

perkEpave

A SUPERIOR BRAND OF
FLEXIBLE POROUS PAVING

Learning Objectives

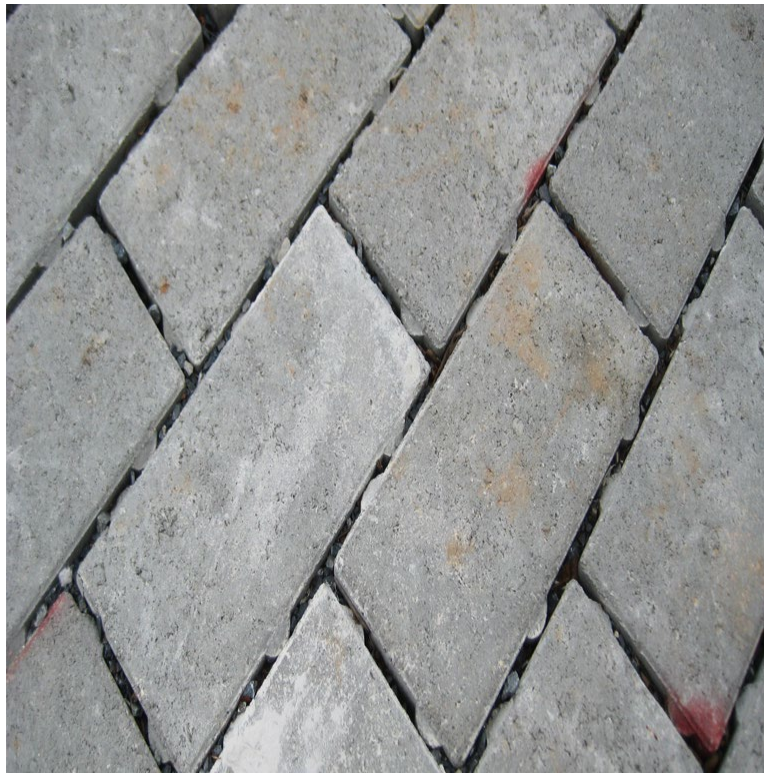
- Traditional porous paving VS Flexible Porous Paving
- Benefits of Flexible Porous Paving
- History
- Applications
- Color Options
- Installation Techniques
- Testing
- Available Documents
- Pricing
- Quiz

Landscape
Architecture
Continuing
Education
System™

LA
/CES™



Concrete



Pavers



Asphalt

Commonly Used Permeable Paving

Rigid, routine vacuuming required, susceptible to cracking through freeze thaw, poor permeability.

What is Flexible Porous Paving

Slip Resistant
Extremely Porous
Non-Cracking
Minimal Maintenance



WIRE FREE RECYCLED, COLOR
COATED RECYCLED TIRE CHIPS.



TRIPLE WASHED AND KILN
DRIED STONE AGGREGATE.



METHYLENE DIPHENYL
DIISOCYANATE (MDI) BINDER



Save on Maintenance



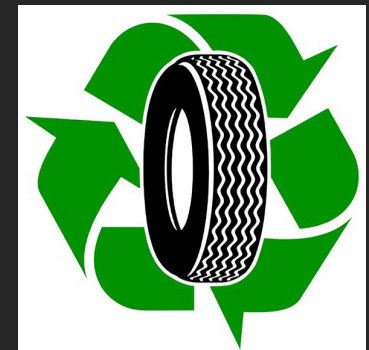
Joint Pain Relief



Minimize Runoff

Flexible porous makes Good Sense

Also, a practical use for discarded tires



Final Report

**Pervious Pavements - Installation, Operations and Strength
Part 4: Flexipave® (Recycled Rubber Tires) Systems**

Work Performed for the Florida Department of Transportation



Submitted by

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University of Central Florida
Orlando, FL 32816



FDOT Project Number: **BDK78**; Work Order #**977-01**
UCF Office of Research Account Number: **16-60-7024**

August 2011

Available
On perkEpave
Website

**DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION**



**GREEN INFRASTRUCTURE
STANDARDS**

2014

Available
On perkEpave
Website

perkEpave LLC

Established in 2017

Providing a Superior Flexible Porous
Paving at Competitive Pricing with
Outstanding Customer Service

- Quality colored rubber
- High tensile strength binder
- Triple washed kiln dried stone
- Optimum mix ratio
- Installations in 16 States and the District of Columbia
- 48 contractors and/or municipal work crews trained on installation techniques

History of Flexible Porous Paving

Developed in Germany in early 1990s, Introduced to USA early 2000s under the Flexi Pave brand,
Studied by University of Central Florida in 2011, Added to the DC DOT Standards in 2014

Application

Save Trees and Minimize Sidewalk Maintenance – Walk Run Tree 11 Mix



SAVING MATURE TREES .



