

# The **PAVE TECH** **EDGE**

**ADVANCED PAVING TECHNOLOGY**

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## **TO OUR FRIENDS...** *A Message from Steve Jones President of Pave Tech...*

With this first issue of *PAVE TECH EDGE*, we are starting a new service to our customers and friends in the paving stone industry. We intend to reach you every 90 days, opening a line of communication that will keep you posted on new products, services and new technology, interesting paver applications and pavement design, as well as any personnel news within the industry.

For our first issue, I took the liberty of inviting comments from a few industry "veterans" and they *all* responded! That's why this issue will be a "Fat One" ... but I do appreciate everyone's contribution ... thanks to you all.

It is also with real pleasure that I announce the addition of Tom Eggen to the Pave Tech staff. Tom has earned a great deal of respect in the masonry industry over the past 25 years as both an innovative marketing executive and as a technical resource person. We're happy to welcome him.

Pave Tech is definitely on the move. Our new, improved *PAVE EDGE* edging is rapidly gaining acceptance throughout the country. Both our new video on installation and new four-color brochures will be shipped to distributors soon. We are investigating the feasibility of large volume purchases of accessory items, i.e., spikes, adhesives, etc., for resale to Pave Tech Distributors at lower prices than those available locally.

All that we are doing and plan to do points toward the goal we are committed to ... to provide the finest edging possible, to provide



satisfactory service at all times, and to do things at a fair and competitive price.

We can use your input; your suggestions and criticisms will help show us the way. Look to the *PAVE TECH EDGE* for timely and important news of the paving stone industry. Thank you for your continued support; we appreciate your business and value your friendship.

Steve Jones



## **A Short History But Something to Remember...**

*Comments on the Paver Industry by  
Lee Martin, Zenith Equipment Co.  
... A Guest Editorial*

Every industry has its pioneers who become unsung heroes. The modern paver industry in North America was built on the sweat of distinguished men who risked their fortunes on a new and completely untried product in this hemisphere. To name all these paver pioneers would be difficult; but, some who invested early in our industry were Joe Peitz, Ed Bryant, Tait Given, Mess'rs. Hamel, Mess'rs. Bark-

man, Willi Schultz, Darwin Ross, Jerry Rich, Don Lampus, Howard Woltz, Ed Creske (with hopes no one was slighted). THANKS to each and every one of these men for their individual and group contribution that helped "pave" the way to the success of our industry.

A paver salesman in 1972 had the unenviable job of selling a "brick" with a funny shape (more likely than not in the shape of a fat "Z"). Imagine sitting before a paving engineer explaining that all one had to do was to install a compacted sub-base, screed off a level area of "bedding sand" and begin placing these paving stones by hand

(continued on page 2)



## Tom Eggen Joins Pave Tech

Tom Eggen, who for the past several years served as Director of Marketing, then Executive Director of the Minnesota Masonry Institute, has joined Pave Tech, Inc. as Vice President, Operations.

Tom, a veteran marketing and technical resource person in the concrete products industry, will concentrate on developing markets for the company's new paver edge restraint PAVE EDGE. He will also assist with seminars and demonstrations throughout the country on application of the company's edging and recommended practices for paving stone installation.

As Director of Marketing and Promotion for Superlite Builders Supply, Phoenix, AZ in the 1970's, Tom represented industry interests in fighting restrictive Federal Housing Agency Minimum Property Standards, which if promulgated, would have literally crippled the block industry in warm climate states. Tom was instrumental in winning for the State of Arizona a variance from these standards which still stands.

For over twenty years, Tom has been active in NCMA activities, serving as chairman of the PAC committee and CIE/Convention committee, as well as a member of numerous working committees within the NCMA structure. He is a past president of the Minnesota Concrete Products Industry and a director of several trade and professional industry organizations.

As Seen on PBS Television...

## Hometime Series Video on PATIOS AND WALKWAYS...

... Available to PAVE  
EDGE Distributors!

Pave Tech's interest in promoting quality paving stone installations prompted us to purchase multiple copies of "PATIOS AND WALKWAYS", one of a series of "Hometime" videos that covers step-by-step instructions for the DIY paver market.

Proper planning before the first stake is driven in the ground is the key to a successful do-it-yourself paver experience. The video shows in detail what tools and equipment will be needed, how to measure and estimate quantities, proper installation procedures and finishing techniques. Although PAVE EDGE edging is not shown, it will afford distributors an excellent opportunity to sell the DIY market the simplified version (PAVE EDGE) compared to the more costly and cumbersome types!

