

The **PAVE TECH EDGE**

ADVANCED PAVING TECHNOLOGY

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At Last, A Paving Stone Industry Association!!

The "Winds of Change" have picked up speed in the paving stone industry . . . and this time appear to be blowing in a new direction! In its wake lies the possibility of a rare and exciting opportunity for all of us in the industry.

Twenty years ago, when paving stone production in North America was in its infancy, the need for autonomy by those early paver pioneers was not a concern . . . they were busy with production and marketing problems of their own.

Today, the industry is no longer an infant. It has grown up, but like many an adolescent, appears to be saying, "It's time to better define purpose and direction; time to set specific goals and objectives." What we seem to be hearing on the part of several major paving stone executives is, "It's time

to unify the entire paving stone industry . . . manufacturers from Canada and the USA together, the large multi-plant companies and the small independent operators together, contractors and installers, associate and professional members included.

That's what is blowing-in-the-wind, and it makes a lot of sense to us . . . a single, strong, effective voice that speaks loud and clear for the paver industry first and foremost. The industry is big enough to stand on its own two feet now!

Thanks to the tireless efforts and skills of professional staffs at both NCMA and NPCA, the paving stone industry has been helped in its growth from infancy to adolescence tremendously. The fact remains however, that when the block and precast associ-

ations carry out their large scale national programs and projects, there are too many pieces that have to be cut out of the pie. Based on participating paver manufacturer members in these organizations, one of the smallest pieces always winds up on their plate. Two or more, separate efforts, often coming close to duplication, can never equal the effectiveness of a single industry-wide effort by a North American paving stone association. Recently, NCMA has voluntarily released its paving stone manufacturer members from restraint in their efforts to help structure a new paver organization.

Why would we encourage paver manufacturers in the USA and Canada to take a look and listen? Our answer
(Continued on page 7)

Compaction Equipment Round-Up

by **Stephen Jones, President, PAVE TECH, INC.**

PAVE TECH started as a paving stone installation Company, and still installs custom-designed residential driveways. This allows the company to keep abreast of new equipment technology developed for the paver installation industry. The following article is a round-up of PAVE TECH'S experiences with its own compaction equipment over the past few years.

The very first thing I learned about paving stones was that in order for the project to last, proper installation was critical. Probably the most critical part of an installation is proper selection of base materials (crushed aggregate) and sufficient compaction of those materials. Please refer to CASE Equipment Company's excellent publication "Understanding Soil Compaction" for those terms you are not familiar with. Compaction of soils is measured by what is referred to as standard PROCTOR or Modified PROCTOR soil tests. An acceptable Proctor density on base materials for a paving stone installation

should exceed 95 Proctor or better. Achieving this is no easy task as some of you already know.

It is important to maintain proper moisture content in your base material during the compaction process, and this means not just the surface, but throughout its entirety. This level of moisture is dependent upon the type of crushed aggregate base material you are using. For example, in 100 tons of clean limestone aggregate base material, this can vary from 0 Gallons (if local weather has added moisture recently) to as much as 1000 gallons if you've had hot weather and no rain.

The only way we've successfully worked it out is by trial and error. If you've added too much water, your compactor will bog down and you'll have to wait until it partially dries out; if you have added enough water, it is a little more difficult to tell. One simple field method is to see if the material will ball up in your hand without being sloppy.

One thing to remember is that the specifications many compaction equipment manufacturers put out should be taken with a grain of salt. For example, reference to "maximum lift" (depth of each lift of soil you can properly compact to 95+ Proctor) does not mean that just one or two passes will be required on each lift. Some machines work better than others in different soil conditions; I would recommend that you try more than one brand of equipment to see for yourself.

Pave Tech's compaction equipment inventory is quite diversified compared

(Continued on page 8)

It's all in the Mix Design...

Interlocking concrete pavers are becoming an important product in the North American concrete products market. While relatively new to this market, concrete pavers have been widely produced and used in Europe for decades, providing a strong experiential background for American producers to draw upon. Bob Ilukowicz, who is a civil engineer and president of Concrete Accessories Inc. (Port Jefferson, NY), has personal and corporate experience with European manufacturing technology in the area of interlocking pavers and chemical admixtures which improve both the quality and profitability of interlocking concrete pavers.

by Bob Ilukowicz
President, Concrete Accessories Inc.

Interlocking concrete pavers are rapidly becoming more popular among manufacturers and consumers alike. As acceptance and use of these products grow, end users will naturally become more and more concerned with the quality, appearance and cost of your product. Raw materials, gradations of sand and aggregate, concrete mix design and chemical admixtures are all important elements to the success of this product in your market.

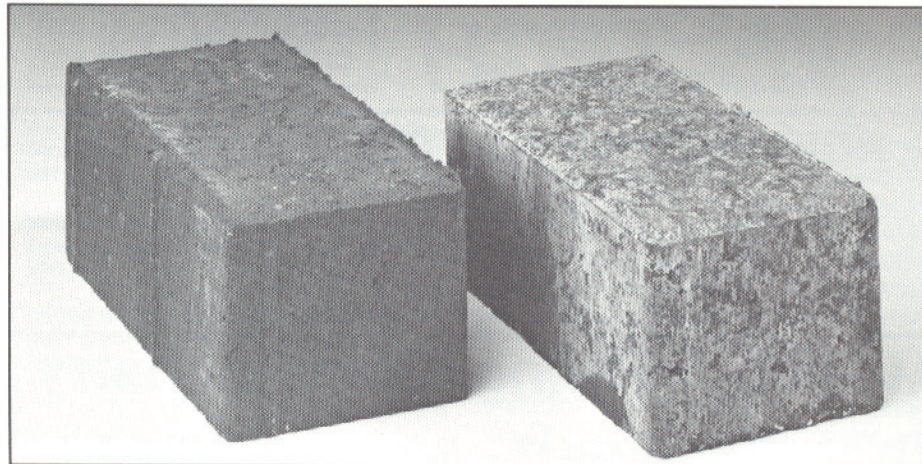
Let's evaluate and solve some of the more important problems that you may encounter in production.

Efflorescence

A common and very undesirable characteristic of concrete pavers is efflorescence, which appears as a white powder on the surface of the finished product. Efflorescence can in some cases disrupt the surface by expansion within the surface pores. Fortunately, efflorescence can be reduced to acceptable levels by various means, some of which provide more consistent and more efficient results than others.

Efflorescence is the dry residue of soluble salts contained within the finished paver. These salts continue to be dissolved by moisture, and are transported towards the surface by evaporation or hydrostatic pressure. Evaporation will continue to take place, leaving salt as an unwanted visible deposit.

In theory, efflorescence would not occur if salt or moisture could be eliminated from the process. In practice, however, this is difficult to achieve because the salts that cause efflorescence are found not only in the sand and the aggregate, but also in the cement and water.



Specialty chemical admixtures such as **PAVERMIX®** and **PAVERMIX EXTRA®** can minimize unsightly efflorescence, while producing a higher quality paver that costs less to produce.