ELIMINATE TRIPPING HAZARDS.



MINIMIZE SIDEWALK MAINTENANCE.

Application

Walking and Running Trails and Paths – Walk Run Tree 11 Mix



FLEXIBLE RUNNING SURFACE



ALONG TREE LINE.



THROUGH ENVIRONMENTAL AREAS.

Application

Playground Fall Protection – Play Safe 01 Mix



ALL RECYCLED WITH
FLEXIBLE BINDER



MANAGING STORMWATER.



TESTED FOR 5' – 15' FALL HEIGHT.

Application Ride Drive Park 31 Mix

Tested to withstand
26,000 per square
foot

Residential driveways,
parking stalls and
trench drains



**perkEpave Ride, Drive, Park
is durable and extremely permeable;
minimizing impervious surface, allowing
for additional building foot print.**

Eliminating Impervious Surface

Products are mixture of Rubber, Stone and Binder

Rubber and Stone can be mixed in a many combinations to achieve the required look and application to fit with the project design.

Color Options



GREEN



TAN



GRAY



REDWOOD



BLACK



CYPRESS



BROWN



NATURAL
BEIGE



CRUSHED
SALT & PEPPER

Popular Color Combinations



GREY BROWN S&P STONE



BROWN GREEN BEIGE STONE



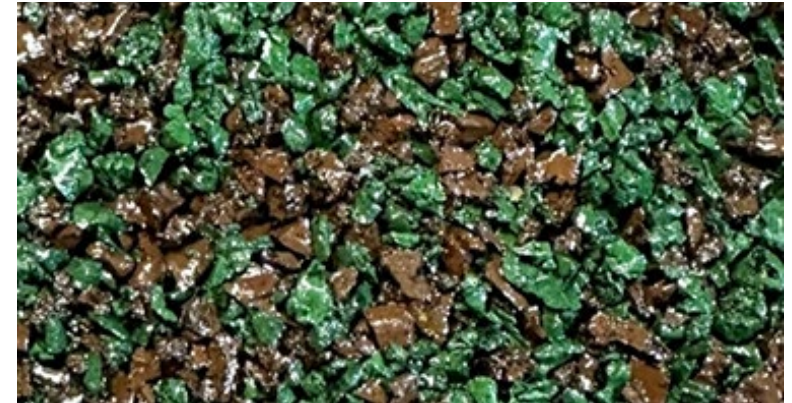
BROWN TAN GRAY



TAN BROWN BEIGE STONE



GREY GREEN S&P STONE



BROWN GREEN.

Mixing Flexible Porous Paving

Rubber is supplied in 50 lb. bags, 40 bags to a full pallet

Stone is supplied in 50 lb. bags, 56 bags to a full pallet

Binder is supplied in either 5-gallon buckets or 250-gallon totes



Binder Stains
Where Gloves
And Keep off
unwanted
surfaces

Mist mixer with
form release
Often to
prevent buildup



A crew of 6 can install an average 1,800 sq ft
Over a prepared base in an 8-hr. workday

