National Roofing Contractors Association

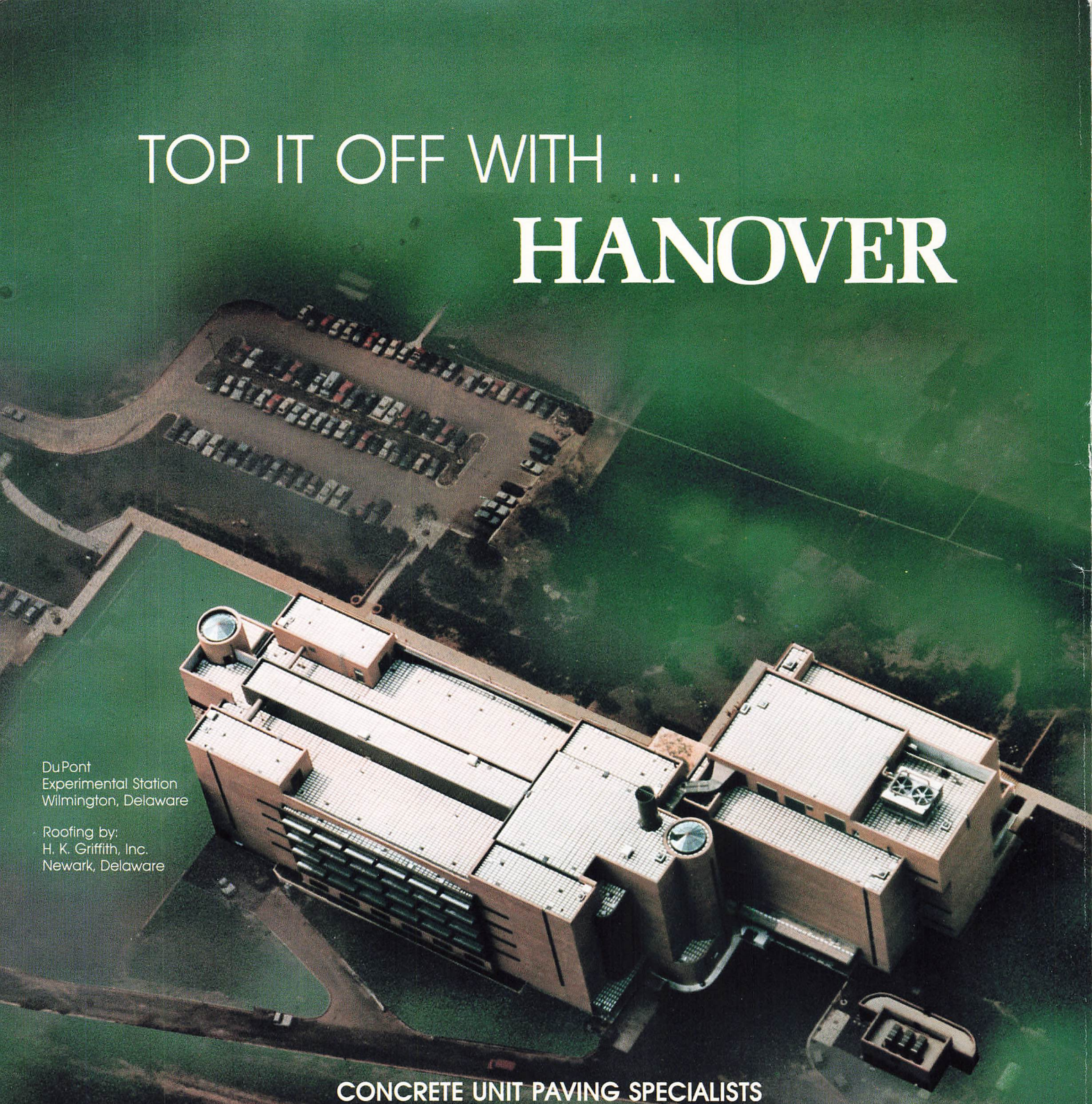
ROOFING SPEC

MAY
1985
$2.00

Single-ply safety

TOP IT OFF WITH ...

HANOVER



DuPont
Experimental Station
Wilmington, Delaware

Roofing by:
H. K. Griffith, Inc.
Newark, Delaware

CONCRETE UNIT PAVING SPECIALISTS

There's more to a paver than what meets the eye. Compressive strength, low water absorption, density, flexual strength, uniformity ... it all has to be there to make the system work.

In addition, we offer a range of textured surfaces to ensure non-slip qualities. Check our specs against any competitor. For the highest quality use Hanover Pavers. Call or write us for details.

HANOVER PREST-PAVING® CO.

240 Bender Road, Hanover, PA 17331 (800) 426-4242 – In PA (717) 637-0500

Check #20 on Reader Service Card

ROOFING SPEC

Vol. 13, No. 5 May 1985

ADVERTISERS

COVER

The roofing industry is beginning to look at the safety hazards posed by the chemicals used to clean and adhere single-ply systems.

STAFF

NATIONAL ROOFING CONTRACTORS ASSOCIATION

8600 Bryn Mawr Avenue
Chicago, Illinois 60631
(312) 693-0700

FEATURES

DEPARTMENTS

SOCIETY OF NATIONAL ASSOCIATION PUBLICATIONS

ROOFING SPEC (ISSN 01997742) is published monthly by the **NATIONAL ROOFING CONTRACTORS ASSOCIATION**, 8600 Bryn Mawr Ave., Chicago, Ill. 60631. Statements of fact and opinion are made on the responsibility of authors alone and **do not** imply an opinion on the part of the officers, or the membership of NRCA. Material may be reproduced by any member or affiliate organization **only.** Appropriate credit line is requested. Copies to members include a four-page supplement.

Second-class postage paid at Chicago, Ill., with additional entry filed in St. Joseph, Mich. **Annual subscription rate** for NRCA members is $15, included in **annual membership dues.** Additional subscriptions for member firms are $10 annually. Non-member subscriptions are $15 per year.

POSTMASTER: Send address changes to ROOFING SPEC, 8600 Bryn Mawr Ave., Chicago, Ill. 60631.

Now! A substrate that exceeds today's tough demands for

single ply systems

STRUCTODEK™ wood fiber substrate is fast-becoming today's professional choice in underlayments for new or re-roof applications. It is scientifically designed to actually exceed the stringent standards established for single ply systems. Whether mechanically anchored, adhered, or used in a ballasted system, the substrate you use should equal the highly advanced technical requirements set for single ply membranes. That's why we urge you to compare this superior underlayment with alternative products on all five counts pictured here.

Tough, rigid STRUCTODEK substrate is asphalt coated to provide an excellent moisture retarder. Special water resistant additive helps reduce wicking. And it's also available in an asphalt-free formulation for PVC membrane systems. Get specifics on this UL Classified roofing substrate with service to match. *Call Chicago at 1-800-621-9624...the Philadelphia area at 1-800-257-7885...or Los Angeles at 213-380-3461. Or write to us at 101 S. Wacker Dr., Chicago, IL 60606-4385, Dept.*

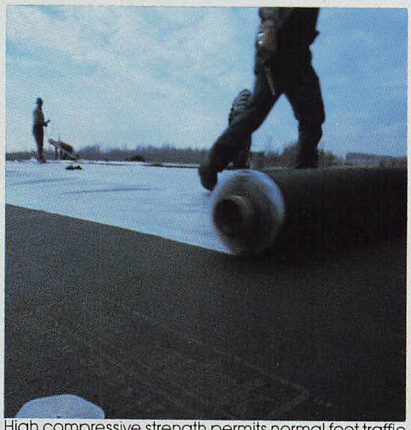
■ *Contractor: Leonard Smith, SHEETMETAL & ROOFING, INC. Salem, VA*

Structodek™
Roofing Substrate from USG

WOOD FIBER DIVISION
USG Industries, Inc.

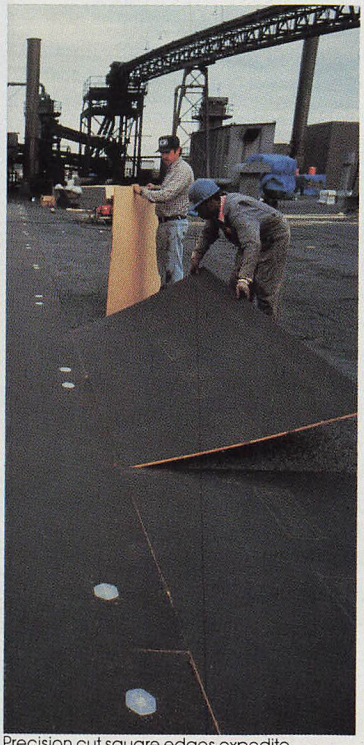
Check #49 on Reader Service Card

todek

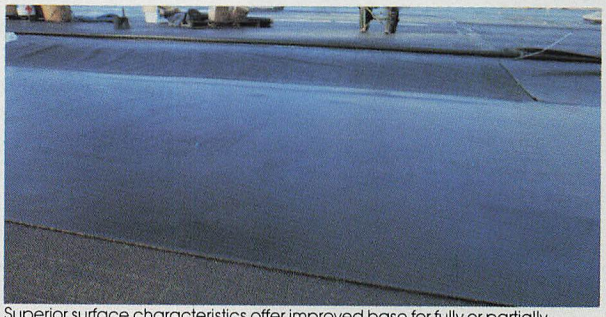


High compressive strength permits normal foot traffic during installation.

Provides excellent base–even over uneven surfaces.



Precision cut square edges expedite professional quality installations.



Superior surface characteristics offer improved base for fully or partially-adhered surfaces.

Greater tensile/transverse properties add extra mechanical attachment strength.

FINISH ON TIME WITH THE ROOF THAT'S ON-LINE.

Maintaining a job schedule is critical to maintaining your profits. Delays can be costly. And Firestone's new Status 1 Computer Order Entry System can help you install a RubberGard® single-ply system on schedule...on budget.

Status 1 assures accurate order entry and invoicing with same-day order acknowledgement. And it's connected directly to our Material Control Department to make certain your order is complete and ready to ship on time.

But Status 1 is just part of the Firestone service story. In addition, Firestone carriers call ahead to confirm delivery at least 24 hours before arrival. Our applications engineering staff is on call to assist you. And we're rapidly assembling the industry's largest team of technical representatives to assure prompt inspection and warranty issue. All because we're committed to building the best service reputation in the industry.

Install the single-ply roof that helps keep you on schedule...to protect your profits. Firestone RubberGard EPDM. Firestone Building Products, 3500 W. DePauw Blvd., Indianapolis, Indiana 46268. Sales: 1-800-428-4442. Technical Services: 1-800-428-4511.

Firestone

BUILDING PRODUCTS COMPANY

DIVISION OF THE FIRESTONE TIRE AND RUBBER COMPANY

Check #17 on Reader Service Card

LETTERS

Roofing Spec encourages your letters and comments. Letters for publication may address articles appearing in the magazine or topics that may be of interest to *Roofing Spec* readers. The editor does have the right to edit or abridge all letters for publication.

Technical report's headline corrected

Dear Editor:

I was pleased to see that *Roofing Spec* presented the full text of the technical report on Phase I of the joint Koppers/NRCA research program to determine the relationship between application temperature, bitumen viscosity and mopping weights of hot-applied coal tar products.(See April *Roofing Spec,* page 35.) Unfortunately, the correct title of the report was not given and this presents a rather serious omission because the report, a first of its kind, will be referenced time and time again in future technical literature. The title given in *Roofing Spec* can be misleading and provides little assistance to the technical reader in identifying the true technical content of the report. For the record, the correct title of the report is "Interim Report on a Program to Study the Relationship Between Temperature-Viscosity and Interply Mopping Weight of Roofing Membranes Using Hot-Applied Coal Tar Products," Phase I.

It is also unfortunate that *Roofing Spec* failed to acknowledge Messers. George Adamshick, Donald H. Waltz Jr. and James P. Weidman, the Koppers Co. representatives on the joint task group. These gentlemen made major contributions in planning and conducting the study as well as in collection and analysis of the data and in the preparation of the final report.

The joint program exemplifies the cooperative effort of the manufacturing and contractor segments of the roofing community in addressing common problems through research.

William C. Cullen,
NRCA research associate

There's a roofing revolution underway.

No longer will cracking black tar and snarls of wires continue to clog our skylines. Roofs are no longer ignored as cluttered, wasted space — they're free to be used and enjoyed.

Leading the revolutionary charge are the elastomeric membranes. Thin and durable, these membranes dramatically simplify installation, respond more naturally to climatic changes, and their versatility has opened new worlds for architects and their clients.

Much of this versatility, however, is dependent upon your choice of ballast systems. Ballast systems can be more than just gravel spread on top of the membrane. In fact, the creative use of a ballast system is the key to effectively using your roof space.

Ballastones by *Stepstone, Inc.*, allow you to take full advantage of the versatility provided by your new membrane roof.

What are Ballastones?

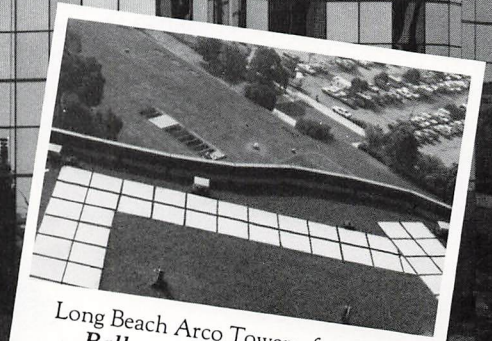
Ballastones have been designed as a creative ballast system for single-ply membrane roof systems. Briefly, the roofing membrane material is loose laid on top of the roof. Leaving the membrane loose allows for normal expansion and contraction as a result of climatic conditions — the roof ages rather than cracking. The membrane remains vulnerable to wind when loose and strong gusts could expose the insulation and other internal layers. To protect the roof against the wind you add ballast to hold the membrane to the roof. Most initial ballast systems were simple and designed to do no more than keep the membrane from blowing away. These systems, (mostly gravel or crushed rock) didn't allow you to take full advantage of your roof space. In many cases they actually inhibited activity on the roof — the fear of puncturing the membrane with a sharp rock edge has kept all too many people off their roofs.

Ballastones create a system that encourages you to step onto your roof.

Whether you choose only tracking around the perimeter or decide to put a patio on your roof, ***Ballastones*** are the right system. The pavers are easily installed and can be arranged in any pattern you can design. Once they are on the roof they can be picked up quickly for access to utility outlets or to be rearranged if you choose.

In a time of change in the roofing industry, ***Ballastones*** are helping make the new ideas work even better!

STEPSTONE INC.
The Elegant Paver
17025 South Main Street
Gardena, CA 90248
(213) 327-7474
4902 West Superior
Phoenix, AZ 85040
(602) 273-0205



Long Beach Arco Towers, featuring ***Ballastones by Stepstone.***

Erratic funding causes new construction to fall, says Christie

Contracting for new construction fell 5 percent in February, following a period of sustained high level activity, the F.W. Dodge Division of McGraw-Hill Information Systems Co. reported.

February's seasonally adjusted annual rate of contracting for new construction was $204.1 billion. The average level of construction that prevailed from November through January was $213 billion. The February decline was attributed primarily to a drop in public works projects.

"February's setback was more the result of erratic funding of publicly financed construction than it was a reaction to economic conditions," said George A. Christie, vice president and chief economist for F.W. Dodge. "Commercial building, the corner of the construction market that is most sensitive to business activity, was having one of its better months in February," he added.

The Dodge Index declined to 145 in February from January's 153 (1977 = 100).

The value of contracting for non-building construction (public works and utilities) fell 24 percent in February to $36.2 billion, following January's record surge of $47.8 billion.

"Interruptions in the disbursement of public funds that go back as far as mid-1984 have led to exaggerated swings in contracting in recent months," the Dodge chief economist pointed out. "Taken together, the first two months of 1985 are about on target for public works construction, and are comfortably ahead of last year's average."

Christie predicts that with the Interstate Cost Estimate issue's resolution, a release of federal money should ensue and result in a smoother flow of public construction in the months ahead.

February contracts for non-residential building totaled $73.7 billion, a gain of 4 percent over January's seasonally adjusted rate.

Responding to a rebound of office construction, contracting for total commercial building advanced 10 percent in February. Industrial construction, however, is suffering the effects of last year's economic slowdown, noted Christie. February marks the third month in a row in which industrial construction declined, bringing the current rate of contracting for manufacturing facilities 30 percent below the peak rate of last November.

Institutional building, such as schools, healthcare facilities and public administration buildings, remained steady in February.

After a spurt of multi-family housing starts in January, residential building settled back as expected in February, Christie said. February's construction contract value was reported at $94.2 billion, which is 3 percent below January's seasonally adjusted building rate. The decline in apartment projects more than offset a modest gain in single-family homes.

February's contracting data, when analyzed by region, revealed that contracting rose 3 percent in the Northeast, but fell 18 percent in the North Central states. The South and West showed 1 percent and 2 percent declines, respectively.

The unadjusted total contract value of all newly started construction for the first two months of 1985 was $28.1 billion, a 1 percent decline from the same period in 1984.

continued on page 11

Monthly summary of construction contract value

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

	Monthly construction contract value seasonally adjusted annual rates, in millions		
	Feb. 1985	Jan. 1985	percent change
Non-residential building	$ 73,746	$ 70,613	+ 4
Residential building	94,191	96,758	− 3
Non-building construction	36,208	47,758	−24
Total construction	$204,145	$215,129	− 5

	Year-to-date construction contract value unadjusted totals, in millions		
	2 mos. 1985	2 mos. 1984	percent change
Non-residential building	$10,314	$ 9,644	+ 7
Residential building	12,248	13,821	−11
Non-building construction	5,560	5,016	+11
Total construction	$28,122	$28,481	− 1

Dodge Index
(1977 = 100, seasonally adjusted)

December 1984. . . . 150
January 1985 153
February 1985 145

YOU KNOW THE BEST ROOFS DO MORE THAN LOOK GOOD. THEY WORK, TOO.

COMPOSITION STRENGTH TESTING

The basis for any single-ply - its composition - determines its integrity. We employ an exclusive thermoplastic Nitrile (NBP) Alloy in an advanced coating technology with a unique Fiber-Loc™ knitting of high strength, low shrinkage Celanese Fortrel® polyester yarn. The properly designed and inherently specifiable single-ply system is the product of superior materials and state-of-the-art manufacturing procedures.

The system that's specified is only as strong as its own specs and properties, and we can give you complete information on the stringent tests Bond Grey™35 has withstood. Whether the selection is based on tensile strength (7500psi), puncture resistance (250 lbs.), temperature/UV resistances, all of these, or more, Bond Grey™35 wins your confidence with proof.

By installing Bond Grey™35 single ply membrane, you know you're working with a product that has passed the most rigid industrial testing methodology. We meet or exceed building codes by excellent performance on tests conducted at UL, FM, SBCCI and Metro-Dade, but we don't stop there. We perform continuous testing on all production phases in our U.S. Government approved (QLL-2906) laboratories.

IT'S ALL IN THE SYSTEM.

CLASSIFIED UL

U.L. R-10197

Factory Mutual System spri

FM J.I. 1H1A2AM

BONDGREY 35 BOND COTE SYSTEMS SINGLE-PLY MEMBRANE

P.O. Box 71 West Point, Georgia 31833 800-368-2160

"THE STANDARD CODES"

SBCCI RCR-8426

METRO-DADE METROPOLITAN DADE COUNTY, FLORIDA

Metro-Dade
84-0831.1(83)R Exp:1-9-87

Check #35 on Reader Service Card

Civil Rights Commission holds hearing; NCIC calls set-asides "severe burden"

The federal government's Civil Rights Commission held two days of hearings to explore the issues of underrepresentation and affirmative action in employment. Minorities' and women's business set-asides were also discussed.

In his March 6 testimony before the Commission, G. Paul Jones Jr., immediate past president of the National Construction Industry Council (NCIC), called set-asides "a subject which engenders profound resentment on the part of individual contractors and continues to be the single most contentious issue to be discussed by members of the industry and the Council."

Jones divided the construction industry's arguments against set-asides into two categories: "the practical impossibility of achieving a specific DBE quota on all individual contracts, and the perceived unfairness of preferring certain racial characteristics over others in awarding publicly funded construction work."

Existing laws and regulations governing set-asides impose quotas rather than goals on construction contractors, Jones' testimony said. "A goal," he explained, "would permit the best or good-faith efforts of the contractor to be taken into account if the goal is not reached. To those of us in the construction industry who must adhere to these rules, applied inflexibly and without concern to the hardships created, even to those who are arguably to be favored, this is indeed a decree and, in practical application, a quota."

Citing reports prepared by the Economic Development Agency and the Comptroller General, Jones claimed that in many areas there is a real problem finding a qualified disadvantaged business enterprise to perform a contract. Unqualified firms combined with inflexible mandated quotas create a severe burden for contractors, Jones told the Commission.

Jones went on to testify about the subversion of the competitive bidding process. He claimed that "there is something inherently wrong with governmental action which seeks to promote the welfare of one segment of our society at the expense of another segment.

"Under our system of justice," Jones elaborated, "no one is accorded any special treatment or is obligated to suffer any detriment because of ethnic origin, race or religious preference. Yet, the objective of these set-aside programs is precisely that: to accord a benefit, in the form of an exclusive and protected market to a class of individuals denominated solely by their racial characteristics."

These same laws and regulations, according to Jones, serve to bar others in our society from receiving government benefits simply because they fail to possess the preferred ethnic or racial ancestry.

Jones maintains that the real obstacles a construction firm must confront in their effort to remain viable are "lack of relevant expertise, inadequate working capital and cash flow, inability to obtain bonding and inadequate experience in bidding, and obtaining and managing work. For the minority or disadvantaged business, these problems are not susceptible to solution by the mandated use of quotas." Jones rather believes that "they are solvable by programs aimed at increasing education in construction disciplines, easing bonding requirements, expanded apprenticeship and training programs, more generous loan programs, and capital assistance programs."

Single Ply Roofing Institute elects Warshaw president

Ruth I. Warshaw of Sarnafil, Inc., Canton, Mass., was elected president of the Single-Ply Roofing Institute (SPRI) at its annual meeting in January in Ft. Lauderdale, Fla. Warshaw, Sarnafil's single-ply membrane marketing manager, is the first woman to be elected to this organization's presidency. She received the gavel from retiring president, Richard K. Foley.

Warshaw's presidential duties include directing all SPRI activities, including technical, worker health and safety, industry standards, public relations and educational programs.

Warshaw has been actively involved with SPRI since its inception. She has served on the SPRI Board of Directors as chairman of the public relations committee, and was president-elect this past year. She also serves on the advisory panel for the NRCA publication "Commercial, Industrial and Institutional Roofing Materials Guide," and is a member of the Construction Specifications Institute.

Other SPRI officers elected were Thomas Petrarca of Synergy Methods, Inc., president-elect, and Hugh Kenney of Carlisle SynTec Systems, secretary-treasurer.

Elected to serve three-year directorships were Thomas Curran of Wat-Pro, Inc., and Dennis Lubert of Owens-Corning Fiberglas. John Busch of The Manville Corp. and John E. Brinkman of Dynamit Nobel of America will serve two-year director terms.

Harry Fishman of E.I. DuPont deNemours and Co. was elected to represent SPRI associate members. Paul W. Mitchell Jr. of Tremco, Inc., will remain on the Board for another year. And Richard K. Foley of Sarnafil, Inc., will serve as immediate past president.

The Board has appointed Thomas E. Murray of W.R. Grace & Co. to serve for one year in place of Roy Schauffele who was unable to complete his term.

Ruth I. Warshaw

Eastcon 85 certified as official International Trade Fair

The U.S. Department of Commerce has officially designated Eastcon 85 an international trade fair. Eastcon 85 is the first large-scale, permanent, international construction exposition ever planned in the Eastern United States.

This giant new exposition will be held Sept. 10-13, 1985, at the North Carolina State Fairgrounds in Raleigh, N.C. It will include a high-level concurrent educational conference for construction professionals. In the future, the conference will be held every other year.

"We're very pleased at the International trade fair certification," Robert E. Zimmerman, president of Southern Trade Shows, Inc., Charlotte, N.C., said. "We knew very well what we were doing, but it was hard to convince people that Eastcon 85 was a national and international event."

Certification as an international trade fair, which commits the Commerce Department to active worldwide promotion of the event, is rarely, if ever, conferred in advance. Many expositions have waited years for certification, and some never qualify.

Firms that manufacture and sell construction equipment, materials and services are already leasing exhibit space at the new exposition.

Southern Shows, Inc., a well known exposition management firm, is organizing and administering Eastcon 85. The Carolinas branch of the Associated General Contractors (AGC) is sponsoring the show. AGC is also organizing the educational conference.

Some 42 other Eastern AGC chapters are co-sponsoring the event, and about two dozen construction associations' regional and state chapters are cooperating. Some have reserved exhibit space and some are planning concurrent meetings in Raleigh.