However much care you may take to select the proper sand and aggregate components, the cement may still contain enough salts to ruin the appearance of your finished pavers. The problem of efflorescence can be controlled by minimizing the volume of cement and water used in the mixture.

It has been demonstrated that low water absorption is the best assurance against efflorescence. When made with properly graded aggregates, an adequate cement content, a low water/cement ratio, and thorough curing, the concrete paver will have maximum water permeability. Consequently, the upward capillary movement that brings these salts to the surface will be severely restricted.

What this means is that efflorescence can be greatly reduced by compacting the surface, which serves to constrict the capillary tubes, and this can be achieved by proper mix design, including chemical admixtures specifically designed for semi-dry concrete.

Proper Mix Design

The goal of a proper mix design is to achieve required compressive strength and durability in the hardened state, while retaining adequate workability and cohesiveness in the plastic state. A proper mix design can also help to assure a consistent, visually appealing end product which is more profitable to produce. To design such a mix, however, a natural conflict between strength and workability must be resolved.

Compressive strength and durability are directly related to water/cement ratio. While strength can be increased by reducing water content, decreasing the water content will also reduce the workability of the mix. It also should be noted that increasing the cement content will not always result in an increase of the compressive strength.

Durability also depends on a fully compacted concrete, while workability, again, depends on the water/cement ratio as well as the shape, texture, maximum and minimum particle size, and particle distribution of the aggregate.

Finally, cohesiveness is required to prevent the mix from falling apart, and to reduce the possibility of segregation of fine and coarse particles during handling. Cohesiveness is adversely affected by inadequate water content and the presence of rough or angular aggregate particles.

Optimum levels of cohesiveness, compressive strength, durability and workability can be achieved through the use of specialty chemical admixtures, such as **PAVERMIX®** and **PAVERMIX EXTRA®**, which are designed specifically for semi-dry concretes.

Water content in the mix design is usually insufficient to fully hydrate the cement. Consequently, it is generally inappropriate to add cement for two reasons. Additional cement has the effect of lowering the workability and, because of the lack of water in the paver manufacturing process, the cement acts as a filler after a certain point and can actually reduce strength. An admixture designed specifically for semi-dry concrete will enable the producer to reduce cement and still achieve the desired workability characteristics as well as the necessary strength.

The effects of the specialty paver admixture can easily be optimized by inspecting the fine and coarse aggregate in terms of sieve analysis, since curves are available to select the best mix designs related to these aggregate gradations.

In summary, experience has proven that the addition of certain specialty admixtures will produce a higher quality paver at the same time that it reduces overall production costs.

Public Interest in Paving Stones Soars!

"For a while there, the phones never stopped ringing!" Dale Sopkowiak, *PAVE TECH* Operations Manager, reported! He was referring to the over 700 phone calls, plus numerous letters of inquiry received at *PAVE TECH* as a result of an article on paving stone patios that appeared in the June 1989 issue of *THE FAMILY HANDYMAN*.

PAVE EDGE® edging was used in several of the 4-color illustrations that covered all aspects of building a 12'x16' paving stone patio, from initial planning to finished project.

Listed in the article as a source for additional information, *PAVE TECH* was overwhelmed by calls from home owners planning a patio, do-it-yourselfers, nurseries and garden centers; even several paving stone installers and contractors. "Calls were heavy from New York, Illinois, Texas, Florida, California and Ohio," Dale said. "We referred all inquiries to paving stone manufacturers, either

mentioned as the caller's intended source of materials, or the nearest *PAVE EDGE*® distributor."

Dale commented, "What was especially pleasing about the calls was the interest level of callers. Most were already sold on interlocking pavers... they just wanted to know more about the edging and where to buy it."

Reader response created by this 4-page article, which was titled "Build Yourself a Patio," supports paver industry observation of booming paving stone sales to the home market, both contractor installed and do-it-yourself-er. ▽



Four-color reprints of *THE FAMILY HANDYMAN* article are available from *PAVE TECH*. Single copies for readers of *THE EDGE* are free!

NPCA "On the Track to '90"

- Mid-Year Conference to be Held in Minneapolis . . .
- Tour of New Borgert Paver Plant Scheduled!

The National Precast Concrete Association is urging members to "Jump on the track to 1990" by attending its Mid-Year Conference September 29th to October 3rd at the Hyatt Regency Hotel, Minneapolis. Down the line is a milestone in NPCA's history . . . the Association's celebration of its 25th anniversary next year!

At its 1990 Annual Convention and Precast Concrete Industries Exposition, March 20-25 in Phoenix, AZ, NPCA will host special business and social events to commemorate its quarter century of service to the precast industry.

Planning for this 25th "Birthday Party" will be a major activity at the Minneapolis gathering, along with regular Board and Committee meetings. When you visit the Twin Cities, however, it's never all work and no play, for the Twin Cities is well known as a cultural and recreational hub for the entire Upper Midwest.

There are over 1,000 lakes in the greater metropolitan area alone! Add dozens of tree-lined parks, parkways and golf courses, 90 repertory and dinner theatres, 130 art galleries, 20 music companies, 15 museums plus professional baseball, basketball, football and hockey teams; even throw in a new thoroughbred horse racing track and you have an idea that the

Twin Cities has something for everybody. Don't forget shopping and restaurants to suit all tastes and, finally, there's great fall fishing in nearby lakes!

New Paver Manufacturing Plant Tour Scheduled!

NPCA member Borgert Products, Inc. of St. Joseph, MN, will be hosting a plant tour for all interested Conference attendees on Monday morning, October 2nd. (Details will be published in Conference attendees registration package.)

The St. Joseph plant is a pleasant and scenic 45-minute chartered bus ride from the Twin Cities. The all new production plant, built from footings on up, and featuring a MASA, TYPE 9000 VB machine, will be in its first few months of production for the Borgert family. MASCHINENFABRIK Company, and their new midwest manufacturers agent, HydroTile of Nashua, IA, will be on hand to help guide the tour and to answer questions. Food and refreshments will also be on hand for all guests. SEE YOU THERE! ▽

The **PAVE TECH EDGE**

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Tom Eggen, *Editor*

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GOOD TECHNIQUES FOR PIGMENTING PAVERS

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

PART I

Over 90% of concrete pavers in North America are pigmented. This strongly underscores color as an important manufacturing variable in this paving medium.

This article is designed to acquaint you with the features and characteristics of pigments and their usage in the concrete masonry production process. Our goal is to help you produce a color consistent product through the use of good techniques for pigmenting concrete pavers.

There are many variables that affect color in concrete; raw materials, process conditions, curing methods and weathering. Part I of this article is focused on the color impact of raw materials variations.

PIGMENTS

In examining Pigments the American Society for Testing and Materials (ASTM) has identified four criteria for determining the acceptability of pigments for use in integrally colored concrete units. Specification C-979-82 lists:

1. **Water Wettability** — A pigment used to integrally color concrete should be easily wetted by water so that it will disperse uniformly in the mix and it will not leach out of the concrete upon weathering.
2. **Alkali Resistance** — A pigment treated with alkali, for example, sodium hydroxide, shall not show any significant change of color.
3. **Curing Stability** — The color of the pigment shall not change severely when the colored concrete is cured in a high relative humidity atmosphere.
4. **Lightfastness** — The portion of the specimen under test shall show no significant difference in color, after being exposed to light, from the portion not exposed when tested.

