

National Roofing Contractors Association

ROOFING SPEC

NOVEMBER
1986
\$2.00



**Motivating your sales force:
what a difference a pay makes**

**Focus on
computers and software
See page 38.**



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ROOFING SPEC

Vol. 14, No. 11 November 1986

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COVER

Finding a sales force compensation plan that encourages performance and company growth can be a challenge. This issue offers two methods that have worked for NRCA contractors.



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CONTRACTORS
ASSOCIATION**

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ROOFING SPEC (ISSN 01997742) is published monthly for an annual price of \$20 for NRCA members, \$15 for additional copies for member firms and \$20 for non-members, \$65 outside United States (excluding Canada) by the **NATIONAL ROOFING CONTRACTORS ASSOCIATION**, One O'Hare Centre, 6250 River Road, Rosemont, Ill. 60018. Second-class postage paid at Des Plaines, Ill., with additional mailing offices. **POSTMASTER:** Send address changes to ROOFING SPEC, One O'Hare Centre, 6250 River Road, Rosemont, Ill. 60018.

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One last word on white vs. black

Dear Editor:

This may be my last public comment on white vs. black for 1986.

As everyone knows, most real-world situations are neither pure black nor pure white, but rather shades of gray.

Reading the letters to the editor in your July 1986 issue concerning "White vs. Black Roofing Membranes," I was impressed again that the heading should read "Light Gray vs. Dark Gray Roofing Membranes."

Carlisle has been installing white membrane roofs on an experimental basis since 1977. We have not introduced a white roofing system to date because we believe that neither the building owner, the roofer, the architect, nor Carlisle would be satisfied with the long-term aesthetics or the durability of the system.

In Carlisle we have a 112,000-square-foot test site for various experimental systems as well as competitive evaluations. On the first day of August 1986, we measured the surface temperature of various exposed materials. It was a bright blue day with a light breeze (4 to 7 miles per hour). The roof is an R-12 system, low slope with a few ponded areas near the drains and penetrations. The ambient temperature 4 feet above the ground was 88F. The measured surface temperatures of the various horizontal membranes were as follows: new jet black flashing—153F to 161F; gray black talc sheet (4 years old)—144F; new white membrane—112F; slightly weathered white (one month old)—121F; and weathered white (four years old)—126F.

The above measurements were taken in non-ponded areas.

As I said above, "Shades of Gray."

Concerning durability, a properly compounded white membrane is not as durable as a properly compounded black membrane. This is true for all roofing polymers. The major reason for this is that carbon black used for ultraviolet light protection is extremely fine.

For those of us in the industry who are trying to develop suitable white materials, may I suggest two realistic tests. An absolute minimum of two

years of field exposure in South Florida and an absolute minimum of 2,000 hours in a Xenon weatherometer with a black body temperature of 80C (ASTM G-26). You can use a gray-black talced Carlisle EPDM membrane as the standard control sample for performance comparison purposes if you like.

Don Backenstow
Carlisle SynTec Systems
Carlisle, Pa.

Adopting former guidelines could solve problems

Dear Editor:

I have just read the article on the "25 Percent Solution" by Mr. Toby Nadel in the May 1986 issue of *Roofing Spec*. His article is typical of the thinking of many architects indicating an apparent limited knowledge of how the ± 15 percent tolerance had been reached. Neither does it indicate how one can control the amount of "hot" that is applied to meet that tolerance consistently.

Considering the variations in the weather, hour by hour, day by day, season by season, the quantity of asphalt will vary due to these changes. The roof construction itself can contribute to a variation in the amount of asphalt used. We have wide open roof areas, others loaded with equipment, and also steep roofs as opposed to flat ones. Yet no one appears ready to make allowances for these conditions, which can influence the quantity of asphalt used.

As I recall, the roofing manufacturers manual used prior to World War II specified 20 pounds per square as a reference for estimating purposes. That was the principal reference for quantity of asphalt to be used. However, the rule that had to be followed under that guideline was that "felt should not touch felt" and there should be good adhesion between the plies. With these guidelines in effect and with good materials used this produced good roofs and resulted in no successful roofing litigation.

Until such time as the Nadels of this world can develop an application method that will enable the applicator to apply bitumen to any and all

roofs, in any and all weather conditions, within the 15 percent tolerance, I suggest we go back to the former days—days of less roofing litigation and the days of good building and design as relates to roofing systems—where we adhered to the criteria of total adhesion and "no felt to touch felt."

My views are based on over 50 years of hands-on experience as a journeyman, a graduate civil engineer, contractor, and now after "retirement," as a consultant.

Sidney Koch
JEBB, Inc.
Edison, N.J.

Roofing Spec should solicit views nationwide

Dear Editor:

As a member of the NRCA, we devote much effort to promoting professionalism and integrity within the Southern New England roofing industry.

We look forward to receiving our monthly copy of *Roofing Spec*, with its informative articles that often apply directly to our own business. Recently, I took notice of a rather odd situation and I checked back through some back issues of the magazine to see if my contentions are well founded. Although some *RSI* issues may be the cause of my feelings, I would like to ask why the interviews, quotes, and comments are so often the same contractors. I do realize that the NRCA people are often available for comment but telecommunications make available contractors from all sections of the country in all phases of the industry. In New England many of the finest, oldest and most reputable companies in the country are involved in some of the most involved projects any architect could dream up and put on paper. Let's hear from some varied professionals in states other than California, Florida, Texas and Arizona.

Thank you for your consideration.

Leslie H. Weisman
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Cranston, R.I.

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Comments asked on revisions to energy consumption document

The document that has had the greatest influence on energy consumption patterns in today's buildings is being revised to reflect the past decade's technological advances.

The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) has announced a second public review period for draft Standard 90.1P "Energy Efficient Design of New Non-Residential Buildings and New High-Rise Residential Building." The Illuminating Engineering Society of North America (IES) is co-sponsor of the standard. The first public review last year yielded 4,000 comments and resulted in substantial revisions to the standard. This sec-

ond review will focus on the modified document.

Standard 90, first issued in 1975, and revised once, has had broad impact on the construction industry, according to ASHRAE. The organization claims that it has resulted in a 25 to 30 percent reduction in energy consumption in buildings and has served as the base for building energy codes in all 50 states.

The purpose of Standard 90.1P is to set minimum energy conservation requirements for the design of new buildings that do not limit the buildings' functions or compromise the occupants' comfort and productivity. The draft includes design requirements for the exterior envelope.

All new buildings that provide facilities or shelter for human occupancy are covered by the standard except single and multi-family residential buildings of three stories or less. A parallel standard, 90.2P "Energy Efficient Design of New Low-Rise Residential Buildings," is also under development by ASHRAE.

The review period for Standard 90.1P ends Dec. 15. Comments from architects, engineers, building owners and operators, and other individuals employed in industries affected by the standard are encouraged. Copies of Standard 90.1P may be obtained for \$15 each from Manager of Standards, ASHRAE, 1791 Tullie Circle, N.E., Atlanta, Ga. 30329.

Commercial construction plans scrapped because of oversupply

Depressed conditions in commercial real estate show no signs of easing, according to the Research Institute of America, Inc. There is a serious oversupply of rental building space, including offices, apartments, shopping centers, retail stores, and service outlets, the Institute claims. It is anticipated that some investors will be hurt badly by the current situation.

The construction boom that led to the overbuilding was triggered by the popularity of real estate tax shelters. However, the development got out of hand and has resulted in the current glut. In many places, such as the Southeast oil region and in farming areas of the Midwest and South, fast-changing conditions have led to rental collapse by the time the buildings are finished.

Tax reform, which has abolished most tax shelters, has brought this crisis to a head. Construction plans are

being scrapped, and many building investors are expected sell their holdings, forcing shelter-financed buildings onto the market at cut-rate prices.

The Research Institute has found one silver lining in the dark clouds ahead. The organization's experts note that shelter sponsors may transform trusts and partnerships into profit-earning or profit-seeking operations, thus using current losses to offset future gains.

ROOFING **SPEC**

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Model personnel policies outlined in new ASA handbook for subcontractors

A new handbook to help companies develop their personnel manuals has been published by the American Subcontractors Association (ASA). Titled *Model Personnel Handbook for Subcontractors*, the handbook can be adapted to fit any company's individual needs.

This new ASA publication is based on a model handbook originally prepared by Charles Yumkas, a Baltimore construction attorney. It includes model policies for handling such personnel issues as payroll, time sheets, overtime, employee catego-

ries and evaluation periods. The handbook also provides basic policies on fringe benefits, vacation and termination of employment.

Model Personnel Handbook for Subcontractors can be ordered for \$10 (ASA members) or \$12 (non-members) plus \$2 shipping and handling from ASA, 1004 Duke St., Alexandria, Va. 22314

Homebuilding sustains construction industry again in July

Contracting for new construction edged up 1 percent in July, reaching a seasonally adjusted annual rate of \$239 billion, according to the F.W. Dodge division of McGraw-Hill Information Systems Co.

"July's contracting, which followed the pattern set earlier in 1986, again demonstrated how strength in homebuilding is filling the void left by this year's decline of commercial and industrial projects," said George A. Christie, vice president and chief economist for F.W. Dodge.

The combination of an overbuilt office market and severe foreign competition for manufactured goods has led to a 10 percent cutback of commercial and industrial construction so far this year. At the same time, however, favorable interest rates have stimulated a 12 percent gain in residential building. This has allowed the construction industry to sustain a record level while the rest of the economy is slowing, according to Christie.

July contracts for non-residential building, at an annualized rate of \$73.6 billion, advanced 1 percent from June's value, but remained far below last year's peak rate of \$89.2 billion.

"Retail building was the exception to July's generally weak demand for commercial and industrial facilities. The latest month's 10 percent advance in store/shopping center building is entirely consistent with the current high level of homebuilding," Christie said. "In the months ahead, retail building will provide an alternative to developers who have built their last office for a while."

July provided another good month for homebuilders, with the value of newly started residential construction rising 1 percent to an annualized rate of \$115.2 billion.

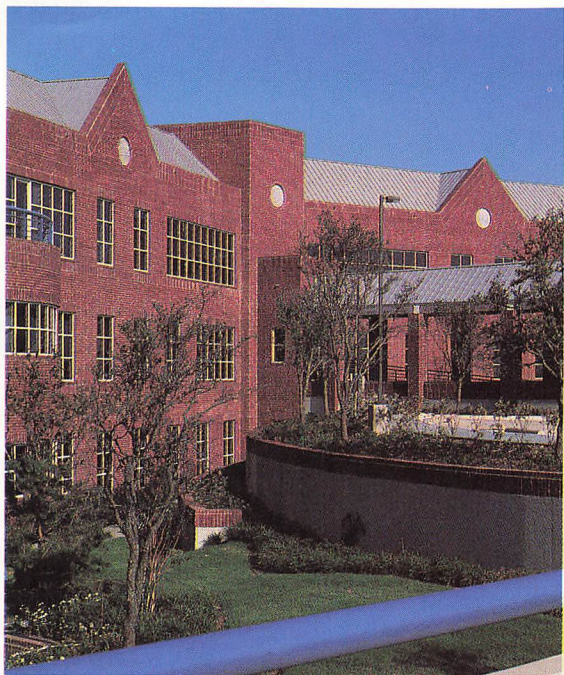
Although July saw the same split between single- and multi-family dwellings that has been seen throughout 1986, Christie noted, "We should be anticipating a shift in favor of

owner-occupied building in 1987, when tax reform will eliminate the advantage of accelerated depreciation on rental units."

Non-building construction contracts were valued at an annualized rate of \$41.2 billion in July, up 4 percent from June. This increase was dominated by a rebound of bridge construction, which reversed a two-month decline in the highway/bridge component of public works construction, and in sewer and water project construction.

At the end of seven months, total contracting for new construction posted its largest lead of the year at 5 percent, with the cumulative value of new construction contracts rising to \$141.4 billion. The Northeast and Central regions, gaining 8 and 13 percent respectively, are the strongest construction markets in 1986, while the West has gained 5 percent over last year and the South remains unchanged.

continued on page 11



Project: The Overlook Building
Las Colinas, Texas
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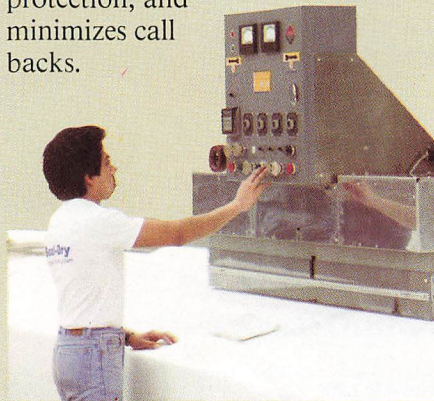


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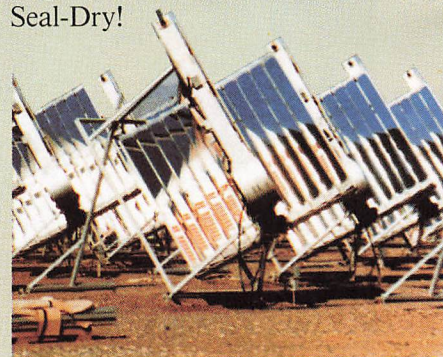
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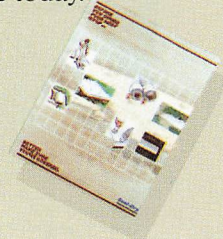
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Improving construction industry focus of five recent studies

The Construction Industry Institute (CII), a national center for construction research, has completed several major research projects. The organization issued its first five reports during its second annual conference, held in Asheville, N.C., in early August. The reports are: "Constructability;" "Project Control for Engineering;" "Scope Definition and Control;" "Impact of Various Construction Contract Types;" and "Evaluation of Design Effectiveness."

The Institute grew out of the Construction Roundtable's Construction Industry Cost Effectiveness Project (CICE). In a conference overview, CII Director Richard L. Tucker explained that the Institute's mission is to improve construction cost effectiveness and strengthen American industry's competitive position. During his address, CII Chairman Robert H. Miller

of DuPont said that while he was impressed by the Institute's progress, it is still far from its goals. DuPont's Charles D. Brown, the conference keynote speaker and former chairman of the CICE project, stressed that CII's most pressing challenges are to be innovative; to improve construction

technology, quality and performance; and to match the drastic steps manufacturers are taking to survive.

During the conference, CII presented the second Carroll H. Dunn Award of Excellence to Brown for his outstanding efforts to improve construction cost effectiveness.

Consultants group begins tests to qualify engineers

The Roof Consultants Institute (RCI) recently announced plans to inaugurate a nationwide testing program under which professional consultants and engineers may qualify as Certified Roof Consultants.

The new program, planned for implementation by spring 1987, is being directed by the national organization's executive committee, which includes such prominent roof consultants as RCI President Richard P. Canon, First Vice President Robert W. Phillips Jr., Second Vice President D.B. Hales, Secretary George F. Kanz, and Treasurer James E. Magowan.

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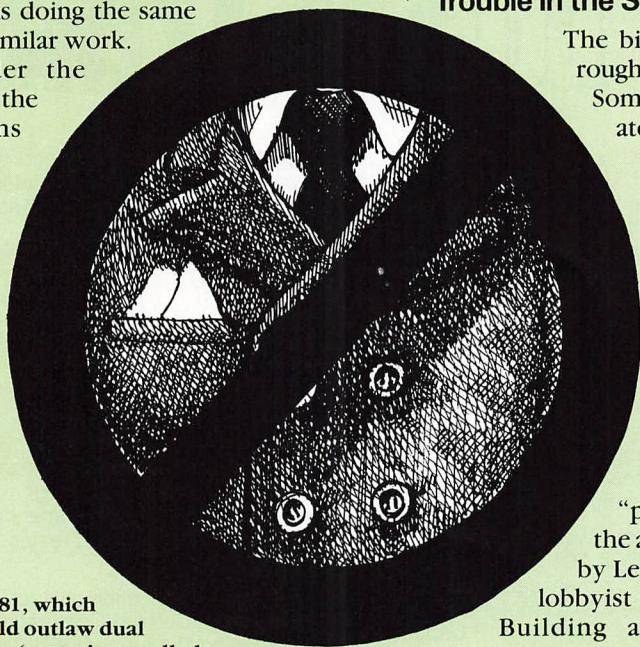
Senate bill outlawing dual shops nearing final vote

Recent legislative activity has once again focused the construction industry's attention on proposed anti-dual-shop legislation. Developments include: passage of the bill in the House; a pending vote in the Senate, where it has been attached to, and removed from, a number of other bills; and rallies held around the country to demonstrate against the bill's passage.

The House bill, known as H.R. 281 or the "Construction Industry Labor Law Amendments," was first introduced in the House of Representatives last year, but its 142 co-sponsors withdrew it from the floor in early December. On April 17, 1986, it was reintroduced and passed by a vote of 229 to 173.

The bill would effectively eliminate dual-shop operations by requiring that multiple construction firms be considered a single employer if there exists "direct or indirect substantial common ownership, common management or common control" among firms doing the same or similar work.

Under the bill, the terms



S. 2181, which would outlaw dual shops (sometimes called double-breasted operations) is meeting with resistance from contractor groups.

of a collective bargaining agreement would be applied to all of an employer's related firms within the geographic area covered by the agreement. Also, prehire agreements would be given the same status as mature collective bargaining agreements.

The House vote took place hours after the building trades' annual legislative conference, where AFL-CIO President Lane Kirkland stressed to the delegates that this bill is "a key issue" of the labor movement. He urged conference attendees to make House members aware that their vote on H.R. 281 would be considered "a political litmus test on whether they are with us or against us." The House vote, taken a few hours later, came despite lobbying efforts against the bill by construction industry management groups. In passing the bill, the House rejected a number of amendments to limit its impact and narrow its definitions.

Trouble in the Senate

The bill has had a much rougher time in the Senate.

Some believed the Senate version (S. 2181) would make it to the floor as an amendment to either the 1987 military authorization bill or the debt-ceiling measure. Neither effort was successful, however.

The debt ceiling measure was originally considered the "perfect vehicle" for the anti-dual-shop rider by Leo C. Zeferetti, chief lobbyist for the AFL-CIO Building and Construction

Trades Department. But when that bill became encumbered with numerous amendments, the union said it would look for a "cleaner" bill that would allow greater emphasis on the double-breasting issue.

The bill's opponents claim the union had other motives for withdrawing the bill. Lobbyists for the Associated Building Contractors (ABC) and the Associated General Contractors (AGC) contend the union dropped the bill because it lacked Senate support, a claim the union flatly denies.

AGC's chief lobbyist, Sue Loomis, claims the bill's opponents have the votes to defeat S. 2181. Another contractor association lobbyist is nervous about the bill's chances, however, and says there is need for a "massive education job, as so many senators don't understand this thing." He fears the legislators may get talked into voting for the bill.

Measures taken by a coalition of management groups opposed to H.R. 281/S. 2181 to halt passage of the anti-dual-shop legislation include a full-page advertisement in *USA Today* on July 29. The ad characterized S. 2181 as "an attempt by construction unions to grab and wield enormous power through the most coercive construction labor law changes ever proposed in the U.S. Congress." The coalition has also been organizing state rallies around the country. The rallies were held during Congressional recesses to place grassroots pressure on senators while they were at home.

A final Senate vote on the amendment, submitted directly on the floor, is expected at any time. Capitol Hill watchers foresee a close vote, but seem to suspect it will not pass the Senate, thus killing the entire issue—for now.

IN BRIEF

- **The American Subcontractors Association (ASA) is angered** by a regulation to implement the Prompt Pay Act. The Association has called the regulation "misguided and misdirected." Issued by the Federal Acquisition Regulation Council, the regulation would allow a federal agency to take more than 80 days to pay its bills before facing interest penalties. It gives agencies four days to receive an invoice, 30 days to accept the invoice, another 30 days to process the invoice and an additional 15-day grace period.



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Contractors attend seminar to stay out of legal trouble

September's National Roofing Legal Resource Center (NRLRC) seminar offered the guidance contractors need to stay on the job and out of court. Most of the materials for the seminar were prepared by the Atlanta-based law firm of Hendrick, Spanos and Phillips, NRCA's legal counsel. Construction and government contracting, preventive law for roofing contractors, bank and bonding company relationships, safety, and the impact of 1986 tax legislation upon construction contractors were covered in sessions presided over by attorneys from the firm.

"With more and more of our members spending nearly as much time in court as they do on the roof, we saw the need to educate them as to their legal rights and obligations," said Pat Appelhans, director of the Center.



NATIONAL ROOFING
LEGAL RESOURCE CENTER

OSHA explained

One well-received session explained the intricacies of OSHA's regulations and inspections. Dudley Rochelle, a senior associate with Hendrick, Spanos and Phillips, reviewed with the contractors the regulations that have the greatest impact on their operations. She said that standards of particular importance to roofing contractors included those regulating floor and roof openings, roof perimeter guarding, safety training and education, personal protective equipment, toxic fumes, asbestos, and fall protection.

As far as OSHA's concerned, according to Rochelle, proper worker training is the key to an effective safety program. Rochelle's presentation emphasized the need for documented worker safety training to avoid OSHA citations. She said that even though OSHA's hazardous communications standard, which requires stringent worker training, does not yet apply to contractors, the agency is already using the amount of training a contractor provides as a yardstick to measure his or her commitment to safety.

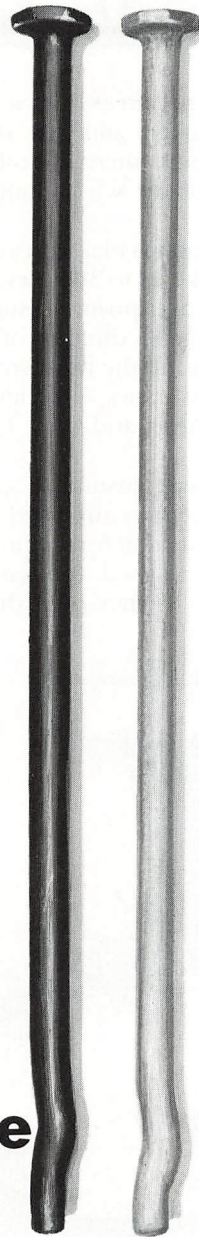
Contractors should already be following the hazardous communication standard's guidelines, Rochelle warned. "You may as well get ready for it, because it's coming down," she said. She suggested that contractors pass information about hazardous chemicals at the worksite on to their employees as part of the company's safety program.

Rochelle also detailed the voluminous paperwork OSHA requires. Each notice, record and log that contractors must complete and keep on file was described, and examples of many of the forms were included in the seminar book that each participant received.

In the support material each participant received, Rochelle gave contractors tips on coping with an OSHA inspection. A list of 11 do's and don'ts specifically outlined the actions and reactions that are proper and wise in the presence of a federal safety inspector. One piece of advice Rochelle gave to the contractors: "Be cooperative (but not compliant)."

Representatives from Manville Corp., Carlisle SynTec Systems, Tamko Asphalt Products, Inc., and GAF Corp., were also on hand at the seminar to panel a discussion on roofing claims and disputes from the manufacturer's perspective. Also, as part of NRCA's ongoing efforts to help contractors battle the liability crisis, Carl Ernstrom of Ernstrom & Hefferon Associates, Inc., advised attendees on ways to manage and plan their insurance requirements.

This year's seminar was held at Colorado Springs' Broadmoor Hotel, a five-star resort complex on the edge of a picturesque lake at the base of Cheyenne Mountain. The site offered the seminar's 60 attendees a scenic respite from the increasingly complex legal side of today's roofing industry.



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Asbestos claimants ask, "Who's to blame?"

While everyone agrees that victims of asbestos-related ailments deserve compensation, there is still some argument about who should foot the bill.

"It is difficult to assess blame in asbestos cases since it can take up to 30 years for the symptoms of asbestos exposure to surface," says Carl Good, NRCA's director of membership. "Complicating the problem is the fact that many insurance policies have lapsed, leaving victims and their families without coverage."

The manufacturers, insurance companies and federal agencies involved are all responsible to some extent for the problem. The government exposed thousands of workers to asbestos as they built the war-

ships that helped the country win WW II. Johns Manville Corp., as the world's largest producer of asbestos, is also being blamed for workers' exposure to the carcinogen.

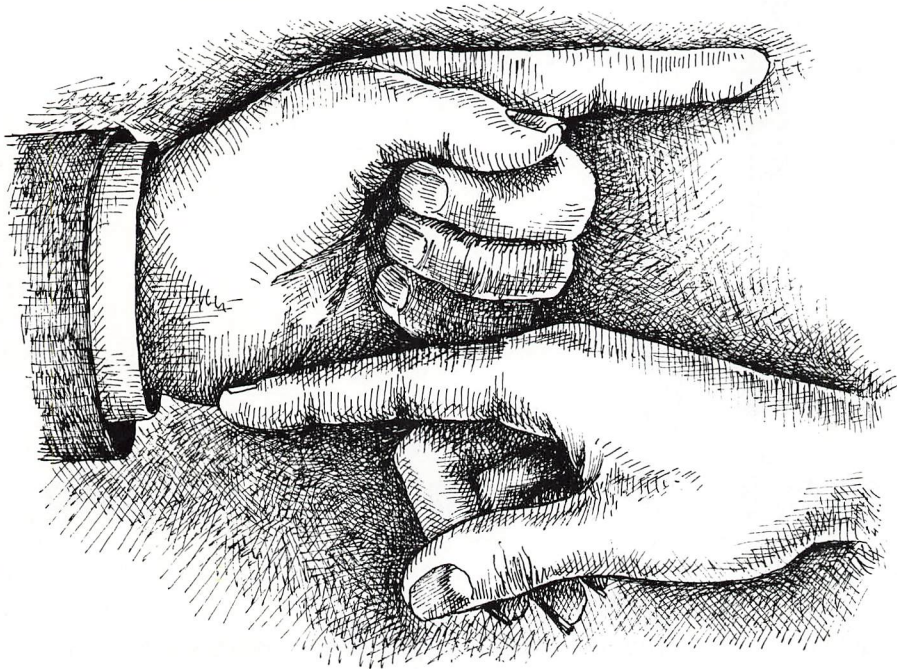
Manville has already been hit with lawsuits totaling several million dollars filed by asbestos victims. The company responded to the crisis by filing for Chapter 11 bankruptcy in 1982, halting all litigation aimed at it until the proceedings are completed. Manville has proposed a multi-million dollar trust to aid in asbestos victim compensation, but technicalities still need to be ironed out before distribution of the fund can begin.

In light of these complications, some groups are calling for the creation of a national commission devoted solely to handling asbestos injury claims. Representative Pat Williams, D-Mont., believes that the federal government should assume some responsibility for compensating victims of occupation-related diseases. His plan calls for federalizing workers' compensation to allow for claims against the government. The congressman hopes his idea will provide a common sense, non-adversarial way to deal with the staggering backlog of asbestos claims.

Insurance hard to find

Manville's problems have not gone unnoticed by the insurance industry. As a result, contractors are finding it increasingly difficult to locate companies willing to underwrite asbestos removal. Some insurers are coming to the contractors' aid, however. One Connecticut-based contractor, the Acmat Corp., and United Coastal Insurance have undertaken a joint venture to insure high-risk clients.