Early exhibitors at the fair include firms as diverse as International Harvester Trucks, J.I. Case, Exxon, Perkins Engines, 3M, C.I.T. Financial, Gerbus Equipment, Elba Corp., Owsley & Sons, Dynamit Nobel, Kenco, Atlantic Cement, Firetrol and McGraw-Hill's Dodge/Scan Division. Approximately 100 firms have made telephone commitments for exhibit space.

Information about Eastcon 85 is available from Southern Shows, Inc., P.O. Box 36859, Charlotte, N.C. 28236; 704/376-6594. The international telex number is 854-172.

continued on page 16

If you can n
better than th
this ad, turn th

Like other roofing manufacturers, Stevens is looking for roofing contractors. Unlike everyone else, we're taking only the best.

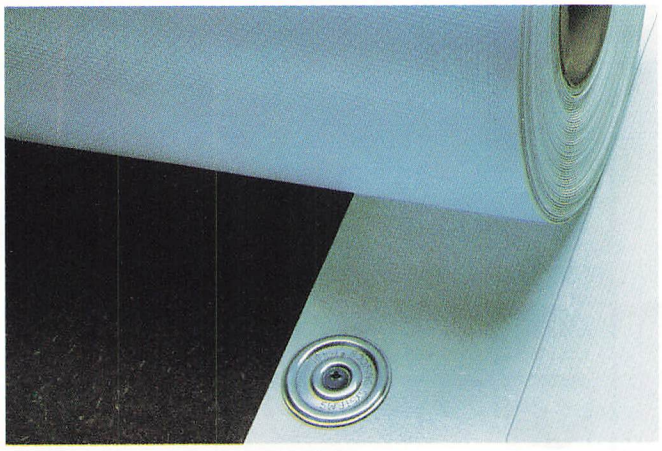
We're Stevens, manufacturer of Hi-Tuff® single-ply roofing systems, and we've been talking to contractors all over North America. You've told us what you want in a roofing supplier.

So, we've established four very important goals. We want to give you the best system, the best training, the best sales leads, and the best profitability. Nothing less will do.

As a Hi-Tuff contractor, you're ahead four ways.

Stevens pioneered today's easy-to-install reinforced membrane system based on Du Pont Hypalon* synthetic rubber. It's a mechanically attached, hot-air welded system which is sunlight-resistant, watertight, and highly wind- and fire-resistant as well.

We'll help make sure you're a Hi-Tuff applications expert before you lay one square foot. Your personnel will get thorough hands-on training from our experienced field engineers.



Hi-Tuff: the best of modern technology

*Registered trademark of Du Pont.

Check #41 on Reader Service Card

ame 3 roofers
e one reading
e page.

When you're a Stevens applicator, you get sales leads and technical support through our nationwide network of distributors. Our national advertising and public relations program keeps Hi-Tuff continually in front of prospects – under the theme, ''Nothing Tops a Hi-Tuff Roof.''

For you, it's a winning combination: hot sales leads; a foolproof system that practically eliminates callbacks; and Stevens' applicator training program. They add up to maximum profitability – that all-important bottom line.

Don't believe us.

Ask around.

Find out who's installing Hi-Tuff.

Ask *them* what kind of success they're having.

Ask *them* about how Stevens supports them.

Ask *them* how they like the Hi-Tuff single-ply system.

Once you have the answers, we think you'll come to Stevens. Because

Hi-Tuff tops the home of Critikon, Inc., a Johnson & Johnson company.

at Stevens, the contractor is the key player. We and our distributors are out to support you 100%.

If you rate yourself a top-notch contractor, we'd like to talk to you. Write us at J.P. Stevens & Co., Inc., Stevens Elastomerics/Roofing Systems, Easthampton, MA 01027. Or call Bruce Abbott at 413/527-0700.

Either way, you'll find out why the only thing that tops a Hi-Tuff roof is a Hi-Tuff contractor.

STEVENS
Roofing Systems

Check #73 on Reader Service Card

Dallas contractor Norma Mann receives top construction award

Dallas contractor Norma Mann was awarded the American Subcontractors Association's (ASA) John H. Hampshire Award, one of the top honorary awards in the construction field. The announcement was made at ASA's national convention, held March 13-17 in Dallas.

Mann is the first woman to serve as president of a major national construction association. She is also president of Mann Steel Co. in Dallas.

Mann is currently president of ASA of Texas, a group she helped found. She is also a trustee of the Texas Iron Workers Pension Trust Fund and a member of the National Association of Women in Construction.

She became the first woman president of National ASA and its 5,500 members in 1980. During her tenure as president, she was chosen to appear on the cover of *Engineering News-Record,* a leading construction trade publication.

"Norma Mann more than deserves this recognition," Eugene Grieve, ASA president said. "She has given unselfishly of her time and energy to benefit the subcontracting industry. Much of the growth and success of ASA can be attributed to her efforts, and her work has greatly benefitted the industry, especially the subcontractors, nationwide."

NCIC elects Pepper chairman

Richard S. Pepper, chairman of the board of Pepper Construction Co., Chicago, has been elected chairman of the National Construction Industry Council (NCIC).

Pepper, who represents the Associated General Contractors of America (AGC) on the Council, is the immediate past-president and a lifetime director of AGC. Besides his active involvement in AGC, Pepper is a former president of both the Builders Association of Chicago and the Chicago chapter of AGC.

Also elected to the NCIC 1985-1986 Executive Committee were: Richard R. Stander, American Road & Transportation Builders Association, vice president; James E. Curry, Jr., National Association of Plumbing-Heating-Cooling Contractors, secretary; M.R. (Mac) Sullivan, American Subcontractors Association, treasurer; and members-at-large, Pat Alibrandi, Associated Builders and Contractors; Marilyn Camin, National Association of Women in Construction; Gary Godbersen, Construction Industry Manufacturers Association; and W.M. Sweetser, National Constructors Association.

Publication helps contractors encourage contracting out

The American Subcontractors Association (ASA) recently published a new booklet to help subcontractors who compete for government contracts to encourage government entities to contract out to private firms.

The booklet, "Freedom from Government Competition: Getting the States to 'Contract Out,'" is designed to help contractors work through the legislative process to change government policy. Privatization is explained and state legislators' concerns are identified in the guide. Lobbying suggestions as well as examples of federal and state legislative proposals are included.

The booklet was designed specifically for ASA members, but may be useful to any contractor interested in seeing more government services contracted out to the private sector, according to ASA.

"While the focus has been on federal activity, public employee unions are also working to limit contracting out at the state level. State concerns are often influenced by concerns and actions in Washington," Jesse M. Pickett Jr., chairman of ASA's legislative committee, commented.

Pickett also stressed that "although federal legislation attracts more attention, contractors should be concerned about the laws of their own state. For more contractors, state and local public works are a significant portion of their market."

The booklet can be ordered from ASA, 1004 Duke St., Alexandria, Va. 22314; 703/684-3450.

MCAA relocates in Washington

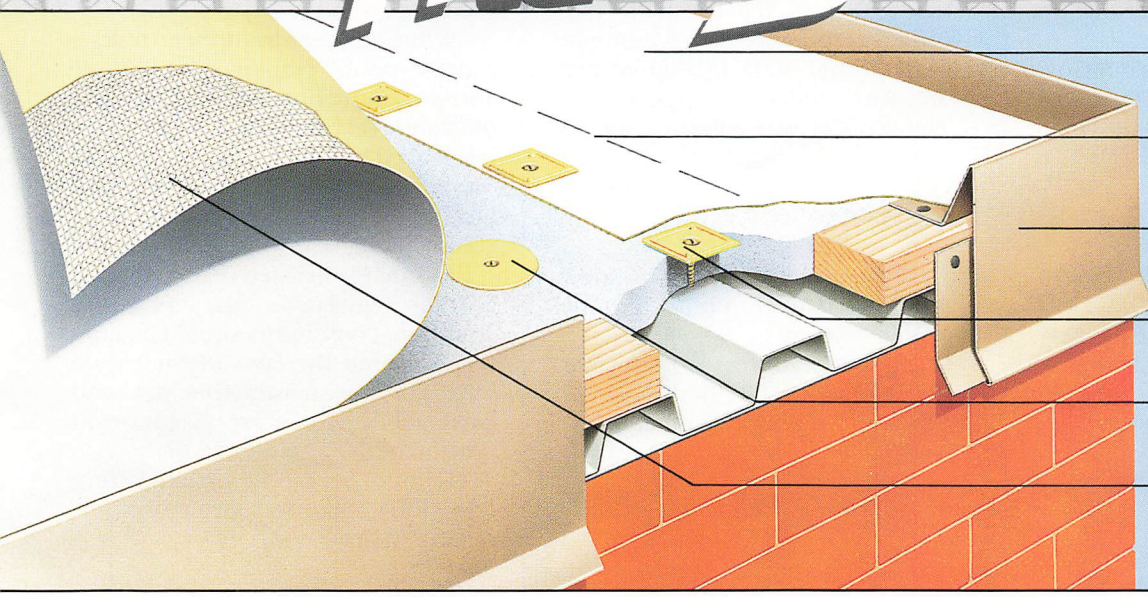
The Mechanical Contractors Association of America, Inc., (MCAA) has moved its national office to a new location. MCAA offices are now located in the Renewable Natural Resources Foundation Building in Bethesda, Md.

The building is located adjacent to the Washington, D.C., Beltway and is easily accessible from both National and Dulles airports.

MCAA's new address is 5410 Grosvenor Lane, Suite 120, Bethesda, Md. 20814. The telephone number is 301/897-0770.

continued on page 19

The System



TECHNOLOGY

It takes more than a membrane to make a good roof. It takes "know-how" and a total roofing system. ...We have both.

Cooley Roofing Systems has spent years perfecting the elements of our single-ply roofing system to assure you of maximum performance and integrity. The result—the *CoolTop 40 Roofing System.*

The *CoolTop 40 Roofing System* consists of a chlorinated polyethylene (CPE) membrane; coated mechanical fasteners; heat-welded seams; and flashing and perimeter details...Everything you need in a total, single-ply roofing system.

What makes the System so reliable? Undoubtedly the CPE membrane's outstanding performance characteristics, such as oil and chemical resistance...A must for industrial roofs. It's tough, too, because it's reinforced with 3-strand Fortrel™ polyester for dimensional stability as well as shrinkage, tear, and puncture resistance. Plus, it's 85% reflective for significant energy savings.

But, that's not all. Membrane seams are heat-welded for strength and moisture resistance and perfectly complemented by specially designed components such as: CPE coated metal, vent pipe boots, and pre-molded corners.

You'll like the way *CoolTop 40* installs, too, because it's mechanically fastened to the deck for a positive, secure installation. And, we use custom-designed coated plates and screws that offer 25% more corrosion-resistance than galvanized plates and screws.

When you sum it all up, there's nothing like the *CoolTop 40 Roofing System* for performance reliability. And, tests prove it. We're UL (Class A) and FM (Class 1) approved in addition to SBCCI (Class A), BOCA, and Metro Dade County (Class A). No wonder we offer an edge-to-edge warranty.

Like to learn more about the technology behind the System? Call, or write for your *free* brochure, today.

Cooley Roofing Systems INCORPORATED

The System Holds True

Chlorinated polyethylene from the Dow Chemical Company. Fortrel® is a registered trademark of Fiber Industries, Inc., a subsidiary of Celanese Corporation. CoolTop® is a trademark of Cooley, Inc.

Cooley Roofing Systems, 50 Esten Ave., Pawtucket, RI 02860 Tel: (401) 724-0490

Check # 13 on Reader Service Card

Georgia association's installation torching survey gets results

The Georgia Roofing and Sheet Metal Contractors Association's Loss Control Committee recently polled members about fire or smouldering problems when using a torch to install modified bitumen membranes. Responses to the survey indicate that this installation method requires extreme caution, the Association has concluded.

Of the 20 contractors repsonding to the survey, 17 experienced fires or smouldering. Wood fiber strips were involved in eight of these situations, four involved paper backing on insulation and wood fiber insulation was involved in another four. Fire or smouldering was also observed in a wood expansion joint, paper dust on a power fan and a wood deck surrounding a built-in gutter. Of the three remaining respondents, two did not install modified bitumens and one experienced no fire or smouldering.

Only one of the fires caused a serious loss, but many of the others could have easily become serious, according to the Georgia association.

The Committee is currently developing a recommendation that they claim will absolutely prevent fire problems with torched-on systems. In the meantime, it recommends that torching not be used with or around any flammable material.

The Committee also recommends that torch flames be kept low and that the flame extend only a short distance from the torch.

Construction association testifies against tax reform

The Internal Revenue Service (IRS), along with Congress, has recently scrutinized and re-evaluated the tax status of company cars, considerably changing the tax laws pertaining to these vehicles.

The 1984 Tax Reform Act requires taxpayers to keep extensive records of their vehicle use if they want to deduct a portion of the sale price and operating cost as a business expense.

Since January 1, 1985, the Act has required the maintenance of "adequate contemporaneous records" of business mileage. In some cases the rules require that every stop the vehicle makes be recorded. The Act also states that tax return preparers will be subject to penalties if their companies don't certify that the records were kept.

The IRS and Congress have received a deluge of complaints protesting the tremendous amount of recordkeeping required and inordinate number of regulations involved.

The American Subcontractors Association (ASA) is among the groups protesting the new reform. ASA leaders testified before the House Ways and Means Committee, claiming that the new IRS company vehicle regulations don't address problems unique to the construction industry.

The Association called on Congress to repeal the recordkeeping requirements and penalties for failure to comply with the requirements. They also urged that the tax on employee commuting expenses be revoked when a company vehicle is being used for the employer's convenience.

"Many of our members own small companies, and it is the nature of their work to travel between the office and their construction sites often and extensively. Under the new IRS rules, however, they must keep detailed logs while most of their employees are exempt. This simply hurts small businessmen," explained Jesse M. Pickett Jr., chairman of the ASA Legislative Committee.

ASA also provided Congress with specific examples that show how it is sometimes necessary for workers to take company vehicles home for the employer's benefit. Association representatives noted that the government currently taxes employees for company vehicle use.

Despite ASA's complaints that the law unfairly burdens smaller construction companies, recently passed tax code revisions continue to require construction companies to keep extensive records. The revisions offer relief from these requirements to other types of businesses.

Exempt from the new tax laws are farm vehicles, vehicles used all day for business purposes and vehicles used by certain sales people. Other exceptions are vehicles used more than 75 percent for business purposes and vehicles driven extensively during the year.

Recordkeeping requirements have also been eliminated for employers who have written policies against personal vehicle use or whose vehicles are kept on the business premises during non-business hours. These changes will not apply to top business executives, but will aid sole business proprietors.

Owners who use their vehicles less than 50 percent of the time for business purposes can continue to drive a company car. These owners, however, should be prepared to count the car's annual lease value as taxable income.

Consultant group holds elections; Norton elected president

Ray Norton of Norton Services & Consulting, Lombard, Ill., has been elected president of the Institute of Roofing & Waterproofing Consultants (IRWC).

Lee Russell, Spencer, N.C., was elected vice president and Kenneth Schneider, Nashville, Tenn., was elected secretary-treasurer.

Jim Koontz, Hobbs, N.M., and Al Alesi, West Carrollton, Ohio, were elected to two-year terms on IRWC's Board of Directors. Continuing on the Board for another year are Gene McCormick, Glenview, Ill.; Gerald B. Curtis, Haddon Field, N.J.; and retiring past-president William Wright, Royal Oak, Mich.

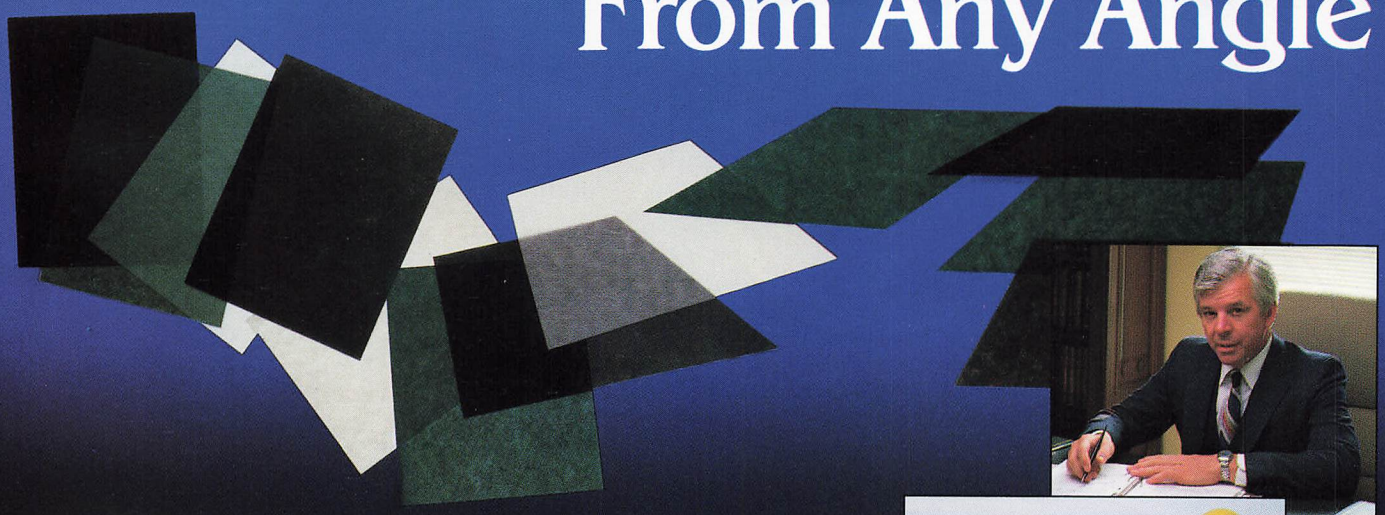
Other meeting activities included a membership directory preparation update. The directory will be intended for professional and industry distribution, and will be published in the near future, IRWC members were told.

Board members McCormick, Russel and A.L. (Pete) Simmons, Los Angeles, received awards honoring them as founding members.

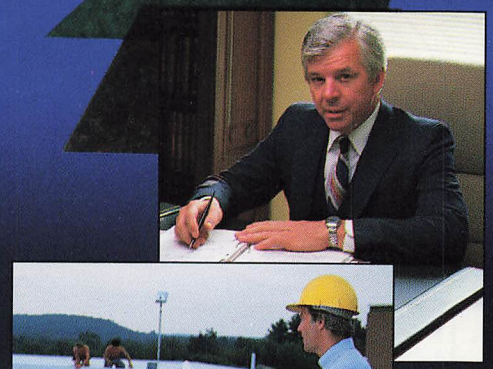
Dr. Heshmat Laaly, Los Angeles, gave a presentation titled "Testing and properties of single-ply roof membranes." Dr. Laaly, a chemist formerly with the National Research Council of Canada, has researched roofing's practical and theoretical aspects.

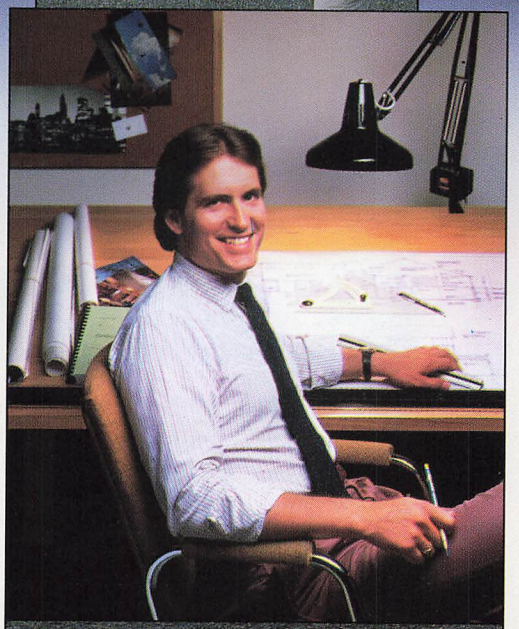
Hugh Dudley of the W.R. Grace Co. spoke to attendees about poured-in-place insulated products.

From Any Angle



Manniglas® Facers Look Good.





MANNIGLAS 1279

MANNIGLAS 1274

MANNIGLAS 1273

MANNIGLAS 1268

MANNIGLAS 1267

No matter how you look at roofing, whether from the perspective of the architect, the owner, the contractor or the roofer, MANNIGLAS facers offer benefits you can't ignore.

As an **architect,** you will want the most trouble-free, longest-lasting roof system available. Specify MANNIGLAS facers for foam insulation boards and you specify a top quality component of that roof system. MANNIGLAS facers are available on FM Class I insulation from most major rigid urethane foam manufacturers. MANNIGLAS is dimensionally stable, even under conditions of high heat and moisture. Its unique structure results in better bonding to the foam insulation for better peel strength.

With MANNIGLAS, the **owner** can be confident his insulation has premium quality facers that will be compatible with whatever roof system he chooses. This quality and compatibility will optimize the performance of his chosen roof system.

The **contractor** will appreciate the versatility of MANNIGLAS facers. They can be used with FM Class I built-up roof systems or with the various single ply systems and their adhesives. This versatility and the competitive price of MANNIGLAS can provide savings in inventory, labor and material costs.

The **roofer** will value the ease of installing MANNIGLAS-faced boards. They go on quickly, are adhesive-efficient and give excellent bond to asphalt or single ply membranes. MANNIGLAS facers contain no asphalt, and are non-softening for easier adhesive application. They're non-glaring and non-irritating as well.

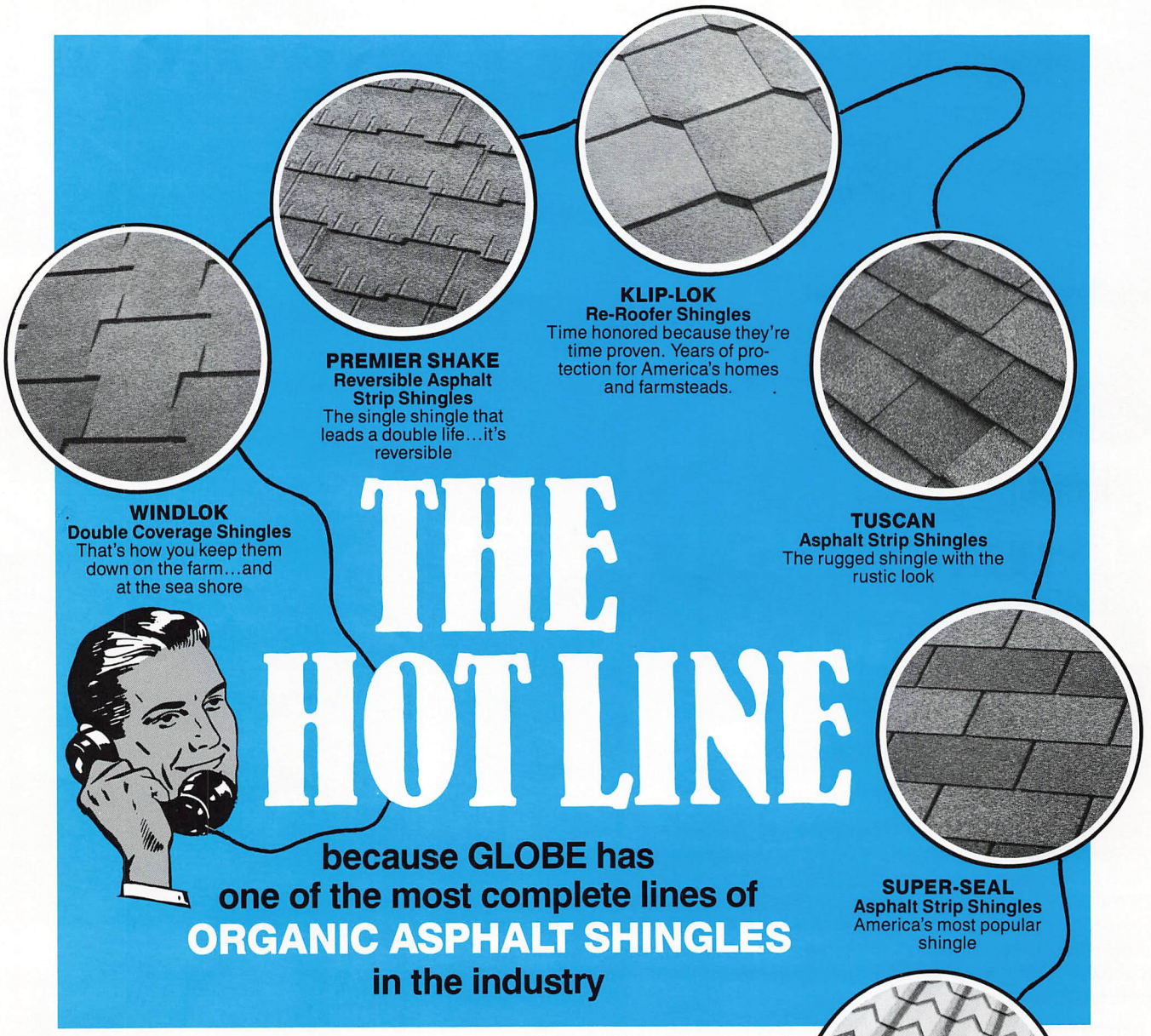
So specify MANNIGLAS. No matter what your angle, it's a winner!

