Tight-Penny News

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Nontoxic Alternative to CCA

Imagine that every stud and joist you used in building a new house could be protected against rot, termites, carpenter ants, wood-boring beetles, and – as if that weren't enough – made fire-retardant as well. Suppose all this could be done with a single wood preservative, without using chemicals that are toxic to people, animals, or the environment.

Revolutionary, you say? Well, we hesitate to call it that. Few innovations in the building industry really are. But a new generation of wood preservatives formulated from sodium borate may, over time, come close. Perma-Chink Systems (1605 Proser Rd., Knoxville, TN 37914; 615/524-7243) and Watershed Sales Corp. (P.O. Box 31588, New Braunfels, TX 78131; 512/629-4246), are two of a dozen or so companies, large and small, that are introducing borate-based wood preservatives.

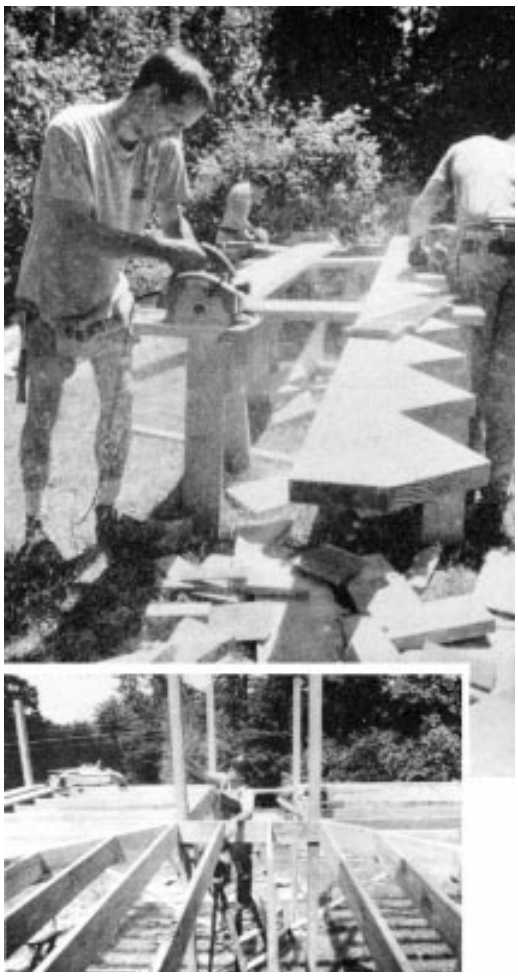
Perma-Chink's "Bora-Care," approved by the U.S. Environmental Protection Agency (EPA), is initially being sold as a brush- or spray-on preservative for log homes.

"The beauty of it," says lab manager Stan Galyon, "is that borate applied to the surface diffuses all the way into the heartwood, giving you rot and insect protection across the entire grain – even on big logs." Stick-build houses could be sprayed right at the building site, he says, protecting the whole frame against rot and insects. Within one day, the lumber would be dry and workable, with no health risks to the crew.

Applied indoors as a topical preservative and pesticide, borates – long-lived and environmentally safe – could make fumigation a thing of the past. Orkin and Terminix, two of the nation's largest pest control firms, are already running tests. Moreover, some researchers believe that houses built out of borate-treated lumber wouldn't need the toxic chemical soil treatments that are currently used (mandated by building codes in some regions) to stop termites.

Watershed Sales Corp., which expects to enter the market in a few months, says its new product – unnamed pending trademark registration – combines borate with a special brew of water repellents and mildewcide. "It's a one-step treatment process for lumber," says company founder Charles Vinsonhaler. "Just dip it and ship it." He says lumber could be dipped in large batches at commercial treatment facilities, dipped piecemeal at the building site, or pressure-treated in existing autoclaves.

Timberpeg South (P.O. Box 800, Fletcher, NC 28732; 704/684-1722), has already built three borate-treated timber frames in the Virgin Islands, where rot and termites spell death to unprotected wood.



Workers wear neither gloves nor masks to cut borate-treated wood since the treatment is about as safe as table salt. The finished deck frame (inset) takes shape on a N.H. home.

Builders are breaking ground for a fourth house on the island of St. Croix.

