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August 1983

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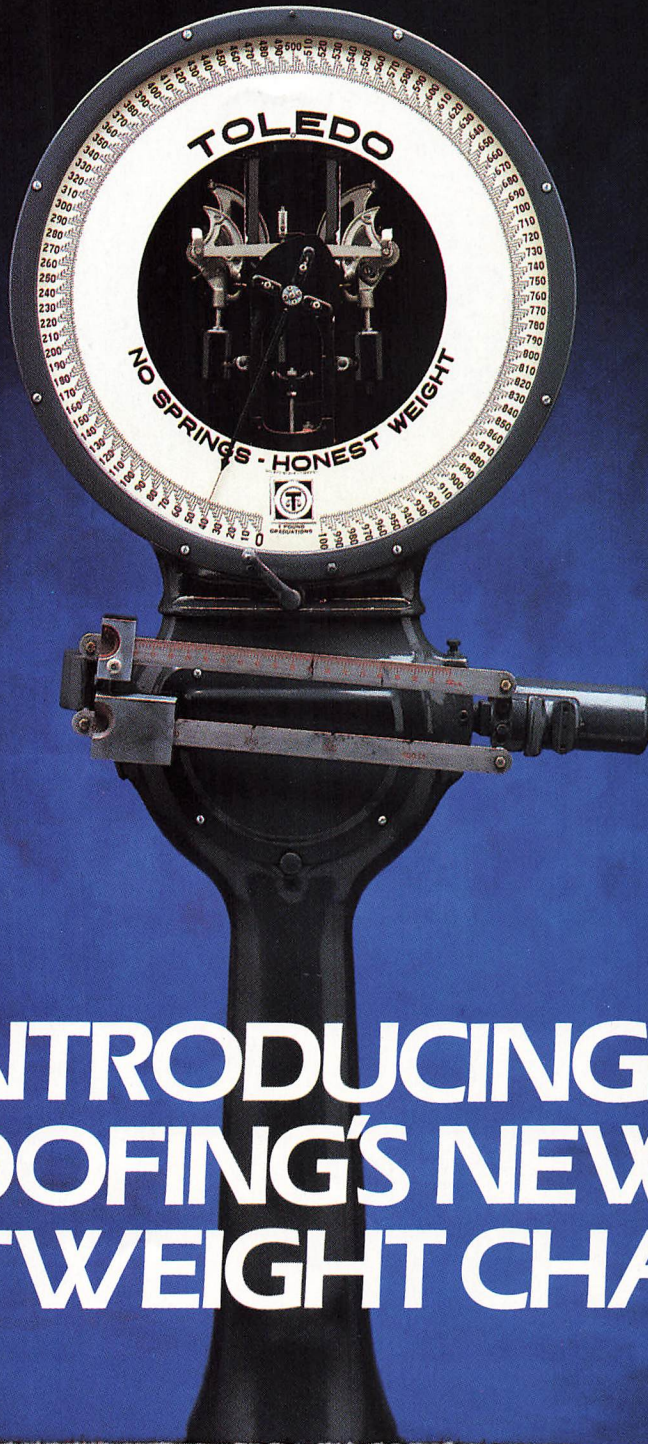
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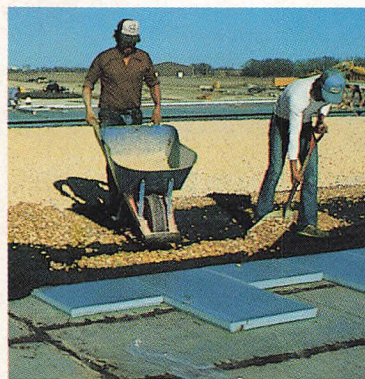
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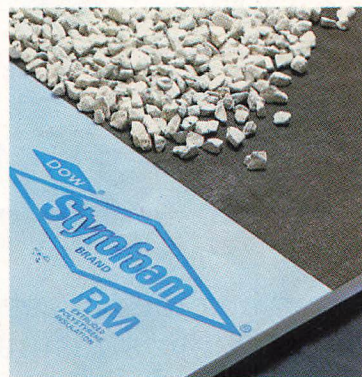


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pensation, as well as specialized coverages designed for the roofing contractor—virtually every coverage you're likely to need. And as part of the program's loss control services, there's a renewal guarantee which includes a special alert list that gives members advanced assistance when a severe loss record endangers insurability.

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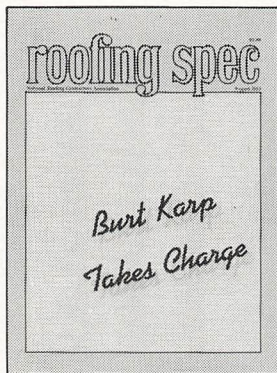
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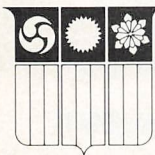
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New NRCA President Burton Karp has *big* plans and ideas for his term in office.



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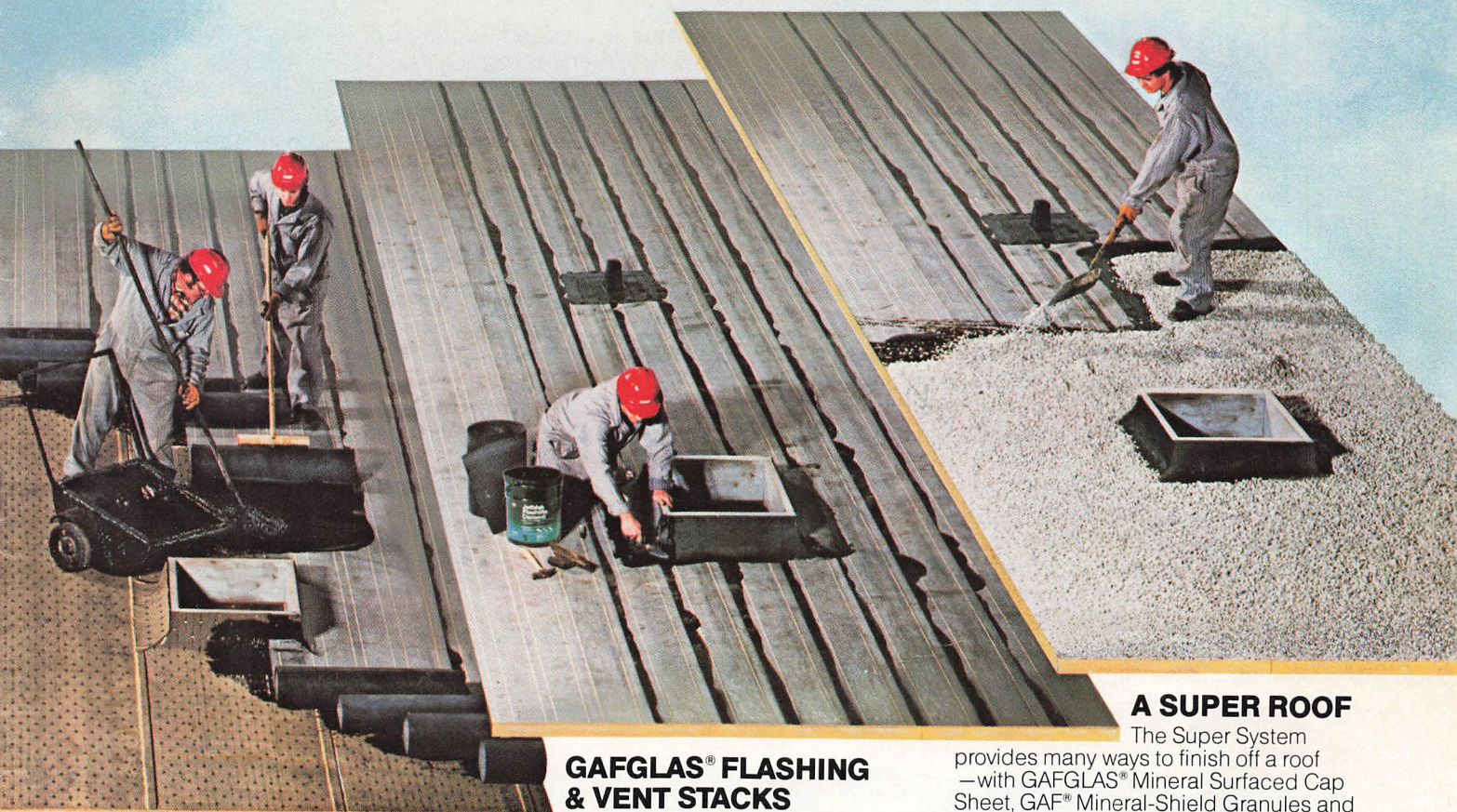
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The GAF® GAFGLAS® Vent Ply roofing System has been engineered to reduce the destructive effects of moisture vapor trapped beneath the surface of a built-up roof. Granules on the underside of Stratavent Base Sheet provide venting for any trapped moisture 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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Comment

Make It Happen

NRCA President Burton Karp has proclaimed this the "Make It Happen" year, and if the number of meetings scheduled is an indication of activity, he won't disappoint.

In June, the leaders of all 67 state, local and regional roofing contractor associations affiliated with NRCA were invited to a special meeting in Chicago, to seek out the best ways to get three crucial NRCA programs "happening."

The first of these is a three-year public relations effort, emphasizing to the nation's building owners the need for using professional roofing contractors, and culminating with NRCA's centennial celebration in 1986.

The second involves NRCA's longterm commitment to education. Worker training materials are being developed for roofing contractors to use in-house, or in conjunction with their local associations. NRCA's educational conferences are being expanded, and our Speakers Bureau is being widely promoted. Roofing contractors making a commitment to educating their employees are now eligible to

become Accredited Roofing Contractors through a new NRCA endeavor.

The third program discussed at the June meeting was NRCA's government relations efforts, in particular the perceived need for more and better information, and for more and better member involvement. As state and local issues take on national importance, and as government continues to grow, the need for a coordinated national program has never been greater.

Making it happen for NRCA in 1983 means, above all else, securing an industry-wide commitment to deal with these and other vital issues.

No one in the trade will admit to being opposed to education, political involvement or the promotion of professionalism. They are the apple pies of the industry.

But it is time to act. The groundwork is now laid, the concepts agreed upon, and the plans in place. As is always the case, NRCA members will be called upon to lead their industry, and to secure their industry's future.

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Ideas, notes and random thoughts

Summer's ablaze with some of the hottest activity we've seen in a couple of years. This issue of *Roofing Spec* reflects just a few of the changes sweeping the industry, starting with the changing of the guard at NRCA. New President Burt Karp talks about his term as NRCA's skipper, including his plans for promoting professional roofing contractors to the American public. Roof fasteners are a new accessory item finding greater acceptance across the country. Editorial Assistant Martin Eastman profiles an Illinois fastener maker, Elco Industries, Inc. Also this issue, NRCA Director Dick Baxter, a frequent *Roofing Spec* contributor, writes about the U.S. Air Force roofing manual. Read on.

m.b

Nine states, with more in the works, recently passed legislation allowing insurance policies to protect from financial losses occurring during an IRS audit. In some cases, only \$100 will buy \$100,000 worth of coverage. But there are tight restrictions, and buyers obviously aren't protected for acts of fraud, negligence, substantial underpayment, or anything else that carries penalties.

Big news for small contractors. The Small Business Administration has proposed new size standards for set-aside work. For the roofing industry (and most other specialty trades), the standard would be increased from \$5 million in annual sales to \$9 million.

Things keep looking up. According to a poll taken of delegates at the recent 71st Annual Meeting of the

Chamber of Commerce of the United States, business people overwhelmingly expect the economy to improve this year. While 92 percent predicted better conditions, only one percent expected them to get worse. Six percent thought the economy would stay the same.

But don't look for the unemployment rate to come down as rapidly as the employment rate goes up. Chamber officials say it just doesn't work that way. They say in the first year of recovery from the 1974 recession, the number of new

jobs rose by over 3 million while the number of unemployed declined by fewer than a million. It takes about three new jobs to reduce the number of unemployed by one. As recovery picks up, the job-seeking labor force expands.

The June issue of the *NRCA Roofing Materials Reference & Guide* has been well received, according to project director Norm Bullock. The addition of some 15 new manufacturers, along with some format changes have made the *Reference & Guide* a very valuable tool for designers, building owners and roofing contractors, not to mention participating manufacturers. For more information, contact Bullock at NRCA headquarters, 8600 Bryn Mawr Ave., Chicago, Ill. 60631.



NRCA is pleased to announce the rapidly approaching celebration of its Centennial year. This great occasion will be commemorated with a celebration beginning at the 1986 Las Vegas convention and culminating at the gala 1987 San Francisco NRCA Convention & Exhibit.

A Centennial Questionnaire will be mailed in August to all NRCA contractors. Answers to this will be used in a special Centennial hardbound book detailing the history of the American roofing industry, authored by a group of history professors from Loyola University — Chicago. All contractors are urged to return the questionnaire as quickly as possible.

The NRCA MidYear meetings are history. But the activities of the 50 plus committees and 100 plus committee members will long be remembered. Among other things, the new administration of President Burton Karp formally took office. Serving on the Executive Committee with President Karp are: Senior Vice President Wayne Mullis, Phoenix; Vice President John Carruth, Jr., Miami, Robert "Country" Harrison, Greenville, S.C. Michael H. Promen, Broadview, Ill., Michael D. Beldon, San Antonio, Cy Tilsen, Madison, Wis. and John Van Wagoner, McLean, Va. Also serving on the committee is Immediate Former President John Bradford, Billings, Mont.

"Make no little plans. They have no magic to stir men's blood."
Daniel Burnham



INTERNATIONAL PERMALITE, INC.

August 1983

Open Letter to
NRCA Contractor Members

Dear Friends:

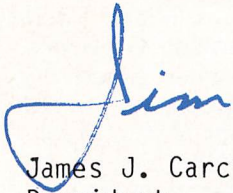
We wish to share some exciting news with you. A brand new company has been formed to produce and market Permalite roofing products. Our name is International Permalite, Inc. We are headquartered at Ontario, California with the National Sales Office at Oak Brook, Illinois.

Think of us as, PERMALITE, the people who will continue to serve you with a complete line of perlite, composite, urethane and isocyanurate insulation products to meet your needs for use with just about any roofing system - BUR or Single Ply. Our unique Metalastic expansion joint cover and Perma-fastner system for mechanical attachment of insulation to metal decks are also available from the new company.

We are new, but we are experienced. Our entire staff and complete manufacturing facilities have moved over from the former owners to International Permalite, Inc. Over 20 years of experience combined with new freedom to manage our own destiny will give you a reliable source of quality product from people who understand your needs.

I am President of International Permalite and like the rest of our team, experienced in this industry. We ask for your support and your business. We intend to earn it. I would like to hear what you have to say about our new company and how we can serve you best. Feel free to drop a note or give me a call anytime.

Sincerely,



James J. Carcich
President

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NATIONAL NEWS

May Construction Sets New Record With Contracts Totaling \$18.9 Billion

Contracting for new construction soared to an all-time high in May, with contracts totaling \$18.9 billion, according to the F.W. Dodge Division of McGraw-Hill Information Systems Company.

The month's newly started construction lifted the seasonally adjusted Dodge Index to a record 148, up 15 percent from April's 129. The previous high of 143 was reached in February 1979, just prior to the era of wildly gyrating interest rates.

"May was one of those months when everything came up pluses for the construction industry," said George A. Christie, vice president and chief economist for F.W. Dodge. "Across-the-board advances in housing, nonresidential building and public works construction got the added support of a \$2.1 billion electric power plant started in Utah.

"While it was the huge utility project that boosted contracting into the record-breaking zone, May would have been a strong month even without this exceptionally large job," Christie said.

McGraw-Hill Information Systems Company, a primary source of data on construction markets, is widely known for its Dodge Reports on Construction activity, Sweet's Catalog Files of building product information, and building cost information systems.

May's biggest project, the \$2.1 billion second unit of Utah's Intermountain power facility, brought total nonbuilding construction contract value to \$5.5 billion for the month. After seasonal adjustment, May contracts for nonbuilding construction — which includes public works and utilities — advanced 31 percent from April's value.

The start of the first section of the

Intermountain complex was reported in December 1982 at \$2.2 billion. Original plans called for a total of four units at a combined cost of well over \$8 billion, but the two remaining units have been cancelled, Christie said.

Nonresidential building turned in a surprising 10 percent seasonally adjusted gain in May, as \$5.2 billion (unadjusted value) of new commercial, industrial, and institutional construction got under way. May's spurt followed a relatively weak April rate of contracting.

"Despite occasional surges of contracting such as May's nonresidential rebound, this building market is currently the construction industry's problem area, and is showing its typical post-recession softness," Christie said. "Sustained recovery of contracting for commercial and industrial building isn't likely before mid-1984."

Commercial and industrial building provided the nonresidential thrust in May, posting double-digit gains in contracting for stores, warehouses, offices, and factories. Institutional building held even with the previous month.

Through five months of 1983, contracting for nonresidential building remained five percent below last year's same period.