MANNING PAPER COMPANY

Manning Paper Company
Division of Hammermill Paper Co.
P.O. Box 328, Troy, NY 12181
(518) 273-6320

®Registered Trademark of the Manning Paper Company.

Check #27 on Reader Service Card



It's the hot line because roofers know it's *the* line that serves the reroofing and new construction fields...that fits every need and budget...any rural or urban home...any exterior color scheme and architectural design...any climatic condition.

We have no axe to grind. We also manufacture "The Citadel", a top notch fiber glass shingle, and a complete line of quality Built-Up Roofing products. But, when it comes to organic asphalt shingles, come to Globe. We're the specialists... have been for over 50 years.

Call the HOT LINE today. 312/646-1300

GLOBE INDUSTRIES, INC.
2638 East 126th Street
Chicago, IL 60633

Check #19 on Reader Service Card

ARMA announces safety awards

A number of NRCA associate members have been named winners of the Asphalt Roofing Manufacturers Association's (ARMA) President's Safety Awards for plant safety in 1984.

Top awards went to Bird, Inc., Shreveport, La.; GAF Corp., Mt. Vernon, Ind. and Chester, S.C.; Owens-Corning Fiberglas Corp., Brookville, Ind.; and The Koppers Co., Wickliffe, Ohio.

Twenty-six other plants received certificates of achievement for reducing their accident incidence rates over 1983 and also for being below the 1984 average.

Specially designed flags were awarded in five categories for outstanding records based on lowest incidence rate and lowest recordable cases for comparable production man-hours.

The safety awards program is one of several that ARMA sponsors to aid member companies in employee safety and health education.

ARC donates material to reroof school

The American Roofing Corp. of Chicago has donated the roofing materials needed to reroof the Park Lawn School and Activity Center in Oak Lawn, Ill.

The United Union of Roofers #11, Waterproofers and Allied Workers also contributed their time and labor to this project for the Chicago-area community.

Courts approve loan; Evans can keep operating

According to a March 18 article in *The Wall Street Journal,* Evans Products Co. received court approval to borrow $50 million. The money should enable three big subsidiaries to continue operating. Evans is presently in bankruptcy-law proceedings.

All units drawing the loan own building-materials retailing chains. Twenty-one banks will fund the loan. In total, Evans' units will owe these banks $640 million.

According to Robert Mark, an Evans lawyer based in Miami Beach, business is proceeding as usual for the retailing companies. No layoffs or store closings are planned. Inventories are a bit low, Mark said.

continued on page 27


Fiberglas PermaPly-R
Fiberglas PermaPly-IV
DERBIGUM
PREMIUM BUILT-UP
PERMA PLY-R®
STANDARD BUILT-UP
PERMA PLY®-IV
SINGLE-PLY
DERBIGUM®

NO MATTER WHAT YOUR ROOFING BUDGET, WE'VE GOT YOUR NUMBER.

The right roof at the right price is easy to find when you come to the experts—Owens-Corning.

With three membranes and three types of insulation to choose from, you can simply custom-design the roof that's best suited to your project.

THREE OUTSTANDING MEMBRANES

Choose DERBIGUM® roof membrane for the performance of a 3-ply roof in a single layer. A proven success in Europe and the U.S. for 17 years, it's the largest selling modified bitumen membrane on the market. Excellent for all roof types—dome, barrel, peaked or flat.

PERMA PLY®-IV roofing felt gives you quality plus economy in a built-up roof. It meets or exceeds every industry standard. At a competitive price.

And PERMA PLY-R® roofing felt delivers a premium built-up roof of exceptional strength. You can count on its continuous strand construction for long lasting high performance. The proof? Over 6 billion square feet successfully installed since 1964.

THREE EFFECTIVE INSULATORS

You've picked the right membrane. Now mix 'n match with a quality insulation at the right price.

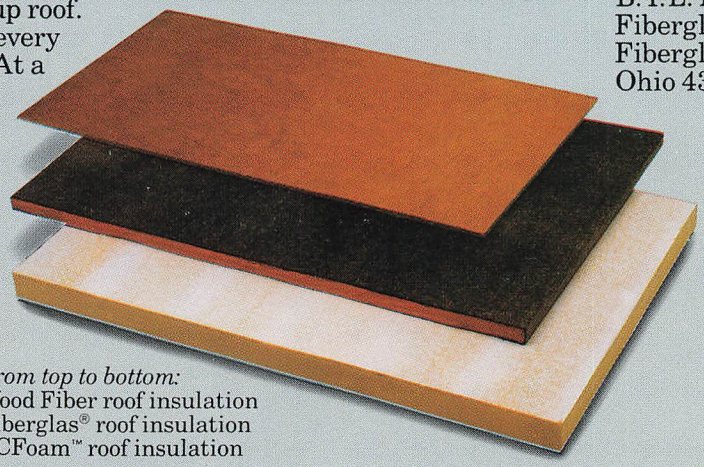
You can't beat FIBERGLAS® roof insulation for a truly superior roof. Available in a range of thicknesses and R values, it's the standard of excellence in the industry. It conserves energy. Helps reduce operating costs. And can save on initial equipment costs as well.

Choose OCFOAM™ roof insulation for exceptional resilience and dimensional stability. You'll find it in a full range of thermal values. At a price that's reasonable.

And if you want an inexpensive roof insulation that's also versatile, you can't do better than Owens-Corning WOOD FIBER. For roof leveling, reroofing and recovering, it's simply the finest wood fiber insulation you can buy.

Of course, we back all our roofs with the best warranties and guarantees in the business. So if you're in the market for roofing, contact Owens-Corning. Where finding the perfect roof for your needs and budget is as easy as 1, 2, 3.

Call your Owens-Corning sales representative. Or write B.Y.L. Meeks, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.



From top to bottom:
Wood Fiber roof insulation
Fiberglas® roof insulation
OCFoam™ roof insulation

OWENS/CORNING
FIBERGLAS
TRADEMARK ®

Check #31 on Reader Service Card

Duro-Last names 1984 award winners

Seventeen of Duro-Last's approximately 500 roofing contractors were recently named winners of the Duro-Last 1984 Century Club Award. This annual award recognizes outstanding workmanship, customer service and the acheivement of goals that are in Duro-Last's interest.

Award recipients were Ralph Bencrisutto, American Restoration Technics; Roy Schrieber, Roy Schrieber Construction; Wayne Nasi, Wayne Nasi Construction; Jim Busch, Weathershield Roofing; Bill Auberger, Rainbow Enterprises; Roger Gage, Gage Constructors; Walter McCulley, Consolidated Industrial Roofing, Inc.; Gene Borucki, Great Lakes Controlled Energy; Jack Buchinger, Jack Buchinger Builders; Warren Dahlin, New Style Roofing Co.; Michael Morss, M.W. Morss Roofing & Siding; Dave Svare, Dantco Enterprises; George Holko, Holko Enercon, Inc.; Charles Simpson, Preferred Painters, Inc.; Ralph Pennant, Dymond Roofing; Richard Thompson, RITCO, Inc.; and Harry Nolan, H.S. Nolan, General Contractor.

John Burt, Duro-Last owner and president, announced the winners at the company's 1985 roofing seminar held March 4 and 5 at the Michigan National Guard Armory in Saginaw, Mich. The seminar attracted more than 300 roofing contractors and manufacturing representatives nationwide.

Cooley appoints new sales representative

Cooley Roofing Systems (CRS), Pawtucket, R.I., has appointed Tim Whaley as sales representative.

Whaley's responsibilities will include sales development and service support for the CRS sales territory of northern Texas, Oklahoma and Arkansas. The northern Texas sales office is located in Garland, Texas.

Prior to joining Cooley, Whaley was a sales engineer for the Building Products Division of INRYCO, Dallas.

Carlisle selects council and award winners

Carlisle SynTec Systems has selected 23 top roofing applicators from across the country to serve as members of the company's newly formed Warriors' Council.

The Council recently held its inaugural meeting at Carlisle's manufacturing facilities in Carlisle, Pa. During the three-day session, Warriors' Council members met with Carlisle's executive staff to discuss roofing industry topics.

In addition, the roofers toured the entire Carlisle complex, including the company's adhesives plant and new SynTec Technical Center.

"This meeting presented us with a unique opportunity to discuss the roofing industry and Carlisle's products with some of our top roofing firms," said John Kavanagh, manager of marketing and customer services. "We're very interested in the feedback the Council members have to offer concerning the roofing industry because we feel it's important to exchange ideas with our roofing applicators."

Carlisle has also selected three roofing contractors for the company's Centurion award.

Don Largent, Harrisonburg, Va.; Warren Edwards, Marshville, N.C.; and W. Kent Nielsen, Minneapolis, Minn., received awards for completing more than 100 "Perfect 10" roofing installations. Carlisle technical representatives judged the projects.

Largent, Edwards and Nielsen are the first Carlisle roofing contractors to reach 100 "Perfect 10" installations.

Carlisle's "Perfect 10" award, part of the company's national roofer training and inspection program, recognizes consistent technical excellence in single-ply roofing applications and is presented to roofers who have completed 50 error-free roofing applications.

GAF building new facility and staff

The GAF Corp. has announced plans to construct a manufacturing facility to produce modified bitumen roofing membranes. The new facility, which will come on stream in May 1986, will be located at the company's existing roofing production complex in Mt. Vernon, Ind. Its capital investment is $4.6 million.

GAF's modified bitumen membranes will be marketed throughout the United States, the company reports.

GAF has added two employees to its staff. James J. Strupp is director of organizational development and Wayne A. Newton is director of compensation and benefits.

Strupp previously was vice president of human resources at Estee Lauder, Inc. Newton came to GAF from The Atlantic Cos., where he was director of compensation.

continued on page 30

KOPPERS, the roofing people...

Solving your roofing problems is often a case of taking the right direction

Proven on countless jobs since 1915. Its natural resistance to moisture and oxidation, and its cold-flow, self-healing properties mean low maintenance and extended service life.

- Roof insulation—for flat roofs
- Nail base insulation —for sloped roofs when using shingles

Two types of phenolic foam insulation with excellent aged "R" value...in fact the most "R" per inch in the industry.

A complete line of high quality tar and asphalt-based products to extend the service life of building roof systems. Emulsions, cutbacks, cements, resaturants and aluminum coatings are all formulated to meet your specific needs.

Experienced Koppers people are always ready to assist you with your roofing and waterproofing needs.

Coated glass, jute, and saturated cotton fabrics are available to add strength to hot or cold applied bituminous coatings in much the same manner as reinforcement rods in concrete.

NATIONAL ROOFING CONTRACTORS ASSOCIATION

INSIST ON A PROFESSIONAL ROOFING CONTRACTOR.

Take advantage of Koppers 70 years of experience in developing the most comprehensive line of roofing and waterproofing products in the field. Use the accompanying coupon to obtain additional information.

TBM—8501

Send to:

Koppers Company, Inc.
Dept. 3F-1
1901 Koppers Building
Pittsburgh, PA 15219

☐ Yes, have a Koppers representative contact me.
☐ Please send more information on:

_____

Name_____
Company_____
Address_____
City_____
State_____ Zip_____
Area Code_____ Phone_____

KOPPERS
Architectural and Construction Materials

Check #25 on Reader Service Card

Syenergy forms distributor advisory council

Syenergy Methods, Inc., Cranston, R.I., recently established a distributor advisory council comprised of top performing roof and wall distributors throughout the country.

Advisory council charter members include: Steve Yoder, president of Steve Yoder Associates, Inc., Atlanta; W. Boyd Culp, president of SMI Mid-Atlantic, Inc., Bridgeville, Pa.; Mike Morgan, president of Expanded Plastic Sales (EPS), Plymouth, Mich.; and R.G. "Dick" Wescott, president of Wesco Distribution, Inc., Dallas. They will serve rotating terms.

Preliminary plans call for the group to meet twice a year. Council members will provide reports on such subjects as customer relations, new product potential, business competition, company policy, marketing efforts and overall Syenergy performance.

Distributor advisory council members were selected on the basis of sales in their territory, account management and development, market knowledge, and customer relationships. In the future, additional members will be added on a merit basis.

"Council members will be our eyes and ears in the marketplace. With their candid observations and opinions, we believe management will be better informed, enabling us to respond quickly and effectively to the changing markets we serve," said Joseph S. Vuono, president of Syenergy Methods, Inc.

Monsey Products opens new plant

The Monsey Products Co. has opened a new manufacturing facility in Bartow, Fla., to meet increased market demand for its products.

The new facility will increase the company's production capability by approximately 15 percent and will add 40,000 square feet of production space, the company says.

Since its founding in 1939, Monsey has expanded to seven manufacturing facilities, including the Kimberton headquarters. With the addition of the Bartow plant, the company will have facilities in Florida, New York, New Jersey, Pennsylvania, South Carolina, Texas and Indiana.

The new location also allows the company to better serve customers in the Southeast.

P. James Grauer will be the plant's general manager. Grauer was formerly sales manager of the Mid-Atlantic region.

ARMCO watertight test validated by Nutting

The H.C. Nutting Co. has validated the results of a test Armco Building Systems conducted. The company claimed the 28-day test certifiably proved that the Armco Steelox roofing panel's 2-inch standing seam rib is waterproof, said Warren Mueller, senior applications engineer for the Nutting roofing products group.

The test was conducted in two 26-inch-by-60-inch water tanks fabricated from sections of Armco Steelox roof panels. Two standing seams connected the panels in each tank, with one tank also having a swadged end lap, Mueller said.

The tanks were built with standard fasteners and clips. The roof panels were positioned and secured to the supporting members according to the manufacturer's recommendations. All horizontal and vertical joints were sealed as they would be in actual construction. No additional sealant was added at the clips.

The tanks were filled with 9 inches of water. The standard Metal Building Manufacturers Association (MBMA) hydrostatic water test is done with 5 inches of water, Mueller added.

A Nutting representative checked the tanks regularly over a 96-hour period. No water leakage was reported. "Normally the test is done over a 24-hour period, but we decided to extend the test. After 28 days had elapsed, there was still no evidence of water leakage," Mueller said.

"The water leak test will be demonstrated at roofing conventions and exhibits throughout 1985. We have contructed a smaller version of the test tanks with the sides and ends made of plexiglass for a clear, unobstructed view," Mueller said.

Supradur appoints new sales manager

Supradur Manufacturing Corp., Rye, N.Y., has appointed James Hilbrandt as national sales manager. This appointment coincides with the retirement of Kurt Schwarz, who was national sales manager for more than 20 years.

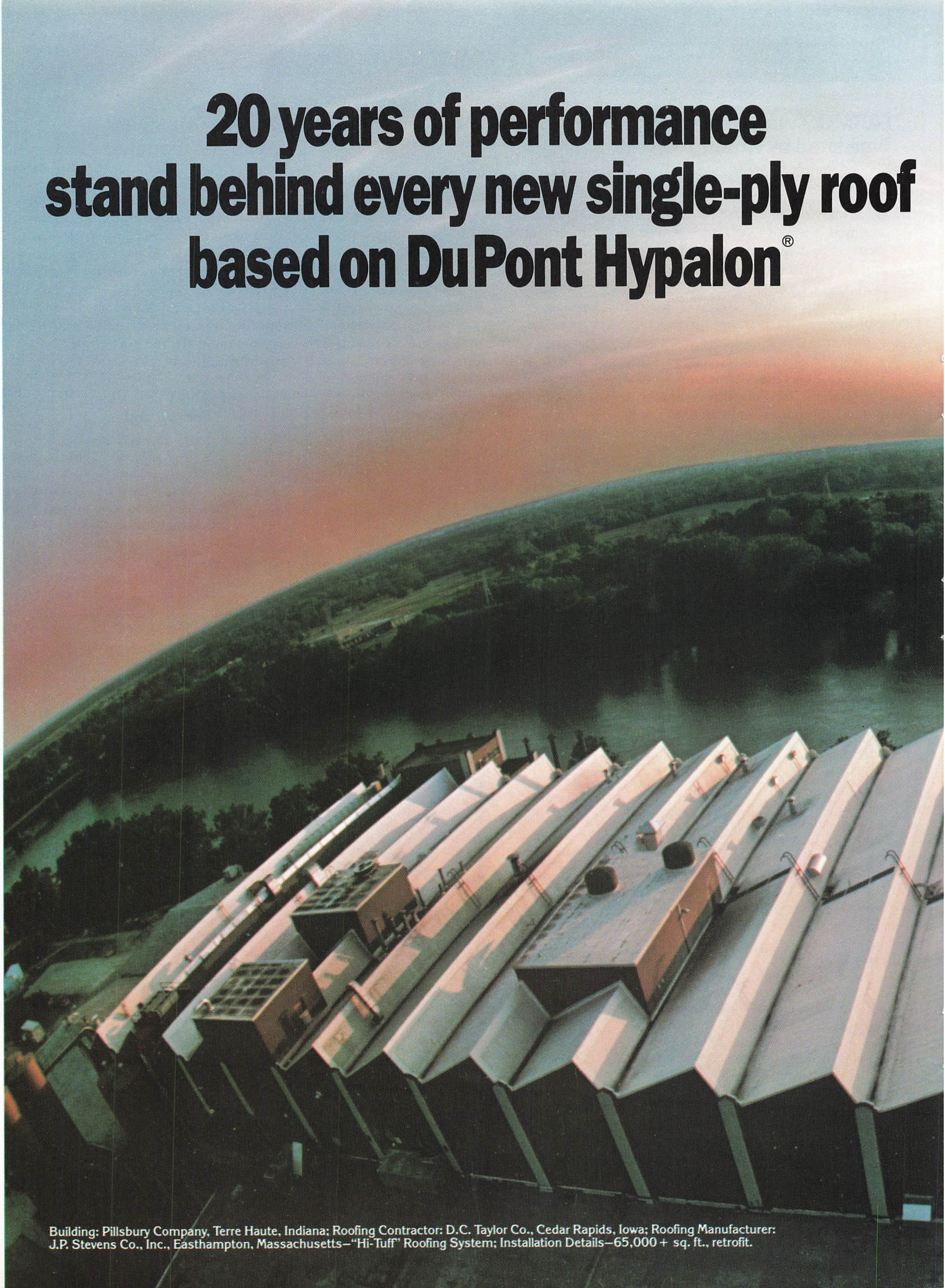
Schwarz intends to stay with Supradur as senior vice president. He will be available for special projects and consultations.

"We are forever indebted to Kurt Schwarz for his years of outstanding service to Supradur and owe much of our success to his efforts," K. Fred Netter, chairman of the Board of Directors said.

Hilbrandt was Schwarz's assistant and has had many years of experience in the building materials industry.

continued on page 34

20 years of performance stand behind every new single-ply roof based on DuPont Hypalon®



Building: Pillsbury Company, Terre Haute, Indiana; Roofing Contractor: D.C. Taylor Co., Cedar Rapids, Iowa; Roofing Manufacturer: J.P. Stevens Co., Inc., Easthampton, Massachusetts—"Hi-Tuff" Roofing System; Installation Details—65,000+ sq. ft., retrofit.

Since 1964, hundreds of installations made with Du Pont HYPALON have proved cost-effective and durable

No other single-ply roof material equals HYPALON synthetic rubber for job-proven, year-after-year reliability. It's a tough rubber that defies the attack of temperature, time and environment.

Roof membranes made with HYPALON* are available in formulations that remain flexible in temperatures from −40°F (−40°C) to 200°F (93°C)—and resist chemicals, oils, ozone and pollutants. Systems can meet industry flammability ratings because HYPALON—made only by Du Pont—resists flame propagation, too. Membranes are available in reflective white for energy efficiency or in other permanent colors for aesthetic reasons.

When first put down, sheets made of HYPALON are thermoplastic. As a result, they are easily fused by heat or solvent welding. And unlike other rubber sheet materials, HYPALON cures in place. The result: a stronger, more durable roof membrane over time.

Dial Du Pont First

Call 800-441-7111, Extension 54, for more information. Or write Du Pont Company, Room X-40097, Wilmington, DE 19898.

*Du Pont manufactures HYPALON,® not single-ply roofing membranes or systems.

DU PONT
REG. U.S. PAT. & TM. OFF.

Check # 15 on Reader Service Card

Atlas Bolt & Screw expands facilities and adds products

Atlas Bolt & Screw has announced the relocation of its world headquarters from Cleveland, Ohio, to Ashland, Ohio. The move is part of an expansion project recently completed by Atlas at its Ashland plant.

"The move to Ashland," says William Craddock Jr., vice president-general manager, "will allow us to provide better service to our customers. It dovetails nicely with our new licensing agreement with Mage of Switzerland to market its Kwik-Con and Kwik-Deck product lines, and the expansion of our product line to include UltiMate zinc-headed fasteners. The move symbolizes the new spirit at Atlas, and we're excited about it."

Atlas will be the exclusive North American distributor for Mage's Kwik line, including Kwik-Con, Kwik-Deck and Kwik-Flex.

The Ashland plant, originally 20,000 square feet when built, was expanded in 1984 to a total of 70,000 square feet. The expansion included space for headquarters personnel, warehousing, and sales and service representatives.

"We're ready for additional growth, too," Craddock said. "Approximately 80 people are now employed at the Ashland facility. This move provides the additional space we'll need for years to come."

Randy Ridenour is branch manager for the Central region, which is located at the Ashland facility. He has profit-center responsibilities for sales as well as warehouse operations.

Atlas' new headquarters is located at 1628 Troy Road, Ashland, Ohio 44805; 419/289-6910 or 800/321-6846. The telex number is 316860.

U.S. Intec presents Brai marketing awards

U.S. Intec has announced its Brai® roofing/waterproofing products marketing contest winners.

U.S. Intec's marketing staff named Bailey King its Man of the Year. King is vice president of marketing for the Western region. "We had specified that representatives were to vote for the best representative and not an officer of the corporation," said Danny Adair, U.S. Intec president. "But the vote was overwhelmingly for Bailey."

The award for top increase in sales, Eastern region, went to Rich Russack, who is based in Hackettstown, N.J. Paul Graham earned an award for the greatest increase in sales for the Western region. Graham is based in Fort Worth, Texas.

Receiving recognition for top sales during their first year were Craig LeTulle, Western region, Houston, and Mike Spence, Eastern region, Mt. Prospect, Ill.

Dow estimates growth for Tyrin SPR membranes

Last year, contractors installed a record 40 million square feet of single-ply membranes that used Tyrin™ chlorinated polyethylene (CPE) elastomers in their formulations. Tyrin's manufacturer, the Dow Chemical Co., projects a 65-million-square-foot market for these membranes in 1985. This estimated 40 percent growth will primarily be in the mechanically fastened, unballasted, exposed segment of the single-ply market, Dow said.

Membranes made with Tyrin outpaced the overall market for single-ply sheets last year. The entire single-ply market expanded 42 to 45 percent, according to the Single-Ply Roofing Institute.

Dow is focusing its efforts on the mechanically fastened, unballasted, exposed segment because "industry analysts predict these systems will consume 30 percent of the single-ply market by 1987," said J.C. Randa, Dow product marketing manager.

Dow produces CPE elastomers, but does not manufacture membrane sheets. Membranes are produced and marketed by the following companies: the Alkor Division of Hedwin Corp., Pasadena, Texas; Cooley Roofing Systems, Inc., Pawtucket, R.I.; and Pantasote, Inc., Passaic, N.J.

