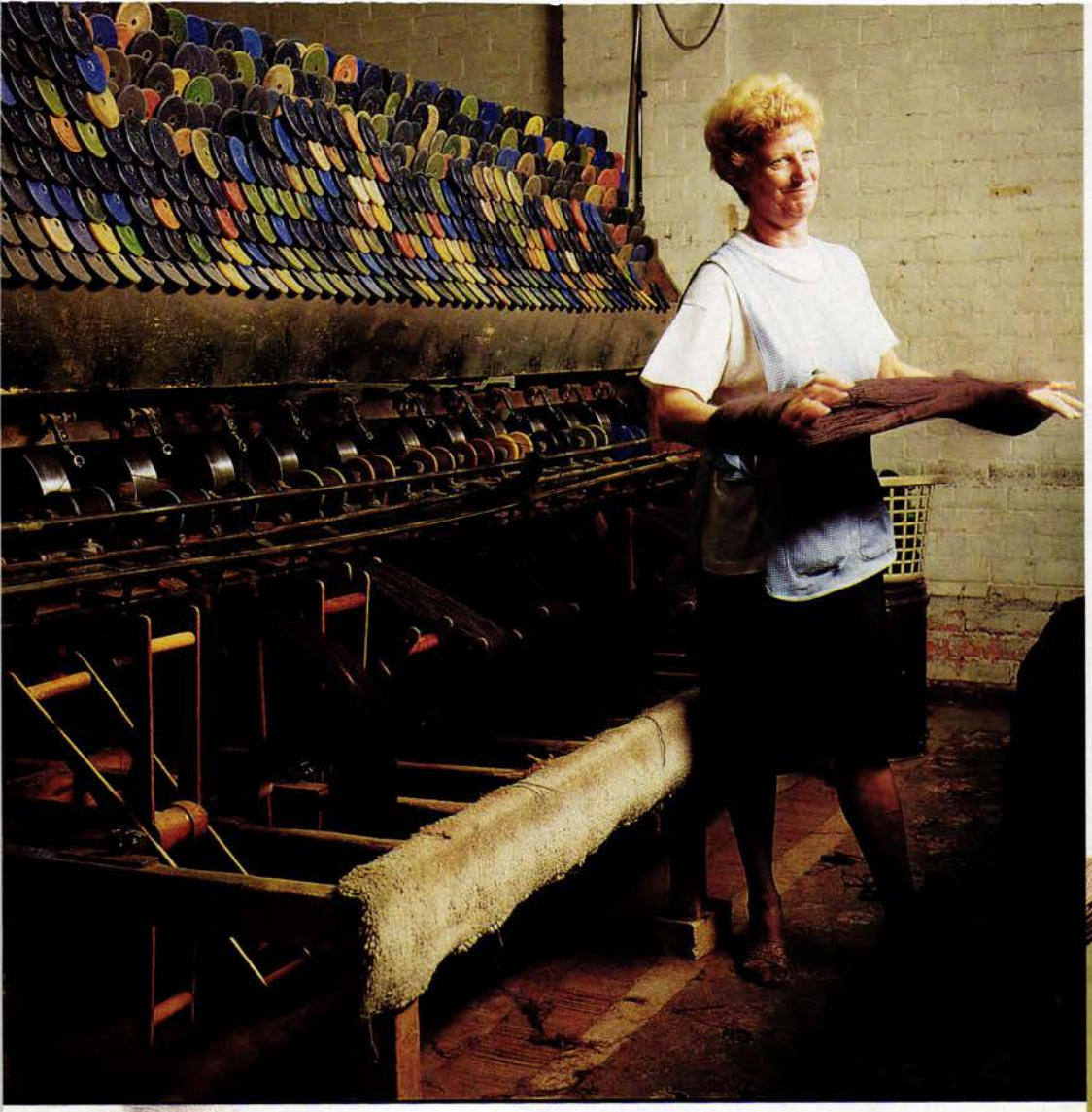
Wall-to-wall carpet—which we usually think of as a modern innovation—was the norm until the late 1800s, when area rugs were often used to set off the fancy hardwood floors then in fashion. Little 19th-century floor covering of any type has survived, but old-house owners who want a correct period look can have accurate reproductions made. Last year Woodward Grosvenor wove about 10,000 square yards of reproduction goods (double the amount of 10 years ago, says export director Brian Motteram), more than half of which made its way to the United States.



ABOVE: Regency Floral, a circa-1800 carpet pattern from the mill's archives. It will be reproduced (in slightly altered colors) for Kevin and Deborah Guinee's house in Salem, Massachusetts. LEFT: Yarn arrives at the mill.

CARPET INSET PHOTOGRAPH BY DARRIN HADDAD

Tough, resilient yarn—spun in Scotland and Yorkshire from the wool of mountain sheep—is dyed in vats. A runner carries a sample of each dye lot to Woodward Grosvenor's design department, where it is checked against the pattern from which the carpet will be woven.



LEFT: Once dyed, the yarn for each run of reproduction carpeting is spun onto bobbins. BELOW: It is then threaded into the back of a narrow antique Wilton loom. Needles traverse Jacquard cards, whose punched holes determine the colors in a pattern row. Colors that do not appear on the surface are carried along underneath, giving the carpet its density. The yarns are woven over wires laid on the carpet backing. If the carpet is a Brussels type, like the Guinees', the wires are withdrawn to leave rows of level loops. For regular Wiltons, the wires have knife blades on the ends, which, when withdrawn, cut the pile. After being cut off the loom, the 27-inch-wide strips are sewn together when the carpet is laid wall-to-wall.

LEFT: An artist prepares a new pattern, or point paper, for the Guinees' carpet. They chose to modify the colors of the original design, one of 25,000 in the mill's 200-year-old archive. "During the 1960s, bonfires were built at other mills and old point papers burned," says design director Peter Ravenhill. "They were grand symbolic gestures of ridding ourselves of a past that would never return. Now there's an increasing interest in origins and historic viewpoints, so we at Woodward Grosvenor turned out to be right."

ABOVE: The mill's workforce of 226 includes 16 Wilton weavers, all men, and 3 Wilton finishers. RIGHT: The finishers, all women, check to make sure the colors are right and run their fingertips over the carpets to determine whether loops have been twisted. As a result, veteran finishers have blurred fingerprints. After any corrections are made, the rug is steamed to increase its loft, or thickness.

♦ *See Directory,* on page 106, *for details and sources*

glossary

Axminster: Fine English rug, hand-knotted in Oriental patterns during the 18th century; machine-produced since the 1800s.

Backing: Sturdy material onto which the carpet pattern is woven.

Broadloom: Carpet produced on a loom wider than the traditional 27 inches.

Brussels carpet: Level-loop carpeting, first woven in Brussels in the early 18th century; now made on a Wilton loom.

Drugget: A cloth used under 18th- and 19th-century dining tables to protect finer carpeting; also called a crumbcloth.

Floorcloth: Coarse cloth (usually canvas) covered on both sides with oil paint; common in the 18th and 19th centuries. Often painted to look like carpet.

Ingrain: A reversible carpet resembling a thick blanket.

Jacquard: A loom mechanism for weaving complex patterns, invented in 1804 by Frenchman Joseph Marie Jacquard.

List or rag carpet: Low-cost goods made from fabric-edge trimmings ("list") or from rag strips.

Matting: Popular 18th- and 19th-century floor covering made from straw or grass.

Padding: A resilient material laid under carpeting to make it last longer; once newspaper or even straw, now foam or hair.

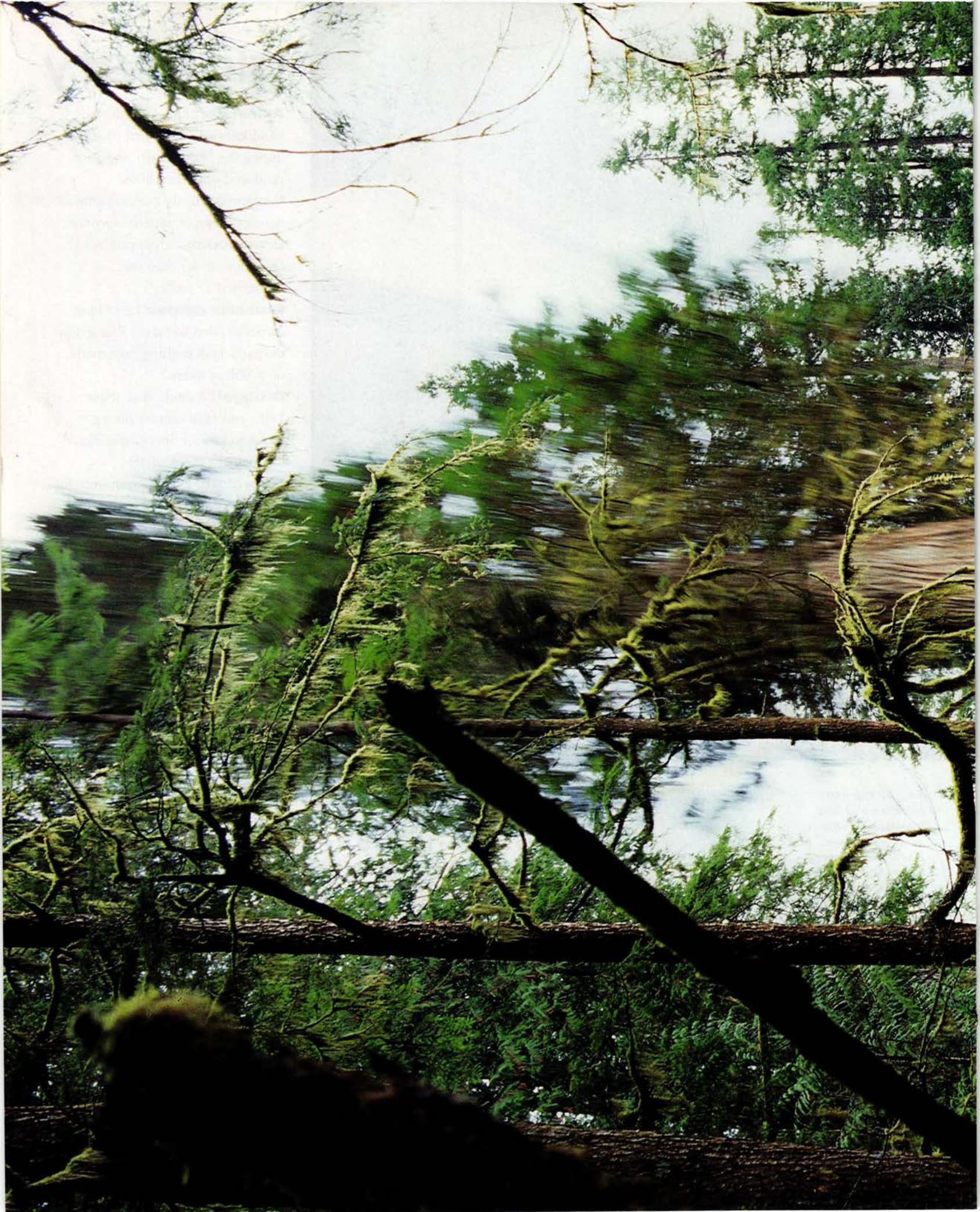
Point paper: Carpet pattern made on graph paper.

