Coping With the Labor Shortage

by Kathy Price-Robinson

Training programs may help in the long run, but contractors are still looking for short-term solutions

The skilled labor shortage, which has taken many builders and remodelers by surprise over the past few years, is now widespread. "Most places where the market is strong, there is a shortage," says Gopal Ahluwalia of the economics department at the National Association of Home Builders (NAHB). While it's difficult to gauge the situation from city to city, Ahluwalia says, more than 80% of builders in a recent survey identified labor shortages as a problem. "Overall, it's bad," he says.

For many, like Terry Streich, owner of Silver Bullet Design and Build in Minneapolis, the labor crunch means taking on less work. "The labor shortage limits the amount of work we can do," says Streich. Sonoma, Calif., contractor Mike Moll, of Moll Construction, has a similar problem. "We are looking at a big job where we intend to sub out the framing," says Moll. "If we can't schedule the one framer we have used in the past, we will have to give up the job."

HOME BUILDERS INSTITUTE

How the Shortage Was Born

While the current labor shortage may appear to be linked directly to the building boom of the 1990s, the scarcity of skilled workers could have been predicted a long time ago. For years, aging Baby Boomers have been leaving construction for retirement or other businesses, but not enough young adults have come in to replace them: According to the National Center for Construction Education and Research (NCCER), the average age of craft workers is 47. In addition, trade unions are weak and apprenticeship programs have faded. Plus, construction is less of a family business these days, with fewer teens following their fathers into the trades as was commonplace decades ago.

Vo-tech education hasn't been helping much either, and actually seems to be moving away from training high school students in construction trades. Tom Holdsworth, Director of Communications for Vocational Industrial Clubs of America (SkillsUSA-VICA), told *JLC* that "the cavalry is not coming" from vo-tech schools to solve the construction labor shortage. Enrollment in VICA's carpentry classes has fallen in recent years: Carpentry classes had 8,500 students this year compared with 8,900 just last year. Holdsworth reports that the hottest fields for VICA students are culinary arts and computers.

Many young people have come to believe that college, followed by a desk or technology job, is the only upstanding career path. "The argument you make for going into construction work is the same kind of argument you make for being a ballplayer," a University of Cincinnati career counselor told the *Cincinnati Business Courier*. "One misstep and your whole career is thwarted. Education is your passport to stability in the future."

Finally, especially in remodeling, pervasive competitive bidding has driven down prices and left remodeling companies with not enough profits to offer attractive salaries and benefits to employees. "They've chewed each other up," says Dennis Larson, a carpenter's union representative in San Luis Obispo, Calif.

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Skilled Labor on the Way — Eventually

Thankfully, dozens of new programs have risen up to bring workers to the industry, and scores of lagging older programs have gotten a second wind. Most of these efforts, such as those to make construction appealing to grade-school kids, will not reap results for many years. Others aim to channel people into the industry much sooner. Home Builders Institute (HBI), the education arm of NAHB, has actively responded to members' concerns about the lack of skilled labor and is pursuing the issue on many fronts. HBI administers more than 65 Job Corps programs nationwide, training upwards of 3,500 disadvantaged youths each year in the construction trades. Also, nearly 1,000 more are trained in four other HBI programs, including Project Craft and Project Trade, which train juvenile and adult offenders, and programs to train homeless and disabled adults for construction jobs.

The nonprofit NCCER, located at the University of Florida, is also addressing the labor problem. Together with dozens of large partners, the center's aim is to standardize training for both residential and commercial construction by offering a nationally accredited program. Last year, NCCER also organized a "Build Your Future" satellite video conference that reached thousands of high schools, vocational and technical schools, and public television stations around the country.

Women in the Work Force

Tiffany Bluemle, Executive Director of Northern New England Trades Women (NNETW), estimates that nationally, only 2% to 4% of skilled tradespeople are women. Nonetheless, initiatives such as NNETW's Step-Up program may change that in coming years. With a successful 14-year track record, NNETW has translated its Step-Up program into a model curriculum that has been copied by about 100 other groups around the country. Bluemle says that "there are now programs like Step-Up in almost every state." Combining technical training with physical conditioning, personal counseling, and job coaching, these types of programs help women overcome barriers that might otherwise prevent a successful entrance into the trades. With the job shortage, the timing is right as well. In addition to noting that "employers have been actively contacting NNETW Step-Up programs to hire recent graduates," Bluemle observes that "the climate right now is very auspicious for women who want to find trades jobs and keep them over the long haul."