"We like the fact that borate protects the entire cross section of our beams, leaves the wood clear, and – best of all – isn't toxic to people," says vice-president Roy Conant. "Our production manager and mill workers would flat out refuse to build frames indoors made from CCA-treated timbers because of the perceived health hazards. That same perception, true or false, is prevalent among home buyers." ("CCA" stands for chromated copper arsenate, the compound that gives pressure-treated lumber its distinctive green color.)

Conant says Timberpeg may install its own vat and other equipment needed to dip-treat timbers with borate. He estimates it would cost $300-$400 in capital and labor costs (this figure doesn't add in a profit margin) to treat a 2,200-square-foot timber frame.

National market research shows that many home buyers would be willing to pay extra for borate-treated lumber, provided it adds less than 3% to the new home's price. Though the borate would be a "hidden improvement," prospective home buyers said it could offset the cost of treating a major termite infestation and repairing the damage.

The log home industry has provided an important early market niche for borate. Two of the majors – Real Log Homes and Appalachian Log Structures – treat their logs with TIM-BOR, an EPA-approved borate compound made by U.S. Borax (3075 Wilshire Blvd., Los Angeles, CA 900052; 213/251-5400). All told, about 10% of the 25,000 new log homes built last year were borate-treated.

Other firms developing borate preservatives include Aquaday International (1313 SW Evergreen, Arlington Heights, IL 60005; 312/956-8511), CSI, Inc., (1 Woodlawn Green, Charlotte, NC 28217; 704/522-0825) and The Continental Products Com-

Continued on next page

NYC Joins VOC Reg. Bandwagon

New York City has joined the rapidly growing list of local governments to regulate the sale of paints and finishes containing volatile organic compounds (VOCs). VOCs contained in the paints are released into the atmosphere when the paint or stain dries.

Banning VOCs is one step local agencies are taking to bring their air quality into compliance with federal Clear Air Act standards.

To date, the following states or regions have instituted regulations on these solvent-containing paints, stains, and finishes (see map below):

- California
- Phoenix, Ariz.
- Dallas, Texas
- New Jersey
- New York City.

Statewide regulatory proposals are pending in Massachusetts and Texas. Wisconsin, Maryland, Indiana, and Illinois are considering regional restrictions.

Oil-based paints and stains containing VOCs are coming under increased attack, particularly in areas with otherwise poor air quality.

Meanwhile, paint manufacturers are in a tizzy, because the regulations are so irregular. For instance, some regulations cover ``volatile organic compounds,'' while others cover ``volatile organic substances.'' Manufacturers fear that the regulations will force them to produce different products for different regions — a major headache for companies that distribute nationally.

In response, manufacturers, through the National Paint & Coatings Association, are pushing for a uniform national standard, so the industry would be playing by one set of rules. ■

States with Existing Regulations		States with Proposed Regulations	
Arizona:	Maricopa Co. (Phoenix area)	Illinois:	Cook DuPage, Grundy, Kenall, Lake, McHenry, & Will Cos.
California:	Entire state	Indiana:	Lake & Porter Cos.
New Jersey:	Entire state	Maryland:	Baltimore Co.
New York:	New York City, Westchester, Rockland, Nassau, & Suffolk Cos.	Mass.:	Entire state
Texas:	Dallas & Tarrant Co.	Texas:	Entire state
		Wisconsin:	Kenosha & Racine Cos.

This map shows the areas that have enacted VOC regulations, and those that have proposed regulations, as of December 1, 1989. Information provided by the National Paint and Coatings Association.

R.I. Mortgage Program Favors Energy Efficiency

Rhode Islanders who are unable to purchase their first home because they can't afford the monthly payments are getting a break from the Rhode Island Housing and Mortgage Finance Corp. As a plus, the program offers additional benefits if home shoppers opt for energy-efficient houses.

These first-time home buyers can get fixed-rate mortgages from 5.5% to 8.5%, and these mortgages can go toward new construction or existing houses. They can be applied to homes with a maximum purchase price of $114,000 for an existing one-family house, and $130,000 for a new one-family house.