Venetian: Low-cost, flat-woven carpet with lengthwise stripes, made since the 19th century.

Warp: Lengthwise threads.

Weft: Crosswise threads.

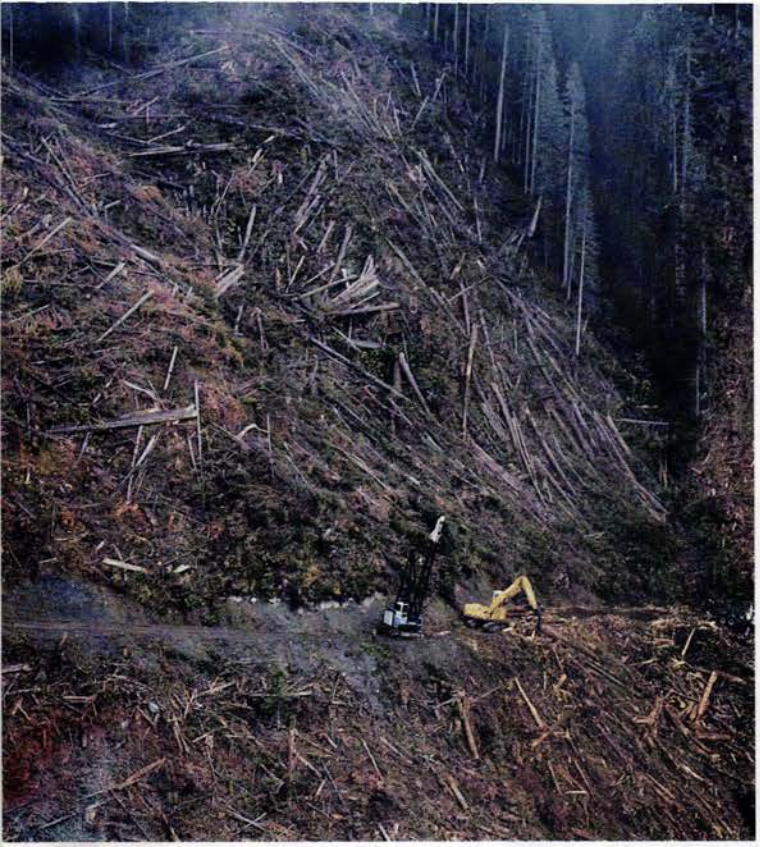
Wilton: A cut-pile carpet that originated in 18th-century England; still made today.



cedar siding

From the forest through the mill

By Thomas Baker
Photographs by Pete Eckert



ABOVE: A grapple yarder drags felled logs to the road, where they are taken by truck to the sorting yard. BELOW: The butt end of a more than 200-year-old log shows the rotting center characteristic of old cedar trees. Even so, plenty of good wood can still be milled from this "merch" (merchantable) log.

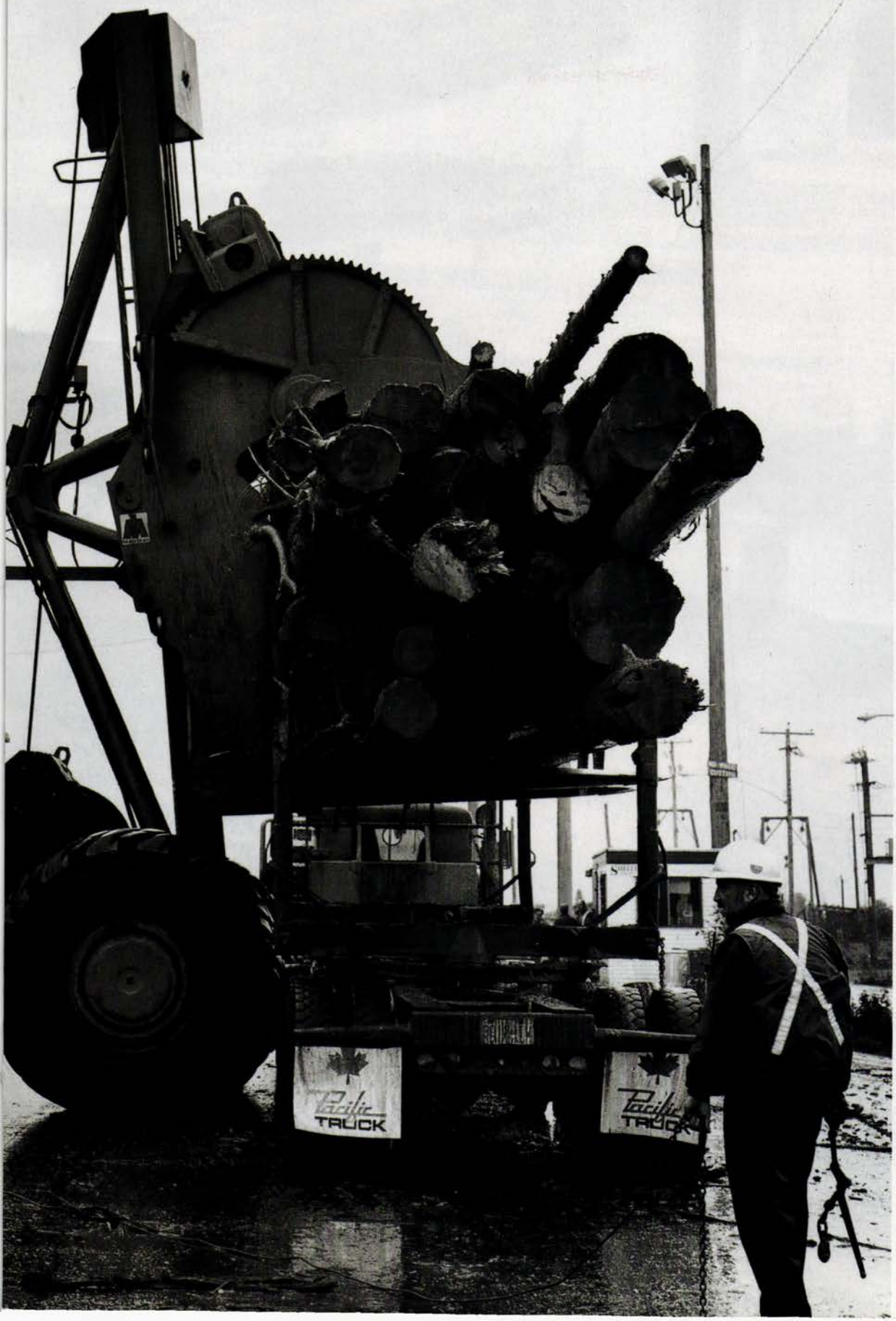
THE CATHEDRAL-LIKE SILENCE of the British Columbian forest is shattered as logger Jack Currie fires up his Husqvarna chain saw. The object of his attention—a Western red cedar four feet across—has stood on the spot for more than 200 years, surviving fires, windstorms and insect attacks. It will take just 20 minutes for Currie to make the undercut and back cut that will lay low the 180-foot giant.

For 5,000 years, Western red cedar (*Thuja plicata*) has been growing along the moist margins of the Pacific coast from northern California to southern Alaska, and inland to the western slopes of the Rockies. Under ideal conditions, a red cedar can live 1,000 years or more and reach heights of up to 230 feet. The native people in the Pacific Northwest built houses and canoes with this evergreen's aromatic wood, turned its shaggy gray bark into clothing and medicine and made baskets with its tough roots. So valued was the red cedar that they called the tree "Long Life Maker."

Modern builders also value red cedar's cinnamon-colored, straight-grained wood for its ability to withstand weather, rot and pests. Though its soft, open-celled structure makes cedar less than ideal as a framing material, it's perfect for shakes and shingles, for lining saunas or for decking and exterior trim.

From these old, slow-growing trees also comes the clear, fine-grained heartwood so prized for cedar siding. Because of its high concentrations of thujaplicin, a natural fungicide, the wood is excep-

Trucks haul logs from the clear-cuts to the dry-land sorting yard, where each log is scaled, graded and sorted by species. The stacker is the hard-working elephant of the yard, unloading trucks, left, and dropping log bundles into the water, below, to be towed by tugboat to the mills.



tionally hardy. Sound cedar trunks have been found on the forest floor 100 years after they fell.

His cutting finished, Currie puts aside his saw and inserts a pair of plastic wedges into the back cut. Four or five solid whacks with the back of his ax and the old tree trembles, cracks and falls in a whistling rush that shakes the earth.

Trailing a measuring tape, Currie climbs up onto the felled trunk and begins cutting off branches and "bucking," or sectioning, the log into the 42-foot lengths preferred by the mill. It will take him and his crew a few days to cut down every tree in the the area. Then a grapple yarder and loader will collect the fallen logs and pile them on trucks for the trip down the Squamish valley to the dry-land sorting yard.

At the Hammond Cedar Mill, thousands of logs float in booms lining the banks of the Fraser River. From big old logs like those in the foreground comes the clear (knot-free) wood prized for cedar siding. Dozer boats are used to herd the logs down to the staging platform.

