

The **PAVE TECH EDGE**

ADVANCED PAVING TECHNOLOGY

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FALL 1988**

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Minnesota

MEMBER • NATIONAL CONCRETE MASONRY ASSOCIATION • NATIONAL PRECAST CONCRETE ASSOCIATION

New Additions to PAVE TECH PRODUCT LINE

Spikes, Air-Driven Spike Nailers and LEXEL Polymer Adhesive Help Distributors Enhance and Expand Service to Their Customers

Three new accessory items, recently added to the *PAVE TECH* product line for sale to paving stone contractors, will speed up paver installation, dramatically cut costs of spiking *PAVE EDGE*® edging, and open up possibilities of adhering pavers to almost any hard surface when necessary.

All three products, which have been field tested by *PAVE TECH* over the past two years, are made of the highest quality material available, and, due to volume purchasing power, can be obtained from *PAVE TECH* at savings of up to 50% off currently available prices.

Steel Spikes

Ten-inch x 3/8" diameter, American made Brite Steel Spikes in 50 pound cartons (150 spikes/carton) cost as little as [redacted]/carton with minimum order of 192 cartons. Freight costs will add anywhere from \$1.00 to \$4.00 per carton, depending on distance from Peoria, IL.

(Continued on page 3)

The NCMA: Moving Ahead on Concrete Pavers

by David R. Smith, NCMA
Manager of Paving Products

The National Concrete Masonry Association is committed to promoting the paver industry. Last year, some 70 million square feet of concrete pavers were sold. Looking back to 1980, the best estimates placed sales at 5 million square feet. At the current rate of growth, sales are doubling every four years. Even greater sales are expected in the future now that the NCMA will be investing some \$250,000 in promoting and advancing the technology of concrete pavers in 1989.

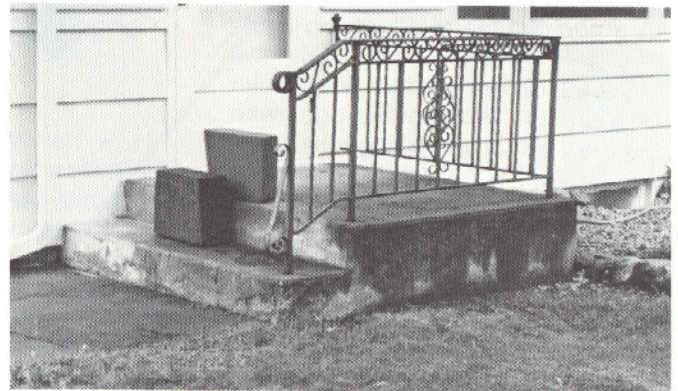
(Continued on page 5)

New Tech Bulletin Series by PAVE TECH!

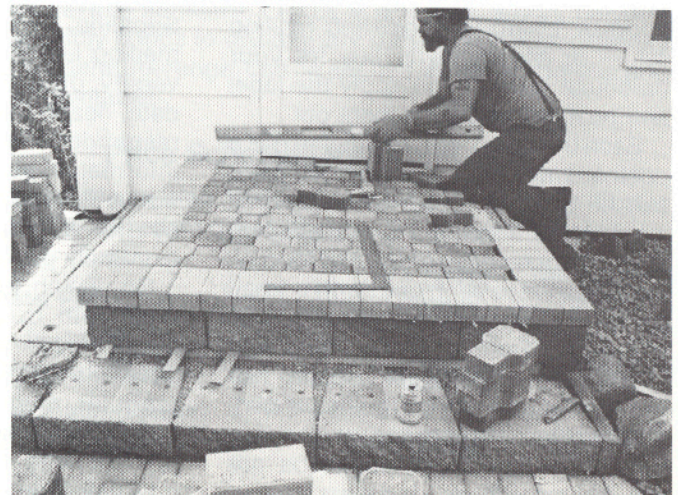
A new series of technical bulletins on the design, specification and installation of interlocking paving stone, is being initiated by *PAVE TECH*.

Bulletin #1, STEP CONSTRUCTION/VENEER TECHNIQUES with INTERLOCKING PAVING STONES, will be issued shortly. This will be a complete pictorial guide from start to finish, showing step-by-step the recommended procedures for a professional veneering job using LEXEL Polymer Adhesives.

Watch for it and also the next issue of the *EDGE* newsletter, which will contain excerpts of this initial bulletin plus photos of completed projects.



Before, and not-quite-completed photos of a concrete step conversion using interlocking pavers. Bob Lindstrom (below) *PAVE TECH*'S Manager of Paver Installation, keeps everything "on the level" at this Bloomington, MN residence.



Letter from the Editor:

Joint Effort to Promote Pavers!

How Paving Stone Industry manufacturers and associates can work together to market pavers to architects, landscape designers, etc.

Two years ago, a meeting was held in Pittsburgh, PA at the corporate offices of Mobay Corporation with representatives from paving stone producers, equipment suppliers, and installers. The purpose of that two-day roundtable discussion was to help Mobay develop better ways to assist our industry with marketing pavers.

What that group proposed to Mobay was that they should develop direct mail pieces about interesting paver applications. These mailers would be in case history format about municipal, commercial, and residential paver applications, and would be available for a nominal fee to all paving stone producers in North America. Fifty-five thousand copies of the first mailer were printed two months ago, with thirty-five producers taking advantage of this tool. Very shortly, the second mailer will be sent to you, and here's how it works.

