

The PAVE TECH EDGE

ADVANCED PAVING TECHNOLOGY

VOLUME 2
NUMBER 4
FALL 1989

Published by:
PAVE TECH, INC.
Bloomington, Minnesota
Price: \$1.50

MEMBER • CONCRETE PAVER INSTITUTE • NATIONAL CONCRETE MASONRY ASSOCIATION • BRICK INSTITUTE OF AMERICA • NATIONAL PRECAST CONCRETE ASSOCIATION

1st Ever Brick Paving Industry Meeting!

by Stephen Jones
President, PAVE TECH, INC.

The first industry-wide meeting, held exclusively for brick paving, was called by Nelson Cooney, President of BIA (Brick Institute of America) on November 8th, 1989. Over 65 people, primarily from brick manufacturing companies in North America gathered in Washington D.C. to discuss the current state of affairs in their industry. The consensus was that things have been allowed to just idle along and that more emphasis is needed on the development of standards for both product and installation. Also important is the education of architects and installers on the advantages that brick paving offers.



Nelson Cooney

As part of this emphasis on developing paver installation standards, I was invited by Mr. Cooney to speak on my experiences, not only as an installer of segmental paving, but also as one who manufactures, promotes and uses a self-supporting edge restraint — PAVE EDGE®. This invitation was quite an honor due to the fact that up until this meeting, my knowledge of the brick paving industry was insufficient.

Brian Taylor, Deputy Chairman and Managing Director of BLOCKLEYS PLC, of England, was the featured speaker. Mr. Taylor, whose company is a true pioneer in brick paving, spoke eloquently in giving direction to the US brick industry as to "staying on the right track" in the development of

(Continued on page 3)

OPEN LETTER TO INDUSTRY RE: PATENT INFRINGEMENT!

by Stephen Jones, President, PAVE TECH, INC.

PAVE TECH received issue of Patent #4863307 on September 5, 1989 covering PAVE EDGE® edging. This seems to have had little impact on some people and their companies. As a result, PAVE TECH has been forced to file civil action for patent infringement in Northern District Federal Court, Dallas, TX against such a company — Unilock PAVESTONE, Inc., Dallas, TX, and its owner, Bob Schlegel. (This company is not to be confused with our excellent distributors from other areas who bear the name UNILOCK.)®

We find it a sad commentary on our paver industry when a company, which in the past has complained about lack of sales and profits, but publicly boasts control or influence over one of the largest and potentially lucrative paver market areas in the USA, including Texas, Oklahoma,

Arkansas, Mississippi, New Mexico, Arizona, Colorado, Southern California and Nevada. Having this size cake seems to be choking PAVESTONE's business acumen.

My only hope is that resolution of the PAVE EDGE® patent infringement case will be swift so that we can once again focus our energy and resources to develop much needed support for our industry, instead of the next generation of Harvard Law School graduates!

We would also like to inform those companies and individuals who knowingly manufacture, distribute, sell or install imitation edging in violation of US patent laws, that they will also be enjoined in the litigation. These persons might best serve themselves by consulting with knowledgeable counsel regarding the risks of continuing their actions. ▽

CONCRETE PAVER INSTITUTE UPDATE:

A new name for a new organization for the entire paving stone industry ... paver producers, associates and contractors! ... A new beginning for the entire North American concrete paver industry!

That, in a nutshell, is what happened at an announced industry organizational meeting held September 11, 1989 in Washington, D.C., attended by personnel from over 50% of the US

paver production capacity and a large number of Canadian manufacturers.

Announcement of the formation of this new self-governed, self-funded association was accompanied with an aggressive timetable set up to nominate and elect a chairman, chairman-elect, board members and committee members, then to hold an industry-

(Continued on page 3)

INSTALLERS — CPI WANTS YOU!!

The Concrete Paver Institute represents the entire paving stone industry, including installers! Join...Your dues are a small investment in your future! Participate...Your voice is important, but you won't be heard if you don't join and speak up! Enjoy...the many

benefits of "belonging", of sharing knowledge and experiences with fellow members, of keeping up to date on industry developments! Call 1-800 PAVETEC for further information on joining CPI! ▽

North American Distributor Tour Planned . . .

PAVE TECH Streamlines Seminars for 1990!

A new format which separates educational seminars conducted by PAVE TECH for its distributors into two independent programs held for specific audiences will be initiated in 1990.

The two-day, two-part seminar format allows for discussions. One day, the discussions are with paver dealers (including building supply houses, nurseries, etc.), small landscapers, and the do-it-yourself market. The second day's seminar will be held for professional installers, architects and developers, and manufacturers personnel!

Both seminar agendas will include discussions on basic paver installation techniques, PAVE EDGE® edging and how to install it, and PAVE TECH's new "Paving Stone Protection Treatment Program."

Preparation for the seminar would be completed one day prior to the first session. A pavement base area of approximately 200 square feet and 10 inches deep, would be excavated and refilled with suitable base material. Part would be left uncompacted to show effects of various compaction methods; part would be fully compacted, ready for edging, sand and pavers. Another part would be left "open" to cross sectional viewing of the entire installation by attendees. All parts of this area would help illustrate the discussion on the importance of proper base preparation.

PAVE TECH would also prepare an existing paving stone area, at or near the seminar site, to show proper techniques for applying cleaning and



sealing chemicals. All phases of its Paving Stone Protection Treatment Program would be part of the discussion.


A third part of both days' seminars would focus on job logistics and better coordination and cooperation with manufacturers. This time would provide manufacturers with an excellent opportunity to better educate customers with their facilities and services. During all phases of the seminar program, manufacturer's personnel, both sales and production will participate in the preparation and during the hands-on demonstrations, working side by side with customers.

PAVE TECH hopes to create better channels of communication between manufacturers and their customers and a better awareness of the entire paving stone industry through its seminar programs. As President Stephen Jones puts it, "PAVE TECH's bottom line" philosophy behind the seminars is to help insure the continued growth of our industry, thereby

creating a larger, more educated customer base for our products and services. We've taken the long term approach to serving the industry, and will promote quality in everything we do."

Sign Up for Seminar Dates!

Because of the limited amount of time each manufacturer has to dedicate to promotion and training, PAVE TECH, by streamlining its seminar format, can make the most effective use of both its, and the manufacturer's time, to jointly achieve seminar goals, but we **need** your cooperation! By scheduling visits to various sections of North America during specific periods of time for seminars, PAVE TECH can save significant amounts of time, wear and tear, and expenses.

Several seminar dates have already been selected by PAVE TECH distributors, prior to this announcement! If you are interested, **DON'T WAIT, CALL FOR FURTHER DETAILS.** 



First Issue Features Veneering Steps With Pavers

PAVE TECH's New Tech Bulletin Series


How to convert old blemished concrete steps into bright new paving stone veneered entranceways is fully

illustrated, "step by step" in PAVE TECH's recently released Tech Bulletin No. 1.