Residential building contracts, totaling \$8.2 billion in May, showed a two percent advance from April's value, after seasonal adjustment

"Recurring differences between F.W. Dodge and Commerce Department reports of housing activity in recent months are more a matter of timing than disparity in the volume of building," Christie said. "Both sources show a cumulative improvement so far in 1983 of roughly 70 per-

continued on following page

MONTHLY SUMMARY OF CONSTRUCTION CONTRACT VALUE

Prepared by F.W. Dodge Division

McGraw-Hill Information Systems Company

	May 1983 Construction Contract Value (000,000)	Seasonally Adjusted Percent Change From Previous Month
Nonresidential Building	\$ 5,245.7	+ 10
Residential Building	8,235.2	+ 2
Nonbuilding Construction	5,453.0	+ 31
Total Construction	\$18,933.9	+ 15

	5 Mos. 1983 (000,000)	5 Mos. 1982 (000,000)	Cumulative Percent Change
Nonresidential Building	\$23,578.8	\$24,809.7	- 5
Residential Building	33,683.4	20,352.9	+ 65
Nonbuilding Construction	16,690.9	15,959.0	+ 5
Total Construction	\$73,953.1	\$61,121.6	+ 21

DODGE INDEX

(1977 = 100, SEASONALLY ADJUSTED)

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NATIONAL NEWS

continued

cent over the same months of last year.

"Moreover, both sources report an average rate of housing starts of close to 1.6 million units during the past three months. But unlike the Commerce data, which indicate a volatile housing market in 1983, Dodge statistics reveal a more stable rate of building."

Christie pointed out that the recent stability of Dodge data suggests that "the recovery of housing, which began last summer when mortgage rates broke, hasn't really progressed much in recent months now that rates have begun to level off."

At the end of five months, the value of all new construction started in 1983 was \$74 billion, a gain of 21 percent over the same months of 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. They indicate the amount and direction of future expenditures of this major sector of the economy.

EVT Essential For Proper Application

"Equiviscous temperature (EVT) is as critical to putting down a good built-up roof as the mop, bucket and lugger," according to E.R. Harrington, manager of technology for Trumbull Asphalt.

EVT is the asphalt temperature at the point of application which gives the optimum viscosity.

Viscosity is related to the adhesive

and cohesive properties of materials which effect the performance of the roofing membrane.

Temperature affects viscosity. Harrington explained recently that if the asphalt is too cold, the viscosity increases and the mop will drag. This could lead to over-application and lack of good adhesion.

If the asphalt is too hot, the viscosity drops and the job may be under-applied. Overheating can also damage asphalt and reduce the softening point, forcing it out of specification.

Harrington gave roofing contractors these guidelines:

Insist on EVT and flash point information when buying asphalt, since properties can vary between suppliers.

Make sure foreman and crews understand and use EVT.

Insist that the foremen on every job carries a thermometer and checks EVT at the point of roof application.

"EVT is a critical element in constructing a long lasting built-up system," Harrington said. "The benefits of understanding and using EVT



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will be lower costs, fewer complaints and callbacks and improved performance."

Factory Mutual Updates Its Steel Deck Data Sheets

Factory Mutual (FM) has updated its "Loss Prevention Data Sheets on Insulated Steel Decks" with a significant change regarding fasteners.

The report now states that "approved insulation fasteners are currently the *only* recommended manner of securing insulation to the steel deck."

NRCA Director of Technical Services, Robert LaCrosse, said that the revision is an attempt "to eliminate the many blow-off failures which presently use strip-mopping to adhere to insulation."

The joint MRCA/NRCA Factory Mutual Task group was instrumental in bringing about the change after three years of working with FM representatives.

The revised FM 1-28, May 1983 edition supersedes the June 1980 issue.

NRCA Holds Meeting To Promote New Ties With Affiliates

"Partners in Progress" was the theme for a unique meeting that drew roofing industry leaders from across the United States and Canada to Chicago, June 22.

The National Roofing Contractors Association (NRCA) conducted the first-of-its-kind conference for its affiliate associations in order "to encourage a united effort regarding

continued on following page

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NATIONAL NEWS

continued

roofing concerns," according to NRCA Executive Director William A. Good.

Association presidents and executive staff members from 23 states participated, as did representatives from the Canadian Roofing Contractors Association and the Ontario Industrial Roofing Contractors Association.

NRCA officials presented plans for the 1986 Centennial Celebration which included radio, television and newspaper advertisements, a commemorative book on the history of the American roofing industry and a massive public relations campaign to inform building owners that NRCA members are contractors who can be trusted to do the job right.

The affiliate executives were also asked to promote NRCA educational programs and services on a local, state and regional level. The Accredited Roofing Contractor pro-

gram, Foreman and Superintendent's Conferences, Roofing Systems Conferences and the Speakers Bureau are just a few of the programs offered by the national association.

Also during the all-day session, Good unveiled NRCA's plans for a governmental affairs program designed to make the roofing industry heard in Washington, D.C.

"A new federalism is developing in government," Good said. "Many national issues will now be debated on a state level, therefore it's more important than ever to have a good means of communication."

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RIEI Taps New Board Members

The Roofing Industry Educational Institute (RIEI) Board of Regents recently announced its new board members.

Greg Faherty of Owens-Corning Fiberglas was elected Chairman. Faherty is the vice president and general manager of the Commercial Roofing Division of Owens-Corning. He served as treasurer of RIEI for the past two years and was a director on the board of the Asphalt Roofing Manufacturers Association (ARMA).

John Bradford, president of Bradford Roofing and Insulation Co. of Billings, Mont., was elected vice-chairman of the RIEI board.

Bradford is the immediate past president of the National Roofing Contractors Association.

William Ricketts, vice president of Tamko, Inc., was elected RIEI treasurer.

Slight Rise Expected in Metal Roofing

Metal building system industry leaders are predicting a slight increase in the use of steel for low-rise, nonresidential construction in the second half of 1983.

continued, page 16

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NATIONAL NEWS

continued from page 14

According to the Metal Building Manufacturers Association (MBMA), steel shipments to its 31 members should go up about 7.5 percent to 459,000 tons in the second half of this year compared to the 421,082 tons for the same period in 1982.

The leading category of building orders at the mid-year point was commercial structures, including office buildings, freestanding retail stores, shopping centers and service facilities such as warehouses.

The MBMA survey indicated that the most popular size building order was for structures in the 10,000 sq. ft. to 50,000 sq. ft. range. Structures under 10,000 sq. ft. were the next leading size.

In 1982, building system manufacturers captured 51 percent of the low-rise, nonresidential construction market, based on data exchanged with F.W. Dodge.



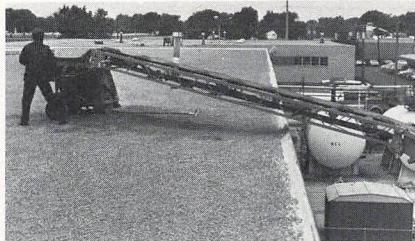
MORGEN Roofers Conveyor pays for itself in less than 6 months!

Beldon Roofing, San Antonio, TX, reports they have been able to reduce labor costs significantly by using Morgen Roofers Conveyors. Mike Beldon says his second conveyor paid for itself in less than six months.

Beldon feels the big dangers in working on roofs are reduced by the conveyor. The 18-foot articulating boom keeps men well away from the edge of the roof.

Since eliminating the hoist, Beldon has seen a significant reduction in back injuries. The work is not as tiring, and therefore workers are not as injury prone. Beldon expects the average length of employment to be lengthened by using the conveyor.

When asked how much gravel the conveyor could put up in an hour, Mike Beldon laughed and said "if we ever opened it up, we couldn't possibly use all the gravel that conveyor could move in one hour."



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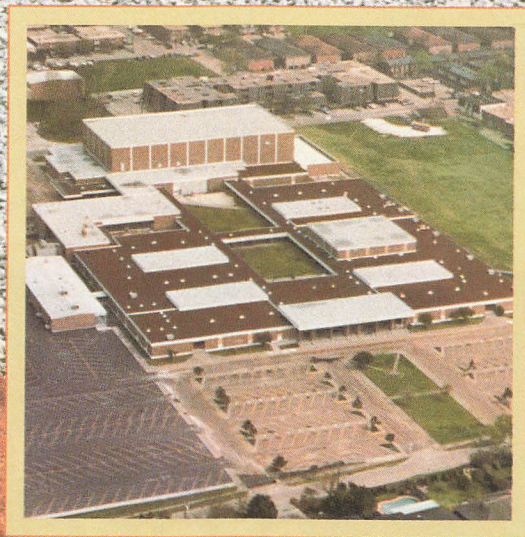
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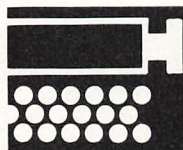
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Memorandum

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Working for a living isn't that bad of a way to make a living. Writers, architects, farmers, salesmen, designated hitters, coal miners, roofing contractors — these are just a few of the ways Americans work for a living.



Michael H. Beightol

The way things are, who you are is pretty wrapped up in what you do for a living. And how you do it. That's just the way it is. But it's always been that way. It just seems to be that much more important now.

It also seems important to remember that for the most part we really only work for ourselves. To earn our money, to pay for ourselves the things we need

and want. The choices for us are many. It's not like this everywhere. And even here in our own country it's not easy. It's hard. Some struggle. Too many are struggling now.

We should always remember that working is necessary for helping to determine our self worth. Not only to ourselves, but to others.

We see each other through what we do. What we do reflects on everybody we meet, and we all want to look good, to be proud of ourselves and what we do.

One of the best ways to express ourselves and our desire to be the best comes out best in our work. And how we do it.

Workmanship. It's a great form of self expression. Our own true worth can be expressed through work. It helps us define ourselves to the people we meet. And to ourselves. We all feel good when we do the job right. And the better we do the job, the better we feel about ourselves. The better we feel about ourselves, the better the job we do, the better the job we do is.

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Associate News

CertainTeed Announces Convention Prize Winners

During the 1983 NRCA Convention in San Antonio, Tex., CertainTeed's exhibit consisted of a key system of awarding prizes.

Four cylinders that resembled Certaglass rolls were located at the booth area. Each tube had a plexiglass dome with a lock on top.

As conventioners walked past the display, they took an envelope, opened it and used the enclosed key to try to open the cylinders.

First prize was an Apple II computer won by E.O. Wood of Fort Worth, Tex; 100 rolls of Certaglass went to Railton Roofing in Dallas, Tex; while gold keys were awarded to George Gaines of Greenville Roofing Co., Greenville, S.C.; A.C. Parsley and Lonnie Parsley, Parsley's Sheet Metal & Roofing, Pampa, Tex; John A. Harvey of Steel Brothers Ltd., Richmond, British Columbia; Joseph Dlubala of Dave Pomaville & Sons, Sterling Heights, Mich; and Bill Boyland of J & B Roofing Corp., Cohoes, N.Y.

New Officer and New Manager for GAF

GAF Corp. elected a new executive vice president and promoted one of its Illinois managers.

Robert H. Beber was elected executive vice president and director, and he will continue to serve as general counsel and corporate secretary.

Beber joined GAF in 1981 as senior vice president, general counsel and corporate secretary. Previously, he was a staff vice president and general attorney for RCA Corp.

David G. Falc was named manager at GAF's Joliet, Ill., building materials plant. He joined GAF in 1979 as a staff engineer and is a member of the American Society of Plant Engineers.

GAF is maker of building materials and specialty chemicals.

Dunlop Opens Ontario Plant

The official opening ceremonies for the Dunlop Construction Products, Inc. new Canadian manufacturing facilities, were held on June 17.

The Ontario plant is located in Huron Park, and industrial park owned and operated by the Ontario Development Corp. The new facility will initially create about 20 new positions, and it is anticipated that this figure will expand to over 70 through 1984.

Dunlop Construction Products, Inc., which manufactures single-ply roofing systems and accessories, is a division of Dunlop Holdings plc, a multinational manufacturing operation primarily concerned with rubber-based products.

Buildex Promotes Five

Buildex, located in Elmhurst, Ill., recently announced five promotions within the company.

David B. Speer was promoted to national marketing and sales manager and will be responsible for all of the company's marketing and sales operations.

James Milkert has been named manager of concrete systems. He was formerly senior distribution manager.

Thomas Sylvester is now the Teks market manager and is responsible for the company's nationwide sales and marketing operations for the Teks Fastener Line.

Craig Hindman assumed the position of Western Regional sales manager. Previously, he was Teks market manager.

James Higgins was selected Midwest sales representative. He was formerly the Eastern sales representative.

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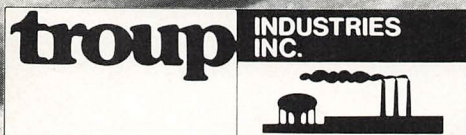


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Affiliate News

Georgia Slate Announced

The 1984 slate of officers for the Roofing & Sheet Metal Contractors Association of Georgia are: President Franklin Still, L.F. Still & Co., Atlanta, Ga; First Vice President L.E. Mitchell, R.L. Sanders Roofing Co., Smyrna, Ga; Second Vice President John Stump, Lowndes Roofing & Sheet Metal Co., Val Dosta, Ga; and Secretary-Treasurer Willie Platt, Augusta Roofing & Metal Works, Augusta, Ga.

In addition, Herbert J. Kizer, Therrel-Kizer Inc., Smyrna, Ga. was named the 1983 recipient of the Association's Boone Noblitt Award. This prestigious honor is bestowed yearly upon the individual who is dedicated to serving the Association and the industry in Georgia.

FRSA Elects, Honors, and Installs Members

New officers were elected, honorary members were installed and an award winner was announced at the 61st Annual Convention of the Florida Roofing, Sheet Metal & Air Conditioning Contractors Association (FRSA).

Don Springer of Springer Peterson Roofing, Lakeland, was selected president of the Association.

Also named as officers at the Convention were: Joe Rutkoski of Giffen Roofing, Tampa, chairman of the board; Frank Jenkins of J.M. Montgomery Roofing, Miami, president-elect; Glenn Warren of Tack & Warren, Clearwater, vice president and Elva Mimbs, Aquaproof Roofing, Bardenton, secretary/treasurer.

Three contractors were installed as Life Members of FRSA, recognized for their years of faithful service to the industry. The members included: Charlie Raymond of Giffen Roofing, Miami; Charles Stephens of Stephens Roofing & Sheet Metal Co., Jacksonville; and Glenn McNabb of Seminole Sheet Metal, Tampa.

Nels Frid of N.E. Frid Sheet Metal, Winter Park and Earl Blank of B & F Supply, Daytona Beach were awarded honorary memberships for their outstanding contributions to the industry.

In addition, Bill Greene of Ferber Sheet Metal Works in Jacksonville, was named the 1983 recipient of the Bob Campanella Memorial Award. The award is given to the individual who contributed the most to the Florida roofing, sheet metal and air conditioning industries during the previous year.

New Officers Elected in Bayou Association

The Louisiana Roofing Contractors Association elected new officers for the 1983 term.

Elected President was Jude Laperouse, Edward J. Laperouse Metal Works, Inc., Houma; Vice-president, Zach Ellis, Z. Ellis Roofing Co., Kenner; Secretary-Treasurer, Bill Johnson, Raintree Roofing and Sheet Metal, New Orleans. Thomas M. "Buck" Lockwood of Baton Rouge is the executive director of the association.

New Executive Director Named For N.Y. Group

The Roofing & Waterproofing Contractors Association of New York announced the appointment of William Rothberg to the executive director position at the association.

Rothberg is also the executive director and counsel for the Sheet Metal and Air Conditioning Contractors Association of New York.



This column was prepared for *Roofing Spec* by the law firm of Summers, Hendrick, Spanos, Phillips & Grant. The column presents information of legal matters of general interest. The text is necessarily generalized, and you are advised to consult with a professional legal advisor before taking any action.

ERISA Protects Benefits of Embezzling Employees

Nicholas Vink was convicted of defrauding his employer, Geveke & Co. International, Inc. He pleaded guilty to having received an illegal \$25,000 kickback and bribe from a customer and supplier and having falsely represented on a bank application that Geveke & Co.'s board of directors had agreed to guarantee repayment of a \$95,000 personal loan sought by Vink. In addition, he allegedly received many thousands of dollars in other kickbacks and embezzled more than \$3,000,000 from his employer. Mr. Vink was sentenced to 14 months imprisonment for his misconduct.

Despite his conviction and prison sentence, the unrepentant Vink submitted to a claim for his vested benefits under his former employer's ERISA-qualified profit sharing plan, which the plan's trustee quite naturally denied. Vink, however, was not to be denied and took his claim for payment of vested profit sharing benefits to federal district court. Incredibly enough, he won! *Vink v. SHV North America Holding Corp.*, 549 F. Supp. 268 (S.D. N.Y. 1982),

"Bad boy" clauses were common before the enactment of ERISA.

In pre-ERISA days, there would have been no question that a company could deny pension or profit sharing benefits to an employee who had defrauded it and embezzled its funds. So-called "Bad boy" clauses, which provided for the forfeiture of pension benefits in the event of employee misconduct, were common provisions in pension plans before the enactment of ERISA. Unfortunately, many of those clauses were extremely broad, denying benefits not only to an employee who cheated the employer or stole trade secrets, but also to a "disloyal employee" who went into competition with the employer after retirement or who simply said bad things about his former employer.

Because of a widespread abuse of "bad boy" for-

feitures, Congress effectively eliminated all forfeiture of qualified plan benefits for misconduct in ERISA. ERISA allows forfeiture of vested benefits only in four specific circumstances, none of which involves employee misconduct. So, for example, an ERISA-qualified plan can be drafted in a manner that it denies payment of vested benefits to the estate or surviving spouse of a

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faithful 30-year employee who dies one day before reaching the plan's retirement age, but the plan cannot withhold the vested benefits of an embezzler who survives to the plan's retirement age.