A 60-ton capacity Peco lift hoists a sodden load of logs out of the river and dumps them on the staging platform, where a hydraulic crane divides big from small and sends them down conveyors into the mill. Every working day, from dawn to dusk, this lift scoops more than 2,000 cubic meters of cedar logs out of the river.

The yard seethes with activity as hard-hatted men in yellow rain jackets scurry among monstrous diesel trucks and mantis-armed stackers. Here, 100 loads of logs a day are scaled (measured for volume), graded for wood quality, sorted by species, tied into bundles and dropped into nearby Howe Sound, where a boat nudges them into quarter-mile-long log

An 8-foot automated chain saw "bucks" each log down to millable 20-foot lengths.

booms for towing to the mill on the Fraser River.

More than 7 million cubic meters of cedar are harvested in British Columbia every year. At the highly automated Hammond Cedar Mill we visited, 2,200 cubic meters of logs are processed each working day.

Inside the mill, heavy with the spicy scent of cedar, the log is stripped of its shaggy bark and rolled down a ramp to the head rig. Essentially a sophisticated bandsaw, the rig slices round logs into flat boards.

At its controls sits the chief sawyer, who manipulates ruby laser beams to illuminate where each cut will be made. He lines up the log on a sliding carriage, then runs it through an eight-foot-long, stellite-tipped blade racing at 12,000 feet per minute. He'll flip the log a couple of times to tease out as much desirable vertical-grain material as possible.

Each pass through the head rig produces a cant—a slab of wood 4, 6, 8 or even 10 inches thick. Clear (knot-free) cants and those with only tight knots slide down to the gang edger, which cuts each cant into as many as two dozen 1-inch-thick blanks destined to become bevel siding—a.k.a. clapboard.

A massive log thumps through the 5-foot-diameter maw of the debarking machine, which slashes off the thin gray bark without harming the wood. Nothing is wasted in milling cedar. Bark, chips and sawdust are taken to a pulp mill, where they will be turned into paper; wood scraps are burned to heat the drying kiln.

A carriage slides each block, as the debarked log is called, past the blade of the head rig. The chief sawyer uses lasers to guide each cut, producing lengthwise slices, or cants.

The cants suited for siding are sliced again into blanks on a machine called a gang edger. Its rack of multiple circular saws can produce as many as 24 blanks in one pass.

Raw cedar blanks are stacked onto rolling racks, then dried in a kiln for five days. After cooling in a covered shed, the racks of seasoned boards are ready to be milled into siding.

The blanks are steam-dried in a kiln for five days, then cooled. Kiln-dried, "seasoned" siding costs more than green or unseasoned wood but is much less likely to shrink or warp after it's installed.

The dried blanks are next fed through a 16-blade planer spinning at 3,600 revolutions per minute. The planer surfaces (smooths) both faces and plows a groove along both edges. The blank then passes through the resaw, which, using the grooves as guides, slices it at an angle into two tapered halves, each with one smooth (planed) face and one rough (sawn). Every piece of siding is then graded and sorted according to grain pattern and defects before being wrapped and shipped to lumberyards around the world.

Within the year, the clear-cut from which the cedar was taken will be replanted or allowed to regenerate naturally. "Second-growth" trees will reach harvestable size in 60 or so years. But it is doubtful such trees will yield wood of the quality found by logger Jack Currie.

"I'd be lying to you if I said the trees from a 60-year stand have the same quality as 150-year-old trees," says Gordon Prescott, a planning forester with Empire Logging in Squamish. With only enough old growth left for another 50 years of logging, according to the Ministry of Forests, prime cedar lumber is going to become an ever more scarce—and more expensive—commodity.

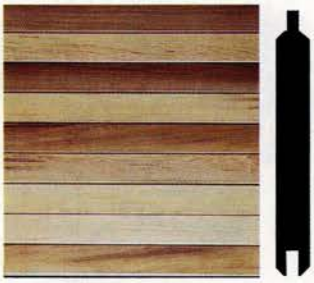
LEFT: Planed and edge-grooved cedar blanks are lined up on a conveyor, ready to be resawn into bevel siding. ABOVE: The blank exits the resaw as two clear, vertical-grain, 6-inch clapboards, worth about $1.10 a board foot in the United States. This resaw, one of two at the mill, produces 25 clapboards every minute; 55,000 board feet every day—enough to side about 34 average-size houses.

SIDING CHOICES

Cedar siding comes in two basic varieties: bevel siding, in which boards are sawn to create a tapered profile, and pattern siding, where the face of the board is milled into a desired shape or pattern. With bevel siding, weather-tightness comes from each board being overlapped by the one above. On pattern siding, the edges of the boards are milled so they interlock with either tongue-and-groove or lap joints. Both types of siding come with a smooth (surfaced) face and a rough (sawn) face. Bevel and pattern sidings are graded at the mill based on the defects and grain patterns in the wood. Grading for bevel siding is commonly done on the smooth side, so expect more defects if you plan to install it rough side out.

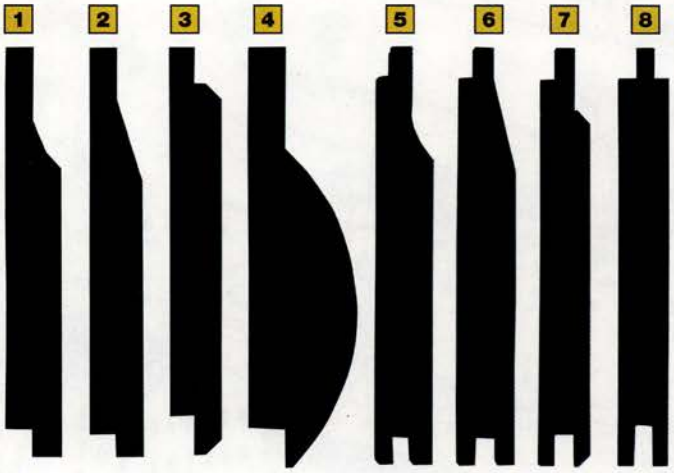
bevel siding/clear, vertical-grain heart

wavy-edge bevel siding/ select knotty



tongue-and-groove (pattern) siding/clear heart

channel (lap) siding/ proprietary grade (knotty)



Pattern siding (with milled faces) is either lap or tongue-and-groove. Lap sidings (1 through 4) are milled to overlap the adjacent piece. For tongue-and-groove sidings (5 though 8), the pieces interlock. Patterns are identified by standard names or numbers. 1. #105; 2.#101; 3. WP-11; 4. log cabin; 5. #106; 6. #102; 7. WP-6; 8. center-matched tongue-and-groove.

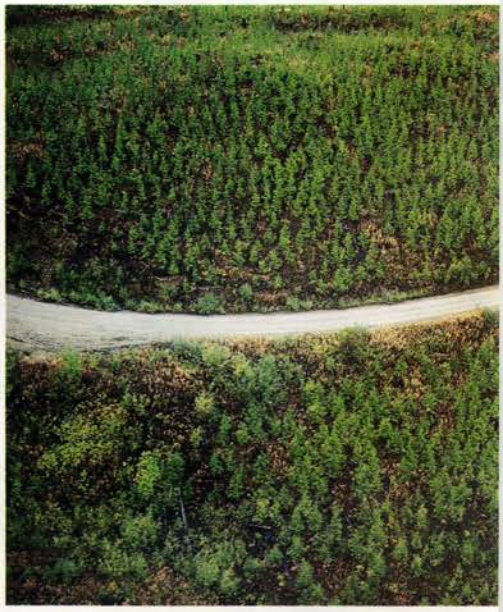
CEDAR'S FUTURE

Millions of cedar seedlings are raised in nurseries for replanting logged areas around British Columbia.

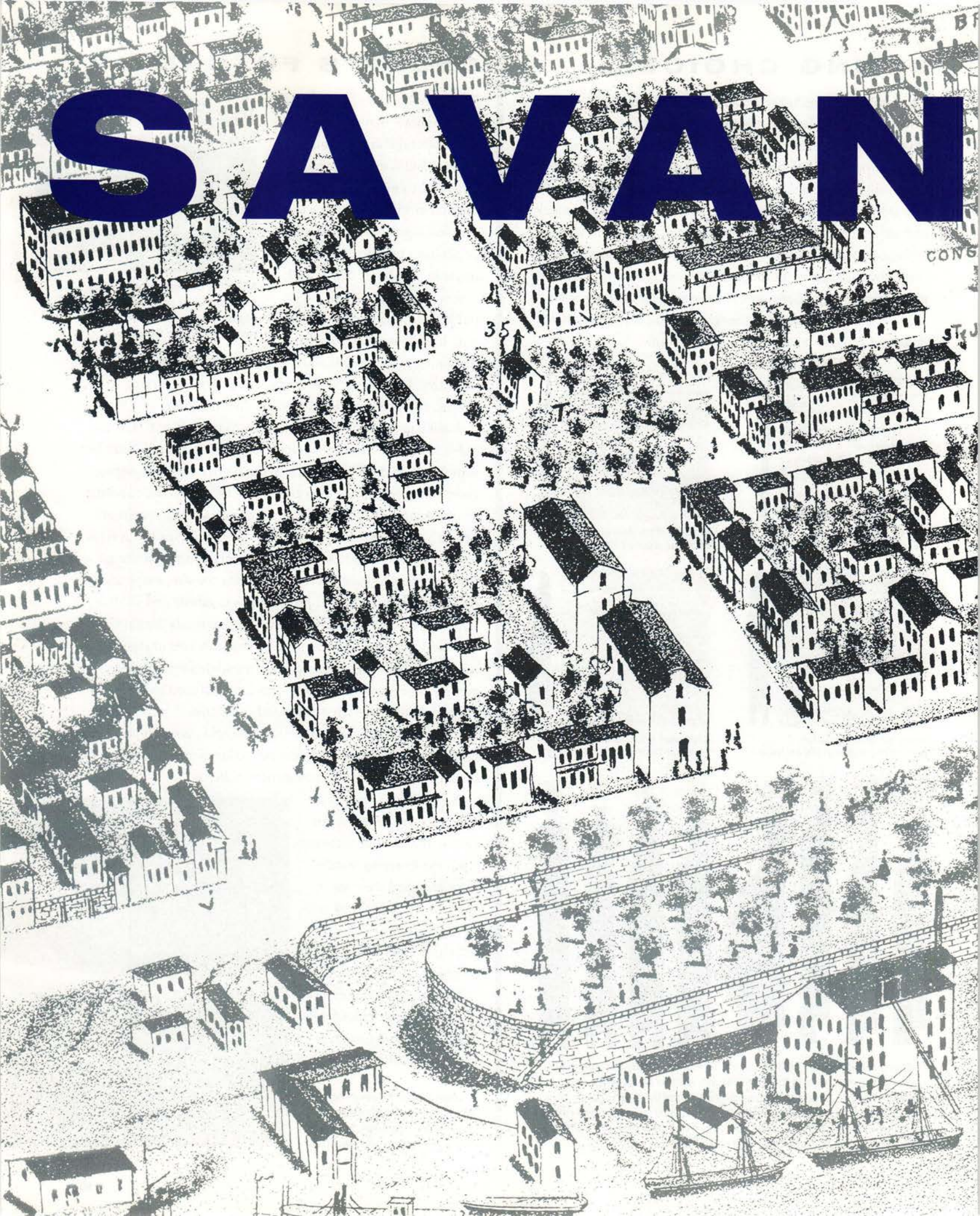
Will there be cedar forests, and cedar lumber, in our future? In British Columbia, it's a question being asked with increasing urgency by environmentalists, by the timber industry and by the provincial government. With the decimation of old-growth cedar tracts in the United States and subsequent bans on logging on public land, British Columbia now has the world's largest remaining reserves of mature Western red cedar stands, an estimated 1.1 billion cubic yards. The province is trying to exploit and protect this resource at the same time.