Overall, slightly less than 10% of the total construction labor force is female — compared with the total national work force (both office and job site), where 46% of workers are women. Hiring more women will no doubt be one way that contractors recruit the estimated 240,000 new workers that the Bureau of Labor estimates are needed each year to keep up with retiring baby boomers and continued building demands.

Changing the Face of Business

According to NAHB's Ahluwalia, changed demographics mean that even with a downturn in the economy, the shortage will continue. Training programs take time to bring results, but remodelers need more immediate

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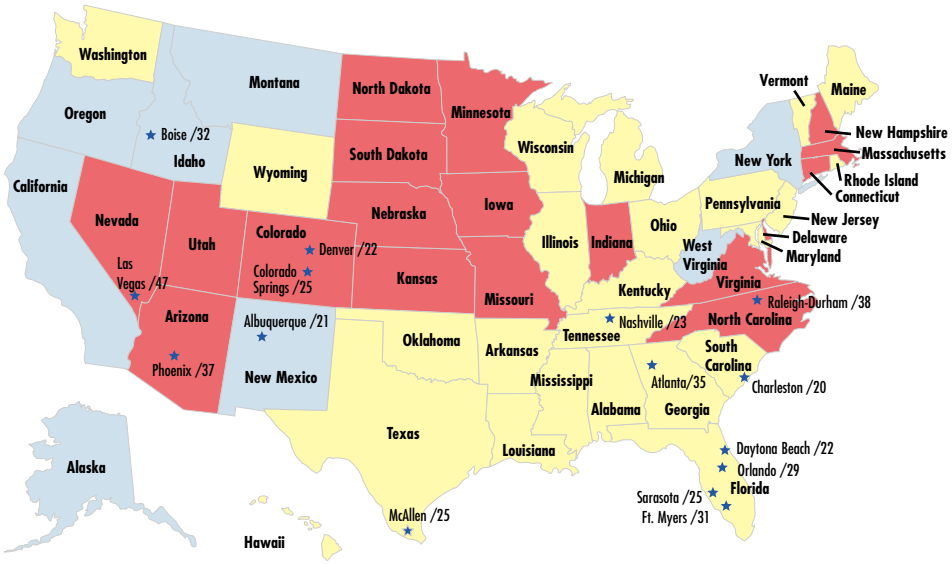
Labor Availability and Single Family Home Construction



Key A: Unemployment in February '99

- Unemployment under 4%
- Unemployment between 4% and 5.99%
- Unemployment 6% and over

Source: Bureau of the Census

Key B: 15 Busiest Markets for Single Family Home Construction During First Quarter of '99

★ Based on number of permits per 10,000 population

Source: Bureau of the Census

Contractors are competing for employees in a very tight national job market. Metropolitan areas with both busy construction markets and low unemployment rates are feeling the biggest pinch.

L-P Settles OSB Class-Action Suit

Louisiana-Pacific recently agreed to establish a 20-year retroactive warranty for all its OSB products as a means to settle a class-action lawsuit. Plaintiffs had alleged that defective panels may have been manufactured at an L-P plant in Montrose, Colo., where plant managers had intentionally deceived industry quality auditors during the early 1990s (*Eight-Penny News*, 9/95). Although L-P has paid fines for the grade-stamp fraud and has also taken corrective actions at the Montrose plant, it refused to concede that defective OSB panels had actually been produced. Unlike another recent L-P settlement involving a $375 million payout to homeowners whose OSB-based Inner-Seal siding had failed (*Eight-Penny News*, 2/96), the recent OSB panel settlement instead involves an open-ended retroactive 20-year warranty.