Supporting ERISA's non-forfeiture provisions are its provisions prohibiting assignment or alienation of benefits. The Internal Revenue Service Regulations issued pursuant to this portion of ERISA state that "benefits provided under the plan may not be . . . assigned . . . alienated or subject to attachment, garnishment, levy, execution, or other legal or equitable process." In the *Vink* case, the Court pointed out that, together, "these provisions prohibit both the voluntary and involuntarily assignment of vested pensions . . . It is unclear," the Court continued, "whether (the former employer) in refusing to make pension payments to Vink has employed a species of forfeiture or of involuntary assignment of Vink's benefits back to the pension fund. Whichever the case may be, ERISA's non-forfeiture and non-assignability provisions clearly cover it." Thus, the non-assignability provisions of ERISA make vested pension benefits, while still in the hands of the plan trustees, virtually judgment-proof. Even if the employer obtains a judgment against an embezzler, it can-

not enforce that judgment by attachment or garnishment of the embezzler's vested benefits in the hands of the plan trustees.

The employer in the *Vink* case argued that public policy should imply a fraud exception to the non-forfeiture rules, just as courts have previously determined that public policy implies an exception to the non-forfeiture and non-assignability rules for the purpose of allowing divorced and separated spouses of a plan participant to enforce support judgments against

Pension benefits of dishonest employees are to be protected even if means that faithful employees will suffer.

vested plan benefits in the hands of the plan trustees. The Court in *Vink* did not deny the merit of the employer's argument, but rejected it because "there is an unambiguous declaration of intent by Congress to prevent the enforcement of 'bad boy' clauses." The Court commented that if ever there were a case to carve out a fraud exception to the non-forfeiture rules, *Vink* would seem to be it. Not only did the embezzler cheat his employer, his actions, by reducing overall company profits, also subtracted from the amounts the employer's faithful employees would receive from the company's profit sharing plan. Thus, the dishonest employee, whose benefits are nonforfeitable, causes constructive forfeitures of part of the benefits of the honest employees. The Court found this "most dismaying" but repeated that Congress has made the law clear — pension benefits of dishonest employees are to be protected even if it means that faithful employees will suffer as a result!

Unless and until the non-forfeiture provisions of ERISA are changed to deal with cases such as *Vink*, employers may consider another course of action to prevent an embezzling employee's receipt of vested plan benefits. Employers should consider amending their qualified plans to provide: (1) that benefits will be paid in a lump sum or as an annuity, *at the option of the employer*; and, (2) that benefits will be paid or will commence upon separation from service or at normal retirement age except that, if the employee is involved in litigation with the employer, distribution will be delayed until the lawsuit is settled. When the embezzling employee is fired, the company can simultaneously commence a civil action against him for the amount he stole. His claim for pension benefits can be honored with a lump sum payment *after* the company obtains a judgment in its lawsuit. Then, as soon thereafter as possible, the company can have the judgment enforced and recover the lump sum payment.

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Opinions Vary Regarding Current Pricing On Roofing Materials

by Martin Eastman

Chances are you've heard all the wild rumors, stab-in-the-dark predictions and educated guesses concerning the cost and availability of roofing materials for the rest of 1983.

If so, you've probably discovered that nearly everyone had the same, sad story to tell — rising prices and short supplies.

That was the word from manufacturer's reps such as Mike Mitchell of Trumbull Asphalt who told an audience at a Chicago trade exposition, "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."

That was also the message of trade publications such as *Architectural Record* who warned readers, "...any construction volume increase will result in a 'material lag' due to low supplier stock."

But what's the truth behind these reports? With the year half over have prices increased? Are there shortages?

Perhaps the most knowledgeable answer would be — it all depends.

Primarily, it all depends on what segment of the roofing industry you're talking about. Built-up roofing, single-ply roofing and insulation don't necessarily follow the same trends. And while the law of supply and demand functions for each segment, all are subject to different degrees of demand and different levels of inventory.

Ups and Downs

It also depends on who you talk to. Take built-up roofing manufacturers for instance. They claim the cost of asphalt and felts will be about five to 15 percent higher than it was at the beginning of the year.

Roofing supply wholesalers, on the other hand, say that roofing prices haven't gone up and in some cases have dropped since the beginning of the year.

The wholesalers don't see demand improving enough for price increases later in the year either. "If they get anything they get a quarter — fifty cents, they don't get dollars," one supplier said.

Manville is one of those manufacturers which says it has raised its built-up roofing prices. "We had a price increase the first of March, another one the first of June," said Al Sowers, market manager for built-up roofing.

The total price increase for Manville's products since the first of the year has been around 14 percent, according to Sowers.

The feeling among manufacturers is that a price in-

crease in built-up roofing is long overdue. "The profit margin in marketing roofing materials has not been what you would call an acceptable return," Sowers said.

Competition Is Stiff

The problem has been that while manufacturer's costs have continued to rise, falling demand and stiff competition have prevented the manufacturers from raising the prices of their finished products.

Because of these pressures from the marketplace, built-up roofing prices have see-sawed for the last several years. Most companies have repeatedly put through price increases that had to be cancelled later.

Sowers blamed this situation on "competitors moves." Dennis McGowan, national sales manager of Evans Products Permaglas Division was more specific. "It's a matter of everyone being afraid to raise prices for fear of losing five or 10 rolls," he said.

According to McGowan, when one manufacturer would raise its prices most of the others would follow. Each time, however, at least one manufacturer would "play the spoiler" and not go along with the price increase. The rest of the manufacturers, afraid of losing business to the lower priced competitor would be forced to lower their own prices.

Manufacturers Optimistic

That shouldn't happen this year, manufacturers believe, despite the wholesalers' pessimism. With a stronger economy and a construction industry back on its feet, manufacturers are optimistic they can make this round of price increases stick.

"What we're seeing right now is an improved demand situation coupled with a supply situation that may be a little tight," said Ack Blocher, vice president of marketing for CertainTeed Corporation's Shelter Materials Group.

While increased demand is good news for the manufacturers, it may trigger the material shortages that have been predicted.

Almost all built-up roofing manufacturers reduced production last year. Some companies closed plants completely. While the construction industry slumped, inventories were cut back to the minimum.

Some companies, anticipating demand, have stepped up production again. "We've brought back a lot of crews," Blocher said.

continued on following page

Prices

continued

Others, like Genstar/Flintkote who close plants seasonally, opened those plants earlier this year.

But manufacturers are wary of increasing production too much. With the construction industry's recovery still uncertain no one wants to be caught overstocked at the end of the roofing season. "We have a leaner operating inventory than past years," Genstar/Flintkote's Hughes said.

In addition, manufacturers have closed some of their plants permanently and are waiting for demand to materialize to re-open others. Because of this, some manufacturers warned that lower stocks may lead to spot shortages during the peak roofing months.

To complicate the supply situation, built-up roofing must share its raw materials with residential roofing. Manville's Sowers expressed concern that the increase in demand for residential roofing would make raw material for built-up roofing scarce. "There's only a limited supply of polyester mat," he said.

These are the average figures for roofing supply prices between January and June of 1983.

Felts	down 4%
Asphalt	down 3%
EPDM	down 7.6%
PVC	no change
Mod. Bit.	no change

Information was obtained from suppliers and contractors around the country.

Despite these warnings, manufacturers, on the whole, seemed reasonably certain of having sufficient inventories to make it through the busy season without major shortages.

For single-ply EPDM roofing, on the other hand, market conditions are quite different. There, a glut of manufacturers and products has produced a situation that will continue to keep supplies plentiful and prices falling.

A representative of one major EPDM manufacturer, who asked not to be identified, said discounting the price of single-ply from the list price is an "expected phenomenon." He did admit, however, that discount levels were far greater than ever before.

He said EPDM prices will continue to drop slowly during 1983. Slack demand and an overabundance of manufacturers will keep prices down for the next two or three years, he said.

In addition, he attributes falling prices to a maturing single-ply technology. He compared the single-ply industry to the computer industry which lowered its prices

by finding faster and cheaper ways of mass-producing computers.

"EPDM manufacturers have not achieved the production cost efficiency they will achieve," he said.

A Black Eye?

Charles Taft, vice president of roofing, Plymouth Rubber Co., sees a danger in the overcompetitive nature of the single-ply industry. "I believe the industry and single-ply in general is getting a black eye because of the lack of stability in pricing."

Nearly all of the single-ply manufacturers are losing money because of the discounted prices, Taft said. "So many times you're bumped out because you can't meet the price."

Plymouth Rubber is increasing its sales each year, Taft said. He firmly believes that single-ply will once again become a sellers market.

Taft is hoping rising demand will bring stability to single-ply pricing. When that happens he believes a roofing contractor will consider a company's service record as well as its price when choosing a product. "The customer's going to return to his friends," he said.

EPDM prices won't stabilize in the near future, though, according to Taft. He sees prices continuing the downward trend that has already made a 10,000-square-foot roof 20 to 25 percent less expensive today than it was in 1980.

In comparison, PVC and modified bitumen prices are quite stable. Prices will probably stay at their January level throughout the entire year. In some markets, EPDM is now priced below PVC even though the raw materials for PVC are less expensive, according to contractor Andrew Adler, chairman of NRCA's PVC Tolerance Development Task Force.

Overcapacity by manufacturers will probably keep plastic insulation prices dormant this year as well. Doug Senecal, national roofing products sales manager for Dow Chemical, said he doesn't expect a monstrous increase or decrease in the cost of polyurethane or isocyanurate insulation.

In general then, the price increases and tight inventories that were predicted seem to be confined to built-up roofing. The key factor is demand.

"We're bullish on BUR," Sowers said of Manville's marketing efforts. The company is counting on built-up roofing to make a mild comeback. The trend toward single-ply roofing is tapering off, according to Sowers, and that should make it possible for Manville to begin to project the future demand for built-up roofing.

Of course, the built-up roofing manufacturers are happy to see a market that can once again sustain price increases. Contractors' opinions of the higher prices may not be so positive, however.

For Joe Kong, chief estimator for Abbot-Sommer, Inc., N.Y., the higher prices will be no problem. Kong feels the increase in built-up roofing prices, when compared to the increases in other products, is insignificant.

Tom Lindholm, owner of Keeffer Roofing, Chicago, on the other hand, is not happy with the six to eight percent price increase he is expecting. "It seems out of line because business is not good," he said. "I'm hoping for the best, but planning for the worst."



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InfraRed Scanning Seminar
The Infraspection Institute
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August 25-28

New York State S/M Roofing &
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27th Annual Meeting
Lake Placid, N.Y.

September 18-23

National Association of
Women in Construction
28th Annual Convention
Kansas City, Mo.

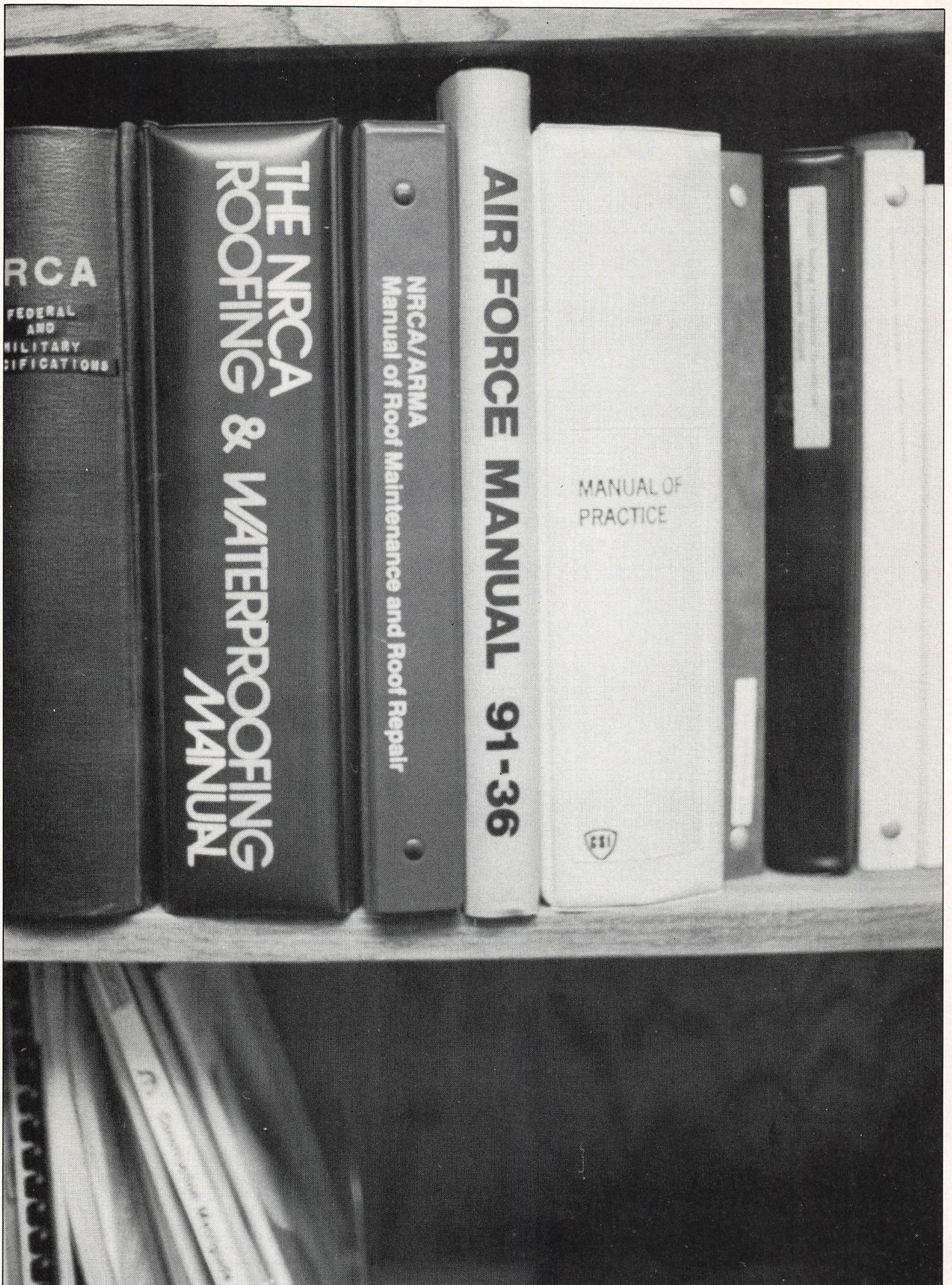
September 20-21

RIEI
Elasto/Plastic Sheet Applied
Roofing Systems
Seminar #103
Denver, Colo.

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RIEI
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(For inclusion of events, address
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Technical Report

An Update on Air Force Manual (AFM) 91-36

by Richard Baxter, Chairman
NRCA Task Force on Air Force Manual Revisions

For about the last one and one-half years, a task force from the National Roofing Contractors Association has been working with Construction Consultants, Inc. (CCI) to obtain what NRCA feels are necessary revisions to the Air Force Manual governing specification and installation of roofing systems on Air Force projects. CCI was generally helpful and receptive to the NRCA Task Force suggestions regarding the specification (Chapter 5) section of AFM 91-36. They and Lincoln Laboratories were also willing to share information collected during sample analysis to substantiate the requirements they established for the application tolerances (Chapter 6) section of AFM 91-36.

There were some decisions, however, that CCI felt must be made by representatives of the U.S. Air Force. At that point, a direct liaison meeting between representatives of NRCA and the U.S. Air Force was set. Most of the minor agreed-upon specification changes had been conveyed to the Air Force by CCI for their consideration by the time of the liaison meeting.

For a number of years prior to this liaison meeting, the United States Government had been concerned about premature failures of roofing assemblies installed under

The master specification contained in AFM 91-36 was intended to accommodate 90 percent of all Air Force roofing situations.

contracts for both new and reroof assemblies. In 1976, the U.S. Air Force, specifically the Strategic Air Command Sector, found that roof costs were excessive and that development of better criteria for installation of roofing assemblies was needed to provide the Air Force with lower life cycle cost roofing systems. The U.S. Air Force contracted with Construction Consultants, Inc. to analyze requirements for roofs on Air Force facilities. The ultimate goal was to develop an "in-house" document to include guidelines for owner-related maintenance, assessment of roof condition, criteria for repairs, a master specification for reroofing, and tolerances to which these assemblies should be installed.

The final document became AFM 91-36. Chapter 5 (specification development) and Chapter 6 (application tolerances) are the two portions of AFM 91-36 which directly affect roofing contractors. The balance of AFM 91-36 was intended for "in-house" use in assessing the condition of existing roofs and establishing methods of maintaining those roofs. After three years of development and testing within the Strategic Air Command, the concept and master specification was accepted by the U.S. Air Force and the first edition of AFM 91-36 was published 3 September, 1980.

The master specification contained in AFM 91-36 was intended to accommodate 90 percent of all Air Force roofing situations. Material selection was limited to products which would match the experience level at most Air Force bases. The Air Force believed that limiting the selection of generic types of roofing materials also eased the workload in evaluating the effects of using AFM 91-36 procedures. Application methods were strictly documented in an effort to create a finite condition for evaluation. The Air Force has been monitoring the roofing systems which were installed under the guidelines of AFM 91-36. There have been a number of misunderstandings and disputes between Air Force contracting officers and roofing contractors caused, primarily, by the general lack of understanding of the new methods, procedures and requirements.