To protect themselves, contractors not regularly involved in asbestos removal are taking a hard look at the job before proceeding. If they find some asbestos removal will be required, they are renegotiating their contracts to allow for the extra work or expense involved.



IN BRIEF

■ **Recent asbestos litigation** includes the unanimously passed Senate bill S. 0083, the Asbestos School Abatement Act. The bill requires schools to abate asbestos hazards. House and Senate versions of the bill would allocate an additional \$25 million annually through 1990 for this work. The biggest difference between House and Senate amendment proposals is a provision in the House legislation that exempts contractors and school officials from liability for personal injury or property damage resulting from abatement activities unless the damages are caused by negligent conduct. Another provision states, "An asbestos contractor or a local educational agency who is a defendant in such an action may not be held jointly liable with any other defendant in such action, but may be held severally liable in such action."

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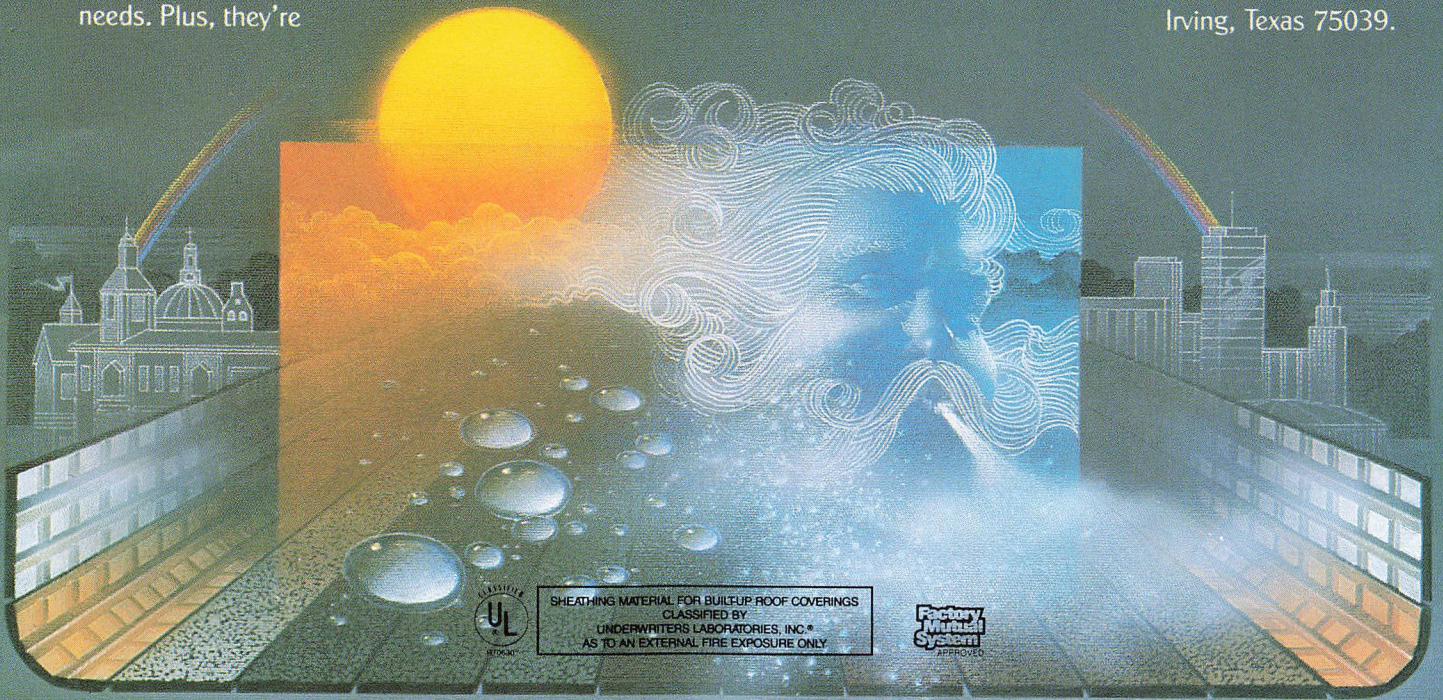
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Despite the constant publicity focusing on the loss of union power across the United States, a recent telephone survey of 78 roofing union locals found many gaining wage and benefit increases in their most recent negotiations.

Of the locals surveyed, only seven actually conceded a wage cut during their last contract negotiations, another 21 accepted a continuance of the same wage, and one no longer has a contract at all. The remaining 59 negotiated wage or benefit increases in amounts ranging from a low of 10 cents a year to a high of \$1 a year. Of the locals surveyed, 39 renegotiated their contract this year and 25 renegotiated last year.

On a national level, the average base wage is \$14.74 an hour. Wages range from a high of \$20.78 in Cleveland to a low of \$8.50 in Norfolk, Va. Though there are vast differences nationally, wages from local to local within a region are relatively consistent.

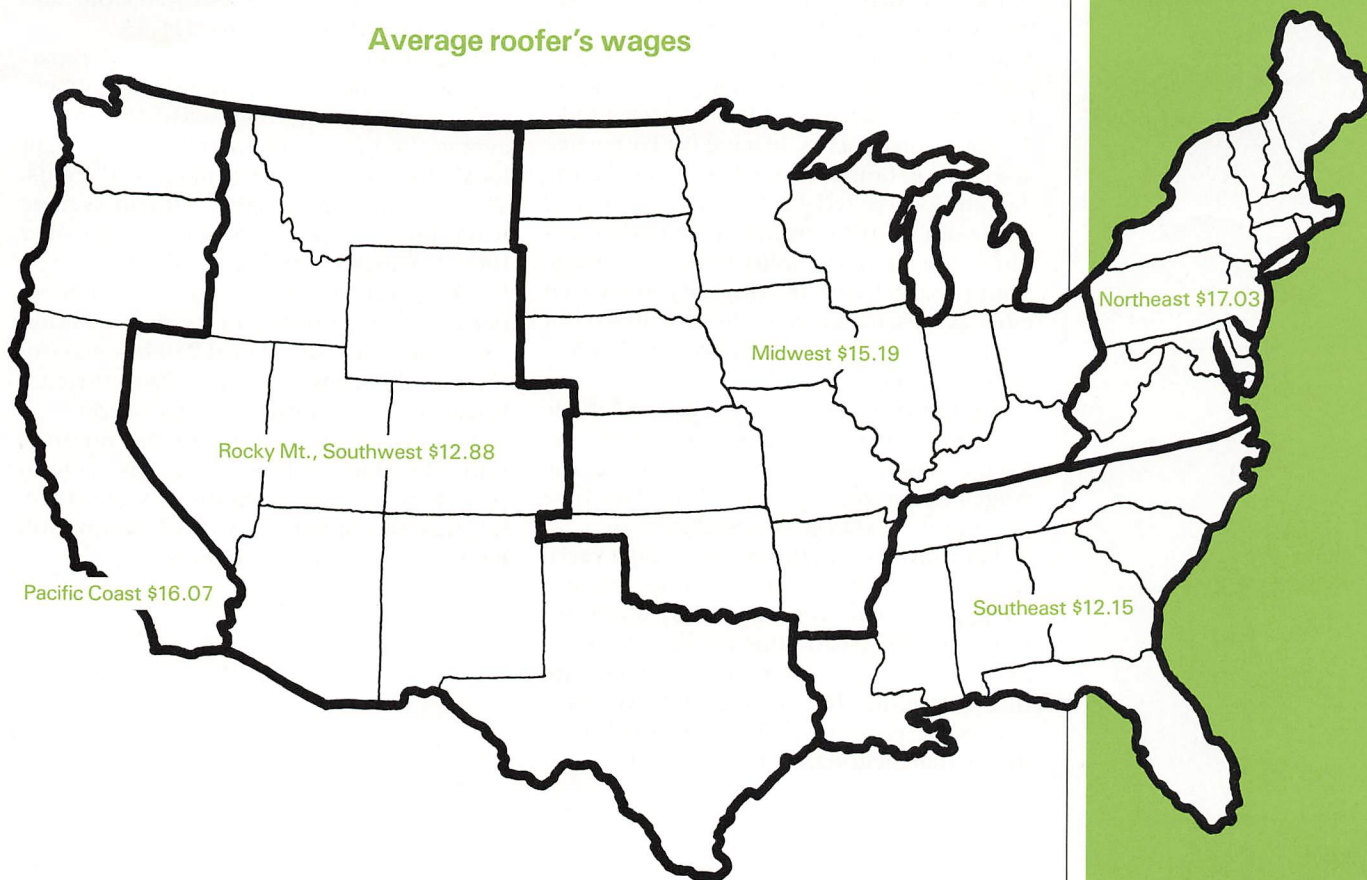
The major concessions that have been granted include the expansion of free-mile zones, institution of flex time, and increased flexibility in scheduling make-up days for

necessary postponements caused by such factors as inclement weather. The most significant changes throughout the country occurred in the apprentice and helper programs. Many unions have agreed to large wage and benefit concessions for individuals in these programs. In many cases the time between increases has been lengthened or more gradual increases have been negotiated. Benefits are also undergoing adjustments, with more and more money being shifted from wages into health and welfare payments as insurance costs continue to soar. Many unions are also reserving the right to apply their yearly increase to their benefit package.

There is a feeling among many locals, particularly in the Midwest and South, that the end of negotiated increases may be in sight. Florida, for example, is a right-to-work state, where the union has little power, and contractors generally seek non-union operations. Local officials in Cleveland note that even though its members currently enjoy the highest wage in the country, there is very little union work available. Although the union is willing to

Unions' fortunes vary from concessions to victories

Average roofer's wages



*Nationwide,
the future of
the union is
unpredictable.*

make a \$3-an-hour wage, the union claims the contractors don't want to sign because they simply don't need or want the union roofers.

Regional variations

As would be expected, workers in the Northeast receive the highest average base wage of \$17.03 plus an additional \$3 to \$6 in benefits. The wages paid in the New York City, Long Island and Philadelphia areas are among the highest in the country, with a base wage of more than \$20 an hour and \$6 to \$7 in benefits. The \$14.25 wage paid to roofers in York, Pa., is the lowest in this region. The Northeast also has the highest average yearly increase of 67 cents. No local in this region agreed to wage concessions in the last contract.

Roofers on the other side of the country receive the next highest average wage. Pacific Coast workers' wages average \$16.07 an hour, and their average yearly increase is 65 cents. Wages in this region range from a high of \$18.85 in Seattle (for old journeymen only) to a low of \$14.75 in Spokane.

Washington state locals have implemented considerable changes in their most recently negotiated contracts. In Seattle, the old journeymen agreed to a two-year wage freeze and a 25-cent increase in the third year, while new journeymen will receive \$2 less. In Tacoma, only 20 miles from Seattle, the local agreed to a \$2.20 cut in wages and a 5-cent cut in benefits, leaving the base wage at \$15.50 an hour. The spokesperson for the Tacoma local noted that he was sorry that he chose not to strike because he couldn't reconcile the city's proximity to the high-wage Seattle market with the disparity in the two cities' wages. In Spokane, the new 1986 contract increased wages for that city's roofers only 19 cents.

The one other Pacific Coast city that made a significant wage concession was San Diego, where last year's contract cut the wage/benefit package by \$2.70. The base package in San Diego is \$15.12 an hour.

The Midwest has the greatest wage variations. Both Cleveland, with the highest package in the country, and Waterloo, Iowa, whose \$9-an-hour package with no benefits is one of the nation's lowest, are in this region. The average hourly wage across the region is \$15.19. Among the 16 locals that negotiated increases, the aver-

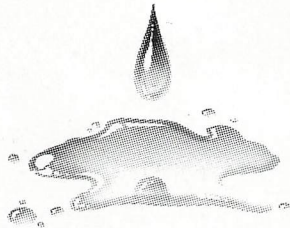
age wage hike was 45 cents a year. Six locals rolled over their previous contract and two agreed to decreases. Local 88, representing Canton and Akron, Ohio, agreed to an initial \$2 cut in wages and benefits, but will be receiving an increase of 17 cents next year. Likewise, the Peoria, Ill., local agreed to a six-month \$1 decrease in wages, offset by a 40-cent increase in benefits and yearly increases over the next two years of 50 cents and 60 cents, respectively.

As we move South and West, the wages drop. The average hourly wage in the Southwest is \$12.36, and in the Rocky Mountain states it is \$13.39. More significantly, of the 12 locals surveyed in this region, only three had yearly increases in their current contracts, amounting to 25 cents across the board. Another eight locals have rolled over their previous wages for one more contract period. Their wages averaged \$12.93 an hour. In Reno, Nev., Local 224 agreed to a \$6.07 wage cut and an hourly rate of \$14. Subsequent years in Reno's three-year contract will include a 3 percent increase.

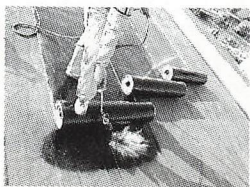
The highest wage in the Southwest is the \$14.50 an hour paid to roofers in Phoenix. The lowest wage is in Denver, where new journeymen B receive \$9.13 an hour and new journeymen A receive \$11.43.

The union's weakness in the South is particularly evident in the Southeast, where the average hourly wage is \$12.15, and the average increase negotiated by the eight locals that gained wage hikes is 41 cents. Three locals in the region, with an average wage rate of \$11.77 an hour, rolled over their existing contracts, while the Tampa local agreed to a \$2.15 wage concession, cutting its members' rate to \$10 an hour. The Charlotte, N.C., Local 259 has no contract at all, losing it early in 1986 through litigation in the North Carolina courts.

Nationwide, the future of the union is unpredictable. It is doubtful that union power as we used to know it will return, but it is also apparent that the unions still have strength in some regions.



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Motivating your sales force: what a difference a pay makes

by Mike Promen

Woody Allen tells a wonderful story at the end of his movie *Annie Hall*. He relates how a man once took his brother to the psychiatrist because the brother thought he was a chicken. When the psychiatrist asked the man why he had waited so long to get his brother help, he replied, "We needed the eggs."

Trying to devise a way to pay salesmen is very much like this story. Any plan we come up with will probably be crazy, but we need the eggs.

One thing is certain, every person that works for you must be paid for that work. But paying a person more money won't necessarily spur him to produce more work. This is where the craziness comes in. When dealing with salesmen I have found that paying too much money has sometimes gotten me less work in return. Because the salesmen didn't need any more money, the higher salary failed to motivate them. Once they reached a level of income they were happy with, they stopped selling until that level dropped.

Clark Roofing's approach to compensating its sales force was created with these quirks of human nature in mind. With it we hope to get as many eggs as possible without the craziness.

Three basic plans used

In setting up this plan I talked to a number of roofing contractors across the country and found almost as many methods of compensation as there are companies. Basi-

continued on page 24

by Bennett Hutchison

In 1975, Tip Top Roofers set up a sales force compensation package that has worked well for our company. Under the plan, which we are still using, the same person handles a project from initial contact all the way through the final billing and project close-out. The ultimate responsibility for a project's successful completion lies with this person.

These project managers literally become partners with the company, sharing in a percentage of their projects' profits. The project managers share in cost responsibilities as well, bearing the costs for the projects they handle. In effect, they are administrators of semi-independent operations that work within the company's organizational framework.

This is a performance-oriented approach, that is, the project manager's performance, which will be reflected in greater sales or increased productivity, will produce higher gross profits for the company and ultimately greater compensation for the manager.

Reaching everyone's goals

This compensation plan has helped Tip Top Roofers accomplish several goals. By rewarding top performance, we have been able to encourage higher management productivity. Our project managers have been motivated to seek the maximum volume of work that they can successfully handle, which helps us achieve our company goals for bottom-line profitability.

continued on page 26

Though their plans differ, both Mike Promen of Chicago's Clark Roofing and Bennett Hutchison of Atlanta's Tip Top Roofers have found that tailoring a compensation program to the psychological needs of their sales people has helped make the company productive and successful.

I did not want a plan that paid an arbitrary amount as a bonus.

Promen *continued*

cally, most of these variations fall under one of the following three categories:

- straight commission;
- straight salary; or
- a salary and bonus plan.

Each of these may have an expense account attached.

The commission plans paid the sales force a percentage of either the gross sales or the gross profit, with the percentage paid varying from contractor to contractor. In some cases the salesman was responsible, or at least liable, for the job's profitability. In other words, if the job was figured correctly but the roofer messed up, the salesman would lose his commission.

The straight salary plans, as the name implies, paid a fixed salary each week. Usually, the salary would include some small amount for expenses such as gasoline or a car allowance. Most often, the people receiving this type of compensation were estimators doing take-off work on new construction.

Usually, it was the larger companies doing more new work than reroofing that chose the third option, the salary/bonus plan. At these firms, the salesman's job involved more price giving than salesmanship. Almost all of the contractors using this method based the bonus on how much profit the company was showing. The actual performance of the individual doing the selling/estimating seemed to have little effect on the size of the bonus check.

A plan made for Clark

In choosing our plan we had to find the method that would be most effective for our marketing mix. Clark Roofing does no new work and very little open bid work. In 1985 and for the first eight months of 1986, 83 percent of our work was negotiated sales.

Paying the sales force a straight salary was never really considered. We did not feel we could attract the high-quality person we needed to first sell and then follow through with a roofing customer using this compensation method.

A number of reasons led us to rule out the salary/bonus plan as well. For one, I did not want a plan that paid an arbitrary amount as a bonus. Also, the plan seemed to be very complex, costly to administer, and hard to

understand. Giving the sales force a plan that lets them compete is part of the "win-win" situation a contractor must create in order to employ successful salesmen. It's important because most of the good men deal not in money but rather in winning.

I believed a simple plan would be more effective because it would allow the salesmen to easily track their "winnings," which in turn, fuels their competitiveness. The plan must be fair to the company and fair to the employee. The salesman must be able to make money at it, and he must be able to win.

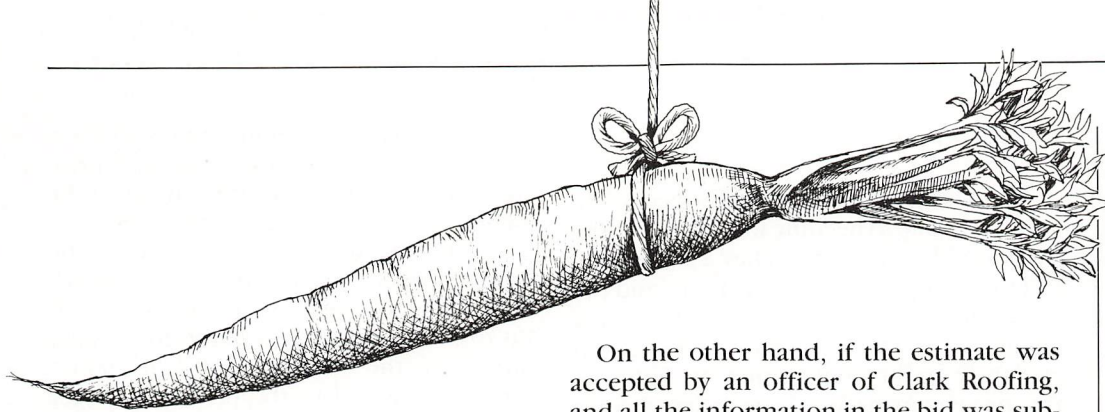
John Welch, a Clark Roofing salesman for 21 years, once explained this philosophy to me after I had "bested" a subcontractor on a deal and knocked his price down to where he could not make any money. Welch told me that I had forgotten a basic rule of business, which he said was, "We all have to eat." By making it impossible for the subcontractor to make a living, Welch claimed, I was inviting him to steal from me, or at the very least, do shoddy work.

Keeping it fairly simple

To keep the plan fair and simple we chose to pay a negotiable commission on the gross sale. A price book that gives historical information about comparable jobs, including material costs and labor hours, makes this possible. The book lets us figure what a job "should" go for. With this information we are able to estimate what it will probably go for.

To set the commission, the salesman and a Clark officer sit down together before the job is quoted to the customer. Typically, the commission will be 3 to 10 percent of the gross sale. The percentage varies with the size of the job; the salesman might collect 3 percent commission on a large school job, but 10 percent on a smaller office complex. Finding the percentage to pay the salesman that is fair to both the company and the salesman can be difficult. As we said before, paying an extra percent will not necessarily get the contractor any more work.

With a more demanding specification requirement, the extra cost of this commission would be the value-added part of the job. It would be included in the price to cover the additional service Clark would be providing. And because the sales people are the ones supplying this service, they should be able to share in the rewards.



These commission negotiations can be complicated if the customer orders changes or adds more work to the job. Clark Roofing will determine the percentage amount to be paid to the salesman for these changes, but the amount will not be less than 3 percent. If more than one addition is made to the sales contract, Clark Roofing may aggregate or separate these orders and assign the same or different commission schedules to them. If no commission percentage is stated for additional work, it is 5 percent.

For a 10 percent commission, the gross sales figure is found by dividing the gross cost by 0.9. The gross cost is figured as labor plus materials plus subcontractor plus overhead. For a 5 percent commission, the gross sales figure is found by dividing the gross cost by 0.95. The reason for dividing by 0.9 or 0.95 is that it will give a true gross sales return when this 10 percent commission is deducted from the sale.

The salesman is paid a draw against the amount due him. The size of this draw is agreed upon by both Clark and the salesman. Every four months, Clark Roofing can adjust the amount of the draw or the salesman may renegotiate the sum.

The salesman earns half of the total commission, credited to this draw account, when the work is completed. The balance is credited to his draw account when the work has been paid.

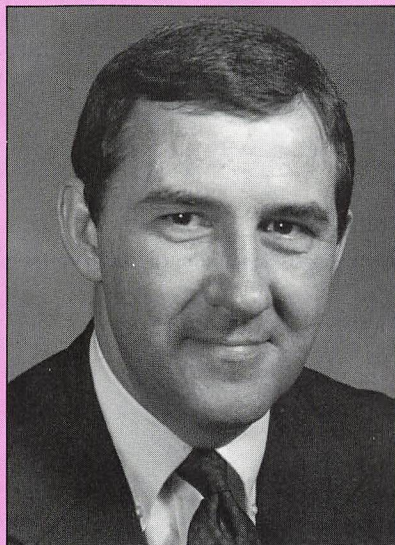
The amount of commission earned is affected if the customer does not pay or if legal action is needed. The company may also reduce the salesman's commission if it finds that the job was misbid. We would consider a job misbid if the salesman mismeasures and then bases his bid on the wrong amount of material needed. Making a mistake in addition or changing the price book without approval would also cause a misbid.

On the other hand, if the estimate was accepted by an officer of Clark Roofing, and all the information in the bid was substantially correct, the salesman is still paid his earned commission even if the job does not make money. This might be the situation when doing a tear-off, and a poor night seal causes a costly leak and overrun during an otherwise correctly bid job. Because the salesman is not responsible for this loss and could not have prevented it, he is paid.

Clark Roofing has prepared a sales employment agreement to let the salesman know exactly what is expected of him. The first article of the agreement requires the employee to use his experience and background to promote and sell Clark's roofing services and systems in the Chicago metropolitan area, and act as a liaison between the customer and the company.

Other points that are set in writing are the salesman's commissions, percentages and draws. The agreement also explains how commissions are earned, how supplies and equipment are furnished, how customer lists and trading areas are handled, what happens if the salesman terminates, and what can be done if a problem occurs.

To set the commission, the salesman and a Clark officer sit down together before the job is quoted to the customer.



Mike Promen is president of Clark Roofing, Chicago, and is presently serving as an NRCA director.

The plan has also given the project managers a chance to become more involved in the individual projects.

Hutchison *continued*

The plan has also given the project managers a chance to become more involved in the individual projects. They can literally call the shots on a day-to-day basis, and the direct results of their decision making affect not only the company's profits but also their own compensation. In addition, the project managers have been given a greater say in decisions that affect them personally such as the type of vehicle they drive, their base salary level and the amounts they spend on entertaining potential customers.

The company has also benefited from this compensation method. We now have a system for judging the performance of each individual project manager as well as a way to compare the job or performance of one project manager with another. It has also given us a standardized incentive plan that shows new persons hired from outside the company that they have the same opportunity to earn money as the more established project managers.

There are almost an infinite number of variations possible with the plan we use at Tip Top Roofers. In house we try to adjust for individual project managers in accordance with their individual areas of responsibility and expertise.

The equation

All that is required to figure the project manager's compensation for a particular job is some basic math. The gross profit that is split on a percentage basis between the company and the project manager equals the dollar amount of sales minus the direct costs and a percentage of the direct costs to cover variable overhead. The equation looks like this:

$$\begin{array}{r} \text{Sales} \\ - \text{Direct cost} \\ - \text{A percentage of direct cost to cover variable} \\ \quad \text{overhead} \\ \hline = \text{Gross profit} \end{array}$$

The company determines its direct costs and overhead by analyzing historical financial data and arriving at a percentage of the total sales that reflects these expenses.

The percentage of the gross profit the project manager receives may vary depending on the company's circumstances. In any event, the percentage of the gross profit allotted to the company must be higher than that allotted to the project manager because the company must deduct general administrative expenses from its share before releasing a net company profit. The project manager must deduct his expenses to the company for the time period out of his share.

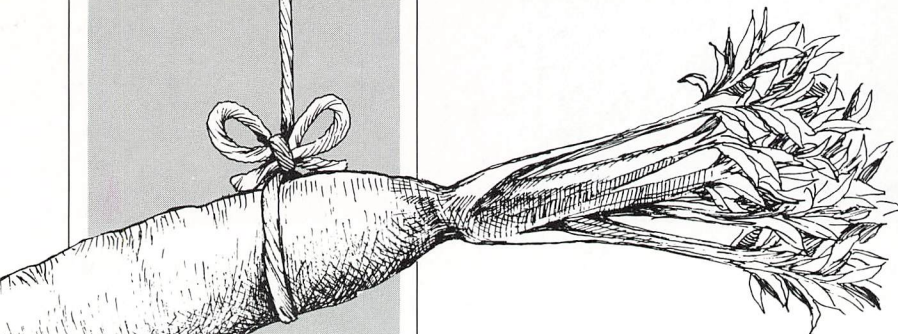
To see how this formula works in practice, let's assume a project manager's sales for a certain period totaled \$1 million. The manager's company, using historical financial data, determined that 68 percent of sales, or in this case \$680,000, represents direct costs. The company's financial records also indicate that overhead generally equals about 20 percent of its direct costs. In our example this amount comes to \$136,000. These expenses are subtracted from the \$1 million in sales, leaving the contractor in our example with \$184,000 gross profit. When we plug these numbers into our equation, it looks like this:

Sales	\$1,000,000
Direct cost	680,000 (68% of sales)
Variable overhead	136,000 (20% of direct cost)
Gross profit	184,000

In this particular case, the contractor and the project manager have agreed to a 75 percent/25 percent split of the job's profits. The company's 75 percent share totals \$138,000. From this amount, the company must subtract a certain percentage to cover its general administrative expenses. This percentage is also established through historical financial records. In our example, administrative expenses equal about 8 percent of sales or \$80,000.