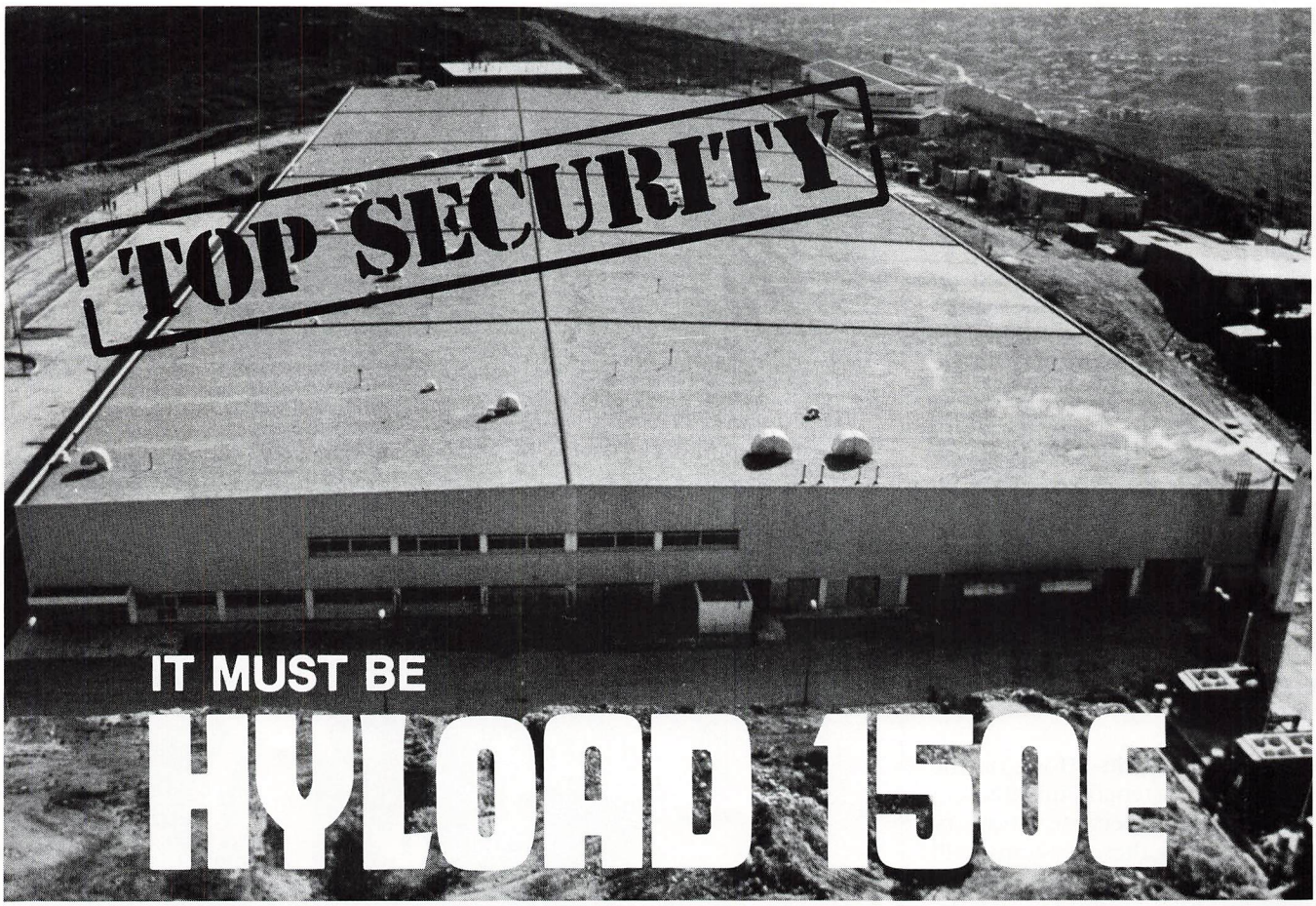
Seal-Dry/USA doubles capacity

Seal-Dry/USA, Inc., has installed a new automated prefabricated roofing systems production line. This addition enables the company to double its production capacity.

Seal-Dry is the only co-polymer alloy (CPA) roofing membrane manufacturer in the United States to use moveable dielectric welders, the company claims. The custom-engineered equipment is reportedly three times more productive than other processes and creates wrinkle-free prefabricated sheets, Seal-Dry adds.

By pre-engineering and prefabricating roofing systems, Seal-Dry can supply the CPA roofing material to a contractor with up to 80 percent of a roof's seams molecularly bonded and tested in the factory. Even special detail areas, including sleeves, corners and flashings, are fabricated before shipment. For roofing contractors, this significantly reduces jobsite labor requirements. And because the membrane is faster to install than other roofing systems, many weather-related problems can be avoided, the firm says.

Planning is underway to further expand the Seal-Dry plant and offices to accommodate a doubling of capacity, Bill Shroyer, vice president of sales and marketing says.



Over 250,000 sq. ft. of Hyload 150E protects the new Al Buhara pharmaceutical plant near Aman, Jordan.

Top security depends on a roofing system that provides total guaranteed protection against the elements.

High performance Hyload™150E Roofing, the only coal tar pitch elastomeric membrane made in the U.S.A., assures you that protection.

By combining proven integrity with superior physical strength, Hyload 150E offers over 16 times the crack bridging capabilities of a conventional three-ply roofing system. This durable sheet membrane provides exceptional tensile strength to withstand repeated dimensional changes under adverse conditions of thermal shock. While incorporating outstanding waterproofing characteristics, Hyload also offers additional roofing security with a ten-year guaranteed quality assurance program for long-term protection. Hyload 150E Roofing supports UL and FM certifications along with Metro Dade approval.

Hyload's roofing and waterproofing systems assure performance-proven reliability worldwide. The durable Hyload 150E elastomeric membrane provides a better way for "Top Security" roofing. Specify Hyload for your next new construction or reroofing project . . . it's the logical choice.

Contact Hyload, Inc. today for additional information and our free Fact Finder Kit.

Armor-clad roofing security with Hyload Waterproofing systems.

Visit us at the Buildings Show, Booth 1428, at the Dallas Convention Center, November 13–15.

HYLoad

1006 McKnight Park Drive, Pittsburgh, PA 15237
Telephone (412) 367-0633

Check #23 on Reader Service Card

Washington-area contractors hold association elections

The Washington (D.C.) Area Roofing Contractors Association has elected Gary Doyle of H. R. General Maintenance Corp., Washington, D.C., president for 1985.

Randy Denchfield of the Denchfield Corp., Washington, D.C., was elected vice president. John Grove of R. D. Bean, Inc., Beltsville, Md., was elected secretary and Peter Rozanski of Orndorf & Spaid, Beltsville, Md., was elected treasurer.

The 1985 board of directors includes: Richard Bean, Beltsville, Md.; Thomas Buckwalter, Beltsville, Md.; Ronald Estes, Chantilly, Va.; Walter Hedges, McLean, Va.; Thomas Rose, Arlington, Va.; Thomas Sinclair, Washington, D.C.; Tom Spires, Edmonston, Md.; Jack Wagner, Hyattsville, Md.; Clark Wiebking, Savage, Md.; and Ronald Wood, Clinton, Md.

Brenda Ferguson, CAE, has been named executive director for the Association.

Western States contractors roll to Reno for Lucky 11

The Western States Roofing Contractors Association (WSRCA) will hold its 11th annual convention and trade show June 12-14, 1985 at the MGM Grand Hotel in Reno, Nevada.

The three-day conference, dubbed "Lucky 11," will include business workshops and seminars as well as a trade show that will run the duration of the convention. Exhibit space is sold out, the Association says.

The keynote speaker for the opening luncheon is Moya Lear of the Lear Jet Corp. Seminar topics include: "The importance of a good relationship with your banker," led by Bob Hogan, business advisor for Sea First Bank, Seattle, Wash.; "How a computer can help your operation," led by Lee Bourgeois, computer consultant, Phoenix, Ariz.; "Tips for profits," led by Loren Memmott of Modern Method Roofing Co., Napa, Calif.; and "Roofing and waterproofing—'craps' every time," led by Robert "Kink" Clawson, Superior Roofing Co., Salt Lake City, Utah.

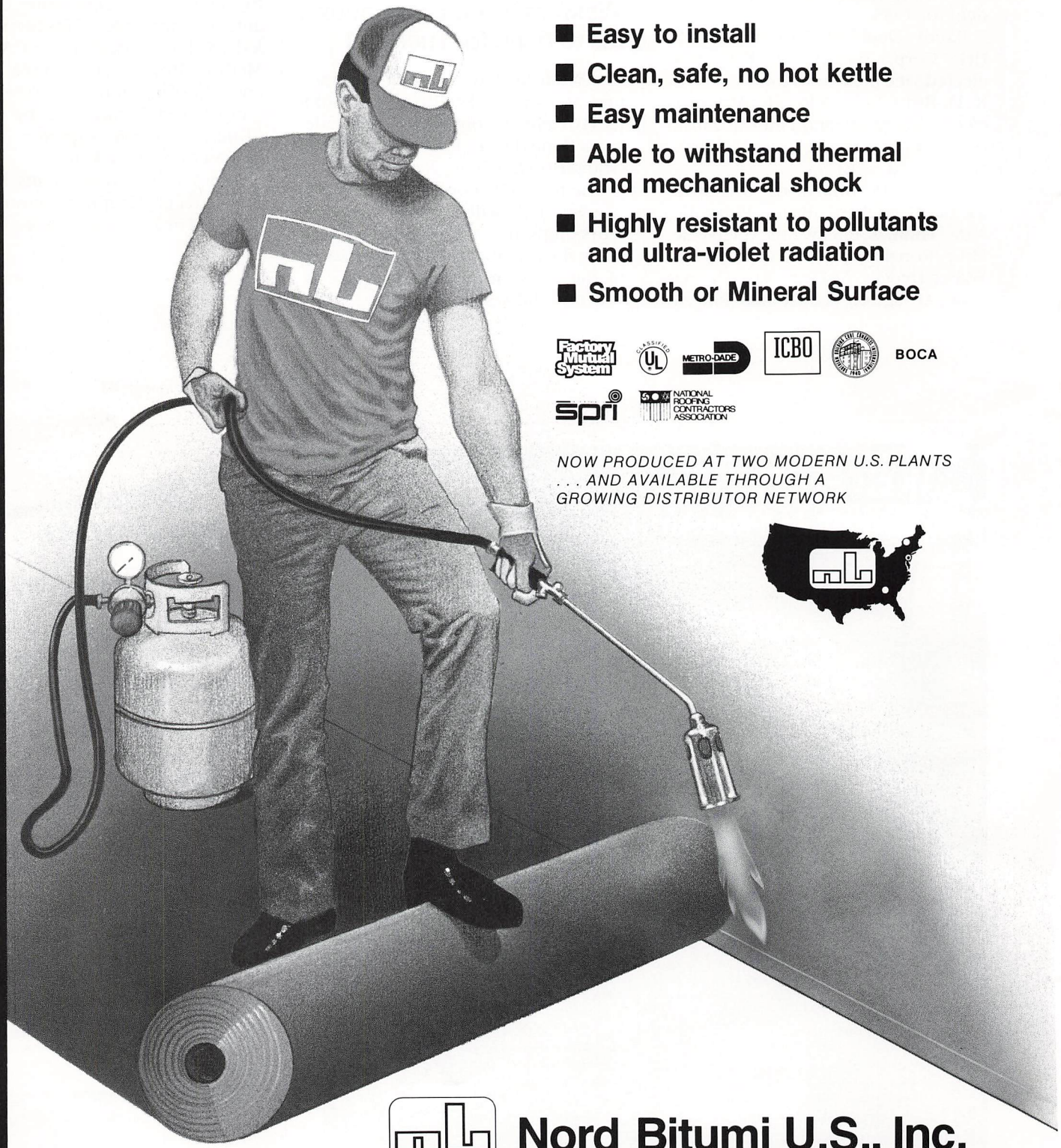
Other convention events include the officers' reception, annual banquet and installation of new officers.

continued on page 41

Nord Bitumi U.S., Inc.

NORD POLY 4

A modified bitumen roofing system with a polyester core manufactured in the United States



- Easy to install
- Clean, safe, no hot kettle
- Easy maintenance
- Able to withstand thermal and mechanical shock
- Highly resistant to pollutants and ultra-violet radiation
- Smooth or Mineral Surface

Factory Mutual System · UL Classified · METRO-DADE · ICBO · BOCA · SPRI · NATIONAL ROOFING CONTRACTORS ASSOCIATION

NOW PRODUCED AT TWO MODERN U.S. PLANTS . . . AND AVAILABLE THROUGH A GROWING DISTRIBUTOR NETWORK

Nord Bitumi U.S., Inc.

966 South Springfield Ave. • Springfield, NJ 07081 • (201) 467-8669

NORDFLEX

TO HANDLE MOST NEW AND RE-ROOFING JOBS

TWO APPLICATION METHODS

- Hot Mopped In Asphalt
- Torch Applied

TWO SURFACES

- Smooth
- Mineral

- **Fast/Easy Installation**
- **SBS Modified Asphalt Body**
- **Rugged Non-Woven Polyester Core**
- **Excellent Hi & Lo Temperature Performance**
- **Can Be Loose Laid & Ballasted, Fully Adhered Or Part of Inverted Roof Assemblies.**

Factory Mutual System · UL Classified · METRO-DADE · ICBO · BOCA · SPRI · NATIONAL ROOFING CONTRACTORS ASSOCIATION

NOW PRODUCED AT TWO MODERN U.S. PLANTS ...AND AVAILABLE THROUGH A GROWING DISTRIBUTOR NETWORK

Nord Bitumi U.S., Inc.

966 South Springfield Ave. • Springfield, NJ 07081 • (201) 467-8669

Check #30 on Reader Service Card

Nord Bitumi U.S., Inc.

Application of the Modified Bitumen Membrane

Now available from NRCA is the worker training program **Application of the Modified Bitumen Membrane**. The training package consists of a narrated audiovisual presentation and companion workbook specifically designed for training workers through in-house sessions in the contractor's shop. It introduces the roof mechanic to the modified bitumen roofing product—what it is and how it is made, the ways that application differs from traditional built-up roofing, and the various types and installation systems. The program covers in detail materials, equipment, specifications, safety precautions, and installation procedures used with self-adhering, torch-applied, and mopped systems.

The audiovisual program, available in either slide/cassette or videotape format, consists of 450 slides and a 40-minute narration. A comprehensive workbook contains a complete outline of the program plus quizzes, drills, and tests to gauge student progress and aid in instruction. A complete instruction guide is available as well.

Up to five hours of credit toward the requirements of the Academy of Roofing Contractors program can be earned using this program.

For more information on this program, contact the NRCA Education Department, 8600 Bryn Mawr Ave., Chicago, Ill. 60631, (312) 693-0700.

A four-part audiovisual program designed for the roofing worker

NATIONAL ROOFING CONTRACTORS ASSOCIATION

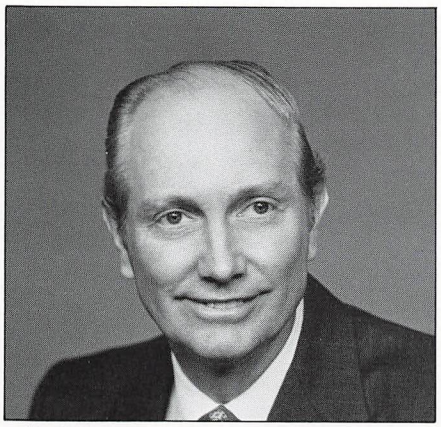
Check #53 on Reader Service Card

RIPF retains account executive

The Roofing Industry Promotion Fund, Warren, Mich., has announced its plan to retain John F. Stenson as the Fund's account executive. The contract agreement began March 5, 1985.

Stenson will work with the Fund to improve the roofing industry and promote the professional roofing contractor. His duties will include technical and practical assistance to owners, architects, government agencies, school boards and contractors.

Stenson is on the Roofing Industry Educational Institute's Board of Regents. He also recently retired from General Motors Corp. after 31 years of service with its Argonaut A.E.C. division.



John F. Stenson

Iowa association elects officers and directors

Robert Koder Jr. of K & B Roofing Contractors, Inc., West Des Moines, has been elected president of the Iowa Contractors Association. The announcement was made at the Association's annual spring meeting.

Also elected were Gerry Handy of H & S Roofing Co., Spencer, first vice president; Jay Crisp of Service Roofing Co., Waterloo, second vice president; Jary Gaudineer of Barrick Roofers, Inc., Des Moines, secretary; and John Drew of Mid-West Roofing Co., Mason City, treasurer.

The spring meeting also featured Tom Winniger of Masters Management Group, Inc., who spoke about salesmanship and management.

Try to tear a roofing membrane reinforced with Fortrel polyester.

"Single-ply membranes tear easily, right?"
Baloney!
(Well, *unreinforced* membranes can be easy to tear.)
Even if you take a knife and nick a single-ply membrane that's reinforced with Fortrel® polyester—just see if you can tear it any further.

Pull it, poke it, gouge it, stomp it—even fold, spindle or mutilate it…

Roofing membranes reinforced with Fortrel polyester can take it!

SPM roof systems reinforced with Fortrel polyester have not only enormous tear and puncture strength, but also great dimensional stability and resistance to wind uplift. Plus super tensile and fatigue strengths.

And they can be installed up to six times faster than other systems.

Who makes Fortrel polyester reinforcing fibers? Celanese—world's number one supplier of industrial polyester.

So top things off with the best roof yet—SPM roofs reinforced with Fortrel polyester. Ask your supplier, or call or write for information. Celanese Fibers, Industrial Sales, Box 32414, Charlotte, NC 28232. (704) 554-2963.

Just try.

CELANESE® FORTREL

Check # 11 on Reader Service Card

Single-ply safety: the industry looks for answers

In the past, American businesses could afford to be naive. If a product was effective and didn't present an immediate danger to those exposed to it, it was used. New products could be judged solely on their ability to do the job for which they were intended.

But that was before we discovered how even apparently innocuous products such as asbestos or benzene could adversely affect our workers' and our companies' health. Today, some fear that ignoring any product's short-term or long-term health and safety effects could lead to needless injuries that result in costly litigation.

A growing number of contractors and roofing mechanics are wondering if the materials they use to apply single-ply systems are harmful. Industry concern over the safety of single-plies is being expressed in many ways. The Midwest Roofing Contractors Association (MRCA) voiced its fears that single-ply products might cause long-term health problems by titling one of the sessions at its annual meeting last October "Single-Ply Solvents and Sealants—A Ticking Time Bomb."

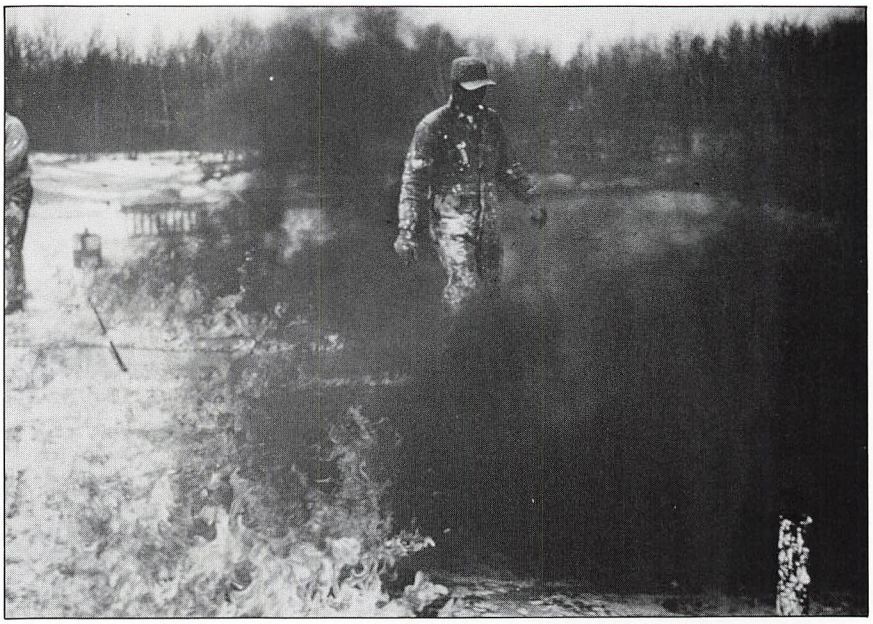
Others in the industry point out that single-ply safety problems are controllable and preventable, and there is little cause for alarm. Even some of the MRCA session's participants were uneasy with the sensational nature of the Association's title. Session speaker Dick Foley of the Single Ply Roofing Institute (SPRI) told the MRCA audience, "SPRI considers this subject matter very seriously. MRCA, NRCA and the Union take this matter very seriously. But we in no way think that this is a 'ticking time bomb.'"

Contractors and workers want information to assess risks

by Martin Eastman

Most industry experts agree that the hazards of working with single-ply materials can be minimized or eliminated altogether if proper precautions are taken. Generally, it will be necessary to wear the right gloves, long pants and long-sleeved shirts. In some cases breathing protection and goggles will be needed. The type of protective equipment that must be used will depend on the product.

Some contractors are finding that it is impossible to take the proper precautions because they lack adequate information from the manufacturers about the chemical compositions of their products. Without this information contractors have no way of knowing what hazardous materials their workers are being exposed to and what pro-



Roof fires are always a hazard when working with flammable chemicals.

tective measures to take. Some fear that if this information continues to be unavailable, the industry may find itself guilty once again of using dangerous chemicals that will cause future health problems and litigation.

Some states have already passed right-to-know laws that require employers to have information available about any hazardous materials their workers use. These laws vary from state to state, however, and some states exempt construction employers from this requirement. A federal right-to-know law that would be administered by the Occupational Safety and Health Administration (OSHA) is making its way through Congress. This law would supersede the state laws and make enforcement uniform throughout the country.

Information, please

The need for some kind of product safety information is clear. Everyone agrees that some of the chemicals found in single-ply solvents, adhesives, primers, splice washes, sealants, caulks, tapes and two-pack urethanes are harmful in concentrated amounts. What is not known in many cases is the proportion of dangerous chemicals in the branded products manufacturers supply to the contractor, or if exposure to those chemicals in an open-air work situation can ever come close to dangerous levels.

Without this information workers may unwittingly come in contact with lethally dangerous substances, industry representatives fear. "The major hazards are toxicity and flammability," according to Lord Corp.'s Stephen Westley, a speaker at the MRCA conference. Flammable substances present hazards to workers who smoke or work with open flames, Westley said, while toxic products could be absorbed, inhaled or swallowed by workers at the jobsite. "Primarily on site, the major danger is absorption of toxic materials through the skin. Inhalation is considered secondary unless the area is confined and lacks ventilation," Westley said.

The most toxic chemicals single-ply crews are being exposed to are the solvents used in a variety of single-ply adhesives, primers and splice washes, according to Westley. The isocyanates used to promote EPDM bonding are particularly dangerous, he warned. "Isocyanates can enter the body through inhalation and through the skin," Westley said. "They are considered systemic poisons whose effect can and may be cumulative within the body."

The Union is also concerned about solvents. John Barnhard, a safety and health representative of the United Roofers, Waterproofers and Allied Workers Union (RWA), said RWA is working with the Harvard School of Public Health to study solvents' neurotoxic effects. Researchers are looking for such short-term effects as slowed reaction time and dizziness as well as long-term effects such as memory loss, lower alertness and depression.

Many in the industry are also worried that heating modified bitumens or plastomeric membranes such as PVC or CPE can release dangerous gases. "When chlorinated polymers are heated, it's possible to liberate HCl—hydrochloric acid—and phosgene under controlled conditions," according to Westley. With fresh air circulating continuously on the rooftop, however, these dangers may not be very serious, he added.

Safety data in the sheets

While general single-ply safety knowledge may be helpful, contractors and workers really need more specific information to protect themselves from hazardous chemicals. Much of this information can be found in a product's material safety data sheet(MSDS). A typical MSDS is a two-page product summary prepared by the product's manufacturer. It describes the material and lists the manufacturer's identity, location and phone number so that anyone needing more information may get in touch with the company. A product's MSDS will tell employers and workers if the product poses a serious health hazard, and outline any precautions workers must take to handle the product safely. The sheet will also list by percent all of the recognized hazardous materials that may be found in the product as well as the product's exposure limits, flammability and explosiveness.

MSDSs are not available for every product, however, and are generally not sent to employers unless requested. NRCA and the Single Ply Roofing Institute (SPRI) have been working together for the last year and a half to improve this situation. The two groups have been collaborating on efforts to collect usable safety information from SPRI's manufacturer members and to make this information available to roofing contractors.

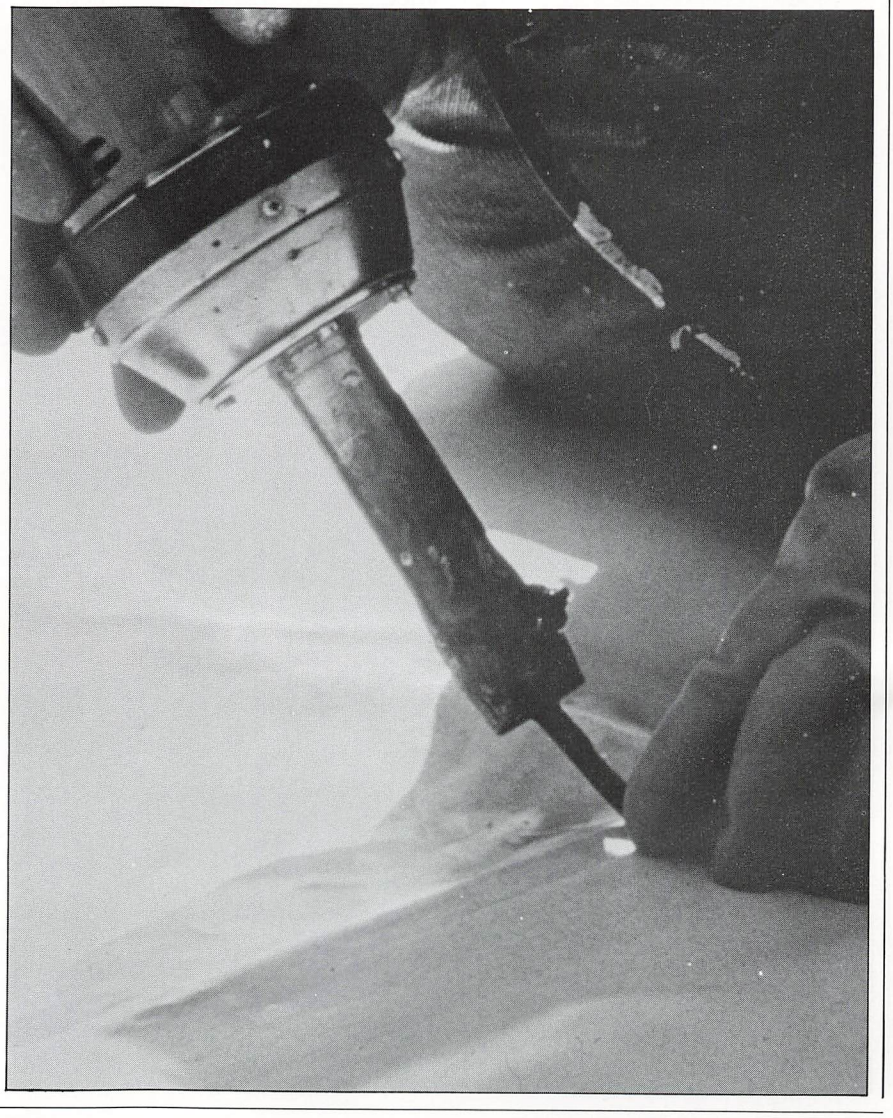
Group effort yields safety program

In January 1984, NRCA and the Union invited SPRI to join in a group effort to improve the quality of safety information that contractors and workers were receiving from the manufacturers. In a letter sent to SPRI, contractor Burton Karp, who was NRCA's president at the time, joined with RWA's president, Roy Johnson, to urge SPRI's members to adopt a uniform hazard labeling format and to include warning labels on their products' containers. "Few labels provide the precautionary information on the potential risks and symptoms of prolonged exposure," the letter stated. "Even fewer contain clear instructions on treating those who develop symptoms of overexposure."