Paul Croushore from Mobay will be sending to each paving stone company in North America a sample of this second mailer along with an order form. (If you do not receive a mailing from Paul, contact him directly at (412) 777-7596.) Shortly thereafter, you will receive the quantity of these mailers that you ordered, imprinted in two places with your company's name and address. Using your existing mailing list — or any that you buy for your particular area — you apply the label and postage, and send them out.

Each tri-folded, colorful mailer has a postcard attached that the recipient can fill out and return for additional information. That card is postage pre-paid and goes back to Paul at Mobay. He responds to each card with a small package of information about pavers, and a free "Perfect Way to Pave" key chain. And since your address has been pre-printed on that postcard also, Mobay returns the card to you for your own followup. These postcards are very hot sales leads for pavers.

COLORFUL PAVERS. FIT FOR A PRINCESS.

Everything about it is regal. From its graceful Mexican rancho architecture to the expansiveness of its domain—450 acres in Arizona's majestic Sonoran Desert.

So when it came time to select the materials for its walkways, paths, and pool patios, the architects of the \$100 million Scottsdale Princess Resort wanted something worthy of the name.

That's why they chose durable, beautiful concrete pavers colored with Bayferrox® iron oxide pigments from Mobay Corporation.

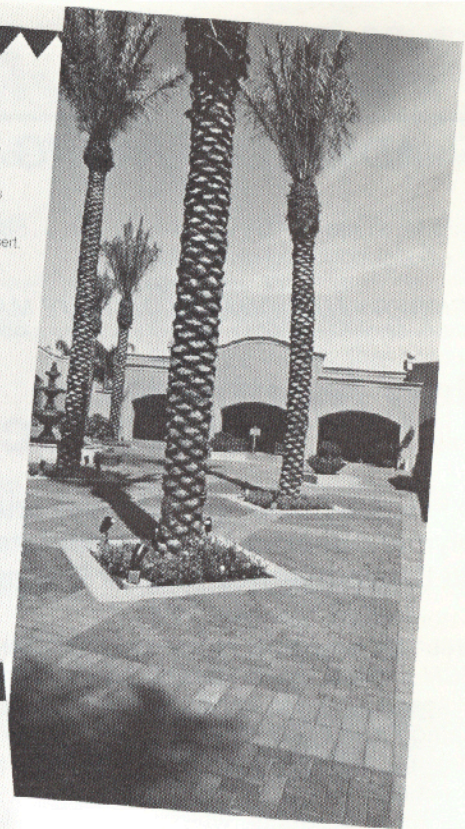
FOR A PRINCESS, ONLY DIAMONDS WILL DO.

Pavers around the Princess are arranged in a way...

Bayferrox
synthetic iron oxide pigments

You, pavers could be the key to my next project. Please send me your brochure. And my "Perfect Way to Pave" key chain.

Name _____
Title _____
Company _____
Address _____
City _____ State _____ Zip _____
Phone _____



How has this program worked? Should I participate in Mobay's second direct mail campaign?

At .15¢ each (plus postage) it would be very difficult to create such a fine customized piece. And direct mail, depending on the quality of the piece and the mailing list used, is the most effective way to reach a particular audience. Further, as an example of the effectiveness of this program, Mobay conducted its own campaign of their first piece which was about an application of pavers at a university in Spokane, WA. They purchased the mailing list of 5,000 college and university officials nationwide, and to date, nearly 6% of the recipients have responded to Mobay, requesting more information about pavers. Believe it or not, a 6% response rate is considered by the advertising industry to be extremely good.

So, watch for their next piece. It's filled with outstanding photography about a commercial application of pavers, a 200,000 foot project of rectangular multi-colored pavers at a hotel in Phoenix, AZ. Order the quantity you need, send them out, and see how well direct mail can work for you.

It's Easy to Reach **PAVE TECH!**

Call: 800 PAVE TEC
800 728-3832
612 881-5773
612 881-2169 (FAX)

OR, Write to us at:

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The **PAVE TECH** EDGE

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Bloomington, MN 55431

Tom Eggen
Editor

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NEW ADDITIONS (Continued from page 1)

**AMERICAN
MADE**



Price Schedule — Spikes

Description	Price Per Carton	
	10% Prepay Discount	Net 10-Day Terms
10" x 3/8" Brite Steel Spikes, 50# cartons at 150 spikes/carton. Delivery to all 48 contiguous states and Canada	\$15.30	\$17.00
12" x 3/8" Brite Steel Spikes, 50# cartons at 125 spikes/carton. Delivery to all 48 contiguous states and Canada.	\$16.75	\$18.60