The Air Force believes that the evaluations have indicated that roofing assemblies can be constructed in accordance with the specification criteria and tolerances currently set forth in AFM 91-36. Personnel at Headquarters, Air Force Engineering and Services Center, are generally pleased with the results of the evaluation phase of their roofing program. They have now indicated a willingness to expand and change technical provisions slowly so that proven alternative systems and methods of application may be evaluated in the same manner in which the previous roof construction criteria were evaluated.

The NRCA Task Force has approached the task of providing input to AFM 91-36 in two distinct phases; (1) by proposing revisions to AFM 91-36, Chapter 5 (specifications/contract conditions), and (2) by verification of tolerance criteria set forth in AFM 91-36, Chapter 6.

Major concerns expressed by the NRCA Task Force relative to specifications and contract conditions primarily revolve around field evaluation methods (test

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Air Force Manual

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guidelines), limited acceptance of roofing materials, the concept of the "quality controller," and inclusion of application tolerances in the bid documents. Each of these concerns was directed to Air Force personnel responsible for implementation of AFM 91-36 during the recent liaison meeting. Air Force personnel expressed a willingness to implement reasonable suggested changes to AFM 91-36 in all areas of concern.

The NRCA Task Force proposed to the Air Force the following changes to the specification/contract requirements:

□ That the use of materials be expanded to include other roofing materials and that the exclusive use of coal-tar bitumen on low sloped roofs be amended to include low-softening point asphalt (Type I).

□ That criteria be developed for field analysis of the roofing membrane during the time of construction to permit the roofing contractor to know whether he meets the required application tolerances for a given roof area without awaiting results of laboratory analysis on cuts from completed roof assemblies.

□ That the quality controller not be an employee of the roofing contractor, but be provided either by the roofing contractor or the U.S. Air Force from an independent inspection service.

□ That the Equiviscous Temperature (EVT) concept be adopted by the Air Force for the application of asphalt built-up roofing assemblies.

□ That various specification requirements (including application of surfacing aggregate each day, double pouring of aggregate and thickness requirements for bituminous materials) be amended by specifiers' notes to allow "judgement calls" by local Air Force engineers/contracting officers to better consider site conditions under which the roofing system is installed.

The Air Force response was positive; they challenged the NRCA Task Force to provide input for acceptable field quality control procedures along with the means of evaluating each roof area in the same day during the time of construction. They generally accepted the Equiviscous Temperature concept as being valid for application of asphalt roofing assemblies and have made changes to AFM 91-36 to include EVT.

Other specification changes that may be made will be implemented or amended by Air Force Interim Message Changes to AFM 91-36 which are sent to administrative offices and base engineers.

The NRCA Task Force requested that all bid documents include tolerance criteria defined in Chapter 6 of AFM 91-36. This way contractors bidding the work can be formally apprised of the criteria by which they will be judged during the process of roof application. This inclusion would allow each roofing contractor to decide whether he agreed to accept the criteria for application prior to submission of a bid on Air Force work.

With regard to the tolerance criteria set forth in Chapter 6 of AFM 91-36: The National Roofing Contractors

Association has embarked upon a significant evaluation program of built-up roofing application tolerances to include field and laboratory testing of all application criteria considered to be significant to obtaining good results with built-up roofing assemblies. The testing results are being compiled as rapidly as possible for final evaluation. Once the evaluation of the test results has been concluded, Air Force personnel have agreed to evaluate NRCA input and consider changes to the established tolerance criteria.

At the present time, members of the NRCA Task Force assigned to this project feel that some of the current Air Force tolerance criteria may be unnecessarily "too tight" while others are "too loose" for acceptable performance of some built-up roof assemblies. We anticipate that most of the testing will be completed by mid-1983. Once conclusive results are available, the information will be reviewed for inclusion into the tolerance criteria.

Several NRCA members have reported problems on Air Force projects arising from usage of the AFM 91-36. Although NRCA cannot serve as an intermediary in disputes between a contractor and the Department of the Air Force, Air Force officials have indicated that they want to work on problems with contractors in a cooperative manner. NRCA members with a problem on an Air Force project can contact the NRCA Technical Services Department for referral to appropriate Air Force personnel.

The Air Force Manual Task Force is presently proceeding to complete its input of specification requirements requested by the U.S. Air Force.

The Air Force Manual Task Force is presently proceeding to complete its input of specification requirements requested by the U.S. Air Force. We anticipate that this information can be compiled, edited and forwarded to the Air Force very shortly. Revisions to AFM 91-36 will be slow given the procedure by which changes are implemented. AFM 91-36 is scheduled for revised publication in early 1984. We anticipate that many of the NRCA Task Force recommendations will be included in that revision. In the meantime, changes in procedures outlined in AFM 91-36 must be made via Interim Message Changes initiated by the Air Force Engineering and Services Center. This invariably will mean that someone in the chain of command may have missed or overlooked some of these changes.

Copies of AFM 91-36 are available from the U.S. Government Printing Office. Contractors contemplating bidding U.S. Air Force projects should obtain a copy of the document and be familiar with present application and other contract requirements prior to submission of bids.



Manufacturer Profile

Elco Tightens The Assembly For Roofing Craftsmen

by Martin Eastman

Consider the roofing fastener. It's not an exotic item. In fact, it's a rather pedestrian piece of roofing hardware; usually just a long, self-drilling screw and a stress plate.

But to the people at Elco Industries, Inc., makers of the Tapdek Fastening System, the common roofing fastener is the foundation on which a quiet little roofing revolution is being built.

"The roofing industry is looking at itself," said George Page, sales manager for Elco's construction group.

This self-examination is leading to



a revolution that is changing the way the industry practices its craft, Page said. "People are worried about the quality of roofing and accountability," he said.

At the forefront of the quest for quality is the ordinary roofing fastener.

A roofing system mechanically fastened to the deck is stronger and more reliable than one attached with hot or cold adhesives, according to Page. It is especially well protected from damage caused by wind uplift.

"Mechanical fastening is a very predictable type of fastening. That's the general opinion out there," Page said.

Page is seeing more and more contractors mechanically fasten the first layer of board type insulation to metal decks. A joint NRCA/MRCA Factory Mutual Task Force has endorsed this practice and Factory Mutual will begin requiring it for roofing systems in its 1984 Approval

Guide.

This trend toward mechanical fastening has led to a boom in roofing fasteners. "In '81 we estimated that if all insulation was put down with fasteners it would be a 500 million piece market," Page said.

Elco jumped into this growing market only recently. After Factory Mutual announced its policy requiring mechanical fastening "we saw the writing on the wall," Page explained.

The company's Tapdeck system was introduced last November. The system is designed to fasten a wide variety of insulation thicknesses to wood or 18-22 gauge metal decks for built-up roofing.

Although the roofing fastener is a newcomer to Elco's line, it has 60 years of experience and expertise in the fastener industry backing it up.

Elco was founded in 1922. Its headquarters are in Rockford, Ill., the "Fastener Capital of the World,"

according to local boasts. Because of the city's once active furniture industry and its proximity to the auto industry, both of which used fasteners extensively, it has become home to several fastener manufacturers.

Elco's specialty since its founding has been cold-heading — a method of forming metal at room temperature. Cold-headed parts are formed by punches pounding metal wire into variously shaped dies. According to company literature, cold-headed parts are inherently stronger than machined parts and can be produced with virtually no scrap.

The company first used this process to fabricate fasteners for the auto and furniture industries. It expanded into other areas by making parts to order for specific industrial applications.

The ability to respond to specific industrial demands is the key to Elco's survival in tough economic

times. Original equipment manufacturers frequently turn to Elco for faster and more efficiently manufactured parts.

Today, Elco supplies specialty fasteners and precision engineered metal components to a variety of industries. At its five plants it forms parts for anything from construction to medical applications.

Elco was already marketing several metal building fasteners including a roof deck fastener before it introduced its Tapdek system. It had also developed the Tapcon masonry

The company is hoping the roofing market will respond to its well-known reputation as a quality manufacturer.

fastening system which could be used to attach roofing to a concrete deck.

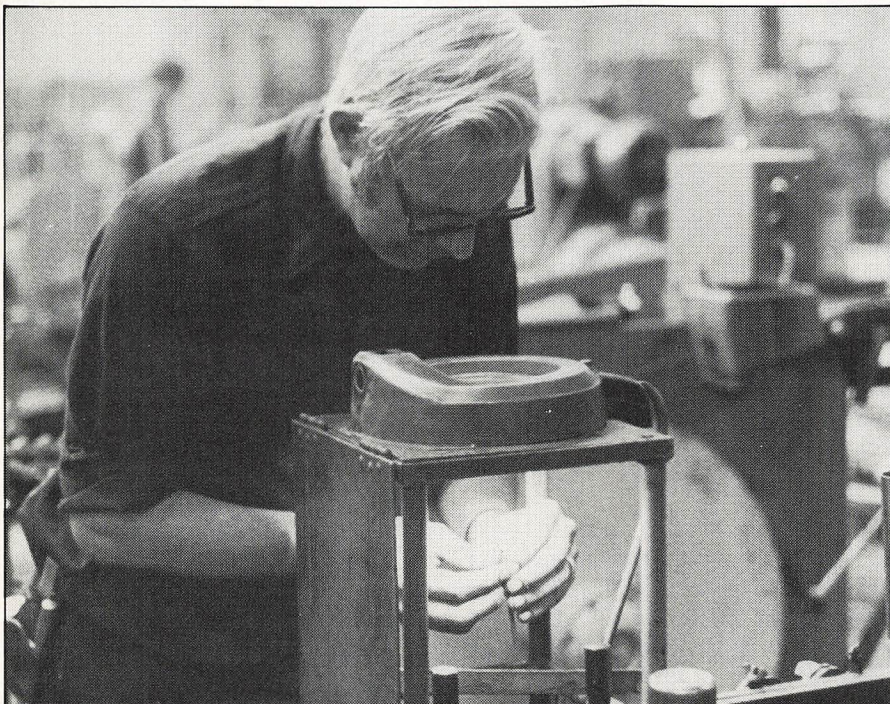
From masonry and metal deck fasteners it was a "natural evolution to get involved with the fabrication of fasteners for BUR and single-ply," Page said.

Much of the inspiration for Elco's move into roofing came from Rockford contractor and NRCA member Kurt Carlson.

"I was not too happy, especially in the late '70s with the fasteners we were using," Carlson said. Two fastener problems he was hoping Elco could avoid were rusting and shearing, sins he had seen other fasteners commit time after time.

To Carlson, fastener corrosion was

continued on following page



Elco's Levyrn Tennison inspects a cold-headed fastener to determine proper machine adjustment.

“If all insulation was put down with fasteners it would be a 500 million piece market.”

an obvious problem. “We saw them rusting even before we finished the job,” he said of the fasteners his company had been using. The rusting fasteners looked to Carlson as if they would be incapable of withstanding the years of weather and wear a roof normally goes through.

Other installation problems Carlson observed were caused by fasteners which would break off as they were being screwed down to the deck. These weak and brittle fasteners would also cause roof damage and failure when they sheared off in high winds.

Carlson’s growing frustration with fastener failures led him to seek Elco’s involvement in producing a reliable roofing fastener system.

He chose Elco because of its reputation as a leader among the Rockford area fastener companies. He believed that “if they ever picked up a roof fastener it would be a great thing for our



Tapdek blanks, with heads formed, drop into a point-forming machine.



Ken Carlson, vice-president of engineering (left) and George Page, sales manager, construction group.

industry.”

Executives at Elco agreed with Carlson that a better roofing fastener could be designed. They began a careful and methodic development program to solve the problems that were plaguing other fasteners.

Among the first problems to be addressed were the two Carlson had observed. Elco engineers discovered

that both problems could be solved with a better plating process.

The old plating process used to keep fasteners from rusting was not compatible with the hardening process used to make fasteners tough enough for self-drilling. The plating process was causing “hydrogen embrittlement,” Page explained.

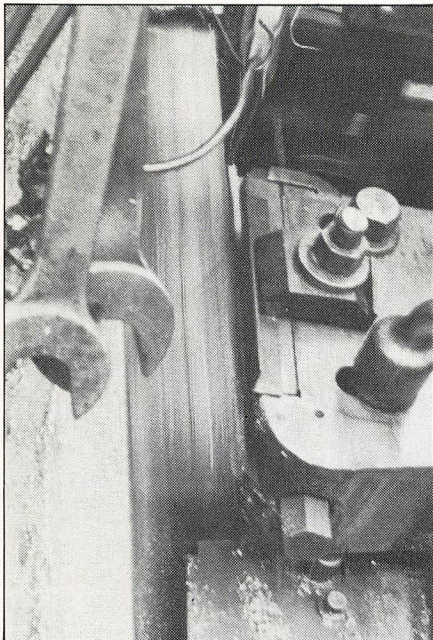
As a response to this problem, Elco

developed its proprietary Stalgard® plating process. The new process not only eliminates embrittlement but provides superior corrosion resistance as well, Page claims.

“Mechanical fastening is a very predictable type of fastening.”

But embrittlement and corrosion resistance weren't the only things Tapdek's designers considered. "The thickness of the insulation was a big factor," said Ken Carlson, Elco's vice president of engineering. The longer screws needed for thicker insulations are harder to make. Elco's engineers had to make sure their manufacturing process could deliver consistent quality.

Other factors mentioned by Carlson which influenced the fastener's design were ease of installation, which made a self-drilling point necessary, and "the thread configuration to get maximum holding in both light guage steel and wood."



In a blur of speed, a moving die forms threads on a Tapdek fastener.

One after another the requirements for a quality roofing fastener piled up. The task of designing the Tapdek system "looked simple but it expanded and expanded," Carlson said.

The job was difficult but not impossible and a fastener was finally designed to meet all of Elco's

rigorous criteria.

Now, with machines at the Rockford plant tooled to the design's criteria, Elco is turning metal wire and galvanized sheet steel into a finished fastener system.

The metal wire is approximately

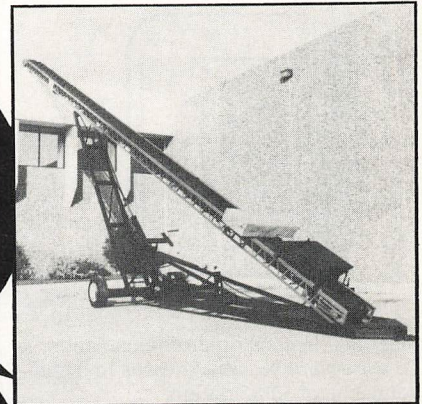
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**CLEARFIELD'S
BIG**

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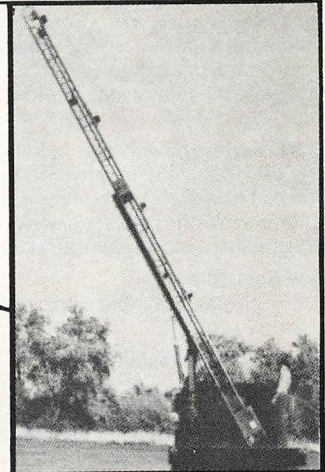
HSDU

18 H.P. ENGINE
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H-I-H

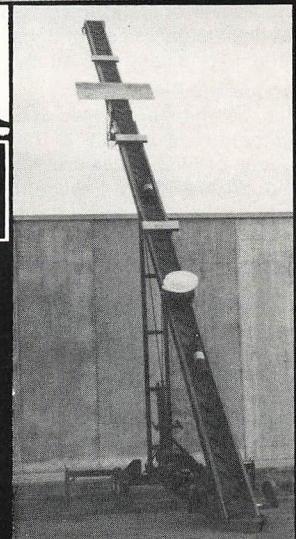
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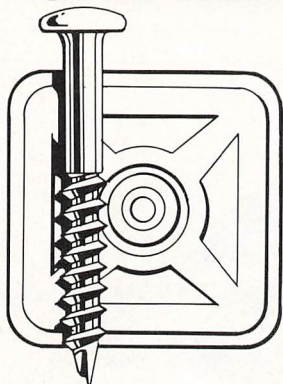


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Elco

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the same diameter as the finished screw. It's cut to length and placed into one machine where, with two blows, the Phillips head is formed.

From there the blank goes to a second machine which forms the self-drilling point.

Finally, in a third machine, the blank is squeezed between two metal blocks which have diagonal grooves cut into them. One block moves at high speed across the face of the other. As the moving block passes the stationary block, the finished screw drops out with deep threads impressed into it. From there the fastener is hardened, plated and packaged.

The stress plates are stamped out of galvanized sheet metal by other machines at the Rockford plant. They are then packed with the screws and the whole system is shipped out to distributors.

The Tapdek system is marketed under the Elco name. The company is hoping the roofing market will respond to its well-known reputation as a quality manufacturer.

"There are only two people who manufacture and market their own product. It's important to have the name on the box," Page said.

The company is committed to moving into the roofing market in a big way. At the moment, the Tapdek system accounts for only five percent of the Elco's roofing and construc-

tion fastener sales in terms of pieces. Market projections, however, show the roofing fastener going up to about 45 percent of that mix.

