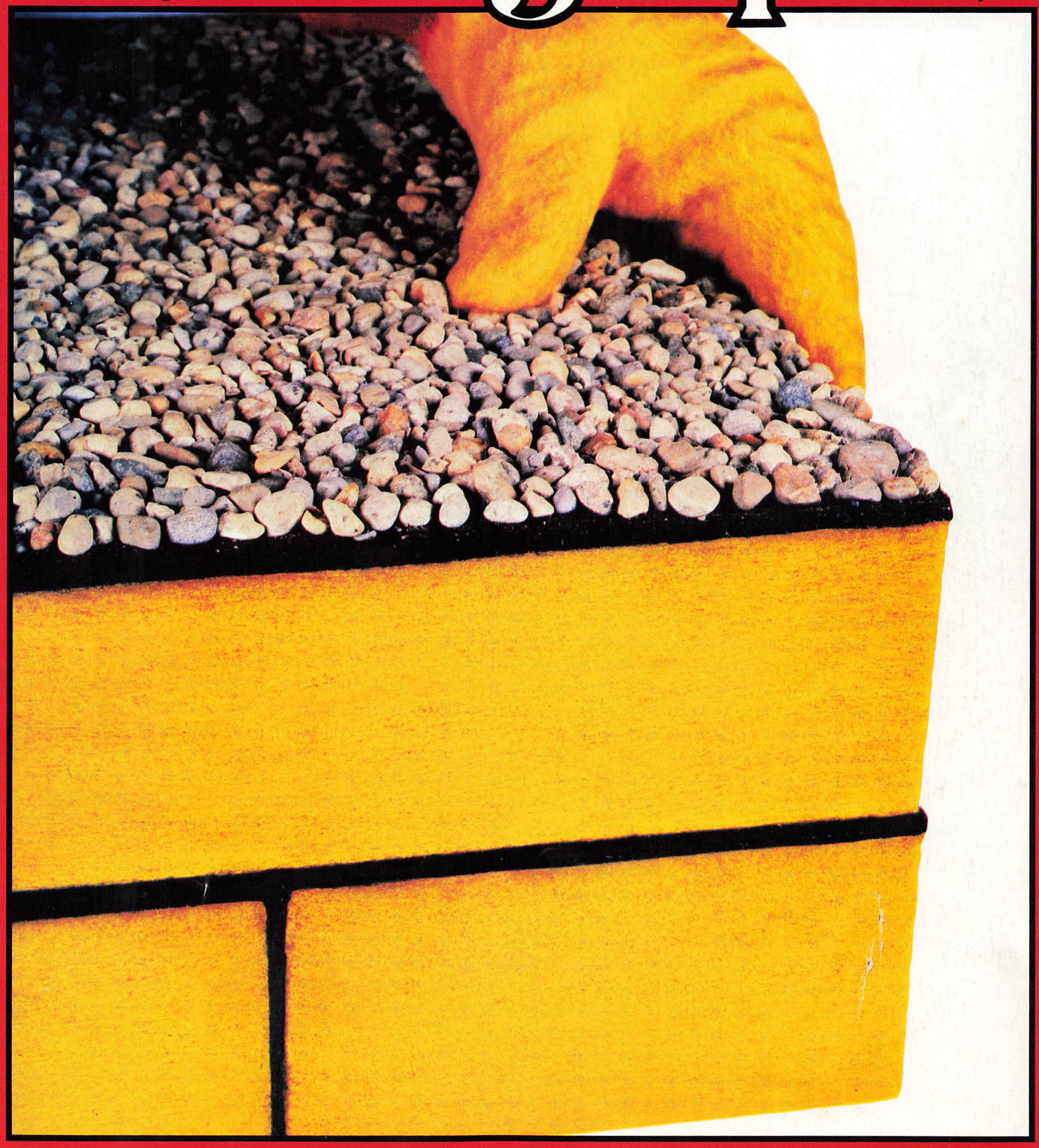
$2.00

roofing spec

National Roofing Contractors Association

May 1983



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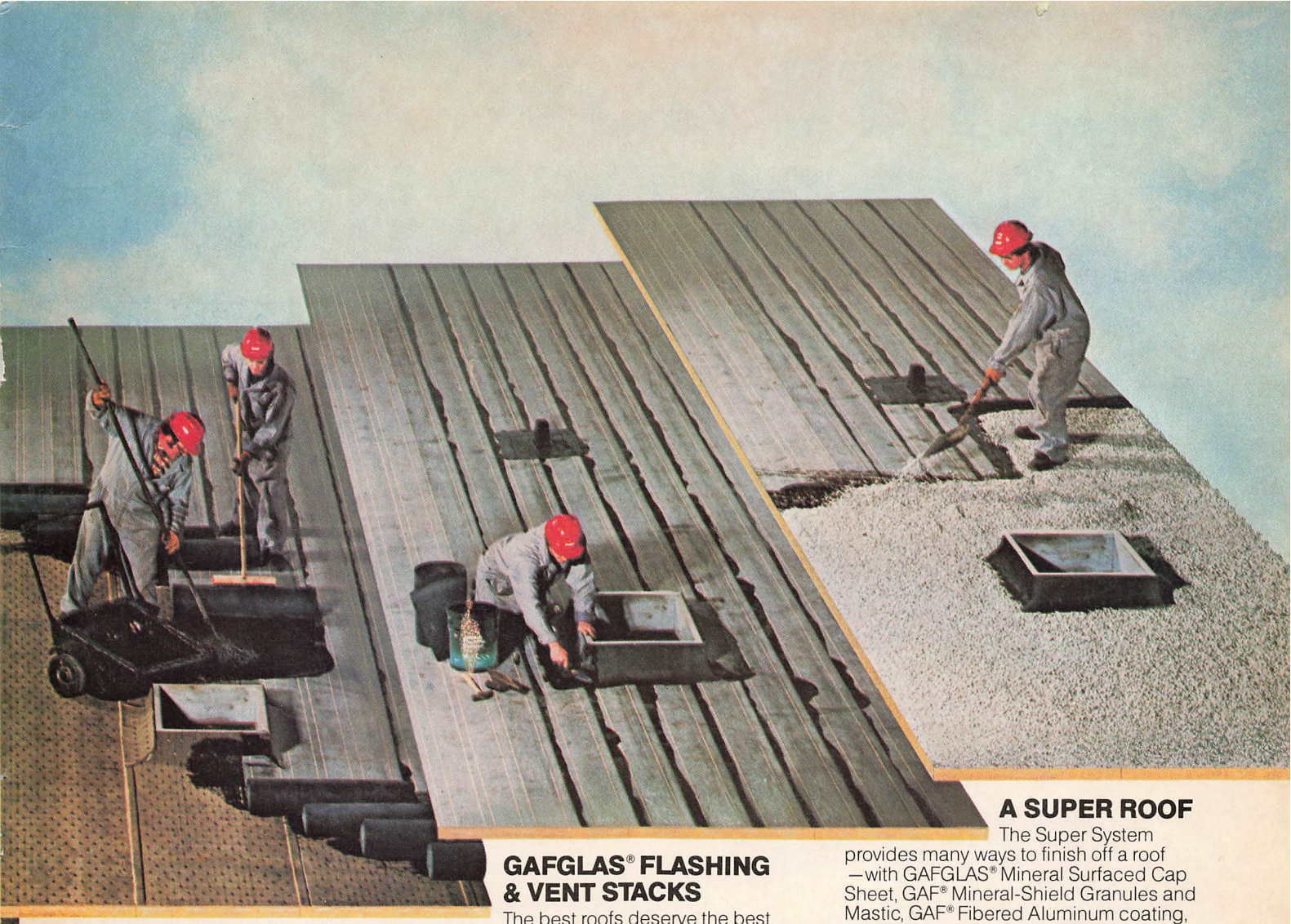
GAF offers one of the widest lines of roof insulation products in the industry. Under the GAFTEMP® name, you'll find six different insulations to choose from as the important first step of the Super System. Here, we're starting with GAFTEMP Isotherm insulation, a non-composite board made up of asphalt-coated facers bonded to a core of isocyanurate foam. No lower "U" value is available in any other FM Class I rated product of equivalent thickness. It's lightweight, easy to handle, and fast to install.

GAFTITE FASTENERS

An important part of the GAF® Super System roofing is the GAFTITE Roof Insulation Fastening System. It's the time-saving, and the money-saving, way to lock insulation down to stay. No more bitumen or other adhesives. No more hot mopping. No more nailing. 50% less labor. Quick and easy installation with half as many fasteners as most traditional nailing methods. Fewer problems during installation and after, with positive protection against wind uplift, vibration, and construction movement. Factory-Mutual Approved Systems.

GAFGLAS® STRATAVENT® (Vent Ply)

The GAF® GAFGLAS® Vent Ply roofing System has been engineered to reduce the destructive effects of moisture vapor trapped beneath the surface of a built-up roof. Granules on the underside of Stratavent Base Sheet provide venting for any trapped moisture vapor. Moisture won't rot, shrink, or expand it. It's easy to apply and can be specified for any type of roof deck. Since it's rolled out dry, it yields significant savings in asphalt and labor. Carries the U.L. Type G 2 BUR label.



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GAFGLAS® PLY 4 glass ply roofing sheet is the *superior* membrane for all built-up roofs in all climatic zones. You'll like the ease of application. It's light in weight and rolls out fast, so your labor costs will be lower. It has high tensile strength, great dimensional stability, and resists blistering, fishmouthing and rot. Interply adhesion is excellent. GAFGLAS® PLY 4 roofing sheet meets Fed. Spec, SS-R-620B Type III requirements, and exceeds ASTM D2178 Type IV. It carries the U.L. Type G 1 BUR label.

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A SUPER ROOF

The Super System provides many ways to finish off a roof —with GAFGLAS® Mineral Surfaced Cap Sheet, GAF® Mineral-Shield Granules and Mastic, GAF® Fibered Aluminum coating, GAF® Weather-Coat Emulsion, or GAF® Special Roofing Bitumen or Roofing Asphalt and aggregate. Whichever way you choose, you'll have a Super Roof that solves problems, and not just a cover-up.

Reroofing is more than just covering up an old roof with material. It requires a carefully executed plan of determining specific problems, selecting the correct products, and placing the system down with proper application procedures. At GAF, we pride ourselves in reroofing with a time-proven built-up roofing Super System. Shown here are only a few of GAF's roofing products, which also include complete single-ply roofing systems and residential asphalt roofing shingles.

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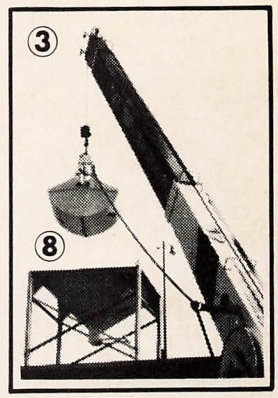

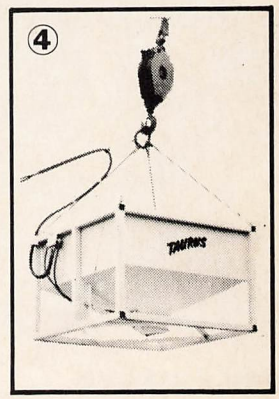

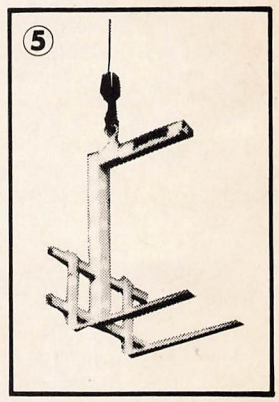

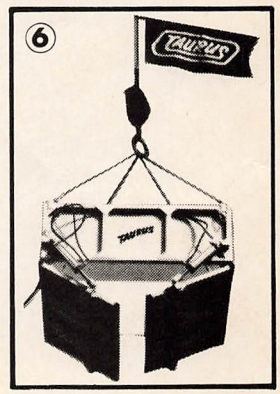

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roofing spec
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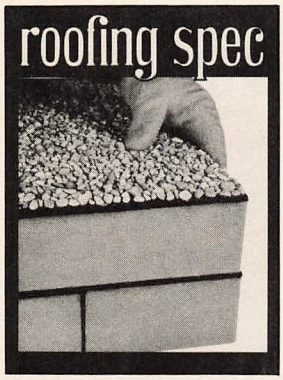

Built-up roofing — still the granddaddy of roofing systems. (Photo courtesy of Owens-Corning Fiberglas, Toledo, Ohio.)

NATIONAL ROOFING CONTRACTORS ASSOCIATION
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"And in this corner..."

There's something going on. Slowly but surely a tried and true performer has picked itself off the mat, is exercising muscle earned through years of experience and is making a bid for a comeback. Carefully, without fanfare, this "old guy in the gym" is starting to come again in favor with the same folks who just a few short years ago turned and ran to embrace the challenger, the new kid in town.

Built-up roofing is on the way back.

It's more than just a gut feeling. Recent conversations with contractors, manufacturers and architects indicate a shift in moods regarding conventional, built-up roofing systems.

A manufacturer says: "Every indication points toward a renewed interest in the old, proven conventional system. Now that everyone has had a chance to try the other systems, many are returning to built-up systems because they know they work."

A contractor says: "There was a lot of talk at the NRCA convention about an upswing in attitudes on built-up roofing. The perception is BUR is not dead. Far from it."

An architect says: "We're feeling more comfortable with built-up roofing because of important improvements like the advancement in glass fiber mats and the quality control of workmanship. A year or two ago I might not have been as enthusiastic in specifying built-up roofs."

From the industry standpoint, a strong BUR push has been mounted recently by the Asphalt Roofing Manufacturers Association (ARMA). A snappy new logo, a positive new theme ("Built-Up Roofing, A System Above The Rest") and an aggressive promotional program to help sell built-up roofing all underscore that group's commitment to conventional systems.

Now it would be plain foolhardiness to think that all this means the old champion is going to come charging back in a blaze of glory. No way. Business as it is just won't allow that. But what will happen is a continued leveling out among the manufacturers, specifiers and installers of all roofing systems.

It's important to remember that for every reason, there is a system. And NRCA contractors will be in there keeping America covered.

Michael Bigelow

Ideas, notes and random thoughts

In this issue we will examine the various markets that help make up the field of built-up roofing. Associate Editor Connie Arkus reports on a lively "contractors only" Built-Up Roofing Rap Session from the February, NRCA Convention; Editorial Assistant Marty Eastman takes a look at Trumbull Asphalt, one of the country's largest producers of roofing bitumen. In addition, we'll also report on infrared technology and roofing applications, as well as an economic outlook for the 1983 roofing industry. Read and enjoy.

m.b

Looks like we've got a winner in the *NRCA Roofing Materials Reference & Guide.* Director Norm Bullock reports that total subscriptions are nearing the 2000 mark for this impressive reference book listing material data and information on at least 60 manufacturers with hundreds of spec guidelines. For more information, contact Bullock at NRCA headquarters, 8600 Bryn Mawr Ave., Chicago, Ill. 60631.

On the budget battlefront, the U.S. Chamber of Commerce has given Congress a proposed budget plan that would yield a surplus of $20 billion instead of a budget deficit of $117 billion by 1988. The plan rejects increased taxes and restraints on automatic cost-of-living increases in federal retirement and disability programs, a federal civilian worker freeze in 1984, defense spending increases of only seven percent and federal, state and local government work inclusion in the Social Security system.

National Roofing Foundation Update

The National Roofing Foundation is a FRIEND of the roofing industry. To perform its activities, The Foundation needs FRIENDS like you!

The FRIEND of The Foundation program is The Foundation's most important means of raising funds. To become a FRIEND of The Foundation, all you need do is agree to contribute $50 or more (yearly). Upon receipt of your initial contribution, you will be designated a FRIEND of The Foundation.

The other contribution programs are:

- ☐ SCHOLARSHIP/MEMORIAL FUND — This category is for those contributions of $500 or more specifically designated to be used for scholarships. This area is also for bequests or memorial gifts in the name of a deceased.
- ☐ LIFE-TIME MEMBERS — The Foundation has a third category for those who wish to be considered Life-Time members. Life-Time members contribute $1,000 or more.
- ☐ DONATIONS — The Foundation welcomes any and all donations. Personal and corporate donations are tax deductible.

For more information on The Foundation, contact the NRF office, 8600 Bryn Mawr Avenue, Chicago, Ill. 60631.

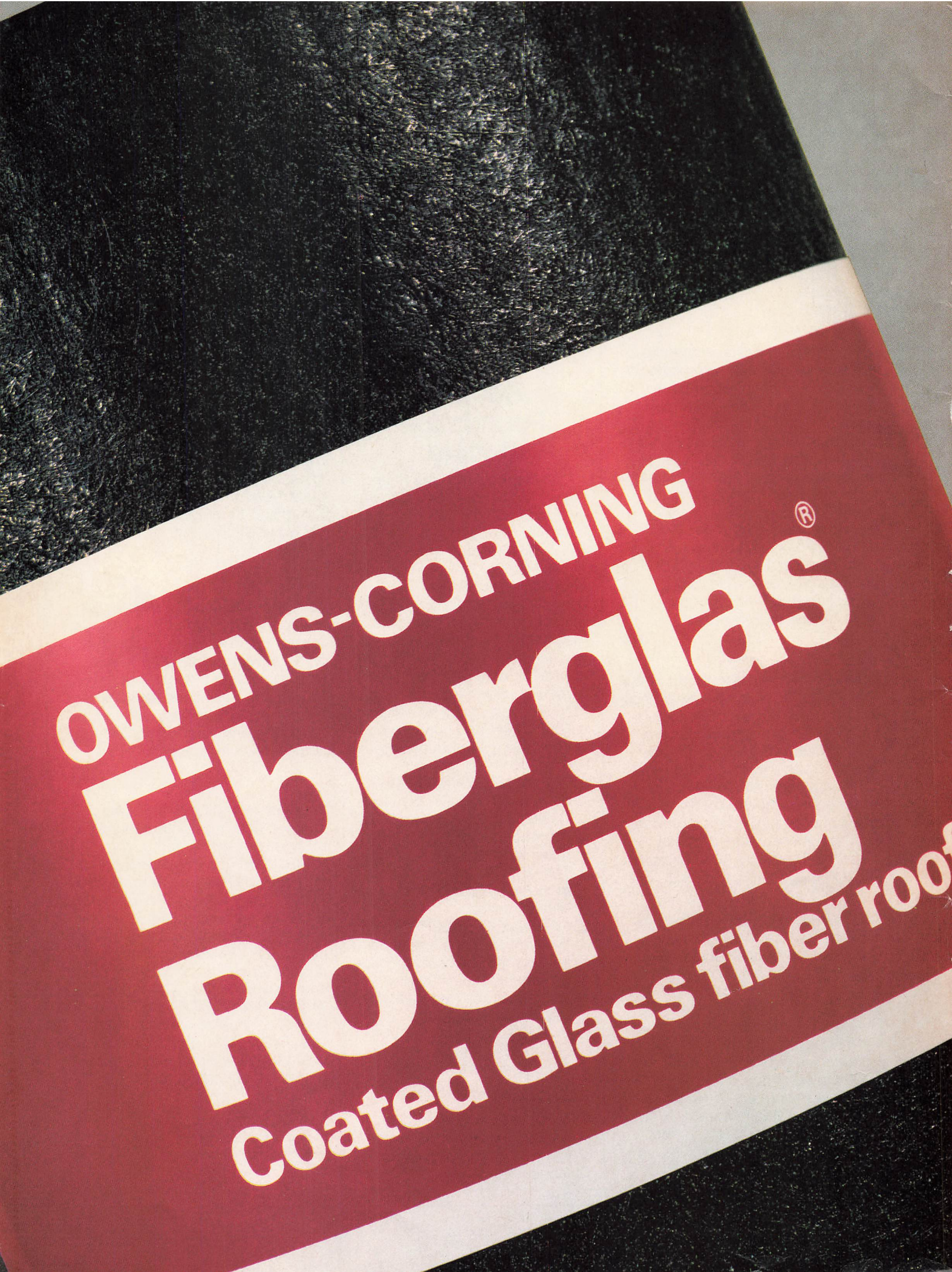
No matter how appealing it may appear "protectionism protects nothing," says Edwin D. Dodd, vice chairman of the board of directors of the U.S. Chamber of Commerce. "It is not a job saver but a job killer. It endangers markets and shatters dreams of economic development." Dodd is Chairman of the Board and Chief Executive Officer of Owens-Illinois, Inc., of Toledo, Ohio.

Nonunion builders are making inroads on union-shop turf. Last year, the nonunion Associated Builders and Contractors started a drive to take some of of the jobs held before by union builders. And union chiefs have responded, calling for a more cooperative effort producing some work-rule changes.

Inquiries regarding NRCA's Accredited Roofing Contractor (ARC) program are continuing to come into NRCA offices. The new program, introduced at the San Antonio convention, is an educational effort designed to properly recognize those contractors well-versed and trained in a variety of subjects, all important facets in a successful business operation. For further details, write to Director of Education Alan Grayson, NRCA, 8600 Byrn Mawr Ave., Chicago, Ill. 60631. (Be sure to read this issue's profile on the NRCA Educational Department.)

"I don't make jokes — I just watch the government and report the facts."