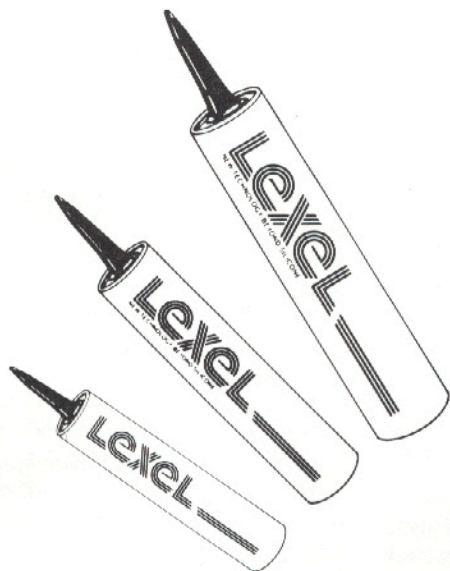
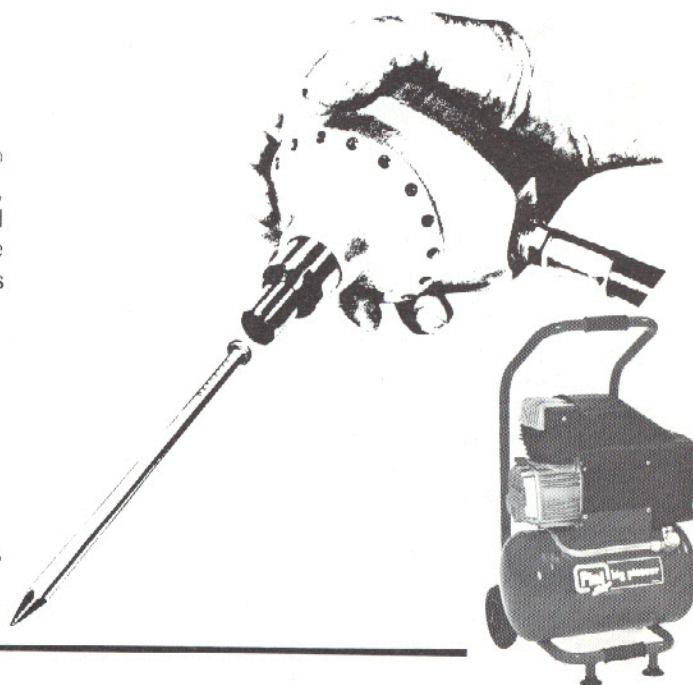
Air-Driven Spike Nailers

You can triple production of pounding spikes into *PAVE EDGE*® edging and eliminate worker fatigue, not to forget smashed fingers, with *PAVE TECH*'S new lightweight air-driven nailers. It starts and stops automatically when pressure is applied or removed from the nail head. A minimum of 80 pounds of air pressure at 3.5 CFM is required — a maximum of 125 pounds of air pressure.

PAVE TECH Spike Nailer Price Schedule

Spike Nailers Each	Net 10-Day Terms	10% Prepay Discount
1 thru 9 Units	\$249.00	\$224.10
10 thru 24 Units	\$231.80	\$208.62

For 25 or over, consult *PAVE TECH*. On orders for 10 or more nailers, FREIGHT IS FREE!



LEXEL Clear Polymer Adhesive

For bonding pavers to concrete (steps, sidewalks, etc.) wood, steel or just about anything else, *PAVE TECH* has found the complete weatherproof flexible adhesive. LEXEL is a strong, tough, polymer adhesive that firmly bonds to virtually any surface, has high elasticity over a wide temperature range, can be applied winter or summer and is completely paintable!

Price Schedule for LEXEL

Minimum Order: 1 case (ten 10.5-ounce tubes); 5 cases = 1 master pack; Freight Fee on orders over 500 pounds (12 master packs).

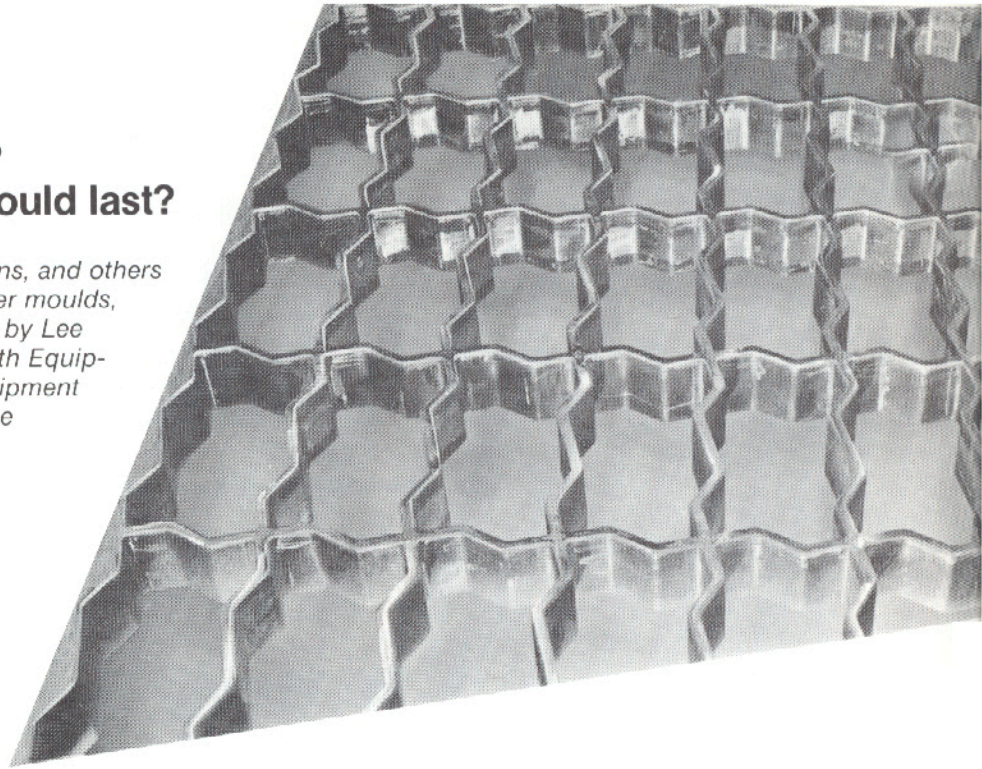
Price per Master Pack:	10% Prepay Discount	Net 10-Day Terms
One Master Pack: 5 cases, 50 tubes, 42½ pounds total	\$188.50	\$209.50
One Case: (minimum order) 10 tubes, 8½ pounds total	\$ 54.50	\$ 60.50

Paver Moulds and Mould Wear

... What makes up a mould?
... How long should a mould last?