First in a series that will be written primarily as a guide for installers by Bob Lindstrom, PAVE TECH's Manager of Paver Installations, this initial 4-page, 2-color brochure shows how to veneer full size interlocking concrete pavers onto concrete steps using

LEXEL, a superior polymer adhesive. If new risers are needed, instructions show how to build them with a combination of masonry retaining wall units, such as Versa-Lok, and regular paving stones.

A second set of instructions, included in Tech Bulletin No. 1, explains how to use thin-cut pavers to veneer steps where close tolerances (thresholds, etc.) prevent the use of full size pavers.

Tech Bulletin No. 1 is available from all PAVE TECH distributors or by calling or writing to the PAVE TECH office. 

CONCRETE PAVER INSTITUTE

(Continued from page 1)

wide meeting, not only for the elected representatives, but the entire industry as well, (producers, associates and installers) to develop programs and budgets for 1990, all by December 10th, 1989!

The primary purpose of CPI is to accelerate the educational and technical development of interlocking concrete paver pavements. All those involved in, or interested in, the concrete paving stone industry in the USA and Canada are eligible. Several large Canadian producers, including Unilock, Toronto, and Oaks Precast Industries of Ontario, have already joined.

CPI Chairman, Charles H. Gamarekian of Grinnell Concrete Paving-stones, Sparta, NJ said, "This (CPI) is a vast hopper waiting to be filled with our individual ingenuity and creativity. All this will be focused towards a national program to raise professional and public awareness of the use of interlocking concrete pavements. Now it's time to stop talking and take action by joining and participating."

Full time paver producers, who are current members of NCMA, are automatically accepted as members of the Concrete Paver Institute. Those NCMA members whose block machines share production time between pavers and other concrete products, can achieve full voting status membership in CPI by paying a full share of the minimum dues requirement for paver manufacturers.

More information regarding CPI can be obtained by calling the Editor at 1-800 PAVETEC, Chairman Charles H. Gamarekian at 201/383-9300, or David Smith, CPI at 703/435-4900. 


Task Group on ASTM C936 Announces Paver Tensile Splitting Research!

An ASTM (American Society for Testing and Materials) Task Group has announced plans to develop a tensile splitting standard for concrete pavers, according to David Smith, CPI Administrator, and Chairman of the ASTM Task Group.

As with other types of masonry units, compressive strength of pavers decreases with increasing thickness. The research is aimed at establishing more suitable compliance criteria for incorporating into paver products specifications. Using tensile splitting properties as a measure of specification compliance will remove the height to width ratio variable. It will also eliminate the cross sectional area variable, which is extremely difficult, if not impossible, to determine with

any certain degree of accuracy, according to the Task Group announcement.


All tests are proposed to be conducted in the NCMA laboratory. Results will then be presented to ASTM for consideration as a proposed revision to ASTM C936, "Standard Specification for Solid Interlocking Paving Units."

The Task Group is soliciting donations from associates of the paving stone industry to fund the hiring of two additional qualified technicians to conduct the necessary testing on approximately 3,000 pavers! If you're willing to help, contact David Smith at 703/435-4900 or call *PAVE TECH* for additional information. 

PAVING INDUSTRY MEETING

(Continued from page 1)

this country's brick paving potential.

PAVE TECH plans to continue active involvement in BIA's new direction for brick paving. The total potential market for both concrete and brick paving in the USA is so enormous, that only the bare surface has been scratched. We at *PAVE TECH* would like to better serve the entire segmental paving industry, and we invite everyone, ie: manufacturer, installer, mason or dealer, to call us if you have questions or, with suggestions as to how we can better serve you. 

Congratulations to Halitov, New President of Paver Systems!!

Gregory Halitov, an 11-year veteran with Paver Systems, Inc. of West Palm Beach and Orlando, Florida has been named President of the firm, following its acquisition by Marshalls PLC of the United Kingdom.

Alfons Schmitt, former owner of Paver Systems, has retired but remains active in the industry as an associate of Fritz von Langsdorff, licensor of Uni Paving Products, worldwide. Marshalls is one of the world's largest manufacturers of pavers with manufacturing plants in both the UK and US. 

The **PAVE TECH EDGE**

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

Stephen Jones, *President*
Tom Eggen, *Editor*

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To the Editor,

PAVE TECH EDGE

Re: Newsletter Mailing List

I am sending a list of architects who design paving stone installations and/or a list of paving stone contractors. Please add them to the *EDGE* newsletter mailing list. When compiling list, please include all information listed below.

Name _____ Title _____

Type of Business _____

Company _____

Address _____

City/State _____ Zip _____

Phone No. _____

Good Techniques for Pigmenting Pavers

The use of pigments in concrete paver production offers the opportunity to create a beautiful, high performance paving material that other forms of paving cannot match. When pigmenting pavers, your goal is to produce a color-consistent product, however, there are a number of factors which will affect the color result if they are not monitored and controlled. The primary variables are:

- 1) Raw Materials
- 2) Process Conditions
- 3) Curing Methods
- 4) Weathering

In Part I of this article, we focused on the impact of RAW MATERIAL variations. We learned that care should be exercised in the selection of pigments, cements, and aggregates. In this article, we will address the effects on color caused by PROCESSING, CURING, and WEATHERING.

PROCESSING

The appearance of a concrete paver is greatly influenced by the controls and conditions in your plant. During processing of a concrete mix, the quality of concrete is largely determined by the proportions of pigment, water, cement, and aggregates used in the mix. Accurate measurements of all components is necessary.

When using dry iron oxides, the pigment must be weighed from batch to batch. In the case of Pferrisperse™ Iron Oxide Slurry, a manufacturer can dis-pense color volumetrically as well as by weight. Whether using iron oxide in dry or slurry form, a variation of $\pm 5\%$ maximum will avoid noticeable color shifts in your paver production.

The water-to-cement ratio affects your yield, product strength and resulting color. From a color perspective, the higher the water/cement ratio, the lighter the color result. The lower the water/cement ratio, the darker the color result. Consequently, total water content should remain constant from batch to batch. Today, there are water meters and probes as well as sand moisture meters that can help in accomplishing this task.

Mixing time plays a pivotal role in the final result of colored pavers. Certain basic procedures must be

followed to obtain satisfactory results.

The introduction of pigments should

MIX TIME



always be at the same time in the batching sequence and should be mixed at a constant, specific time from batch to batch. In

addition, when using lightweight aggregates, a prewet should be employed before introducing the pigments and cement. Dry pigments should be mixed with the cement and aggregates, but before the water is added. Slurry can be added to the mix by following either procedure outlined below:

- 1) Add the slurry to the mixer after the coarse aggregates, sand, cement and 80-90% of the mix water has been added. A minimum of 3 minutes of mixing after the slurry is added is recommended.
- 2) Add the slurry with prewet coarse and fine aggregates and mix for 30 seconds before the cement and other materials are added. Add remaining materials and complete the normal mixing cycle.