Will Rogers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Or consider Perma Ply No. 28, a glass fiber base sheet used over nailable decks and recover surfaces. It lays smooth and flat where ordinary felts wrinkle and crack.

Or Perma Ply No. 28 Perforated, which can be used over foam insulations to minimize blistering.

Or Perma Plus-2™, a stronger version of the continuous-strand mat used in Perma Ply-R. This unique two-ply roofing system offers lower installed costs and improved productivity.

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In addition, it is also a highly flexible system. Derbigum excels not only as new and re-roof membranes, but, due to its strength and elasticity, it forms superior flashing systems.

It's no wonder that with over 1.5 billion square feet installed in over 17 years, Derbigum is one of the world's best-proven, single-ply roofs.

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Because it's underneath where it can't be seen, the benefits of roof insulation are too often overlooked. But using the right insulation can mean the difference between life and death for a roof.

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And no other roof insulations conform as well to minor deck irregularities.

In addition, a double layer of Fiberglas roof insulation can add years to the life of a roof. By offsetting the second layer so the joints never line up, continuous vertical gaps are eliminated. So heat loss is minimized and membrane stress is reduced by as much as 10%.

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For more information, contact your Owens-Corning sales representative or distributor.

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February Construction Declined Six Percent To $11.3 Billion

Contracting for new construction eased six percent in February, after a strong January beginning, according to the F.W. Dodge Division of McGraw-Hill Information Systems Company.

February's total of $11.3 billion of newly started construction of all kinds reduced the seasonally adjusted Dodge Index to 119 from January's 127 (1977 = 100).

"Erratic behavior of construction activity is typical for the winter quarter when minor month-to-month variation is less important than the average level of contracting over several months," said George A. Christie, vice president and chief economist for F.W. Dodge. "So far this year, the seasonally adjusted rate of contracting has averaged three percent higher than in 1982's closing quarter. This means that February's modest decline was well within the range of weather-related variation and was not a sign that the construction industry's emerging recovery may be stalling."

Contracts for nonresidential building totaled $4.2 billion in February, down a seasonally adjusted six percent. "Across-the-board declines in commercial and industrial building — stores down 15 percent, warehouses down 12 percent, offices down four percent, and factories down 31 percent — indicate how much excess capacity remains at the recession's end," Christie said. "Although the economy's recovery is apparently underway, it will take the rest of 1983 — and maybe longer — to take up enough of the slack to enable commercial and industrial building to expand again."

Contracting for residential building receded seven percent in February as $4.8 billion of new homebuilding was begun.

"Because F.W. Dodge and the Department of Commerce use somewhat different seasonal adjustment factors, there are differences in the January and February rates of housing starts reported by these two sources. Nevertheless, both show a strong volume of housing activity during the first two months of 1983," according to Christie.

A rebound of highway construction in February — possibly in anticipation of extra Federal funds from the five-cents-per-gallon fuel tax — helped lift the month's total of nonbuilding construction to $2.3 billion, a gain of seven percent after adjustment for seasonality, Christie said.

Although no major electric power projects were started in February, the month's contracting included a $345 million segment of the Cortez gas pipeline in New Mexico which will connect with sections under construction in Colorado and Texas.

At the end of two months, the value of all new construction started in 1983 was $22.7 billion, a gain of one percent over the comparable period in 1982.

The accompanying chart is a summary of the latest month's Dodge construction statistics. These contract-award statistics, prepared and issued by the F.W. Dodge Division of McGraw-Hill Information Systems Company, measure the value of newly started construction that will be brought to completion over the months ahead.

MONTHLY SUMMARY OF CONSTRUCTION CONTRACT VALUE
Prepared by F.W. Dodge Division
McGraw-Hill Information Systems Company

	February 1983 Construction Contract Value (000,000)	Seasonally Adjusted Percent Change From Previous Month
Nonresidential Building	$ 4,214.1	- 6
Residential Building	4,774.6	- 7
Nonbuilding Construction	2,321.1	+ 7
Total Construction	$11,309.8	- 6

	2 Mos. 1983 (000,000)	2 Mos. 1982 (000,000)	Cumulative Percent Change
Nonresidential Building	$ 8,656.5	$ 9,665.7	- 10
Residential Building	9,742.4	6,036.8	+ 61
Nonbuilding Construction	4,266.5	6,715.1	- 36
Total Construction	$22,665.4	$22,417.6	+ 1

DODGE INDEX
(1977 = 100, SEASONALLY ADJUSTED)

December 1982	131
January 1983	127
February 1983	119

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BENJI DOES IT AGAIN . . .
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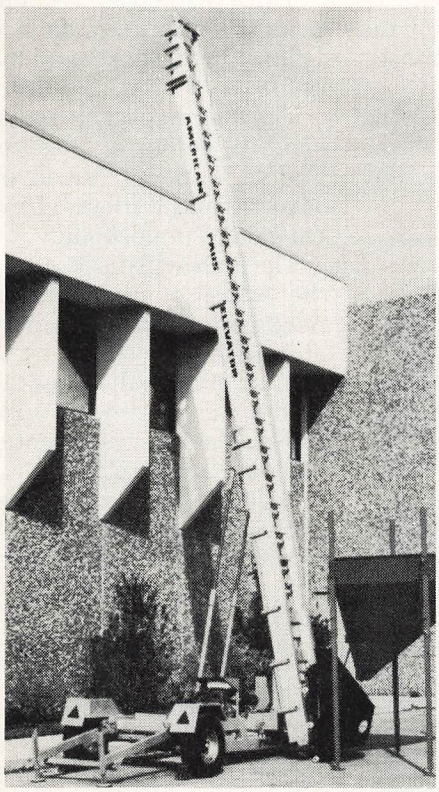

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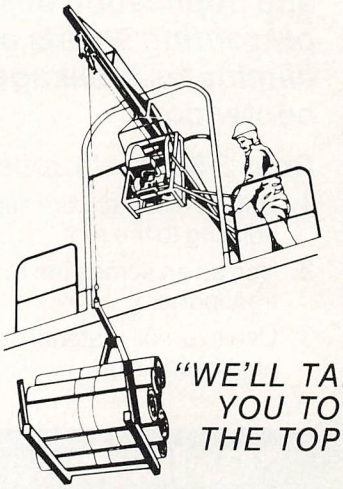

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New Address for ARMA

The Asphalt Roofing Manufacturers Association (ARMA) recently moved to 6288 Montrose Rd., Rockville, Md. 20852; 301/231-9050.

Convention To Feature Three Urban Experts

The past, present and future of architecture will be the focus of the American Institute of Architects' 1983 National Convention.

"American Architecture: A Living Heritage," will be the theme of the event to be held in New Orleans, May 22-25.

Three nationally recognized experts will examine architecture's relationship to society and the quality of life.

The theme speakers include: John Naisbitt, author of *Megatrends;* Dr. George Sternlieb, urban policy researcher and William Whyte, urban consultant/philosopher.

The three will discuss the effects of the future on the national/global, neighborhood/city and interpersonal/individual levels.

In addition to the three theme programs, the convention will offer 15 professional development seminars and panel discussions.

Special exhibits on preservation and computer technology will also be on view, with computer specialists on hand for small-group consultations.

During a special ceremony on May 25, AIA's highest honor — the Gold Medal — will be presented to architect, urban planner and conservationist Nathaniel Alexander Owings, FAIA.

Owings is a founding partner of the architectural firm of Skidmore, Owings and Merrill.

Foamers Elect New Board

Members of the Urethane Foam Contractors Association elected a new Board of Directors at their Eighth Annual Urethane Foam Exposition held January in New Orleans.

Elected as president was Hubert Coon, manager of General Supply Company in San Antonio, Tex. Coon's company was a founding force behind UFCA.

Other officers elected by the association were: vice president, Joe Kleine Kracht, En-Tech, Inc., Louisville, Ky.; secretary, Lee Gilbert, Gilbert Foam Insulation, Jersey Shore, Pennsylvania and treasurer, Larry Szrom, Energard Corporation, Orlando, Fla.

Regional representatives elected

were: Region I, L.L. "Buddy" Cockrell, Richmond Primoid, Richmond, Va.; Region II, Larry Martin, Standard Spray Systems, Inc.; Region III, Pete Johnston, Universal Applicators, Inc., Hugo, Minn.; Region IV, Clem Sherek, South Texas Urethanes, Edinburg, Tex.; Region V, Roger Fair, Urethane Systems, Inc., Moses Lake, Wash.; Region VI, M. E. "Dutch" Sicklesteel, Sprayfoam Southwest, Anaheim, Calif.

Nearly 900 polyurethane foam contractors, manufacturers and distributors attended the exposition.

Subs Kick-Off Disbursement Campaign At Convention

Progress and final payments approved by the general contractor would be directly disbursed from an escrow account by an owner's agent to the firms which supplied the labor and materials, if delegates to the Feb. 23-26 American Subcontractors Association (ASA) convention in Tampa — who unanimously endorsed plans for a nationwide "direct disbursement" campaign — have their way.

Spearheaded by the association's Payment Practices Committee and its chairman Allan Burke, a Chicago interior contractor, the campaign has already produced a detailed manual explaining direct disbursement, endorsements from major specialty contractor associations, speaking invitations from national industry groups and dialogue with owner, lender, insurance, architect, and general contractor representatives.

"The goal is to introduce direct disbursement to all 50 states within the year," said Burke, who noted a recent ASA survey had shown that in 1981 the payment method had been used in 10 states.

"Direct disbursement just makes plain good sense," Burke said. "The requisition and approval process of the conventional system is retained to preserve the authority of the general contractor, but disbursements are made by an owner's agent — usually the title company — directly to all primes and first-tier subs and suppliers. Such disbursement meets the need for prompt payment, while assuring the owner of a lien-free building."

Burke claimed that direct disbursement is "not revolutionary, but evolutionary."

"The conventional payment system in which funds are disbursed by the general contractor is a hold-over from the era when he did most of the work with his own forces," Burke said.

"Direct disbursement is a realistic response to the growth of subcontracting which preserves the general contractor's approving authority but expedites the flow of funds to those performing the work.

"Fifty years ago, the conventional

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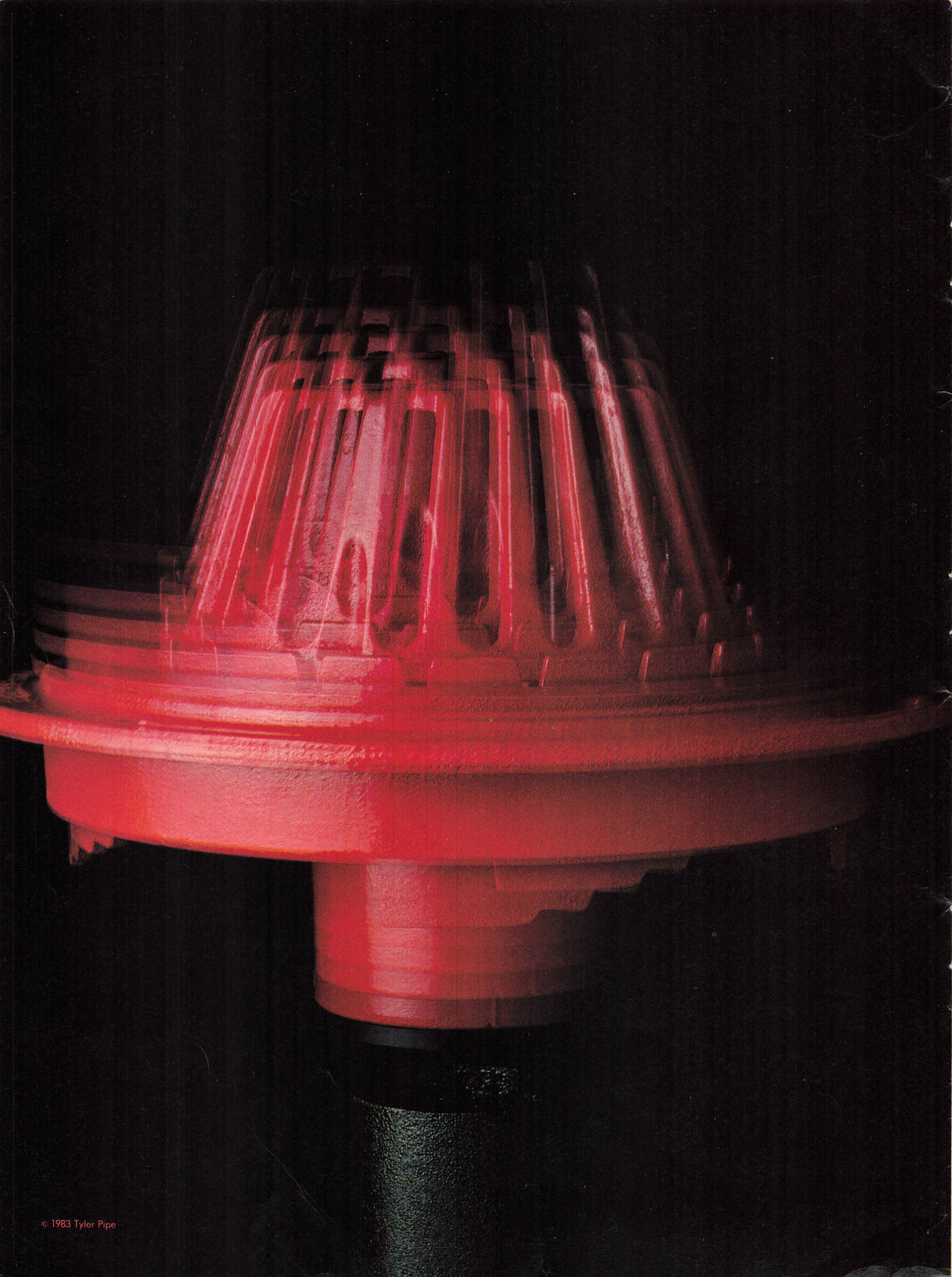
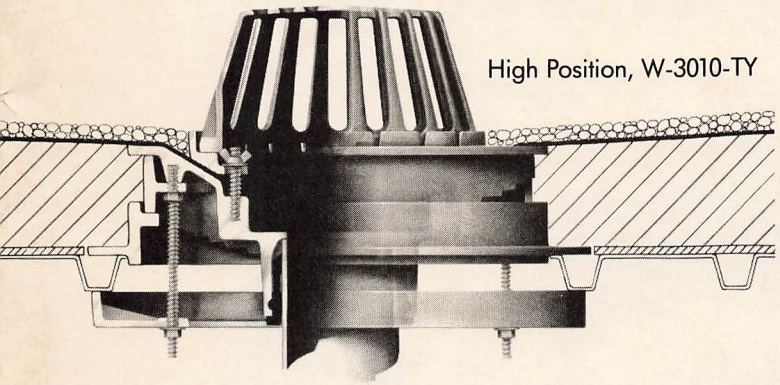


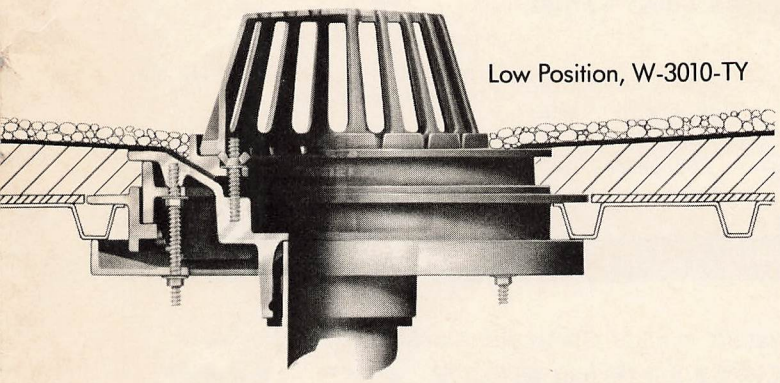
Introducing the drain that'll keep you from fiddling on the roof.

The W-3010 adjustable roof drain series from Wade allows you to easily raise the drain height from 1″ all the way to 6″ at no additional cost. That's room for 2 more inches of roof than any other drain on the market – without paying extra for add-ons.

You don't waste time installing the drain, either. After you adjust the drain to the desired height, just secure it with an under-deck clamp. That's all there is to it. There's no bearing pan to mess with or cups or recesses to fill with tar.



High Position, W-3010-TY



Low Position, W-3010-TY

It's easy to adjust, too. Just turn the roof drain body to raise or lower the drain. No tools are required. The stair-step adjustment assembly allows you to move the drain in quarter-inch increments in either direction.

Plus, the adjustment is under the drain instead of on top or internally. So extra gaskets and seals that could leak are completely eliminated. With our new roof drain, the only clamping device is the one that fastens the membrane to the drain body.

And because the body is adjusted upward, you get more room for downspouts between the deck and suspended ceiling.

After adjustments, you can connect the storm drainage piping anytime (with push-on gaskets, you may not need a ladder).

This new W-3010 roof drain is available with all popular outlets in 2″-10″; push-on gaskets in sizes 2″, 3″, 4″ and 6″.

So when you need a roof drain that can rise to any occasion, specify Wade's new adjustable roof drain. It's reaching new heights in specification drainage products.

For more information about Wade's new roof drains, write us for a free 12-page technical package. It includes everything from complete installation details to dimensioned drawings. Write Tyler Pipe, Box 2027, Tyler, TX 75710. Or Telex 735410.

Tyler Pipe
Subsidiary of
Tyler Corporation

Member PDI All Tyler products are made in the U.S.A.
A patent application has been filed for Wade adjustable roof drains.

Check #360 on Reader Service Card

NATIONAL NEWS

continued from page 13

payment system got the funds to the party doing most of the work — the general contractor. Now that subcontractors perform most of the work, we need a system that accomplishes this same objective, getting the funds to those doing the construction. If the industry sat down today to design a payment system based on present realities, without the traditions behind us, direct disbursement would come closest to the method we would devise.''

Underpinning this campaign is the recently published ASA manual, ''Direct Disbursement: Alternative to the Conventional Construction Payment System.'' The 24-page book describes in detail the direct disbursement process and lists the benefits to owners, lenders, insurers, architects, general contractors, subcontractors, and suppliers. Also included in the publication are sample forms used in direct disbursement and approved for use by ASA.

''ASA must educate specific target audiences about direct disbursement,'' Burke said. ''For example, owners can assure themselves of a lien-free building by directly controlling disbursement. Or, general contractors can save substantially on overhead while retaining access to disbursement information upon request.''

1983 Construction Revised Upward

As a result of falling interest rates and the step-up of public works spending, the level of this year's construction contracting is now expected to reach $178.3 billion or 15

continued, page 18

Pipe dream from Manville.

The Manville Flex-I-Drain™ flexible drain system performs like a dream. And is a dream to install.

A look at its patented construction reveals the reasons. First, it's tough yet lightweight, made of high rated impact strength, heat-resistant Noryl® SE-1 and flexible neoprene.

Its simple, three-piece design permits quick, completely waterproof installation on both new and reroofing jobs. In three easy, labor-saving steps. It comes in one convenient package. No blocking or rings required. And its unique, bellows-type construction adjusts in all directions to moderate roof deck and drain pipe movement. So the drain and roofing system remain functional.

Manville Flex-I-Drain is compatible with Manville built-up roofing systems and is available in white acrylic for use with single ply systems. And it's eligible for coverage under the Manville Guaranteed Roof Program. It also may be used with other roofing systems.

Select Flex-I-Drain for your building and everyone comes out ahead. The architect because it really performs. The contractor because it installs quickly. The building owner because he gets better roof drainage.

For details, consult Sweet's or contact Bob Graboski, Manville Roofing Systems Division, Ken-Caryl Ranch, Denver, Colorado 80217. (303) 978-2228.

Manville

Check #346 on Reader Service Card

NATIONAL NEWS

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percent greater than 1982, reported McGraw-Hill Information Systems Co.

The figure is almost $11 billion more than predicted six months ago.

In the first scheduled update of its *1983 Dodge/Sweet's Construction Outlook,* McGraw-Hill Information Systems explained that interest rates came down more sharply than expected in 1982's last quarter, producing strong construction gains to be felt in 1983.

"The acceleration of contracting in last year's closing quarters will be felt through the first half of 1983 in terms of stronger demands for building products and more jobs, as this construction is brought to completion," said George A. Christie, vice president.

An even brighter picture looms ahead for the industry, according to Christie.

"Largely due to the drop in interest rates, our housing figure has been revised to 1.475 million units," Christie said. "In addition, public works construction is heading for a gain of two percent instead of another loss, due to the new fuel tax and the acceleration of previously planned public projects."

Christie's revised picture for 1983 puts housing at $85.9 billion, a 48 percent jump from 1982's $58.1 billion; nonresidential construction totaling $54.5 billion compared with $59.2 last year, and eight percent drop; and non-building — or public works — construction showing a two percent gain to $37.9 billion from 1982's $37.3 billion.

"The rate of housing starts will ease back from the unrealistically high first-quarter volume — a statistical aberration — and later rebound to a rate of 1.55 million in the fourth quarter of the year," said Christie.

"The most probable estimate for 1983 is a mix of 900,000 one-family homes and 575,000 multifamily units."

Since contracting for commercial and industrial building typically lags general business activity by as much as a year, Christie believes it will take most of 1983 to achieve the "vigorous" general economic expansion that will "set the stage for the recovery of nonresidential building.

