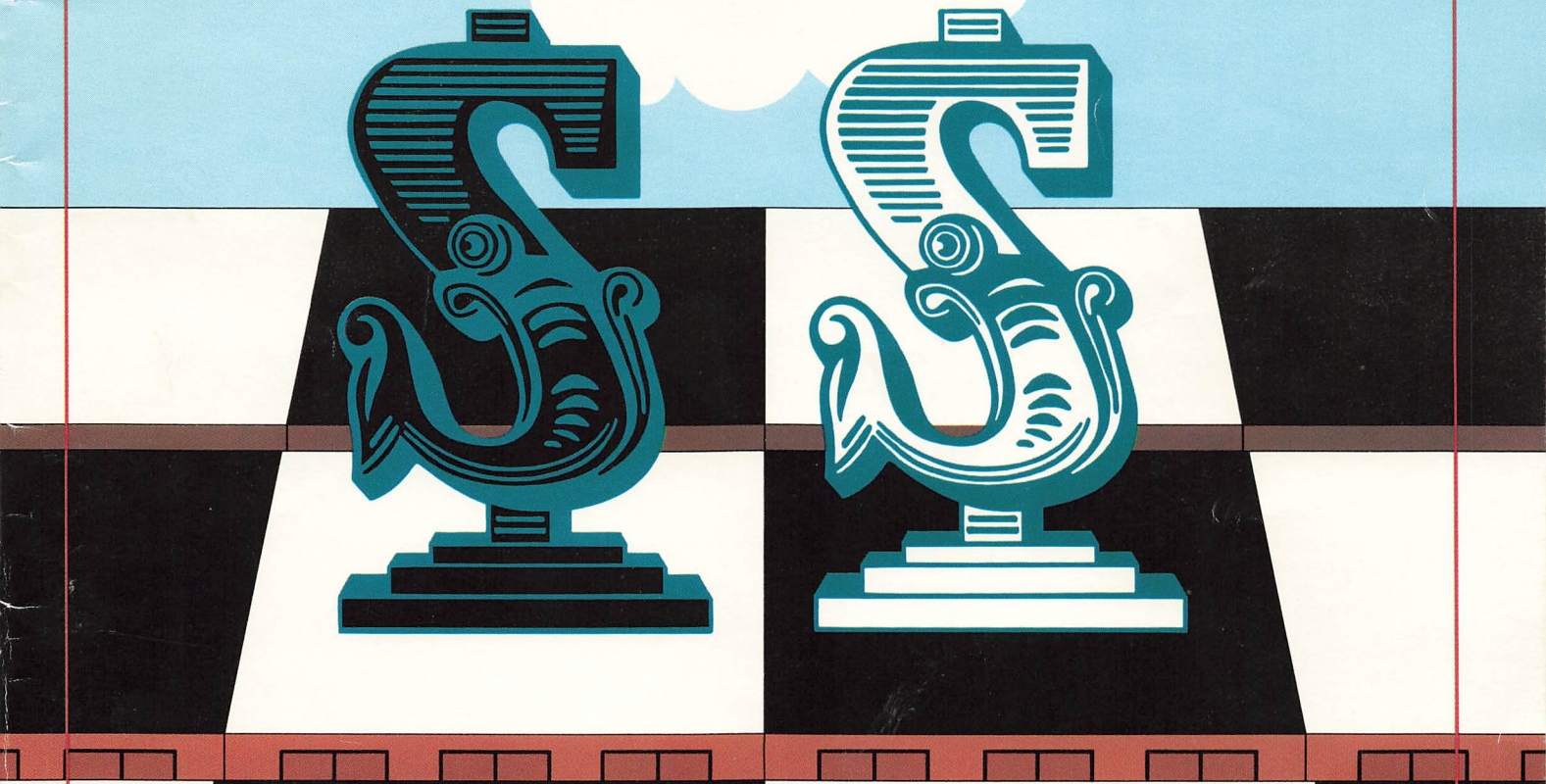
National Roofing Contractors Association

ROOFING SPEC

MAY
1986
$2.00



White vs. Black: does membrane color matter?

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17. **John Gooding** / Gooding, Simpson & Mackes, Inc., Ephrata, PA
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21. **Don Largent** / Don Largent Roofing, Harrisonburg, VA

NOT IN PICTURE:

22. **Kent Nielsen** / Curran V. Nielsen Company, Inc., Minneapolis, MN
23. **Glenn Langer** / Langer Roofing & Sheet Metal, Milwaukee, WI
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ROOFING SPEC

Vol. 14, No. 5 May 1986

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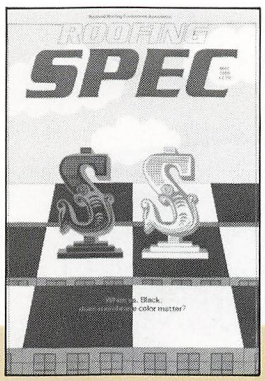

COVER

The roofing industry is still debating if white membranes truly look better, wear better and save more energy than their black counterparts, as the manufacturers claim.

NATIONAL ROOFING CONTRACTORS ASSOCIATION
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Chicago, Illinois 60631
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FEATURES

DEPARTMENTS

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LETTERS

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Vent illustration may have been poor choice

Dear Editor:

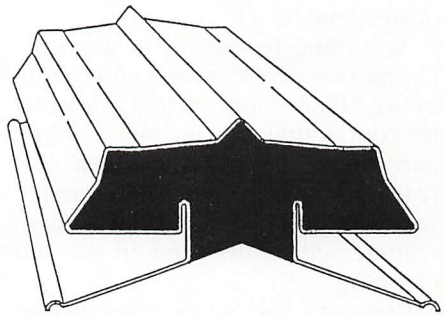
This letter will relate to the article titled "Air exchange keeps attics cool and dry," submitted by the Home Ventilating Institute, and our disappointment with the way in which the article was handled. The feature article was published on page 23 of January's *Roofing Spec.*

Home Ventilating Institute had offered this article for publication on a stand-alone basis, and we were very surprised to see the lower portion of the lead page dominated by a brand name ridge vent. Using this type of vent is only one way in which attic ventilation can be achieved.

As a non-profit trade association, the Home Ventilating Institute is concerned about the use of brand name product illustrations.

As another comment concerning the illustration, the static manufacturing members of the Home Ventilating Institute advocate the use of static devices based upon net free area of ventilation, unencumbered by the presence of insulation.

Les A. Barron, P.E.
Home Ventilating Institute,
Division of AMCA



The generic ridge vent illustrated features roll-formed, pre-finished aluminum construction.

Contracting showed renewed strength in February, says Christie

Contracting for new construction rebounded in February, reversing January's steep decline, reported the F.W. Dodge Division of McGraw-Hill Information Systems Co.

February contracts, valued at a seasonally adjusted rate of $229 billion, rose 11 percent due to a surge of delayed public works projects.

According to George A. Christie, Dodge vice president and chief economist, "It now appears that first quarter contracting will average within 5 percent of the peak rate that was reached in 1985's closing quarter, with the promise of continued high volume activity throughout the rest of 1986."

Contracts for heavy construction (public works and utilities) surged in February to $46.3 billion, following a sharp decline in January.

"Taken together, the first two months' contracting for public works construction was virtually even with 1985's fourth-quarter level, and it is now obvious that many projects were postponed from January to February. Due to the vague status of municipal bonds, as tax reform legislation moved from the House to the Senate, local government financing for roads, sewers and other construction was temporarily delayed until the Senate version of the tax bill became known," Christie said.

Non-residential building contracts, at $76.8 billion in February, rose 11 percent on a seasonally adjusted basis. Commercial and industrial building, up 14 percent in February, showed improvement in all categories. The Dodge economist pointed out that "the closely watched office building component made a modest comeback from its recent decline, but still remains nearly 20 percent below last year's peak rate of contracting."

Institutional building advanced 7 percent in February despite a mixture of gains and losses.

February contracts for residential building were valued at an annualized rate of $105.9 billion, a gain of 2 percent over January's total. "As interest rates continue to tumble, strong residential building will sustain total construction activity all through 1986 at last year's record level," Christie said.

At the end of two months, the unadjusted total of 1986 construction contracting was exactly even with last year's $29 billion. So far in 1986, the North Central region leads the nation with a 4 percent improvement over 1985, and the West trails with a 5 percent decline. The Northeast shows a two-month lead of 1 percent, while contracting in the South is up 2 percent.

The following tables summarize February's Dodge construction statistics.

Monthly Summary of Construction Contract Value

Prepared by F. W. Dodge Division
McGraw-Hill Information Systems Company

MONTHLY CONSTRUCTION CONTRACT VALUE
Seasonally Adjusted Annual Rates, In Millions

	JAN. 1985	DEC. 1985	PERCENT CHANGE
Non-residential building	$ 64,643	$ 77,190	– 16
Residential building	98,479	108,448	– 9
Non-building construction	32,779	42,315	– 23
Total construction	$195,901	$227,953	– 14

YEAR-TO-DATE CONSTRUCTION CONTRACT VALUE
Unadjusted Totals, In Millions

	1 MO. 1986	1 MO. 1985	PERCENT CHANGE
Non-residential building	$ 4,998	$ 5,919	– 16
Residential building	6,622	6,684	–
Non-building construction	2,060	2,551	– 19
Total construction	$ 13,680	$ 15,154	– 10

THE DODGE INDEX
(1977 = 100, Seasonally Adjusted)

November 1985 . . . 162
December 1985 . . . 162
January 1985 139

Computer products featured at show for design and construction professionals

More than 20,000 architects, engineers, facility managers and contractors are expected to attend A/E/C Systems '86, the computer and management show for design and construction professionals. The meeting, which will be held at Chicago's McCormick Place, is planned for June 23-27.

Contractor Profit News (CPN), one the sponsors of the event, is offering free tickets to members of construction-related associations, including NRCA. If you are interested in attending and would like free tickets, contact NRCA as soon as possible.

The trade show will feature nearly 1,000 booths displaying the latest in computer hardware and software created for the design and construction industries. The show's sponsors have also planned 80 conference sessions geared for beginning, intermediate and advanced participants. A roster of 200 speakers and panelists will address such topics as computer graphics, architecture, engineering, facility management, construction, firm management, reprographics and automated mapping. The programs will be presented in 24 tutorials, 16 panel sessions and 40 seminars.

In addition to the booths and seminars, A/E/C Systems '86 will offer Intellibuild '86, a two-day professional conference on "Intelligent Buildings: The Immaculate Deception." The conference, which will be held at Chicago's Palmer House, will be produced by the recently formed International Intelligent Building Association. Speakers at the conference will examine the misconception that electronic capabilities are all that tenants want from intelligent buildings, and will outline a new, comprehensive approach to design and development.

For further information about A/E/C Systems '86 contact the Conference Director, P.O. Box 11318, Newington, Conn. 06111; 203/666-6097.

7,000 expected to attend CSI's 30th meeting

The Construction Specifications Institute (CSI) will hold its 30th Annual Convention and Exhibit June 20-22, 1986, at the Los Angeles Convention Center.

The meeting is expected to attract nearly 7,000 architects, engineers, specification writers, manufacturers' representatives and others affiliated with the non-residential construction industry.

On display at the convention will be 814 booths featuring products and services for the construction industry. This exhibit, the largest in CSI's history, is the country's largest annual show of materials and services for those engaged in non-residential construction.

The convention's educational program will include 32 concurrent sessions in addition to speeches by nationally syndicated political columnist David S. Broder, professor and management consultant Derek M. Mills, and personal development psychologist Wayne W. Dyer.

The concurrent sessions have been divided into six broad categories: specifications, product technology, business and marketing, automation, contract administration, and personal growth.

Additional information is available from CSI, 601 Madison St., Alexandria, Va. 22314-1797, 703/684-0300.

Dodge/Sweet's expects homebuilding to reach $236 billion this year

A higher level of homebuilding is now expected to raise construction contracting this year to a record $236 billion, according to projections made by the McGraw-Hill Information Systems Co. The figure is nearly $10 billion more than predicted six months ago, and up 4 percent from 1985.

In the first scheduled update of its 1986 Dodge/Sweet's Construction Outlook, McGraw-Hill pointed out that deficit reduction, tax reform, and falling interest rates will be reshaping construction markets in 1986. According to the firm's vice president and chief economist, George A. Christie, "The considerable benefits of low-cost financing should more than offset cuts in federal construction programs, stretching last year's peak rate of building activity through 1986."

Declining mortgage rates are expected to lift single-family homebuilding by nearly 15 percent this year to 1.1 million units, the McGraw-Hill economist noted. Multifamily building, however, may decline as much as 5 percent as the vacancy rate rises, resulting in a total of 1.85 million units started in 1986.

In the non-residential market, Christie expects a 3 percent drop in construction contracting to $78.3 billion. "Although the postponement of tax reform for another year may cushion the coming decline of business-related construction, the commercial building boom of recent years has already lost its momentum," Christie said. "Office building in particular is expected to decline 17 percent to $20 billion, as market forces begin to restore supply/demand balance."

Construction in the public works sector will decline an estimated 2 percent this year, as federal deficit reduction measures begin to take effect. Contracting for total public works construction is now pegged at $37.2 billion.

Regionally, the Northeast is expected to lead the nation in contracting growth at 6 percent. A 5 percent gain is expected in the North Central states, and 4 percent and 2 percent increases are projected for the West and South, respectively.

continued on page 10

FLAME-TAMER

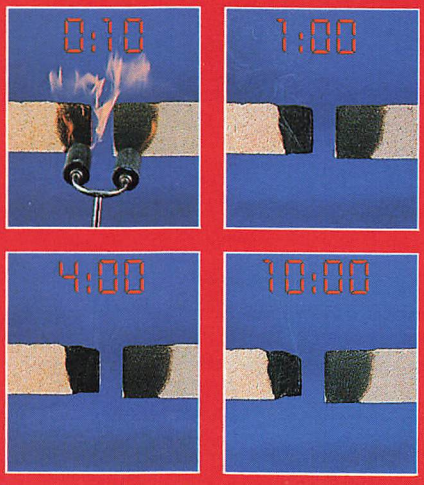
The safest cant strip to use with torch-applied roofing systems. Flame-Tamer.™ From Manville.

Announcing Flame-Tamer.™ It's a new cant strip made from genuine Manville Cant Board, a high density laminated board made of high-strength fibers and expanded perlite. As a result, it offers exceptional fire resistance and strength.

In fact, Flame-Tamer™ has far greater fire resistance than wood fiber cant strip. That's an important consideration in any roofing system but especially applicable to torch-applied, modified bitumen systems. In the ASTM E-84 Tunnel Test, wood fiber cant strip had a flame spread of 103 feet in 10 minutes. Flame-Tamer, on the other hand, had a flame spread of only 42 feet.

Flame-Tamer Cant Strip is produced by Manville Authorized Tapered Fesco Fabricators and is available in all standard sizes from your Manville Distributor. In addition, they can also supply tapered edge strip of Flame-Tamer material in a variety of sizes.

Flame-Tamer is a premium product that's yours at less-than-premium prices. For information, see your local Manville Distributor or contact Manville, P.O. Box 5108, Denver, CO 80217. (303) 978-4900. For export, telex 454404 JOHNMANVL DVR.



Flame test: Flame-Tamer (right) self extinguishes within 1 minute. Wood fiber (left) continues to smolder.

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Jesse Pickett to head American Subcontractors Association

Jesse M. Pickett Jr., executive vice president of General Steel Fabricators, Inc., Latham, N.Y., was elected president of the American Subcontractors Association (ASA) at its annual meeting on March 8.

Pickett, currently ASA's first vice president, is a member of ASA's National Executive Committee and chairman of its Legislative Committee. He was elected to the ASA Board of Directors in 1979. Pickett is also active in the Northeastern Subcontractors Association, based in Albany, N.Y., and the ASA of New York State. He will assume his duties as ASA president July 1 and serve a one-year term.

Other officers elected were: first vice president, John T. (Tommy) Parker, Carolina Dredging Co., Charleston, S.C.; second vice president, M.R. (Mac) Sullivan Jr., Sullivan Mechanical Contractors, Shenandoah, Va.; treasurer, Roland E. Kinser, Atchison and Keller, Inc., Washington, D.C.; secretary, Thomas J. Godwin of D and G Electric, Inc., Birmingham, Ala.

Elected to three-year terms on the ASA Board of Directors were: I. Sharon Fischer, Priceless Industries, Inc., Baltimore; Ben C. Griggs, Desert Painting and Drywall, Inc., Phoenix; Dan McGlone, T.J. McGlone Co., Inc., Edison, N.J.; and Floyd Warkol, Warkol Mechanical Corp., Bronx, N.Y.

Recently appointed to the ASA Board of Directors to fill unexpired terms were Gene Lee, Lee Masonry, Hamilton, Texas; and Jim Novinger, Novinger, Inc., Harrisonburg, Pa.

CRC thanks survey respondents with potable prizes

The Corporate Research Center (CRC) has announced the six winners of the drawing it held to thank the roofing contractors, wholesalers and retail outlets that responded to the first phase of CRC's 1986 Survey of the U.S. sloped/inclined residential and small commercial roofing industry. Each of the winners will receive a bottle of Glenlivet Single Malt Scotch Whiskey.

The winners were: Don Summers, Specialty Roofing, Inc., Peoria, Ariz.; Jeff Phillips, Wicke's Lumber, Bradenton, Fla.; Jeffrey F. Kelly, Myles F. Kelly, Inc., Newark, N.J.; Don Durchslag, Singles Roofing Co., Elgin, Ill.; Beryl Buffington, Farmer's Cooperative Society, Garner, Iowa; and Raymond Dees, Hathcock Roofing and Remodeling Co., Inc., Dothan, Ala.