The letter was forwarded to SPRI's Health and Safety Committee, chaired by Tom Curran, former SPRI president Richard Foley told the audience at the MRCA session. The Committee responded to the letter by arranging a May 1984 meeting between SPRI and NRCA's Health and Safety Committee, chaired by Chris Cronin of Knickerbocker Roofing and Paving Co., Harvey, Ill. At the meeting the representatives of the two groups agreed to begin studying "safety and health issues related to the jobsite application of single-ply systems," Foley said.

Following this meeting, SPRI's committee sent out a questionnaire to its members to help the Institute identify the hazardous chemicals that the manufacturers were using in their single-ply membrane, solvent and adhesive formulations. According to Foley, 85 percent of SPRI's members responded to the questionnaire, allowing SPRI to identify 99 percent of the OSHA-defined hazardous materials that single-ply workers were being exposed to.

A product's MSDS will tell employers and workers if the product poses a serious health hazard.



Some fear that heat welding plastomeric seams may release toxic fumes.

Of particular concern to the Union are the long-term effects of repeated exposure to the chemicals.

Registered toxicologists employed by roofing manufacturer W.R. Grace took the information collected in the survey and used it to prepare MSDSs for the products. The data sheets were arranged according to a hazardous materials identification format accepted by national and state rating bureaus, according to a SPRI release announcing the program. Using the format, SPRI's Health and Safety Committee prepared information sheets on 37 different single-ply systems.

Early this year, SPRI and NRCA met once again to review the information SPRI had compiled. Bob McAdam, NRCA's safety and health director, said the information SPRI presented was extensive. The Institute had prepared eight-page safety data summaries for each of the products listed.

As members of NRCA's Health and Safety Committee examined the amount of information SPRI had prepared, they realized that their original plan to publish this information in booklet form was impractical, according to McAdam. "What we wanted was something that was simple, something that was direct and something that was meaningful," he emphasized.

The seams on this Goodyear EPDM sheet are free of talc, eliminating the need for cleaning with dangerous solvents on the roof.

After listening to NRCA's comments at the last meeting, SPRI representatives began developing a program that would leave it up to individual manufacturer members to make safety information available to their products' users. According to SPRI staff member Sue Ciezadlo, when SPRI members request information from this rooftop chemical safety program, they will be asked to complete a questionnaire that will help SPRI determine which hazardous chemicals the manufacturer's products contain. After reviewing the questionnaire, SPRI staffers will send the manufacturer a packet of information that will describe the hazards associated with the manufacturer's products and outline the precautions the products' users should follow. The program will go into effect as soon as NRCA representatives have had a chance to review and approve it, Ciezadlo said.

Union wants more information

Barnhard said the Union welcomes the NRCA/SPRI program, but he would like to see more research done on the hazards associated with the use of these products on the roof. He said the National Institute of Safety and Health has collected some data on single-ply roofing crews' health problems, but a lot more work should be done. "It's very hard to keep on top of all the systems out there," he said.

Barnhard says that manufacturers still do not know how great the hazards are when their products are used under various conditions. "I don't know why they can't do some kind of testing for chemical exposure," he said. Of particular concern to the Union are the long-term effects of repeated exposure to the chemicals.

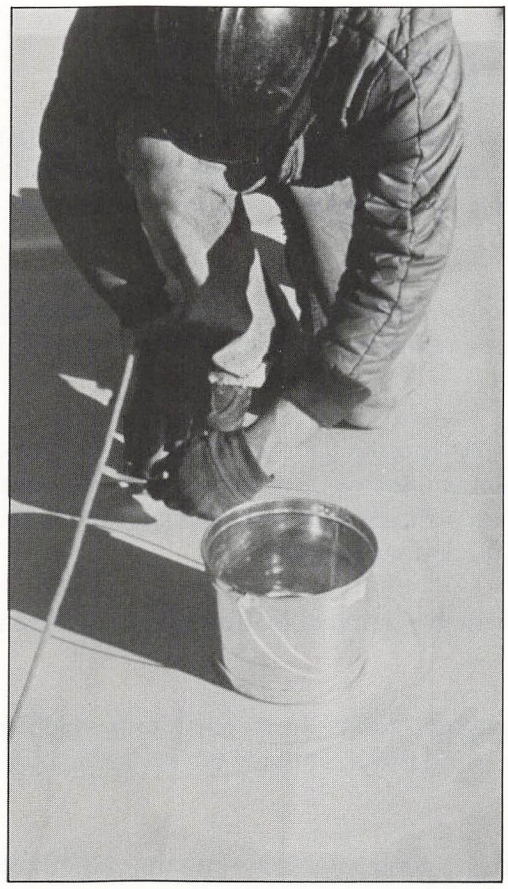
Barnhard said the Union does have some single-ply safety information available. The Union has a library of MSDSs organized by manufacturer. Not every product is represented in the Union's library because some manufacturers have not responded to the Union's request for data sheets, Barnhard said, but the Union does have information available on the more common systems.

The Union also prints some single-ply safety information in its journal, which is distributed to its members. Union locals and signator contractors can also receive the Union publication "Single-ply Systems Reference Guide to Safety and Health Hazards."

Some manufacturers have done extensive research on their own. One of these companies is Firestone Industrial Products, an EPDM manufacturer. "We've probably got the largest health and safety organization in the business," said Richard Boon, product manager for Firestone's adhered roofing systems.

Firestone began looking into the safety of its rubber products long before it entered the single-ply market, Boon claims. All products Firestone intends to sell, including products made by other companies, have to go through the company's health and safety group for review. After examining the product, the group prepares a label for it that lists the product's toxicity and flammability. The format and information printed on the labels comply with OSHA, Environmental Protection Agency and other requirements, Boon stated. The company also makes MSDSs available for its products.

While Boon cautions that workers should always be careful using solvents, he doesn't believe the products pose a serious threat to the typical roof worker. Because Firestone's solvents are intended for outdoor use only, workers probably won't be exposed to dangerous concentrations of the chemicals, Boon said. Workers in factory settings, where many of Firestone's solvents are used, are exposed to much higher concentrations of the products. Even at these higher concentrations, the products do not present any cause for alarm, Firestone's health and safety group has found. Boon is confident that if the precautions Firestone has listed on its products are followed, the products pose little danger. "The materials are safe when used with proper instructions," Boon said.



MRCA also has single-ply safety information available. Its "Personal Protective Equipment Guide for Application of Single-Ply Systems" lists single-ply materials by manufacturer and brand name and specifies the types of gloves, breathing protection and other equipment necessary for safe handling.

Single-ply safety contractors' concern

Using the information that is available, some contractors have already begun single-ply safety programs. Workers at Knickerbocker Roofing, for instance, are constantly reminded that handling single-ply chemicals requires as much care as hot-applied materials, according to Cronin.

Boon doesn't believe the products pose a serious threat to the typical roof worker.

Always make sure chemical containers are well-marked and include safety and emergency instructions.

MRCA's single-ply safety tips

- Use common sense when working with solvents, adhesives and other potentially hazardous products. Stand upwind, if possible, to avoid breathing fumes, vapors and dusts. Avoid skin contact wherever possible through the use of long-sleeve shirts, gloves, eye goggles or face guards and by using equipment that avoids splashing.

- Clothing that has been soiled or contaminated with these products should be properly cleaned before reuse. Liberal use of soap and water by workmen at the end of the day or after contact with these products is desirable.

- Insist that the single-ply system product supplier furnish you with a material safety data sheet for the product. Read the data sheet and follow its recommendations concerning appropriate health and safety procedures. These data sheets should be readily available at the jobsite for reference. Check the product's label for health and safety recommendations.

- Many of these products are highly flammable. Smoking should be strictly prohibited during their application.

- We recommend regular "tailgate" safety sessions, during which the appropriate health and safety procedures to be followed when using these products are reviewed and discussed by the roofing crews and the roofing contractor.

- Where possible, consider using some alternative means or method of application that will eliminate or reduce the exposure to hazardous chemicals. For example, use a less hazardous solvent if possible or consider using a taped system rather than a solvent-welded system.

- The bottom line is that employee health and safety is everyone's business—the employees, the employers and the system manufacturer. By addressing the health hazard risks *now,* all will benefit!

Reprinted from the Midwest Roofing Contractors Association's "Personal Protective Equipment Guide for Application of Single-Ply Systems."

One of Cronin's biggest concerns is the safety of the workers who must use single-ply products in confined spaces. Sometimes, when crews are working in close quarters, Cronin has found it necessary to change the way they apply waterproofing materials to keep exposure levels from getting too high. In one recent waterproofing job, it became necessary to bring in two large fans to keep the level of harmful fumes down, he said.

Cronin's men also pay a lot of attention to the safety precautions listed on a product's container. Cronin believes that on the roof the safety information the manufacturer prints on the side of the can is the most accessible and useful to his crew. A well-labeled can will always be near the workers for easy reference, Cronin said, while other printed safety information such as safety data sheets or safety booklets prepared by the contractor might easily be lost or forgotten.

Knickerbocker's purchasing procedures also reflect the company's concern for proper product safety labeling, Cronin said. The company will determine if a product is adequately labeled before deciding to buy it. And to keep workers from transferring hazardous chemicals to unmarked containers, the company buys solvents in small cans that the roofer can take with him to the roof. Roofers prefer to work from smaller cans to avoid having unused solvent in the can at the end of the day, Cronin explained.

No one is suggesting that the hazards associated with single-ply installation present an immediate danger to the workers on the roof. Even the Union, one of the first groups to point out the potential hazards of single-ply roofing, isn't suggesting drastic emergency measures. "With most chemicals, I think you can work with them if you know how," Barnhard said.

Modified bitumens: are they becoming America's choice?

The European immigrant makes good

by Kathleen Aharoni

In the overcrowded roofing market, it may have seemed like folly for anyone to attempt to introduce another roofing system. But if the statistics listed in the National Roofing Contractors Association's *Commercial, Industrial and Institutional Roofing Materials Guide* are any indication, there were plenty of manufacturers ready to take the plunge when modified bitumen roofing technology was imported into the United States.

By the *Guide's* count there are 35 modified bitumen manufacturers promoting 99 polymer-modified bitumen membranes in this country. And despite fierce competition from other roofing systems, modified bitumen roofing is flourishing and is predicted to continue its success for years to come.

Unfortunately for some, a sort of roofing evolution is taking place, with some species of systems gaining dominance in the roofing jungle while other systems fall by the wayside. According to Al Spingler, product manager for The Celotex Corp.'s roofing products, "Modified bitumens will grow at the expense of EPDM." This will occur not because modified bitumens are a better product, he explained, but because EPDM has the largest percentage of the single-ply market to draw from.

Other manufacturers and contractors interviewed for this article believe that modified bitumens will take over part of the BUR market. This is because BUR manufacturers can produce both BUR membranes and modified bitumen membranes on the same equipment. Within the next five years, BUR manufacturers expect their equipment to be used at least 50 percent, if not more, for modified bitumen membrane production. BUR installers will also find it easy to switch to modified bitumen. Contractors who do large amounts of BUR work already have the expensive equipment needed to apply modified bitumen membranes—kettles, torches, mops and trained workers.

Presently, "50 percent of the roofing market is BUR and 50 percent is everything else," John Van Wagoner of Prospect Industries, Inc., McLean, Va., told *Roofing Spec.* In the "everything else" category, "50 percent is EPDM, 25 percent is polymer-modified bitumen and 25 percent is PVC, PIB, Hypalon, Neoprene, etc.," Van Wagoner explained.

Regardless of whose market they are eating into, modified bitumens are expected to continue their growth. According to Jim Adams, group products manager at W.R. Grace, "eventually modified bitumens will be considered their own classification," instead of being considered as part of the present BUR or single-ply categories.

The exodus to America

The modified bitumen membrane originated in Europe during the 1960s, when single-ply roofing systems were first introduced. Over there, they quickly dominated the market. During the 1970s, modified bitumen membranes, technology and manufacturing equipment began to be imported into the United States, and the systems' popularity and use have grown here as well.

"There is a major change in process," according to the "Report on Commercial Roofing in the U.S.—A Special Survey" produced by the Corporate Research Center (CRC) in New York. The national survey found that only a little more than half of the 82.9 percent of the contractors polled who said they used hot BUR most frequently would continue this practice. One-third of the BUR users plan to install modified bitumen in the future, either exclusively or along with BUR, according to the survey.

In its interpretation of the survey results, CRC states, "This would show a strong movement to modified bitumen, and reflects what might possibly be the most signficant shift in roofing contractor philosophy: a change from 'building roofs' onsite to 'installing roofs' manufactured at the factory."

Despite APP's better ultraviolet resistance and lower cost, SBS products are more popular in the United States.

How bitumen is modified

The two modified bitumen products that seem to enjoy the most success in the United States are membranes modified with either atactic polypropylene (APP) or styrene block polymers such as styrene butadiene styrene (SBS) or styrene butadiene rubber (SBR).

APP-modified systems command a larger market share in Europe. But despite APP's better ultraviolet radiation resistance and lower cost, SBS products are more popular in the United States, according to Jim Rizzo, president of modified bitumen manufacturer Tri-Ply, Inc.

The SBS-modified membranes cost more because they must be used with a polyester reinforcement and a granular coating, Celotex's Spingler says. But SBS membranes can be applied with a mop as well as a torch, making them more attractive to the large BUR contractors who already have or can afford kettles.

APP-modified membranes, on the other hand, must be torch-applied. This restriction may make some contractors wary of using them because the torching operation is more vulnerable to rooftop fires and injuries. (See the sidebar on torching safety.)

"Another modifier that may have an influence on the market in the future would be Uniroyal's ionic elastomer," Van Wagoner predicts. This partially cross-linked EPDM elastomer is currently being evaluated for modifying asphalt in shingles and other rolled products. The product's properties are similar to SBS's, Paul Hinkley of Uniroyal says. Uniroyal plans to introduce the modifier commercially some time next year.

Call out the reinforcements

Another important variable that affects a modified bitumen membrane's quality is its reinforcement. Typically, spun-bonded polyester, fiber glass or a mixture of the two is used. According to Van Wagoner, "because of the elasticity of the polymer-modified bitumen (at least 15 percent for APP and 25 percent for SBS), an equivalent reinforcement with the ability to accommodate movement is preferred." Van Wagoner also estimates that the random weave polyester fabric that is beginning to immigrate from Europe into the United States BUR market will find itself a significant place in modified bitumen production as well.

Fiber glass, which is approximately half the price of polyester and has greater tensile strength, lacks polyester's elongation properties. However, if membranes are to meet the National Bureau of Standards' criteria for tensile strength, then fiber glass must be used. Van Wagoner disputes this requirement, claiming that a membrane's ability to accommodate movement and stress is more important than tensile strength.

Some manufacturers try to combine the advantages of both types of reinforcements by sandwiching them together in the membrane. Others are skeptical of this approach. John Gentry of Phillips Fibers told *Roofing Spec,* "I personally don't understand the fiber glass/polyester mix; they actually work against each other."

Phillips Fibers, in addition to manufacturing a polyester-reinforced membrane, produces a membrane reinforced with thermoplastic rubber (TPR). TPR has high resilience and rebound, Gentry states. However, it does make the product more expensive, he admits. W.R. Grace also makes a TPR-reinforced modified bitumen membrane. Grace's TPR modifier is a cross-laminated polyethylene film.

Modified installation

Modified bitumen membranes can be installed with hot-mopped asphalt, as a self-adhering sheet (sometimes referred to as peel-and-stick) or by torching. Asphalt-mopped modified bitumens are applied similarly to BUR membranes. This technique is usually used in a totally adhered or partially adhered roofing system. Mopping can be done on substrates such as nailable or non-nailable decks, various types of insulations (except those susceptible to hot bitumens) and existing smooth-surfaced BURs. The same environmental restraints that affect BUR installation, such as temperature and climate, also affect modified bitumen application.

Torching becomes hot problem for modified bitumen users

The rapid growth of torch-applied modified bitumen use may be keeping some manufacturers and contractors in business, but unfortunately, it may be keeping a few fire departments in business as well.

Fires and smouldering from torch-applied modified bitumen roofing is becoming a very serious problem, according to some reports. Officials in New York City consider the problem so grave that they now require workers who use propane torches to attend a specified number of seminar hours on proper torch handling. In Los Angeles torching on roofs is being banned, says John Gentry of Phillips Fibers. And an increasing number of fire marshalls in other localities are also prohibiting rooftop torching.

Being prepared and careful are probably the keys to safe torching. James Mansfield of James Mansfield & Sons Co., Inc., Lyons, Ill., says that he has had no problems with fires or smouldering because "each of my men carries an extinguisher on his belt. In addition, we have two or three large extinguishers on the roof."

Besides carrying fire extinguishing materials or having them readily available, roofing contractors should appoint individuals to carefully inspect projects for smouldering before workers disappear for the day. Many fires have resulted from smouldering materials going unnoticed until they burst into flame some time after they had been exposed to torching.

If you are working on a reroofing job, be sure you aren't torching the membrane to fiberboard or torching flashing materials onto cant strips. Both fiberboard and cant strips are highly flammable.

If you want to use modified bitumen membranes, and you don't want to risk a fire, you might try a mopped or self-adhered system. However, if you are using a product that must be torch-applied, such as an APP-modified membrane, you have no satisfactory alternative. Although several NRCA roofing contractors have tried using heat guns and manufacturers have experimented with microwave and infrared radiation, torching still is the fastest and most efficient and way to install a modified bitumen that requires heat for application.

Some help may be coming from the manufacturers shortly. If your modified bitumen manufacturer doesn't offer a torching safety seminar already, it is probably in the process of organizing one. According to Tri-Ply's Jim Rizzo, safety "boils down to training."

NRCA would also like to remind you of a few safety tips for using liquid propane gas (LP-Gas) safely:

- Keep tar and other foreign materials from accumulating on LP-Gas valves and containers.
- LP-Gas containers mounted close to burners should have a heat reflector shield between the burners and containers.
- Control valves on LP-Gas containers should be opened slowly, but completely. The flame should be adjusted with the valve.
- When shutting off the burner, close the LP-Gas container valve first, and let the remaining gas burn out of the hose before closing the burner valve.

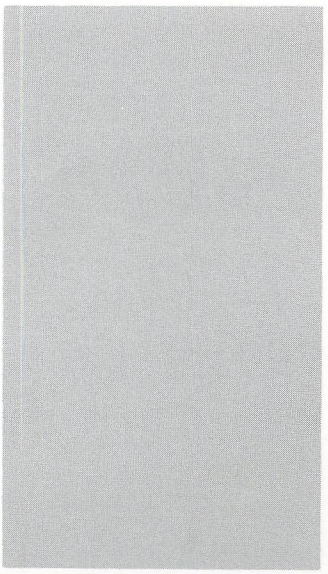
To make sure your fire extinguisher is handy and usable:

- Roofers should not use extinguishers with soda acid; it spreads the flame.
- Water should not be used to extinguish a roof fire.
- When using a foam type extinguisher, apply a complete blanket of foam over the burning surface.
- When using a dry chemical type extinguisher, direct the chemical stream at the base of the fire from a safe distance of about 10 to 15 feet. Sweep the fire away from you, starting at its nearest point and moving the chemical stream toward the furthest point.

Self-adhering modified bitumen sheets contain a release paper on the membrane's underside to prevent it from sticking to itself in the roll. It must be installed over an approved substrate and is generally preceded by a primer that is allowed to dry. These membranes are also used primarily in totally adhered or partially attached systems. They can be used on most substrates, including nailable and non-nailable decks, a variety of insulations and over properly prepared, old smooth-surfaced BURs. Phillip's Gentry suggests that self-adhering systems not be installed in temperatures below 50 degrees or when rain is imminent.

According to the peel-and-stick systems' manufacturers, this type of installation is becoming more popular. W.R. Grace's Adams said sales of the company's self-adhering membrane have grown an average of 40 percent per year since 1979. This statistic seems to correlate directly with modified bitumen growth in the United States, he adds. Phillip's Gentry predicts that more peel-and-stick systems will be specified because of the dangers contractors are experiencing with torched-on systems.

The most popular technique for applying modified bitumens is by torching. It is also the most dangerous, however. Roofers must exercise extreme care to be sure that torching is not done on combustible surfaces such as fiberboard or cant strips. Also, the polyester reinforcement within modified bitumen membranes can be damaged if the material is overheated.



All polymer-modified bitumen membranes can be used according to BUR flashing details.

Generally, torch-applied systems are totally or partially adhered. However, "some manufacturers are marketing their membranes for use in loose-laid systems," Van Wagoner says. Torch-applied membranes can be installed over nailable and non-nailable decks, directly over some fire-resistant insulations, or over other insulations with an approved base sheet or other fire-resistant overlayment. They are also widely used over existing smooth-surfaced BURs that retain sufficient integrity to provide an acceptable substrate. Most manufacturers suggest torching in above-freezing temperatures.

All three of these installation methods incorporate flashing procedures that use the same basic membrane used in the roof's field. The flashings generally incorporate a double membrane installation for vertical and horizontal transitions at terminations and penetrations. Flashing details are often simplified by eliminating cant strips and other complexities that are required for built-up roofing. All polymer-modified bitumen membranes can be used according to BUR flashing details. Some polymer-modified bitumen membranes are currently specified by BUR manufacturers as a base flashing for their roofing membranes.

Van Wagoner and Spingler, among others, believe that part of modified bitumen's fast rise is due to the fact that when asbestos flashings were taken off the market, many manufacturers specified modified bitumens to take their place. Flashing with modified bitumens introduced contractors to the systems and made the decision to install them on the entire roof easier.

At long last

As with any roofing system, the bottom line is how long it will last on the roof. A paper presented in Brighton, England in 1981 at the Second International Symposium on Roofing addressed this subject. The paper, titled "The Durability Assessment of Bitumen/Polymer Roofings," by S.J. Kerry and J.O. May stated, "With the data now at hand, it is becoming possible to envisage, with selected bitumen polymers, properly designed and executed roofs having a life in excess of 30 years."

Tri-Ply's Rizzo claims that coated modified bitumen systems should last 25 years and non-coated systems 15 years. Tri-Ply gives a 10-year warranty for its coated system and a six-year and 12-year warranty on its non-coated system. W.R. Grace predicts that its self-adhered system, which does require a topcoat, will last 10 to 15 years and warrants its system for that length of time.

Standards to come

As of yet, U.S. standards for modified bitumen membranes are non-existent. The only current North American consensus standard for modified bitumens is the Canadian General Standards Board 37-GP-56M, which is currently being rewritten.

However, according to Cy Tilsen of Tilsen Roofing Co., Madison, Wis., it is essential that "some standard be established that will dispel the rumor that modified bitumens' tensile strength is so strong that they will withstand any building movement." Jim Rizzo of Tri-Ply believes it is very important to get ASTM standards out because there are a lot of bad products on the market.

An ASTM standard is currently being written for modified bitumen products, but is not expected to be finalized for a while. ASTM's D-8 committee will be meeting in June to discuss the standard.

The Midwest Roofing Contractors Association (MRCA), through its technical and research committee, has produced performance criteria for modified bitumens. This document, designated MB-30, was issued "as a step toward establishing performance for prefabricated reinforced modified bitumen roof systems," the MRCA document states.