Procedure 1 is normally recommended, but both procedures work well.

As an example, Procedure No. 2 would be utilized when due to an undersized mixer, the mix time is shortened in order to keep up with machine demands. This procedure would clearly allow faster batching cycles.

CURING

Cement paste hardens by a chemical reaction between cement and water called hydration. Time and temperature are key variables in the development of full compressive strength and color result. While generally not employed in paver production, higher temperature and steam are sometimes used as methods to speed the cure of pavers. These two factors will produce a lighter colored paver than ones that are air-cured. This is due to a difference in the size of the silicate crystals that form during hydration.

Their size and shape determines the light scattering characteristics of

by Scott T. Becker,
Industry Manager
Building Products,
Pfizer Pigments Inc.



PART II

concrete. A cause and effect relationship between temperature/steam and the color of concrete is shown below:

- The higher the temperature, the smaller the silicate crystals, the lighter the color results.
- The higher the steam pressure, the lighter the color result.
- The shorter the preset time, the lighter the color result.

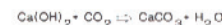
WEATHERING



Weathering can cause concrete products to change in appearance. The two most common factors affecting pigmented concrete pavers are efflorescence and aging.

Efflorescence, sometimes called blooming or scumming, is a white deposit on the surface of concrete products. It is more easily observed on dark colored surfaces than on natural grey products. The deposit is caused by migration of soluble calcium hydroxide, a by-product of hydration, to the surface of concrete. It then reacts with carbon dioxide in the air to form insoluble calcium carbonate. This condition can be aggravated by long rainy periods in cool weather. Rain that penetrates

EFFLORESCENCE
THE CHEMICAL REACTION



the concrete will mix with calcium hydroxide and travel to the surface during evaporation leaving these free salts there to continue the cycle. Eventually, another chemical reaction occurs between the calcium carbonate and carbon dioxide in the air forming soluble calcium hydrogen carbonate. This process, which will cause the

(Continued on page 5)

Use of Geotextile Fabrics With Paving Stones

by Leon H. Behr, Jr., Applications Engineer,
Civil Engineering Fabrics
Amoco Fabrics and Fibers Company



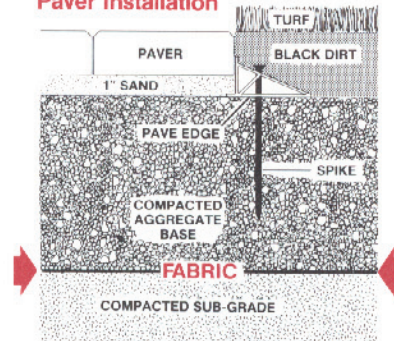
Woven construction fabrics or geotextiles have been in use for many years to separate materials such as aggregates and select fills from soft subgrades. This is done on many types of projects such as roadways, embankments and levees. This same fabric is excellent for use with interlocking paving stones. This applies to any size project from patio to airport.

There are many types of fabrics currently available for construction use. These include woven fabrics which can be made of monofilament, tape, or multifilament yarns. Non-woven fabrics are also available and are suitable for certain paving stone applications. For most stabilization applications, a moderate strength woven fabric such as Amoco 2000 or 2002 will provide the necessary performance properties and be an excellent value.

The primary purpose of a woven fabric in a soil-fabric-aggregate system is the separation of layers of dissimilar materials. The fabric's basic function is to prevent expensive base materials from sinking into poor, unconsolidated subsoils, either during construction, after heavy traffic loading, or at such a time that the subbase

becomes weakened by water. The woven fabric must also prevent fines in the subgrade from pumping into the aggregate base. A final benefit of fabric use is the distribution of wheel loads over a wider area. This helps to prevent localized shear failure of subgrade soil.


Cross Section of Paver Installation



A secret to success in using woven fabrics is to place the fabric as far down in the system as possible. This allows for maximum utilization of fabric benefits. Installation should be done as described below:

- 1) Trees and bushes should be cut to subgrade level.

- 2) Fabric is simply placed on the subgrade and unrolled by hand. The amount of overlap is determined by soil strength; normally a 2 foot overlap is suitable for most applications. (Contact Amoco for questions concerning overlap.) During construction, fabric can be held in place using a shovelfull of gravel or by 18" pins, which are available from most fabric dealers.
- 3) Aggregate is then placed in layers on the fabric and compacted. Remember, construction equipment should not drive directly on the fabric.
- 4) After compaction of the base, you are ready to layout and place your edge restraint, place and prepare your bedding sand, and to lay the paving stones. Fabrics can be cut with a utility (razor blade) knife.

Fabric prices can be obtained from a local distributor. Please contact Amoco Fabrics and Fibers — 404/984-4444 if you are in need of any further information, or the location of your nearest distributor. 

GOOD TECHNIQUES

(Continued from page 4)

efflorescence to erode, takes a long period of time. The *best* assurance against efflorescence is the production of low absorption, water tight pavers. This can be accomplished by using the proper amount of water per unit of cement, by the correct proportioning of fine and coarse aggregate, and by stable curing methods. Additional recommendations include using water wash aggregates, adding waterproofing agents to mix and thoroughly compacting the mix.


Aging of concrete pavers causes a change in the surface appearance. Continued exposure to the elements

causes erosion of hardened cement paste thus exposing more aggregate particles. The shade and light scattering characteristics of the newly exposed aggregate particles will project a difference in color. Certainly having aggregates that are close in color to the pigmented cement paste will lessen the perceived degree of change.

In addition to aging, a normal yellowing process takes place in concrete. This is most noticeable in plain gray pavers.

QUALITY CONTROL

As you can see, keeping the appear-

ance variations within acceptable limits is a challenge for each of us. The realistic starting point for achieving uniform, reproducible premium grade concrete pavers is a quality control program for your production. It is particularly important that you identify and retain representative samples of finished products that will serve as a standard or guideline on acceptable appearance. Equally important is that you gain a clear understanding on controlling your Raw Materials, Processing, and Curing. This will enable you to have consistent, beautiful results! 

Spotlight on:

Largest Paving Stone Project in USA!!

1.0 million square foot Paver Project, Supplied by Alamo Concrete Pavers, Revitalizes the City of San Antonio, TX.

Downtown San Antonio, Texas is getting a much needed facelift. For years, crumbling streets, dilapidated sidewalks, litter-lined walkways, vacant buildings and congested thoroughfares presented an unsightly reminder of the deterioration which had plagued downtown San Antonio's business and tourist districts. However, these unpleasant reflections of a decaying center-city will soon be a thing of the past.