If first-time home buyers have set their sights on an energy-efficient home, they can qualify for an increase in their debt-to income ratio, which allows the4m to take a larger mortgage. The rationale here is that the operating expenses for an energy-efficient home will be less than those for a less efficient home. And in a boost to remodeling in the state, home buyers can tack on anticipated remodeling costs to the mortgage. ■

Non Toxic Alternative Continued…

pany (1150 East 222nd St., Euclid, OH 44117; 216/531-0719). Columbia Cascade (1975 S.W. 5th Ave., Portland, OR 97201; 503/223-1157), an Oregon-based maker of wood playground equipment, treats its fir timbers with a borate and paraffin mixture, appealing to health-conscious parents who worry about the toxicity of CCA (see Letters, 5/89).

Despite the excitement, borate isn't perfect. For one thing, it gradually leaches out of wood that's exposed to water. Researchers at Mississippi State University, U.S. Borax, Kerr-McGee, and Watershed Sales Corp. are developing fixing agents that can "lock" borate into the wood. If they're successful, borate could be used for decks and other outdoor applications.

Though sodium borate has already been approved as a wood preservative by the American Wood Preservers Association (AWPA), the body ahs been s low to develop standards governing treatment procedures. Critics charge that AWPA is intentionally dragging its feet, since a large percentage of its members have a vested commercial interest in pressure treating with CCA, which holds 98% of the lucrative wood-preserving market.

But even the staunchest borate advocates admit that there's need for more testing and documentation. If the AWPA doesn't move ahead, borate advocates may create their own standards-writing body. That's one of the many topics that will be discussed at the first-ever International Conference on Diffusable Preservatives, to be held in Nashville, Tenn., next November.

– Don Best

Don Best is a freelance writer who frequently writes on construction-related topics. He lives in Surry, N.H.

Stop Leaks at the Band Joist

As every builder knows, it is next to impossible to prevent air leakage at the band joist. Cracks in sheathing and in structural framing allow air infiltration.

If you're looking for practical ways to seal these joints, the Minnesota Department of Public Service's Energy Division has some tips. You'll need to seal both the outer side of the band joist and the more difficult inner side.

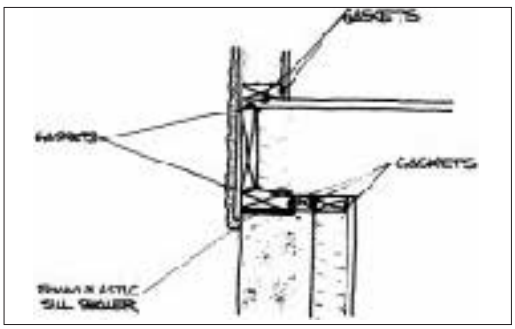
Outer band joist. Seal the outside by using a compressible foam plastic sill sealer instead of the rolled fiberglass. Energy researchers have found that the most common exterior wall leaks occur where floors intersect walls.

Inner band joist. You can seal this area in three ways:

One way is to cut blocks of foil-faced rigid insulation and caulk them in place. If you use top-chord bearing floor trusses, this method will give you a good seal.

A second, and simpler, method works with solid floor joists. Joe Fischer of Builders Insulation Co., Minneapolis, Minn., says, "Infrared inspections of band joists that we've sealed in this manner have shown virtually no air leakage." He puts unfaced fiberglass batts, cut to size, in the band-joist cavity and covers the batts with an aluminum foil vapor barrier that is rated for exposed applications. Cut the foil 1 to 2 inches oversized on all edges, and lay a bead of sealant around the foil's perimeter. Staple the foil to the floor joists and floor above. The bottom edge of the foil is sealed to the wall vapor barrier and stapled in place.

A third method uses the air-tight-drywall approach (ADA). Adhesive-backed gaskets go in every joint to prevent air leakage (see drawing). These gaskets work better than caulk because they move with normal building movement. ■



Gaskets placed between framing members and a the plate-drywall joint effectively stop air leakage.

All Remodelers Need Licenses in Chicago

To keep consumers from losing money to fly-by-night repair firms, the city of Chicago has passed a licensing ordinance that affects remodelers or "handyman" work. Now, to do repair work on buildings containing six or fewer units, you have to obtain a license from the Commissioner of Consumer Services, City of Chicago. The annual license fee is $50, and the applicant must furnish a certificate of public liability and show insurance for property damage. ■

Tax Talk: Social Security Costs Go Into Orbit

By Irving Blackman

The cost of funding the Social Security tax (FICA) system has broken away from the pull of gravity (meaning: logic). Employers and employees alike are weighed down by the burden of paying a tax that has gone out of sight.