As it becomes more involved with roofing, Elco will be developing new systems as well as refining its present systems.

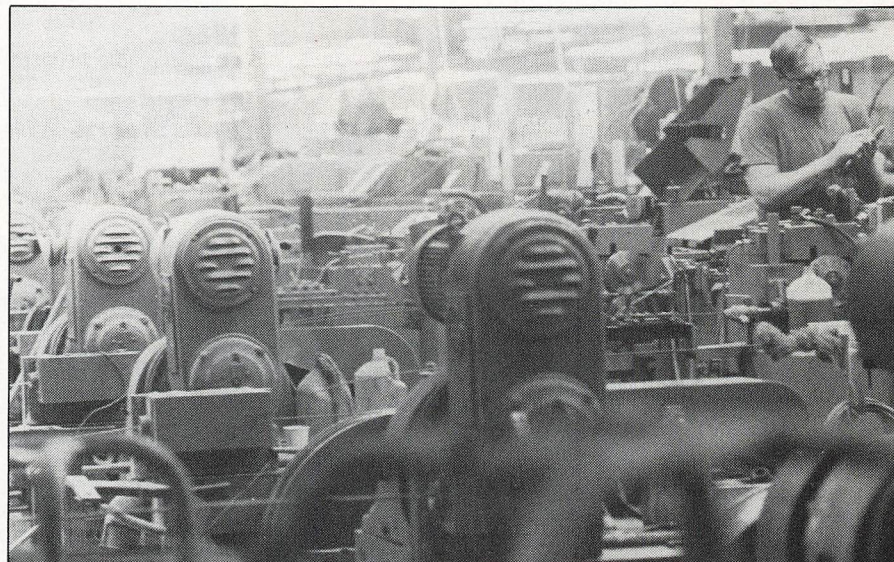
Elco's specialty since its founding has been cold heading.

Company representatives constantly check for problems in the field that changes in their products might help.

"The company image is to get out first hand and see what's needed," said Bill Reinwall, product development manager.

All of this means that Elco's products will be constantly improved to meet the demands of the industry. "Things are taking place in steps. It's just a constant evolutionary process," Page said.

Elco is banking on that quality revolution in the roofing industry to keep it in business. Company officials expressed confidence that contractors will soon see Elco as a prime supplier of the reliable, quality roofing components the industry is beginning to demand.



A row of open-die headers surround an Elco machine operator.

The goal of the National Roofing Foundation (NRF) is to increase the professionalism of the roofing industry through education.

As a result of this objective, the Foundation has established a program designed to reach a new generation of contractors in the construction trades early in their college education.

Don Brotherson, research professor of architecture at the University of Illinois, Champaign-Urbana, prepared the course, "Introduction to Commercial and Industrial Roofing Technology," from a NRF grant.

The NRF course is intended to educate undergraduate architectural, engineering and design students in the basic theories, practices, materials and standards of built-up roofing.

"A percentage of these students will become roofing contractors, a profession for which very few preparatory programs exist," said Patricia Appelhans, NRCA director of membership services.

"Roofing Technology" consists of eight, 50-minute lectures with approximately 50 slides per lecture. The material can be presented by itself or in conjunction with other related material.

All instructors are required to attend a seminar sponsored by the Roofing Industry Educational Institute (RIEI) paid for by NRF.

RIEI is a non-profit, educational institution which conducts a series of intensive roofing seminars.

"The Foundation's Trustees feel that the concentrated RIEI seminars will provide instructors with a comprehensive base of information on roofing that will prove valuable in their presentation of the 'Roofing Technology' course," Appelhans said.

When a university purchases the NRF course, it also receives the services of a NRF Trustee and NRCA contractor located in the area.

Four universities have purchased the course materials with a fifth pending department approval. Many colleges have asked for information on the program.

One of the universities offered the program to its students during the spring semester.

"It's an excellent program," said Harold W. Conner, associate professor of Construction Science at the University of Oklahoma, Norman, Okla.

"We're proud to be the first university to use the program," he said.

The "Roofing Technology" course was offered through the College of Environmental Design during the 1983 spring semester as a two-credit course under Conner's direction.

Twenty-six construction science, architecture and engineering students enrolled in the class. The average age

Foundation Roofing Course Educates Future Designers

by Connie Arkus

of students was 24 and most were experienced in construction, having worked in the field during the summer.

Conner presented sessions on the NRF slide/lecture series with additional information on steep roofing, inspection, maintenance, repair and material from the RIEI seminar.

The students were assigned reading homework from *Roofing Concepts/Principles: A Practical Approach to Roofing* by Paul Tente, and the *NRCA/ARMA Manual of Roof Maintenance & Repair*.

Conner also organized field trips and made arrangements for guest lecturers.

During three of the field trips, students observed re-roofing projects, a sheet metal operation and joined the campus physical plant superintendent to look at several new and re-roofing projects using a foam system.

The class also had the opportunity to analyze "phased" construction.

"It (phased construction) was the best example of all the bad things that could happen to a roof," Conner said.

He explained that in phased construction, only part of the roofing procedure is completed at one time. The entire project is finished at a later date, leaving the felt plies exposed to the elements.

"Dust, dirt and moisture collect and additional plies don't adhere," Conner said. The trip showed students how *not* to roof a building.

When a university purchases the NRF course, it also receives the services of a NRF Trustee and NRCA contractor located in the area.

NRF Trustee Ray Johnson of Empire Roofing & Insulation Co., Tulsa, Okla. and NRCA contractor Max Pope of Southwestern Roofing & Sheet Metal Co., Oklahoma City, Okla. provided professional guidance for the roofing technology course taught at the University of Oklahoma.

"Ray, Max and all of the NRCA staff have been very

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Foundation

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supportive and responded quickly to my questions," Conner said.

Both Johnson and Pope were guest lecturers at Conner's class.

"Ray Johnson was a terrific speaker," Conner said. "He discussed material not found in books — research being conducted now, testing devices currently available and new products and their limitations."

Johnson, too, enjoyed meeting the students.

"We ran over the allotted class time and several students stayed after that to ask more questions," Johnson said.

Pope also was happy to participate.

"The students asked a lot of questions, in particular on reroofing," Pope said. "Many asked questions that pertained to their summer work experience on construction projects."

Pope invited the class to the sites of several Southwest roofing projects.

At one location, a service center was being reroofed. At the site, Pope explained the reroofing procedure to the students.

At a new bank project, southwest foreman Bob Seitsinger explained the complexities of the standing seam metal roof.

The "Roofing Technology" course consists of eight, 50-minute lectures with approximately 50 slides.

"Bob explained how the standing seam metal roof system was installed, the equipment used, the skills needed to install the system, and its growth in the past 25 years," Conner said.

Students took two exams during the semester.

"I believe that tests should be a learning experience," Conner said. "So, I asked the students to provide me with questions they thought were important concerning the material covered in the course." He used these questions for the tests.

The professor also has another plan for the "Roofing Technology" course.

"By popular demand, I will present a short version of the class for the architectural faculty," Conner said.

Although the professor's hectic class schedule does not permit him to hold the "Roofing Technology" class this fall, the course will be offered in the spring of 1984.

Students who wish to enroll in the session before 1984 are fortunate that another university is nearby.

Oklahoma State University, Oklahoma City, Okla. will hold summer and fall sessions on the "Roofing Technology" course.

Under the direction of Construction Science Instructor Donna Kropfing, the format of the course will be

similar to the University of Oklahoma.

The class will also be two credits, and Kropfing will use the NRF course materials, information from RIEI, field trips and guest speakers.

Kropfing said enthusiasm for the class is high.

"We've received a big response from students," she said. "We're trying to limit the class to 20."

At Texas Tech, in Lubbock, Tex., professor of architecture Carl Childers will present the course in Fall.

Initially the "Roofing Technology" course will be worth one credit with eight lectures and guest speakers presented to the class.

"It's important for related construction fields to have a general understanding of roofing."

In the future, Childers sees the course expanding to two credits, including field trips to roofing construction sites.

The University of Nebraska, Lincoln, Neb., also purchased the course materials. Assistant Professor Eugene Wright said the course will fall under the department of Construction Management.

"We would like to join forces with the architectural college and offer the course together," Wright said.

He said the course may also be presented in the continuing education curriculum for engineering professionals.

Why the interest in a course on roofing?

"Architecture and construction science departments often don't teach anything about roofing," Johnson said. "Very few are interested in roofing until there is a problem."

With the "Roofing Technology" course, students are acquainted with the basics, he explained.

"Very few preparatory programs exist for roofing contractors."

Pope agrees. "It's important for related construction fields to have a general understanding of roofing," he said.

At a recent Association of General Contractors (AGC) convention in Atlanta, Conner heard this comment from one of the speakers:

"Roofs cost between three to eight percent of the total building cost and generate up to 70 percent of the lawsuits from leaking and defects."

Conner uses these statistics in his class to emphasize a point: "Because of this imbalance, there is a great need for roofing information."

The National Roofing Foundation course on Roofing Technology is a good start.



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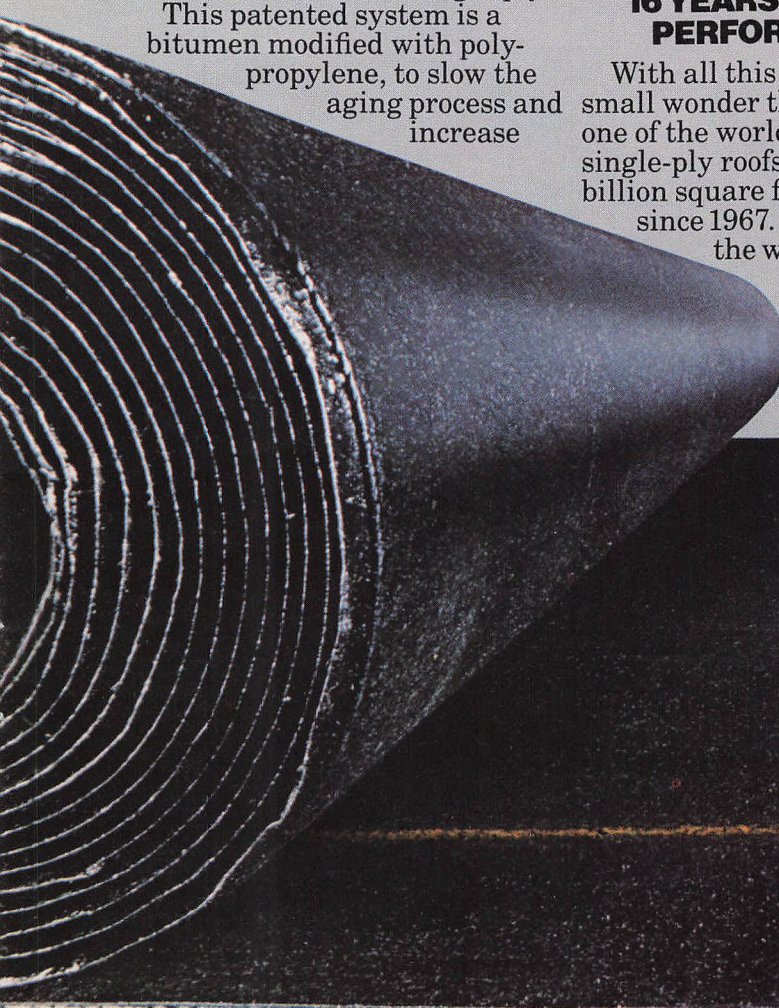
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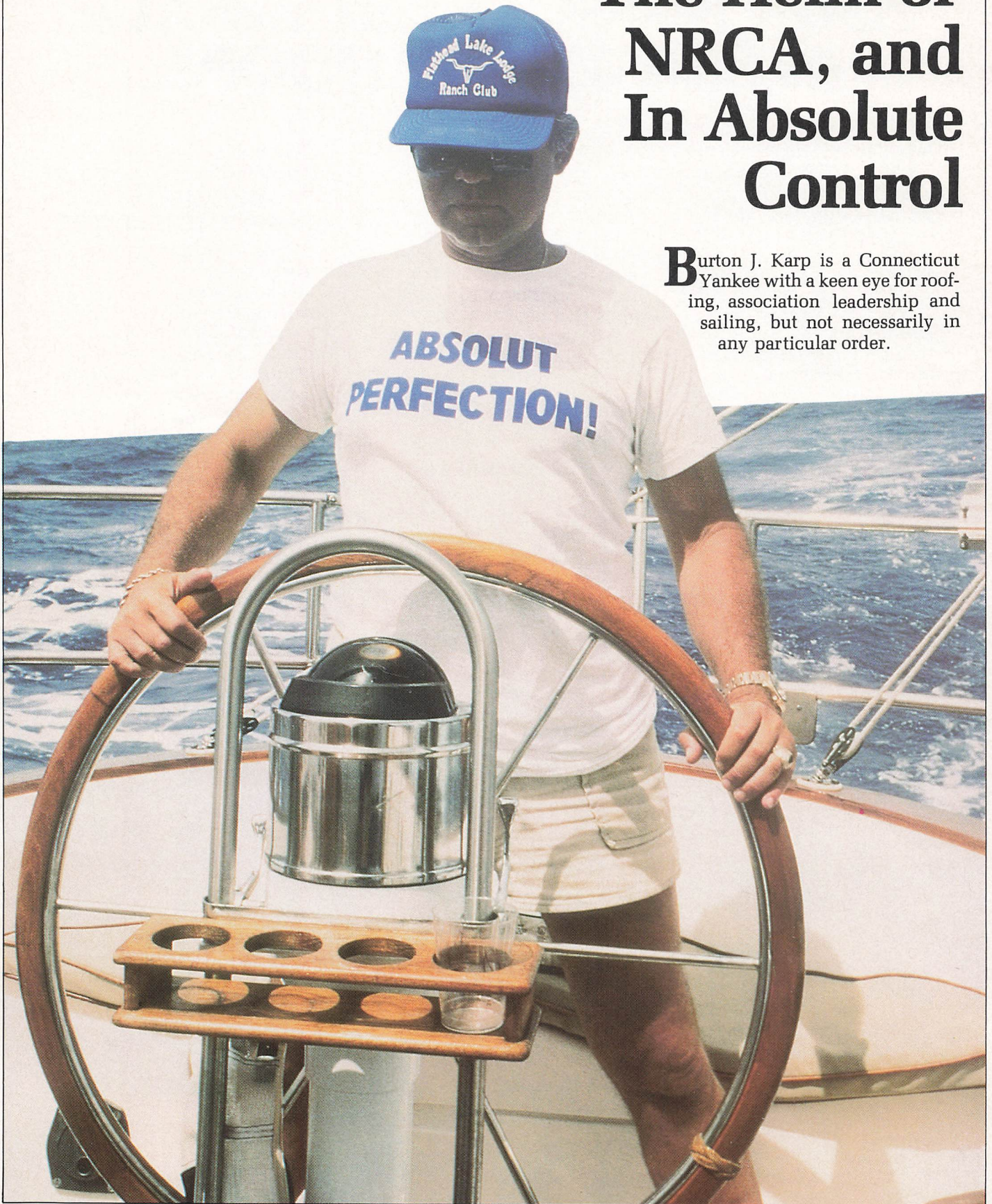
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Burt Karp Is At The Helm of NRCA, and In Absolute Control

Burton J. Karp is a Connecticut Yankee with a keen eye for roofing, association leadership and sailing, but not necessarily in any particular order.



Karp, 47 began his term June 1 as president of the National Roofing Contractors Association. His preparation for the prestigious position included 25 years of industry experience, membership in NRCA dating back to 1960, and countless responsibilities as a member of various NRCA committees. In addition, Karp has served as president of the North/East Roofing Contractors Association, and is a member of the Construction Specification Institute — Connecticut chapter. He has also served as a regent for the Roofing Industry Educational Institute, and as president of the Subcontractors Association of Connecticut.

Karp was born into a roofing family. His father, Morris E. Karp, established the family business in West Hartford back in 1919. Karp spent his childhood years helping around the family shop located in the backyard. The business really took off after the younger Karp graduated from the University of Connecticut in 1958. He became company president in 1964.

The firm, now known as The Eagle Group, operates with headquarters in West Hartford, with branch offices in Denver, Colo. and Dallas, Tex.

The company does business all across the United States with annual revenues of \$15 million.

In just a few short weeks, Karp's tenure as skipper of the nation's oldest construction trade association has been charted and is off to a sailing start.

Between planning sessions for July's annual NRCA Midyear Meeting, *Roofing Spec* Editor Michael Beightol spent a few hours with Karp discussing his background, his goals and aspirations for NRCA and the American roofing industry.

RS: How did you get involved in the roofing business?

KARP: I'm a second generation roofing contractor. My father started the company in 1919 in Hartford, Conn. The shop was primarily a sheet metal shop, as many of the roofing companies in the East started out as. But that lasted for only a few years. The company slowly evolved as a roofing and sheet metal contracting firm, mostly doing residential work, small

shops and stores.

I've worked in this business ever since I was a youngster. I started probably as soon as I could walk (laughs).

My father's shop used to be in the backyard. It was nothing more than a double-sized garage. As a kid, I used to work in the shop, sweeping the floors, cleaning up, picking up nails, things of this nature.

I've been around roofing all my life. Loading and unloading trucks, working on roofs as early as when I was 14 years old.

RS: After graduating from college, did you go into a partnership with your father?