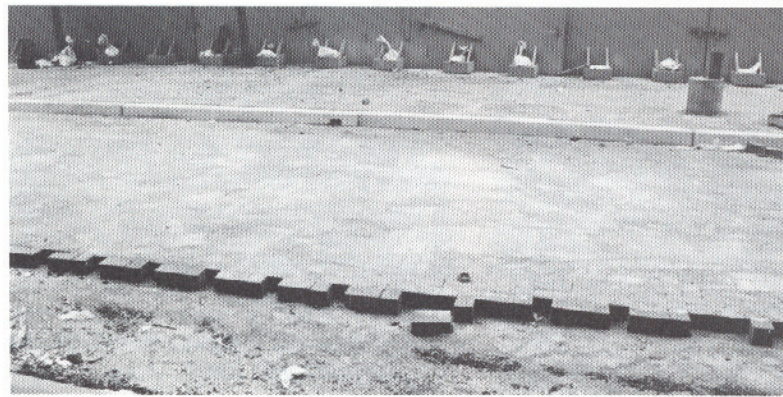
In 1983, the Downtown Triparty Transportation Improvements Project (TRIPARTY), a combined effort of the City of San Antonio, VIA Metropolitan Transit and the Downtown Owner's Association (DTOA) was established. TRIPARTY became a \$40 million downtown revitalization project aimed at improving access to and throughout downtown, providing greater mobility for cars, buses and people, enhancing the appearance of downtown and creating an environment for greater economic development. The total project would encompass a 70 square block area of 14 downtown streets!

In January, 1987, TRIPARTY hired four design teams to develop plans for the improvements of five miles of streets and 10 miles of sidewalks that comprise the project area. In an effort to maintain the rich diversity of downtown San Antonio, the project area was divided into three distinct geographic packages, each with its own design team. The fourth team is responsible for the development of the signage and signalization systems.

After conducting extensive studies of the geographic packages, design concepts were developed which were sensitive to the character and ambiance of each area. Concepts evolved into detailed drawings, specifying location, dimensions, and type of right-of-way improvements. Designs were reviewed by City departments, VIA staff, DTOA staff, fine arts commission, historic review board, the Texas Historical Commission, the Urban Mass Transportation Administration and a variety of organizations and concerned citizens' groups, so as to solve any problems or concerns early in the design phase.



10cm Hollandstone pavers were used in construction of streets.



Funding for the project is being provided as follows:

Urban Mass Transportation Administration\$23.2 million
VIA Metropolitan Transit7.3 million
City of San Antonio5.2 million
Downtown Improvements District (Initiated by the DTOA) 5.2 million
TOTAL	\$40.9 million

Design specifications were started in July, 1987; construction contracts were awarded in May, 1988, followed by groundbreaking in June, 1988.

Project completion date is December, 1990. As of November 1, 1989, approximately 40% of the 4.5 million pavers that will be required for the project have been installed.

Harvey Penshorn, President of Alamo Concrete Pavers, kindly provided *The EDGE* newsletter with the above TRIPARTY project backup information. Additional facts and figures regarding his company's involvement in the 1.0 million square foot concrete paver project will be of interest to our readers . . .

. . . Alamo Concrete Pavers is producing all 4.5 million pavers on a Hess HP III Multilayer paver machine.



TRIPARTY Facts and Figures

Four design teams are:

Alamo Plaza Area:

Lockwood, Andrews, Newman, Inc.
Saldana & Associates.

Commerce/Market St. Area:

Ford, Powell, Carson Architects
Pape-Dawson Consulting
Engineers

Houston Street Area:

Johnson, Johnson & Roy, Inc.

Signage & Signalization:

3D/International Graphics

Project Manager:

Gilbane/Garcia & Wright

General Contractor:

Clearwater Constructors, Inc.

Subcontractor:

Paving Systems Intl. Inc.

Material Supplier:

Alamo Concrete Pavers

Project Design Packages:

Commerce/Market Street Area

This area includes heavy usage, key traffic streets. Right lanes on each street were reserved for buses. Store-front bus patron waiting areas were added to alleviate sidewalk crowding at major bus stop locations. Sidewalks adjacent to bus lanes are being widened; zones comprised of both

pedestrian and bus patron amenities are being added to sidewalks abutting bus lanes. Plazas will be highlighted with special paver treatment and lighting. Festive gateways will lead pedestrians and motorists to Market Square.

Houston Street Area — Transformation here includes widening of sidewalks eight feet on each side and adding decorative paving stone patterns to create an environment to stimulate a resurgence of pedestrian and business activity. Public art, landscaping and other amenities will embellish the street and sidewalk areas.


Alamo Plaza — Special paving treatments on streets and sidewalks of the Plaza will create a more memorable experience for visitors to the Alamo. Widened sidewalks will outline the original boundaries of the Mission compound. Outside the compound, the paving patterns will change on widened pedestrian walkways that are being enriched with trees, streetcar shelters and other amenities.

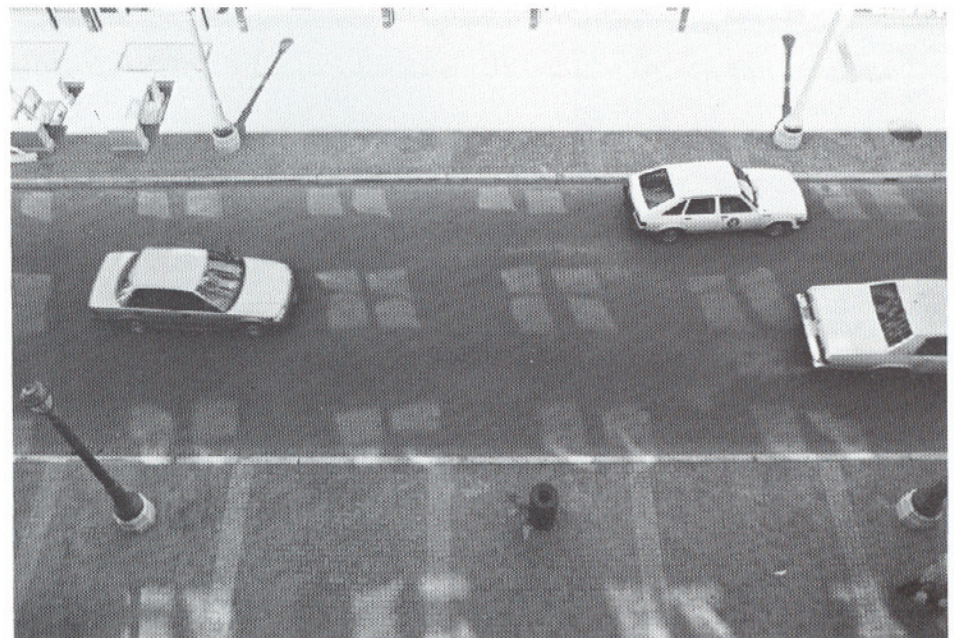
Roman Plaza Area — Improvement of traffic flow and urban design at the intersection of six streets converging on the Plaza. In addition, there will be a general upgrading of major transit stops on other streets within the 70 square block TRIPARTY project.