If you are a PAVE EDGE distributor you can receive a *free* copy! Just get in touch with us at 1-800 PAVE TEC — (612) 881-5773 or FAX (612) 881-2169.

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## Understanding Soil Compaction

A "down-to-earth" publication containing easy to read, illustrated subjects, such as "What is Compaction?"... "Soil Types"... "Soil Properties" and "Moisture Content", to mention a few, is enclosed, compliments of Pave Tech and the J.I. Case Company of Racine, WI.

If you would like additional copies of this excellent publication of soil compaction basics, please call or write your nearest J.I. Case (Construction Equipment Division) dealer representative.

## SHORT HISTORY

(continued from page 1)

on the sand. A look of puzzlement must have accompanied the explanation that running a plate vibrator over the installed area would drive the pavers into the sand. Then by filling the joints with more sand a certain "lock up" would occur to the point that heavy equipment could be operated on this pavement. (Would it not have been wonderful to have had Pave Tech's video on installing with Pave Tech edging to show these engineers how to do the job right?) Or, how about the engineer that liked the looks of the pattern but insisted that the pavers be mortared on a concrete slab? Or, questions like, "will these little bricks hold up like placed concrete?" WE SHOULD HOPE NOT!

And... speaking of shapes, what ever happened to the "Z" Paver, or the dog bone shape called Finetta, or wavy edged "Stockholm" aka "Olympia," or the Spanish Cross? Whatever happened to mini-UNI? Some of these are as rare as hoolahoops.

To see the crosswalks on the Avenue of the Americas or all the work done on Roosevelt Island in New York City, or the intersections in Bethlehem, Pennsylvania or installations in and around Toronto which were installed prior to 1975 and have endured extremes of weather, hard wear, and maltreatment... or to see the results of bright ideas from relative newcomers in the industry... or to see the progress toward acceptance of pavers in markets like Florida or Texas where pavers in driveways and sidewalks of affordable housing is being offered, proving our product is not "just for the rich"... well, it makes one proud to be associated with this industry.

Lee Martin

The **PAVE TECH**  
**EDGE**

A Publication of  
**PAVE TECH, INC.**  
P.O. Box 31126  
Bloomington, MN 55431

Tom Eggen  
Editor

# CONCRETE PAVER SYSTEM BASICS . . .

## A Review of the Fundamentals of a Paving Stone System . . .

Most types of pavements can be classified into two categories: rigid or flexible. Two examples of rigid pavements are poured concrete and clay brick (which must be set in mortar and installed over a concrete slab in order to perform as a load bearing pavement). The most common flexible pavement is, of course, bituminous concrete (asphalt) which in reality is a liquid in a semi-solid state. Both types of pavement have advantages as well as drawbacks.

What differentiates an interlocking concrete paving stone pavement is that it is a system that combines elements of both rigid and flexible pavements. As such, it includes advantages of each, as well as some unique features of its own.

Because they are made with specialized equipment, concrete pavers are extremely strong (8,500 psi minimum) and have low water absorption (under 5%). Both of these characteristics are key indicators of freeze-thaw resistance and long-term durability (consider that structural concrete is usually 4,000 to 5,000 psi). Consequently, we can say that concrete pavers provide the superior strength advantages that a "rigid" pavement offers.

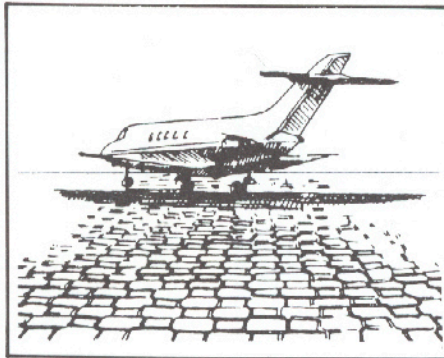


However, because concrete pavers are set dry on a bedding course of sand and vibrated into place, they also offer the benefits of a flexible pavement. They can make minor adjustments to shifting and earth movement without losing their continuity as a pavement. Concrete pavers also have the ability to transfer the load laterally to adjacent pavers as well as vertically to the sub-base.

Since pavements made with concrete paving stones combine elements of both rigid and flexible pavements, they are perhaps best described as segmented pavements.

Why does a segmented pavement perform so well?

Concrete pavers work even under extremely heavy traffic loads because they interlock and their ability to transfer loads. The interlocking feature is accomplished by several distinct but dependent components.



All concrete paver systems require proper spacing between the units so that the joints can be filled with sand. So long as they are installed in this manner, the sand in the joints will transmit friction between the pavers and help resist shear action from vehicular loads, especially from turning, acceleration and/or braking action. The pavers must be made to very precise and accurate dimensions in order to exhibit this capability.

