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Special Report: Finding Good Help

Industry Labor Shortage Hurting Most Roofers

Finding good workers today has become a serious problem among roofing contractors, according to a survey of its members by the National Roofing Contractors Association (NRCA). The results, published in *Professional Roofer* magazine, show over three-quarters of the contractors who responded have experienced recent labor shortages, forcing over half of them to turn down jobs or limit their workload. And the shortage hasn't been limited to skilled workers or even union shops: more than one-fourth say they have difficulty finding people to hire *regardless* of skill level.

These survey numbers only confirm what the NRCA suspected for some time—that the roofing industry is heading for a real and prolonged labor crisis. But the problem doesn't stop with roofers; it's being felt throughout construction. And the solutions suggested by the NRCA are ones that will need to be adopted by all the trades and the contractors who hire them.

Demographic statistics underscore the shrinking labor pool, but the numbers also point out another aspect to the shortage—one that's not extensively discussed in the study. The shortage appears even more pronounced because of the scarcity of a group that contractors and builders have almost exclusively relied upon in the past: white males.

A recent U.S. Department of Labor study predicts that demographic trends in the population will radically alter America's work force as it enters the 21st century. Some of these trends include:

- Both the work force and the population will grow more slowly than in the previous 50 years.
- There will be an increase in the average age of workers and the population as a whole. At same time fewer young workers will be entering the work force.
- More women will enter the labor market.
- Minorities will be a larger part of new labor recruits.
- Immigrants will make up the largest increase in population and work force since WWI.

As these new candidates become available to the country's work force, it becomes vital to attract these workers, help them learn the skills necessary, and then keep them happy. The NRCA describes these goals with three key words: *recruitment*, *training*, and *retention*. And it all starts with changing building's image from an industry that offers temporary jobs to young men in their twenties to one that offers serious careers to a variety of people.

To *recruit* new workers, the NRCA advises contractors to use simple advertising campaigns in newspapers and magazines. The NRCA will also be targeting schools, working with teachers and counselors to encourage students to look at roofing as a possible career choice.

But the new recruits are not likely to have been around construction, and they will have few skills. That means contractors will have to set up in-house *training* that will be both expensive and time-consuming. The NRCA also encourages its members to consider more formal apprenticeship programs, and offers to provide contractors with information about state guidelines and regulations for more structured training procedures.

> Contractors need to realize that the old attitudes about "expendable" employees won't work anymore.

The third step recommended by the NRCA—*retention*—involves an attitude change on part of contractors. According to the roofing organization, contractors need to realize that the old attitudes about "expendable" employees won't work anymore. Workers need benefits and salary incentives, and perhaps most importantly, they need to be treated as valuable employees and an integral part of the company. ■

Boston Area Vocational School Teaches Trades

"You just can't get good help anymore."

Builders have been saying that for years. But it's probably never been more true than it is today in New England. Even with the recent slowdown, the combination of low unemployment and changing demographics make it tough to find qualified and experienced carpenters to flesh out—much less lead—a crew.

That's where Boston's North Bennet Street School comes in. Since 1885, when it was first formed as a vocational school for immigrants, the school's carpentry courses have helped fill the gap left by the absence of any formalized apprenticeship system in New England. Today North Bennet Street teaches only adults. And for the builders who know about it, the school has proved a reliable source of committed apprentice-level carpenters with a solid grounding in carpentry and woodworking fundamentals.

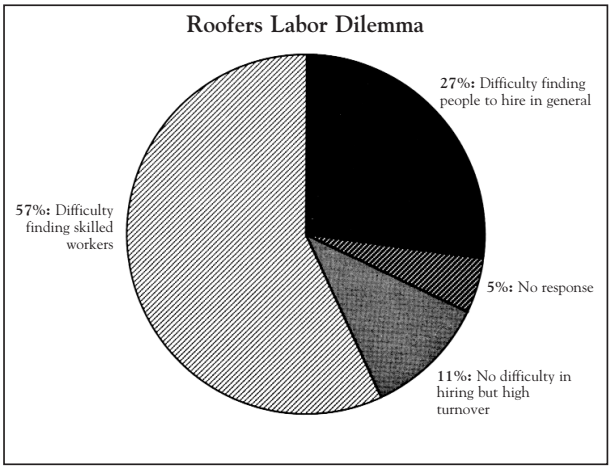
The School offers two carpentry courses. The 10-month basic carpentry course is for beginners or those with modest experience who want to broaden or solidify their skills. A two-year course in preservation carpentry combines a modified basic carpentry course with a second year in preservation carpentry; it includes work in masonry, plaster work, metalworking, and architectural history and drawing. Both courses, says carpentry instructor Robert Adams, emphasize the development of fine hand skills, craftsmanship, and an aesthetic sense through hands-on application.