CRC is polling companies involved in the sale and installation of sloped and inclined roofing materials to contractors, builders and the public. The second phase of the study is in progress. The entire survey will be completed and available later in 1986.

For information on the surveys contact: Jermym Slott, project coordinator, CRC, 2204 Morris Ave., Union, N.J. 07083; 201/687-5292, or Pan Am Building, 200 Park Ave., Suite 303E, New York, N.Y. 10166; 212/883-0835.

IRWC elects officers and certifies members at annual meeting

F. Lee Russell of American Roofing Consultants, Spencer, N.C., was elected president of the Institute of Roofing & Waterproofing Consultants (IRWC) at its general meeting on Feb. 9 in Las Vegas. Also elected were Kenneth Schneider, Nashville, as vice president and Gerald Curtis, Haddonfield, N.J., as secretary/treasurer. Sitting on the Board of Directors are George Criel, Arlington Heights, Ill.; Daniel Moriarty, Dallas; Donald Dorner, Orlando; James Koontz, Hobbs, N.M.; and Al Alesi, West Carrollton, Ohio.

Founded in 1973, IRWC restricts its membership to those consultants in the roofing and waterproofing fields who meet its strict education, training and experience qualifications.

IRWC has also completed its first certification examination. Consultants who passed the test received the designation Certified Professional Roof Consultant from the Institute. The examination encompassed 10 basic categories: general design, decks and substrates, new construction, rehabilitation and retrofit, membranes and vapor barriers, insulation, penetrations, flashings and sheet metal, repairs, and maintenance.

The following IRWC members received the Certified Professional Roof Consultant designation: Al Alesi, W. Carrollton, Ohio; Frank Balistreri, Waukesha, Wis.; George Criel, Arlington Heights, Ill.; Gerald Curtis, Haddonfield, N.J.; Donald Dorner, Orlando; Rainer Gerbatsch, Glen Rock, N.J.; Matt Hitlin, Atlanta; Heydon Lewis, Littleton, Colo.; James Magowan, Pleasanton, Calif.; Eugene McCormick, Glenview, Ill.; E.S. Mollenhoff, Honolulu; F. Lee Russell, Spencer, N.C.; and Kenneth Schneider, Nashville.

For more information about IRWC's certification program, contact Patricia Keating, executive secretary, 4415 W. Harrison St., Suite #242-C, Hillside, Ill. 60162.

ASC's Wilkinson honored with Recognition Award

Robert L. Wilkinson, president of the Associated Specialty Contractors, Inc. (ASC), was recently honored by the American Subcontractors Association (ASA) at its annual convention "for his lifelong dedication and service to the construction industry." A. E. Marchbanks, president of ASA, said during the presentation at the ASA Breakfast of Champions Award Ceremony, "I have never met an individual who is more knowledgeable about the intricacies of our profession than the winner of ASA's Special Recognition Award, Robert L. Wilkinson."

Last-minute, pre-Easter activity brings Congress to life

Congress tackled a number of major issues and new legislation in a flurry of activity just before its spring recess. Most of this action took place on the committee level.

Among the work accomplished during this period was a defeat of the administration's proposed 1987 budget. In its place, Senate Republican and Democratic members proposed a package that contained less for defense, fewer cuts in domestic programs and tax increases. The budget deficit with this plan is $144 billion, which meets the Gramm-Rudman-Hollings deficit target.

The Senate also passed immigration reform legislation. The House version of the bill is seen as a possible threat to small business interests.

Of particular interest to unions and management is an upcoming Senate vote on a bill that would make labor union violence or threats of violence a crime. Labor unions are now exempt from federal anti-extortion laws under a 1973 Supreme Court decision. There is considerable support in the business community for this bill.

Other noteworthy, but stagnant, items include the liability insurance issue, on which hearings continue; the parental leave bill, which could be a prelude to a federal law requiring paid leave by all employers; and tax reform.

Affirmative action debate fueled by Justice Department report

Factions in the federal government are still arguing about whether affirmative action requirements are actually illegal quotas in disguise. A statement released by the Department of Justice (DOJ) on March 28 claimed that the Labor Department's Office of Federal Contract Compliance Programs (OFCCP) is imposing quotas on contractors in the hiring of women and minorities.

Accompanying the Justice Department's accusations was an analysis of agreements and letters of commitment negotiated between federal contractors and OFCCP. The examples cited in the documents indicated that the Labor Department was using a quota system. The 55 conciliation agreements and letters of commitment released in the DOJ report generally cited contractors for failing to meet hiring goals for women and minorities, and for not taking steps to hire Vietnam veterans and the handicapped. In almost every case recorded in the documents, OFCCP required the contractor to file documentation of good faith efforts to reach these goals.

DOJ, according to spokesman Terry Eastland, objects to OFCCP in citing contractors for failure to reach a goal. The Office is, in effect, forcing contractors to take "race and sex into account in an unjustified manner," according to Eastland.

The Labor Department, however, does not believe the documents released by DOJ fairly represent the Deartment's efforts. David Demerest, a Labor Department spokesman, pointed out that the 55 cases cited represent only a "small sample" of the 14,000 letters of commitment and conciliation agreements signed in the same period. Demerest claimed that OFCCP's policy is to "measure a company and its affirmative action efforts on the basis of good faith efforts, not on meeting a goal." He suggested that the problems the documents illustrate is that imprecise language is being used in these conciliation agreements. The solution would be to correct the language rather than scrap the whole program, he said.

Demerest also claimed that the cases reported were referred to the Attorney General by organizations or private individuals who were suffering the repercussions of the program.

Eastland acknowledged that most, if not all of the cases cited by DOJ involved construction contractors, and that these cases were sent to the Department by the Associated General Contractors (AGC), an outspoken opponent of affirmative action.

AGC is not alone in its efforts. The American Subcontractors Association (ASA) and the National Construction Industry Council have also been lobbying for a new executive order on affirmative action. A. E. Marchbanks, ASA president, believes the existing executive order governing the affirmative action program sets arbitrary goals that have no statistical base. He stated his position, saying, "ASA is opposed to the use of quotas, goals or other numerical standards to measure affirmative action by employers. "Such quantitative standards lead to harrassment, abuse and reverse discrimination."

Despite these protests, the White House will probably not make any changes to the program right away. Instead, the administration will delay any decision until after the Supreme Court rules in the three affirmative action cases before it this term, many believe.

IN BRIEF

- **A new American Subcontractors Association (ASA) brochure** may help contractors deal with bureaucratic foot-dragging, paper-shuffling and general inefficiency. Titled "Coping with Red Tape," this brochure offers practical advice on how to find the right person in government to resolve problems, how to work through any bureaucratic maze, and how to organize communications efforts to get results. "Coping with Red Tape" costs $1.50, and may be ordered from ASA, 1004 Duke St., Alexandria, Va. 22314
- **The Senate Commerce Committee** is expected to consider product liability reform legislation this spring. Of the provisions being considered, the following have gained the support of the business community: holding manufacturers liable only when their conduct is unreasonable, considering whether plaintiffs were responsible for their injuries, eliminating capricious litigation, establishing a reasonable statute of limitations, and developing clear guidelines on product warnings.

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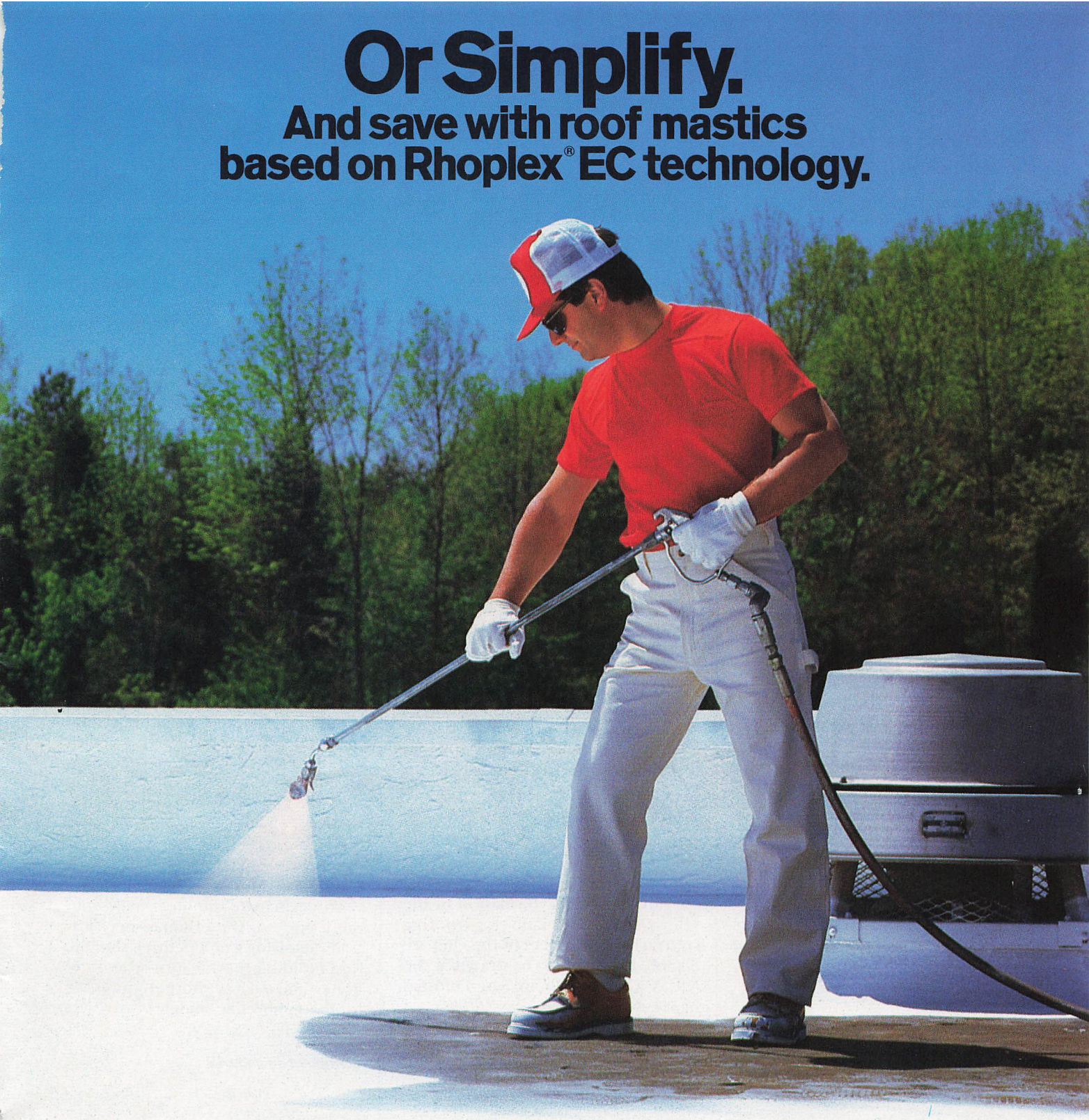

Most roofing systems end up working against you. They take too much time to install. Too much manpower. And a lot of equipment.

A roof mastic based on Rhoplex EC technology is the simple solution. It's a liquid roof coating that sprays, brushes or rolls right on and cleans up fast with water. It's also seamless and self-flashing. And the savings in time and labor can add up to the lowest cost per square foot applied.

Maybe you want to fix up an old roof. Or put on a new one. Or extend the life of an existing roof. It will pay you to look at the quality and proven durability of roof mastics based on Rhoplex EC technology.

Whether used over a prepared substrate or as a separate system with polyurethane foam or modified asphalt directly on the deck, Rhoplex EC technology offers excellent resistance to dirt pickup and UV degradation. Even ponded water. And it delivers exceptional durability and flexibility. That kind of performance means fewer call backs.

What could be simpler than roof mastics based on Rhoplex EC technology? Finding out about it. Just call your local manufacturer or call Bruce Nebens at (215) 592-2664.

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PHILADELPHIA, PA. 19105

Before application of any roofing systems, be certain they are permitted by local building codes or other authorities.
Rhoplex is a registered trademark of Rohm and Haas Company.

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Genstar acquired by Canada's Imasco

Early last month, the San Fransico-based Genstar Corp. was acquired by Canada's Imasco, Ltd., according to an article in *The Wall Street Journal.* Genstar agreed to the deal only after Imasco increased its bid to $41.69 a share, or $1.68 billion.

Genstar is a Canadian company with control of Canada's largest trust company, Canada Trustco Mortgage Corp. as well as holdings in real estate, building products and waste management operations.

According to the article, Imasco, the parent of Imperial Tobacco, Ltd., Canada's dominant cigarette maker, may sell some of Genstar's assets, but will probably retain Canada Trustco, thus reducing Imasco's dependence on Imperial Tobacco, the source of 50 percent of its profits.

ASC Pacific opens roll forming plant

ASC Pacific, Inc., a metal building components manufacturer, opened a state-of-the-art roll forming plant in Fontana, Calif., a suburb of Los Angeles.

The plant, the newest of 10 fabricating plants operated by the Tacoma-based company, manufactures a complete range of roof and floor decking and building products for industrial, commercial, agricultural and residential use.

"The new Fontana plant is one of the most advanced facilities of its kind in the Western United States. It contains computer-programmed equipment that produces at unequaled efficiency," said John F. Cockburn, president of ASC Pacific.

The 655,000-square-foot plant roll-forms steel products integral to high- and low-rise construction. The plant has the capability of roll-forming up to 3,000 tons of steel per month.

Its two key production lines form purlins and decking. Purlins are the structural sections used for roof and wall framing in metal buildings. Decking is used in the construction of roofing and flooring in high-rise buildings.

The plant will employ 70 persons and represent a $1.5 million payroll for the area.

ASC Pacific is an American subsidiary of the Australian steel, mining and oil company, Broken Hill Proprietary. A $100 million U.S. company, ASC Pacific also operates plants in California, Texas, Alaska, Washington, Arkansas and Arizona. With the addition of the Fontana plant, ASC Pacific will be able to produce more than 100,000 tons of fabricated steel annually.

ARC institutes "Buy American" club

The American Roofing Corp. (ARC) has announced the formation of the "Buy American" club for roofing contractors. Members of the club are eligible for prizes to be drawn at the NRCA Convention in San Fransico next February.

Prizes include trips to Hawaii, Paris and Australia as well as hundreds of other gifts. Members will receive "Buy American" truck decals, a wall plaque and a V-neck sweater with the club emblem attached.

Roofing contractors can receive eligibility rules and an application to join the club by writing to Bud Jansen, national sales manager, 3100 S. California Ave., Chicago, Ill. 60608; 312/376-1110.

Lord appoints new adhesives distributors

Aero Products of Omaha, Neb., and Southern Industrial Resources in Marietta, Ga., have been appointed authorized stocking adhesive distributors for Lord Corp.'s Industrial Adhesive Division.

Lord is a technology-based firm in Erie, Pa., with seven plants in the United States as well as extensive operations overseas.

GAF announces rebate/incentive program

Contractors purchasing Royal Sovereign® asphalt/fiber glass shingles during the second quarter of 1986 are eligible for a rebate of 50 cents per square in a new rebate/incentive program sponsored by GAF Building Materials Division. Builders who switch from an original roofing specification to Timberline® fiber glass/asphalt shingles will get $1 per square.

To qualify for the rebate, contractors should submit proof of purchase to GAF for Royal Sovereign shingles purchased between May 1 and June 30, 1986.

According to the terms of the Timberline incentive, any builder who converts projects of 100 square feet or more to Timberline between April 1 and Sept. 30, 1986, is eligible.