In performing these tests, ASTM approved synthetic and natural iron oxides, chromium oxide green, cobalt blue, and carbon black (concrete grade).



Of course, iron oxides are the predominant pigment in the concrete industry because they are inexpensive, durable, available, and are of a natural earth tone which is generally seen as pleasing in all concrete products.

In classifying iron oxides we find a substantial difference between synthetics and naturals as shown below.

The difference in appearance of these pigments as dry powders is almost negligible. Yet in examining the color properties of a pigment, the tint characteristics are the area of primary interest for concrete applications. The tint property is the shade resulting when a small quantity of pigment is added to a white or gray material, such as cement. Synthetic iron oxides have far greater tinting strength than natural iron oxides primarily because of their smaller particle size and the subsequent greater available reflective area.

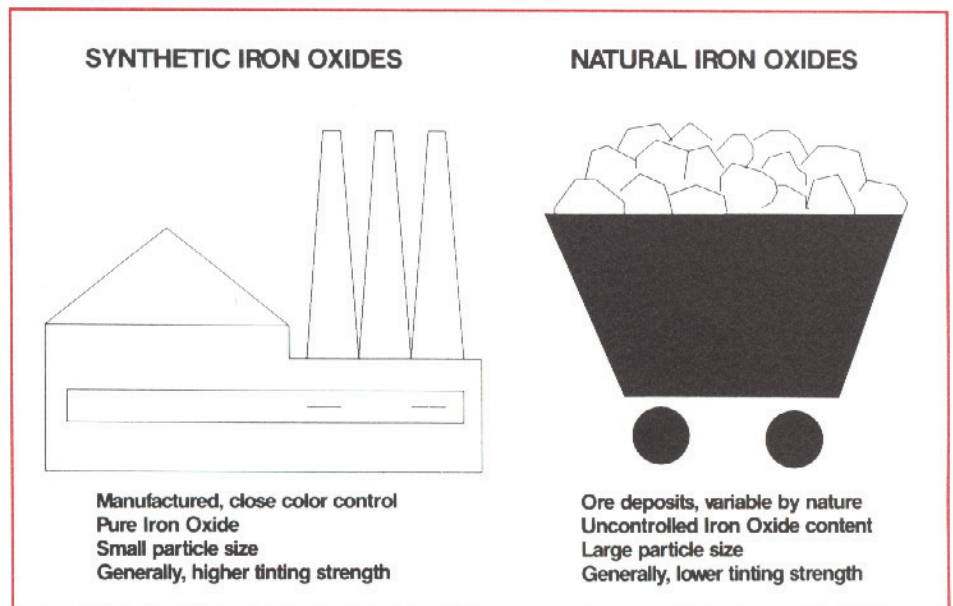
The answer as to the exact shade and quantity of pigment to be used to produce a particular color in concrete

can be determined only by experiment. Most approved pigments may be used safely in amounts up to 10% by weight of the cement. In general, with gray cement, three to seven pounds of pigment per bag of cement will produce warm, bright shades. More delicate, light shades can be produced with one to three pounds of pigment. The use of white cement and light aggregate will impart a cleaner brighter color to your concrete product.

There is also a level of pigment saturation which generally occurs between the 8 to 10 pounds of pigment per bag of cement. At the point of saturation, any additional pigment provides very little increased color intensity.

CEMENTS

In the concrete masonry industry, the cements normally used are grey or buff in color, and are satisfactory for colored concrete products. For maximum brightness, particularly in the light pastel shades, white cement should be used. In general, the lighter the cement color shade, the brighter and cleaner the color result. Thus to keep the color of pavers uniform, the paver producer should not change brand or type of cements midway through a project. In addition, it is a good procedure for the paver manufacturer to keep samples of the cements they purchase and develop a range of shades that are acceptable in the colored paver line they produced. With such a scale, the delivery of cement can be checked for its shade to determine if it is acceptable before it is used in the production of pavers.





Cement Color Shade

AGGREGATES

Aggregates comprise the largest portion of a concrete mix thereby contributing greatly to the final color result of concrete pavers. In general, there are two grades of aggregates in a concrete product:

1. Coarse, consisting of gravel, crushed stone, pumice, expanded shale, slag or limestone.
2. Fine, consisting of silica sand, rock dust or manufactured stone sand.

Both should be free of dust, organic matter, and soluble salts. Dust and organic matter content can change the texture of concrete, its surface and the resultant color. Soluble salts can migrate to the surface with water and be deposited there as a white bloom. In obtaining washed aggregates you can avoid most of these materials. As with cements, it is also recommended that aggregates be checked for their color and an acceptable aggregate color range be developed for manufacturing pigmented pavers.

Overall, these important factors help in selecting the raw materials necessary for manufacturing quality pigmented concrete pavers. In choosing a source for raw materials, care should be exercised so that a good product is the end result. Price alone cannot accurately determine suitability. Testing by approved methods is the only real basis for evaluation. Look to the following ASTM specifications for guidance:

Color: C-979
Cement: C-150
Aggregate: C-33

In the next issue of *THE PAVE TECH EDGE*, Part II of this article will address processing, curing and weathering. As you can expect, the appearance of concrete pavers is greatly influenced by the controls and conditions in your plant and the climatic environment throughout your distribution area. ▽



Distributor Seminars . . .

A great educational and sales promotion tool for *PAVE TECH* distributors!

A paving stone installation seminar, held at your plant, office or nearby site, sponsored by you and conducted jointly with *PAVE TECH* personnel, will harvest these benefits for your firm:

1. A reception of local architects, landscapers, public officials, paving stone contractors, installers, etc. at your place of business, mixing with your personnel and seeing your line of paver products.
2. Acknowledgement by all invited (even if they cannot attend) of your company's interest and support in upgrading the quality of professional paving stone installation.
3. An opportunity to distribute not only your latest product information directly into guests hands, but to include invaluable data supplied by *PAVE TECH*, on subjects such as:

proper base preparation, compaction and soils, tools and equipment recommended for installers, how to care for and keep paving stone projects looking new, etc. . . .

4. Appreciation by your guests of the opportunity to see close-up the various stages of proper base preparation, edging and bedding sand placement, paver laying and finishing techniques to assure a high quality job. . .
5. Greater awareness of your firm by those people who specify pavers and greater sales to those companies and individuals who install them.

Your support and your participation are **vital** to the success of these seminars, but if you're interested in receiving these five benefits (and more) contact the *PAVE TECH* office for more details. ▽



The Municipal Market Place . . .
Virtually Untouched by Paver Manufacturers.