After taking all its expenses into account, the company is left with a net profit before taxes of \$58,000.

The 25 percent of sales the project manager receives equals \$46,000. If the project manager had set himself a salary of \$32,000 and his other benefits, such as insurance and auto, equaled \$4,000, his total compensation for the time period would equal \$36,000. Thus, the \$46,000 that he receives as his share of the gross profits includes \$10,000 in additional compensation.



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N NRCA VENDOR SURVEY: COMPUTER SOFTWARE FOR ROOFING CONTRACTORS

The information presented in this listing of computer software for roofing contractors was compiled from a survey of selected vendors throughout the country conducted in August 1986. The purpose of the survey was to ascertain the availability of software that, according to the vendors, was either specifically designed for or could be used successfully by the roofing contractor. It is hoped that the survey results will assist contractors in their search for software appropriate to their needs.

The information contained in this listing is a recording of data furnished by responding vendors; no attempt has been made by NRCA to verify the data, nor does the inclusion of vendors in this listing imply NRCA approval of their products.

In addition to data on software, vendors supplied information on hardware and memory requirements, brands and models of computers that represent the type of equipment for which the software originally was designed, and the regions serviced. The extent of training and maintenance and support offered by vendors are included as well.



One O'Hare Centre
6250 River Road
Rosemont, IL 60018
(312) 318-NRCA

An NRCA Vendor Survey: Computer Software for Roofing Contractors

VENDOR CONTACT PERSON	NUMBER OF EXISTING INSTALLATIONS IN ROOFING CONTRACTOR COMPANIES	IF NOT CURRENTLY INSTALLED IN A ROOFING CONTRACTOR BUSINESS, IS THIS SOFTWARE APPLICABLE TO THE ROOFING CONTRACTING INDUSTRY?	REGIONS SERVICED BY YOUR COMPANY						SOFTWARE PACKAGE	HARDWARE REQUIRED	OPERATING SYSTEM	PROGRAM LANGUAGE	SOURCE CODE AVAILABLE	INSTALLED LOCATIONS/ FIRST INSTALLATIONS	INSTALLER USER LIST AVAILABLE
			NORTHEAST	MIDEAST	SOUTHEAST	NORTH CENTRAL	SOUTH CENTRAL	NORTHWEST							
A-Systems Corp. 1610 South Main #H Bountiful, Utah 84010 (801) 298-0052		Yes	✓	✓	✓	✓	✓	✓	CONTRACTOR III	IBM & Compat., Altos, Televideo, Wang, Most microcomputers	PC DOS CP/M MP/M TurboDOS Others	BASIC ASSEMBLY	Yes	800 1978	Yes
Anawan Computer Systems 19 L. Winterberry Lane Rehoboth, MA 02769 (617) 252-4537 David G. Johnson		Yes	✓	✓	✓	✓	✓	✓	PM-STATUS II	IBM IBM compatibles Tandy TRS-80 series	PC-DOS MS-DOS TRS-DOS	BASIC	Yes	150 plus 1980	N/A
Apollo Data Systems, Inc. 2487 E. Orangethorpe Ave Fullerton, CA 92631 (714) 879-8800	0	Yes				✓	✓	✓	CONTRAC2	IBM PC, IBM PC/XT, IBM PC/AT Minimum 20MB	SUPERDOS	BUSINESS BASIC	No	40 1981	Yes
Applied Business Technology Corporation 365 Broadway 6th Floor New York, NY 10013	0	Yes	✓	✓	✓	✓	✓	✓	Project Workbench	IBM PC/AT, XT 3270, Wang Pc DEC Rainbow	PC DOS 2.0, 2.1, 3.0, 3.1, Ms Dos	ASSEMBLY COBOL	No	10,000 1983	No
Applied Management Methods, Inc. 120 South Main Street Doylestown, PA 18901 (215) 7348-1200	0	Yes	✓	✓	✓	✓	✓	✓	TOPMAN (Total Planning and Management)	DEC VAX Microvax I, II	VAX/VMS	FORTRAN	No	12 1977	No
Applied Solutions, Inc. 301 Crater Lake Ave. Suite D Medford, OR 97504 (503) 772-5746	0	Yes	✓	✓	✓	✓	✓	✓	The Contractors Solution	Various 10 MB minimum	Theos Oasis Unix MS-Dos	BASIC	No	3 1981	Yes
Applitech Software, Inc. 381 Harvard St. Cambridge, MA 02138 (617) 497-8268		Yes	✓	✓	✓	✓	✓	✓	Project Planner (project management)	Apple II & IIc, IIc, IBM PC/XT/AT, 100% compatibles	Apple II PC DOS, MS DOS	APPLE PASCAL TURBO PASCAL	No No	1982 release 1986	No No
J. P. AXE, I.D. 1429 Crownhill Drive Arlington, TX 76012 (817) 277-2055	3	Yes	✓	✓	✓	✓	✓	✓	Structural Analysis by Finite Element (SAFE)	IBM-PC, XT, AT and all Compatibles	MS.DOS 2.0	FORTRAN (COMPILER NOT REQUIRED)		122	No
B & B Sales, Ltd. 2410 Crofton Boulevard Crofton, MD 21114 (301) 793-0162	0	Yes	✓	✓	✓	✓	✓	✓	JOBMASTER	IBM PC, XT, AT & compatibles, 256K Hard Disk; Contel Cado; Fortune Systems	PC-DOS, MS-DOS, Unix, Cado	CADOL, C	No	50 1981	No
Boldt & Daughtry Enterprises 100 W. Lawrence Street P.O. Box 419 Appleton, WI 54912	0	Yes	✓	✓	✓	✓	✓	✓	PMS/Project Management System	IBM System/38 Mainframe	CPF	RPG III	Yes	17 1983	Yes
Boss International 3435 Greystone Dr., Suite 106 Austin, Texas 78731 512-346-1771		Yes	✓	✓	✓	✓	✓	✓	The Boss Financial Accounting System	IBM PC/XT/AT and all compatibles DEC, Victor, Wang, Televideo, TI, Xerox, others.	MS-DOS, PC-DOS, CP/M-80, TurboDos, mmmMost	COMPILED MICROSOFT BASIC	No	10000 plus 1979	Yes
Breakthrough Software Corporation 505 B San Marin Drive, Suite 300 Novato, CA 94947 (415) 898-1919	1,000	Yes	✓	✓	✓	✓	✓	✓	Time Line	IBM PC, XT, AT, 3270 PC and 100% compatibles	PC DOS 2.X and 3.X	MODULA-2	No	40,000 1984	No
Jeannette E. Belben Breuer & Co. 54 Middlesex Turnpike Bedford, MA 01730 (617) 275-5810		Yes	✓	✓	✓	✓	✓	✓	Business Information System	Dec VAX Series Microvax II	VMS	FORTRAN	Yes	70 1978	Yes
Bristol Information Systems, Inc. 84 North Main Street Fall River, MA 02720 (617) 679-1051	25	Yes	✓	✓	✓	✓	✓	✓	"Business" Construction Job Cost Accounting Package	IBM PC or Compatible Hard Disk Required	MS/PC-DOS	BUSINESS	No		No
BUILDERS Software P.O. Box 1823 Independence, Missouri 64055		Yes	✓	✓	✓	✓	✓	✓	Model 5500 Estimating Software	Apple IIe & IIc Available Soon for IBM and Compatibles	DOS 3.3, MS-DOS	ASSEMBLER	No	12 1986	No
CCAS Construction Computer Accounting Service 9250 W. 5th Avenue Lakewood, CO. 80226 (303) 233-2400	4	Yes				✓	✓	✓	Construction Management System (CMS)	Hewlett Packard	MPE-V	RPG II, BASIC SPL	Held in Escrow	1972	No
CLA Computer Systems P.O. Box 2761, Station A Moncton, N.B. E1C 8T8 (506) 389-3420 Paul F. Melancon	10	Yes	✓	✓	✓	✓	✓	✓	Logic-Write	IBM-PC/XT/AT and Compatibles	MSDOS, IBMDOS	BASIC	Yes	100 1984	No

GROSS ANNUAL SALES TO GENERAL CONTRACTORS (in thousands of \$)	PRODUCT SUPPORT/ MAINTENANCE AVAILABLE	COST OF PRODUCT SUPPORT/ MAINTENANCE	TRAINING AVAILABLE	DOCUMENTATION AVAILABLE
\$2 Mil.	By phone, on site (801) 298-0101 or Dealer	Varies	Customer Site, Vendor Site	User Manual
N/A	By Phone, (617) 252-4537	No Charge	Manual, Tutorial, Demo Disk	User Manual
	By Phone, On Site, Modem	Varies	Customer Site, Vendor Site, Manual, On-Line Help	User Manual, On-line Help
N/A	YES	\$250/num Per system	Customer Site, Vendor Site, Manual	User Manual, on-line help, Tutorial
N/A	By Phone on Site (215) 348-1200	120 days included, 10% of cost annually thereafter	Customer Site, Vendor Site, Tutorial	User Manual
N/A	By Phone, Contract or Hourly	Varies	Customer Site, Manual Phone	User Manuals
N/A	By Phone (617) 497-8268 Unlimited	None	Manual, Phone Support	User Manual, On-line Help, Tutorial
\$5000	By phone	Varies	Manual	User manual
N/A	By phone, on Site (301) 793-0162	\$60/hr contract avail.	Customer Site, Vendor Site	User Manuals
N/A	By phone, on Site (414) 739-6321	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line help
N/A	By phone (800) 531-5483	free	Manual	User Manual
\$500,000	By Phone (415) 898-1919	N/C Corp Support Packages Avail.	Customer Site, Vendor Site	Manual, On-line Help, Tutorial
N/A	Yes—customer hot-line	Varies	Customer Site, Vendor Site	User Manuals Processing Examples File Structure
N/A	Toll-free Customer Support Hot-line, Included With Package	Varies	Through Dealers, Customer Site	User Manual, On-line Help
N/A	By Phone: (816) 229-0139	Free	If Necessary	User Manual
1,500,000	Hewlett Packard Corp.	Varies	Customer Site, Vendor Site, Manual	User Manual
\$100,000	By Phone (506) 857-0238	Warranty	Manual	Manual

SOFTWARE APPLICATIONS															
PAYROLL PRICE/ NO. OF EMPLOYEES	ACCTS PAYABLE PRICE/ NO. OF VENDORS	GENERAL LEDGER PRICE/ LINES OF ACCOUNTS	ACCOUNTS RECEIVABLE PRICE	JOB COSTING PRICE	EQUIPMENT MANAGEMENT PRICE	ESTIMATING PRICE	SCHEDULING PRICE/ NO. OF ACTIVITIES	MATERIALS MANAGEMENT PRICE	FINANCIAL MANAGEMENT PRICE	SPREAD SHEET PRICE	ROOF DESIGN PRICE	ROOF ENERGY ANALYSIS PRICE	WORD PROCESSING PRICE		
incl. 9999	incl. 999	incl. 65000	\$1,200	incl.	\$1,598	N/A	32,000	N/A	N/A	incl.	N/A	N/A	N/A	Varies	
					\$395										
Varies w/hdw	Varies w/hdw	Varies w/hdw	✓	✓	✓	N/A	N/A	✓	✓	✓	N/A	N/A	✓		
N/A	N/A	N/A	N/A	\$1150	N/A	N/A	\$1150 Unlimited	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	Varies w/hdwr	Varies w/hdwr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
\$1,000 Unlimited	\$1,000 Unlimited	\$1,000 Unlimited	\$1,000	\$500	N/A	N/A	N/A	N/A	N/A	\$500	N/A	N/A	N/A	\$600	
							\$195								
							\$300								
											\$495				
Incl. Financial Mgmt Unlimited	Incl. Financial Mgmt Unlimited	Incl. Financial Mgmt Unlimited	Incl. Financial Mgmt Unlimited	Incl. Financial Mgmt Unlimited		\$7,000 plus	N/A	N/A	\$6,000 plus	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	Varies for Module Unlimited	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
\$795	\$579	\$579	\$579						\$1595						
900	900	900													
N/A	N/A	N/A	N/A	N/A	N/A	N/A	1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
\$7,500	\$3,500	\$3,500	\$3,500	\$7,500	N/A	N/A	N/A	\$7,500	Varies	N/A	N/A	N/A	N/A	N/A	
Varies	Varies	Varies													
\$1,000	\$800	\$800	\$800	\$2,800	\$1,200	\$800	N/A	\$800	See GL	N/A	N/A	N/A	N/A	N/A	
Unlimited	Unlimited	Unlimited													
N/A	N/A	N/A	N/A	N/A	N/A	\$390	N/A	N/A	N/A	N/A	Incl. with Estimating	N/A	N/A	N/A	
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	\$1,500-\$5,000	\$1,500-\$5,000	\$1,500-\$5,000	N/A	N/A	N/A	\$1,500-\$5,000	N/A	N/A	N/A	N/A	N/A	
		\$29.95	106,000		\$29.95	\$29.95	\$29.95	106,000							

An NRCA Vendor Survey: Computer Software for Roofing Contractors *continued*

VENDOR CONTACT PERSON	NUMBER OF EXISTING INSTALLATIONS IN ROOFING CONTRACTOR COMPANIES	IF NOT CURRENTLY INSTALLED IN A ROOFING CONTRACTOR BUSINESS, IS THIS SOFTWARE APPLICABLE TO THE ROOFING CONTRACTING INDUSTRY?	REGIONS SERVICED BY YOUR COMPANY						SOFTWARE PACKAGE	HARDWARE REQUIRED	OPERATING SYSTEM	PROGRAM LANGUAGE	SOURCE CODE AVAILABLE	INSTALLED LOCATIONS/ FIRST INSTALLATIONS	INSTALLER USER LIST AVAILABLE	
			NORTHEAST	MIDEAST	SOUTHEAST	NORTH CENTRAL	SOUTH CENTRAL	NORTHWEST								SOUTHWEST
C/F DataSystems, Inc. 409 Pond Street Braintree, MA 02184 (617) 849-1690	7	Yes	✓							Contractor Management System	Texas Instruments Mini Computer Minimum Megs 17	DX-10, UNIX	RM COBOL	No	100 1979	Yes
Caldwell Software 1617 Whitton Ave. San Jose, CA 95116 Richard Caldwell	0	Yes	✓	✓	✓	✓	✓	✓	✓	Cost Estimating	IBM PC	PC-DOS, MS-DOS	BASIC	Yes	80	No
Cascade Graphics Systems 16842 Von Karman Ave. Irvine, CA 92714 (714) 474-6200		Yes	✓	✓	✓	✓	✓	✓	✓	Cascade X System Cascade VII System	IBM-Compatible Microcomputers Included, Plus Graphics Tablets	PC-DOS	PASCAL	No	2,970 1979	No
Christensen Computer Company, Inc. 16939 E. Colony Drive Suite #3 Fountain Hills, AZ 85268 (602) 837-7173 (312) 480-0881	10	N/A	✓	✓	✓	✓	✓	✓	✓	CCC Job Costing, Estimating for Contractors	Alpha Micro, All Models	AMOS, UNIX	BUSINESS BASIC	Yes	300 1979	Yes
Hugh Ruebush COMCO, Inc. P.O. Box 370807 912 Arizona El Paso, TX 79937	0	Yes	✓	✓	✓	✓	✓	✓	✓	CBOS Construction Accounting System	IBM, Hewlett-Packard, AT&T, Tandy, Altos, Compaq, Epson, Wyse, Others, w/10mb	BOS	MICROCOBOL	No	60	Yes
Complete Systems, Inc. 747 Church Rd. Unit B-5 Elmhurst, IL 60126 (312) 832-9466	0	Yes	✓	✓	✓	✓	✓	✓	✓		Any Unix Based System, AT&T, AT, NCR, Sperry, Rexon	UNIX, ZENIX, IRIS	BASIC or C	Yes	100 1978	Yes
Comprehensive Management Systems, Inc. 2121 Newmarket Pkwy., Suite 124 Marietta, Ga. 30067 James R. O'Brien		Yes	✓	✓	✓	✓	✓	✓	✓	CAMS	Data General All Models	AOS, AOS/VS	BUSINESS BASIC	Yes	15 1982	No
Computer Services P.O. Box 702 Fairmont, North Carolina 28340 (919) 628-8727 Jim Atkinson	1	Yes	✓	✓	✓	✓	✓	✓	✓	Roofing Contractor Total Package	TRS-80, Tandy 1000, 1200, 2000 IBM/PC, AT&T, NCR	TRS-DOS, MS-DOS	CONTRACTOR BASIC	Yes	1 1984	No
Computer Guidance Corp. 2122 E. Highland #325 Phoenix, Arizona 85016 Mark Gill, CPA	0	Yes	✓	✓	✓	✓	✓	✓	✓	Construction Management System	IBM System 36, System 36/PC	SSP	RPGII	Yes	100 1980	Yes
Computer Shoppe 1075 Sunset Strip, Suite 204 Ft. Lauderdale, FL 33313 (800) 231-4122 (305) 587-5335 in Florida	22	Yes	✓	✓	✓	✓	✓	✓	✓	Construction Management Series*	AT&T 6300, 6300 +, 3B1, 3B2 Series, IBM PC, XT, AT, S-36, Compatibles	UNIX, XENIX, NOVELL NETWORKING MS-DOS SSP	BASIC	Yes	400 1981	Yes
Con-Soft Contractors' Software 429 Haight Street San Francisco, CA 94117 (415) 626-8181	5	Yes	✓	✓	✓	✓	✓	✓	✓	Mini-Job Coster The Job Coster The JC System	IBM & Compatible	MS-DOS	BUSINESS BASIC	No	135 1984	Yes
Construction Data Services, Inc. 4989 Santa Anita Ave. Temple City, CA 91780 (818) 401-0039 Keith Gill	0	Yes	✓	✓	✓	✓	✓	✓	✓	Construction Management System	Hewlett Packard HP 3000	MPE-V	COBOL	Yes	10 1985	No
Construction Software Developer 9046 Joey Drive Niles, IL 60648 (312) 271-9120	1	Yes	✓	✓	✓	✓	✓	✓	✓	Barlist Track	IBM PC, XT, AT or Compatible; 640 K Memory	PC-DOS or MS-DOS, LOTUS SYMPHONY REQUIRED	SYMPHONY COMMAND LANGUAGE	No	1 Aug. 1986	Yes
Construction Software Systems, Inc. Suite 100 11150 Main Street Fairfax, VA 22030	125		✓	✓	✓	✓	✓	✓	✓	CSSI Construction Software	IBM, NCR, HP, DEC, Altos, Others	UNIX, ZENIX, MS-DOS, PROPRIETARY	COBOL	Yes	700 + 1973	Yes
Construction Systems Company 5317 N. Woodview Ave. Peoria, Illinois 61614 (309) 692-2370	22	Yes	✓	✓	✓	✓	✓	✓	✓	Project Management Bid Strategy Equip. Est.	IBM or compatibles	MS-DOS	ADV. BASIC	Yes	1983	Yes
Construction Systems Software, Inc. P.O. Box 30088 San Antonio, TX 78285 (512) 681-5768 Alex J. Drabant	2	Yes	✓	✓	✓	✓	✓	✓	✓	Cost Accounting Processing System "CAPS"	IBM PC Compat., NCR Tower Ser., NCR 9000 ser., Sperry 5000 ser.	PCDOS, MSDOS, UNIX, ZENIX, IMOS, ITX/IRX	R/M COBOL	No	200 + 1978	Yes
Constructive Computing 5600 Inland Drive Kansas City, KS 66106 (913) 596-2113	21	Yes	✓	✓	✓	✓	✓	✓	✓	QuickACCOUNT QuickEST QuickREPORT	IBM XT or AT 512KB and 10MB Hard Disk	MS/DOS	QUICK BASIC	No	600 1978	Yes

GROSS ANNUAL SALES TO GENERAL CONTRACTORS (in thousands of \$)	PRODUCT SUPPORT/ MAINTENANCE AVAILABLE	COST OF PRODUCT SUPPORT/ MAINTENANCE	TRAINING AVAILABLE	DOCUMENTATION AVAILABLE
1.5 + mil	By Phone, On Site	150/mo	Customer Site, Vendor Site, Manual	User Manual, On-line Help
	By Phone (408) 251-3485	Varies	Manual	User Manual
\$650,000	By Phone on Site, Dealer Dependent	Varies	Vendor Site (3 days), Manual	User Manual
200,000	By Phone, 800 # On Site Avail. At Extra Charge	\$1,000 per year	Customer Site, Vendor Site, Manuals	User Manual, On-line Help
\$400,000	By Phone, On Site	Varies from \$385.00	Customer Site, Vendor Site, Manual	User Manual, Help Functions
\$3,000,000	By Phone, On Site	Varies	Customer Site, Classroom Training Manual	On-line Help
N/A	By Phone, On Site, Maintenance Contract Available	Varies	Customer Site	User Manuals
\$1,000	By Phone, On Site (919) 628-8727	\$20 Hour Plus Travel	Manual Site	User Manual Programed in on Screen
\$1,000,000	By Phone, on Site	\$240-\$600 per year	On Site, Class Room	User Manuals
\$3,000	On Site Toll Free Phone Through Dealer	1 Year Included Then 1% Per Mo. Based on the Software Price	Customer Site, Vendor Site, Manual	User Manual, On-line Help
\$100	By Phone (707) 795-0861	No Chg	Depending on Location	User Manual
\$700,000	By Phone, on Site	Varies	Customer Site	User Manual, On-line Help
N/A	Based on Agreement	Based on Agreement	Available at Additional Cost	User Manual & On-screen Instruction
\$1,600	By Phone, On Site	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help
\$500,500	By Phone	Varies	Manual	User Manual
500	By Phone Dealer	Varies	Customer Site, Vendor Site, Manual	User Manual, Installation Manual
\$1,000,000	By Phone, On Site, By Mail	Approx. 10% of Software	Customer Site, Vendor Site, Manual, Training Module Supplied With System	User Manual, On-line Help, Glossary

SOFTWARE APPLICATIONS														
PAYROLL PRICE/ NO. OF EMPLOYEES	ACCTS PAYABLE PRICE/ NO. OF VENDORS	GENERAL LEDGER PRICE/ LINES OF ACCOUNTS	ACCOUNTS RECEIVABLE PRICE	JOB COSTING PRICE	EQUIPMENT MANAGEMENT PRICE	ESTIMATING PRICE	SCHEDULING PRICE/ NO. OF ACTIVITIES	MATERIALS MANAGEMENT PRICE	FINANCIAL MANAGEMENT PRICE	SPREAD SHEET PRICE	ROOF DESIGN PRICE	ROOF ENERGY ANALYSIS PRICE	WORD PROCESSING PRICE	
\$13,000 Unlimited	Incl. with Payroll Unlimited	Incl. with Payroll Unlimited	Incl. with Payroll Unlimited	Incl. with Payroll Unlimited	\$1,500	\$1,500	N/A	Incl. with Payroll	Incl. with Payroll	N/A	Varies w/hdwr Autocad	N/A	\$500	
						\$100								
N/A	N/A	N/A	N/A	incl.	N/A	Incl.	N/A	Incl.	N/A	N/A	from \$15,000	N/A	some incl.	
\$1,500 Unlimited	\$1,500 Unlimited	\$1,500 Unlimited	\$1,500 Unlimited	\$3,000	Incl. in Job Cost	Incl. in Job Cost	N/A	Incl. in Job Cost	Incl. in Job Cost	\$300	N/A	N/A	\$1,000	
Single/Multi-User, \$995-\$1195 Unlimited	Single/Multi-User, \$695-\$895 Unlimited	Single/Multi-User, \$695-\$895 Unlimited	Single/Multi-User, \$695-\$895 Unlimited	Single/Multi-User, \$995-\$1195 Unlimited	Single/Multi-User, \$695-\$895 Unlimited	N/A	N/A	N/A	N/A	\$450-\$900	N/A	N/A	\$450-\$900	
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	N/A	Varies w/hdwr Unlimited	Same	N/A	N/A	Varies w/hdwr Unlimited	
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	N/A	Varies w/hdwr Unlimited	N/A	Varies w/hdwr Unlimited	N/A	N/A	Varies w/hdwr Unlimited	
N/A	\$400 Unlimited	\$400 Unlimited	\$400 Unlimited	\$600	N/A	\$400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Incl. in Job Cost	N/A	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	N/A	N/A	N/A	N/A	
\$1595-\$2995 Unlimited	\$1595-\$2995 Unlimited	\$1595-\$2995 Unlimited	\$1995-\$3995	\$2495-\$4995	\$1595-\$2995	\$2995-\$7995	Incl. with Estimating	\$1595-\$2995	Incl. with General Ledger	\$495-\$1295	N/A	N/A	\$495-\$895	
Varies	Incl. w/P/R	Incl. w/P/R	Incl. w/P/R	Varies	N/A	225.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	None	None	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	None	None	Varies w/hdwr Unlimited	
N/A	N/A	N/A	N/A	N/A	N/A	\$2000	N/A	\$500	N/A	N/A	N/A	N/A	N/A	
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	
\$500,500	By Phone	Varies	Manual	User Manual		\$385	\$125	\$385	\$385	\$125				
500	By Phone Dealer	Varies	Customer Site, Vendor Site, Manual	User Manual, Installation Manual		Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	N/A	Varies w/hdwr Unlimited	N/A	Varies w/hdwr Unlimited	
\$1,000,000	By Phone, On Site, By Mail	Approx. 10% of Software	Customer Site, Vendor Site, Manual, Training Module Supplied With System	User Manual, On-line Help, Glossary		\$1,250 9,999	\$1,000 32,767	\$1,000 32,767	\$1,250	\$1,250	\$3995			