To participate, builders must submit a copy of the original specifications featuring a competitive shingle, the building permit for the new home, and a dated proof of purchase for the Timberline shingles.

continued on page 19

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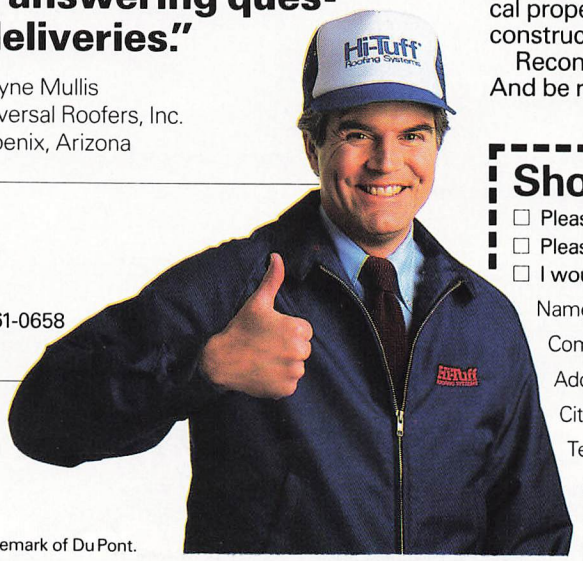

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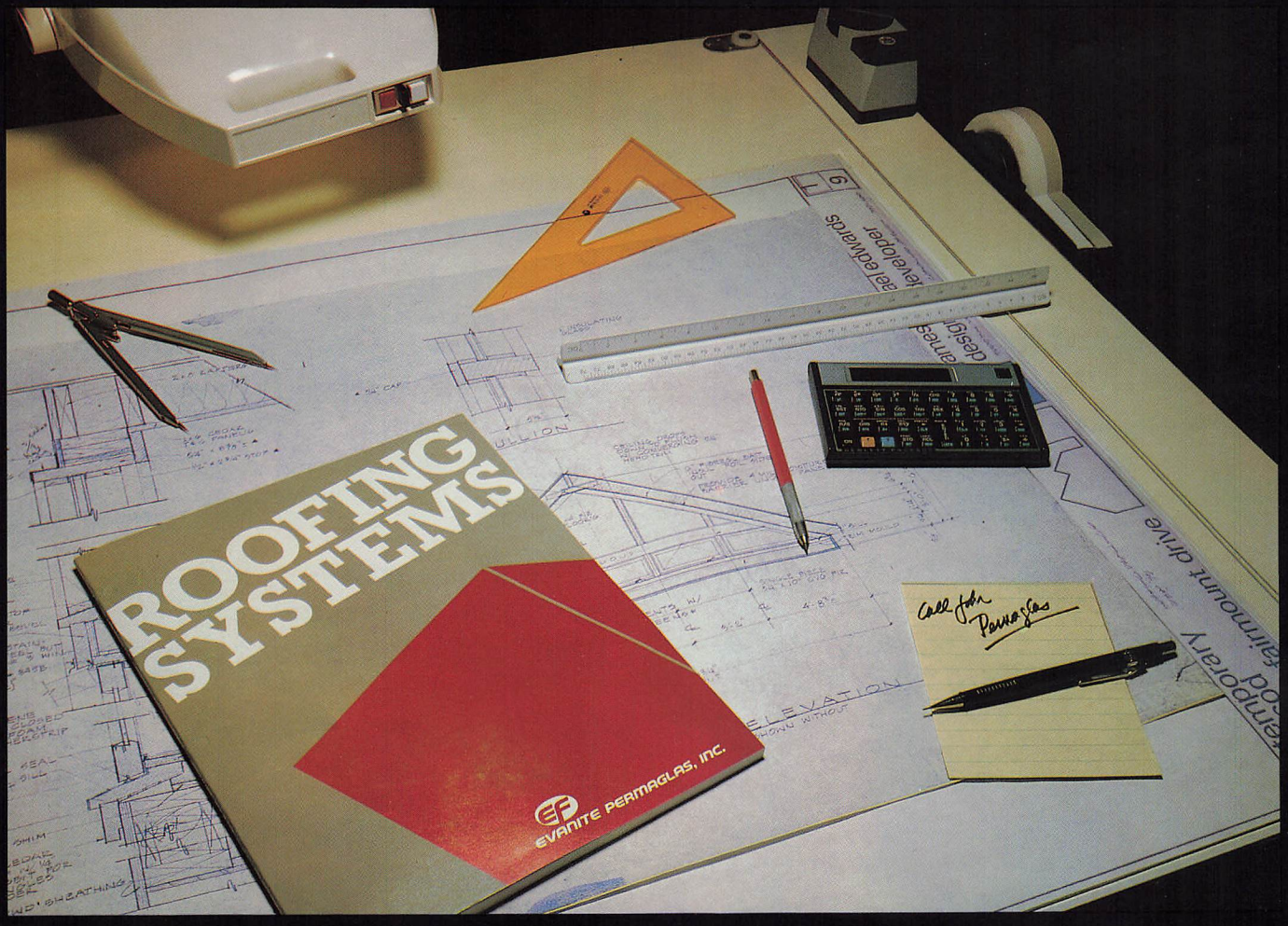

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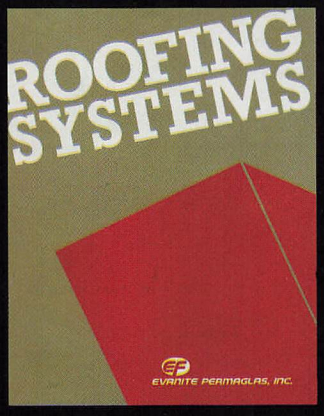

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Carlisle invests $10 million in equipment

Carlisle SynTec Systems is pumping $10 million into new manufacturing equipment that will allow the company to produce an additional 265 million square feet of Sure-Seal membrane. Included among the new technology will be two extruder-roller dies along with curing and finishing equipment. Installation of the new machinery in Carlisle, Pa., will begin within the next few months, and it is expected to be operational early in 1987.

Robert A. Brown, president of Carlisle SynTec, said that the new technology provides the basis for developing new materials and new systems for the future by allowing greater flexibility in processing capabilities.

Transmet chooses two to market aluminum chips

Transmet Corp., a Columbus, Ohio, manufacturer of rapidly solidified aluminum particles, has announced the appointments of ARTech, Inc., and ARS as exclusive sales agents for their reflective aluminum roofing chips.

Transmet President Donald L. Cullen explained that the company's decision to hire two sales agents stemmed from the two ways in which aluminum roofing chips can be applied: on site or in the factory. "Since these represent two distinct marketing approaches, it made sense to have two sales agents, one agent for each market," said Cullen. "Two sales agents operating in their own areas of expertise will provide the contractor with a choice of methods to get these unique reflective chips on the roof."

ARTech, Inc., is located in Columbus, Ohio, and will be targeting contractors who would apply the chips on site. They will market the product through a nationwide system of distributors.

ARS, headquartered in Long Beach, Calif., will be marketing the reflective chips to manufacturers of roll products for application in the factory.

Firestone chooses New York ad agency

Firestone Building Products Co., a division of the Firestone Tire & Rubber Co., has announced its association with the advertising agency of Calvillo, Shevack & Partners, Inc., of New York City.

Citing Firestone's rapid growth in the single-ply segment of the commercial roofing industry, Firestone General Manager Sunil Kumar hopes the Calvillo connection will strengthen his marketing communication program and help maintain Firestone's momentum.

UCI enters agreement with Canadian company

UC Industries, Inc., (UCI) of Parsippany, N.J., has entered into an exclusive licensing agreement with Canada's Celfort Limited Partnership that permits Celfort to use UCI's patented process technology to manufacture rigid foam extruded polystyrene insulation. Celfort is the creation of a private investor and Jannock, Ltd., a prominent Toronto-based diversified manufacturer with established markets in the building materials industry. J.L. Weinstein, president of UCI, said that under the terms of the agreement, UCI will also provide Celfort with ongoing research and development as well as technical assistance in the production of the insulation.

Celfort's president, John Zacharias, announced that construction will begin immediately on a plant near Valleyfield, Quebec, with next fall targeted as the beginning of production. The facility will eventually involve two production lines for the full range of products similarly marketed by UCI in the United States. UCI manufactures and markets the product here in the United States under the brand name Foamular.

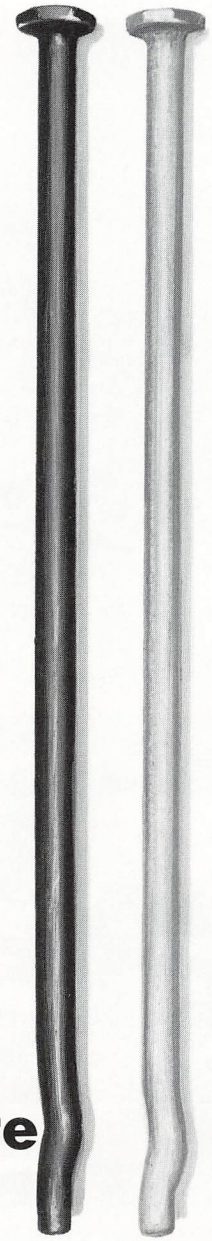
H. Gordon MacNeill, president and chief executive officer of Jannock, commented that the project will complement the corporation's brick-making operations in central Canada and provide the Canadian building industry with a viable insulation product.

Huntsman moves to top spot in industry

Huntsman Chemical Corp., a Salt Lake City-based petrochemical plastics manufacturer, has acquired American Hoechst Corp.'s polystyrene, expandable polystyrene and styrene monomer businesses. This acquisition makes Huntsman the number one company in the polystyrene industry, with 1986 annual revenues projected in excess of $500 million.

Included in the package are research facilities and polystyrene plants in Chesapeake, Va., and Peru, Ill. Huntsman also acquired Hoechst's marketing operation for styrene monomer, the raw material used to produce polystyrene.

Hoechst will continue to operate the company's Bayport, Texas, plant exclusively for Huntsman for five years. After the five-year period, Huntsman will acquire the Bayport plant, which produces more than 1 billion pounds of styrene monomer annually.



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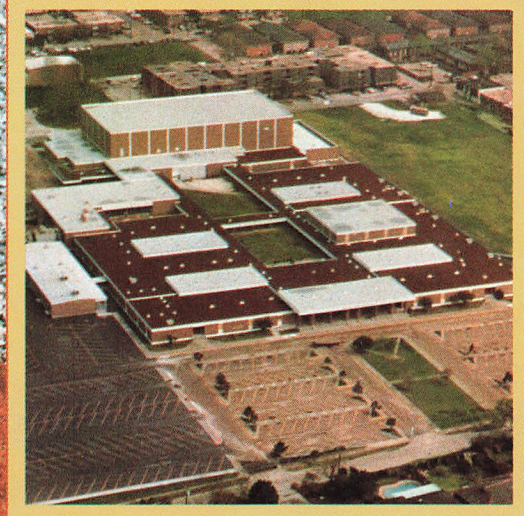

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Jim Whittier resigns as MCRA legal counsel

Jim Whittier will no longer serve as the Midwest Roofing Contractors Association's (MRCA) legal counsel because he is withdrawing as a partner of the law firm of Spencer, Fane, Britt & Browne effective June 1, 1986.

Whittier served MRCA during the entire 20 years he had been with the firm. He has managed the Association's many activities and conventions since he was named executive director in 1976.

Bay area contractor exposed as fraud

Magnum Roofing's half-page ad in the Oakland Telephone Directory's yellow pages proudly touted its virtue as a 13-year-old San Francisco Bay Area company. The facade of legitimacy was further enhanced by footnotes in the ad that claimed the company was "Insured BU(P.L.) & P.D." and licensed by the state.

Magnum's scam might have gone on indefinitely had it not been for a concerned call to the Associated Roofing Contractors of the Bay Area Counties, Inc., from Bill Johnson of Oakland's Vista Roofing Co. early in December. Johnson told John Upshaw, the Association's assistant executive director, of several complaints he had received within the last two weeks from consumers who had entered into roofing contracts with a Magnum salesperson using Vista's license number. Two of the consumers had paid money up front to a man by the name of Ray Cruz, who had allegedly started one of the projects and then abandoned it. Cruz had also taken another consumer's deposit without following up on the job, it was claimed.

Johnson's complaint was passed through the Association to the California Contractors State License Board's (CSLB) Oakland office, which immediately began an investigation. Within five days, the CSLB referred its findings to the Alameda County District Attorney's office, which then issued a six-count felony and consumer fraud complaint against Cruz. The charges included three counts of grand larceny and three fraud counts, arising out of the use of another contractor's legal license number.

Ironically, as soon as the allegations against Cruz were brought by the District Attorney's office, it was discovered that a warrant existed for his arrest on charges of alleged armed robbery.

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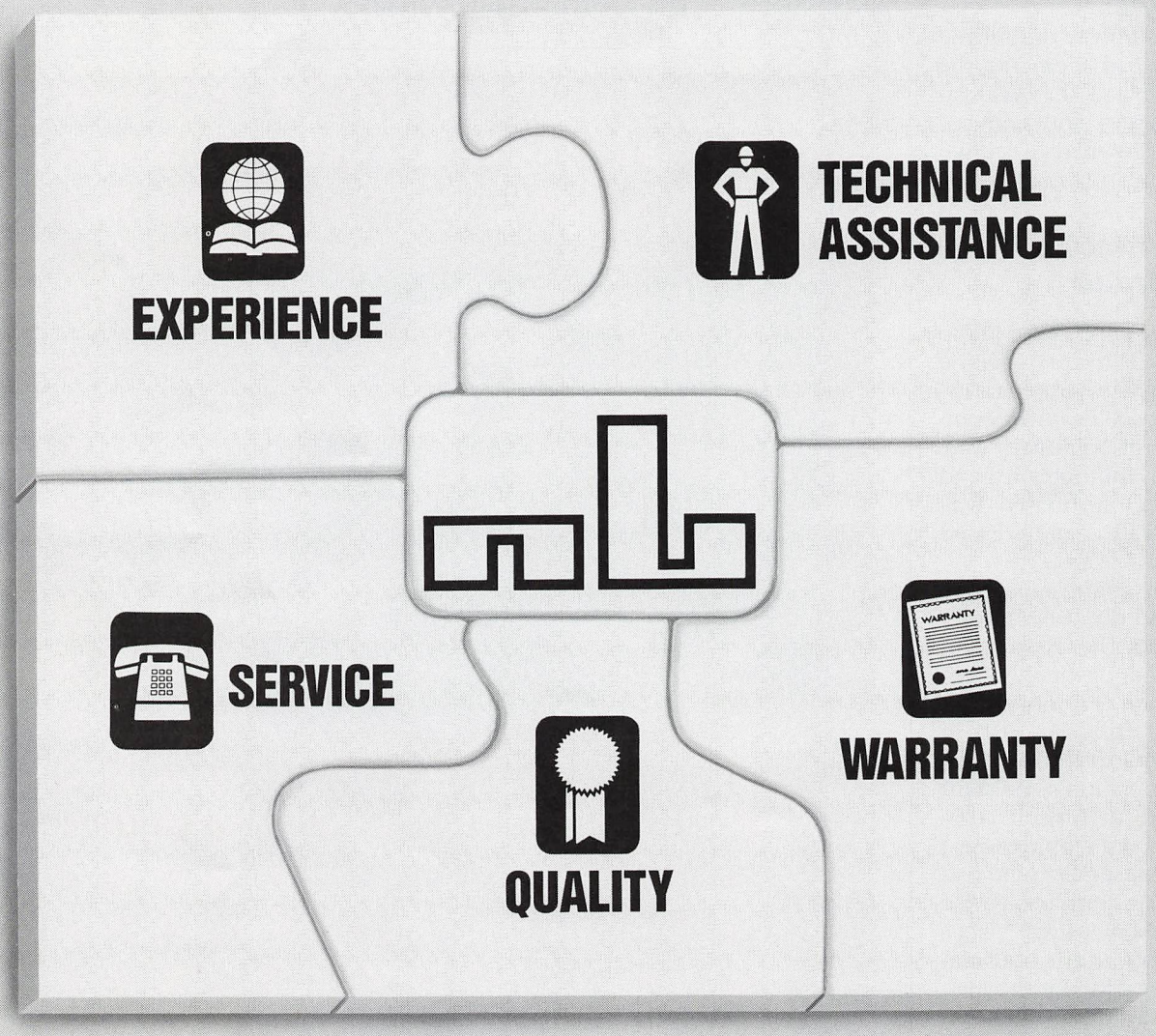

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White vs. Black: does membrane color matter?

A little good and bad in both

by Jerry DeMuth

In the roofing game, everyone's looking for an edge, some advantage that makes their product the right choice for at least a segment of the roofing market.

The manufacturers of white roofing membranes believe they've found their edge. They claim that their white roofs wear better, look better and save more energy than their black counterparts. As one manufacturer says in its literature, the white color "reflects sunlight, lowering internal building temperatures, reducing the load on air conditioners and prolonging membrane life." While no manufacturer is selling its product on the merits of color alone, most devote at least a paragraph in their brochures to the benefits of a white surface.

Despite these manufacturer's claims, the jury is still out on white roofing's superiority. Some industry experts are taking a hard look at the energy efficiency and weatherability of these products as well as the ability of traditional roofing to offer the same benefits.

Upon reflection

The manufacturers of white roofing base their claims on their products' ability to reflect the sun's rays. This keeps the roofing system and the building's interior cooler during the day, they say, reducing cooling costs.

The Du Pont Co., which manufactures Hypalon®, a white synthetic rubber that is used in some single-ply membranes, has studied the effects of white roofing on energy costs. According to Du Pont's computerized research, "Cumulative annual energy consumption for the combination of both heating and cooling is less for white roofing based on Hypalon than conventional black roofing materials, despite geographic location." Over a 10-year period, an owner of a commercial building in Phoenix would save $1.16 per square foot (based on 1984 costs), while in Chicago an owner would save 38 cents per square foot, the company claims.

Citing another computer study, DuPont reports that Hypalon's white surface can reduce air conditioning loads from 33 to 66 percent. "At the same time," according to the company, "the program indicates that the heat loss in winter is negligible."

Many manufacturers also state that their white membranes weather better than black materials. Because the system remains at a nearly constant temperature throughout the day, they reason, it is not subject to the life-shortening stresses experienced by roofs that must endure daily heating and cooling cycles.

Most of these claims are being made by plastomeric single-ply manufacturers. Their products are based on such chemicals as Hypalon (its generic name is chlorosulfanated polyethylene or CSPE), chlorinated polyethylene (CPE), polyisobutylene (PIB), or polyvinyl chloride (PVC). High reflectivity is only one of the benefits these products offer, according to the manufacturers. Some also resist the damaging effects of ultraviolet radiation, fire, oils or chemical contamination. In addition, these systems may be easier to install than traditional roofing, with seams that may be either heat welded or glued.

Some EPDM manufacturers have also experimented with white rubber roofing, but these membranes have not met with much success. Both Carlisle SynTec Systems and Firestone Building Products Co. have produced white roofs on a trial basis but have rejected the idea of full production because of dissatisfaction with the membranes' quality, according to persons at each company. They found that when they substituted titanium dioxide or other white chemicals for the carbon black that is used as a filler in rubber roofing, they lost some of the benefits, such as strength and ultraviolet radiation resistance, that the carbon black provided.

Jerry DeMuth is a free-lance writer based in Chicago.