The future?

Thus far, the American roofing market has taken its direction from the European market. If this trend continues, the modified bitumen system may become the reroofing system of choice for American contractors. In Italy, where it is said that the modified bitumen market began, over 75 percent of the reroofing is done with modified bitumens. And unlike EPDM, says Rizzo, modified bitumens are good for repair and maintenance work.

During the short time they have been in America, modified bitumens have gained a reputation for low cost, availability and versatility. According to manufacturers, contractors and consultants, they have the future.

Single-ply standards: how can contractors use them?

New products yield new standards and new tests

by Kathleen Aharoni

After months, if not years, of industry anticipation, the first American Society for Testing and Materials (ASTM) standards for single-ply roofing membranes have been finalized.

Why has it taken so long to establish single-ply standards when the materials have been used in the United States for at least 10 years? The answer is really quite simple; developing standards is a complex procedure. Many materials have to be tested, and a committee of consultants, contractors, manufacturers and association and government representatives must approve both the test methods and results.

The ASTM standard that has just been approved is designated D4434-84. ASTM calls it the Standard Specification for Poly (vinyl chloride) Sheet Roofing. According to the final draft, the specification "covers flexible sheet made from poly (vinyl chloride) resin intended for use in single-ply roofing membranes exposed to the weather. The sheet may be reinforced or contain non-reinforcing or reinforcing fibers, or non-reinforcing or reinforcing fabrics."

The standard does not include criteria for fire resistance, field seam strength, impact/puncture resistance, material compatibility, wind uplift resistance or shrinkage after installation—characteristics that some may believe are important for proper single-ply performance.

According to the Single Ply Roofing Institute's (SPRI) Technical Committee, there are 12 basic material properties that are pertinent to all roofing membranes regardless of their chemical composition.

Evaluating materials

To evaluate material properties a test method must be used that suits the product's chemical composition and construction, according to SPRI. Different types of materials require different test methods.

To understand manufacturers' test results it is important to know what kind of test method was used. It is usually impossible to compare the performance of products that have been tested differently.

In most cases standard test methods do exist. In the United States they are established by ASTM. SPRI suggests that "if physical property data are to be used to aid in product selection, the test methods should also be considered. Sometimes the difference in test methods accounts for the difference in the particular results reported."

Important properties

To evaluate a single-ply membrane it is essential to know how measurements of each of its properties will affect its overall performance.

Thickness is the distance between a material's surfaces. It is expressed in mils, fractions of an inch or millimeters. Manufacturers must have effective quality control procedures to maintain a uniform product thickness. Thickness properties are usually associated with resistance to mechanical damage, hail, traffic and surface wear.

Tensile strength is the maximum force or stress required to break a membrane sample. Strength for non-reinforced membranes is reported in pounds per square inch (psi) of stress. For reinforced membranes strength is expressed as pounds of force (lbf). Tensile strength relates to the membrane's ability to withstand stress imposed by building movement, wind uplift and thermal loading. The lack of reinforcement or the type of reinforcement used also affects tensile strength.

Different elongation values may be desired for different installations.

Ultimate elongation is the amount a membrane sample stretches before it ruptures during tensile testing. Elongation is expressed as a percentage of the test sample's original length. A product's elongation value depends on its chemical composition as well as the presence of reinforcements. Different elongation values may be desired for different installations.

Modulus is the measure of a polymeric membrane's stiffness. It is reported as the psi of tensile stress required to produce a predetermined percentage of elongation. When the modulus for several products is measured using a standard percentage of elongation, it becomes possible to compare the products' relative stiffness.

Tear resistance is the load required to tear a material when stress is concentrated on a prescribed flaw introduced into the sample. Tear resistance is expressed in psi or lbf. This property indicates a membrane's ability to resist tear initiation and/or propagation. Different test methods are used to test the tear resistance of reinforced and non-reinforced membranes.

Water absorption is the measure of how much water a material will absorb when immersed for a prescribed period of time. It is expressed as a percentage of the sample's original weight. This test determines a membrane's water-resistance. The most suitable membranes will not gain or lose weight while immersed. Water absorption can affect a membrane's dimensional stability and membrane thickness as well as lead to internal stresses that can cause cracking.

Dimensional stability is a measure of a material's change in length and/or width after it has been exposed to high temperatures for a long period of time. The measurement is expressed as a percentage of the sample's original dimensions. The most suitable membranes will change little during this test. Dimensional change can build up forces within the roof system and affect a membrane's watertightness.

Low temperature resistance is the lowest temperature at which a material will not fracture or crack under prescribed impact and flexing conditions. Low temperature resistance is important for long membrane life in cold climates, where membranes must be able to withstand a combination of low temperatures and mechanical impact during application, structural movement or rooftop traffic in the winter months.

Accelerated weathering exposes materials to a controlled environment where various phenomena such as heat, water, condensation and light are altered to magnify their effects, creating an accelerated weathering process. The physical properties of the exposed membrane are then measured and compared to those of the original unexposed material. As with heat aging, this test attempts to provide insight into a membrane's long-term performance when exposed to different climatic variables. The relationship between test exposure time and real time, however, is difficult to determine.

More standards on the way

Although the ASTM standard for PVC membranes is the only criteria for single-ply membranes approved for use in the United States at this time, several other standards are being reviewed. The Rubber Manufacturing Association's (RMA) Minimum Requirements for Non-Reinforced Black EPDM Rubber Sheets for Use in Roofing Applications (IPR-1) and Minimum Requirements for Fabric-Reinforced Black Rubber Sheets for Use in Roofing Applications (IPR-2) are expected to be approved shortly.

ASTM is having trouble finalizing a standard criteria for modified bitumen membranes. Presently, the only current North American consensus standard for modified bitumen membranes is the Canadian General Standards Board's CGSB 37-GP-56M, Standard for Membrane, Modified Bituminous, Prefabricated and Reinforced Roofing. This standard is currently being rewritten. Changes in the standard's granular embedment and crack ridging capability criteria are expected to be finalized in the coming months. ASTM's D-8 Committee will be meeting in June to further discuss modified bitumen standards.

New ballast guidelines may be just a stone's throw away

Loose-laid, ballasted single-ply roofing is a great idea, but it's not perfect. As some have discovered recently, a strong gale or a heavy rain can turn a simple, efficient and inexpensive loose-laid system into a costly and possibly dangerous failure. Ballast too small for an area's high winds has blown off roofs and damaged surrounding buildings. And roofs that have been loaded down with added ballast have collapsed under weight they weren't designed to support. Because of these incidents, finding ways to preserve loose-laid's advantages while solving its problems has become an industry-wide concern.

The value of staying loose

In a loose-laid system, only the edges of the single-ply membrane are attached to the building. The rest of the roof is weighted down with smooth river-washed stone ballast. Contractors have found that a loose-laid installation requires less material, time and personnel. Also, because a loosely laid roof is isolated from the substrate, building and deck movement can't exert destructive forces on the membrane.

The simplicity and efficiency of the loose-laid concept has made it one of the most popular single-ply specifications. Carlisle SynTec, manufacturer of EPDM roofing, says its loose-laid design is the company's most requested system.

However, a loose-laid system's ballast may be both a blessing and a curse. Using a topcoat of river-washed stones to weight the roof down avoids the costly and time-consuming process of adhering the membrane to the substrate. On the other hand, the added weight of the stone, necessary to hold the roof in place during high winds, may be too much for structures to support that were originally designed for lighter systems. There may also be a problem with individual ballast stones being blown off the roof during severe storms, a phenomenon called wind scour.

ICBO to receive SPRI guidelines soon

by Martin Eastman

The Midwest Roofing Contractors Association (MRCA) addressed these problems at its annual meeting last October during a session titled "Reroofing against wind." Speaking at the session, former NRCA president Bill Kugler said the problems of weight and wind scour can work together to put the contractor between a rock and a hard place. According to Kugler, the contractor may apply the ballast at the specified size and rate, and find later that it was not enough to prevent wind scour. But adding pavers or heavier stones to the roof to prevent further scouring may overload the roof's structural support.

Ballast specs called to task

MRCA isn't the only group concerned about the problems of loose-laid single-ply roofing. Several organizations have formed task groups to develop standards, specifications and guidelines that will help the industry design and install sound loose-laid systems. An American Society for Testing and Materials (ASTM) task group is revising ASTM's ballast standards, while the Single Ply Roofing Institute (SPRI) and the Rubber Manufacturers Association are working independently on loose-laid system specifications and guidelines.

Carl Marston, chairman of SPRI's task group, said it has completed its ballasted system guidelines and has submitted the work to SPRI's research committee for approval. Once that committee has reviewed and approved the guidelines, they will be sent to the International Congress of Building Owners (ICBO) for review. If ICBO approves SPRI's guidelines, it will incorporate them into its Uniform Building Code.

"The current state-of-the-art recommendations of 10 pounds per square foot minimum just aren't enough" —Kugler

In the meantime, ICBO's model code incorporates an interim standard based on Carlisle's specifications for loose-laid roofing, according to John Nosse, ICBO's assistant technical director. Carlisle's specifications make it the responsibility of the building owner or his representative to determine the proper weight per square foot of ballast to be applied. Carlisle's only requirement is that the ballast weight must exceed 10 pounds per square foot. The specifications also require that 50 percent of the stones used should be retained by a 3/4-inch screen, which means that 50 percent of the stone used may be smaller than 3/4 inch.

Much of the criticism of current loose-laid practice heard at the MRCA conference centered around this standard specification. According to session speaker Rene Dupuis of Structural Research, Inc., Madison, Wis., Carlisle's specified range of ballast size allows stones to be used that are small enough to be blown off during high winds.

Dupuis said that a wind tunnel test of a system using 3/4- to 1 1/2-inch ballast applied at 10 pounds per square foot had to be stopped at 80 mph because the researchers feared the flying rock would damage the test equipment. Applying the ballast at a rate of 15 pounds per square feet yielded the same results, he added. "Simply going back up to this roof and adding additional stone of the same size will get you no further in terms of resistance to scour," Dupuis said. "It could be suggested that you either use a larger diameter stone or perhaps it's a maintenance item, and you should clean up the corners that have scoured."

Dupuis, Kugler and Professor Tom Phalen of Northeastern University in Boston all showed films during the MRCA session that demonstrated the effects of high winds on ballasted systems. Dupuis' film showed model roofs being tested in a wind tunnel while Phalen's film showed a test roof constructed outdoors being subjected to artificially created winds. Kugler's film was shot by a contractor on the top of an actual roof during a severe storm. All three films showed ballast being scoured or completely blown off roofs at wind speeds between 80 and 100 mph.

Kugler summed up the conclusions MRCA has drawn from the evidence presented in the films and in other research it has reviewed by saying, "The current state-of-the-art recommendations of 10 pounds per square foot minimum just aren't enough. We need better guidelines."

SPRI develops guidelines

SPRI is hoping to provide ballast guidelines to the industry soon. Marston said his task group's work will offer criteria that designers and code officials can use to determine each building's ballast needs.

SPRI's guidelines feature a chart that will help building code officials determine the highest wind speeds an area's roofs must be designed to withstand. The chart is based on the American National Standards Institute's (ANSI) 1982 wind isotach charts along with information about the effects of building design and topography on wind behavior, Marston explained. The guidelines translate this information into ballast criteria such as the nominal stone size and the amount of coverage necessary to meet a roof's expected wind load.

The SPRI task group studied many sources of information before penning its own criteria, according to Marston. Test data from manufacturers and design consultants was used as well as the extensive wind design work conducted by R.J. Kind of Carleton University, Ottowa, Ontario, and R.L. Wardlaw of the National Research Council of Canada, Ottowa, Ontario.

Even though SPRI's task group attempted to create broad, generic guidelines represent extensive research, a local code that has incorporated them still may not be adequate for every roof. It must be understood that the guidelines offer only minimum specifications, according to Marston. Each manufacturer must decide if local codes meet its membrane's requirement for wind uplift, scour and ultraviolet resistance. It is the manufacturer's responsibility to inspect each roof to determine if more ballast is needed than the local code calls for, Marston said.

Test standards coming

One problem the industry has encountered as it attempts to develop wind design criteria is the lack of a wind test standard that will accurately predict how a particular roof system will react to wind forces. Marston said SPRI is developing such a test. The test will show the effects of wind scour and uplift as these forces act together on a roof. The development of the test standard is going slowly, however, because SPRI is hoping the test will address as many rooftop conditions as possible. Once completed, the final test standard will be reviewed by ICBO, ANSI and Factory Mutual.

Upholds the Roofer's Recommendation

Survey Confirms that over 60% of Building Owners/Managers Consult Roofing Contractors for System Recommendation

This 60% percentage is almost twice as high as for the next group consulted. This high degree of confidence carries responsibility. U.S. Intec supports and backs your recommendation of BRAI.


Certificate
of
Merit
May it be known that
with
has been approved by
U. S. Intec, Inc.
to be a certified applicator of Brai
modified bitumen roofing membrane systems

Certificate of Merit issued to approved professional roofers.

BRAI roofing is a single-ply APP modified bitumen membrane system. It is applied by heat welding to assure weathertight bonding on all surfaces—penetrations, flashings, and slopes up to and including vertical. Guaranteed not to leak, and backed by U.S. Intec with up to 12 years' leakproof warranty. BRAI is applied only by reliable, professional roofers who have earned the U.S. Intec "Certificate of Merit." BRAI roofing has been approved by the major laboratories of the industry.

Over 125 million square feet of BRAI, the APP modified bitumen roofing/waterproofing, have been applied throughout the U.S.A. during the first nine months of 1984.

BRAI roofing promotion reaches the building owners/managers, architects and building contractors in the trade magazines these specifiers rely on. BRAI roofing contractors are supported by training, samples, video cartridges, brochures, mailers and technical information.

Be sure to take advantage of the opportunities of BRAI roofing and its contractor support. Call one of our 800 telephone numbers today for details.

u.s.intec/brai

1212 Brai Drive · P.O. Box 2845 · Port Arthur, TX 77643
Phone (In Texas) **800-392-4216**
(Outside Texas) **800-231-4631** · Telex 88-7913
Eastern Region: 106 Meister Ave.
P.O. Box 5236 · North Branch, NJ 08876
Phone (In New Jersey) **800-222-1127**
(Outside New Jersey) **201-725-8317**

Check #47 on Reader Service Card

Please send information on becoming a BRAI® Roofing Contractor

(Name) _____
(Company Name) _____
(Address) _____
(State) _____ (Zip) _____
(Phone) _____

Child's Play?

Roofing is serious business, sure. But when you start making comparisons, application of DIBITEN by a skilled roofer can look awfully easy.

And a clean, odor-free, time saving job may be as important to your customer as it is to you – perhaps even more. So is the warranty . . . up to 15 years.

Proven in Europe for almost two decades, DIBITEN, Modified bitumen, is now being manufactured in the United States by DIBITEN USA with an all-new state-of-the-art technology. That means better delivery times and added convenience.

Now, making the decision to try Dibiten is child's play.

dibitenusa

4301 East Firestone Blvd. South Gate, CA 90280 (213) 564-7220 564-8364

Check # 14 on Reader Service Card

Single-ply repairs what tornado rips apart

When a tornado severely damaged Heil Corp.'s Ft. Payne, Ala., plant in May 1983, the company was put in dire need of a new roofing system.

The tornado destroyed much of the built-up roof, roof deck, metal siding and masonry. An entire side of the 270,000-square-foot plant was also blown out.

"This plant was a mess," said Stuart Shankles, vice president of Porter Roofing, Chattanooga, Tenn. "The tornado completely tore away about 70,000 square feet of the roof and structurally damaged 15 to 20 percent of the building. In some places steel I-beams were literally wrapped around each other."

Where the roof was left intact, flying debris took its toll. The tornado ripped many of the building's large exhaust fans from the roof and sent them bouncing, tearing gaping holes in the BUR.

When planning the plant's reconstruction Heil looked for an alternative to a built-up roof to replace the damaged membrane. The company finally settled on Cooley Roofing Systems' CoolTop 40® membrane of Tyrin™ brand CPE. "The Cooley system allowed us to get back into operation the quickest because we could cover the existing BUR, avoiding a time-consuming tear-off," explained Glen Chambers, Heil's general manager.

While the new single-ply membrane couldn't promise a tornado-resistant roof, its chemical-, oil- and water-resistance impressed Heil. The white membrane would also help the plant's energy efficiency, the company found. And because it would be mechanically attached, the system would exceed Factory Mutual's I-90 wind uplift standards.

So that Heil could resume production as quickly as possible, roof repair became the reconstruction project's highest priority, Shankles said.

Shankles deployed his roofing crews in a two-pronged attack against the BUR. One crew applied a layer of perlite insulation to the rebuilt metal deck. An average of 17,500 square feet of membrane were mechanically attached daily. The application began at the roof's most critical section, over a large, expensive, automated steel-cutting machine.

continued on page 61

NOW YOU CAN FIND ALL YOUR ROOF FASTENING SYSTEMS UNDER ONE ROOF.

Kwik-Deck and Kwik-Con are registered trademarks of Mage, Inc.

You work with many kinds of roofs. Many types of construction materials. And many kinds of fasteners.

Isn't it nice to know you need only *one* supplier of roofing fasteners and systems? That's Atlas.

There's Kwik-Deck,® a rigid insulation fastening system for wood and metal. Kwik-Con® and At-Con fasteners for masonry. A variety of self-tapping and self-drilling tapping screws – with or without nylon heads. And time-saving fastening tools.

They're all covered in our new roofing products brochure. It's yours for the asking. Simply return the coupon or call us toll-free at 1-800-321-6846. In Canada, call 1-800-268-3718.

☐ Please send your new roofing products brochure.

☐ Please have a salesman call.

Name _____

Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone ( ) _____

Mail to: Atlas Bolt & Screw, 1628 Troy Road, Ashland, Ohio 44805

ATLAS

We make more sheeting screws than anybody else in the world.

Check #5 on Reader Service Card

Starting at the opposite end of the huge roof, the other crew applied a temporary two-ply hot roof on the 40,000 square feet of BUR damaged by the flying exhaust fans. This large-scale patching provided a fast, watertight seal until these sections could be covered with the insulation and membrane.

The crews worked up to 18 hours a day, Shankles said. And because there were other subcontractors working on the plant, there were often 40 to 50 people on the roof at once, he added. Floodlights were used to illuminate the roof at night.

Porter Roofing temporarily flashed the roof's penetrations to maintain the watertight seal until permanent flashings could be installed. They also temporarily flashed the roof's perimeter. Shankle's crew laid membrane sheets over the roof's outside edges, then mechanically attached these sheets over the building wall's lip. This provided a quick seal. Later they cut off this overhang and flashed the roof's perimeter with metal pieces coated with Tyrin.

Shankles' crews completed the job in 20 days. Porter Roofing finished the perimeter of the roof by adding new gutters and downspouts. They also terminated the membranes with CPE-coated metal flashings and applied facia plates over the metal edges to match the building's new siding.

Check #68 on Reader Service Card

Shankles' crew completed the job in 20 days.

Rappeling roofers build aesthetic roof

There was a time when parishioners weren't the only occupants of pews at St. Albert the Great Roman Catholic Church in Fairview Heights, Ill.

"There were a few occasions when we had to put buckets out during the services because the roof was leaking," said Monsignor Clement Schindler. "Sometimes the pews would be littered with pieces of plaster that had fallen from the ceiling because of the moisture from the leaks. It was a nuisance."

"We had trouble with the roof since the day it was constructed 15 years ago," Schindler said. "Every other year we had someone up there trying to make repairs, but we weren't getting anywhere; six months would pass and it would leak again."

The old roof was urethane rubber reinforced by blown-on fiber glass and finished with a Hypalon® coating, the Monsignor said.

Following interior renovation and replastering last year, Schindler decided to protect the church's interior by getting to the problem's root, the roof. The parish agreed to have a new roof installed and chose the Design A adhered system from Carlisle SynTec Systems, Inc.

Schindler chose a single-ply system for this odd-shaped steep roof because of its lightness and easy installation.

St. Albert's large domed roof challenged not only the watertight qualities of Carlisle's Design A, but also the installation skills—and oddly enough the rappeling skills—of the Carlisle-trained roofing contractor, Whitehead Roofing and Insulation.

"All of the materials had to be hand-carried on the roof," said Jim Shay, a Whitehead representative. "The men used rappeling equipment hooked to the top portion of the dome. We couldn't walk on the roof without our ropes being attached to the top of the dome for stability," he explained.

In consultation with Carlisle and the manufacturer's local representative, Lucas Sales Co., St. Louis, Shay decided to lay a 1-inch layer of urethane insulation on both the upper and lower sections of the roof. Thirty-six pie-shaped membrane sheets, 1 to 10 feet wide by 50 feet long were glued to the top portion of the domed roof. The membrane was adhered at the top and glued as it rolled down the roof.

The lower section of the two-part roof was not tapered. This allowed 10-foot-by-18-foot membrane sections to be applied.

After the membranes were installed, a white Hypalon coating was applied with a roller. To finish the job, a white metal perimeter was installed around the roof.

Whitehead also lined a gutter on the main dome, the origin of frequent leaks, with Carlisle's elastoform membrane.

Because the church is located on a busy thoroughfare near a major mall, aesthetics were very important to the Monsignor. With the white Hypalon coating that covers the dome, passers-by can enjoy the beauty of the church without being distracted by a tattered roof.

"I think it's a beautiful roof," the Monsignor said. "We've had many compliments on it."

What's more important to the Monsignor, though, is that the new roof hasn't leaked. The church's new interior is protected, and the parishioners can worship in peace.

Check #69 on Reader Service Card

Look before you sign

Mothers may be fond of saying "an ounce of prevention is worth a pound of cure," but have you ever heard this adage from your lawyer?

According to the law firm of Hendrick, Spanos & Phillips, this philosophy is as important to the health of a construction project as it is to the health of a person. However, it's a carefully written contract rather than good eating habits and exercise that keep a construction project in the pink. When all parties can agree to each and every word, a signed contract can be worth tons of legal cures for project performance headaches later on.

Contract documents are really nothing more than expressions of mutual intentions. With their signatures, all parties agree to the allocation of the risks, rewards and responsibilities that are involved in the performance of a job. When things go right, it hardly matters what the contract terms are or in fact, whether the terms and conditions of the project are detailed in writing. However, in the relatively small, but ever-increasing percentage of contract relationships that go awry, having a written agreement with clear and precise wording means everything.

Two construction industry studies have confirmed the critical role of contract documents in the construction process and have revealed many of the problems that cause contract disputes. A recent Arthur Anderson & Co. survey of construction companies revealed that the greatest threats to successful contract performance were "poor contract documents" and "poor contract administration."

Similarly, according to the Business Roundtable's "Construction Industry Cost Effectiveness Report on Contractual Arrangements," by improving contracting techniques, the parties to construction contracts could save more than 5 percent on the cost of most projects. The survey further concluded that:

- The construction contract is the prime vehicle by which the owner can achieve project management objectives such as schedule control and improved cost effectiveness.

- The process of reaching a contract is an ordered sequence of steps in which the owner makes a series of priority choices—degrees of risk to be assumed by the parties, control over construction activities and the cost of achieving goals.
- Delegating risks to a contractor involves assigning control over situations that will govern the incidence of a risk, with a potential for profit and other gains as well as losses. There are significant opportunities, even on large reimbursable contracts, for owners to shift the control and risk to the contractor.
- The cost impact of certain construction risks is extremely high; owners should not attempt to shift inordinate risks to the contractor through one-sided contract language. For every risk the contractor must assume, he should be able to gain commensurate project control and definable incentives.
- The fixed-price contract, in which the contractor has the greatest degree of risk as well as control, is the ultimate incentive for contractor performance.

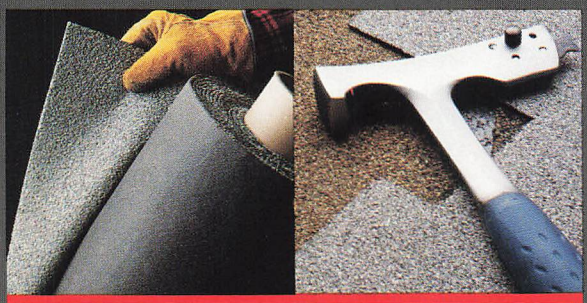
The primary disadvantage is having to know the project scope and engineering design prior to the start of construction.

A contractor should study contract documents to be sure they say what he wants them to. He should ask himself if he accepts its conditions—how it allocates risks, rewards and responsibilities? If he disagrees with the terms, he should negotiate satisfactory conditions with the general contractor or owner. Waiting until the project is complete or nearly complete to correct contract language may mean waiting a lifetime.

If the contractor decides to sign a contract even though the parties disagree, he should at least realize the responsibilities and risks that such a situation imposes on him and weigh the situation's pros and cons. By assessing the real cost and benefit of the total contract package, a contractor can make an informed decision. Will the rewards outweigh or at least equal the potential responsibilities and risks? If a contractor can answer yes to this question, then he should sign the contract and begin working.