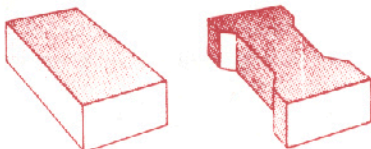
These questions, and others regarding paver moulds, are addressed by Lee Martin of Zenith Equipment Co., equipment suppliers to the paving stone industry.



Paver moulds for "dedicated" paver machines are a very important consideration for the operator. As with coarse and fine aggregate, cement, and pigment, mould wear must be considered each time the machine cycles. Expenditures for moulds is a constant sore point in the paver business. Mould quality and mould wear are subjects which have not been fully addressed. Some questions which need answering are:

What does a mould consist of?

A tamper head which has been bored, drilled and tapped to fit to a "main tamper head plate" designed by the machine manufacturer, precisely located plungers (or steel spacers) welded to the tamper head which vary in length according to the stone thickness, with angles welded to its open ends on which are bolted the tamper head shoes. Tamper head shoes are numbered and fitted to "mated" cores. The "main tamper head plate" has become a standard feature on most modern paver production equipment and allows for bolting on vibrator units without having to change these units from mould to mould and is a permanent part of the production machine.



A "mould box" structure containing an adequate number of cores to produce approximately 10.5 square feet (1 square meter) in the general shape of the desired paver and in a total thickness which includes designed thickness of the paver plus estimated compaction of 10 to 20 percent. The mould box is equipped with wear plates on the rear and front which will vary in size to compensate for the varied sizes of production area between the intermediate wear table and the rear wear table. The mould box may have welded-on retaining parts such as wings or braces, and feed drawer rails.

The mould box may be cast, welded together, or flame-cut from solid steel. In recent times, most moulds are flame-cut. Steel quality and any special treatment to improve the life of the box has the most affect on the cost of producing the mould.

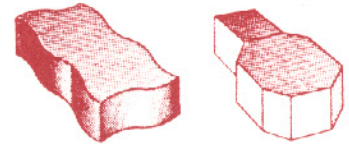
How long should a mould last?

Mould life is entirely dependent on three factors:

1. material and method of manufacture of the mould box,
2. local aggregate and required compaction vibration, and
3. care by owner.

There are several schools of thought on what materials and methods should be used to manufacture the mould box in order to maximize value (from the mould producers viewpoint). Extra

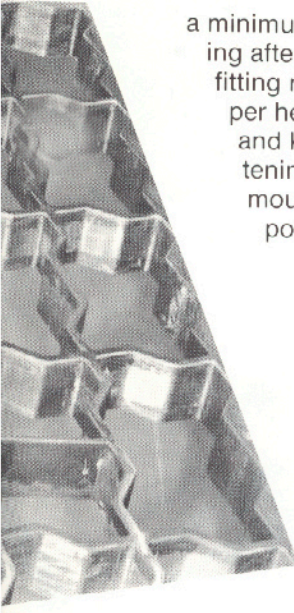
hard steel boxes tend to wear longer but can be unfriendly to machine vibration while milder steels tend to be more tenacious against cracking, but wear faster. The idea of medium hard steel with "hard facing" welded on the bottom edges of the mould box has proven best for mould wear and trouble free life. The insurance factor vis a vis the "hard faced" mould box raises the price of the mould above the cost of extra hard steel, but offers the least problems.



The extra hard steel generally wears evenly from top to bottom during its active life, whereas the "hard faced" box can wear with a slight concavity above the hard facing material. As a general rule the mould has outlived its usefulness by this time. The difference in life of a "hard faced" box and an extra hard steel box is generally significant enough to justify the extra cost.

Moulds and tamper head shoes wear from abrasive action of the concrete mix being compacted. Aggregates vary in abrasion, hence these parts wear quicker where high abrasion is present. Harder aggregates also promote quicker wear.

An owner can extend the life of moulds by keeping mould changes to



a minimum, cleaning and oiling after each use, properly fitting mould box and tamper head when changing, and keeping tight all fastening devices. Charting mould usage is very important.

With these subjects considered, what is the life expectancy of a mould?

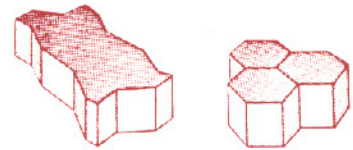
Optimum mould life may be 10,000 machine cycles or 40,000 machine cycles depending on quality of fabrication and secondarily on operator upkeep. Very few moulds can be con-

sidered usable after 40,000 machine cycles and by this time the amortized cost is between 20 and 30 cents per cycle. An inexpensive mould that lasts 10,000 cycles will amortize at 60 to 80 cents per cycle, even with reduced upfront costs.