Unlike in the United States, where 28 percent of forests are publicly owned, nearly 94 percent of British Columbia's timber is on lands controlled by the provincial government. Logging companies are granted long-term timber farm licenses, and the government takes an active role in making sure its forests are properly managed. A new forest practices code spells out what logging operations are required to do, including submitting detailed plans to public scrutiny; limiting the size, shape and location of clear-cuts; and protecting watersheds and wildlife habitat. The code also defines how logging roads should be built and removed and specifies a company's role in regenerating a logged site. Stiff sanctions are mandated for failing to comply. The government even runs a central seed bank and experimental nursery for cedar and other trees. Up to 12 million nursery-raised cedar seedlings are replanted each year, and 85 percent survive. In short, the new code is one of the world's most progressive forest-management policies.

So while it is clear there will be cedar forests in the future, they will be different from the towering stands George Vancouver saw in the 18th century. Most will be young and as intensively managed and maintained as a field of corn. The majestic old forests will remain too, albeit in much reduced and fragmented areas, such as parks and protected zones.



A young stand grows on a site clear-cut a decade earlier. In 50 years, it will likely be harvested again.


SAVAN
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35

SAVANNAH

By Jeanne Huber

Color Photographs by Chris Sanders
Black and White Photographs by Dana Gallagher

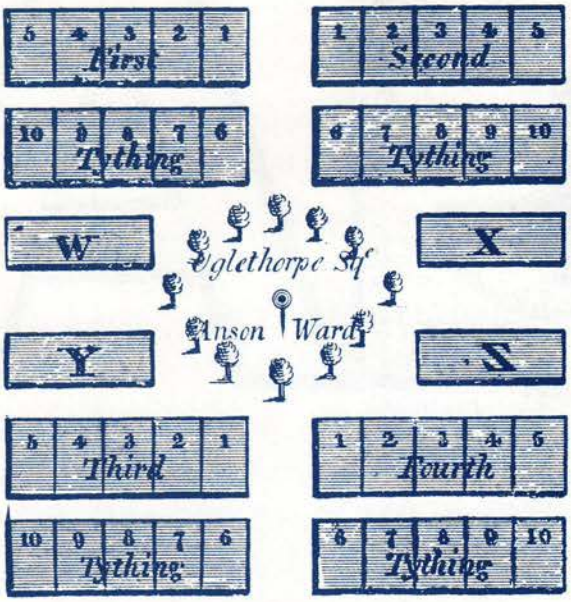
OPPOSITE: An 1871 bird's-eye view of Savannah highlights the basic town plan, a network of linked squares.

LEFT: The city got rich as a cotton port in the 1800s; container ships still pass by the riverfront park.

In every square, around every corner, Old Savannah delights. And perhaps no one is more pleased with it right now than Mills Fleming, a young attorney whose roots in the city go back five generations. After months of house-hunting (a chore that fell largely to him because his physician wife, Marianne, was so busy), he found the home of their dreams: an 1884 townhouse with its historical charm intact.

True, it needs some updating, but *This Old House* is arriving soon to help out. And Fleming relishes the chance to show the rest of the country his new neighborhood, the two square miles that make up Old Savannah. There, main streets meander around parks draped in Spanish moss, past grand churches and houses decorated with intricate ironwork. It's like a great painting, Fleming says: "You always see something new, even if you've looked at it a million times."

The Flemings' new home faces Monterey Square, perhaps the prettiest of the 21 squares in the downtown historic district. And it sits directly across from Mercer House, one of the hottest tourist attractions in town thanks to John Berendt's best-seller, *Midnight in the Garden of Good and Evil*. The book is both a chronicle of the four murder trials of Jim Williams, an antiques dealer who restored the mansion to *Southern Accents* splendor, and a character study of the town—"a love story to Savannah," says local historian John Duncan, who lives across the square. Berendt, a magazine writer from New York City, happened on Savannah in the early 1980s. He was so charmed that he eventually moved there, with no plan



An 1820 map shows Savannah's ward plan: a central square, 4 "trust" lots for public buildings, 40 "tything" lots for houses.

other than to poke around and "take notes."

The city's magic, Berendt says, is that "Savannah is just Savannah. There's a very ingrown feel to it." Distinct personalities develop and are treasured, making the city more interesting and fueling a favorite pastime. "People love to gossip," he says.

In Old Savannah, houses are laid out in a way that encourages a sense of community—and makes it easy to keep track of what neighbors are doing. Where other cities require houses to be set back from the street, here they are right out front, often with entry steps extending onto the sidewalk. From a window, it's easy to see neighbors walk by. No house is more than two blocks from a park. And instead of zoning out anything but single-family houses, Savannah invites bookstores, antiques shops, restaurants and other gathering spots to be tucked in under living quarters, in the ground-floor "basements" once devoted to hot kitchen stoves.

That so many neighborly features can be packed into a town plan is amazing, especially since the basic form of this one was drawn up in 1733. Savannah's downtown historic district is a series of repeating wards. At the center of each ward is a common open area, surrounded by blocks of 60-foot-wide lots. On the east and west are deep "trust" lots for churches and other public buildings; north and south are rows of shallower "tything" lots for homes.

With all house lots the same size, the plan fit the utopian ideals of the city's founder, James Oglethorpe. An English Parliament member and prison reformer, he envisioned the city as a refuge, a place without slavery, alcohol, speculation, religious persecution or marked class differences.

Much of the idealism fell by the wayside as the city grew—the ban on slavery was relaxed in 1750. But the plan survived because its features could adapt with the times. The squares, originally intended to house rural colonists in time of attack, serve today as luxuriously abundant urban parks. The 60-foot-wide lots were gradually subdivided, but because few were made larger, a great variety of building styles exists today in harmony. And because all house lots were laid out with a narrow street in back, Savannah has accommodated the automobile with unusual grace. Garages open onto these back "lanes," leaving the main public streets blissfully devoid of them.

On the streets bordering each ward, traffic flows freely, so drivers in a hurry head there. Interior streets, with frequent stops and turns required to get around the squares, are for strollers, bicyclists and drivers enjoying the scene.

Stroll up Bull Street, which starts at the Savannah River and ends just beyond Monterey Square, and you'll experience what the city is all about. "There's this wonderful rhythm of enclosed and open parts," says landscape architect Lina Cofresí: "It's enclosed where the

(Continued on page 105)

How Savannah fought to save itself

Savannah's downtown may be a great place to live now, but it went through some rough years.

The city once had 24 squares; three were destroyed in the 1930s to make way for a highway that never materialized. Many classy old buildings were knocked down to make way for parking lots or simply to get at their bricks. Others became tiny, rundown apartments.

When the city's finest Federal-style house was to be razed for a parking garage in the 1950s, the local preservation movement was born. The Historic Savannah Foundation, founded in 1954, added more muscle a decade later when it set up a revolving fund so it could purchase and resell endangered properties.

Downtown got a big boost about 15 years ago, when the Savannah College of Art and Design opened. Instead of building a campus, the school bought and fixed up big, vacant buildings throughout downtown: a former elementary school, an abandoned power station, a cotton warehouse. The college, which offers courses in historic preservation, uses its own construction crew to hold down costs.

Students often use the city for their classes; below, they sketch a church. Many residents say having students out and about at all hours makes the streets safer for everyone.