It may not be necessary to abandon the use of black bituminous or EPDM systems to gain the benefits of reflective roofing.

Black roofs may be lightened

It may not be necessary to abandon the use of black bituminous or EPDM systems to gain the benefits of reflective roofing, however. Paints, coatings and surfacings as well as light-colored ballast may also add some degree of light and heat resistance to a dark-colored roof membrane. Don Backenstow, director of research and development for Carlisle, said that 60 percent to 70 percent of his company's business involves ballasted roofs "because it's a relatively inexpensive way of providing a reflective covering; it's very cost effective."

Coatings may need more maintenance than building owners can provide or afford, however. Some paints will need to be reapplied every few years. Dave Bailie, marketing services manager for Firestone, says the white Hypalon-based paint his company sells to coat its black EPDM roofs "has to be put down in the right thickness in the right way or problems can occur; it may chip off, flake or peel."

Depending on ballast to protect a black membrane has its drawbacks, too. In addition to adding weight to the system, the ballast can increase costs and installation time. Also, the ballast can thin out or move, making the membrane in that spot more susceptible to heat and ultraviolet radiation, according to Steve Condren, technical director for Cooley Roofing Systems, manufacturers of white CPE single-ply roofing. Another problem with systems, such as EPDM, that are ballasted with round washed river rock is that the ballast is really light tan, not white. Bailie explained that the pure white stone that would offer the greatest reflectivity has sharp edges that could damage the membrane.

Getting results

Before choosing any membrane or surfacing to achieve a white surface, the professionals involved in the decision should make sure the choice will produce the desired results. If a white roof is preferred for aesthetic reasons, the choice is simple. "Our research shows that white membranes have the most appeal in new construction," says Bailie. "If the building owner and the architect are interested in beauty, white is prettier than black."

But if a reduction in cooling costs is desired, a white roof may not be the better choice. A host of factors in addition to the membrane's reflectivity will determine a roof system's energy efficiency. In some instances, the installation of a reflective roof will reduce the owner's overall energy costs, while in others a white roof will make no difference at all.

"Every building is unique, depending on how they insulate the walls, how they insulate the roof, and whether it's a retrofit or new roof," says Cooley's Condren. "Each individual building has to be carefully evaluated before determining which roofing system is right for it."

One factor that must be considered is the roof assembly's overall insulation value. "If there's an R-value of at least 15 on the roof, it doesn't make any difference what color the roof is going to be because the effect on the cooling savings is going to be negligible," according to Charles N. "Rusty" Griffiths Jr., president of Binghamton Slag Roofing Co. in Binghamton, N.Y.

Backenstow agrees with Griffiths, but his view of white roofing's effectiveness is even more pessimistic. According to his estimates, a white surface will be most beneficial on roofs with an R-value of 10 or less. "Above that the extra cost of a white roof doesn't justify the savings," he said. "If it costs another 20 or 25 cents a square foot to put the white down, it takes a long time to get that back in air conditioning savings."

Because the benefits of reflective roofing are unnoticeable on high R-value roofs, the use of white membranes may be limited to regions of the country where less insulation is used. Griffiths says that in the Northeast, for instance, white roofing does not make economic sense. In this area, most roofs are being upgraded to at least an R-value of 7, while the average roof there has an R-value of 15. Even if a roof in the Northeast has little insulation, however, it should not have a white surface, Griffiths believes. By reflecting the sun's rays in the winter, the white membrane might actually raise the cost of heating the building, he explained. And in a region where winter heating costs can exceed summer air conditioning costs, this can lead to an overall increase in energy expenses.

Taking a stand in Dixie

In the Southern half of the United States, however, where less insulation is used, the demand for reflective roofing is increasing. Condren notes that in some areas of the South, such as parts of the Southeast, roofs have so little insulation value that the heat a roof absorbs during the day can easily affect the building's interior temperature. In North Carolina, for example, where the daytime roof temperature of a black membrane can reach 160F, a white roof, which will only climb to about 5 degrees above the air temperature, will cut energy costs by about 5 percent, he said.

Former NRCA president and Phoenix roofing contractor Wayne Mullis says that in his region no one wants a black roof anymore. The building owners in the Southwest have discovered that the use of a reflective material can result in a 10 to 20 percent reduction in their air conditioning bills.

To lighten the color of Southwestern roofs, contractors in that area have been experimenting with several different methods, according to Mullis. "Reflective coatings don't necessarily have to be white," he said. "In fact, the best one is sort of a violet-colored vinyl. That reflects the most heat. But no one wants a violet roof." The most popular roofing in the Southwest is a built-up system with white mineral granules embedded into the sheet, Mullis said. Contractors are also painting their roofs with aluminum or other coatings to make them more reflective.

One of the reasons owners in the South and Southwest prefer white coatings to white single-ply systems is cost. Painting a low-cost traditional system is cheaper than installing a plastomeric single-ply. According to Backenstow, the Southern climate makes it possible for designers and contractors to specify white-coated two-ply systems that cost only 80 cents to 90 cents a square foot. He says that Southern buildings "generally can get by with a lower performance system because the weather isn't severe; it doesn't go from cold to freeze to thaws to hot."

The coatings themselves also fare better in the mild climate, Backenstow says. Painted roofs that must endure harsh weather may need to be repainted as often as every three or four years. In the arid Southwest, however, a painted coating might last as long as 15 years, he suggested.

Condren agreed with Backenstow that painting roofs is a common practice in the Southwest, but he isn't sure it's providing a satisfactory level of performance. "In the Southwest they put an inexpensive roof on and paint it white," he said. "It only leaks when it rains, and it doesn't rain very often, so they can get away with that. But the industry in that area is finding they're paying the price by having to reroof every few years."

Phoenix roofing contractor Wayne Mullis says that in his region no one wants a black roof anymore.

Each system, whether white or black, coated or ballasted, has its good and bad points.

Other white roofing products are also being used more frequently in the Southwest, according to Mullis. In recent years, the use of CSPE has increased in the Phoenix area. The material is applied either as a liquid coating or as a single-ply membrane. Mullis says that the use of a white Hypalon-based membrane can make an installation easier by eliminating the need for a coating or ballast. "That's one step you don't have to do," he said. "That certainly helps the product."

Mullis' own company, Universal Roofing, has been installing CSPE roofs for the last four years. "So far, so good," he commented. "But with longevity, I have no idea how it's going to do. It looks like it's going to be fine, but it's a little early to tell. In the 30 years I've been around this business, I've learned not to make predictions."

Durability a concern

As Mullis' remarks illustrate, the longevity and durability of the systems are major concerns for many who are considering installing a white membrane. They worry that expensive replacements or repairs will quickly eat up any savings in cooling costs a reflective roof might offer.

Even the amount of dirt and dust in the atmosphere will affect a white membrane's performance, some believe. As a roof gets dirty it becomes less reflective and it begins to absorb more sunlight and heat. Backenstow, observing that a white roof will darken and absorb more heat, said, "The cost calculations get a little funny over time." He recommends that a white roof should have a slope of 3/16 inch per foot to allow dirt and water to drain off.

Referring to white roofs as a maintenance item, Backenstow says that a building owner should be aware that he'll have to invest some money to preserve the roof's original properties. "We've always felt it's difficult to provide long-term performance with a white roof," he commented.

This concern may not be justified in all cases, however. Some manufacturers claim their white plastomeric systems are actually more durable than black materials. Cooley, for instance, promotes its CPE membrane as having the highest ultraviolet radiation and ozone resistance of any single-ply product. These properties will help keep the membrane in service for more than 30 years, the company says. Cooley also points to its product's tear and puncture resistance, which, it says, comes from the polyester fabric that is used to reinforce the CPE.

"Our oldest installation will be eight years old this year and it's still a viable membrane," said Condren. "It hasn't lost any millage. The tensile properties essentially are unchanged. That would indicate the roof is going to go longer than its warranty life of 10 years."

Some white membrane manufacturers also claim that their products will last longer than conventional or rubber roofing on rooftops that are exposed to harsh contaminants or oils. On the other hand, as Carlisle's Backenstow points out, "Every polymer has a hit list of chemicals that will disturb it. Those that are more resistant to oil are less resistant to water."

Griffiths agrees that there seems to be a trade off between properties. "You have to analyze what the possible contaminants are and pick the best system for the possible contamination," he recommends. "Most of our Hypalon jobs have been for contamination problems, and with the PVC roofs we've installed, the major reason seems to have been the fire rating."

Weighing the good and bad

The widely varying opinions presented in this article may leave some readers even more confused about white roofing's desirability or effectiveness. Unfortunately, it is impossible to make a blanket statement about the systems. Each system, whether white or black, coated or ballasted, has its good and bad points. "You have to sit down and scratch the numbers, knowing the climate that's involved, and find what's attainable," says Carlisle's Backenstow. "You must determine what you are shooting for and what's the most effective way of doing that. To get a white roof you give up something in performance and so you have to weigh the pluses and the minuses."

Long-term warranties help single-plies get ahead

But sometimes leave contractors stuck in middle

by Jim Matthews

"Contractors are caught in a vice."

That's Chicago-area contractor Jay Refieuna expressing the frustration many roofing contractors feel over single-ply manufacturers' long-term warranties. They believe that they are called upon all too often to fulfill the unrealistic expectations the manufacturers' 10- or 20-year agreements create in the minds of building owners. Yet the contractors' objections to long-term warranties haven't caused a significant reduction in their use. Single-ply manufacturers continue to warrant roofs for longer and longer periods and roofing contractors continue to sell and install systems covered by these agreements.

For the last 20 years, single-ply manufacturers and installers have found the use of long-term warranties to be both a blessing and a curse. While warranties have helped single-plies gain a foothold in the roofing market, they have also placed greater burdens on the manufacturers and contractors who must fulfill their obligations. As the roofing industry continues to examine and debate the wisdom of long-term warranties, it must decide if the benefits that may be gained from their use outweigh the dangers that lurk behind the legalese and fine print.

Warranty wars

Long-term warranties are the products of fierce competition. There are 23 companies selling rubber roofing in the United States, and 20 to 30 manufacturers offering PVC, Hypalon and modified bitumen single-ply systems. For several years, manufacturers have been vying with each other and the BUR industry for more or less the same piece of the U.S. commercial roofing market. Early on in this struggle, Carlisle, one of EPDM roofing's pioneers, saw that a long-term warranty would give its products a definite marketing advantage over BUR. Manufacturers who followed Carlisle into the market copied many of its tactics and used the warranty as a way to build business.

Some believe that manufacturers no longer develop warranty programs to compete with other companies' agreements. Dave Bailie, marketing manager of Firestone's Building Products Division, said, "As far as Firestone's concerned, there's no war on. Of course, we revise our warranties from time to time, and note with interest how our competitors revise theirs, but we're not inclined to match or extend our warranties at the moment because we've already acquired considerable long-term liability. You can only offer so much."

Stephen Phillips, partner in the Atlanta law firm of Hendricks, Spannos and Phillips, and author of the warranty section of NRCA's *Commercial, Industrial and Institutional Roofing Materials Guide,* disagrees with Bailie. "I certainly think they used warranties as a principal marketing device," he noted. "In that sense, I think it's true that it is a warranty war."

The one point that almost everyone agrees on is that warranties covering materials and workmanship are being used to build sales. Bailie encourages contractors to use warranties to convince customers to buy single-ply rather than BUR. "One of the most powerful things contractors can mention is that Firestone, Carlisle, Goodyear or whoever offers a full replacement warranty for 10 years covering materials and workmanship, which you won't get from a BUR manufacturer," he said.

Because many credit single-ply's success to its aggressive warranty practices, there's little doubt that the industry will continue to use long-term warranties as a marketing tool. As Davenport, Iowa, contractor Jim Dietz says, "We have to use them to stay competitive."

Jim Matthews is a free-lance writer based in Chicago.

For anyone to benefit from long-term warranties, the manufacturer must be financially secure enough to cover its liabilities.

A roofing partnership

Contractors shouldn't become unnecessarily alarmed by the prevalence of long-term warranties. As long as manufacturers back up their agreements, contractors and building owners both come out ahead when 10- or 20-year warranties are issued. By accepting the financial responsibility for solving warranted roof problems, the manufacturer is shielding the contractor from demands for potentially costly repairs. The owner benefits from this arrangement because it increases the likelihood that the repairs will be made. Refieuna said, "The building owner is better off with a manufacturer warranty because of the liabilities involved. If you get a $1 million lawsuit against a small contractor, he'll go down the tubes, leaving the owner with nothing. But if you sue a large company, you have a much better chance of getting something."

Of course, for anyone to benefit from long-term warranties, the manufacturer must be financially secure enough to cover its liabilities. Dietz believes companies like Firestone, Goodyear and Carlisle can back up their warranties. "But some of the others may not be big enough to cover those things," he warned. "If I put on a roof and the manufacturer can't cover the warranty, I become the stuckee, and I don't care for that."

To avoid becoming responsible for the manufacturer's financial obligations, Dietz and others try to discover whether manufacturers can actually assume the liability of the warranties they issue. Bailie said that even companies as large and as well known as Firestone are sometimes checked out. "We've actually had owners write us to confirm that we are a division of the Firestone Tire and Rubber Co., and not just someone using that name," he said.

Bailie thinks this concern is justified and can help keep marginal companies out of the marketplace. "That's why a lot of smaller manufacturers back away from new business because architects are smart enough to check them out on behalf of their clients," he said.

A.L. "Pete" Simmons of Roofing Consultants, Inc., doesn't think owners check a manufacturer's ability to cover its warranties as carefully as they should. "Sometimes owners just go on the word of a fast-talking salesman and the manufacturer's slick product literature," he said.

Financial backing isn't the only thing the warranty represents. It also indicates the manufacturers' willingness to offer technical support. The warranty, in effect, makes the manufacturer and the contractor partners in the roofing process. Bailie said that because Firestone believes "we're in this thing together," the company has formed a contractor advisory council, and has responded to the council's recommendations. "For example, we revised our applicator agreement, trying to make it less troublesome for contractors," he said.

Dietz believes having a large corporation as a partner is helpful in other ways as well. "Carlisle's distributor tries very hard to give me good service, even to the point of getting on the phone to make things happen," he said. "I look to them for help and support, and they look to me for quality work so they can recommend the product to someone else."

Inspections part of the deal

Like any partner, however, the manufacturer will want to keep tabs on the work being performed. To do this, single-ply manufacturers have developed inpection programs that make sure the contractor follows the manufacturer's specifications and details. Most single-ply manufacturers inspect the job at completion, and some will even place inspectors at the jobsite during the installation. Under these inpection programs, the roof must pass the manufacturer's evaluation before a warranty will be issued.

While it's true that some contractors find inspections annoying, many appreciate having an extra pair of eyes examining the workmanship. Dietz said he preferred to have his work evaluated by Carlisle's inspectors, who, he says, are the toughest he's seen. "They really pick your job apart," he said. "But I think that's good. It's like anything else with quality control, they have to make sure we followed their specs. I'm all for that."

Firestone inspects jobs shortly after completion. Bailie said, "We try to do it within two weeks because contractors can't get their final payment on the job until they give our warranty to the owner, and we don't issue warranties until after

we inspect and approve the roof installation." To promptly handle all the requests for inspections, Firestone recently tripled its inspection staff.

Simmons doesn't believe one inspection at the end of the job is enough. He thinks contractors should ask manufacturers to make periodic inspections as the job progresses. He says this will increase the likelihood that problems will be spotted and corrected before it's too late. "If the manufacturer is going to give a system a warranty, but won't decide whether to issue it until after the roof is complete, I wouldn't even consider buying his guaranty," said Simmons. "I believe manufacturers will have to conduct a sufficient number of inspections during installation so they can accept or reject then, not after the fact."

Under the terms of most warranties it is possible for a manufacturer to reject a roof and refuse to issue a warranty even after the work has been completed. This is less likely to occur, however, when the manufacturer has had a chance to review the plans. "I always tell contractors how important the project documentation process is, even though it's a pain in the neck for them," Bailie said. "But they can help us simply playing by those rules. We hope that we'll catch anything that may be inconsistent with our specs before the contractor begins."

Bailie claims that about one-third of all preinstallation notices Firestone receives come in with a request for an inspection, indicating that the work has already been performed. According to Bailie, it would have been better if those contractors had sent the notices in at the proper time. This would have allowed Firestone to look at the job first, saving the contractors time and money in the long run.

Warranties have limited appeal

While there are some advantages to long-term warranties, their use hasn't made life any easier for most contractors. One disadvantage of long-term warranties is that even though they offer 10 or 20 years of coverage, they also limit the dollar amount building owners can recover from the manufacturer. The limiting language excludes a whole range of remedies ordinarily provided by the law. For example, no warranty covers damage to a building's contents caused by a leaky roof. When the owner discovers these limits, he's likely to file a claim against the contractor to recover his damages.

Other pitfalls may be found in the licensing agreements contractors must sign before the manufacturer will allow them to install warranted systems. Phillips said that tricky language in the license agreements is fairly common. "I'd say it's the exception rather than the rule for an agreement to make absolutely clear that the contractor's liability is just two years, and that after two years the manufacturer can't make any further claims against the contractor for workmanship or materials," he said. According to Phillips, most agreements give the impression that a contractor's liability is only for two years when in fact it may be for the entire warranty period.

Phillips warned contractors to examine the agreement carefully to avoid being burned. "We try to encourage individual contractors to read and understand the license-applicator agreement before signing it. If they lack the time or patience to read all the fine print, we've suggested that they get help," he said.