Here are the facts for 1990: The Social Security wage base rockets to $50,400 - up from $48,000 in 1989. The employer's and employee's rate is boosted to 7.65% - up from 7.51%. What's the exact damage? Well, for each employee earning $50,400 or more, the extra burden will be $250.80 for the employer. And don't forget, the employee gets hit for the same amount. That means that the employer and employee combined must cough up an additional $501.60 to the FICA system. Let's see, that's $3,855.60 each for the employer and employee, or a total of $7,711.20 for such employee per year. Compare that to the total top cost of $2,208 in 1979, and you begin to realize how out of control Social Security costs are. It's like a science fiction story...unbelievable!

Are you self-employed? For you, the rate soars from 13.02% to 15.3%. This means your 1990 Social Security (Self Employment) tax on the new top-taxable earnings of $50,400 skyrockets to $7,711.20_up from $6,249.60 for 1988. As I said...in orbit.

There is one bit of good news. Starting in 1990, self-employed individuals can deduct one-half of their Self-Employment tax. Here's a hint to help you get the Self-Employment tax and your net earnings right. The new law (Section 1402) defines net earnings for self-employment by deducting one-half of the Self-Employment tax. In effect, this means that you will be subject to the maximum Self-Employment tax if your Schedule C income is $54,256 or more. ■

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Island Designers Escape Liability Suit

Architects and engineers in Hawaii will no longer be appearing at the defendant's table with contractors for injury cases involving projects they've designed. Following strong lobbying efforts by the Hawaii Society of Architects, the state has amended its workers compensation laws to protect architects and engineers from third party liability suits.

According to the new law (formally known as Act 300), "construction design professionals" cannot be sued for job-site injuries covered by workers compensation. The act defines "construction design professional" as an architect, engineer, or land surveyor registered to practice in the state. Part of a nation-wide trend, Hawaii became the 11th state to enact an amendment of this kind. The ten states with comparable laws are Connecticut, Florida, Kansas, Maine, Nebraska, North Dakota, Oklahoma, Oregon, South Dakota, and Washington. ■

From What We Gather

Remodeling will see healthy double-digit growth (10%) in 1990, according to NAHB's end-of-the-year forecast. New home builders, on the other hand, can expect a so-so rerun of 1989 says the NAHB crystal-ball gazers. For a rosier scenario, you can listen to F.W. Dodge, which forecasts new home starts up 8% in 1990 to 1,525,000.

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Factory workers are about 65% efficient, compared to about 35% for carpenters in the field, estimates Gary Smith, a professor at Penn State's Housing Research Center. Factory efficiency has room for improvement, says Smith, but "we are still making changes in factory efficiency by trial and error, often not based on engineering principles."

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First-time buyers accounted for 38 percent of all new home sales last year, spending an average of $120,000 – up from $106,000 the year before. First-time buyers paid an average of $147,000 in the Northeast, $130,000 in the West, $86,000 in the Midwest, and $77,200 in the South. The average first-time buyer is 30.3 years old, 74 percent are married, and 21 percent chose condos.

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Saving and restoring wetlands is a goal of the EPA's new action plan, released in January, which wants "no net overall loss" of the nation's remaining 99 million acres of wetlands, which it says are critical habitats and help control flooding and pollution. The plan is based on a 1988 report, which found that up to a half-million acres of wetlands are lost annually to farming, development, and other uses.

Superinsulated homes cost only 2.5% more than conventional houses in the Canadian provinces of Alberta, Manitoba, and Saskatchewan, according to a study completed recently by Howell Mayhew Engineering, of Edmonton, Alberta. The added cost of the high-efficiency "R-2,000" homes went most to additional air-sealing, increased basement wall insulation, high-efficiency heating equipment, and heat-recovery ventilation.

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Sorry guys. Women construction grads start out at an average salary of $26,566, compared to $24, 289 for men, according to a survey conducted by the American Institute of construction and the Associated Schools of Construction. The reason, several educators think, is 1) women make better students and a better impression during job interviews, and 2) some construction firms seek out women to meet affirmative action goals. Source Contractor

Computer Bits:

Do you need to know the weight of something? Try Mass2, an IBM-compatible program that calculates weight and volume after you enter variables. It costs $69. Contact Dempsey's Forge, Rt 2, Box 407, Glady's, VA 24554; 804/283-4602.