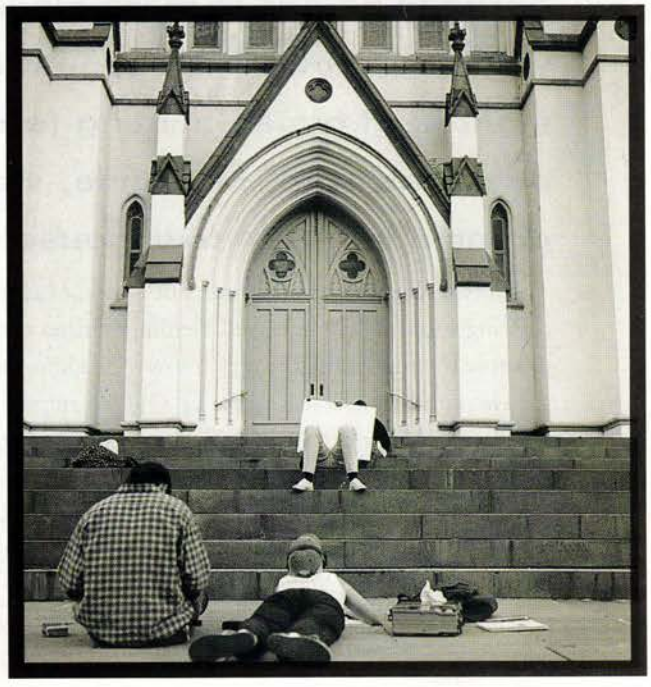
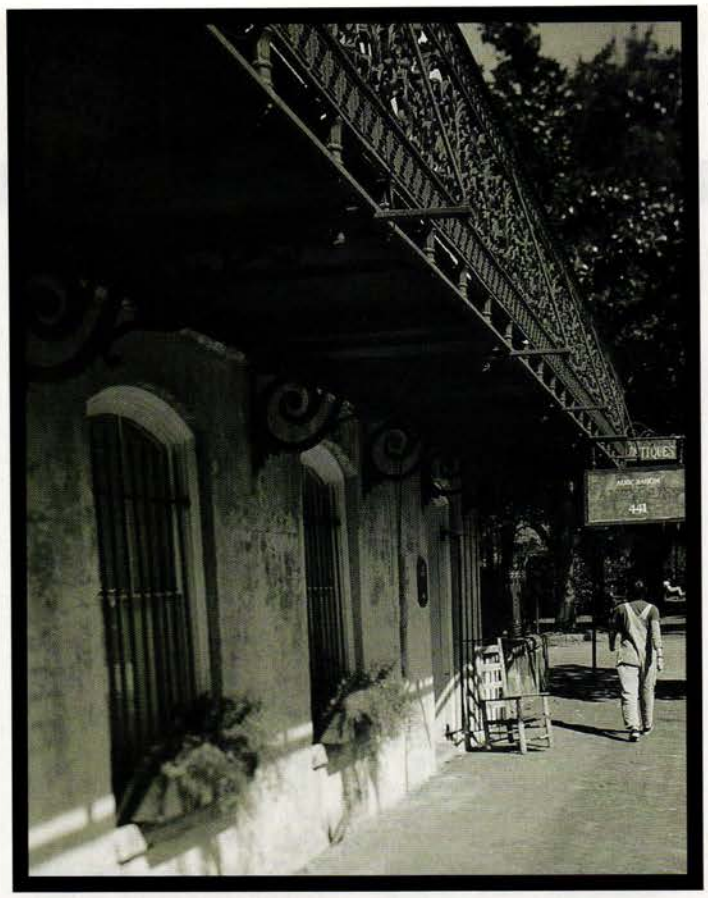


ILLUSTRATION COURTESY OF GEORGIA HISTORICAL SOCIETY



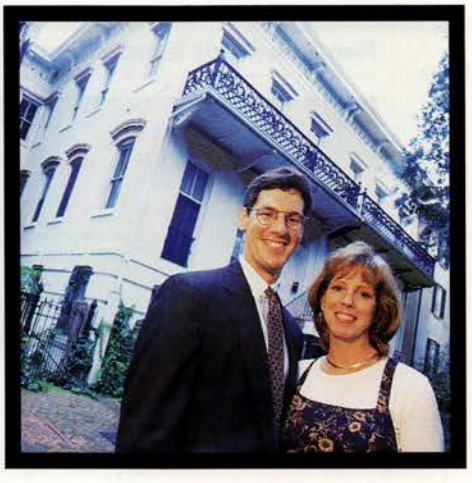
RIGHT: Pedestrians enjoy Savannah because the scene changes constantly. Passing the Hardee mansion, one of the fanciest in the city, this stroller has just glimpsed antiques in a shop sheltered by the house's ornate iron balcony. Monterey Square is just ahead.

BELOW: The city clamped down on big diesel tour buses and allows only those that are quiet and relatively nonpolluting. "It's saved the city," author John Berendt says.

(Continued from page 96) houses are—you feel sort of nestled—and then you walk into the surprise of the square. And you experience this opening and closing of the town over and over as you walk through. People say the squares are outdoor rooms, but it is much more than that. This is really an urban thing: The town is not only for individuals to enjoy, but to encourage that idea of community."

Despite the plan's genius, nobody but Oglethorpe used it. Historian Mills Lane says that's because people who laid out cities rarely passed through Savannah. Not so today. Town planners from around the world come to study this sterling example of what's now called "new urbanism"—city design that helps people connect with one another. Mixed zoning, human-scale architecture, pedestrian-friendly streets—Savannah understood it long ago.

With help from *This Old House*, Mills and Marianne Fleming will update their 1884 townhouse. Plans include new bathrooms, a heating and cooling system and a new kitchen/family room—all changes that should ease their move into parenthood.



♦ *See Directory,* on page 106, *for details and sources*

Directory

a listing of goods and services

Extras *pp. 16-23*

p. 16—Wood identification service: Free. Send sample and a letter stating where the wood came from to *Center for Wood Anatomy Research, Forest Products Laboratory, USDA Forest Service, 1 Gifford Pinchot Dr., Madison, WI 53705-2398.*

p. 17—White House: Anne Riley, Realtor, *Coldwell Banker/Fox & Carskadon, 400 Primrose Rd., Burlingame, CA 94010; 415-696-1400.*

p. 20—CUBE: *Center for Understanding the Built Environment, 5328 W. 67th St., Prairie Village, KS 66208; 913-262-0691.* **Night-light:** NiteLite Plus lightbulb, $4.99; *Philips Lighting Company, 200 Franklin Square Dr., Box 6800, Somerset, NJ 08875-6800; 908-563-3000.* **Mini sander:** Power NickSander; *NicSand, Box 29480, Cleveland, OH 44129; 216-351-3333.* **Litmus test for wood:** Companies interested in licensing the technology can contact John Bachhuber, *Grants & Agreements, Forest Products Laboratory, USDA Forest Service, 1 Gifford Pinchot Dr., Madison, WI 53705-2398; 608-231-9282.* For technical information, contact inventor Carol Clausen or Frederick Green III; *608-231-9253.*

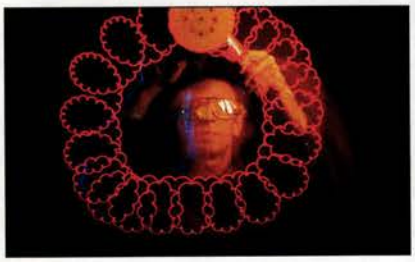
p. 21—Golden carrot: Our thanks to: Andrew de Laski, program manager, *Consortium for Energy Efficiency, 1 State St., Suite 1400, Boston, MA 02109; 617-589-3949.* Lauren Casentini, senior product manager, *Pacific Gas & Electric Co., 444 Market St., Mail Center T16-B, Box 770000, San Francisco, CA 94117; 415-973-8890.*

Hearing protection: E-A-R model 1000 Muff (**1**), $16.69; E-A-R Ultrafit (**3**), $63 for box of 50; E-A-R Classic (**4**), $30.95 for box of 200; E-A-R Express (**7**), $66 for box of 100; *Cabot Safety Corp., 5457 W. 79th St., Indianapolis, IN 46268; 800-225-9038 or 317-692-6666.* Laser-Lite LL-1 (**2**), $25.55 for box of 200; Airsoft DPAS-30R (**6**), $132 for box of 100; MAX-30 (**8**), $28 for box of 100; QB3 (**9**), $4 each; *Howard Leight Industries, 1330 Colorado Ave., Santa Monica, CA 90404; 800-543-0121.* Model 1100 (**5**), $26.85 for box of 200; *Consumer Relations, 3M, DIY Division, 3M Center, 515-3N-02, St. Paul, MN 55144; 800-854-4266.* **Mobile mix concrete:** $62.95 per cubic yd.; *Short Pour Concrete, 1270 Benton St., Suite E, Santa Clara, CA 95050; 408-261-8240.* For suppliers nationwide, contact mixing equipment manufacturer *CemenTech Inc., 1100 N. 14th St., Indianola, IA 50125; 800-247-2464.* **Semi-precious tile:** *Country Floors, 15 E. 16th St., New York, NY 10003; 212-627-8300.*

p. 22—ScrewGrab: ½-oz. tube, $3.95; *Grand Industrial Products, 4625 Clyde Park Ave., Wyoming, MI 49509; 616-530-1960.* **Ready-Mask pretaped masking film:** dispenser, $3.45; Ready-Mask rolls, 12 in. by 30 yds., $8.49; 24 in. by 30 yds., $10.99; 35 in. by 25 yds., $12.49; *Consumer Relations, 3M, DIY Division, 3M Center, 515-3N-02, St. Paul, MN 55144; 800-854-4266.* **Frank Lloyd Wright:** *Frank Lloyd Wright Building Conservancy, Box 5466, River Forest, IL 60305; 708-848-1141.* Our thanks to: Sara-Ann Briggs, Jonathan Lipman and Debra Pickrel of the conservancy and to John Elsner. **Frogwire:** FrogHide Ultra Flex extension cord: 100-ft., 14-gauge, $46.99; 12-gauge, $59.99; *General Cable Corp, 4 Tesseneer Dr., Highland Heights, KY 41076-9753; 800-382-4730 or 606-572-8000.*

p. 23—Encapsulants: L-B-C Lead Barrier Compound, about $39 per gal.; *Fiberlock Technologies Inc., 630 Putnam Ave., Cambridge, MA 02139-0802; 800-342-3755.* For more information, *Massachusetts Department of Public Health Child Lead Poisoning Prevention Program; 617-753-8400.* Lead-abatement videos free to in-state residents. Our thanks to Roy Petre, assistant program director. **Radiant heat mesh:** Warm Touch Floor Warming System, $9 to $15 per sq. ft.; timer and temperature sensor, $140; *W.K. Heating Systems Inc., 819 S. Wabash St., Chicago, IL 60605; 800-875-5285.* **Plastic nails:** DFS-8d nails, 2,000 per box, $60 (14- to 18-gauge finish nails also available); *Raptor Nail Division, Utility Composites Inc., Austin, TX 78759; 800-460-6933.* **Paintbrushes:** No Swett Semi-Paste Paint Stripper, suggested retail $9.99 per qt.; $19.95 per gal.; $9.99 per 14-oz. aerosol can; *Nutec Industrial Chemical Inc., 15561 Product Ln., Huntington Beach, CA 92649; 800-523-4114.*