perkEpave Installation Tools & Consumables

Available on the documents page of perkEpave.com

Paddle type
mortar mixer
must be used
to mix products



Installation Equipment, Tools & Consumables
Questions: Call (215) 316-6383



2 Ex Large wheelbarrow



Razor Knife



Water bucket
Fill with water add dish soap



rags



1 Broom

Buy Adpt



1 - Concrete rake



2 paint brushes



2 Shovels



18" Fresno Float
On Pole
Handle Adpt - Kraft CC295
Float - Kraft CC618

Buy Adpt



Scraper



rubber gloves



1 X 6 Screed Board



Large Tarp

Buy Float



2- Spray bottles
Fill with Form Release



Bottle of dish detergent



8-12 cu ft Mortar Mixer
Paddle Type



Concrete Form Release



2 Floats



2 Large Measuring bucket



2 Garden Sprayer
Fill 1 with form release & 1 with water



Marshalltown 150 28" Mahogany Darby
Part# MT-14510

Buy Darby

Form release
needs to be
applied to
floats often for
smooth finish

Tree Surround Remediation

IMPORTANT

- Do not damage roots
- Coat matting surface with binder
- Binder stains, avoid getting it on finished surfaces
- Tamp and compact stone base



Step 1- Remove Existing Soil

Remove existing soils to depth of 4"- 6" below elevation of existing concrete, where possible and without damaging existing tree roots.



Step 2 - Place Clean #57 Stone

Place stone and tamp to 1.5 inches below existing concrete.
No geotex fabric required around the root ball area of the tree.



Step 3 - Coat Concrete With Binder

Coat mating surface with binder to assure perkEpave adheres to the surface and eliminates tripping hazards that may develop over freeze thaw cycles



Step 4 - Mix & Place perkEpave

Mix 1 bag of rubber with 1 bag of stone and 5 quarts of binder (producing 16 sq ft - 1.5 thick) and place over stone; screed and finish with float coated with form release

Trail, Path, Sidewalk Installation

IMPORTANT

- The product is as good as the base, compact as necessary to support the required weight.
- Screeding is the first task in the finishing process
- Form release must be applied to the finishing tools often to achieve a smooth finish.
- Tools and mixer should be cleaned as soon as possible.
- Binder reacts with the binder and should never be introduced to the mix.



PLACE GEOTECH FABRIC AND
STONE BASE



COMPACT
STONE BASE



TRANSFER MIX TO POINT OF
INSTALLATION



SCREED FIRST AND FINISH
WITH FLOAT

Extremely Permeable and Porous

- Flow through rate of over 2,000 gallons per hour per sq ft.
- Over 30% void capacity



perkEpave Test Results

Available on the documents page of perkEpave.com

Installation
temperature
range 45-90
degrees
farinheit



CLIENT: perkEpave, LLC DATE TYPED: 9/26/18
PROJECT: perkEpave REPORT NO: PP-1
DATE RECEIVED: September 26, 2018 TECHNICIAN: CTL/G. Riegel

COMPRESSION TEST

MATERIAL: Flexible Porous Paving (4" x 4") Material

IDENTIFICATION	Standard Mix #1	Standard Mix #2	Standard Mix #3	HD Mix #1	HD Mix #2
Submitted Measurement:	1.71	1.64	1.52	1.69	1.66
Measurement after 1,000 lbs.	1.68	--	--	--	--
Measurement after 2,000 lbs.	--	1.60	--	--	--
Measurement after 3,000 lbs.	--	--	1.49	1.69	--
Measurement after 4,000 lbs.	--	--	--	1.65	1.56
Measurement after 10,000 lbs.	1.55	--	--	1.53	--

REMARKS: The high density (HD) mix retained its rigidity structure up to 3,000 lbs. (13.5 TSF), it sprung back to original thickness within 0.10", and the destruction of its rigidity and bond was at 4,000 lbs.

The standard mix retained its rigidity structure up to 2,500 lbs. (11.25 TSF), it sprung back to original thickness within 0.10", and the destruction of its rigidity and bond was at 3,000 lbs.

Report to: - Email

Respectfully submitted,
CERTIFIED TESTING LABORATORIES, INC.

Glenn M. Riegel

Glenn M. Riegel
Laboratory Manager

Its

All reports are the confidential property of Clients, and information contained may not be published or reproduced, pending our written approval.



Permeability Test

418 Wilson St Pottstown, PA 19464 • (215) 316-6383 – perkEpave.com

1) System Construction Summary

- A 10" diameter by 2" thick sample of perkEpave was poured into a 5-gallon bucket with the bottom of the bucket removed. Sample 10" diameter – 78.5 sq. in - .545 sq. ft



2) Testing Procedures

- A second 5-gallon bucket was filled with water. This bucket of water was poured into the bucket containing the perkEpave sample and the time it took to flow through the sample was clocked and repeated 5 times. The time recorded ranged from 10.5 seconds to 12.35 seconds. For testing purposes and to be conservative in calculating the permeability 15 seconds is being used in determining the results.