Phillips did offer some hope for contractors who discover unsatisfactory language in an agreement before they have signed it. "Once they know what they're signing and how the agreement can affect them, individual contractors may be able to negotiate with the manufacturer to change those particular parts of the agreement they don't like," he said.

However, some manufacturers may be unwilling to make changes. "While Firestone usually doesn't negotiate," Bailie noted, "I can't say we'd never change some words to make someone happy."

Worth the wait?

Some find the bureaucratic delays that seem to be a part of most warranty programs to be another disadvantage. "When the job's finished, we need to get the warranty to the owner," Refieuna said. "Some manufacturers will issue them to us based on our reputation, but others won't until after inspecting the roof. Sometimes that can take a couple of months." These delays

While there are some advantages to long-term warranties, their use hasn't made life any easier for most contractors.

Manufacturers must balance their desire to respond quickly with their need to assess the extent of their liability.

mean the contractor must wait for the final payment, which is contingent on the owner receiving the warranty.

The time it takes to settle a claim can also cause headaches. Refieuna noted that most manufacturers have a procedure contractors must follow to collect for repairs made under warranty. "If we go right out and fix or repair the damage without waiting for the manufacturer's inspector, we won't be compensated by the manufacturer," he said.

This can put contractors in a no-win situation. "Contractors may jeopardize longstanding business relationships if they don't respond quickly to an owner's request to fix a leak," Simmons said. "When you're talking about a big company with many buildings that require some sort of roofing work, contractors really don't want to cut off their noses to spite their faces by being unresponsive in emergency situations."

Many contractors faced with this dilemma will put the customer's needs first. They will do whatever's necessary to fix the leak, and worry about the warranty's provisions and getting paid later. This is the procedure Refieuna's company usually follows. "If it's an emergency, we'll normally go right out and fix the leak at our expense because the owner's next step is probably to call his attorney. And even if he doesn't have a leg to stand on, it costs me more to hire my attorney to defend me than it does to hire one of my men to fix the leak."

When the manufacturer refuses to reimburse him for expenses, Refieuna's tactic is to attempt to reach an equitable settlement with the building owner to share repair costs.

Bailie justified the lengthy warranty process by saying that the manufacturers must protect themselves. "We just don't issue warranties helter-skelter and hope they don't become problems later on," he said. Most manufacturers have established rigid procedures for issuing warranties and fulfilling their obligations during the warranted period, Bailie explained.

Manufacturers like Firestone must be equally careful determining a course of action when roof problems occur. They must balance their desire to respond quickly with their need to assess the extent of their liability. The manufacturers must first establish the cause of the problem and estimate the repair costs. Then, they must decide how much of the repair bill is covered by their warranty.

Bailie said, "If we find workmanship problems, the contractor is obligated to fix them whether he wants to or not. But we rarely have to call on the terms of the license agreement because our contractors will usually go out and correct a problem themselves." According to Bailie, the most frequent workmanship problem Firestone encounters among its licensed applicators is flashing details.

Manufacturers not always selective

The manufacturers have also tried to protect their liability by carefully screening the contractors who wish to become licensed applicators. When the single-ply companies first entered the roofing market, some sought out contractors known for their quality work and financial stability.

Other manufacturers, eager to enter the market, weren't quite so choosy. They would approach any contractor with a large job. According to Refieuna, "If I got a half-million dollar job, every manufacturer in town would be knocking on my door. Once you have the job, you can pretty much pick your manufacturer."

Refieuna hastened to add that not all manufacturers operated that way. "Some asked for our financial statements—which is good—and references," he said.

Dietz's experience closely paralleled Refieuna's. "Some [manufacturers] were selective in who they wanted to license, but some wanted to sell product and signed up just about anybody to do it," he said.

Dietz provided the best advice to contractors bewildered and frustrated by the aggressive warranty practices of the single-ply industry. Unswayed by extravagent claims, Dietz said he prefers to install quality manufacturers' products because he wants to avoid unneccesary problems.

CRC brings pros together for seminar on roofing problems

A football team guided by roofing industry principles wouldn't win a single game; the lack of communication between team members would quickly lead to chaos on the field. After a season of missed signals, inappropriate plays and fumbled balls, the team's morale and reputation would be shot. And worst of all, each player would blame the others for the team's failures. In short, the situation would be little different than the one the roofing industry finds itself in today.

Like any team effort, roofing requires players to understand their teammates' functions, limitations and problems. Yet most roofs seem to be designed, purchased and built by people who have little knowledge of the roofing process outside of their own responsibilities.

CRC brings pros together

Some roofing professionals are getting together, however, to discuss their needs and concerns, and reassure each other that they are, indeed, all working toward the same goal—quality roofing at a reasonable price. One such meeting was sponsored recently by the Construction Research Center (CRC) of the University of Texas at Arlington. For the two-day seminar, CRC invited a diverse group of experts to present their views of the roofing industry to the architects, consultants, building owners, manufacturer's reps and roofing contractors who had enrolled in the course.

The lineup of speakers for the meeting included Texas roofing contractor Jim Hollar, manufacturers' representatives John Busch of Manville, Riad Nimri of Southwestern Petroleum Corp., and Dave Richards of Owens-Corning Fiberglas; Herbert Coon, president of the Urethane Foam Contractors Association; architect Larry Garrison, AIA; attorney Bill Murphy; Roland Jary, P.E. of Southwestern Laboratories; and consultants Jim Koontz, P.E., and Steve Patterson, P.E. A handful of Texas-area manufacturers' reps were also on hand to display their products and pitch their services.

Discussions examine and critique industry

by Martin Eastman, editor in chief

Patterson organized the meeting. "My objective was to give the attendee the straight scoop about the roofing industry," he said in a letter sent to participants. "The entire roofing industry is changing and I wanted to provide enough information to make better decisions with regard to specifying and applying low-sloped commercial roofing."

Frank opinions offered

The small number of attendees and the local nature of the meeting allowed participants to talk openly of their frustrations and doubts. Most speakers shared their personal opinions about the industry rather than spout a particular party line. Some speakers were open enough to admit their own profession's shortcomings, while speakers who remained defensive or evasive quickly drew fire from the sometimes combative audience.

Patterson set the tone of the meeting during his opening presentation, which was peppered with his personal observations on the state of today's roofing. He chided the roofing industry for marketing insufficiently tested products that would develop problems in the field. "The roofing industry tends to act in a backward fashion," he told attendees. "We find out about the problems 10 years after the system comes onto the market."

Few modern roofing products or systems were spared Patterson's criticism. His remarks seemed to indicate that almost every step the industry has taken away from the five-ply, built-up coal tar roof has been in the wrong direction. Most of the changes the roofing industry has seen in the last few years were made to save money rather than improve roof quality, Patterson claimed.

The full day of sessions that followed Patterson's opening remarks led participants through every facet of the roofing process. In general, the speakers did more than simply describe their jobs; they also discussed the problems they encounter that make it difficult to design, price or install quality roofing. Contractor Hollar, for instance, listed the factors he must con-

The speakers discussed the problems they encounter that make it difficult to design, price or install quality roofing.

sider to arrive at a reasonable cost for a job, while architect Garrison complained about aggressive salesmen who convince clients to use products that aren't listed in the specifications.

Garrison also expressed frustration with the lack of knowledge many designers have of roofing materials and practices. These designers learn one generic roof design and use it job after job, he said. An architect who understands roofing will custom-design systems to meet each roof's individual needs. "Every roof is a separate individual problem," Garrison said. "There are no things that work all the time."

But even the good specifications that architects produce are useless because they aren't read, Garrison claimed. He said that it was necessary to keep specs simple or else they would be ignored.

Nimri, who is vice president and director of research and development for Southwestern Petroleum, told attendees about the problems the bitumen industry must face and overcome to provide quality asphalt and coal tar to the contractors. He claimed that dead level roofs were one of BUR's biggest enemies. "Show me a roof that leaks and I'll show you a deck that doesn't drain," he said.

Nimri also explained how poor temperature control during blowing or application could lead to a deterioration of bitumen quality. He discussed the importance of maintaining the bitumen's equiviscous temperature at the point of application to ensure that the correct amount of bitumen is applied. He also warned against overheating the bitumen, which could make it unstable and less durable.

Nimri suggested that contractors take samples of each batch of asphalt to determine its quality and suitability for the job. He said this was important because there was no way to determine if the application or manufacturing temperatures were correct once the bitumen was applied.

Poor workmanship cited as culprit

Koontz, who is president of Roof Engineering, a Texas consulting firm, discussed the ways poor workmanship could lead to roof failures. He estimated that 60 percent of all BUR failures were caused by improper application procedures. Only 40 percent of the single-ply failures he has seen are caused by poor workmanship, he said.

Koontz also listed some of the material and design problems he sees regularly. Design problems he mentioned included the specification of mismatched materials and poor flashing details. Architects were also at fault for disregarding applicable codes, he said. Material problems included low tensile strength, material incompatibility, insulation instability and manufacturing defects.

Other problems Koontz has seen include inadequate slope, improper vapor retarder use, and the poor selection or application of flashings, deckings or surfacings.

By the end of the first day's sessions attendees had been presented with a long list of factors that must be considered during each step of the roofing process. Avoiding roof problems, the attendees were told, requires careful attention to the needs of the building and the owner. And proper application requires an awareness of the storage and handling needs of the materials being used.

The second day's sessions focused on proper roofing specification. Coon discussed sprayed-in-place urethane roofing, Richards explained built-up roofing and Busch talked about single-ply roofing.

No simple answers

Although the information presented during the two-day seminar was often contradictory, there were some general conclusions about the state of the roofing industry that could be drawn from the presentations. One point that all of the speakers seemed to make is that there are no simple answers or miracle products that will solve all of the industry's problems. There are, however, good roofing practices that must be followed regardless of the roofing solution chosen.

Another point that many of the speakers said must be considered in any discussion of roofing quality is the shortage of qualified workers. According to both Patterson and Hollar, the unpleasant and seasonal nature of the work discouraged many from entering the field. It is also uneconomical for many contractors to keep a full force on the payroll throughout the year, Patterson said, and this has made it difficult to train and maintain stable work crews.

The 25 percent solution

One architect's view of tolerances

by Toby Nadel, AIA, CSI

When NRCA first published its *Roofing and Waterproofing Manual* in 1981, it quietly changed a long-standing tolerance of workmanship that was used by many manufacturers and consultants for the application of hot-applied bituminous materials. In that manual, as well as in the editions that followed, including the most recent edition[1], the allowable variance was increased from 15 percent to 25 percent, which is itself an increase of 67 percent. I have found no reference to the issue of tolerances in the *Manual's* predecessor, which was published with an orange cover in 1970. I believe the potential for losses resulting from this change in application tolerances far outweigh any possible gains.

Two fundamental rules

To discuss the standards required for the application of hot bituminous materials, it is necessary to keep in mind two fundamental rules. First, it is of primary importance that the materials be continuous, without skips (felt-touching-felt), misses or voids. Second, the bituminous layer should adhere to the materials between which it lies.

Experience has shown that the currently specified 23 to 25 pounds of bituminous material per square not only achieves these two objectives, it is also a readily achievable specification when good workmanship practices are used. Moreover, when good workmanship is available, test results will reveal that the application rates are within the 15 percent range suggested in previous years.

The risks of varying excessively beyond the specified range of application tolerances are well known. Too much bitumen results in felt slippage, higher costs to the contractor, and application problems such as torn felts and bitumen buildup on equipment wheels. Not enough bitumen can cause internal voids[2], interply separation due to premature cooling and high kettle temperatures, which may result in fire or an alteration of the bitumen's physical properties.

I will concede that is not possible to install any roof perfectly. Buildings are man-made assemblies and subject to error, regardless of quality control. And it is also true that there are membranes that have lasted more than 30 years in excellent condition that have tested above or below the 15 percent tolerance level. However, long-lasting roofs that fall outside the 15 percent range are hard to find. Most roofs that are outside of this tolerance level have failed prematurely.

Recommendations

I believe that the roofing industry should, at the very least, return to the manufacturers' ±15 percent "standard." One outstanding benefit of this recommendation is that it would alleviate some of the confusion caused by the existence of two conflicting tolerance levels. For example, when an alleged roof failure results in legal action, there would be no question about whether the governing standards should have been the manufacturers' or NRCA's.

It would be better, however, if any such standard was abolished entirely. Instead, the following three simple requirements are suggested:

- Any defect, especially felt slippage, due to bitumen levels exceeding those specified by the manufacturer, is the roofer's responsibility.
- Phasing should be disallowed. One or two plies installed for oncoming inclement weather should be regarded as temporary roofing and replaced with the full membrane when the weather improves.

Toby Nadel is an architect based in DeWitt, N.Y., and has been a roofing consultant since 1969.

Nothing will kill the hot-applied industry faster than the relaxation or abolition of tried-and-true quality controls.

- Interply skips and voids should not exceed 5 percent of the total felt interply area in any square foot of membrane. No skips or voids should align vertically in any plies for any measurable area.

Competition at the cost of quality?

I recognize that hot roofing is currently under pressure from competing roofing materials, primarily single-ply membranes and sprayed polyurethane systems, and that this pressure may move some hot roofing contractors to reduce workmanship quality controls to make their pricing more competitive. Although published figures are not very clear, there seems to be a 2-billion-square-foot roofing market per year in the United States composed of about 35 percent new roofing and 65 percent reroofing. The latest NRCA figures indicate that a little more than one-half of this market is currently commanded by single-ply systems.

However, there is no reason to believe that single-ply or PUF systems are better or worse than hot-applied conventional membranes being replaced by the single-plies. Each system has its unique advantages and disadvantages with respect to cost, ease of installation, appearance and physical properties. Single-ply and conventional membranes are both here to stay, although I suspect that many of the "wonder" systems will disappear soon and replaced with new combinations of materials and compounds.

Having said this, I must add that nothing will kill the hot-applied industry faster than the relaxation or abolition of tried-and-true quality controls. This is especially true when the basis for the changes in the accepted norms is not widely discussed and verified, which, in the case of NRCA's increase in tolerance levels, seems to be the situation.

Food for thought

If NRCA continues to support a ±25 percent tolerance level, I would recommend the roofing industry take the following measures.

Manufacturers should:

- create a new set of specification numbers if they disagree with NRCA's tolerances so that design professionals can choose the specifications that match the tolerances they wish to use;
- state clearly in their manuals whether they agree or disagree with NRCA's tolerances so that design professionals may use this information when choosing a manufacturer for a project.

Design professionals should:

- treat the use of the ±25 percent tolerance as if it were a new product; because workmanship is an integral part of the hot-applied system, an assembly built to this new tolerance should be considered as risky as any other new system;
- refuse to accept changes that are not justified by research to systems that have served well over time;
- consider overriding the NRCA *Manual* by requiring a ±15 percent tolerance level in their contract documents, or requiring special guaranties or warranties to protect the owners.

I urge architects to be aware of this change, and I urge the NRCA to reconsider its position in this matter.

Notes

[1] See page 92 of Section V "Application Tolerances" in the second edition of the *Manual* (with the gray cover) under heading F "Variances."

[2] While some design professionals may disagree, most would accept up to 5 percent interply voids or skips. However, this acceptance is not without its limits; should these voids align vertically within a sample, the consultant could end up approving a hole in the roof!

Roofing Technology Conference to explore performance

The Eighth Conference on Roofing Technology, sponsored by NRCA and the National Bureau of Standards, is scheduled for April 15-16, 1987, at the NBS facilities in Gaithersburg, Md. The Conference is held every two years.

The Conference Committee, composed of NRCA Board members Dick Baxter, Rusty Griffiths and Marlin Potteiger, has determined that the conference will deal with applied technology for improving roof performance. Associate Executive Director Bob LaCosse will provide staff support.

"The themes for the last three meetings were thermally efficient roofing systems, performance and durability of roofing systems, and new technologies in roofing," LaCosse notes. "The Committee has agreed that this conference should be geared more toward practical information for the roofing contractor."

By invitation only

The Conference will feature 14 presentations, each 20 minutes long. "Unlike the 1985 International Symposium, when we issued a call for papers that resulted in 120 abstracts, these papers were gathered by special invitation," LaCosse says.

The papers will fall into one of three session categories: fasteners, thermal performance and building codes; BUR and elastoplastic systems; and modified bitumen systems. George Courville, U.S. Department of Energy, will chair session one; Dwight Jennings, a consultant with Inspec, Inc., will chair session two; and Frank Jenkins of Montgomery Roofing Co. will be in charge of the third session. Joseph Adler, J.L. Adler Roofing Co., will act as general chairman, and William Kugler of United Materials, Inc., will provide the Conference summary.

Included in the list of confirmed speakers and subjects are: "Performance of Fasteners," Riaz Hasan, ITW Buildex; "In-Service Thermal Performance of Cellular Foam Plastic Insulations," Andre O. Desjarlais, Dynatech; "Building Code Compliance During Reroofing," Robert M. Berhinig, Underwriters Laboratories; "New Concepts in Load-Elongation Testing," Walter Rossiter, NBS; "Comparison of White versus Black Surfaces for Energy Conservation," Donald Backenstow, Carlisle SynTec Systems; "Aging Tests for Elastomeric Membranes," Edward McCarthy, Rubber Manufacturers Association; "Field Performance of Mechanically Fastened Elastomeric and Plastomeric Membranes," Richard Canon, Roof Consultants Institute; "New Flashing Concepts," Jack Williams, Twin City Insulating Decks, Inc.; "New Concepts in Evaluation of Elastomeric Membranes," Jon Martin, NBS; "Advantages/Limitations/Selection of Modified Bitumen," Herbert Busching, Clemson University; "History and Development of Modified Bitumen," Ray Johnson, consultant; "In-Place Performance History of Modified Bituminous Membrane Systems," Dick Baxter, Carolina Roofing Services, Inc.; "Application Considerations for Modified Bitumen," L. B. Morris, Sellers & Marquis Roofing Co.; and "Evaluation, Testing and Standards for Modified Bitumen," Robert Booth, Domtar, Inc.