A worn mould speaks loudly about a company. A worn mould box or chamfers on the tamper head shoes will cause problems for the installer and the paver purchaser. A mould wears and increases the size of the pavers in the mould box at indifferent rates; ultimately pavers will not fit together during installation. Production problems can occur with worn tamper head shoes. Tops may pull off as well as increase the opportunity of chipping while pavers are being vibrated into the sand box. Worn out shoes help accelerate the wear of the mould box by allowing material to squeeze around the top of the stone.

The initial cost of a mould is almost meaningless when considering all factors involved in the life of a mould. Knowing the makeup of a mould and keeping an eye on mould wear are investments which return great dividends. Quality pavers and paver installations are everyone's concerns. Life cycle costs on capital and expendable equipment are, as well.

Today, moulds can be purchased at various prices (in U.S. dollars) from a low of \$7,000 up to \$11,500 for the same configuration. We have attempted to define the reasons for this disparity in pricing. We hope that this paper has helped clear the air regarding mould quality and wear.



NCMA (Continued from page 1)

As of July 1987, the NCMA hired its first full-time Manager of Paving Products. This position is responsible for the creation and implementation of several programs designed to promote pavers nationally. Some of the major ones are:

- **National Advertising** in magazines read by specifiers. Advertisements are appearing in Landscape Architecture, Architecture, Builder, and Public Works magazines. Ads are aimed at the residential, commercial and municipal markets. The NCMA also advertises in the Sweet's Architectural File and the Landscape Architect's File, both of which generate scores of inquiries to NCMA offices and to members.
- **An Inquiry Response Program to Ads.** Readers clip coupons from the ads and the leads are sent to NCMA members. This program has generated over 400 leads for pavers since starting in July 1988.
- **National Trade Shows Attended by the NCMA.** These include the National Home Builders Show (55,000 attendance), the Construction Specifications Institute Show (11,000) and the Public Works Show (5,200). These are major national shows for exposing pavers to the major developers, builders, architects, engineers, landscape architects, and municipal officials. Sales leads from these shows are directed to NCMA members. The NCMA will also be

producing a seminar on the Do-It-Yourself market at the National Home Center Show in Chicago next March.

- **Access to High Quality Separations of National Ads** for use in local ad/direct mail campaigns. NCMA ads, with or without copy, are available as separations upon request to NCMA's ad agency. Use of national ads in local markets can increase the frequency of the message to the specifier without the cost of the photography.
- **Computer Software for Pavement Design.** At the next NCMA Convention in February, pavement design software will be introduced in a seminar selling the municipal market. It is based on the American Society of State Highway and Transportation Officials (ASSHTO) method which is the most widely used pavement design guide. This software will be an excellent promotional tool for introducing concrete pavers to engineers.

Space does not allow for a full description of many other programs and activities: the National Paver Design Award Competition, NFL's Block of the Week commercial, case studies, product application brochures, Tek-Notes on aspects of concrete pavers and grid pavers, port pavement design manual, airfield pavement design manual, laboratory research, representation on ASTM-27, and promotional brochures.

If you're not a NCMA member, don't



miss out on the opportunities to increase your sales through the NCMA. The paver industry is still young (12 years old) and is becoming established as an alternative to asphalt, poured concrete, and brick. Remember, no building product or system became recognized and used regularly on a national basis without national marketing and product standards. National marketing, improved product and application standards for pavers are goals of the NCMA. These goals can be achieved through joining resources, planning and moving ahead together. The more paver producers, installers, and associates that join the NCMA, the faster we all can move toward greater national awareness, systematic marketing, and increased sales to residential, commercial, municipal and industrial users.



Wandering Pavers? Use **PAVE EDGE®** At the Shows!

A practical new use for short pieces of **PAVE EDGE®** helps hold paving stone displays together at trade shows, etc. By applying two-sided foam type to the bottom of either rigid or flexible edging and pressing it down on a clean floor (window cleaner works!) you've quickly solved the problem of wandering pavers caused by heavy foot traffic during exhibit hours.

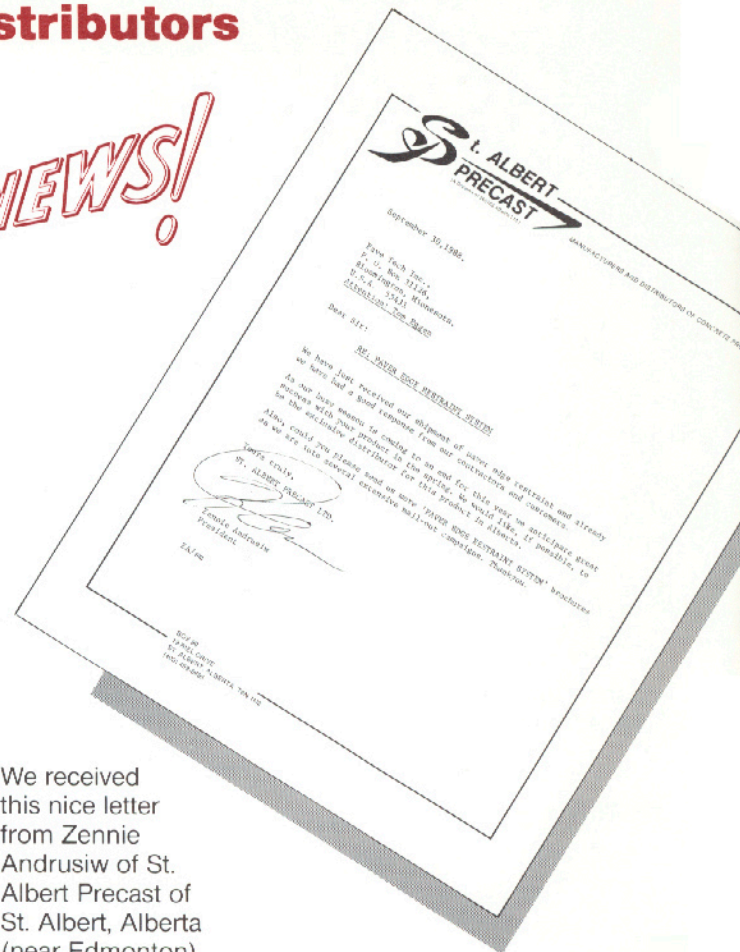
A hacksaw (for mitering corners) paper towel and glass cleaner, scissors for the tape and a tape measure are all the tools you need. Don't forget to bring enough pieces of connecting PVC pipe, cut 4" to 5" long.