Pavers Help Revitalize Downtown Shopping Districts

An article by Charles H. Gamarekian, President of Grinnell Concrete Pavingstones, Inc., Sparta, NJ paver manufacturer. Gamarekian relates his experiences with how the municipal market-



Charles Gamarekian

place is getting major attention by both State and Federal governments in an effort to bring shoppers back to downtown America.

One of the major by-products of New Jersey's mobile society has been the almost unbridled growth of the suburban shopping center. Shopping in today's ultra modern malls has become just as much a family excursion as a day trip to any other tourist attraction. Unfortunately, to a growing number of municipalities, downtown shopping districts are becoming ghost towns. Everything from small towns to large cities are finding it more and more difficult to attract the buying public. Stores are either joining the exodus to the shopping centers, or are going out of business.

An increasing number of townships throughout New Jersey are beginning to fight back, and one of the important ways in which they're doing this is by tearing up old, cracking sidewalks, driveways, parking lots, and to some extent even streets, and repaving those areas with decorative interlocking concrete paving stones. The objective: to create a more intimate, visually compelling, "Old Town" look, which would attract new business and ultimately bring people back into the shopping district.

When asked why they used pavers, town engineers and landscape designers seem unanimous in their response. Concrete paving stones added an aesthetic dimension and design flexibility no other paving system can offer.

The states' largest manufacturer and distributor of concrete paving stones is **Grinnell Concrete Pavingstones** of Sparta, who has supplied and installed over 300,000 square feet of pavers to various municipalities around the state.

The case of Wildwood, NJ typifies the kind of problem from which many towns suffer. Residents, and in the case of Wildwood, tourists just weren't shopping in town. The loss of business

had become a vital concern to town officials.

One of Wildwood's leading business persons, Joe Salerno, decided to do something about the problem. Joe, who owns the Imperial 500 Hotel in town, is also a local contractor. About two years ago, he had installed decorative interlocking paving stones in his father's driveway. He was so impressed with the look of the product, he decided to bring up the subject of paving stones and how they could help in the town's revitalization plans.

With the help of Ed Lauriello, the owner of Garfield's Pub in Wildwood, and then council president, Ed Herman, a plan was devised wherein all the merchants on the town's major thoroughfare, Pacific Avenue, would agree to a tax reassessment. The money collected would pay for the avenue's upgrading. The strategy was to try and recapture Wildwood's glory days of the 1920's and 30's, when the municipality was known as Holly Beach. Back then, Holly Beach was a major tourist spot. In the 1940's, Mario Lanza was a conductor on one of the trolleys on Pacific Avenue.

The revitalization plan called for closing Pacific Avenue to vehicular

traffic and making the street, a pedestrian mall, replete with small shops and sidewalk cafes. In addition to trees and new facades on the buildings, the major design component of the plan was the installation of decorative interlocking paving stones along the entire eight block area. The pavers, with their cobblestone look, tied all the design elements together and were the single most important element in creating the desired nostalgic look.

Grinnell supplied over 120,000 square feet of paving stones to the project. The Wildwood renovation represents the largest mechanized paving installation in the United States. With one person operating the machine and another directing traffic, 5,000 square feet of pavers were set down in one day. The normal method of installation is manual, where typically four men by hand, can set 1,000 square feet per day. The mechanized operation can lower labor costs significantly simply because it reduces the time to complete the job. What took the mechanized installation in Wildwood two to three weeks to finish, would have taken several months if done manually.

Joe Salerno expects the finishing touches to the Pacific Avenue project to be completed this year, but he's so impressed with paving stones, he is already making plans to have Route 47 leading into Wildwood repaved with decorative interlocking paving stones.

While most of the municipal installations to date have been pedestrian walkways and parking lots, concrete paving stones are also an ideal roadway system. They have a proven track record of sustaining loads of 120,000 pounds. They can withstand freeze/thaw cycles and are not phased by snow plowing; pot holes will be a thing of the past. The tremendous durability of the product can save municipalities a great deal of money each year by cutting down on roadway repairs. Concrete paving stones exceed ASTM specifications and have a minimum compressive strength of 8,000 pounds per square inch. They also absorb less than five percent of their own weight in water.

Repairing underground utilities is another ongoing concern for city officials, and concrete paving stones provide a solution to that problem as well. Because pavers are set in sand and not mortar, they can be lifted easily and provide quick access to the utilities below. Once the utility is



Wildwood, NJ — Revitalization Project



repaired, the stones can simply be reset. There are no ugly patch marks, as there would be with poured concrete or asphalt.

While practicality, durability and cost effectiveness are legitimate reasons for municipalities to turn to pavers, town engineers always cite aesthetics as the number one reason for using the product.

The Township of Garden City in Long Island is somewhat different than most with its revitalization plans, in that its shopping district was already thriving. The facelift was done for purely aesthetic reasons. The cracking concrete sidewalks, which had given the town a rundown look were replaced by Grinnell Pavingstones over the entire eight block shopping district located on Seven Street. Trees and park benches were also added. Recently, the National Concrete Masonry Association cited Grinnell for its work in Garden City.

In Nutley, 40,000 square feet, covering five city blocks along the major shopping area, Franklin Avenue, have been paved to date. According to one of the town's engineers, Bob Springer, the project is ongoing and the reasons for specifying pavers is obvious. "We like the way they look; they really enhance the area." As with Wildwood,

the major purpose for pushing Pavingstones was to rehabilitate a downtown shopping area. Nutley had received a grant from the state to help revitalize the main avenue. According to Springer, "The business people are really happy with the results."

John Carney of Lee Associates of Washington Township, echoes Springer's sentiments. His firm used concrete paving stones to upgrade the shopping district in Frenchtown. Similarly to Nutley, Frenchtown received matching grants from the state to upgrade the shopping area. Town officials wanted an "Old Town" look and pavers were the perfect answer. According to Carney, "We used pavers primarily for ornamental reasons. They gave us the look we were striving for."

The same feelings are stated by town engineers throughout the state. Decorative interlocking paving stones, unlike any other paving system, add an aesthetic look that calls attention to itself in a highly positive and compelling way. They add a visual vibrancy and a design element that unifies an entire area. Town officials around the state believe decorative interlocking paving stones can be a major influence in revitalizing shopping districts and bring business back to their communities. ▽

PAVING STONE INDUSTRY

(continued from page 1)

includes reasons too numerous to list in this limited space, but we have outlined some of them below.

An industry-wide association dedicated to paving stone manufacturers, contractors, installers and associate industry members would provide:

- A single-purpose, strong-minded voice, representing paver interests in Washington, DC, or any other political arena where industry action is needed.
- A working relationship with Code and Standard's Bureaus, Federal and State Agencies, ASTM, etc.
- A source of information (technical bulletins, newsletters, etc.) regarding pavers and paver installation for architects, professional landscapers, spec writers & installers.
- A unified, more effective marketing program designed to sell more pavers; to expand into new markets and to increase share of markets already penetrated. Market research to support these efforts.
- Seminars, schools and meetings that provide educational opportunities to top management, plant managers, salesmen, etc. to help run the business more efficiently, more profitably.
- Research, development and testing of raw materials, finished products, paver production methods, paver installation procedures, etc.