Random-Orbit Sanders *pp. 25-27*



Palm-grip random-orbit sander: Model #333, 5-in., single-speed, with dust collection and hook-and-loop pad, $144 (Model #334 identical, but with PSA pad); *Porter-Cable, Box 2468, Hwy. 45 North, Jackson, TN 38302; 901-668-8600 or 800-321-9443.* **Right-angle random-orbit sander:** Model #MSf 636-1, 6-in., single-speed, with hook-and-loop pad, $745; *Fein Power Tools, 3019 W. Carson St., Pittsburgh, PA 15204; 412-331-2325 or 800-441-9878.*

In-line random-orbit sander: Model #TXE150, 6-in., variable-speed, with hook-and-loop pad, $281; *Chicago Pneumatic Tool Co., Electric Tools Division, 2220 Bleecker St., Utica, NY 13501; 800-243-0870.* **10-gallon Fein Vac I portable dust extractor:** Model #9-20-13 with automatic starter, $745; *Fein Power Tools, 3019 W. Carson St., Pittsburgh, PA 15204; 412-331-2325 or 800-441-9878.* **Sanding pad:** Bench vise, Model #23468, 24 by 36 in., $10.50; *Vermont American Tool Co., Box 340, Lincolnton, NC 28093; 704-735-7464, or Ace Hardware, 800-441-4223.*

For more information: Mail-order source for random-orbit sanders and accessories: *Klingspor, Box 3737, Hickory, NC 28603-3737; 800-228-0000.* Mail-order source for random-orbit sandpaper and accessories: *Red Hill Corp., Box 4234, Gettysburg, PA 17325; 800-822-4003.*

directory

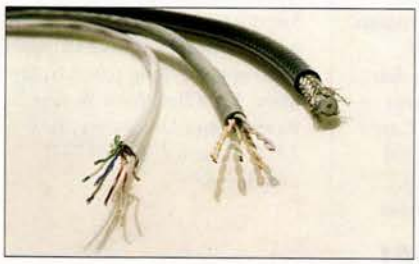
a listing of goods and services

Window Glass *pp. 28-32*

Nonreflective glass: Amiran, 4 mm., $25 per sq. ft.; *Schott Corp., 3 Odell Plaza, Yonkers, NY 10701; 914-968-8900.* **Standard window glass:** $1.50 per sq. ft.; *PPG Industries, 1 PPG Place, Pittsburgh, PA 15272; 800-377-5267 or 412-434-5267.* **Heat-absorbing glass:** bronze color, $20 per sq. ft.; *Rosen-Paramount Glass Co., 45 E. 20th St., New York, NY 10003; 800-287-6736.* Solex (green) and Solargrey, $7 per sq. ft.; *PPG Industries.* **Heat-reflecting glass:** Solarcool Bronze, $8 per sq. ft., *PPG Industries.* **Regular insulated glass:** ½-in., $10 per sq. ft.; *Rosen-Paramount.* **Plastic:** Lexan, scratch-resistant MR 5000, ⅛-in., $5.50 per sq. ft.; Lexan Thermoclear (insulated), 8 mm., $2.25 per sq. ft.; *Commercial Plastics, 98-31 Jamaica Ave., Richmond Hill, NY 11418; 718-849-8100.* **Low-e glass:** Heat Mirror insulated, $8-$15 per sq. ft., and California Series laminated glass, $10–$17 per sq. ft.; *Southwall Technologies, 1029 Corporation Way, Palo Alto, CA 94303; 800-365-8794.* Sungate 300, $7 per sq. ft.; *PPG Industries.* **Privacy glass:** $80–$90 per sq. ft.; *Marvin Windows & Doors, PO Box 100, Warroad, MN 56763; 800-346-5128.* **Fire-resistant glass:** SuperLite I, $20–$40 per sq. ft., and SuperLite II, $45 per sq. ft.; *SAFTI, O'Keeffe's Inc., 75 Williams Ave., San Francisco, CA 94124-2693; 415-822-4222.* **Burglar-resistant and institutional glass:** Inferno-Lite, FRP 100, 3/16-in., $40 per sq. ft.; Secur-Tem + Poly, 13/16-in., $48 per sq. ft., and 1.4-in., $58 per sq. ft; *Globe Amerada, 2001 Greenleaf Ave., Elk Grove Village, IL 60007; 800-323-8776.* **Decorative laminated glass:** Monsanto Opticolor, $10–$35 per sq. ft.; *Mirror Factory Inc., 12725 16th Ave. N., Plymouth, MN 55441; 800-452-1644.*

Our thanks to: *Floral Architectural Glass Inc., 895 Motor Pkwy., Hauppauge, NY 11788; 800-647-7672.*

Phone and Data Wiring *pp. 34-37*



Wiring: Category 5 data four-pair TW/24G cable, $153.50 per roll; four-pair cable, $116.80 per roll; mounting plates, $5.90; Category 5 dual jacks, $9.75; cross-connector block, $64.20; "BIX" 1A strips, $11.45 per strip; eight-way splitter, $5. (All materials purchased from professional outlets; prices vary depending on manufacturer.) **AT&T Partner System:** Partner Release 4.0 Control Unit, $475; Partner 206E Module R 3.1, $380; Partner Connector Module, $45; Partner 12-button phone, MLS 12, $200; *Rhyne Communications, 45 U.S. Hwy. 46 E., Pine Brook, NJ 07058; 800-634-6770 or 201-227-0606.*

Further reading: "An Introduction to Providing Your Own Telephone Wiring," available to New England Nynex customers upon request. Contact: Karen Smith, *Pierce Leahy Co., 508-687-6000. Installing Telephones* by Gerald Luecke and James B. Allen, 1995, 80 pp., $4.99; *Master Publishing Inc., Richardson, TX.* Available through Radio Shack.

Our thanks to: Bob Pitard, *Digital Satellite Specialists, 266 Manning St., Hudson, MA 01749; 508-562-3859.* Bob Russell, *Tremblay & Russell Electrical Contractors, 52 Magnolia St., Arlington, MA 02174; 617-643-6025.* Andrew Lippmann, *associate director, Media Technology Laboratory, M.I.T., Cambridge, MA 02139.* Jahan Salehi and Andrew Barabas, *Solute Inc., 145 Palisades St., Dobbs Ferry, NY 10522; 914-674-6000.* Tony Casazza, *Atcom Services, 40 Grand St., Clark, NJ 07066; 908-396-3600.*

Choosing Hammers *pp. 39-41*

Tool catalogs: Stanley Tools, *attn. Ad Services, 600 Myrtle St., New Britain, CT 06053; 800-648-7654.* The Japan Woodworker, *1731 Clement Ave., Alameda, CA 94501; 510-521-1810.* Woodcraft Supply, *210 Wood County Industrial Park, Box 1686, Parkersburg, WV 26102-1686; 800-535-4482.* Estwing Manufacturing Company, *2647 Eighth St., Rockford, IL 61109-1190; 815-397-9521.*

Further reading: *The Hammer: The King of Tools* by Ron Baird and Dan Comerford, 1989, 352 pp., $25; *Ron Baird, Rt. 1, Box 695, Fair Grove, MO 65648; 417-759-2816.* Features hundreds of photographs and patent-office illustrations.

Our thanks to: *Sammy's, 484 Broome St., New York, NY 10013; 212-343-2357,* for the loan of several old hammers.

New Life for an Old Stove *pp. 42-45*

High-temperature spray paint: Thurmalox 270 series, satin gloss black, $6.75 per can ($7.25 for colors); also comes in gallon size and nonaerosol. *Dampney Co. Inc., 85 Paris St., Everett, MA 02149; 800-537-7023 or 617-389-2805.* **Nonabrasive metal polish:** Nevr-Dull Magic Wadding Polish, 5 oz., $4.50; 2 lbs., $18; *George Basch Co., 1910 Hanse Ave., Freeport, NY 11520; 516-378-8100.* **Reproduction stoves:** *Real Goods Snow-Belt Center, 286 Wilson St., Amherst, WI 54406; 715-824-5020.* Also puts out *Real Goods' News* quarterly newsletter, $5 per year.

For more information: *The Antique Stove Information Clearinghouse, 417 N. Main St., Monticello, IN 47960; 219-583-6465.* Links buyers and sellers of stoves and parts, consults on restoration, sells antique stove books and original manufacturers' catalogs. Provides photocopies of original manufacturers' data on specific stoves ($2 per stove). Also runs the Antique Stove Association, annual dues $10 for owner-users and collectors, $15 for restorer-dealers. Members receive four newsletters per year. *The Old Road Home* newspaper, put out by *The Old Appliance Club, J.E.S. Enterprises, PO Box 65, Ventura, CA 93002; 805-643-3532.* Annual dues, $18; includes four issues. Specializes in 20th-century ranges.

Further reading: *Cast with Style* by Tammis K. Groft, 1981, 101 pp., $11.95; *Albany Institute of History and Art, 125 Washington Ave., Albany, NY 12210; 518-463-4478. Antique Woodstoves: Artistry in Iron,* 1975, 64 pp., $12.95; *Antique Stove Information Clearinghouse.*

Our thanks to: *Erickson's Antique Stoves, 2 Taylor St., Box 2275, Littleton, MA 01460; 508-486-3589.* Kirk Moldoff, *Peekskill Museum, 124 Union Ave., Peekskill, NY 10566; 914-736-0473,* for supplying Peekskill foundry photographs.