Under the terms of the warranty, homeowners can submit claims to L-P, whereupon an approved independent inspector will inspect the house and determine whether any alleged problem is caused by the L-P panels or by other circumstances, such as faulty design or workmanship. If the OSB is found to be defective, L-P agrees to pay the full costs of returning the problem area to its original condition. In addition to its retroactive warranty, L-P has also begun to warrant all new OSB panels on the same terms.

Through the end of 1998, says Denny Kopfmann, director of L-P's product warranty department, there have been less than 100 claims and to date, independent inspectors have not found a single case where L-P OSB panels have failed or have been determined to be defective. While Atlanta-based Crawford & Co., the independent inspection company, confirmed this, neither L-P nor Crawford would release information on the inspections that have taken place. According to Crawford's Lucy Stroud, vice president of class-action services, the terms of the settlement require that Crawford report only to individual homeowners and L-P, thereby excluding third parties from examining claim inspection reports.

Builders or homeowners who are concerned that they have an OSB failure on their hands should first determine whether or not the panels involved are L-P products. An L-P OSB panel can be identified by finding old receipts, exposing a portion of the L-P logo on the panel surface, or exposing a panel edge showing L-P's orange edge coloring. Claim forms are available by calling 800/577-4836.

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help. After getting over the fact that a help-wanted ad for a carpenter brings one applicant instead of 20, contractors are changing the way they do business. While some have responded to the lack of skilled employees by subbing out more work or taking on fewer jobs, others are changing their hiring practices.

"The labor shortage has made us pay attention to our employees and work on satisfying them," says Silver Bullet's Streich. "We used to give them health benefits. Now we have added paid holidays, uniforms, and a 401(k) plan. We are also using a consultant to help us write the ad for our next field hire."

The owners of Remodeling Designs in Dayton, Ohio,

By increasing exposure to careers in construction, events such as this Tech Fair at Cuesta Community College in San Luis Obispo, Calif., may help recruit more students into construction.

have changed their hiring strategy. Rather than scampering around for a new lead carpenter every time there's an opening, they now try to bring people up within the company. This has meant hiring on the basis of character and work habits, then offering on-the-job training in building skills. A generous benefit package helps retain those trained workers.

Until the effects of long-term programs make themselves felt, contractors are continuing to make the best of a bad situation. As one remodeler told his Internet chat room buddies: "The economy is good and everyone is working. Time to raise the prices."

***Kathy Price-Robinson**, of Arroyo Grande, Calif., is a freelance writer on building issues.*

New Standard for Home Ventilation

by Clayton DeKorne

Because uncontrolled air leaks can account for more than one-third of residential heating and cooling loads, savvy builders have learned to build tighter homes. Unfortunately, they haven't been as attentive to installing good ventilation, and have actually increased the risk of indoor air quality problems. To reduce these risks, and to provide clear guidelines on home ventilation requirements, the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) has proposed a new ventilation standard for maintaining indoor air quality. The proposed standard (62.2P) is the first offered by ASHRAE that specifically addresses ventilation in residential buildings, and will soon be available for public review.

The new guideline addresses three key areas: whole-house ventilation, local exhaust, and contaminant source control. Whole-house ventilation dilutes air contaminants (including humidity) generated by people and household materials throughout the house, while local exhaust strategies remove contaminants from specific rooms, such as kitchens and baths.

According to Max Sherman, an ASHRAE fellow and senior scientist at the Lawrence Berkeley National Laboratory, the standard accounts for differences in kinds of housing, climates, and styles of construction. The current draft proposes both performance-based alternatives (for example, sizing ventilation based on measured air changes in buildings) as well as prescriptive alternatives (sizing based on flow rates per unit floor area or occupancy). "The draft recognizes that there are several different ways to achieve a specified ventilation rate," Sherman states, "and allows for both mechanical and natural methods." For example, in existing houses in mild and temperate climates, some of the ventilation requirements can be met by operable windows. However, in new construction and in severe climates, mechanical ventilation will almost always be needed.

Proposed minimum local exhaust air flow rates

Application	Continuous Flow	Intermittent Capacity
Kitchen	5 air changes per hour	100 cfm
Utility	20 cfm	50 cfm
Bathroom	20 cfm	50 cfm
Toilet	20 cfm	50 cfm

A newly drafted ASHRAE standard proposes minimum exhaust standards for residential construction that would protect indoor air quality.