An NRCA Vendor Survey: Computer Software for Roofing Contractors *continued*

VENDOR CONTACT PERSON	NUMBER OF EXISTING INSTALLATIONS IN ROOFING CONTRACTOR COMPANIES	IF NOT CURRENTLY INSTALLED IN A ROOFING CONTRACTOR BUSINESS, IS THIS SOFTWARE APPLICABLE TO THE ROOFING CONTRACTING INDUSTRY?	REGIONS SERVICED BY YOUR COMPANY						SOFTWARE PACKAGE	HARDWARE REQUIRED	OPERATING SYSTEM	PROGRAM LANGUAGE	SOURCE CODE AVAILABLE	INSTALLED LOCATIONS/ FIRST INSTALLATIONS	INSTALLER USER LIST AVAILABLE
			NORTHEAST	MIDEAST	SOUTHEAST	NORTH-CENTRAL	SOUTH-CENTRAL	NORTHWEST							
Contel Business Systems 48 Constitution Drive Bedford, NH 03102	0	Yes	✓	✓	✓	✓	✓	✓	Construction Managerial Accounting System	IBM PC/AT Compatibles	MS-DOS	DATABUS	No	20 1983	Yes
Contel Business Systems	25	Yes	✓	✓	✓	✓	✓	✓	Construction Management System	IBM PC/AT, Contel	MM/IOS CADOS	CADOL	Yes	600 1978	
Contel Computer Systems 333 Elm Street Dedham, MA 02026 (617) 329-7800	80	N/A	✓	✓	✓	✓	✓	✓	Case Construction System	IBM PC XT IBM PC AT Contel, Others	MS-DOS, CADOL	BASIC, CADOL	Yes	600 1977	Yes
Contractors Management Systems 11150 Sunset Hills Road Suite 300 Reston, VA 22090 (703) 435-3172	100	Yes	✓	✓	✓	✓	✓	✓	EASYEST & ESPRI	IBM & 100% Compatibles, XT & AT	PC-DOS, 2.0 or Better	QUICK BASIC II + ASSEMBLER	No	5,000 1973	Yes
Contractors Systems, Inc. 9198 I Red Branch Road Columbia, Maryland 21045 (301) 995-3660	5	Yes	✓	✓	✓	✓	✓	✓	Job Cost Control (JCS)	NCR, IBM, Sperry, Altos, Basic Four, Others, 20 MB Min.	T/OS, UNIX, XENIX, MS-DOS	BUSINESS BASIC III	No	300 + 1972	Yes
Data-Basics, Inc. 11000 Cedar Road Cleveland, Ohio 44106 (216) 721-3400	5	Yes	✓	✓	✓	✓	✓	✓	Construction Master Accounting System (CMAS)	IBM PC, XT, AT; Sperry PC/IT, Wang PC, APC; Compaq & Other IBM Compatibles	MS-DOS, ZENIX	COBOL	Yes	5 1974	Yes
Data Results, Inc. Post Office Box 9192 Columbia, SC 29290 (803) 776-6194		Yes	✓	✓	✓	✓	✓	✓	Commercial Contractors Management System	All IBM PC Compatibles, 512K, Hard Disk	DOS 2.1 or Later	ASSEMB.	No	1985	No
Datasmith, Inc. Box 8036 Shawnee Mission, KS 66208 (913) 381-9118		Yes	✓	✓	✓	✓	✓	✓	Custom Payroll	IBM PC & Compatibles	MS-DOS	BASIC	Yes	1980	No
DataTrak, Inc. 1700 Stierlin Rd. Mt. View, CA 94043 Linda Pisano	5	Yes	✓	✓	✓	✓	✓	✓	Tops Contrak II Team Bid Day	IBM PC-XT, PC-AT 320K RAM, 20MB	MS-DOS	COMPILED BASIC	No	900 1983	Yes
Data Trek 1949 Woodhaven Ft. Wayne, IN 46819 (219) 747-8486	N/A	Yes	✓	✓	✓	✓	✓	✓	PMS82	All Tandy models, Apple II family, MS Dos comp., & IBM PC's	TRS DOS, APPLE DOS, MS DOS, & PC DOS	BASIC	No	300 1982	No
Deneb Systems, Inc. 201 Riverside Dr.-Suite 2C Dayton, OH 45405 (513) 223-4849 Dave Coggins	2		✓	✓	✓	✓	✓	✓	Deneb Construction Accounting and Estimating	IBM, AT&T, Altos, NCR, Sperry, Televideo, Others, 512K Memory	XENIX, UNIX, MS/PC DOS	RM/COBOL	Yes	180 1984	Yes
Digital Systems 114 E. Gregory Street Pensacola, FL 32501 (800) 874-2400 (800) 342-0691			✓	✓	✓	✓	✓	✓	Contractor Management System (CMS)	DEC PDP11 and VAX series Altos	MICRORSX, VMS, XENIX	DBL	Yes	1979	Yes
Diversified Information Services, Inc. 4370 Tujunga Ave. Suite 130 Studio City, CA 91604 (818) 506-7265	0	Yes	✓	✓	✓	✓	✓	✓	AMS Time Machine	All IBM PC, XT AT & Compatibles; Other MS-DOS Machine	PC DOS or MS DOS 2.0 +	"C"	No	225 1984	Yes
Durable Software 1007 Oak Hill Road Lafayette, CA 94549 (415) 283-0334		Yes	✓	✓	✓	✓	✓	✓	Construction Estimating/Pricing System	IBM PC/AT/XT or Compatible	MS-DOS	LOTUS 1-2-3 or LOTUS SYMPHONY	No		No
EDP of America, Inc. 123 No. Union Avenue Cranford, NJ 07016 (201) 272-0770	40	Yes	✓	✓	✓	✓	✓	✓	Vanguard	IBM, C. Itoh, G.A. DEC, UHimate, NCR, Nixdorf, Prime, Others	PICK	PICK BASIC	Yes	40 1981	Yes
Educol Inc. POB 726 San Luis Obispo, CA 93406-0726	5	Yes	✓	✓	✓	✓	✓	✓	'MS'	Alpha Micro	AMOS	BASIC	No	20 1982	Yes
Engineering Services 901 Douglas Avenue Suite 206 Altamonte Springs, FL 32714 (305) 862-7755		Yes	✓	✓	✓	✓	✓	✓	ISSAS	IBM or 100% Compatible	MS-DOS PC-DOS	BASIC	No	200 1983	Upon Request
Enterprise Computer Systems, Inc. One Independence Pointe Greenville, SC 29615 (803) 234-7676 (800) 922-6712 (SC WATS) (800) 992-6309 (US WATS)	10 +	Yes	✓	✓	✓	✓	✓	✓	Builder Management System	IBM PC/XT, AT or 100% Compatibles	PC-DOS	COMPILED BASIC & C	No	1000 + 1977	Yes

GROSS ANNUAL SALES TO GENERAL CONTRACTORS (in thousands of \$)	PRODUCT SUPPORT/ MAINTENANCE AVAILABLE	COST OF PRODUCT SUPPORT/ MAINTENANCE	TRAINING AVAILABLE	DOCUMENTATION AVAILABLE
\$100,000	By Phone By Dealer	Varies	Customer Site, Vendor Manual	User Manual
	By Phone On Site Dealer	Varies	On Site, Classroom Manuals	User Manual
\$20,000,000	On Site	Varies	Customer Site	User Manual, On-line Help
2 million	By Phone (703) 435-3172	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone, On Site, Dealer	Varies	Customer Site, Vendor Site, Manual	User Manual
	By Phone, On Site	Varies	On Site, Vendor Site	User Manual, On-line Help
	By Phone, On Site	Varies	Customer Site, Vendor Site, Tutorial	User Manual, On-line Help
	By Phone	Varies	Manual	Manual
\$3,000,000	By Phone, On Site, Dealer	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone	None	Manual	User Manual
\$500,000	By Phone, On Site, Dealer Network	Varies	Customer Site, Vendor Site	User Manuals
2M	WATS Lines On Site	Varies	Customer Site, Vendor Site, Manual Video Tape	User Manual, On-line Help, Video Tapes
\$100, +	Hot Line (818) 506-7265	1st Year Free, Addtl. Yrs. @ 10% Pkg. Price	Customer Site, Vendor Site, Manual	User Manual, Tutorial
N/A	By Phone (415) 283-0334	\$200/year	Manual, On-line Help, Tutorial	User Manual, On-line Help, Tutorial
2 Million	By Phone, On Site (201) 272-0770	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone, On Site	Varies	Customer Site	Manuals
	By Phone (305) 862-7755	None	Customer Site, Vendor Site, Manual	User Manual
\$5,000,000	By Phone & Air Freight	Software \$500/yr. Hardware \$700/yr.	On-line Tutorial, Free Training Class if Needed	User Manual, On-line Help

SOFTWARE APPLICATIONS															
PAYROLL PRICE/ NO. OF EMPLOYEES	ACCTS PAYABLE PRICE/ NO. OF VENDORS	GENERAL LEDGER PRICE/ LINES OF ACCOUNTS	ACCOUNTS RECEIVABLE PRICE	JOB COSTING PRICE	EQUIPMENT MANAGEMENT PRICE	ESTIMATING PRICE	SCHEDULING PRICE/ NO. OF ACTIVITIES	MATERIALS MANAGEMENT PRICE	FINANCIAL MANAGEMENT PRICE	SPREAD SHEET PRICE	ROOF DESIGN PRICE	ROOF ENERGY ANALYSIS PRICE	WORD PROCESSING PRICE		
\$1,200 Unlimited	\$1,200 Unlimited	\$1,200 Unlimited	\$800	\$1,200	\$800	Varies	N/A	\$800	Varies	Varies	N/A	N/A	Varies		
								N/A	N/A	N/A	N/A	N/A	Varies		
Varies Unlimited	Varies Unlimited	Varies Unlimited	Varies	Varies	Varies	Varies	Varies Unlimited	N/A	Varies	Varies	Varies	Varies	Varies		
N/A	N/A	N/A	N/A	N/A	N/A	\$500 to \$20,000	\$995 1,000	N/A	N/A	Interface With Most	N/A	N/A	Interface With Most		
\$1,900 900 + Includes Certified Payroll	\$1,600 900 +	\$1,500 900 +	\$1,500 AIA Service Ticket Avail.	\$1,800 Incl. Job EEO	\$2,500 Incl. P/M	\$1,700 Base and Modifi- cation	\$1,695 2000 +	\$1,295	N/A	\$595	N/A	N/A	\$595		
\$998.00 Unlimited	\$998.00 Unlimited	\$998.00 Unlimited	\$998.00	\$998.00	N/A	\$1,400.00	Varies	Varies	Varies	Varies w/hdwr	N/A	N/A	Varies w/hdwr		
System Price \$2495 Unlimited	Unlimited	Unlimited		Unlimited											
\$695 3,000		\$450 Unlimited													
\$1195 500 emp	\$995 999	\$995 2500	\$995	\$1195	\$695	\$5280 \$ 995	N/A	\$1195	N/A	N/A	N/A	N/A	N/A		
							\$95.50 300								
\$975 Unlimited	\$975 Unlimited	\$975 Unlimited	\$975	\$975	\$975	\$975	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr Unlimited	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	N/A	N/A	Varies w/hdwr		
							\$2500- \$4500 10,000 per Network								
				\$295		\$495- \$995				\$695			Included		
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	N/A	N/A	No. Chg.	N/A	N/A	No Chg.		
\$600 200	\$600 9999	Incl. 280	Incl.	\$600	N/A	\$900	\$1200 Unlimited	\$600	Incl.	N/A	N/A	N/A	Incl.		
											\$435				
\$995 Unlimited	Incl. in Basic System Price of \$4,495 Unlimited	Incl. in Basic System Price of \$4,495 Unlimited	N/A	Incl. in Basic System Price of \$4,495 Unlimited	N/A	\$3,495 Incl. Data Base	Incl. in Estimat- ing	N/A	N/A	\$445	N/A	N/A	Varies		

An NRCA Vendor Survey: Computer Software for Roofing Contractors *continued*

VENDOR CONTACT PERSON	NUMBER OF EXISTING INSTALLATIONS IN ROOFING CONTRACTOR COMPANIES	IF NOT CURRENTLY INSTALLED IN A ROOFING CONTRACTOR BUSINESS, IS THIS SOFTWARE APPLICABLE TO THE ROOFING CONTRACTING INDUSTRY?	REGIONS SERVICED BY YOUR COMPANY						SOFTWARE PACKAGE	HARDWARE REQUIRED	OPERATING SYSTEM	PROGRAM LANGUAGE	SOURCE CODE AVAILABLE	INSTALLED LOCATIONS/ FIRST INSTALLATIONS	INSTALLER USER LIST AVAILABLE
			NORTHEAST	MIDEAST	SOUTHEAST	NORTH CENTRAL	SOUTH CENTRAL	NORTHWEST							
Escomate P.O. Box 461 Fort Collins, CO 80522 (303) 484-8200		Yes	✓	✓	✓	✓	✓	✓	Escomate Accounting/Job Costing, Payroll/Labor Costing	Any MS-DOS/Basic (IBM, Compatibles and Others) Radio Shack	MS-DOS, TRS-DOS	BASIC	Yes	48 1980	Yes
Fleet Distribution, Inc. P.O. Box 98074 Atlanta, Georgia 30329 (404) 325-9214	0	Yes	✓	✓	✓	✓	✓	✓	Fleet Cost Control Program	IBM-PC/XT/AT, Tandy-1200HD, 2000HD, 3000HD, Compaq, Deskpro, Etc., 10MB Hard Disk	MS-DOS CP/M	MICROSOFT BASIC COMPILED	Yes	16 1983	
Fleet Distribution, Inc.	0	Yes							Fleet Preventive Maintenance Program (Add-on to Fleet Cost Control Program)	IBM-PC/XT/AT, Tandy-1200HD, 2000HD, 3000HD, Compaq, Deskpro, Etc., 10MB Hard Disk	MS-DOS CP/M	MICROSOFT BASIC COMPILED	Yes	16 1983	
Foresight Resources Corp. 932 Massachusetts St. Lawrence, KS 66044 (913) 841-1121	0	Yes	✓	✓	✓	✓	✓	✓	Drafix 1	IBM PC or Compatible with an Industry Standard Video Card & 1 Serial Port	MS-DOS VER 2.X and HIGHER	LATTICE C	No	1600 1986	No
GCB Management Corporation P.O. Box 912 Niagara Falls, New York 14302 (716) 282-8903	3	Yes	✓	✓					Construction Management Series	256K, 20MB IBM PC, XT, AT System 36, AT&T 6300, 6300 +, 3B1, 3B2	MS-DOS, PC-DOS, UNIX, XENIX, SSP, NETWARE	BASIC	Yes	400 1981	Yes
IBM Corporation P.O. Box 2150 Atlanta, GA 30055 (800) 241-1620, Dept. 36		Yes							Construction Management and Accounting System	IBM System/36	S/36 SSP	RPGII	Yes	N/A 1978	No
Integrity Systems, Inc. 210 Beechpoint Drive Oxford, OH 45056 (513) 523-1949		Yes	✓	✓	✓	✓	✓	✓	AutoCOST Accounting System	IBM PC, XT, AT, 128K, 10MB	PC-DOS	CBASIC	Yes	300 1981	Yes
Integrity Systems, Inc.		Yes	✓	✓	✓	✓	✓	✓	AutoTAKE Estimating System	IBM PC, XT, AT, SAC GP-8 Sonic Digitizer 128K, 10MB	PC-DOS	CBASIC	No	25 1984	Yes
Intersoft Systems, Inc. 10550 S.W. Allen Blvd. Beaverton, OR 97005 (503) 644-3761	100	Yes	✓	✓	✓	✓	✓	✓	Interac	Burroughs, NCR, Convergent Technologies	BTOS, CTOS	COBOL	No	100 1982	Yes
J. J. Jordan, Architect-Engr. 5236 Overbrook Way Sacramento, CA 95841	4	Yes	✓	✓	✓	✓	✓	✓	BEAMJOIS	IBM-PC,XT,AT, 64K, TRS80 1/3/4 48K, Apple 2E/C 128K, Macintosh 512K	MS-DOS, TRS-DOS, DOS 3.3, MAC-DOS	BASIC	Yes	100 + 1981	Yes
J. J. Jordan, Architect-Engr.	4	Yes	✓	✓	✓	✓	✓	✓	DIAFRAMS	IBM-PC,XT,AT, 64K, TRS80 1/3/4 48K, Apple 2E/C 128K, Macintosh 512K	MS-DOS, TRS-DOS, DOS 3.3, MAC-DOS	BASIC	Yes	100 + 1983	Yes
J. J. Jordan, Architect-Engr.	2	Yes	✓	✓	✓	✓	✓	✓	HEATCOOL	IBM-PC,XT,AT, 64K, TRS80 1/3/4 48K, Apple 2E/C 128K, Macintosh 512K	MS-DOS, TRS-DOS, DOS 3.3, MAC-DOS	BASIC	Yes	100 + 1982	Yes
Jonas & Erickson Software Technology Inc. 235 Yorkland Blvd., Ste #700 Toronto, Ontario, Canada M2J 4Y8	1	Yes	✓	✓	✓	✓	✓	✓	General Contractors	IBM-PC/XT/AT/RT	THOROUGHbred	BUSINESS BASIC	Yes	275 1977	No
									Contractor Estimating	Digital-VAX Lines -MicroVAX II	VMS			100 1977	
									Homebuilders	CONVERGENT TECHNOLOGIES -MiniFrame -MightyFrame	CTIX			15 1977	
									Trade Contractors	PRIME -All Models	PRIMOS			22 1977	
									Aggregate Industry					12 1977	
Bernard C. Kurtz Inc. 300 S. Riverside Plaza Suite 1054 Chicago, IL 60606 (312) 930-9800	200	Yes	✓	✓	✓	✓	✓	✓	Construction Job Cost	Digital MicroVax II Basic Four	VMS BOSS	SMC BADIC BUSINESS BASIC	Yes	200 1977	Yes
Lake Avenue Software 650 Sierra Madre Villa Suite #204 Pasadena, CA 91107 (818) 351-5483	10	N/A	✓	✓	✓	✓	✓	✓	The Assistant Controller	IBM PC, XT, AT & Compatibles	PC-DOS	DBASE III	Yes	6000 1983	

GROSS ANNUAL SALES TO GENERAL CONTRACTORS (in thousands of \$)	PRODUCT SUPPORT/ MAINTENANCE AVAILABLE	COST OF PRODUCT SUPPORT/ MAINTENANCE	TRAINING AVAILABLE	DOCUMENTATION AVAILABLE
	Phone (303) 484-8200	90 Days Incl. in Price \$300/yr. Thereafter	Videotaped Training, User's Manual Incl. Customer Site by Quotation	User's Manual Videotaped Permanent Reference
	By Phone, On Site (404) 325-9214		Customer Site, Manual	User Manual, On-line Help
	By Phone, On Site (404) 325-9214		Customer Site, Manual	User Manual, On-line Help
N/A	By Phone (913) 841-1123	None	Training Videos	User Manual, Tutorial
N/A	Phone, On Site (716) 282-8903	1 Yr. Incl., Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone	N/A	Vendor Site, Manual, Self Study	User Manual
	By Phone (513) 874-3933	1 Year No Charge \$58/hour	Customer Site, Vendor Site, Manual	User Manual
	By Phone (513) 523-1949	1 Year No Charge \$58/hour	Customer Site, Vendor Site	User Manual
\$3,000,000	By Phone, On Site	Varies	Customer Site or Class Room	User Manual
N/A	By Phone (916) 332-6610	Free	Manual	User Manual, On-line Help
N/A	By Phone (916) 332-6610	Free	Manual	User Manual, On-line Help
N/A	By Phone (916) 332-6610	Free	Manual	User Manual, On-line Help
5000000	On Site, On-line (Modem) Telephone on Standby (416) 491-6620	As Per Contract	Hands-On	User Manual, On-line Help
N/A	By Phone, Modem, On Site Annual Contract/Hrly Maintenance	Hourly or Annual Varies	Customer Site, Manuals	User Guide, System Guide, On-line Help
	By Phone, On Site	30 Day Free Telephone Support \$200/Year Annual Support	Customer Site, Vendor Site, Manual Tutorial	User Manual, Tutorial

SOFTWARE APPLICATIONS														
PAYROLL PRICE/ NO. OF EMPLOYEES	ACCTS. PAYABLE PRICE/ NO. OF VENDORS	GENERAL LEDGER PRICE/ LINES OF ACCOUNTS	ACCOUNTS RECEIVABLE PRICE	JOB COSTING PRICE	EQUIPMENT MANAGEMENT PRICE	ESTIMATING PRICE	SCHEDULING PRICE/ NO. OF ACTIVITIES	MATERIALS MANAGEMENT PRICE	FINANCIAL MANAGEMENT PRICE	SPREAD SHEET PRICE	ROOF DESIGN PRICE	ROOF ENERGY ANALYSIS PRICE	WORD PROCESSING PRICE	
\$1775 200	Varies 1,200	Varies 500	Varies	Varies	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	\$3,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	\$1,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
\$1,595-\$2,995	\$1,595-\$2,995	\$1,595-\$2,995	\$1,995-\$3,995	\$2,495-\$4,995	N/A	\$3,995-\$7,995	Incl. in Estimating	\$2,495-\$4,995	\$1,595-\$2,995	Application Interface Incl. in Packaged Products	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A									N/A	
\$1295	\$995	\$995	\$695	\$1295										
						\$18,500 with Hardware								
\$2,000 Unlimited	\$1,400 Unlimited	\$2,500 Unlimited	\$1,500	\$2,200	\$1,400	\$2,700	N/A	N/A	\$2,500	\$250	N/A	N/A	\$500	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$96.96	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$96.96	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$96.96	N/A	
Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	N/A	N/A	Varies w/hdwr	
Incl. Unlimited	Incl. Unlimited	Incl. Unlimited	Incl.	Varies w/hdwr \$23-\$35,000	Varies w/hdwr \$5-\$7,500	Varies w/hdwr \$7,500-\$10,000	Incl. Unlimited	N/A	Varies w/hdwr \$5-\$7,500	Incl. in Package Price	N/A	N/A	Varies w/hdwr	
\$575 Unlimited	\$575 Unlimited	\$575 85,000	\$575	\$575	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

An NRCA Vendor Survey: Computer Software for Roofing Contractors *continued*

VENDOR CONTACT PERSON	NUMBER OF EXISTING INSTALLATIONS IN ROOFING CONTRACTOR COMPANIES	IF NOT CURRENTLY INSTALLED IN A ROOFING CONTRACTOR BUSINESS, IS THIS SOFTWARE APPLICABLE TO THE ROOFING CONTRACTING INDUSTRY?	REGIONS SERVICED BY YOUR COMPANY						SOFTWARE PACKAGE	HARDWARE REQUIRED	OPERATING SYSTEM	PROGRAM LANGUAGE	SOURCE CODE AVAILABLE	INSTALLED LOCATIONS/ FIRST INSTALLATIONS	INSTALLER USER LIST AVAILABLE
			NORTHEAST	MIDEAST	SOUTHEAST	NORTH CENTRAL	SOUTH CENTRAL	SOUTHWEST							
MTX International 317 Inverness Way So. 317 Englewood, CO 80112 (312) 790-1400 (800) 525-7960	3	Yes	✓	✓	✓	✓	✓	✓	Contractors Management System P/R, A/P, A/R, J/C, G/L, EST, P/O Billing Report Generation	L/F Technologies 16 Bit Multi-user, 8 Bit Multi-user	TURBO DOS CP/M	C BASIC	In Escrow	160 1980	Yes
Management Computer Controls, Inc. 2881 Directors Cove Memphis, Tennessee 38131 David Clark (901) 346-9880	N/A	Yes	✓	✓	✓	✓	✓	✓	Interactive Cost Estimating System ICE System	IBM System/34, IBM System/36, IBM System/38, IBM System/36PC	SSP	COBOL	Yes	300+ 1980	Yes
Marathon Management Systems, Inc. 1690 38th Street, Suite 100 Boulder, CO 80301 (303) 449-0964 1-800-621-6792	6	Yes	✓	✓	✓	✓	✓	✓	Marathon Construction Management	Point 4	IRIS	BUSINESS BASIC	Yes	135 1979	Yes
Maxwell Systems, Inc. 2838 DeKalb Pike Norristown, PA 19401 Julie K. Reeder (215) 277-3515	200+	Yes	✓	✓	✓	✓	✓	✓	The Contractor by Maxwell	Altos, AT&T, IBM, NCR, Sperry, Prime, Others 15MB	UNIX, XENIX, T/OS, MS-DOS & PROPRIETARY O/S	BUSINESS BASIC	Yes	200+ 1978	Upon Request
A. B. May Management Services 2017 W. 104th Street Leawood, KS 66206 Chip Shockey (913) 383-2222	0	Yes	✓	✓	✓	✓	✓	✓	S-2000	IBM P/C, S36, S38	DOS, SSP	RPG II, RPG III, ASSEMB.	Yes	150 1985	Yes
R. S. Means Company, Inc. 100 Construction Plaza Kingston, MA 02364 (617) 747-1270		Yes	✓	✓	✓	✓	✓	✓	Astro, Means Facil Estimating Package	IBM-XT, IBM-AT or IBM Compatible	MS-DOS	BASIC COMPILED	No	300 1983	No
R. S. Means Company, Inc.		Yes	✓	✓	✓	✓	✓	✓	Vega Means Scheduling Package	IBM-XT, IBM-AT or IBM Compatible	MS-DOS	BASIC COMPILED	No	50 1984	No
R. S. Means Company, Inc.		Yes	✓	✓	✓	✓	✓	✓	Cad/Cost Computer Aided Design & Costing	IBM-XT, IBM-AT or IBM Compatible	MS-DOS	BASIC COMPILED ASSEMBLY	No	7 1986	No
R. S. Means Company, Inc.		Yes	✓	✓	✓	✓	✓	✓	Galaxy, Means Automated Takeoff & Estimating System	IBM-XT, IBM-AT or IBM Compatible	MS-DOS	BASIC COMPILED ASSEMBLY	No	150 1984	No
Micro Business Applications 12223 Wood Lake Drive Burnsville, MN 55337 (612) 894-3470		Yes	✓	✓	✓	✓	✓	✓	Job Cost, General Ledger, Accounts Payable, Inventory, Purchase Order, Payroll, Accounts Receivable, Ph.D.	IBM, Altos, NCR, Compaq, NEC, NCR, Televideo and others	MS/PC DOS, CPM 80, CPM 86, MPM II, TURBO DOS, CONCURRENT NOVELLE	MS COBOL	Yes	20,000	No
Miracle Computing 313 Clayton Ct. Lawrence KS 66044 (913) 843-5863	0	Yes	✓	✓	✓	✓	✓	✓	Inmass/Income	IBM XT or AT with 10 Meg Hard Disk	PC DOS	PL I	No	150 1984	Yes
Modern Data Management 21 Sequin Drive Glastonbury, CT 06033 (203) 633-3753 William Dunnett	0	Yes	✓	✓	✓	✓	✓	✓	Cobest	Wang Vs	VS	COBOL	Yes	5 1984	Yes
NEBS Software 500 Main Street Groton, MA 01471 (617) 448-3056		Yes	✓	✓	✓	✓	✓	✓	NEBS FastForm	IBM PC, PCXT, PCAT, Compaq, Compaq+, Tandy 1000, Apple II Series	PC DOS 2.1, or Later MS DOS 2.1 or Later MS DOS 2.11 or Later DOS 2.2 or PRO DOS	N/A	No		No
North America MICA, Inc. 5230 Carroll Canyon Road Suite 110 San Diego, CA 92121 (619) 458-1327		Yes	✓	✓	✓	✓	✓	✓	PMS-II Project Management	IBM and Compatibles. Also CP/M-86 Based Computers	PC-DOS, MS-DOS, CP/M-86	CB-86	No	2000+ 1980	No
Open Systems, Inc. 6477 City West Parkway Eden Prairie, MN 55344		Yes	✓	✓	✓	✓	✓	✓		IBM PC Compatibles	MS-DOS XENIX	BUSINESS BASIC	Yes	1976	No
Open Systems, Inc.		Yes	✓	✓	✓	✓	✓	✓	Harmony	IBM PC and Compatibles	MS-DOS	C	Yes	1985	No