3) Results

- 5 gallons of water will pass through .545 square ft of perkEpave in 15 seconds.
- Therefore 5 gallons of water will pass through 1 sq. ft in 8.175 seconds (conservatively 5 gallons of water will pass through 1 sq. ft of perkEpave in 9 seconds)
- 3,600 seconds in 1 hour divided by 9 = 400 x 5 = 2,000 gallons
- Published Factor: perkEpave has a permeability rate greater than 2,000 gallons per hour per square foot.**

I hereby verify that the results presented in this report were obtained on the sample as described, said date and are believed to be accurate representations of the performance of the perkEpave paving system.

Thomas E Carroll

Thomas E Carroll

May

Flow rate - over 2,000 gallons
Per hour per square foot



Porosity Test

418 Wilson St Pottstown, PA 19464 • (215) 316-6383 – perkEpave.com

1) System Construction Summary

- A perkEpave sample was constructed of recycled wire-free tire chips, a washed and kiln dried stone aggregate and a urethane binder. Sample dimensions; 12" x 12" x 1.5" thick.

2) Testing Procedures

- The sample was removed from the form after it was fully cured. The sample was then wrapped tightly along the bottom and up the sides with plastic and placed back into the form to hold the plastic membrane tightly in place to assure pores within the sample are the only voids available to store water.
- Next water was poured into the sample until the water filled the pours within the perkEpave to the top of the sample with no puddling.



3) Results

- A square foot of perkEpave 1.5" thick will hold 56 oz of water.
- A cubic foot of perkEpave will hold (8 X 56 oz) 448 oz (3.5 gal) of water.
- 3.5 gal/7.48 gal (gal in a cu ft of water) / = .467 void in a cu ft of perkEpave
- Published Factor: perkEpave has a 40% void capacity**

I hereby verify that the results presented in this report were obtained on the sample as described, on said date and are believed to be accurate representations of the performance of the perkEpave paving system.

Thomas E Carroll

Thomas E Carroll
March 4, 2021

Over 30 % void capacity
1 sq ft x 1.5" holds 56 oz of water



6598 E Canton S. Boston Rd. | Salem, IN 47167 | USA

Engineering Consulting Product Research Field Testing and Inspections
Phone: 812.528.2743 Fax: 866.331.0045 www.aset-services.com

Suitability Test Report

Issued To:
perkEpave LLC
418 Wilson Street
Pottstown, PA 19464
USA

Standard:
F1292 (2018): Standard Specification for Impact Attenuation of Surfacing Materials
Within the Use Zone of Playground Equipment

System Name:
perkEpave Safe 3 inch

Date of Suitability Testing	Dec 17, 2019
Suggested Retest Date	Dec 17, 2026
Report Number	F1292-121719-01
Pages	5

Evaluated ASTM F2970 (2015) Performance Property	Test Results @ 6 ft Fall (Avg Values)		Test Results @ 7 ft Fall (Avg Values)	
	Gmax	HIC	Gmax	HIC
Point 1	135	711	156	945
Point 2	133	722	159	968
Average	134	717	158	957
Meets a critical fall height of 7 ft using ASTM F1292-18				

Notes:
1 - Key construction details are highlighted in Section 1 (page 3) of this report. Specifications and installation instructions containing these key details have been supplied and reviewed. Necessary tools and methods to achieve proper anchoring have also been addressed in the specification and installation instructions.

2 - This document contains enhanced digital and duplication security features. More information can be found on our website: www.aset-services.com/blog

3 - This report contains 5 pages, and may not be used for commercial purposes unless it is reproduced in its entirety.


4 - Suggested Retest: Periodic retesting is suggested ASET Services in order to ensure that products continue to conform to the standard. Periodic retesting can involve lab or field testing.