The thickness of the paver plays a significant role in resistance to shear and deformation. The thicker the paver, the more vertical surface area there is to provide the friction necessary to resist loads.

The shape of the pavers influences performance. Some pavers are made with an irregular shape (such as Uni-Stone and Z pavers) which transfers loads by simple "geometric interlock." Paver shapes will be the subject of a future *EDGE* article. Load transfer and

performance is a function of the pattern in which the pavers are installed. Extensive studies have shown that pavements set in a herringbone pattern performed much better under traffic than pavements set in a running bond or basketweave patterns.

In any type of pavement the key to performance is adequate sub-base design and construction. This is a fairly comprehensive subject, but it is worth noting some key parameters that must be considered: type of traffic, wheel loads, frequency of traffic, existing soil conditions, etc. Usually these determinations should be made by a qualified soils engineer. Bear in mind that most of the load applied to the pavement surface is transferred to the base and sub-base.

*Reprinted courtesy of Larry Nicolai, Ideal Concrete Block Co., Waltham, MA from Ideal's Newsletter UnderFootNotes.*



## New 4-Color Pave Edge Brochures Available

The ink isn't quite dry yet, but printing of new PAVE EDGE 4-color brochures has been completed. Available with or without distributor logo/company imprint, the new four page brochures are sure to attract attention. Improved design PAVE EDGE rigid and flexible edge restraint is featured in several photos and illustrations. Lighter still in weight, stronger, yet more flexible and adaptable to short radii and rolling contoured terrain than ever before, the new PAVE EDGE is extremely fast and easy to install.

Complete instructions on how to start, what few simple tools are needed, how to handle radii and curves, how to join sections of edging to each other, recommendations on anchoring and proper paver installation are covered in the new literature.

To obtain a supply, simply let us know how many you need. Pave Tech distributors who would like to include their logo, name, address and phone number, please send camera-ready art. There will be a minimal charge for setup and imprinting plus 14¢ each for the cost of the brochure.

CALL OR WRITE NOW —  
SHIPMENT, NEXT DAY!

## **PAVE TECH ...In Just 18 Months ...Advanced Paving Technology!**

In February, 1987, about 18 months ago, Steve Jones "took the plunge!" As the one and only stockholder of his company, Pave Tech, Inc., he gambled with what most businessmen would consider a risky move — that of introducing a new product that had virtually been untried and untested, with no past, present nor, at that time, planned marketing program of a national scale, to an industry in which he was "unknown" and totally unfamiliar with! Sounds like a short cut to "Ulcer City."

Just prior to the NCMA Convention and Exposition in Tampa, FL, Steve picked up samples from the initial extrusion of his new PVC edging. His original design, which has been significantly streamlined since, was developed from an idea that grew from frustration while struggling as a paving stone contractor. He knew that there *must* be a better way to restrain paver movement than existing wood, metal or poured concrete systems.