The school's graduates and their employers find this broad-based approach helpful. Jeffrey Goldsmith should know, for he is both graduate and employer—he graduated from the school's carpentry course in May 1989, and as a foreman with a Boston high-end remodeling company, he has hired three other graduates since then. As a result of their schooling, says Goldsmith, his crews yield much higher quality work now.

Paul Eldrenkamp heads Byggmeister, Inc., of Boston, a residential and light commercial building and remodeling company with a crew of six. Eldrenkamp has tapped the North Bennet Street School for three of his apprentice-level carpenter hires in the past few years. For the most part, Eldrenkamp says he's pleased to have gotten more than he bargained for.

Eldrenkamp also likes the level of commitment he finds in the graduates. This comes in part from the sacrifices the students must make to finish the school's one- and two-year courses. To begin with, there's the tuition: almost $7,500 a year, plus several hundred more for hand tools, books, and materials. Then there's the income lost while other work is put on hold. Finally, there are the hours spent learning skills that range from tool sharpening to framing layout to finish work.

The North Bennet Street School also offers courses in cabinet and furniture making, locksmithing, violin making and restoration, and several other hand crafts. For more information, contact the North Bennet Street School, 39 N. Bennet St., Boston, MA 02113; 617/227-0155.—*David Dobbs*



This pie chart shows the types of labor shortage problems that roofing contractors have experienced. These responses were taken from a recent survey of its members by the National Roofing Contractors Association.

IN BRIEF

Inflation Fields Weak Team, Wins Anyway

Though inflation has been relatively low, it has outpaced the growth of construction wages over the last three years. Since 1986, weekly wages for skilled construction trades have risen a total of 8.9% (3% in 1987, 1.5% in 1988, and 4.2% in 1989 according to the U.S. Bureau of Labor Statistics). This compares to an inflation rate of 13% over the same period (3.7%, 4.1%, and 4.7%). In other words, the average construction paycheck has lost about 4% in buying power since 1986.

But there's good news for carpenters. Their wages have grown 13.8% since 1986 (4.9%, 4.4%, and 3.9%), just .8% above the overall 13% rise in the cost of living. ■

A Silver Lining in California's Drought

While California's fourth year of drought has taken its toll on the state's trees—particularly red firs and pines—all may not be lost. The dead or dying trees, which typically succumb to the bark beetle once weakened by the prolonged lack of water, will be an important source of lumber this year. According to federal and state forestry officials, there is enough salvageable timber for over 200,000 homes.

However, these trees have to be harvested quickly while the wood is still viable, and before winter snows make higher elevation harvest areas once again impassable for equipment. ■

New Labor Law Paves Way for Housing Aid

With the passage of federal legislation amending the Taft Hartley Act of 1947—the prevailing labor-relations law—much needed housing assistance may be just around the corner for workers nationwide. The new law allows unions for the first time to bargain with employers for housing trust funds—funds that can be used to help employees pay for rent and home mortgages. Until now, management has been prohibited from making payments to employee funds, except for health care, education, and retirement.

For a Boston local union (Local 26), credited for putting the law on the books, this comes as welcome news: Housing funds that have accumulated since December 1988, when the union successfully negotiated an agreement with hotel employers, can now be released. ■

Tax Talk

S Corporation May Save Big Bucks in Taxes

by Irving Blackman

Giving tax seminars to closely held business owners is fun. They love to learn how to beat up the IRS…legitimately, of course. But recently, I was startled to learn that almost half of the owners in my seminar audience were making a wrong choice and letting the IRS beat them up with extra taxes. What was the wrong choice? Owners with an eye for short-term savings were electing the incorrect corporation status and suffering some long-term consequences.