The schedule

"I'd say at this point, we're a little ahead of the game," LaCosse says of his conference planning. The schedule, program and budget are just about in place.

"We expect about 300 people," he states. "We would like to see more contractors attend. For the Symposium last fall, the contractors comprised only 15 percent of the audience.

"We see quite a few consultants, manufacturers' representatives and government people. We hope to have about 25 people from Europe come over for it as well," he concludes.

The registration fee has been set at $210, which includes all presentations, lunch for two days and a cocktail party after the first day's sessions. The business portion of the Conference will take place at NBS; the reception will be at the Washington Hilton, where a block of rooms is being held for registrants.

The fee also includes the cost of a case-bound book, which will be published as the Conference proceedings. The 75-page text will include all presented papers; it will be distributed to attendees at the Conference and offered for sale after the meeting.

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_____	NRCA-04	Member Breakfast: "Commitment to Excellence" — Lou Holtz	$8.00
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_____	NRCA-09	Educational Workshop: "Planning for Growth and Continuity in a Successful Family-Owned Roofing Company" — Leon A. Danco, Ph.D.	$8.00

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_____	NRCA-10	Recognition Luncheon: "Hostage Experiences" — Kurt Carlson	$8.00
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_____	NRCA-12	Rap Session: "Bonding, Banking, Bidding" — Panel Moderator: Bob Bellitt	$8.00
_____	NRCA-13	Rap Session: "Roofing Over There" — Panel Moderator: Charles Griffiths, Jr.	$8.00
_____	NRCA-14	Rap Session: "The Unkindest Cut of All" — Panel Moderator: Wayne Mullis	$8.00
_____	NRCA-15	Rap Session: "Covering Your Assets" — Peter Spanos	$8.00

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_____ (12 Cassettes Binder @ $5.00 ea.)

Sales Tax (6.125%) Texas Residents Only: _____
Total: _____

NAME: _____
COMPANY: _____
ADDRESS: _____
_____
(CITY) (STATE) (ZIP CODE)

Check #22 on Reader Service Card

Asbestos issue nears resolution

At this writing, roofing contractors are still waiting with abated breath for the new Occupational Safety and Health Administration (OSHA) rules on asbestos to be forwarded to the Office of Management and Budget (OMB). The rules will reportedly define hazardous occupational exposure levels of asbestos for the construction industry.

A recent *Construction Labor Report* newsletter noted that last February, OSHA had predicted that the rules would be sent to OMB "in four to six weeks." Carl Good, NRCA's director of membership development, said, "Last September, OSHA told us we would see the rules in the next couple of months." The agency will only say that it is concerned about getting "all the details ironed out" before releasing the document to the OMB.

The current permissible exposure level (PEL) is 2 airborne fibers longer than 5 micrometers per cubic centimeter of air as an eight-hour, time-weighted average. "The new PEL may be as low as 0.1 fiber per cubic centimeter," offers Good.

The key concern in dealing with asbestos is friability. Exposure to friable asbestos, meaning asbestos in a brittle, crumbled state, has been linked to various types of cancer. Asbestos in a non-friable state, such as encapsulated asbestos in roofing felts or shingles, presents little health hazard. When a roof is torn off, however, asbestos fibers may become friable and present a problem. "Of course, whenever asbestos is involved, you should be taking some kind of action," Good says, "but this may be more clearly specified in the new rules."

Another drawback with the original OSHA rules is that they were written primarily for wall and ceiling work, which involves installing insulation that contains friable asbestos. "What's on the books right now is not very specific for roofing," admits John Marbtonick, an OSHA representative. Good agrees this is cause for frustration on the part of the roofing contractor, who will be held responsible for assessing the level of asbestos on the jobsite and doing something about it. "The building owner's responsibility is not necessarily recognized by OSHA," he says.

"There's a lot of inconsistency, like what levels of asbestos exposure are truly safe, how you can best dispose of it, and how you can best protect yourself from it. We hope the new rules will address some of us that lie on the fringe of the standard's initial intent," said Good.

Unfortunately, the confusion will not end with the promulgation of the updated federal documents. Each state OSHA agency appears to have a different idea about how to deal with the material.

"We've had state OSHA and Environmental Protection Agency people tell us that asbestos encapsulated in roofing felts and shingles requires no special care. Others tell us it's always hazardous," Good says disgustedly. "We've heard reports of some state inspectors advising our members to take the asbestos they encounter during tear-offs to special hazardous waste sites. Others have told them to just bag it and dump it."

The Construction Advisory Board, which is composed of representative members of the subcontractor organizations, is serving as advisor to OSHA in drafting the guidelines.

Why is OSHA concerned about updating exposure rules now? Good says it has nothing to do with the recent EPA ban on asbestos. (They condemned the material, calling it "a potent carcinogen.")

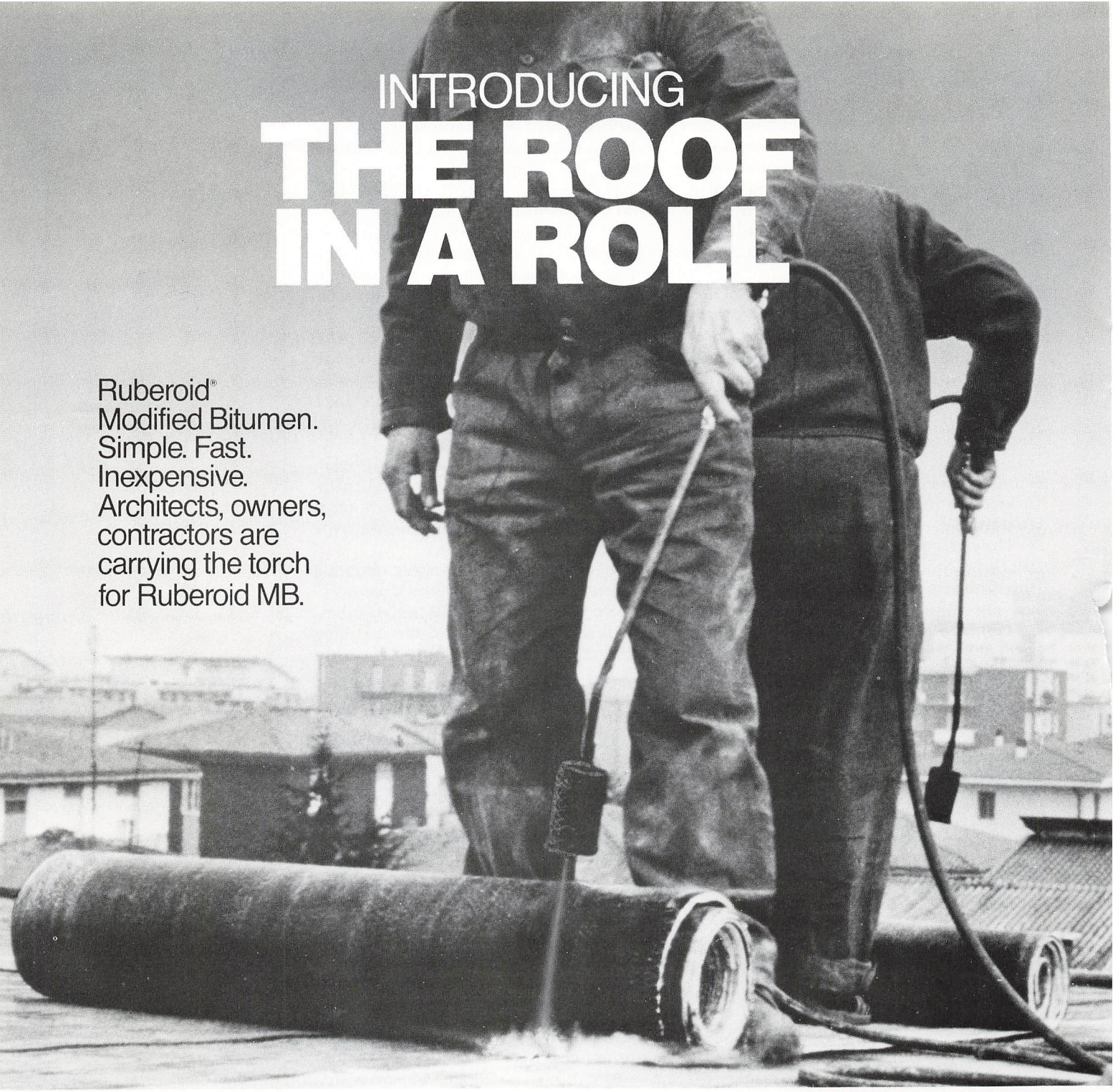
"OSHA has been working on this for a year," Good reports. "The agency saw the amount of litigation that was taking place, with asbestos-related lawsuits numbering around 30,000, and considered the widely quoted estimate that 8,000 people are dying of asbestos-related diseases annually. OSHA decided it was time to take another look at its guidelines for handling it."

IN BRIEF

- **Construction Products Manufacturers Council** has announced it is joining the newly formed American Tort Reform Association (ATRA). ATRA is trying to combine the efforts of business, consumers, public interest groups and government agencies to promote the reform of a legal system clogged with frivolous lawsuits. Its ultimate aim is to resolve the liability insurance crisis.

  And they're not alone. An administration task force has presented President Reagan with a set of recommendations to deal with the insurance problem. The 80-page report deals almost exclusively with tort reform. The suggestions include placing a $100,000 ceiling on non-economic jury awards for pain and suffering, basing findings in court cases on credible scientific and medical evidence, and limiting attorneys' contingency fees.

- **In case you missed it,** May 25 was the OSHA deadline for hazardous communication rules. By then, chemical manufacturers and importers were to have had a complete communication and training program in place for advising employees of the hazards involved with toxic chemicals and materials. Communication, legislation and OSHA efforts indicate that a broader standard covering the entire workforce is forthcoming.



And no wonder! It's a complete roof, all rolled up and ready to install. Ruberoid Modified Bitumen is a top-quality, modified asphalt, water- and weather-resistant membrane based on a puncture-resistant, non-woven, spun bonded polyester mat. It's lightweight but tough, resilient but durable.

Superior melt flow characteristics make it easier to handle, and useable over a wider temperature range than competitive products. And applying it is simplicity itself.

Just heat the underside with a propane torch as it's being unrolled. Seal the seams the same way. Nothing on the market is easier to apply, and no expensive equipment is needed. It can often be an efficient and extremely economical alternative to single ply or conventional built-up roofing. Work in progress is clean, and the finished job is a snap to inspect.

Modified Bitumen is the state-of-the-art in roofing technology; but only one is Ruberoid, the most respected name in roofing.

Contact the authorized GAF distributor nearest you, or write: GAF Corporation, Building Materials Division, 1361 Alps Road, Wayne, NJ 07470.

GAF® RUBEROID® MB

GAF 100 ANNIVERSARY

Check #12 on Reader Service Card

The Washington Area Roofing Contractors Association (WARCA) feels so strongly about the Yellow Pages' effectiveness that WARCA is putting its money where your fingers are to the tune of $12,000. Randy Denchfield, president of the group, believes this action will "further our efforts in getting the *professional* contractor out to the public sector." Reviews were mixed, however, at the recent NRCA Convention's marketing workshop, where several contractors actually said they would rather not appear under the "Roofers" heading in the directories.

The advantages and drawbacks of Yellow Pages advertising always make for interesting commentary when roofing contractors gather to compare marketing notes. Such discussion inevitably results in the same conclusion: the contractor must know his audience and what he is trying to achieve before judging the vehicle's merits . . . just like any other promotional method.

There's good news . . .

According to a recent survey by the Whirlpool Corp., shoppers in the United States consider the Yellow Pages an extremely important source of information about products and services.

"Statistics show that 112 million shoppers use the Yellow Pages an average of 34 times each year, which totals 3.9 billion references annually," exults Daniel J. Edelman, Inc., the public relations agency that represents the American Association of Yellow Pages Publishers (AAYPB). Edelman quotes the Whirlpool study to illustrate the positives of this kind of advertising.

"Because people use the Yellow Pages when they are already prepared to make a purchase, 80 percent of these references are followed up by action," Kevin Aandahl, the Edelman account executive for AAYPB, continues.

The Yellow Pages represent *directional* rather than *creative* advertising. This is an important distinction, because it means the contractor should list all pertinent information about his business—location, phone number, business hours, products, special services—instead of using the space for "concept."

The ultimate advantage of the Yellow Pages, and the factor that makes it unique, is its ubiquity. An interested consumer can find a directory anywhere from the hall closet to the gas station to a favorite restaurant—24 hours a day. To anyone familiar with media buying, this is an impressive market position to claim.

To sweeten the pot, there is the fact that many manufacturers participate in cooperative programs with companies offering services involving their products. These are "extremely beneficial," according to Aandahl.

"The most obvious benefit is financial," he notes. "The manufacturer shares in the cost of the Yellow Pages ad, and that stretches your advertising budget by an appreciable amount. Most of the $1.8 billion allocated by manufacturers for potential co-op Yellow Pages advertising goes unused because local dealers are unaware of the program."

. . . And there's bad news

The Whirlpool survey did find that the Yellow Pages was actually the number two source of information for consumers. The first is recommendations from family and friends.

When faced with a diverse menu of adertising options, roofing contractors are always quick to point out that the majority of their business comes from word of mouth, not the Yellow Pages. Referrals are the backbone of their businesses.

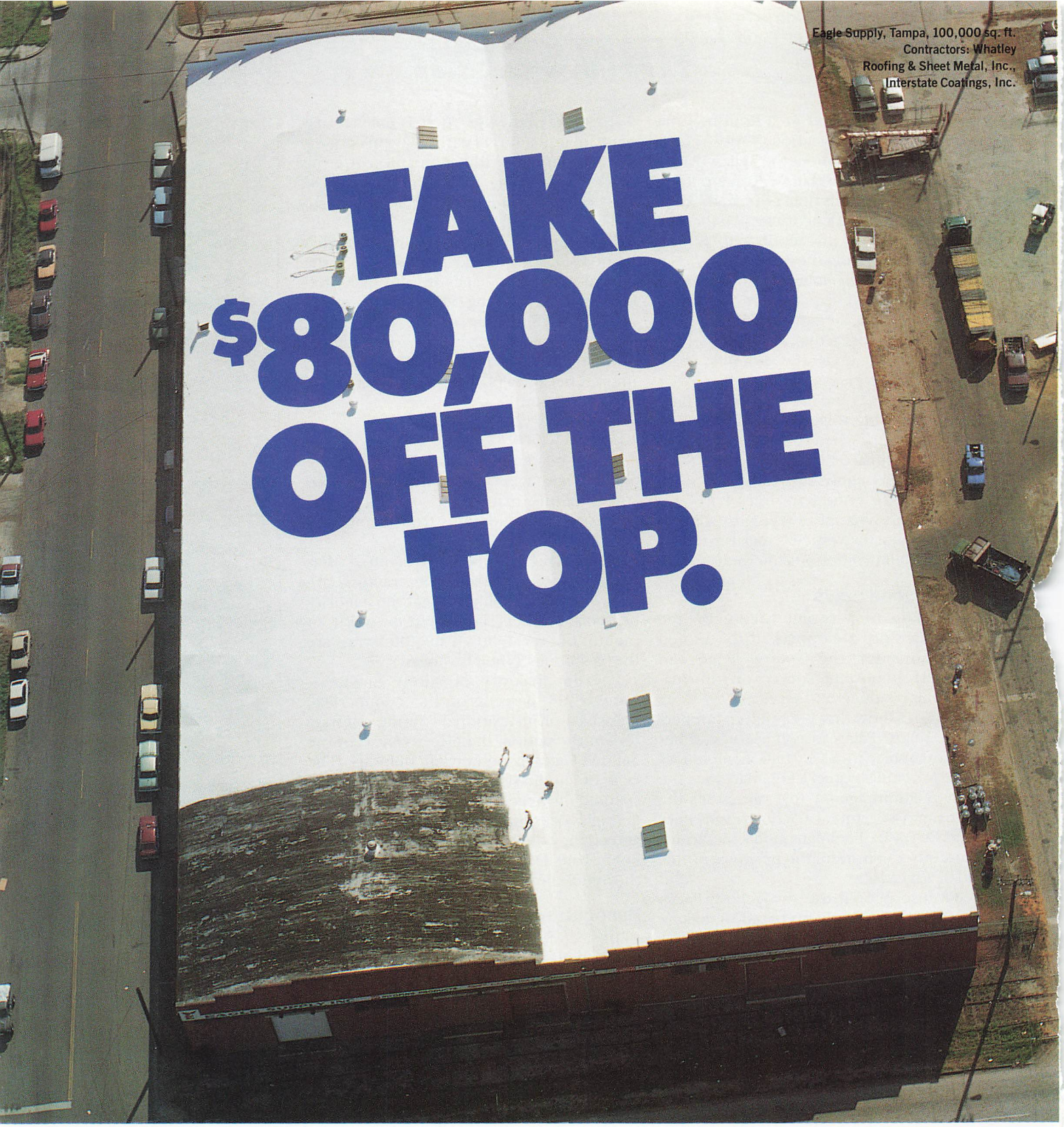
For the majority of NRCA members, roughly 85 percent of the commercial, industrial or institutional roofing contractors in the nation, the effectiveness of the Yellow Pages is somewhat dubious. The lack of emphasis on residential services sparked the negative comments at the marketing workshop, where some attendees agreed they did not want to be bothered by every Tom, Dick and Harriet with a leak in the living room.