Requirements proposed by 62.2P include the following:

Exhaust fans must be installed in kitchens and bathrooms because windows are not sufficient to control moisture and cooking emissions. Vented range hoods are required if the installed exhaust capacity does not provide at least five air changes per hour (see table). Recirculating fans do not meet the requirements. All local ventilation must exhaust outside.

Mechanical cooling and dehumidification is often the only way to reduce indoor moisture levels in hot, humid climates. Ventilation alone often increases, rather than decreases, indoor humidity because it can draw outdoor moisture inside.

Rooms with unvented combustion appliances require local ventilation to remove the products of combustion. Laundry and utility rooms also require local ventilation, though a window or clothes dryer may satisfy the requirement in some climates.

Surface-mounted fans must meet a sound requirement of 1.0 to 1.5 sones to reduce the likelihood that occupants will disable a noisy fan.

The installed flow rate of the fan must be measured or meet specific prescriptive sizing and rating requirements, because different fan and duct arrangements may not exhaust the proper amount of air.

While codes in parts of the United States already include many of the proposed requirements, none has adopted all of the requirements. The new standard presents ASHRAE's best estimate of minimum comprehensive ventilation measures drafted in language that can easily be adopted by local and model building codes. The document also provides many pages of guidance, mostly in appendices. For builders, who have long been without clear guidelines for selecting ventilation strategies and understanding the consequences of their choices, Standard 62.2P provides an excellent resource. For more information, and to submit comments on the draft during the review process, visit ASHRAE's Web site at www.ashrae.org.

Clayton DeKorne *is a contributing editor to the* Journal of Light Construction.

Water Heater Failures

As many as 21 million water heaters may be affected by faulty polypropylene dip tubes that either disintegrate into pieces or deteriorate into a sludge. Dip tubes, which deliver incoming cold water to the bottom of the tank where it is then heated before rising to the top, were traditionally made using copper or carbon steel, but manufacturers began using plastic in the early 90s to save money. *Professional Builder* recently reported that an estimated 90% of residential water heaters manufactured between 1993 and 1996 are affected.

The exact extent of the problem is not entirely clear, however. The *Wall Street Journal* recently reported on an Alabama lawsuit in which a manufacturer claimed that only 1% of the plastic dip tubes in question are actually faulty. Several class-action lawsuits are currently underway, and most reports point to one dip tube supplier, Ohio-based Perfection Corporation, as the source of failure problems. *Energy Design Update* reports failures for water heaters manufactured by A.O. Smith, Bradford-White, Jackson, Reliance, Rheem, and State.

DANNY HUTCHINS

As many as 21 million water heaters produced in the mid 1990s may have faulty plastic dip tubes. As seen in this gas water heater core, the dip tubes can disintegrate into chips and sludge that adhere to the tank walls and clog plumbing fixture aerators and appliance strainers.

Although the American Water Works Association (AWWA) reports that debris from the failed plastic tubes is nontoxic, the deteriorated plastic can clog plumbing fixtures, as well as the strainers on appliances such as washing machines and dishwashers. In addition, a disintegrating dip tube reduces water heater efficiency by depositing cold water at the top of the tank, where it's more difficult to heat and ends up diluting the outgoing hot water flow.

Fixing the problem involves either replacing the water heater or retrofitting a new copper dip tube. In either case, the entire hot water system must be flushed out and all aerators and strainers need to be cleaned. AWWA reports that Perfection Corporation's faulty dip tubes typically carried a five-year warranty and that many water heater manufacturers are paying replacement costs. Estimates on the cost of retrofitting new dip tubes range from $170 to $300.

OFFCUTS

23,600 residential fires started in chimneys, fireplaces, and heating equipment in 1996, according to a Consumer Product Safety Commission report cited by the Chimney Safety Institute of America (CSIA). As a precaution, CSIA recommends annual inspections by certified chimney sweeps.