These are only a few of the reasons why we believe that every paving stone manufacturer in North America should join this new Association that will be dedicated to serving the interests of the paving stone industry alone, rather than several special interest groups. Each company's own self-interest demands it!

An organizational meeting for all paver manufacturing companies in the USA and Canada, including all associate and professional members whose livelihood depends either wholly or partially on the paver industry, has been called!

WHERE? WASHINGTON, DC

WHEN? SEPTEMBER 11th

DETAILS WILL BE SENT TO ALL DEDICATED PAVING STONE MANUFACTURERS. IF YOU DO NOT RECEIVE THIS INFORMATION, PLEASE CONTACT DAVID SMITH AT NCMA IMMEDIATELY! 701-435-4900. ▽



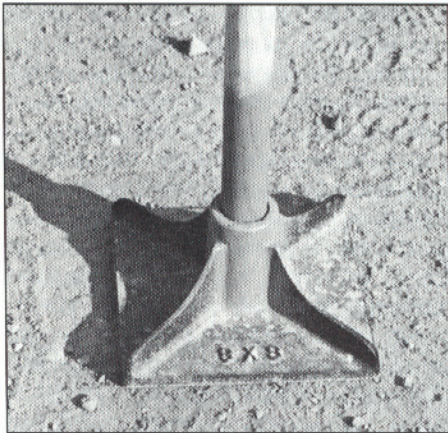
Maplewood, NJ — Paving Stone Sidewalk

ROUND-UP

(continued from page 1)

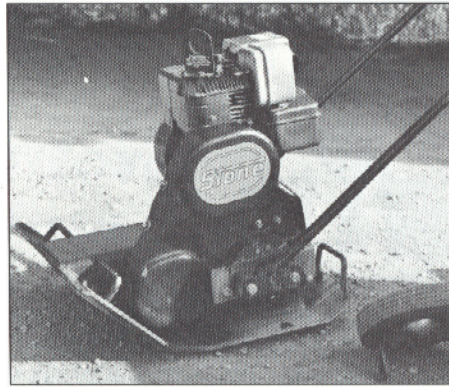
to a few years ago. When I first started installing pavers, and after having talked to "everyone" as to what was needed, the response was almost universally "a plate compactor with enough force". Well, that left only a few hundred to choose from. I also had difficulty in finding a precise answer on how much "force" was enough. Like most contractors, I too have had an unswerving loyalty to those choices in equipment I have made, whether or not it was the best choice. We have found in the last few years, that in order to efficiently compact sub-grade, sub-base, and base materials, we must look at larger, more powerful compaction machines.

What I will talk about here is the equipment that we use on our own crew, for what purposes we use it, and the benefits and limitations of each. You may think that these machines are too expensive to buy; remember that rental units are readily available from local dealers. We will list the manufacturers of the products that we use at the end of this article. Also, there are many more fine compaction equipment manufacturers out there, but our purpose here is to talk about what we know and have had experience with.



Our first purchase: Hand Tamper, 8"x8" — 12 lb.

USAGE: Typically, we overlook the most basic equipment. Having an 8"x8" tamping head for extremely tight areas is an absolute. Not only can you reach those tight places, but you might not have to test how good your liability insurance coverage is with chipped face brick, or broken front steps and garage floors. Yes, I know we've all done it and usually the customer understands, but what if????



STONE Model S-50 Plate Compactor.

Specs: 5 hp, 5000 lbs centrifugal force, Operating weight: 220 lbs, Plate size: 21"x24". **Note:** Do not order this unit with a 5hp Briggs I/C engine because new carburetor design in 1988 makes it unacceptable for heavy compaction usage. Instead, order with Honda 5hp.

USAGE: The design of this plate compactor, and the force it applies, makes this probably the most attractive and versatile machine for a one machine company. Because of its unique design, it is excellent for tamping up steep grades (ie: base built up above surrounding grade). It packs enough punch to compact small areas (sidewalks, patios, etc.) and can still be used to set pavers. Transport wheels make it a snap to move around; don't leave home without them.



Case Model 1300 Plate Compactor.

Specs: 5 hp, 3970 lbs Force, Weight: 209 lbs. **Note:** Protective roll cage and transport wheels are a must if you want your machine, and your machine operator, to make it through the season. For those of you who already have this machine, you'll be pleased to know that the manufacturer has beefed up the steel in the handle considerably.

USAGE: We really like this machine for one basic task and that is to tamp pavers. Because of the large plate

contact area, it excels at setting the pavers and vibrating the sand into the joints without making ridges or ruts. Occasionally we will use it to tamp a scuffed up area of the base, if it doesn't exceed 1"-1½". We like the Honda engine for its smooth, reliable operation.



Case Model 70B Vibratory Roller.

Specs: 8.5 hp Diesel, Weight: 1587 lbs, Compaction force: 4500 lb, Drum width: 25½", Hydrostatic drive, Flush tamping on one side.

USAGE: Excellent unit for base compaction on areas up to driveway size. It can properly compact lifts up to 6" (depending on material). Also, by using a roller, you make your finish grading much easier. This unit can also help consolidate sub-grade material as long as it is not a cohesive soil, such as clay. This type of compaction unit is **NOT** to be used for tamping the actual pavers!!! We must admit that we like the almost maintenance free aspect of the model 70B.

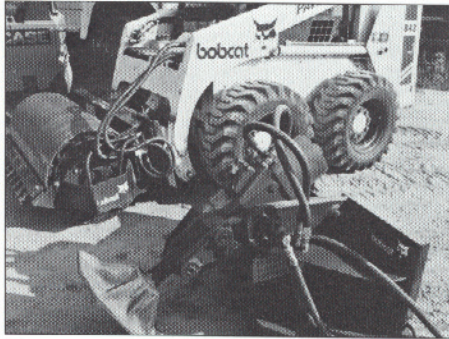


Case Model 252 Vibratory Roller.

Specs: 34 hp Diesel, Weight: 5512 lbs, Compaction force: 6744 lbs/per drum, Drum width: 39.4", pressurized water system, Articulated steering, Hydrostatic drive.

USAGE: We have found the Case 252 to be a superb unit, far outclassing some units many times its size. It works extremely well in sub-grade consoli-

ation. The 252 has repeatedly compacted base material on our jobs to a point where even our pneumatic hammers have great difficulty driving in PAVE EDGE spikes. With this unit we know we can sleep at night. If you are only occasionally doing driveway size work, this unit is still a must. You could find it available for daily or weekly rental, and it fits nicely on a Bobcat trailer.



Model 2500 2-Position Hydraulic Breaker (With tamping pad).

Specs: We do not have any real technical data.

USAGE: The only word that describes the force from this thing is AWESOME!! When attached to a Model 843 Bobcat, this unit effectively compacts areas like utility trench lines, foundation backfills, sink holes, etc. We affectionately call it the "FOOT". This unit also works well tamping along a built up edge area where the base is temporarily exposed. The Breaker unit itself sells for around \$6000 and the tamping pad for about \$1200. Expensive! Yes; Impressive performance? Definitely!!