Recognizing a gift horse

Most contractors with marketing savvy understand that the Yellow Pages decision is not based solely on the amount of money that might travel from a caller's pocket to theirs. Making an appearance in a directory in a noticeable fashion is similar to making an appearance at a charitable function—your presence is felt, connections are made and business may result.

"Hey, a phone call is a phone call," one contractor pointed out at the marketing workshop. "Every homeowner that calls, whether you want to help him or her or not, knows of a place of business that eventually may need work."

Let your listing do the talking



Eagle Supply is the largest distributor of roofing products in Florida. So when it came time for a new roof, they had their pick of products.

The one that came out on top was TOPCOAT.™

TOPCOAT is a water-based, one-component system based on today's most sophisticated technology. And compared to other systems, you can apply it in a fraction of the time, at a fraction of the cost.

That gives you a much bigger profit margin to work with. And with TOPCOAT, you can quote a 100,000 sq. ft. job for up to *$30,000 less* than conventional built-up roofing. Up to *$80,000 less* than a single-ply system.

You're also putting on a better roof. TOPCOAT stays flexible down to −30°F. It stays white to reduce roof temperatures by as much as 50°F. And because it's a seamless, self-adhering, durable system, it doesn't leak.

To find out more, including the name of your nearest TOPCOAT distributor, just write or call **1-800-323-0009.**

THE LIQUID ROOFING SYSTEM
WITH NO SEAMS, NO LEAKS, AND NO COMPETITION.

Factory Mutual System Approved

TOPCOAT, Inc. A subsidiary of The Major Group, 24 Industrial Road, Walpole MA 02081-1305. (617) 668-4128.

Check #33 on Reader Service Card

Cooley Roofing Systems' Cool Top 40 single-ply membrane roofing system has been selected for the world's largest single-ply roof installation. The contract calls for 2.7 million square feet of Cool Top 40 to be installed on Mazda Motor Corp.'s Flat Rock, Mich., facility. Presently under construction, the assembly plant is scheduled for completion some time this fall.

"The selection of Cool Top 40 for the Mazda project is a significant milestone for Cooley Roofing Systems, as well as the entire single-ply roofing industry," said CRS president John W. Smith. "It supports the merits of single-ply roofing systems, while it firmly establishes CRS as a national supplier to the roofing industry."

Described as "fast track" construction in trade language, the project requires the single-ply roof system to be installed at the same time that the structural frame, walls and deck operations are completed.

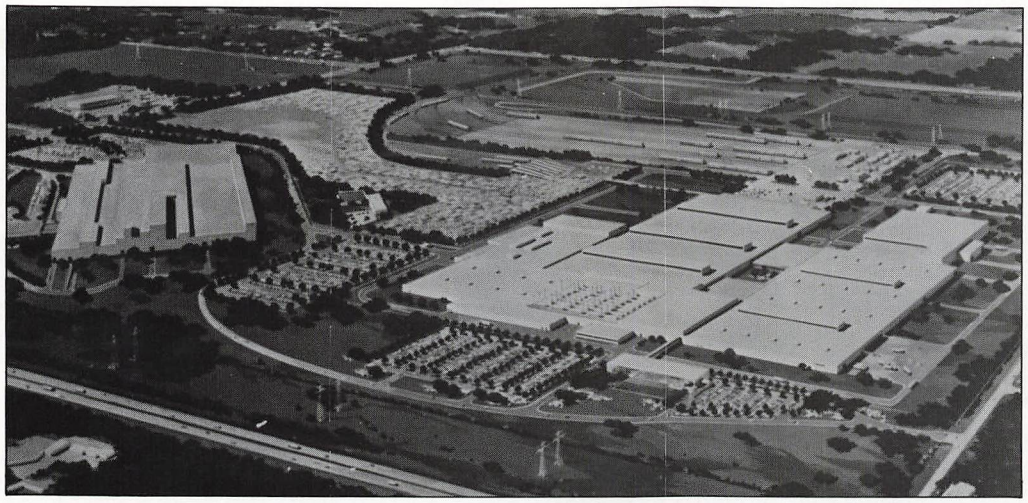
Cool Top 40 is a Dow Chemical product. It consists of Dow Chemical's chlorinated polyethylene membrane reinforced with a heat-set "weft-inserted" Fortrel™ polyester. The uncured elastomeric membrane is known for its tensile strength and elongation properties, as well as its fire, oil and chemical resistance.

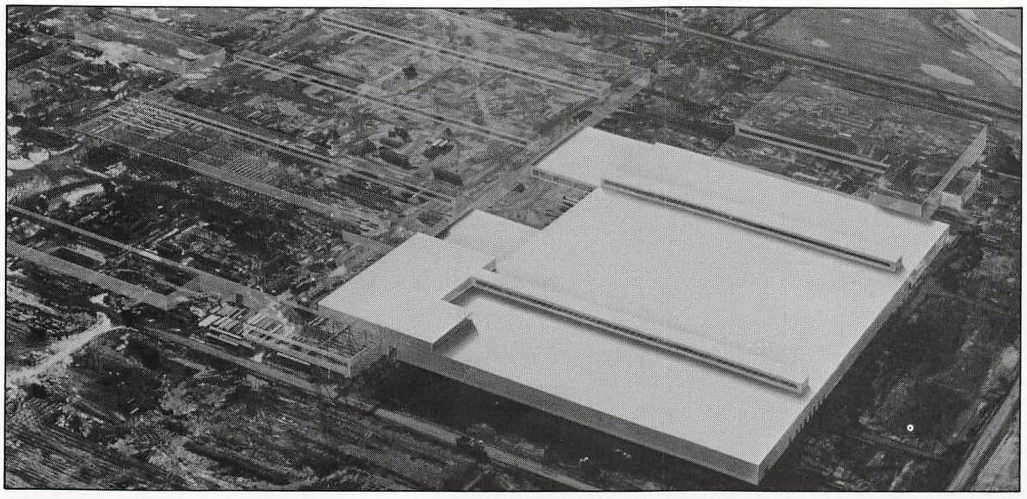
The Mazda facility was designed by Kajima International, Inc., a New Jersey "design and build" firm that based its original roofing specifications on Cool Top 40. Kajima attributed its decision to use Cool Top 40 on the firm's desire for a fully integrated roof system that can be securely installed in the winter without slowing down the entire project. Also cited as influencing factors were Kajima's research of chlorinated polyethylene's resistance characteristics and a knowledge of Cooley's Pawtucket-based operations and management.

The roofing contractor for the project will be CEI Industries of Michigan, Inc. CEI is a national roofing company based in Howell, Mich., with three regional affiliates in Orlando, Denver and Dallas.

continued on page 45

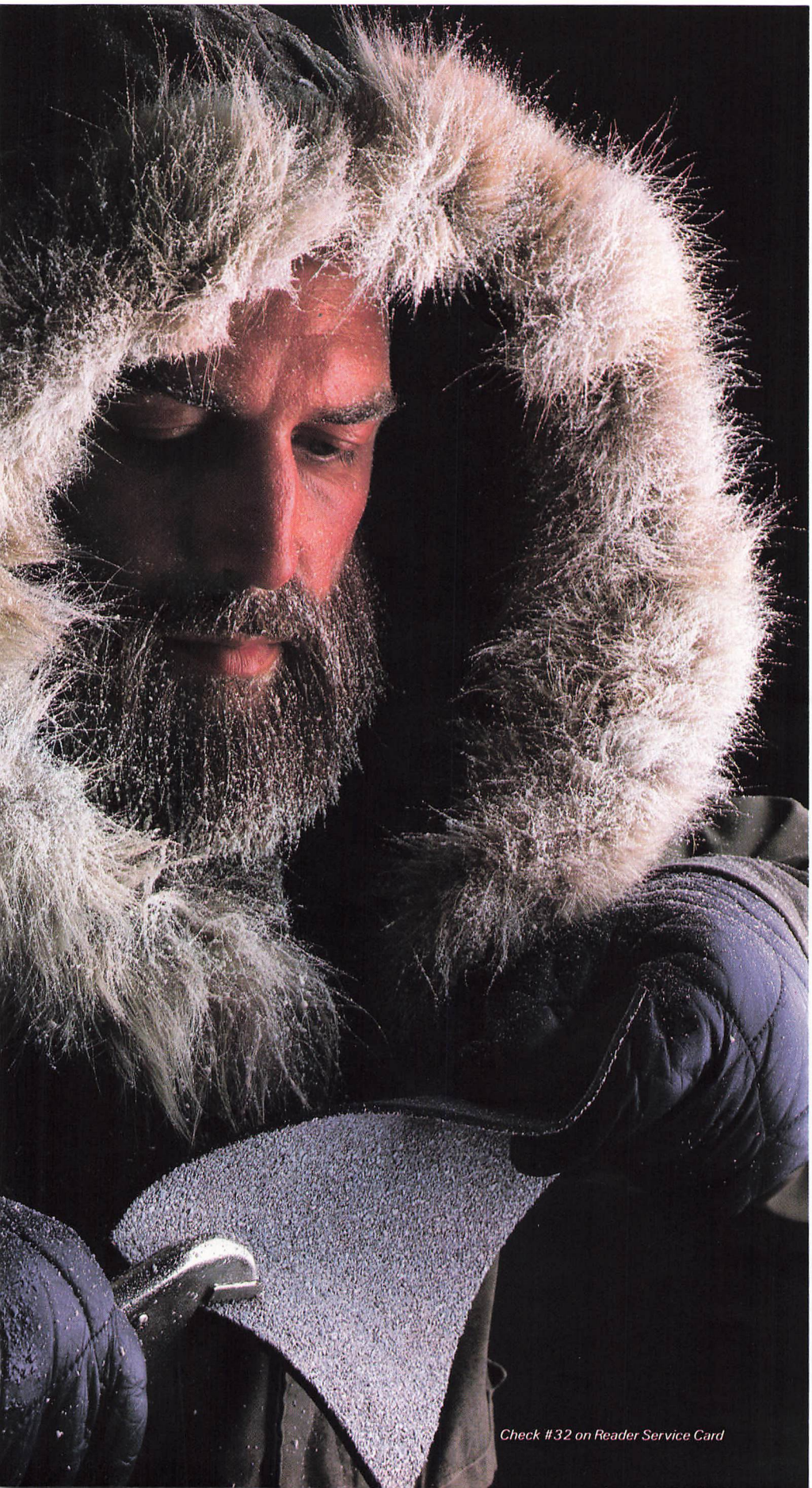
Cooley contracted for largest single-ply roof





An artist's rendering of the Mazda Corp.'s assembly plant (top, left) shows the complete 2,429,000-square-foot roof area to be covered with Cooley Roofing System's Cool Top 40 membrane. The site as it looks now (bottom, left) shows the portion of the building already completed.

WHY WON'T TAMKO MODIFIED ASPHALT PRODUCTS CRACK UNDER THE MOST EXTREME CONDITIONS?



Check #32 on Reader Service Card

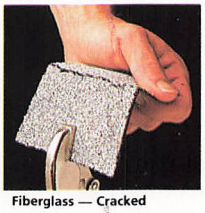
SBS Modifiers. We've been modifying our products with the block copolymer SBS (styrene butadiene styrene) since 1978. In fact, we were the first to use it.

But the addition of SBS is not enough. How it's blended with asphalt makes the difference. And having worked with SBS the longest, our techniques are the most advanced.

The process doesn't stop here. To be certain our SBS modified products perform consistently and reliably, we put them through constant testing. Analysis. And rigid raw material and process controls. When done, we have a properly blended modified asphalt product. And you have a dependable roofing product.

Competitive Modified Asphalt — Cracked

Cold Flex Test. **Roofing swatches were kept in a 0° F freezer for 4 hours. Then subjected to the legendary Vise-Grip® locking pliers.**



Fiberglass — Cracked

TAMKO SBS Modified Asphalt Maintained Flexibility

The Products. Whether it's AWAPLAN roll roofing. Or VERSA-FLASH 160 flashing material. You get products with: Cold weather flexibility, superior tensile strength, elasticity and resistance to roof traffic.

In short, TAMKO SBS modified asphalt products are proven to last. For more information, phone or write our BUR Division for your Free TAMKO Modified Asphalt Brochure: P.O. Box 1404, Joplin, Missouri 64802. 1-800-641-4691 (In Missouri: 417-624-6644). Or consult Sweet's Catalog File: 7.1/TAM.

TAMKO ASPHALT PRODUCTS

PROVEN TO LAST A LONG, LONG TIME™

How to stop rain inside a building

What do you do when the rain comes from inside your building? When Fiberspun, Inc., had this problem, it gave WeatherGard Roofing Systems, Inc., a call.

The 210-square standing seam roof covering Fiberspun's Staunton, Va., textile plant was leaking. The moisture wasn't coming from the outside, but from condensation that was causing "rain" on the inside.

The problem was caused by the building's interior relative humidity, which is maintained at 56 to 64 percent throughout the plant to prevent the build-up of static electricity in the yarn. During the winter, the dew point would settle in the roof's batt-type insulation, which was taped at the joints beneath the roof. This would create condensation and cause rain inside the structure.

As the conditions grew worse at the plant, it became obvious that a new roof system was needed. Fiberspun's options were limited, however, by the fact that the plant is a pre-engineered structure and can accommodate only 4 to 5 pounds per square foot on the roof.

Finally, Memphis-based WeatherGard Roofing Systems, Inc., and roofing contractor William L. Fauber of Staunton were approached to develop an EPDM fire-rated roofing system to remedy this situation.

To avoid the expense of tearing off the old roof, WeatherGard chose to design around the existing standing seam system using the metal roof as a decking. Next, the old insulation beneath the metal roof had to be removed and replaced with new EPS and isocyanurate layered in the 16-inch ribs on top of the metal roof.

Finally, the new single-ply EPDM was attached. White, Factory Mutual-approved, .060 WeatherGard elastomeric membrane was cut into strips measuring 4 1/2 and attached to the standing seams. Polymer-coated fluorocarbon 2 7/8-inch screws were used to anchor both the membrane and the insulation to the original structure.

Loehmann's Plaza gets Hi-Tuff roof

Finding the right roof for the new, ultramodern Loehmann's Plaza shopping mall in Altamonte Springs, Fla., presented its owners, The Brandon Co., with a dilemma.

Stephen E. Brandon, vice-president, needed a roof that would accommodate the mall's intricate design. The shopping mall's unique 200,000-square-foot roof is punctuated by protruding trees, ducts and 40,000 square feet of decorative Spanish tile roofing. The roof system also had to be easy to install, and had to be able to stand up to the intense Florida sun and the region's severe semi-tropical storms.

After months of planning, Brandon's company selected Hi-Tuff single-ply roofing, an unballasted, mechanically attached system from J.P. Stevens & Co., Inc., Northampton, Maine.

Hi-Tuff is based on Du Pont's Hypalon synthetic rubber, which has been combating severe weather for more than 30 years. Hi-Tuff can be automatically heat-welded on the roof, creating a fused, watertight seam, ideal for the mall's rooftop architecture.

Hi-Tuff is also highly resistant to ultraviolet radiation, ozone, chemicals and abrasion. In addition, Hi-Tuff's reflective white surface offers documented energy savings, a bonus for Loehmann's tenants, who pay their own utilities.

The Hi-Tuff field sheet was applied over a layer of rigid fiber glass insulation that was mechancially fastened to a 22-gauge steel deck. The Hi-Tuff membrane was secured with Stevens fasteners, field-seamed with Stevens-approved automatic hot-air welders, and seamed with hand-held welders in complex areas such as penetrations and terminations.

Hi-Tuff's speed and ease of installation was also important to the roofing contractor, General Roofing and Improvements, Inc., Castleberry, Fla. The six buildings of Loehmann's Plaza are linked by open courtyards of varying shapes and sizes, resulting in numerous angles and terminations.

continued on page 48

Be a roofing innovator.

Become a Duro-Last contractor.

Duro-Last, the innovator in single-ply roofing, is looking for a few good contractors to install its custom-fabricated roofing system. Contractors across the country have discovered they can cut labor and installation costs by 50 percent using the Duro-Last system.

Custom fabrication means 80 percent fewer field seams. No waste. And installation is fast and easy.

The Duro-Last system is a complete roofing package. All materials arrive on-site, pre-measured, pre-cut, and welded into 2500-sq ft sheets maximum, with fasteners and roof accessories. There are no parts or material to inventory. Everything you need is supplied. All you have to do is put the roof in place.

Call
Rick Mika today!
within Michigan
(800) 752-8815
outside Michigan
(800) 248-0280

Duro-Last offers an extensive training program that will teach you the quick and easy steps to installing a custom-fabricated roof.

Examine Duro-Last. We think you'll agree, it's the logical roofing system.

DURO-LAST Roofing, Inc.

525 Morley Drive
Saginaw, Michigan
48601

The custom-fabricated, common-sense approach to roofing.