KARP: No, I went to work for my dad. In those days we had a very small company, and I started work on a roofing crew. We were very small, and sometimes would go for weeks at a time without having any work.

One day I came into work and said, "I'm going to put on a tie and jacket and I'm going to go out to see if I can get us some work." And I did.

After much trial and error, we started to get more jobs. We gradually grew.

RS: What was the firm's first big job?

KARP: I think it was some dormitories for a couple of colleges in our area. At the time I thought they were huge jobs. I think they were in the neighborhood of \$40,000 to \$60,000. I was very, very nervous, wondering if I had made a mistake.

It turned out to be pretty successful. The more you experience, the more confidence you gain in yourself.

From that I undertook a couple of major estimates. We were very fortunate because the people got to really like us, and we ended up doing a major project in Hartford called Constitution Plaza which was four or five major highrise buildings. That had to be in the early sixties.

RS: For these major jobs early in your career, what kind of work was involved?

KARP: It was all built-up roofing. In those days it was four-ply pitch or asphalt, with fiberboard insulation.

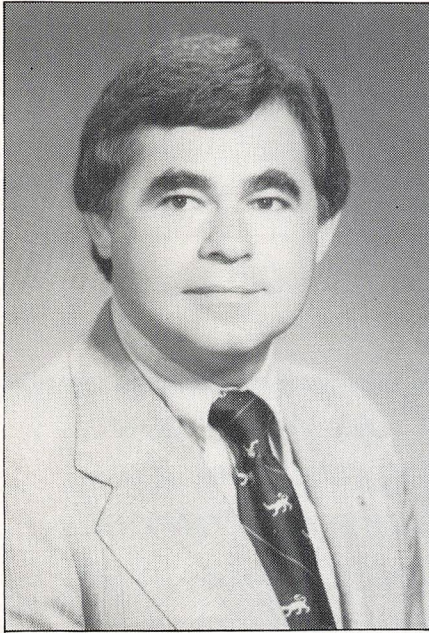
There were a lot of things that we

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"The more you experience, the more confidence you gain in yourself."

Karp

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“I’m in my 25th year, and the changes have been amazing.”

didn't understand such as phasing roofing construction. We used to be forced by general contractors to get a building into the dry in the very early construction stages. We put down the insulation and maybe one or two plies, getting as much done as we could, and then fell back to finish it much later.

A lot of that led to premature failures due to blistering occurring between interplies. This occurred because none of us knew better.

We also had a lot of problems in those days due to a phenomenon known as thermal shock. I remember going to my first conventions and talking with other contractors from around the country about roof splits. What we didn't realize is that we weren't getting attachment of the insulation. It's been a long, expensive learning process for us to realize that adhesion was very, very critical. An absolute must for a good performing roof.

Once we knew this we went to the fully-adhered systems where the insulation was laid in hot asphalt, and then eventually to mechanical attachment, the most positive method of attachment. Now, we've virtually eliminated our old problems of splitting.

RS: *How else would you characterize the industry in your early days as a roofing contractor?*

KARP: As I look back at our industry, I always feel that we were quite segmented. We had no place to get information on what was happening. When we went to a convention we all talked about these problems, but we didn't really ever get any answers.

We relied very heavily on the manufacturers. They were our only source for guidance. And I'm not sure all the manufacturers had all the answers either.

Because of this lack of communications, if somebody had a problem, it stayed with him, even

though someone else a short distance away was having the same kind of problem.

RS: *Did that naivete make life any easier?*

KARP: Sometimes there's some truth to the saying, "What you don't know won't hurt you." I kind of think that's the way we were. If we knew better, our mistakes would have obviously been a lot harder to live with. But because we didn't know any better, each of us was trying to resolve our own problems which was an impossible task.

RS: *We've been talking for just a few minutes, and already it's quite clear the roofing industry has changed exponentially since you started.*

KARP: I'm in my 25th year, and the changes have been amazing. One of the biggest reasons for a lot of the changes is the improved degree of communication due to trade associations. That's what associations like NRCA are all about. It's getting everybody together to work out our common problems.

It's come a long way. I think back to my first NRCA convention 25 years ago in Chicago. I came after getting an invitation from a new company that (at the time) was offering a new system.

It was at a time when a lot of new products were coming out, similar to the recent emergence of elasto/plastics. It started just before the New York World's Fair. It was just unbelievable. Sometimes I can just close my eyes and it's just like we're going through that same thing again, but I like to think what we have now is far more proven.

RS: *How come most of those products introduced then are no longer around?*

KARP: That's a good question. It wasn't that they were too premature or the time wasn't right. It's that products were put into the market

without any field experience or adequate testing. Most had not considered compatibility with other materials. Now it's one thing to have a product that may perform fairly well in a laboratory, but it's an entirely different matter when it's exposed to the elements, building stresses, heat and temperature changes. A lot of manufacturers, roofing contractors and building owners lost money.

I think through that learning experience those companies that have re-introduced roofing products today have learned and benefitted from past mistakes. However, there are companies marketing products that may not pan out. Unfortunately, they're going to learn through a very costly experience for all involved.

RS: What about NRCA? What kinds of things have changed within the association since your initial involvement?

KARP: Well, in those days NRCA was Fred Good (currently NRCA Executive Vice President). Over the years, Fred and NRCA leadership have developed a professional staff with a lot of depth and talent to accomplish the many existing and new programs that benefit and will continue to benefit our members.

I think our membership is much broader. In those days it was primarily a bunch of contractors from the midwestern United States. Today we have contractor members stretching from Maine to Southern California, from Seattle to Miami. We have active contractors from every area. There's a lot of depth to NRCA membership, and many more contractors are now involved than in years past. In fact, NRCA now has 45 committees with over 100 different committee members representing every size contractor in every section of the country.

RS: What is the lure of a trade association such as NRCA?

KARP: I like to control my own destiny. Many years ago I used to be very frustrated with specifications or materials that I couldn't and didn't believe in for one reason or another. There was no place to go and nobody to talk to. When I got involved with NRCA and was assigned to a couple of committees I found that I could offer some input. Some of the ideas that I and others had helped to develop the programs and specifications that have now been universally accepted.

So now I can say I've had a little say in my own destiny and the destiny of the industry. I think any NRCA member has the same opportunity. To me that's probably the whole reason for having an association.

RS: Other than gaining this position as NRCA president, what has been your greatest achievement?

KARP: Wow, there's so many things. I guess I wouldn't be where I am today if I hadn't been involved with my local and regional associations. In 1966, I served as president of the New England Roofing Association, now known as the North/East Roofing Contractors Association. It was this that enabled me to serve on the NRCA board and eventually reach the presidency of NRCA. Other than that, I've always been a team player, so I really can't take the credit for any particular achievement. We've all helped to make NRCA what it is today.

RS: When did you first realize that attaining the NRCA presidency was something within your grasp?

KARP: I used to kid Fred Good that maybe I'd be president for NRCA's 100th year (laughs).

I never really thought in my wildest dreams that it would come to fruition that I'd be president. But when I accept a position or an appointment I accept it as a full commitment. If I'm fortunate enough to earn my way to

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“Now I can say I've had a little say in my own destiny and the destiny of the industry.”



“We don’t want to see the work we as roofing contractors have traditionally done being taken over by others.”

be president, that’s how it should be. I think that’s the way it should be for everybody.

RS: Be a forecaster for a bit and let us know where you see the association going during your tenure.

KARP: We’ve got a lot of things going on, and maybe I’m a little bit over ambitious. John Bradford and Johnny Zamrzla started several programs and it is my job to finish them so that they are self-sustaining, primarily in the area of education.

We are also working on our Centennial program. It’s getting closer and closer so we really don’t have much time to spare if we want it to be an overwhelming success.

We’re working on developing much closer relationships with our affiliate associations to get the input of our membership all over the country, from everybody rather than from just a few. We want to reach every roofing contractor in the country.

Personally, one of my pet projects is the public relations program we’re starting to promote the professional roofing contractor. We don’t want to see the work that we as roofing contractors have traditionally done being taken over by other trades, general contractors or owners with their own in-plant personnel. We feel that roofing, whether it be built-up, elasto/plastic or any other type requires installation by experienced mechanics. Every roof has certain characteristics that are best handled by skilled craftsmen who know what they are doing.

We are emphasizing the need for educational training. The important thing is that members make an effort to learn through educational programs. That’s what it’s really all about.

RS: For several years now your firm has operated around the U.S., offering contracting services by managing

an entire operation, utilizing local NRCA member firms for labor purposes. Recently, though, you opened an office in the Dallas area. That office handles only single-ply work. Why?

KARP: We felt that to make a commitment to new BUR equipment for a new branch would not be a good investment based on where we saw the market was going. If we were going to make a commitment, we were going to do it with what we thought had the greatest potential. So we committed. It’s taken a lot of willpower to stay out of conventional roofing in that marketplace. There’s been much pressure from within and outside the company to install built-up roofing, however, so far we have been able to hold off these pressures. It’s worked out, but it’s a very competitive situation.

RS: Why Dallas?

KARP: At the time, we did a market survey and we felt that we needed to make our business more well rounded. In New England we’re subjected to changing weather conditions. If we work six months of the year we’re doing well. We just wanted to round out our operation a bit more effectively to see if we could work year round.

I could probably say now that somewhere in the United States there’s a job going with some of our people working on it five days a week, 52 weeks a year.

RS: You’ve always been perceived as a good communicator. Part of the Centennial program is a public relations program. Could you please share a bit more information on it?

KARP: Sure. It’s still in the early planning stages, but basically it’s a public awareness program dealing with who we are as contractors. With what we are attempting to do, even though it sounds as though we are raising a substantial amount, people

must realize that in the area of advertising and media purchasing a million dollars isn't even a drop in the bucket.

We're going to get the most exposure for the fewest dollars. Some of the things we want to be able to provide to members are radio spots, ad mattes, magazine inserts and advertisements all designed to promote the use of professional contractors for roofing jobs.

We're looking for a concerted effort from everyone involved to put the message before the American public that the roofing contracting business is going to be 100 years old, and indeed an important segment of the American building industry.

RS: *In the last couple of years there has been tremendous growth in NRCA membership. Where do we go from here?*

KARP: There's a lot of contractors out there who don't belong to any local or national association. I don't think we've really reached them. This new exposure through the public relations campaign and our involvement in other national programs will help us gain more members.

The idea of membership is not just to have bodies. The strength of representation of our industry is what gets us heard in Washington or other facets of the industry, whether it be the American Institute of Architects (AIA) or the Associated General Contractors and other groups. If we are going to be the spokesperson for the industry, our membership should never taper off. It needs to continue to grow.

RS: *What kind of a pitch would you make to a non-NRCA roofing contractor? How would you sell membership in the oldest construction trade association in the United States?*

KARP: Nobody can ever say they can't afford it. The whole thing is you really cannot not afford it.

Where would any of us be without an association, or without each other? How would we ever learn? How could things ever improve? Things are only going to improve through learning from each other. Now, there's always going to be somebody who rides along on another's coattails, but that's the kind of person who has to wake up because some day there might not be any coattails.

We're only as good as our weakest link. To me there's just no excuse for not belonging.

RS: *How can we bring together architects, general contractors, building owners and roofing contractors to jointly make important roofing decisions?*

KARP: I think we've already come a long way in this regard. Our relationship with the design profession has grown a lot. NRCA Roofing Systems Conferences have drawn well among architects. In that particular conference we've stressed the importance of holding pre-job conferences. We've established an excellent relationship with AIA and have had a tremendous amount of input in its Master Spec which is the specification for roofing.

In addition, many NRCA members are also members of the Construction Specification Institute, Associated General Contractors, American Society for the Testing of Materials (ASTM), American Subcontractors Association, plus local, state and regional roofing and subcontracting associations.

Finally, anybody or any group wanting to learn more about the roofing industry or the National Roofing Contractors Association can do so very, very easily.

All they have to do is pick up the phone and call NRCA.



“Where would any of us be without an association, or without each other? How would we ever learn? How could things ever improve?”

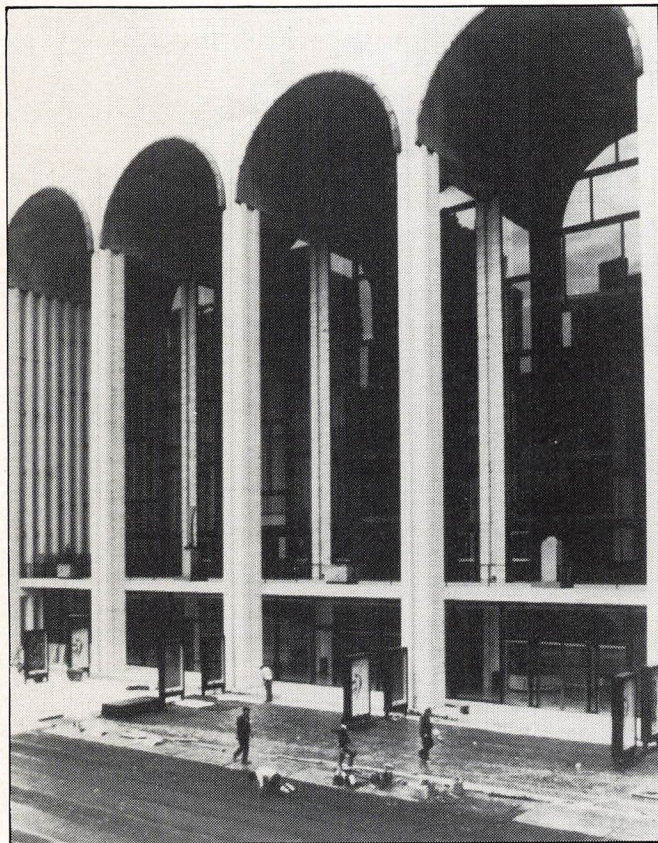
On The Roof...

Cultural Fans Applaud Waterproofing Success

While opera and theater productions played to audiences at New York's Lincoln Center, decomposing concrete was setting the stage for membrane failure in the plaza outside.

The waterproofing system was deteriorating underneath the 100,000 square feet of plaza area connecting the Center's five buildings. Water was beginning to leak into the offices and parking areas located underneath. After trapped subsurface moisture was detected, the City of New York decided to replace the system.

Analysis of the old system showed the problem was centered around the expansion joints. The joints, in-



New York City's Lincoln Center, plagued with underground leakage from an old waterproofing system, recently received a new waterproofing membrane made of neoprene, a synthetic rubber manufactured by the Du Pont Co.

stalled at various times during the Center's 20 years of construction, had been weakened by building movement and the effects of freeze-thaw cycles.

Finding a membrane that could withstand this punishment was a major concern for the architects and the construction contractor, according to Gerry Wolkowitz of NRCA member Wolkow-Braker Roofing Co.

"The cost of removing the plaza surface to repair a leak is almost prohibitive, hundreds of times more expensive than repairing the leak," Wolkowitz said.

The system chosen was a loose-laid single-ply membrane of neoprene synthetic rubber from E.I. du Pont de Nemours & Co., Inc. The cured 60 mil membrane and expansion joints, and the uncured base flashings were manufactured by Gates Engineering.

"Neoprene waterproofing membranes and expansion joints will accommodate the shear force of the buildings and are unaffected by the existing moisture in the substrate," Wolkowitz said. "Neoprene will retain water without blistering while the water weeps out."

Because Lincoln Center could not be shut down, all construction was scheduled around theater and opera performances. The plaza area was resloped before the membrane was laid.

Once down and sealed at the seams, the membrane was tested with water standing in a dammed area for 24 hours.

Protective board was placed on top of the neoprene and a granite wearing surface was laid on top of the board to complete the job.



Firm makes Bid For Thatched Roofs In U.S. Market

Great Britain's Prime Minister won't be the only "thatcher" familiar to Americans if Wes Warwick has his way.

Warwick is general partner of Warwick Cottage Industries of Costa Mesa, Calif. The company is hoping its Warwickshire™ thatch roofing will become a quaintly unique alternative to more traditional roof coverings now available in the U.S.

Thatched roofs have been popular in the British Isles since the Middle Ages. Master thatchers give the architecture over there a distinctive look by sculpting and molding the thatch into undulating patterns.

Warwick believes American architects will want to take advantage of the design possibilities thatch offers.

"It is ideal for custom homes featuring many various types of European-style architecture," Warwick said.



NRCA Member Firm Wins Construction Award

Principals Robert M. Barlow and John D. Van Wagoner have announced that Prospect Enterprises, Inc. of McLean has received two awards for excellence in construction from the Associated Builders and Contractors of Virginia; the Outstanding Subcontractor of the Year award from the Metropolitan Subcontractors Association; and a foreman, Robert Hall, received a craftsmanship award for excellence in roofing from the Washington Building Congress. Furthermore, Robert B. Purdy, executive vice president, was the recipient of the "Presidents Award" at the Metropolitan Subcontractors Association awards banquet on March 19, 1983. Prospect is among the largest in the roofing field, being listed 15th in size in the United States by the *Engineering News Record*. Prospect specializes in both new and remedial roofing and waterproofing on industrial, commercial and institutional buildings in the Washington, D.C., area.

Van Wagoner is vice president of the National Roofing Contractors Association, a member of the Construction Specifications Institute, ASTM and other construction-related organizations. He holds two patents on a unique roofing concept and has published numerous articles relating to roofing and waterproofing.