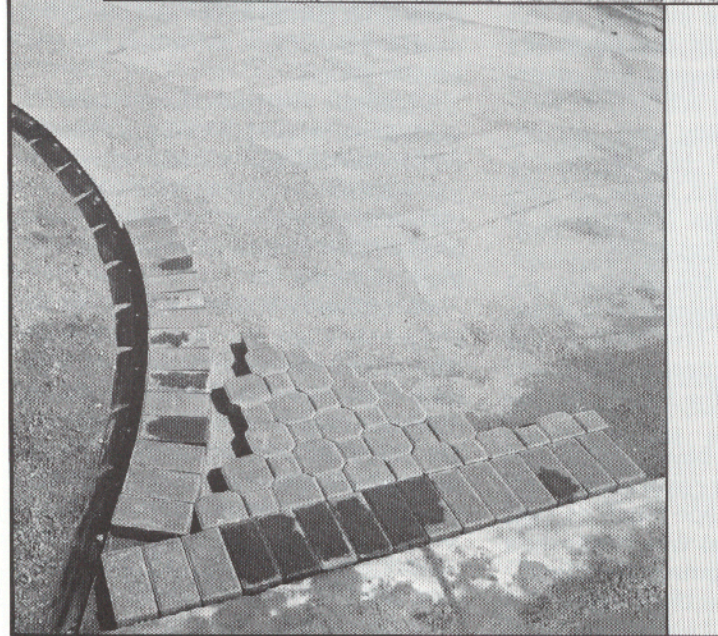
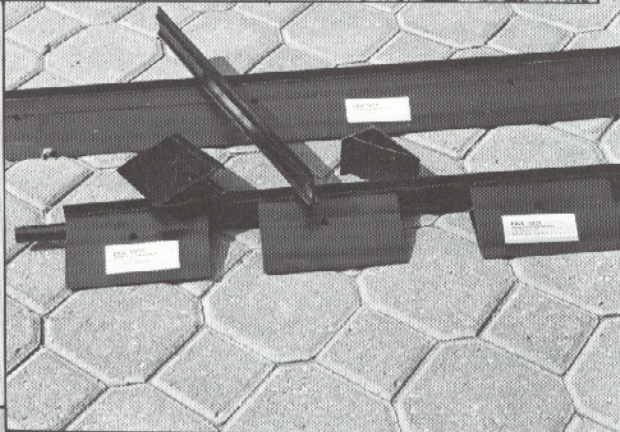
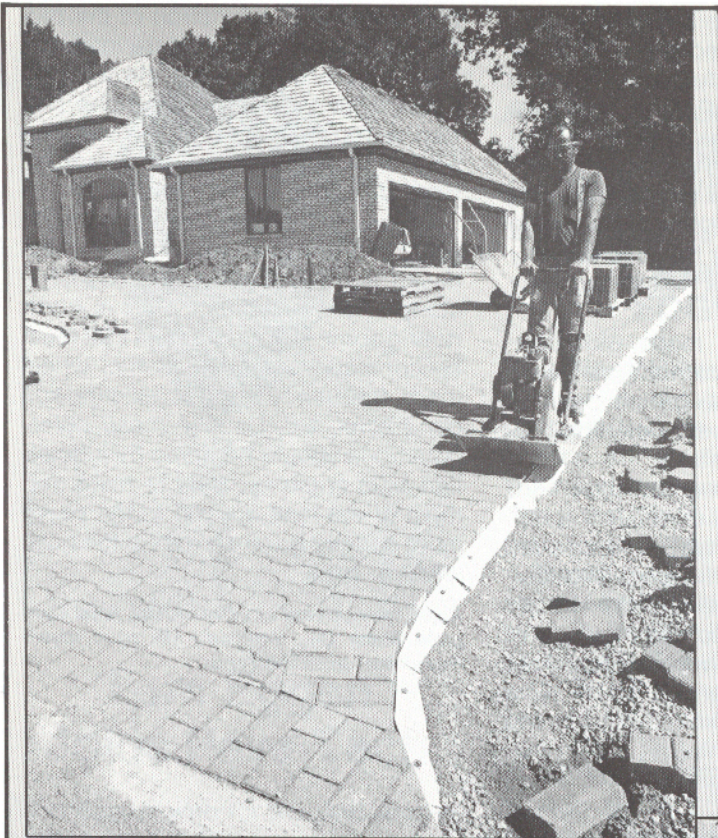
Off to Florida, samples in hand, Steve participated in the NCMA Show and remembers, "I even got a couple of orders." After minor "bugs" were worked out, enough brochures mailed out, samples sent and footage successfully placed by those few early "believers," Pave Tech was on its way!