GROSS ANNUAL SALES TO GENERAL CONTRACTORS (in thousands of \$)	PRODUCT SUPPORT/ MAINTENANCE AVAILABLE	COST OF PRODUCT SUPPORT/ MAINTENANCE	TRAINING AVAILABLE	DOCUMENTATION AVAILABLE
1.2 Mil.	On Site, Unlimited #800 Support & Consulting	Varies	Customer Site, Manuals	User Manual
2,000	By Software Maintenance Agreement	Varies	Customer Site, Vendor Site	User Manuals
\$3,000,000	By Phone, on Site	Varies	Customer Site	Manual
N/A	By Phone, On Site, Vendor Site	Varies by Dealer	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone Toll-Free Customer Support	Varies	Yes	User Manual, On-line Help
N/A	By Phone	Incl. in Purchase	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone	Incl. in Purchase	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone	Incl. in Purchase	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone	Incl. in Purchase	Customer Site, Vendor Site, Manual	User Manual, On-line Help
	By Phone, Purchase Support Contract or Dealer	\$150 for 1st Package 100 Each Additional Package Per Year, 100 for Renewals	Dealer	User Manual
	Dealer, By Phone	Varies	Manual, Customer Site	User Manual
75,000	By Phone, On Site, Telecommunication	1 o/o Purchase Price/Month	Customer Site, Vendor Site	User Manual, On-line Help
	By Phone 800-637-0118	Free	No	User Manual
Proprietary	By Phone (619) 458-1327 Also Dealers	Free First Year	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone (800) 328-2276	Varies	Vendor Site, Manuals	User Manual
N/A	By Phone (800) 328-2276	Varies	Dealers	User Manual

SOFTWARE APPLICATIONS															
PAYROLL PRICE/ NO. OF EMPLOYEES	ACCTS PAYABLE PRICE/ NO. OF VENDORS	GENERAL LEDGER PRICE/ LINES OF ACCOUNTS	ACCOUNTS RECEIVABLE PRICE	JOB COSTING PRICE	EQUIPMENT MANAGEMENT PRICE	ESTIMATING PRICE	SCHEDULING PRICE/ NO. OF ACTIVITIES	MATERIALS MANAGEMENT PRICE	FINANCIAL MANAGEMENT PRICE	SPREAD SHEET PRICE	ROOF DESIGN PRICE	ROOF ENERGY ANALYSIS PRICE	WORD PROCESSING PRICE		
\$1,000 1000 per/yr.	\$1,000 9,999	\$1,500 9,999	\$1,000	\$2,000	N/A	\$3,500	Varies	P/O 495.00	Incl. w/G/L	\$295	N/A	N/A	\$695.00		
N/A	N/A	N/A	N/A	N/A	N/A	Varies w/hdwr	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Varies 100,000	100,000	10,000	Varies	Varies	Varies	Varies	\$695-\$895 1500-2500	Varies	Varies	Varies	N/A	N/A	Varies		
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	N/A	N/A	Varies w/hdwr	Varies w/hdwr	N/A	N/A	Varies w/hdwr		
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	N/A	Varies w/hdwr Unlimited	N/A	N/A	N/A	N/A	N/A	N/A	Avail. w/3rd Party		
N/A	N/A	N/A	N/A	N/A	N/A	\$2535	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	Interface w/Other Means Pkg. \$2195/1000	N/A	N/A	N/A	N/A	N/A	N/A		
N/A	N/A	N/A	N/A	N/A	N/A	Interfaces w/Other Means Products \$3850	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
N/A	N/A	N/A	N/A	N/A	N/A	\$15050 Interface w/Other Means Products	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
\$595 Disk Space	\$595 Disk Space	\$595 Disk Space	\$595	\$595	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
N/A	\$600 32000 per Co.	\$600 32000 per Co.	\$600	\$600	N/A	N/A	In Job Cost	N/A	N/A	N/A	N/A	N/A	N/A		
Varies w/hdwr Starts \$1,000 Unlimited	Varies w/hdwr Starts \$1,000 Unlimited	Varies w/hdwr Starts \$1,000 Unlimited	Varies w/hdwr Starts \$1,000	Varies w/hdwr Starts \$4,000	N/A	Varies w/hdwr Starts \$4,000	Varies w/hdwr Starts \$3,000 Unlimited	Varies w/hdwr Starts \$4,000	N/A	N/A	N/A	N/A	From Wang Labs Starts \$2,000		
N/A	N/A														
N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$1295 Unlimited w/Hard Disk	\$995	N/A	N/A	N/A	N/A	N/A		
\$795	\$795	\$795	\$795	\$695		\$895		\$895							
\$275	\$595	\$595	\$595							\$99			\$145		

An NRCA Vendor Survey: Computer Software for Roofing Contractors *continued*

VENDOR CONTACT PERSON	NUMBER OF EXISTING INSTALLATIONS IN ROOFING CONTRACTOR COMPANIES	IF NOT CURRENTLY INSTALLED IN A ROOFING CONTRACTOR BUSINESS, IS THIS SOFTWARE APPLICABLE TO THE ROOFING CONTRACTING INDUSTRY?	REGIONS SERVICED BY YOUR COMPANY						SOFTWARE PACKAGE	HARDWARE REQUIRED	OPERATING SYSTEM	PROGRAM LANGUAGE	SOURCE CODE AVAILABLE	INSTALLED LOCATIONS/ FIRST INSTALLATIONS	INSTALLER USER LIST AVAILABLE
			NORTHEAST	MIDEAST	SOUTHEAST	NORTH CENTRAL	SOUTH CENTRAL	NORTHWEST							
P.A.C.E. Inc. 6095 Cleveland St. Merrillville, IN 46410	2	Yes	✓	✓	✓	✓	✓	✓	Contractors Cornerstone	IBM, Televideo, Compaq, Columbia, and Others. 20meg	MS-DOS	BASIC	Yes	350 1980	No
E F Paynter & Associates Inc. 6140 N. College Avenue Indianapolis, IN 46220 (317) 257-7561 Edwin F. Paynter	0	Yes	✓	✓	✓	✓	✓	✓	Cactes	IBM PCs & S/36 Wang PCs & 2200 All Compatibles	MS-DOS PROPRIETARY	BASIC	Yes	42 1978	Yes
Pinnacle Technology 1211 W. 22nd St. Oak Brook, IL 60521 (312) 571-5606	0	Yes	✓	✓	✓	✓	✓	✓	Cas	IBM PCs & Wang PCs & Wange 2200	MS-DOS PROPRIETARY	BASIC	Yes	12 1979	Yes
Pinnacle Technology 1211 W. 22nd St. Oak Brook, IL 60521 (312) 571-5606	0	Yes	✓	✓	✓	✓	✓	✓	Com-Quest Takeoff Com-Struct Pricing	IBM, Texas Instruments, Compaq, most MS-DOS, 256K minimum	MS-DOS	BASIC	No	75 1984	Yes
Pinnell Engineering, Inc. 5331 S.W. Macadam, #270 Portland, OR 97201 (503) 243-2246	0	Yes	✓	✓	✓	✓	✓	✓	PMS80	IBM PC/XT/AT or Compatible	MS-DOS, UNIX, ZENIX	FORTRAN 77	No	200 1979	Yes
Profitool, Inc. 1600 Stout Street, Suite 2000 Denver, CO 80202 (303) 571-1555 Tom Levandoski	0	Yes	✓	✓	✓	✓	✓	✓	CMIS Contractor Management Information System	Prime 50 Series	PRIMOS	FORTRAN	Yes	60 1967	Yes
Pro-Mation, Inc. 1145 E. South Union Midvale, Utah 84047	25	Yes	✓	✓	✓	✓	✓	✓	The Contractor's Edge	IBM PCXT, PCAT, PC36, Allos, AT&T, Sperry, Others, 10MB Min.	MS-DOS, PC-DOS, XENIX, UNIX V, SSP	RM COBOL	No	700+ 1976	No
Promax Systems Inc. 445 Broadhollow Rd. Suite 16 Melville, N.Y. 11747 (516) 293-0808	2	Yes	✓	✓	✓	✓	✓	✓	Promax-C	IBM, AT, XT, General Automation, Ultimate Microdata, Others, 20MB Minimum	ALL PICK O/S	DATA/BASIC	Yes	2 1984	Yes
R & D Systems 7150 Campus Dr. Suite 155 Colorado Springs, CO 80918	8	Yes	✓	✓	✓	✓	✓	✓	GAP Contractor Accounting	Burroughs B25, XE500	BTOS, CENTIX	COBOL	Limited	400 1982	Yes
Reams Computer Corporation 11838 Bunker Blvd. Newport News, VA 23666 (804) 873-0233	6	Yes	✓	✓	✓	✓	✓	✓	JCMS Subcost Management System	Point4, IBM, AT&T, Sperry	IRIS, UNIX, ZENIX	BUSINESS	Yes	90 1977	Yes
Red River Software 4325 13th Ave. S. Fargo, ND 58103 (701) 281-0780 (800) 852-0055 Bob Jamison	3	Yes	✓	✓	✓	✓	✓	✓	Construction Job Cost	IBM-XT, IBM-AT, NCR, Zenith, Compaq, AT&T, IBM-PC, Any Compatible Computer with 256K Memory & 20 Million Character Hard Disk	MS-DOS	COMPILED BUSINESS BASIC	No	25 1983	Yes Some Names
Rose Associates 216 S. York Road Hatboro, PA 19040(215) 443-7028	300-400	Yes	✓	✓	✓	✓	✓	✓	The Complete Contractor	Any IBM Compatible, Many CP/M Mach.	MS, PC/DOS, CP/M80	COMPILED BASIC	Ltd.	500 1976	No
Satellite Business Computers 816 East 53rd Street Austin, Texas 78751 (512) 454-4242	4	Yes	✓	✓	✓	✓	✓	✓	Contractor's Data System	Alpha-Micro, IBM-PC XT, IBM-AT, PC Compatible	AMOS, MS-DOS	BASIC	No	60 1977	Yes
Scitor Corporation 250 Lincoln Centre Drive Foster City, CA 94404 (415) 570-7700		Yes	✓	✓	✓	✓	✓	✓	Project Scheduler Network	IBM PC/XT/AT, Wang PC, TI Professional, HP 150; Graphics Card, 320 K Bytes RAM	PC-DOS, MS-DOS	PASCAL, ASSEMBLY	No	1982	No
S-CUBED a Division of Maxwell Labs. Washington Research Center 1800 Diagonal Road, Suite 370 Alexandria, VA 22314 David E. Wiseman (910) 838-0220	0	Yes	✓	✓	✓	✓	✓	✓	JAMIS	Wang VS	VS	COBOL	Yes	20 1981	Yes
Sea Wench Systems, Inc. 41 East Villa Street Pasadena, CA 91103 (818) 795-3121	1	Yes	✓	✓	✓	✓	✓	✓	ESTIMAGIC	100% Compatible, IBM PC & MS DOS	MS/DOS, PC/DOS	"C" & DBASE	No	8 1986	Yes
Shaker Computer & Management Services, Inc. 50 Century Hill Dr., Box 727 Latham, NY 12110 (518) 785-0978		Yes	✓	✓	✓	✓	✓	✓	COINS Construction Industry Software	IBM and Compatibles, AT&T, Plexus, Others 20MB	UNIX, MS-DOS	PROGRESS	Yes	26 1985	Yes
Small System Design, Inc. 4894 Sterling Drive Boulder, CO 80301 (800) 272-0053	3	Yes	✓	✓	✓	✓	✓	✓	Construction Management Software V 4.0, V 4.2	IBM, Compaq, Tandy, AT&T, Corona, Tava, Epson, Sperry IT, Televideo, GMS, 20 MEG, 256 K	MS-DOS	COMPILED BASIC ASSEMBLER	No	713 1980	Yes

GROSS ANNUAL SALES TO GENERAL CONTRACTORS (in thousands of \$)	PRODUCT SUPPORT/ MAINTENANCE AVAILABLE	COST OF PRODUCT SUPPORT/ MAINTENANCE	TRAINING AVAILABLE	DOCUMENTATION AVAILABLE
\$500,000	By Phone, On Site, (215) 277-4444 Dealer Dependent	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help Q & A for Accounting Questions
\$500	Phone, On Site, Dealer Dependent	1% of License Fee	Customer Site, Vendor Site, Manual	User Manual
\$500	Phone, On Site, Dealer Dependent	1% of License Fee	Customer Site, Vendor Site, Manual	User Manual
N/A	By Phone, Mail	\$35/mo.	Customer Site, Vendor Site, Manual	User Manual, On-line Help
\$400,000	By Phone, On Site, (503) 243-2246 Maint. Available	Varies	Yes	User Manual, Tutorial
\$2.5 million	Yes	Varies	Customer Site	Documentation, On-line Help
\$800,000	By Phone, On Site, Dealer	100.00/Yr. Per Module 60.00/Hr. Phone	Customer Site, Dealer, Vendor Site, Manual	User Manual
\$250,000	By Phone, On Site	10% Software Year	Customer Site, Vendor Site	User Manual
\$500,000	By Phone, By Dealer	Varies	On Site, Vendor Site, Dealer	User Manual, Workbook, On-line Help
\$1,000,000	Phone Modem, On Site, Dealer Dependent	Varies	Customer Site, Vendor Site, Manual	User Manual
\$50	By Phone, On Site	Phone \$250/Yr.	Customer Site, Vendor Site, Phone Manual	User Manuals, On-line Help
\$500	By Phone	None	On Site	User Manuals
N/A	By Phone, On Site	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help
	By Phone (414)570-7700,	No Cost for Tech Support/Varies	Manual	User Manual, Tutorial
\$250,000	By Phone, On Site (619) 453-0060	T&M	Customer Site	User Manual
N/A	By Phone (818) 795-3121	Varies	Vendor Site, Manual	User manual, On-line Help
	Maintenance Agreement Available 24 hr. Hot Line	Varies	8 Hours On Site for Each Module Purchased	User Manual
\$750,000	By Phone 800 Number Dealer Dependent	Dealer Dependent	Customer Site, Manual	User Manual,

SOFTWARE APPLICATIONS													
PAYROLL PRICE/ NO. OF EMPLOYEES	ACCTS. PAYABLE PRICE/ NO. OF VENDORS	GENERAL LEDGER PRICE/ LINES OF ACCOUNTS	ACCOUNTS RECEIVABLE PRICE	JOB COSTING PRICE	EQUIPMENT MANAGEMENT PRICE	ESTIMATING PRICE	SCHEDULING PRICE/ NO. OF ACTIVITIES	MATERIALS MANAGEMENT PRICE	FINANCIAL MANAGEMENT PRICE	SPREAD SHEET PRICE	ROOF DESIGN PRICE	ROOF ENERGY ANALYSIS PRICE	WORD PROCESSING PRICE
\$1,350 Unlimited	\$1,350 Unlimited	\$1,350 Unlimited	\$1,350 Unlimited	\$1,350 Unlimited	N/A	\$1,500	N/A	N/A	Inc.	Lotus 1.2.3	N/A	N/A	\$300
N/A	N/A	N/A	N/A	N/A	N/A	\$7,500 1st User	N/A	N/A	N/A	N/A	N/A	N/A	N/A
\$2,000 1 User Unlimited	\$1,500 1 User Unlimited	\$1,250 1 User Unlimited	\$750 1 User	\$1,500 1 User Unlimited	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$750
N/A	N/A	N/A	N/A	N/A	N/A	\$2100 \$2500	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	Incl. With Data-Base		N/A	\$600	\$495 + 30,000	\$900	N/A	N/A	N/A	N/A	N/A
Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K	Varies w/hdwr Modules \$25K to \$140K				
\$1,200-\$1,450 999,999	\$1,200-\$1,450 999,999	\$1,200-\$1,450 Unlimited	\$1,200-\$1,450	\$1,200-\$1,450	\$1,200-\$1,450	\$500-\$6,000	\$1,200-\$1,450 Unlimited	N/A	N/A	Incl.	N/A	N/A	N/A
Varies Unlimited	Varies Unlimited	Varies Unlimited	Varies Unlimited	Varies Unlimited	\$1,500	\$2,500	N/A	N/A	Incl. with G/L	With O/S	N/A	N/A	With O/S
Varies Unlimited	Varies Unlimited	Varies Unlimited	Varies Unlimited	Varies			N/A	Varies	Varies	Varies	N/A	N/A	Varies
\$1500 999999	\$1500 99999	\$1500 999999	\$1500	\$1500	\$1000	\$1500	\$1200	1500	N/A	900	N/A	N/A	1500
\$500 Unlimited	\$500 Unlimited	\$500 Unlimited	\$500	\$1000	N/A	\$1,500	N/A	\$500	N/A	\$495 Lotus	N/A	N/A	\$200 Word Perfect
\$695	Incl. w/Payroll	Incl. w/Payroll	Incl. w/Payroll	Incl. w/Payroll		Incl. w/Payroll	Incl. w/Payroll	Incl. w/Payroll	Incl. w/Payroll	Incl. w/Payroll			Incl. w/Payroll
\$800-\$1,000 Unlimited	\$800-\$1,000 Unlimited	\$1,000-\$1,200	\$800-\$1,000	\$800-\$1,000	\$400-\$500 Unlimited	\$850-\$1,000	\$400-\$500	\$500-\$600	Incl. with G/L	\$600	N/A	N/A	\$1,000
N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$500 2000 per project	N/A	N/A	N/A	N/A	N/A	N/A
Varies	Varies	Varies	Varies	Varies	N/A	N/A	N/A	Varies	N/A	\$2,000	N/A	N/A	\$2,000
N/A	N/A	N/A	N/A	N/A	N/A	\$2,500-\$8,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr							
Incl. \$6,795 V4.2 500	Incl. \$6,795 V4.2 1250	Incl. \$6,795 V4.2 500	Incl. \$6,795 V4.2	Incl. \$6,795 V4.2	Incl. \$6,795 V4.2	Incl. \$6,795 Stand-Alone Avail.	Incl. \$6,795 Depend on Space	Incl. \$6,795 V4.2	N/A	Interface in \$6,795 V4.2	N/A	N/A	Interface in \$6,795 V4.2

An NRCA Vendor Survey: Computer Software for Roofing Contractors *continued*

VENDOR CONTACT PERSON	NUMBER OF EXISTING INSTALLATIONS IN ROOFING CONTRACTOR COMPANIES	IF NOT CURRENTLY INSTALLED IN A ROOFING CONTRACTOR BUSINESS, IS THIS SOFTWARE APPLICABLE TO THE ROOFING CONTRACTING INDUSTRY?	REGIONS SERVICED BY YOUR COMPANY						SOFTWARE PACKAGE	HARDWARE REQUIRED	OPERATING SYSTEM	PROGRAM LANGUAGE	SOURCE CODE AVAILABLE	INSTALLED LOCATIONS/ FIRST INSTALLATIONS	INSTALLER USER LIST AVAILABLE
			NORTHEAST	MIDEAST	SOUTHEAST	NORTH CENTRAL	SOUTH CENTRAL	NORTHWEST							
SoftCorp, Inc. 2340 State Road 580 Suite 244 Clearwater, FL 33575	N/A	Yes	✓	✓	✓	✓	✓	✓	Advanced Pro-PATH 6	IBM or Compatible	MS/DOS	COMPILED BASIC	No	4000 1983	No
Software Consultants, Inc. 10901 Valley View Road Eden Prairie, MN 55344 (612) 941-3676 Roger H. Hamann, President	2	Yes			✓				Contractor Management System (CMS)	IBM AT Enhanced 512KB, 20MB CONTEL/CADO (ATS TIGER Series)	CADOS	BUSINESS BASIC	Yes	60 1981	Yes
Software Dimensions, Inc. 4601 Six Forks Road Suite 500 Raleigh, NC 27609 (919) 783-5000 (919) 361-1945	9	Yes	✓	✓	✓	✓	✓	✓	Marketing Management System	IBM PC-XT, PC-AT, DEC Microvax, Vax, TI PRO, TI-990, Wang PC, AT&T 6300, AT&T 3B Series, Novell Netware, Other 128K & 10MB MS-DOS	MS-DOS, PC-DOS, Unix, Zenix, DX-10	RM COBOL	Yes	800 1983	No
The Software Exchange, Inc. 1810 Craig Rd., Suite 215 St. Louis, MO 63146 Jim Myers (314) 275-7777		Yes	✓	✓	✓	✓	✓	✓	TSE* Construction	General Auto., Fujitsu, Ultimate, C.Itoh, Mc/Douglas, PC-AT (clones), IBM 4300	PICK	BASIC	Yes	30 1978	Limited
Software Sales & Support, Inc. 700 Papworth Ave., Suite 103 Metairie, LA 70005 (504) 838-0063	1	Yes			✓		✓		SSS Job Cost Accounting	IBM PC-XT or Compatible 10 meg	MS-DOS	BUSINESS BASIC	Yes	41 1979	Yes
Solo Systems, Inc. 6057A Arlington Boulevard Fall Church, Virginia 22044 (703) 533-9100	1	Yes		✓					MARS III Management Accounting, Reporting System	IBM PC, or Equal, STRIDE Micro, Digital VAX, Apple Mac	MS-DOS, UNIX, VMS, P-SYS.	PASCAL	Yes	28 1983	Yes
Sound Ideas Computers Inc. 3027 East Bay Dr. Largo, FL 33541 (Home Ofc.) (813) 531-0669 (800) 422-2277	9	Yes	✓	✓	✓	✓	✓	✓	S.I. System	Sperry, NCR, DEC, ATT, IBM, Paradyamic	FAMOS, XENIX, UNIX	COMPILED BASIC	Yes	100s 1978	Yes
SPAR Associates, Inc. 927 West Street Annapolis, Maryland 21401 (301) 263-8593 Martin Horowitz	0	Yes	✓	✓	✓	✓	✓	✓		IBM PC-XT or Compatibles HP, PRIME, DEC	MS-DOS, MPE, PRIMOS, RTOS	FORTRAN	No	15 1975	No
Star Software Systems, Inc. 3300 Nacogdoches Rd., Suite 175 San Antonio, TX 78217 (512) 821-6922	3	Yes	✓	✓	✓	✓	✓	✓	Construction Automated Management System	IBM S/36 IBM 36/PC	SSP	RPG II	Yes	80+ 1979	Yes
Steppenwolf Corporation 82 Horatio St., Suite 1-B New York, NY 10014 212-645-9618/201-752-7670	1		✓	✓	✓	✓	✓		CBAS Steppenwolf	IBM S/23, S/34, S/36, S/38, 43xx., PC/XT, PC/AT	SSP, PC-DOS	IBM BASIC & RPG, WORKSTAT BASIC	Yes	55 1979	Yes
TLS Company, Construction Industry Group 425 Second Street SE P.O. Box 1686 Cedar Rapids, Iowa 52406 (800) 553-7238	N/A	Yes		✓		✓	✓	✓	Total Construction Management System	IBM System/36	SSP	IBM BASIC	Yes	N/A 1984	Yes
Westminster Software, Inc. 2570 El Camino Real Mountain View, CA 94040 (415) 941-6800		Yes	✓	✓	✓	✓	✓	✓	PertMaster	IBM, HP 150, DEC, Wang, TI PC, & Others	PC-DOS, MS-DOS, CP/M	BASIC	No	15,000	Yes

GROSS ANNUAL SALES TO GENERAL CONTRACTORS (in thousands of \$)	PRODUCT SUPPORT/ MAINTENANCE AVAILABLE	COST OF PRODUCT SUPPORT/ MAINTENANCE	TRAINING AVAILABLE	DOCUMENTATION AVAILABLE
N/A	By Phone No Charge	None	Manual, Tutorial, Demo	User Manual
1,000,000	By Phone, On Site, Vendor Site, (612) 941-3676	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help
N/A	By Phone, On Site, Annual Support Agreement	10% of Software Cost	Customer Site, Vendor Site, Manual	User Manual, On-line Help
\$900,000	By Phone, On Site, Maintenance Optional	Varies Avg: \$50/hr (10 hr Increments)	Customer Site, Vendor Site, Manual	User Manual
N/A	By Phone, On Site	Varies	Customer Site, Vendor Site, Manual	Manual
	By Phone, On Site	Varies	Customer Site, Vendor Site	User Manual
750,000	By Phone, On Site, Local Support Avail.	Varies	Customer Site, Vendor Site, Manual	User Manual, On-line Help
	90 Day Warranty, Maintenance Contract Available	Varies	User Manual, Installation Guide	User Manual, On-line Help
400,000	By Phone, On Site	10% of License Fee	Training Class, On Site	User Guide, On-line Prompts
100	By Phone, On Site	Varies	On Site	User Manual, On-line
N/A	Watts Line, On Site	Varies	Customer site, Vendor Site	Training Manual, Conversion Manual, Reference Manual, On-line Help
	By Phone, On Site, Dealer Dependent	Varies	Manual, through Authorized Dealers	User Manual, On-line Help

SOFTWARE APPLICATIONS															
PAYROLL PRICE/ NO. OF EMPLOYEES	ACCTS. PAYABLE PRICE/ NO. OF VENDORS	GENERAL LEDGER PRICE/ LINES OF ACCOUNTS	ACCOUNTS RECEIVABLE PRICE	JOB COSTING PRICE	EQUIPMENT MANAGEMENT PRICE	ESTIMATING PRICE	SCHEDULING PRICE/ NO. OF ACTIVITIES	MATERIALS MANAGEMENT PRICE	FINANCIAL MANAGEMENT PRICE	SPREAD SHEET PRICE	ROOF DESIGN PRICE	ROOF ENERGY ANALYSIS PRICE	WORD PROCESSING PRICE		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$199-250	N/A	N/A	N/A	N/A	N/A	N/A		
\$2,500 Unlimited	\$2,500 Unlimited	\$2,000 Unlimited	\$2,000 Unlimited	\$2,500 Unlimited	\$1,000	\$2,500	\$2,000 Unlimited	\$1,000	\$1,000	\$400	N/A	N/A	\$300		
Incl. w/Job Cost	Incl. w/Job Cost	Incl. w/Job Cost	Incl. w/Job Cost	Varies w/Hdwr \$7,500;- \$39,500	Ltd.	\$2,000;- \$7,500	\$2,000;- \$7,500	N/A	N/A	Varies	N/A	N/A	Varies		
\$695 Unlimited	\$695 Unlimited	\$695 Unlimited	\$695	\$695	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Varies Unlimited	Varies Unlimited	Varies Unlimited	Varies	Varies	Incl. with Job Costing	Varies	Varies Unlimited	Varies	Incl. with A/P, A/R, G/L	\$495	N/A	N/A	\$495 Solo-writer		
Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies		
N/A	N/A	N/A	N/A	Varies w/hdwr		Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	N/A	N/A	N/A	N/A	N/A		
\$3,000 Unlimited	\$2,500 Unlimited	\$2,500 Unlimited	\$2,500 Unlimited	\$2,500 Unlimited	\$2,500 Unlimited	\$2,500 Unlimited	N/A	\$2,500 Unlimited	N/A	N/A	N/A	N/A	N/A		
Varies w/hdwr Unlimited	Varies Unlimited	Varies Unlimited	Varies	Varies		Varies	Varies Unlimited	Varies	Varies						
Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr Unlimited	Varies w/hdwr	Varies w/hdwr	Varies w/hdwr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Varies w/hdwr		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$695;- \$1,695. \$1,500;- 2,500	N/A	N/A	N/A	N/A	N/A	N/A		

The calculations for our example look like this:

Of the company's 75%		
	\$138,000	
-	80,000	(8% of sales for general administrative expense)
=	58,000	

Of the project manager's 25%		
	\$45,000	
-	36,000	(Compensation for period, including salary, auto, etc.)
=	10,000	(Incentive)

Better performance = more pay

Under this plan, the project manager can increase his compensation by increasing sales as long as direct costs and variable overhead costs remain fixed percentages of total sales. The following table illustrates the increase in the project manager's compensation that occurs as sales increase when direct costs are 68 percent of sales and variable overhead is 20 percent of the direct cost.