For every risk a contractor assumes he should gain commensurate project control and incentives.

TAMKO TOUGH



ROOFING PRODUCTS

COMMERCIAL

Trivera® Polyester Mat
AWAPLAN Modified Asphalt Roll Roofing

Fiberglass Mat
TAM-GLASS™ Fiberglass Ply Sheet
TAM-PLY IV™ Fiberglass Ply Sheet
GLASS-BASE™ Fiberglass Coated Base Sheet
VAPOR-CHAN™ Fiberglass Venting Base Sheet
TAM-CAP™ Fiberglass Mineral-Surfaced Cap Sheet
VENT-PLY™ Fiberglass Punched Base Sheet

Organic Asphalt Saturated Felts/Coated Felts
Perforated/Non-Perforated Felt
TRI-SIX™ Perforated Felt
Type 43 Coated Base Sheet

Roofing Asphalts, Cements, Coatings and Primers

RESIDENTIAL

Fiberglass
GLASS-SEAL™ Shingles, 3-tab self-sealing
ELITE GLASS-SEAL™ Shingles, 3-tab self-sealing
TAM-LOC-GLASS™ Shingles, Loc-tab design

Organic
HERITAGE™ Rustic Shingles, rugged, laminated shake-like design
SEAL-DOWN™ Shingles, 3-tab self-sealing

TAMKO

A Proven Leader In Asphalt Roofing Technology

1-800-641-4691
(in Missouri: 417-624-6644)

Some TAMKO products may not be available in your area.
Call your TAMKO representative for more specific information.

TAMKO Asphalt Products, Inc. Joplin, MO • 417-624-6644 Phillipsburg, KS • 913-543-2156
Tuscaloosa, AL • 205-759-5741 Frederick, MD • 301-694-7611

Check #44 on Reader Service Card

Convention's management inventory explained (finally)

Are you a high, moderate, or low achieving manager? Helping contractors answer this question was the goal of a management achievement inventory that was filled out, but never discussed, by contractors at the Convention's ill-fated marketing session.

The Miller/Ginsburg & Brien management acheivement inventory was to be an integral part of Dr. Neil Miller's marketing session at the Convention. The purpose of the inventory was to help NRCA members improve themselves and their businesses by evaluating their individual leadership styles. However, shortly after the marketing session began, things went awry, and the results of this inventory were never discussed. "Instead, our members left the session with nothing more than a page full of numbers," said Chris Taylor, NRCA's director of communications.

Those taking the test were asked to fill out a variety of multiple choice and true/false questions designed to place them in one of four management categories: the Task Manager, the Country Club Manager, the Do-Nothing Manager, or the Omega Manager. The inventory helped contractors evaluate themselves by directing them to rate phrases on a scale of 0 to 7, according to how well the phrases characterized their behavior and feelings.

High achievers, according to the inventory, are those who understand the manager's job. They can plan, build an organization, use proper leadership techniques and control their businesses to achieve their goals. They are able to retain good people in their company, enjoy a fine reputation in their market and ultimately show a solid profit.

You should keep in mind, however, that if you rate moderate or low it does not mean you are a failure. Rather, it means that you have the potential to do better by changing your leadership style.

High achievers, according to the inventory, are those who understand the manager's job.

The inventory's authors say that the qualities of a high achiever are best exemplified by the Omega Manager. This is the sort of manager who recognizes the need for a professional system and an understanding of the people around him or her. In addition, the Omega Manager defines and demands excellence from his or her team, has a plan and a marketing strategy, uses the tools of management, trains and develops self and subordinates, builds a team, and understands that most people want to do a good job and rewards those who do.

The qualities of a moderate achiever can be found in the Country Club Manager. The Country Club Manager places a heavy emphasis on getting the job done without putting pressure on others. A paternalistic "nice guy," the Country Club Manager often gathers input from others but fails to use this information to make decisions. This type of manager also tends to forgive the mistakes others make because he or she does not want to hurt their feelings, and often completes the work that others leave undone.

A Task Manager is another moderate achiever. This management type places a heavy emphasis on getting the job done without really understanding the people responsible for completing the project. A task manager makes decisions with no input from others, always determines what is right and wrong, does not believe subordinates are as willing or as capable as he or she is, uses threats and punishment as a means of controlling people, tends to lean heavily upon his or her own technical competence, and is unwilling to accept the ideas of others.

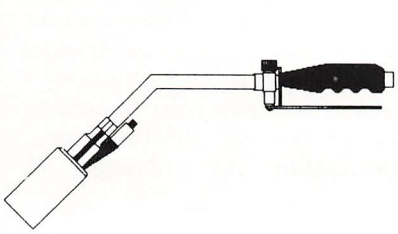
The low achiever is best characterized by the Do-Nothing Manager. Quite simply, the Do-Nothing type has no clear understanding of the tools or techniques of management. This person does not believe that there is a method by which one can make things happen. He or she tends to respond to crises rather than taking control of his or her own destiny. Things happen to this manager by accident. Most importantly, the Do-Nothing Manager does not understand people and is only moderately capable technically.

continued on page 68

modi·systems

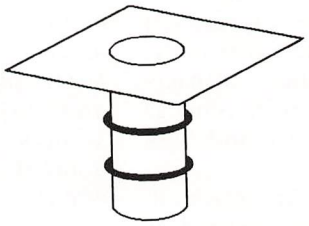
accessories for modified bitumen

Everything ~~under~~ over one roof



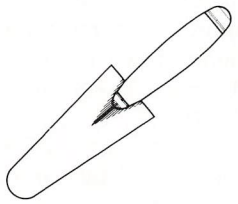
magnum

The **magnum** torch is the first torch engineered for fast, efficient heat fusing of modified bitumen membranes. It has been used longer than any other torch manufactured for this purpose (over 15 years).
A lightweight, quality torch with some unique features of benefit to all roofers.
The magnum is the first torch on the market that utilizes a wind resistant electric start button.



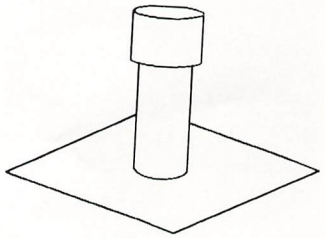
modidrain

The **modidrain** is a new concept in flat roof drainage.
Material and characteristics make it a safe and functional element for any application from new roofing construction to reroofing and roof maintenance.
The modidrain unit is one piece flange/ spigot and the ribbed flange face ensures positive adhesion to the waterproofing membrane.
It is economical, easy to install and the installation costs are very low.



moditrowel

The **moditrowel** is the proper tool for troweling the seams of modified bitumen.
It is the number one trowel for modified bitumen in the world today because of its flexibility, lightness, and strength.
It has a round point, so that the compound moves easily and evenly.
moditrowel outlasts all others because of its single unit construction (the handle is not welded to the blade).



modivent

The **modivent** allows the evaporation of moisture in new and existing built-up roofing systems.
It has been especially made for modified bitumen and BUR, having a perfect adhesion to modified bitumen and hot asphalt.
It keeps insulation dry and does not allow the moisture to decrease the thermal efficiency of the roof insulation.
It is resistant to UV rays and weather.

modi·systems
accessories for modified bitumen

34 Kinderkamack Rd
Oradell, NJ 07649
(201) 599-0604

Merely knowing the right answers does not assure high achievement; putting that knowledge into action does.

It is highly unlikely that any one person will fall completely into any one category. A high score only represents your understanding of that particular management style and is no guarantee that you will actually behave that way.

To interpret your scores

If you still have your completed questionnaire from the Convention, you can interpret your score by completing the scoring summary included in the inventory. Once you have totaled up the scores in each quadrant of the summary, you can determine the areas you scored highest in, which indicate your management style. Moving clockwise from the upper left quadrant of the summary, the scores in the summary correspond to these management types: Country Club Manager, Omega Manager, Do-Nothing Manager and Task Manager.

A high score is 25 or more in a quadrant. You should be careful when interpreting your score, however. Merely knowing the right answers does not assure high achievement; putting that knowledge into action does.

Your second highest score may be even more important because it reflects how you are likely to act under pressure and may be a truer indication of how you behave. If your scores total less than 13 in any quadrant, that category is not considered to be significant. If your scores are more evenly distributed in three or four areas, your style of management is inconsistent and therefore confusing to your employees. This is the least desirable management method.

If you gave up hope of ever learning how to interpret your score and threw out your inventory, don't despair. We'll be happy to send you a copy of the questionnaire to fill out once more if you drop us letter and include a stamped, self-addressed envelope. Send your request to Management Inventory, Roofing Spec, *8600 W. Bryn Mawr Ave., Chicago, Ill. 60631.*

patented Design

Veral roofing and flashing *is* different. It has a patented design incorporating a fiberglass reinforced modified asphalt base and a factory laminated foil shield that work together against the elements.

proven performance

Veral, time-proven for over two decades in the world's climatic extremes, provides a tough, lightweight, weather-tight seal appropriate for a variety of roof designs and substrates.

siplast®

Dramatic Results

As handsome as it is durable, Veral is available in copper, aluminum or chemical resistant stainless steel foil finishes. All are guaranteed against leaks for 10 full years.

Call Today

For more information on any of our roofing systems, call
1-800-922-8800
In Texas, call Collect:
214/869-0070
SIPLAST
Xerox Center, Suite 1840
222 West Las Colinas Blvd.
Irving, Texas 75039

COMING EVENTS

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

May 12-15
Annual Meeting & National Conference
Canadian Roofing Contractors Association
Toronto, Canada

May 13-15
Asbestos Abatement Training Course
Association of Wall and Ceiling Industries International
Washington, D.C.

May 22-26
Expo ITA 85
Milan, Italy

June 6
Automated Specification and Product Selection
Construction Specifications Institute
Anaheim, Calif.

June 7
Computers in Construction
Contractor Profit News
Anaheim, Calif.

June 9-12
AIA National Convention
American Institute of Architects
San Francisco, Calif.

June 9-15
11th Annual Convention & Trade Show
Western States Roofing Contractors Association
Reno, Nev.

June 12-15
Convention
Florida Roofing S/M and A/C Contractors Association
Orlando, Fla.

June 21-23
29th Convention & Exhibit
Construction Specifications Institute
Orlando, Fla.

June 24-26
D-8 Committee Meetings
American Society for Testing and Materials
Los Angeles, Calif.

June 25
Asphalt Used in Roofing
American Society for Testing and Materials
Los Angeles, Calif.

July 22-26
Hughes Probeye Infrared Course
Infraspection Institute
South Burlington, Vt.

NRCA OFFICERS & DIRECTORS

NRCA OFFICERS

President
WAYNE I. MULLIS
Phoenix, Ariz.

Senior Vice President
ROBERT T. HARRISON
Greenville, S.C.

Vice Presidents—Two Years
LARRY CARLSON
Rockford, Ill.
CHARLES GRIFFITHS JR.
Binghamton, N.Y.
DONALD McNAMARA
Milwaukee, Wis.

Vice Presidents—One Year
JOHN CARRUTH JR.
Miami, Fla.
ZACHARY L. ELLIS
Kenner, La.
MICHAEL PROMEN
Broadview, Ill.

Immediate Past President
BURTON J. KARP
West Hartford, Conn.

BOARD OF DIRECTORS

Three Year Term
MICHAEL BELDON
San Antonio, Texas
ROBERT BELLITT
Broomfield, Colo.
MICHAEL BOWLING
Louisville, Ky.
JOHN L. BROWN JR.
Delray Beach, Fla.
WILLIAM HAMLIN JR.
Garner, N.C.
BENNETT HUTCHISON III
Atlanta, Ga.
VERNON LARSON
St. Paul, Minn.
JOHN LLOYD
Uniontown, Pa.
BRUCE MARTIN
Woodinville, Wash.
JERRY STEED
Huntsville, Ala.
ANTHONY TARESCO
Baltimore, Md.
ROBERT THERRIEN
Keene, N.H.
CYRIL TILSEN
Madison, Wis.
JOHN VAN WAGONER
McLean, Va.
JOHN WRIGHT
Albuquerque, N.M.

Two Year Term
JOSEPH ADLER
Joliet, Ill.
JOEDY BECKER
Pocatello, Idaho
GAYLORD BLUE
San Jose, Calif.
THOMAS E. BROWN JR.
Deroit, Mich.
JOSEPH CASTRO
San Diego, Calif.
CHRISTOPHER CRONIN
Harvey, Ill.
THOMAS DRAKE
Winter Park, Fla.
WILLIAM T. FORT JR.
Sumter, S.C.
JOHN HAUG
Phoenix, Ariz.
FRANK MANFREDONIA
Philadelphia, Pa.
JAMES MANSFIELD
Lyons, Ill.
JAMES McBRADY JR.
South Portland, Maine
MONTY MOORE
Seattle, Wash.
SAM PIPER
Greenville, S.C.
HOLLIS PORCHER
Corpus Christi, Texas
ROGER STEYER
Warren, Mich.

One Year Term
CHARLES BECHTEL
Dayton, Ohio
DONALD BOSNICK
Tacoma, Wash.
JON CAZEAULT
East Weymouth, Mass.
ROBERT M. DALSIN
Minneapolis, Minn.
JOSEPH FICK
Baltimore, Md.
ROBERT FIRST
Lima, Ohio
OWEN HAMILTON
Lubbock, Texas
FRANK JENKINS
Miami, Fla.
MARTIN E. KELLER
Schenectady, N.Y.
P.J. LaDUKE JR.
Detroit, Mich.
FRANK E. LAWSON JR.
San Francisco, Calif.
GEORGE S. MOELLER
Kansas City, Mo.
DON PARSONS JR.
Des Moines, Iowa
MARLIN POTTEIGER
York, Pa.
ANDY RADONICH
San Jose, Calif.
RICHARD ROSENOW
Chicago, Ill.

STAFF

Executive Vice President
FRED GOOD, CAE

Associate Executive Directors
PATRICIA APPELHANS
ALAN GRAYSON
ROBERT LaCOSSE, CAE
CHRISTINE NOLEN TAYLOR, CAE

Executive Secretary
CONNIE LESSNER

Finance Secretary
SANDY HOSHELL

Technical Services
ROBERT LaCOSSE, CAE
Director
JEFF LOWINSKI
Manager
WILLIAM CULLEN
Research Associate
JOANNE WAWRZYNIAK
Secretary

Information Management
NORMAN BULLOCK
Director
SUE BUCZKIEWICZ
Manager
LAUREL WORKMAN
Administrative Assistant

Meetings and Conventions
GALE KIESEL
Director
VANYA BOTTORFF
Manager
BEA McSHEFFREY
Coordinator
MARLA SHULTZ
Administrative Assistant

Administration
ROBERT McADAM
Director
BARBARA DYKEMA
Administrative Assistant
JOHN MEESE
Manager, Roofing Service Center
PATTY KAZEOS
Receptionist

Member Services/Government Relations
PATRICIA APPELHANS
Director
CARL GOOD
Manager
LYNN KEEFE
Administrative Assistant
CONCHITA ALVAREZ
Administrative Assistant
KATIE SHULTZ
Secretary

Communications
CHRISTINE NOLEN TAYLOR, CAE
Director
MARTIN EASTMAN
Editor
KATHLEEN AHARONI
Publications Coordinator
JODY RASCH
Manager, Advertising Sales
ROB EISEMAN
Public Relations Manager
JOAN KRIETE
Secretary

Education
ALAN GRAYSON
Director
JAN THOMPSON
Assistant Manager
MARIA DEMES
Secretary

Pertplotter added by Westminster

Westminster Software, Inc., has announced the addition of an add-on plotting package for microcomputer project management applications.

The Pertplotter™ package works with Westminster's Pertmaster™, a menu-driven microcomputer project management package. Pertplotter gives Pertmaster network logic plotting capabilities and offers multiple color and line-style graphics options. These options allow the user to detail and illustrate critical areas of a project. Pertplotter also plots industry standard notations.

Pertplotter runs on a variety of desktop printers and plotters, including Epson, Hewlett-Packard, Houston Instruments and IBM.

Check #54 on Reader Service Card

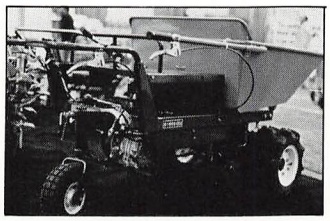
Chikazu markets utility vehicles

Equiptech Products, Inc., has developed a line of all-purpose utility vehicles manufactured under the trade name Chikazu.

Among the products in the Chikazu line are two models of three-wheel motorized wheelbarrows. The GM 20 carries a payload of more than 250 pounds and features an adjustable wheelbase for extra stability. It is available with either a standard wheelbarrow body or a box-type body. The GP 3 has a deep well bucket with a payload capacity of 900 pounds. The wheelbarrow uses a manual dumping system.

A series of three-wheel flatbeds is also available from the company. The GM 43 has expandable sides and tailgate to adapt to different size loads, and can carry 550 pounds. The unit features one reverse and two forward speeds. The GC 33 has rubber crawler tracks and handles a 660-pound payload. The GA 110 and 111 models have over a half-ton payload capacity, one reverse and three forward gears, rear differential locks, and ride-on or walk-behind steering. The GA 111 model comes with hydraulic dumping.

Check #55 on Reader Service Card



Carlisle develops Herclor elastomer

Carlisle SynTec Systems is now marketing a liner for underground fuel tank pits. The liner is also available to the roofing industry.

The Herclor® epichlorohydrin elastomers are recommended for use in areas where hydrocarbons cause membrane deterioration. These conditions may exist where rooftop air conditioning units leak coolant, or in commercial or industrial settings where solvents or cooking oils are discharged at rooftop level.

The liners are made in sheets ranging from 2,500 to 3,600 square feet. They have a tensile strength of 1,500 to 1,620 pounds per square inch and will elongate from 200 to 350 percent. The membranes also have a temperature service range from -20F to 250F.

Carlisle has also announced the development of Sure-Seal® FR, a fire-retardant, single-ply roofing membrane that is available for use with the company's M.A.R.S. Design NP™ mechanically attached systems and Universal Design A adhered systems.

Check #56 on Reader Service Card

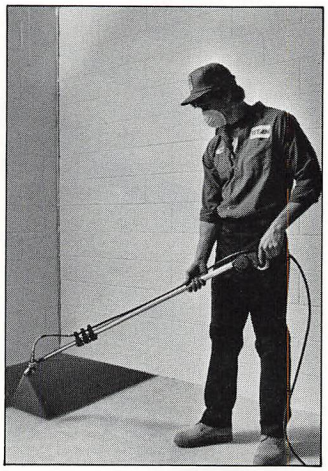
TTI introduces telescoping gun

An airless telescoping pole gun is now available to the roofing industry from Titan Tool, Inc.

The 550-SC telescoping pole gun adjusts from 3 to 6 feet and has a head that rotates 260 degrees to allow application from any angle. The fan width is controlled by a trigger on the pole's handle. Spitting of materials is controlled by a positive shut-off at the unit's tip. Clogs are removed by triggering.

The gun is engineered to handle a variety of heavy roofing materials. Liquid flows through an external hose to the tip located at the gun's head. The design eliminates obstructions before the material reaches the tip and allows for rapid cleanup.

Check #57 on Reader Service Card



NEW IDEAS

Swedish conveyor fits on cartop

Swedish Lift Systems has introduced a new telescoping conveyor for transporting materials to roofing sites.

The conveyor has a maximum operational length of 35 feet. It telescopes to 16 feet for storage. Using either 110 or 220 volts, the conveyor's motor carries a maximum continuously running load of 200 pounds. The belt moves materials at 61 feet per minute, carrying 1,800 tiles or slates per hour. The transport direction is reversible for either loading or unloading.

The unit weighs 198 pounds. Using the car roof rack that comes with the conveyor, a roofing crew can easily transport the unit; the rack eliminates the need for tow-bars, trailers or vans.

A color brochure and additional information are available from the company.

Check #58 on Reader Service Card

Data sheet details Tremco system

Tremco has published a two-page data sheet that describes their Therm 200 BUR system. The sheet gives product application and installation instructions, precautions, availability and guarantee information.

The Therm 200 system consists of three layers of continuous-filament, spun-bonded polyester laminated with intermittent courses of Thermastic hot-melt adhesive. The adhesive is also used as the protective top pour.

The Thermastic adhesive is available in seven-gallon containers (weighing approximately 55 pounds). The plies come in 39¾-inch-wide, 10-square rolls.

There are three ways to surface the Therm 200 system. Either aggregate or white ceramic granules may be used in combination with Thermastic or an added ply of approved Type IV glass felt, followed by a reflective coating of double-duty aluminum, may be used. The system's application temperature may range from 350 to 500 degrees.

Tremco will annually inspect the installed roofing system at no additional cost. Copies of the data sheet and information on the system are available from the company.

Check #59 on Reader Service Card

TREMCO Specification Data

THERM 200
Built-up Roofing System

NEW IDEAS

Black & Decker develops motor line

Black & Decker has developed a new line of electric motors for power tools. The motors are designed to increase constant, usable power without adding weight to the tools.

Tools powered by the new M-series motors will have up to two-thirds fewer parts than older models. The company has also standardized the components of various tool models and types that use a single motor size. This reduces the number of parts that might be needed and simplifies the repair process.

The motors' cooling systems have also been redesigned. The company states that the cooling system in the M-series motors has been improved by as much as 40 percent over previous models. Flux mapping is used to enhance the flow of magnetic force lines for greater electrical efficiency.

Check #60 on Reader Service Card

Senco introduces tool repair kit

Senco Products, Inc., recently introduced a parts kit for owners who prefer to maintain and repair their pneumatic fastening tools themselves.

The kits contain Senco tool parts and instructions. They are available from Senco sales and service outlets as well as Senco-authorized dealers. Senco dealers also provide maintenance and repair services on request.

To help roofing contractors, Senco recently published a free installation guide titled "How to Get On Top of the Roofing Business." The guide contains practical information on pneumatic tools and fasteners, step-by-step roof installation procedures, tool maintenance and job safety.

Check #61 on Reader Service Card

Premium publishes modification guide

Premium Review Associates has developed a guide that allows employers and insurance agents to calculate worker's compensation experience modifications assigned by themselves, instead of relying on modifications assigned by the Worker's Compensation Rating Bureau.

The guide, "Experience Modifications Made Easy," explains the step-by-step process for determining experience modifications. The formulas that are needed to calculate modifications are also included as well as a description of the modification plan and its underlying objectives.

Check #62 on Reader Service Card

Wood product information offered

Hoover Treated Wood Products has printed two publications on the use and installation of its products.

One publication is an installation instruction sheet that contains information on the application of Fire-X fire-retardant-treated shingles, which carry Class B and C ratings, and fire-retardant treated shakes, which carry Class A, B and C ratings. The Class B and C systems require no special underlayment and can be applied like a standard cedar roof. The Class A system uses a special deck construction.

Hoover has also published a treated-wood specifications handbook. The handbook briefly describes the company's exterior fire-retardant-treated shingles and shakes for Class A, B and C roof systems, and gives sample specifications. Information on other Hoover products is also included.

The handbook's specifications are based on industry-accepted standards and tests, and third-party independent quality control. The information is included to meet building codes, insurance-rating organization requirements and government specifications.

Check #63 on Reader Service Card

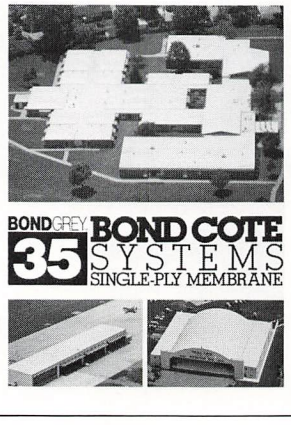
Bond Cote adds Bond Grey 35

Bond Cote Systems has introduced Bond Grey™ 35, a nitrile thermoset plastic alloy single-ply membrane roofing system.

The membrane is manufactured using Fiber-Loc™ knitting technology with Celanese Fortrel® polyester yarn for reinforcement. The system is mechanically fastened and requires no additional surfacings or treatments to qualify for Factory Mutual Class I, I-90 and I-120 approval, and Underwriters Laboratories Class A approval.

The system is available to Bond Cote-licensed contractors. It carries a 15-year watertight warranty program. Details about the warranty and the Bond Grey 35 system are available in a brochure.

Check #64 on Reader Service Card



Computer package estimates cost

The Cost Information Systems Division of McGraw-Hill Information Systems Co. has introduced a self-contained computer software package for preparing building cost estimates on new construction projects.

The Dodge MicroSystems package, Design Estimator, is designed for architects, engineers and contractors. The package was developed for use on Apple® II and IBM® PC systems.

The two-disk package includes the costs of more than 4,000 key building components as well as the wage rates for different construction trades, adjusted by zip code. By extracting the appropriate wage and material data from the disk files, the program is able to calculate a cost estimate based on the location of the construction project, the specific construction materials to be used and the size and complexity of the structure. As building plans change during the design process, new data can be entered and a revised cost estimate generated.