The biggest error was that business owners were remaining a C Corporation when an S corporation was the tax-saving choice. Here's an example of the typical error. Joe Owner was in a personal tax bracket of 28%, and his C corporation, J/O Inc., made $100,000 a year. This is how Joe figured he was saving money. J/O Inc. only paid tax of $22,250 on the $100,000 of income. If Joe had been an S corporation, he would have paid $28,000 (28%) on that same $100,000. And he was right, in the short run.

Joe told me he was going to sell his business in the next two to three years. When Joe sells, he will be clobbered by a second tax. Watch this: J/O Inc. had a $77,750 balance after paying its tax ($100,00 – $22,250). When Joe takes this balance after selling the business, he must pay a second tax of $21,770 ($77,750 x 28%).

Now, his total tax as a C corporation was $44,020 – ($22,250 + $21,770). An S corporation would have only cost him $28,000, with no second tax. When the smoke clears, Joe's tax damages will total $16,020 ($44,020 – $28,000) for that one year. Remember, Joe has incorrectly been a C corporation for many years.

Now, I want every business owner reading this to review his corporation status (C or S) with his tax professional immediately. At a minimum, you must consider income and tax brackets (for yourself and the corporation), along with the possibility of a second tax. To learn all the ins and outs to help you make the right decisions, send for the companion reports *A New Tax Superstar…S Corporation* and *How to Take Money Out of Your Closely Held Corporation* ($25 each, or $38 for both) to Book Division of Blackman, Kallick, and Bartelstein. ■

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Low Flush Toilets: What's Going On?

When in March 1989 Massachusetts became the first state to require 1.6-gallon "ultra-low flush" (ULF) toilets for all new two-piece installations, environmentalists applauded the move as a long overdue response to problems of water supply and quality. But the plumbing industry objected, claiming the toilets didn't work properly and the ULF requirements would hurt the industry. Nevertheless, the bill remains in effect and will expand to include one-piece units late this summer.

Since then, similar legislation has been passed in other New England states and is being considered in the United States Congress:

- Rhode Island will require all two-piece toilets to be ultra-low flush by September 1, 1990, and all other toilets to conform by March 1, 1991.
- Both New York and Connecticut will require all toilets to be ultra-low flush by January 1, 1992.

No legislation is presently proposed for Maine, New Hampshire, or Vermont. However, some local code jurisdictions in those states are permitting increased density in developments where ULF toilets are used (see "Saving Water Pays Dividends," *JLC* 11/89).

Meanwhile, the American National Standards Institute (ANSI) is considering a proposed change to its ANSI Standard A112 for ultra-low-flush toilets. The change would require that ULF toilets move solids at least 40 feet on one flush. ULF proponents and critics disagree on whether most ULF toilets already do this. The standard would make it necessary for any commode to pass this test to be approved by ANSI.

Perhaps the most significant legislation pending is in the U.S. Congress, which is expected to consider some time this summer the National Plumbing Products Efficiency Act, also known as the Fowler-Atkins bill. The bill proposes a national standard requiring ULF toilets and other water-saving devices such as flow regulators for shower heads in all new construction.—*David Dobbs*

Prefinished Siding: Wave of the Future?

Dan Gates, a builder/remodeler in Spokane, Wash., first used prefinished siding four years ago. He has been so pleased with the convenience and dependable quality of the product he uses—primarily cedar lap siding machine-stained with Olympic products—that he now uses prefinished siding, as well as prefinished trim, for all his lap-siding exteriors.

In four years, none of his clients have complained, and neither has Gates. In fact, it's hard to find anyone (other than a painter) who'll say bad things about prefinished siding, which comes with both semi-transparent and opaque finishes. Builders who use it echo what the prefinishing siding industry itself says about the product. They claim it:

- Simplifies construction.
- Avoids weather-related delays.
- Provides a high-quality, predictable finish.
- Cuts safety risks and costs by reducing the time scaffolding is used.
- Reduces exposure of siding to sun and weather, thereby improving the siding's durability.
- Makes quicker sales by giving houses a finished appearance early, increasing curb appeal.

Prefinished siding proponents say that having siding prefinished costs far less than hiring a paint crew. Olympic Home Care Products Company, the leader in the prefinishing field, cites a study by the National Paint and Decorating Association that found that prefinishing siding saves 20% to 45% of the cost of site priming and finishing.