Sales	Company's net profits	Project manager's total compensation
\$ 500,000	\$ 69,000	\$23,000
750,000	103,500	34,500
1,000,000	138,000	46,000
1,250,000	172,500	57,500
1,500,000	207,000	69,000

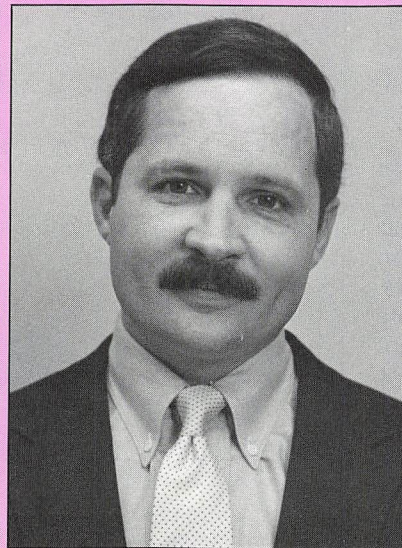
This compensation plan also rewards project managers for greater productivity. By decreasing the percentage needed to cover direct costs, the project manager can increase the project's gross profits. And, obviously, as gross profits rise, the project manager's 25 percent will increase as well. The following table puts the relationship between rising productivity and increasing compensation in real numbers when sales for a period equal \$1 million.

Percent of sales needed to cover direct costs	Company's net profits	Project manager's total compensation
72%	\$102,000	\$34,000
70	120,000	40,000
68	138,000	46,000
65	165,000	55,000

A special gift for reaching goals

Another important part of our compensation plan has allowed us to obtain reasonably stable annual sales figures. At the beginning of each of our fiscal years we set a sales goal figure, including some modest growth, for the upcoming year. We ask each of our project managers to be responsible for a certain percentage of that total goal. Using a bar chart as the year progresses we are able to track how the project managers are doing month by month. At the end of the fiscal year, those who have achieved their percentage of the total goal receive a special gift. The gifts may range from a major home appliance to an entertainment center component or even a cash bonus. Over the last several years, this additional incentive plan has helped us produce fairly stable volume levels, and more accurately budget general administrative expenses and apply variable overhead rates in our estimating.

Under this plan, the project manager can increase his compensation by increasing sales.



Bennett Hutchison is president of Tip Top Roofers of Atlanta. He is also currently serving as an NRCA director.

Even though our plan of project manager compensation sounds complicated, once you become familiar with it, it's really quite simple. It is also possible to adapt it to a variety of situations, depending on company size, complexity and the scope of work that is pursued.

If you have further interest, I would be happy to discuss it with you by phone. Tip Top Roofers' number in Atlanta is 404/351-4410.

Contractors to bear burden of tax reform

No one ever accused the old tax code of being simple, rational or fair. But over the years, we had learned to live with it as if it were a cantankerous old relative. We even found that by adapting our operations to the old code's provisions, we could take advantage of some of its quirks.

Over the next couple of years, however, this country will be changing over to a new tax system. The new code's streamlined, stripped-down provisions offer lower and simpler tax rates, but at the same time, they take away many of the tax breaks corporations have enjoyed in the past. For companies whose business plans were particularly attuned to the old code's nuances, the new code may force a radical and traumatic change in the way they do business.

The new code shifts the tax burden from personal income to corporate income. One *Wall Street Journal* article claims that this change would place an extra \$108 billion of tax liability on business' shoulders. Although the maximum corporate tax rate is lower in the new law, there will be less of a chance to write off losses, investments or capital expenditures.

As small business owners in the construction industry, roofing contractors may be particularly hard hit by the new tax code. Delegates to the recent White House Conference on Small Business complained that several provisions would either increase small business's tax liability or require these companies to make costly changes to their accounting and recordkeeping procedures. And because of the competitive market, some said, it would be impossible for small businesses to pass these added costs on to their customers.

In addition to the increased tax burden, contractors may also suffer from the general decline in construction that some are predicting the new code will cause. Less generous depreciation schedules for buildings and structures and a repeal of the Investment Tax Credit are expected to put a damper on new building.

A study commissioned by Data Resources, Inc., and conducted by the National Construction Industry Council (NCIC) has esti-

**Code's
changes
may
slow
construction
growth**

mated that non-residential building could fall 4 percent between 1986 and 1988. Under the current law, this segment of the industry was expected to rise 4 percent. NCIC also found that business expenditures overall would remain lower at least through 1992. The new tax code would also be responsible for the loss of 240,000 jobs per year for the first five years, according to NCIC, and almost half of these jobs would be in the construction industry.

Reroofing may also be affected by the code's changes if the extended depreciation schedules found in the new law influence building owners' decisions to have the work performed. Owners will also find less incentive to rehabilitate older buildings in the new code. For non-historic buildings, there is a single 10-percent credit for reha-



bilitating buildings placed in service before 1936. For rehabilitating certified historic structures, the tax credit has been reduced to 20 percent.

The new code will give contractors a few things to cheer about, however. The maximum corporate tax rate has been lowered to 34 percent, and companies with smaller incomes will be assessed even lower rates. The personal income rates have also been lowered, with the top rate at 28 percent for incomes above \$29,750. This will benefit not only individuals, but also businesses that are sole proprietorships, which will be taxed at the personal income rate.

Changes to be phased in

The new code's specific provisions will be phased in at different times over the next few years. Some changes will be abrupt, while others will occur in small increments over a period of time. The reduction and simplification of the tax rates, for instance, will be phased in over two years. In 1987, the income of married couples filing a joint return will fall into one of five brackets, ranging from 11 percent for incomes below \$3,000 to 38.5 percent for incomes above \$90,000. In 1988, there will be only two rates. Those with incomes of \$29,750 or below will be taxed at a 15 percent rate. Those above this range will pay 28 percent.

The new corporate tax rates take effect July 1, 1987. The structure is divided into three brackets. Those with taxable income of \$50,000 or less will pay 15 percent. Those with incomes between \$50,000 and \$75,000 will pay 25 percent and those above \$75,000 will pay 34 percent.

Because the new code makes the individual tax rate less than the corporate rate, the value of S corporations has been enhanced, according to Neil Schemm of the law firm Hendrick, Spanos & Phillips. Income generated by S corporations, which are domestic companies with no more than 35 shareholders, is taxed at the individual tax rate.

Real estate write-offs extended

Write-offs for investments will vary in the new code depending on the type of expenditure. Depreciation for investments in equipment will be somewhat accelerated, while depreciation for buildings and structures will be extended from the current 19 years to 27½ years for residential property and 31½ years for commercial property. The new code also requires the use of "straight-line" depreciation of build-

ings and structures, which restricts the amount written off each year to 3.7 percent on residential projects and 3.2 percent on commercial projects.

Property and equipment owners will also have to pay higher taxes on the income produced by these items. Effective Jan. 1, 1986, the Investment Tax Credit, which offset the taxes owed on this income, will be repealed.

Investors can't win for losing

Capital gains will be a bit more of a boon to businesses under the new tax code. The tax rates for these profits will be adjusted to conform to the highest bracket of the other tax rates. In other words, individuals' capital gains will be taxed at 28 percent and corporate gains will be taxed at 34 percent.

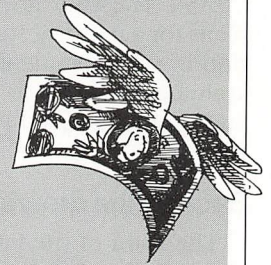
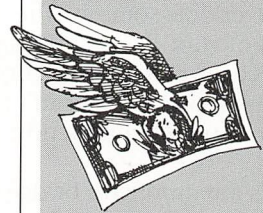
Real estate losses, on the other hand, will no longer benefit investors who have used these losses in the past to shelter earned income. The new tax law defines these tax shelters as "passive" business activities, because the taxpayer is not involved in the investment on a regular, continuous and substantial basis. Losses from such passive business activities can only be used to offset passive investments, according to the new code. The law will, however, allow losses to be carried into future years to be applied to passive income later.

These tax shelter changes will be phased in over the next four years. In 1987, only 35 percent of these losses will be disallowed. This percentage will rise each year until 1991, when the full amount of these losses will be subject to the code's restrictions.

Retirement benefits will also be subject to new regulations and restrictions, and some contractors may have to tinker with their retirement benefits to make them comply with the new code's requirements. Generally, the new code will make it necessary to vest employees sooner and include more employees in the plan. Individual retirement arrangements will be subject to higher taxes in some cases. Deductions for IRA contributions will be phased out for adjusted gross incomes between \$40,000 and \$50,000. The maximum annual elective deferral for an employee under all 401(k) plans and tax-sheltered annuities will be limited to \$7,000 beginning Dec. 31, 1986.

In the long run, the pluses and minuses of the new tax code may cancel each other out, leaving the country with an economy less distorted by the vagaries of the tax laws. But for the next few years, as businesses and individuals adjust to the changes, the construction industry may find the going tough.

The new tax code would also be responsible for the loss of 240,000 jobs per year, and almost half would be in the construction industry.



NRCA competition has designs on roofing's future

In the July issue of *Progressive Architecture*, an article titled "Designer Roofs" discusses how the advent of new, lighter-weight, single-ply roofing systems "has tempted some architects to overlook some of the most basic principles of roof design." This negligence has resulted in commercial roofs that are improperly sloped or that can't handle normal expansion and contraction, the article declared.

NRCA is attempting to bridge the educational gap between the design community and the roofing industry with the help of the American Institute of Architecture Students (AIAS). The two groups have announced plans for a national student design competition in which students from more than 90 architecture schools around the United States will be asked to "design the roof of the future."

Back to the drawing board

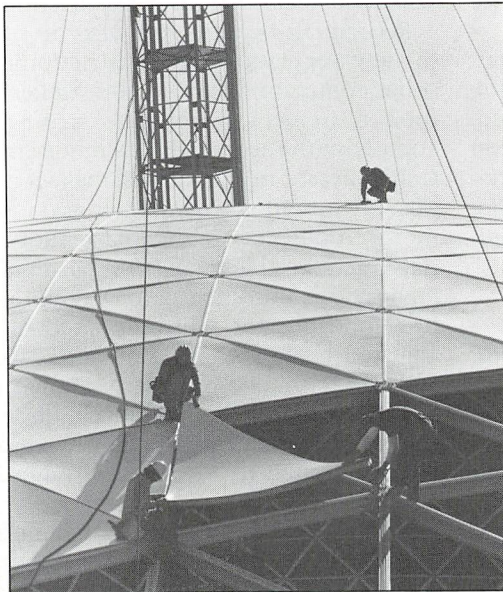
The Roof of the Future design competition is one of the many special projects scheduled during NRCA's Centennial year. Its goal is to generate a greater awareness of effective roofing systems and further educate architecture and engineering students in the "basics" of sound roof design. The competition's future-oriented theme will also give entrants a chance to work within a more creative framework.

"We believe that the future design opportunities in roofing need to be better understood, and a student/faculty competition like this brings the challenge before the entire architectural community," says NRCA Executive Vice President Fred Good.

Architecture students entering the contest will be asked to design a station facility for an intercity high-speed rail transportation system. The proposed rail system will connect the Florida cities of Miami, Orlando and Jacksonville. The project was selected to provide an exciting challenge for students who wish to address a problem that

Student contest gets back to basics

NRCA's Roof of the Future contest will challenge students to use space-age components and techniques to accomplish roofing's basic purpose.



is both visionary and realistic. Although a futuristic theme is desirable in the conceptual design, the plan must be feasible and structurally sound, and use current building materials and techniques.

"The site proposed is ideally suited to the design of a major roofing system," AIAS President Scott Norberg says. "The Florida climate incorporates several important elements that a roofing contractor or architect/engineer must consider in good design, such as high-velocity winds and torrential rains as well as other extreme weather conditions. The warm weather also allows for the design of an open-air facility in which the roof is the primary structural and aesthetic element."

A team effort

At the design stage of the competition, students and educators will collaborate on the effort. Faculty members will be encouraged to incorporate the design competition into their course curricula. Students who are not able to participate in the formal classroom setting will have the opportunity to enter the competition as part of an independent educational project.

Each student will be challenged to find innovative solutions to design problems such as noise, vibration and ventilation/environmental control. The designers must also be specific in their choice of roofing materials, structural decking, flashing details, surfacing, edge treatments and expansion joints.

Promotion of the design competition has already started at the grass roots level. NRCA has distributed promotional materials, including specially designed competition posters, to each participating school. At the recent AIAS annual meeting in Washington, D.C., NRCA Communications Director Chris Taylor spoke about the competition to an enthusiastic group of student representatives

from more than 80 architectural schools around the country.

"Our goal at this preliminary session was to impress upon the students that good roof design leads to good roof performance. And the best way to achieve a performing roof system is through a cohesive effort by all members of the building construction team," Taylor says. "A program like the Roof of the Future contest will help generate a great deal of interest and enthusiasm by participants as well as the hundreds of students and faculty members who will hear about and see the final results."

Leaving their art in San Francisco

The final stage of the competition will involve collecting and judging entries, selecting winners and honorable mentions, and exhibiting student works in San Francisco at the 1987 Convention general session. Judges for the contest will be preeminent members of the design/engineering and contracting industries.

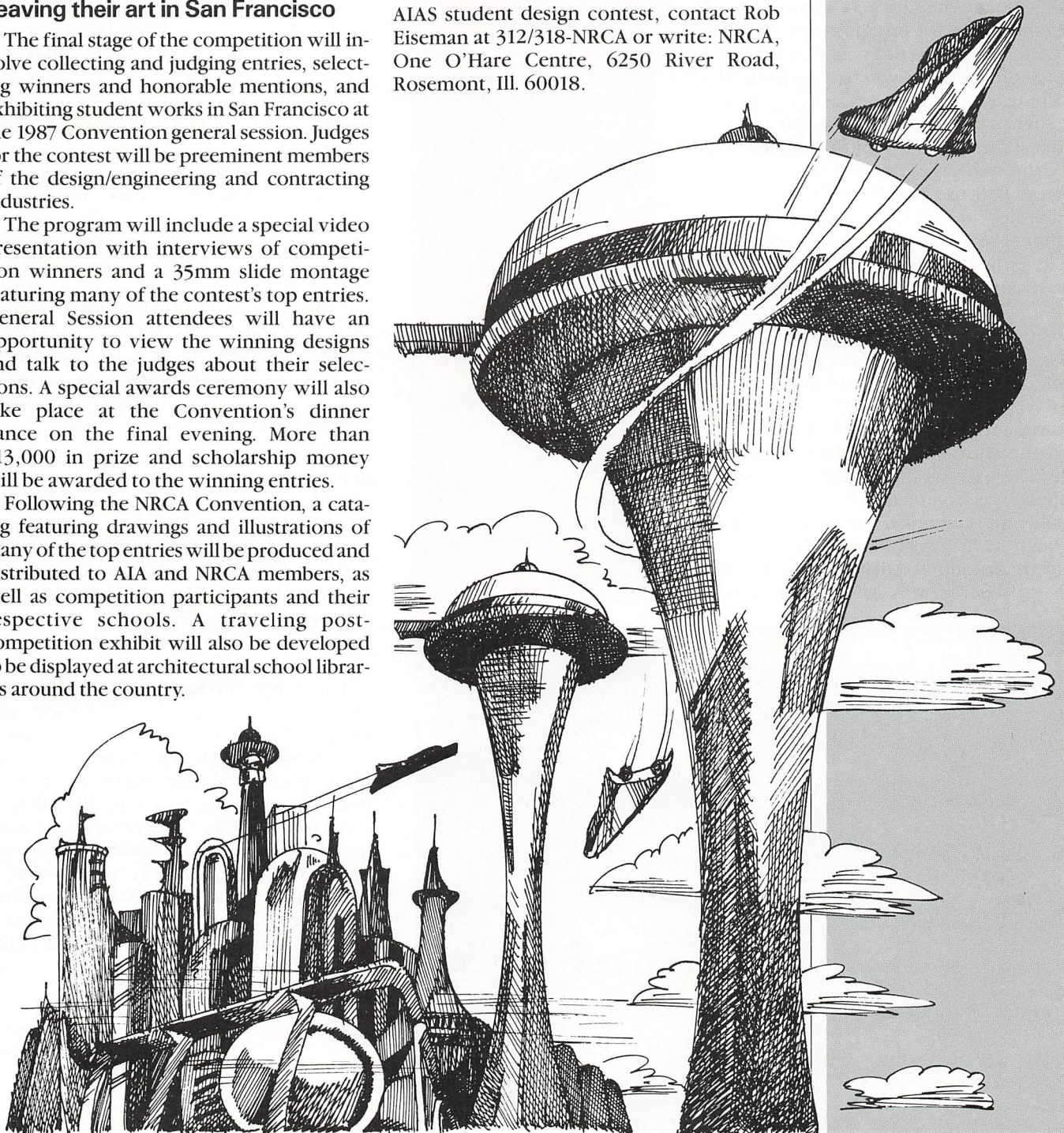
The program will include a special video presentation with interviews of competition winners and a 35mm slide montage featuring many of the contest's top entries. General Session attendees will have an opportunity to view the winning designs and talk to the judges about their selections. A special awards ceremony will also take place at the Convention's dinner dance on the final evening. More than \$13,000 in prize and scholarship money will be awarded to the winning entries.

Following the NRCA Convention, a catalog featuring drawings and illustrations of many of the top entries will be produced and distributed to AIA and NRCA members, as well as competition participants and their respective schools. A traveling post-competition exhibit will also be developed to be displayed at architectural school libraries around the country.

Registration for the Roof of the Future design competition will begin on Nov. 10, 1986. Each participant will receive a packet of literature containing specific contest information, design and construction details, and a list of resources for further research. A copy of the *NRCA Roofing and Waterproofing Manual* will be placed in each participating school's library. The competition is open to graduate and undergraduate students with a background in design or engineering. The deadline for entering is Jan. 31, 1987.

For more information about the NRCA/AIAS student design contest, contact Rob Eiseman at 312/318-NRCA or write: NRCA, One O'Hare Centre, 6250 River Road, Rosemont, Ill. 60018.

Architecture students entering the contest will be asked to design a station facility for an intercity high-speed rail transportation system.



ASTM's new terminology gives industry chance to re-cover

When speaking, roofing professionals will quite often put common terms to uncommon uses. When someone says he's a built-up roofing contractor, for instance, he's probably not referring to his physical condition. Or, when someone tells you he's spent the day torching a membrane or flashing, chances are there's no reason to run to the police.

But sometimes it's not just outsiders who are confused by these terms. Frequently, contractors will use words that have become established parts of the industry's jargon without ever being precisely defined. When these terms are vague or misleading, it can lead to confusion and misunderstandings.

Vapor barriers that aren't

One example of a misused term is the name "vapor barrier." For many years, this was what the industry called the material that was used to control the flow of moisture from the warm side of a structure to the cold side. The term was misleading because the material was never a true barrier; the vapor would, in certain circumstances, move through it. In recognition of this fact, the industry has adopted the term "vapor retarder" to describe this roofing component,

In other words, reroofing's out, replacement's in

by Bob LaCosse, NRCA associate executive director

When the old roof is torn off before the new roof is applied, ASTM says this work should be called a replacement.

and most now use this phrase instead of vapor barrier in their discussions.

Similar misunderstandings exist today concerning the use of the terms "reroofing" and "re-covering." The exact meaning of these two words has been a matter of controversy for as long as I can remember. The problem lies with the fact that neither term precisely describes the procedure it is intended to identify. The situation has been further complicated by the use of a third, equally non-descriptive term, "retrofit."

Because many in the industry have been frustrated by the imprecise use of these terms, several groups have been grappling with their exact definitions. These groups recognize the need to establish distinct expressions to describe the concepts of roofing an existing structure with the existing roof intact and with the old roof torn off.

Conflicting definitions

Some sources have already attempted to define these terms. Their conflicting interpretations have only served to confuse the matter further, however. In the "Handbook of Accepted Roofing Knowledge" (HARK) section of the *NRCA Roofing and Waterproofing Manual*, the following definition is given for reroofing: "The practice of applying new roofing materials over existing roofing materials."

The American Society for Testing and Materials (ASTM), on the other hand, sees things a little differently. In its document D1079, Standard Definitions of Terms Relating to Roofing, Waterproofing and Bituminous Materials, the following definition is given for reroofing: "The process of removing and replacing an existing roofing system." D1079 uses the term "re-covering" to describe the practice HARK calls reroofing. ASTM defines re-covering as: "The process of covering an existing roofing system with a new roofing system."





ASTM's definitions have gained some support among other groups in the industry. Factory Mutual (FM), Underwriters Laboratories (UL), and the Asphalt Roofing Manufacturers Association (ARMA) all use D1079's present terminology.

Defined once and for all

ASTM's Committee D8 on Roofing, Waterproofing and Bituminous Materials was not content to leave the wide acceptance of these terms to chance, however. This group has been working on new terminology that will have the support and consent of the entire industry. Committee D8 has voted to replace the present wording in ASTM D1079 with the new words and definitions. After much discussion, members of the Committee have come to a consensus on terms they believe are meaningful and should be used by all involved in the roofing industry. Also, with the concurrence of both ARMA and NRCA, the new definitions that will be found in ASTM's documents will be used in revisions of literature produced by FM and UL.

ASTM's new definitions are as follows:

- **Re-covering** is the process of covering an existing roof system with a new roof system.
- **Replacement** is the process of removing an existing roof and replacing it with a new roofing system.

It is hoped that this change in terminology will meet with as much success as the switch from "vapor barrier" to "vapor retarder." To ensure precise communications, I believe everyone in the roofing industry should adopt the terms "re-covering and "replacement" to describe and distinguish between these two procedures.

Editor's note: Roofing Spec does not hyphenate the word reroofing, but does hyphenate the word re-cover to distinguish it from the term meaning "to regain health."

Laying a new roof directly over an old roof is called re-covering, according to ASTM.

National Roofing Contractors Association
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Over the past 12 years, the roofs at the Dallas/Fort Worth (DFW) International Airport had become terminal cases. Two of the four coal tar pitch built-up roofs covering the airport's semi-circular, loop-shaped "mini-terminals" were experiencing considerable leakage, and the other two were also severely deteriorated.

The roofs' conditions were diagnosed by JPJ Architects, a Dallas-based firm contracted to oversee the airport's reroofing needs. JPJ hired the Houston-based engineering firm MSI-Moisture Systems, Inc., to assist in the project.

MSI's preliminary tests indicated that DFW's early roof failures were due to a combination of factors. One problem was that moisture had been trapped within the fiber glass insulation at the time of construction. Also at that time, a black topping was selected that absorbed heat, turning the roofs into giant solar collectors that baked the coal tar pitch while heating the water trapped within the system. The built-up membrane was sandwiched between the heat and the hot water, and sometimes reached temperatures well above 150F. Compounding this problem was Dallas' winter wind-chill factor that often drops below zero.

The roofs tolerated these conditions as long as they stayed ductile. They would crack in winter and heal themselves in summer. But as they aged, the roofs deteriorated and became less forgiving.

The architects at JPJ felt that a protected membrane system was the best solution for the airport's roofing woes.

With a protected membrane system, the membrane is never exposed to the elements, Nash explained. Instead, the extruded polystyrene insulation on top of the membrane keeps it nestled against the building, warming it in the winter and cooling it in the summer. The membrane is also protected from thermal shock, since its proximity to the building slows the thermal cycling to low curves rather than abrupt jumps in temperature.

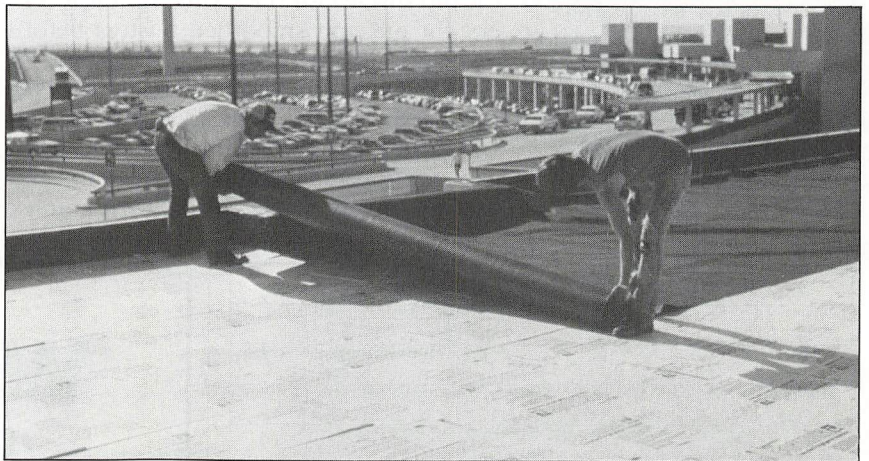
An EPDM membrane from Firestone was selected for the job. EPDM systems are particularly suited for airport service because they are inert to most fuels.

"EPDM also has good cold weather properties," Nash continues. "It remains supple and pliable, and retains its expansion capabilities, which we feel is important for this vibration-prone structure."

The roofing contractor for the project, Eagle Roofing Systems Corp., Dallas, chose Foamular® 404 insulation from UC Industries, Inc. Foamular 404 offers a long-lasting R-value of 5 per inch of thickness, a minimum compressive strength of 40 psi, high thermal performance and excellent resistance to moisture, according to Ashe. Foamular 404 is also the only insulation to offer rain channels on all four edges.

Roof around the clock

While installing the system, Eagle has been challenged by the need to work around airline schedules and traffic flow. "Our prime directive is that air traffic should never be interrupted," says Eagle's Jeff Newberry, one of the job's project managers.



"The night crew sets up, removes existing built-up roofing materials, then cleans up and removes all debris from the jobsite. Since our day crew can do no hoisting whatsoever, the night crew has to prepare everything the day crew might need."

Application of the system has been relatively trouble-free, according to Nash. The day crew initially checks the existing vapor barrier for needed repairs. Next, they lay a slipsheet, tape the joints and spread out the rubber membrane on top of the slipsheet. Following some detail work, the day crew lays the Foamular 404 insulation and Confil fabric. Because no material can go up or down during daylight hours, the day crew can't apply the ballast. The night crew not only has to set up and tear off for the next day, it also has to rock the previous day's work.