Barlow, active in many local con-

struction organizations, is president of the Metropolitan Area Roofing Contractors Association. He holds a patent on an expansion joint water control concept.

Reprinted with permission from the Northern Virginia Sun.

NRCA Staff Member Earns Certificate

Robert C. McAdam, NRCA director of administration, recently was awarded a certificate at the University of Notre Dame for completing his sixth year of the Institutes for Organization Management, a continuing education program for chamber of commerce and association executives. The program is sponsored by the Chamber of Commerce of the United States.

The program is for executives wishing to promote their professional and personal advancement. The curriculum includes coursework in management philosophy, interpersonal processes, government, law and organization structure.

The early years of the Institute pro-

gram concentrate on the basics, and as one progresses through the program, emphasis shifts to the more theoretical aspects of management. Upon completion of six years, practice and theory have been integrated into a well-rounded comprehensive educational package.


McAdam, 58, joined the NRCA staff in 1978. Previously, he worked as a manufacturers representative.

Butane Lighters Could Be Hazardous

That handy pocket lighter could be dangerous if you're working near a flame.

The National Electrical Contractors Association warned welders of the potential hazard after two fatal accidents were reported in Illinois when welding sparks touched off butane lighters.

One lighter exploded in a welder's shirt pocket and the other in his pants pockets.

Throw-away butane cigarette lighters will explode with the same force as three sticks of dynamite, according to the association. 

Affiliate Execs Enthused About New NRCA Programs

Nearly 80 affiliate executives met in Chicago June 22 with representatives of the National Roofing Contractors Association (NRCA) to learn more about NRCA's "Partners in Progress" program.

The executives, representing 43 affiliate roofing associations, heard a panel of NRCA leaders discuss

three areas of concern — the new NRCA Centennial Fund, education and government relations.

The NRCA panel, President Burton Karp, Senior Vice President Wayne Mullis, Vice President Robert "Country" Harrison, Former President Johnny Zamrzla, Executive Vice President Fred Good and Executive

Director William Good, presented plans for the 1986 Centennial Celebration. As part of the program, NRCA leaders and staff will develop a comprehensive program to promote the professional NRCA roofing contractor to American consumers. The program will include television

New Members

The following have been approved for NRCA membership between June 9 and July 12, 1983.

CONTRACTORS

- American Rubber Roofing Inc.
1606 Pheasant Run
Huntertown, IN 46748
Carol J. Triplett
- Gastonia S/M Works Inc.
P.O. Box 12216
1524 West May St.
Gastonia, NC 28052
Ronald J. Long
- General Roofing
119 E. 54th Ave.
Anchorage, AK 99502
Glenn Smart
- Peninsula Roofing
P.O. Box 433
Soldotna, AK 99669
Carol R. Popper
- Professional Roofers Inc.
3332 Laurel Court
Falls Church, VA 22042
Susan Enteles
- Roofing by James Maxfield
W. Glover Rd-Glover
Craftsburg, VT 05827
James Maxfield
- Seaman & Schuske Metal Works Co.
1215 S. 4th
P.O. Box 448
St. Joseph, MO 64502
J.L. Netherland
- Texas Refinery Corp.
P.O. Box 711
One Refinery Place
Fort Worth, TX 76101
Leroy Groce
- Weatherguard Roofing Company
200 West 34th-Suite 371
Anchorage, AK 99503
Marvin Rader

ASSOCIATES

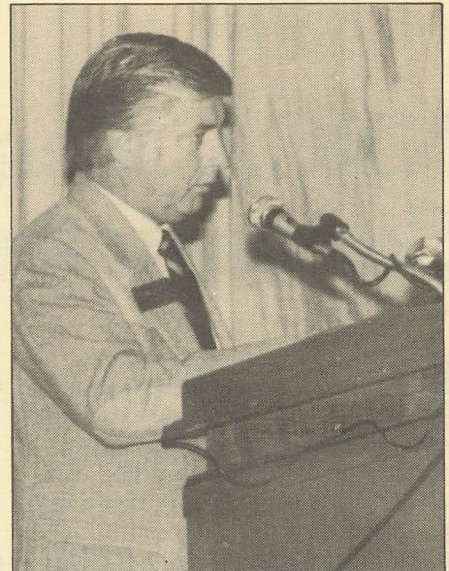
- American Building Co.
P.O. Box 800
State Docks Rd.
Eufaula, AL 36027
Robert M. Halsell
- Multilite Corp.
7871 NW 15th St.
Miami, FL 33126
Rolando D. Regato
- Palmer Asphalt Co.
P.O. Box 58
196 W. 5th St.
Bayonne, NJ 07002
Sheldon Rubin
- Roofing Products International
P.O. Box 309
R.R. 1-US Hwy. 6
Kendallville, IN 46755
Charles S. Triplett

INDUSTRIAL/INSTITUTIONAL

- The City of Baton Rouge
Building Maintenance
P.O. Box 1471
Baton Rouge, LA 70821
Maurice Reeves
- Zayre
9 Strathmore Rd.
Framingham, MA 01701
John Worley

INTERNATIONAL

- Geissler Und Pehr
P.O. Box 181/A-9500 Villach
A-9586 Fuerwitz/Villach
Austria
Mag Gilbert ISEP



Former President
Johnny Zamrzla

and radio advertisements, newspaper and magazine advertisements, ad mattes for members and a massive public relations campaign.

"The Centennial offers a unique opportunity to tell an important story," Karp said. "The professional roofing contractor is part of a proud industry that has been instrumental in building our nation and in keeping our nation's buildings dry, energy efficient and long lasting."

Mullis carefully pointed out that the current campaign to solicit centennial donations from NRCA members shouldn't be misunderstood. The lion's share of money collected will be used to develop the "professional roofing contractor" program, with a much smaller percentage to be spent on other Centennial activities, he said.

"We want to make sure that members realize how the money is to be spent," Mullis said. "This is a fantastic opportunity for roofing con-



tractors to step up to the plate and hit a public relations homerun. We have been too long considered by some as substandard citizens of the construction industry."

NRCA also asked for the affiliates to support NRCA education services. The Accredited Roofing Contractors program, the Foreman & Superintendent's Conferences, Roofing Systems

Conferences and the NRCA Speakers Bureau are four of the many continuing education programs offered by the association.

During the all-day session, NRCA unveiled its new governmental affairs strategy designed to make the roofing industry voice heard in Washington, D.C. and in state capitals across the United States.

"A new federalism is developing in government," said William Good. "Many national issues will now be debated on a state level, therefore, it's more important than ever to have a good means of communications."

He explained that NRCA will be enlisting assistance from affiliates in establishing political contacts, educate roofing contractors on becoming involved in the political process and in raising funds for the NRCA Political Action Committee.



Two affiliate executives examine the *NRCA Roofing Materials Reference & Guide*.



Vice President Robert Harrison (left), Senior Vice President Wayne Mullis and NRCA President Burton Karp (at podium).

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.

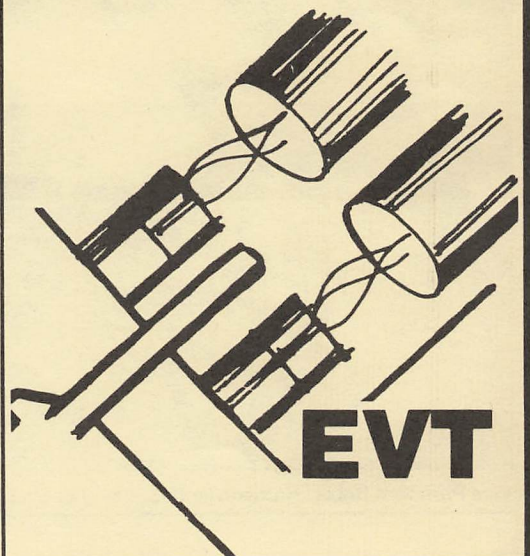
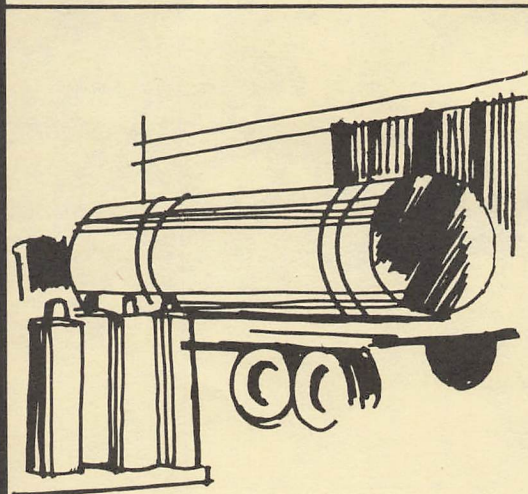
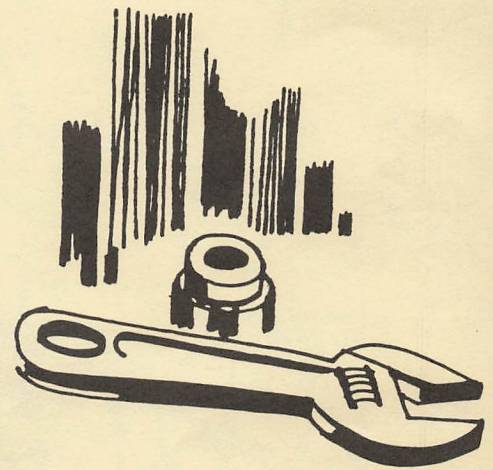
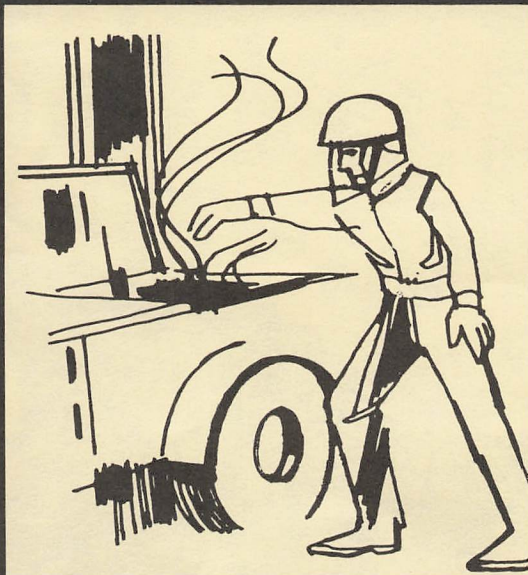
The program, with over 300 slides and a 40-minute soundtrack, depicts the correct procedures for kettle set-up and loading, safety considerations, thawing lines in cold weather, pump operation, the importance of preventive maintenance, and much, much more.

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.

Kettles, Tankers, and Bitumen Heating



EVT

"In addition, we feel there is great potential for the use of thatch in commercial projects which have European architectural themes, such as restaurants, hotels, shopping malls, office complexes or even entire master-planned communities."

Warwickshire thatch is made from water reed. The reed's high silicone content makes it tough, flexible and highly water resistant. After it is harvested, it is chemically impregnated with a fire retardant which meets the highest U.S. building code standards.

The thatch is applied to decks with a minimum slope of 50 degrees. Successive layers of thatch eventually build up to a minimum thickness of 12 inches. This deep pile of thatch will create an extremely energy-efficient roof, according to the company.

The art of thatching, practiced most widely by English craftsmen, requires years of formal training. For its initial projects, Warwick Cottage Enterprises will be contracting with British master thatchers to perform the work.

The company also plans to integrate American apprentices into its workforce as rapidly as possible.

The first application of Warwickshire thatch is planned for a "manor house" to be built by Warwick Cottage Enterprises in Laguna Hills, Calif. The house should be finished in early 1984.



At Home Under A Copper Roof

What symbolizes "home" for you?

For the members of the architectural group — The Frank Lloyd Wright Foundation — it's the roof. To create a sort of family sanctuary the architects designed a house in Denver with a wide, steeply-sloped roof as its most prominent element.

"We wanted a subtle, almost hidden house in downtown Denver, but one with a striking roof that would symbolize *shelter*," said Charles Robert Schiffner, principal architect.

The Denver home is all but hidden from the outside world. Two sides are nestled into four-foot high earth berms while solid white-washed walls and planters mask the house from the street. The only detail visible is the roof.

But, with the roof as a major design element, finding the right roof covering was a big consideration. It had to be unique and visually interesting, but still add to the feeling of overall domestic security.

"When the new copper shingles were brought to our attention, we realized they had all the qualities we were seeking: powerful imagery, terrific color and a

shadow line and look that says 'home' rather than carrying a commercial connotation," Schiffner said.

The shingles measure 8½ by 15 inches and feature a rough pebbly surface. Two shingles snap together and are fastened to the roof with copper nails. The shingles for the Denver home were fashioned by the Zappone Manufacturing Co., Spokane, Wash.

The 3,000-square-foot roof in the foundation's design fans out toward the street at a steep 30-degree incline. The roof is punctuated by a large skylight and a hexagonal tower containing the chimney and various passive heating and cooling elements.

Though the roof was of a complex design, application of the shingles was quite simple, according to Schiffner. "You can mold copper shingles to given circumstances," Schiffner said.

Schiffner is hoping that copper shingles will patina "gracefully." He believes that the individual shingles will develop in varying but blending hues which will create an attractive mottled effect.

"As good as these copper shingles look today, they'll become even more handsome in the weeks and months ahead as they season and weather."

New Products, Ideas, & Publications

Elite Look at Affordable Price

Johns-Manville has introduced its new Designer125 random, six-tab shingle to the roofing market offering contractors a custom look shingle at an intermediate price homeowners can afford.

Designed to commemorate the 125-year anniversary of Manville in the roofing business, Designer125 is ideal for new or reroofing and incorporates a bold, rugged texture that gives the appearance of wood shakes or slate. Available in five colors, Designer125's unique, random-tab pattern contributes to the shingle's custom, expensive appearance. The shingle carries a UL wind resistance label as well as UL Class A fire rating. Designer125 also has a 25-year prorated warranty and is further backed by Manville's new Customer Assurance Trust Fund.

Designer125 measures 13 x 40; tabs measure 11", 12" and 13". Weight is 250 pounds with 80 shingles/square, 4 bundles square; 4 1/2" exposure. Roof pitch is 4" min. for standard application, 2" min. for low slope application. Designer 125 is approved by UL for application with staples, as is the entire J-M shingle line.

Check #89 on Reader Service Card

Rhoplex™ Resists Ponding Water

Ponding water resistance and improved adhesion are two of the features of Rohm and Haas' new Rhoplex™ EC Elastomeric Coatings.

According to the firm, acrylics permit the transmission of low levels of water vapor through the coating.

Roof mastics such as Rhoplex™, however, have ponding resistance that helps keep bulk water from passing through the protective coating.

Roof mastics, with improved wet and dry adhesion to both high and low density polyurethane foam, have undergone extensive 180 peel-adhesion testing.

Rhoplex™ EC roof mastics can be applied over conventional bituminous built-up roofs, polyurethane foam, galvanized steel, concrete, wood and asphalt shingles.

Check #90 on Reader Service Card

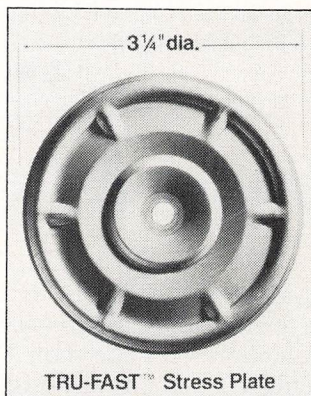
Stress Plates Offer More "Hold Down" Power

Tru-Fast's stress plates permit the secure fastening of rigid insulation to steel roof decking.

The round, concave shape is designed to deliver 30 lbs. or more of hold-down force around the entire stress plate perimeter and on the screw threads.

According to the company, the plates offer "exceptional resistance to wind lift forces and prevent vibration that could cause screws to loosen and pop up."

Check #91 on Reader Service Card



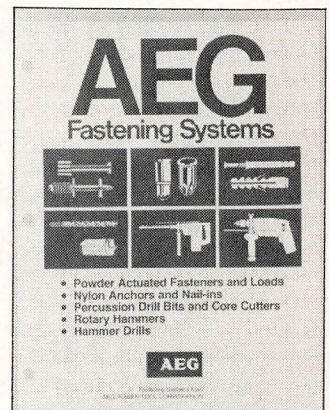
Catalogs Available from AEG

The "AEG Fastening Systems Catalog" and the "1983-83 Power Tool Catalog for Contractors and Industry" provide the latest information on products from AEG Power Tool Corp.

A wide selection of power-actuated fasteners and loads, nylon nail-ins and anchors, percussion bits, core cutters and threaded studs are described in the 12-page catalog.

The 50-page power tool catalog features new additions to the AEG line of drills, hammer drills, rotary hammers, tech drivers, rechargeable battery tools, grinders, portable abrasive cut-off machines and metal-working tools

Check #92 on Reader Service Card



Two New Additions To Benjamin's Fleet

The Reddi Patch Pot and the Reddi Gravel Hopper are now available through the Julien P. Benjamin Equipment Co.

The four-legged Reddi Patch Pot features insulated top and sides, vented lid for safety and lifting eyes for easy hoisting.

The 165-pound unit includes a 300,000 BTU burner complete with LP hose and regulator, a stem thermometer, a two-inch full-flow draincock and two 10 x 2.95 semi-pneumatic wheels.