Mike Davis, vice-president of Weber, Murphy, and Fox Construction in Erie, Pa., doesn't know if he saves quite that much. But he says savings are only part of the reason he now uses prestained siding for all of the condominiums and houses his firm builds. "It's ready to go up, and when you've put it up you're done. It's so convenient and such a good product, I think the money's almost secondary."

Rave reviews like that are pushing prefinished siding sales skyward. More aggressive marketing and new programs by prefinish manufacturers are also helping to bring the product to the attention of more builders.

Joe Kastelic, manager of machine application at Olympic Home Care Products, says that while prefinished siding still accounts for just under 10% of the overall wood siding market, sales are growing rapidly. Olympic's own sales (the company's oil and latex stains account for 60% of all prefinished sales) have grown 20% to 25% over the last 3 years. Kastelic expects sales to jump another 50% over the next 3 or 4 years, partly as a result of a project Olympic will soon launch with lumber giant MacMillan Bloedel. The program will make prestained MacMillan Bloedel siding with a 10-year warranty available at lumber distributors across North America.

Perhaps the best argument for prefinished siding comes from the National Forest Products Laboratory (NFPL). A 1984 NFPL study found that the ability of wood siding to hold paint or stain dropped sharply after two or more weeks' exposure to weather. As every builder knows, siding often goes exposed for that long on site before being finished.

Prestained siding, on the other hand, is protected by its finish throughout its journey from mill to house exterior. Cedar or fir siding is shipped directly to the prefinish applicator—usually an independent company under contract with the finish manufacturer. The boards are fed through a set of rollers; a semi-transparent oil or opaque latex stain specially formulated for machine application is flooded onto the boards and then pressed in by the rollers. The boards are stacked on stickers to dry. Most applicators then shrink-wrap the siding for delivery.

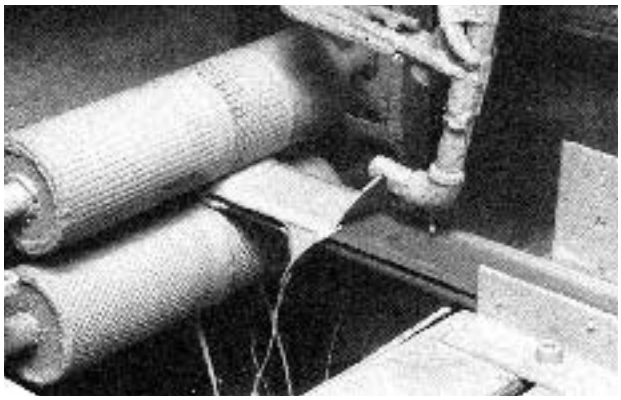
Applicators can either fully coat all four sides (two coats is standard), apply only a primer coat to the back side, or leave the back unprimed. Unfortunately, some applicators charge a considerable mark-up for back-priming, even though it doesn't require another process.

Joe Kastelic says "it never hurts to back-prime, particularly with extractive-prone woods, cheaper wood, or wet wood. Extractive-prone woods include the greener grades of cedar that aren't kiln-dried and all redwoods." Such woods, particularly young cedar, tend to "bleed" their tannins or other extractives out into the stain if they aren't properly primed on all sides. To prevent such "cedar bleed," says Kastelic, "you should use either a special oil-based primer or an alkyd-oil-based primer" on all four sides.

Fred Churchill, president of Churchill Coatings, another prefinish manufacturer, recommends backpriming for the greater protection it gives the wood. "By coating all surfaces of the siding, moisture movement through the product is equalized, and the chances of cupping are reduced."

You generally have to wait one to three weeks for delivery of prestained siding. Builder Dan Gates says that for the most part, ordering the siding is simple: you decide what type of siding to use, then you or your client chooses a color (there are over 100 available). The one caution he gives is to estimate carefully the amount you'll need, since you won't be able to send excess back.

Only time will tell whether the prefinished siding industry will take off the way Olympic's Joe Kastelic thinks it will. But if the opinions of most converts are any sign, it stands a good chance to.—*David Dobbs*



Rollers press specially formulated Olympic MachineCoat opaque latex stain into lap siding. The product comes with a 10-year warranty.

Growing Walls

Wolf Hilbertz grows walls. He grows artificial reefs, too, and he grows protective coatings of stone on wood pylons. Not only can Hilbertz grow walls, but he can grow them in nearly any configuration. It's not that hard to do. In fact, it's a process as old as nature itself. It's just that Mr. Hilbertz, professor of architecture at McGill University in Montreal, has taken a simple idea and innovatively applied it to the world of building components. Here's how it got started.