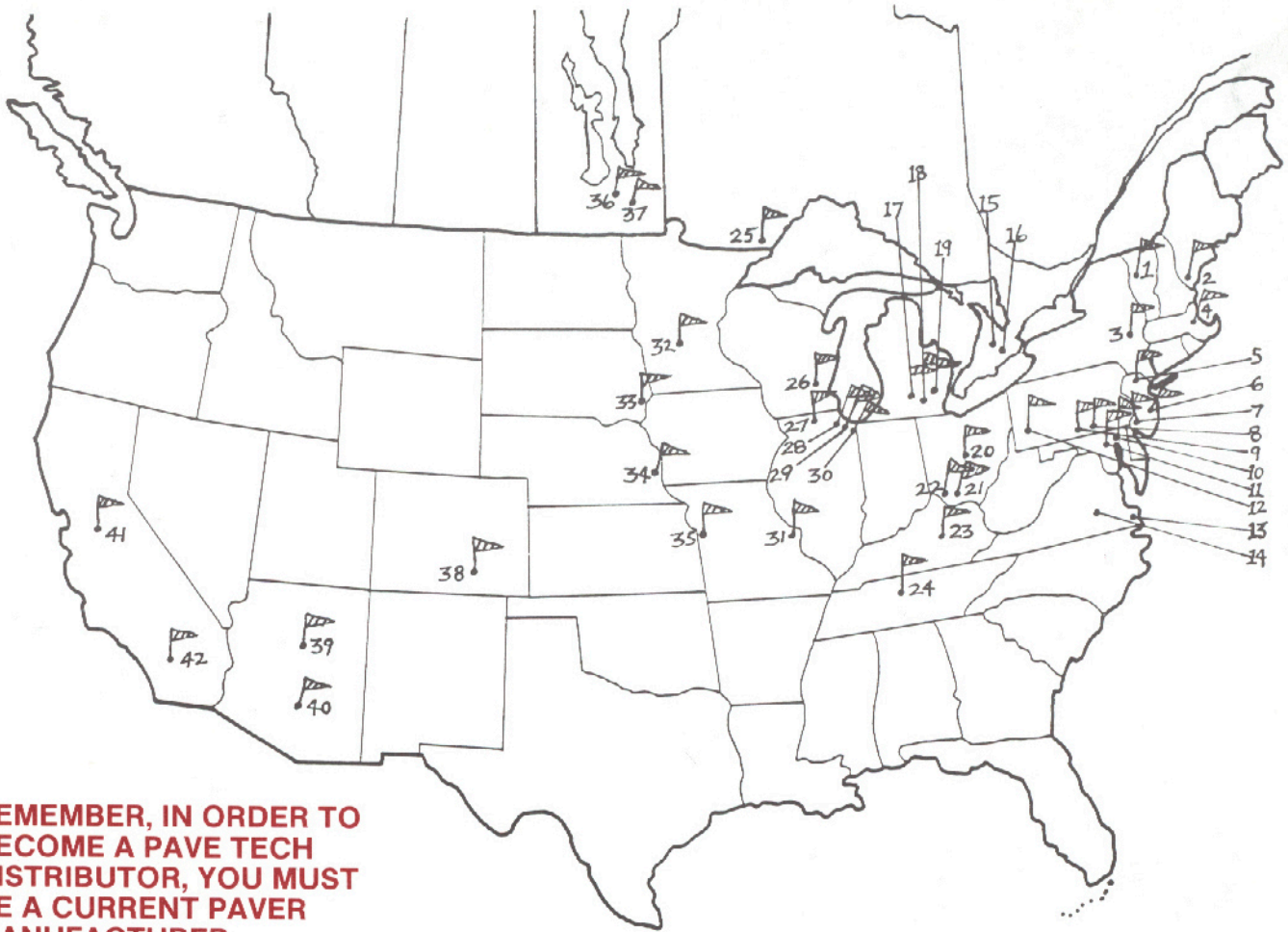
Today, just 18 months later, the new PAVE EDGE PVC edge restraint has become the most widely used paving stone edging in the USA! An active network of paver manufacturer/PAVE EDGE distributors is taking shape. Over fifty (50) such firms in the USA and Canada have ordered Pave Tech edging, with forty-two (42) now established distributors who stock the edging for resale to their contractor customers.

The reason PAVE EDGE succeeded is simple . . . it works! Nowhere does it say it any better than on the back of the enclosed Pave Tech brochure . . . 14 "ADVANTAGES" add credibility to our statement; ask any contractor who has used PAVE EDGE!

**Interested in increasing paver sales? . . .  
In increasing your customers base? . . .  
In adding a proven profit maker to your  
product line? . . .**

Call Toll Free 1-800 PAVE TEC for information on how *you* can start offering your paving stone contractors the advantages that PAVE EDGE gives in simplifying and reducing costs of installation. We'll send a free VHS video on PAVE EDGE installation instruction, samples of the edging, both rigid and flexible, catalogs for distribution to your customers and an installation guide for use by them. Technical assistance is as close as your phone. Questions on price, terms, shipping and delivery, etc. will be promptly answered. Minimum order (without special handling charges) is just 1,080 lineal feet . . . large enough to allow a few of your active contractors to see for themselves how simple and fast it is to place an edge restraint that *will last a lifetime!*