"This year, store and warehouse contracting is the best for improvement," he said.

Christie explained that the public works construction sector will feel the impact of two new government programs designed to create more jobs.

"One of these programs, The Surface Transportation Assistance Act of 1982, is near enough to implementation so that its 1983 impact can be roughly estimated — an extra layer of Federal funding each year from 1983 through 1986, added to the nation's pre-existing $9-billion-a-year basic transportation construction program," Christie said.

"On balance, this program is likely to add a net $2 to $2.5 billion to highway and bridge construction this year, and more over the next three years."

Important Notice to Polyurethane Roofing Contractors...

On March 4, 1983 Polymer Development Laboratories, Inc. Changed the Polyurethane Roofing Industry FOREVER.

INSURED WARRANTY... UNEQUALED IN THE INDUSTRY!

Workmen's Insurance Company, an experienced Underwriter with BEST Insurance Guide "A-10" rating, now offers each building owner registered RIMSPRAY™ ROOFING SYSTEM PRODUCT WARRANTY INSURANCE which provides for repair or replacement of the product or its parts due to breakdown. No more question or doubt as to whom has warranted what; the entire RIMSPRAY™ ROOFING SYSTEM (including THERMASTER™ foam, RIMSPRAY™ and RIMCOAT™) can now be INSURED AGAINST FAILURE. There's nothing else like it in the industry!

RIMSPRAY™ SEAMLESS MEMBRANE... UNRIVALED IN THE INDUSTRY!

Workmen's Insurance Company underwrote PDL RIMSPRAY™ ROOFING SYSTEM because it had confidence in PDL's ability to design a superior polyurethane roofing system:

- RIMSPRAY™ SEAMLESS MEMBRANE is a tough, 100% solids elastomeric sprayed-in-place barrier (similar in physical characteristics to automotive facia) that protects the "R" value of the foam by eliminatng old-style fragile coating problems.
- RIMSPRAY™ ROOFING SYSTEM is sandwich-core engineered to provide a strong "boat-hull" roofing composite ...allowing a minimum of two (2) pounds per cubic foot density THERMASTER™ foam to be utilized and still maintain a minimum of 100 psi composite compressive resistance.
- Since 1980, Urethane Contractors have experienced up to 50% labor savings when comparing RIMSPRAY™ installation costs to installation expenses of old-style urethane roofs.

So, unlike its major competition, Single-ply, a RIMSPRAY™ ROOFING SYSTEM is manufactured on-site following PDL's "Quality Assurance" Program. It's a membrane with no seams that doesn't require adhesives or ballast to keep it in place. There's nothing else like it in the industry!

"QUALITY ASSURANCE"... UNPARALLELED IN THE INDUSTRY!

PDL represents the building owner. No longer does an owner have to accept promises that may not be kept. He knows what to expect because we ARE him! PDL "QUALITY ASSURANCE" Program guarantees:

I. PDL APPROVAL OF SPECIFICATION For Each Building
II. PDL APPROVAL OF CONTRACTOR For Each Building
III. PDL MONITORING OF THE APPLICATION For Each Element of the Composite System
IV. PDL INSPECTION OF THE FINISHED ROOF Prior to Issuance of Warranty.

Any one of the steps not recorded in writing voids Warranty. It's as simple as that...There's nothing else like it in the industry!

WHAT YOU DO NOW... WILL LET YOU STAND ALONE IN THE INDUSTRY!

Expedite the following:

1. Write or call PDL for copy of minimum acceptable specification criteria.
2. Incorporate specifications on your next job.
3. Complete PDL RIMSPRAY™ Training Program.
4. Offer Insured Warranty to Building Owner.
5. Follow PDL "Quality Assurance" Program.
6. Co-sign PDL Warranty.

Then relax. Your RIMSPRAY™ roof is automatically insured. There's nothing else like it in the industry!

Transcend your competition. Be proud to be part of a team that changed the polyurethane roofing industry. FOREVER!

PDL

RIMSPRAY™

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(714) 921-2300

POLYMER DEVELOPMENT LABORATORIES, NE., INC.
69-83 Dickson Street • Newburgh, New York 12550
(914) 561-5500

Associate News

Expansion At Owens-Corning Plant In Texas

Owens-Corning Fiberglas Corp. will expand its Irving, Tex., plant, making the structure the largest in the company's 17-plant residential roofing system.

Construction will begin shortly and is expected to be completed by mid-1984, according to Billy W. Williams, vice president and general manager of the company's Residential Roofing Division.

Warehouse capacity at the plant will be expanded more than 100,000 square feet, permitting storage of up to 600 truckloads of material.

The Irving plant serves customers in Greater Dallas, West Texas and parts of Oklahoma and New Mexico.

Owens-Corning pioneered the development of the glass fiber mat-based residential roofing shingle, entering the roofing market in 1958.

Duro-Last Conducts Dealer Seminar

Duro-Last Roofing, Inc. of Saginaw, Mich., recently held a three-day seminar for its dealer/contractors and manufacturers' representatives.

Information covered during the sessions included policies and procedures, with hands-on instruction and training on the correct installation procedures of the FM and UL approved single-ply roofing system.

The event attracted over 100 Duro-Last customers from as far away as Oregon and Alaska.

Firestone Executives Honored by MANA Selection

Five key executives of Firestone Industrial Products Co., Noblesville, Ind., have been named to membership in the Manufacturers' Agents National Association (MANA).

Selected by MANA were: President T.J. Renninger, Business Manager Sunil Kumar, Regional Managers H.M. Dillinger and D.A. Moorehead and Engineering Manager R.H. Robertson.

MANA is a 36-year-old manufacturing and marketing organization, representing over 35,000 professionals.

Firestone Industrial Products, a division of Firestone Tire and Rubber Co., manufactures single-ply rubber roofing products and systems.

Manville Promotes Three In Marketing

The Manville Building Materials Corp. recently promoted three employees in the marketing division.

Robert D. Dickenson has been appointed General Merchandising Manager in charge of residential, commercial and industrial roofing and roof insulation products. He was previously General Merchandising Manager, Residential Roof.

Vincent A. Greco has been promoted to Manager of Technical Services. Prior to this appointment, Greco was a District Engineer for the Rocky Mountain District.

Alan D. Sowers has been tapped for the Market Manager position for Built-Up Roofing Systems. His previous position was Market Manager of Roof Insulation.

Note Trade Name Changes

American Hoechst Corp., Plastics Div., announced trade name changes for two of its thermoplastic resins.

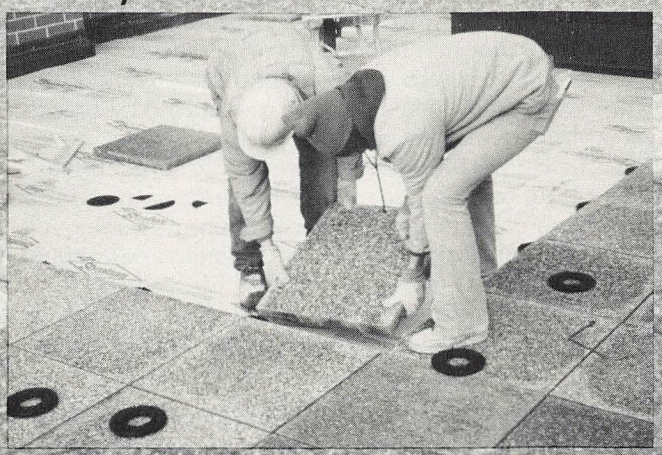
Polystyrene resins identified as Fostarene,® Fosta Tuf-Flex,® and Fostalite,® will carry the new trade name Hostyren™ Polystyrene. Expandable polystyrene formally identified as Fostafoam® will be designated as Hostapor™ Expandable Polystyrene.

The new trade names are changes in name only, according to the company. All material characteristics and specifications will remain the same.

Specifying a roof deck can start with what it will look like, as well as how it will perform.

Wausau's Terra SYSTEM ONE offers beauty, protection and durability.

What is seen are beautiful unit pavers in one of several finishes like exposed aggregate, travertine, slate or sand, and endless color choices to provide exciting pattern and accent possibilities. What is not seen is a pedestal system that provides total sub-strait protection. Asthetic as well as functional design requirements are thereby fulfilled.



Be sure to write for complete details and specifications: tolerances, freeze/thaw and thermal characteristics, colors and finishes and easy cost-saving installation procedures.

This Terra SYSTEM ONE roof deck was installed on Wegu terring® pedestals as distributed in the U.S. by Wausau Tile.

from the "things-that-last" people. . .

WAUSAU TILE

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P.O. Box 967, Banning, CA 92220 • 714/849-5695

PHOTO: Roof terrace over mammoth service area of Middletown (Ohio) Hospital.

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LEGAL

Recent Development in the Contruction Industry

The Federal Court Improvement Act of 1982 replaced the Court of Claims trial division with a new U.S. Claims Court. In that new Act, Congress provided the Claims Court with the power "to afford complete relief on any (government) contract claim *brought before the contract is awarded, . . .*" and the "exclusive jurisdiction to grant declaratory judgments and such equitable and extraordinary relief as it deems proper, including but not limited to injunctive relief." However, due to the statutory language seemingly limiting the Court's injunctive powers to suits brought prior to contract award, a question arose as to what happens to a claimant if the suit is filed after the contract is awarded.

In one of its first decisions, the new Claims Court had an opportunity to define the limits of its newly created injunctive relief power. In *John C. Grimberg Company, Inc. v. United States*, USCC (October 7, 1982), 1 FPD ¶ 3, the Court was faced with the following facts: After the opening of bids for a GSA renovation contract, the second low bidder filed a protest with GSA contending that the low bidder's bid should be rejected as nonresponsive because it violated the "Listing of Subcontractors" clause. Despite the second low bidder's appeal, GSA awarded the contract to the low bidder. The second low bidder filed a suit in the new Claims Court seeking an injunction, preventing the low bidder from getting the job, and a declaratory judgment that it should be declared the responsive low bidder.

In reviewing the statutory provision creating its injunctive relief power, the Claims Court held that the statute's legislative history made it clear that the government's award of a contract prior to a suit being commenced in the Claims Court eliminated the Claims Court's jurisdiction to issue injunctive relief. However, the Court also found that the new statutory language did not intend to alter existing law on the party's right to seek relief in the Federal District Courts. Accordingly, rather than dismissing the second low bidder's case completely, the Claims Court transferred the case to a Federal District Court as expressly permitted by the new Federal Court Improvement Act.

This recent decision by the Claims Court illustrates a clear inconsistency in present government contract law. While the Claims Court does not have authority to exercise jurisdiction over suits brought against a procuring agency once a contract has been awarded, the Federal District Courts do have that power. However, if the rationale underlying the denial of post contract award jurisdiction to the Claims Court is to avoid interfering with the government's conduct of its procurement business, then that same reasoning should apply to bar District Courts from providing injunctive relief in post award situations. Thus, in order for a disappointed bidder on a Federal government contract to insure that his rights are being protected, he should seek to obtain an injunction in the Claims Court prior to the contract's award.

Joint Check Payment May Not Be Payment

Occasionally, on a construction project, an owner or contractor finds that the party it is dealing with has failed to satisfy its full obligations to its suppliers of labor and materials. As a means of insuring that these contractually remote suppliers of labor and materials are satisfied and in order to bar lien claims or bond claims by them later, the owner or contractor may seek to protect itself by issuing payment in the form of a joint check made payable jointly to the contractor who has failed to pay the supplier and to the supplier. However, unless the contract specifically permits such a joint check or it is expressly or impliedly modified by the parties so as to permit payment in this form, issuance of such a joint check may not be considered payment at all.

A recent Georgia Court of Appeals case, *Piedmont Engineering and Construction Corp. v. Amps Electric Co., Inc.*, ruled that issuance of payment in the form of a joint check to a subcontractor and its supplier did not constitute the payment required and contemplated by the subcontract. Consequently, such tender of payment by the prime contractor to the subcontractor was determined by the court not to constitute "payment" of the subcontractor and, therefore, constituted a breach of contract by the prime.

Unless the contract specifically contemplates such action, or there are other provisions of the contract terms and conditions which would permit such qualification or modification of contract payment, one should be very careful tendering payment in this form if it is not received and accepted by the party to whom payment is owed as full satisfaction of the payment obligations.

Federal Minority Set-Asides Increased

In January, President Reagan ordered federal agencies to increase their set-asides and other minority business enterprise ("MBE") participation goals by 10 percent over 1982. Under this directive, the Administration intends to purchase $15 billion in goods and services from MBE sources, including construction procurement. The in-

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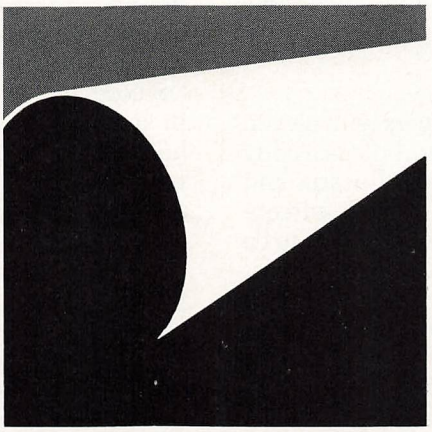
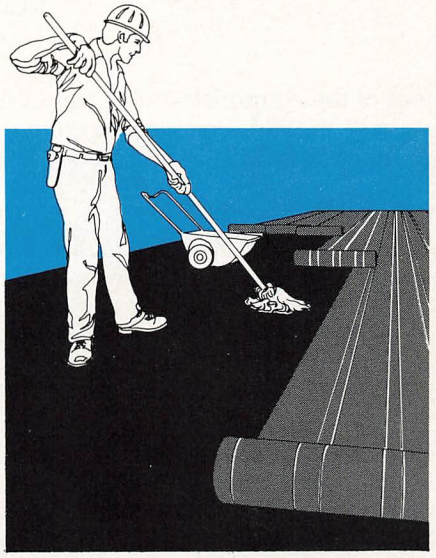
Since 1915, the shape of success in roofing





Koppers coal tar built-up roofing systems have been the shape of success in the industry since 1915. It's a surprisingly simple system, one that owes its long-standing popularity to three things:

Coal tar bitumen.

The tight molecular structure of this unique material enables it to resist water penetration and oxidation. Also, its "cold flow" property naturally seals small mechanical fractures in the roofing membrane at normal temperatures.

Tarred Felt.

Koppers saturated organic fiber felt has proven for many years its ability to withstand the stresses normally associated with built-up roofing construction. Its coal tar, creosote-type saturant has long demonstrated its preservative qualities in demanding situations. There is no doubt that Koppers organic felt, saturated and incapsulated in coal tar, will be competitive—on both performance and cost.

Koppers 67 years of experience

An unmatched history of success is the "bottom line" when it comes to comparing the relative merits of our coal tar built-up roofing system versus others. When you specify Koppers, you're getting the kind of expertise that can only be acquired by doing many jobs, for many years, and doing them right.

OLD FAITHFUL MARCHES ON

Koppers . . . the roofing people— manufacturers of coal tar built-up roofing and waterproofing systems, KMM® Membranes, Exeltherm® roof insulations, reinforcement fabrics and roof maintenance products.

For more information on the system that's been shaping the future of roofing since 1915, use the accompanying coupon.

Send to: Koppers Company, Inc.
Building Materials Division
Dept. 3A-2
1901 Koppers Building, Pittsburgh, PA 15219

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

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Area Code _____ Phone _____

KOPPERS
Architectural and Construction Materials

T20-8201

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tent of the Administration's action is to send "a strong signal" that the President is committed to developing productive MBE's.

OSHA Reminder

During February of each year, all employers with eleven or more employees must post at their workplace a copy of OSHA Form 200, the log of job-related illnesses and injuries occurring in the previous year. You should ensure that the log, which OSHA regulations require to be kept on a continuous basis during the year, is posted. The log should be posted *even if* your company had no job-related illness or injury last year. Failure to post the log can result in a fine of $100 to $400, and there are more severe penalties for deliberate and "willful" failure to keep the log or falsification of the log. Copies of OSHA Form 200 are available from OSHA regional offices.

Construction employees must also each be provided with a copy of Form 200 in February, if they are on the payroll during that month.

What To Do With A Restrictive Endorsement

In the transaction of business, it is not uncommon to receive from a debtor a check in an amount less than the remaining outstanding balance claimed over by the creditor with a restrictive endorsement to the effect that the check "constitutes payment in full of all claims" by the creditor against the debtor or other language of release or "accord and satisfaction." The general rule applicable in most states is that a creditor negotiating or even holding such a tender of payment, accepts the payment with the qualifications and restrictions endorsed on it and therefore may release any balance of his claim which remains unpaid. Consequently, you should always be quite careful in examining checks tendered in payment to you to insure that either:

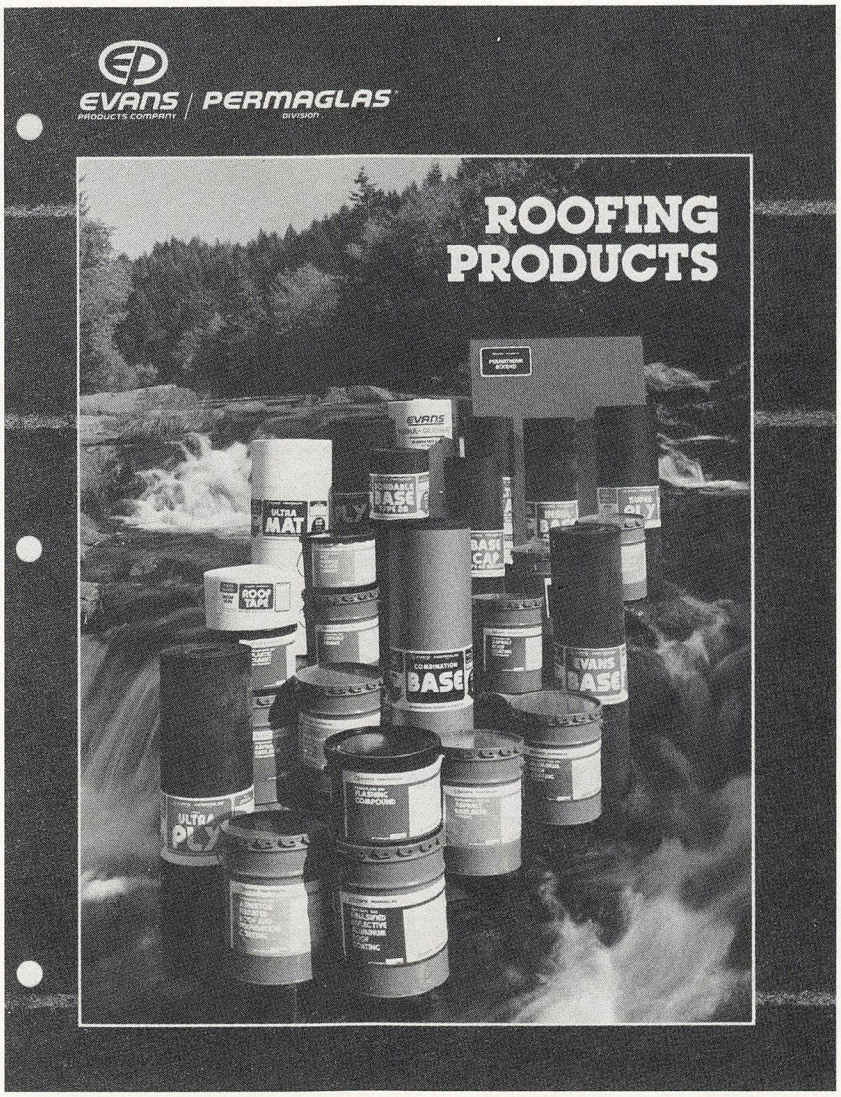
[a] They are in the amount you claim to be due;

[b] If they are not, that they do not include language of release, payment in full, or accord and satisfaction.

Sometimes, however, the creditor receiving the check in payment tends to "take the law into his own hands" by unilaterally obliterating or altering the restrictive endorsement that the debtor entered onto the check tendered in payment. In most states, such unilateral action taken without the express or implied consent or approval by the party tendering the check in payment does not change the terms of the tender of payment. In such jurisdictions, then, you cannot simply strike out a restrictive endorsement on a check and process it for payment while still retaining your right to pursue the balance of the claim, since the courts will likely hold that you have released or discharged the debtor from such balance in accordance with the restrictive endorsement on the check.

However, there is a recent trend evolving in several states (for instance, New York, Connecticut, and California) in which the courts have construed a general provision of the Uniform Commercial Code, as it is incorporated into those states' statutes, to permit the creditor to receive a check with a restrictive endorsement on it, and prior to negotiation and payment on the check, modify, replace or expand the endorsement to indicate that the payment is *received* by the creditor "without prejudice," "under protest" and/or with "full reservation of rights to assert a claim" for the balance of the amount contended to be due. In those states, at least, courts have recently held that a party adding such language on a check bearing a restrictive endorsement preserves the seller's rights under Uniform Commercial Code Section 1-207 and precludes a finding of accord and satisfaction for release.