Use graphics, spread sheet, and bid analysis to estimate more efficiently with Software Shop Systems' Advanced Construction Estimating (ACE). Ibm-compatible. Contact Software Shop Systems, Rt 34, P.O. Box 728, Farmingdale, NJ 07727; 201/938-3200

"NAHB-Approved Software" reviews (two volumes were published in 1989) are available for $25. Eleven products were reviewed in the last issue. (Just submitting software to the NAHB review program costs $10,000; the reviews are exhaustive, but the list of approved products is not comprehensive.) Contact NAHB Business Management Department, 15th & M street., NW, Washington, DC 20005; 800/368-5242, ext. 233. ■

OSHA's "Haz Com" a Reality

The construction industry must now comply with OSHA's Hazard Communication Standard (HCS), which requires employers to inform employees of any hazardous materials at the work site. But complying with the HCS requires meticulous record keeping. Here's a rundown of how this regulation will affect your business.

Rules and regs. Anyone who keeps any potentially hazardous substances on site must obtain Material Safety Data Sheets (MSDS) from the manufacturers. Such products can range from sawdust and concrete to the fluid in copying machines. Documentation must be kept on site, and it must be made readily available to employees. Also, containers of hazardous products must be labeled with identification and warnings of potential dangers.

Producers have to provide the contractors with both the data sheets and the labels. But the contractor has to do the legwork - and paperwork - to track down the information. If a hazardous product comes in without an MSDS or a warning label, the general contractor should request this information from the vendor. File a copy of this request with the data sheets you already have.

Employee training is also a key element of this program. Employees who could come in contact with hazardous materials should know what the dangers are, how to spot them, and how to protect themselves. For liability purposes, contractors should get the signatures of employees when they complete the training program.

Contractors must keep accurate records of efforts to comply with OSHA regulations. These records should become part of a written ``hazard communication program.'' This program should be the framework of the company's attempts to adhere to the HCS requirements.

One possible complication is the question of who is responsible when several subcontractors occupy a single construction site. Employers are responsible for training their own workers, keeping data sheets of the products their workers use, and labeling hazardous substances. When several contractors are on site, however, they each have an added burden because they have to find out what other contractors are using and inform their workers of these risks as well.

Another inconvenience is that data sheets must be at the job site, not just on file in an off-site central office. While immobile manufacturing industries can meet this demand with little difficulty, compliance by the contractors will mean additional costs and efforts. Also, if different construction sites use different products, a contractor who moves his workers from location to location to meet changing demands must be sure that the worker has been informed of any new dangerous substances.

Violations for non-compliance with these new standards can be costly. OSHA can fine violators up to $1,000 for each violation, with repeated violations running tabs up to $1,000 a day. If inspectors deem a violation as ``willful,'' a contractor can see fines of $10,000. OSHA has claimed that inspections will be more frequent with the HCS in place. Home builders should expect any visiting officials to request to see both the written hazard communication program and the compilation of MSDSs.

Builders' experiences. As many builders are finding out, the HCS requires a great deal of time and effort. William Cessna of Wayne Homes in Ohio started planning for the implementation of a compliance program back in February of 1988. Wayne Homes has seven different locations throughout the state and employs 50-60 people.

Compliance has not been easy for Cessna. Acquiring the Material Safety Data Sheets from suppliers has been a monumental task in itself that is still ongoing. After as many as four different letters to producers of hazardous products, approximately 15% have yet to reply. Once the MSDSs are obtained, however, Cessna's staff finds itself in front of the copier for hours having to copy double-sided MSDSs - often in the form of pamphlets - that can run up to eight pages long. They are then sent out to the seven sites throughout the state.

William Post of Lakeside Homes, Inc. of New Jersey cites the same problems, saying many of his main suppliers, like lumber producers, have yet to provide him with the necessary information. Lakeside Homes employs 31 people, and Post says it has taken half of one staff person's time to try to implement this program.