The 615,000-square-foot project that began in October 1985 is scheduled for completion late this October. "It's been a good learning experience," says Newberry. "But I'll sure be glad when it's finished."

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new
top**

Workers roll out the Firestone EPDM over UC Industries' Foamular 404 insulation on one of DFW's terminals.

GAF's Ruberoid tops others on warehouse

American Carpet Mills' new roof is performing well above the rest—literally. The GAF Ruberoid® MB modified bitumen system was installed over three other roofs on the company's 1,600-square-foot warehouse/manufacturing complex in Cartersville, Ga. Previous layers included two non-ballasted built-up roofs and a 90-pound, mineral-surfaced roll roof. According to Mark Ashe, field supervisor for Echols Roofing, the contractor for the job, Ruberoid's light weight allowed the company to easily apply the system in spite of this structural diversity.

Ashe, a firm believer in frequent roof inspection, discovered the need for structural work and moisture vents after inspecting Carpet Mills' roof. To prepare the old surface for reroofing, Echols workers cut out and smoothed blisters before mechanically fastening a GAFGLAS® 75 base sheet to the roof. Parapets on two sides of the roof were cleaned and primed. On the other two sides, the drip-edge of 26-gauge galvanized metal was primed top and bottom and allowed to cure for 24 hours.

When the preliminary work was finished, the crew torch-applied the Ruberoid over the base sheet. On the parapet sides, 12-inch cant flashing strips were installed over 1-inch-by-4-inch wood cants. A metal term bar was fastened through the Ruberoid beneath the existing ceramic camelback coping. For the other two sides, 10-inch Ruberoid strips were rolled out and torch-applied to the top of the drip-edge metal.

The crew also applied one-way moisture vents that would allow gases and moisture vapor in the roofing system to escape, preventing blisters. "Any concentration of moisture must be removed during reroofing," Ashe said.

The project's size dictated slow going. Ashe estimated that his 11-man crew spent six weeks on the job.

Prior to the American Carpet Mills project, Echols' experience with Ruberoid had been limited to jobs of 200 squares or less. When asked if he was pleased with working on such a large job with the product, contractor Frank Echols replied, "We're looking forward to bigger and better jobs in the future."

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1A. TITLE OF PUBLICATION Roofing Spec	1B. PUBLICATION NO. 0 1 9 9 7 7 4 2	2. DATE OF FILING 9/11/86
3. FREQUENCY OF ISSUE Monthly	3A. NO. OF ISSUES PUBLISHED ANNUALLY 12	3B. ANNUAL SUBSCRIPTION PRICE \$20
4. COMPLETE MAILING ADDRESS OF KNOWN OFFICE OF PUBLICATION (Street, City, County, State and ZIP+4 Code) (Not printers)		
6250 River Road Rosemont, IL 60018		
5. COMPLETE MAILING ADDRESS OF THE HEADQUARTERS OF GENERAL BUSINESS OFFICES OF THE PUBLISHER (Not printer)		
6250 River Road Rosemont, IL 60018		
6. FULL NAMES AND COMPLETE MAILING ADDRESS OF PUBLISHER, EDITOR, AND MANAGING EDITOR (This item MUST NOT be blank)		
PUBLISHER (Name and Complete Mailing Address)		
National Roofing Contractors Association- 6250 River Rd. Rosemont, IL 60018		
EDITOR (Name and Complete Mailing Address)		
Martin Eastman, NRCA 6250 River Road Rosemont, IL 60018		
MANAGING EDITOR (Name and Complete Mailing Address)		
Martin Eastman, NRCA 6250 River Road Rosemont, IL 60018		
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FULL NAME		COMPLETE MAILING ADDRESS
National Roofing Contractors Association		6250 River Road Rosemont, IL 60018
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Pens simplify computer filing

The Sanford Corp. has developed two new recordkeeping pens designed specifically for use with computer software and labels.

The Label Pen is used for writing on labels that remain on disk sleeves for short periods of time. The pen's ink dries quickly and will not smear, making it suitable for use on glossy and other hard-to-mark labels. The Label Pen is available in black, red and blue ink, and comes with an extra-fine point to make small writing easier to read.

The other product, called the Diskribe Marker, is designed for use directly on the disk itself, and may be used to label permanent records. The marker eliminates the need for disk labels that can become dog-eared or jammed in the computer. The Diskribe Marker, which comes in either silver or gold, will not affect data stored on the disk.

The two pens may be used in combination to color code data and entries. They are available at most stationery and computer supply stores.

Check #26 on Reader Service Card

Walker releases product catalog

The Frank R. Walker Co. has published a new product catalog showing the firm's line of books, construction business forms, building scales and plan measurers, and computer software.

Catalog 28 features illustrations and descriptions of the company's complete line of business forms, including products for job estimating, contract and legal work, time and labor distribution, material and progress reports, payroll, general business, and bookkeeping.

Check #27 on Reader Service Card

STAR 86 expands TSE program

The Software Exchange, Inc., has expanded its *TSE Construction System* with *STAR 86*, a package that adds four new modules to the old program.

The company's original package included payroll, job cost, accounts receivable, accounts payable and general ledger. *STAR 86* offers estimating, critical path scheduling, request for bid and purchasing/subcontracting. The integrated management system is written in PICK Basic and can be interfaced with the old TSE Construction System.

Check #28 on Reader Service Card

Deneb introduces estimating program

A multi-user estimating package has been released by Deneb Systems, Inc.

The Deneb estimating program features an on-screen calculator function and on-line take-off by item and assembly with override capabilities.

Assemblies may be built, maintained and modified within the menu-driven system. The program may be integrated with the Deneb inventory system for automatic update on pricing of assembly inventory items.

Estimated costs are controlled by multiple user-defined categories, and unit pricing is calculated at the phase level. Labor rates, fringes, taxes, labor overhead and profit can be controlled at multiple levels. Total job estimates generated by the program can be transferred automatically to the Deneb job cost program.

Check #29 on Reader Service Card

Marketing analysis gets (geo)graphic

MPSI Systems, Inc., has developed a new software program that enables users to analyze marketing information in a visual geographic form.

The *Geographic Information System™* (GIS) analyzes market data and converts it into a color-coded map that can be used to segment target markets, design and manage products, manage sales teams and territories, evaluate retail facilities and plan advertising.

The system uses data to define target consumers with a variety of variables. For example, *GIS* will pinpoint the geographic intersections of zip codes and census tracts to show markets meeting such combined criteria as average income, percentage of current customers and product consumption potential. The resulting map can present the information in graphic form while also indicating retail locations and road networks if desired. The system also offers data management and reporting functions.

GIS requires no knowledge of programming or previous use of software or computer systems. MPSI will provide support for the system, including instruction manuals, user training, data management training, telephone support, marketing consultants and a system maintenance program. *GIS* runs on all IBM mainframe computers and may be used with the IBM PC/XT enhanced with additional memory and a graphics board.

Check #30 on Reader Service Card



CSI publishes Army, Navy specs

Construction Specifiers Institute (CSI) is now offering guide specifications for both the U.S. Army Corps of Engineers and the Naval Facilities Engineering Command in formats compatible with most word processing and microcomputer systems.

The Corps of Engineers guide specifications series, which includes more than 7,000 pages of information, is available in ASCII 5 1/4-inch diskettes, CPT 8-inch WP format and ASCII 9-track tape. The 8,000-page Naval Facilities Engineering Command database is available in ASCII 5 1/4-inch diskettes, Wang word processing format and 9-track tape. Both guides are also available in hard copy with tabbed binders.

Check #31 on Reader Service Card

Estimation offers programs in DOS

Estimation, Inc., has announced that its entire line of *Bidmaster* estimating software and *Accountpro* business management software is now available in MS/DOS versions, making the programs suitable for use with IBM and IBM-compatible systems.

The MS/DOS versions are offered in addition to a turnkey system using concurrent CPM/86. The company now offers estimation programs for electrical, mechanical, HVAC, concrete, drywall, carpentry, masonry, roofing, painting and sitework.

Check #32 on Reader Service Card

Program optimizes roofing installations

Construction Products, Inc., is offering a free integrated software and hardware computer service designed to optimize the layout of rubber membrane roof coverings.

The *Carole I* system permits a layout to be drawn and a list of materials to be printed more quickly than by old methods. The system allows comparisons to be made between different roofing types such as loose-laid and fully adhered.

The company has also announced that an expanded version of *Carole* is in the planning stage. The new version will be able to draw layouts and specify materials for sloping and non-rectilinear roofs.

Check #33 on Reader Service Card

System tracks service requests

Total Solutions, Inc., has released a tracking system for maintenance and service calls called *The Service Solution*.

The package provides a single informational source for all service requests, including initial call for repair service, dispatch, time and material accounting, invoicing, sales analysis and history tracking. Liberal use of user-defined parameters allows formats to be tailored to meet the needs of most typical users and accommodates either contractual or time-and-material customers. Information need be entered only once to achieve full accountability of data necessary for complete and accurate posting.

The Service Solution can be used alone or as a fully integrated billing/job costing module interfacing with *Realworld* and *American Business Systems* accounting software.

Check #34 on Reader Service Card

Leadanalysis follows business prospects

Inquiry Services has introduced a new software program that uses a built-in data base for managing media-generated sales inquiries, current customers and new business prospects for the insulation industry.

The *Leadanalysis*™ program tracks new business prospects from the time of initial contact to the sale. The customer and prospect data base menu allows the user to create, edit, update and print personalized letters, sales call reminders, follow-up forms and telemarketing questionnaires. A series of statistical reports is also available to assist in the analysis of sales activities, product interest and media costs. All options can be sorted, indexed and printed using the entire data base or any selected segment of the data base.

Leadanalysis comes with a program manual, tutorial cassette and built-in help screen system. Only average typing skills are required to run the program.

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•ICBO Research Report #4149
•Sweet's 1986: 7.1x / Roo



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Update improves *Construction System*

Software Shop Systems is offering an updated version of the *Construction System* job cost accounting system designed for the construction industry.

Version 2.04 offers major enhancements to the functions of job cost, accounts payable, general ledger, payroll and accounts receivable. The program, which is compatible with the IBM AT or XT, is designed for the first-time user and comes with a complete set of learning materials. Current *Construction System* customers will receive the new version through local dealers under their software maintenance program.

Check #37 on Reader Service Card



Add-on graphics enhance *Time Line*

Breakthrough Software has announced the release of a new add-on for the company's *Time Line* project management software.

Time Line Graphics is designed to work with the *Time Line* program to produce full-color graphs. The program uses a plotter as an output device to produce presentation-quality graphs designed to equal the quality and sophistication of those produced by mini and mainframe computers.

Check #38 on Reader Service Card

BLOC announces *FormTool* update

BLOC Development Corp. has released a new version of the *FormTool* forms editing program.

FormTool 2.0 offers word processing capabilities such as word-wrap, reformatting, justifying and centering. Windowing, which allows users to work on several forms at once, is also featured along with pop-up menus, custom page sizing and sideways printing.

The program also offers merge capability that allows users to specify dBASE, DIF or ASCII data files to produce a series of customized forms. Multiple fonts, variable type styles and sizes, and foreign character sets are supported by the program.

Check #39 on Reader Service Card

Vuecost tracks project costs

National Information Systems, Inc., has released a new cost module for the *VUE* project management system.

Vuecost allows users to plan budgets and track costs associated with a project. The program provides full resource rate tables that feed the scheduling portion of *Vue* to automatically calculate costs incurred by resources on individual activities. A work breakdown structure ties into schedule information and rolls up costs to summarized levels.

Access to cost data is password protected; different passwords can be assigned to each user, restricting them to certain areas of the program or data base. All additions, deletions and important manipulations can be tracked by use of an audit trail. *Vuecost* also has the ability to input actual costs from outside the *Vue* system, such as from a general ledger or other accounting system.

Check #40 on Reader Service Card

A/E releases marketing program

A new marketing program designed for architectural, engineering and construction professionals has been released by A/E Management Services, Inc.

RFP® is a data-based system capable of reporting data on projects, consultants, employees and firms in a variety of formats. The program prints 254 and 255 forms directly from stored information and allows on-screen editing of information without having to return to the data base for updating. *RFP* also generates custom proposals, which can be sent directly to word processing software for further refinement. Data bases may be searched for related groups or specific items of data.

RFP runs on 384K IBM PC, XT or AT systems or compatible systems with a minimum of 10MB hard disk memory. A demonstration package that includes the complete program and complete documentation is available from A/E Management Services.

Check #41 on Reader Service Card

LIBRA enhances accounting software

LIBRA Programming, Inc., has announced a new enhanced version of the company's property management accounting software.

The enhancement features percentage rent, charge calculation, unit maintenance and word processor interface capabilities. These improvements have been incorporated into the main menu system. The system can also now handle monetary amounts up to \$9 million. Records marked for deletion are simultaneously deleted from all six of the major files; the system also automatically updates the general ledger system.

The property management system can be used by several people at once through networking and interfaces to LIBRA's general ledger. The system also works in conjunction with LIBRA's accounts payable, payroll and job costing systems.

Check #42 on Reader Service Card

Software handles daily paperwork

New England Business Service, Inc., (NEBS) is offering a new software series designed to assist contractors in completing basic paperwork tasks.

The *Fastform*® typing software series provides a word processing aid designed for a series of forms. The forms are loaded into the printer and the *Fastform* program leads the user through the form. After all the information is entered, the program automatically prints and summarizes the work and data input.

NEBS has also announced the formation of a small business software group that will market and distribute software to small businesses across the United States and Canada. The company offers a toll-free customer support line to provide assistance both before and after software purchases. NEBS offers refunds, credit or replacement if customers are not satisfied with purchases.

Check #43 on Reader Service Card

PAS publishes compensation survey

Personnel Administration Services, Inc., (PAS), in conjunction with the Fails Management Institute, has published the *Executive Compensation Survey for Contractors*.

The survey details the salaries, bonuses, benefits and perquisites currently being paid to executives in construction firms. It covers all positions from president through general superintendent and controller, and breaks down the information for each position by type of firm, type of construction performed, revenue size and geographic location. The publication contains more than 100 pages of information on compensation to 2,696 construction executives in more than 320 firms.

According to the survey, construction management firms provided the highest total compensation at \$176,740 for presidents, with electrical, mechanical, other specialties and general contractors clustered between \$112,379 and \$122,302. Firms performing industrial construction reported the highest base salary for presidents at \$113,200. The report indicates that the most popular benefit remains the company car, followed closely by firm-paid professional dues and club memberships. The least popular perk is company-provided, interest-free loans.

Check #44 on Reader Service Card

Wasco brochure details new line

Wasco Products, Inc., has developed a new line of heavily insulated venting skylights for commercial use.

The Super-Thermalized Solar Energy Skydomes are available with glass or acrylic glazing. The units are described in a 16-page brochure that offers photographs, detailed cut-away drawings and architectural specifications. The catalog also provides information on the company's single-unit skylights, barrel-vaulted skylights, cluster systems, and heat and smoke vents.

Wasco has also published a catalog detailing its residential skylights, including the factory-assembled Skywindow roof windows and skylights. The text and cut-away drawings are supplemented with sizing diagrams, rafter spacing illustrations and architectural specifications.

The publication also contains information on the LP series of low-profile sloped glazing systems for use on the roofs of sunrooms, greenhouses, sunporches and other large installations, as well as in passive solar applications. The Skyshades pleated skylight shade system, which allows the homeowner to regulate the amount of daylight and solar heat entering a room, is also described.

Check #45 on Reader Service Card

Celotex revises application guide

Celotex® Corp. has recently revised its brochure *Celo-1™ Single-Ply Roofing Systems Application Instructions*.

The illustrated brochure outlines the general requirements for Celo-1 single-ply roofing systems, and contains updated information on using Celo-1 systems in loose-laid, ballasted and fully adhered applications. The literature also explains and illustrates the proper flashing techniques for inside corners, outside corners and vent stacks using pre molded stack boots or field-fabricated methods.

Check #46 on Reader Service Card

Demand's Hot Knife cuts polystyrene

Demand Products, Inc., has developed a new tool for cutting expanded and extruded polystyrene.

The Hot Knife is a hand-held unit with a blade that heats up to 800F in 8 seconds. The knife can cut polystyrene up to 4 inches thick, using interchangeable blades in a variety of designs that allow the user to cut curves, V's and square grooves. The double-insulated unit weighs 2¼ pounds and heats only when the trigger is pressed.

Check #47 on Reader Service Card

Infrared remote operates cranes

Lloyds British Testing Co., Ltd., has developed a telecommand control unit that uses an infrared link to remotely operate cranes and hoists.

The Inframatic control system consists of a hand-held control and a crane-mounted receiver and sensors. The control transmitter uses infrared signals to send encoded instructions to the receiver. The encoding eliminates the danger of accidental operation of the crane caused by stray infrared signals or tampering by unauthorized personnel. The operator need not be in direct line of sight to control the crane.

The system allows either four or eight directions of movement, each with dual-speed capacity. An emergency stop button on the transmitter instantaneously shuts down the equipment if a hazard is encountered. A time-out device automatically switches off the transmitter and receiver during periods of inactivity. No special licensing is required to operate the Inframatic.

The plastic hand-held control weighs from 1.8 to 2.2 pounds, depending on the model, and is powered by a rechargeable battery pack. The receiver is housed in a steel enclosure and requires a 50- to 110-volt AC supply; other alternating voltages can also be supplied.

Check #48 on Reader Service Card

Book describes aluminum use

The Aluminum Association is offering a guide for remodeling contractors, builders and architects using aluminum products for residential and light commercial applications.

The Aluminum Book contains general information about aluminum, descriptions of the types of aluminum products available, trade names listed by manufacturer, and addresses and telephone numbers of suppliers of each product. The guide also includes selected architectural details that may be incorporated into working drawings and a bibliography of applicable specifications. The book's index conforms to the *Sweet's Catalog* numbering system.

The 86-page book is in a loose-leaf format to allow updating or adding related material. The guide comes in a plasticized binder with tabbed dividers and large snap-rings to accommodate additional pages.

Check #49 on Reader Service Card

COMING EVENTS

(For inclusion of events, address all correspondence to:
Roofing Spec "Coming Events"
 One O'Hare Centre
 6250 River Road
 Rosemont, Ill. 60018).

Nov. 22-28

Interbuild (International Building and Construction Exhibition)
 National Exhibition Centre,
 Birmingham, England

Nov. 24-25

Single-Ply Roofing Systems
 Roofing Industry Educational
 Institute
 Denver, Colo.

Dec. 1-5

Infrared Scanning Course
 Infraspction Institute
 San Diego, Calif.

Dec. 2-3

Single-Ply Roofing Systems
 Roofing Industry Educational
 Institute
 Charlotte, N.C.

Dec. 2-3

Risk Avoidance in Construction
 Contracts: How to Set Up
 Projects and Avoid Claims
 Construction Education
 Management Corp.
 Vail, Colo.

Dec. 3

Roofing Research & Standards
 Development
 American Society for Testing &
 Materials
 New Orleans, La.

Dec. 4-5

Roof Inspection, Diagnosis & Repair
 Roofing Industry Educational
 Institute
 Charlotte, N.C.

Dec. 4

Roofing Systems Conference
 National Roofing Contractors
 Association
 Phoenix, Ariz.

Dec. 10

Conference on Roof Problem
 Analysis and Reroofing Options
 National Roofing Contractors
 Association
 Seattle, Wash.

Dec. 10-12

New Leaders Conference
 National Roofing Contractors
 Association
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MEMBERS' SUPPLEMENT

The 1986 NRCA Contractor Computer Systems Survey results are in, and the news is noteworthy. For the first time in the survey's three-year history, a majority of the contractors polled are using computers.

Last year, 36 percent of the 1,212 respondents were computer users. This year, 51 percent of the 1,130 contractors polled are currently computerized (Table 1).

However, of the 524 respondents who are not computerized, only 39 percent are planning to install computer systems in the the next two years, leaving 61 percent without computerization plans. This represents a 10 point difference from last year, when 49 percent of those polled were planning to install systems in the near future (Table 2).

"It appears that we've reached a peak," says NRCA's Sue Buczkiewicz, who coordinated the survey. "If a contractor hasn't bought a computer by now, he's probably waiting to see what happens to prices in the next few years."

For the third year in a row, IBM hardware systems are the most popular among respondents, accounting for 38 percent of the market, up 5 percent from last year (Table 3). Apple and Tandy Radio Shack lost ground to IBM since last year, falling to 9 and 8 percent respectively. Systems using IBM PCs and IBM XT's are again the most preferred hardware systems among our contractors.

The survey found that contractors are using computers for a wide variety of duties from payroll to job costing to equipment control (Table 4).

This survey is conducted annually to gather information for the Association's computer clearinghouse, a service that enables any NRCA member to obtain information on computer systems installed by other contractors. Most NRCA members are willing to share this information.

If you or your company need further computer information on hardware or software, call or write NRCA. A list of contractors using specific systems is available on request.

Computer-using contractors now in majority

TABLE 1: Computer usage

	1985 Total	(Percentage)	1986 Total	(Percentage)
Respondents	1212	(100%)	1130	(100%)
Currently use computer	442	(36%)	606	(54%)
No computer	770	(64%)	524	(46%)

TABLE 2: Planning future computer systems

	1985 Total	(Percentage)	1986 Total	(Percentage)
Respondents	770	(100%)	524	(100%)
Will install system in next two years:	381	(49%)	204	(39%)
No plans at this time:	389	(51%)	320	(61%)

TABLE 3: Computer hardware by manufacturer's name

	1985 Total	(Percentage)	1986 Total	(Percentage)
Computers reported	603	(100%)	852	(100%)
IBM	198	(33%)	323	(38%)
Apple	59	(10%)	71	(8%)
Tandy radio shack	60	(10%)	68	(8%)
Compaq	22	(4%)	43	(5%)
Digital equipment	27	(5%)	33	(4%)
Basic 4	18	(3%)	21	(2%)
Burroughs	19	(3%)	18	(2%)
AT & T	(not reported)		14	(2%)
Additional manufacturers	200	(32%)	261	(31%)

TABLE 4: Functions (applications) being performed

	Functions reported		Functions reported	
	1985 Total	(Percentage)	1986 Total	(Percentage)
Total responses	2666	(100%)	3815	(100%)
General ledger	363	(14%)	500	(13%)
Payroll	361	(13%)	517	(13%)
Accounts payable	340	(13%)	502	(13%)
Accounts receivable	319	(12%)	465	(12%)
Job costing	277	(10%)	399	(10%)
Spread sheet	223	(8%)	299	(8%)
Word processing	209	(8%)	291	(8%)
Inventory	175	(7%)	258	(7%)
Estimating	154	(6%)	219	(6%)
Budgets	146	(6%)	203	(5%)
Equipment control	47	(2%)	81	(2%)
Roof design	23	(1%)	39	(1%)
Energy analysis	20	(1%)	20	(1%)
Additional functions	9	(1%)	24	(1%)

* Percentages are rounded up to whole percentages, total exceeds 100%

NEW MEMBERS

The following have been approved for NRCA membership for September.

CONTRACTORS

A & W Construction

1531 Hunter
Urbana, Ill.
Wayne L. Alger

Alpha Weatherproofing Corp.

25 Washington St.
Somerville, Mass.
Mike Flaherty

American Roofing & S/M Co., Inc.

1046 Westchester Drive
Madison, Tenn.
John M. Vick

Arlington Roofing & S/M Co.

1228 N. Irving St.
Arlington, Va.
Linda Dhillon

Chautauqua County Contracting

P.O. Box 608
Chautauqua, N.Y.
Scott Schriber

C.R. Ebert Jr., Inc.

445 Park Ave.
Glencoe, Ill.
C.R. Ebert Jr.

Falcon Roofing

1424 Maple N.E.
Canton, Ohio
Daniel D. Buxton

Ferguson Roofing Co.

5814 Garfield
Berkeley, Mo.
David Shipp

First Western Building Services, Inc.

P.O. Box 2122
Gardena, Calif.
Harlin Moyers

Hamilton Roofing

3605 Lynn St.
Palm Bay, Fla.
Anthony C. Hamilton

Inland Roof Co., Inc.

3592 County Road
P.O. Box 1928
Chino, Calif.
Vern Grizzle

J.G. Roofing Co., Inc.

10805 Graton Road
Sebastopol, Calif.
James Garman

Keneke Roofing, Inc.

98-726 Kuahao Place
P.O. Box 783
Pearl City, Hawaii
Randall Shioi

Master Roofers, Inc.

Box 523-N Road #10
York, Pa.
Michael C. Heidler

Murphey's Roofing & S/M Co., Inc.

P.O. Box 8951
Richmond, Va.
William Murphey

Progressive Services, Inc.

1806 Spangler Ave.
P.O. Box 215
Dover, Pa.
Larry Toot

Riedy Roofing, Inc.

1705 Fifth St.
P.O. Box 2156
Sandusky, Ohio
John E. Jackson

Robbins Roofing & S/M, Inc.

Route 6, Box 291-C
Columbia, Miss.
Lavon Robbins

Roofing Concepts, Inc.

183 Knight St.
Warwick, R.I.
Leonard M. Reynolds

Rothfeld Contractors, Inc.

P.O. Box 3106
Skokie, Ill.
Jack Rothfeld

Skyline Roofing Systems, Inc.

207 Luther
Houston, Texas
William C. Henry

Specialty Associates, Inc.

11020 W. Rogers St.
West Allis, Wis.
Ronald J. Werowinski

Dan Thompson Roofing Co., Inc.

2102 11th St.
Niagara Falls, N.Y.
Dan Thompson

Todd Roofing Co., Inc.

P.O. Box 175
Bremen, Ga.
Keith T. Todd

Urethane Applications, Inc.

103 S. Bedford
Mount Kisco, N.Y.
Donald Freeman

Van Norman Brothers Roofing Contractors

P.O. Box 218
Bude, Miss.
Kevin Van Norman

Wallace H. Wiggins Co., Inc.

Highway 80 West
P.O. Box 451
Statesboro, Ga.
Wallace Wiggins

ASSOCIATES

Herbert Sangravl Co., Inc.

P.O. Drawer 279
New Johnsonville, Tenn.
John B. Herbert

Himont U.S.A., Inc.

1313 N. Market St.
Wilmington, Del.
Lloyd Hudson

Lifetile Corp.

3511 N. Riverside Ave.
Rialto, Calif.
Roger D. Thompson

ARCHITECTS/ENGINEERS/CONSULTANTS

Cox Associates, Inc.

200 B E. Marks St.
Orlando, Fla.
Richard D. Batson

HLS Consultants

534 A St. #1
P.O. Box 687
Hayward, Calif.
Lee Smith

MacBrady Associates, Inc.