Instructions for adhering **PAVE EDGE®** PVC edging to concrete floors for paving stone displays at shows, etc.

1. Lay out pavers on clean floor.
2. Cut edging to fit display area.
3. Wipe off underside of edging and apply two strips of two-sided foam tape as shown.
4. Clean floor area where edging will be placed with window cleaner and paper towel.
5. Put **PAVE EDGE®** tight to pavers, lift edge paver so that lip of edging slides underneath.
6. Press down hard on back side of edging to "set" tape to floor.
7. Cut spikes 1" long and tap into pre-drilled holes to simulate driven spike.

Distributors

NEWS!



We received this nice letter from Zennie Andrusiw of St. Albert Precast of St. Albert, Alberta (near Edmonton) recently. St. Albert is a "brand new" **PAVE EDGE®** distributor in Canada. While we don't issue exclusive distributorships, we do encourage and support in any way possible promotional campaigns, such as the ones that Zennie is into!

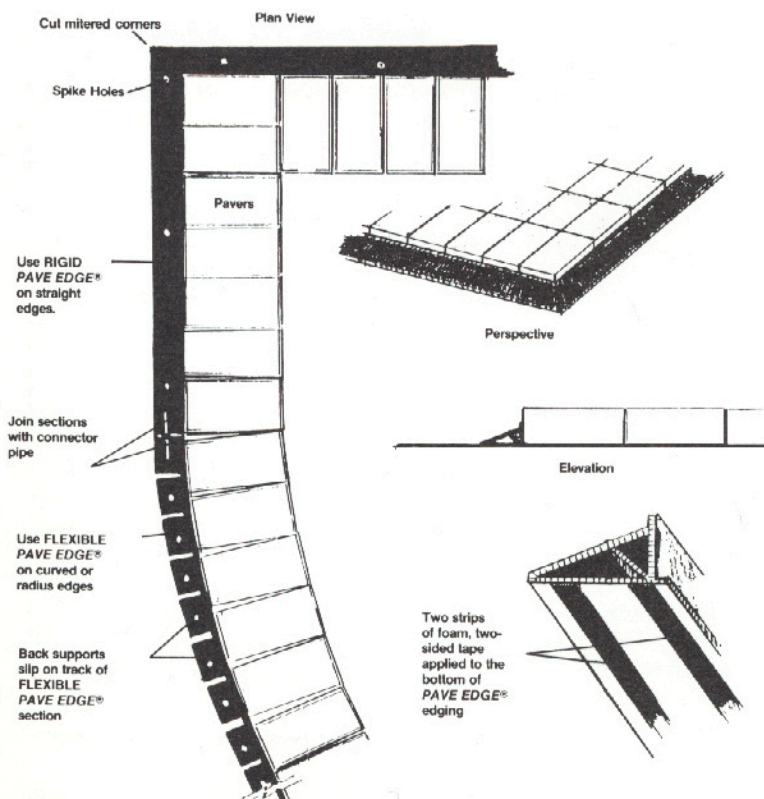
Promotion Creates Sales . . . Sales Provide for Promotion!