- ... Pavers chosen were Hollandstone in 10, 8 and 6cm thicknesses, and in eight different colors. The majority are 10cm thick; regardless of size, all pavers are being hand laid.
- ... Specifications are ASTM (8,000 psi, absorption less than 5%) for compressive strength and dimensional tolerances. Harvey commented that "The dimensional tolerances of ASTM seem too rigid for 10cm thick pavers." Specifications also called for "Fine aggregate used in production of pavers shall test no less than 75% by mass of acid insoluble residue."
- ... Typical cross section of pavement: Pavers, 10, 8 or 6cm, 1-inch of sand, 8" asphalt treated base material. Minimum 6" compacted subgrade to 95% Proctor. Test Method: Tex. 113-E minus 2% or plus 3% optimum moisture.

As a result of Alamo Paver's intensive preplanning, problems in scheduling and delivering due to traffic were minimized. Helpful factors included:

- Alamo paver plant facilities being only 10 blocks from job site.
- Pavers delivered on bobtail trucks equipped with straddle unloaders.
- Alamo pavers stockpiled in 15 different colors and thicknesses in order to be responsive to the ever-changing schedule and demands of the job, in terms of paver quantity and type, and delivery location.
- Pavers taken directly from Alamo Paver storage area to project site.

Congratulations to Harvey Pen-shorn and his entire Alamo office, production and delivery staff for the professional manner in which they are responding to the demands of this largest-ever paving stone project in the USA! Alamo Concrete Pavers is a *PAVE TECH* distributor in Texas, and we're proud to be associated with the company. 



Completed section of San Antonio Downtown street project.

How Visible Are You?

... Company Signs Advertise Your Company at Little Cost!

Both paver manufacturers and contractors can miss one of the most effective and least expensive opportunities to reach prospective buyers by hiding their identity! Drive by a typical paver project, either underway or just completed, and you probably will not find out who is supplying those beautiful paving stones, nor who is doing that great job of laying them. The unique location of a job-site sign on any paving project, be it a small residential driveway or a large commercial installation, has the ability to reach a great number of people in the marketplace.

What Does a Company Sign Communicate?

Like print or broadcast media, signs communicate information to potential clients; however, unlike the other media, signs create an image in a more memorable way because people experience this communication in a live and personal way. And, as we all know, favorable image creation is a very important objective of any business, even if you are only a one- or two-man outfit.

Job-site signs can also communicate special promotional information, i.e., extra services that you perform that others do not, perhaps a limited time reduction in price, etc. Further, a job-site sign is an excellent public relations tool. For example, a professionally finished paving stone driveway is looked upon as an added value asset to the community because of its beauty, substance and permanence . . . what paver manufacturer and/or contractor wouldn't like to "hitch his wagon to a star of his own creation?"

Studies show that company signage gets ten viewer repetitions per month for each passing vehicle. Net cost per thousand exposures for a job-site sign, based on these studies, can run from 1/20th to 1/10th the cost of newspaper advertising.

Don't forget your trucks, trailers, bobcats, even your wheelbarrows! These are all golden opportunities, in addition to job-site identification and advertising signs, for your firm to reach prospective clients at very low costs. One word of caution . . . set up and remove job-site signage in a timely manner, don't wear out your welcome!

A suitable company sign only needs to contain name, phone number and type of business, all in large, easy-to-read letters and numbers.



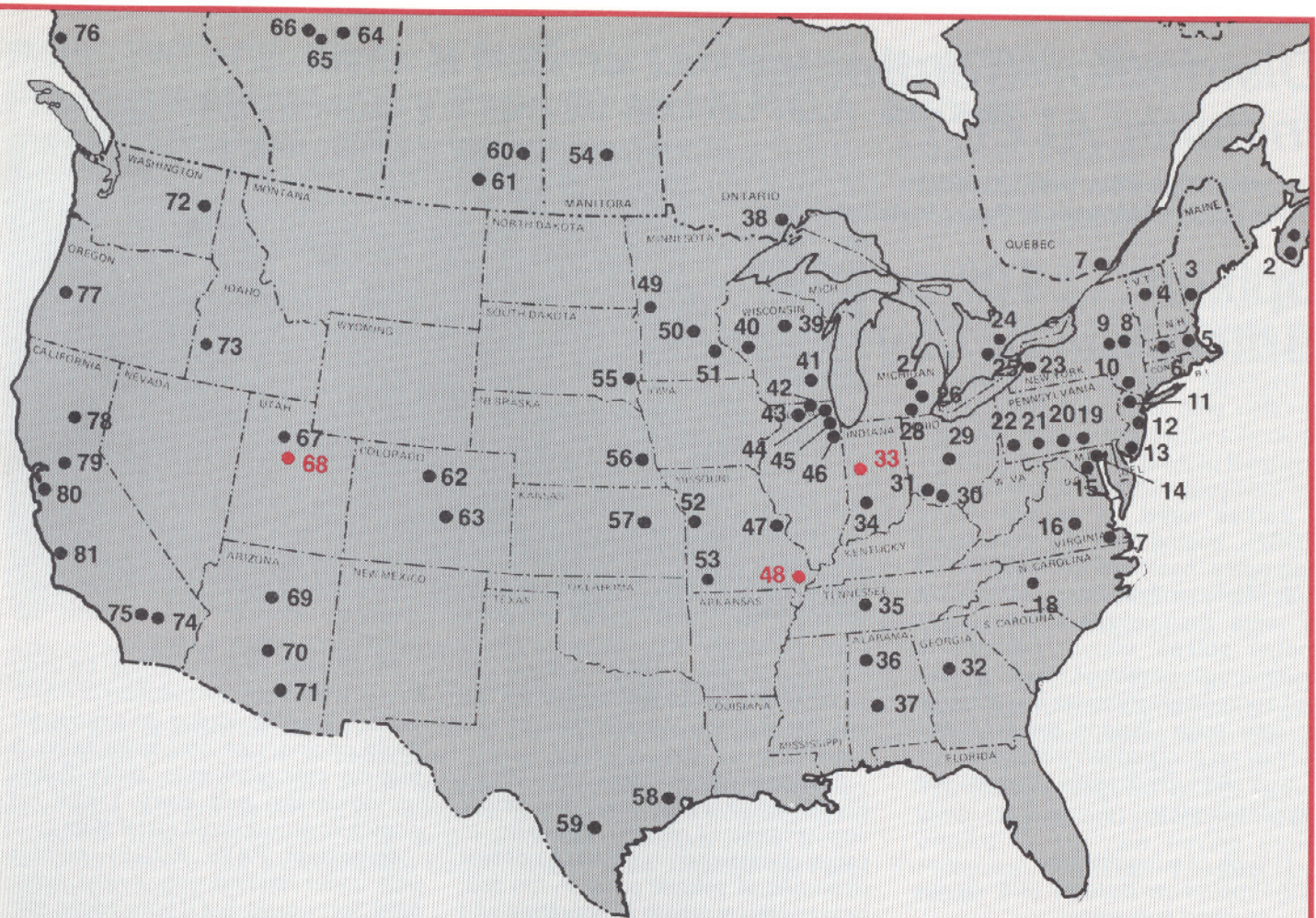
New Distributors of PAVE EDGE®

Welcome to:

Irvin's Concrete Products & Supply Co., Lafayette, Indiana — 267 Smith Street; phone: 317/742-0155. Bob Kaeser, Sales Manager of Irvin's, ordered PAVE EDGE® in early August and followed with an order of LEXEL adhesives two weeks later. Lafayette is located approximately 50 miles to the northwest of Indianapolis.