Nevertheless, unless you are in one of the few states that seems to recognize this new approach permitting receipt of such qualified payment without relinquishment of your right to the balance of the payments you claim, you should not receive and negotiate such checks with restrictive endorsements regardless of what entries you superimpose on the check reserving or attempting to reserve your rights in any regard. Most courts will not consider such unilateral alteration of the check as preserving your rights.



Call or write for our new brochure on built-up roofing products.

EVANS PRODUCTS COMPANY / PERMAGLAS DIVISION

Evans Products Company/Permaglas Division • P. O. Box "E" • Corvallis, Oregon 97330
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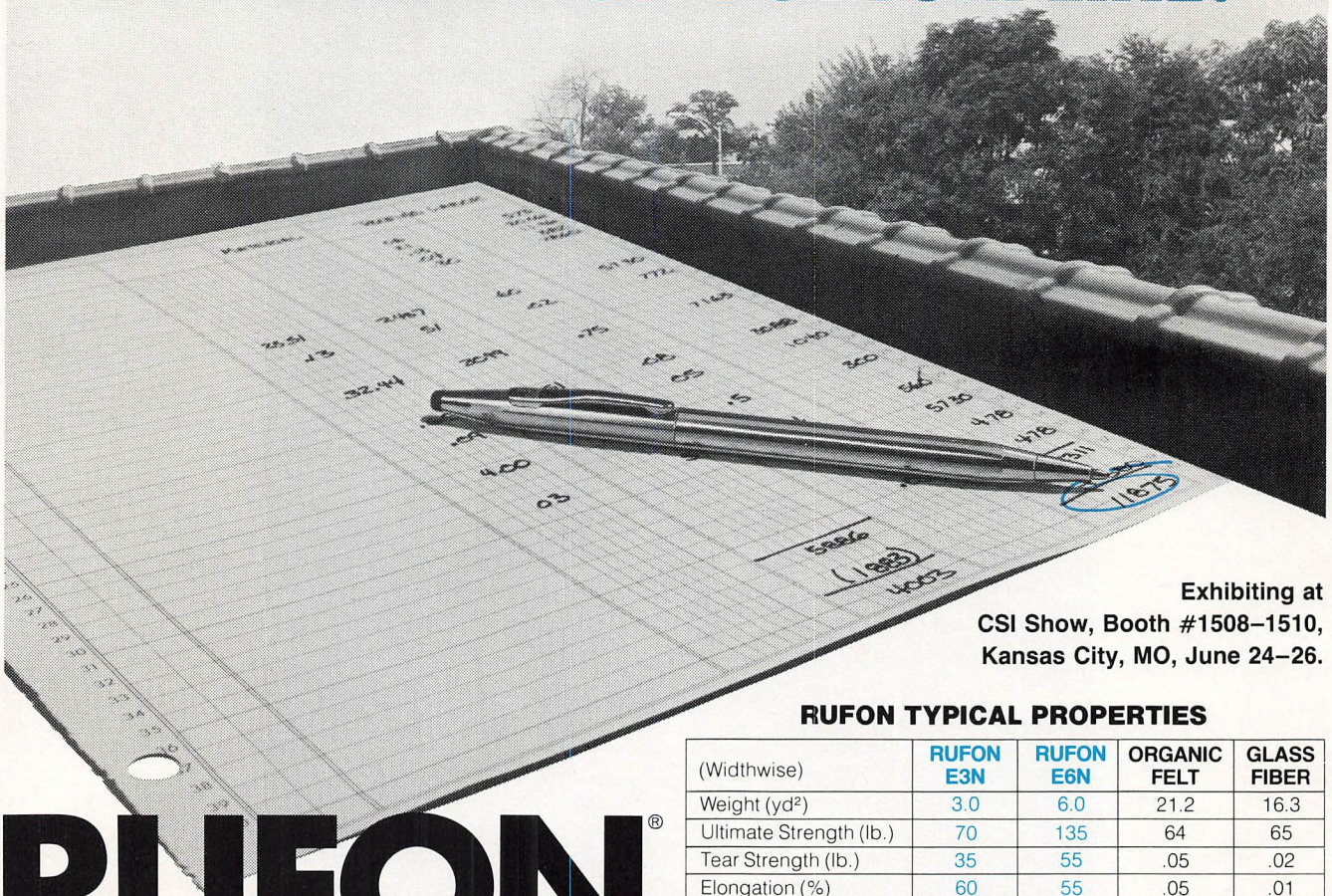
RUFON® FABRIC TOPS THEM ALL... DOWN TO YOUR BOTTOM LINE.



Exhibiting at CSI Show, Booth #1508–1510, Kansas City, MO, June 24–26.

RUFON®

RUFON TYPICAL PROPERTIES

(Widthwise)	RUFON E3N	RUFON E6N	ORGANIC FELT	GLASS FIBER
Weight (yd^2)	3.0	6.0	21.2	16.3
Ultimate Strength (lb.)	70	135	64	65
Tear Strength (lb.)	35	55	.05	.02
Elongation (%)	60	55	.05	.01
Mullen Burst (psi)	140	250	30	19
Puncture (lb.)	35	70	20	10

Selecting a roofing fabric is a matter of product performance as well as economics. And that's why so many of today's contractors are taking a close look at Rufon, the cost-effective reinforcing mat that easily outperforms all alternatives: Organics. Fiberglass. Even other polyesters.

UNPARALLELED PERFORMANCE.

For single or multi-ply cold roofing, Rufon has been engineered by Phillips Fibers Corporation for extraordinary performance. Just check the figures on strength, elongation, mullen burst and puncture resistance. This needle-bonded, thermal set synthetic tops them all — and won't separate, fuzz up or delaminate. Rufon will also form and fit easily, stays flexible in low temperatures and won't swell, rot or mildew.

EXCEPTIONAL ECONOMY.

Rufon offers attractive cost benefits, because cold coating application has never been this easy. Combined with a suitable mastic, lightweight, easy-to-handle Rufon goes down faster, with less manpower and delivers exceptional, long term performance. When you consider total applied cost, Rufon's advantages can add up to important savings on your bottom line.

MORE INFORMATION.

Rufon is available in weights of 3.0 oz. (E3N) and 6.0 oz. (E6N) per square yard, pre-marked with overlap guides in 36″ x 375′ standard put up rolls. With so many performance benefits, cost-effective Rufon is today's optimal solution to roofing failure. Learn more about Rufon: Contact Phillips Fibers Corporation, or your roofing products distributor listed below.

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A SUBSIDIARY OF PHILLIPS PETROLEUM COMPANY
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Gilbert, AZ 85234
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FLORIDA
Flexguard Corp.
3209 Highway 231
Panama City, FL 32405
(904) 769-3404

INDIANA
Daly Protective Coating Co.
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Hammond, IN 46327
(800) 348-6446

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Clark, NJ 07066
(201) 388-0300

OHIO
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Twinsburg, OH 44087
(216) 425-3255

PermaGlass
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(216) 343-4441

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1700 N. Northlake Way
Seattle, WA 98103
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Contractors Talk Up Built-Up Roofing At Session

by Connie Arkus

Yellow, red, white and black BUR buttons were displayed proudly on the lapels of the contractors that filled the room for the Built-Up Roofing Session for Contractors Only at NRCA's 96th Annual Convention & Exhibition.

Robert "Country" Harrison of Greenville Roofing Co., Greenville, S.C., set the pro-BUR tone for the lively question-and-answer program on the merits of conventional roofing systems.

"The bulk of the roofing business is still hot-applied, built-up roofing, and it's going to be the bulk of the business for quite some time," Harrison said.

Joining Harrison on the panel were: Dick Baxter, Carolina Roofing Service Inc., Monroe, N.C.; Ray Johnson, Empire Roofing & Insulation Co., Tulsa, Okla. and Marlin Potteiger, Mueller-Potteiger Inc., York, Penn.

Contractors posed these questions:

☐ How can we (contractors) determine the quality of asphalt?
☐ What's the update on fiber glass membranes?
☐ Is the content of organic felts different today?
☐ What can be done about damaged materials?
☐ How can roofing contractors promote BUR today?

Potteiger responded to the issue concerning changing asphalts. He explained that because of numerous phone-calls to NRCA headquarters questioning the quality of asphalts on the market today, the association discussed the matter with the Roofing Systems Technical Committee (RSTC).

Representatives of NRCA and the Asphalt Roofing Manufacturers Association (ARMA) are members of RSTC.

In a joint effort, asphalt samples from refineries across the United States were tested at Chicago Laboratories. The data are being analyzed by RSTC and will be released shortly.

The results? "About 100 percent fell within the ASTM D3-12 asphalt specification," Potteiger said.

A task force was then appointed to investigate whether or not there was a need for a new ASTM specification.

NRCA's Research Associate Bill Cullen headed the committee. Cullen, who was in the audience, gave the current status of the proposed specification.

"The asphalts used today, as far as we can determine chemically and physically, are no different from the asphalts we've had in the past," he said.

Cullen explained that this observation was supported by the Asphalt Institute's report analyzing 180 asphalts before the oil crisis of 1974 and at present.

"As far as a quality asphalt is concerned, ASTM D3-12 is useless," Cullen said. "It cannot detect certain characteristics of asphalt that are important to you."

One example he cited applied to steep roofing, where the contractor is not concerned with the softening point as much as he is concerned with the viscosity.

continued on following page

Built-Up

continued

"The viscosity might be Type I and flow off the roof," Cullen said.

As the result of such a situation, he explained that the proposal for a new ASTM specification would be viscosity graded instead of softening point graded.

The new specification will require that asphalt be properly labeled according to type (I, II, III or IV).

"What the new spec will not do is determine or indicate a poor durability asphalt from a good performing asphalt," Cullen said. "This is still not possible in the practical sense."

Cullen called the new specification "a giant step towards better categorizing asphalt to suit your (the roofing contractor's) needs."

In order to bring the audience up-to-date on the state of the art for glass fiber membranes, Baxter explained how the product is obtained.

"Glass fibers are obtained through a primary process," Baxter said. "The primary process is sand, miscellaneous chemicals melted in the furnace and drawn off in molten form."

Baxter explained that today's mats are either "derived directly from a primary process (or filamentation) or from a secondary source (a yarn already drawn from a primary process)."

In the primary process, steam blows the glass out onto a line. The result is "fibers that may vary in length depending on how the steam breaks them off when they come through the bushing," Baxter said.

He said that the "most prevalent" and "least expensive" method is the wet process, a method similar to the way paper is made.

"The result is a uniform mat with good distribution of fibers," Baxter said.

The major concern of the contractors, however, is knowing what holds these fibers together.

"Nothing sticks to glass," Baxter said. "Therefore, all fibers are sized with some kind of a starch material that is applied to the filament when it comes out of a process."

Next, a binder is added. "It's the binder that holds the mat together," Baxter said.

He explained that if moisture vapor occurs from the underside of the roof, then water soluble binders are "leeched away and gone."

"Asphalt will not bond to glass fiber," Baxter said. "So, you have a relatively non-reinforced glass fiber roof that usually breaks apart like safety glass after a period of time."

Resin binders, which are acrylic based, are water resistant. "They're not leeched away as readily," Baxter said.

"They do a better job of holding mats together for a longer period of time."

The composition of today's organic felts was questioned by a contractor concerned over declining quality.

"Rag felt is a misnomer on today's market," Johnson said. He gave three reasons for this observation. Current felts are made of:

- ☐ "Synthetic fibers that won't take a saturant.
- ☐ "Newspaper — the next step before the dump.
- ☐ "New wood pulp. Trees grow faster today due to chemicals, and the fibers in the wood don't form as close as they used to."

The old ASTM specification called for 140 percent saturation by weight. "When NRCA conducted tests, however, very few could meet this saturation," Johnson said.

"In order to get asphalt hot enough to take that percent saturation, you destroy the weak fibers used in the felts."

The result, according to Johnson, is that "anything that isn't saturated with asphalt is left open to be saturated with water if it gets wet."

A revision to the percent of saturation requirement is expected shortly.

Damaged materials cost contractors money. One contractor in the audience asked if there was a manufacturer's guarantee that materials have not been stored outside and exposed to rain and snow.

"The way you handle a manufacturer is to cost him money," Baxter said. "It could cost them $10,000 to get that truckload of (damaged) materials off the job site."

He suggested purchasing a moisture meter to test the moisture content of the organic felts.

"If the material has an unacceptably high moisture content, you can probe it on the truck, random sample the rolls, and you can send it right back where it came from," Baxter said.

"You, the contractor, are the last guy on the quality control chain."

Built-up roofing has had its share of difficulties over the years. With that thought, a roofing contractor posed this question to the panelists: How can we (roofing contractors) restore the good name of built-up roofing?

Potteiger responded by citing three improvements made in BUR through the years:

- ☐ "In regards to mechanically fastening roof insulation over a steel deck, Factory Mutual's Class I recommendations state one fastener for every two square feet for some types of insulation and four feet for others.
- ☐ "We had problems with early glass felts, but they now have proper binders and perform very well.
- ☐ "We also had problems with asbestos. Manville Corp. recently stated that it will no longer produce asbestos."

The outlook for BUR is good — it's healthy and growing stronger as evidenced by the support it received at this session.

"We've gotten rid of a lot of bad systems," Potteiger said. "Conventional roofing now has all kinds of opportunities to perform well."

NATIONAL ROOFING CONTRACTORS ASSOCIATION

roofing spec SUPPLEMENT

For Members Only
Vol. 3, No. 5 May 1983

ARC Response Is Good In The Early Going

by Bill Good
NRCA Executive Director

Early response to the two new NRCA programs is encouraging. ARC now has 22 candidates with forms completed and checks in, and another 150 or so who have requested information. *Roofing Materials Reference and Guide* now has 1,200 subscribers, including 750 members, with more coming in each day. Also, the number of manufacturers listed in the next edition (June) should increase by about 25, including some majors.

Coming from the Education Department this month will be information on NRCA's first worker training program, "Kettles, Tankers and Bitumen Heating," a four-part slide-and-cassette program designed for in-house use, apprenticeship classes, etc. The program, nearly four hours in total length, is excellent, and is also available in videocassette.

Another educational first in April was the Foreman and Superintendent's Conference being put on for the Iowa Roofing Contractors Association by NRCA on a contract basis. Education Operating Committee members are planning more of this type of program concept for the next administrative year.

Technical Services committees and staff have also been busy. Technical Operating Committee met recently to review a lengthy agenda. Highlights include: DOE report on in-place performance is now completed and available from the NRCA office; *Manual* revisions are now ready; Tolerance Development task forces say they will be ready with final recommendations for application tolerances on all types of roofing materials by July.

Senior VP Burton Karp has begun planning the transition into his "Make It Happen" year. Burt had this year's and next year's Executive Committees in the office for a briefing session that included discussion on organizational structure, committee assignments, etc. Burt plans to see that ARC and *Reference & Guide* programs are put in place, and emphasize educational programs and government relations activities. He also plans to continue industry liaison efforts, and to strengthen the involvement of NRCA affiliate organizations.

All of which will require money, and the Budget and Finance Committee also met in April to begin preparations. Early projections call for a 1983-84 budget of $3.5 million.

First consultant member, under the classification adopted by the Board and full membership in San Antonio, was Law Engineering, sponsored by Country Harrison. We're expecting more, and plan to pursue liaison activities with consultants' groups.

Contractor and Associate member totals are holding up well, though the key for the year will be retaining the 400 or so who have not yet paid their '83 dues. Membership Committee plans to contact all by registered letter, then by phone. We need 'em all.

In March, Melvin Kruger and Wayne Mullis made a presentation to the AGC Convention in Atlanta, which was well recieved. AGC, though, did come out with a new policy on retention, through their Building Division, that calls for — basically — 5 percent, if that's what the owner gets, and if the sub is bonded, and etc. Still, it's progress.

The Business Roundtable — a group of manufacturing heavyweights — has been studying construction effectiveness for some five years, and has now produced a series of reports and recommendations. Mike Beldon attended a briefing session for 25 contractor associations last month; Roundtable is trying to exert "peer pressure" for cost controls, improved productivity and so forth, and estimates that $10 billion can be saved annually. Info on the reports is available from the NRCA office.

The Centennial Steering Committee begins work this month on the book it plans to produce for distribution in the centennial year. The book will be a history of both NRCA and the roofing industry; research is being done by a group affiliated with Loyola University of Chicago; your help will be needed and will be spelled out in future communications.

Former NRCA Director B.J. Williams Dies

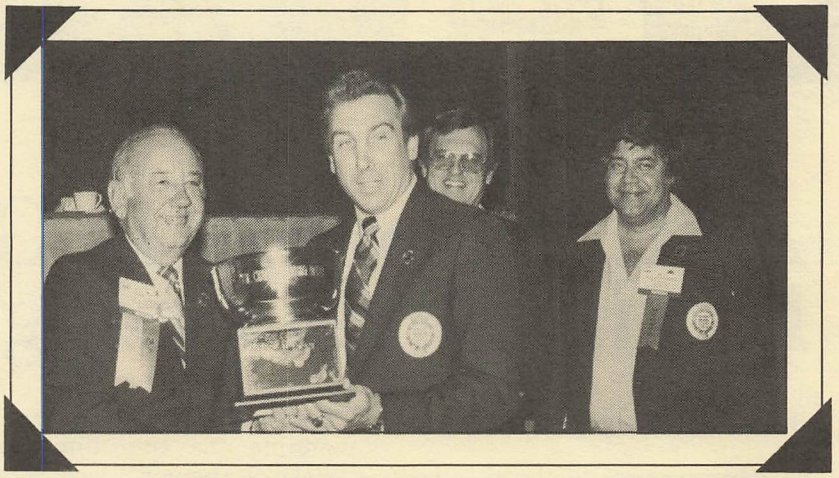
B.J. "Bud" Williams of Twin City Roofing, Inc., North Dakota, died on February 24 at the age of 81.

A past director of NRCA, Williams founded Twin City Roofing in 1927.

"He was vehement about the dignity and professionalism of the contractor members," said his son Jack, president of Twin City Roofing, Inc., Wahpeton, N.D.

San Antonio Convention...one more look

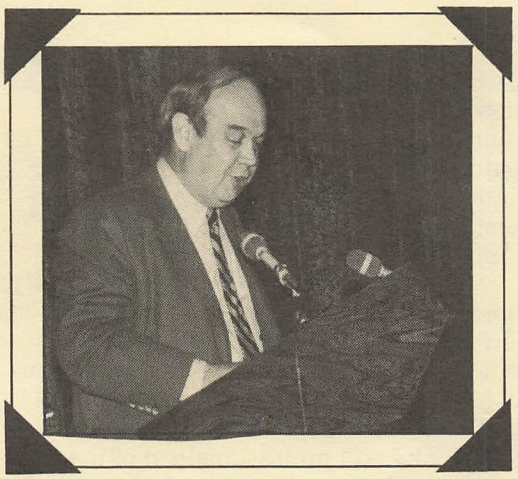
NRCA Director of Meetings and Conventions Guy DiCara and Former President Gerald Ford, keynote speaker for the Opening Luncheon.



Rick Rosenow (second from left) is congratulated by (left-to-right) Former NRCA President Charlie Raymonds, John Carruth and William Martin for his achievements in member recruitment.

NRCA Past President William Kugler, Director Charles N. Griffiths, Jr. and Staff Director Norman Bullock hosted a breakfast unveiling the new NRCA Roofing Materials Reference & Guide.

Syndicated columnist Georgia Ann Geyer discussed her work as a foreign correspondent before a group as part of the Convention Spouse Program.



Charles Kuralt, CBS News reporter, talked about his experiences "on the road" at the Recognition Luncheon.

NRCA President John Bradford is made an "honorary Texan" during a break in the Opening Luncheon.