About 15 years ago, Hilbertz was thinking of ways to employ seawater as a source of building materials. He began by looking at the process of natural "accretion." This is the process that sea animals (like coral) use when they extract solids out of seawater and build up layers to form a shell.

Since seawater contains about 3.5% dissolved solids and minerals, sea animals have adapted to take advantage of it. Here's how they do it: In the cell walls of animals that form such shells, there is a protein layer that has a negative charge. The calcium carbonates and magnesium hydronzides which are naturally in the sea water have a positive charge. Now, remember those science experiments you did in high school chemistry class where you coated a nail with copper through a process called electrolysis? The accretion process is really a natural form of electrolysis. Instead of copper, the process gathers layers of magnesium and calcium to form a shell around the animal.

After initial experiments yielded success, Hilbertz decided to try this same process on a large scale. By placing wire mesh in the water and passing a low-voltage charge across it, Hilbertz found he could accrete these same calcium carbonates and magnesium hydronzides onto the mesh. Not only that, but the material would accumulate on the mesh in whatever shape he formed the mesh into. After that, Hilbertz was off and running with the idea.

He has since successfully employed the idea on a large scale in many ways. By attaching mesh wire around wooden pylons and passing a charge through the mesh, he has grown protective "shells" around pylons. The shell protects the wood and also seals out oxygen, thereby stopping the rot and actually petrifying the wood. He has also grown erosion control barriers in the Virgin Islands and along the Texas coast (see photo). He has grown numerous building components, all of which have held up very well in endurance tests.

A bank of photovoltaics sends a small electrical charge to wire mesh forms hung in the seawater from wood frames. Minerals contained in the seawater are deposited on the wire mesh, thereby "growing" a wall.

This wire mesh form shows the very early deposits of minerals that have been drawn out of seawater by a low-level electrical current in a process called accretion. Soon this form will accumulate enough mineral deposits to make a wall panel that will have a 4,200 psi rating.

The stone layer that accumulates on the mesh is like solid limestone. Hilbertz has tested the compression of this material at 4,200 psi in compression. And it is cost effective to make. It takes one kilowatt of electricity to accrete 1 kilogram of material. But you don't even have to pay for the power if, as Hilbertz does, you use solar photovoltaics or wind power to generate the needed low-voltage current (see photo).

Once the components are grown in the ocean, they are either left in place (erosion control or other protective layers grown in place), or they are hoisted out and used elsewhere. But how do these components fair when they are out of their element and on dry land? "Very well," claims Hilbertz. "We have had the samples out of the water for a number of years, exposing them to the harsh climate here in New England, freezing, and thawing, and there are no bad effects. The material doesn't lose any of its structural integrity," he says. The applications span a wide range, but the process of accretion may be a practical way to build panels or custom-shaped walls for use in buildings in the very near future.—*John D. Wagner*

Code Basics: How Codes Get On the Books

The principal relationship most contractors and builders have with codes is trying to keep track of all of them, and then, to make sure their work complies with them. However, codes play such a key role in the industry that it makes sense to have a working knowledge of how building codes are written and adopted.

Who writes them? The codes are naturally complex, since the issues involved in writing them are seldom simple and often politically sensitive. New building materials and techniques are regularly introduced, and must be evaluated. Evolving social concerns affect code development as well. Fire safety, access for the handicapped, and indoor air pollution must sometimes be weighed against other vital concerns like affordability and energy efficiency.

The responsibility for making these tough decisions lies with state and local governments, and to a lesser extent, the federal government. Although each of these bodies has professional code administrators on which they rely, jurisdictions don't reinvent the wheel and try to write a whole code from scratch. (This is fortunate, since the patchwork of codes this would produce would make it almost impossible to manufacture products or design buildings for more than one small area.) Instead, states, counties, and municipalities have come to rely on three model code organizations for the basics.

They all have pockets of influence throughout the country (and internationally), but they can generally be characterized by region. The largest code organization is the International Conference of Building Officials (ICBO), whose Uniform Building Code (UBC) provides the basis for most building codes in the West and much of the Midwest. In the remainder of the Midwest and all of the Northeast, the dominant code is the Basic/National Building Code, formulated by Building Officials and Code Administrators International (BOCA). In the South, most codes are based on the Standard/Southern Building Code, developed by the Southern Building Code Congress International (SBCCI).