**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              | 22. Interpave Corporation, Cincinnati, OH          |
| 2. Genest Concrete Works, Inc., Sanford, ME      | 23. Commonwealth Block Co. Inc., Lexington, KY     |
| 3. Dagostino Bldg. Blocks, Inc., Schenectady, NY | 24. Nashville Block Co., Nashville, TN             |
| 4. Ideal Concrete Block Co., Waltham, MA         | 25. Miller Precast Ltd., Thunder Bay, Ontario      |
| 5. Grinnell Conc. Paving Stones, Sparta, NJ      | 26. Bend Industries, West Bend, WI                 |
| 6. Anchor Concrete Products, Bricktown, NJ       | 27. Rockford Cement Prod., Rockford, IL            |
| 7. E.P. Henry Co., Woodbury, NJ                  | 28. Unilock Chicago, Inc., Aurora, IL              |
| 8. Hanover Architectural Products, Hanover, PA   | 29. Ampress/Bend Industries, Inc., Des Plaines, IL |
| 9. Nitterhouse Conc. Prod., Chambersburg, PA     | 30. Utility Conc. Prod., Plainfield, IL            |
| 10. Capitol Conc. Co. (Glen Gery), Laurel, MD    | 31. Kirchner Industries, Inc., Bridgeton, MO       |
| 11. Balcon, Inc., Baltimore, MD                  | 32. Borgert Concrete Products, St. Joseph, MN      |
| 12. R.I. Lampus Co., Springfield, PA             | 33. Gage Bros. Concrete Products, Sioux Falls, SD  |
| 13. Interlock Paving Systems, Hampton, VA        | 34. Watkins Concrete Block, Omaha, NE              |
| 14. Tarmac-Lonestar, Inc., Prince George, VA     | 35. Barbour Conc. Prod., Independence, MO          |
| 15. Pavestone Plus, Kitchener, Ontario           | 36. Midland Concrete Prod., Winnipeg, Manitoba     |
| 16. D. Barnett & Co. Ltd., Waterloo, Ontario     | 37. Barkman Concrete, Ltd., Steinbach, Manitoba    |
| 17. Decra-Loc USA, Inc., Eaton Rapids, MI        | 38. McKinney Conc. Prod. Co., Pueblo, CO           |
| 18. Fendt Bldrs. Supply, Farmington Hills, MI    | 39. Block-Lite, Flagstaff, AZ                      |
| 19. Grand Blanc Cement Prod., Grand Blanc, MI    | 40. Muller Supply Co., Tempe, AZ                   |
| 20. Oberfields Conc. Prod., Delaware, OH         | 41. Muller Supply Co., Lodi, CA                    |
| 21. Paverloc, Cincinnati, OH                     | 42. Muller Supply Co., Banning, CA                 |

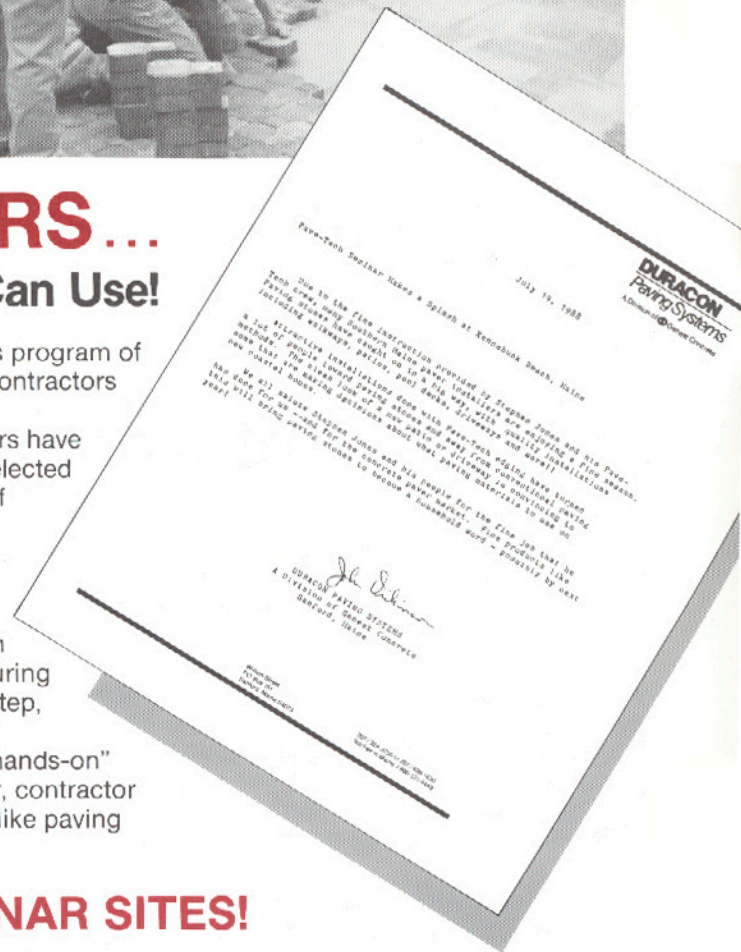


## PAVE TECH SEMINARS... A Sales Tool You Can Use!

A welcome service Pave Tech provides throughout the USA is its program of distributor seminars and demonstrations held for the benefit of contractors interested in professional paving stone installations.