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Property Taxes *pp. 46-49*

For more information: "Understanding Your Assessment" and "For the Property Owner Who Wants to Know." Free. Send a stamped, self-addressed envelope to the *International Association of Assessing Officers, 130 E. Randolph St., Suite 850, Chicago, IL 60601.* "A Taxpayer's Guide: How to File A Complaint on Your Assessment." Free. *Public Information Office, New York State Board of Real Property Services, Sheridan Hollow Plaza, 16 Sheridan Ave., Albany, NY 11210-2714; 518-474-1700.*

A Portico Saved *pp. 52-57*

No Swett Semi-Paste Paint Stripper: $9.99 per qt., $19.95 per gallon; *Nutec Industrial Chemical, 15561 Product Ln., Huntington Beach, CA 92649; 800-523-4114.* **Paint scrapers:** ProPrep stainless steel, half set of 4 blades, $29.95, full set, $54.95; *NAC Industries, Box 19757, Portland, OR 97280; 800-255-4535.* **Swedish Putty:** 1 kg. $25, 5 kg. $75; distributed by *Fine Paints of Europe, Box 419, Route 4 West, Woodstock, VT 05091-0419; 800-332-1556.* **Moisture meter:** #CS1, $76.72; *Window Care Systems, c/o Repair Care Systems, 59 Meadow Rd., Rutherford, NJ 07070; 800-655-9919.* **Flexible-shaft router:** Model Profi 110V, $1,699; *Repair Care Systems.* **Dry fix:** resin (100 ml.) and hardener (50 ml.), $22.19; *Repair Care Systems.* **Dry flex:** resin (300 ml.) and hardener (100 ml.), $42.86; *Repair Care Systems.*

Our thanks to: Dick Washburn, *Washburn Associates, 20 Raymond Rd., West Hartford, CT 06107; 203-236-6028.* Washburn sells specialized spraying equipment for applying No Swett stripper (approx. $3,500) and can arrange for the stripper to be applied using rental equipment. John Dee, *John W. Dee Painting and Decorating, Box 1415, Concord, MA 01742; 508-369-8897.*

Trash Shed *pp. 58-61*

Specialized items: 8-in. galvanized drip edge, two 10-ft. pieces, approx. $4 each; *Lamb & Richie Co., 90 Broadway, Saugus, MA 01906; 617-662-8015.* **4-in. galvanized barrel bolts:** two at $6 each; *Lawrence Bros. Inc., 2 First Ave., Sterling, IL 61081; 800-435-9568.* **Ring-shank siding nails:** 5 lbs., 8d stainless steel, approx. $28.50; *Prudential Building Materials, Box 4159, E. Dedham, MA 02027; 800-444-9585.* **Deck screws:** box of 3-in. screws, $3.79; box of 1¼-in. screws, $14; *Prudential Building Materials.* **3-in. galvanized T-hinges:** 3 pair at $6.68 each; *Lawrence Bros.* **Alex Plus latex caulking:** with silicone, one tube at $1.89; *DAP Inc., Box 277, Dayton, OH 45401; 800-327-3339.*

Readily available materials: 2x4 pressure-treated pine, one 12-ft. piece, one 10-ft. piece (floor joists); two 8-ft. pieces (rim joists). **2x6 spruce:** two 8-ft. pieces (door header). **2x4 kiln-dried spruce:** three 14-ft. pieces (studs for back wall, one back stud for end wall, frame for recycling shelf); one 12-ft. piece (remaining back stud, center studs for end walls); five 10-ft. pieces (sill, plate, front stud for end wall, studs for front wall); twelve 8-ft. pieces (sills, plates, rafters, misc. blocking). **CDX plywood:** three ½-in. sheets (floor, end walls, misc. shelf); one ⅜-in. sheet (roof sheathing). **AC plywood:** one ½-in. sheet (back wall sheathing). **1x8 preprimed pine:** one 10-ft. piece (front fascia). **1x6 preprimed pine:** three 10-ft. pieces (rakes, rear fascia, frieze). **1x4 preprimed pine:** four 10-ft. pieces (front soffit, Z-braces for doors). **1x6 shiplap or tongue-and-groove siding:** twenty 10-ft. pieces, if coverage is 5 in. **Scrap wood:** three pieces (door handles). **Nails:** 16d, 8d, 6d. *All from Arlington Coal & Lumber Co., 41 Park Ave., Arlington, MA 02174; 800-649-8101.*

Tools used: sawhorses, caulking

Trash Shed *pp. 58-61*

gun, hand saw, block plane, framing square, chalkline, level, metal snips, sliding compound miter saw, nail gun and roofing nailer, cordless drill, router with ⅛-in. roundover bit, router with ½-in. straight bit and guide fence.

Further reading: *Rubbish! The Archaeology of Garbage: What Our Garbage Tells Us About Ourselves,* by William Rathje and Cullen Murphy, 1993, 256 pp., $13; *HarperCollins, 1000 Keystone Industrial Park, Scranton, PA 18512; 800-242-7737.*

Our thanks to: Steve Dibble, *City of Salem Planning Department.*

Driveways *pp. 62-67*

Colored asphalt: *Asphacolor Corp., Box 3449, Sparks, NV 89432; 702-355-7100.* **Stamped asphalt:** *Integrated Paving Concepts Inc., 936 Peace Portal Dr., Blaine, WA 98231; 800-688-5652.* **Hydronic snow-melt systems:** *Ipex Inc., Box 261520, Highlands Ranch, CO 80126; 303-649-1504. Wirsbo Co., 5925 148th St. W., Apple Valley, MN 55124; 800-321-4739.*

Our thanks to: *Quality Concrete of Colorado Inc., 2901 S. Santa Fe Dr., Englewood, CO 80110; 303-761-5546. Colorado Hardscapes, 7803 E. Harvard Ave., Denver, CO 80231; 303-750-8200 or 800-447-1888. Allen Plumbing & Heating Inc., 101 S. Link Ln., Fort Collins, CO 80524; 303-484-4841.* Margaret Mori S.L.A., *Design/Build, 1263 7th Ave., San Francisco, CA 94122; 415-665-6197. Plymouth Quarries, 410 Whiting St., Hingham, MA 02043; 617-335-3686. Borgert Products Inc., Box 39, St. Joseph, MN 56374; 800-622-4952.* Dennis Bellanti, *Low Energy Systems, 2916 S. Fox St., Englewood, CO 80110; 800-873-3507.* Kevin Dorsey, *Dorsey Paving, Box 247, Framingham, MA 01701; 508-473-4758.*

Comfort Control *pp. 68-75*

Spray foam insulation: $1.25 to $2 per sq. ft. installed; *Icynene Inc., 376 Watline Ave., Mississauga, Ontario, Canada L4Z 1X2; 800-946-7325 or 905-890-7325.* **High-velocity heating system:** MH 4260 heating module, $258; HW 4260 heating coil, $496; MB 4260 blower module, $700; return air filter and return duct, $387; duct work and jet tube for system, $2,110; *Unico Inc., 4160 Meramec St., St. Louis, MO 63116; 800-527-0896 or 314-771-7007.* **Gas boiler:** Atola Renox #AR-185, $2,863; Trimatik MC master control, $1,190; VentiCell hot-water tank, $1,943; *Viessmann Manufacturing, 83 Vermont Ave., Warwick, RI 02888; 401-732-0667.* **Floor heating system:** Stadler Pextron climate panel system includes climate panel, Pextron tubing

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Comfort Control *pp. 68-75*

(cross-linked polyethylene) and brass manifolds, $5 per sq. ft.; *Stadler, 3 Alfred Cir., Bedford, MA 01730; 800-370-3122.*
Motorized zone damper: *Trol-A-Temp, 55-57 Bushes Ln., Elmwood Park, NJ 07407; 201-794-8004.*

For further information: *This Old House: Heating, Ventilation and Air Conditioning—A Guide to the Invisible Comforts of Your Home,* by Richard Trethewey, 1994, 264 pp., $24.95; *Little, Brown and Co., 200 West St., Waltham, MA 02154; 800-759-0190.*

Our thanks to: Richard Bilo, *Bilo Plumbing & Heating, 4880 Asbury St., Hamilton, MA 01982; 508-468-4389.* Graeme Kirkland, president, *Icynene Inc.* Richard Trethewey, *RST Inc., Box 388, Dedham MA 02026.*

Let the River Run *pp. 76-79*

Our thanks to: Gerrit Drexhage, *Drexhage Structures, Box 332, Fort Ross Rd., Cazadero, CA 95421; 707-632-5971. A.C. Hanna House Moving Inc., 8560 Redwood Hwy., Windsor, CA 95492; 707-838-7577. Level Structural Engineering, 119 N. Main St., Sebastopol, CA 95473; 707-829-8439. Pellucid Illusion, 8355 Hwy. 116, Forestville, CA 95436; 707-887-9404.*

Carpet *pp. 80-83*

Reproduction carpeting: *Woodward Grosvenor, Stourvale Mills, Green St., Kidderminster, Worcestershire DY10 1AT, UK; 011-44-1562-820020.* The primary U.S. agent for Woodward Grosvenor's line of historic carpeting is *J.R. Burrows & Company, 393 Union St., Rockland, MA 02370; 617-982-1812 or 800-347-1795.* The firm maintains a site on the World Wide Web—www.burrows.com—from which users can download and print out period carpeting, wallpaper, fabric and lace-curtain patterns or view photographs of them in restorations. A wide variety of reproduction floor coverings, ranging from Wilton and Brussels carpets to India matting and hand-knotted European carpets, is supplied by *David Luckham Consultants, The Bishop's House, Wardington, Banbury, Oxon 0X17 1SW, UK; 011-44-295-758815.*

Further reading: For a full list of manufacturers and suppliers, see *Floor Coverings for Historic Buildings* by Helene Von Rosenstiel and Gail Caskey Winkler, 1995, 288 pp. paperback, $16.95; *John Wiley & Sons, 1 Wiley Dr., Somerset, NJ 08875; 800-225-5945.*
Victorian Interior Decoration: American Interiors 1830-1900 by Gail Caskey Winkler and Roger W. Moss, 1992, 272 pp., $17.95 paperback; *Henry Holt, 4375 W. 1980 South, Salt Lake City, UT 84104; 800-488-5233.*
The House Beautiful by Clarence Cook, 1881, paperback reprint 1995, 336 pp., $9.95 plus $4 shipping (no phone orders); *Dover Publications, 31 East Second St., Mineola, NY 11501.*
Hints on Household Taste: The Classic Handbook of Victorian Interior Decoration by Charles Locke Eastlake, 1878, paperback reprint 1986, 384 pp., $8.95 plus $4 shipping; *Dover Publications.*

Cedar Siding *pp. 84-93*

Further reading: *Cedar* by Hilary Stewart, 1995, 192 pp., $22.95; *University of Washington Press, Box 50096, Seattle, WA 98145-5096;*

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Cedar Siding *pp. 84-93*

800-441-4115 or 206-543-8870. All about how the native peoples of the Northwest used cedar. *Touch Wood: BC Forests at the Crossroads,* edited by Ken Drushka, Bob Nixon & Ray Travers, 1993, 236 pp., $18.95; *Harbour Publishing Co., Box 219, Madeira Park, British Columbia, Canada; 800-667-2988 (only in Canada) or 604-883-2730; e-mail address, harbour@sunshine.net.* Essays on forestry from an environmentalist perspective. *All Things Considered: Forest Management in British Columbia, Ministry of Forests, British Columbia (out of print).* A comprehensive description of logging practices and policies in British Columbia.