Help from NAHB. Meeting the Hazard Communication Standard will not be easy for the construction industry, but the rules are in place and must be followed. To help contractors meet this standard, NAHB has put together a compliance manual, Hazard Communication: A Guide for the Construction Industry. The manual covers the major elements of compliance, contains sample forms and letters, and includes a listing of hazardous substances. The cost of the manual is $15 for members and $20 for non-members. In addition, a package containing the manual, an employee training log, an audio tape aid for employers, and a video-based training program for employees is available at the cost of $50 for members and $70 for non-members, plus $4.50 for postage and handling. Contact the Business Management Department at NAHB, 15th & M Streets, N.W., Washington, DC 20005; 800/368-5242, ext. 233.

–Henry Holquin

Adapted with permission from The Builder's Management Journal, *Spring 1989 issue*.

New England Business Briefs

It's official. Someone finally said the R-word: *recession*. A November report by the respected DRI/McGraw-Hill economic forecasting firm concluded that Massachusetts and most of New England are in a recession.

However, the report drew immediate criticism, as states argued whether a region-wide recession – defined as two consecutive quarters of negative economic growth – actually exists.

Unfortunately, for builders, the facts speak for themselves:

- Home sales continue their sluggish pace. In the hardest-hit areas, such as Massachusetts and southern New Hampshire, existing inventory may take two years to sell, even if no more homes are built, according to New Hampshire economist Russell Thibeault. Other areas, particularly Vermont and Maine, still see fair activity at the affordable and luxury ends, with homes in the middle moving slowly. One bright spot is the New London, Conn., area, where growth continues.
- Bad mortgage and real estate development loans have caused heavy losses at many of the regions banks, including Bank of Boston, Bank of New England, and One Bancorp of Portland., Maine. The news of the losses caused New England bank stock prices to drop by as much as 35%. This has attracted closer scrutiny of lending practices by banking authorities and Federal Reserve Board chairman Alan Greenspan, and fueled speculation as to whether some of the banks might fail. So far, none have.
- The slowdown showed up in region-wide rising unemployment figures. Construction workers were among those hardest hit. While the figures are still low – ranging from 3.1% for Maine to 4.4% for Massachusetts (as of September 1989), the abrupt rise – in some states as much as a point in one year – added to worries that the economy may be in a tailspin. ■

Concrete Blamed in Collapse

Lightweight concrete appears to have been one of the major culprits in the collapse of a concrete roof over a YMCA swimming pool full of toddlers in Boston last September.

Other contributions to the collapse may have been chloride and high humidity. The roof, made of 2 3/4-inch tongue-and-groove lightweight precast slabs, collapsed without warning, opening a 15x20-foot hole over the pool. Concrete, tile, and corroded reinforcing wire fell onto a swimming class of nursery-school-aged children.

Several children were injured (two with fractured skulls), as was 18-year-old lifeguard David Bortolotto. Despite profuse bleeding from a deep gash to his head, Bortolotto repeatedly dove into the cloudy, debris-filled water to pull children out and search the bottom.

The YMCA hired the engineering firm of Simpson, Gumpertz, and Heger to see what went awry. According to Paul Kelly, an engineer at the firm, the roof collapsed because the reinforcing wire was corroded by chloride. Kelly said the pool area's high humidity aggravated the problem by causing condensation along the underside of the slabs, introducing moisture that sped the corrosion. Asked whether the chloride came from the condensed pool water or from within the concrete itself, Kelly declined comment.

Kelly said the use of a lightweight cellular concrete may have added to the problem. "A lightweight concrete is more permeable than a normal concrete, and in a high-humidity environment, it's going to absorb more moisture. In six other pools made with normal weight concrete, we found lower chloride levels and no deterioration in the reinforcing wire."

Bob Spencer, vice president of the Greater Boston YMCA, said a lack of insulation over the roof also apparently contributed to the problem, keeping the inside surface of the slabs cool and attracting condensation. Spencer said the new pool area will have more insulation over the ceiling and better ventilation beneath it. Contractors using concrete in pool enclosures might consider similar measures.

For more technical information, contact the American Concrete Institute, which offers a technical report called "Corrosion of Metals in Concrete." The report presents the basics of preventing and evaluating corrosion of metal reinforcing bars and wire in concrete. Call the ACI's publication department at 313/532-2600; ask for Document #222R-85. Cost is $17.50 for nonmembers, $13.50 for members. ■