Mike Fitzgerald (left) of Melroe and Bob Lindstrom, PAVE TECH, INC.

Model: Melroe Vibratory Roller.

Specs: Fits either Model 743 or 843 loaders; the specs we quote here will be for the 843. Roller width: 54¼", Drum width: 48", Compaction force: (Continued on page 12)

More than 50 Years of Case Compaction!

by Udo Boersch, Case Company's
Western North American Compaction Expert

It is just over fifty years since the name Case (Vibromax) first appeared in the marketplace. But the history of the company goes back over a century to 1880 when a gentleman named Josef Losenhausen founded a workshop on Schluker Street in Dusseldorf, West Germany.

Losenhausen had a keen eye for new inventions and their market potential. Thanks to his far-sightedness the company became involved at the turn of the century with the then virtually unknown field of vibration technology. Developments at the factory found that tipped materials could, by means of special vibratory equipment, be tightly compacted.

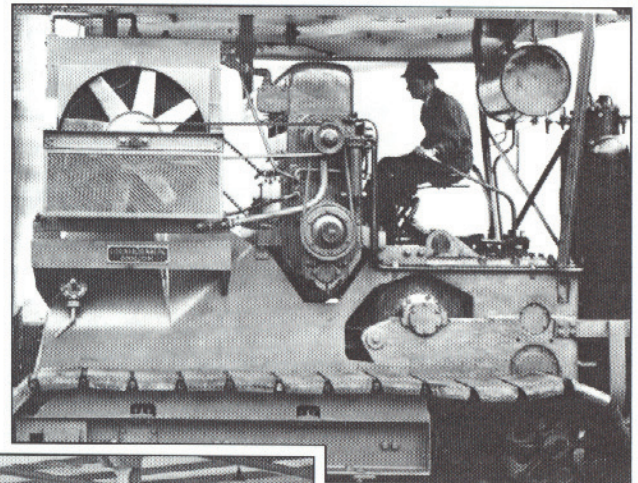
These new discoveries soon led to the development of the first slab tamper, which, with use and experimentation, evolved in 1934 into the world's first vibratory compaction machine.

Nicknamed "Earthquakers" by the construction industry with its 1,500 vibrations per minute, the new compaction machine nonetheless revolu-

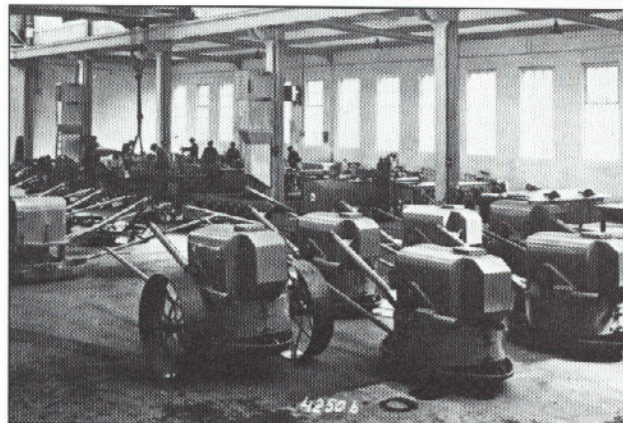
tionized earthworks and road construction. Today the name Case (Vibromax) is known worldwide for building highways, airfields, dams and any other project, great or small, that requires a stable foundation or a smooth level surface. In fact almost 90% of the machines produced by Case in their West German plant are today exported all over the world.

Computer controlled machinery at the company's modern plant builds compaction equipment, ranging from small 127 pound tampers to 20-metric ton rollers, to the highest quality and standards.

In today's market, more than 200 Case dealers in the USA sell and support Case compaction. To be competitive today, compaction equipment performance is guided by phrases such as "cost effective," efficient, durable or job-matched. Case technical leadership and foresight have been built around these needs for several decades. As a result, Case compaction equipment owners have long reaped the bottom line benefits from the demands which Case, as an innovator and manufacturer, has placed upon itself.



First vibratory compactor in the industry — introduced in 1934.



Case compaction plates in the "early days."

New **PAVE EDGE**® Distributors:

... **L.E. Shaw, Ltd., Lantz, Nova Scotia** — P.O. Box 2130; phone: 902/883-2201. New Atlantic Province Distributor placed large order for edging and paver protection cleaners and sealers. Bert Frizzell is General Sales Manager. Other key paver personnel include Bruce Bergman, Sales Manager-Brick and Pavers; Dave MacDougal, Sales; Fred Baltzer, Superintendent, Lantz Concrete Plant; Elaine Davis, Inside Sales; and Charles Widgery, Purchasing Agent.

... **Goria Enterprises, Greensboro, North Carolina** — P.O. Box 14489, 108 Buchanan Church Road; phone: 919/375-5821. Pete Goria, President of Goria is the first **PAVE EDGE**® distributor in the Carolinas, where a very active paver market is developing. Mike Sears is Sales Manager.

... **Grandview Block & Supply Company, Schenectady, New York** — 1705 Hamburg Street; phone: 518/374-1909. Grandview is East Central New York's second **PAVE EDGE**® distributor. Frank and Til Salamone recently placed their first order for the edging and report paver business is doing well.

... **Unilock Buffalo, Inc., Buffalo, New York** — 510 Smith Street; phone: 716/822-6074. Unilock Buffalo, located on the Eastern shore of Lake Erie, is now distributing **PAVE EDGE**® under the sales leadership of General Manager David McIntyre. Cindy Draper, Chuck Lawson and Gil Knapp are Unilock sales representatives.

... **Unilock Ltd. (Canada), Mississauga, Ontario** — Airway Center Building #2, 5915 Airport Road, Suite 520; phone: 416/453-1438. Situated within the greater Toronto area are the facilities of Unilock Ltd., a new **PAVE EDGE**® distributor who is an active marketing and sales promotion paver manufacturer.

... **Unilock Michigan, Inc., Brighton, Michigan** — P.O. Box 1270, 12591 Emerson Drive; phone: 313/437-7037. Another Unilock company in the Great Lakes area is this new facility at Brighton. Rick Harkley, Assistant General Manager, has already pinpointed promotional mailings to several dozen local architects and installers.

... **Shiely Masonry Products, Maple Grove, Minnesota** — 6705 Wedgewood Court; phone: 612/420-7100. A new **PAVE EDGE**® distributor in the Twin Cities is Shiely, a large producer of masonry materials with plants in the suburbs of Maple Grove and Lakeville. Bill McGraine, General Manager, Kurt Trump, Marketing Manager, and a large paver sales force are all extremely active paving stone pro-moters. Welcome neighbors!

... **Fergus Concrete Products, Fergus Falls, Minnesota** — 201 Peck Street; phone: 218/739-3344. Located near the North Dakota border, this busy paving stone manufacturing plant is owned by Jim Lampy and managed by Ron Rockvov. Efforts by these two men have influenced the use of interlocking pavers in several large shopping and commercial projects in western Minnesota.