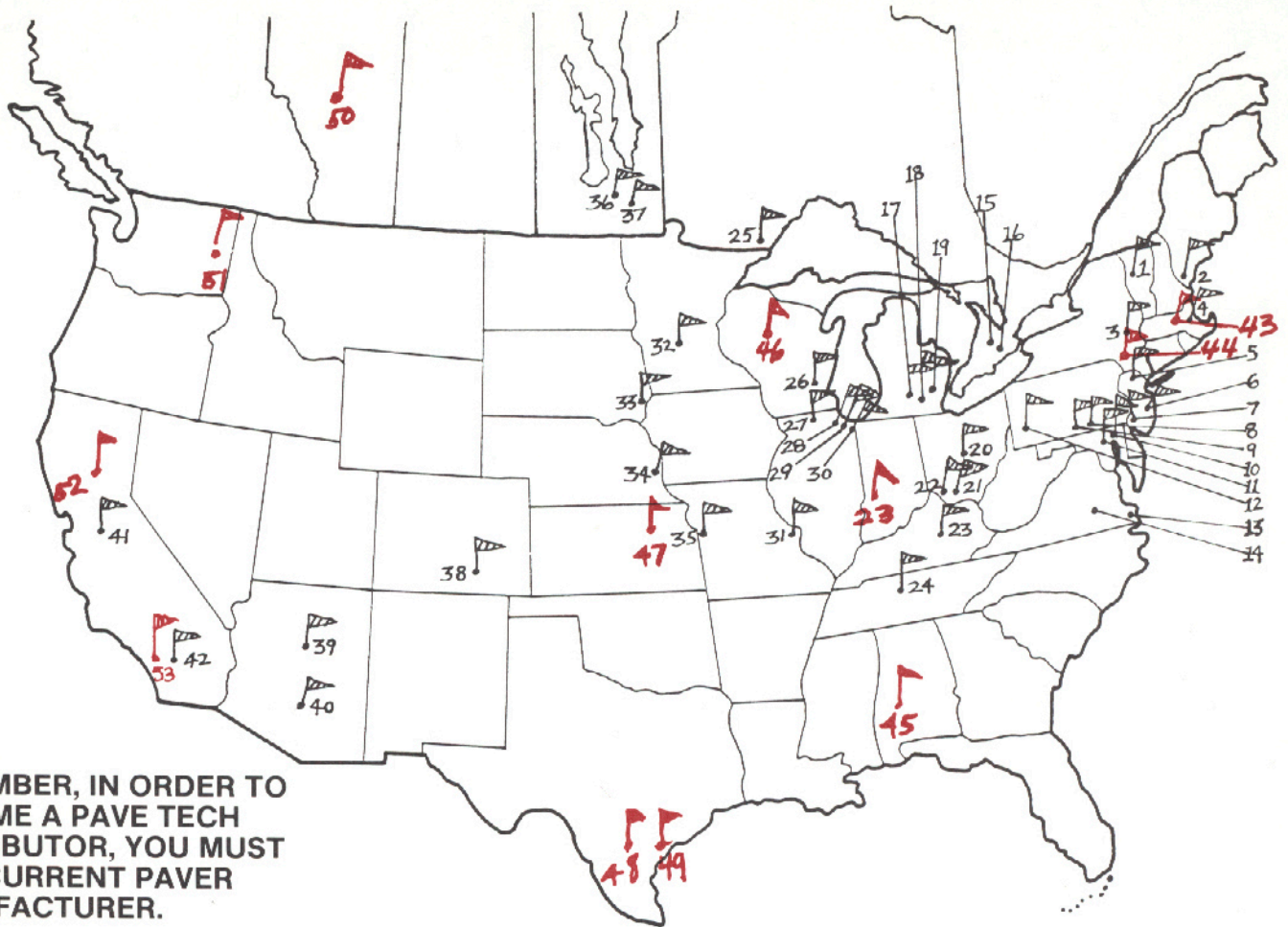
New **PAVE EDGE®** Distributors Get Off to Fast Start! ➔

Since the first of September, twelve Paving Stone Manufacturers have been added to the fast growing network of **PAVE TECH** distributors! As the "good word" on **PAVE EDGE®** edging spreads to new areas, calls keep coming in to the **PAVE TECH** office . . . over 30 from prospective distributors in the last 90 days alone!

We'd like to take this opportunity to welcome the 12 new distributors, located from all four corners of North America from Alberta to Texas, California to New York. Some have reordered edging already after only a short time while others have taken advantage of special prices on the accessories recently added to the **PAVE TECH** line.

What does the market look like ahead? From all indications received so far, it's going to be a great spring in 1989. Several old and new **PAVE TECH** distributors are already laying promotion plans to architects, contractors and to the DIY markets.





**REMEMBER, IN ORDER TO
BECOME A PAVE TECH
DISTRIBUTOR, YOU MUST
BE A CURRENT PAVER
MANUFACTURER.**

NORTH AMERICAN DISTRIBUTORS OF PAVE EDGE®

1. S.T. Griswold Co., Williston, VT
2. Genest Concrete Works, Inc., Sanford, ME
3. Dagostino Bldg. Blocks, Inc., Schenectady, NY
4. Ideal Concrete Block Co., Waltham, MA
5. Grinnell Conc. Paving Stones, Sparta, NJ
6. Anchor Concrete Products, Bricktown, NJ
7. E.P. Henry Co., Woodbury, NJ
8. Hanover Architectural Products, Hanover, PA
9. Nitterhouse Conc. Prod., Chambersburg, PA
10. Capitol Conc. Co. (Glen Gery), Laurel, MD
11. Balcon, Inc., Baltimore, MD
12. R.I. Lampus Co., Springdale, PA
13. Interlock Paving Systems, Hampton, VA
14. Tarmac-Lonestar, Inc., Prince George, VA
15. Pavestone Plus, Kitchener, Ontario
16. D. Barnett & Co. Ltd., Waterloo, Ontario
17. Decra-Loc USA, Inc., Eaton Rapids, MI
18. Fendt Bldrs. Supply, Farmington Hills, MI
19. Grand Blanc Cement Prod., Grand Blanc, MI
20. Oberfields Conc. Prod., Delaware, OH
21. Paverloc, Cincinatti, OH
22. Interpave Corporation, Cincinatti, OH
23. Hessit Works, Freedom, IN
24. Nashville Block Co., Nashville, TN
25. Miller Precast Ltd., Thunder Bay, Ontario
26. Bend Industries, West Bend, WI
27. Rockford Cement Prod., Rockford, IL
28. Unilock Chicago, Inc., Aurora, IL
29. Ampress/Bend Industries, Inc., Des Plaines, IL
30. Utility Conc. Prod., Plainfield, IL
31. Kirchner Industries, Inc., Bridgeton, MO
32. Borgert Concrete Products, St. Joseph, MN
33. Gage Bros. Concrete Products, Sioux Falls, SD
34. Watkins Concrete Block, Omaha, NE
35. Barbour Conc. Prod., Independence, MO
36. Midland Concrete Prod., Winnipeg, Manitoba
37. Barkman Concrete, Ltd., Steinbach, Manitoba
38. McKinney Conc. Prod. Co., Pueblo, CO
39. Block-Lite, Flagstaff, AZ
40. Muller Supply Co., Tempe, AZ
41. Muller Supply Co., Lodi, CA
42. Muller Supply Co., Banning, CA
43. Landscape Products, Inc., Wilbraham, MA
44. 3-D Block Company, Inc., Monticello, NY
45. SRM Selma Inc./Con-Pave, Selma, AL
46. Wausau Tile, Wausau, WI
47. Capitol Concrete Prod. Inc., Topeka, KS
48. Alamo Concrete Pavers, San Antonio, TX
49. Houston Concrete Products, Houston, TX
50. St. Albert Precast, St. Albert, Alberta
51. Layrite Products Company, Spokane, WA
52. Kratzer Precast Supply, Penn Valley, CA
53. Perma-Concrete, Moreno Valley, CA