In the past twelve months, eight on-site demonstration seminars have been conducted by Pave Tech across the country at locations selected by the sponsoring local paver manufacturer. Typically, an area of 1,500 to 2,000 square feet at or nearby the paver plant or the distributor's office is chosen.

Architects, landscape professionals, builders, developers, paving stone contractors and public officials are some of the type of guests invited to the demonstrations. Reception has been tremendous (read DURACON PAVING SYSTEM'S LETTER). During the demonstration the Pave Tech team leads an actual step-by-step, hands-on installation from start to finish, including audience participation. Steve Jones, President of Pave Tech, insists that "hands-on" is the only way for everyone — manufacturer, architect, specifier, contractor and installer, etc., to appreciate what goes into a truly craftsmanlike paving stone installation.



## PAVE TECH LOOKING FOR SEMINAR SITES!

**SOUTHEAST . . . Possibly North or South Carolina?**

**SOUTH . . . Texas?**

**SOUTHWEST . . . Arizona or Southern California?**

During the 1988/89 winter season, Pave Tech is looking for sites to hold paver demonstrations, particularly in those areas listed above. It is *NOT* required that a paver manufacturer who would like to hold a demonstration to be a Pave Tech distributor!

Here's what a visit by the Pave Tech demonstration team can do for you:

1. Provide a great opportunity for you to invite architects, contractors, etc., to your site to witness a live demonstration.
2. For whatever reason, whenever an out-of-town firm demonstrates the same things a manufacturer/distributor has been expounding for years, contractors seem to listen closer.
3. Pave Tech's experienced installers show all sorts of labor-saving "secrets" that will help your contractors do a better job easier and faster.
4. Demonstrate the proper way to use PAVE EDGE and also how a quality-conscious Pave Tech team does a paving job.

**IF YOU'RE INTERESTED IN KNOWING MORE ABOUT PAVE TECH DEMONSTRATIONS, CALL STEVE JONES OR TOM EGGEN AS SOON AS POSSIBLE!!!**



# An Introduction To The Use Of Concrete Paving Blocks As A Flexible Pavement Medium

by A. "Dubby" Granott, M.S.C.E., P.E.

The primary function of pavement is to enable the local soil (subgrade) to carry the anticipated traffic loads for the design life of the pavement under all possible conditions.

In general, pavements can be divided into two basic types — *rigid* and *flexible*. *Rigid* pavements, in most cases, consist of a Portland cement concrete slab with or without a base course between the pavement and the subgrade. The concrete itself, exclusive of the base, is referred to as the pavement. In contrast, *flexible* pavements are comprised of a relatively thin wearing surface course, overlaying a base course and, in some instances, a sub-base course, which rests upon the compacted subgrade. The entire system above the subgrade in this case is referred to as the pavement.

*Rigid* pavements are designed based on considerations related to the structural strength of the concrete where traffic loads are distributed over a relatively wide area of the pavement; therefore, the concrete slab itself plays the major role in the structural support of the loads with a base being used for other reasons, such as control of unusual soil conditions (expansive soils), control of climatic conditions (freeze and thaw), subdrainage and ease of construction.

*Flexible* pavements, constructed as a system of layers with the highest quality layer nearest the top, are designed based on the load distribution characteristics of the entire system. This system is designed to protect the subgrade against the anticipated loads while, in turn, each layer protects the layer beneath. The pavement is topped with the wearing surface, designed to seal the system against water intrusion and to meet the various traffic requirements under all weather conditions. The thickness design of the pavement is dependent mostly upon the strength of the subgrade.

*Concrete Paving Blocks (CPB)*, or "interlocking pavers," have been historically used as a wearing surface for flexible pavements from Ancient Rome to the first concrete pavers manufactured in Holland to accommodate the severe ground movement of their roads. As such, much like asphalt concrete (the most common flexible pavement wearing surface), they require an appropriate flexible pavement design with a strong accent on the proper preparation of the subgrade. Normally, for a sizeable project, a geotechnical (soil) engineer and, in most cases, a paving engineer would be used to properly design and specify the subgrade preparation and the pavement and to follow-up by assuring adherence during construction; however, in many small and even not so small projects, no design or observation of the grading by qualified consulting professionals is provided and it is up to the owner and/or the contractor to assure the quality of the work.