The Reddi Gravel Hopper holds 44 cubic feet and has an easy flow control door to feed conveyor belts on hoisting buckets. The support legs can be adjusted up to four feet in height.

Check #93 on Reader Service Card

Evans Answers Bur and Single-Ply Needs

Evans Products Co. is offering a brochure on built-up roofing products and is introducing a series of single-ply roofing systems and accessories.

The 32-page brochure describes the full line of Evans BUR products including glass fiber membranes, rigid insulation, adhesives and coatings. It also lists reference specifications, policy/warranty conditions and describes quality assurance and testing procedures.

The new single-ply product line is being marketed under the trade name EPDM/Evans Products Dependable Membrane.^(TM)

The line features a talc-free EPDM single-ply membrane sealed at the lap seams with Evans Ultra Seal Joint Tape.^(TM) The joint tape self-vulcanizes in time, transforming the roof into one watertight sheet.

Six Evans single-ply systems are available: Water Ballasted, Stone Ballasted, Mechanically Attached, Fully Adhered, Spot Attached and Inverted Attachment.

Check #94 on Reader Service Card

Polymer Plastics Signs New Pact

Polymer Plastics Corp. has signed an agreement with the South African firm, Wondercoat S.A. (PTY) Ltd., to manufacture Polybrane 186.

The South African agreement is the first in a series of arrangements Polymer will make to speed worldwide utilization of the product.

Polybrane 186 is a one-component polyurethane liquid roofing material which offers ease of application and is sprayed on cold without mixing.

The product cures to a long-lasting, tough, rubberlike, seamless membrane which self-bonds to urethane foam insulation, new and old roofing, decking substrates and common roof configurations.

Polybrane 186 is waterproof, but allows moisture to escape from within. In addition, it has a wide, in-service temperature range and an elongation capability up to 400 percent. It is UL fire rated, too.

Check #95 on Reader Service Card

SIPLAST Systems Described in Brochures

SIPLAST is offering free literature on the following three roofing systems.

TRAFBLOC, composed of chopped rubber particles and synthetic binders, can be used as a protective surfacing for roof traffic areas.

PARADIENE 20/30 is a lightweight, flexible membrane used for multi-ply elastomeric roofing systems.

VERAL is a multi-ply metal clad system combining the proven waterproofing characteristics of modified asphalt, the stability and strength of glass fiber and the protection of metal foil.

In addition, the "Siplast Roofing Systems and Specifications" brochure is available, describing the uses, characteristics and specs for all SIPLAST roofing systems.

Check #96 on Reader Service Card

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 \$10.00 to total order. Send ad copy and payment to: Advertising Manager, *Roofing Spec*, 8600 Bryn Mawr Ave., Chicago, Ill. 60631

OPPORTUNITY FOR FIELD FOREMAN

Experienced for field operation. Must be experienced in commercial single-ply roofing, new and reroofing. Must be able to handle crews and equipment. Salaried position with benefits. General Roofing & Improvements, Inc., 1231 Seminola Blvd., Casselberry, Fla. 32707, 305/695-1212.

ELEVATOR FOR SALE

70' Pauls Telescopic elevator new demonstrator. Priced to sell at \$10,500. Contact Pat at 816/474-0480.

WANTED

We are interested in purchasing a used 10-foot power break and a 10 foot power shear. Please contact Mr. Walt Heinig, BELDON ROOFING & REMODELING CO., PO BOX 13380, San Antonio, Tex. 78213, 512/341-3100.

PERSONNEL WANTED

CALIFORNIA MANUFACTURER of modified asphalt roofing products is seeking professional sales personnel for many areas in the 11 Western states. Must have experience in the roofing industry. Successful candidates will have experience calling on local distributors, architects and roofing applicators. Must possess all qualities necessary for successful marketing. Real growth opportunity. Salary, commissions, auto and expenses. Please send outline of work history, with income requirements to: Mr. Dave Jones, BehStev Corporation, 3651 Pomona Blvd., Pomona, Calif. 91768.

ROOFING MANAGERS

Successful roofing contractor wants to communicate only with the best in the business. Candidates must have a very successful experience in industrial and commercial reroofing sales. Opportunities available on West Coast that are unique and lucrative. Send work history and objectives to Speranza Management Consultants Company, 12 Johns Canyon Road, Rolling Hills, Calif. 90274.

ACQUISITION WANTED

Diversified roofing concern in Northeast New York seeks to acquire medium-sized roofing firm. Primary interest in single-ply operations with strong management to remain. Replies will be held in strictest confidence. Reply to Box 5A.

PATCH WITH THE BEST

PHILLIPS' RUFON® POLYESTER

Now available in 6" & 12" rolls. Also cut to your specifications.



DALY Protective Coatings Co., Inc.

1-800-348-6446
(Ind. 219-932-4438)

YARD STORAGE TANKS

1) 30 ton hot asphalt, 1) 50 ton hot asphalt. WEATHERCRAFT ROOFING CO. 402/734-1818.

TANKER, LIKE NEW

Taurus 20 ton trailer mounted tanker. Used very little, completely reconditioned. Priced to sell at \$18,000. Contact Mel or Steve at 816/474-0448.

CRANE FOR SALE

NATIONAL CRANE, 8 ton Model, 94 feet sheave height, high speed winch. 1980 Int'l 1824 truck, 16 foot bed, Ideal ROOFERS CRANE. \$46,000. 312/447-3169.

BUSINESS ON THE MARKET

Roofing and related sheet metal business for sale. Present volume is \$100,000 to \$500,000. Potential is unlimited. Owner retiring after more than 48 years in the industry. Will finance 50 percent. Reply to Box 8D.

ROOFERS PACKAGE

National Crane #656 (12.5 ton capacity) Demonstrator w/95' maximum height on 1981 IHC tandem diesel truck. Roofer's accessory package included. Contact Mel or Steve at 816/474-0448.

DIRECTOR/TECHNICAL

Local roofing and sheet metal contractor association seeks a well-rounded individual with technical knowledge of roofing systems and ability to function as a liaison in various labor/management joint issues. Background experience in HVAC systems, architecture, specifications or previous association work in the construction industry are all pluses. Interested parties may respond with resumes to: Roofing and Sheet Metal Contractors Association of Philadelphia and Vicinity, 4333 E. River Dr., Philadelphia, Pa. 19129. Equal Opportunity Employer.

I WANT TO RETIRE

San Francisco area of California. Very old, established business. Primarily recover BUR on residential and commercial buildings. More than 50 years old. Same management for more than 20 years. Can be very liberal with terms to qualified buyers. Reply to Box 8a.

ESTIMATOR WANTED

Growing Florida Commercial Roofing Contractor seeks experienced Estimator. Opportunity for advancement for right individual. Send resume and salary requirement to Box 8B.

FOR SALE

One of the finest roofing companies in Central Illinois. Grosses over \$500,000. Three new offices, new warehouse, and new shop area with room for expansion. Excellent trucks and equipment. Fine reputation. All phases of roofing with many repeat industrial contracts. Plus — executive home — 10 miles from office on four acres. In-ground pool, horse barn and pond. Very fine home, only 10 years old. This would be an ideal package, however, if not interested in home, will sell business only. Owner selling due to health reasons. Serious inquiries only. Reply to Box 8C.

R O STINGER CRANE

R O Stinger Crane, TC120 w/64' height w/optional 14' Jib on a 1969 Ford gas tandem truck, \$22,000. Contact Mel or Steve at 816/474-0448.

37 TON STORAGE TANK

Taurus 37 ton trailer mounted job-site storage tank. Completely re-conditioned. Priced to sell at \$24,000. Contact Mel or Steve at 816/474-0448.

MANAGER SOUGHT

Single-Ply operations of large, well-established firm in Albany, New York area. Estimating and managing industrial, commercial and institutional projects through completion. Send resume and salary requirements to Box 5B.

ROOF CORE

ROOF CORE SAMPLER "C.R.R.E.L." type 1 7/8" core. Hardened Steel Jaws, compact weight less than 6 lbs. For details contact Autrey Steel & Machine, PO Box 40304, Tucson, Ariz. 85717. Phone 602/623-3444.

PLANETOR BITS

World's finest precision wood boring system for insulators. For 24-hour ordering and 32-page catalog, call toll free 1-800/243-4728. Hardware House, PO Box 579, Suffield, Conn. 06078, 203/668-2289.

STAPLES AND HOG RINGS

Stainless steel, Monel and Galvanized for Bostitch, Duo-Fast, Arrow, Tornado, etc. For information and prices, contact Branch Staple Supply, PO Box 422, Hicksville, N.Y. 11802, 516/681-9521.

FOR SALE

One of the oldest housing companies in Western Montana. Building Custom homes locally and Modular Homes with market area of Western Montana. Also Retail Building Supply Business. Purchase Inventory, Tools and Equipment at approximately \$90,000 and rent property. Selling because of health. Box 2416, Polson, Mont. 59860, 406/883-6262.

DEALERS WANTED

CoolRoof, a computerized evaporative cooling system for roofs. Cuts air conditioning costs to 50 percent; extends roof life 300 percent. Guaranteed one-year payback. Write; Free Energy, Box 601, Fairfield, Iowa 52556.

STORAGE UNIT FOR SALE

Thirty-seven (37) ton Mreco mobile storage unit. New tires and brakes. Just cleaned, reasonably priced. Call 512/346-3266 or 512/255-1118, or write Fifth Wall Roofing Systems, 11126 Jollyville Rd., Austin, Tex. 78759.

SALESMEN WANTED

Southern California Roofing Company, located in Los Angeles, established in 1926, is in need of a roofing salesman thoroughly experienced and successful in commercial, industrial and public works roofing sales. Only energetic, self-starter whose interest in a profitable and successful future through hard work should apply. Please send resume to: Mr. Harold R. Provin, G.E.O., Southern California Roofing Company, 9623 Imperial Hwy., PO Box 158, Downey, Calif. 90241. Phone a/c 213/861-7283.

12 TON CRANE

National Crane #556 (12 ton capacity) Demonstrator w/95' maximum height on 1983 Ford diesel truck. Roofer's accessory package included. Contact Mel or Steve at 816/474-0448.

WORKER TRAINING AID AVAILABLE

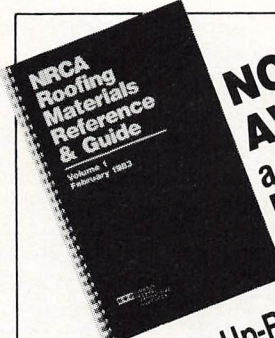
The new NRCA audiovisual program — Kettles, Tankers, and Bitumen Heating — is now available. It's the perfect way to train roofing mechanics in the correct usage of kettles and tankers, and the best way to heat asphalt for proper installation. Contact NRCA, Education Dept., 8600 Bryn Mawr Ave., Chicago, Ill. 60631.

ADVERTISE FOR NEXT TO NOTHING

A classified ad in *Roofing Spec* is the cheapest way to make yourself heard. Sell off unused or unwanted equipment. Solicit new employees, look for a new position or just sound off!! Only 50¢ a word, \$40 an inch, and the roofing world is yours.

GUIDE MAKES SPECIFYING EASY

The new NRCA *Roofing Materials Reference & Guide* is the perfect library companion to the *NRCA Roofing and Waterproofing Manual*. The *Guide*, updated three-times annually, lists important technical data for both BUR materials and single-ply membranes. For more information, contact NRCA, *Roofing Materials Reference & Guide*, 8600 Bryn Mawr Ave., Chicago, Ill. 60631.



NOW AVAILABLE...
a comprehensive
Roofing Materials Reference & Guide
for Built-Up-Roofing and Single-Ply Materials

- Updated 3 times per year
- Comparative technical data
- Application information
- Dozens of manufacturers
- Hundreds of specs & products
- Easy to use format

Architects
Specifiers
Contractors
Engineers
Utilities
Building Owners
Shopping Malls
Bldg. Code Groups
Real Estate Mgrs.

Send for a Free Brochure

name _____
company _____
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Tech Talk

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This procedure is an acceptable quality control method. If gravel surfacing has been applied, a test cut should be taken only where significant evidence of roof deficiencies exists.

It should be noted that the layer of bitumen between plies of the membrane reinforcement should not be excessive. Maximum bond strength is achieved with the thinnest practical continuous application of bitumen between the plies. There should be sufficient bitumen to penetrate the membrane reinforcing, in addition to that required to provide waterproofing properties.

The important criterion is to apply a sufficient quantity of bitumen to provide a full and continuous course of bitumen for the embedment of each subsequent ply of roofing reinforcement. The bitumen should be applied in a manner that will not allow contact between layers of reinforcements. The quantities to achieve this may vary from as low as 15 lbs. per 100 square feet to possibly 35

lbs. per 100 square feet for application of bitumen between membrane plies. For open type fiber-glass reinforcement plies, the variances are narrower.

Difference in application rates may result from atmospheric conditions, methods of application, temperature at actual time of placement, and the type of equipment locally available to the applicators. Bitumen flows less readily at lower application temperatures and the interply layer of bitumen tends to be heavier in weight. The quantity may also vary between the machine ap-

The installation of all plies should be completed in the same day.

plication and mop application. These quantity variations are recognized as normal and acceptable, as many factors affect the application of hot bitumen. Bitumen is used as an adhesive as well as a waterproofing layer, and a thin, continuous layer of bitumen is required for the installation of felts.

We urge all roofing contractors to follow the preceding, as well as all others involved in the roofing industry.



CONTRACTOR:
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SPECIFIER:
"What is the proper fastener spacing for base flashing and counterflashing at curb?"

ARCHITECT:
"What is the NRCA recommended curb height?"

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NOTE:
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Tech Talk

By Bob LaCrosse, CAE
Director of Technical Services

Quality Assurance and Test Cuts

The NRCA Technical Services staff is frequently asked about roof test cuts, either during application or at the request of an architect, roofing consultant or building owner. A test cut is asked for in order to check for moisture content in a membrane or roof assembly, or as a check for the cause of roof blisters, splits or membrane deterioration.

To assist in this area, the NRCA Manual Update Committee revised the section on test cuts in the *Handbook of Accepted Roofing Knowledge (HARK)*. This revised section also appears on pages 27 & 28 of HARK in the newly revised edition of the *NRCA Roofing & Waterproofing Manual*.

NRCA believes the most effective method of verifying correct roof application is through visual inspection by persons experienced and knowledgeable of roofing during the application process.

To assist all those involved with this sort of exercise, the following should be verified and kept in mind at all times in order to obtain quality, trouble-free roofing assemblies:

Deck Surface: The surface of the deck should be clean, firm, smooth, visibly dry and properly secured against movement.

Materials: Roofing materials used on the job should comply with material specifications for the job. All materials should be clean, visibly dry and free from damage.

Storage of Materials: Roofing materials should be stored and protected.

Attachment: The roof membrane and/or insulation should be secured with the specified number and types of fasteners, nails or bitumen.

Bitumen: The type of bitumen should be checked to insure that it is the proper type for the specification, roof slope and climatic conditions. Proper heating temperatures should be maintained in the kettle or tanker to insure that the bitumen will meet EVT at the point of application on the roof.

Bitumen Application: Bitumen applicators should be well versed in the specified bitumen application rates.

In addition, applicators should be thoroughly knowledgeable of the volume capacity of the equipment being used and the length of runs required to achieve the specified bitumen application rates.

Plys of Felt: The specified number of plies of felt should be applied in accordance with specification procedures. The lapping sequence of the felt plies should satisfy specification requirements to achieve complete coverage.

Phased Application: The installation of all plies should be completed in the same day, and the plies should be surfaced either with a glaze coat or complete surfacing on all organic roof membranes. The final surfacing can be delayed on glass fiber roof membranes.

Flashings: Composition base flashings should be completed on a daily basis. Any material or masonry surfaces where bitumen materials are to be attached must be primed and allowed to dry. Composition and metal materials must be properly secured with appropriate mechanical fasteners using the spacing required (sheet metal 3" on center; masonry 6" on center; wood 9" on center). Walls, projections, wood nailers and other termination points should be completed before roof membrane and flashings are commenced. All sheet metal flashings, such as pipe collars, drains, gravel stops, etc., should be on site before roofing is required to be commenced. No condition should be al-

In no instance does NRCA recommend a test cut solely to determine membrane weight after the final surfacing has been applied.

lowed that would permit moisture entering behind, around, or under roof flashing membrane. Flashing installations should be monitored for lap openings and voids.

Gravel Adhesion: The gravel which makes initial contact with the hot bitumen flood coat should become embedded in the bitumen, leaving the balance of the gravel to serve as ballast and protection for the roof membrane system.

Roof Cuts: Roof cuts are sometimes used to determine the average weight of the interply bitumen quantities. When the job documents call for test cuts, a reliable scale should be maintained on the job site and cuts should be taken during application, evaluated, and replaced before the application of the surfacing. *In no instance does the NRCA recommend a test cut solely to determine membrane weight after the gravel or final surfacing has been applied.* When test cuts are required, the NRCA recommends procedures as called for in ASTM D-3617.

continued, page 52

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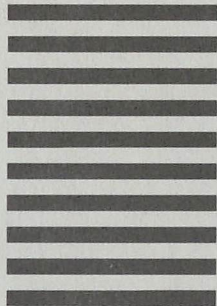
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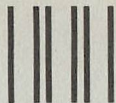
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