Hedrick Concrete Products Corp., Sikeston, Missouri — Roth Street, P.O. Box 1087; phone: 314/471-3378. Near the southeast corner of Missouri, Hedrick's location places it within 40 miles of the borders of four adjoining states! Thomas Hedrick, President; David Owens, Paver Manager and Darryl Griggs, Landscape Sales, were instrumental in placing an order for PAVE EDGE® in August. In addition to concrete pavers, Hedrick sells brick, block, ready mix, washed sand, bag cement, landscape rock, abrasives and precast products!

Lehi Block Company and Perlite Products, Lehi, Utah — 2200 North 1100 West; phone: 801/768-8401. Situated between the Great Salt Lake Desert on the west, and some of the world's most famous mountain ski country on the east, Lehi is located in a busy tourist mecca all year round. Pavers are making inroads into residential and commercial projects both, according to Terry Powell, Sales Manager. Mac Powell is President of Lehi.



North American Distributors of PAVE EDGE™

US Patent No. 4863307

- | | | | |
|---|--|--|---|
| 1. L.E. Shaw Ltd., Lantz, Nova Scotia | 21. Lockstone (Sender Ornamental Iron), Johnstown, PA | 44. Unilock Chicago, Inc., Aurora, IL | 63. McKinney Conc. Prod., Pueblo, CO |
| 2. South Shore Ready Mix Ltd., Bridgewater, N.S. | 22. R.I. Lampus Co., Springdale, PA | 45. Bend Industries Inc./Ampress, Des Plaines, IL | 64. Expocrete, Inc., Spruce Grove, (Edmonton) Alberta |
| 3. Genest Concrete Works, Inc., Sanford, ME | 23. Unilock Buffalo, Inc., Buffalo, NY | 46. Chicago Pavers, Inc., Plainfield, IL | 65. Canadian Paving Stone, Ltd., Edmonton, Alberta |
| 4. S.T. Griswold Co., Williston, VT | 24. Unilock Ltd., Georgetown, Ont. | 47. Kirchner Industries, Inc., Bridgeton, MO | 66. St. Albert Precast, St. Albert, Alberta |
| 5. Ideal Concrete Block Co., Waltham, MA | 25. Pavestone Plus, Kitchener, Ontario | 48. Hedrick Conc. Prod., Sikeston, MO | 67. Buehner Block Co., Salt Lake City, UT |
| 6. Landscape Products, Inc., Wilbraham, MA | 26. Unilock Michigan, Inc., Brighton, MI | 49. Fergus Concrete Prod., Fergus Falls, MN | 68. Lehi Block Co., Lehi, UT |
| 7. Cimtech Ciment Products, Montreal, Quebec | 27. Grand Blanc Cement Prod., Grand Blanc, MI | 50. Borgert Products, Inc., St. Joseph, MN | 69. Block-Lite, Flagstaff, AZ |
| 8. Dagostino Bldg. Blocks, Inc., Schenectady, NY | 28. Fendt Bldrs. Supply, Farmington Hills, MI | 51. Shiely Masonry Prod., Maple Grove, MN | 70. Muller Supply Co., Tempe, AZ |
| 9. Grandview Block & Supply Co. Inc., Schenectady, NY | 29. Columbus Conc. Prod., Columbus, OH | 52. Barbour Conc. Prod., Independence, MO | 71. Stewart Block Company, Tucson, AZ |
| 10. 3-D Block Co., Inc. Monticello, NY | 30. Paverlock, Cincinnati, OH | 53. Nattinger Materials Co., Springfield, MO | 72. Layrite Products Co., Spokane, WA |
| 11. Grinnell Conc. Paving Stones, Sparta, NJ | 31. Interpave Corp., Cincinnati, OH | 54. Midland Concrete Prod., Winnipeg, Man. | 73. Builders Masonry Prod., Meridian, ID |
| 12. Anchor Concrete Products, Bricktown, NJ | 32. Paverlock of Georgia, Lithonia, GA | 55. Gage Bros. Concrete Products, Sioux Falls, SD | 74. Muller Supply Co., Banning, CA |
| 13. E.P. Henry Co., Woodbury, NJ | 33. Irvin's Conc. Prod. & Supply, Lafayette, IN | 56. Watkins Concrete Block, Omaha, NE | 75. Perma-Concrete, Moreno Valley, CA |
| 14. Capitol Conc. Co., (Glen Gery), Laurel, MD | 34. Hessit Works, Freedom, IN | 57. Capitol Concrete Prod. Inc., Topeka, KS | 76. Anchorage Sd. & Gr. Co., Anchorage, AK |
| 15. Balcon, Inc., Baltimore, MD | 35. Nashville Block Co., Nashville, TN | 58. Paverlock of Texas, Houston, TX | 77. Willamette-Graystone, Inc., Eugene, OR |
| 16. Tarmac-Lonestar, Inc., Prince George, VA | 36. Superock Block Co., Birmingham, AL | 59. Alamo Concrete Pavers, San Antonio, TX | 78. Kratzer Precast Supply, Penn Valley, CA |
| 17. Interlock Paving Systems, Hampton, VA | 37. SRM/Selma Inc./Con Pave, Selma, AL | 60. Yorkton Concrete Products Ltd., Yorkton, Sask. | 79. Muller Supply Co., Lodi, CA |
| 18. Goria Enterprises, Inc., Greensboro, NC | 38. Miller Precast Ltd., Thunder Bay, Ont. | 61. Cindercrete Products, Ltd., Regina, Sask. | 80. Pacific Interlocking Paving Stones, Cupertino, CA |
| 19. Hanover Architectural Products, Hanover, PA | 39. Wausau Tile, Wausau, WI | 62. Clafite, Inc., Denver, CO | 81. Airvol Block Company, San Luis Obispo, CA |
| 20. Nitterhouse Conc. Prod., Chambersburg, PA | 40. Fehr Concrete Products, Eau Claire, WI | | |
| | 41. Bend Industries, West Bend, WI | | |
| | 42. Paveloc Industries, Algonquin, IL | | |
| | 43. Rockford Cement Prod., Rockford, IL | | |

Distributor/Contractor/ Installer ALERT!