... **Nattinger Materials Company, Springfield, Missouri** — P.O. Box 4007, 1650 E. Atlantic Street; phone: 417/869-2596. Chris Nattinger, President, began stocking **PAVE EDGE**® in early May, becoming the third paver manufacture in the "show me" state to do so. Congratulations and welcome to Nattinger.

... **Canadian Paving Stone, Ltd., Edmonton, Alberta** — #6-6145 75th Street; phone: 403/469-1153. A **PAVE EDGE**® distributor for only 2½ months, Canadian Paving Stone has already placed two edging orders for resale in this busy paver market that has really tuned in to the **PAVE EDGE**® edge restraint system. Carl Offerman and wife Christine are principals of the firm.

... **Builders Masonry Products, Meridian, Idaho** — 1300 E. Franklin Road; phone: 208/888-4050. Manufacturers and distributors of Idaho Pavers, Builders Masonry Products market three quality shapes of paving stones (and **PAVE EDGE**®) through its Builders Marketplace outlet in Boise. Arland Schultz and M.J. "Monty" Sallee oversee operations at this pro-gressive, promotion-minded company.

... **Buehner Block Company, Salt Lake City, Utah** — 2800 South West Temple; phone: 801/467-5456. **PAVE TECH**'s introduction of its **PAVE EDGE**® edging into the Utah paving stone market, was made possible recently by the addition of Buehner Block, a masonry products company whose roots go back several decades. Like several other new **PAVE TECH** distributors, Buehner placed its second order for edging within 30 days of its first. Dave Buehner, Ron Hoffman and Nick Bianco are responsible for a great marketing and sales effort.

... **Anchorage Sand & Gravel Co., Anchorage, Alaska** — 1813 E. First Avenue; phone: 907/274-5691. Another new **PAVE EDGE**® territory opened with the addition of AS&G, a division of Alaska Basic Industries. About as far north as the USA reaches, Anchorage represents the northernmost point of **PAVE EDGE**® representation as well. Contact at AS&G is Lane Lanhum, Purchasing Manager. Herbert C. Lang is President and C.A. Dean is V.P. Marketing.

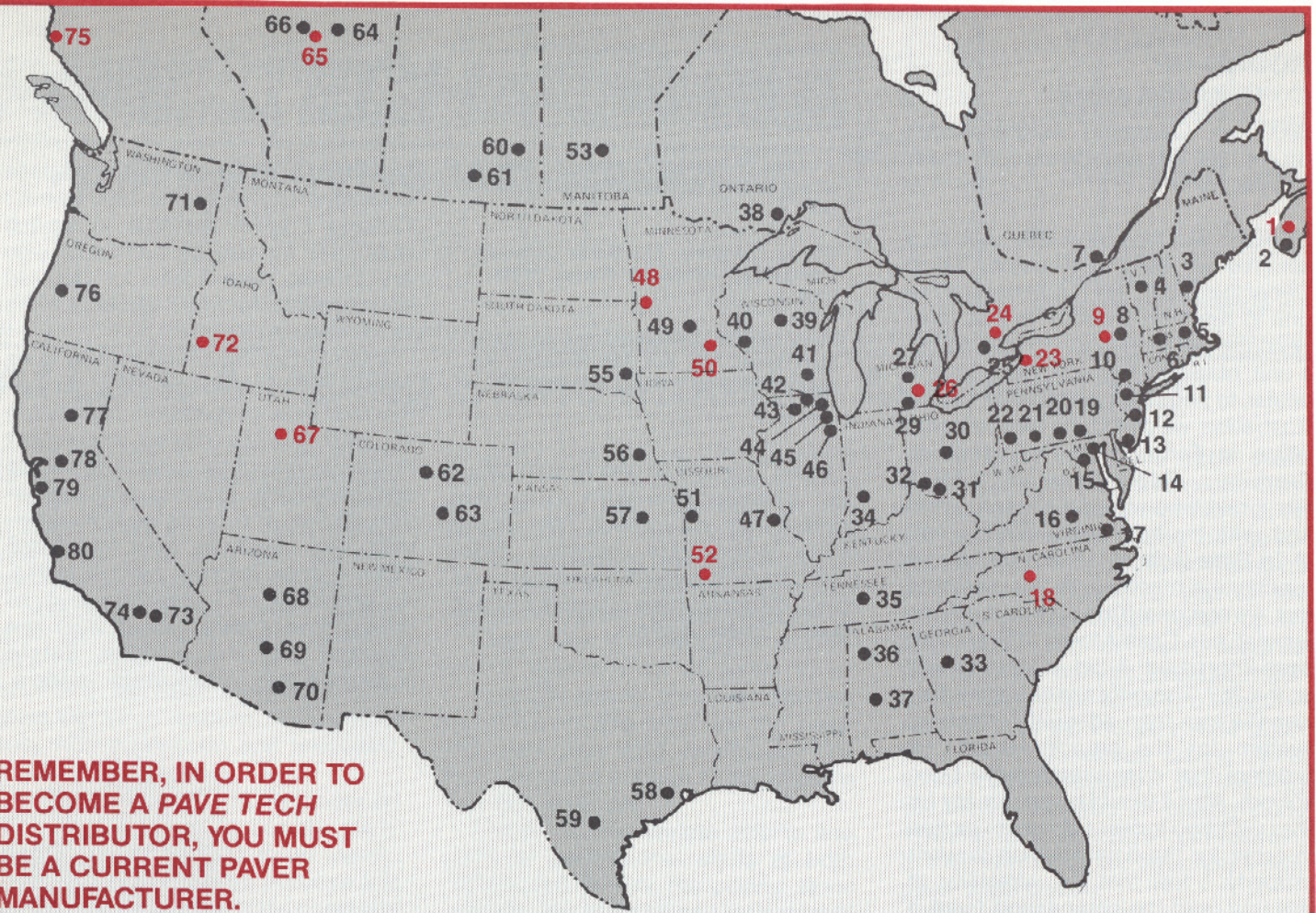
Welcome to New **PAVE TECH** Distributors

Four New **PAVE EDGE**® Territories Open . . . Thirteen New Distributors Added!

PAVE EDGE® distributorships opened in four new states, Alaska, Idaho, Utah, and North Carolina in the past two months! Added to those four were nine other paving stone manufacturers, located in established territories, who now also offer the edging to their customers. We welcome them all to the **PAVE EDGE**® team. Joining in on our welcome reception (we assume) are the many contractors who have recently inquired about the availability of **PAVE EDGE**®, in and near these new distributor locations.