Some of the areas of importance in the preparation of the subgrade for any pavement can be summarized as follows:

1. Adequate *drainage* of the pavement, which needs careful design prior to commencement of the work, is best achieved by the precise grading of the subgrade, both for the exact elevations and the slopes. Thus, by simply following the thickness requirements of the layers of the pavement the surface drainage is achieved.
2. Grading exactly to *design elevations* best assures that design thickness of the pavement will be delivered, that neither additional costly base material will need to be used to compensate for subgrade which is too low, nor that the base or the wearing surface will result in a reduced thickness where the subgrade is too high, thus weakening the pavement.
3. In the case of *CPB*, where the subgrade is too low and the base is spread to the design thickness, an *added thickness of the sand* exceeding the necessary 1 - 1½ inches may result in the loss of pavement integrity and load carrying capacity as sand has little if any structural value in the layered system. In this case, either raise the subgrade or use more base.

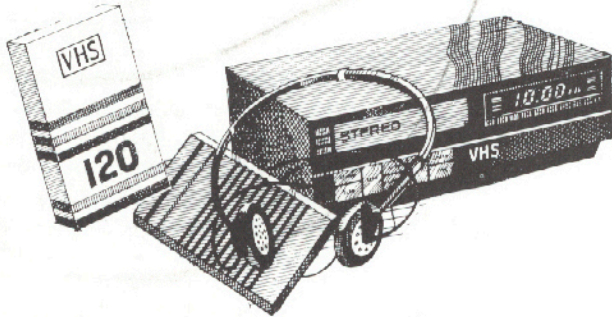


Dubby Granott

4. The subgrade needs to be *thoroughly cleaned* of all deleterious materials such as debris, organic matter, etc., properly scarified to the required depth (typically 12-18 inches minimum), wetted to about the optimum moisture content and adequately *compacted* to normally achieve 90 percent of the maximum test compaction.
5. To further assure the integrity of the pavement it is important to provide *relatively uniform subgrade preparation* throughout the pavement to avoid differential distress or local failures.
6. The pavement is as good as its *weakest spots*. Outside of local bird-baths on long and flat grades, both of which are to be avoided (preferably starting with the flat grades), the majority of the weak spots occur at the pavement edges, in tight corners, around utility vaults and manholes and in backfill of utility trenches, at transitions from existing to new construction. These areas require a careful, thought through processing and special attention, including grading techniques and the use of select materials such as native or imported gravelly soil or lean concrete slurry, if needed.

## CALENDAR OF EVENTS

- August 3-8th, 1988 . . . . . NCMA Mid-Year Meeting —  
Osage Beach, MO.
- September 16-20, 1988 . . . National Precast Concrete  
Association 1988 Mid-Year  
Conference, Colorado  
Springs, CO.
- November 2-4th, 1988 . . . . Minnesota Society, American  
Institute of Architects (MSAIA)  
Convention and Exposition,  
St. Paul, MN.
- February 5-18th, 1989 . . . . 39th Concrete Industries  
Exposition and Convention of  
NCMA, Cincinnati, OH.
- March 18-20th, 1989 . . . . . NPCA 4th Precast Concrete  
Industries Exposition, Indian-  
apolis, IN.



### New Pave Edge Videos Soon!

Production is nearly completed of a new, full color Pave Tech VHS video covering proper paving stone installation and recommended practices for placing PAVE EDGE edge restraint.

## WANTED...ALIVE!!

\$250 REWARD FOR INFORMATION LEADING TO THE IDENTIFICATION AND LOCATION OF THE INVENTOR OF AN ELECTRICALLY DRIVEN SPIKE HAMMER. SEEN AT THE NPCA 1988 CONVENTION IN GREENSBORO, N.C. THIS MAN IS REPORTEDLY LIVING IN THE ATLANTA, GA AREA. PLEASE CONTACT PAVE TECH IN BLOOMINGTON, MN AS SOON AS POSSIBLE

REWARD...\$250...REWARD

The video features both Pave Tech's new rigid and flexible edging that are increasingly capturing the attention of paving stone contractors across the country. From initial layout and excavation through base preparation to final tamping, *all* the recommended steps leading to a quality, professionally constructed paving stone installation are shown in this video.

You can personalize your copies with name, address and telephone number, appearing at the beginning and at the end of the video program, using standard type, which cost \$150 for the master. A personalized logo, using distributor's artwork, type style, etc., cost \$500 for the master (camera ready art required). Additional copies of each can then be purchased for \$10 each up to 15 copies; \$8.00 each for 15 copies and more, and in multiples of 15. FAX your order today call 612/881-2169.

### It's Easy to Reach Pave Tech!

Call: 1-800 PAVE TEC  
1-800 728-3832  
1-612 881-5773  
1-612 881-2169 (FAX)

#### OR, Write to us at:

Pave Tech, Inc.  
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