Technical Tips from Bob Lindstrom,
PAVE TECH's Manager of Paver Installation

Spikes . . . 10" or 12"? . . . Brite Steel or Galvanized?

Spikes used to anchor PAVE EDGE® edging into the compacted aggregate base are normally 10" x 3/8" diameter Brite Steel. Ten inches is more than ample length; using longer spikes, except perhaps in commercial pavement projects, will not appreciably increase the strength at your edge. (Spend the time and money on compaction instead!)

Size and type of spike however, can be influenced by:

- 1) Type of subgrade soil;
- 2) Proper base material: (3/4"-minus crushed aggregate);
- 3) Thickness of base material: (4" minimum for patios and sidewalks, 6" minimum for driveways in good, sand and gravel soil to 12" minimum in poor, heavy clay or peat soil); and

- 4) Quality of compaction: (95% Proctor density recommended).

When all four of the above have been satisfied, 10" x 3/8" spikes are more than adequate for use with PAVE EDGE® edging. These spikes will provide ample holding power for the edging for the design life of the pavement.

Because spikes used with PAVE EDGE® edging are buried, the oxidation process is slowed. However, in cases of extremely high alkali content (mixtures of soluble salts) in the soil, or in continuous high temperature and high moisture conditions, galvanized (zinc coated) spikes can be used to slow down corrosion, but we feel that this precaution actually helps very little.

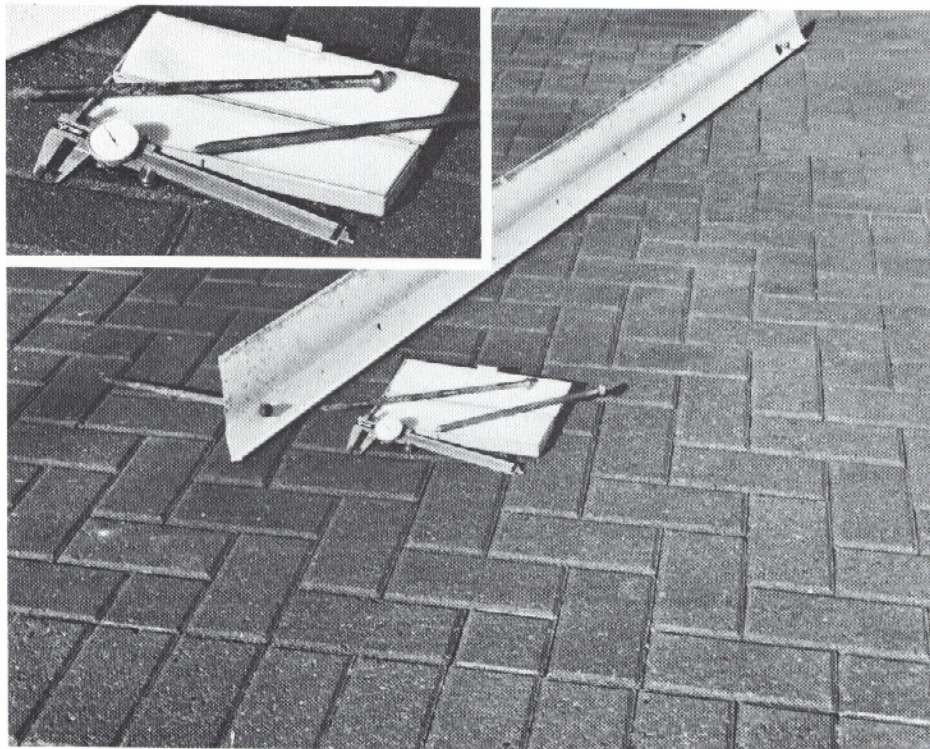
Brite Steel spikes sold separately by



PAVE TECH are American made, using American steel, by Keystone Steel & Wire Co. Either 10" or 12" long spikes are available, both having 3/8" diameter smooth shanks with flat heads and diamond points.

Remember, one spike must be used in every back support section of PAVE EDGE® Flexible edging. As a guide for Rigid edging, use one spike every 3 feet on patio/walkways, every 2 feet on driveways, and every 1 foot on commercial/industrial installations.

Important PAVE EDGE® edging fails under loading only if your base fails! Sorry guys, but if your edges still shift, you need to spend more time on base preparation. ▽



Test Result: This picture shows a piece of original PAVE EDGE® edging that was installed 2-1/2 years ago. It was removed to facilitate expansion of the original project. 12" x 3/8" Brite Steel spikes were hammered into a crushed limestone base that has retained moderate to high moisture content. Our own exacting measurements show a loss of section in the sample spike, after 2 1/2 years of only .0017 (less than 2/1000 of an inch. At this rate of corrosion, 3/8" diameter Brite Steel spikes would last approximately 275 years (and still be approximately 3/16" thick). This is based on the assumption that the spike would lose holding power when 50% of its section was lost! A detailed report on the corrosion rate of Brite Steel spikes will be covered in a PAVE TECH Product Information Sheet to be released soon!

PAVE TECH Exhibits at National Landscape Architect's Show Plans Set for Masonry Expo 90 and N.P.C.A. Shows



**Masonry Expo 90
CPI (Concrete Paver Institute)**
February 3-5, 1990, Phoenix, AZ

PAVE TECH invites you to visit BOOTH #1113, a 400-square-foot exhibit, where we will showcase our latest paving stone industry products, materials and services. MASONRY EXPO 1990 combines nine national masonry related associations (including CPI), for the first time, to form one gigantic industry-wide exposition!

**National Precast
Concrete Association (NPCA)**
March 17-19, 1990, Phoenix, AZ

Look for PAVE TECH in BOOTH #633. Our exhibit will feature a completely installed paving stone display, PAVE EDGE® edging, samples of increasingly popular LEXEL adhesives, cleaners and sealers for pavers offered in our new Paving Stone Protection Treatment Program and more!

American Society of Landscape Architects (ASLA)

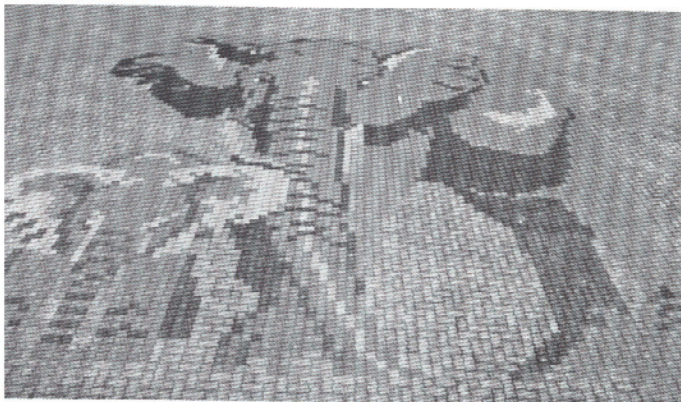
November 18-20, 1989, Orange County Convention Center, Orlando, Florida

This first appearance of PAVE TECH at the ASLA Annual Meeting and Educational Exhibit, said to have been the largest gathering of landscape architects anywhere, resulted in the successful introduction of PAVE EDGE® paver edge restraint system, LEXEL adhesive, and PAVE TECH's Paving Stone Protection Treatment Program to a large number of attendees. PAVE TECH had a 200-square-foot paving exhibit booth. Pavers were supplied by Paver Systems, Orlando, FL.