Walk Run Mix 22,000 lb. per sq ft
Ride Drive 26,000 lb. per sq ft

perkEpave – Additional Documents

Available on the documents page of perkEpave.com

Products
Cure in
24
hours

	
FULLY EXECUTED Contract Number: 014-E22-243 Original Contract Effective Date: 04/09/2022	
Supplier Name/Address PERKEPAVE LLC 418 WILSON ST POTTSTOWN, PA 19464	Commodity Specialist Name: Kathy Garman Phone: 717-346-4056 Fax: 717-783-6241
Your SAP Vendor Number: 537326	Contract Name: Recreational & Fitness Equipment and Services
Supplier Phone Number: 215-316-6383	Solicitation No: COSTARS-14
The issuance of this document constitutes evidence of a fully-executed contract between the Commonwealth of Pennsylvania and the Supplier.	
This contract is comprised of: The above referenced Solicitation, the Supplier's Bid, and any documents attached to this Contract or incorporated by reference in the solicitation and/or Supplier's Bid.	



MAINTENANCE

Maintenance is largely dependent on the location and amount of use. Keeping the surface clean and clear of debris; maintaining porosity and aesthetics of the surface is important.

Because of the 20 percent void capacity and flexibility of the recycled tire chips, perkEpave requires minimal maintenance. Small particles of debris will flow through the product, not stick to the recycled tire chips and accumulate in the clean #57 stone under the perkEpave to dissipate into the soil.

Routine maintenance can be achieved with the use of a leaf blower or light sweeping with a house hold broom.

Extensive maintenance may become necessary when, on the rare occasion the porosity of the product becomes clogged or if the surface of the material begins to show signs of deterioration.

Prior to pursuing extensive maintenance, it is recommended the following be done on a yearly basis.

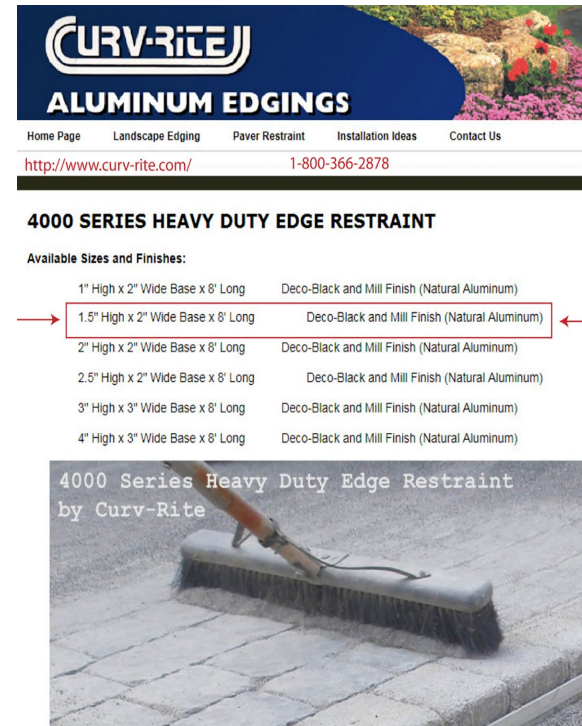
- Visually inspect the surface for evidence of sediment deposit and deterioration of the surface
- Pour water on the suspected area and note the water perk rate.
- Vacuum area if ponding occurs.
- If after 4 to 6 years of hard use, with deterioration of the surface beginning to show; a roll-on coating of perkEpave binder is the solution to maintaining the surface appearance.

Winter maintenance:

- Snow plowing perkEpave is acceptable for removing snow, if care is taken as not to dig the plow blade into the surface. Only rubber-tired equipment is to be used; track machines can cause damage to the surface. Mechanical brushing of snow from the surface is not permitted.
- Salting perkEpave is not required, but salt on the surface will not damage perkEpave.