P.O. Box 1313
LaGrange Park, Ill.
Brian Barrows

INDUSTRIAL/INSTITUTIONAL

New Jersey Housing & Mortgage Finance Agency

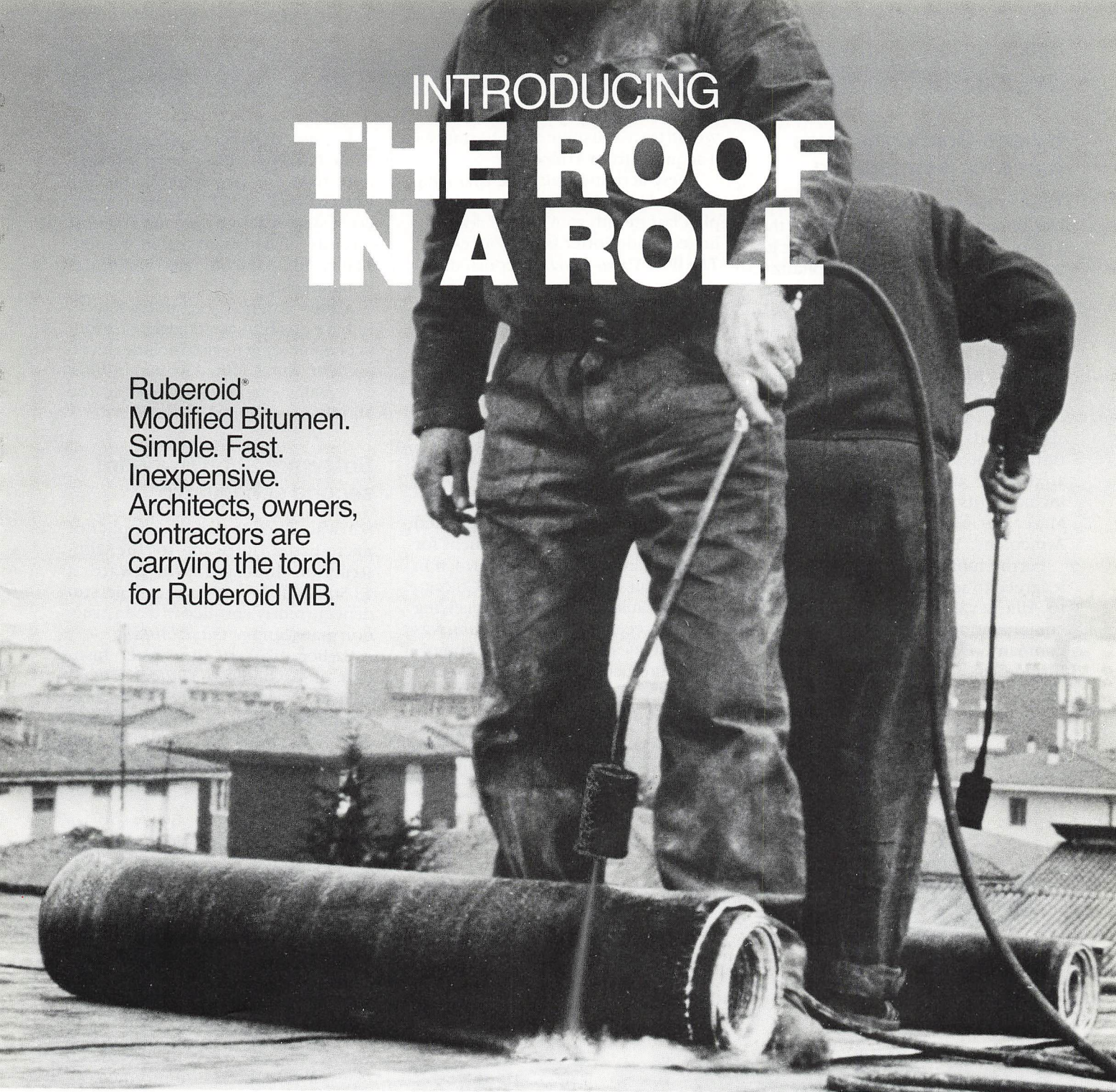
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Just heat the underside with a propane torch as it's being unrolled. Seal the seams the same way. Nothing on

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GAF **RUBEROID** **MB**



Check #6 on Reader Service Card

26

Good Reasons to Specify GULF-SEAL Roofing Products

The first 25 reasons are the individual professional grade roofing materials manufactured by Gulf States Asphalt Company and marketed under the GULF-SEAL name. Products that range from roofing asphalts to liquid and semi-mastic roof coatings to VITALASTIC Flashing Cement to asphaltic aluminum coatings. And the number keeps growing as our research and development staff continues to tailor-make new products for the roofing industry.

Plus the 26th reason: Gulf States Asphalt Company, already the largest asphalt specialties manufacturer in the U.S., just got even larger by acquiring the Chicago asphalt coatings plant of the Midwest Products Company of Illinois. That means faster and cheaper deliveries to customers throughout Middle America.

Write for more information on what GULF-SEAL products can do for your business, or call 713-651-1507.



GULF STATES ASPHALT COMPANY
601 Jefferson, Suite 535, Houston, Texas 77002

"A COMPANY ON THE MOVE"

Check # 7 on Reader Service Card

Dow develops program to assist architects

The Dow Chemical Co. has formed an architectural applications team to help architects and specifiers understand and select appropriate roofing, wall and foundation insulation products and systems. In addition, the company has prepared a manual spe-

cifically for architects.

The architectural applications team is a group of Dow professionals in research, marketing, manufacturing, technical service and development. And, according to Tom Kurtz, product marketing manager for commercial applications of Styrofoam™ insulation, "The dedication of this team signals a strong commitment to pinpointing

exactly where we can be of most assistance to people who specify products."

Dow's new comprehensive reference manual for architects contains technical data sheets on a variety of Styrofoam insulation products and systems. The manual contains separate sections and individual, detailed indexes for walls, foundations, roofs and other products.

In support of the architectural education program, Dow sales representatives are holding meetings and seminars in their individual regions for architects. Some joint architectural seminars have been held with roofing membrane manufacturers such as W.R. Grace and American Hydrotech.

Georgia-Pacific announces personnel appointments

The Georgia-Pacific Corp. has announced several appointments in its chemical division.

J.D. Wellons, previously manager of research and development for thermosetting resins, is now business manager.

James B. Outman, previously senior counsel in the company's law department, is now director of market development.

James R. Silverwood has been promoted to director of sales and marketing. Prior to this promotion, he was national sales manager for thermosetting resins.

Steven A. Correll is the chemical division's new manager of environmental affairs. Previously, he was senior environmental engineer for central engineering.

Sharon Mansfield, formerly executive administrative secretary, has been promoted to manager of career development.

Georgia-Pacific's chemical division has also hired James T. Waite as marketing manager of thermosetting resins.

Yours Only From TRU-FAST... Leader in Roof Fastening Technology

ULTRA™ solid stainless steel screws to beat Acid Rain and other corrosive forces

Tru-Fast ULTRA screws are made of a solid stainless steel alloy developed especially for roof insulation and roof membrane fastening. They have incredibly high resistance to corrosive substances known to be present in acid rain. That's a fact proven by punishing Kesternich-Din-50018 SFW 2.0 tests in which ULTRA screws withstood 30 cycles of 24 hours in H₂O-SO₂.

Other scientific tests prove ULTRA's resistance to salt spray, soaking humidity and other environmental hazards that can cause conventional roof deck fasteners to quickly corrode, leading to premature roof failure.

We also offer Tru-Fast TRU-KOTE™ PC-3 alloy steel screws with a specially formulated, highly corrosion resistant, organic polymer coating bonded to the metal.

Your choice of plastic or hot dipped G-90 Galvanized metal stress plates that meet or exceed FM wind lift specifications.

Trust Tru-Fast all the way for profitable job results and complete customer/specifier satisfaction.

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Check #24 on Reader Service Card

GAF announces fall programs

The GAF Corp.'s centennial celebration continues into fall as the company donates roofing materials to historic renovation projects and offers a \$100 rebate on Timberline™ shingles purchased between Sept. 21 and Dec. 31.

GAF's donations are intended to help preserve diverse examples of architecture for future uses. As part of the program, a variety of structures—from old houses to commercial buildings—are being reroofed with GAF commercial and residential products.

To be eligible for a GAF donation, a renovation project must be of some historic importance to the community, must be reroofed during 1986, and must agree to display a permanent plaque noting GAF's contribution to the project.

CertainTeed expands roofing capabilities

CertainTeed Corp.'s Shelter Materials Group has announced plans to expand its shingle manufacturing capabilities at the company's Oxford, N.C., roofing plant.

The company, which manufactures residential roofing products, has already begun to convert its roll production line at the Oxford plant to produce fiber glass shingles. CertainTeed estimates that the conversion will increase the plant's production capacity at least 50 percent.

In addition, the expansion will permit CertainTeed to further increase its customer base as well as provide improved service to the Oxford plant's shipping area, which includes the Middle Atlantic states, the Carolinas, West Virginia and Tennessee, according to the company.

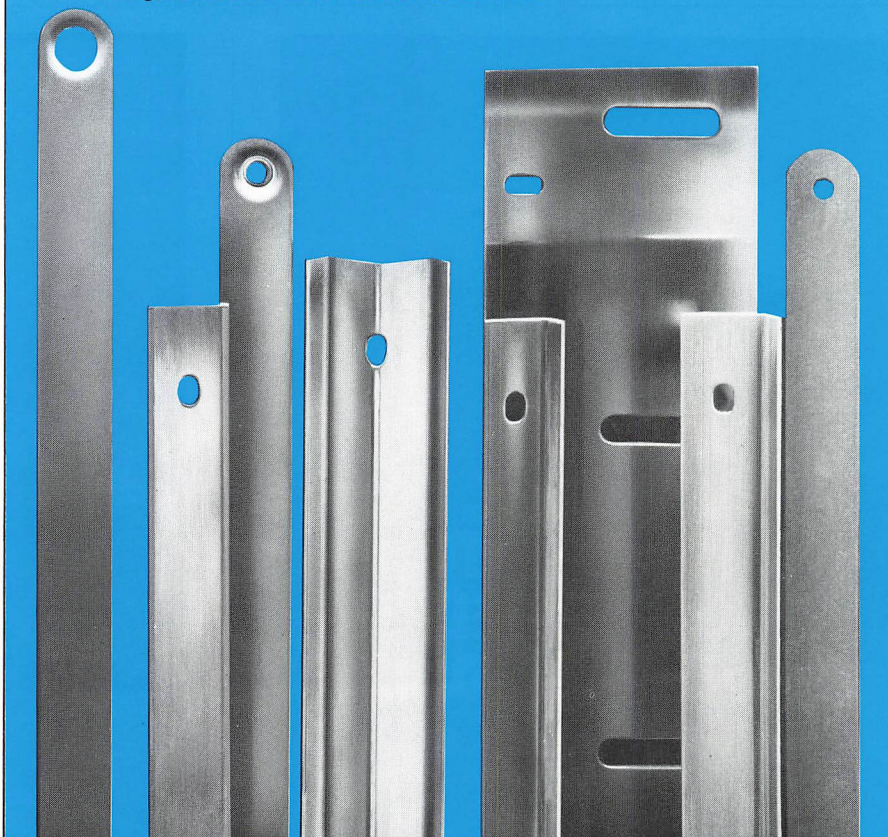
Thus far, the recipients of GAF's donations are a diverse cross-section of styles and applications, among which are: the E.A. Brown Farmhome in Dallas, built in 1860, which is being renovated as a museum and educational center; an 1845 plantation-style dwelling in Chester, S.C., which is being restored as a private home; and a block of row houses in Baltimore, which is being renovated into

an artists' housing cooperative. Additional projects are planned in the communities of Savannah, Ga.; Nashville; Mobile; and Minneapolis.

To obtain the Timberline rebate, homeowners must submit a dated proof of purchase to GAF with a coupon available from their roofing contractor. In addition, GAF is offering low-cost financing for Timberline purchases.

Protect your reputation... with Detail Products from JBD Supply.

Make sure the system you install today, will last into the next century. JBD Supply insures this by designing their products with performance in mind. Made from superior Aluminum or Corrosion-Resistant Steel, our products are engineered to stand the test of time!



When Detailing your next Roof System, insist on JBD Supply, for lasting results.

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Check #9 on Reader Service Card

Carolinas elect Ben Pickens president

Ben Pickens Jr. of Pickens Roofing Co., Spartanburg, S.C., was elected president of the Carolinas Roofing & Sheet Metal Contractors Association (CRSMCA) for 1986-87.

Other officers elected were: Dennis Whitener of Barger-Ashe Roofing Co., Lenoir, N.C., as first vice president; Glen Mosser Jr. of Space Roofing Co., Columbia, S.C., as second vice president; and Eddie Williams Jr. of E.L. Scott Roofing Co., Kinston, N.C., as secretary-treasurer. G. Frank Hackney Jr., Raleigh, N.C., was elected executive director of CRSMCA.

In addition, Jack Best of Best Distributing Co., Goldsboro, N.C., was elected president of CRSMCA's associ-

ate (supplier) group for 1986-87. Also elected were: Ted Hamre of Hamre Associates, Columbia, S.C., as first vice president; Jeff Tice of Carolina Atlantic Distributors, Sanford, N.C., as second vice president; and Scott Becraft of Owens-Corning Fiberglas, Raleigh, N.C., as secretary-treasurer. Max Knox of Owens-Corning Fiberglas, Charlotte, N.C., is immediate past president.

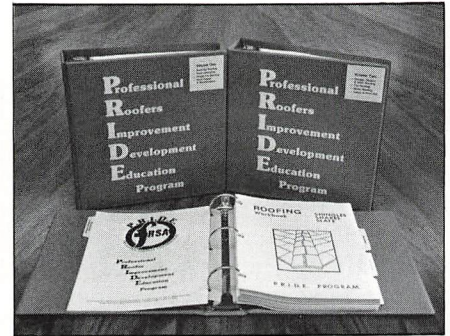
Florida's PRIDE is now available

Materials are now available for the Florida Roofing, Sheet Metal and Air Conditioning Contractors Association's (FRSA) Professional Roofer Improvement, Development & Education Program (PRIDE). FRSA officially introduced the program at its convention this year.

The program is designed to pro-

vide industry-wide education. PRIDE Chairman Bob Hightower of Hightower Roofing, St. Petersburg, said, "This is truly a one-of-a-kind program. Nothing like it exists anywhere else in the country."

The cost of the materials is \$50. More information on the program may be obtained from FRSA, 4111 Metric Dr., Winter Park, Fla.



**JANUARY, 1987,
U.S. INTEC
IS GOING TO
COMPLETELY
REVOLUTIONIZE
ROOFING.**

TO BE CONTINUED...



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GUARANTEED PERFORMANCE


on membrane and roof insulation fastening systems for steel, wood and concrete decks.

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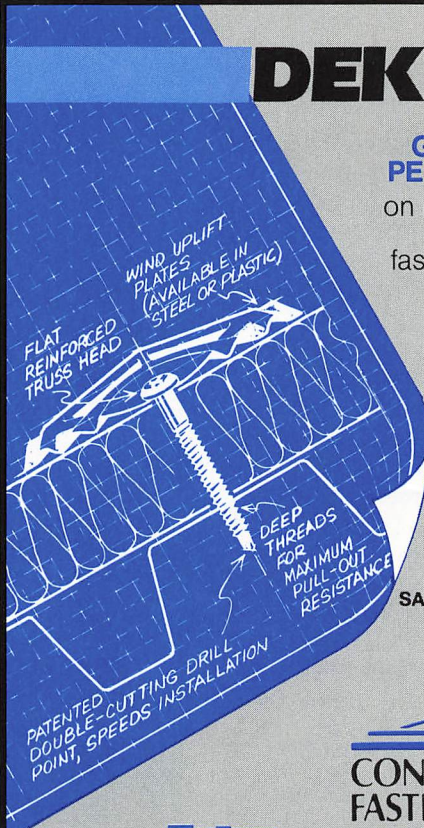
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75 cents per word. \$1.50 per bold-face word (in headline only).

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For information on how to place an ad, call Joan Kriete at 312/318-NRCA.

Services and Equipment

RENT OR LEASE PURCHASE

Rent or lease from largest U.S. fleet of roofing equipment. Many unusual items—three locations to serve you—conveyors, hoists, asphalt kettles, tankers (over-the-road type), yard storage and job tanks, powered sweepers and tear-off machines, material movers, pumps (water and asphalt types), single-ply adhesive applicators, roll carriers and placers, etc. Phone toll-free number if you have questions for pricing. **ATLANTIC ROOFING EQUIPMENT CO.**; 800/543-3350 ext. 20.

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Blackwell 52-foot telescopic hoist with 550-pound capacity gravel bucket—\$5,000. 2,100-gallon coal tar and asphalt resaturant in 55-gallon drums—\$7,500. Call Harry Sandlin; 803/242-5100.

FLASHBAND

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Stops Water, Mold, Rust and Leaks
The 1st Self-Adhesive Waterproof Sealant

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National Series 600 truck-mounted crane; 101-foot reach; 12¹/₂-ton capacity; on 1981 GMC L800 diesel truck. \$59,500. Runnion Equipment Co., 7950 W. 47th St., Lyons, Ill. 60534. Large inventory of new and used equipment available. 800/824-6704, in Illinois 312/447-3169.

CRANE FOR SALE

1987 roofer truck crane; available Oct. 15, 1986. 1987 JLG Model 1010; 101-foot boom; 10-ton capacity. Mounted on a 1987 GMC diesel truck. Call now. Wholesale Crane Distributors of America; 414/761-2300.

FOR SALE

1980 Chevy; reconditioned 6-ton Merico tank. Model C65; 366 engine; five-speed; two-speed axle; p/s; p/b; a/c; new Viking pump; 8 hp Briggs engine. Excellent condition; \$14,000. Call 314/423-3338.

MAILING LIST AVAILABLE

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

PROCOUNSEL ROOFING PLACEMENTS NATIONWIDE

Sales, sales managers, estimators, tech reps, quality control, R&D, manufacturing engineers, general managers, presidents. I place professionals with roofers, distributors, roofing manufacturers, rep organizations and consultants. Fees paid by employer. All information handled in strictest confidence. Contact Buzz Taylor at **800/545-5900** or 214/741-3014. In Texas call **800/441-0806**. Also 214/741-3014. 24-hour answering.

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We specialize in placing only competent and reliable personnel for the roofing industry nationwide (contractors, manufacturers, distributors and consultants). 100 percent satisfaction and guaranteed results. All information held in strictest confidence. Call 800/752-ROOF or 404/498-1760. Lanta Enterprises, Inc.

INFORMATION WANTED

Looking for contractors who have worked with the H.B. Mac General Contractors, Leawood, Kan. Please write to P.O. Box 1812, Hendersonville, Tenn. 37075, or call 615/824-6068.

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BUSINESSES FOR SALE\$\$\$

Tile roofing contractor: well established in beautiful Colorado community. Sells and installs all major brands. Fully self-contained with an extensive customer base. #12743.

Residential roofing contractor: located in West Central Texas since 1978. Enjoys outstanding reputation with lots of repeat business. Includes two-story building and prime commercial real estate. #7298. International Business Exchange Corp., P.O. Box 15046, Austin, Texas 78761; 512/339-0000.

COMPANIES WANTED

Sell or merge your roofing and sheet metal business. We are successful, financially strong operators, able to move fast. Candidates need to be profitable, have good marketplace reputations and sales over \$1 million. All responses kept confidential. Send replies to Box 11A, *Roofing Spec*, One O'Hare Centre, 6250 River Road, Rosemont, Ill. 60018.

Positions Available

PROJECT ESTIMATOR COMMERCIAL ROOFING

Well established 36-year-old contracting firm with expanding business seeking qualified individual for project estimator position. Duties include, but not limited to, field surveys, preparation of bid documents and project submittals. Limited travel required. Definite potential for advancement and comprehensive benefits package. Interested parties submit resumes to S.D. Carruthers Sons, Inc., Route 197, Argyle, N.Y. 12809.

POSITIONS AVAILABLE

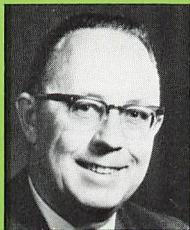
Quality Roofing Co., Inc., Passaic, N.J., has several immediate openings for experienced roofing estimators/salesmen. Salary commensurate with experience. Please send resume to 175 Central Ave., Passaic, N.J. 07055, or call Jim Miller; 201/471-3335 for confidential interview.

ROOFING SUPERINTENDENT

Professional roofing contractor seeks working superintendent who is experienced in all phases of commercial roofing. Apply: Kline Associated Roofing Contractors, Inc., 350 E. First St., Hagerstown, Md. 21740. Phone: 301/791-2828.

Other groups help NRCA solve roofing problems

By Bob LaCrosse



NNRCA's continuing efforts in the technical area have led to joint studies and discussions with many other industry groups and companies. Organizations such as the Midwest Roofing Contractors Association (MRCA), the Single Ply Roofing Institute (SPRI), the Asphalt Roofing Manufacturers Association (ARMA), the Roofing Insulation Committee of the Thermal Insulation Manufacturers Association (RIC/TIMA), the Koppers Co., and the Trumbull Asphalt Co. are working closely with NRCA on several projects that will affect contractors' productivity and the quality of their installations.

A joint study with Koppers has already yielded information that should help resolve questions concerning the problem of coal tar overruns. The results of this study were reported in previous issues of *Roofing Spec* and at a program at this year's NRCA Convention. A final summary report is being prepared, which will include recommendations that translate the study's findings into realistic construction practices.

A second study, conducted jointly by NRCA and Trumbull, was completed in August. This study was patterned after the Koppers study, using asphalts with glass and organic felts instead of coal tar products to determine the relationship between heating and application temperatures, application viscosity, application techniques and the amount of interply asphalt moppings used. A joint task group is evaluating samples taken during the study. A report and an outline of the research will be presented at the 1987 Annual Convention.

NRCA will prepare a new technical bulletin to supersede bulletins 2 and 2A on equiviscous temperature as a result of questions raised on finished bitumen blowing temperatures. The bulletin will also incorporate the findings of the Koppers and Trumbull studies.

Group efforts

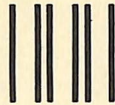
While NRCA continues to work with groups on an individual basis, some projects require the cooperation of several organizations. The NRCA Technical Bulletin 14 is one such project. This release presents the joint position of NRCA, ARMA, RIC/TIMA and SPRI on the rusting and corrosion of roofing fasteners. In another project, the problem of roofing fastener corrosion and rusting is being addressed through liaison with SPRI's Fastener Subcommittee and Factory Mutual. NRCA is also assisting SPRI with its NRCA Convention program to explain and outline

the Institute's new "Application Guidelines for Elastomeric, Plastomeric and Modified Bitumen Membranes and Systems."

The NRCA Building Codes Committee has been active in the major model building code groups. At the September annual meeting of the International Conference of Building Officials (ICBO), the members approved the inclusion of a revised Chapter 32 on roofs and roofcoverings in their new edition of the Uniform Building Code. Also, at the request of NRCA, the Building Officials Conference of America authorized an ad-hoc committee to consider the inclusion of a new chapter on roofing prepared by NRCA in the next printing of the BOCA Basic/National Building Code.

Another joint committee, which includes representatives of NRCA, MRCA and RIC/TIMA, is working on the problem of thermal drift in polyisocyanurate and polyurethane insulations. At this committee's first meeting in August, the contractor associations voiced their concerns with RIC/TIMA's in-situ testing program. RIC/TIMA is considering recommendations made by MRCA and NRCA to modify the in-situ study's structure and its schedule. In the interim, with the other two group's concurrence, NRCA has requested bids from four consultants to conduct a literature search on the subject of thermal drift and prepare a recommended procedure for determining the aged thermal value of the insulations. Research proposals for both laboratory and field studies are also being solicited.

NRCA hasn't confined itself to working only with U.S. organizations. It is currently cooperating with the CIB-RILEM International Committee to finalize a state-of-the-art paper on the use of elastomeric, thermoplastic and modified bituminous roofing. The document will describe current sheet-applied, single-layer roofing systems throughout the world with respect to standards, test methods and evaluation criteria. Performance criteria for these systems will be included in the paper.



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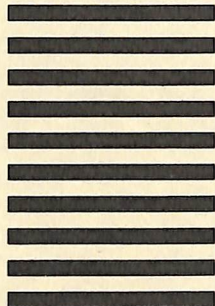
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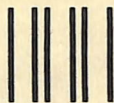
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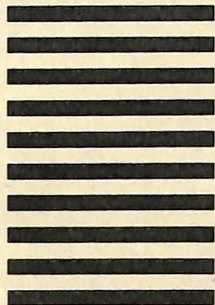
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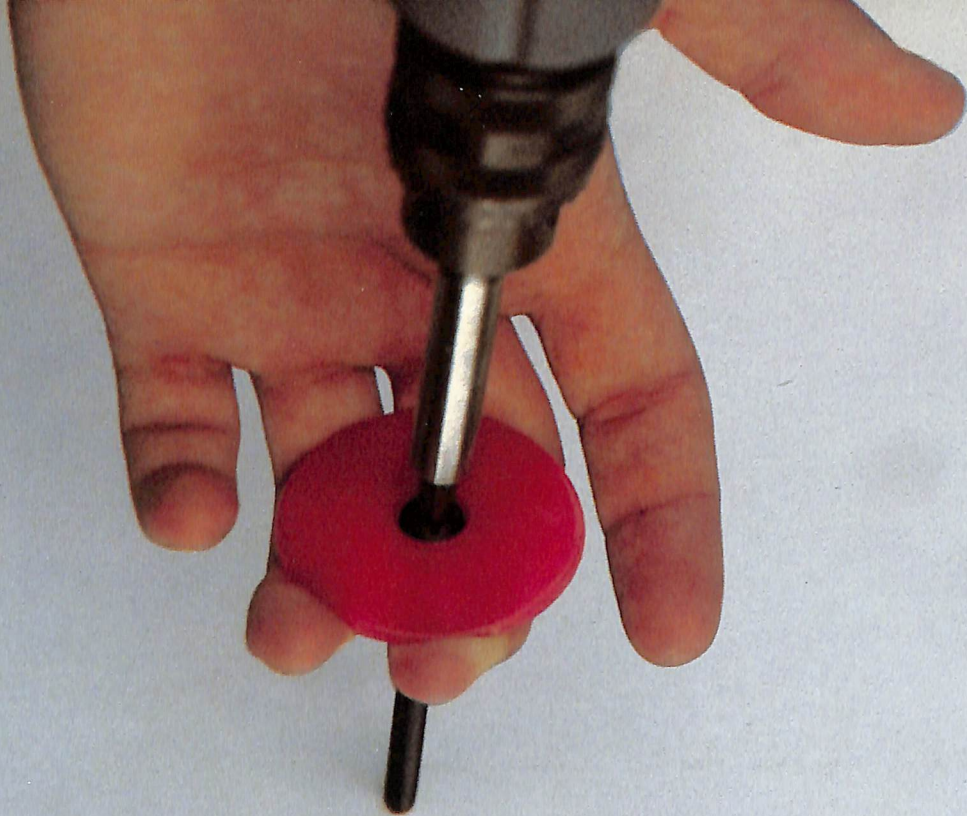
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