Kettles, Tankers, and Bitumen Heating

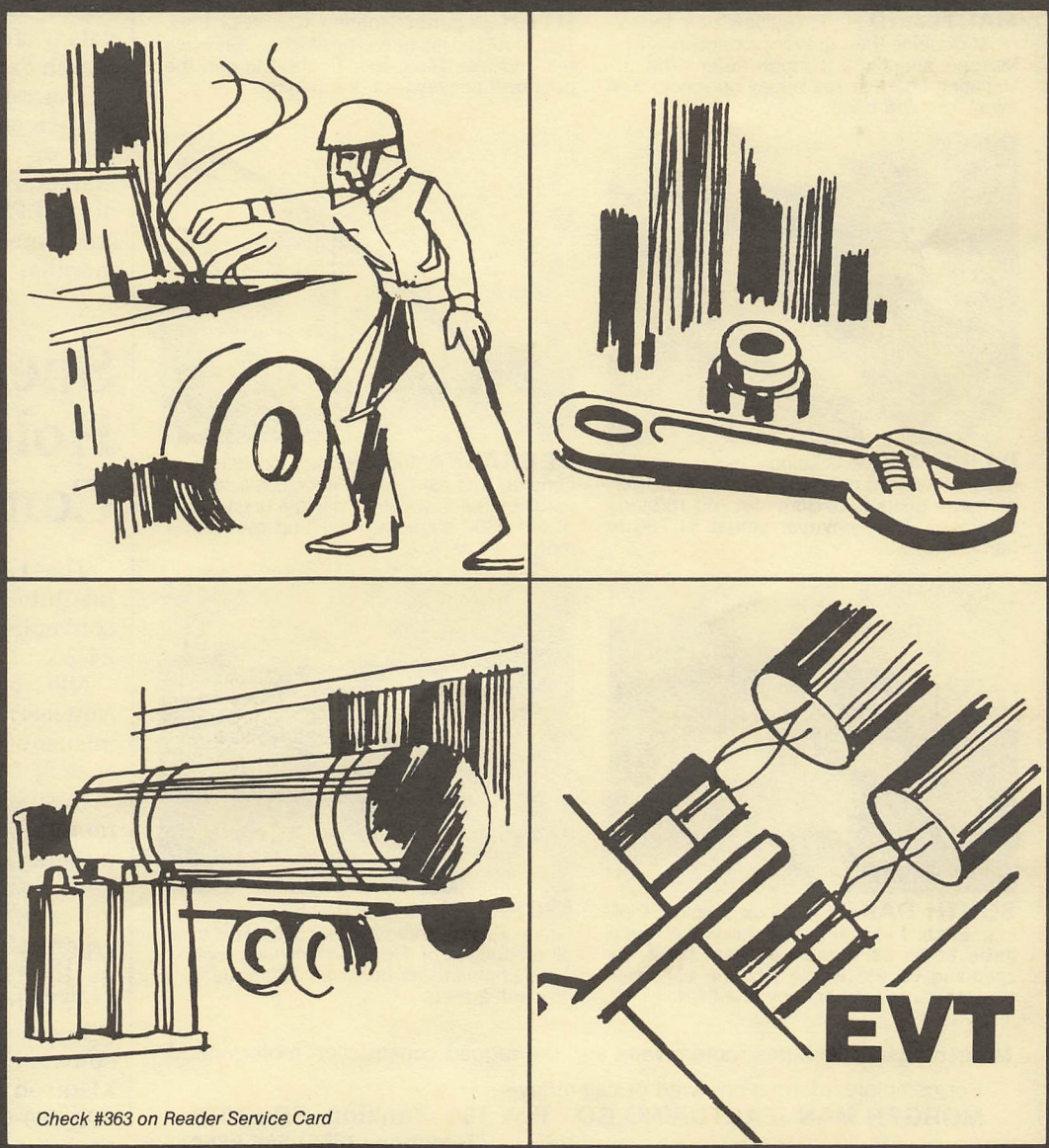
Now available from NRCA is a worker training program — **Kettles, Tankers and Bitumen Heating.** This four-part audiovisual program covers everything workers need to know for correct bitumen heating and operation and maintenance of heating equipment.

The program, with over 300 slides and a 40-minute soundtrack, depicts the correct procedures for kettle set-up and loading, safety considerations, thawing lines in cold weather, pump operation, the importance of preventive maintenance, and much, much more.

In addition, a comprehensive workbook contains a complete outline of the program with quizzes and tests to gauge worker knowledge.

The program can be used for earning field worker credit in NRCA's Accredited Roofing Contractor program, good for up to five-hours credit.

For more information on **Kettles, Tankers and Bitumen Heating,** contact Alan Grayson, NRCA Director of Education, 8600 Bryn Mawr Ave., Chicago, Ill. 60631.



NATIONAL ROOFING CONTRACTORS ASSOCIATION

Check #363 on Reader Service Card

EPS Insulation Growth Predicted

A study, conducted by the American Hoechst Corporation, projects a 12 percent annual growth rate for molded EPS insulation board. By the end of 1984, the study claims, EPS will have 34 percent of the rigid board market.

Data for the study was collected by field interviews with the manufacturers of the major insulation products. Related interviews were conducted with the major building construction trade associations, leading national contractor and specifying firms and most of the top market research and specifying firms. The data was then analyzed by market research experts.

The study also projects a rise from 3.1 percent to 3.7 percent in the position of EPS in the total insulation market. A series of detailed analyses of the EPS insulation market will be completed within the next few months.

Specifiers To Hold Annual Convention

The Construction Specifications Institute (CSI) will hold its annual convention in Kansas City, Mo., June 24-26.

NBC news correspondent Edwin Newman will address the use and misuse of the English language in his speech, "Preserving a Civil Tongue."

Business sessions cover a wide range of topics including computers, masonry, single ply, and selling to design professionals.

One of the sessions will review the organizational concepts and changes in the 1983 edition of the *CSI MASTERFORMAT*.

For more information about the convention, contact CSI at 601 Madison St., Alexandria, Va; 703/684-0300.

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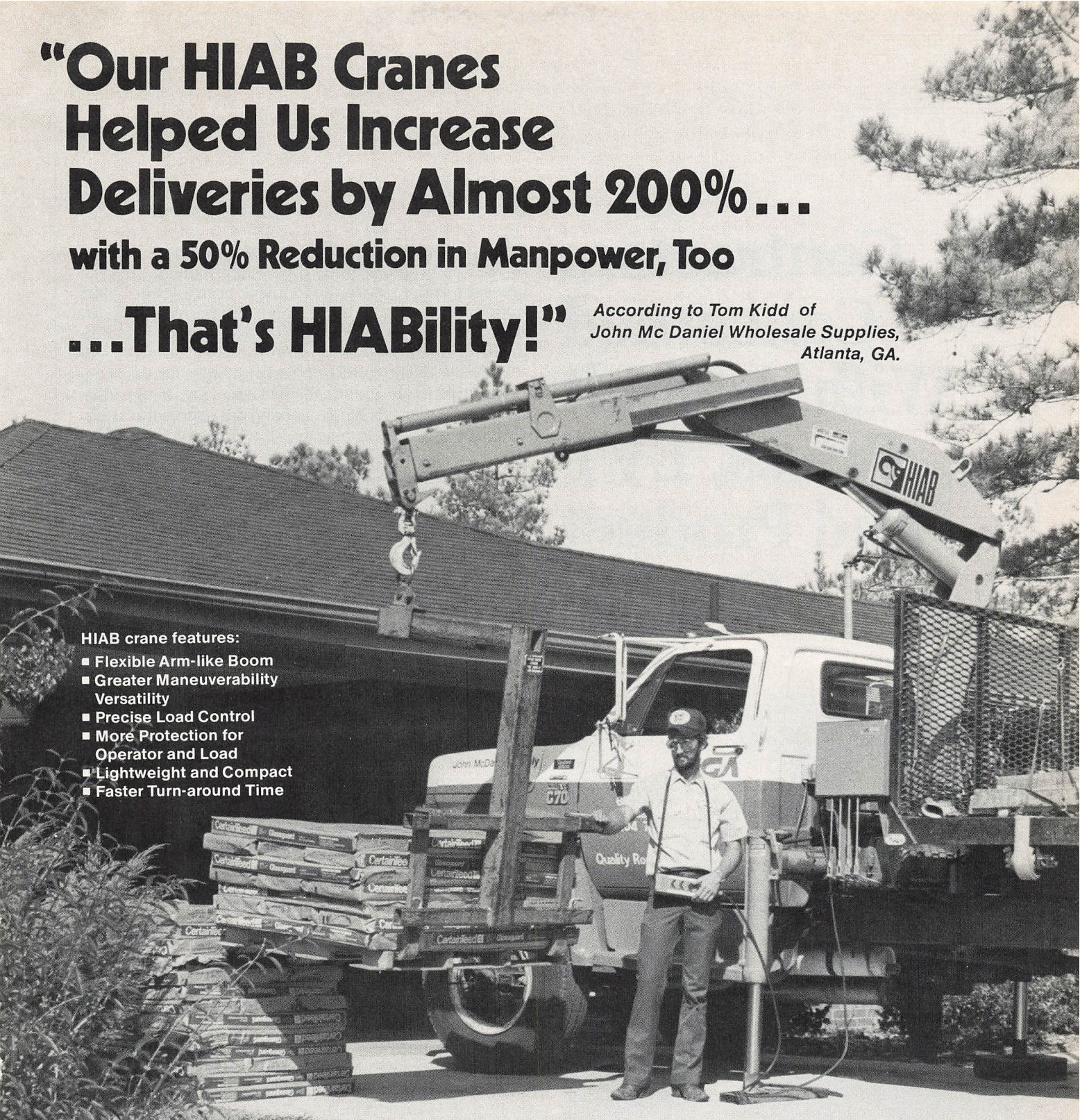
According to Tom Kidd of John Mc Daniel Wholesale Supplies, Atlanta, GA.



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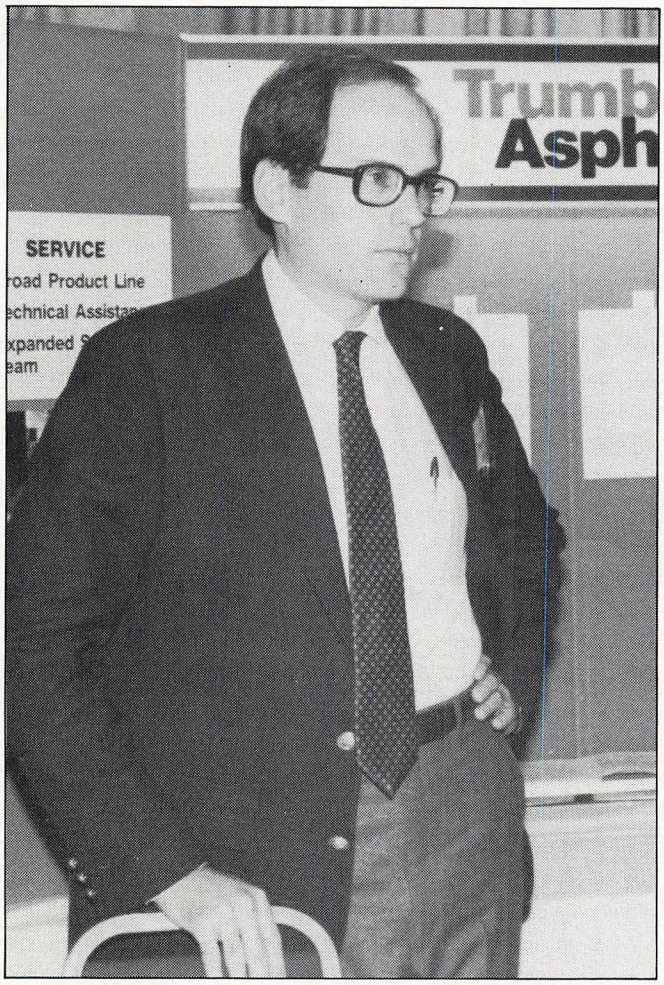
Contractors Concerned With Asphalt Prices, EVT and Product Quality

by Martin Eastman



Trumbull's Michael Mitchell

A built-up roof would be nothing without bitumen. The bitumen binds the system together and adheres the entire roof to the roofdeck or insulation. More importantly, without the bitumen's impermeability, the roof would not be able to withstand rain and weather, its primary function.

Understandably, built-up roofing contractors are concerned that the bitumen they use will provide the adhesion and water resistance needed for successful roofs. They're interested in quality, as well as the most effective ways to apply it.

Some of these concerns were expressed by contractors to representatives of the Trumbull Asphalt Co., one of the nation's largest producers of roofing asphalt, at a seminar held recently in Chicago. The Trumbull seminar was part of a trade exposition sponsored by Richards Building Supply of Chicago.

The questions came from a roomful of Chicago area roofing contractors who were attending the Expo. Their concerns ranged from the meaning and use of the EVT information Trumbull provides to the outlook for asphalt prices in the coming year.

Providing the answers were Mike Mitchell, section manager for built-up roofing and Dick Janicki, Trumbull's technical and quality assurance manager.

The seminar opened with a slide/tape presentation outlining the history and technical aspects of asphalt use (see accompanying story.)

After the presentation Mitchell opened up the discussion by addressing the question of asphalt's price in the coming months.

Mitchell said that although crude oil prices are going down, "The best thing that will probably happen is that asphalt prices are going to stay the same. The worst case is that they'll go up."

To explain this, Mitchell gave his audience a short course in refinery economics. "The first thing you need to understand is that in 1982 there were 57 refineries that closed down," he said.

That statistic is an illustration of the difficulty a small marginal refiner has staying open. As a result, according to Mitchell, it has become increasingly important for refiners to get the most profit or "net back" from each barrel of crude refined.

The refining process yields several products, from gasoline to heavier oils. Asphalt, being a by-product of the process, contributes nothing to the refineries netback. Its cost falls below the cost of the crude it took to produce it.

As a refiner looks at his balance sheet, Mitchell said, he's asking himself, "What else might I do with this stuff that's falling below my acquisition costs?"

One possibility, according to Mitchell, is coking the

asphalt. This process converts it into lighter oils and coke. The sale of the lighter and more expensive oils contributes to the refiners net back. The coke is sold to steel manufacturers.

Refiners able to afford the expensive cokers are thus decreasing the supply of asphalt to increase their profits.

The nickel-a-gallon gas tax increase that went into effect April 1 will also help to make roofing asphalt scarce, according to Mitchell. By providing the funds for large-scale highway rebuilding projects this summer, the tax will increase the demand for highway asphalt. And asphalt on the highway is asphalt that won't be available for use on a built-up roof.

Factors such as coking and highway projects drive the pricing of asphalt by making it hard to obtain, Mitchell said. "And that's why I think that we probably won't see a big change this year coming down and that there could be some pricing going up."

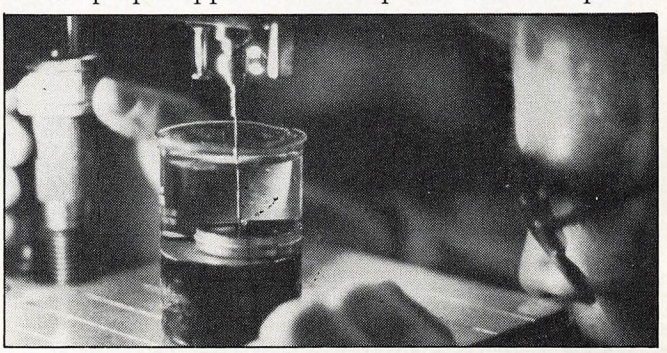
Contractors aren't only concerned about the price of asphalt, according to Mitchell. They're concerned about the quality, as well. "I've heard the comment from several people that asphalt's not as good as it used to be," Mitchell told his audience.

Rapidly changing roof technology has created this impression, Mitchell believes. He cited the wider use of insulation on the roof as one example. The insulation causes greater thermal changes in the system by not allowing heat to radiate out of the roof in the summer or into the roof in the winter, he said. The wide temperature variations this causes lead to more accelerated wear on the system.

Other changes such as the proliferation of glass felts or modifications in application techniques caused by OSHA or EPA regulations add up to new systems which may perform differently than expected, according to Mitchell. Because asphalt is the one remaining constant it is often blamed for the unexpected failure of the system, he said.

After Mitchell made his brief comments on the quality and price of today's asphalt, he invited questions from the contractors. One of the first questions was about equiviscous temperature, or EVT.

The slide/tape presentation informed the contractors that EVT was the recommended temperature at the mop for the proper application of asphalt. Trumbull prints



Lab Technician Dominic Serratore begins each penetration test by setting the test machine's needle precisely on the surface of the asphalt sample. To do this, he uses a bright light to create a reflection of the needle on the sample and adjusts the machine until the needle and its reflection just meet. Penetration is measured by the distance the weighted needle pushes into the sample during a five second interval.

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Trumbull Presents A/V Show On Asphalt

"Noah christened the ark by scattering baskets of asphalt on its bow."

This bit of asphalt antiquity began Trumbull Asphalt's slide/tape presentation on the history and technology of asphalt use.

The presentation quickly brought the audience of Chicago area roofing contractors up to the present with brief stops along the way to highlight key developments.

The audience learned that asphalt's first use on a rooftop was in Germany in 1772. And modern asphalt owes its effectiveness as a roofing material to the development of air blowing by a Cleveland industrialist in 1894.

According to the presentation, air blowing changes asphalt's properties by forcing a stream of air bubbles through heated asphalt. With this process companies like Trumbull can make asphalt "less brittle and less susceptible to the aging effects of air and water."

Air blowing alters asphalt's performance on the roof by changing each of four characteristics, its softening point, hardness, ductility and flash point.

The softening point is the temperature at which the asphalt will readily flow. Hardness is determined by penetration at 77°F. Ductility is a measure of asphalt's stretchiness, and flash point is the temperature at which volatile gases are driven off from the asphalt and ignite.

The blowing process is controlled so that each characteristic can be altered to a specific degree. Depending on the amount of change from its raw state, asphalt is placed in one of four categories, dead level,

continued on following page

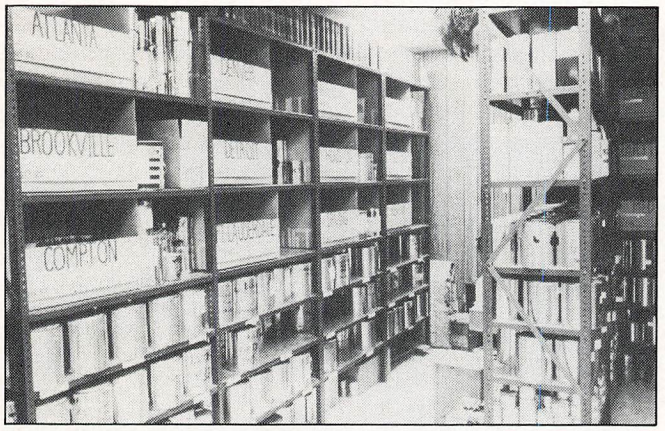
Contractors

continued

the EVT for each batch of asphalt on cartons and the bills of lading.

Contractors in the audience, however, said that the EVT figures they had seen seemed too cold and would cause the asphalt to be stiff and hard to work with. "I'd be breaking in a new mop man every two or three hours," one contractor said.

Mitchell speculated that while contractors may be heating asphalt to temperatures much higher than the stated EVT, the temperature at the mop might actually be closer to the EVT than the contractors believe it to be. This would be caused by a greater than expected drop in the temperature during the trip from kettle to mop.



Labeled samples from various Trumbull plants wait for testing under the guidelines of ASTM D312 standards. Tests include: EVT, softening point, flash point, penetration and ductility.

Janicki added, "What you have to look at is that EVT is basically the number under ideal conditions." Other factors such as wind chill, dew or a cold deck might make it necessary to heat the asphalt to higher temperatures.

The mention of heating asphalt to higher temperatures brought the discussion around to flash point temperatures. The flash point is the temperature at which gases, driven off from the asphalt, may ignite in the kettle. Trumbull supplies flash point information with its asphalt. Mitchell advised the contractors to heat the asphalt to no hotter than 50°F below this temperature.

The discussion continued with questions about specific problems contractors have had with batches of asphalt. Mitchell and Janicki did their best to answer the questions with technical information about the causes of the problems and suggestions on how to deal with those problems in the future.

Throughout the seminar one thing was clear — quality was the watchword of the day. The contractors, with their many questions, showed their interest in receiving and using the best asphalt possible. And Trumbull, with its willingness to listen to and answer the contractor's concerns, showed its dedication to supplying top quality asphalt to the roofing industry.

Trumbull

continued

flat, steep or special steep.

Dead level asphalt is the softest and will flow at the lowest temperature. It can be used only on flat roofs. Special steep is the hardest and may be used on more steeply pitched roofs.

After describing how modern asphalt is processed, the presentation then moved to the question of its quality.

Today's asphalt, according to the presentation, comes from a variety of sources. The crude oil from which it is distilled might have been pumped from wells in Arabia, Texas, Alaska or the mid-continent U.S.

The increasing diversity of sources has caused concern among roofing contractors and asphalt suppliers that the quality of the asphalt will not be uniform from batch to batch. There appears to be no reason to worry, according to the presentation. "While we're processing different feed stocks today than in the past, the quality of our end product remains as good as ever," the audience was assured.

Controlling asphalt quality and characteristics is only part of the formula for a successful roof. It also requires proper control of viscosity when the asphalt is applied.

This is where the equiviscous temperature or EVT comes into play. EVT is the recommended temperature at the mop for each individual batch of asphalt. It is the temperature needed for the asphalt to reach the ideal viscosity of 125 centistokes. This viscosity will, in turn, assure that 25 pounds of bitumen per square will be laid down on the roof.

The EVT is determined at Trumbull's labs for each batch. The temperature recommendation is also tailored to the locality where the asphalt is to be used.

Every carton of asphalt Trumbull produces, as well as the bill of lading, contains the EVT information for the product and geographic location. According to the presentation, providing this information is a Trumbull exclusive.

As a final note, the contractors were assured that the asphalt industry was doing its part to insure that quality built up roofs were being built. "Today's asphalt producers," the presentation said in closing, "are dedicated to keeping standards of quality and consistency high."