In general, perkEpave should be maintained like any other outside surface; remove trash, leaves and debris that appear on the surface of the product and vacuum if necessary.

perkEpave – product
Maintenance Document



The image shows a screenshot of the Curv-Rite Aluminum Edgings website. The header features the Curv-Rite logo and the text 'ALUMINUM EDGINGS'. Below the header is a navigation bar with links: Home Page, Landscape Edging, Paver Restraint, Installation Ideas, and Contact Us. The main content area is titled '4000 SERIES HEAVY DUTY EDGE RESTRAINT'. It lists available sizes and finishes: 1" High x 2" Wide Base x 8' Long (Deco-Black and Mill Finish (Natural Aluminum)), 1.5" High x 2" Wide Base x 8' Long (Deco-Black and Mill Finish (Natural Aluminum)), 2" High x 2" Wide Base x 8' Long (Deco-Black and Mill Finish (Natural Aluminum)), 2.5" High x 2" Wide Base x 8' Long (Deco-Black and Mill Finish (Natural Aluminum)), 3" High x 3" Wide Base x 8' Long (Deco-Black and Mill Finish (Natural Aluminum)), and 4" High x 3" Wide Base x 8' Long (Deco-Black and Mill Finish (Natural Aluminum)). Below the list is a photograph of the 4000 Series Heavy Duty Edge Restraint being installed on a paved surface.

Aluminum Edging
When permanent edging is



Safety Data Sheet acc. to OSHA HCS

Date of PDF Creation 03/01/2019

Page 1/11
Reviewed on 02/27/2019

1 Identification

Product Identifier
Trade name: perkEpave Play-Safe
Application of the substance / the mixture Binder
Details of the supplier of the safety data sheet
Manufacturer/Supplier:
perkEpave LLC
418 Wilson Street
Pottstown, PA 19464
215-316-6383
www.perkepave.com
Information department: Product Development Department
Emergency telephone number:
For Chemical Emergency
Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night.
Within USA and Canada: (800) 424-8300
Outside USA and Canada: +1 (703) 527-3887 (Collect Calls Not Accepted)

2 Hazard(s) identification

Classification of the substance or mixture

 GHS08 Health hazard

Resp. Sens. 1A H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

 GHS07

Acute Tox. 4 H332 Harmful if inhaled.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

Storage:
Store in a well-ventilated place. Keep container tightly closed. In closed containers, there may be a risk of pressure build up due to water contamination (Liberalized CO2 Gas). Store locked up.

Label elements

GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
(Contd. on page 2)

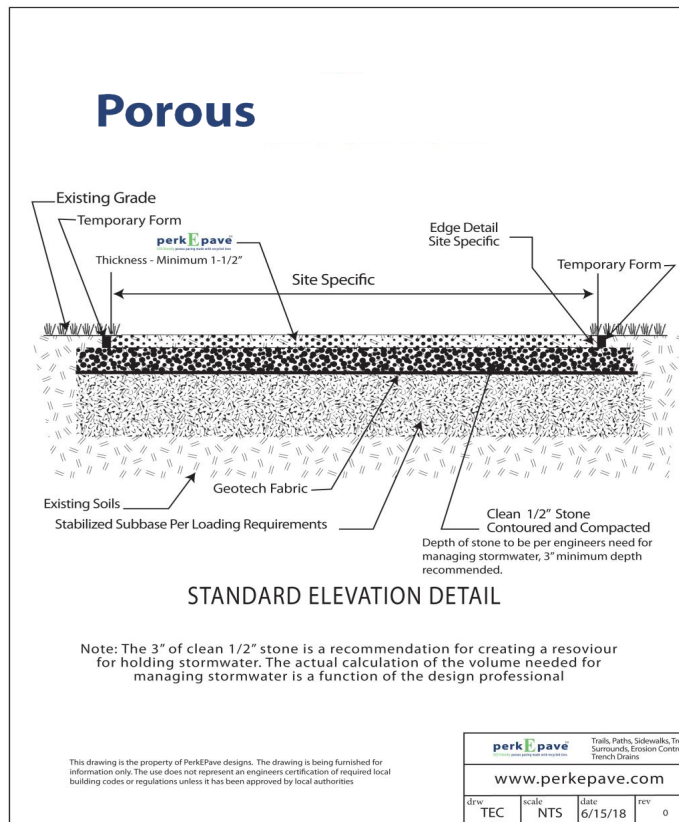
Safety Data Sheet

Member of COSTARS
PA State Buying Program

perkEpave Specs & Details

Available on the documents page of perkEpave.com

Water reacts with the binder and should never be introduced into the mix



DEFINITION

- A. Flexible Porous Paving: Paving system comprised of combination of three components: recycled passenger car tires, aggregate, and urethane binder that provides a strong, pervious, yet flexible paving.