New

PAVE EDGE® Video

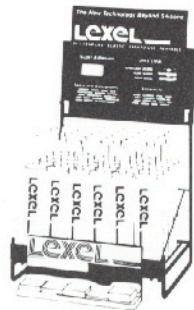
PAVE TECH'S new updated 14-minute VHS video, covering paving stone installation, is now available for general distribution. The initial mailing of copies to all PAVE TECH distributors has been completed. Additional copies are available for \$7.00 each. (This covers the cost of Eastman Kodak professional tape, a hard case and duplication.) PAVE TECH distributors can receive a rebate of \$3.00 by returning a copy of an old PAVE TECH video in its hard case.

A complete step-by-step residential driveway installation, using PAVE EDGE® edging, is featured in the film. It is an excellent sales tool to show contractors and DIY customers, architects and landscapers on the basics of proper paving stone installation.

CALENDAR OF EVENTS

- November 29, 1988 PAVE TECH visit at Pavestone in Dallas, TX.
- December 1-3, 1988 PAVE TECH Seminar at Houston Concrete Products Co., in Houston, TX.
- December 5-6, 1988 PAVE TECH visits at Alamo Concrete Pavers, San Antonio; Pavex of Austin Inc., and Featherlite Building Products Co., in Austin, TX.
- December 25, 1988 Best Wishes for the Holidays from all of us at PAVE TECH, INC.
- January 20-23, 1989 Annual Convention/Exposition, National Association of Home Builders (NAHB), Atlanta, GA.
- February 5-9, 1989 National Concrete Masonry Association (NCMA) 39th Annual Convention/Exposition, Cincinnati, OH.
- February 19-23, 1989 World of Concrete Annual Convention, Atlanta, GA.
- March 18-20, 1989 National Precast Concrete Association (NPCA) 24th Annual Convention and 4th Exposition, Indianapolis, IN.

In-Store Merchandising Will Add to LEXEL Sales!

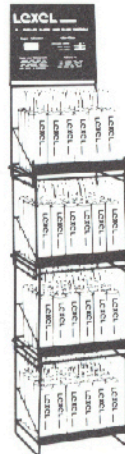


Here's an idea that will help you promote increased sales of LEXEL Adhesive! Whether you have a simple counter-top, or a complete sales center wing in your office, a module display system for promotion of LEXEL brings the clear see-through tubes to the immediate attention of customers.

Modules of 1' and 2' racks can be stacked or placed side-by-side to create a variety of display arrangements. The 1' counter-top unit (LXL-1) holds 30 tubes; the stand-up unit (LXLEC-1) holds up to 144 tubes. Both will optimize product exposure.

They're available through PAVE TECH at reduced prices; the LXL-1 module comes with thirty 10.5-ounce tubes of LEXEL (20 clear and 10 white) at a distributor cost of \$133.13, with a 10% prepay discount cost reduced to \$119.82. The stand-up model LXLEC-1 comes with 60 tubes (40 clear and 20 white) at a distributor cost of \$249.58 including the 10% prepay discount. The latter model will hold up to 144 tubes.

Other models of display racks are available; if interested, call PAVE TECH for sizes and price information.



Next Issue! . . .

- ▲ **Paver Technical/Shapes** An article submitted by Ideal Block Co., Waltham, MA on the variety of sizes and shapes of interlocking concrete pavers.
- ▲ **NPCA (National Precast Concrete Association)** article, submitted by Bill Casteel, Associate Managing Director, on what his association is doing to promote pavers.
- ▲ **A. "Dubby" Granott, M.S.C.E., P.E.** continues his excellent article in our Summer issue on the use of paving block as a flexible pavement medium.
- ▲ **Veneering In-Place, or Building New Concrete Steps** with pavers, using LEXEL adhesive. A step-by-step pictorial "how-to-guide."
- ▲ Plus our regular features and more!