Martin Eastman

ROOFMASTER

PRESENTS

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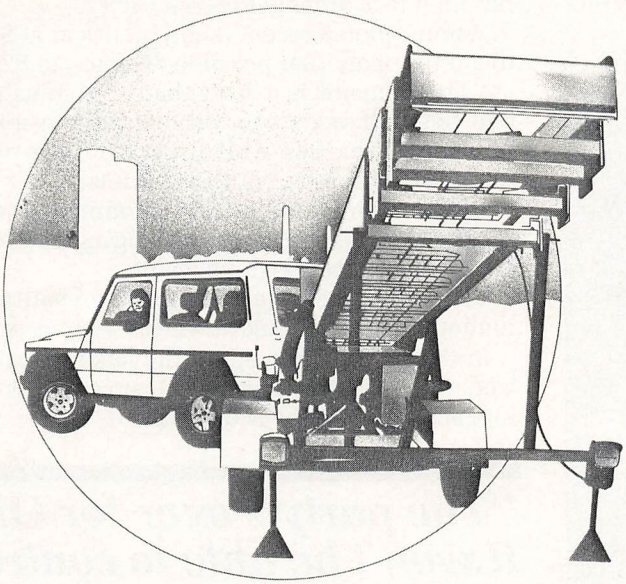

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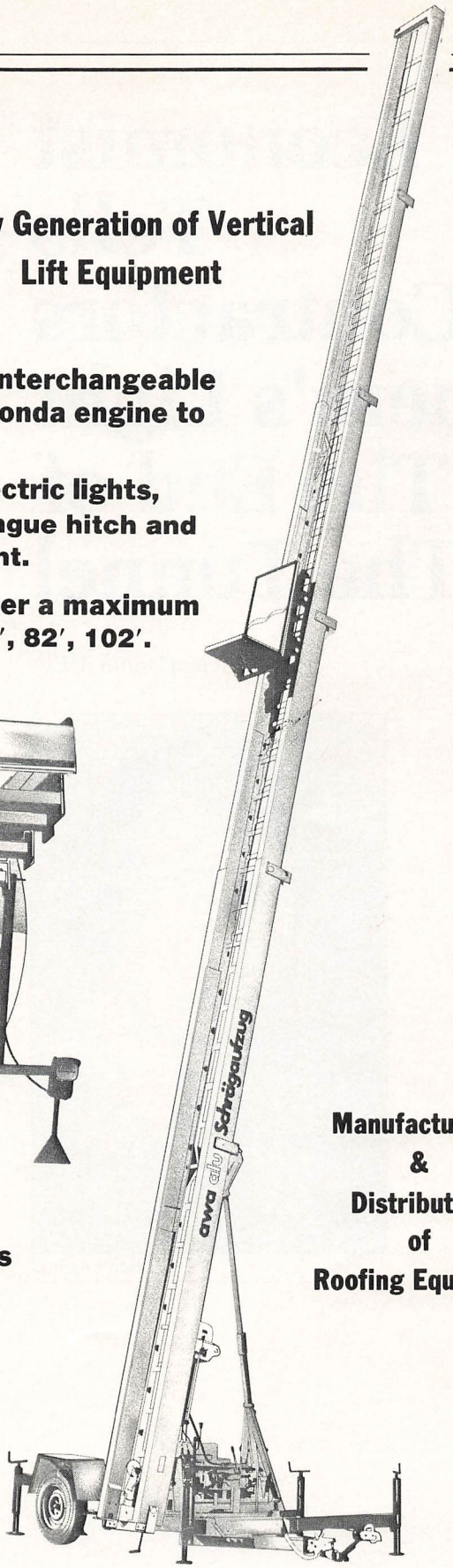

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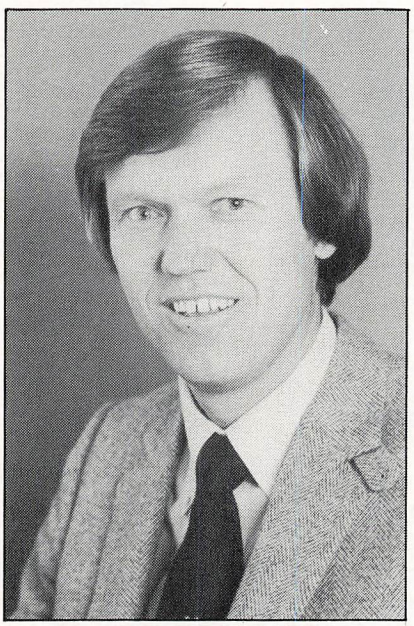
Economist Tells Contractors There's Light At The End of The Tunnel

by Connie Arkus



Barry Asmus

After months of living the construction nightmare and hearing little but dire forecasts, economist Dr. Barry Asmus has assured roofing contractors that the worst is over.

"The sun is rising," Asmus said at NRCA's 96th Annual Convention & Exhibit in San Antonio. "There is enormous potential in your industry — housing, commercial construction — and the economy."

Asmus is a professor at Boise State University in Boise, Idaho and also addressed last year's convention in Los Angeles.

According to Asmus, promising signs on the horizon include the slow demise of OPEC, the dissolution of labor unions, more favorable demographics, construction increase and an inflation decline.

The first three factors are essential in understanding why the promise of the future looks brighter than previously forecasted.

"The party's over for OPEC," Asmus said. "It won't be able to control the oil market like before."

He explained that in 1973, oil cost about $2.50 a barrel, then rose quickly to $34 a barrel.

Asmus quoted recent (Feb.) oil prices at $29, with indications of another possible decrease to $20.

"The demand just isn't there," Asmus said. "Two and one-half years ago, oil countries were producing nine million barrels of oil a day; they have now cut back to three and one-half million barrels."

With exorbitant oil prices bottoming out and benefiting the roofing industry, the changing labor union scene could also trigger positive results.

"Labor unions have held up the prevailing wage rate higher than the market justifies," Asmus said.

In the past, 24 percent of the labor force was unionized, however, the figure is 19 percent now and dropping, according to the economist.

"The party's over for OPEC. It won't be able to control the oil market like before."

Asmus said 40 percent of the cost for a ton of U.S. steel goes to labor costs while in Japan, only 20 percent is for similar expenses.

U.S. workers are paid $19.50 an hour, and Japanese workers are paid at an hourly rate of $11. "And U.S. workers are only half as productive as Japanese workers," Asmus said.

The economist predicted that labor unions will have less power over the economy in the 1980s and 1990s. "This is a plus," Asmus said. "It will lead to productivity."

He explained that the U.S. is "changing from a homogeneous to a heterogeneous society — entrepreneurship.

"We are moving from an agricultural and an industrial revolution to a high tech revolution, and it's very difficult to unionize an economy that is

splintering," he said.

Current demographics add to the favorable business climate of the next decade as well.

The 1980s-90s workforce will be much more experienced and more productive than labor in the 1970s — when the post World War II "baby boom" was under the age of 25.

At that time, the economy had to generate 2.2 million new jobs, Asmus said. "We are now moving towards creating only 400,000 new jobs each year."

"Labor unions will have less power over the economy in the 1980's and 1990's."

OPEC, labor unions and demographics signal increasing optimism for the business sector. Although their effects will take a while to be felt, Asmus points to many strong signs of economic recovery occuring now.

☐ In January, new factory orders for durables exceeded all of the 1982 decline.

☐ Housing increases have been reported for the past three to four months.

☐ In the last 11 years, the U.S. has less new homes than can be supplied for the demand. Being at an 11-year low increases the potential for new construction for the baby-boom generation.

☐ New claims for unemployment compensation have fallen for the third straight month.

☐ Most importantly, "We finally have the beast — inflation — temporarily under control," Asmus said. "For the shortrun, inflation is wonderful; in the long run it destroys us all."

He said the problem with inflation is that "it tells us to consume, not to save. Today eat, drink and be merry because your money might not be worth anything tomorrow."

Asmus also cited figures for the savings rate in the U.S. Between 1950-60, eight percent of disposable income was saved; in 1970, this rate dropped to four percent and in 1981, it was reported at three percent.

The savings rate in Japan is 22 percent and 17 percent in West Germany.

"In the 1970s we were living an illusion, and it caught up with us," Asmus said. "Inflation distorts savings. We don't save and we look to protect our assets in shelters."

Fortunately, tough measures were adopted by the Federal Reserve Board. Asmus gave the audience a quick lesson in economics.

"A two and one-half percent increase of money printed by the Fed plus two and one-half percent increase of output in goods and services equals stable price levels," he said. "Stable purchasing power gives the dollar its value."

Problems occur when the Federal Reserve Board begins printing more money and no increase in output accompanies the rise.

"The Fed was churning out money at the rate of four, five and six percent," Asmus said. "By the middle of the Carter administration, the figure rose to eight and one-half percent with output remaining at only two and one-half percent."

The result was less purchasing power for the dollar — inflation.

Federal Reserve Chairman Paul Volcker constrained the money supply with the goal of decreasing the rate to six percent. A decline in the rate of inflation ensued.

While the decrease in inflation was applauded, the other effects of Volcker's actions were not greeted with enthusiasm.

"Business suffered — unemployment and bankruptcies; there was pain in industry," Asmus conceded. "But the pain is behind us — it had to be done."

Also during this time, savings rose to seven and one-half percent and interest rates went down. Asmus reminded contractors that, "when interest rates are down, construction and housing go up."

The phrase "supply-side economics" has frequently been used to describe the philosophy of the Reagan administration's policies.

"We're moving from an agricultural and industrial revolution to a high-tech revolution."

Asmus posed this question: "How can you call supply-side economics a failure when there hasn't been any yet?"

The theory "calls for a lower margin rate of taxation which would result in increased output in work, savings, investments and creativity," Asmus said. "But there hasn't been a reduction in taxes."

He explained that a tax cut was introduced two years ago, but in the intervening two years, "it's all been taken away."

Asmus cited these facts:

☐ An increase in Social Security tax under Carter and now one under Reagan.

☐ State and local governments have increased taxes.

☐ The President imposed a five-cent gasoline tax.

☐ Until recently, high inflation.

"Our first bit of supply side economics will be in July of this year, but Congress is trying to take that away from us because they believe that it is better that money reside with them to spread it all over than to allow money to reside with its rightful owner — the person who produced it," Asmus said.

The economist sees a growing trend towards "privitization" and "deregulation."

"We have to take the traditional government things and turn them over to the private sector to run more efficiently."

Education Is The Goal (And The Name) of NRCA's Newest Department

by Martin Eastman

Workmanship. The word conjures up the image of a violin, painstakingly crafted by a master skilled in the art of creating a beautiful, living instrument.

Workmanship can apply to the construction of a roof as well. A finely crafted roof, carefully built by knowledgeable workmen using the finest materials can be a superior system able to withstand the ravages of time and weather.

Alan Grayson

What do quality roofs and violins have in common? They are both made by craftsmen thoroughly familiar with the techniques of their trade. Craftsmen who know the right way to turn raw materials into products to meet exacting specifications.

That knowledge doesn't come easy, especially in the roofing business where new materials and techniques make the lessons learned yesterday obsolete tomorrow.

Ongoing education is the key. Everyone in a roofing business, from the contractor to the field worker, must seek opportunities to update skills and become familiar with changes in the industry. The Education Department of the National Roofing Contractors Association (NRCA) is working hard to provide those opportunities.

"The primary philosophy of the department is to assist in improving all facets of the roofing industry through education, including the management of contractor's operations and the roofing installation process," said Alan Grayson, NRCA director of education.

Grayson, a graduate of the University of Illinois, has been planning, developing and coordinating educational programs for NRCA since the Education Department was formed in June of 1982.

Grayson's strong background in education includes a nine year stint with the International Association of Assessing Officers where he directed its education and certification programs. He also taught Spanish for five years at the University of Wisconsin-Platteville.

To reach the entire roofing industry, the Education Department has developed four main thrusts for its programs. "Each one has a specific objective as far as the people we're trying to train," Grayson said.

"Our goal in putting on these programs is to assist the roofing contractor in managing all phases of his operations."

The program on roofing systems, for instance, seeks to reach all industry segments, according to Grayson. The program is designed for "architects, engineers, specification writers, general contractors, building owners, those concerned with building maintenance and roofing contractors."

New materials and techniques make the lessons learned today obsolete tomorrow.

Each session of the one-day Roofing Systems Conference highlights a different area of NRCA's policies, standards and established procedures for the installation of roofing, Grayson said. Together, the sessions teach members of roofing-related industries about the four elements of a successful roof — design, materials, workmanship and attitudes.

The most recent series of Roofing Systems Conferences ended in April. Another series is being planned for late 1983.

Reroofing and energy conservation were the topics of a second conference held recently. Like the Roofing Sys-

roofing spec

Readership Survey
May 1983

Dear Subscriber:

Roofing Spec is the only monthly magazine responding exclusively to the needs of the roofing industry. Throughout the 14 years of its publication it has been a valuable resource for roofing contractors, architects, specifiers and manufacturers.

You can help *Roofing Spec* maintain its position as an industry leader. By taking a few minutes to complete this form you will be letting us know what the needs and concerns of the roofing industry are.

Please return the questionnaire by May 1. To mail, simply fold and staple. The form has already been addressed and postage will be paid by *Roofing Spec.*

Thank you for helping us. Your comments, and those of others like you, will be used to plan the directions *Roofing Spec* will explore in the issues to come.

Sincerely,

Michael H. Beightol, editor

1. How long have you been reading *Roofing Spec*?
   - ☐ Less than one year
   - ☐ 1-5 years
   - ☐ 5-10 years
   - ☐ Over 10 years

2. Of the last 4 issues of *Roofing Spec* which have you read or skimmed through?

	Read	Skimmed	Didn't Read	Didn't Receive
January	☐	☐	☐	☐
February	☐	☐	☐	☐
March	☐	☐	☐	☐
April	☐	☐	☐	☐

3. Please write in the number of people besides yourself who read your copy of *Roofing Spec* _____
   What are their titles or functions?
   _____
   _____

4. What do you do with your copy of *Roofing Spec* when you are finished reading it?
   - ☐ Pass it along to others (see question 4a)
   - ☐ Clip items of interest for files
   - ☐ Save intact for future reference
   - ☐ Other. Please specify _____

4a. On the average, how many other people read a pass along copy.
   _____

5. Please indicate if you read the following regular *Roofing Spec* features.

	Always Read	Usually Read	Seldom Read	Never Read
Ideas, Notes & Random Thoughts	☐	☐	☐	☐
Comment	☐	☐	☐	☐
National News	☐	☐	☐	☐
Associate News	☐	☐	☐	☐
Legal	☐	☐	☐	☐
Tech Talk	☐	☐	☐	☐
Affiliate News	☐	☐	☐	☐
New Products	☐	☐	☐	☐
Coming Events	☐	☐	☐	☐
Classified Ads	☐	☐	☐	☐
New Members	☐	☐	☐	☐

6. Which best describes the way you read the advertisements in *Roofing Spec*?
   - ☐ Read or look over all the ads
   - ☐ Read or look over most ads
   - ☐ Read only ads for products in which I am interested
   - ☐ Seldom pay attention to ads

7. In the past year have you been involved in the recommendation, specification or purchase of:
   - ☐ BUR Materials
   - ☐ Single-Ply Materials
   - ☐ Liquid-Applied Materials
   - ☐ Residential Roofing Materials
   - ☐ Insulation
   - ☐ Rooftop Accessories
   - ☐ Machines or Equipment

7a. What would you estimate your average annual dollar volume to be on the above? _____

8. What other trade publications do you read?
   _____
   _____
   _____

9. How would you compare *Roofing Spec* to these publications?
   - ☐ Better
   - ☐ About the same
   - ☐ Not as good
   - ☐ Not comparable

10. How would you rank your agreement with the following statements about *Roofing Spec*?

	Strongly Agree	Agree	Disagree	Strongly Disagree
Articles are interesting and well written.	☐	☐	☐	☐
The information about products, services and techniques is up-to-date and accurate.	☐	☐	☐	☐
The magazine is attractively laid out with a good use of photos and graphics.	☐	☐	☐	☐

11. What is your general impression of *Roofing Spec*?
   - ☐ Excellent
   - ☐ Good
   - ☐ Fair
   - ☐ Poor

   Comments _____
   _____
   _____

12. What articles would you like to see in the future issues?
   _____
   _____
   _____
   _____

INSTRUCTIONS

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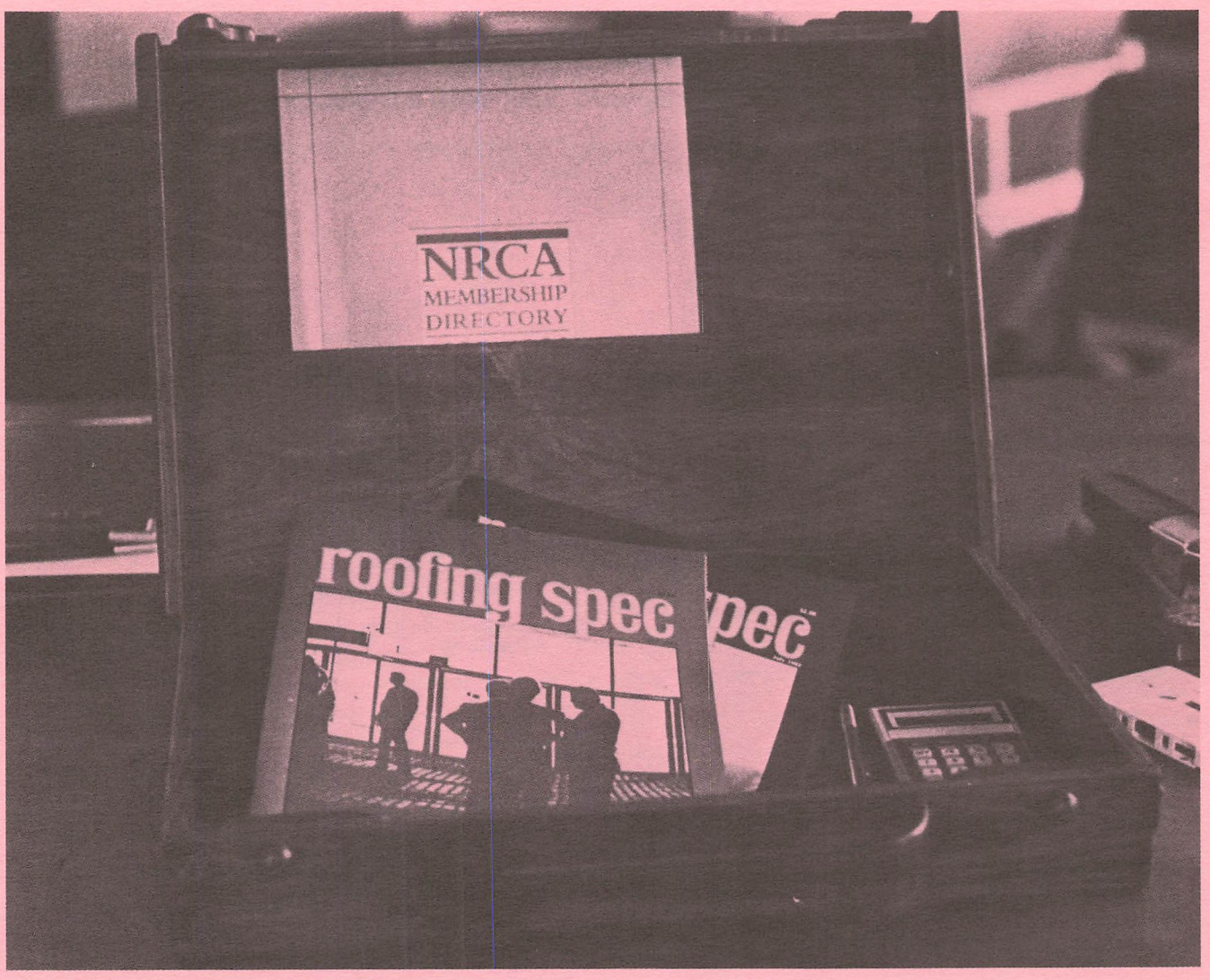
Install Roofing Spec In Your Office



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tems Conferences, this conference was designed for anyone involved in the design, specification or building of roofing systems. A repeat of this conference is being planned as well as other conferences covering general roofing topics.

Another program administered by the Education Department and reaching out to all segments of the roofing industry is the NRCA Speakers Bureau. Through the bureau, speakers on a variety of roofing-related topics are made available to interested organizations.

Each of the speakers is an NRCA contractor member. Their topics range from roofing materials to specifications. New topics are regularly developed and added to the bureau's list.

A series of management conferences developed by the department is aimed at the owners and middle-managers of roofing firms. "Our goal in putting on these programs is to assist the roofing contractor in managing all phases of his operation," Grayson said.

Any effort to improve workmanship must include educating the person on the roof.

The Education Department also recognizes the key roles supervisors and foremen play in achieving workmanship on the roof.

"We developed a series of programs for the supervisor/foreman to improve both the supervisory skills of that level of employee and skills of application techniques," Grayson said.

The most recent day-and-a-half program of this series dealt with productivity. A program on application techniques is under development. It should be available next year.

Of course, any effort to improve workmanship must include educating the person on the roof. "This is probably one of the greatest thrusts of the Education Department," Grayson said.

For these workers, the department has designed a series of audio/visual programs to be conducted in-house by the roofing contractor, according to Grayson.

Currently available in this series is a program dealing with the proper heating of bitumen. Available next will be the first of a three part audio/visual series on built-up roofing techniques.

These worker training programs illustrate an important part of the department's philosophy — to make training and education as accessible as possible.

By making the seminars and audio/visual materials available to individual groups and contractors "we can reach people on a local level and, therefore, make the program available much cheaper without the travel costs involved," Grayson said.