INSTALLER QUALIFICATIONS

- A. Flexible Porous Paving installer shall be required to be familiar with installation procedures and to have attended the Manufacturer installation training program.
- B. Flexible Porous Paving installer shall employ no less than two Manufacturer-trained Flexible Porous Paving technicians on staff who directly oversee and perform the installations during all Flexible Porous Paving placement.

PROJECT CONDITIONS

- A. Protect stored rubber and aggregate from moisture by covering material with sheet plastic. Binder to be stored within a temperature range of 45 to 90 degrees F.
- B. Avoid placing pervious paving if rain, snow, or frost is forecast within 24 hours. Protect fresh paving from moisture and freezing.
- C. Base aggregate shall be a clean #57 stone.

FLEXIBLE POROUS PAVING

- A. Stone: Triple-washed and dried coarse aggregate (1/4 to 3/8 inch) per ASTM C 33. Bagged in 50 lb. quantity.
- B. Nominal maximum aggregate size shall not exceed 1/3 of the specified paving thickness.
- C. Rubber: Recycled passenger tires ground to 1/4" nominal with wire remnants removed.
- D. Binding agent: urethane liquid prepolymer based upon Diphenylmethane Diisocyanate.
- E. Mix Design: Using materials mix ratio as acceptable by the Manufacturer for the intended application.
- F. The volume by weight of aggregate shall be as required by the Manufacturer for the intended application.
- G. Forms shall be clean and free of debris of any kind, rust, and hardened concrete and make use of a Bio-diesel or vegetable oil as a form release.

EXECUTION

- A. Prepare subgrade as specified in the contract documents or as directed by the Engineer. Porous Flexible Paving has a thickness of 1.5", over Clean Coarse Aggregate (#57 stone) with 95% compaction per AASHTO T-180, with an ideal thickness of 4 inches over stabilized sub-base.
- B. Construct subgrade to ensure that the required paving thickness is obtained in all locations.

2026 Budget Pricing Freight Included
Contact us for a firm price proposal



Approved Vendor

Description	640-1,600 Sq Ft	1,600 -5,000 Sq Ft	5,000 -10,000 sq. ft.	10,000 sq. ft. +
perkEpave is sold by the square foot at the standard thickness of 1.5". Pricing is based on the 1.5" thickness; requests for thicker installations will be factored by the 1.5" pricing quoted. Pricing includes shipping cost.	\$ 7.95	\$ 5.95	\$ 5.50	\$ 4.75

APPLICATIONS

Running Tracks, Trails, Paths, Sidewalks, Tree Surrounds, Bridge Overlays, Erosion Control, Stormwater Management, Trench Drains, Bunker Lining (Golf Courses), Horse Stalls, Wash Down Stations, Road Verge (area between the curb and sidewalk), Driveways, Parking Stalls, Perimeter Drainage, Dog Parks, Permanent Mulch, Playground Safety Surface

INSTALLATION TRAINING

Remote webinar and onsite supervision and installation training.
 \$900.00

perkEpave LLC
perkepave.com
(215) 316-6383

Specified as a porous flexible paving by DC DOT for the safe walks to school program.
Extremely permeable; over 2,000 gallons of rain water can pass through a square foot in one hour
Crack resistant through freeze-thaw.
Slip resistant and ADA compliant
Able to support 22,000 pounds per square foot over a properly install sub-base.
Manufactured in the USA
Requires minimal maintenance
Simple to install

Quiz

What cures perkEpave and should never be added to the product mixture?

Moisture, Water

What is the average curing time for perkEpave?

24 Hours

What are storage requirements for perkEpave Rubber, Stone, and Binder?

Stored at above 45 degrees F and kept dry

What should be applied to the finishing floats to assure a smooth finish?

Form Release

Quiz

When should the tools and mixer be cleaned?

As soon as possible after use

What precaution should be taken when working with the binder?

Wear gloves and not allow the binder to get on unwanted surfaces.

What is the average square footage a 6-man crew can install in a day?

1,800 square feet

What type of mortar mixer is required for mixing perE pave?