Check # 7 on Reader Service Card

Hoosier Dome passes test of time

After two and a half years in service, the report card is in. The Hoosier Dome roof is a success! The reinforced polyvinylchloride membrane that forms the roof at the perimeter of the Hoosier Dome, the home of the Indianapolis Colts, is still functioning flawlessly, according to the membrane's manufacturer, the Barra Corp. Installed in November 1983 as part of the original roof, the Rhenofol® CV-48 reinforced PVC has weathered two Indianapolis winters with less than 30 minutes of maintenance. The Braas roofing membrane was recommended and installed by Terstep Roofing of Noblesville, Ind. "Essentially," said Bill Kelso, president of Terstep, "the CV-48 serves as a giant gutter for the roof of the dome. OC Birdair developed and installed the inflated Sheerfill® fabric membrane that covers the dome, but they needed a roofing membrane for the rim beam area. The membrane had to be strong enough to withstand the force of melting ice and snow crashing down onto it, and flexible enough to accommodate the movement in the cable network that supports the roof. And because the entire roof, fabric and PVC, is under pressure, the welds at the seams and flashings had to be strong and absolutely watertight."

To protect pedestrians from falling ice and snow, the roof is surrounded by a 30-inch concrete wall that Terstep covered with a PVC-coated metal. PVC flashings were heat-welded to the metal, forming a monolithic, waterproof surface.

Rhenofol CV-48 was chosen over two rubber membranes because of its strength, puncture resistance and flexibility. The 40,000 square feet of membrane was installed in a record two weeks. Most of the installation occurred concurrently with the construction of the main roof. This allowed OC Birdair to inflate the Sheerfill fabric roof, with its Rhenofol membrane rim beam, within 24 hours of installation.

"PVC WON'T LAST."

(YOU'VE HEARD THAT BEFORE.)

More than 15 years ago, we installed the first PVC single-ply roofs in Europe. More than 12 years ago, we installed the first PVC single-ply roofs in the United States.

And ever since, we've heard people say: "PVC won't last."

Quite frankly, in the early days, they were sometimes right. Experience was lacking and membranes were not always thick enough. But, at Trocal, there was (and still is) a big difference: we're dedicated to single-ply roofing.

So, those early mistakes were soon corrected. (And, we stood behind our customers by living up to our warranty every time they had a problem.) From that point on, Trocal PVC membranes have performed quite well, thank you.

Sure, there are problems now and again. (You'll never find a roofing system that's 100% perfect.) But, we provide service to our customers and fix their problems fast.

One more important point.

Recently, we took test cuts from ten and fifteen year old Trocal roofs and gave them to an independent testing laboratory.

The results were impressive. Every sample tested showed physical values *equal to or better than* published minimum standards for *new materials.* We were pleased but our customers were even happier.

Now, without fear of contradiction, we can simply state: Trocal PVC membranes meet all the criteria necessary for long-term performance in the roofing environment. We have the track record. We have the proof. (And, we'd be happy to discuss it with you further.)

To be sure, we don't expect people to stop saying "PVC won't last."

It's nice to know they're wrong. We know Trocal PVC *will* last. And last. And last.

We'll talk again soon.

Known by the companies we keep dry.

TROCAL®
ROOFING SYSTEMS

Innovative Building Products by Dynamit Nobel

10 Link Drive, Rockleigh, New Jersey 07647, 800-526-4610 (In NJ: 201-767-1660)

Check #8 on Reader Service Card

COMING EVENTS

(For inclusion of events, address all correspondence to: **Roofing Spec** "Coming Events" 8600 Bryn Mawr Ave., Chicago, Ill. 60631).

May 13-16
Basic Roofing Technology
Roofing Industry Educational Institute
Las Vegas, Nev.

May 19-23
Infrared Scanning Course
Infraspection Institute
Burlington, Vt.

May 21-23
Single-Ply Roofing Systems and Roofing Update
Roofing Industry Educational Institute
Hilton Head, S.C.

June 9-13
Infrared Scanning Course
Infraspection Institute
San Diego, Calif.

June 11-14
Convention
Florida Roofing Sheet Metal and Air Conditioning Contractors Association
Tampa, Fla.

June 12-15
Summer Convention
Virginia Association of Roofing Contractors
Virginia Beach, Va.

June 16-18
D-8 Committee on Roofing, Waterproofing and Bituminous Materials
American Society for Testing and Materials
Louisville, Ky.

June 18-20
12th Annual Convention & Trade Show
Western States Roofing Contractors Association
Anaheim, Calif.

June 18-21
Annual Convention
Roofing and Sheet Metal Contractors Association of Georgia, Inc.
Destin, Fla.

June 20-22
30th Annual CSI Convention and Exhibit
Construction Specifications Institute
Los Angeles, Calif.

June 23-27
A/E/C Systems '86 Computer Management Show
Chicago, Ill.

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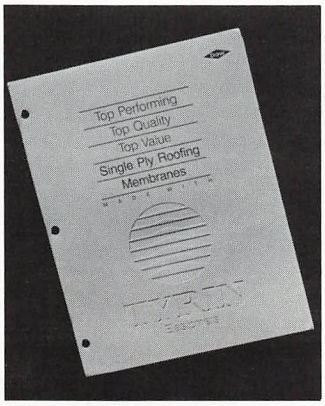
Dow publishes Tyrin brochure

The Dow Chemical Co. has released a brochure comparing physical properties of single-ply roofing membranes made of Tyrin™ CPE elastomer, CSPE and EPDM.

The brochure provides results of comparative tests based on American Society for Testing and Materials standards. Test results are listed for ignition resistance, water resistance, diesel fuel and kerosene immersion, exposure to refrigeration fluid, and peanut, sunflower and corn oil immersion.

Dow is also offering a packet of case history studies that provide information on the performance of membranes made with Tyrin CPE in a variety of applications.

Check #39 on Reader Service Card



Bond Cote offers Bond Grey booklet

Bond Cote Systems/WestPoint Pepperell has published an eight-page brochure describing its Bond Grey 35® single-ply roofing system.

Bond Grey 35 is a mechanically attached membrane manufactured from a thermoplastic acrylonitrile butadiene polymer (NBP) blend. Seams in the system are sealed with hot-air welding. The system can be used with conventional metal flashing, although a matching NBP-coated metal is available for special flashing requirements.

All major types of available roof insulations can be incorporated into a variety of assembly design systems using the membrane. The Bond Grey 35 system is installed by trained contractors and warranted only after inspection by the company.

The brochure provides information on other physical properties of the membrane and data on testing methods and results. A sample of the material is included.

Check #40 on Reader Service Card

Seal-Dry promotes pre-engineered roof

Seal-Dry, Inc., has published an eight-page brochure detailing its mechanically fastened CPA single-ply roofing systems.

Seal-Dry offers customized pre-engineered and prefabricated roofing systems. Specifications for the systems are included in the brochure, along with a list of customers who have installed Seal-Dry roofs. The brochure also contains several questions that buyers or specifiers should ask when considering single-ply roofing.

Check #41 on Reader Service Card

Cooley introduces wider field sheet

Cooley Roofing Systems is offering a new 72-inch-wide field sheet for use with the Cool Top 40 single-ply system.

The new sheet is 10 inches wider than the previous sheet used with Cool Top 40, and is designed to lower the overall cost of the system. The alteration in membrane width does not affect the 18-inch-on-center fastener pattern utilized in the field sheets or interior sections of the roof. Likewise, fastener spacing for installing the new, standard 36-inch-wide membrane at the roof perimeter will remain 12 inches on-center.

The company has also announced the development of two new fasteners. The Gyptec fastener, for use on gypsum decks with no water damage, uses an auger instead of a toggle on the bolt, eliminating the problem of toggles that do not set far enough down on the bolt to completely clear the decking. Testing of the augered fastener in a gypsum plank showed pullout strengths ranging from 105 to 120 pounds per square foot.

A universal fastener for use with either structural concrete or steel decks features a new threaded conical point that provides improved bite for steel decking. A large-diameter shank and extruded threads that move deck debris to the sides of the drilled wall provide improved backout resistance.

Check #42 on Reader Service Card

WHAT'S NEW IN SINGLE-PLY

Guaina expands product line

The Guaina Corp. has introduced several additions to its product line.

Polypren, a 2-millimeter-thick elastomeric single-ply membrane, is produced from a combination of ethylene copolymers and a low percentage of bituminous compounds. The bituminous material acts as a plasticizer and helps retard aging. The membrane can be loose-laid, ballasted or mechanically attached.

The company has also introduced flashing rolls of Polyflex polyester modified bitumen in widths up to 39 inches. Several finishes and thicknesses are available.

Two underlayment membranes are being marketed by the company. Guaina-Base F/G 2 is reinforced with fiber glass and qualifies for a 15-year warranty when used with Guaina Polyester 4. Guaina-Guard is a self-adhering modified asphalt single-ply underlayment that can be used under eaves and overhangs, in valleys and areas exposed to wind-driven rain, and on entire roofs in areas receiving heavy snow and ice.

Guaina has also introduced a dutral synthetic rubber and plastic scupper designed to go through standard parapet walls. Designed to fit a standard cant strip, the scupper can be used with modified bitumen, EPDM, PVC, BUR and cold-process roofs. Extension lengths and connector elbows are also available.

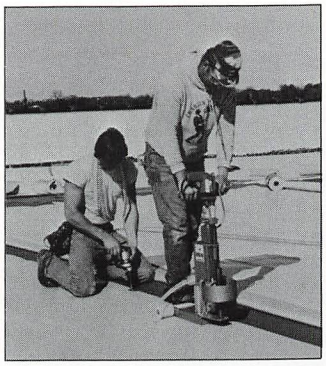
Check #43 on Reader Service Card

Trocal membrane cuts cooling costs

Dynamit Nobel has developed a white PVC single-ply roofing membrane that reduces peak roof surface temperatures to cut cooling costs.

The Trocal S-60 membrane weighs less than 1/2 pound per square foot installed. It can be used over concrete, steel, wood or wood fiber decks using disc weld, disc cap or Speedisc fasteners. The system is suitable for use on new or existing structures, and can be installed in most weather conditions.

Check #44 on Reader Service Card



continued on page 54

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WHAT'S NEW IN SINGLE-PLY

ACA introduces Be Ge-Len membrane

ACA Products, Inc., has introduced a new polyisobutylene roofing membrane system that remains flexible in temperatures ranging from -40F to 212F.

The Be Ge-Len™ membrane is a synthetic rubber polymer that can be applied all year around without special tools or equipment. Seams are sealed by applying liquid polyisobutylene to form a solvent weld. The membrane is backed by a 60-mil, nonwoven, rot-proof polyester backing for improved moisture migration and adhesion. Total thickness of the membrane with backing is 120 mils.

Be Ge-Len is suitable for both new and reroofing applications, and is compatible with asphalt and most other roofing materials. It is resistant to the corrosive effects of ultraviolet light, algae and most chemicals. Rolls of Be Ge-Len are 42 inches wide and 50 feet long and weigh approximately 80 pounds.

Check #45 on Reader Service Card

Membrane protects against foot traffic

A new heavy-duty membrane designed to protect single-ply roofing against foot traffic and mechanical abuse has been developed by Sarnafil, Inc.

The 2.4-millimeter-thick SarnaTred™ membrane provides walkways for nominal foot traffic to and around service equipment, ladders, penthouses and similar areas. It is manufactured with polyester reinforcement and can be applied over any Sarnafil single-ply roofing system using Sarnafil adhesives.

SarnaTred is also available with a polyester fleece backing for compatibility with other roof systems. The protective membrane is tinted dark green to make it easily distinguishable from regular roofing membranes.

Check #46 on Reader Service Card

WHAT'S NEW IN SINGLE-PLY

Rolling machine holds 15 gallons

Aeroil Products Co., Inc., has introduced a new 15-gallon adhesive rolling machine.

The machine, used for applying adhesive to EPDM single-ply sheets for a fully adhered assembly, features a continuous feed system that sends adhesive directly from the tank to the applicating roller, cutting down on loss due to evaporation.

The unit comes with a 50-foot hose and a 7-foot handle with an 18-inch-wide roller head. A carbon dioxide cylinder that provides power for 50 gallons of material is also included.

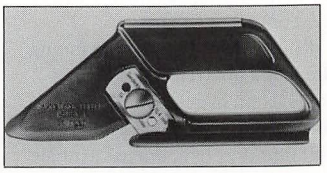
Check #47 on Reader Service Card

Merik markets single-ply knife

Merik Marketing, Inc., is offering a new knife specifically developed for use with single-ply membranes.

The Banana Blade knife cuts regular or reinforced membranes while leaving the substrate untouched. The rounded nose makes the knife useful in applications where heat welding is used; the design helps prevent burns to the hands and fingers. The cutting blade on the tool is replaceable and a spare blade can be conveniently stored in the knife's handle.

Check #48 on Reader Service Card



NEW IDEAS

Roofmaster adds to kettle's features

Roofmaster Products Co. has added two features to its Flameguard™ electronic kettle control system.

The new 110/12-volt converter allows the kettle to be hooked up to any 110-volt source, providing a backup power source to the kettle's 12-volt system.

The other added feature is a shut-off warning device. This attachment alerts the operator with a loud "beep" that the automatic shut-off system has engaged. The warning will sound anytime during the purge sequence or during operation. By giving the kettle operator an audible warning that the kettle is off, the device helps prevent asphalt cooling, according to the company.

Roofmaster is also introducing the Flameguard electronic control system in a new portable format that can be attached to any liquid-petroleum gas asphalt kettle or tanker. The portable system includes all of the features found on the standard system.

Check #49 on Reader Service Card

Hot-air welder self-regulates

A new self-regulating hot-air seam welding machine designed for use on Hi-Tuff™ single-ply roofing systems is being marketed by J.P. Stevens & Co., Inc.

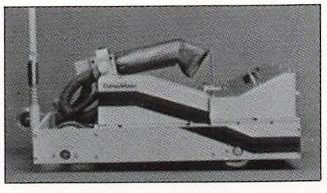
The CompuWelder utilizes an infrared heat-sensing device that reads the temperature of the membrane area being welded and relays the information to an on-board computer. The computer adjusts the speed of the welder so that the correct amount of heat is delivered to the seam. The unit incorporates circuit breakers specified by the Occupational Safety and Health Administration, and ground fault interrupters for the safety of the operator.

Stevens has also introduced a non-thermal-bridging plastic fastener for use with the Hi-Tuff system.

The one-piece fastener is designed for use with gypsum and tectum decks. It is available in lengths from 3 1/2 inches to 5 1/2 inches in 1/2-inch increments. The fastener is inserted with a stand-up punch and pneumatic air wrench. Wide screw threads torque down into the deck, securing the insulation and membrane without penetrating the underside of the deck. Wire barbs, which are set when the fastener is installed, eliminate backout and add to the holding power of the fastener.

A brochure describing the Hi-Tuff roofing system is available from the company.

Check #50 on Reader Service Card



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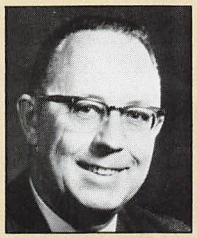
Conditions will indicate if vapor retarder is needed

by Bob LaCosse



NRCA is continually asked about the use of vapor retarders, materials that control the flow of water vapor from the interior of a building into the roofing system. Actually, the transmission of moisture through building materials is quite normal. Water vapor passing to the outside air is harmless. The problem arises when there is a significant temperature difference between the inside and outside air. As air cools, its ability to hold moisture in vapor form is reduced. When air cools to the point where it can no longer accommodate moisture, condensation occurs.

In the temperate zone of the United States, especially during winter, water vapor flows upward from a warm, humid interior toward a cooler, drier exterior. More vapor retarders are used in this situation because the danger of condensation on the underside of the roof assembly is greater. In the South, where the vapor tends to flow into the building from a warmer exterior, the roof membrane itself serves as the vapor retarder.

As a guide, vapor retarders should be considered when either the outside average January temperature is below 40F, or the inside relative humidity is 45 percent or greater.

Moisture vapor can be controlled through any of the following measures:

- by installing a vapor retarder on the warm side of the structure to prevent the passage of moisture into the roof assembly;
- by ventilating the building to reduce the amount of water vapor in the occupied space; or
- by ventilating the insulated space on the inside of the assembly to remove the moisture vapor that has collected.

Not all construction requires a vapor retarder. The need for a vapor retarder will depend on the principle direction of air flow and the expected differences in temperature and humidity between the interior and exterior of the building. Also to be considered are humidity conditions, climate control within the building, and the frequency and rate of air exchanged in the occupied space. Because of the complexity of factors involved, the decision to use a vapor retarder is best made by an engineer or consultant who has an intimate knowledge of all of these variables.

Vapor retarder classifications

Vapor retarders generally fall into the following two classificatons: bituminous membranes and non-bituminous sheet materials.

In bituminous membranes, a film of bitumen serves as the vapor retarder. A typical two-ply installation using three moppings of bitumen can provide a vapor retarder rated at less than .005 perms. (A perm is defined as the movement of one grain of moisture per square foot, per hour, per inch of mercury pressure differential.)

Non-bituminous sheets include PVC films, kraft paper and aluminum foil combinations. When used with adhesives to seal the laps, they provide permeability ratings ranging from 0.1 to 0.5 perms. PVC films and associated cold-applied adhesives are not recommended by NRCA, however, because of their susceptibility to damage from other components of the roof system.

When choosing a vapor retarder, you should pay particular attention to the following:

- permeance, with a perm rating of 1 being the minimum;
- the type of deck and fire hazard classification;
- the vapor retarder's ability to perform in the field; and
- the vapor retarder's compatibility with other materials in the roofing system.

The most effective vapor retarders have no openings through which moisture and vapor can pass. However, vapor retarders puncture easily and can be damaged by equipment and human traffic. To repair punctures, a patch at least 12 inches larger than the puncture in all directions must be used. In order to be properly installed, the laps of the vapor system must be made on as smooth a surface as possible.

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