North

1. **L.E. Shaw, Ltd., Lantz, Nova Scotia**
2. South Shore Ready Mix Ltd., Bridgewater, N.S.
3. Genest Concrete Works, Inc., Sanford, ME
4. S.T. Griswold Co., Williston, VT
5. Ideal Concrete Block Co., Waltham, MA
6. Landscape Products, Inc., Wilbraham, MA
7. Cimtech Cement Products, Montreal, Quebec
8. Dagostino Bldg. Blocks, Inc., Schenectady, NY
9. **Grandview Block & Supply Co. Inc., Schenectady, NY**
10. 3-D Block Co., Inc. Monticello, NY
11. Grinnell Conc. Paving Stones, Sparta, NJ
12. Anchor Concrete Products, Bricktown, NJ
13. E.P. Henry Co., Woodbury, NJ
14. Capitol Conc. Co. (Glen Gery), Laurel, MD
15. Balcon, Inc., Baltimore, MD
16. Tarmac-Lonestar, Inc., Prince George, VA
17. Interlock Paving Systems, Hampton, VA
18. **Goria Enterprises, Inc., Greensboro, NC**



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

American Distributors of PAVE EDGE®

- | | | |
|--|--|---|
| 19. Hanover Architectural Products,
Hanover, PA | 42. Paveloc Industries, Algonquin, IL | 60. Yorkton Concrete Products Ltd., York-
ton, Sask. |
| 20. Nitterhouse Conc. Prod.,
Chambersburg, PA | 43. Rockford Cement Prod., Rockford, IL | 61. Cindercrete Products, Ltd.,
Regina, Sask. |
| 21. Lockstone (Sender Ornamental Iron),
Johnstown, PA | 44. Unilock Chicago, Inc., Aurora, IL | 62. Clalite, Inc., Denver, CO |
| 22. R.I. Lampus Co., Springdale, PA | 45. Bend Industries Inc./Ampress,
Des Plaines, IL | 63. McKinney Conc. Prod., Pueblo, CO |
| △ 23. Unilock Buffalo, Inc., Buffalo, NY | 46. Chicago Pavers, Inc., Plainfield, IL | 64. Expocrete, Inc., Spruce Grove,
(Edmonton) Alberta |
| △ 24. Unilock Ltd., Georgetown, Ont. | 47. Kirchner Industries, Inc.,
Bridgeton, MO | △ 65. Canadian Paving Stone, Ltd., Edmon-
ton, Alberta |
| 25. Pavestone Plus, Kitchener, Ontario | △ 48. Fergus Concrete Prod.,
Fergus Falls, MN | 66. St. Albert Precast, St. Albert, Alberta |
| △ 26. Unilock Michigan, Inc., Brighton, MI | 49. Borgert Products, Inc.,
St. Joseph, MN | △ 67. Buehner Block Co.,
Salt Lake City, UT |
| 27. Grand Blanc Cement Prod.,
Grand Blanc, MI | △ 50. Shiely Masonry Prod.,
Maple Grove, MN | 68. Block-Lite, Flagstaff, AZ |
| 29. Fendt Bldrs. Supply,
Farmington Hills, MI | 51. Barbour Conc. Prod.,
Independence, MO | 69. Muller Supply Co., Tempe, AZ |
| 30. Oberfields Conc. Prod., Delaware, OH | △ 52. Nattinger Materials Co.,
Springfield, MO | 70. Stewart Block Company, Tucson, AZ |
| 31. Paverlock, Cincinnati, OH | 53. Midland Concrete Prod.,
Winnipeg, Man. | 71. Layrite Products Co., Spokane, WA |
| 32. Interpave Corp., Cincinnati, OH | 55. Gage Bros. Concrete Products,
Sioux Falls, SD | △ 72. Builders Masonry Prod., Meridian, ID |
| 33. Paverlock of Georgia, Lithonia, GA | 56. Watkins Concrete Block, Omaha, NE | 73. Muller Supply Co., Banning, CA |
| 34. Hessit Works, Freedom, IN | 57. Capitol Concrete Prod. Inc.,
Topeka, KS | 74. Perma-Concrete, Moreno Valley, CA |
| 35. Nashville Block Co., Nashville, TN | 58. Paverlock of Texas, Houston, TX | △ 75. Anchorage Sd. & Gr. Co.,
Anchorage, AK |
| 36. Superock Block Co., Birmingham, AL | 59. Alamo Concrete Pavers,
San Antonio, TX | 76. Willamette-Graystone, Inc.,
Eugene, OR |
| 37. SRM/Selma Inc./Con Pave, Selma, AL | | 77. Kratzer Precast Supply,
Penn Valley, CA |
| 38. Miller Precast Ltd., Thunder Bay, Ont. | | 78. Muller Supply Co., Lodi, CA |
| 39. Wausau Tile, Wausau, WI | | 79. Pacific Interlocking Paving Stones,
Cupertino, CA |
| 40. Fehr Concrete Products,
Eau Claire, WI | | 80. Airvol Block Company,
San Luis Obispo, CA |
| 41. Bend Industries, West Bend, WI | | |

ROUND-UP

(continued from page 9)

6000 lbs, Operating weight/padded drum: 1350 lbs, Bolt-on smooth drum: 315 lbs.

USAGE: We first tried this unit at a seminar we held in Houston, TX in December, 1988. We could not get the unit to function properly at that time. Recently we tried again in vain to get a unit, obtained from our local Melroe dealer, to perform satisfactorily. Out of frustration, we called the Melroe home office in Fargo, ND. They sent us Product Representative Mike Fitzgerald who waved his magic wand and, with the help of the service staff at Tri-State Bobcat Co., we had a well functioning machine. In our own field test, we compared the compaction rate against our Case Model 252 and we were impressed! It did at least as well as the 252. The only drawback we saw was the less than adequate attaching system for the smooth drum. (A problem that may already have been solved). Also it would be necessary for the unit to go forward down an incline in order for the float position to work properly. I feel that the versatility of this unit, and the compaction force it offers for the money, would be hard to beat by any standard. Nice job MELROE, and thank you Mike Fitzgerald for the extra effort. Also our sincere thanks to Tri-State Bobcat for the loan of the compactor and their help too.

EQUIPMENT MANUFACTURERS MENTIONED IN THIS ARTICLE:

J. I. Case, (A Tenneco Company), 700 State Street, Racine, WI 53404, Phone: 414/636-6011

Melroe Company, 112 North University Drive, Fargo, ND 58102, Phone: 701/241-8700.

Stone Construction Equipment, Inc., 32 E. Main Street, P.O. Box 150, Honeoye, NY 14471-0150, Phone: 1-800-828-6505.

Again, this article was written about our experiences with our own compaction equipment. We would really appreciate hearing from installers/contractors, whether you agree, disagree, have questions or just want to "chew the fat."

Sweet's Catalog Insert Available

PAVE TECH's new 4-color, 4-page catalog, prepared for the 1990 Sweet's Catalog File, is available in limited quantities for use by architects who are looking specifically for detailed specifications for PAVE EDGE® paving stone edge restraint.

Included in the specifications is an outline guide for execution of recommended base preparation, installation of PAVE EDGE® edging, placement and screeding of sand bedding course and backfilling. Product and installation photos and cross section drawings help illustrate how the PAVE EDGE® edge restraint system works, its simplicity of installation and its comparative advantages, to both the designer and the installer. Single copies are free to Newsletter readers.



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.
P.O. Box 31126
Bloomington, MN 55431

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