Enhancing all of the department's efforts is the Accredited Roofing Contractor Program (ARC).

ACCREDITED ROOFING CONTRACTOR
NATIONAL ROOFING CONTRACTORS ASSOCIATION

"It was developed in order to improve workmanship," Grayson said, "and to provide the opportunity to recognize those roofing contractors that try to improve workmanship through a commitment to education."

To receive certification under the ARC program, a contractor and his employees must attend a specified number of hours in approved training programs or educational sessions.

All of the Education Department's programs will fulfill ARC requirements. Roofing Industry Educational Institute (RIEI) programs are also approved for the ARC program.

"The education programs of the association are conducted and are being developed for their own value," Grayson said. "But obviously, the ARC program is designed to provide a greater impetus to education."

"The ARC program is designed to provide a greater impetus to education."

Since the first days of the department, Marsha Riley has been assisting Grayson with day-to-day operations. Her duties include general office tasks, as well as keeping track of the many conference registrations the department receives.

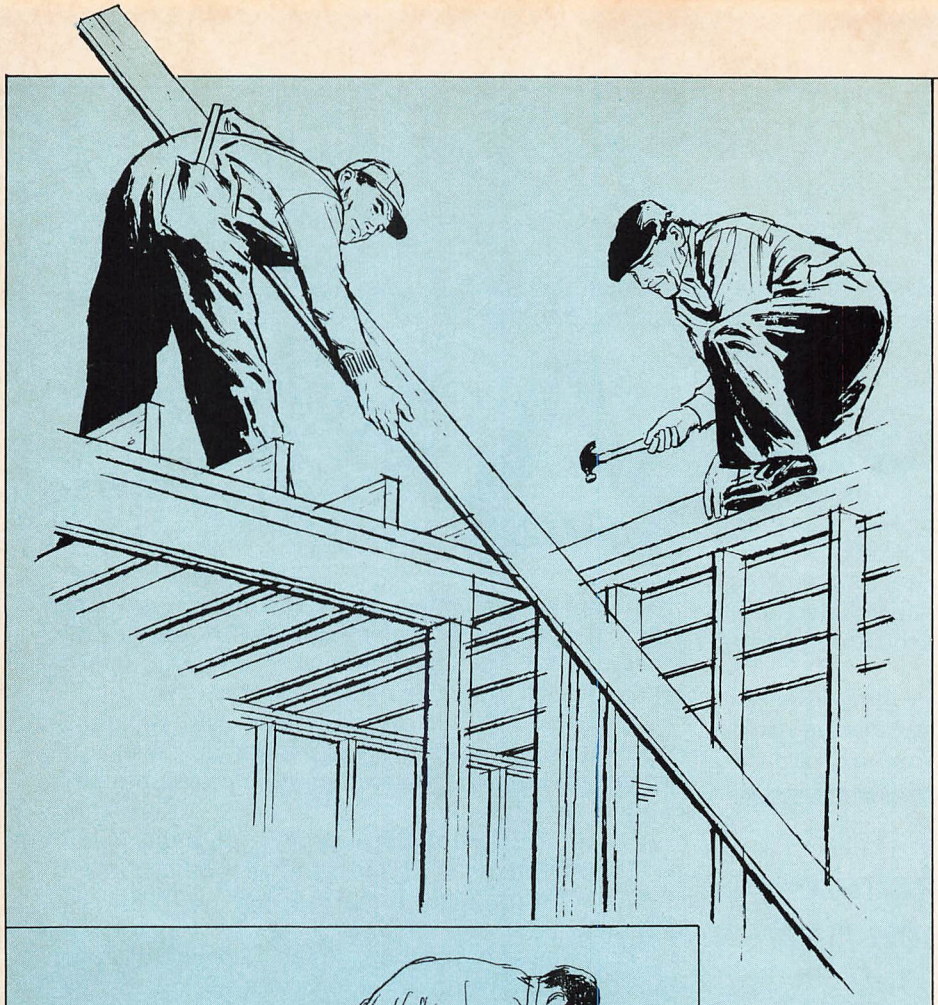
Setting the Education Department's policies and goals is a four-person Education Operating Committee: Michael Beldon, Beldon Roofing and Remodeling Co., San Antonio, Tex.; Robert Harrison, Greenville Roofing Co., Greenville, S.C.; Wayne Mullis, Universal Roofers and Builders Inc., Phoenix, Ariz. and Michael Promen, Clark Roofing Co., Broadview, Ill.

Under this committee are sub-committees advising the different programs.

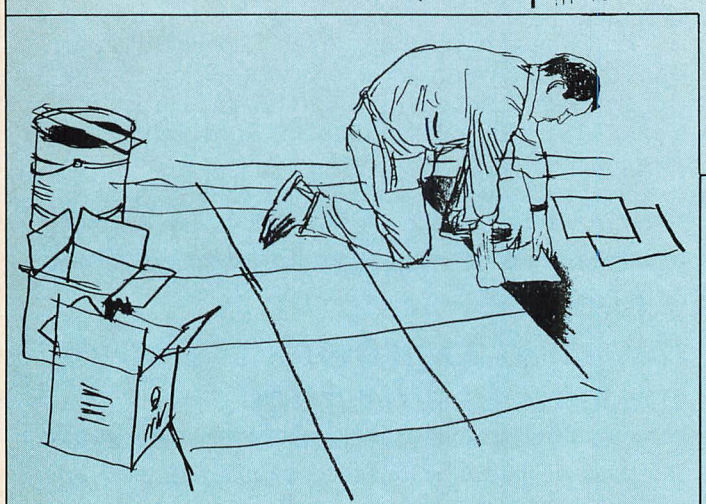
The goals of the Education Department are summed up in an ARC brochure: "To remain competitive in the industry is to install quality roof systems of all types, and this can only be achieved through knowledge of the systems and through good workmanship."

Through its program, the Education Department is helping contractors acquire that knowledge.

And, through education, roofing contractors can construct roofs which are the highest achievements of the roofer's art.



America's Housing: Food For Thought For What's Ahead



by L.A. Goldschmidt, President
Wildrose Springs Inc.
St. Charles, Ill.

Editor's note: *This article is excerpted with permission from the* ***Chicago Dodge Construction News.*** *Mr. Goldschmidt is a prominent developer/builder, a professional city planner and has done consulting work for federal, state and local governments. This is the first article in a two-part series.*

One benefit of a poor housing market — and quite possibly the only benefit — should have been that it has given homebuilders time to think.

Regrettably, most of the thinking has not been very inspired. It focuses on a single subject: survival — how to make it through the next month, the month after, or until something happens that will revive the housing market and the housing industry.

We also have been beset by self-doubt. Why aren't people buying our product? What can we do, what should we do, to stay in business and survive?

We certainly get enough advice, often contradictory advice, which tends to reinforce our doubts.

We are told that more and more people are priced out of the housing market; that we must build smaller, more affordable homes; that we must

"One benefit of the poor housing market is that homebuilders have had time to think."

overcome high interest rates by offering "creative financing" and that we are offering the wrong product at the wrong time to the wrong people and at the wrong price.

We listen to all this advice, and we are mesmerized by the nation's economic problems reflected in high and volatile interest rates.

"We tend to forget that much of the advice we hear today is reminiscent of statements made in previous years when the housing industry was in trouble."

This is certainly not an environment or a mood that inspires people to buy new homes.

We begin to believe that the current crisis will set the tone for the rest of this decade, and we tend to forget that much of the advice we hear today is reminiscent of statements made in previous years when the housing industry was in trouble.

Crisis History

- During the crash of 1974/75, the battle cry was: Back to basics. We must build no-frill homes — basic shelter which people can afford. Unfortunately for the experts of those days, when the housing market recovered from the slump, the no-frill home quickly became an enormous flop.
- In 1969, President Nixon's new Secretary of Housing and Urban Development, George Romney, identified the housing problem as one of rising costs ("more and more families are being priced out of the housing market") and he advocated "space-age management" as the solution. Those were the days when the space program was synonymous with success, and it was only natural to suggest that the techniques which lifted three men to the moon were applicable to solve the nation's housing problem.

George Romney persuaded many of the nation's foremost corporations to enter the housing field and to apply their engineering and management skills to forge a revolution in the production of homes. "Operation Breakthrough" was the day's code word. Unfortunately for the experts of those days, the space-age companies with their space-age management lost money — a lot of money — and they got out of housing as fast as they got into it.

- In the mid-1960s, President Lyndon Johnson declared that 26 million new housing units were needed to solve the nation's housing problem. The housing problem was identified as one where costs were too high and production was too low.

The solution was large-scale government subsidies. The housing industry complied by producing 2.6

The crisis history of housing indicates that many dire predictions do not come true.

million housing units the very next year, not counting almost 500,000 mobile homes. The demand for these numbers was not sustainable, however, and the effort cost both the government and the housing industry dearly.

Right from wrong

I would like to suggest that nothing is wrong with the housing industry. In fact, a lot of things are right. The American housing industry is one of the most productive and efficient of all industries, and it has provided American families with a housing standard that is unmatched anywhere. If you do not believe this, take a look at the price and

continued on following page

America's Housing

continued

size of homes in other countries.

As a second thought, I do not believe that Americans are willing to relinquish the housing standard they have achieved. Statistics seem to support this belief. Except for a small decline in 1975, homes have increased in size every single year from 1950 to 1979, from an average of 983 sq. ft. to an average of 1,760 sq. ft.

Not only have homes increased in size, they have become more luxurious — with 2½ baths, central air conditioning, two-car garages, basements, fireplaces and dishwashers. In fact, many families consider these features necessities rather than luxuries. This is certainly a far cry from the small bungalows built after World War II.

Single-family homes have maintained their popularity. Year after year, without exception, they outsell all other types of housing combined. Single-family homes remain a part of the American Dream.

In the last two years, the size of the average home has declined, however, two years does not constitute a trend.

I believe that the smaller-size homes sold during the past two years reflect only the current depression

"Nothing is wrong with the housing industry; in fact, a lot of things are right."

and that small housing units appeal primarily to buyers who cannot or do not want to wait.

In short, I believe that the small home is accepted only during unique circumstances; that the long-term trend will continue to favor larger homes; and that people, eventually, will be able to afford them.

I will outline some of my reasons for this conclusion.

Life at home

In thinking about the future we were overwhelmed by a single conclusion: Life in the future will be more home oriented. The home will become increasingly important in the lives of most families.

The primary reason is the electronic revolution. It is now possible to process information such as data, words, images, and pictures and to move them between any two points

in the world virtually instantaneously, at a cost infinitely less than the cost of moving people.

If a person or a business firm is equipped with a telephone, a video screen, and a computer or computer terminal, he/it can participate in the electronic revolution from any place chosen including, of course, the home.

I believe that people will choose to participate in the electronic revolution from the convenience of the home. People will shop, bank, communicate, be educated, watch movies or cultural or sporting events — all without leaving the house.

Perhaps the most dramatic change will be in the number of people who will work at home. Some experts predict that by 1990, some 25 per cent of the labor force will work at home. From our own experience, we tend to agree. In this sense, new homes will not only add to the housing stock, they will add to the work-places and such will be part of our overall productive facilities.

"The small home is accepted only during unique circumstances; the long-term trend will continue to favor larger homes."

The home brings to this new role two major advantages: Its space is relatively cheap — much less expensive than office space — and its location as a place to work greatly reduces the need to commute.

The latter is certainly an important consideration at a time of expensive fuel and rush hour traffic.

For many years the most pervasive fact of urban life has been that people were in the wrong places when they woke up in the morning. They were not at work, in school, nor at the store. The problem has been to get them there, and that is what rush-hour traffic is all about.

Soon, we may be in the right place when we wake up — at least some of us some of the time.

Next issue: The revolution continues; Mr. Goldschmidt examines the stay-at-home worker and tomorrow's preferred communities.

On The Roof...

Roof Adds Style To Ohio School

Hathaway Brown School officials had two primary requirements for the design of their new gymnasium. They wanted a building that would take advantage of modern energy-saving technology and still retain the traditional feeling of the original main structure, a cut stone and brick building with a warm grey slate roof.

The winning design, submitted by Dyer & Watson, Architects, Cleveland, Ohio, satisfies both requirements.

The new gym features brick walls, wood trim and a metal roof. Dyer & Watson designed the building to blend with but not imitate the main building of this Shaker Heights, Ohio girls school.

An important part of this design is a Terne Coated Stainless Steel (TCS) roof.

"TCS was used for its low maintenance, long life, resistance to ice-dam problems and because it ages to a color similar to the slate," Architect James W. Watson said.

The gymnasium was lowered one-third into the ground to satisfy the energy savings requirement. Because of the low profile this creates, the TCS roof is a dominant element of the design.

Low eaves, preserved by using hip-ridge corners, also create a proportionally larger roof area. The roof conceals mechanical equipment and adds space to the interior dimensions of the gym.

For added energy savings R-19 insulation is sandwiched between the plywood deck and tectum panels below. The building's energy efficiency earned it the East Ohio Gas Company's Designer's Energy Award.

The TCS was manufactured by Follansbee Steel Co. of Follansbee, W. Va. The roofing contractor was NRCA member Northern Ohio Roofing, Elyria, Ohio.

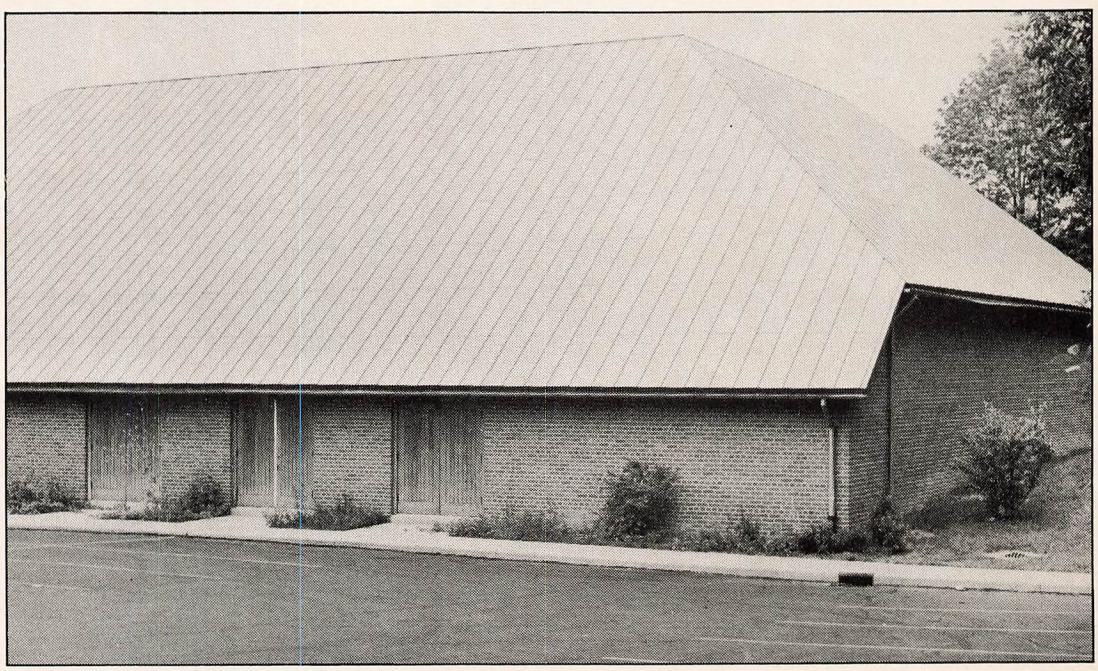
EPS and EPDM A Positive Mix

Expanded polystyrene, tapered to provide positive slope, and a loose laid EPDM membrane helped save the day for Industrial Contractors, Inc., an Evansville, Ind. roofing contractor.

The company was chosen to apply the roofing system on a 265,000 square foot warehouse in Evansville owned by Warehousing, Inc. The warehouse stored over $10 million worth of pharmaceutical and nutritional products.

An unusually rainy summer in Evansville made a quick completion of the job essential to protect the perishable warehouse contents. But, with a late start and several headaches to overcome, Industrial Contractors had more than its share of problems meeting the deadline.

The first challenge proved to be the roof deck itself. The ponded water which had ultimately caused the old



Hathaway Brown School

roof system's downfall had also corroded about half of the steel deck.

The contractor had expected no more than a 10 percent replacement of the deck and was surprised at the amount of rust-through uncovered as the old roof was stripped away. To keep the project on schedule, three crews were established: one to tear off the old roof, another to replace the steel deck where necessary and the third to lay the new roof system.

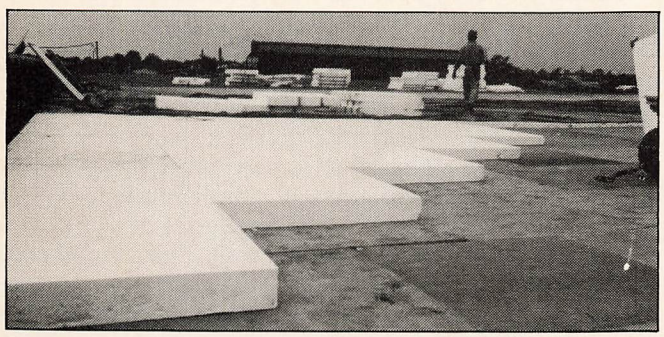
To solve the ponded water problem, the consulting firm Enspec, Inc., Columbus, Ohio, specified EPDM single-ply sheets loosely laid and ballasted over tapered EPS insulation.

The 4x4 foot boards of EPS, precision cut by Southeastern Foam, Bargersville, Ind., were molded from Dylite® expandable polystyrene from ARCO Chemical Company, a division of Atlantic Richfield Company.

The simplicity of the system permitted the roofing crews to maintain the construction schedule in spite of lost time.

"This was the biggest single-ply job we've ever done," Harry Girvin of Industrial Contractors said. "But despite unusual amounts of rain, it certainly didn't turn out to be our biggest headache."

Problem:
Ponded water proved to be a long-term headache for the owners of a 265,000 sq. ft. warehouse in Evansville, Ind. Frequent and costly maintenance repairs were needed for the roof in order to protect the stock stored below.



Solution:
Tapered EPS board and a single-ply membrane roof system provides the positive drainage to eliminate the ponding problem and the need for frequent patching and maintenance of the old roof.

New/Old Fashioned Roofs For Wendy's

That stylized mansard roof on your local Wendy's Restaurant may not be as "old fashioned" as it looks.

As part of the Wendy's International, Inc. late Victorian motif for its restaurants, the buildings feature a standing seam mansard roof resting on generous cornice moldings and punctuated with dentils on the bottom. The original design specified copper with wooden cornices for the roof.

But, as Wendy's engineering staff and their architects, Functional Planning, developed a flexible component building plan for new restaurants, it became clear that the copper/wood approach would be too costly.

It was feared that the mansard design would have to be scuttled, but modern technology came to the rescue.

Coburn Morgan of Functional Design began investigating the possibility of using fiber glass reinforced plastics. He found that roofs in place for ten years were showing satisfactory resistance to ultraviolet rays, heat, salt and alkalinity.

With these assurances Wendy's engineers decided to use reinforced plastics to cut costs while retaining the attractive design. The engineers chose Molded Fiber Glass Co. — Union City Operations, Union City, Pa. to manufacture the roof components.

The roof is molded in 12-foot-long straight sections and inner and outer corner sections. Each section incorporates both the curved standing seam panel and the lower dentil ornamentation. A separate trim, which houses tubular lights, is also molded for the top of each section.

A special copper metallic gel coat gives the curved panel the copper sheen of the original. The copper-colored panel and the brown lower dentil are molded in one piece with the two colors masked from each other.

Each 12-foot panel weighs 130 pounds and requires only top and bottom fastening. Three installers can fasten a complete section in less than half an hour.

The first reinforced plastic roof has already been installed on a new Millbourne, Pa. unit. As Wendy's expands and builds new units, more and more new "old fashioned" restaurants will feature this state-of-the-art design.

Thermography: The New Technology

by Murray Lathem, Fishburn, Thermography Group Ltd., Ontario, Canada

Steeles Ave.
Hornby Ontario L0P 1E0

Picture from
Energy Consultants, Inc.

It has long been recognized that moisture from leaks or other sources not only damages the contents and disrupts the functional use of buildings, it can also have highly adverse effects if trapped within the roof assemblies. Since intrusion of moisture destroys the insulation's thermal integrity and gives rise to failure in the bitumen membrane layers, a reliable method for its easy detection would reduce maintenance and replacement costs. So the importance of developing and refining non-destructive testing methods cannot be overemphasized.

Thermography offers a great potential for detecting and accurately mapping subsurface moisture. Thermographic surveys can assess every square inch of roofing, providing accurate, detailed information on a roof's condition.

Researching anything has often proven to be a time-consuming, costly procedure and roof thermography is no exception. In addition to providing and equipping laboratory facilities for processing and interpreting scanning information, much experimentation with various aircraft and helicopter and camera lenses has been expensively carried out for airborne survey work.

Thermography is based on a specialized infrared camera which detects variation in temperature radiating from a surface, converts it into an electrical signal and instantaneously displays and records it as a video heat image called a thermogram. Thermograms, accompanied by conventional photographs taken simultaneously, can accurately locate moisture-damaged areas.