Paddle Type

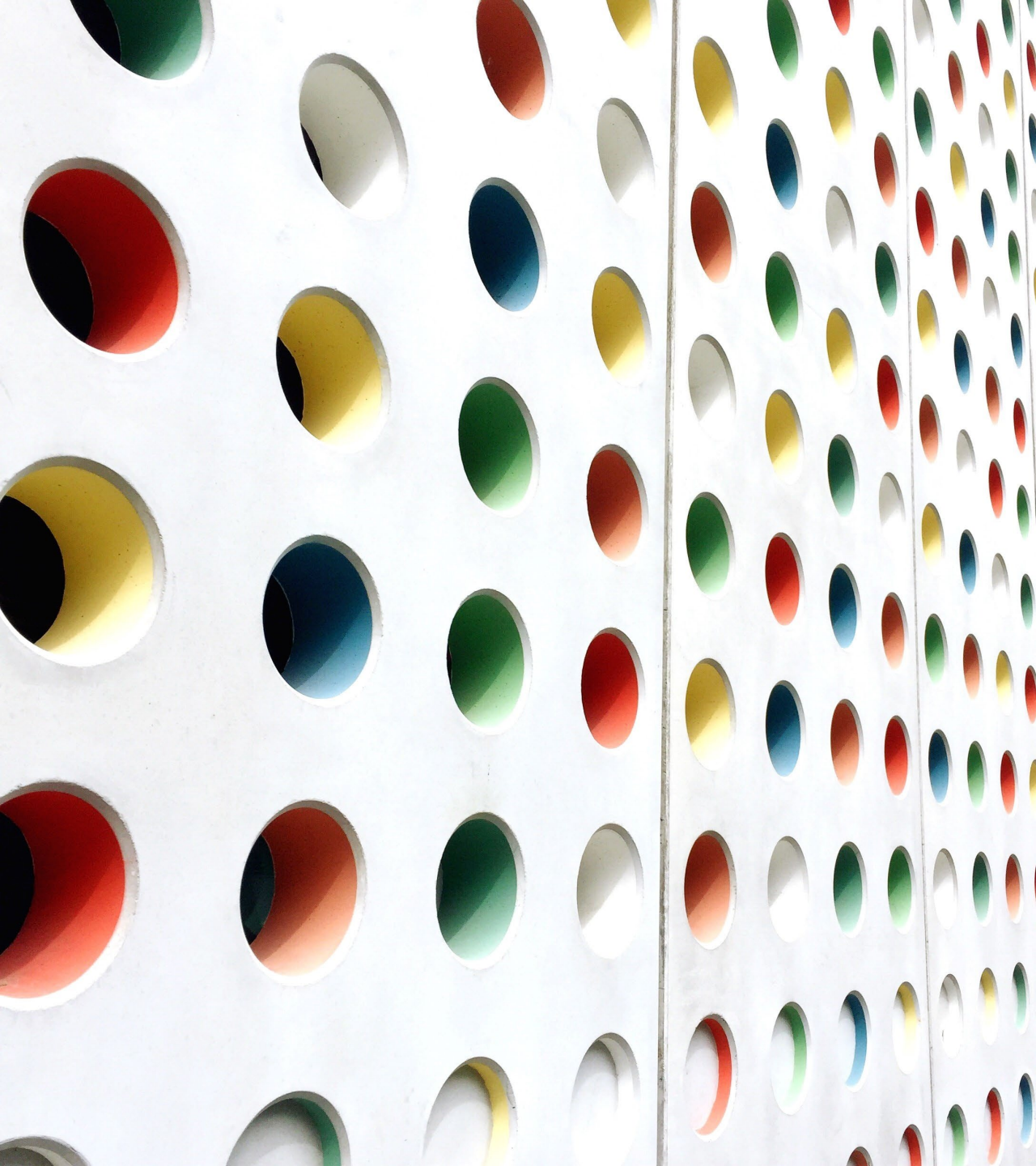
Quiz

What is the flow through rate for a square foot of perkEpave?
2,000 gallons

What is the installation temperature for installing perkEpave?
45-90 degrees F

What is the first phase of finishing to assure a flat surface?
Screeding

What should be applied to the finishing floats to assure a smooth finish
Form Release



Thank You

perkEpave, LLC

VISIT [PERKEPAVE.COM](https://perkEpave.com)

FOR ADDITIONAL INFORMATION