Check #65 on Reader Service Card

Architectural Record builds understanding on foundation of knowledge

Imagine a group of roofing contractors, materials manufacturers, architects, consultants, specifiers and lawyers sitting around discussing roofing and not trying to pin blame on each other. Even Ripley wouldn't believe this one.

According to NRCA Research Associate Bill Cullen, that was the situation at the March 20 *Architectural Record* roofing roundtable in New York City. About 50 panel members, observers and *Record* editorial staff members attended.

"Architects are involved in roofing litigation more often than any other kind," Cullen, a roundtable participant, stated. "I think the magazine's goal was to bring all segments of the roofing industry together to talk candidly about the potential problems," he said.

"Before the session, we received a letter from the *Record,*" Cullen reported. "We were told what some of the topics for discussion would be, and asked for our suggestions." Some of the questions posed were: is there a scenario for a roof that really works? What has caused the development of the new single-ply systems? How effective are the various systems in repair/retrofit situations, as opposed to new installations? How does an architect evaluate and select a system? What is the proper role of the manufacturer in providing the architect and contractor with details and specs? And what qualifications should the architect or owner look for in selecting a roofing contractor?

Addressing these questions and others like them took the entire day, Cullen said. The *Record* also sponsored an evening reception where manufacturers' representatives, editors and panel participants mingled and chatted. "These off-the-record conversations were good, too," Cullen added.

"There was absolutely no finger-pointing whatsoever," he commented. "The general attitude was that building is a team approach. There was very good communication. We talked about everyone's responsibilities and how we can work with others in a synergistic manner." The session was chaired by Walter Wagner, editor of *Architectural Record.*

Other members of the panel from NRCA were: Dick Baxter of Carolina Roofing Service, Monroe, N.C.; Burt Karp of Eagle Moisture Protection Corp., West Hartford, Conn.; Melvin Kruger of L.E. Schwartz & Son, Inc., Macon, Ga.; and Wayne Mullis of Universal Roofers, Inc., Phoenix, Ariz. NRCA suggested these participants when the *Record* brought up the impending roundtable at the Association's press briefing during the recent Convention.

The NRCA representatives were joined by: John Devaney of Wagner, Hohns, Inglis, Inc., Leawood, Kan.; Robert Galloway of Hellmuth, Obata & Kassabaum, Inc., St. Louis; Michael Gordon, AIA of Environetics International, Inc., New York; Werner Gumpertz of Simpson, Gumpertz & Heger, Arlington, Mass.; John Hoffmann, AIA, of Hoffmann Architects, Hamden, Conn.; Bruce Lombardo of Harvey, Pennington, Herting & Renneisen, Ltd., Philadelphia; and Raymond Stainback Jr., FAIA of Thompson, Ventulett & Stainback & Associates, Inc., Atlanta.

The 25 manufacturers' representatives were considered auditors—not part of the structured discussion, but able to ask questions at the chairman's invitation, according to Cullen. The companies represented included Bethlehem Steel, Uniroyal Chemical, Manville Corp., GAF, N.W. Ayer, Firestone Building Products Co., Sarnafil and Barra. The Asphalt Roofing Manufacturers Association also sent a representative.

"It was very successful," Cullen concluded. "A marvelous day—really a first-class operation all the way. The tone was, 'When you're looking for trouble, use a mirror, not a telescope'." he said.

The *Record* will feature complete coverage of the roundtable in its July issue.

NEW MEMBERS

The following have been approved for NRCA membership for March.

CONTRACTORS

A & R Roofing, Inc.
Spring St.
P.O. Box 80
Southfields, N.Y. 10975
Alan Dollbaum

Action Roofing, Inc.
18844 N.E. 84th
P.O. Box 57
Redmond, Wash. 98073-0057
Lee H. Cooley

Canfield Roofing Co., Inc.
4015 Naco-Perrin
San Antonio, Texas 78217-2503
Paul Byers

Economic Roofing Co., Inc.
10910 Johns Hopkins Road
Laurel, Md. 20797
Tyrone Hines

Jimmie Gray Roofing
1201 W. 15th St.
Littlefield, Texas 79339-4808
Jimmie Gray

A.D. Holst Roofing & S/M, Inc.
1831 16th Ave. S.W.
Cedar Rapids, Iowa 52404-1755
Al D. Holst

Industrial Roofing & Sheeting Co.
67 Cooper Ave.
Johnstown, Pa. 15906-1539
Andrew M. Hollan

La Quinta Roofing, Inc.
6088 Federal Blvd.
P.O. Box 86216
San Diego, Calif. 92138-6216
Michael M. Josephson

Molnar Group, Inc.
30815 Solon Road
Solon, Ohio 44139-3423
Daniel E. Molnar

Opelika & Auburn Roofing Co., Inc.
1206 Chewacla Road
Opelika, Ala. 36801-8004
Ronald K. Bradbury

Rocky Mountain States Roofers Mart
6400 N. Broadway, Unit #9
P.O. Box 211367
Denver, Colo. 80221-0392
William Scolari

Snyder Roofing, Inc.
9564 E. 14th Road
Argos, Ind. 46501-9543
Geoffrey S. Snyder

Tuuri, Inc.
4204 Quinlan
Burton, Mich. 48529-2399
Thomas A. Tuuri

AFFILIATES

Arizona Roofmaster, Inc.
32 E. Pioneer St.
Phoenix, Ariz. 85040-1085
Dan Cohen

Skyline Restoration Contractors, Inc.
725 Meriden Waterbury Road
Southington, Conn. 06489-4126
David D. Brenner

ASSOCIATES

Polyseal, Division of Ital-Fintex Corp.
8285 El Rio, Ste. 190
Houston, Texas 77054-6473
Frank Bernobich

Roofer's Mart of Southern California, Inc.
817 Fairway Drive
P.O. Box 428
Walnut, Calif. 91789
David B. Dennis

United Products Corp.
200 W. Sycamore St.
St. Paul, Minn. 55117-5394
Charlene DuBois

INTERNATIONAL

Awaitem Roofs & Waterproofing Co.
P.O. Box 53316
Ikoyi Post Office
Ikoyi, Lagos, Nigeria
E.A. Mbom

ATAB N.V.
Tolstraat 24
2000 Antwerpen
Belgium
William G. Wilford

Produits Pour Toitures Fransyl Limitee
8650 Le Creusot
St. Leonard, Quebec, Canada
Jean-Claude Morrissette

NEW IDEAS

Conglas releases two new booklets

Conglas has announced the availability of two new publications for BUR installers.

The first publication updates specifications for Conglas' Super II modified bitumen glass polyester roofing system. The book contains information on applications and specifications for Poly Cap, Poly Base and Conform heavy-duty fibrous mats. A description of Super II modified bitumen, details of guarantees and a policy statement are also included.

The second publication contains a handbook and kit designed to facilitate a roof maintenance program that involves regular inspections and repairs. The kit illustrates prevention and repair techniques, and includes a model roof maintenance report and a suggested inspection timetable.

Check #66 on Reader Service Card

Pantasote offers Flexhide brochure

Pantasote, Inc., has published a full-color brochure describing its Flexhide® single-ply membrane line. The brochure, "How to Make the Right Choice in Single-Ply Roofing," shows how Flexhide membranes are manufactured and contains information on quality control, research and development, product approvals, product warranties, field and technical service, and installation. A chart in the back of the brochure provides information on typical membrane dimensions and physical properties.

Pantasote has also announced a new hot-line service for licensed roofing contractors, architects and roofing systems specifiers. Pantasote will provide a credit-card-sized hot-line service card with a toll-free telephone number for contacting the company's systems engineers, technical directors, field technician managers, regional sales managers and customer service personnel. Emphasizing the 24-hour, seven-days-a-week service, the card also lists the home phone numbers of Pantasote personnel who have had special lines installed to receive off-hours service calls.

Check #67 on Reader Service Card

CLASSIFIEDS

Place a classified ad in *Roofing Spec* for 50 cents per word. There is a minimum charge of $20. Boxed or display advertisements are available in the classified section for $40 per inch (one inch minimum). Ads using blind boxes available at no additional charge to NRCA members; non-members add $10 to total order. Send ad copy and payment to: Advertising Manager, *Roofing Spec*, 8600 Bryn Mawr Ave., Chicago, Ill., 60631

ROOFING MANAGER

Successful roofing contractor wants to communicate only with the best in the business. Candidates must have very successful experiences in industrial and commercial reroofing sales. Opportunities available on West Coast that are unique and lucrative. Send work history and objectives to Speranza Management Consultants Co., 66 Eastfield Drive, Rolling Hills, Calif. 90274.

PROCOUNSEL ROOFING PLACEMENTS NATIONWIDE

I place roofing professionals with manufacturers, distributors, roofers and consultants. Fees paid by employer. All information handled in strictest confidence. Contact Buzz Taylor at 1-800/545-5900 or 214/741-3014.

MAILING LIST AVAILABLE

Mailing list of schools, government agencies, industries with leaky roofs in United States and Canada. Sulmac, manufacturer of water diverters; 413/533-5347.

MANAGER WANTED

If you are interested in a long-term position with superb growth potential with one of the nation's largest and best run roofing operations, then this may be for you. But are you for us? We only want the best, most aggressive people with vast roofing knowledge in management, field relations and general roofing operations. Please send resume to The Hartford Roofing Co., Inc., 734 Hebron Ave., P.O. Box 444, Glastonbury, Conn. 06033. An equal opportunity employer.

CRANE FOR SALE

Available 5-ton model; 50 feet stick height; 1976 International Truck. It has four speeds, split axle, dual fuel tanks, pintal hook and trailer setup. Includes 5/8-yard bucket hoisting slings and roller carriers. $16,000. 312/389-7739.

ROOFING BUSINESS FOR SALE

Medium-size company in Northeast Arkansas. Town of 32,000 and good trade area. In business 36 years. Selling price in the 50s. Write Box 1002, Jonesboro, Ark. 72403.

BANK LIQUIDATION SALE

Drip/edge, gravel stop, shop-based, automatic roll former. Auto cut-off and 2500-pound payout reel. Also, steel stud machine and used 5-inch gutter machine. Must go; will deal price! Call Sam Smith, 303/937-0227.

EQUIPMENT TO SELL AND BUY

For sale: 10-inch, 18-gallon Wysong shear, $750; 24-inch power cleat bender, $800; 6-ton boom truck, 1966 GMC tandem, 40 feet, excellent condition, $10,500. **Wanted:** 10-inch power bending unit and 4-foot, 10-gallon roller. Call Jim or Allen at 414/684-5559.

POSITIONED FOR GROWTH

Northern Indiana roofing contractor with more than 30 years' experience and outstanding reputation; capable of servicing two major Indiana markets. Excellent acquisition for company interested in establishing Northern Indiana base of operations. Contact: Business Resource Network, 219/234-4045.

MODIFIED BITUMEN MEANS GROWTH

Established manufacturer seeks aggressive contractors and reps for new torch-applied APP modified bitumen. Made in Ohio, this tough, durable, easy-to-apply product will be a profitable addition to your line. Call marketing director, 614/622-2645.

ROOF CONSULTANT SERVICE

Investigation, design, inspection and legal assistance. Serving Richmond and Charlottesville, Va. Offices at Route 1, Box 265, Dublin, Va. 24084; 703/674-5303.

COMPANIES WANTED

We have cash to buy roofing and sheet metal companies. Should have sales of $1 million. Will tailor buyout to suit seller. All responses kept confidential. Send replies to Box 4B, *Roofing Spec*, 8600 W. Bryn Mawr Ave., Chicago, Ill. 60631-3502.

COMMERCIAL ROOFING ESTIMATOR WANTED

Commercial roofing estimator; new and reroof experience required. Good salary bonus plan and company fringes provided. Excellent working and living conditions. Send resume to Universal Roofers, Inc., Attn: Dan Gorman, P.O. Box 20627, Phoenix, Ariz. 85036-0627.

TECHNICAL OPERATIONS MANAGER

High performance single ply roofing systems require a commitment to technical support. Growth-oriented $25MM manufacturer of coated fabrics intends to provide the highest possible quality technical service to it's single ply customers. Newly-created position will be responsible for coordinating these support activities: Specifications and material approvals, training schools, technical publications, marketing support, design modifications, and code approvals. Some travel required, of course.

Contenders will need 10 years of experience with quality roofing companies, 5 or more should involve a single ply membrane manufacturer. Technical management experience very helpful-you wil be the "expert". Solid communication skills also essential. Prefer a technical degree. Knowledge, integrity and customer sensitivity keys to success. Send resume and current salary ATTN: HRM, to:

Fiberlite® SINGLE PLY ROOF PATENT PENDING

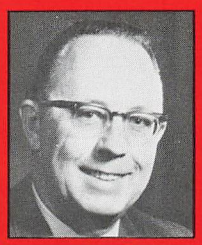
SEAMAN CORPORATION
2028 E. Whitfield Ave.
Sarasota, FL 33580
equal opportunity employer m/f

In Gratitude

Alma and I deeply appreciate the many expressions of sympathy and concern we have received from our friends in N R C A since the death of our son, J. Roy Martin III, on November 27, 1984. Your support and prayers have been a great comfort to us and we shall always be grateful.

J. Roy and Alma Martin

Single-plies have their problems, too



By Bob LaCosse

The NRCA Technical Services Department receives many calls and letters about various single-ply products and systems problems. Some of the questions have prompted the NRCA Technical Operations Committee (TOC) to examine these problem areas and seek solutions.

New single-ply products have been sprouting like mushrooms in the marketplace for the last seven to nine years. In 1976, there were only four manufacturers supplying seven different types of single-ply roof membranes. By 1984, there were 90 manufacturers supplying roughly 180 different single-ply systems.

If you think that all these new systems are trouble-free, think again. Some faulty systems have made it to the marketplace even though NRCA has stressed many times that new products should be thoroughly tested before they are offered.

The Association believes that manufacturers should do their homework to make sure their products don't delaminate, separate at the seams or cause fasteners to rust. Manufacturers must also evaluate their products' performance in roof systems to make sure the membranes won't cause blisters, splits or blow-offs.

NRCA has received many reports of moisture accumulating in significant amounts on the underside of plastic and rubber roofing membranes. The Association is scrutinizing several theories about the cause of this accumulation. It has been suggested that:

- moisture trapped in the roofing assembly during construction vaporizes and rises, condensing on the underside of the membrane;
- moisture in wet roof insulation that has not been torn off before the new membrane is installed vaporizes and condenses;
- moisture and/or vapor from the structure's interior rises into the roof assembly and condenses on the cold membrane;
- moisture on the membrane surface permeates inperfections in the membrane or its open end or side lap joints and collects on the membrane; and
- moisture accumulated in systems using the new plastic or foam insulations cannot migrate into the assembly during periods of significant vapor pressure as well as it could in built-up systems using insulations such as perlite, fiberboard and fiber glass.

NRCA has written to EPDM and PVC manufacturers about the moisture problem and as a result, several of the manufacturers are now investigating this issue. TOC is also talking to Association members to determine the extent of the problem and is researching solutions. The moisture issue is also on the agenda for the May meeting of the joint NRCA/Single-Ply Roofing Institute (SPRI) Technical Liaison Committee.

In addition, two papers that will be presented at the Second International Symposium on Roofing Technology will address the moisture accumulation problem. The papers are titled "Field Survey of Moisture Gain Behavior Within Single-Ply Roof Systems" by Rene Dupuis of Structural Research, Inc., and "Roof Condensation Modeling of EPDM Single-Membrane Roof Systems" by Robert Walters of The Manville Corp. The Symposium will be held Sept. 18-20, 1985, at the National Bureau of Standards, Gaithersburg, Md.

The problem of fastener rusting and corrosion on metal decks has also been brought to NRCA's attention. The Roof Insulation Committee of the Thermal Insulation Manufacturers Association (RIC/TIMA) initially referred the fastener rusting problem to the joint NRCA-RIC/TIMA Roofing Insulation Committee in 1984.

RIC/TIMA reported that fastener rusting problems had been encountered in systems employing urethane insulation. The problems occurred most often in reroofing jobs. The group found that the fasteners that broke or rusted had not been coated. When these uncoated fasteners were exposed to moisture in the roofing system or condensation entering the roof from the interior of the building they were destroyed.

Several companies have started testing fastener coatings to find one that will make fasteners rust-resistant.

Both NRCA and RIC/TIMA discussed the problem with manufacturer representatives. As a result, several of the companies have started investigating and testing various types of fastener coatings to find a product that will make fasteners rust-resistant. In addition, several fastener manufacturers are working with SPRI's fastener subcommittee on a proposed procedure to test coated fasteners for rust-resistance.

We should be seeing results soon from these efforts to resolve the rusting and corrosion problem in new and reroofing jobs for both single-ply and BUR assemblies.

In 1984, NRCA received a letter from the Polyurethane Division of The Society of the Plastics Industry (SPI) about using open flame torches to adhere modified bitumen membranes. SPI had become concerned about the torching procedure after the use of an open flame on modified bitumen had caused a serious fire.

After studying this issue, RIC/TIMA prepared a paper titled "TIMA's Position on Torching Directly Over Foams." The Association has submitted the paper to NRCA for endorsement. The paper reads as follows:

> There has been much discussion and confusion surrounding approvals and recommendations of the torching of modified bitumen membranes directly over isocyanurate and urethane foam insulations. With regard to torching of modified bitumen over these foam roof insulation products, TIMA *does not* endorse torching directly to the foam insulation material. Rather, it is recommended that an interim base ply or layer of roof insulation, acceptable to the membrane manufacturer, be used to separate the foam roof insulation from the modified sheet and the torch.
>
> The membrane manufacturers publish varying specifications, and often the foam roof insulation manufacturer is asked to be the approval authority. This should not be the case; approval of insulation for use under modified bitumen roof systems is the responsibility of the membrane manufacturer.

TOC has informed RIC/TIMA that NRCA cannot take a position on torching modified bitumen directly to urethane until further investigation is done.

However, the Committee advised RIC/TIMA to contact modified bitumen manufacturers to determine their position on torch-applying modified bitumens directly to urethane or isocyanurate insulations. TOC further suggested that RIC/TIMA measure the temperature of the torched membrane as it is being laid as well as the temperature created by the torch flame during a torching operation. These measurements could be used to determine if the urethane could withstand the heat generated by the operation as long as it did not come in contact with the torch flame.

NRCA members have not reported any problems with torching modified bitumen directly to urethane insulation even though others say problems have developed. NRCA has heard that some contractors are mechanically fastening a base-ply sheet to the urethane to separate the insulation from the hot modifed bitumen and the torch.

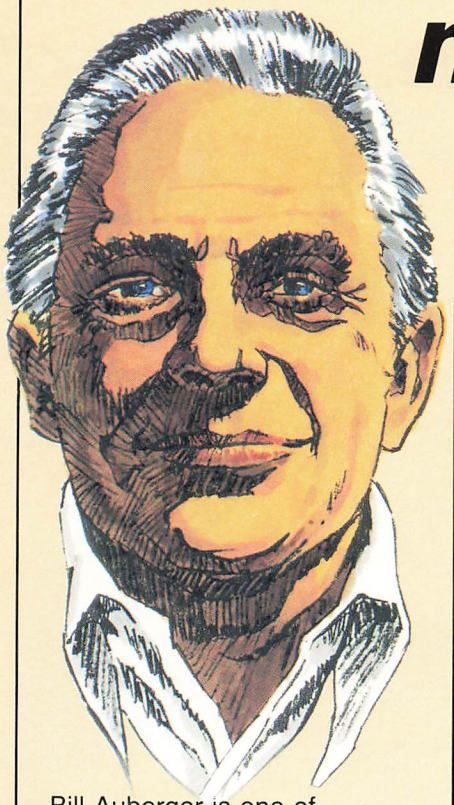
NRCA will be releasing a report on torching modified bitumen after it has completed its investigation of this issue.

Other single-ply problems that have been reported to NRCA include:

- solvents bleeding through elastomeric and plastomeric membranes at the joints, destroying EPS insulation below;
- seam separations;
- blow-off on ballasted systems;
- fatigue failures with non-penetrating mechanically attached roof systems;
- holes and blemishes caused by elements; and
- moisture loosening bonding adhesives.

We hope that the various investigations will help resolve many of these problems. Once these questions have been answered, the industry can concentrate on new roof designs and improve single-ply application procedures.

"A Duro-Last® roof offers value no other roof can match. Value that benefits me and my customers."



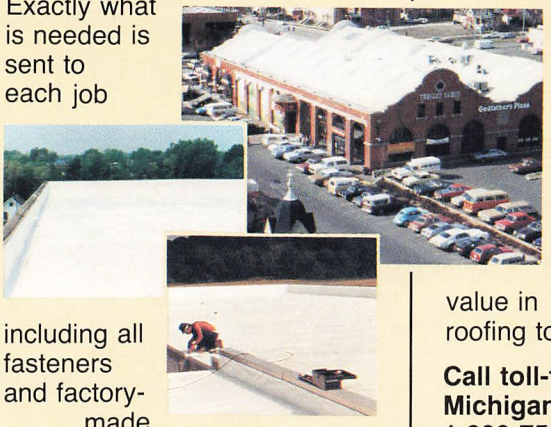
William (Bill) Auberger,
Licensed Duro-Last Contractor
Rainbow Enterprises, Cincinnati, OH

Bill Auberger is one of Duro-Last's most successful contractors. In part, because of his salesmanship. But also because of the advantages that make a Duro-Last roof easy to sell.

Duro-Last is a completely engineered, "custom-fitted" roof system. With each order, customer and contractor get the best possible value for the dollar.

Contractor value

Contractors value the complete installation package. Exactly what is needed is sent to each job



including all fasteners and factory-made roof accessories.

No parts to inventory. No material waste. Installation is fast and easy on new or existing roofs. And company profits are vitually assured.

Customer value

Customers value the fast order turnaround and expert installation by licensed Duro-Last contractors. A thorough quality inspection program. And the most comprehensive warranty in the business. Free of charge.

Total value

Duro-Last puts the technological advantages of single-ply roofing into a total value package. One that can benefit you as a contractor or customer. Ask for the best value in roofing today.

Call toll-free in Michigan 1-800-752-8815 or out-of-state 1-800-248-0280.

Factory Mutual System
Classified
UL
METRO-DADE
METROPOLITAN DADE COUNTY, FLORIDA
85-01-17.1
Exp. 2-11-88

DURO-LAST® Roofing, Inc.

525 Morley Drive • Saginaw, MI 48601

Gives you the material edge.

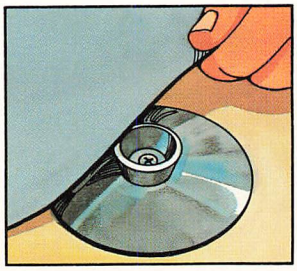
Check # 16 on Reader Service Card

Book-of-the-Month Club, Mechanicsburg, PA
Roofing Contractor: Neidig Roofing, Penbrook, PA

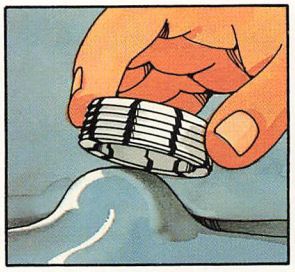
Carlisle's new Design NP™ roof snaps on; doesn't penetrate the membrane.

It's here...M.A.R.S. Design NP (Mechanically Attached Roofing System—Non-Penetrating). This is the ultimate single-ply roof system, combining the lightweight advantage of adhered systems with the low cost holding power of ballasted systems. But with a plus! It also offers the economical advantage of mechanically attached systems *without penetrating the membrane!*

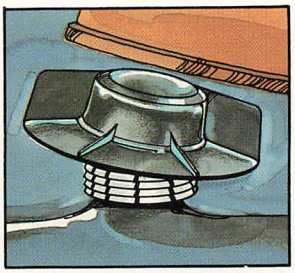
Used in Europe for nearly a decade, this innovative system will save you time, money, materials and weight.



1 Roll membrane over knobbed base plate.



2 Roll and snap on white retainer clip.



3 Snap and screw on threaded black cap.

Fast, easy installation.

Carlisle's performance-proven Sure-Seal® membrane is held in place by simple three-part assemblies. These are a snap to install...as easy as one, two, three. No special equipment. Even in marginal weather. A small crew of Carlisle approved applicators can install an entire roof in record time.

Flexible design.

Goes right over failing built-up roofs and those that can't support much weight. The system fastens to most substrates and can even be moved to another location.

Best of all, it's from Carlisle.

Trust Carlisle to bring you the best and most innovative roofing systems. We promise single-source responsibility, trained professional applicators and over 20 years experience. Best of all, we offer a watertight warranty of up to 15 years.

For more information on our snap-on roof, call toll-free, (800) 233-0551, in PA (800) 932-4626. Call today, this is one snap decision your roof...and budget...will never regret!

It's all part of being the best.

CARLISLE

Carlisle SynTec Systems
Division of Carlisle Corporation, P.O. Box 7000, Carlisle, PA 17013

Call toll-free, 800-233-0551
In PA, 800-932-4626

Check # 10 on Reader Service Card