With portable scanning equipment, thermographic

continued, page 46

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Thermography

continued from page 44

surveys can be made by walking on the roof or scanning from a helicopter. The method selected depends on the construction of the roof assembly, climatic conditions, the size of the roof, the problem being investigated and the information desired. Some specific problems can also be investigated from the interior. Good results have been obtained using this technique in adverse weather conditions. Information can be stored on video tape or paper film, depending on how it will be used later.

Although wet insulation is usually depicted as a bright area on the viewing screen, not all bright abnormalities can be attributed to trapped moisture. Exhaust from roof mounted fans, heaters suspended below the roof, slight differences in construction materials and repairs on areas that have been reroofed, often resemble trapped moisture. One should also be concerned with the importance of recognizing thermal patterns of a roof performing within its design limits. Favorable weather conditions are generally required. However, isolated areas and leaks can be surveyed from the interior during inclement weather, or in adverse site conditions.

Today, the majority of roof warranties include making good of any actual leaks when subsurface moisture is detected in new roofs. In every instance involving new roofs where the infrared camera detected roof leaks, the original contractor was asked to confirm scanning data. The results have been undisputed, and the roofs were repaired under the terms of the original contract.

It has also been possible to determine responsibility for same, whether from a rooftop unit of a roof enclosure, curb, poorly installed roofing, etc., which is important if conflicts are to be avoided.

Because of the remote sensing ability of the equipment being used, roof shape or type does not present any survey problems. Scanning is employed for all types of commercial, industrial, institutional and residential buildings.

Experience has determined that physical damage, poor workmanship and high humidity levels during construction can impair roof performance from the outset.

While most roofs receive a measure of field supervision, it is not usually sufficient. Consequently, remote sensing to ensure that the work has been performed properly represents the best possible protection.

With the decline in new construction and with the increased hazard and incline of large-scale roof replacement, building managers have a means to safeguard their investment and assure themselves that their new roof will perform as intended.

Thermography can also be used as an instrument for preventive maintenance for existing roofs.

The method permits repair or replacement of localized roof defects at considerable savings over the common practice of removing all or large areas of roofing. Since the amount of damaged insulation can be predetermined, it is possible to establish repair priorities so that realistic budget levels can be established and the best design approach can be determined to resolve roof problems.

With the investigation of roof leaks that require immediate attention, defective areas are marked directly on the roof. Delays inherent in other test procedures can be avoided. In examining trouble areas, the roof may be surveyed hours before the damaged area is passed over to the foreman, resulting in quick remedial action and providing a considerable cost savings.

The common practice today is to replace damaged areas of roofing and insulation on a square foot basis. Thermography indicates precise insulation replacement, which can be depicted on both the drawings and spelled out in the specifications. This procedure provides for accurate, competitive bidding, while eliminating extras which can be costly and harmful to budget projections. It should be noted that time will affect the accuracy of scanning data since further water infiltration can be expected with delays; however, existing data can be easily and inexpensively updated should delays in effecting repairs occur.

Thermography is also a logical and important method for reducing energy requirements, particularly when the contractor considers that a major portion of the heat loss from the skin of most single story buildings occurs through this source.

A proper evaluation of a roof, however, should not rely on thermography alone. Cut tests, moisture contents of insulation samples and laboratory tests of bitumen samples are required if a proper assessment of the roof is to be completed.

Thermography has proven to be an effective cost saving procedure. It also provides us with a better insight in designing and building better roofs.

Editor's Note: *Fishburn Thermography Group Limited is a professional design and engineering organization providing technical assistance in matters pertaining to the design, evaluation and maintenance of the building envelope. The company is the largest roof thermography consultant firm in Canada with over 45 years experience in all phases of roofing and related fields.*

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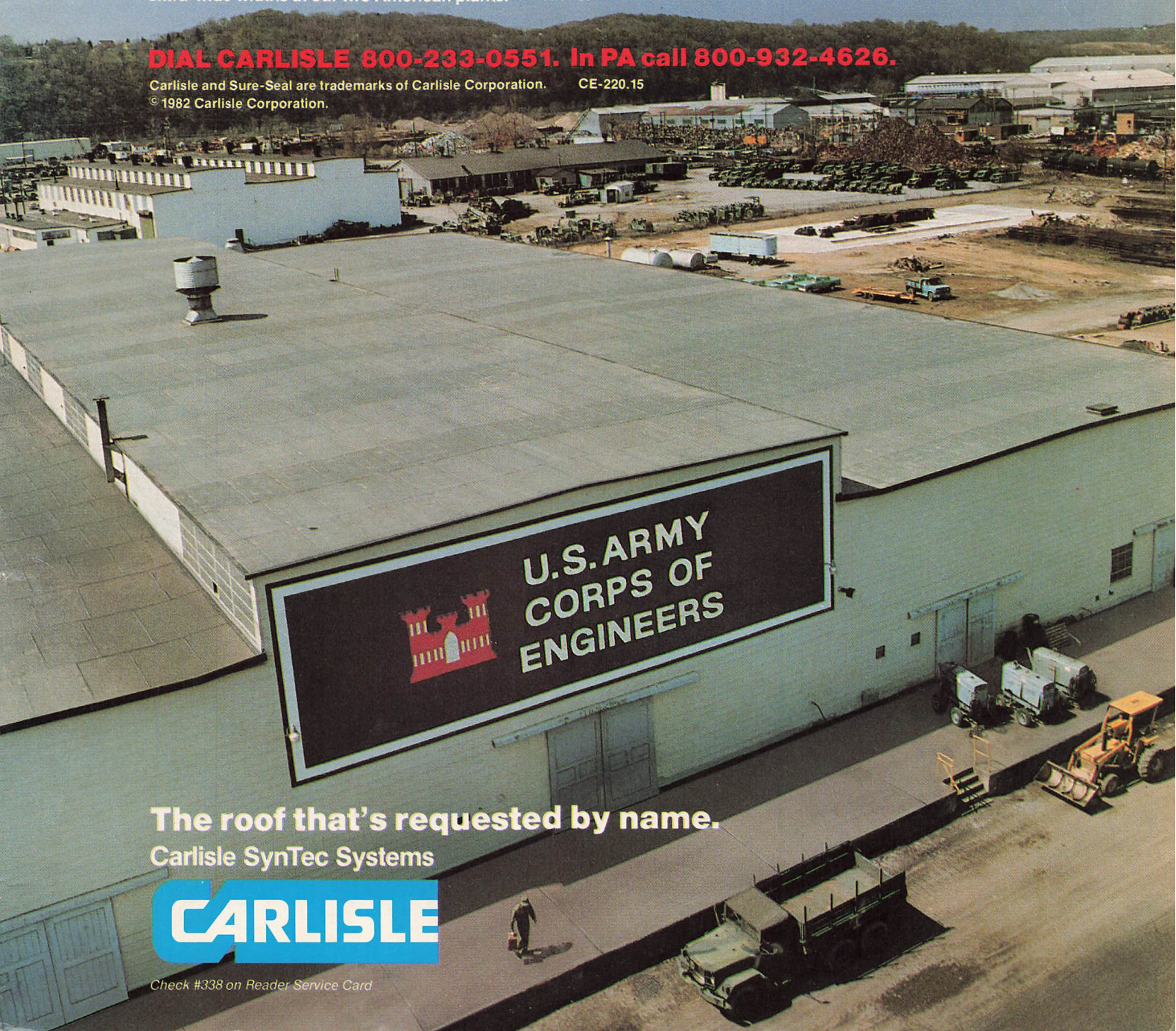

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June 3-7
Roofing Contractors Association of Texas 8th Annual Conference and Trade Show
Fort Worth, Tex.

June 6-8
Western States Roofing Contractors Association Annual Meeting
Honolulu, Hawaii

June 8-11
Florida Roofing, S/M & A/C Contractors Association's 61st Annual Convention
Tampa, Fla.

June 8-12
Roofing & S/M Contractors Association of Georgia Annual Convention
Hilton Head, S.C.

June 9-11
Virginia Association of Roofing Contractors Annual Convention
Virginia Beach, Va.

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

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New Products, Ideas, & Publications

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Polymer Development Laboratories, Inc. now publishes a quarterly newsletter, RIMSPRAY™.

The newsletter describes varied uses of PDL patent-pending RIMSPRAY™ coating systems in the building/construction industry, with emphasis on its seamless membrane characteristics.

RIMSPRAY™ is liquid-applied over PDL's THERMASTER™ spray foam using standard plural component equipment to provide a seamless membrane that does not require adhesive or ballast.

RIMSPRAY™ and RIMSHIELD™ are also used to protectively coat other substrates such as metal, cement and EPS against wear and weather.

For a copy of the RIMSPRAY™ newsletter, contact Polymer Development Laboratories, Inc., 212 W. Taft Ave., Orange, Calif. 92665.

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Red Dragon Torches Simplify Operations

Red Dragon Torches from Flame Engineering Inc. can be used for single-ply and built up roofing systems.

The Red Dragon SPA-520 has five completely adjustable torches that provide even heating as each roll of single-ply membrane is laid.

One handle simplifies the operation. Torch controls incorporate an adjustable pilot that can be situated for right or left side connection to the fuel line.

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The torch operates on vapor LP-gas.

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Span Metals Introduces Weathering Copper

A four-page color brochure containing information, illustrations and technical data on Weathering Copper™ Roofing is available from SPAN Metals Corp.

Weathering Copper initially has a "new penny" appearance, which changes gradually to a rich, darker copper finish.

The product consists of copper particles suspended in three layers of an acrylic resin and baked onto galvanized steel.

For more information, contact SPAN Metals Corp., P.O. Box 26288, Dallas, Tex. 75226.

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THERM-O-DECK Fills Roof Irregularities

THERM-O-DECK is a dry-applied roof cavity fill and slope-to-drain fill manufactured by the Brouck Co.

The product is a lightweight mill mixed granular material, consisting of a volcanic glass aggregate and a special blend of asphaltic binder.

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For more information on the Roof Vents, contact O.O. McKinley Co., Inc., 4530 N. Keystone Ave., Indianapolis, Ind. 46205; 317/546-1573.

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VOLU-MATIC II Blowing Machines Grow With Needs

The VOLU-MATIC II blowing machines for insulation application are backed by 46 years of Unisul experience.

The machines are available in five levels, each one upgradeable to a higher level.

The VOLU-MATIC II-S will spray fiber insulations, including cellulose fiber, fireproofing cements and the new sprayable glass fiber insulations.

For more information, contact Unisul Inc., P.O. Box 1310, Winter Haven, Fla. 33880; 813/294-3206.

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Manual Explains Subcontractor Bonding

Subcontractors in the market for a bid, performance or payment bond can now get the facts and information they need in a comprehensive manual published jointly by the American Subcontractors Association (ASA) and the National Association of Surety Bond Producers (NASPB).

"The use of subcontractor bonds on both public and private projects is growing rapidly," according to ASA President Robert Johnson. "I believe subcontractor bonding will double or even triple during the next five years."

Bonding for Subcontractors explains everything that a contractor needs to know about subcontractor bonds: What is Surety; How a Surety Evaluates a Subcontractor; Protecting Your Rights Under the Payment Bond; Special Bonding Problems; The Surety Agent; Subcontractor's Bonding Checklist.

The manual can be purchased for $10 from ASA at 8401 Corporate Dr., Suite 540, Landover, Md. 20785.

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New Hood Ends Cleaning Problems

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The respirator has MSHA/NIOSH approval, but it is not recommended for abrasive blasting.

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Classified Ads

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.

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Individual looking for established BUR contracting business to manage with option to purchase. Contact Box 5C.

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Tech Talk

By Bob LaCosse, CAE
Director of Technical Services

NRCA and Air-Conditioning Group Investigate Leaking Problem

As a result of continued problems of leaks coming from air-conditioning equipment on rooftops, two representatives from the Air-Conditioning and Refrigeration Institute (ARI) met with the National Roofing Contractors Association (NRCA) Technical Operations Committee in July 1982 to discuss the problems encountered by roofing contractors. From the discussion at the Technical Operations Committee meeting, the following was reported:

"The roofing contractor is often the first person called when there is an equipment leak."

- ☐ Curbing for the air-conditioning equipment is normally installed by the mechanical contractor before the roof is applied. The actual equipment, however, is not in place at the time of roof application.
- ☐ The curbing often used is not provided by the equipment manufacturers. Problems in curbing design or assembly sometimes make waterproofing impossible.
- ☐ While design problems usually show up within a few months, problems relating to abuse and damage show up much later.
- ☐ In most cases, equipment manufacturers are not aware of leakage problems. Therefore, the roofing contractor is often the first person to be called when there is an equipment leak. This is especially true when leaks occur after the equipment warranty expires.
- ☐ As a result, major problems should be defined involving curbs, flashing, piping, gaskets and sealing of units, to avoid equipment leaks.

"It was recommended that a joint ARI/NRCA manual be prepared. . ."

A joint committee was established between ARI and NRCA in December 1982 to discuss and resolve the problems of the leaky air-conditioning units.

Four representatives from ARI and four representatives from NRCA were appointed to the committee.

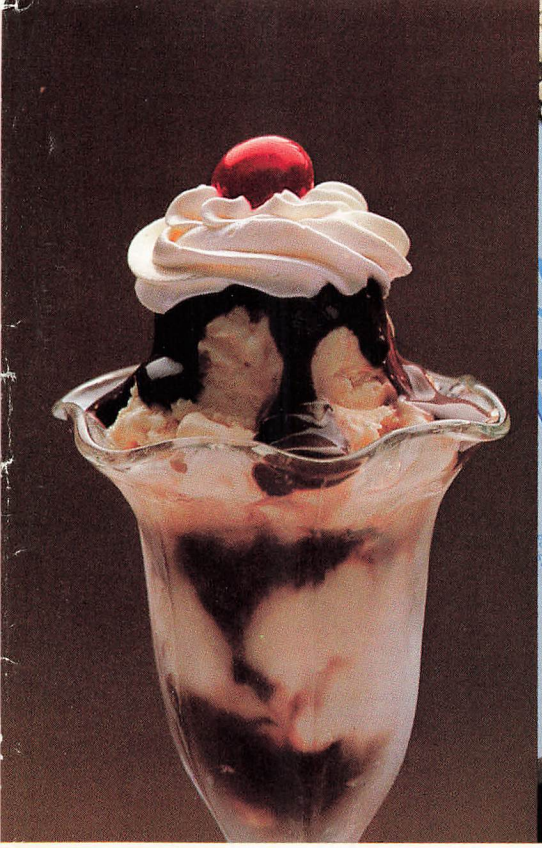
The first meeting of the joint committee was held February 9, 1983. At that time it was recommended that a joint ARI/NRCA Manual be prepared to include Unit Support Details, Unit Problems, Support Details for Curb Type Units and Stand Units, Application, Installation and Servicing, Duct Work, Piping, etc. In addition, the suggestion was made to update the *NRCA Rooftop Equipment* pamphlet, the ARI document on Standard for Application, Installation and Servicing of Unitary Systems, and the Construction Details section of the *NRCA Roofing & Waterproofing Manual* involving rooftop equipment.

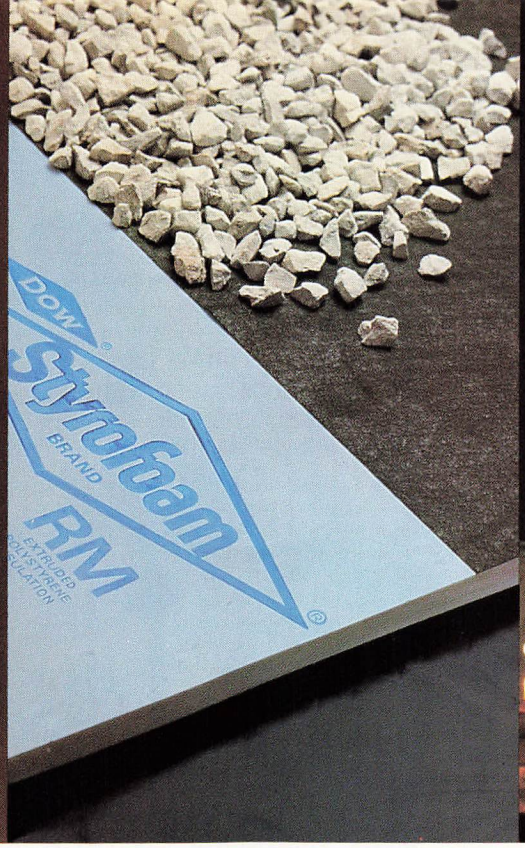
Another recommendation calls for assistance from the Sheet Metal & Air-Conditioning Contractors Association (SMACNA) in producing the proposed manual regarding construction standards on ducts for both low and high velocity as well as duct liner applications.

"The joint committee is hopeful that the manual will avoid future problems. . ."

The NRCA representatives will prepare a listing on what the proposed joint manual should contain (for approval by ARI) before the joint group proceeds with the development of the document. The proposed list of items to be included in the Joint Manual was sent to ARI in early March for its approval.

The joint committee is hopeful that finalization of the *Joint Manual On Rooftop Air-Conditioning Units* will avoid future problems with leaks in the units through the inclusion of good recommended construction details, application, installation, servicing and maintenance.





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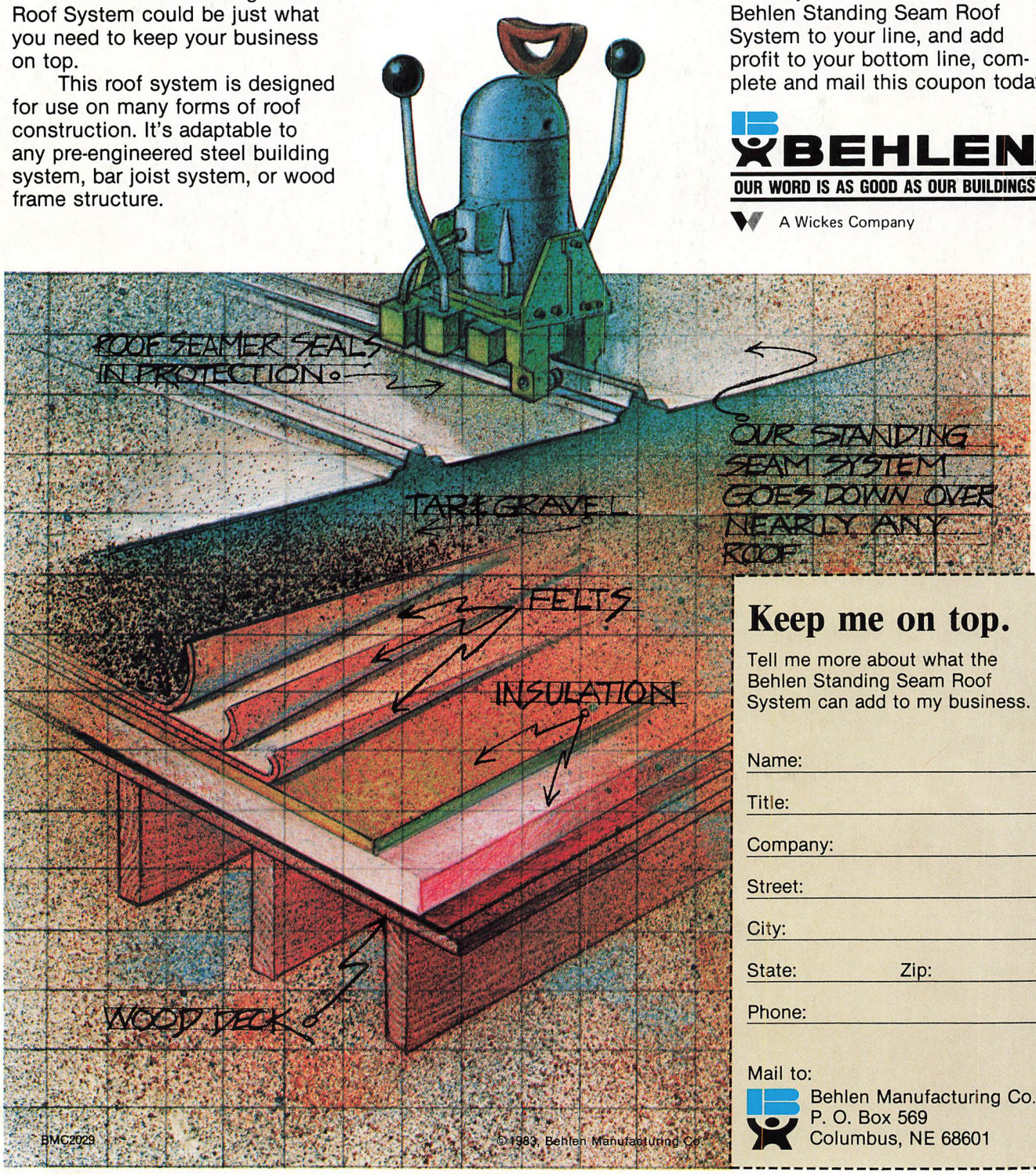

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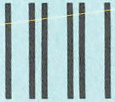

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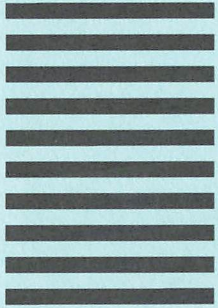

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