In order to keep the lines of communication open, the three groups have joined together in an umbrella organization, the Council of American Building Officials (CABO). CABO publishes a code for one- and two-family residences, which is incorporated—either directly or by reference—by all three model code groups. It also attempts to develop national standards for projects funded by the federal government.

The voting members of each organization are state and local code officials. Each organization also has affiliate members, including architects, engineers, builders, and government employees such as fire chiefs.

Other organizations are also deeply involved in the code-writing process. The National Fire Protection Association (NFPA), for example, publishes a fire prevention code that serves as the basis for fire safety in all three model codes. NFPA also publishes the National Electrical Code, which has been adopted independently by many jurisdictions throughout the country.

It's important to remember that codes only have the force of law when they are adopted by state and local governments. And those laws don't automatically change whenever a model code changes.

Updates and revisions in the model codes. The model codes are re-published in three-year cycles, because many jurisdictions update codes every three years. For the benefit of communities that update their codes annually, the model groups publish supplements outlining the changes that have been approved each year.

In any given year, each of the model codes generally makes between 80 and 200 changes. Those changes represent action on roughly half of the proposals submitted—although the proposals are sometimes changed significantly by the time of adoption.

Most of the changes are minor and technical: Provisions are often reworded for clarity and consistency with modern accepted practices. But other proposals—the most notable recent example is the issue of residential fire sprinklers—evoke lengthy and sometimes heated debate.

Influencing the process. The model code groups are all open to proposals for change from any source. In practice, proposals are submitted by architects, builders, and very occasionally by homeowners. Not surprisingly, many code changes are also proposed by the code officials and affiliate members who make up the model code organizations.

As a practical reality, some proposals carry more weight than others. As one model code official put it: "The National Association of Home Builders probably carries more weight than a little old lady in tennis shoes." Additionally, no proposal for major change gets very far without substantial documentation and research to back it up.

Dick Morris, code specialist for the NAHB, strongly encourages builders to work for code changes that they feel would be beneficial. In the past, he says builders have generally reacted to changes proposed by others, while more recently they have increasingly worked to initiate positive reforms.

He says that if an issue is local, it's usually most constructive to work with the local jurisdiction, rather than a model code group. Morris also says that when a model code group adopts a position that is contrary to builders' interests, they should oppose it on a local level. The best chance of successfully effecting a change in a model code, he says, is organized action through local and state builders' associations.

—*Steve Carlson*

Maine Builder's Guide Outlines Energy Details

Energy codes and their language are usually obscure and confusing. And builders are often left to figure out how to use practical techniques to satisfy energy requirement guidelines. Well, the Energy Division of Maine's Office of Community Development may have solved some of these problems. They have published the *Maine Guide To Energy Efficient Residential Construction*. The manual, like Maine's energy standard, accounts for the wide range of climatic variations, including damp coasts, dry mountains, high winds, and seasonal temperature variations up to 130°F. So, the publication may be relevant to builders in all cold-climate zones.

The new Maine energy standards in themselves are simply specifications for minimum insulation levels in walls (R-19), ceilings (R-38), foundations (R-10), and windows (R-2). Andy Wynn, who coordinated the revision of the state's energy standards, points out, "detailing an R-38 ceiling, for example, is rarely so simple as specifying it." So, the energy office set out to describe how their standards can be practically achieved and how they will affect the house as a whole.

The manual surveys a variety of construction details that have been used successfully. The details go beyond basic methods. For example, roof insulation and ventilation details are shown for not only standard ceilings, but also cathedral ceilings using rafters, I-joists, and scissor trusses. Problem situations, such as ventilating hip roofs and shed roofs (see drawing), are also detailed, as well as tips for ventilating above and below skylight headers when they interrupt rafter bays.

The manual also presents the more theoretical side of energy concerns, and concludes with five appendixes—a worksheet for heat load calculations, a list of the R-values of common building materials, a comparison of fuel costs, a glossary of terms, and both national and state resource directories. The 80-page manual is available for $7.35 from the Energy Programs Division of the Office of Community Development, State House Station 53, Augusta, ME 04333.

—*Clayton DeKorne*