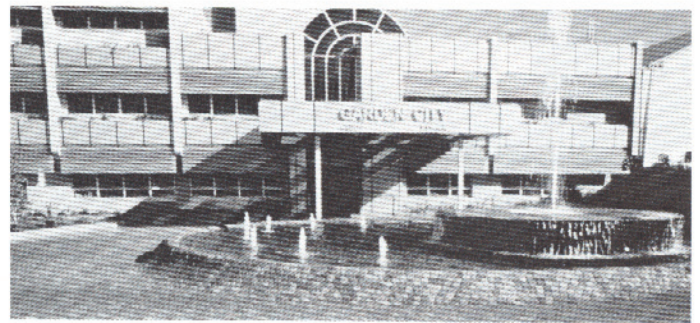
Artistry In Paving

Award winning paver installations in South Africa show what uniqueness in design and skillful craftsmanship can accomplish.

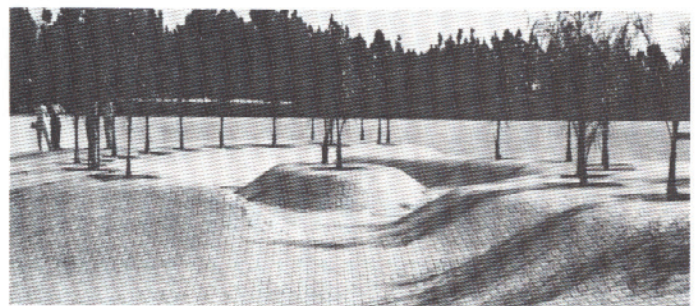
Reprinted with permission of John Lane, Director, CONCRETE MASONRY ASSOCIATION (CMA), Benmore, SA, are photos of three installations from a part of the world where creative application of interlocking paving stones is fairly commonplace.



JOHANNESBURG ZOO — Artistic Mosaics of various animals and birds, using various colored paving stones, laid to pattern in the main parking area, create exciting and interesting entrance areas to the zoo. Brightly colored yellow, green, red, orange, blue and white pavers contrast sharply with the more common pewter and tan pavers. S.A. Paving (Pty) Ltd. manufactured and placed these pavers.



GARDEN CITY CLINIC — A simple, yet dramatic transition of Cobble paving from the courtyard pavement to a sloping enclosure of fountains in front of the clinic, won this entry an Honor Award in CMA's Awards of Excellence program. Pavers were manufactured by Concor Paving Products (Pty) Ltd., and placed by Logic Paving Company.

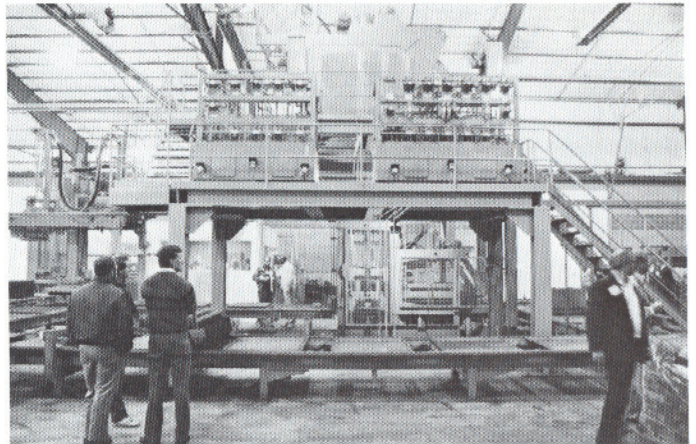


BRITS CROCODILE FARM — Interlocking pavers were used to solve the complex Brits Crocodile Farm dam problem. Approximately 16,000 square meters of paving stones were used to line the dam. The pavers were laid on 500 micron thick PVC sheeting under a 25mm sand bed. The farm will provide for five hundred crocodiles! Brickor Precast (Pty) Ltd. manufactured and placed these pavers.

New Borgert Paver Plant

Members of the National Precast Concrete Association who attended the NPCA Mid-Year Conference held in Minneapolis toured fellow member Borgert Products' new paver production plant during an open house held in their honor, October 2, 1989.

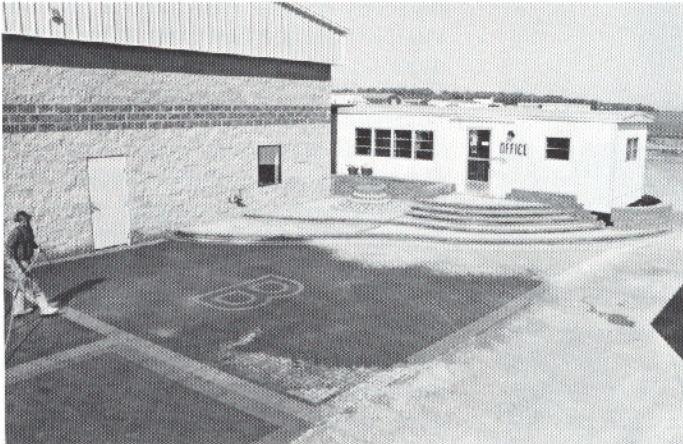
The new St. Joseph, MN facility houses a MASA paver machine that features an impressive (new to the US) vacuum unloading system. Barely into the first week of production, Borgert personnel impressed NPCA visitors with the consistent quality of paver product.



UPPER: NPCA Members inspect Borgert's new MASA machine on October 2nd. LOWER: Part of the Minnesota open house held on October 3rd by Borgerts.



to Borgert's new paver plant, which was constructed entirely of split face block. Besides a large letter "B" inset, the installation included a curved step entranceway, enclosure walls and a decorative paver "loadstool," all of which will greet future visitors to new company offices planned for future construction. The entire paving stone installation was cleaned and sealed by *PAVE TECH* to enhance colors and provide protection against staining.



Views of the paver installation and chemical treatment done by *PAVE TECH* at Borgerts.



A second open house was held by Borgert personnel the next day for its contractor customers, architects, associates and friends from the Minnesota paver market.

Prior to the open house celebrations, *PAVE TECH* installed several thousand square feet of pavers adjacent

PAVE TECH, INC.
ADVANCED PAVING TECHNOLOGY
P.O. Box 31126, Bloomington, MN 55431



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