90% of carbon monoxide (CO) alarms are triggered by levels of CO that are too low to affect the average person, according to a study funded by the American Gas Association and reported by the American Society of Home Inspectors (ASHI). One consequence of the false alarms has been an unnecessary burden placed on emergency response personnel around the country. ASHI reports that the International Approval Service, a company that certifies natural gas appliances, now approves only CO detectors that don't sound prematurely at a "nuisance" level.

ICFs were used to construct approximately 14,000 homes in 1998, according to the Insulating Concrete Form Association (ICFA). Overall, one-third of all ICFs are used for below-grade residential foundations while another one-third are used for above-grade residential construction. The remainder are used in commercial or industrial projects. ICFA predicts that 80,000 ICF homes will be built next year, totalling around 7% of new home construction.

The average price for a single family home rose from $97,600 to $185,000 between 1984 and 1998, according to a recent report by the NAHB. Average house size rose from 1,780 to 2,185 square feet during the same period, while the number of owner-occupied homes grew from 56 million to 69.1 million.

OFFCUTS

Air pollution may be worse indoors than outdoors. According to EPA research, levels of indoor air pollutants may regularly be two to five times higher, and at times up to 100 times higher, than outdoor levels. With Americans spending most of their time inside, the EPA has named indoor air pollution among the five most urgent national environmental problems.

Workers comp rates have fallen since their all-time peak in 1993. According to a recent report from the National Academy of Social Insurance, employers who paid an average of $2.17 per $100 of payroll in 1993 saw rates fall to an average of $1.67 by 1996.

Energy-efficient affordable housing construction has gotten a boost in New Jersey. Homes built under a new $10 million program must consume 30% less energy than a home that meets the 1993 Model Energy Code. Subsidies of up to $55,000 designed to lower sales prices will be given to builders competitively selected to participate in the program.

Fatal job-site falls claimed an average of 7.8 workers per million on residential construction sites between 1992 and 1995, according to a recent NAHB study. Overall, the rate fell during those four years from 10.4 to 6.8 per million.

Fly Ash Improves Concrete, Reduces Pollution

by Bill Robinson

If a loosely organized group of architects, engineers, and concrete suppliers in the San Francisco Bay Area has anything to say about it, you will soon be able to order concrete with as much as 50% of the Portland cement replaced with fly ash, a waste product of burning finely ground coal in electric generating plants. Redi-mix suppliers have been putting small amounts of fly ash in concrete for years, but current building codes typically limit fly ash content to 15%. Recently, however, studies by P. Kumar Mehta at the University of California at Berkeley have prompted Bay Area building professionals to begin testing concrete mixes with a higher fly ash content. To date, several test pours with over 50% fly ash in the concrete have been successfully completed.

The test results show that upping the fly ash content still yielded concrete that was plenty strong for residential construction. At 28 days, a 23% mix reached 5,960 psi compared with 4,490 psi for a 50% mix. The typical minimum strength for residential concrete is 2,000 psi at 28 days.

Advantages. Reusing fly ash is considered ecologically friendly because it reduces landfill waste. And because each ton of Portland cement releases a ton of CO_2 into the atmosphere when it's manufactured, replacing it with fly ash will help reduce greenhouse gases in the atmosphere.

But advocates claim that adding fly ash to concrete actually results in a better-performing product. Apparently, concrete with high fly ash content is less permeable than conventional mixes, and is less likely to "sweat" and produce efflorescence. It's also more durable and tends to resist cracking better than redi-mix.

Drawbacks. On the down side, fly ash tends to slow the time it takes concrete to cure and reach its design strength, especially if excess water is added. More than with conventional concrete mixes, too much water delays setting and curing, and reduces the final compressive strength of high fly ash concrete. Fortunately, fly ash actually improves the pumpability of concrete, eliminating the need to add more water. However, adding water to make the concrete flow better is common practice, so you may need to take special precautions against it.

Testing by a group of Bay Area construction professionals shows that higher fly ash levels only slightly reduce concrete strength while offering better moisture protection.

A final drawback of high fly ash concrete is that finishers will not be able to rely on the disappearing sheen to signal that the concrete is ready for troweling. Instead, they will need to learn to use a simple firmness test to gauge finishing time.

For more information, contact Scott Shell (sshell@ehdd.com).