Our thanks to: Ken McClelland, executive director, Sharon MacNaughton, publicity director, *Western Red Cedar Lumber Association, 1200-555 Burrard St., Vancouver, BC V7X 1S7 Canada; 604-684-0266.* Brian McCloy, vice president, *Council of Forest Industries, 1200-555 Burrard St., Vancouver, BC V7X 1S7; 604-684-0211.* Doug Clitheroe, sales manager, Sid Sigfusson, export manager, Rudolph Maros, processing manager, *Interfor, Hammond Cedar Division, 20580 Maple Crescent, Maple Ridge, BC V2X 1B1; 604-465-1850.* Dave Miller, manager, James Rodney, environment forester, Keith Stinson, sort supervisor, Jack Currie, falling supervisor, Gordon Prescott, planning forester, *Empire Logging Division, Interfor, Box 280, Squamish, BC VON 3G0.* Drew Brazier, director, Nursery and Seed Operations Branch, *Ministry of Forests, 1809 Douglas St., Victoria, BC V8W 3E7; 604-387-8955.* Dave Kolotelo, cone and seed improvement officer, *Tree Seed Center, Forest Service, Ministry of Forests, 18793 32nd Ave., Surrey, BC V4P 1M5; 604-541-1683.* Tony Willingdon, superintendent, *Surrey Nursery, Nursey and Seed Operations, Forest Service, Ministry of Forests, 3605 192nd St., Surrey, BC V4P 1M5; 604-576-9161.* Hal Reveley, resource manager, Vancouver Forest Region, *Forest Service, Ministry of Forests, 2100 Labieux Rd., Nanaimo, BC V9T 6E9; 604-751-7097.* Doug Adderley, manager of outreach and client communications, *Public Affairs Office, Ministry of Forests, Suite 300, 1675 Douglas St., Victoria, BC V8W 3E7; 604-387-6240.* Ray Travers, president, *OR Forestry Consultants, 1709 Carnegie Crescent, Victoria, BC V8N 1P2; 604-477-8479.* Vancouver Helicopters and pilot Keith Palmer, Vancouver, Canada.

Savannah *pp. 94-105*

For more information: *Savannah Visitors Center, 301 Martin Luther King Jr. Blvd., Savannah, GA 31401; 912-944-0455.*

Further reading: *Midnight in the Garden of Good and Evil* by John Berendt; 400 pp., 1994, $23.50; *Random House, 400 Hann Rd., Westminster, MD 21157; 800-726-0600.*

Savannah Revisited: History and Architecture by Mills Lane, 218 pp., 1994, $35; *The Beehive Foundation, 321 Barnard St., Savannah, GA 31401; 912-236-4870. Historic Savannah: A Survey of Significant Buildings in the Historic and Victorian Districts of Savannah, Georgia,* second edition, edited by Mary L. Morrison; 300 pp., 1979, $15; *Historic Savannah Foundation, 212 W. Broughton St., Savannah, GA 31401; 912-233-7787.*

Our thanks to: John and Virginia Duncan, *V&J Duncan antique maps, prints & books, 12 E. Taylor St., Savannah, GA 31401; 912-232-0338. Georgia Historical Society, 501 Whitaker St., Savannah, GA 31499; 912-651-2128.* Beth Reiter, historic preservation officer, *City of Savannah, Metropolitan Planning Commission, 2 E. Bay St., Savannah, GA 31402; 912-236-9523.*

Save This Old House *p. 120*

Our thanks to: Anne Stillman, *Connecticut Trust for Historic Preservation, 940 Whitney Ave., Hamden, CT 06517-4002; 203-562-6312.* Westport First Selectman Joseph Arcudi. Steve Smith, *Westport Building Department.*

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Located near the Saugatuck River in one of Connecticut's priciest shoreline communities, this 1880 Italianate Victorian faces a grim end—torching by the fire department—unless a buyer is found to relocate it. The 1,800-square-foot house, on land destined to become a town park, has been vacant for 10 years. It is almost completely gutted and has no salvageable heating or plumbing. Westport officials are also willing to sell the house with a half-acre lot (price to be determined) and allow it to remain, but they first need a proposal to rehabilitate the structure as a residence or in-home business. Zoning approval would be required.

CONTACT

First Selectman
Joseph P. Arcudi
Town Hall
110 Myrtle Ave.
Westport, CT 06880
203-226-8311

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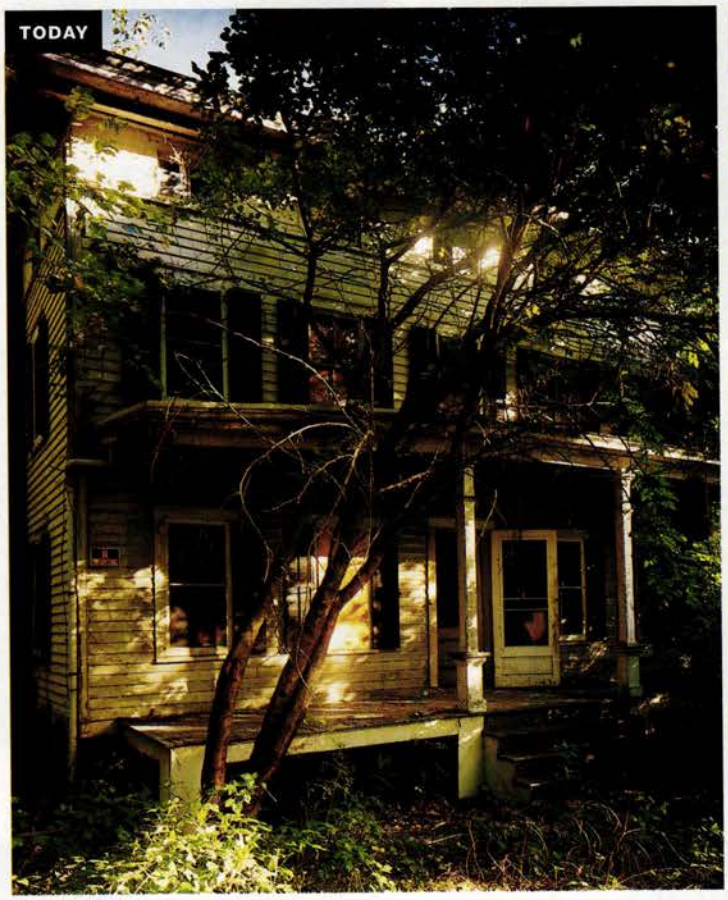
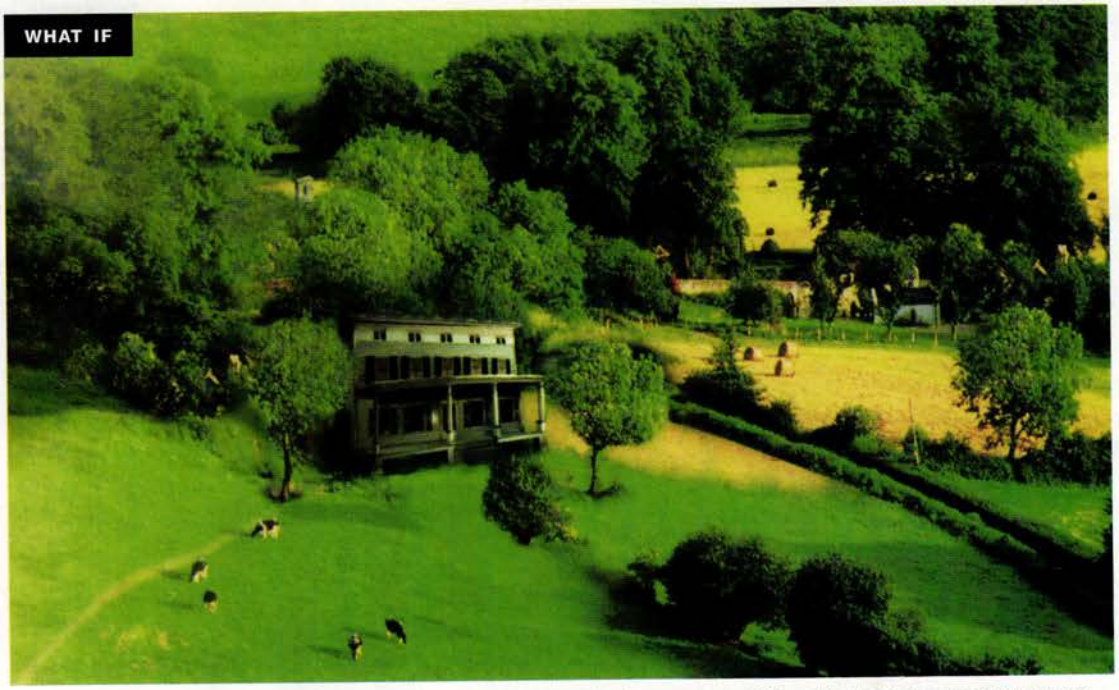


A porch post is missing and the pine floorboards were stolen, but the dwelling remains sound.

WHAT IF



A computer-generated scene shows what this one-dollar house—an Italianate Victorian built in 1880—could look like if it were moved to a more bucolic setting and made livable again.

PHOTOGRAPHS BY GUY KLOPPENBURG; COMPUTER RENDERING BY GLENN CHO